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09/20/18 09:58

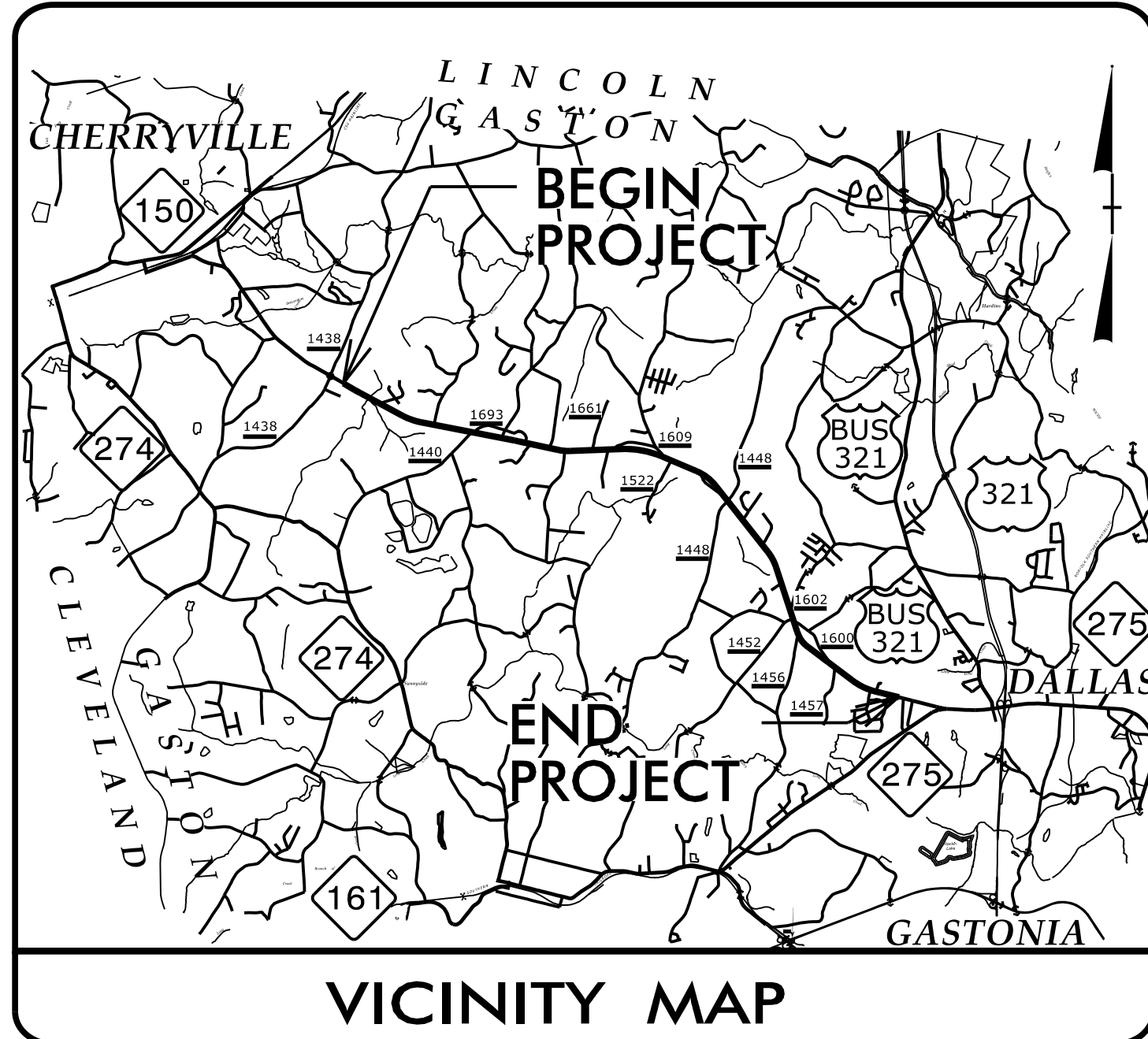
TIP PROJECT: W-5212N

CONTRACT: C204262

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

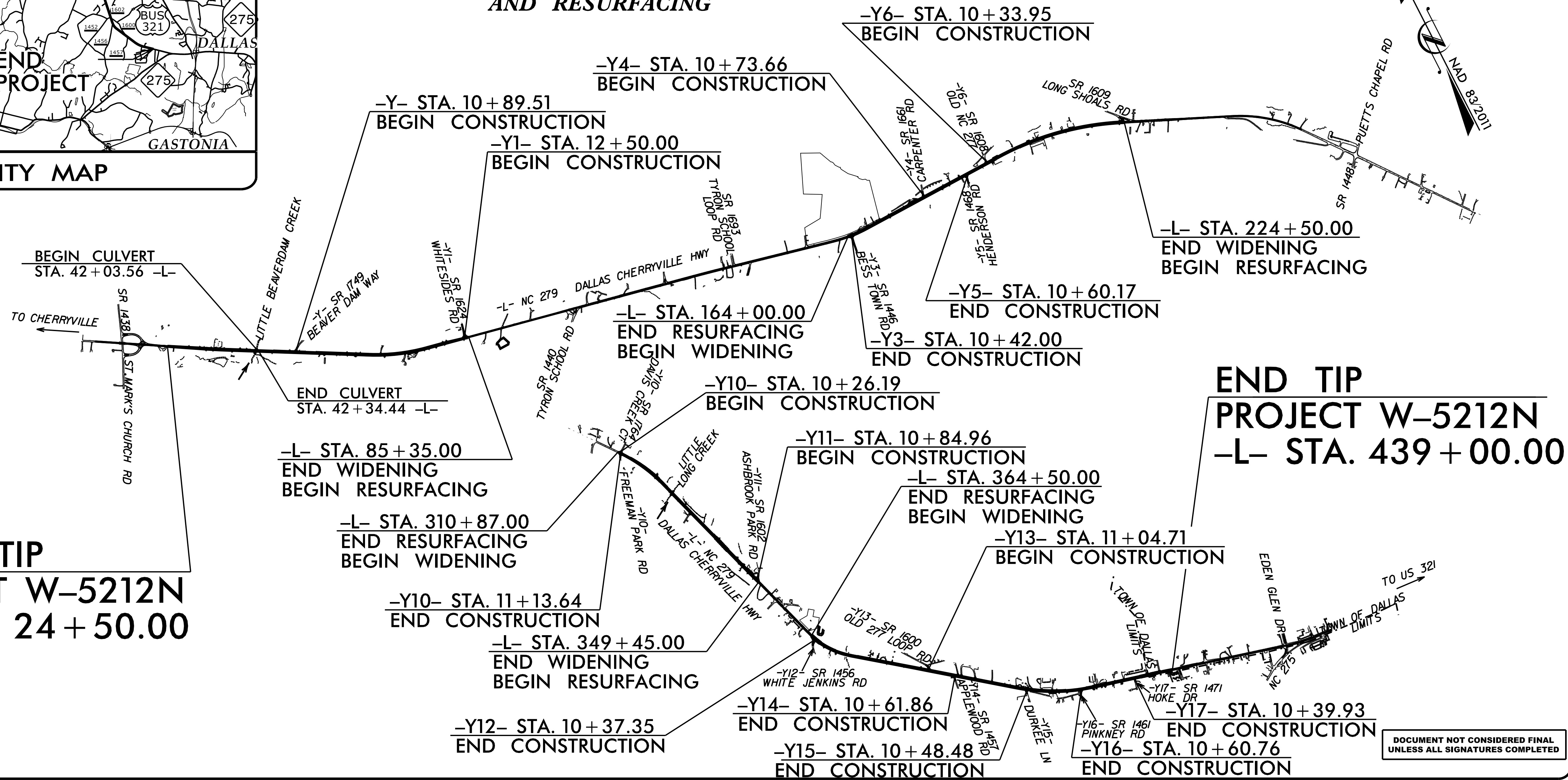
GASTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5212N		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45342.1.FR14	HSIP-0279(10)	PE	
45342.2.14	HSIP-0279(10)	ROW	
45342.3.14	HSIP-0279(10)	CONST.	



LOCATION: NC 279 (DALLAS CHERRYVILLE HWY) FROM SOUTH OF SR 1438
(ST MARK'S CHURCH RD) TO NORTH OF NC 275
TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERTS
AND RESURFACING

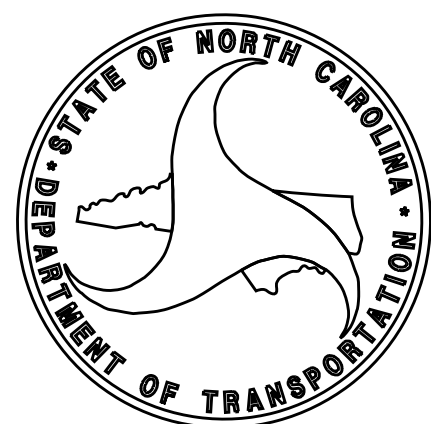
CULVERTS



BEGIN TIP
PROJECT W-5212N
-L- STA. 24 + 50.00

END TIP
PROJECT W-5212N
-L- STA. 439 + 00.00

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ DGN \$\$\$\$\$\$
\$\$\$\$\$ USERNAME \$\$\$\$\$\$



DESIGN DATA

ADT 2018 = 11,600
ADT 2040 = 14,400
K = 9 %
D = 60 %
T = 4 % *
V = 60 MPH
* TTST = 3% DUAL = 1%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT W-5212N = 7.844 MILES
LENGTH STRUCTURE TIP PROJECT W-5212N = 0.006 MILES
TOTAL LENGTH TIP PROJECT W-5212N = 7.850 MILES

NCDOT CONTACT: JACKIE McSWAIN

PLANS PREPARED BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST.
SHELBY, NC 28150
PH (704) 476-0003

PLANS PREPARED FOR:

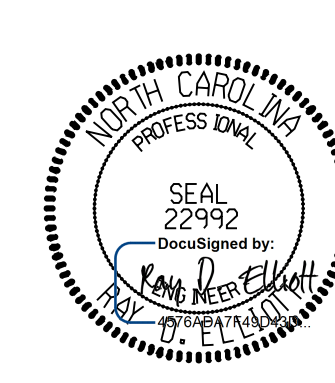
NCDOT DIVISION 12

LETTING DATE:
NOVEMBER 20, 2018

2018 STANDARD SPECIFICATIONS

RAY ELLIOTT, PE
STRUCTURES DESIGN ENGINEER

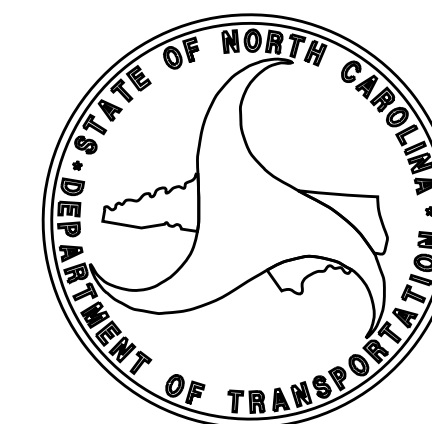
STRUCTURES DESIGN ENGINEER



10/11/2018 9:26:40 AM EDT

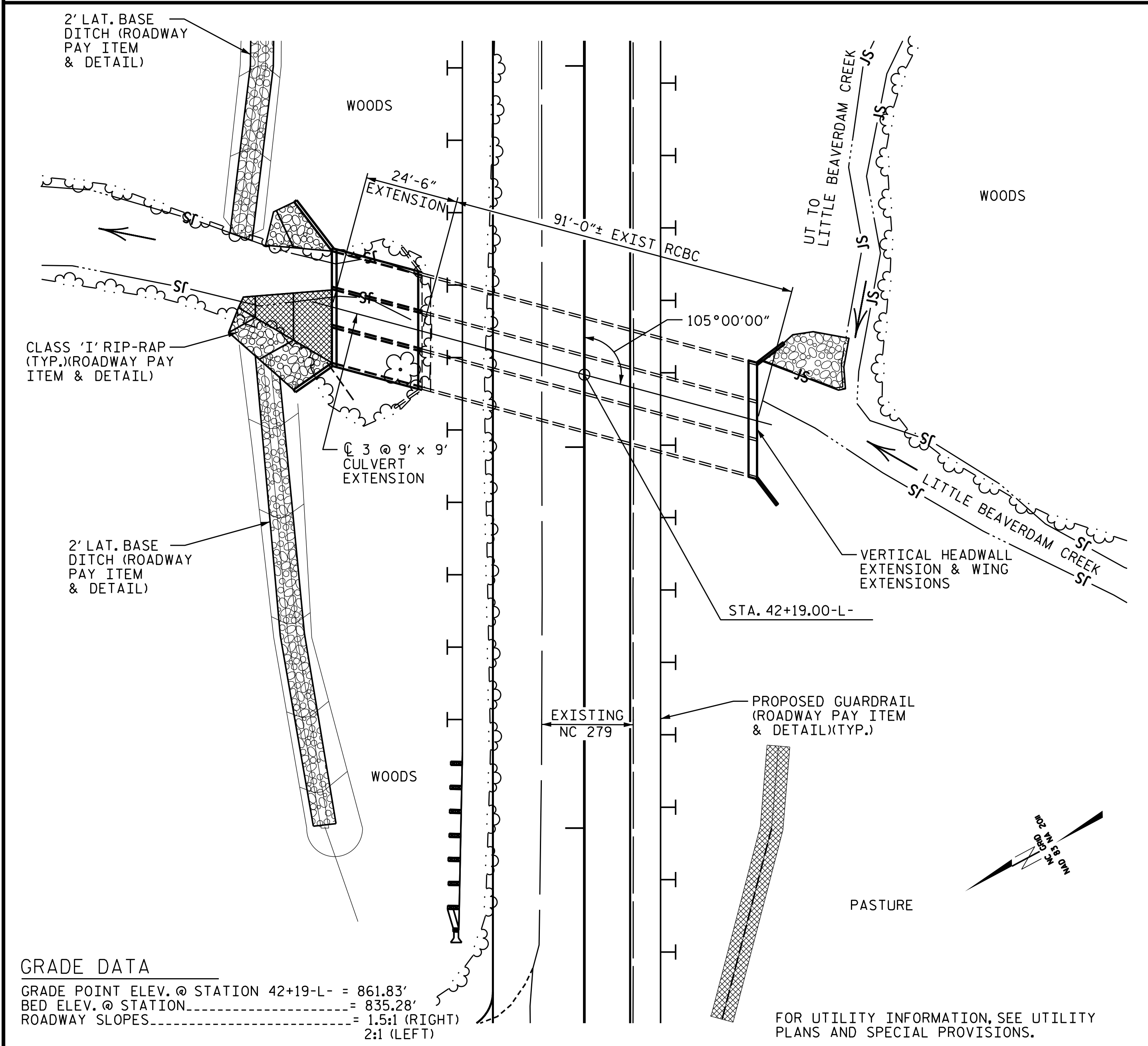
SIGNATURE:

P.E.



