STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

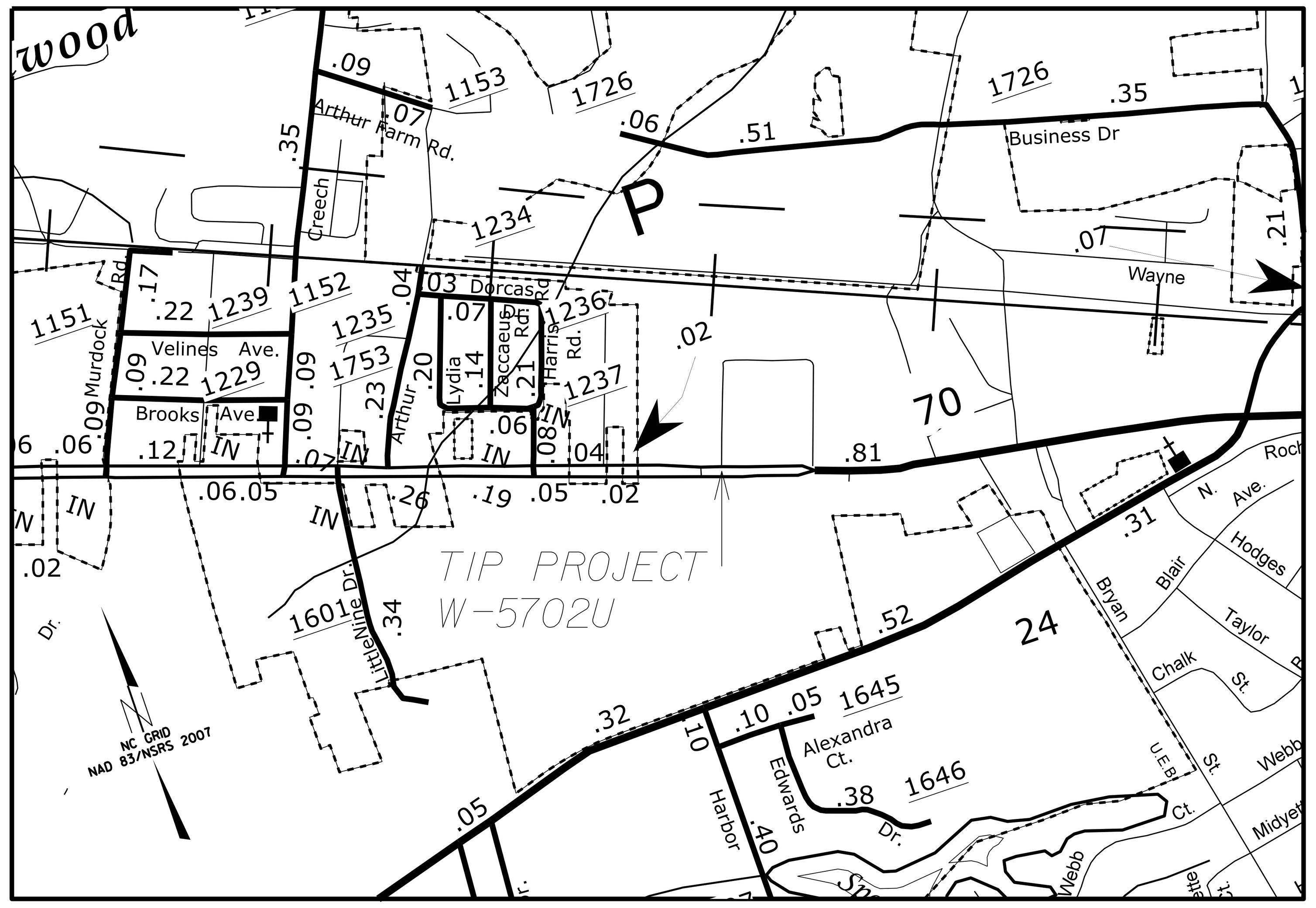
CARTERET COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5702U	1	18

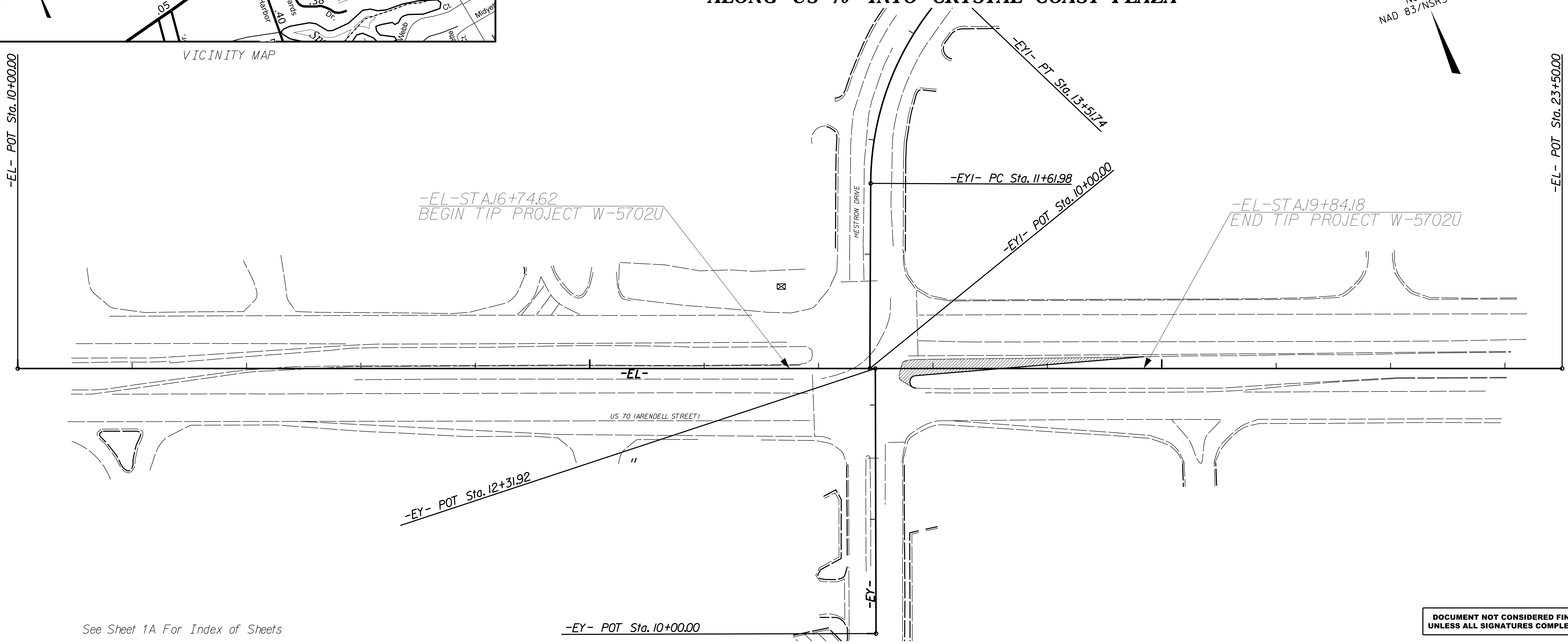
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44848.1.21	0070234	PE
44848.2.21	0070234	R/W-UTILITY
44848.3.21	0070234	CONST

LOCATION: US 70 (ARENDELL STREET) AT HESTRON DRIVE/CRYSTAL COAST PLAZA INTERSECTION

TYPE OF WORK: NEW MAST ARM POLES SIGNAL INSTALLATION RELOCATION WEST BOUND LEFT TURNLANE ALONG US 70 INTO CRYSTAL COAST PLAZA



VICINITY MAP



See Sheet 1A For Index of Sheets

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TIP PROJECT: W-5702U

CONTRACT: DB00537

GRAPHIC SCALES

50 25 0 50 100
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 37,000

FUNC CLASS = ARTERIAL

PROJECT LENGTH

PROJECT LENGTH TIP W-5702U = 0.058 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

1037 WH SMITH BLVD., GREENVILLE, NC 27835

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: JUNE 2022

JEFFREY D. CABANISS, PE
PROJECT ENGINEER

RICH GODLEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS

DocuSigned by: 03/31/2022 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS

DocuSigned by: 03/31/2022 P.E.
SIGNATURE:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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PROJECT REFERENCE NO.	SHEET NO.
W-5702U	1A

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
RW02C-1 THRU RW02C-2	SURVEY CONTROL SHEETS
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF EARTHWORK
4	PLAN SHEET
PM1	PAVEMENT MARKING PLAN
EC-1 THRU EC-2	EROSION CONTROL PLANS
SIG-2.0 THRU SIG-2.3	SIGNAL PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1	CROSS-SECTIONS

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

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 ENGERY
CENTURYLINK
CAROLINA WATER SERVICE INC OF NC
NCDOT
TOWN OF MOREHEAD CITY
PIEDMONT NATURAL GAS COMPANY
SEGRA
SCOUT COMMUNICATIONS
CROWN CASTLE
TIME WARNER CABLE

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	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	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

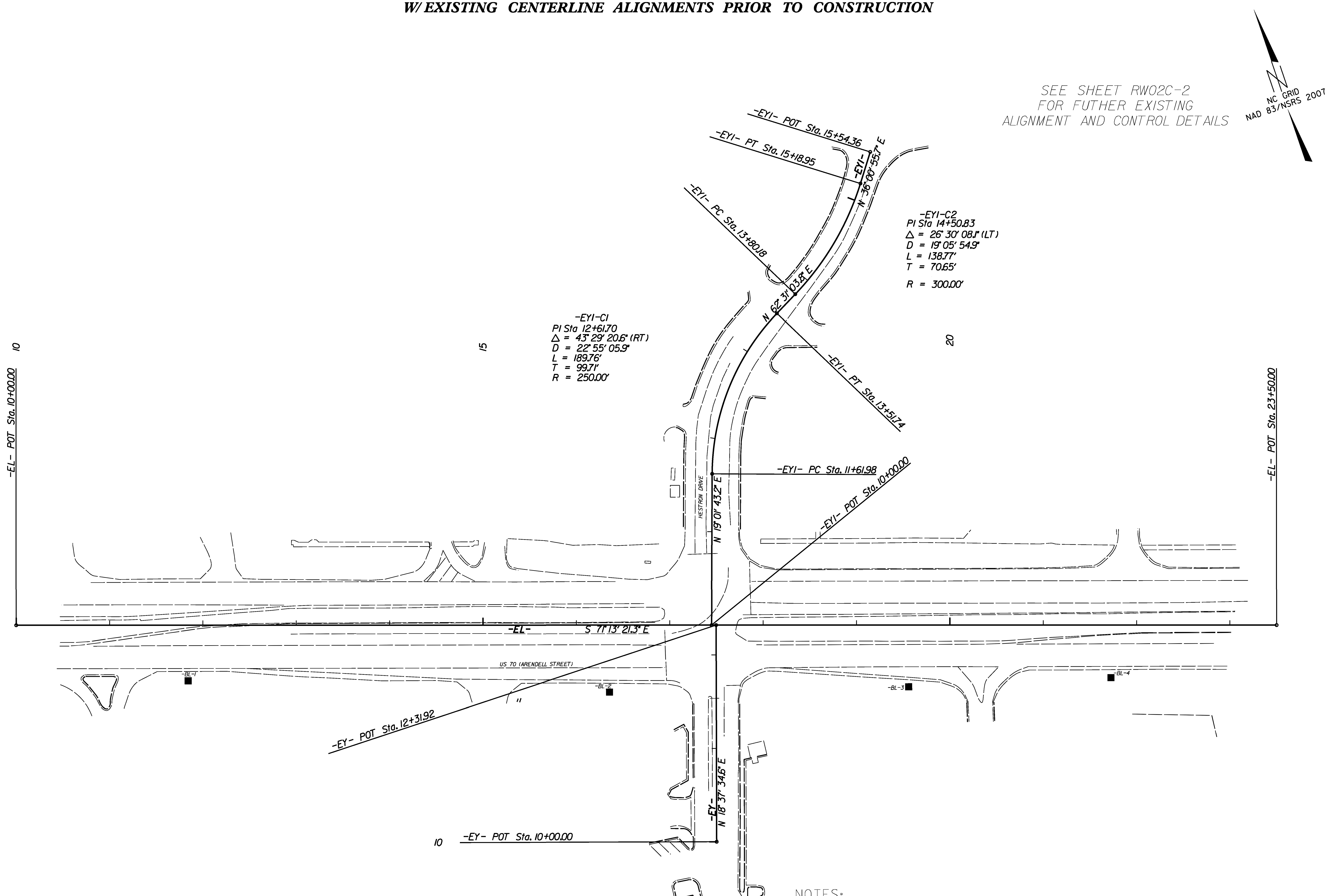
MISCELLANEOUS:

- 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.
W-5702U	RW02C-1

SURVEY CONTROL SHEET W-5702U

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



NOTES:

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

REVISIONS

8/17/99

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SURVEY CONTROL SHEET W–5702U

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION	BL STATION	OFFSET
1	-BL-1	367098.6960	2658038.9690	15.23	5+00.00	0.00
2	-BL-2	366941.9080	2658462.4640	16.45	9+51.59	0.00
3	-BL-3	366844.2280	2658767.6500	18.17	12+72.02	0.00
4	-BL-4	366783.0060	2658975.9440	18.26	14+89.13	0.00

EXISTING ALIGNMENTS

EL

POINT	N	E	BEARING	DIST
POT	367214.447	2657883.951		
LINE			S 71°13′21.3″ E	1350.00
POT	366779.892	2659162.099		

EY

POINT	N	E	BEARING	DIST
POT	366753.372	2658519.632		
LINE			N 18°37′34.6″ E	231.92
POT	366973.140	2658593.704		

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	366974.677	2658589.182							
LINE			N 19°01′43.2″ E	161.98					
PC	367127.810	2658641.996							
CURVE			N 40°46′23.5″ E	185.23	43°29′20.6″(RT)	22°55′05.9″	189.76	99.71	250.00
PT	367268.088	2658762.966							
LINE			N 62°31′03.8″ E	28.44					
PC	367281.212	2658788.196							
CURVE			N 49°15′59.8″ E	137.53	26°30′08.1″(LT)	19°05′54.9″	138.77	70.65	300.00
PT	367370.957	2658892.411							
LINE			N 36°00′55.7″ E	35.41					
POT	367399.602	2658913.235							

NOTES:

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

REVISIONS

8/17/99

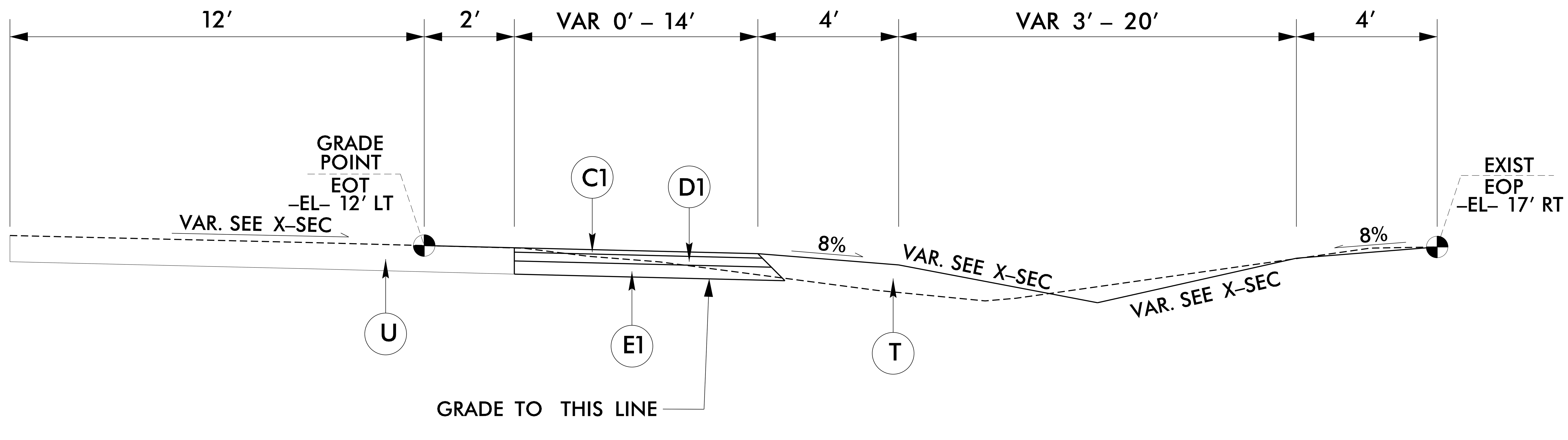
PROJECT REFERENCE NO.	SHEET NO.
W-5702U	2

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS 03/31/2022

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS 03/31/2022

C1	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ.YD.
D1	PROP. APPROX. 3.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

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



USE TYPICAL SECTION #1

-EL- 17+84.87- 19+84.18

DRAWING NOT TO SCALE

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5702U	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SECT	QUANTITY	UNIT	ITEM DESCRIPTION
800	0.6	LS	MOBILIZATION
801	0.6	LS	CONSTRUCTION SURVEYING
226	1	LS	GRADING
610	50	TON	ASPHALT CONCRETE BASE COURSE,TYPE B25.0C
610	40	TON	ASPHALT CONCRETE BINDER COURSE,TYPE 119.0C
610	30	TON	ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5C
620	10	TON	ASPHALT BINDER FOR PLANT MIX
SP	144	SF	WORK ZONE ADVANCE/GENERAL WARNING SIGNING
SP	0.5	LS	TEMPORARY TRAFFIC CONTROL
1190	20	HR	LAW ENFORCEMENT
1205	275	LF	THERMOPLASTIC PAVEMENT MARKING LINES (6",90MILS)
1205	475	LF	THERMOPLASTIC PAVEMENT MARKING LINES (12",90MILS)
1205	12	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24",90MILS)
1205	2	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90MILS)
1253	25	EA	SNOWPLOWABLE PAVEMENT MARKERS
1605	100	LF	TEMPORARY SILT FENCE
1610	1	TON	EROSION CONTROL STONE,CLASS B
1610	1	TON	SEDIMENT CONTROL STONE
1632	20	LF	1/4" HARDWARE CLOTH
1660	0.25	ACRE	SEEDING AND MULCHING
SP	2	EA	RESPONSE FOR EROSION CONTROL
SP	1	EA	CONCRETE WASHOUT STRUCTURE
1746	1	EA	RELOCATE EXISITNG SIGN

SECT	QUANTITY	UNIT	ITEM DESCRIPTION
1705	1,900	LF	SIGNAL CABLE
1705	4	EA	VEHICLE SIGNAL HEAD (12",3 SECTION)
1705	6	EA	VEHICLE SIGNAL HEAD (12",4 SECTION)
1706	1	EA	VEHICLE SIGNAL HEAD (12",5 SECTION)
1715	45	LF	UNPAVED TRENCHING (1 CONDUIT,2 INCH)
1715	35	LF	UNPAVED TRENCHING (2 CONDUITS,2 INCH)
1715	335	LF	DIRECTIONAL DRILL (1 CONDUIT,2 INCH)
1716	8	EA	JUNCTION BOX (STANDARD SIZE)
SP	4	EA	METAL POLE WITH SINGLE MAST ARM
SP	4	EA	SOIL TEST
SP	28	CY	DRILLED PIER FOUNDATION
SP	4	EA	MAST ARM WITH METAL POLE DESIGN
1745	3	EA	SIGN FOR SIGNALS
1750	1	EA	SIGNAL CABINET FOUNDATION
1751	10	EA	DETECTOR CARD (TYPE 170)
1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070LX,BASE MOUNTED)
1753	1	EA	CABINET BASE EXTENDER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	BOX CULVERT EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-EL- 17+84.87 - 19+84.18	67	0	0	10	0	57
SUB TOTAL	67	0	0	10	0	57
SAY	70	0	0	10	0	60

NOTE:

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

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PROJECT REFERENCE NO.	SHEET NO.
W-5702U	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS 03/31/2022

