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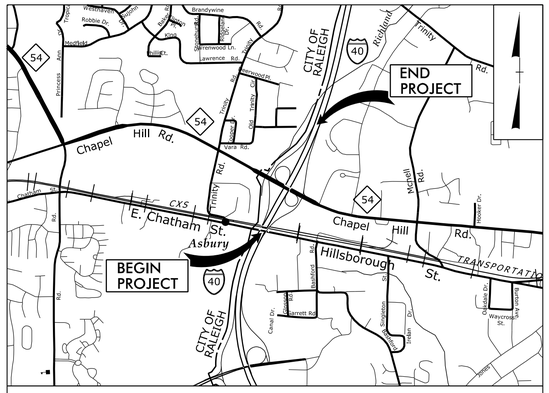
09/08/99

TIP PROJECT: I-5873

CONTRACT: C204277

See Sheet 1A For Index of Sheets
See Sheet 1-B For Symbology Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

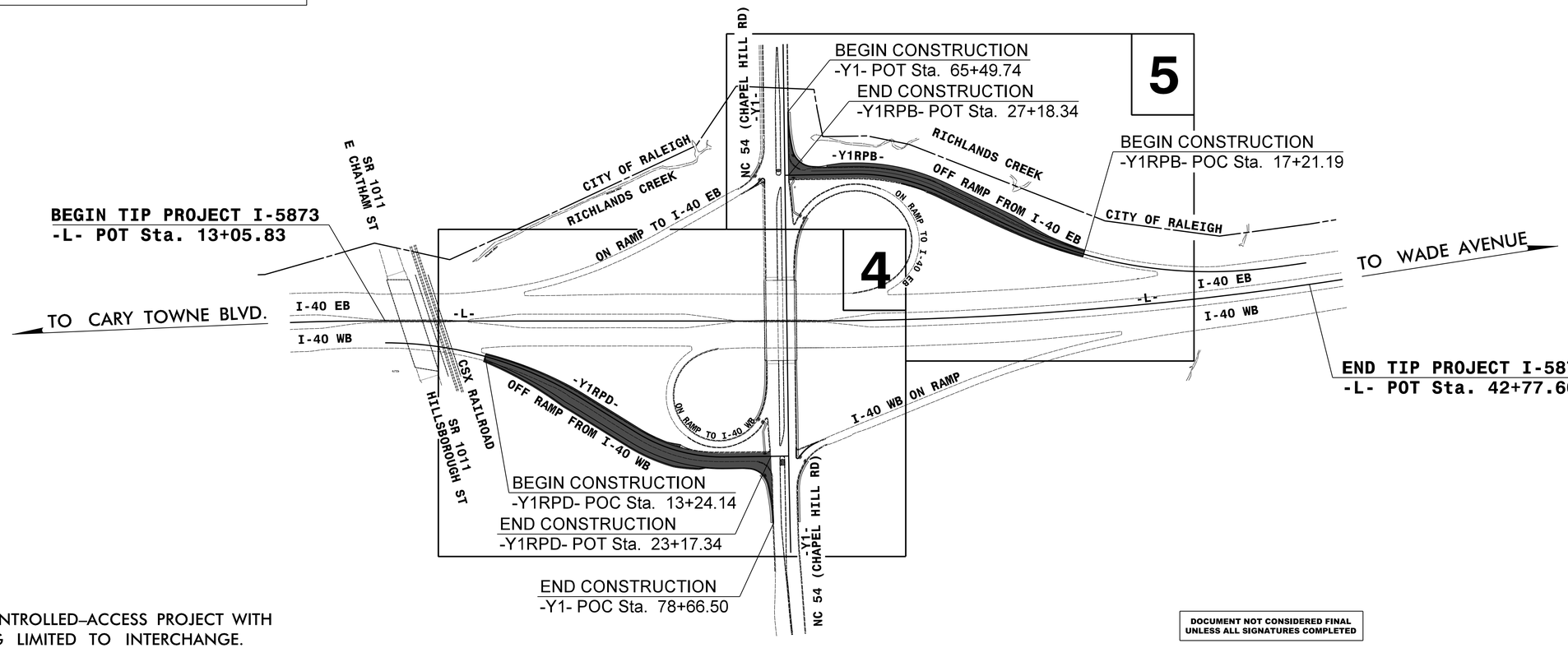
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5873	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
53074.1.1		PE
53074.2.1	NHP-0040(084)	R/W & UTIL
53074.3.1	NHP-0040(084)	CONST.

LOCATION: I-40 AT NC 54 INTERCHANGE IN RALEIGH, INTERCHANGE IMPROVEMENTS

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS AND BRIDGE REHABILITATION

NAD 83/2011



NOTE:
1. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGE.

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 2019 = 10,064
ADT 2039 = 14,384
K = 8 %
D = 100 %
T = 7 % *
V = 50 MPH
* (TTST 4%+ DUALS 3%)
FUNC CLASS = INTERSTATE RAMP

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5873 = 0.563 MI
TOTAL LENGTH TIP PROJECT I-5873 = 0.563 MI

PREPARED IN THE OFFICE OF:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: JANUARY 15, 2019

RONYELL THIGPEN, PE
PROJECT ENGINEER

ERIC MISAK
PROJECT DESIGN ENGINEER

NCDOT CONTACT: JOHN W. BRAXTON Jr.
SENIOR PROJECT ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27876 ENGINEER RANA STANSELL

DocuSigned by: Rana Stansell 6DFF36A0443648C...
SIGNATURE: 11/13/2018 7:09:57 AM PST
P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A THIGPEN

DocuSigned by: Ronyell A. Thigpen 9C2B41A2DB5E447...
SIGNATURE: 11/13/2018 7:06:26 AM PST
P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

I-5873_rdy_Tsh.dgn
11/13/2018

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5873	1A

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

INDEX OF SHEETS:

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARDS
1B	CONVENTIONAL SYMBOLS
RW2C-1 THRU RW2C-3	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, SIDEWALK AND MILLING DETAILS
2C-1	W BEAM RAIL SECTION
2C-2	STEEL PLATE DETAIL
2C-3	CONVERSION OF EXISTING DRAINAGE BOX TO CATCH BASIN
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
04 THRU 05	PLAN SHEETS
06 THRU 07	PROFILE SHEET
TMP-1 THRU TMP-7	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING & SIGNING PLANS
E1 THRU E3	ELECTRICAL PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1	SIGNING LAYOUT
SIG 1.0 THRU SIG 6.1	SIGNAL PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION INDEX OF SHEETS
X-1B	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-27	CROSS-SECTIONS
S-1 THRU S-7	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES

EFF. 01-16-2018
REV. 07-19-2018

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
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.04	Method of Obtaining Superelevation - Two Lane Pavement
275.01	Rock Plating
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	
815.02	Subsurface Drain
816.02	Aggregate Shoulder Drain
816.04	Markers for Drainage Structure and Concrete Pad
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
848.01	CONCRETE SIDEWALK
848.04	Street Turnout
848.05	CURB RAMP - PROPOSED CURB & GUTTER
848.06	CURB RAMP - EXISTING CURB & GUTTER
850.01	Concrete Paved Ditches
852.01	Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation (Special Detail for Sheet 6 of 8)
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED: 07-19-2018

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

SHOULDER DRAINS:

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.02 AND DETAILS IN PLANS AT LOCATIONS 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

POWER DISTRIBUITION - DUKE ENERGY

TELEPHONE - SPIRIT COMMUNICATIONS

CATV - TWC/CHARTER/SPECTRUM

POWER/LIGHTING & ELECRICAL - NCDOT

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS

CURB RAMPS:

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

NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A. THIGPEN

DocuSigned by:
Ronyell A. Thigpen
9C2B41A2DB5E447...

11/20/2018 8:27:53 AM PST

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
I-5873	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- 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 Easment 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 — 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.

PROJECT REFERENCE NO.	SHEET NO.
I-5873	RW2C-1

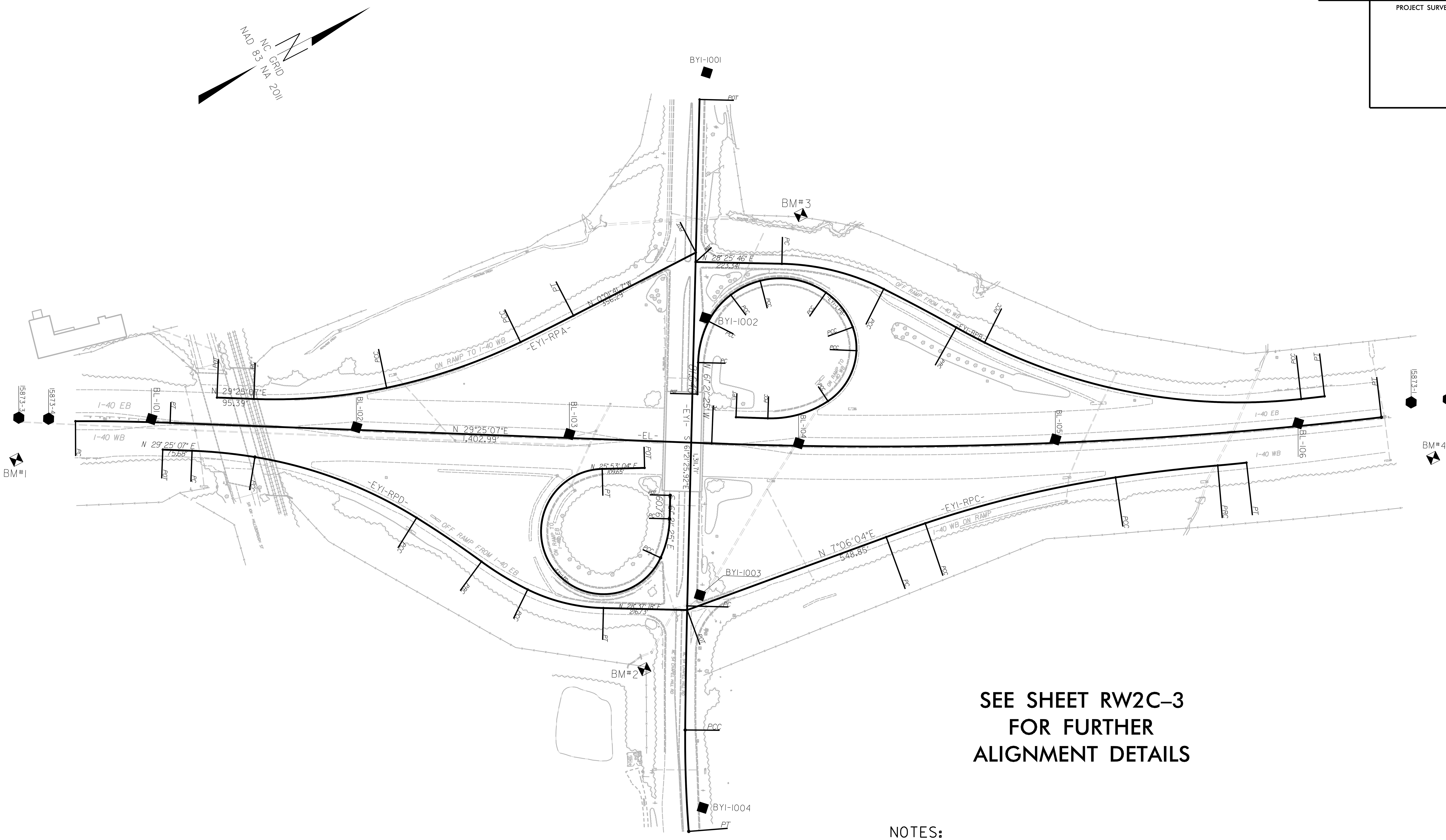
Location and Surveys

INSERT CONSULTANT'S NAME

PROJECT SURVEYOR

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



SEE SHEET RW2C-3
FOR FURTHER
ALIGNMENT DETAILS

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

9/26/18

03-OCT-2018 16:10
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PROJECT REFERENCE NO.	SHEET NO.
I-5873	RW2C-2

