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09/08/99

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5759	1	

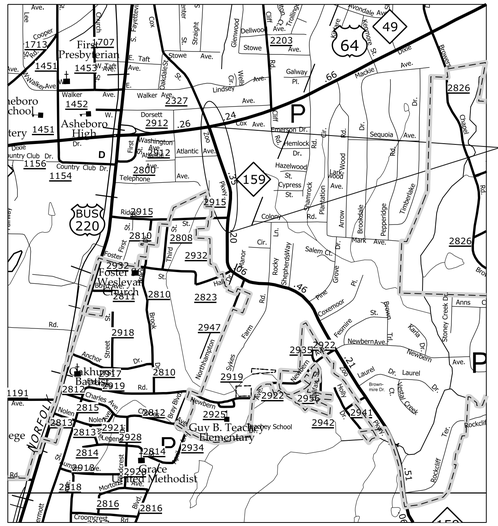
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50173.1.1		PE
50173.3.1		CONST.
2016CPT.08.21.10761		RESURFACING

TIP PROJECT: U-5759

RANDOLPH COUNTY

LOCATION: NC 159 (ZOO PARKWAY) FROM US 64 TO ATLANTIC AVE.

TYPE OF WORK: MILLING, PAVING SIGNALS, PAVEMENT MARKINGS & MARKERS


First Presbyterian
Asheboro High
Foster Wesleyan Church
Guy B. Teachey Elementary
Grace United Methodist
Walker Ave.
Dorsett
Washington
Atlantic Ave.
Telephone
Country Club Dr.
Stowe Ave.
Lindsey
Cox Ave.
Emerson Dr.
Hemlock Rd.
Hazelwood St.
Cypress St.
Sequoia Ave.
Laurel Dr.
Newberry Ave.
Salem Ct.
Rio
Cole
Cir.
Rocky Mountain Way
Pleasant Grove Rd.
Arrow Rd.
Brookside Rd.
Hoppridge Rd.
Thistledale
Mark Ave.
Sovey Creek Dr.
Anns Ct
Bowker
Rd.
Dr.
Ave.
St.
Pl.
Cir.
Ln.
Way

PROJECT REFERENCE NO.	SHEET NO.
U-5759, ETC.	1-A

NORTH CAROLINA PROFESSIONAL SEAL 26930 ENGINEER GREG S. DAVIS

DocuSigned by: Greg S Davis 33D47B5FD78F4A8...

5/4/2016

DIVISION DESIGN / CONSTRUCT ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS
1-B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
2-A	DETAIL – RESURFACING ADVANCE WARNING SIGNS FOR URBAN /SUBURBAN FACILITIES
2-B	DETAIL – RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES <60 MPH
3	SUMMARY OF QUANTITIES
4 THRU 5	PLAN SHEETS
PM-1	PAVEMENT MARKING PLANS
SIG-1 THRU SIG-2	SIGNAL PLANS

GENERAL NOTES

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 THE PROPER TIE-IN.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated January 17, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
225.04	Method of Obtaining Superelevation – Two Lane Pavement
225.05	Method of Obtaining Superelevation – Divided Highway

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PROJECT REFERENCE NO.	SHEET NO.
U-5759, etc.	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
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
U-5759, ETC.	2
R/W SHEET NO.	

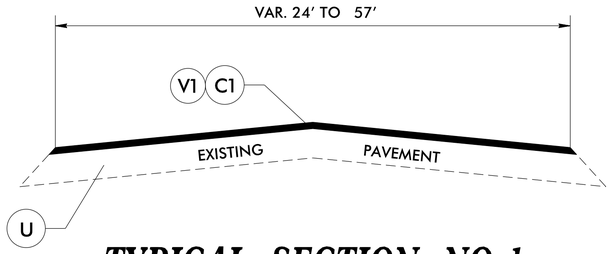
DocuSigned by: Greg S Davis 33D47B5FD78F4A8...

SEAL 26930 NORTH CAROLINA PROFESSIONAL ENGINEER GREG S. DAVIS

5/4/2016

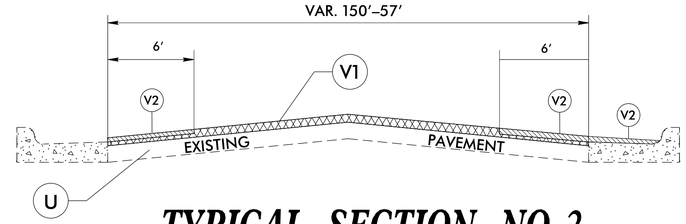
DIVISION DESIGN / CONSTRUCT ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 1

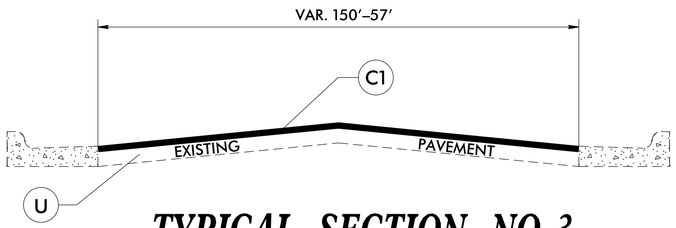
–L– STA. 11+42.52 TO –L– STA. 14+56.30



TYPICAL SECTION NO. 2

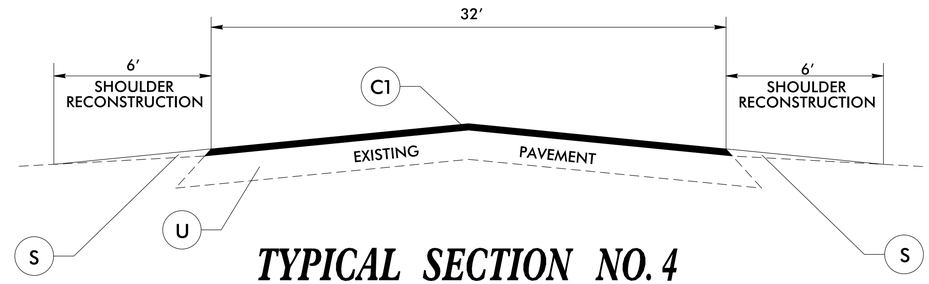
NOTE: MILL 0″ TO 4″ TO GET FLUSH WITH EXISTING GUTTER. THEN 1.5″ MILLING OVER ENTIRE ROADWAY BELOW GUTTER.

