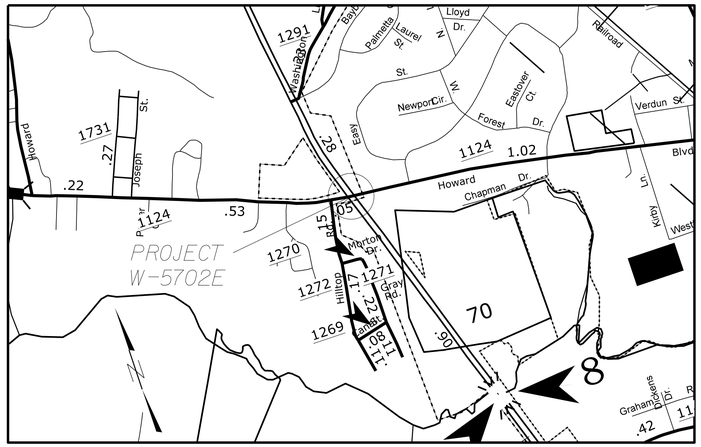
09/08/99

TIP PROJECT: W-5702E

CONTRACT: DB00437



See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CARTERET COUNTY

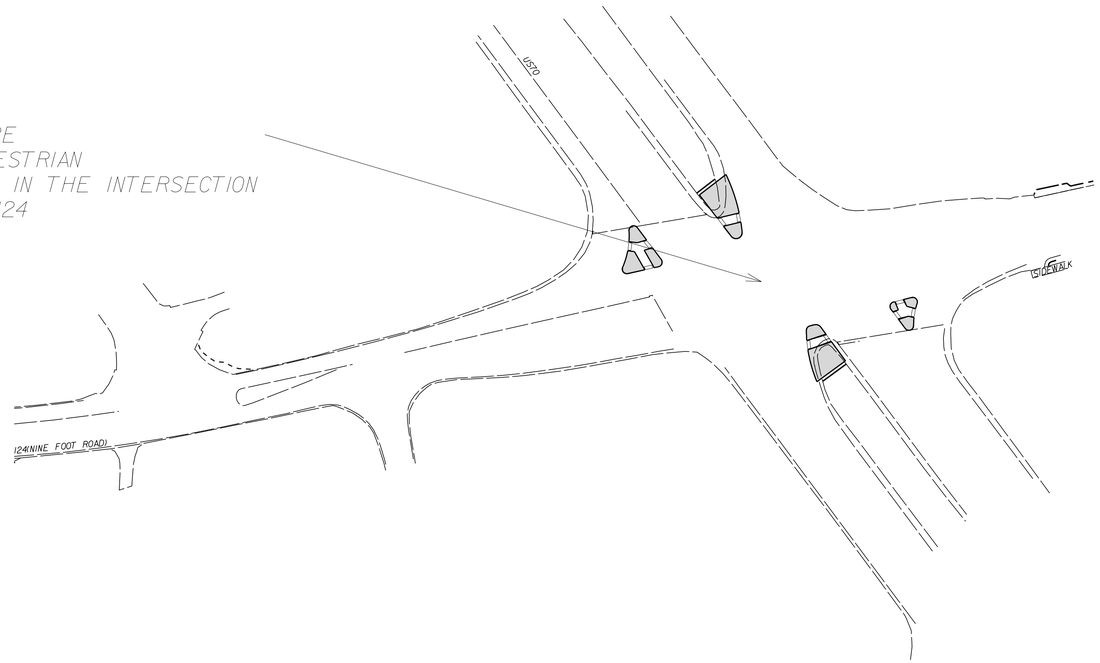
LOCATION: US70 AT SR1124 (NINE FOOT ROAD)

TYPE OF WORK: CONSTRUCT PEDESTRIAN REFUGE ISLANDS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5702E	1	10

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44848.1.5	HSIP-0070(209)	PE
44848.2.5	HSIP-0070(209)	R/W
44848.3.5	HSIP-0070(209)	CONST

PROJECT W-5702E
CONSTRUCT PEDESTRIAN
REFUGE ISLANDS IN THE INTERSECTION
OF US70 AT SR1124



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

PROJECT LENGTH

LENGTH ROADWAY PROJECT W-5702E = 0.037 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1037 WH SMITH BLVD, GREENVILLE, NC

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: JANUARY 2019

JEFFREY D. CABANISS, PE
PROJECT ENGINEER

RICH GODLEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D CABANISS

DocuSigned by: Jeffrey D. Cabaniss
SIGNATURE: P.E. 11/28/2018

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D CABANISS

DocuSigned by: Jeffrey D. Cabaniss
SIGNATURE: P.E. 11/28/2018

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

05-SEP-2018 12:27
G:\PROJECTS\CARTERET\W-5702E\US70_SR1124(HOWARD AVE_NINE FOOT ROAD)\9ft\9FT70_PSHI.dgn
$$$$USERNAME$$$$

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018

SUBSURFACE PLANS:

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

UTILITIES:

OWNERS:
CARTERET-CRAVEN ELECTRIC COOPERATIVE: POWER
DUKE ENERGY: POWER
CENTURYLINK: PHONE AND FIBER OPTIC
NCDOT: TRAFFIC AND FIBER OPTICS
PIEDMONT NATURAL GAS COMPANY: GAS
SPIRIT COMMUNICATIONS: FIBER OPTIC

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 16, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

DIVISION 8 - INCIDENTALS
852.01 CONCRETE ISLANDS
852.02 CONCRETE MOUNTABLE MEDIAN

DIVISION 11 - WORK ZONE TRAFFIC CONTROL
1101.01 WORK ZONE ADVANCE WARNING SIGNS
1101.02 TEMPORARY LANE CLOSURES

8/17/99
05-SEP-2018 12:27
G:\PROJECTS\CARTERET\W-5702E\US70_SR1124(HOWARD AVE_NINE FOOT ROAD)\9ft\9FT70_PSH1A.dgn
$$$$USERNAME$$$$

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	1C

SURVEY CONTROL SHEET

-L- DESCRIPTION

Point 2000 N 385,378.3522 E 2,636,409.8769 Sta 10+00.00

Course from 2000 to PC C1 S 69° 29' 16.57" E Dist 547.0630'

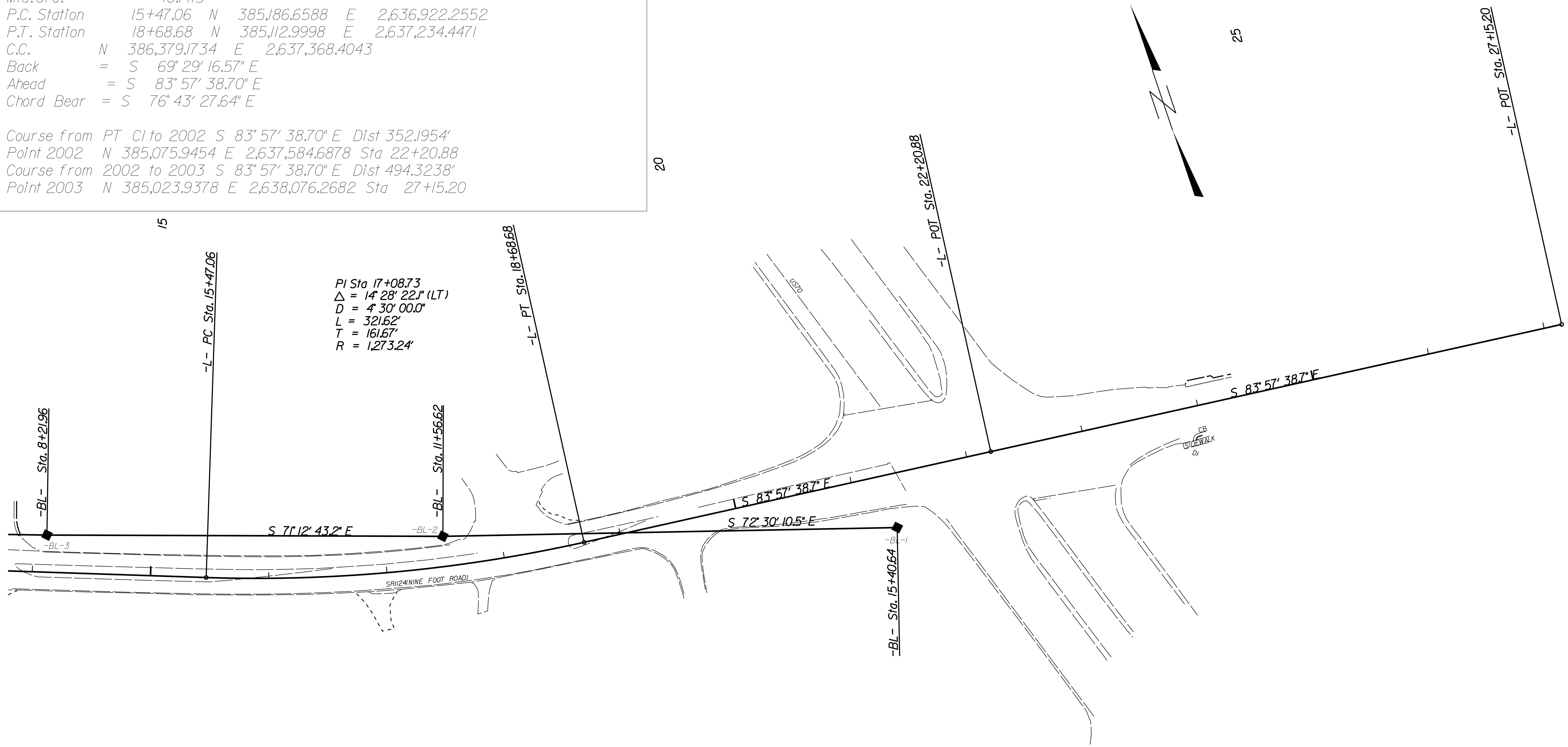
Curve Data

Curve C1				
P.I. Station	17+08.73	N 385,130.0090	E 2,637,073.6747	
Delta =	14° 28' 22.13" (LT)			
Degree =	4° 29' 59.99"			
Tangent =	161.6696			
Length =	321.6182			
Radius =	1,273.2400			
External =	10.2230			
Long Chord =	320.7638			
Mid.Ord. =	10.1415			
P.C. Station	15+47.06	N 385,186.6588	E 2,636,922.2552	
P.T. Station	18+68.68	N 385,112.9998	E 2,637,234.4471	
C.C.	N 386,379.1734	E 2,637,368.4043		
Back =	S 69° 29' 16.57" E			
Ahead =	S 83° 57' 38.70" E			
Chord Bear =	S 76° 43' 27.64" E			

Course from PT C1 to 2002 S 83° 57' 38.70" E Dist 352.1954'
Point 2002 N 385,075.9454 E 2,637,584.6878 Sta 22+20.88
Course from 2002 to 2003 S 83° 57' 38.70" E Dist 494.3238'
Point 2003 N 385,023.9378 E 2,638,076.2682 Sta 27+15.20

-BL- DESCRIPTION

Point 4 N 385,370.8930 E 2,636,502.6150 Sta 5+00.00 ELEV=23.44'
Course from 4 to 3 S 70° 31' 58.61" E Dist 321.9572'
Point 3 N 385,263.5960 E 2,636,806.1670 Sta 8+21.96 ELEV=21.03'
Course from 3 to 2 S 71° 12' 43.23" E Dist 334.6661'
Point 2 N 385,155.8110 E 2,637,123.0010 Sta 11+56.62 ELEV=23.83'
Course from 2 to 1 S 72° 30' 10.53" E Dist 384.0155'
Point 1 N 385,040.3540 E 2,637,489.2490 Sta 15+40.64 ELEV=24.76'



REVISIONS

8/17/99

05-SEP-2018 12:27
G:\PROJECTS\CARTERET\W-5702E\US70_SR1124(HOWARD AVE_NINE FOOT ROAD)\9ft\9FT70_PSH1C.dgn
$$$$USERNAME$$$$

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

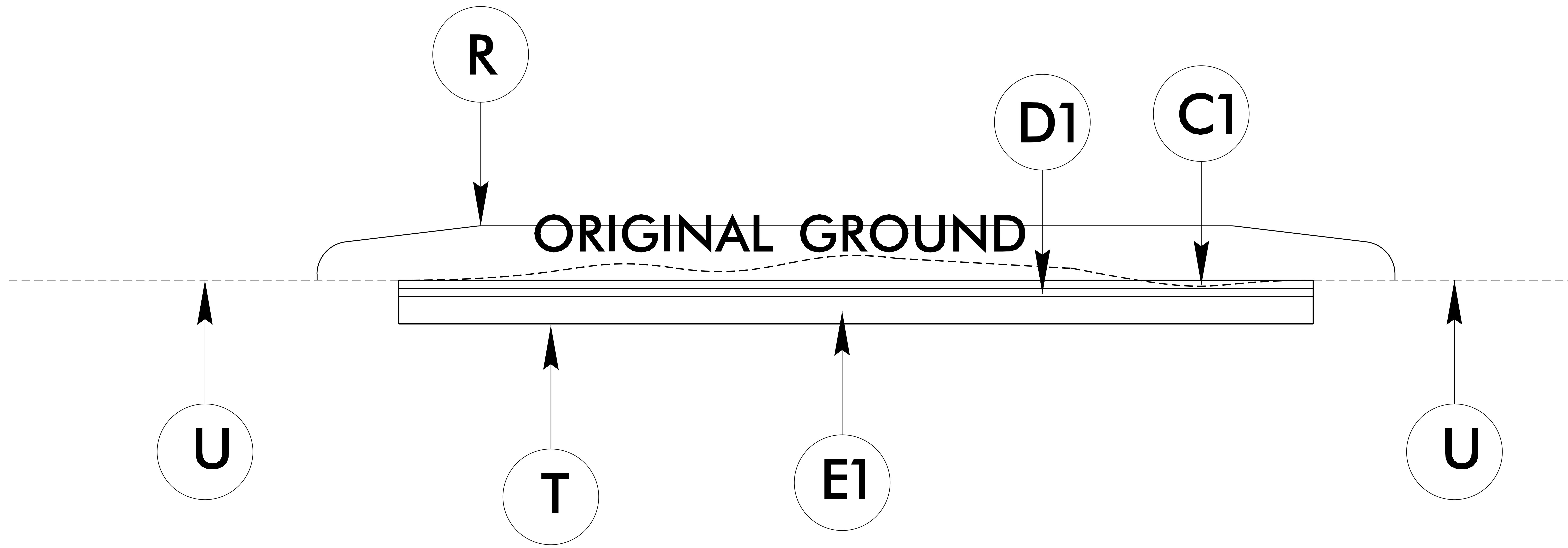
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398, JEFFREY D. CABANISS, 11/28/2018

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398, JEFFREY D. CABANISS, 11/28/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ.YD.
D1	PROP. APPROX. 2.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 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.
R	PROP. 5″ CONCRETE MONOLITHIC ISLAND (SURFACE MOUNTED)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

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



USE TYPICAL SECTION #1

FOR MEDIAN ISLAND CONSTRUCTION

8/17/99

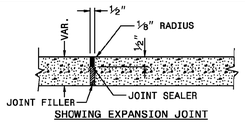
REVISIONS

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

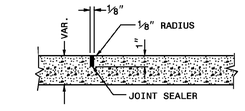
1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE ISLANDS

SHEET 1 OF 1
852.01



SHOWING EXPANSION JOINT



SHOWING GROOVED JOINT

PARTIAL LONGITUDINAL SECTIONS OF PAVED ISLANDS

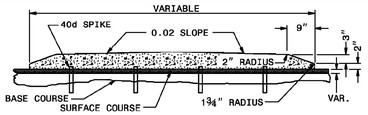
NOTE:

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

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

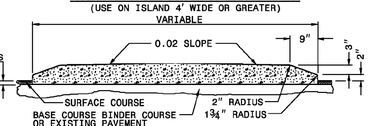
LINE UP THE JOINTS IN THE CONCRETE PAVEMENT (ISLAND) WITH THE JOINTS IN THE CURB OR CURB AND GUTTER. FILL AND SEAL THE TOP ½" OF THE EXPANSION JOINTS AND THE ENTIRE DEPTH OF GROOVED JOINTS WITH JOINT SEALER.

FOR JOINTS IN THE CURB AND/OR CURB AND GUTTER, SEE STANDARD NO. 846.01

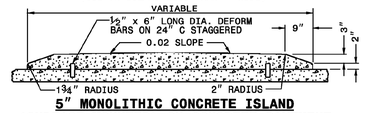


5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) ON ASPHALT CONCRETE PAVEMENT
(USE ON ISLAND 4' WIDE OR GREATER)

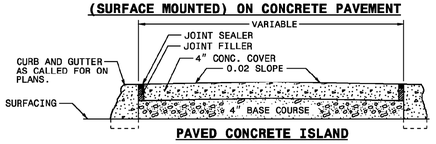
SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH. KEY IN ON THE LAST LAYER OF PAVEMENT SURFACE COURSE



5" MONOLITHIC CONCRETE ISLAND (KEYED IN) ON ASPHALT CONCRETE PAVEMENT
(USE ON ISLAND LESS THAN 4' WIDE)



5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) ON CONCRETE PAVEMENT



PAVED CONCRETE ISLAND

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

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE ISLANDS

SHEET 1 OF 1
852.01

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

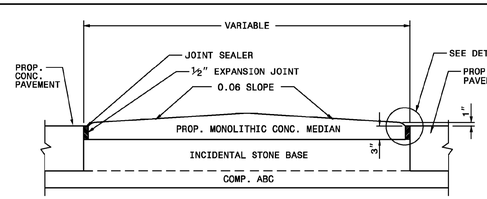
1-12

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

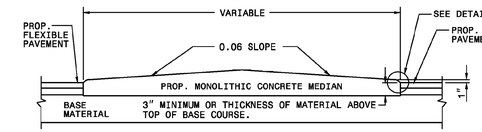
1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE MOUNTABLE MEDIAN
FOR USE WITH RIGID OR FLEXIBLE PAVEMENT

SHEET 1 OF 1
852.02



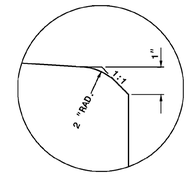
TRANSVERSE SECTION FOR CONCRETE PAVEMENT



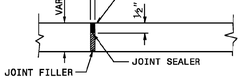
TRANSVERSE SECTION FOR FLEXIBLE PAVEMENT

GENERAL NOTES:

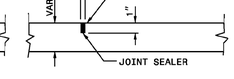
PLACE ½" EXPANSION JOINTS AT 30' INTERVALS AND AT ALL OTHER POINTS WHERE PROPOSED MEDIAN ABUTS RIGID OBJECTS. PLACE GROOVED JOINTS ½" DEEP AT 10' INTERVALS BETWEEN EXPANSION JOINTS. FILL THE TOP ½" OF EXPANSION JOINTS AND ½" GROOVED JOINTS WITH JOINT SEALER.



DETAIL - A



SHOWING EXPANSION JOINT



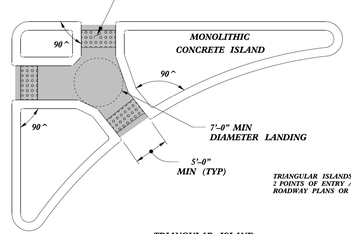
SHOWING GROOVED JOINT

PART LONGITUDINAL SECTIONS OF CONCRETE MEDIAN

05-SEP-2018 12:28
C:\Users\...\Desktop\TEMP\w-5702E\US70_SR1124(HODGARD AVE_NINE FOOT ROAD)\9ft\9FT70_PSH2A.dgn
$$USER:RAMPS

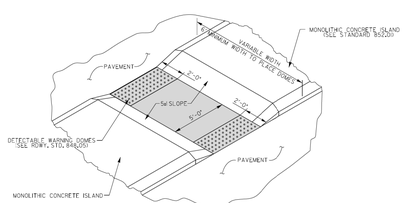
DETECTABLE WARNING SURFACE (TYP)

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

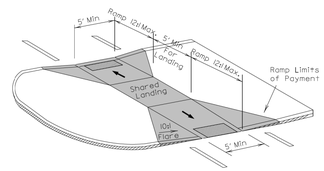


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED.

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

CURB RAMPS
Median or Turn Lane Islands

ORIGINAL BY: J.S. HOMERTON, DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC: N:\ds\2012\Curbramp\CurbRampDetails.dgn

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SECT	QUANTITY	UNIT	ITEM DESCRIPTION
800	1	LS	MOBILIZATION
801	1	LS	CONSTRUCTION SURVEYING
226	1	LS	GRADING
610	20	TON	ASPHALT CONCRETE BASE COURSE,TYPE B25.0C
610	10	TON	ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C
610	10	TON	ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B
620	5	TON	ASPHALT BINDER FOR PLANT MIX
852	210	SY	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
SP	96	SF	WORK ZONE ADVANCE/GENERAL WARNING SIGNING
SP	1	LS	TEMPORARY TRAFFIC CONTROL
1205	480	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8")
1205	208	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24",120MILS)
1205	65	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
1205	242	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
SP	1	EA	CONCRETE WASHOUT STRUCTURE

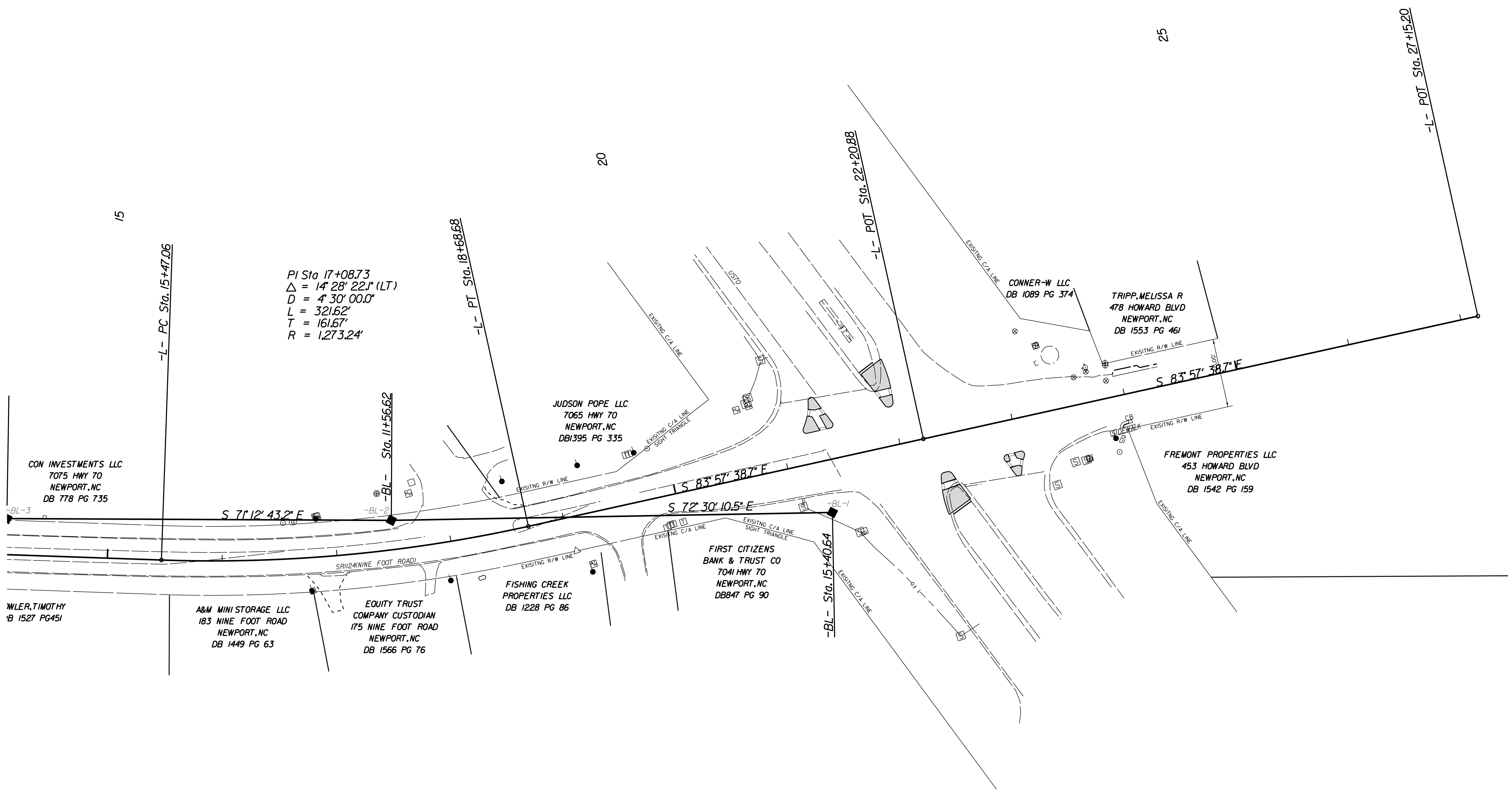
5/28/99
31-OCT-2018 07:32
G:\PROJECTS\CARTERET\W-5702E\US70_SR1124(HOWARD AVE_NINE FOOT ROAD)\9ft\9FT70_PSH3.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS — 11/28/2018

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS — 11/28/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



15
20
25
-L- PC Sta. 15+47.06
-L- PT Sta. 18+68.68
-L- POT Sta. 22+20.88
-L- POT Sta. 27+15.20
-BL- Sta. 11+56.62
-BL- Sta. 15+40.64
PI Sta 17+08.73
Δ = 14° 28' 22.1" (LT)
D = 4° 30' 00.0"
L = 321.62'
T = 161.67'
R = 1,273.24'
S 71° 12' 43.2" E
S 83° 57' 38.7" E
S 72° 30' 10.5" E
S 83° 57' 38.7" E
-BL-3
-BL-2
-BL-1
SR1124(NINE FOOT ROAD)
US70
CON INVESTMENTS LLC
7075 HWY 70
NEWPORT,NC
DB 778 PG 735
JUDSON POPE LLC
7065 HWY 70
NEWPORT,NC
DB1395 PG 335
CONNER-W LLC
DB 1089 PG 374
TRIPP,MELISSA R
478 HOWARD BLVD
NEWPORT,NC
DB 1553 PG 461
FREMONT PROPERTIES LLC
453 HOWARD BLVD
NEWPORT,NC
DB 1542 PG 159
FIRST CITIZENS
BANK & TRUST CO
7041 HWY 70
NEWPORT,NC
DB847 PG 90
FISHING CREEK
PROPERTIES LLC
DB 1228 PG 86
EQUITY TRUST
COMPANY CUSTODIAN
175 NINE FOOT ROAD
NEWPORT,NC
DB 1566 PG 76
A&M MINI STORAGE LLC
183 NINE FOOT ROAD
NEWPORT,NC
DB 1449 PG 63
WLER,TIMOTHY
B 1527 PG451
EXISITNG C/A LINE
EXISITNG R/W LINE
SIGHT TRIANGLE

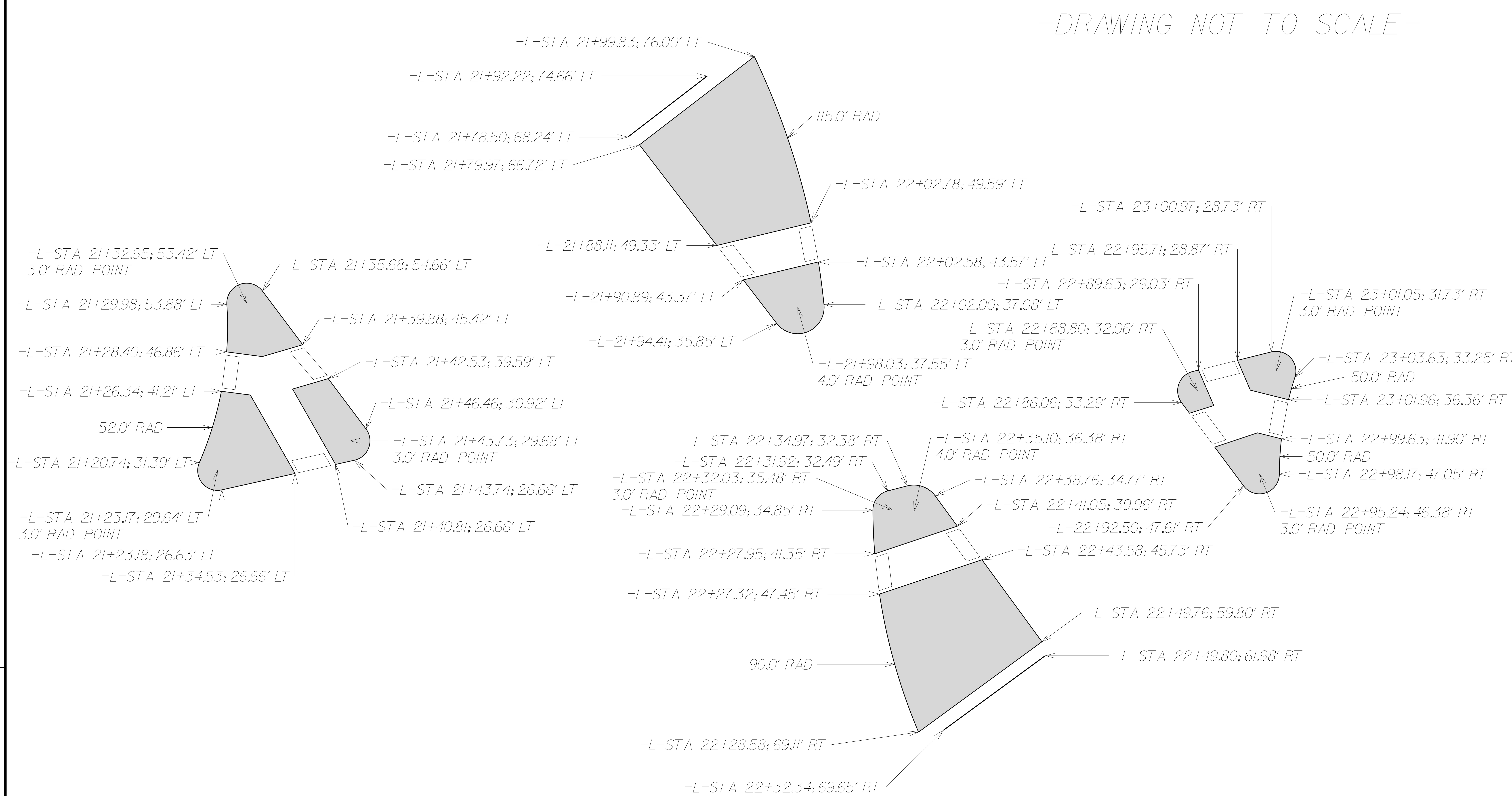
REVISIONS

8/17/99

05-SEP-2018 12:29
G:\PROJECTS\CARTERET\W-5702E\US70_SR1124(HOWARD AVE_NINE FOOT ROAD\9ft\9FT70_PSH4.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	5

