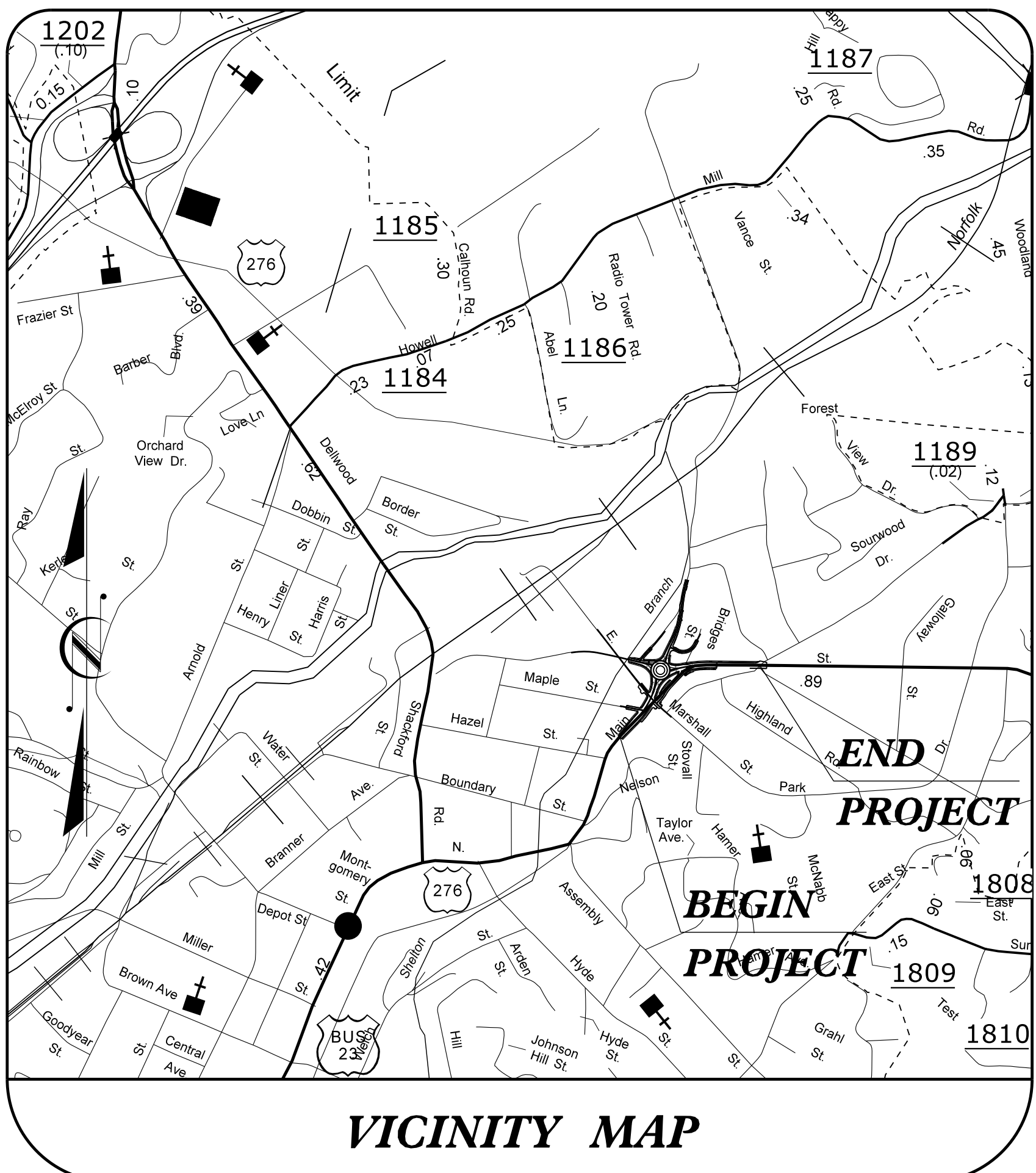


09.08/19

TIP PROJECT: U-5888

CONTRACT: C204675



VICINITY MAP

U-5888 Right-Of-Way Plans

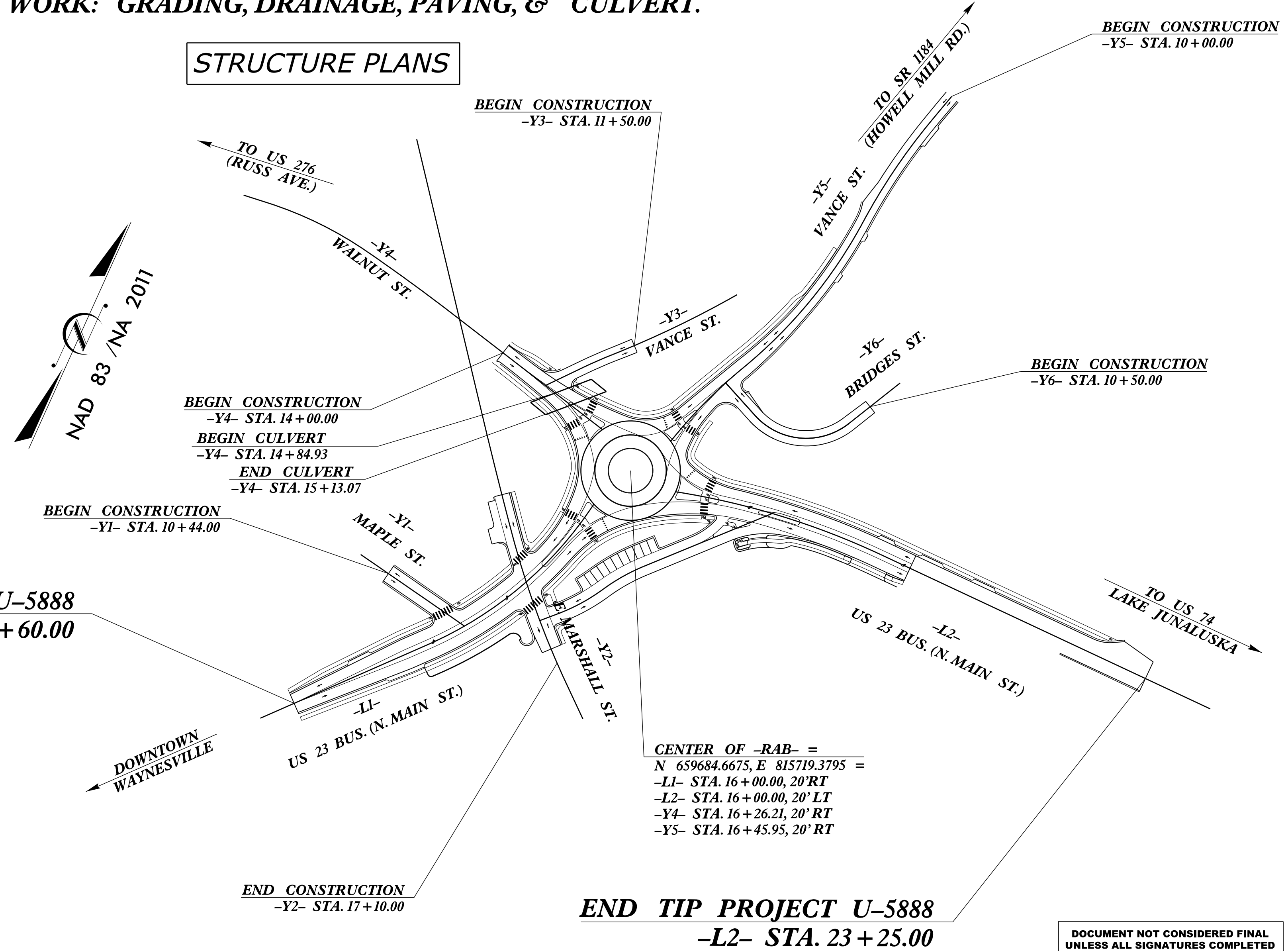
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**HAYWOOD COUNTY**

**LOCATION:** WAYNESVILLE - INTERSECTION OF US 23 BUSINESS (N. MAIN ST.) AND WALNUT ST.  
**TYPE OF WORK:** GRADING, DRAINAGE, PAVING, & CULVERT.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5888		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44625.1.1	N/A	PE	
44625.2.1	N/A	RW /UTIL.	
44625.3.1	N/A	CONST.	

BRIDGE #430460

STRUCTURE PLANS



**BEGIN TIP PROJECT U-5888**  
**-L1- STA. 10+60.00**

**END TIP PROJECT U-5888**  
**-L2- STA. 23+25.00**

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2021 = 7,800  
ADT 2040 = 9,000  
K = 9 %  
D = 50 %  
T = 6 % \*  
V = 40 MPH  
\* TTST = 2% DUAL = 4%  
FUNC. CLASS = MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5888 = 0.240 MILES  
TOTAL LENGTH TIP PROJECT U-5888 = 0.240 MILES

NOTE: -L1- AND -L2- USED FOR PROJECT LENGTH

Prepared in the Office of:



1223 Jones Franklin Rd. Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919.851.8077 Fax: 919.851.8107  
2018 STANDARD SPECIFICATIONS

Prepared for:

DIVISION OF HIGHWAYS  
DIVISION 14  
253 Webster Road  
Sylva NC, 28779

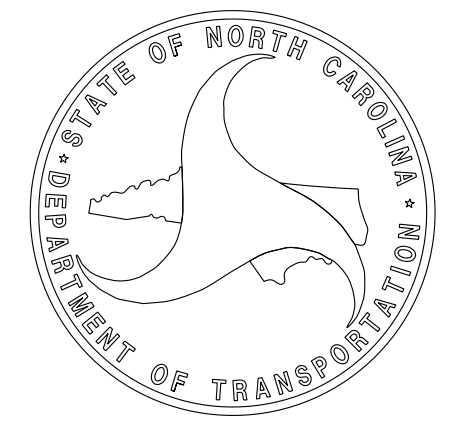
GREG S. PURVIS, PE  
PROJECT ENGINEER

JOHN A. DILWORTH, PE  
PROJECT DESIGN ENGINEER

LETTING DATE:  
December 21, 2021

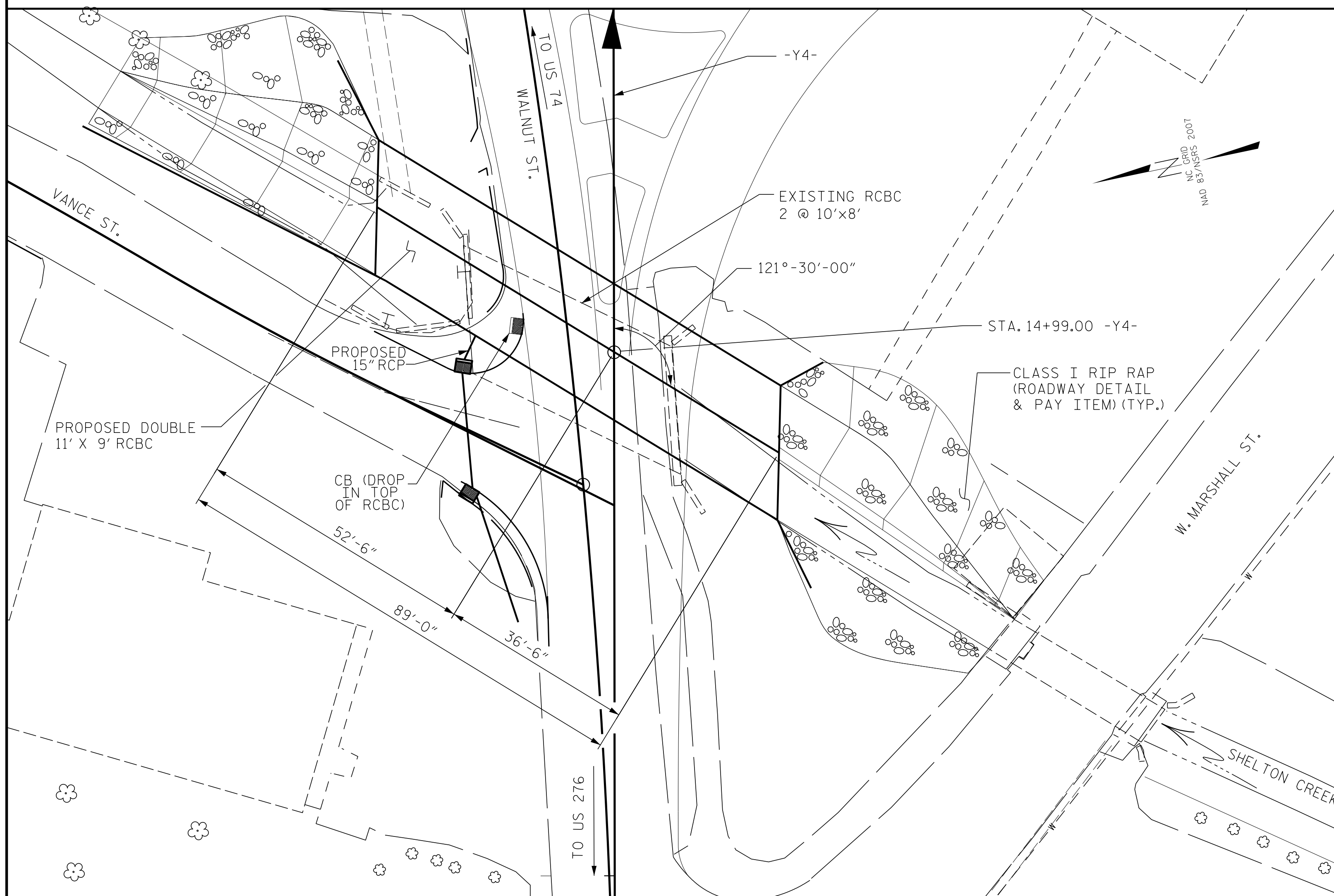
NCDOT CONTACT:

JOSHUA B. DEYTON, PE  
DIVISION 14 DDC ENGINEER



10/19/2021 12:51:28 PM P:\2016\16133.01\_U-5888\Structures\DCN\U-5888\_SMU\_TSH.dgn

BM4: BENCHTIE NAIL IN 24" LEELAND CYPRUS; STA. 9+29.52 -Y5-, 124.88' RT., ELEV. 2613.47; N660405, E815800



**LOCATION SKETCH**

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**NOTES**

ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.

DESIGN FILL TO BOTTOM OF TOP SLAB 2.00' (MIN.) AND 5.19' (MAX)

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FT. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

FOR CULVERT DIVERSIONS DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF EXPANSION JOINT.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALL ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF A 10'x8' DOUBLE BARREL REINFORCED CONCRETE BOX CULVERT 43'-6" LONG ALONG CENTERLINE OF CULVERT AND LOCATED AT PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING CULVERT IS PRESENTLY NOT POSTED FOR LOAD LIMIT.

FOR CHANNEL SUBSTRATE MATERIAL, SEE SPECIAL PROVISIONS.

FOR HIGH FLOW CHANNEL - PLACEMENT OF NATURAL STREAM BED MATERIAL, SEE SPECIAL PROVISIONS.