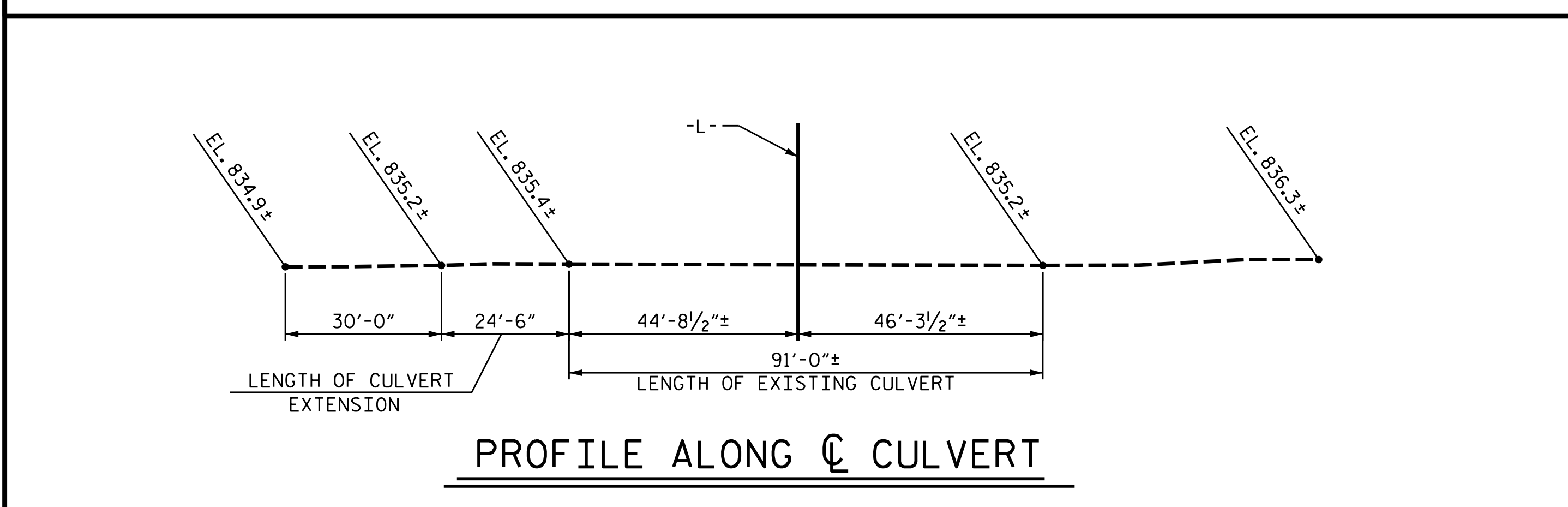
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UNLESS ALL SIGNATURES COMPLETED

BENCH MARK #3: RR SPIKE IN THE BASE OF 22" RED OAK TREE STA. 46+33-L-, 102' RT ELEV.= 865.46' (NAVD 88)



GRADE DATA
 GRADE POINT ELEV. @ STATION 42+19-L- = 861.83'
 BED ELEV. @ STATION = 835.28'
 ROADWAY SLOPES = 1.5:1 (RIGHT)
 2:1 (LEFT)

LOCATION SKETCH



DRAWN BY : JLA DATE : 2/18
 CHECKED BY : MGC DATE : 2/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

NOTES:

- ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.
- DESIGN FILL-----16.0 FT.
- FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES SHEET.
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 1. PHASE I WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF PHASE I WALLS AND PHASE I WINGS FULL HEIGHT.
 3. PHASE II WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF PHASE II VERTICAL WALLS.
 4. THE REMAINING PORTIONS OF PHASE II WALLS AND PHASE II WINGS FULL HEIGHT.
 5. PHASE II 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 ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
- AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALLS AND BOTH FACES OF INTERIOR WALLS 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.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING, SEE SHEET SN.
- IF APPROVED BY ENGINEER, THE CONTRACTOR MAY USE THE EXISTING WINGS AS TEMPORARY SHORING FOR THE CONSTRUCTION OF THE CULVERT EXTENSIONS. IN THIS CASE, THE BOTTOM SLAB OF THE EXTENSION SHALL BE POURED AT LEAST 72 HOURS PRIOR TO THE CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.
- NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
PHASE I	32.4 C.Y.
PHASE II	74.6 C.Y.
HEADWALL & WING EXTENSIONS	5.6 C.Y.
TOTAL	112.6 C.Y.
REINFORCING STEEL	
PHASE I	4,800 LBS.
PHASE II	9,777 LBS.
HEADWALL & WING EXTENSIONS	690 LBS.
TOTAL	15,267 LBS.
CULVERT EXCAVATION ----- LUMP SUM	
FOUNDATION CONDITIONING MATERIAL	
PHASE I	20 TONS
PHASE II	32 TONS
WING EXTENSIONS	3 TONS
TOTAL	55 TONS

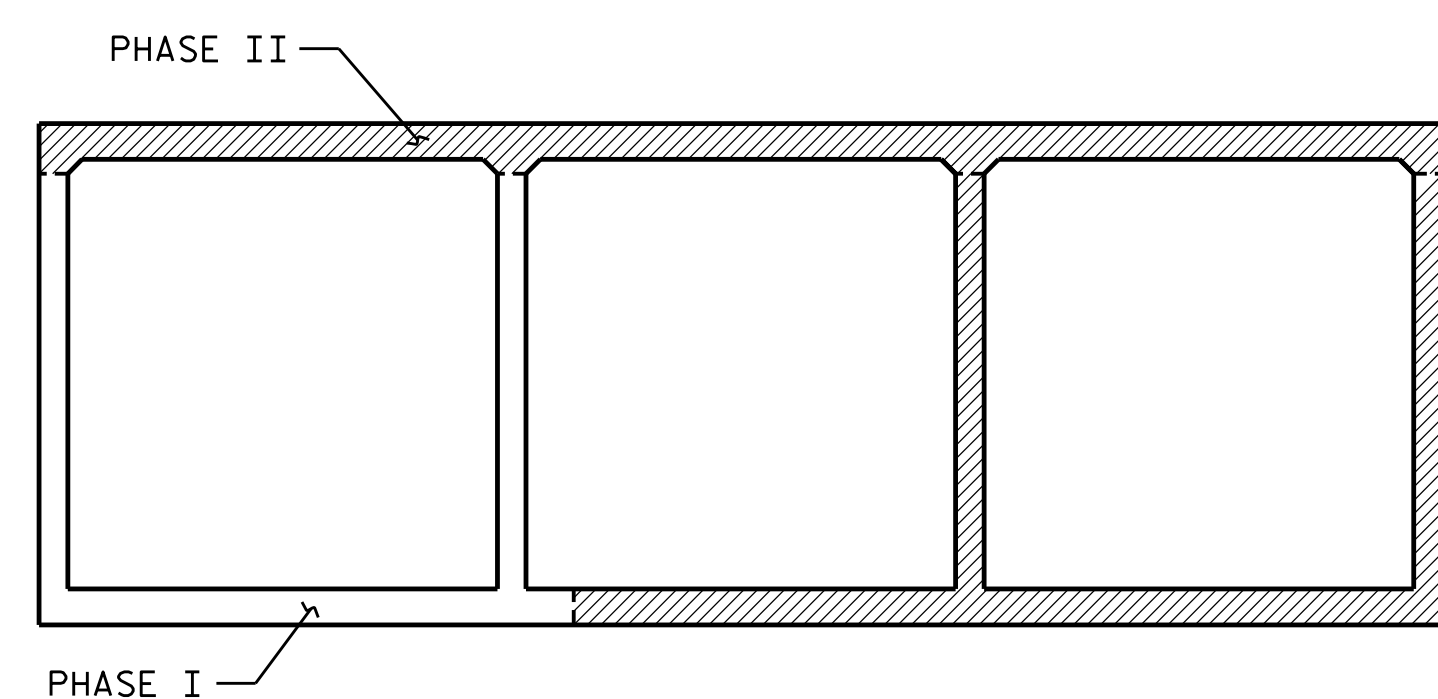
HYDRAULIC DATA

DESIGN DISCHARGE	= 1,500 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YRS
DESIGN HIGH WATER ELEVATION	= 843.5'
DRAINAGE AREA	= 3.77 SQ. MILES
BASE DISCHARGE (Q100)	= 1,700 CFS
BASE HIGH WATER ELEVATION	= 844.0'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= N/A
FREQUENCY OF OVERTOPPING FLOOD	= >500+ YRS
OVERTOPPING FLOOD ELEVATION	= 861.8'*

* OVERTOPPING ELEVATION @ -L- STA. 41+95

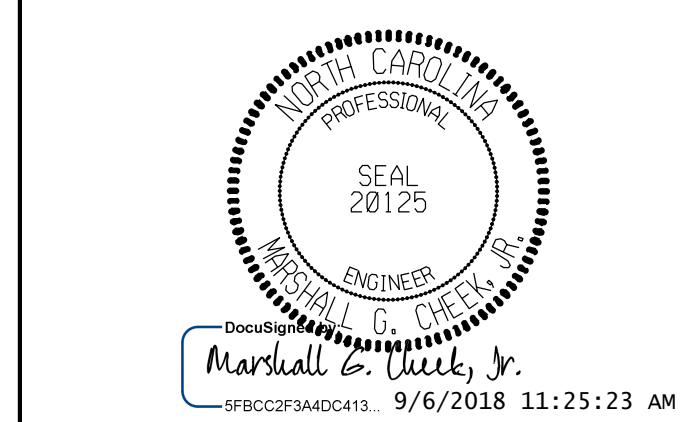


CONSTRUCTION PHASING

- LOOKING UPSTREAM
- PHASE I CONSTRUCTION
- PHASE II CONSTRUCTION

PROJECT NO. W-5212N
 GASTON COUNTY
 STATION: 42+19.00-L-
 SHEET 1 OF 9 STRUCTURE NO. 350018

RELEASED FOR CONSTRUCTION

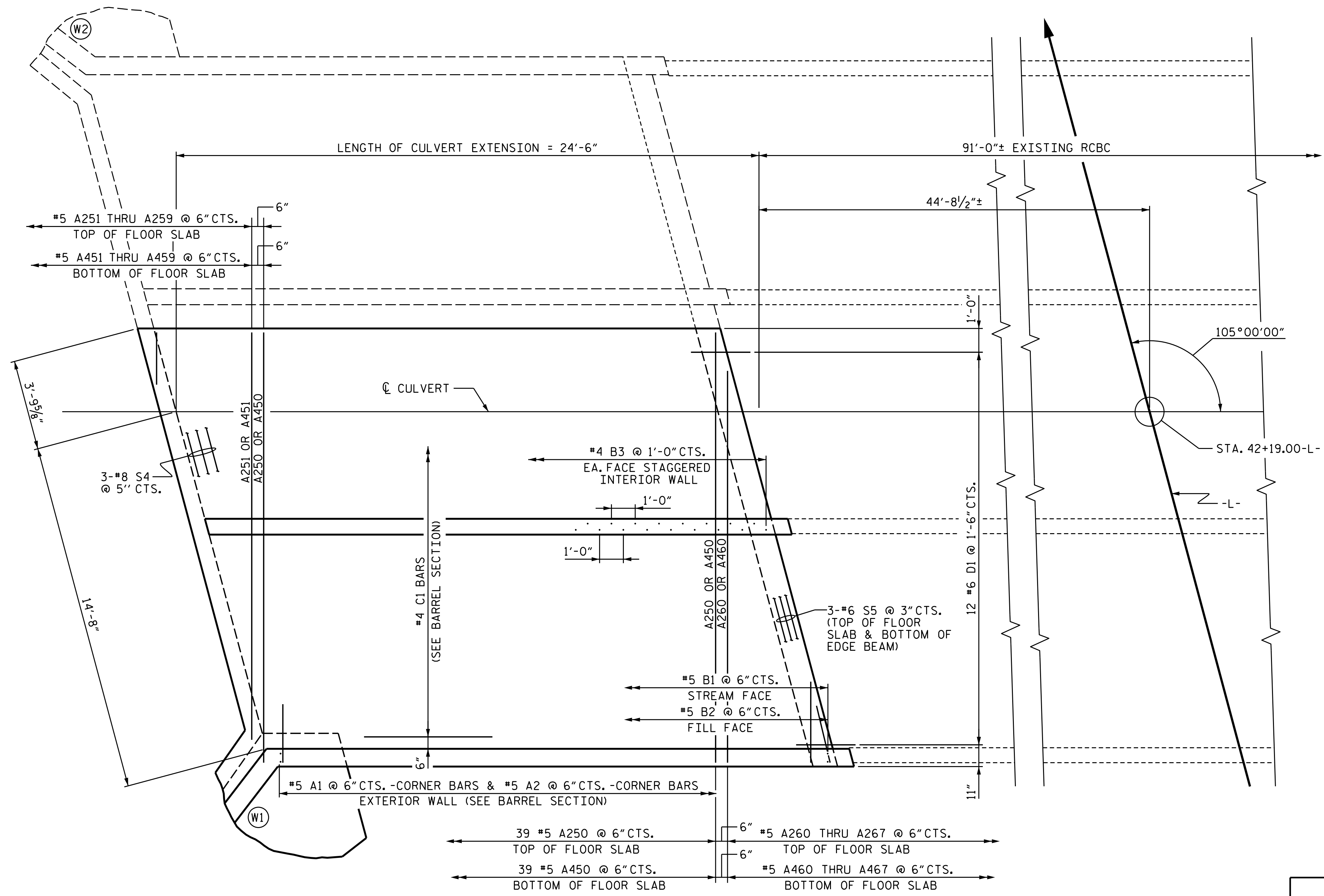


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TRIPLE 9 FT. x 9 FT.
 CONCRETE BOX CULVERT
 EXTENSION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 804 C. N. LAFAYETTE ST
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-1
1			3			TOTAL SHEETS
2			4			18



PLAN OF FLOOR SLAB- PHASE II

NOTE: FOR ADDITIONAL REINFORCING STEEL IN FLOOR SLAB & WING FOOTING, SEE SHEET 7 OF 9.

PROJECT NO. W-5212N
GASTON COUNTY
 STATION: 42+19.00-L-
 SHEET 3 OF 9

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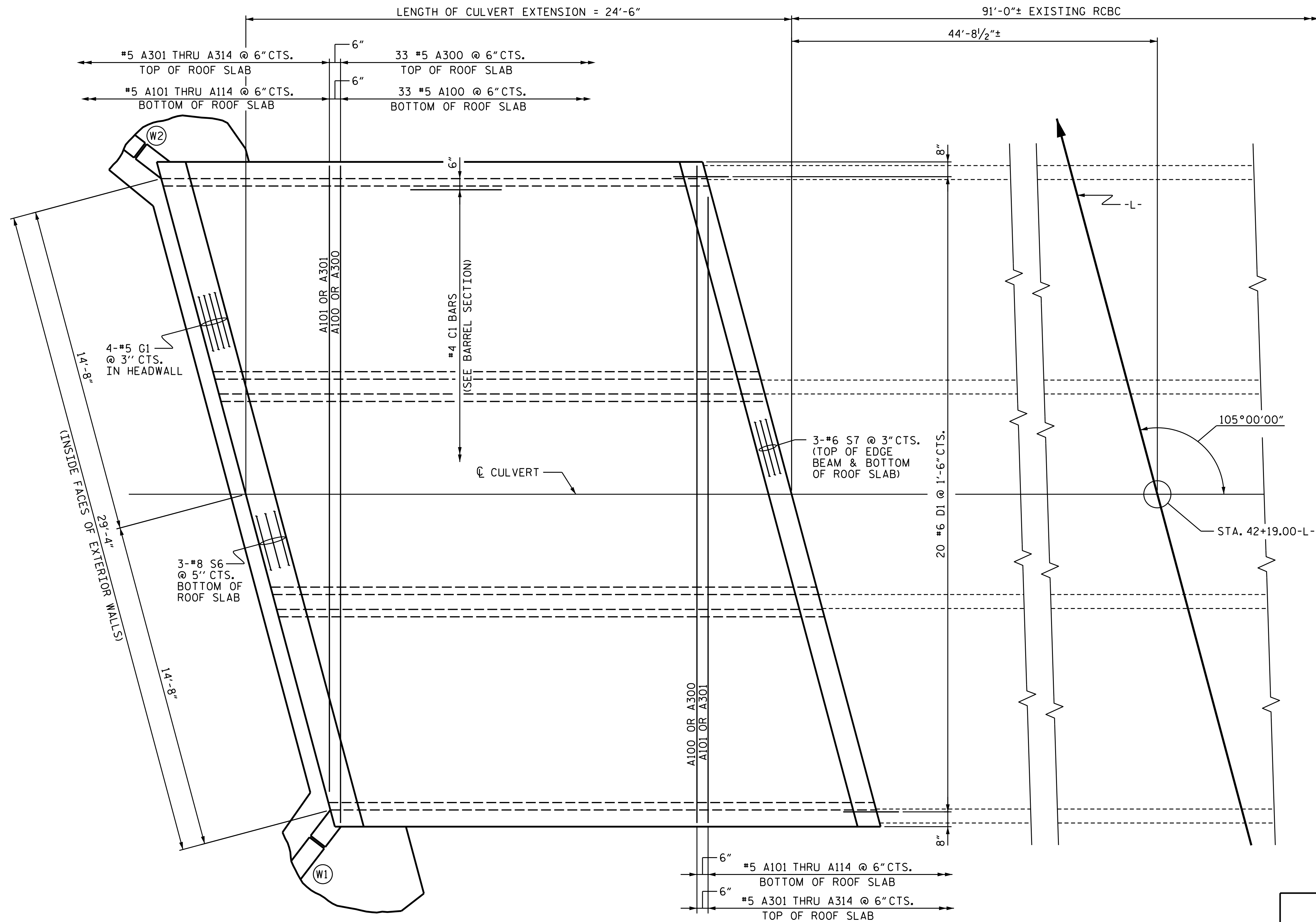