PEDESTRIAN REFUGE ISLAND LAYOUT

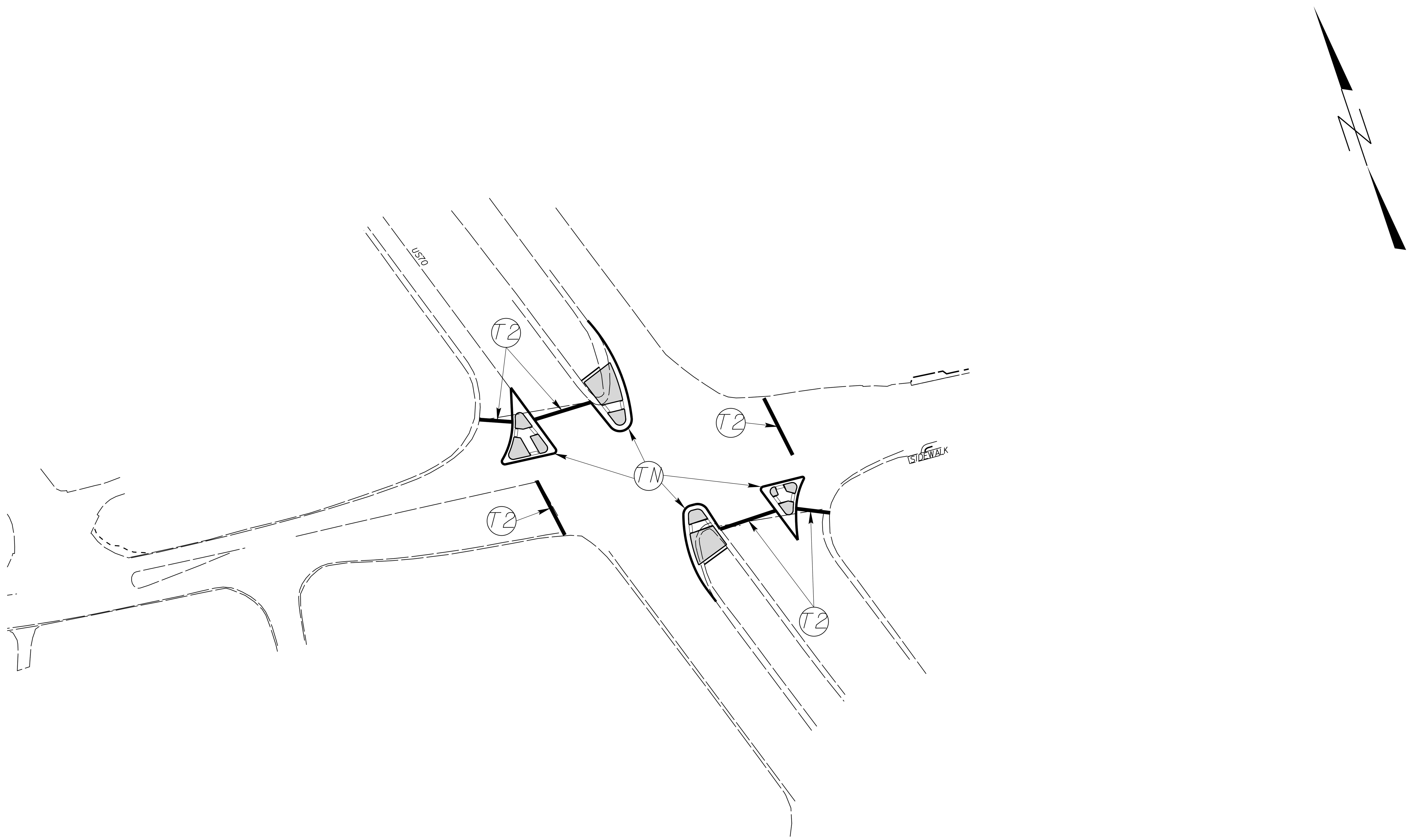


8/17/99

REVISIONS

05-SEP-2018 12:29
G:\PROJECTS\CARTERET\W-5702E\US70_SR1124(HOWARD AVE_NINE FOOT ROAD)\9ft\9FT70_PSH5.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	PMP-1



NOTE

THERMOPLASTIC MARKINGS AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, NCDOT ROADWAY STANDARD DRAWINGS, AND THE CURRENT EDITON OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). QUANTITIES FOR THESE ITEMS HAVE BEEN ACCOUNTED FOR IN THE CONTRACT BID FORM.

PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

TN - THERMOPLASTIC PAVEMENT MARKING (8" WHITE) GORE LINE
T2 - THERMOPLASTIC PAVEMENT MARKING (24" WHITE- 120MIL) STOP BAR

REVISIONS

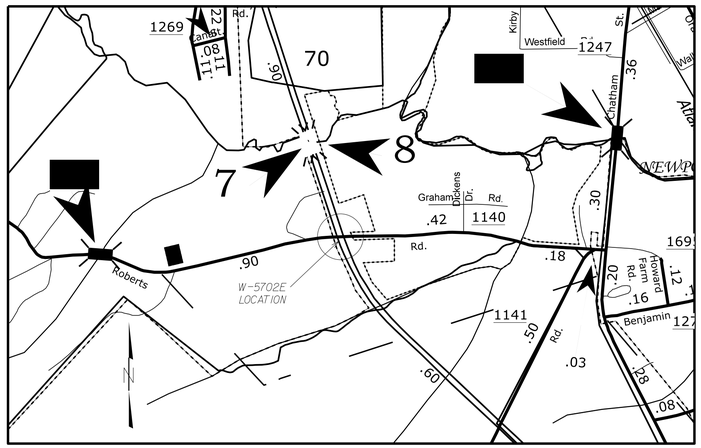
8/17/99

17-SEP-2018 09:57
G:\PROJECTS\CARTERET\W-5702E\US70_SR1124(HOWARD AVE_NINE FOOT ROAD)\9ft\9FT70_PMP_PSH1.dgn
$$$$USERNAME$$$$

09/08/99

TIP PROJECT: W-5702E

CONTRACT: DB00437



See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CARTERET COUNTY

LOCATION: US70 AT SR1140 (ROBERTS ROAD)

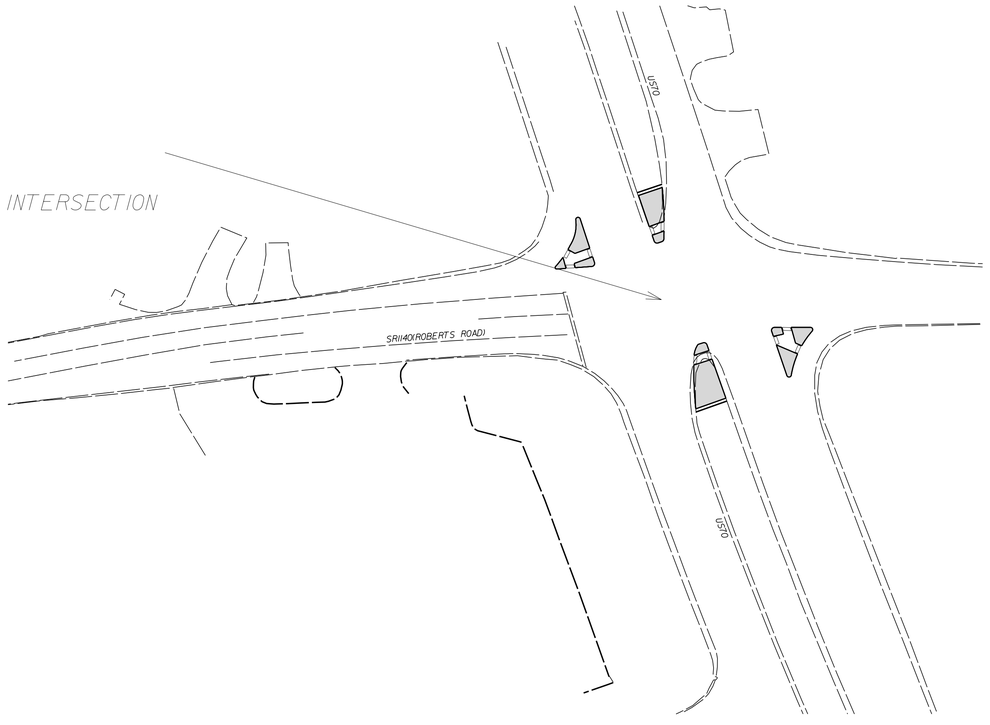
TYPE OF WORK: CONSTRUCT PEDESTRIAN REFUGE ISLANDS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5702E	1	10

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44848.1.5	HSIP-0070(209)	PE
44848.2.5	HSIP-0070(209)	R/W
44848.3.5	HSIP-0070(209)	CONST

N

PROJECT W-5702E
CONSTRUCT PEDESTRIAN
REFUGE ISLANDS IN THE INTERSECTION
OF US70 AT SR1140



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

PROJECT LENGTH

LENGTH ROADWAY PROJECT W-5702E = 0.037 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1037 WH SMITH BLVD, GREENVILLE, NC

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: JANUARY 2019

JEFFREY D. CABANISS, PE
PROJECT ENGINEER

RICH GODLEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS

DocuSigned by: Jeffrey D. Cabaniss
SIGNATURE: P.E. 11/28/2018

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS

DocuSigned by: Jeffrey D. Cabaniss
SIGNATURE: P.E. 11/28/2018

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

05-SEP-2018 12:30
C:\PROJECTS\CARTERET\W-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSHt.dgn
$$$$USERNAME$$$$

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018

SUBSURFACE PLANS:

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

UTILITIES:

OWNERS:
CARTERET-CRAVEN ELECTRIC COOPERATIVE: POWER
DUKE ENERGY: POWER
CENTURYLINK: PHONE AND FIBER OPTIC
NCDOT: TRAFFIC AND FIBER OPTICS
PIEDMONT NATURAL GAS COMPANY: GAS
SPIRIT COMMUNICATIONS: FIBER OPTIC

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 16, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

DIVISION 8 - INCIDENTALS
852.01 CONCRETE ISLANDS
852.02 CONCRETE MOUNTABLE MEDIAN

DIVISION 11 - WORK ZONE TRAFFIC CONTROL
1101.01 WORK ZONE ADVANCE WARNING SIGNS
1101.02 TEMPORARY LANE CLOSURES

8/17/99
05-SEP-2018 12:30
G:\PROJECTS\CARTERET\W-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSH1A.dgn
$$$$USERNAME$$$$

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

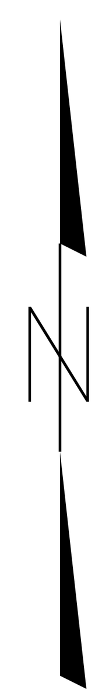
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

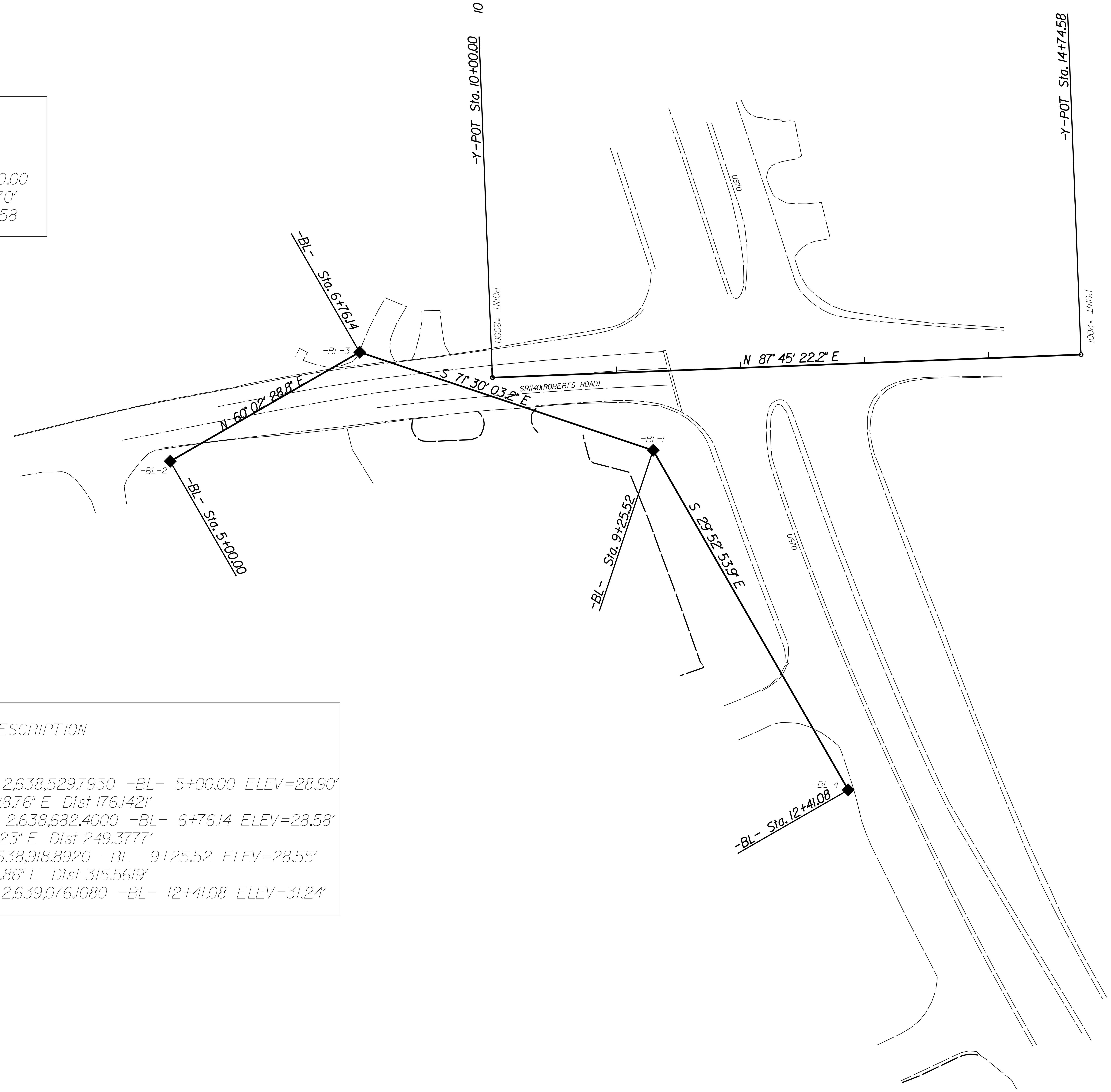
PROJECT REFERENCE NO.	SHEET NO.
W-5702E	1C

SURVEY CONTROL SHEET

-Y- DESCRIPTION

Point 2000 N 380,740.3935 E 2,638,789.4428 Sta 10+00.00
Course from 2000 to 2001 N 87° 45' 22.19" E Dist 474.5770'
Point 2001 N 380,758.9743 E 2,639,263.6560 Sta 14+74.58





-BL- DESCRIPTION

Point 2 N 380,672.9530 E 2,638,529.7930 -BL- 5+00.00 ELEV=28.90'
Course from 2 to 3 N 60° 02' 28.76" E Dist 176.1421'
Point 3 N 380,760.9140 E 2,638,682.4000 -BL- 6+76.14 ELEV=28.58'
Course from 3 to 1 S 71° 30' 03.23" E Dist 249.3777'
Point 1 N 380,681.7890 E 2,638,918.8920 -BL- 9+25.52 ELEV=28.55'
Course from 1 to 4 S 29° 52' 53.86" E Dist 315.5619'
Point 4 N 380,408.1790 E 2,639,076.1080 -BL- 12+41.08 ELEV=31.24'

REVISIONS

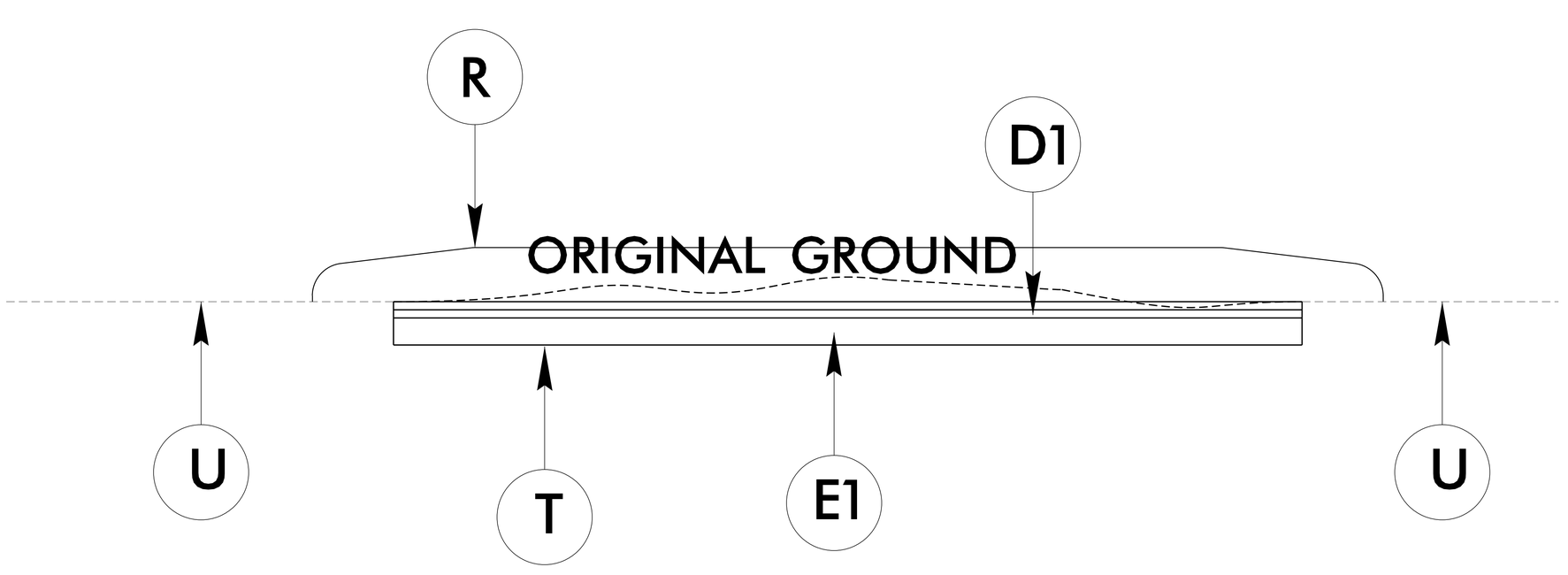
8/17/99

05-SEP-2018 12:31
Q:\PROJECTS\CARTERET\W-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSH1C.dgn
$$$$USERNAME$$$$

6/2/99

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ.YD.
D1	PROP. APPROX. 2.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 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.
R	PROP. 5″ CONCRETE MONOLITHIC ISLAND
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

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



USE TYPICAL SECTION #1

FOR MEDIAN ISLAND CONSTRUCTION

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

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL Engineer SEAL 034398 ENGINEER JEFFREY D. CABANISS

11/28/2018

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL Engineer SEAL 034398 ENGINEER JEFFREY D. CABANISS

11/28/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

05-SEP-2018 12:31
C:\PROJECTS\CARTERET\w-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSH2.dgn
$$USER$$

8/17/99

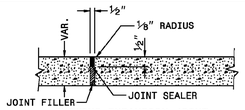
REVISIONS

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

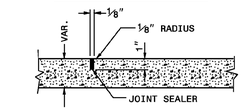
1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE ISLANDS

SHEET 1 OF 1
852.01



SHOWING EXPANSION JOINT



SHOWING GROOVED JOINT

PARTIAL LONGITUDINAL SECTIONS OF PAVED ISLANDS

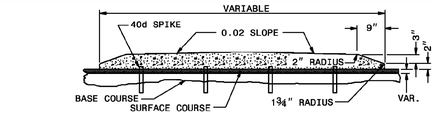
NOTE:

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

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

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

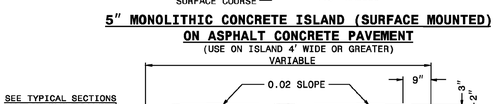
FOR JOINTS IN THE CURB AND/OR CURB AND GUTTER, SEE STANDARD NO. 846.01



5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) ON ASPHALT CONCRETE PAVEMENT

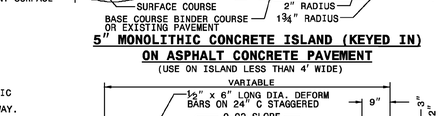
(USE ON ISLAND 4' WIDE OR GREATER)

SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH. KEY IN ON THE LAST LAYER OF PAVEMENT SURFACE COURSE

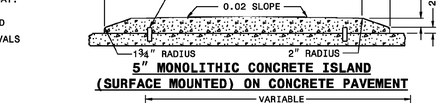


5" MONOLITHIC CONCRETE ISLAND (KEYED IN) ON ASPHALT CONCRETE PAVEMENT

(USE ON ISLAND LESS THAN 4' WIDE)



5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) ON CONCRETE PAVEMENT



PAVED CONCRETE ISLAND

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

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE ISLANDS

SHEET 1 OF 1
852.01

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

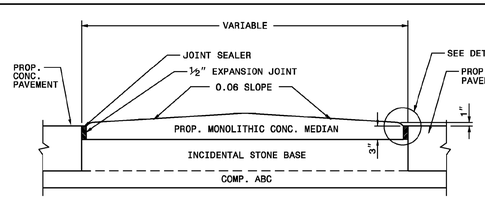
1-12

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

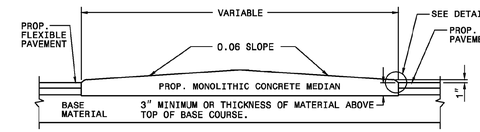
1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE MOUNTABLE MEDIAN
FOR USE WITH RIGID OR FLEXIBLE PAVEMENT

SHEET 1 OF 1
852.02



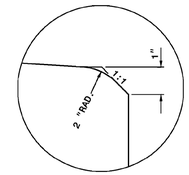
TRANSVERSE SECTION FOR CONCRETE PAVEMENT



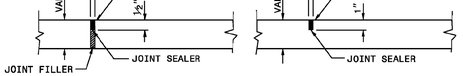
TRANSVERSE SECTION FOR FLEXIBLE PAVEMENT

GENERAL NOTES:

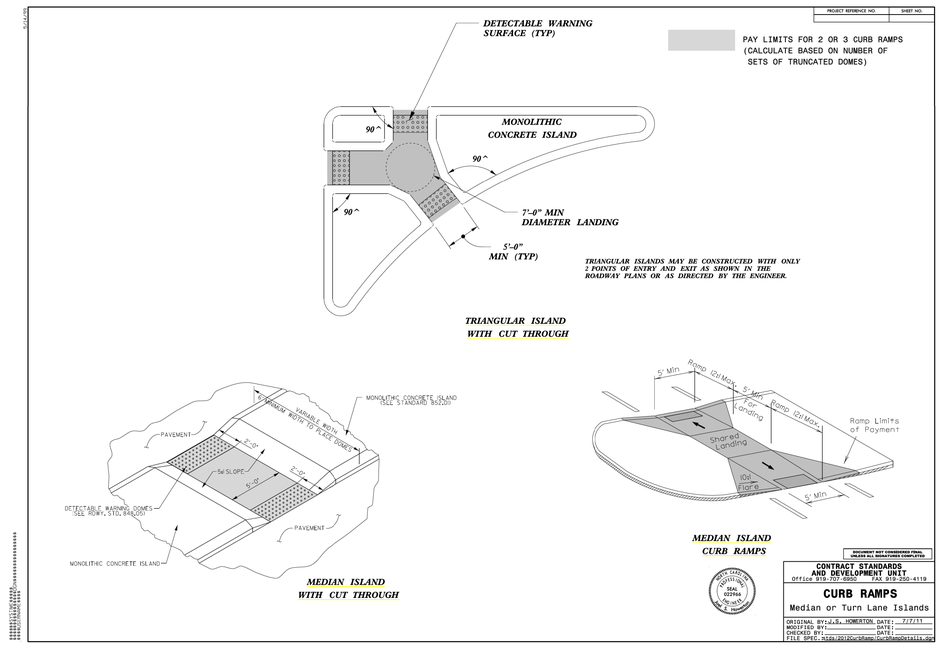
PLACE ½" EXPANSION JOINTS AT 30' INTERVALS AND AT ALL OTHER POINTS WHERE PROPOSED MEDIAN ABUTS RIGID OBJECTS. PLACE GROOVED JOINTS ½" DEEP AT 10' INTERVALS BETWEEN EXPANSION JOINTS. FILL THE TOP ½" OF EXPANSION JOINTS AND ½" GROOVED JOINTS WITH JOINT SEALER.



