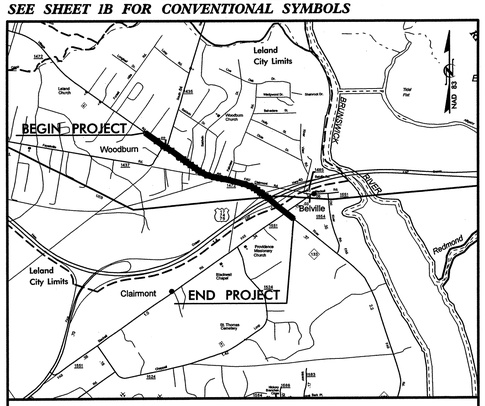
CONTRACT: C201447 TIP PROJECT: R-4002

SEE SHEET 1A FOR INDEX OF SHEETS
SEE SHEET 1B FOR CONVENTIONAL SYMBOLS



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

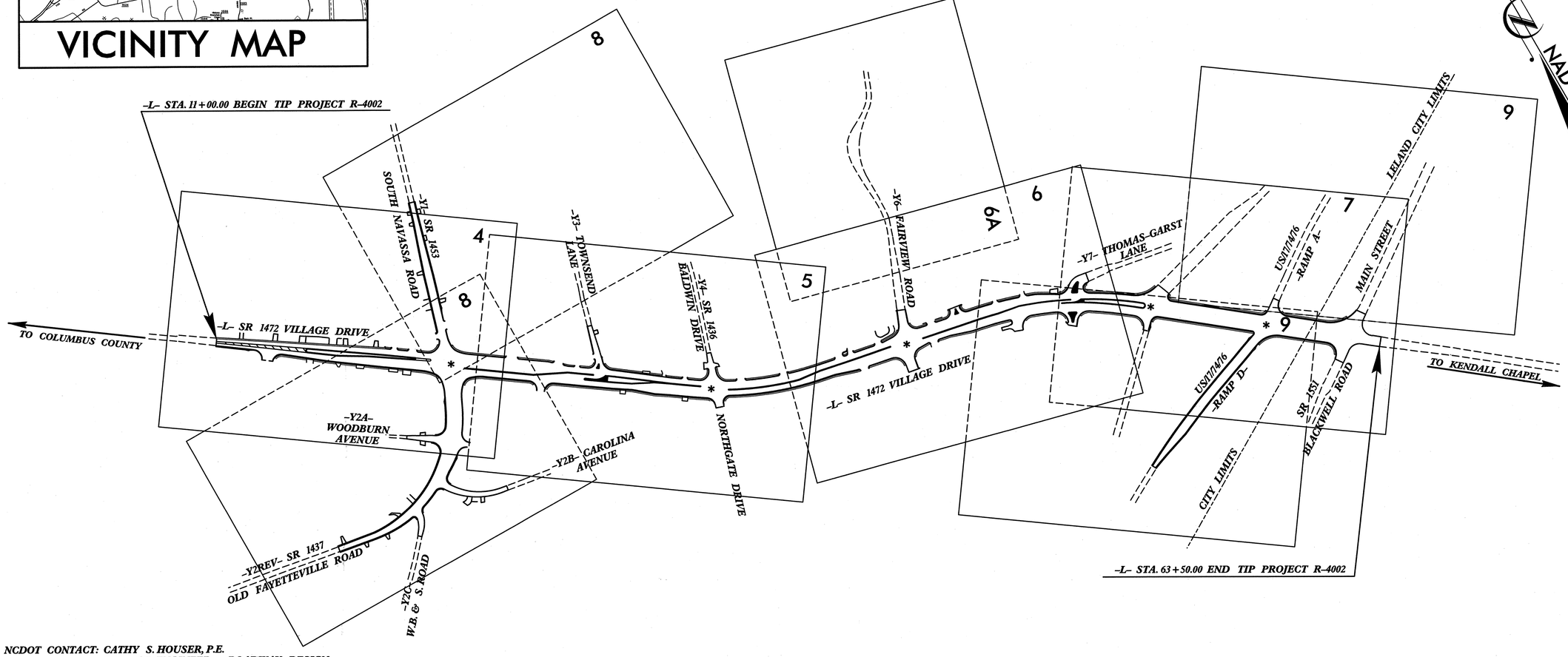
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4002	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34572.1.1	STP-1472(1)	P.E.
34572.2.2	STP-1472(1)	R/W & UTIL
34572.3.2	STP-1472(3)	CONST.

LOCATION: LELAND–SR 1472 (VILLAGE DRIVE) WIDENING FROM WEST OF SR 1437 (OLD FAYETTEVILLE ROAD /SR 1435 (NAVASSA ROAD) TO THE US 17 NORTHBOUND INTERCHANGE RAMPS

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB & GUTTER, & SIGNALS

NC GRID NAD 83



NCDOT CONTACT: CATHY S. HOUSER, P.E.
PROJECT ENGINEER – ROADWAY DESIGN

* SIGNAL LOCATIONS

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 28,950
ADT 2030 = 43,125
DHV = 10 %
D = 60 %
T = 5 % *
V=50 MPH (STA 11+00 to 21+00)
V=40 MPH (STA 21+00 to 63+50)
* TTST 2 % DUAL 3 %
FUNCTIONAL CLASSIFICATION = MAJOR COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-4002 = 0.994 MILE
TOTAL LENGTH OF TIP PROJECT R-4002 = 0.994 MILE

Baker

Prepared In the Office of:
Michael Baker Engineering, Inc.
7800 Airport Center Drive, Suite 100
Greensboro, NC 27409
for North Carolina Department of Transportation

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 28, 2004

LETTING DATE: JULY 21, 2009

CHADWICK D. HUFFINES, PE
PROJECT ENGINEER

CHADWICK D. HUFFINES, PE
PROJECT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER W. HERBERT TURNER, JR.

HYDRAULICS ENGINEER
12-17-08
SIGNATURE: W. Herbert Turner P.E.

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES

ROADWAY DESIGN ENGINEER
12-17-08
SIGNATURE: Chadwick D. Huffines P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
R-4002	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES

12-17-08

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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
1-C THRU 1-D	SURVEY CONTROL SHEETS
2 THRU 2-E	TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND WEDGING DETAILS
2-F	DITCH DETAILS, WATER QUALITY ISLAND, AND CURB CUT FLUME DETAIL
2-G THRU 2-K	INTERSECTION DETAILS
2-L	CONCRETE ISLAND DETAILS
2-M	WHEELCHAIR RAMP THROUGH ISLAND DETAIL
2-N	2'-9" MEDIAN CURB AND GUTTER FOR CATCH BASIN DETAIL
2-O	CONCRETE DROP INLET 24" THRU 66" PIPE DETAIL
2-P	DETAIL OF SPECIAL DROP INLET (STRUCTURE #100)
2-Q	MANHOLE AND VALVE BOX ADJUSTMENTS DETAIL
2-R	MINIMUM DEPTH CATCH BASIN
2-S	MINIMUM DEPTH DROP INLET
3 (2 SHEETS)	SUMMARY OF QUANTITIES
3-A THRU 3-G	SUMMARY OF DRAINAGE QUANTITIES
3-H	SUMMARY OF EARTHWORK
3-I	SUMMARY OF GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3-J	PARCEL INDEX SHEET
4 THRU 9	PLAN SHEETS
10 THRU 14	PROFILE SHEETS
TCP-1 THRU TCP-14	TRAFFIC CONTROL PLANS
PM-1 THRU PM-5	PAVEMENT MARKING PLANS
E-1 THRU E-4	ELECTRICAL PLAN
EC-1 THRU EC-15	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-11	SIGNING PLANS
SIG-1 THRU SIG-54	SIGNAL PLANS
UC-1 THRU UC-9	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-7	UTILITIES BY OTHERS PLANS
X-1A THRU X-1B	CROSS-SECTION SUMMARY
X-1 THRU X-36	CROSS-SECTIONS

GENERAL NOTES

GENERAL NOTES: 2006 SPECIFICATIONS EFFECTIVE: 07-18-06
REVISED: 07-30-08

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

UNDERDRAINS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE PROGRESS ENERGY, BELLSOUTH, NORTH BRUNSWICK SANITARY DISTRICT, AND TOWN OF LELAND

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

WHEELCHAIR RAMPS:

WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH STD. NO. 848.05

ROADWAY ENGLISH STANDARD DRAWINGS

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
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation – Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation – Method 'A'
310.10	Driveway Pipe Construction
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	
610.03	Guide for Paving Shoulders Under Bridges – Method III
654.01	Pavement Repairs
DIVISION 8 – INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin – 12" thru 54" Pipe
840.02	Concrete Catch Basin – 12" thru 54" Pipe
840.03	Frame, Grates and Hood – for Use on Standard Catch Basin
840.14	Concrete Drop Inlet – 12" thru 30" Pipe
840.15	Brick Drop Inlet – 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates – for use with Std. Dwg 840.14 and 840.15
840.19	Concrete Grated Drop Inlet Type 'D' – 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
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
840.34	Traffic Bearing Junction Box – for Use with Pipes 42" and Under
840.36	Traffic Bearing Grated Drop Inlet – for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout – Drop Curb Type
848.04	Street Turnout
848.05	Wheelchair Ramp – Curb Cut
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
865.01	Cable Guiderail
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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Administrator BY: GSD THROWER

3/15/96

PROJECT REFERENCE NO.	SHEET NO.
R-4002	1-B

Note: Not to Scale

S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- 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.

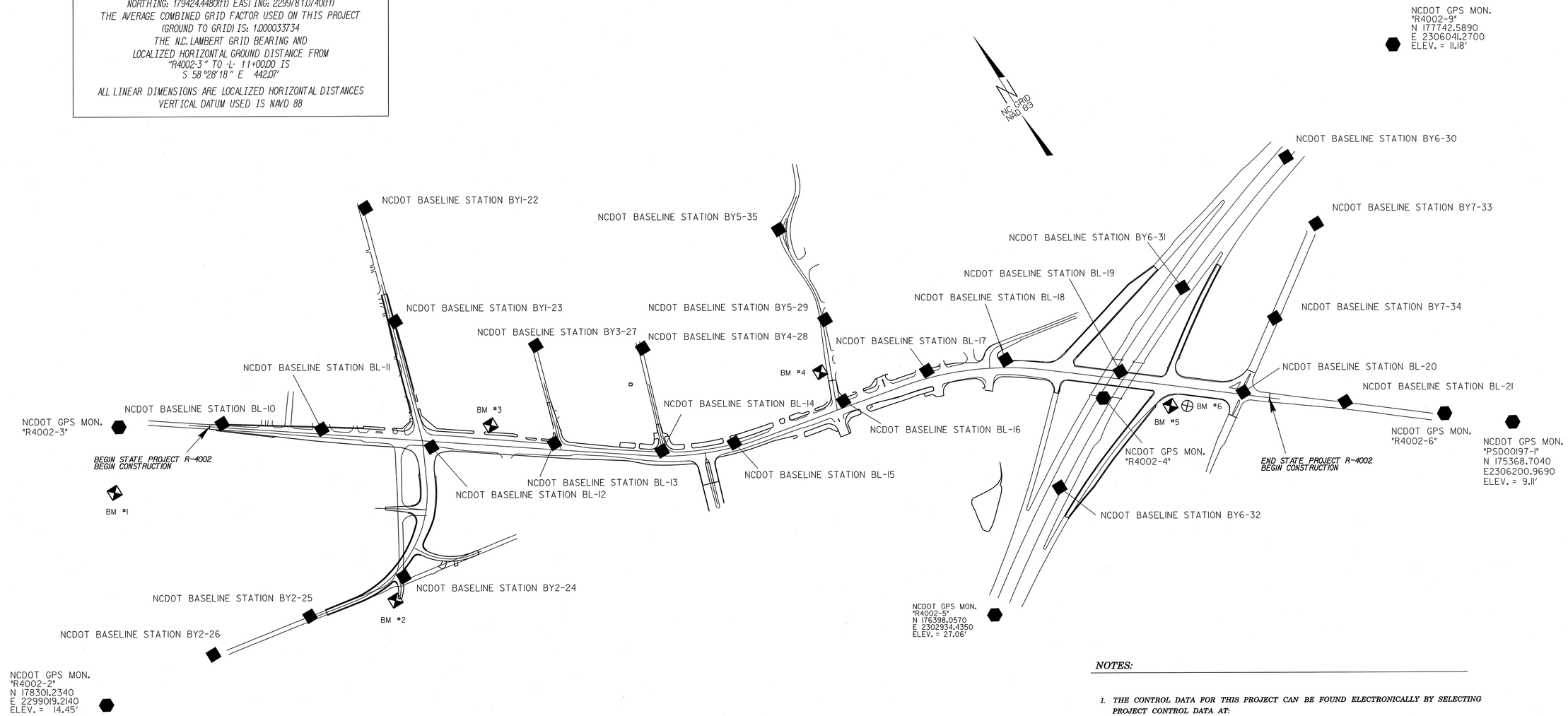
PROJECT REFERENCE NO.	SHEET NO.
R-4002	1-C
Location and Surveys	

SURVEY CONTROL SHEET R-4002

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "R4002-3"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 179424.4480(ft) EASTING: 2299781.0740(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 1.000033734
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"R4002-3" TO -L- 11+00.00 IS
S 58°28'18" E 442.07'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



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:
R4002_LS_CONTROL_061213.TEXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⊕ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

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Administrator at GSD THROWER

PROJECT REFERENCE NO.	SHEET NO.
R-4002	1D
Location and Surveys	

SURVEY CONTROL SHEET R-4002

-BL-

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	R4002-3	179424.4480	2299781.0740	20.72	OUTSIDE PROJECT LIMITS	
10	BL-10	179173.1130	2300217.0220	21.12	11+59.85	18.00 LT
11	BL-11	178896.1530	2300614.8840	21.91	16+44.58	24.21 LT
12	BL-12	178654.1380	2300962.0590	22.16	20+67.75	29.35 LT
13	BL-13	178238.7830	2301544.5270	21.63	27+83.14	30.40 LT
14	BL-14	177930.0590	2301972.1580	23.85	33+12.22	25.49 LT
15	BL-15	177778.3140	2302292.9050	24.29	36+74.04	19.07 LT
16	BL-16	177672.1860	2302852.3890	20.19	42+45.36	31.03 LT
17	BL-17	177584.1740	2303276.4080	25.48	46+75.35	35.12 LT
18	BL-18	177429.8760	2303630.6840	25.98	50+53.53	38.07 LT
19	BL-19	177085.3990	2304076.3670	25.90	56+12.20	36.24 LT
20	BL-20	176693.5770	2304541.2600	27.72	62+20.05	23.47 LT
21	BL-21	176382.7590	2304931.7830	22.13	OUTSIDE PROJECT LIMITS	
6	R4002-6	176080.1120	2305315.1740	15.46	OUTSIDE PROJECT LIMITS	

-BY1-

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
22	BY1-22	179698.3770	2301360.5800	17.19	OUTSIDE PROJECT LIMITS	
23	BY1-23	179155.2440	2301195.9980	21.25	11+88.61	18.13 LT
A12	BL-12	178654.1380	2300962.0590	22.16	17+36.14	59.65 RT

-BY2-

POINT	DESC.	NORTH	EAST	ELEVATION	Y2REV STATION	OFFSET
B12	BL-12	178654.1380	2300962.0590	22.16	OUTSIDE PROJECT LIMITS	
24	BY2-24	178072.9470	2300580.6870	20.51	15+05.60	41.14 RT
25	BY2-25	178151.6510	2300085.3470	18.87	10+13.34	14.44 LT
26	BY2-26	178236.6050	2299591.1030	17.23	OUTSIDE PROJECT LIMITS	

-BY3-

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
27	BY3-27	178692.5750	2301718.7180	22.31	OUTSIDE PROJECT LIMITS	
A13	BL-13	178238.7830	2301544.5270	21.63	12+99.09	25.00 RT

-BY4-

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
28	BY4-28	178406.0070	2302154.6180	24.60	OUTSIDE PROJECT LIMITS	
A14	BL-14	177930.0590	2301972.1580	23.85	13+31.60	11.67 RT

-BY5-

POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
35	BY5-35	178549.2460	2303020.3930	12.79	3+70.30	33.50 RT
29	BY5-29	178058.3090	2302984.7120	14.43	8+51.34	13.20 LT
A16	BL-16	177672.1860	2302852.3890	20.19	12+58.78	37.59 LT

-BY6-

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
30	BY6-30	177549.6470	2305310.3240	18.81	62+80.55	1172.67 LT
31	BY6-31	177275.1230	2304548.8430	43.07	58+60.59	480.68 LT
A19	BL-19	177085.3990	2304076.3670	25.90	56+12.20	36.24 LT
4	R4002-4	177016.3390	2303938.5330	49.08	55+48.35	104.09 RT
32	BY6-32	176760.0710	2303528.1620	42.39	53+90.08	561.28 RT

-BY7-

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
33	BY7-33	177196.2570	2305266.1660	13.63	OUTSIDE PROJECT LIMITS	
34	BY7-34	176912.3800	2304854.6060	22.30	63+26.37	390.57 LT
A20	BL-20	176693.5770	2304541.2600	27.72	62+20.05	23.47 LT

```
****************************************
BM #1      ELEVATION = 22.88'
N 179163      E 2299595
-L- STATION 10+00
S 79° 32' 40.5" W  DIST    489.47'
SQUARE CUT IN EAST CORNER OF SIDEWALK
NEAR DITCH AT POLICE STATION
****************************************
```

```
****************************************
BM #2      ELEVATION = 21.11'
N 177995      E 2300485
-Y2C-  STATION 11+35
N 69° 13' 20.6" W  DIST     20.43'
RR SPIKE IN 30" PINE
****************************************
```

```
****************************************
BM #3      ELEVATION = 20.92'
N 178476      E 2301327
-L- STATION 24+68  97' LT
RR SPIKE IN ASPHALT NEAR EDGE OF CURB
****************************************
```

```
****************************************
BM #4      ELEVATION = 22.76
N 177853      E 2302830
Y5 STATION 10+00
N 86° 32' 48.1" E  DIST    687.23
-RR SPIKE IN 24IN PINE
****************************************
```

```
****************************************
BM #5      ELEVATION = 27.47'
N 176813      E 2304196
-L- STATION 58+76  101' RT
RR SPIKE IN 26" PINE
****************************************
```

```
****************************************
BM #6      ELEVATION = 24.65'
N 176770      E 2304266
-L- STATION 59+57  90' RIGHT
VERTICAL CONTROL MON.  NGS "CC 252"
****************************************
```

NOTE: DRAWING NOT TO SCALE

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5/14/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.	T	EARTH MATERIAL
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" OR GREATER THAN 2" IN DEPTH.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 4" OR GREATER THAN 5 1/2" IN DEPTH.	U	EXISTING PAVEMENT
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.	R1	2'-6" CONCRETE CURB AND GUTTER.	W1	VAR. DEPTH ASPHALT PAVEMENT (SEE DETAILS SHOWING METHOD 1 OF WEDGING).
D1	PROP. DEPTH 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YARD.	R2	2'-9" CONCRETE CURB AND GUTTER. (SEE SPECIAL DETAIL ON SHEET 2-E)	W2	VAR. DEPTH ASPHALT PAVEMENT (SEE DETAILS SHOWING METHOD 2 OF WEDGING).
D2	PROP. VAR. DEPTH ASPHALT INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" DEPTH.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)		
D3	PROP. DEPTH 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.	S	4" CONCRETE SIDEWALK		

Baker

MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES — 12-17-08

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON — 12/24/08

NOTES:

TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.

WHEN WEDGING SURFACE, INTERMEDIATE, AND BASE COURSES, DO NOT INTERCHANGE COURSE TYPES.

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

FDPS – FULL DEPTH PAVED SHOULDER

FULL DEPTH PATCHING IS REQUIRED PRIOR TO OVERLAYING THE EXISTING PAVEMENT. ASPHALT MIX B25.0B OR I19.0B IS TO BE USED FOR PATCHING

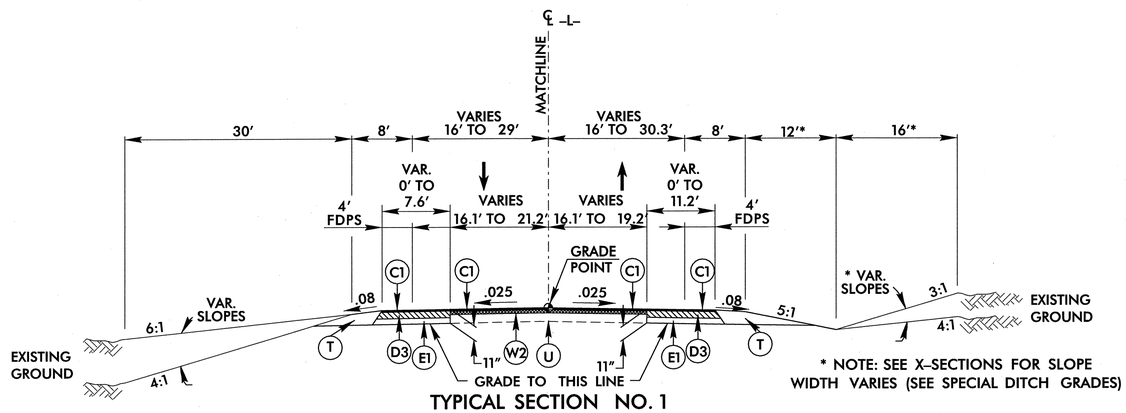
TYPICAL 10' BERM WITH 5' SIDEWALKS UNLESS NOTED OTHERWISE

SEE SHEET 2 FOR CHANNELIZATION DETAIL, 8"x6" CURB LOCATIONS, AND SIDEWALK DETAILS

SEE SHEET 2-F FOR WATER QUALITY ISLAND AND CURB CUT W/FLUME DETAILS

PLACE PROPOSED CURB AND GUTTER ON EARTH MATERIAL

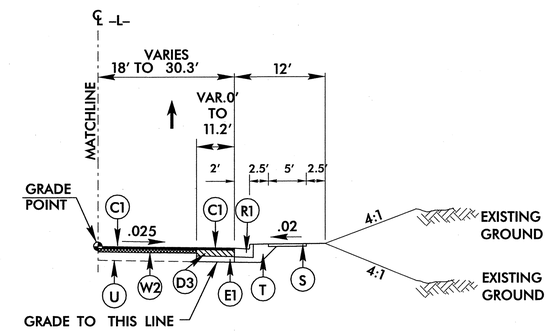
CONTRACTOR TO MILL EXISTING PAVEMENT AT TIE-INS



TYPICAL SECTION NO. 1

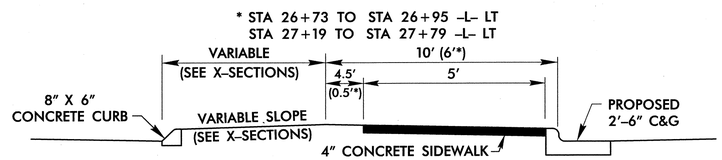
-L- STA. 11+00.00 TO STA. 15+00.00

* NOTE: SEE X-SECTIONS FOR SLOPE WIDTH VARIES (SEE SPECIAL DITCH GRADES)

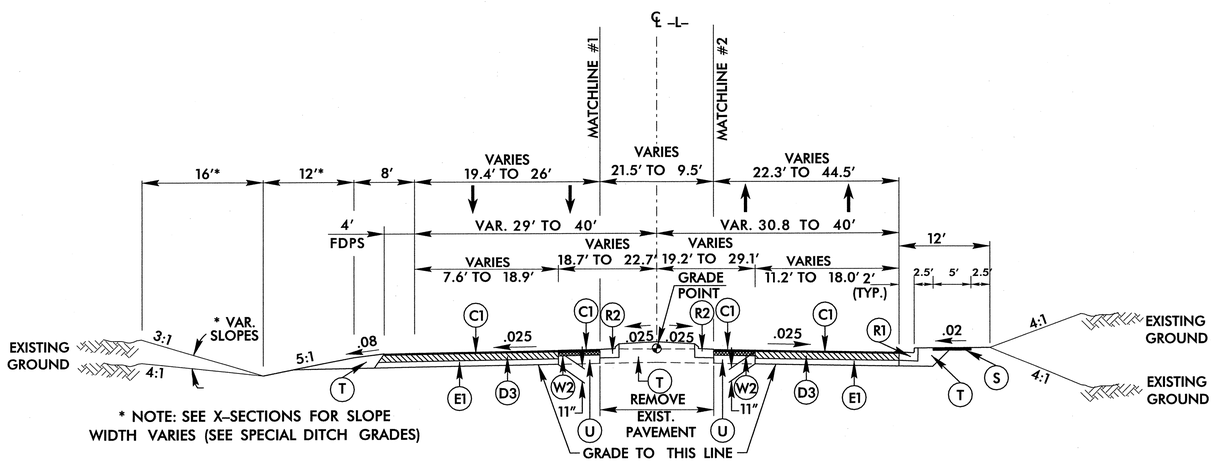


TYPICAL SECTION NO. 1A

USE TYPICAL SECTION NO. 1A IN CONJUNCTION WITH TYPICAL SECTION NO. 1 AS FOLLOWS:
-L- STA. 12+70.42 TO STA. 15+00.00



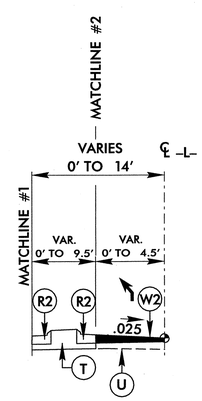
DETAIL FOR PROPOSED CHANNELIZATION -L- AND -Y1-



* NOTE: SEE X-SECTIONS FOR SLOPE WIDTH VARIES (SEE SPECIAL DITCH GRADES)

TYPICAL SECTION NO. 2

-L- STA. 15+00.00 TO STA. 19+89.56



TYPICAL SECTION NO. 2A

USE TYPICAL SECTION NO. 2A IN CONJUNCTION WITH TYPICAL SECTION NO. 2 AS FOLLOWS:
-L- STA. 18+00.00 TO STA. 19+89.56

8"x6" CURB LOCATIONS

LINE	STATION	STATION	SIDE
L	18+49	18+77	LT
L	19+04	19+54	LT
L	19+92	20+75	LT
L	21+15	23+87	LT
L	24+40	26+02	LT
L	* 26+45	26+95	LT
L	* 27+19	27+79	LT
L	31+04	31+77	LT
L	31+99	32+86	LT
L	33+30	34+23	LT
L	34+63	36+21	LT
L	36+61	38+82	LT
L	39+71	40+69	LT
L	41+02	41+74	LT
L	43+01	43+17	LT
L	43+56	44+26	LT
L	39+54	39+73	RT
L	40+11	41+71	RT
L	42+25	43+04	RT
L	43+41	46+75	RT
L	50+10	52+10	RT
Y1	15+62	15+96	LT

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R:\4002_Forsyth_Co\R4002_rdy_typ.dgn
Administrator AT-RSN THROWER

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 12/22/08

C1	3" S9.5B
C2	VAR. DEPTH S9.5B
C3	1 1/2" S9.5B
D1	2 1/2" I19.0B
D2	VAR. DEPTH I19.0B
D3	4" I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
R1	2'-6" CONCRETE C & G
R2	2'-9" CONCRETE C & G
R3	5" CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VAR. DEPTH WEDGING (METHOD 1)
W2	VAR. DEPTH WEDGING (METHOD 2)

NOTES:

TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.

WHEN WEDGING SURFACE, INTERMEDIATE, AND BASE COURSES, DO NOT INTERCHANGE COURSE TYPES.

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

FDPS – FULL DEPTH PAVED SHOULDER

FULL DEPTH PATCHING IS REQUIRED PRIOR TO OVERLAYING THE EXISTING PAVEMENT. ASPHALT MIX B25.0B OR I19.0B IS TO BE USED FOR PATCHING

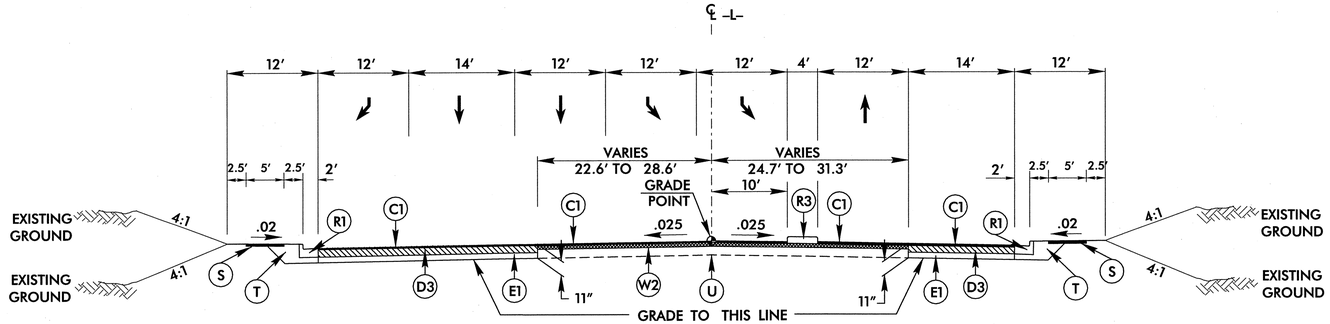
TYPICAL 10' BERM WITH 5' SIDEWALKS UNLESS NOTED OTHERWISE

SEE SHEET 2 FOR CHANNELIZATION DETAIL, 8"x6" CURB LOCATIONS, AND SIDEWALK DETAILS

SEE SHEET 2-F FOR WATER QUALITY ISLAND AND CURB CUT W/FLUME DETAILS

PLACE PROPOSED CURB AND GUTTER ON EARTH MATERIAL

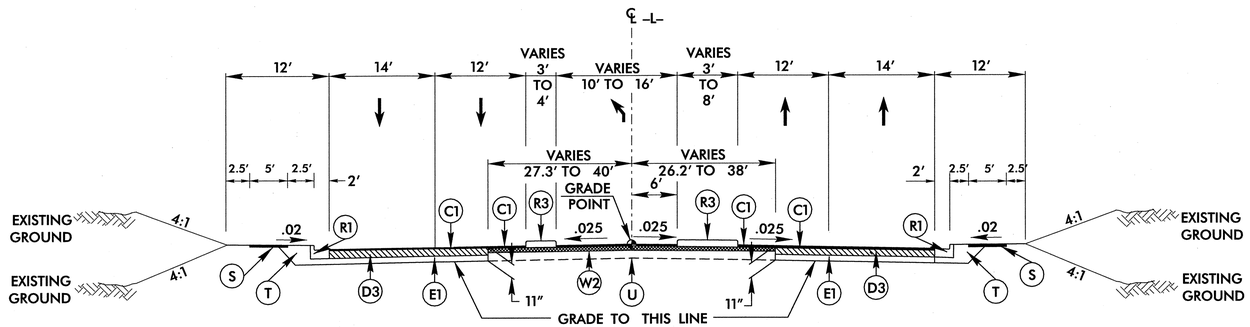
CONTRACTOR TO MILL EXISTING PAVEMENT AT TIE-INS



TYPICAL SECTION NO. 3

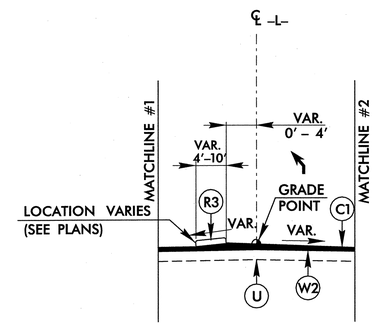
-L- STA. 19+89.56 TO STA. 25+17.29

* TRANSITION TYP. NO. 3 TO TYP. NO. 4 FROM STA 25+17.29 TO STA 26+67.64



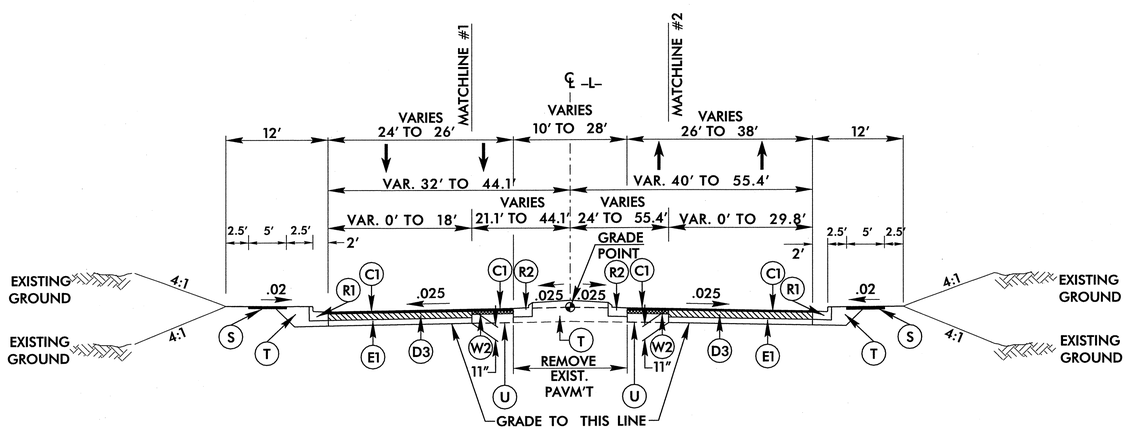
TYPICAL SECTION NO. 4

-L- STA. 26+67.64 TO STA. 28+47.07
-L- STA. 49+09.44 TO STA. 50+20.29



TYPICAL SECTION NO. 5A

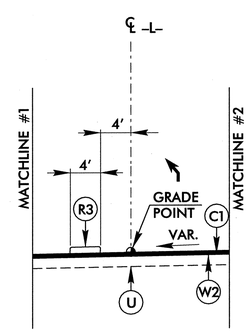
USE TYPICAL SECTION NO. 5A IN CONJUNCTION WITH TYPICAL SECTION NO. 5 AS FOLLOWS:
-L- STA. 30+39.63 TO 31+47.59