**ROADWAY DATA**

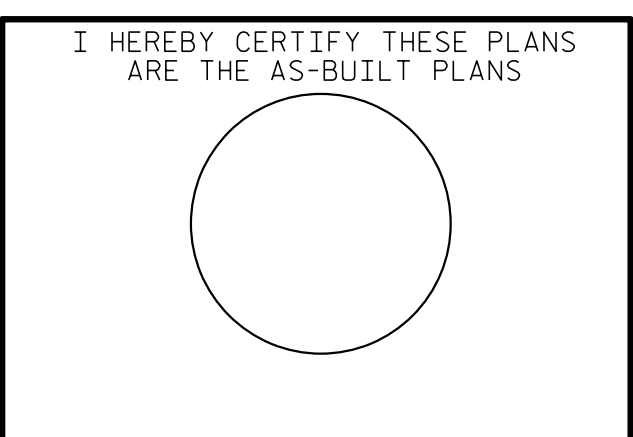
GRADE POINT ELEV. @ STA 14+99.00 -Y4- = 2626.35  
 BED ELEV. @ STA 14+99.00 -Y4- = 2614.15  
 ROADWAY SLOPES = 2:1

**HYDRAULIC DATA**

DESIGN DISCHARGE = 1100 CFS  
 FREQUENCY OF DESIGN FLOOD = 25 YEAR  
 DESIGN HIGH WATER ELEVATION = 2623.0  
 DRAINAGE AREA = 1.93 SQ. MI.  
 BASE DISCHARGE (Q100) = 1500 CFS  
 BASE HIGH WATER ELEVATION = 2624.6

**OVERTOPPING FLOOD DATA**

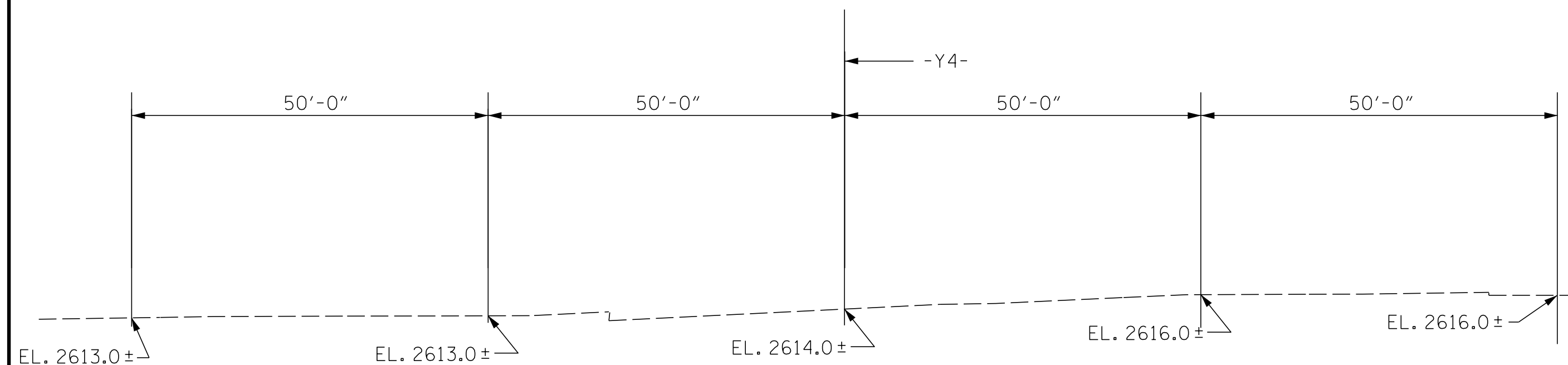
OVERTOPPING DISCHARGE = 1720 CFS  
 FREQUENCY OF OVERTOPPING FLOOD = 100+ YEAR  
 \* OVERTOPPING FLOOD ELEVATION = 2625.5  
 OVERTOPPING OCCURS AT  
 \* STA. 14+29 -Y4- +/- AT THE ROADWAY CENTERLINE



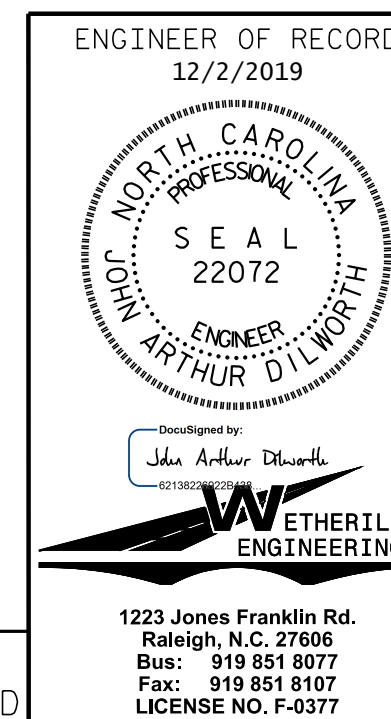
PROJECT NO. U-5888  
HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-

SHEET 1 OF 11 REPLACES BRIDGE NO. 460

TOTAL STRUCTURE QUANTITIES	
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	176 TONS
CLASS A CONCRETE	
BARREL @ 2.897 CY/FT	257.8 C.Y.
WINGS	58.3 C.Y.
HEADWALLS	2.6 C.Y.
STILLS	5.6 C.Y.
END CURTAIN WALLS	2.9 C.Y.
TOTAL	327.2 C.Y.
REINFORCING STEEL	
BARREL	38134 LBS.
WINGS	4218 LBS.
TOTAL	42352 LBS.
REMOVAL OF EXISTING STRUCTURE	LUMP SUM
GALVANIZED RAILS	164.88 LIN. FT.
CHANNEL SUBSTRATE MATERIAL	LUMP SUM



**PROFILE ALONG CULVERT**



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BARREL STANDARD  
 DOUBLE 11 FT. X 9 FT.  
 CONCRETE BOX CULVERT  
 121°-30'-00" SKEW**

NOVEMBER 1990		REVISIONS		SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			11
2			4			

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

DRAWN BY: J. PENDERGRAFT DATE: 11-18  
 12/2/2019 7:26:13 AM  
 CHECKED BY: J.A. DILWORTH DATE: 1-19

P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 12/2/2019 7:26:13 AM

## LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ <sub>L1</sub> )	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (FT)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.06	--	1.75	1.53	1	TOP SLAB	5.00	1.06	1	BOTTOM SLAB	10.95		
	HL-93 (OPERATING)	N/A		1.38	--	1.35	1.98	1	TOP SLAB	5.00	1.38	1	BOTTOM SLAB	10.95		
	HS-20 (INVENTORY)	36,000	②	1.21	43.56	1.75	1.70	1	TOP SLAB	5.00	1.21	1	BOTTOM SLAB	10.95		
	HS-20 (OPERATING)	36,000		1.57	56.52	1.35	2.20	1	TOP SLAB	5.00	1.57	1	BOTTOM SLAB	10.95		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		3.09	41.72	1.40	3.09	1	TOP SLAB	5.00	3.58	1	BOTTOM SLAB	10.95	
		SNGARBS2	20,000		2.42	48.40	1.40	2.89	1	TOP SLAB	5.00	2.42	1	BOTTOM SLAB	10.95	
		SNAGRIS2	22,000		2.21	48.62	1.40	3.09	1	TOP SLAB	5.00	2.21	1	BOTTOM SLAB	10.95	
		SNCOTTS3	27,250		1.64	44.69	1.40	2.01	1	TOP SLAB	5.00	1.64	1	TOP SLAB	10.50	
		SNAGGRS4	34,925		1.39	48.55	1.40	2.14	1	BOTTOM SLAB	11.67	1.39	1	BOTTOM SLAB	10.95	
		SNS5A	35,550		1.37	48.70	1.40	2.02	1	BOTTOM SLAB	11.67	1.37	1	BOTTOM SLAB	10.95	
		SNS6A	39,950		1.37	54.73	1.40	2.01	1	BOTTOM SLAB	11.67	1.37	1	BOTTOM SLAB	10.95	
		SNS7B	42,000		1.28	53.76	1.40	1.92	1	BOTTOM SLAB	11.67	1.28	1	BOTTOM SLAB	10.95	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.48	48.84	1.40	2.22	1	BOTTOM SLAB	11.67	1.48	1	BOTTOM SLAB	10.95	
		TNT4A	33,075		1.47	48.62	1.40	2.23	1	BOTTOM SLAB	11.67	1.47	1	BOTTOM SLAB	10.95	
		TNT6A	41,600		1.37	56.99	1.40	2.03	1	BOTTOM SLAB	11.67	1.37	1	BOTTOM SLAB	10.95	
		TNT7A	42,000		1.28	53.76	1.40	1.91	1	BOTTOM SLAB	11.67	1.28	1	BOTTOM SLAB	10.95	
		TNT7B	42,000		1.40	58.80	1.40	2.06	1	BOTTOM SLAB	11.67	1.40	1	BOTTOM SLAB	10.95	
		TNAGRIT4	43,000	③	1.14	49.02	1.40	1.77	1	BOTTOM SLAB	11.67	1.14	1	BOTTOM SLAB	10.95	
TNAGT5A	45,000		1.27	57.15	1.40	1.95	1	BOTTOM SLAB	11.67	1.27	1	BOTTOM SLAB	10.95			
TNAGT5B	45,000		1.16	52.20	1.40	1.74	1	BOTTOM SLAB	11.67	1.16	1	BOTTOM SLAB	10.95			

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

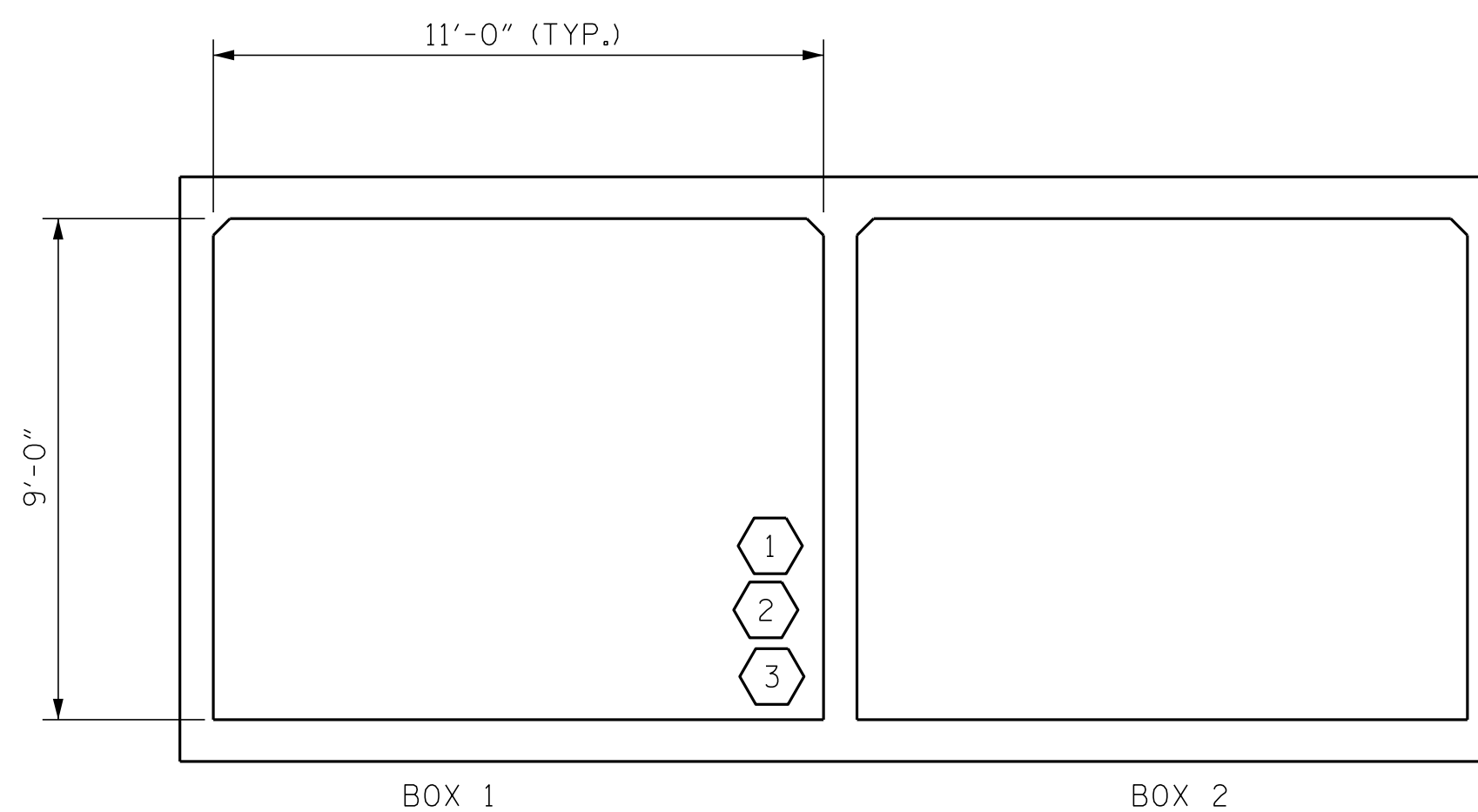
**NOTE:**

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

**COMMENTS:**

- 1.
- 2.
- 3.
- 4.

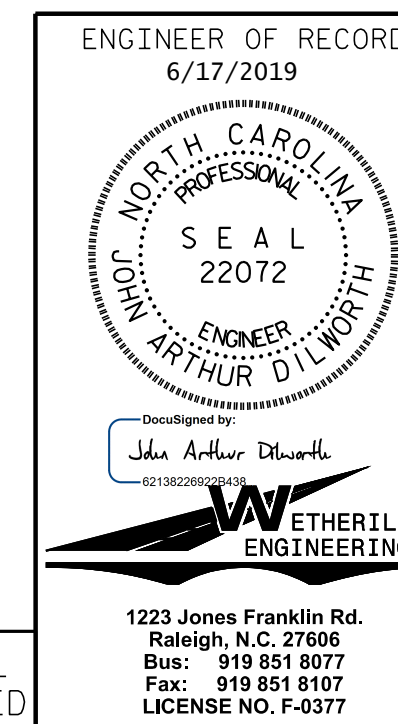
#	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
	** SEE CHART FOR VEHICLE TYPE



**LRFR SUMMARY**  
(LOOKING DOWNSTREAM)

PROJECT NO. U-5888  
HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-

SHEET 2 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 REINFORCED CONCRETE  
 BOX CULVERTS  
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C2
1			3			TOTAL SHEETS
2			4			11

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

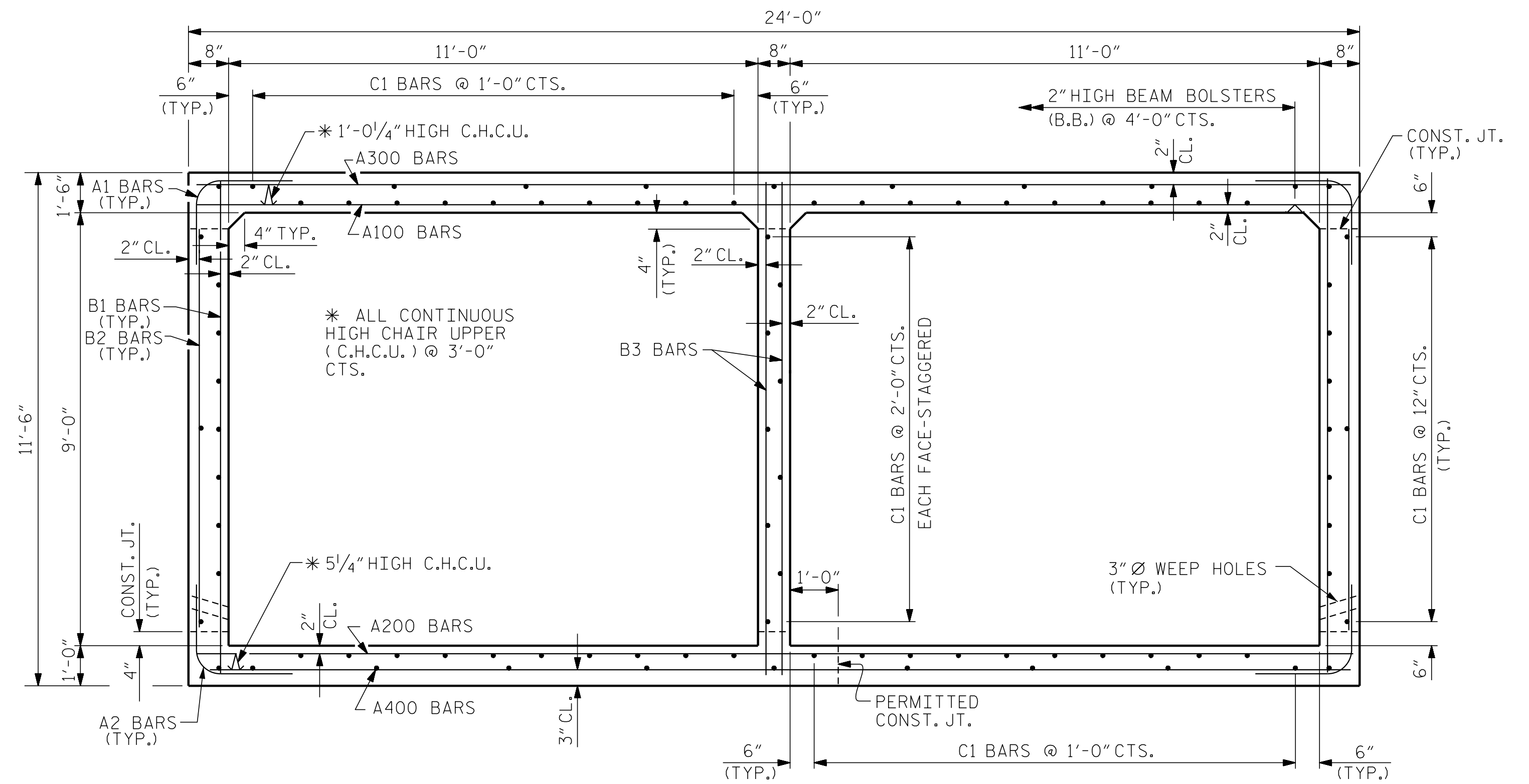
ASSEMBLED BY : B.C. HUNT	DATE : 11-2018
CHECKED BY : J. DILWORTH	DATE : 1-2019
DRAWN BY : WMC 7/11	REV. 10/1/11 MAA/GM
CHECKED BY : GM 7/11	REV. 12/17 MAA/THC



