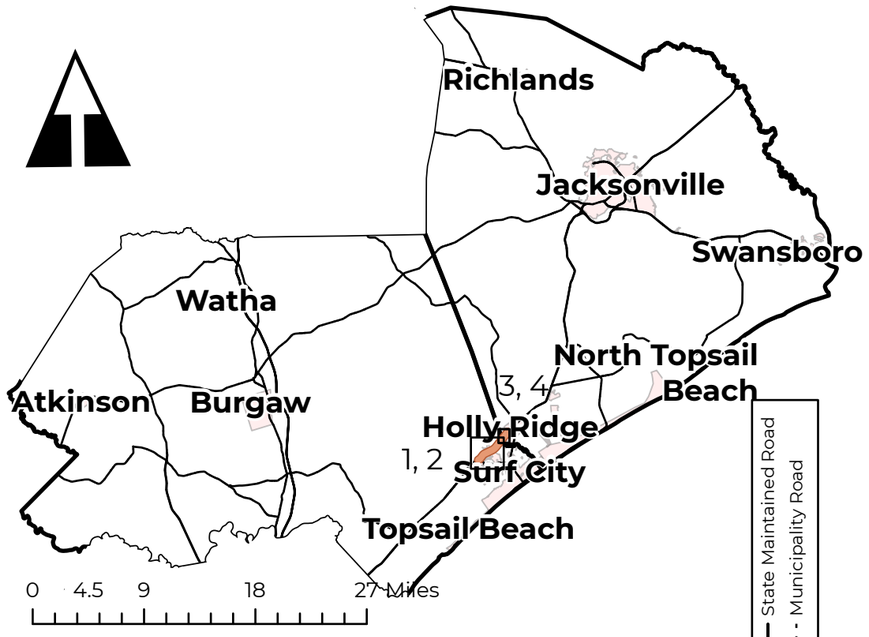
Onslow - Pender

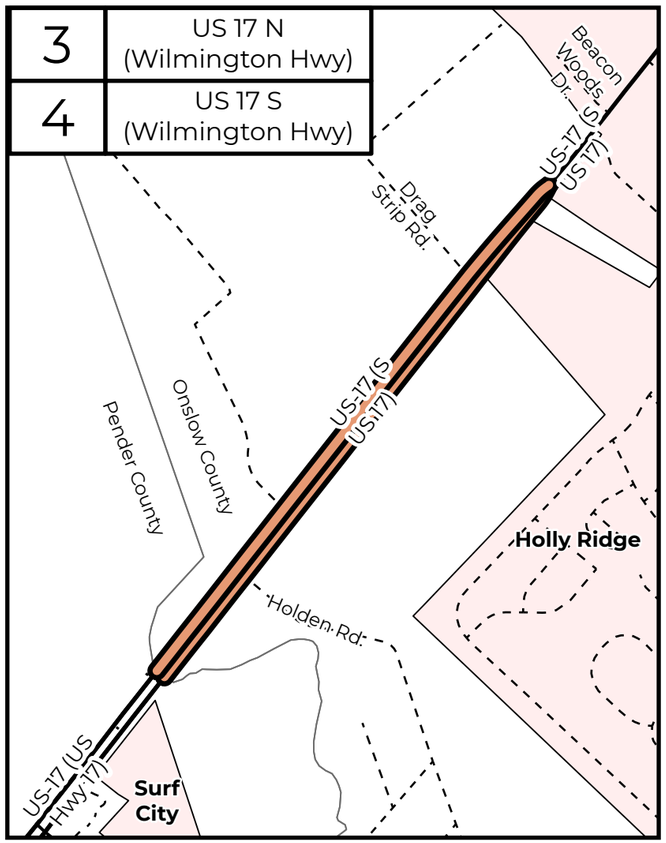
PROJECT REFERENCE NO.	SHEET NO.
2021CPT.03.22.10671, ETC.	1