TYPICAL SECTION NO. 5

-L- STA. 28+47.07 TO 32+62.58
-L- STA. 50+20.29 TO 52+81.43

* NOTE: STATION 32+62.58 TO STA 33+90.60 (Y4 INTERSECTION)
STATION 52+81.43 TO 54+05.25 (RAMP INTERSECTION)



TYPICAL SECTION NO. 5B

USE TYPICAL SECTION NO. 5B IN CONJUNCTION WITH TYPICAL SECTION NO. 5 AS FOLLOWS:
-L- STA. 31+47.59 TO 32+62.58

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R:\R4002\Roadway\Proj\R4002_rdy_typ.dgn
ministrator AT DSD THROWER

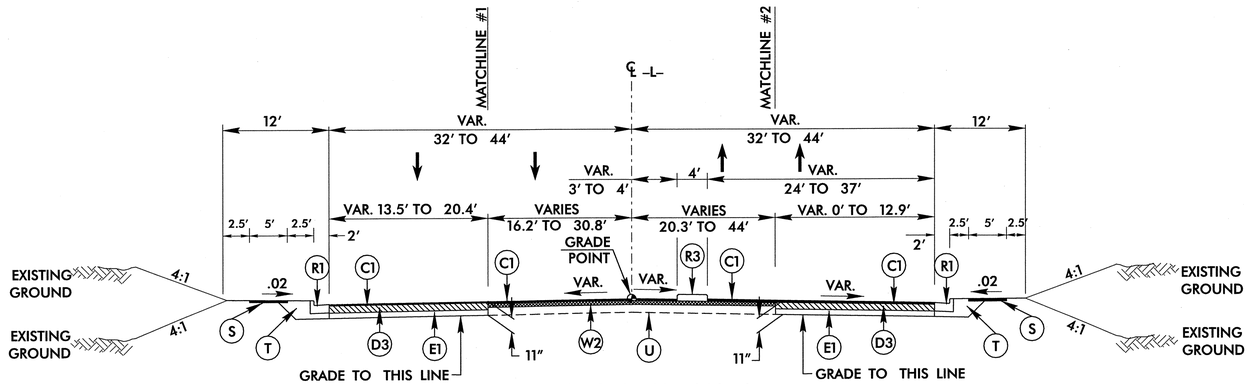
Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

NORTH CAROLINA PROFESSIONAL SEAL 22898 ENGINEER CLARK S. MORRISON 12/29/08

C1	3" S9.5B
C2	VAR. DEPTH S9.5B
C3	1 1/2" S9.5B
D1	2 1/2" I19.0B
D2	VAR. DEPTH I19.0B
D3	4" I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
R1	2'-6" CONCRETE C & G
R2	2'-9" CONCRETE C & G
R3	5" CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VAR. DEPTH WEDGING (METHOD 1)
W2	VAR. DEPTH WEDGING (METHOD 2)

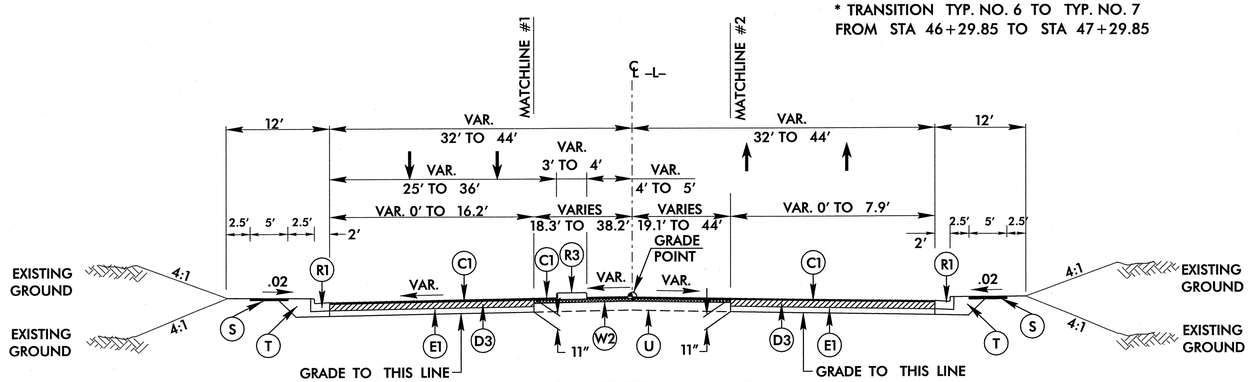


TYPICAL SECTION NO. 6

-L- STA. 33+90.60 TO 37+02.00
-L- STA. 42+79.45 TO 46+29.86

* TRANSITION TYP. NO. 6 TO TYP. NO. 7 FROM STA 37+02 TO STA 38+02

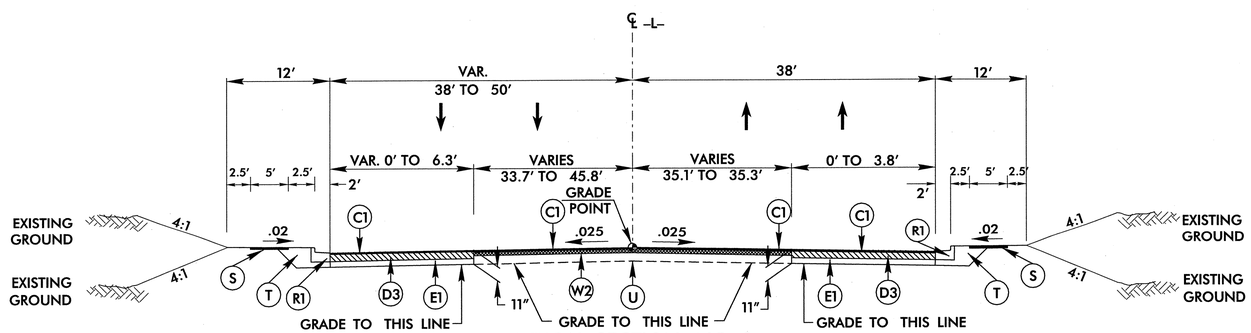
* TRANSITION TYP. NO. 6 TO TYP. NO. 7 FROM STA 46+29.85 TO STA 47+29.85



TYPICAL SECTION NO. 7

-L- STA. 38+02.00 TO 41+33.13
-L- STA. 46+29.86 TO 49+09.44

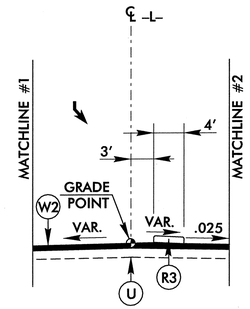
* NOTE: STATION 41+33.13 TO STA 42+79.45 (Y6 INTERSECTION)



TYPICAL SECTION NO. 8

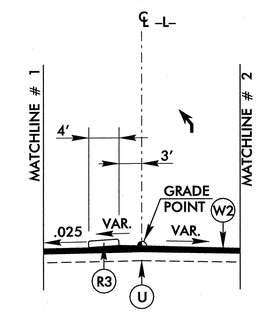
-L- STA. 54+05.25 TO 60+94.52

* NOTE: STATION 60+94.52 TO STA 63+50.00 (INTERSECTION)



TYPICAL SECTION NO. 6A

USE TYPICAL SECTION NO. 6A IN CONJUNCTION WITH TYPICAL SECTION NO. 6 AS FOLLOWS:
-L- STA. 42+79.45 TO 44+56.32



TYPICAL SECTION NO. 7A

USE TYPICAL SECTION NO. 7A IN CONJUNCTION WITH TYPICAL SECTION NO. 7 AS FOLLOWS:
-L- STA. 38+76.64 TO 41+33.13

NOTES:

TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.

WHEN WEDGING SURFACE, INTERMEDIATE, AND BASE COURSES, DO NOT INTERCHANGE COURSE TYPES.

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

FDPS - FULL DEPTH PAVED SHOULDER

FULL DEPTH PATCHING IS REQUIRED PRIOR TO OVERLAYING THE EXISTING PAVEMENT. ASPHALT MIX B25.0B OR I19.0B IS TO BE USED FOR PATCHING

TYPICAL 10' BERM WITH 5' SIDEWALKS UNLESS NOTED OTHERWISE

SEE SHEET 2 FOR CHANNELIZATION DETAIL, 8"x6" CURB LOCATIONS, AND SIDEWALK DETAILS

SEE SHEET 2-F FOR WATER QUALITY ISLAND AND CURB CUT W/FLUME DETAILS

PLACE PROPOSED CURB AND GUTTER ON EARTH MATERIAL

CONTRACTOR TO MILL EXISTING PAVEMENT AT TIE-INS

16-DEC-2008 13:05
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Administrator
ALTGOM THROWER

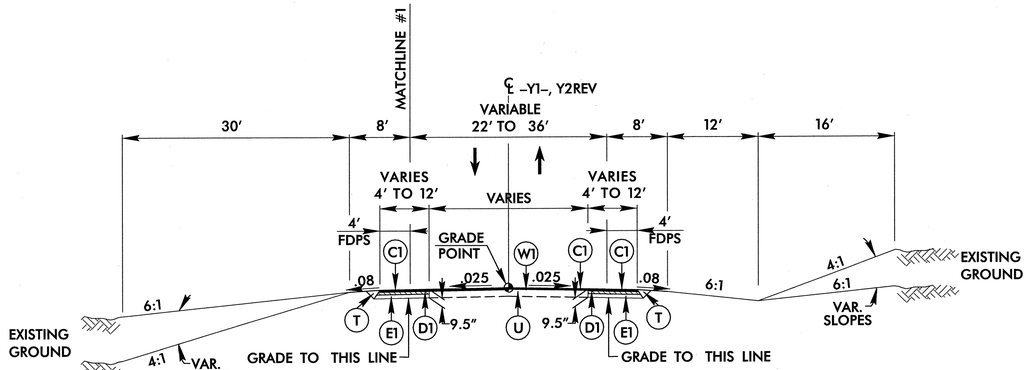
Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-C
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

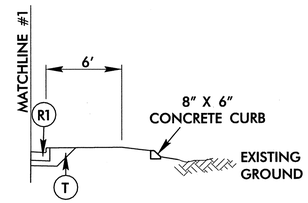
PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 12/26/08

C1	3" S9.5B
C2	VAR. DEPTH S9.5B
C3	1 1/2" S9.5B
D1	2 1/2" I19.0B
D2	VAR. DEPTH I19.0B
D3	4" I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
R1	2'-6" CONCRETE C & G
R2	2'-9" CONCRETE C & G
R3	5" CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VAR. DEPTH WEDGING (METHOD 1)
W2	VAR. DEPTH WEDGING (METHOD 2)



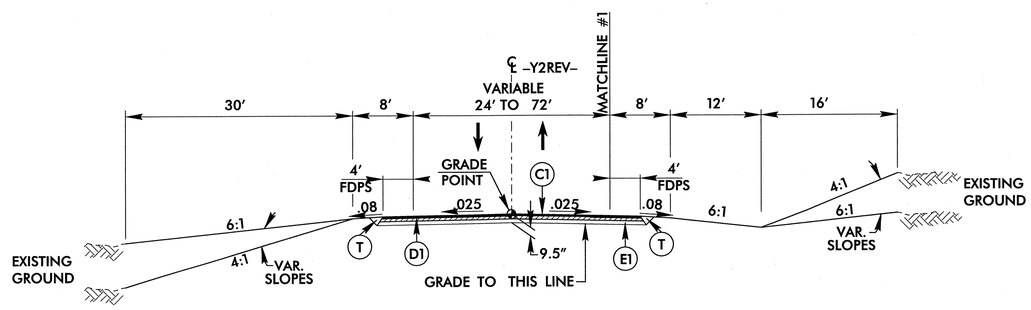
TYPICAL SECTION NO. 9

-Y1- STA. 10+50.00 TO STA. 16+64.10
-Y2REV- STA. 11+00.00 TO STA. 15+86.00



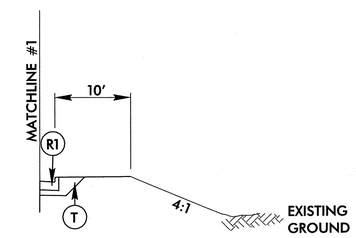
TYPICAL SECTION NO. 9A

USE TYPICAL SECTION NO. 9A IN CONJUNCTION WITH TYPICAL SECTION NO. 9 AS FOLLOWS:
-Y1- STA. 15+38 LT TO 16+64.10 LT



TYPICAL SECTION NO. 10

-Y2REV- STA. 15+86.00 TO STA. 20+07.80



TYPICAL SECTION NO. 10A

USE TYPICAL SECTION NO. 10A IN CONJUNCTION WITH TYPICAL SECTION NO. 10 AS FOLLOWS:
-Y2REV- STA. 17+67.00 RT TO 20+07.80 RT

NOTES:

TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.

WHEN WEDGING SURFACE, INTERMEDIATE, AND BASE COURSES, DO NOT INTERCHANGE COURSE TYPES.

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FDPS - FULL DEPTH PAVED SHOULDER

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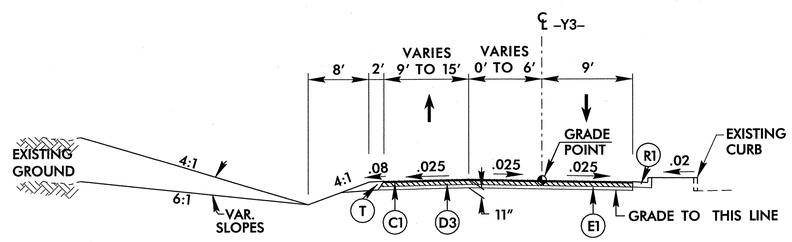
TYPICAL 10' BERM WITH 5' SIDEWALKS UNLESS NOTED OTHERWISE

SEE SHEET 2 FOR CHANNELIZATION DETAIL, 8"x6" CURB LOCATIONS, AND SIDEWALK DETAILS

SEE SHEET 2-F FOR WATER QUALITY ISLAND AND CURB CUT W/FLUME DETAILS

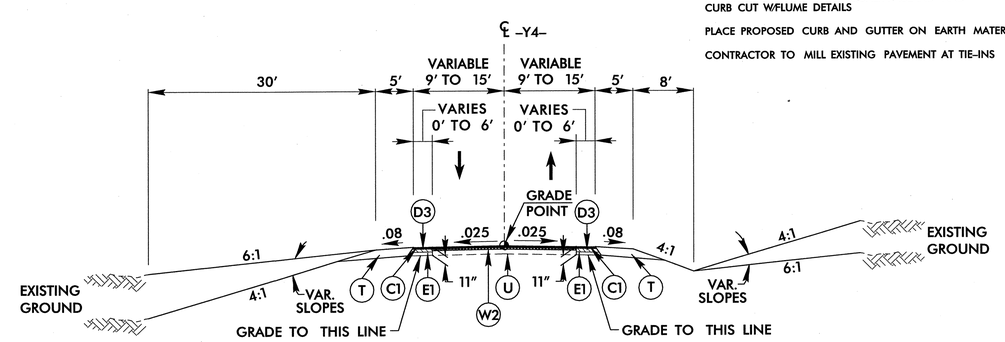
PLACE PROPOSED CURB AND GUTTER ON EARTH MATERIAL

CONTRACTOR TO MILL EXISTING PAVEMENT AT TIE-INS



TYPICAL SECTION NO. 11

-Y3- STA. 11+00 TO STA. 12+52.06



TYPICAL SECTION NO. 12

-Y4- STA. 12+00.00 TO STA. 12+72.20

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ministrator AT-DSN THROWER

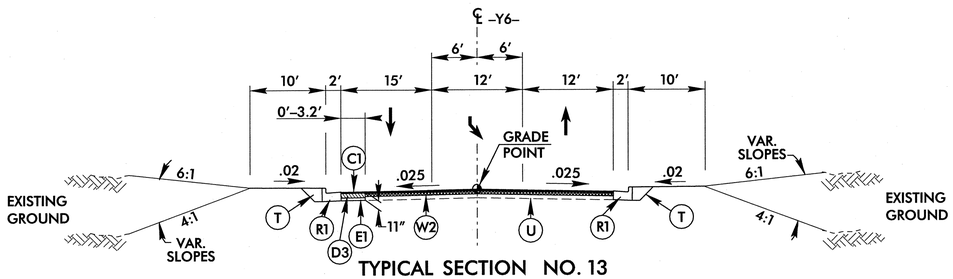
Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-D
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

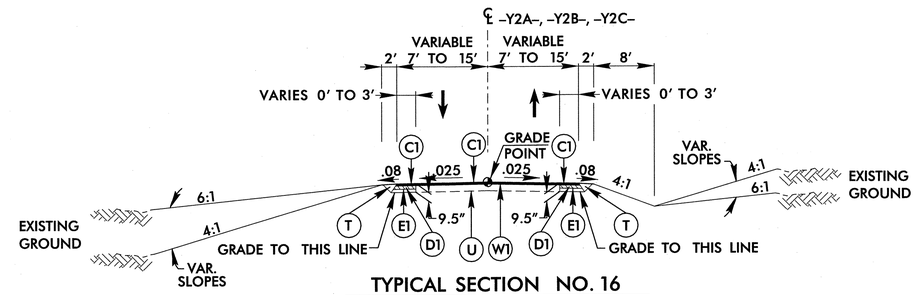
PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 12/29/08

C1	3" S9.5B
C2	VAR. DEPTH S9.5B
C3	1 1/2" S9.5B
D1	2 1/2" I19.0B
D2	VAR. DEPTH I19.0B
D3	4" I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
R1	2'-6" CONCRETE C & G
R2	2'-9" CONCRETE C & G
R3	5" CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VAR. DEPTH WEDGING (METHOD 1)
W2	VAR. DEPTH WEDGING (METHOD 2)



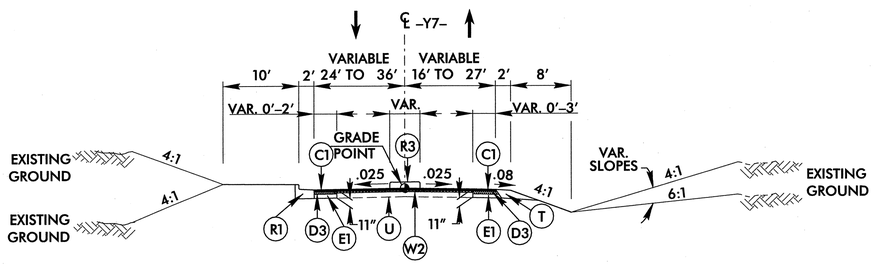
TYPICAL SECTION NO. 13

-Y6- STA. 11+50.00 TO STA. 12+00.29



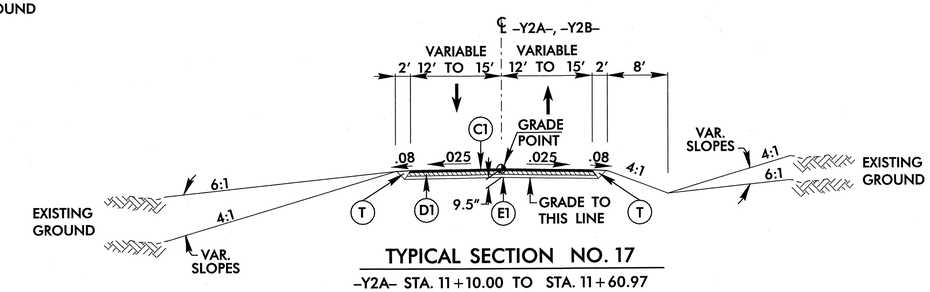
TYPICAL SECTION NO. 16

-Y2A- STA. 10+50.00 TO STA. 11+10.00
-Y2B- STA. 11+80.00 TO STA. 13+30.00
-Y2C- STA. 10+50.13 TO STA. 11+30.00



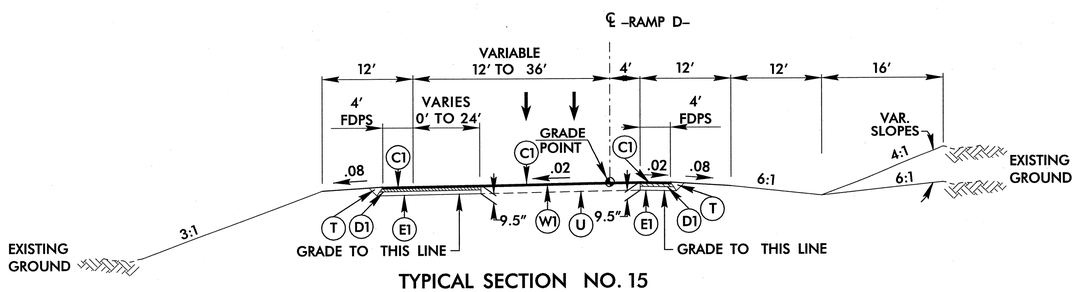
TYPICAL SECTION NO. 14

-Y7- STA. 13+90.00 TO STA. 14+54.56



TYPICAL SECTION NO. 17

-Y2A- STA. 11+10.00 TO STA. 11+60.97
-Y2B- STA. 10+61.14 TO STA. 11+80.00



TYPICAL SECTION NO. 15

-RAMP D- STA. 10+93.75 TO STA. 18+00.00

NOTES:

TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.

WHEN WEDGING SURFACE, INTERMEDIATE, AND BASE COURSES, DO NOT INTERCHANGE COURSE TYPES.

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

FDPS - FULL DEPTH PAVED SHOULDER

FULL DEPTH PATCHING IS REQUIRED PRIOR TO OVERLAYING THE EXISTING PAVEMENT. ASPHALT MIX B25.0B OR I19.0B IS TO BE USED FOR PATCHING

TYPICAL 10' BERM WITH 5' SIDEWALKS UNLESS NOTED OTHERWISE

SEE SHEET 2 FOR CHANNELIZATION DETAIL, 8"x6" CURB LOCATIONS, AND SIDEWALK DETAILS

SEE SHEET 2-F FOR WATER QUALITY ISLAND AND CURB CUT W/FLUME DETAILS

PLACE PROPOSED CURB AND GUTTER ON EARTH MATERIAL

CONTRACTOR TO MILL EXISTING PAVEMENT AT TIE-INS

16-DEC-2008 13:05
R:\R4002\Roadway\R4002_rdy_typ.dgn
ministrator ADSON THROWER

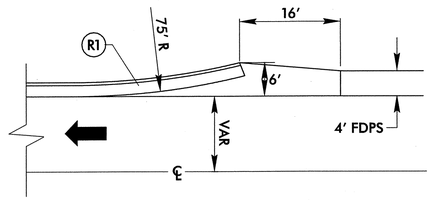
Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-E
R/W SHEET NO.	

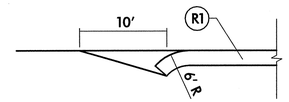
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 12/24/08

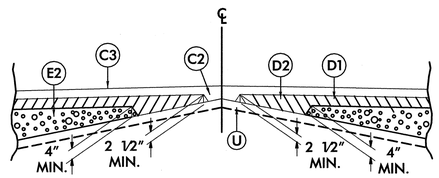
C1	3" S9.5B
C2	VAR. DEPTH S9.5B
C3	1 1/2" S9.5B
D1	2 1/2" I19.0B
D2	VAR. DEPTH I19.0B
D3	4" I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
R1	2'-6" CONCRETE C & G
R2	2'-9" CONCRETE C & G
R3	5" CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VAR. DEPTH WEDGING (METHOD 1)
W2	VAR. DEPTH WEDGING (METHOD 2)



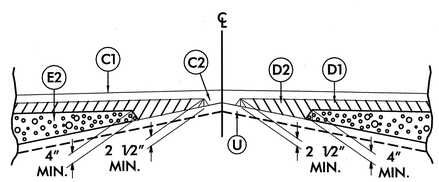
DETAIL OF
CURB & GUTTER END TREATMENT FOR -L-, -Y1-, -Y2REV-, RAMPS
N.T.S.



DETAIL OF CURB & GUTTER
END TREATMENT FOR OTHER -Y- LINES
N.T.S.



DETAIL SHOWING METHOD 1 FOR WEDGING (W1)
N.T.S.
FOR Y1, Y2REV, Y2A, Y2B, Y2C, AND RAMP D
(OVERLAY EXISTING PAVEMENT WITH MIN. 1.5" S9.5B)

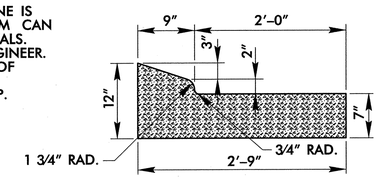


DETAIL SHOWING METHOD 2 FOR WEDGING (W2)
N.T.S.
FOR L, Y3, Y4, Y6, AND Y7
(OVERLAY WITH MIN. 2.5" I19.0B AND 3.0" S9.5B)

NOTE: FULL-DEPTH PATCHING IS REQUIRED PRIOR TO OVERLAYING EXISTING PAVEMENT. B25.0B OR I19.0B PLACED TO THE DEPTH OF EXISTING PAVEMENT SHOULD BE USED FOR THE FULL-DEPTH PATCHING

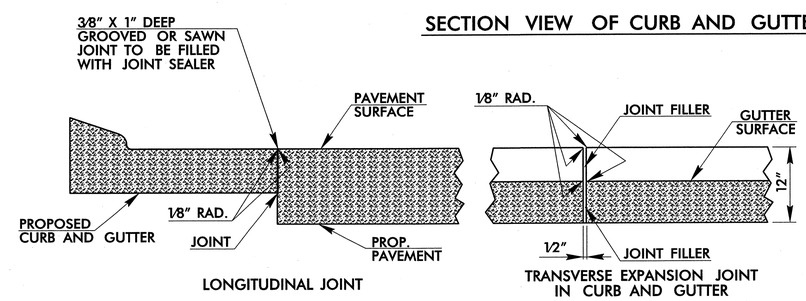
2'-9" CURB AND GUTTER

GENERAL NOTES
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON- TEMPLATE FORMED JOINTS A MIN. OF 1 1/2" DEEP.
- FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



2'-9" CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER



SECTION VIEW OF JOINTS

16-DEC-2008 13:06
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Administrator
ATRON THROWER

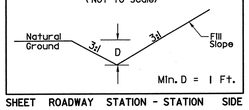
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-F
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES — 12-17-08

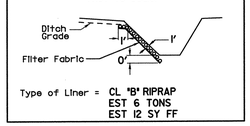
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER JR. — 12-17-08

DETAIL A
WATER QUALITY DITCH
(Not to Scale)



SHEET	ROADWAY	STATION - STATION	SIDE
4 & 5	-L-	22+50 - 28+60	RT

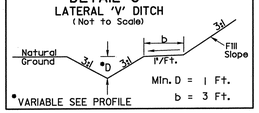
DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CL "B" RIPRAP
EST 6 TONS
EST 12 SY FF

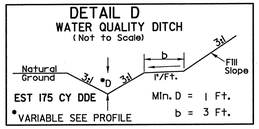
SHEET	ROADWAY	STATION	SIDE
5	-Y3-	10+15	LT

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



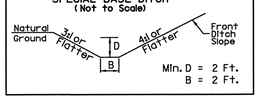
SHEET	ROADWAY	STATION - STATION	SIDE
7	-L-	58+75 - 60+50	RT

DETAIL D
WATER QUALITY DITCH
(Not to Scale)



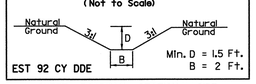
SHEET	ROADWAY	STATION - STATION	SIDE
7	-L-	59+35 - 61+17	LT

DETAIL F
SPECIAL BASE DITCH
(Not to Scale)



SHEET	ROADWAY	STATION - STATION	SIDE
8	-Y2REV-	10+50 - 14+70	LT

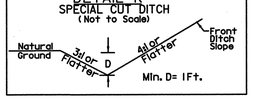
DETAIL G
BASE TAIL DITCH
(Not to Scale)



EST 92 CY DDE

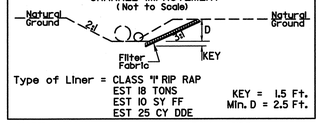
SHEET	ROADWAY	STATION	SIDE
8	-Y2B-	10+64	RT

DETAIL K
SPECIAL CUT DITCH
(Not to Scale)



SHEET	ROADWAY	STATION - STATION	SIDE
4	-L-	11+23 - 13+40	LT
4	-L-	15+00 - 18+40	LT
4&8	-Y1-	13+08 - 15+53	LT
4&8	-Y1-	13+08 - 16+25	RT
4	-Y2A-	10+50 - 11+65	LT
4&8	-Y2A-	10+50 - 11+65	RT
8	-Y2B-	10+64 - 13+00	LT
8	-Y2B-	10+64 - 13+00	RT
8	-Y2C-	10+29 - 11+00	LT
8	-Y2C-	10+62 - 11+00	RT
8	-Y2REV-	10+00 - 13+00	RT
4&8	-Y2REV-	10+50 - 20+00	LT
8	-Y2REV-	13+50 - 14+46	RT
4&8	-Y2REV-	15+25 - 17+50	RT
5	-Y3-	10+15 - 12+34	LT

DETAIL H
CHANNEL IMPROVEMENT
(Not to Scale)

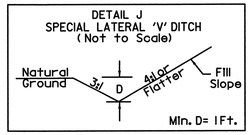


Type of Liner = CLASS "I" RIP RAP
EST 18 TONS
EST 10 SY FF
EST 25 CY DDE

KEY = 1.5 Ft.
Min. D = 2.5 Ft.