### BARREL REINFORCING STEEL

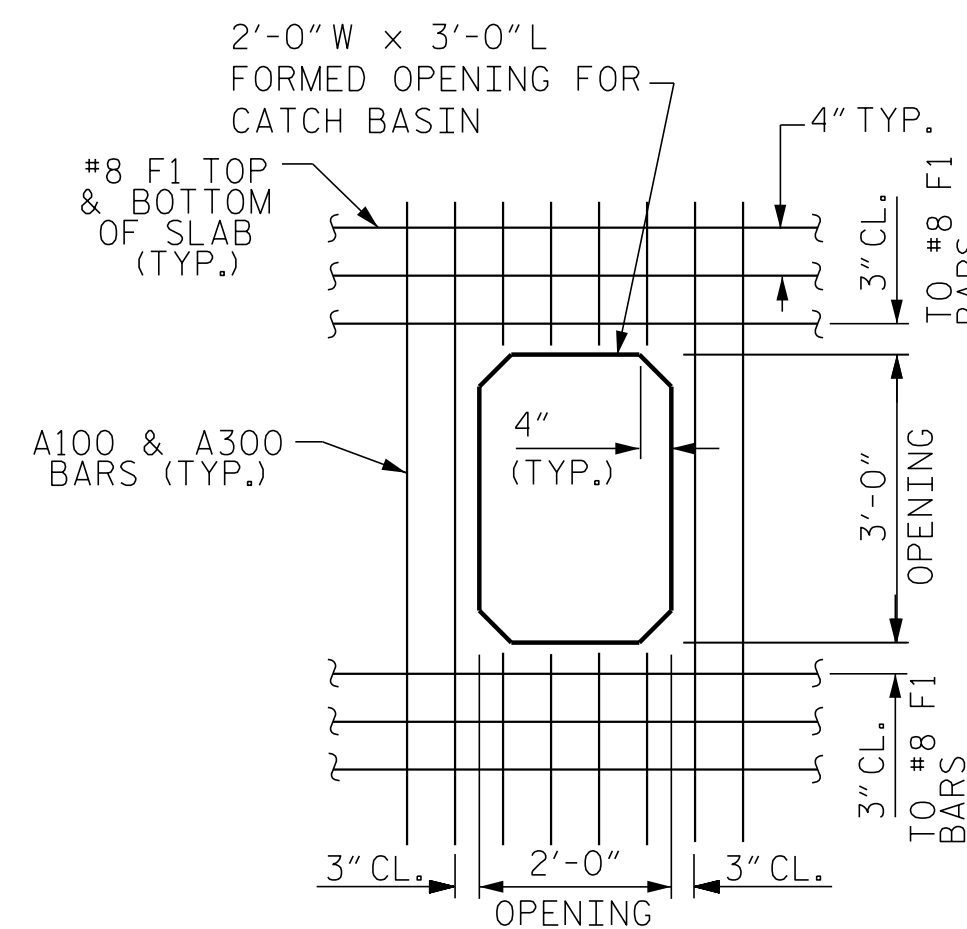
BAR	NO	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
A1	356	5	1	6'-4"	2352	A300	150	6	STR	23'-8"	5332	B1	214	4	STR	11'-1"	1584
A2	356	5	1	5'-9"	2135	A301	2	6	STR	23'-2"	70	B2	356	4	STR	8'-4"	1982
						A302	2	6	STR	22'-3"	67	B3	177	4	STR	11'-1"	1310
						A303	2	6	STR	21'-5"	64						
A100	150	5	STR	23'-8"	3703	A304	2	6	STR	20'-7"	62						
A101	2	5	STR	23'-2"	48	A305	2	6	STR	19'-8"	59	C1	364	4	STR	23'-8"	5755
A102	2	5	STR	22'-3"	46	A306	2	6	STR	18'-10"	57						
A103	2	5	STR	21'-5"	45	A307	2	6	STR	17'-11"	54	D1	15	6	STR	2'-7"	58
A104	2	5	STR	20'-7"	43	A308	2	6	STR	17'-1"	51	D2	27	6	STR	1'-7"	64
A105	2	5	STR	19'-8"	41	A309	2	6	STR	16'-3"	49						
A106	2	5	STR	18'-10"	39	A310	2	6	STR	15'-4"	46	E1	16	5	STR	4'-0"	67
A107	2	5	STR	17'-11"	37	A311	2	6	STR	14'-6"	44						
A108	2	5	STR	17'-1"	36	A312	2	6	STR	13'-8"	41	F1	12	8	STR	12'-6"	401
A109	2	5	STR	16'-3"	34	A313	2	6	STR	12'-9"	38						
A110	2	5	STR	15'-4"	32	A314	2	6	STR	11'-11"	36	G1	8	5	STR	27'-4"	228
A111	2	5	STR	14'-6"	30	A315	2	6	STR	11'-0"	33						
A112	2	5	STR	13'-8"	29	A316	2	6	STR	10'-2"	31	S2	12	8	STR	27'-4"	876
A113	2	5	STR	12'-9"	27	A317	2	6	STR	9'-4"	28						
A114	2	5	STR	11'-11"	25	A318	2	6	STR	8'-5"	25						
A115	2	5	STR	11'-0"	23	A319	2	6	STR	7'-7"	23						
A116	2	5	STR	10'-2"	21	A320	2	6	STR	6'-8"	20						
A117	2	5	STR	9'-4"	19	A321	2	6	STR	5'-10"	18						
A118	2	5	STR	8'-5"	18	A322	2	6	STR	5'-0"	15						
A119	2	5	STR	7'-7"	16	A323	2	6	STR	4'-1"	12						
A120	2	5	STR	6'-8"	14	A324	2	6	STR	3'-3"	10						
A121	2	5	STR	5'-10"	12	A325	2	6	STR	2'-4"	7						
A122	2	5	STR	5'-0"	10												
A123	2	5	STR	4'-1"	9	A400	150	6	STR	23'-8"	5332						
A124	2	5	STR	3'-3"	7	A401	2	6	STR	23'-2"	70						
A125	2	5	STR	2'-4"	5	A402	2	6	STR	22'-3"	67						
						A403	2	6	STR	21'-5"	64						
A200	150	5	STR	23'-8"	3703	A404	2	6	STR	20'-7"	62						
A201	2	5	STR	23'-2"	48	A405	2	6	STR	19'-8"	59						
A202	2	5	STR	22'-3"	46	A406	2	6	STR	18'-10"	57						
A203	2	5	STR	21'-5"	45	A407	2	6	STR	17'-11"	54						
A204	2	5	STR	20'-7"	43	A408	2	6	STR	17'-1"	51						
A205	2	5	STR	19'-8"	41	A409	2	6	STR	16'-3"	49						
A206	2	5	STR	18'-10"	39	A410	2	6	STR	15'-4"	46						
A207	2	5	STR	17'-11"	37	A411	2	6	STR	14'-6"	44						
A208	2	5	STR	17'-1"	36	A412	2	6	STR	13'-8"	41						
A209	2	5	STR	16'-3"	34	A413	2	6	STR	12'-9"	38						
A210	2	5	STR	15'-4"	32	A414	2	6	STR	11'-11"	36						
A211	2	5	STR	14'-6"	30	A415	2	6	STR	11'-0"	33						
A212	2	5	STR	13'-8"	29	A416	2	6	STR	10'-2"	31						
A213	2	5	STR	12'-9"	27	A417	2	6	STR	9'-4"	28						
A214	2	5	STR	11'-11"	25	A418	2	6	STR	8'-5"	25						
A215	2	5	STR	11'-0"	23	A419	2	6	STR	7'-7"	23						
A216	2	5	STR	10'-2"	21	A420	2	6	STR	6'-8"	20						
A217	2	5	STR	9'-4"	19	A421	2	6	STR	5'-10"	18						
A218	2	5	STR	8'-5"	18	A422	2	6	STR	5'-0"	15						
A219	2	5	STR	7'-7"	16	A423	2	6	STR	4'-1"	12						
A220	2	5	STR	6'-8"	14	A424	2	6	STR	3'-3"	10						
A221	2	5	STR	5'-10"	12	A425	2	6	STR	2'-4"	7						
A222	2	5	STR	5'-0"	10												
A223	2	5	STR	4'-1"	9												
A224	2	5	STR	3'-3"	7												
A225	2	5	STR	2'-4"	5												

REINFORCING STEEL 38,134 LBS

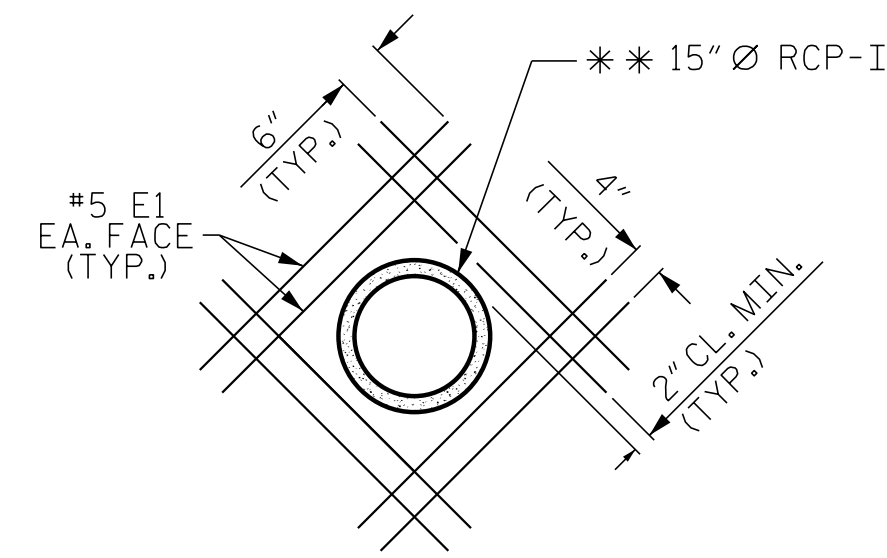


### RIGHT ANGLE SECTION OF BARREL

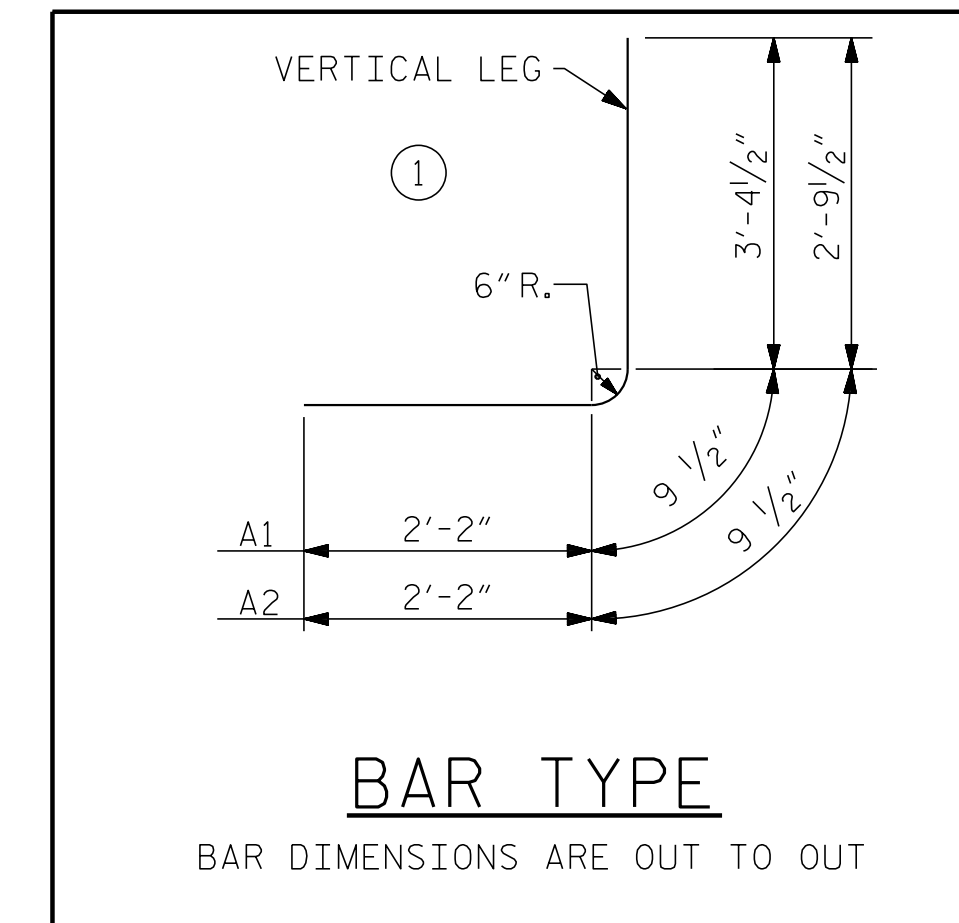
THERE ARE 91 "C" BARS IN SECTION OF BARREL.



PLAN - FORMED OPENING IN ROOF SLAB



ELEV. - 15" Ø PIPE THRU EXTERIOR WALL DETAIL



### BAR TYPE

BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTHS CHART		
BAR	SIZE	SPLICE LENGTH
A200	#5	2'-2"
A400	#6	2'-9"
"B"	#4	1'-9"
C1	#4	1'-11"

NOTE:  
 \* \* THE 15" Ø PIPE THRU THE EXTERIOR WALL OF THE CULVERT AND 2'-0" W X 3'-0" L FORMED OPENING IN ROOF SLAB IS SHOWN IN IT'S APPROXIMATE LOCATION, THE FINAL LOCATION SHALL BE VERIFIED BY THE ENGINEER PRIOR TO POURING THE CULVERT WALLS AND ROOF SLAB. FIELD BEND AND/OR CUT A1, C1, B1 & B2 BARS ONLY AS NECESSARY TO AVOID CONFLICT WITH THE PROPOSED 15" Ø RCP. CUT A100 & A300 BARS TO PROVIDE 2" CLEARANCE TO FORMED OPENING. SEE DRAINAGE SUMMARY SHEET FOR INVERT ELEVATION.

