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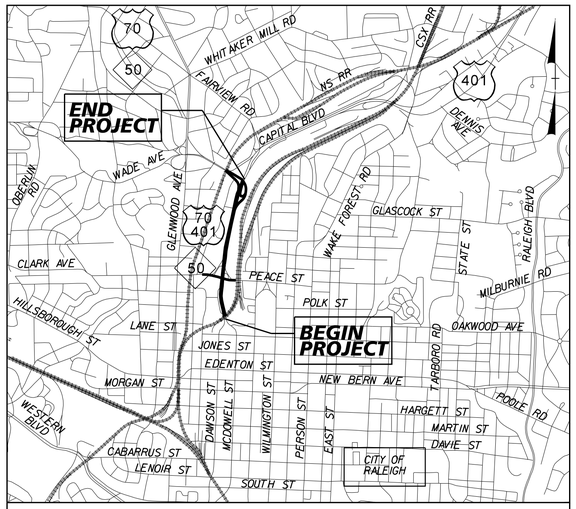
09/08/99

CONTRACT: C203751 TIP PROJECT: B-5121 / B-5317

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

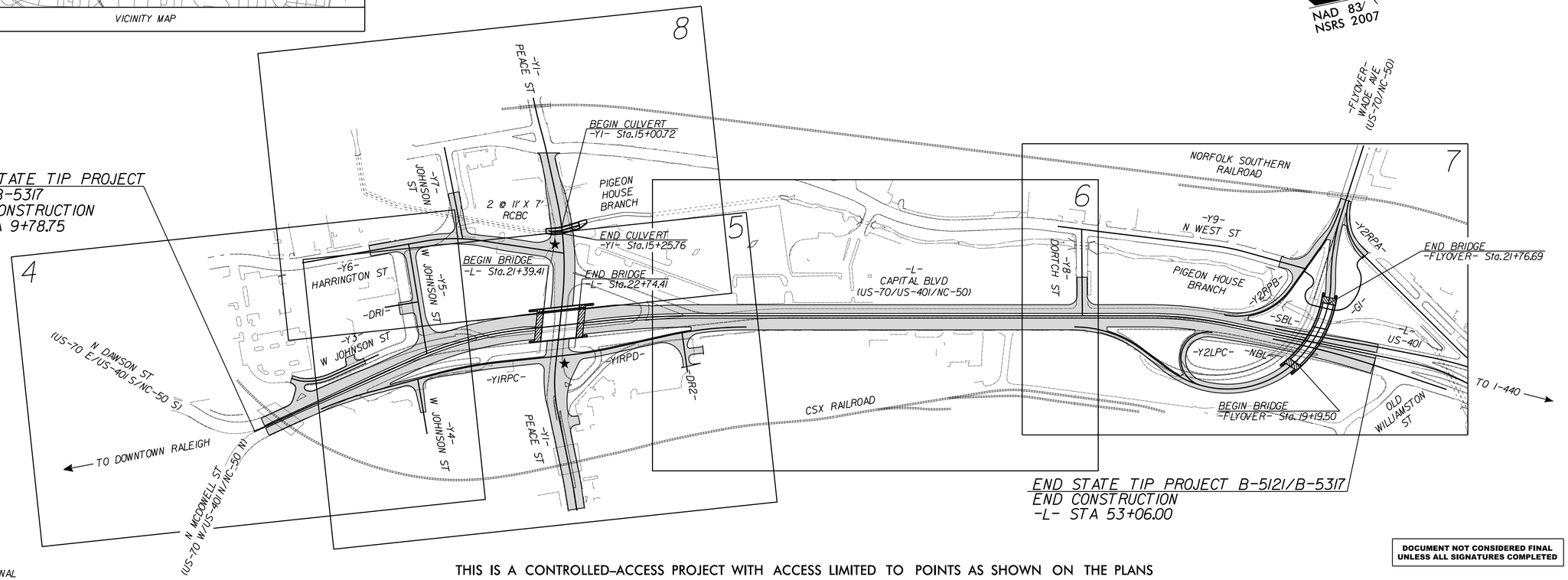
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5121/B-5317	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42263.1.1	BRNHS-0070(119)	P.E. (B-5121)
46031.1.1	BRSTP-0070(149)	P.E. (B-5317)
42263.2.1	BRNHS-0070(119)	R/W (B-5121/B-5317)
42263.2.U1	BRNHS-0070(119)	UTL (B-5121/B-5317)
42263.3.1	BRNHS-0070(119)	CONST (B-5121/B-5317)

LOCATION: BRIDGE NO. 227 ON US-70/US-401/NC-50 (CAPITAL BOULEVARD) OVER PEACE STREET AND BRIDGE NO. 213 ON US-70/NC-50 (WADE AVENUE) OVER US 401 (CAPITAL BOULEVARD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERT, SIGNALS, AND SIGNING

NAD 83/
NSRS 2007



BEGIN STATE TIP PROJECT
B-5121/B-5317
BEGIN CONSTRUCTION
-L- STA 9+78.75

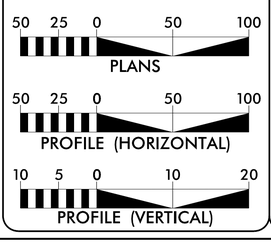
END STATE TIP PROJECT B-5121/B-5317
END CONSTRUCTION
-L- STA 53+06.00

★ TRAFFIC SIGNAL

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

AADT 2016	=	58,083
AADT 2036	=	70,416
K	=	10%
D	=	55%
T	=	5%*
V	=	40 MPH

CLASSIFICATION: URBAN ARTERIAL

* 1% TTST 4% DUAL STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5121/B-5317	=	0.794 MILES
LENGTH STRUCTURE TIP PROJECT B-5121/B-5317	=	0.026 MILES
TOTAL LENGTH TIP PROJECT B-5121/B-5317	=	0.820 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn

NC LICENSE #F-0102
PO BOX 33068
RALEIGH, NORTH CAROLINA 27636
PHONE: (919) 677-2000

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 30, 2015

LETTING DATE: JULY 19, 2016

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

J. JASON PACE, P.E.
PROJECT DESIGN ENGINEER

REKHA PATEL, P.E.
PROJECT ENGINEER
NCDOT ROADWAY DESIGN
ENGINEERING COORDINATION SECTION

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL Registered Seal 026405 ENGINEER JASON D. LAWING

SIGNATURE: Jason Lawing 6/7/2016 P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL Registered Seal 024436 ENGINEER JEFFREY W. MOORE

SIGNATURE: 6/7/2016 P.E.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

6/07/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE

6/7/2016

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

B-5121/B-5317
WAKE COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS SHEET
1C-1 THRU 1C-3	SURVEY CONTROL SHEETS
2A-1 THRU 2A-7	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS
2B-1	HORIZONTAL ALIGNMENT CURVE DATA
2B-2 THRU 2B-3	INTERSECTION DETAILS
2B-4	GREENWAY DETAIL
2B-5 THRU 2B-7	DETOUR AND TEMPORARY PAVEMENT PLANS
2C-1 THRU 2C-4	CURB RAMP DETAILS - NCDOT
2C-5	CURB RAMP DETAILS - CITY OF RALEIGH
2C-6	DETAIL FOR SPECIAL 2'-6" CURB & GUTTER
2C-7	DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE
2C-8	DETAIL FOR MINIMUM DEPTH CONCRETE CATCH BASIN
2C-9	DETAIL FOR CHAIN LINK FENCE WITH BARBED WIRE
2C-10	DETAIL FOR TYPE III STRUCTURE ANCHOR UNITS
2C-11	DETAIL FOR TRAFFIC BEARING DROP INLET
2C-12	DETAIL FOR PRECAST MANHOLE 8' AND 9' DIAMETER
2C-13	DETAIL FOR B-77 STRUCTURE ANCHOR UNIT
2C-14	CURB RAMP DETAILS
2C-15	DETAIL FOR TEMPORARY W BEAM ANCHOR UNIT
2C-16	DETAIL TO CONVERT EXISTING DI, CB, OTCB, OR GI TO JUNCTION BOX
2C-17	DETAIL FOR CONVERSION OF DROP INLET OR JUNCTION BOX TO CATCH BASIN
2D-1	DRAINAGE DETAILS
2G-1	DETAIL FOR STANDARD TEMPORARY SHORING
2G-2	DETAIL FOR STANDARD TEMPORARY WALL (1 OF 3)
2G-3	DETAIL FOR STANDARD TEMPORARY WALL (2 OF 3)
2G-4	DETAIL FOR STANDARD TEMPORARY WALL (3 OF 3)
2G-5	DETAIL FOR STANDARD ROCK PLATING
2H-1	STOCKPILE CONTAINMENT DETAIL
3B-1	SUMMARY OF EARTHWORK
3B-2	SUMMARY OF GUARDRAIL
3B-3	SUMMARIES OF REMOVAL OF EXISTING ASPHALT PAVEMENT, REMOVAL OF EXISTING CONCRETE PAVEMENT, BREAKING OF ASPHALT PAVEMENT, 60" VINYL COATED CHAIN LINK FENCE, AND 96" VINYL COATED CHAIN LINK FENCE WITH BARBED WIRE
3D-1 THRU 3D-12	SUMMARY OF DRAINAGE QUANTITIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 8	PLAN SHEETS
9 THRU 17	PROFILE SHEETS
TMP-1 THRU TMP-46F	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-7	PAVEMENT MARKING PLANS
SL-1 THRU SL-3	STREET LIGHTING CONDUIT PLANS
E-1 THRU E-9	AESTHETIC LIGHTING SYSTEM PLANS
EC-1 THRU EC-14	EROSION CONTROL PLANS
L-1 THRU L-5	LANDSCAPE PLANS
LD-1 THRU LD-2	LANDSCAPE DETAILS
SIGN-1 THRU SIGN-10	SIGNING PLANS
SIG-1 THRU SIG-12.4	SIGNAL PLANS
SIG-M1 THRU SIG-M9	STANDARD DRAWING FOR METAL POLES
SIG-P1 THRU SIG-P3	PEDESTRIAN PUSHBUTTON LOCATION DETAILS
SIG-SCP1 THRU SIG-SCP11	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-16	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-6	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX
X-1A THRU X-1C	CROSS-SECTION SUMMARY SHEETS
X-2 THRU X-99	CROSS-SECTIONS
C-1 THRU C-10	CULVERT PLANS
S-1 THRU S-110	STRUCTURE PLANS
W-1 THRU W-9	RETAINING WALL PLANS

GENERAL NOTES

2012 SPECIFICATIONS

EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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 II. IN AREAS WITH PERMANENT UTILITY EASEMENTS, CLEARING SHALL EXTEND TO THE RIGHT-OF-WAY LIMITS.

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. 560.02.

SIDE ROADS:

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

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE 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 THE PLANS.

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
DUKE ENERGY PROGRESS - POWER (DISTRIBUTION AND TRANSMISSION)
TIME WARNER CABLE, AT&T, PSNC GAS, CITY OF RALEIGH PUBLIC UTILITIES (WATER AND SEWER)
LEVEL 3 COMMUNICATIONS

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

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD. NO. 848.05 AND/OR DETAILS IN THE PLANS.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 840 OF THE 2012 STANDARD SPECIFICATIONS. PROVIDE A FRAME AND COVER WITH THE COVER BOLTED INTO THE FRAME. PROVIDE 2⅝" STAINLESS STEEL BOLTS FOR EACH FRAME WITH COVER THAT MEET THE REQUIREMENTS OF SEC. 1072-5 OF THE 2012 STANDARD SPECIFICATIONS.

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N. C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N. C., DATED JANUARY, 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.NO.	TITLE
	DIVISON 2 - EARTHWORK
200.02	METHOD OF CLEARING - METHOD II
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.04	METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
225.06	METHOD OF GRADING SIGHT DISTANCE AT INTERSECTIONS
240.01	GUIDE FOR BERM DITCH CONSTRUCTION
	DIVISION 3 - PIPE CULVERTS
300.01	METHOD OF PIPE INSTALLATION
	DIVISION 5 - SUBGRADE, BASES, AND SHOULDERS
560.02	METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD II
	DIVISION 6 - ASPHALT BASES AND PAVEMENTS
654.01	PAVEMENT REPAIRS
	DIVISION 8 - INCIDENTALS
806.01	CONCRETE RIGHT-OF-WAY MARKER
806.02	GRANITE RIGHT-OF-WAY MARKER
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
840.04	CONCRETE OPEN THROAT CATCH BASIN - 12" THRU 48" PIPE
840.05	BRICK OPEN THROAT CATCH BASIN - 12" THRU 48" PIPE
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
840.18	CONCRETE GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.24	FRAMES AND NARROW SLOT SAG GRATES
840.25	ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.27	BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.29	FRAMES AND NARROW SLOT FLAT GRATES
840.30	DRIVEWAY DROP INLET
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
840.35	TRAFFIC BEARING GRATED DROP INLET - FOR CAST IRON DOUBLE FRAME AND GRATES
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
848.02	DRIVEWAY TURNOUT - RADIUS TYPE
848.04	STREET TURNOUT
848.05	CURB RAMP - PROPOSED CURB & GUTTER
850.01	CONCRETE PAVED DITCHES
850.10	GUIDE FOR BERM DRAINAGE OUTLET - 15" AND 18" PIPE
852.01	CONCRETE ISLANDS
852.06	METHOD FOR PLACEMENT OF DROP INLETS IN CONCRETE ISLANDS
857.01	PRECAST REINFORCED CONCRETE BARRIER - 41" SINGLE FACED
862.01	GUARDRAIL PLACEMENT
862.02	GUARDRAIL INSTALLATION
862.04	ANCHORING END OF GUARDRAIL - B-77 AND B-83 ANCHOR UNITS
866.01	CHAIN LINK FENCE - 4', 5' AND 6' HIGH FENCE
876.01	RIP RAP IN CHANNELS
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS
876.04	DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

REVISIONS

6/07/2016

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

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
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

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 R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- 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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- 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
- H–Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (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
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

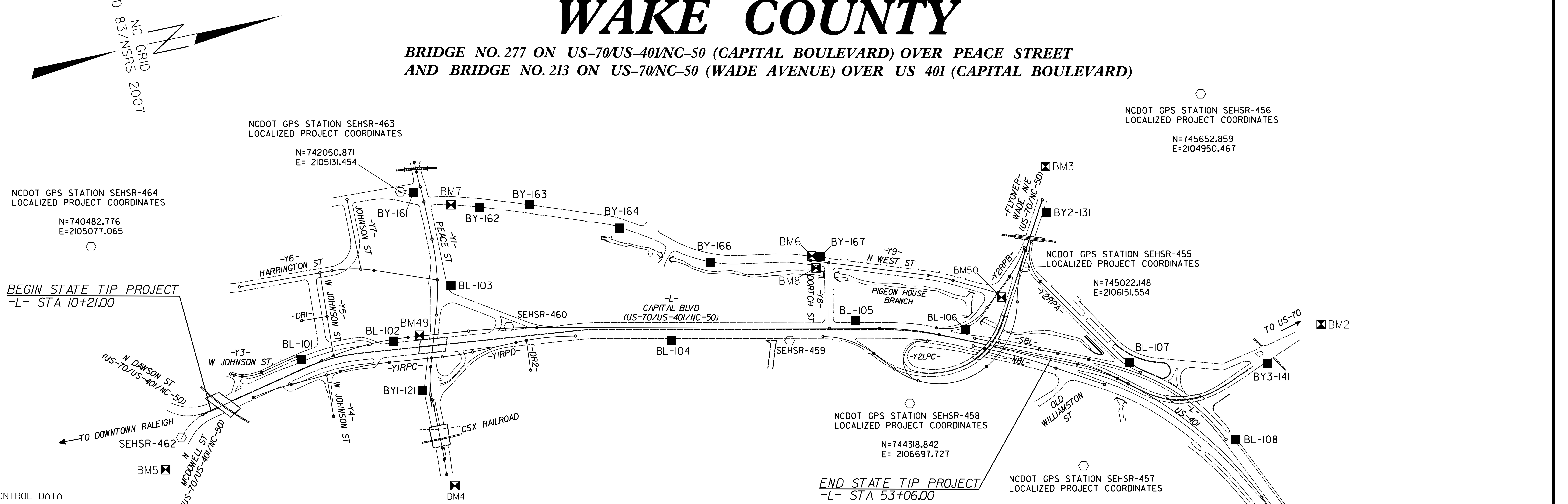
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

SURVEY CONTROL SHEET B–5121 /B–5317

WAKE COUNTY

BRIDGE NO. 277 ON US–70/US–401/NC–50 (CAPITAL BOULEVARD) OVER PEACE STREET AND BRIDGE NO. 213 ON US–70/NC–50 (WADE AVENUE) OVER US 401 (CAPITAL BOULEVARD)



CONTROL DATA

BASELINE

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
462	SEHSR-462	740724.9580	2106103.4720	304.46	OUTSIDE PROJECT LIMITS	
101	BL-101	741392.7737	2105848.2553	293.01	15+37.71	46.62 LT
102	BL-102	741863.3819	2105853.8261	296.15	20+03.28	8.88 RT
103	BL-103	742200.5763	2105642.4633	269.07	23+16.55	235.29 LT
460	SEHSR-460	742440.3480	2105904.1870	287.78	25+82.53	6.94 LT
104	BL-104	743219.2977	2106142.3412	267.57	33+93.93	64.50 RT
459	SEHSR-459	743797.4300	2106264.8280	265.76	39+84.89	62.25 RT
105	BL-105	744141.0761	2106236.1390	264.54	43+14.75	38.30 LT
106	BL-106	744667.6611	2106393.3579	256.54	48+56.42	53.31 LT
107	BL-107	745435.8333	2106726.0218	253.44	56+70.85	99.73 LT
108	BL-108	745872.7914	2107213.9756	246.41	62+99.64	89.75 LT
109	BL-109	746171.2742	2108014.9854	237.47	71+39.68	5.87 LT
454	SEHSR-454	746469.9670	2108672.5580	234.01	78+61.91	5.58 LT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
103	BL-103	742200.5763	2105642.4633	269.07	16+28.47	67.89 LT
121	BY1-121	741950.9387	2106125.9306	290.70	21+49.59	42.00 RT

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	FLYOVER STATION	OFFSET
131	BY2-131	745184.3839	2105906.7742	255.46	27+39.51	38.83 RT
106	BL-106	744667.6611	2106393.3579	256.54	19+71.32	207.02 LT

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
107	BL-107	745435.8333	2106726.0218	253.44	56+70.85	99.73 LT
141	BY3-141	746107.2472	2106875.8733	264.95	61+76.63	476.39 LT

BY5A

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
103	BL-103	742200.5763	2105642.4633	269.07	23+16.55	235.29 LT
161	BY-161	742113.1922	2105149.4660	288.46	21+77.16	716.18 LT
162	BY-162	742422.8667	2105290.6443	304.54	24+81.05	610.65 LT
163	BY-163	742667.1629	2105328.9276	304.77	26+88.83	614.30 LT
164	BY-164	743085.1862	2105537.3720	282.43	31+35.20	498.55 LT
166	BY-166	743491.7721	2105799.2643	261.34	35+87.89	328.34 LT
167	BY-167	744034.5016	2105887.1206	258.63	41+36.93	356.98 LT
105	BL-105	744141.0761	2106236.1390	264.54	43+14.75	38.30 LT

BENCHMARK DATA

BM1 ELEVATION = 234.74'
N 746642 E 2108909
L STATION 9+75.00
N 26°34'31.62" E DIST 6473.21'
BENCH TIE SET IN POWER POLE

BM2 ELEVATION = 268.63'
N 746410 E 2106740
L STATION 62+29.00 801' LEFT
BENCH TIE SET IN POWER POLE

BM3 ELEVATION = 257.84'
N 745229 E 2105682
FLYOVER STATION 13+98.00 1262' LEFT
BENCH TIE SET IN AN 18" HARDWOOD TREE

BM4 ELEVATION = 300.74'
N 742010 E 2106624
Y1 STATION 10+00.00
S 85°04'14.81" E DIST 1627.52'
BENCH TIE SET IN POWER POLE

BM5 ELEVATION = 313.79'
N 740614 E 2106244
L STATION 9+75.00
S 44°03'13.66" E DIST 332.15'
BENCH TIE SET IN POWER POLE

BM6 ELEVATION = 259.28'
N 743993 E 2105874
Y9 STATION 10+02.00 23' LEFT
BENCH TIE SET IN POWER POLE

BM7 ELEVATION = 298.06'
N 742285 E 2105248
Y1 STATION 12+46.00 129' LEFT
BENCH TIE SET IN POWER POLE

BM8 ELEVATION = 258.81'
N 744002 E 2105937
Y9 STATION 10+31.00 33' RIGHT
BENCH TIE SET IN 12" HICKORY

BM49 ELEVATION = 288.28'
N 741994 E 2105852
L STATION 21+34.00 4' LEFT
SQUARE CHISLED IN CONCRETE RET. WALL

BM50 ELEVATION = 260.51'
N 744877 E 2106274
Y2RPB STATION 13+71.00 28' RIGHT
RRS SET IN 32 INCH OAK

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SEHSR-4"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 777964.330(ft) EASTING: 2125243.897(ft) ELEVATION: 298.67(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999923460
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SEHSR-4" TO -L- STATION 10+21.00 IS
S 27°25'59" W 41762.88'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5121_ls_control.txt

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

○ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5121 /B-5317	1C-2
Location and Surveys	
FINAL	

SURVEY CONTROL SHEET B-5121 /B-5317

L

TYPE	STATION	NORTH	EAST
POT	9+75.00	740852.7136	2106013.0434
PC	16+28.10	741490.9891	2105874.6631
PT	20+76.39	741936.7214	2105850.8389
PC	23+80.48	742239.0883	2105883.2249
PT	27+21.45	742575.5596	2105937.4024
PC	44+35.25	744250.7857	2106299.0047
PT	47+34.35	744534.4639	2106392.0678
PC	54+38.96	745177.4283	2106680.2782
PT	56+51.84	745358.2469	2106791.4986
PC	57+12.60	745405.4347	2106829.7739
PT	65+95.98	745940.8794	2107522.4880
POT	80+90.87	746559.6578	2108883.2900

DETNB

TYPE	STATION	NORTH	EAST
POT	10+00.00	741045.7730	2105992.1637
PC	11+08.72	741152.3946	2105970.9017
PRC	13+69.93	741404.6187	2105903.6577
PT	19+47.41	741974.2541	2105841.4494
PC	21+73.83	742199.3867	2105865.5630
PRC	24+74.79	742492.5432	2105930.8110
PT	27+18.15	742726.8156	2105996.1388
POT	30+36.46	743037.9600	2106063.3002

DETSB

TYPE	STATION	NORTH	EAST
POT	10+00.00	741037.1388	2105952.3389
PC	12+73.49	741303.3654	2105889.7236
PRC	14+05.24	741430.5566	2105855.4612
PT	19+59.15	741978.3010	2105803.6655
PC	21+85.57	742203.4337	2105827.7791
PRC	24+41.19	742453.6275	2105878.3532
PT	26+04.39	742611.6185	2105919.0986
POT	30+51.56	743048.7207	2106013.4483

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	741434.2149	2105658.1464
POT	11+28.90	741562.9670	2105664.3854

DR2

TYPE	STATION	NORTH	EAST
POT	10+00.00	742511.8168	2105989.0049
POT	11+50.00	742500.7311	2106138.5946

FLYOVER

TYPE	STATION	NORTH	EAST
PC	10+00.00	743964.7983	2106280.2409
PT	12+72.42	744195.4193	2106416.3216
PC	14+00.42	744279.5533	2106512.7863
PCC	18+96.01	744731.2130	2106597.6164
PRC	22+65.32	744948.9033	2106313.6536
PT	25+26.33	745043.6668	2106071.5572
POT	27+93.00	745177.7016	2105841.0182

NBL

TYPE	STATION	NORTH	EAST
POT	10+00.00	744687.8863	2106482.7571
PC	10+58.07	744740.8761	2106506.5099
PT	14+28.69	745069.6096	2106677.2133
POT	16+83.91	745288.9734	2106807.6645

SBL

TYPE	STATION	NORTH	EAST
PC	10+00.00	744704.2479	2106446.2564
PT	11+24.47	744818.7858	2106494.9623
PC	13+27.46	745007.0839	2106570.7708
PT	14+20.66	745093.1307	2106606.5836
PC	15+78.99	745238.5871	2106669.1207
PCC	18+51.98	745478.8606	2106797.9802
PT	23+92.03	745826.0244	2107202.2578

STREAM

TYPE	STATION	NORTH	EAST
POT	10+00.00	742098.0856	2105509.0277
POT	12+06.46	742304.5043	2105513.3964

Y1RPC

TYPE	STATION	NORTH	EAST
PC	10+00.00	741117.8980	2105983.0016
PT	12+00.12	741316.3526	2105958.6430
PC	14+54.85	741570.7724	2105946.1425
PT	17+04.12	741819.6896	2105953.3143
POT	19+15.86	742030.2276	2105975.8647

Y1RPD

TYPE	STATION	NORTH	EAST
PC	10+00.00	742754.8694	2106019.0743
PT	12+98.42	742458.6362	2105988.2509
PC	15+19.86	742237.1993	2105989.4101
PT	16+73.22	742084.1232	2105981.6374
POT	17+27.42	742030.2276	2105975.8647

Y2LPC

TYPE	STATION	NORTH	EAST
PC	10+00.00	744470.6625	2106410.5076
PT	13+10.98	744383.6994	2106595.8202

Y2RPA

TYPE	STATION	NORTH	EAST
PC	10+00.00	745478.2445	2106785.6543
PT	11+56.60	745368.2846	2106675.7842
PC	16+76.10	745085.8722	2106239.7552
PT	18+96.38	745080.8364	2106030.5057

Y2RPB

TYPE	STATION	NORTH	EAST
PC	10+00.00	744528.1442	2106355.4243
PT	12+86.47	744795.4858	2106310.7072
PC	14+79.90	744938.4958	2106180.4723
PT	16+42.72	745040.4027	2106054.2915

DATUM DESCRIPTION

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WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 777964.330(ft) EASTING: 2125243.897(ft)
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THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"SEHSR-4" TO -L- STATION 10+21.00 IS
S 27°25'59" W 41762.88'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE
GEOID 09

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	742149.8448	2105002.4975
PC	10+48.85	742150.3035	2105051.3452
PRC	11+25.64	742152.9893	2105128.0810
PT	12+03.30	742155.8335	2105205.6837
PC	13+92.98	742156.3492	2105395.3585
PT	17+74.94	742097.0936	2105771.0629
PC	20+34.92	742016.4030	2106018.2079
PT	22+00.10	741989.9954	2106180.5924
PC	24+45.54	741988.3152	2106426.0336
PT	25+03.73	741986.5064	2106484.1911
POT	25+81.00	741982.2328	2106561.3388

Y3

TYPE	STATION	NORTH	EAST
POT	10+00.00	741032.4277	2105844.8699
PC	10+18.24	741048.1844	2105854.0681
PCC	10+58.23	741085.2518	2105868.6418
PT	11+58.12	741184.3582	2105869.0039
POT	13+53.00	741374.8114	2105827.7130

Y4

TYPE	STATION	NORTH	EAST
POT	10+00.00	741499.7240	2105949.6334
POT	12+10.00	741490.3407	2106159.4236

Y5

TYPE	STATION	NORTH	EAST
POT	10+00.00	741573.6629	2105443.6559
POT	14+19.45	741553.3613	2105862.6153

Y6

TYPE	STATION	NORTH	EAST
POT	10+00.00	741165.3064	2105428.3077
PC	14+69.62	741634.5998	2105445.9462
PT	16+80.11	741840.0128	2105487.4745
POT	20+00.00	742139.2365	2105600.5827

Y7

TYPE	STATION	NORTH	EAST
POT	10+00.00	741782.4673	2105114.0700
POT	13+53.40	741777.6692	2105467.4354

Y8

TYPE	STATION	NORTH	EAST
POT	10+00.00	744069.8615	2105925.5495
POT	13+26.88	744003.4552	2106245.6178

Y9

TYPE	STATION	NORTH	EAST
POT	10+00.00	743983.6577	2105895.4618
PC	15+91.30	744541.9252	2106090.3138
PT	17+18.30	744658.2732	2106140.9544
POT	19+50.00	744863.2235	2106249.0206

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5121_ls_control.txt

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

○ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

14-APR-2016 14:39
R:\Roadway\Working\B5121_B5317_ls_lc-2.dgn
mstephenson
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5121 /B-5317	1C-3
Location and Surveys	

FINAL

SURVEY CONTROL SHEET B-5121 /B-5317

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
DR2	10+58.46	38.00	742469.6002	2106044.4973

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
FLYOVER	10+28.00	46.16	743979.2648	2106331.4274
FLYOVER	10+48.00	30.39	744001.3290	2106321.7833
FLYOVER	10+48.00	44.55	743996.7984	2106335.2060
FLYOVER	11+25.00	30.03	744066.8052	2106350.3337
FLYOVER	11+51.00	32.38	744086.2965	2106364.6793
FLYOVER	11+51.00	45.00	744079.5092	2106375.3177
FLYOVER	11+74.00	34.37	744102.7313	2106378.2041
FLYOVER	11+74.00	45.00	744096.5384	2106386.8421

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	26+64.64	-68.00	742533.1026	2105859.1953
L	27+21.45	-68.00	742589.9071	2105870.9333
L	30+86.00	85.00	742913.9723	2106097.4074
L	30+86.00	69.00	742917.3482	2106081.7676
L	31+06.00	92.00	742932.0451	2106108.4697
L	31+06.00	82.00	742934.1555	2106098.6927
L	31+06.00	85.00	742933.5221	2106101.6273
L	31+06.00	69.00	742936.8980	2106085.9875
L	32+23.00	82.00	743048.5213	2106123.3801
L	32+23.00	69.00	743051.2640	2106110.6737
L	32+43.00	82.00	743068.0710	2106127.6002
L	32+43.00	69.00	743070.8138	2106114.8936
L	32+52.00	-93.00	743113.7921	2105958.4396
L	32+60.96	-68.00	743117.2727	2105984.7628
L	32+64.00	-59.50	743118.4568	2105993.7180
L	32+71.00	-101.00	743134.0523	2105954.6285
L	32+76.40	-85.00	743135.9525	2105971.4072
L	32+82.13	-68.00	743137.9710	2105989.2304
L	32+85.00	-59.50	743138.9809	2105998.1482
L	33+20.00	82.00	743143.3374	2106143.8474
L	33+20.00	92.00	743141.2274	2106153.6223
L	33+36.00	-85.00	743194.2131	2105983.9829
L	33+36.00	-68.00	743190.6262	2106000.6002
L	33+77.00	89.00	743197.5772	2106162.7165
L	33+77.00	79.00	743199.6871	2106152.9416
L	36+37.49	79.00	743454.3150	2106207.9037
L	36+47.93	89.00	743462.4070	2106219.8807
L	37+96.00	79.00	743609.2544	2106241.3478
L	37+96.00	69.00	743611.3643	2106231.5730
L	37+96.00	85.00	743607.9884	2106247.2128
L	38+16.00	99.00	743624.5829	2106265.1172
L	38+16.00	69.00	743630.9141	2106235.7928
L	38+16.00	85.00	743627.5382	2106251.4326
L	38+16.00	79.00	743628.8041	2106245.5677
L	38+26.00	69.00	743640.6909	2106237.9032
L	38+26.00	89.00	743636.4691	2106257.4525
L	38+79.00	69.00	743692.4984	2106249.0861
L	38+79.00	89.00	743688.2774	2106268.6312
L	38+79.00	99.00	743686.1656	2106278.4100
L	39+25.00	99.00	743731.1304	2106288.1157
L	39+25.00	89.00	743733.2403	2106278.3409
L	39+45.00	69.00	743757.0100	2106263.0110
L	40+28.00	69.00	743838.1414	2106280.5234
L	40+28.00	89.00	743833.9216	2106300.0727
L	40+34.00	-62.00	743871.6465	2106153.7385
L	40+34.00	-68.00	743872.9125	2106147.8736
L	40+48.00	89.00	743853.4718	2106304.2906
L	40+48.00	69.00	743857.6912	2106284.7433
L	41+27.00	-72.00	743964.6628	2106163.5861
L	41+27.00	-62.00	743962.5528	2106173.3609
L	41+77.78	72.45	743983.8182	2106315.5008
L	42+32.32	-76.00	744068.4604	2106181.8990
L	42+42.16	-66.00	744075.9666	2106193.7495
L	42+80.00	-56.00	744110.8424	2106211.5079
L	42+80.00	-66.00	744112.9524	2106201.7330
L	43+00.00	-56.00	744130.3922	2106215.7277
L	43+00.00	-66.00	744132.5021	2106205.9529
L	44+35.25	-76.00	744266.8212	2106224.7157
L	44+35.25	-66.00	744264.7112	2106234.4906
L	44+85.00	-56.00	744312.9289	2106256.0470
L	44+85.00	-66.00	744315.3770	2106246.3513
L	45+05.00	-56.00	744333.0423	2106261.2750
L	45+05.00	-66.00	744335.6255	2106251.6144
L	46+27.58	-76.00	744461.3318	2106280.5902
L	46+27.58	-66.00	744457.9324	2106289.9946

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	12+32.00	-73.72	742229.6351	2105234.1786
Y1	12+82.00	-60.00	742216.0472	2105284.2157
Y1	13+45.00	-43.54	742199.7575	2105347.2603
Y1	13+45.00	-60.00	742216.2186	2105347.2155
Y1	13+65.00	53.50	742102.7734	2105367.5241
Y1	13+65.00	44.81	742111.4597	2105367.5005
Y1	13+75.00	-45.08	742201.3779	2105377.2560
Y1	13+75.00	-61.00	742217.3001	2105377.2127
Y1	14+40.00	-63.00	742218.5141	2105444.6655
Y1	14+40.00	-47.77	742203.2946	2105444.1103
Y1	14+60.00	-48.50	742203.0927	2105464.9242
Y1	14+60.00	-64.00	742218.5700	2105465.7473
Y1	14+86.84	-66.00	742218.7470	2105494.1153
Y1	15+26.84	-74.00	742222.8166	2105536.9964
Y1	15+85.00	-80.00	742220.5511	2105599.1330
Y1	16+35.98	-85.50	742216.2843	2105653.7347
Y1	21+26.00	-124.40	742118.7104	2106124.7868
Y1	21+42.00	-135.00	742127.6449	2106138.1829
Y1	22+09.00	-57.25	742047.1793	2106189.8883

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1RPC	13+37.00	28.00	741454.4400	2105979.8921
Y1RPC	14+76.00	45.00	741593.5187	2105990.2153
Y1RPC	14+76.00	66.00	741594.2719	2106011.2018
Y1RPC	14+98.00	47.00	741614.9350	2105991.5948
Y1RPC	14+98.00	42.00	741614.8244	2105986.5961
Y1RPC	16+86.81	46.00	741798.0628	2105997.3525
Y1RPC	16+86.81	36.00	741799.0201	2105987.3984

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1RPD	10+29.00	-34.61	742719.8742	2106047.2369
Y1RPD	10+65.00	-37.14	742684.9257	2106043.5055
Y1RPD	10+86.00	-38.15	742664.5967	2106041.3039
Y1RPD	10+86.00	-44.00	742663.7240	2106047.0855
Y1RPD	10+86.00	-50.00	742662.8284	2106053.0183
Y1RPD	10+99.00	-59.00	742649.1757	2106060.1191
Y1RPD	11+07.00	-50.00	742642.7991	2106050.1517
Y1RPD	11+07.00	-38.88	742644.2906	2106039.1289
Y1RPD	11+75.19	-59.44	742576.6996	2106052.3674
Y1RPD	11+75.39	-49.72	742577.3348	2106042.6745
Y1RPD	12+96.07	-47.00	742461.1573	2106035.2403
Y1RPD	14+92.00	-45.92	742265.3013	2106035.1806
Y1RPD	15+01.00	-49.44	742256.3199	2106038.7516
Y1RPD	15+01.00	-56.00	742256.3542	2106045.3106

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2RPB	10+98.00	-49.18	744624.1024	2106326.6596
Y2RPB	11+31.00	-52.25	744650.1998	2106322.2742

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	10+57.00	-86.00	741583.0912	2106010.4192
Y4	11+19.12	26.00	741468.4276	2106067.4694
Y4	11+34.98	-40.00	741533.6527	2106086.2690

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y5	12+53.00	-69.00	741630.3367	2105699.6990
Y5	12+53.00	-36.00	741597.3754	2105698.1018
Y5	12+72.00	-41.93	741602.3765	2105717.3664
Y5	12+72.00	-69.00	741629.4171	2105718.6767

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	13+03.00	-29.50	741469.2006	2105410.2088
Y6	13+78.00	-52.00	741544.9927	2105390.5416
Y6	13+78.00	-34.50	741544.3355	2105408.0293
Y6	14+82.00	52.00	741644.0192	2105498.4454
Y6	15+02.00	52.00	741662.3709	2105499.7680
Y6	15+02.00	42.00	741663.2434	2105489.8070
Y6	17+90.00	42.00	741927.9515	2105565.6163
Y6	17+90.00	62.00	741920.8797	2105584.3243
Y6	18+10.00	42.00	741946.6595	2105572.6880
Y6	18+10.00	62.00	741939.5878	2105591.3961

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y8	10+82.00	-66.00	744117.8271	2106019.2475
Y8	10+98.00	-78.00	744126.3264	2106037.3517
Y8	11+07.00	-33.00	744080.4365	2106037.0223
Y8	11+32.00	-33.00	744075.3577	2106061.5010
Y8	12+33.00	33.00	743990.2159	2106146.9871

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
DR2	11+05.29	-19.79	742523.7717	2106095.4655
DR2	11+08.51	22.42	742481.4426	2106095.5623
DR2	11+15.56	-69.88	742572.9613	2106109.4148

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
FLYOVER	10+00.00	27.00	743959.1015	2106306.6330
FLYOVER	11+03.35	28.00	744049.8664	2106339.1975
FLYOVER	12+62.53	33.26	744164.2866	2106431.3904
FLYOVER	12+85.65	60.00	744158.8980	2106465.7306
FLYOVER	14+00.42	60.00	744234.3355	2106552.2241
FLYOVER	15+49.00	60.00	744370.4891	2106656.4439
FLYOVER	15+71.00	33.50	744403.9539	2106642.4718
FLYOVER	17+12.00	33.50	744553.6014	2106673.3908
FLYOVER	17+34.00	60.00	744578.7888	2106699.4813
FLYOVER	18+96.01	60.00	744759.0398	2106650.7735
FLYOVER	19+46.81	60.00	744808.6758	2106620.8833

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+35.43	-50.10	740998.8807	2105930.0877
L	16+24.57	-85.59	741469.3992	2105791.7700
L	17+77.61	-75.00	741630.5271	2105776.2664
L	20+76.39	-75.00	741944.7089	2105776.2654
L	21+36.10	-75.00	742004.0831	2105782.6249
L	26+31.98	-59.50	742498.7886	2105861.2558
L	27+21.45	-59.50	742588.1137	2105879.2419
L	29+38.93	71.35	742773.0962	2106053.0297
L	29+67.03	69.00	742801.0599	2106056.6664
L	41+28.00	-59.50	743963.0028	2106176.0157
L	42+52.00	-56.00	744083.4728	2106205.6000
L	44+35.25	-56.00	744262.6013	2106244.2654
L	46+27.58	-56.00	744454.5329	2106299.3991
L	52+97.08	97.15	745008.2305	2106710.8950

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	12+17.27	42.00	742113.8716	2105219.7672
Y1	12+31.08	-68.00	742223.9088	2105233.2730
Y1	12+54.00	-42.00	742197.9712	2105256.2648
Y1	12+98.64	42.00	742114.0929	2105301.1355
Y1	13+15.00	-42.00	742198.1370	2105317.2646
Y1	13+92.98	54.00	742102.3494	2105395.5053
Y1	13+92.98	-46.00	742202.3491	2105395.2334
Y1	13+92.98	46.00	742110.3494	2105395.4836
Y1	14+84.23	-105.00	742257.8473	2105494.2216
Y1	14+88.00	-49.50	742202.2027	2105494.0704
Y1	14+89.58	58.00	742094.9007	2105487.3605
Y1	15+09.00	-105.00	742255.5968	2105521.0643
Y1	15+36.00	-58.75	742206.5766	2105544.8896
Y1	16+27.00	-58.75	742191.9021	2105639.1869
Y1	16+54.04	-78.84	742205.7988	2105671.2525
Y1	16+55.50	63.05	742066.8753	2105642.3511
Y1	20+74.00	56.00	741951.2805	2106042.3156
Y1	21+51.00	53.00	741939.8395	2106126.3640
Y1	21+84.32	-67.05	742057.3408	2106167.2598
Y1	21+92.39	49.23	741940.8828	2106171.8440
Y1	22+31.00	48.00	741941.7849	2106211.1673
Y1	22+96.78	41.50	741947.8345	2106276.9888

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1RPC	10+10.00	28.00	741132.9488	2106008.6047
Y1RPC	12+00.12	28.00	741317.7267	2105986.6093
Y1RPC	13+54.97	28.00	741472.3841	2105979.0105
Y1RPC	14+21.26	28.00	741538.5956	2105975.7573
Y1RPC	14+54.85	28.00	741572.1465	2105974.1088
Y1RPC	15+54.85	36.00	741670.2591	2105980.3554
Y1RPC	17+04.12	36.00	741815.8556	2105989.1096
Y1RPC	18+14.00	36.00	741925.1097	2106000.8116

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1RPD	11+75.60	-39.06	742578.0322	2106032.0321
Y1RPD	12+16.00	-37.61	742538.9559	2106027.8467
Y1RPD	13+12.70	-36.00	742444.5450	2106024.3251
Y1RPD	14+61.10	-36.00	742296.1518	2106025.1020
Y1RPD	15+61.27	-83.92	742193.6957	2106072.8904

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2RPB	10+66.07	-42.64	744597.6160	2106331.1103
Y2RPB	12+05.77	-46.19	744709.4919	2106312.3107
Y2RPB	12+88.35	-56.72	744758.6881	2106267.5093
Y2RPB	14+63.88	-56.72	744888.4647	2106149.3257
Y2RPB	16+23.11	-46.46	744990.9539	2106046.2522

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	10+12.00	-20.00	741052.8741	2105833.6474
Y3	11+58.12	-19.89	741180.1448	2105849.5700
Y3	12+86.00	-19.89	741305.1193	2105822.4751

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y5	10+70.00	-36.00	741606.2327	2105515.3163
Y5	12+61.00	-36.00	741596.9882	2105706.0924
Y5	12+61.00	77.94	741483.1812	2105700.5777
Y5	13+38.00	77.70	741479.6929	2105777.4945

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	14+82.00	42.00	741644.5849	2105488.4614
Y6	16+41.61	-42.00	741816.1153	2105434.8384
Y6	16+80.11	42.00	741825.1621	2105526.7613
Y6	16+80.11	-42.00	741854.8631	2105448.1875
Y6	18+84.00	-42.00	742045.5805	2105520.2797
Y6	19+25.00	42.00	742054.2307	2105613.3505

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y7	11+97.47	-35.00	741814.7831	2105311.9933
Y7	12+35.00	-38.00	741817.2732	2105349.5643

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y8	12+33.00	-33.00	744054.8397	2106160.3949
Y8	12+48.00	33.00	743987.1687	2106161.6743

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y9	18+52.00	-33.44	744792.1274	2106173.7336
Y9	18+52.00	31.51	744761.8376	2106231.1808

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SEHSR-4"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 777964.330(ft) EASTING: 2125243.897(ft)
ELEVATION: 298.67(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999923460
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SEHSR-4" TO -L- STATION 10+21.00 IS
S 27°25'59" W 41762.88'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

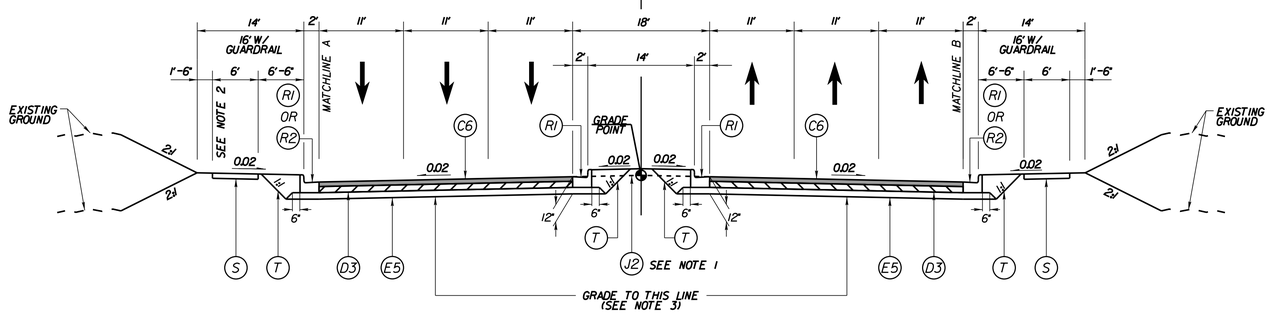
   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5121_B5317_ls_control.txt

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

○ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

5/14/99

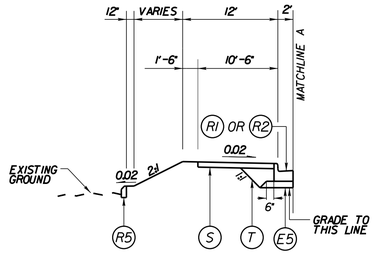
℄-L- CAPITAL BLVD (US-70/US-401/NC-50)



TYPICAL SECTION NO. 1

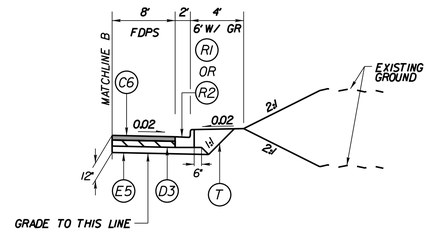
-L- STA 10+21.00 TO STA 21+39.41 (BEGIN BRIDGE)
-L- STA 22+74.41 (END BRIDGE) TO STA 49+11.45

NOTES:
1. PLACE CLASS IV SELECT MATERIAL IN MEDIAN FROM -L- STA 10+21.00 TO 10+57.76 AND FROM -L- STA 11+33.33 TO 12+25.25
2. MATCH LINE TO TYPICAL SECTION NO.11 (RT SIDE) ALONG -Y3-
3. REMOVE EXISTING CONCRETE PAVEMENT TO EXISTING SUBGRADE EXCEPT AS DIRECTED BY THE ENGINEER
4. ALL DRIVEWAYS, UP TO THE RADIUS POINT, SHALL BE CONSTRUCTED WITH THE FULL-DEPTH PAVEMENT DESIGN OF THE INTERSECTING ROADWAY.
5. SEE DETAILS A THRU C, SHEET 2A-2



TYPICAL SECTION NO. 1A

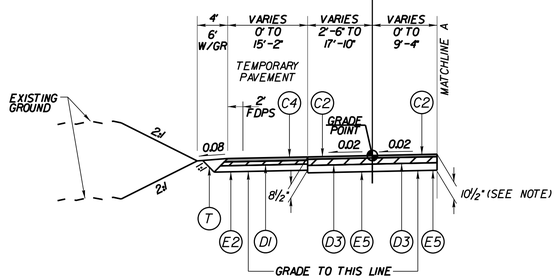
-L- STA 42+35.61 TO STA 47+14.03 (LT)



TYPICAL SECTION NO. 1B

-L- STA 15+18.23 TO STA 21+39.41 (BEGIN BRIDGE) (RT)
-L- STA 22+74.41 (END BRIDGE) TO 27+04.30 (RT)

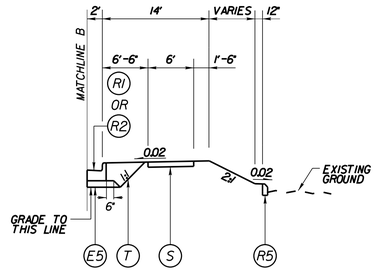
℄-DETSB- CAPITAL BLVD (US-70/US-401/NC-50)



TYPICAL SECTION NO. 1C

-DETSB- STA 12+73.88 TO STA 15+06.63 (LT)
-DETSB- STA 15+95.74 TO STA 19+77.09 (LT)
-DETSB- STA 21+60.05 TO STA 27+06.88 (LT)

NOTE: CONSTRUCT -L- LINE UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE. THE FINAL LAYER (1.5" S9.5C) WILL BE CONSTRUCTED AS SHOWN ON TYPICAL SECTION NO. 1.