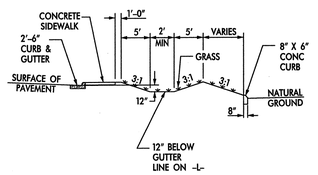
SHEET	ROADWAY	STATION	SIDE
	FAIRVIEW RD		

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

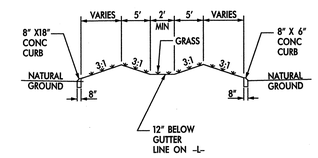


SHEET	ROADWAY	STATION - STATION	SIDE
4, 8	-Y2REV-	17+50 - 20+00	RT

DETAIL L



SECTION PERPENDICULAR TO -L-

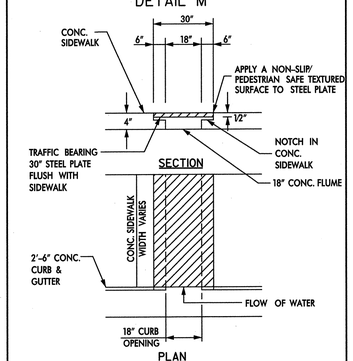


SECTION PARALLEL TO -L-

WATER QUALITY ISLAND
(Not to Scale)

SHEET	ROADWAY	STATION - STATION	SIDE	REMARKS
5	-L-	31+04 - 31+76	LT	2' BASE (USE 5' SIDEWALK)
5	-L-	32+00 - 32+79	LT	2' BASE (USE 5' SIDEWALK)
5	-L-	33+37 - 34+22	LT	2' BASE (USE 5' SIDEWALK)
5	-L-	34+64 - 36+20	LT	2' BASE (USE 5' SIDEWALK)
5-6	-L-	36+22 - 38+80	LT	2' BASE (USE 5' SIDEWALK)
6	-L-	39+72 - 40+20	LT	2' BASE (USE 5' SIDEWALK)
6	-L-	40+10 - 41+30	RT	2' BASE (USE 5' SIDEWALK)
6	-L-	43+45 - 46+75	RT	BASE VARIES (SEE X-SECTIONS) - USE 5' SIDEWALK
6	-L-	47+55 - 49+00	RT	BASE VARIES (SEE X-SECTIONS) - USE 5' SIDEWALK
6-7	-L-	50+10 - 52+50	RT	BASE VARIES (SEE X-SECTIONS) - USE 5' SIDEWALK

DETAIL M



CURB CUT DETAIL
AT SIDEWALK
(Not to Scale)

SHEET	ROADWAY	STATION	SIDE
5	-L-	31+20	LT
5	-L-	32+28	LT
5	-L-	33+95	LT
5	-L-	35+10	LT
5	-L-	35+70	LT
5	-L-	36+75	LT
5	-Y4-	12+77	LT
5	-Y4-	12+80	RT
6	-L-	38+05	LT
6	-L-	38+75	LT
6	-L-	40+10	LT
6	-L-	40+58	RT
6	-L-	41+16	RT
6	-L-	43+77	RT
6	-L-	44+48	RT
6	-L-	45+30	RT
6	-L-	45+94	RT
6	-L-	47+95	RT
6	-L-	48+80	RT
6	-L-	49+40	RT
6	-L-	50+60	RT
7	-L-	51+83	RT
7	-L-	52+24	RT

KO & ASSOCIATES, P.C.
Consulting Engineers
5121 KINGDOM WAY, SUITE 100 – RALEIGH, N.C. 27607
(919) 851-6066

16-DEC-2008 13:21
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Administrator AT GSD_THROWER

Baker

MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

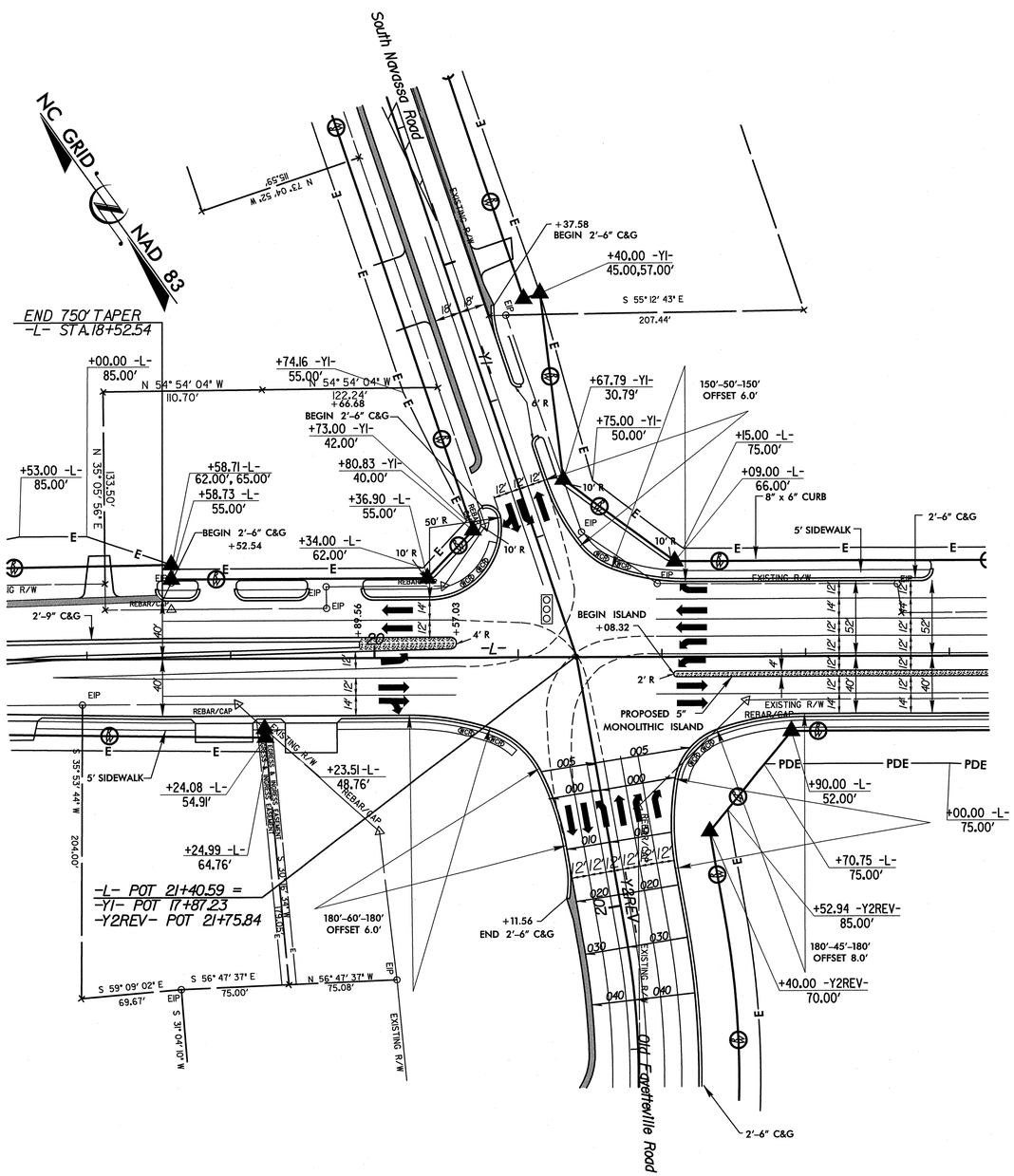
PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-G
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08

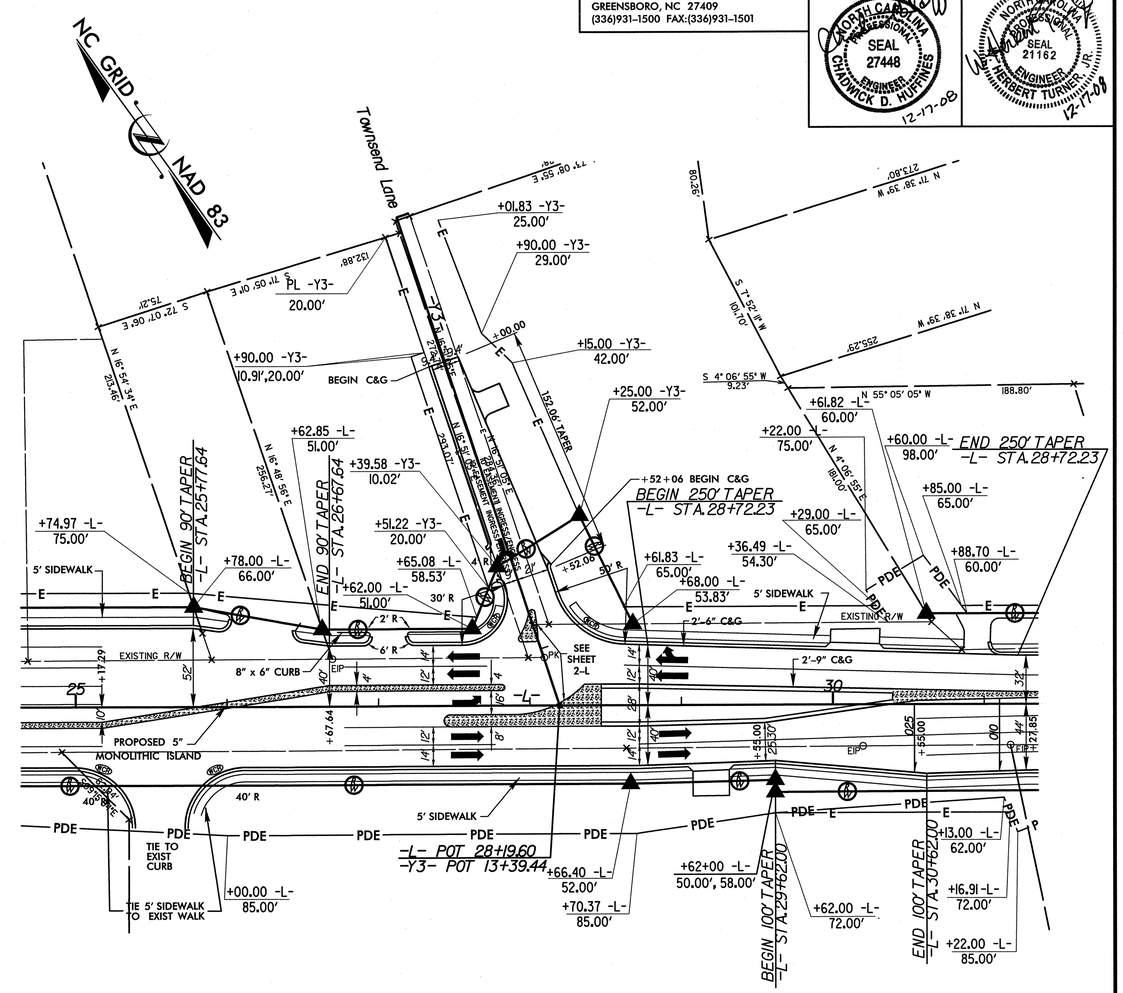
REVISIONS

5/14/99



NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.
6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

INTERSECTION DETAIL
-L-, -Y1- AND -Y2REV-
SEE PLAN SHEET No. 4



8"x6" CURB LOCATIONS

LINE	STATION	STATION	SIDE
L	18+49	18+77	LT
L	19+04	19+54	LT
L	19+92	20+75	LT
L	21+15	23+87	LT
L	24+40	26+02	LT
L	26+45	26+95	LT
L	27+19	27+79	LT
L	31+04	31+77	LT
L	31+99	32+86	LT
L	33+30	34+23	LT
L	34+63	36+21	LT
L	36+61	38+82	LT
L	39+71	40+69	LT
L	41+02	41+74	LT
L	43+01	43+17	LT
L	43+56	44+26	LT
L	39+54	39+73	RT
L	40+11	41+71	RT
L	42+25	43+04	RT
L	43+41	46+75	RT
L	50+10	52+10	RT
Y1	15+62	15+96	LT

INTERSECTION DETAIL
-L- AND -Y3-
SEE PLAN SHEET No. 5
SEE SHEET 2-L FOR ISLAND DETAILS

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PATRON THROWER

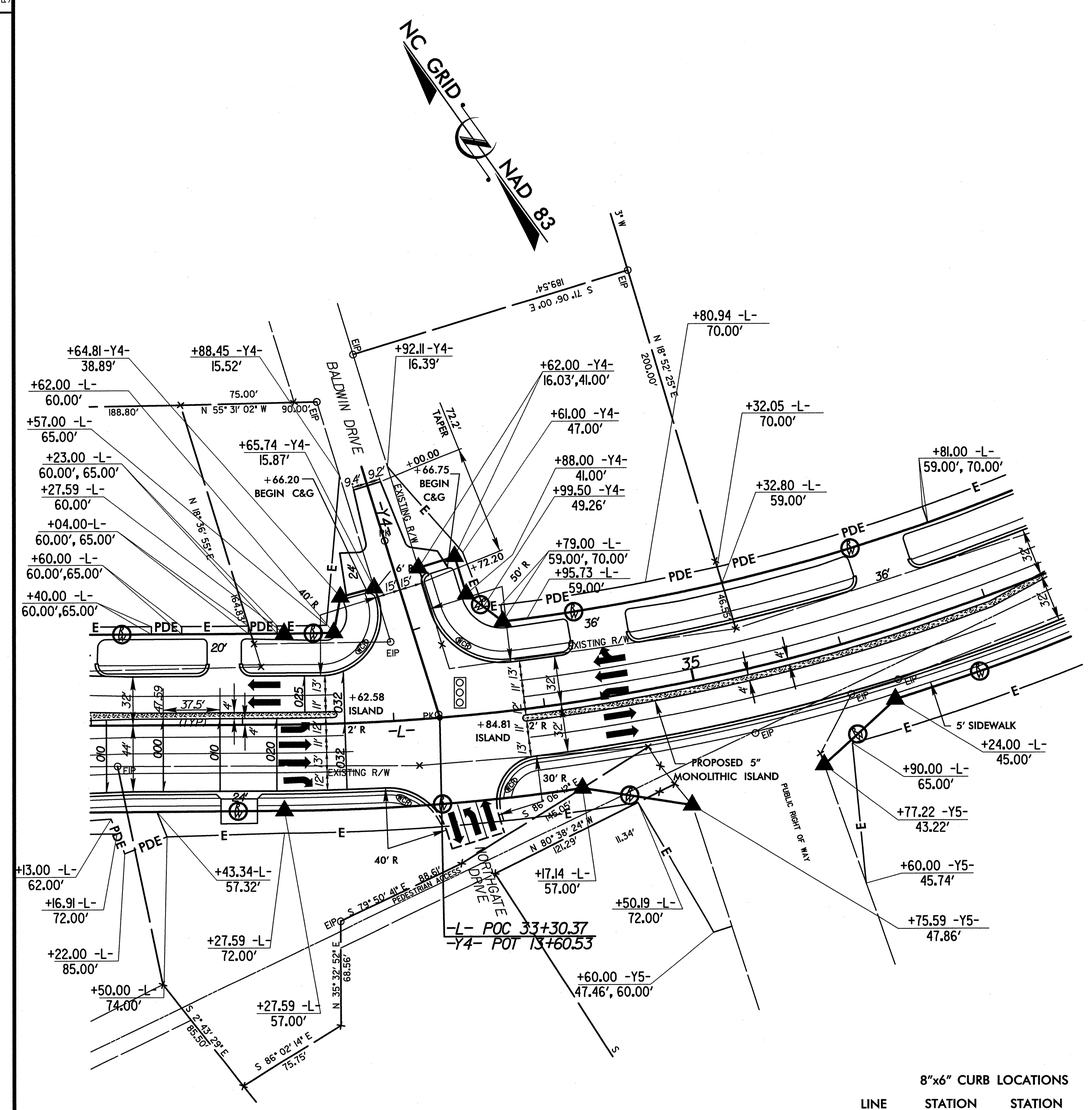
Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

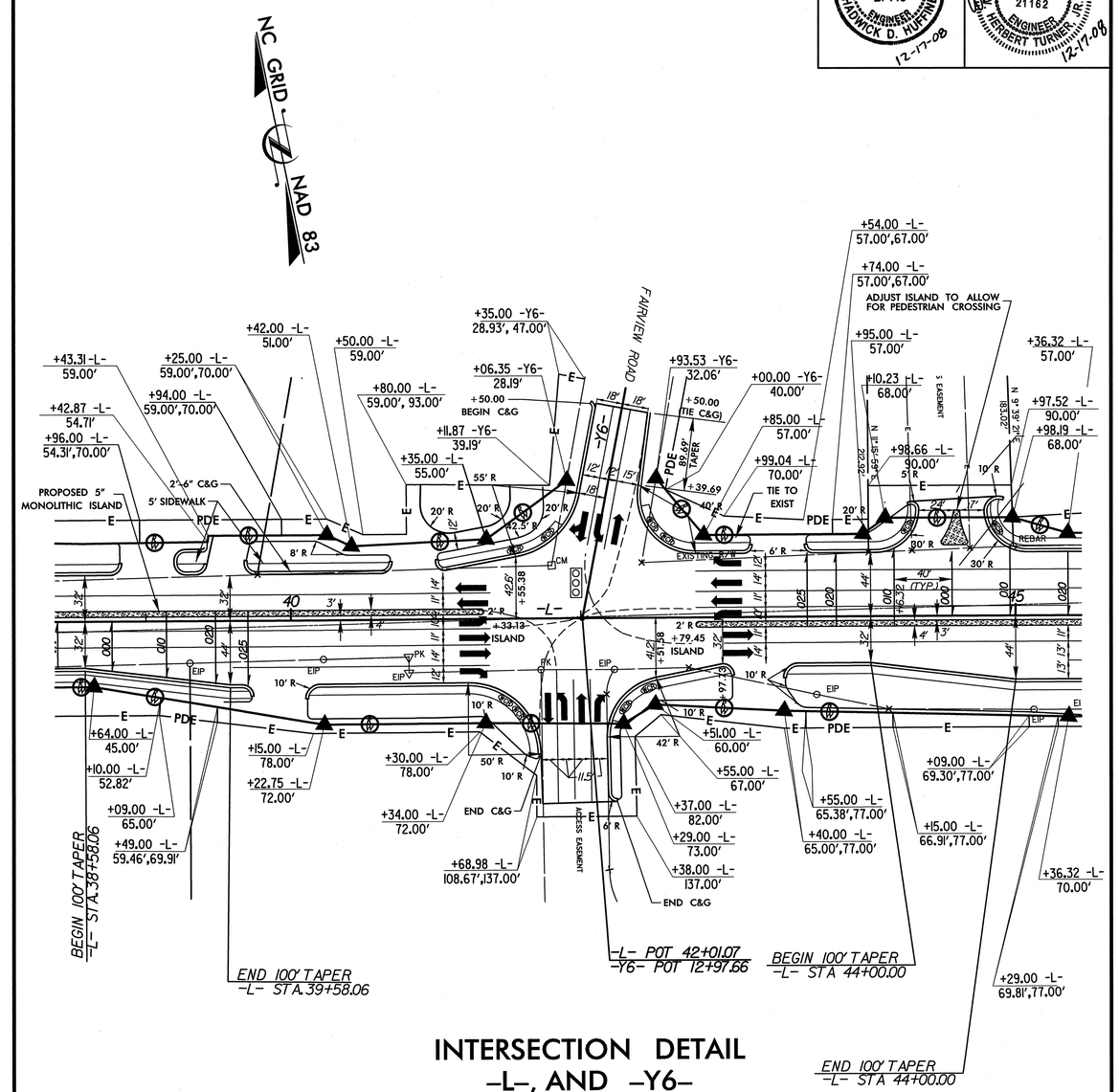
PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-H
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08

REVISIONS 5/14/99





8"x6" CURB LOCATIONS

LINE	STATION	STATION	SIDE
L	18+49	18+77	LT
L	19+04	19+54	LT
L	19+92	20+75	LT
L	21+15	23+87	LT
L	24+40	26+02	LT
L	26+45	26+95	LT
L	27+19	27+79	LT
L	31+04	31+77	LT
L	31+99	32+86	LT
L	33+30	34+23	LT
L	34+63	36+21	LT
L	36+61	38+82	LT
L	39+71	40+69	LT
L	41+02	41+74	LT
L	43+01	43+17	LT
L	43+56	44+26	LT
L	39+54	39+73	RT
L	40+11	41+71	RT
L	42+25	43+04	RT
L	43+41	46+75	RT
L	50+10	52+10	RT
Y1	15+62	15+96	LT

NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.

INTERSECTION DETAIL
-L-, AND -Y4-
SEE PLAN SHEET No. 5

INTERSECTION DETAIL
-L-, AND -Y6-
SEE PLAN SHEET No. 6
SEE SHEET 2-L FOR ISLAND DETAILS

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structure
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DRAWER

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-I
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

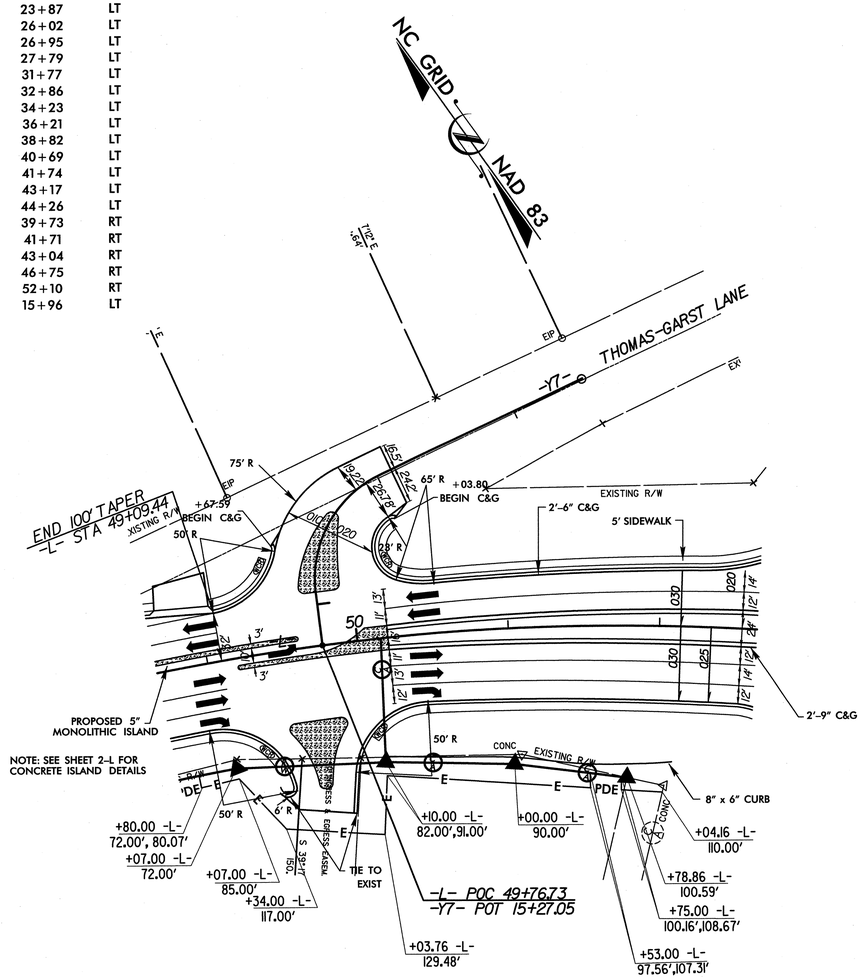
HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER WILLIAM HERBERT TURNER, JR. 12-17-08

REVISIONS

5/14/99

8"x6" CURB LOCATIONS

LINE	STATION	STATION	SIDE
L	18+49	18+77	LT
L	19+04	19+54	LT
L	19+92	20+75	LT
L	21+15	23+87	LT
L	24+40	26+02	LT
L	26+45	26+95	LT
L	27+19	27+79	LT
L	31+04	31+77	LT
L	31+99	32+86	LT
L	33+30	34+23	LT
L	34+63	36+21	LT
L	36+61	38+82	LT
L	39+71	40+69	LT
L	41+02	41+74	LT
L	43+01	43+17	LT
L	43+56	44+26	LT
L	39+54	39+73	RT
L	40+11	41+71	RT
L	42+25	43+04	RT
L	43+41	46+75	RT
L	50+10	52+10	RT
Y1	15+62	15+96	LT



INTERSECTION DETAIL
-L-, AND -Y7-
SEE PLAN SHEET No. 6
SEE SHEET 2-L FOR ISLAND DETAILS

NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
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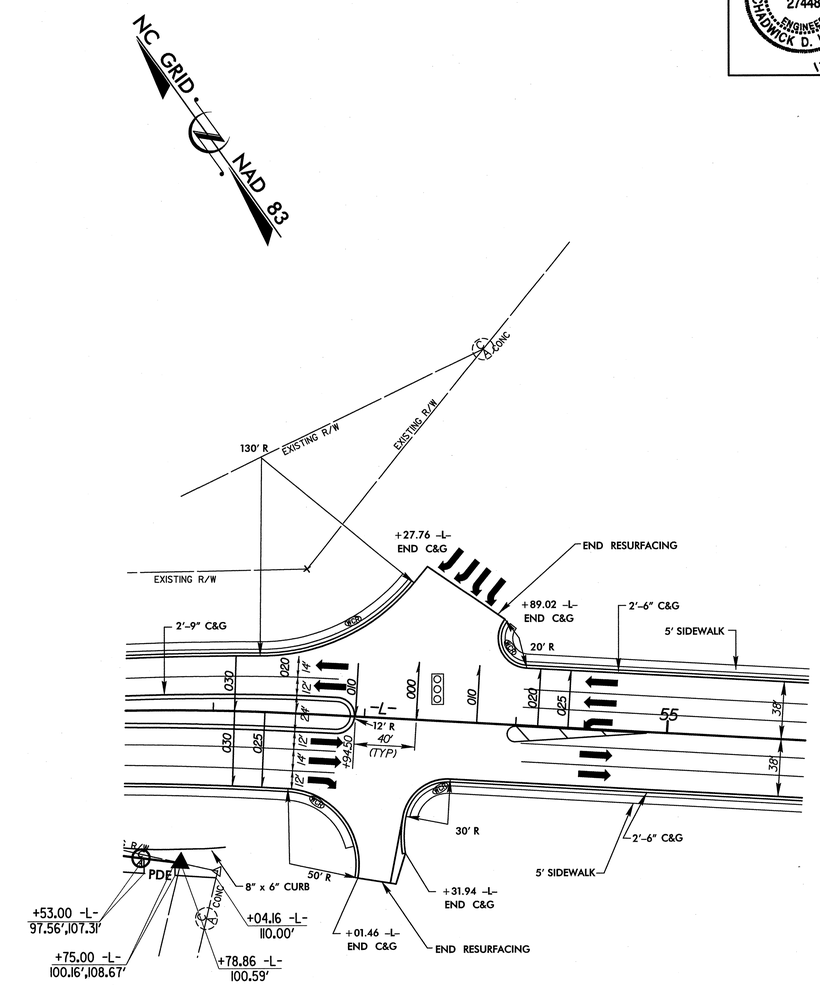
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.
6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E



INTERSECTION DETAIL
-L-, AND EXIST RAMP
SEE PLAN SHEET No. 7

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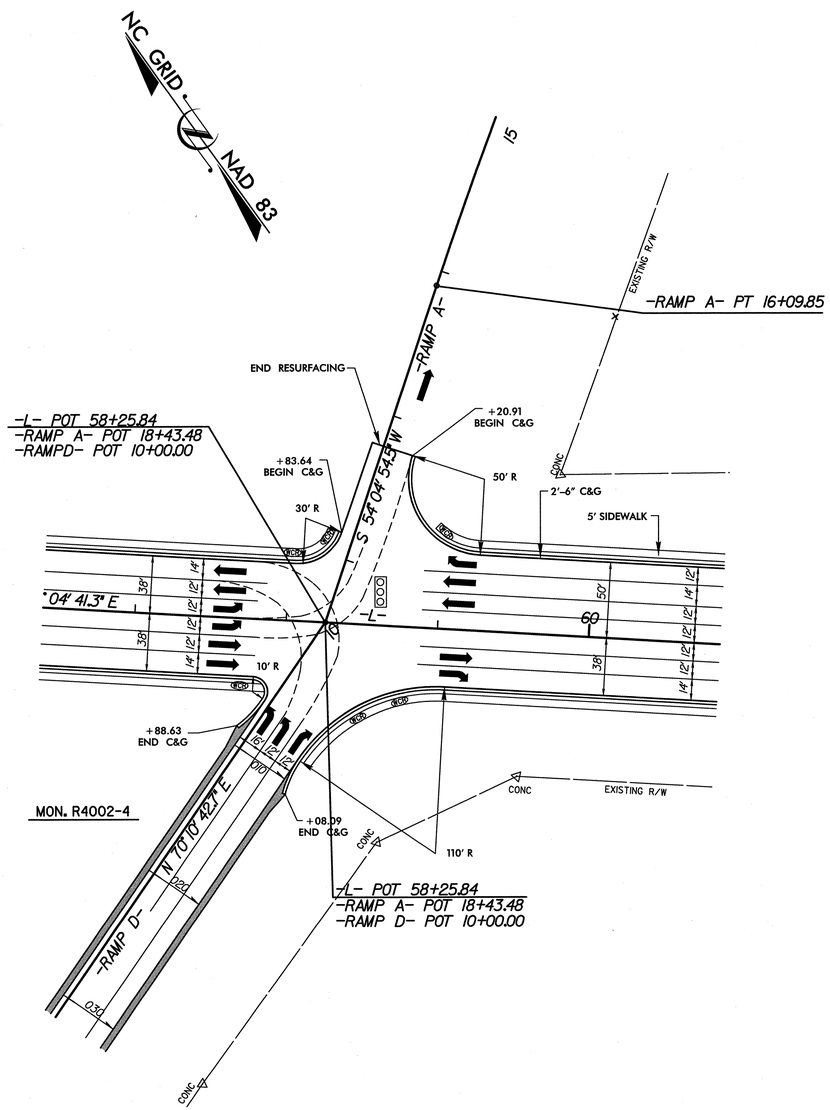
ministrator

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-J
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08



INTERSECTION DETAIL
-L-, -RAMP A- AND -RAMP D-
SEE PLAN SHEET No. 7

NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
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6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

5/14/99
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16-DEC-2008 13:16
ministerc
24x36 PANOWER

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-K
R/W SHEET NO.	