PROJECT NO. U-5888  
HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-

SHEET 4 OF 11

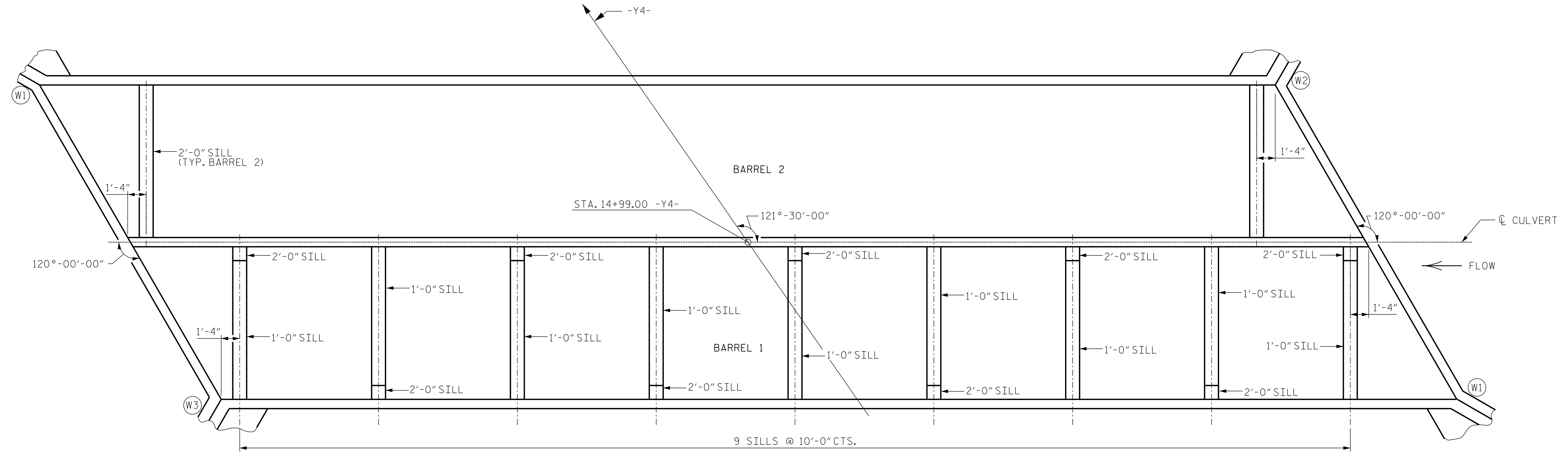
ENGINEER OF RECORD  
 6/17/2019  
  
 John Arthur Dilworth  
 ETHERILL ENGINEERING  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 LICENSE NO. F-6377

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 DOUBLE  
 11 FT. X 9 FT.  
 CONCRETE BOX CULVERT

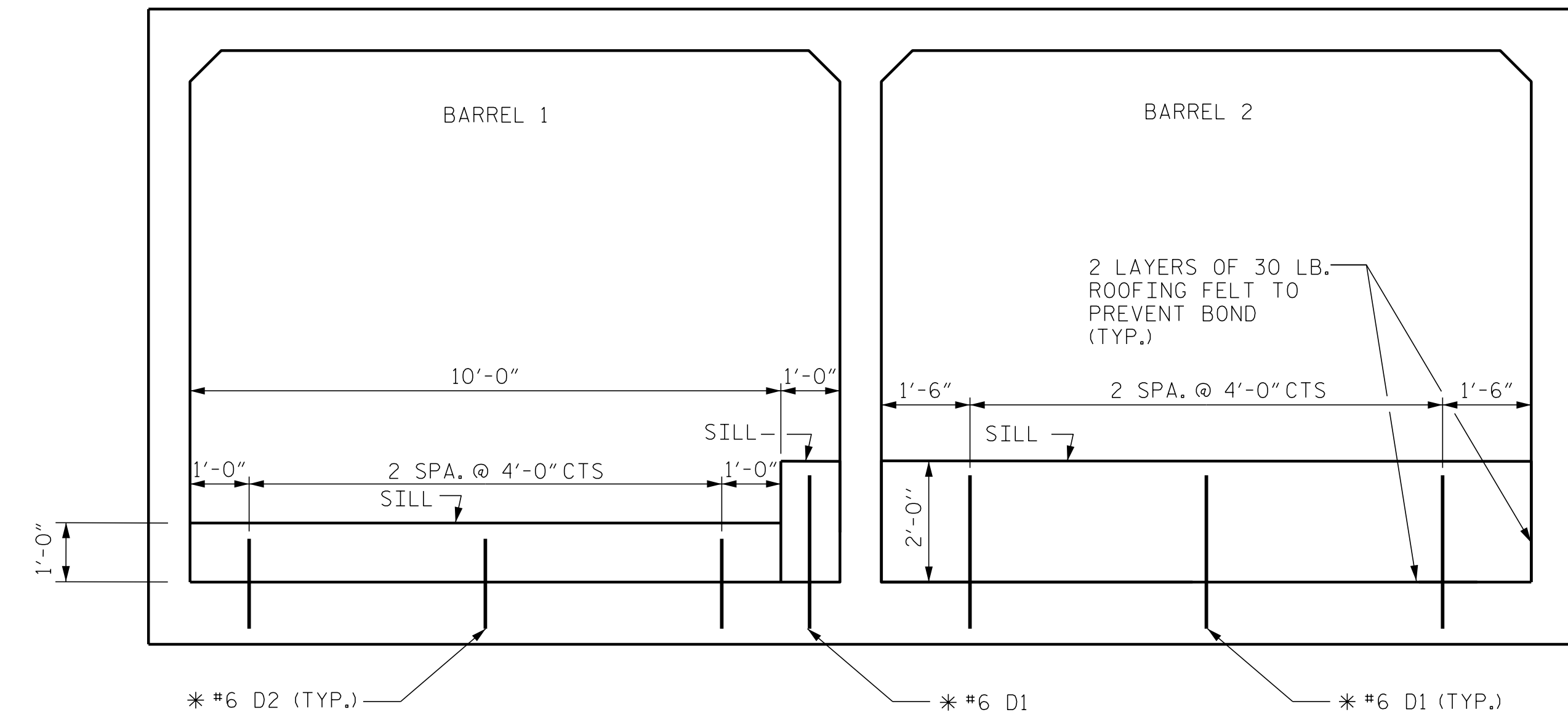
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C4
1			3			TOTAL SHEETS
2			4			11

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

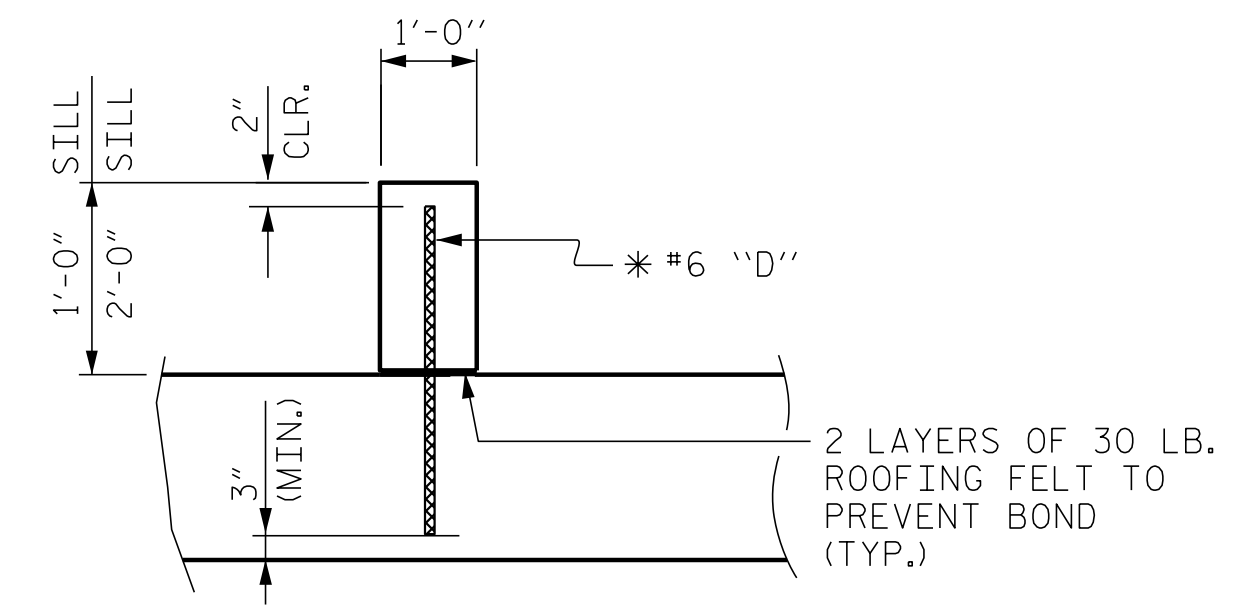
DRAWN BY: J. PENDERGRAFT DATE: 12-18  
 CHECKED BY: J. DILWORTH DATE: 1-19



**PLAN - SILL LOCATION**  
SHOWING PLACEMENT OF SILLS



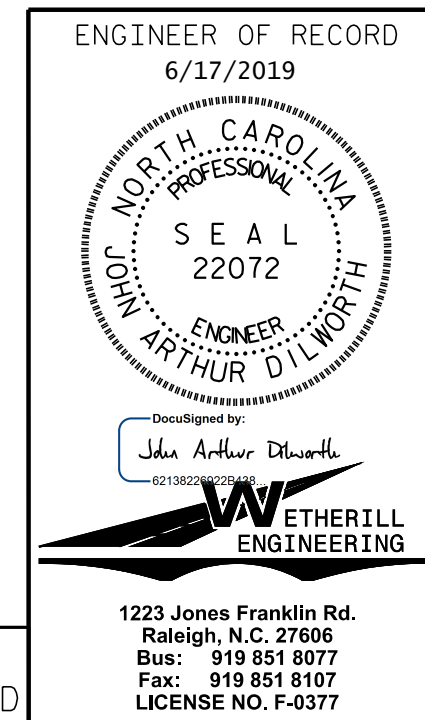
**INLET ELEVATION**  
LOOKING DOWNSTREAM



**SECTION THROUGH SILL**  
\* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.  
SEE "PLAN - SILL LOCATIONS" FOR SILL LOCATIONS

**CULVERT SILL DETAILS**

PROJECT NO. U-5888  
HAYWOOD COUNTY  
STATION: 14+99.00 -Y4-  
SHEET 5 OF 11



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**DOUBLE 11 FT. X 9 FT.  
CONCRETE BOX CULVERT  
120° SKEW**

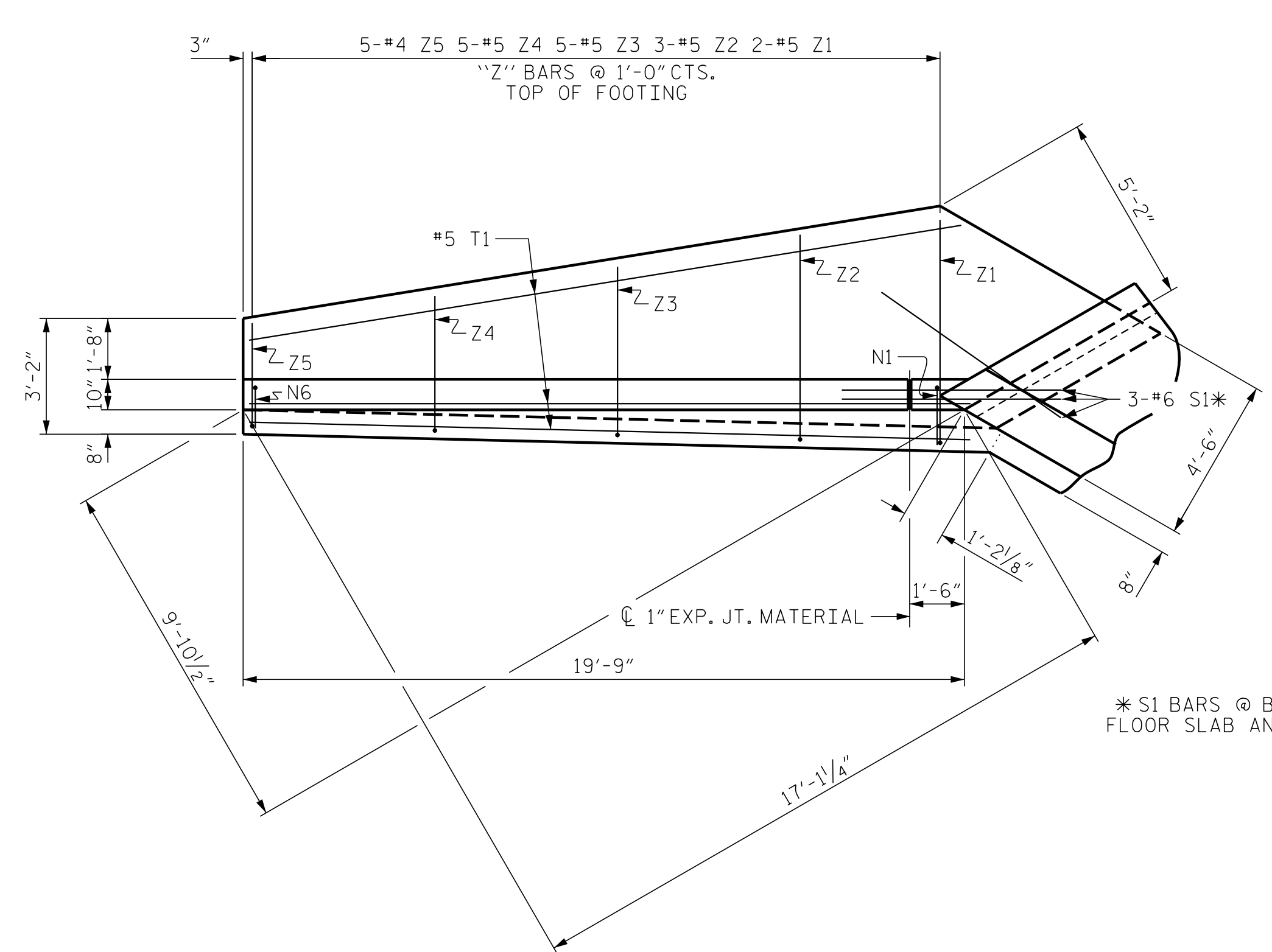
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C5
1			3			TOTAL SHEETS
2			4			11