Location and Surveys

INSERT CONSULTANT'S NAME

PROJECT SURVEYOR

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BL

POINT	DESC.	NORTH	EAST	ELEVATION
4	I5873-4	741766.850	2074655.227	457.35
BL101	BL-101	742166.846	2074855.154	454.37
BL102	BL-102	742628.934	2075116.896	445.07
BL103	BL-103	743111.053	2075385.080	436.52
BL104	BL-104	743627.611	2075677.733	427.77
BL105	BL-105	744223.129	2075973.219	418.39
BL106	BL-106	744800.665	2076223.565	412.74
1	I5873-1	745384.307	2076432.196	411.02

BY1

POINT	DESC.	NORTH	EAST	ELEVATION
BY11001	BY1-1001	743855.674	2074715.622	473.63
BY11002	BY1-1002	743561.245	2075278.450	459.96
BY11003	BY1-1003	743220.395	2075910.237	455.94
BY11004	BY1-1004	742974.917	2076403.200	458.43

BM1 ELEVATION = 463.35'
N 741316 E 2074629
BM TIE IN BASE OF 18" PINE

BM2 ELEVATION = 450.61'
N 743005 E 2076015
BM TIE IN BASE OF 12" PINE

BM3 ELEVATION = 432.45'
N 743903 E 2075155
BM TIE IN BASE OF 13" OAK

BM4 ELEVATION = 417.45'
N 745071 E 2076464
BM TIE IN BASE OF 21" GUM

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

9/26/18

04-OCT-2018 14:59
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SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EY1LPB

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	743452.867	2075444.777							
LINE			N 61°21'25.9" W	81.65					
PC	743492.004	2075373.123							
CURVE			N 48°32'52.4" W	110.27	25°37'07.0"(RT)	23°02'19.7"	111.20	56.54	248.69
PCC	743565.005	2075290.471							
CURVE			N 22°42'55.7" W	89.17	26°02'46.5"(RT)	28°57'35.7"	89.94	45.76	197.85
PCC	743647.255	2075256.039							
CURVE			N 01°33'59.7" E	84.44	22°31'04.3"(RT)	26°29'50.1"	84.98	43.05	216.23
PCC	743731.659	2075258.348							
CURVE			N 37°24'16.5" E	173.18	49°09'29.3"(RT)	27°31'23.8"	178.61	95.22	208.17
PCC	743869.226	2075363.543							
CURVE			N 79°33'32.5" E	113.10	35°09'02.6"(RT)	30°35'37.7"	114.89	59.32	187.28
PCC	743889.722	2075474.772							
CURVE			S 71°37'39.6" E	61.64	22°28'33.2"(RT)	36°13'57.4"	62.03	31.42	158.13
PCC	743870.296	2075533.265							
CURVE			S 33°21'13.1" E	150.07	54°04'19.8"(RT)	34°42'28.2"	155.79	84.24	165.08
PCC	743744.939	2075615.777							
CURVE			S 11°20'28.3" W	161.77	35°19'03.0"(RT)	21°29'15.6"	164.36	84.89	266.64
PCC	743586.326	2075583.964							
CURVE			S 29°12'33.6" W	82.48	00°25'07.8"(RT)	00°30'28.0"	82.48	41.24	11283.45
PT	743514.333	2075543.714							

EY1LPD

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	743270.354	2075645.690							
LINE			S 61°21'25.9" E	60.77					
PC	743241.226	2075699.020							
CURVE			S 49°39'39.6" E	103.64	23°23'32.6"(RT)	22°24'55.2"	104.36	52.92	255.61
PCC	743174.142	2075778.014							
CURVE			S 83°57'35.4" W	275.33	243°50'57.6"(RT)	35°19'27.6"	690.32	260.33	162.20
PT	743145.170	2075504.211							
LINE			N 25°53'04.3" E	109.65					
POT	743243.821	2075552.081							

EY1RPA

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	742343.219	2074883.504							
LINE			N 29°25'07.5" E	95.39					
PC	742426.306	2074930.357							
CURVE			N 22°26'44.4" E	344.88	13°56'46.3"(LT)	04°02'01.5"	345.74	173.73	1420.41
PCC	742745.062	2075062.036							
CURVE			N 08°24'06.6" E	366.35	14°08'29.4"(LT)	03°51'01.2"	367.28	184.58	1488.08
PCC	743107.480	2075115.565							
CURVE			N 00°39'05.1" E	153.29	01°21'33.6"(LT)	00°53'12.2"	153.30	76.65	6461.45
PT	743260.763	2075117.308							
LINE			N 00°01'41.7" W	356.30					
POT	743617.063	2075117.132							

EY1RPB

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	743605.357	2075138.564							
LINE			N 28°25'46.2" E	223.34					
PC	743801.763	2075244.892							
CURVE			N 41°09'30.3" E	271.59	25°27'28.2"(RT)	09°17'48.5"	273.83	139.22	616.30
PCC	744006.240	2075423.635							
CURVE			N 55°12'30.2" E	212.78	02°38'31.7"(RT)	01°14'29.9"	212.80	106.42	4614.57
PCC	744127.649	2075598.375							
CURVE			N 55°10'11.1" E	82.90	02°43'09.9"(LT)	03°16'48.9"	82.90	41.46	1746.69
PCC	744174.995	2075666.420							
CURVE			N 37°21'37.7" E	832.39	32°53'57.0"(LT)	03°53'53.9"	843.93	433.96	1469.76
PCC	744836.604	2076171.536							
CURVE			N 20°45'22.3" E	60.93	00°18'33.8"(LT)	00°30'28.0"	60.93	30.46	11283.45
PT	744893.578	2076193.128							

EY1RPD

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	742156.879	2074939.177							
LINE			N 29°25'07.5" E	75.69					
PC	742222.808	2074976.355							
CURVE			N 32°59'16.7" E	163.54	07°08'18.3"(RT)	04°21'43.3"	163.65	81.93	1313.52
PCC	742359.986	2075065.398							
CURVE			N 47°49'53.6" E	447.17	22°32'55.7"(RT)	05°00'36.1"	450.07	227.99	1143.62
PCC	742660.179	2075396.832							
CURVE			N 61°17'13.8" E	202.52	04°21'44.7"(RT)	02°09'12.9"	202.57	101.33	2660.48
PCC	742757.472	2075574.446							
CURVE			N 58°24'54.4" E	139.85	10°06'23.4"(LT)	07°13'01.8"	140.03	70.20	793.88
PCC	742830.722	2075693.582							
CURVE			N 40°59'30.5" E	201.73	24°44'24.4"(LT)	12°10'08.9"	203.30	103.26	470.83
PT	742982.985	2075825.905							
LINE			N 28°37'18.3" E	216.74					
POT	743173.237	2075929.727							

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	743807.111	2074769.179							
LINE			S 61°21'25.9" E	1311.71					
PC	743178.346	2075920.368							
CURVE			S 61°49'15.5" E	321.22	00°55'39.2"(LT)	00°17'19.5"	321.23	160.62	19842.16
PCC	743026.656	2076203.517							
CURVE			S 64°46'04.7" E	262.73	04°57'59.1"(LT)	01°53'22.9"	262.82	131.49	3032.01
PT	742914.656	2076441.183							

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	741989.475	2074770.281							
CURVE			N 28°13'06.0" E	244.98	02°24'03.0"(RT)	00°58'47.8"	245.00	122.52	5846.83
PT	742205.337	2074886.115							
LINE			N 29°25'07.5" E	1402.99					
PC	743427.416	2075575.248							
CURVE			N 25°00'36.5" E	1734.70	08°49'02.1"(LT)	00°30'28.0"	1736.41	869.92	11283.45
PT	744999.459	2076308.642							

EY1RPC

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	743173.208	2075929.781							
LINE			N 07°06'04.3" E	548.85					
PC	743717.850	2075997.632							
CURVE			N 07°50'10.6" E	107.17	01°28'12.6"(RT)	01°22'18.3"	107.17	53.59	4176.81
PCC	743824.019	2076012.244							
CURVE			N 13°40'56.1" E	506.77	10°13'18.4"(RT)	02°00'51.8"	507.44	254.40	2844.34
PCC	744316.406	2076132.113							
CURVE			N 20°34'12.2" E	266.37	03°33'13.9"(RT)	01°20'02.3"	266.41	133.25	4295.13
PCC	744565.792	2076225.702							
CURVE			N 21°37'04.5" E	74.59	01°27'29.3"(LT)	01°57'17.1"	74.59	37.30	2931.09
PT	744635.138	2076253.183							

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

9/26/18
04-OCT-2018 15:33
Y:\Projects\I5873\05-18-179 (Control Stats)\Final\i5873_ls_rw2c-3.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5873	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