–L– STA. 14+56.30 TO –L– STA. 17+78.89

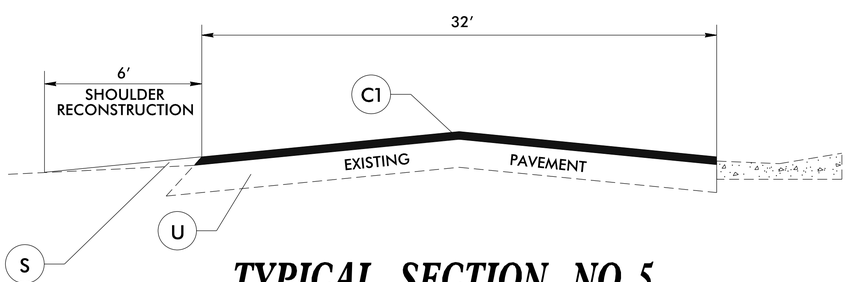


TYPICAL SECTION NO. 3

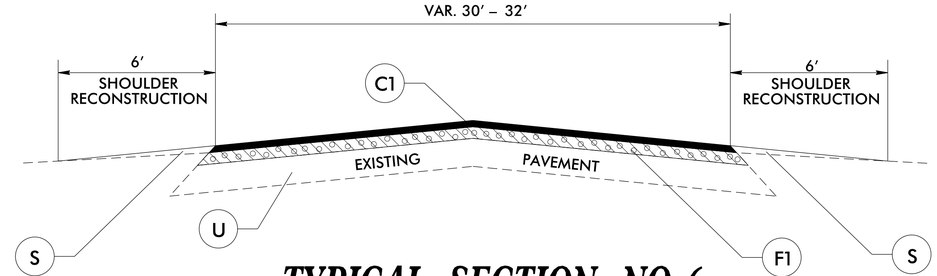
–L– STA. 14+56.30 TO –L– STA. 17+78.89



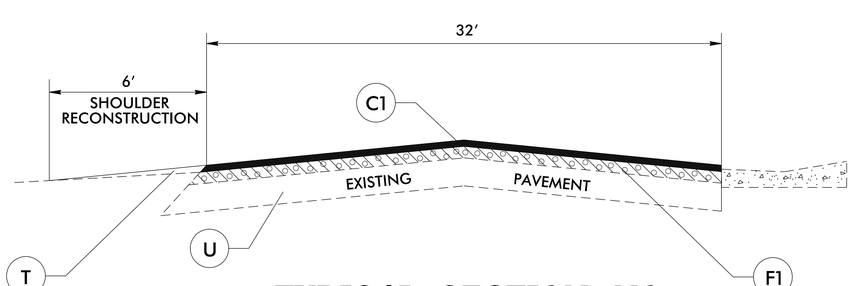
TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 5



TYPICAL SECTION NO. 6



TYPICAL SECTION NO. 7

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
F1	ASPHALT SURFACE TREATMENT, MAT COAT WITH #67 STONE
S	AGGREGATE SHOULDER BORROW
U	EXISTING PAVEMENT.
V1	MILLING 1.5″
V2	MILLING 0″ TO 4″

REVISIONS

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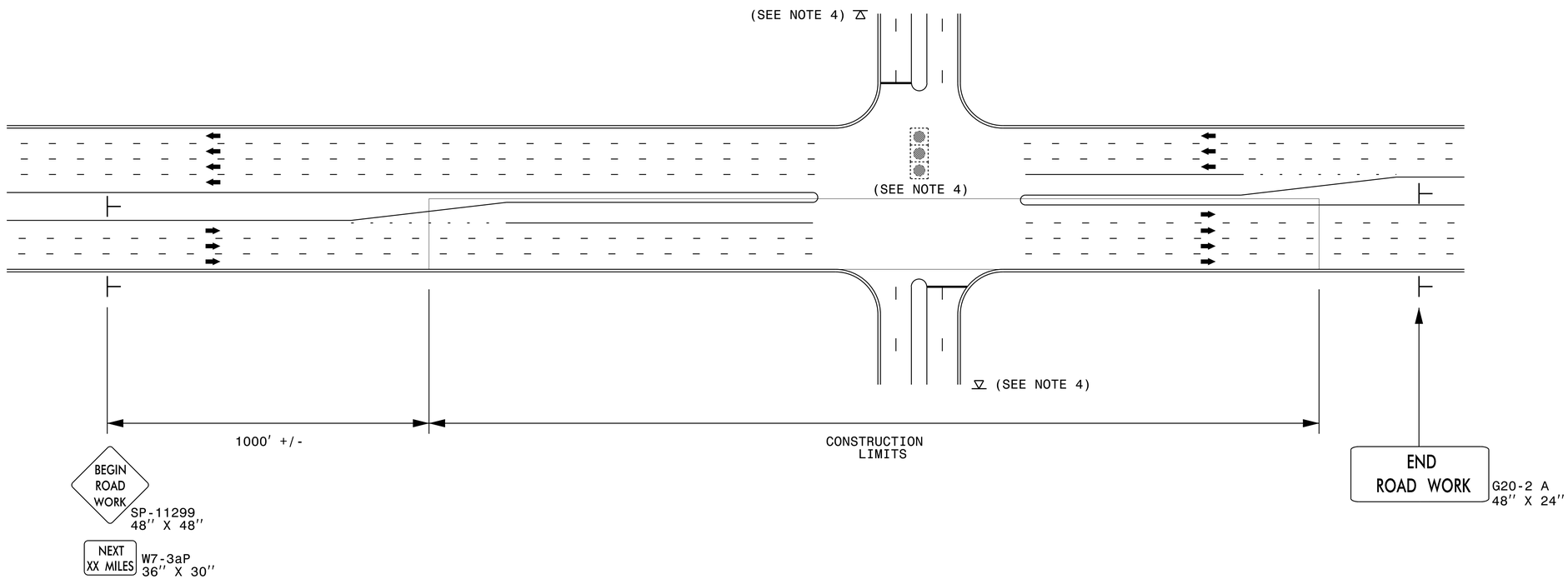
URBAN / SUBURBAN WORKZONES



NOTES:

1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
3) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
4) USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AND PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
8) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS.THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