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TRIPLE 9FT. x 9FT.
 CONCRETE BOX CULVERT
 105° SKEW
 PHASE II

DRAWN BY : JLA DATE : 2/18
 CHECKED BY : MGC DATE : 4/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

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 TGS ENGINEERS
 804-C N. LAFAYETTE ST
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

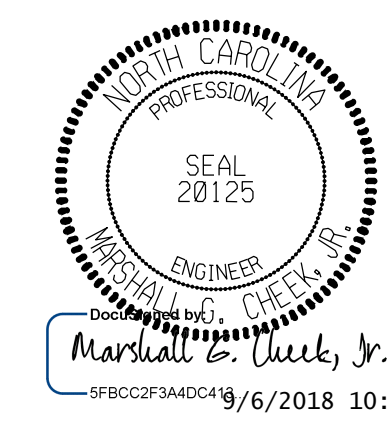
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-3
1			3			TOTAL SHEETS 18
2			4			



PLAN OF ROOF SLAB- PHASE II

PROJECT NO. W-5212N
GASTON COUNTY
 STATION: 42+19.00-L-
 SHEET 4 OF 9

RELEASED FOR CONSTRUCTION



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TRIPLE 9FT. x 9FT.
 CONCRETE BOX CULVERT
 105° SKEW
 PHASE II

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 TGS ENGINEERS
 804-C N. LAFAYETTE ST
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

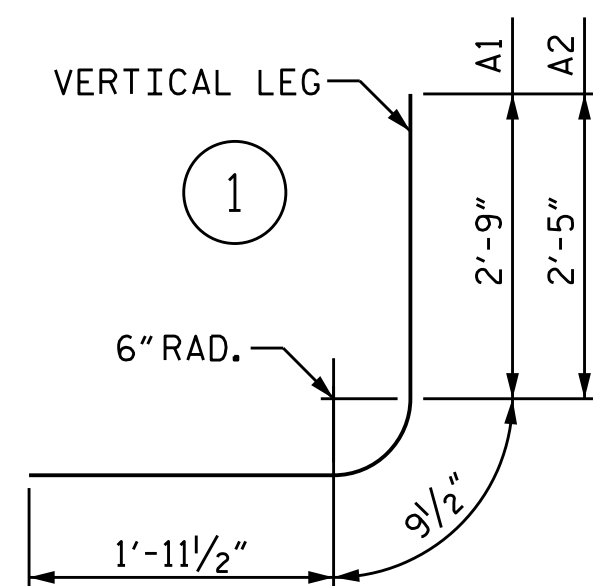
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
C1-4
TOTAL SHEETS
18

DRAWN BY : JLA DATE : 2/18
 CHECKED BY : MGC DATE : 4/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



SPLICE LENGTHS		
BAR	SIZE	SPLICE LENGTH
A200	#5	2'-2"
A400	#5	2'-2"
"S"	#6	2'-9"
"S"	#8	4'-11"

**REINFORCING STEEL SCHEDULE
PHASE I**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	49	#5	1	5'-6"	281
A2	49	#5	1	5'-2"	264
A200	41	#5	STR	13'-8"	584
A201	1	#5	STR	11'-8"	12
A202	1	#5	STR	9'-10"	10
A203	1	#5	STR	8'-0"	8
A204	1	#5	STR	6'-1"	6
A205	1	#5	STR	4'-3"	4
A206	1	#5	STR	2'-5"	3
A207	1	#5	STR	11'-9"	12
A208	1	#5	STR	9'-11"	10
A209	1	#5	STR	8'-1"	8
A210	1	#5	STR	6'-2"	6
A211	1	#5	STR	4'-4"	5
A400	41	#5	STR	13'-8"	584
A401	1	#5	STR	11'-8"	12
A402	1	#5	STR	9'-10"	10
A403	1	#5	STR	8'-0"	8
A404	1	#5	STR	6'-1"	6
A405	1	#5	STR	4'-3"	4
A406	1	#5	STR	2'-5"	3
A407	1	#5	STR	11'-9"	12
A408	1	#5	STR	9'-11"	10
A409	1	#5	STR	8'-1"	8
A410	1	#5	STR	6'-2"	6
A411	1	#5	STR	4'-4"	5
B1	49	#5	STR	10'-11"	558
B2	49	#5	STR	8'-4"	426
B3	49	#4	STR	10'-11"	357
C1	44	#4	STR	24'-1"	708
D1	14	#6	STR	2'-6"	53
S2	3	#8	STR	16'-9"	134
S3	6	#6	STR	14'-7"	131
TOTAL REINFORCING STEEL					4,248 LBS.

**REINFORCING STEEL SCHEDULE
PHASE II**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	49	#5	1	5'-6"	281	A308	2	#5	STR	15'-0"	31
A2	49	#5	1	5'-2"	264	A309	2	#5	STR	13'-2"	27
A100	33	#5	STR	29'-6"	1,015	A310	2	#5	STR	11'-3"	23
A101	2	#5	STR	28'-1"	59	A311	2	#5	STR	9'-5"	20
A102	2	#5	STR	26'-2"	55	A312	2	#5	STR	7'-6"	16
A103	2	#5	STR	24'-4"	51	A313	2	#5	STR	5'-8"	12
A104	2	#5	STR	22'-6"	47	A314	2	#5	STR	3'-10"	8
A105	2	#5	STR	20'-7"	43	A450	39	#5	STR	18'-1"	736
A106	2	#5	STR	18'-9"	39	A451	1	#5	STR	17'-1"	18
A107	2	#5	STR	16'-10"	35	A452	1	#5	STR	15'-3"	16
A108	2	#5	STR	15'-0"	31	A453	1	#5	STR	13'-4"	14
A109	2	#5	STR	13'-2"	27	A454	1	#5	STR	11'-6"	12
A110	2	#5	STR	11'-3"	23	A455	1	#5	STR	9'-7"	10
A111	2	#5	STR	9'-5"	20	A456	1	#5	STR	7'-9"	8
A112	2	#5	STR	7'-6"	16	A457	1	#5	STR	5'-11"	6
A113	2	#5	STR	5'-8"	12	A458	1	#5	STR	4'-0"	4
A114	2	#5	STR	3'-10"	8	A459	1	#5	STR	2'-2"	2
A250	39	#5	STR	18'-1"	736	A460	1	#5	STR	16'-5"	17
A251	1	#5	STR	17'-1"	18	A461	1	#5	STR	14'-7"	15
A252	1	#5	STR	15'-3"	16	A462	1	#5	STR	12'-8"	13
A253	1	#5	STR	13'-4"	14	A463	1	#5	STR	10'-10"	11
A254	1	#5	STR	11'-6"	12	A464	1	#5	STR	9'-0"	9
A255	1	#5	STR	9'-7"	10	A465	1	#5	STR	7'-1"	7
A256	1	#5	STR	7'-9"	8	A466	1	#5	STR	5'-3"	5
A257	1	#5	STR	5'-11"	6	A467	1	#5	STR	3'-4"	3
A258	1	#5	STR	4'-0"	4						
A259	1	#5	STR	2'-2"	2	B1	49	#5	STR	10'-11"	558
A260	1	#5	STR	16'-5"	17	B2	49	#5	STR	8'-4"	426
A261	1	#5	STR	14'-7"	15	B3	49	#4	STR	10'-11"	357
A262	1	#5	STR	12'-8"	13						
A263	1	#5	STR	10'-10"	11	C1	98	#4	STR	24'-1"	1,577
A264	1	#5	STR	9'-0"	9						
A265	1	#5	STR	7'-1"	7	D1	38	#6	STR	2'-6"	143
A266	1	#5	STR	5'-3"	5						
A267	1	#5	STR	3'-4"	3	G1	4	#5	STR	30'-6"	127
A300	33	#5	STR	29'-6"	1,015						
A301	2	#5	STR	28'-1"	59	S4	3	#8	STR	18'-8"	150
A302	2	#5	STR	26'-2"	55	S5	6	#6	STR	18'-8"	168
A303	2	#5	STR	24'-4"	51	S6	3	#8	STR	30'-6"	244
A304	2	#5	STR	22'-6"	47	S7	6	#6	STR	30'-6"	275
A305	2	#5	STR	20'-7"	43						
A306	2	#5	STR	18'-9"	39	TOTAL REINFORCING STEEL					9,344 LBS.
A307	2	#5	STR	16'-10"	35						

PHASE I QUANTITIES

CLASS A CONCRETE
 FLOOR SLAB & WALLS ---- 24.1 C.Y.
 EDGE BEAM ----- 0.4 C.Y.
 END CURTAIN WALL ----- 0.6 C.Y.
 WING 2 ----- 7.3 C.Y.
 TOTAL ----- 32.4 C.Y.

REINFORCING STEEL
 FLOOR SLAB & WALLS ---- 4,248 LBS.
 WING 2 ----- 552 LBS.
 TOTAL ----- 4,800 LBS.

CULVERT EXCAVATION ---- LUMP SUM

FOUNDATION COND. MAT'L. - 20 TONS

PHASE II QUANTITIES

CLASS A CONCRETE
 FLOOR SLAB, WALLS & ROOF SLAB ----- 64.8 C.Y.
 EDGE BEAMS ----- 1.9 C.Y.
 END CURTAIN WALL ----- 1.1 C.Y.
 HEADWALL ----- 1.4 C.Y.
 WING 1 ----- 5.4 C.Y.
 TOTAL ----- 74.6 C.Y.

REINFORCING STEEL
 FLOOR SLAB, WALLS & ROOF SLAB ----- 9,344 LBS.
 WING 1 ----- 433 LBS.
 TOTAL ----- 9,777 LBS.

CULVERT EXCAVATION ---- LUMP SUM

FOUNDATION COND. MAT'L. - 32 TONS

PROJECT NO. W-5212N

GASTON COUNTY

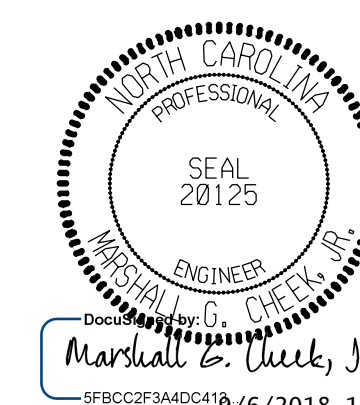
STATION: 42+19.00-L-

SHEET 6 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TRIPLE 9 FT. x 9 FT.
 CONCRETE BOX CULVERT
 105° SKEW