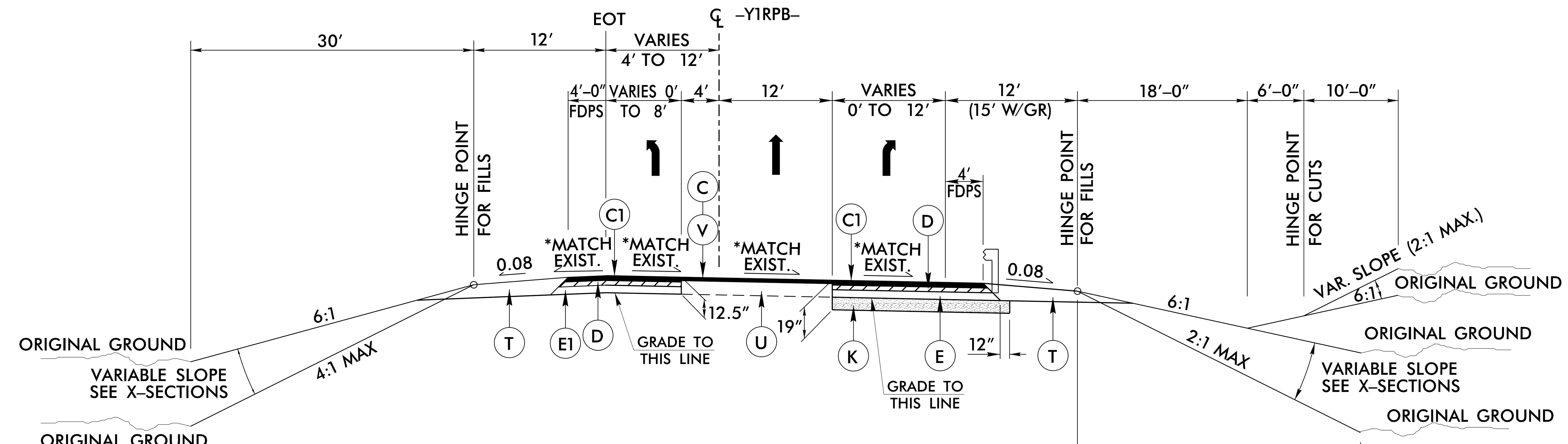
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

PAVEMENT SCHEDULE

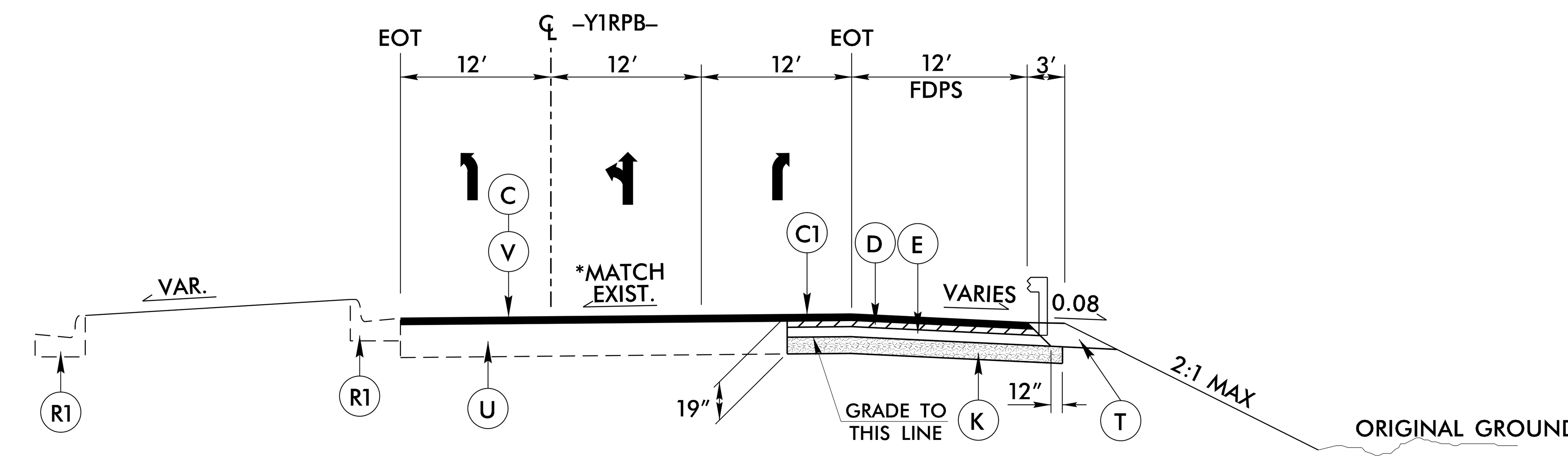
C	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
K	8" TYPE 2 AGGREGATE SUBGRADE
R	2'-6" CONCRETE CURB AND GUTTER
R1	EXISTING CONCRETE CURB AND GUTTER
R2	CONCRETE EXPRESSWAY GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	5/8"+/- MILLING OF ASPHALT PAVEMENT
V1	1.5" MILLING OF ASPHALT PAVEMENT

NOTES:
1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



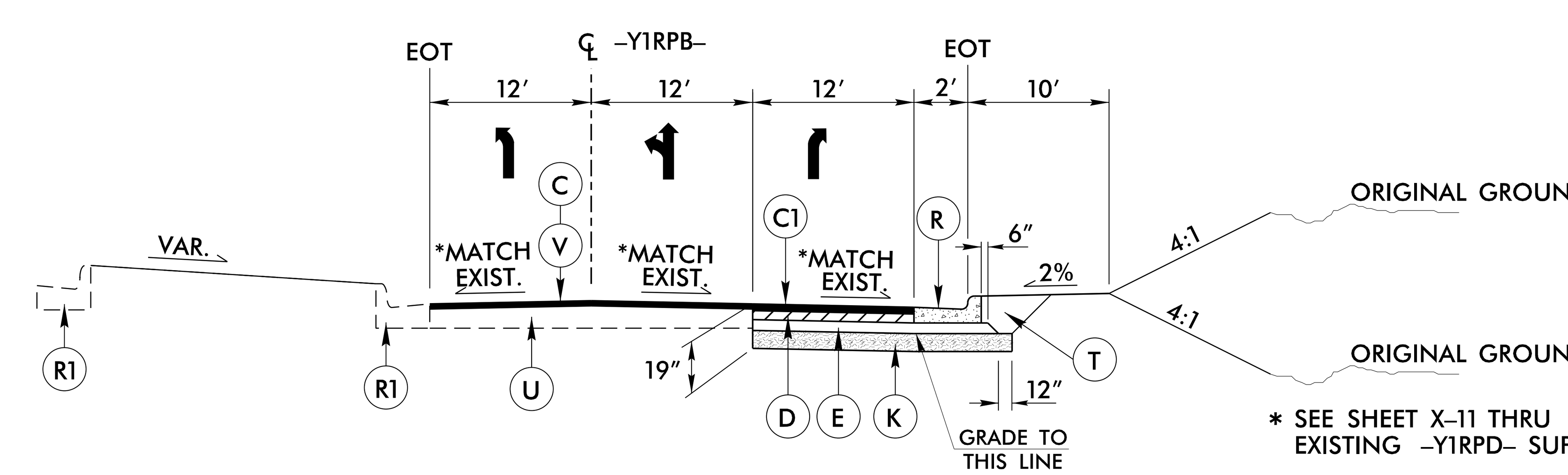
TYPICAL SECTION NO. 1
-Y1RPB- STA. 17+21.19 TO -Y1RPB- STA. 22+63.17

* SEE SHEET X-1 THRU X-10 FOR EXISTING -Y1RPB- SUPERELEVATIONS



TYPICAL SECTION NO. 2
-Y1RPB- STA. 22+63.17 TO -Y1RPB- STA. 25+95.03

* SEE SHEET X-1 THRU X-10 FOR EXISTING -Y1RPB- SUPERELEVATIONS



TYPICAL SECTION NO. 3
-Y1RPB- STA. 25+95.03 TO -Y1RPB- STA. 27+18.34

* SEE SHEET X-11 THRU X-21 FOR EXISTING -Y1RPD- SUPERELEVATION

NOTES:

1. EXISTING PAVEMENT TO BE MILLED TO THE DEPTH 5/8"+/-, THEN OVERLAY THE EXISTING PAVEMENT WITH 1½" S9.5C SURFACE COURSE.
2. CONTRACTOR SHOULD MATCH EXISTING SUPERELEVATION WHEN WIDENING AS SHOWN BY THE TYPICAL SECTIONS AND CROSS SECTION OR AS DIRECTED BY THE ENGINEER.
3. CONTRACTOR SHOULD CONDUCT REPAIR OF JOINTED CONCRETE PANELS BROKEN INTO 3 OR MORE PIECES OR AS DIRECTED BY THE ENGINEER, THEN OVERLAY WITH 1½" S9.5C.

PROJECT REFERENCE NO.	SHEET NO.
I-5873	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A. THIGPEN — 10/23/2018 10:59:26 AM PDT

NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON — PM PDT

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PLANS PREPARED BY:
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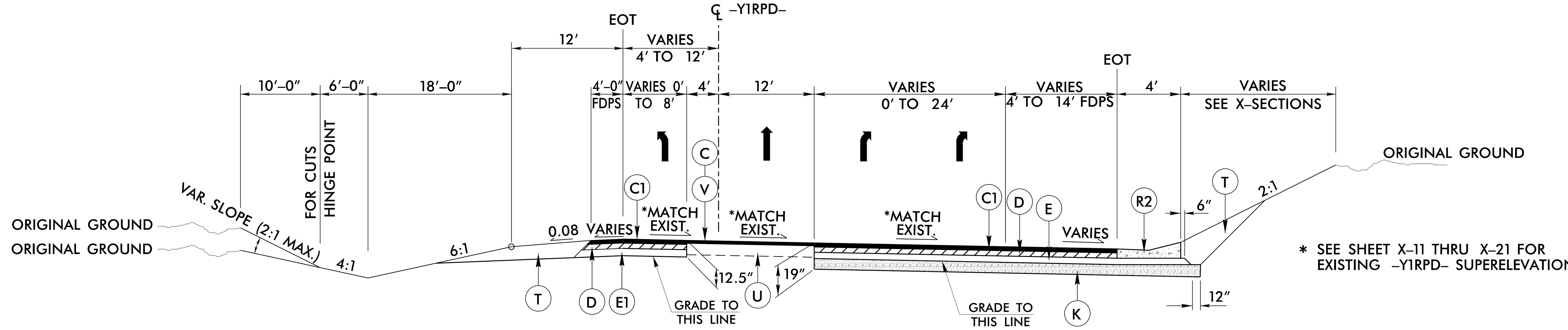
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