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS 03/31/2022

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NC GRID
NAD 83/NSRS 2007
-EY1- POT Sta. 15+54.36
-EY1- PT Sta. 15+18.95
-EY1- PC Sta. 13+80.18
-EY1- N 36°00'55.7" E
N 62°31'03.8" E
-EY1-C1
PI Sta 14+50.83
Δ = 26° 30' 08.1" (LT)
D = 19° 05' 54.9"
L = 138.77'
T = 70.65'
R = 300.00'
-EY1-C1
PI Sta 12+61.70
Δ = 43° 29' 20.6" (RT)
D = 22° 55' 05.9"
L = 189.76'
T = 99.71'
R = 250.00'
-EY1- PT Sta. 13+51.74
-EY1- PC Sta. 11+61.98
-EY1- POT Sta. 10+00.00
ITAC 192 LLC
530 SE GREENVILLE BLVD
SUITE 200
GREENVILLE, NC 27858
DB 1176 PG 171
3.121 AC
ITAC 192 LLC
530 SE GREENVILLE BLVD
SUITE 200
GREENVILLE, NC 27858
DB 1183 PG 64
0.164 AC
CARL NY CORPORATION
509 EAST 16TH ST.
BROOKLYN, NY 11226
DB 1265 PG 307
0.914 AC
CHICK-FIL-A INC
5200 BUFFINGTON RD
ATLANTA, GA 30349
DB 1257 PG 211
0.93 AC
FCPT RESTAURANT PROPERTIES LLC
1000 DARDEN CENTER DR
ORLANDO, FL 32837
DB 1527 PG 367
1.411 AC
HORSESHOE MHP LLC
PO BOX 188
SIMPSON, NC 27879
DB 1549 PG 488
0.607 AC
WILLIAMS FAMILY PROPERTIES LLC
PO BOX 2385
ATLANTIC BEACH, NC 28512
DB 1179 PG 274
0.642 AC
ITAC 192 LLC
530 SE GREENVILLE BLVD
SUITE 200
GREENVILLE, NC 27858
DB 1176 PG 171
1.285 AC
OCEAN TOWERS LLC
PO BOX 866
NEW BERN, NC 27563
DB 1097 PG 97
1.271 AC
INDUSTRIAL DRIVE
60' R/W
HESTRON DRIVE
-EL- POT Sta. 10+00.00
-EL- POT Sta. 23+50.00
-EL- S 71°13'21.3" E
US 70 (ARENDELL STREET)
EXIST R/W LINE
PROP. SIGNAL CABINET
PROP. MAST ARM POLE
-EY- N 19°01'43.2" E
-EY- N 18°37'34.6" E
-EY- POT Sta. 12+31.92
-EY- POT Sta. 10+00.00
-BL-1
-BL-2
-BL-3
-BL-4
OUTHSTAR HOLDING MHC LLC ETAL
2820 SELWYN AVE. #425
CHARLOTTE, NC 28209
DB 1212 PG 119
18.64 AC
HULL, LNN J ETAL TRUSTEE HULL
6318 RIDGE MANOR AVE.
SAN DIEGO, CA 92120
DB 1156 PG 147
1.523 AC
MCDONALDS REAL ESTATE COMPANY
118 MARKET ST
NEW BERN, NC 28560
DB 1342 PG 321
1.215 AC
USPG PORTFOLIO FIVE LLC
3665 FISHINGER BLVD
HILLIARD, OH 43026
DB 1443 PG 410
26.45 AC
5.5' RAD
-EL- +85.21 EXIST.
-EL- +84.87 6.25' RT
-EL- +84.18 EXIST.
REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5702U	PM1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	TRAFFIC DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS 03/31/2022	NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS 03/31/2022

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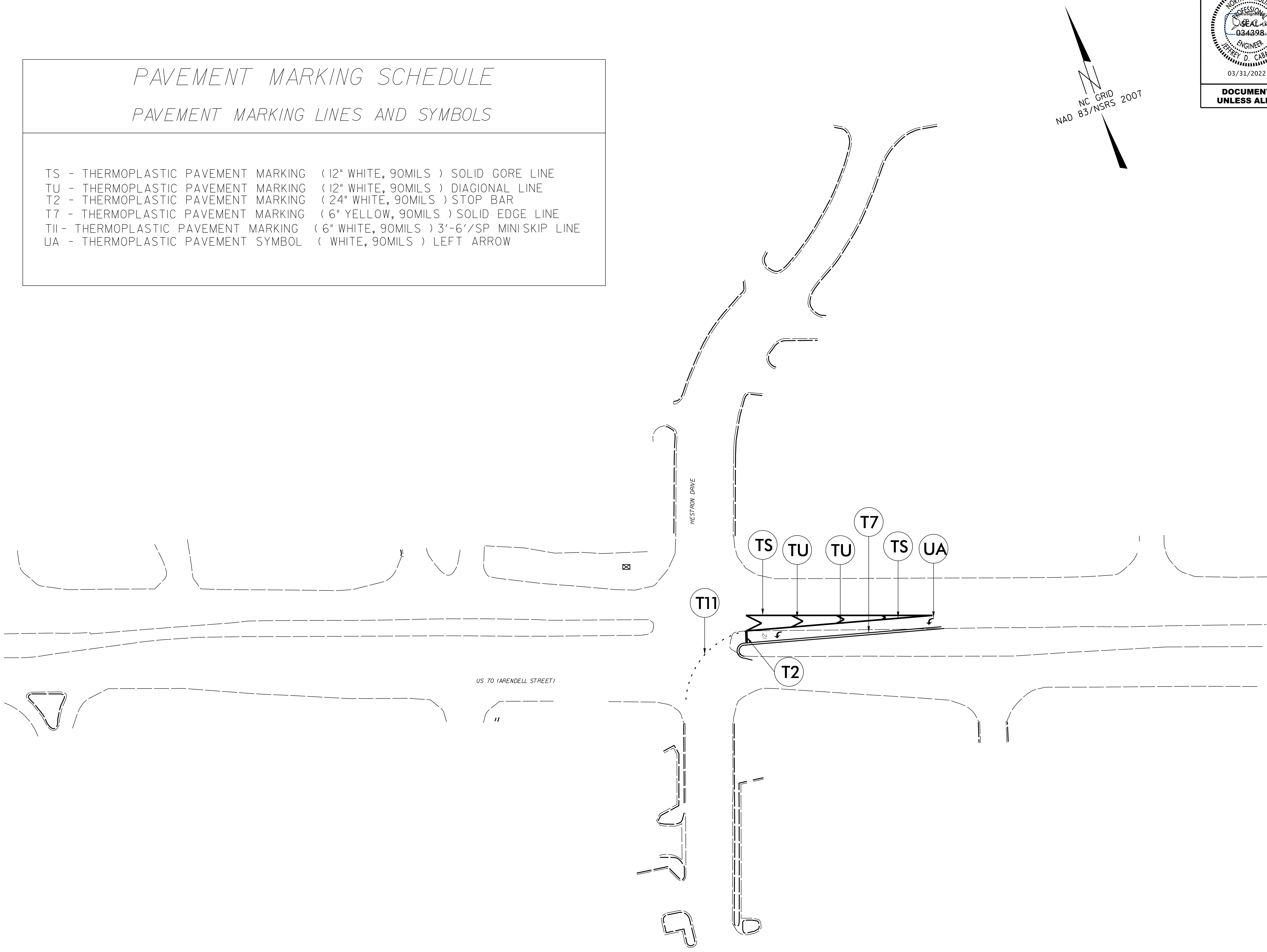
PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES AND SYMBOLS

TS - THERMOPLASTIC PAVEMENT MARKING (12" WHITE, 90MILS) SOLID GORE LINE
TU - THERMOPLASTIC PAVEMENT MARKING (12" WHITE, 90MILS) DIAGIONAL LINE
T2 - THERMOPLASTIC PAVEMENT MARKING (24" WHITE, 90MILS) STOP BAR
T7 - THERMOPLASTIC PAVEMENT MARKING (6" YELLOW, 90MILS) SOLID EDGE LINE
T11 - THERMOPLASTIC PAVEMENT MARKING (6" WHITE, 90MILS) 3'-6'/SP MINISKIP LINE
UA - THERMOPLASTIC PAVEMENT SYMBOL (WHITE, 90MILS) LEFT ARROW



REVISIONS

8/17/99

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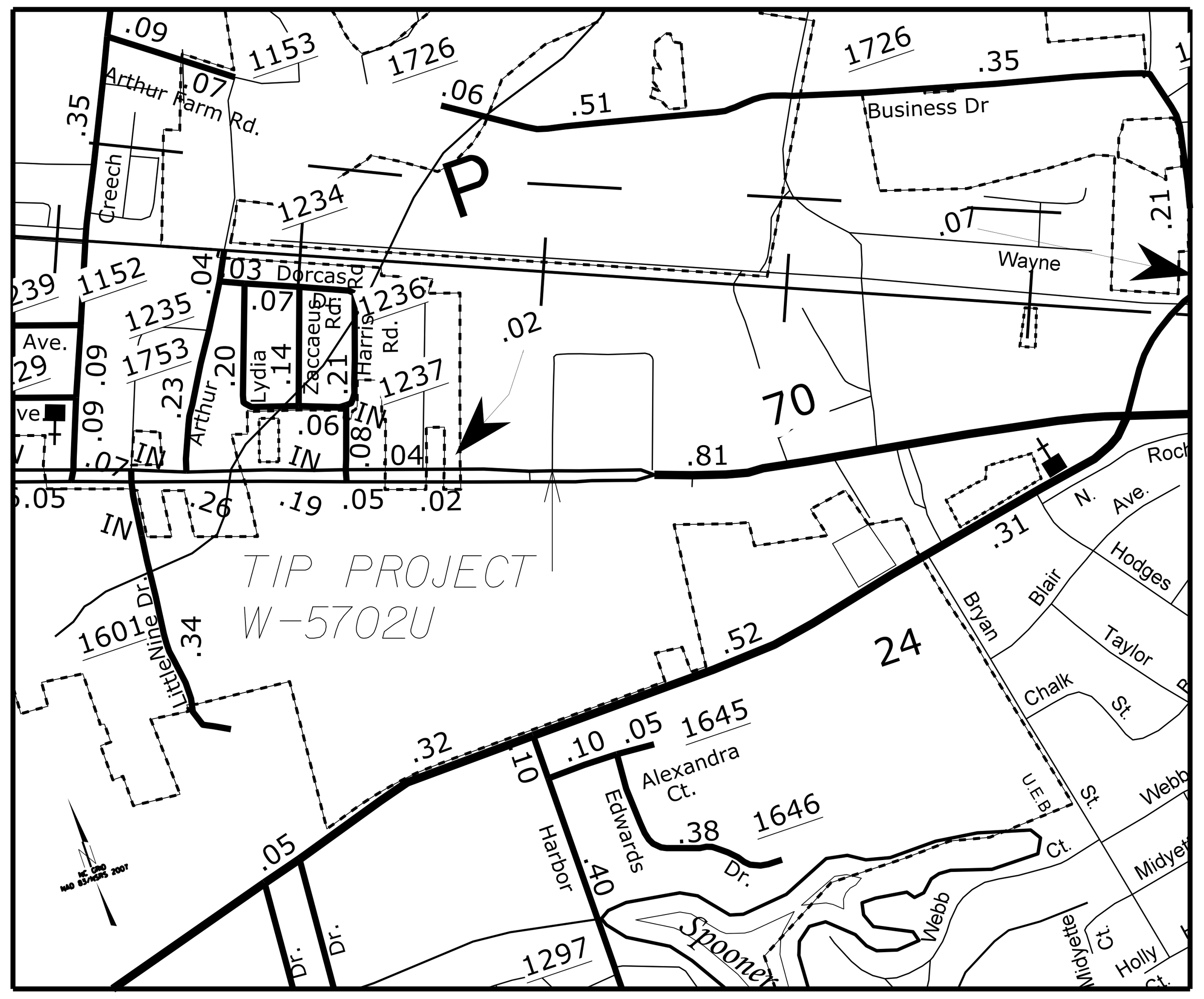
$$$$USERNAME$$$$

TIP PROJECT: W-5702U

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5702U	EC-1	2

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44848.1.21	0070234	PE
44848.2.21	0070234	RW
44848.3.21	0070234	CONST

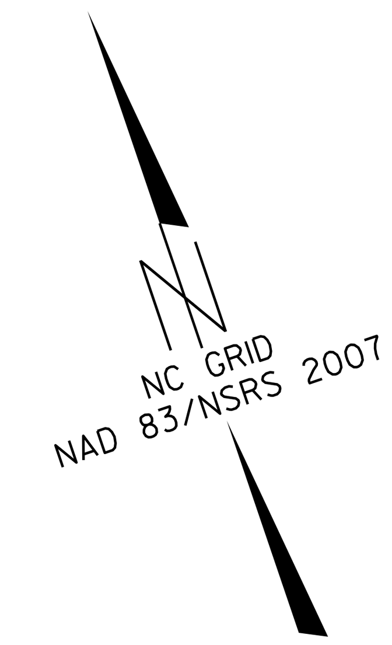


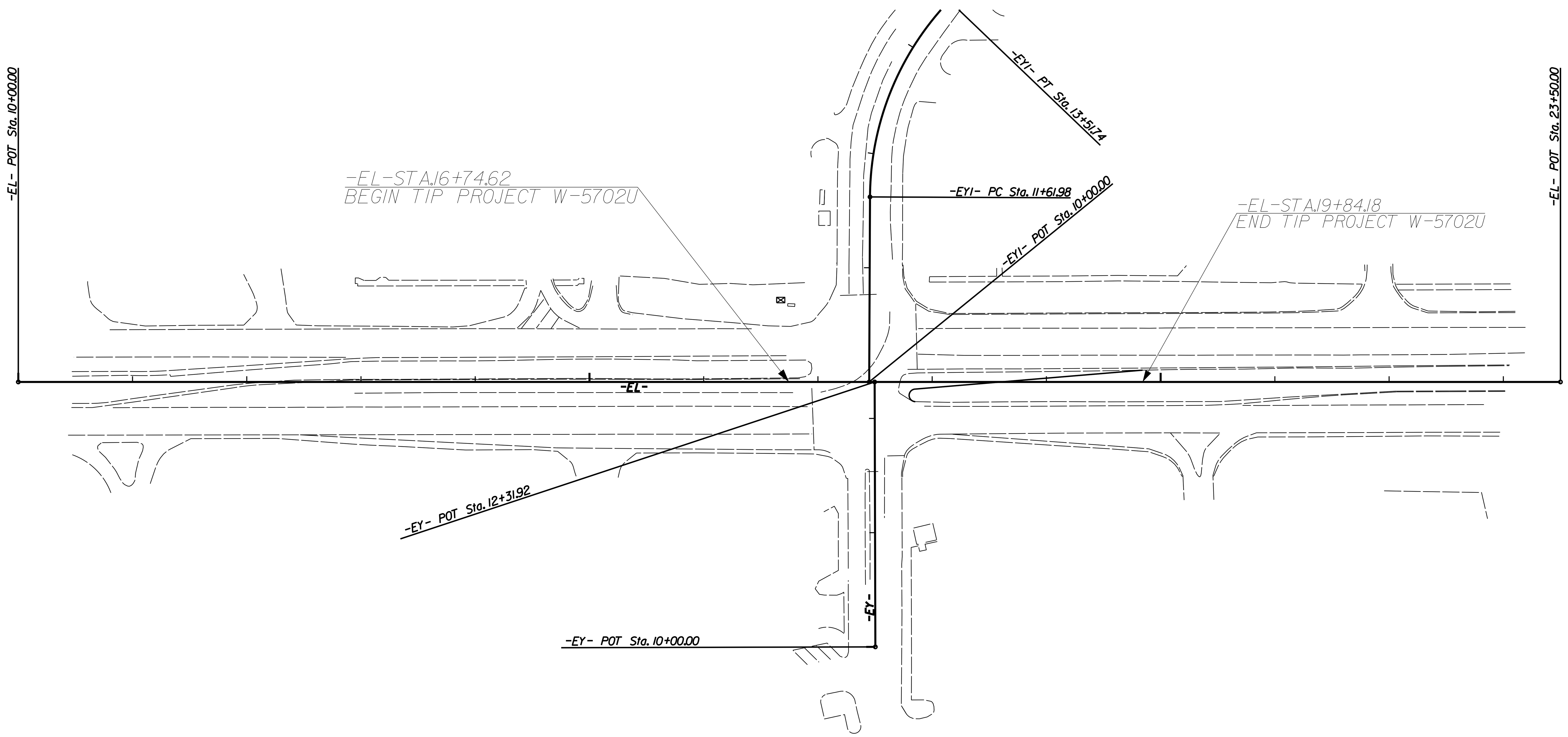
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

LOCATION: US 70 AT HESTRON DRIVE / CRYSTAL COAST PLAZA

CARTERET COUNTY





Std.#	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle	
	Wattle with Polyacrylamide (PAM)	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	

GRAPHIC SCALE

25 0 50

PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

2018 STANDARD SPECIFICATIONS

Prepared In the Office of:

DIVISION OF HIGHWAYS

1037 WH SMITH BLVD
GREENVILLE, NC 27835

Rich Godley
Level III
Certification #3559

Roadway Standard Drawings

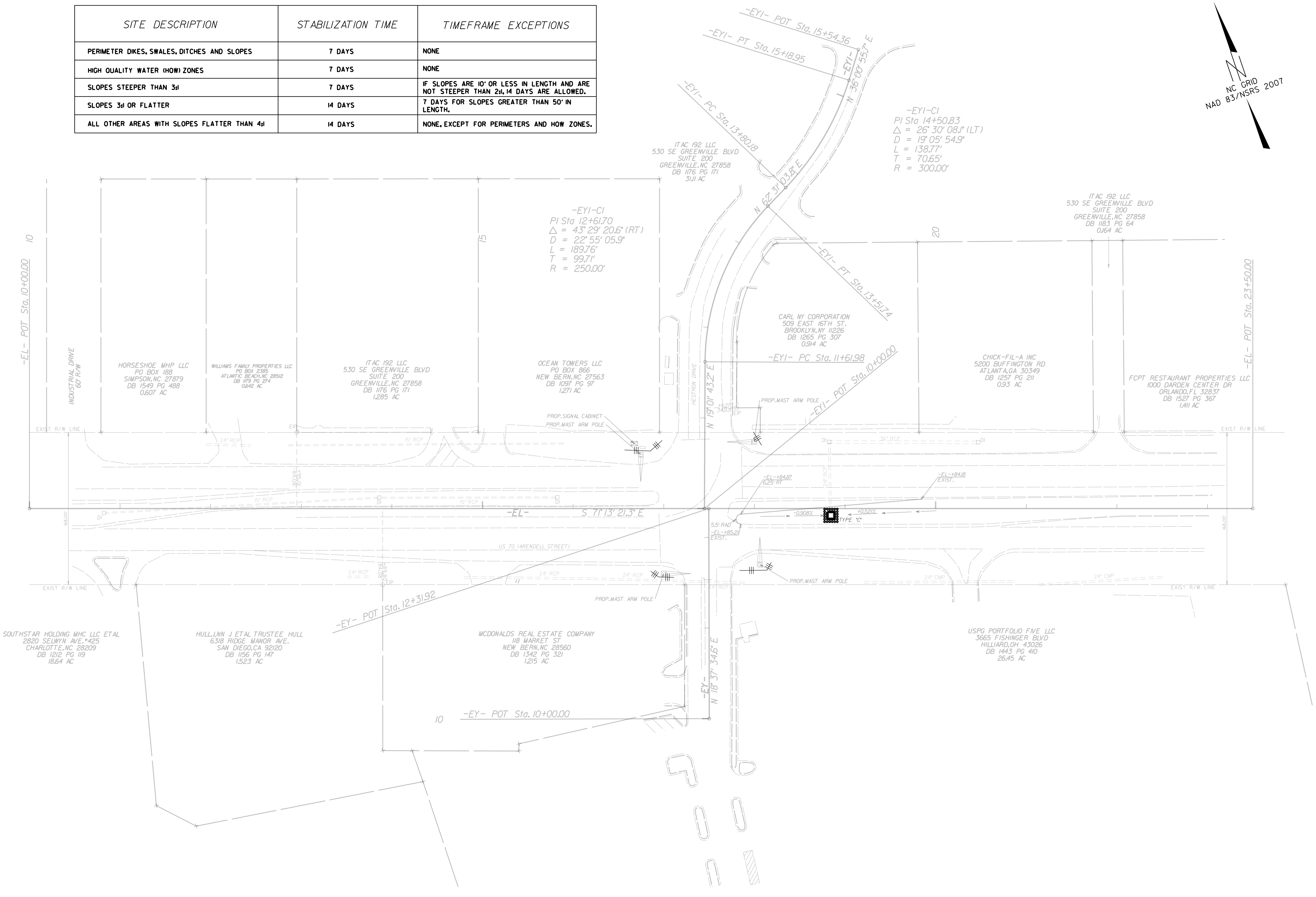
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.01	Riser Basin
1630.02	Silt Basin Type B
1630.03	Temporary Silt Ditch
1630.04	Stilling Basin
1630.05	Temporary Diversion
1630.06	Special Stilling Basin
1631.01	Matting Installation
1632.01	Rock Inlet Sediment Trap Type A
1632.02	Rock Inlet Sediment Trap Type B
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A
1633.02	Temporary Rock Silt Check Type B
1634.01	Temporary Rock Sediment Dam Type A
1634.02	Temporary Rock Sediment Dam Type B
1635.01	Rock Pipe Inlet Sediment Trap Type A
1635.02	Rock Pipe Inlet Sediment Trap Type B
1640.01	Coir Fiber Baffle
1645.01	Temporary Stream Crossing

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	EC2

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.