DETAIL - A



PART LONGITUDINAL SECTIONS OF CONCRETE MEDIAN



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Median or Turn Lane Islands

ORIGINAL BY: J.S. HOMERTON, DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC: N:\ds\20\Curbramp\CurbRampDetails.dgn

05-SEP-2018 (2:3)
C:\USERS\JSTARRETT\w-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSH2A.dgn
$$USER(FULLNAME,F$$

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SECT	QUANTITY	UNIT	ITEM DESCRIPTION
800	1	LS	MOBILIZATION
801	1	LS	CONSTRUCTION SURVEYING
226	1	LS	GRADING
610	20	TON	ASPHALT CONCRETE BASE COURSE,TYPE B25.0C
610	20	TON	ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C
610	10	TON	ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B
620	5	TON	ASPHALT BINDER FOR PLANT MIX
852	210	SY	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
SP	96	SF	WORK ZONE ADVANCE/GENERAL WARNING SIGNING
SP	1	LS	TEMPORARY TRAFFIC CONTROL
1205	400	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8")
1205	245	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24",120MILS)
1205	150	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
1205	212	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
SP	1	EA	CONCRETE WASHOUT STRUCTURE

5/28/99
31-OCT-2018 07:28
U:\PROJECTS\CARTERET\W-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSH3.dgn
$$$$USERNAME$$$$

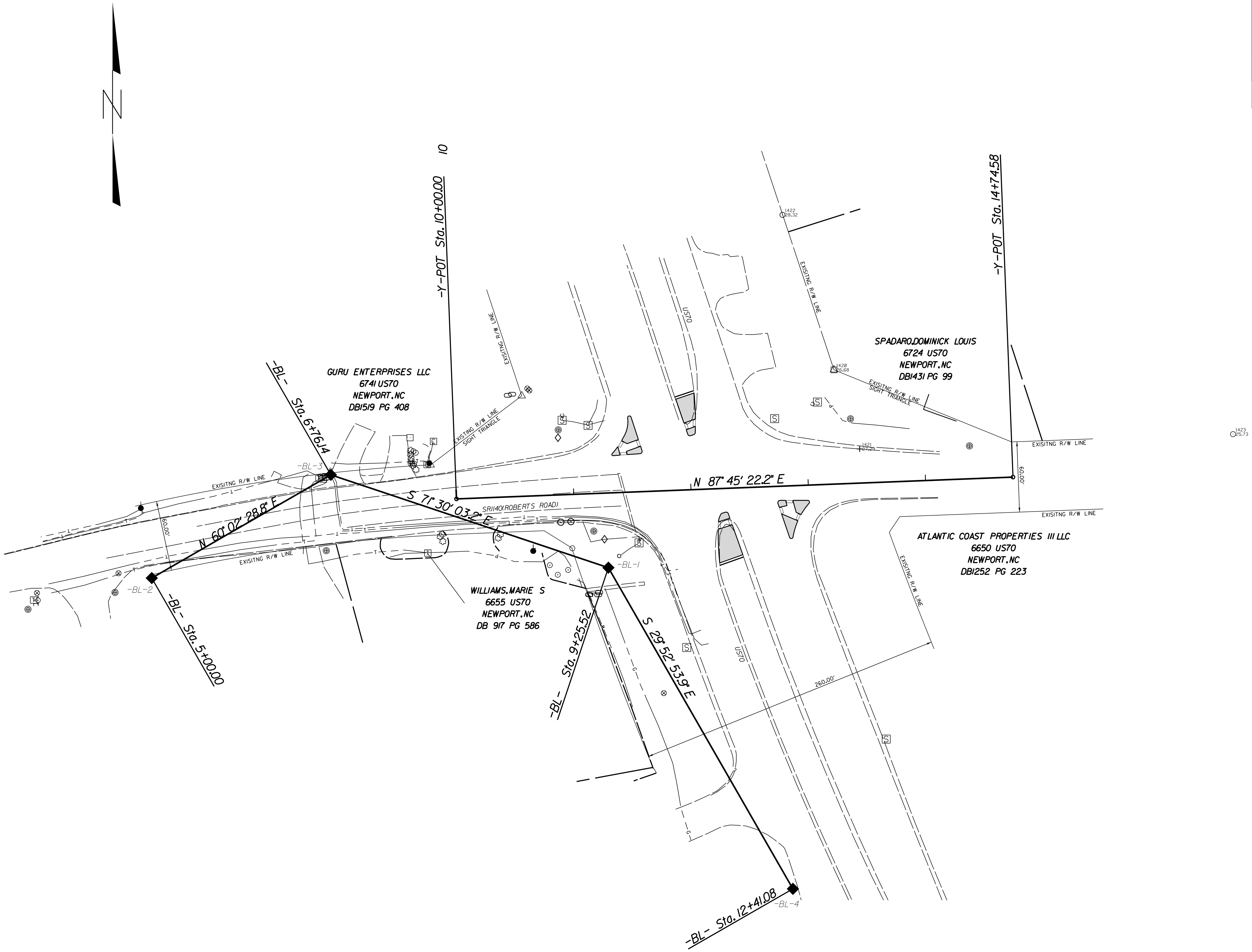
PROJECT REFERENCE NO.	SHEET NO.
W-5702E	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS — 11/28/2018

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034398 JEFFREY D. CABANISS — 11/28/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



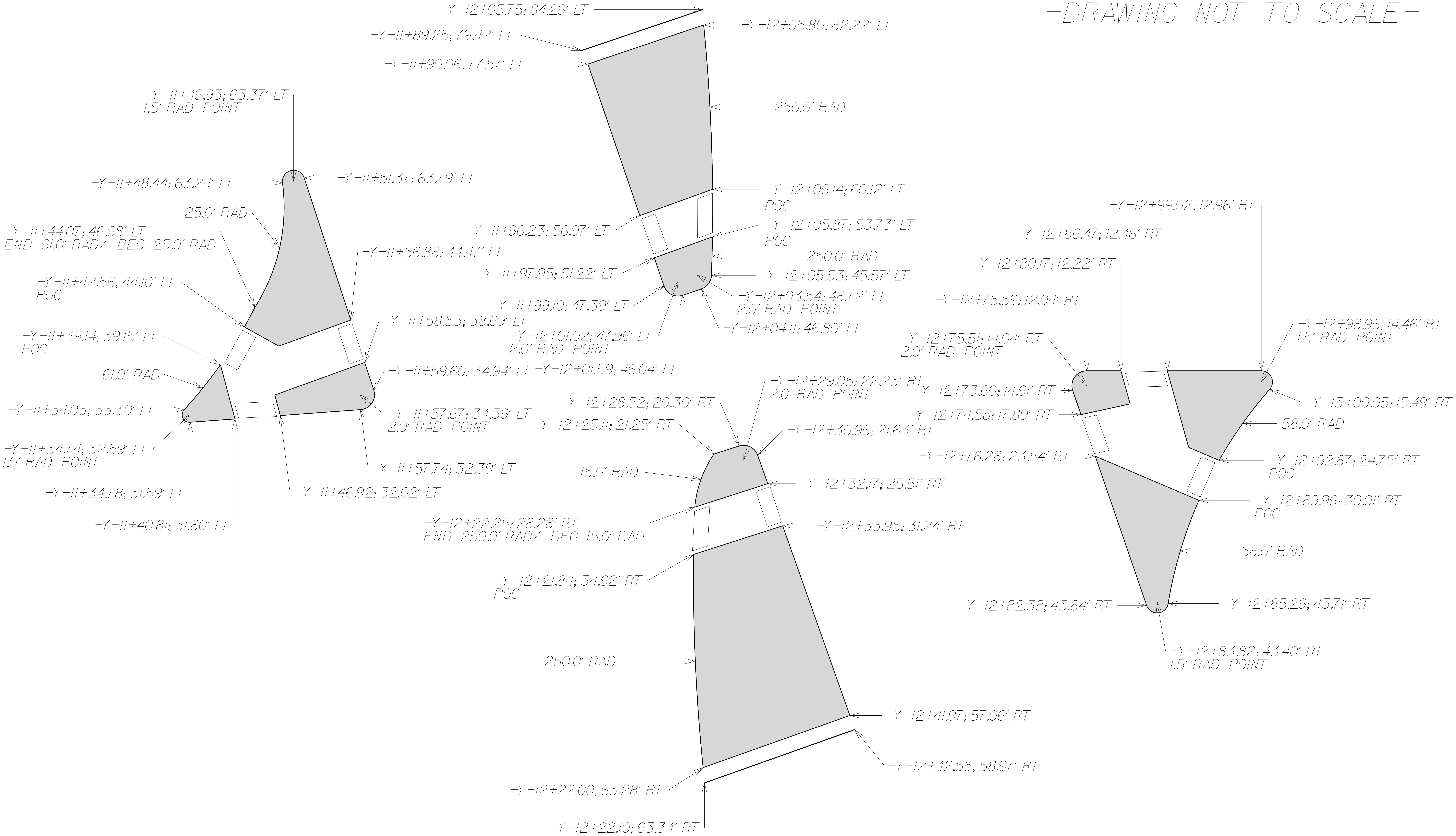
05-SEP-2018 12:32
G:\PROJECTS\CARTERET\W-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSH4.dgn
$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	5

PEDESTRIAN REFUGE ISLAND LAYOUT

-DRAWING NOT TO SCALE-



REVISIONS

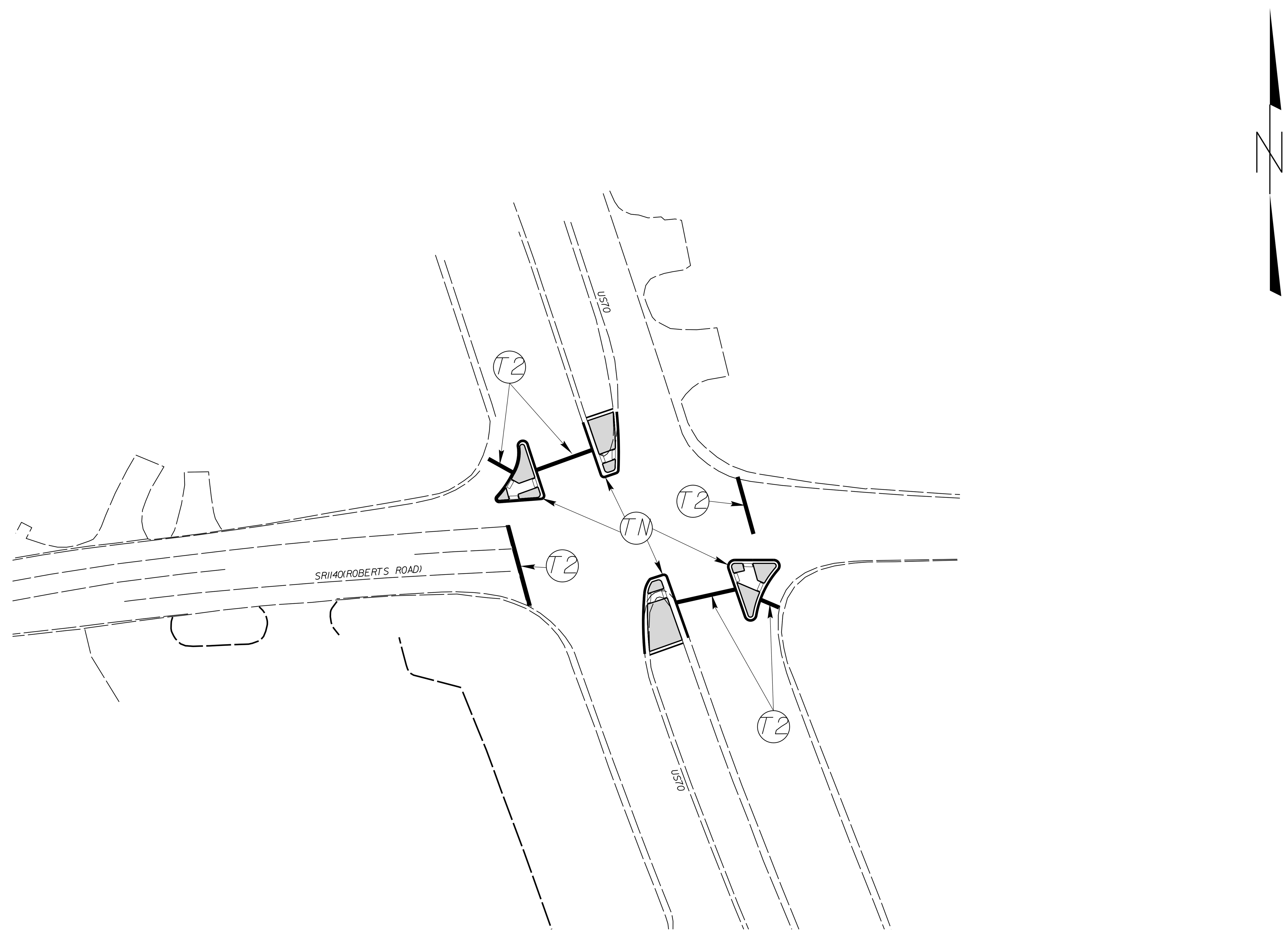
8/17/99

05-SEP-2018 12:32
G:\PROJECTS\CARTERET\W-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PSH5.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	PMP-1

8/17/99

REVISIONS



NOTE

THERMOPLASTIC MARKINGS AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, NCDOT ROADWAY STANDARD DRAWINGS, AND THE CURRENT EDITON OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). QUANTITIES FOR THESE ITEMS HAVE BEEN ACCOUNTED FOR IN THE CONTRACT BID FORM.

PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

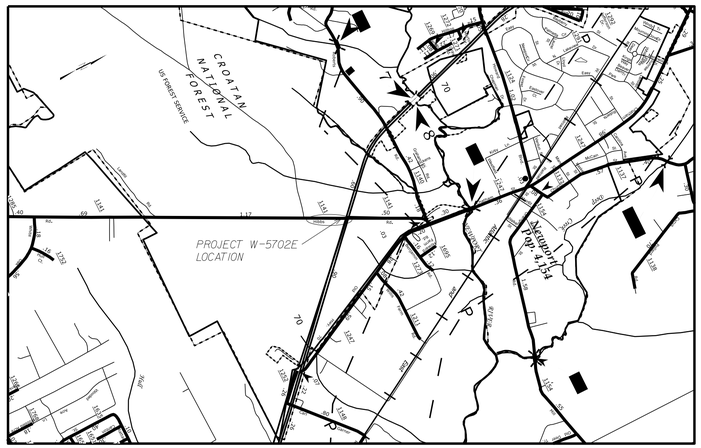
TN - THERMOPLASTIC PAVEMENT MARKING (8" WHITE) GORE LINE
T2 - THERMOPLASTIC PAVEMENT MARKING (24" WHITE- 120MIL) STOP BAR

17-SEP-2018 09:56
G:\PROJECTS\CARTERET\W-5702E\US70_SR1140(ROBERTS ROAD)\roberts\RBRTS70_PMP_PSH1.dgn
$$$$USERNAME$$$$

09/08/99

TIP PROJECT: W-5702E

CONTRACT: DB00437



See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

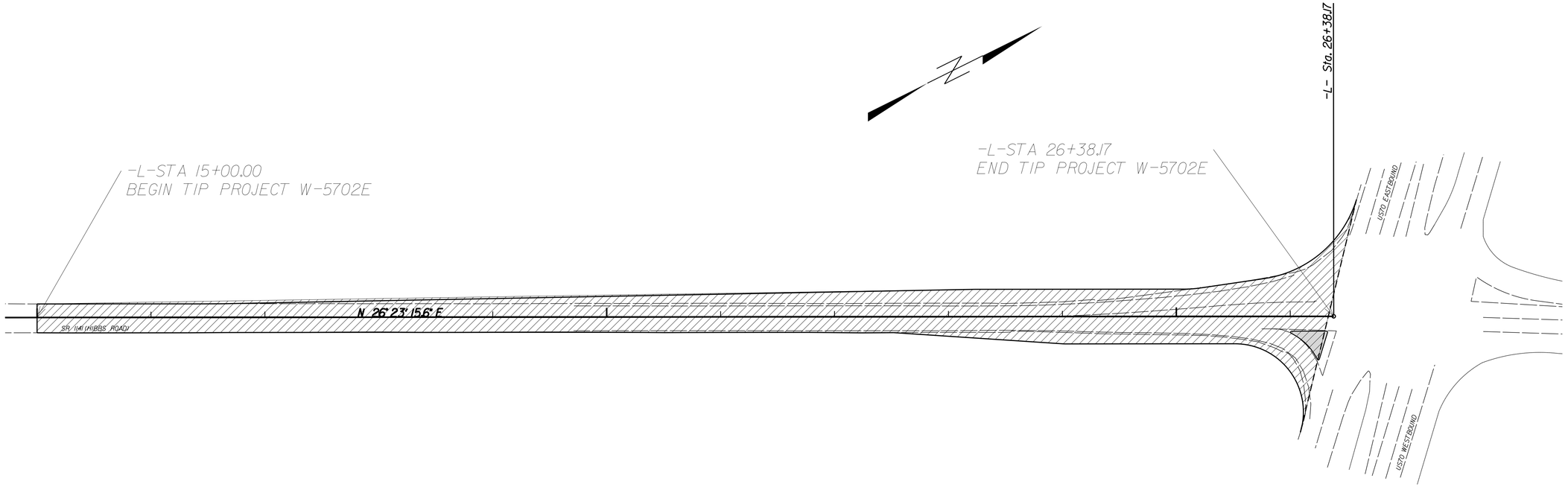
CARTERET COUNTY

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

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44848.1.5	HSIP-0070(209)	PE
44848.2.5	HSIP-0070(209)	R/W
44848.3.5	HSIP-0070(209)	CONST

LOCATION: SR1141 (HIBBS ROAD) AT US 70

TYPE OF WORK: WIDEN NORTHBOUND SR1141(HIBBS ROAD) TO PROVIDE 300' OF LEFT TURN STORAGE AND 150' OF RIGHT TURN STORAGE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

PROJECT LENGTH

LENGTH ROADWAY PROJECT W-5702E = 0.216 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
1037 WH SMITH BLVD, GREENVILLE NC

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 2017

LETTING DATE: JANUARY 2019

JEFFREY D. CABANISS, PE
PROJECT ENGINEER

RICH GODLEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS

DocuSigned by: Jeffrey D. Cabaniss P.E.
SIGNATURE: 11/28/2018

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034398 ENGINEER JEFFREY D. CABANISS

DocuSigned by: Jeffrey D. Cabaniss P.E.
SIGNATURE: 11/28/2018

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

29-OCT-2018 10:09
C:\PROJECTS\CARTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_psht.dgn
$$$$USERNAME$$$$

8/17/99

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018

SUBSURFACE PLANS:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

GRADING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE 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.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

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

UTILITIES:

OWNERS:
CARTERET-CRAVEN ELECTRIC COOPERATIVE; POWER
DUKE ENERGY; POWER
CENTURYLINK; PHONE AND FIBER OPTIC
NCDOT; TRAFFIC AND FIBER OPTICS
PIEDMONT NATURAL GAS COMPANY; GAS
SPIRIT COMMUNICATIONS; FIBER OPTIC

RIGHT-OF-WAY MARKERS:

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

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 16, 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
DIVISION 3 - PIPE CULVERTS	
300.01	METHOD FOR PIPE INSTALLATION
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	METHOD OF SHOULDER CONSTRUCTION - METHOD I
DIVISION 8 - INCIDENTALS	
840.72	PIPE COLLAR
852.01	CONCRETE ISLANDS
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
DIVISION 12 - PAVEMENT MARKINGS, MARKERS AND DELINEATION	
1205.01	LINE TYPES OFFSETS
1205.05	TURN LANES
1205.08	SYMBOLS
DIVISION 16 - EROSION CONTROL AND ROADSIDE DEVELOPMENT	
1605.01	TEMPORARY SILT FENCE
1633.01	TEMPORARY ROCK SILT CHECK TYPE A

29-OCT-2018 10:09
C:\PROJECTS\INTERET\w-5702E\US70_SR1141HIBBS ROAD\HIBBS\hibbs_psh1a.dgn
$$$$USERNAME$$$$

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

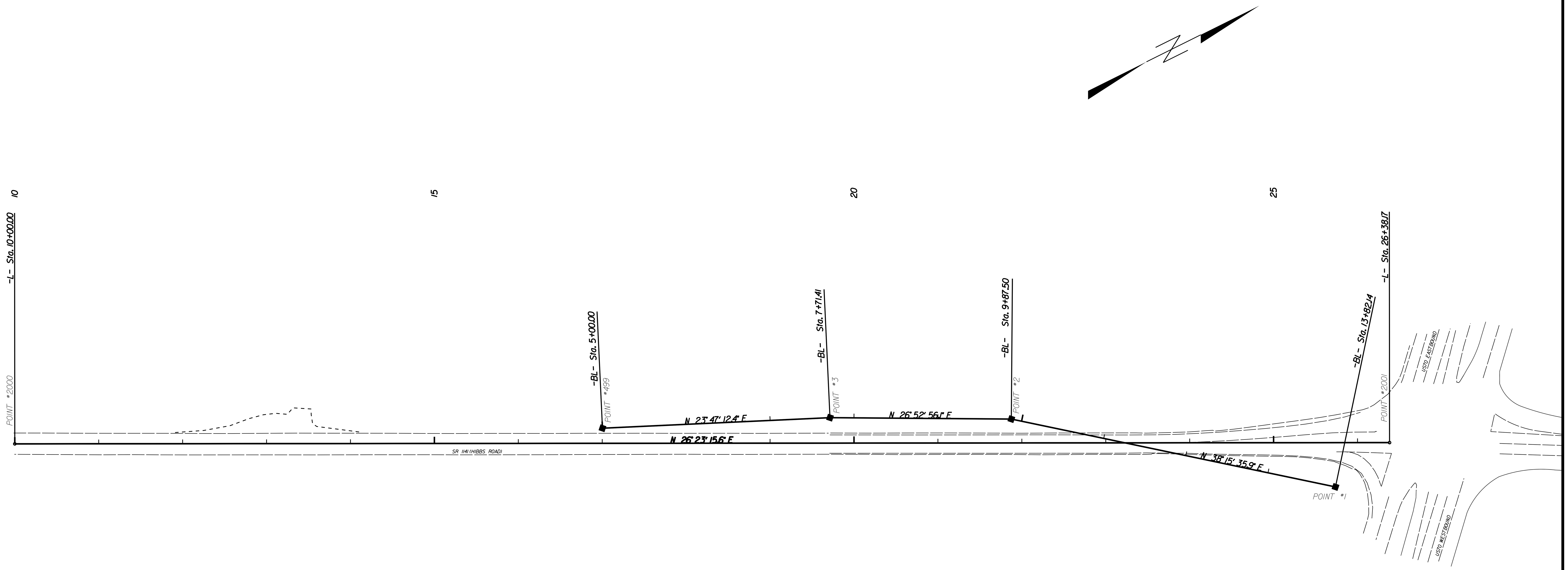
SURVEY CONTROL SHEET

-BL- DESCRIPTION

Point 499 N 377,419.6510 E 2,640,633.2190 Sta 5+00.00 ELEV=30.34'
Course from 499 to 3 N 23° 47' 12.38" E Dist 271.4127'
Point 3 N 377,668.0080 E 2,640,742.6890 Sta 7+71.41 ELEV=28.51'
Course from 3 to 2 N 26° 52' 56.10" E Dist 216.0880'
Point 2 N 377,860.7450 E 2,640,840.3950 Sta 9+87.50 ELEV=28.29'
Course from 2 to 1 N 38° 15' 35.87" E Dist 394.6349'
Point 1 N 378,170.6160 E 2,641,084.7650 Sta 13+82.14 ELEV=29.60'

-L- DESCRIPTION

Point 2000 N 376,784.3390 E 2,640,338.1070 Sta 10+00.00
Course from 2000 to 2001 N 26° 23' 15.63" E Dist 1,638.1691'
Point 2001 N 378,251.8230 E 2,641,066.1790 Sta 26+38.17



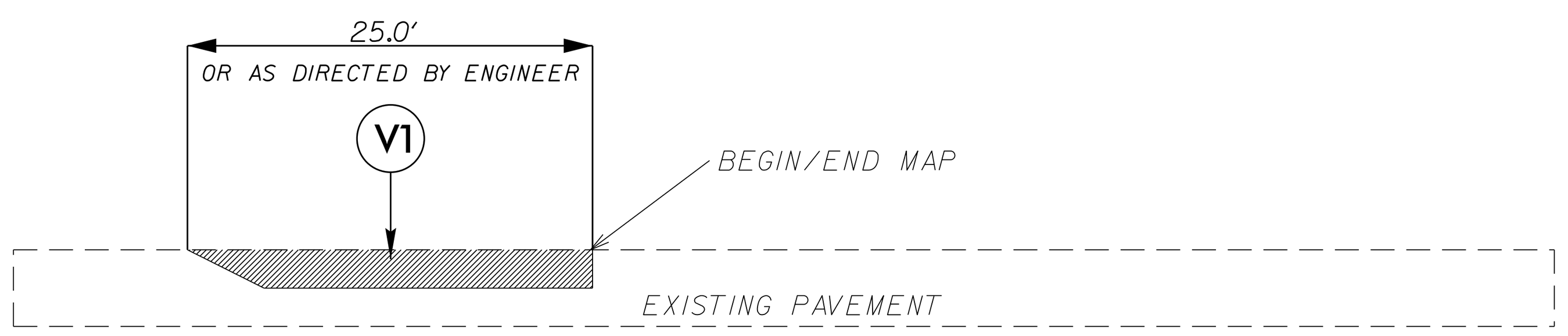
REVISIONS

8/17/99

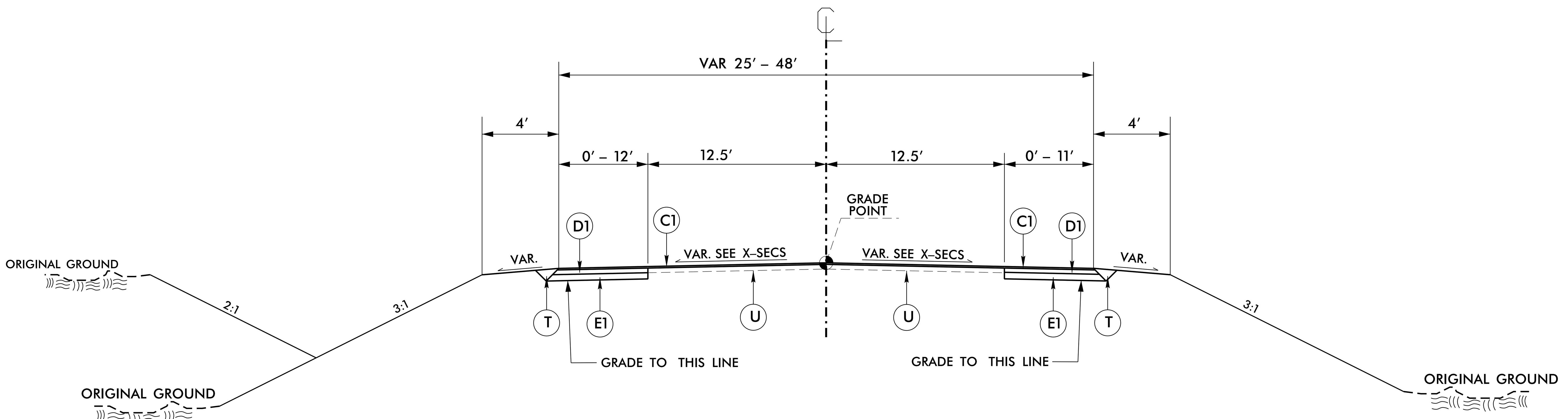
29-OCT-2018 10:09
G:\PROJECTS\CARTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_pshlc.dgn
$$$$USERNAME$$$$

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ.YD.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 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.
V1	INCIDENTAL MILLING

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



INCIDENTAL MILLING DETAIL



USE TYPICAL SECTION #1

-L- 15+00.00 - 26+38.17

REVISIONS

8/17/99

29-OCT-2018 10:09
G:\PROJECTS\CARTERET\W-5702E\US70_SR1141HIBBS ROAD\HIBBS\hibbs_psh2.dgn
$$$$USERNAME$$$$

5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SECT	QUANTITY	UNIT	ITEM DESCRIPTION
800	1	LS	MOBILIZATION
801	1	LS	CONSTRUCTION SURVEYING
226	1	LS	GRADING
300	10	TON	FOUNDATION CONDITIONING MATERIAL,MINOR STRUCTURES
300	10	SY	FOUNDATION CONDITIONING GEOTEXTILE
310	12	LF	24" DRAINAGE PIPE
310	12	LF	30" DRAINAGE PIPE
607	440	SY	INCIDENTAL MILLING
610	210	TON	ASPHALT CONCRETE BASE COURSE,TYPE B25.0C
610	140	TON	ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE 119.0C
610	400	TON	ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B
620	45	TON	ASPHALT BINDER FOR PLANT MIX
840	1.87	CY	PIPE COLLARS
852	45	SY	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
SP	96	SF	WORK ZONE ADVANCE/GENERAL WARNING SIGNING
SP	1	LS	TEMPORARY TRAFFIC CONTROL
1205	5,940	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4")
1205	103	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8")
1205	44	LF	THERMOPLASTIC PAVEMENT MARKING LINE (24" - 120MIL)
1205	6	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90MIL)
1605	100	LF	TEMPORARY SILT FENCE
SP	900	LF	SAFETY FENCE
1610	5	TON	STONE FOR EROSION CONTROL,CLASS B
1610	5	TON	SEDIMENT CONTROL STONE
1615	1.5	ACRE	TEMPORARY MULCHING
1620	75	LB	SEED FOR TEMPORARY SEEDING
1620	0.38	TON	FERTILIZER FOR TEMPORARY SEEDING
1660	1.5	ACRE	SEEDING AND MULCHING
1661	75	LB	SEED FOR REPAIR SEEDING
1661	0.3	TON	FERTILIZER FOR REPAIR SEEDING
SP	4	EA	RESPONSE FOR EROSION CONTROL
SP	30	LF	COIR FIBER WATTLE
SP	2	LB	POLYACRYLAMIDE
SP	1	EA	CONCRETE WASHOUT STRUCTURE

31-OCT-2018 07:23
C:\PROJECTS\CADD\INTERET\w-5702E\US70_SR1141HIBBS ROAD\HIBBS\hibbs_psh3.dgn
$$$$USERNAME$$$$

COMPUTED BY: RG DATE:
CHECKED BY: LJ DATE:

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	3A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUB–REGIONAL & REGIONAL LIST OF PIPES, ENDWALLS, ETC.

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	CONC. COLLARS CL. "B" C.Y. STD 840.72	REMARKS
-L- 22+22.00	LT	1	OUT		25.63	25.54	0.75%				12'					0.5526	COLLAR AND EXTEND PIPE
-L- 26+02.32	RT	2	OUT		26.32	26.32	0.00%					8'				0.6560	COLLAR AND EXTEND PIPE
-L- 26+26.44	LT	3	IN		26.25	26.25	0.00%					4'				0.6560	COLLAR AND EXTEND PIPE
TOTAL:											12'	12'				1.8646	

Other columns of the list (no entries): SIZE; THICKNESS OR GAUGE; DO NOT USE RCP; DO NOT USE CSP; DO NOT USE CAAP; DO NOT USE HDPE; C.S. PIPE 12" (.064), 15" (.064), 18" (.064), 24" (.064), 36" (.079), 42" (.109), 48" (.109); R.C. PIPE (CLASS III) 15", 18", 24", 30", 36", 42", 48"; R.C. PIPE (CLASS IV) 12", 15", 18", 24", 30", 36", 42", 48"; DOT SUPPLIED 95" X 67" CAAP WHEADWALLS; *** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE; *** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE; 15" SIDE DRAIN PIPE; 18" SIDE DRAIN PIPE; ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P., C.S.P.; QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B'): PER EACH (0' THRU 5.0'), LIN. *FT. A 5.0' THRU 10.0', B 10.0' AND ABOVE; C.B. STD. 840.01 OR STD. 840.02; FRAME, GRATES AND HOOD STANDARD 840.03, TYPE OF GRATE E, F, G; CONCRETE TRANSITIONAL SECTION CATCH BASIN, DROP INLET (840.15); DROP INLET FRAME AND GRATES (840.16); G.D.I. FRAME WITH GRATE STD. 840.22; G.D.I. FRAME WITH TWO GRATES STD. 840.24; G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24; G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24; J.B. STD. 840.31 OR 840.32; CORR. STEEL ELBOWS NO. & SIZE; CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71; PIPE REMOVAL LIN.FT.