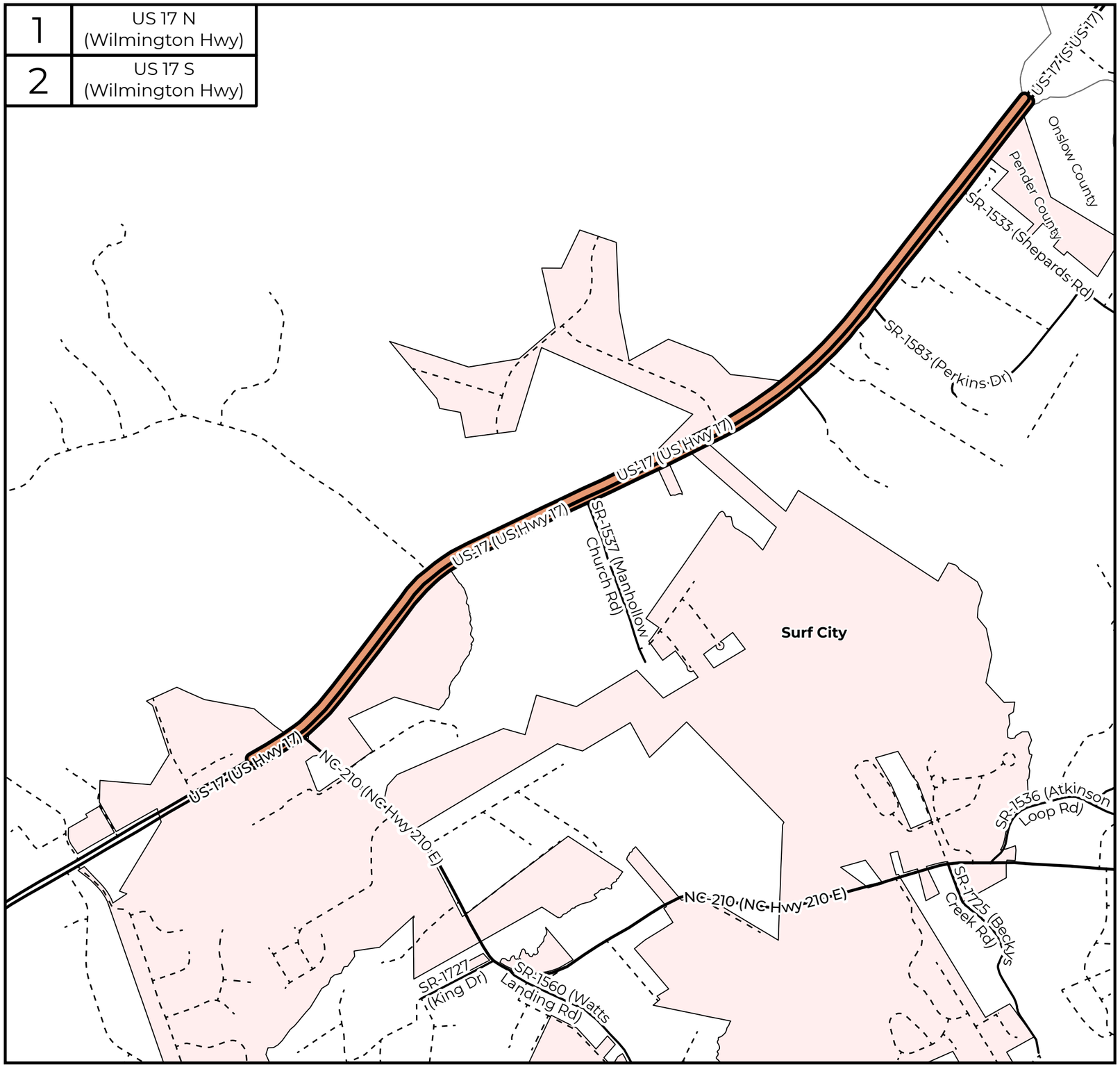


1	US 17 N (Wilmington Hwy)
2	US 17 S (Wilmington Hwy)

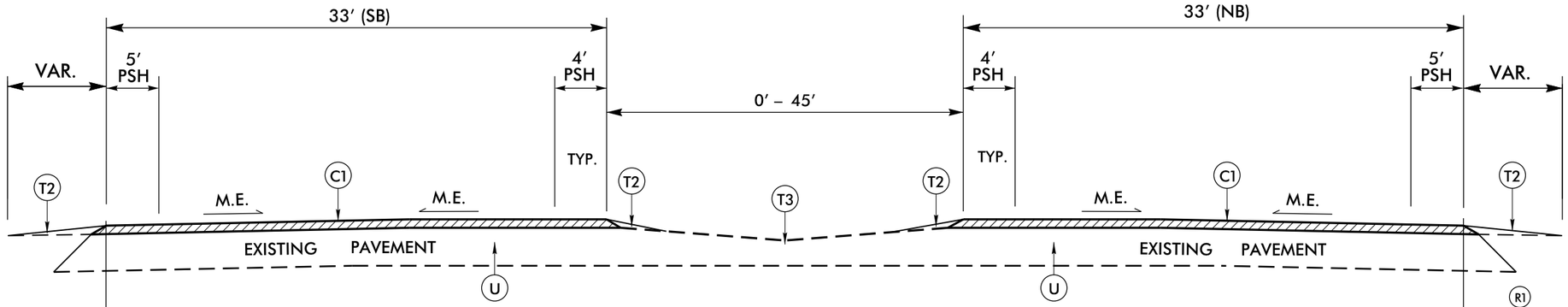
3	US 17 N (Wilmington Hwy)
4	US 17 S (Wilmington Hwy)

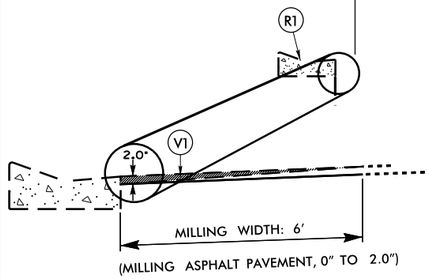
Legend
- State Maintained Road
- Municipality Road
- Bridge
- Road Section

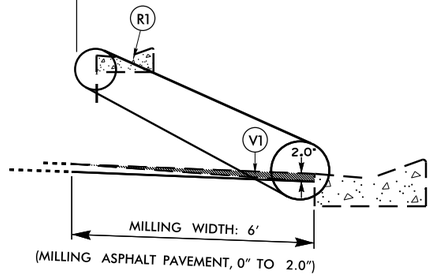




PROJECT REFERENCE NO.	SHEET NO.
2021CPT.03.22.10671, Etc.	2







MAP NO. 2
US 17 S (WILMINGTON HWY.)
MP 0.00 – MP 2.57

MAP NO. 4
US 17 S (WILMINGTON HWY.)
MP 39.00 – MP 39.82

TYPICAL SECTION NO. 1

MAP NO. 1
US 17 N (WILMINGTON HWY.)
MP 13.62 – MP 16.19

MAP NO. 3
US 17 N (WILMINGTON HWY.)
MP 0.00 – MP 0.82

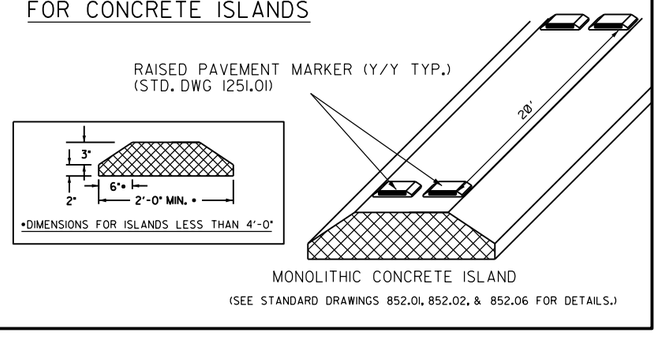
2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF.01-16-2018
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N.C.Department of Transportation - Raleigh,N.C.,Dated January,2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	*TITLE*
DIVISION 8 - INCIDENTALS	
862.01	*Guardrail Placement*
862.02	*Guardrail Installation*
DIVISION 12 - PVMT MARKING, MARKERS AND DELINEATION	
1205.08	*Pavement Markings - Symbols & Word Messages*

PAVEMENT MARKER DETAIL FOR CONCRETE ISLANDS



MONOLITHIC CONCRETE ISLAND
(SEE STANDARD DRAWINGS 852.01, 852.02, & 852.06 FOR DETAILS.)

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ.YD.
R1	EXISTING SHOULDER BERM GUTTER
T1	EARTH MATERIAL (SHOULDER RECONSTRUCTION)
T2	AGGREGATE SHOULDER BORROW (SHOULDER RECONSTRUCTION)
T3	EXISTING EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 0" - 2.0" DEPTH

PAVEMENT EDGE SLOPES ARE 1:1, EXCEPT FINAL SURFACE COURSE. SEE SHOULDER WEDGE DETAIL.

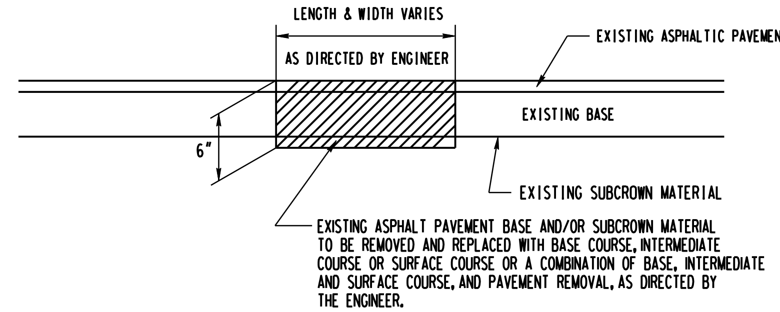
NOTES:

BORROW EX. TO BE USED AT RADIUS OF CROSSOVERS.

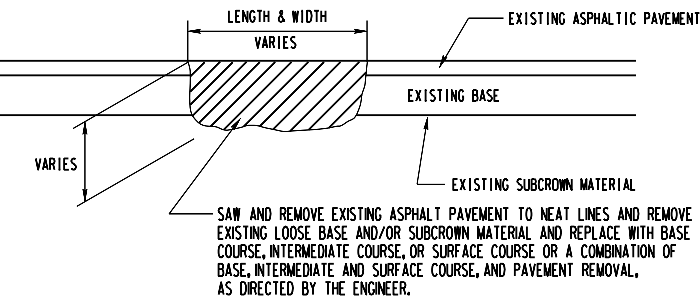
REVISIONS 8/17/99

REVISIONS

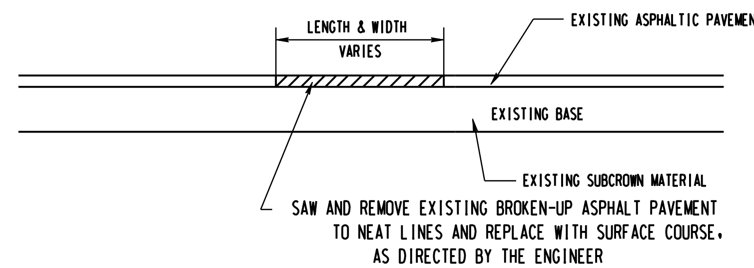
DETAILS OF REPAIRING EXISTING PAVEMENT PRIOR TO RESURFACING FOR FULL DEPTH AND MILLING