TYPICAL SECTION NO. 1D

-L- STA 29+95.02 TO STA 35+18.34 (RT)
-L- STA 39+25.17 TO STA 41+51.75 (RT)

2/26/2016

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2A-1

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
3/8/2016

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G MITCHEV
3/8/2016

Docusigned by: Vladimir Mitchev 3/8/2016

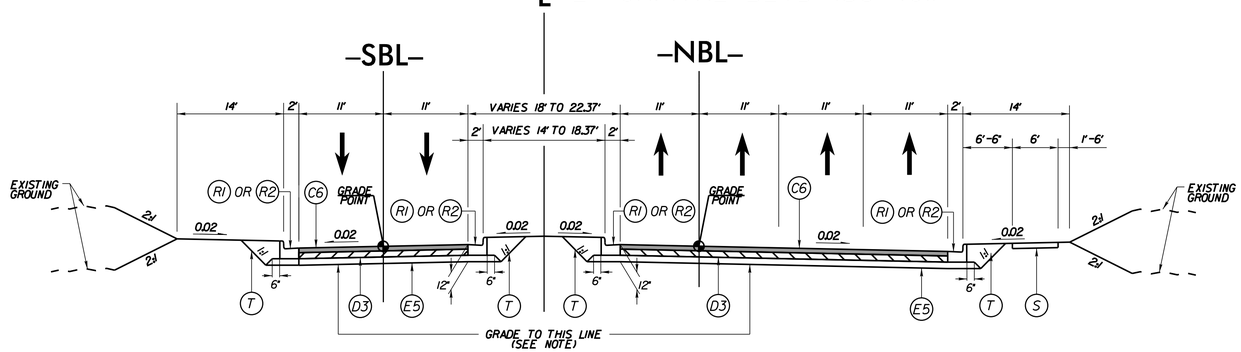
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	PROPOSED APPROX.1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
C2	PROPOSED APPROX.1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
C3	PROPOSED APPROX. 2" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B,AT AN AVERAGE RATE OF 224 LBS. PER SQ.YD.
C4	PROPOSED APPROX. 2" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5C,AT AN AVERAGE RATE OF 224 LBS. PER SQ.YD.
C5	PROPOSED APPROX.3" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
C6	PROPOSED APPROX. 3" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5C,AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
C7	PROPOSED VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ.YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROPOSED APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE 119.0C. AT AN AVERAGE RATE OF 285 LBS. PER SQ.YD.
D2	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE 119.0B. AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.
D3	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE 119.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.
D4	PROPOSED VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROPOSED APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.
E2	PROPOSED APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.
E3	PROPOSED APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ.YD.
E4	PROPOSED APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ.YD.
E5	PROPOSED APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ.YD.
E6	PROPOSED APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ.YD.
E7	PROPOSED VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.
J1	PROPOSED 6" AGGREGATE BASE COURSE
J2	CLASS IV SELECT MATERIAL
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR PAVEMENT STABILIZATION
N2	GEOTEXTILE FOR SOIL STABILIZATION
RI	PROPOSED 2'-6" CONCRETE CURB & GUTTER
R2	SPECIAL 2'-6" CURB & GUTTER, SEE SHEET 2C-6
R3	PROPOSED 5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
R4	PROPOSED 8" X 12" CONCRETE CURB
R5	PROPOSED 8" X 18" CONCRETE CURB
S	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING DETAIL FOR RESURFACING

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

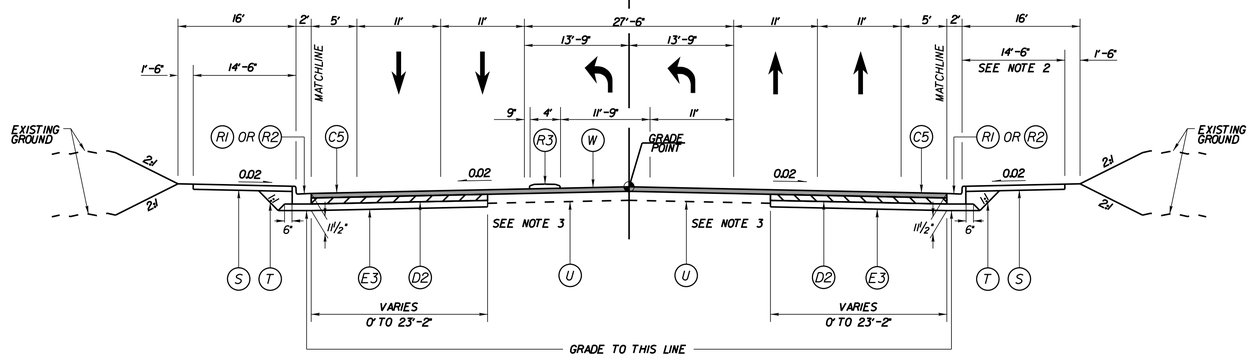
5/14/99



TYPICAL SECTION NO. 2

-NBL- STA 10+00.00 TO STA 13+92.47
-SBL- STA 10+00.00 TO STA 13+94.25

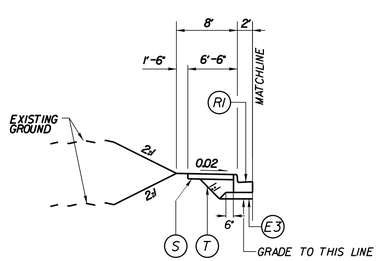
NOTE: REMOVE EXISTING CONCRETE PAVEMENT TO EXISTING SUBGRADE EXCEPT AS DIRECTED BY THE ENGINEER



NOTES:
1. MILL (INCIDENTAL) NOTCH TO KEY-IN 1.5" S9.5B FROM -Y1- STA 12+15.00 TO STA 12+65.00 AND STA 22+47.00 TO STA 22+97.00 IN ACCORDANCE WITH PROFILE KEY-IN DETAIL
2. CONSTRUCT 10' SIDEWALK FROM BACK OF CURB FROM -Y1- STA 20+53.06 TO STA 22+30.92 (RT)
3. SAWCUT PAVEMENT 1' MINIMUM FOR REMOVAL OF EXISTING CURB AND GUTTER (APPLIES TO ENTIRE PROJECT)

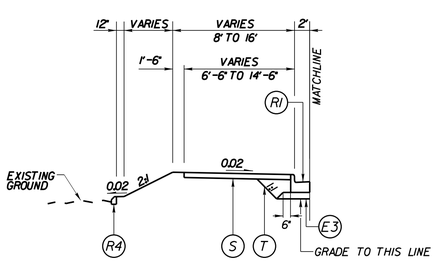
TYPICAL SECTION NO. 3

-Y1- STA 12+15.00 TO STA 22+97.00



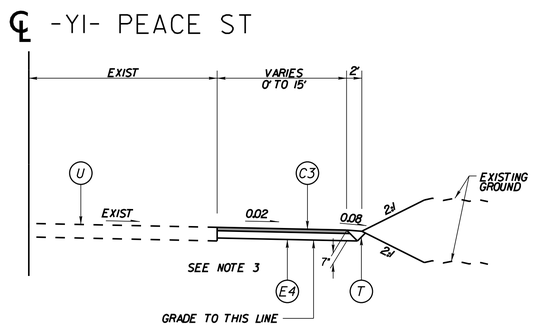
TYPICAL SECTION NO. 3A

-Y1- STA 12+15.00 TO STA 14+67.43 (LT)
-Y1- STA 12+15.00 TO STA 14+09.21 (RT)



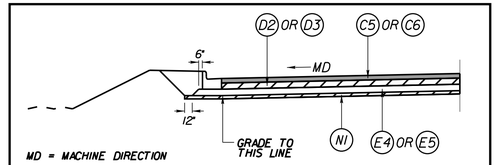
TYPICAL SECTION NO. 3B

-Y1- STA 13+44.43 TO STA 13+58.01 (LT)
-Y1- STA 13+65.97 TO STA 13+82.55 (LT)
-Y1- STA 14+02.24 TO STA 14+69.49 (LT)
-Y1- STA 14+41.01 TO STA 15+18.90 (RT)



TYPICAL SECTION NO. 3C

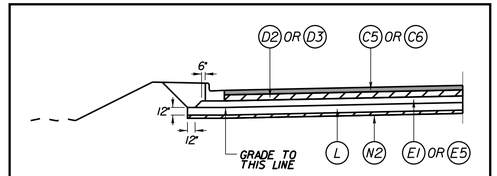
TEMPORARY WIDENING
-Y1- STA 12+39.84 TO STA 15+78.55 (RT)



MD = MACHINE DIRECTION

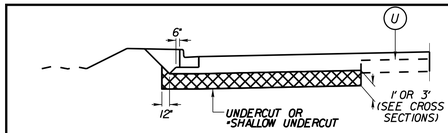
USE DETAIL FOR PAVEMENT STABILIZATION WITH CURB AND GUTTER SECTION AS FOLLOWS:
(THESE LOCATIONS TO BE INVESTIGATED DURING CONSTRUCTION)
-L- STA 19+25.00 TO 21+39.41 (LT) (SEE TYP.SECT.NO.1)
-L- STA 23+25.00 TO 30+00.00 (LT) (SEE TYP.SECT.NO.1)
-FLYOVER- STA 18+25.00 TO 19+19.50 (SEE TYP.SECT.NO.7)
-FLYOVER- STA 21+76.69 TO 23+25.00 (SEE TYP.SECT.NO.7)

(A) DETAIL FOR PAVEMENT STABILIZATION



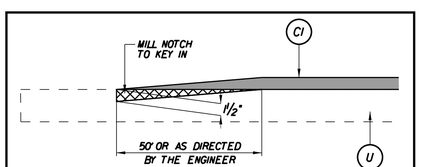
USE DETAIL FOR SUBGRADE STABILIZATION WITH CURB AND GUTTER SECTION AS FOLLOWS:
-L- STA 32+46.00 TO 41+61.00 (LT) (SEE TYP.SECT.NO.1)
-Y5- STA 10+21.00 TO 11+10.00 (SEE TYP.SECT.NO.13)
-Y5- STA 12+91.00 TO 13+51.00 (SEE TYP.SECT.NO.13)
-Y6- STA 15+21.00 TO 19+58.46 (SEE TYP.SECT.NO.14)
-DR2- STA 10+25.00 TO 11+29.00 (SEE TYP.SECT.NO.12)

(B) DETAIL FOR SUBGRADE STABILIZATION

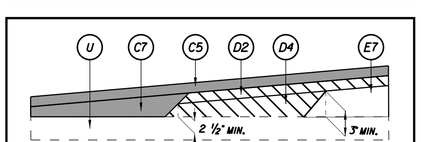


-L- STA 20+35.00 TO 21+18.00 (LT) (SEE TYP.SECT.NO.1)
-L- STA 23+23.00 TO 24+90.00 (LT) (SEE TYP.SECT.NO.1)
* -L- STA 32+46.00 TO 41+61.00 (LT) (SEE TYP.SECT.NO.1)
* -Y5- STA 10+21.00 TO 11+10.00 (SEE TYP.SECT.NO.13)
* -Y5- STA 12+91.00 TO 13+51.00 (SEE TYP.SECT.NO.13)
* -Y6- STA 15+21.00 TO 19+58.46 (SEE TYP.SECT.NO.14)
* -DR2- STA 10+25.00 TO 11+29.00 (SEE TYP.SECT.NO.12)

(C) DETAIL FOR UNDERCUT EXCAVATION/SHALLOW UNDERCUT



PROFILE KEY-IN DETAIL



WEDGING DETAIL FOR RESURFACING

2/26/2016

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RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2A-2

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024436 JEFFREY W. MOORE
3/7/2016

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITKOV
3/7/2016

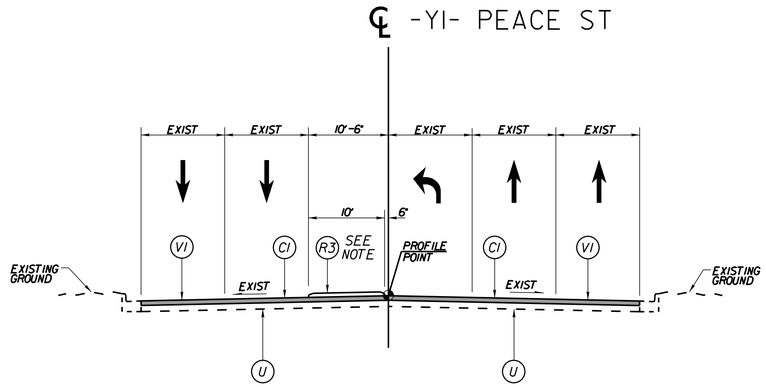
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	1.5" S9.5B
C2	1.5" S9.5C
C3	2" S9.5B
C4	2" S9.5C
C5	3" S9.5B
C6	3" S9.5C
C7	VAR. DEPTH S9.5B
D1	2.5" I19.0C
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	4" B25.0C
E3	4.5" B25.0B
E4	5" B25.0B
E5	5" B25.0C
E6	5.5" B25.0B
E7	VAR. DEPTH B25.0B
JI	6" AGGREGATE BASE COURSE
J2	CLASS IV SELECT MATERIAL
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR PAVEMENT STABILIZATION
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" CONCRETE CURB & GUTTER
R2	SPECIAL 2'-6" CURB & GUTTER, SEE SHEET 2C-6
R3	5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
R4	8" X 12" CONCRETE CURB
R5	8" X 18" CONCRETE CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING

PAVEMENT EDGE SLOPES ARE 1H UNLESS OTHERWISE INDICATED

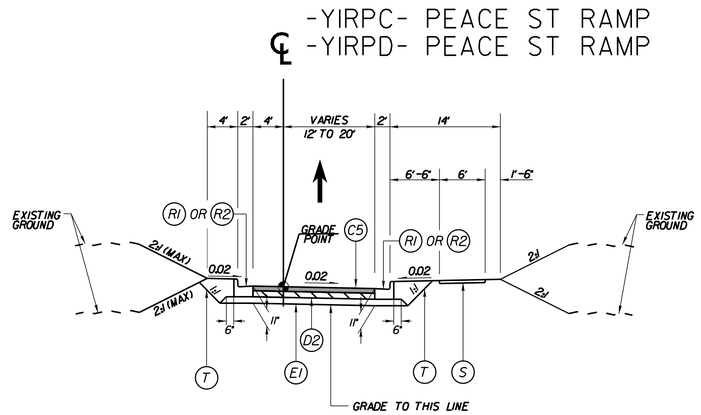
5/14/99



TYPICAL SECTION NO. 4

-YI- STA 22+97.00 TO STA 25+75.00

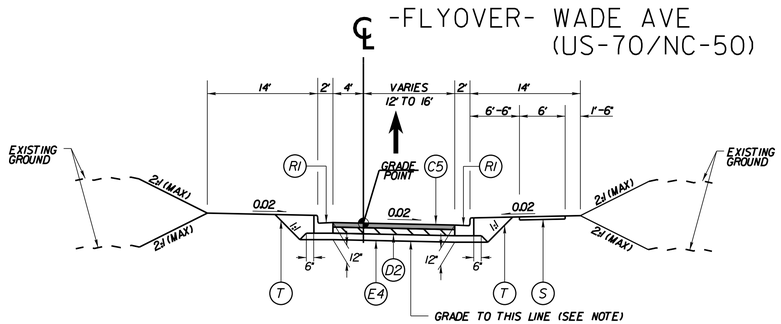
NOTE: RETAIN EXIST CONCRETE ISLAND FROM -YI- STA 23+20.00 TO STA 24+94.28



TYPICAL SECTION NO. 5

-YIRPC- STA 11+72.25 TO STA 18+74.21
-YIRPD- STA 11+04.56 TO STA 16+85.76 (REVERSE DIRECTION)

NOTE:
1. THE ADJACENT THROUGH LANE PAVEMENT DESIGN SHALL EXTEND TO THE BACK OF THE GORE (10-FOOT WIDTH) (APPLIES TO ENTIRE PROJECT)



TYPICAL SECTION NO. 6

-FLYOVER- STA 10+58.08 TO STA 15+34.34

NOTE: MILL (INCIDENTAL) AND OVERLAY EXISTING PAVEMENT WHERE APPLICABLE IN ACCORDANCE WITH WEDGING DETAIL FOR RESURFACING

2/26/2016

Kimley»Horn

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2A-3

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
Digitally signed by Jeffrey W. Moore
3/8/2016

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
Digitally signed by Vladimir G. Mitchev
3/8/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

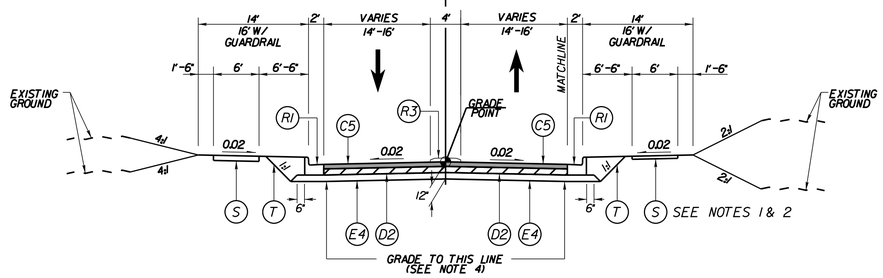
PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	1.5" S9.5B
C2	1.5" S9.5C
C3	2" S9.5B
C4	2" S9.5C
C5	3" S9.5B
C6	3" S9.5C
C7	VAR. DEPTH S9.5B
D1	2.5" I19.0C
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	4" B25.0C
E3	4.5" B25.0B
E4	5" B25.0B
E5	5" B25.0C
E6	5.5" B25.0B
E7	VAR. DEPTH B25.0B
J1	6" AGGREGATE BASE COURSE
J2	CLASS IV SELECT MATERIAL
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR PAVEMENT STABILIZATION
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" CONCRETE CURB & GUTTER
R2	SPECIAL 2'-6" CURB & GUTTER, SEE SHEET 2C-6
R3	5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
R4	8" X 12" CONCRETE CURB
R5	8" X 18" CONCRETE CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
VI	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

5/14/99

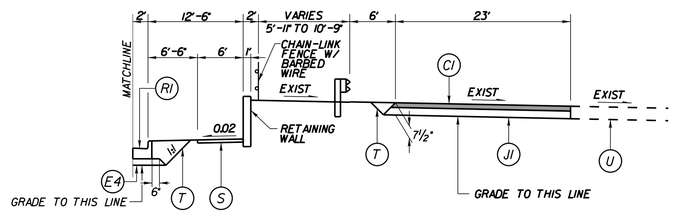
℄ -FLYOVER- WADE AVE (US-70/NC-50)



TYPICAL SECTION NO. 7

-FLYOVER- STA 15+34.34 TO STA 19+19.50 (BEGIN BRIDGE)
-FLYOVER- STA 21+76.69 (END BRIDGE) TO STA 25+76.00

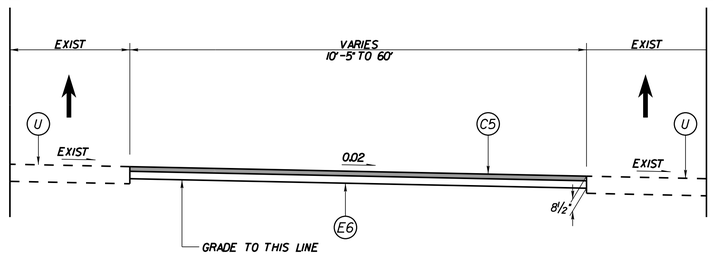
NOTES:
1. TRANSITION SIDEWALK FROM 6'-6" TO BACK OF CURB FROM -FLYOVER- STA 17+60.74 TO 18+22.00
2. SIDEWALK AT BACK OF CURB FROM -FLYOVER- STA 21+76.69 (LT/RT) TO 23+94.07 (LT) AND 24+16.48 (RT)
3. MILL (INCIDENTAL) NOTCH TO KEY-IN 1.5" S9.5B FROM -FLYOVER- STA 25+26.00 TO STA 25+76.00 IN ACCORDANCE WITH PROFILE KEY-IN DETAIL (SHEET 2A-2)
4. MILL (0" TO 1.5") AND OVERLAY EXISTING PAVEMENT FROM -FLYOVER- STA 22+28.00 TO STA 25+26.00 IN ACCORDANCE WITH WEDGING DETAIL (SHEET 2A-2) FOR RESURFACING
5. SEE DETAIL A, SHEET 2A-2



TYPICAL SECTION NO. 7A

-FLYOVER- STA 14+70.00 TO STA 17+60.00 (RT)

℄ -FLYOVER- WADE AVE (US-70/NC-50) ℄ -Y2RPA- WADE AVE RAMP



TYPICAL SECTION NO. 7B

TEMPORARY WIDENING
-FLYOVER- STA 24+14.15 TO STA 24+84.08 (RT)

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RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2A-4

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024436 JEFFREY W. MOORE
3/7/2016

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITCHEV
3/7/2016

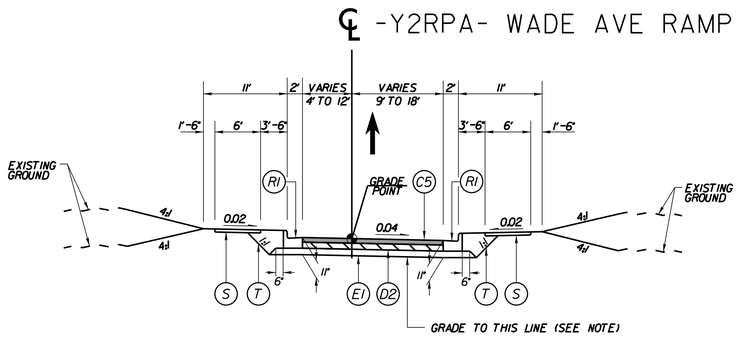
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	1.5" S9.5B
C2	1.5" S9.5C
C3	2" S9.5B
C4	2" S9.5C
C5	3" S9.5B
C6	3" S9.5C
C7	VAR. DEPTH S9.5B
D1	2.5" I19.0C
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	4" B25.0C
E3	4.5" B25.0B
E4	5" B25.0B
E5	5" B25.0C
E6	5.5" B25.0B
E7	VAR. DEPTH B25.0B
J1	6" AGGREGATE BASE COURSE
J2	CLASS IV SELECT MATERIAL
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR PAVEMENT STABILIZATION
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" CONCRETE CURB & GUTTER
R2	SPECIAL 2'-6" CURB & GUTTER, SEE SHEET 2C-6
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
R4	8" X 12" CONCRETE CURB
R5	8" X 18" CONCRETE CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

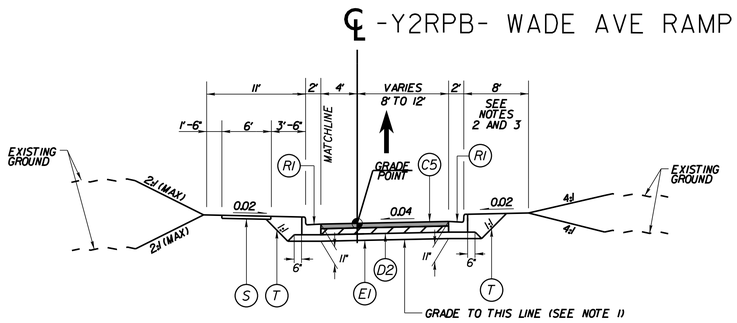
5/14/99



TYPICAL SECTION NO. 8

-Y2RPA- STA 16+57.00 TO STA 18+38.40

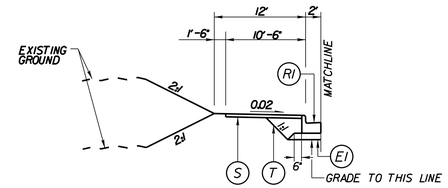
NOTE: MILL (INCIDENTAL) AND OVERLAY EXISTING PAVEMENT WHERE APPLICABLE IN ACCORDANCE WITH WEDGING DETAIL FOR RESURFACING



TYPICAL SECTION NO. 9

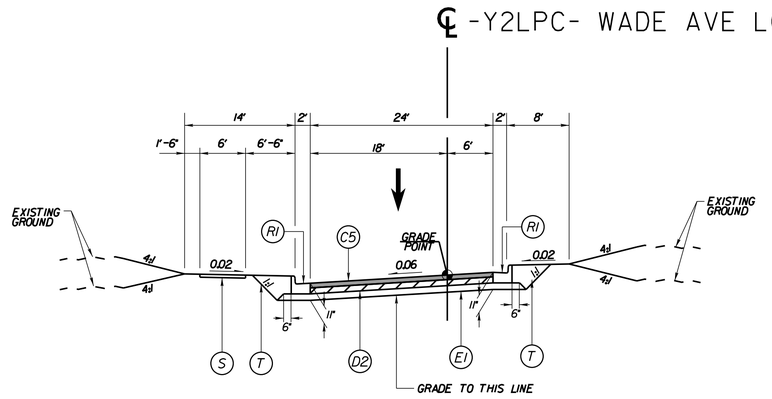
-Y2RPB- STA 10+41.83 TO STA 15+83.50

NOTES:
1. OVERLAY EXISTING PAVEMENT WHERE APPLICABLE IN ACCORDANCE WITH WEDGING DETAIL FOR RESURFACING
2. USE 4' BERM ON -Y2RPB- FROM STA 12+15.00 TO 12+55.00 (RT)
3. CONSTRUCT 6' SIDEWALK FROM BACK OF CURB FROM -Y2RPB- STA 13+73.63 TO STA 14+95.37 (RT)



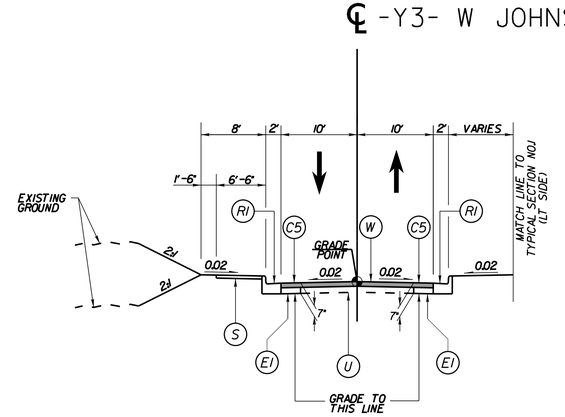
TYPICAL SECTION NO. 9A

-Y2RPB- STA 10+00.00 TO STA 13+02.62 (LT)



TYPICAL SECTION NO. 10

-Y2LPC- STA 10+00.00 TO STA 13+10.98



TYPICAL SECTION NO. 11

-Y3- STA 10+03.00 TO STA 12+95.00

NOTE: MILL (INCIDENTAL) NOTCH TO KEY-IN 1.5" S9.5B AS APPLICABLE

2/26/2016

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2A-5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022436 ENGINEER JEFFREY W MOORE

3/8/2016

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER NAZMIR G MITCHO

Document Signed by: Nazmir Mitcho

3/8/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

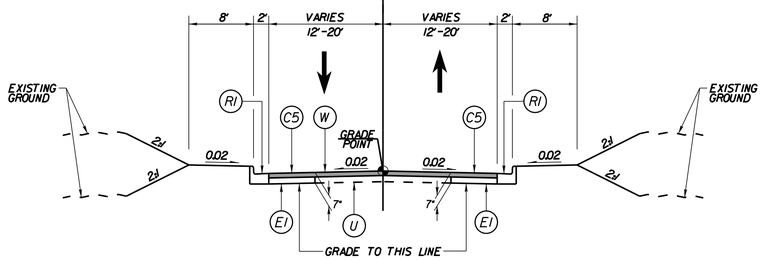
(FINAL PAVEMENT DESIGN)

C1	1.5" S9.5B
C2	1.5" S9.5C
C3	2" S9.5B
C4	2" S9.5C
C5	3" S9.5B
C6	3" S9.5C
C7	VAR. DEPTH S9.5B
D1	2.5" I19.0C
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	4" B25.0C
E3	4.5" B25.0B
E4	5" B25.0B
E5	5" B25.0C
E6	5.5" B25.0B
E7	VAR. DEPTH B25.0B
J1	6" AGGREGATE BASE COURSE
J2	CLASS IV SELECT MATERIAL
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR PAVEMENT STABILIZATION
N2	GEOTEXTILE FOR SOIL STABILIZATION
RI	2'-6" CONCRETE CURB & GUTTER
R2	SPECIAL 2'-6" CURB & GUTTER, SEE SHEET 2C-6
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
R4	8" X 12" CONCRETE CURB
R5	8" X 18" CONCRETE CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

5/14/99

-Y4- W JOHNSON ST
-Y8- DORTCH ST
-Y9- N WEST ST
℄ -DR2-

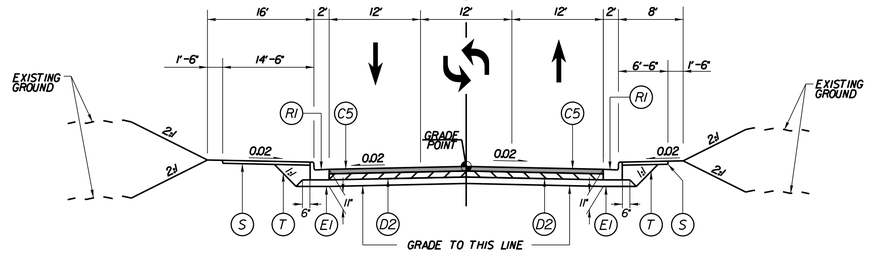


TYPICAL SECTION NO. 12

-Y4- STA 10+12.05 TO STA 11+27.00
-Y8- STA 11+81.00 TO STA 12+84.88
-Y9- STA 18+52.00 TO STA 19+24.48
-DR2- STA 10+20.02 TO STA 11+29.00

NOTES:
1. MILL (INCIDENTAL) NOTCH TO KEY-IN 1.5" S9.5B AT ENDS OF -Y- LINES AS APPLICABLE
2. SEE DETAILS B AND C, SHEET 2A-2

℄ -Y5- W JOHNSON ST

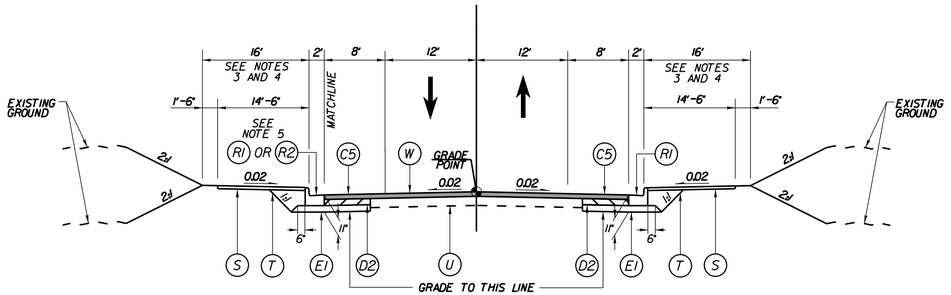


TYPICAL SECTION NO. 13

-Y5- STA 10+18.00 TO STA 13+65.23

NOTE: SEE DETAILS B AND C, SHEET 2A-2

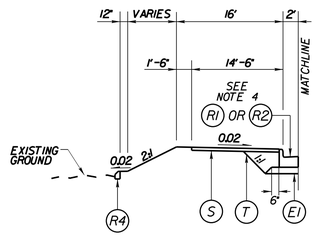
-Y6- N HARRINGTON ST
℄ -Y7- JOHNSON ST



TYPICAL SECTION NO. 14

-Y6- STA 12+60.00 TO STA 19+58.46
-Y7- STA 11+76.00 TO STA 13+32.79

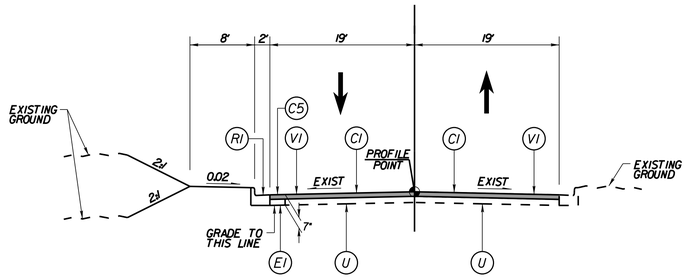
NOTES:
1. MILL (INCIDENTAL) NOTCH TO KEY-IN 1.5" S9.5B AT ENDS OF -Y- LINES AS APPLICABLE
2. MILL (0" TO 1.5") AND OVERLAY EXISTING PAVEMENT FROM -Y6- STA 13+10.00 TO STA 14+50.00 IN ACCORDANCE WITH WEDGING DETAIL FOR RESURFACING
3. USE 9' BERM (7.5' SIDEWALK AT BACK OF CURB) ON -Y6- FROM STA 12+60.00 TO 13+50.00 LT AND STA 12+60.00 TO 14+00.00 RT
4. USE 8' BERM (6.5' SIDEWALK AT BACK OF CURB) ON -Y7- FROM STA 11+76.00 TO 12+44.18 LT AND STA 11+76.00 TO 11+92.19 RT
5. INSTALL SPILL CURB FROM -Y6- STA 14+33.00 TO 17+64.00 (LT)
6. SEE DETAILS B AND C, SHEET 2A-2



TYPICAL SECTION NO. 14A

-Y6- STA 16+44.64 TO STA 19+21.37 (LT)

℄ -Y8- DORTCH ST



TYPICAL SECTION NO. 15

-Y8- STA 11+13.00 TO STA 11+81.00

2/26/2016

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RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2A-6

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024436 JEFFREY W. MOORE
3/7/2016

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITCHEV
3/7/2016

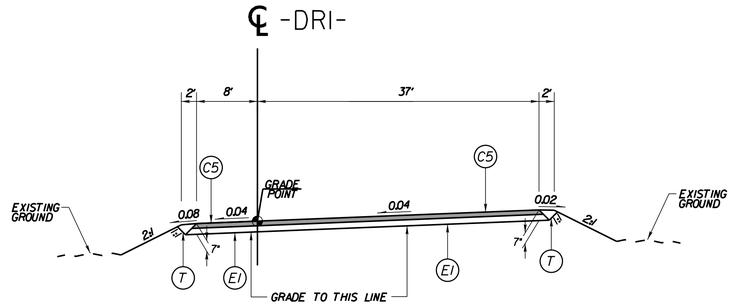
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	1.5" S9.5B
C2	1.5" S9.5C
C3	2" S9.5B
C4	2" S9.5C
C5	3" S9.5B
C6	3" S9.5C
C7	VAR. DEPTH S9.5B
DI	2.5" I19.0C
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	4" B25.0C
E3	4.5" B25.0B
E4	5" B25.0B
E5	5" B25.0C
E6	5.5" B25.0B
E7	VAR. DEPTH B25.0B
JI	6" AGGREGATE BASE COURSE
J2	CLASS IV SELECT MATERIAL
L	CLASS IV SUBGRADE STABILIZATION
NI	GEOTEXTILE FOR PAVEMENT STABILIZATION
N2	GEOTEXTILE FOR SOIL STABILIZATION
RI	2'-6" CONCRETE CURB & GUTTER
R2	SPECIAL 2'-6" CURB & GUTTER, SEE SHEET 2C-6
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
R4	8" X 12" CONCRETE CURB
R5	8" X 18" CONCRETE CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
VI	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING

PAVEMENT EDGE SLOPES ARE 1d UNLESS OTHERWISE INDICATED

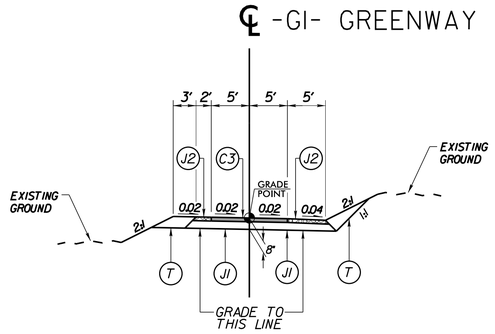
5/14/99



TYPICAL SECTION NO. 16

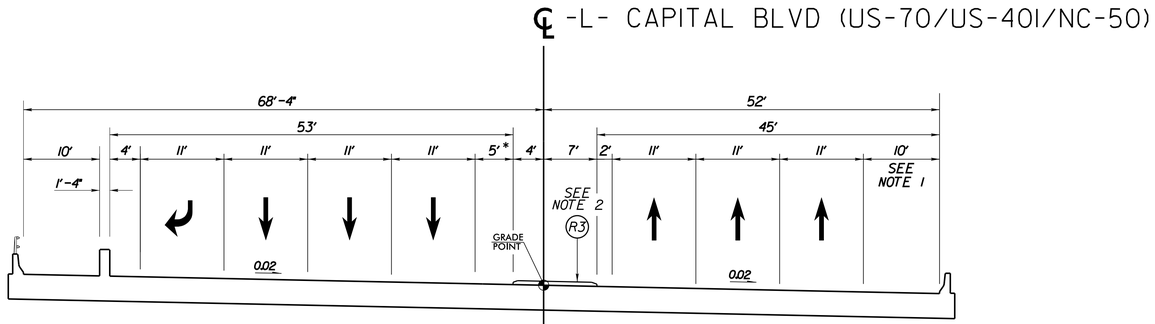
-DRI- STA 10+45.00 TO STA 11+10.90

NOTE: CONSTRUCT 6" CONCRETE PAVEMENT IN ACCORDANCE WITH STANDARD SPECIFICATION 848 FROM -DRI- STA 10+45.00 TO STA 10+57.00



GREENWAY TYPICAL SECTION

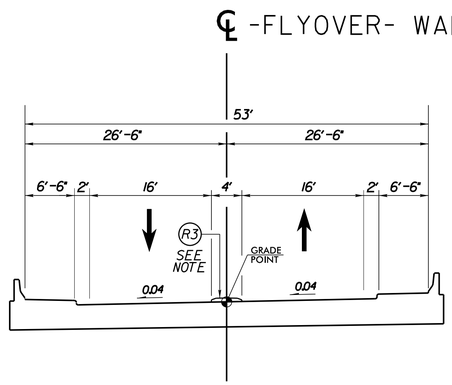
-GI- STA 10+06.00 TO STA 15+16.72



BRIDGE TYPICAL SECTION NO. 1

-L- STA 21+39.41 TO STA 22+74.41

NOTES:
1. SHOULDER WIDTHS ARE DUE TO HYDRAULIC SPREAD
2. SURFACE MOUNTED (STRUCTURE ITEM)



BRIDGE TYPICAL SECTION NO. 2

-FLYOVER- STA 19+19.50 TO STA 21+76.69

NOTE: SURFACE MOUNTED (STRUCTURE ITEM)

2/26/2016

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2A-7

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE

3/8/2016

PAVEMENT DESIGN ENGINEER

Documents originated by: SEAL 031484 ENGINEER VLADIMIR G MITCHEV

3/8/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	1.5" S9.5B
C2	1.5" S9.5C
C3	2" S9.5B
C4	2" S9.5C
C5	3" S9.5B
C6	3" S9.5C
C7	VAR. DEPTH S9.5B
D1	2.5" I19.0C
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	4" B25.0C
E3	4.5" B25.0B
E4	5" B25.0B
E5	5" B25.0C
E6	5.5" B25.0B
E7	VAR. DEPTH B25.0B
JI	6" AGGREGATE BASE COURSE
J2	CLASS IV SELECT MATERIAL
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR PAVEMENT STABILIZATION
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" CONCRETE CURB & GUTTER
R2	SPECIAL 2'-6" CURB & GUTTER, SEE SHEET 2C-6
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
R4	8" X 12" CONCRETE CURB
R5	8" X 18" CONCRETE CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

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HORIZONTAL ALIGNMENT CURVE DATA

-L-

PI Sta 18+54.18
△ = 18° 20' 46.2" (RT)
D = 4° 05' 33.2"
L = 448.28'
T = 226.08'
R = 1,400.00'
SE = 0.03
RO = 144'

PI Sta 25+51.12
△ = 6° 04' 01.3" (RT)
D = 1° 46' 45.7"
L = 340.96'
T = 170.64'
R = 3,220.00'
SE = RC
RO = 96'

PI Sta 45+85.35
△ = 11° 57' 49.9" (RT)
D = 4° 00' 00.0"
L = 299.10'
T = 150.09'
R = 1,432.39'
SE = 0.03
RO = 144'

PI Sta 55+46.00
△ = 14° 54' 07.1" (RT)
D = 7° 00' 00.0"
L = 212.89'
T = 107.05'
R = 818.51'
SE = EXISTING
RO = EXISTING

-NBL-

PI Sta 12+43.58
△ = 6° 35' 40.8" (RT)
D = 1° 46' 45.7"
L = 370.62'
T = 185.51'
R = 3,220.00'
SE = RC
RO = 96'

-SBL-

PI Sta 10+62.24
△ = 2° 12' 53.3" (LT)
D = 1° 46' 45.7"
L = 124.47'
T = 62.24'
R = 3,220.00'
SE = SEE PLANS
RO = SEE PLANS

PI Sta 13+74.06
△ = 1° 20' 06.2" (RT)
D = 1° 25' 56.6"
L = 93.20'
T = 46.60'
R = 4,000.00'
SE = SEE PLANS
RO = SEE PLANS

-Y1-

PI Sta 10+87.25
△ = 2° 55' 59.5" (LT)
D = 3° 49' 11.0"
L = 76.79'
T = 38.40'
R = 1,500.00'
SE = EXISTING
RO = EXISTING

PI Sta 11+64.48
△ = 2° 57' 59.5" (RT)
D = 3° 49' 11.0"
L = 77.66'
T = 38.84'
R = 1,500.00'
SE = EXISTING
RO = EXISTING

PI Sta 15+85.59
△ = 18° 14' 13.9" (RT)
D = 4° 46' 28.7"
L = 381.96'
T = 192.61'
R = 1,200.00'
SE = NC
RO = N/A

PI Sta 21+18.17
△ = 17° 41' 21.1" (LT)
D = 10° 42' 34.2"
L = 165.17'
T = 83.25'
R = 535.00'
SE = RC
RO = 78'

-YIRPC-

PI Sta 11+00.24
△ = 8° 22' 10.0" (RT)
D = 4° 10' 55.8"
L = 200.12'
T = 100.24'
R = 1,370.00'
SE = NC
RO = N/A

PI Sta 15+79.74
△ = 8° 55' 35.1" (RT)
D = 3° 34' 51.6"
L = 249.27'
T = 124.89'
R = 1,600.00'
SE = 0.03
RO = 63'

-YIRPD-

PI Sta 11+49.80
△ = 12° 28' 49.9" (LT)
D = 4° 10' 55.8"
L = 298.42'
T = 149.80'
R = 1,370.00'
SE = 0.03
RO = 63'

PI Sta 15+96.62
△ = 6° 24' 48.6" (RT)
D = 4° 10' 55.8"
L = 153.35'
T = 76.76'
R = 1,370.00'
SE = 0.03
RO = 63'

-FLYOVER-

PI Sta 11+41.07
△ = 36° 43' 31.2" (RT)
D = 13° 28' 52.9"
L = 272.42'
T = 141.07'
R = 425.00' (DS = 35 MPH)
SE = 0.04
RO = 84'

PI Sta 16+93.08
△ = 76° 32' 14.0" (LT)
D = 15° 26' 37.0"
L = 495.59'
T = 292.67'
R = 371.00' (DS = 35 MPH)
SE = 0.04
RO = 84'

PI Sta 20+93.23
△ = 49° 47' 19.3" (LT)
D = 13° 28' 52.9"
L = 369.32'
T = 197.23'
R = 425.00' (DS = 35 MPH)
SE = 0.04
RO = 84'

PI Sta 23+96.86
△ = 17° 35' 37.0" (RT)
D = 6° 44' 26.4"
L = 261.01'
T = 131.54'
R = 850.00'
SE = 0.03
RO = 63'

-Y2RPA-

PI Sta 17+98.91
△ = 63° 06' 15.9" (RT)
D = 28° 38' 52.4"
L = 220.28'
T = 122.81'
R = 200.00' (DS = 25 MPH)
SE = 0.04
RO = 84'

-Y2RPB-

PI Sta 11+61.28
△ = 65° 39' 17.8" (LT)
D = 22° 55' 05.9"
L = 286.47'
T = 161.28'
R = 250.00' (DS = 30 MPH)
SE = 0.04
RO = 84'

PI Sta 15+61.95
△ = 17° 30' 11.6" (LT)
D = 10° 44' 58.8"
L = 162.83'
T = 82.05'
R = 533.00'
SE = 0.04
RO = 84'

-Y2LPC-

PI Sta 29+02.46
△ = 173° 49' 55.3" (LT)
D = 55° 53' 54.0"
L = 310.98'
T = 1,902.46'
R = 102.50' (DS = 20 MPH)
SE = 0.06
RO = 126'

-Y3-

PI Sta 10+38.40
△ = 17° 37' 25.3" (LT)
D = 44° 04' 25.2"
L = 39.99'
T = 20.15'
R = 130.00' (DS = 20 MPH)
SE = NC
RO = SEE PLANS

PI Sta 11+08.98
△ = 24° 53' 01.9" (LT)
D = 24° 54' 40.4"
L = 99.89'
T = 50.75'
R = 230.00' (DS = 25 MPH)
SE = NC
RO = N/A

-Y6-

PI Sta 15+75.80
△ = 18° 33' 14.0" (RT)
D = 8° 48' 53.0"
L = 210.49'
T = 106.17'
R = 650.00'
SE = RC
RO = 60'

-Y9-

PI Sta 16+54.92
△ = 8° 33' 40.6" (RT)
D = 6° 44' 26.4"
L = 127.01'
T = 63.62'
R = 850.00'
SE = EXISTING
RO = EXISTING

-GI-

PI Sta 10+74.58
△ = 114° 54' 22.3" (RT)
D = 212° 12' 23.7"
L = 54.15'
T = 42.31'
R = 27.00'
SE = RC
RO = NONE

PI Sta 11+78.16
△ = 137° 08' 39.1" (LT)
D = 159° 09' 17.8"
L = 86.17'
T = 91.73'
R = 36.00'
SE = RC
RO = NONE

PI Sta 12+89.49
△ = 59° 58' 16.4" (LT)
D = 76° 23' 39.7"
L = 78.50'
T = 43.28'
R = 75.00'
SE = RC
RO = NONE

PI Sta 13+74.27
△ = 36° 33' 57.9" (LT)
D = 38° 11' 49.9"
L = 95.73'
T = 49.56'
R = 150.00'
SE = RC
RO = NONE

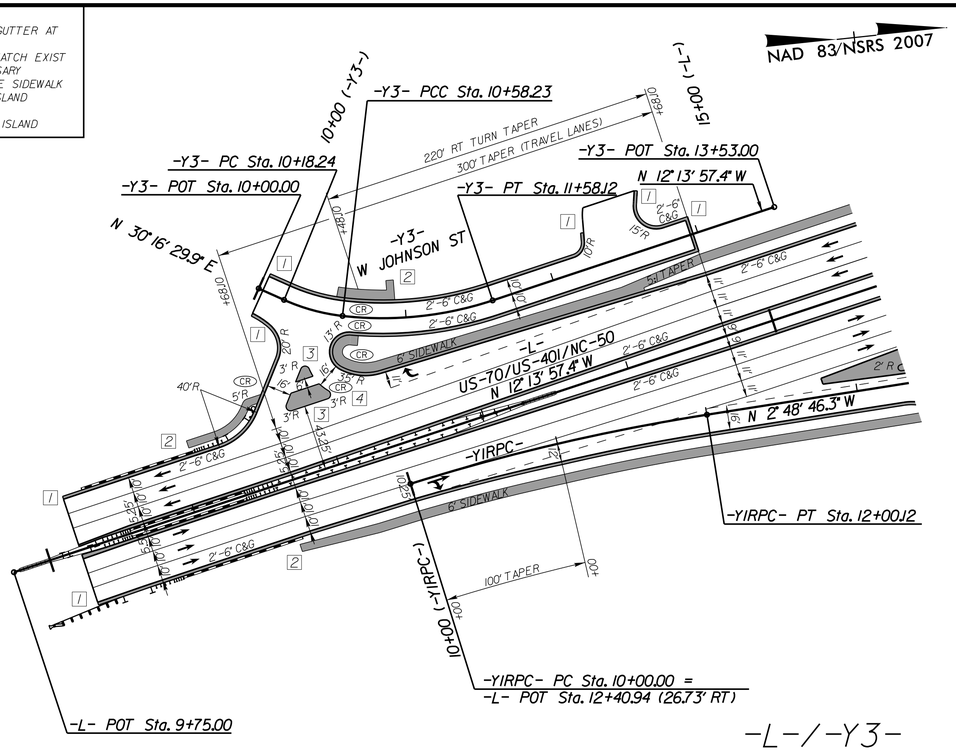
PI Sta 14+46.81
△ = 38° 44' 43.5" (LT)
D = 76° 23' 39.7"
L = 50.72'
T = 26.37'
R = 75.00'
SE = RC
RO = NONE

PI Sta 14+91.01
△ = 76° 54' 47.1" (RT)
D = 229° 10' 59.2"
L = 33.56'
T = 19.85'
R = 25.00'
SE = RC
RO = NONE

2/02/2016

5/14/99

NOTES:
1. TIE TO EXIST CURB AND GUTTER AT EXIST CONCRETE JOINT TRANSITION 2'-6" C&G TO MATCH EXIST GUTTER WIDTH AS NECESSARY
2. TIE TO EXISTING CONCRETE SIDEWALK
3. 5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
4. REMOVE EXIST CONCRETE ISLAND



-L-/-Y3-

SEE SHEET NO.4 FOR PLAN

HARRINGTON ST AND PEACE ST

2016 ADT / 2036 ADT		23029 / 27945
-Y1- PEACE ST: DHV = 8%, DIR = 65%, TTST = 0%, DUAL = 1%	300 / 300	12925 / 15425
HARRINGTON ST -Y5-	6212 / 7462	2745 / 3329
	2845 / 3429	320 / 404
PEACE ST -Y1-		7216 / 8883
		23308 / 28141

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-2

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
3/4/2016

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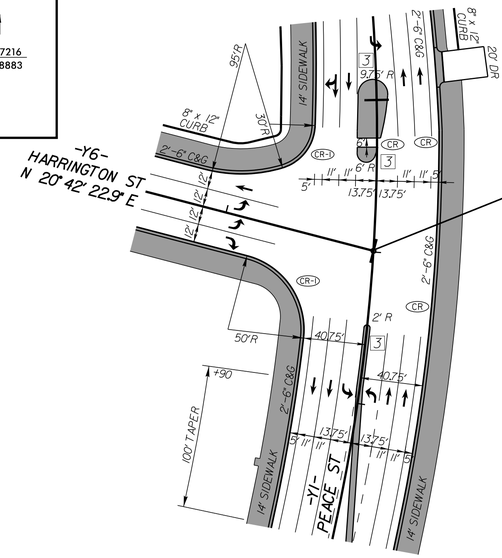
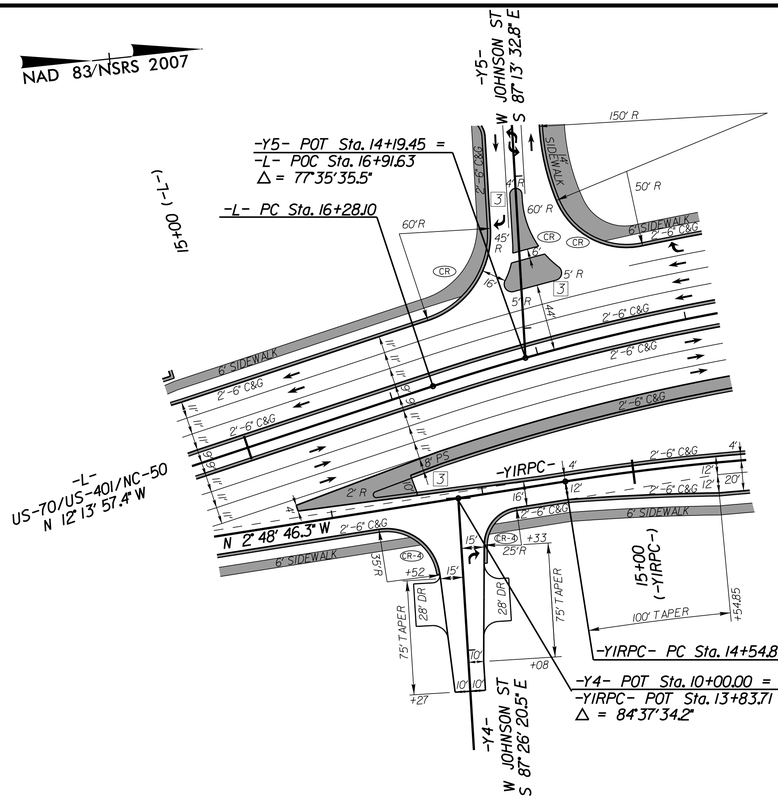
NAD 83/NSRS 2007



-Y1-/-Y6-

FOR CR-1, SEE SHEET 2C-5
SEE SHEET NO.8 FOR PLAN

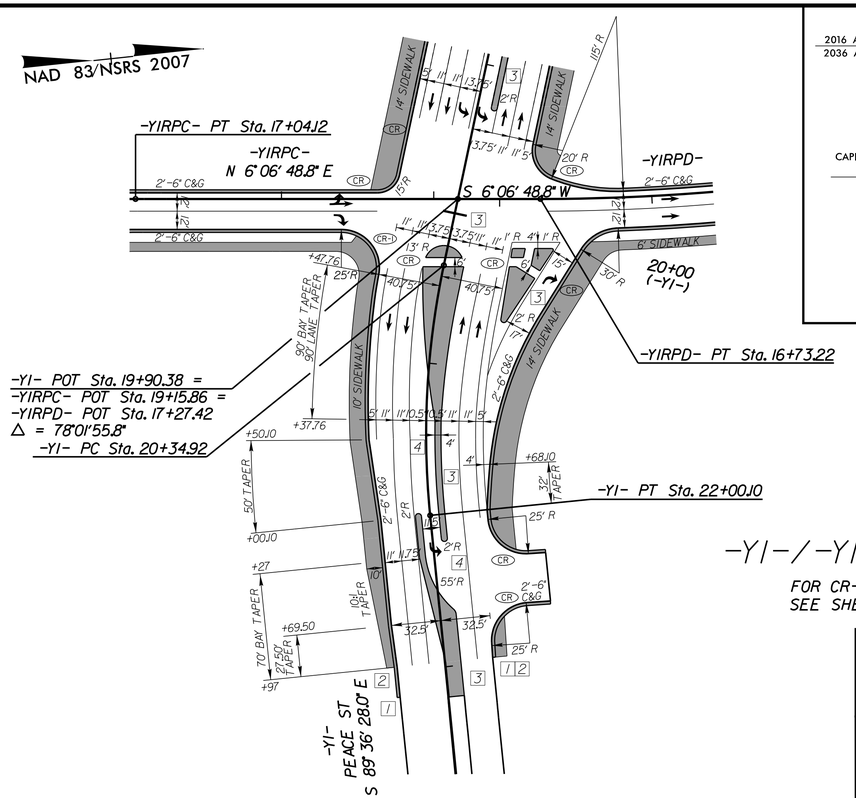


CAPITAL BLVD AND W JOHNSON ST

2016 ADT / 2036 ADT		
-L- CAPITAL BLVD: DHV = 10%, DIR = 55%, TTST = 1%, DUAL = 4%	620 / 704	5591 / 6758
W JOHNSON ST -Y5-		
42079 / 51995		57450 / 70450
CAPITAL BLVD -L-		

-L-/-Y5-
-YIRPC-/-Y4-

FOR CR-4, SEE SHEET 2C-5
SEE SHEET NO.5 FOR PLAN



CAPITAL BLVD NB RAMPS AND PEACE ST

2016 ADT / 2036 ADT		23308 / 28141
-Y1- PEACE ST: DHV = 8%, DIR = 65%, TTST = 0%, DUAL = 1%	11341 / 13508	4508 / 5341
CAPITAL BLVD RAMP -Y1YRPC-	641 / 808	6975 / 8475
CAPITAL BLVD RAMP -Y1YRPD-	641 / 808	7175 / 8675
		26133 / 31466

