TIP PROJECT: W-5006

CONTRACT: C201845

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

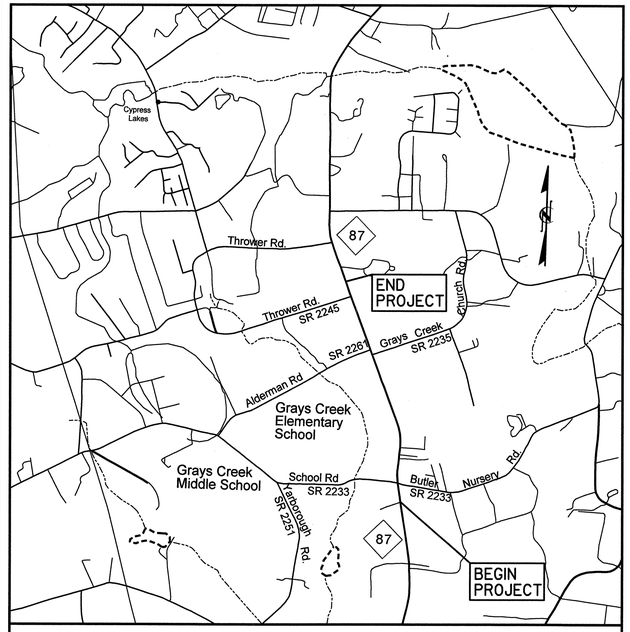
CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5006	1	

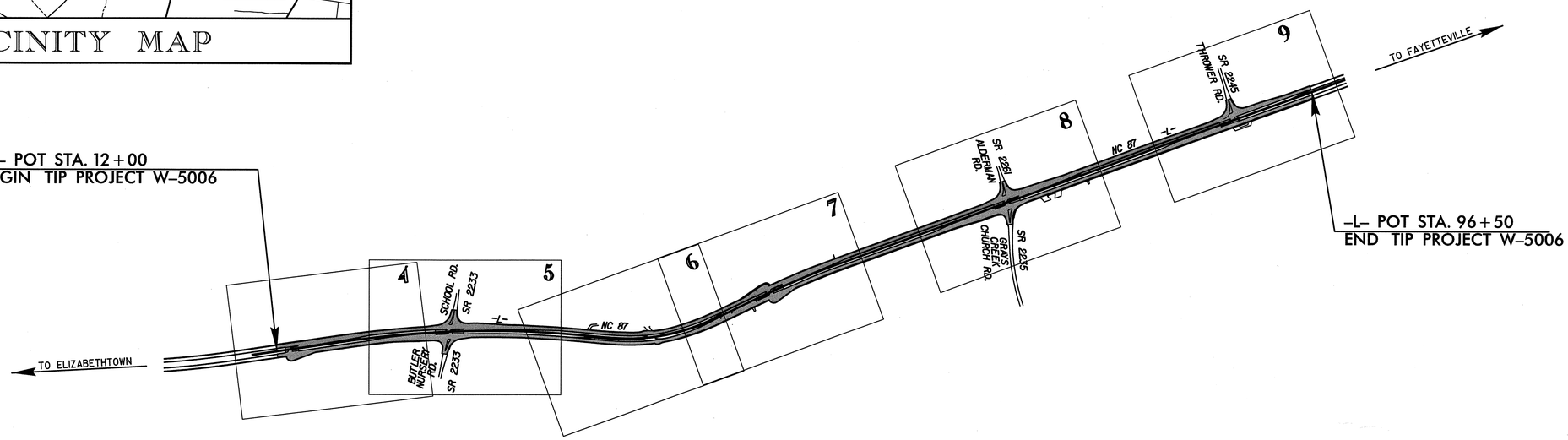
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
41170.1.1	STPNHS-87(18)	PE
41170.2.1	STPNHS-87(18)	R/W & UTIL.
41170.3.1	STPNHS-87(18)	CONSTR.

LOCATION: NC 87 FROM SOUTH OF SR 2233 (SCHOOL ROAD) TO NORTH OF SR 2245 (THROWER ROAD)

TYPE OF WORK: WIDENING, GRADING, PAVING, DRAINAGE AND SIGNING



VICINITY MAP



GRAPHIC SCALES

PLANS: 50' 0 50' 100'

PROFILE (HORIZONTAL): 50' 0 50' 100'

PROFILE (VERTICAL): 50' 0 50' 100'

DESIGN DATA

-L-

DS = 60 MPH

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT W-5006 = 1.600 MILE

TOTAL LENGTH TIP PROJECT W-5006 = 1.600 MILE

ARCADIS
G & M of North Carolina, Inc.
WWW.ARCADIS-US.COM
801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-0282 Fax: 919/854-5448

2006 STANDARD SPECIFICATIONS

ARCADIS CONTACT:

STEVE SMALLWOOD, P.E.
PROJECT ENGINEER

LETTING DATE:
8 /19 /08

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032376 ENGINEER JULIE E. TAYLOR

SEAL NOT VALID UNLESS SIGNED AND DATED P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD

SEAL NOT VALID UNLESS SIGNED AND DATED P.E.

SIGNATURE:

ARCADIS G&M
Date:5/21/2008 Time: 8:50:43 AM
Filename:r:\roadway\w5006_RDY_TITLE01.dgn

\roadway\w5006_RDY_TITLE01.dgn 5/21/2008 8:50:43 AM

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5006	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD

SEAL NOT VALID UNLESS SIGNED AND DATED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS
2A	TYPICAL SECTIONS
2B	DETAIL TO CONVERT EXIST. DI TO JB
2C	DETAIL FOR ANCHORAGE FOR FRAMES
3	SUMMARY OF QUANTITIES
3A THRU 3-C	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4 THRU 9	PLAN SHEET
TCP-1 THRU TCP-8	TRAFFIC CONTROL PLANS
PM & SIGN-1 THRU PM & SIGN-9	PAVEMENT MARKING AND SIGNING PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
X-1A THRU X-19	CROSS-SECTIONS

GENERAL NOTES: 2006 SPECIFICATIONS

EFFECTIVE: 07-18-06

REVISED: 07-18-06

CLEARING:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02.

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.

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.
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 OTHERS.

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
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
852.01	Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation

5/21/2008
E:\projects\w-5006_RDY_1A.dgn
ARCADIS G & M

PROJECT REFERENCE NO.	SHEET NO.
W-5006	1B

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 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
- 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.