RESURFACING ADVANCE WARNING SIGNS FOR URBAN / SUBURBAN FACILITIES

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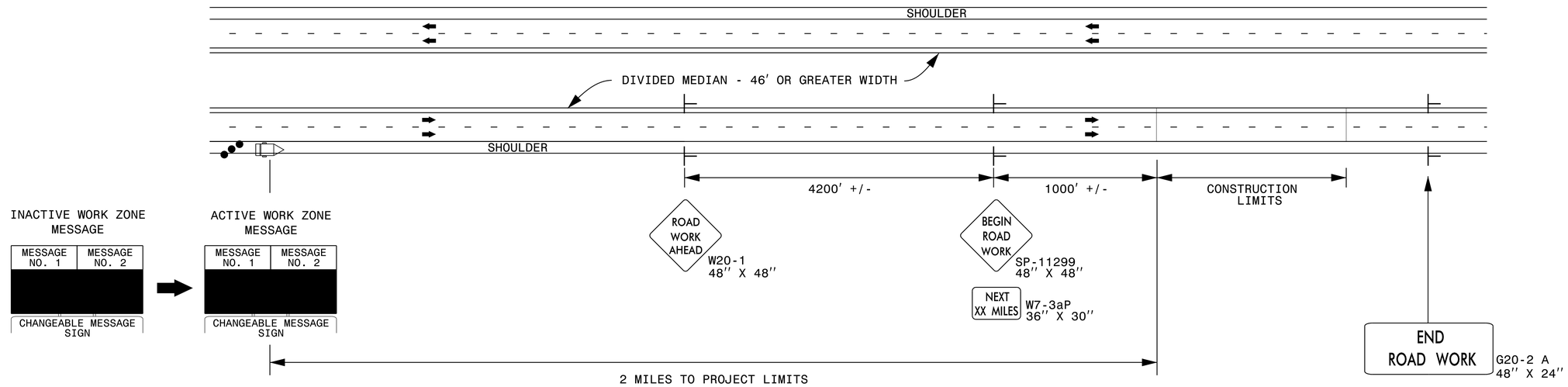
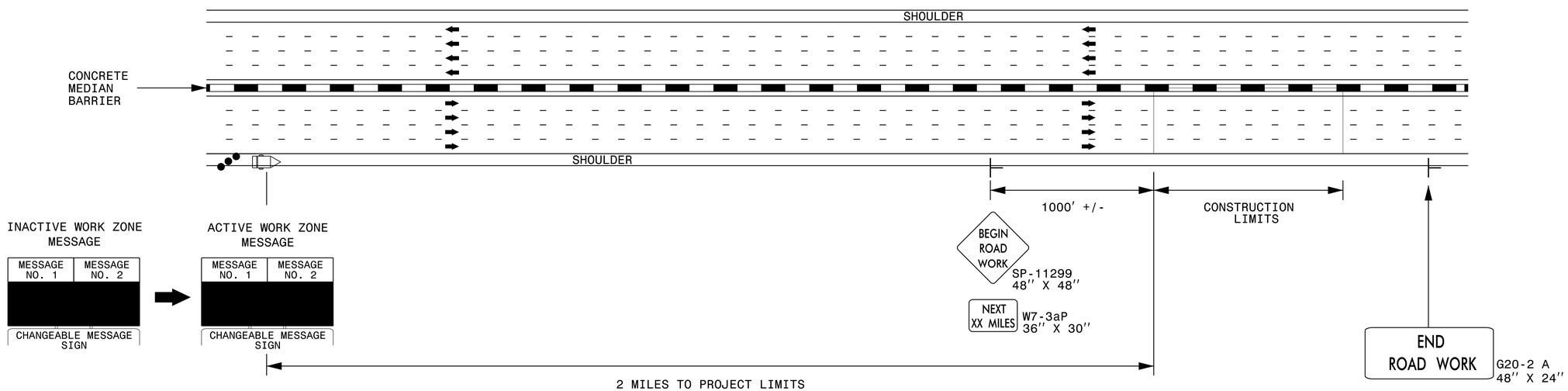
PROJ. REFERENCE NO.	SHEET NO.
U-5759, etc.	2-B

DIVIDED MEDIANS WITH WIDTHS 46′ OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46′ OR WITH PERMANENT MEDIAN BARRIER



NOTES:

1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6′ AS MEASURED FROM THE EDGE OF PAVEMENT.
2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
3) FOR MEDIAN WIDTHS LESS THAN 46′ (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
5) INSTALL "ROAD WORK AHEAD"(W20-1) ALONG ENTRANCE RAMPS 500′ PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMPS WITHIN THE WORK ZONE.
6) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER AND WITH DIVIDED MEDIANS OF 46′ OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

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PROJECT NO.	SHEET NO.	TOTAL NO.
2016CPT.08.21.10761	3	
50173.3.1 (U-5759)		

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	GENERIC GRADING ITEM - AGGREGATE SHOULDER BORROW TON	SHOULDER RECONSTRUCTION SMI	1.5" MILLING SY	0" TO 4" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, S9.5C TONS	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ASPHALT SURFACE TREATMENT, MATCOAT, #67 STONE SY	EMULSION FOR ASPHALT SURFACE TREATMENT GAL	ADJUST DROP INLET EA	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	PORTABLE LIGHTING LS	SIGNAL CABLE LF	VEHICLE SIGNAL HEAD (12", 4 SECTION) EA	SIGN FOR SIGNALS EA
2016CPT.08.21.10761	Randolph	1	US 64 WB	BEGIN DIVIDED SECTION 0.178MI E OF SR 2481 EASTERN RANDOLPH RD TO CHATHAM COUNTY	4,5	2	MD	NO	NO	4.11	32	2,014.00	8.22			1,425	9,110	537	150									
TOTAL FOR MAP NO. 1										**4.11**		**2,014.00**	**8.22**			**1,425**	**9,110**	**537**	**150**									
2016CPT.08.21.10761	Randolph	2	US 64 EB	BEGIN DIVIDED SECTION 0.178MI E OF SR 2481 (EASTERN RANDOLPH RD) TO SR 2469 (BROWNS CROSSROADS RD)	6,7	2	MD	NO	NO	1.841	32	903.00	3.68			445	4,350	257	50	26,000.00	9,100							
TOTAL FOR MAP NO. 2										**1.841**		**903.00**	**3.68**			**445**	**4,350**	**257**	**50**	**26,000.00**	**9,100**							
2016CPT.08.21.10761	Randolph	3	US 64 EB	SR 2469 (BROWNS CROSSROAD RD) TO CHATHAM COUNTY	4,5	2	MD	NO	NO	2.272	32	1,114.00	4.54			400	4,690	277										
TOTAL FOR MAP NO. 3										**2.272**		**1,114.00**	**4.54**			**400**	**4,690**	**277**							*			
TOTAL FOR PROJ NO. 2016CPT.08.21.10761										**8.223**		**4,031.00**	**16.44**			**2,270**	**18,150**	**1,071**	**200**	**26,000.00**	**9,100**				**1**			
50173.3.1 (U-5759)	Randolph	4	NC 159 (ZOO PARKWAY)	FROM US 64 (DIXIE DR) TO ATLANTIC AVE.	1,2,3	5	MU	NO	NO	0.12	24-157			3,180	600		290	17				1	2	4	*	20	1	1
TOTAL FOR MAP NO. 4										**0.12**				**3,180**	**600**		**290**	**17**				**1**	**2**	**4**		**20**	**1**	**1**
TOTAL FOR PROJ NO. 50173.3.1										**0.12**				**3,180**	**600**		**290**	**17**				**1**	**2**	**4**	**1**	**20**	**1**	**1**
GRAND TOTAL										**8.343**		**4,031.00**	**16.44**	**3,180**	**600**	**2,270**	**18,440**	**1,088**	**200**	**26,000.00**	**9,100**	**1**	**2**	**4**	**1**	**20**	**1**	**1**