Baker

MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

ROADWAY DESIGN ENGINEER

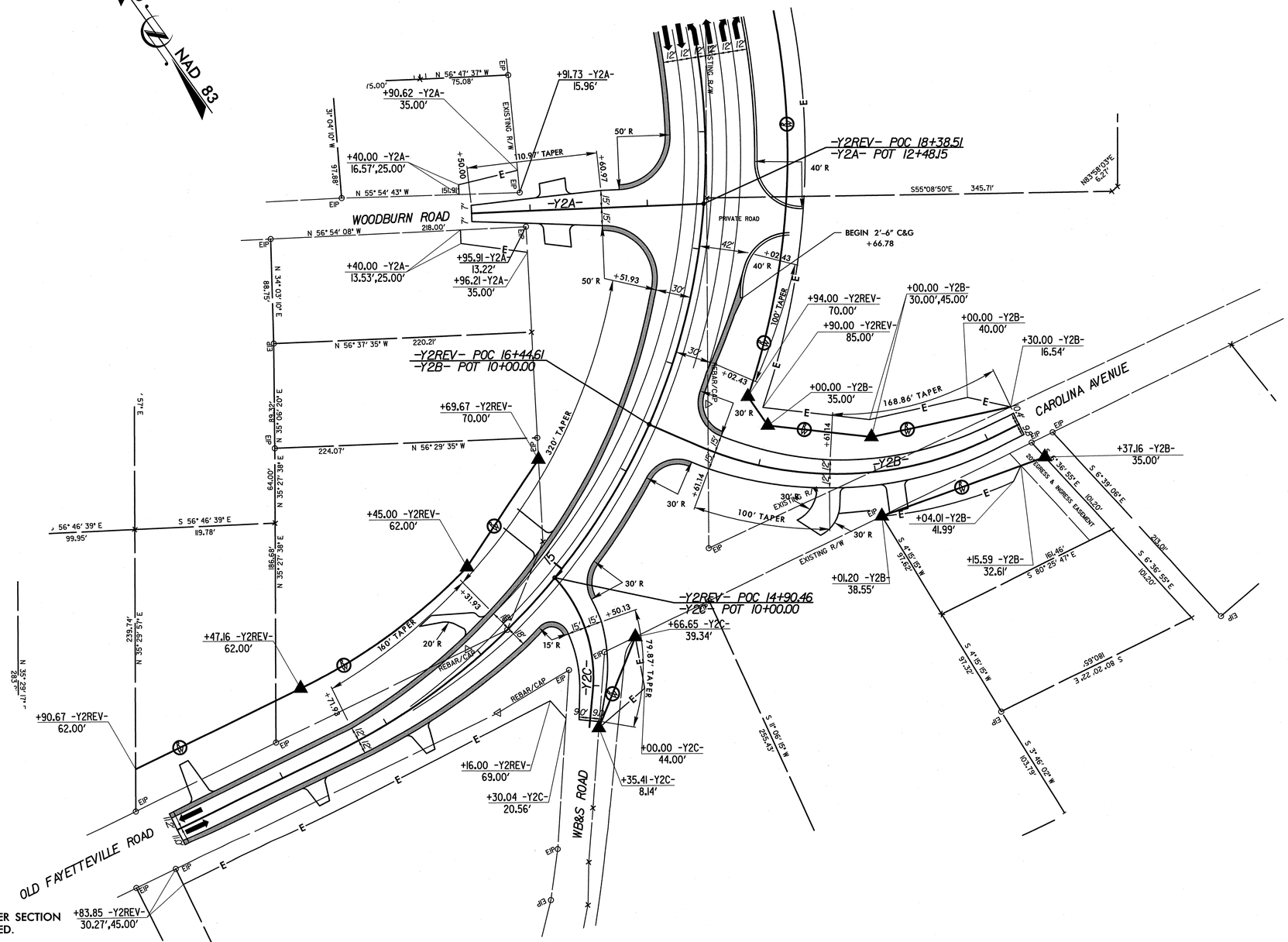
NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER WILLIAM HERBERT TURNER, JR. 12-17-08

5/14/99

REVISIONS



NOTES

1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

INTERSECTION DETAIL
-Y2REV, -2YA-, -Y2B- AND -Y2C-
SEE PLAN SHEET No. 8

16-DEC-2008 13:18
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MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

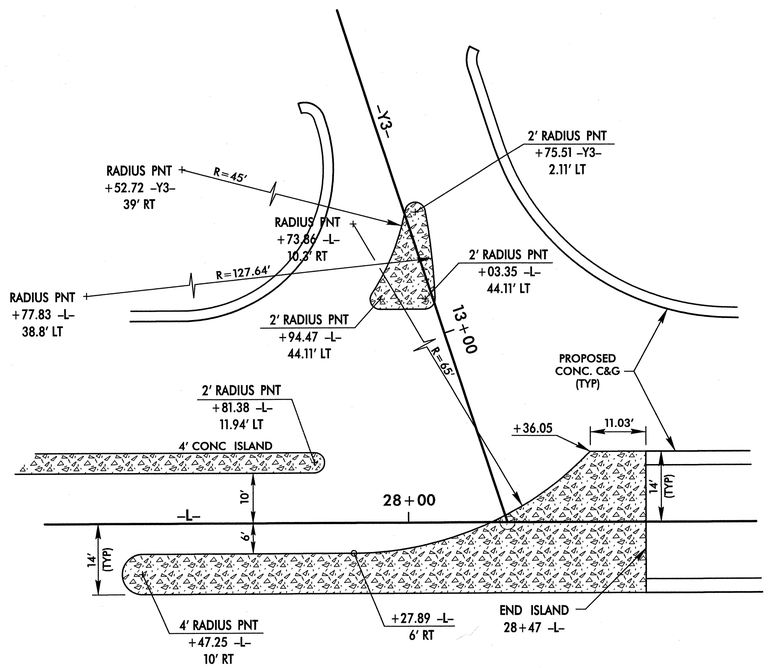
PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-L
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

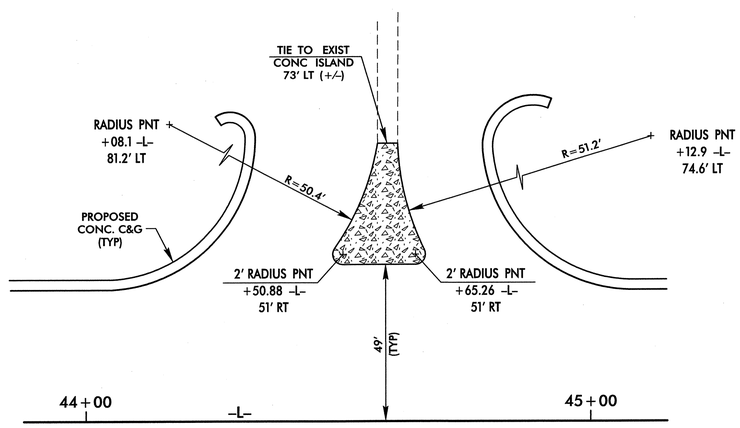
NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

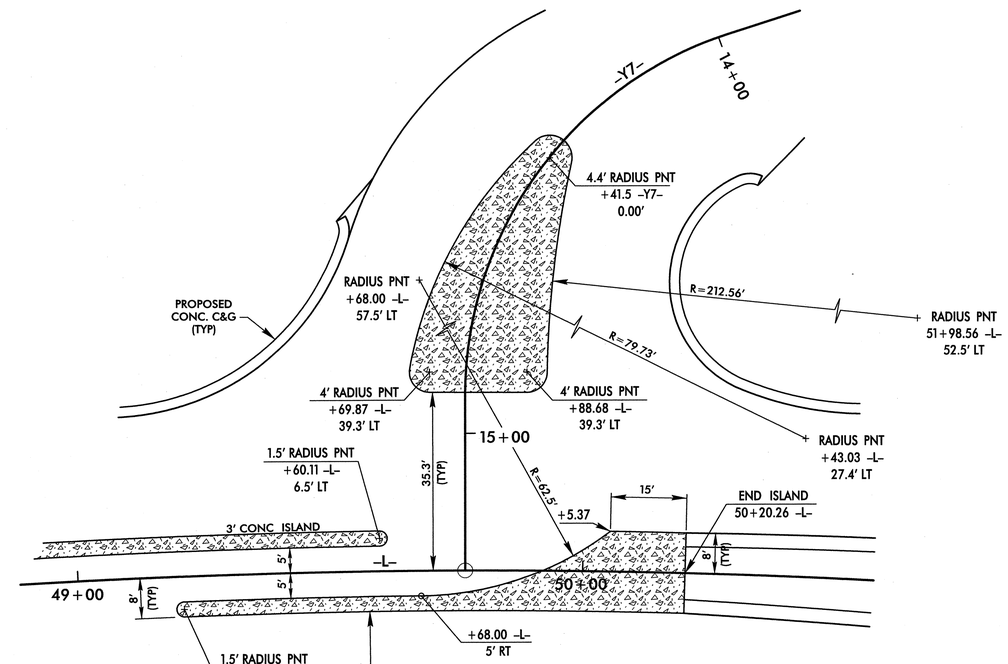
NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08

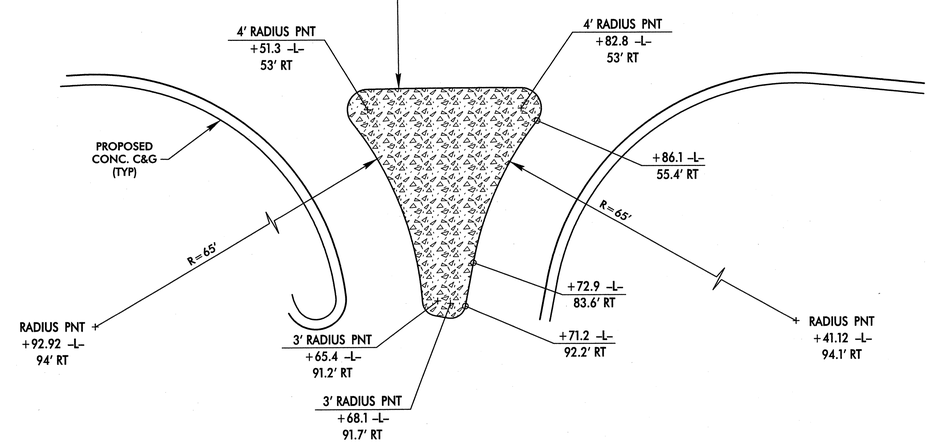
REVISIONS

514499









CONCRETE ISLAND DETAILS

THIS SHEET NOT TO SCALE

SEE SHEET 2-M FOR DEPRESSIONS FOR WHEELCHAIR RAMPS

16-DEC-2008 13:18
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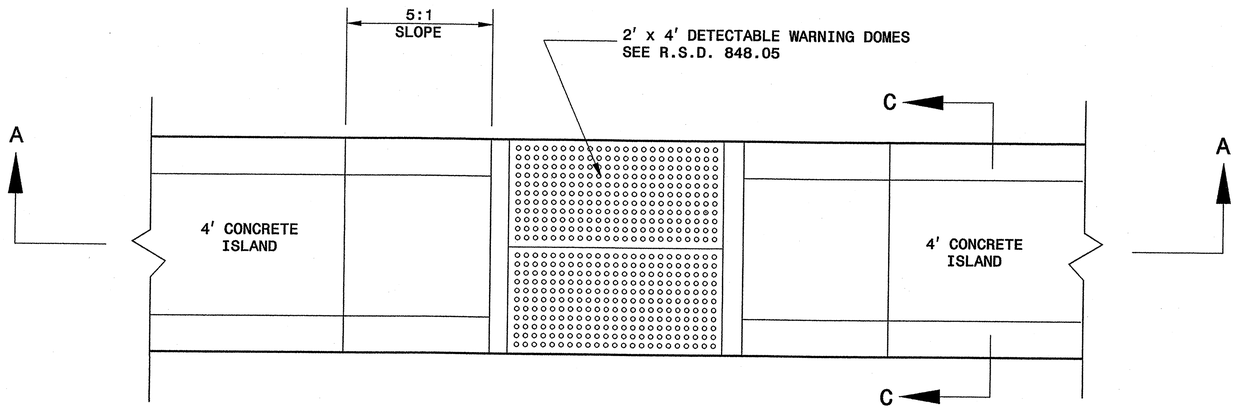
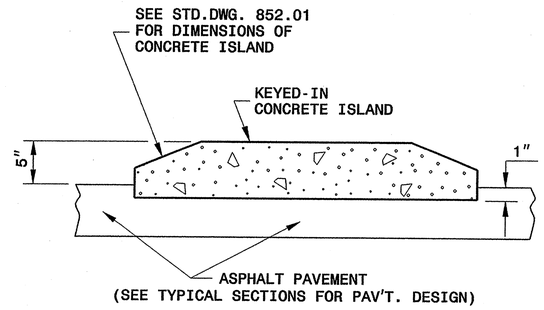
Administrator AT GSO THROWER

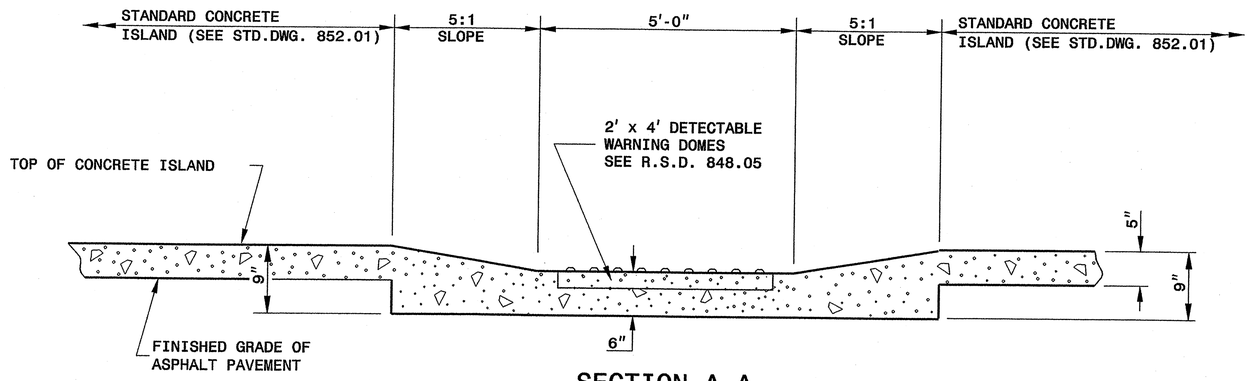
PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-M



TOP VIEW



SECTION C-C



SECTION A-A

DETAIL OF WHEELCHAIR RAMP THROUGH ISLAND

NOTES:

REFER TO SECTION 852 OF STANDARD SPECIFICATIONS FOR CONCRETE ISLANDS.

REFER TO STANDARD DRAWING 852.01 FOR CONTRACTION/EXPANSION JOINTS.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
12/31/08

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

WHEELCHAIR RAMP THROUGH ISLAND

ORIGINAL BY:	T. SPELL	DATE:	11-05
MODIFIED BY:	K.A.KEMPF	DATE:	11-08
CHECKED BY:		DATE:	11/10/08
FILE SPEC.:	KKEMPF\ENGLISH\WHEELCHAIR_ISLAND.DGN		

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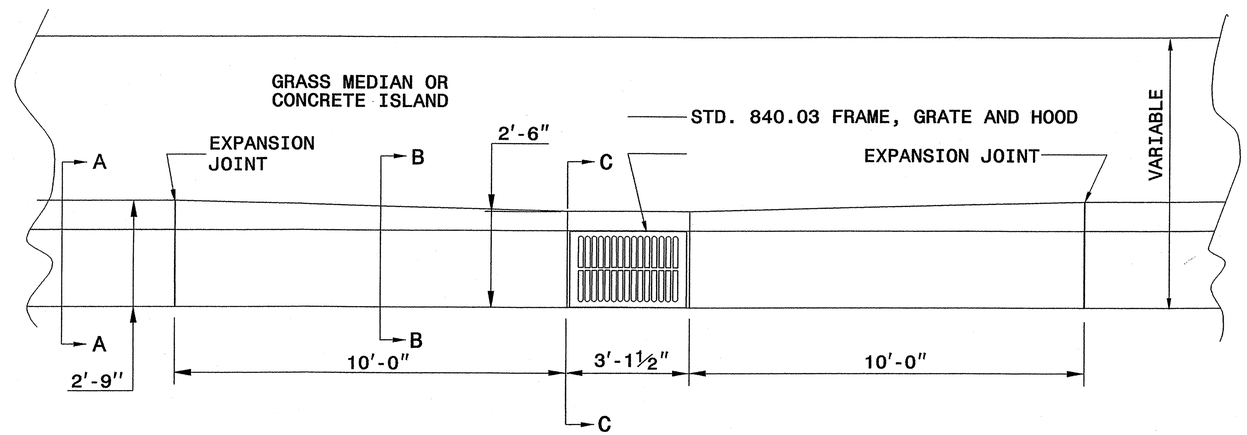
kkempf AT PS237489

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-N

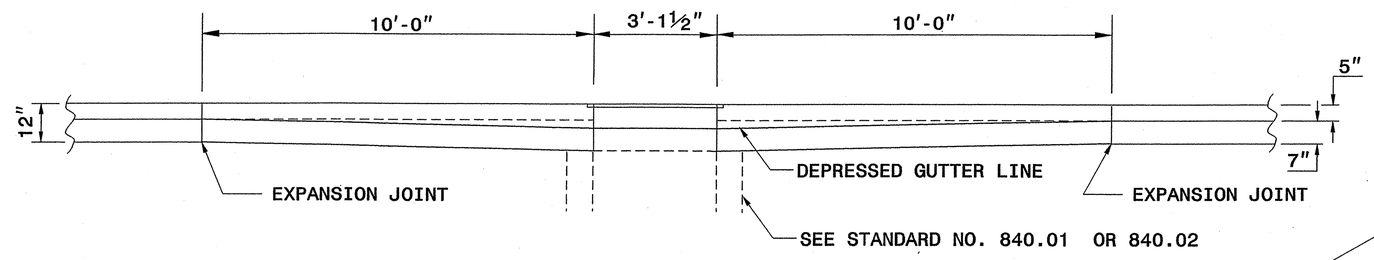
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MEDIAN CURB FOR CATCH BASIN
(FOR USE WITH 2'-9" CURB AND GUTTER)

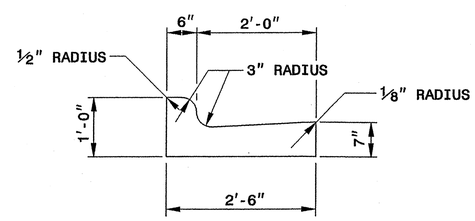
SHEET 1 OF 1
852.05



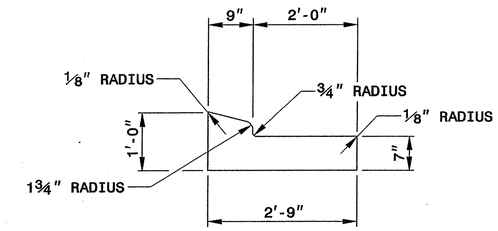
PLAN



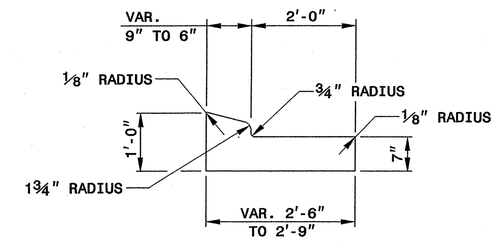
ELEVATION



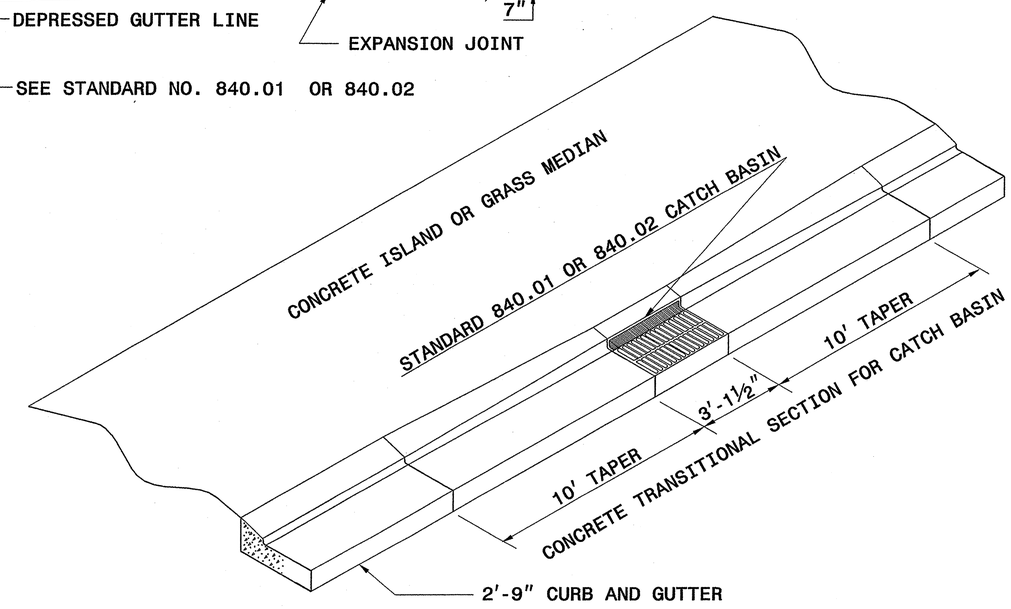
SECTION - CC



SECTION - AA



SECTION - BB



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

ENGLISH DETAIL DRAWING FOR
MEDIAN CURB FOR CATCH BASIN
(FOR USE WITH 2'-9" CURB AND GUTTER)

SHEET 1 OF 1
852.05

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
12/31/08

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

SEE PLATE FOR TITLE

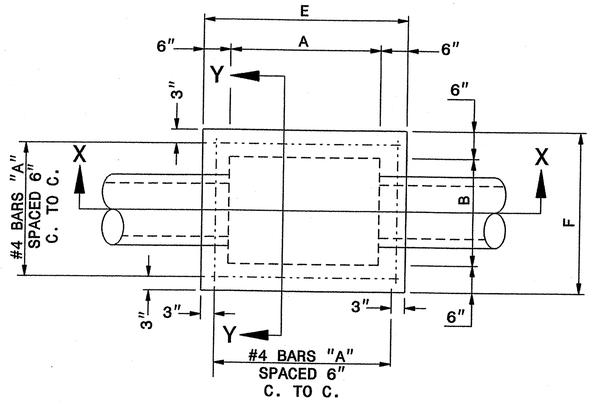
ORIGINAL BY: T.S.SPECC. DATE: Oct.27,2008
MODIFIED BY: DATE:
CHECKED BY: DATE: 11/10/08
FILE SPEC.: /stdetails/stand/852d05trans.dgn

$$$$SYSTIME$$$$
$$$$DGNS$$$$
$$$$USERNAME$$$$

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

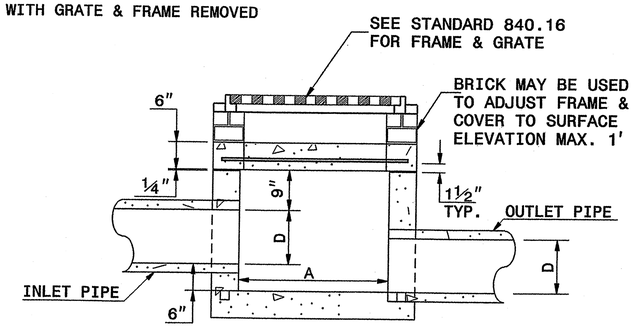
ENGLISH DETAIL DRAWING FOR
CONCRETE DROP INLET
24" THRU 66" PIPE

SHEET 1 OF 1
840D14

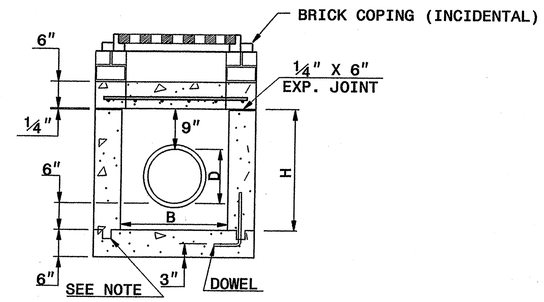


PLAN

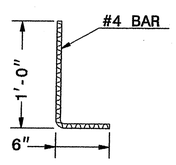
WITH GRATE & FRAME REMOVED



SECTION X-X



SECTION Y-Y



DOWEL

GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1".

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE DROP INLET (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

LOCATE FRAME & GRATE AS FIELD CONDITIONS DICTATE OR AS DIRECTED BY THE ENGINEER.

DIMENSIONS AND QUANTITIES FOR CONCRETE DROP INLET

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
PIPE	SPAN	WIDTH	HEIGHT											
D	A	B	H	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.495
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.589

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

ENGLISH DETAIL DRAWING FOR
CONCRETE DROP INLET
24" THRU 66" PIPE

SHEET 1 OF 1
840D14

STRUCTURE NO. 96
STRUCTURE NO. 97

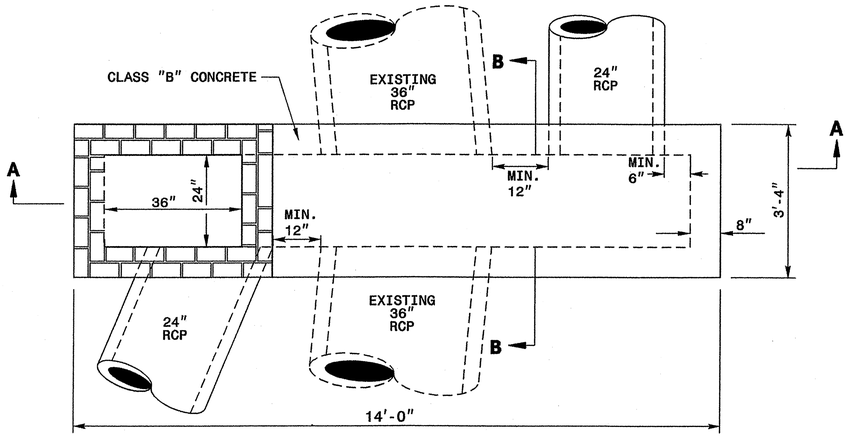
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
12/31/08

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

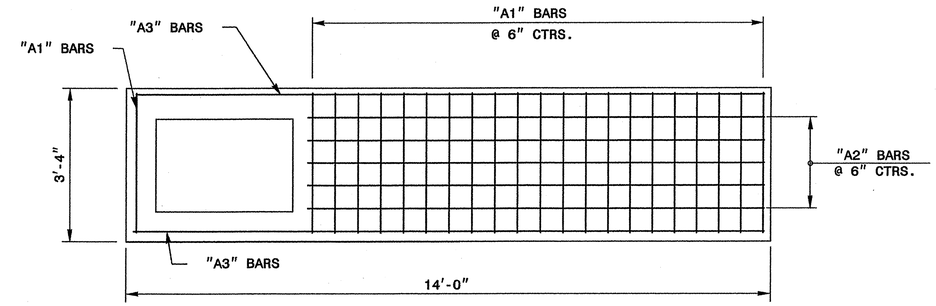
SEE PLATE FOR TITLE

ORIGINAL BY: STANDARDS DATE:
MODIFIED BY: E.E. WARD DATE: 7-16-01
CHECKED BY: DATE: 11/10/08
FILE SPEC.: ent:cward\usr\details\stand\dropinlet mod.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-P



PLAN



PLAN OF TOP SLAB

GENERAL NOTES:

DRAINAGE STRUCTURE SHALL MEET REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED 25mm

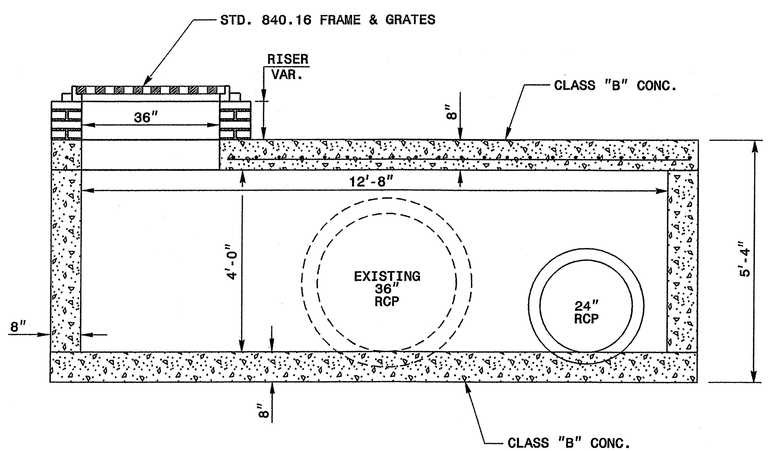
CLASS "B" CONCRETE TO BE USED THROUGHOUT

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE SLAB AS SHOWN ON STANDARD 840.00

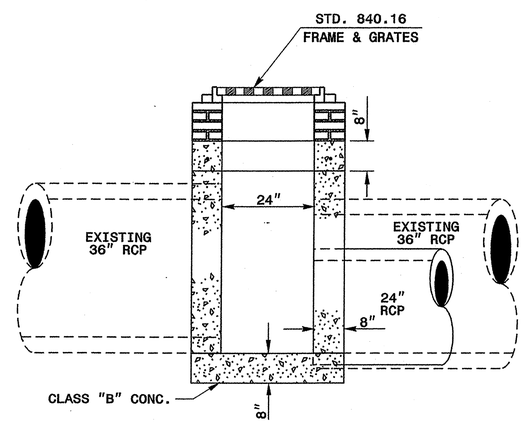
STEPS, 300mm ON CENTERS SHALL BE PROVIDED IN ACCORDANCE WITH STD. 840.66.

CONSTRUCT STRUCTURE BY FORMING.

REINFORCING STEEL CAN BE RELOCATED TO POSITION GRATE AND FRAME AS DIRECTED BY THE ENGINEER.



ELEVATION A-A



ELEVATION B-B

BILL OF MATERIALS					
REINFORCING STEEL					
CODE	BAR #	LENGTH	lb/ft	QTY.	lbs
A1	5	3'-0"	1.043	22	69
A2	5	10'-2"	1.043	5	53
A3	5	13'-8"	1.043	2	29
REINF. STEEL TOTAL (lb)					151
CONCRETE QUANTITIES					
CLASS "B" CONCRETE = 5.3 yd ^{3}					

NO DEDUCTIONS HAVE BEEN MADE FOR PIPE OPENINGS

STRUCTURE NO. 100

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOMEYER
12/31/08

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

DETAIL OF SPECIAL DROP INLET

ORIGINAL BY: E.E.Ward DATE: 10-10-03
MODIFIED BY: K.A.KEMPF DATE: 11-6-08
CHECKED BY: DATE: 11/10/08
FILE SPEC.: /kkempf/english/di24 36.dgn

6/10/99

10-NOV-2008 07:32
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kkempf AT PS237489

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-Q

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

ENGLISH DETAIL DRAWING FOR

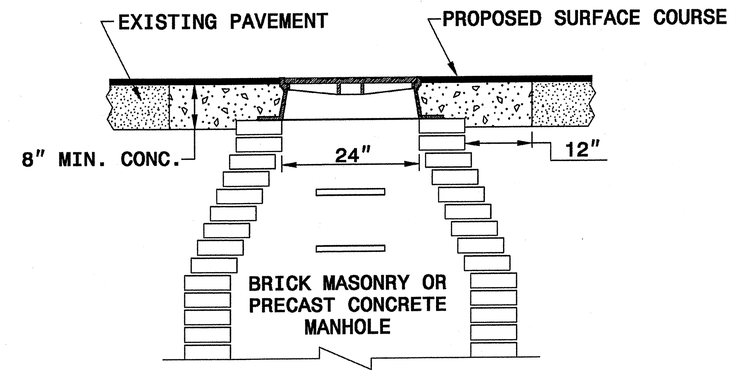
MANHOLE AND VALVE BOX ADJUSTMENTS

SHEET 1 OF 1

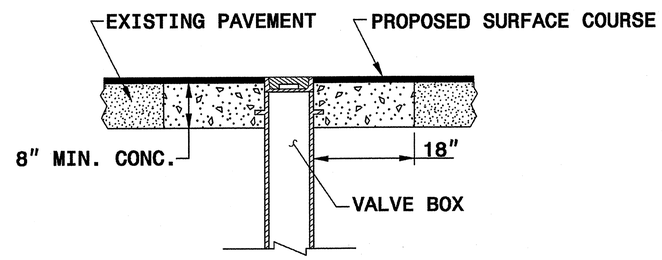
840D55

GENERAL NOTES:

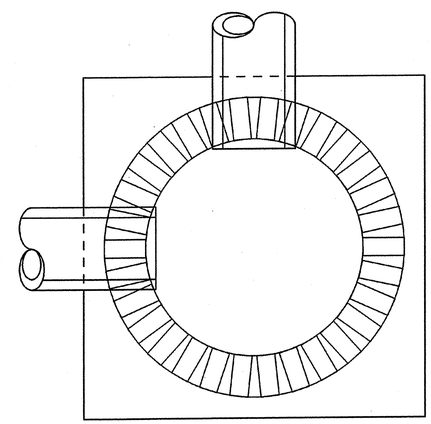
1. USE RAPID SET GROUT, MORTAR, OR CONCRETE WITH A MINIMUM COMPRESSIVE STRENGHT OF 4000 PSI.
2. REMOVE ALL FAULTY EXISTING BRICKWORK AND REPLACE WITH NEW BRICK MASONRY.
3. SHEER CUT EXCAVATION FOR THE ADJUSTMENT ON ALL SIDES.
4. FILL AREA BELOW 8" DEPTH WITH 78M OR NO. 57 CLEAN STONE.
5. MIX MORTAR TO NCDOT SPECIFICATIONS.
6. MORTAR JOINTS ½" +/- ⅛"



MANHOLE CONCRETE ENCASEMENT



VALVE BOX CONCRETE ENCASEMENT



ELEVATION VIEW

PLACE BRICK ACCORDING TO ELEVATION VIEW

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

ENGLISH DETAIL DRAWING FOR

MANHOLE AND VALVE BOX ADJUSTMENTS

SHEET 1 OF 1

840D55

07-DEC-2005 14:25
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erioward AT PS222243

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWARD
12/31/08

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

SEE PLATE FOR TITLE

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: E.E. WARD DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: /usr/details/stand/840d55.dgn

07-NOV-2008 10:24
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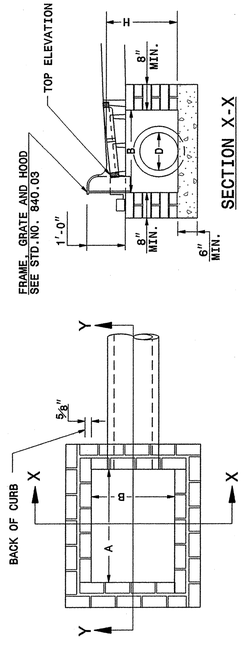
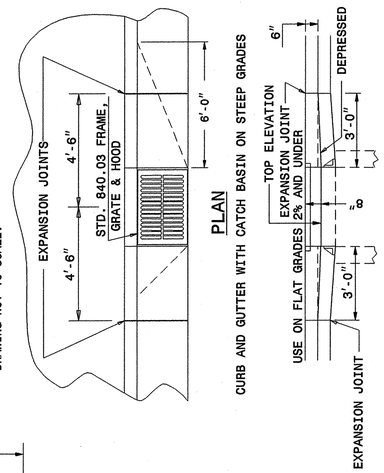
administrator AT DSO THROWER

PROJECT REFERENCE NO.	SHEET NO.
R-4002	2-R

GENERAL NOTES:
MORTAR JOINTS ½" TO ⅛" THICK.
USE CLASS "B" CONCRETE THROUGHOUT.
USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CROWNS MATCHING.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.





MINIMUM DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN

DIMENSIONS OF BOX AND PIPE				CU. YDS. CONC. IN BOX		BRICK MASONRY		DEDUCTIONS ONE PIPE	
PIPE D	SPAN A	WIDTH B	MIN. HEIGHT H	BOTTOM SLAB	TOTAL CONC.	BRICK MASN. IN WALLS	TOTAL BRICK AND CONCRETE	C.M.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.281	0.281	0.481	0.762	0.020	0.042
15"	3'-0"	2'-2"	2'-3"	0.281	0.281	0.562	0.843	0.031	0.047
18"	3'-0"	2'-2"	2'-6"	0.281	0.281	0.642	0.923	0.044	0.065
24"	3'-0"	2'-2"	3'-1"	0.281	0.281	0.828	1.109	0.078	0.121

STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK CATCH BASIN
12" THRU 24" PIPE

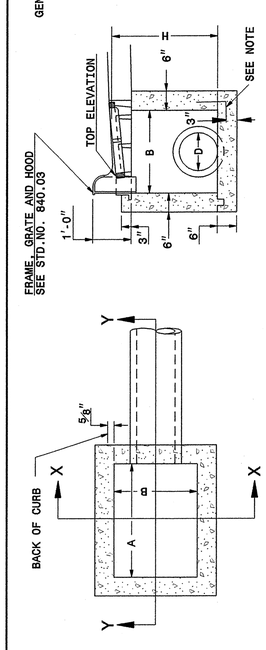
SHEET 1 OF 1
840D01

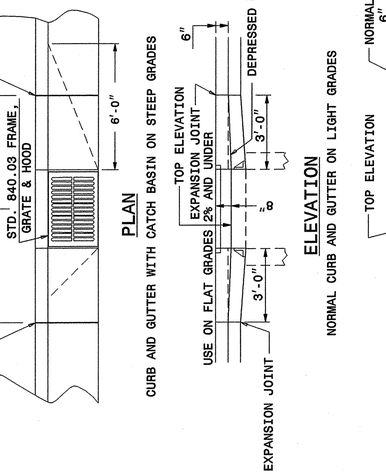
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK CATCH BASIN
12" THRU 24" PIPE

SHEET 1 OF 1
840D01

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
CONSTRUCT WITH PIPE CROWNS MATCHING.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.





MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN

DIMENSIONS OF BOX AND PIPE				CU. YDS. CONC. IN BOX		DEDUCTIONS ONE PIPE	
PIPE D	SPAN A	WIDTH B	MIN. HEIGHT H	BOTTOM SLAB	CONCRETE IN WALLS	TOTAL CONC.	C.M.	R.C.
12"	3'-0"	2'-2"	2'-0"	0.235	0.343	0.578	0.015	0.026
15"	3'-0"	2'-2"	2'-3"	0.235	0.400	0.635	0.023	0.036
18"	3'-0"	2'-2"	2'-6"	0.235	0.457	0.692	0.033	0.049
24"	3'-0"	2'-2"	3'-1"	0.235	0.590	0.825	0.059	0.085

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

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH CONCRETE CATCH BASIN
12" THRU 24" PIPE

SHEET 1 OF 1
840D02

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

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH CONCRETE CATCH BASIN
12" THRU 24" PIPE

SHEET 1 OF 1
840D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
12/31/08

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

SEE PLATE FOR TITLE

ORIGINAL BY: 2002 STD. 840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE: 12/1/08
FILE SPEC.:

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

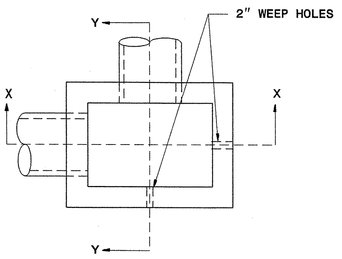
ENGLISH DETAIL DRAWING FOR

MINIMUM DEPTH CONCRETE DROP INLET

12" THRU 30" PIPE

SHEET 1 OF 1

840D14



PLAN

WITH GRATE & FRAME REMOVED

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

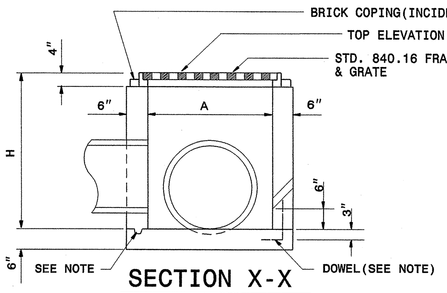
CONSTRUCT WITH PIPE CROWNS MATCHING.

INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

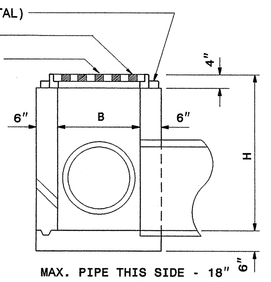
INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

CHAMFER ALL EXPOSED CORNERS 1".

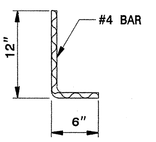
DRAWING NOT TO SCALE.



SECTION X-X



SECTION Y-Y



DOWEL

DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)								
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT					
D	A	B	H	BOTTOM SLAB	WALL PER FT. HT.	TOTAL CONCRETE FOR MINIMUM HEIGHT, H	C.M.	R.C.
12"	3'-0"	2'-0"	1'-8"	0.222	0.222	0.555	0.015	0.026
15"			1'-11"			0.611	0.023	0.036
18"			2'-1"			0.667	0.033	0.049
24"			2'-9"			0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-2"	0.222	0.222	0.925	0.092	0.127

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

ENGLISH DETAIL DRAWING FOR

MINIMUM DEPTH CONCRETE DROP INLET

12" THRU 30" PIPE

SHEET 1 OF 1

840D14

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

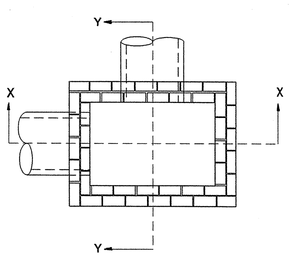
ENGLISH DETAIL DRAWING FOR

MINIMUM DEPTH BRICK DROP INLET

12" THRU 30" PIPE

SHEET 1 OF 1

840D15



PLAN

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GENERAL NOTES:

MORTAR JOINTS ½" TO ⅛" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.

DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

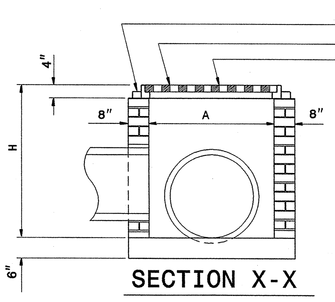
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

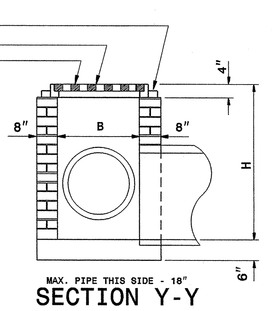
DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.



SECTION X-X



SECTION Y-Y

DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)								
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONCRETE	CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT					
D	A	B	H	BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY FOR MIN. HEIGHT, H	C.S.	R.C.
12"	3'-0"	2'-0"	1'-8"	0.268	0.313	0.470	0.020	0.032
15"			1'-11"	0.268	0.313	0.548	0.031	0.047
18"			2'-1"	0.268	0.313	0.626	0.044	0.065
24"			2'-9"	0.268	0.313	0.835	0.078	0.113
30"	3'-0"	2'-0"	3'-2"	0.268	0.313	0.991	0.122	0.170

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

ENGLISH DETAIL DRAWING FOR

MINIMUM DEPTH BRICK DROP INLET

12" THRU 30" PIPE

SHEET 1 OF 1

840D15

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

ORIGINAL BY: 2002 STD. 840.14 DATE: 3-4-02
MODIFIED BY: KEVIN WARD DATE: 12/1/08
CHECKED BY: DATE:
FILE SPEC:

SEE PLATE FOR TITLE

NORTH CAROLINA PROFESSIONAL SEAL 022986 ENGINEER
12/5/08

PROJECT REFERENCE NO. R-4002

SHEET NO. 2-S

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3 (1of2)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201447

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
0050000000-E	226	2	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	1,000	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	11,200	CY	BORROW EXCAVATION
0134000000-E	240	400	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	1,000	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	1,000	SY	FABRIC FOR SOIL STABILIZATION
0241000000-E	SP	2,000	SY	GENERIC GRADING ITEM ADDITIONAL FINE GRADING
0245000000-E	SP	5,000	GAL	GENERIC GRADING ITEM CONTAMINATED WATER DISPOSAL
0255000000-E	SP	500	TON	GENERIC GRADING ITEM EXCAVATION, HAULING, & DISPOSAL OF CONTAMINATED SOIL
0318000000-E	300	1,250	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	300	LF	15" SIDE DRAIN PIPE
0344000000-E	310	168	LF	18" SIDE DRAIN PIPE
0360000000-E	310	104	LF	12" RC PIPE CULVERTS, CLASS III
0366000000-E	310	3,696	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	1,052	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E	310	1,316	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E	310	1,004	LF	30" RC PIPE CULVERTS, CLASS III
0390000000-E	310	792	LF	36" RC PIPE CULVERTS, CLASS III
0396000000-E	310	156	LF	42" RC PIPE CULVERTS, CLASS III
0402000000-E	310	208	LF	48" RC PIPE CULVERTS, CLASS III
0660000000-E	310	12	LF	***'BIT COAT CS PIPE CULVERTS, TYPE A *****' THICK (24", 0.064")
0986000000-E	SP	232	LF	GENERIC PIPE ITEM 15" SEALED DRAINAGE SYSTEM PIPE
0986000000-E	SP	80	LF	GENERIC PIPE ITEM 18" SEALED DRAINAGE SYSTEM PIPE
0995000000-E	340	4,973	LF	PIPE REMOVAL
0996000000-N	350	35	EA	PIPE CLEAN-OUT
1110000000-E	510	1,000	TON	STABILIZER AGGREGATE
1220000000-E	545	2,500	TON	INCIDENTAL STONE BASE
1330000000-E	607	3,000	SY	INCIDENTAL MILLING
1489000000-E	610	8,050	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	14,000	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	10,700	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	1,720	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	2,230	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	112	CY	SUBDRAIN EXCAVATION
2033000000-E	815	84	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2253000000-E	840	2	CY	PIPE COLLARS
2264000000-E	840	2	CY	PIPE PLUGS

ItemNumber	Sec #	Quantity	Unit	Description
2286000000-N	840	110	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	22	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	37	EA	FRAME WITH TWO GRATES, STD 840.16
2365000000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.22
2374000000-N	840	16	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	19	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	17	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	13	EA	FRAME WITH COVER, STD 840.54
2407000000-N	840	6	EA	STEEL FRAME WITH TWO GRATES, STD 840.37
2440000000-N	852	2	EA	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN
2451000000-N	852	13	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS
2473000000-N	SP	23	EA	GENERIC DRAINAGE ITEM CURB CUT WITH FLUME
2473000000-N	SP	3	EA	GENERIC DRAINAGE ITEM SEALED DRAINAGE SYSTEM STRUCTURE
2473000000-N	SP	23	EA	GENERIC DRAINAGE ITEM TRAFFIC BEARING 30" STEEL PLATE FOR CURB CUTS
2535000000-E	846	2,850	LF	**"X **" CONCRETE CURB (8" X 6")
2538000000-E	846	1,940	LF	**'-**" CONCRETE CURB & GUTTER (2'-9")
2549000000-E	846	9,850	LF	2'-6" CONCRETE CURB & GUTTER
2591000000-E	848	4,520	SY	4" CONCRETE SIDEWALK
2605000000-N	848	53	EA	CONCRETE WHEELCHAIR RAMPS
2612000000-E	848	410	SY	6" CONCRETE DRIVEWAY
2655000000-E	852	1,535	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2815000000-N	858	5	EA	ADJUSTMENT OF DROP INLETS
2830000000-N	858	15	EA	ADJUSTMENT OF MANHOLES
2845000000-N	858	40	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES
3030000000-E	862	100	LF	STEEL BM GUARDRAIL
3150000000-N	862	4	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3389600000-N	865	4	EA	CABLE GUIDERAIL ANCHOR UNITS
3420000000-E	SP	400	LF	GENERIC GUARDRAIL ITEM REMOVE EXISTING CABLE GUIDERAIL
3574000000-E	867	25	LF	GENERIC FENCING ITEM SPLIT RAIL FENCE RESET
3628000000-E	876	25	TON	RIP RAP, CLASS I
3649000000-E	876	50	TON	RIP RAP, CLASS B
3656000000-E	876	1,180	SY	FILTER FABRIC FOR DRAINAGE
4072000000-E	903	1,787	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	10	EA	SIGN ERECTION, TYPE D
4102000000-N	904	72	EA	SIGN ERECTION, TYPE E
4108000000-N	904	11	EA	SIGN ERECTION, TYPE F
4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
4155000000-N	907	51	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4192000000-N	907	2	EA	DISPOSAL OF SUPPORT, U-CHANNEL
4400000000-E	1110	416	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	462	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	50	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
4430000000-N	1130	240	EA	DRUMS

ItemNumber	Sec #	Quantity	Unit	Description
4435000000-N	1135	50	EA	CONES
4445000000-E	1145	168	LF	BARRICADES (TYPE III)
4455000000-N	1150	480	MD	FLAGGER
4480000000-N	1165	2	EA	TMIA
4516000000-N	1180	100	EA	SKINNY DRUM
4605000000-N	SP	80	HR	GENERIC TRAFFIC CONTROL ITEM POLICE
4650000000-N	1251	563	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	12,318	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	19,684	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	1,506	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4697000000-E	1205	2,104	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)
4710000000-E	1205	1,284	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	4	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	141	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	63,948	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	1,580	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	2,464	LF	PAINT PAVEMENT MARKING LINES (24")
4840000000-N	1205	8	EA	PAINT PAVEMENT MARKING CHARACTER
4845000000-N	1205	176	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	3,000	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4905000000-N	1253	656	EA	SNOWPLOWABLE PAVEMENT MARKERS
4915000000-E	1264	3	EA	7' U-CHANNEL POSTS
4935000000-N	1267	5	EA	FLEXIBLE DELINEATORS (CRYSTAL)
4945000000-N	1267	5	EA	FLEXIBLE DELINEATORS (CRYSTAL & RED)
4950000000-N	1267	5	EA	FLEXIBLE DELINEATORS (YELLOW & RED)
4955000000-N	1264	3	EA	OBJECT MARKERS (END OF ROAD)
5000000000-E	1401	2	EA	***' HIGH MOUNT STANDARD (60')
5015000000-E	1401	2	EA	120' HIGH MOUNT STANDARD
5020000000-N	1401	1	EA	PORTABLE DRIVE UNIT
5025000000-E	1402	24	CY	HIGH MOUNT FOUNDATIONS
5030000000-N	1403	8	EA	HIGH MOUNT LUMINAIRES ******** (400W HPS)
5030000000-N	1403	12	EA	HIGH MOUNT LUMINAIRES ******** (750W HPS)
5045000000-N	1404	2	EA	LIGHT STANDARD, TYPE MTLS ********** (35' SA 8' BREAKAWAY BASE)
5070000000-N	1405	2	EA	STANDARD FOUNDATION ********* (TYPE R1)
5080000000-N	1406	2	EA	LIGHT STANDARD LUMINAIRES, TYPE ********** (250W HPS)
5120000000-N	1407	1	EA	ELECTRIC SERVICE POLE **** ******** (30' CLASS 4)
5125000000-E	1407	80	LF	ELECTRIC SERVICE LATERAL ********** (3 #1/0 USE)
5130000000-N	1408	1	EA	LIGHT CONTROL EQUIPMENT, TYPE ********** (RW'Y 240/480 VOLT)
5155000000-E	1409	290	LF	ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")
5160000000-E	1409	80	LF	ELECTRICAL DUCT, TYPE JA, SIZE ***** (3")
5160000000-E	1409	215	LF	ELECTRICAL DUCT, TYPE JA, SIZE ***** (4")
5170000000-E	1410	680	LF	** #8 W/G FEEDER CIRCUIT (2)

5/28/99

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Administrator AT (GSD THROWER

STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
R-4002	3 (2 of 2)

ItemNumber	Sec #	Quantity	Unit	Description
5205000000-E	1410	3,230	LF	** #8 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1.5")
5240000000-N	1411	12	EA	ELECTRICAL JUNCTION BOXES ********** (PC18)
5240000000-N	1411	1	EA	ELECTRICAL JUNCTION BOXES ********** (PC30)
5325200000-E	1510	128	LF	2" WATER LINE
5325600000-E	1510	136	LF	6" WATER LINE
5325800000-E	1510	554	LF	8" WATER LINE
5648000000-N	1515	28	EA	RELOCATE WATER METER
5672000000-N	1515	11	EA	RELOCATE FIRE HYDRANT
5691300000-E	1520	444	LF	8" SANITARY GRAVITY SEWER
5775000000-E	1525	3	EA	4' DIA UTILITY MANHOLE
5781000000-E	1525	8	LF	UTILITY MANHOLE WALL, 4' DIA
5801000000-E	1530	363	LF	ABANDON 8" UTILITY PIPE
5816000000-N	1530	1	EA	ABANDON UTILITY MANHOLE
5828000000-N	1530	1	EA	REMOVE UTILITY MANHOLE
6000000000-E	1605	3,600	LF	TEMPORARY SILT FENCE
6006000000-E	1610	840	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	580	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	840	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	21.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	600	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	3.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	135	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6030000000-E	1630	1,305	CY	SILT EXCAVATION
6036000000-E	1631	1,500	SY	MATTING FOR EROSION CONTROL

ItemNumber	Sec #	Quantity	Unit	Description
6037000000-E	SP	10	SY	COIR FIBER MAT
6042000000-E	1632	1,550	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	400	LF	COIR FIBER BAFFLES
6071050000-E	SP	1	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	25	ACR	SEEDING & MULCHING
6087000000-E	1660	10	ACR	MOWING
6090000000-E	1661	200	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	400	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	12	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
7000000000-E	1705	24	EA	PEDESTRIAN SIGNAL HEAD (**", ** SECTION) (16", 1)
7060000000-E	1705	13,090	LF	SIGNAL CABLE
7120000000-E	1705	72	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7132000000-E	1705	10	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
7144000000-E	1705	6	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
7264000000-E	1710	1,520	LF	MESSENGER CABLE (3/8")
7279000000-E	1715	865	LF	TRACER WIRE
7300000000-E	1715	1,694	LF	UNPAVED TRENCHING (**********) (2, 2")
7301000000-E	1715	1,712	LF	DIRECTIONAL DRILL (**********) (3, 2")
7324000000-N	1716	28	EA	JUNCTION BOX (STANDARD SIZE)
7348000000-N	1716	26	EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
7360000000-N	1720	12	EA	WOOD POLE
7372000000-N	1721	28	EA	GUY ASSEMBLY

ItemNumber	Sec #	Quantity	Unit	Description
7408000000-E	1722	3	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	6	EA	2" RISER WITH WEATHERHEAD
7432000000-E	1722	2	EA	2" RISER WITH HEAT SHRINK TUBING
7444000000-E	1725	10,365	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	17,635	LF	LEAD-IN CABLE (**********) (14-2)
7484000000-N	SP	11	EA	MICROWAVE VEHICLE DETECTOR
7575142000-N	SP	5	EA	900MHZ WIRELESS RADIO SYSTEM
7575160000-E	1734	1,225	LF	REMOVE EXISTING COMMUNICATIONS CABLE
7588000000-N	SP	10	EA	METAL POLE WITH SINGLE MAST ARM
7590000000-N	SP	4	EA	METAL POLE WITH DUAL MAST ARM
7613000000-N	SP	14	EA	SOIL TEST
7614100000-E	SP	106	CY	DRILLED PIER FOUNDATION
7624000000-N	1743	5	EA	SIGNAL PEDESTAL WITH FOUNDATION
7631000000-N	SP	14	EA	MAST ARM WITH METAL POLE DESIGN
7636000000-N	1745	15	EA	SIGN FOR SIGNALS
7684000000-N	1750	4	EA	SIGNAL CABINET FOUNDATION
7756000000-N	1751	4	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
7780000000-N	1751	37	EA	DETECTOR CARD (TYPE 2070L)
7901000000-N	1753	4	EA	CABINET BASE EXTENDER
7980000000-N	SP	1	EA	GENERIC SIGNAL ITEM FURNISH WIRELESS RADIO LIGHTNING ARRESTOR)
7980000000-N	SP	1	EA	GENERIC SIGNAL ITEM FURNISH WIRELESS RADIO MODEM

4/04/06

COMPUTED BY: CDH DATE: 1/29/09
CHECKED BY: WDT DATE: 1/29/09

PROJECT REFERENCE NO.	SHEET NO.
R-4002	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"
-L- 19+25	RT	1		21.2	18.7										
		1	2		18.7	17.9			256						
-L- 16+69	RT	2		21.4	17.9										
		2	3		17.9	17.5			128						
-L- 15+44	RT	3		21.7	17.5										
		3	4		17.5	17.9			20						
-L- 15+43	RT	4		20.1	17.9										
		3	5		17.5	17.4	X		64						
-L- 14+82	RT	5		21.6	17.4										
		5	6		17.4	17.9			20						
-L- 14+82	RT	6		20.1	17.9										
		5	7		17.4	17.2	X		52						
-L- 14+34	RT	7		21.5	17.2										
		7	8		17.2	16.7				148					
-L- 12+83	RT	8		21.5	16.7										
		IN	8		16.9	16.7	X					92			
-L- 19+15	LT	9		21.2	18.7										
		9	OUT		18.7	18.5			80						
		IN	10		17.8	17.7				48					
-L- 14+84	LT	10		20.2	17.7										
		10	11		17.7	17.6	X			76					
-L- 13+77	LT	11		20.2	17.6										
		11	OUT		17.6	17.5	X			36					
-L- 23+50	RT	12		21.0	18.0										
		12	13		18.1	18.0			32						
-L- 23+50	RT	13		22.0	18.1										
		12	OUT		18.0	17.9				20					
		13	14		18.1	18.2									
-L- 23+50	LT	14		20.7	18.2										
-L- 25+73	LT	15		20.6	18.4										
-L- 25+76	LT	16		21.0	18.5										
		16	17		18.5	18.3			56						
-L- 25+95	CL	17		22.4	18.3										
		17	18		18.3	19.1			80						
-L- 26+70	LT	18		22.3	19.1										
		17	19		18.3	18.1			48						
SHEET TOTALS									836	328		92			

STATION	FROM	TO	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	SEALED DRAINAGE SYSTEM PIPES 12"	15"	18"	24"	30"	36"	42"	SEALED DRAINAGE SYSTEM STRUCTURE	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.
-L- 19+25	1																											
	1	2																										
-L- 16+69	2																											
	2	3																										
-L- 15+44	3																											
	3	4																										
-L- 15+43	4																											
	3	5																										
-L- 14+82	5																											
	5	6																										
-L- 14+82	6																											
	5	7																										
-L- 14+34	7																											
	7	8																										
-L- 12+83	8																											
	IN	8																										
-L- 19+15	9																											
	9	OUT																										
	IN	10																										
-L- 14+84	10																											
	10	11																										
-L- 13+77	11																											
	11	OUT																										
-L- 23+50	12																											
	12	13																										
-L- 23+50	13																											
	12	OUT																										
	13	14															68											
-L- 23+50	14																						1					
-L- 25+73	15																											
-L- 25+76	16																											
	16	17																										
-L- 25+95	17																											
	17	18																										
-L- 26+70	18																											
	17	19																										
SHEET TOTALS																	68						1					

STATION	FROM	TO	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		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	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	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.36	STEEL DOUBLE FRAME AND GRATES STD. 840.37	SPECIAL BOXES	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- 19+25	1		1			1	1																									MIN. DEPTH CB (SEE SHEET 2-R)
	1	2																														
-L- 16+69	2		1			1	1																									
	2	3																													55	REMOVE 12" CMP'S
-L- 15+44	3		1			1		1																								
	3	4																														
-L- 15+43	4		1										1	1																		
	3	5																													54	REMOVE 18" CMP
-L- 14+82	5		1			1			1																							
	5	6																														
-L- 14+82	6		1										1	1																		
	5	7																														
-L- 14+34	7		1			1	1																									
	7	8																													95	REMOVE 18" RCP
-L- 12+83	8		1																	1				1								REMOVE JB, RETAIN 18" RCP'S
	IN	8																													49	REMOVE JB
																															20	REMOVE 2-18" CMP's
-L- 19+15	9		1			1	1																									MIN. DEPTH CB (SEE SHEET 2-R)
	9	OUT																														
	IN	10																													45	REMOVE 12" CONCRETE
-L- 14+84	10		1										1	1																		
	10	11																														
-L- 13+77	11		1										1	1																		
	11	OUT																													32	REMOVE 12" CONCRETE
-L- 23+50	12		1			1	1																									MIN. DEPTH CB (SEE SHEET 2-R)
	12	13																													108	REMOVE 18" CONCRETE/15" CMP & DI
-L- 23+50	13		1									1	1	1																		
	12	OUT																														
	13	14																														
-L- 23+50	14					1	1																									MIN. DEPTH CB (SEE SHEET 2-R)
-L- 25+73	15		1										1	1																	14	MIN. DEPTH DI (SEE SHEET 2-S) REM ONLY 14'-18"
-L- 25+76	16		1			1	1																									MIN. DEPTH CB (SEE SHEET 2-R)
	16	17																													183	REMOVE 18" CONCRETE & DI's
-L- 25+95	17		1																		1			1								
	17	18																														
-L- 26+70	18		1									1	1	1																		
	17	19																														
SHEET TOTALS			17			9	7	1	1			2	7	7						1	1			2							655	

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

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ministrator AT GSO THROWER

COMPUTED BY: CDH DATE: 1/29/09
CHECKED BY: WDT DATE: 1/29/09

PROJECT REFERENCE NO.	SHEET NO.
R-4002	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) 12"	15"	18"	24"	30"	36"	42"	48"
-L- 26+10	RT	19		21.1	18.1										
		19	20		18.1	18.2			16						
-L- 26+26	RT	20		21.2	18.2										
		19	OUT		18.1	17.9			24						
-L- 28+20	RT	21		21.8	18.8										
		21	OUT		18.8	17.8			28						
		IN	22		17.7	16.9						264			
-L- 31+22	RT	22		23.4	16.9										
		IN	22		17.5	16.9					32				
		22	23		16.9	16.8	X						64		
-L- 30+94	LT	23		23.8	16.8										
		23	24		16.8	21.4			108						
-L- 32+03	LT	24		24.5	21.4										
-L- 33+88	LT	25		23.5	20.9										
		25	26		20.9	21.3			140						
-L- 35+35	LT	26		24.4	21.3										
		26	27		21.3	21.7			132						
-L- 36+69	LT	27		24.1	21.7										
		25	28		20.9	20.8	X		24						
-L- 33+86	LT	28		24.0	20.8										
		28	29		20.8	21.3			112						
-L- 35+00	LT	29		24.3	21.3										
-L- 34+00	RT	30		25.5	22.4										
		30	31		22.4	22.5			52						
-L- 34+49	RT	31		25.7	22.5										
		31	32		22.5	22.8			104						
-L- 33+50	RT	32		26.0	22.8										
		28	33		20.8	19.9	X			168					
-L- 32+15	LT	33		23.6	19.9										
		33	34		19.9	20.6			28						
-L- 32+14	LT	34		23.0	20.6										
		33	35		19.9	19.3				64					
-L- 31+52	LT	35		23.2	19.3										
		35	36		19.3	19.7			28						
-L- 31+52	LT	36		22.3	19.7										
		35	37		19.3	16.7				76					
-L- 30+79	LT	37		22.7	16.7										
SHEET TOTALS									796	308	32	264	64		

STATION	FROM	TO	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	SEALED DRAINAGE SYSTEM PIPES 12"	15"	18"	24"	30"	36"	42"	SEALED DRAINAGE SYSTEM STRUCTURE	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.
-L- 26+10	19																											
	19	20																										
-L- 26+26	20																											
	19	OUT																										
-L- 28+20	21																											
	21	OUT																										
	IN	22																										
-L- 31+22	22																											
	IN	22																										
	22	23																										
-L- 30+94	23																											
	23	24																										
-L- 32+03	24																											
-L- 33+88	25																											
	25	26																										
-L- 35+35	26																											
	26	27																										
-L- 36+69	27																											
	25	28																										
-L- 33+86	28																											
	28	29																										
-L- 35+00	29																											
-L- 34+00	30																											
	30	31																										
-L- 34+49	31																											
	31	32																										
-L- 33+50	32																											
	28	33																										
-L- 32+15	33																											
	33	34																										
-L- 32+14	34																											
	33	35																										
-L- 31+52	35																											
	35	36																										
-L- 31+52	36																											
	35	37																										
-L- 30+79	37																											
SHEET TOTALS																												

STATION	FROM	TO	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		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	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	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.36	STEEL DOUBLE FRAME AND GRATES STD. 840.37	SPECIAL BOXES	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- 26+10	19		1			1	1																									
	19	20																														
-L- 26+26	20		1			1			1																							
	19	OUT																														
-L- 28+20	21		1			1			1																						64	REMOVE 18" CONCRETE
	21	OUT																														
	IN	22																													235	REMOVE 18" CONCRETE
-L- 31+22	22		1	1.5		1			1																							
	IN	22																														
	22	23																														
-L- 30+94	23		1	2																		1			1							
	23	24																														
-L- 32+03	24		1									1	1	1																		
-L- 33+88	25		1										1	1																		
	25	26																														
-L- 35+35	26		1										1	1																		
	26	27																													100	REMOVE 15" CONCRETE & DI
-L- 36+69	27		1										1	1																	94	REMOVE 15" CONCRETE & DI
	25	28																														
-L- 33+86	28		1			1		1																							98	REMOVE 15" CONCRETE & DI
	28	29																														
-L- 35+00	29		1			1		1																							97	REMOVE 15" CONCRETE & DI
-L- 34+00	30		1									1	1	1																		
	30	31																														
-L- 34+49	31		1									1	1	1																		
	31	32																														
-L- 33+50	32		1									1	1	1																		
	28	33																													51	REMOVE 18" CONCRETE & DI
-L- 32+15	33		1			1		1																							128	REMOVE 18" CONCRETE
	33	34																														
-L- 32+14	34		1										1	1																		
	33	35																														
-L- 31+52	35		1			1		1																								
	35	36																													11	REMOVE 6" CONCRETE & DI's
-L- 31+52	36		1										1	1																		
	35	37																														
-L- 30+79	37		1	1		1		1																							46	REMOVE 18" RCP
SHEET TOTALS			19	4.5		9	1	5	3			4	9	9								1			1						924	

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

4/04/06
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ministrator AT GSO THROWER

COMPUTED BY: CDH	DATE: 1/29/09
CHECKED BY: WDT	DATE: 1/29/09

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3-C

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" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	SEALED DRAINAGE SYSTEM PIPES 12"	15"	18"	24"	30"	36"	42"	SEALED DRAINAGE SYSTEM STRUCTURE	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.
		23	37		16.8	16.7	X						36																							
		37	OUT		16.7	16.5	X						44																							
-L- 28+62	LT	38		21.9	19.4																															
		38	OUT		19.4	18.9			80																											
-L- 37+76	LT	39		24.1	21.1																															
-L- 52+50	LT	40		26.1	23.1																															
		40	OUT		23.1	22.8			64																											
-L- 54+00	LT	41		—	20.8																															
		41	42		20.8	22.5			52																											
-L- 54+32	LT	42		24.4	22.5																															
-L- 53+96	LT	43		26.1	20.7																															
		43	44		20.7	22.8			56																											
-L- 54+50	LT	44		26.1	22.8																															
		44	45		22.8	22.9			16																											
-L- 54+50	LT	45		25.3	22.9																															
-L- 53+62	RT	46		25.5	20.3																															
-L- 53+54	RT	47		25.7	20.1																															
		47	48		20.1	20.9			20																											
-L- 53+53	RT	48		22.8	20.9																															
		47	47A		20.1	19.0					140																									
-L- 52+14	RT	47A		24.7	19.0																															
		47A	49		19.0	18.9					16																									
-L- 51+91	RT	49		24.9	18.9																															
		49	50		18.9	19.0						40																								
-L- 51+94	RT	50		24.0	19.0																															
		50	51		19.0	20.0			28																											
-L- 51+65	RT	51		23.5	20.0																															
		49	52		18.9	18.4						140																								
-L- 50+45	RT	52		24.6	18.4																															
		52	54		18.4	18.4	X					20																								
-L- 50+62	LT	53		26.3	20.0																															
-L- 50+24	RT	54		24.8	18.4																															
		54	55		20.1	21.2			32																											
-L- 50+26	RT	55		24.0	21.2																															
-L- 49+95	RT	55A		24.3	21.3																															
		55A	55		21.3	21.2			32																											
-L- 47+80	LT	56		25.2	21.9																															
		56	57		21.9	22.2			92																											
-L- 48+70	LT	57		25.6	22.2																															
		57	58		22.2	22.4			64																											
-L- 49+30	RT	58		25.5	22.4																															
SHEET TOTALS									540		156	200	80																							