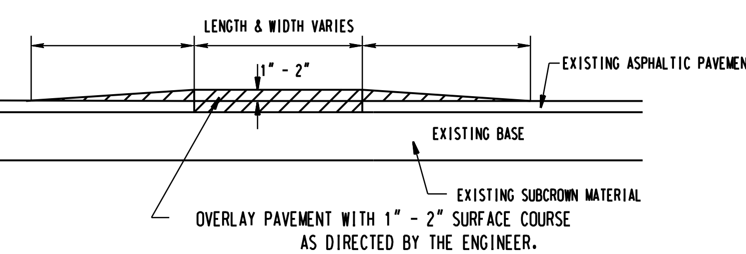
DETAIL NO. 1



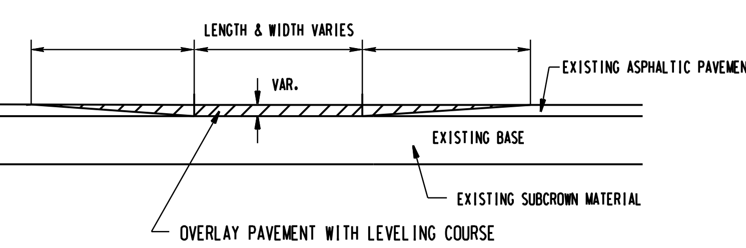
DETAIL NO. 2



DETAIL NO. 3



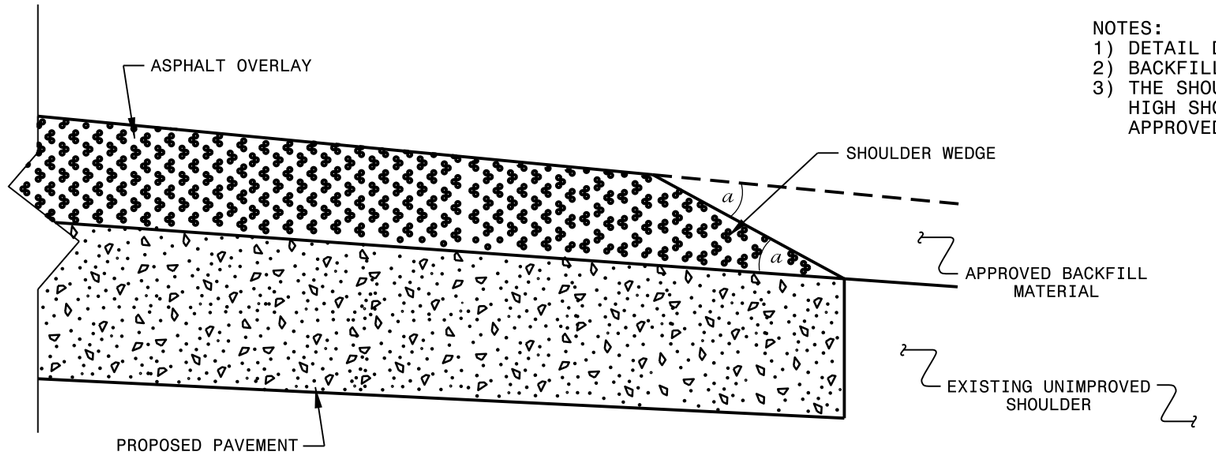
DETAIL NO. 4



DETAIL NO. 5

20-APR-2015 11:56
C:\Users\mkimmel\Desktop\DETAIL PSHS\Microstation Files\3CR.20711.173_Patch.dgn
$$$$USERNAME$$$$

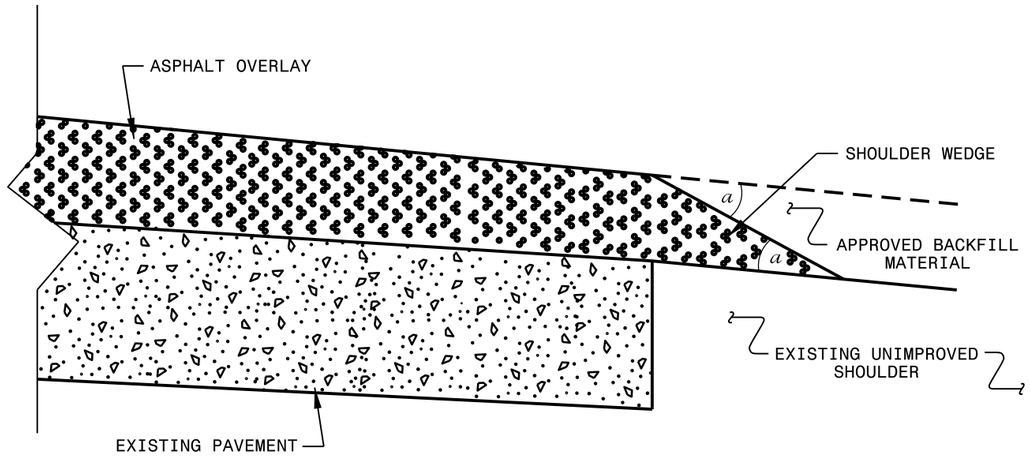
PROJECT REFERENCE NO.	SHEET NO.
2021CPT.03.22.10671, Etc	4



NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.

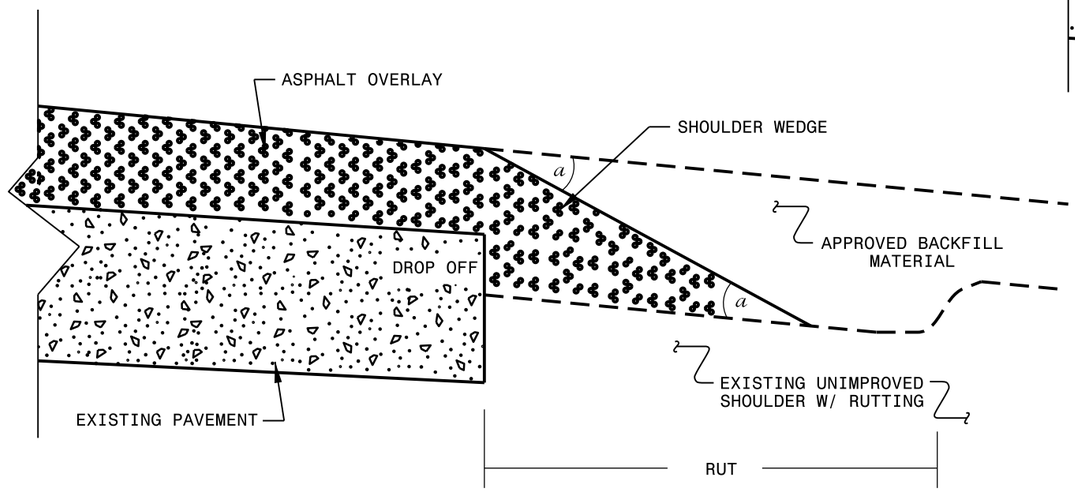
SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

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

SHOULDER WEDGE DETAILS

ORIGINAL BY:	T.SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	2/2/16
CHECKED BY:		DATE:	
FILE SPEC.:	s:\usr\details\stand\shoulderwedgedetail.dgn		

27-JUN-2018 13:52
S:\Contracts\Contracts\Resurfacing Projects\Division 3\Sampson August 2018\Revised Shoulder Wedge Detail.dgn
pporter at CSD 2525142

