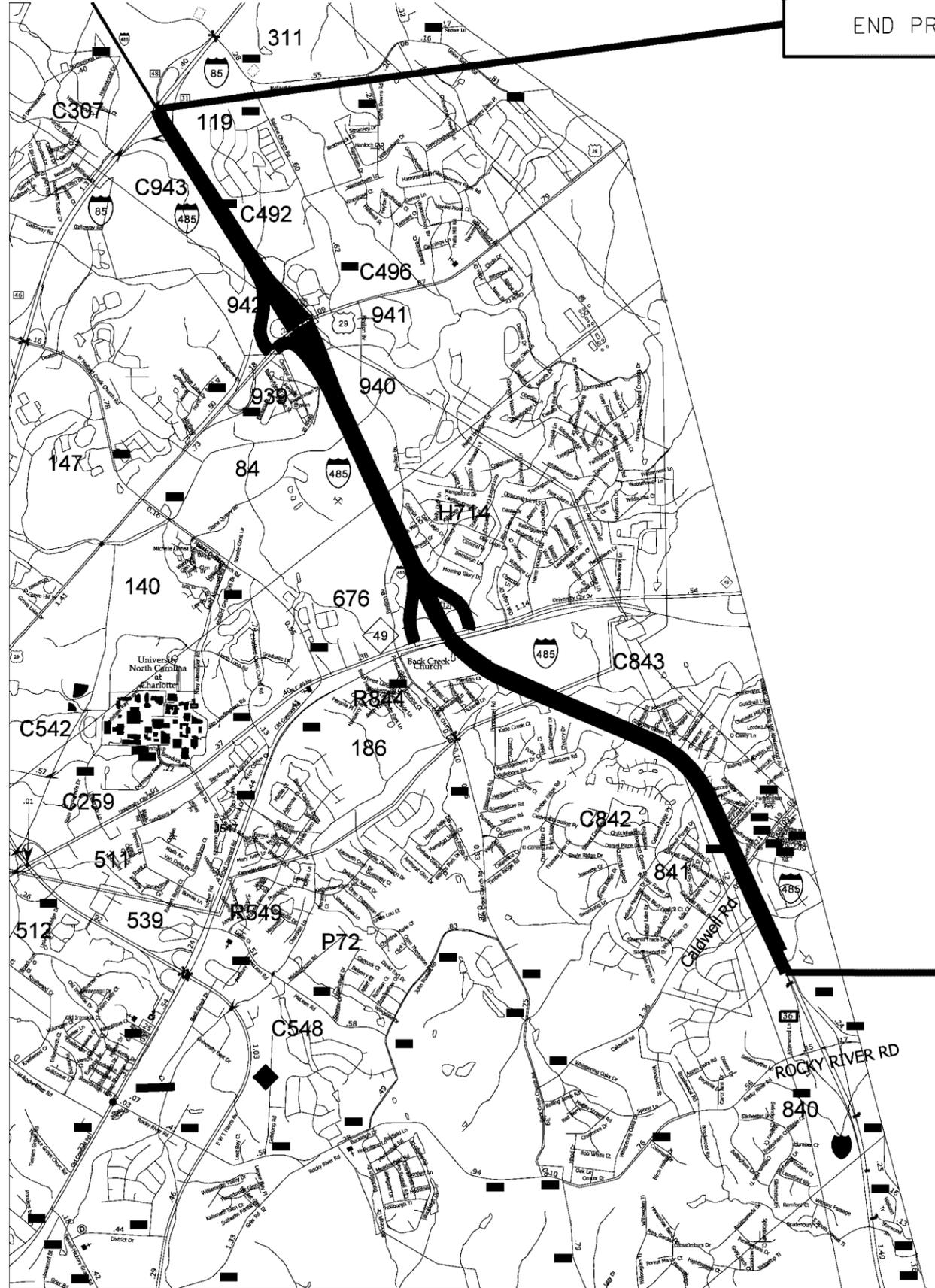


STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.1 I-5798		1
F.A. PROJECT NO.		NHPIM - 0485 (049)	



ENLARGED MUNICIPAL AND SUBURBAN AREAS  
**MECKLENBURG COUNTY**  
 NORTH CAROLINA

PREPARED BY THE  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS - DIVISION 10

**INTERSTATE 485 PROJECT LIMITS:**

**FROM END OF ACCELERATION AND DECELERATION  
 LANES NORTH OF ROCKY RIVER ROAD  
 TO BRIDGE DECK OVER INTERSTATE 85**

BEGIN PROJECT

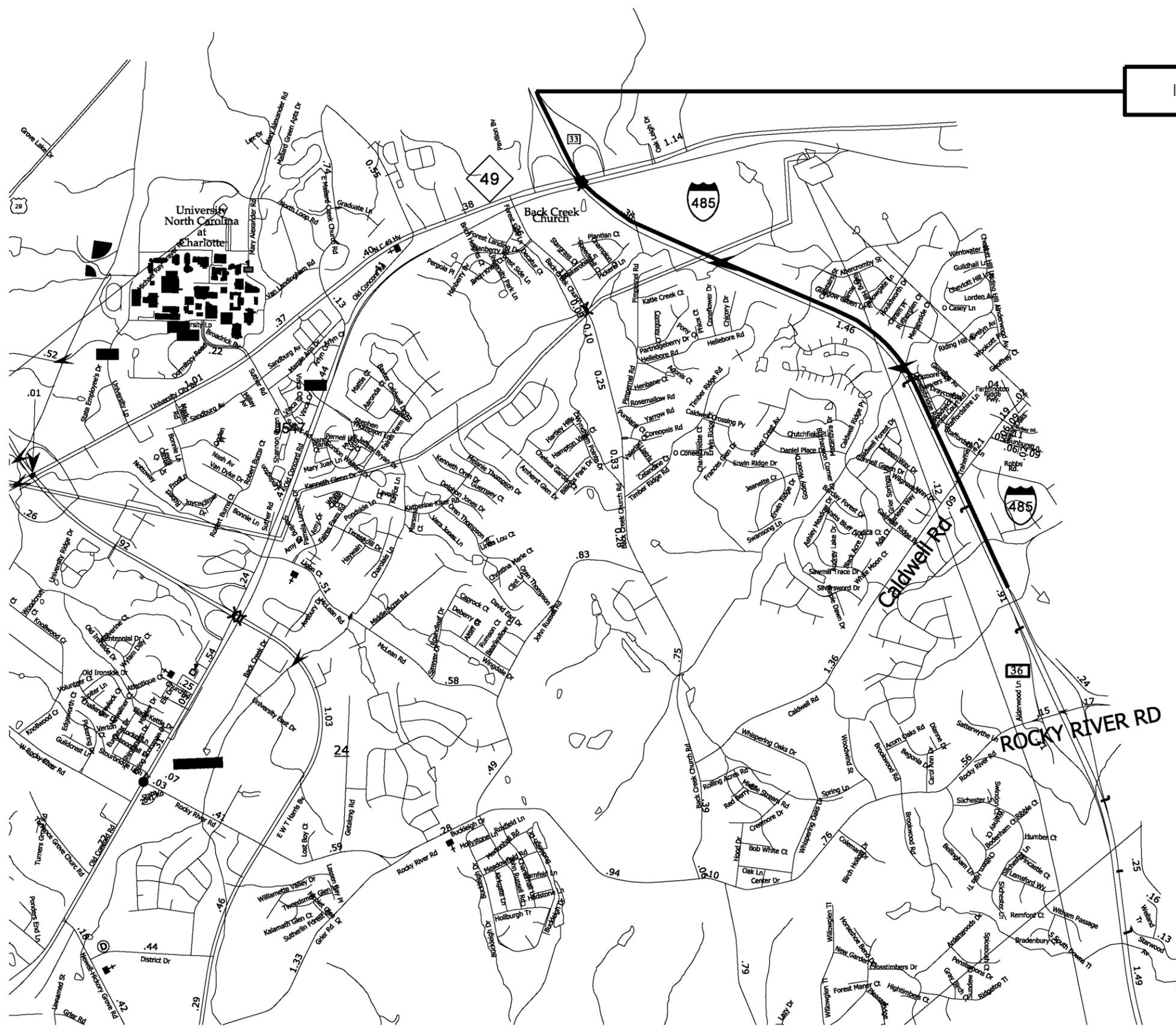
END PROJECT

I-5798  
 I-485 PAVEMENT PRESERVATION

SCALE	-NA-		REVISIONS
DATE			
DWG. BY			
DESIGN BY			
APPROVED			

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS* 50442.3.I I-5798		2
F.A. PROJECT NO.		NHPIM - 0485 (049)	

I-485 OUTER LOOP



ENLARGED MUNICIPAL AND SUBURBAN AREAS

# MECKLENBURG COUNTY

NORTH CAROLINA

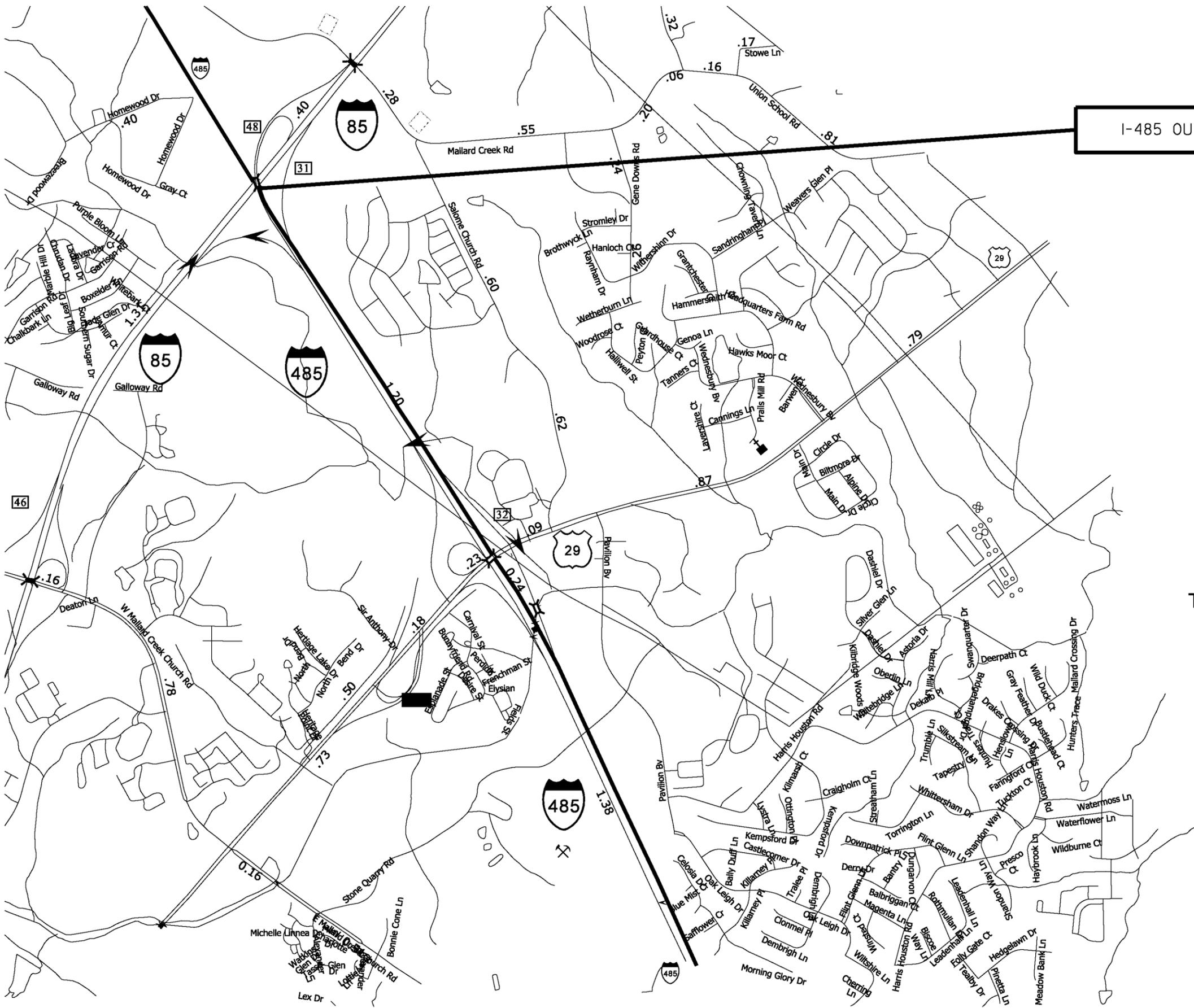
PREPARED BY THE  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS - DIVISION 10

INTERSTATE 485 PROJECT LIMITS:

FROM END OF ACCELERATION  
LANES NORTH OF ROCKY RIVER ROAD  
TO END OF ACCELERATION LANES NORTH OF NC 49

I-5798 I-485 PAVEMENT PRESERVATION			SCALE	-NA-	REVISIONS
DATE					
DWG. BY	CLB				
DESIGN BY	DMW				
APPROVED	JHE				

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.1 I-5798		3
F.A. PROJECT NO.		NHPIM - 0485 (049)	



I-485 OUTER LOOP

ENLARGED MUNICIPAL AND SUBURBAN AREAS  
**MECKLENBURG COUNTY**  
 NORTH CAROLINA  
PREPARED BY THE  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS - DIVISION 10

**INTERSTATE 485 PROJECT LIMITS:**  
  
**FROM END OF ACCELERATION  
 LANES NORTH OF NC 49  
 TO BRIDGE DECK OVER INTERSTATE 85**

I-5798  
I-485 PAVEMENT PRESERVATION

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	CLB		
DESIGN BY	DMW		
APPROVED	JHE		

49

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.I I-5798		4
F.A. PROJECT NO.	NHPIM - 0485 (049)		

I-485 INNER LOOP



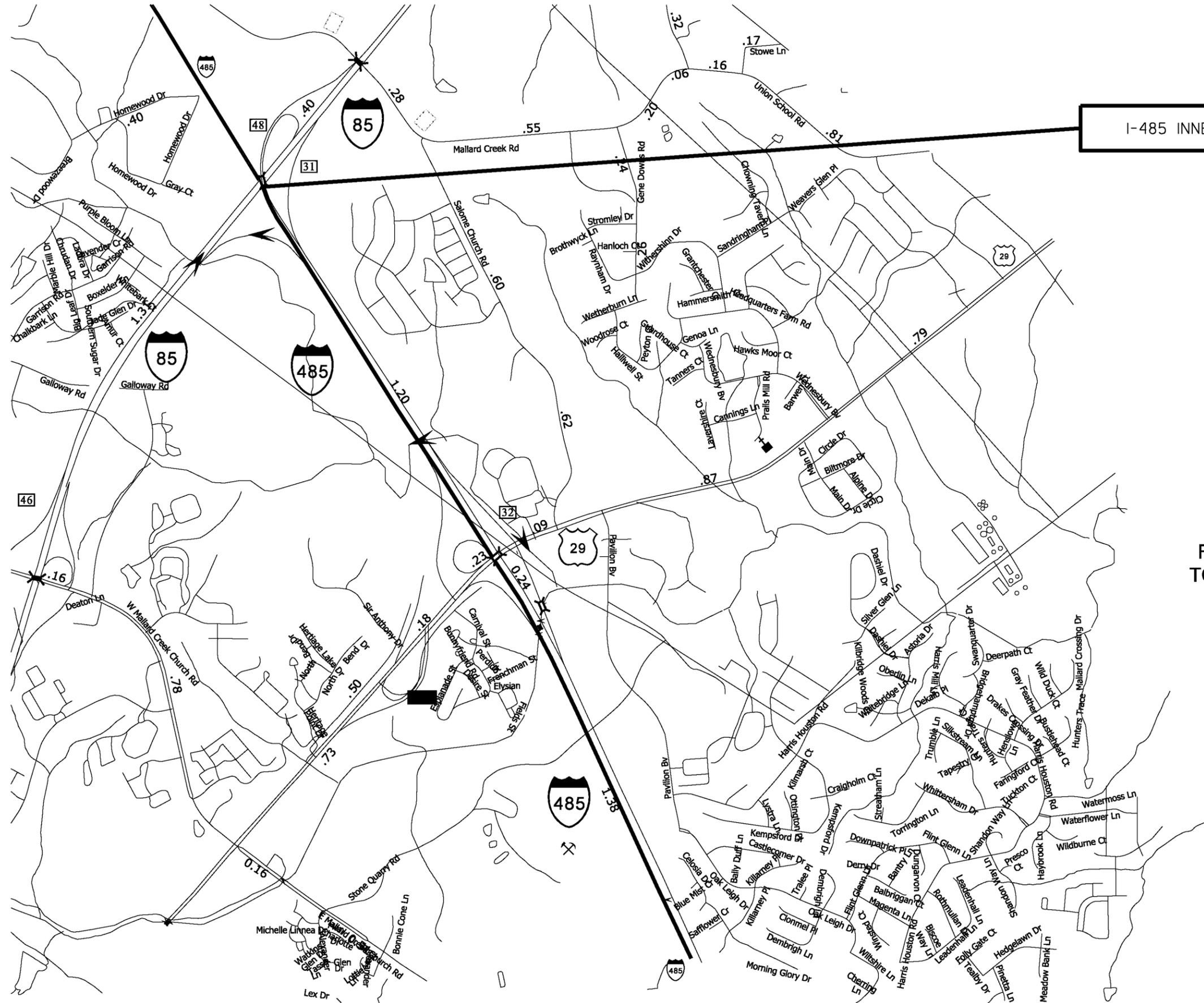
ENLARGED MUNICIPAL AND SUBURBAN AREAS  
**MECKLENBURG COUNTY**  
 NORTH CAROLINA  
PREPARED BY THE  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS - DIVISION 10