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-6377

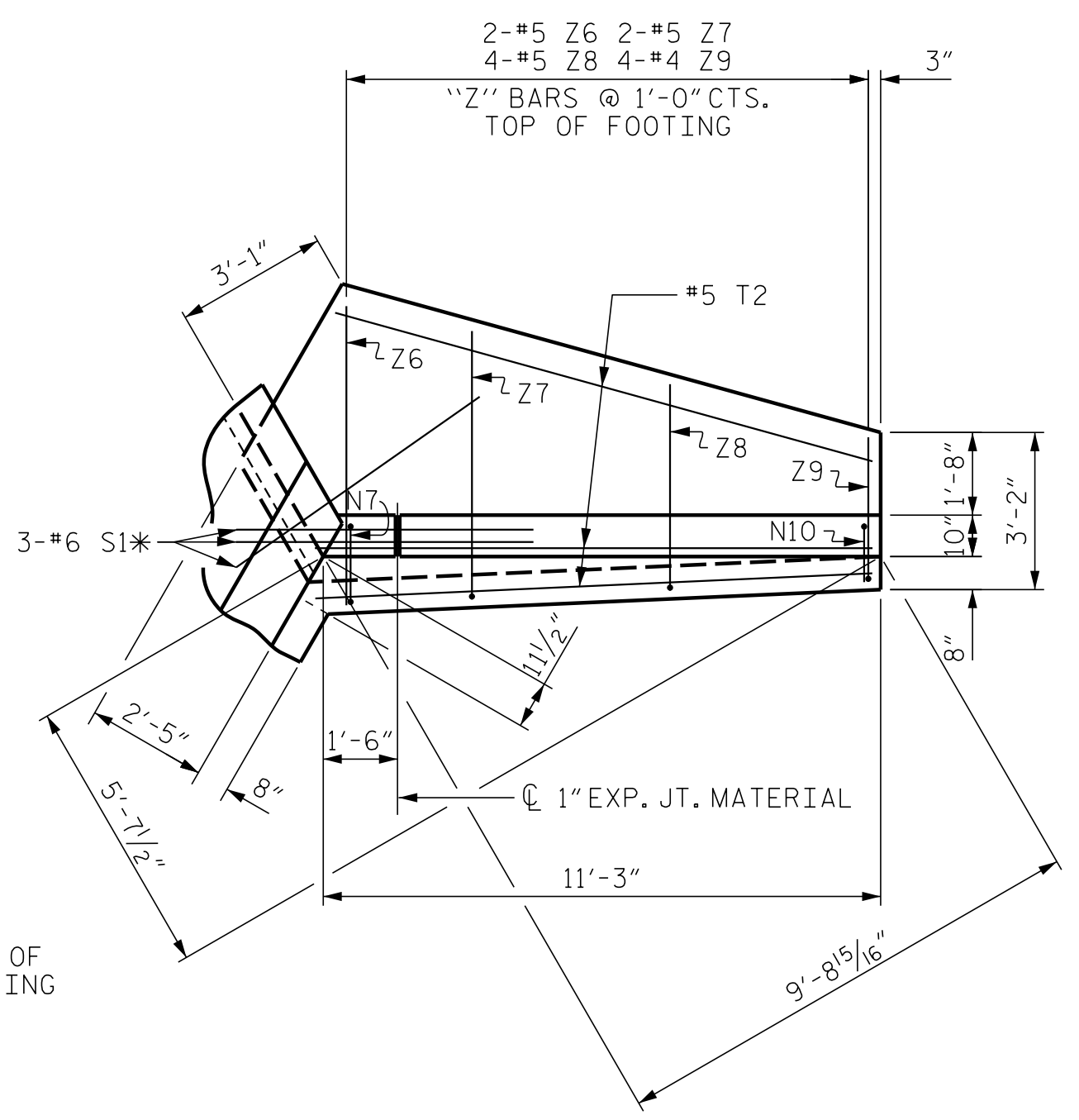
DRAWN BY : J. PENDERGRAFT DATE : 1-19  
CHECKED BY : J. DILWORTH DATE : 1-19

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

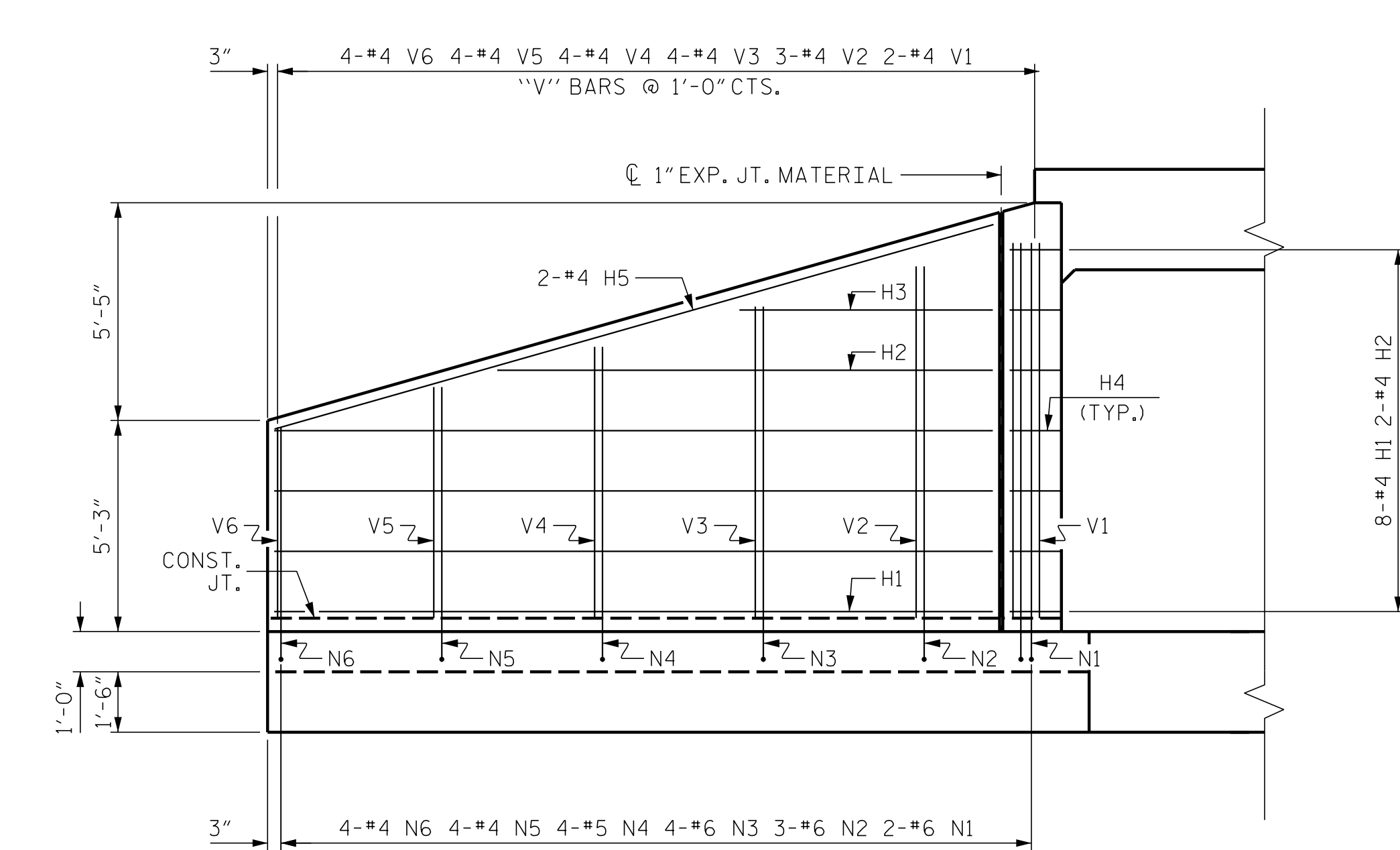
P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 6/17/2019 10:17:02 AM



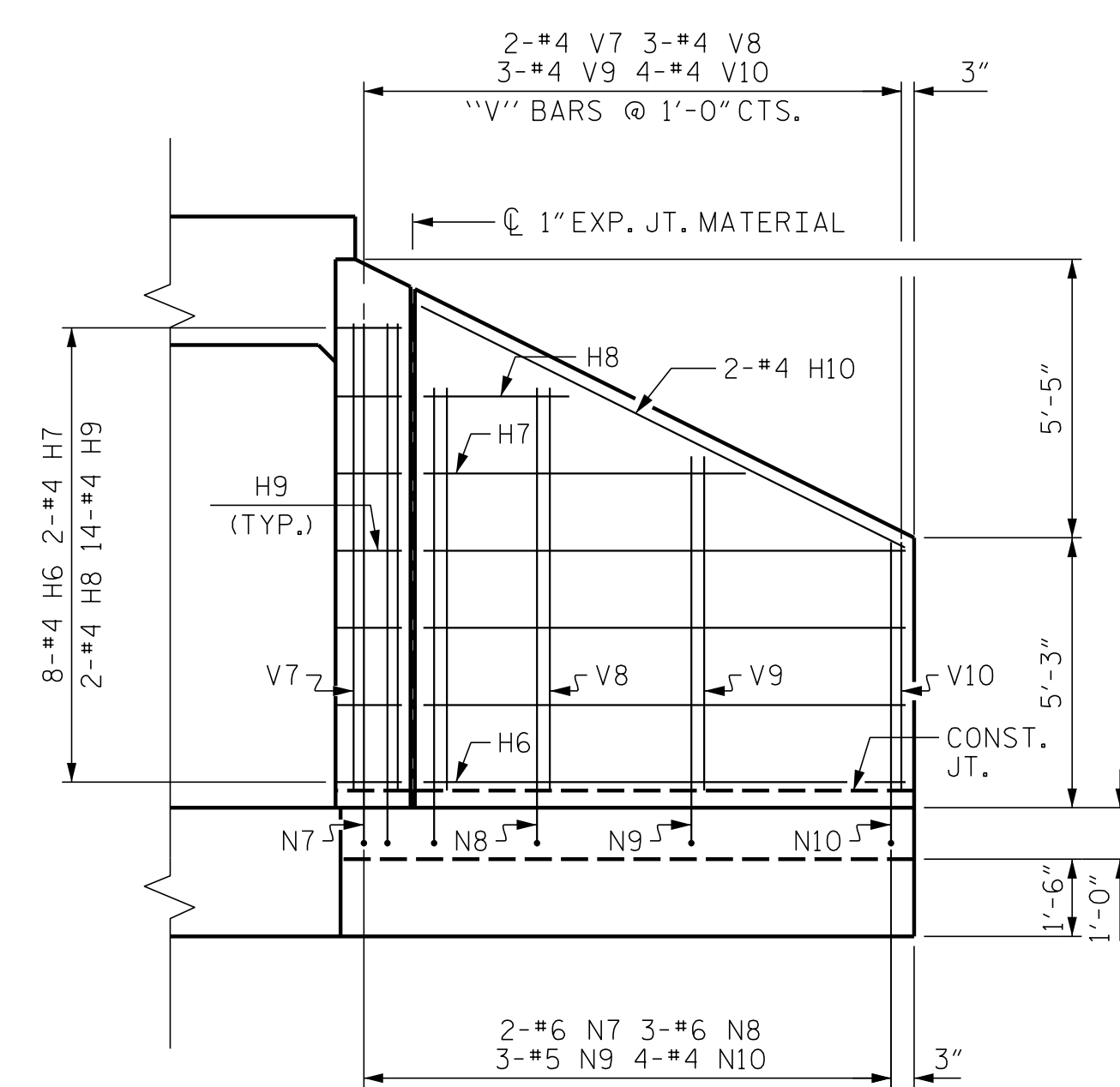
PLAN (W1)



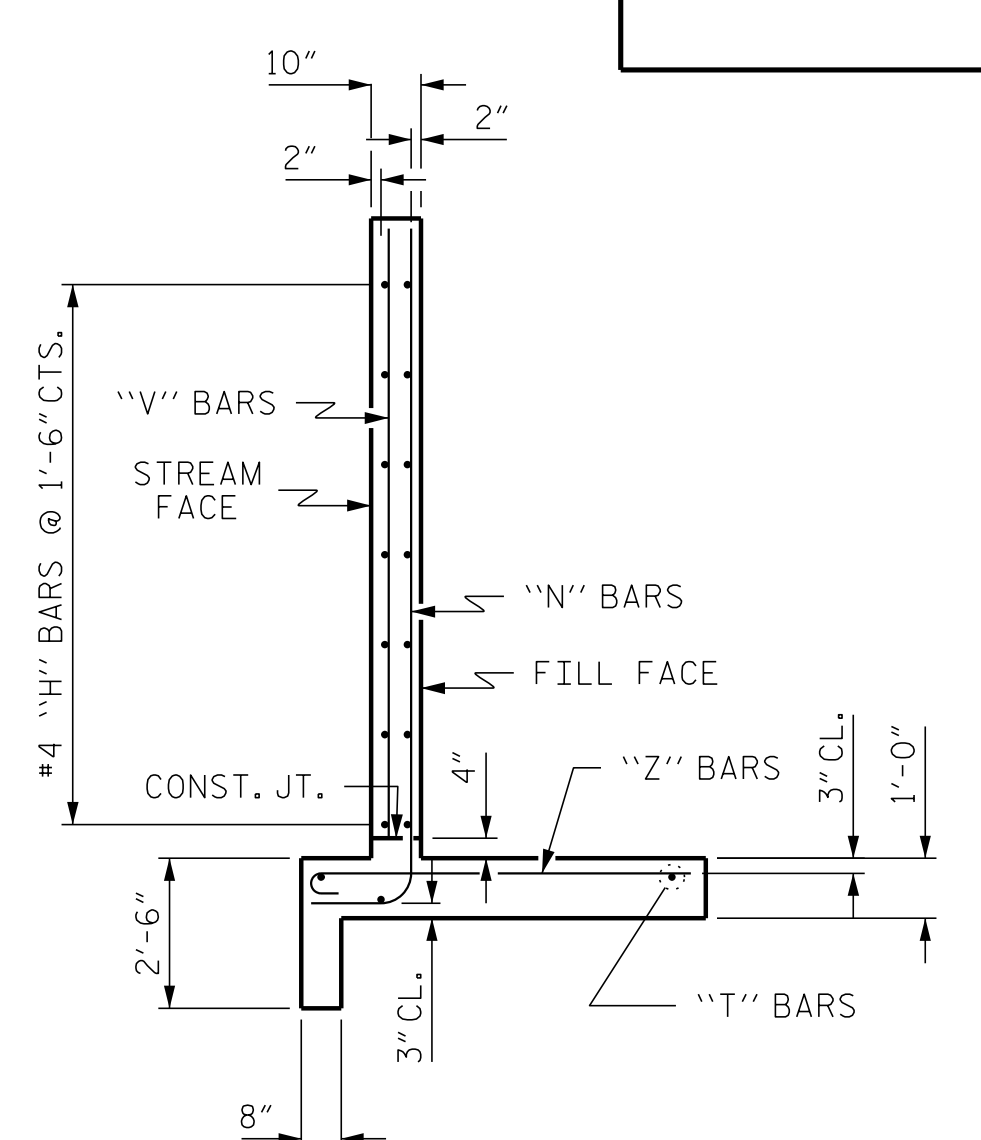
PLAN (W2)



ELEVATION (W1)



ELEVATION (W2)



TYPICAL WING SECTION

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

1

2

3

4

6" RAD.

8"

9 1/2"

N1 N2 N3 N4 N5 N6 N7 N8 N9 N10

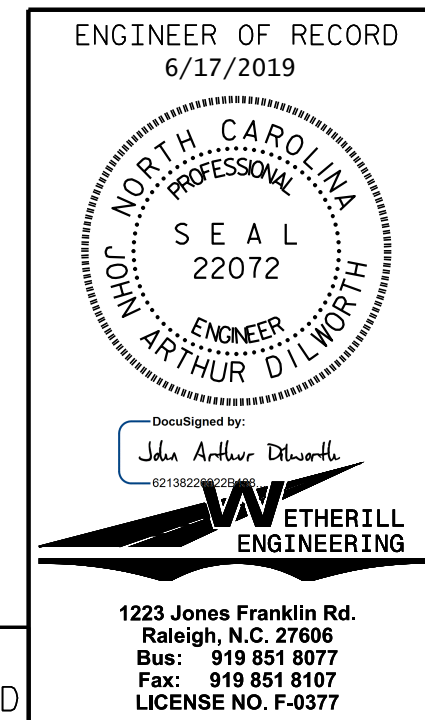
9'-10 1/2"  
9'-3 1/2"  
8'-4 1/2"  
7'-4 1/2"  
6'-4 1/2"  
5'-4 1/2"  
9'-8 1/2"  
8'-5 1/2"  
7'-1 1/2"  
5'-4 1/2"

Z1 6'-2" 7"  
Z2 5'-8" 7"  
Z3 4'-8" 7"  
Z4 3'-9" 7"  
Z5 2'-10" 6"  
Z6 6'-0" 7"  
Z7 5'-5" 7"  
Z8 4'-2" 7"  
Z9 2'-10" 6"

HK.