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E WORK ZONE ADVANCE/GENERAL WARNING SIGNING SF	4457000000-N TEMPORARY TRAFFIC CONTROL LS	4510000000-N LAW ENFORCEMENT HR	4685000000-E 4" X 90 M WHITE THERMO LF	4685000000-E 4" X 90 M YELLOW THERMO LF	4686000000-E 4" X 120 M WHITE THERMO LF	4686000000-E 4" X 120 M YELLOW THERMO LF	4695000000-E 8" X 90 M YELLOW THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4725000000-E THERMO LT ARROW 90 M EA	4725000000-E THERMO RT ARROW 90 M EA	4725000000-E THERMO STR ARROW 90 M EA	4725000000-E THERMO STR & RT ARROW 90 M EA	4725000000-E THERMO STR & LT ARROW 90 M EA	4810000000-E 4" WHITE PAINT LF	4810000000-E 4" YELLOW PAINT LF	4820000000-E 8" YELLOW PAINT LF	4835000000-E 24" WHITE PAINT LF	4905000000-N SNOW PLOWABLE MARKERS C & R MARKERS EA	4905000000-N SNOW PLOWABLE MARKERS Y & Y MARKERS EA
2016CPT.08.21.10761	Randolph	1	US 64 WB	BEGIN DIVIDED SECTION 0.178MI E OF SR 2481 EASTERN RANDOLPH RD TO CHATHAM COUNTY	4,5	2	MD	4.11	32	126			22,525	22,525	14,885			230	20	14	32	4					500	
TOTAL FOR MAP NO. 1								**4.11**		**126**			**22,525**	**22,525**	**14,885**			**230**	**20**	**14**	**32**	**4**					**500**	
2016CPT.08.21.10761	Randolph	2	US 64 EB	BEGIN DIVIDED SECTION 0.178MI E OF SR 2481 (EASTERN RANDOLPH RD) TO SR 2469 (BROWNS CROSSROADS RD)	6,7	2	MD	1.841	32	126			10,090	10,090	4,000			200	9	3	20						260	
TOTAL FOR MAP NO. 2								**1.841**		**126**			**10,090**	**10,090**	**4,000**			**200**	**9**	**3**	**20**						**260**	
2016CPT.08.21.10761	Randolph	3	US 64 EB	SR 2469 (BROWNS CROSSROAD RD) TO CHATHAM COUNTY	4,5	2	MD	2.272	32	126			12,455	12,455	4,550			30	9	3	16						270	
TOTAL FOR MAP NO. 3								**2.272**		**126**	*		**12,455**	**12,455**	**4,550**			**30**	**9**	**3**	**16**						**270**	
TOTAL FOR PROJ NO. 2016CPT.08.21.10761								**8.223**		**378**	**1**		**45,070**	**45,070**	**23,435**			**460**	**38**	**20**	**68**	**4**					**1,030**	
													90,140		**23,435**				**130**								**1,030**	
50173.3.1 (U-5759)	Randolph	4	NC 159 (ZOO PARKWAY)	FROM US 64 (DIXIE DR) TO ATLANTIC AVE.	1,2,3	2	MU	0.12	24-157	14		40	785		455	1,875	80	60	2	3	1		2	1,240	1,875	80	60	16	24
TOTAL FOR MAP NO. 4								**0.12**		**14**	*	**40**	**785**		**455**	**1,875**	**80**	**60**	**2**	**3**	**1**		**2**	**1,240**	**1,875**	**80**	**60**	**16**	**24**
TOTAL FOR PROJ NO. 50173.3.1								**0.12**		**14**	**1**	**40**	**785**		**455**	**1,875**	**80**	**60**	**2**	**3**	**1**		**2**	**1,240**	**1,875**	**80**	**60**	**16**	**24**
													785		**2,330**				**8**					**3,115**				**40**	
GRAND TOTAL								**8.343**		**392**	**1**	**40**	**45,855**	**45,070**	**23,890**	**1,875**	**80**	**520**	**40**	**23**	**69**	**4**	**2**	**1,240**	**1,875**	**80**	**60**	**1,046**	**24**
													90,925		**25,765**				**138**					**3,115**				**1,070**	

PROJECT REFERENCE NO.	SHEET NO.
U-5759, ETC.	4
R/W SHEET NO.	

DocuSigned by: Greg S Davis
33D47B5FD78F4A8...