RELEASED FOR CONSTRUCTION

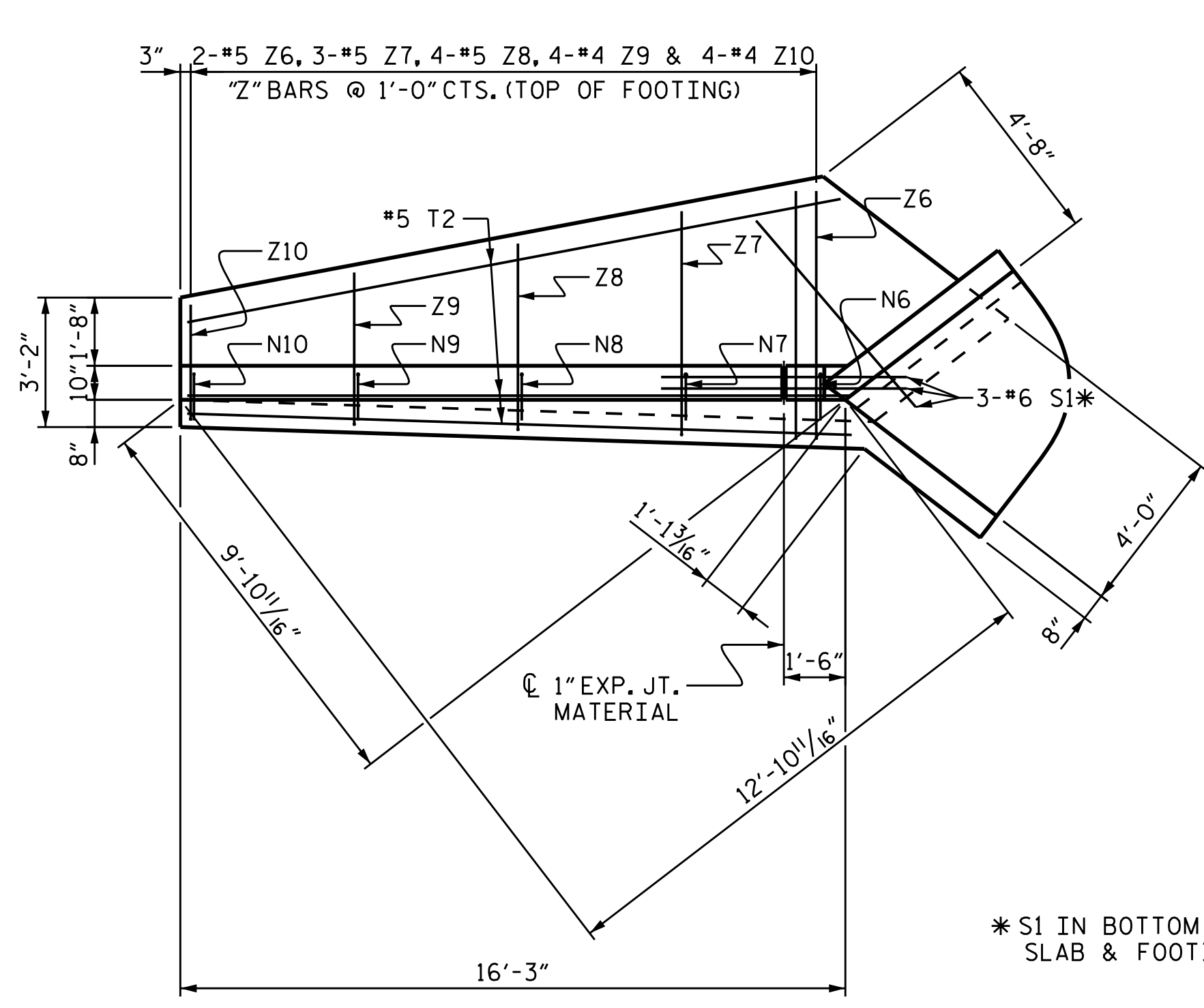


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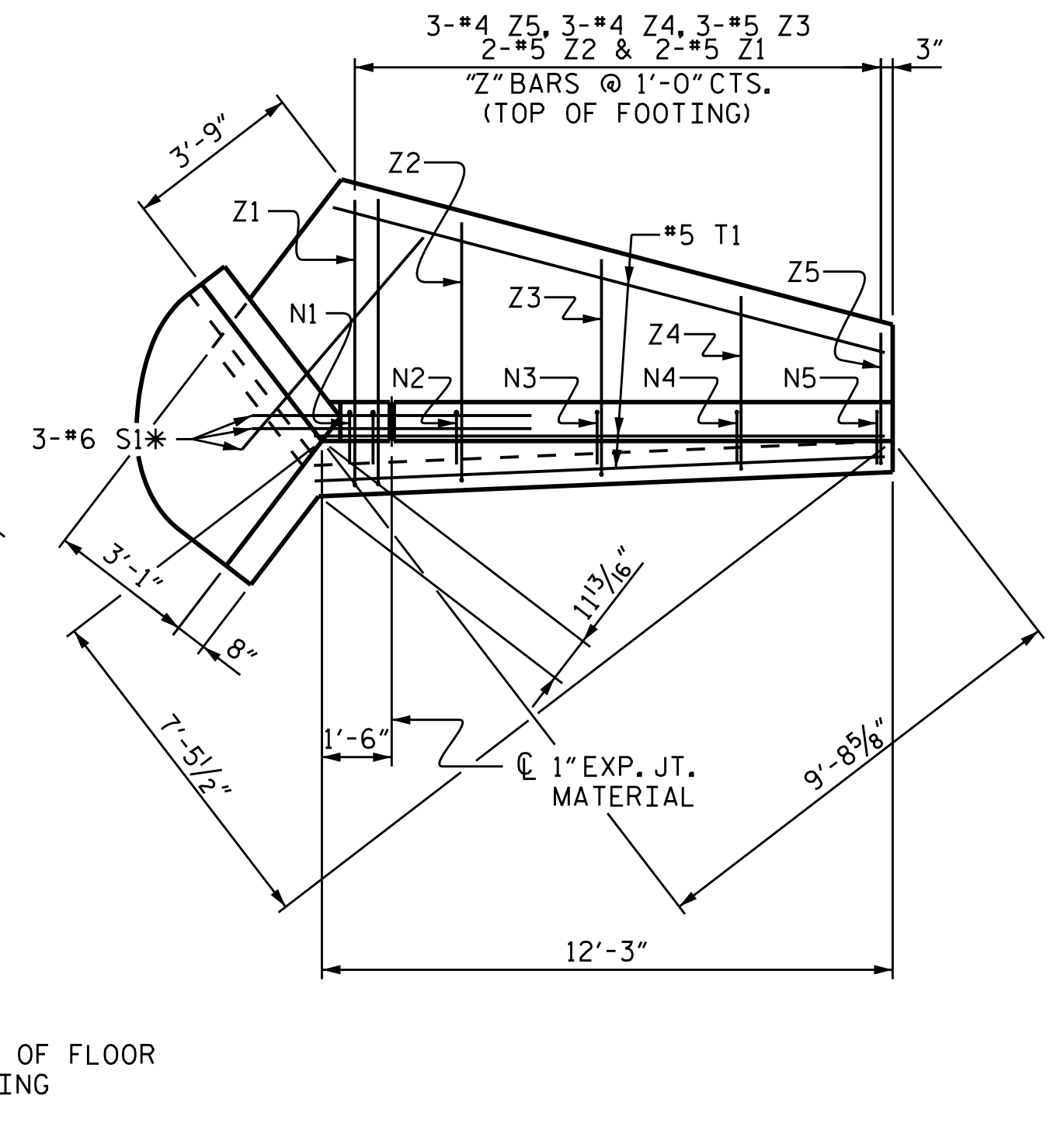
TGS ENGINEERS
 804-C N. LAFAYETTE ST
 SHELBY, NC 28150
 PH: (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-6
1			3			TOTAL SHEETS
2			4			18

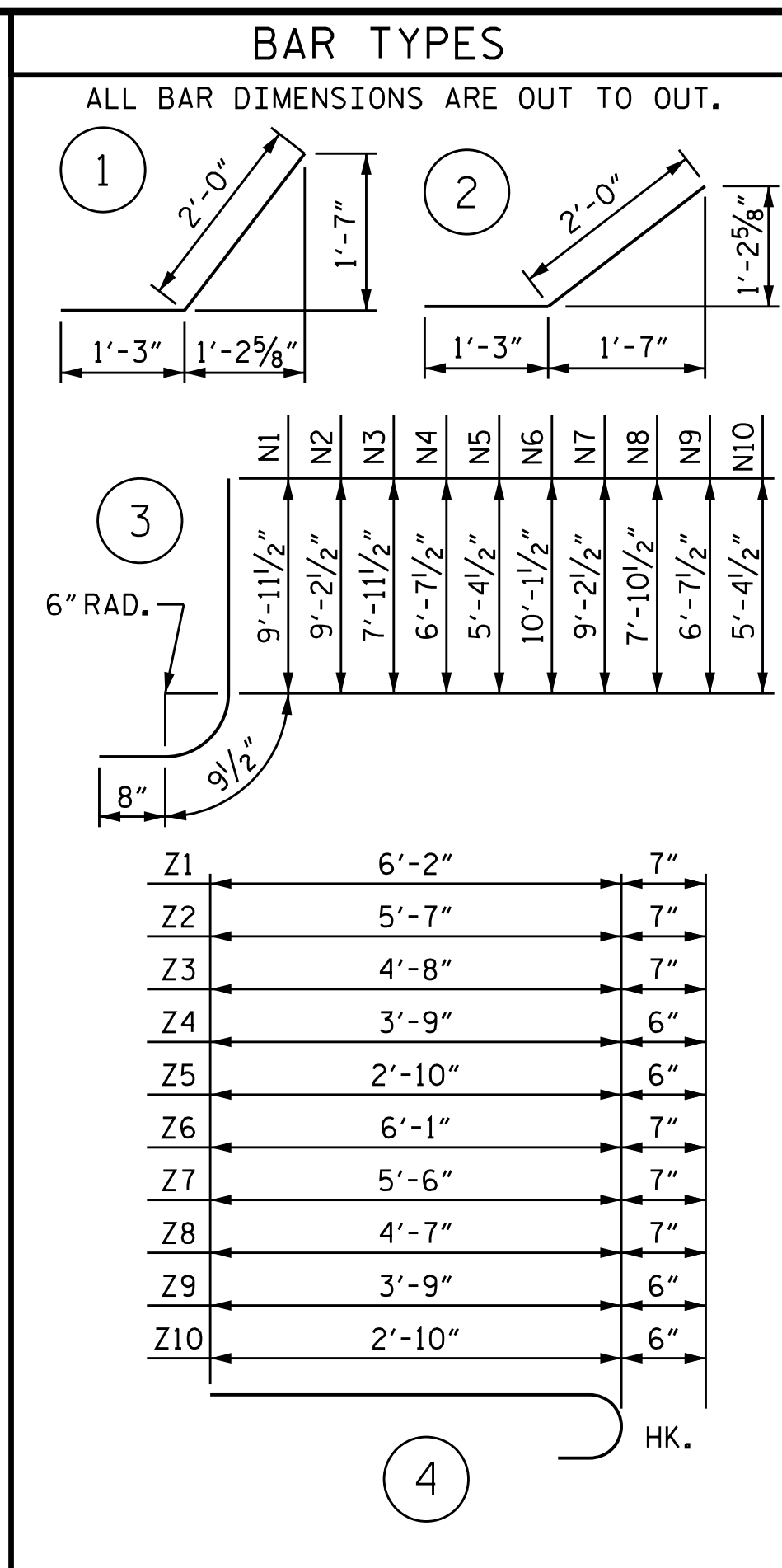
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 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18