**INTERSTATE 485 PROJECT LIMITS:**  
**FROM BEGINNING OF DECELERATION LANS NORTH OF NC 49**  
**TO BEGINNING OF DECELERATION LANS NORTH OF ROCKY RIVER ROAD**

I-5798  
 I-485 PAVEMENT PRESERVATION

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	CLB		
DESIGN BY	DMW		
APPROVED	JHE		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.1 I-5798		5
F.A. PROJECT NO.		NHPIM - 0485 (049)	



I-485 INNER LOOP



ENLARGED MUNICIPAL AND SUBURBAN AREAS

# MECKLENBURG COUNTY

NORTH CAROLINA

PREPARED BY THE  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS - DIVISION 10

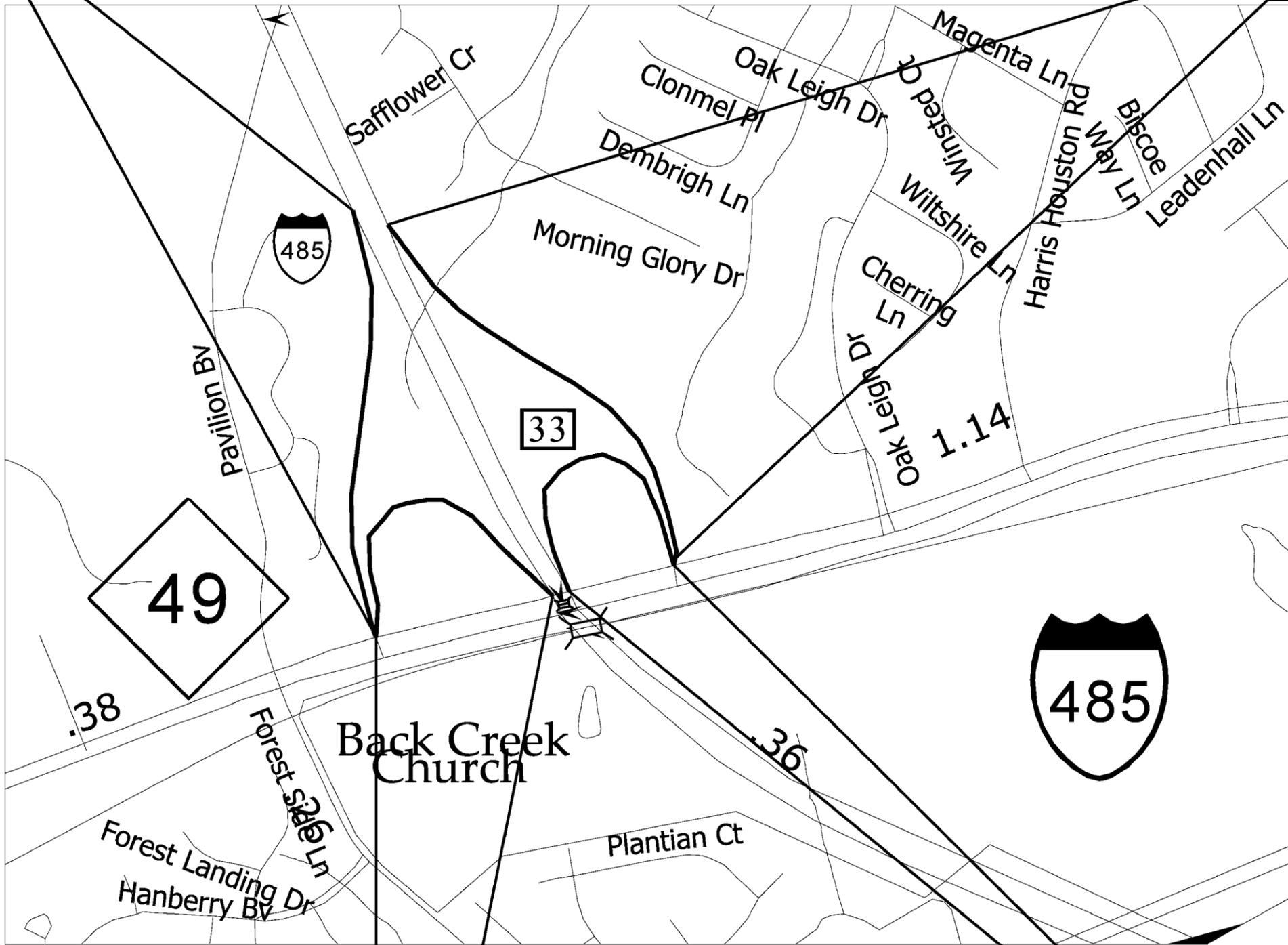
**INTERSTATE 485 PROJECT LIMITS:**  
**FROM BRIDGE DECK OVER I-85 NORTH**  
**TO BEGINNING OF DECELERATION LANE**  
**NORTH OF NC 49**

I-5798			REVISIONS	
I-485 PAVEMENT PRESERVATION				
SCALE	-NA-			
DATE				
DWG. BY	CLB			
DESIGN BY	DMW			
APPROVED	JHE			

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.1 I-5798		6
F.A. PROJECT NO.		NHPIM - 0485 (049)	

MAP #10 RAMP  
FROM I-485 INNER  
TO NC 49

MAP #4 RAMP  
FROM NC 49  
TO I-485 OUTER LOOP



ENLARGED MUNICIPAL AND SUBURBAN AREAS  
**MECKLENBURG COUNTY**  
NORTH CAROLINA  
PREPARED BY THE  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS - DIVISION 10

INTERSTATE 485 PROJECT LIMITS:  
RAMPS AND LOOPS FOR I-485 AND NC 49

MAP #11 LOOP  
FROM NC 49  
TO I-485 INNER

MAP #3 LOOP  
FROM I-485 OUTER  
TO NC 49

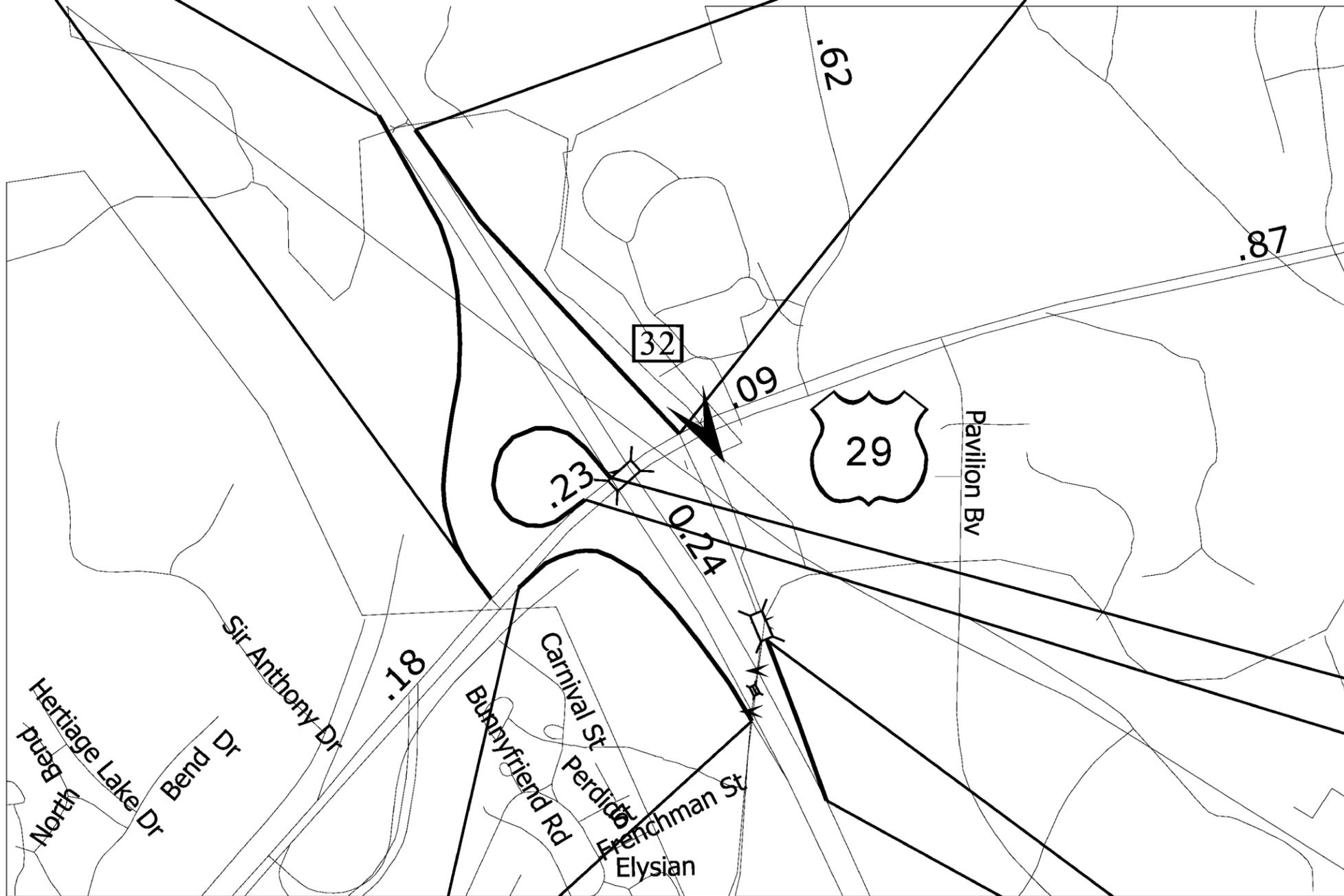
I-5798  
I-485 PAVEMENT PRESERVATION

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	CLB		
DESIGN BY	DMW		
APPROVED	JHE		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.I I-5798		7
F.A. PROJECT NO.		NHPIM - 0485 (049)	

MAP #7 RAMP  
FROM I-485 INNER LOOP  
TO NC 29

MAP #6 RAMP  
FROM NC 29 WEST  
TO I-485 OUTER LOOP



ENLARGED MUNICIPAL AND SUBURBAN AREAS  
**MECKLENBURG COUNTY**  
NORTH CAROLINA  
PREPARED BY THE  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS - DIVISION 10

**INTERSTATE 485 PROJECT LIMITS:  
RAMPS AND LOOPS FOR I-485 AND NC 29**

MAP #8 LOOP  
FROM NC 29 WEST  
TO I-485 INNER

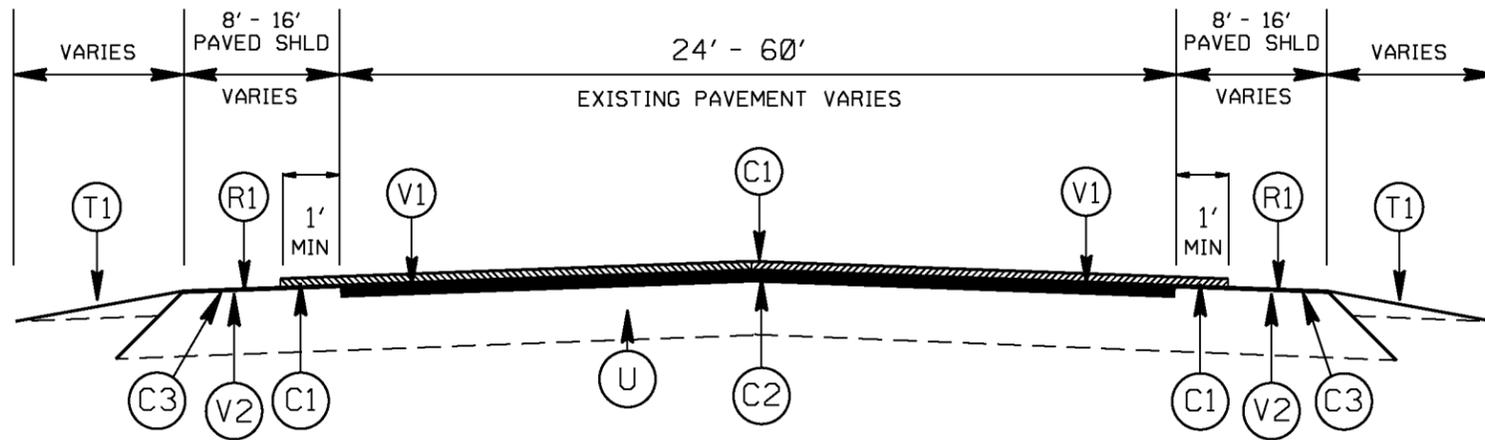
MAP #9 RAMP FROM  
NC 29 EAST TO  
I-485 INNER

MAP #5 RAMP  
FROM I-485 OUTER LOOP  
TO BRIDGE DECK

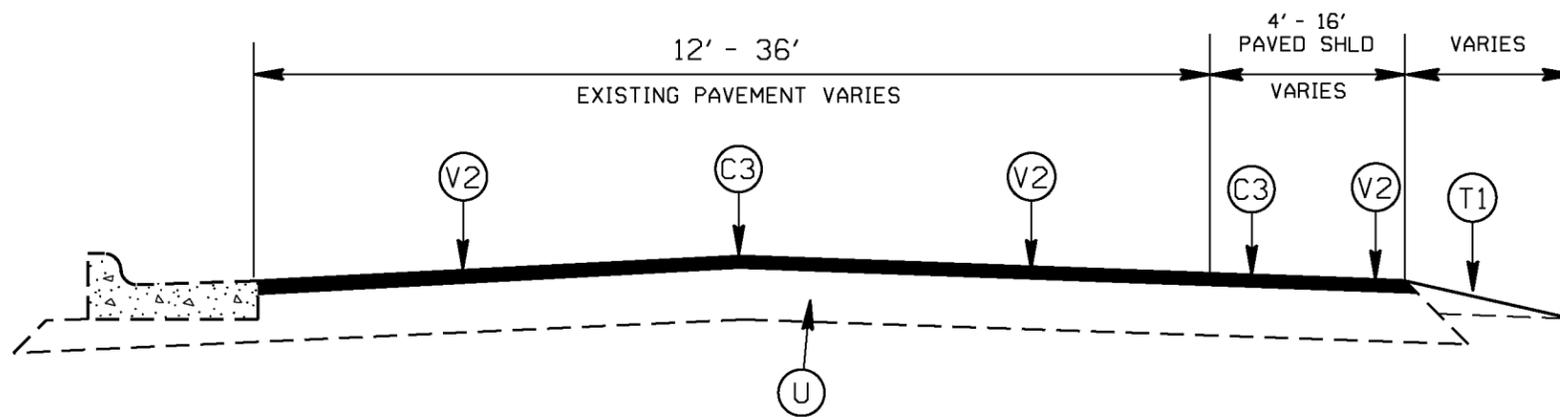
I-5798  
I-485 PAVEMENT PRESERVATION

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	CLB		
DESIGN BY	DMW		
APPROVED	JHE		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.1 I-5798	8	
F.A. PROJECT NO.		NHPIM - 0485 (049)	



TYPICAL SECTION NO. 1  
MAIN LINE



TYPICAL SECTION NO. 2  
RAMPS

PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 5/8" ULTRA-THIN BONDED WEARING COURSE, AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LIFTS.
(C3)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(T1)	SHOULDER RECONSTRUCTION
(R1)	RUMBLE STRIPS
(V1)	MILLING EXISTING ASPHALT, 3.0' DEPTH
(V2)	MILLING EXISTING ASPHALT, 1.5' DEPTH
(U)	EXISTING PAVEMENT

\*FINAL SURFACE TESTING IS REQUIRED ON THE SECOND LIFT OF S9.5D

\* ULTRA-THIN BONDED WEARING COURSE SHALL EXTEND A MINIMUM OF 1 FOOT OUTSIDE OF LANE.

\* RUMBLE STRIPS SHALL BE LOCATED 1 FOOT OUTSIDE OF ULTRA-THIN BONDED WEARING COURSE ON EITHER SIDE.

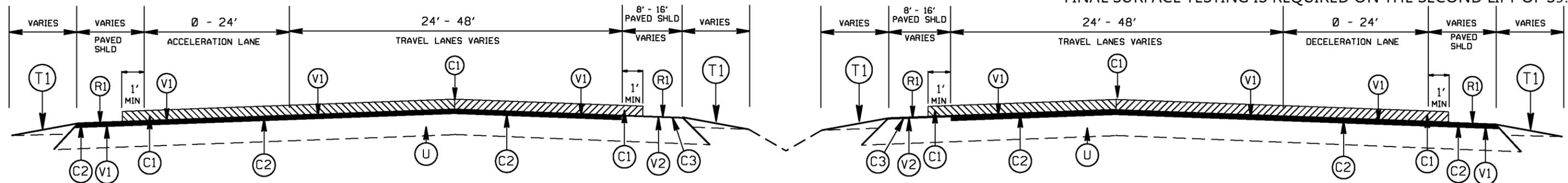
I-5798 I-485 PAVEMENT PRESERVATION		REVISIONS	
SCALE	-NA-		
DATE			
DWG. BY	CLB		
DESIGN BY	DMW		
APPROVED	JHE		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS# 50442.3.I I-5798	9	
F.A. PROJECT NO.		NHPIM - 0485 (049)	

PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 5/8" ULTRA-THIN BONDED WEARING COURSE, AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LIFTS.
(C3)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(T1)	SHOULDER RECONSTRUCTION
(R1)	RUMBLE STRIPS
(V1)	MILLING EXISTING ASPHALT, 3.0" DEPTH
(V2)	MILLING EXISTING ASPHALT, 1.5" DEPTH
(U)	EXISTING PAVEMENT

\*FINAL SURFACE TESTING IS REQUIRED ON THE SECOND LIFT OF S9.5D



TYPICAL SECTION NO. 3  
ACCELERATION & DECELERATION LANES  
FROM BEGINNING OF ACCEL/DECEL LANE TO END OF GORE AREA

\* ULTRA-THIN BONDED WEARING COURSE SHALL EXTEND A MINIMUM OF 1 FOOT OUTSIDE OF LANE.

