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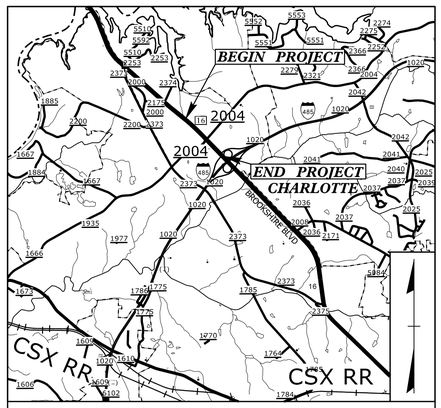
This file or an individual page shall not be considered a certified document.

09/08/99

TIP PROJECT: U-6084

CONTRACT: C204126

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 To 1C-5 For Survey Control Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

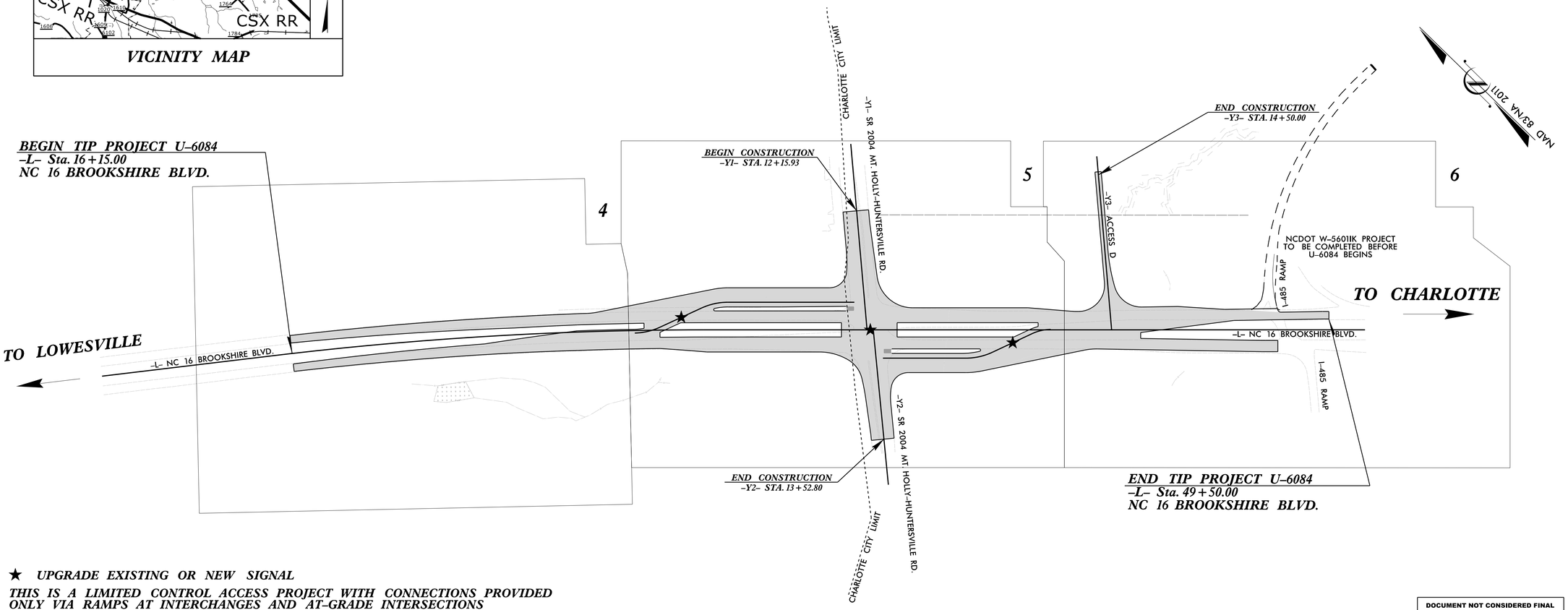
MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-6084	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47618.1.1	N/A	P.E.
47618.2.1	N/A	R/W
47618.3.1	N/A	CONSTRUCTION

LOCATION: NC 16 BROOKSHIRE BOULEVARD FROM NORTH OF SR 2004 MOUNT HOLLY–HUNTERSVILLE ROAD TO SOUTH OF INTERSTATE 485 RAMP

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS



★ *UPGRADE EXISTING OR NEW SIGNAL*

THIS IS A LIMITED CONTROL ACCESS PROJECT WITH CONNECTIONS PROVIDED ONLY VIA RAMPS AT INTERCHANGES AND AT-GRADE INTERSECTIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 41400
ADT 2040 = 45800
K = 8 %
D = 65 %
T = 3 %
V = 60 MPH
FUNC CLASS =
PRINCIPAL ARTERIAL

PROJECT LENGTH

ROADWAY LENGTH TIP PROJECT U-6084 = 0.632 miles

TOTAL LENGTH TIP PROJECT U-6084 = 0.632 miles

Prepared In The Offices of:

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866 Fax. (919) 851-7024
www.stantec.com License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

for the North Carolina Department of Transportation

2018 STANDARD SPECIFICATIONS	*STANTEC CONTACTS*
RIGHT OF WAY DATE: February 5, 2018	TUCKER JARVIS, *PROJECT DESIGN ENGINEER*
LETTING DATE: March 20, 2018	DEAN SARVIS, P.E., *PROJECT ENGINEER*
	SEAN EPPERSON, P.E., *NCDOT DIVISION 10 CONTACT:*

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON

Docusigned by: Joshua C. Dalton P.E. 2/5/2018
SIGNATURE: 1088ADBC14994C3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS II

Docusigned by: A. Dean Sarvis P.E. 2/5/2018
SIGNATURE: ABF06FE9E232...

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

2/5/2018
U:\Roadway\Proj\RIVERBEND_rdy_tsh.dgn
cmozingo

5/14/99

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-6084	1-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS

DocuSigned by: A. Dean Sarvis ABF06FE9E2344AE...

2/6/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

EFF. 01-16-2018
REV.

2018 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, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
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
806.03	Concrete Contol of Access 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
840.15	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
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.22	Frames and Wide 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
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
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
862.01	Guardrail Placement
862.02	Guardrail Installation
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

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.

STREET TURNOUT:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy, Charlotte Water,

Piedmont Natural Gas, AT&T, Spectrum

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

2/5/2018
U:\Roadway\Projects\RIVERBEND_rdy_tsh.dgn
mmorgan

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
U-6084	1-B

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)
- Computed 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 (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- 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 & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

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

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.)

6/2/99

SURVEY CONTROL SHEET U-6084

PROJECT REFERENCE NO.	SHEET NO.
U-6084	IC-1
Location and Surveys	

PROJECT SURVEYOR
1/9/2018

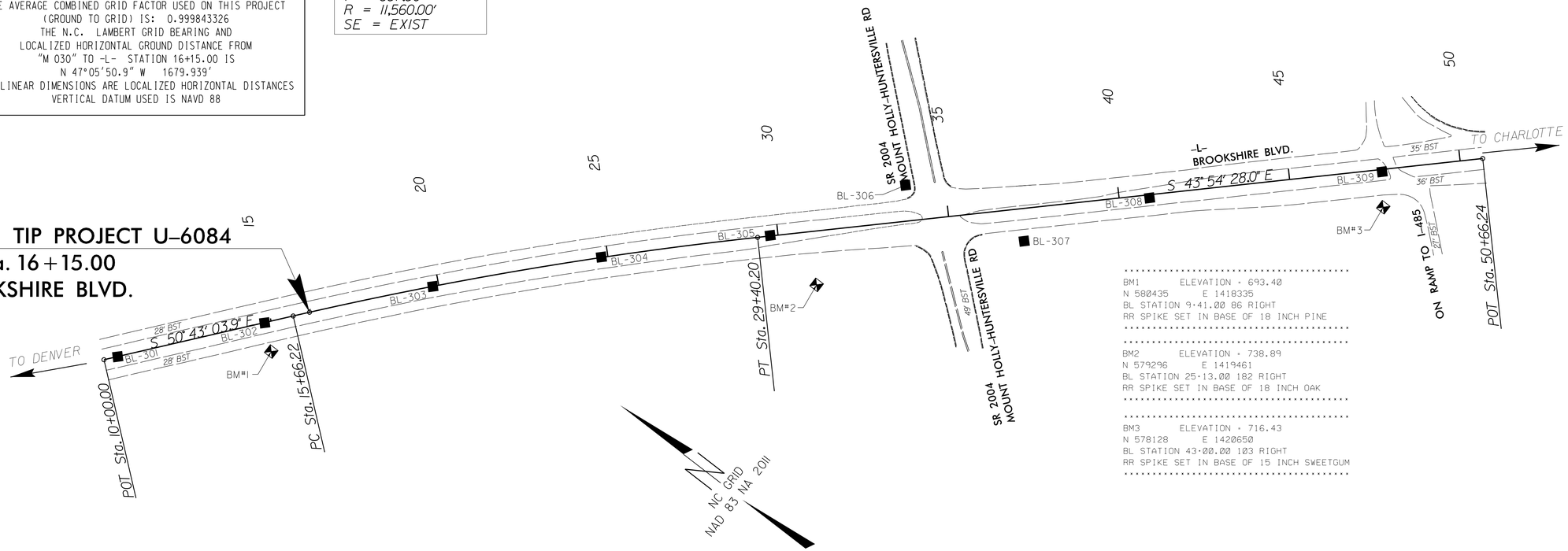
NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE

DocuSigned by: Randy W. Nance
F96E1A612334420...

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "M 030"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 579273.29(ft) EASTING: 1419723.98(ft)
ELEVATION: 732.03(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843326
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "M 030" TO -L- STATION 16+15.00 IS
N 47°05'50.9" W 1679.939'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

-L-
PI Sta 22+54.02
△ = 6° 48' 36.0" (RT)
D = 0° 29' 44.3"
L = 1,373.98'
T = 687.80'
R = 11,560.00'
SE = EXIST



BM1 ELEVATION = 693.40
N 580435 E 1418335
BL STATION 9+41.00 86 RIGHT
RR SPIKE SET IN BASE OF 18 INCH PINE

BM2 ELEVATION = 738.89
N 579296 E 1419461
BL STATION 25+13.00 182 RIGHT
RR SPIKE SET IN BASE OF 18 INCH OAK

BM3 ELEVATION = 716.43
N 578128 E 1420650
BL STATION 43+00.00 103 RIGHT
RR SPIKE SET IN BASE OF 15 INCH SWEETGUM

NOTES:

1. *ORIGINAL SURVEY CONTROL FOR THIS PROJECT WAS SURVEYED BY THE ISAACS GROUP IN MAY, 2017 (FILE 15023-RW-050817). SIX OF THEIR CONTROL POINTS WERE HELD AND A CONTROL TRAVERSE AND LEVELS WERE PERFORMED TO NCDOT L&S STANDARDS.*
2. *GPS DATA WAS NOT PROVIDED BY THE ISAACS GROUP.*

■ *INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL*
⋈ *INDICATES BENCHMARKS FOR VERTICAL CONTROL*

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
301	61003	580779.9370	1418048.9480	708.32	10+41.13	0.51 RT
302	61002	580501.3940	1418388.8440	695.41	14+80.58	0.91 RT
303	61001	580178.5450	1418772.4540	694.98	19+82.02	0.45 RT
304	61000	579842.1370	1419140.9180	708.57	24+80.98	1.14 LT
305	20001	579491.2750	1419491.7190	725.30	29+77.12	1.44 LT
306	20000	579268.7950	1419848.7020	735.50	33+84.97	104.34 LT
307	20003	578895.3710	1419931.3310	735.26	37+11.31	95.10 RT
308	4000	578683.1990	1420254.5140	729.39	40+88.30	9.40 RT
309	4002	578193.4930	1420729.3570	712.96	47+70.41	6.91 RT

NOTE: DRAWING NOT TO SCALE

1/9/2018
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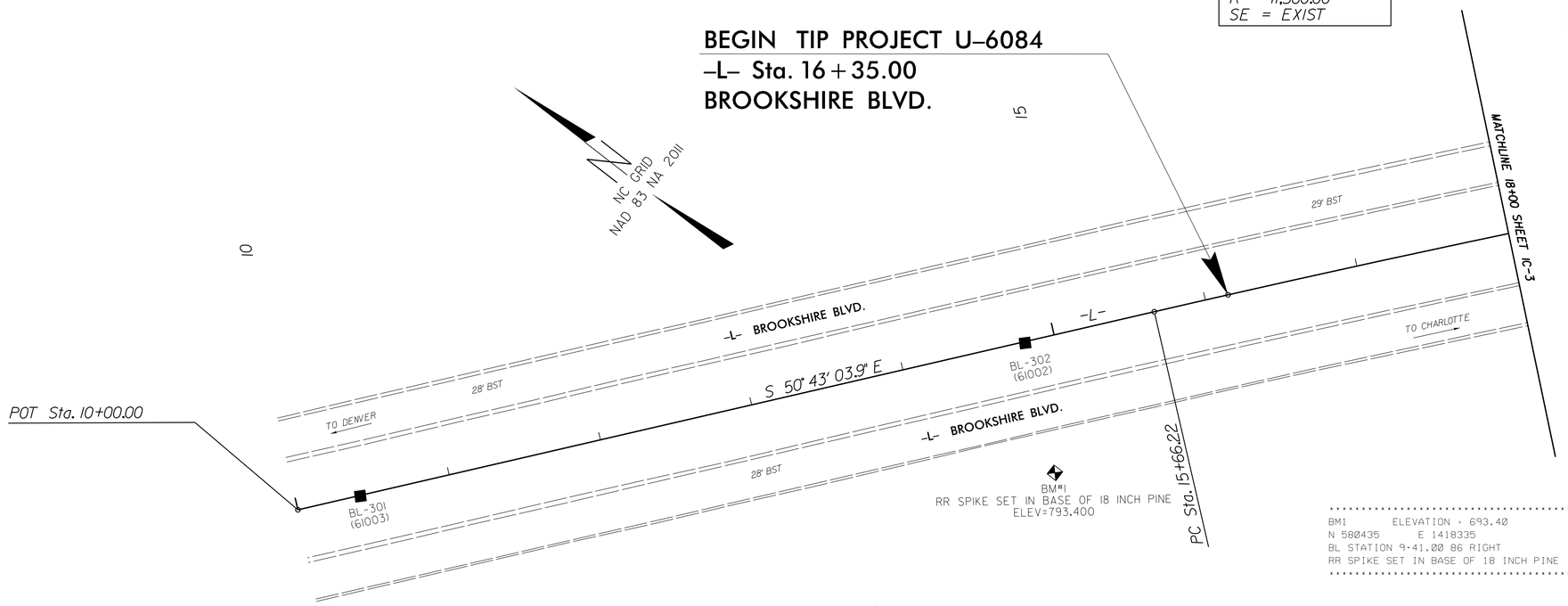
6/2/99

SURVEY CONTROL SHEET U-6084

PROJECT REFERENCE NO.	SHEET NO.
U-6084	IC-2
Location and Surveys	

PROJECT SURVEYOR
1/9/2018
NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE
DocuSigned by: Randy W. Nance
E95E1A61233442D...

-L-
PI Sta 22+54.02
△ = 6° 48' 36.0" (RT)
D = 0° 29' 44.3"
L = 1,373.98'
T = 687.80'
R = 11,560.00'
SE = EXIST



BM1 ELEVATION = 693.40
N 580435 E 1418335
BL STATION 9+41.00 86 RIGHT
RR SPIKE SET IN BASE OF 18 INCH PINE

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	580806.3753	1418017.4362
PC	15+66.22	580447.8784	1418455.7110
PT	29+40.20	579516.8712	1419465.0850
POT	50+66.24	577985.1563	1420939.4874

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
301	61003	580779.9370	1418048.9480	708.32	10+41.13	0.51 RT
302	61002	580501.3940	1418388.8440	695.41	14+80.58	0.91 RT
303	61001	580178.5450	1418772.4540	694.98	19+82.02	0.45 RT
304	61000	579842.1370	1419140.9180	708.57	24+80.98	1.14 LT
305	20001	579491.2750	1419491.7190	725.30	29+77.12	1.44 LT
306	20000	579268.7950	1419848.7020	735.50	33+84.97	104.34 LT
307	20003	578895.3710	1419931.3310	735.26	37+11.31	95.10 RT
308	4000	578683.1990	1420254.5140	729.39	40+88.30	9.40 RT
309	4002	578193.4930	1420729.3570	712.96	47+70.41	6.91 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "M 030"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 579273.29(ft) EASTING: 1419723.98(ft)
ELEVATION: 732.03(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843326
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"M 030" TO -L- STATION 16+15.00 IS
N 47°05'50.9" W 1679.939'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: PROJECT COORDINATES ARE BASED ON SURVEY BY THE ISAACS GROUP IN APRIL, 2016. SEE FILE #15023-RW-050817 FOR MORE DETAILS.

NOTES:

1. *ORIGINAL SURVEY CONTROL FOR THIS PROJECT WAS SURVEYED BY THE ISAACS GROUP IN MAY, 2017 (FILE 15023-RW-050817). SIX OF THEIR CONTROL POINTS WERE HELD AND A CONTROL TRAVERSE AND LEVELS WERE PERFORMED TO NCDOT L&S STANDARDS.*
2. *GPS DATA WAS NOT PROVIDED BY THE ISAACS GROUP.*

■ *INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL*
⋈ *INDICATES BENCHMARKS FOR VERTICAL CONTROL*

NOTE: DRAWING NOT TO SCALE

1/9/2018
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6/2/99

SURVEY CONTROL SHEET U-6084

PROJECT REFERENCE NO.	SHEET NO.
U-6084	IC-3
Location and Surveys	

PROJECT SURVEYOR
1/9/2018
NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE
DocuSigned by: Randy W. Nance
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NOTES:

1. ORIGINAL SURVEY CONTROL FOR THIS PROJECT WAS SURVEYED BY THE ISAACS GROUP IN MAY, 2017 (FILE 15023-RW-050817). SIX OF THEIR CONTROL POINTS WERE HELD AND A CONTROL TRAVERSE AND LEVELS WERE PERFORMED TO NCDOT L&S STANDARDS.
2. GPS DATA WAS NOT PROVIDED BY THE ISAACS GROUP.

■ INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
⋈ INDICATES BENCHMARKS FOR VERTICAL CONTROL

BL

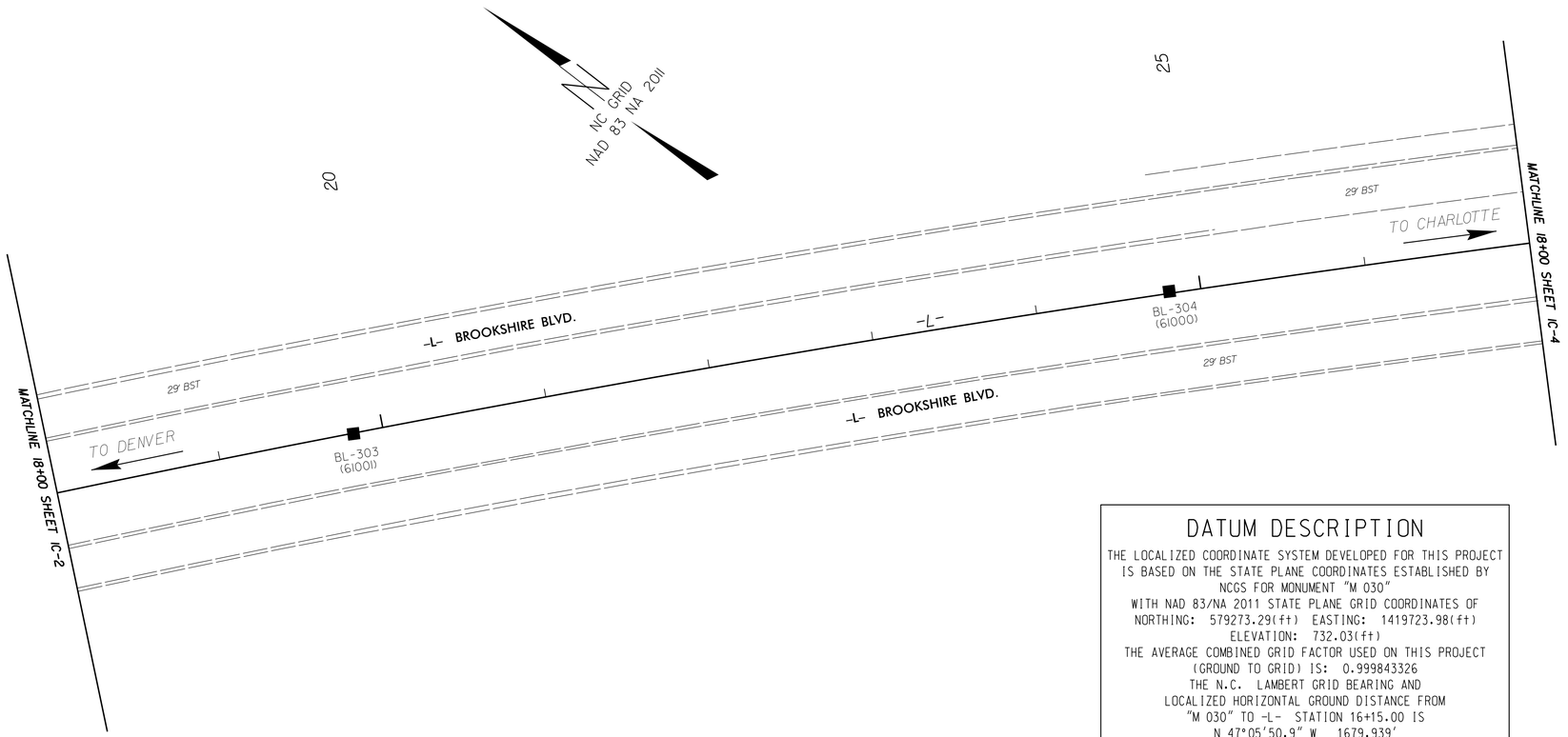
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
301	61003	580779.9370	1418048.9480	708.32	10+41.13	0.51 RT
302	61002	580501.3940	1418388.8440	695.41	14+80.58	0.91 RT
303	61001	580178.5450	1418772.4540	694.98	19+82.02	0.45 RT
304	61000	579842.1370	1419140.9180	708.57	24+80.98	1.14 LT
305	20001	579491.2750	1419491.7190	725.30	29+77.12	1.44 LT
306	20000	579268.7950	1419848.7020	735.50	33+84.97	104.34 LT
307	20003	578895.3710	1419931.3310	735.26	37+11.31	95.10 RT
308	4000	578683.1990	1420254.5140	729.39	40+88.30	9.40 RT
309	4002	578193.4930	1420729.3570	712.96	47+70.41	6.91 RT

-L-

PI Sta 22+54.02
△ = 6° 48' 36.0" (RT)
D = 0° 29' 44.3"
L = 1,373.98'
T = 687.80'
R = 11,560.00'
SE = EXIST

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	580806.3753	1418017.4362
PC	15+66.22	580447.8784	1418455.7110
PT	29+40.20	579516.8712	1419465.0850
POT	50+66.24	577985.1563	1420939.4874



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "M 030"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 579273.29(ft) EASTING: 1419723.98(ft)
ELEVATION: 732.03(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843326
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "M 030" TO -L- STATION 16+15.00 IS
N 47°05'50.9" W 1679.939'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: PROJECT COORDINATES ARE BASED ON SURVEY BY THE ISAACS GROUP IN APRIL, 2016. SEE FILE #15023-RW-050817 FOR MORE DETAILS.

NOTE: DRAWING NOT TO SCALE

1/9/2018
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cmcallister

6/2/99

SURVEY CONTROL SHEET U-6084

PROJECT REFERENCE NO.	SHEET NO.
U-6084	1C-4

Location and Surveys

PROJECT SURVEYOR
1/9/2018

NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE

DocuSigned by: Randy W. Nance
E95E1A61233442D...

NOTES:

1. ORIGINAL SURVEY CONTROL FOR THIS PROJECT WAS SURVEYED BY THE ISAACS GROUP IN MAY, 2017 (FILE 15023-RW-050817). SIX OF THEIR CONTROL POINTS WERE HELD AND A CONTROL TRAVERSE AND LEVELS WERE PERFORMED TO NCDOT L&S STANDARDS.
2. GPS DATA WAS NOT PROVIDED BY THE ISAACS GROUP.

■ INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
⋈ INDICATES BENCHMARKS FOR VERTICAL CONTROL

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
301	61003	580779.9370	1418048.9480	708.32	10+41.13	0.51 RT
302	61002	580501.3940	1418388.8440	695.41	14+80.58	0.91 RT
303	61001	580178.5450	1418772.4540	694.98	19+82.02	0.45 RT
304	61000	579842.1370	1419140.9180	708.57	24+80.98	1.14 LT
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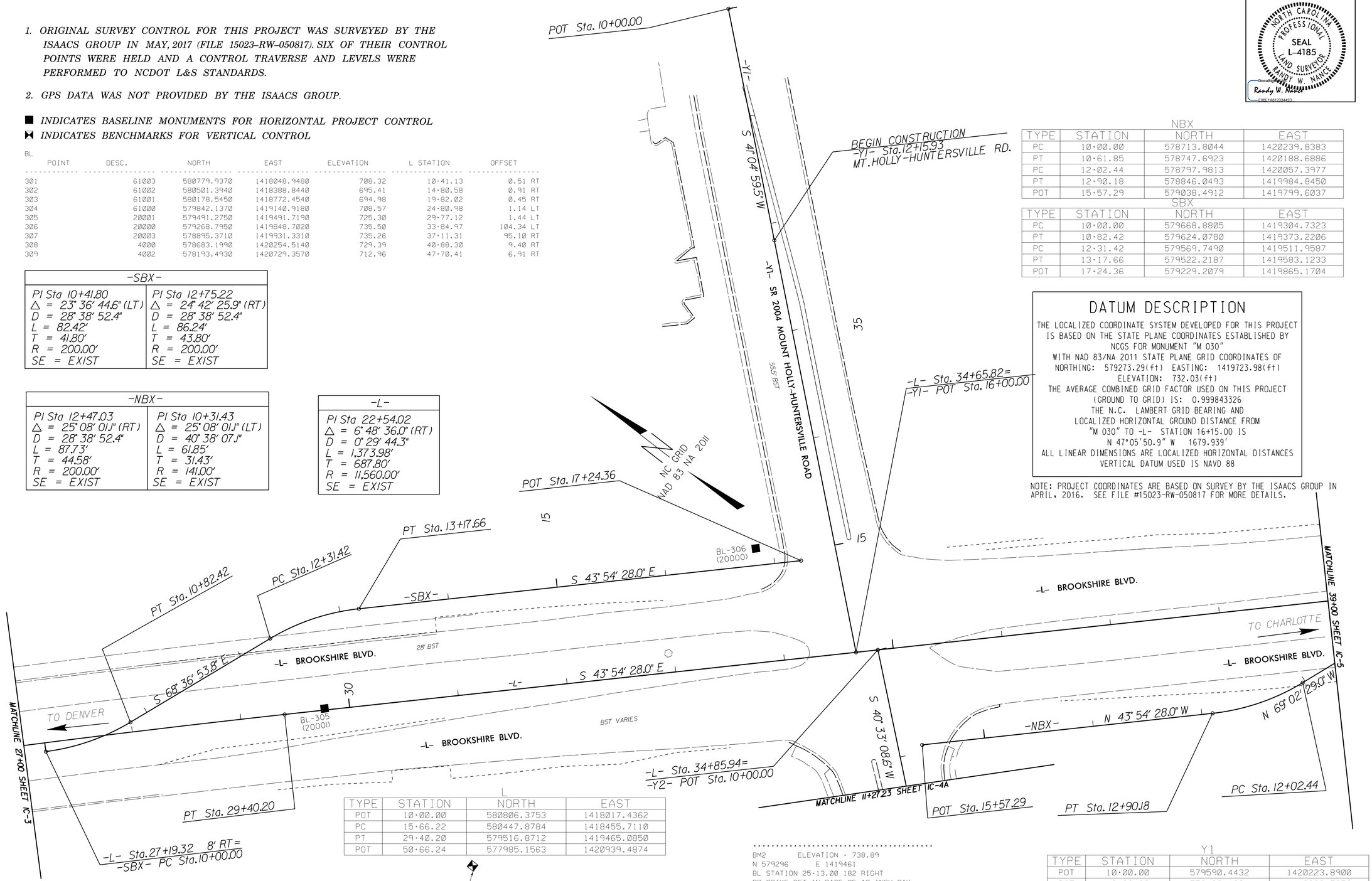
307	20003	578895.3710	1419931.3310	735.26	37+11.31	95.10 RT
308	4000	578683.1990	1420254.5140	729.39	40+88.30	9.40 RT
309	4002	578193.4930	1420729.3570	712.96	47+70.41	6.91 RT

-SBX-	
PI Sta 10+41.80	PI Sta 12+75.22
△ = 23° 36' 44.6" (LT)	△ = 24° 42' 25.9" (RT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 82.42'	L = 86.24'
T = 41.80'	T = 43.80'
R = 200.00'	R = 200.00'
SE = EXIST	SE = EXIST

-NBX-	
PI Sta 12+47.03	PI Sta 10+31.43
△ = 25° 08' 01.1" (RT)	△ = 25° 08' 01.1" (LT)
D = 28° 38' 52.4"	D = 40° 38' 07.1"
L = 87.73'	L = 61.85'
T = 44.58'	T = 31.43'
R = 200.00'	R = 141.00'
SE = EXIST	SE = EXIST

-L-
PI Sta 22+54.02
△ = 6° 48' 36.0" (RT)
D = 0° 29' 44.3"
L = 1,373.98'
T = 687.80'
R = 11,560.00'
SE = EXIST



NBX

TYPE	STATION	NORTH	EAST
PC	10+00.00	578713.8044	1420239.8383
PT	10+61.85	578747.6923	1420188.6886
PC	12+02.44	578797.9813	1420057.3977
PT	12+90.18	578846.0493	1419984.8450
POT	15+57.29	579038.4912	1419799.6037

SBX

TYPE	STATION	NORTH	EAST
PC	10+00.00	579668.8805	1419304.7323
PT	10+82.42	579624.0780	1419373.2206
PC	12+31.42	579569.7490	1419511.9587
PT	13+17.66	579522.2187	1419583.1233
POT	17+24.36	579229.2079	1419865.1704

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "M 030"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 579273.29(ft) EASTING: 1419723.98(ft)
ELEVATION: 732.03(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843326
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "M 030" TO -L- STATION 16+15.00 IS
N 47°05'50.9" W 1679.939'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: PROJECT COORDINATES ARE BASED ON SURVEY BY THE ISAACS GROUP IN APRIL, 2016. SEE FILE #15023-RW-050817 FOR MORE DETAILS.

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	580806.3753	1418017.4362
PC	15+66.22	580447.8784	1418455.7110
PT	29+40.20	579516.8712	1419465.0850
POT	50+66.24	577985.1563	1420939.4874

BM 2
RR SPIKE SET IN BASE OF 18 INCH OAK
ELEV=738.886

BM2 ELEVATION = 738.89
N 579296 E 1419461
BL STATION 25+13.00 182 RIGHT
RR SPIKE SET IN BASE OF 18 INCH OAK

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	579590.4432	1420223.8900
POT	16+00.00	579138.1894	1419829.5976

NOTE: DRAWING NOT TO SCALE

1/9/2018
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cmcraig

6/2/99

SURVEY CONTROL SHEET U-6084

PROJECT REFERENCE NO.	SHEET NO.
U-6084	IC-4A
Location and Surveys	

PROJECT SURVEYOR
1/9/2018
NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE
DocuSigned by: Randy W. Nance
E95E1A61233442D...

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "M 030" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 579273.29(ft) EASTING: 1419723.98(ft) ELEVATION: 732.03(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843326
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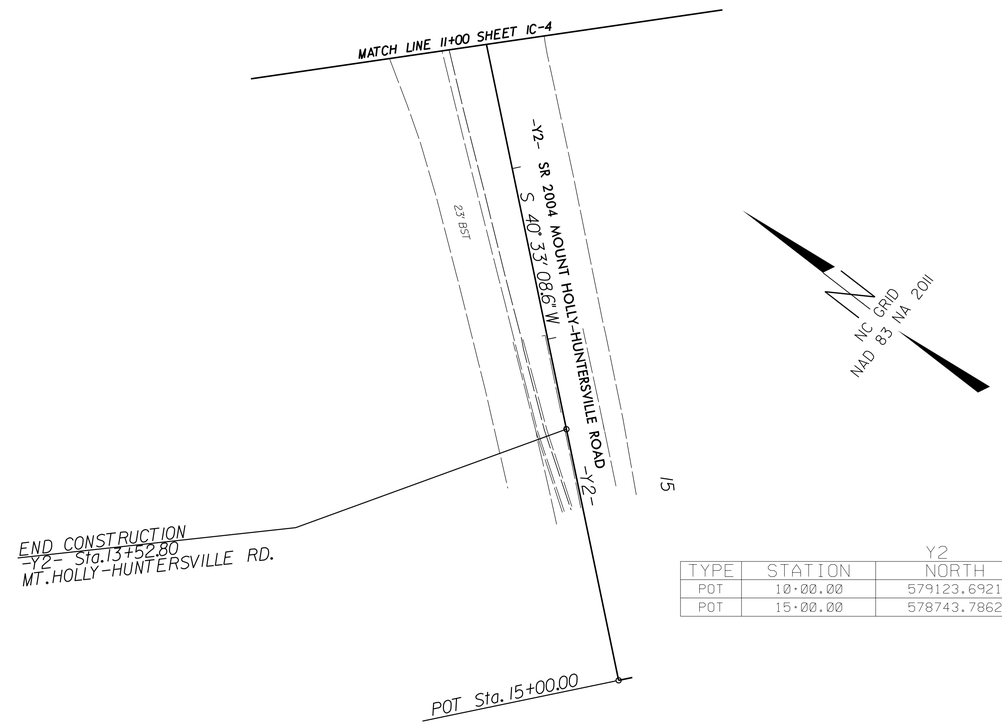
VERTICAL DATUM USED IS NAVD 88

NOTE: PROJECT COORDINATES ARE BASED ON SURVEY BY THE ISAACS GROUP IN APRIL, 2016. SEE FILE #15023-RW-050817 FOR MORE DETAILS.

NOTES:

1. *ORIGINAL SURVEY CONTROL FOR THIS PROJECT WAS SURVEYED BY THE ISAACS GROUP IN MAY, 2017 (FILE 15023-RW-050817). SIX OF THEIR CONTROL POINTS WERE HELD AND A CONTROL TRAVERSE AND LEVELS WERE PERFORMED TO NCDOT L&S STANDARDS.*
2. *GPS DATA WAS NOT PROVIDED BY THE ISAACS GROUP.*

■ *INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL*
⋈ *INDICATES BENCHMARKS FOR VERTICAL CONTROL*



Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	579123.6921	1419843.5524
POT	15+00.00	578743.7862	1419518.4809

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
301	61003	580779.9370	1418048.9480	708.32	10+41.13	0.51 RT
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308	4000	578683.1990	1420254.5140	729.39	40+88.30	9.40 RT
309	4002	578193.4930	1420729.3570	712.96	47+70.41	6.91 RT

NOTE: DRAWING NOT TO SCALE

1/9/2018
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cmccain

6/2/99

SURVEY CONTROL SHEET U-6084

PROJECT REFERENCE NO.	SHEET NO.
U-6084	IC-5
Location and Surveys	

PROJECT SURVEYOR
1/9/2018
NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE
DocuSigned by: Randy W. Nance
E95E1A61233442D...