STATION	STRUCTURE NO. FROM	STRUCTURE NO. TO	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	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	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	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.36	STEEL DOUBLE FRAME AND GRATES STD. 840.37	SPECIAL BOXES	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
	23	37																												71	REMOVE 18" CONCRETE
	37	OUT																												14	REMOVE 24" CMP
-L- 28+62	38		1			1		1																							MIN. DEPTH CB (SEE SHEET 2-R)
	38	OUT																													
-L- 37+76	39		1									1	1																	30	REMOVE 18" CMP AND DI
																															RETAIN OTHER 18" CMP
-L- 52+50	40		1			1		1		1																					
	40	OUT																													
-L- 54+00	41																											0.40			REMOVE DI
	41	42																													
-L- 54+32	42		1											1		1															
-L- 53+96	43		1	0.4		1			1																						RETAIN 15" CONCRETE
	43	44																													
-L- 54+50	44		1			1		1																							
	44	45																													
-L- 54+50	45		1									1	1																		
-L- 53+62	46		1			1			1																						RETAIN 15" CONCRETE
-L- 53+54	47		1																1				1								REMOVE DI
	47	48																													
-L- 53+53	48		1											1		1															
	47	47A																												92	REMOVE 18" CONCRETE
-L- 52+14	47A		1	0.7		1	1																								
	47A	49																													
-L- 51+91	49		1	1		1		1																							
	49	50																													
-L- 51+94	50		1									1	1																		
	50	51																													
-L- 51+65	51		1									1	1																		
	49	52																													
-L- 50+45	52		1	1.2		1			1																						
	52	54																													
-L- 50+62	53		1	1.3		1			1	1																					RETAIN 18" CONCRETE
-L- 50+24	54		1	1.4																1			1								RETAIN 18" CONCRETE
	54	55																												25	REMOVE 15" CONCRETE & FES
-L- 50+26	55		1									1	1																		RETAIN 15' CONCRETE & CB
-L- 49+95	55A		1			1	1																								
	55A	55																													
-L- 47+80	56		1								1	1	1																		
	56	57																													
-L- 48+70	57		1								1	1	1																		
	57	58																													
-L- 49+30	58		1								1	1	1																		
SHEET TOTALS			22	6		10	2	4	4	2	3	8	8	2		2			1	1			2					0.40		232	

* 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.	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

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ministrator AT GSO THROWER

COMPUTED BY: CDH	DATE: 1/29/09
CHECKED BY: WDT	DATE: 1/29/09

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3-D

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 OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	SEALED DRAINAGE SYSTEM PIPES 12"	15"	18"	24"	30"	36"	42"	SEALED DRAINAGE SYSTEM STRUCTURE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	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	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.36	STEEL DOUBLE FRAME AND GRATES STD. 840.37	SPECIAL BOXES	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
		54	59		18.4	17.9							152																																																			252	REMOVE 24" CONCRETE
-L- 48+70	RT	59		23.8	17.9																																1	0.9		1			1																						
		59	60		19.7	19.9			28																																																								
-L- 48+71	RT	60		22.9	19.9																																1			1	1																								
		59	61		17.9	17.6	X						88																																																				
-L- 47+80	RT	61		23.4	17.6																																1	0.8		1			1																						
		61	62		17.6	19.1			32																																																								
-L- 47+80	RT	62		22.1	19.1																																1			1		1																							
		56	61		21.9	19.4			52																																																								
-L- 45+20	RT	63		23.2	20.0																																1								1	1	1																				
		63	64		20.0	20.1			16																																																								
-L- 45+36	RT	64		23.3	20.1																																1								1	1	1																				
		64	65		20.1	20.7			60																																																									
-L- 46+00	RT	65		23.8	20.7																																1								1	1	1																				
		61	66		17.6	16.7	X						192																																																				
-L- 45+84	RT	66		22.1	16.7																																1	0.4		1			1																						
		66	67		16.7	16.4	X						60																																																			219	REMOVE 24" CONCRETE & DI
-L- 45+20	RT	67		21.9	16.4																																1	0.5		1			1																						REMOVE DI
		67	68		16.4	17.8			20																																																								
-L- 45+20	RT	68		21.0	17.8																																1																							1	1						
					18.1	20.0																																																											
-L- 42+89	RT	69		20.6	17.4																											1								1	1																							75	REMOVE 24" CONCRETE & DI's
		69	70		17.4	17.6																					20																																							46	REMOVE 24" CONCRETE & DI's
-L- 42+70	RT	70		20.6	17.6																											1								1		1																							
		70	71		17.6	18.2																					144																																							143	REMOVE 24" CONCRETE & DI's
-L- 41+26	RT	71		21.5	18.2																																1			1		1																						68	REMOVE 24" /15" CONCRETE & DI
		67	72		16.4	15.5	X						156																																																			154	REMOVE 24" CONCRETE
		69	72		17.4	15.5																						80																																						49	REMOVE 24" CONCRETE & DI's
-L- 43+67	RT	72		20.7	15.5																																1	0.2		1			1																						
		72	73		15.5	16.8				32																																																						25	REMOVE 18" CMP*
-L- 43+66	RT	73		19.2	16.8																																1																							1	1						RETAIN PORTION 18" CMP & DI*
		73	74		16.8	18.0			40																																																								
-L- 44+03	RT	74		19.2	18.0																																1																							1	1						
-L- 47+34	LT	75		25.7	22.7																																1			1		1																							REMOVE CB
		75	76		22.7	23.5			24																																																								
-L- 47+51	LT	76		25.9	23.5																																1																							1	1					47	REMOVE 18" CONCRETE W/FES
		75	77		22.7	22.4			84																																																								
-L- 46+54	LT	77		25.4	22.4																																1			1		1																							
		77	78		22.4	23.0			16																																																								
-L- 46+52	LT	78		26.0	23.0																																1									1	1																				
SHEET TOTALS									372	32			648												164	80					2						18	2.8		12	2	5	5		3	4	4											4	4					1078	

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

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inistrator AT GSO THROWER

4/04/06

COMPUTED BY: CDH	DATE: 1/29/09
CHECKED BY: WDT	DATE: 1/29/09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R–4002	3–E

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 OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	SEALED DRAINAGE SYSTEM PIPES 12"	15"	18"	24"	30"	36"	42"	SEALED DRAINAGE SYSTEM STRUCTURE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES (* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')) PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	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	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.36	STEEL DOUBLE FRAME AND GRATES STD. 840.37	SPECIAL BOXES	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
		77	79		22.4	21.9			56																																																													155	REMOVE 18" CONCRETE & DI
-L- 46+00	LT	79		25.0	21.9																																					1			1		1																							180	REMOVE 18" CONCRETE & DI's
		79	80		21.9	22.0			20																																																														
-L- 46+00	LT	80		24.4	22.0																																					1										1	1																		
-L- 42+43	LT	81		19.6	13.5																																					1	1.1																			1			1							10	REMOVE 18", CB, & JB
		81	82		13.5	14.0									44																																																						
-L- 42+86	LT	82		20.3	14.0																																					1	1.3		1	1																									77	REMOVE 36" CMP
		82	83		14.0	14.7								76																																																							
		79	83		21.9	14.7			240																																																														
		72	83		15.5	14.7								80																																																								
-L- 43+64	LT	83		20.8	14.7																																					1	1.1		1		1																							88	REMOVE 18" CONCRETE & DI's
		83	84		14.7	23.5			20																																																														
-L- 43+64	LT	84		25.9	23.5																																					1																							1	1						
-L- 39+80	LT	85		23.2	18.1																																					1	0.1		1			1																							RETAIN 18" CONCRETE
-L- 39+30	RT	86		23.8	18.9																																					1			1		1																							11	REMOVE 24" CMP & DI
		86	87		18.9	19.0			20																																																													9	REMOVE 18" CMP /RETAIN 36" CMP
		87		22.9	19.0																																					1										1	1																	16	REMOVE 15" CONCRETE/RETAIN OTHER
		IN	86		19.5	18.9													12																																																				PIPE TYPE 'A'
		85	88		18.1	18.4	X				40																																																												
		86	88		18.9	18.4	X				56																																																											144	REMOVE 24" CMP & DI's
-L- 39+60	LT	88		24.3	18.4																																					1	0.9																			1			1								
		88	89		22.5	19.2			140																																																														
-L- 38+20	LT	89		25.7	22.5																																					1									1	1	1																		
-L- 43+64	LT	90		22.9	20.8																																					1										1	1																		MIN DEPTH DI (SEE SHEET 2–S)/RETAIN 18"
		90	91		20.8	21.2			80																																																														
-L- 39+07	LT	91		24.6	21.2																																					1																							1	1						
		85	92		18.1	17.8						80																																																									78	REMOVE 18" CONCRETE & DI
-L- 40+57	LT	92		22.5	17.8																																					1			1			1																						10	REMOVE 18" CPP /RETAIN DI & PIPE
		92	93		20.2	17.8				8																																																												8	REMOVE 18" CPP
-L- 40+54	LT	93		22.9	20.2																																					1										1	1																		
		92	94		17.8	16.5	X					112																																																									121	REMOVE 18" CONCRETE & DI's
-L- 41+68	LT	94		20.7	16.5																																					1			1			1																							
		94	95		16.5	18.4				12																																																												
-L- 41+60	LT	95		21.4	18.4																																					1										1	1																		
		81	94		13.5	16.5						80																																																									61	RE MOVE 18" CONCRETE & DI
		81	96		13.5	11.6	X								88																																																					103	REMOVE 36" CMP & DI
-Y6- 11+45	LT	96		17.6	11.6																																					1	1										1													1					DI SPECIAL DETAIL (SEE SHEET 2–O)
SHEET TOTALS									576	20	96	272		156	132				12																							18	5.5		7	1	3	3			1	6	7							2			2	2	2	1				1071	

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

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ministrator AT GSO THROWER

COMPUTED BY: CDH	DATE: 1/29/09
CHECKED BY: WDT	DATE: 1/29/09

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3-F

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" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	SEALED DRAINAGE SYSTEM PIPES 12"	15"	18"	24"	30"	36"	42"	SEALED DRAINAGE SYSTEM STRUCTURE	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')	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	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	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	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.36	STEEL DOUBLE FRAME AND GRATES STD. 840.37	SPECIAL BOXES	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
		96	97		11.6	11.0									76																																																	77	REMOVE 36" CMP & DI
-Y6- 10+71	LT	97		17.1	11.0																																1	1.1									1													1					DI SPECIAL DETAIL (SEE SHEET 2-O)
		97	98		11.0	10.9					12																																																						
-Y6- 10+62	LT	98		17.2	10.9																																1	1.3															1				1								
		98	99		10.9	10.2					248																																																						RETAIN 36" CONCRETE & DI's
-Y6- 8+16	LT	99		14.2	10.2																																1																1				1								
		99	100		10.2	8.0					172																																																						RETAIN 36" CONCRETE & DI's
-Y6- 6+53	LT	100		12.7	8.0																																1										1													1					SPECIAL DESIGN DETAIL (SHEET 2-P)/REMOVE DI
		100	101		8.0	7.7					188																																																						RETAIN 36" CONCRETE & DI's
-Y6- 4+60	LT	101		12.6	7.7																																1																1				1								
		101	OUT		7.7	6.2					148																																																						RETAIN 36" CONCRETE & DI's
-L- 56+99	LT	102		26.3	23.7																																1			1	1																									
		102	103		23.7	23.9			76																																																								
-L- 57+00	RT	103		26.3	23.9																																1			1	1																									
		102	104		23.7	23.0			232																																																								
-L- 59+28	LT	104		26.6	23.0																																1			1		1																								
		104	105		23.0	24.5			100																																																								
-L- 59+08	RT	105		26.9	24.5																																1			1			1																							
		104	OUT		23.0	22.9				28																																																						
-L- 57+59	RT	106		—	21.6																																																										0.40			REMOVE DI
		106	107		21.6	21.6			12																																																								
-L- 57+53	RT	107		24.9	21.6																																1											1		1																
-L- 58+12	LT	108		26.0	20.9																																1	0.1															1				1								REMOVE DI/RETAIN 15" CONCRETE
		108	109		20.9	24.8			36																																																								
-L- 57+75	LT	109		27.5	24.8																																1											1		1																
		109	110		24.8	22.0			44																																																								
-RAMPA- 17+50	RT	110		25.5	22.0																																1											1		1																
-L- 59+22	RT	111		—	22.2																																																										0.40			
		IN	111		22.2	21.7			12																																																								RETAIN & EXTEND 15" CONCRETE
-L- 59+11	LT	112		—	20.3																																																										0.45			RETAIN 18" CONCRETE
		112	113		20.3	20.2				8																																																						
-L- 59+22	LT	113		25.6	20.2																																1	0.4															1				1								RETAIN 15" CONCRETE
		113	114		20.2	19.5					196																																																						
-L- 61+17	LT	114		23.7	19.5																																1																1				1								RETAIN 24" CONCRETE
		IN	114		20.1	19.5				12																																																						
-Y1- 16+56	LT	115		20.9	18.9																																1			1	1																									MIN. DEPTH CB (SEE SHEET 2-R)
		115	OUT		18.9	18.7		104																																																								54	REMOVE 18" CONCRETE (BURY PIPE OULTET 4")
-Y1- 15+54	RT	116	OUT		19.4	19.0				76																																																					76	REMOVE 18" CONCRETE & DI
SHEET TOTALS								104	512	124	964				76																						16	2.9		5	3	1	1				2	3		3			6				6			2		1.25		207	

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

4/04/06

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ministrator AT GSO THROWER

4/04/06

COMPUTED BY: CDH DATE: 1/29/09
CHECKED BY: WDT DATE: 1/29/09

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3-G

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"
-L- 12+07	LT	D1													
-L- 16+15	LT	D2													
-L- 16+72	LT	D3													
-L- 18+07	LT	D4													
-Y3- 10+38	LT	D5													
-Y3- 11+33	LT	D5A													
-Y1- 13+63	RT	D6													
-Y1- 15+05	LT	D7													
-Y1- 15+09	RT	D8													
-Y2REV- 10+40	RT	D9													
-Y2REV- 12+25	RT	D10													
-Y2REV- 13+19	RT	D11													
-Y2C- 10+56	CL	D12			17.8	17.5				56					
-Y2B- 10+64	CL	D13			17.1	16.9					68				
-Y2B- 11+60	RT	D14													
-Y2B- 12+14	RT	D15													
-Y2REV- 11+30	LT	D16										32			
-Y2REV- 13+99	LT	D17										44			
-Y2REV- 15+06	LT	D18													
-Y2A- 11+22	RT	D19							32						
-Y2A- 11+19	LT	D20							32						
-Y2A- 11+65	CL	D21			17.8	17.6				56					
-Y2REV- 18+32	RT	D22			18.8	18.7				64					
-Y2REV- 15+01	CL	D23			16.5	16.3						100			
-L- 25+56	RT	D24			18.2	18.0				64					
SHEET TOTAL 3A									836	328		92			
SHEET TOTAL 3B									796	308	32	264	64		
SHEET TOTAL 3C									540		156	200	80		
SHEET TOTAL 3D									372	32			648		
SHEET TOTAL 3E									576	20	96	272		156	132
SHEET TOTAL 3F								104	512	124	964				76
SHEET TOTAL 3G									64	240	68	176			
PROJECT TOTAL								104	3696	1052	1316	1004	792	156	208
SAY															

STATION	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	SEALED DRAINAGE SYSTEM PIPES 12"	15"	18"	24"	30"	36"	42"	SEALED DRAINAGE SYSTEM STRUCTURE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE
-L- 12+07																							32	
-L- 16+15																							44	
-L- 16+72																						28		
-L- 18+07																						28		
-Y3- 10+38																						20		
-Y3- 11+33																						24		
-Y1- 13+63																						28		
-Y1- 15+05																						28		
-Y1- 15+09																							60	
-Y2REV- 10+40																						24		
-Y2REV- 12+25																						28		
-Y2REV- 13+19																						28		
-Y2C- 10+56																								
-Y2B- 10+64																								
-Y2B- 11+60																						32		
-Y2B- 12+14																						32		
-Y2REV- 11+30																								
-Y2REV- 13+99																								
-Y2REV- 15+06																							32	
-Y2A- 11+22																								
-Y2A- 11+19																								
-Y2A- 11+65																								
-Y2REV- 18+32																								
-Y2REV- 15+01																								
-L- 25+56																								
SHEET TOTAL 3A															68						1			
SHEET TOTAL 3B																								
SHEET TOTAL 3C																								
SHEET TOTAL 3D															164	80					2			
SHEET TOTAL 3E				12																				
SHEET TOTAL 3F																								
SHEET TOTAL 3G																						300	168	
PROJECT TOTAL				12											232	80					3	300	168	
SAY																								

STATION	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		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET
SHEET TOTAL 3A			17			9	7	1	1			2
SHEET TOTAL 3B			19	4.5		9	1	5	3			4
SHEET TOTAL 3C			22	6		10	2	4	4		2	3
SHEET TOTAL 3D			18	2.8		12	2	5	5			3
SHEET TOTAL 3E			18	5.5		7	1	3	3			1
SHEET TOTAL 3F			16	2.9		5	3	1	1			
SHEET TOTAL 3G												
PROJECT TOTAL			110	21.7		52	16	19	17		2	13
SAY				22								

STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	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	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME & COVER STD. 840.54	T.B.D.I. STD. 840.36	STEEL DOUBLE FRAME AND GRATES STD. 840.37	SPECIAL BOXES	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- 12+07																			33	REMOVE 12" CONCRETE
-L- 16+15																			42	REMOVE 18" CONCRETE
-L- 16+72																			54	REMOVE 12" CONCRETE
-L- 18+07																			40	REMOVE 12" CONCRETE
-Y2REV- 10+40																			21	REMOVE 15" CMP
-Y2REV- 12+25																			14	REMOVE 15" CMP
-Y2REV- 13+19																			20	REMOVE 15" CMP
-Y2C- 10+56																			240	REMOVE 18"/24" CONCRETE & JB
-Y2B- 12+14																			33	REMOVE 12" CONCRETE & DI
-Y2REV- 11+30																			30	REMOVE 24" CONCRETE W/HW & FES
-Y2REV- 15+06																			108	REMOVE 15"/18" CONCRETE & DI
-Y2A- 11+22																			23	REMOVE 15" CONCRETE
-Y2REV- 15+01																			87	REMOVE 18" CONCRETE & DI
-L- 25+56																			61	REMOVE 18" CONCRETE
SHEET TOTAL 3A	7	7						1	1			2							655	
SHEET TOTAL 3B	9	9							1			1							924	
SHEET TOTAL 3C	8	8	2		2			1	1			2					0.40		232	
SHEET TOTAL 3D	4	4											4	4					1078	
SHEET TOTAL 3E	6	7							2			2	2	2	1				1071	
SHEET TOTAL 3F		2	3		3			6				6			2		1.25		207	
SHEET TOTAL 3G																			806	
PROJECT TOTAL	34	37	5		5			8	5			13	6	6	3		1.649		4973	
SAY																	2	2		LOCATIONS FOR PIPE PLUGS TO BE DETERMINED BY THE ENGINEER

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

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ministrator AT GSO_THROWER

COMPUTED BY: CDH DATE: 12/16/08
CHECKED BY: WDT DATE: 12/16/08

6/4/99

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3-H

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY NO. 1					
-L- 11+00 TO 41+00 (LT)	1,747		1,529		218
-L- 41+00 TO 63+50 (LT)	364		2,530	2,166	
-L- 11+00 TO 63+50 (MEDIAN)			605	605	
TOTAL SUMMARY NO. 1	2,111		4,664	2,771	218
SUMMARY NO. 2					
-L- 11+00 TO 41+00 (RT)	793		3,332	2,539	
-L- 41+00 TO 63+50 (RT)	229		3,325	3,096	
TOTAL SUMMARY NO. 2	1,022		6,657	5,635	
SUMMARY NO. 3					
-Y1-	311		174		137
-Y2REV-	2,215		2,323	108	
-Y2A-	116		109		7
-Y2B-	356		279		77
-Y2C-	71		0		71
-Y3-	246		42		204
-Y4-	25		6		19
-Y6-	30		50	20	
-Y7-	6		10	4	
-Ramp D-	34		2,172	2,138	
TOTAL SUMMARY NO. 3	3,410		5,165	2,270	515
SUB-TOTAL (SUMMARY 1 THRU 3)	6,543		16,486	10,676	733
SHOULDER MATERIAL			119	119	
EST. LOSS DUE TO CLEAR. & GRUB.	-500			+500	
WASTE IN LIEU OF BORROW				-733	
EST 5% TO REPLACE TOPSOIL ON BORROW PIT				+528	
PROJECT TOTALS	6,043		16,605	11,090	
SAY	6,100			11,200	

ESTIMATED UNDERCUT = 1,000 cu.yds
DDE = 400 cu. yds

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

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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Administrator AT GSD THROWER

6/16/99

COMPUTED BY: CDH DATE: 11/3/08
CHECKED BY: WDT DATE: 11/3/08

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3-I

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350				REMOVE EXISTING GUIDERAIL AND ANCHOR UNIT	CABLE GUIDERAIL ANCHOR UNIT	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE 350	CAT-1							NO.	PERMITTED G	PERMITTED NG				
RAMP A	11+28 +/-	10+00 +/-	RT	81.25'			10+58	10+58	20		50		1		1	1											200	2	
RAMP A	11+28 +/-	10+00 +/-	RT	81.25'			10+58	10+58	20		50		1		1	1													
RAMP D	18+32+/-	19+77+/-	RT	81.25'			19+05	19+05	20		50		1		1	1											200	2	
RAMP D	18+32+/-	19+77+/-	RT	81.25'			19+05	19+05	20		50		1		1	1													
			SUBTOTAL	325'											4	4											400	4	
ANCHOR UNIT DEDUCTION																													
		GRAU-350 (4 @ 50') =		-200'																									
		CAT-1 (4 @ 6.25') =		-25'																									
			TOTAL	100'																									
			SAY	100'																									
	ADDITIONAL GUARDRAIL POSTS = 4																												

SUMMARY OF PAVEMENT REMOVAL /BREAKING

SURVEY LINE	STATION TO STATION	LOCATION	ASPHALT REMOVAL (SY)	ASPHALT BREAKING (SY)	CONCRETE REMOVAL (SY)	CONCRETE BREAKING (SY)
-L-	15+00 - 19+90	LT/RT (MEDIAN)	856			
-L-	28+47 - 30+40	LT/RT (MEDIAN)	477			
-L-	50+20 - 52+93	LT/RT (MEDIAN)	642			
-L-	20+09 - 20+52	RT	132			
-Y2C-	10+45 - 10+60	LT	102			
-Y2B-	11+61 - 11+94	RT	21			
		GRAND TOTAL	2,230			
		SAY	2,230			

10/26/98

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	3-J

PARCEL NO.	SHEET NUMBER	PROPERTY OWNERS NAME
1	4	FRANCIS B. JACOBS, JR.
3	4	WILLARD J. SEGUIN, JR.
5	4	COASTAL CAROLINA CAR WASH, LLC
6	4	FRED W. GROVES
7	4	DAYTON SMITH
8	4	A TO Z PROPERTIES #2, LLC
9	4	RODNEY D. CARROLL
10	4	BRENDA J. LENNON
11	8	RONNIE F. GROVES
12	4	LOIS G. ADAMS
13	4, 8	THOMAS H. SAKS
14	8	LINDA ROBINSON
15	8	LISA S. KING
16	8	ELOIS N. ROBBINS
17	8	DONALD O. HILL
18	8	WILLIAM H. BROWNING
19	4, 8	LORETTA L. MILLIGAN
20	4, 5	E. G. DALE

PARCEL NO.	SHEET NUMBER	PROPERTY OWNERS NAME
21	4, 5	VILLAGE ROAD PROPERTIES, LLC
21A	4, 5	LAGUARDIA II LLC
22	5	WILLIAM R. HENRY
23	5	DAVID JONES INVESTMENTS, INC.
24	5	BELLANOVA ENTERPRISES, LLC
25	5	ALLENE V. KEISER
26	5	JAMES T. BELLIZZI
27	5	KAMRAN GOUARZI
28	5	BALDWIN-BRUNSWICK CORP.
30	5, 6	EZRA G. DALE et ux
31	5, 6	RUSSEL G. BALDWIN
32	6	RONALD M. HUGHES
33	6	SECURITY SAVINGS BANK, SSB
35	6	K. E. AUSTIN CORP.
36	6, 6A	NSWS, LLC
36A	6A	TOWN OF LELAND
37	6	E. G. DALE
39	6	DOROTHY K. EVERETTE, et al
40	6, 7	BAY FOODS, INC.

16-DEC-2008 13:40
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Administrator AT GSD THROWER

PROJECT REFERENCE NO.	SHEET NO.
R-4002	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

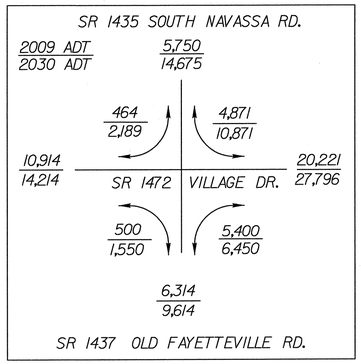
HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08

Baker

MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

5/14/99

REVISIONS



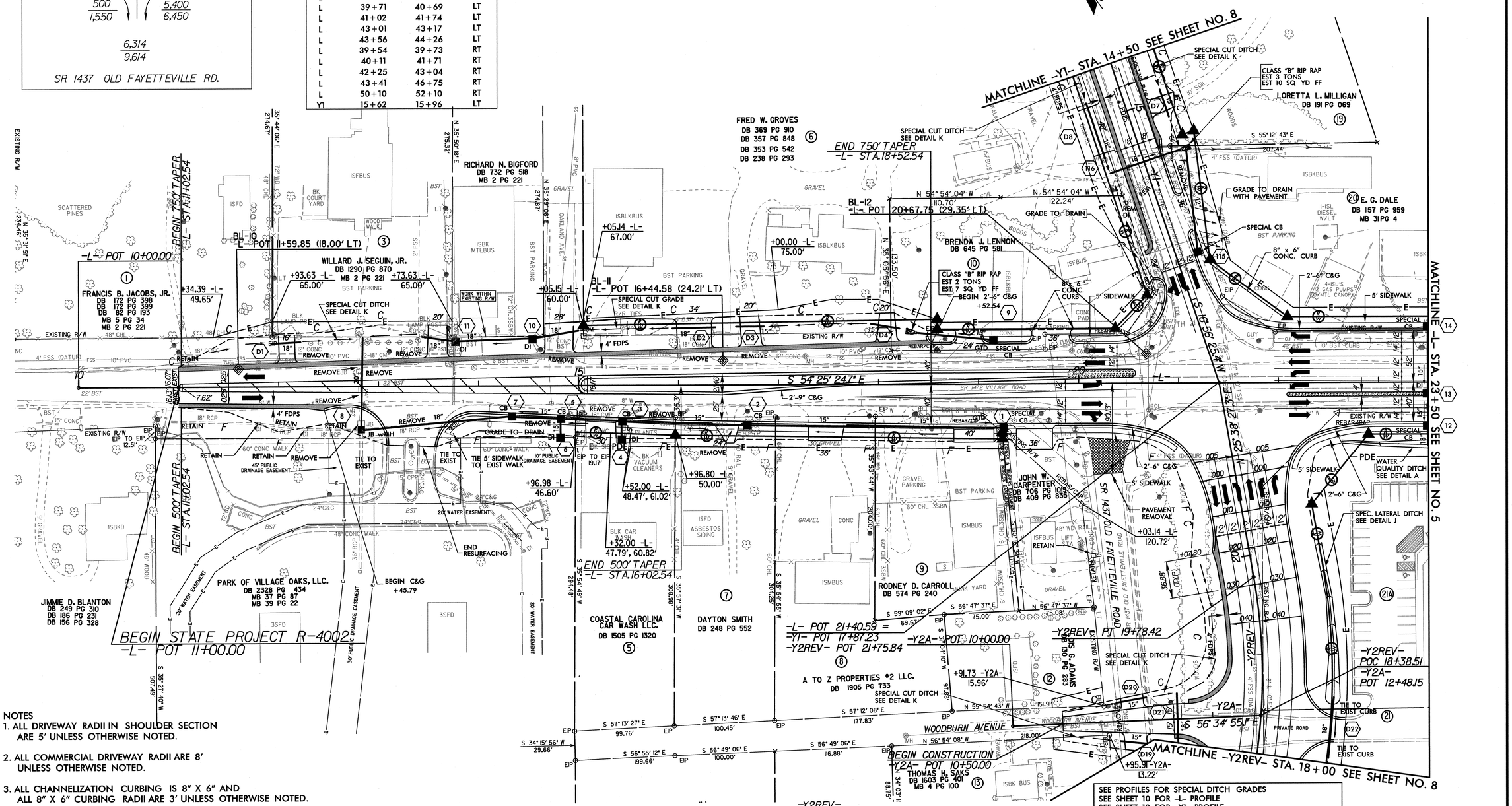
8"x6" CURB LOCATIONS

LINE	STATION	STATION	SIDE
L	18+49	18+77	LT
L	19+04	19+54	LT
L	19+92	20+75	LT
L	21+15	23+87	LT
L	24+40	26+02	LT
L	26+45	26+95	LT
L	27+19	27+79	LT
L	31+04	31+77	LT
L	31+99	32+86	LT
L	33+30	34+23	LT
L	34+63	36+21	LT
L	36+61	38+82	LT
L	39+71	40+69	LT
L	41+02	41+74	LT
L	43+01	43+17	LT
L	43+56	44+26	LT
L	39+54	39+73	RT
L	40+11	41+71	RT
L	42+25	43+04	RT
L	43+41	46+75	RT
L	50+10	52+10	RT
Y1	15+62	15+96	LT

LEGEND

- PAVEMENT REMOVAL
- PAVED SHOULDER
- CONCRETE ISLAND

NC GRID - NAD 83



NOTES

1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.
6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

SEE PROFILES FOR SPECIAL DITCH GRADES
SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 12 FOR -Y1- PROFILE
SEE SHEET 12 FOR -Y2A- PROFILE
SEE SHEET 13 FOR -Y2REV- PROFILE
SEE SHEET 2-F FOR DITCH DETAILS, WATER QUALITY ISLAND, AND CURB CUT FLUME DETAIL
SEE SHEET 2-G FOR -Y1- & Y2REV- INTERSECTION DETAIL
SEE SHEET 2-K FOR -Y2A- INTERSECTION DETAIL

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16-DEC-2008 13:46

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

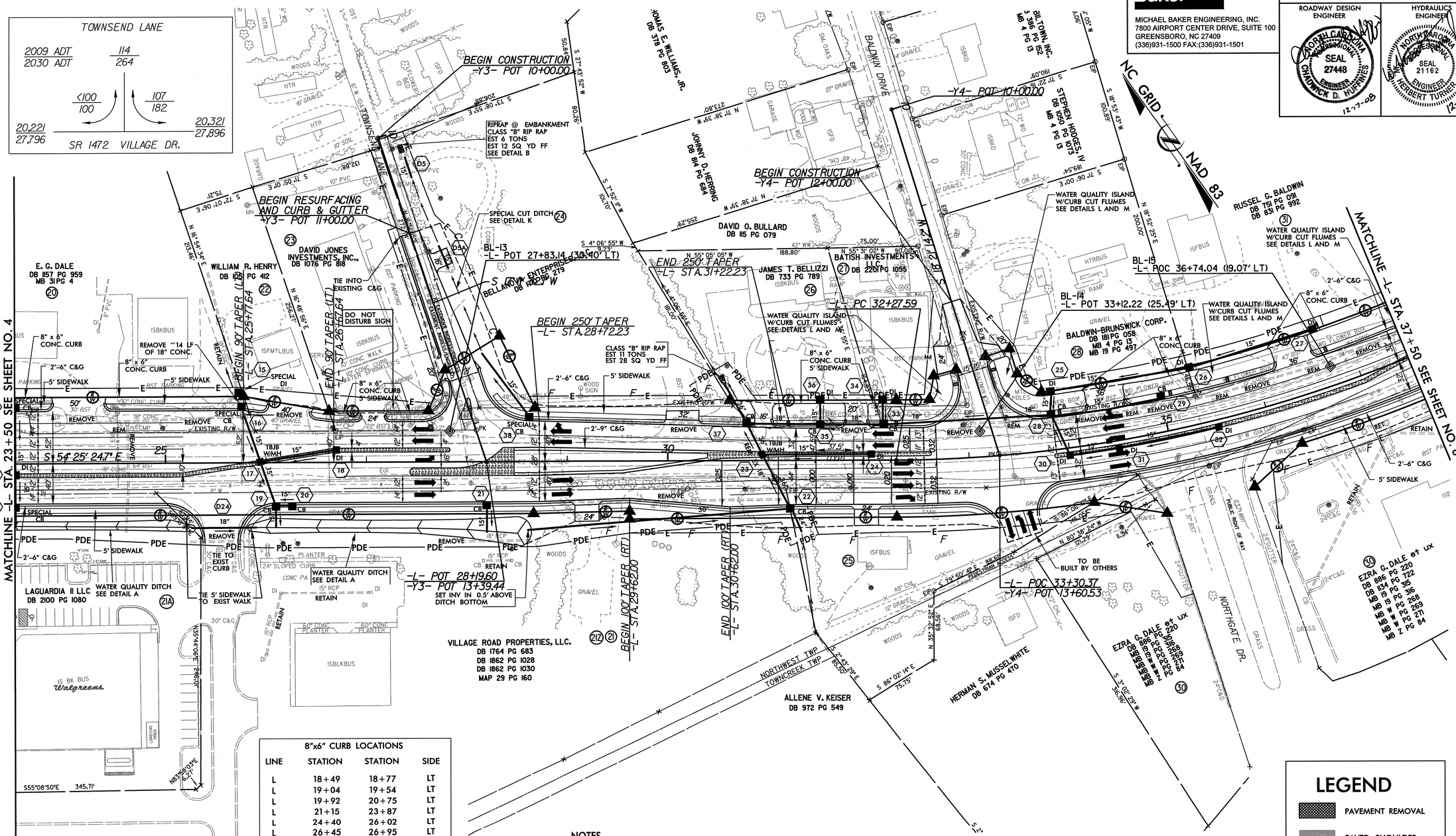
PROJECT REFERENCE NO.	SHEET NO.
R-4002	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES
12-17-08

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR.
12-17-08

REVISIONS

5/14/99



8"x6" CURB LOCATIONS			
LINE	STATION	STATION	SIDE
L	18+49	18+77	LT
L	19+04	19+54	LT
L	19+92	20+75	LT
L	21+15	23+87	LT
L	24+40	26+02	LT
L	26+45	26+95	LT
L	27+19	27+79	LT
L	31+04	31+77	LT
L	31+99	32+86	LT
L	33+30	34+23	LT
L	34+63	36+21	LT
L	36+61	38+82	LT
L	39+71	40+69	LT
L	41+02	41+74	LT
L	43+01	43+17	LT
L	43+56	44+26	LT
L	39+54	39+73	RT
L	40+11	41+71	RT
L	42+25	43+04	RT
L	43+41	46+75	RT
L	50+10	52+10	RT
Y1	15+62	15+96	LT

SR 1436 BALDWIN DR.
2009 ADT 721
2030 ADT 946
207 / 282
514 / 664
20,321 / 27,896
20,629 / 28,279
SR 1472 VILLAGE DR.