NORTH CAROLINA PROFESSIONAL SEAL 26930 ENGINEER GREG S. DAVIS

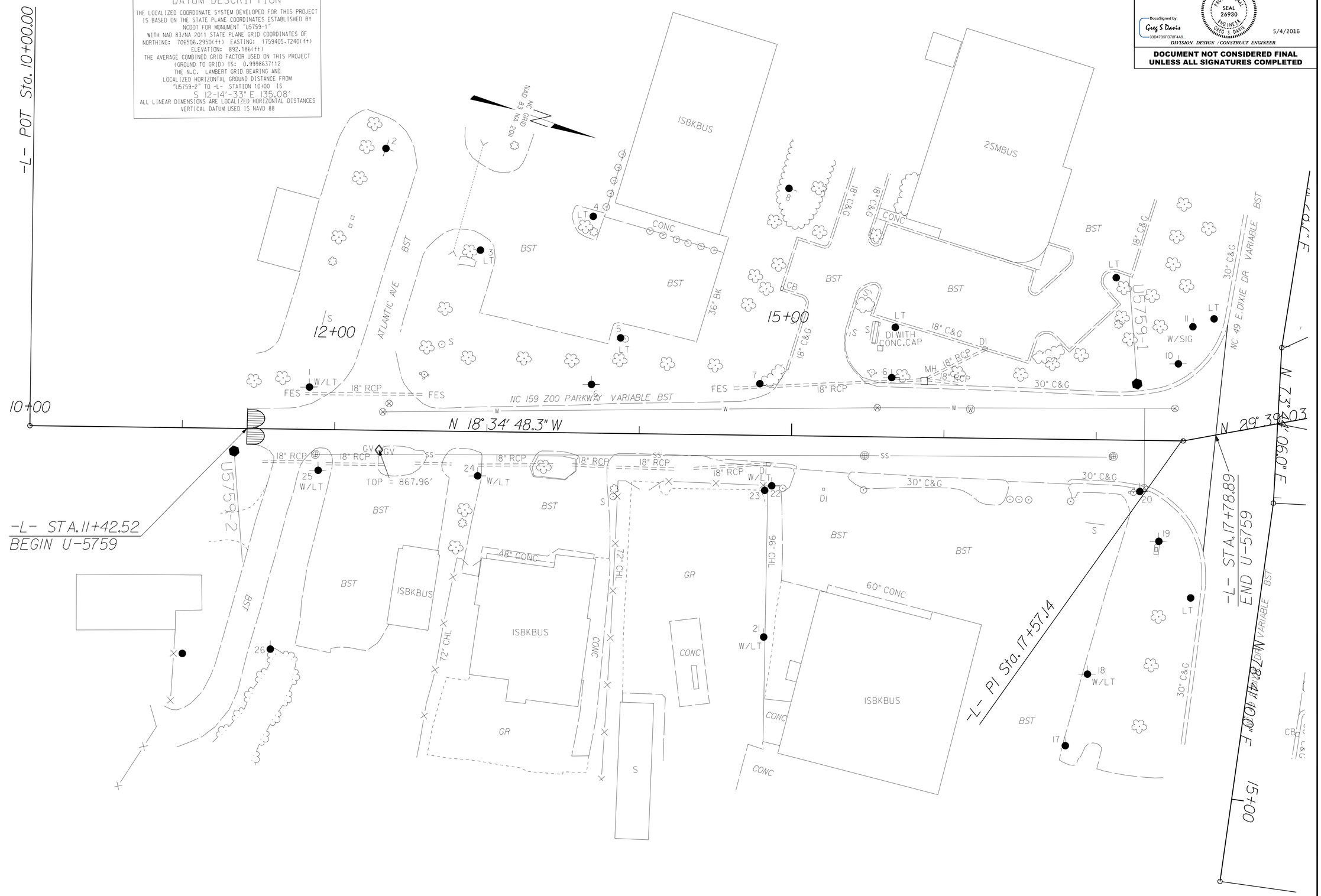
5/4/2016

DIVISION DESIGN / CONSTRUCT ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U5759-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 706506.2950(ft) EASTING: 1759405.7240(ft) ELEVATION: 892.186(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998637112
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U5759-2" TO -L- STATION 10+00 IS
S 12-14'-33" E 135.08'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



REVISIONS

8/17/99

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osdavis AT DBCAD-270410

WBS ELEMENT	SHEET NO.
2016CPT.08.21.10761, 50173.3.1 (U-5759)	5

DocuSigned by:
Greg S. Davis
33D47B5FD78F4A8...

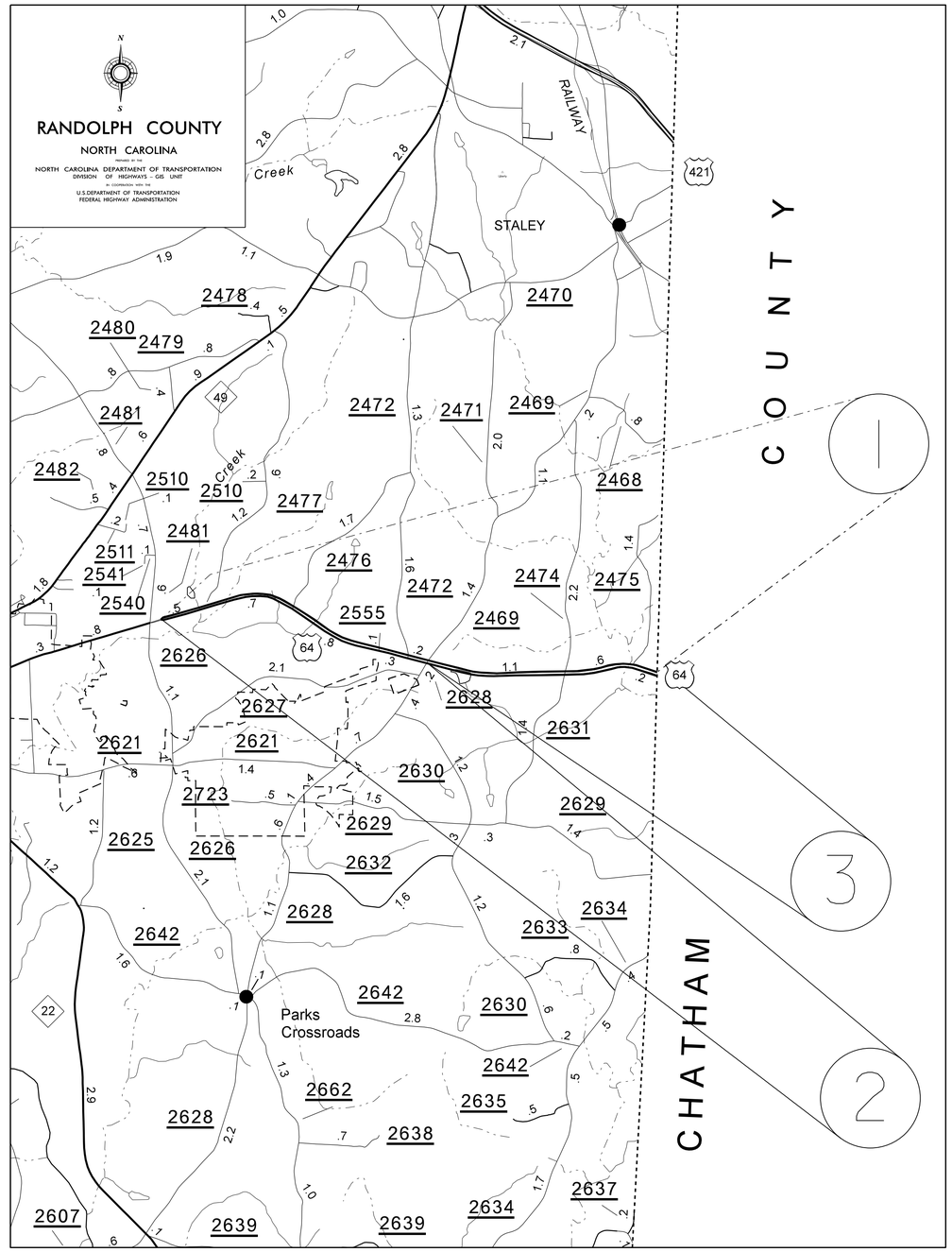
NORTH CAROLINA PROFESSIONAL SEAL 26930 ENGINEER GREG S. DAVIS

5/4/2016

DIVISION DESIGN / CONSTRUCT ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MAPS #1 – #3



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...AT D8CAD-270410

PROJECT REFERENCE NO.	SHEET NO.
U-5759	PM-1
R/W SHEET NO.	

DocuSigned by: Greg S Davis 33D47B5FD78F4A8...