DATUM DESCRIPTION

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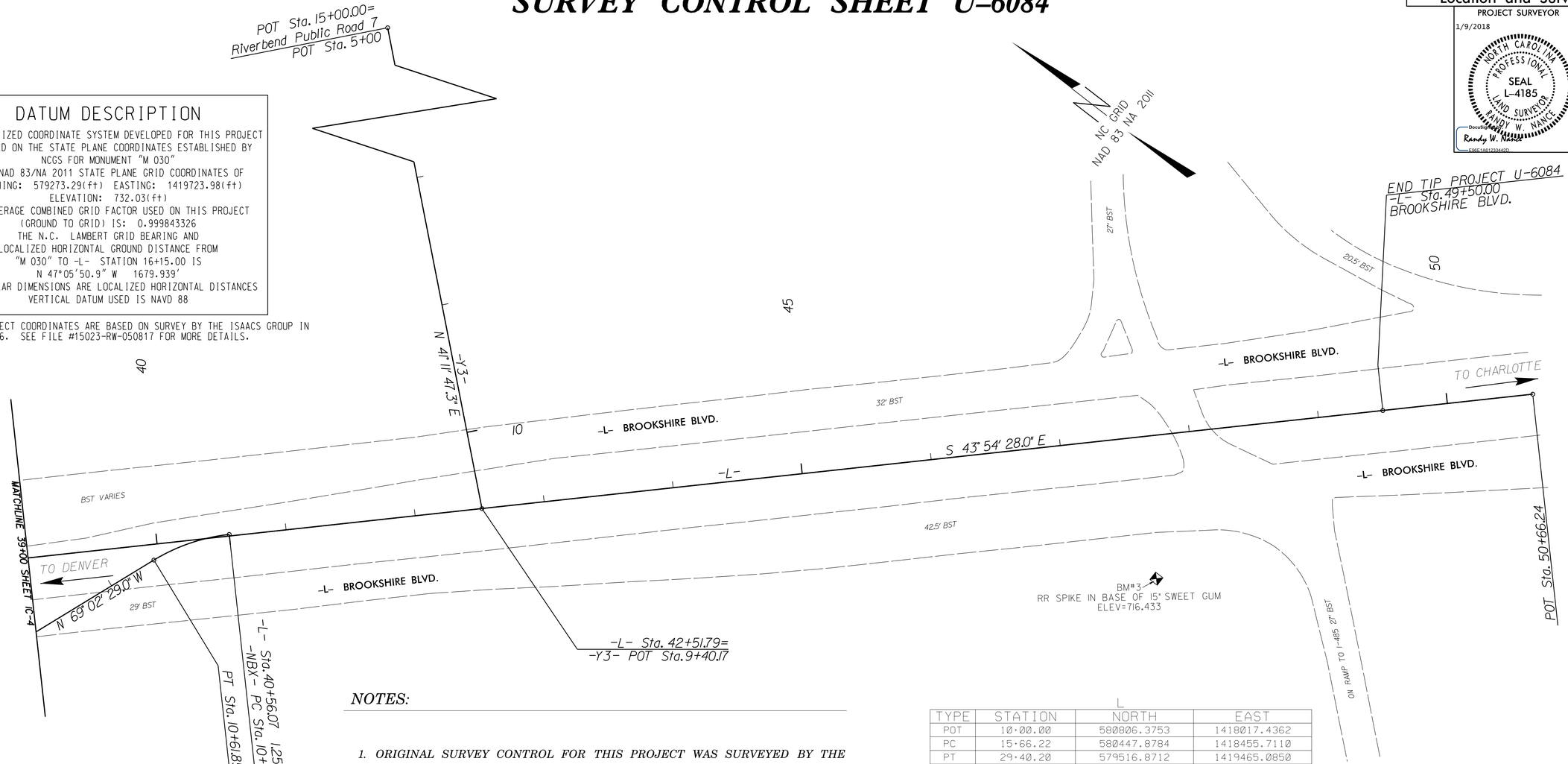

NOTES:

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L

TYPE	STATION	NORTH	EAST
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308	4000	578683.1990	1420254.5140	729.39	40+88.30	9.40 RT
309	4002	578193.4930	1420729.3570	712.96	47+70.41	6.91 RT

BM3 ELEVATION - 716.43
N 578128 E 1420650
BL STATION 43+00.00 103 RIGHT
RR SPIKE SET IN BASE OF 15 INCH SWEETGUM

Y3

TYPE	STATION	NORTH	EAST
POT	9+40.17	578571.9291	1420374.6700
POT	15+00.00	578993.1751	1420743.3973

NOTE: DRAWING NOT TO SCALE

1/9/2018
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PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	2'–6" CONC. CURB AND GUTTER
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	R2	MONOLITHIC ISLAND (KEYED–IN)
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	R3	CONC ISLAND COVER
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" CONCRETE MULTI–USE PATH W/10' SAWCUT JOINT SPACING
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
E2	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627.0 LBS. PER SQ. YD.	V	1.5" MILLING
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.	W	WEDGING (SEE WEDGING DETAIL THIS SHEET)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
NOTE: FOR EXISTING CROSS SLOPE, SEE CROSS SECTIONS
**ADD 3' WITH GUARDRAIL

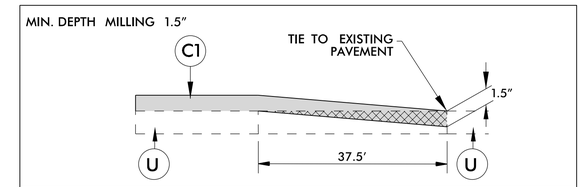
Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2A-1
R/W SHEET NO.	

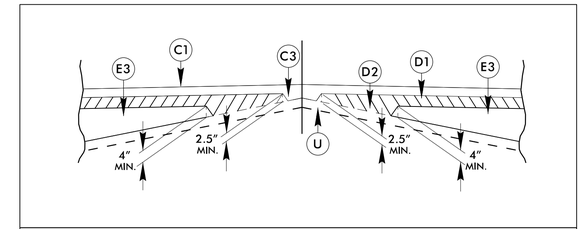
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
DocuSigned by: A. Dean Sarvis 1/9/2018
ABF06FE9E2344AE

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EPPERSON
DocuSigned by: Sean Michael Epperson 1/9/2018
A92E75CC0FFB43B

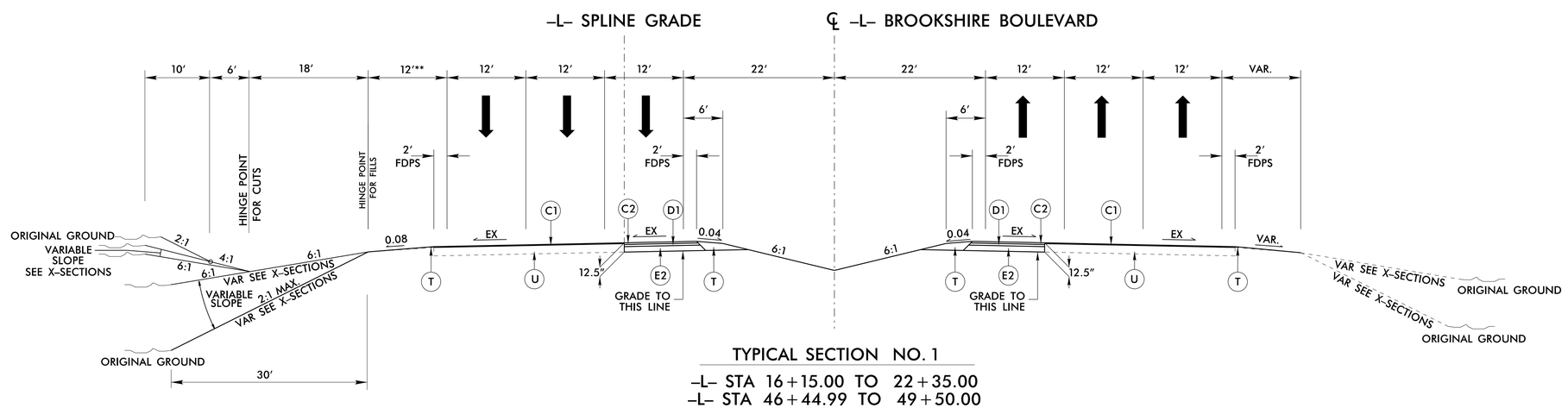
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



INCIDENTAL MILLING DETAIL



W: WEDGING DETAIL FOR WEDGING



TYPICAL SECTION NO. 1
–L– STA 16+15.00 TO 22+35.00
–L– STA 46+44.99 TO 49+50.00

8/17/99

C1	PROP. 1.5″ S9.5C
C2	PROP. 3″ S9.5C
D1	PROP. 4″ I19.0C
E1	PROP. 4″ B25.0B
E2	PROP. 5.5″ B25.0C
R1	2′–6″ CONC. CURB AND GUTTER.
R2	MONOLITHIC ISLAND (KEYED–IN)
R3	CONC ISLAND COVER
S	MULTI–USE PATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5″ MILLING
W	WEDGING (SEE SHEET 2A–1)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
NOTE: FOR EXISTING CROSS SLOPE, SEE CROSS SECTIONS
*MIRROR SECTION
**ADD 3′ WITH GUARDRAIL

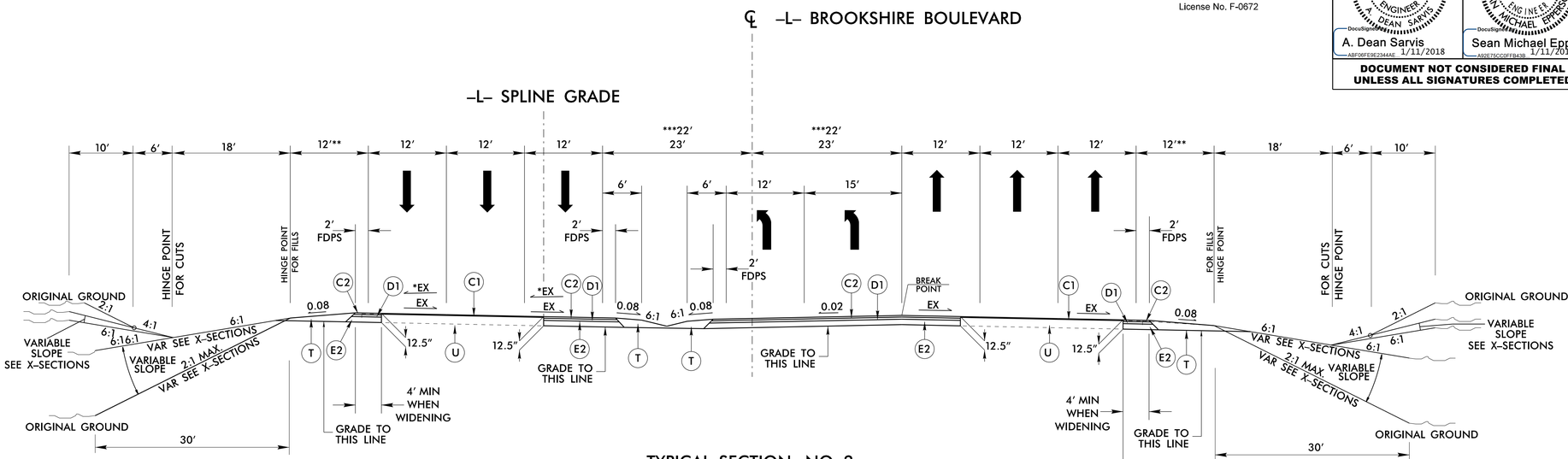
Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2A-2
R/W SHEET NO.	

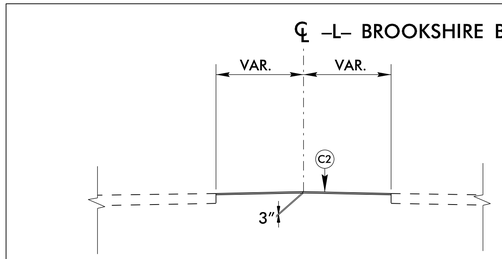
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER DEAN SARVIS
DocuSigned by: A. Dean Sarvis 1/11/2018
ABF06FE9E2344AE

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EPPERSON
DocuSigned by: Sean Michael Epperson 1/11/2018
A92E75CC0FFB43B

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 2
***–L– STA 22+35.00 TO 27+19.32
*–L– STA 43+43.06 TO 46+44.99

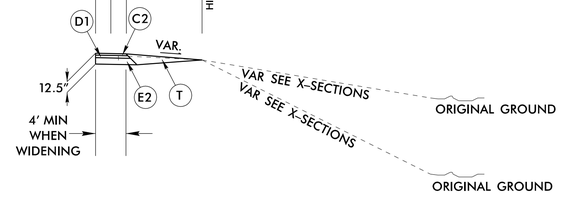


USE TEMPORARY PAVEMENT DETAIL AT THE FOLLOWING LOCATION:

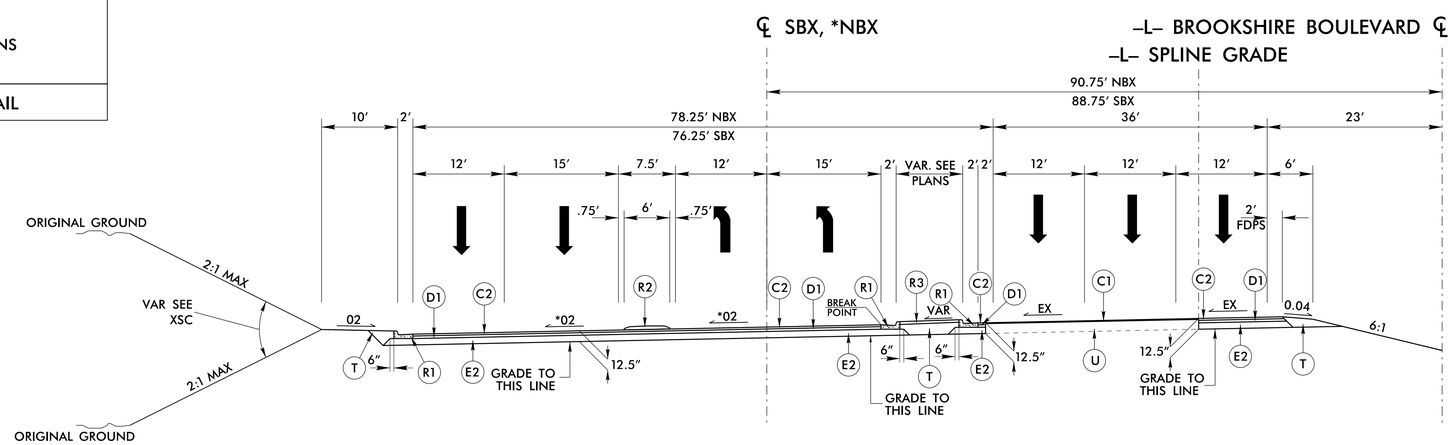
–L– STA. 35+33.20 TO –L– STA. 35+58.31

NOTE: SEE TRANSPORTATION MANAGEMENT PLANS SHEET TMP–4A FOR PAVEMENT LOCATIONS

TEMPORARY PAVEMENT FOR PEDESTRIANS DETAIL



TYPICAL SECTION NO. 2A
–L– RIGHT STA 22+35.00 TO 28+67.03



TYPICAL SECTION NO. 3
–L– STA 27+19.32 TO 34+24.29
*–L– STA 35+19.09 TO 40+56.07

8/17/99

C1	PROP. 1.5″ S9.5C
C2	PROP. 3″ S9.5C
D1	PROP. 4″ I19.0C
E1	PROP. 4″ B25.0B
E2	PROP. 5.5″ B25.0C
R1	2′–6″ CONC. CURB AND GUTTER.
R2	MONOLITHIC ISLAND (KEYED–IN)
R3	CONC ISLAND COVER
S	MULTI–USE PATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5″ MILLING
W	WEDGING (SEE SHEET 2A–1)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
NOTE: FOR EXISTING CROSS SLOPE, SEE CROSS SECTIONS
**ADD 3′ WITH GUARDRAIL
***ADD 2′ WITH GUARDRAIL

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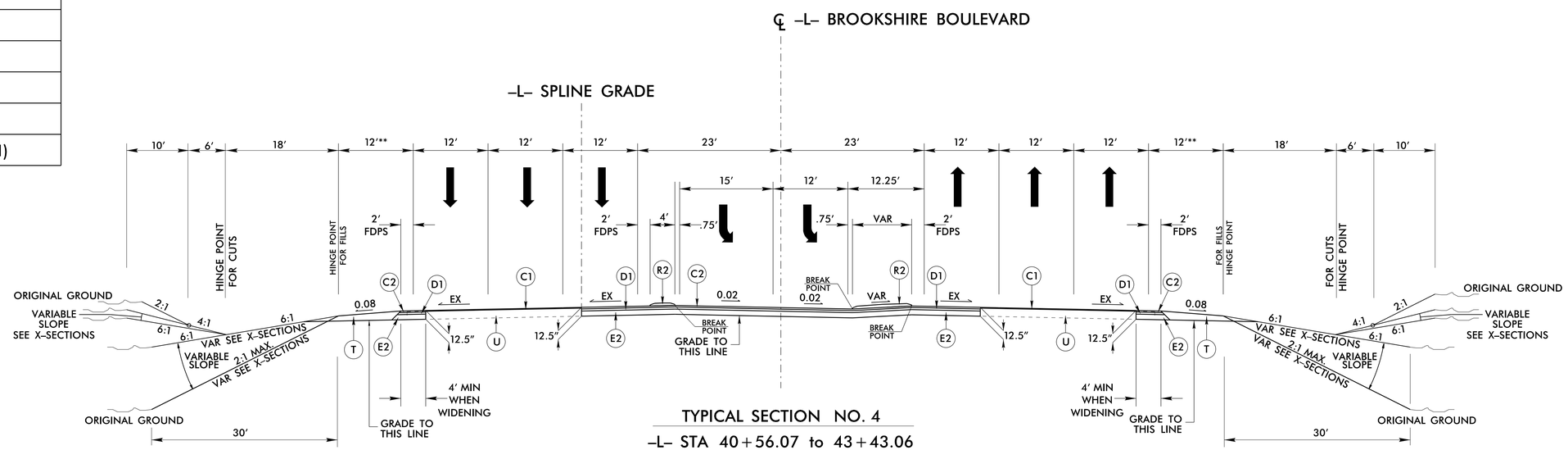
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2A-3
R/W SHEET NO.	