\* RUMBLE STRIPS SHALL BE LOCATED 1 FOOT OUTSIDE OF ULTRA-THIN BONDED WEARING COURSE ON EITHER SIDE.

I-5798 I-485 PAVEMENT PRESERVATION			REVISIONS
SCALE	-NA-		
DATE			
DWG. BY	CLB		
DESIGN BY	DMW		
APPROVED	JHE		





PROJECT NO.	SHEET NO.
WBS 50442.3.1	12
I-5798	

### THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	440000000-E	442300000-N	442400000-N	443400000-N	451000000-N	471000000-E	472100000-E	472500000-E				477500000-E				
										STATIONARY WORK ZONE SIGN	WORK ZONE DIGITAL SPEED LIMIT SIGNS	WORK ZONE PRESENCE LIGHTING	SEQUENTIAL FLASHING WARNING LIGHTS	LAW ENFORCEMENT	24" X 120 M WHITE THERMO	THERMO MSG ONLY 120 M	THERMO RT ARROW 90 M	THERMO MERGE ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO LT ARROW 90 M	THERMOPLASTIC PAVEMENT MARKINGSymbol MERGE ARROW(90 MILS)	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE 2 (6") WHITE	COLD APPLIED PLASTIC PAVEMENT MARKING LINES,TYPE 2 (6") YELLOW	COLD APPLIED PLASTIC PAVEMENT MARKING LINES,TYPE 2 (6") YELLOW	
MI	FT	SF	EA	EA	EA	HR	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA		
WBS 50442.3.1	Mecklenburg	1	I-485 (OUTER)	ROCKY RIVER RD. TO I-85	1&3	4	MD	5.18	68	160	3	21	36	110		20	10	6	5				831	475	
<b>TOTAL FOR MAP NO. 1</b>									<b>5.18</b>	<b>160</b>	<b>3</b>	<b>21</b>	<b>36</b>	<b>110</b>		<b>20</b>	<b>10</b>	<b>6</b>	<b>5</b>				<b>831</b>	<b>475</b>	
WBS 50442.3.1	Mecklenburg	2	I-485 (INNER)	ROCKY RIVER RD. TO I-85	1&3	3	MD	5.20	60	159	2	7	12	110		12	6	10	6				816		486
<b>TOTAL FOR MAP NO. 2</b>									<b>5.20</b>	<b>159</b>	<b>2</b>	<b>7</b>	<b>12</b>	<b>110</b>		<b>12</b>	<b>6</b>	<b>10</b>	<b>6</b>				<b>816</b>		<b>486</b>
WBS 50442.3.1	Mecklenburg	3	LOOP	FROM OUTER I-485 TO NC 49	2&3	1		0.186	35					10	30	24	3			6					
<b>TOTAL FOR MAP NO. 3</b>									<b>0.186</b>					<b>10</b>	<b>30</b>	<b>24</b>	<b>3</b>			<b>6</b>					
WBS 50442.3.1	Mecklenburg	4	RAMP	FROM NC 49 TO OUTER I-485	2&3	1		0.357	34					10			1								
<b>TOTAL FOR MAP NO. 4</b>									<b>0.357</b>					<b>10</b>			<b>1</b>								
WBS 50442.3.1	Mecklenburg	5	RAMP	FROM I-485 TO US 29	2&3	1		0.036	24					10											
<b>TOTAL FOR MAP NO. 5</b>									<b>0.036</b>					<b>10</b>											
WBS 50442.3.1	Mecklenburg	6	RAMP	FROM US 29 TO OUTER I-485	2&3	2		0.214	36					10	24			3				3			
<b>TOTAL FOR MAP NO. 6</b>									<b>0.214</b>					<b>10</b>	<b>24</b>			<b>3</b>			<b>3</b>				
WBS 50442.3.1	Mecklenburg	7	RAMP	FROM INNER I-485 TO US 29	2&3	2		0.352	46					10	30		3			6					
<b>TOTAL FOR MAP NO. 7</b>									<b>0.352</b>					<b>10</b>	<b>30</b>		<b>3</b>			<b>6</b>					
WBS 50442.3.1	Mecklenburg	8	LOOP	FROM US 29 TO INNER I-485	2&3	1		0.189	24					10											
<b>TOTAL FOR MAP NO. 8</b>									<b>0.189</b>					<b>10</b>											
WBS 50442.3.1	Mecklenburg	9	RAMP	FROM US 29 EAST TO INNER I-485	2&3	1		0.202	24					10											
<b>TOTAL FOR MAP NO. 9</b>									<b>0.202</b>					<b>10</b>											
WBS 50442.3.1	Mecklenburg	10	RAMP	FROM INNER I-485 TO NC 49	2&3	2		0.316	38					10	148	12	2			4					
<b>TOTAL FOR MAP NO. 10</b>									<b>0.316</b>					<b>10</b>	<b>148</b>	<b>12</b>	<b>2</b>			<b>4</b>					
WBS 50442.3.1	Mecklenburg	11	LOOP	FROM NC 49 TO INNER I-485	2&3	2		0.294	36					10						4					
<b>TOTAL FOR MAP NO. 11</b>									<b>0.294</b>					<b>10</b>						<b>4</b>					
<b>TOTAL FOR PROJ NO. WBS 50442.3.1</b>									<b>12.526</b>	<b>319</b>	<b>5</b>	<b>28</b>	<b>48</b>	<b>310</b>	<b>232</b>	<b>68</b>	<b>25</b>	<b>19</b>	<b>11</b>	<b>16</b>	<b>7</b>	<b>1,647</b>	<b>475</b>	<b>486</b>	<b>2,608</b>
<b>GRAND TOTAL</b>									<b>12.526</b>	<b>319</b>	<b>5</b>	<b>28</b>	<b>48</b>	<b>310</b>	<b>232</b>	<b>68</b>	<b>25</b>	<b>19</b>	<b>11</b>	<b>16</b>	<b>7</b>	<b>1,647</b>	<b>475</b>	<b>486</b>	<b>2,608</b>

PROJECT NO.	SHEET NO.
WBS 50442.3.1	
I-5798	13

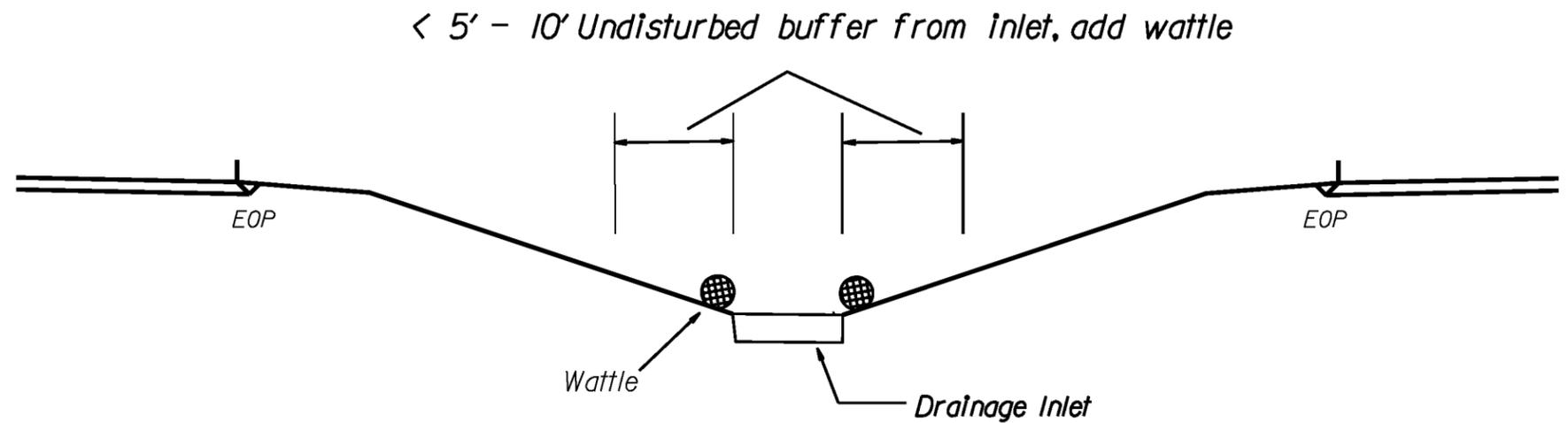
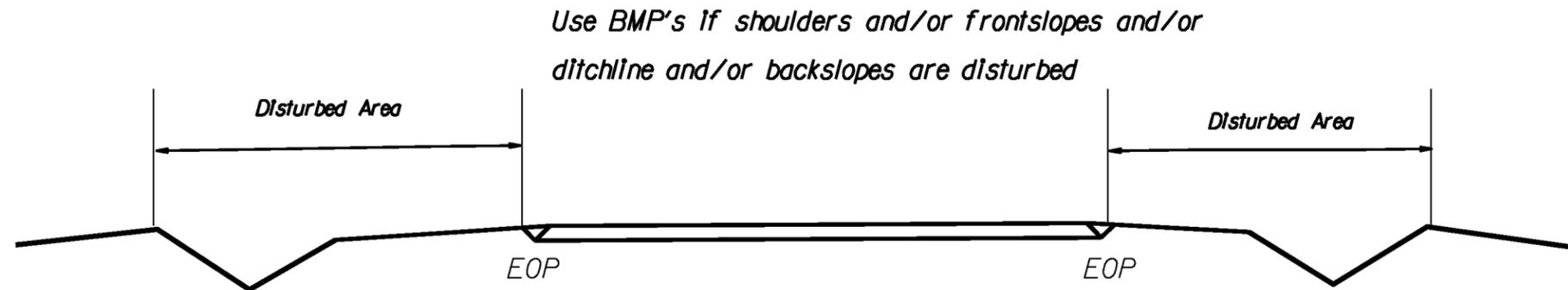
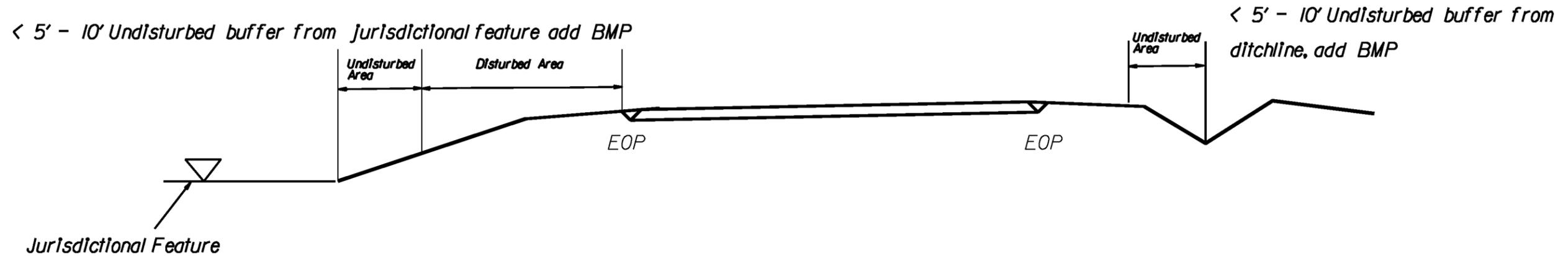
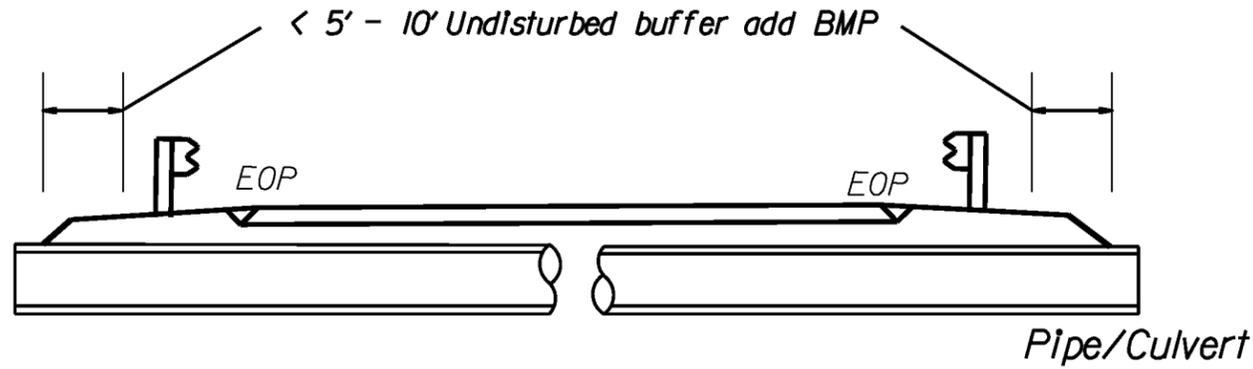
### THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4815000000-E		4820000000-E	4825000000-E	4835000000-E	4840000000-N	4845000000-N				4855000000-E	4890000000-E				4891000000-E	4905000000-N		
										6" WHITE PAINT	6" YELLOW PAINT	8" WHITE PAINT	12" WHITE PAINT	24" WHITE PAINT	PAINT MSG ONLY	PAINT STR & RT ARROW	PAINT RT ARROW	PAINT MERGE ARROW	PAINT LT ARROW	REMOVAL OF PAVEMENT MARKING LINES (6")	12" X 90 M WHITE THERMO(HIG HLY REFLECTIVE MEDIA)	6" X 120 M WHITE THERMO(HIG HLY REFLECTIVE MEDIA)	6" X 90 M WHITE THERMO(HIG HLY REFLECTIVE MEDIA)	6" X 90 M YELLOW THERMO(HIG HLY REFLECTIVE MEDIA)	COLD APPLIED PLASTIC PAVEMENT MARKING LINES TYPE(2) (9")WHITE	SNOW PLOWABLE MARKERS		
										LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	EA		
WBS 50442.3.1	Mecklenburg	1	I-485 (OUTER)	ROCKY RIVER RD. TO I-85	1&3	4	MD	5.18	68	100,707	100,707			6,570		40	10	20	12		1,350	3,285	47,650	26,552	26,505	170	982	
		<b>TOTAL FOR MAP NO. 1</b>						<b>5.18</b>		<b>100,707</b>	<b>100,707</b>			<b>6,570</b>		<b>40</b>	<b>10</b>	<b>20</b>	<b>12</b>		<b>1,350</b>	<b>3,285</b>	<b>47,650</b>	<b>26,552</b>	<b>26,505</b>	<b>170</b>	<b>982</b>	
WBS 50442.3.1	Mecklenburg	2	I-485 (INNER)	ROCKY RIVER RD. TO I-85	1&3	3	MD	5.20	60	103,734	103,734			10,696		24	12	6	10		1,350	5,348	50,818	26,448	26,468	170	1,206	
		<b>TOTAL FOR MAP NO. 2</b>						<b>5.20</b>		<b>103,734</b>	<b>103,734</b>			<b>10,696</b>		<b>24</b>	<b>12</b>	<b>6</b>	<b>10</b>		<b>1,350</b>	<b>5,348</b>	<b>50,818</b>	<b>26,448</b>	<b>26,468</b>	<b>170</b>	<b>1,206</b>	
WBS 50442.3.1	Mecklenburg	3	LOOP	FROM OUTER I-485 TO NC 49	2&3	1		0.186	35	845	845	235		30	24			3		6		235	610			1,080	12	
		<b>TOTAL FOR MAP NO. 3</b>						<b>0.186</b>		<b>845</b>	<b>845</b>	<b>235</b>		<b>30</b>	<b>24</b>			<b>3</b>		<b>6</b>		<b>235</b>	<b>610</b>			<b>1,080</b>	<b>12</b>	
WBS 50442.3.1	Mecklenburg	4	RAMP	FROM NC 49 TO OUTER I-485	2&3	1		0.357	34	1,938	1,939	505						1			505	445	1,958	1,919		24		
		<b>TOTAL FOR MAP NO. 4</b>						<b>0.357</b>		<b>1,938</b>	<b>1,939</b>	<b>505</b>						<b>1</b>			<b>505</b>	<b>445</b>	<b>1,958</b>	<b>1,919</b>		<b>24</b>		
WBS 50442.3.1	Mecklenburg	5	RAMP	FROM I-485 TO US 29	2&3	1		0.036	24	206	206													220	192			
		<b>TOTAL FOR MAP NO. 5</b>						<b>0.036</b>		<b>206</b>	<b>206</b>													<b>220</b>	<b>192</b>			
WBS 50442.3.1	Mecklenburg	6	RAMP	FROM US 29 TO OUTER I-485	2&3	2		0.214	36	1,174	1,174			24									92	1,149	1,107		15	
		<b>TOTAL FOR MAP NO. 6</b>						<b>0.214</b>		<b>1,174</b>	<b>1,174</b>			<b>24</b>									<b>92</b>	<b>1,149</b>	<b>1,107</b>		<b>15</b>	
WBS 50442.3.1	Mecklenburg	7	RAMP	FROM INNER I-485 TO US 29	2&3	2		0.352	46	2,383	2,383	353		30				3		6		353	1,049	1,881	1,835		34	
		<b>TOTAL FOR MAP NO. 7</b>						<b>0.352</b>		<b>2,383</b>	<b>2,383</b>	<b>353</b>		<b>30</b>				<b>3</b>		<b>6</b>		<b>353</b>	<b>1,049</b>	<b>1,881</b>	<b>1,835</b>		<b>34</b>	
WBS 50442.3.1	Mecklenburg	8	LOOP	FROM US 29 TO INNER I-485	2&3	1		0.189	24	5,001	500													1,000				
		<b>TOTAL FOR MAP NO. 8</b>						<b>0.189</b>		<b>5,001</b>	<b>500</b>													<b>1,000</b>				
WBS 50442.3.1	Mecklenburg	9	RAMP	FROM US 29 EAST TO INNER I-485	2&3	1		0.202	24	1,075	1,074													1,069	1,080		230	
		<b>TOTAL FOR MAP NO. 9</b>						<b>0.202</b>		<b>1,075</b>	<b>1,074</b>													<b>1,069</b>	<b>1,080</b>		<b>230</b>	
WBS 50442.3.1	Mecklenburg	10	RAMP	FROM INNER I-485 TO NC 49	2&3	2		0.316	38	3,762	3,762			74	12					4			838	1,670	1,676		12	
		<b>TOTAL FOR MAP NO. 10</b>						<b>0.316</b>		<b>3,762</b>	<b>3,762</b>			<b>74</b>	<b>12</b>					<b>4</b>			<b>838</b>	<b>1,670</b>	<b>1,676</b>		<b>12</b>	
WBS 50442.3.1	Mecklenburg	11	LOOP	FROM NC 49 TO INNER I-485	2&3	2		0.294	36	2,887	2,886									4		431	681	2,878	2,895		35	
		<b>TOTAL FOR MAP NO. 11</b>						<b>0.294</b>		<b>2,887</b>	<b>2,886</b>									<b>4</b>		<b>431</b>	<b>681</b>	<b>2,878</b>	<b>2,895</b>		<b>35</b>	
<b>TOTAL FOR PROJ. NO. WBS 50442.3.1</b>										<b>12,526</b>		<b>223,712</b>	<b>219,210</b>	<b>1,093</b>	<b>17,266</b>	<b>158</b>	<b>100</b>	<b>22</b>	<b>35</b>	<b>29</b>	<b>16</b>	<b>2,700</b>	<b>10,157</b>	<b>102,183</b>	<b>64,825</b>	<b>64,757</b>	<b>340</b>	<b>2,550</b>
											<b>442,922</b>							<b>102</b>										
<b>GRAND TOTAL</b>										<b>12,526</b>		<b>223,712</b>	<b>219,210</b>	<b>1,093</b>	<b>17,266</b>	<b>158</b>	<b>100</b>	<b>22</b>	<b>35</b>	<b>29</b>	<b>16</b>	<b>2,700</b>	<b>10,157</b>	<b>102,183</b>	<b>64,825</b>	<b>64,757</b>	<b>340</b>	<b>2,550</b>
											<b>442,922</b>							<b>102</b>							<b>129,582</b>			