REVISIONS

8/17/99

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

CROSS-SECTION SUMMARY

IN CUBIC YARDS

LOCATION (–EL–)	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT
17 + 84.87	*0*		*0*
18 + 00.00	*7*		*0*
18 + 50.00	*22*		*0*
18 + 83.91	*12*		*4*
19 + 00.00	*3*		*2*
19 + 50.00	*12*		*3*
19 + 84.18	*11*		*1*

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

NOTE:

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5702U	X-1

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

30 20 10

20+50.00

EXISTING 17.5

20+00.00

EXISTING 16.42 137d 110d 17.4

19+84.18

18.59 27.4 % 87d 14d 17.2

19+50.00

18.52 2.63 % 58d 50d 16.9

19+00.00

19.56 2.43 % 53d 45d 16.9

18+83.91

19.56 2.43 % 35d 41d 17.0

18+50.00

18.41 2.03 % 17.8

18+00.00

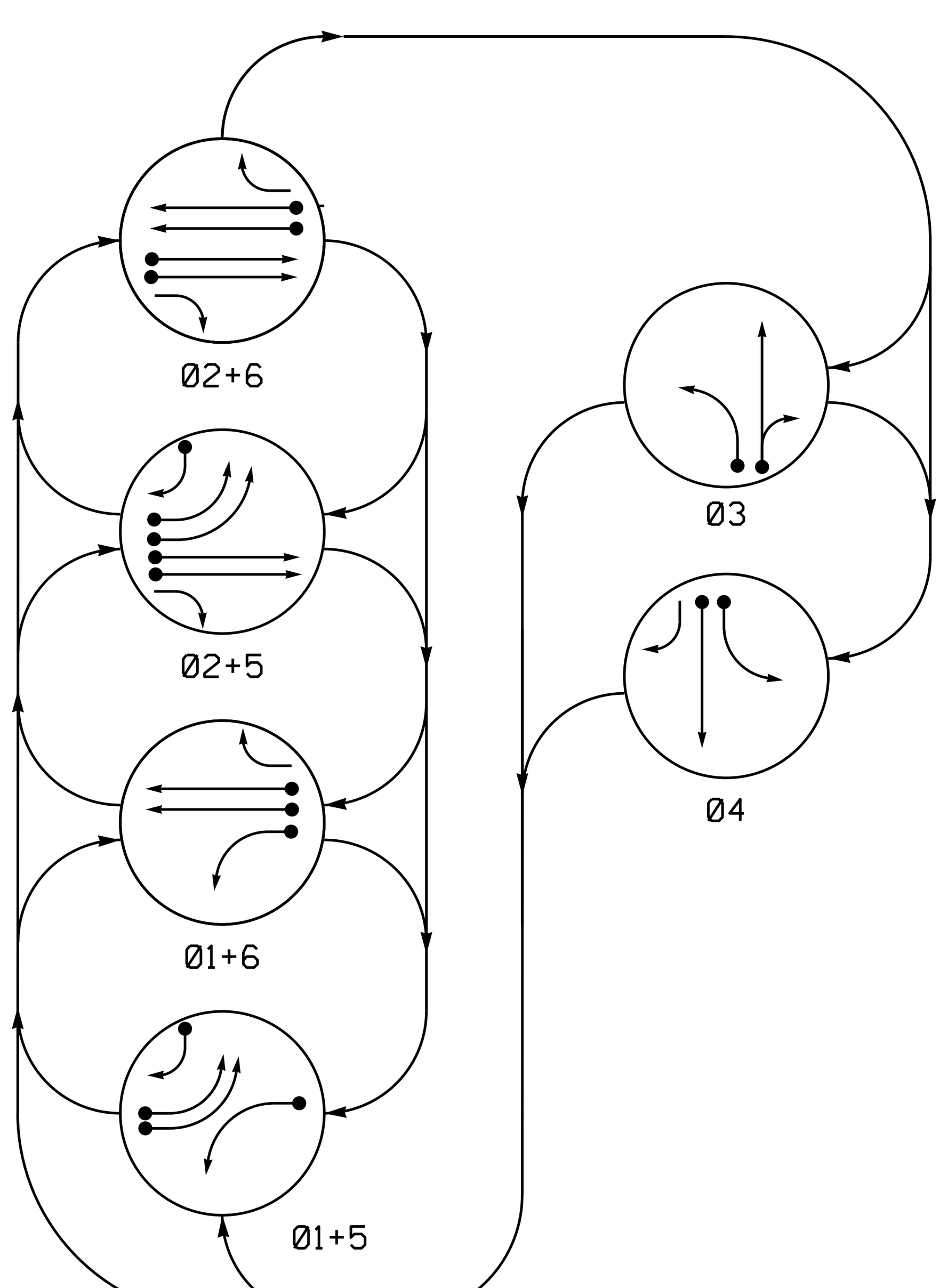
18.31 2.40 % 17.8

17+84.87

—EL—

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	Sig. 2.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

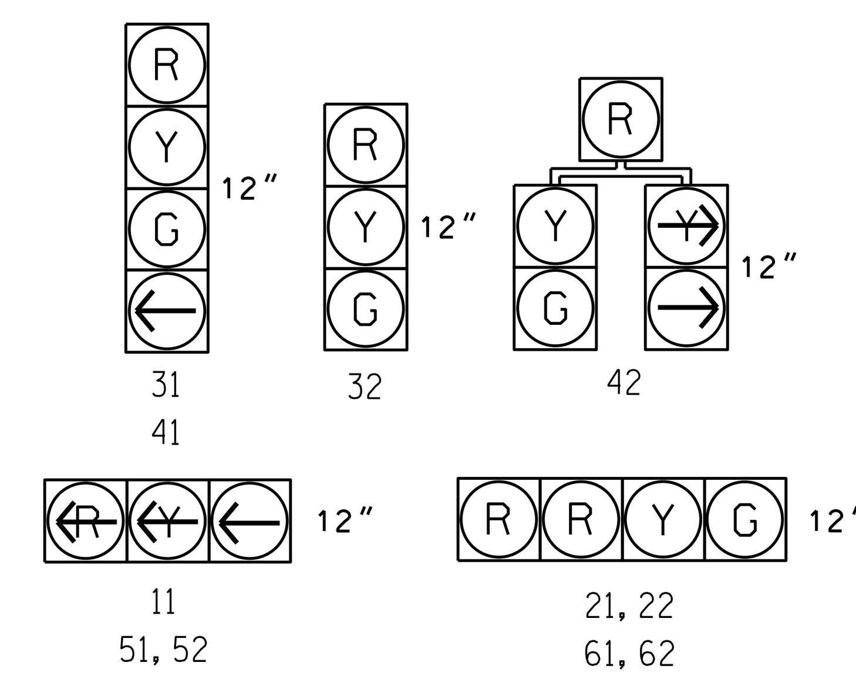
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	FLASH
11	←	←	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	Y
31	R	R	R	R	G/←	R	R
32	R	R	R	R	G	R	R
41	R	R	R	R	R	G/←	R
42	R/→	R	R/→	R	R	G	R
51,52	←	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



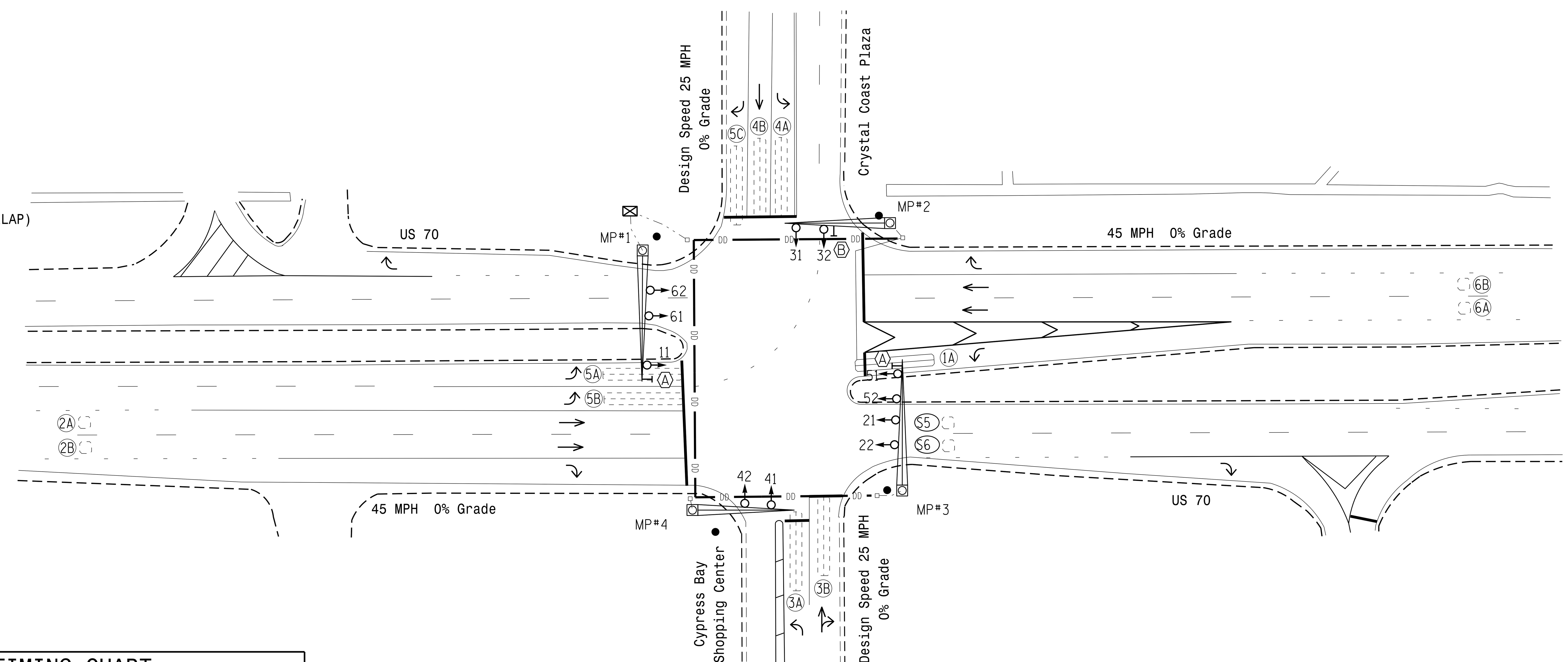
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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	6X40	+5	2-4-2	Y	1	Y	Y	-	-	-	-	Y
2A	6X6	300	EXIST	-	2	Y	Y	-	-	-	-	Y
2B	6X6	300	EXIST	-	2	Y	Y	-	-	-	-	Y
3A	6X40	+5	2-4-2	-	3	Y	Y	-	-	3	-	Y
3B	6X40	0	2-4-2	-	3	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-	Y
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	-	-	Y
5B	6X40	0	2-4-2	-	5	Y	Y	-	-	-	-	Y
5C	6X40	+5	2-4-2	-	5	Y	Y	-	-	15	-	Y
6A	6X6	300	EXIST	-	6	Y	Y	-	-	-	-	Y
6B	6X6	300	EXIST	-	6	Y	Y	-	-	-	-	Y
S5	6X6	+130	EXIST	-	-	-	-	-	-	-	Y	Y
S6	6X6	+130	EXIST	-	-	-	-	-	-	-	Y	Y

6 Phase
Fully Actuated
US 70 Morehead City CLS 3
Signal System #D02-13

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
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. Set all detector units to presence mode.
6. 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.
7. Pavement markings are existing.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



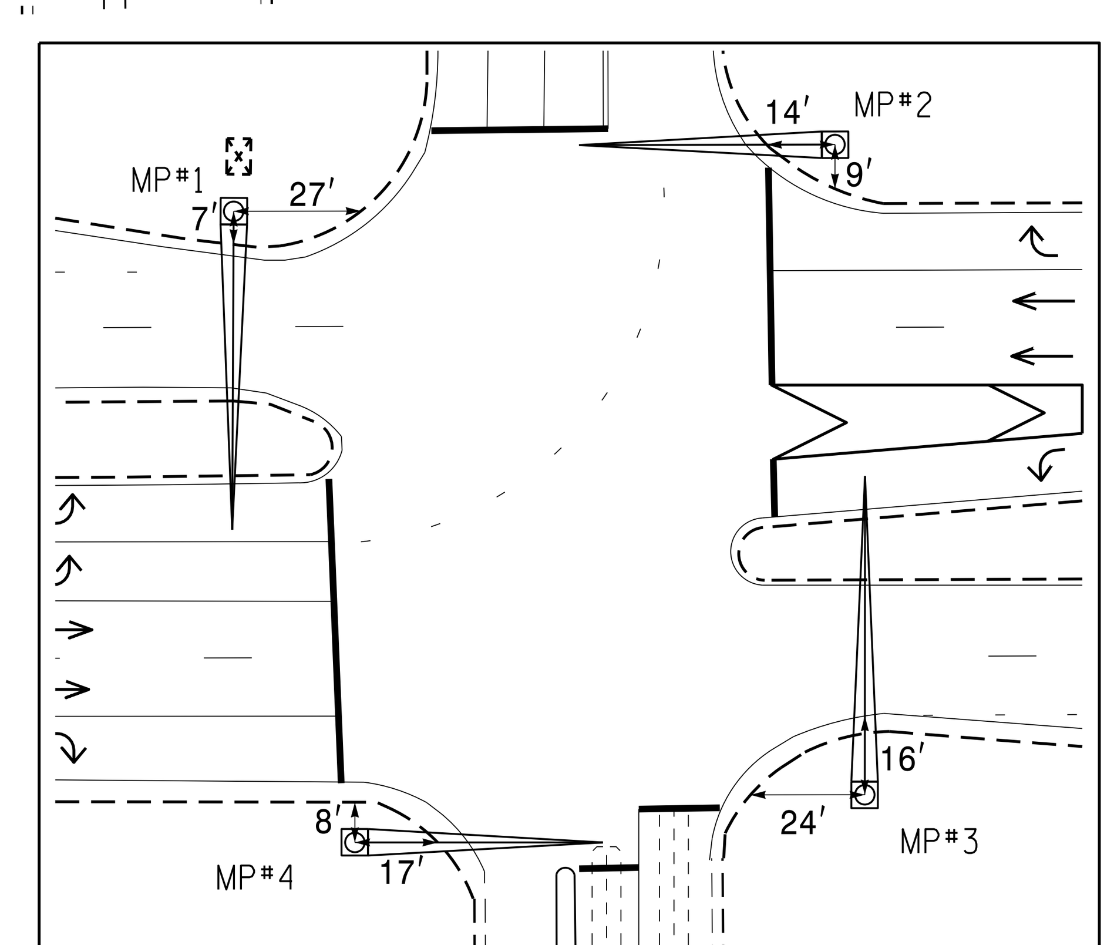
LEGEND

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	
Ⓐ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓐ
Ⓑ	"NO TURN ON RED" Sign (R10-11)	Ⓑ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	30	125	30	30	30	125
Yellow Clearance	3.0	4.5	3.2	3.2	3.0	4.5
Red Clearance	3.8	1.5	3.5	3.4	3.8	1.6
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	45	-	-	-	45
Minimum Gap	-	3.0	-	-	-	3.0
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.



METAL POLE LOCATIONS

Signal Upgrade

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

SCALE 0 40 1"=40

US 70
at
Crystal Coast Plaza/
Cypress Bay Shopping Center

Division 2 Carteret County Morehead City

PLAN DATE: July 2020	REVIEWED BY: MEL
PREPARED BY: Jeff Spence	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 042608 ENGINEER MEGHAN E. LEBLANC

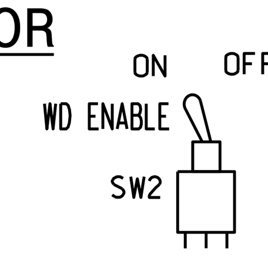
DocuSigned by: Meghan LeBlanc B236DA823630498 10/7/2020 DATE

SIG. INVENTORY NO. 02-0575

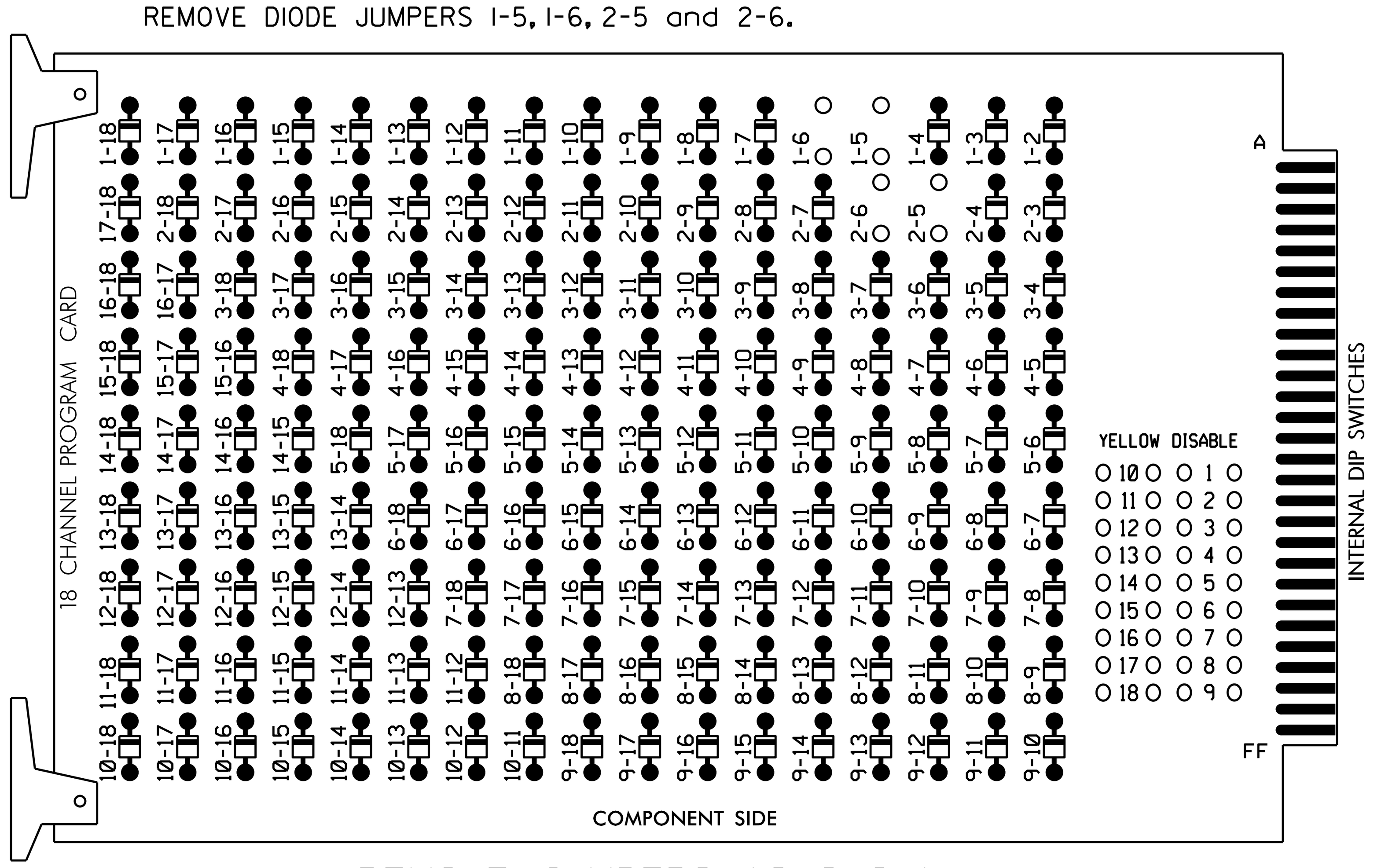
PROJECT REFERENCE NO.	SHEET NO.
W-5702U	Sig. 2.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

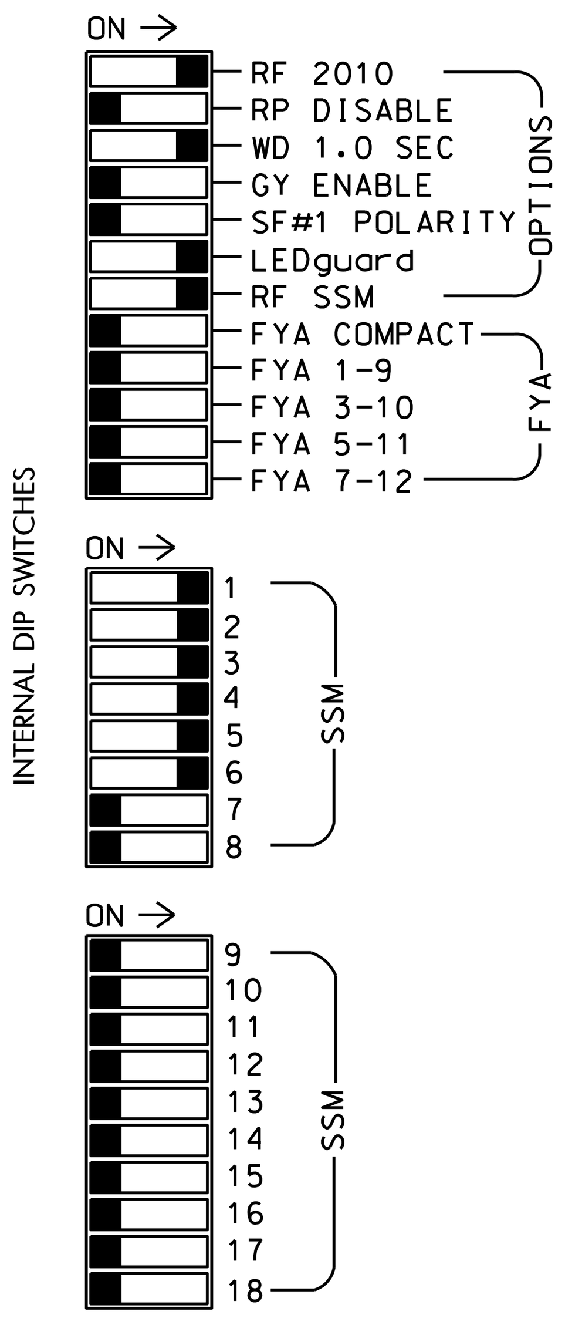
(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 2-5 and 2-6.