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
W-5006	2

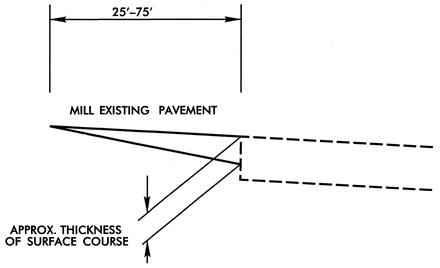
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD
SEAL NOT VALID UNLESS SIGNED AND DATED

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
8/5/09

MILLING AT PAVEMENT TIE-INS

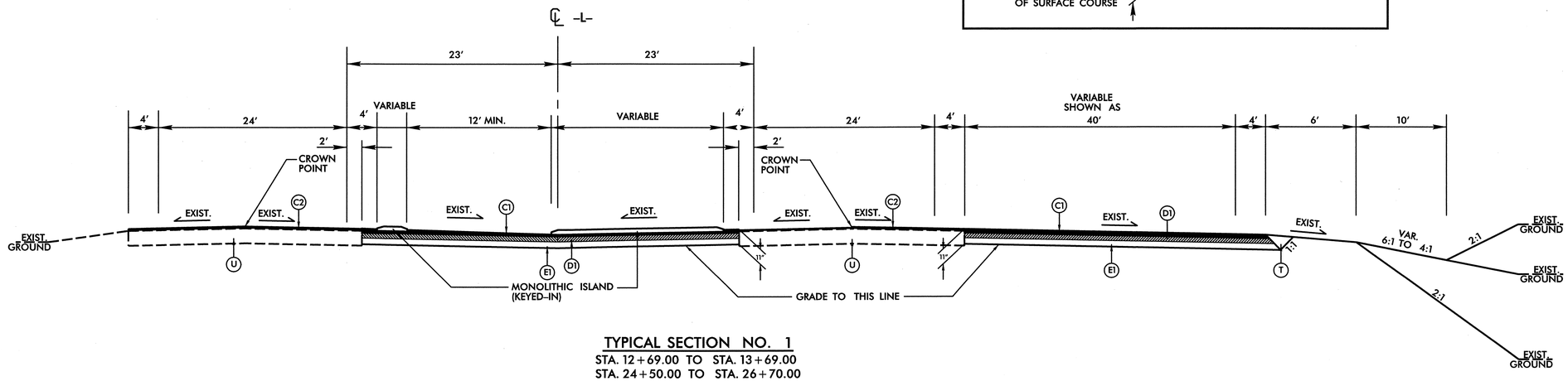
FOR SURFACE MIXES OVER 1" IN THICKNESS, MILL THE EXISTING PAVEMENT IN ACCORDANCE WITH THE FOLLOWING SKETCH AS DIRECTED BY THE ENGINEER. LOCATIONS SHALL INCLUDE TIES TO EXISTING PAVEMENT AT THE BEGINNING AND END OF RESURFACING LOCATIONS.
PERFORM THE WORK IN ACCORDANCE WITH SECTION 607 OF THE JANUARY 2006 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. RESURFACING WILL BE ACCOPLISHED AT THE SAME TIME AS THE MILLING OPERATION.

NO PAYMENT WILL BE MADE FOR THIS WORK AS IT WILL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAVEMENT ITEMS.



NOTE: SEE PLANS FOR LOCATION OF 1" DRAIN SLOTS IN MONOLITHIC ISLANDS.

NOTE: SEE PLANS FOR LOCATION OF TURN LANES.



TYPICAL SECTION NO. 1

STA. 12+69.00 TO STA. 13+69.00
STA. 24+50.00 TO STA. 26+70.00
STA. 50+26.00 TO STA. 52+47.00
STA. 70+10.00 TO STA. 72+20.00
STA. 88+90.00 TO STA. 90+38.00

CODE	PAVEMENT SCHEDULE
C1	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 3.0" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.0" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
T	EARTH MATERIAL
U	EXISTING PAVEMENT

$$$$SYSTIME$$$$ $$$$DGN$$$$ $$$$ENTITLEMENT$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5006	2-A

ROADWAY DESIGN ENGINEER

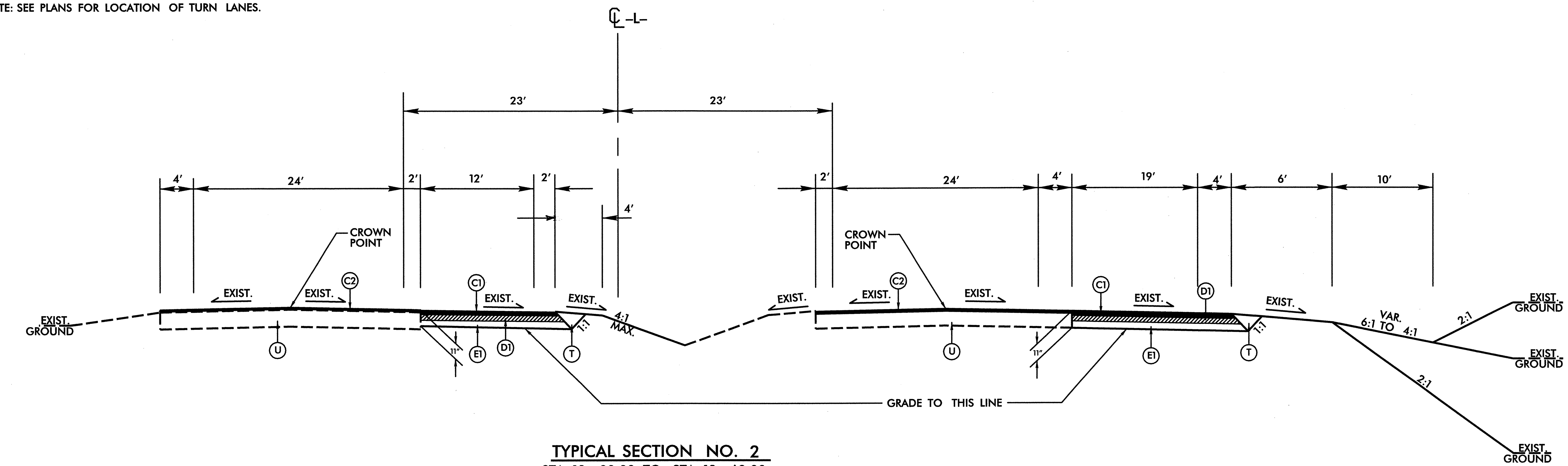
NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD 6.6.08