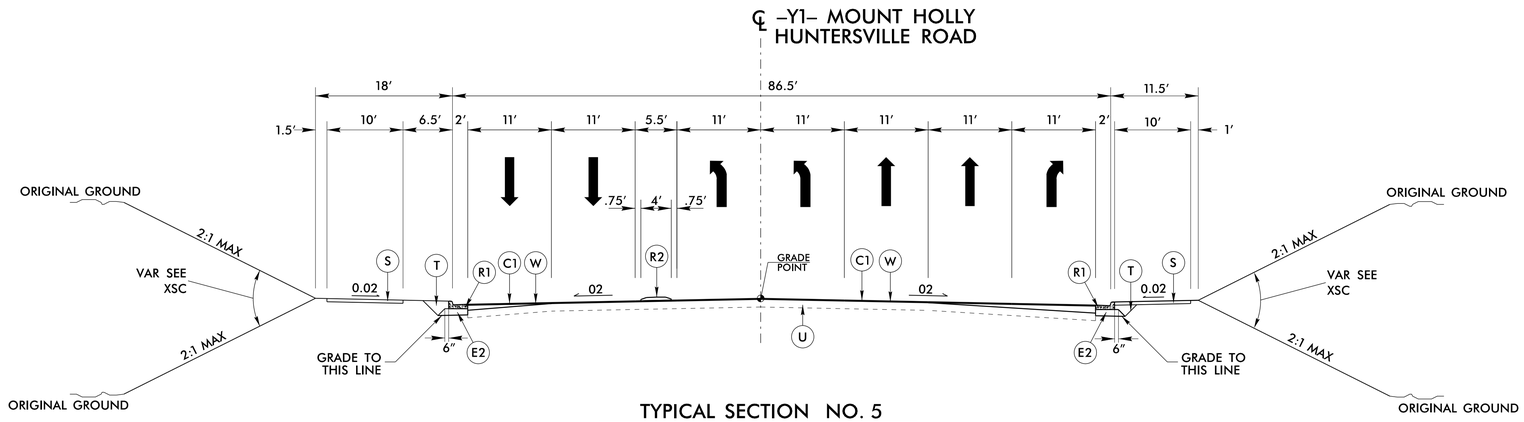
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
DocuSigned by: A. Dean Sarvis 1/9/2018
ABF06FE9E2344AE

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EPPERSON
DocuSigned by: Sean Michael Epperson 1/9/2018
A92E75CC0FFB43B

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



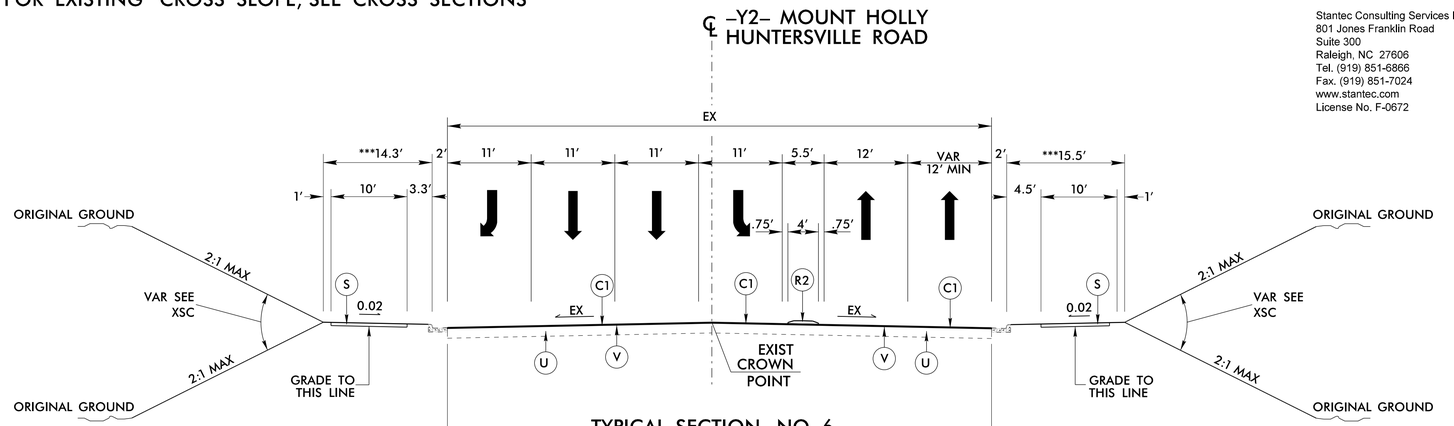
TYPICAL SECTION NO. 4
–L– STA 40+56.07 to 43+43.06



TYPICAL SECTION NO. 5
–Y1– STA 12+15.93 TO 15+28.73
(EAST OF BROOKSHIRE)

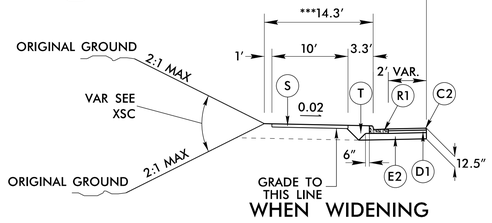
C1	PROP. 1.5″ S9.5C
C2	PROP. 3″ S9.5C
D1	PROP. 4″ I19.0C
E1	PROP. 4″ B25.0B
E2	PROP. 5.5″ B25.0C
R1	2′–6″ CONC. CURB AND GUTTER.
R2	MONOLITHIC ISLAND (KEYED–IN)
R3	CONC ISLAND COVER
S	MULTI–USE PATH
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5″ MILLING
W	WEDGING (SEE SHEET 2A–1)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
NOTE: FOR EXISTING CROSS SLOPE, SEE CROSS SECTIONS

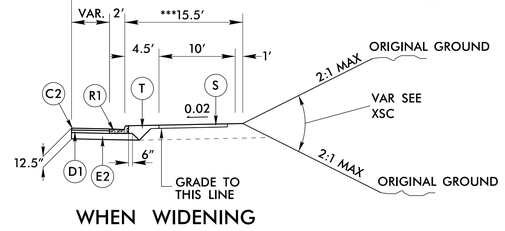


TYPICAL SECTION NO. 6

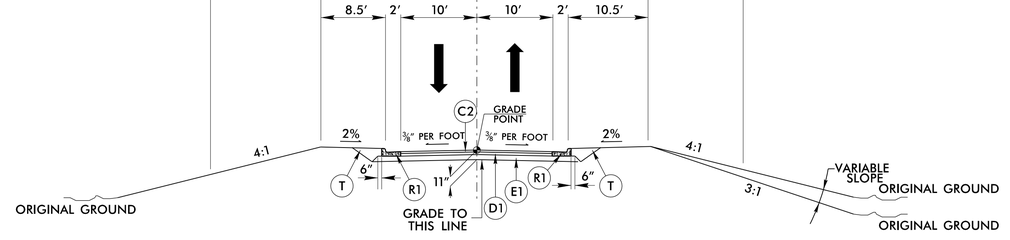
–Y2– STA 10+59.28 TO 13+52.80
(WEST OF BROOKSHIRE)
*** Matches existing conditions



WHEN WIDENING



WHEN WIDENING

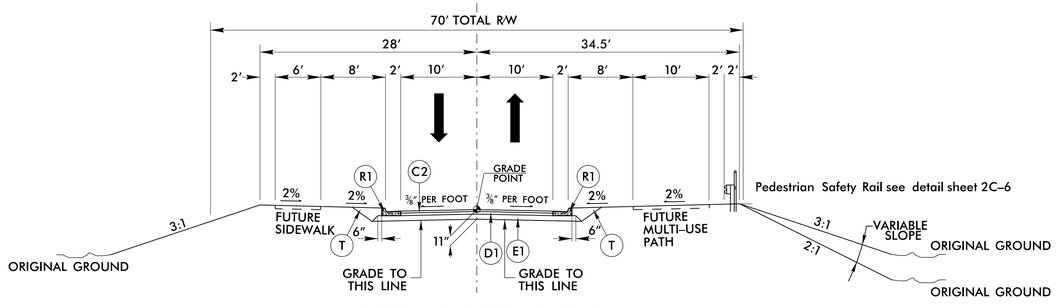


TYPICAL SECTION NO. 7

–Y3– 10+00.00 to 12+75.00

NOTE: EVEN STATIONS COINCIDE WITH SITE ACCESS D PUBLIC ROAD 7

℄ –Y3– ACCESS D



TYPICAL SECTION NO. 8

–Y3– 12+75.00 to 14+50.00

NOTE: EVEN STATIONS COINCIDE WITH SITE ACCESS D PUBLIC ROAD 7 STATIONING

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PROJECT REFERENCE NO.	SHEET NO.
U-6084	2A-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER DEAN SARVIS
DocuSigned by: A. Dean Sarvis 2/6/2018
ABF0EFE9E2344AE...

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EMERSON
DocuSigned by: Sean Michael Emerson 2/7/2018
A92E75CC0FFB43B...

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8/17/99

-SBX-	
PI Sta 10+41.80	PI Sta 12+75.22
△ = 23° 36' 44.6" (LT)	△ = 24° 42' 25.9" (RT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 82.42'	L = 86.24'
T = 41.80'	T = 43.80'
R = 200.00'	R = 200.00'
SE = EXIST	SE = EXIST

-L-
PI Sta 22+54.02
△ = 6° 48' 36.0" (RT)
D = 0° 29' 44.3"
L = 1,373.98'
T = 687.80'
R = 11,560.00'
SE = EXIST

SEE SHEETS 7 & 8 FOR -L- PROFILE
SEE SHEET 9 FOR -SBX- AND -NBX- PROFILES
SEE SHEET 10 FOR -Y1- AND -Y2- PROFILES
ALL CURB AND ISLAND RADII = 2' UNLESS NOTED OTHERWISE
ALL PAVED SHOULDERS = 2' WIDTH UNLESS NOTED OTHERWISE

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258
ENG FIRM LICENSE NO. C-890

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License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
DocuSigned by: A. Dean Sarvis ABF06FE9E23444E...
1/25/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INTERSECTION DETAIL SHEET

NAD 83/2011

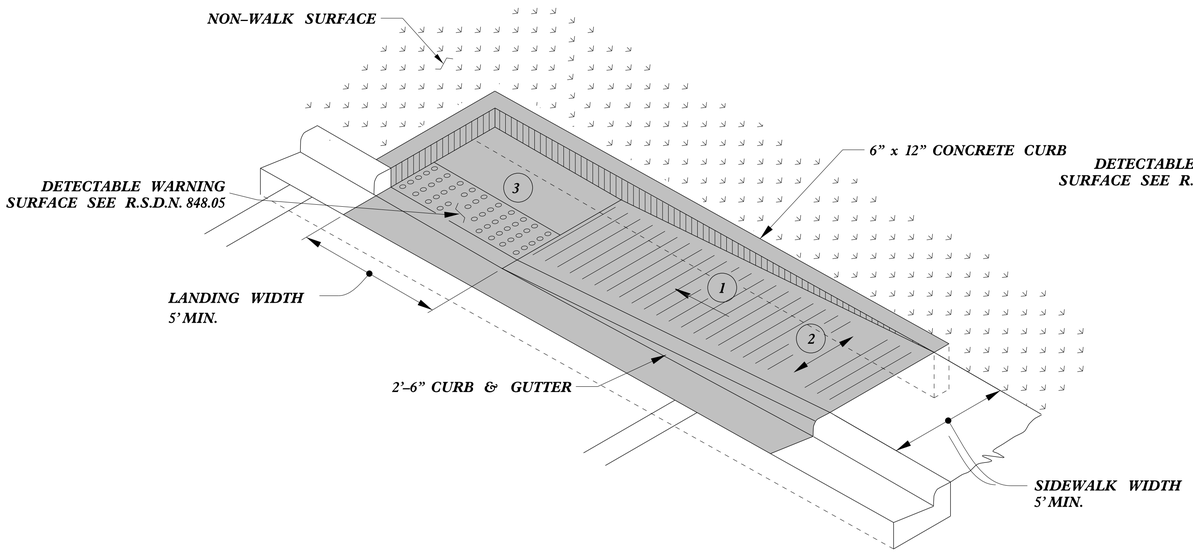
-Y1- POT Sta. 10+00.00
Tie to Mount Holly - Huntersville Road Improvements.
RIVERBEND SITE DEVELOPMENT
MOUNT HOLLY-HUNTERSVILLE ROAD
STA. 115+65.02=
BEGIN CONSTRUCTION
U-6084 -Y1- POT STA. 12+15.93
S 41° 04' 59.5" W
10 -SBX-
15 -SBX-
35 -L-
30 -L-
40 -L-
15 -Y1-
END C&G
BEGIN C&G
TRANSITION FROM 10' MULTI-USE PATH TO 5' SIDEWALK
4' CONCRETE MULTI-USE PATH WITH 10' SAWCUT JOINT SPACING
2'-6" C&G
40' TYP.
37.0' STORAGE
175' TAPER
-SBX- PC Sta. 12+31.42
-SBX- PT Sta. 13+17.66
-SBX- PT Sta. 10+82.42
-SBX- POT Sta. 17+24.36=
-L- POT Sta. 34+24.91
OFF. 88.75' LT
-L- Sta. 34+65.82=
-Y1- POT Sta. 16+00.00
R 400.0'
R 48.00'
R 50.00'
R 95.5'
R 115.0'
R 106.0'
450' DUAL STORAGE
200' TAPER
6" CURB
2' GUTTER (TYP)
PROP CONC ISLAND COVER
6" Face Keyed-In Non-Mountable Monolithic Island See Detail Sheets 2C-2 to 2C-3
400' STORAGE
150' TAPER
2' PS
S 43° 54' 28.0" E
S 68° 36' 53.8" E
NC 16 BROOKSHIRE BLVD.
GREU TL-3
CAT-1
REMOVE AND RESET EXISTING GUARDRAIL
MATCHLINE -L- STA 27+00.00 SEE SHEET 4
MATCHLINE -L- STA 41+00.00 SEE SHEET 6
-L- Sta. 27+9.32 8' RT =
-SBX- PC Sta. 10+00.00
-L- PT Sta. 29+40.20
-L- Sta. 34+85.94=
-Y2- POT Sta. 10+00.00
-NBX- POT Sta. 15+57.29
-L- POT Sta. 35+16.84
OFF. 90.75' RT
END CONSTRUCTION
-Y2- Sta. 13+52.80
MT. HOLLY-HUNTERSVILLE RD.
-Y2-
15 -NBX-
10 -NBX-
-NBX- N 43° 54' 28.0" W
325' DUAL STORAGE
350' DUAL STORAGE
225' STORAGE
R 250.00'
R 146.00'
R 104.0'
R 664.70'
R 200.0'
R 193.50'
R 219.50'
R 70.00'
R 60.00'
R 55.0'
R 48.50'
R 25.00'
R 9.00'
R 111.5'
R 150.00'
R 130.00'
R 30.00'
R 4.00'
R=95.0'
R=180.0' OFF 12.0'
S 40° 33' 08.6" W
N 69° 02' 29.0" W
-NBX- PC Sta. 12+02.44
-NBX- PT Sta. 12+90.18
-NBX- PT Sta. 10+61.85
-L- Sta. 40+56.07 125' LT=
-NBX- PC Sta. 10+00.00
4' CONCRETE MULTI-USE PATH WITH 10' SAWCUT JOINT SPACING
PROP KEYED-IN MONO. ISLAND
PROP SIDEWALK

-NBX-	
PI Sta 12+47.03	PI Sta 10+31.43
△ = 25° 08' 01.1" (RT)	△ = 25° 08' 01.1" (LT)
D = 28° 38' 52.4"	D = 40° 38' 07.1"
L = 87.73'	L = 61.85'
T = 44.58'	T = 31.43'
R = 200.00'	R = 141.00'
SE = EXIST	SE = EXIST

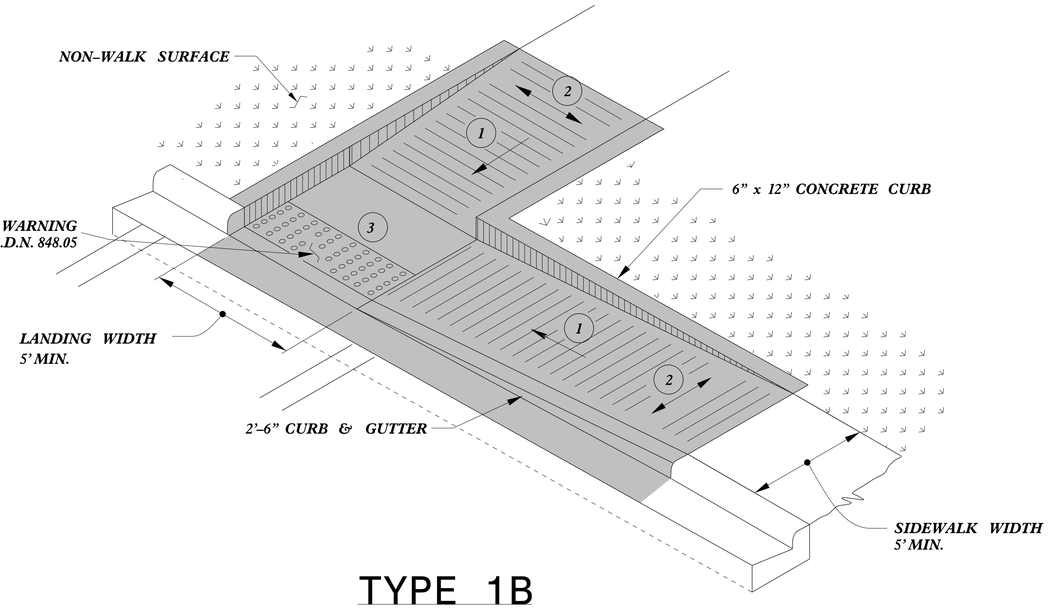
1/25/2018
U:\Roadway\Proj\RIVERBEND_rdy.psh.2B-1.dgn
gmp2100

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2C-1

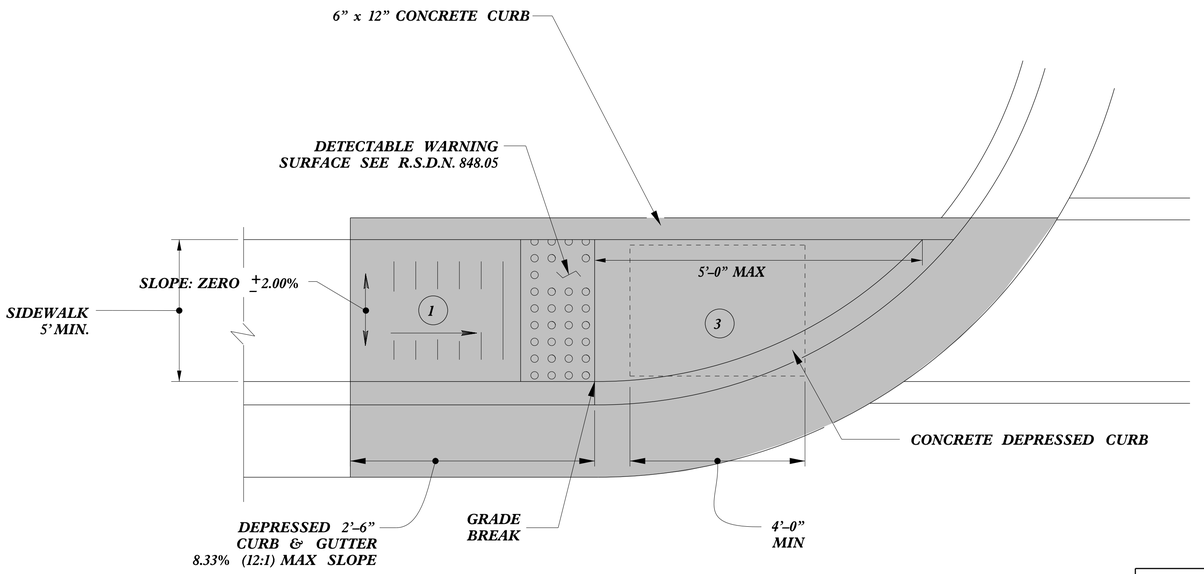


TYPE 1A



TYPE 1B

PAY LIMITS FOR 1 CURB RAMP



TYPE 1

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel S. Howerton 873F3D17DCDC45F...