PROJECT REFERENCE NO.	SHEET NO.
2021CPT.03.22.10671, Etc.	EC-1

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

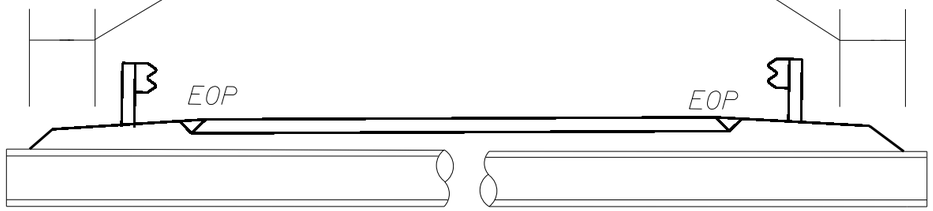
PROJECT REFERENCE NO.	SHEET NO.
2021CPT.03.23.10671, Etc.	EC-2

NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle or Silt Fence

EROSION CONTROL DETAIL

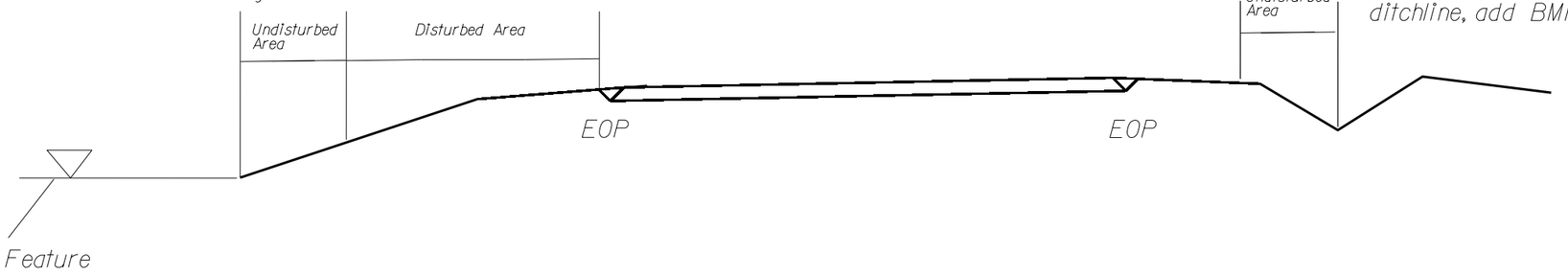
< 5' - 10' Undisturbed buffer add BMP



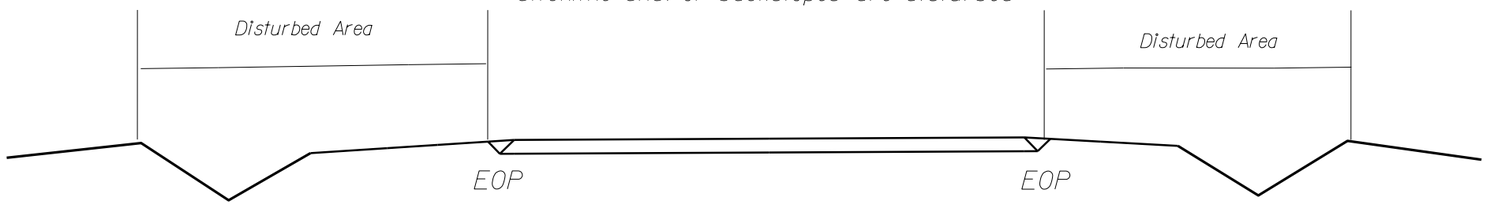
Pipe/Culvert

< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP

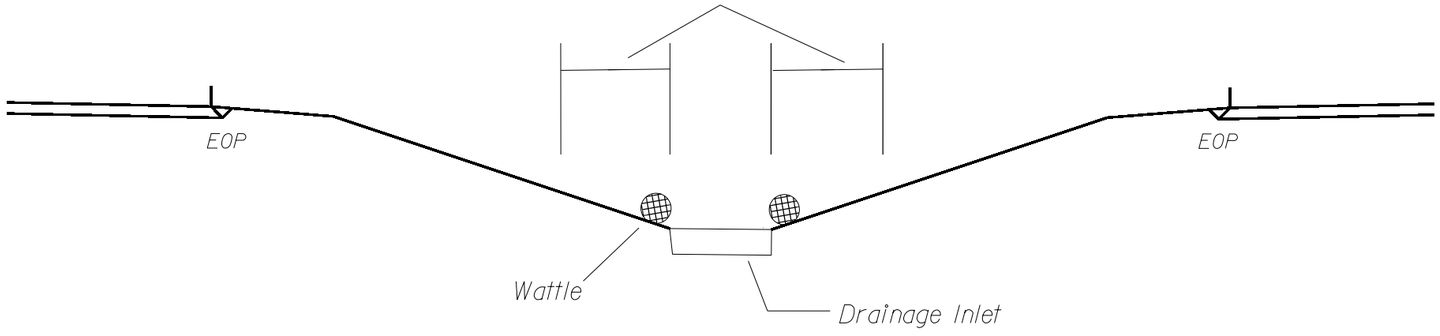
< 5' - 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed



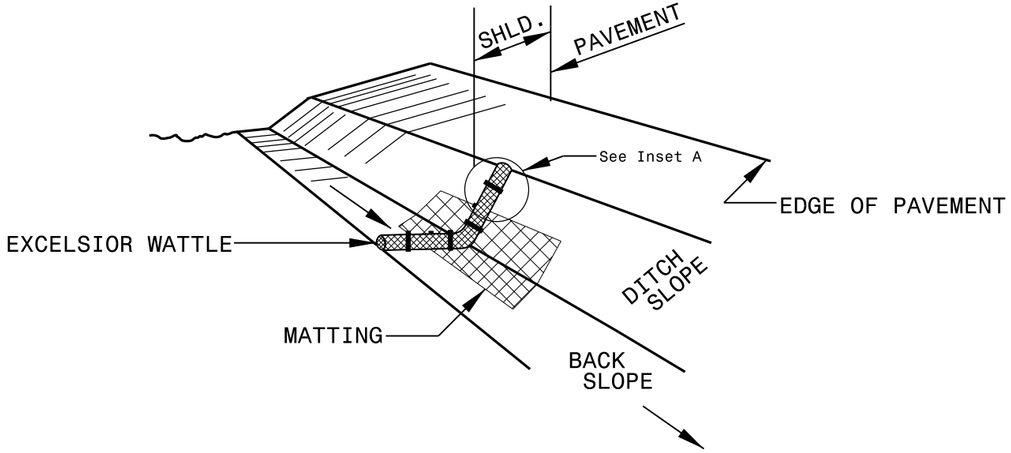
< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
2021CPT.03.22.10671, Etc	EC-3

WATTLE DETAIL



ISOMETRIC VIEW

CROSS SECTION VEE DITCH

CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

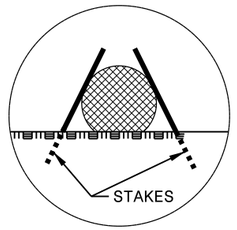
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

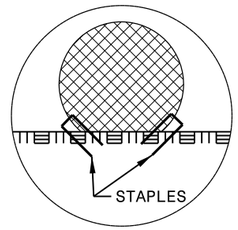
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