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 6/18/05

SEAL NOT VALID UNLESS SIGNED AND DATED

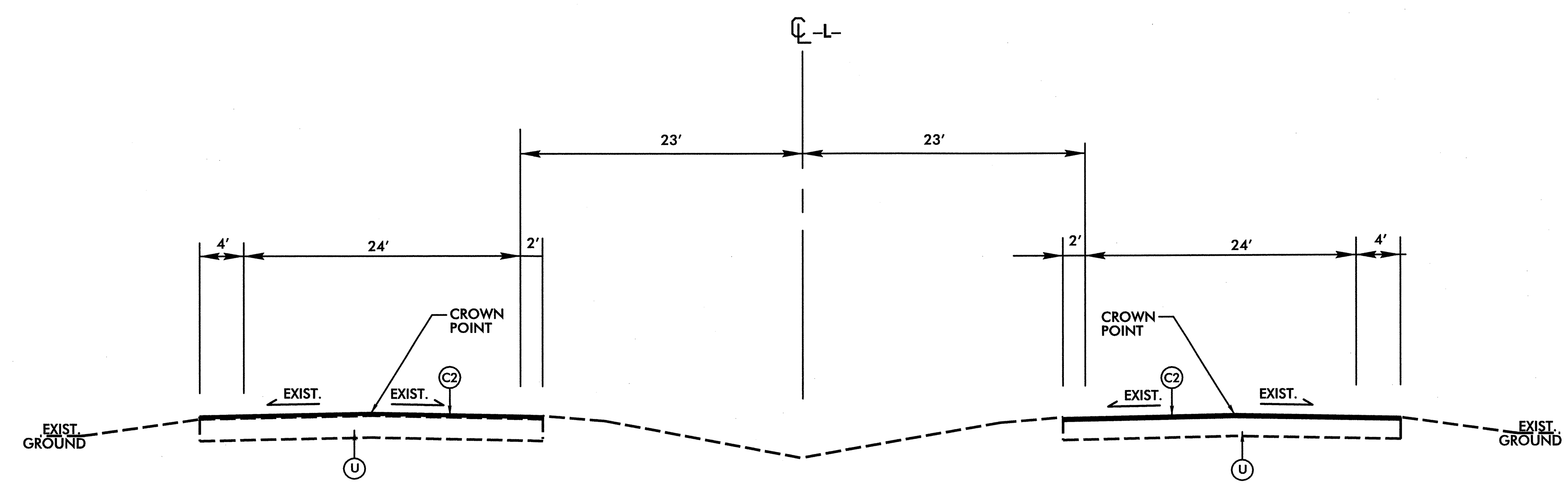
NOTE: SEE PLANS FOR LOCATION OF 1" DRAIN SLOTS IN MONOLITHIC ISLANDS.
NOTE: SEE PLANS FOR LOCATION OF TURN LANES.



TYPICAL SECTION NO. 2

STA. 12+00.00 TO STA. 12+69.00
STA. 13+69.00 TO STA. 24+50.00
STA. 26+70.00 TO STA. 30+39.00
STA. 44+46.00 TO STA. 50+26.00
STA. 52+47.00 TO STA. 58+27.00
STA. 66+44.00 TO STA. 70+10.00
STA. 72+20.00 TO STA. 76+11.00
STA. 85+14.00 TO STA. 88+90.00

CODE	PAVEMENT SCHEDULE
C1	APPROX. 3.0" TYPE S9.5C
C2	APPROX. 1.5" TYPE S9.5C
D1	APPROX. 3.0" TYPE I19.0C
E1	APPROX. 5.0" TYPE B25.0C
T	EARTH MATERIAL
U	EXISTING PAVEMENT



TYPICAL SECTION NO. 3

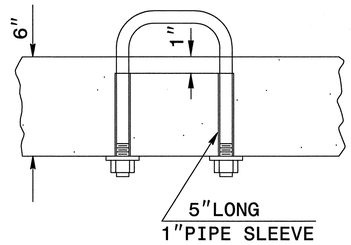
STA. 30+39.00 TO STA. 44+46.00
STA. 58+27.00 TO STA. 66+44.00
STA. 76+11.00 TO STA. 85+14.00

REVISIONS

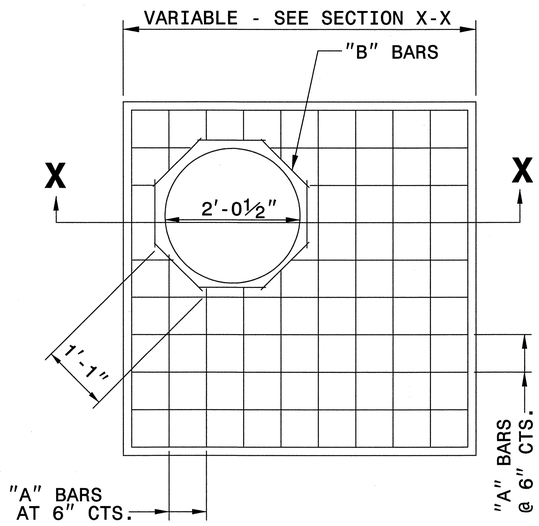
$$$$SYSTIME$$$$ $$$$$$DGN$$$$$$$$$$$$$$ $$$$USERNAME$$$$

5/14/99

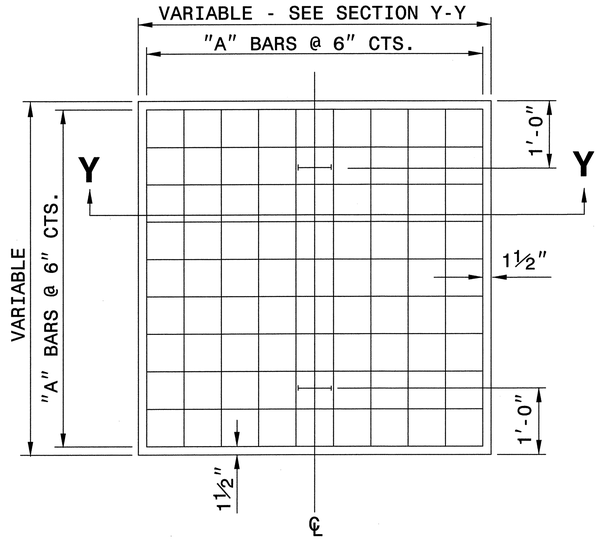
PROJECT REFERENCE NO.	SHEET NO.
W-5006	2-B