-L-
PI Sta 35+16.41
Δ = 24° 11' 04.9" (LT)
D = 4° 15' 00.0"
L = 569.05'
T = 288.83'
R = 1,348.14'

NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.
6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

20,629 / 28,279 SR 1472 VILLAGE DR. 20,986 / 29,236
143 / 593
500 / 1,550
2009 ADT 643
2030 ADT 2,143
NORTHGATE DRIVE

LEGEND
- PAVEMENT REMOVAL
- PAVED SHOULDER
- CURB CUT W/FLUME
- CONCRETE ISLAND

SEE PROFILES FOR SPECIAL DITCH GRADES
SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 13 FOR -Y3- PROFILE
SEE SHEET 13 FOR -Y4- PROFILE
SEE SHEET 2-F FOR DITCH DETAILS, WATER QUALITY ISLAND, AND CURB CUT FLUME DETAIL
SEE SHEET 2-G FOR -Y3- INTERSECTION DETAIL
SEE SHEET 2-H FOR -Y4- & -Y5- INTERSECTION DETAIL

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MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	5A
R/W SHEET NO.	

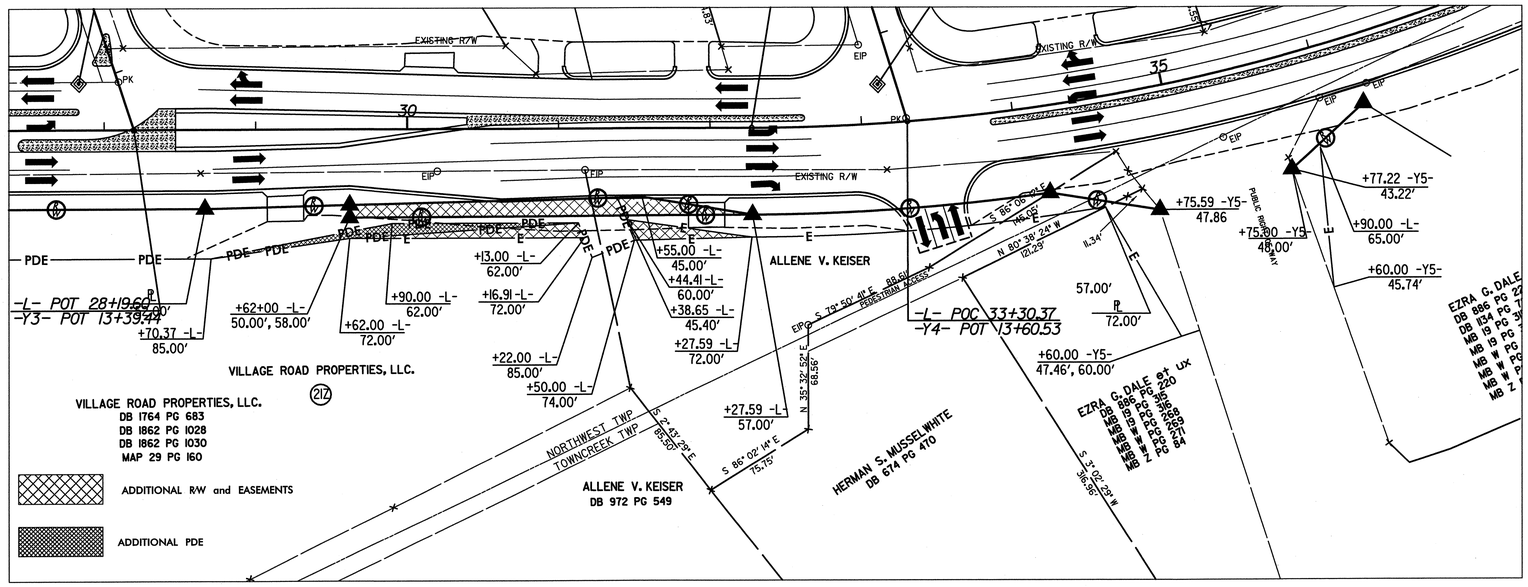
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES
12-17-08

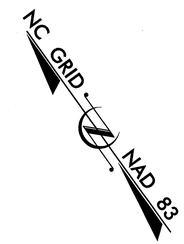
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR.
12-17-08

REVISIONS

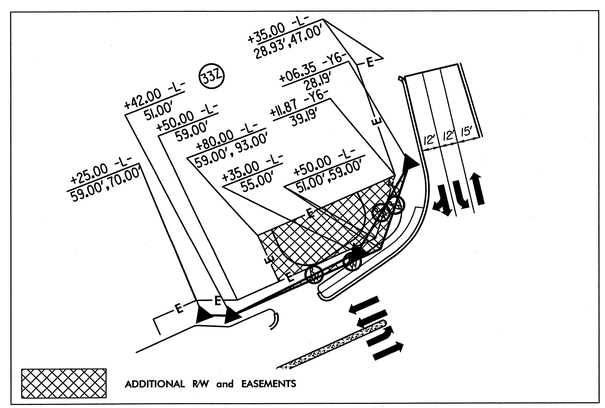
5/14/99

ADDITIONAL R/W and EASEMENTS DUE TO NORTHGATE DRIVE RELOCATION
(PLAN SHEETS 5, 2-G, AND 2-H)





ADDITIONAL R/W and EASEMENTS DUE TO ADDITIONAL ROADWAY
(PLAN SHEETS 6 AND 2-H)



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ministrator
AT_BOD THROWER

PROJECT REFERENCE NO.	SHEET NO.
R-4002	6
R/W SHEET NO.	

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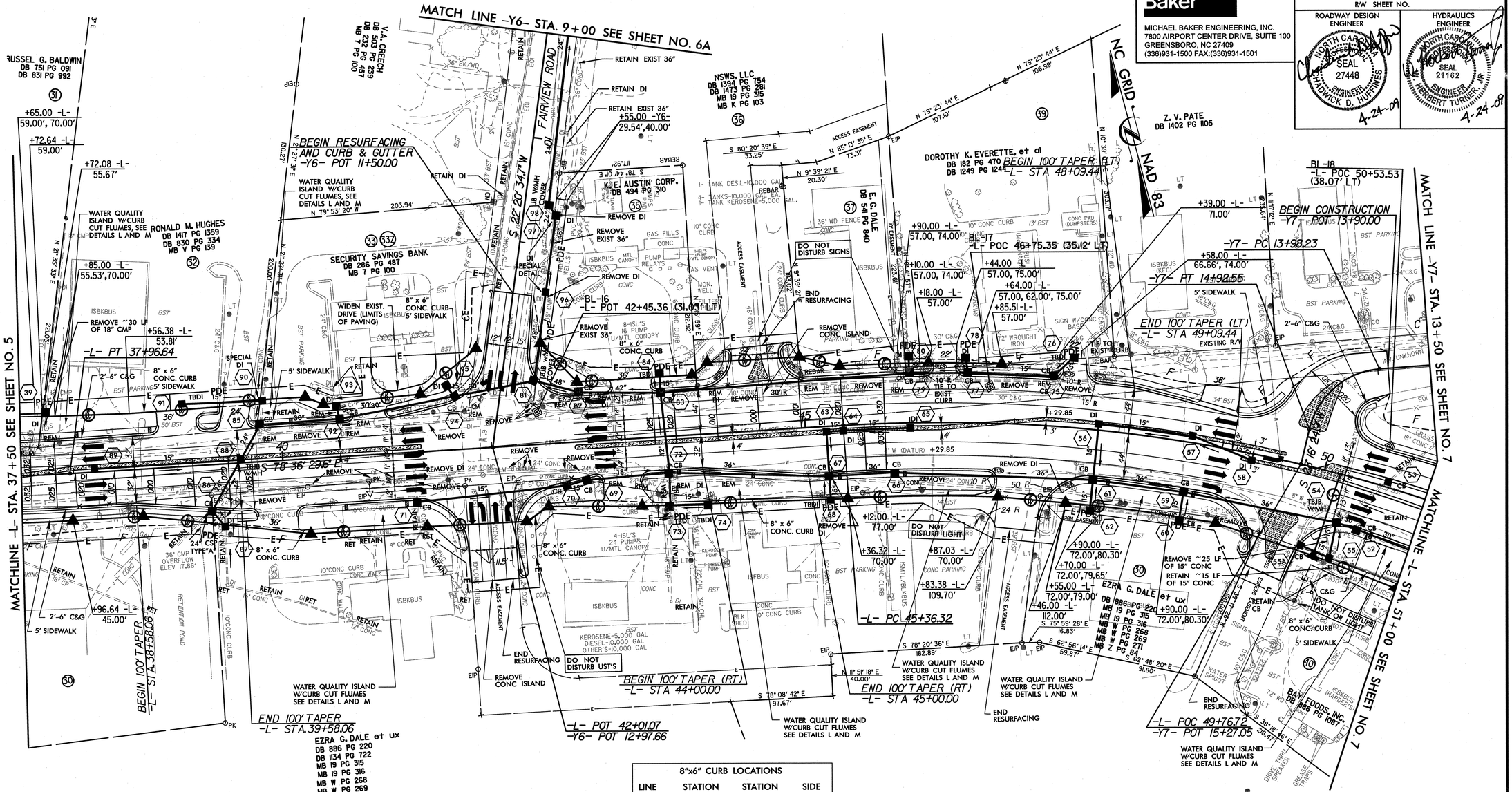
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES — 4-24-09

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. — 4-24-09



2009 ADT / 2030 ADT	SR 1462 FAIRVIEW RD.	SR 1472 VILLAGE DR
	8,193 / 11,268	
	2,964 / 3,639	3,471 / 5,271
20,986 / 29,236		20,900 / 30,350
	2,743 / 3,193	2,150 / 2,675
	6,650 / 8,225	

SHOPPING CENTER DRIVEWAY

2009 ADT / 2030 ADT	THOMAS GARST LANE	SR 1472 VILLAGE DR
	521 / 746	
	314 / 464	207 / 282
28,850 / 43,025		28,950 / 43,125
	421 / 646	629 / 929
	1,050 / 1,575	

SHOPPING CENTER DRIVEWAY

-L-
PI Sta 49+02.48
Δ = 27° 31' 48.3" (RT)
D = 3° 50' 00.0"
L = 718.18'
T = 366.16'
R = 1,494.67'

-Y7-
PI Sta 14+52.78
Δ = 72° 03' 38.1" (LT)
D = 76° 23' 39.7"
L = 94.33'
T = 54.55'
R = 75.00'

8"x6" CURB LOCATIONS

LINE	STATION	STATION	SIDE
L	18+49	18+77	LT
L	19+04	19+54	LT
L	19+92	20+75	LT
L	21+15	23+87	LT
L	24+40	26+02	LT
L	26+45	26+95	LT
L	27+19	27+79	LT
L	31+04	31+77	LT
L	31+99	32+86	LT
L	33+30	34+23	LT
L	34+63	36+21	LT
L	36+61	38+82	LT
L	39+71	40+69	LT
L	41+02	41+74	LT
L	43+01	43+17	LT
L	43+56	44+26	LT
L	39+54	39+73	RT
L	40+11	41+71	RT
L	42+25	43+04	RT
L	43+41	46+75	RT
L	50+10	52+10	RT
Y1	15+62	15+96	LT

LEGEND

- PAVEMENT REMOVAL
- PAVED SHOULDER
- CURB CUT W/FLUME
- CONCRETE ISLAND

NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.
6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

SEE PROFILES FOR SPECIAL DITCH GRADES
SEE SHEET 11 FOR -L- PROFILE
SEE SHEET 14 FOR -Y6- PROFILE
SEE SHEET 14 FOR -Y7- PROFILE

SEE SHEET 2-F FOR DITCH DETAILS, WATER QUALITY ISLAND, AND CURB CUT FLUME DETAIL
SEE SHEET 2-H FOR -Y6- INTERSECTION DETAIL
SEE SHEET 2-I FOR -Y7- INTERSECTION DETAIL

REVISIONS 5/14/99

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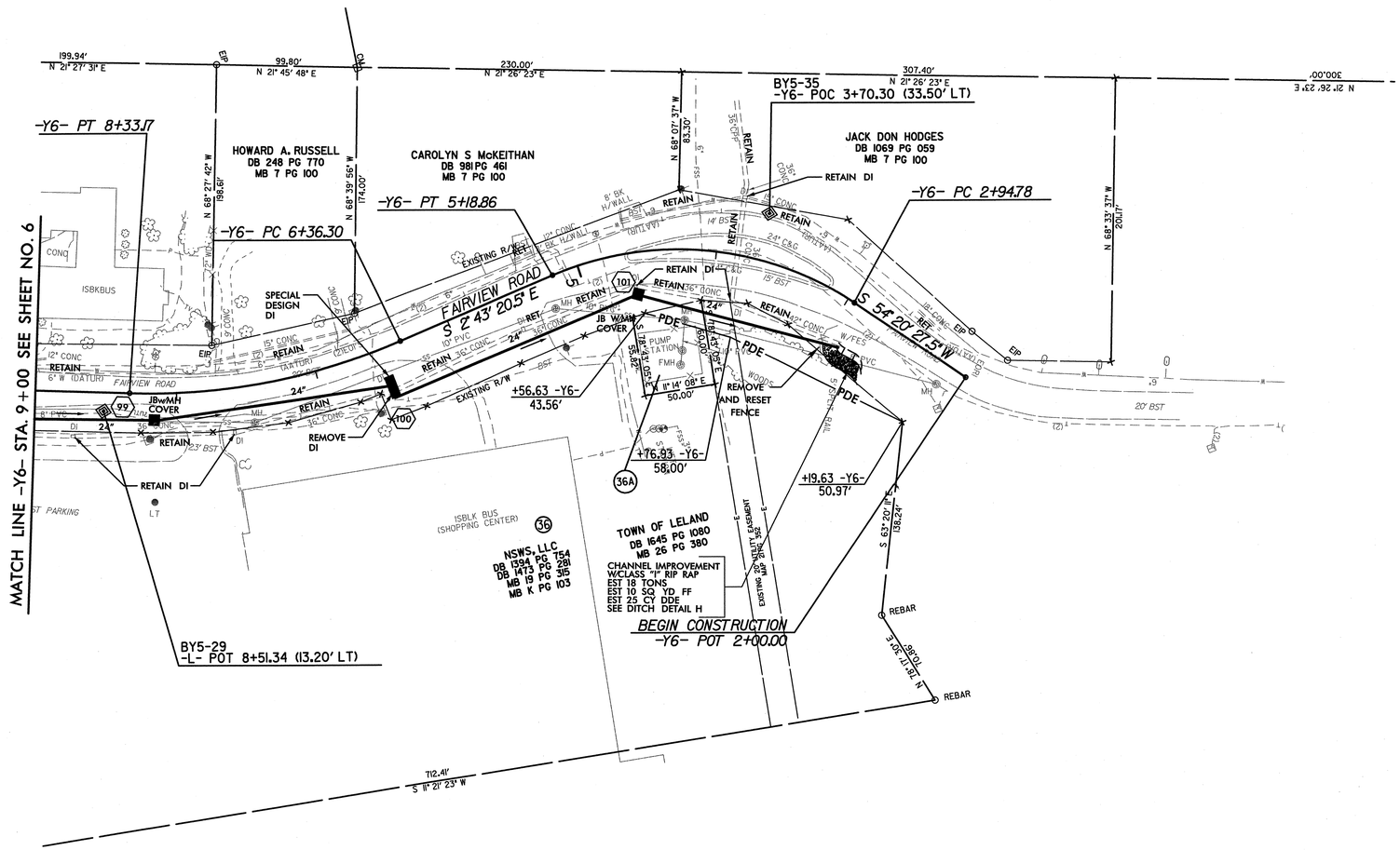
Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

PROJECT REFERENCE NO.	SHEET NO.
R-4002	6A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08

NAD 83 NC GRID



-Y6-
PI Sta 7+36.33
Δ = 25° 03' 55.3" (RT)
D = 12° 43' 56.6"
L = 196.86'
T = 100.03'
R = 450.00'

-Y6-
PI Sta 4+17.10
Δ = 57° 03' 47.6" (LT)
D = 25° 27' 53.2"
L = 224.09'
T = 122.33'
R = 225.00'

REVISIONS

5/14/99

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mmstarr

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

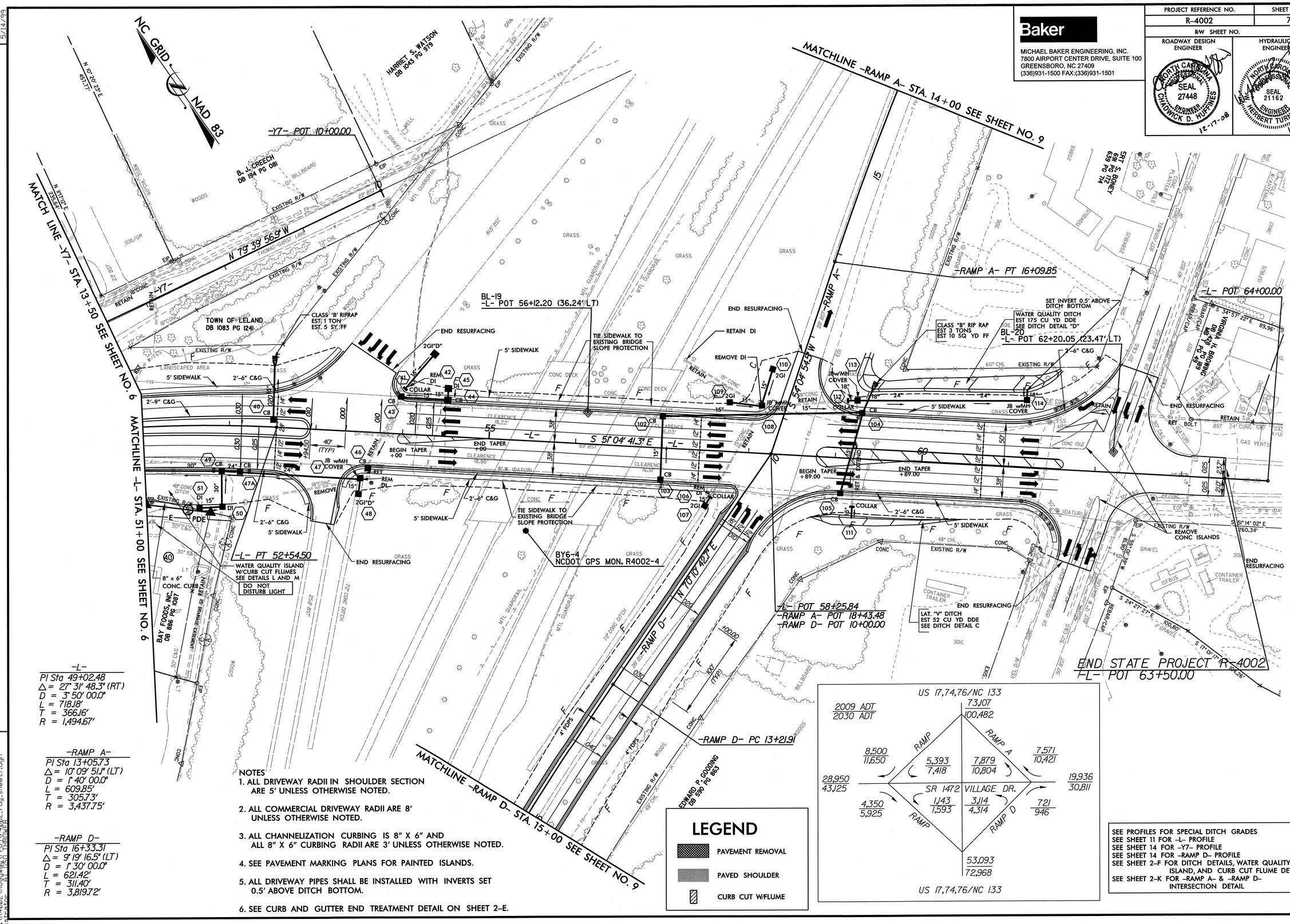
PROJECT REFERENCE NO.	SHEET NO.
R-4002	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER JR. 12-17-08

REVISIONS

5/14/99



-L-
PI Sta 49+02.48
Δ = 27° 31' 48.3" (RT)
D = 3° 50' 00.0"
L = 718.18'
T = 366.16'
R = 1,494.67'

-RAMP A-
PI Sta 13+05.73
Δ = 10° 09' 51.1" (LT)
D = 1° 40' 00.0"
L = 609.85'
T = 305.73'
R = 3,437.75'

-RAMP D-
PI Sta 16+33.31
Δ = 9° 19' 16.5" (LT)
D = 1° 30' 00.0"
L = 621.42'
T = 311.40'
R = 3,819.72'

NOTES

1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
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4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.
6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

LEGEND

- PAVEMENT REMOVAL
- PAVED SHOULDER
- CURB CUT W/FLUME

SEE PROFILES FOR SPECIAL DITCH GRADES
SEE SHEET 11 FOR -L- PROFILE
SEE SHEET 14 FOR -Y7- PROFILE
SEE SHEET 14 FOR -RAMP D- PROFILE
SEE SHEET 2-F FOR DITCH DETAILS, WATER QUALITY ISLAND, AND CURB CUT FLUME DETAIL
SEE SHEET 2-K FOR -RAMP A- & -RAMP D- INTERSECTION DETAIL

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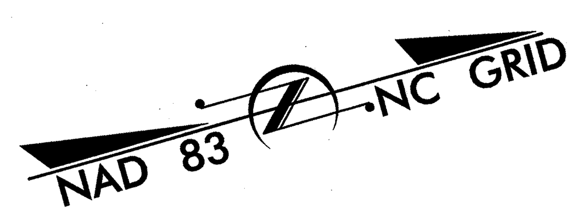
16-DEC-2008 13:49
Administrator

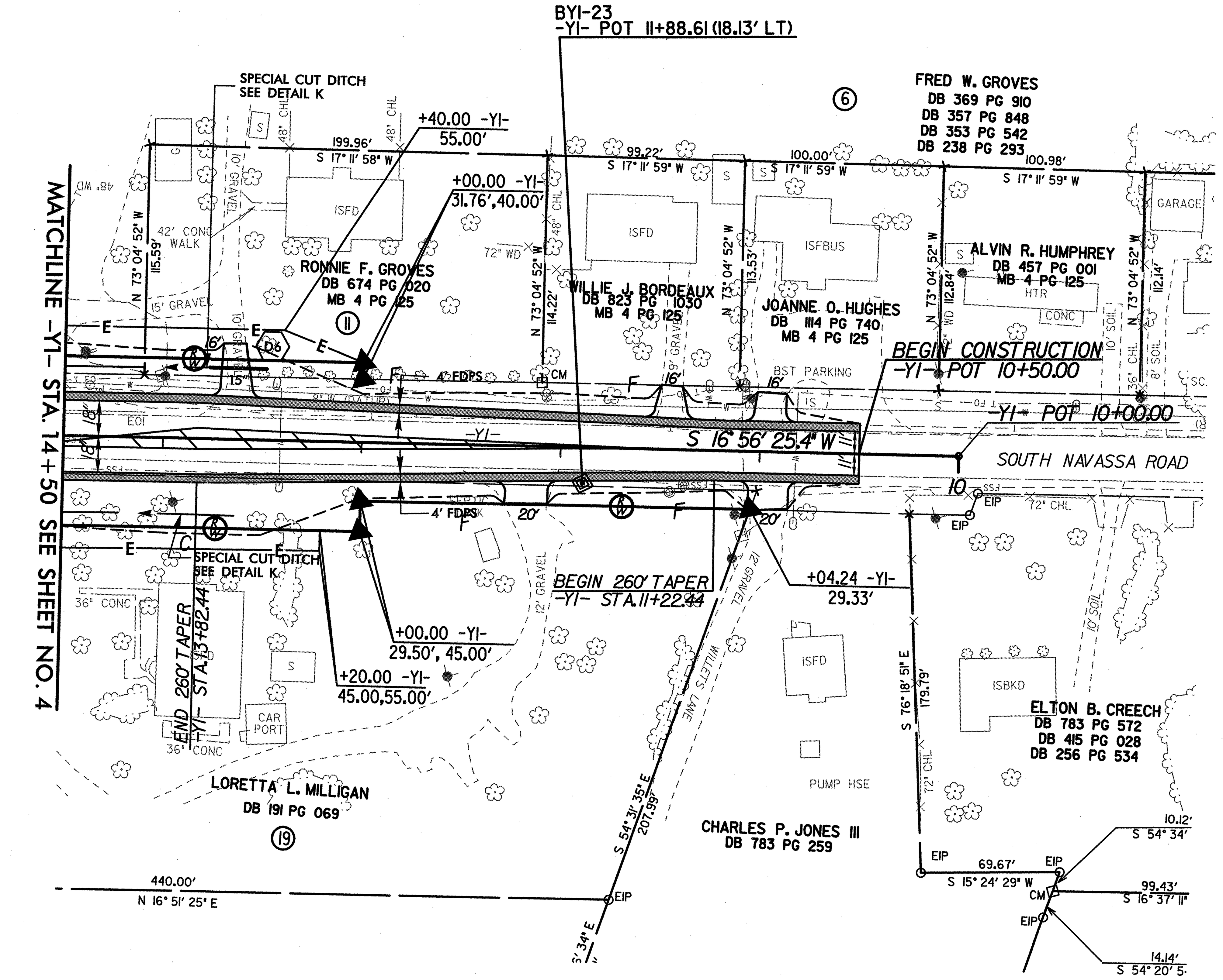
PROJECT REFERENCE NO.	SHEET NO.
R-4002	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-31-08	NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER W. HERBERT TURNER, JR. 1-5-09

Baker
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

5/14/99

REVISIONS





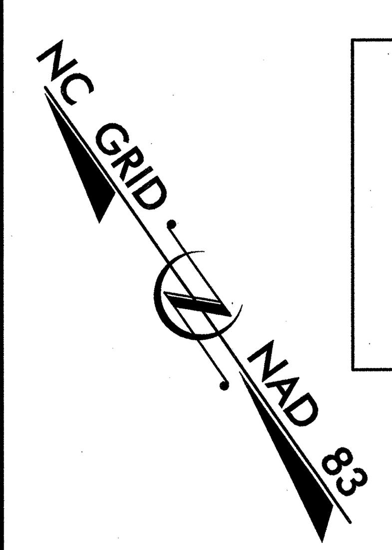
NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.

SEE PROFILES FOR SPECIAL DITCH GRADES
SEE SHEET 12 FOR -Y1- PROFILE

LEGEND

PAVEMENT REMOVAL

PAVED SHOULDER



LEGEND

PAVEMENT REMOVAL

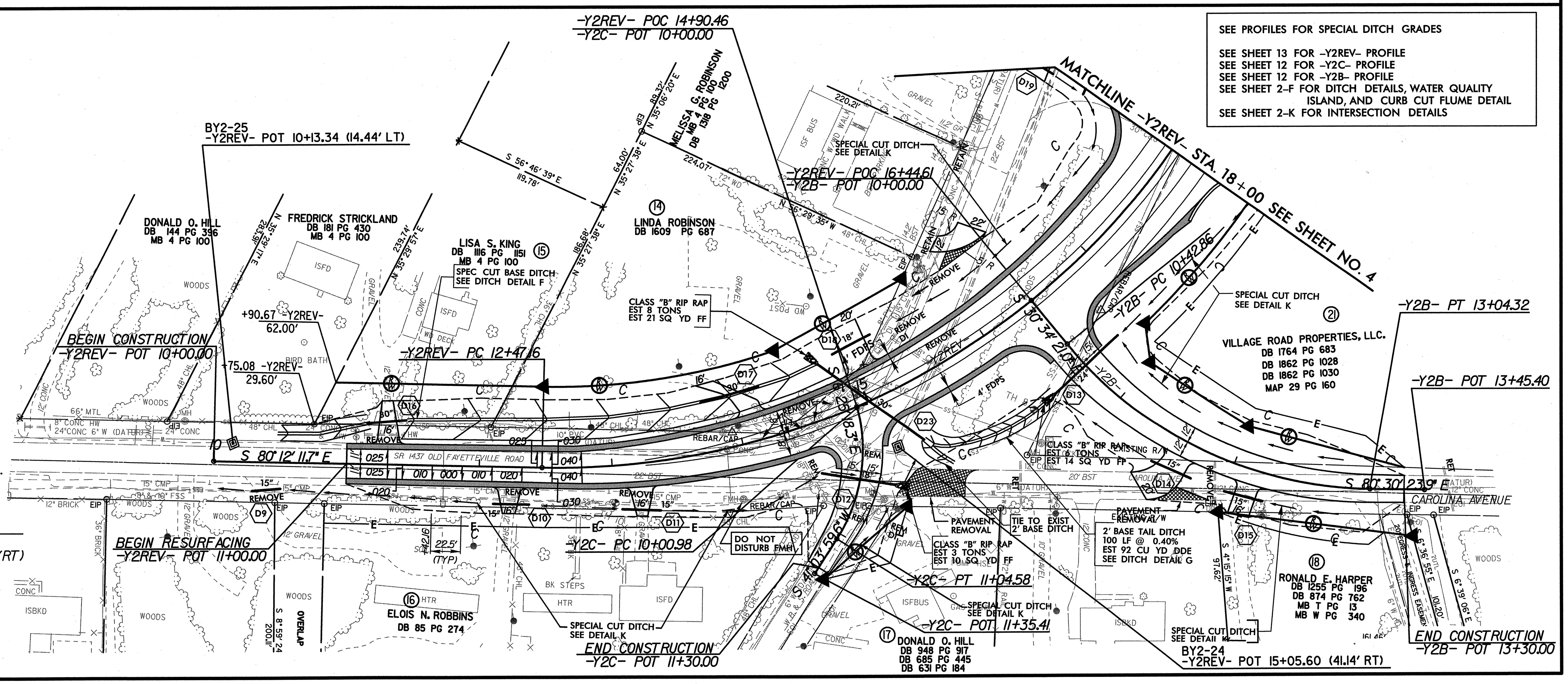
PAVED SHOULDER

NOTES
1. ALL DRIVEWAY RADII IN SHOULDER SECTION ARE 5' UNLESS OTHERWISE NOTED.
2. ALL COMMERCIAL DRIVEWAY RADII ARE 8' UNLESS OTHERWISE NOTED.
3. ALL CHANNELIZATION CURBING IS 8" X 6" AND ALL 8" X 6" CURBING RADII ARE 3' UNLESS OTHERWISE NOTED.
4. SEE PAVEMENT MARKING PLANS FOR PAINTED ISLANDS.
5. ALL DRIVEWAY PIPES SHALL BE INSTALLED WITH INVERTS SET 0.5' ABOVE DITCH BOTTOM.
6. SEE CURB AND GUTTER END TREATMENT DETAIL ON SHEET 2-E.