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	BOX CULVERT EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L– 15+00.00 – 26+00.00	212	0	0	351	139	0
SUB TOTAL	212	0	0	351	139	0
SAY	212	0	0	351	139	0

NOTE:

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, UNCLASSIFIED STRUCTURE 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."

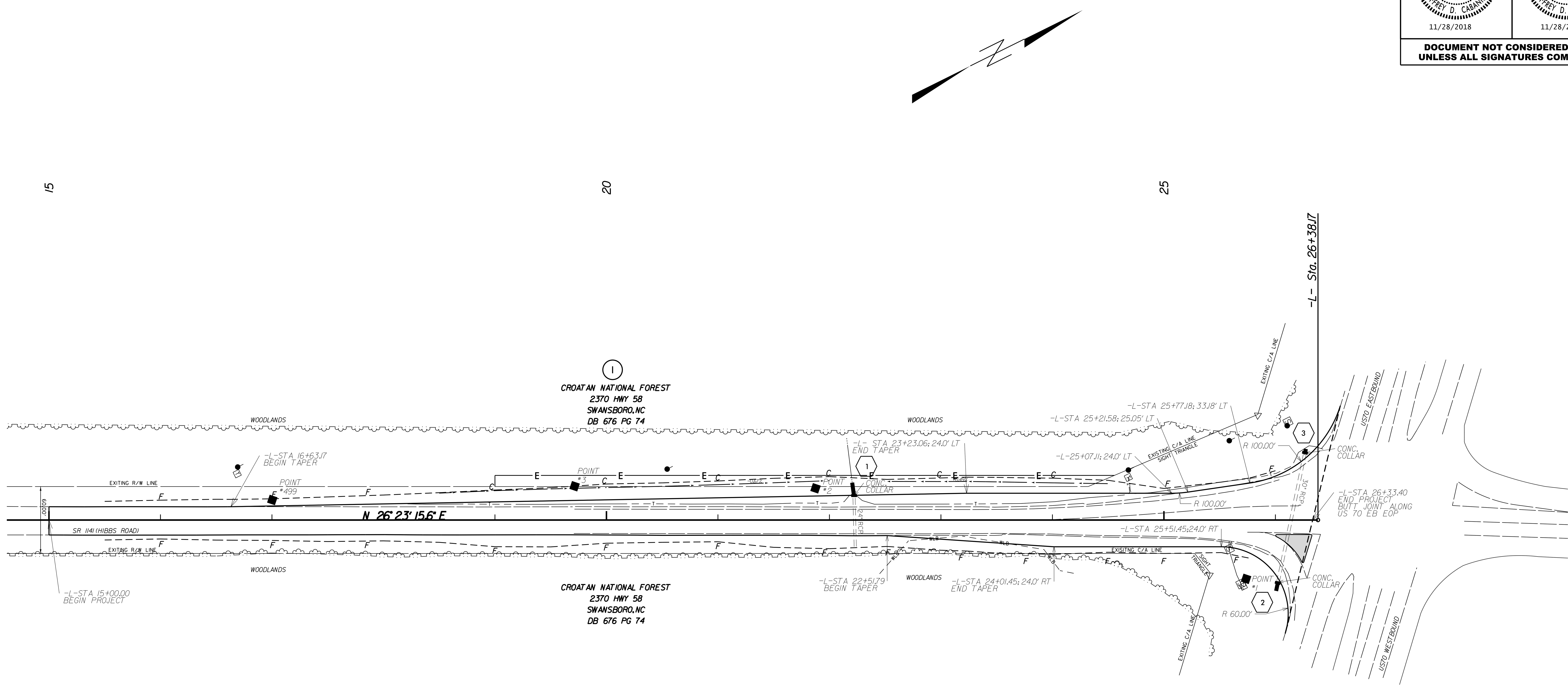
4/04/06
29-OCT-2018 10:09
CARTERET\W-5702E\SR1141(HIBBS ROAD\HIBBS\hibbs_psh3a.dgn

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 034398 — JEFFREY D. CABANISS — 11/28/2018	SEAL 034398 — JEFFREY D. CABANISS — 11/28/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

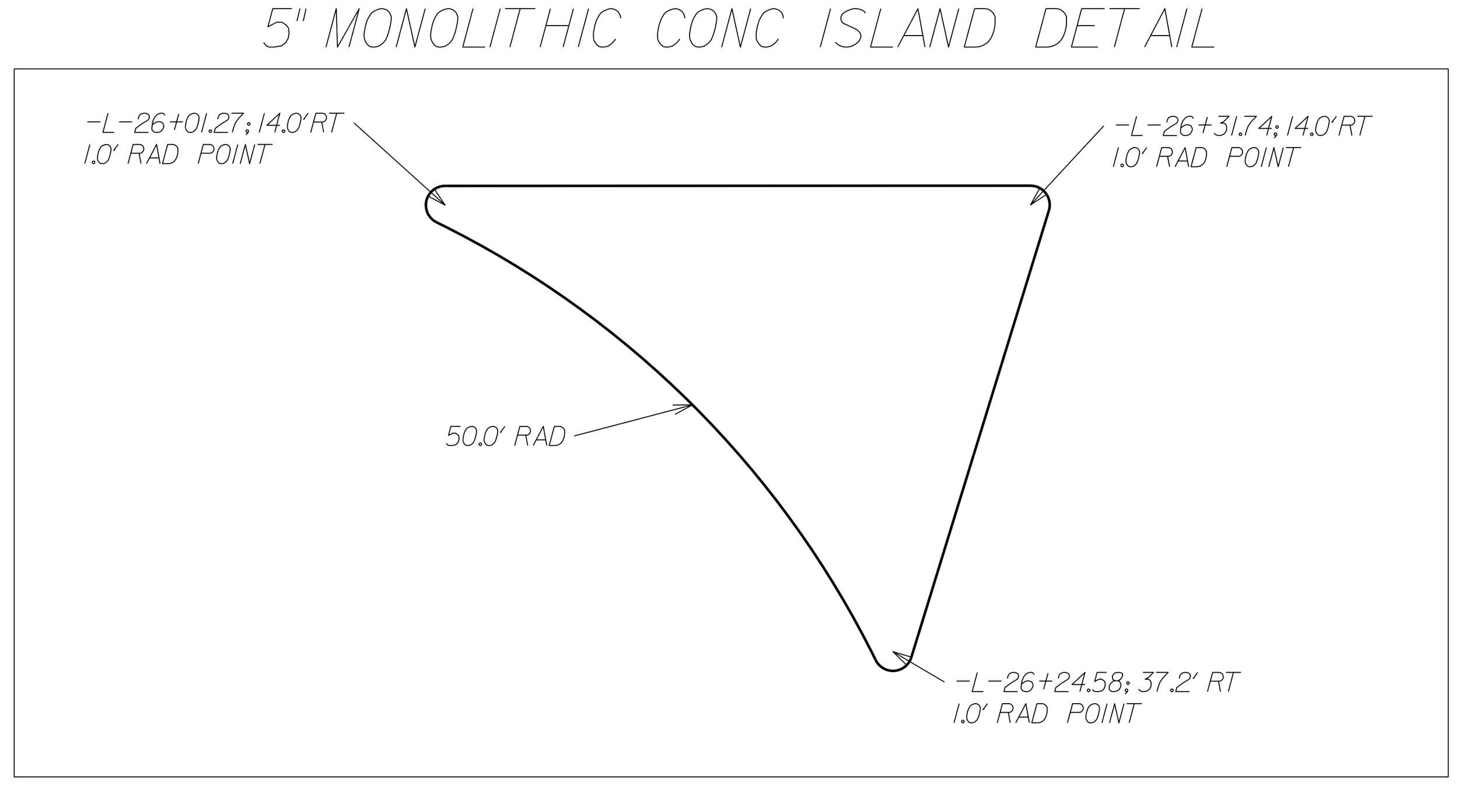
8/17/99

REVISIONS



15
20
25
-L- Sta. 26+38.17
1
CROATAN NATIONAL FOREST
2370 HWY 58
SWANSBORO,NC
DB 676 PG 74
WOODLANDS
EXITING R/W LINE
-L-STA 16+63.17
BEGIN TAPER
POINT #499
POINT #3
POINT #2
-L- STA 23+23.06; 24.0' LT
END TAPER
CONC. COLLAR
-L-STA 25+21.58; 25.05' LT
-L-STA 25+77.18; 33.18' LT
-L-25+07.11; 24.0' LT
EXISTING C/A LINE
SIGHT TRIANGLE
R 100.00'
CONC. COLLAR
3
US70 EASTBOUND
N 26°23' 15.6" E
SR 1141 (HIBBS ROAD)
-L-STA 26+33.40
END PROJECT
BUTT JOINT ALONG
US 70 EB EOP
-L-STA 25+51.45; 24.0' RT
-L-STA 15+00.00
BEGIN PROJECT
-L-STA 22+51.79
BEGIN TAPER
-L-STA 24+01.45; 24.0' RT
END TAPER
POINT
CONC. COLLAR
2
R 60.00'
US70 WESTBOUND
24" RCP
30" RCP

5" MONOLITHIC CONC ISLAND DETAIL

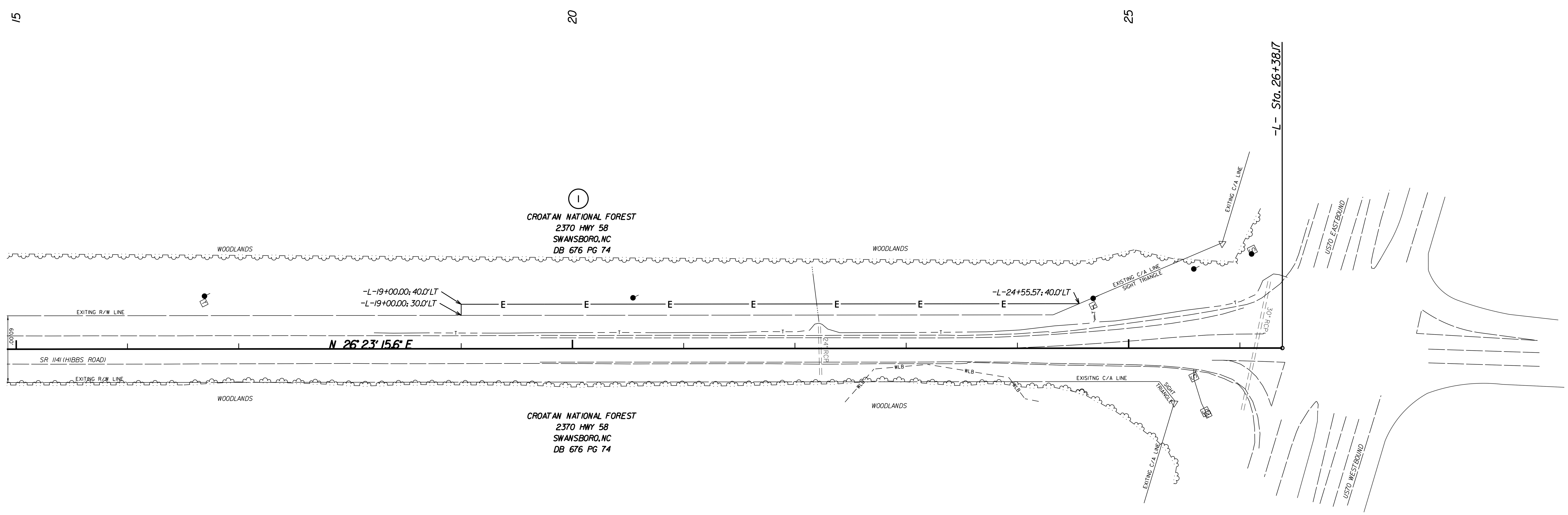


29-OCT-2018 10:09
G:\PROJECTS\CARTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_psh4.dgn
$$$$USERNAME$$$$

TEMPORARY CONSTRUCTION EASEMENT AREA SUMMARY

PARCEL NO.	PROPERTY OWNER NAME	LOCATION	TOTAL PARCEL AREA [ACRES]	AREA TO BE (TCE) [ACRES]	PARCEL AREA REMAINING [ACRES]
1	CROATAN NATIONAL FOREST	LT -L-	52,880.5	0.12	52,880.38

STATION/OFFSET	LOCATION	NORTH	EAST	DESCRIPTION
-L-19+00.00; 30.0'	LT	N 377603.8989	E 2640711.2310	(TCE) TIE POINT
-L-19+00.00; 40.0'	LT	N 377608.3515	E 2640702.2770	(TCE) CORNER
-L-24+55.57; 40.0'	LT	N 378106.0271	E 2640949.1919	(TCE) TIE POINT



NOTE: ALL EXISITNG R/W LINES SHOWN FROM STATE PROJECT # 8.12009 AS PREPARED IN THE OFFICE OF STATE HIGHWAY COMMISSION FEBRUARY 1965

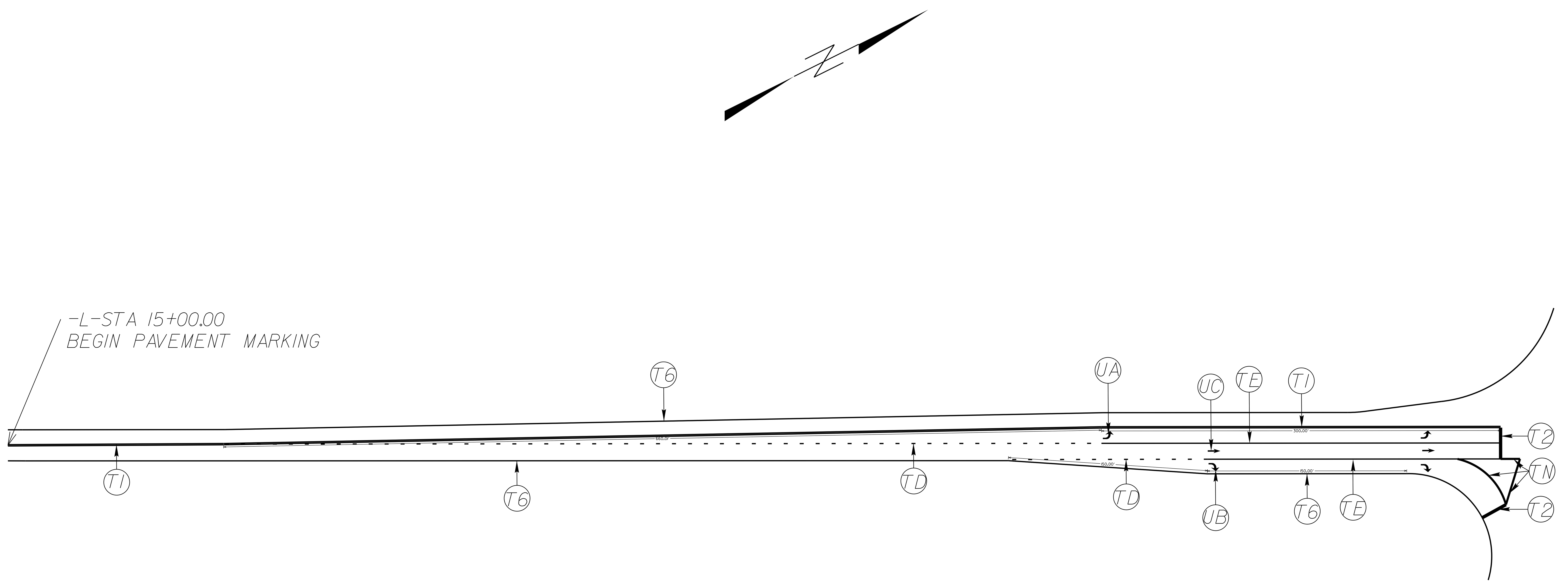
REVISIONS

8/17/99

29-OCT-2018 10:09
G:\PROJECTS\CARTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_rw_psh1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	PMP-1

REVISIONS



NOTE

THERMOPLASTIC MARKINGS AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, NCDOT ROADWAY STANDARD DRAWINGS, AND THE CURRENT EDITON OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). QUANTITIES FOR THESE ITEMS HAVE BEEN ACCOUNTED FOR IN THE CONTRACT BID FORM.

PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

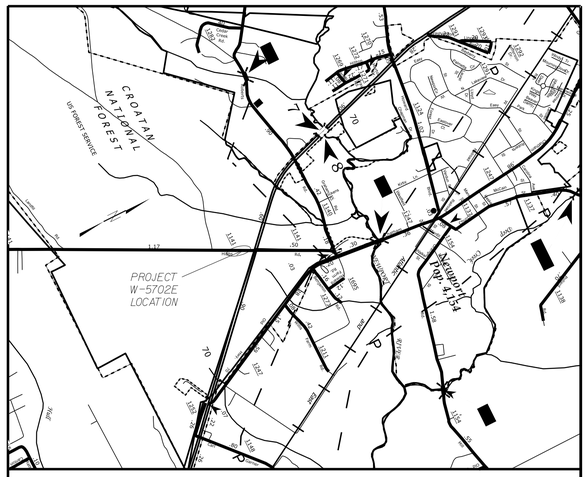
T2 - THERMOPLASTIC PAVEMENT MARKING (24" WHITE-120 MIL) STOP BAR
T6 - THERMOPLASTIC PAVEMENT MARKING (6" WHITE) EDGE LINE
TD - THERMOPLASTIC PAVEMENT MARKING (4" WHITE) 9' MINI SKIP
TE - THERMOPLASTIC PAVEMENT MARKING (4" WHITE) SOLID LANE LINE
T1 - THERMOPLASTIC PAVEMENT MARKING (4" YELLOW) SOLID DOUBLE YELLOW
TN - THERMOPLASTIC PAVEMENT MARKING (8" WHITE) GORE LINE

PAVEMENT MARKING SYMBOLS

UA - THERMOPLASTIC PAVEMENT MARKING (WHITE-90MIL) LEFT TURN ARROW
UB - THERMOPLASTIC PAVEMENT MARKING (WHITE-90MIL) RIGHT TURN ARROW
UC - THERMOPLASTIC PAVEMENT MARKING (WHITE-90MIL) STRAIGHT ARROW

8/17/99

29-OCT-2018 10:09
G:\PROJECTS\CARTERET\W-5702E\US70_SR1141HIBBS ROAD\HIBBS\hibbs_pmp_psh1.dgn
$$$$USERNAME$$$$



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5702E	EC-1	3

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44848.1.5	HSIP-0070(209)	PE
44848.2.5	HSIP-0070(209)	RW
44848.3.5	HSIP-0070(209)	CONST

TIP PROJECT: W-5702E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

LOCATION: SR1141 (HIBBS ROAD) AT US70

VICINITY MAP
(NOT TO SCALE)

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
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 / Coir Fiber Wattle	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
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	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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 AUGUST 1, 2016 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

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.

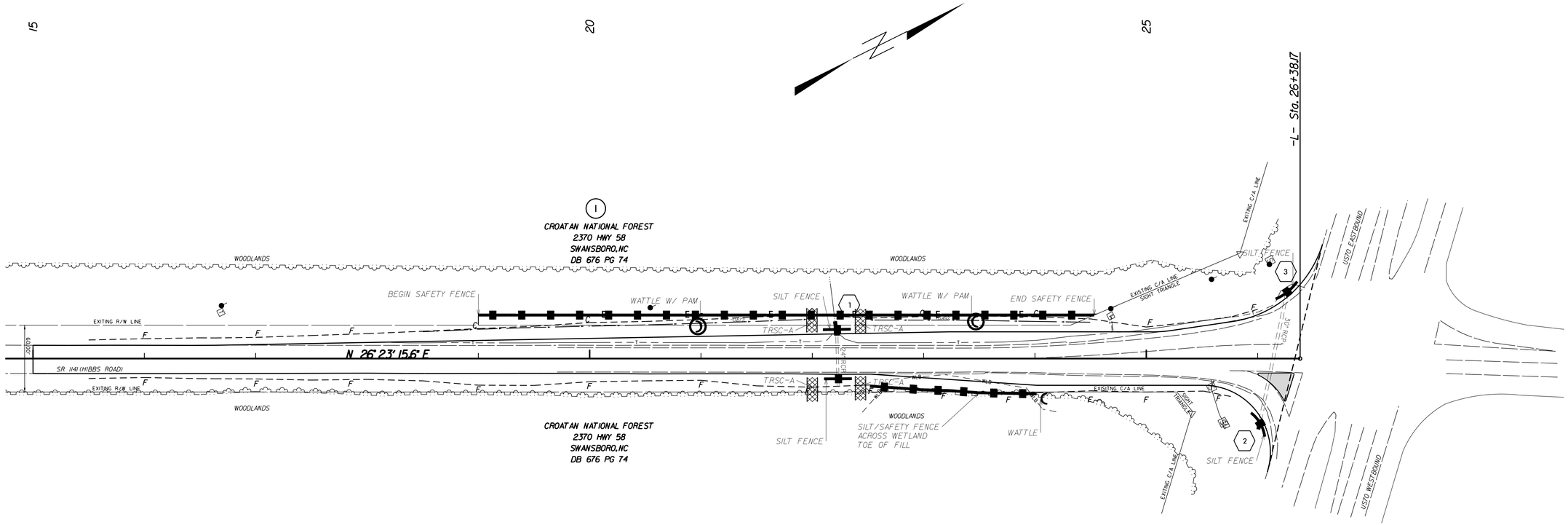
1604.01	Railroad Erosion Control Detail
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.01	Riser Basin
1630.02	Silt Basin Type B
1630.03	Temporary Silt Ditch
1630.04	Stilling Basin
1630.05	Temporary 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

29-OCT-2018 10:09
CARTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_ec_psh1.dgn
$$$$USERNAME$$$$

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

8/17/99

REVISIONS



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.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1633.01	TEMPORARY ROCK SILT CHECK TYPE "A"	
SP	Wattle with Polyacrylamide	
	Ditch Flow Line	

NOTE: THE CONTRACTOR SHALL INSTALL WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR AS DIRECTED BY THE ENGINEER.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR DIRECTED BY THE ENGINEER.

29-OCT-2008 10:09
C:\PROJECTS\INTERET\W-5702E\VS70_SR1141(HIBBS ROAD)\HIBBS\hibbs_ec_psh2.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	EC-3

8/17/99

REVISIONS

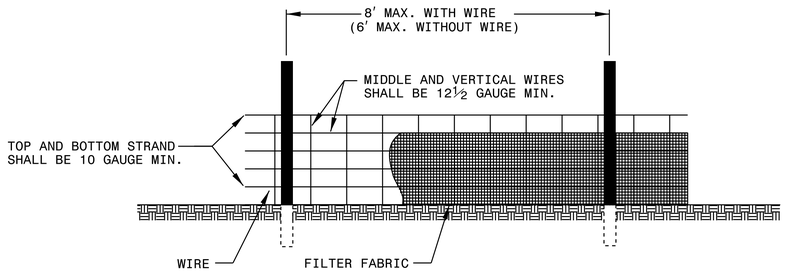
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR

TEMPORARY SILT FENCE

SHEET 1 OF 1

1605.01

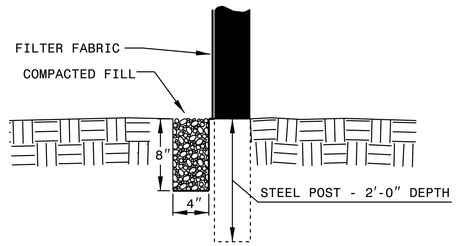


NOTES

USE WIRE A MINIMUM OF 32″ IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12″ STAY SPACING.

USE FILTER FABRIC A MINIMUM OF 36″ IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.

PROVIDE 5′-0″ STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.



EXTENSION OF FABRIC AND WIRE INTO TRENCH

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

ENGLISH STANDARD DRAWING FOR

TEMPORARY SILT FENCE

SHEET 1 OF 1

1605.01

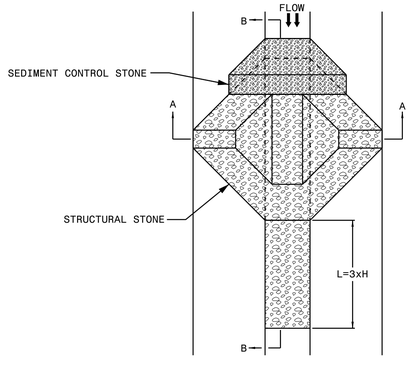
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR

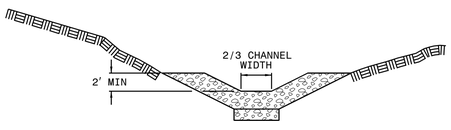
TEMPORARY ROCK SILT CHECK TYPE 'A'

SHEET 1 OF 1

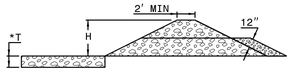
1633.01



PLAN



SECTION A-A



SECTION B-B

*T = 12″ MIN., 18″ MAX.

NOTE

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.

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

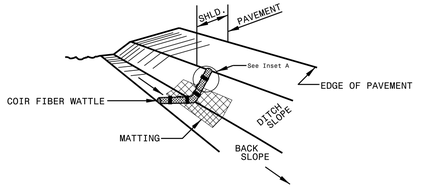
ENGLISH STANDARD DRAWING FOR

TEMPORARY ROCK SILT CHECK TYPE 'A'

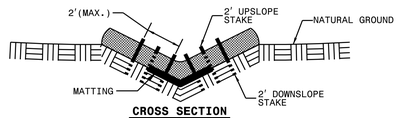
SHEET 1 OF 1

1633.01

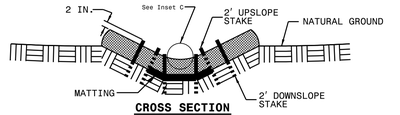
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 18 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

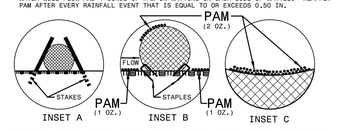
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

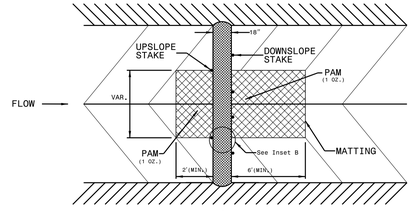
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.





TOP VIEW

29-OCT-2008 10:09
C:\DOCUMENTS AND SETTINGS\TERET\w-5702E\US70_SR1141HIBBS ROAD\HIBBS\hibbs_ec_psh3.dgn
$$$$LEFNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
W-5702E	X-1A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

CROSS–SECTION SUMMARY

IN CUBIC YARDS

LOCATION (–L–)	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT
15 + 50.00	*0*		*0*
16 + 00.00	*0*		*3*
16 + 50.00	*0*		*5*
16 + 63.17	*0*		*1*
17 + 00.00	*0*		*4*
17 + 50.00	*1*		*7*
18 + 00.00	*2*		*10*
18 + 50.00	*2*		*15*
19 + 00.00	*2*		*22*
19 + 50.00	*3*		*28*
20 + 00.00	*8*		*25*
20 + 50.00	*13*		*18*
21 + 00.00	*16*		*14*
21 + 50.00	*22*		*14*
22 + 00.00	*20*		*24*
22 + 51.79	*12*		*33*
23 + 00.00	*11*		*35*
23 + 23.06	*7*		*20*
23 + 50.00	*11*		*21*
24 + 01.45	*28*		*24*
24 + 50.00	*26*		*12*
25 + 00.00	*15*		*8*
25 + 51.45	*6*		*5*
25 + 77.18	*2*		*2*
26 + 00.00	*5*		*1*

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

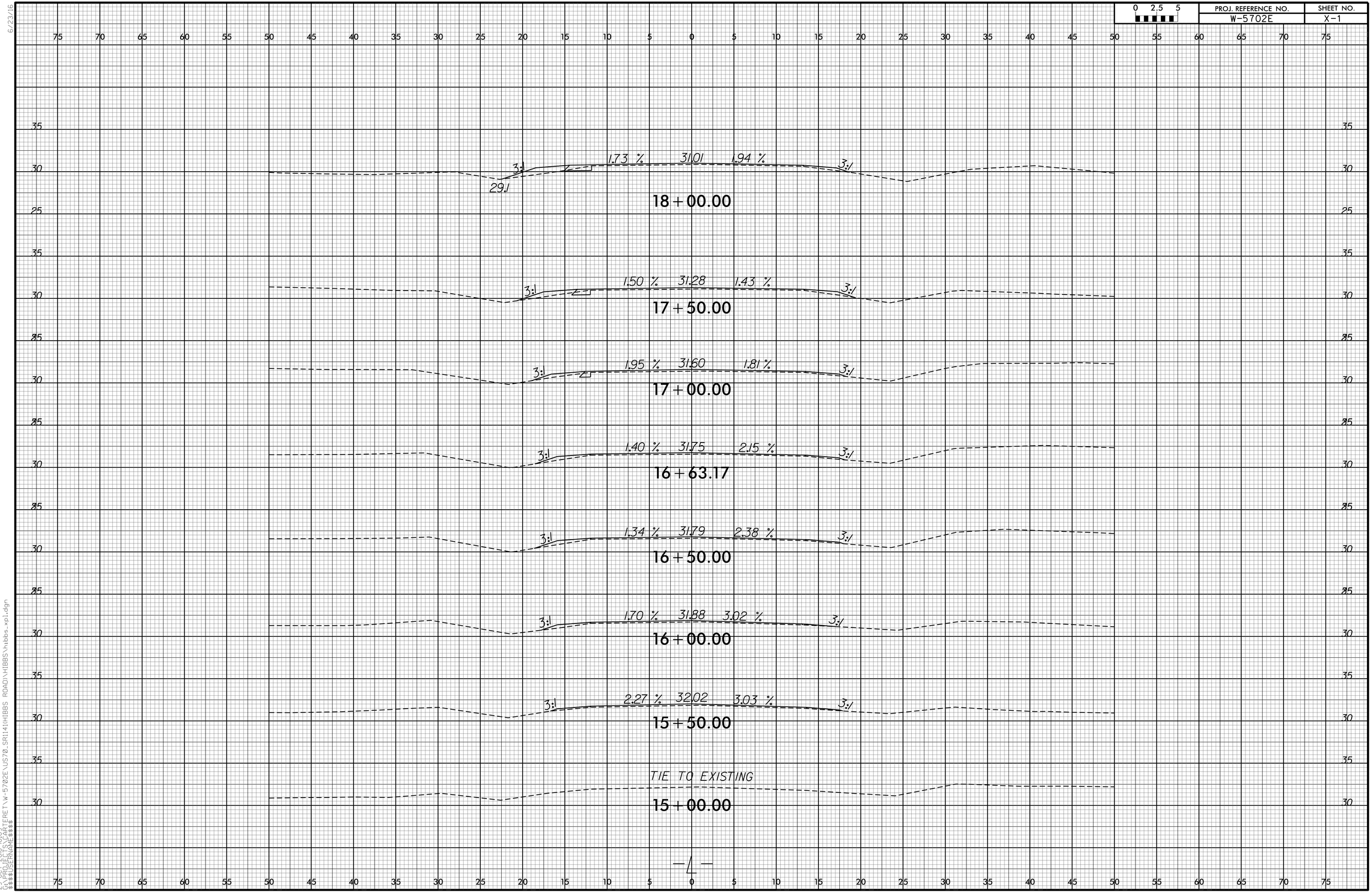
NOTE:

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."