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

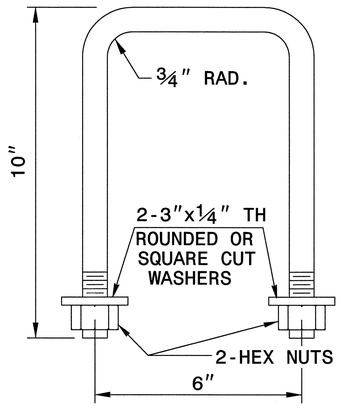
BILL OF MATERIALS

REINFORCING STEEL

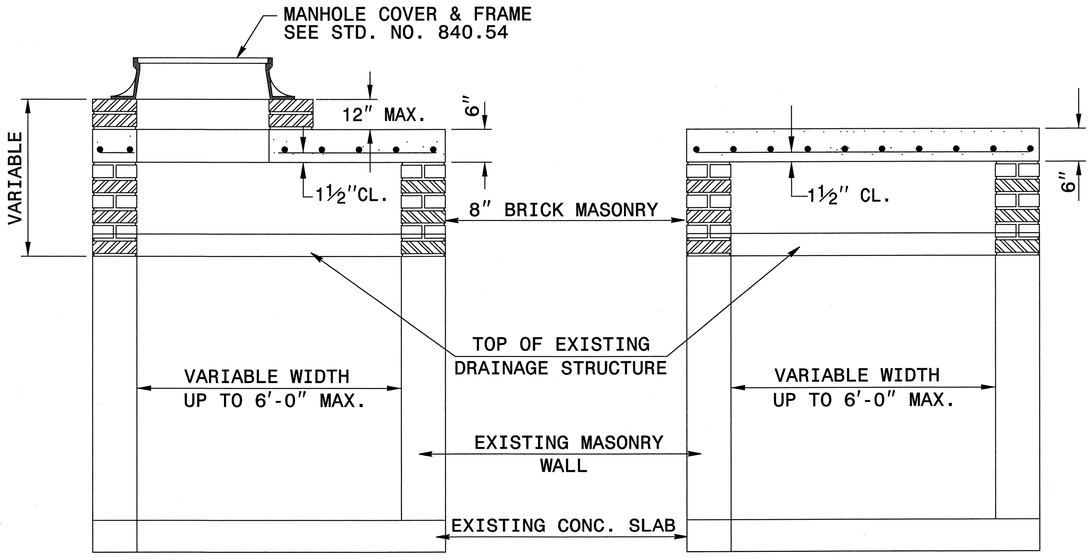
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	.4326 *
BRICK MASONRY PER FT HT (MIN)	.4111

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

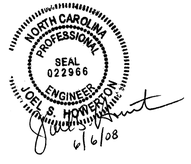


DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y



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

DETAIL TO CONVERT EXISTING DROP INLET TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 11/23/05
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/hydro/boxconversion

5/20/2008
rlcoday \estimate\final\box conversion detail.dgn
ARCADIS G & M

\box conversion detail.dgn 5/20/2008 8:42:27 AM

PROJECT REFERENCE NO.	SHEET NO.
W-5006	2-C

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

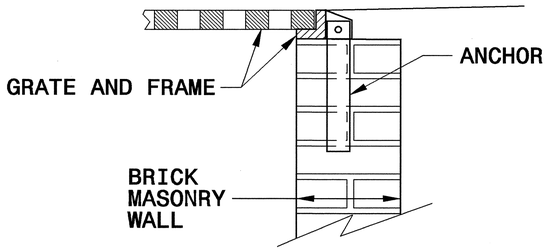
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

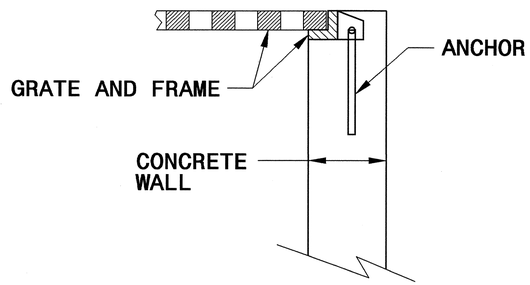
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

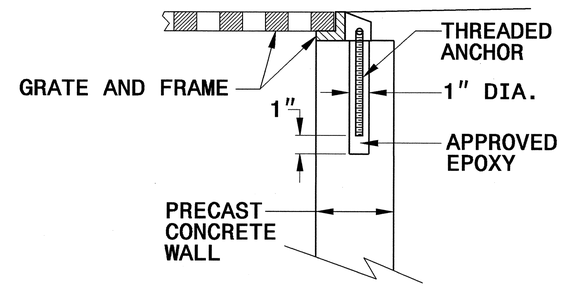
840D25



BRICK MASONRY CONSTRUCTION



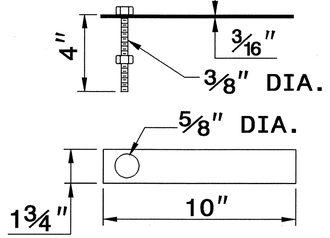
CONCRETE CONSTRUCTION



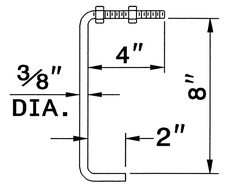
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

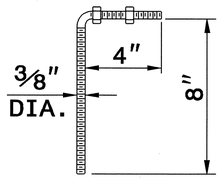
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



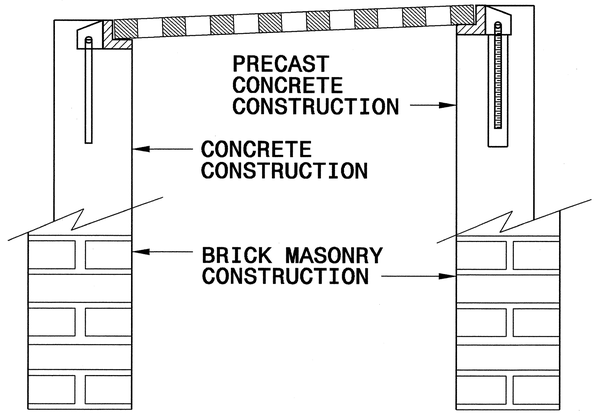
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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 6/6/08

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.:	

27-SEP-2006 08:59
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eriqward MI PSC2283

PROJECT REFERENCE NO.	SHEET NO.
W-5006	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201845