-Y1-/-YIRPC-/-YIRPD-

FOR CR-1, SEE SHEET 2C-5
SEE SHEET NO.5 FOR PLAN

INTERSECTION DETAILS

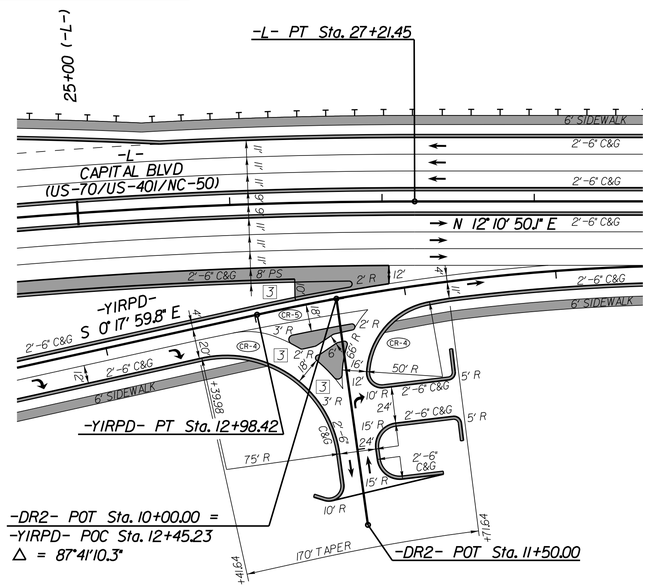
25 0 50

2/02/2016

5/14/99

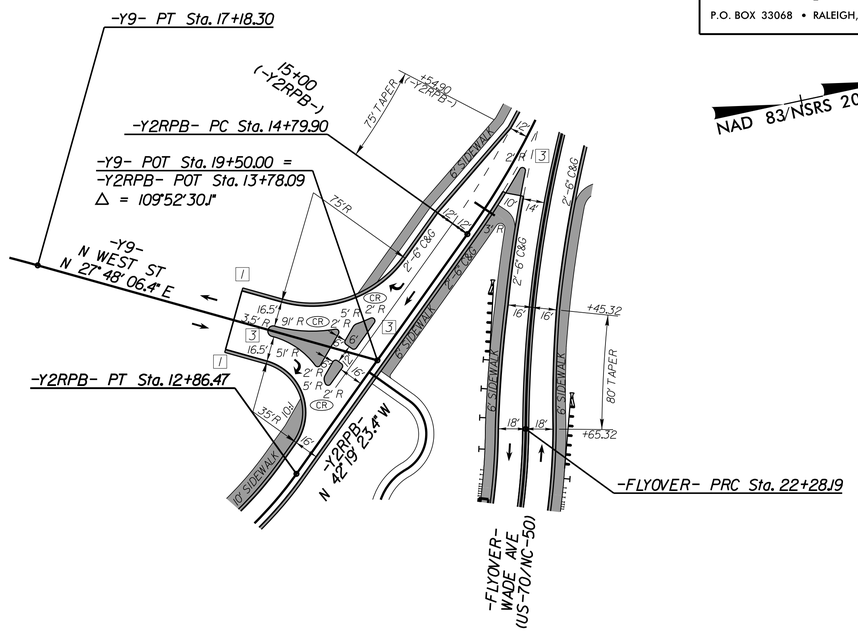
NOTES:
1. TIE TO EXIST CURB AND GUTTER AT EXIST CONCRETE JOINT TRANSITION 2'-6" C&G TO MATCH EXIST GUTTER WIDTH AS NECESSARY
2. TIE TO EXIST CONCRETE SIDEWALK
3. 5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)

NAD 83/NSRS 2007



-L-/-DR2-

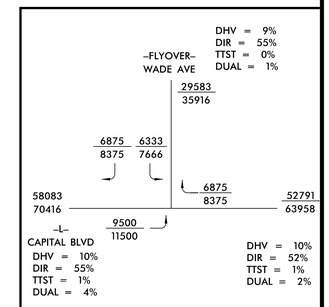
FOR CR-4 AND CR-5, SEE SHEET 2C-5
SEE SHEET NO.5 FOR PLAN



NAD 83/NSRS 2007

-Y2RPB-/-Y9-

SEE SHEET NO.7 FOR PLAN



PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-3

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ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
3/4/2016

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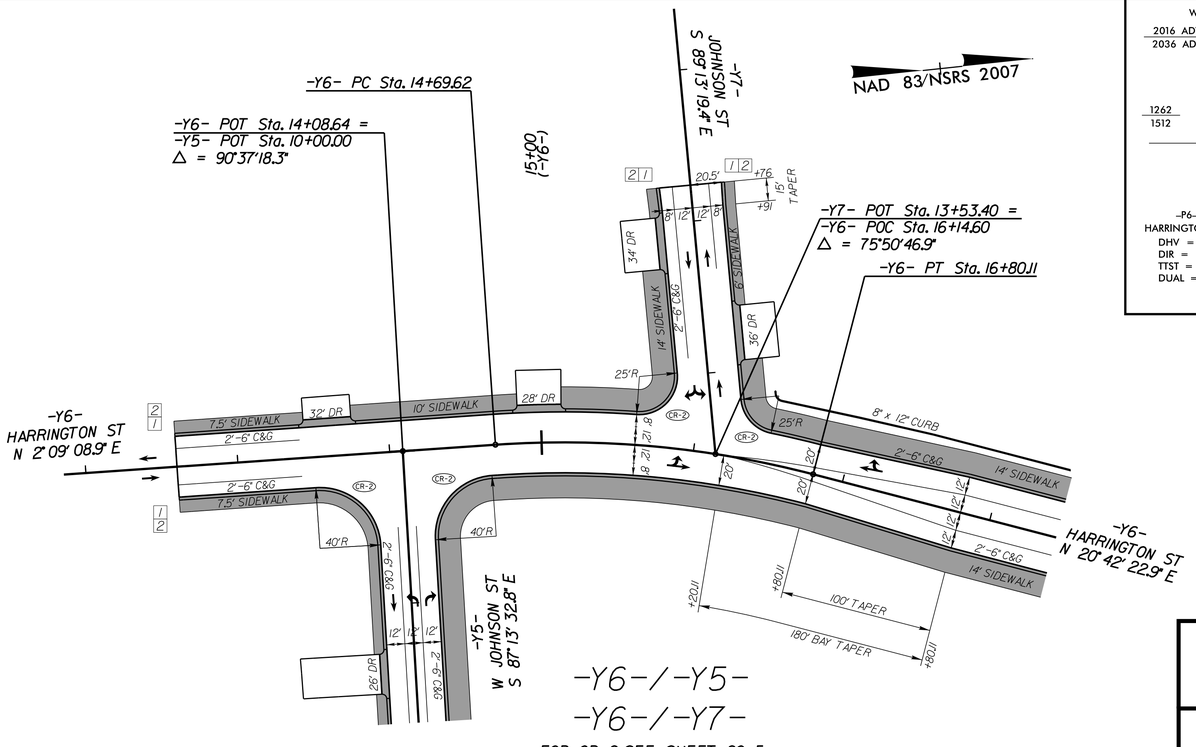


NAD 83/NSRS 2007

-L-/-Y8-

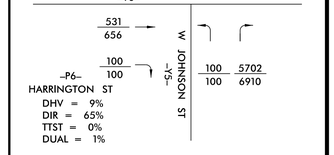
SEE SHEET NOS. 6 AND 7 FOR PLAN

-Y6-/-Y5-
-Y6-/-Y7-

FOR CR-2, SEE SHEET 2C-5
SEE SHEET NO.8 FOR PLAN

W JOHNSON ST AND HARRINGTON ST

2016 ADT
2036 ADT



INTERSECTION DETAILS

25 0 50

2/02/2016

5/14/99

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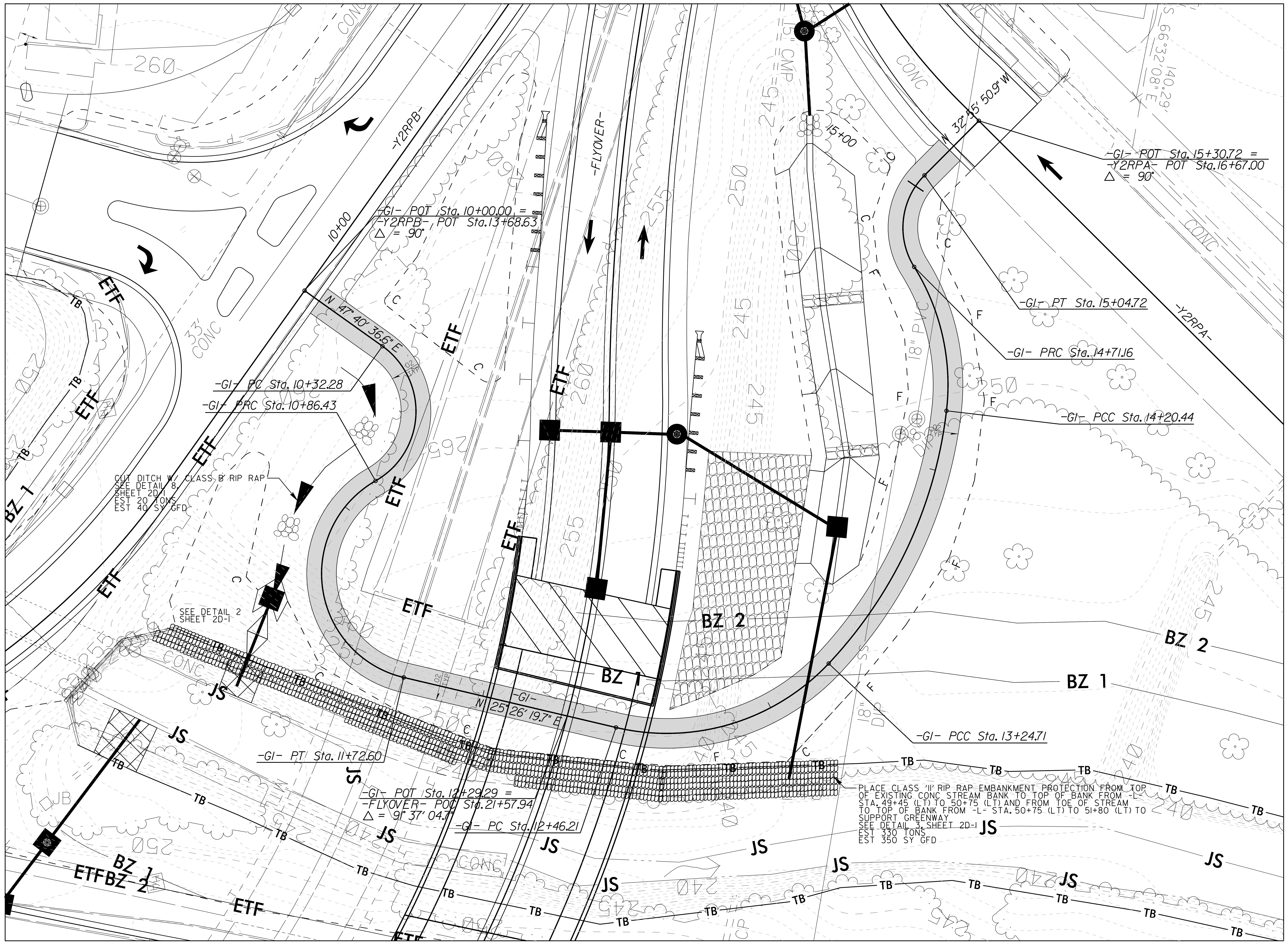
PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE 6/1/2016	NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING 6/1/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

GREENWAY DETAIL



20	10	0	20	40

SEE SHEET 7 FOR -FLYOVER-,-Y2RPA-,AND -Y2RPB- PLAN
SEE SHEET 17 FOR -GI- PROFILE

6/01/2016

5/14/99

-DETSB-

PI Sta 13+70.66	PI Sta 16+93.32	PI Sta 23+57.58
Δ = 3° 29' 21.2" (LT)	Δ = 22° 50' 16.7" (RT)	Δ = 10° 23' 50.7" (RT)
D = 2° 01' 28.5"	D = 4° 53' 34.4"	D = 2° 59' 25.4"
L = 172.34'	L = 466.76'	L = 347.69'
T = 86.20'	T = 236.52'	T = 174.33'
R = 2,830.00'	R = 1,171.00'	R = 1,916.00'
SE = NC	SE = 03	SE = RC
RO = NONE	RO = 144'	RO = 96'

-DETNB-

PI Sta 12+49.81	PI Sta 16+73.19	PI Sta 23+76.09
Δ = 7° 09' 17.0" (LT)	Δ = 24° 32' 45.7" (RT)	Δ = 12° 22' 43.1" (RT)
D = 2° 01' 28.5"	D = 5° 02' 53.1"	D = 3° 02' 51.5"
L = 353.39'	L = 486.24'	L = 406.17'
T = 176.93'	T = 246.91'	T = 203.88'
R = 2,830.00'	R = 1,135.00'	R = 1,880.00'
SE = NC	SE = 03	SE = RC
RO = NONE	RO = 144'	RO = NONE

Kimley»Horn
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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE
3/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING
3/7/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -Y1- STA 16+00 (SEE SHEET 2B-7)

MATCHLINE -DETSB- STA 22+50 (SEE SHEET 2B-6)

2/02/2016

TEMPORARY PAVEMENT

SEE SHEET 16 FOR -DETNB- PROFILE
SEE SHEET 17 FOR -DETSB- PROFILE

5/14/99

-DETSB-
PI Sta 23+57.58
△ = 10° 23' 50.7" (RT)
D = 2° 59' 25.4"
L = 347.69'
T = 174.33'
R = 1,916.00'
SE = RC
RO = 96'

PI Sta 26+37.94
△ = 4° 19' 49.4" (LT)
D = 2° 01' 28.5"
L = 213.89'
T = 107.00'
R = 2,830.00'
SE = NC
RO = NONE

-DETNB-
PI Sta 23+76.09
△ = 12° 22' 43.1" (RT)
D = 3° 02' 51.5"
L = 406.17'
T = 203.88'
R = 1,880.00'
SE = RC
RO = NONE

PI Sta 27+34.41
△ = 6° 18' 41.8" (LT)
D = 2° 01' 28.5"
L = 311.75'
T = 156.03'
R = 2,830.00'
SE = NC
RO = NONE

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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024436 JEFFREY W. MOORE
3/8/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032615 JASON D. LAWINGS
3/8/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

-DETSB- PRC Sta. 25+30.94

-DETSB- PT Sta. 27+44.83

-DETSB- POT Sta. 30+52.43 =
-L- POT Sta. 32+00.00 (25.50' LT)

-DETNB- PRC Sta. 25+78.38

-DETNB- PT Sta. 28+90.13 =
-DETSB- POT Sta. 29+24.07 (51' RT)
-L- POT Sta. 30+51.84 (25.50' RT)

-DETNB- POT Sta. 30+38.29 =
-L- POT Sta. 32+00.00 (25.50' RT)

-DETSB- N 12° 10' 50.1" E

-DETNB- N 12° 10' 50.1" E

MATCHLINE -DETSB- STA 22+50 (SEE SHEET 2B-5)

CITY OF RALEIGH
DB 12531 - PG 472
BM 2007 - PG 117
BM 1959 - PG 116
COR MAP B-213
COR MAP B-120A
COR MAP B-217A
COR MAP B-132

622 CAPITAL LLC
DB 14601 - DB 1647

THE COTTON MILL CONDOMINIUMS
DB 6789 - DB 351
BM 2008 - PG 180

AMERCO REAL ESTATE CO
NOW OR FORMERLY KNOWN AS
U HAUL REAL ESTATE CO
DB 4561 - DB 910

AMERCO REAL ESTATE CO
DB 12059 - DB 1274
BM 1959 - PG 104

CSX TRANSPORTATION
NO REFERENCE

END PORTABLE CONCRETE BARRIER -DETNB- Sta. 25+43.55 (TRAFFIC CONTROL PAY ITEM)

END PORTABLE CONCRETE BARRIER TIE TO EXIST BARRIER -DETSB- POT Sta. 29+24.07

END CONSTRUCTION -DETNB- PT Sta. 28+90.13 = -DETSB- POT Sta. 29+24.07 (51' RT) -L- POT Sta. 30+51.84 (25.50' RT)

END TEMP PAVEMENT -DETSB- Sta. 27+06.88 -L- Sta. 28+54.70 LT

SEE SHEET 6 FOR CONTINUATION OF -L- CONSTRUCTION

SEE SHEET 5 FOR CONTINUATION OF -WRPD- CONSTRUCTION

PLEASE NOTE - PROPERTY MAPPED PER DEED/PLAT INFORMATION, RAILROAD R/W NOT MAPPED ON THIS PARCEL. NOT ENOUGH INFORMATION TO MAP RAILROAD R/W.

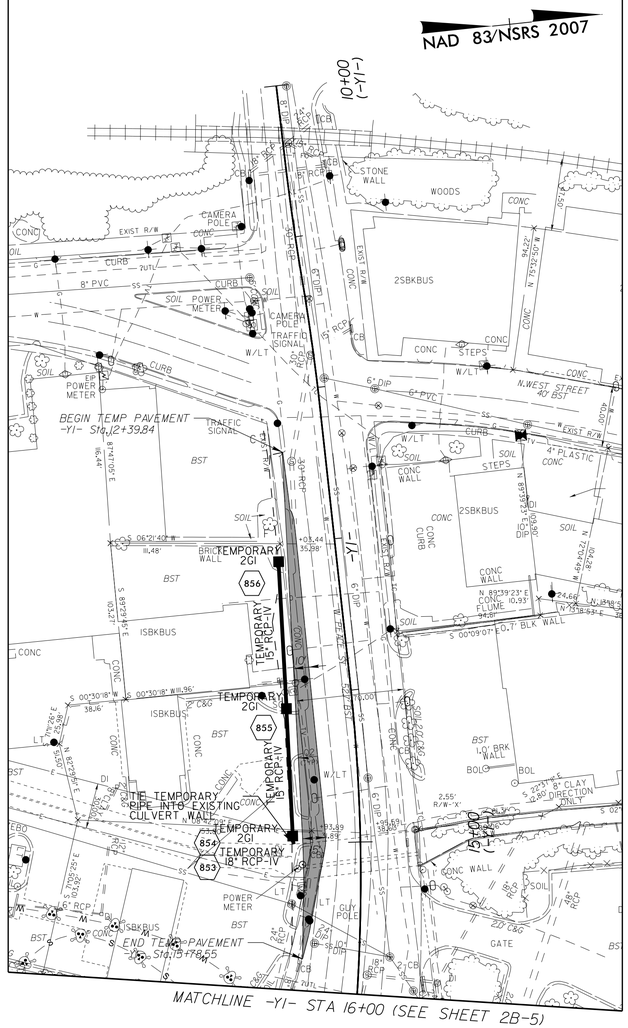
TEMPORARY PAVEMENT

SEE SHEET 16 FOR -DETNB- PROFILE
SEE SHEET 17 FOR -DETSB- PROFILE

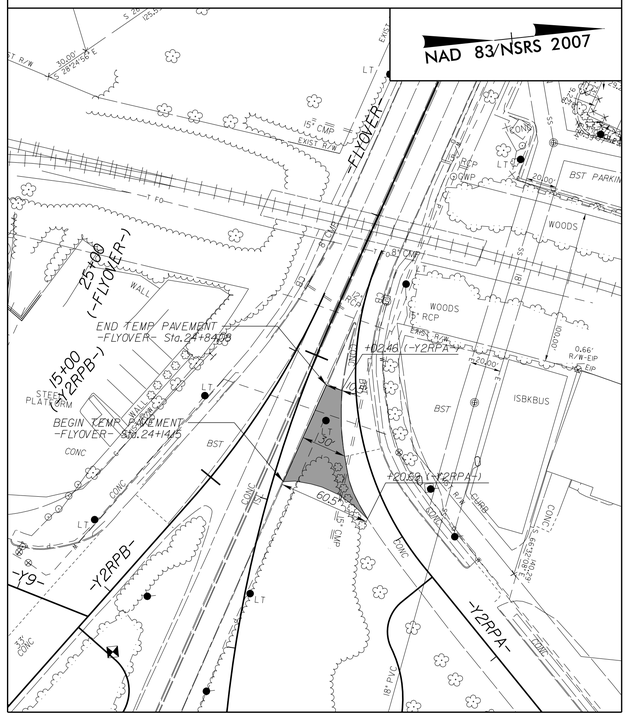
2/02/2016

5/14/99

–Y1– TEMPORARY WIDENING



–FLYOVER– TEMPORARY WIDENING



TEMPORARY WIDENING

TEMPORARY WIDENING

2/02/2016

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2B-7
R/W SHEET NO.	

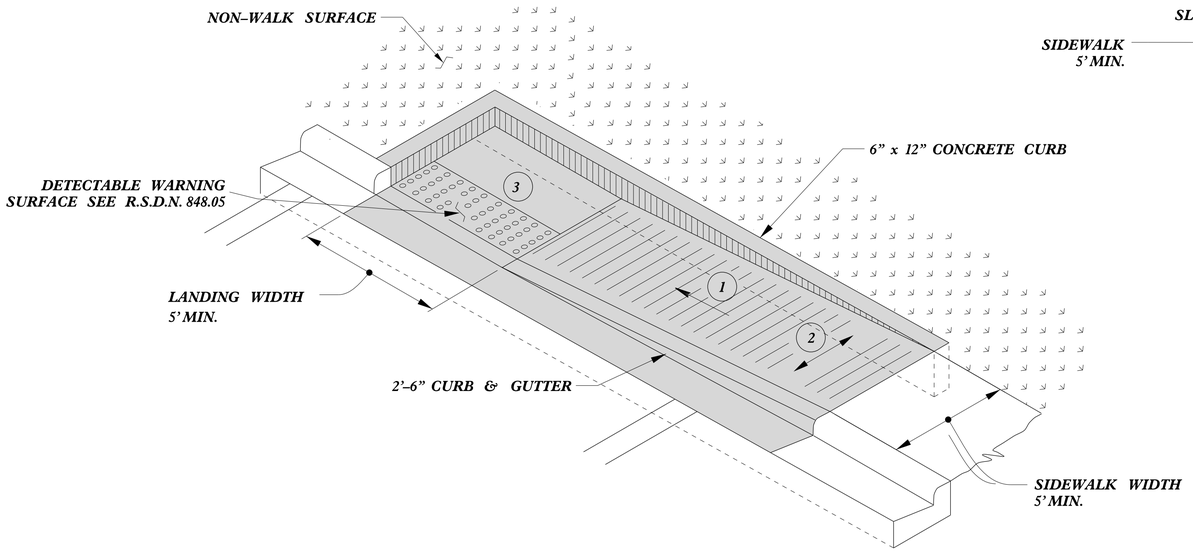
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024486 JEFFREY W. MOORE
3/8/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032615 JASON D. LAWINGS
3/8/2016

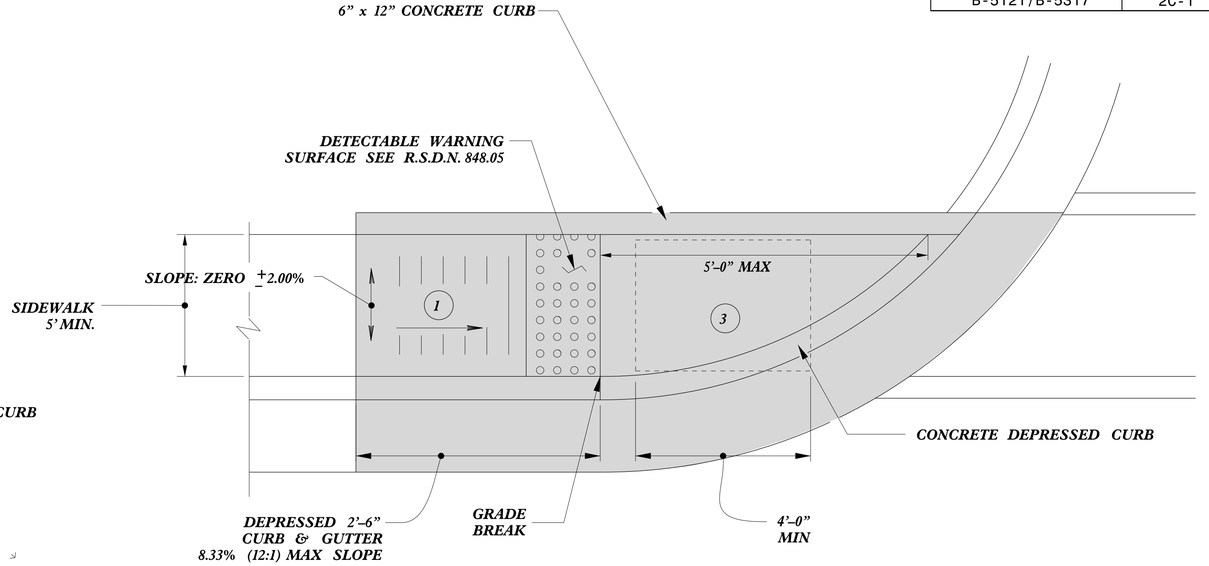
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

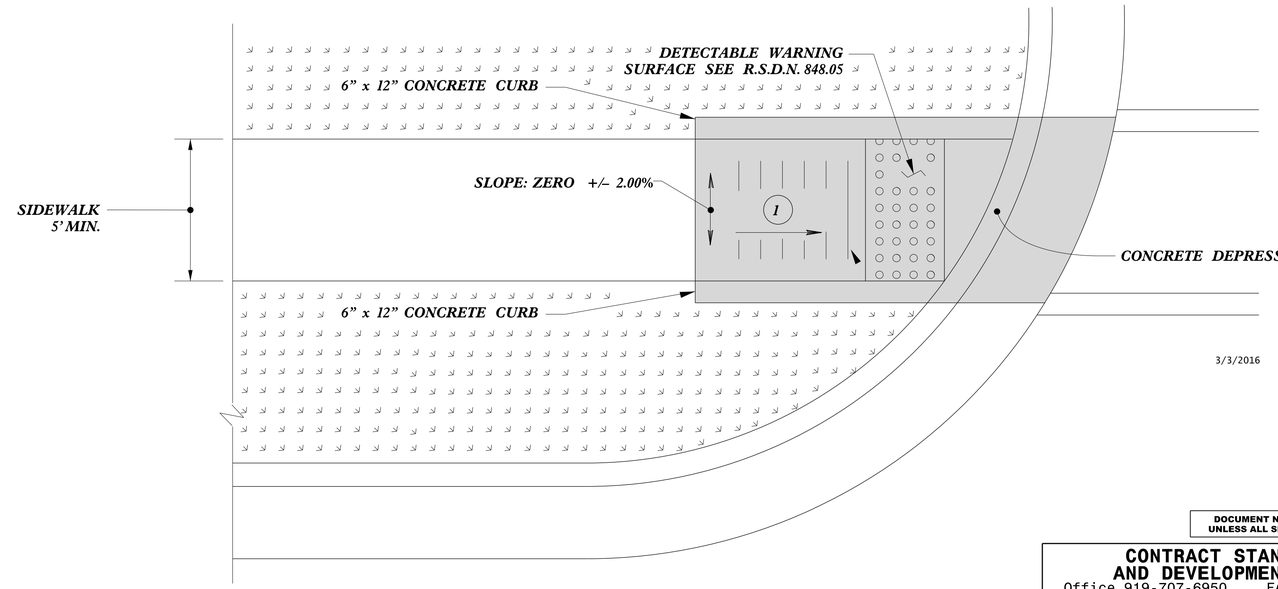
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-1



TYPE 1A



TYPE 1



TYPE 1 Modified

(1) 8.33% (12:1) MAX RAMP SLOPE

(2) CROSS SLOPE: 2.00%

(3) CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR 1 CURB RAMP

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

3/3/2016

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

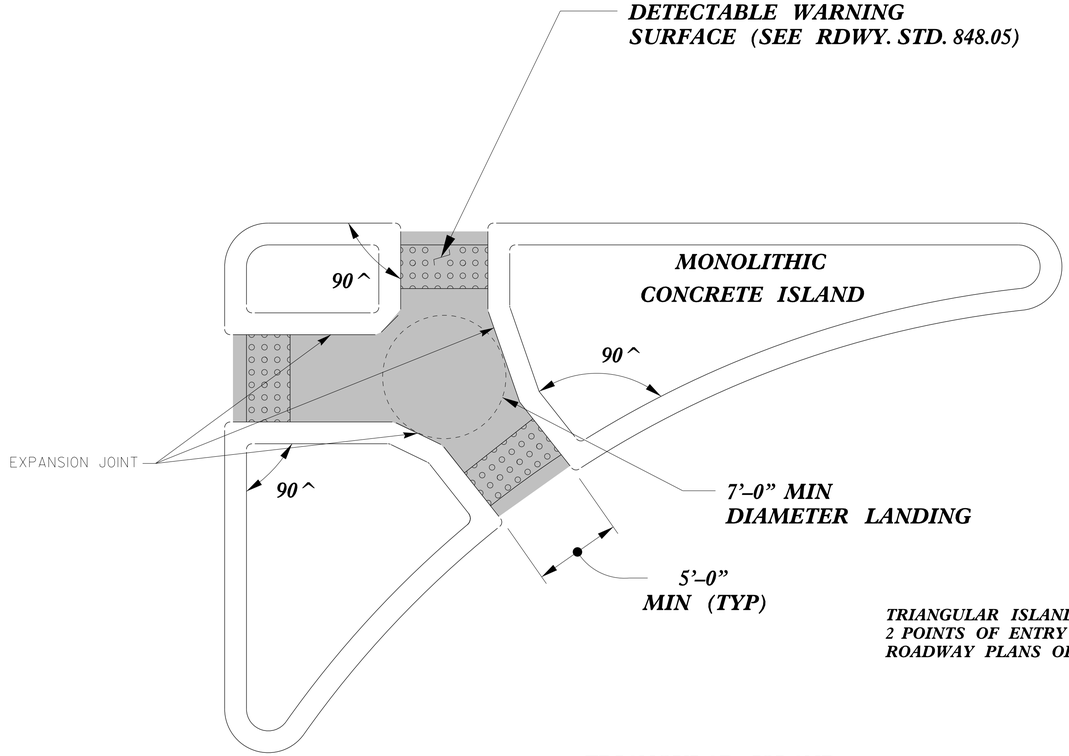
Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$SYSTIME$$$$
$$$$SYSTIME$$$$
$$$$JOBNUM$$$$
$$$$USERNAME$$$$

5/14/99

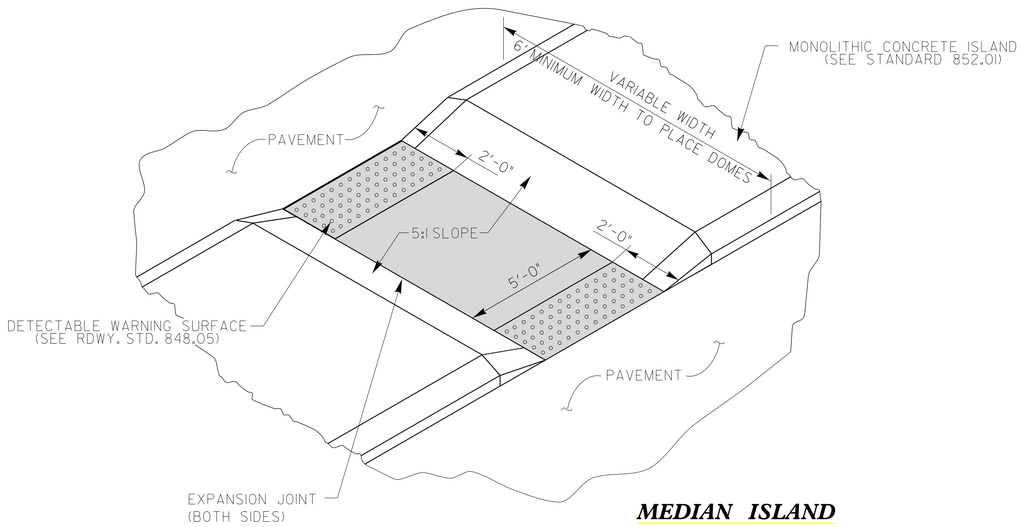
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-2



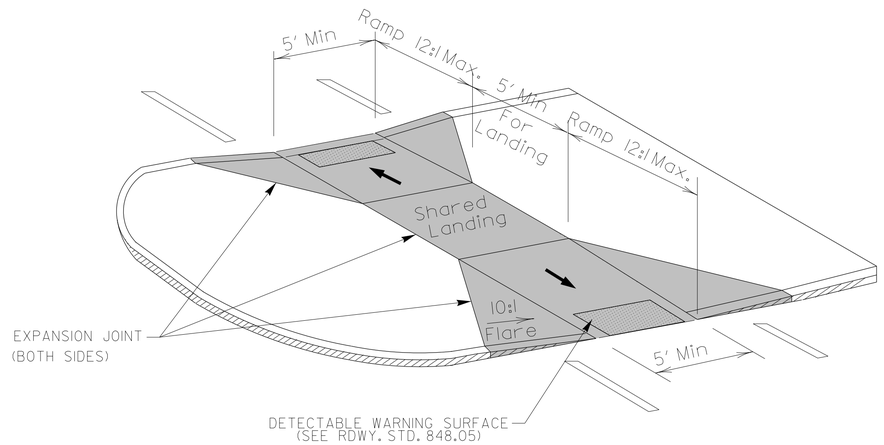
PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

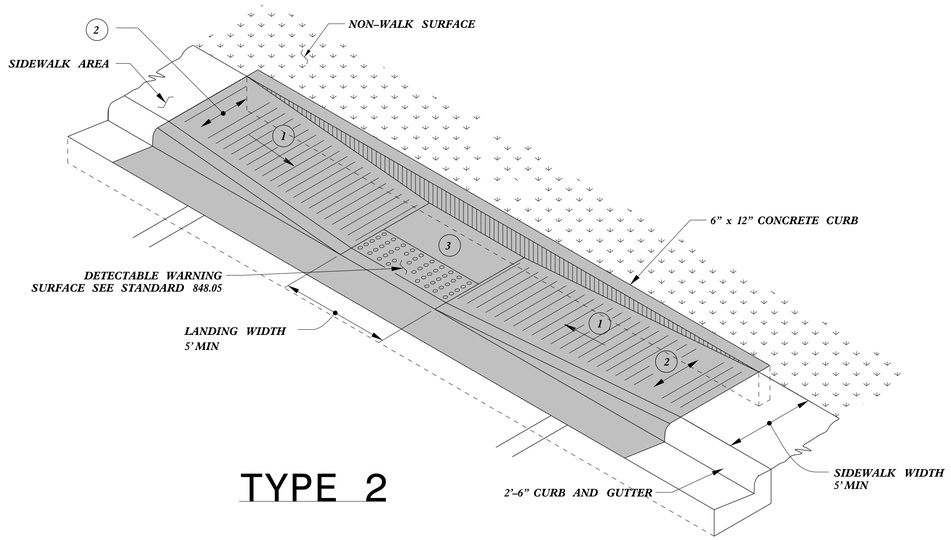
Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn

$$$$ SYSTEM $$$$
$$$$ USERNAME $$$$

5/14/99

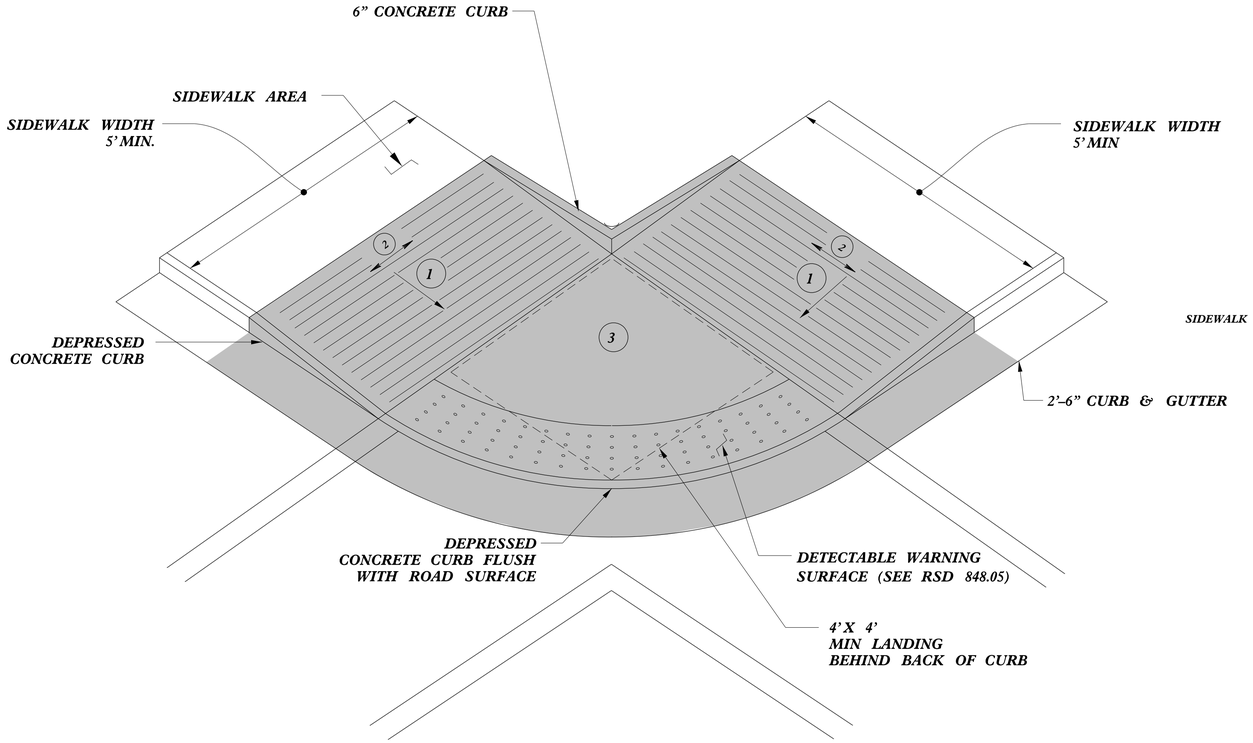
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-3



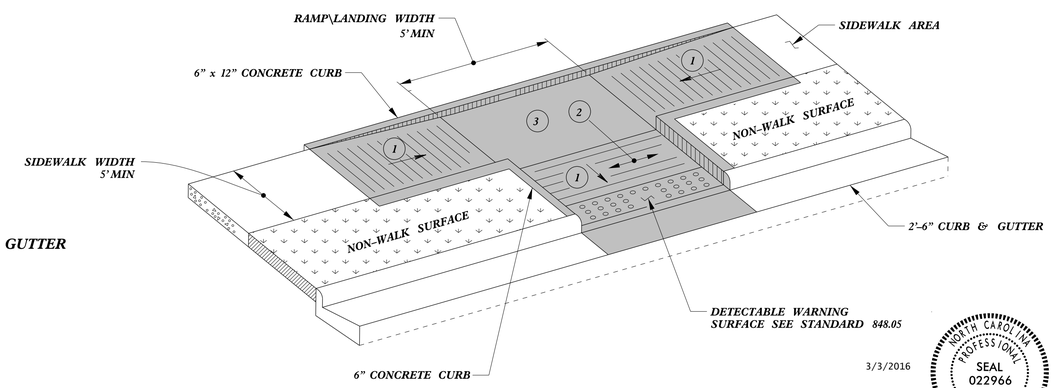
TYPE 2

PAY LIMITS FOR 1 CURB RAMP

1. *8.33% (12:1) MAX RAMP SLOPE*
2. *CROSS SLOPE: 2.00%*
3. *CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*



TYPE 2A



TYPE 3

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

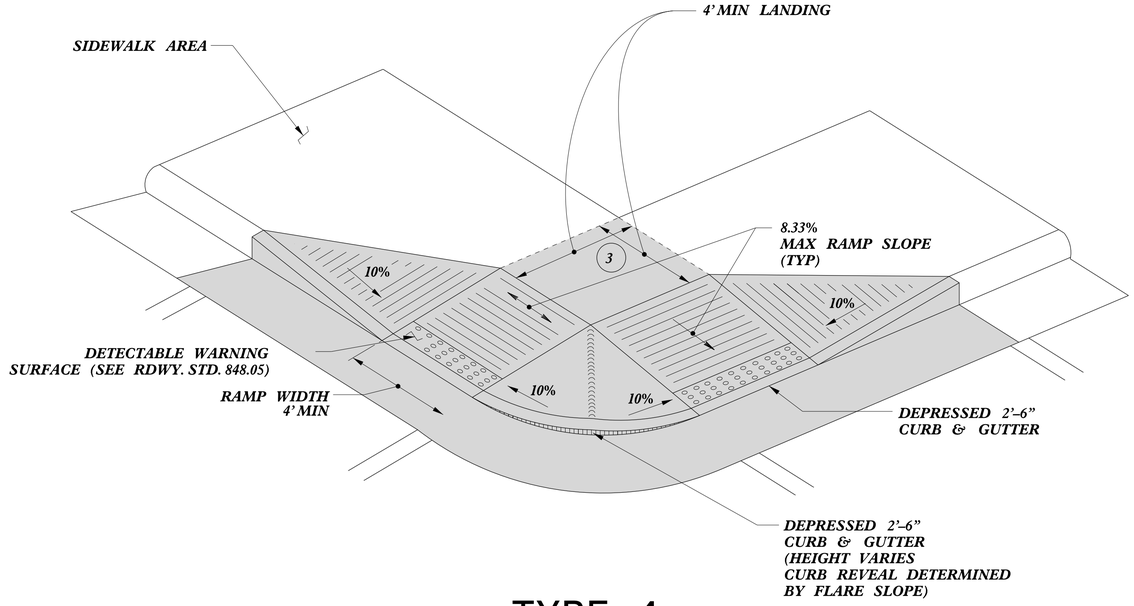
Parallel Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$USERNAME$$$$ $$$$CONTIME$$$$
$$$$USERNAME$$$$ $$$$CONTIME$$$$

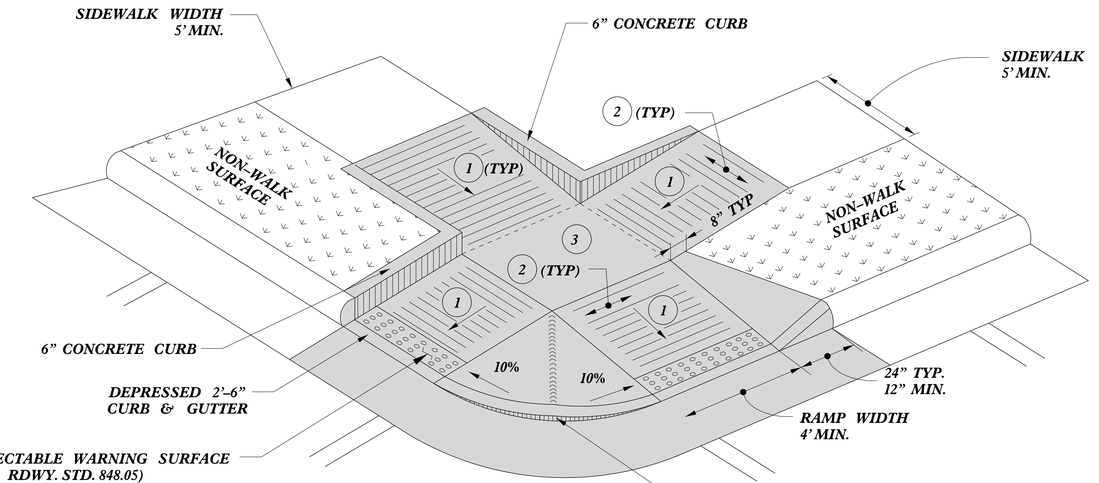
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-4

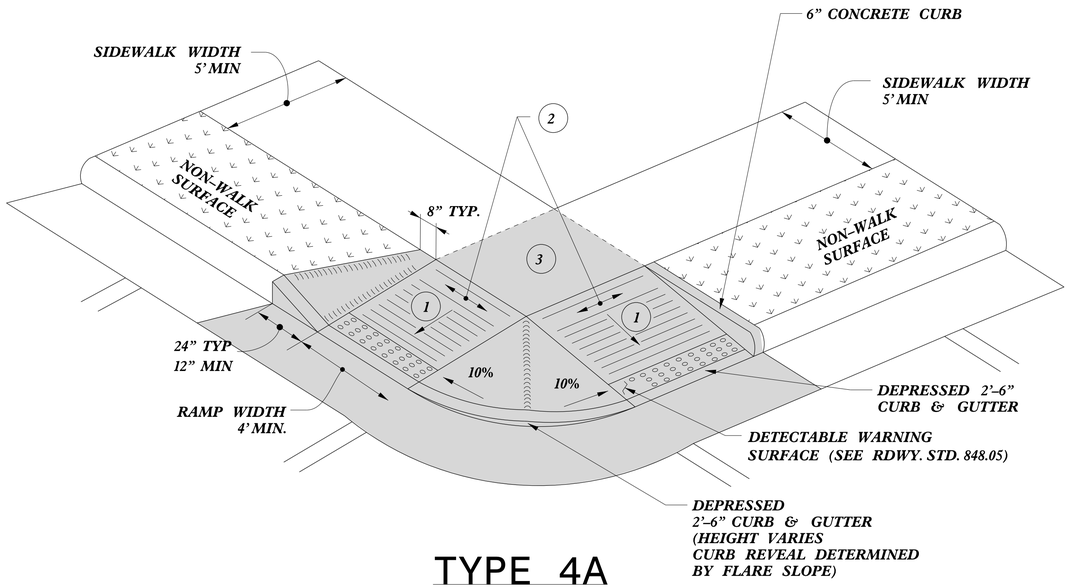


TYPE 4

PAY LIMITS FOR 2 CURB RAMPS



TYPE 5



TYPE 4A

(1) *8.33% (12:1) MAX RAMP SLOPE*

(2) *CROSS SLOPE: 2.00%*

(3) *CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D37DCDC45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Shared Landing

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

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

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2C-5

Kimley»Horn ©2016

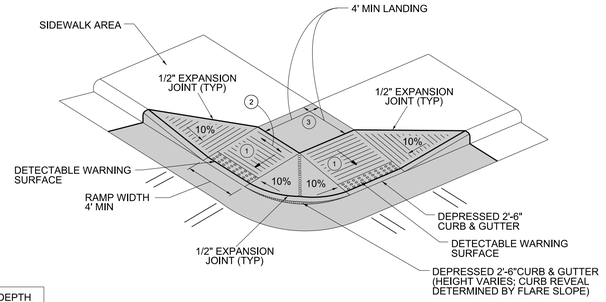
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

5/14/99

REVISIONS

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR CURB RAMP

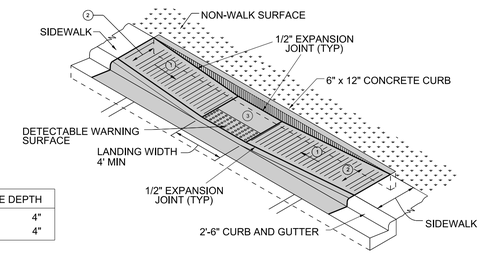


CONCRETE DEPTH	
RAMP / FLARE	6"
LANDING	4"

TYPE N-3A

DETAIL CR–1: CURB RAMPS AT INTERSECTION (NO VERGE)

PAY LIMITS FOR CURB RAMP



CONCRETE DEPTH	
RAMP	4"
LANDING	4"

TYPE R-2

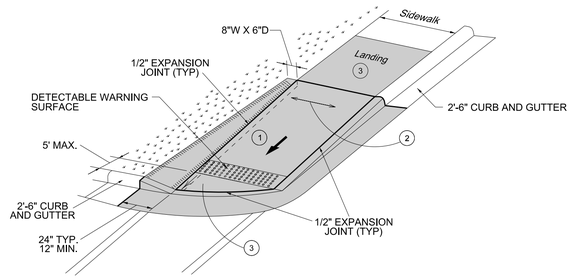
(USE ONLY WHERE WATER WILL NOT POND WITHIN LANDING)

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

DETAIL CR–2: DIRECTIONAL CROSSING (WITH CURB)

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR CURB RAMP



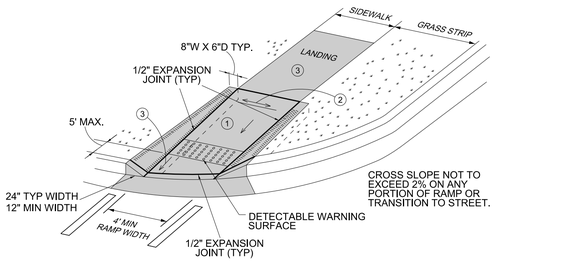
CONCRETE DEPTH	
RAMP / FLARE	6"
LANDING	4"

TYPE R-1

DETAIL CR–3: DIRECTIONAL CROSSING (NO VERGE)

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR CURB RAMP



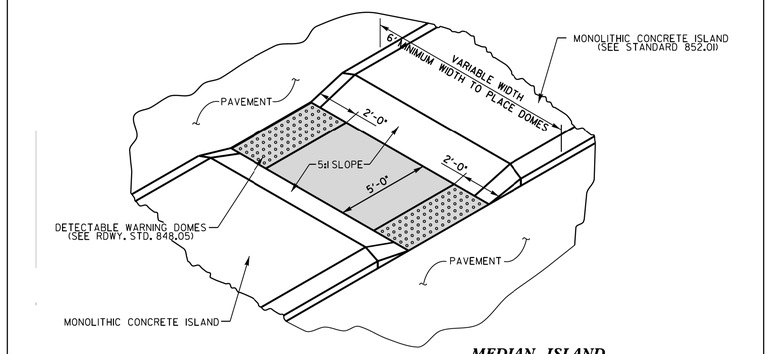
CONCRETE DEPTH	
RAMP / FLARE	6"
LANDING	4"

TYPE N-1A (FLARE TYPE)

NOTE: USE SMALL FLARES ONLY WHEN A CURB TYPE DIRECTLY CONFLICTS WITH APPROACHING VEHICULAR TURNING MOVEMENTS.

DETAIL CR–4: DIRECTIONAL CROSSING (WITH FLARE)

PAY LIMITS FOR CURB RAMP



MEDIAN ISLAND WITH CUT THROUGH

(MEDIANS ≤ 20')

DETAIL CR–5: PEDESTRIAN REFUGE

NOTE: CITY OF RALEIGH CURB RAMP DETAILS TO BE USED IN LOCATIONS AS SHOWN ON PLANS

3/21/2016

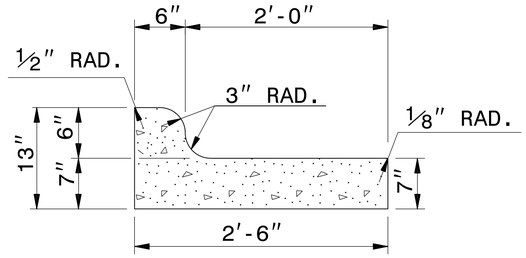
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-6

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

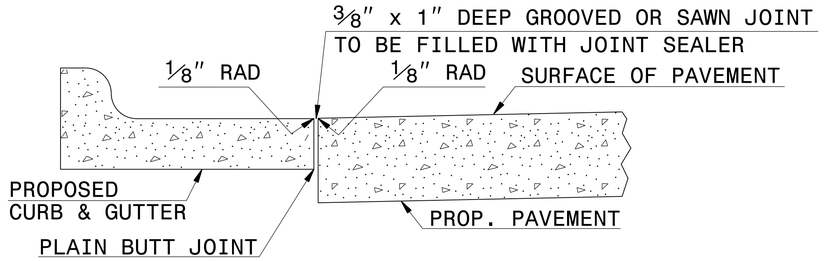
ENGLISH DETAIL DRAWING FOR

SPECIAL CURB & GUTTER

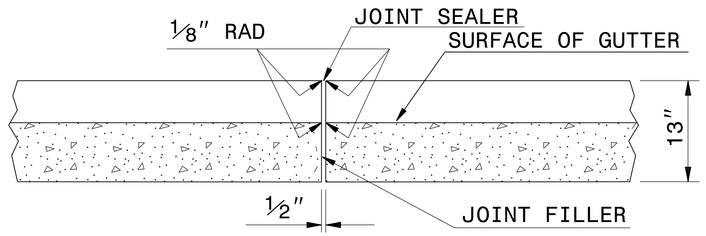
2'-6"



SECTION A-A
2'-6" CURB AND GUTTER



LONGITUDINAL PLAIN BUTT JOINT



TRANSVERSE EXPANSION JOINT
IN 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. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
- FILL ALL CONSTRUCTION JOINTS, WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90′ INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.