NORTH CAROLINA PROFESSIONAL SEAL 26930 ENGINEER GREG S. DAVIS

5/4/2016

DIVISION DESIGN / CONSTRUCT ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT MARKING LEGEND

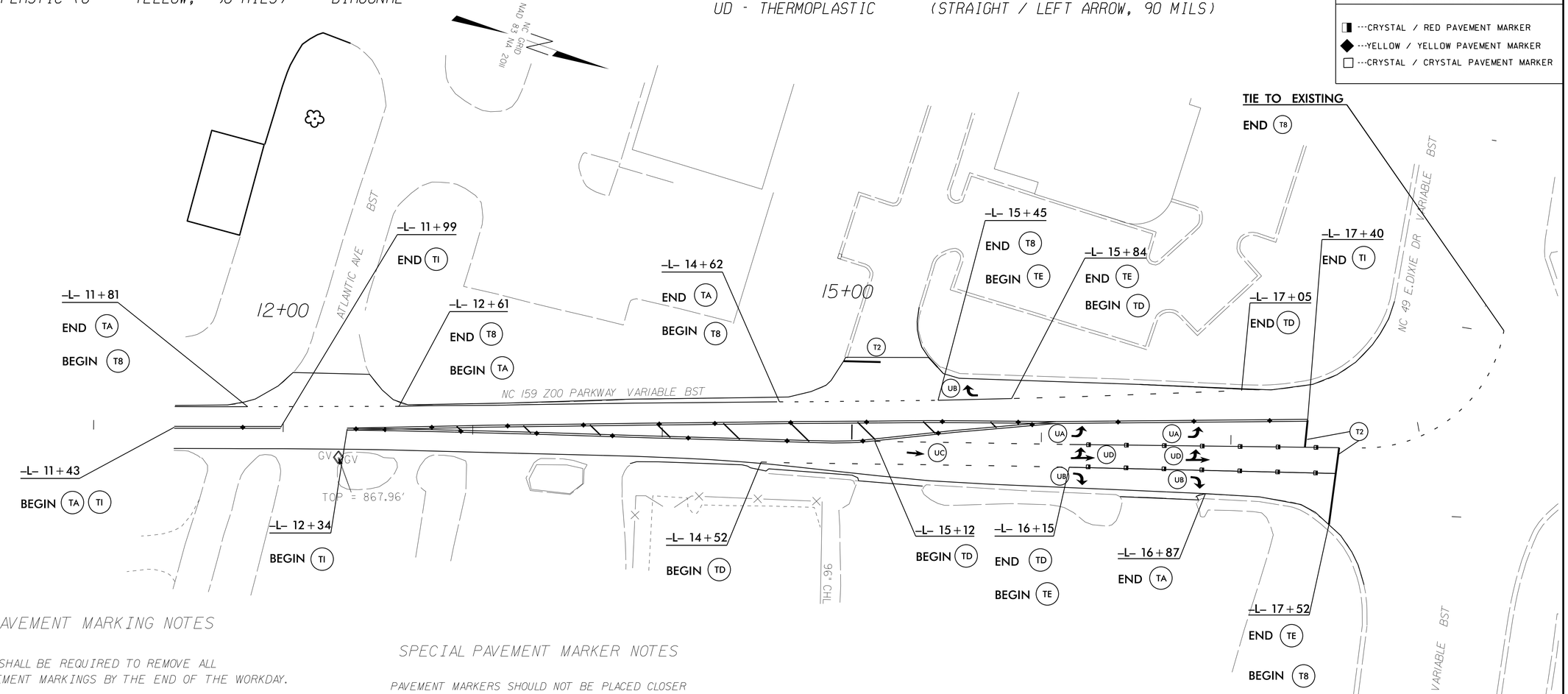
- ---CRYSTAL / RED PAVEMENT MARKER
- ---YELLOW / YELLOW PAVEMENT MARKER
- ---CRYSTAL / CRYSTAL PAVEMENT MARKER

PAVEMENT MARKING LINES

T2 -	THERMOPLASTIC (24"	WHITE,	120 MILS)	STOP BAR
T8 -	THERMOPLASTIC (4"	WHITE,	120 MILS)	2' X 6' SP MINISKIP
TA -	THERMOPLASTIC (4"	WHITE,	90 MILS)	EDGE LINE
TD -	THERMOPLASTIC (4"	WHITE,	120 MILS)	3' X 9' SP MINISKIP
TE -	THERMOPLASTIC (4"	WHITE,	120 MILS)	SOLID LANE LINE
TI -	THERMOPLASTIC (4"	YELLOW,	120 MILS)	DOUBLE CENTERLINE
TP -	THERMOPLASTIC (8"	YELLOW,	90 MILS)	DIAGONAL

PAVEMENT MARKING SYMBOLS

UA -	THERMOPLASTIC	(LEFT TURN ARROW, 90 MILS)
UB -	THERMOPLASTIC	(RIGHT TURN ARROW, 90 MILS)
UC -	THERMOPLASTIC	(STRAIGHT ARROW, 90 MILS)
UD -	THERMOPLASTIC	(STRAIGHT / LEFT ARROW, 90 MILS)



SPECIAL PAVEMENT MARKING NOTES

THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL CONFLICTING PAVEMENT MARKINGS BY THE END OF THE WORKDAY.

THE CONTRACTOR SHALL INSTALL ALL PAVEMENT LINES AND SYMBOLS AS REQUIRED (SEE ROADWAY STANDARD DRAWINGS 1205.01 THRU 1205.12.

THE CONTRACTOR SHALL BE REQUIRED TO REPLACE ANY PAVEMENT MARKINGS, WHICH HAVE BEEN OBLITERATED BY CONSTRUCTION PROCEDURES, BY THE END OF THE WORKDAY.

THE CONTRACTOR SHALL BE REQUIRED TO COVER ALL CONFLICTING STATIONARY CONSTRUCTION SIGNING WHEN A LANE CLOSURE UTILIZING PORTABLE CONSTRUCTION SIGNS IS IN EFFECT. THE CONTRACTOR SHALL NOT HAVE AN OVERLAP IN THE SEQUENCE OF CONSTRUCTION SIGNING.

THE CONTRACTOR SHALL PLACE ALL FINAL PAVEMENT MARKING LINES AND SYMBOLS (THERMOPLASTIC ALKYD-MALEIC) USING THE EXTRUSION METHOD.

CHANGES TO PAVEMENT MARKINGS MAY AND SHALL BE MADE AT THE DIRECTION OF THE ENGINEER.

SPECIAL PAVEMENT MARKER NOTES

PAVEMENT MARKERS SHOULD NOT BE PLACED CLOSER THAN 2 INCHES TO A PAVEMENT CONSTRUCTION JOINT (AS FEASIBLE), EXCEPT WHEN PLACED BETWEEN DOUBLE YELLOW CENTER LINES, AND ALONG YELLOW SKIP LINES AND TWO-LANE, TWO-WAY ROADWAYS WHERE PASSING IS ALLOWED IN BOTH DIRECTIONS.

PAVEMENT MARKERS SHALL NOT BE PLACED DIRECTLY ON PAVEMENT MARKING LINES.

PAVEMENT MARKERS USED IN CONJUNCTION WITH DOUBLE YELLOW CENTER LINES SHALL BE PLACED MID-WAY BETWEEN THE LINES, PROVIDED WITH A GAP BETWEEN THE LINES AND THE MARKER TO REDUCE OVERSPRAYING THE MARKER DURING THE REPAINTING OPERATIONS.

MARKERS ARE NOT REQUIRED ALONG MINI-SKIP LINES IN TAPERS.

CHANGES TO PAVEMENT MARKERS MAY AND SHALL BE MADE AT THE DIRECTION OF THE ENGINEER.