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0318000000-E	300	75	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0366000000-E	310	548	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	132	LF	18" RC PIPE CULVERTS, CLASS III
1220000000-E	545	20	TON	INCIDENTAL STONE BASE
1330000000-E	607	100	SY	INCIDENTAL MILLING
1491000000-E	610	7,200	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1503000000-E	610	2,875	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1523000000-E	610	7,050	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1560000000-E	620	445	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1565000000-E	620	425	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22
2264000000-E	840	0.2	CY	PIPE PLUGS
2286000000-N	840	8	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	2	LF	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	7	EA	FRAME WITH TWO GRATES, STD 840.24
2396000000-N	840	4	EA	FRAME WITH COVER, STD 840.54
2655000000-E	852	2,630	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2905000000-N	859	5	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX
3030000000-E	862	250	LF	STEEL BM GUARDRAIL
3045000000-E	862	62.5	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3360000000-E	863	361	LF	REMOVE EXISTING GUARDRAIL
4025000000-E	901	400	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
4025000000-E	901	210	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (F)
4072000000-E	903	1,300	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	62	EA	SIGN ERECTION, TYPE E
4108000000-N	904	12	EA	SIGN ERECTION, TYPE F
4154000000-N	907	37	EA	STOCKPILE SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	80	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	503	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	64	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	239	EA	DRUMS
4445000000-E	1145	32	LF	BARRICADES (TYPE III)
4480000000-N	1165	2	EA	TMIA
4510000000-N	SP	50	HR	POLICE
4685000000-E	1205	36,950	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	11,650	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4710000000-E	1205	550	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4725000000-E	1205	36	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	15,279	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	460	LF	PAINT PAVEMENT MARKING LINES (24")
4845000000-N	1205	21	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	5,200	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4870000000-E	1205	250	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4905000000-N	1253	350	EA	SNOWPLOWABLE PAVEMENT MARKERS
6000000000-E	1605	900	LF	TEMPORARY SILT FENCE
6009000000-E	1610	5	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	50	TON	SEDIMENT CONTROL STONE
6030000000-E	1630	130	CY	SILT EXCAVATION
6042000000-E	1632	630	LF	1/4" HARDWARE CLOTH
6084000000-E	1660	7	ACR	SEEDING & MULCHING
6090000000-E	1661	300	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	900	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	25	TON	FERTILIZER TOPDRESSING

NC1D-SS-NEW

COMPUTED BY: Steve Smallwood DATE: 3/21/2008

CHECKED BY: Andy Archer DATE: 4/11/2008

PROJECT NO.	SHEET NO.
W-5006	3-A

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) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
SIZE																							
THICKNESS OR GAUGE																.064	.064	.064	.064	.079	.079	.109	.109
12+00	CL	1		159.85	157.1																		
		1	2		157.10	155.65			456														
16+50	CL	2		158.45	155.40																		
16+60	CL	3																					
47+50		4				151.75																	
		4	5		151.75	153.00			92														
48+50		5		155.75	153.00																		
52+40	CL	6		152.00	149.09																		
53+00	CL	6	7		149.09	149.33				60													
53+00	CL	7		155.15	149.33																		
		7	8		149.48	149.78				72													
53+00	RT	8		151.95	149.78																		
52+40	RT	9																					
69+80	CL	10		156.80	150.91																		
69+80	CL	11																					
72+10	CL	12																					
73+50	CL	13		155.50	151.40																		
89+20	CL	14																					
TOTAL									548	132													
SAY																							

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. YARDS R.C.P.	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	QUANTITIES FOR DRAINAGE STRUCTURES LIN. FT. A 5.0' THRU 10.0'	QUANTITIES FOR DRAINAGE STRUCTURES LIN. FT. B 10.0' AND ABOVE	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B')	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 AND GRATE STD. 840.16	M.D.I. TYPE "A" STD. 840.17 OR 840.26	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	M.D.I. FRAME WITH GRATE STD. 840.20	M.D.I. FRAME WITH TWO GRATES STD. 840.24	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	M.D.I. FRAME WITH TWO GRATES STD. 840.29	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	DISSIPATER BOX	CONVERT DI TO JB
12+00						1																				
16+50						1												1			1					
16+60																										1
47+50																									1	1
48+50						1												1			1					
52+40						1																1			1	
53+00							0.82																			
53+00						1												1			1					
53+00						1													1		1					
52+40																										
69+80						1	0.89											1			1					
69+80																										1
72+10																									1	1
73+50						1												1			1					
89+20																									1	1
TOTAL						8	1.71											6	1		7		1		4	5
SAY							2																			

STATION	D.I. FRAME AND COVER STD. 840.54	DISSIPATER BOX	CONVERT DI TO JB	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+00								
16+50								
16+60			1					
47+50	1		1					
48+50								
52+40	1							
53+00								
53+00								
53+00								
52+40						0.13		REMOVE DI
69+80								
69+80			1					
72+10	1							
73+50								
89+20	1							
TOTAL	4		5			0.13		
SAY						0.2		

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I.(N.S.)	MEDIAN 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

COMPUTED BY: Steve Smallwood DATE: 2/28/08
CHECKED BY: Andy Archer DATE: 4/11/08

PROJECT NO.	SHEET NO.
W-5006	3-B

NC1D-

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

"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

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		'N' DIST	TOTAL	FLAIR LENGTH		W		ANCHORS								IMP. ATTEN. TYPE 350			REMOVE	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END	FROM E.O.L.	SHLDR WIDTH	APPR. END	TRAIL. END	APPR. END	TRAIL. END	B-73	B-83	GRAU 350	M-350	B-77	CAT-1	AT-1	TES	EA	G	NG	EXISTING GRDRAIL	
-L-	49+33	52+75	LT	291.0	55		52+25		10	13	50		1													361	TIE TO EXISTING
Subtotal				291.0	55.0												1										
Less Anchor deductions		Quantity	Deduction (ft)	Total Deduction																							
	GRAU-350	1	50	50																							
Total Deductions				50	0																						
Total Guardrail				241	55												1										
SAY				250	62.5	LF																					
							5 ADDITIONAL POSTS																				

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

LINE	Station	Station	LOC LT/RT/CL	SY
-L-	35+00	47+50	CL	1775
-L-	90+38	96+30	CL	790
-L-	41+00		RT	45
-L-	42+00		LT	35
			TOTAL:	2645
			SAY:	**2650**

Approximate quantities only. Unclassified excavation, Borrow excav. fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
W-5006	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION			UNCL. EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
PHASE I							
–L– Med							
12+00.00	TO	19+50.00	129		585	456	0
45+00.00	TO	58+00.00	204		1370	1166	0
35+00.00	TO	47+00.00	0		750	750	0
–L– RT							
12+50.00	TO	15+00.00	389		108	0	281
51+00.00	TO	68+00.00	377		96	0	281
–L– LT							
49+50.00	TO	51+50.00	15		1079	1064	0
TOTAL PHASE I			1114		3988	3436	562
PHASE II							
–L– Med							
22+50.00	TO	29+00.00	68		119	51	0
71+50.00	TO	75+00.00	42		44	2	0
–L– RT							
25+50.00	TO	27+50.00	23		400	378	0
71+50.00	TO	73+00.00	12		50	38	0
–L– LT							
24+00.00	TO	25+50.00	20		80	60	0
69+50.00	TO	72+00.00	22		64	41	0
TOTAL PHASE II			187		757	570	0
PHASE III							
–L– Med							
86+00.00	TO	90+00.00	78		136	58	0
91+40.00	TO	96+50.00	0		331	331	0
–L– LT							
88+50.00	TO	90+00.00	74		5	0	69
TOTAL PHASE III			152		472	389	69
LOSS DUE TO CLEAR. & GRUB.			–150		0	150	0
PROJECT TOTALS			1303		5217	4545	631
GRAND TOTALS			1303			4545	631
SAY			1400			5000	700