1/9/2018

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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

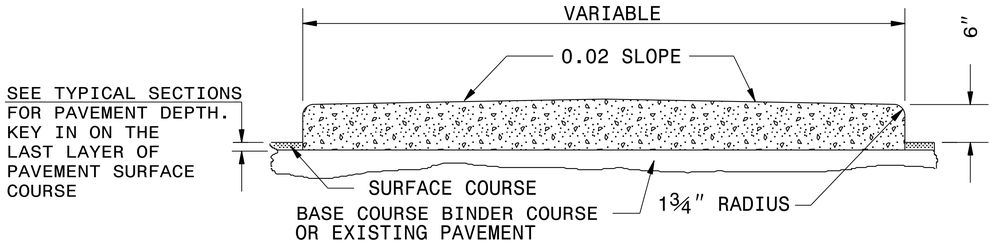
$$$$USERNAME$$$$
$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$SYSTIME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2C-2

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

ENGLISH DETAIL DRAWING FOR

6″ NON-MOUNTABLE CONCRETE ISLANDS

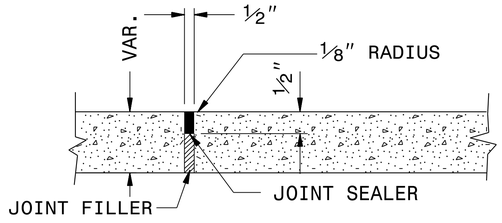


6″ MONOLITHIC CONCRETE ISLAND (KEYED IN) ON ASPHALT OR CONCRETE PAVEMENT

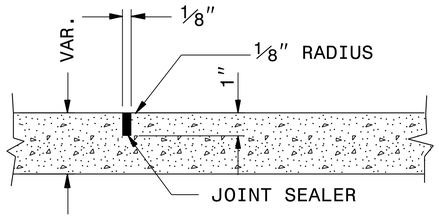
NOTE:
WHEN MONOLITHIC CONCRETE ISLAND IS ON TOP OF SURFACE COURSE, DRIVE 40d SPIKES INTO SURFACE UNDER MONOLITHIC CONCRETE ISLAND. STAGGER SPIKES ON 2′ CENTERS EACH WAY.

IN THE CONCRETE PAVEMENT (ISLAND) AND CONCRETE ISLAND (MONOLITHIC) PLACE ½″ EXPANSION JOINTS AT 30′ INTERVALS AND GROOVED JOINTS 1″ DEEP AT 10′ INTERVALS BETWEEN EXPANSION JOINTS.

LINE UP THE JOINTS IN THE CONCRETE PAVEMENT (ISLAND) WITH THE JOINTS IN THE CURB OR CURB AND GUTTER.
FILL AND SEAL THE TOP ½″ OF THE EXPANSION JOINTS AND THE ENTIRE DEPTH OF GROOVED JOINTS WITH JOINT SEALER.



SHOWING EXPANSION JOINT



SHOWING GROOVED JOINT

PARTIAL LONGITUDINAL SECTIONS OF PAVED ISLANDS

SHEET 1 OF 1
852D01

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

ENGLISH DETAIL DRAWING FOR
CONCRETE ISLANDS
6″ NON-MOUNTABLE

SHEET 1 OF 1
852D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel S. Howerton 873F3D17DCDC45F...
1/9/2018

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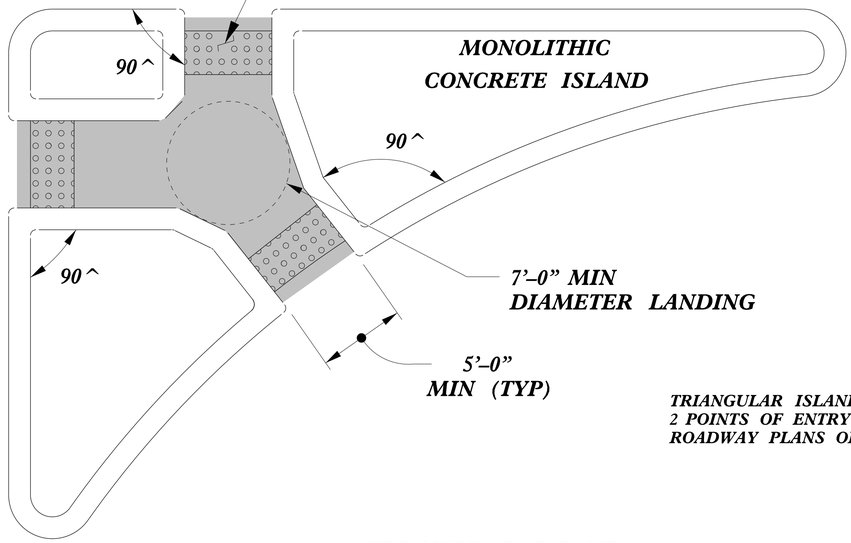
CCONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: STD.852.01 DATE:
MODIFIED BY: K.A.Kempf DATE: 1-31-08
CHECKED BY: DATE:
FILE SPEC.: w:tspell/stand/852d01islkeyin.dgn

5/14/99

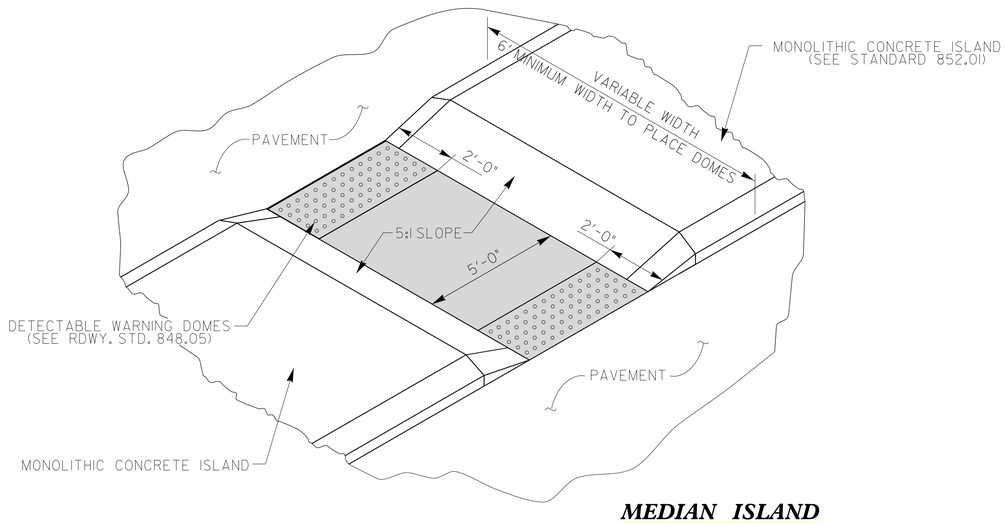
PROJECT REFERENCE NO.	SHEET NO.
U-6084	2C-3



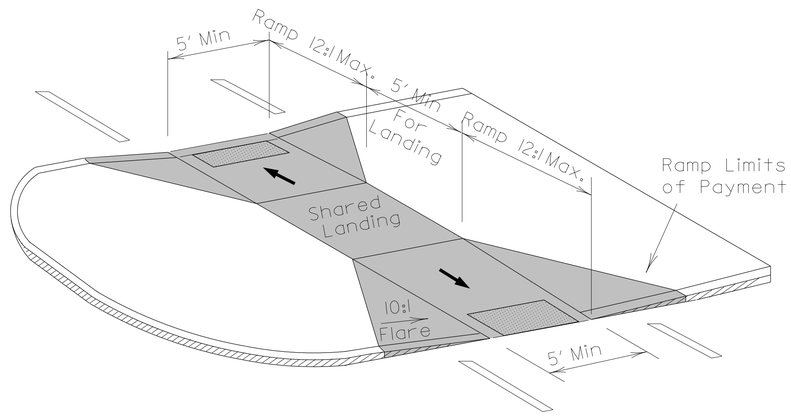
PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel S. Howerton 873F3D17DCDC45F...

1/9/2018

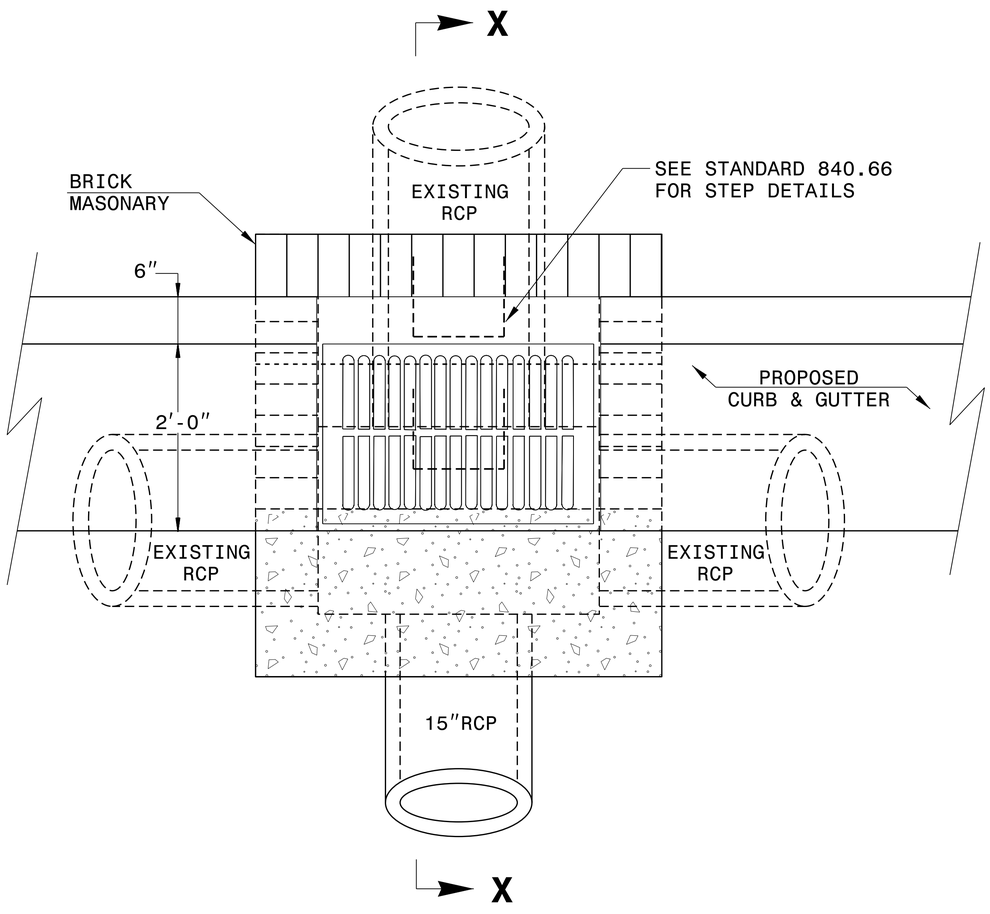
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

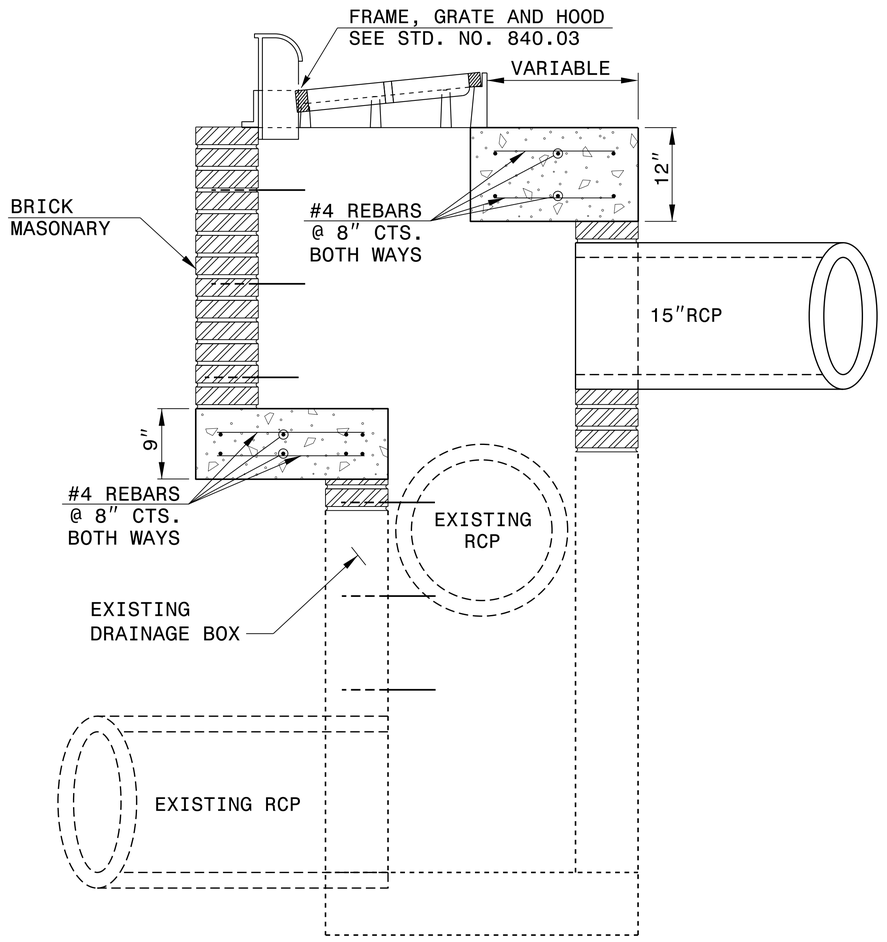
Median or Turn Lane Islands

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

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2C-4



PLAN



SECTION X-X

NOTES:

MORTAR JOINTS ½″ TO ¼″ THICK.

USE CLASS ″B″ CONCRETE THROUGHOUT.

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

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

CHAMFER ALL EXPOSED CORNERS 1″.

ALL CONVERSIONS SHALL BE ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

PROVIDE ALL CATCH BASINS OVER 3′-6″ IN DEPTH WITH STEPS 12″ ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING NO. 840.66.

DRAWING NOT TO SCALE.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

DocuSigned by: Joel S. Howerton 873F3D17DCDC45F...

1/30/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

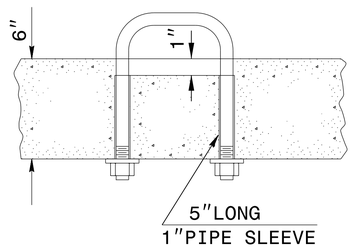
CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

OFFSET CATCH BASIN

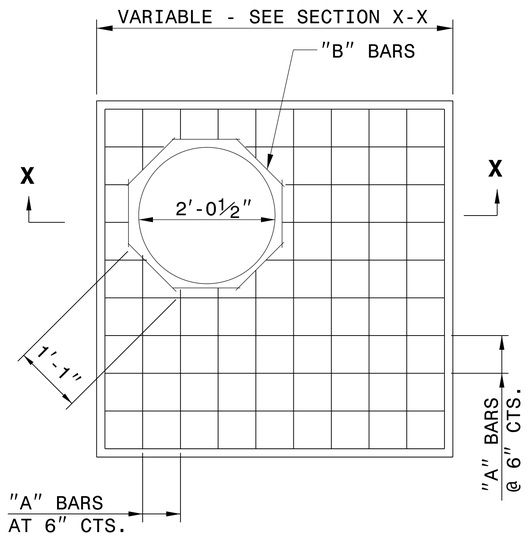
ORIGINAL BY: E.E. WARD DATE: 1-24-02
MODIFIED BY: KKEMPF DATE: 11-08-17
CHECKED BY: DATE:
FILE SPEC.: kkempf/english/U6804 edb to offsetcb.dgn

30-JAN-2018 13:58
S:\Contracts\Contracts\Special Details\kkempf\english\U6804 edb to offsetcb.dgn
jhowerton AT CSD-292595

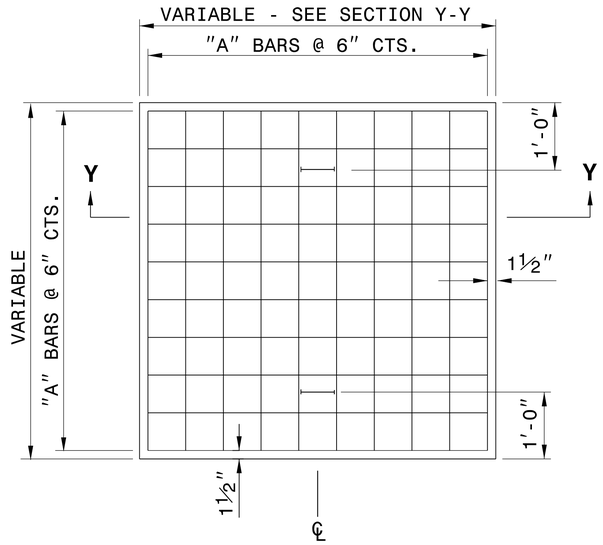
PROJECT REFERENCE NO.	SHEET NO.
U-6084	2C-5



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.