# EROSION CONTROL DETAIL

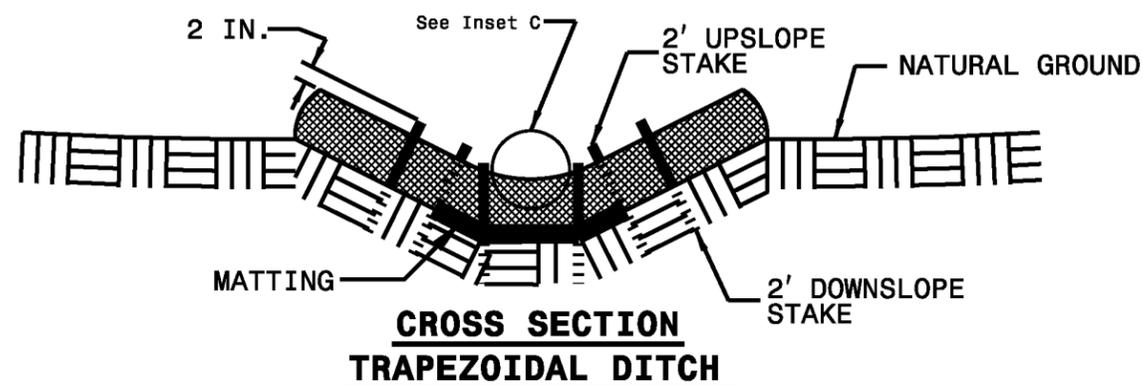
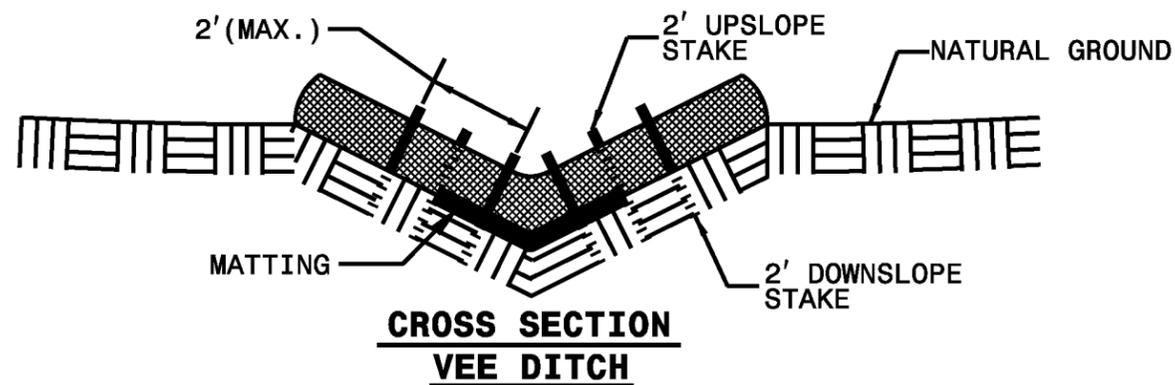
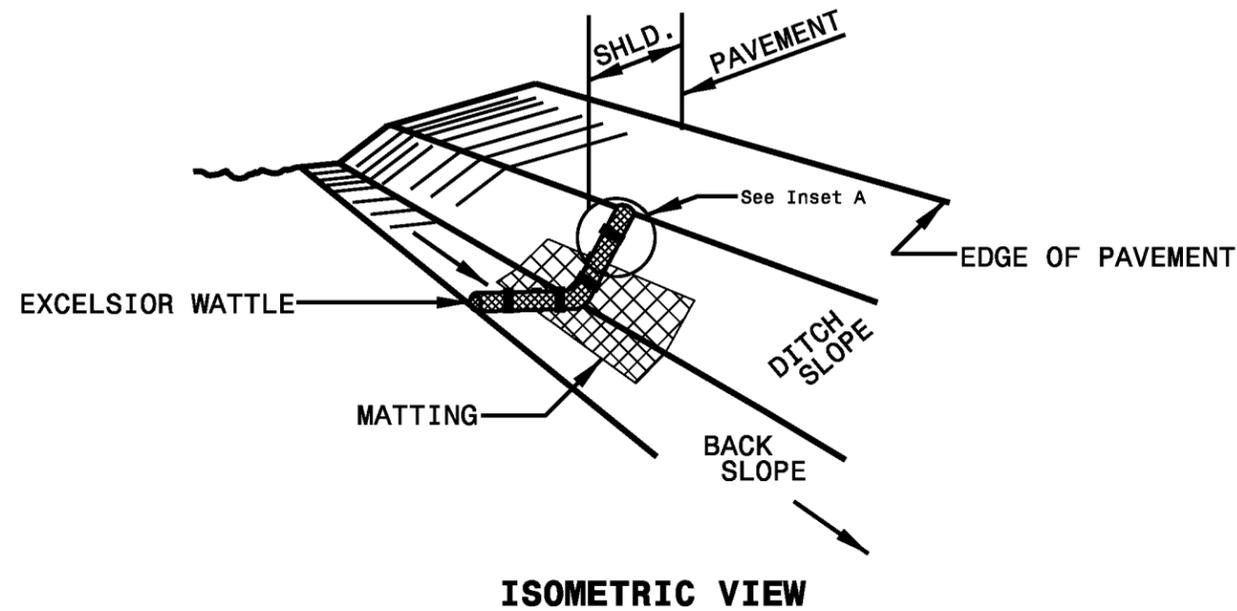
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle or Silt Fence



NOT TO SCALE

# WATTLE WITH POLYACRYLAMIDE DETAIL



**NOTES:**

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

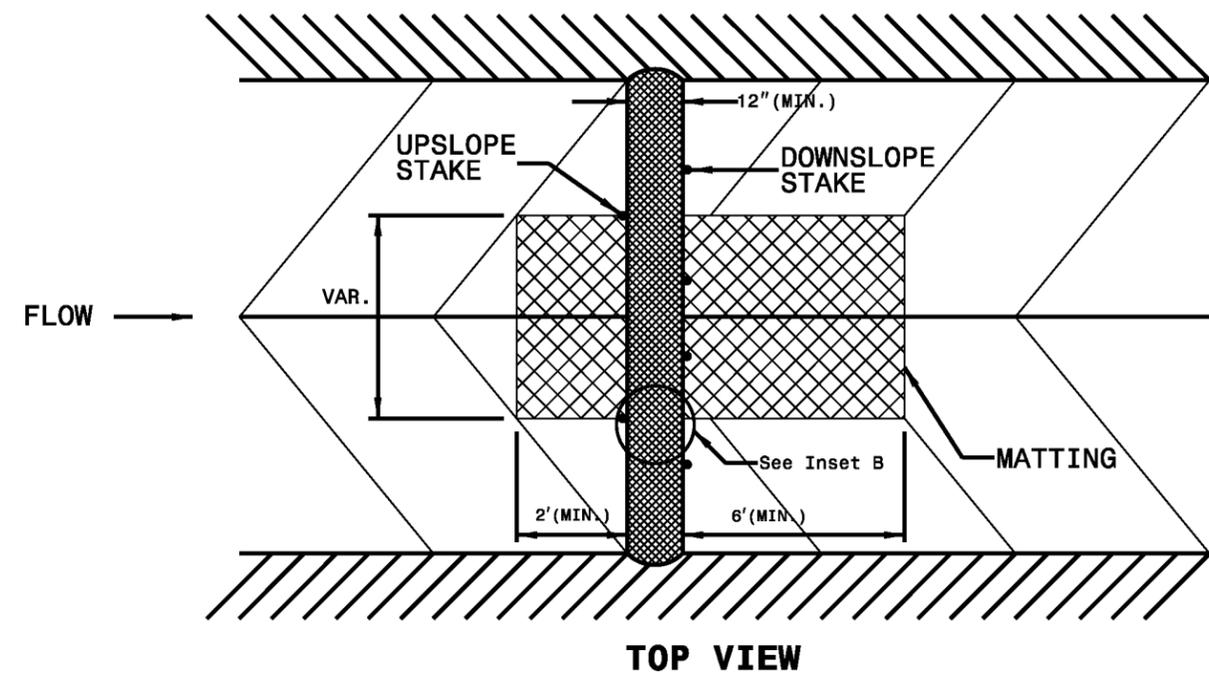
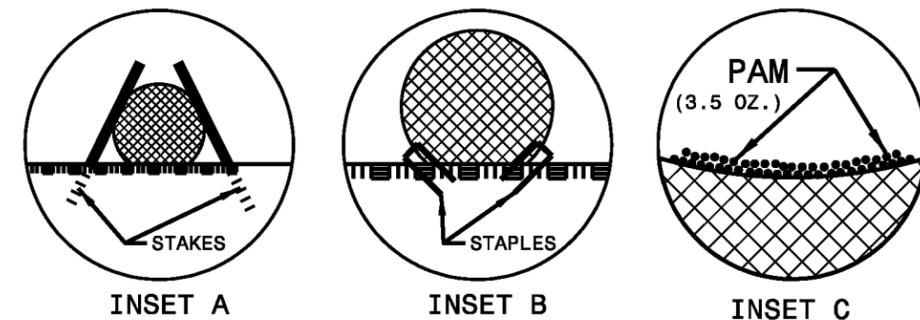
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

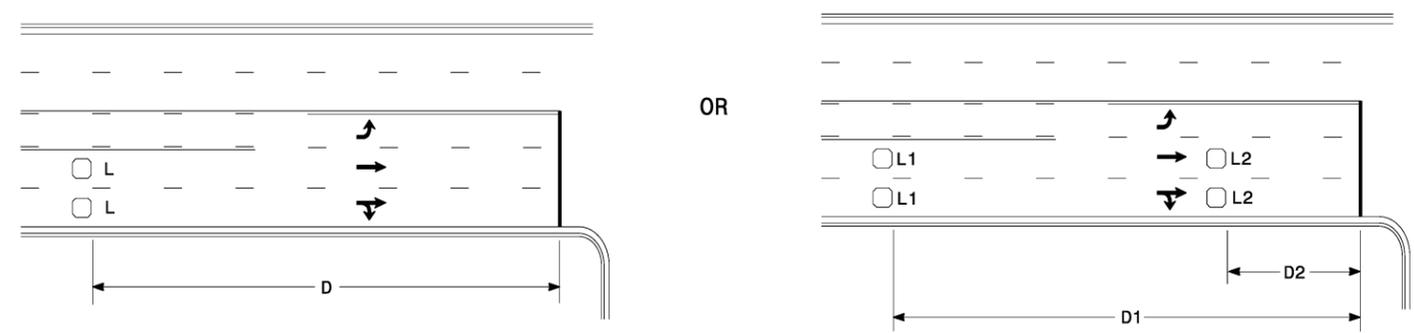
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



### High Speed Detection (≥40 mph)



Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft  
Wired in series for TS1  
Controllers  
Wired separately for TS2,  
170, and 2070L Controllers

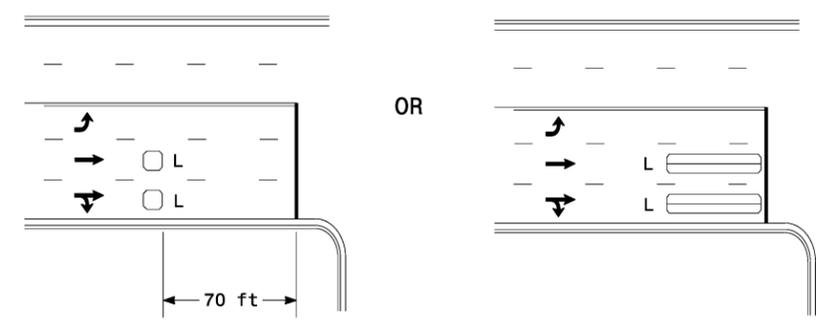
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft  
Wired in series  
L2 = 6ft X 6ft  
Wired in series

Volume Density Operation

"Stretch" Operation

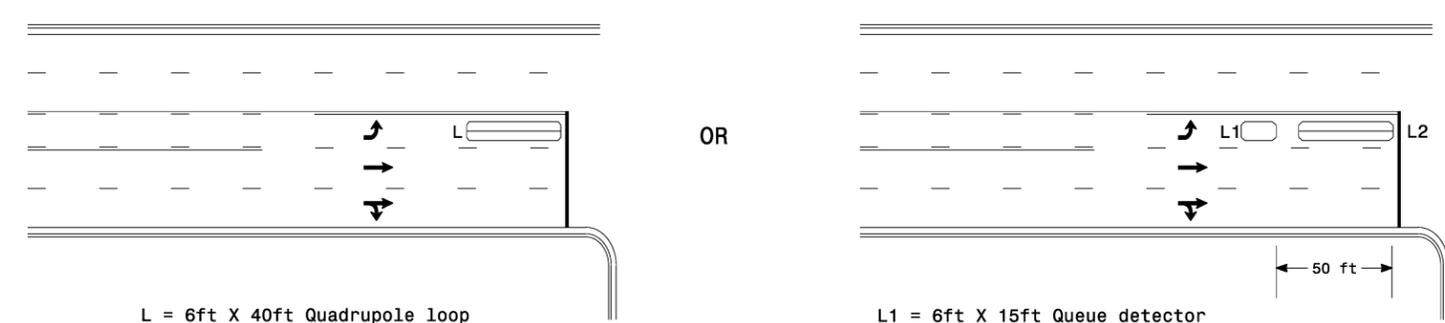
### Low Speed Detection (≤35 mph)