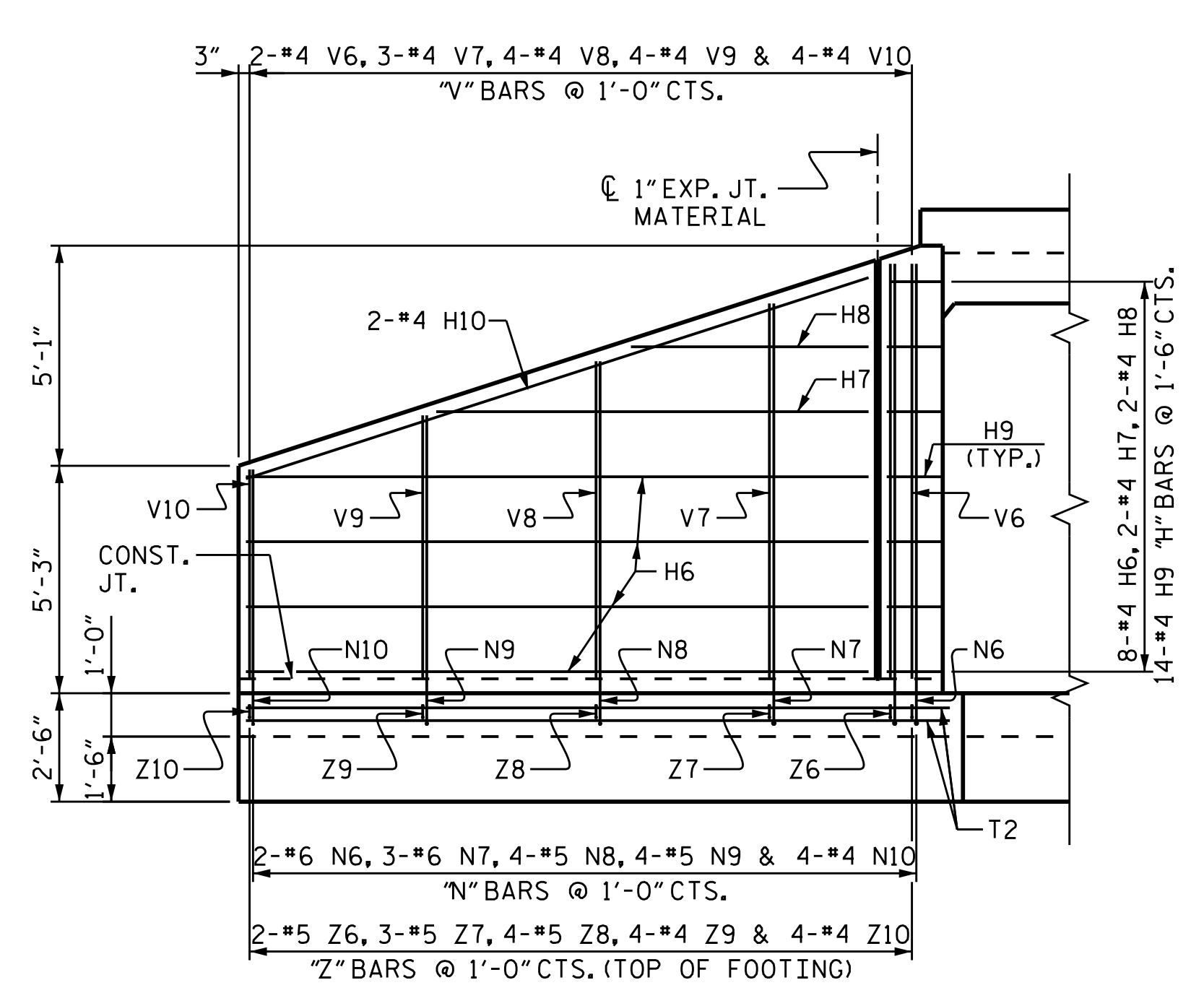
PLAN W2



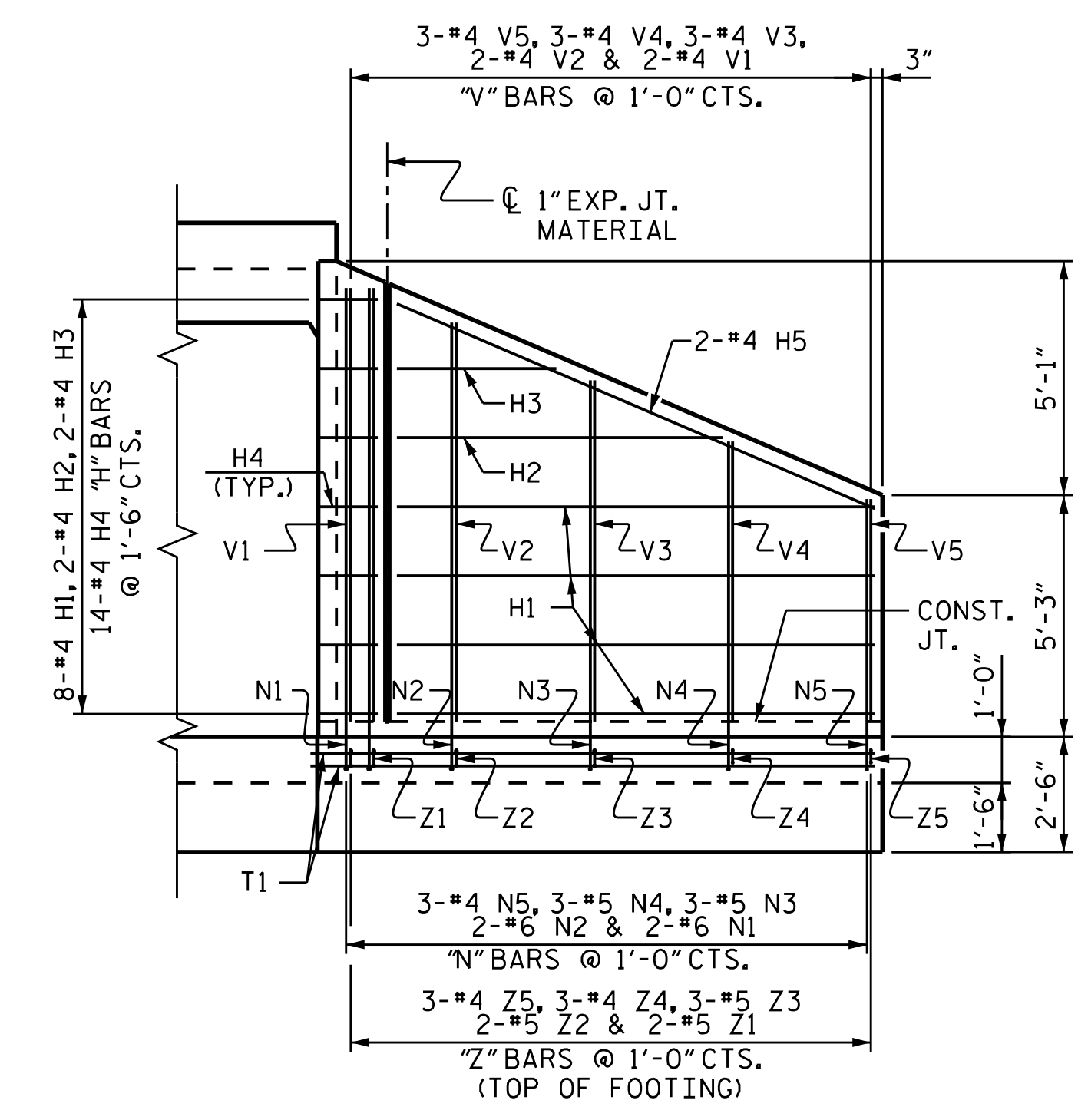
PLAN W1



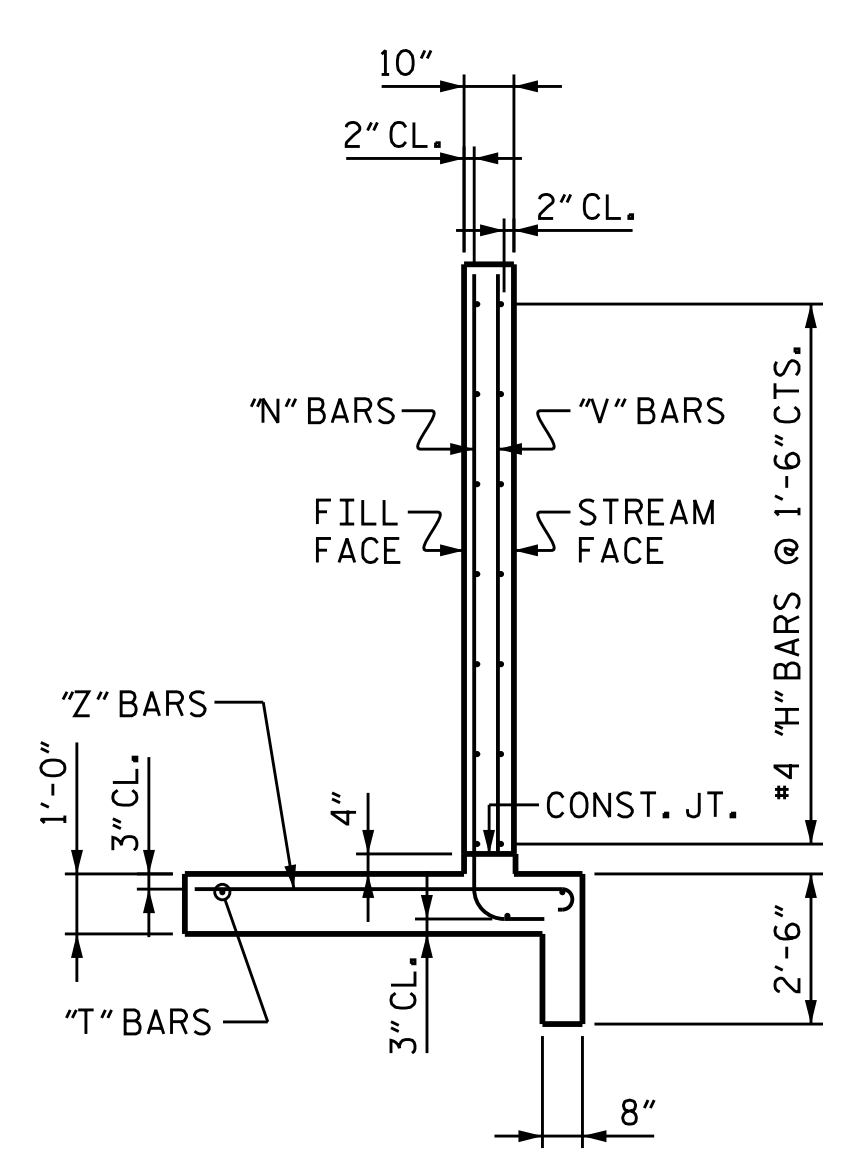
PHASE I BILL OF MATERIAL FOR WING 2						PHASE II BILL OF MATERIAL FOR WING 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H6	8	#4	STR	14'-4"	77	H1	8	#4	STR	10'-4"	55
H7	2	#4	STR	9'-10"	13	H2	2	#4	STR	6'-11"	9
H8	2	#4	STR	4'-10"	6	H3	2	#4	STR	3'-3"	4
H9	14	#4	2	3'-3"	30	H4	14	#4	1	3'-3"	30
H10	2	#4	STR	15'-0"	20	H5	2	#4	STR	11'-2"	15
N6	2	#6	3	11'-7"	35	N1	2	#6	3	11'-5"	34
N7	3	#6	3	10'-8"	48	N2	2	#6	3	10'-8"	32
N8	4	#5	3	9'-4"	39	N3	3	#5	3	9'-5"	29
N9	4	#5	3	8'-1"	34	N4	3	#5	3	8'-1"	25
N10	4	#4	3	6'-10"	18	N5	3	#4	3	6'-10"	14
S1	3	#6	STR	6'-0"	27	S1	3	#6	STR	6'-0"	27
T2	3	#5	STR	16'-3"	51	T1	3	#5	STR	12'-3"	38
V6	2	#4	STR	9'-7"	13	V1	2	#4	STR	9'-5"	13
V7	3	#4	STR	8'-8"	17	V2	2	#4	STR	8'-8"	12
V8	4	#4	STR	7'-4"	20	V3	3	#4	STR	7'-5"	15
V9	4	#4	STR	6'-1"	16	V4	3	#4	STR	6'-1"	12
V10	4	#4	STR	4'-10"	13	V5	3	#4	STR	4'-10"	10
Z6	2	#5	4	6'-8"	14	Z1	2	#5	4	6'-9"	14
Z7	3	#5	4	6'-1"	19	Z2	2	#5	4	6'-2"	13
Z8	4	#5	4	5'-2"	22	Z3	3	#5	4	5'-3"	16
Z9	4	#4	4	4'-3"	11	Z4	3	#4	4	4'-3"	9
Z10	4	#4	4	3'-4"	9	Z5	3	#4	4	3'-4"	7
REINFORCING STEEL					552 LBS.	REINFORCING STEEL					433 LBS.
CLASS A CONCRETE WING 2					7.3 CY	CLASS A CONCRETE WING 1					5.4 CY



ELEVATION W2



ELEVATION W1

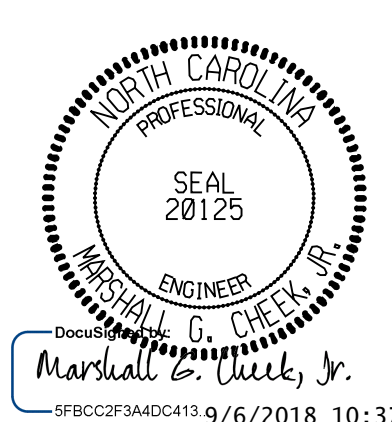


TYPICAL WING SECTION

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

PROJECT NO. W-5212N
GASTON COUNTY
STATION: 42+19.00-L-
SHEET 7 OF 9

RELEASED FOR CONSTRUCTION



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD WINGS
FOR
CONCRETE BOX CULVERT
H = 9'-0" SLOPE = 2:1
105° SKEW

DRAWN BY: JLA DATE: 2/18
CHECKED BY: MGC DATE: 4/18

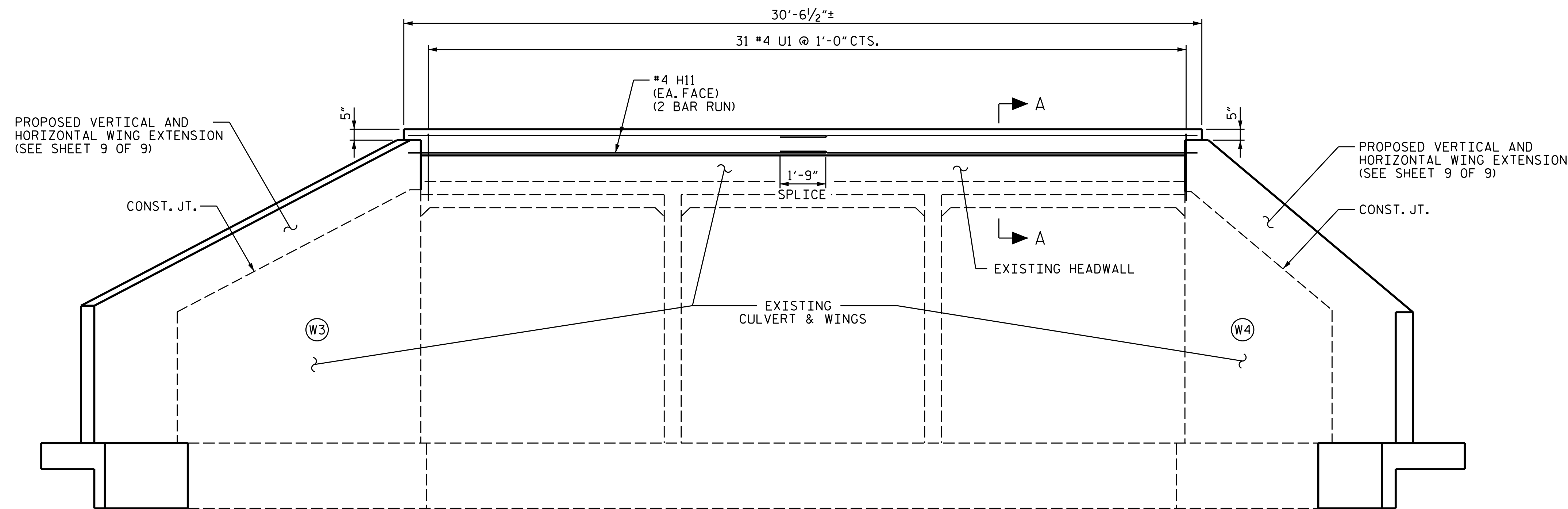
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NO.	BY:	DATE:	NO.	BY:	DATE:	C1-7			
1			3			TOTAL SHEETS			
2			4			18			

NOTES:

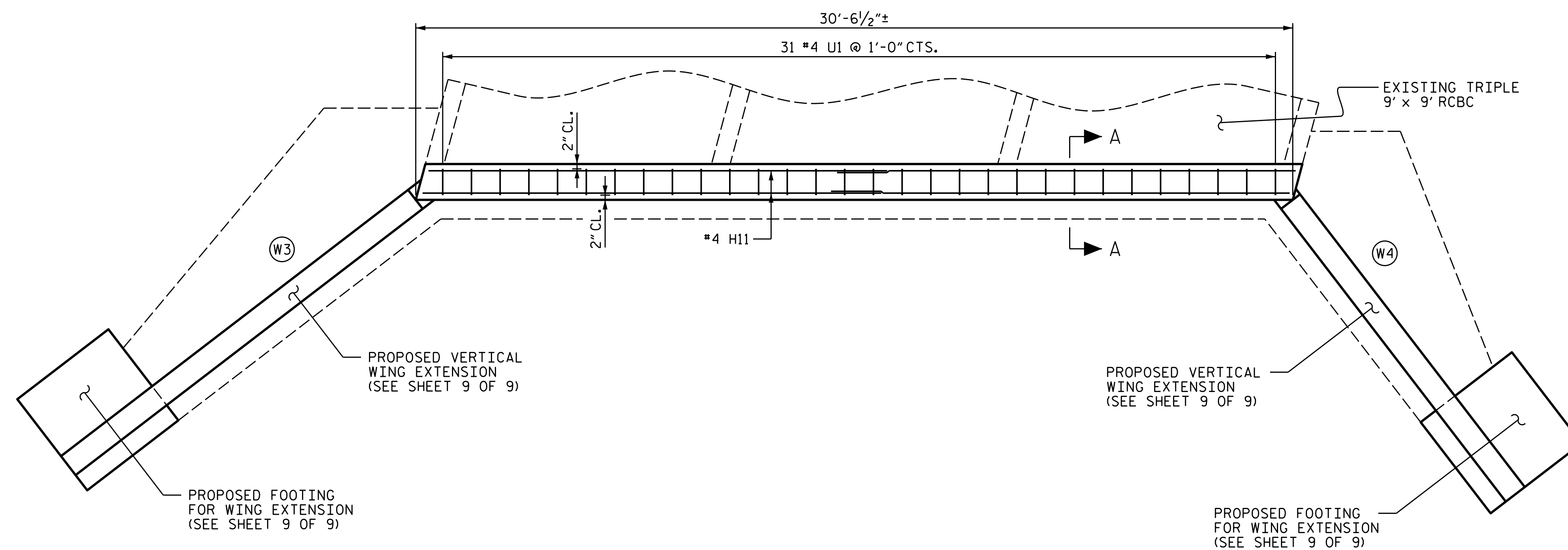
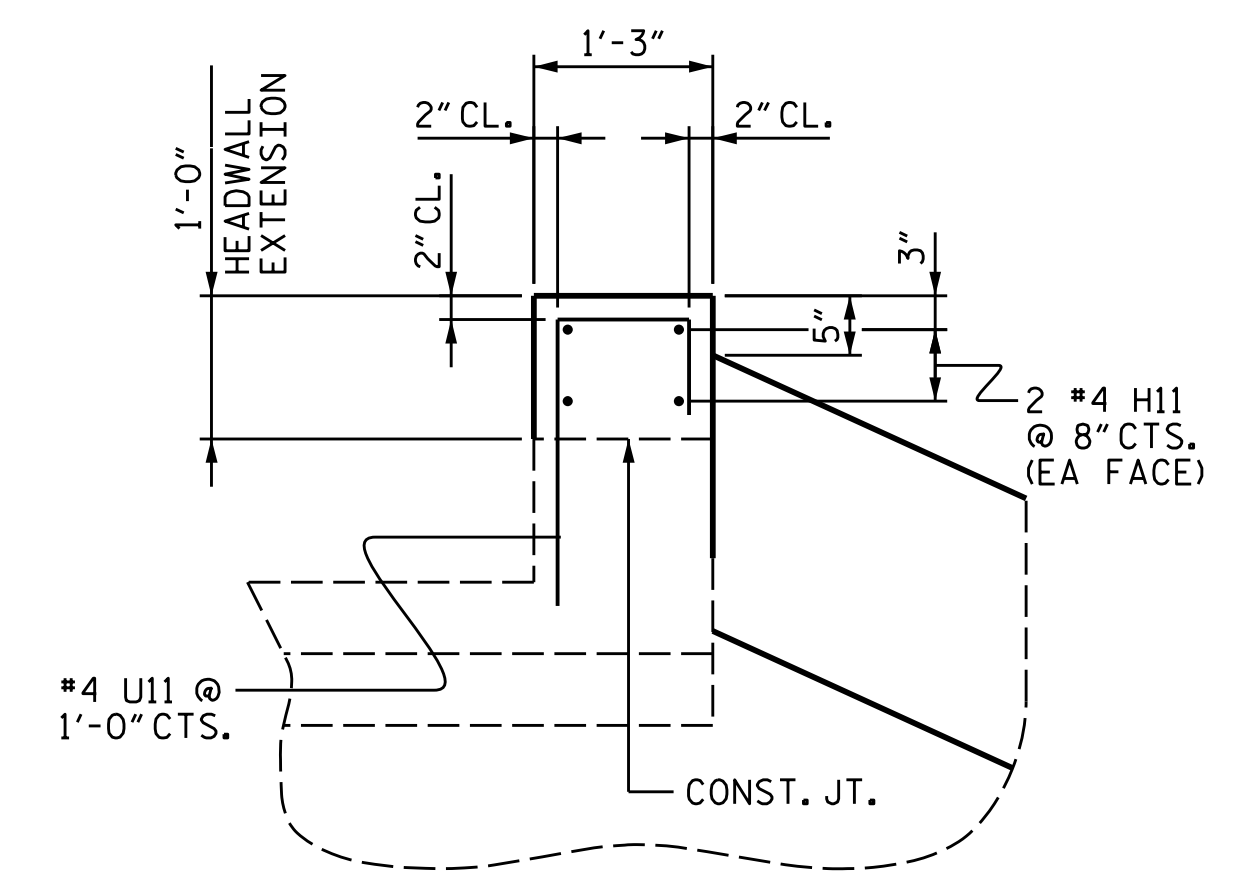
FOR DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

THE RESIDENT ENGINEER SHALL CHECK THE HEIGHT OF THE HEADWALL AND WING EXTENSIONS BEFORE CONSTRUCTION TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DOWELS SHALL BE USED TO CONNECT THE HEADWALL EXTENSION AND THE WING EXTENSIONS TO THE EXISTING CULVERT AS SHOWN, FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.