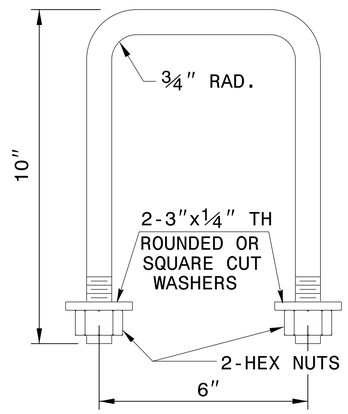
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

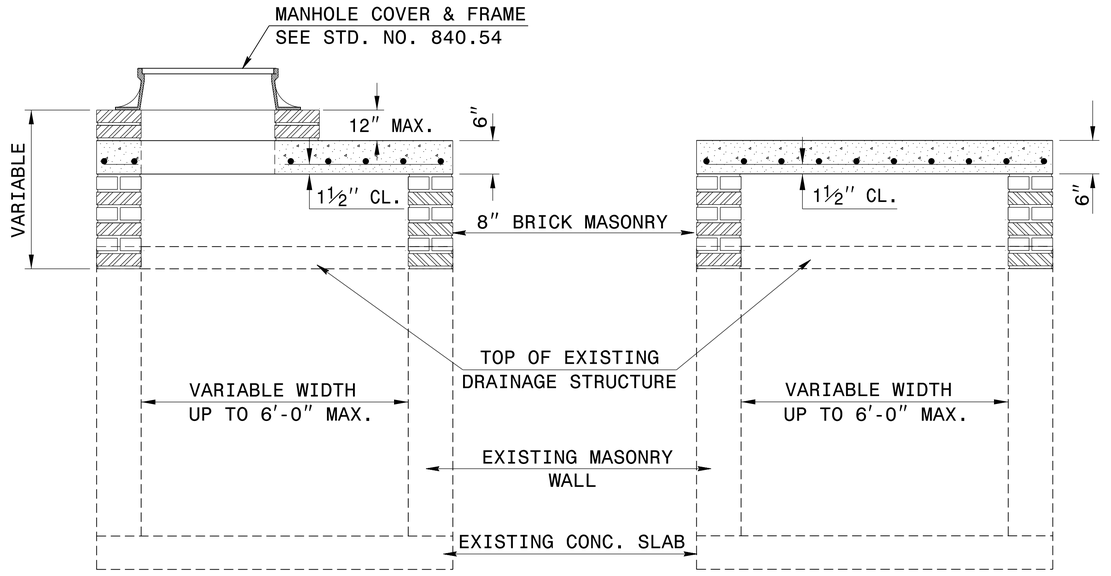
REINFORCING STEEL

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

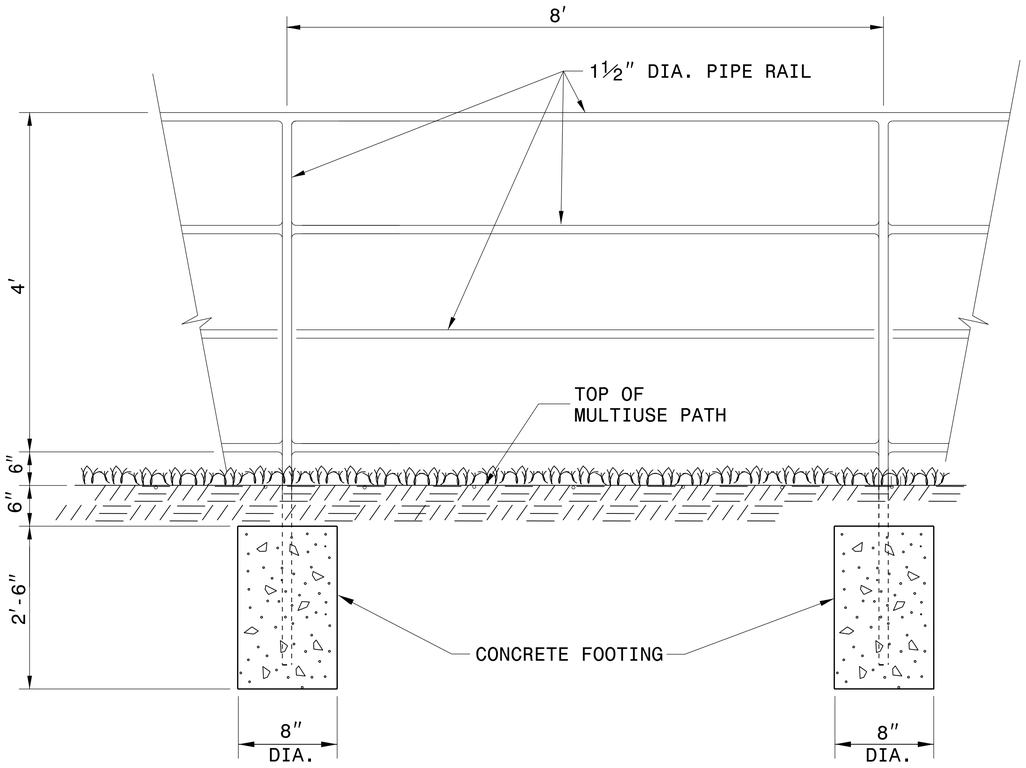
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

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

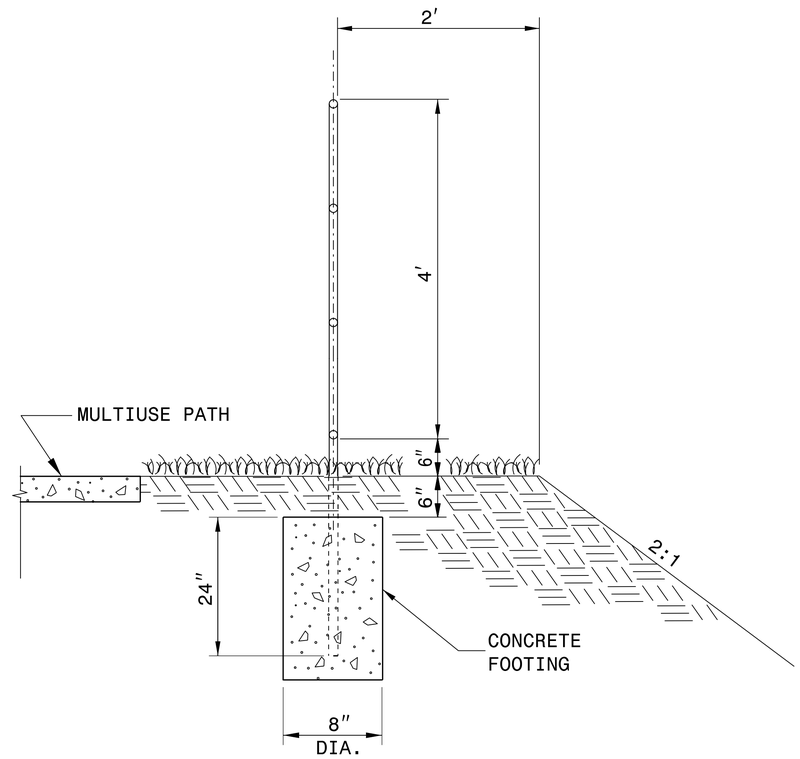
ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

$$$$$$$$SYTME$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2C-6



ELEVATION OF PROPOSED PEDESTRIAN HANDRAIL



SECTION VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO SHOULDER BREAK POINT AND SIDEWALK MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel S. Howerton 873F3D17DCDC45F...

2/6/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PROPOSED PEDESTRIAN SAFETY RAIL

ORIGINAL BY:	E.E.WARD	DATE:	12-99
MODIFIED BY:	T.S.Spell	DATE:	1-4-05
CHECKED BY:		DATE:	
FILE SPEC.:	w:jhowerton\handrail adjacent to sidewalk.dgn		

05-FEB-2018 09:07
S:\Contracts\Contracts\Special Details\jhowerton\Handrail Adjacent to Sidewalk.dgn
jhowerton At CSD 2196

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-6084	2D-1
R/W SHEET NO.	

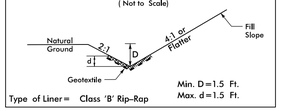
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

DocuSigned by: Joshua G. Dalton 1089ADBC14994C3... 1/9/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

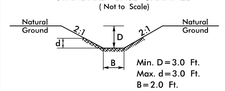


Min. D = 1.5 Ft.
Max. d = 1.5 Ft.

Type of Liner = Class 'B' Rip–Rap

FROM STA. 11 + 00 TO STA. 12 + 00 –Y3– LT

DETAIL #2
STANDARD BASE CHANNEL
(Not to Scale)

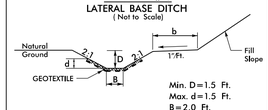


Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = 2.0 Ft.

Type of Liner = Class 'I' Rip–Rap

STA. 13 + 75 –Y3– RT

DETAIL #3
LATERAL BASE DITCH
(Not to Scale)

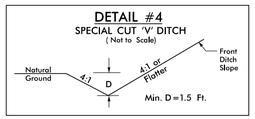


Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

Type of Liner = Class 'I' Rip–Rap

FROM STA. 44 + 40 TO STA. 45 + 20 –L– LT

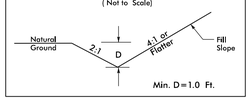
DETAIL #4
SPECIAL CUT 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.

FROM STA. 46 + 50 TO STA. 47 + 50 –L– RT
FROM STA. 46 + 00 TO STA. 46 + 50 –L– LT

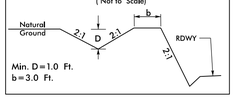
DETAIL #5
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FROM STA. 13 + 25 TO STA. 14 + 00 –Y1– RT

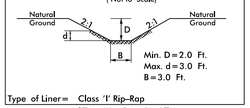
DETAIL #6
BERM 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.
b = 3.0 Ft.

FROM STA. 29 + 00 TO STA. 30 + 50 –L– LT

DETAIL #7
STANDARD BASE CHANNEL
(Not to Scale)

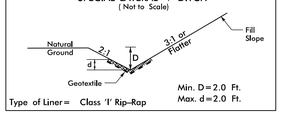


Min. D = 2.0 Ft.
Max. d = 3.0 Ft.
B = 3.0 Ft.

Type of Liner = Class 'I' Rip–Rap

STA. 44 + 34 –L– LT

DETAIL #8
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

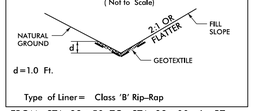


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.

Type of Liner = Class 'I' Rip–Rap

FROM STA. 39 + 00 TO STA. 41 + 50 –L– RT

DETAIL #9
TOE PROTECTION
(Not to Scale)

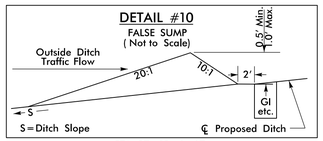


d = 1.0 Ft.

Type of Liner = Class 'B' Rip–Rap

FROM STA. 38 + 50 TO STA. 39 + 00 –L– RT

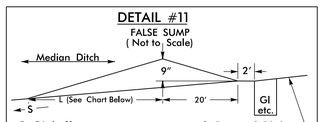
DETAIL #10
FALSE SUMP
(Not to Scale)



S = Ditch Slope

STA. 37 + 12 –L– LT

DETAIL #11
FALSE SUMP
(Not to Scale)



S = Ditch Slope

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

STA. 45 + 30 –L– MED

COMPUTED BY: C. MOZINGO DATE: 11/21/2017
CHECKED BY: ADS DATE: 1/8/2018

PROJECT NO.	SHEET NO.
U-6084	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	TOTAL UNCL. EXCAV.	EMBANKMENT +%	BORROW	WASTE TOTAL
16+15.00 -L- LT	34+50.00	7,428	392		7,036
12+25.00 -Y1-	15+25.00	383	430	47	
34+50.00 -L- LT	49+50.00	511	7,568	7,057	
10+25.00 -Y3-	14+50.00	168	80,805	80,637	
14+50 -Y3-	15+00.00		3,795	3,795	
	SUBTOTAL	8,490	92,990	91,536	7,036
16+15.00 -L- MD	34+50.00	1,678	365		1,313
34+50.00 -L- MD	49+50.00	1,826	265		1,562
	SUBTOTAL	3,504	629		2,875
16+15.00 -L- RT	34+50.00	1,434	351		1,083
10+75.00 -Y2-	12+25.00	384	9		375
34+50.00 -L- RT	49+50.00	2,322	3,440	1,118	
	SUBTOTAL	4,140	3,800	1,118	1,458
TOTAL		16,134	97,419	92,654	11,369
MATERIAL FOR SHOULDER CONSTRUCTION			2,703	2,703	
WASTE IN LIEU OF BORROW				-11,369	-11,369
PROJECT TOTAL		16,134	100,121	83,987	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				4,199	
GRAND TOTAL		16,134	100,121	88,186	
SAY		16,200		88,190	

EST. DDE =80 CY
EST. SHALLOW UNDERCUT = 200 CY
PER GEOTECH RECOMMENDATION, ESTIMATED 300 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER
EST. PAVEMENT STRUCTURE VOL = 8401 CY

NOTE: QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL RE-CROSS SECTION THE WORK ACCURATELY WHEN THE PROJECT IS STAKED OUT. THESE CROSS SECTION NOTES WILL BE USED IN COMPUTING THE FINAL QUANTITIES FOR WHICH THE CONTRACTOR WILL BE PAID.

MILLING 1.5"

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-Y2-	10+63	13+52	LT/RT	22472		2497.00
					TOTAL	2,497.00
					SAY	2,500

INCIDENTAL MILLING

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	16+15	16+52	LT	750		84.00
-L-	16+15	16+52	RT	750		84.00
-L-	49+12	49+50	LT	1229		137.00
-L-	47+48	47+86	RT	1434		160.00
-Y1-	12+15	12+53	LT	3107		346.00
					TOTAL	811.00
					SAY	820

WOVEN WIRE FENCE, 47" FABRIC

STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
-Y1-	LT	114	1		1	6	5
-Y3-	LT	8	1				2
-Y3-	RT.	8	1				2
TOTAL		130				6	9
SAY		130				6	9

REMOVAL OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	16+15.00	29+72.00	LT	1,223		135.89
-L-	16+15.00	31+36.00	MED LT	3,667		407.44
-L-	16+15.00	30+66.00	MED RT	2,977		330.78
-L-	16+15.00	28+21.00	RT	2,456		272.89
-L-	29+72.00	33+98.00	LT	1,470		163.33
-L-	31+36.00	34+26.00	MED LT	958		106.44
-L-	30+25.00	33+83.00	MED RT	3,366		374.00
-L-	28+21.00	33+55.00	RT	1,043		115.89
-L-	35+73.00	47+13.00	LT	2,491		276.78
-L-	35+58.00	40+15.00	MED LT	6,225		691.67
-L-	35+31.00	47+84.00	MED RT	2,585		287.22
-L-	35+45.00	38+30.00	RT	1,436		159.56
-L-	40+15.00	47+63.00	MED LT	1,496		166.22
-L-	38+30.00	43+37.00	RT	901		100.11
-Y1-	12+15.00	13+40.00	LT	324		36.00
-Y1-	12+15.00	14+01.00	RT	726		80.67
-Y2-	11+97.00	12+39.00	LT	124		13.78
-Y2-	11+22.00	11+53.00	RT	91		10.11
					TOTAL	3,728.78
					SAY	3,730

"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

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	ANCHORS GREU TL-2	ANCHORS GREU TL-3	ANCHORS M-350	ANCHORS TYPE III	ANCHORS CAT-1	ANCHORS B-77	ANCHORS AT-1	ANCHORS TES	IMPACT ATTENUATOR TYPE 350 G	IMPACT ATTENUATOR TYPE 350 NG	SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & RESET EXISTING GUARDRAIL	REMARKS
-Y3-/-L-	-Y3- 11+04.19	-L- 46+26.18	LT	312.5	112.5		45+00.00	11+00.00	12'	15'	50'		1'				1			1							690'		
-L-	28+18.16	31+68.70	MED LT	350.00	12.5		28+85.79	28+85.79	6'		50'	50'	1'				2												PROTECT SIGNAL MAST ARM
-L-	28+04.90	28+91.15	MED RT	93.75			28+85.79	28+85.79	6'		50'		1'				1			1									PROTECT SIGNAL MAST ARM
-L-	39+16.52	40+10.53	MED LT	93.75			39+22.77	39+22.77	6'		50'		1'				1			1									PROTECT SIGNAL MAST ARM
-L-	36+35.28	37+87.24	MED RT	350.00	12.5		39+22.77	39+22.77	6'		50'	50'	1'				2												PROTECT SIGNAL MAST ARM
-L-	43+65.51	44+98.80	MED LT	131.25			44+25.00	44+25.00	6'		50'		1'				1			1									PROTECT SIGN SUPPORT
-L-	43+50.03	44+31.25	MED RT	81.25			44+25.00	44+25.00	6'		50'		1'				1			1									PROTECT SIGN SUPPORT, 3' 1 1/2" POST SPACING
-L-	28+00.00	29+55.84	RT	156.25					12'	15'										1							147'		
-L-	42+12.52	44+06.25	RT	193.75			44+00.00	44+00.00	12'	15'	50'		1'				1			1									PROTECT SIGN SUPPORT
-L-	16+15.00	28+00.00	RT																									1187.5'	
-Y3-	12+75.00	14+56.25	RT	181.25			13+50	14+50	22.5'	15'	25'		1'			1				1									
			SUBTOTAL	1943.75	137.5											1	10			8									
	LESS DEDUCTIONS FOR ANCHORS																												
		GREU TL-3, 10@50' EA=		-500																									
		CAT-1, 8@6.25' EA=		-50																									
		GREU TL-2, 1@25' EA=		-25																									
		PROJECT TOTALS:		1368.75	137.5																						837	1187.5	
		SAY:		1375.00	150			20	= ADDITIONAL POSTS = 10 EA FOR 3' 1 1/2" POST SPACING + 10 EA CONTINGENCY																	840	1187.5	20 ADDITIONAL POSTS

BELAM-NEW

COMPUTED BY: BNE DATE: 1/29/2017
CHECKED BY: JGD DATE: 12/10/2017

PROJECT NO.	SHEET NO.
U-6084	3D-1

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		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)												R. C. PIPE CLASS III							R. C. PIPE CLASS IV							R. C. PIPE CLASS V						
SIZE								15	18	24	30	36	42		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	12	15	18	24	30	36		12	15	18	24	30	36		15	18	24	30	36	42	
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%																																	
L 25+88	14 LT	0401		714.0																																				
		0401	0402		708.4	708.0																16																		
L 25+88	2 RT	0402		708.0																																				
Y1 13+10	46 RT	0501		735.4																																				
Y1 13+75	66 RT	0502		733.6																																				
		0502	0503		730.4	730.3		20								X	X																							
Y1 13+75	47 RT	0503		734.6																																				
		0503	0505		730.1	729.8																							68											
Y1 14+46	13 LT	0504		734.8																																				
		0504	0505		731.6	730.1																						80												
Y1 14+40	69 RT	0505		733.7																																				
		0505	0508		729.8	727.3																							84											
L 33+00	63 LT	0506		732.1																																				
		0506	0507		729.1	728.2																						40												
L 33+00	103 LT	0507		731.4																																				
		0507	0508		728.2	727.5																						32												
L 33+00	137 LT	0508		730.5																																				
		0508	0513		727.3	725.1	0.6																						148											
L 30+70	63 LT	0509		728.3																																				
		0509	0510		725.3	725.1																						20												
L 30+50	63 LT	0510		728.1																																				
		0510	0511		725.1	724.4																						40												
L 30+50	103 LT	0511		727.6																																				
		0511	0512		724.4	723.7																						48												
L 30+00	102 LT	0512		726.9																																				
		0512	0515		723.7	723.0																						32												
L 31+50	137 LT	0513		728.3																																				
		0513	0515		725.1	722.7	0.7																						148											
L 30+00	164 LT	0514		731.0																																				
		0514	0515		727.8	723.0		28																																
L 30+00	137 LT	0515		726.0																																				
		0515	0516		722.2	720.0	0.3																							128										
L 28+75	114 LT	0516		723.7																																				
		0516	0518		720.0	719.5	0.3																							44										
L 28+95	68 LT	0517		725.3																																				
		0517	0518		722.1	721.9																						20												
L 28+75	67 LT	0518		725.5																																				
L 28+57	2 RT	0519		721.3																																				
Y2 12+10	13 RT	0521		734.0																																				
		0521	0526		730.8	730.4																						32												
L 29+88	0 CL	0522		724.8																																				
L 29+77	90 RT	0523		721.4																																				
		0523	0524		721.4	720.5														20																			
Y2 12+75	13 RT	0525		735.0																																				
Y2 11+75	13 RT	0526		733.6																																				
		0526	0528		730.4	730.0																						32												
Y2 11+30	27 LT	0527		733.4																																				
		0527	0528		730.2	730.0																						40												
Y2 11+40	13 RT	0528		733.4																																				
		0528	0529		730.0	728.8																						52												
SHEET TOTALS								48													20	16						468	448	172										