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	17'-10"	191
H2	4	#4	STR	12'-4"	33
H3	4	#4	STR	6'-3"	17
H4	28	#4	1	3'-3"	61
H5	4	#4	STR	18'-5"	49
H6	8	#4	STR	9'-4"	50
H7	2	#4	STR	6'-3"	8
H8	2	#4	STR	2'-10"	4
H9	14	#4	2	3'-3"	30
H10	2	#4	STR	10'-2"	14
N1	4	#6	3	11'-4"	68
N2	6	#6	3	10'-9"	97
N3	8	#6	3	9'-10"	118
N4	8	#5	3	8'-10"	74
N5	8	#4	3	7'-10"	42
N6	8	#4	3	6'-10"	37
N7	2	#6	3	11'-2"	34
N8	3	#6	3	9'-11"	45
N9	3	#5	3	8'-7"	27
N10	4	#4	3	6'-10"	18
S1	9	#6	STR	6'-0"	81
T1	6	#5	STR	19'-9"	124
T2	3	#5	STR	11'-3"	35
V1	4	#4	STR	9'-4"	25
V2	6	#4	STR	8'-9"	35
V3	8	#4	STR	7'-9"	41
V4	8	#4	STR	6'-9"	36
V5	8	#4	STR	5'-9"	31
V6	8	#4	STR	4'-9"	25
V7	2	#4	STR	9'-1"	12
V8	3	#4	STR	7'-10"	16
V9	3	#4	STR	6'-6"	13
V10	4	#4	STR	4'-10"	13
Z1	4	#5	4	6'-9"	28
Z2	6	#5	4	6'-3"	39
Z3	10	#5	4	5'-3"	55
Z4	10	#5	4	4'-4"	45
Z5	10	#4	4	3'-4"	22
Z6	2	#5	4	6'-7"	14
Z7	2	#5	4	6'-0"	13
Z8	4	#5	4	4'-9"	20
Z9	4	#4	4	3'-4"	9
REINFORCING STEEL					1749 LBS
FOR 3 WINGS					
CLASS A CONCRETE					
3 WINGS					24.5 CY
TOTAL					24.5 CY

PROJECT NO. U-5888  
 HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-  
 SHEET 6 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

WINGS  
 FOR  
 CONCRETE BOX CULVERT  
 H = 9'-0" SLOPE = 2:1  
 120° SKEW

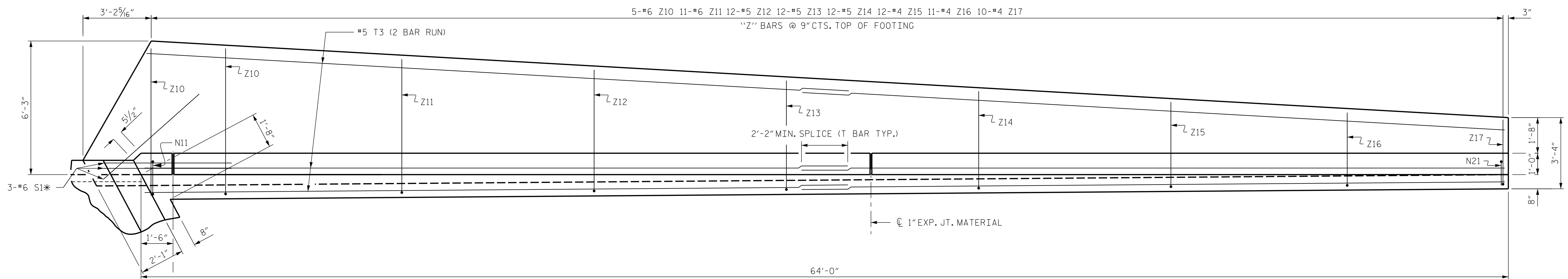
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C6  
 TOTAL SHEETS 11

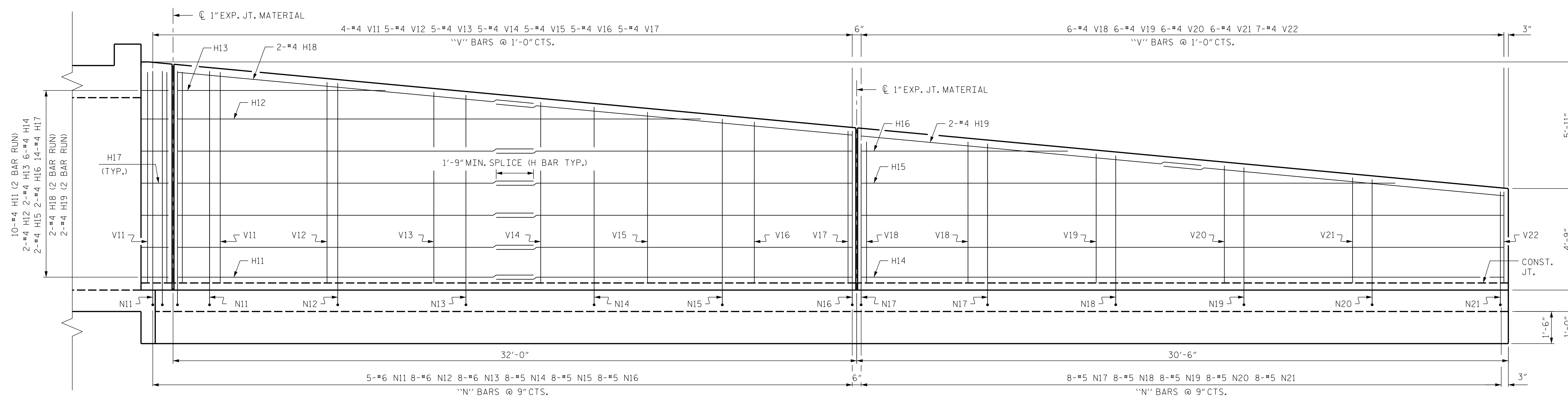
DRAWN BY: A.J. KLINK DATE: 1-19  
 CHECKED BY: J.A. DILWORTH DATE: 1-19

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 6/17/2019 10:17:23 AM

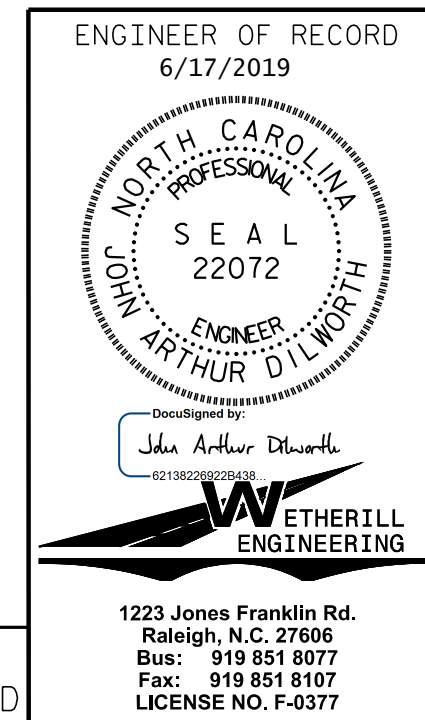


PLAN (W3)



ELEVATION (W3)

PROJECT NO. U-5888  
HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-  
 SHEET 7 OF 11



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
WINGS FOR CONCRETE BOX CULVERT H = 9'-0" SLOPE = 2:1 120° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. C7
					TOTAL SHEETS 11

DRAWN BY: A.J. KLINK DATE: 1-19  
 CHECKED BY: B.C. HUNT DATE: 2-19

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

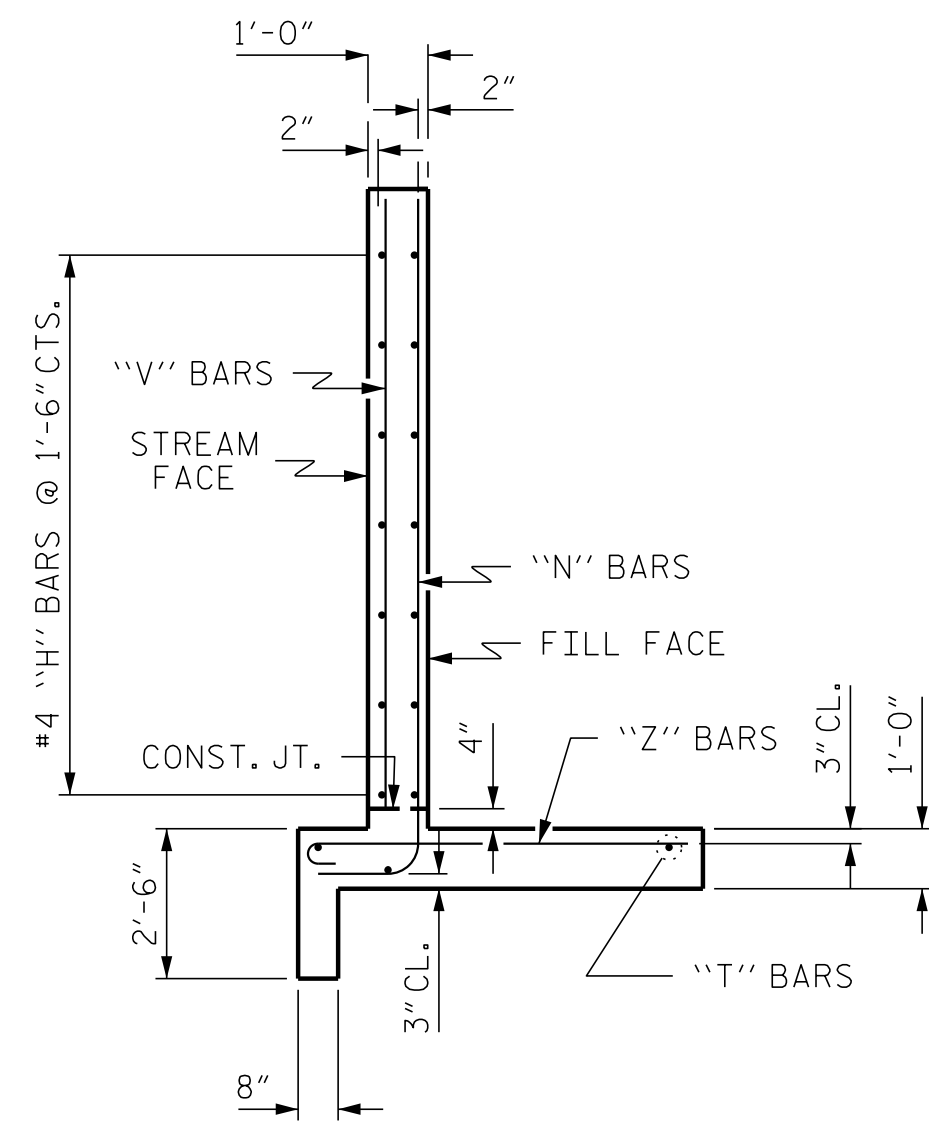
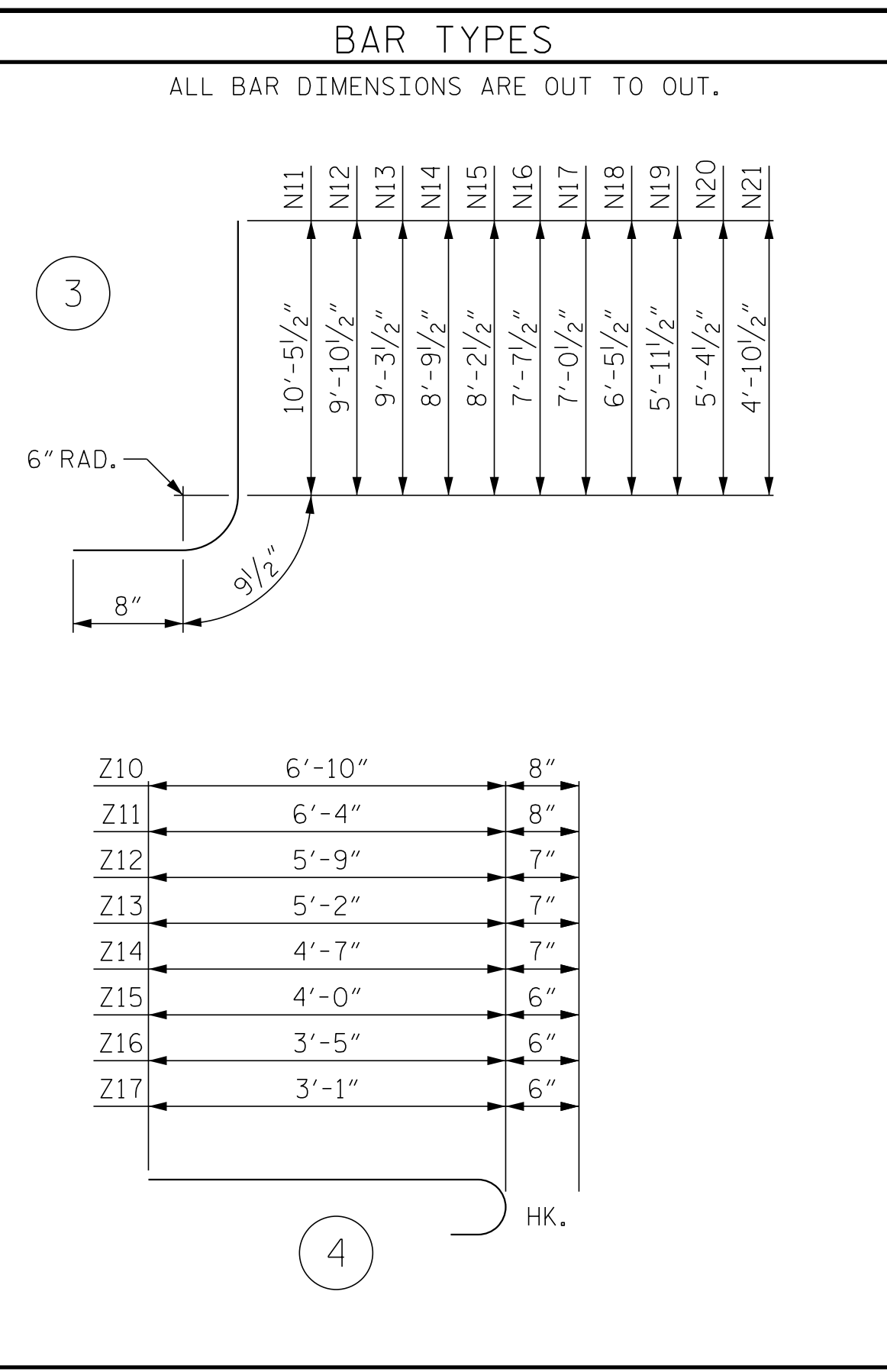
P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 6/17/2019 10:17:45 AM



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H11	20	#4	STR	16'-8"	223
H12	2	#4	STR	24'-6"	33
H13	2	#4	STR	8'-6"	11
H14	6	#4	STR	30'-0"	120
H15	2	#4	STR	24'-10"	33
H16	2	#4	STR	8'-9"	12
H17	14	#4	STR	3'-3"	30
H18	4	#4	STR	16'-9"	45
H19	4	#4	STR	16'-0"	43
N11	5	#6	3	11'-11"	89
N12	8	#6	3	11'-4"	136
N13	8	#6	3	10'-9"	129
N14	8	#5	3	10'-3"	86
N15	8	#5	3	9'-8"	81
N16	8	#5	3	9'-1"	76
N17	8	#5	3	8'-6"	71
N18	8	#5	3	7'-11"	66
N19	8	#5	3	7'-5"	62
N20	8	#5	3	6'-10"	57
N21	8	#5	3	6'-4"	53
S1	3	#6	STR	6'-0"	27
T3	6	#5	STR	32'-11"	206
V11	4	#4	STR	9'-10"	26
V12	5	#4	STR	9'-5"	31
V13	5	#4	STR	8'-11"	30
V14	5	#4	STR	8'-5"	28
V15	5	#4	STR	8'-0"	27
V16	5	#4	STR	7'-6"	25
V17	5	#4	STR	7'-1"	24
V18	6	#4	STR	6'-7"	26
V19	6	#4	STR	6'-0"	24
V20	6	#4	STR	5'-6"	22
V21	6	#4	STR	4'-11"	20
V22	7	#4	STR	4'-3"	20

Z10	5	#6	4	7'-6"	56
Z11	11	#6	4	7'-0"	116
Z12	12	#5	4	6'-4"	79
Z13	12	#5	4	5'-9"	72
Z14	12	#5	4	5'-2"	65
Z15	12	#4	4	4'-6"	36
Z16	11	#4	4	3'-11"	29
Z17	10	#4	4	3'-7"	24