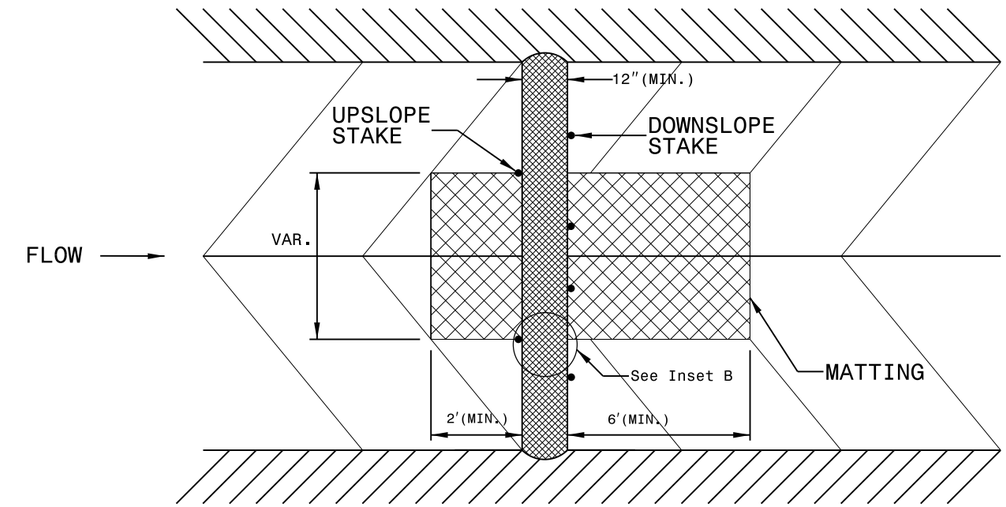
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

PROJECT NO.	SHEET NO.
2021CPT.03.22.10671, Etc.	5

SUMMARY OF QUANTITIES

													0106000000-E	0255000000-E	1220000000-E	1245000000-E	1308000000-E	1330000000-E	1520000000-E	1523000000-E	1575000000-E
PROJECT NO	**COUNTY**	**MAP NO**	**ROUTE**	**DESCRIPTION**	**TYP NO**	**LANES**	**LANE TYPE**	**FINAL SURFACE TESTING REQUIRED**	**WARM MIX ASPHALT REQUIRED**	**LENGTH**	**WIDTH**		**BORROW EXCAVATION**	**AGGREGATE SHOULDER BORROW**	**INCIDENTAL STONE BASE**	**SHOULDER RECONSTRUCTION**	**MILLING ASPHALT PAVEMENT, 0" TO 2"**	**INCIDENTAL MILLING**	**LEVELING COURSE, S9.5B**	**SURFACE COURSE, S9.5C**	**ASPHALT BINDER FOR PLANT MIX**
										MI	**FT**		**CY**	**TON**	**TON**	**SMI**	**SY**	**SY**	**TON**	**TON**	**TON**
2021CPT.03.22.10711	Pender	1	US 17 NORTH (WILMINGTON HIGHWAY)	FROM 0.12 MILES S. OF NC 210 TO ONSLOW CO. LINE [MP 13.62 - MP 16.19]	1	2	MD	NO	NO	2.57	33		131	925	54	5.14	147	4,092	661	7,495	494
TOTAL FOR MAP NO. 1										**2.57**			**131**	**925**	**54**	**5.14**	**147**	**4,092**	**661**	**7,495**	**494**
2021CPT.03.22.10711	Pender	2	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM ONSLOW COUNTY LINE TO 0.12 MILES S. OF NC 210 [MP 0.00 TO MP 2.57]	1	2	MD	NO	NO	2.57	33			925	24	5.14		1,100	1,438	6,659	496
TOTAL FOR MAP NO. 2										**2.57**				**925**	**24**	**5.14**		**1,100**	**1,438**	**6,659**	**496**
TOTAL FOR PROJ NO. 2021CPT.03.22.10711										**5.14**			**131**	**1,850**	**78**	**10.28**	**147**	**5,192**	**2,099**	**14,154**	**990**
2021CPT.03.22.10671	Onslow	3	US 17 NORTH (WILMINGTON HIGHWAY)	FROM PENDER CO. LINE TO 0.82 MILES N. OF PENDER CO. LINE [MP 0.00 TO MP 0.82]	1	2	MD	NO	NO	0.82	33			295	32	1.64		279	200	2,136	142
TOTAL FOR MAP NO. 3										**0.82**				**295**	**32**	**1.64**		**279**	**200**	**2,136**	**142**
2021CPT.03.22.10671	Onslow	4	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM 0.82 MILES N. OF PENDER CO. LINE TO PENDER CO. LINE [MP 39.00 - MP 39.82]	1	2	MD	NO	NO	0.82	33		50	295	8	1.64		279	200	1,966	131
TOTAL FOR MAP NO. 4										**0.82**			**50**	**295**	**8**	**1.64**		**279**	**200**	**1,966**	**131**
TOTAL FOR PROJ NO. 2021CPT.03.22.10671										**1.64**			**50**	**590**	**40**	**3.28**		**558**	**400**	**4,102**	**273**
GRAND TOTAL										**6.78**			**181**	**2,440**	**118**	**13.56**	**147**	**5,750**	**2,499**	**18,256**	**1,263**

PROJECT NO.	SHEET NO.
2021CPT.03.22.10671, Etc.	6

SUMMARY OF QUANTITIES

												1880000000-E	3210000000-N	3287000000-N	3420000000-E	3435000000-N	4520000000-N	5255000000-N	6000000000-E
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	PATCHING EXISTING PAVEMENT [2.0"] (GENERIC)	GUARDRAIL END UNITS, TYPE CAT-1	GUARDRAIL END UNITS, TYPE TL-3	REMOVE & REPLACE EXISTING GUARDRAIL (GENERIC)	GUARDRAIL PRE-FAB ANCHOR POST (GENERIC)	REMOVE & RESET TUBULAR MARKERS (FIXED) [GENERIC]	PORTABLE LIGHTING	TEMPORARY SILT FENCE
										MI	FT	TONS	EA	EA	LF	EA	EA	LS	LF
2021CPT.03.22.10711	Pender	1	US 17 NORTH (WILMINGTON HIGHWAY)	FROM 0.12 MILES S. OF NC 210 TO ONSLOW CO. LINE [MP 13.62 - MP 16.19]	1	2	MD	NO	NO	2.57	33	227	1.00	1.00	187.00		31	0.38	250
TOTAL FOR MAP NO. 1										**2.57**		**227**	**1.00**	**1.00**	**187.00**		**31**	**0.38**	**250**
2021CPT.03.22.10711	Pender	2	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM ONSLOW COUNTY LINE TO 0.12 MILES S. OF NC 210 [MP 0.00 TO MP 2.57]	1	2	MD	NO	NO	2.57	33	576					32	0.38	
TOTAL FOR MAP NO. 2										**2.57**		**576**					**32**	**0.38**	
TOTAL FOR PROJ NO. 2021CPT.03.22.10711										**5.14**		**803**	**1.00**	**1.00**	**187.00**		**63**	**0.76**	**250**
2021CPT.03.22.10671	Onslow	3	US 17 NORTH (WILMINGTON HIGHWAY)	FROM PENDER CO. LINE TO 0.82 MILES N. OF PENDER CO. LINE [MP 0.00 TO MP 0.82]	1	2	MD	NO	NO	0.82	33	60					16	0.12	
TOTAL FOR MAP NO. 3										**0.82**		**60**					**16**	**0.12**	
2021CPT.03.22.10671	Onslow	4	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM 0.82 MILES N. OF PENDER CO. LINE TO PENDER CO. LINE [MP 39.00 - MP 39.82]	1	2	MD	NO	NO	0.82	33	80	2.00	1.00	175.00	3.00	17	0.12	82
TOTAL FOR MAP NO. 4										**0.82**		**80**	**2.00**	**1.00**	**175.00**	**3.00**	**17**	**0.12**	**82**
TOTAL FOR PROJ NO. 2021CPT.03.22.10671										**1.64**		**140**	**2.00**	**1.00**	**175.00**	**3.00**	**33**	**0.24**	**82**
GRAND TOTAL										**6.78**		**943**	**3.00**	**2.00**	**362.00**	**3.00**	**96**	**1.00**	**332**