SHEET 1 OF 1

846d01

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

ENGLISH DETAIL DRAWING FOR

SPECIAL CURB & GUTTER

2'-6"

SHEET 1 OF 1

846d01

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL T. HOWERTON

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

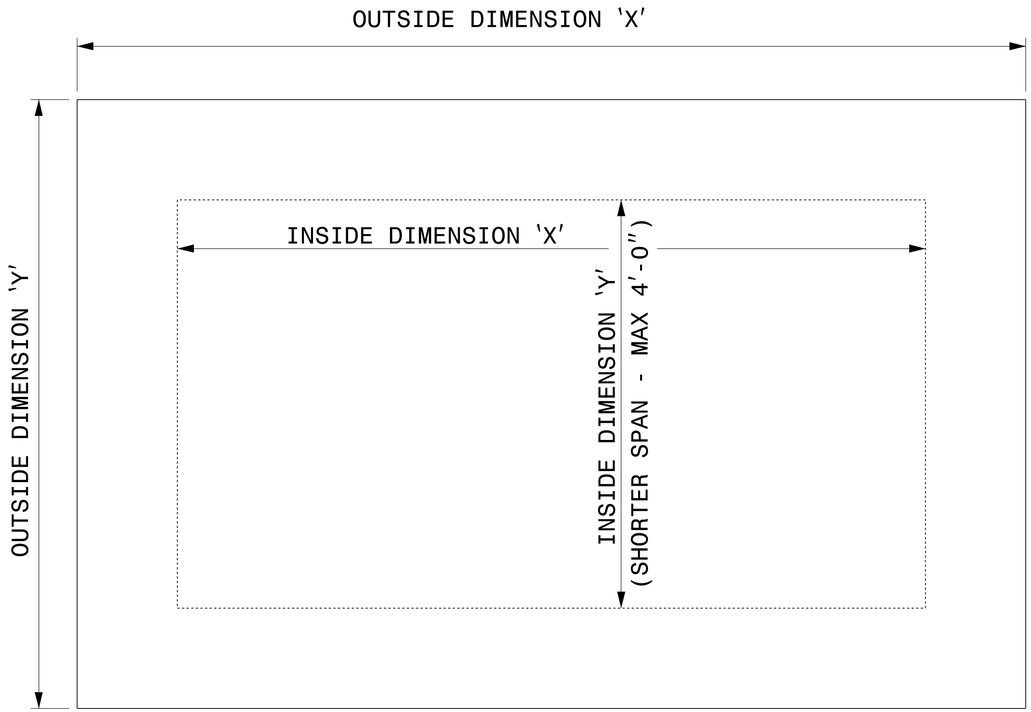
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: MAY 1997
MODIFIED BY: K.A. KEMPF DATE: MAR 2015
CHECKED BY: DATE:
FILE SPEC.: kkempf\english\B5121_846d01.dgn

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

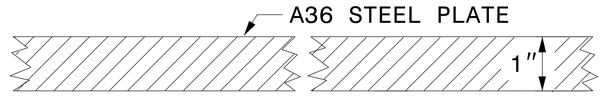
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-7



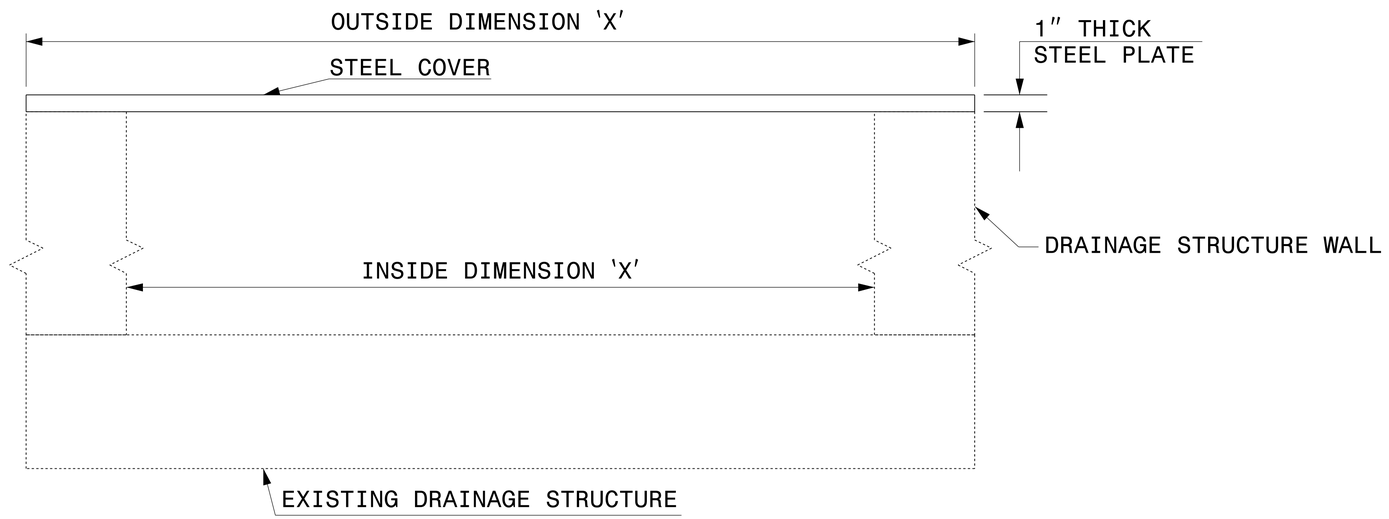
PLAN VIEWS

GENERAL NOTES:

-USE GRADE A36 STEEL
-STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
-FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
-SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
-QUANTITES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.



SECTION VIEW OF STEEL TOP PLATE



ELEVATION VIEWS

6/3/2016 6:02:26 PM

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

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CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE

ORIGINAL BY: E.E. WARD DATE: 2-2-98
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

$$$$SYSTIME$$$$
$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-8

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

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.

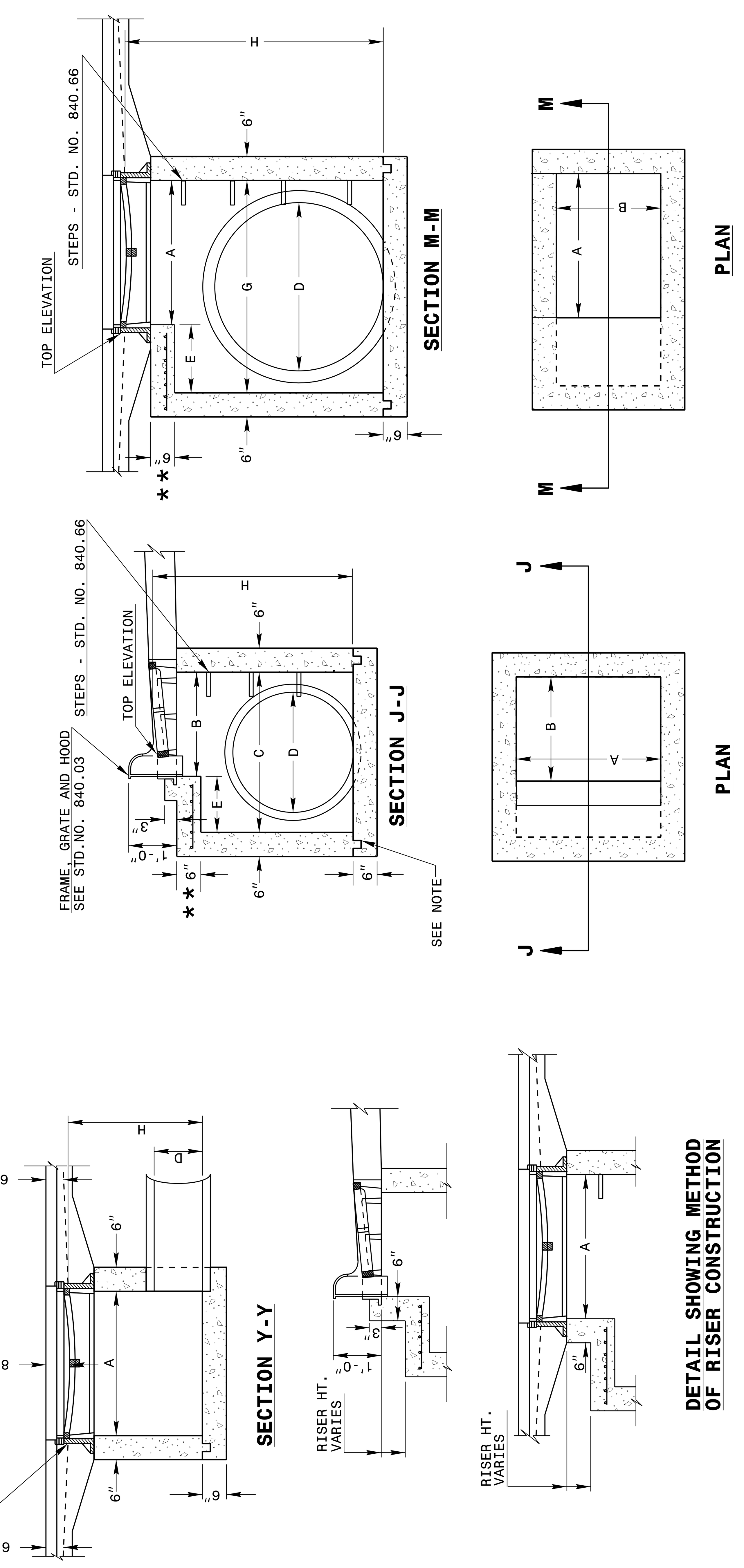
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

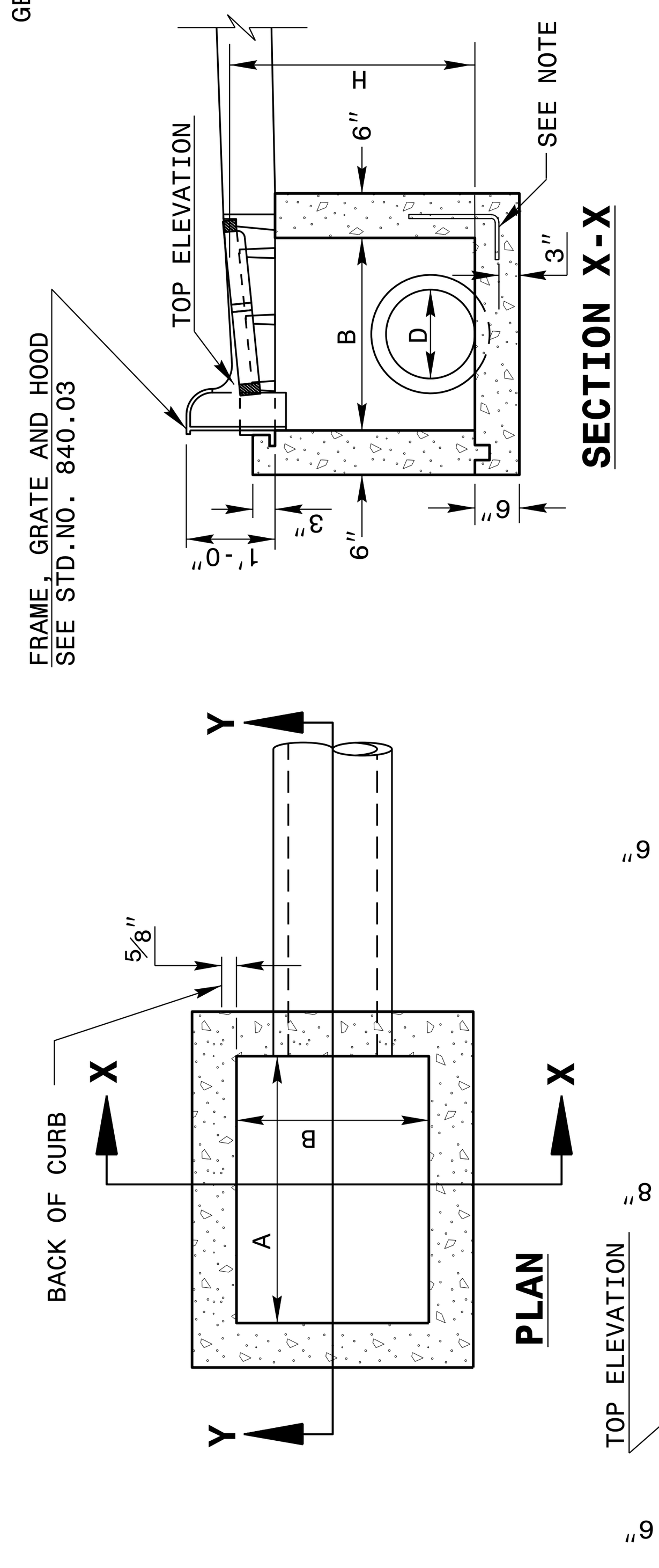
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

CONSTRUCT WITH PIPE CROWNS MATCHING.

CHAMFER ALL EXPOSED CORNERS 1".

** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.





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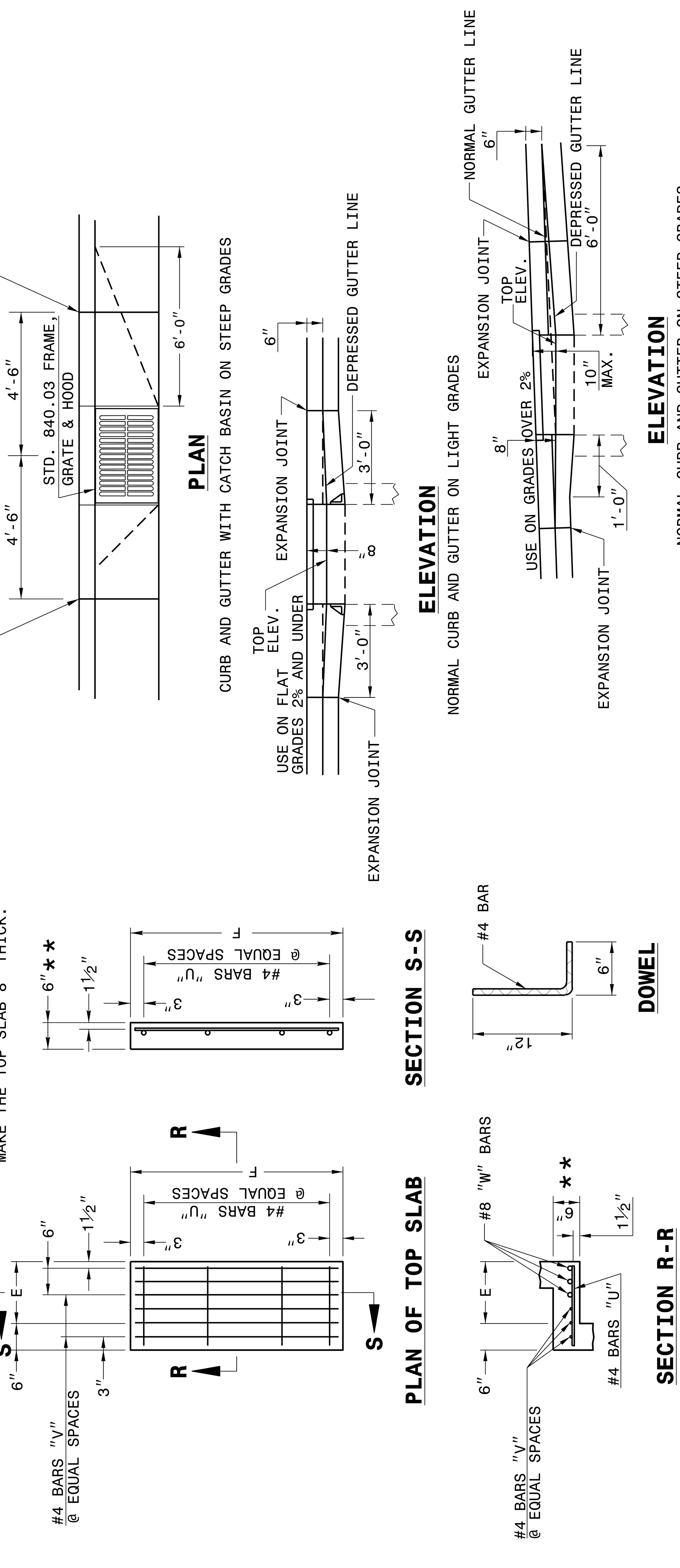
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH
CONCRETE CATCH BASIN
12" THRU 84" PIPE

SHEET 1 OF 2
840D02

** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.



* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

PIPE	DIMENSIONS OF BOX AND PIPE					COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL LBS.	CU.YDS. CONC. IN BOX			DEDUCTIONS ONE PIPE	
	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT										TOP SLAB	BOTTOM SLAB	TOT. CONC. FOR MINIMUM HEIGHT, H	C.M.	R.C.
D	A	B	C	G	H	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH						
12"	3'-0"	2'-2"	--	--	2'-0"	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"			2'-3"											0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"			2'-6"											0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"			3'-1"											0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"	3'-4"	3'-10"	1'-2"	4'-4"	4	1'-5"	2	4'-1"	3	4'-1"	39	0.123	0.347	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"	3'-10"	4'-6"	1'-8"	4'-10"	4	1'-11"	3	4'-7"	3	4'-7"	43	0.161	0.432	1.714	0.132	0.178
42"	3'-0"	2'-2"	4'-5"	4'-5"	4'-11"	2'-2"	5'-5"	5	2'-5"	4	5'-2"	3	5'-2"	47	0.200	0.543	1.738	0.180	0.243
48"	3'-0"	2'-2"	5'-0"	5'-0"	5'-6"	2'-10"	6'-0"	5	3'-1"	4	5'-9"	3	5'-9"	51	0.235	0.667	2.052	0.235	0.317
54"	3'-0"	2'-2"	5'-7"	5'-7"	6'-0"	3'-5"	6'-7"	6	3'-8"	5	6'-4"	3	6'-4"	56	0.289	0.802	2.387	0.297	0.401
60"	3'-0"	2'-2"	6'-3"	6'-3"	6'-6"	4'-1"	7'-3"	6	4'-4"	5	7'-0"	3	7'-0"	61	0.340	0.973	2.722	0.363	0.546
66"	3'-0"	2'-2"	6'-11"	6'-11"	7'-0"	4'-9"	7'-11"	7	5'-0"	6	7'-8"	3	7'-8"	66	0.391	1.160	3.057	0.440	0.655
72"	3'-0"	2'-2"	7'-6"	7'-6"	7'-6"	5'-3"	8'-6"	7	5'-6"	6	8'-3"	3	8'-3"	72	0.442	1.340	3.392	0.524	0.774
78"	3'-0"	2'-2"	8'-1"	8'-1"	8'-0"	5'-11"	9'-1"	8	6'-2"	7	8'-10"	3	8'-10"	78	0.493	1.530	3.727	0.615	0.893
84"	3'-0"	2'-2"	8'-9"	8'-9"	8'-6"	6'-7"	9'-9"	8	6'-10"	7	9'-6"	3	9'-6"	84	0.544	1.760	4.062	0.713	1.010

STATE OF
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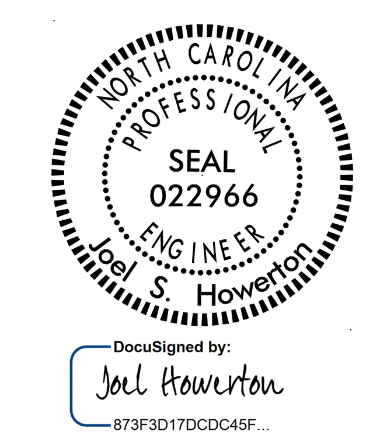
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH
CONCRETE CATCH BASIN
12" THRU 84" PIPE

SHEET 2 OF 2
840D02

3/3/2016



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SEE PLATE FOR TITLE

ORIGINAL BY: 2002 Std.840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE:
FILE SPEC.: s:Special Details/jhowerton/840d02.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-9

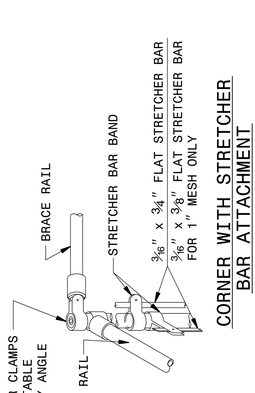
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

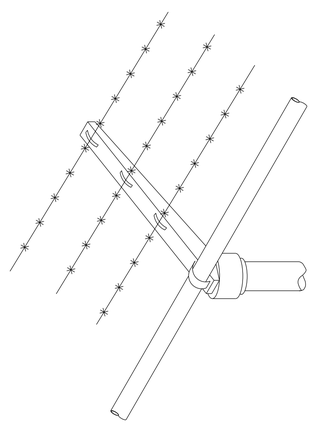
CHAIN LINK FENCE WITH BARBED WIRE

6', 7' AND 8' HEIGHT

SHEET 1 OF 2 **fence4cl**

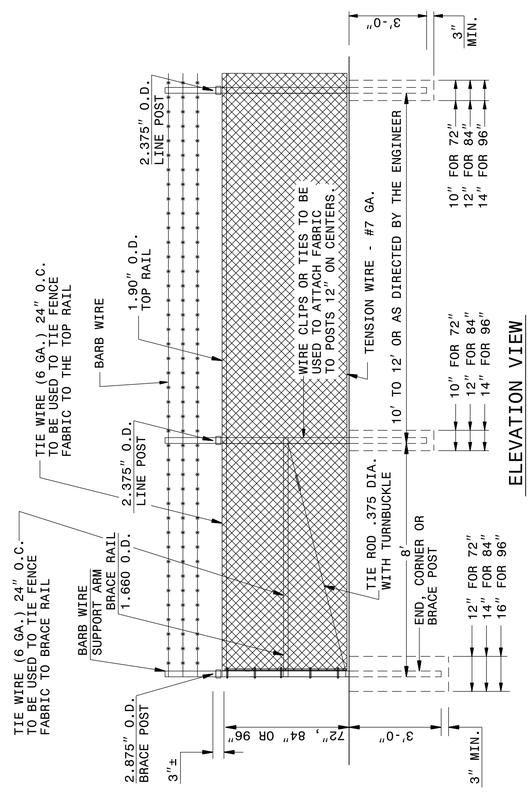


CORNER WITH STRETCHER BAR ATTACHMENT



BARBED WIRE FENCE SUPPORT ARM

END, GATE OR BRACE POST WITH STRETCHER BAR ATTACHMENT



ELEVATION VIEW

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

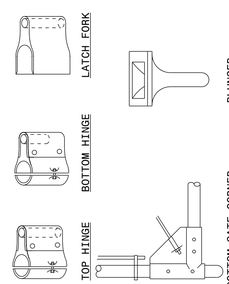
ENGLISH DETAIL DRAWING FOR

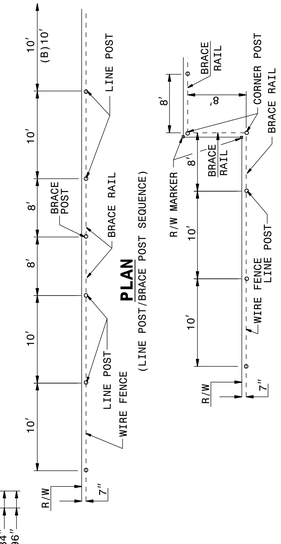
CHAIN LINK FENCE WITH BARBED WIRE

6', 7' AND 8' HEIGHT

SHEET 2 OF 2 **fence4cl**

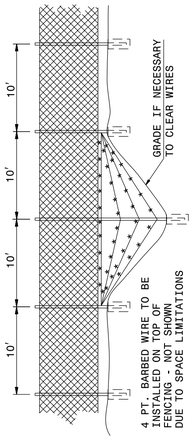
NOTE: FENCE HARDWARE VARIES DUE TO DIFFERING MANUFACTURES SUPPLIES.



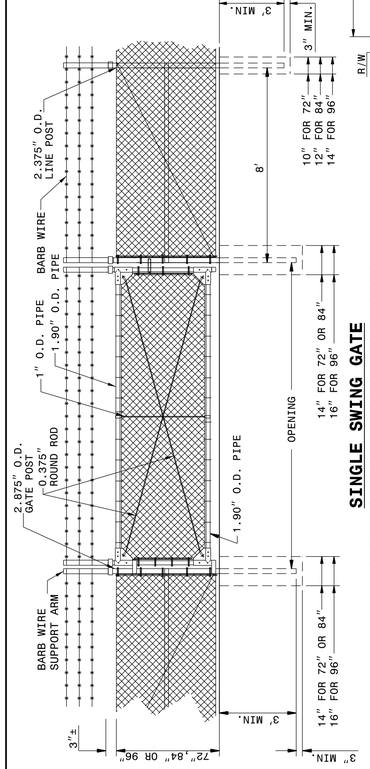


PLAN
(LINE POST/BRACE POST SEQUENCE)

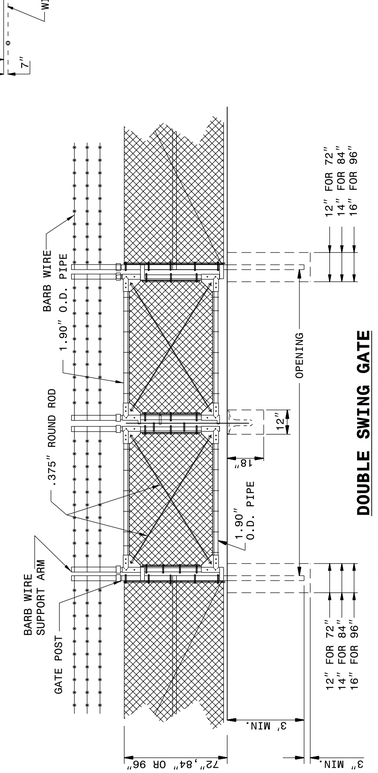
PLAN
PLACEMENT OF FENCE ALONG RIGHT OF WAY
(ALL CORNER POSTS ARE TO BE BRACED AS SHOWN ABOVE)



DETAIL OF DITCH CROSSING



SINGLE SWING GATE
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED



DOUBLE SWING GATE
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED

MAXIMUM WIRE SPACING TO BE 6".
MAXIMUM CLEARANCE BETWEEN LOWEST STRAND AND GROUND TO BE 6".
BRACE POSTS SHALL BE ERECTED BETWEEN END, CORNER OR GATE POSTS AT INTERVALS NOT EXCEEDING 700' ON TANGENTS OR 350' ON SHORT RADIUS CURVES.
ADDITIONAL BRACE POSTS SHALL BE ERECTED IF SO DIRECTED BY THE ENGINEER.
BRACE POSTS SHALL BE BRACED FROM BOTH SIDES OF POST.

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel Howerton

DocuSigned by:
Joel Howerton
873F3D17DCDC45F...

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ORIGINAL BY: N.T. KEGLERS DATE: MAR.11, 1996
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

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

ENGLISH DETAIL DRAWING FOR

CHAIN LINK FENCE WITH BARBED WIRE

6', 7' AND 8' HEIGHT

SHEET 1 OF 2 **fence4cl**

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

ENGLISH DETAIL DRAWING FOR

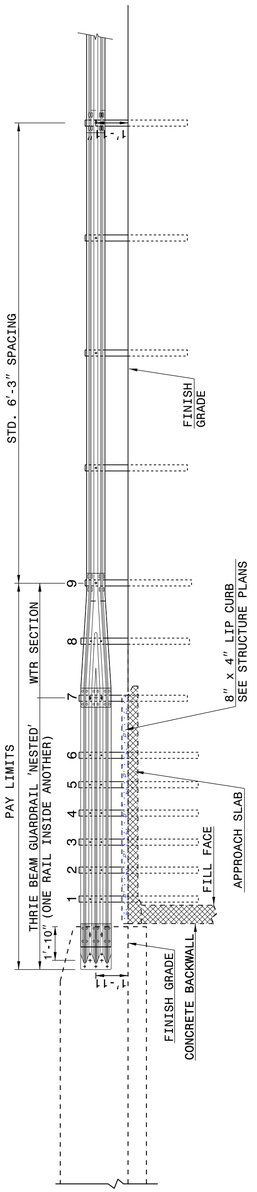
CHAIN LINK FENCE WITH BARBED WIRE

6', 7' AND 8' HEIGHT

SHEET 2 OF 2 **fence4cl**

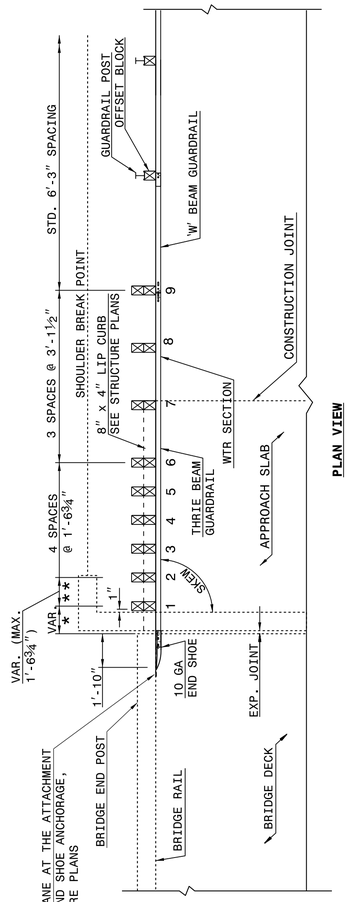
$$$$USERNAME$$$$
$$$$LOCATION$$$$
$$$$DATE$$$$
$$$$TIME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-10



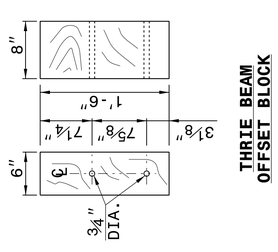
ELEVATION

NOTE:
-POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
-THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 1½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

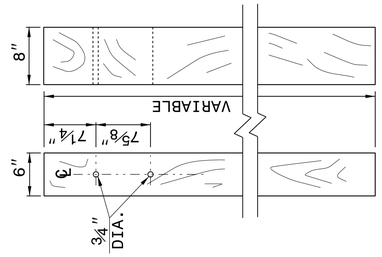


PLAN VIEW

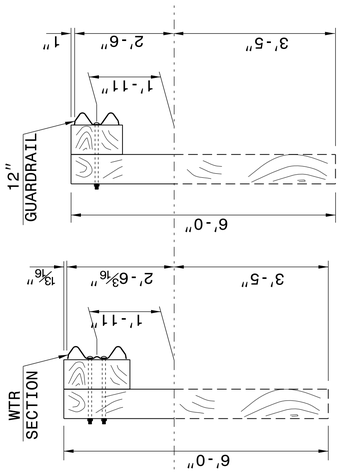
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER



THRIE BEAM OFFSET BLOCK

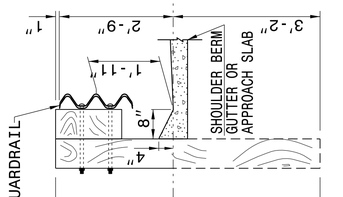


THRIE BEAM LINE POST

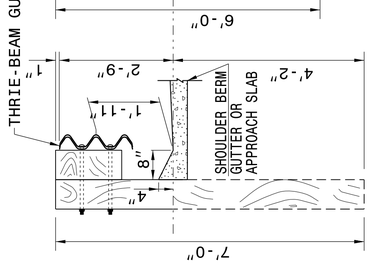


SECTION OF 'W' BEAM POST 9

SECTION OF WTR BEAM POST 8

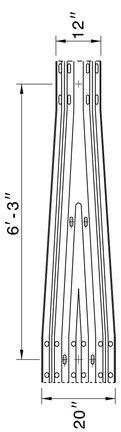


SECTION OF THRIE BEAM POST 7

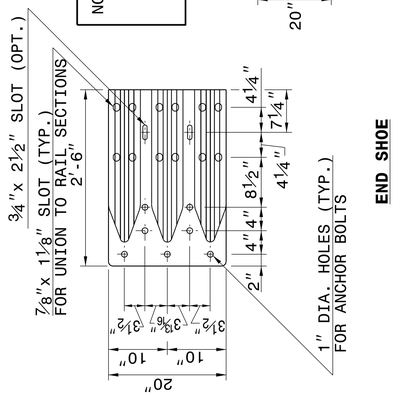


SECTION OF THRIE BEAM POSTS 1 THRU 6

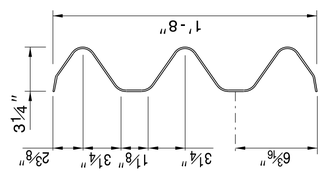
NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.



WTR SECTION
ELEVATION VIEW



END SHOE



THRIE-BEAM SECTION

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

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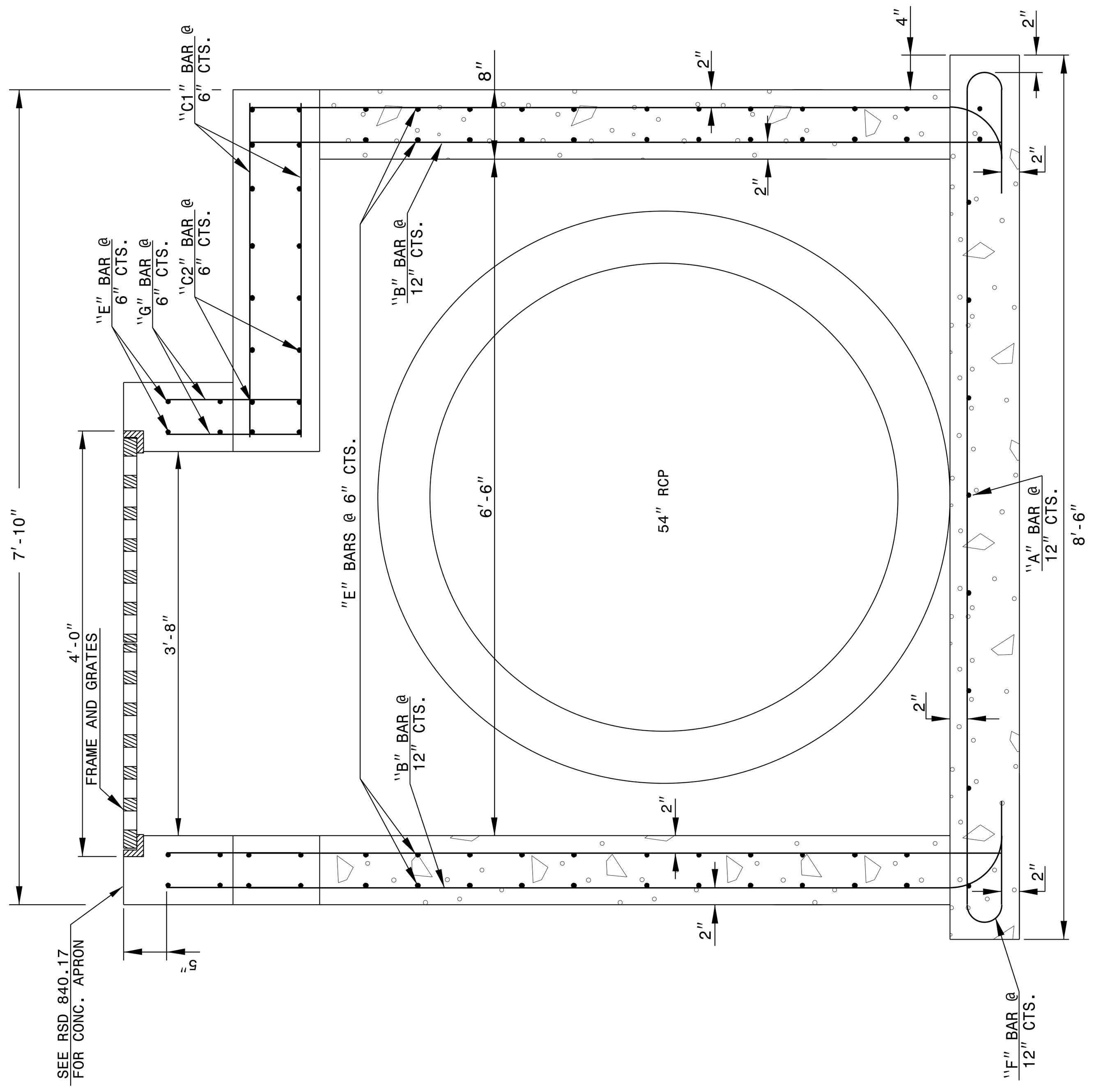
SEE TITLE BLOCK

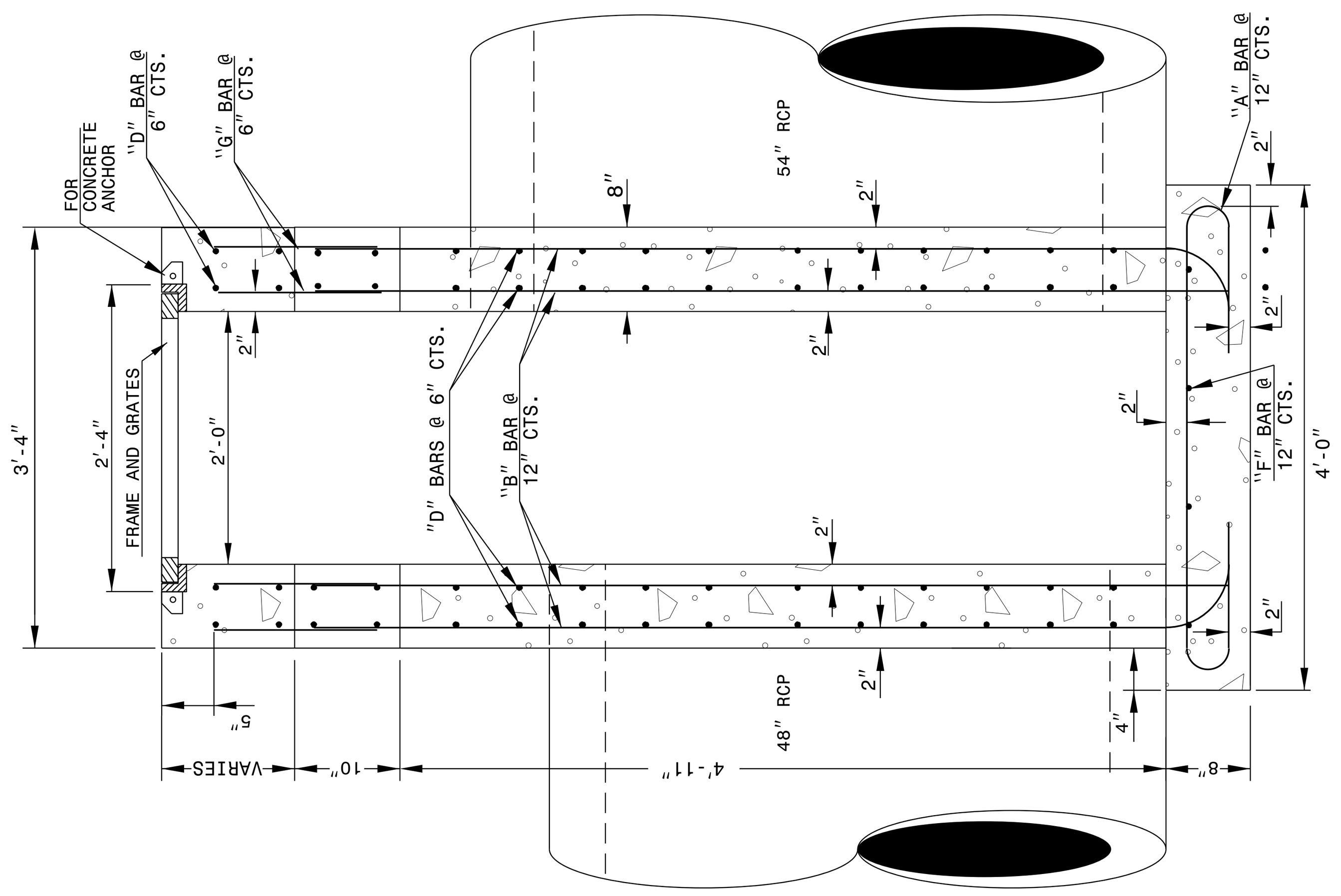
ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

$$$$USERNAME$$$$
$$$$SYSTIME$$$$
$$$$DATE$$$$
$$$$DESIGNATION$$$$

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING DROP INLET FOR FRAME AND GRATES
SHEET 1 OF 2 840D35
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING DROP INLET FOR FRAME AND GRATES
SHEET 2 OF 2 840D35



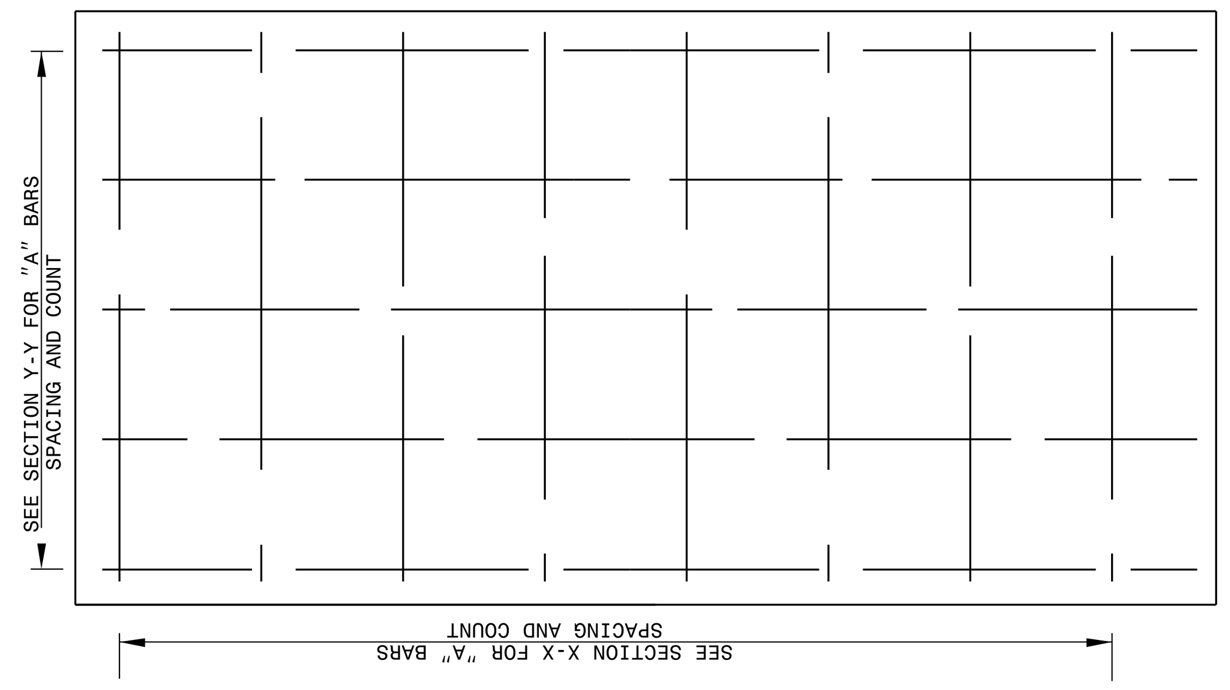
SECTION X-X



SECTION Y-Y

GENERAL NOTES:
- -CHAMFER ALL EXPOSED CONCRETE CORNERS 3".
- -USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
- -IF PIPES ARE SET IN THE BASE, FOLLOW CONSTRUCTION PROCEDURES SHOWN BY STD. DWG. 840.00.
- -PRECAST UNITS MADE OF CLASS "AA" CONCRETE MAY BE USED IN LIEU CAST IN PLACE CONCRETE.
- -REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
- -PROVIDE DROP INLETS OVER 3'-6" DEEP WITH STEPS AS DIRECTED BY STD. DWG. 840.66.
- -FRAME AND GRATES SHALL BE SEPARATE CONTRACT ITEM.

NOTES:
- -HORIZONTAL AND VERTICAL DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGN REQUIRE.
- -ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.

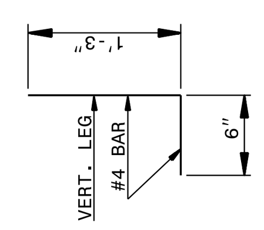


PLAN OF BASE

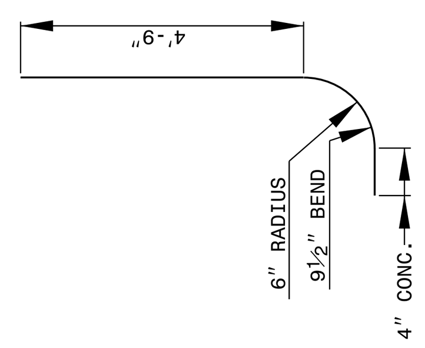
BILL OF MATERIALS

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#5	5'-0"	42	47
B	#5	7'-6"	104	780
C1	#5	3'-4"	9	32
C2	#5	3'-0"	6	19
D	#5	7'-6"	48	376
E	#5	3'-0"	48	151
F	#5	10'-0"	4	42
G	#5	1'-8"	104	181
REINF. STEEL (TOTAL WEIGHT LBS.)				1628
CONCRETE TOTAL (CU.YDS.)				5.1
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES				

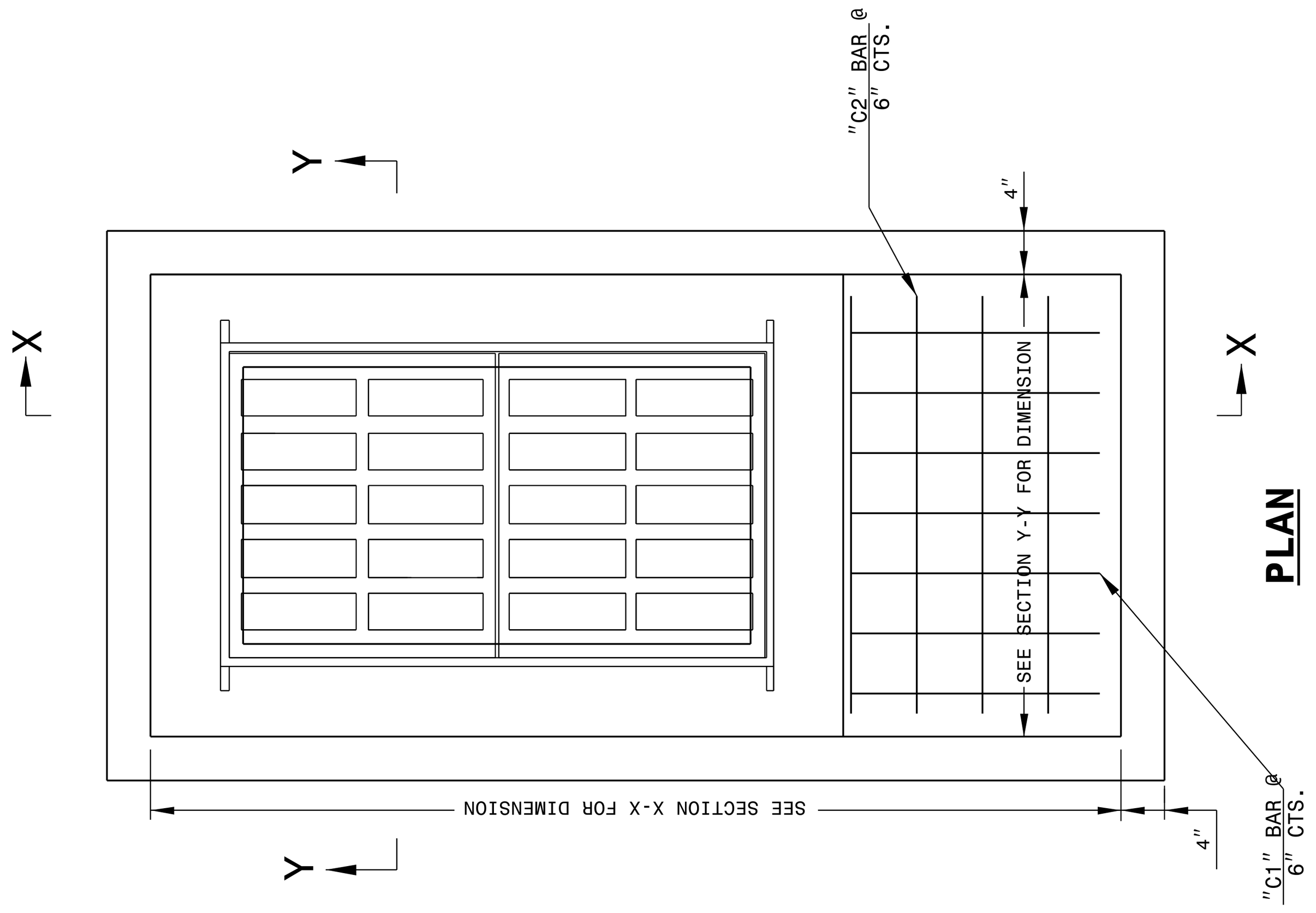
FOR EVERY 1 FOOT OF RISER USE 0.41 CU.YDS CONCRETE AND 390 LBS STEEL.



DOWEL-H

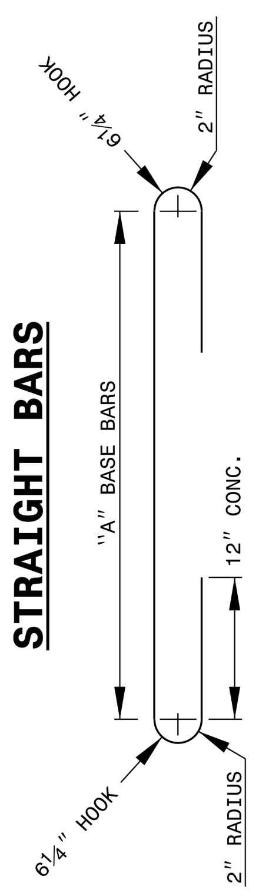


CORNER BARS



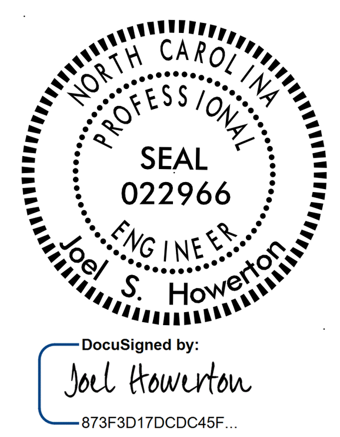
PLAN

STRAIGHT BARS



BASE BARS

3/3/2016



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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
FOR FRAME AND GRATES

SHEET 1 OF 2 **840D35**

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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
FOR FRAME AND GRATES

SHEET 2 OF 2 **840D35**

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CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: K. KEMPF DATE: 03-03-2015
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: kkempf\english\B5121-B5317_840d35_54_TB2GI.dgn

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

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-12

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

ENGLISH DETAIL DRAWING FOR

PRECAST MANHOLE 8' AND 9' DIAMETER

SHEET 1 OF 1

840D52

GENERAL NOTES

USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.

DESIGN, FABRICATE AND ASSEMBLE PRECAST MANHOLE COMPONENTS IN ACCORDANCE WITH AASHTO M199.

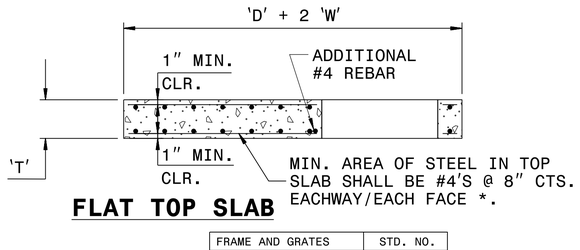
ASSEMBLE RISER AND GRADE RINGS WITH STEPS SPACED 16″ FROM THE TOP TO THE BOTTOM OF THE MANHOLE.

WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, THE TOP OF THE MANHOLE IS TO BE FLUSH WITH THE GROUND. AT OTHER LOCATIONS IT SHOULD BE A MINIMUM OF 9″ ABOVE THE GROUND.

DEPTH OF FILL LIMITED TO 30′-0″ FROM FINSH GRADE TO TOP OF BOTTOM SLAB.

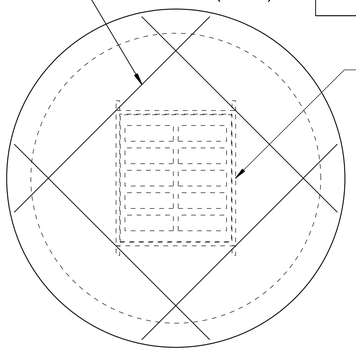
THE MIN. SLAB THICKNESS 'T' SHALL BE THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.

* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

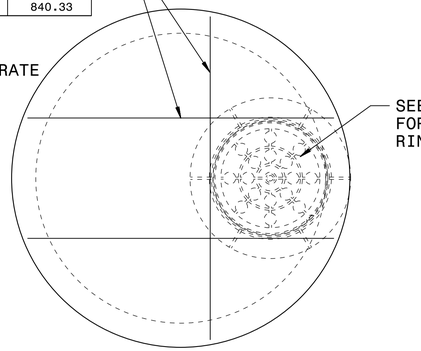


FLAT TOP SLAB

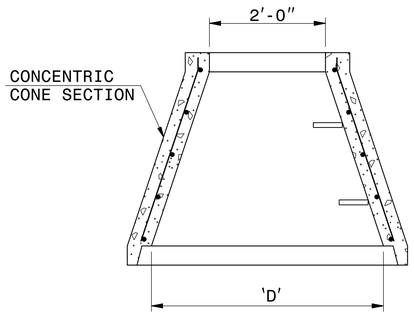
FRAME AND GRATES	STD. NO.
TRAFFIC BEARING	840.37
NONTRAFFIC BEARING:	840.22
	840.24
	840.20
	840.29
	840.33



GRATED INLET OPTION

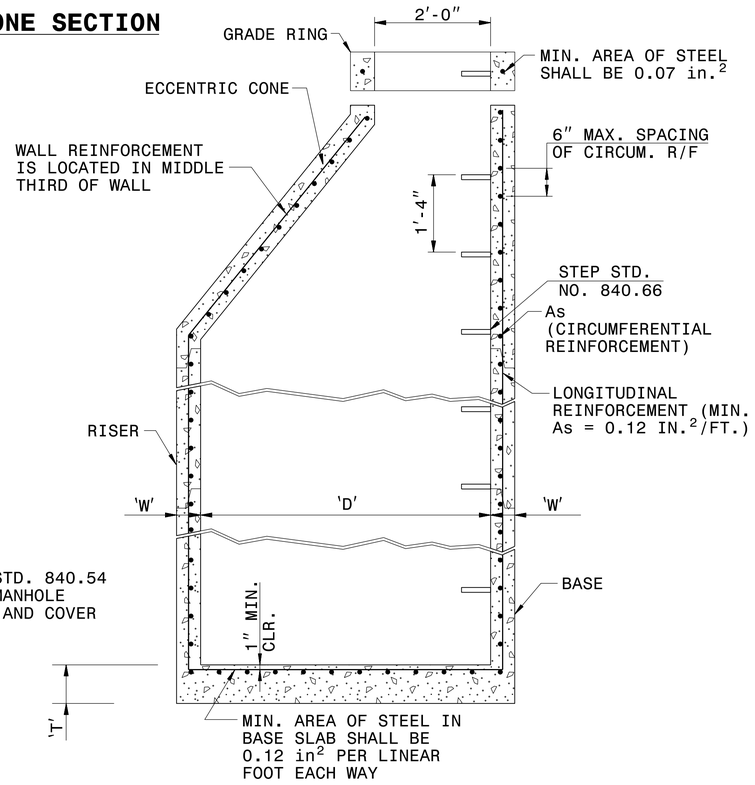


MANHOLE OPTION



ALTERNATE CONE SECTION

D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
8	8.5	8	0.24
9	9.0	9	0.27



TYPICAL MANHOLE SECTION

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

PRECAST MANHOLE 8' AND 9' DIAMETER

SHEET OF

840D52

6/7/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: T.S.Spell DATE: 7-17-00
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: ds174:usr/details/stand/840d52_8&9.dgn

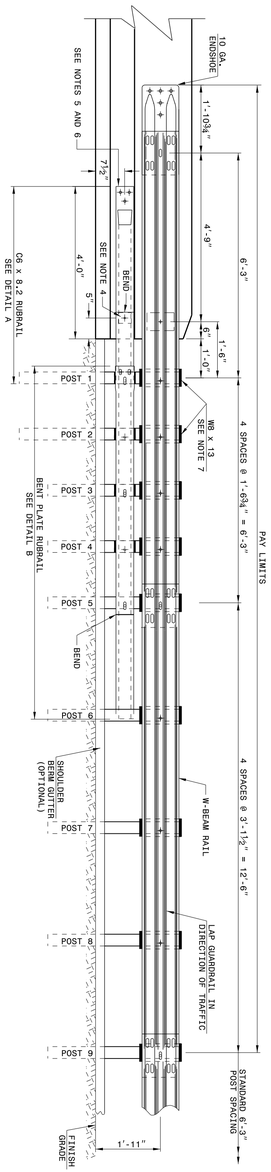
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-13

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

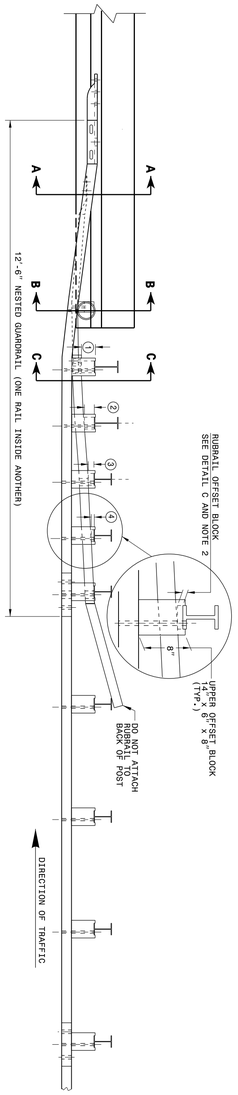
ENGLISH DETAIL DRAWING FOR
GUARDRAIL ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

SHEET 4 OF 7
862D03

ELEVATION



PLAN



GENERAL NOTES:
1) REQUIRES AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET VERTICALLY AND GROUPED WITH ⅝", BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3 WITH A ⅝" x 4½" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH ⅝" x 4½" BUTTONHEAD BOLT AND GALVANIZED PLATE WASHER.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE ¾" x 3" LAG BOLT WITH FLAT WASHER.
5) SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
6) ANCHORAGE:
   (a) FOR EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE ⅝" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1½". ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04).
   (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01).
   INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
   (c) FOR BRIDGE RAIL, ANCHORAGE IS DETAILED ON THE STRUCTURE PLANS.
7) POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

STATE OF
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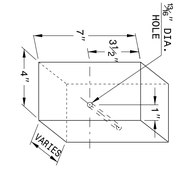
DIVISION OF HIGHWAYS
RALEIGH, N.C.

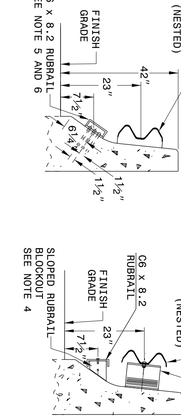
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

SHEET 5 OF 7
862D03

SECTION A-A



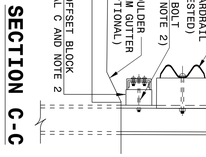
SECTION B-B



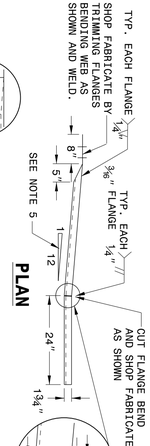
RUBRAIL BLOCKS 7" HIGH x 4" WIDE			
POST	THICKNESS	BOLT	LENGTH
①	4½"		9"
②	3¼"		5" *
③	2"		6"
④	1"		3" *

* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACHED TO BLOCK. RUBRAIL NOT

SECTION C-C

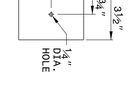


DETAIL C
RUBRAIL BLOCKOUT

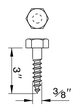


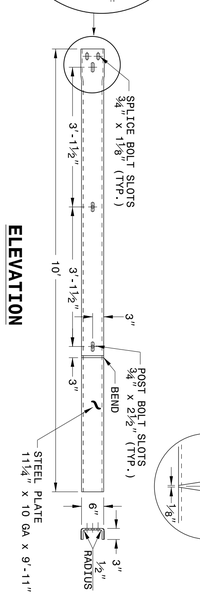
PLAN

FRONT SIDE
DETAIL D
SLOPED RUBRAIL BLOCKOUT



DETAIL E
LAG BOLT





ELEVATION
DETAIL A
C6 x 8.2 RUBRAIL

ELEVATION
DETAIL B
BENT PLATE RUBRAIL

SIDE FRONT
DETAIL F STEEL POST
"W8 X 13 X 7'-6"

GUARDRAIL ANCHOR UNIT TYPE B-77

3/3/2016

SEAL 022966 ENGINEER Joel S. Howerton
DocuSigned by: Joel Howerton 873F3D17DCDC45F...

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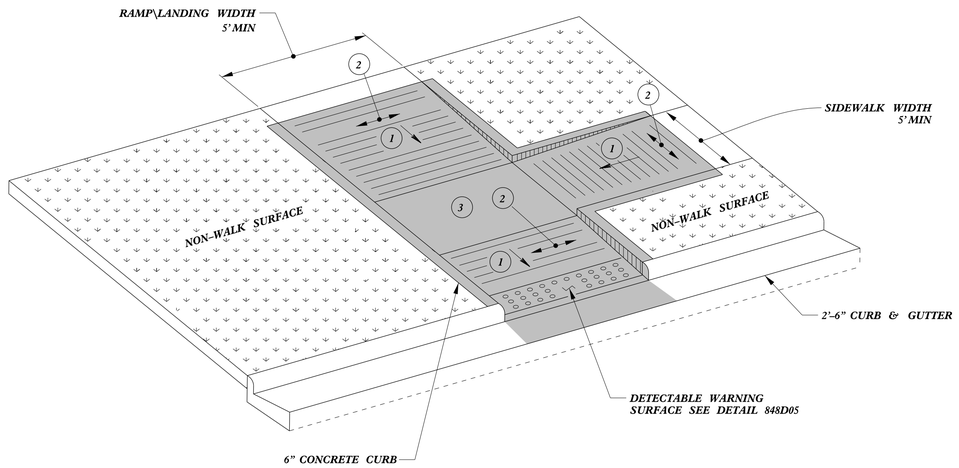
SEE TITLE BLOCK

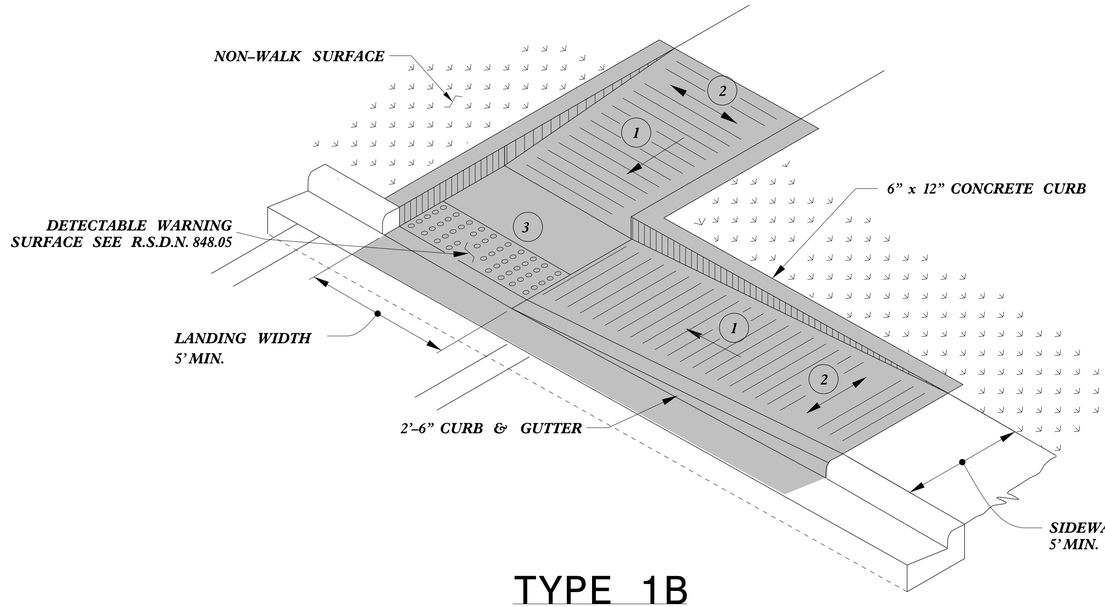
ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGNFILE$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-14



TYPE 3A



TYPE 1B

3/3/2016

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

(1) *8.33% (12:1) MAX RAMP SLOPE*

(2) *CROSS SLOPE: 2.00%*

(3) *CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*

PAY LIMITS FOR 1 CURB RAMP

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

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CURB RAMPS

Directional Ramps

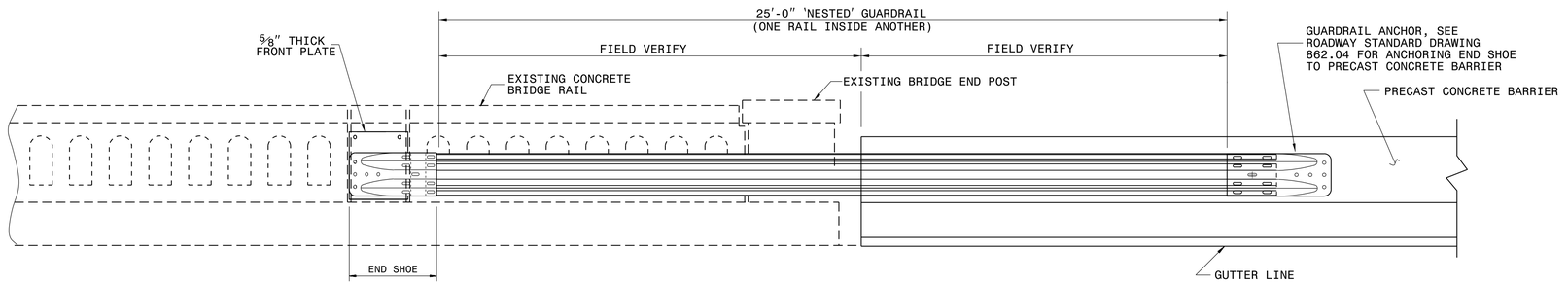
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn

5/14/99

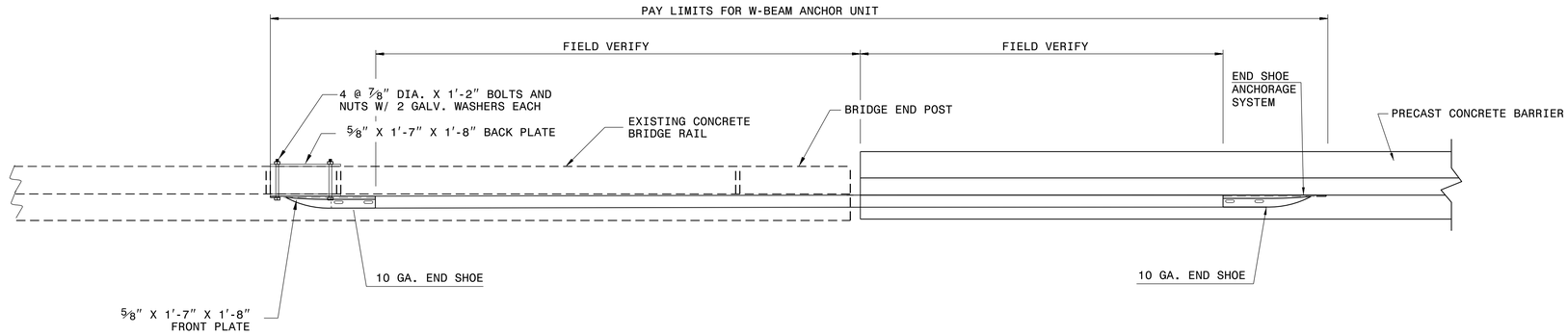
$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$SCALE$$$$ $$$$DGNFILE$$$$

5/14/99

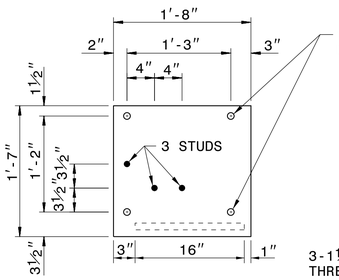
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-15



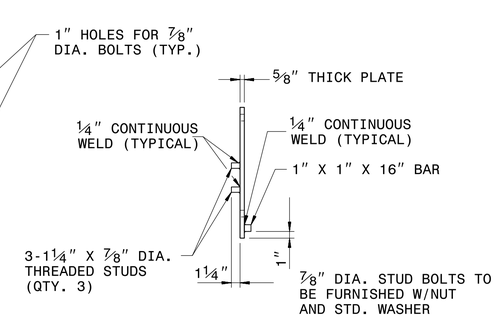
ELEVATION VIEW



PLAN VIEW

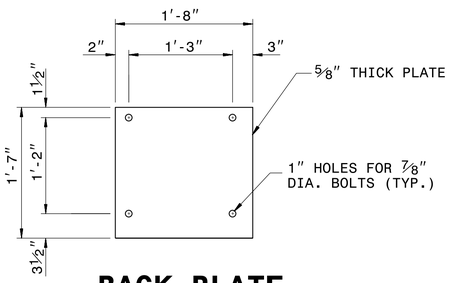


FRONT VIEW



SIDE VIEW

FRONT PLATE



BACK PLATE

GENERAL NOTES:
1. CONFORM NUTS, BOLTS, AND WASHERS TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS..
2. TAP NUTS FOR THE 7/8" DIA. STUD BOLTS PLATE AFTER GALVANIZING SEE A.S.T.M. A-563.
3. CONFORM PLATES AND TUBES TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZE AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS..
4. DRILL ADDITIONAL FIELD HOLES IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
5. KEEP TOE OF PRECAST CONCRETE BARRIER FLUSH WITH FACE OF PARAPET.

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

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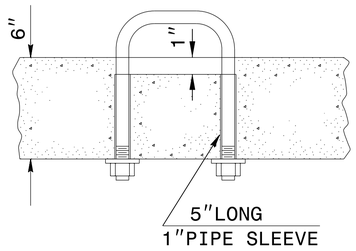
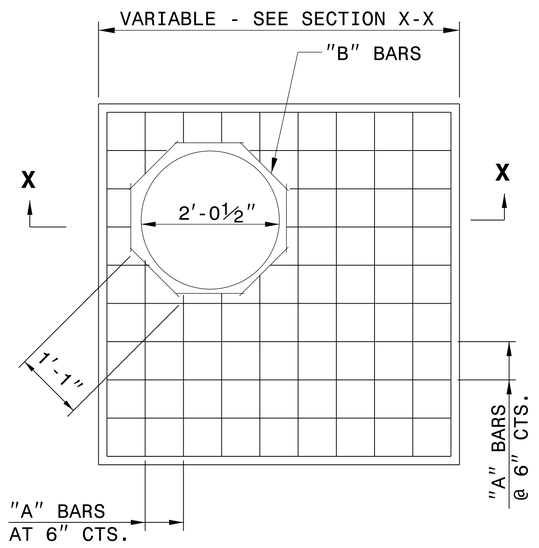
ANCHOR UNIT TYPE W BEAM

ORIGINAL BY: C.O. CUEVAS DATE: 8-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: ds182:\usr\cesar\english\anchor.dgn

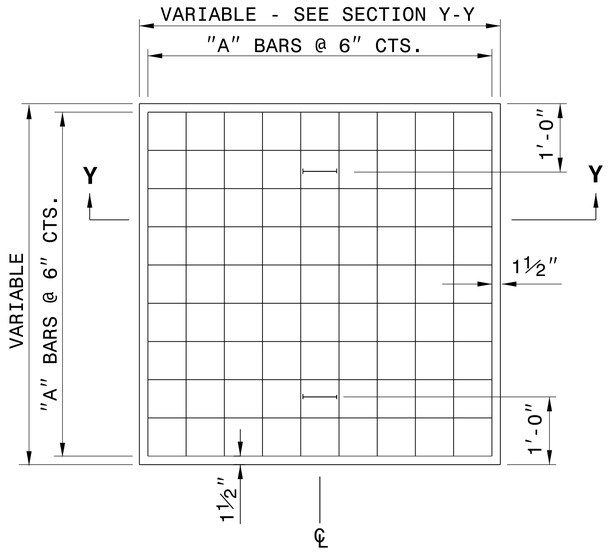
PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-16



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

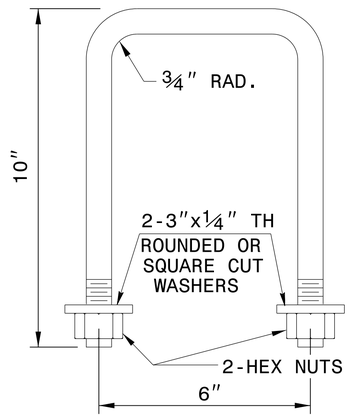
BILL OF MATERIALS

REINFORCING STEEL

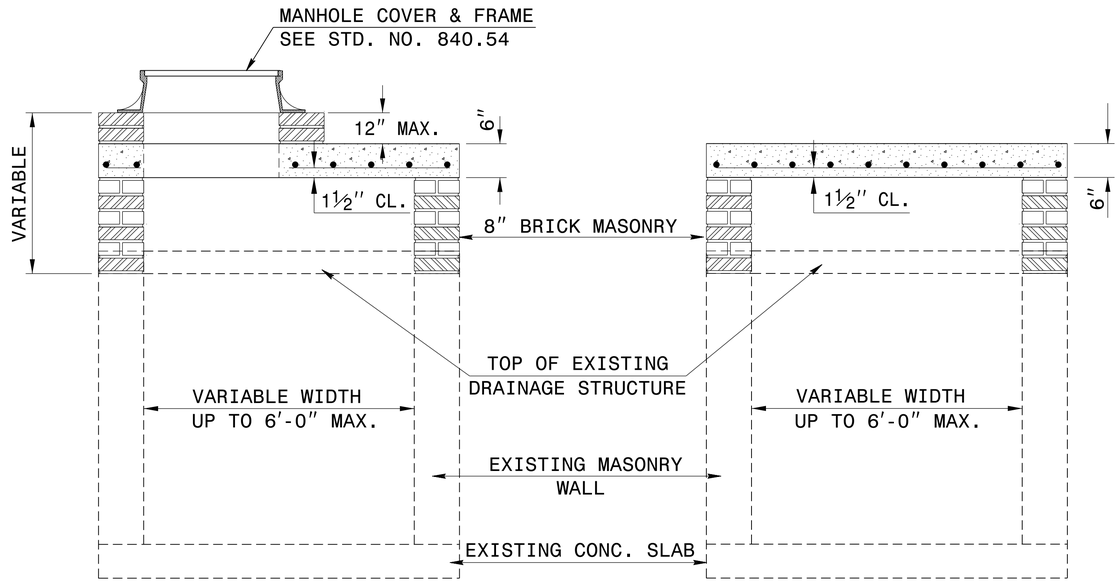
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

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

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



DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

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3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

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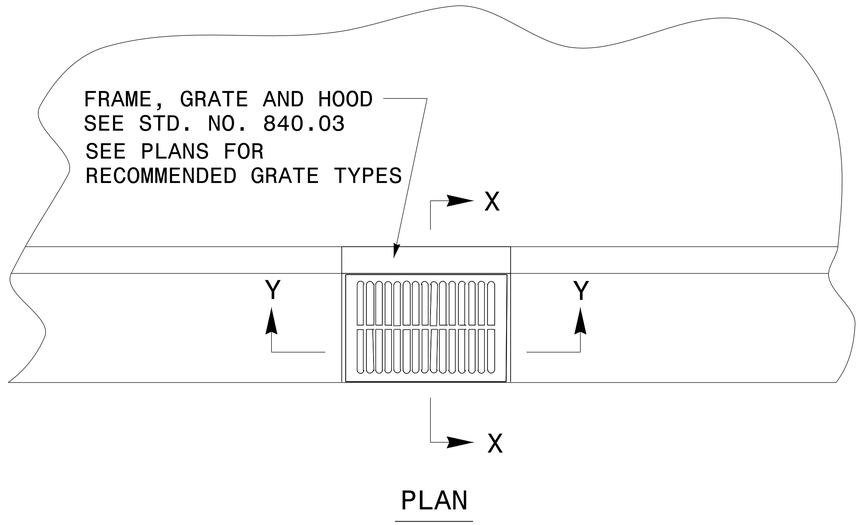
DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

$$$$ USERNAME $$$$
$$$$ USERNAME $$$$
$$$$ SCENAME $$$$
$$$$ SCENAME $$$$
$$$$ SUN $$$$
$$$$ SUN $$$$
$$$$ TIME $$$$
$$$$ TIME $$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-17

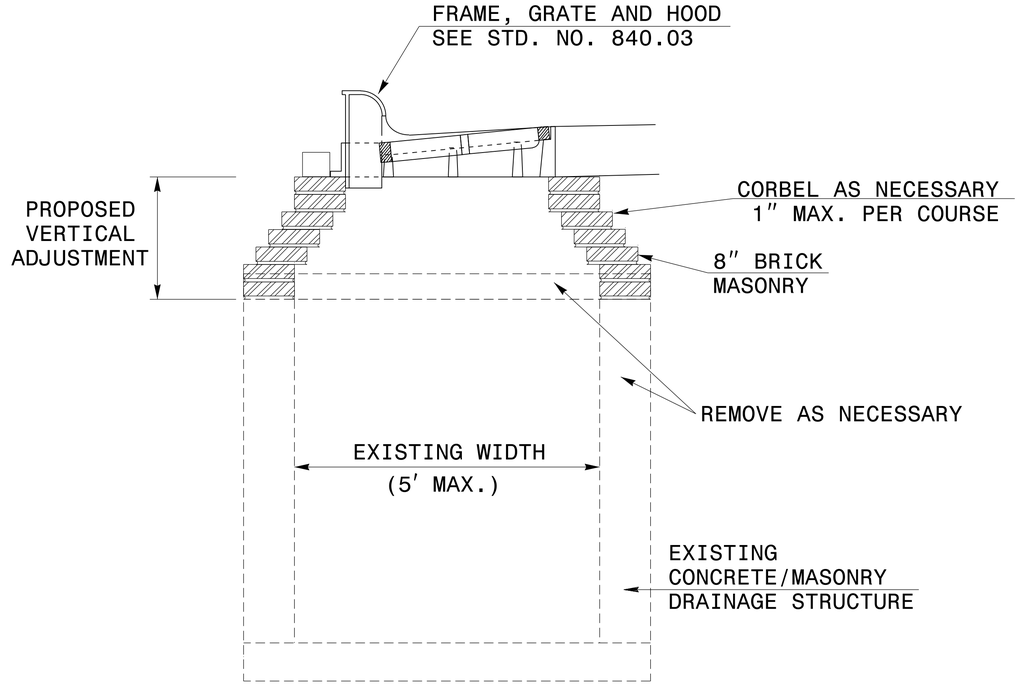
5/14/99



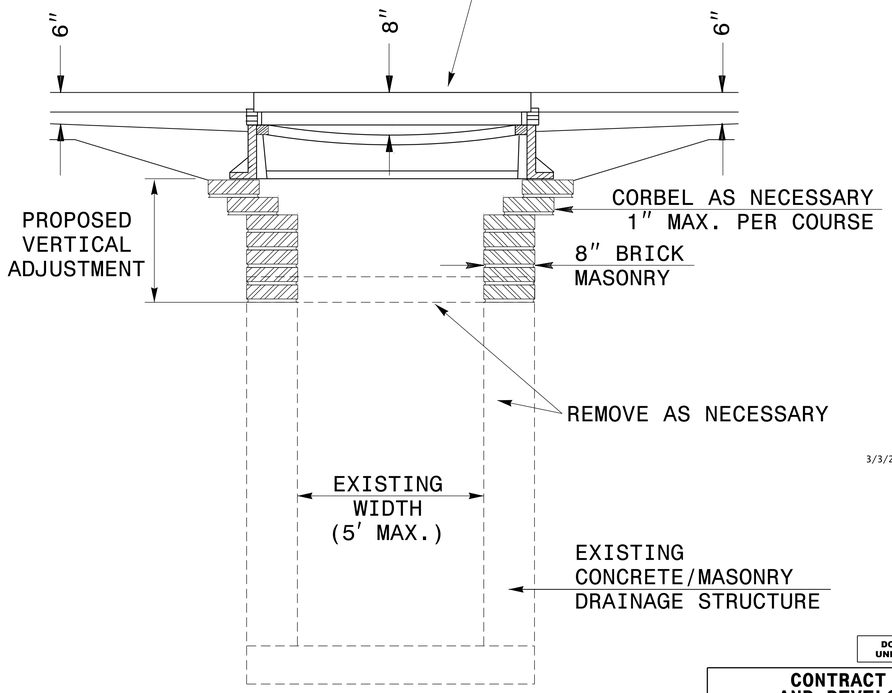
PLAN

GENERAL NOTES:

- THE ROADWAY PLANS INDICATE STRUCTURES TO BE CONVERTED.
- AFTER REMOVAL, STORE GRATES AND FRAMES AS DIRECTED BY THE ENGINEER.
- 4″ SOLID CLAY BRICK, JUMBO BRICK, CONCRETE, OR 4″ SOLID CONCRETE BLOCK MAY BE USED FOR VERTICAL ADJUSTMENT OF THE STRUCTURE.
- CONVERT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.



SECTION X-X



SECTION Y-Y

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

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Office 919-707-6950 FAX 919-250-4119

CONVERSION OF DROP INLET OR JUNCTION BOX TO CATCH BASIN

ORIGINAL BY: E.E. WARD DATE: 11-97
MODIFIED BY: DATE:
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5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	2D-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE
Jeff Moore
6/1/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING
DocuSigned by: Jason Lawing
6/1/2016

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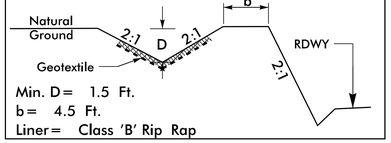
DRAINAGE DETAILS

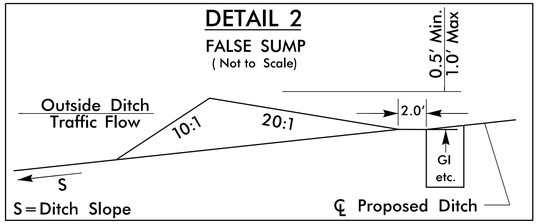
DETAIL 1
BERM 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
b = 4.5 Ft.
Liner = Class 'B' Rip Rap

FROM –Y1– STA. 20+65 TO STA. 21+50 (RT)
FROM –Y1RPC– STA. 16+65 TO STA. 18+33.19 (RT)
SEE SHEET 5

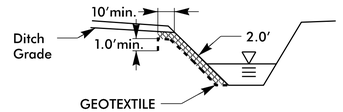
DETAIL 2
FALSE SUMP
(Not to Scale)



S = Ditch Slope
℄ Proposed Ditch

–Y1RPD– 13+00 (LT)
SEE SHEET 5
–G1– 11+37 (RT)
SEE SHEETS 2B–4 AND 7

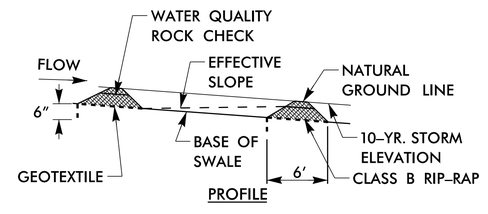
DETAIL 3
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = Class II Rip–Rap

FROM –L– STA 49+45 TO 51+80 (LT)
–Y8– STA 10+95 (LT)
SEE SHEETS 2B–4 AND 7

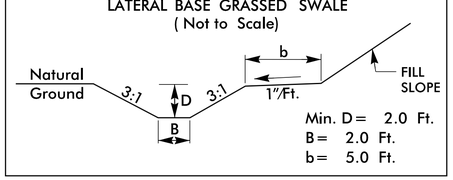
DETAIL 7
SPECIAL ROCK CHECK DAM
(Not to Scale)



TYPICAL SECTION

FROM –FLYOVER– STA 22+12 TO STA 23+70 (RT)
SEE SHEET 7

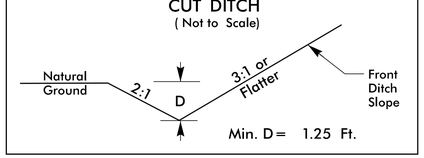
DETAIL 4
LATERAL BASE GRASSED SWALE
(Not to Scale)



Min. D = 2.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

FROM –FLYOVER– STA 22+12 TO STA 23+70 (RT)
SEE SHEET 7

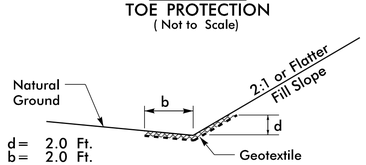
DETAIL 5
CUT DITCH
(Not to Scale)



Min. D = 1.25 Ft.

FROM –L– STA 51+00 TO STA 52+90 (RT)
FROM –FLYOVER– STA 13+25 TO STA 14+70 (RT)
SEE SHEET 7
FROM –Y1– STA 16+70 TO STA 17+27 (LT)
SEE SHEETS 5 AND 8

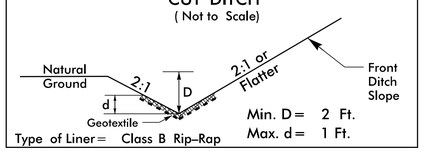
DETAIL 6
TOE PROTECTION
(Not to Scale)



d = 2.0 Ft.
b = 2.0 Ft.
Type of Liner = Class 'B' Rip–Rap

FROM –L– STA 47+50 TO STA 48+25 (RT)
SEE SHEET 7

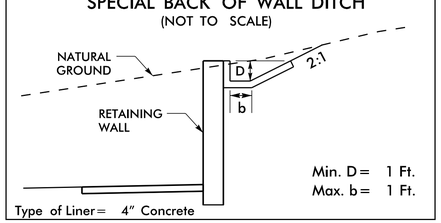
DETAIL 8
CUT DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 1 Ft.
Type of Liner = Class B Rip–Rap

FROM –G1– STA 10+25 TO STA 11+28 (RT)
SEE SHEET 7 AND SHEET 2B–4

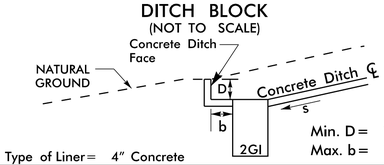
DETAIL 9
SPECIAL BACK OF WALL DITCH
(NOT TO SCALE)



Min. D = 1 Ft.
Max. b = 1 Ft.
Type of Liner = 4" Concrete

FROM –FLYOVER– STA 14+70 TO STA 15+71 (RT)
FROM –FLYOVER– STA 17+11 TO STA 17+60 (RT)
SEE SHEET 7

DETAIL 10
DITCH BLOCK
(NOT TO SCALE)



Min. D = 1 Ft.
Max. b = 1 Ft.
Type of Liner = 4" Concrete

–FLYOVER– STA 17+62 (RT)
SEE SHEET 7

6/01/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden 2/1/2016 F760CAEB96EC4D3... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

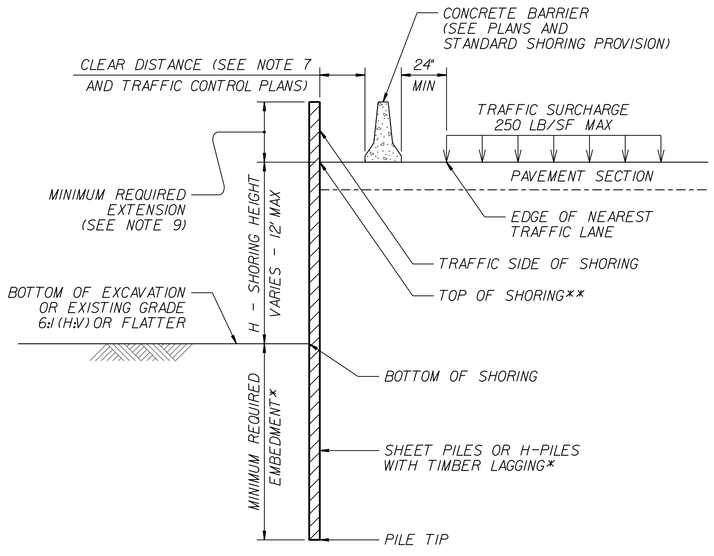
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

***DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

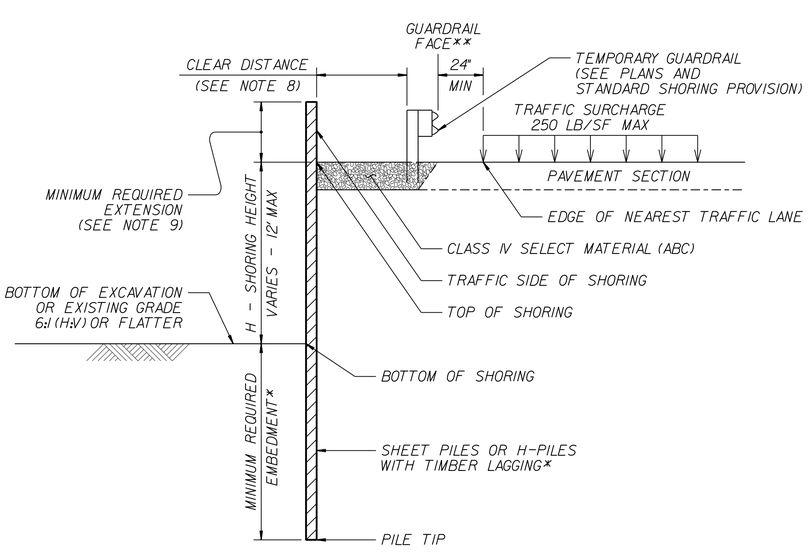
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



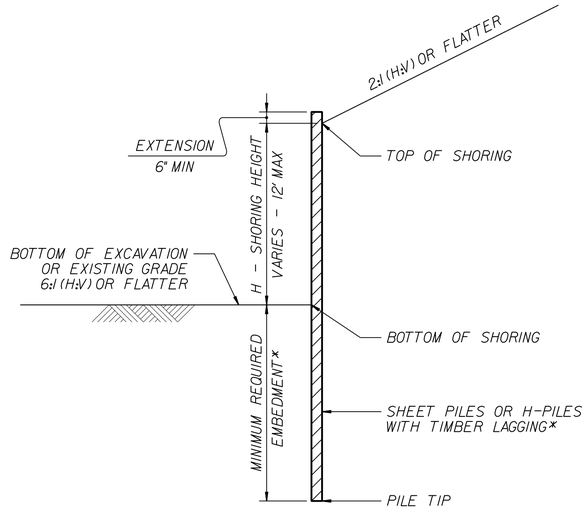
CONCRETE BARRIER

****TOP OF SHORING = EDGE OF PAVEMENT**



TEMPORARY GUARDRAIL

****GUARDRAIL FACE = EDGE OF PAVEMENT**



STANDARD TEMPORARY SHORING

(SLOPE CASE)

***SEE TABLE ABOVE.**

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

***SEE TABLE ABOVE.**

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01
STANDARD TEMPORARY SHORING
DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2G-2

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

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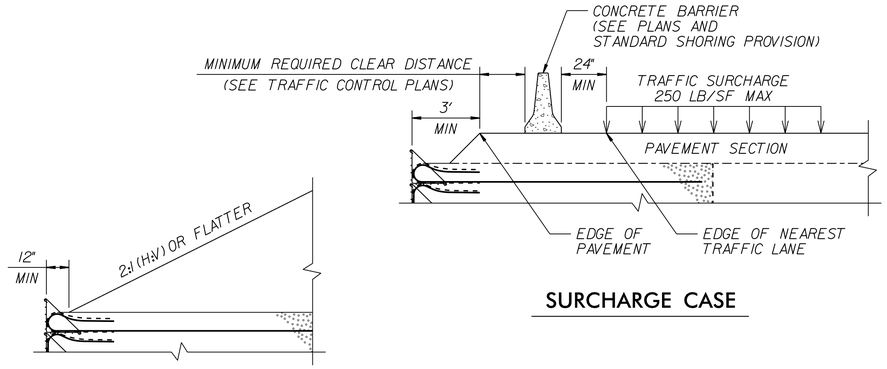
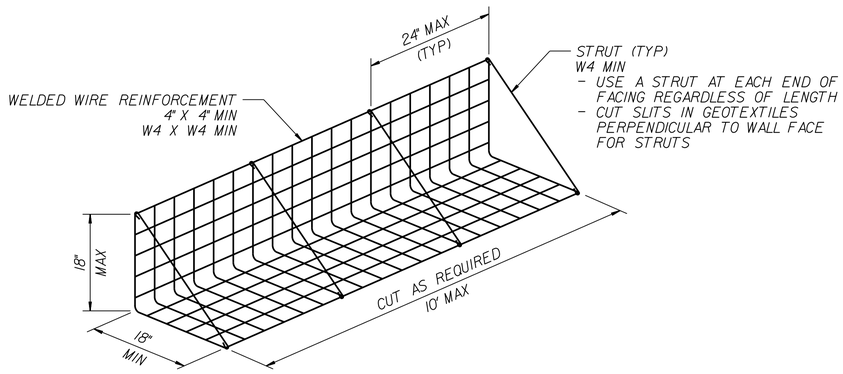
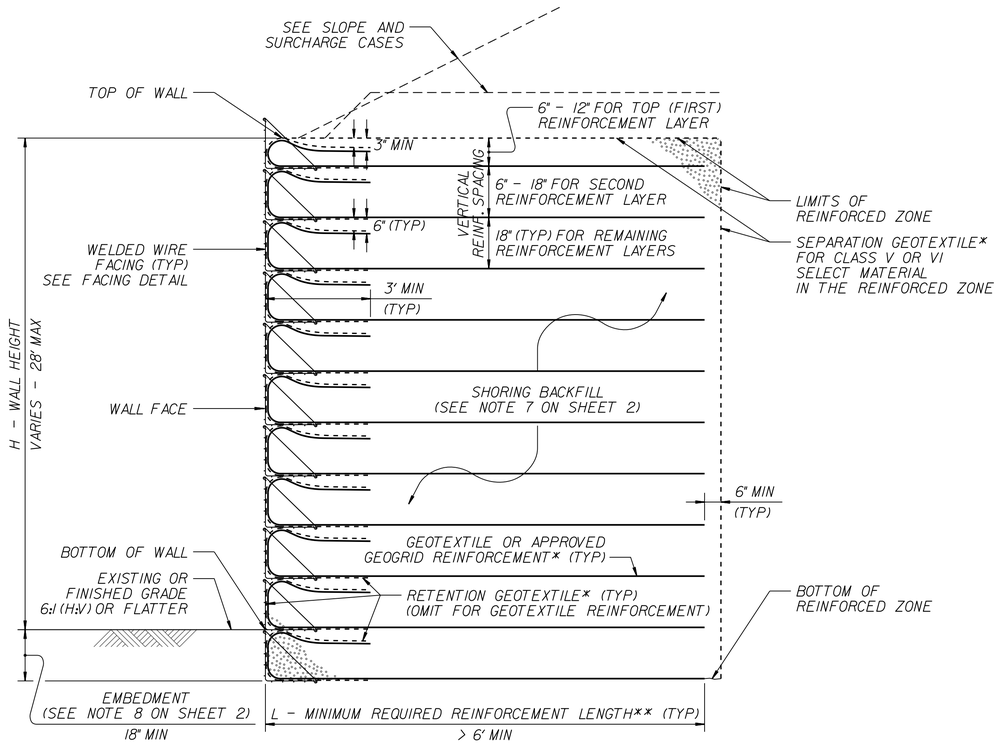


SURCHARGE CASE

SLOPE CASE

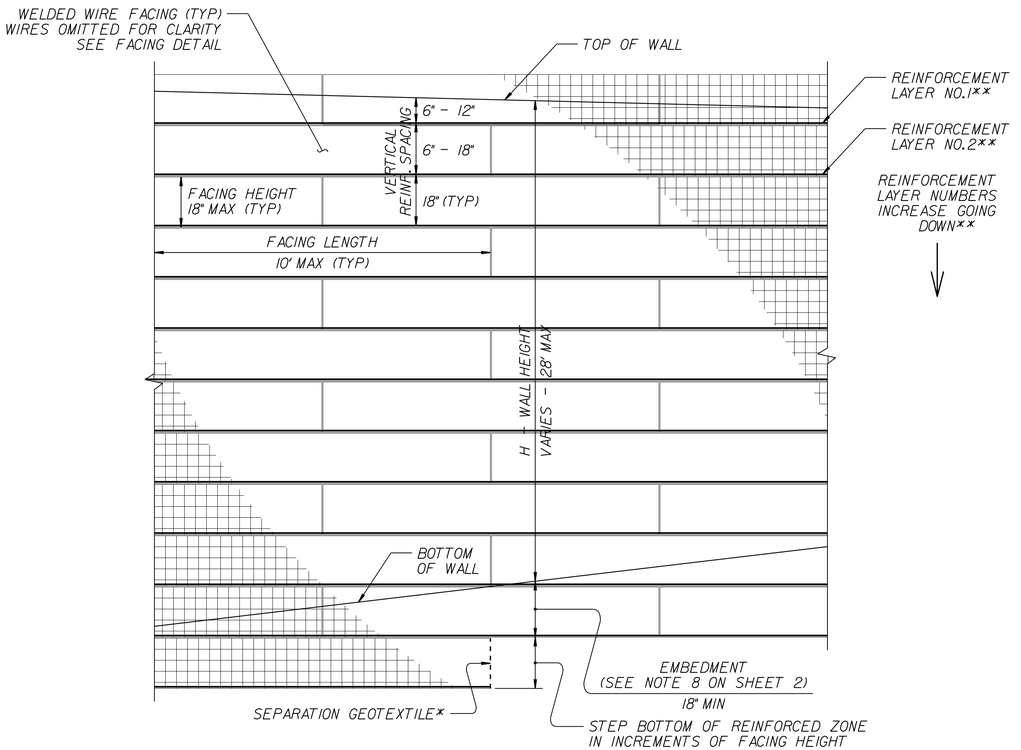


FACING DETAIL



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 1 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2G-3

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

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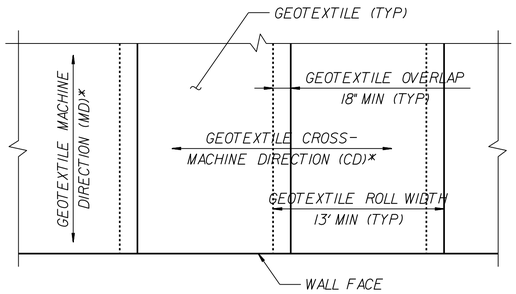
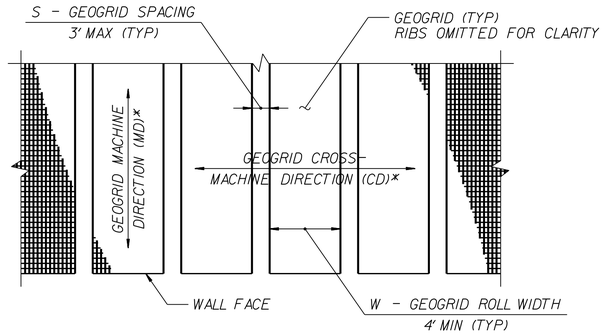


GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

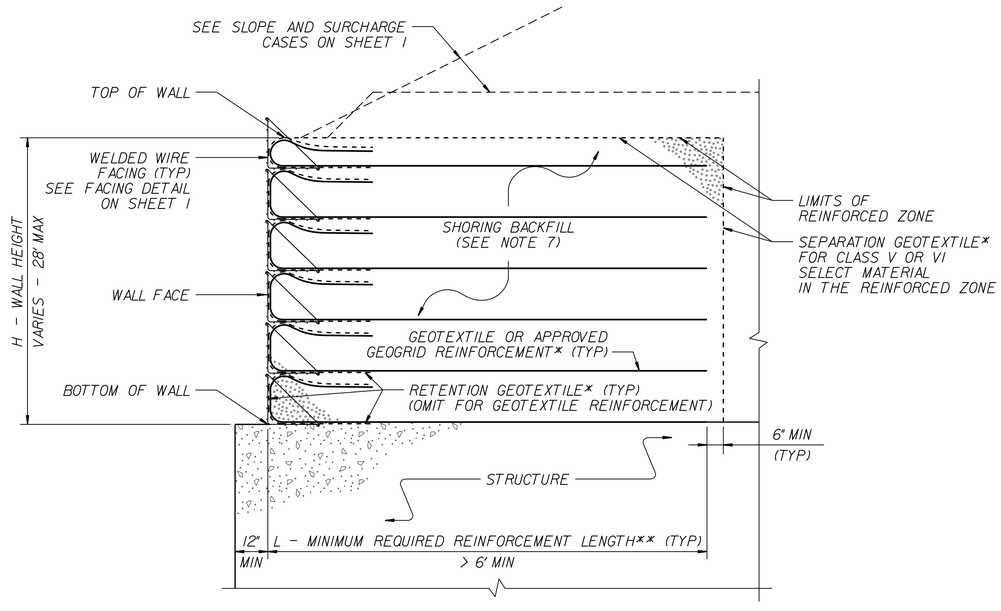


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT – $\frac{W}{W+S}$ x 100 $\geq$ 80%, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

    IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) $\geq$ (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD $\geq$ MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD TEMPORARY WALL SHEET 2 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2G-4

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden 2/1/2016 F760CAEB9EFC4D3...