REMOVE JUMPERS AS SHOWN



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

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. Enable Simultaneous Gap-Out for all Phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Startup In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the US 70 Morehead City CLS 3 Signal System #D02-13.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S4,S5,S7,S8
PHASES USED.............1,2,3,4,5,6
OVERLAPS................NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7		S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3		4		14	5		6	15	7	8	16
PHASE	1	2	2 PED	3		4		4 PED	5		6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31	32	41	42	NU	42	51,52	61,62	NU	NU	NU	NU
RED		128		116	116	101	101				134				
YELLOW		129		117	117	102	102				135				
GREEN		130		118	118	103	103				136				
RED ARROW	125									131					
YELLOW ARROW	126								132	132					
GREEN ARROW	127			118		103			133	133					

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø1 1A	Ø2 2A	SLOT EMPTY	Ø3 3A	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S5	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		Ø3 3B	Ø2 2B		NOT USED	Ø4 4B			SYS. DET. S6					ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø5 5B	Ø6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø5 5C	Ø6 6B											

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

FS = FLASH SENSE
ST = STOP TIME

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			
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
3B	TB2-7,8	I2L	43	5	12	3	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			
5C	TB3-7,8	J2L	44	6	16	5	Y	Y			15
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	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					

* 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: 02-0575
DESIGNED: July 2020
SEALED: 10/7/2020
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

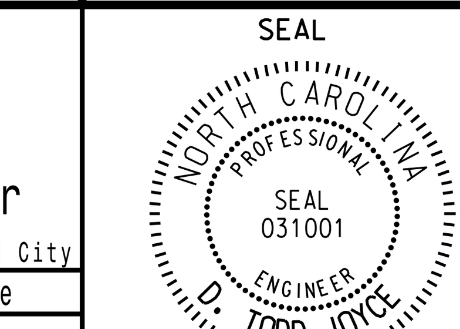
US 70
at
Crystal Coast Plaza/
Cypress Bay Shopping Center

Division 2 | Carteret County | Morehead City

PLAN DATE: September 2020 | REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland | REVIEWED BY:

REVISIONS | INIT. | DATE

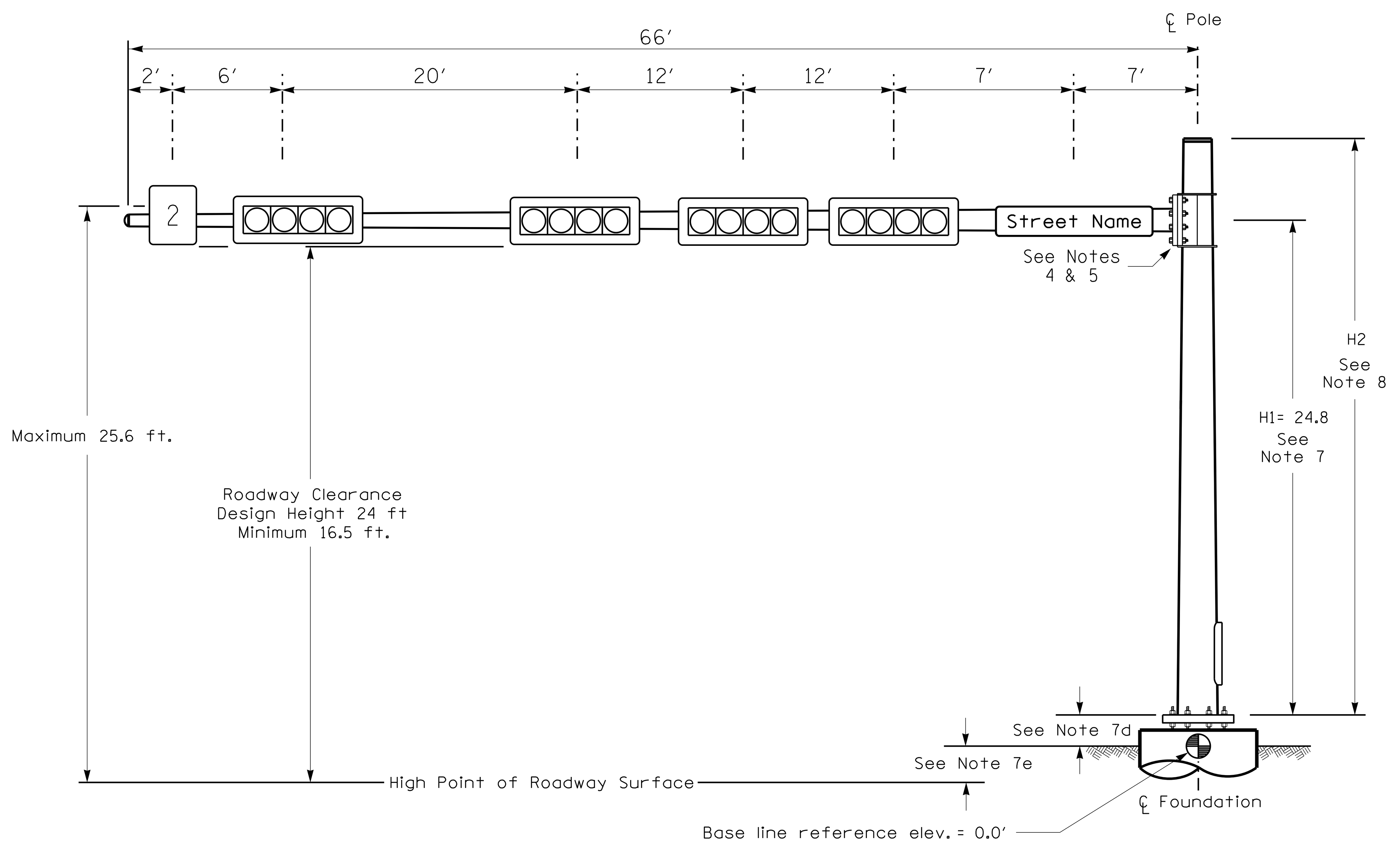
SEAL



DocuSigned by:
10/12/2020
DATE

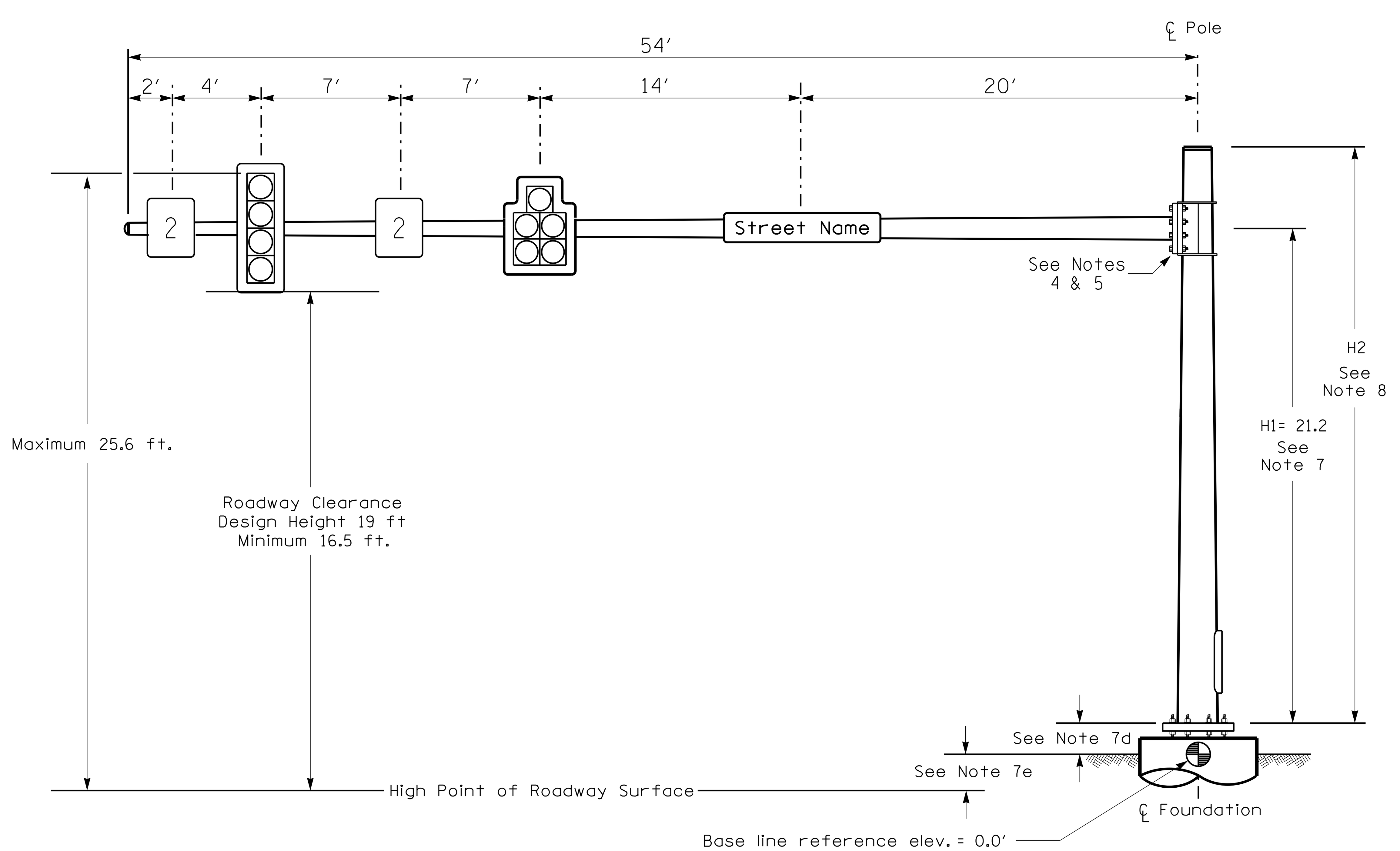
SIG. INVENTORY NO. 02-0575

Design Loading for METAL POLE NO. 1



Elevation View

Design Loading for METAL POLE NO. 2



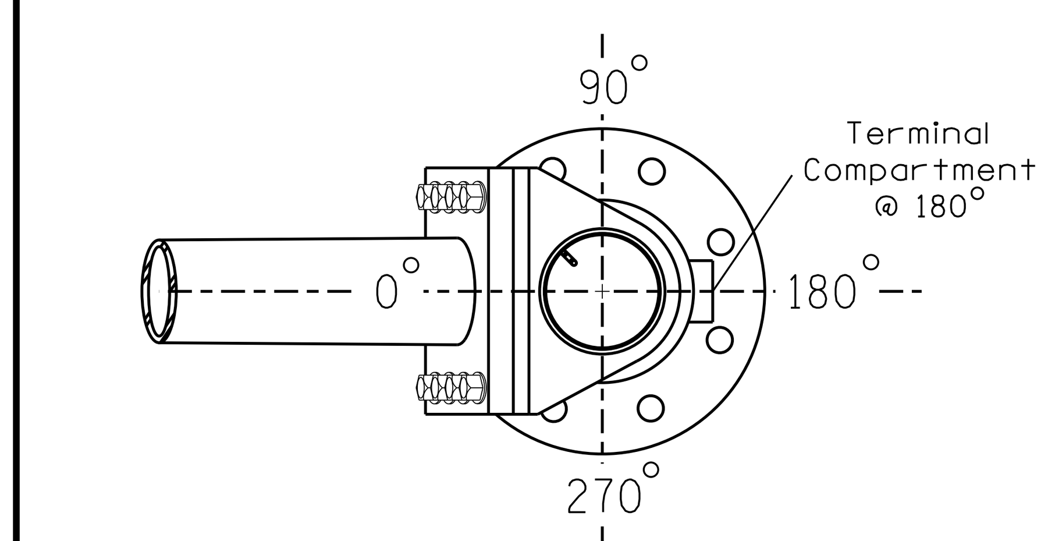
Elevation View

SPECIAL NOTE

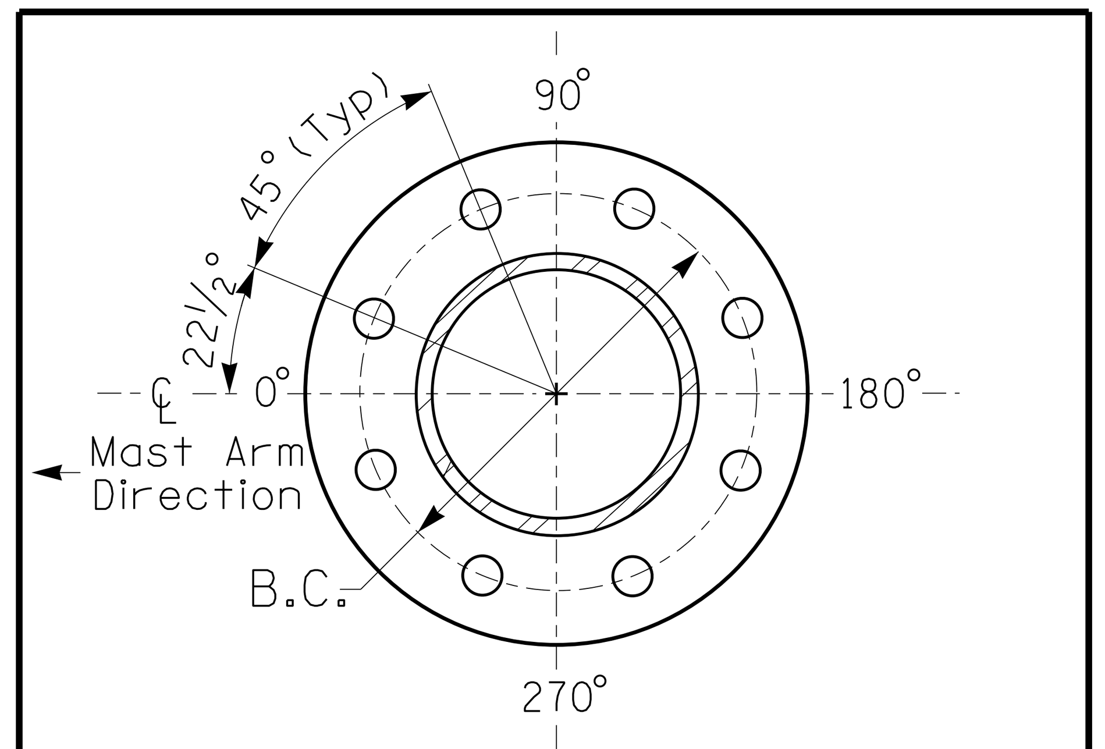
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	Pole 2
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+0.5 ft.	+0.2 ft.
Elevation difference at Edge of travelway or face of curb	N/A	N/A

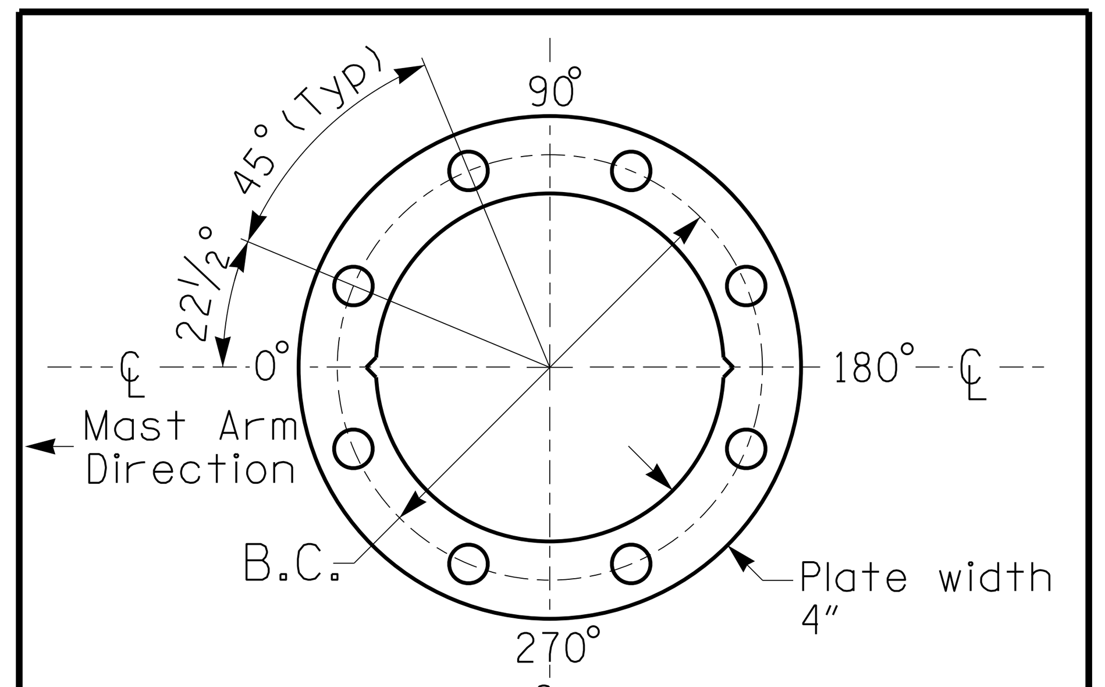


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0" L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	12.0 S.F.	18.0" W X 96.0" L	27 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-5 SECTION-WITH BACKPLATE	16.3 S.F.	42.0" W X 56.0" L	103 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2018 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 2 (130 mph)

Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 70
at
Crystal Coast Plaza /
Cypress Bay Shopping Center

Division 2 | Carteret County | Morehead City

PLAN DATE: May 2021 | REVIEWED BY: MEL
PREPARED BY: Jeff Spence | REVIEWED BY:

SCALE 0 N/A
N/A

REVISIONS | INIT. | DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042608 MEGHAN E. LEBLANC

DocuSigned by: Meghan E LeBlanc 5/21/2021

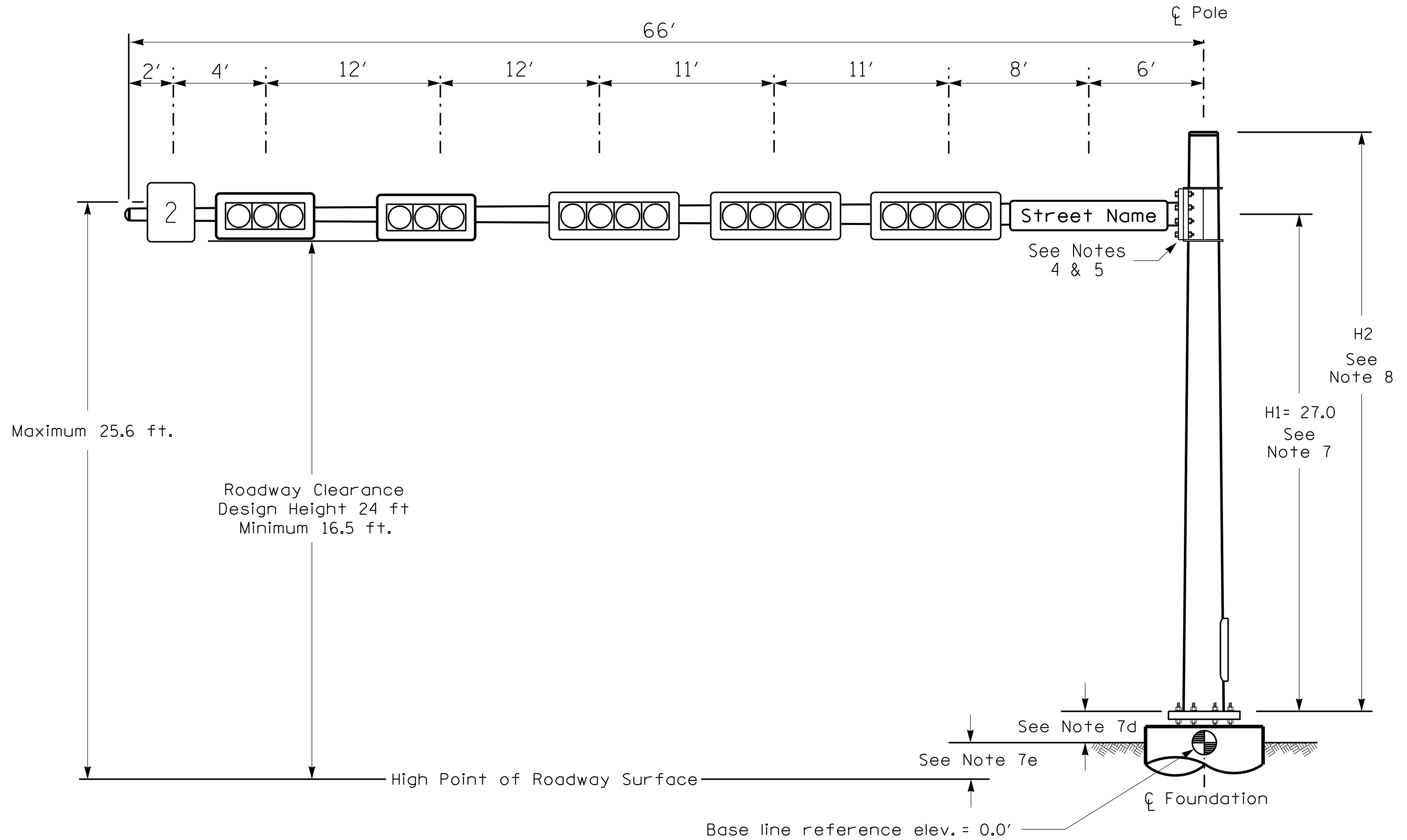
DATE

SIG. INVENTORY NO. 02-0575

21-MAY-2021 17:44
*020575_sig_dsn_20201007.dgn
meleblanc

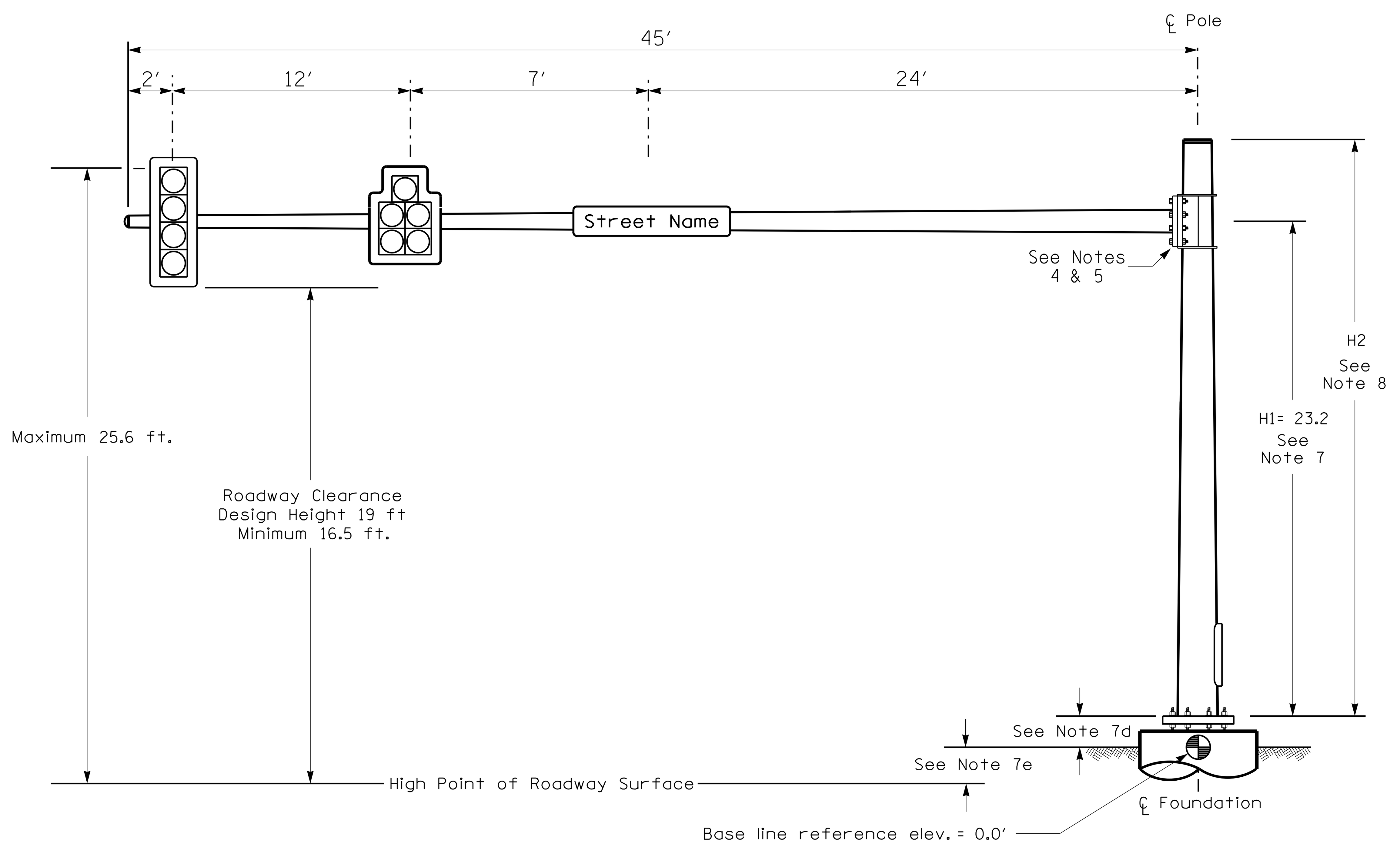
PROJECT REFERENCE NO.	SHEET NO.
W-5702U	Sig. 2.3