-Y2REV-	-Y2B-	-Y2C-
PI Sta 16+74.13	PI Sta 11+82.54	PI Sta 10+55.97
Δ = 74° 09' 21.0" (LT)	Δ = 49° 56' 02.9" (LT)	Δ = 47° 29' 17.9" (RT)
D = 10° 08' 27.0"	D = 19° 05' 54.9"	D = 45° 50' 11.8"
L = 731.26'	L = 261.45'	L = 103.60'
T = 426.96'	T = 139.68'	T = 54.99'
R = 565.00'	R = 300.00'	R = 125.00'

SEE PROFILES FOR SPECIAL DITCH GRADES

SEE SHEET 13 FOR -Y2REV- PROFILE
SEE SHEET 12 FOR -Y2C- PROFILE
SEE SHEET 12 FOR -Y2B- PROFILE
SEE SHEET 2-F FOR DITCH DETAILS, WATER QUALITY ISLAND, AND CURB CUT FLUME DETAIL
SEE SHEET 2-K FOR INTERSECTION DETAILS



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PROJECT REFERENCE NO.	SHEET NO.
R-4002	9
R/W SHEET NO.	

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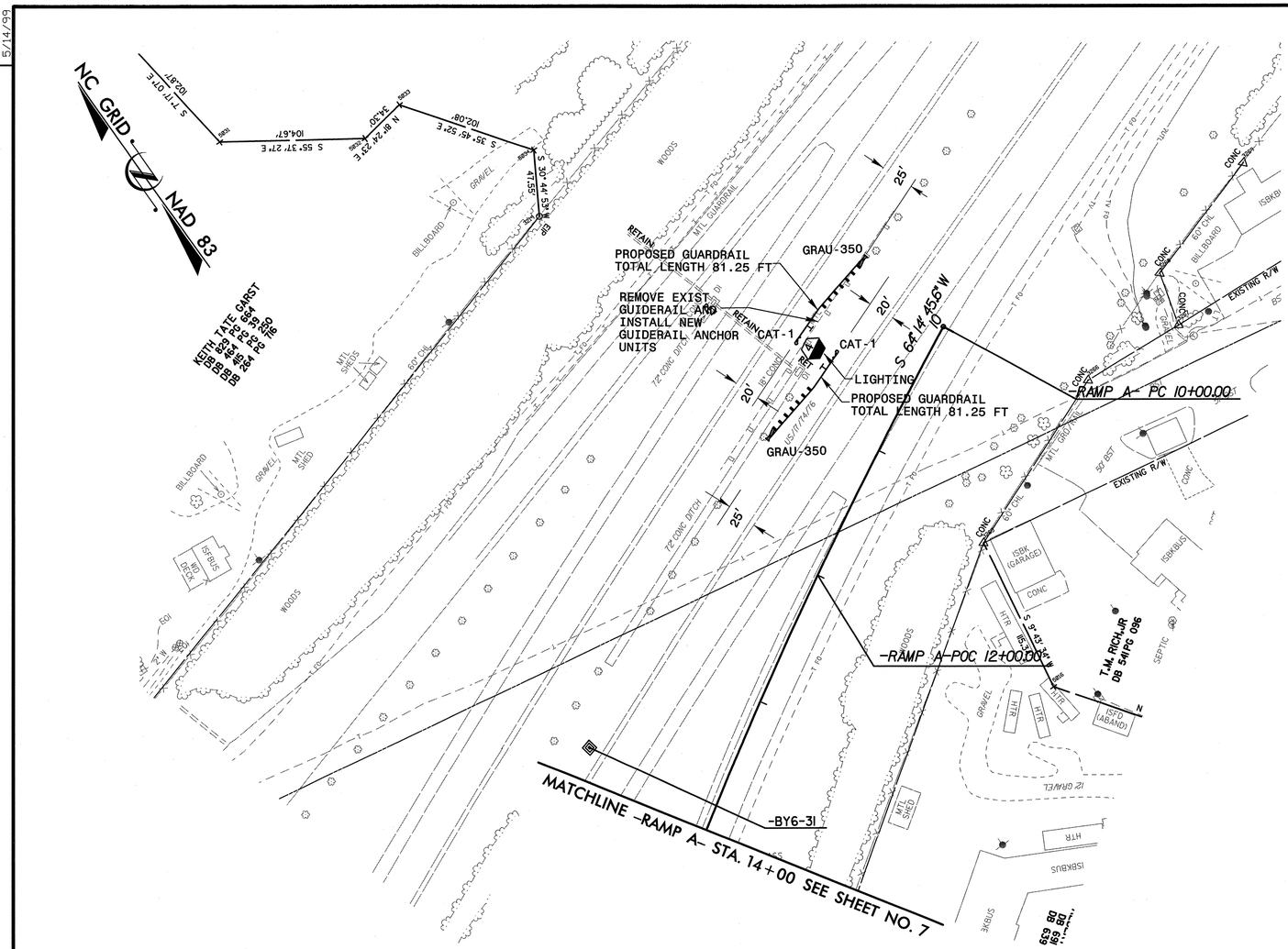
MICHAEL BAKER ENGINEERING, INC.
7800 AIRPORT CENTER DRIVE, SUITE 100
GREENSBORO, NC 27409
(336)931-1500 FAX:(336)931-1501

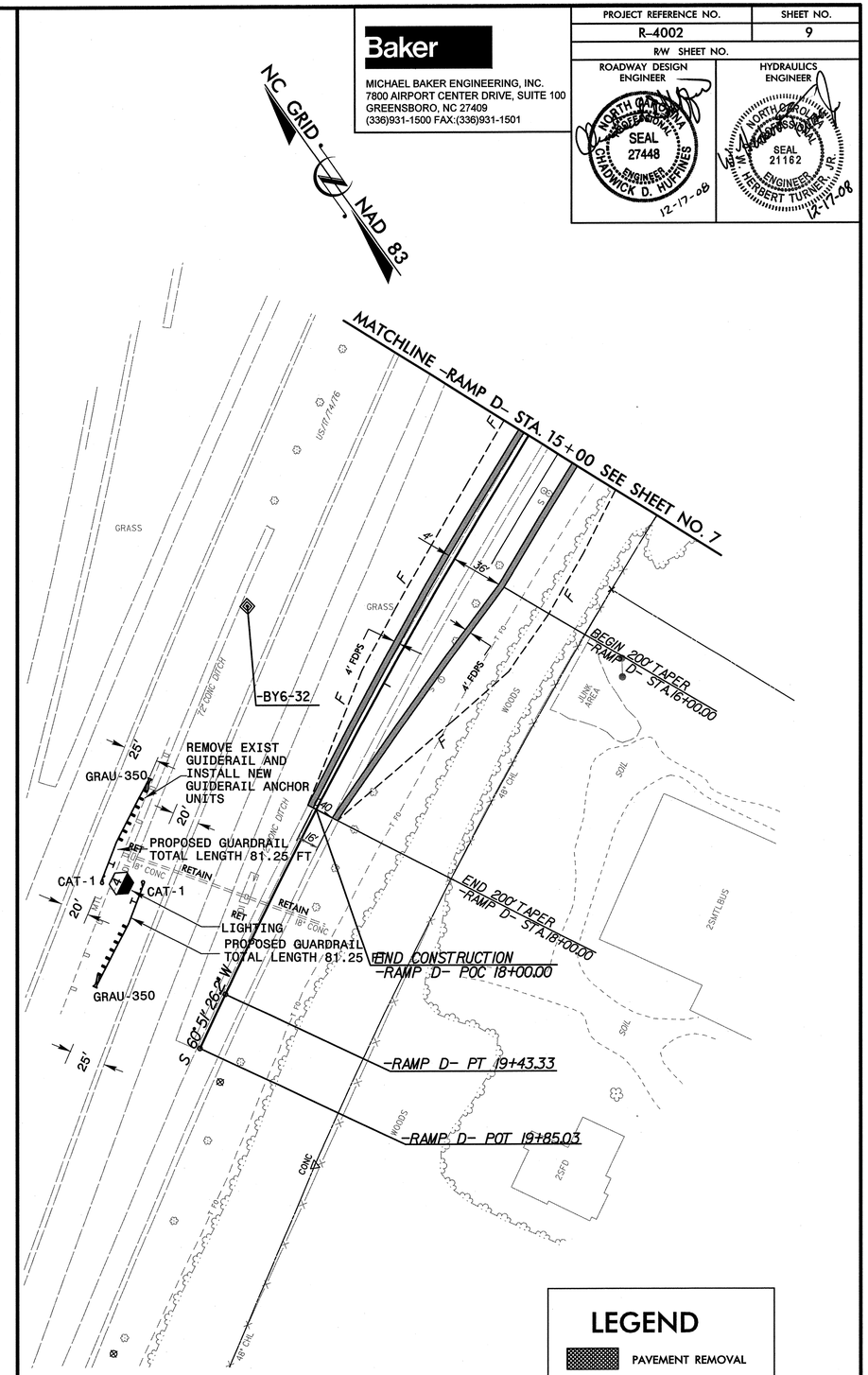
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08

REVISIONS

5/14/99





LEGEND

- PAVEMENT REMOVAL
- PAVED SHOULDER

-RAMP A-
PI Sta 13+05.73
Δ = 10° 09' 51.1" (LT)
D = 1° 40' 00.0"
L = 609.85'
T = 305.73'
R = 3,437.75'

-RAMP D-
PI Sta 16+33.31
Δ = 9° 19' 16.5" (LT)
D = 1° 30' 00.0"
L = 621.42'
T = 311.40'
R = 3,819.72'

SEE SHEET 14 FOR -RAMP D- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
R-4002	10

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

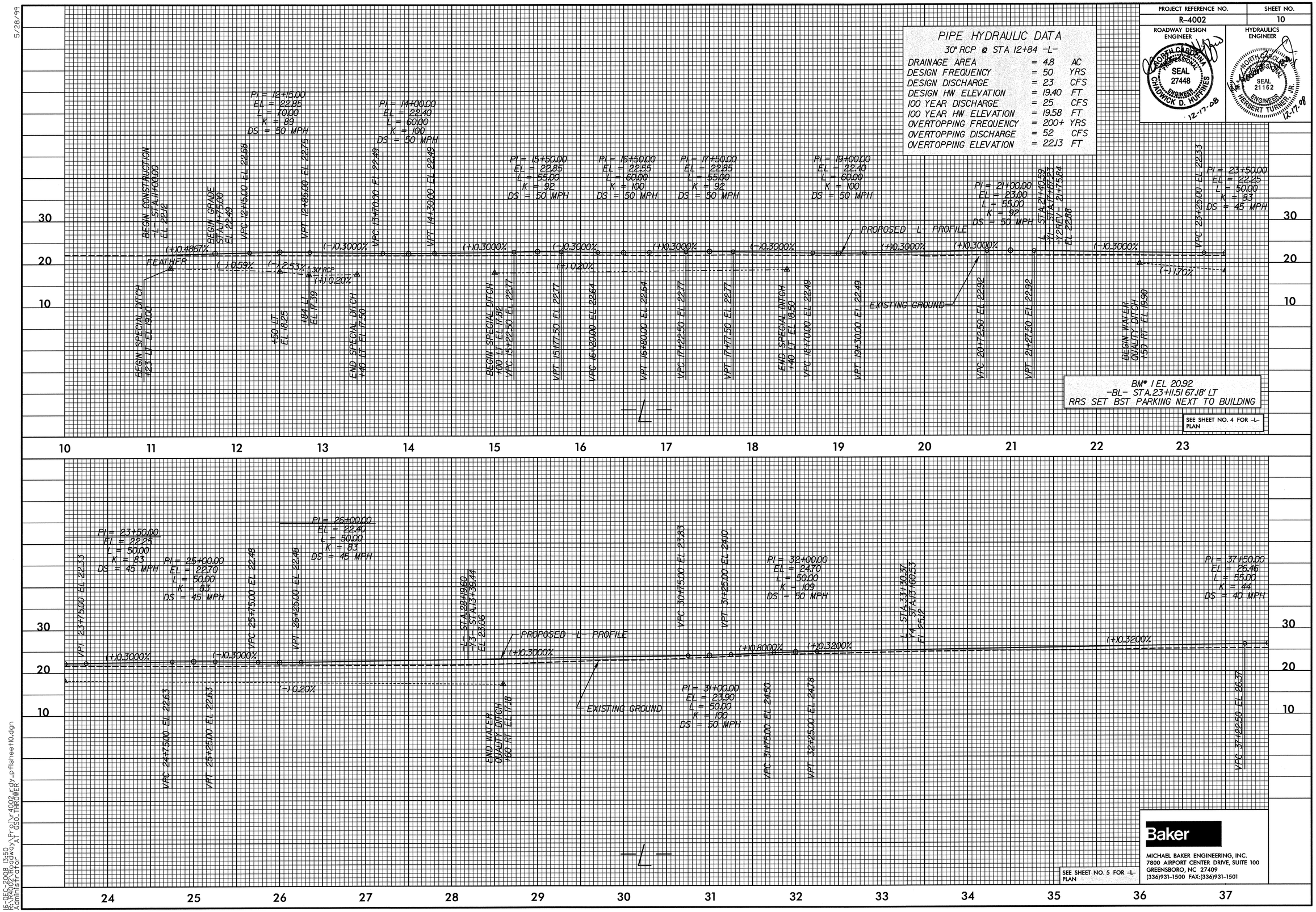
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08

PIPE HYDRAULIC DATA

30" RCP @ STA 12+84 -L-

DRAINAGE AREA	=	4.8	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	23	CFS
DESIGN HW ELEVATION	=	19.40	FT
100 YEAR DISCHARGE	=	25	CFS
100 YEAR HW ELEVATION	=	19.58	FT
OVERTOPPING FREQUENCY	=	200+	YRS
OVERTOPPING DISCHARGE	=	52	CFS
OVERTOPPING ELEVATION	=	22.13	FT



SEE SHEET NO. 4 FOR -L- PLAN

SEE SHEET NO. 5 FOR -L- PLAN

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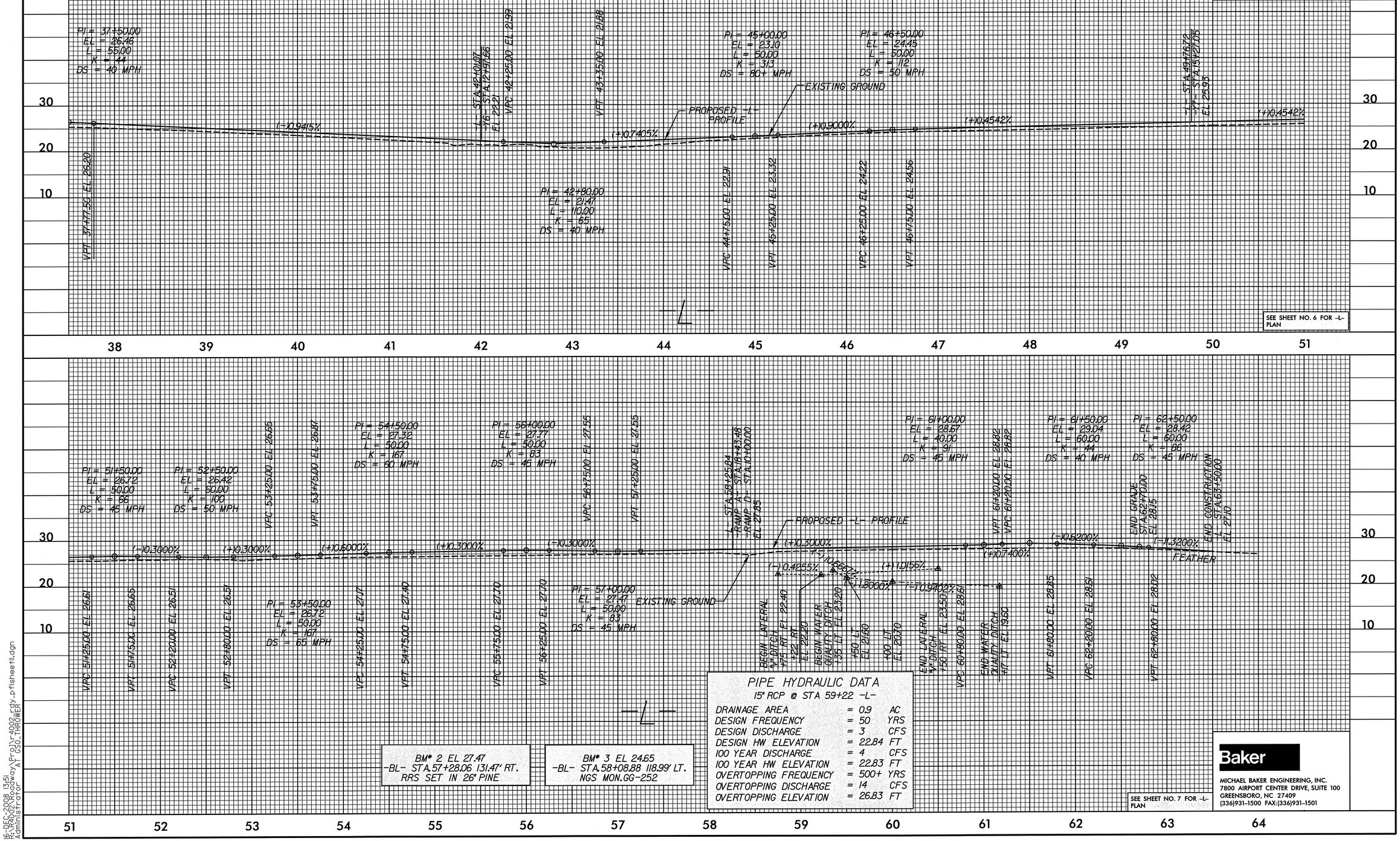
PROJECT REFERENCE NO.	SHEET NO.
R-4002	11

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08



PIPE HYDRAULIC DATA
15" RCP @ STA 59+22 -L-

DRAINAGE AREA	=	0.9	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	3	CFS
DESIGN HW ELEVATION	=	22.84	FT
100 YEAR DISCHARGE	=	4	CFS
100 YEAR HW ELEVATION	=	22.83	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	14	CFS
OVERTOPPING ELEVATION	=	26.83	FT

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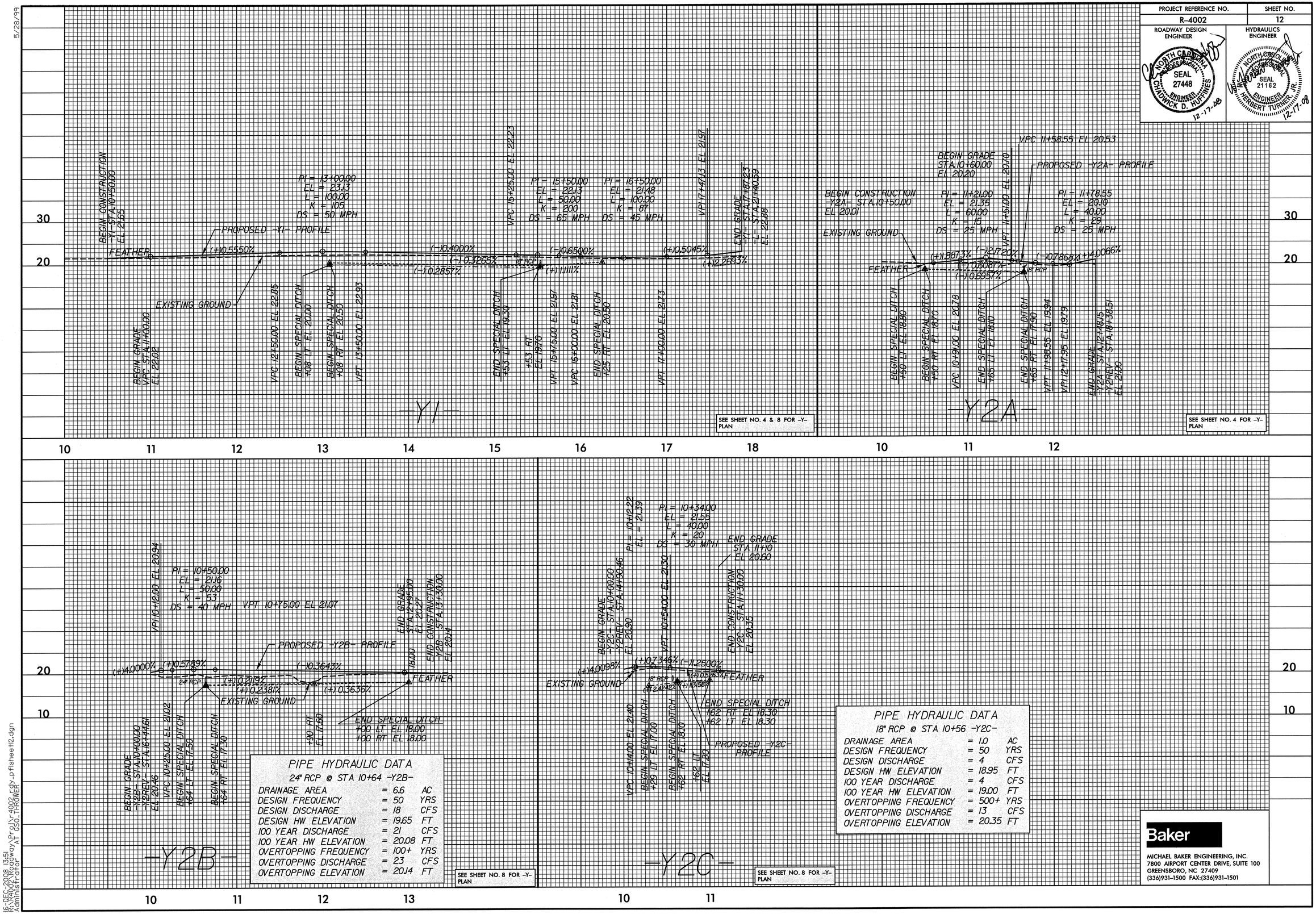
PROJECT REFERENCE NO.	SHEET NO.
R-4002	12

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08



PIPE HYDRAULIC DATA

24" RCP @ STA 10+64 -Y2B-

DRAINAGE AREA	= 6.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 18	CFS
DESIGN HW ELEVATION	= 19.65	FT
100 YEAR DISCHARGE	= 21	CFS
100 YEAR HW ELEVATION	= 20.08	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 23	CFS
OVERTOPPING ELEVATION	= 20.14	FT

PIPE HYDRAULIC DATA

18" RCP @ STA 10+56 -Y2C-

DRAINAGE AREA	= 1.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4	CFS
DESIGN HW ELEVATION	= 18.95	FT
100 YEAR DISCHARGE	= 4	CFS
100 YEAR HW ELEVATION	= 19.00	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 13	CFS
OVERTOPPING ELEVATION	= 20.35	FT

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PROJECT REFERENCE NO.	SHEET NO.
R-4002	13

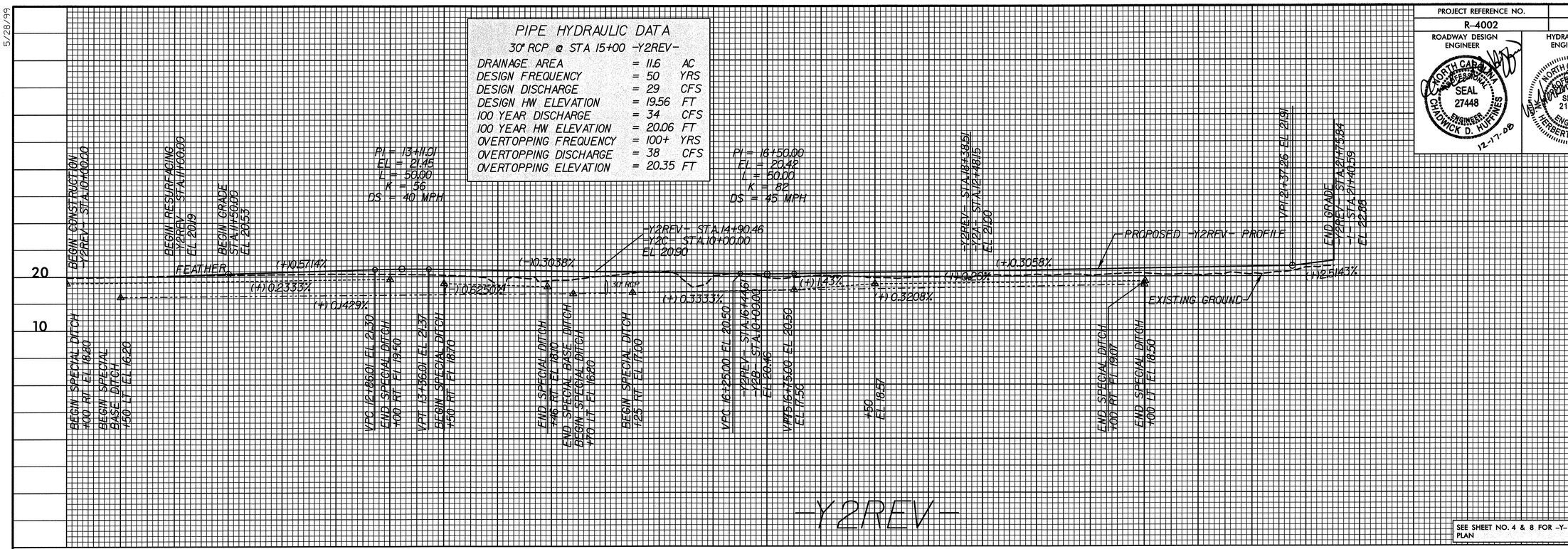
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

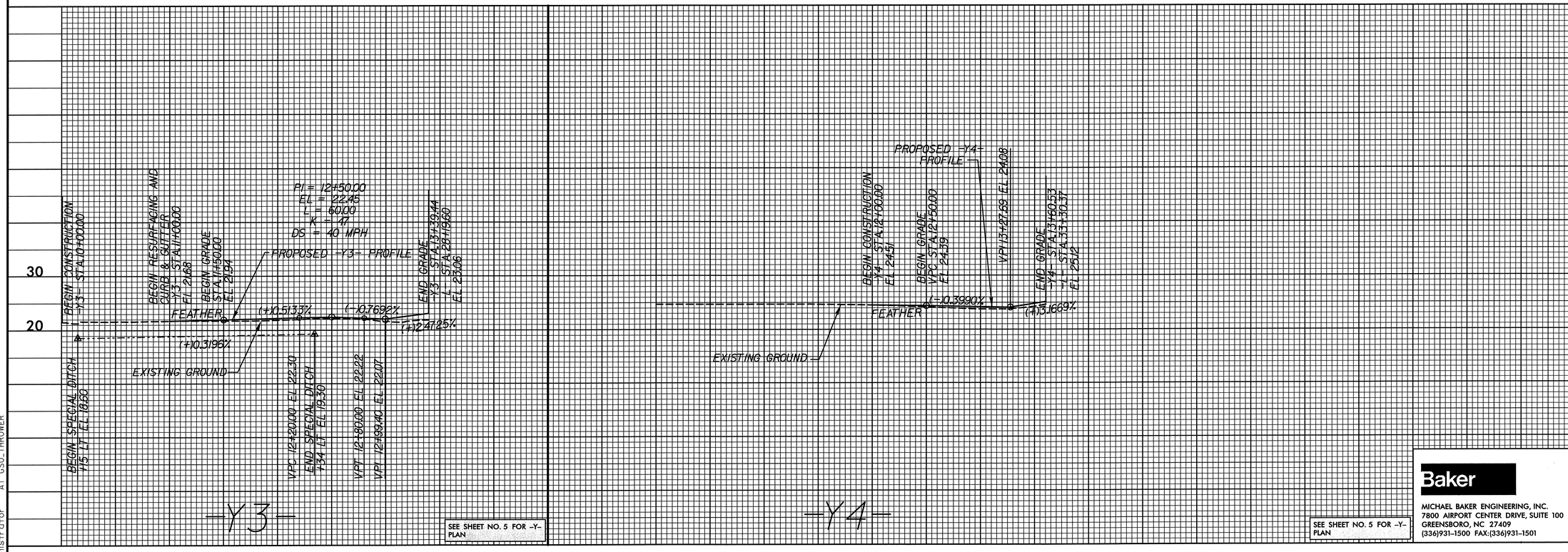
HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER JR. 12-17-08

PIPE HYDRAULIC DATA

30" RCP @ STA 15+00 -Y2REV-

DRAINAGE AREA	= 11.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 29	CFS
DESIGN HW ELEVATION	= 19.56	FT
100 YEAR DISCHARGE	= 34	CFS
100 YEAR HW ELEVATION	= 20.06	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 38	CFS
OVERTOPPING ELEVATION	= 20.35	FT





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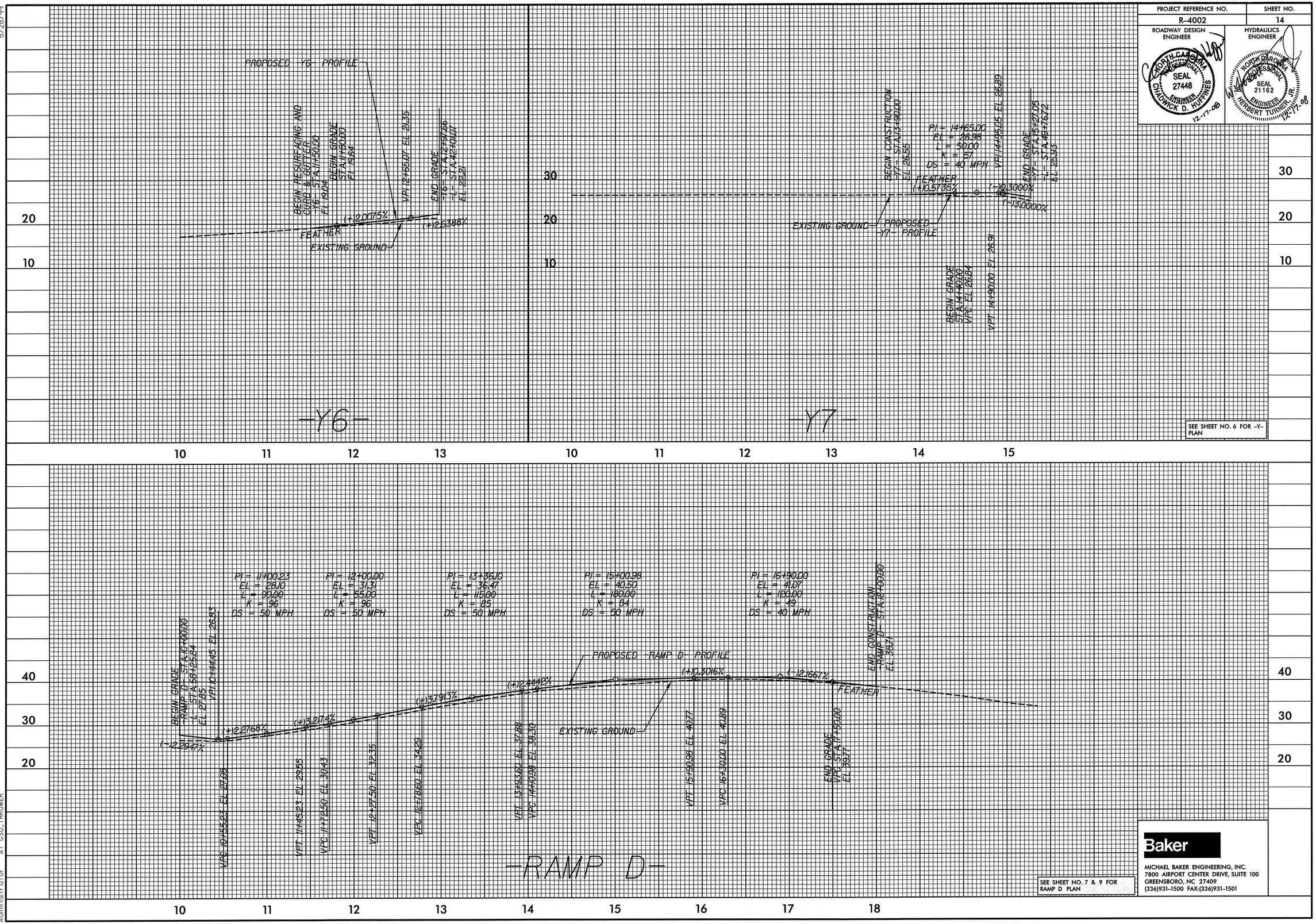
PROJECT REFERENCE NO.	SHEET NO.
R-4002	14

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27448 ENGINEER CHADWICK D. HUFFINES 12-17-08

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21162 ENGINEER HERBERT TURNER, JR. 12-17-08



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