LINE & STATION	STRUCTURE NUMBER			ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	REINFORCED ENDWALLS	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				CONCRETE TRANSITIONAL SECTION		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 W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	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. FRAME AND COVER STD. 840.54		ADJUST C.B.	ADJUST D.I.	ADJUST 2 G.D.I.	15" DRAINAGE PIPE ELBOW			FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
	FROM	TO				MASONRY	0' THRU 5'	5' THRU 10'	10' AND ABOVE		GRATE TYPE				D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																										
				CY	CY	CY	EACH	LIN. FT.	LIN. FT.		E	F	G																									CY	CY	CY	LIN. FT.	
L 25+88	0401						1	0.6												1			1																			
	0401	0402																																								Remove +/- 17 LF of Existing 18" RCP
L 25+88	0402																																						0.4465			Remove Existing DI
Y1 13+10	0501																															1										
Y1 13+75	0502						1										1	1																								
	0502	0503																																								
Y1 13+75	0503						1			1		1																														
	0503	0505																																								
Y1 14+46	0504						1								1		1	1																								
	0504	0505																																								
Y1 14+40	0505						1			1		1																														
	0505	0508																																								
L 33+00	0506						1			1		1																														
	0506	0507																																								
L 33+00	0507						1								1		1	1																								
	0507	0508																																								
L 33+00	0508						1			1	1																															
	0508	0513																																								
L 30+70	0509						1			1		1																														
	0509	0510																																								
L 30+50	0510						1			1		1																														
	0510	0511																																								
L 30+50	0511						1								1		1	1																								
	0511	0512																																								
L 30+00	0512						1								1		1	1																								
	0512	0515																																								
L 31+50	0513						1			1		1																														
	0513	0515																																								
L 30+00	0514						1										1	1																								
	0514	0515																																	2							
L 30+00	0515						1			1		1																														
	0515	0516																																								
L 28+75	0516						1			1		1																														
	0516	0518																																								
L 28+95	0517						1								1		1	1																								
	0517	0518																																								
L 28+75	0518						1	1.0																		1				1												
L 28+57	0519																						1											1								
Y2 12+10	0521						1								1		1	1																								
	0521	0526																																								
L 29+88	0522																						1											1								
L 29+77	0523																																						0.3990			
	0523	0524																																								
Y2 12+75	0525														1			1															1									
Y2 11+75	0526						1								1		1	1																								
	0526	0528																																								
Y2 11+30	0527						1								1		1	1																								
	0527	0528																																								
Y2 11+40	0528						1								1		1	1																								
	0528	0529																																								
SHEET TOTALS							22	1.6		9	1	8			10		11	12		1			3			1				1		1	1	2	2				0.8455			

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

BELAM-NEW

COMPUTED BY: BNE DATE: 1/29/2017
CHECKED BY: JGD DATE: 12/10/2017

PROJECT NO.	SHEET NO.
U-6084	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	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)											R. C. PIPE CLASS III						R. C. PIPE CLASS IV						R. C. PIPE CLASS V							ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	REINFORCED ENDWALLS	DRAINAGE STRUCTURE	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03				CONCRETE TRANSITIONAL SECTION		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 W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	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. FRAME AND COVER STD. 840.54		ADJUST C.B.	ADJUST D.I.	ADJUST 2 G.D.I.	15" DRAINAGE PIPE ELBOW			FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	
SIZE								15	18	24	30	36	42						12	15	18	24	30	36	12	15	18	24	30	36	15	18	24	30	36	42						A	B																																	
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%							DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC																				CY	CY	MASONRY CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		GRATE TYPE E	F	G		D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																						CY	CY	CY	LIN. FT.	REMARKS
Y2 11+24	62 RT	0529		731.8																																					1	3.3		1	1																														Offset Catch Basin - See Special Detail 2C-4
L 33+15	73 RT	0532		732.0																																					1			1			1																													
		0532	0533		729.0	728.4		32							X	X																																																												
Y1 12+18	41 LT	0534		736.5																																					1			1			1																													
		0534	0535		733.1	731.0	0.3																			212																																																		
Y1 14+30	49 LT	0535		734.0																																					1			1			1																													
		0535	0536		730.7	730.5																					44																																																	
Y1 14+75	60 LT	0536		733.7																																					1			1			1																													
		0536	0537		730.5	730.0																					16																																																	
Y1 14+89	67 LT	0537		733.7																																					1	0.2		1	1																														
L 36+80	88 LT	0538A		732.5																																					1																							1													Convert 2GI to JB w/ MH - See Special Detail 2C-5
		0538A	0538		725.2	725.0															24																																																					
L 37+00	102 LT	0538		730.0																																					1													1			1																			
		0538	0539		725.0	724.0	0.4		52						X	X																																																											
L 39+35	0 CL	0540		730.5																																					1													1			1																			
		0540	0606		727.8	725.7																				312																																																		
L 36+10	63 RT	0541		734.0																																					1			1	1																														
		0541	0542		731.0	730.2																				44																																																		
L 36+10	105 RT	0542		733.4																																					1								1		1	1																								
		0542	0543		730.2	729.5																				32																																																		
L 36+10	139 RT	0543		732.5																																					1			1	1																														
		0543	0546		729.5	728.6																				172																																																		
L 38+20	63 RT	0544		733.3																																					1			1		1																													
		0544	0545		730.3	729.6																				56																																																		
L 37+82	105 RT	0545		732.8																																					1								1		1	1																								
		0545	0546		729.6	728.6																				32																																																		
L 37+82	139 RT	0546		731.9																																					1			1		1																													
		0546	0549		728.6	727.6	0.4																			116																																																		
L 40+10	64 RT	0547		731.5																																					1								1		1	1																								
		0547	0548		728.3	727.8																				96																																																		
L 39+12	67 RT	0548		732.6																																					1								1		1	1																								
		0548	0549		727.8	727.6																				56																																																		
L 38+97	121 RT	0549		731.5																																					1			1		1																													
		0549	0550		727.6	725.0	0.8	32							X	X																																																												
Y3 12+53	12 RT	0601		722.0																																					1			1	1																														
		0601	0602		719.0	718.9																				20																																																		
Y3 12+53	12 LT	0602		722.0																																					1			1	1																														
		0602	0604		718.9	718.7																				76																																																		
Y3 11+75	12 RT	0603		722.7																																					1			1		1																													
		0603	0604		719.7	718.7																				24																																																		
Y3 11+75	12 LT	0604		722.7																																					1			1			1																													
		0604	0605		718.7	700.6	1.2	100						X																																																					2							
L 42+50	12 RT	0606		728.9																																					1								1		1	1																								
		0606	0607		725.7	722.4																				88																																																		
L 43+38	11 RT	0607		725.6																																					1								1		1	1																								
		0607	0608		722.4	715.8													176																																																									
L 45+17	9 RT	0608		718.0																																					1														1		1																		
		0608	0609		715.0	714.8																12																																																			
L 45+17	3 LT	0609		714.8																																																																								0.5526			
L 44+38	125 LT	0611		688.6																																																																								0.7640			
SHEET TOTALS								164	52											176	24	12				1336	60														25	3.5		15	6	4	5		6		6	6		2	1		3							1					2				1.3166			

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

BELAM-NEW

COMPUTED BY:	BNE	**DATE:**	1/29/2017
CHECKED BY:	JGD	**DATE:**	12/10/2017

PROJECT NO.	SHEET NO.
U-6084	3D-3

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 %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC
		0611	0612		688.6	688.5	0.5					28						
Y3 12+79	0 CL	0613			700.5	673.8												
L 34+42	104 LT																	
L 33+76	89 LT																	
Y1 14+37	46 RT																	
Y2 11+24	39 RT																	
Y1 12+68	40 LT																	
Y1 13+99	41 LT																	
Y1 14+85	53 LT																	
L 37+18	96 LT																	
L 28+79	79 LT																	
Y2 11+32	7 LT																	
SHEET TOTALS												28						
PROJECT TOTALS								212	52			28						

LINE & STATION	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	R. C. PIPE CLASS V 15	18	24	30	36	42
Y3 12+79																304		
L 34+42																		
L 33+76																		
Y1 14+37																		
Y2 11+24																		
Y1 12+68																		
Y1 13+99																		
Y1 14+85																		
L 37+18																		
L 28+79																		
Y2 11+32																		
SHEET TOTALS																304		
PROJECT TOTALS		196	40	12				1804	508	172						304		

LINE & STATION	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	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	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
Y3 12+79																	
L 34+42																	
L 33+76																	
Y1 14+37																	
Y2 11+24																	
Y1 12+68																	
Y1 13+99																	
Y1 14+85																	
L 37+18																	
L 28+79																	
Y2 11+32																	
SHEET TOTALS																	
PROJECT TOTALS				47	5.1		24	7	12	5	16		17	18		3	1

LINE & STATION	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	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. FRAME AND COVER STD. 840.54	ADJUST C.B.	ADJUST D.I.	ADJUST 2 G.D.I.	15" DRAINAGE PIPE ELBOW	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
Y3 12+79																	
L 34+42													3				
L 33+76																72	Remove Existing 18" RCP
Y1 14+37																117	Remove Existing 18" RCP
Y2 11+24													2				
Y1 12+68																93	Remove Existing 15" RCP
Y1 13+99																165	Remove Existing 15" RCP
Y1 14+85																21	Remove +/- 21 LF of Existing 18" RCP
L 37+18																74	Remove Existing 18" RCP
L 28+79																21	Remove +/- 21 LF of Existing 24" RCP
Y2 11+32																55	Remove Existing 15" RCP
SHEET TOTALS													5			618	
PROJECT TOTALS		6			1			2	1	1	2	4	5	2.1621		618	

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

COMPUTED BY: R. BOWERS DATE: 11/1/2017
CHECKED BY: R. BOWERS DATE: 11/1/2017

PROJECT NO.	SHEET NO.
U-6084	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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 TONS
CONTINGENCY			ASU		200	400	400		
			TOTAL CY/TONS/SY:		200	400	400*		

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.**

8/17/99

SEE SHEETS 7 FOR -L- PROFILE
ALL CURB AND ISLAND RADII = 2' UNLESS NOTED OTHERWISE
ALL PAVED SHOULDERS = 2' WIDTH UNLESS NOTED OTHERWISE

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-690

PROJECT REFERENCE NO.	SHEET NO.
U-6084	04
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
DocuSigned by: A. Dean Sarvis 1/9/2018
ABF06FE9E2344AE...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
DocuSigned by: Joshua C. Dalton 1/9/2018
1089ADBC14994C3...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-
PI Sta 22+54.02
Δ = 6° 48' 36.0" (RT)
D = 0° 29' 44.3"
L = 1,373.98'
T = 687.80'
R = 11,560.00'
SE = EXIST

CALLABRIDGE CT

-L- 15

-L- 20

-L- 25

NAD 83/2011

BEGIN TIP PROJECT U-6084
-L- Sta.16+15.00
NC 16 BROOKSHIRE BLVD.

PLOTTED FROM GIS

-L- POT Sta.15+00.00
BROOKSHIRE BLVD.

S 50° 43' 03.9" E

720' LANE TRANSITION LEFT AND RIGHT

200' LANE TRANSITION LEFT AND RIGHT

GRADE TO DRAIN

RETAIN

2' PS

NC 16 BROOKSHIRE BLVD.

-L-

300' TAPER

250' DUAL STORAGE

REMOVE
18" RCP-III

2GI

COLLAR

REM.

040

040A

040Z

040Y

040Z

EXIST 040

R 200.00'

Transition proposed guardrail from 2'-0" height to existing guardrail height

REMOVE AND RESET EXISTING GUARDRAIL

BM 1
RR SPIKE SET IN BASE OF 18 INCH PINE
ELEV=693.400

-L- PC Sta. 15+66.22

BL-302 (61002)

BL-303 (61009)

BL-304 (61009)

BROOKSHIRE BLVD 28' BST

BROOKSHIRE BLVD 29' BST

BROOKSHIRE BLVD

EXISTING R/W

CONC HW

JS

MATCHLINE -L- STA 27+00.00 SEE SHEET 5

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "M 030"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 579273.290(ft) EASTING: 1419723.98(ft)
ELEVATION: 732(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843325
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "M 030" TO -L- STATION 15+00.00 IS
N 47°19'33.6" W 1794.7301
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

1/8/2018
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mmorgan

8/17/99

-SBX-	
PI Sta 10+41.80	PI Sta 12+75.22
△ = 23° 36' 44.6" (LT)	△ = 24° 42' 25.9" (RT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 82.42'	L = 86.24'
T = 41.80'	T = 43.80'
R = 200.00'	R = 200.00'
SE = EXIST	SE = EXIST

-L-
PI Sta 22+54.02
△ = 6° 48' 36.0" (RT)
D = 0° 29' 44.3"
L = 1,373.98'
T = 687.80'
R = 11,560.00'
SE = EXIST

SEE SHEETS 7 & 8 FOR -L- PROFILE
SEE SHEET 9 FOR -SBX- AND -NBX- PROFILES
SEE SHEET 10 FOR -Y1- AND -Y2- PROFILES
ALL CURB AND ISLAND RADII = 2' UNLESS NOTED OTHERWISE
ALL PAVED SHOULDERS = 2' WIDTH UNLESS NOTED OTHERWISE

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TEL (919) 859-2243
ENG FIRM LICENSE NO. C-4990

PROJECT REFERENCE NO.	SHEET NO.
U-6084	05
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
DocuSigned by: A. Dean Sarvis ABF0F0FE9E2344AE 1/29/2018

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
DocuSigned by: Joshua Dalton 1088AD8C1499403 1/29/2018

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NAD 83/2011

RIVERBEND SITE DEVELOPMENT
MOUNT HOLLY-HUNTERSVILLE ROAD
STA.1115+65.02=
BEGIN CONSTRUCTION
U-6084 -Y1- POT STA.12+15.93

-Y1- POT Sta. 10+00.00
Tie to Mount Holly - Huntersville Road Improvements.

CARCHLAND PROPERTIES LLC
DB 17421 PG 904

COREY MALCOLM WENDELL
DB 13651 PG 974

BEVERAGE CONTROL BOARD
DB 13695 PG 45

MOUNTAIN ISLAND PROMENADE LLC
DB 29667 PG 194

CALLABRIDGE CT

-SBX- PT Sta. 10+82.42
-SBX- PC Sta. 12+31.42
-SBX- PT Sta. 13+17.66
-SBX- POT Sta. 17+24.36=
-L- POT Sta. 34+24.91
OFF 88.75' LT
-L- Sta. 34+65.82=
-Y1- POT Sta. 16+00.00
-L- Sta. 34+85.94=
-Y2- POT Sta. 10+00.00
-NBX- POT Sta. 15+57.29
-L- POT Sta. 35+16.84
OFF 90.75' RT

MATCHLINE -L- STA 27+00.00 SEE SHEET 4
MATCHLINE -L- STA 41+00.00 SEE SHEET 6

-L- Sta. 27+19.32 8' RT =
-SBX- PC Sta. 10+00.00
-L- PT Sta. 29+40.20
-L- Sta. 40+59.07 125' LT =
-NBX- PC Sta. 10+00.00
-NBX- PT Sta. 10+61.85
-NBX- PT Sta. 12+90.18
-NBX- PC Sta. 12+02.44

END CONSTRUCTION
-Y2- Sta. 13+52.80
MT. HOLLY-HUNTERSVILLE RD.

BM 2
RR SPIKE SET IN BASE OF 18 INCH OAK
ELEV=738.886

Corner ramp will start from the catch basin frame and extend around the radius as necessary to achieve compliant slopes.

TRANSITION FROM 10' MULTI-USE PATH TO 5' SIDEWALK

4" CONCRETE MULTI-USE PATH WITH 10' SAWCUT JOINT SPACING

BEGIN WOVEN WIRE FENCE -Y1- STA.12+35 EXISTING R/W LT

END WOVEN WIRE FENCE -Y1- STA.13+48 EXISTING R/W LT

APPROXIMATE DUKE ENERGY RIGHT OF WAY ACCORDING TO PLAT

BERM 'V' DITCH SEE DETAIL #6 EST. 15 CY DDE

REMOVE +/- 21' EXTG. 24" CMP

REMOVE +/- 117' OF EXTG. 18" RCP

REMOVE +/- 93' EXTG. 15" RCP

450' DUAL STORAGE

370' STORAGE

400' STORAGE

325' DUAL STORAGE

350' DUAL STORAGE

225' STORAGE

200' TAPER

150' TAPER

FLOWABLE FILL

2'-6" C&G PROP CONC ISLAND COVER

6" Face Keyed-in Non-Mountable Monolithic Island See Detail Sheets 2C-2 to 2C-3

OFFSET CB SEE SPECIAL DETAIL 2C-4

CL 'B' RIP RAP EST. 2 TONS EST. 7 SY GF

CL 'B' RIP RAP EST. 1 TON EST. 5 SY GF

CL 'B' RIP RAP EST. 3 TONS EST. 10 SY GF

TOE PROTECTION CL 'B' RIP RAP EST. 25 TONS EST. 73 SY GF SEE DETAIL #9

SPEC. LAT. 'V' DITCH W/CL 'I' RIP RAP EST. 299 TONS EST. 542 SY GF SEE DETAIL #8

SPEC. DITCH GRADE SEE PROFILE

CLEAR TREES TO RIGHT OF WAY

Conv. 2GI To JB w/MH SEE SPECIAL DETIAL 2C-5

ADJUST CB

ADJUST 2GI

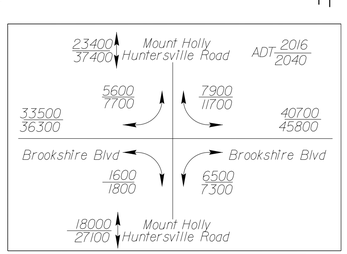
REMOVE AND RESET EXISTING GUARDRAIL

NC 16 BROOKSHIRE BLVD.