29-OCT-2018 10:09
C:\USERS\JTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_pshx1a.dgn
$$$$USERNAME$$$$

6/23/16

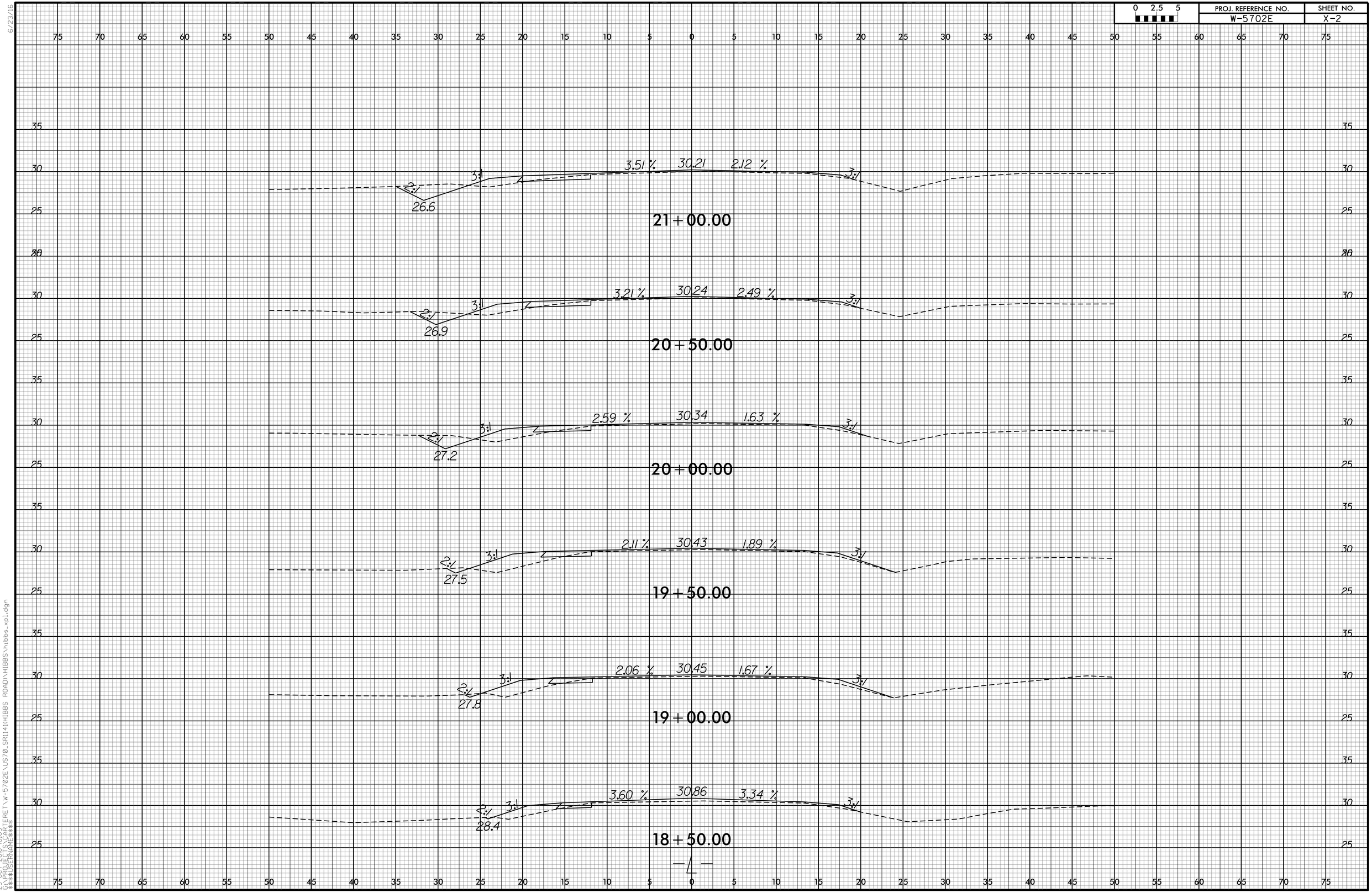
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5702E	X-1



29-OCT-2008 10:09
C:\DOCUMENTS AND SETTINGS\$$$$$$$$\LOCAL SETTINGS\TEMPORARY INTERNET FILES\$$$$$$$$\K5702EVUS70_SR1141HIBBS ROAD\HIBBS\hibbs-xp1.dgn

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5702E	X-2



29-OCT-2018 10:09
G:\PROJECTS\CARTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_xpl.dgn
$$$$USERNAME$$$$

6/23/16

29-OCT-2018 10:10
G:\PROJECTS\CARTERET\W-5702E\US70_SR1141(HIBBS ROAD)\HIBBS\hibbs_xpl.dgn
$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5702E	X-4

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

35 30 25 20

2.26 % 30.22 2.98 %

26+00.00

2.17 % 30.05 3.86 % 3:1

27.5

25+77.18

2.41 % 29.98 3.15 % 3:1

27.4 26.9

25+51.45

3:1 3.18 % 29.79 1.37 % 3:1

27.5

25+00.00

2:1 3:1 3.07 % 29.68 1.75 % 3:1

27.1

24+50.00

2:1 3:1 3.03 % 29.62 1.39 % 2.00 % 3:1

26.8

24+01.45

29-OCT-2018 10:10
C:\PROJECTS\CARTERET\W-5702E\US70_SR1141HIBBS ROAD\HIBBS\hibbs_xpl.dgn
$$$$USERNAME$$$$

Project: W-5702E

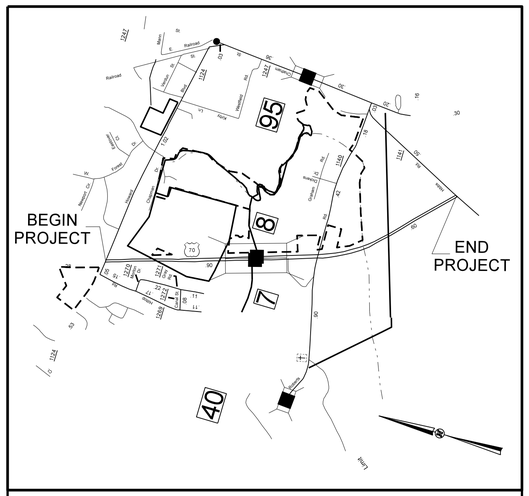
Project No.	Sheet No.
W-5702E	Sig. 1.0

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

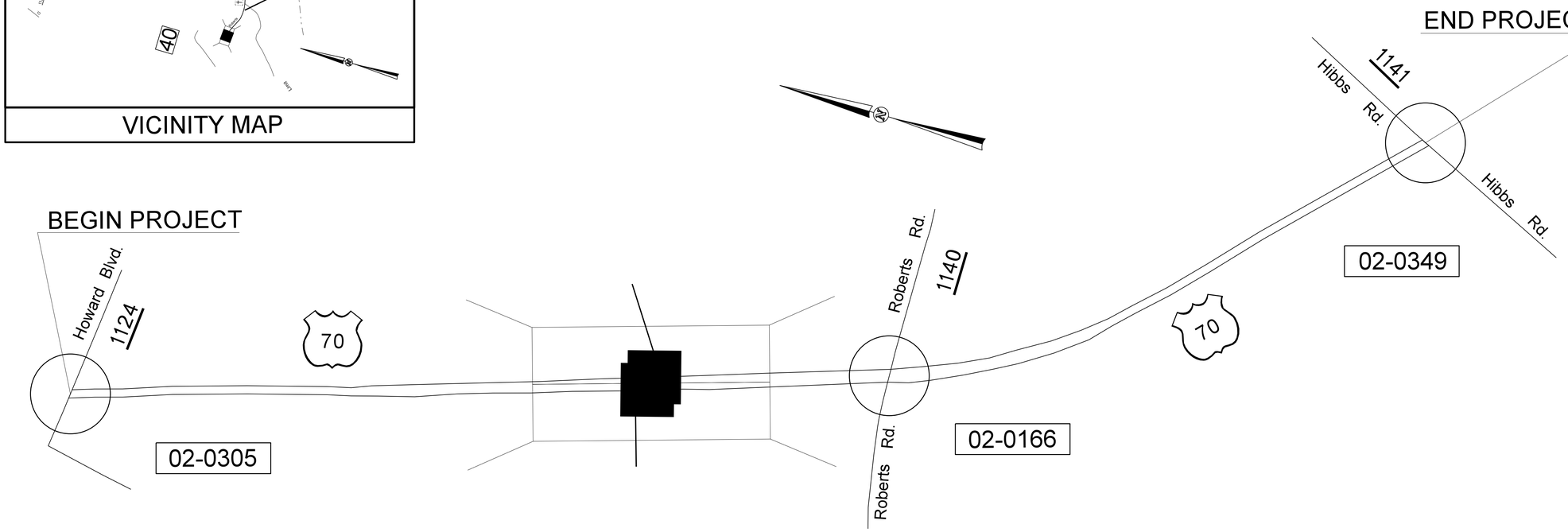
CARTERET COUNTY

LOCATION: US 70 (ARENDELL STREET) AT SR 1124 HOWARD BLVD./NINE FOOT ROAD TO US 70 (ARENDELL STREET) AT SR 1141(HIBBS ROAD)

TYPE OF WORK: TRAFFIC SIGNAL



VICINITY MAP



Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.

Index of Plans

Sheet #	Reference #	Location/Description
Sig. 1.0	--------	Title Sheet
Sig. 2.0-	02-0305	US 70 (Arendell Street) at SR 1124 Howard Blvd./Nine Foot Road
Sig. 3.0-	02-0166	US 70 (Arendell Street) at SR 1140 (Roberts Road)
Sig. 4.0-	02-0349	US 70 (Arendell Street) at SR 1141 (Hibbs Road)

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

Meredith McDiarmid, PE -State ITS and Signals Engineer
Jason P. Galloway, PE - State Signals Engineer
Keith M. Mimms, PE - Signal Equipment Design Engineer

Prepared In the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY DIVISION

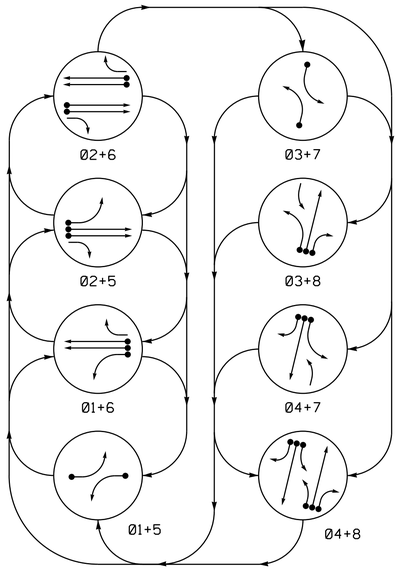
Transportation Mobility and Safety Division
ITS and Signals Unit

750 N. Greenfield Parkway, Garner, NC 27529

26-JUN-2018 12:2
C:\Users\kmimms\Documents\ITS Signals\Signal Design Section\Eastern Region\Div-02\W-5702E\Title Sheet.dgn

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

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+7	03+8	04+7	04+8	FLASH
11	~~←~~	~~←~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21,22	R	R	G	G	R	R	R	R	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~←~~	~~F Y~~	~~F Y~~	~~R~~
41,42,43	R	R	R	R	R	R	G	G	R
51	~~←~~	~~R~~	~~←~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61,62	R	G	R	G	R	R	R	R	Y
71	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~F Y~~	~~←~~	~~F Y~~	~~R~~
81,82,83	R	R	R	R	R	G	R	G	R

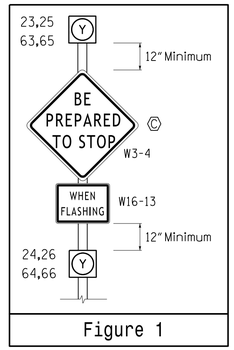


Figure 1

FLASHING BEACON INTERVAL CHART

SIGNAL FACE	INTERVAL 1	INTERVAL 2
23,25	ON	OFF
24,26	OFF	ON
63,65	ON	OFF
64,66	OFF	ON

✳ See Notes 5 and 6.

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	-	1	Y	Y	-	-	-	-	-
2A	6X6	420	5	-	2	Y	Y	-	-	-	-	-
2B	6X6	420	5	-	2	Y	Y	-	-	-	-	-
3A	6X60	+5	2-4-2	-	3	Y	Y	-	-	15	-	-
					8	Y	Y	-	-	3	-	-
4A	6X60	+5	2-4-2	-	4	Y	Y	-	-	-	-	-
4B ✳	6X60	+5	2-4-2	-	4	Y	Y	-	-	15	-	-
5A	6X40	+5	2-4-2	-	5	Y	Y	-	-	-	-	-
6A	6X6	420	5	-	6	Y	Y	-	-	-	-	-
6B	6X6	420	5	-	6	Y	Y	-	-	-	-	-
7A	6X60	+5	2-4-2	-	7	Y	Y	-	-	15	-	-
					4	Y	Y	-	-	3	-	-
8A	6X60	+5	2-4-2	-	8	Y	Y	-	-	-	-	-
8B ✳	6X60	+5	2-4-2	-	8	Y	Y	-	-	15	-	-
S01	6X6	+250	3	-	-	-	-	-	-	-	Y	-
S02	6X6	+250	3	-	-	-	-	-	-	-	Y	-

✳ See Note 7.

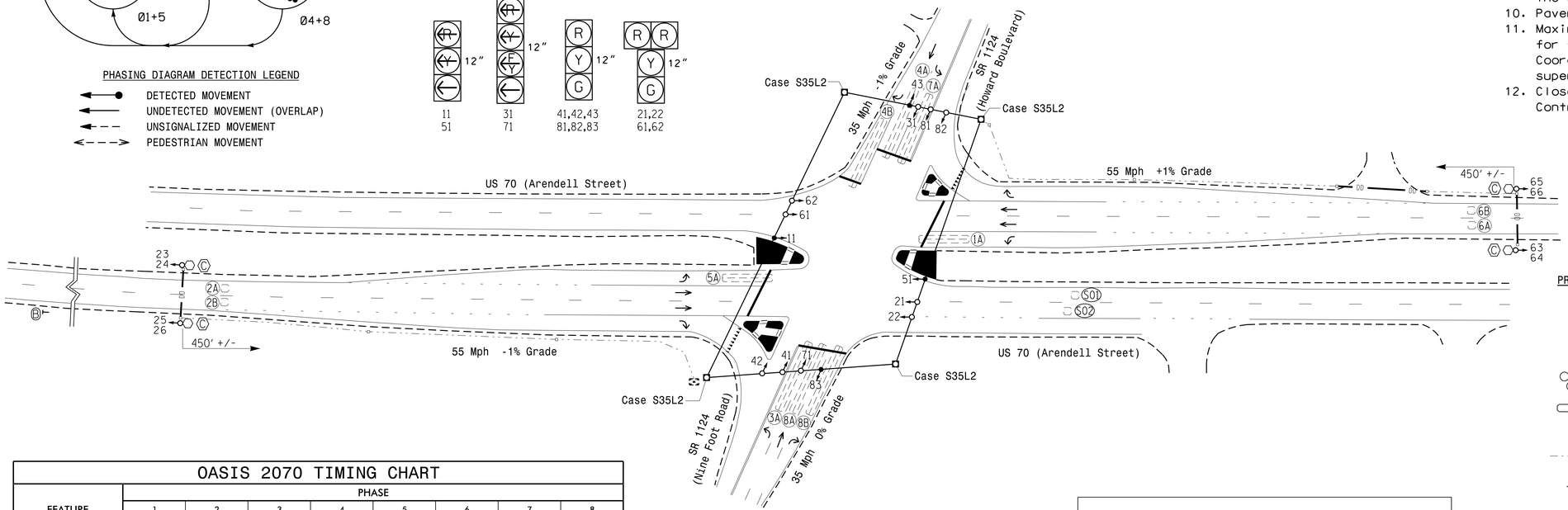
8 Phase Fully Actuated US 70 (Newport) CLS

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. Phase 3 and/or phase 7 may be lagged.
5. Activate beacons 23, 24, 25, and 26 2 seconds prior to the end of phase 2 green. They shall flash until the beginning of the succeeding phase 2 green.
6. Activate beacons 63, 64, 65, and 66 2 seconds prior to the end of phase 6 green. They shall flash until the beginning of the succeeding phase 6 green.
7. Renumber existing loops numbered 5B and 1B to 4B and 8B as shown.
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. Pavement markings are existing.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
12. Closed loop system data: Controller Asset # 0305.

SIGNAL FACE I.D.

All Heads L.E.D.



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	→
⬡	Type II Signal Pedestal	⬢
Ⓑ	Signal Ahead Sign (W3-3)	Ⓑ
Ⓒ	"BE PREPARED TO STOP" "WHEN FLASHING" Signs (See Figure 1)	Ⓒ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	14	7	7	7	14	7	7
Extension 1 *	2.0	6.0	1.0	1.0	2.0	6.0	1.0	1.0
Max Green 1 *	15	120	15	25	15	120	15	25
Yellow Clearance	3.0	5.3	3.0	3.9	3.0	5.1	3.0	3.9
Red Clearance	3.7	1.3	3.1	2.9	3.8	1.3	3.3	2.9
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	46	-	-	-	46	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.4	-	-	-	3.4	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	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.

This plan supercedes the plan originally sealed on 8/17/17.

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 70 (Arendell Street) at SR 1124 (Howard Boulevard / Nine Foot Road)

Division 2 Carteret County Newport

PLAN DATE: May 2018 REVIEWED BY: MEL
PREPARED BY: Jeff Spence REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 042608 ENGINEER MEGHAN E. LEBLANC

DocuSigned by: Meghan Eleblanc 6/1/2018

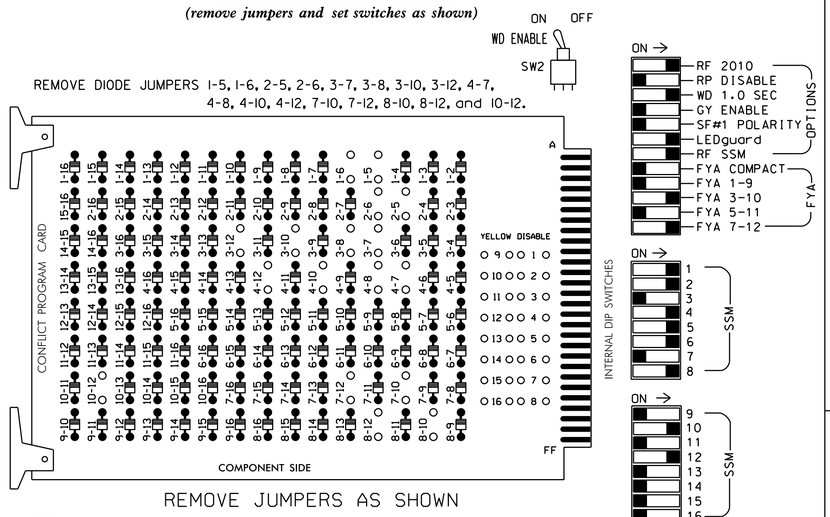
SIG. INVENTORY NO. 02-0305

21-JUN-2018 11:43
S:\Traffic\Signals\Signal Design Section\Eastern Region\Div-02\W-5702E\02-0305\020305_sig_dsn_20180601.dgn
jrspence

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

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS 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.
3. 2010ECL-NC conflict monitor required for FYA operation.

■ = 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. Return controller to factory defaults before programming per this electrical detail.
3. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,7, 9,11,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
4. Program phases 4 and 8 for Dual Entry.
5. Enable Simultaneous Gap-Out for all phases.
6. Program phases 2 and 6 for Variable Initial and Gap Reduction.
7. Program phases 2 and 6 for Startup In Green.
8. Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
9. The cabinet and controller are part of the US 70 (Newport) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET .....332 W/ AUX
SOFTWARE .....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S2P*,S3,S4,S4P*,S5, S6,S6P*,S7,S8,S8P*,S10,S13
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP A.....NOT USED
OVERLAP B.....3+4
OVERLAP C.....NOT USED
OVERLAP D.....7+8

* Used for advance beacon control only.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P		S3	S4	S4P		S5	S6	S6P		S7	S8	S8P		S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	ADVANCE BEACON	3	4	4 PED	ADVANCE BEACON	5	6	6 PED	ADVANCE BEACON	7	8	8 PED	ADVANCE BEACON	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	23,25	31 ★	41,42 43	NU	63,65	51	61,62	NU	24,26	71 ★	81,82 83	NU	64,66	NU	31 ★	NU	NU	71 ★	NU
RED		128				101				134				107								
YELLOW		129			*	102				135			*	108								
GREEN		130				103				136				109								
RED ARROW	125								131									A124			A101	
YELLOW ARROW	126								132									A125			A102	
FLASHING YELLOW ARROW																		A126			A103	
GREEN ARROW	127				118				133				124									
✋																						
PED YELLOW				** 114				** 105				** 120				** 111						
🚶			*				*				*				*							

NU = Not Used

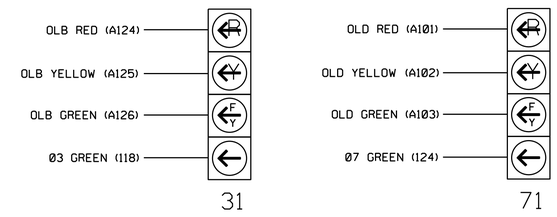
★ See pictorial of head wiring in detail this sheet.

* Denotes install load resistor. See load resistor installation detail on sheet 2.

** Special advance beacons will be wired to S2P-Y, S4P-Y, S6P-Y, and S8P-Y. See wiring and programing details on sheets 3 and 4.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 31 and 71 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

		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	SLOT EMPTY	Ø4 4A	Ø3 3A	SLOT EMPTY	SYS. DET. SØ1	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		Ø8 8B	Ø2 2B			NOT USED	Ø8 3A		SYS. DET. SØ2					ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø5 5A	Ø6 6A	SLOT EMPTY	SLOT EMPTY	Ø8 8A	Ø7 7A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø4 4B	Ø6 6B			NOT USED	Ø4 7A							

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[1]	TB6-1,2	I7U	65	27	34	3	Y	Y			15
	TB6-3,4	I7L	78	40	44	8	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB3-7,8	J2L	44	6	16	4	Y	Y			15
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	TB3-11,12	J3L	77	39	46	6	Y	Y			
7A[2]	TB7-1,2	J7U	66	28	38	7	Y	Y			15
	TB7-3,4	J7L	79	41	48	4	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB2-7,8	I2L	43	5	12	8	Y	Y			15
*SØ1	TB6-9,10	I9U	60	22	11	SYS					
*SØ2	TB6-11,12	I9L	62	24	13	SYS					

[1] Add jumpers from TB6-1 to TB6-3, and from TB6-2 to TB6-4.

[2] Add jumpers from TB7-1 to TB7-3, and from TB7-2 to TB7-4.

* 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 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0305
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street) at SR 1124 (Howard Boulevard/ Nine Foot Road)

Division 2 | Carteret County | Newport

PLAN DATE: June 2018 | REVIEWED BY: CES

PREPARED BY: B. Christian | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
NC Department of Transportation Mobility and Safety Division Traffic Engineering Branch Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce A90CADCFDBD4241D... 6/19/2018 DATE

SIG. INVENTORY NO. 02-0305

18-JUN-2018 15:50
S:\TRAFFIC\Signals\Workgroups\Sig Mgmt\Christian\020305_sm_ele_xxx.dgn
bbchristian

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	Sig. 2.2

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5, AND 6.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #3  IS ON
AND RED CLEAR ON PHASE  #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #47 ON
SET OUTPUT  ASSIGNMENT #48 OFF
```

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #49 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW OFF DURING PHASE 3 (HEAD 31).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #48 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

PRESS '+'

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE        #7  IS ON
AND RED CLEAR ON PHASE  #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #39 ON
SET OUTPUT  ASSIGNMENT #40 OFF
```

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

PRESS '+'

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE        #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #41 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW OFF DURING PHASE 7 (HEAD 71).

PRESS '+'

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE     #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #40 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+'

```
PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE:            |12345678910111213141516
VEH OVL PARENTS:  |  XX
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE:            |12345678910111213141516
VEH OVL PARENTS:  |      XX
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

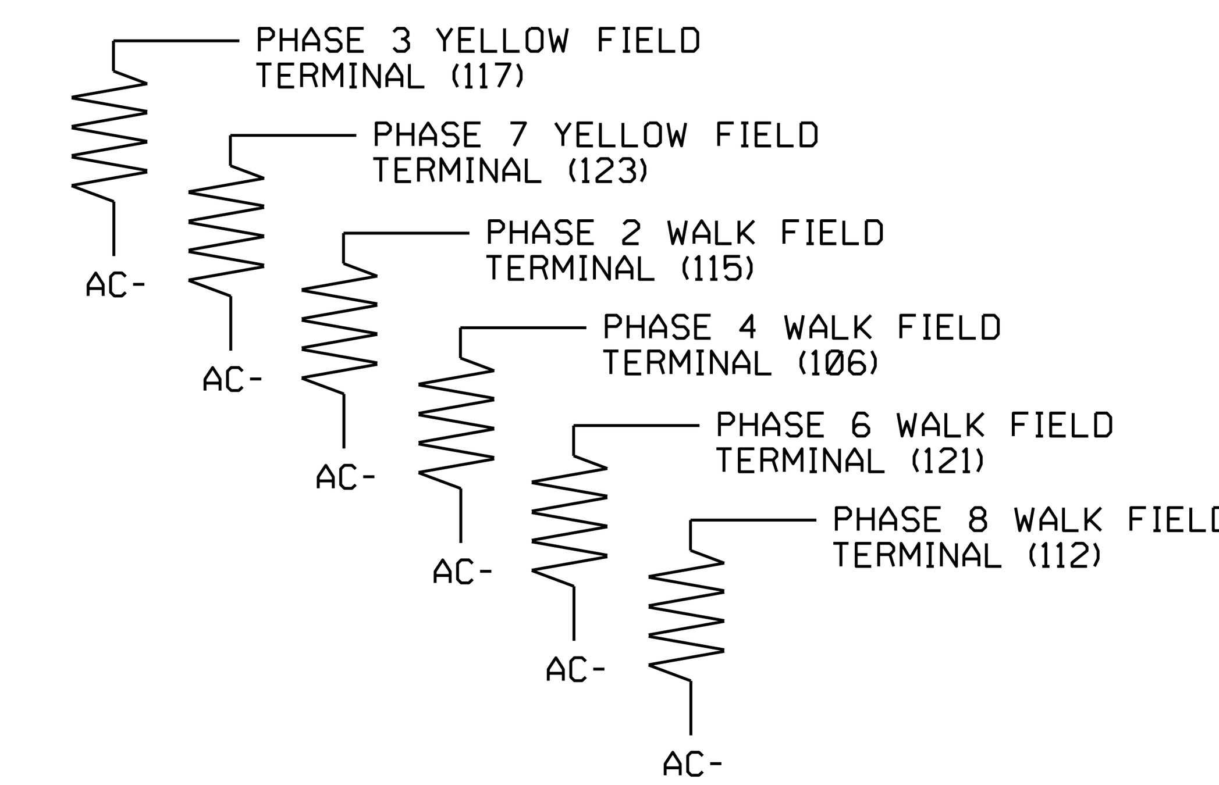
OVERLAP PROGRAMMING COMPLETE

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



IMPORTANT! Move resistors from Red terminal to Yellow terminal for phases 3 and 7.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0305
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 2 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street) at SR 1124 (Howard Boulevard/ Nine Foot Road)

Division 2 | Carteret County | Newport

PLAN DATE: June 2018 | REVIEWED BY: CES
PREPARED BY: B. Christian | REVIEWED BY:

REVISIONS	INIT.	DATE

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

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 D. TODD JOYCE

DocuSigned by: D. Todd Joyce 6/19/2018 DATE

SIG. INVENTORY NO. 02-0305

18-JUN-2018 15:24
bbchristian

ADVANCE BEACON #1
OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE IN WHICH AT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT BEACON INDEX (1-4)...........1
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  ADVANCE BEACON
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #34 (PIN 36) IS REACHED.

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTOUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).......33
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT REFERENCE SCHEDULE

OUTPUT 33 = Ø2 Ped Yellow
OUTPUT 34 = Ø6 Ped Yellow

ADVANCE BEACON PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '2' (OUTPUT BEACON SETTINGS).