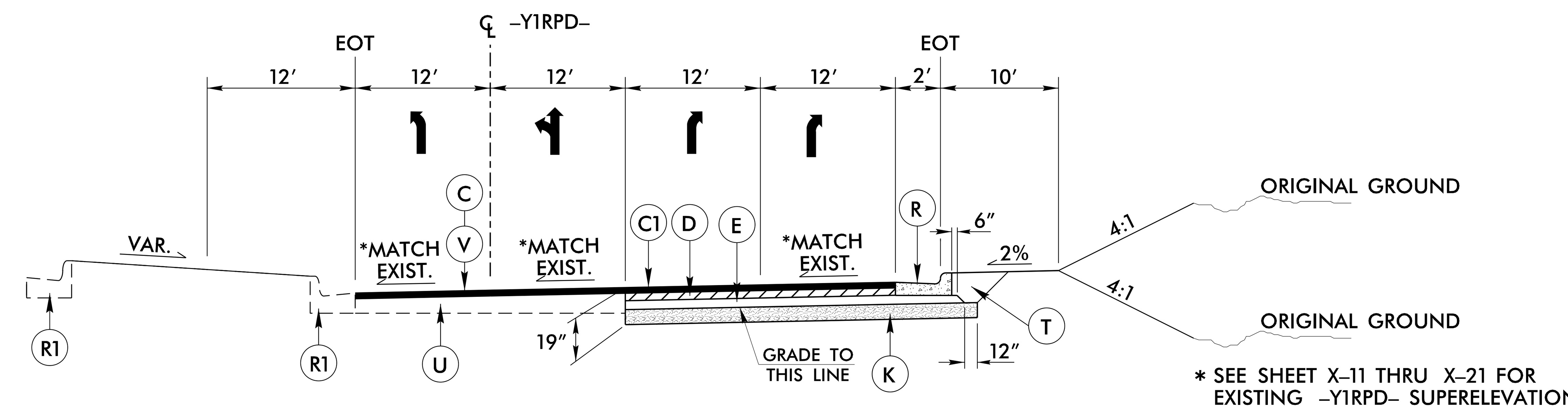
PAVEMENT SCHEDULE

C	1.5" TYPE S9.5C
C1	3" TYPE S9.5C
D	4" I19.0C
E	4" TYPE B25.0C
E1	5.5" TYPE B25.0C
K	8" TYPE 2
R	2'-6" CONCRETE C&G
R1	EXIST. CONC. C&G
R2	CONC. EXPRESSWAY GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	5/8"+/- MILLING OF ASPHALT PAVEMENT
V1	1.5" MILLING OF ASPHALT PAVEMENT



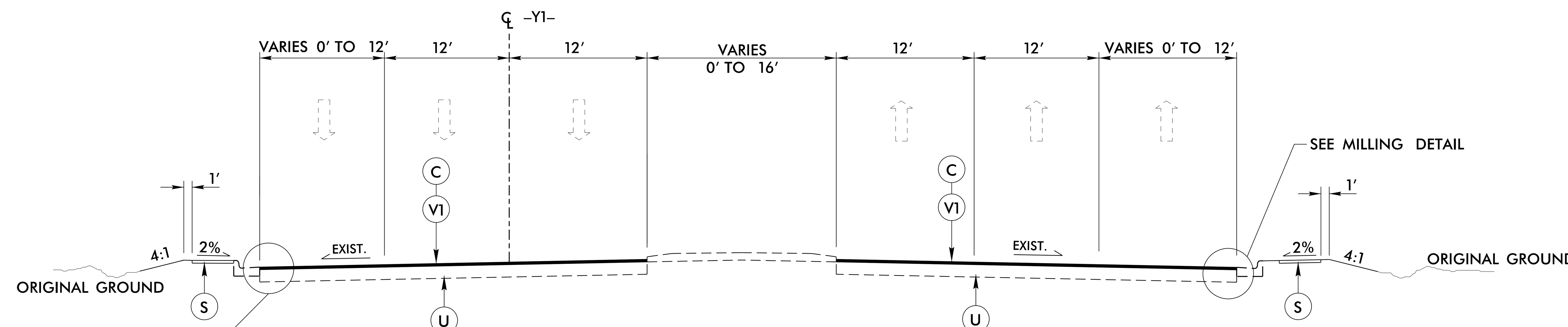
* SEE SHEET X-11 THRU X-21 FOR EXISTING -Y1RPD- SUPERELEVATION

TYPICAL SECTION NO. 4
-Y1RPD- STA. 13+24.14 TO -Y1RPD- STA. 21+10.84

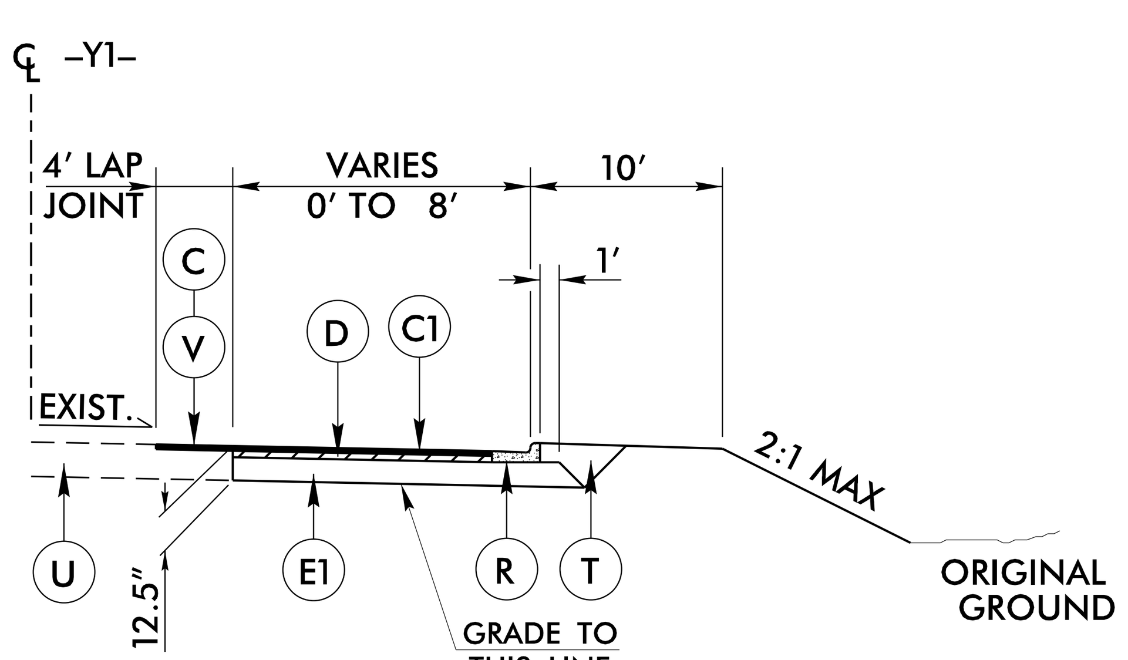


* SEE SHEET X-11 THRU X-21 FOR EXISTING -Y1RPD- SUPERELEVATION

TYPICAL SECTION NO. 5
-Y1RPD- STA. 21+10.84 TO -Y1RPD- STA. 22+84.27



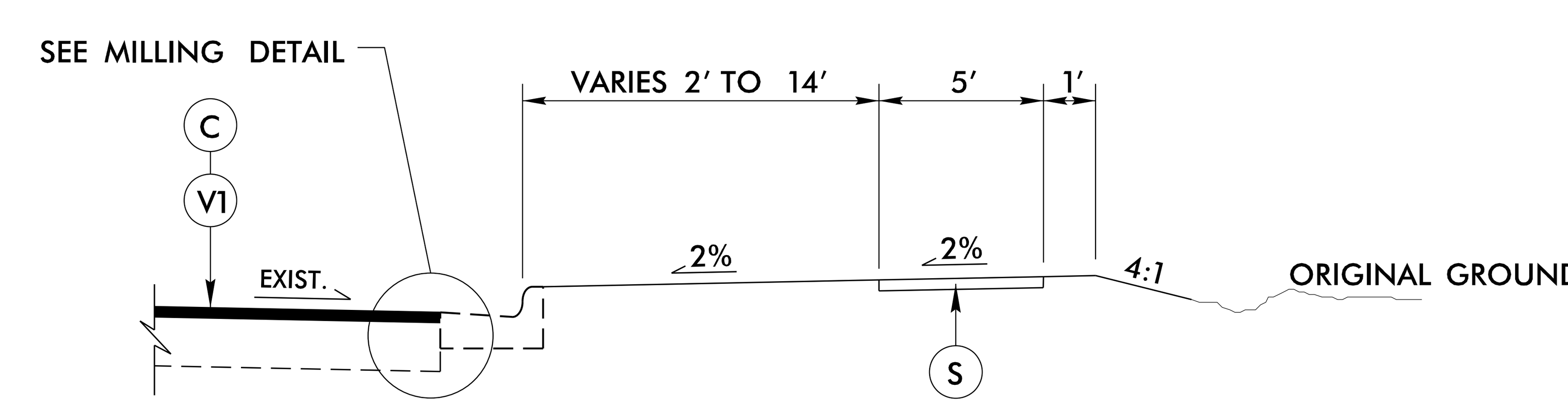
TYPICAL SECTION NO. 6
-Y1- STA. 65+49.74 TO -Y1- STA. 70+89.29 (EXIST. BRIDGE)
-Y1- STA. 73+47.07 (EXIST. BRIDGE) TO -Y1- STA. 78+66.50



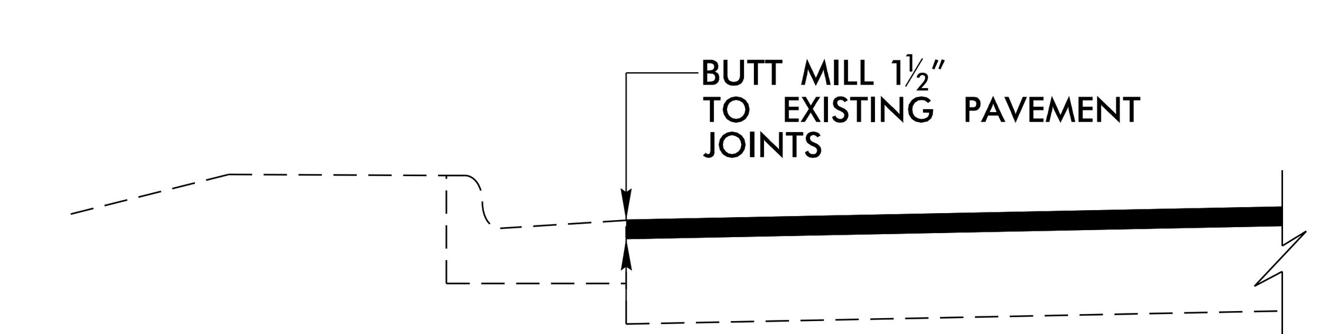
NARROW WIDENING DETAIL -Y1- AT RAMPS
-Y1- STA. 65+49.74 LT. TO -Y1- STA. 66+47.45 LT.
-Y1- STA. 77+45.37 RT. TO -Y1- STA. 78+66.50 RT.

NOTES:

1. EXISTING PAVEMENT TO BE MILLED TO THE DEPTH 5/8"+/-, THEN OVERLAY THE EXISTING PAVEMENT WITH 1½" S9.5C SURFACE COURSE.
2. CONTRACTOR SHOULD MATCH EXISTING SUPERELEVATION WHEN WIDENING AS SHOWN BY THE TYPICAL SECTIONS AND CROSS SECTION OR AS DIRECTED BY THE ENGINEER.
3. CONTRACTOR SHOULD CONDUCT REPAIR OF JOINTED CONCRETE PANELS BROKEN INTO 3 OR MORE PIECES OR AS DIRECTED BY THE ENGINEER, THEN OVERLAY WITH 1½" S9.5C.