L = 6ft X 6ft  
Wired in series

L = 6ft X 40ft  
Quadrupole loop, wired separately

### Left Turn Lane Detection



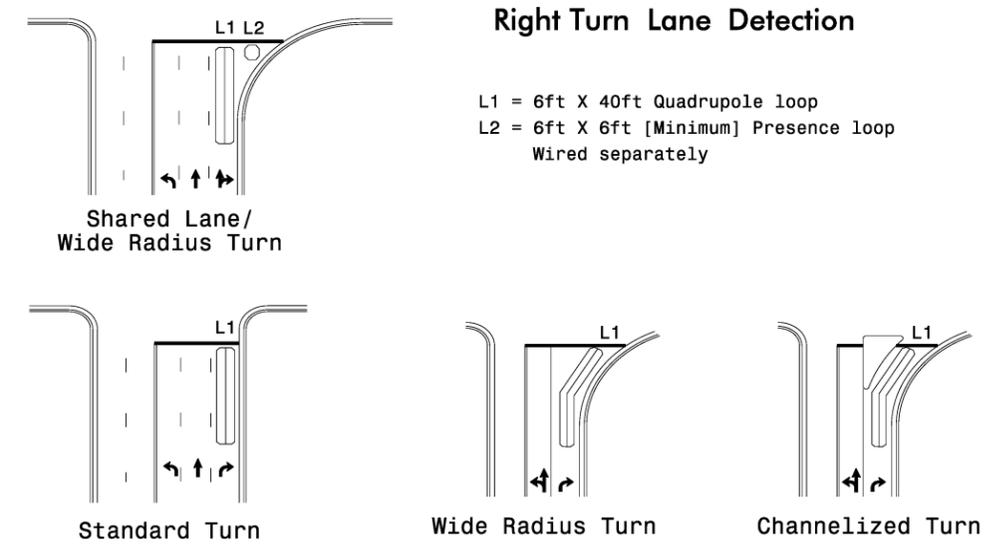
L = 6ft X 40ft Quadrupole loop

L1 = 6ft X 15ft Queue detector  
L2 = 6ft X 40ft Quadrupole loop

Presence Loop Detection

Queue Loop Detection

### Right Turn Lane Detection



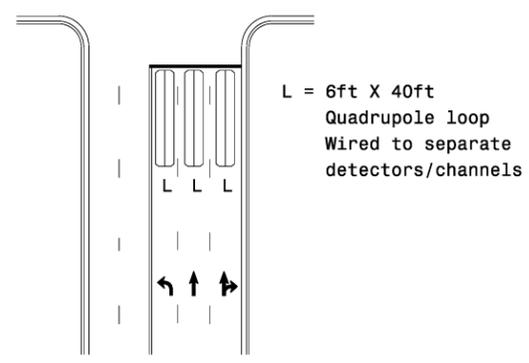
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately

Standard Turn

Wide Radius Turn

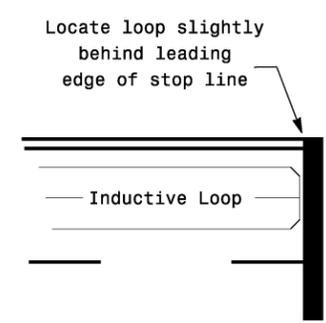
Channelized Turn

### Side Street Detection



L = 6ft X 40ft  
Quadrupole loop  
Wired to separate  
detectors/channels

### Presence Loop Placement at Stop Lines



Locate loop slightly  
behind leading  
edge of stop line

Note:  
Loop may be located in advance  
of stop line under any of the  
following conditions:  
1) stop line is greater than 15'  
from edge of intersecting  
roadway  
2) loop detects a permissive or  
protected/permissive left turn  
3) for an exclusive right turn  
lane

### Recommended Number of Turns

Single 6' X 6' loop  
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' Loops:  
Lead-in < 150', use 2 turns  
Lead-in > 150', use 3 turns

	<b>Typical Signal Loop Locations</b>	
	PLAN DATE: January 2015 PREPARED BY: PLA	REVIEWED BY: JPG REVIEWED BY:
SCALE N/A	REVISIONS	INIT. DATE DATE
Prepared in the Offices of: 		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER P. ALEXANDER License No. 23489 1/30/2015 SIG. INVENTORY NO.

30-JAN-2015 12:139  
 S:\ITS&S\ITS\_Signal\945\Sigal\_Design\_Sect\on\Eastern\_Regional\loop\pic\12015.dgn  
 P. Alexander

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

**LOCATION: MECKLENGBURG COUNTY**

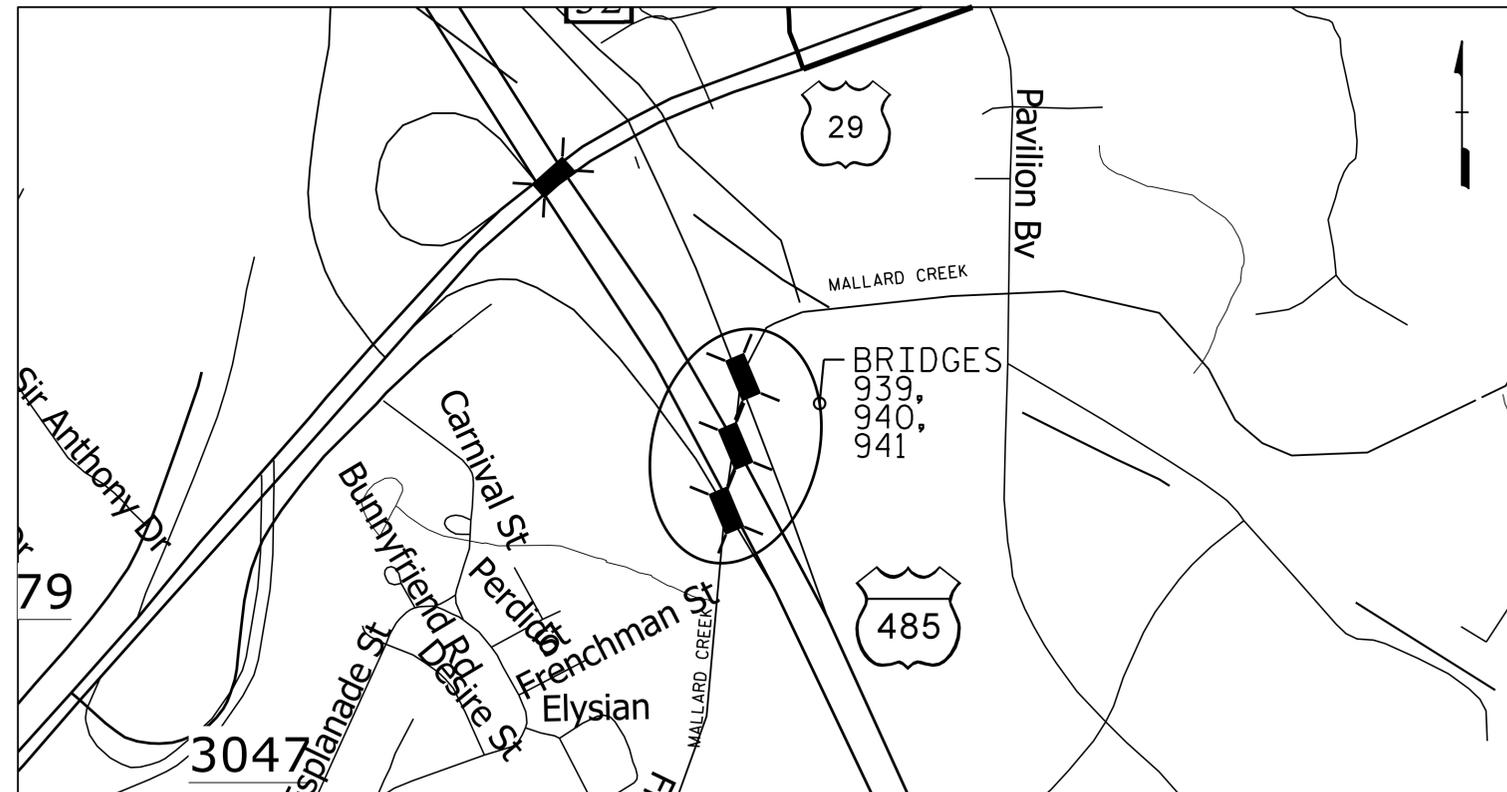
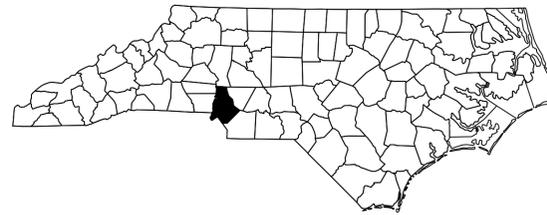
**BRIDGE #939 ON I-485SBL (INNER) OVER MALLARD CREEK.**

**BRIDGE #940 ON I-485NBL (OUTER) OVER MALLARD CREEK.**

**BRIDGE #941 ON I-485NBL (OUTER) RAMP OVER MALLARD CREEK.**

**TYPE OF WORK: BRIDGE PRESERVATION - POLYESTER POLYMER CONCRETE OVERLAY,  
AND JOINT REPAIR**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5798		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50442.1.1	-	P.E.	
504423.1	-	CONST.	



**VICINITY MAP - MECKLENBURG CO.**

**PROJECT: I-5798**

**CONTRACT: C204146**



**DESIGN DATA**

MECKLENBURG COUNTY  
 #939 ADT 2015 = 42,500  
 #940 ADT 2015 = 42,500  
 #941 ADT 2015 = 10,625

**PROJECT LENGTH**

MECKLENBURG COUNTY  
 - #939 = 0.093 MILE  
 - #940 = 0.090 MILE  
 - #941 = 0.107 MILE

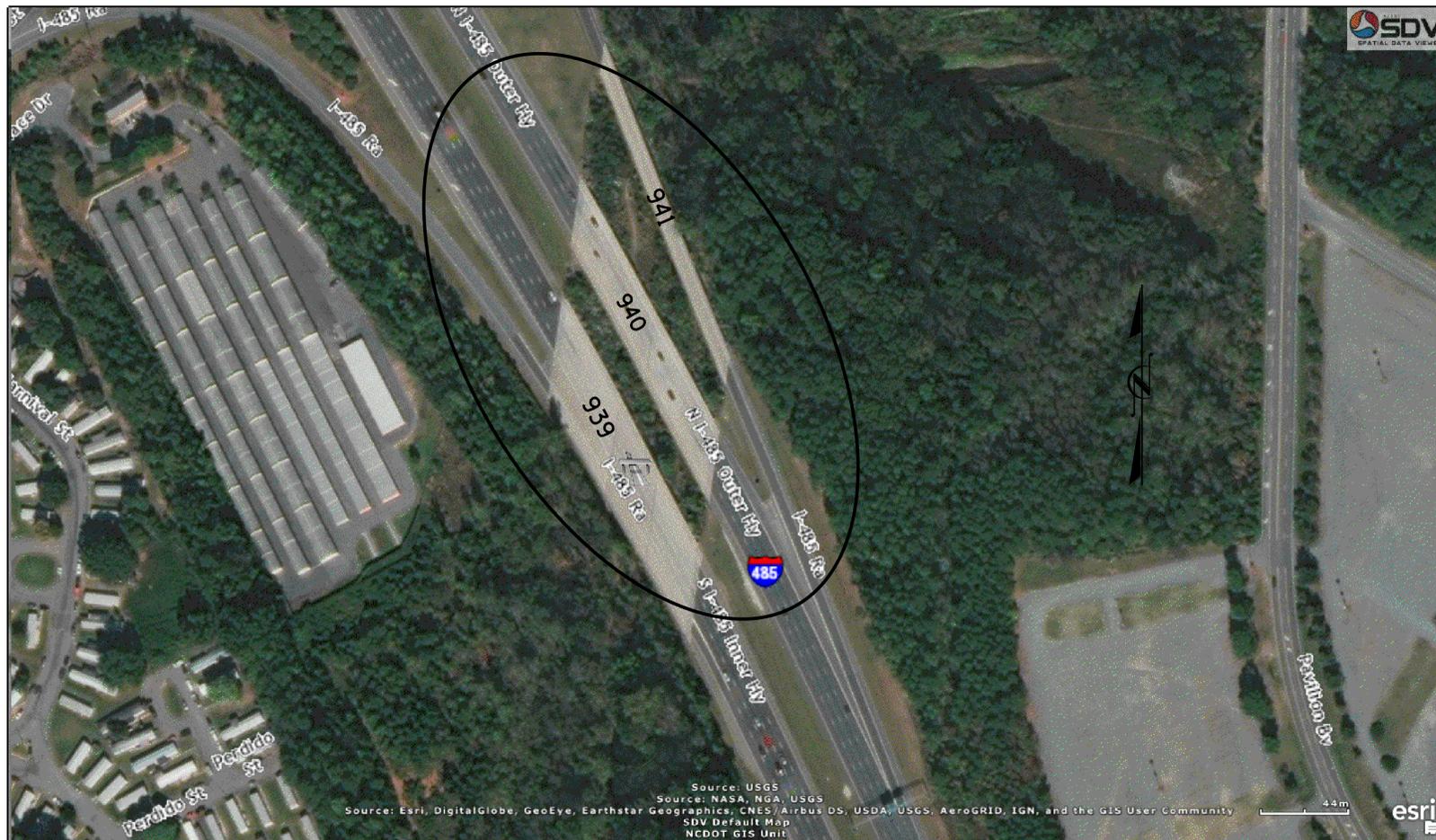
Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
 STRUCTURES MANAGEMENT UNIT  
 1000 BIRCH RIDGE DR.  
 RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

LETTING DATE :  
 SEPTEMBER 18, 2018

**A. KEITH PASCHAL, P.E.**  
 PROJECT ENGINEER

**N. A. PIERCE, P.E.**  
 PROJECT DESIGN ENGINEER



NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISION.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

FOR OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS AND PLACING & FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE BRIDGE OVERLAY SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECK AND SHOTBLASTING BRIDGE DECK, SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THAT SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

— TOTAL BILL OF MATERIAL —

BRIDGE NO.	GROOVING BRIDGE FLOOR	CLASS II SURFACE PREPARATION	FOAM JOINT SEALS	EXPANSION JOINT SEALS	PPC MATERIALS	CONCRETE DECK REPAIR FOR PPC OVERLAY	PLACING & FINISHING PPC OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK
	SO. FT.	SO. YD.	LUMP SUM	LUMP SUM	CU. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.
939	44,741	1.0			177.8	1.0	5121	5121	5121
940	31,446	1.0			127.6	1.0	3674	3674	3674
941	12,914	1.0			56.2	1.0	1618	1618	1618
TOTALS	89,101	3.0	LUMP SUM	LUMP SUM	361.6	3.0	10,413	10,413	10,413

\* CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY IS NOT ANTICIPATED, TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED.

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO. 939,940,941

SHEET 1 OF 2



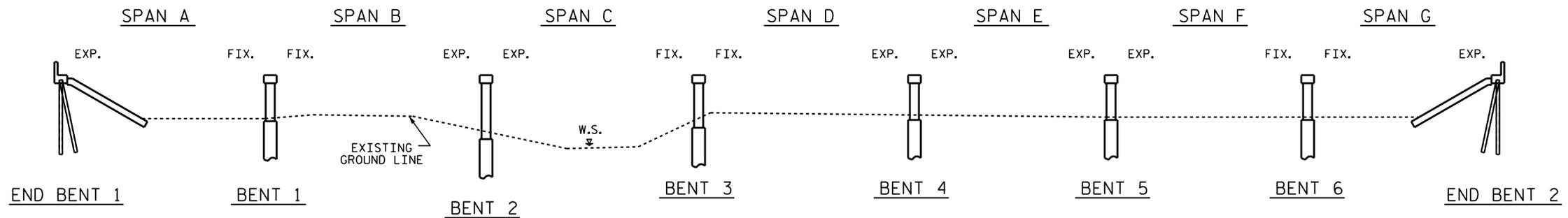
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGES ON  
 I-485 & RAMP OVER  
 MALLARD CREEK  
 BETWEEN NC 49 AND US 29

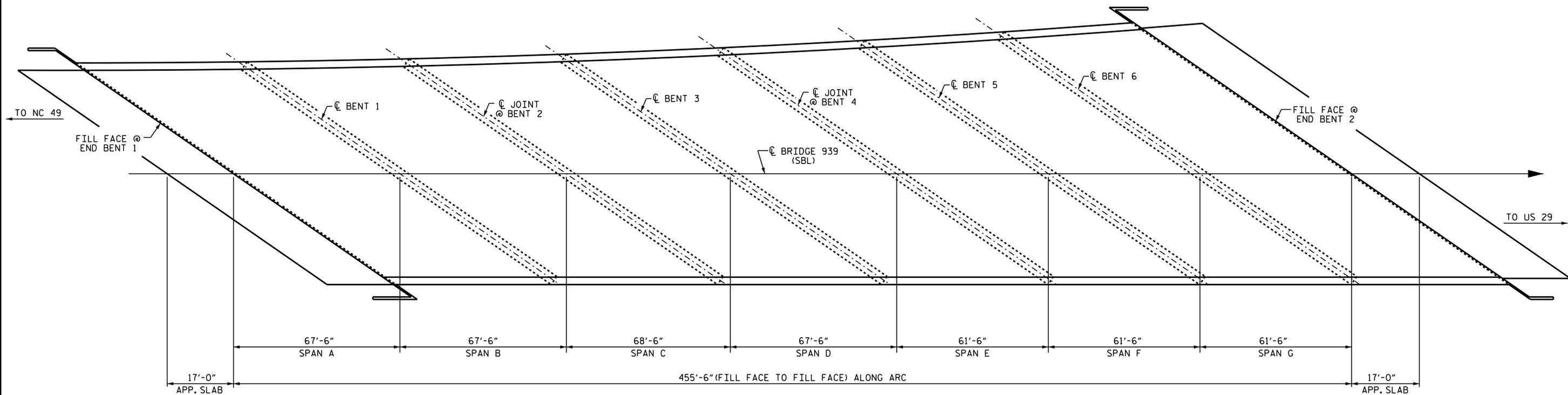
DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 03/2018  
 CHECKED BY : HA LOCKLEAR DATE : 04/2018

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			15



SECTION ALONG CL ROADWAY



PLAN  
(INNER)

NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/12/2017.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

PROJECT NO. I-5798  
 MECKLENBURG COUNTY  
 BRIDGE NO. 939

SHEET 2 OF 2

SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- GROOVE PPC BRIDGE DECK.
- INSTALL FOAM JOINT SEALS.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_