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

5/21/2008
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ARCADIS G & M

\W5006 ROY SUMEARTH 03.dgn 5/21/2008 8:50:44 AM

PROJECT REFERENCE NO.	SHEET NO.
W-5006	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD

SEAL NOT VALID UNLESS SIGNED AND DATED

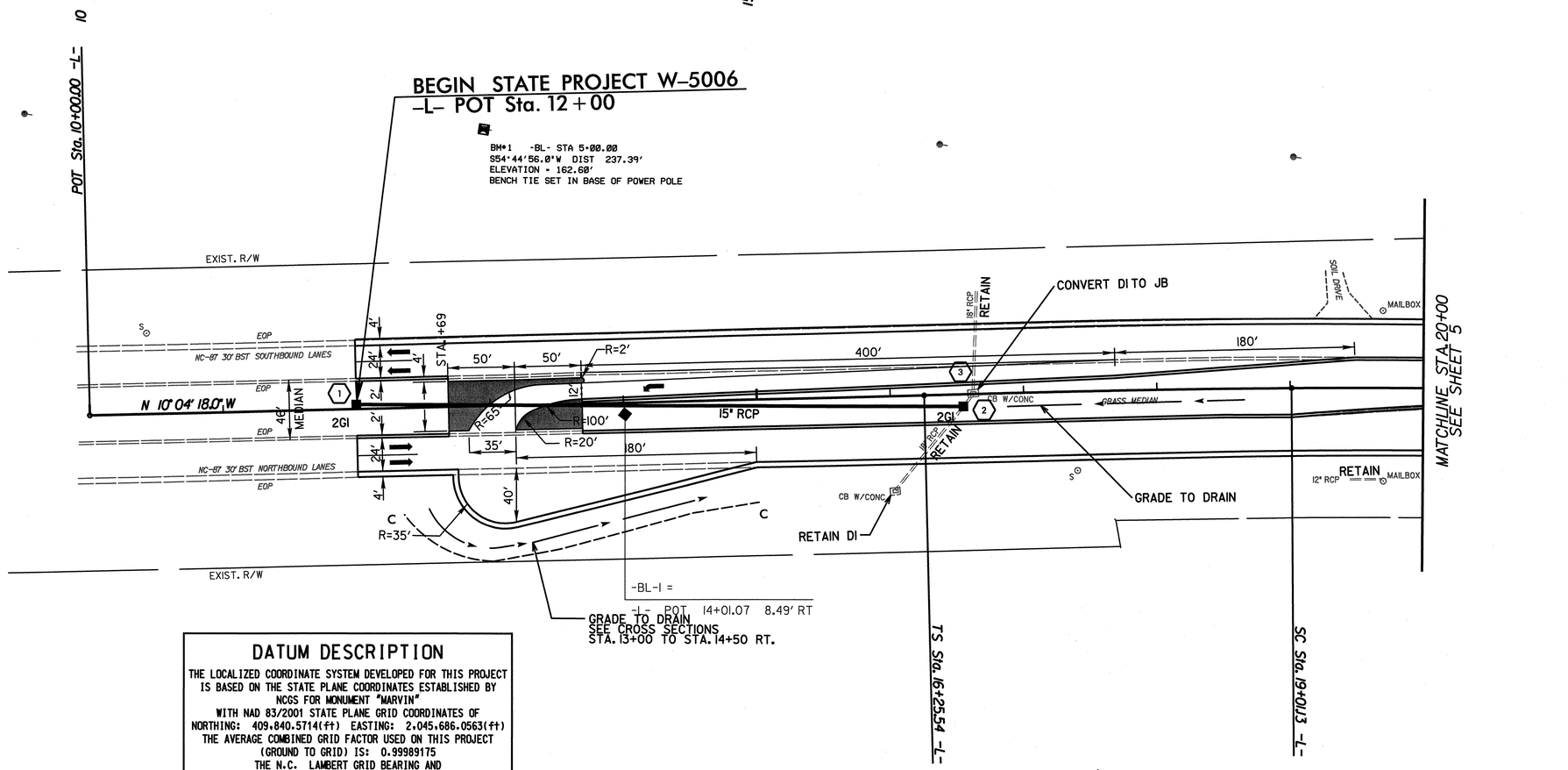
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032376 ENGINEER JULIE E. TAYLOR

SEAL NOT VALID UNLESS SIGNED AND DATED

8/17/99

REVISIONS



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "MARVIN"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF NORTHING: 409,840.5714(ft) EASTING: 2,045,686.0563(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989175
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "MARVIN" TO -L- STATION IS N 2° 13' 26.0" W 2894.3605'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

-L-

PIs Sta 18+09.27	PI Sta 26+55.10
Θs = 1°01'58.1"	Δ = 11°15'56.9" (RT)
Ls = 275.59'	D = 0°44'58.3"
LT = 183.73'	L = 1,503.07'
ST = 91.87'	T = 753.97'
	R = 7,644.34'

NOTE: CONTRACTOR SHALL INSTALL 12" PVC PIPES FOR SIGN BLOCKOUTS IN CONCRETE ISLAND AT LOCATIONS DIRECTED BY THE ENGINEER. SEE STD. 904.50 FOR PLACEMENT. THIS WILL BE INCIDENTAL TO MONOLITHIC CONCRETE ISLAND PAY ITEM.