SIDEWALK DETAIL
-Y1- STA. 75+48.63 (RT.) TO -Y1- STA. 76+38.99 (RT.)
(USE IN CONJUCTION WITH TYPICAL SECTION No. 6)



MILLING DETAIL FOR EXISTING CURB & GUTTER
(SEE TYPICAL SECTIONS NOS. 6 FOR LOCATIONS)

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5873	2C-1

PROJECT REFERENCE NO.	SHEET NO.

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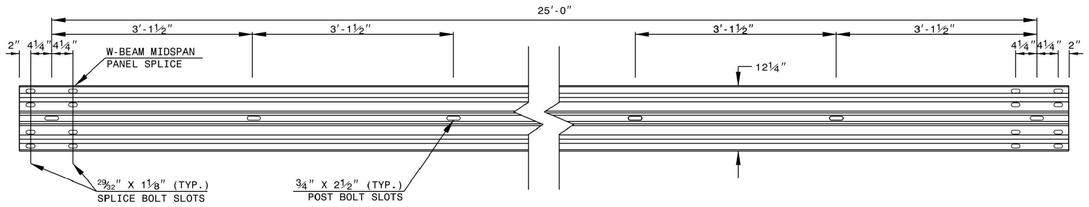
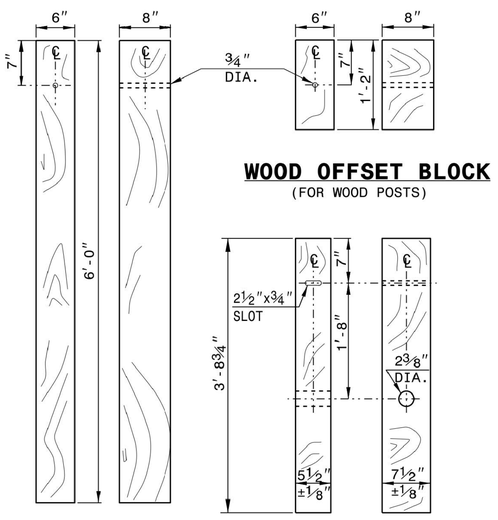
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



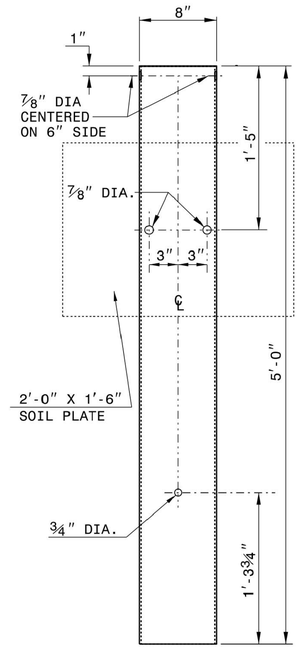
STANDARD W-BEAM GUARDRAIL



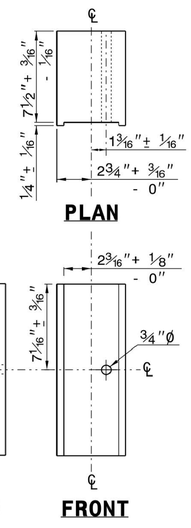
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



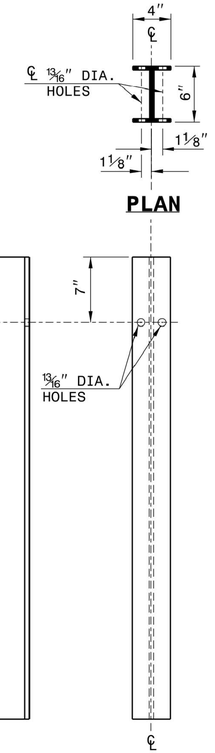
STEEL TUBE
TS 6"x8"x0.1875"



PLAN

SIDE FRONT

ROUTED OFFSET BLOCK



SIDE FRONT

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

DocuSigned by:
Joel S. Howerton
B73F3D1[illegible]
10/30/2018 1:39:27 PM EDT

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

SEE TITLE BLOCK

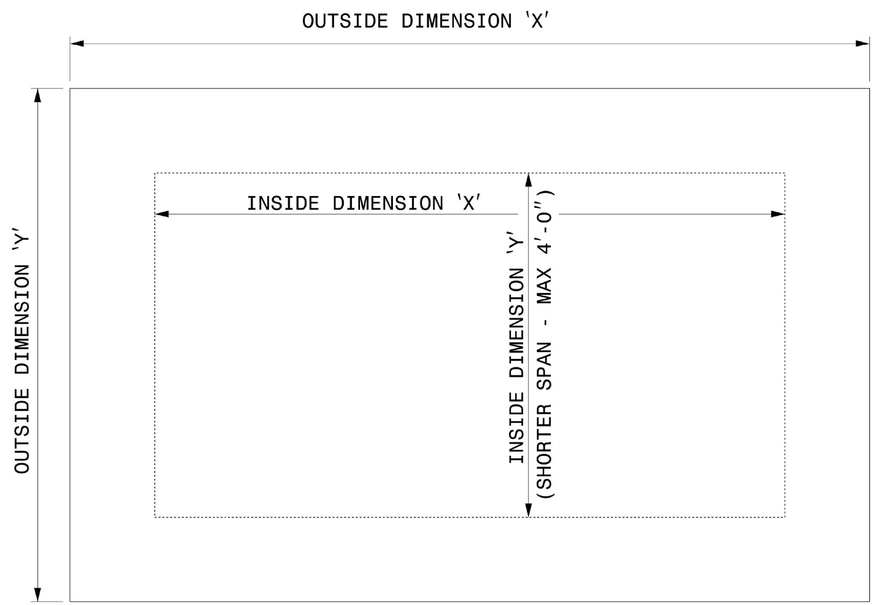
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

10:05:50 AM
I-5873_Rdy_2C-1.dgn
10/30/2018

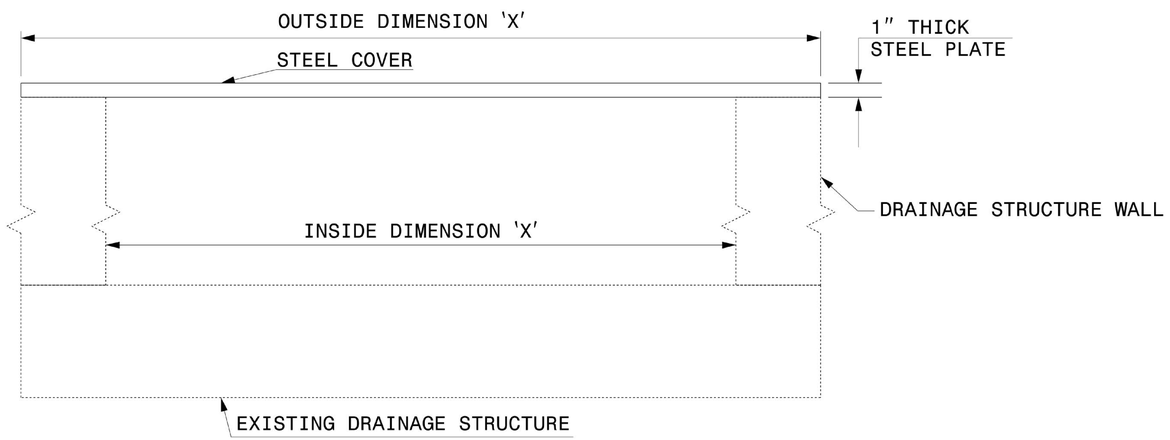
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5873	2C-2

PROJECT REFERENCE NO.	SHEET NO.



PLAN VIEWS



ELEVATION VIEWS

GENERAL NOTES:

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

SECTION VIEW OF STEEL TOP PLATE

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel S. Howerton 10/23/2018 2:21:46 PM EDT
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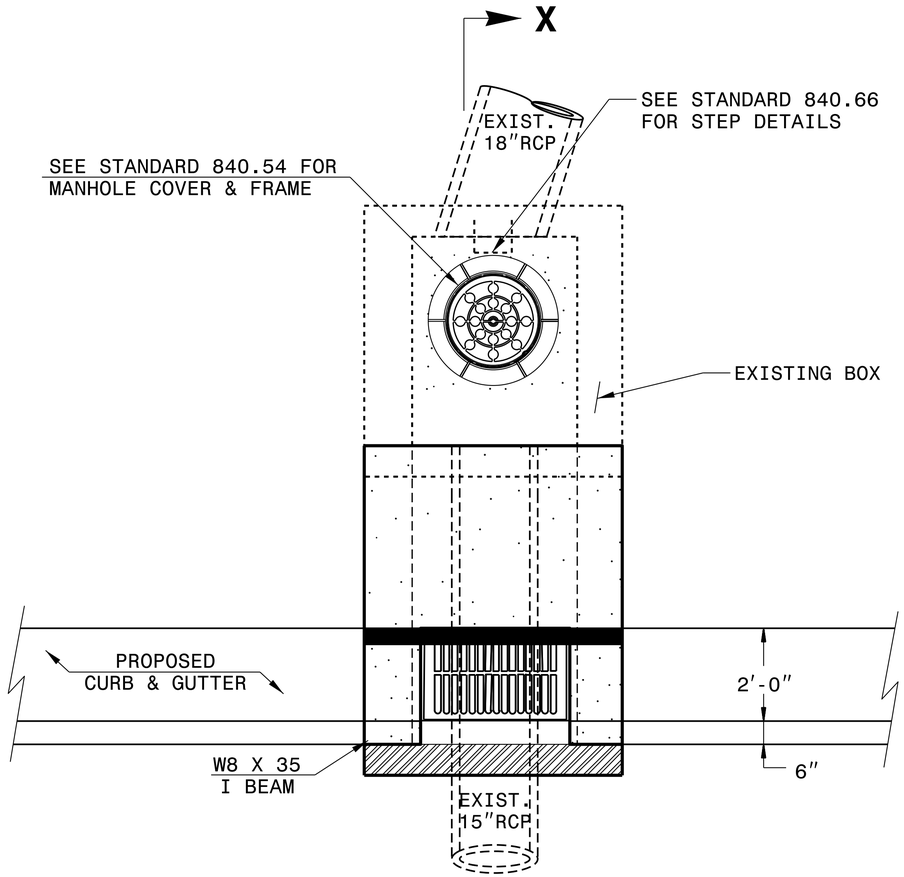
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE

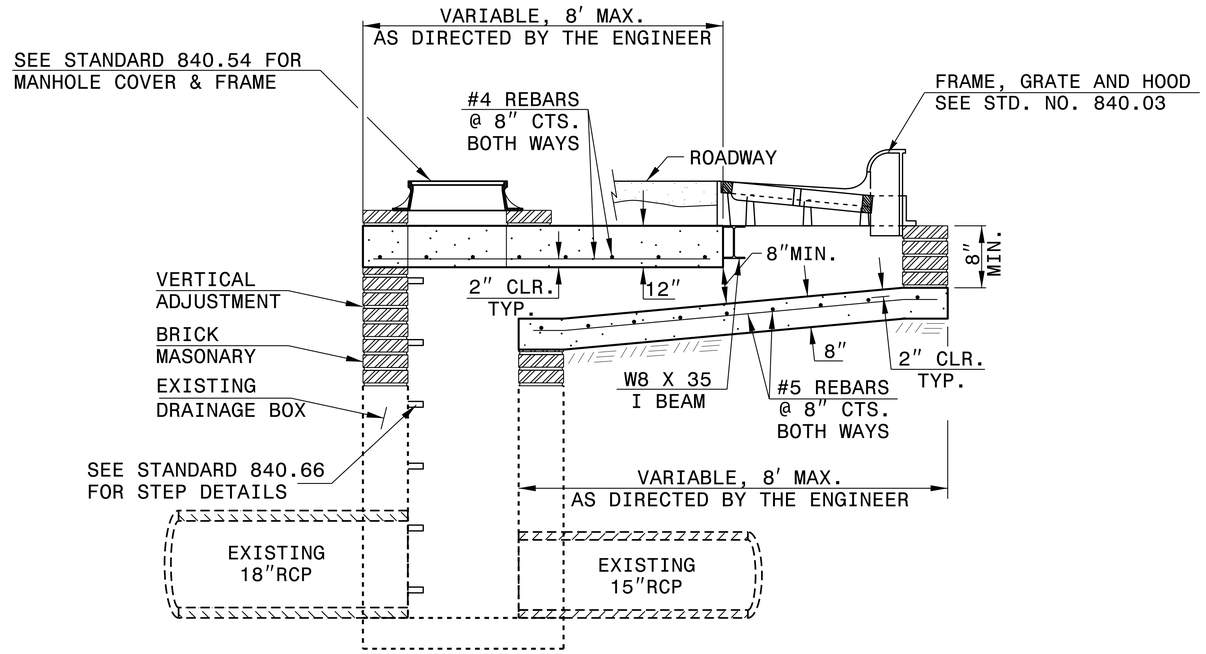
ORIGINAL BY: E.E. WARD DATE: 2-2-98
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

10:29:38 AM
I-5873 Rdy 2C-2.dgn
10/18/2018

PROJECT REFERENCE NO.	SHEET NO.
I-5873	2C-3



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 10/23/2018 2:21:46 PM EDT
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CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

CONVERSION OF EXISTING DRAINAGE BOX TO CATCH BASIN

ORIGINAL BY: E.E. WARD DATE: 1-24-02
MODIFIED BY: KKEMPF DATE: 07-17-18
CHECKED BY: DATE:
FILE SPEC.: nbritt/english/hydro/edb to offsetcb.dgn

17-JUL-2018 14:56
S:\Contracts\Contracts\Special Details\nbritt\english\hydro\edb to offsetcb.dgn
kkempf AT CSD-212596

12/06/07

COMPUTED BY: RGK DATE: 02-02-2018
CHECKED BY: EDM DATE: 09-14-2018

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
I-5873	3B-1

PLANS PREPARED BY:
WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–Y1RPB–	17+21.19	27+18.34	RT	812
–Y1RPB–	17+21.19	27+18.34	LT	384
–Y1RPD–	13+24.14	23+17.34	RT	475
–Y1RPD–	13+24.14	23+17.34	LT	410
–Y1– GRASS ISLAND	67+63.42		RT	39
–Y1– GRASS ISLAND	76+59.70		LT	104
		TOTAL:		2,224
		SAY:		2,250

CURB & GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
–Y1RPB– (LT)	22+63.17	23+50.00	85
–Y1RPB– (RT) /–Y1–	25+95.03	65+49.74	258
–Y1RPD– (LT)	20+19.51	20+50.00	31
–Y1RPD– (RT) /–Y1–	21+10.84	78+66.50	347
–Y1– (GRASSED ISLAND)	76+59.70		137
–Y1– (GRASSED ISLAND)	67+63.42		84
		TOTAL:	942
		SAY:	**950**

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV. (CY)	EMBANK. +% (CY)	BORROW (CY)	WASTE (CY)
–Y1RPB– 17+21.19 RT.	–Y1RPB– 27+18.34 RT.	492	3,110	2,618	
–Y1RPB– 17+21.19 LT.	–Y1RPB– 27+18.34 LT.	632	277		355
–Y1– 65+50.00 LT.	–Y1– 66+50.00 LT.	54	305	251	
SUBTOTALS:		1,178	3,692	2,869	355
–Y1RPD– 13+24.14 RT.	–Y1RPD– 23+17.34 RT.	2,939	776		2,163
–Y1RPD– 13+24.14 LT.	–Y1RPD– 23+17.34 LT.	677	227		450
–Y1– 77+50.00 RT.	–Y1– 78+66.50 RT.	56	16		40
SUBTOTALS:		3,672	1,019	0	2,653
–Y1– 67+67.35 LT.	–Y1– 70+89.34 RT.	16	10		6
–Y1– 67+13.00 RT.	–Y1– 67+60.76 RT.	5	8	3	
–Y1– 73+50.00 LT.	–Y1– 76+50.00 LT.	25	10		15
–Y1– 73+50.00 RT.	–Y1– 76+39.00 RT.	16	14		2
–Y1– 76+69.59 LT.	–Y1– 78+66.07 LT.	19	0		19
–Y1– 77+45.37 RT.	–Y1– 78+66.53 RT.	59	18		41
SUBTOTALS:		140	60	3	83
TOTAL:		4,990	4,771	2,872	3,091
ROCK WASTE TO REPLACE BORROW				–177	–177
ADJUST FOR ROCK WASTE			–36	–36	
WASTE IN LIEU OF BORROW				–2,659	–2,659
PROJECT TOTALS:		4,990	4,735		255
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTALS:		4,990	4,735		255
SAY:		5,000			

EST. SHOULDER BORROW = 349 C.Y.
Approximate quantities only. Unclassified Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

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

CONCRETE CURB RAMPS

SURVEY LINE	STATION	LOCATION LT/RT/CL	NO. OF RAMPS
–Y1–	67+65	RT	1
–Y1–	77+14	RT	1
–Y1–	76+60	LT	1
	TOTAL:		3
	SAY:		3

RETROFIT EXISTING CURB RAMPS

SURVEY LINE	STATION	LOCATION LT/RT/CL	NO. OF RAMPS
–Y1–	67+61	LT	1
–Y1–	67+54	RT	1
–Y1–	68+90	LT	1
–Y1–	68+84	LT	1
–Y1–	76+45	RT	1
–Y1–	76+70	LT	1
–Y1–	75+36	RT	1
–Y1–	75+42	RT	1
–Y1–	66+90	LT	1
	TOTAL:		9
	SAY:		9

4" CONCRETE SIDEWALK

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–Y1–	65+49.74	67+12.08	LT	113
–Y1–	67+67.35	68+84.15	LT	70
–Y1–	68+89.20	70+89.34	LT	114
–Y1–	73+47.00	76+57.76	LT	192
–Y1–	76+69.59	78+66.07	LT	113
–Y1–	67+12.97	67+60.76	RT	32
–Y1–	67+66.06	67+85.96	RT	12
–Y1–	73+46.97	75+37.87	RT	110
–Y1–	75+43.14	76+38.99	RT	56
–Y1–	77+12.21	78+66.53	RT	89
		TOTAL:		901
		SAY:		905

EXPRESSWAY GUTTER

SURVEY LINE	STATION	STATION	LENGTH (FT)
RPD	13+24.14	21+10.84	787
		TOTAL:	787
		SAY:	**800**

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND RESET EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL–3	M–350	TYPE III	CAT–1	VI MOD	BIC	AT–1	EA	G	NG				
–Y1RPB– /–Y1–	19+71.19	65+49.74	RT	818.75	68.75		20+75.00		12'–0"	15'–0"	50'–0"		1'–0"				1											607.75'		REMOVE EXISTING GUARDRAIL ALONG –Y1RPB–
–Y1–	73+47.00	75+47.62	LT																										200'	REMOVE AND RESET GUARDRAIL FOR SIDEWALK CONSTRUCTION
			SUBTOTAL	818.75'	68.75'																									
			LESS DEDUCTIONS																											
			GREU TL–3 (1 x 50)=	50'																										
			SUBTOTAL	768.75'	68.75'												1											607.75'	200'	
			TOTALS	768.75'	68.75'												1											607.75'	200'	
			SAY	775'	75'		ADDITIONAL GUARDRAIL POSTS = 5										1											608'	200'	

W-AMRAG-L-00025

COMPUTED BY:	RS	DATE:	10/22/18
CHECKED BY:	VM	DATE:	10/14/18

PROJECT NO.	SHEET NO.
I-5873	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 / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48		C. S. PIPE 15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)	48 (.109)	
Y1RPD 13+75	22	RT	0401		445.2																			
			0401	0402		441.2	436.2																	
Y1RPD 15+70	46	RT	0402		440.2																			
			0402	0404		436.0	435.6	0.6																
Y1RPD 17+00	52	RT	0403		441.4																			
			0403	0402		437.4	436.2																	
Y1RPD 16+65	44	LT	0404		440.9																			
Y1RPD 22+50	40	RT	0405		452.9																			
			0405	0406		448.7	448.2																	
Y1RPD 22+25	38	RT	0406		452.4																			
			0406	0407		448.2	447.4																	
Y1RPD 21+25	38	RT	0407		450.5																			
			0407	0408		447.4	447.3																	
Y1RPB 26+65	33	RT	0501		459.2																			
Y1RPB 25+55	80	RT	0503	0504		427.5	427.5																	
Y1 66+42	19	LT	0505		462.6																			
Y1RPD 16+48	17	LT																						
Y1RPD 16+37		CL																						
Y1RPB 26+71	17	RT																						
SHEET TOTALS																								
PROJECT TOTALS																								

LINE & STATION	FROM	TO	R. C. PIPE CLASS III 15	18	24	30	36	42	48		R. C. PIPE CLASS IV 15	18	24	30	36	42	48		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	
Y1RPD 13+75	0401																					1							
	0401	0402									188																		
Y1RPD 15+70	0402																					1							
	0402	0404										128																	
Y1RPD 17+00	0403																					1							
	0403	0402									124																		
Y1RPD 16+65	0404																					1	0.3						
Y1RPD 22+50	0405																					1			1			1	
	0405	0406									24																		
Y1RPD 22+25	0406																					1			1			1	
	0406	0407									104																		
Y1RPD 21+25	0407																					1			1			1	
	0407	0408	28																										
Y1RPB 26+65	0501																					1	4.5		1			1	
Y1RPB 25+55	0503	0504		12																									
Y1 66+42	0505																											1	
Y1RPD 16+48																													
Y1RPD 16+37																													
Y1RPB 26+71																													
SHEET TOTALS			28	12							440	128										8	4.8		4			5	
PROJECT TOTALS			28	12							440	128										8	4.8		4			5	