Design Loading for METAL POLE NO. 3



Elevation View

Design Loading for METAL POLE NO. 4



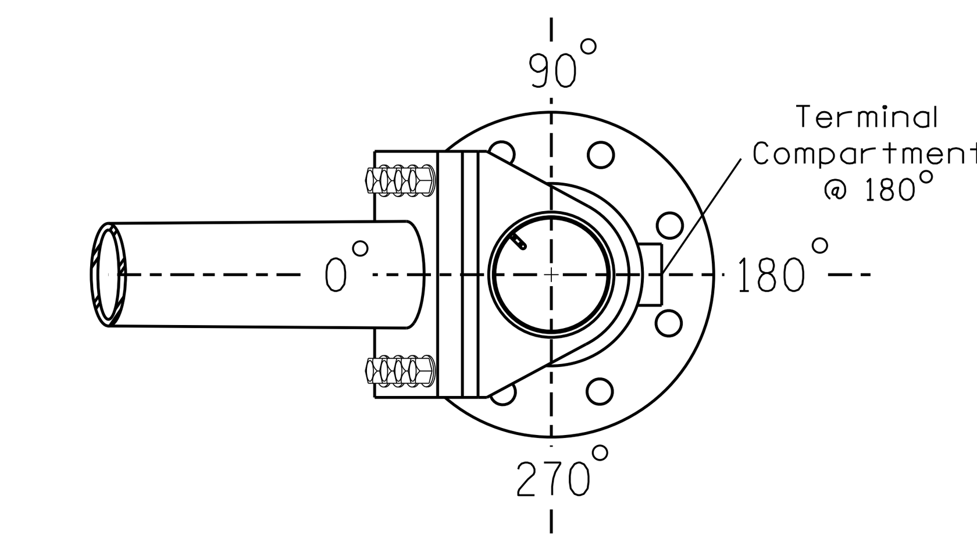
Elevation View

SPECIAL NOTE

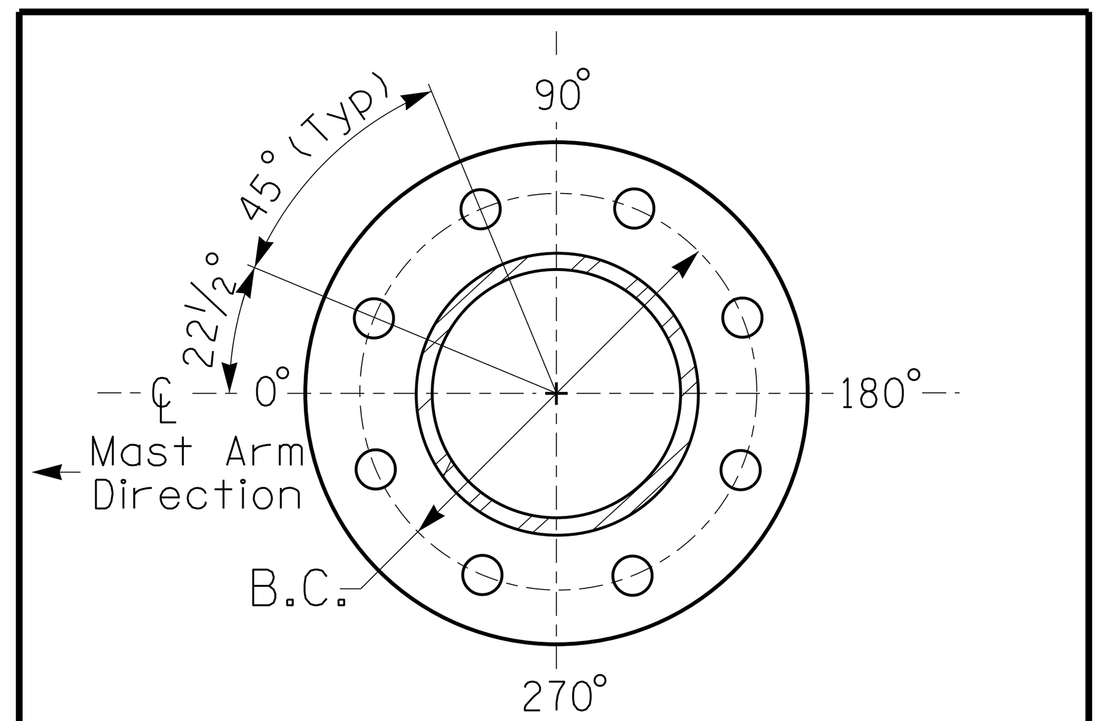
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 3	Pole 4
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+2.6 ft.	+2.1 ft.
Elevation difference at Edge of travelway or face of curb	N/A	N/A

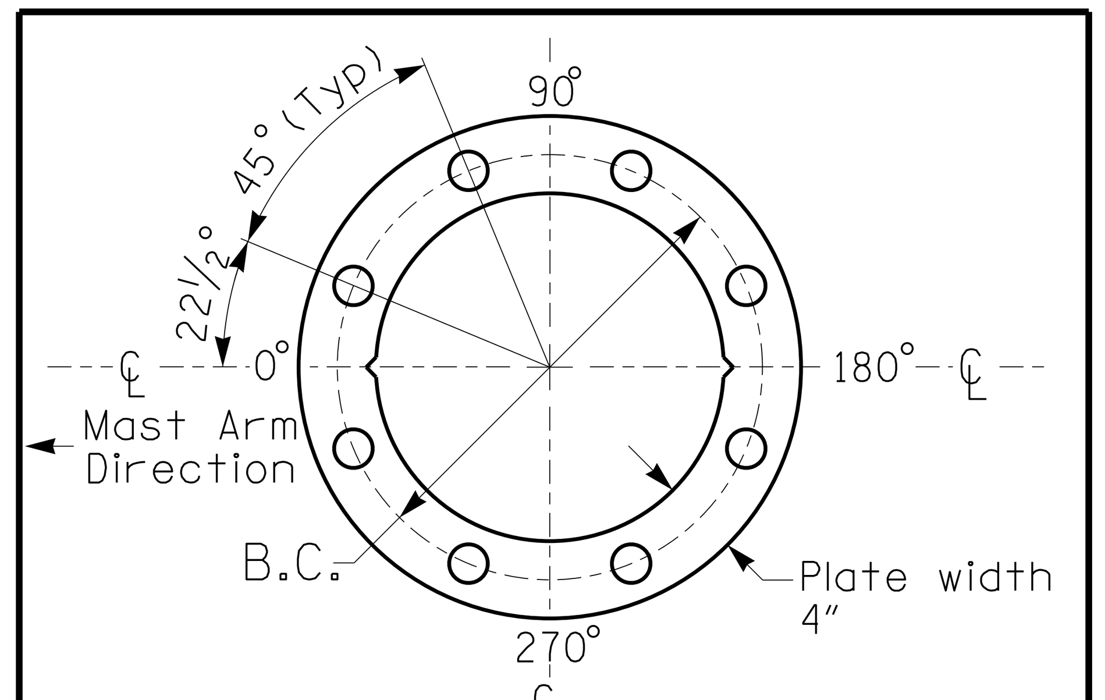


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
(3-section head)	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″W X 52.5″L	60 LBS
(4-section head)	RIGID MOUNTED SIGNAL HEAD 12″-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5″W X 66.0″L	74 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0″W X 36.0″L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	12.0 S.F.	18.0″W X 96.0″L	27 LBS
(4-section vertical head)	RIGID MOUNTED SIGNAL HEAD 12″-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5″W X 66.0″L	74 LBS
(5-section head)	RIGID MOUNTED SIGNAL HEAD 12″-5 SECTION-WITH BACKPLATE	16.3 S.F.	42.0″W X 56.0″L	103 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2018 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
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NCDOT Wind Zone 2 (130 mph)

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

US 70
at
Crystal Coast Plaza /
Cypress Bay Shopping Center

Division 2 | Carteret County | Morehead City

PLAN DATE:	May 2021	REVIEWED BY:	MEL
PREPARED BY:	Jeff Spence	REVIEWED BY:	

SCALE: 0 N/A — N/A

REVISIONS	INIT.	DATE

SEAL: North Carolina Professional Engineer Seal 042608 Meghan E. LeBlanc

DocuSigned by: Meghan E LeBlanc 5/21/2021

SIG. INVENTORY NO. 02-0575

TIP PROJECT: W-5702U

CONTRACT: DB00537

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5702U	1	15

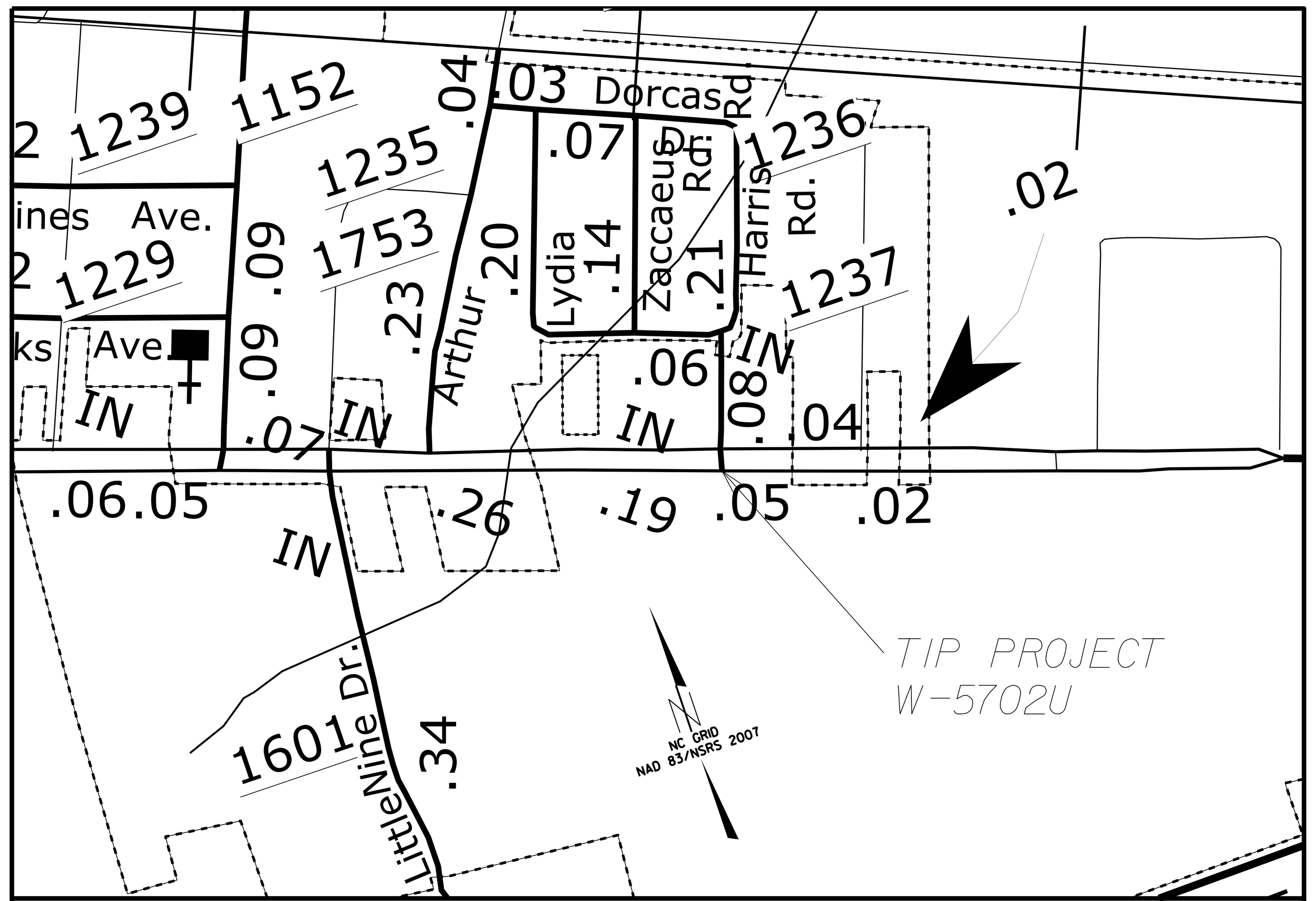
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44848.1.21	0070234	PE
44848.2.21	0070234	R/W-UTILITY
44848.3.21	0070234	CONST

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

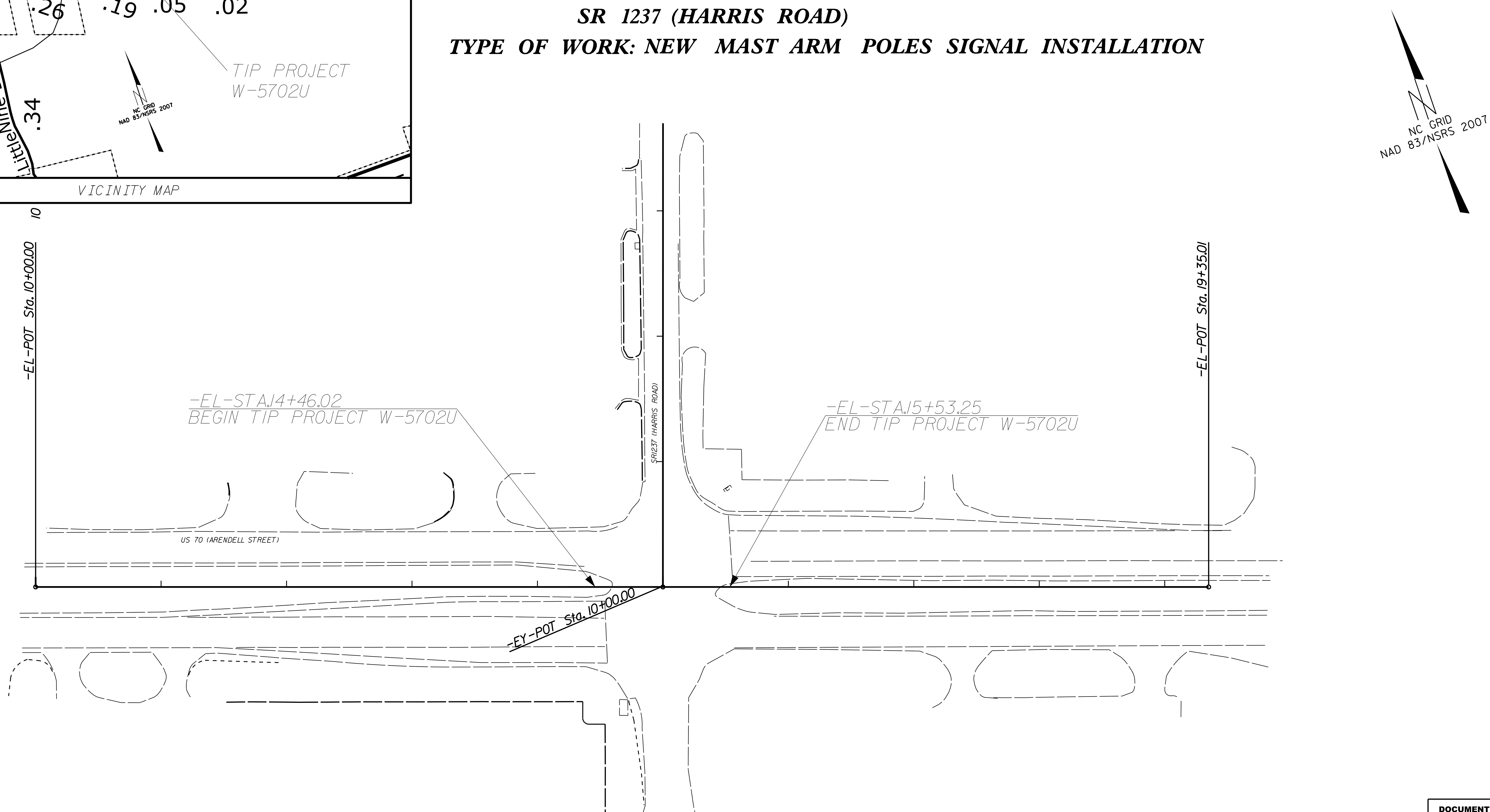
CARTERET COUNTY

LOCATION: US 70 (ARENDELL STREET) AT SR 1237 (HARRIS ROAD)

TYPE OF WORK: NEW MAST ARM POLES SIGNAL INSTALLATION



VICINITY MAP



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 37,000

FUNC CLASS = ARTERIAL

PROJECT LENGTH

PROJECT LENGTH TIP W-5702U = 0.020 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

1037 WH SMITH BLVD., GREENVILLE, NC 27835

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 2021

LETTING DATE: JUNE 2022

JEFFREY D. CABANISS, PE
PROJECT ENGINEER

RICH GODLEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS

SIGNATURE: 03/31/2022 P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS

SIGNATURE: 03/31/2022 P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
RW02C-1 THRU RW04	SURVEY CONTROL SHEETS
3	SUMMARY OF QUANTITIES
4	PLAN SHEET
EC-1 THRU EC-2	EROSION CONTROL PLANS
SIG-1.0 THRU SIG-1.3	SIGNAL PLANS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

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 ENGERY
- CENTURYLINK
- CAROLINA WATER SERVICE INC OF NC
- NCDOT
- TOWN OF MOREHEAD CITY
- PIEDMONT NATURAL GAS COMPANY
- SEGRA
- SCOUT COMMUNICATIONS
- CROWN CASTLE
- TIME WARNER CABLE

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	
200.02	Method of Clearing - Method II

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	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