PROJECT NO.	SHEET NO.
2021CPT.03.22.10671, Etc.	7

SUMMARY OF QUANTITIES

												6036000000-E	6071010000-E	6084000000-E	6117000000-N	7324000000-N	7444000000-E
PROJECT NO	**COUNTY**	**MAP NO**	**ROUTE**	**DESCRIPTION**	**TYP NO**	**LANES**	**LANE TYPE**	**FINAL SURFACE TESTING REQUIRED**	**WARM MIX ASPHALT REQUIRED**	**LENGTH**	**WIDTH**	**MATTING FOR EROSION CONTROL**	**WATTLE**	**SEED & MULCHING**	**RESPONSE FOR EROSION CONTROL**	**JUNCTION BOX (STANDARD SIZE)**	**INDUCTIVE LOOP SAWCUT**
										MI	**FT**	**SY**	**LF**	**AC**	**EA**	**EA**	**LF**
2021CPT.03.22.10711	Pender	1	US 17 NORTH (WILMINGTON HIGHWAY)	FROM 0.12 MILES S. OF NC 210 TO ONSLOW CO. LINE [MP 13.62 - MP 16.19]	1	2	MD	NO	NO	2.57	33	200	40	0.15	4	3	870.00
TOTAL FOR MAP NO. 1										**2.57**		**200**	**40**	**0.15**	**4**	**3**	**870.00**
2021CPT.03.22.10711	Pender	2	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM ONSLOW COUNTY LINE TO 0.12 MILES S. OF NC 210 [MP 0.00 TO MP 2.57]	1	2	MD	NO	NO	2.57	33						
TOTAL FOR MAP NO. 2										**2.57**							
TOTAL FOR PROJ NO. 2021CPT.03.22.10711										**5.14**		**200**	**40**	**0.15**	**4**	**3**	**870.00**
2021CPT.03.22.10671	Onslow	3	US 17 NORTH (WILMINGTON HIGHWAY)	FROM PENDER CO. LINE TO 0.82 MILES N. OF PENDER CO. LINE [MP 0.00 TO MP 0.82]	1	2	MD	NO	NO	0.82	33						
TOTAL FOR MAP NO. 3										**0.82**							
2021CPT.03.22.10671	Onslow	4	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM 0.82 MILES N. OF PENDER CO. LINE TO PENDER CO. LINE [MP 39.00 - MP 39.82]	1	2	MD	NO	NO	0.82	33	200	40	0.10	2		
TOTAL FOR MAP NO. 4										**0.82**		**200**	**40**	**0.10**	**2**		
TOTAL FOR PROJ NO. 2021CPT.03.22.10671										**1.64**		**200**	**40**	**0.10**	**2**		
GRAND TOTAL										**6.78**		**400**	**80**	**0.25**	**6**	**3**	**870.00**

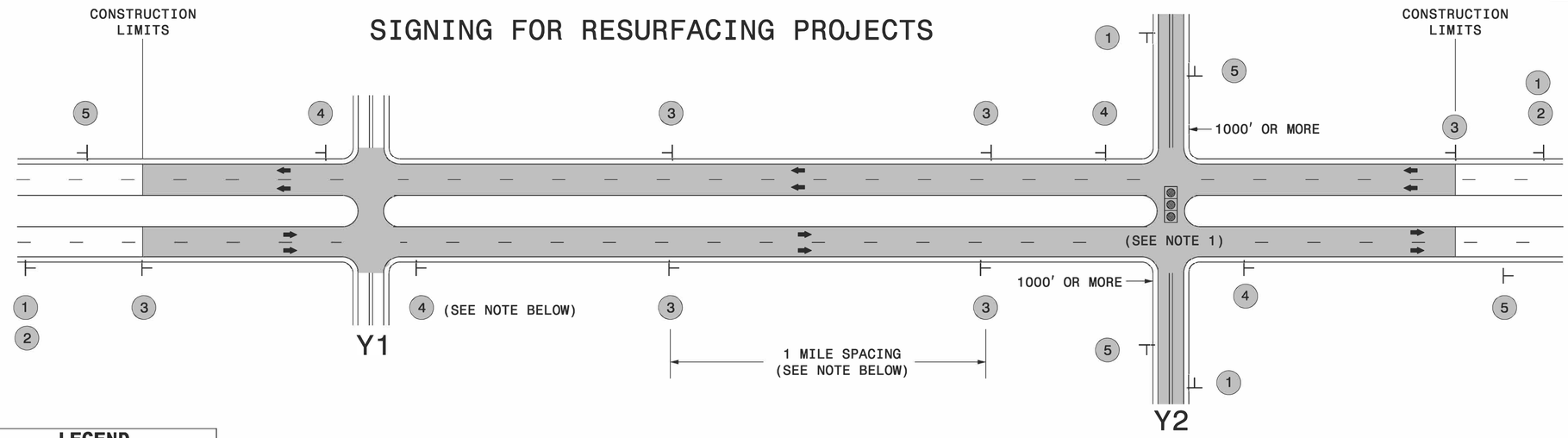
PROJECT NO.	SHEET NO.
2021CPT.03.22.10671, Etc.	8

THERMOPLASTIC AND PAINT QUANTITIES

										4413000000-E	4420000000-N	4434000000-N	4457000000-N	4480000000-N	4685000000-E		4720000000-E	4725000000-E					4891000000-E	4900000000-N	4905000000-N
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	WORK ZONE ADVANCE/GENERAL WARNING SIGNING	PORT CHANG MSG SIGN	SEQUENTIAL FLASHING WARNING LIGHTS	TEMPORARY TRAFFIC CONTROL	TMA	4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	THERMO MSG ONLY (90 MIL)	THERMO STR ARROW 90 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR & LT ARROW 90 M	THERMO LT & RT ARROW 90 M	24" X 90 M WHITE THERMO	YELLOW & YELLOW MARKERS	SNOW PLOWABLE MARKERS (C/R)
								MI	FT	SF	EA	EA	LS	EA	LF	LF	EA	EA	EA	EA	EA	EA	LF	EA	EA
2021CPT.03.22.10711	Pender	1	US 17 NORTH (WILMINGTON HIGHWAY)	FROM 0.12 MILES S. OF NC 210 TO ONSLOW CO. LINE [MP 13.62 - MP 16.19]	1	2	MD	2.57	33	128	1	17	0.35	1	17,050	13,570	4	24	16	5	3	1	100	45	269
TOTAL FOR MAP NO. 1								**2.57**		**128**	**1**	**17**	**0.35**	**1**	**17,050**	**13,570**	**4**	**24**	**16**	**5**	**3**	**1**	**100**	**45**	**269**
2021CPT.03.22.10711	Pender	2	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM ONSLOW COUNTY LINE TO 0.12 MILES S. OF NC 210 [MP 0.00 TO MP 2.57]	1	2	MD	2.57	33	96			0.35		16,900	13,570		24	12				35		234
TOTAL FOR MAP NO. 2								**2.57**		**96**			**0.35**		**16,900**	**13,570**		**24**	**12**				**35**		**234**
TOTAL FOR PROJ NO. 2021CPT.03.22.10711								**5.14**		**224**	**1**	**17**	**0.70**	**1**	**33,950**	**27,140**	**4**	**48**	**28**	**5**	**3**	**1**	**135**	**45**	**503**
															61,090			**85**							
2021CPT.03.22.10671	Onslow	3	US 17 NORTH (WILMINGTON HIGHWAY)	FROM PENDER CO. LINE TO 0.82 MILES N. OF PENDER CO. LINE [MP 0.00 TO MP 0.82]	1	2	MD	0.82	33	16			0.15		6,128	4,370		8	4		1				80
TOTAL FOR MAP NO. 3								**0.82**		**16**			**0.15**		**6,128**	**4,370**		**8**	**4**		**1**				**80**
2021CPT.03.22.10671	Onslow	4	US 17 SOUTH (WILMINGTON HIGHWAY)	FROM 0.82 MILES N. OF PENDER CO. LINE TO PENDER CO. LINE [MP 39.00 - MP 39.82]	1	2	MD	0.82	33	48	1	17	0.15	1	6,000	4,330		8	4						78
TOTAL FOR MAP NO. 4								**0.82**		**48**	**1**	**17**	**0.15**	**1**	**6,000**	**4,330**		**8**	**4**						**78**
TOTAL FOR PROJ NO. 2021CPT.03.22.10671								**1.64**		**64**	**1**	**17**	**0.30**	**1**	**12,128**	**8,700**		**16**	**8**		**1**				**158**
															20,828			**25**							
GRAND TOTAL								**6.78**		**288**	**2**	**34**	**1.00**	**2**	**46,078**	**35,840**	**4**	**64**	**36**	**5**	**4**	**1**	**135**	**45**	**661**
															81,918			**110**							