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II,TYPE I, CLASS III,CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II,TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L – MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT–TERM DESIGN STRENGTH (LB/FT)

(SEE NOTE 10 ON SHEET 2.)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD TEMPORARY WALL
SHEET 3 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2G-5

GEOTECHNICAL ENGINEER

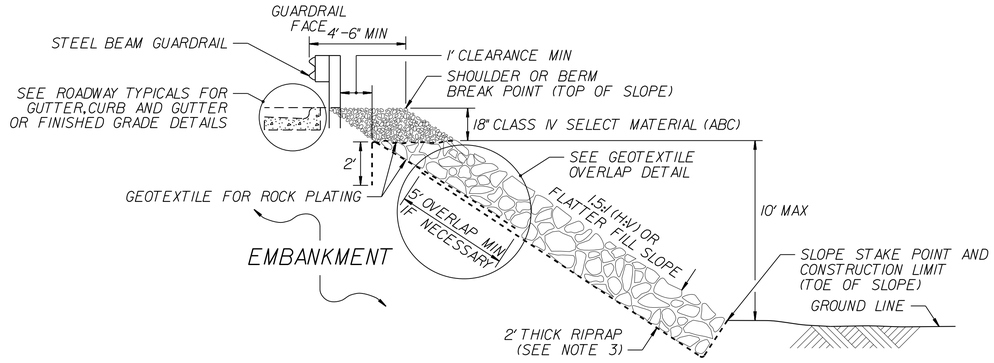
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden 2/16/2016
F760CAEB96EC4D3... SIGNATURE DATE

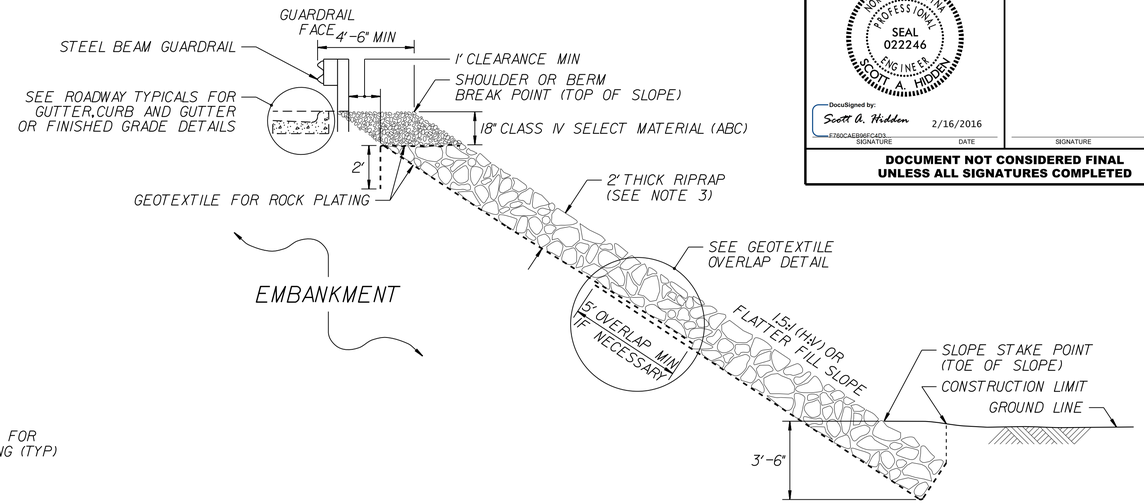
ENGINEER

SIGNATURE DATE

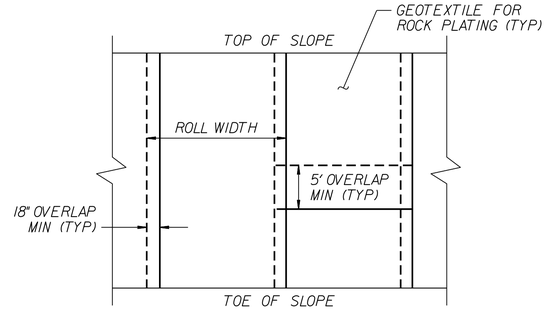
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



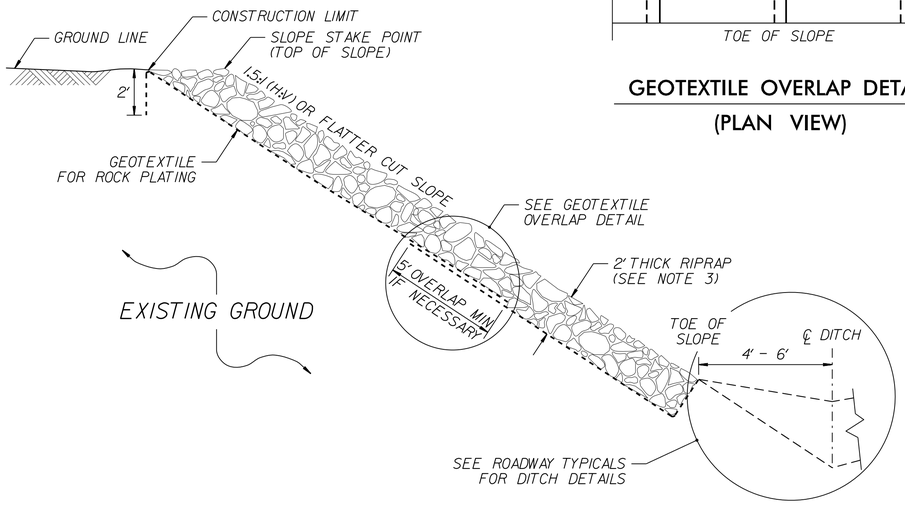
ROCK PLATING DETAIL NO. 1 – TYPICAL SECTION



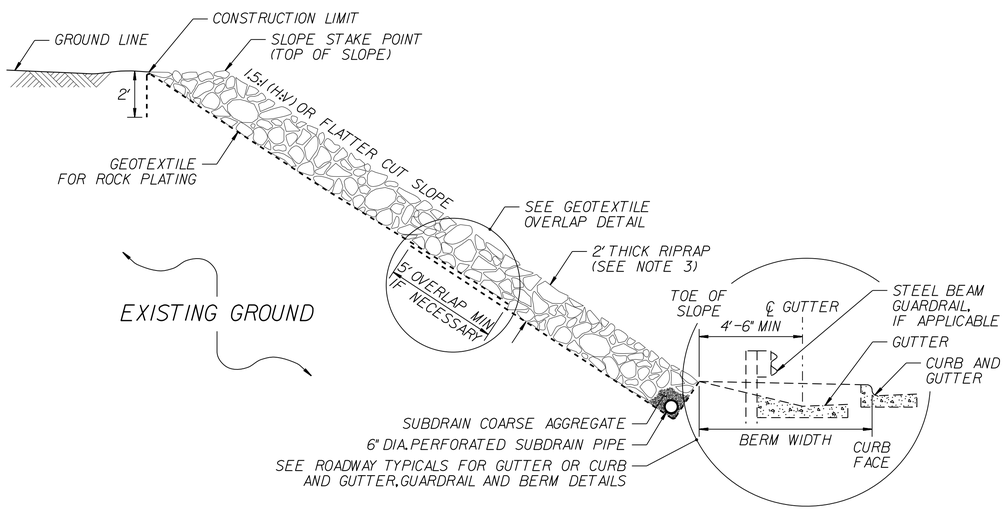
ROCK PLATING DETAIL NO. 2 – TYPICAL SECTION



GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)



ROCK PLATING DETAIL NO. 3 – TYPICAL SECTION



ROCK PLATING DETAIL NO. 4 – TYPICAL SECTION

NOTES:

1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
2. FOR STANDARD ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
3. USE CLASS I, 2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1802.01

STANDARD
ROCK PLATING

DATE: 2-19-13

PROJECT REFERENCE NO.	SHEET
B-5121/B-5317	2H-1

GEOENVIRONMENTAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31499 ENGINEER CYRUS F. PARKER

DocuSigned by: Cyrus F. Parker 1/21/2016
C96492AF5E824DF...

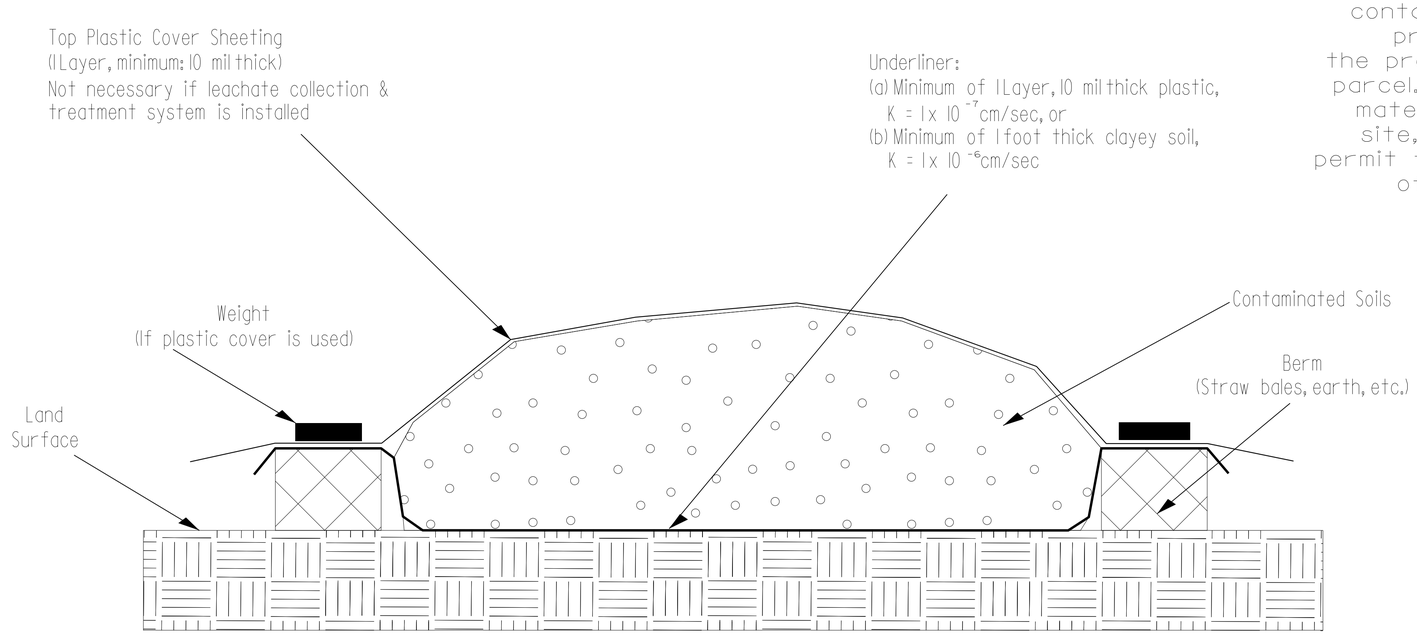
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

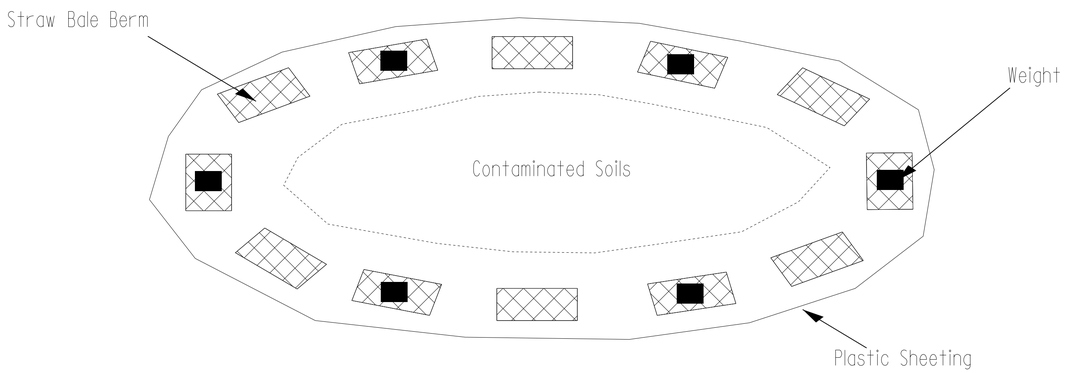
Detail for Temporary Containment of Contaminated Soil

Cross-Section View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section for off-site temporary storage.

Map View



PREPARED BY:	DATE:
REVIEWED BY:	DATE:

GEOTECHNICAL ENGINEERING UNIT

☐ EASTERN REGIONAL OFFICE
☐ WESTERN REGIONAL OFFICE
☒ CONTRACT OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STOCKPILE CONTAINMENT DETAIL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

5/28/99

COMPUTED BY: RSH DATE: 3/02/16
CHECKED BY: JWM DATE: 3/02/16

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	3B-1

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SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT EXCAVATION	EMBANKMENT +%	BORROW	TOTAL WASTE
AREA I					
SECTION 1 (PHASES I AND II)					
-L- 28+50.00 TO 49+11.45 (LT)	2675		5113	2438	
-Y8- 11+18.00 TO 12+84.88	330		5		325
-Y2RPB- 10+41.83 TO 15+83.50	95		448	353	
-Y9- 18+52.00 TO 19+24.48	115		10		105
SUBTOTAL (SECTION I)	3215		5576	2791	430
SECTION 2 (PHASES I AND II)					
-L- 28+50.00 TO 41+51.75 (RT)	2472		120		2352
-FLYOVER- 24+14.15 TO 24+84.08 (TEMP)	51				51
-FLYOVER- 15+20.00 TO 19+19.50	2713		3984	2671	1400
-FLYOVER- 21+76.69 TO 25+76.00	144		5975	5831	
-Y2RPA- 16+57.00 TO 18+38.40	203		96		107
-SBL- 10+00.00 TO 13+94.25	490		64		426
SUBTOTAL (SECTION 2)	6073		10239	8502	4336
SECTION 3 (PHASES III AND IV)					
-FLYOVER- 10+58.08 TO 15+20.00	460		450		10
-Y2LPC- 10+00.00 TO 12+70.48	1354		18		1336
-L- 47+50.00 TO 53+06.00 (MED)	201		156		45
-NBL- 10+00.00 TO 13+92.47	819		121		698
-L- 41+51.75 TO 49+11.15 (RT)	1071		364		707
-G1- 10+06.00 TO 15+16.72	2575		182		2393
-L- 28+50.00 TO 47+50.00 (MED)	577		640	63	
SUBTOTAL (SECTION 3)	7057		1931	63	5189
SUBTOTAL (AREA I)	16345		17746	11356	9955
EARTH WASTE TO REPLACE BORROW (PHASES I & II)				-3429	-3429
TOTAL (AREA I)	16345		17746	7927	6526
AREA II					
SECTION 4 (PHASE I)					
-L- 10+21.00 TO 15+00.00 (LT)	749		49		700
-Y3- 10+03.00 TO 12+95.00	121		35		86
-DETSB- 12+68.04 TO 19+97.46	265		12791	12526	
-DETSB- 21+32.46 TO 22+50.00			5184	5184	
-Y5- 10+18.00 TO 13+65.23	188		2744	2556	
-DR1- 10+45.00 TO 11+10.90	34		520	486	
-Y6- 12+60.00 TO 16+50.00 (RT)	151		89		62
-Y6- 16+50.00 TO 19+58.46	364		732	368	
-Y7- 11+76.00 TO 13+32.79 (LT)	81		175	94	
-Y1- 12+39.84 TO 15+78.55 (TEMP)	120		4		116
-Y1- 12+15.00 TO 19+00.00 (LT)	711		1448	737	
SUBTOTAL (SECTION 4)	2784		23771	21951	964
SECTION 5 (PHASE I)					
-L- 10+21.00 TO 16+00.00 (RT)	801		4		797
-Y1RPC- 11+72.25 TO 18+74.21	8075		5		8070
-Y4- 10+12.05 TO 11+27.00	760				760
-Y1- 12+15.00 TO 22+97.00 (RT)	2648		374		2274
SUBTOTAL (SECTION 5)	12284		383		11901

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT EXCAVATION	EMBANKMENT +%	BORROW	TOTAL WASTE
SECTION 6 (PHASE II)					
-Y6- 12+60.00 TO 16+50.00 (LT)	94		125	31	
-Y7- 11+76.00 TO 13+32.79 (RT)	20		155	135	
-DETSB- 22+50.00 TO 27+17.88	14		11112	11098	
SUBTOTAL (SECTION 6)	128		11392	11264	
SECTION 7 (PHASES III THRU V)					
-DETNB- 10+72.89 TO 19+78.79	569		4523	3954	
-DETNB- 21+13.79 TO 28+90.13	485		3450	2965	
-L- 16+00.00 TO 21+39.41 (RT)	1784		758		1026
-L- 22+74.41 TO 28+50.00 (RT)	1330		930		400
-Y1- 19+00.00 TO 22+97.00 (LT)	1635		79		1556
-Y1RPD- 11+04.56 TO 16+85.76	5901		53		5848
-DR2- 10+20.02 TO 11+29.00	302		26		276
SUBTOTAL (SECTION 7)	12006		9819	6919	9106
SECTION 8 (PHASES VI AND VII)					
-L- 17+50.00 TO 21+39.41 (MED)	115		131	16	
-L- 22+74.41 TO 26+00.00 (MED)	95		83		12
-L- 10+21.00 TO 17+50.00 (MED)	346		112		234
-L- 15+00.00 TO 21+39.41 (LT)	358	329	784	426	329
-L- 22+74.41 TO 28+50.00 (LT)	119	869	3044	2925	869
-L- 26+00.00 TO 28+50.00 (MED)	95		71		24
SUBTOTAL (SECTION 8)	1128	1198	4225	3367	1468
SUBTOTAL (AREA II)	28330	1198	49590	43501	23439
EARTH WASTE TO REPLACE BORROW				-22241	-22241
SELECT GRANULAR MATERIAL TO REPLACE BORROW			-1198	-1198	
TOTAL (AREA II)	28330	1198	48392	20062	1198
ADDITIONAL UNDERCUT		2000	2400	2400	2000
PROJECT TOTALS	44675	3198	68538	30389	9724
EST 5% FOR REPLACING TOPSOIL ON BORROW PITS				1519	
GRAND TOTALS	44675			31908	
SAY	44700			32000	
PAVEMENT STRUCTURE VOLUME = 16590 CY					
EST SHALLOW UNDERCUT BY STATIONS		1818 CY			
EST SHALLOW UNDERCUT CONTINGENCY		5000 CY			
TOTAL SHALLOW UNDERCUT		6818 CY			
CLASS IV SUBGRADE STABILIZATION		13800 TONS			
SELECT GRANULAR MATERIAL		4400 CY			

NOTE: EARTHWORK QUANTITES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

3/02/2016

5/28/99

COMPUTED BY: RSH DATE: 2/24/2016
CHECKED BY: JWM DATE: 2/25/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	3B-2

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"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			TERMINAL SECTIONS	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	B-77	GRAU 350	TEMP GRAU 350	TYPE III	CAT-1	VI MOD	W-BEAM	AT-1	EA	G	NG				
-L-	9+78.75	10+56.00	MED (RT)	77.25			10+56.00		2'	5'						1								1		1				
-L-	9+99.75	10+56.00	MED (LT)	56.25				10+56.00	2'	5'						1														
-L-	9+85.75	10+79.50	RT	93.75			10+79.50		2'	4'		50		1		1	1													
-L-	11+13.00	11+50.50	LT	37.50	25.00		11+13.00		2'	12'-6"						1							1					50		
-L-	11+35.50	13+50.25	MED (RT)	214.75				11+35.50	2'	5'						1								1		1				
-L-	11+35.50	13+29.25	MED (LT)	193.75			11+35.50		2'	5'						1														
-L-	18+28.78	20+97.53	LT	268.75				20+97.53	14'-6"	16'		50		1			1		1											
-L-	19+42.01	20+85.76	RT	143.75			20+85.76		10'	16'	50		1				1		1											
-L-	23+05.74	23+86.99	RT	81.25				23+05.74	10'	16'		50		1			1		1											
-L-	23+42.28	31+11.03	LT	768.75			23+42.28		13'-4"	16'-4"	50		1				1		1											
-L-	23+10.75	23+92.00	LT	81.25			23+10.75		3-4"	16'-4"	50		1				1		1											
-L-	39+50.83	40+84.33	MED (RT)	133.50			40+28.00		5'-6"	8'-6"														1		1				
-L-	39+71.83	41+05.33	MED (LT)	133.50			40+28.00		5'-6"	8'-6"														1		1				
-L-	48+36.15	49+92.40	RT	156.25			49+92.40		14'-6"	16'	50		1				1		1									62		
-L-	48+68.73	52+02.23	MED (RT)	333.50			50+00.00		2'	5'														1		1				
-L-	48+89.34	52+22.84	MED (LT)	333.50			50+89.42		2'	5'														1		1				
-FLYOVER-	15+98.61	16+88.78	RT	100.00																							2			
-FLYOVER-	17+49.61	18+80.86	RT	131.25			18+80.86		8'-6"	16'	50		1				1		1									500		
-FLYOVER-	17+85.39	18+66.64	LT	81.25				18+66.64	8'-6"	16'		50		1			1		1									415		
-FLYOVER-	22+11.53	22+92.78	RT	81.25				22+11.53	8'-6"	16'		50		1			1		1											
-FLYOVER-	22+16.36	23+60.11	LT	143.75			22+16.36		8'-6"	16'	50		1				1		1											
			SUBTOTAL	3644.75	25.00																									
	LESS ANCHOR DEDUCTIONS																													
	GRAU 350	11 @ 50'	=	550.00																										
	TYPE III	10 @ 18.75'	=	187.50																										
	B-77	6 @ 18.75'	=	112.50																										
	AT-1	1 @ 6.25'	=	6.25																										
	I. A. 350	6 @ 21'	=	126.00																										
			TOTAL	2662.50	25.00											6	11		10				1	6		6	2	1027		
			SAY	2675	25																									
-DETSB-	17+19.70	19+44.70	LT	225.00				19+44.70	2'	8'		50		1				1												TEMPORARY GUARDRAIL
-DETSB-	21+89.40	23+14.44	LT	125.00			21+89.40		2'	8'	50		1					1												TEMPORARY GUARDRAIL
-FLYOVER-	21+80.84	22+37.09	LT	56.25				21+80.84	VARIES	VARIES		50		1								1	1							TEMPORARY GUARDRAIL
			SUBTOTAL	406.25																										
	LESS ANCHOR DEDUCTIONS																													
	TEMP GRAU 350	2 @ 50'	=	100.00																										
	TEMP W-BEAM	1 @ 25'	=	25.00																										
	TEMP AT-1	1 @ 6.25'	=	6.25																										
			TOTAL	275.00																										
			SAY	275																										

ADDITIONAL GUARDRAIL POSTS = 15 EA

2/26/2016

5/28/99

COMPUTED BY: RSH DATE: 2/10/16
CHECKED BY: JWM DATE: 2/10/16

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	3B-3

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REMOVAL OF EXISTING ASPHALT PAVEMENT

LINE	STATION TO STATION	LOCATION	SQ. YDS.
–L–	13+28 TO 16+47	LT	480
–L–	46+15 TO 49+11	RT	565
–NBL–	10+00 TO 11+76	RT	266
–Y1RPC–	11+44 TO 16+71	LT/RT	1558
–Y1RPD–	12+72 TO 16+02	LT/RT	690
–Y1–	12+07 TO 13+20	LT/RT	20
–Y1–	15+80 TO 17+25	LT	1115
–Y1–	19+87 TO 22+14	LT	882
–Y2LPC–	10+66 TO 12+22	LT/RT	290
–Y2RPA–	17+60 TO 18+01	LT	36
–Y2RPA–	18+45 TO 18+92	RT	11
–Y2RPB–	10+90 TO 12+23	LT/RT	394
–Y2RPB–	14+59 TO 16+43	LT	198
–FLYOVER–	11+23 TO 12+22	LT	28
–FLYOVER–	13+60 TO 18+93	LT	749
–FLYOVER–	14+24 TO 18+76	LT	694
–FLYOVER–	15+98 TO 16+90	RT	234
–FLYOVER–	21+83 TO 24+16	LT	649
–Y3–	10+54 TO 12+95	LT/RT	52
–Y5–	10+23 TO 12+13	RT	850
–Y5–	12+58 TO 13+82	RT	532
–Y6–	12+60 TO 15+04	RT	58
–Y6–	12+60 TO 15+80	LT	253
–Y7–	11+76 TO 13+18	RT	243
–Y7–	11+76 TO 12+26	LT	12
–Y8–	11+13 TO 12+99	LT/RT	514
–Y9–	18+52 TO 19+07	RT	50
–Y9–	18+52 TO 19+37	LT	64
–DR2–	10+26 TO 11+24	LT	306
TEMP PAVEMENT			
–L–	30+00 TO 41+50	RT	257
–Y1–	12+40 TO 15+79	RT	322
–FLYOVER–	24+14 TO 24+84	RT	201
–DETSB–	12+74 TO 15+07	LT	114
–DETSB–	15+96 TO 19+77	LT	519
–DETSB–	21+60 TO 27+07	LT	665
TOTAL			13,871
SAY			13,900

REMOVAL OF EXISTING CONCRETE PAVEMENT

LINE	STATION TO STATION	LOCATION	SQ. YDS.
–L–	10+21 TO 21+35	LT/RT	8745
–L–	22+56 TO 30+93	LT/RT	7474
–L–	30+93 TO 49+11	LT/RT	15865
–NBL–	10+00 TO 13+92	LT/RT	2068
–SBL–	10+00 TO 13+94	LT/RT	1509
–Y2RPA–	16+57 TO 17+60	LT/RT	348
–Y2RPB–	12+22 TO 14+59	LT/RT	880
TOTAL			36,888
SAY			36,900

BREAKING OF EXISTING ASPHALT PAVEMENT

LINE	STATION TO STATION	LOCATION	SQ. YDS.
–L–	16+60 TO 19+32	LT	594
–L–	23+85 TO 26+36	LT	501
–Y1–	14+22 TO 16+53	LT	835
–Y1–	14+40 TO 17+65	RT	964
–DR1–	10+64 TO 11+05	LT/RT	204
TOTAL			3098
SAY			3100

60" VINYL COATED CHAIN LINK FENCE

$$E = \frac{[A-(2.438B + 4.877C + 4.877D)]}{3.658} + (B + 2C + 2D) - \frac{(B + C + D)}{2} \qquad F = (B + C + D)$$

STATION	STATION	LT or RT	A	B	C	D	E	F
			FABRIC (LF)	END BRACE	CORNER BRACE	LINE BRACE	LINE POST	TERMINAL POST
14+58 –L–	16+54 –L–	LT	265	2	1	0	22	3
17+54 –L–	21+54 –L–	LT	470	1	2	1	39	4
23+25 –L–	34+15 –L–	LT	1134	1	1	1	95	3
34+25 –L–	41+28 –L–	LT	703	1	1	1	59	3
46+95 –L–	13+24 –Y2RPB–	LT	376	2	2	0	31	4
15+36 –Y1–	16+54 –Y1–	LT	131	0	2	0	11	2
20+74 –Y1–	21+92 –Y1–	RT	130	1	1	0	11	2
10+10 –Y1RPC–	13+55 –Y1RPC–	RT	341	2	0	1	28	3
14+21 –Y1RPC–	18+45 –Y1RPC–	RT	437	1	1	1	37	3
13+13 –Y1RPD–	16+80 –Y1RPD–	LT	428	2	1	1	36	4
13+65 –Y2RPB–	16+28 –Y2RPB–	LT	265	2	1	0	22	3
17+64 –FLYOVER–	19+47 –FLYOVER–	RT	211	0	1	0	18	1
11+69 –NBL–	13+92 –NBL–	RT	219	1	0	0	18	1
TOTAL			5110	16	14	6	427	36
SAY			5120	16	14	6	427	36

96" VINYL COATED CHAIN LINK FENCE WITH BARBED WIRE

$$E = \frac{[A-(2.438B + 4.877C + 4.877D)]}{3.658} + (B + 2C + 2D) - \frac{(B + C + D)}{2} \qquad F = (B + C + D)$$

STATION	STATION	LT or RT	A	B	C	D	E	F
			FABRIC (LF)	END BRACE	CORNER BRACE	LINE BRACE	LINE POST	TERMINAL POST
12+63 –FLYOVER–	17+64 –FLYOVER–	RT	584	1	5	0	50	6
TOTAL			584	1	5	6	50	6
SAY			590	1	5	6	50	6

2/10/2016

DL83370

COMPUTED BY: VWB DATE: 9/25/2015

CHECKED BY: JDL DATE: 2/24/2016

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-1

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8	15	18	24	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 15 .064	18 .064		DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS 16 (CLASS 250)	18 (CLASS 250)	24 (CLASS 150)	36 (CLASS 150)	SEALED DRAINAGE STRUCTURE MASONRY CY	QUANTITY FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	BOOTS FOR SEALED STRUCTURES	R. C. PIPE CLASS IV 15	18	24	30	36	42	48		R. C. PIPE CLASS V 15	18	24	30	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)	CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)	CONVERT EXIST J.B. TO SLAB TOP J.B.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	15" SIDE DRAIN PIPE ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	C.B. STD 840D02 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		0403	0427		292.3	291.9																																	24																																																	
L 12+50	39 RT	0407		293.4																																									1	0.3		1		1																																						REMOVE CB
		0407	0418		288.1	287.1	0.4																								100																																																											
L 12+50	50 LT	0408		293.2																																									1			1			1																																					REMOVE MH
		0408	0412		288.7	287.2																										176																																																									
L 10+13	39 LT	0409		296.1																																									1			1			1																																					REMOVE CB
		0409	0429		293.1	292.2																																12																																																			
L 11+44	40 LT	0410		294.0																																									1			1			1																																					REMOVE JB W/ MH
		0410	0408		290.0	289.2																																	104																																																		
Y3 13+06	4 LT	0411		291.8																																									1	4.5																				1				1																			
L 14+25	45 LT	0412		292.4																																									1	0.2		1			1																																					REMOVE JB W/ MH
		0412	0415		287.2	286.8																										40																																																								
L 10+48	41 RT	0413		296.5																																									1																						1				1																		REMOVE JB W/ MH
		0413	0427		292.1	291.7																																	12																																																		
L 14+67	44 LT	0415		292.5																																									1	0.7		1			1																																					
		0415	0431		286.8	286.6																										16																																																										
L 14+15	55 RT	0416		292.2																																									1	0.8		1		1																																						
		0416	0424		286.4	286.1	0.5																								32																																																											
L 13+50	47 RT	0418		292.8																																									1	0.7		1		1																																						REMOVE CB
		0418	0416		287.1	286.4	0.5																								64																																																											
Y3 12+15	12 LT	0419		292.8																																									1			1			1																																					
		0419	0422		289.7	287.8																							80																																																														
Y1RPC 12+15	14 RT	0420		291.9																																									1	0.7		1		1																																						REMOVE CB
		0420	0424		286.2	285.5																									8																																																											
Y1RPC 12+75	14 RT	0421		291.4																																									1			1		1																																						
		0421	0420		286.8	286.2																									60																																																												
Y3 12+97	11 LT	0422		291.1																																									1			1	1																																							
		0422	0411		287.8	287.6																							12																																																														
L 14+45	54 RT	0424		292.4																																																																										1												REMOVE DI
L 10+42	32 RT	0427		296.1																																									1																							1			1																	
		0427	0428		291.7	288.2	0.3																																196																																																		
L 12+40	32 RT	0428		293.9																																									1	0.7																					1			1																	REMOVE JB W/ MH
		0428	0407		288.2	288.1	0.3																								12																																																											
L 10+21	30 LT	0429		296.6																																									1																							1			1																	
		0429	0430		292.2	290.1																																112																																																				
L 11+35	30 LT	0430		294.5																																									1																							1			1																	
		0430	0410		290.1	290.0																																12																																																				
Y3 12+97	11 RT	0431		291.1																																									1			1	1																																							
		0431	0411		286.6	286.4																										16																																																										
Y3 10+19	21 RT	0432		296.0																																																																								1														
Y3 10+23	11 LT	0433		296.4																																																																							1														
Y1RPC 13+35	15 RT	0502		290.9																																									1			1		1																																						
		0502	0421		287.1	286.8																									60																																																												
Y1RPC 13+46	19 RT	0503		290.7																																									1			1	1																																							
		0503	0502		287.3	287.1																									12																																																												
L 16+15	52 RT	0504		291.5																																									1			1			1																																					REMOVE CB
		0504	0511		288.4	288.3																							16																																																														
Y1 17+48	144 LT	0505		273.2																																																																					1																CONVERT TOP TO SLAB LID
Y1RPC 14+60	14 RT	0506		289.9																																									1			1		1																																						
		0506	0553		286.8	285.9																							136																																																															
						SHEET TOTALS																							244	348	248						136	336						23	8.6		17	3	7	7															2	4			6			1	2		1												

ABBREVIATIONS

- **C.A.A.** CORRUGATED ALUMINIUM ALLOY
- **C.B.** CATCH BASIN
- **C.S.** CORRUGATED STEEL
- **D.I.** DROP INLET
- **G.D.I.** GRATED DROP INLET
- **H.D.P.E.** HIGH DENSITY POLYETHYLENE
- **J.B.** JUNCTION BOX
- **M.H.** MANHOLE
- **N.S.** NARROW SLOT
- **P.V.C.** POLYVINYL CHLORIDE
- **R.C.** REINFORCED CONCRETE
- **T.B.D.I.** TRAFFIC BEARING DROP INLET
- **T.B.J.B.** TRAFFIC BEARING JUNCTION BOX
- **W.S.** WIDE SLOT

DL83370

COMPUTED BY: VWB DATE: 9/25/2015

CHECKED BY: JDL DATE: 2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8	Side Drain Pipe 15	Side Drain Pipe 18	Side Drain Pipe 24	Side Drain Pipe 42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 15 .064	C. S. PIPE 18 .064	DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS 16 (CLASS 250)	DIP 18 (CLASS 250)	DIP 24 (CLASS 150)	DIP 36 (CLASS 150)	SEALED DRAINAGE STRUCTURE MASONRY CY	QUANTITY FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	5' THRU 10' A LIN. FT.	10' AND ABOVE B LIN. FT.	BOOTS FOR SEALED STRUCTURES
L 15+91	7	LT	0507		292.6																								
			0507	0508		289.5	289.3																						
L 16+16	7	LT	0508		292.7																								
			0508	0509		289.1	284.9																						
L 16+14	71	LT	0509		289.4																								
L 16+48	7	LT	0510		292.6																								
			0510	0508		289.3	289.1																						
L 16+00	53	RT	0511		291.4																								
			0511	0503		288.3	287.6																						
L 19+50	52	RT	0512		297.2																								
			0512	0559		294.1	284.4													60										
L 19+20	7	LT	0513		298.3																								
			0513	0514		295.3	292.1																						
L 17+50	7	LT	0514		295.1																								
			0514	0510		291.8	289.3																						
L 21+10	4	LT	0515		302.2																								
			0515	0513		299.1	295.3																						
Y1 20+85	42	RT	0517		287.2																								
			0517	0560		283.3	280.4																						
Y1 20+80	5	RT	0518		285.9																								
			0518	0544		282.7	281.2																						
Y1 20+10	87	LT	0519		280.4																								
			0519	0526		277.3	275.9																						
Y1 21+75	43	LT	0520		289.5																								
			0520	0545		281.3	270.5																						
Y1 23+27	18	RT	0522		292.9																								
			0522	0524		282.7	282.3	0.5																					
Y1 23+13	33	RT	0523		292.4																								
			0523	0522		283.1	283.0																						
Y1 22+91	34	LT	0524		292.2																								
			0524	0520		282.3	281.3	0.5																					
L 27+46	44	LT	0525		282.6																								
			0525	0618		279.2	272.1																						
Y1RPD 16+30	7	RT	0526		280.4																								
			0526	0545		275.9	275.0																						
L 26+98	7	LT	0527		284.5																								
			0527	0525		281.1	279.2																						
L 26+50	7	LT	0528		286.6																								
			0528	0527		283.5	281.4																						
L 24+25	7	LT	0529		296.3																								
			0529	0528		293.2	283.5																						
DR2 10+39	19	LT	0530		283.2																								
			0530	0534		278.9	277.8	0.3																					
DR2 10+40	47	RT	0531		282.7																								
			0531	0530		279.4	278.9																						
Y1RPD 14+46	22	LT	0532		285.6																								
			0532	0531		282.5	279.6																						
Y1RPD 13+12	56	LT	0533		284.9																								
			0533	0531		281.5	279.6	0.6		24							X	X											
Y1RPD 11+75	13	LT	0534		281.1																								
SHEET TOTALS										24									60										

LINE & STATION	FROM	TO	R. C. PIPE CLASS IV 15	R. C. PIPE CLASS IV 18	R. C. PIPE CLASS IV 24	R. C. PIPE CLASS IV 30	R. C. PIPE CLASS IV 36	R. C. PIPE CLASS IV 42	R. C. PIPE CLASS IV 48	R. C. PIPE CLASS V 15	R. C. PIPE CLASS V 18	R. C. PIPE CLASS V 24	R. C. PIPE CLASS V 30	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	5' THRU 10' A LIN. FT.	10' AND ABOVE B LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
L 15+91	0507																1			1	1		
	0507	0508	24																				
L 16+16	0508																1			1			1
	0508	0509									64												
L 16+14	0509																						
L 16+48	0510																1			1			1
	0510	0508		32																			
L 16+00	0511																1			1			1
	0511	0503	40																				
L 19+50	0512																1			1			1
	0512	0559																					
L 19+20	0513																1			1			1
	0513	0514	168																				
L 17+50	0514																1			1			1
	0514	0510		100																			
L 21+10	0515																1			1			1
	0515	0513	188																				
Y1 20+85	0517																1			1			1
	0517	0560			24																		
Y1 20+80	0518																1						
	0518	0544	24																				
Y1 20+10	0519																1			1		1	
	0519	0526								44													
Y1 21+75	0520																1	3.2				1	
	0520	0545							220														
Y1 23+27	0522																1	5.0	0.2				
	0522	0524							64														
Y1 23+13	0523																1	4.3		1			1
	0523	0522			20																		
Y1 22+91	0524																1	4.9				1	
	0524	0520							112														
L 27+46	0525																1			1			1
	0525	0618		152																			
Y1RPD 16+30	0526																1			1		1	
	0526	0545	56																				
L 26+98	0527																1			1		1	
	0527	0525									60												
L 26+50	0528																1			1		1	
	0528	0527	48																				
L 24+25	0529																1			1		1	
	0529	0528	224																				
DR2 10+39	0530																1			1	1		
	0530	0534		60																			
DR2 10+40	0531																1			1	1		
	0531	0530									64												
Y1RPD 14+46	0532																1			1			1
	0532	0531	152																				
Y1RPD 13+12	0533																1						
	0533	0531																					
Y1RPD 11+75	0534																1					1	
SHEET TOTALS			924	344	44				396	44	188						25	17.4	0.2	19	3	8	11

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)	CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)	CONVERT EXIST J.B. TO SLAB TOP J.B.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	15" SIDE DRAIN PIPE ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	C.B. STD 840D02 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 15+91	0507																																					
	0507	0508																																				
L 16+16	0508																																					
	0508	0509																																				
L 16+14	0509																								1													REMOVE CB
L 16+48	0510																																					
	0510	0508																																				
L 16+00	0511																																					
	0511	0503																																				
L 19+50	0512																																					
	0512	0559																									2											
L 19+20	0513																																					
	0513	0514																																				
L 17+50	0514																																					
	0514	0510																																				
L 21+10	0515																																					
	0515	0513																																				
Y1 20+85	0517																																					TIE TO EX PIPE
	0517	0560																																				
Y1 20+80	0518		1										1					1																				
	0518	0544																																				
Y1 20+10	0519																																					
	0519	0526																																				
Y1 21+75	0520																												1									SPECIAL DESIGN, SEE DETAIL 2C-8
	0520	0545																																				
Y1 23+27	0522																		1											1								SPECIAL DESIGN, SEE DETAIL 2C-12
	0522	0524																																				
Y1 23+13	0523																																					TIE TO EX PIPE
	0523	0522																																				
Y1 22+91	0524																												1									SPECIAL DESIGN, SEE DETAIL 2C-8
	0524	0520																																				
L 27+46	0525																																					
	0525	0618																																				
Y1RPD 16+30	0526																																					
	0526	0545																																				
L 26+98	0527																																					
	0527	0525																																				
L 26+50	0528																																					
	0528	0527																																				
L 24+25	0529																																					
	0529	0528																																				
DR2 10+39	0530																																					REMOVE CB's
	0530	0534																																				
DR2 10+40	0531																																					
	0531	0530																																				
Y1RPD 14+46	0532																																					
	0532	0531																																				
Y1RPD 13+12	0533					1	1																															
	0533	0531																																				
Y1RPD 11+75	0534																												1									SPECIAL DESIGN, SEE DETAIL 2C-8
SHEET TOTALS			1			1	1						1					1		1						1		2		3	1							

ABBREVIATIONS

- C.A.A. CORRUGATED ALUMINIUM ALLOY
- C.B. CATCH BASIN
- C.S. CORRUGATED STEEL
- D.I. DROP INLET
- G.D.I. GRATED DROP INLET
- H.D.P.E. HIGH DENSITY POLYETHYLENE
- J.B. JUNCTION BOX
- M.H. MANHOLE
- N.S. NARROW SLOT
- P.V.C. POLYVINYL CHLORIDE
- R.C. REINFORCED CONCRETE
- T.B.D.I. TRAFFIC BEARING DROP INLET
- T.B.J.B. TRAFFIC BEARING JUNCTION BOX
- W.S. WIDE SLOT

DL83370

COMPUTED BY:	VWB	DATE:	9/25/2015
CHECKED BY:	JDL	DATE:	2/24/2016

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-3

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8	15	18	24	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 15 .064	18 .064		DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS 16 (CLASS 250)	18 (CLASS 250)	24 (CLASS 150)	36 (CLASS 150)	SEALED DRAINAGE STRUCTURE MASONRY CY	QUANTITY FOR SEALED DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	BOOTS FOR SEALED STRUCTURES
			0534	0601		277.8	274.8	0.7																						
L 26+35	52	RT	0535		286.0																									
			0535	0534		282.9	278.1																							
L 24+50	52	RT	0536		294.0																									
			0536	0535		290.9	282.9																							
L 17+50	52	RT	0537		292.8																									
			0537	0504		289.8	288.4																							
Y5 12+65	65	RT	0539		280.0																									
			0539	0830		276.8	272.8																							
Y1 20+65	66	RT	0541		290.3																									
			0541	0560		288.9	281.2	0.9		24				X			X	X												
Y1 22+08	9	RT	0542		291.6																									
			0542	0520		287.1	285.6																							
Y1 22+89	34	RT	0543		292.4																									
			0543	0523		287.9	286.3																							
Y1 20+55	9	RT	0544		285.0																									
			0544	0560		280.9	280.7																							
Y1 19+45	43	LT	0545		278.0																									
			0545	0555		270.5	266.9	0.6																						
L 24+12	47	LT	0546		281.7																									
Y1 21+73	87	LT	0548		289.2																									
			0548	0520		286.0	285.5	0.4																						
Y1 19+75	43	RT	0549		280.3																									
			0549	0554		276.0	267.2																	248						
Y1RPC 18+51	6	LT	0550		282.4																									
			0550	0549		278.1	276.0	1.0																						
L 23+07	4	LT	0551		300.8																									
			0551	0529		297.8	293.2																							
Y1RPC 17+15	22	RT	0552		287.7																									
			0552	0559		284.4	284.2																							
Y1RPC 16+00	22	RT	0553		289.0																									
			0553	0558		285.5	284.9																							
Y1 17+23	43	RT	0554		271.5																						1	0.3		2
			0554	0808		266.2	265.9																		56					
Y1 17+70	43	LT	0555		272.7																									
			0555	0813		266.9	265.3	0.6																						
Y1RPD 13+62	54	LT	0557		285.5																									
			0557	0533		283.2	281.5			48							X	X												
Y1RPC 16+83	22	RT	0558		288.4																									
			0558	0552		284.9	284.6	0.3																						
Y1RPC 17+15	6	LT	0559		288.1																									
			0559	0550		284.2	279.1																							
Y1 20+60	43	RT	0560		285.9																									
			0560	0550		280.4	278.1																							
Y4 11+00	20	RT	0561		297.5																									
			0561	0503		294.9	287.6																							
Y4 11+00	20	LT	0562		297.5																									
			0562	0561		295.2	294.9																							
Y1 21+40	121	LT	0563		289.4																									
			0563	0548		286.2	286.0																							
SHEET TOTALS										72														248	56		1	0.3		2

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

FROM	TO	R. C. PIPE CLASS IV 15	18	24	30	36	42	48		R. C. PIPE CLASS V 15	18	24	30	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
0534	0601		80																					
0535																	1			1		1		
0535	0534									104														
0536																	1			1		1		
0536	0535	180																						
0537																	1			1			1	
0537	0504	128																						
0539																	1							
0539	0830	100																						
0541																								
0541	0560																							
0542																	1							
0542	0520	60																						
0543																	1			1			1	
0543	0523	24																						
0544																	1							
0544	0560										32													
0545																	1	0.8				1		
0545	0555							168																
0546																								
0548																	1							
0548	0520	44																						
0549																	1			1			1	
0549	0554																							
0550																	1			1			1	
0550	0549			32																				
0551																	1			1		1		
0551	0529	116																						
0552																	1			1		1		
0552	0559										28													
0553																	1			1		1		
0553	0558	80																						
0554																				1			1	
0554	0808																							
0555																	1	0.8				1		
0555	0813							72																
0557																	1							
0557	0533																							
0558																	1			1		1		
0558	0552									32														
0559																	1			1			1	
0559	0550		136																					
0560																	1	0.5		1			1	
0560	0550											68												
0561																	1							
0561	0503	80																						
0562																	1							
0562	0561									40														
0563																	1							
0563	0548	40																						
SHEET TOTALS		852	216	32				240		176	60	68					22	2.1		13		8	7	

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)	CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)	CONVERT EXIST J.B. TO SLAB TOP J.B.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	15" SIDE DRAIN PIPE ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	C.B. STD 840D02 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0534	0601																																				
0535																																					
0535	0534																																				
0536																																					
0536	0535																																				
0537																																					
0537	0504																																				
0539					1	1																															
0539	0830																																				
0541																																1					
0541	0560																								2												
0542		1										1					1																				
0542	0520																																				
0543																																					
0543	0523																																				
0544		1										1					1																				
0544	0560																																				
0545																												1								SPECIAL DESIGN, SEE DETAIL 2C-8
0545	0555																																			REMOVE CB
0546																					1															CONVERT TOP TO SLAB LID
0548												1					1																				
0548	0520																																				
0549																																				REMOVE JB W/ MH AND CB
0549	0554																																				
0550																																					
0550	0549																																				
0551																																					
0551	0529																																				
0552																																					
0552	0559																																				
0553																																				REMOVE CB's
0553	0558																																				
0554																																				REMOVE DI
0554	0808																																				
0555																												1								SPECIAL DESIGN, SEE DETAIL 2C-8
0555	0813																																				
0557					1	1																															
0557	0533																																				
0558																																					
0558	0552																																				
0559																																				REMOVE DI
0559	0550																																				
0560																																				REMOVE DI
0560	0550																																				
0561					1	1																															
0561	0503																																				
0562					1	1																															
0562	0561																																				
0563												1					1																				
0563	0548																																				
SHEET TOTALS		2			4	4						4					4					1				2			2			1					

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

DLB3370

COMPUTED BY: VWB DATE: 9/25/2015

CHECKED BY: JDL DATE: 2/24/2016

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-4

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

| LINE & STATION | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 8 | 15 | 18 | 24 | 42 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | C. S. PIPE SIZE 15 | 18 | DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS SIZE 16 | 18 | 24 | 36 | SEALED DRAINAGE STRUCTURE | QUANTITY FOR SEALED DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A | B | BOOTS FOR SEALED STRUCTURES | R. C. PIPE CLASS IV SIZE 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V SIZE 15 | 18 | 24 | 30 | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL | DRAINAGE STRUCTURE | QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A | B | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | DRIVEWAY D.I. STD. 840.30 | FRAME W/ GRATE FOR DRIVEWAY STD. 840.30 | J.B. STD. 840.31 OR STD. 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | M.H. STD. 840.51. STD. 840.52. OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL) | CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL) | CONVERT EXIST J.B. TO SLAB TOP J.B. | ADJUST C.B. | ADJUST D.I. | ADJUST M.H. | 15" SIDE DRAIN PIPE ELBOW | 15" C.S. ELBOW | 18" C.S. ELBOW | C.B. STD 840D92 (SPECIAL DETAIL) | T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL) | T.B.D.I. STD. 840D35 (SPECIAL DETAIL) | BERM DITCH OUTLET STD. 850.10 (PER EACH) | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

DL83370

COMPUTED BY: VWB **DATE:** 9/25/2015

CHECKED BY: JDL **DATE:** 2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8	15	18	24	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 15 .064	18 .064		DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS 16 (CLASS 250)	18 (CLASS 250)	24 (CLASS 150)	36 (CLASS 150)	SEALED DRAINAGE STRUCTURE MASONRY CY	QUANTITY FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	BOOTS FOR SEALED STRUCTURES	R. C. PIPE CLASS IV 15	18	24	30	36	42	48		R. C. PIPE CLASS V 15	18	24	30	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)	CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)	CONVERT EXIST J.B. TO SLAB TOP J.B.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	15" SIDE DRAIN PIPE ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	C.B. STD 840D02 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		0655	0657		262.4	261.5	0.5																							92																																																										
L 40+38	73 RT	0656		266.5																																									1																		1					1																				
		0656	0657		263.0	261.5			20							X	X																																																																							
L 40+38	55 RT	0657		264.5																																									1			1		1																																						REMOVE CB's
		0657	0658		261.2	260.4	0.5																								80																																																									
L 41+20	55 RT	0658		264.0																																									1			1		1																																						
		0658	0660		260.3	259.1	0.6																								96																																																									
L 40+00	44 LT	0659		265.1																																									1			1			1																																					REMOVE DI
		0659	0660		262.1	261.2																								120																																																										
L 41+20	44 LT	0660		264.2																																									1	0.1		1			1																																					
		0660	0701		259.1	258.0	1.0																								80																																																									
L 40+98	75 RT	0661		266.5																																									1																		1					1																				
		0661	0658		263.3	263.0			32							X	X																																																																							
L 44+95	60 LT	0700		262.3																																									1																		1					1																				
		0700	0727		259.0	258.2																																52																																																		
L 42+02	43 LT	0701		263.9																																									1	0.9																					1			1																		
		0701	0703		258.0	255.7	1.1																								160																																																									
L 48+70	55 RT	0702		253.6																																									1	0.3				1																														1								SPECIAL DESIGN, SEE DETAIL 2C-8
		0702	0736		248.3	247.6																																				32	32																																												
Y8 11+28	21 LT	0703		259.0																																									1			1		1																																						
		0703	0704		255.6	251.0				56					X	X																																																																							
L 42+67	44 LT	0705		263.3																																									1			1			1																																					
		0705	0701		259.8	259.1																								64																																																										
L 42+90	60 LT	0706		264.1																																									1																		1					1																				
		0706	0705		260.9	260.3			28							X	X																																																																							
L 41+87	78 RT	0707		265.1																																									1																		1					1																				
		0707	0708		261.5	260.1			20							X	X																																																																							
L 41+90	58 RT	0708		263.1																																									1			1		1																																						
		0708	0709		260.1	259.4																								84																																																										
FLYOVER 11+26	14 RT	0709		262.4																																									1			1	1																																							
		0709	0710		259.1	258.7																									36																																																									
FLYOVER 11+65	14 RT	0710		262.7																																									1			1			1																																					REMOVE CB's
		0710	0774		258.7	258.1	0.7																								48																																																									
FLYOVER 11+65	32 RT	0711		264.1																																									1																		1					1																				
		0711	0710		260.5	259.5			20							X	X																																																																							
L 44+00	44 RT	0712		261.5																																									1			1		1																																						REMOVE CB
		0712	0715		257.2	255.4	0.8																								156																																																									
L 49+26	56 LT	0713		252.7																																									1	5.0	5.2																			1				1																		REMOVE JB
		0713	0739		237.5	237.0						52				X	X																																																																							
L 45+60	60 RT	0714		259.5																																									1											1	1																														REMOVE DI's
		0714	0715		256.0	255.7			16							X	X																																																																							
L 45+60	44 RT	0715		258.7																																									1			1		1																																						
		0715	0726		255.4	254.6	1.0																								48																																																									
FLYOVER 13+25	37 RT	0717		264.1																																									1											1	1																														REMOVE DI
		0717	0718		261.3	260.7			56							X	X																																																																							
FLYOVER 13+79	17 RT	0718		267.1																																									1	4.2		1			1																																					REMOVE CB
		0718	0719		257.8	257.3																													20																																																				
FLYOVER 13+79	6 LT	0719		266.5																																									1	4.3		1		1																																						REMOVE CB & JB W/ MH
		0719	0775		257.3	256.0																													84																																																				
FLYOVER 15+28	52 RT	0721		281.0																																									1	5.0	0.5																			1				1																		
SHEET TOTALS									192		56	52																		360	704				104			52				32	32		25	19.8	5.7	13	1	8	5					2	2						6			2	1	6		3										1								

ABBREVIATIONS

- **C.A.A.** CORRUGATED ALUMINIUM ALLOY
- **C.B.** CATCH BASIN
- **C.S.** CORRUGATED STEEL
- **D.I.** DROP INLET
- **G.D.I.** GRATED DROP INLET
- **H.D.P.E.** HIGH DENSITY POLYETHYLENE
- **J.B.** JUNCTION BOX
- **M.H.** MANHOLE
- **N.S.** NARROW SLOT
- **P.V.C.** POLYVINYL CHLORIDE
- **R.C.** REINFORCED CONCRETE
- **T.B.D.I.** TRAFFIC BEARING DROP INLET
- **T.B.J.B.** TRAFFIC BEARING JUNCTION BOX
- **W.S.** WIDE SLOT