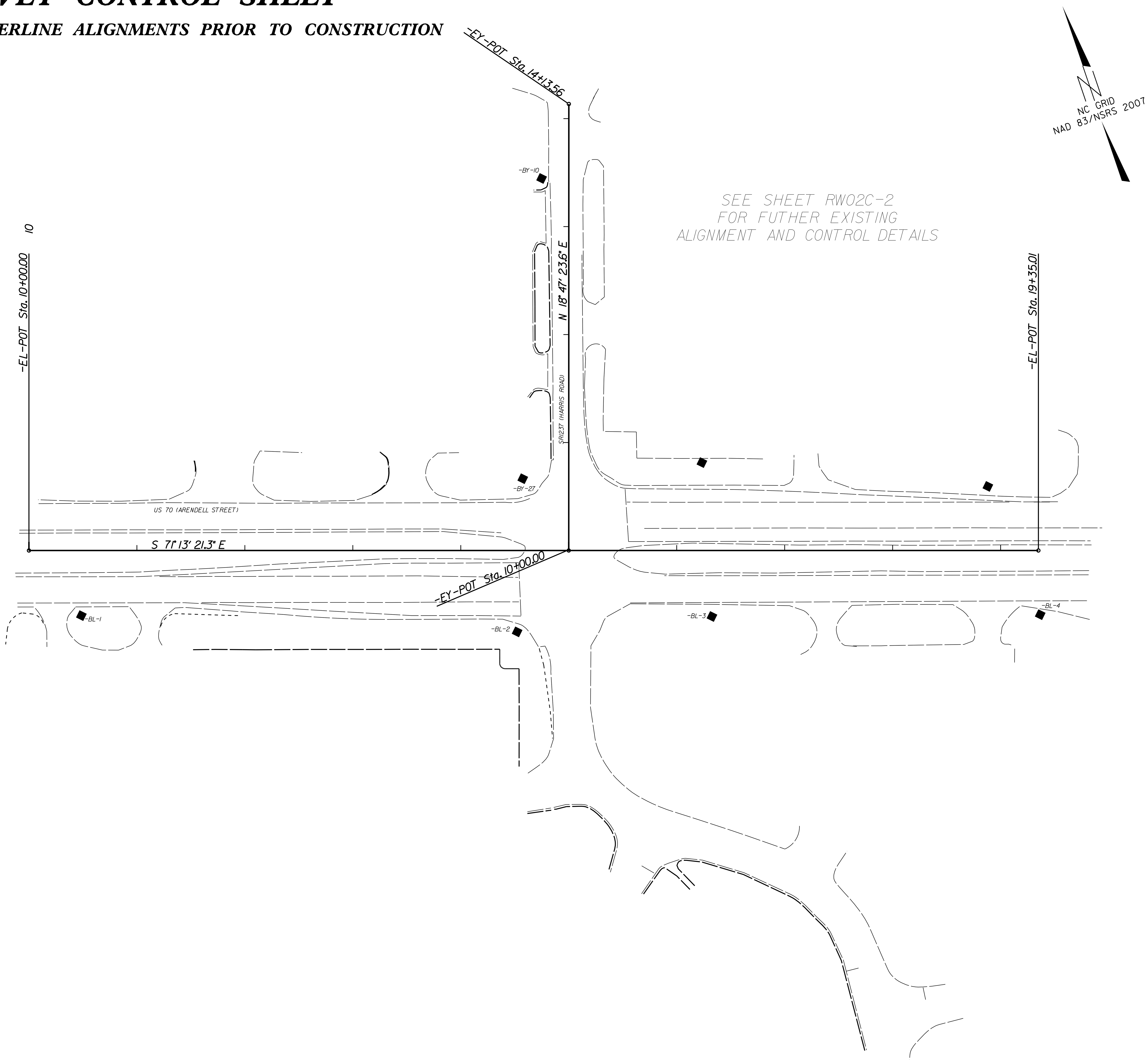
MISCELLANEOUS:

- 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.
W-5702U	RW02C-1

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



NOTES:

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

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
W-5702U	RW02C-2

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION	BL STATION	OFFSET
1	-BL-1	367442.6760	2657025.2560	14.61	5+00.00	0.00
2	-BL-2	367298.4990	2657402.5260	14.18	9+03.88	0.00
3	-BL-3	367253.8860	2657577.9830	13.96	10+84.92	0.00
4	-BL-4	367157.6250	2657866.3880	14.90	13+88.97	0.00

BY

POINT	DESC.	NORTH	EAST	ELEVATION	BY STATION	OFFSET
27	-BY-27	367431.1240	2657453.1470	14.98	5+00.00	0.00
10	-BY-10	367688.7820	2657559.1690	14.49	7+78.62	0.00

EXISTING ALIGNMENT DESCRIPTION

EL

POINT	N	E	BEARING	DIST
POT	367515.421	2656998.703		
LINE			S 71°13'21.3" E	935.01
POT	367214.447	2657883.951		

EY

POINT	N	E	BEARING	DIST
POT	367354.475	2657472.091		
LINE			N 18°47'23.6" E	413.56
POT	367745.991	2657605.297		

NOTES:

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

REVISIONS

8/17/99

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RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	RW03E-1

PROJECT PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5303 LAND SURVEYOR CASEY KENNETH WHITLEY
DocuSigned by:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Casey Kenneth Whitley, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 9th day of February, 2022.

\-----------------------------
Professional Land Surveyor   L-5303 PLS #   Seal

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
EL	13+92.26	84.00	367309.6268	2657343.0439
EL	14+61.54	94.00	367277.8621	2657405.4218

NOTES:

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

REVISIONS

8/17/99

24-FEB-2022 14:28
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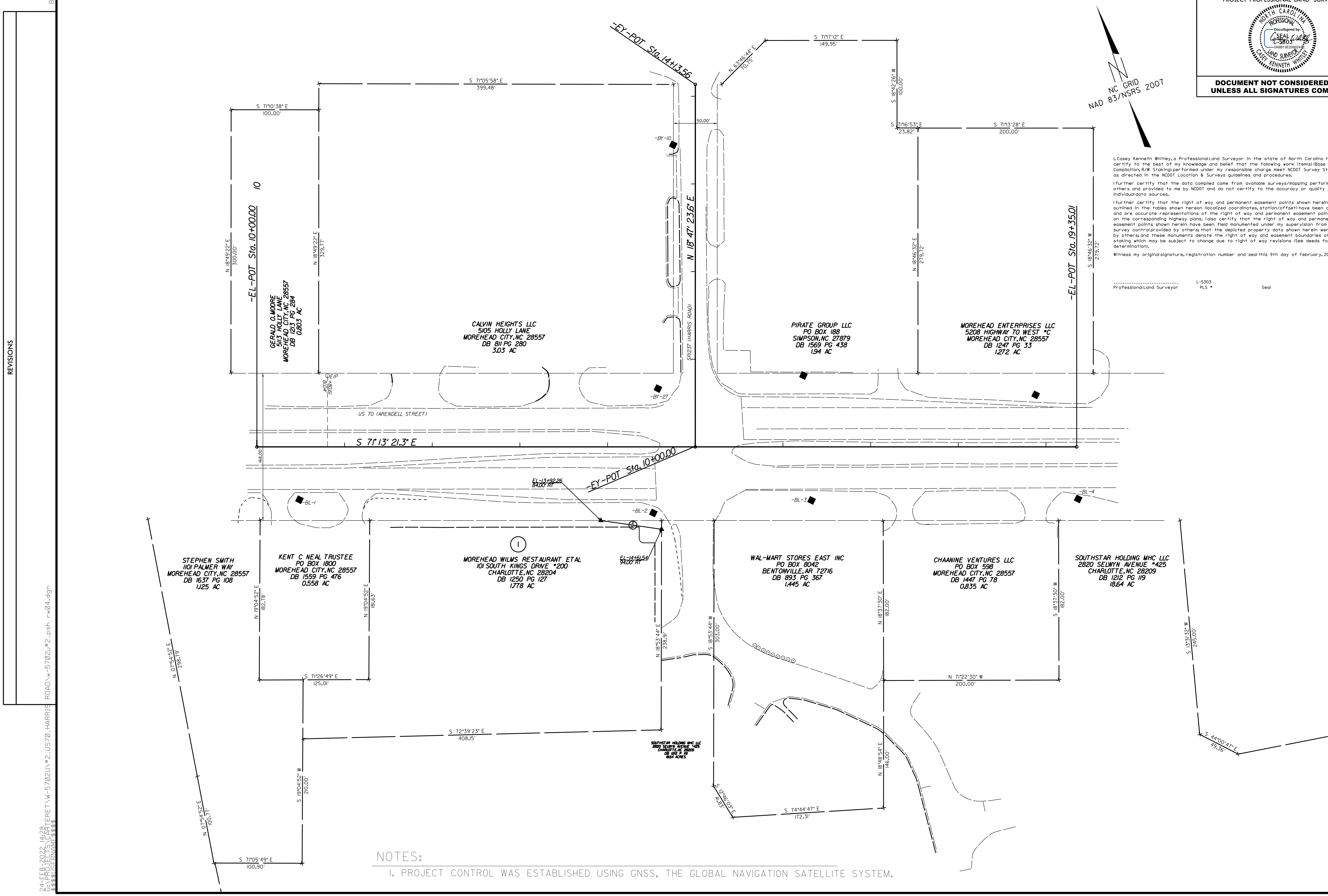
PROJECT REFERENCE NO.	SHEET NO.
W-5702U	RW04

PROJECT PROFESSIONAL LAND SURVEYOR

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



I, Casey Kenneth Whitley, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 9th day of February, 2022.

----------------------------- L-5303

Professional Land Surveyor PLS * Seal

NOTES:

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

24-FEB-2022 14:28
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

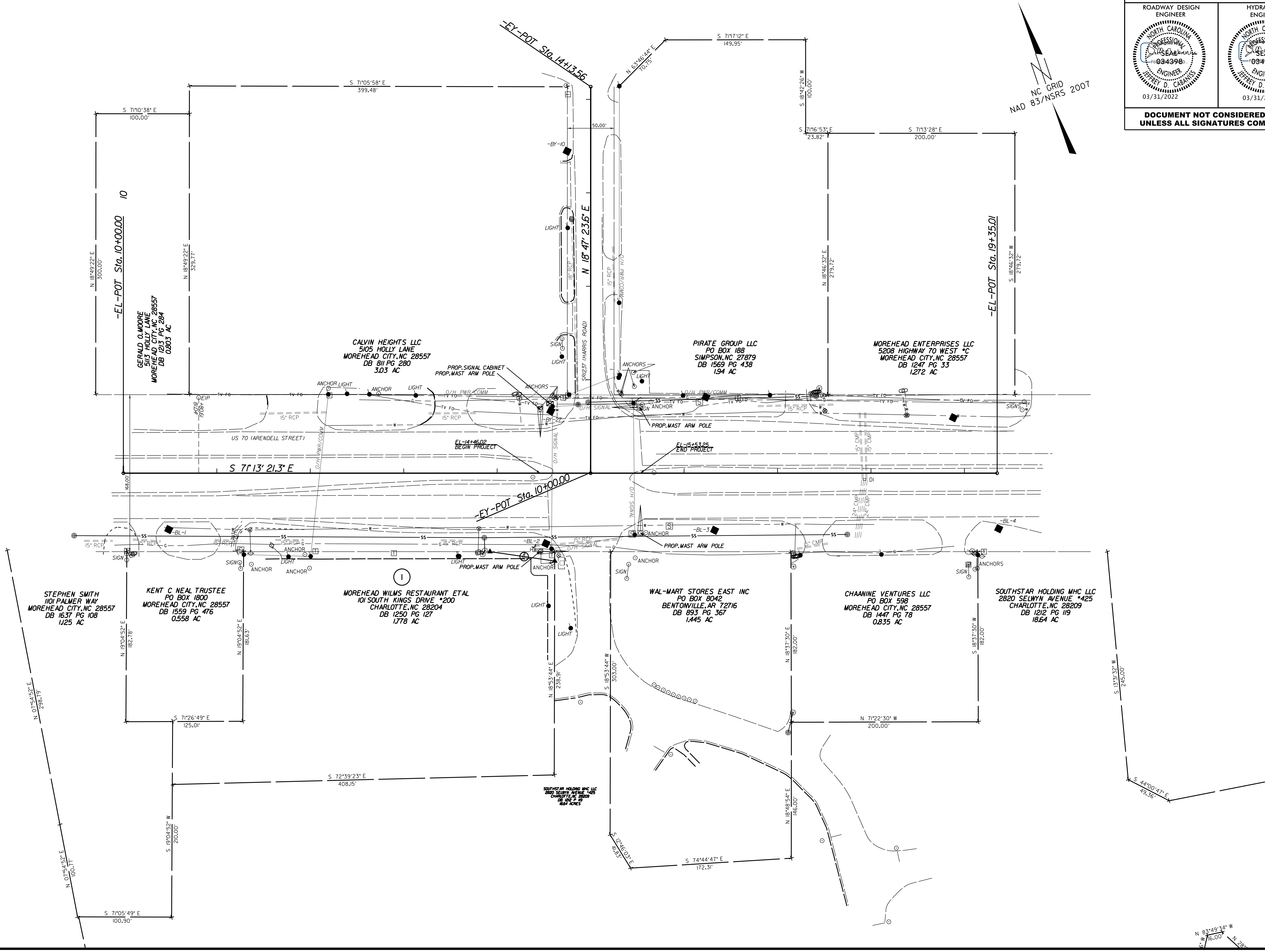
SECT	QUANTITY	UNIT	ITEM DESCRIPTION
800	0.4	LS	MOBILIZATION
801	0.4	LS	CONSTRUCTION SURVEYING
SP	144	SF	WORK ZONE ADVANCE/GENERAL WARNING SIGNING
SP	0.5	LS	TEMPORARY TRAFFIC CONTROL
1190	20	HR	LAW ENFORCEMENT
1605	100	LF	TEMPORARY SILT FENCE
SP	1	EA	CONCRETE WASHOUT STRUCTURE
1746	1	EA	RELOCATE EXISITNG SIGN
1705	1,560	LF	SIGNAL CABLE
1705	5	EA	VEHICLE SIGNAL HEAD (12",3 SECTION)
1705	4	EA	VEHICLE SIGNAL HEAD (12",4 SECTION)
1706	1	EA	VEHICLE SIGNAL HEAD (12",5 SECTION)
1715	70	LF	UNPAVED TRENCHING (1 CONDUIT,2 INCH)
1715	30	LF	UNPAVED TRENCHING (2 CONDUITS,2 INCH)
1715	310	LF	DIRECTIONAL DRILL (1 CONDUIT,2 INCH)
1716	8	EA	JUNCTION BOX (STANDARD SIZE)
SP	4	EA	METAL POLE WITH SINGLE MAST ARM
SP	4	EA	SOIL TEST
SP	28	CY	DRILLED PIER FOUNDATION
SP	4	EA	MAST ARM WITH METAL POLE DESIGN
1745	2	EA	SIGN FOR SIGNALS
1750	1	EA	SIGNAL CABINET FOUNDATION
1751	7	EA	DETECTOR CARD (TYPE 170)
1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070LX,BASE MOUNTED)
1753	1	EA	CABINET BASE EXTENDER

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	4
R/W SHEET NO.	RW04

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS — 03/31/2022

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS — 03/31/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS

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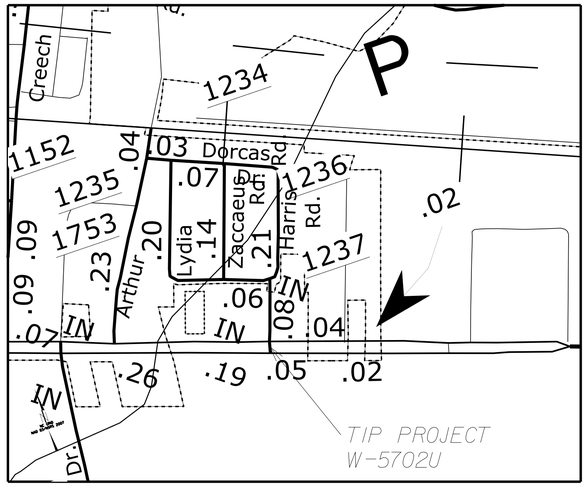
8/17/99

TIP PROJECT: W-5702U



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

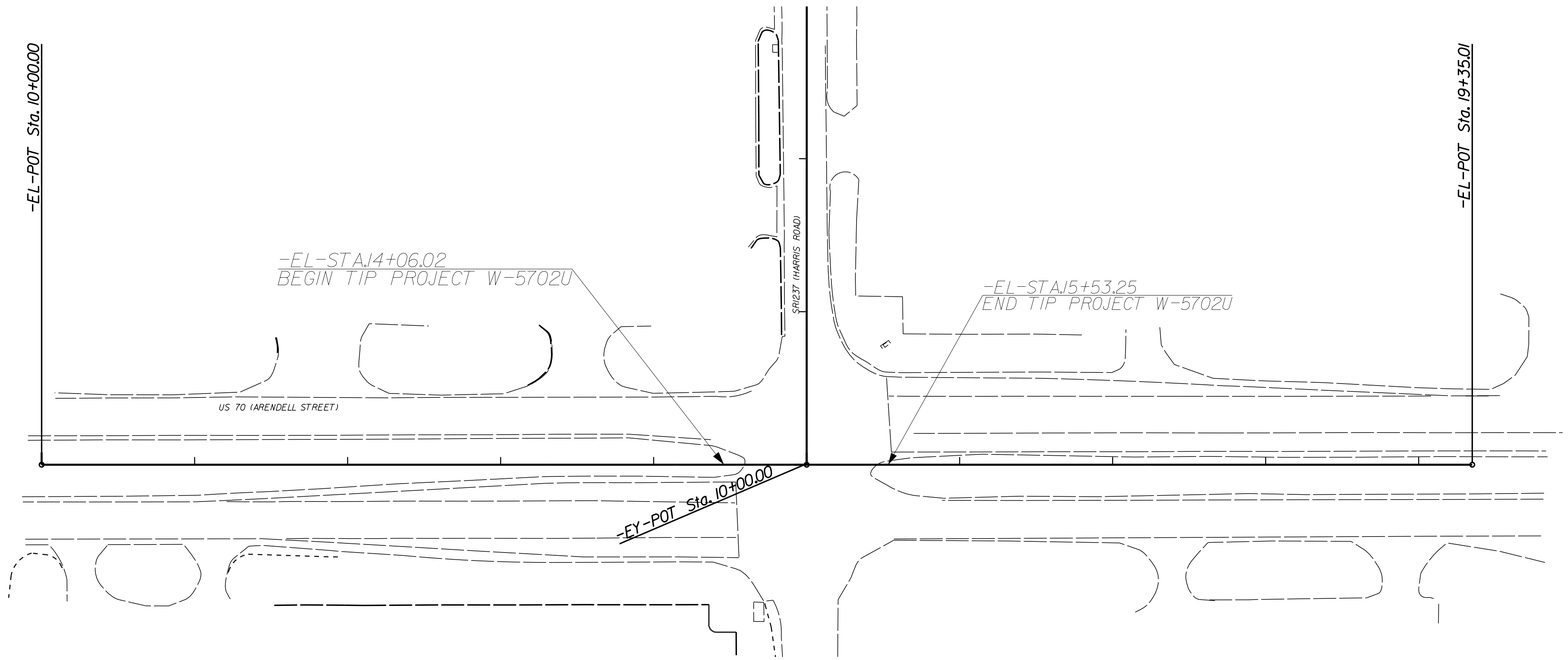
LOCATION: US 70 AT SR 1237 (HARRIS ROAD)

CARTERET COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5702U	EC-1	2

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44848.1.21	0070234	PE
44848.2.21	0070234	RW
44848.3.21	0070234	CONST

NC GRID
NAD 83/NSRS 2007



Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle	
	Wattle with Polyacrylamide (PAM)	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	

GRAPHIC SCALE

25 0 50

PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

2018 STANDARD SPECIFICATIONS

Prepared In the Office of:

DIVISION OF HIGHWAYS

1037 WH SMITH BLVD
GREENVILLE, NC 27835

Rich Godley
Level III
Certification #3559

Roadway Standard Drawings

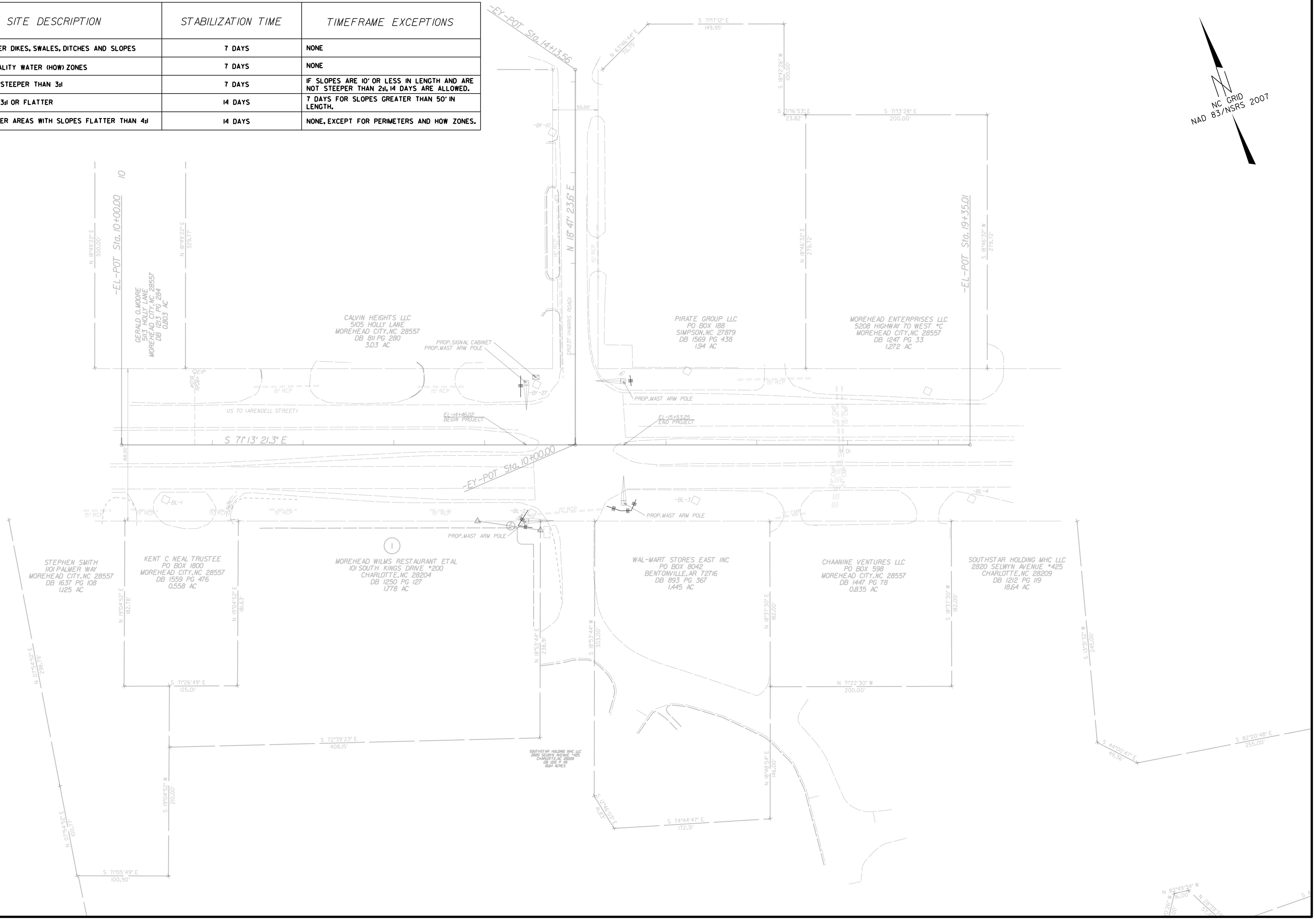
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	EC2

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.