ELEVATION OF HEADWALL & WING EXTENSION - INLET END



PLAN OF RIGHT HEADWALL & WING EXTENSIONS - INLET END

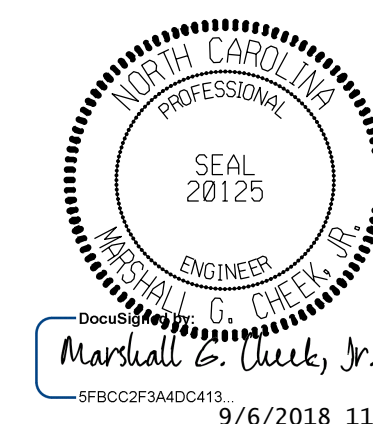
PROJECT NO. W-5212N

GASTON COUNTY

STATION: 42+19.00-L-

SHEET 8 OF 9

RELEASED FOR CONSTRUCTION



9/6/2018 11:25:23 AM PDT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

VERTICAL EXTENSION OF EXISTING INLET END HEADWALL

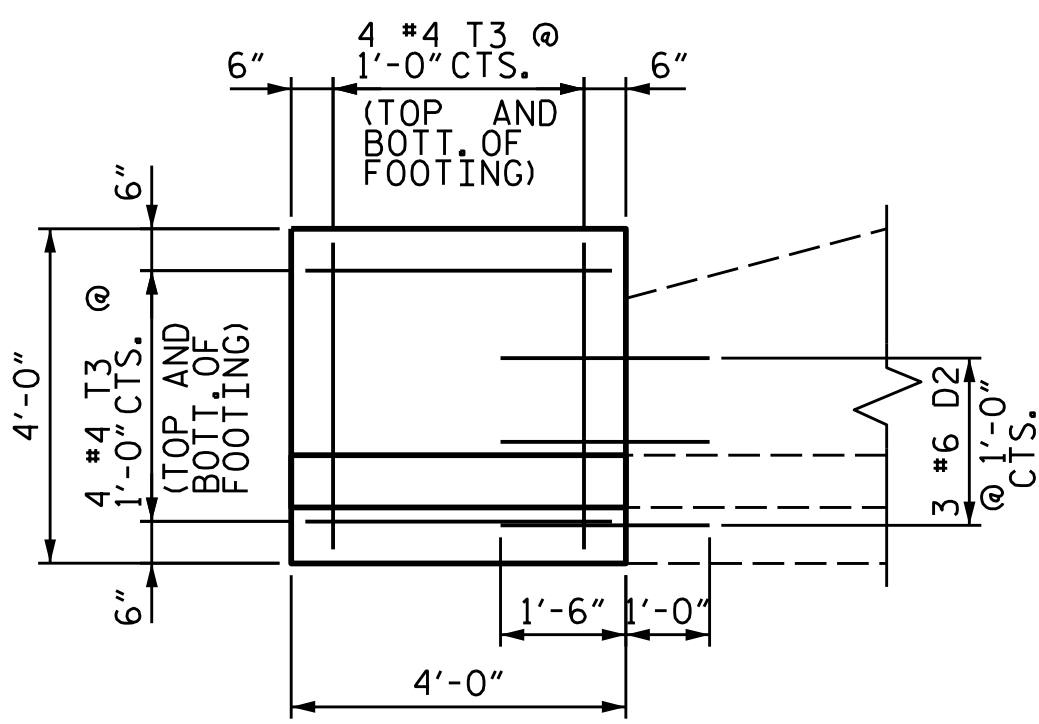
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SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

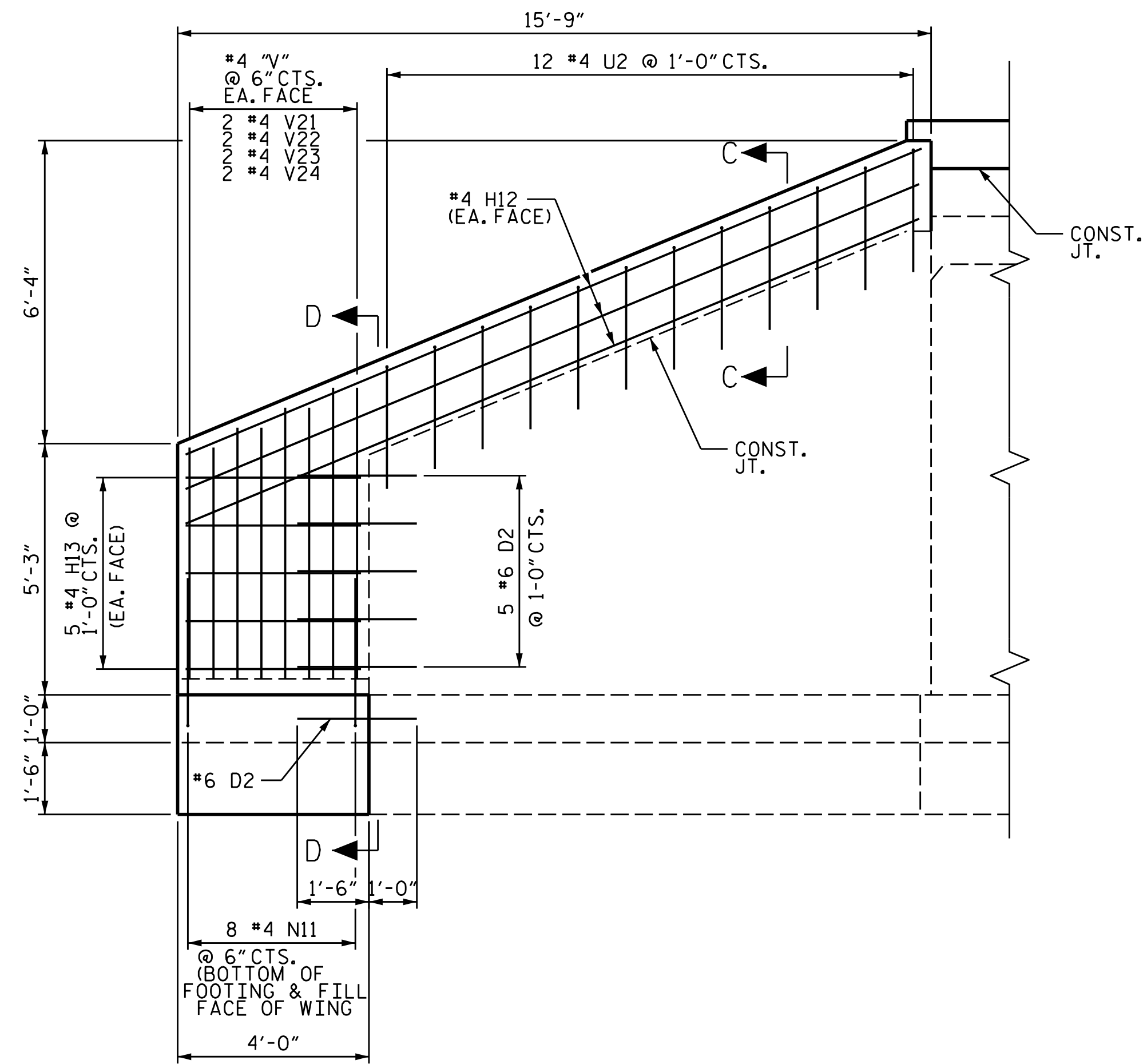
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C1-8
TOTAL SHEETS 18

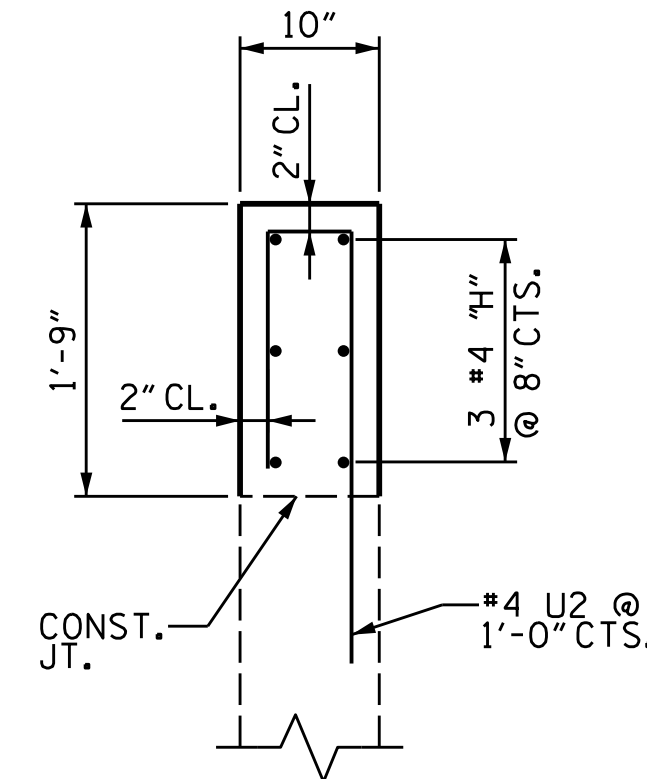
DRAWN BY : JLA DATE : 3/18
CHECKED BY : MGC DATE : 4/18
DESIGN ENGINEER OF RECORD : MGC DATE : 9/18