DL83370

COMPUTED BY: VWB DATE: 9/25/2015

CHECKED BY: JDL DATE: 2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8	15	18	24	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 15 .064	C. S. PIPE 18 .064		DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS 16 (CLASS 250)	18 (CLASS 250)	24 (CLASS 150)	36 (CLASS 150)	SEALED DRAINAGE STRUCTURE MASONRY CY	QUANTITY FOR SEALED DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	BOOTS FOR SEALED STRUCTURES
		0721	0722		270.5	265.5	1.3																						
FLYOVER 15+34	1 RT	0722		269.7																									
		0722	0723		265.5	264.9	0.3																						
FLYOVER 15+37	20 LT	0723		268.7																									
		0723	0775		264.9	257.9	0.4																						
FLYOVER 17+00	1 RT	0724		272.7																									
		0724	0725		268.7	268.3																							
FLYOVER 17+00	20 LT	0725		271.6																									
		0725	0723		268.3	265.6																							
FLYOVER 17+58	33 RT	0731		274.1																									
		0731	0732		271.3	270.9																							
FLYOVER 17+58	1 RT	0732		273.7																									
		0732	0724		270.9	269.0																							
L 46+10	44 RT	0726		257.9																									
		0726	0733		254.6	252.3	1.1																						
L 45+00	7 LT	0727		261.2																									
		0727	0728		258.2	255.1																							
L 46+85	7 LT	0728		258.1																									
		0728	0729		255.1	253.7	0.3																						
L 47+58	7 LT	0729		256.7																									
		0729	0736		253.7	250.6	0.4																						
L 47+58	59 RT	0733		255.6																									
		0733	0735		250.3	249.1																							
L 48+25	76 RT	0734		253.5																									
		0734	0735		251.2	250.9			20							X	X												
L 48+25	57 RT	0735		254.4																									
		0735	0702		249.1	248.3																							
L 49+00	3 LT	0736		254.8																									
		0736	0738		247.6	247.2																							
Y2RPB 11+16	14 LT	0737		256.0																									
		0737	0738		253.0	250.6																							
L 49+15	33 LT	0738		253.6																									
		0738	0713		247.2	246.6						24				X	X												
NBL 10+80	35 RT	0740		251.9																									
		0740	0744		248.9	247.5																							
		0741	0743		248.8	248.1				48						X	X												
NBL 12+27	44 RT	0743		252.2																									
		0743	0744		247.7	247.6	0.7																						
NBL 12+27	35 RT	0744		251.3																									
		0744	0745		246.7	245.7																							
SBL 12+45	13 LT	0745		251.6																									
		0745	0746		245.8	245.7																							
SBL 12+46	19 LT	0746		252.3																									
NBL 13+17	35 RT	0750		251.0																									
		0750	0752		248.2	247.9																							
NBL 13+84	53 RT	0751		250.4																									
		0751	0752		248.1	247.6			16							X	X												
NBL 13+84	34 RT	0752																											
FLYOVER 22+02	1 RT	0759		268.6																									
		0759	0761		263.6	260.9																							
							SHEET TOTALS		36	48		24																	

LINE & STATION	FROM	TO	R. C. PIPE CLASS IV 15	18	24	30	36	42	48		R. C. PIPE CLASS V 15	18	24	30	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
	0721	0722		52																					
FLYOVER 15+34	0722																	1							
	0722	0723			20																				
FLYOVER 15+37	0723																	1			1		1		
	0723	0775											108												
FLYOVER 17+00	0724																	1							
	0724	0725										20													
FLYOVER 17+00	0725																	1			1		1		
	0725	0723										152													
FLYOVER 17+58	0731																	1							
	0731	0732									28														
FLYOVER 17+58	0732																	1							
	0732	0724									56														
L 46+10	0726																	1			1		1		
	0726	0733		144																					
L 45+00	0727																	1			1		1		
	0727	0728	184																						
L 46+85	0728																	1			1		1		
	0728	0729	72																						
L 47+58	0729																	1			1		1		
	0729	0736	140																						
L 47+58	0733																	1	0.3				1		
	0733	0735						68																	
L 48+25	0734																	1							
	0734	0735																							
L 48+25	0735																	1	0.3				1		
	0735	0702						44																	
L 49+00	0736																	1	2.2						
	0736	0738													16	16									
Y2RPB 11+16	0737																	1			1	1			
	0737	0738									104														
L 49+15	0738																	1	1.4		1			1	
	0738	0713																							
NBL 10+80	0740																	1			1		1		
	0740	0744	144																						
	0741	0743																							
NBL 12+27	0743																	1							
	0743	0744		8																					
NBL 12+27	0744																	1			1		1		
	0744	0745			100																				
SBL 12+45	0745																	1	0.9		1			1	
	0745	0746			8																				
SBL 12+46	0746																								
NBL 13+17	0750																	1			1		1		
	0750	0752	64																						
NBL 13+84	0751																	1							
	0751	0752																							
NBL 13+84	0752																								
FLYOVER 22+02	0759																	1							
	0759	0761	52																						
SHEET TOTALS			656	204	128			112			188	172	108		16	16		23	5.1		12	1	11	2	

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)	CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)	CONVERT EXIST J.B. TO SLAB TOP J.B.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	15" SIDE DRAIN PIPE ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	C.B. STD 840D02 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
	0721	0722																																				
FLYOVER 15+34	0722		1										1					1																				
	0722	0723																																				
FLYOVER 15+37	0723																																					
	0723	0775																																				
FLYOVER 17+00	0724		1										1					1																				
	0724	0725																																				
FLYOVER 17+00	0725																																					
	0725	0723																																				
FLYOVER 17+58	0731							1			1																											
	0731	0732																																				
FLYOVER 17+58	0732		1										1					1																				
	0732	0724																																				
L 46+10	0726																																					REMOVE CB
	0726	0733																																				
L 45+00	0727																																					REMOVE CB (L 44+20 LT)
	0727	0728																																				
L 46+85	0728																																					
	0728	0729																																				
L 47+58	0729																																					
	0729	0736																																				
L 47+58	0733																													1								SPECIAL DESIGN, SEE DETAIL 2C-8
	0733	0735																																				
L 48+25	0734					1	1																															REMOVE CB
	0734	0735																																				
L 48+25	0735																													1								SPECIAL DESIGN, SEE DETAIL 2C-8
	0735	0702																																				REMOVE CB's
L 49+00	0736															1				1																		
	0736	0738																																				
Y2RPB 11+16	0737																																					REMOVE CB
	0737	0738																																				
L 49+15	0738																																					REMOVE CB
	0738	0713																																				
NBL 10+80	0740																																					
	0740	0744																																				REMOVE DI
	0741	0743																																		0.065		
NBL 12+27	0743															1				1																		REMOVE DI
	0743	0744																																				
NBL 12+27	0744																																					REMOVE CB
	0744	0745																																				
SBL 12+45	0745																																					
	0745	0746																																				
SBL 12+46	0746																																		0.5526			REMOVE CB
NBL 13+17	0750																																					REMOVE CB
	0750	0752																																				
NBL 13+84	0751					1	1																															
	0751	0752																																				
NBL 13+84	0752																							1														
FLYOVER 22+02	0759		1										1					1																				
	0759	0761																																				
SHEET TOTALS			4			2	2	1			1		4			2		4		2				1						2					0.5526	0.065		

ABBREVIATIONS

- **C.A.A.** CORRUGATED ALUMINIUM ALLOY
- **C.B.** CATCH BASIN
- **C.S.** CORRUGATED STEEL
- **D.I.** DROP INLET
- **G.D.I.** GRATED DROP INLET
- **H.D.P.E.** HIGH DENSITY POLYETHYLENE
- **J.B.** JUNCTION BOX
- **M.H.** MANHOLE
- **N.S.** NARROW SLOT
- **P.V.C.** POLYVINYL CHLORIDE
- **R.C.** REINFORCED CONCRETE
- **T.B.D.I.** TRAFFIC BEARING DROP INLET
- **T.B.J.B.** TRAFFIC BEARING JUNCTION BOX
- **W.S.** WIDE SLOT

DL83370

COMPUTED BY:	VWB	DATE:	9/25/2015
CHECKED BY:	JDL	DATE:	2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-7

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8	15	18	24	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 15 .064	C. S. PIPE 18 .064		DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS 16 (CLASS 250)	18 (CLASS 250)	24 (CLASS 150)	36 (CLASS 150)	SEALED DRAINAGE STRUCTURE MASONRY CY	QUANTITY FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	BOOTS FOR SEALED STRUCTURES
FLYOVER 22+55	20 LT	0760		264.3																									
		0760	0761		260.6	260.4																							
FLYOVER 22+55	1 RT	0761		264.7																									
		0761	0762		260.4	260.0																							
FLYOVER 22+55	23 RT	0762		265.5																									
		0762	0763		260.0	243.6													60										
FLYOVER 22+30	79 RT	0763		245.9																									
		0763	0730		243.6	242.9																							
FLYOVER 24+00	55 RT	0765		253.7																									
		0765	0764		247.3	247.0	0.4			28						X	X												
Y2RPA 17+25	17 RT	0766		251.7																									
		0766	0765		248.1	247.6																							
FLYOVER 24+80	18 RT	0767		253.8																									
		0767	0765		248.4	247.3	0.4																						
FLYOVER 24+80	1 LT	0768		254.4																									
		0768	0767		249.1	248.9																							
FLYOVER 25+15	1 LT	0769		254.0																									
		0769	0768		249.4	249.1																							
FLYOVER 25+20	24 LT	0770		253.5																									
		0770	0769		249.6	249.4																							
FLYOVER 25+40	22 LT	0771		253.3																									
		0771	0770		250.3	250.1																							
FLYOVER 25+55	22 LT	0772		253.4																									
		0772	0771		250.4	250.3																							
Y2RPA 18+53	13 RT	0773		253.2																									
		0773	0769		249.6	249.4																							
L 43+25	44 RT	0774		262.5																									
		0774	0712		258.1	257.2	0.7																						
Y2LPC 11+70	20 LT	0775		261.6																									
		0775	0733		252.0	250.3																							
G1 11+30	18 RT	0776		250.0																									
		0776	0777		241.4	240.0			28							X	X												
		0778	0773		250.8	250.2		12					X		X	X	X												
Y6 14+92	42 RT	0802		274.0																									
		0802	0826		270.8	270.6			20							X	X												
Y1 16+55	43 LT	0803		270.6																									
		0803	0804		264.8	264.5																							
Y1 16+63	43 RT	0808		270.7																						1			2
		0808	0809		265.9	265.3																		28					
Y1 16+34	50 RT	0809		270.4																						1	0.1		4
		0809	0804		265.3	264.6																		92					
Y6 19+07	26 RT	0810		270.9																						1	0.2		3
		0810	0809		265.7	265.3																52							
Y6 18+00	26 RT	0811		273.9																						1	2.6		2
		0811	0810		266.3	265.7															108								
Y6 18+00	55 RT	0812		270.0																						1			1
		0812	0811		266.5	266.3															28								
Y1 17+00	43 LT	0813		271.1																									
		0813	0803		265.3	264.8	0.6																						
Y6 18+81	26 LT	0817		271.5																						1			1
SHEET TOTALS								12	48	28									60		136	52		120		6	2.9		13

STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	R. C. PIPE CLASS IV 15	18	24	30	36	42	48		R. C. PIPE CLASS V 15	18	24	30	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
0760																	1			1			1	
0760	0761	20																						
0761																	1							
0761	0762		20																					
0762																	1	0.5						
0762	0763																							
0763																	1							
0763	0730		84																					
0765																	1	1.4						
0765	0764																							
0766																	1			1			1	
0766	0765	44																						
0767																	1	0.4		1		1		
0767	0765		84																					
0768																	1	0.3						
0768	0767		16																					
0769																	1							
0769	0768		32																					
0770																	1			1			1	
0770	0769		24																					
0771																	1			1	1			
0771	0770	20																						
0772																	1			1		1		
0772	0771	16																						
0773																	1			1	1			
0773	0769	40																						
0774																	1			1		1		
0774	0712		76																					
0775																	1	4.6		1		1		
0775	0733						180																	
0776																	1	3.6						
0776	0777																							
0778	0773																							
0802																	1							
0802	0826																							
0803																	1	0.8				1		
0803	0804							44																
0808																				1			1	
0808	0809																							
0809																				1	1			
0809	0804																							
0810																				1		1		
0810	0809																							
0811																				1		1		
0811	0810																							
0812																								
0812	0811																							
0813																	1	0.8				1		
0813	0803							44																
0817																				1			1	
SHEET TOTALS		140	336				180	88									19	12.4		14	3	8	5	

STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)	CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)	CONVERT EXIST J.B. TO SLAB TOP J.B.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	15" SIDE DRAIN PIPE ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	C.B. STD 840D02 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0760																																					
0760	0761																																				
0761		1										1					1																				
0761	0762																																				
0762															1				1																		
0762	0763																											2									
0763				1																																	
0763	0730																																				
0765															1				1																		
0765	0764																																				
0766																																					
0766	0765																																				
0767																																					
0767	0765																																				
0768		1										1					1																				
0768	0767																																				
0769		1										1					1																				
0769	0768																																				
0770																																					
0770	0769																																				
0771																																					REMOVE CB
0771	0770																																				
0772																																					
0772	0771																																				
0773																																					EXTEND EXIST 8" CMP TO CB
0773	0769																																				REMOVE CB
0774																																					
0774	0712																																				
0775																																					
0775	0733																																				
0776				1																																	
0776	0777																																				
0778	0773																																				
0802					1	1																															
0802	0826																																				
0803																													1								SPECIAL DESIGN, SEE DETAIL 2C-8
0803	0804																																				
0808																																					
0808	0809																																				
0809																																					
0809	0804																																				
0810																																					
0810	0809																																				
0811																																					REMOVE TRENCH DRAIN
0811	0810																																				
0812												1					1																				
0812	0811																																				
0813																													1								SPECIAL DESIGN, SEE DETAIL 2C-8
0813	0803																																				
0817																																					
SHEET TOTALS		3		2	1	1						4			2		4		2									2	2								

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

DLB3370

COMPUTED BY: VWB DATE: 9/25/2015

CHECKED BY: JDL DATE: 2/24/2016

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-8

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

| LINE & STATION | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE: 8 | 15 | 18 | 24 | 42 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | C. S. PIPE THICKNESS OR GAUGE: 15 .064 | 18 .064 | DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS (CLASS 250) 16 | (CLASS 250) 18 | (CLASS 150) 24 | (CLASS 150) 36 | SEALED DRAINAGE STRUCTURE MASONRY CY | QUANTITY FOR SEALED DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A: 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | A: 10' AND ABOVE LIN. FT. | B | BOOTS FOR SEALED STRUCTURES | R. C. PIPE CLASS IV 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V 15 | 18 | 24 | 30 | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL | DRAINAGE STRUCTURE MASONRY CY | QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A: 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | A: 10' AND ABOVE LIN. FT. | B | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06 | C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | DRIVEWAY D.I. STD. 840.30 | FRAME W/ GRATE FOR DRIVEWAY STD. 840.30 | J.B. STD. 840.31 OR STD. 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | M.H. STD. 840.51. STD. 840.52. OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL) | CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL) | CONVERT EXIST J.B. TO SLAB TOP J.B. | ADJUST C.B. | ADJUST D.I. | ADJUST M.H. | 15" SIDE DRAIN PIPE ELBOW | 15" C.S. ELBOW | 18" C.S. ELBOW | C.B. STD 840D92 (SPECIAL DETAIL) | T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL) | T.B.D.I. STD. 840D35 (SPECIAL DETAIL) | BERM DITCH OUTLET STD. 850.10 (PER EACH) | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

DL83370

COMPUTED BY:	VWB	DATE:	9/25/2015
CHECKED BY:	JDL	DATE:	2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

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

Column headings printed on the sheet (the columns not shown in the table below are empty for every row):

- LINE & STATION / SIZE / THICKNESS OR GAUGE
- OFFSET
- STRUCTURE NUMBER: FROM, TO
- TOP ELEVATION (FT.)
- INVERT ELEVATION (FT.)
- INVERT ELEVATION (FT.)
- MINIMUM REQUIRED SLOPE (%)
- Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC): 8, 15, 18, 24, 42; DO NOT USE RCP, DO NOT USE CSP, DO NOT USE CAAP, DO NOT USE HDPE, DO NOT USE PVC
- C. S. PIPE: 15 (.064), 18 (.064)
- DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS: 16 (CLASS 250), 18 (CLASS 250), 24 (CLASS 150), 36 (CLASS 150)
- SEALED DRAINAGE STRUCTURE: MASONRY (CY)
- QUANTITY FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)): 0' THRU 5' (EACH), A 5' THRU 10' (LIN. FT.), B 10' AND ABOVE (LIN. FT.)
- BOOTS FOR SEALED STRUCTURES
- R. C. PIPE CLASS IV: 15, 18, 24, 30, 36, 42, 48
- R. C. PIPE CLASS V: 15, 18, 24, 30
- 42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL
- 42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL
- DRAINAGE STRUCTURE: MASONRY (CY)
- QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)): 0' THRU 5' (EACH), A 5' THRU 10' (LIN. FT.), B 10' AND ABOVE (LIN. FT.)
- C.B. STD. 840.01 OR STD. 840.02
- FRAME, GRATES, AND HOOD STD. 840.03 / GRATE TYPE: E, F, G
- CONCRETE TRANSITIONAL SECTION: D.I. STD. 852.04 OR STD. 852.06; C.B. STD. 852.05
- OPEN THROAT C.B. STD. 840.04 OR STD. 840.05
- D.I. STD. 840.14 OR STD. 840.15
- D.I. FRAME AND GRATES STD. 840.16
- G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27
- G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22
- G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24
- G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24
- G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29
- G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29
- DRIVEWAY D.I. STD. 840.30
- FRAME W/ GRATE FOR DRIVEWAY STD. 840.30
- J.B. STD. 840.31 OR STD. 840.32
- T.B.J.B. STD. 840.34
- T.B.D.I. STD. 840.35
- M.H. STD. 840.51, STD. 840.52, OR STD. 840.53
- M.H. FRAME AND COVER STD. 840.54
- CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)
- CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)
- CONVERT EXIST J.B. TO SLAB TOP J.B.
- ADJUST C.B.
- ADJUST D.I.
- ADJUST M.H.
- 15" SIDE DRAIN PIPE ELBOW
- 15" C.S. ELBOW
- 18" C.S. ELBOW
- C.B. STD 840D02 (SPECIAL DETAIL)
- T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)
- T.B.D.I. STD. 840D35 (SPECIAL DETAIL)
- BERM DITCH OUTLET STD. 850.10 (PER EACH)

LINE & STATION	OFFSET		FLOWABLE FILL (CY)	CONCRETE COLLARS CL. "B" STD. 840.72 (CY)	CONCRETE AND BRICK PIPE PLUG STD. 840.71 (CY)	PIPE REMOVAL (LIN. FT.)	REMARKS
Y1 20+64	47	RT				48	REMOVE EXIST. 12" RCP
L 32+65	58	LT				60	REMOVE EXIST. 60" RCP
Y6 14+18	23	LT				96	REMOVE EXIST. 18" RCP
L 11+86	22	RT	1				
L 11+71	10	RT	3				
L 11+65	17	LT	3				
L 11+02	39	RT	11				
L 46+83	25	RT	144				
Y1 20+38	13	RT	12				
Y1 19+91	9	LT	1				
Y1 19+10	13	RT	29				
L 40+41	46	LT	11				
L 48+85	2	RT	5				
L 48+22	8	LT	6				
L 48+60	50	RT	2				
Y2LPC 10+92	9	LT	0.4				
FLYOVER 25+37	10	LT	1				
Y6 18+20	34	LT	1				
Y6 13+81	8	RT	4				
Y6 14+69	1	RT	2				
Y1 15+41	78	LT	7				
Y1 15+53	37	RT	7				
Y1 15+93	42	RT	1				
Y1 17+01	119	LT	54				
Y1 17+10	20	LT	12				
Y1 17+09	10	LT	9				
Y1 17+24	19	RT	12				
Y1 17+79	12	RT	12				
Y1 16+60	96	LT	1				
L 23+93	72	LT	29				
L 23+53	113	RT	122				
Y1 22+18	88	LT	49				
Y6 13+19	0	CL	3				
L 13+53	34	LT	5				
L 44+15	10	RT	2				
L 44+21	46	LT	1				
L 38+82	28	LT	15				
L 34+75	13	RT	2				
L 33+67	28	LT	6				
L 32+48	13	RT	64				
L 13+97	41	LT	6				
L 11+66	40	LT	2				
L 12+60	34	LT	7				
Y1RPD 10+96	6	LT	0.3				
L 40+46	13	RT	4				
Y1RPC 17+46	14	LT	1				
Y1RPC 16+13	29	LT	2				
L 16+38	4	LT	4				
Y1RPC 11+44	44	RT	2				
FLYOVER 13+54	16	RT				54	REMOVE EXIST. 15" RCP
SHEET TOTALS			678			258	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

DL83370

COMPUTED BY:	VWB	DATE:	9/25/2015
CHECKED BY:	JDL	DATE:	2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

Column headings: LINE & STATION / SIZE / THICKNESS OR GAUGE; OFFSET; STRUCTURE NUMBER (FROM, TO); TOP ELEVATION (FT.); INVERT ELEVATION (FT.); INVERT ELEVATION (FT.); MINIMUM REQUIRED SLOPE (%); Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) (8, 15, 18, 24, 42; DO NOT USE RCP; DO NOT USE CSP; DO NOT USE CAAP; DO NOT USE HDPE; DO NOT USE PVC); C. S. PIPE (15 .064, 18 .064); DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS (16 (CLASS 250), 18 (CLASS 250), 24 (CLASS 150), 36 (CLASS 150)); SEALED DRAINAGE STRUCTURE (MASONRY, CY); QUANTITY FOR SEALED DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) (0' THRU 5' EACH; A 5' THRU 10' LIN. FT.; B 10' AND ABOVE LIN. FT.); BOOTS FOR SEALED STRUCTURES; R. C. PIPE CLASS IV (15, 18, 24, 30, 36, 42, 48); R. C. PIPE CLASS V (15, 18, 24, 30); 42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL; 42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL; DRAINAGE STRUCTURE (MASONRY, CY); QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) (0' THRU 5' EACH; A 5' THRU 10' LIN. FT.; B 10' AND ABOVE LIN. FT.); C.B. STD. 840.01 OR STD. 840.02; FRAME, GRATES, AND HOOD STD. 840.03 — GRATE TYPE (E, F, G); CONCRETE TRANSITIONAL SECTION (D.I. STD. 852.04 OR STD. 852.06; C.B. STD. 852.05); OPEN THROAT C.B. STD. 840.04 OR STD. 840.05; D.I. STD. 840.14 OR STD. 840.15; D.I. FRAME AND GRATES STD. 840.16; G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27; G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22; G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24; G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24; G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29; G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29; DRIVEWAY D.I. STD. 840.30; FRAME W/ GRATE FOR DRIVEWAY STD. 840.30; J.B. STD. 840.31 OR STD. 840.32; T.B.J.B. STD. 840.34; T.B.D.I. STD. 840.35; M.H. STD. 840.51, STD. 840.52, OR STD. 840.53; M.H. FRAME AND COVER STD. 840.54; CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL); CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL); CONVERT EXIST J.B. TO SLAB TOP J.B.; ADJUST C.B.; ADJUST D.I.; ADJUST M.H.; 15" SIDE DRAIN PIPE ELBOW; 15" C.S. ELBOW; 18" C.S. ELBOW; C.B. STD 840D02 (SPECIAL DETAIL); T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL); T.B.D.I. STD. 840D35 (SPECIAL DETAIL); BERM DITCH OUTLET STD. 850.10 (PER EACH); FLOWABLE FILL (CY); CONCRETE COLLARS CL. "B" STD. 840.72 (CY); CONCRETE AND BRICK PIPE PLUG STD. 840.71 (CY); PIPE REMOVAL (LIN. FT.); REMARKS.

All columns not shown below are empty for every row.

LINE & STATION	OFFSET		PIPE REMOVAL LIN. FT.	REMARKS
Y1 22+98	12	LT	84	REMOVE EXIST. 24" RCP
L 10+36	39	RT	33	REMOVE EXIST. 18" RCP
Y1RPD 10+96	36	LT	17	REMOVE EXIST. 15" RCP
L 29+59	63	RT	276	REMOVE EXIST. 24" RCP
L 31+65	54	RT	131	REMOVE EXIST. 24" RCP
L 32+33	73	RT	11	REMOVE EXIST. 48" RCP
L 32+32	61	RT	11	REMOVE EXIST. 48" RCP
Y1RPD 10+96	18	LT	17	REMOVE EXIST. 15" RCP
L 39+81	69	RT	136	REMOVE EXIST. 12" CMP
FLYOVER 10+73	13	RT	85	REMOVE EXIST. 12" RCP
FLYOVER 11+40	10	RT	42	REMOVE EXIST. 15" RCP
FLYOVER 11+85	10	RT	40	REMOVE EXIST. 15" RCP
FLYOVER 12+10	1	RT	18	REMOVE EXIST. 15" RCP
FLYOVER 12+24	36	LT	58	REMOVE EXIST. 15" RCP
L 44+55	60	RT	90	REMOVE EXIST. 15" RCP
L 45+28	70	RT	46	REMOVE EXIST. 15" RCP
FLYOVER 13+76	24	LT	26	REMOVE EXIST. 42" RCP
FLYOVER 13+80	2	LT	15	REMOVE EXIST. 42" RCP
FLYOVER 13+80	13	RT	13	REMOVE EXIST. 42" RCP
FLYOVER 14+32	1	LT	101	REMOVE EXIST. 12" RCP
L 48+42	71	RT	26	REMOVE EXIST. 18" RCP
L 48+59	89	RT	54	REMOVE EXIST. 12" CMP
L 49+12	52	LT	38	REMOVE EXIST. 18" RCP
L 49+32	82	LT	29	REMOVE EXIST. 18" RCP
FLYOVER 19+48	34	RT	65	REMOVE EXIST. 18" RCP
FLYOVER 19+73	73	RT	26	REMOVE EXIST. 18" RCP
FLYOVER 19+92	98	RT	6	REMOVE EXIST. 15" RCP
FLYOVER 19+93	71	RT	47	REMOVE EXIST. 15" RCP
L 52+58	69	RT	64	REMOVE EXIST. 15" RCP
Y2RPA 17+79	2	LT	165	REMOVE EXIST. 15" CMP
FLYOVER 25+49	23	LT	15	REMOVE EXIST. 8" CMP
L 16+30	60	LT	38	REMOVE EXIST. 15" RCP
Y2LPC 11+04	11	RT	53	REMOVE EXIST. 15" RCP
Y6 14+66	24	RT	11	REMOVE EXIST. 15" RCP
Y6 17+96	4	LT	56	REMOVE EXIST. 6" RCP
Y1RPD 12+41	27	LT	23	REMOVE EXIST. 15" RCP
Y1RPD 12+34	19	LT	12	REMOVE EXIST. 15" RCP
Y1 16+91	83	LT	51	REMOVE EXIST. 15" RCP
Y1 17+20	73	LT	13	REMOVE EXIST. 15" RCP
Y1 20+64	47	RT	47	REMOVE EXIST. 12" RCP
Y1 20+30	63	RT	31	REMOVE EXIST. 6" CLAY
Y6 16+31	17	LT	21	REMOVE EXIST. 12" RCP
Y6 13+63	46	RT	45	REMOVE EXIST. 18" RCP
Y5 12+88	3	LT	65	REMOVE EXIST. 60" RCP
L 17+90	66	LT	18	REMOVE EXIST. 15" RCP
Y1RPC 16+14	4	RT	28	REMOVE EXIST. 15" RCP
Y1 20+85	31	RT	7	REMOVE EXIST. 24" RCP
Y1 21+72	74	LT	21	REMOVE EXIST. 18" RCP
Y1 16+74	67	LT	75	REMOVE EXIST. 36" RCP
L 16+14	76	LT	4	REMOVE EXIST. 15" RCP
SHEET TOTALS			2404	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

DL83370

COMPUTED BY:	VWB	DATE:	9/25/2015
CHECKED BY:	JDL	DATE:	2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-11

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 8	15	18	24	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 15 .064	18 .064	
Y1RPC 11+39	14 RT																			
Y1RPC 12+08	21 RT																			
Y1RPC 12+06	5 RT																			
L 10+49	43 RT																			
L 10+34	40 RT																			
L 14+90	59 LT																			
L 24+24	46 LT																			
L 24+14	27 LT																			
L 52+13	47 RT																			
L 52+14	77 RT																			
Y7 11+82	0 CL																			
FLYOVER 22+57	98 RT																			
SHEET TOTALS																				
PROJECT TOTALS								12	712	76	56	76						60	60	

LINE & STATION	OFFSET	DIP SEALED PIPE SYSTEM SEE SPECIAL PROVISIONS 16 (CLASS 250)	18 (CLASS 250)	24 (CLASS 150)	36 (CLASS 150)	SEALED DRAINAGE STRUCTURE MASONRY CY	QUANTITY FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	BOOTS FOR SEALED STRUCTURES	R. C. PIPE CLASS IV 15	18	24	30	36	42	48		R. C. PIPE CLASS V 15	18	24	30	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL
Y1RPC 11+39	14 RT																							
Y1RPC 12+08	21 RT																							
Y1RPC 12+06	5 RT																							
L 10+49	43 RT																							
L 10+34	40 RT																							
L 14+90	59 LT																							
L 24+24	46 LT																							
L 24+14	27 LT																							
L 52+13	47 RT																							
L 52+14	77 RT																							
Y7 11+82	0 CL																							
FLYOVER 22+57	98 RT																							
SHEET TOTALS																								
PROJECT TOTALS		208	52	248	176		8	3.2		16	4040	2800	948		252	396	724		596	800	176		48	48

LINE & STATION	OFFSET	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29
Y1RPC 11+39	14 RT																				
Y1RPC 12+08	21 RT																				
Y1RPC 12+06	5 RT																				
L 10+49	43 RT																				
L 10+34	40 RT																				
L 14+90	59 LT																				
L 24+24	46 LT																				
L 24+14	27 LT																				
		58.845					2	4	6												1
L 52+13	47 RT																				
L 52+14	77 RT																				
Y7 11+82	0 CL																				
FLYOVER 22+57	98 RT																				
SHEET TOTALS		58.845					2	4	6												1
PROJECT TOTALS		58.845	183	85.8		115	17	66	54		10		2	14	14	5			2		30

LINE & STATION	OFFSET	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXIST C.B. TO J.B. W/ MH (SP. DETAIL)	CONVERT EXIST J.B. TO C.B. (SPECIAL DETAIL)	CONVERT EXIST J.B. TO SLAB TOP J.B.	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	15" SIDE DRAIN PIPE ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	C.B. STD 840D02 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y1RPC 11+39	14 RT																								28	REMOVE EXIST. 18" RCP
Y1RPC 12+08	21 RT																								26	REMOVE EXIST. 18" RCP
Y1RPC 12+06	5 RT																								6	REMOVE EXIST. 18" RCP
L 10+49	43 RT																								4	REMOVE EXIST. 18" RCP
L 10+34	40 RT																								29	REMOVE EXIST. 15" RCP
L 14+90	59 LT																								131	REMOVE EXIST. 24" RCP
L 24+24	46 LT																								25	REMOVE EXIST. 15" RCP
L 24+14	27 LT																								41	REMOVE EXIST. 15" RCP
								1		1								11	1	1						TOTALS FROM SHEET 3D-12
																						10				RCBC CONSTRUCTION, SEE SHEET 8
L 52+13	47 RT													1												
L 52+14	77 RT													1												
Y7 11+82	0 CL													1												
FLYOVER 22+57	98 RT													1												
SHEET TOTALS								1		1				4				11	1	1		10			290	
PROJECT TOTALS		4	168	8	6	26		17	1	1	2	5		8	2	2	2	21	2	1	1	688	0.5526	0.065	3128	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

DL83370

COMPUTED BY: VWB DATE: 9/25/2015

CHECKED BY: JDL DATE: 2/24/2016

PROJECT NO.	SHEET NO.
B-5121 / B-5317	3D-12

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 54	60	66	72	78	84	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS IV 54	60	66	72	78	84	R. C. PIPE CLASS V 54	60	66	72	78	84	60" WELDED STEEL PIPE 0.875" THICK, GRADE B IN SOIL	60" WELDED STEEL PIPE 0.875" THICK, GRADE B NOT IN SOIL
Y5 13+09	20	RT	0538		291.0																												
			0538	0831		274.5	271.0	0.6													144												
Y5 12+66	27	LT	0540		281.6	272.3																											
L 32+35	55	RT	0606		267.3																												
			0606	0629		258.8	258.4														28												
L 32+33	78	RT	0607		268.8																												
			0607	0606		259.7	259.3	0.4												24													
L 32+80	44	LT	0620		267.0																												
			0620	0612		256.3	255.5	0.3		48									X	X													
L 32+65	55	RT	0629		266.9																												
			0629	0620		258.4	257.3	0.3																								50	50
Y1 16+21	43	LT	0804		270.5																												
			0804	0805		264.0	263.7													40													
Y1 15+80	43	LT	0805		270.7																												
			0805	0806		263.7	262.3													64													
Y6 14+92	22	RT	0826		274.1																												
			0826	0827		266.5	266.1	0.6													36												
Y6 15+29	22	RT	0827		274.2																												
Y7 13+02	22	RT	0828		276.1																												
Y5 11+65	20	RT	0831		279.9																												
			0831	0833		271.0	267.9	0.6													84												
Y5 10+61	20	LT	0832		274.9																												
			0832	0826		267.3	266.5	0.6													76												
Y5 10+80	20	RT	0833		276.0																												
			0833	0832		267.9	267.3	0.6													44												
SHEET TOTALS										48										128	412											50	50
PROJECT TOTALS										48										128	412											50	50

FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29
0538				6.204							1																	
0538	0831																											
0540				6.428																								
0606				4.460						1																		
0606	0629																											
0607				5.516																								1
0607	0606																											
0620				5.012							1																	
0620	0612																											
0629				4.511						1																		
0629	0620																											
0804				2.792					1																			
0804	0805																											
0805				3.000							1																	
0805	0806																											
0826				3.271					1																			
0826	0827																											
0827											1																	
0828				4.904						1																		
0831				4.423							1																	
0831	0833																											
0832				3.307						1																		
0832	0826																											
0833				5.017							1																	
0833	0832																											
SHEET TOTALS				58.845					2	4	6																	1
PROJECT TOTALS				58.845					2	4	6																	1

FROM	TO	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	CONVERT EXISTING J.B. to C.B. (SPECIAL DETAIL)	M.H. FRAME AND COVER STD. 840.54	C.B. STD. 840D02 (SPECIAL DETAIL)	T.B.D.I. STD. 840D35 (SPECIAL DETAIL)	T.B. PRECAST M.H. STD. 840D52 (SPECIAL DETAIL)	BERM DITCH OUTLET STD. 850.10 (PER EACH)	BERM DITCH OUTLET STD. 850.11 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0538													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0538	0831																					
0540												1			1							SPECIAL DESIGN, SEE DETAIL 2C-12
0606													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0606	0629																					REMOVE CB
0607														1								SPECIAL DESIGN, SEE DETAIL 2C-11
0607	0606																					REMOVE DI
0620													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0620	0612																					REMOVE CB
0629													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0629	0620																					
0804													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0804	0805																					
0805													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0805	0806																					
0826													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0826	0827																					
0827											1											SPECIAL DESIGN, SEE DETAIL 2C-17
0828													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0831													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0831	0833																					
0832													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0832	0826																					
0833													1									SPECIAL DESIGN, SEE DETAIL 2C-8
0833	0832																					REMOVE CB's
SHEET TOTALS											1	1	11	1	1							
PROJECT TOTALS											1	1	11	1	1							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

5/28/99

COMPUTED BY: RSH DATE: 5/31/16
CHECKED BY: JWM DATE: 5/31/16

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	3G-1

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GEOTECHNICAL SUMMARIES

SUMMARY OF ROCK PLATING

LINE	BEGINNING SLOPE	APPROX. STATION	END SLOPE	APPROX. STATION	LOCATION (LT/RT)	ROCK PLATING DETAIL NO. 1/2/3/4	RIP RAP CLASS 1/2/B	SQUARE YARDS
-FLYOVER-	1.5:1 (H:V)	21+68 +/-	2:1 (H:V)	22+50+/-	RT	2	2	380

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	STATION	STATION	SY
-L-	19+25	21+39	1236
-L-	23+25	30+00	3375
-FLYOVER-	18+25	19+20	570
-FLYOVER-	21+77	23+25	780
CONTINGENCY			
		TOTAL SY:	5961

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

Line	Station	Station	Aggregate Type ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization SY
-DR2-	10+25	11+29			132	400	400		
-L-	32+46	41+61			708	1,400	1,900		
-Y5-	10+21	11+10			155	400	500		
-Y5-	12+91	13+51			38	200	400		
-Y6-	15+21	19+58			785	1,600	2,600		
CONTINGENCY			ASU	12	5,000	9,800	15,000		
CONTINGENCY			AST	3			2,000	500	
			TOTAL CY/TONS/SY		6,818	13,800	22,800	500	0

ASU = Aggregate Subgrade, AST = Aggregate Stabilization

*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the item Sheets of the Proposal.

3/02/2016

PROJ. REFERENCE NO.	SHEET NO.
B-5121 / B-5317	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME	DEED BOOK
1	5, 6, 7	STATE OF NORTH CAROLINA	DB 9868 - PG 518 BM 2003 - PG 116
2	4, 5	WAKE COUNTY	DB 3720 - PG 808
3	4	RALEIGH DEVIL, LLC	DB 12835 - PG2740 BM 1960 - PG 241
4	4	WILLIAM L. CARTER	DB 6339 - PG 820 BM 1979 - PG 560
5	4	WILLIAM L. CARTER, JR	DB 4382 - PG 9
6	4, 5	ED. CHARITABLE DVLPMTS PROJ. INC	DB 7559 - PG 768
7	5, 8	ARCHIE LINWOOD KING SUCCESSOR TRUSTEE	DB 5369 - PG 541 BM 1947 - PG 673
8	5	MCC OUTDOOR LLC	DB 11239 - PG 2535
10	5	MORRIS COMMUNICATIONS CORP	DB 3521 - PG 669 DB 13727 - PG 2236
11	5, 8	MARGIE MARIE FULLER	DB 10559 - PG 1762
12	5	MCKNITT & ASSOCIATES LLC	DB 8164 - PG 460 DB 2008 - PG 180
13	5, 6, 8	CITY OF RALEIGH	DB 12351 - PG 472 BM 2007 - PG 117, BM 1959 - PG 116 DB 3069 - PG 510 BM 1982 - PG 1070
14	5	STATE OF NORTH CAROLINA	BM 2008 - PG 180
15	5, 6	THE COTTON MILL CONDOMINIUMS	DB 6789 - DB 351 BM 2008 - PG 180
16	5, 6	622 CAPITAL LLC	DB 14601 - DB 1647
17	6	AMERCO REAL ESTATE CO NOW OR FORMERLY KNOWN AS U HAUL REAL ESTATE CO	DB 4561 - DB 910
17	6	AMERCO REAL ESTATE CO	DB 12059 - DB 1274 BM 1959 - PG 104
19	6	WILCOHESS LLC	DB 8964 - DB 1944 BM 1959 - PG 104
20	6	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	DB 13987 - PG 2318 BM 1992 - PG 93, BM 1963 - PG 34
22	6	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	DB 11107 - PG 523 BM 1992 - PG 93
23	6, 7	HENRY J VANPALA	DB 3865 - PG 46 BM 2008 - PG 2034
24	7	HOBCO AUTO SALES	DB 14908 - PG 1234 BM 1959 - PG 262
25	7	WINNERS PLACE INC	DB 14020 - PG 225 BM 1959 - PG 262
26	7	ESC PROPERTIES OF WAKE COUNTY LLC	DB 15887 - PG 155 BM 2003 - PG 964
26A	7	ESC PROPERTIES OF WAKE COUNTY LLC	DB 7807 - PG 382 BM 2003 - PG 964
27	7	JOYNERS REAL ESTATE HOLDINGS V LLC	DB 15087 - PG 2007 BM 1959 - PG 262
28	7	ISABEL HUFMEYER	DB 7807 - PG 382 BM 2003 - PG 964
29	7	SUZANNE ABERNETHY WILLIAM R RUGGLES	DB 13227 - PG 452 BM 1958 - PG 10
30	4,8	HARRINGTON STREET ACQUISITION PARTNERS LLC	DB 15937 - PG 1043 BM 2015 - PG 435
31	8	436 PARTNERS, LLC	DB 14547 - PG 1604 BM 1965 - PG 69
32	8	BWB WEST, LLC	DB 11647 - PG 2176
33	8	HESTER & HESTER	DB 8181 - PG 1853 BM 1885 - PG 104
34	8	MANN FAMILY PROPERTIES OF RALEIGH	DB 11802 - PG 1658
35	8	CHAUCER INVESTMENTS INC	DB 13332 - PG 957 BM 1997 - PG 779
36	8	EDWIN E FLYTHE, JR	DB 3726 - PG 580 BM 1885 - PG 82, BM 1977 - PG 393
37	8	RICHARD GARDNER	DB 8613 - PG 2425
38	8	MARGARET ALTMAN MANN	DB 2989 - PG 318
39	8	JAMES H ANDERSON CO	DB 5940 - PG 289 BM 1993 - PG 1441
40	8	THE CROSSLAND COMPANY	DB 2064 - PG 136 BM 1965 - PG 69
42	7	THOMAS CONCRETE OF CAROLINA INC	DB 2755 - PG 493 BM 1959 - PG 262

REVISIONS

5/14/99

2/26/2016

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024438 ENGINEER JEFFREY W. MOORE
3/8/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWNING
3/8/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

WEST CONDO
DB 13265 - PG 191
BM 2008 - PG 496

HARRINGTON STREET ACQUISITION PARTNERS LLC
DB 15937 PG 1043
BM 2015 PG 435

-Y6- POT Sta. 10+00.00

-Y6- HARRINGTON ST
N 2° 09' 08.9" E

MATCHLINE -Y6- STA 11+50 (SEE SHEET 8)

WAKE COUNTY
DB 3720 - PG 808

HISTORIC BOUNDARY

-BL- 101

SEE NOTE 3
SEE NOTE 2
REMOVE EXIST SIDEWALK

-Y3- POT Sta. 13+53.00
N 12° 13' 57.4" W

END CONSTRUCTION
-Y3- POT Sta. 12+95.00

BEGIN FULL CA
BEGIN 60" CL FENCE
+86(Y3) – 19.89' LT
+86(Y3)
49' LT

-Y3- PCC Sta. 10+58.23

-Y3- PT Sta. 11+58.12

-Y3- PC Sta. 10+18.24

N 30° 16' 29.9" E

BEGIN CONSTRUCTION
-Y3- POT Sta. 10+00.00

-Y3- JOHNSON ST W

CSX TRANSPORTATION NO REFERENCE

-L- 101

MATCHLINE -L- STA 15+50 (SEE SHEET 5)

ABDUL G. ZALAL
DB 3955 - PG 299
BM 2001 - PG 1700

STATE OF NORTH CAROLINA
DB 1463 - PG 173

-SEHSR- 462

N MCDOWELL ST
US-70 W/US-401 N/NC-50 N

N DAWSON ST
US-70 E/US-401 S/NC-50 S

-L- POT Sta. 9+75.00

-L- 101

-YIRPC- 100

-YIRPC- PT Sta. 12+00.12

-YIRPC- PC Sta. 10+00.00 =
-L- POT Sta. 12+40.94 (26.73' RT)

US-70/US-401/NC-50
N 12° 13' 57.4" W

N 2° 48' 46.3" W

BEGIN STATE TIP PROJECT B-5121/B-5317
BEGIN CONSTRUCTION
-L- POT Sta. 9+78.75

BM •5

(3) RALEIGH DEVIL, LLC
DB 12835 - PG 2740
BM 1960 - PG 241

(4) WILLIAM L. CARTER
DB 6339 - PG 820
BM 1979 - PG 560

(5) WILLIAM L. CARTER, JR
DB 4382 - PG 9

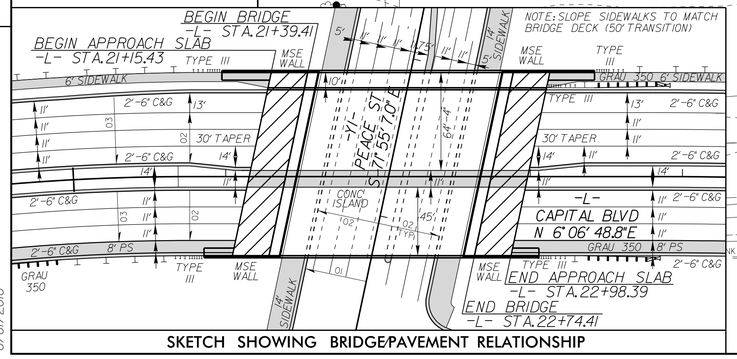
(6) ED. CHARITABLE DVLPMTS PROJ. INC
DB 7559 - PG 768

RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

ANY PIPE OR PORTION OF PIPES THAT ARE FILLED AND LATER FOUND TO BE IN CONFLICT SHALL BE REMOVED WITH NO ADDITIONAL COMPENSATION

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 2C-6 FOR SPILL CURB DETAIL
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 12 FOR -YIRPC- PROFILE
SEE SHEET 14 FOR -Y3- PROFILE

NOTES:
1. TIE PROP JB INTO EXIST SYSTEM
2. BEGIN SPILL CURB -L- STA.15+32 (42' LT)
3. BEGIN SPILL CURB -L- STA.15+32 (9' LT)



5/14/99

REVISIONS

②	WAKE COUNTY	DB 12835 - PG 2740 BM 1960 - PG 241
⑥	ED. CHARITABLE DVLPMTS PROJ. INC	DB 7559 - PG 768
⑦	ARCHIE LINWOOD KING SUCCESSOR TRUSTEE	DB 5369 PG 541 BM 1947 PG 73
⑧	MCC OUTDOOR LLC	DB 11239 - PG 2535
⑩	MORRIS COMMUNICATIONS CORP	DB 3521 - PG 669 DB 13727 - PG 2236
⑪	MARGIE MARIE FULLER	DB 10559 - PG 1762
⑫	MCKNITT & ASSOCIATES LLC	DB 8614 - PG 460 DB 2008 - PG 180
⑬	CITY OF RALEIGH	DB 12531 - PG 472 BM 2007 - PG 117 BM 1959 - PG 116
⑭	STATE OF NORTH CAROLINA	BM 2008 - PG 180
⑯	622 CAPITAL LLC	DB 14601 - DB 1647

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 024436 JEFFREY W. MOORE DocuSigned by: Jeff Moore 661C47B17D0C498... 6/1/2016	SEAL 032615 JASON D. LAWING DocuSigned by: Jason Lawing B53ABA2D65E1407... 6/1/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

6/01/2016

NOTES:

1. END SPILL CURB -L- STA. 16+38 (42' LT)
2. REMOVE 65 L.F. OF EXIST 60" RCP TIE JB W/ MH TO EXIST SYSTEM
3. BEGIN SPILL CURB -YIRPC- STA. 13+57 (6' LT)
4. BEGIN SPILL CURB -YIRPC- STA. 17+46 (20' RT)
5. END SPILL CURB -YIRPD- STA. 14+78 (4' RT) BEGIN SPILL CURB -YIRPD- STA. 14+78 (20' LT)
6. END SPILL CURB -YIRPD- STA. 16+45 (35' LT)
7. REMOVE MH, PLUG AND FILL EXISTING SYSTEMS
8. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
9. MATCH -DR2- PAVEMENT SECTION FOR DRIVEWAY AT -DR2- STA 10+75 (LT)
10. REMOVE DI. PLUG, FILL AND ABANDON SYSTEM
11. CONSTRUCT 3' X 5' CONCRETE SIDEWALK AT -Y1- STA. 17+50 (RT) FOR BUILDING ACCESS

★ TRAFFIC SIGNAL

RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

ANY PIPE OR PORTION OF PIPES THAT ARE FILLED AND LATER FOUND TO BE IN CONFLICT SHALL BE REMOVED WITH NO ADDITIONAL COMPENSATION

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEETS 2B-2 AND 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 2C-6 FOR SPILL CURB DETAIL
SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 11 FOR -Y1- PROFILE
SEE SHEET 12 FOR -YIRPC- AND -YIRPD- PROFILES
SEE SHEET 14 FOR -Y4- AND -Y5- PROFILES
SEE SHEET 15 FOR -DR1- AND -DR2- PROFILES
SEE SHEETS S-1 THRU S-43 FOR STRUCTURE PLANS

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE
3/4/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWINGS
3/7/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA 28+00 (SEE SHEET 5)

MATCHLINE -L- STA 41+50 (SEE SHEET 7)

-BY- 166

NAD 83/NSRS 2007

CITY OF RALEIGH
DB 12531 - PG 472
CITY OF RAL MAPS
B-120A & B-217A

CITY OF RALEIGH
DB 12531 - PG 472
BM 2007 - PG 117
BM 1959 - PG 116
COR MAP B-213
COR MAP B-120A
COR MAP B-217A
COR MAP B-132

CITY OF RALEIGH
DB 3069 - PG 510
BM 1982 - PG 1070

CAPITAL BLVD (US-70/US-401/NC-50)
N 12°10'50.1" E

622 CAPITAL LLC
DB 14601 - DB 1647

AMERCO REAL ESTATE CO
NOW OR FORMERLY
KNOWN AS
U HAUL REAL ESTATE CO
DB 4561 - DB 910

AMERCO REAL
ESTATE CO
DB 12059 - DB 1274
BM 1959 - PG 104

CSX TRANSPORTATION
NO REFERENCE

(1) STATE OF NORTH CAROLINA DB 9868 - PG 518 BM 2003 - PG 116	(20) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 13987 - PG 2318 BM 1992 - PG 93 BM 1963 - PG 34
(19) WILCOHESS LLC DB 8964 - DB 1944 BM 1959 - PG 104	(22) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 13987 - PG 2318 BM 1992 - PG 93 BM 1963 - PG 34

NOTE:
CONTRACTOR TO MAINTAIN ACCESS TO PARCELS 1, 20, AND 22 AT ALL TIMES DURING CONSTRUCTION

RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

ANY PIPE OR PORTION OF PIPES THAT ARE FILLED AND LATER FOUND TO BE IN CONFLICT SHALL BE REMOVED WITH NO ADDITIONAL COMPENSATION

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 2C-6 FOR SPILL CURB DETAIL
SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 12 FOR -YIRPD- PROFILE

-YIRPD- PC Sta. 10+00.00 = -L- POT Sta. 29+13.95 (42' RT)

2/26/2016

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	7

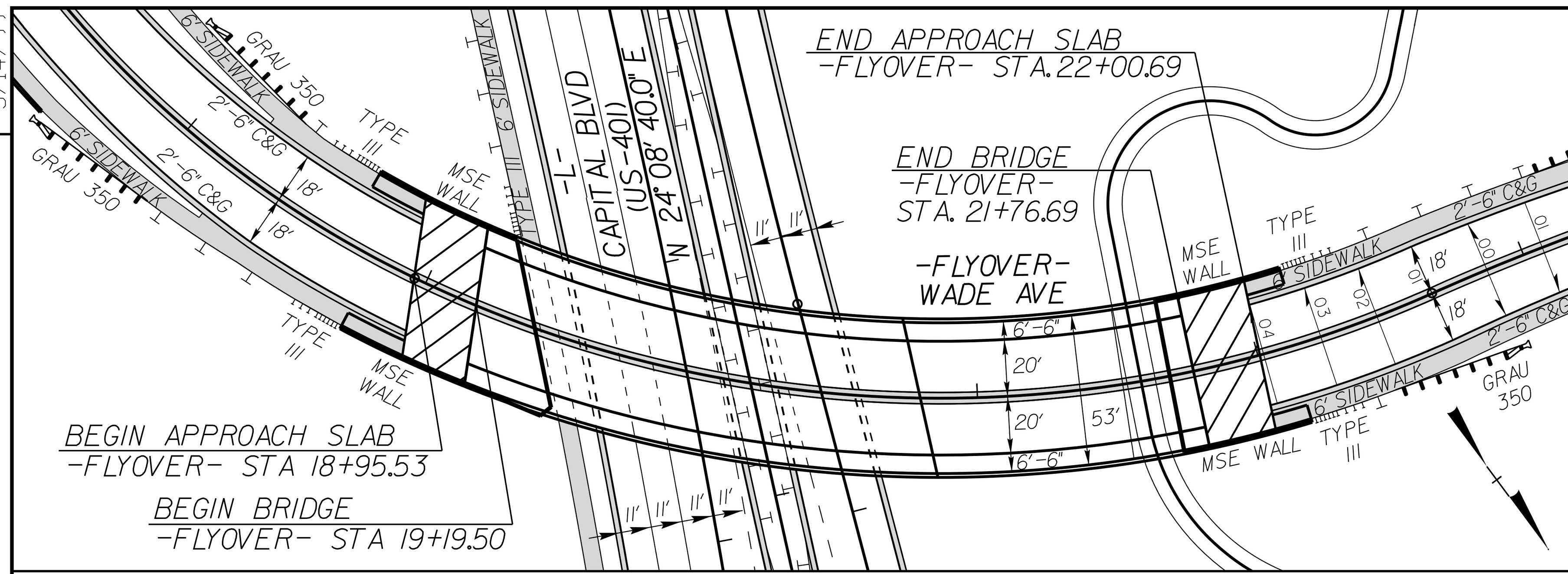
R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE — DocuSigned by: Jeff Moore 661C47B17D0C498... 6/1/2016	NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING — DocuSigned by: Jason Lawing B53AB42265E407... 6/1/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