```
             OUTPUT BEACON SETTINGS
TRIGGER PHASES: |12345678910111213141516
BEACON #1 OFF   | X
BEACON #2 OFF   |     X
BEACON #3 OFF   |
BEACON #4 OFF   |
           BEACON |   1   2   3   4
OFF DELAY TIME (0-255)|   0   0   0   0
ON DELAY TIME  (0-255)|   0   0   0   0
STOP-TIME HOLD (0-255)|   2   2   0   0
       ADVANCE BEACON PROGRAMMING COMPLETE
```

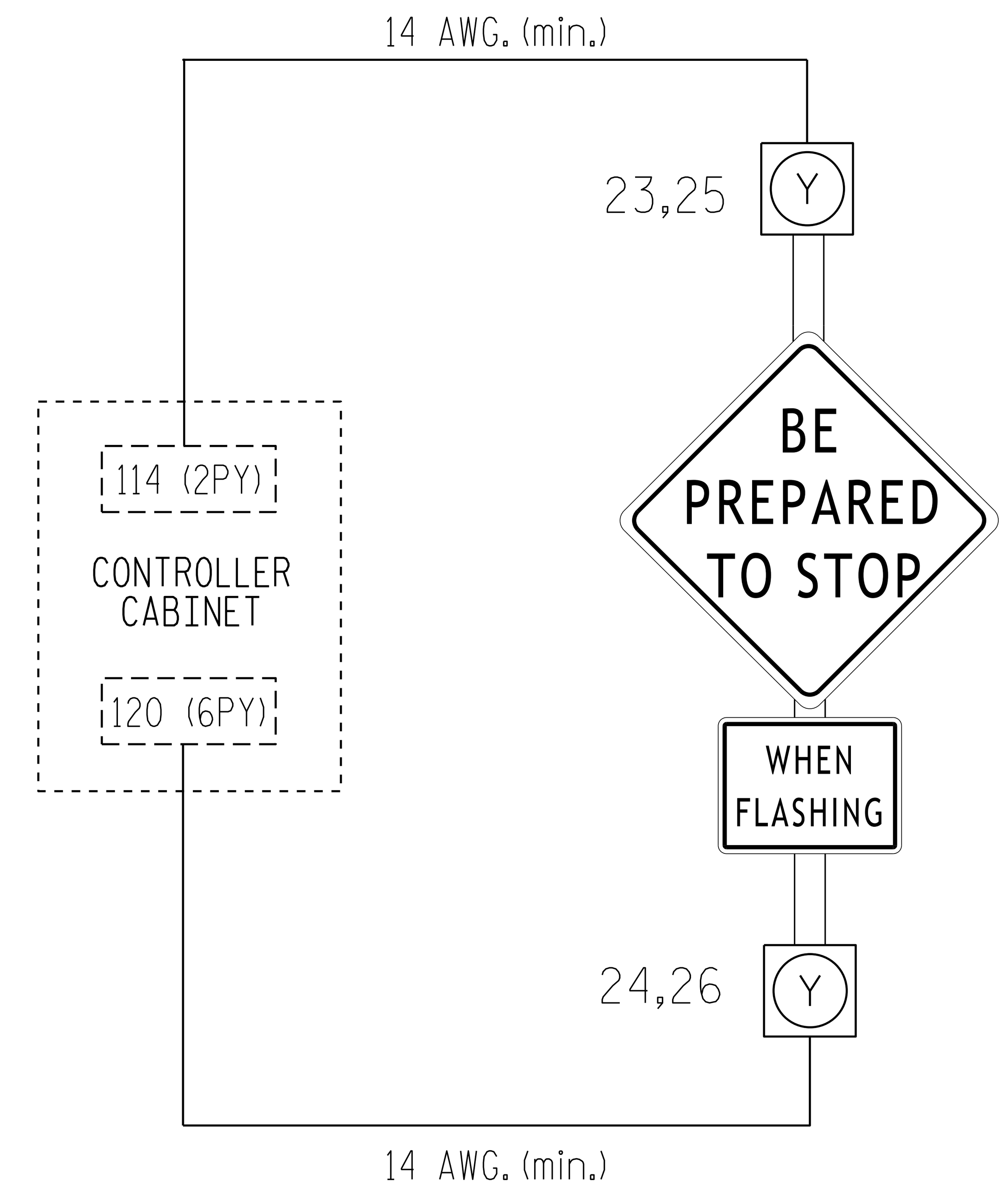
SCROLL DOWN TO VIEW ALL DATA

NOTICE STOP TIME HOLD

NOTE: AN OUTPUT HAS TO BE ASSIGNED AS AN ADVANCE BEACON IN ORDER FOR PROPER OPERATION TO OCCUR. SEE OUTPUT ASSIGNMENT DETAIL ON SHEETS 3 AND 4.

ADVANCE BEACON #1 WIRING DETAIL

(wire flashers as shown below)



IMPORTANT

1. REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRE ATTACHED TO THE REAR OF TERMINAL 114 (2PY) AND 120 (6PY)
2. INSERT LOAD SWITCHES FOR S2P AND S6P.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 2.
4. TO ACTIVATE ADVANCE BEACONS AS INDICATED ON THE SIGNAL PLANS, REASSIGN OUTPUTS 33 AND 34 AS SHOWN ON THIS SHEET.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0305
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 3 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street) at SR 1124 (Howard Boulevard/ Nine Foot Road)

Division 2 | Carteret County | Newport

PLAN DATE: June 2018	REVIEWED BY: CES
PREPARED BY: B. Christian	REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
ITS & Signals Management Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by:
D. Todd Joyce 6/19/2018
A90CADEDBD4241D...
DATE

SIG. INVENTORY NO. 02-0305

18-JUN-2018 15:25
S:*ITS&SU*ITS Signals*Workgroups*Sig Man*Christian*020305_sm_ele_xxx.dgn
bbchristian

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	Sig. 2.4

ADVANCE BEACON #2
OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS). THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #35 (PIN 37) IS REACHED.

```
PAGE:1  C1 PIN:37  NOT ENABLED
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:37  NOT ENABLED
SELECT BEACON INDEX (1-4)...........2
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:37  ADVANCE BEACON
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

FROM MAIN MENU PRESS '6' (OUTPUTS). THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #36 (PIN 38) IS REACHED.

```
PAGE:1  C1 PIN:38  NOT ENABLED
OUTPUT ASSIGNMENT #.................36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTOUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:38  NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).......35
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

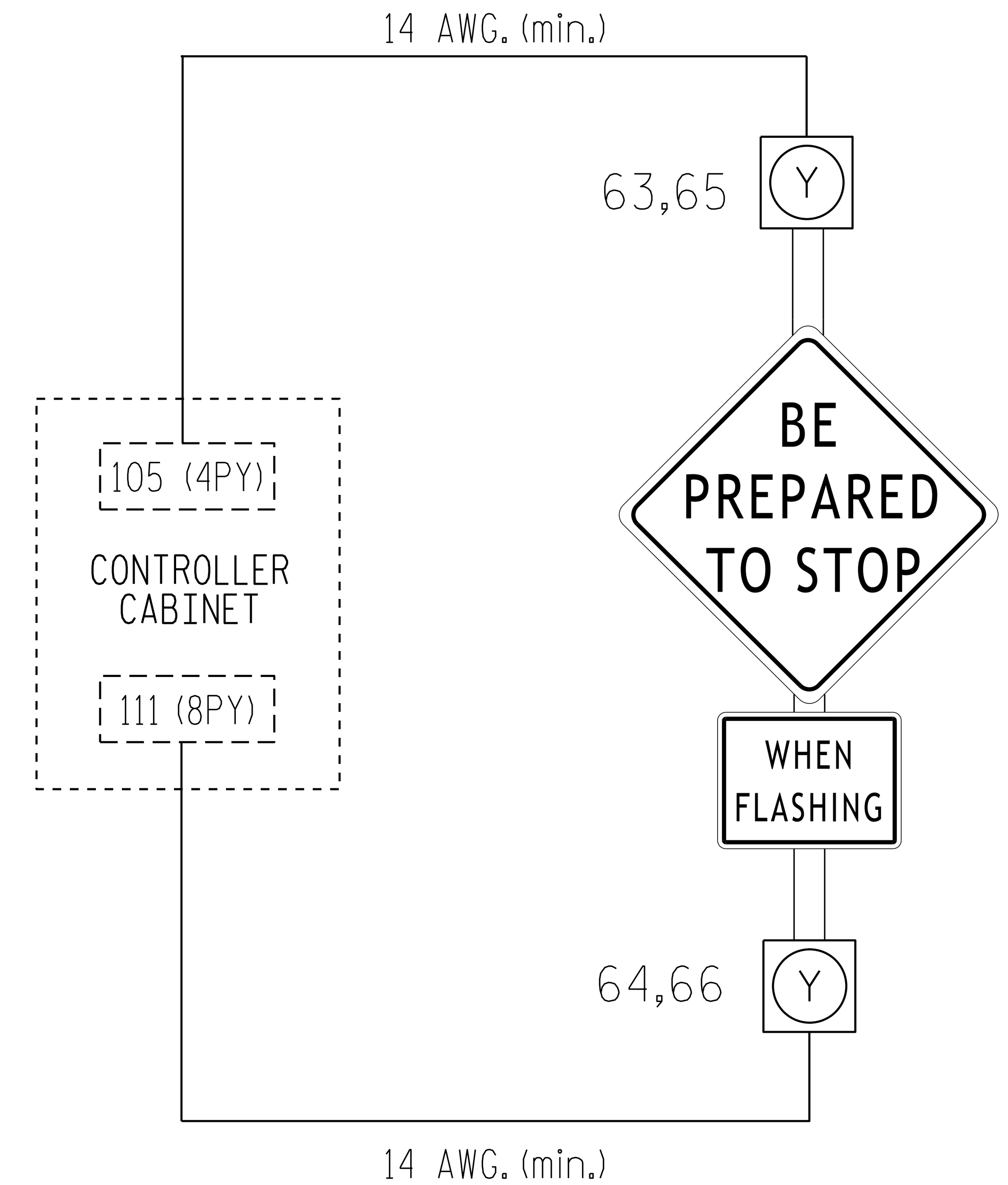
```
PAGE:1  C1 PIN:38  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.................36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT REFERENCE SCHEDULE

OUTPUT 35 = Ø4 Ped Yellow
OUTPUT 36 = Ø8 Ped Yellow

ADVANCE BEACON #2 WIRING DETAIL

(wire flashers as shown below)



IMPORTANT

1. REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRE ATTACHED TO THE REAR OF TERMINAL 105 (4PY) AND 111 (8PY).
2. INSERT LOAD SWITCHES FOR S4P AND S8P.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 2.
4. TO ACTIVATE ADVANCE BEACONS AS INDICATED ON THE SIGNAL PLANS, REASSIGN OUTPUTS 35 AND 36 AS SHOWN ON THIS SHEET.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0305
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 4 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street)
at
SR 1124 (Howard Boulevard/ Nine Foot Road)

Division 2 | Carteret County | Newport

PLAN DATE: June 2018 | REVIEWED BY: CES
PREPARED BY: B. Christian | REVIEWED BY:

REVISIONS | INIT. | DATE

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

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 D. TODD JOYCE

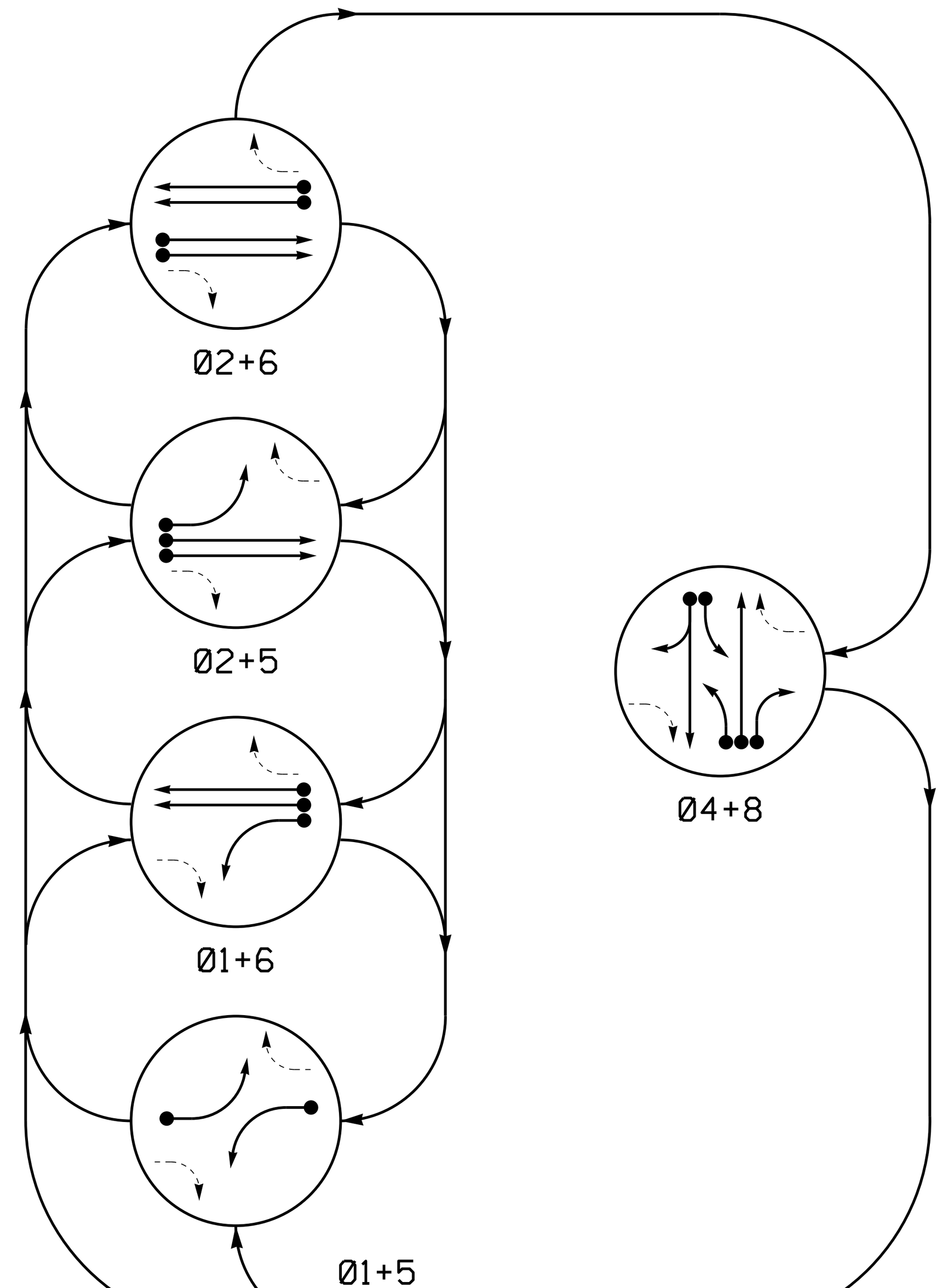
DocuSigned by: D. Todd Joyce 6/19/2018
DATE

SIG. INVENTORY NO. 02-0305

18-JUN-2018 15:26
S:\ITS&SU\ITS Signals\Workgroups\Sig Man\Christian\020305_sm_ele_xxx.dgn
bbchristian

5 Phase
Fully Actuated
US 70 Newport CLS

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	←R	←R	←R	←R	←FY	←R
42,43,44	R	R	R	R	G	R
51	←	←R	←	←R	←R	←R
61,62	R	G	R	G	R	Y
81	←R	←R	←R	←R	←FY	←R
82,83,84	R	R	R	R	G	R

FLASHING BEACON INTERVAL CHART

SIGNAL FACE	INTERVAL 1	2
23,25	ON	OFF
24,26	OFF	ON
63,65	ON	OFF
64,66	OFF	ON

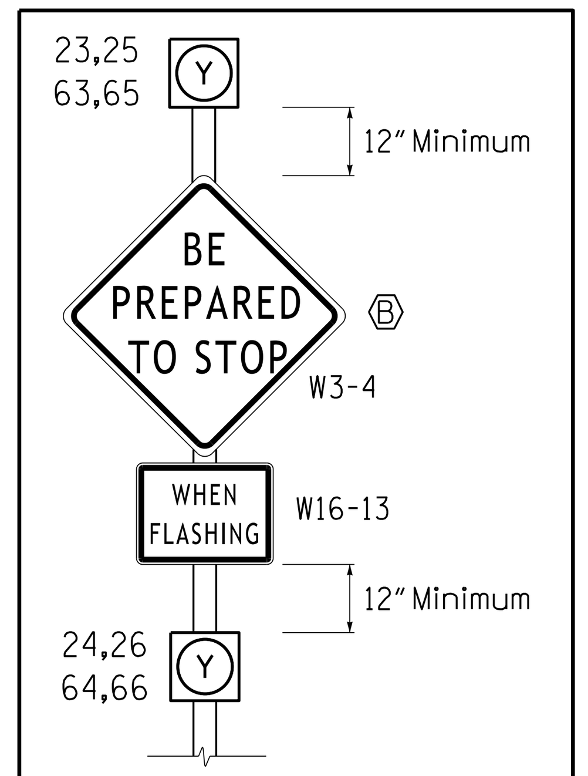


Figure 1

✱ See Notes 5 and 6.

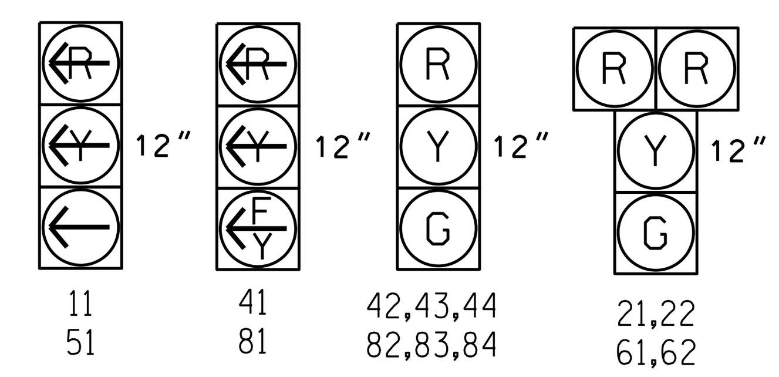
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
1A	6X60	+5	2-4-2	-	1	Y	Y	-	-	-	-	-
2A	6X6	420	EXIST	-	2	Y	Y	-	-	-	-	-
2B	6X6	420	EXIST	-	2	Y	Y	-	-	-	-	-
4A	6X60	+5	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6X60	+5	2-4-2	-	4	Y	Y	-	-	10	-	-
5A	6X60	+5	2-4-2	-	5	Y	Y	-	-	-	-	-
6A	6X6	420	EXIST	-	6	Y	Y	-	-	-	-	-
6B	6X6	420	EXIST	-	6	Y	Y	-	-	-	-	-
8A	6X60	+5	2-4-2	-	8	Y	Y	-	-	3	-	-
8B	6X60	+5	2-4-2	-	8	Y	Y	-	-	-	-	-
8C✱	6X60	+5	2-4-2	-	8	Y	Y	-	-	15	-	-
S03	6X6	±230	3	-	-	-	-	-	-	-	Y	-
S04	6X6	±230	3	-	-	-	-	-	-	-	Y	-
S05	6X6	±200	5	-	-	-	-	-	-	-	Y	-
S06	6X6	±200	5	-	-	-	-	-	-	-	Y	-

✱See note 7.

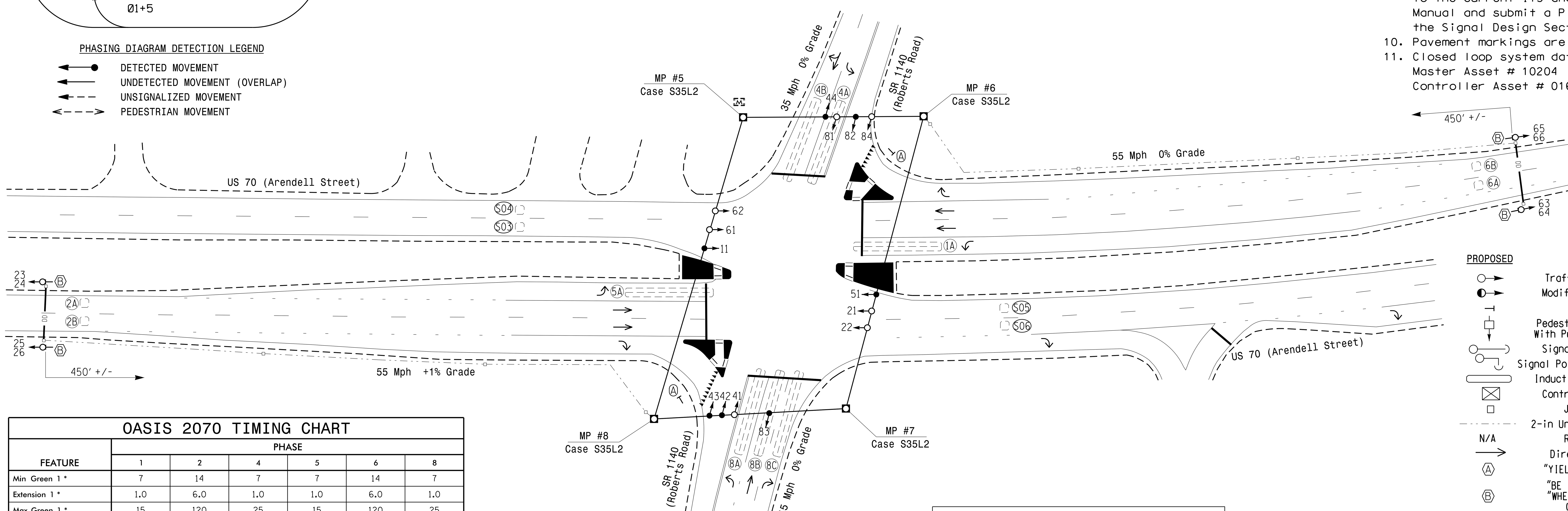
SIGNAL FACE I.D.

All Heads L.E.D.



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. Reposition existing signal heads numbered 42,43 and 82.
4. Renumber existing signal heads numbered 41,42 and 43 as 42,43 and 44 respectively.
5. Activate beacons 23,24,25 and 26 2 seconds prior to the end of phase 2. They shall flash until the beginning of the succeeding phase 2 green.
6. Activate beacons 63,64,65 and 66 2 seconds prior to the end of phase 6. They shall flash until the beginning of the succeeding phase 6 green.
7. Renumber existing loop numbered 1B to 8C as shown.
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. Pavement markings are existing.
11. Closed loop system data:
    Master Asset # 10204
    Controller Asset # 0166.



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	
(A)	"YIELD" Sign (R1-2)	(A)
(B)	"BE PREPARED TO STOP" "WHEN FLASHING" Signs (See Figure 1)	(B)

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	14	7	7	14	7
Extension 1 *	1.0	6.0	1.0	1.0	6.0	1.0
Max Green 1 *	15	120	25	15	120	25
Yellow Clearance	3.0	5.1	4.5	3.0	5.2	4.5
Red Clearance	3.4	1.6	2.3	3.7	1.2	2.3
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	46	-	-	46	-
Time Before Reduction *	-	20	-	-	20	-
Time To Reduce *	-	60	-	-	60	-
Minimum Gap	-	3.4	-	-	3.4	-
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.

This plan supercedes the plan originally sealed on 7/27/17.

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 70 (Arendell Street)
at
SR 1140 (Roberts Road)

Division 2 Carteret County Newport

PLAN DATE:	May 2018	REVIEWED BY:	MEL
PREPARED BY:	Jeff Spence	REVIEWED BY:	

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 042608 ENGINEER MEGHAN E. LEBLANC

DocuSigned by: Meghan E LeBlanc 6/1/2018

SIG. INVENTORY NO. 02-0166

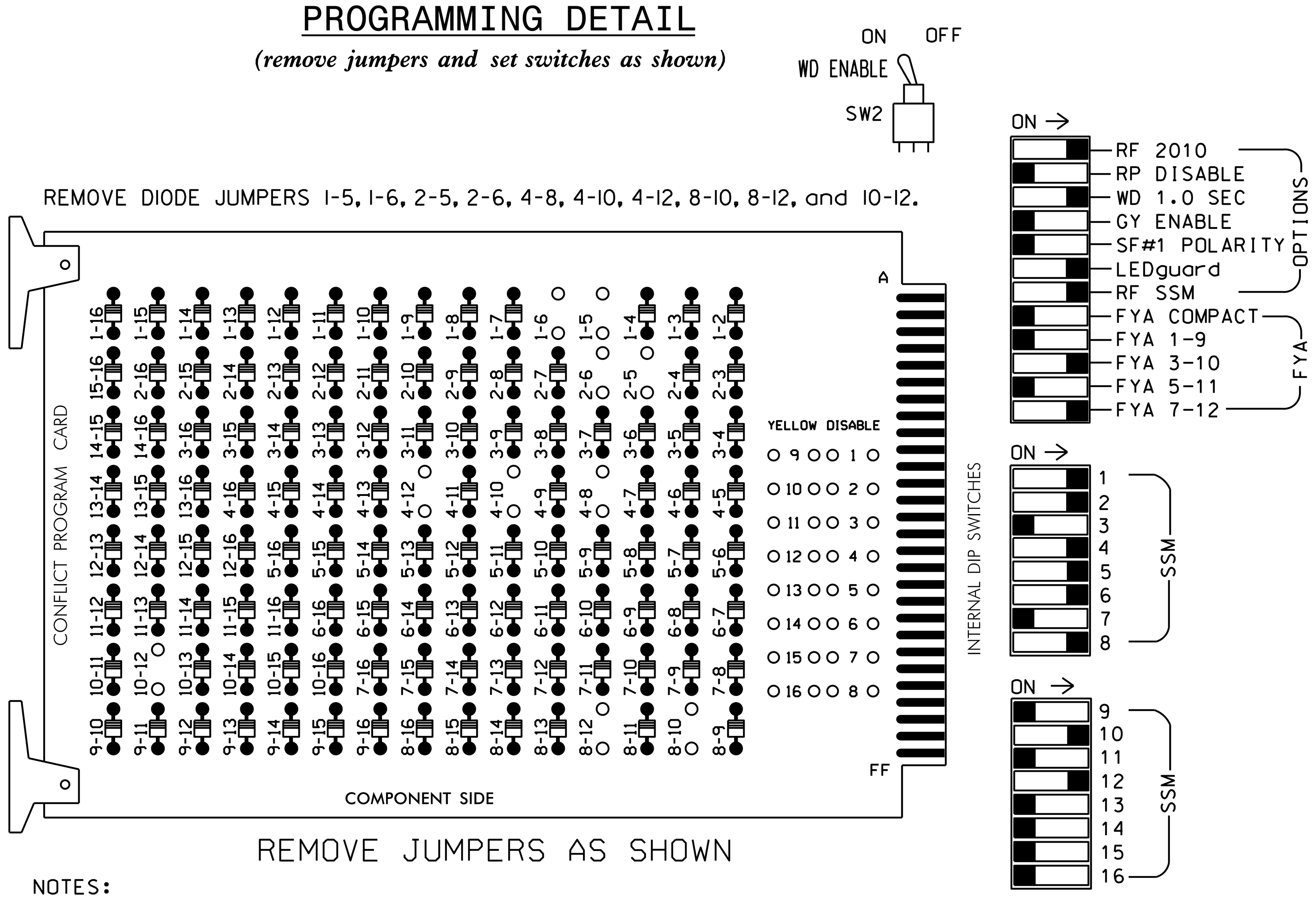
01-JUN-2018 14:52
S:*ITS&SU\ITS Signals\Signal Design Section\Eastern Region\Div-02\W-5702E\02-0166\020166_sig_dsn_2018mmdd.dgn
meleblanc

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	Sig. 3.1

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 2-5, 2-6, 4-8, 4-10, 4-12, 8-10, 8-12, and 10-12.



REMOVE JUMPERS 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.
3. 2010ECL-NC conflict monitor required for FYA operation.