30' 0 30' 60'

REVISIONS

8/17/99

04-MAY-2016 10:13
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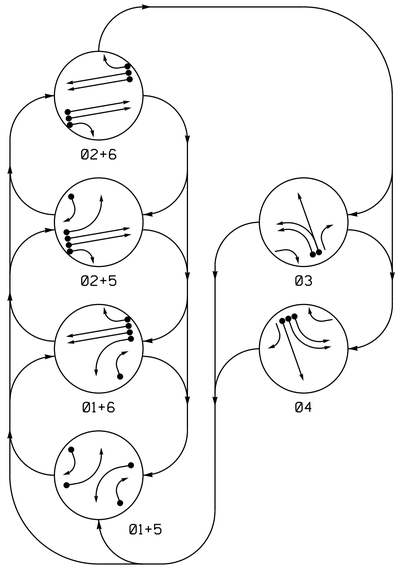
PROJECT REFERENCE NO.	SHEET NO.
U-5759	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+5	01+6	02+5	02+6	03	04	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21	R	R	G	G	R	R	Y
22	R	R	G	G	R/←	R	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
32	R	R	R	R	G/←	R	R
33	R/←	R/←	R	R	G	R	R
41	R	R	R	R	R	G	R
42	R/←	R	R/←	R	R	G	R
43, 44	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~
61	R	G	R	G	R	R	Y
62	R	G	R	G	R	R/←	Y

SIGNAL FACE I.D.

All Heads L.E.D.

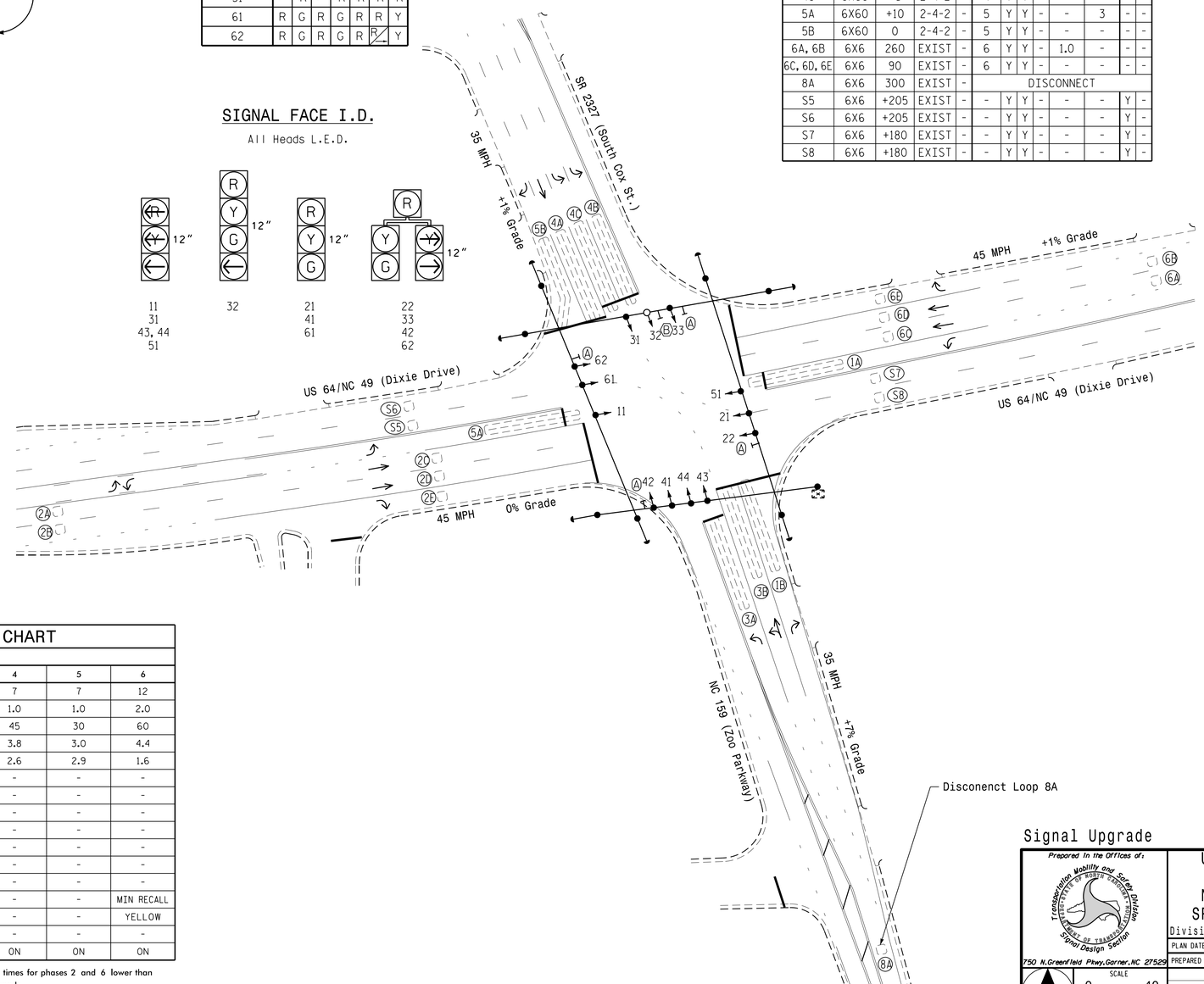
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	+10	2-4-2	-	1	Y	Y	-	-	3	-	-
1B	6X60	0	2-4-2	-	1	Y	Y	-	-	-	-	-
2A, 2B	6X6	330	EXIST	-	2	Y	Y	-	2.1	-	-	-
2C, 2D, 2E	6X6	90	EXIST	-	2	Y	Y	-	-	-	-	-
3A	6X60	0	2-4-2	-	3	Y	Y	-	-	3	-	-
3B	6X60	0	2-4-2	-	3	Y	Y	-	-	-	-	-
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	-	-	-
4B	6X60	+5	2-4-2	-	4	Y	Y	-	-	3	-	-
4C	6X60	+5	2-4-2	-	4	Y	Y	-	-	-	-	-
5A	6X60	+10	2-4-2	-	5	Y	Y	-	-	3	-	-
5B	6X60	0	2-4-2	-	5	Y	Y	-	-	-	-	-
6A, 6B	6X6	260	EXIST	-	6	Y	Y	-	1.0	-	-	-
6C, 6D, 6E	6X6	90	EXIST	-	6	Y	Y	-	-	-	-	-
8A	6X6	300	EXIST	-	DISCONNECT							
S5	6X6	+205	EXIST	-	-	Y	Y	-	-	-	Y	-
S6	6X6	+205	EXIST	-	-	Y	Y	-	-	-	Y	-
S7	6X6	+180	EXIST	-	-	Y	Y	-	-	-	Y	-
S8	6X6	+180	EXIST	-	-	Y	Y	-	-	-	Y	-

6 Phase
Fully Actuated
(US 64-NC 49 (Dixie Drive) CLS)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Disconnect existing loop 8A.
6. Renumber existing signal heads 71, 72, 82 to 43, 44, and 33, respectively.
7. Renumber existing loops 7A, 7B, and 8B to 4B, 4C, and 3B, respectively.
8. Set all detector units to presence mode.
9. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
10. Thirty days after implementation of the revised signal operation, sign B and/or orange flags may be removed at the discretion of the Regional Traffic Engineer.
11. Pavement markings are existing unless otherwise shown.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
13. Closed loop system data: Controller Asset #: 0144.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
Ⓐ	"NO TURN ON RED" Sign (R10-11)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L) w/ Orange Flags	Ⓑ

OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	1.0	2.0	1.0	1.0	1.0	2.0
Max Green 1 *	30	60	45	45	30	60
Yellow Clearance	3.0	4.5	3.5	3.8	3.0	4.4
Red Clearance	2.8	1.6	3.0	2.6	2.9	1.6
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min green for all other phases should not be lower than 4 seconds.