LINE & STATION	FROM	TO	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	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO T.B.J.B. W/ MH	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y1RPD 13+75	0401										1											1																			
	0401	0402																																							
Y1RPD 15+70	0402										1											1																			
	0402	0404																																							
Y1RPD 17+00	0403										1											1																			
	0403	0402																																							
Y1RPD 16+65	0404							1					1																												
Y1RPD 22+50	0405																																								
	0405	0406																																							
Y1RPD 22+25	0406																																								
	0406	0407																																							
Y1RPD 21+25	0407																																								
	0407	0408																																							
Y1RPB 26+65	0501																																								
Y1RPB 25+55	0503	0504																																					0.4465		
Y1 66+42	0505																										1	1														Offset CB w/TBJB w MH lid
Y1RPD 16+48																																								23	
Y1RPD 16+37																																						4			
Y1RPB 26+71																																						1			
SHEET TOTALS								1			3		1									3				1	1											5	0.4465	23	
PROJECT TOTALS								1			3		1									3				1	1											5	0.4465	23	

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: Thein T. Zan DATE: 10-31-2018
CHECKED BY: James R. Batts DATE: 10-31-2018

(5-15-18)

PROJECT NO.	SHEET NO.
I-5873	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	500
				TOTAL LF:	500

***UD = Underdrain**
***BD = Blind Drain**
***SD = Subsurface Drain**

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ 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
-Y1RPB- and -Y1RPD-			ASU (2)	8	1400	2800	6300		
CONTINGENCY			ASU (2)	8	700	1400	2100		
CONTINGENCY			ASU (1)	12	400	800	1200		
			TOTAL CY/TONS/SY:		2500	5000**	9600**	0	0

***ASU(1/2) = Aggregate Subgrade (Type 1 or 2)**
***AST = Aggregate Stabilization**
****Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.**

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
Y1RPB	1.75:1	24+12	1.75:1	25+63	RT	2	*	550
							TOTAL SY:	550

***Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.**

PROJECT REFERENCE NO.	SHEET NO.
I-5873	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 33290, NORTH CAROLINA PROFESSIONAL ENGINEER, RONYELL A. THIGPEN — 10/23/2018 10:59:26 AM PDT

HYDRAULICS ENGINEER — SEAL 27876, NORTH CAROLINA PROFESSIONAL ENGINEER, STANSELL — 10/23/2018 11:02:56 AM PDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

REVISIONS

-L- CURVE DATA

PI Sta 35+17.91
Δ = 8° 49' 02.1" (LT)
D = 0° 30' 28.0"
L = 1,736.41'
T = 869.92'
R = 11,283.45'

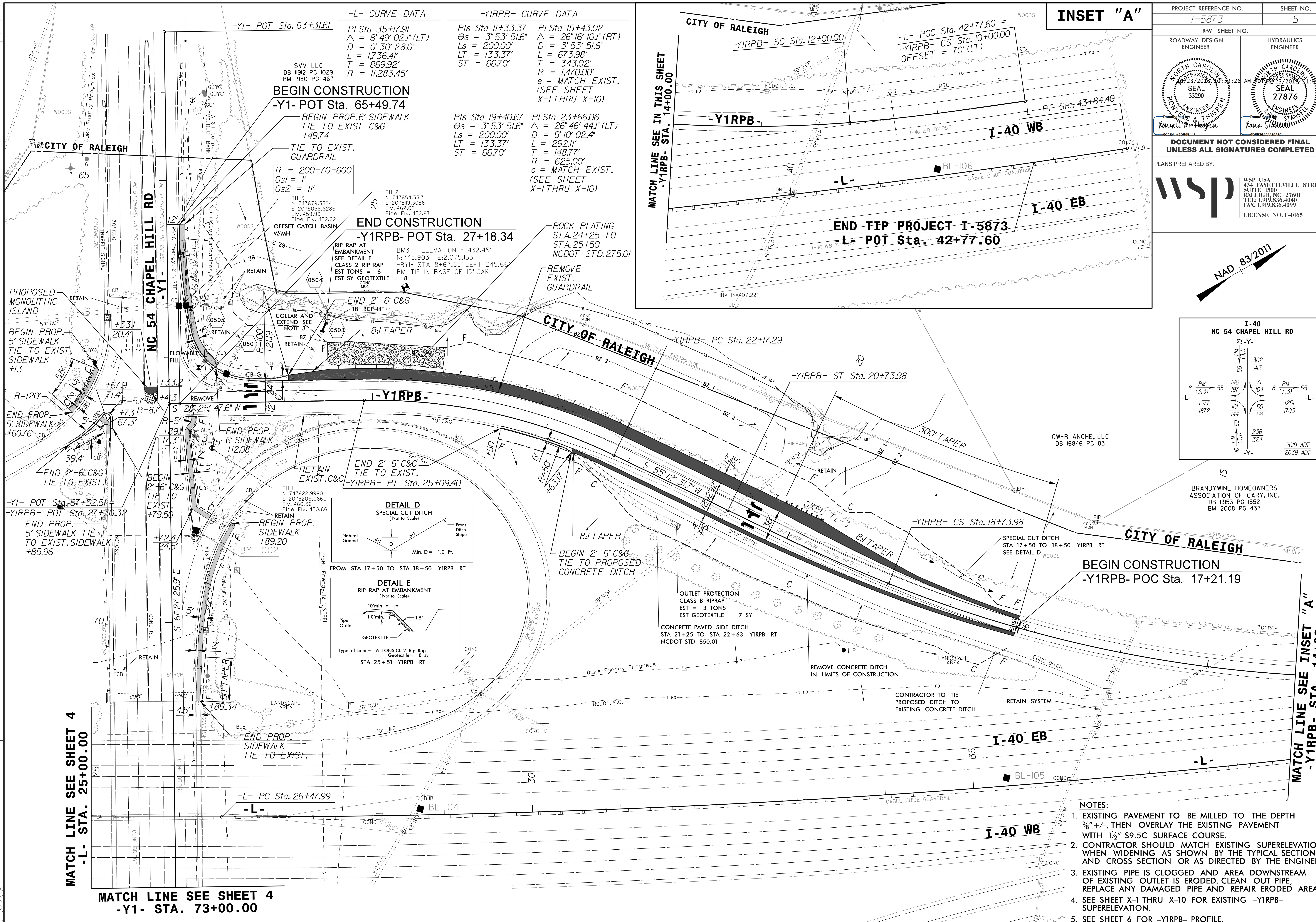
-Y1RPB- CURVE DATA

PIs Sta 11+33.37
θs = 3° 53' 51.6"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 15+43.02
Δ = 26° 16' 10.1" (RT)
D = 3° 53' 51.6"
L = 673.98'
T = 343.02'
R = 1,470.00'
e = MATCH EXIST.
(SEE SHEET X-1 THRU X-10)

PIs Sta 19+40.67
θs = 3° 53' 51.6"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 23+66.06
Δ = 26° 46' 44.1" (LT)
D = 9° 10' 02.4"
L = 292.11'
T = 148.77'
R = 625.00'
e = MATCH EXIST.
(SEE SHEET X-1 THRU X-10)



NOTES:

1. EXISTING PAVEMENT TO BE MILLED TO THE DEPTH ⅝"+/–, THEN OVERLAY THE EXISTING PAVEMENT WITH 1½" S9.5C SURFACE COURSE.
2. CONTRACTOR SHOULD MATCH EXISTING SUPERELEVATION WHEN WIDENING AS SHOWN BY THE TYPICAL SECTIONS AND CROSS SECTION OR AS DIRECTED BY THE ENGINEER.
3. EXISTING PIPE IS CLOGGED AND AREA DOWNSTREAM OF EXISTING OUTLET IS ERODED. CLEAN OUT PIPE, REPLACE ANY DAMAGED PIPE AND REPAIR ERODED AREA.
4. SEE SHEET X-1 THRU X-10 FOR EXISTING -Y1RPB- SUPERELEVATION.
5. SEE SHEET 6 FOR -Y1RPB- PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
I-5873	6

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A. THIGPEN	NORTH CAROLINA PROFESSIONAL SEAL 27876 ENGINEER RANA STANSELL
10/23/2018 10:59:26 AM PDT	10/23/2018 11:02:56 AM PDT
DocuSigned by: Ronyell A. Thigpen 9C2B41A2DB5E447...	DocuSigned by: Rana Stansell 6DFF36A0443648C...