5/22/2008
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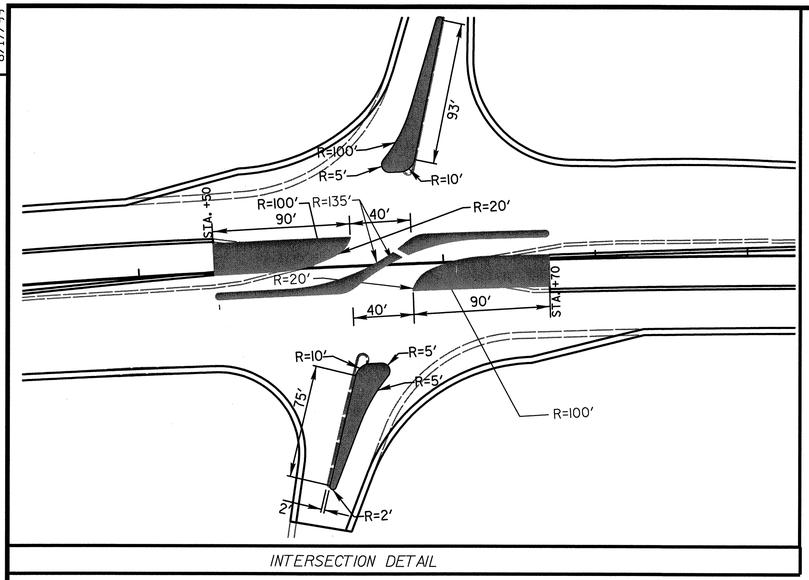
ARCADIS G & M

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
W-5006	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD	NORTH CAROLINA PROFESSIONAL SEAL 032376 ENGINEER JULIE E. TAYLOR
SEAL NOT VALID UNLESS SIGNED AND DATED	SEAL NOT VALID UNLESS SIGNED AND DATED



INTERSECTION DETAIL

-L-

PI Sta 26+55.10
Δ = 11°15' 56.9" (RT)
D = 0°44' 58.3"
L = 1,503.07'
T = 753.97'
R = 7,644.34'

NOTE: CONTRACTOR SHALL INSTALL 12" PVC PIPES FOR SIGN BLOCKOUTS IN CONCRETE ISLAND AT LOCATIONS DIRECTED BY THE ENGINEER. SEE STD. 904.50 FOR PLACEMENT. THIS WILL BE INCIDENTAL TO MONOLITHIC CONCRETE ISLAND PAY ITEM.

5/21/2008
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ARDAMS R. X. M

PROJECT REFERENCE NO.	SHEET NO.
W-5006	6
RW SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD 5-21-08	NORTH CAROLINA PROFESSIONAL SEAL 032376 ENGINEER JULIE E. TAYLOR 6/22/08
SEAL NOT VALID UNLESS SIGNED AND DATED	SEAL NOT VALID UNLESS SIGNED AND DATED

8/17/99

REVISIONS

35

40

45

MATCHLINE Sta. 33+00.00 -L-
SEE SHEET 5

4'
24'
2'
24'
2'
24'
4'

BST

SOIL DRIVE

CS Sta. 34+04.21 -L-

SRS Sta. 36+79.80 -L-

SC Sta. 39+94.76 -L-

CS Sta. 44+81.73 -L-

EXIST. R/W

GRADE TO DRAIN

GRADE TO DRAIN

15" RCP

SOIL DRIVE

EOP

EOP

EOP

180'

EOP

MTL

TEL PED # 87S RP2353

P

OVERHEAD POWER

MATCHLINE Sta. 46+00.00 -L-
SEE SHEET 7

-BL-3 =
-L- POC 43+80.03 11.52' RT

-L-

PIs Sta 34+96.07	PIs Sta 38+89.89	PI Sta 42+40.45
θs = 1° 01' 58.1"	θs = 6° 04' 11.0"	Δ = 18° 46' 10.5" (LT)
Ls = 275.59'	Ls = 314.96'	D = 3° 51' 15.4"
LT = 183.73'	LT = 210.10'	L = 486.98'
ST = 91.87'	ST = 105.10'	T = 245.69'
		R = 1,486.55'

5/21/2008
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ARCADIS G & M

PROJECT REFERENCE NO.	SHEET NO.
W-5006	7
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD

SEAL NOT VALID UNLESS SIGNED AND DATED

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032376 ENGINEER JULIE E. TAYLOR

5/22/08

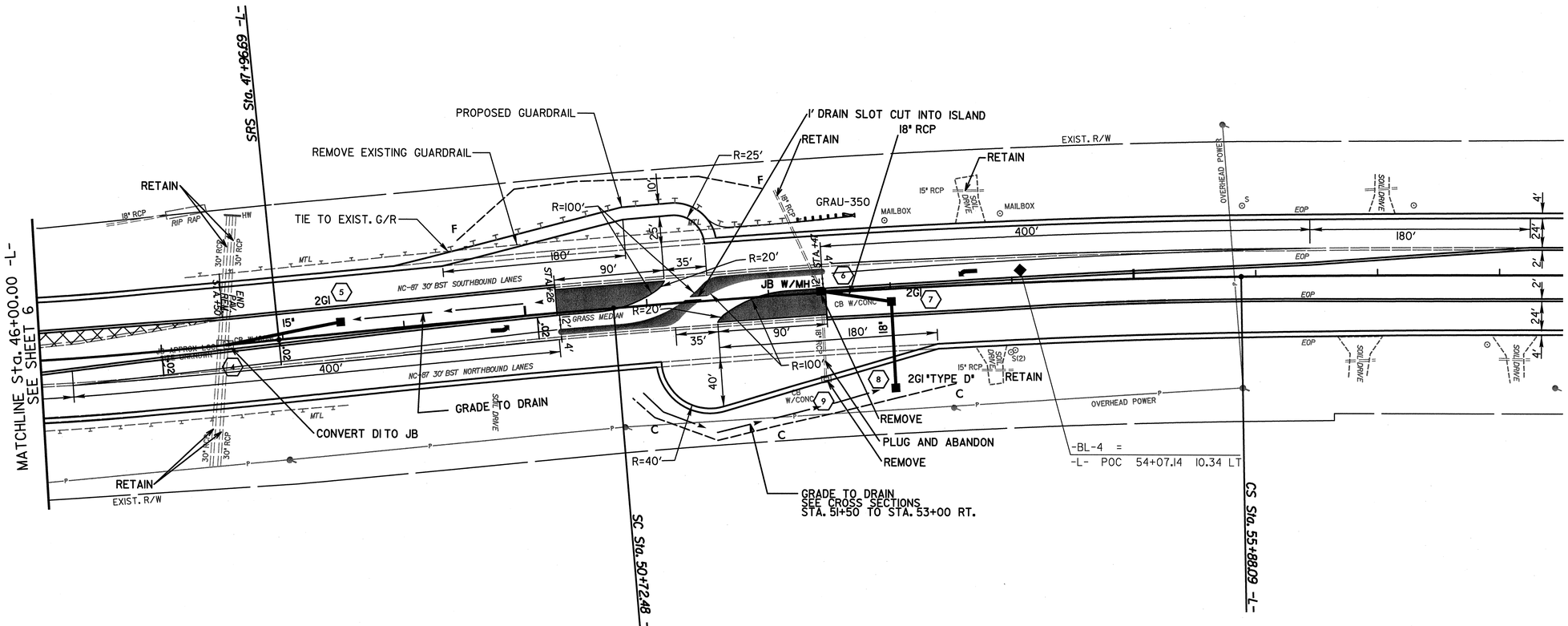
SEAL NOT VALID UNLESS SIGNED AND DATED

REVISIONS

8/17/99

50

55



PIs Sta 45+86.83	PIs Sta 49+80.56	PI Sta 53+30.39	PIs Sta 56+80.02
θs = 6°04'11.0"	θs = 1°02'00.8"	Δ = 3°51'52.4" (RT)	θs = 1°02'00.8"
Ls = 314.96'	Ls = 275.79'	D = 0°44'58.3"	Ls = 275.79'
LT = 210.10'	LT = 183.86'	L = 515.61'	LT = 183.86'
ST = 105.10'	ST = 91.93'	T = 257.90'	ST = 91.93'
		R = 7,644.34'	