REINFORCING STEEL	2469 LBS
FOR 1 WING	
CLASS A CONCRETE	
1 WING	33.8 CY
<b>TOTAL</b>	<b>33.8 CY</b>



TYPICAL WING SECTION (W3)

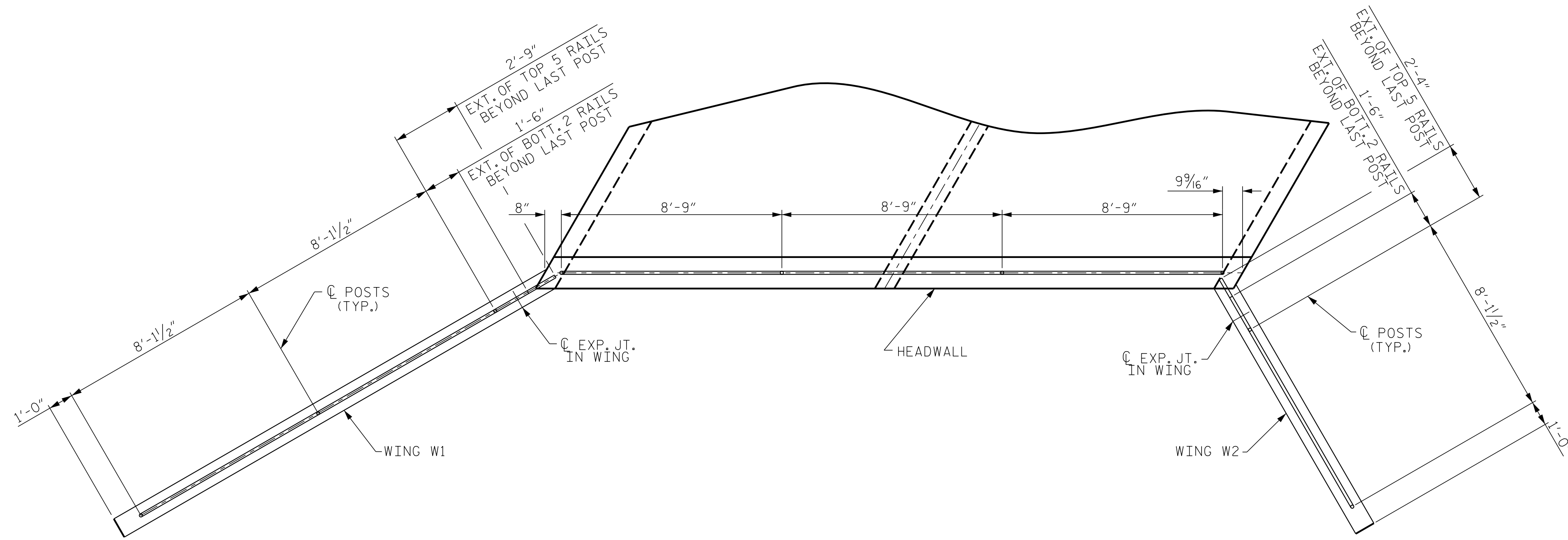
P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 6/17/2019 10:18:32 AM

DRAWN BY : A.J. KLINK DATE : 2-19  
 CHECKED BY : B.C. HUNT DATE : 2-19

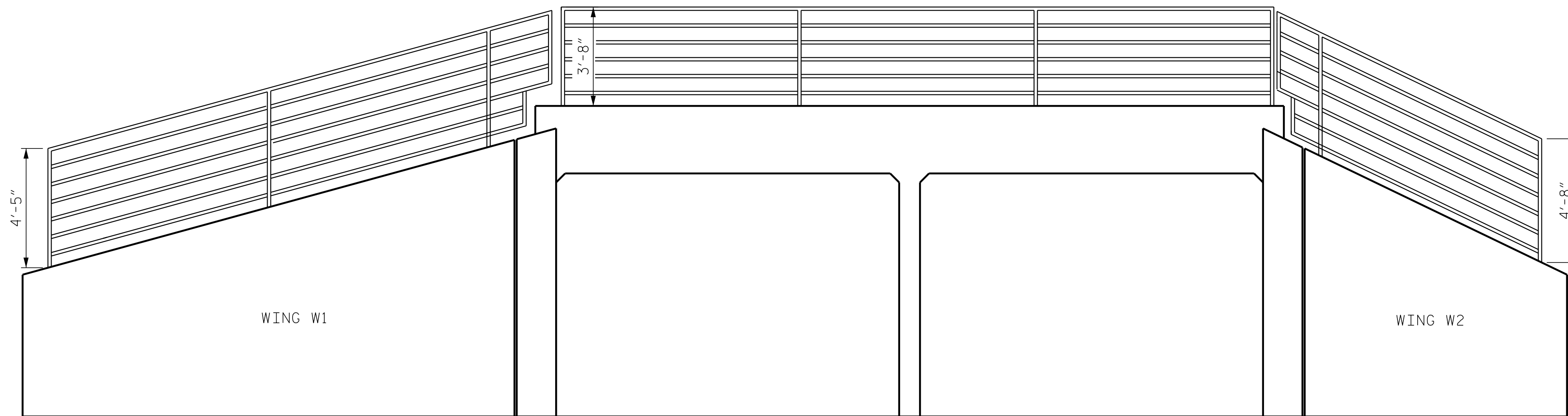
PROJECT NO. U-5888  
HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-  
 SHEET 8 OF 11

	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH WINGS FOR CONCRETE BOX CULVERT H = 9'-0" SLOPE = 2:1 120° SKEW			
	REVISIONS			
ENGINEER OF RECORD 6/17/2019 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22072 ARTHUR D. WORTH Designated by: John Arthur D. Worth WETHERILL ENGINEERING 1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-6377	SHEET NO. C8	TOTAL SHEETS 11		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



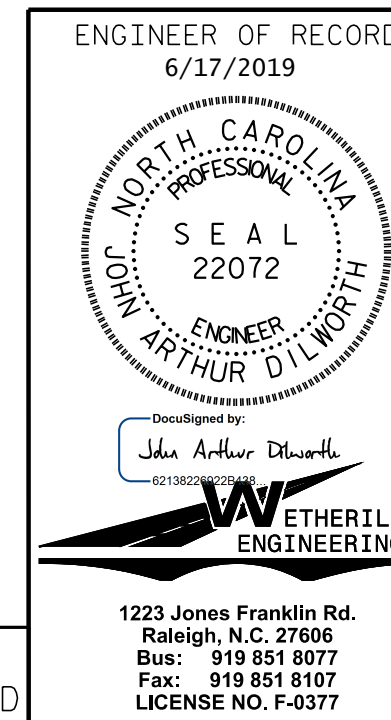
PLAN OF INLET END



ELEVATION OF INLET END  
LOOKING DOWNSTREAM  
(WINGS UNFOLED)

PROJECT NO. U-5888  
HAYWOOD COUNTY  
STATION: 14+99.00 -Y4-

SHEET 9 OF 11



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

RAIL  
DETAILS

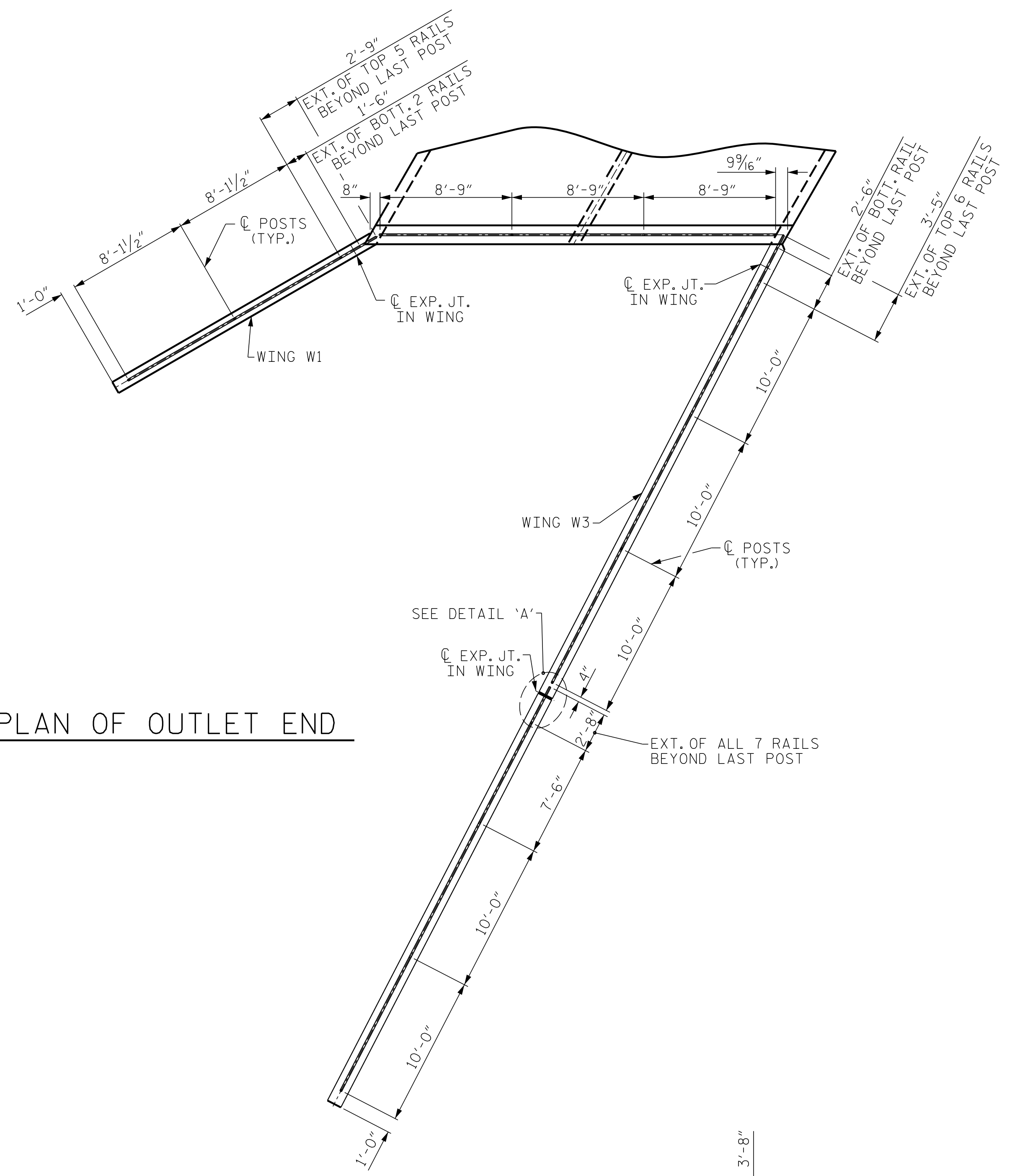
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C9
1			3			TOTAL SHEETS
2			4			11

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-6377

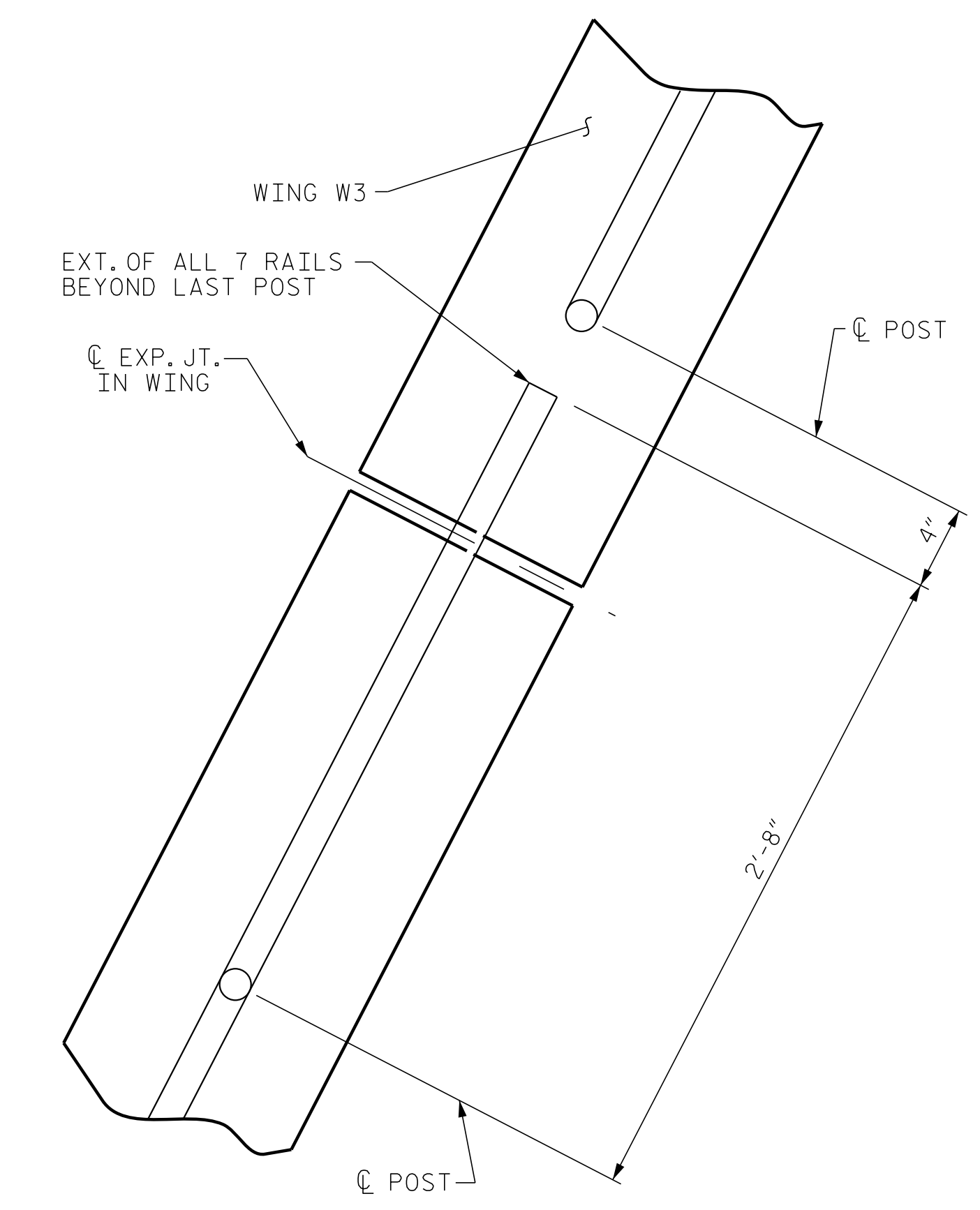
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : B.C. HUNT DATE : 1-19  
CHECKED BY : D.A. HODGE DATE : 2-19

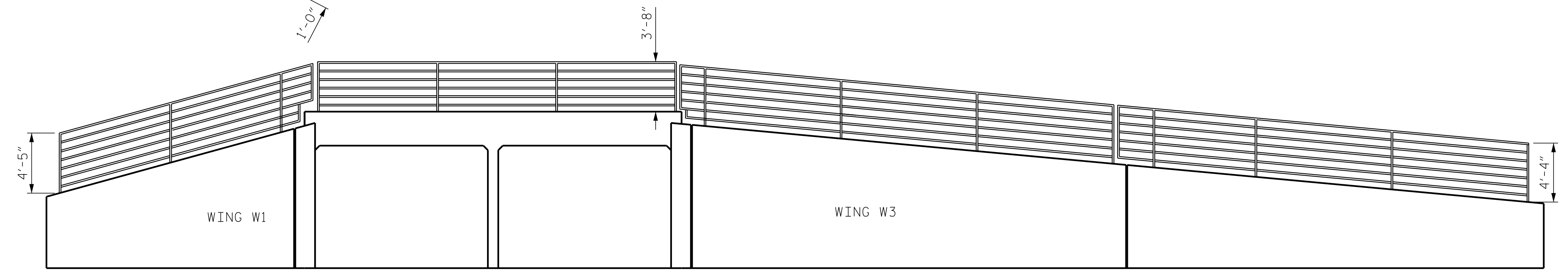
P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 6/17/2019 10:18:53 AM