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PLANS PREPARED BY:
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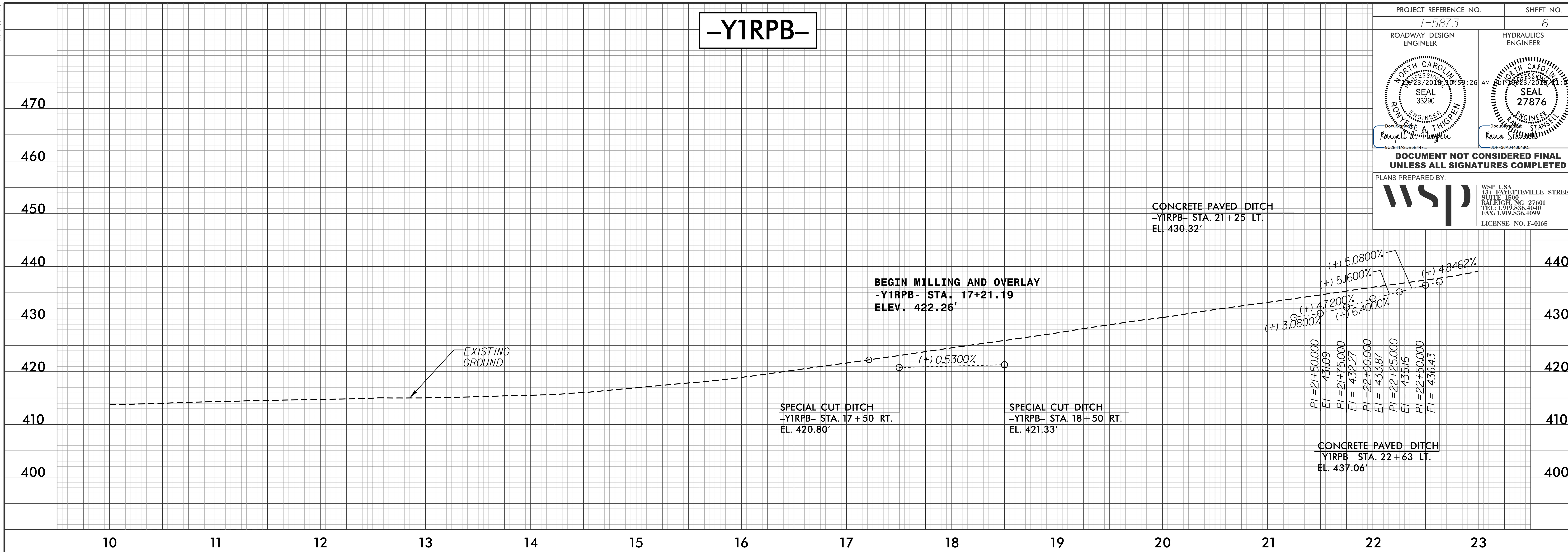
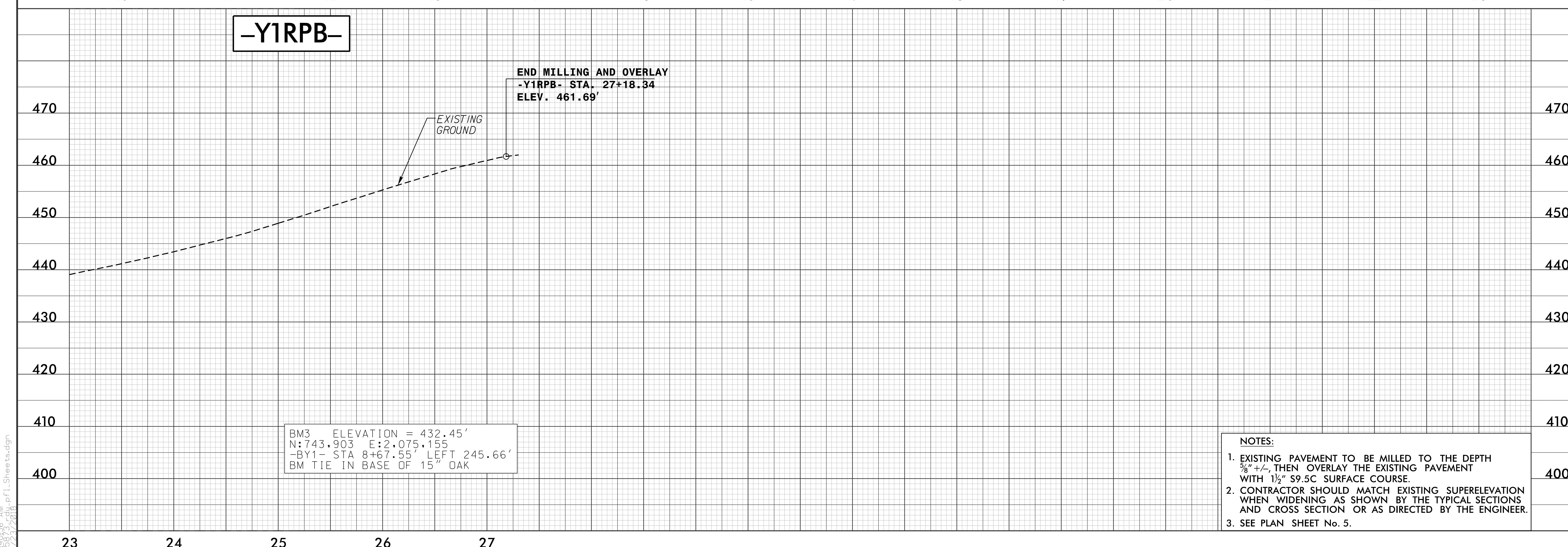
LICENSE NO. F-0165





NOTES:

1. EXISTING PAVEMENT TO BE MILLED TO THE DEPTH ⅝"+/-, THEN OVERLAY THE EXISTING PAVEMENT WITH 1½" S9.5C SURFACE COURSE.
2. CONTRACTOR SHOULD MATCH EXISTING SUPERELEVATION WHEN WIDENING AS SHOWN BY THE TYPICAL SECTIONS AND CROSS SECTION OR AS DIRECTED BY THE ENGINEER.
3. SEE PLAN SHEET No. 5.

PROJECT REFERENCE NO.	SHEET NO.
I-5873	7

ROADWAY DESIGN ENGINEER — SEAL 33290, NORTH CAROLINA PROFESSIONAL ENGINEER, RONYELL A. THIGPEN — DocuSigned by: Ronyell A. Thigpen, 9C2B41A2DB5E447... — 10/23/2018 10:59:26 AM PDT

HYDRAULICS ENGINEER — SEAL 27876, NORTH CAROLINA PROFESSIONAL ENGINEER, RANA STANSELL — DocuSigned by: Rana Stansell, 6DFF36A0443648C... — 10/23/2018 11:02:56 AM PDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

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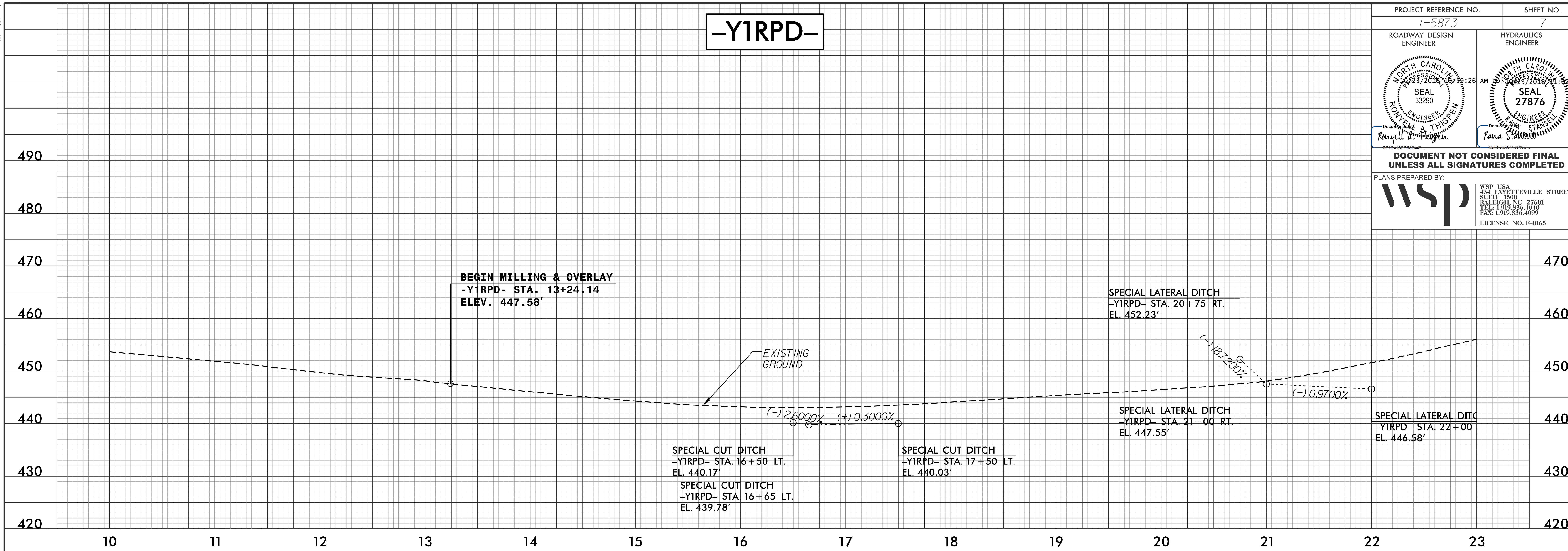

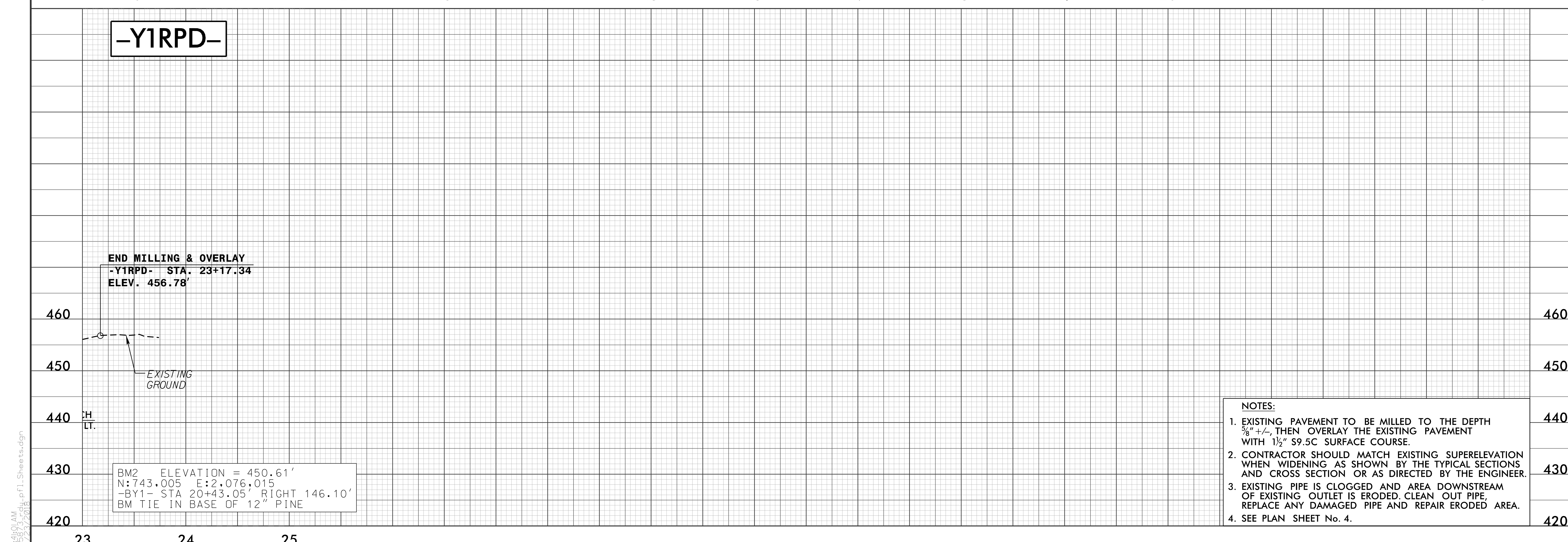

BM2 ELEVATION = 450.61'
N:743,005 E:2,076,015
-BY1- STA 20+43.05' RIGHT 146.10'
BM TIE IN BASE OF 12" PINE

NOTES:

1. EXISTING PAVEMENT TO BE MILLED TO THE DEPTH 5/8" +/-, THEN OVERLAY THE EXISTING PAVEMENT WITH 1½" S9.5C SURFACE COURSE.
2. CONTRACTOR SHOULD MATCH EXISTING SUPERELEVATION WHEN WIDENING AS SHOWN BY THE TYPICAL SECTIONS AND CROSS SECTION OR AS DIRECTED BY THE ENGINEER.
3. EXISTING PIPE IS CLOGGED AND AREA DOWNSTREAM OF EXISTING OUTLET IS ERODED. CLEAN OUT PIPE, REPLACE ANY DAMAGED PIPE AND REPAIR ERODED AREA.
4. SEE PLAN SHEET No. 4.