■ = 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. Return controller to factory defaults before programming per this electrical detail.
3. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,7, 9,11,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
4. Program phases 4 and 8 for Dual Entry.
5. Enable Simultaneous Gap-Out for all phases.
6. Program phases 2 and 6 for Variable Initial and Gap Reduction.
7. Program phases 2 and 6 for Startup In Green.
8. Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
9. The cabinet and controller are part of the US 70 (Newport) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.............2070
CABINET ....332 W/ AUX
SOFTWARE ....ECONOLITE OASIS
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S2P*,S4,S4P*,S5,S6, S6P*,S8,S8P*,S10,S13
PHASES USED............1,2,4,5,6,8
OVERLAP A..............NOT USED
OVERLAP B..............4
OVERLAP C..............NOT USED
OVERLAP D..............8

* Used for advance beacon control only.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S2P	S3	S4	S4P	S4P	S5	S6	S6P	S6P	S7	S8	S8P	S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	ADVANCE BEACON	3	4	4 PED	ADVANCE BEACON	5	6	6 PED	ADVANCE BEACON	7	8	8 PED	ADVANCE BEACON	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	23,25	NU	42,43 44	NU	63,65	51	61,62	NU	24,26	NU	82,83 84	NU	64,66	NU	81★	NU	NU	41★	NU
RED		128				101				134				107								
YELLOW		129				102				135				108								
GREEN		130				103				136				109								
RED ARROW	125								131									A124			A101	
YELLOW ARROW	126								132									A125			A102	
FLASHING YELLOW ARROW																		A126			A103	
GREEN ARROW	127								133													
(DON'T WALK)																						
PED YELLOW				** 114				** 105				** 120				** 111						
(WALK)			*				*				*				*							

NU = Not Used

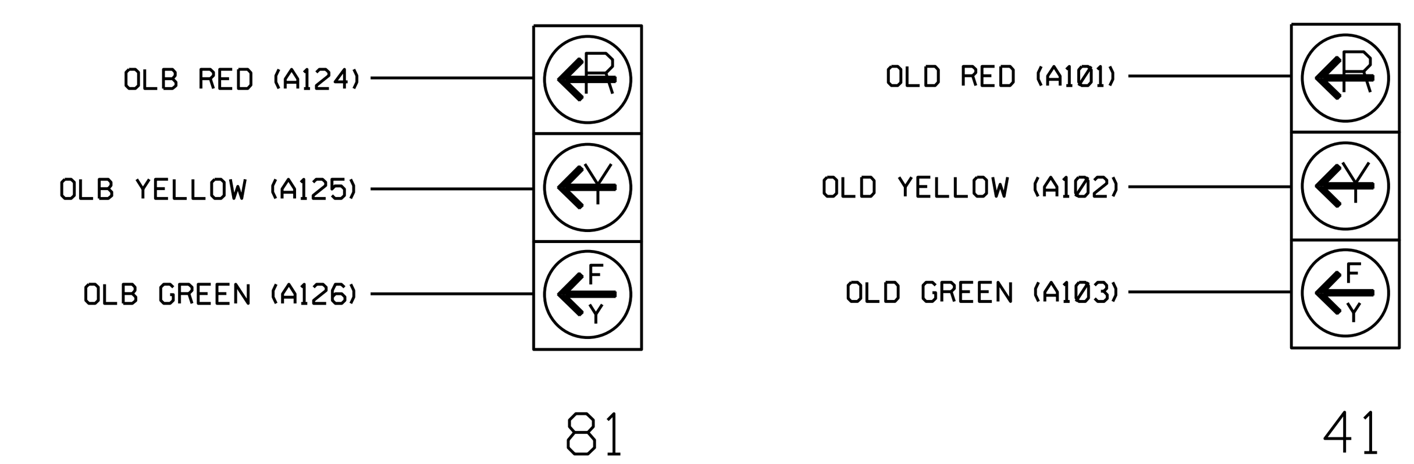
★ See pictorial of head wiring in detail this sheet.

* Denotes install load resistor. See load resistor installation detail on sheet 2.

** Special advance beacons will be wired to S2P-Y, S4P-Y, S6P-Y, and S8P-Y. See wiring and programing details on sheets 3 and 4.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	Ø1 1A	Ø2 2A	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S03	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
"I"	L		Ø8 8C	Ø2 2B			Ø4 4B			SYS. DET. S04					ST DC ISOLATOR
"J"	U	Ø5 5A	Ø6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S05	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L	NOT USED	Ø6 6B				Ø8 8B			SYS. DET. S06					

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			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			
8C	TB2-7,8	I2L	43	5	12	8	Y	Y			15
*S03	TB6-9,10	I9U	60	22	11	SYS					
*S04	TB6-11,12	I9L	62	24	13	SYS					
*S05	TB7-9,10	J9U	59	21	15	SYS					
*S06	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 SUPERSEDES THE DETAIL SEALED ON 08/08/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0166
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street) at SR 1140 (Roberts Road)

Division 2 — Carteret County — Newport

PLAN DATE: June 2018 — REVIEWED BY: CES
PREPARED BY: B. Christian — REVIEWED BY:

REVISIONS — INIT. — DATE

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

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 6/19/2018
DATE

SIG. INVENTORY NO. 02-0166

18-JUN-2018 10:33
S:*ITS&SU*ITS Signals*Workgroups*Sig Man*Christian*02-0166_sm_ele_xxx.dgn
bbchristian

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	Sig. 3.2

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

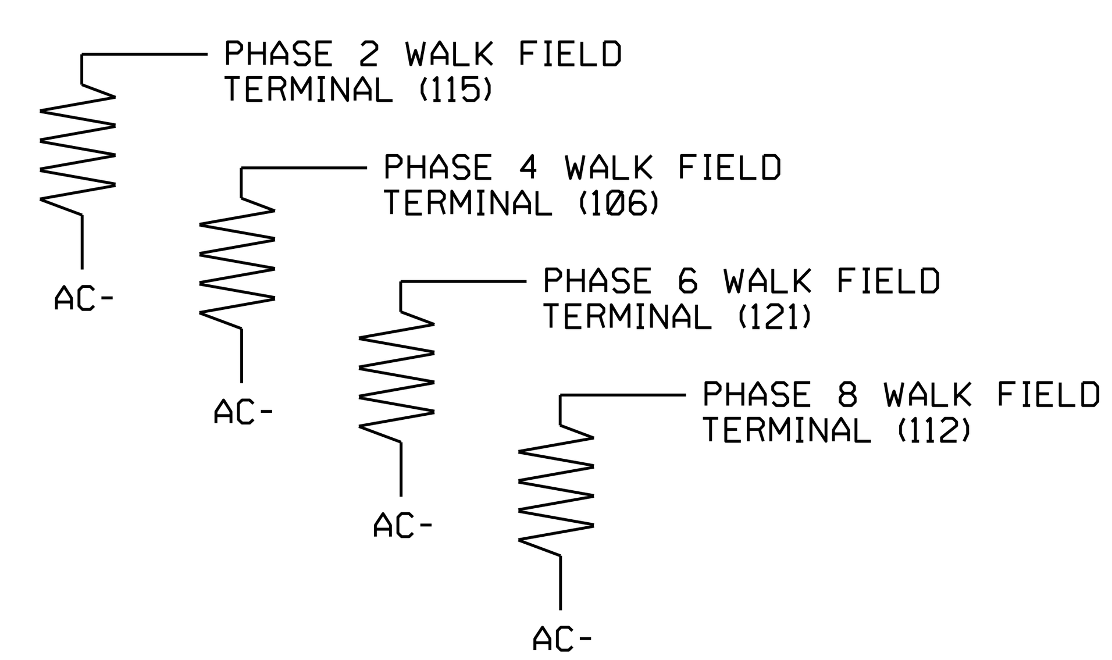
THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+'

```
PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|   X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|       X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/08/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0166
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 2 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street)
at
SR 1140 (Roberts Road)

Division 2 Carteret County Newport

PLAN DATE: June 2018	REVIEWED BY: CES
PREPARED BY: B. Christian	REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of: Transportation Mobility and Safety Division, ITS & Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 6/19/2018
A90CADFDBD4241D...
DATE

SIG. INVENTORY NO. 02-0166

18-JUN-2018 14:09
S:*ITS&SU*ITS Signals*Workgroups*Sig Man*Christian*020166_sm_ele_xxx.dgn
bbchristian

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	Sig. 3.3

ADVANCE BEACON #1 OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.................33
FREQUENCY (O=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (O=DEFAULT) (0 - 100%)...50
MODE (O=SOLID,1=FLASH).............1
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT BEACON INDEX (1-4)...........1
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  ADVANCE BEACON
OUTPUT ASSIGNMENT #.................33
FREQUENCY (O=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (O=DEFAULT) (0 - 100%)...50
MODE (O=SOLID,1=FLASH).............1
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #34 (PIN 36) IS REACHED.

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #.................34
FREQUENCY (O=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (0 - 100%)...0
MODE (O=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).......33
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

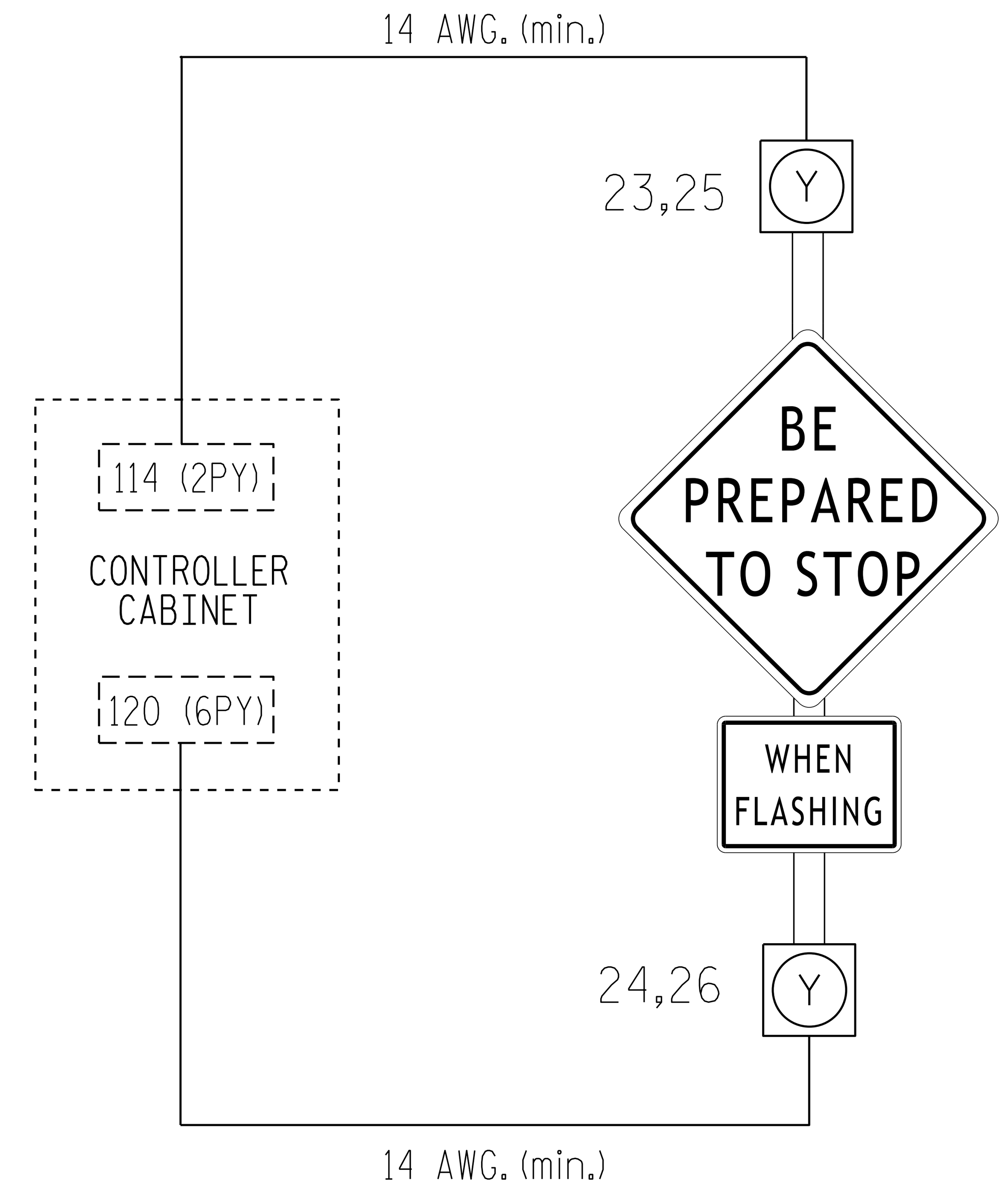
```
PAGE:1  C1 PIN:36  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.................34
FREQUENCY (O=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (0 - 100%)...0
MODE (O=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT REFERENCE SCHEDULE

OUTPUT 33 = Ø2 Ped Yellow
OUTPUT 34 = Ø6 Ped Yellow

ADVANCE BEACON #1 WIRING DETAIL

(wire flashers as shown below)



IMPORTANT

1. REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRES ATTACHED TO THE REAR OF TERMINALS 114 (2PY) AND 120 (6PY).
2. INSERT LOADSWITCHES FOR S2P AND S6P.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 2.
4. TO ACTIVATE ADVANCE BEACONS AS INDICATED ON THE SIGNAL PLANS, REASSIGN OUTPUTS 33 AND 34 AS SHOWN ON THIS SHEET.

ADVANCE BEACON PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '2' (OUTPUT BEACON SETTINGS).

```
            OUTPUT BEACON SETTINGS
TRIGGER PHASES: ¦12345678910111213141516
BEACON #1 OFF   ¦ X
BEACON #2 OFF   ¦     X
BEACON #3 OFF   ¦
BEACON #4 OFF   ¦
            BEACON ¦   1   2   3   4
OFF DELAY TIME (0-255)¦ 0   0   0   0
ON DELAY TIME  (0-255)¦ 0   0   0   0
STOP-TIME HOLD (0-255)¦ 2   2   0   0
    ADVANCE BEACON PROGRAMMING COMPLETE
```

SCROLL DOWN TO VIEW ALL DATA

NOTICE STOP TIME HOLD

NOTE: AN OUTPUT HAS TO BE ASSIGNED AS AN ADVANCE BEACON IN ORDER FOR PROPER OPERATION TO OCCUR. SEE OUTPUT ASSIGNMENT DETAIL ON SHEETS 3 AND 4.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/08/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0166
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 3 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

US 70 (Arendell Street)
at
SR 1140 (Roberts Road)

Division 2 — Carteret County — Newport

PLAN DATE: June 2018	REVIEWED BY: CES
PREPARED BY: B. Christian	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 D. TODD JOYCE

DocuSigned by: D. Todd Joyce A90CADEDBD4241D — 6/19/2018 DATE

SIG. INVENTORY NO. 02-0166

18-JUN-2018 10:35
S:*ITS&SU*ITS Signals*Workgroups*Sig Man*Christian*020166_sm_ele_xxx.dgn
bbchristian

ADVANCE BEACON #2
OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #35 (PIN 37) IS REACHED.

```
PAGE:1  C1 PIN:37  NOT ENABLED
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:37  NOT ENABLED
SELECT BEACON INDEX (1-4)...........2
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:37  ADVANCE BEACON
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #36 (PIN 38) IS REACHED.

```
PAGE:1  C1 PIN:38  NOT ENABLED
OUTPUT ASSIGNMENT #.................36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:38  NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).......35
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