PLAN OF OUTLET END



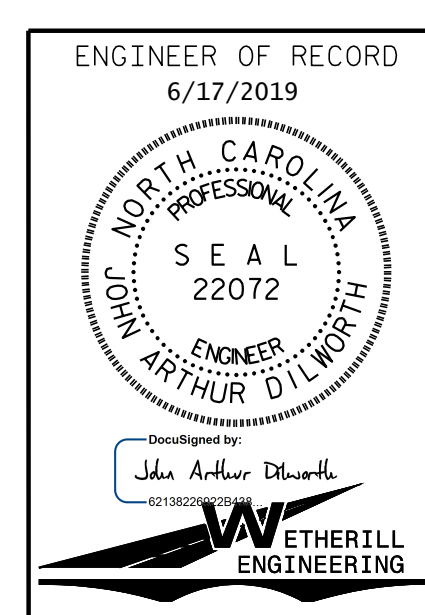
DETAIL 'A'



ELEVATION OF OUTLET END  
LOOKING UPSTREAM  
(WINGS UNFOLDED)

PROJECT NO. U-5888  
HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-

SHEET 10 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

RAIL  
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C10
1			3			TOTAL SHEETS
2			4			11

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 6/17/2019 10:19:11 AM

DRAWN BY : B.C. HUNT DATE : 1-19  
 CHECKED BY : D.A. HODGE DATE : 2-19

1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 LICENSE NO. F-6377

**NOTES:**

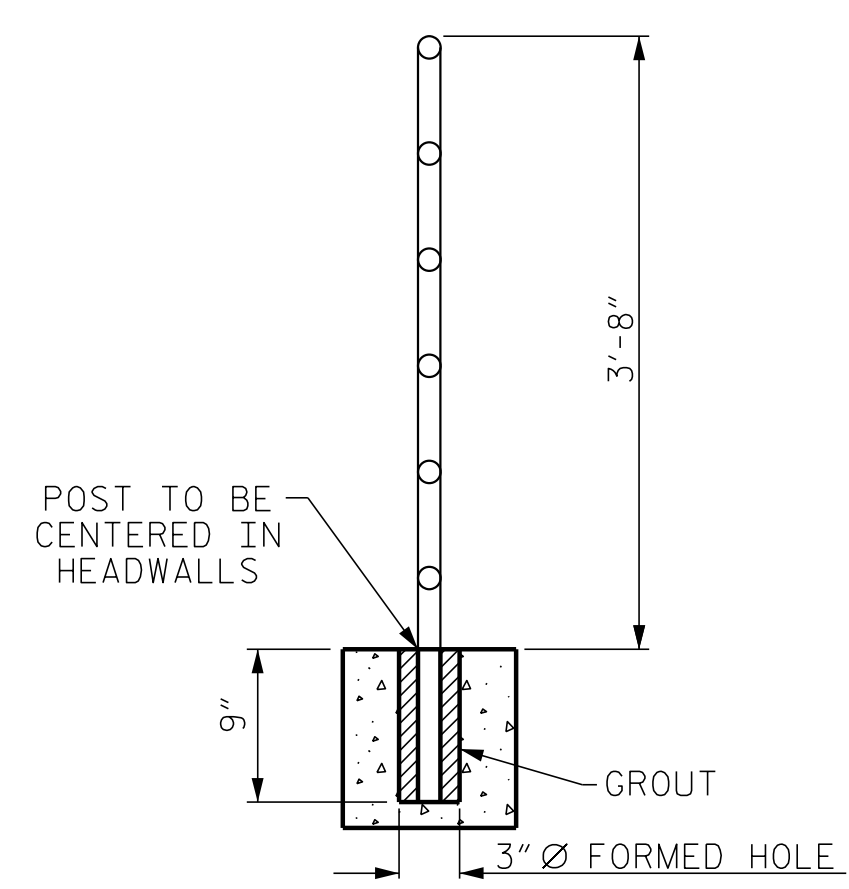
CONSTRUCT PROPOSED STEEL PIPE RAIL 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

EMBED PIPE RAIL INTO PROPOSED HEADWALLS AND WINGS AS SHOWN ON THE PLANS AND GROUT INTO PLACE. FOR GROUT, SEE SPECIAL PROVISIONS.

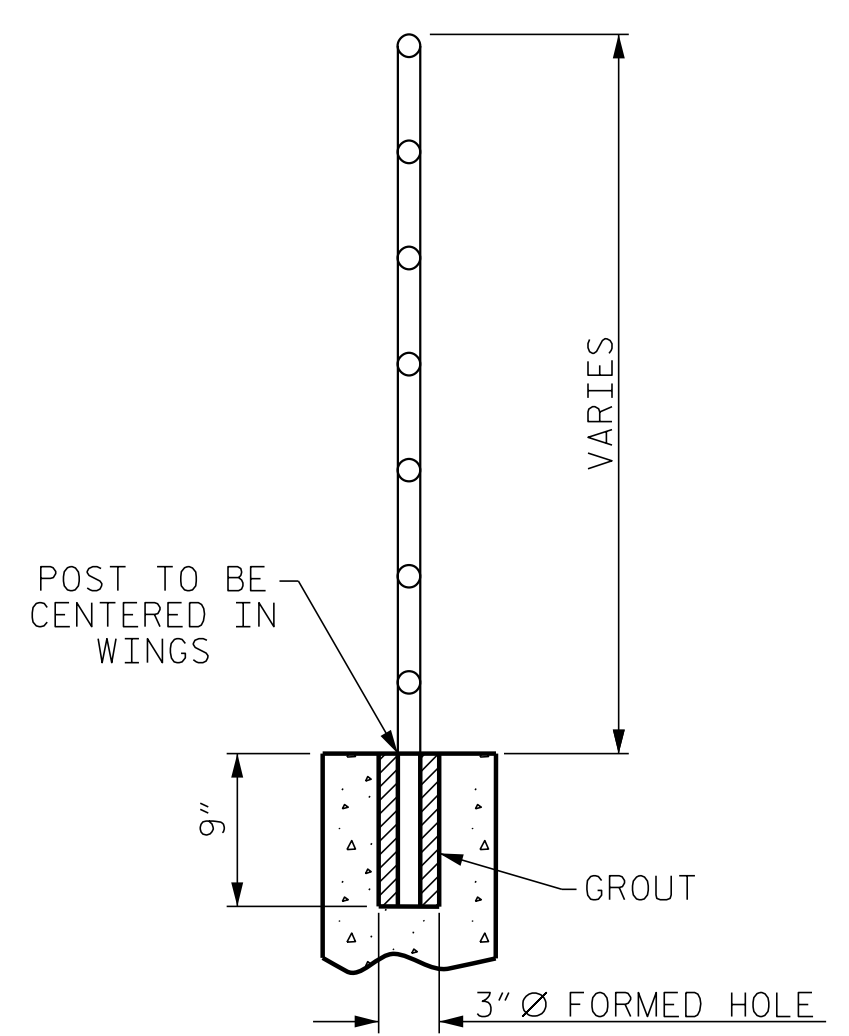
REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

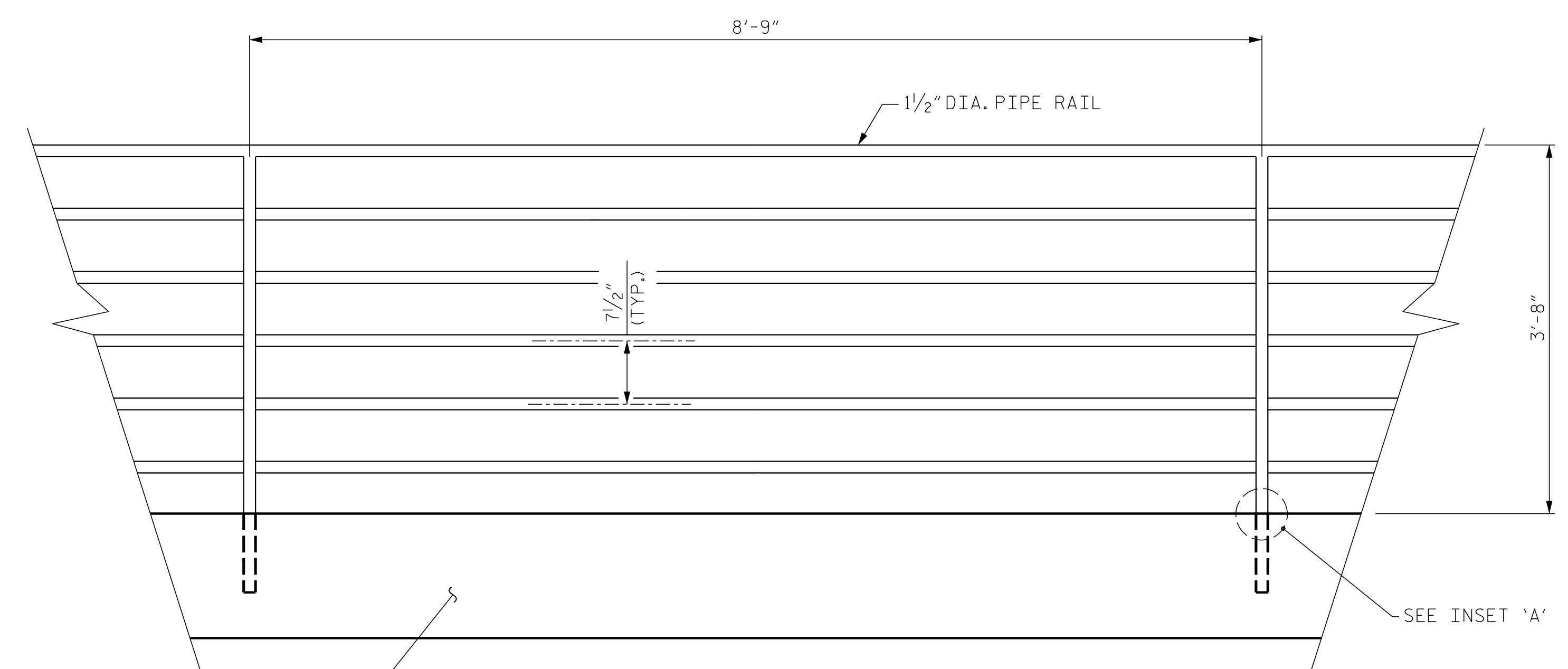
FOR GALVANIZED RAILS, SEE SPECIAL PROVISIONS.



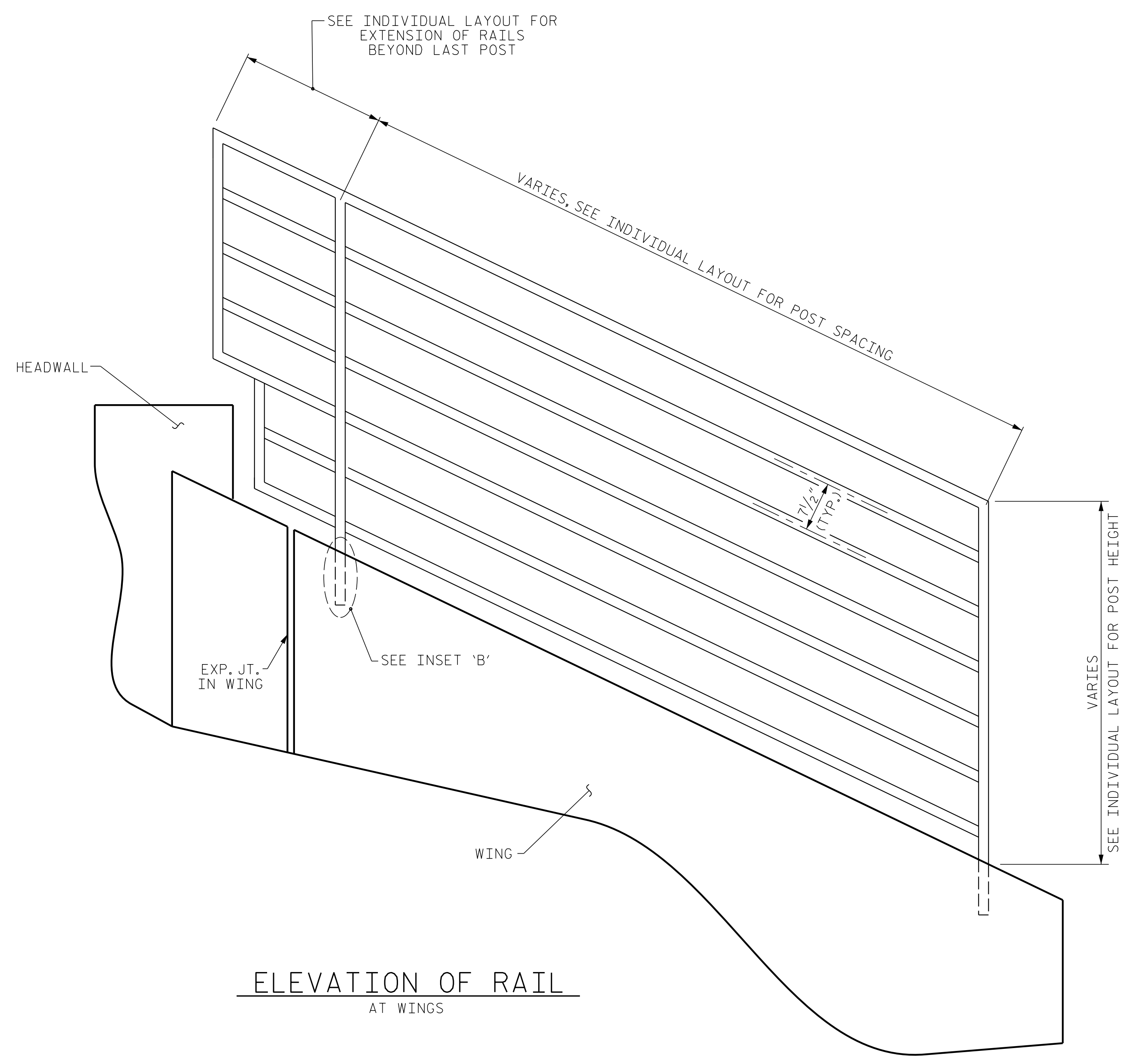
**INSET 'A'**



**INSET 'B'**



**ELEVATION OF RAIL AT HEADWALLS**

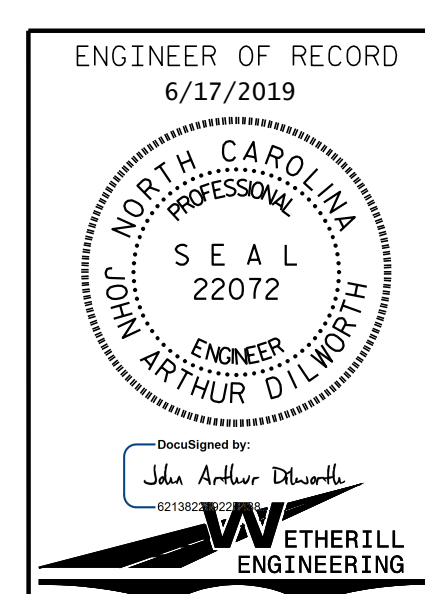


**ELEVATION OF RAIL AT WINGS**

PAY ITEM	
GALVANIZED RAILS	164.88 LIN. FT.

PROJECT NO. U-5888  
HAYWOOD COUNTY  
 STATION: 14+99.00 -Y4-

SHEET 11 OF 11



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**RAIL DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C11
1			3			TOTAL SHEETS
2			4			11

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107  
 LICENSE NO. F-6377

P:\2016\16133.01\_U-5888\Structures\DWG\U-5888\_SMU\_CUL.dgn  
 6/17/2019 10:19:30 AM

DRAWN BY : B.C. HUNT DATE : 1-19  
 CHECKED BY : D.A. HODGE DATE : 2-19

## 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  $\frac{3}{16}$ " 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

JANUARY, 1990

STD. NO. SN