NOTE: CONTRACTOR SHALL INSTALL 12" PVC PIPES FOR SIGN BLOCKOUTS IN CONCRETE ISLAND AT LOCATIONS DIRECTED BY THE ENGINEER. SEE STD. 904.50 FOR PLACEMENT. THIS WILL BE INCIDENTAL TO MONOLITHIC CONCRETE ISLAND PAY ITEM.

5/21/2008
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ARCADIS G & M

PROJECT REFERENCE NO.
W-5006
SHEET NO.
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD
NORTH CAROLINA PROFESSIONAL SEAL 032376 ENGINEER JULIE E. TAYLOR
SEAL NOT VALID UNLESS SIGNED AND DATED
SEAL NOT VALID UNLESS SIGNED AND DATED
REVISIONS
8/17/99
ALIGN WITH EXIST. ISLAND
R=2'
R=110'
75'
R=5'
R=10'
R=100'
85'
40'
R=20'
R=20'
40'
85'
R=10'
R=5'
R=100'
R=100'
77'
3'
R=5'
INTERSECTION DETAIL
65
70
75
ALDERMAN ROAD SR 2261
CONC ISL
REMOVE EXIST. ISLAND
RETAIN
CONVERT DI TO JB W/MH
GRADE TO DRAIN
GRADE TO DRAIN
EXIST. R/W
R=110'
F
75'
STA. +31
F
RETAIN
24" RCP
CB W/CONC
EOP
NC-87 30' BST SOUTHBOUND LANES
391'
GRASS MEDIAN
18" RCP
2GI
STA. +10
STA. +20
GRASS MEDIAN
30" RCP
2GI
RETAIN
366'
CB W/CONC
NC-87 30' BST NORTHBOUND LANES
4'
24'
2'
2'
24'
4'
4'
24'
2'
2'
24'
4'
20'
20'
18'
18'
8'
12'
12'
RETAIN
RETAIN
CONVERT DI TO JB
RETAIN
24" RCP
18" RCP MAY BE ABANDONED
18" RCP
C
75'
STA. +89
F
F
R=100'
RETAIN DI
RETAIN
SOIL DRIVE
SOIL DRIVE
EXIST. R/W
-BL-5 =
-L- POT 69+13.84 5.55' LT
-BL-6 =
-L- POT 70+63.26 5.78' LT
REMOVE EXIST. ISLAND
GRAYS CREEK CHURCH ROAD SR 2235
1' DRAIN SLOT CUT INTO ISLAND
NOTE: CONTRACTOR SHALL INSTALL 12" PVC PIPES FOR SIGN BLOCKOUTS IN CONCRETE ISLAND AT LOCATIONS DIRECTED BY THE ENGINEER. SEE STD. 904.50 FOR PLACEMENT. THIS WILL BE INCIDENTAL TO MONOLITHIC CONCRETE ISLAND PAY ITEM.
5/21/2008
r:\roadway\w5006_RDY_PSH08.dgn

PROJECT REFERENCE NO.	SHEET NO.
W-5006	9
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD

SEAL NOT VALID UNLESS SIGNED AND DATED

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032376 ENGINEER JULIE E. TAYLOR

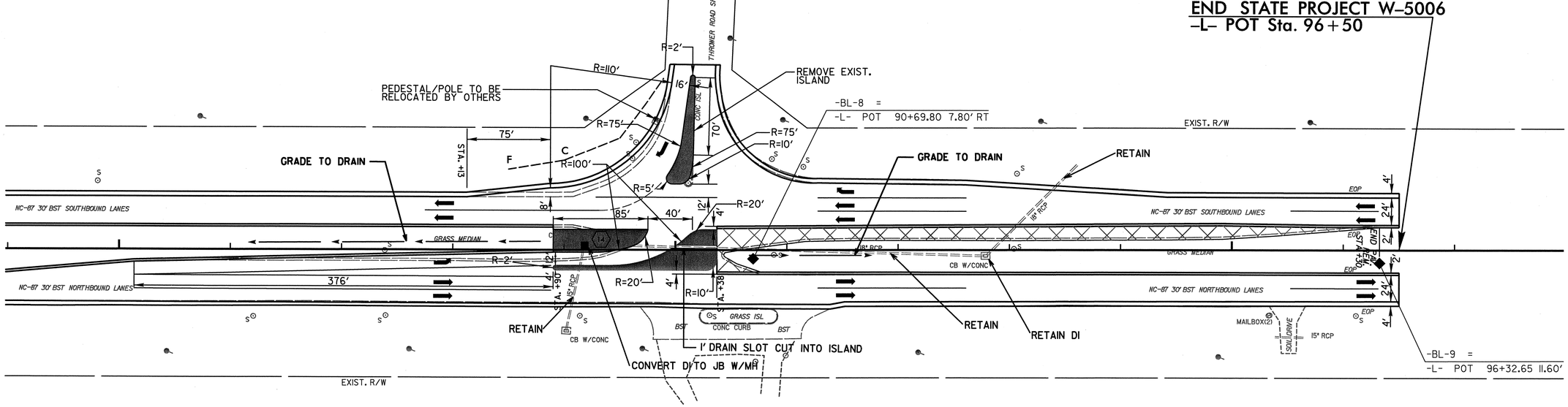
SEAL NOT VALID UNLESS SIGNED AND DATED

REVISIONS

8/17/99

85 90 95

END STATE PROJECT W-5006
-L- POT Sta. 96+50



NOTE: CONTRACTOR SHALL INSTALL 12" PVC PIPES FOR SIGN BLOCKOUTS IN CONCRETE ISLAND AT LOCATIONS DIRECTED BY THE ENGINEER. SEE STD. 904.50 FOR PLACEMENT. THIS WILL BE INCIDENTAL TO MONOLITHIC CONCRETE ISLAND PAY ITEM.

5/21/2008
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GRADING & M