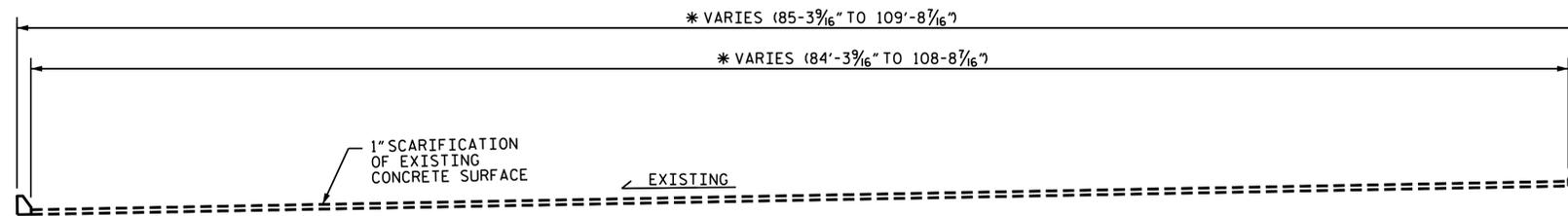
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE ON I-485  
 (INNER)  
 OVER MALLARD CREEK  
 (SOUTH BOUND LANE)

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 3/14/18  
 CHECKED BY : HA LOCKLEAR DATE : 03/2018

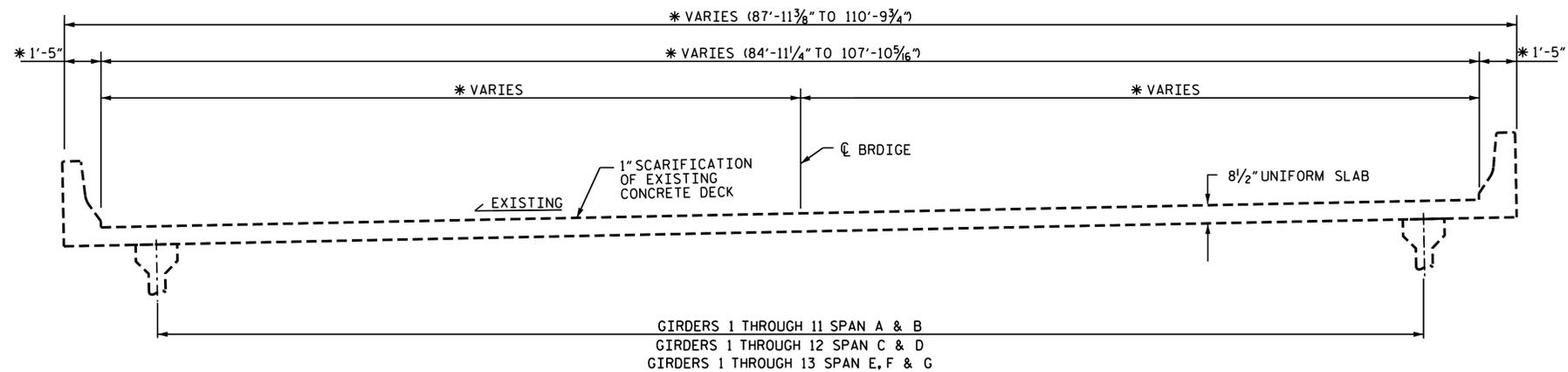
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			15



EXISTING TYPICAL SECTION - APPROACH SLABS

\* RADIAL DIMENSION



EXISTING TYPICAL SECTION - SPAN A-G

\* RADIAL DIMENSION

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO. 939

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL SECTION  
 AND PPC OVERLAY  
 DETAILS

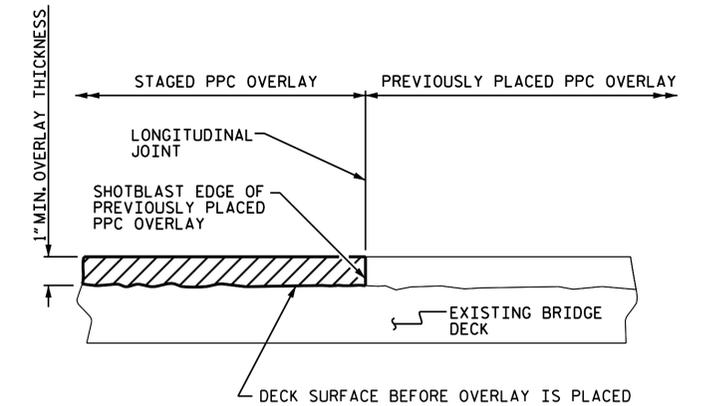
DRAWN BY : GHOLAMREZA KOUICHEKI DATE : 3/2018  
 CHECKED BY : HA LOCKLEAR DATE : 3/2018

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

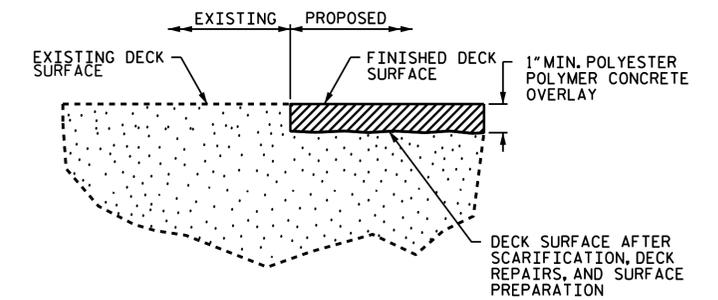
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			15

**NOTE**

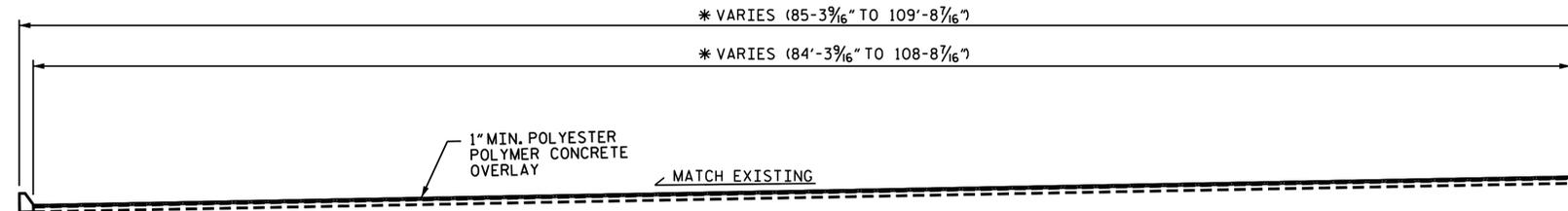
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY SYSTEM AND SURFACE PREPARATION.



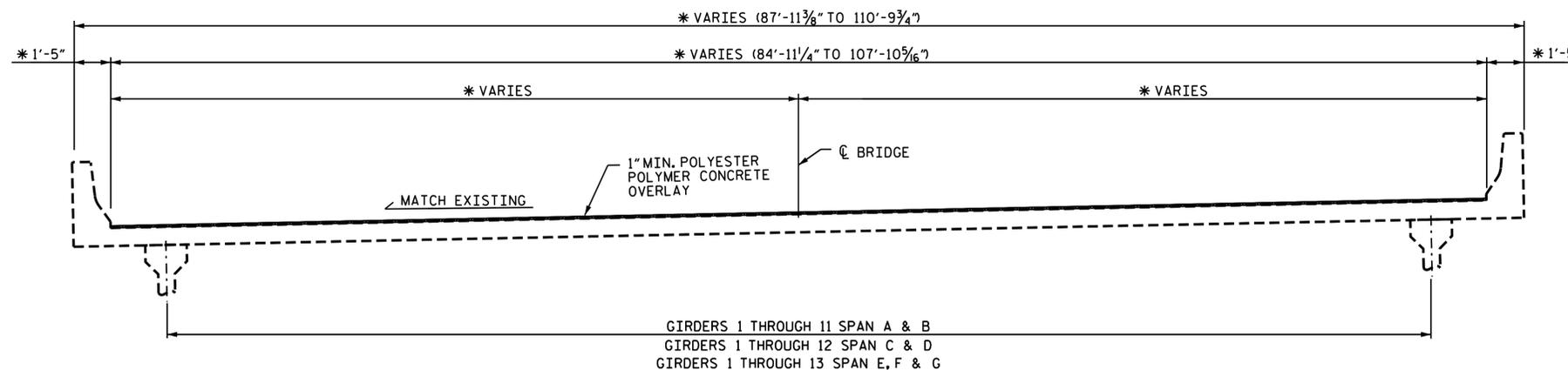
**STAGED PPC OVERLAY JOINT**  
(AS NEEDED)



**DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY**



**PROPOSED APPROACH SLABS**  
\* RADIAL DIMENSION



**PROPOSED TYPICAL SECTION**  
\* RADIAL DIMENSION

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
BRIDGE NO. 939

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**TYPICAL SECTION AND PPC OVERLAY DETAILS**

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 3/2018  
CHECKED BY : HA LOCKLEAR DATE : 3/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15

**NOTE:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

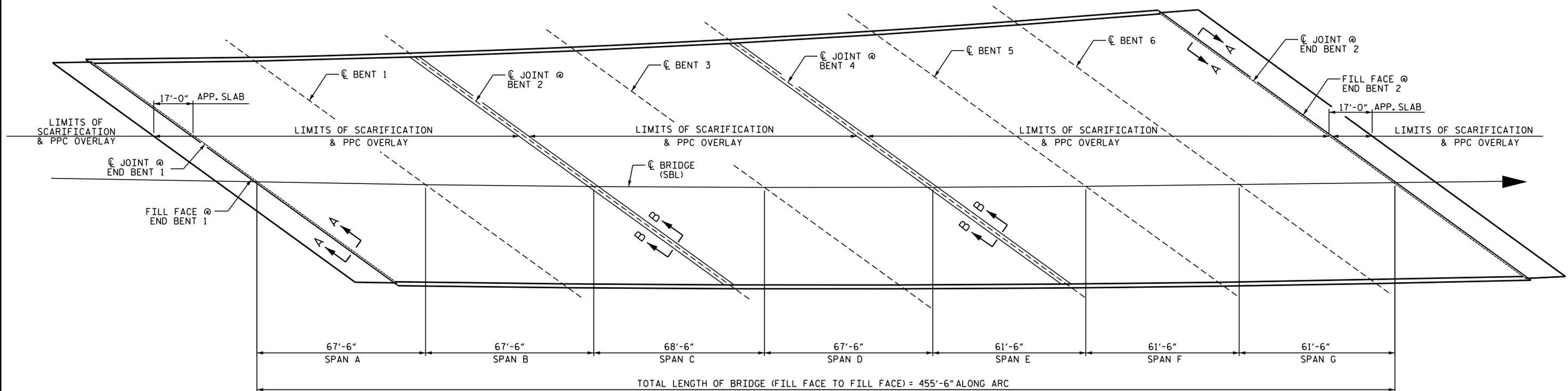
FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

**SUMMARY OF QUANTITIES**

**TOP OF DECK REPAIRS**

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	5121 SQ. YDS.	
CLASS II SURFACE PREPARATION	1.0 SQ. YDS.	
CONCRETE DECK REPAIR FOR PPC OVERLAY	1.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	5121 SQ. YDS.	
PPC MATERIALS	177.8 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	5121 SQ. YDS.	
GROOVING BRIDGE FLOORS	44741 SQ. FT.	

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.



**PLAN**  
(INNER)

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO: 939

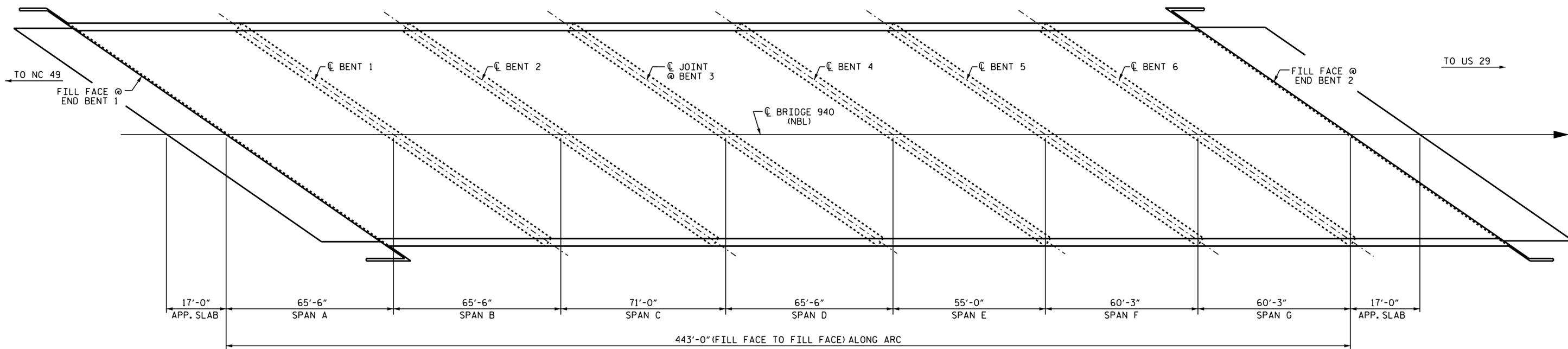
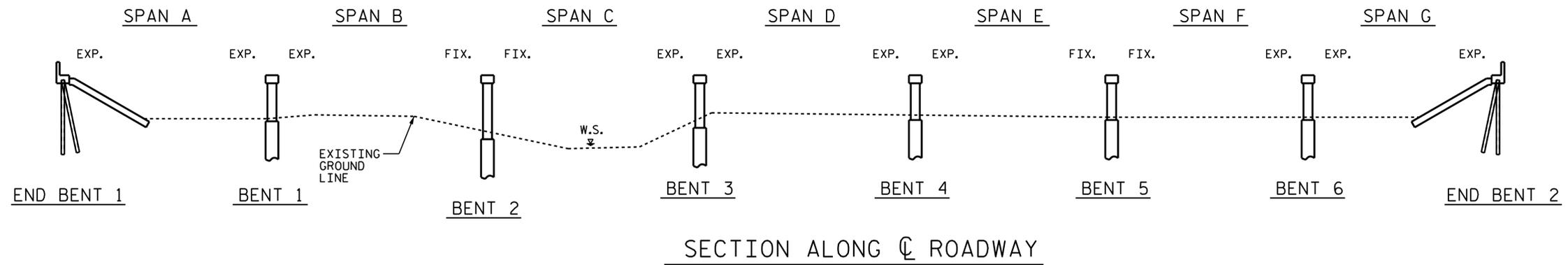


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**PLAN OF SPANS  
 A THRU G  
 AND  
 APPROACH SLABS**

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 3/04/18  
 CHECKED BY : HA LOCKLEAR DATE : 3/2018

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15



PLAN  
(OUTER)

SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- GROOVE PPC BRIDGE DECK.
- INSTALL FOAM JOINT SEALS.

NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/12/2017.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO. 940



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE I-485  
 (OUTER)  
 OVER MALLARD CREEK  
 (NORTH BOUND LANE)

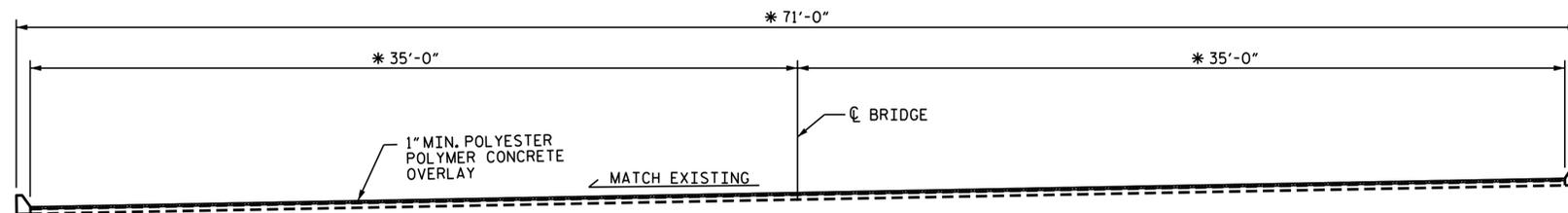
I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.  
 \_\_\_\_\_  
 RESIDENT ENGINEER DATE

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 3/2018  
 CHECKED BY : HA LOCKLEAR DATE : 3/2018

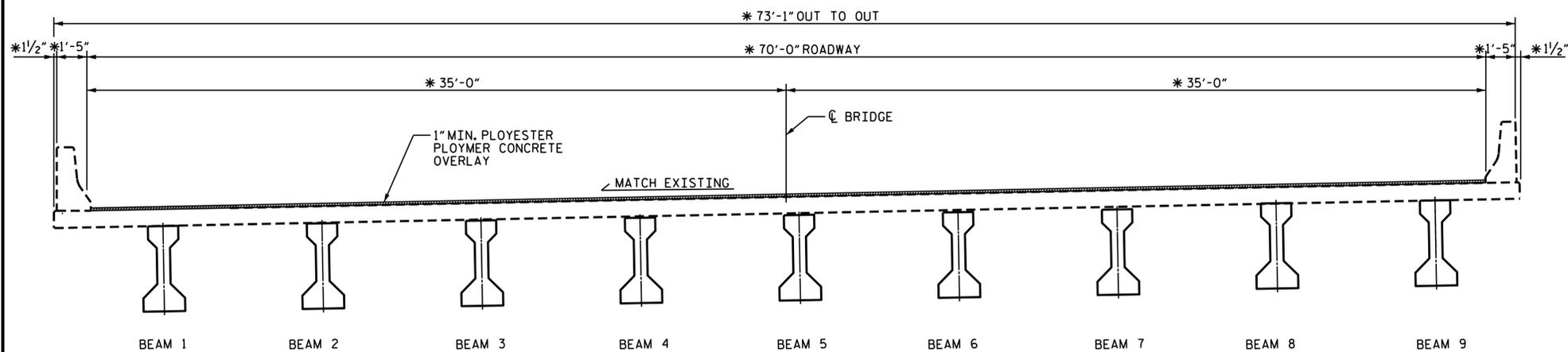
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			15





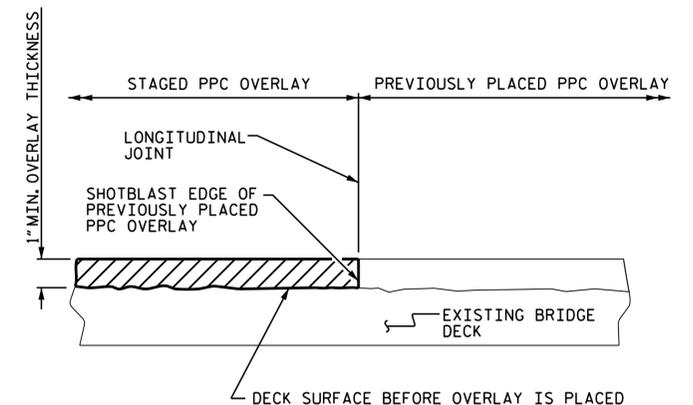
**PROPOSED APPROACH SLABS**  
\* RADIAL DIMENSION



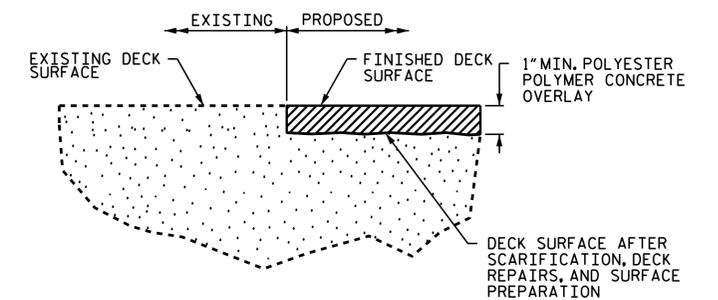
**PROPOSED TYPICAL SECTION**  
\* RADIAL DIMENSION

**NOTE**

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY SYSTEM AND SURFACE PREPARATION.