REVISIONS

8/17/99

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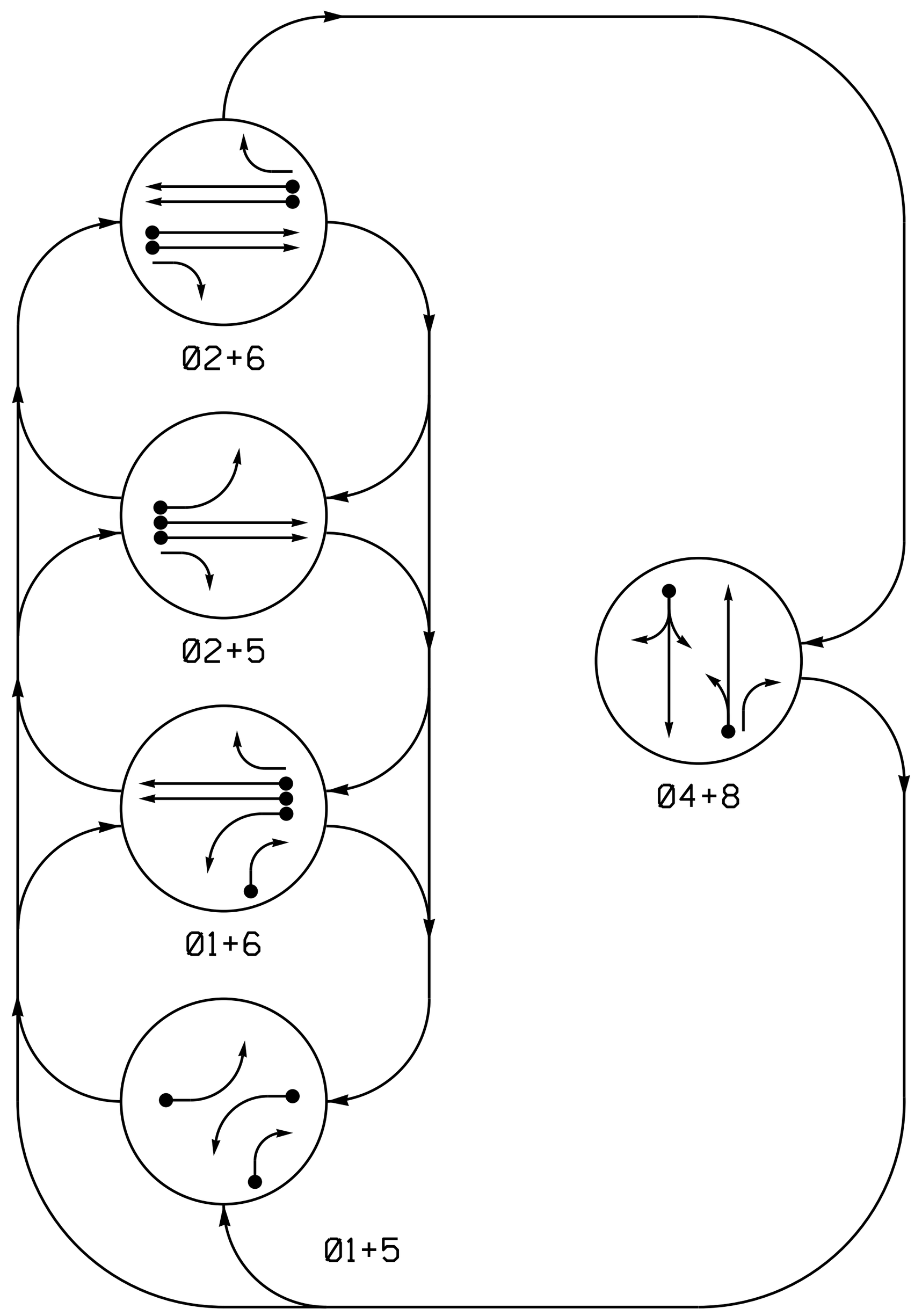
PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

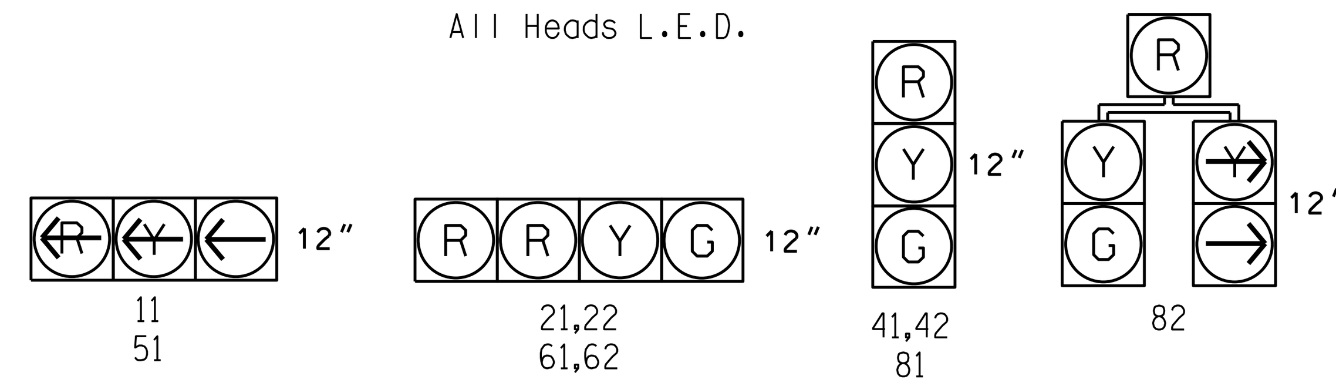
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	←R	←R	←R	←R
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	←R	←	←R	←R	←R
61,62	R	G	R	G	R	Y
81	R	R	R	R	G	R
82	R/→	R/→	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



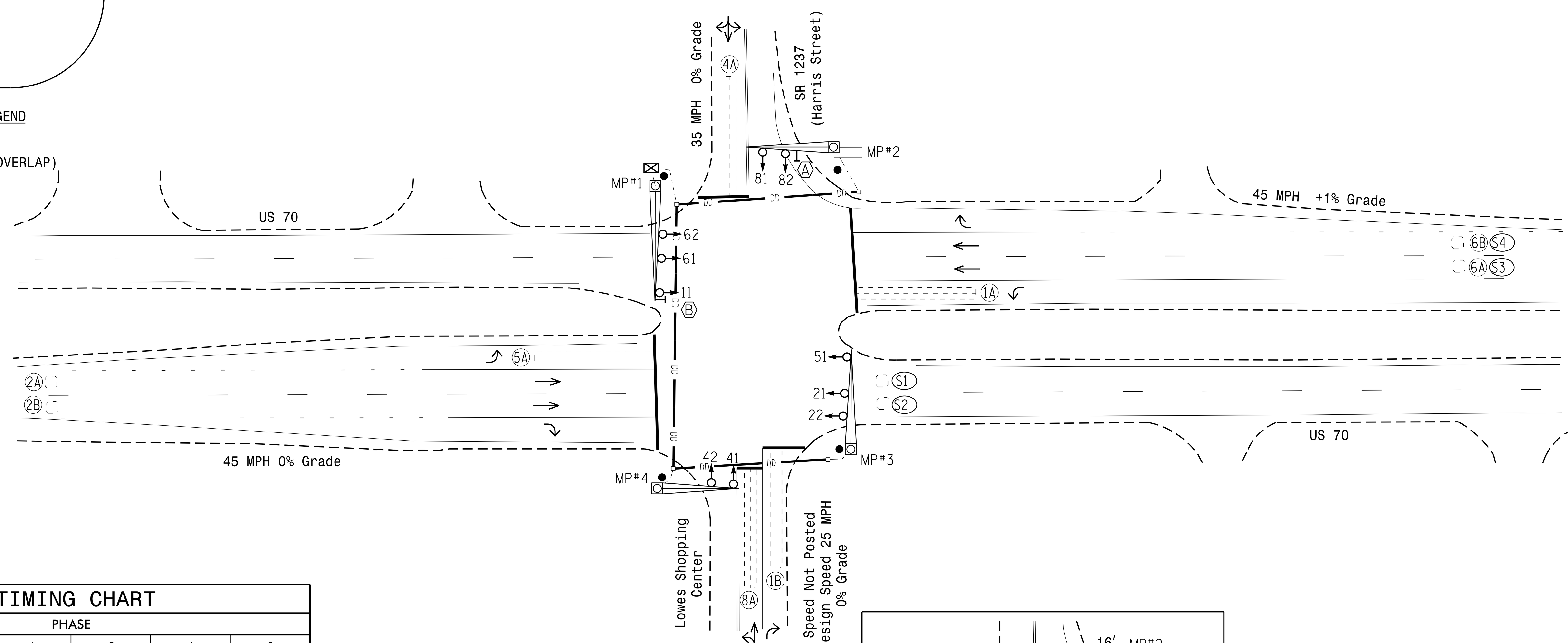
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	0	2-4-2	-	1	Y	Y	-	-	-	-	Y
1B	6X60	0	2-4-2	-	1	Y	Y	-	-	15	-	Y
2A	6X6	300	EXIST	-	2	Y	Y	-	-	-	-	Y
2B	6X6	300	EXIST	-	2	Y	Y	-	-	-	-	Y
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	5	-	Y
5A	6X60	0	2-4-2	-	5	Y	Y	-	-	-	-	Y
6A/S3	6X6	300	EXIST	-	6	Y	Y	-	-	-	Y	Y
6B/S4	6X6	300	EXIST	-	6	Y	Y	-	-	-	Y	Y
8A	6X60	0	2-4-2	-	8	Y	Y	-	-	3	-	Y
S1	6X6	+110	EXIST	-	-	-	-	-	-	-	Y	Y
S2	6X6	+110	EXIST	-	-	-	-	-	-	-	Y	Y

5 Phase
Fully Actuated
US 70 Morehead City CLS 3
Signal System # D02-13

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
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. Set all detector units to presence mode.
5. 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.
6. Pavement markings are existing.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



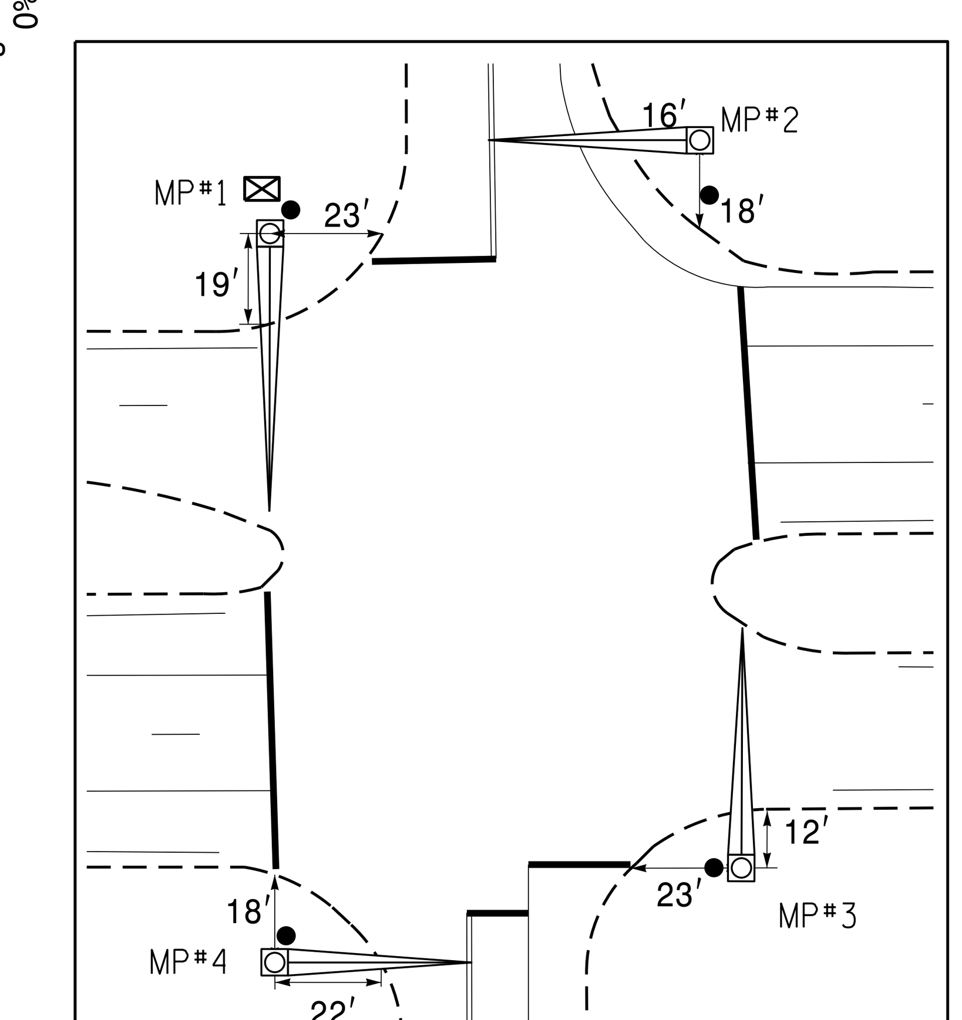
LEGEND

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	
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
Ⓑ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓑ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	1.0	6.0	1.0	1.0	6.0	1.0
Max Green 1 *	15	125	25	15	125	25
Yellow Clearance	3.0	4.5	3.8	3.0	4.4	3.2
Red Clearance	3.2	1.0	2.3	3.1	1.2	3.2
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	60	-	-	60	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
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.



METAL POLE LOCATIONS

This Plan Supersedes
Plan sealed on 10/7/2020

Signal Upgrade

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

US 70
at
SR 1237 (Harris Street) /
Lowe"s Shopping Center

Division 2 Carteret County Morehead City

PLAN DATE:	June 2020	REVIEWED BY:	MEL
PREPARED BY:	Jeff Spence	REVIEWED BY:	

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 042608 ENGINEER MEGHAN E. LEBLANC
DocuSigned by: Meghan E LeBlanc
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10/28/2021
DATE

SIG. INVENTORY NO. 02-0491

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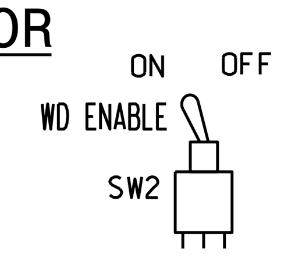
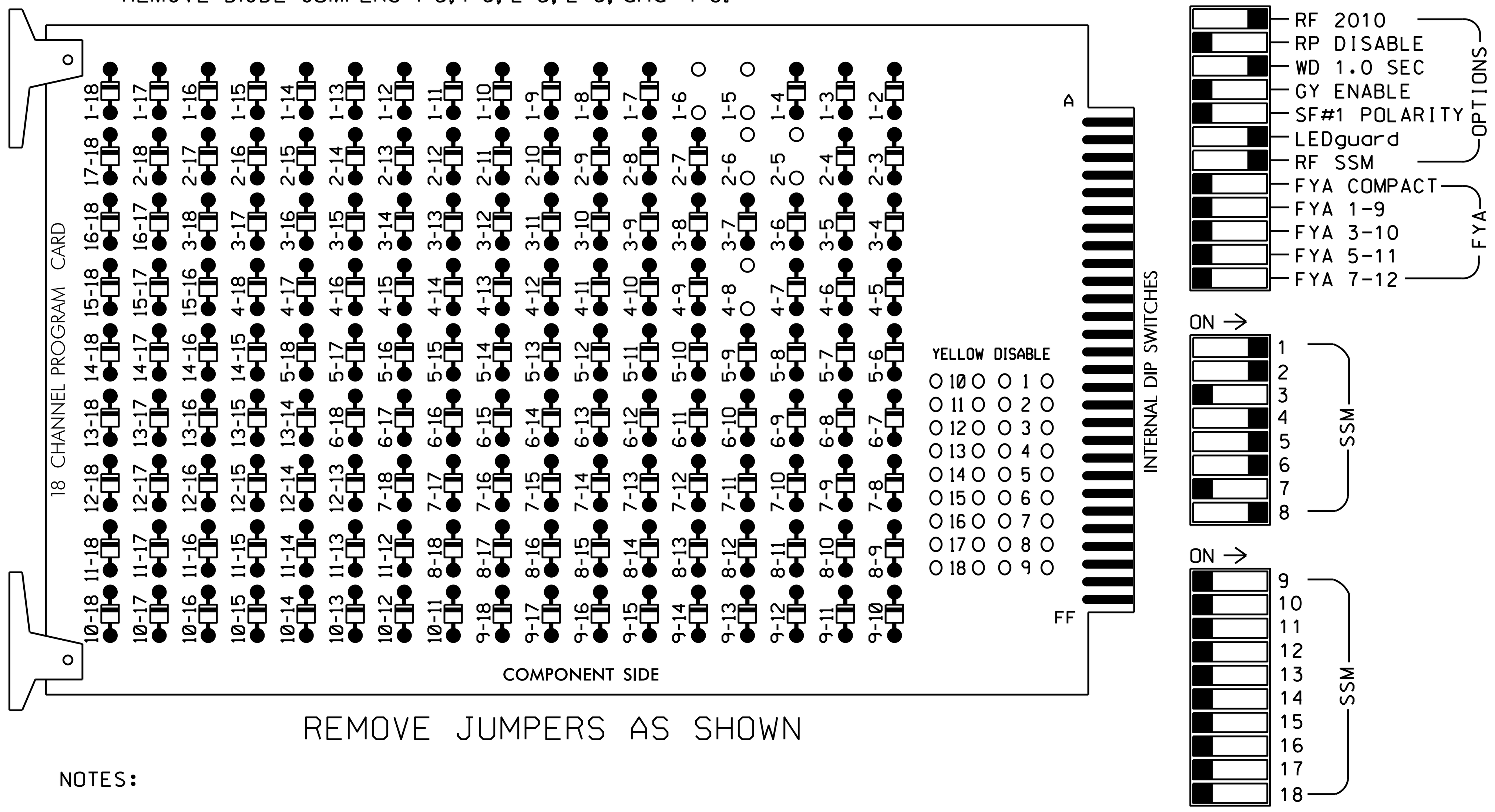
S:*ITS&SU*ITS Signals*Signal Design Section*Eastern Region*Div-02*02-0491*020491_sig_dsn_20201007.dgn
jrspence

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 2-5, 2-6, and 4-8.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

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. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all Phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Startup In Green.
6. Program phases 2 and 6 for Yellow Flash.
7. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
8. The cabinet and controller are part of the US 70 Morehead City CLS #3, Signal System #D02-13.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S5,S7,S8,S11
PHASES USED.............1,2,4,5,6,8
OVERLAPS................NONE

PROJECT REFERENCE NO.	SHEET NO.
W-5702U	Sig. 1.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1		S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1		2	13	3	4	14	5	6	15	7	8	16
PHASE	1		2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	82	21,22	NU	NU	41,42	NU	51	61,62	NU	NU	81,82	NU
RED			128			101			134			107	
YELLOW			129			102			135			108	
GREEN			130			103			136			109	
RED ARROW	125							131					
YELLOW ARROW	126	126						132					
GREEN ARROW	127	127						133					

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø 1 1A	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S1	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		Ø 1 1B	Ø 2 2B			NOT USED			SYS. DET. S2					ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø6/SYS 6A/S3	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø6/SYS 6B/S4				NOT USED								

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

FS = FLASH SENSE
ST = STOP TIME

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			
1B	TB2-7,8	I2L	43	5	12	1	Y	Y			15
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			5
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
6A/S3	TB3-5,6	J2U	40	2	6	6/SYS	Y	Y			
6B/S4	TB3-7,8	J2L	44	6	16	6/SYS	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
* S1	TB6-9,10	I9U	60	22	11	SYS					
* S2	TB6-11,12	I9L	62	24	13	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 SUPERSEDES THE DETAIL SEALED ON 10/8/2020.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 02-0491
DESIGNED: June 2020
SEALED: 10/28/2021
REVISED: N/A

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

US 70
at
SR 1237 (Harris Steet)/
Lowe's Shopping Center

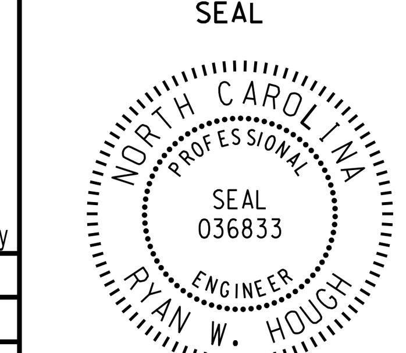
Division 2 Carteret County Morehead City

PLAN DATE: September 2020 REVIEWED BY:
PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