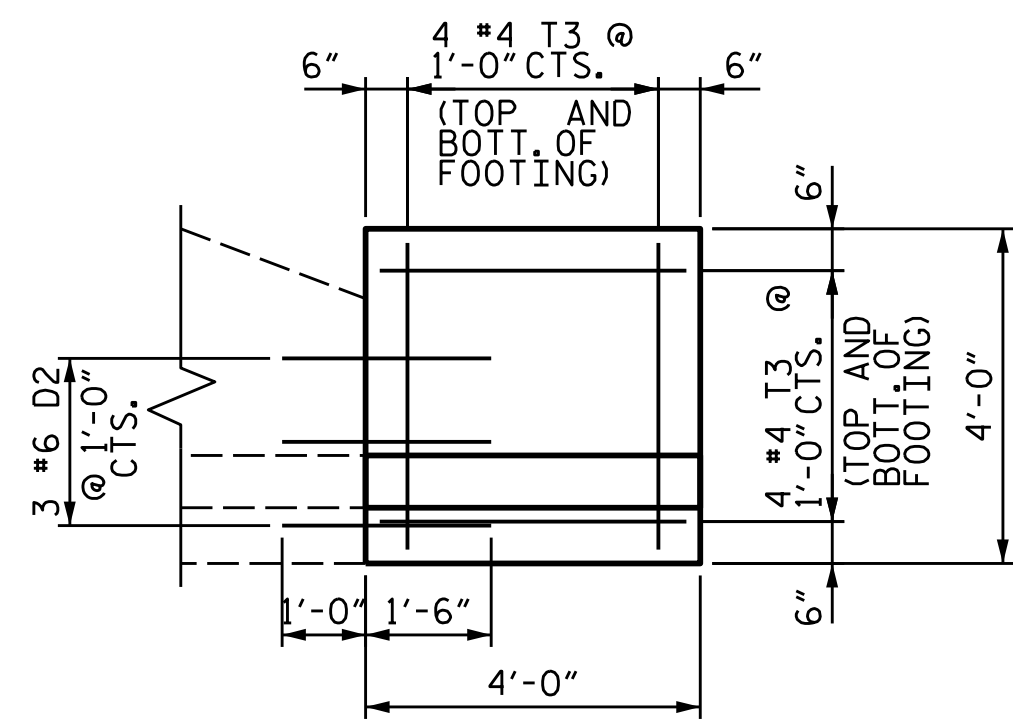
PLAN W3



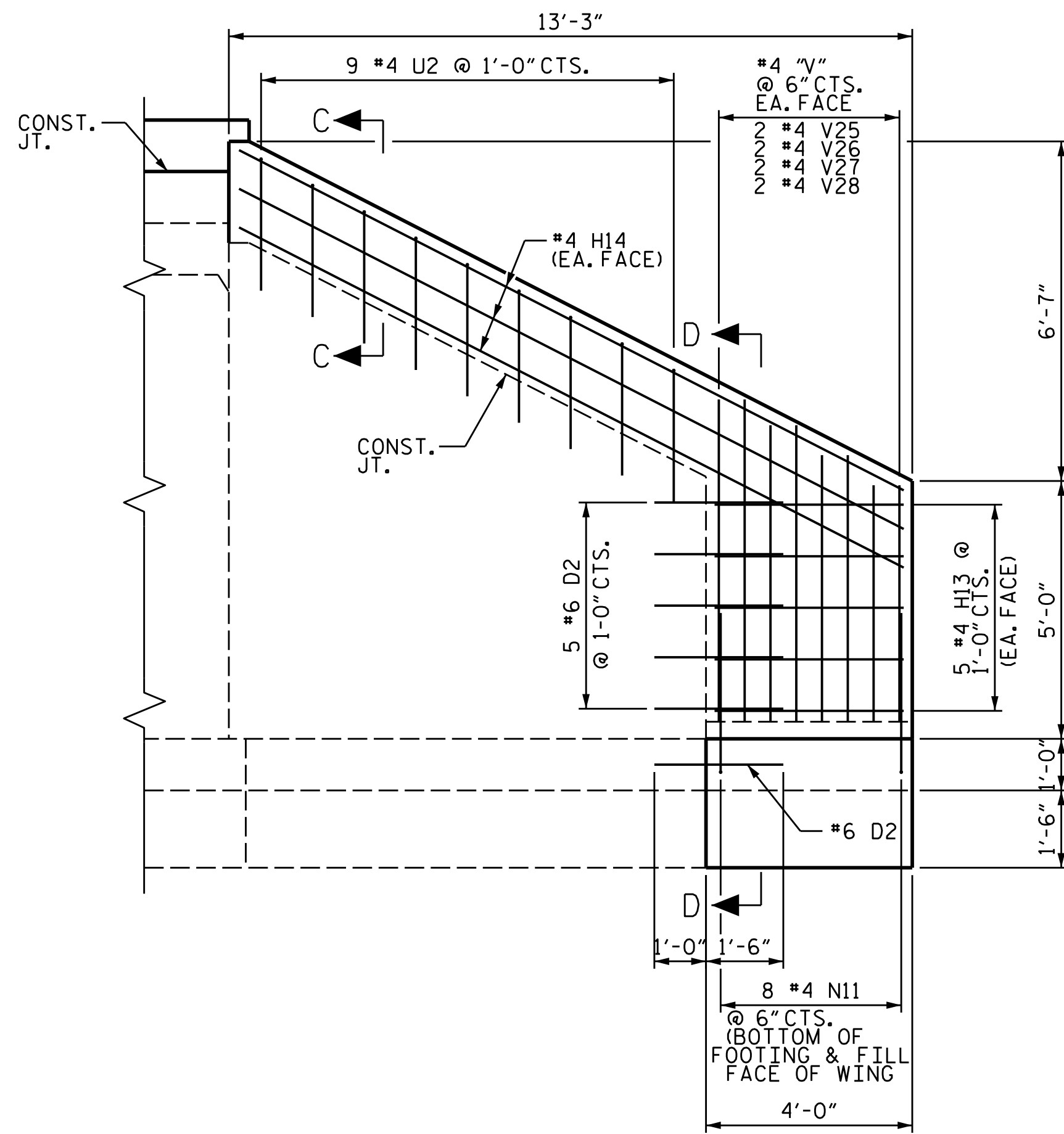
ELEVATION W3



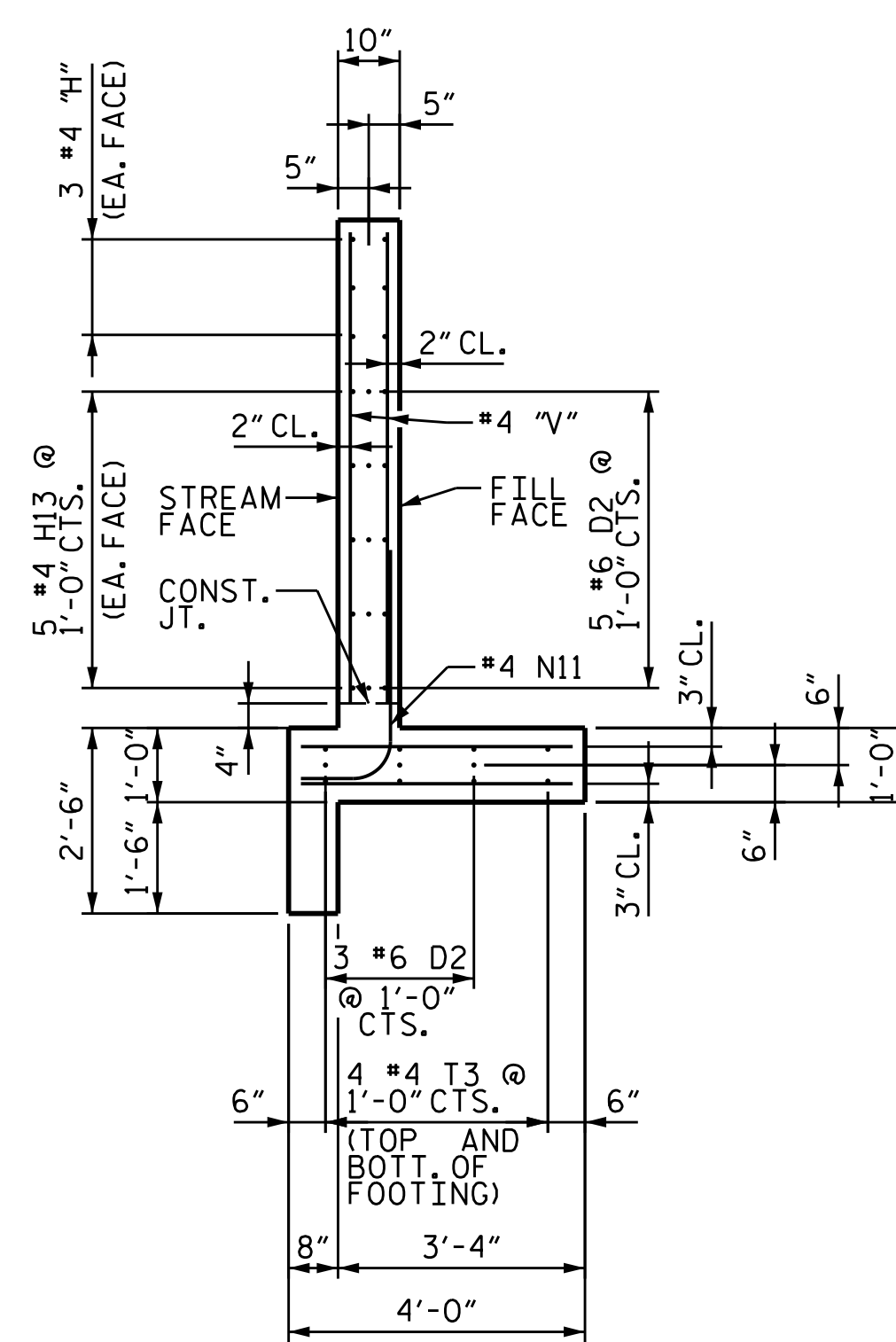
SECTION C-C



PLAN W4



ELEVATION W4



SECTION D-D

BILL OF MATERIAL FOR EXISTING HEADWALL EXTENSION						BILL OF MATERIAL FOR EXISTING WINGS W3 & W4 EXTENSIONS						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
H11	8	#4	STR	16'-2"	86	D2	16	#6	STR	2'-6"	60	
U1	31	#4	1	3'-5"	71	H12	6	#4	STR	16'-7"	66	
REINFORCING STEEL					157 LBS	H13	20	#4	STR	3'-8"	49	
CLASS A CONCRETE HEADWALL EXTENSION					1.4 CY	H14	6	#4	STR	14'-5"	58	
TOTAL					1.4 CY	REINFORCING STEEL					533 LBS	
BAR TYPES						CLASS A CONCRETE						
ALL BAR DIMENSIONS ARE OUT TO OUT.						2 WING EXTENSIONS						2.6 CY
U2	21	#4	1	4'-6"	63	2 FOOTINGS						1.6 CY
V21	4	#4	STR	4'-10"	13	TOTAL						4.2 CY
V22	4	#4	STR	5'-3"	14							
V23	4	#4	STR	5'-7"	15							
V24	4	#4	STR	6'-0"	16							
V25	4	#4	STR	4'-7"	12							
V26	4	#4	STR	5'-1"	14							
V27	4	#4	STR	5'-7"	15							
V28	4	#4	STR	6'-1"	16							

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9/6/2018 10:37:17 AM PDT

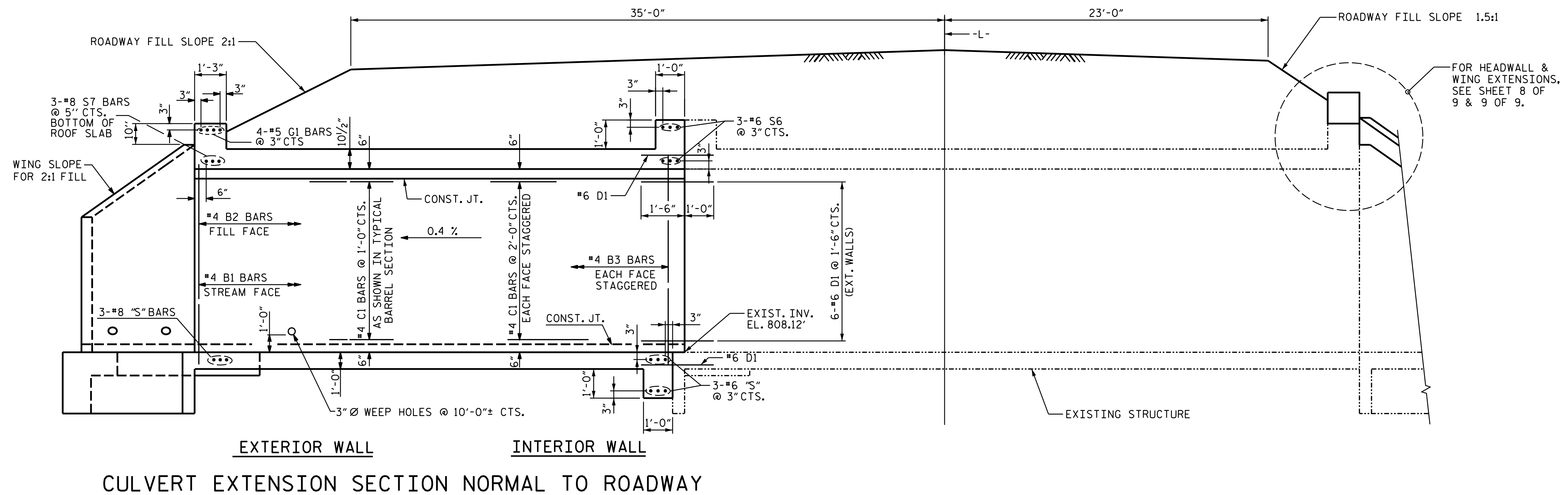
PROJECT NO. W-5212N
 GASTON COUNTY
 STATION: 42+19.00-L-
 SHEET 9 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 INLET END WING EXTENSIONS

DRAWN BY : JLA DATE : 2/18
 CHECKED BY : MGC DATE : 4/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

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NO.	BY:	DATE:	NO.	BY:	DATE:	C1-9			
1			3			TOTAL SHEETS 18			
2			4						

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 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275



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PROJECT NO. W-5212N
GASTON COUNTY
 STATION: 324+60.00-L-

SHEET 3 OF 9

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DocuSign
 Marshall E. [Signature]
 9/6/2018 10:46:49 AM PDT
 SFBC2F3A4DC413

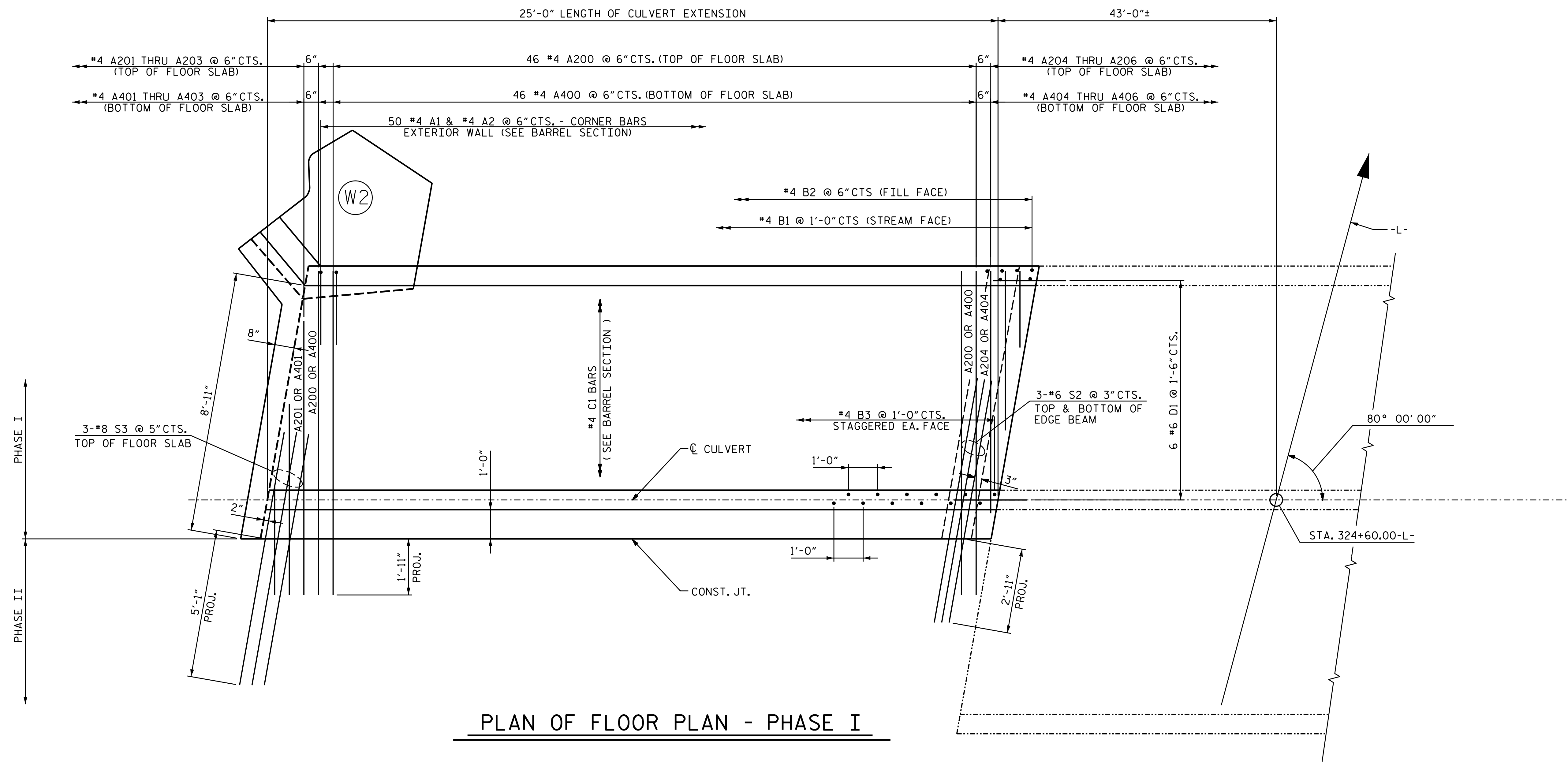
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 CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DOUBLE 7 FT. X 8 FT. CONCRETE BOX CULVERT EXTENSION DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			C2-3
2			4			18



PLAN OF FLOOR PLAN - PHASE I

PROJECT NO. W-5212N
GASTON COUNTY
 STATION: 324+60.00-L-
 SHEET 4 OF 9

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 Marshall C. Cheek, Jr.
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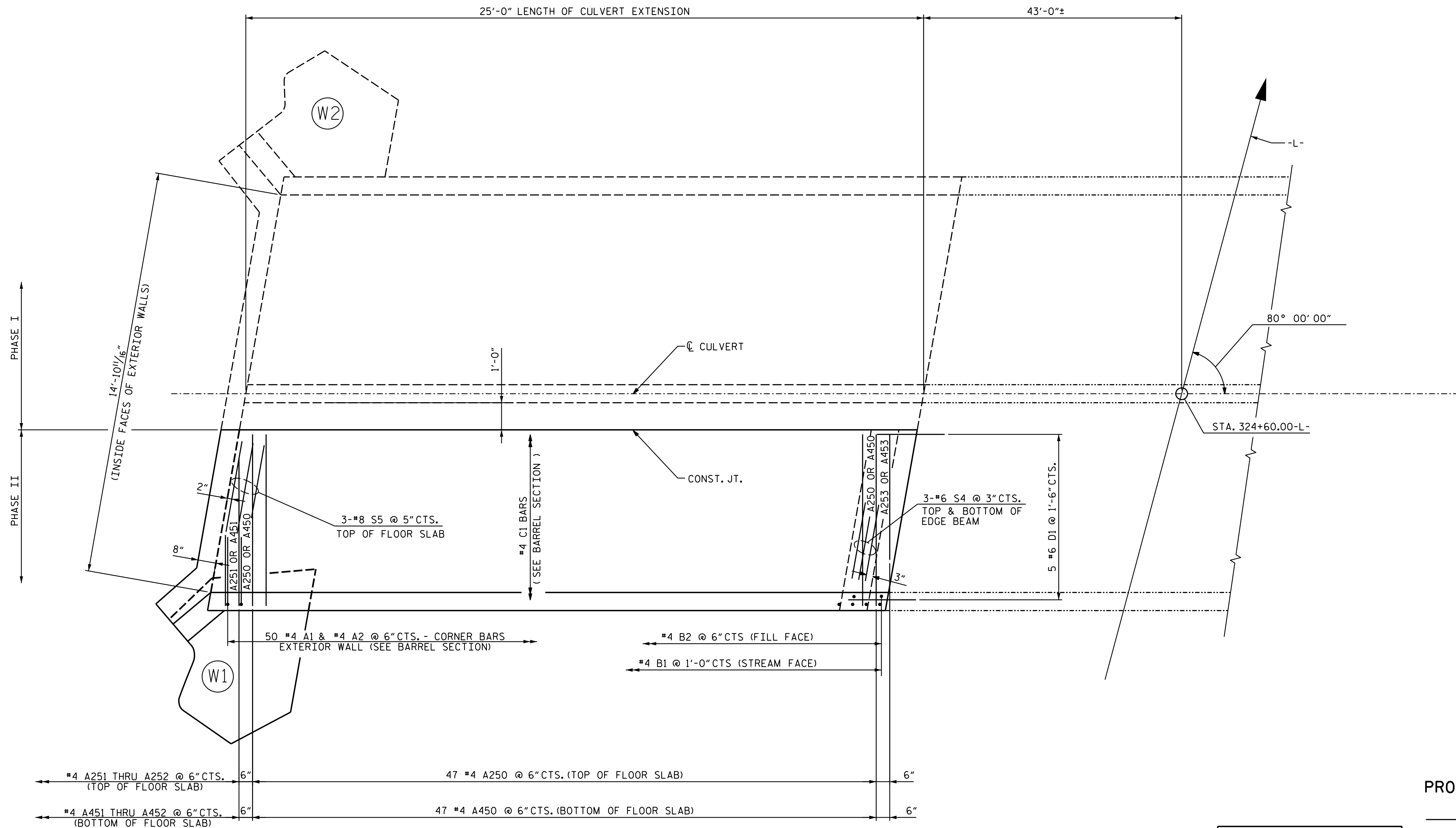
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DOUBLE 7 FT. X 8 FT. CONCRETE BOX CULVERT
PHASE I

DRAWN BY : NMW DATE : 3/18
 CHECKED BY : MGC DATE : 3/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			18