**STAGED PPC OVERLAY JOINT**  
(AS NEEDED)



**DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY**

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
BRIDGE NO. 940

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**TYPICAL SECTION AND PPC OVERLAY DETAILS**

DRAWN BY : GGHOLAMREZA KOUCHEKI DATE : 2/2018  
CHECKED BY : HA LOCKLEAR DATE : 3/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			15

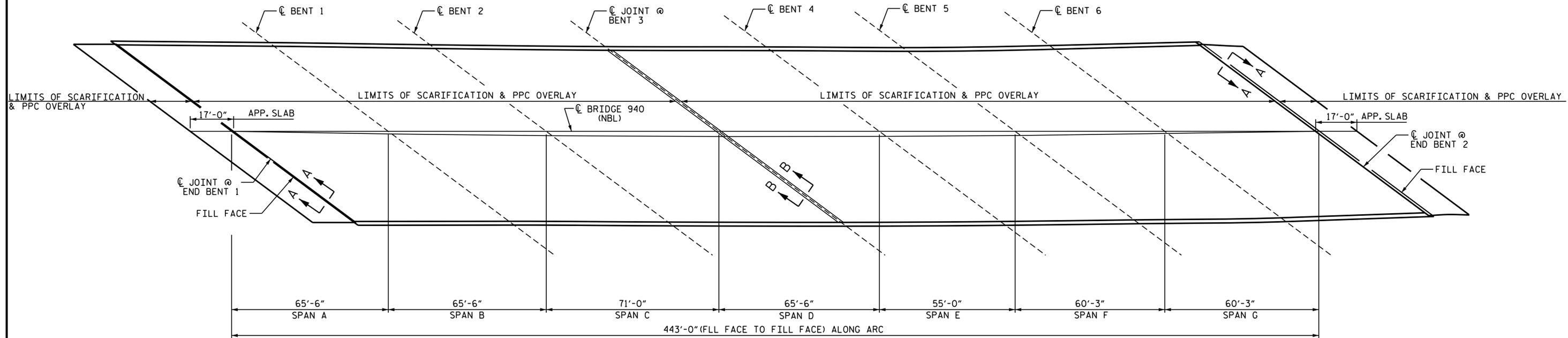
**NOTE:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

SUMMARY OF QUANTITIES		
TOP OF DECK REPAIRS		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	3674 SQ. YDS.	
CLASS II SURFACE PREPARATION	1.0 SQ. YDS.	
CONCRETE DECK REPAIR FOR PPC OVERLAY	1.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	3674 SQ. YDS.	
PPC MATERIALS	127.6 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	3674 SQ. YDS.	
GROOVING BRIDGE FLOORS	31,446 SQ. FT.	

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.



**PLAN**  
(OUTER)

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO: 940

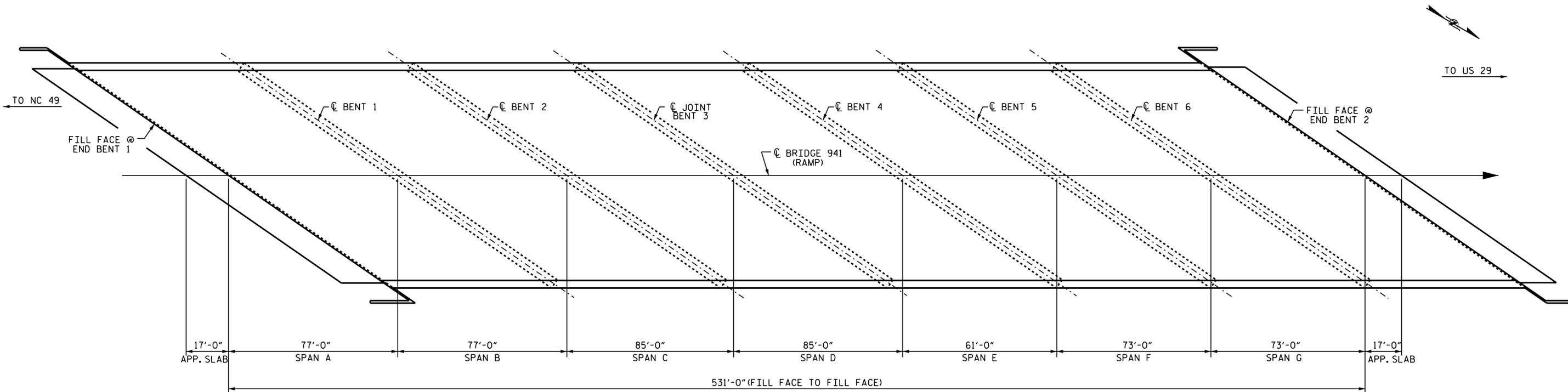
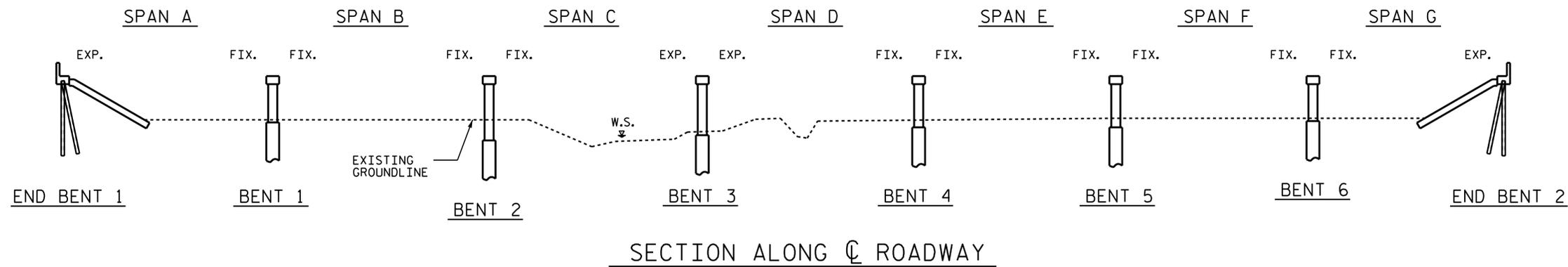


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**PLAN OF SPAN  
 A THRU G  
 AND  
 APPROACH SLABS**

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 2/2018  
 CHECKED BY : HA LOCKLEAR DATE : 3/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-9
2			4			TOTAL SHEETS 15



**SCOPE OF WORK**

- REMOVE ASPHALT WEARING SURFACE AND PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- GROOVE PPC BRIDGE DECK.
- INSTALL FOAM JOINT SEALS.

**PLAN**  
(RAMP)

**NOTES**

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/11/2017.  
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.  
RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
BRIDGE NO. 941

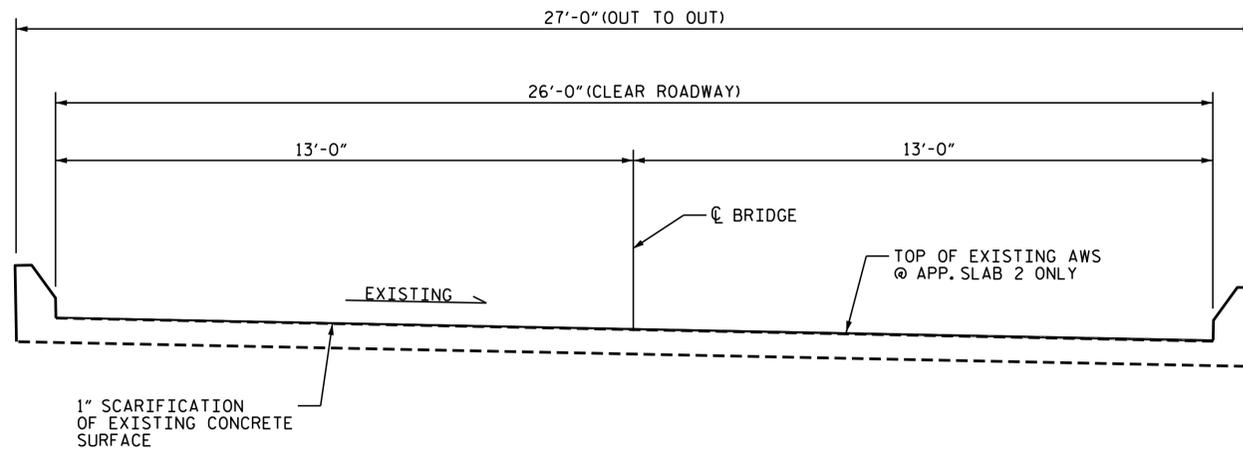


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
FOR BRIDGE RAMP ON  
I-485 (OUTER)  
OVER MALLARD CREEK

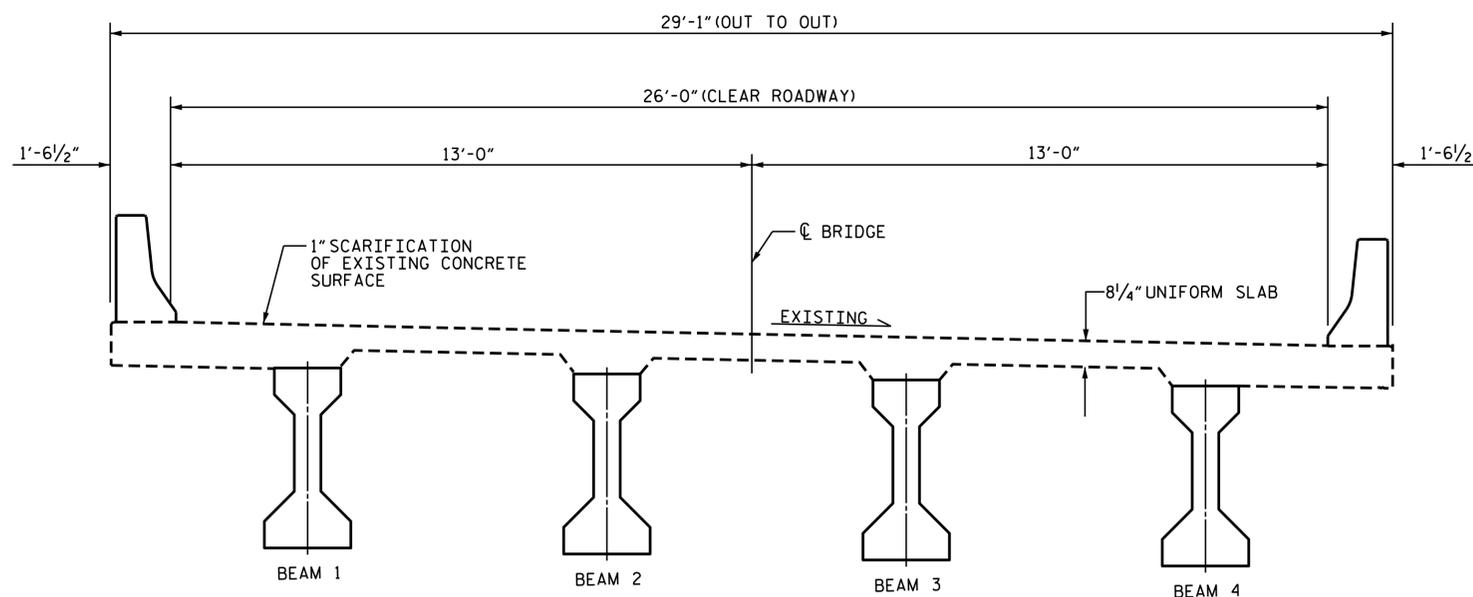
DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 02/2018  
CHECKED BY : HA LOCKLEAR DATE : 03/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			15



EXISTING TYPICAL SECTION - APPROACH SLABS



EXISTING TYPICAL SECTION - SPANS A-G

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO. 941

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION  
 AND PPC OVERLAY  
 DETAIL**

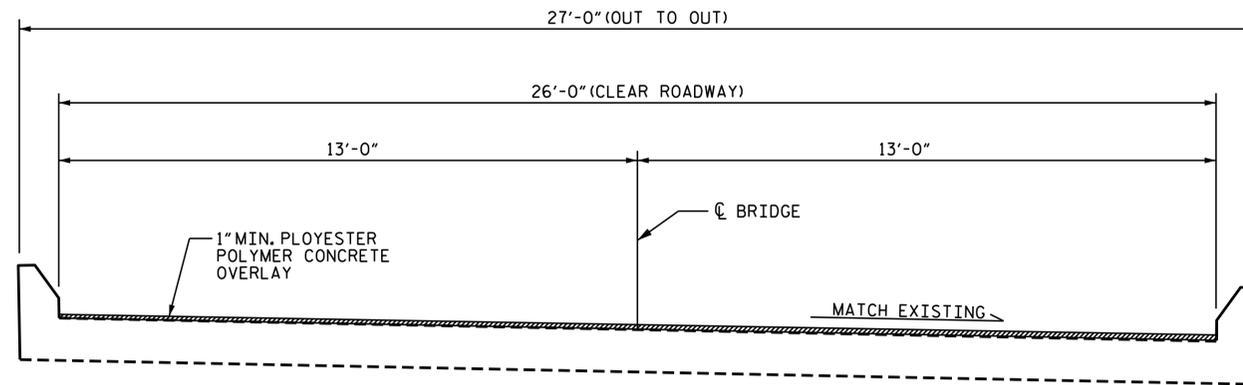
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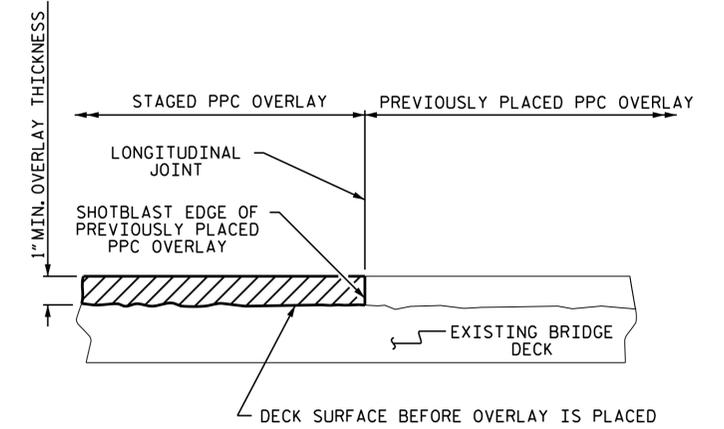
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**NOTE**

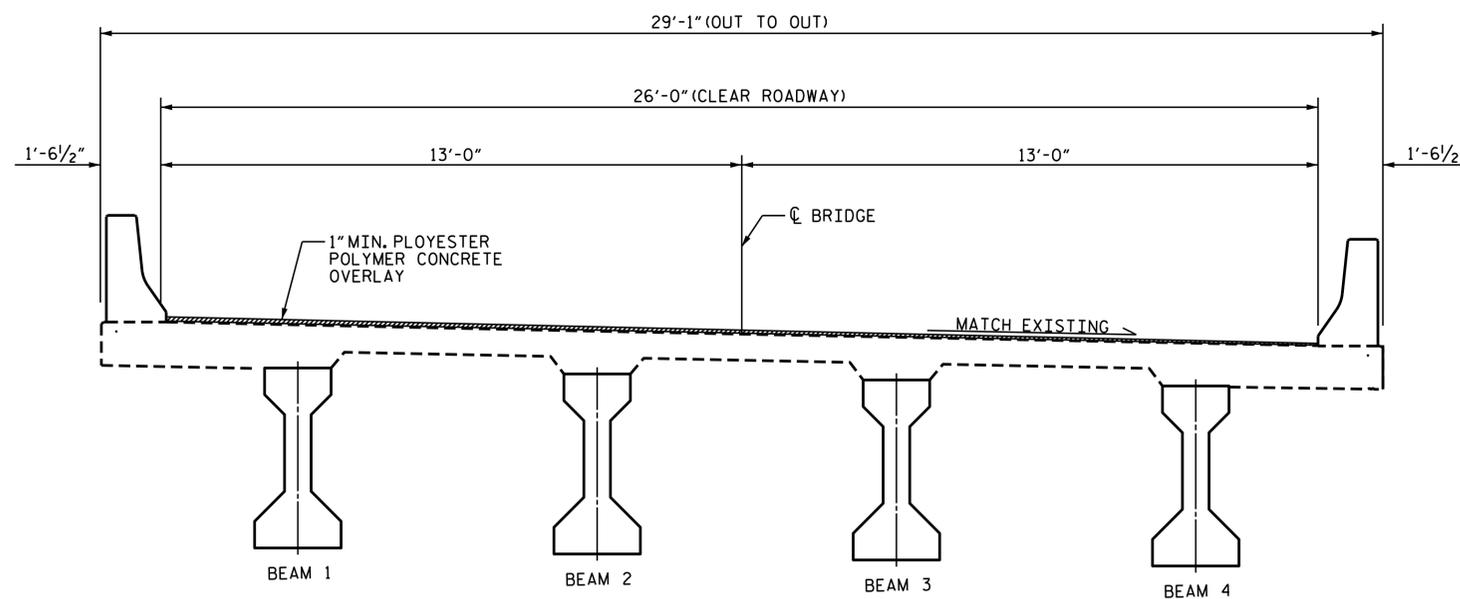
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY SYSTEM AND SURFACE PREPARATION.