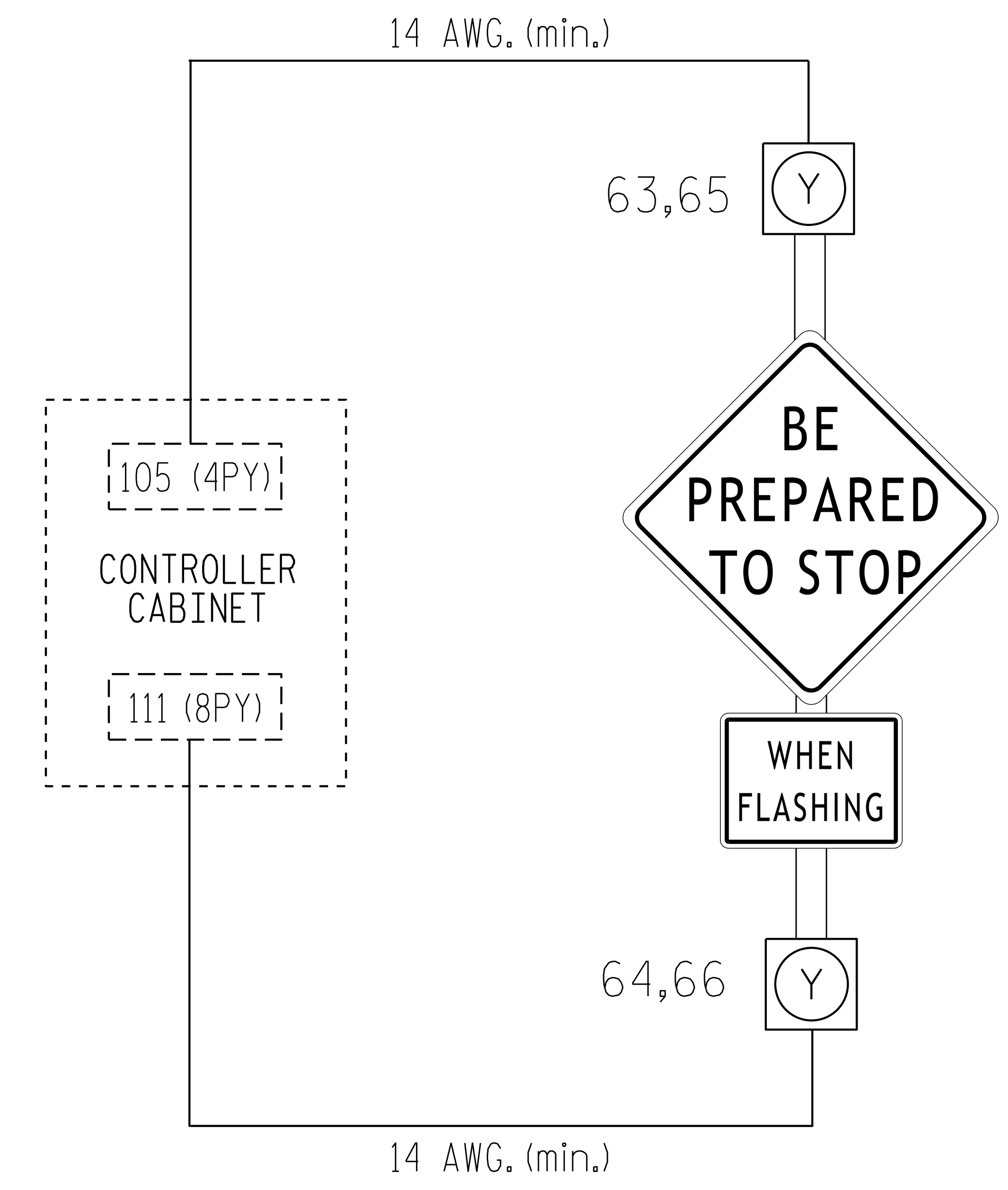
```
PAGE:1  C1 PIN:38  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.................36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT REFERENCE SCHEDULE

OUTPUT 35 = Ø4 Ped Yellow
OUTPUT 36 = Ø8 Ped Yellow

ADVANCE BEACON #2 WIRING DETAIL

(wire flashers as shown below)



IMPORTANT

1. REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRES ATTACHED TO THE REAR OF TERMINALS 105 (4PY) AND 111 (8PY).
2. INSERT LOADSWITCHES FOR S4P AND S8P.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 2.
4. TO ACTIVATE ADVANCE BEACONS AS INDICATED ON THE SIGNAL PLANS, REASSIGN OUTPUTS 35 AND 36 AS SHOWN ON THIS SHEET.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/08/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0166
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 4 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street)
at
SR 1140 (Roberts Road)

Division 2 | Carteret County | Newport

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

PLAN DATE:	June 2018	REVIEWED BY:	CES
PREPARED BY:	B. Christian	REVIEWED BY:	

REVISIONS	INIT.	DATE

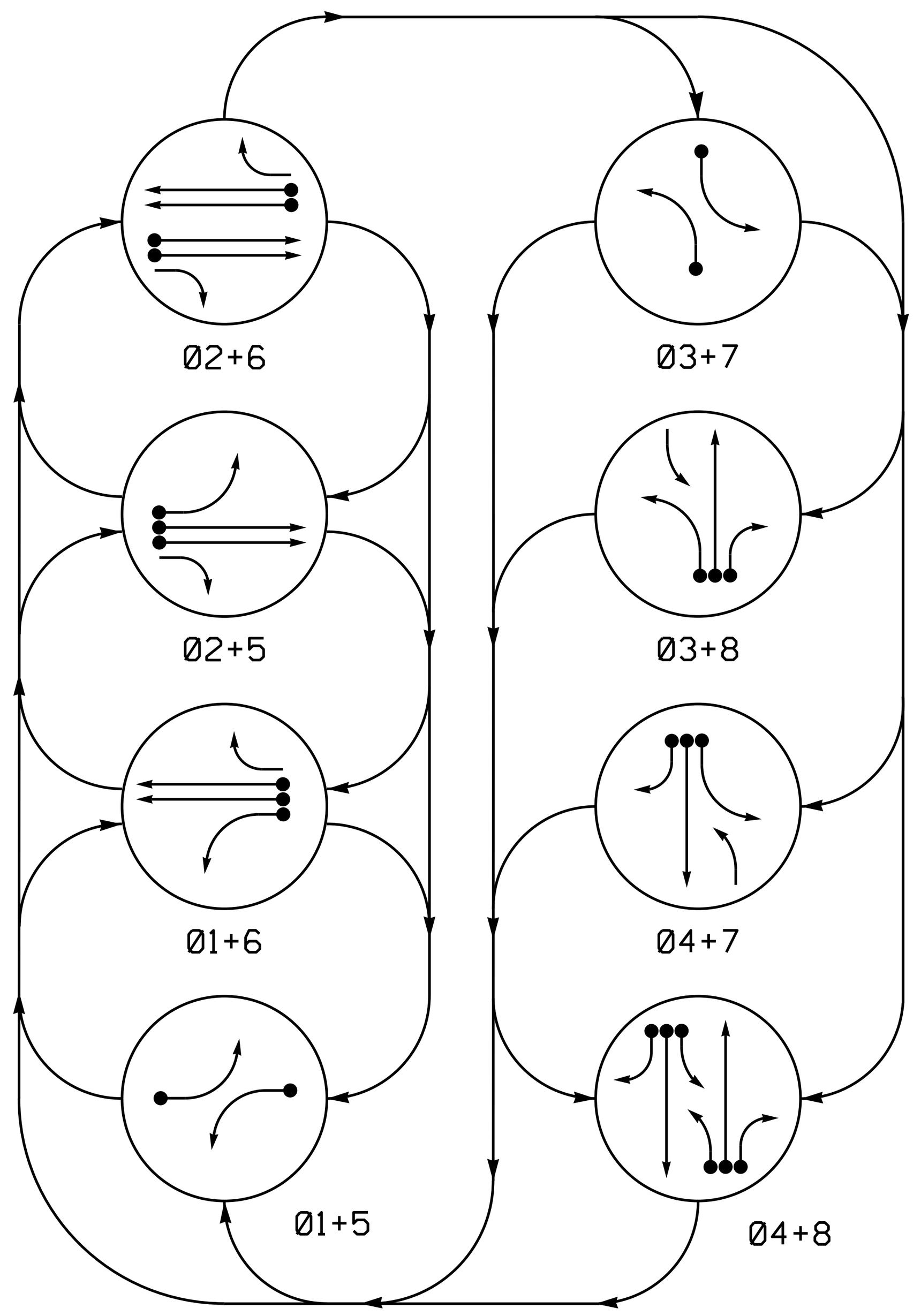
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 6/19/2018
A90CADEDBD4241D
DATE

SIG. INVENTORY NO. 02-0166

18-JUN-2018 10:36
S:*ITS&SU*ITS Signals*Workgroups*Sig Man*Christian*020166_sm_ele_xxx.dgn
bbchristian

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+7	Ø3+8	Ø4+7	Ø4+8	FLASH
11	←	←	←R	←R	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R	R	Y
31	←R	←R	←R	←R	←	←	←F/Y	←F/Y	←R
41,42,43	R	R	R	R	R	R	G	G	R
51	←	←R	←	←R	←R	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R	R	Y
71	←R	←R	←R	←R	←	←F/Y	←	←F/Y	←R
81,82,82	R	R	R	R	R	G	R	G	R

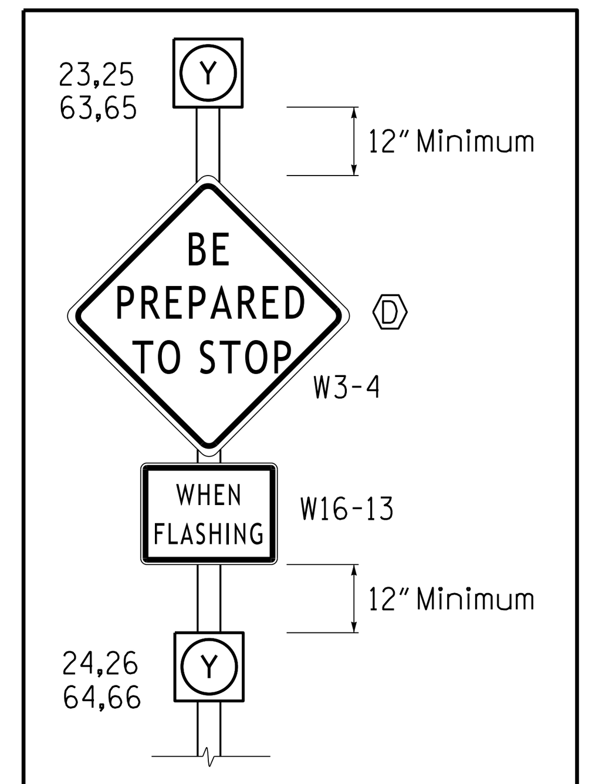


Figure 1

FLASHING BEACON INTERVAL CHART

SIGNAL FACE	INTERVAL 1	2
23,25	ON	OFF
24,26	OFF	ON
63,65	ON	OFF
64,66	OFF	ON

∗See Notes 5 and 6.

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	6X40	0	2-4-2	-	1	Y	Y	-	-	-	-	-
2A	6X6	420	6	-	2	Y	Y	-	-	-	-	-
2B	6X6	420	6	-	2	Y	Y	-	-	-	-	-
3A	6X60	0	2-4-2	-	3	Y	Y	-	-	15	-	-
					8	Y	Y	-	-	3	-	-
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	-	-	-
4B ∗	6X60	0	2-4-2	-	4	Y	Y	-	-	15	-	-
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	-	-	-
6A	6X6	420	6	-	6	Y	Y	-	-	-	-	-
6B	6X6	420	6	-	6	Y	Y	-	-	-	-	-
7A	6X60	0	2-4-2	-	7	Y	Y	-	-	15	-	-
					4	Y	Y	-	-	3	-	-
8A	6X60	0	2-4-2	-	8	Y	Y	-	-	-	-	-
8B ∗	6X60	0	2-4-2	-	8	Y	Y	-	-	15	-	-
S07	6X6	+170	3	-	-	-	-	-	-	-	Y	-
S08	6X6	+170	3	-	-	-	-	-	-	-	Y	-

∗See Note 7.

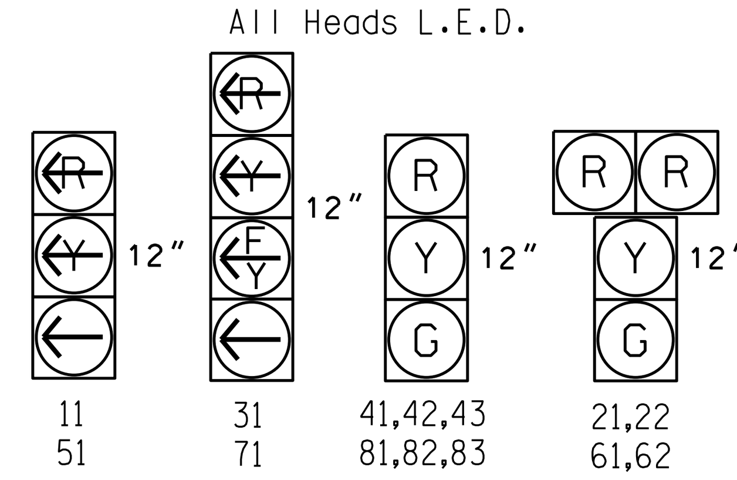
8 Phase
Fully Actuated
US 70 (Newport) CLS

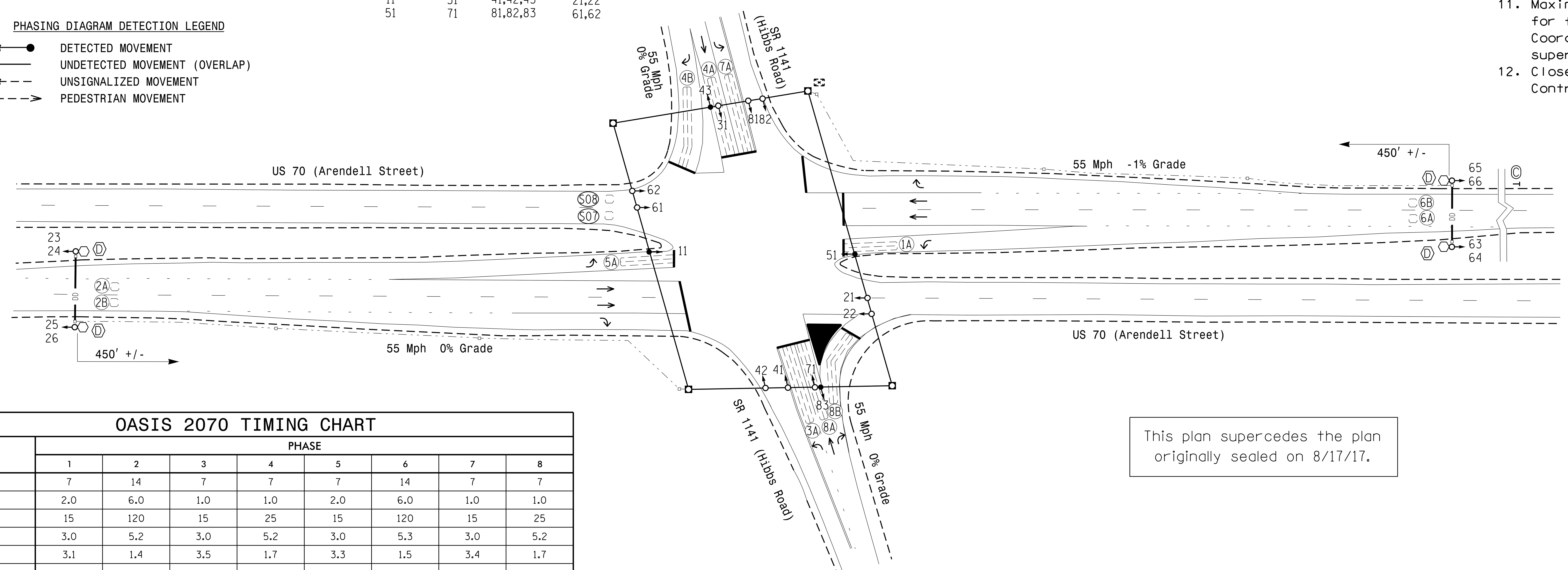
NOTES

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. Phase 3 and/or phase 7 may be lagged.
5. Activate beacons 23, 24, 25, and 26 2 seconds prior to the end of phase 2 green. They shall flash until the beginning of the succeeding phase 2 green.
6. Activate beacons 63, 64, 65, and 66 2 seconds prior to the end of phase 6 green. They shall flash until the beginning of the succeeding phase 6 green.
7. Renumber existing loops numbered 5B and 1B to 4B and 8B as shown.
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. Pavement markings are existing.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
12. Closed loop system data: Controller Asset # 0349.

SIGNAL FACE I.D.

All Heads L.E.D.





This plan supercedes the plan originally sealed on 8/17/17.

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	
	Type II Signal Pedestal	
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ
Ⓒ	Signal Ahead Sign (W3-3)	Ⓒ
Ⓓ	"BE PREPARED TO STOP" "WHEN FLASHING" Signs (See Figure 1)	Ⓓ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	14	7	7	7	14	7	7
Extension 1 *	2.0	6.0	1.0	1.0	2.0	6.0	1.0	1.0
Max Green 1 *	15	120	15	25	15	120	15	25
Yellow Clearance	3.0	5.2	3.0	5.2	3.0	5.3	3.0	5.2
Red Clearance	3.1	1.4	3.5	1.7	3.3	1.5	3.4	1.7
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	46	-	-	-	46	-	-
Time Before Reduction *	-	20	-	-	-	20	-	-
Time To Reduce *	-	60	-	-	-	60	-	-
Minimum Gap	-	3.4	-	-	-	3.4	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	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

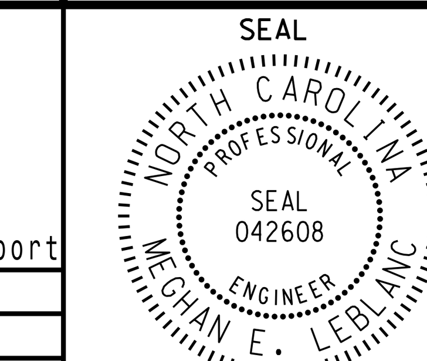
US 70 (Arendell Street) at SR 1141 (Hibbs Road)

Division 2 Carteret County Newport

PLAN DATE: May 2018	REVIEWED BY: MEL
PREPARED BY: Jeff Spence	REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE



DocuSigned by: Meghan E LeBlanc 6/1/2018

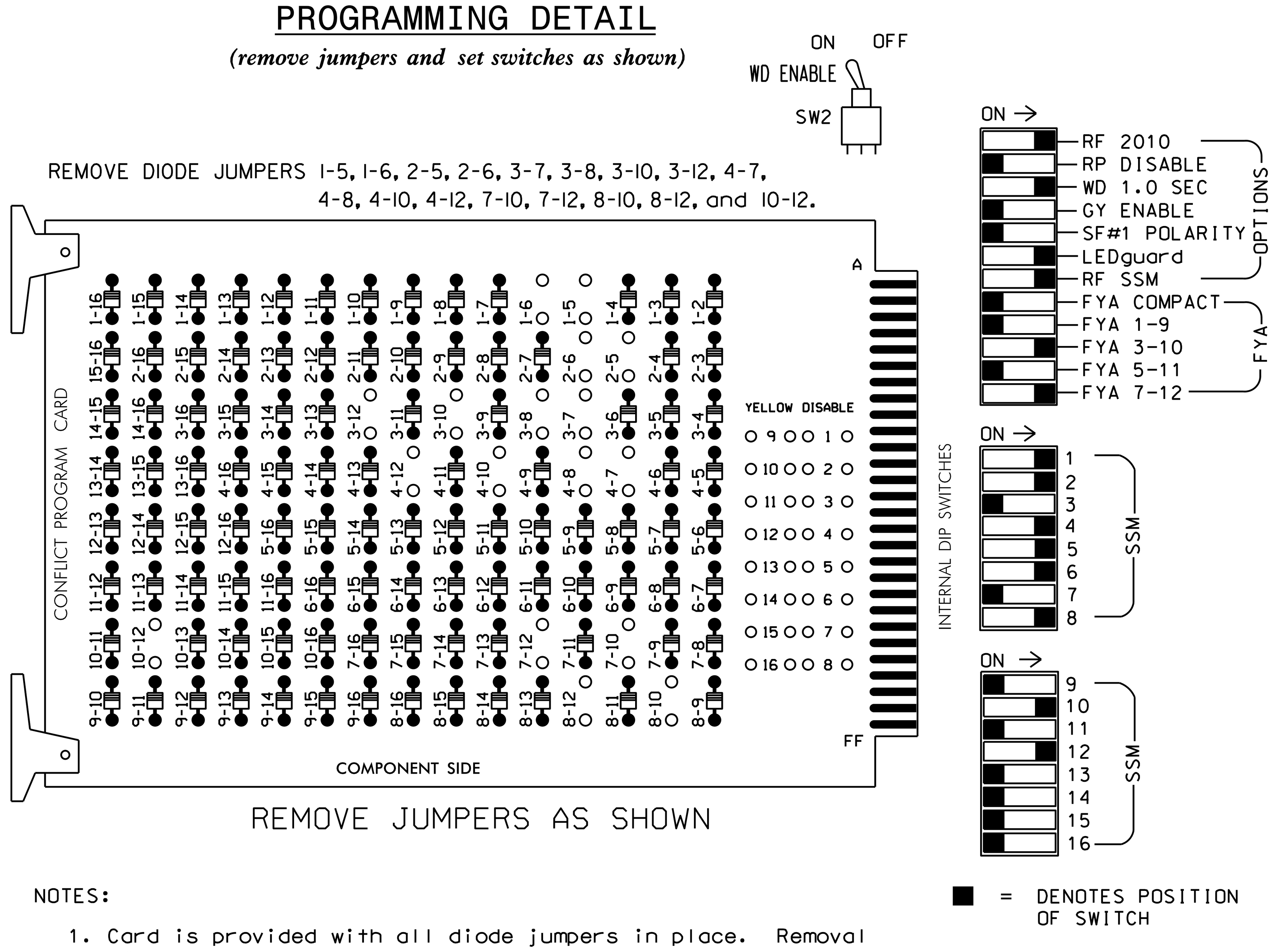
SIG. INVENTORY NO. 02-0349

21-JUN-2018 14:41
S:\ITS&SU\ITS Signals\Signal Design Section\Eastern Region\Div-02\W-5702E\02-0349\020349_sig-dsn_20180601.dgn
jrspence

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	Sig. 4.1

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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. Make sure jumpers SEL2-SEL5 are present on the monitor board.
3. 2010ECL-NC conflict monitor required for FYA operation.

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. Return controller to factory defaults before programming per this electrical detail.
3. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,7, 9,11,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
4. Program phases 4 and 8 for Dual Entry.
5. Enable Simultaneous Gap-Out for all phases.
6. Program phases 2 and 6 for Variable Initial and Gap Reduction.
7. Program phases 2 and 6 for Startup In Green.
8. Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
9. The cabinet and controller are part of the US 70 (Newport) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332 W/ AUX
SOFTWARE ....ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S2P*,S3,S4,S4P*,S5, S6,S6P*,S7,S8,S8P*,S10,S13
PHASES USED.............1,2,3,4,5,6,7,8
OVERLAP A...............NOT USED
OVERLAP B...............3+4
OVERLAP C...............NOT USED
OVERLAP D...............7+8

* Used for advance beacon control only.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P		S3	S4	S4P		S5	S6	S6P		S7	S8	S8P		S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	ADVANCE BEACON	3	4	4 PED	ADVANCE BEACON	5	6	6 PED	ADVANCE BEACON	7	8	8 PED	ADVANCE BEACON	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	23,25	31★	41,42 43	NU	63,65	51	61,62	NU	24,26	71★	81,82 83	NU	64,66	NU	31★	NU	NU	71★	NU
RED		128				101				134				107								
YELLOW		129			✱	102				135			✱	108								
GREEN		130				103				136				109								
RED ARROW	125								131									A124			A101	
YELLOW ARROW	126								132									A125			A102	
FLASHING YELLOW ARROW																		A126			A103	
GREEN ARROW	127				118				133				124									
(Don't Walk hand)																						
PED YELLOW				✱✱ 114				✱✱ 105				✱✱ 120				✱✱ 111						
(Walk person)			✱				✱				✱				✱							

NU = Not Used

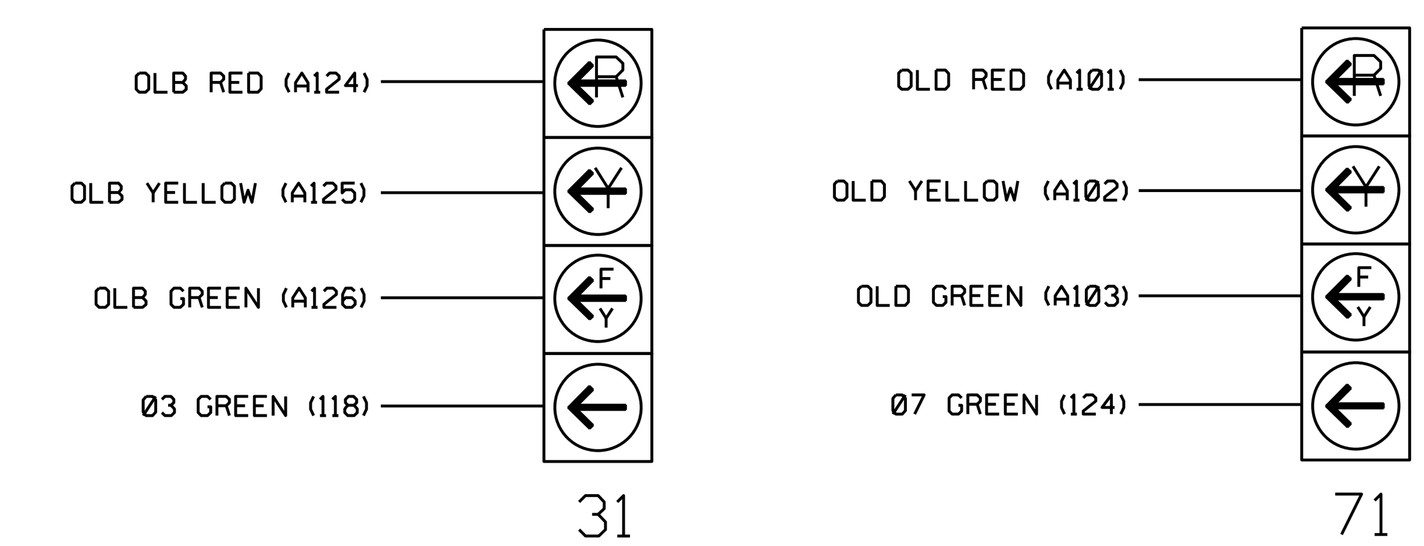
★ See pictorial of head wiring in detail this sheet.

✱ Denotes install load resistor. See load resistor installation detail on sheet 2.

✱✱ Special advance beacons will be wired to S2P-Y, S4P-Y, S6P-Y, and S8P-Y. See wiring and programing details on sheets 3 and 4.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 31 and 71 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	ø1 1A	ø2 2A	SLOT EMPTY	SLOT EMPTY	ø8 3A	ø4 4A	SLOT EMPTY	SYS. DET. S07	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
"I"	L		ø8 8B	ø2 2B			ø3 3A	NOT USED		SYS. DET. S08					ST DC ISOLATOR
"J"	U	SLOT EMPTY	ø5 5A	ø6 6A	SLOT EMPTY	SLOT EMPTY	ø4 7A	ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L		ø4 4B	ø6 6B			ø7 7A	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			
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
3A[1]	TB4-9,10	I6U	41	3	4	8	Y	Y			3
	TB4-11,12	I6L	45	7	14	3	Y	Y			15
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			
4B	TB3-7,8	J2L	44	6	16	4	Y	Y			15
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	TB3-11,12	J3L	77	39	46	6	Y	Y			
7A[2]	TB5-9,10	J6U	42	4	8	4	Y	Y			3
	TB5-11,12	J6L	46	8	18	7	Y	Y			15
8A	TB7-1,2	J7U	66	28	38	8	Y	Y			
8B	TB2-7,8	I2L	43	5	12	8	Y	Y			15
✱S07	TB6-9,10	I9U	60	22	11	SYS					
✱S08	TB6-11,12	I9L	62	24	13	SYS					

[1] Add jumpers from TB4-9 to TB4-11, and from TB4-10 to TB4-12.

[2] Add jumpers from TB5-9 to TB5-11, and from TB5-10 to TB5-12.

✱ 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 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0349
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

US 70 (Arendell Street) at SR 1141 (Hibbs Road)

Division 2 Carteret County Newport

PLAN DATE: June 2018 REVIEWED BY: CES

PREPARED BY: B. Christian REVIEWED BY:

REVISIONS INIT. DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 6/19/2018

DATE

SIG. INVENTORY NO. 02-0349

18-JUN-2018 15:54
S:\ITS&SU\ITS Signals\Workgroups\Sig Man\Christian\02Ø349_sm_ele.xxx.dgn
bbchristian

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5, AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE         #3  IS ON
AND RED CLEAR ON PHASE #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #47 ON
SET OUTPUT  ASSIGNMENT #48 OFF
```
NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE         #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #49 OFF
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW OFF DURING PHASE 3 (HEAD 31).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #48 ON
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

PRESS '+'

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE         #7  IS ON
AND RED CLEAR ON PHASE #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #39 ON
SET OUTPUT  ASSIGNMENT #40 OFF
```
NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

PRESS '+'

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE         #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #41 OFF
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW OFF DURING PHASE 7 (HEAD 71).

PRESS '+'

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE     #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #40 ON
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+'

```
PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE:            |12345678910111213141516
VEH OVL PARENTS:  |  XX
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```
← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE:            |12345678910111213141516
VEH OVL PARENTS:  |      XX
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```
← NOTICE GREEN FLASH

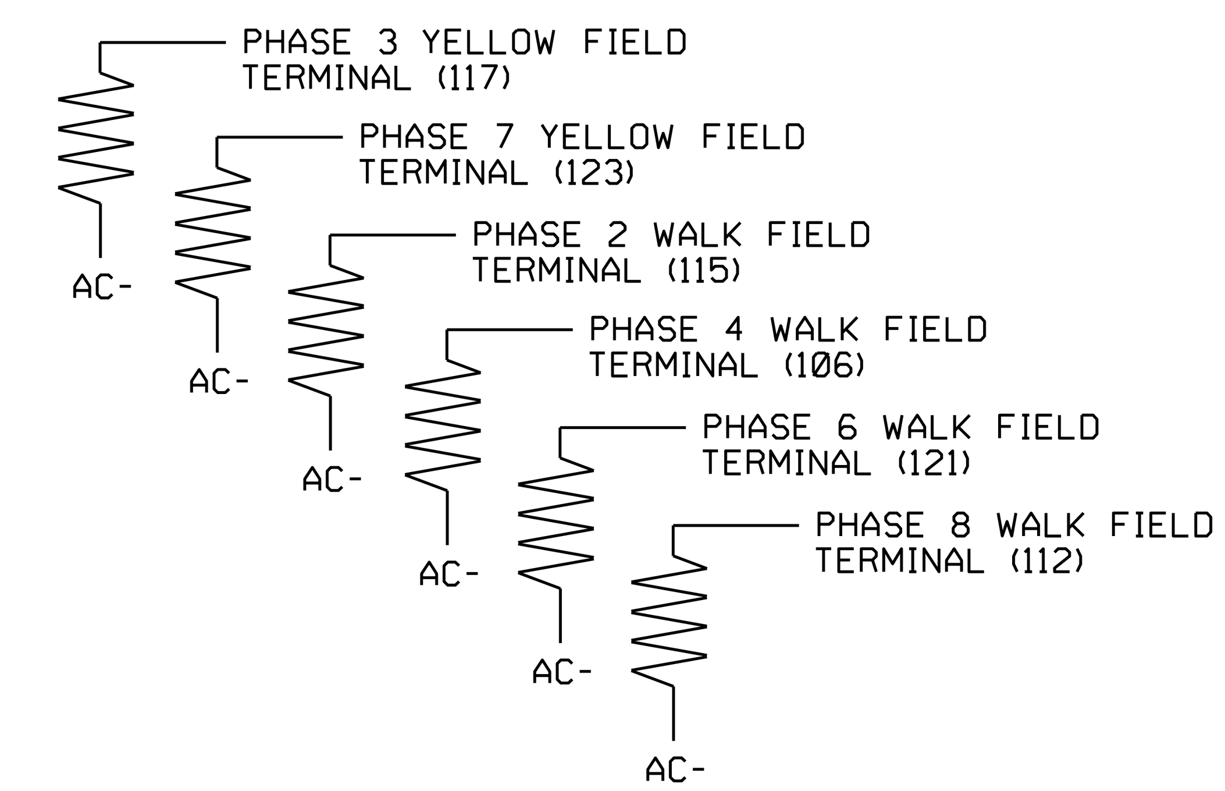
OVERLAP PROGRAMMING COMPLETE

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



IMPORTANT! Move resistors from Red terminal to Yellow terminal for phases 3 and 7.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0349
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

US 70 (Arendell Street) at SR 1141 (Hibbs Road)

Division 2 | Carteret County | Newport

PLAN DATE: June 2018	REVIEWED BY: CES
PREPARED BY: B. Christian	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 6/19/2018
A90CADFDB04241D
DATE

SIG. INVENTORY NO. 02-0349

18-JUN-2018 15:56
S:*ITS&SU*ITS Signals\Workgroups\Sig Man\Christian\020349_sm_ele_xxx.dgn
bbchristian

PROJECT REFERENCE NO.	SHEET NO.
W-5702E	Sig. 4.3

ADVANCE BEACON #1
OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE IN WHICH AT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT BEACON INDEX (1-4)...........1
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  ADVANCE BEACON
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #34 (PIN 36) IS REACHED.

```
PAGE:1  C1 PIN:36  PEDESTRIAN PHASE
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................Y
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).....33
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT REFERENCE SCHEDULE

OUTPUT 33 = Ø2 Ped Yellow
OUTPUT 34 = Ø6 Ped Yellow

ADVANCE BEACON PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '2' (OUTPUT BEACON SETTINGS).

```
        OUTPUT BEACON SETTINGS
TRIGGER PHASES: |12345678910111213141516
BEACON #1 OFF   | X
BEACON #2 OFF   |     X
BEACON #3 OFF   |
BEACON #4 OFF   |
                BEACON  |  1  2  3  4
OFF DELAY TIME (0-255)  |  0  0  0  0
ON DELAY TIME  (0-255)  |  0  0  0  0
STOP-TIME HOLD (0-255)  |  2  2  0  0
```

SCROLL DOWN TO VIEW ALL DATA

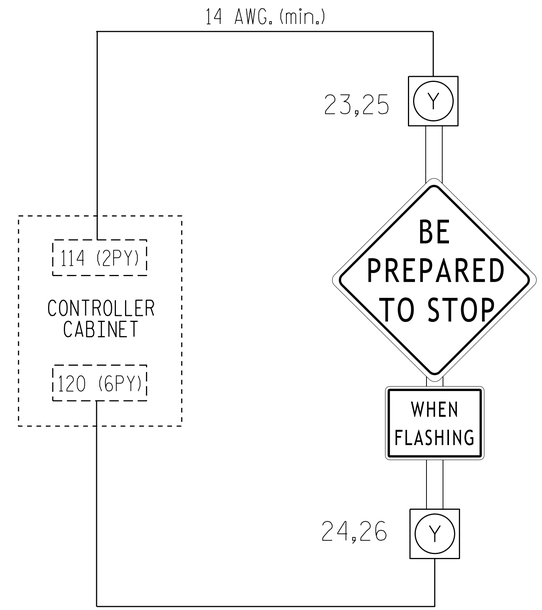
NOTICE STOP TIME HOLD

ADVANCE BEACON PROGRAMMING COMPLETE

NOTE: AN OUTPUT HAS TO BE ASSIGNED AS AN ADVANCE BEACON IN ORDER FOR PROPER OPERATION TO OCCUR. SEE OUTPUT ASSIGNMENT DETAIL ON SHEETS 3 AND 4.

ADVANCE BEACON #1 WIRING DETAIL

(wire flashers as shown below)



IMPORTANT

1. REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRE ATTACHED TO THE REAR OF TERMINALS 114 (2PY) AND 120 (6PY).
2. INSERT LOAD SWITCHES FOR S2P AND S6P.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 2.
4. TO ACTIVATE ADVANCE BEACONS AS INDICATED ON THE SIGNAL PLANS, REASSIGN OUTPUTS 33 AND 34 AS SHOWN ON THIS SHEET.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0349
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 70 (Arendell Street)
at
SR 1141 (Hibbs Road)

Division 2 | Carteret County | Newport

PLAN DATE: June 2018 | REVIEWED BY: CES
PREPARED BY: B. Christian | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Traffic Engineering, Mobility and Safety Division
NC DEPARTMENT OF TRANSPORTATION
Traffic Engineering & Signals Management Section
750 N.Greenfield Pkwy.,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 D. TODD JOYCE
DocuSigned by: D. Todd Joyce 6/19/2018
A80CADFDBD4241D... DATE
SIG. INVENTORY NO. 02-0349

18-JUN-2018 15:55
S:\TSG\Signals\Workgroups\Sig Mon\Christian\W02349_smele_xxx.dgn
bchristian

ADVANCE BEACON #2 OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #35 (PIN 37) IS REACHED.

```
PAGE:1  C1 PIN:37  NOT ENABLED
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE AT WHICH IT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:37  NOT ENABLED
SELECT BEACON INDEX (1-4)...........2
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:37  ADVANCE BEACON
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #36 (PIN 38) IS REACHED.

```
PAGE:1  C1 PIN:38  NOT ENABLED
OUTPUT ASSIGNMENT #.................36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTOUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:38  NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).......35
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER ENTERING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

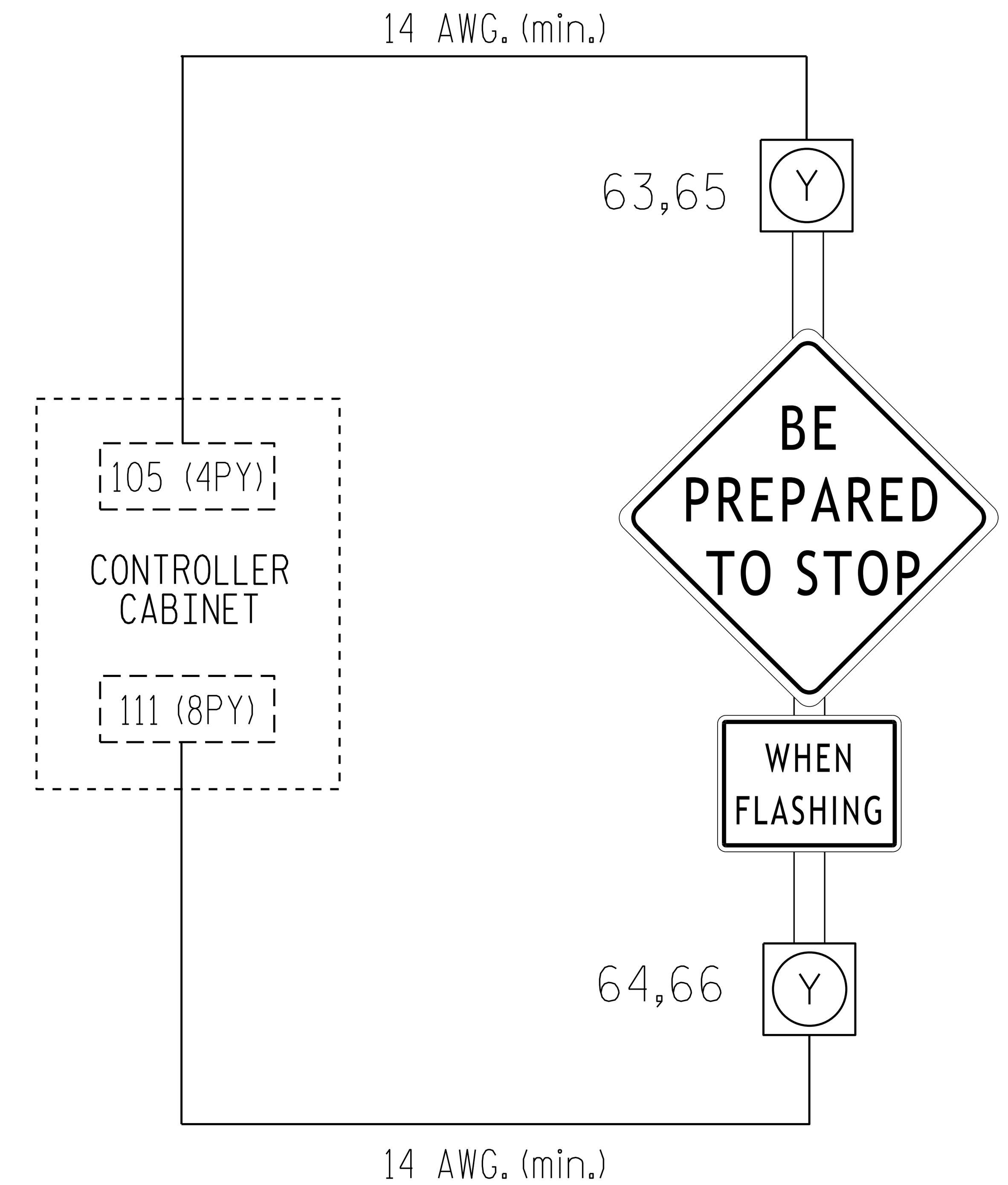
```
PAGE:1  C1 PIN:38  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.................36
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

OUTPUT REFERENCE SCHEDULE

OUTPUT 35 = Ø4 Ped Yellow
OUTPUT 36 = Ø8 Ped Yellow

ADVANCE BEACON #2 WIRING DETAIL

(wire flashers as shown below)



IMPORTANT

1. REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRE ATTACHED TO THE REAR OF TERMINAL 105 (4PY) AND 111 (8PY).
2. INSERT LOAD SWITCHES FOR S4P AND S8P.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 2.
4. TO ACTIVATE ADVANCE BEACONS AS INDICATED ON THE SIGNAL PLANS, REASSIGN OUTPUTS 35 AND 36 AS SHOWN ON THIS SHEET.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 08/23/2017

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 02-0349
DESIGNED: May 2018
SEALED: 06/01/2018
REVISED: N/A

Electrical Detail - Sheet 4 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 70 (Arendell Street)
at
SR 1141 (Hibbs Road)

Division 2 | Carteret County | Newport

PLAN DATE:	June 2018	REVIEWED BY:	CES
PREPARED BY:	B. Christian	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 6/19/2018
A90CADFDBD4241D...
DATE

SIG. INVENTORY NO. 02-0349

18-JUN-2018 15:56
S:\ITS&SU\ITS Signals\Workgroups\Sig Man\Christian\020349_sm_ele_xxx.dgn
bbchristian