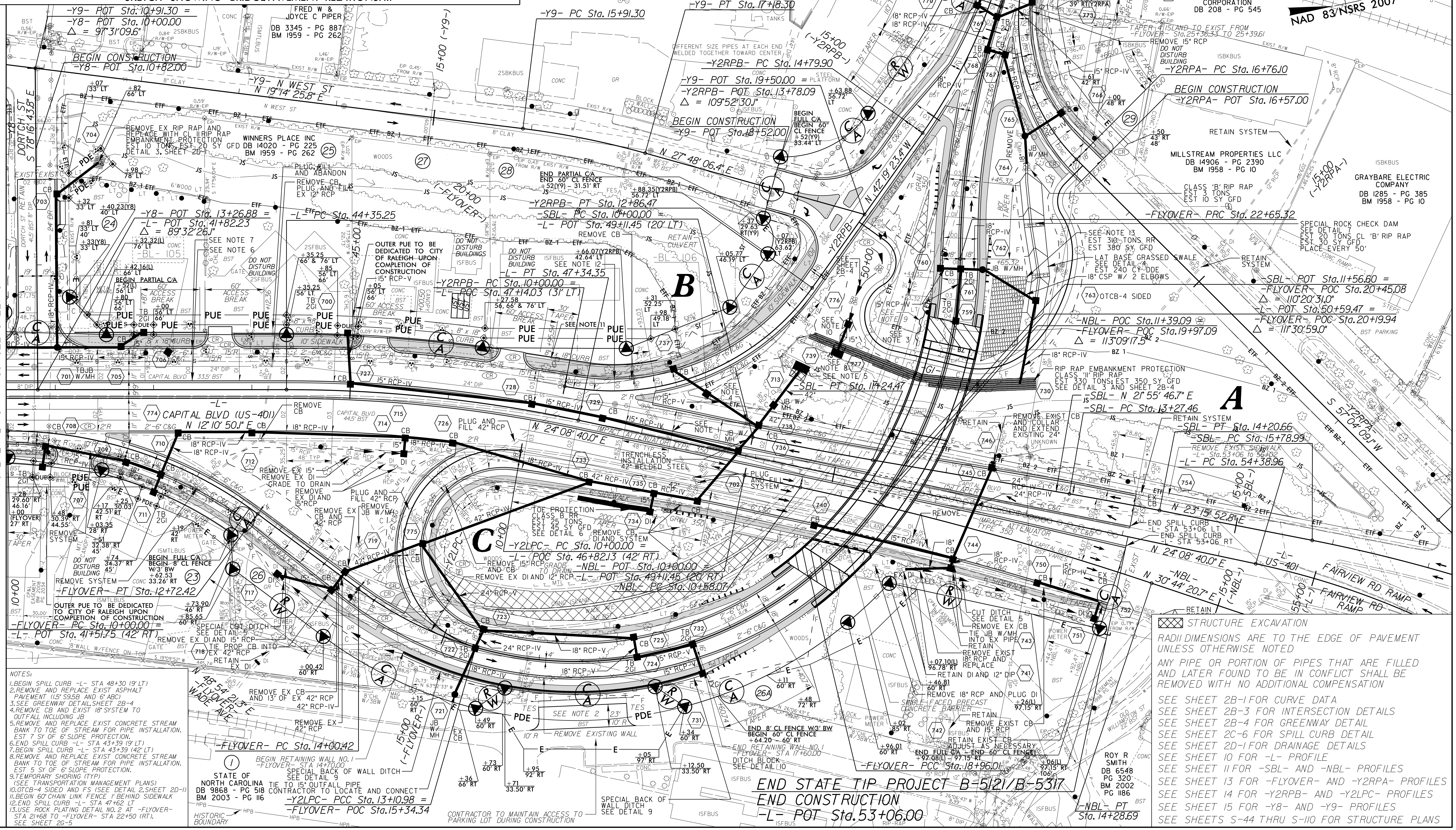
REVISIONS

5/14/99



SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

(23) HENRY J VANPALA DB 3865 - PG 46 BM 2008 - PG 2034
(24) HOBCO AUTO SALES DB 14908 - PG 1234 BM 1959 - PG 262
(26) (26A) ESC PROPERTIES OF WAKE COUNTY, LLC DB 15887 - PG 155 DB 7807 - PG 382 BM 2003 - PG 964
(27) JOYNERS REAL ESTATE HOLDINGS V LLC DB 15087 - PG 2007 BM 1959 - PG 262
(28) ISABEL HUFMEYER DB 7807 - PG 382 BM 2003 - PG 964
(29) SUZANNE ABERNETHY WILLIAM R RUGGLES DB 13227 - PG 452 BM 1958 - PG 10



NOTES:

1. BEGIN SPILL CURB -L- STA 48+30 (9' LT)
2. REMOVE AND REPLACE EXIST ASPHALT PAVEMENT (1.5" S9.5B AND 6" ABC)
3. SEE GREENWAY DETAIL, SHEET 2B-4
4. REMOVE CB AND EXIST 18" SYSTEM TO OUTFALL INCLUDING JB
5. REMOVE AND REPLACE EXIST CONCRETE STREAM BANK TO TOE OF STREAM FOR PIPE INSTALLATION. EST 7 SY OF 6" SLOPE PROTECTION.
6. END SPILL CURB -L- STA 43+39 (9' LT)
7. BEGIN SPILL CURB -L- STA 43+39 (42' LT)
8. REMOVE AND REPLACE EXIST CONCRETE STREAM BANK TO TOE OF STREAM FOR PIPE INSTALLATION. EST 5 SY OF 6" SLOPE PROTECTION.
9. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
10. OTCB-4 SIDED AND FS (SEE DETAIL 2, SHEET 2D-1)
11. BEGIN 60" CHAIN LINK FENCE 1' BEHIND SIDEWALK
12. END SPILL CURB -L- STA 47+62 LT
13. USE ROCK PLATING DETAIL NO. 2 AT -FLYOVER- STA 21+68 TO -FLYOVER- STA 22+50 (RT). SEE SHEET 2G-5

[crosshatch] STRUCTURE EXCAVATION

RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

ANY PIPE OR PORTION OF PIPES THAT ARE FILLED AND LATER FOUND TO BE IN CONFLICT SHALL BE REMOVED WITH NO ADDITIONAL COMPENSATION

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 2B-4 FOR GREENWAY DETAIL
SEE SHEET 2C-6 FOR SPILL CURB DETAIL
SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 11 FOR -SBL- AND -NBL- PROFILES
SEE SHEET 13 FOR -FLYOVER- AND -Y2RPA- PROFILES
SEE SHEET 14 FOR -Y2RPB- AND -Y2LPC- PROFILES
SEE SHEET 15 FOR -Y8- AND -Y9- PROFILES
SEE SHEETS S-44 THRU S-110 FOR STRUCTURE PLANS

6/01/2016

5/14/99

REVISIONS

(2)	WAKE COUNTY DB 12835 - PG 2740 BM 1960 - PG 241
(7)	ARCHIE LINWOOD KING SUCCESSOR TRUSTEE DB 5369 PG 541 BM 1947 PG 73
(11)	MARGIE MARIE FULLER DB 10559 - PG 1762
(33)	HESTER & HESTER DB 8181 - PG 1853 BM 1885 - PG 104
(34)	MANN FAMILY PROPERTIES OF RALEIGH DB 11802 - PG 1658
(35)	CHAUCER INVESTMENTS INC DB 13332 - PG 957 BM 1997 - PG 799
(36)	EDWIN E FLYTHE, JR DB 3726 - PG 580 BM 1885 - PG 82 BM 1977 - PG 393
(37)	RICHARD GARDNER DB 8613 - PG 2425
(38)	MARGARET ALTMAN MANN DB 2989 - PG 318
(39)	JAMES H ANDERSON CO DB 5940 - PG 289 BM 1993 - PG 1441

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PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE

4/11/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWINGS

Digitally signed by Jason Lawings

4/11/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BM7 ELEVATION - 298.06
N 742285 E 2105248
FROM BL-162 TO BM7
N 17°15'03" E DIST 144.27'
BENCH TIE SET IN POWER POLE

NAD 83/NSRS 2007

-Y1- W PEACE ST
N 89°27'43.3" E

10+00 (-Y1-)

BEGIN CONSTRUCTION
-Y1- POC Sta.11+10.00
-Y1- PRC Sta.11+25.64

-Y1- POT Sta.10+00.00
-Y1- PC Sta.10+48.85
-Y1- PT Sta.12+03.30

-Y7- POT Sta.10+00.00

-Y7- W WEST ST
N 89°27'43.3" E

-Y7- JOHNSON ST
S 01°32'16.9" E

BEGIN CONSTRUCTION
-Y7- POT Sta.11+76.00
-Y6- PC Sta.14+69.62

REMOVE CB's AND EXIST SYSTEM

BEGIN SPILL CURB
-Y6- STA.14+33 LT

-Y6- POT Sta.14+08.64 =
-Y5- POT Sta.10+00.00
△ = 90°37'18.3"

BEGIN CONSTRUCTION
-Y6- POT Sta.12+60.00

-Y6- POT Sta.13+53.40 =
-Y6- POC Sta.16+14.60
△ = 75°50'46.9"

-Y1- PC Sta.13+92.98 TBDI

-Y6- PT Sta.16+80.11

15+00 (-Y6-)

-Y5- JOHNSON ST
N 87°13'32.8" E

-Y1- POC Sta.15+99.17
△ = 10°01'04.2"

-Y6- POT Sta.20+00.00 =
-Y1- POC Sta.15+99.17

NORFOLK SOUTHERN CORPORATION
DB 208 - PG 545

HISTORIC BOUNDARY

RYAN D BASHFORD HEIRS
DB 7536 - PG 416
BM 1885 - PG 82

TATUM FAMILY, LLC
DB 9768 - PG 699

KOSTANDINO, LLC
DB 13774 - PG 2660
BM 1885 - PG 82
BM 1915 - PG 39
BM 2010 - PG 006

LINCOLN THEATER
DB 5086 - PG 196
BM 1885 - PG 82

EDWIN E FLYTHE, JR
DB 3726 - PG 580
BM 1885 - PG 82
BM 1977 - PG 393

EDWIN E FLYTHE, JR
DB 2188 - PG 471
BM 1885 - PG 82
BM 1977 - PG 393

RALEIGH DEVELOPMENT CO., LLC
DB 11494 - PG 801
BM 1885 - PG 96

RALEIGH DEVELOPMENT CO., LLC
DB 11494 - PG 801
BM 1885 - PG 96
BM 1981 - PG 04

RALEIGH DEVELOPMENT CO., LLC
DB 11494 - PG 801
BM 1885 - PG 96

RALEIGH DEVELOPMENT CO., LLC
DB14877 - PG0586
BM1885 - PG96

THE CROSSLAND COMPANY
DB 2064 - PG 136
BM 1965 - PG 69

BWB WEST, LLC
DB 11647 - PG 2176

HARRINGTON STREET ACQUISITION PARTNERS LLC
DB 15937 - PG 1043
BM 2015 - PG 435

436 PARTNERS, LLC
DB 14547 - PG 1604
BM 1965 - PG 69

CITY OF RALEIGH
DB 12531 - PG 472
BM 2007 - PG 117
BM 1959 - PG 116

-BY- 161
-BY- 162
-BY- 163

MATCHLINE -Y6- STA 11+50 (SEE SHEET 4)

MATCHLINE -Y5- STA 12+00 (SEE SHEET 5)

MATCHLINE -Y1- STA 17+00 (SEE SHEET 5)

NOTES:
1. REMOVE TOP OF EXISTING STONE WALL TO AN ELEVATION APPROXIMATELY 1' BELOW EXISTING PARKING LOT. REMOVE TOP OF WALL APPROXIMATELY 22' FROM EXISTING RCBC HEADWALL TO BEYOND THE 14' PROPOSED SIDEWALK AND CHAIN LINK FENCE.USE FLOWABLE FILL BETWEEN EXISTING STONE WALL AND OUTSIDE OF PROPOSED RCBC.EST 10 CY FLOWABLE FILL.
2. REMOVE EXIST DI AND INSTALL TB 2GI ON TOP OF RCBC.
3. GRADE LOW AREA AROUND PROPOSED SIGNAL POLE TO DRAIN TO DROP INLET (851). CONTRACTOR TO ENSURE POSITIVE DRAINAGE AND KEEP ANY WATER FROM BEING TRAPPED ALONG -Y1- AND -Y6-.
4. OUTLET PIPE INTO SIDE OF CULVERT
5. END CULVERT -Y1- STA 15+25.76
6. TEMPORARY SHORING (TYP.)(SEE TRANSPORTATION MANAGEMENT PLANS)
7. PLUG AND FILL EXIST 18" RCP
8. PLUG, FILL, AND ABANDON EXIST 48" RCP
9. DO NOT DISTURB BUILDING

★ TRAFFIC SIGNAL

RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

ANY PIPE OR PORTION OF PIPES THAT ARE FILLED AND LATER FOUND TO BE IN CONFLICT SHALL BE REMOVED WITH NO ADDITIONAL COMPENSATION

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEETS 2B-2 AND 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 2C-6 FOR SPILL CURB DETAIL
SEE SHEET 11 FOR -Y1- PROFILE
SEE SHEET 14 FOR -Y5- PROFILE
SEE SHEET 15 FOR -Y6- AND -Y7- PROFILES
SEE SHEETS C-1 THRU C-10 FOR CULVERT PLANS

4/11/2016

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	9

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
Jeffrey W Moore
3/8/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032401 ENGINEER JASON D. LANNING
Jason Lanning
3/8/2016

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BM #5
BENCH TIE SET IN POWER POLE
DISTANCE = 332.15'
BEARING = S 44° 03'13.66" E
TO -L- STA 9+75.00
ELEV = 313.79'

BEGIN GRADE
-L- STA 10+21.00
ELEV = 297.12'
TIE TO EXIST PAVEMENT

PI = 11+07.00
EL = 295.25'
VC = 110'
K = 67
DS = 40 MPH

(-)12.1744%
(-)10.5390%

-L- CAPITAL BOULEVARD (US-70/US-401/NC-50)

SEE SHEET NO.4 FOR -L- PLAN

-L- STA 16+91.63 =
-Y5- STA 14+19.45
ELEV = 293.51'

BEGIN BRIDGE
-L- STA 21+39.41
ELEV = 302.67'

END BRIDGE
-L- STA 22+74.41
ELEV = 301.76'

PI = 22+25.00
EL = 304.98'
VC = 300'
K = 46
DS = 40 MPH

PI = 16+45.00
EL = 292.35'
VC = 180'
K = 66
DS = 40 MPH

(+)2.1776%
(-)14.3053%
(-)10.5390%
(+)2.1776%

MSE WALL
MSE WALL

BM #49
SQUARE CHISLED IN CONCRETE RETAINING WALL
-L- STA 21+34 (4' LT)
ELEV = 288.28'

LEGEND
DITCH GRADE LT
DITCH GRADE RT
UNDERCUT EXCAVATION

-L- CAPITAL BOULEVARD (US-70/US-401/NC-50)

SEE SHEET NO.5 FOR -L- PLAN

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CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	10

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024438 ENGINEER JEFFREY W MOORE

3/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING

3/7/2016

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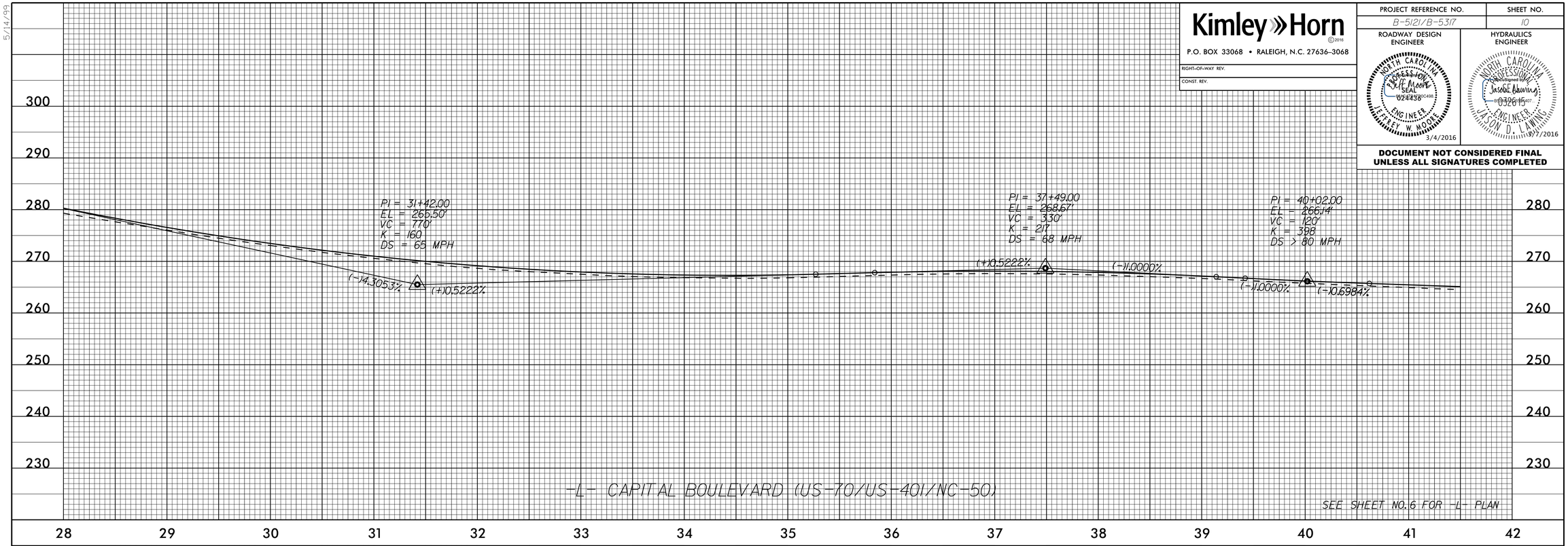

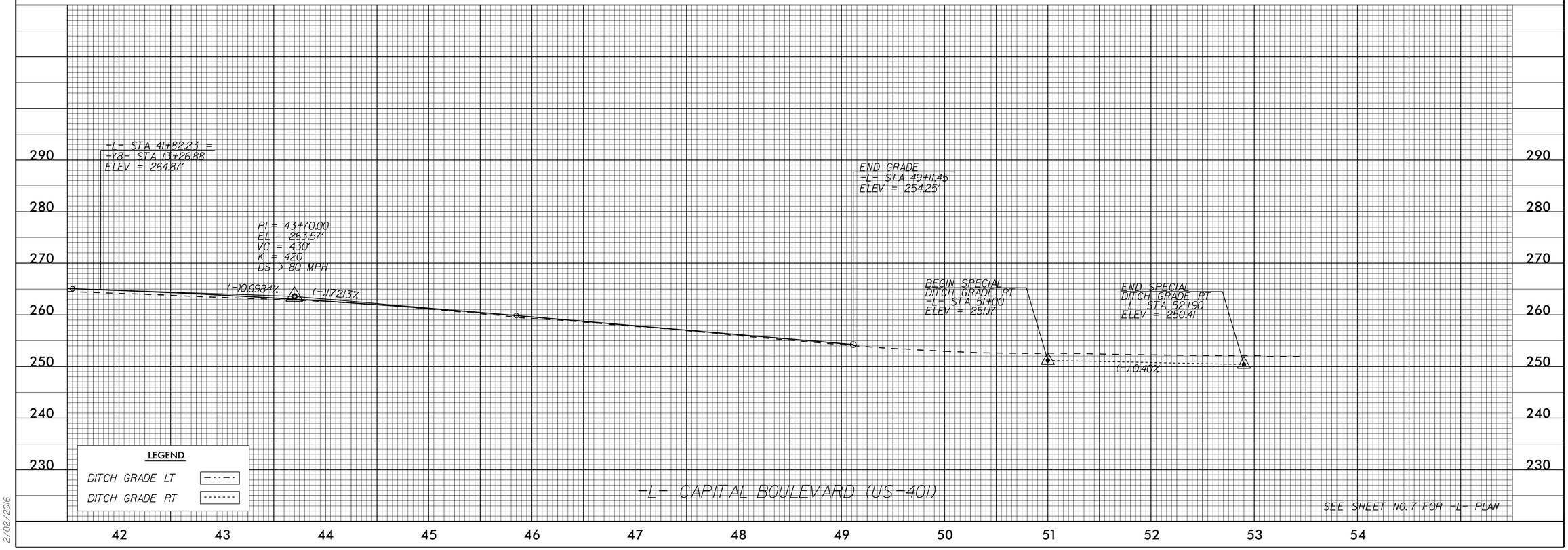

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	11

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
Jeff Moore
3/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032407 ENGINEER JASON D. LAWING
Digitally signed by Jason Lawing
3/7/2016

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BEGIN GRADE
-NBL- STA 10+00.00 =
-L- STA 49+11.45 (20' RT)
ELEV = 253.85'

PI = 10+50.00
EL = 252.99'
VC = 100'
K = 76
DS = 44 MPH

(-)1.72150% (-)0.40390%

END GRADE
-NBL- STA 13+92.47 =
-L- STA 53+03.32 (37.35' RT)
ELEV = 251.61'
TIE TO EXIST PAVEMENT

-NBL-

SEE SHEET NO. 7 FOR -NBL- PLAN

BEGIN GRADE
-SBL- STA 10+00.00 =
-L- STA 49+11.45 (20' LT)
ELEV = 253.91'

PI = 10+76.00
EL = 252.60'
VC = 150'
K = 106
DS = 53 MPH

(-)1.72370% (-)0.30170%

END GRADE
-SBL- STA 13+94.25 =
-L- STA 53+05.49 (32.27' LT)
ELEV = 251.64'
TIE TO EXIST PAVEMENT

-SBL-

SEE SHEET NO. 7 FOR -SBL- PLAN

BM #7
BENCH TIE SET IN POWER POLE
-Y1- STA 12+46 (129' LT)
ELEV = 298.06'

BEGIN GRADE
-Y1- STA 12+15.00
ELEV = 286.99'
TIE TO EXIST PAVEMENT

PI = 12+45.00
EL = 285.79'
VC = 60'
K = 20
DS = 30 MPH

(-)4.00000% (-)17.00000%

CULVERT HYDRAULIC DATA
2 @ 11'W x 7'H RCBC

DESIGN DISCHARGE	= 870 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 267.7 FT
BASE DISCHARGE	= 900 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 267.86 FT
OVERTOPPING DISCHARGE	= N/A
OVERTOPPING FREQUENCY	= N/A
OVERTOPPING ELEVATION	= N/A
DATE OF SURVEY	AUG. 8, 2012
W.S. ELEVATION AT DATE OF SURVEY	= 261.6 FT

-Y1- STA 15+99.17 =
-Y6- STA 20+00.00
ELEV = 271.64'

PI = 15+15.00
EL = 266.89'
VC = 480'
K = 49
DS = 35 MPH

(-)17.00000% (+)27.72050%

2 @ 11' X 7' RCBC

(+)1.00%

END SPECIAL DITCH GRADE LT
-Y1- STA 17+27
ELEV = 267.38

BEGIN SPECIAL DITCH GRADE LT
-Y1- STA 16+70
ELEV = 266.81

-Y1- STA 19+90.38 =
-Y1RPC- STA 19+15.86 =
-Y1RPD- STA 17+27.42
ELEV = 281.36'

PI = 19+55.00
EL = 278.86'
VC = 210'
K = 64
DS = 40 MPH

(+)27.72050% (+)6.00000%

PI = 21+70.00
EL = 291.76'
VC = 220'
K = 44
DS = 40 MPH

(+)6.39% (+)6.00000% (+)1.00079%

END SPECIAL DITCH GRADE RT
-Y1- STA 21+50
ELEV = 294.29

BEGIN SPECIAL DITCH GRADE RT
-Y1- STA 20+65
ELEV = 288.86

END GRADE
BEGIN MILLING & RESURFACING (1.5")
-Y1- STA 22+97.00
ELEV = 293.04'

END MILLING & RESURFACING (1.5")
-Y1- STA 25+75.00
ELEV = 298.16'

LEGEND
DITCH GRADE LT
DITCH GRADE RT

-Y1- PEACE STREET

SEE SHEET NOS. 5 AND 8 FOR -Y1- PLAN

2/02/2016

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CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	12

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
3/4/2016

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING
3/4/2016

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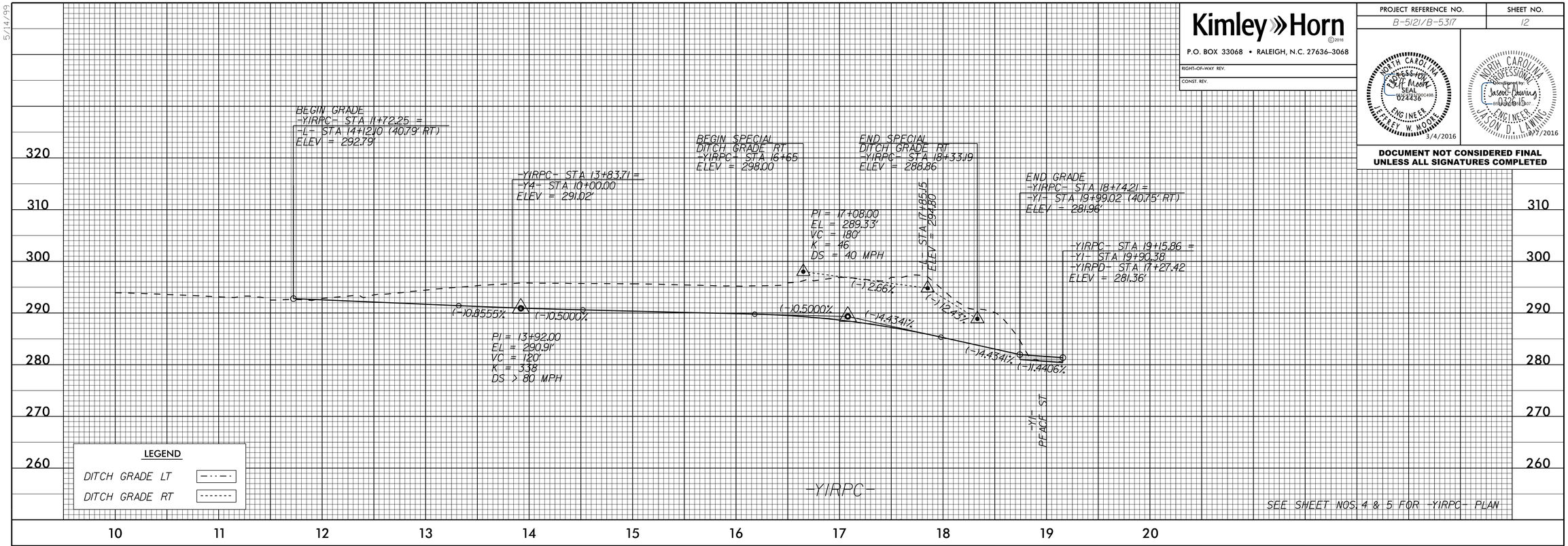

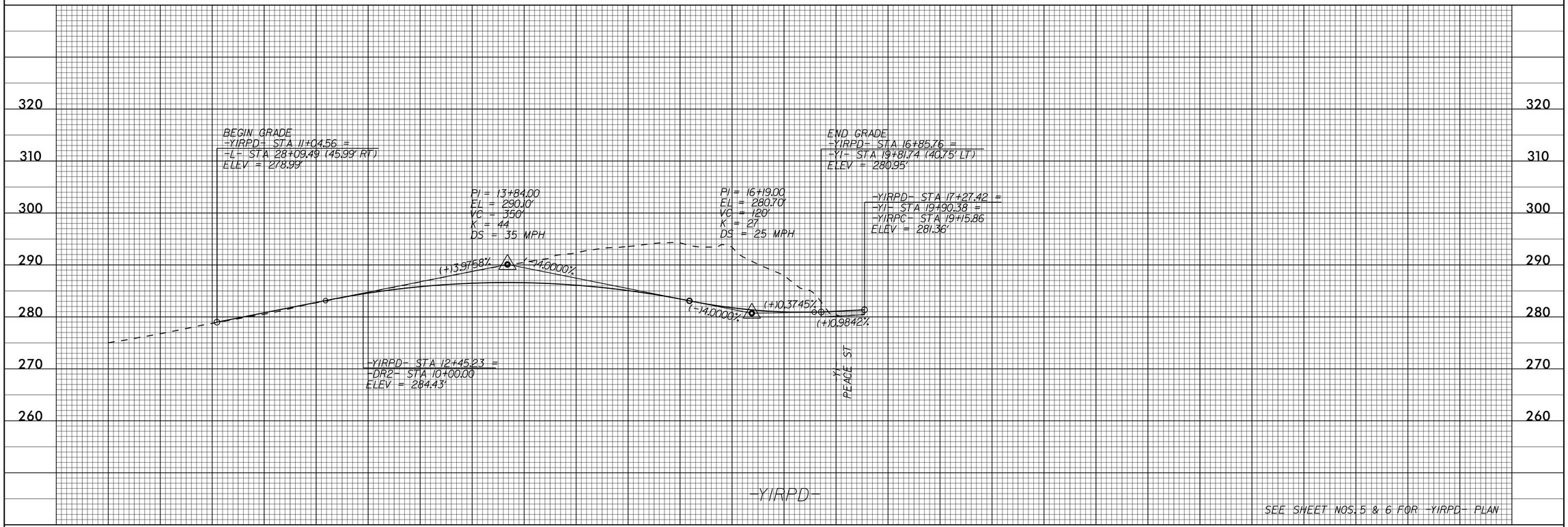

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	13

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE

3/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING

9/7/2016

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BEGIN GRADE
-FLYOVER- STA 10+58.08 =
-L- STA 42+09.55 (45.96' RT)
ELEV = 263.65'

PI = 11+41.00
EL = 262.65'
VC = 150'
K = 50
DS = 35 MPH

(-)1.2060%

(+)1.7956%

(+)1.44%

(+)6.84%

-FLYOVER- STA 15+34.34 =
-Y2LPC- STA 13+10.98
ELEV = 268.96'

-FLYOVER- STA 14+00.23
ELEV = 265.23

BEGIN BRIDGE
-FLYOVER- STA 19+19.50
ELEV = 276.63'

PI = 20+51.00
EL = 278.99'
VC = 260'
K = 30
DS = 35 MPH

(+)1.7956%

(-)7.0000%

END BRIDGE
-FLYOVER- STA 21+76.89
ELEV = 270.19'

MSE WALL

MSE WALL

(-)7.0000%

(-)7.0060%

(+)0.58%

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1500 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	246.2 FT
BASE DISCHARGE	=	1600 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	246.48 FT
OVERTOPPING DISCHARGE	=	N/A
OVERTOPPING FREQUENCY	=	N/A
OVERTOPPING ELEVATION	=	N/A
DATE OF SURVEY		AUG. 29, 2012
W.S. ELEVATION AT DATE OF SURVEY	=	237.3 FT

BEGIN SPECIAL DITCH GRADE RT
-FLYOVER- STA 13+25
ELEV = 264.15

END SPECIAL DITCH GRADE RT
-FLYOVER- STA 14+70
ELEV = 270.02

PIGEON HOUSE BRANCH

BEGIN SPECIAL DITCH GRADE RT
-FLYOVER- STA 22+12
ELEV = 246.11

-FLYOVER- STA 22+30 RT
ELEV = 246.00

END SPECIAL DITCH GRADE RT
-FLYOVER- STA 23+70
ELEV = 246.89

LEGEND

DITCH GRADE LT

DITCH GRADE RT

-FLYOVER-

SEE SHEET NO. 7 FOR -FLYOVER- PLAN

END GRADE
-FLYOVER- STA 25+76.00
ELEV = 254.19'
TIE TO EXIST PAVEMENT

PI = 24+26.00
EL = 252.74'
VC = 300'
K = 38
DS = 30 MPH

(+)0.9667%

BEGIN GRADE
-Y2RPA- STA 16+57.00
ELEV = 251.85'
TIE TO EXIST PAVEMENT

PI = 16+98.00
EL = 252.12'
VC = 70'
K = 89
DS = 48 MPH

PI = 17+94.00
EL = 253.51'
VC = 60'
K = 53
DS = 43 MPH

(+)1.4479%

(+)0.6585%

(+)0.3153%

END GRADE
-Y2RPA- STA 18+38.40 =
-FLYOVER- STA 25+23.26 (19.84' RT)
ELEV = 253.65'

-Y2RPA-

SEE SHEET NO. 7 FOR -Y2RPA- PLAN

2/10/2016

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	14

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W MOORE
JEFFREY W. MOORE
3/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING
Jason Lawing
03/26/15
3/4/2016

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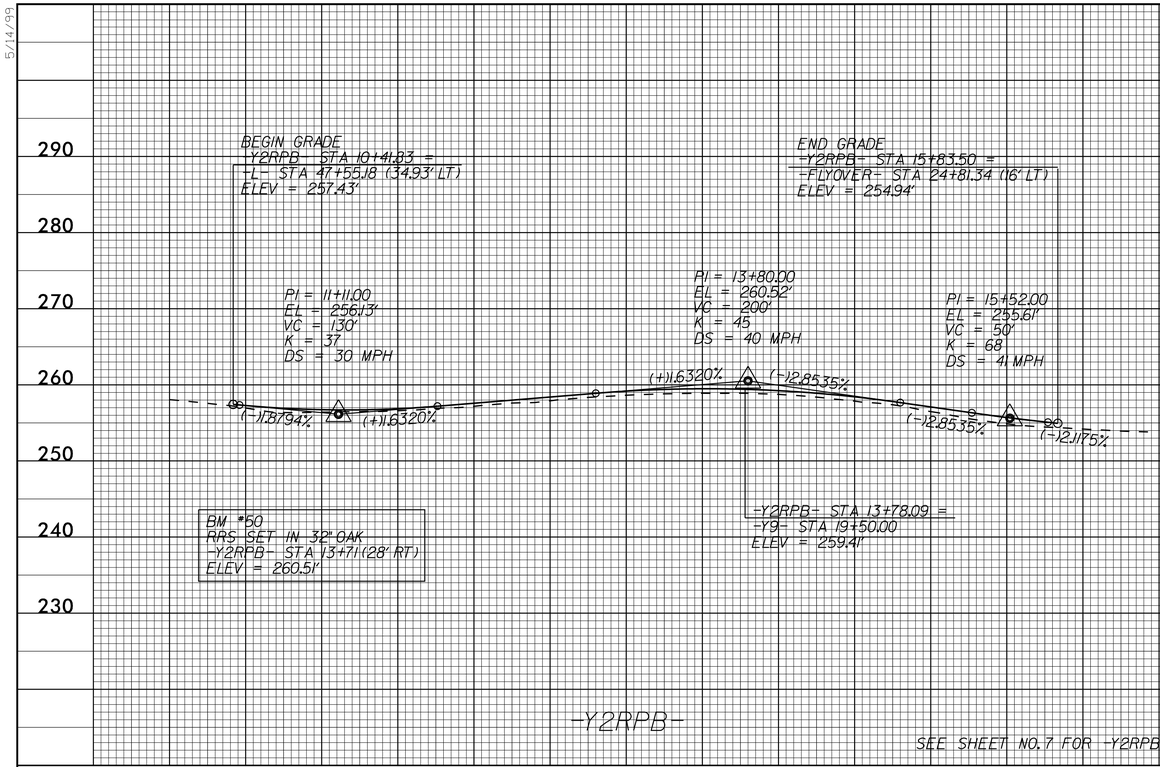

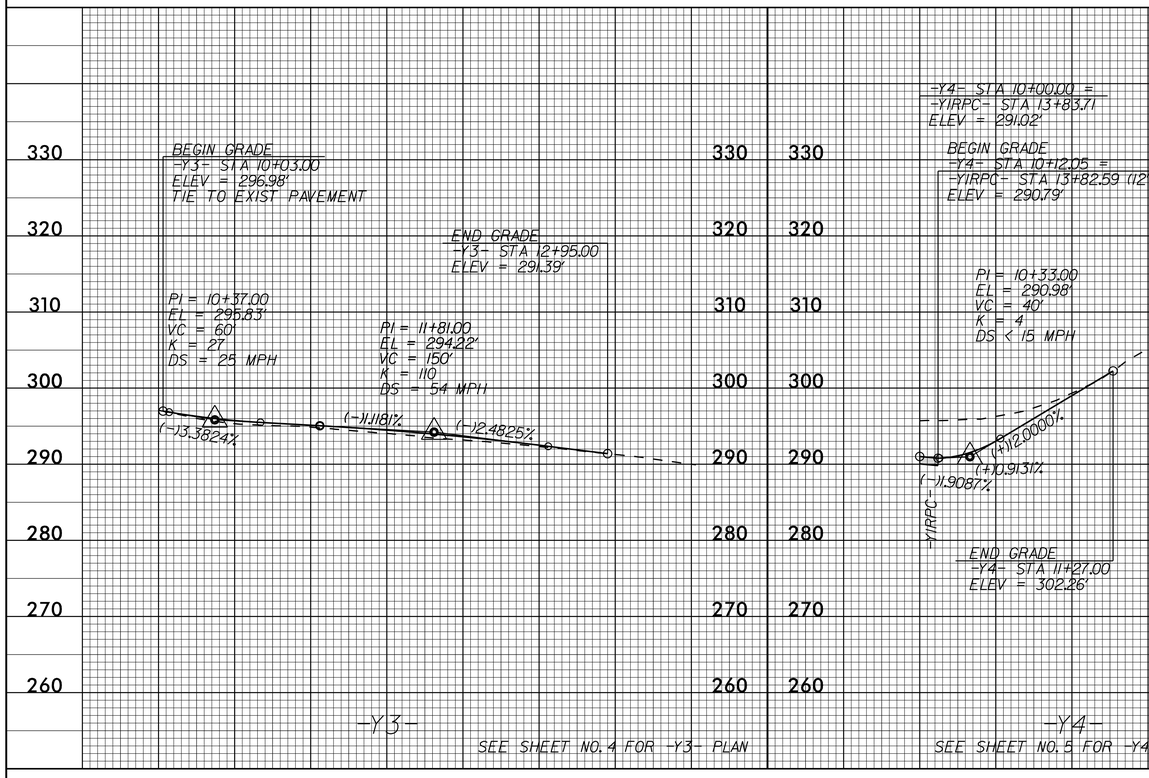

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	15

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024438 ENGINEER JEFFREY W. MOORE

3/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING

Digitally signed by Jason Lawing
DN: cn=Jason Lawing, o=Kimley-Horn and Associates, Inc., ou, email=jason.lawing@kimley-horn.com, c=US
Date: 2016.09.07 09:37:15

9/7/2016

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BEGIN GRADE
-Y6- STA 12+60.00
ELEV = 275.88'
TIE TO EXIST PAVEMENT

PI = 13+20.00
EL = 274.53'
VC = 120'
K = 39
DS = 30 MPH

PI = 14+00.00
EL = 275.19'
VC = 40'
K = 29
DS = 35 MPH

PI = 15+04.00
EL = 274.60'
VC = 100'
K = 67
DS = 40 MPH

-Y6- STA 16+14.60 =
-Y7- STA 13+53.40
ELEV = 275.62'

PI = 17+34.00
EL = 276.73'
VC = 120'
K = 29
DS = 35 MPH

END GRADE
-Y6- STA 19+58.46 =
-Y1- STA 15+90.95 (40.75' RT)
ELEV = 270.85'

-Y6- STA 20+00.00 =
-Y1- STA 15+99.17
ELEV = 271.64'

PI = 19+00.00
EL = 271.44'
VC = 110'
K = 51
DS = 35 MPH

(-)2.2500%
(+)0.8250%
(-)0.5673%
(+)0.9261%
(+)0.9261%
(-)3.1867%
(-)3.1867%
(-)1.0093%
(+)1.9019%

-Y6- STA 14+08.64 =
-Y5- STA 10+00.00
ELEV = 275.12'

-Y1- PEACE ST

-Y6-

SEE SHEET NO. 8 FOR -Y6- PLAN

-Y7- STA 13+53.40 =
-Y6- STA 16+14.60
ELEV = 275.62'

END GRADE
-Y7- STA 13+32.79 =
-Y6- STA 16+09.71 (20' LT)
ELEV = 275.98'

BEGIN GRADE
-Y7- STA 11+76.00
ELEV = 279.00'
TIE TO EXIST PAVEMENT

PI = 12+50.00
EL = 277.67'
VC = 100'
K = 410
DS > 80 MPH

(-)1.7975%
(-)2.0413%
(-)1.7469%

-Y6- HARRINGTON ST

-Y7-

SEE SHEET NO. 8 FOR -Y7- PLAN

BEGIN MILLING & RESURFACING (1.5")
-Y8- STA 11+13.00
ELEV = 259.41'
TIE TO EXIST PAVEMENT

END MILLING & RESURFACING (1.5")
BEGIN GRADE
-Y8- STA 11+81.00
ELEV = 261.74'

END GRADE
-Y8- STA 12+84.88 =
-L- STA 41+81.89 (42' LT)
ELEV = 264.03'

-Y8- STA 13+26.88 =
-L- STA 41+82.23
ELEV = 264.87'

PI = 12+33.00
EL = 263.77'
VC = 100'
K = 29
DS = 35 MPH

(+)3.9038%
(+)0.5012%
(+)2.0000%

-L- CAPITAL BLVD

-Y8-

SEE SHEET NO. 7 FOR -Y8- PLAN

BM #6
BENCH TIE SET IN POWER POLE
-Y9- STA 10+02 (23' LT)
ELEV = 259.28'

END GRADE
-Y9- STA 19+24.48 =
-Y2RPB- STA 13+69.41 (24' LT)
ELEV = 258.93'

-Y9- STA 19+50.00 =
-Y2RPB- STA 13+78.09
ELEV = 259.41'

PI = 18+89.00
EL = 259.09'
VC = 50'
K = 31
DS = 36 MPH

BEGIN GRADE
-Y9- STA 18+52.00
ELEV = 258.66'
TIE TO EXIST PAVEMENT

(+)1.1622%
(+)1.8809%
(-)0.4510%

-Y2RPB-

-Y9-

SEE SHEET NO. 7 FOR -Y9- PLAN

END GRADE
-DR1- STA 11+10.90 =
-Y5- STA 12+20.99 (18' RT)
ELEV = 284.55'

-DR1- STA 11+28.90 =
-Y5- STA 12+20.99
ELEV = 284.91'

PI = 10+95.00
EL = 283.44'
VC = 25'
K = 4

PI = 10+70.00
EL = 280.05'
VC = 25'
K = 2

(-)1.0000%
(+)3.6611%
(+)2.0000%

-Y5- W JOHNSON ST

BEGIN GRADE
-DR1- STA 10+45.00
ELEV = 280.30'
TIE TO EXIST BUILDING

-DR1-

SEE SHEET NO. 5 FOR -DR1- PLAN

-DR2- STA 10+00.00 =
-YIRPD- STA 12+46.23
ELEV = 284.43'

END GRADE
-DR2- STA 11+29.00
ELEV = 288.82'

PI = 10+72.00
EL = 284.29'
VC = 100'
K = 13
DS = 15 MPH

(+)0.5000%
(+)1.9483%
(-)2.0000%

-YIRPD-

BEGIN GRADE
-DR2- STA 10+20.02 =
-YIRPD- STA 12+46.05 (20' LT)
ELEV = 284.03'

-DR2-

SEE SHEET NO. 5 FOR -DR2- PLAN

2/02/2016

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	16

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024238 ENGINEER JEFFREY W MOORE
3/4/2016

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JASON D. LAWING
3/3/2016

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BEGIN GRADE
-DETNB- STA 10+72.89 =
-L- STA 12+40.98 (21.71' RT)
ELEV = 294.04'
TIE TO EXIST PAVEMENT

PI = 14+55.00
EL = 291.76'
VC = 240'
K = 83
DS = 45 MPH

(-)0.5944%

(+)2.2900%

BEGIN BRIDGE
-DETNB- STA 19+78.79
ELEV = 302.86'

PI = 18+54.00
EL = 300.90'
VC = 130'
K = 260
DS = 70 MPH

(+)2.2900%

(+)1.7900%

END BRIDGE
-DETNB- STA 21+13.79
ELEV = 301.86'

PI = 20+73.00
EL = 304.82'
VC = 290'
K = 47
DS = 40 MPH

(+)1.7900%

(-)4.4050%

MSE WALL

MSE WALL

-DETNB-

SEE SHEET NO. 2B-5 FOR -DETNB- PLAN

300
290
280
270
260

10 11 12 13 14 15 16 17 18 19 20 21 22

END GRADE
-DETNB- STA 28+90.13 =
-L- STA 30+51.84 (25.50' RT)
ELEV = 271.18'
TIE TO EXIST PAVEMENT

PI = 27+55.00
EL = 274.78'
VC = 270'
K = 155
DS = 60 MPH

(-)4.4050%

(-)2.6636%

-DETNB-

SEE SHEET NO. 2B-6 FOR -DETNB- PLAN

300
290
280
270
260

23 24 25 26 27 28 29 30

2/02/2016

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RIGHT-OF-WAY REV.
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PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024436 ENGINEER JEFFREY W. MOORE 3/4/2016
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER JASON D. LAWING 3/4/2016

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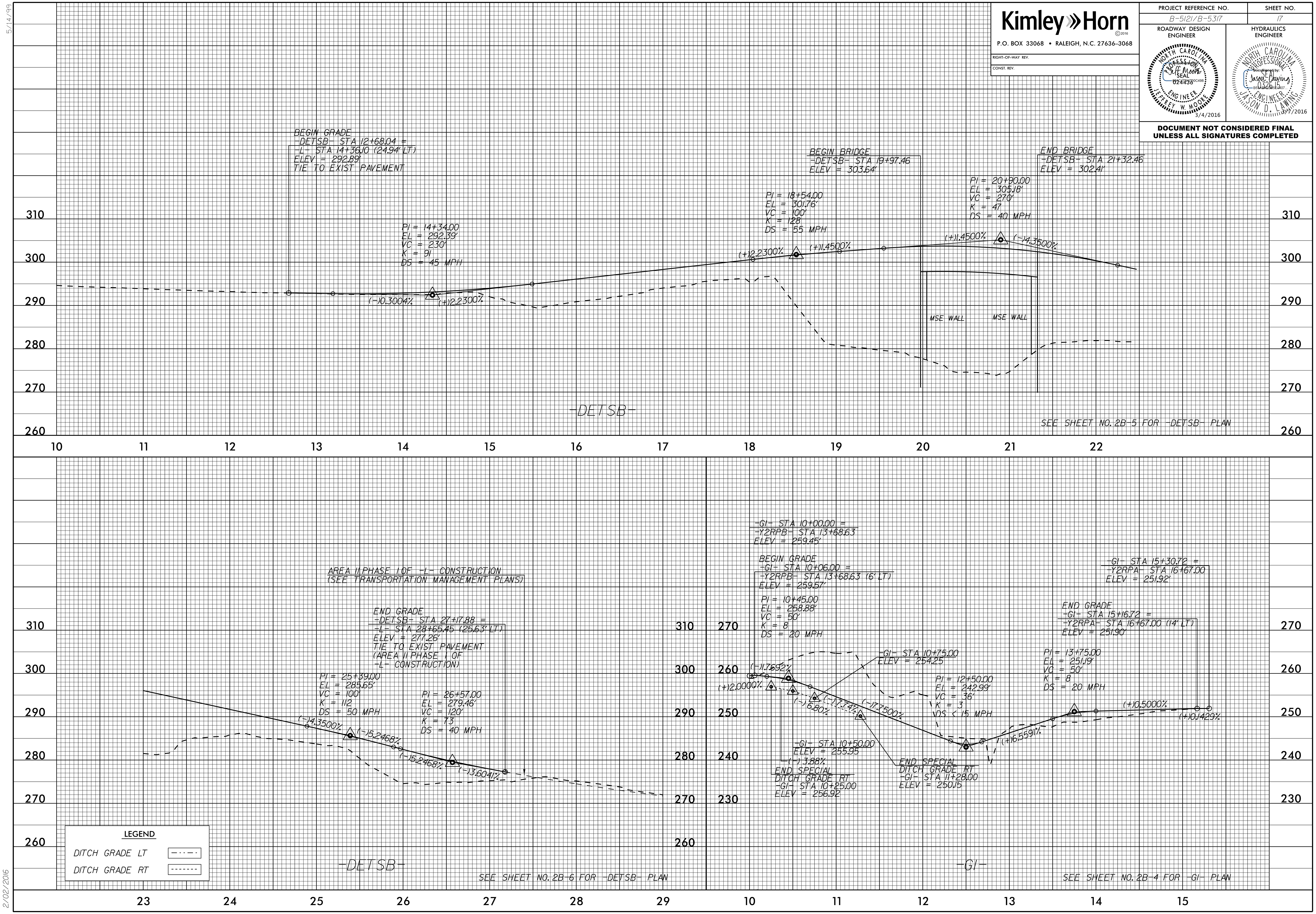
5/14/99


BEGIN GRADE
-DETSB- STA 12+68.04 =
-L- STA 14+36.10 (24.94' LT)
ELEV = 292.89'
TIE TO EXIST PAVEMENT
PI = 14+34.00
EL = 292.39'
VC = 230'
K = 91
DS = 45 MPH
(-)0.3004%
(+)2.2300%
PI = 18+54.00
EL = 301.76'
VC = 100'
K = 128
DS = 55 MPH
(+)2.2300%
(+)1.4500%
BEGIN BRIDGE
-DETSB- STA 19+97.46
ELEV = 303.64'
PI = 20+90.00
EL = 305.18'
VC = 270'
K = 47
DS = 40 MPH
(+)1.4500%
(-)4.3500%
END BRIDGE
-DETSB- STA 21+32.46
ELEV = 302.41'
MSE WALL
MSE WALL
-DETSB-
SEE SHEET NO. 2B-5 FOR -DETSB- PLAN
310
300
290
280
270
260
10
11
12
13
14
15
16
17
18
19
20
21
22
AREA II PHASE I OF -L- CONSTRUCTION
(SEE TRANSPORTATION MANAGEMENT PLANS)
END GRADE
-DETSB- STA 27+17.88 =
-L- STA 28+65.45 (25.63' LT)
ELEV = 277.26'
TIE TO EXIST PAVEMENT
(AREA II PHASE I OF
-L- CONSTRUCTION)
PI = 25+39.00
EL = 285.65'
VC = 100'
K = 112
DS = 50 MPH
PI = 26+57.00
EL = 279.46'
VC = 120'
K = 73
DS = 40 MPH
(-)4.3500%
(-)5.2468%
(-)5.2468%
(-)3.6041%
LEGEND
DITCH GRADE LT
DITCH GRADE RT
-DETSB-
SEE SHEET NO. 2B-6 FOR -DETSB- PLAN
23
24
25
26
27
28
29
-GI- STA 10+00.00 =
-Y2RPB- STA 13+68.63
ELEV = 259.45'
BEGIN GRADE
-GI- STA 10+06.00 =
-Y2RPB- STA 13+68.63 (6' LT)
ELEV = 259.57'
PI = 10+45.00
EL = 258.88'
VC = 50'
K = 8
DS = 20 MPH
(-)1.7692%
(+)2.0000%
(-)6.80%
(-)7.74%
(-)7.7500%
-GI- STA 10+75.00
ELEV = 254.25'
-GI- STA 10+50.00
ELEV = 255.95
(-) 3.88%
END SPECIAL
DITCH GRADE RT
-GI- STA 10+25.00
ELEV = 256.92
END SPECIAL
DITCH GRADE RT
-GI- STA 11+28.00
ELEV = 250.15
PI = 12+50.00
EL = 242.99'
VC = 36'
K = 3
DS < 15 MPH
(+)6.5591%
PI = 13+75.00
EL = 251.19'
VC = 50'
K = 8
DS = 20 MPH
(+)0.5000%
(+)0.1429%
END GRADE
-GI- STA 15+16.72 =
-Y2RPA- STA 16+67.00 (14' LT)
ELEV = 251.90'
-GI- STA 15+30.72 =
-Y2RPA- STA 16+67.00
ELEV = 251.92'
-GI-
SEE SHEET NO. 2B-4 FOR -GI- PLAN
270
260
250
240
230
10
11
12
13
14
15

2/02/2016