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64/NC 49 (Dixie Drive) at NC 159 (Zoo Parkway) and SR 2327 (South Cox Street)

Division 8 Randolph County Asheboro

PLAN DATE:	February 2016	REVIEWED BY:	
PREPARED BY:	M.E. Giles	REVIEWED BY:	

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by: 1990B5A0A0A0A0... SIGNATURE 3/16/2016 DATE

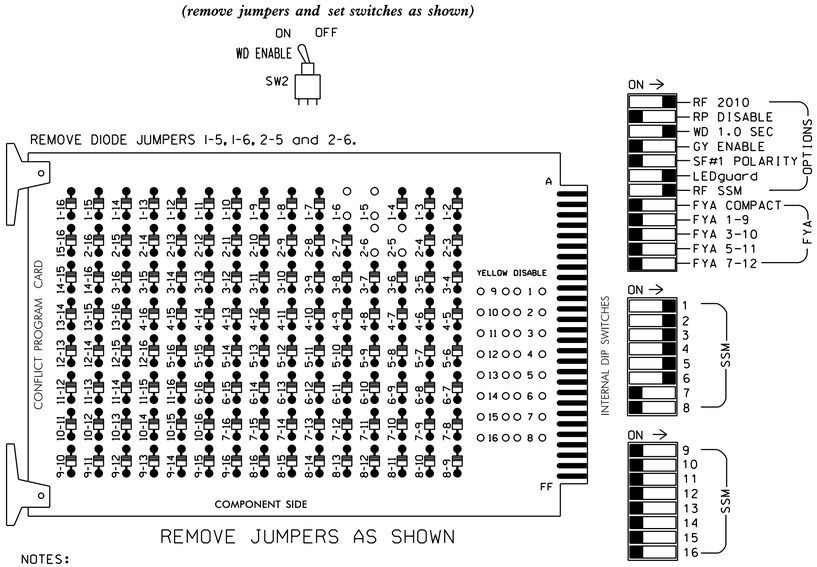
SIG. INVENTORY NO. 08-0144

15-MAR-2016 15:01
S:\TTSGSM\ITS\Signals\Signal Design Section\Central Region\Div 8\U-5759\U08144_sig_dsn_20160316.dgn
rzieemba

PROJECT REFERENCE NO.	SHEET NO.
U-5759	Sig. 2

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. To prevent red failures on unused monitor channels, see Red Monitor Board Programming Detail this sheet.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the US 64-NC 49 (Dixie Drive) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....EAGLE TYPE 2070L
CABINET.....McCAIN/CONTROL TECHNOLOGIES
(DWG.NO.9500-332-NCDOT)
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6
PHASES USED.....1,2,3,4,5,6
OVERLAPS.....NONE

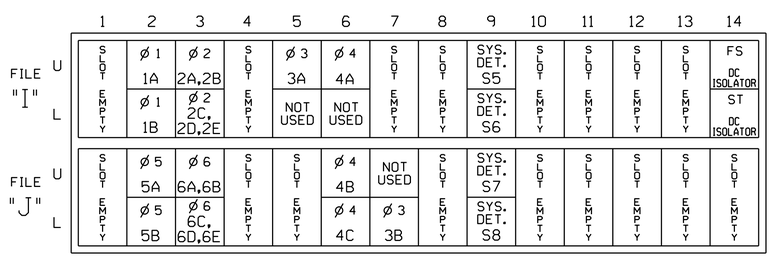
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1		S2	S2P	S3				S4			S4P	S5		S6	S6P	S7	S8	S8P
PHASE	1		2	2 PED	3				4			4 PED	5		6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	33	21,22	NU	22	31	32	33	41,42	43,44	62	NU	42	51	61,62	NU	NU	NU	NU
RED			128				116	116	101						134				
YELLOW			129				117	117	102						135				
GREEN			130				118	118	103						136				
RED ARROW	125					116				101				131					
YELLOW ARROW	126	126			117	117				102	102		132	132					
GREEN ARROW	127	127			118	118	118			103	103		133	133					

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

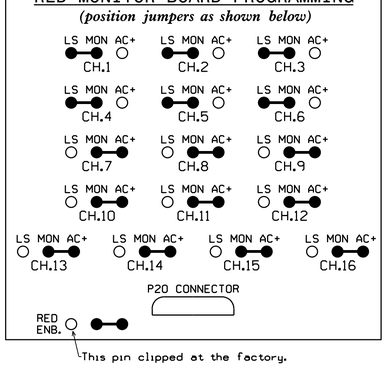


EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

RED MONITOR BOARD PROGRAMMING

(position jumpers as shown below)



INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-5,6	I2U	39	1	2	1	Y	Y			3
1B	TB2-7,8	I2L	43	5	12	1	Y	Y			
2A,2B	TB2-9,10	I3U	63	25	32	2	Y	Y		2.1	
2C,2D,2E	TB2-11,12	I3L	76	38	42	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
3B	TB7-3,4	J7L	79	41	48	3	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB5-9,10	J6U	42	4	8	4	Y	Y			3
4C	TB5-11,12	J6L	46	8	18	4	Y	Y			
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			3
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			
6A,6B	TB3-9,10	J3U	64	26	36	6	Y	Y		1.0	
6C,6D,6E	TB3-11,12	J3L	77	39	46	6	Y	Y			
* S5	TB6-9,10	I9U	60	22	11	SYS					
* S6	TB6-11,12	I9L	62	24	13	SYS					
* S7	TB7-9,10	J9U	59	21	15	SYS					
* S8	TB7-11,12	J9L	61	23	17	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 08-0144
DESIGNED: February 2016
SEALED: 3/16/2016
REVISED:

Electrical Detail

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64/NC 49 (Dixie Drive)
at
NC 159 (Zoo Parkway) and
SR 2327 (South Cox Street)

Division 8 | Randolph County | Asheboro

PLAN DATE: March 2016 | REVIEWED BY: BAS
PREPARED BY: C. Strickland | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MINS

DocuSigned by:
Keith M. Mins
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3/22/2016
DATE

SIG. INVENTORY NO. 08-0144

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