PROJ. REFERENCE NO.	SHEET NO.
2021CPT.03.22.10671,Etc.	TCP-1

SIGNING FOR RESURFACING PROJECTS



LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1 — ROAD WORK AHEAD W20-1 48″ X 48″

PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.

2 — NEXT XX MILES W7-3aP 24″ X 18″

#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER.(NO FRACTIONAL OR DECIMAL NUMBERS)

3 — LOW/SOFT SHOULDER SP 13107 48″ X 48″

PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.

4 — ROAD UNDER CONST SP 13106 48″ X 48″

THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500′ +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500′ OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.

5 — END ROAD WORK G20-2 A 48″ X 24″

PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

ROAD WORK AHEAD W20-1 48″ X 48″ — PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A 48″ X 48″ — PLACED 250′ IN ADVANCE OF FLAGGER.

NOTES:

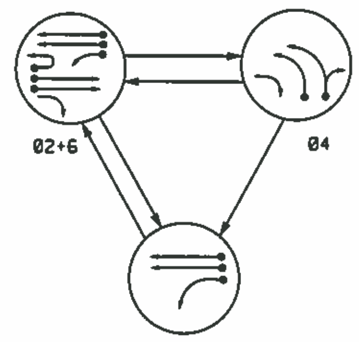
1) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500′ IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.

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

RESURFACING
ADVANCE WARNING SIGNS
FOR RURAL AND SUBURBAN
MULTI-LANE ROADWAYS
W/ SHOULDER SECTIONS

3/23/2015
C:\Users\rmgarrett\Downloads\Resurfacing_AdvWarn_UrSu_Shldr.dgn
User:rmgarrett

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

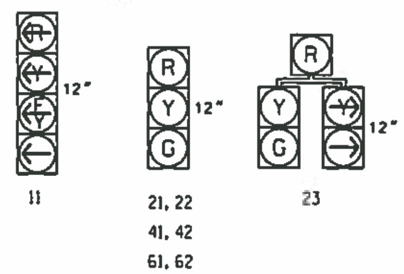
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø4	PHASE FLASH
11	—	F/Y ←	R ←	Y ←
21,22	R	G	R	Y
23	R	G	R/→	Y
41,42	R	R	G	R
61,62	G	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

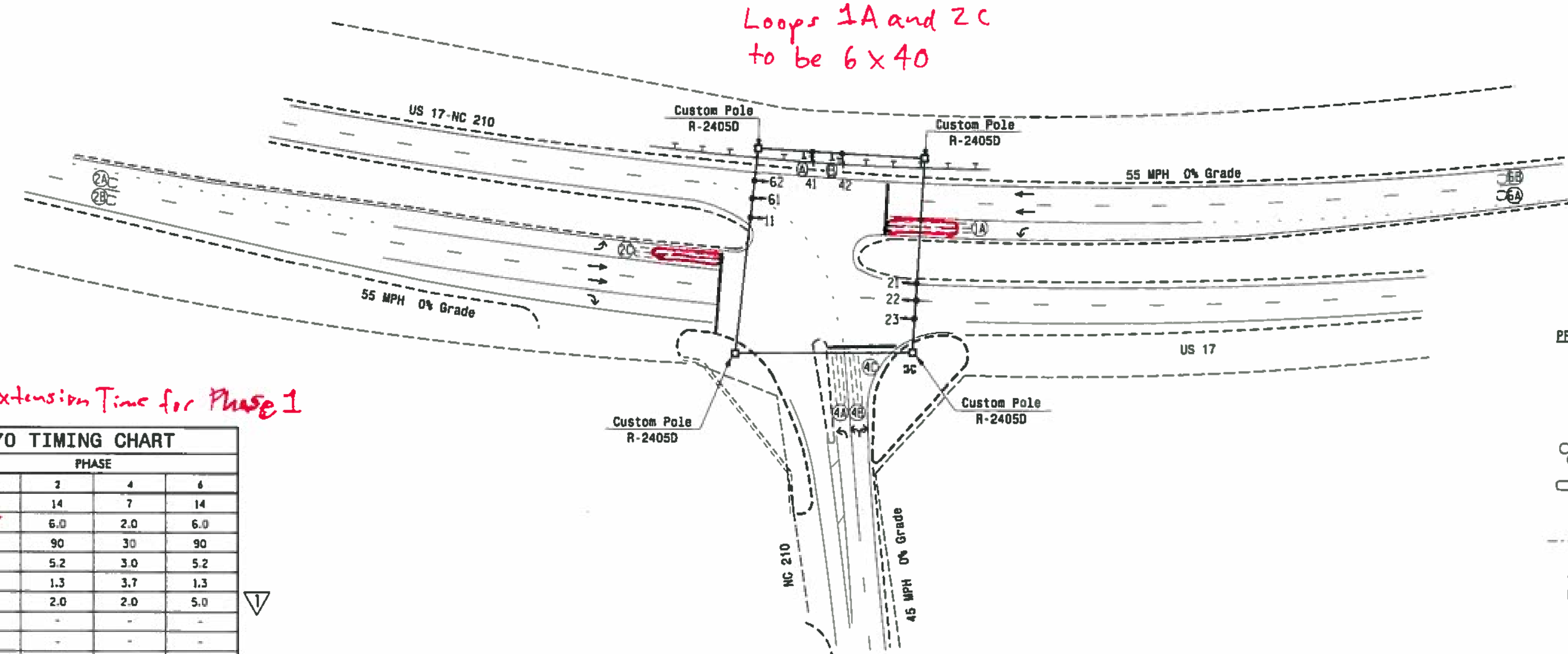
INDUCTIVE LOOPS: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	~~6X60~~ 6x40→	0	2-4-2	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	Y	-	3	-	-
2A	6X6	420	5	-	2	Y	Y	-	-	-	-	-
2B	6X6	420	5	-	2	Y	Y	-	-	-	-	-
2C	~~6X60~~ 6x40→	0	2-4-2	-	2	Y	Y	Y	-	3	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	-
4C	6X6	0	4	-	4	Y	Y	-	-	15	-	-
6A	6X6	420	5	-	6	Y	Y	-	-	-	-	-
6B	6X6	420	5	-	6	Y	Y	-	-	-	-	-

3 PHASE
FULLY ACTUATED
US 17/NC 210 (Surf City) Closed Loop System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. (1) Enable Backup Protect for phase 6 to allow the controller to clear from phase 2+6 to phase 1+6 by progressing through an all red display.
4. (1) ~~Phase 1 may be lagged.~~
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Pavement markings are existing.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Master Asset # 10329. Controller Asset # 0618.