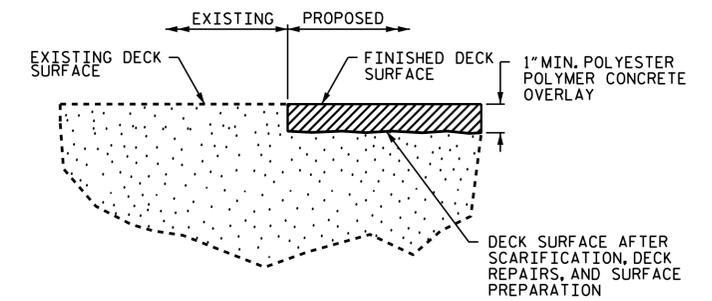
PROPOSED APPROACH SLABS



STAGED PPC OVERLAY JOINT  
(AS NEEDED)



PROPOSED TYPICAL SECTION



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO. 941

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL SECTION  
 AND PPC OVERLAY  
 DETAIL

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 3/14/18  
 CHECKED BY : HA LOCKLEAR DATE : 3/2018

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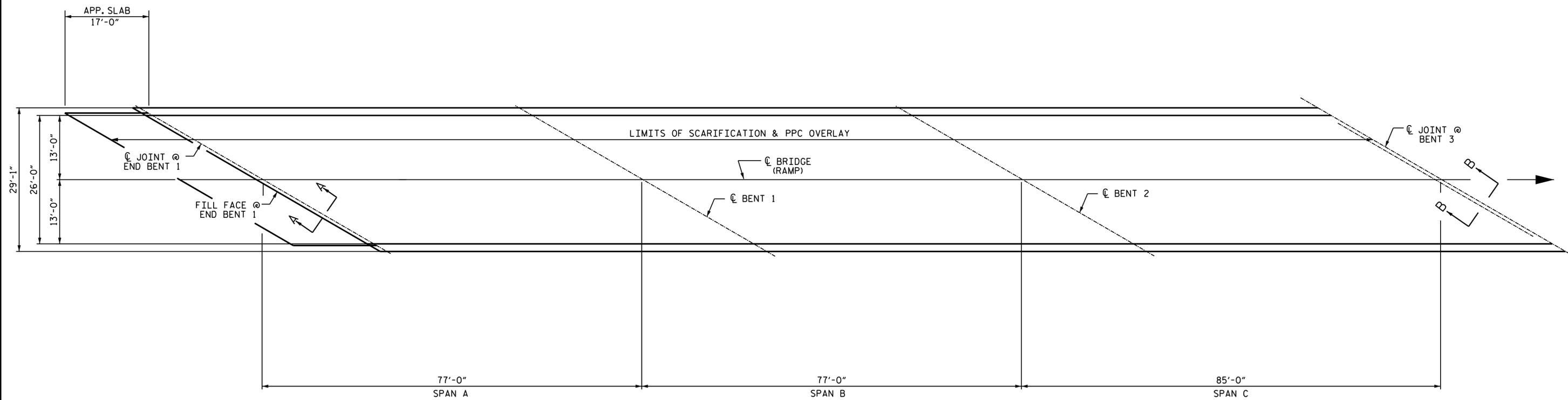
**NOTE:**

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FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

SUMMARY OF QUANTITIES		
TOP OF DECK REPAIRS		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	733 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.5 SQ. YDS.	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.5 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	733 SQ. YDS.	
PPC MATERIALS	25.5 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	733 SQ. YDS.	
GROOVING BRIDGE FLOORS	5,847 SQ. FT.	

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.



PLAN  
(RAMP)

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO. 941

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPANS  
 A THRU C &  
 APPROACH SLAB

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 02/2018  
 CHECKED BY : HA LOCKLEAR DATE : 03/2018

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REVISIONS						SHEET NO.
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1			3			S-13
2			4			TOTAL SHEETS 15

**NOTE:**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

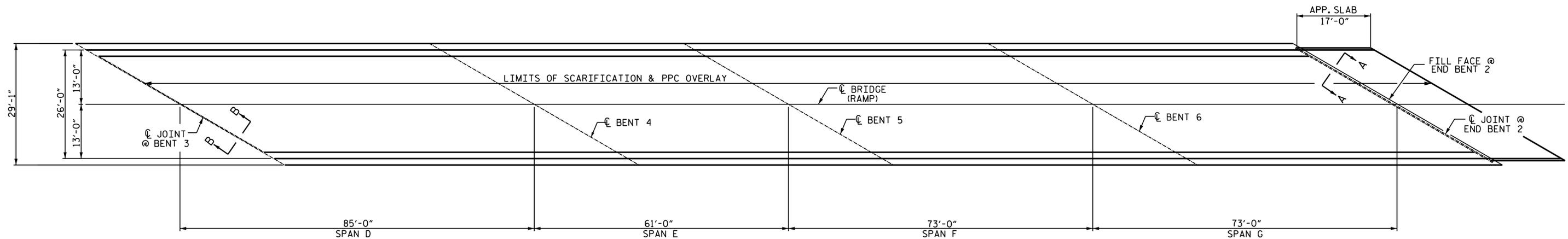
FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

**SUMMARY OF QUANTITIES**

**TOP OF DECK REPAIRS**

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	885 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.5 SQ. YDS.	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.5 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	885 SQ. YDS.	
PPC MATERIALS	30.7 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	885 SQ. YDS.	
GROOVING BRIDGE FLOORS	7,067 SQ. FT.	

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.



**PLAN**  
(RAMP)

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO: 941

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

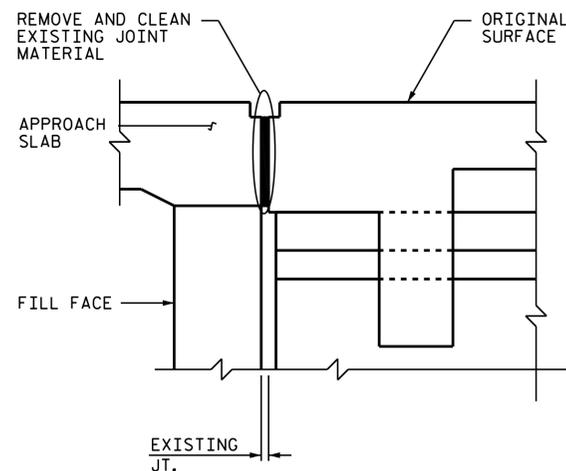
**PLAN OF SPANS  
 D THRU G  
 & APPROACH SLAB**



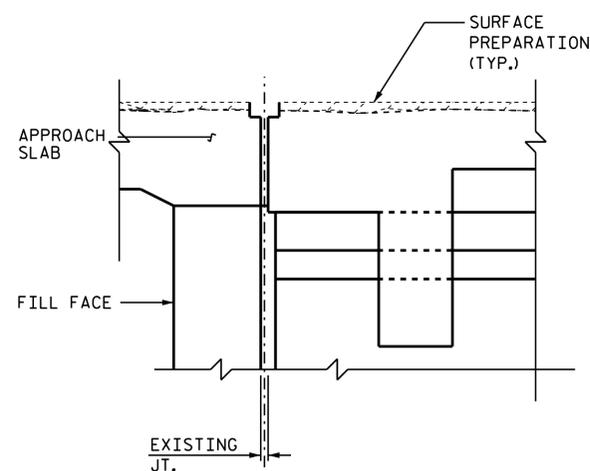
DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 3/19/2018  
 CHECKED BY : HA LOCKLEAR DATE : 3/2018

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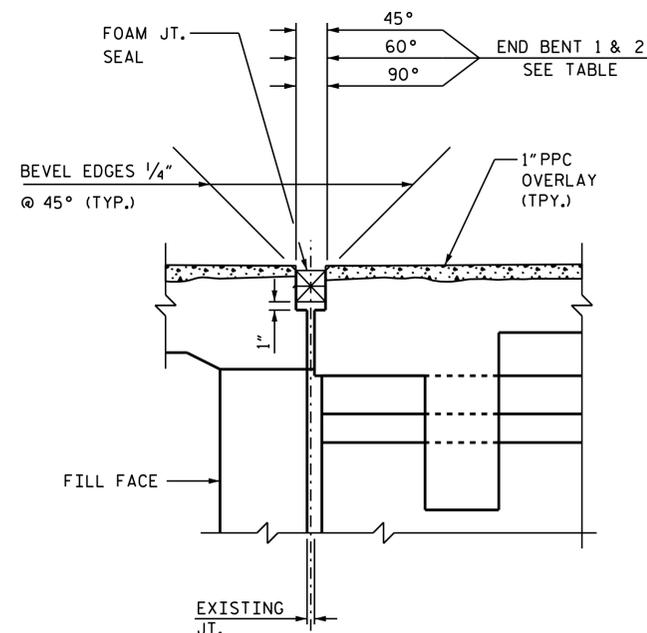
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			15



EXISTING JOINT



EXISTING JOINT AFTER DECK SCARIFICATION



PROPOSED FOAM JOINT SEAL EXPANSION

NOTES:

FOAM JOINT SEALS

CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF ACTUAL JOINT OPENING VARIES FROM OPENING INDICATED IN DETAIL BY MORE THAN 1/4", NOTIFY ENGINEER. REVISION TO THE JOINT SEAL SIZE MIGHT BE NECESSARY.

FOR FOAM JOINT SEAL, SEE SPECIAL PROVISION.

RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIALS SHALL BE 2".

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.

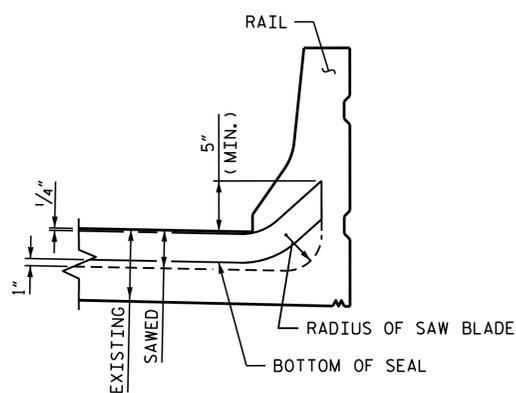
THE INSTALLED FOAM JOINT SEALS SHALL BE WATER TIGHT.

SAW CUT SHALL BE 3/4" BELOW THE BOTTOM OF THE JOINT SEAL. SEE MANUFACTURER RECOMMENDATION.

EXPANSION JOINT SEALS

CONTRACTOR SHALL FIELD VERIFY THE EXISTING EXPANSION JOINT SEAL MATERIAL TYPE AND OPENING SIZE PRIOR TO OBTAINING JOINT MATERIAL.

RETAIN ALL EXISTING HOLD-DOWN PLATES AND HARDWARE, CLEAN AND REPAIR AS NEEDED. CONTRACTOR SHALL REPLACE DAMAGED HOLD-DOWN PLATES AND/OR HARDWARE AS NEEDED OR DIRECTED BY THE ENGINEER AT NO EXTRA COST TO THE DEPARTMENT.



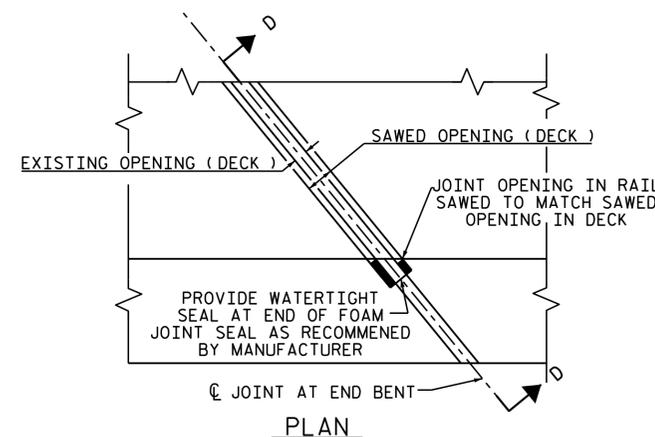
SECTION D-D

FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT HEAT WELDED AND TURNED UP PARALLEL TO FACE OF RAIL.

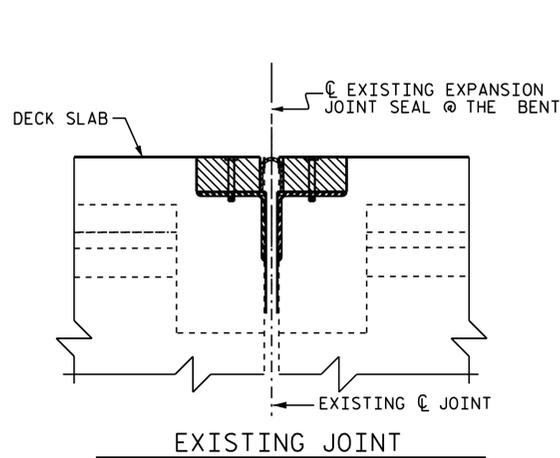
JOINT INSTALLATION SEQUENCE AT END BENTS

SECTION A-A

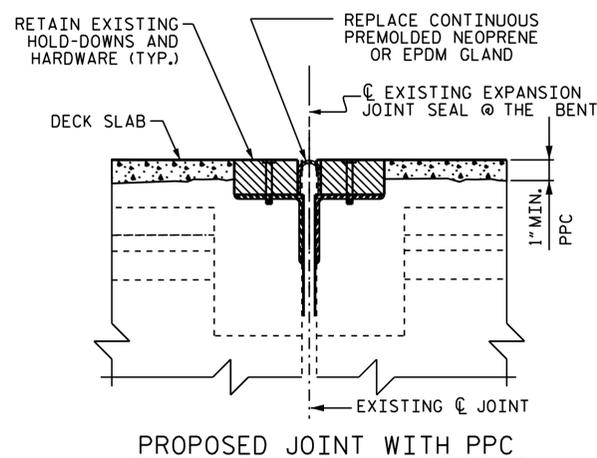
FOAM JOINT SEALS				
BRIDGE	LOCATION	PERPENDICULAR JOINT OPENING @ 45° F	PERPENDICULAR JOINT OPENING @ 60° F	PERPENDICULAR JOINT OPENING @ 90° F
939	EB 1 & 2	1 5/8"	1 1/6"	1 1/2"
940	EB 1 & 2	1 5/8"	1 1/6"	1 7/16"
941	EB 1 & 2	1 5/8"	1 1/6"	1 3/8"



PLAN



EXISTING JOINT



PROPOSED JOINT WITH PPC

JOINT SEAL DETAILS AT BENTS

SECTION B-B

EXPANSION JOINT SEALS						
MOVEMENT AND SETTING AT JOINT						
BRIDGE	BENT NO.	SKIEW ANGLE	TOTAL MOVEMENT (ALONG CL RDWY)	PERPENDICULAR JOINT OPENING @ 30° F	PERPENDICULAR JOINT OPENING @ 60° F	PERPENDICULAR JOINT OPENING @ 90° F
939	2	35°20' 11"	1 3/16"	1 5/8"	1 3/8"	1 1/8"
939	4	36°01' 16"	1 5/8"	1 7/8"	1 1/2"	1 1/8"
940	3	36°30' 11"	1 5/8"	1 7/8"	1 1/2"	1 1/8"
941	3	30°04' 13.7"	2 5/16"	2"	1 1/6"	1 1/8"

PROJECT NO. I-5798  
MECKLENBURG COUNTY  
 BRIDGE NO. 939, 940, & 941



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 JOINT DETAILS

DRAWN BY : GHOLAMREZA KOUCHEKI DATE : 02/22/18  
 CHECKED BY : HA LOCKLEAR DATE : 3/2018

17-JUL-2018 13:40  
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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			15

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS - - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD - - - - -	SEE PLANS
IMPACT ALLOWANCE - - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36 - -	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W - -	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50 - -	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60 - - -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION - - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR - - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER - - - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH - - - - -	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED  $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A  $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\emptyset$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST  $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY  $\frac{1}{16}$  INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

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