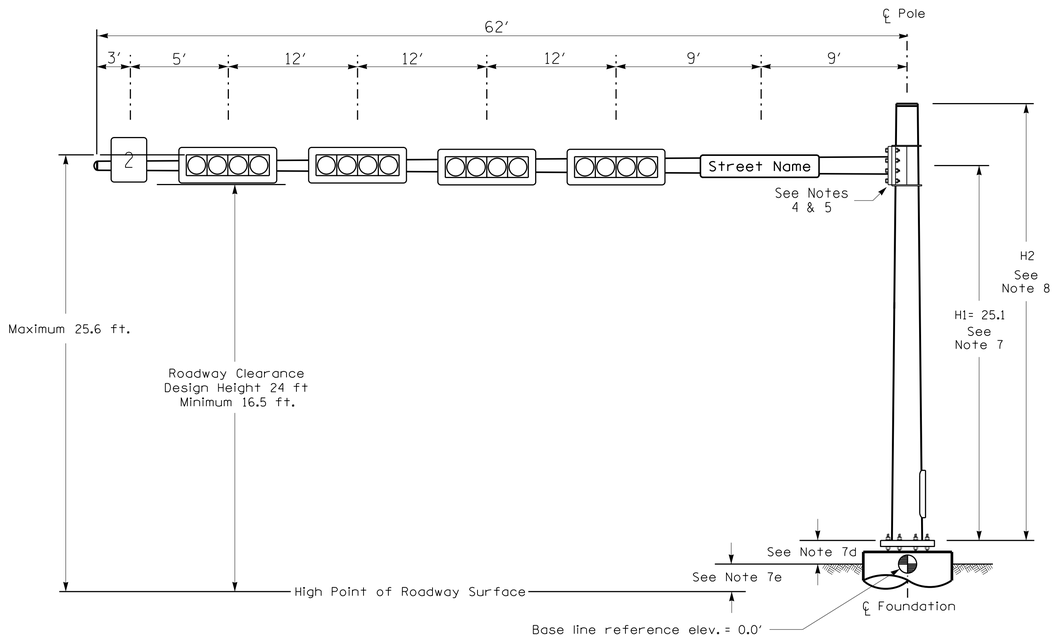
SEAL



Ryan W. Hough 11/3/2021
DATE

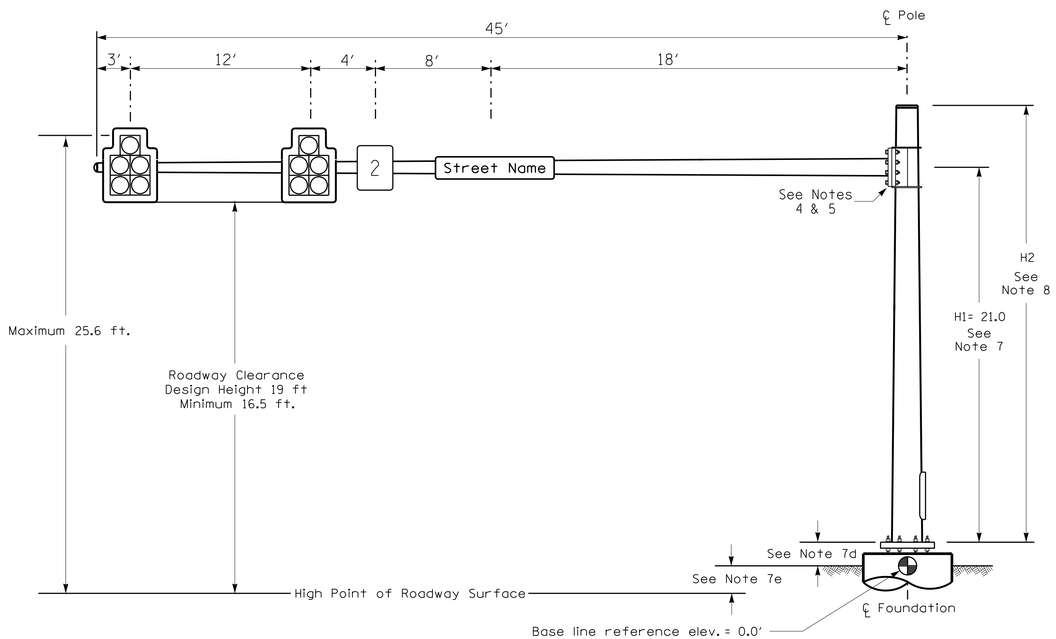
SIG. INVENTORY NO. 02-0491

Design Loading for METAL POLE NO. 1



Elevation View

Design Loading for METAL POLE NO. 2



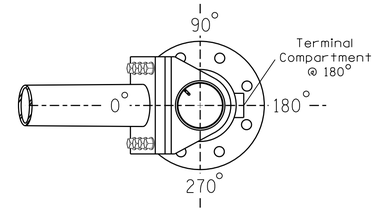
Elevation View

SPECIAL NOTE

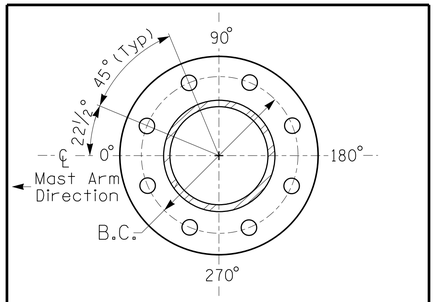
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	Pole 2
Baseline reference point at ⊕ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+0.8ft.	-0.1 ft.
Elevation difference at Edge of travelway or face of curb	N/A	N/A

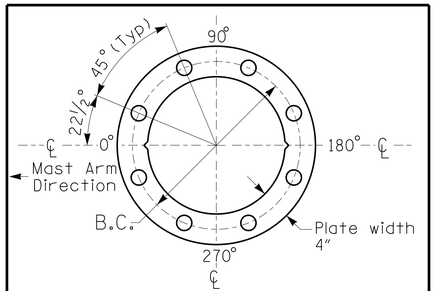


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″W X 52.5″L	60 LBS
	RIGID MOUNTED SIGNAL HEAD 12″-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5″W X 66.0″L	74 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0″W X 36.0″L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0″W X 96.0″L	36 LBS
	RIGID MOUNTED SIGNAL HEAD 12″-5 SECTION-WITH BACKPLATE	16.3 S.F.	42.0″W X 56.0″L	103 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
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DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 2 (130 mph)

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

US 70
at
SR 1237 (Harris Street) / Lowe's Shopping Center

Division 2 Carteret County Morehead

PLAN DATE:	May 2021	REVIEWED BY:	MEL
PREPARED BY:	Jeff Spence	REVIEWED BY:	

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

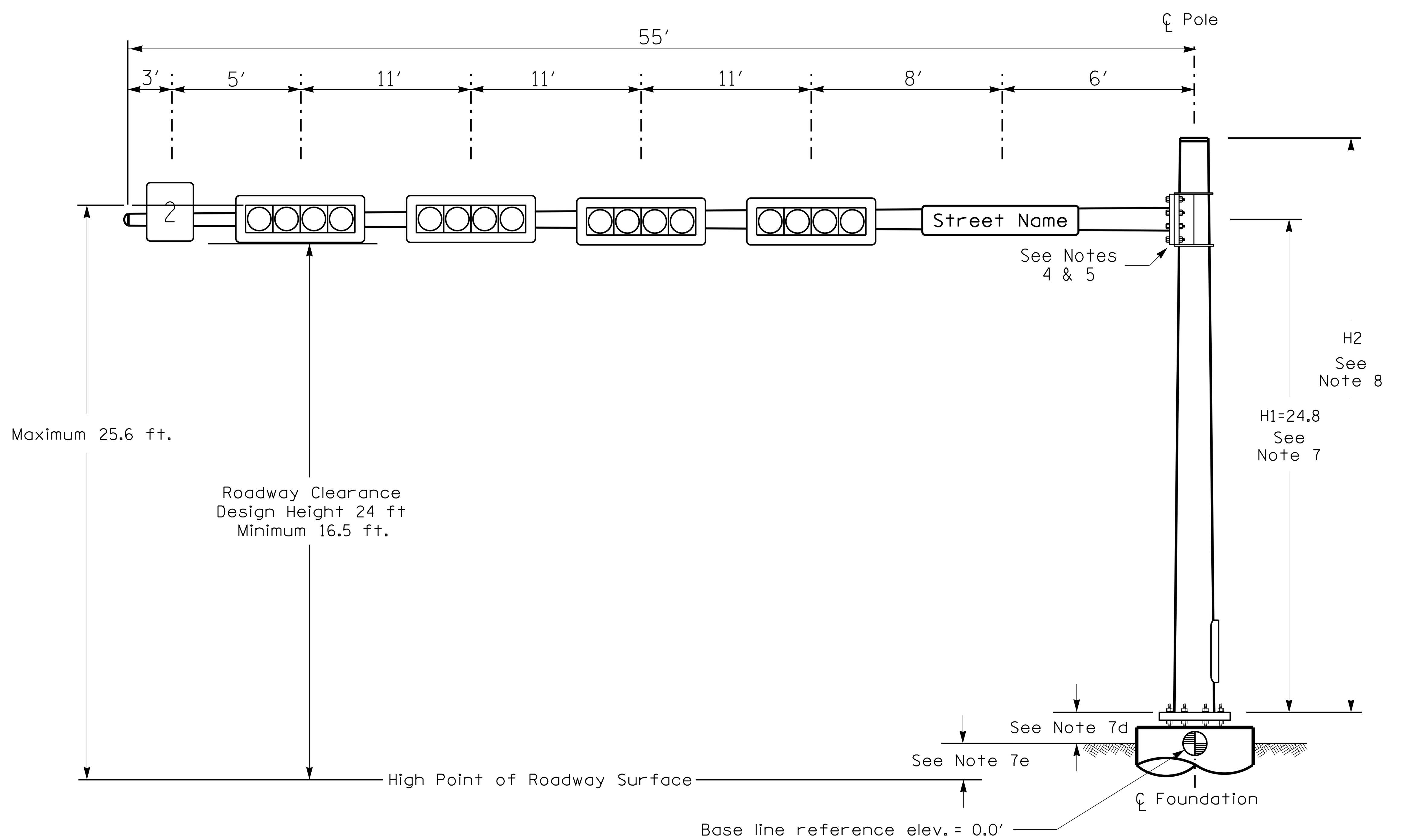
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 042608 ENGINEER MEGHAN E. LEBLANC

DocuSigned by: Meghan LeBlanc 5/21/2021
DATE

SIG. INVENTORY NO. 02-0491

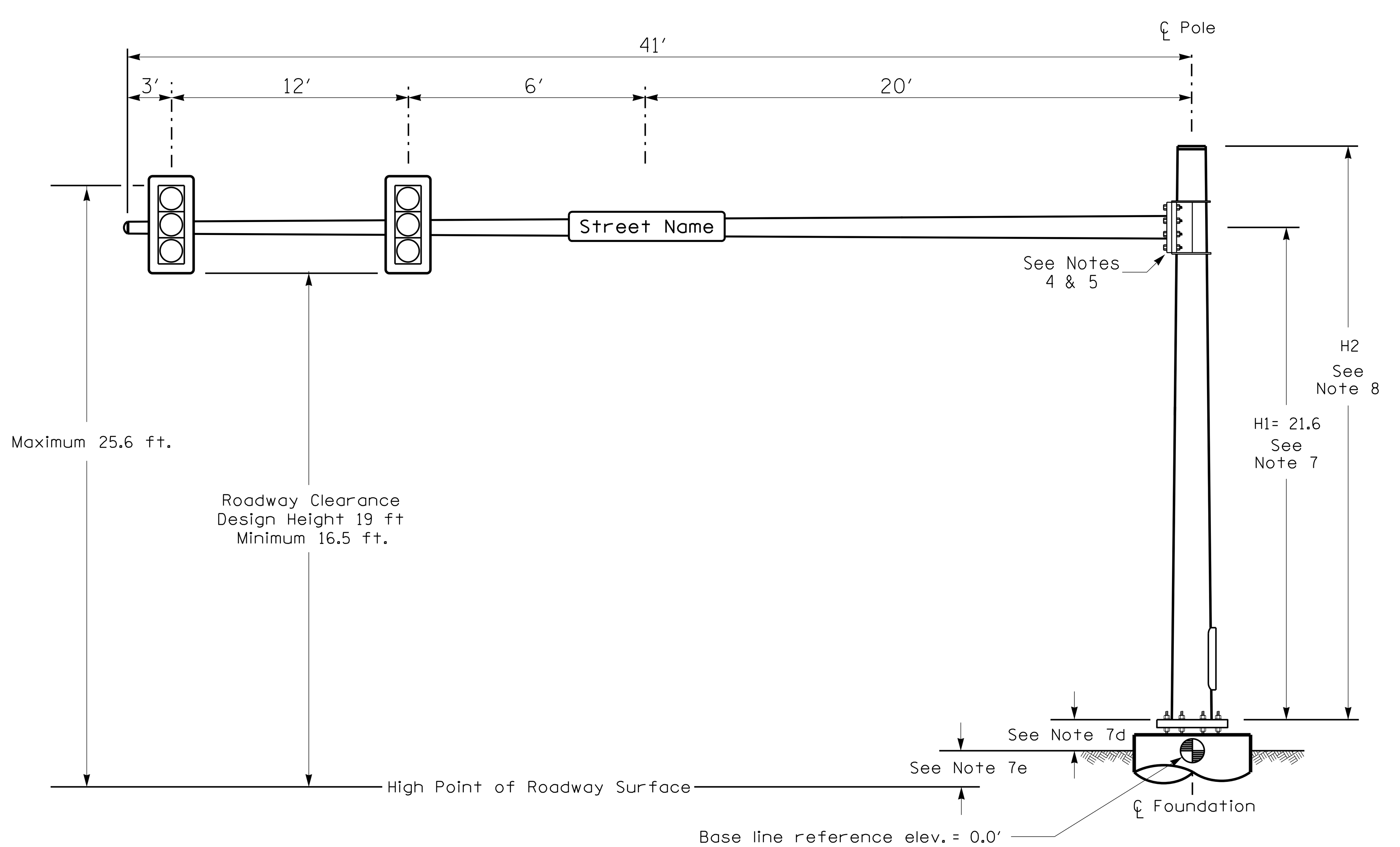
METAL POLE No. 3 and 4

Design Loading for METAL POLE NO. 3



Elevation View

Design Loading for METAL POLE NO. 4



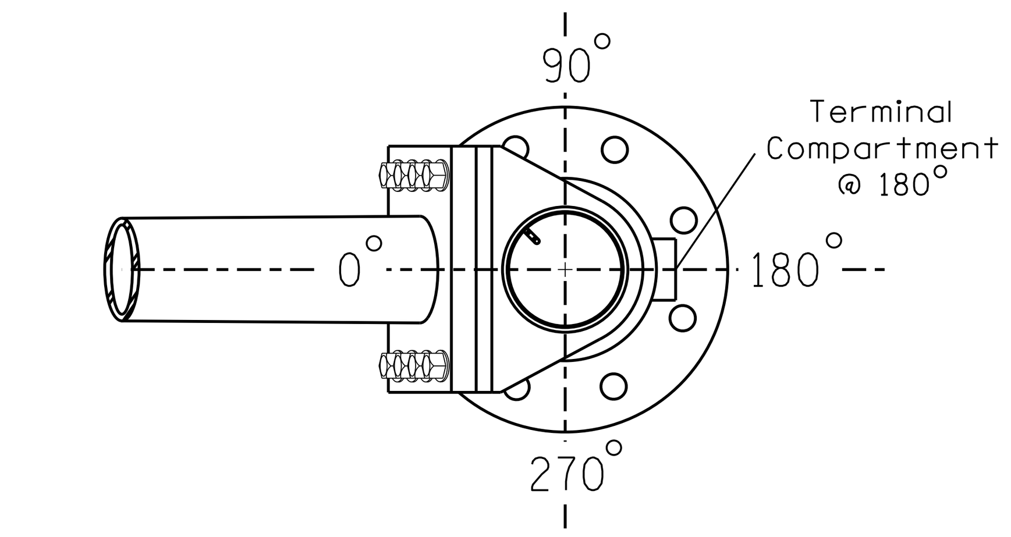
Elevation View

SPECIAL NOTE

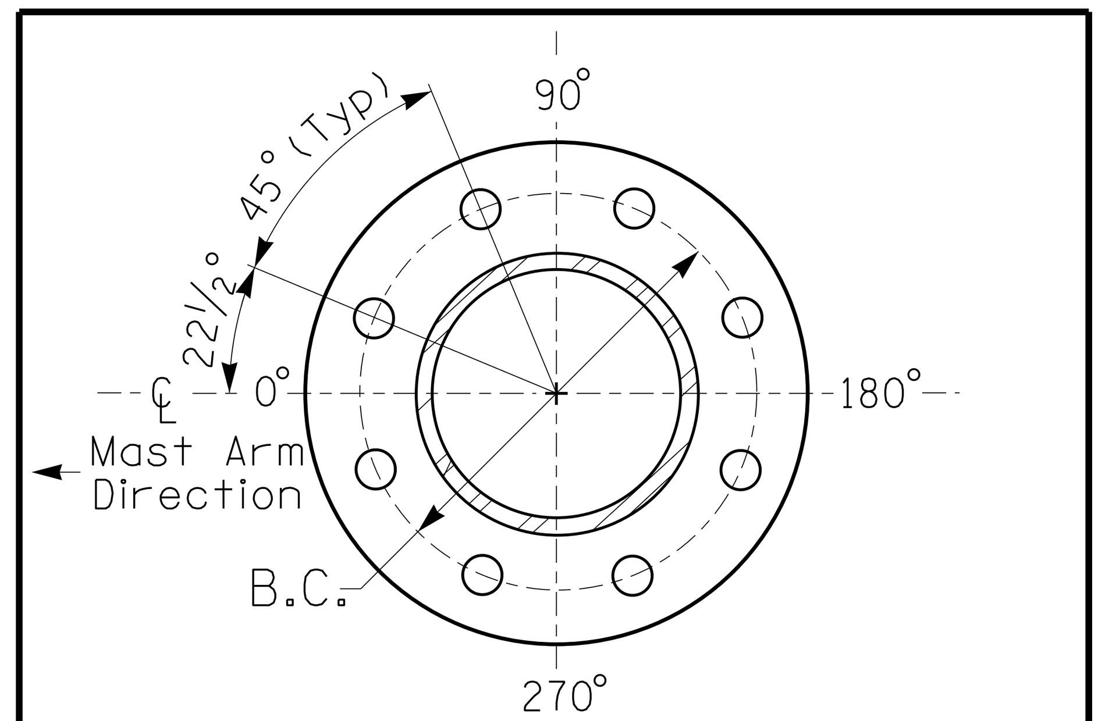
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 3	Pole 4
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+0.5ft.	+0.6 ft.
Elevation difference at Edge of travelway or face of curb	N/A	N/A

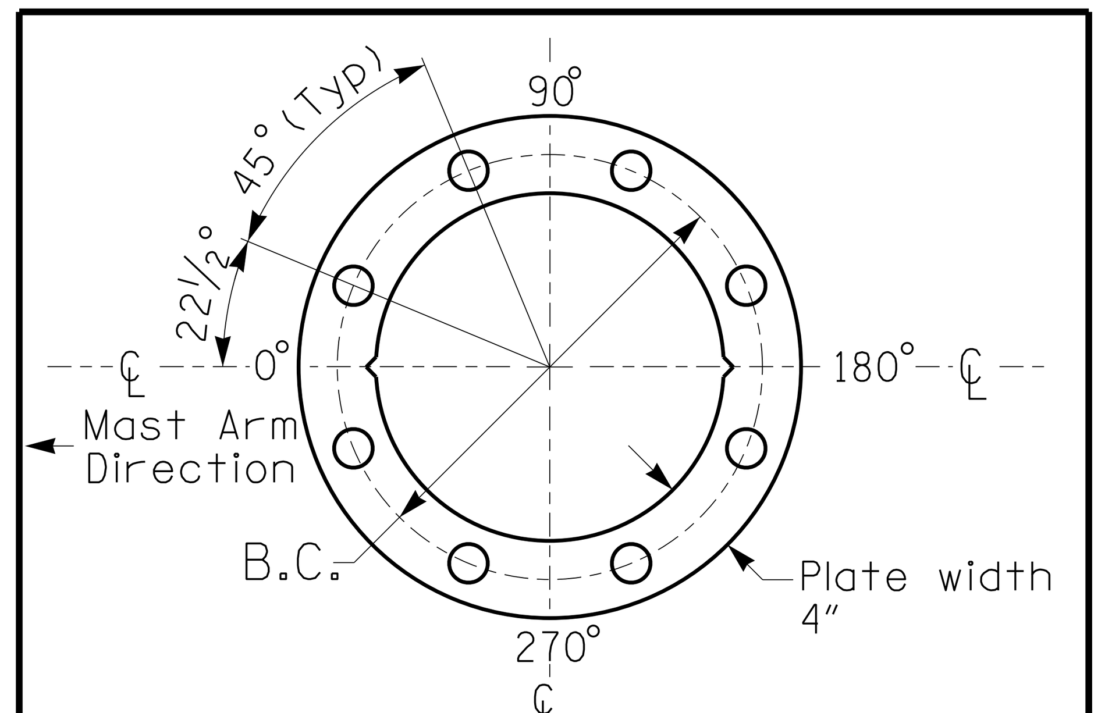


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
(4-section head)	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS
(3-section head)	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0" L	14 LBS

NOTES

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US 70 at SR 1237 (Harris Street) / Lowe's Shopping Center

Division 2 | Carteret County | Morehead City

PLAN DATE:	May 2021	REVIEWED BY:	MEL
PREPARED BY:	Jeff Spence	REVIEWED BY:	

SCALE 0 N/A — N/A

REVISIONS | INIT. | DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042608 MEGHAN E. LEBLANC

DocuSigned by: Meghan E LeBlanc 5/21/2021 DATE

SIG. INVENTORY NO. 02-0491

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