Loops 1A and 2C to be 6 x 40



2.0 Extension Time for Phase 1

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 6
Min Green 1 *	7	14	7	14
Extension 1 *	~~1.0~~	6.0	2.0	6.0
Max Green 1 *	20	90	30	90
Yellow Clearance	3.0	5.2	3.0	5.2
Red Clearance	3.4	1.3	3.7	1.3
Red Revert	2.0	2.0	2.0	5.0 (1)
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	1.8	-	1.8
Max Variable Initial *	-	46	-	46
Time Before Reduction *	-	15	-	15
Time To Reduce *	-	45	-	45
Minimum Gap	-	3.4	-	3.4
Recall Mode	-	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	YELLOW
Dual Entry	-		-	-
Simultaneous Gap	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.

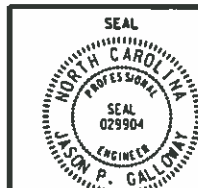
LEGEND

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	
	Master Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
(A)	Left Arrow "ONLY" Sign (R3-5L)	(A)
(B)	Dual Turn Arrow Sign (R3-6)	(B)

Signal Revision

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL



Jason P. Galloway 8/5/2016 DATE

Prepared in the Offices of: Signal Design Section, 750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 50 1"=50'

US 17-NC 210/US 17 at NC 210

Division 3 Pender County Surf City

PLAN DATE: August 2016 | REVIEWED BY: JPG, PE

PREPARED BY: EW Minshew | REVIEWED BY:

REVISIONS	INIT.	DATE
(1) Added red revert with backup protection	JPG	8/5/2016

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by Pamela L.Alexander,PE no.23489 on 3/14/12 This document is only certified as to the revisions.

SIG. INVENTORY NO. 03-0618

05-AUG-2016 07:50
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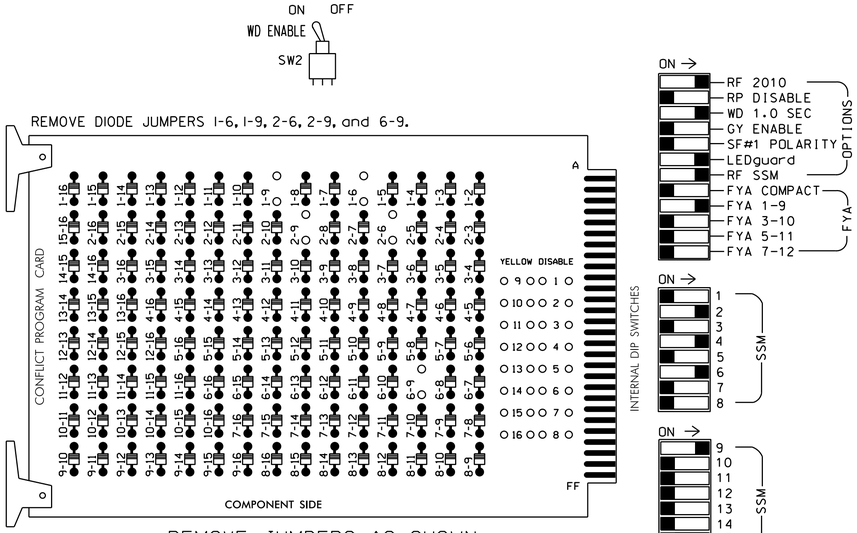
ewminshew

PROJECT REFERENCE NO.	SHEET NO.
	Sig. 1.1

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.

■ = 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. 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 1,3, 5,7,8,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
7. The cabinet and controller are part of the US 17/NC 210 (Surf City) Closed Loop System.

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	3	4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22 23	NU	NU	41,42	23	NU	NU	61,62	NU	NU	NU	NU	11★	NU	NU	NU	NU	NU
RED		128			101				134										
YELLOW	✳	129			102				135										
GREEN		130			103				136										
RED ARROW														A121					
YELLOW ARROW						102								A122					
FLASHING YELLOW ARROW														A123					
GREEN ARROW	127					103													

NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

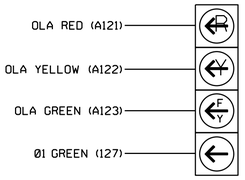
★ See pictorial of head wiring in detail below.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332 W/ AUX OUTPUT FILE
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 (12-STD, 6- AUX)
LOAD SWITCHES USED.....S1,S2,S4,S6,S9
PHASES USED.....1,2,4,6
OVERLAP A.....1+2
OVERLAP B.....NOT USED
OVERLAP C.....NOT USED
OVERLAP D.....NOT USED

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal head as shown)



11

NOTE

1. The sequence display for this signal requires special logic programming. See sheet 2 of 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	Ø1 1A	Ø2 2A	Ø2 2C	SLOT EMPTY	SLOT EMPTY	Ø4 4A	Ø4 4C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2 2B	NOT USED			Ø4 4B	NOT USED							ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø6 6B												

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

⊗ Wired Input - Do not populate slot with detector card

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[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
2C	TB2-9,10	I3U	63	25	32	2	Y	Y	Y		3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			

[1]Add jumper from I1-W to J4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

BACKUP PROTECTION NOTE ③

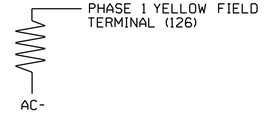
(program controller as shown below)

From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Program phase 6 for 'Backup Protect'. Make sure the Red Revert times shown on the Signal Design Plans are programmed in the 'Phase Timing' menu.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

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



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0618
DESIGNED: February 2012
SEALED: 3/14/12
③ REVISED: 8/5/2016

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISION ③ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little DC21EFD94F5341F...
10/26/2016 DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17-NC 210/US 17
at
NC 210

Division 3 | Pender County | Surf City

PLAN DATE: 8-30-06 | REVIEWED BY: D.T. Joyce
PREPARED BY: D.H. Spaulding | REVIEWED BY:

REVISIONS	INIT.	DATE
③ Revised input files, added notes. (WSA)	JTR	12-13-11
③ Upgraded to FYA 1. (WSA)	DS JTR	3-16-12
③ Enable Backup Protection. CES 10/25/16	ZML	10/26/2016

SEAL

Not a certified document as to the original document but only as to the revisions. This document originally issued and sealed by George C. Brown, #022013, on 9/20/06.
This document is only certified as to the revisions.

SIGNATURE | DATE

SIG. INVENTORY NO. 03-0618

25-OCT-2016 14:26
S:\TISIGNALS\Workgroups\Sig Mgmt\Strickland\03618_smelle_xxx.dgn
cestrickland

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL 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, AND 3.

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

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON

              SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #50 ON
SET OUTPUT  ASSIGNMENT #51 OFF
```

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON

              SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #52 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #1  IS ON

              SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #51 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

```
 PAGE 1: VEHICLE OVERLAP 'A' 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?...Y
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 IS FOR
THE SIGNAL DESIGN: 03-0618
DESIGNED: February 2012
SEALED: 3/14/12
REVISED: 8/5/2016 (revision 3)

Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISION 3 SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 0C21EFD94F5341F... 10/26/2016 DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of: Transportation Mobility and Safety Division, State of North Carolina Department of Transportation, Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 17-NC 210/US 17
at
NC 210

Division 3 | Pender County | Surf City

PLAN DATE: 8-30-06	REVIEWED BY: D.T. Joyce
PREPARED BY: D.H. Spaulding	REVIEWED BY:

REVISIONS	INIT.	DATE
1 Revised input file; added notes. (WSA)	JTR	12-13-11
2 Upgraded to FYA 1. (WSA)	JTR	3-16-12
3 Enable Backup Protection. CES 10/25/16	ZML	10/26/2016

SEAL

Not a certified document as to the original document but only as to the revisions. This document originally issued and sealed by George C. Brown, #022013, on 9/20/06. This document is only certified as to the revisions.

SIGNATURE | DATE

SIG. INVENTORY NO. 03-0618

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