BROOKSHIRE BLVD

-NBX-	
PI Sta 12+47.03	PI Sta 10+31.43
△ = 25° 08' 01.1" (RT)	△ = 25° 08' 01.1" (LT)
D = 28° 38' 52.4"	D = 40° 38' 07.1"
L = 87.73'	L = 61.85'
T = 44.58'	T = 31.43'
R = 200.00'	R = 141.00'
SE = EXIST	SE = EXIST

PROP KEYED-IN MONO. ISLAND
PROP MULTI-USE PATH



1/29/2018
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mpatton

8/17/99

SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 10 FOR -Y3- PROFILE
ALL CURB AND ISLAND RADII = 2' UNLESS NOTED OTHERWISE
ALL PAVED SHOULDERS = 2' WIDTH UNLESS NOTED OTHERWISE

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PROJECT REFERENCE NO.	SHEET NO.
U-6084	06
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
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HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA C. DALTON
DocuSigned by: Joshua Dalton
109BADBC1499AC3... 2/5/2018

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NAD 83/2011

* It is understood and agreed that the City Of Charlotte shall have the right to construct and maintain the cut and/or fill slopes in the above described temporary easement area(s) until such time that the property owners alter the adjacent lands in such a manner that the cut and/or fill slopes are no longer needed for the lateral support of the roadway. Any additional construction areas lying beyond the cut and/or fill slopes and extending beyond the right of way limits and beyond any permanent easement areas will terminate upon completion and acceptance of the project. The underlying fee owner shall have the right to continue to use the Temporary Easement area(s) in any manner and for any purpose, including but not limited to the use of said area for access, ingress, egress, and parking, that does not, in the determination of the City Of Charlotte, obstruct or materially impair the actual use of the easement area(s) by the City of Charlotte, its agents, assigns, and contractors.

-Y3- POT STA. 14+50.00= RIVERBEND PUBLIC ROAD 7 & ACCESS D POT STA. 4+50

END CONSTRUCTION -Y3- Sta. 14+50.00 ACCESS D

15 -Y3-

2' BASE CHANNEL W/CL 'I' RIP RAP EST. 40 TONS EST. 25 CY DDE SEE DETAIL #2

MOUNTAIN ISLAND PROMENADE LLC DB 29667 PG 194

APPROXIMATE DUKE ENERGY RIGHT OF WAY ACCORDING TO PLAT

APPROXIMATE TOWER LOCATION FROM AERIAL PHOTOGRAPH

SPEC. LAT. 'V' DITCH W/CL 'B' RIP RAP EST. 65 TONS EST. 181 SY GF SEE DETAIL #1

BEGIN PEDESTRIAN SAFETY RAIL

END PEDESTRIAN SAFETY RAIL

END C&G

BEGIN C&G

15" RCP-IV

30" RCP-IV

15" W/ELBOWS

Remove Fence Construct W/W End Braces

3' BASE CHANNEL W/CL 'I' RIP RAP EST. 32 TONS EST. 10 CY DDE SEE DETAIL #7

LAT. 2' BASE DITCH W/CL 'I' RIP RAP EST. 79 TONS EST. 144 SY GF EST. 25 CY DDE SEE DETAIL #3

720' LANE TRANSITION

SPEC. CUT 'V' DITCH SEE DETAIL #4

Tie to NCDOT W-5601IK project to be completed before before U-6084 begins.

10 -Y3-

-7- 45

-7- 50

END TIP PROJECT U-6084
-L- Sta. 49+50.00
NC 16 BROOKSHIRE BLVD.

-L- S 43° 54' 28.0" E
NC 16 BROOKSHIRE BLVD.

REMOVE EXTG. 2GI

300' TAPER

24" RCP-III

2GI-D

SPEC. DITCH GRADE SEE PROFILE

BL-309 (40021 @ 34')

BROOKSHIRE BLVD 36' BST

350' DUAL STORAGE

175' STORAGE

150' TAPER

660' LANE TRANSITION

3' 1½" Post Spacing

-L- Sta. 42+51.79=
-Y3- POT Sta. 9+40.17

BM 3
RR SPIKE IN BASE OF 15" SWEET GUM
ELEV=716.433

SPEC. LAT. 'V' DITCH W/CL 'I' RIP RAP SEE DETAIL #8

SPEC. CUT 'V' DITCH SEE DETAIL #4

-L- POT Sta. 50+66.24

MATCHLINE -L- STA 41+00.00 SEE SHEET 5

TSE — TEMPORARY SLOPE EASEMENT
PSE — PERMANENT SLOPE EASEMENT
PROP KEYED-IN MONO.ISLAND

2/5/2018
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FOR -L- PLANS, SEE SHEET 4 & 5

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PROJECT REFERENCE NO.	SHEET NO.
U-6084	07

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
DocuSigned by: A. Dean Sarvis
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HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
DocuSigned by: Joshua Dalton
1089ADBC1499EC3... 1/9/2018

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-L-

SPLINE GRADE BASED ON 1.5" OVERLAY

BEGIN TIP PROJECT U-6084
-L- 34' LT, POC STA. 16+15.00 EL 695.64

PI = 16+50.00 EL = 695.56'
PI = 17+00.00 EL = 695.32'
PI = 17+50.00 EL = 695.25'
PI = 18+00.00 EL = 695.48'
PI = 18+50.00 EL = 695.83'
PI = 19+00.00 EL = 696.25'
PI = 19+50.00 EL = 696.80'
PI = 20+00.00 EL = 697.50'
PI = 20+50.00 EL = 698.36'
PI = 21+00.00 EL = 699.36'
PI = 21+50.00 EL = 700.45'
PI = 22+00.00 EL = 701.69'
PI = 22+50.00 EL = 703.28'
PI = 23+00.00 EL = 704.90'

BM#1 ELEVATION = 693.40'
-L- STATION 14+80, 86.64' RIGHT
RR SPIKE SET IN BASE OF 18 INCH PINE

LEFT DITCH GRADE
RIGHT DITCH GRADE

-L-

SPLINE GRADE BASED ON 1.5" OVERLAY

PI = 23+00.00 EL = 704.90'
PI = 23+50.00 EL = 706.65'
PI = 24+00.00 EL = 708.48'
PI = 24+50.00 EL = 710.24'
PI = 25+00.00 EL = 712.01'
PI = 25+50.00 EL = 713.69'
PI = 26+00.00 EL = 715.52'
PI = 26+50.00 EL = 717.34'
PI = 27+00.00 EL = 719.16'
PI = 27+50.00 EL = 720.86'
PI = 28+00.00 EL = 722.40'
PI = 28+50.00 EL = 723.85'
PI = 29+00.00 EL = 725.26'
PI = 29+50.00 EL = 726.49'
PI = 30+00.00 EL = 727.74'
PI = 30+50.00 EL = 728.76'
PI = 31+00.00 EL = 729.78'
PI = 31+50.00 EL = 730.73'
PI = 32+00.00 EL = 731.67'
PI = 32+50.00 EL = 732.35'
PI = 33+00.00 EL = 733.03'
PI = 33+50.00 EL = 733.53'
PI = 34+00.00 EL = 733.88'
PI = 34+50.00 EL = 734.32'
PI = 35+00.00 EL = 734.70'
PI = 35+50.00 EL = 734.79'
PI = 36+00.00 EL = 735.44'

(-)13.60% (-)10.40% (+)3.60%

STA 29+00 -L- LT EI = 733.00'
STA 29+50 -L- LT EI = 731.20'
STA 30+00 -L- LT EI = 731.00'
STA 30+50 -L- LT EI = 732.80'

-Y1- MT. HOLLY-HUNTERSVILLE
-Y2- MT. HOLLY-HUNTERSVILLE

STA 35+75 -L- MED EI = 732.80'
(-)0.4880% →

BM#2 ELEVATION = 738.886'
-L- STATION 30+96, 156.24' RIGHT
RR SPIKE SET IN BASE OF 18 INCH OAK

1/8/2018
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mmcleod

5/28/99

FOR -L- PLANS, SEE SHEETS 5 & 6

SUNGATE DESIGN GROUP, P.A.
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RALEIGH, NORTH CAROLINA 27606
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ENG FIRM LICENSE NO. C-890

PROJECT REFERENCE NO.	SHEET NO.
U-6084	08

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

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DocuSigned by: A. Dean Sarvis ABF06FE9E2344AE... 1/9/2018
DocuSigned by: Joshua Dalton 1086ADBC1499AC3... 1/9/2018

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-L-

SPLINE GRADE BASED ON 1.5" OVERLAY

BM#3 ELEVATION = 716.433'
-L- STATION 47+63, 109.87' RIGHT
RR SPIKE IN BASE OF 15" SWEET GUM

LEFT DITCH GRADE
RIGHT DITCH GRADE

PI = 36+00.00 EL = 735.44'
PI = 36+50.00 EL = 734.90'
PI = 37+00.00 EL = 734.86'
PI = 37+50.00 EL = 734.62'
PI = 38+00.00 EL = 734.22'
PI = 38+50.00 EL = 733.81'
PI = 39+00.00 EL = 733.38'
PI = 39+50.00 EL = 732.94'
PI = 40+00.00 EL = 732.46'
PI = 40+50.00 EL = 731.57'
PI = 41+00.00 EL = 730.81'
PI = 41+50.00 EL = 729.97'
PI = 42+00.00 EL = 729.12'
PI = 42+50.00 EL = 728.10'
PI = 43+00.00 EL = 726.84'
PI = 43+50.00 EL = 725.49'
PI = 44+00.00 EL = 724.08'
PI = 44+50.00 EL = 722.60'
PI = 45+00.00 EL = 721.12'
PI = 45+50.00 EL = 719.68'
PI = 46+00.00 EL = 718.22'
PI = 46+50.00 EL = 716.74'
PI = 47+00.00 EL = 715.24'
PI = 47+50.00 EL = 713.78'
PI = 48+00.00 EL = 713.78'
PI = 48+50.00 EL = 712.78'
PI = 49+00.00 EL = 711.25'

STA 37+00 -L- MED
EL = 732.19

(-)0.4880% (-)0.56%

STA 36+50 -L- LT
EL = 730.28

STA 37+00 -L- LT
EL = 730.00

STA 39+00 -L- RT
EL = 725.00

(-)6.50%

STA 40+00 -L- RT
EL = 718.50

(-)14.00%

STA 41+50 -L- RT
EL = 712.50

-Y3- ACCESS D

STA 45+20 -L- LT
EL = 701.20

STA 45+00 -L- LT
EL = 696.60

(+)123.00%

(+)111.00%

STA 44+40 -L- LT
EL = 690.00

STA 46+50 -L- LT
EL = 713.00

(+)0.56%

STA 46+00 -L- LT
EL = 712.67

STA 46+50 -L- MED
EL = 712.34

STA 46+50 -L- RT
EL = 708.54

(-)0.517%

(+)0.68%

STA 47+35 -L- MED
EL = 711.90

(+)0.67%

STA 47+50 -L- RT
EL = 709.22

STA 47+50 -L- MED
EL = 712.00

-L-

SPLINE GRADE BASED ON 1.5" OVERLAY

END TIP PROJECT U-6084
-L- 34' LT, POC STA. 49+50.00 EL 708.45'

PI = 49+00.00
EL = 711.25'

5/28/99

FOR -SBX- PLANS, SEE SHEET 5
FOR -NBX- PLANS, SEE SHEET 5

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PROJECT REFERENCE NO.	SHEET NO.
U-6084	09

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARTIS
DocuSigned by: A. Dean Sarvis ABF06FE9E2344AE... 1/9/2018

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
DocuSigned by: Joshua Dalton 1088ADBC1499AC3... 1/9/2018

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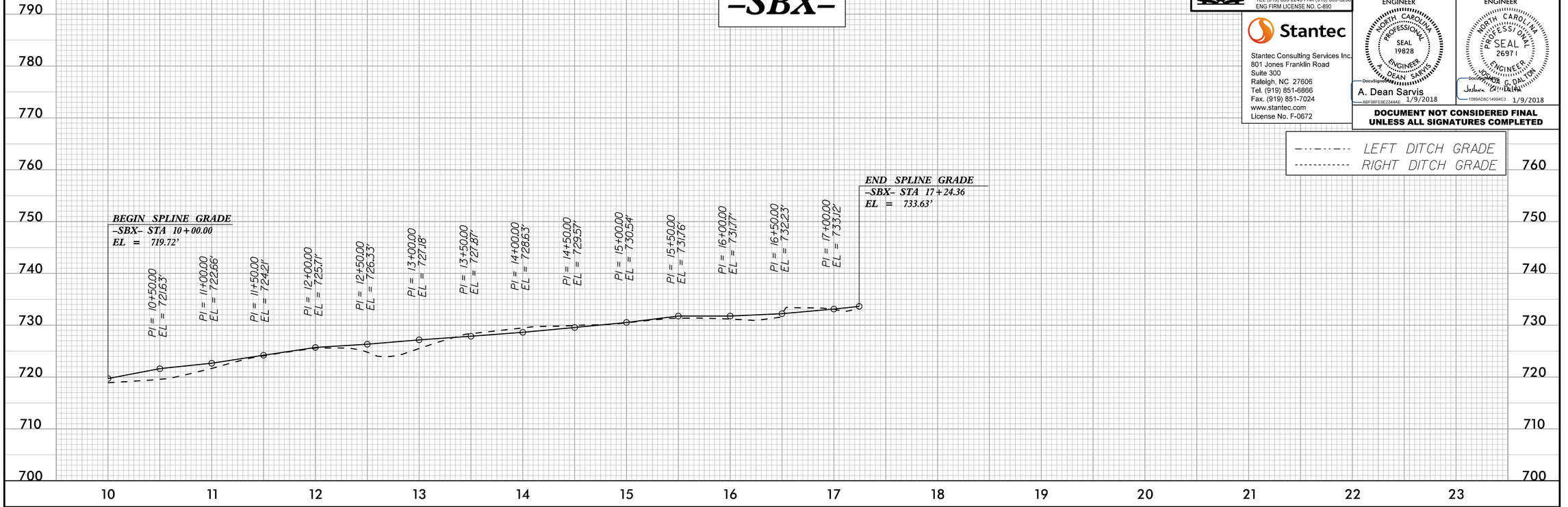
LEFT DITCH GRADE
RIGHT DITCH GRADE

-SBX-



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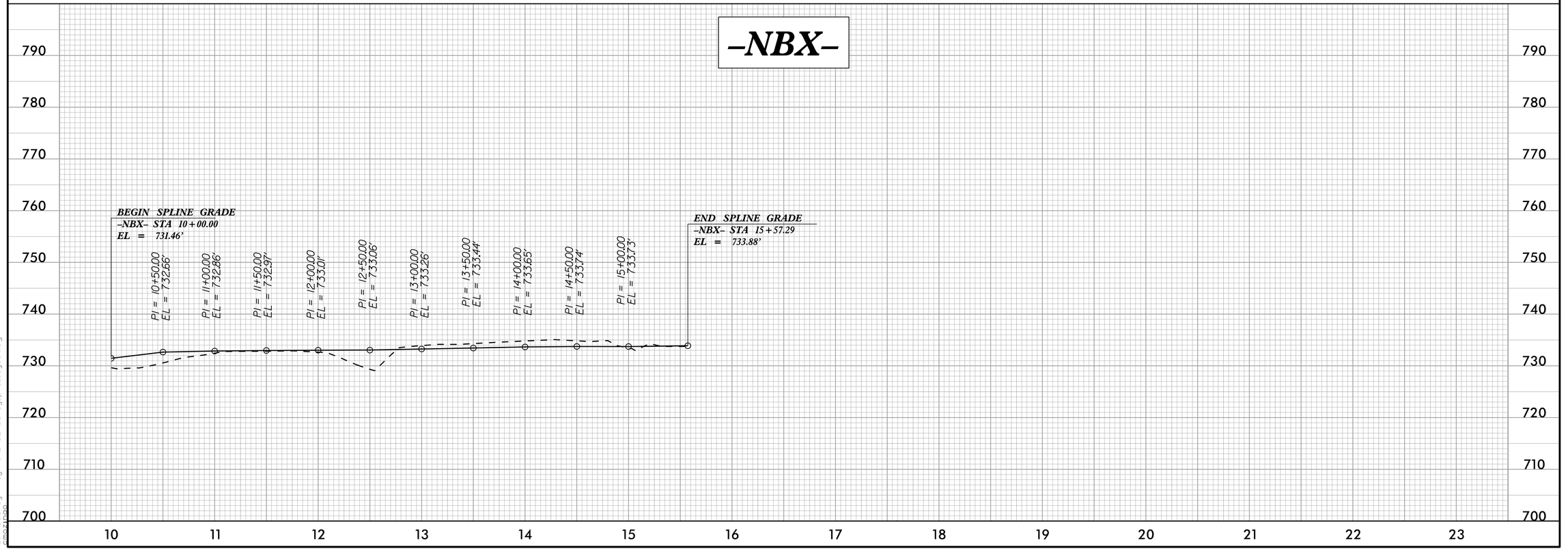

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FOR -Y1- PLANS, SEE SHEET 5
FOR -Y2- PLANS, SEE SHEET 5
FOR -Y3- PLANS, SEE SHEET 6

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PROJECT REFERENCE NO.	SHEET NO.
U-6084	10

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARTIS
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LEFT DITCH GRADE
RIGHT DITCH GRADE

-Y1-

BEGIN CONSTRUCTION
-Y1- STA 12+15.93
EL = 737.91'

TRANSISITON TO EXISTING SEE SHEET X-21

BEGIN GRADE
-Y1- STA 12+55.00
EL = 737.42'

PI = 13+00.00
EL = 736.65'
VC = 90'
K = 146
DS = 50 MPH

END GRADE
-Y1- STA 15+28.73
EL = 734.17'

(-)1.7010%
0.40%
(-)1.0840%
(-)1.80%

STA 13+25 -Y1- RT
EI = 734.50
STA 13+75 -Y1- RT
EI = 733.60
STA 14+00 -Y1- RT
EI = 733.70

-Y2-

Mill and replace 1.5" of surface course.

BEGIN OVERLAY
-Y2- STA 10+59.28

END OVERLAY
-Y2- STA 13+52.80

-Y3-

BEGIN GRADE
-Y3- STA 10+00.00
EL = 727.63'

PI = 10+80.00
EL = 726.02'
VC = 90'
K = 78
DS = 45 MPH

PI = 12+50.00
EL = 720.67'
VC = 250'
K = 41
DS = 30 MPH

END GRADE
-Y3- STA 14+50.00
EL = 726.67'

728.17

(-)2.0000%
(-)3.1500%
(-)3.1500%
(+)3.0000%

STA 14+50.00 = STA 4+50.00

END CONSTRUCTION U-6084
SEE RIVERBEND SITE PLANS

(-)7.20%
(-)10.40%

STA 11+00 -L- LT
EI = 706.00
STA 11+75 -L- LT
EI = 700.60
STA 12+00 -L- LT
EI = 700.50

30" RCP

1/8/2018
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