PLAN OF FLOOR PLAN - PHASE II

PROJECT NO. W-5212N
GASTON COUNTY
 STATION: 324+60.00-L-
 SHEET 5 OF 9

**RELEASED
FOR
CONSTRUCTION**



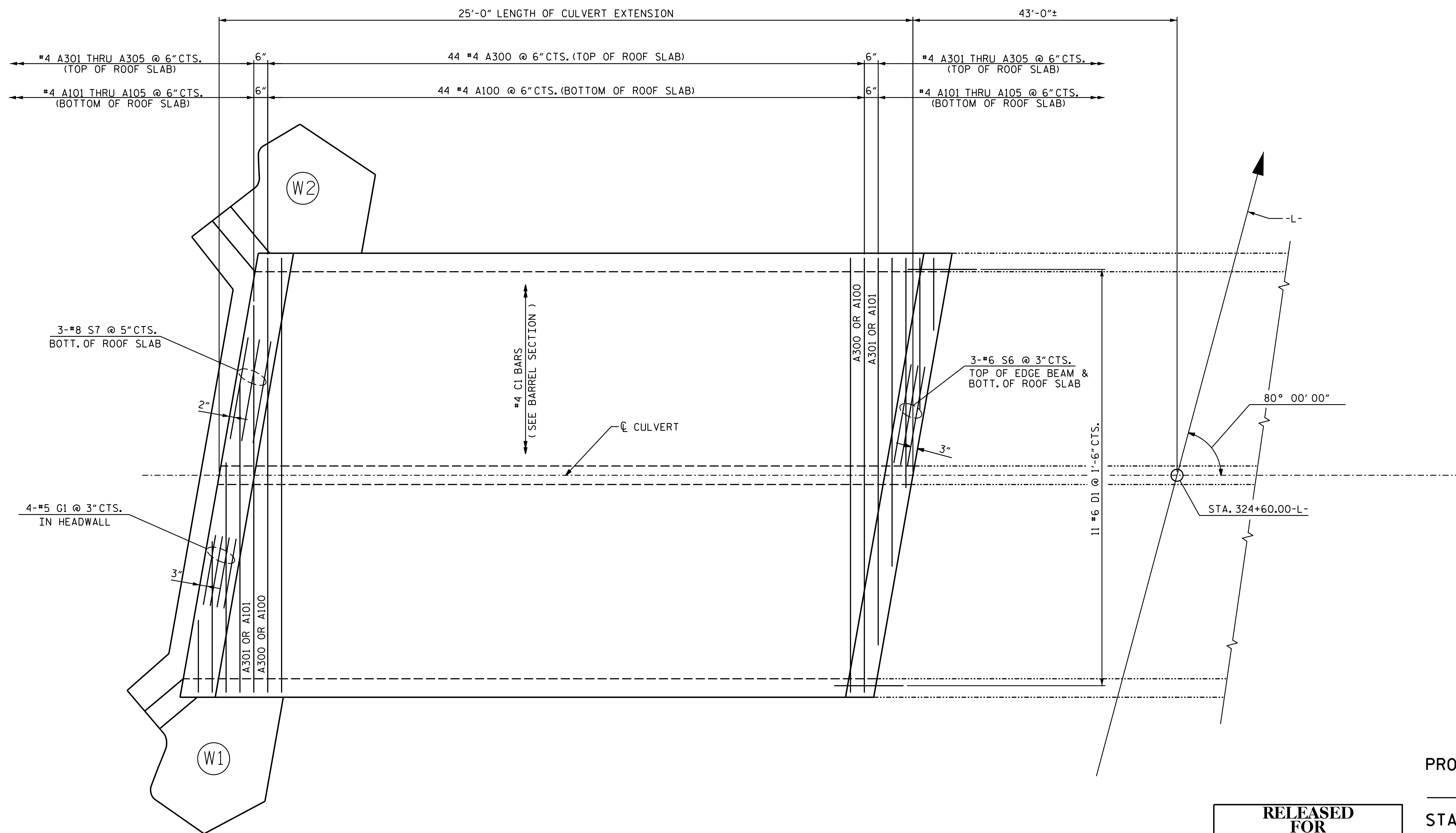
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**DOUBLE 7 FT. X 8 FT.
 CONCRETE BOX CULVERT
 PHASE I**

DRAWN BY : NMW DATE : 3/18
 CHECKED BY : MGC DATE : 3/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

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REVISIONS						SHEET NO. C2-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			



PLAN OF ROOF SLAB - PHASE II

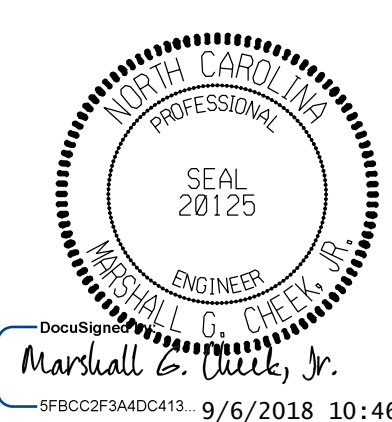
PROJECT NO. W-5212N

GASTON COUNTY

STATION: 324+60.00-L-

SHEET 6 OF 9

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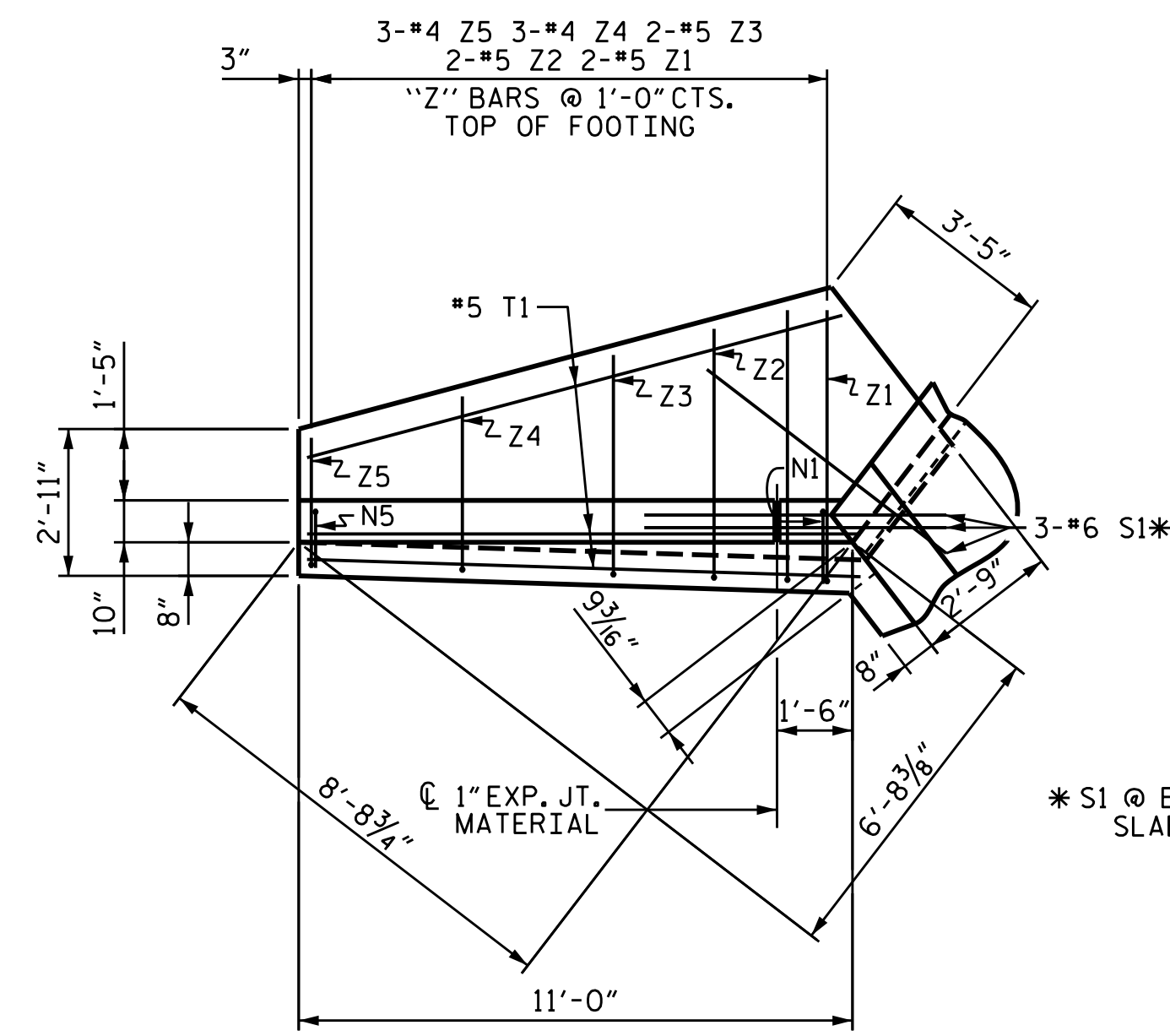
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**DOUBLE 7 FT. X 8 FT.
 CONCRETE BOX CULVERT
 PHASE II**

DRAWN BY : NMW DATE : 3/18
 CHECKED BY : MGC DATE : 3/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

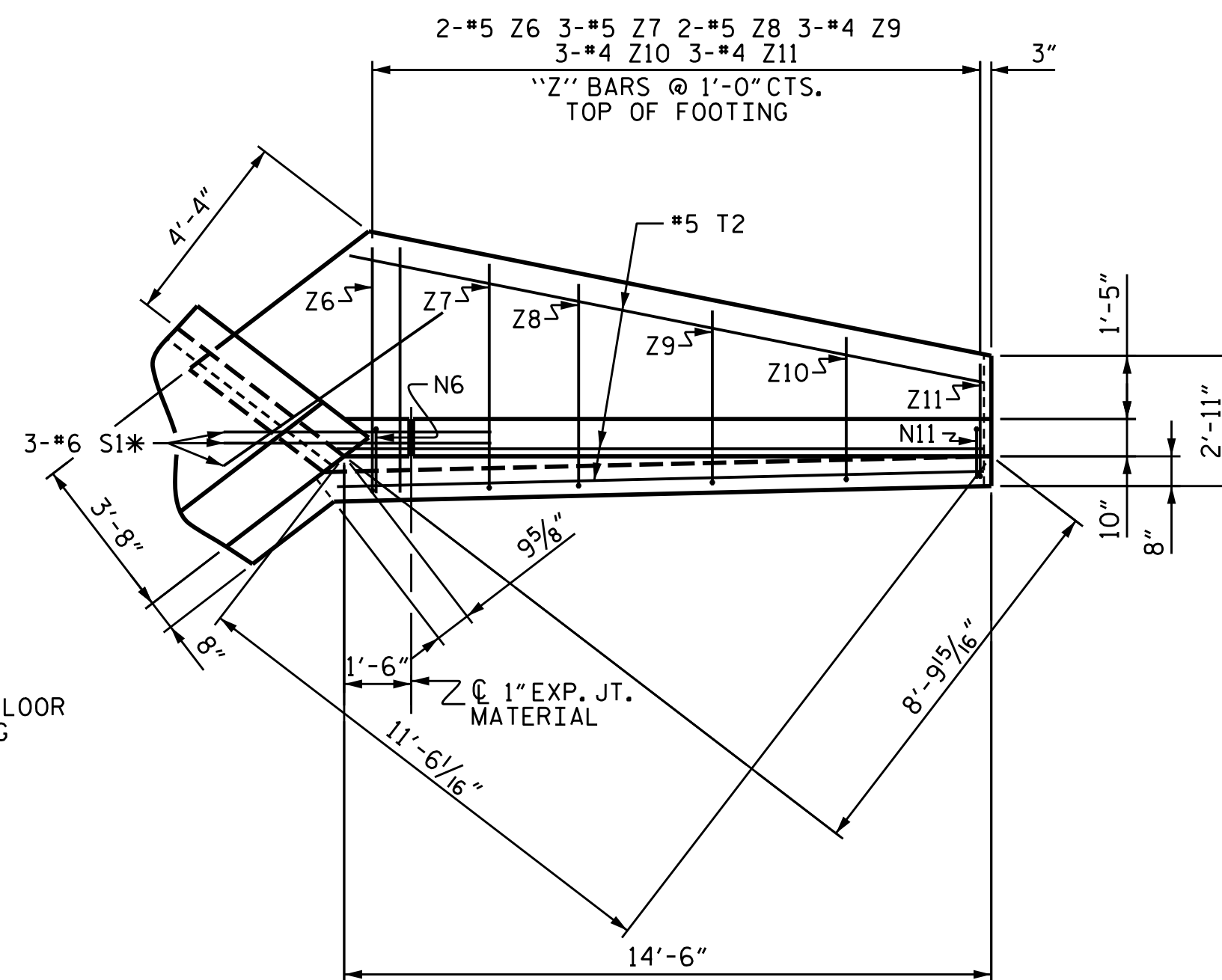
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1			3			TOTAL SHEETS
2			4			18

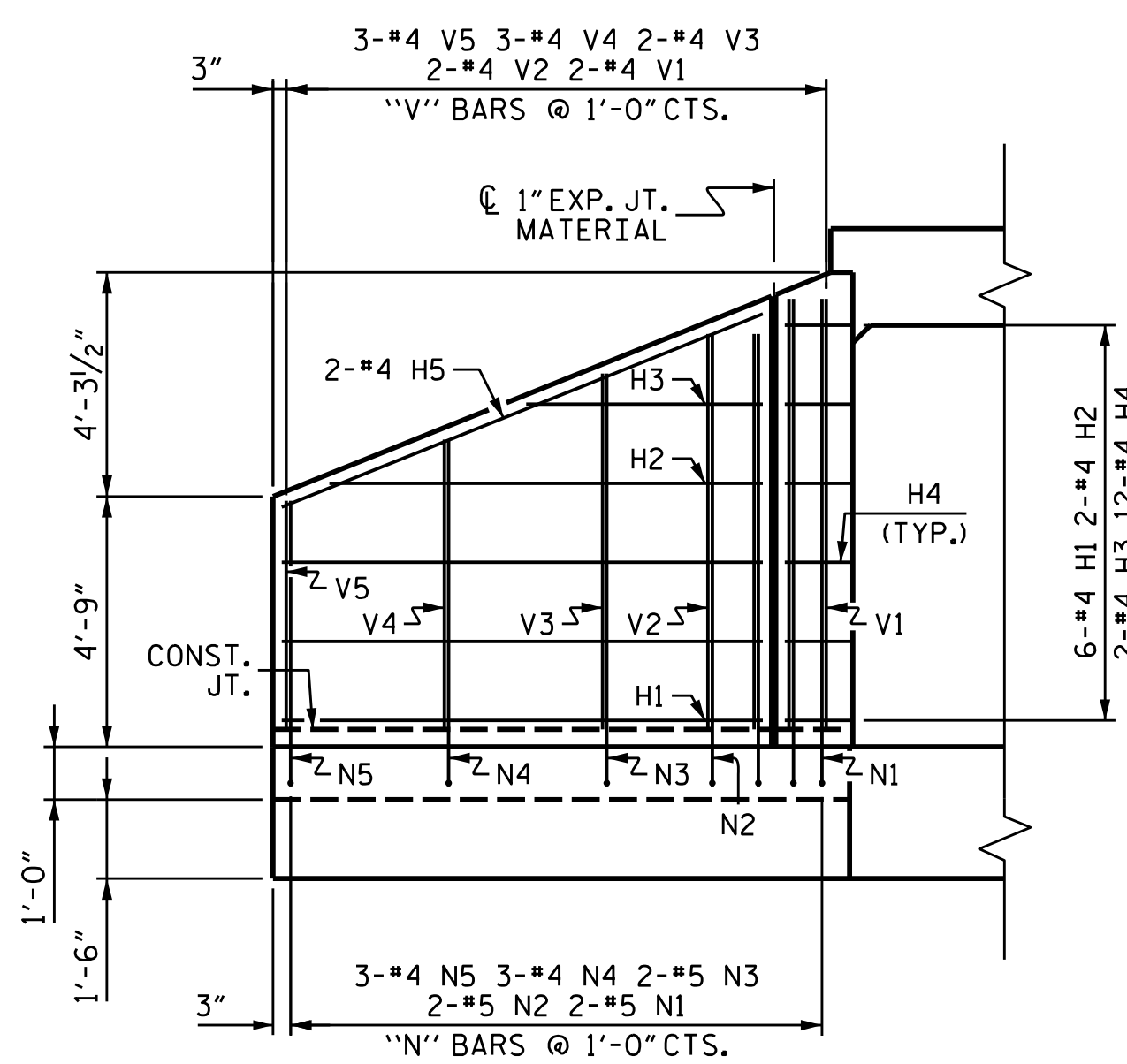


PLAN W2

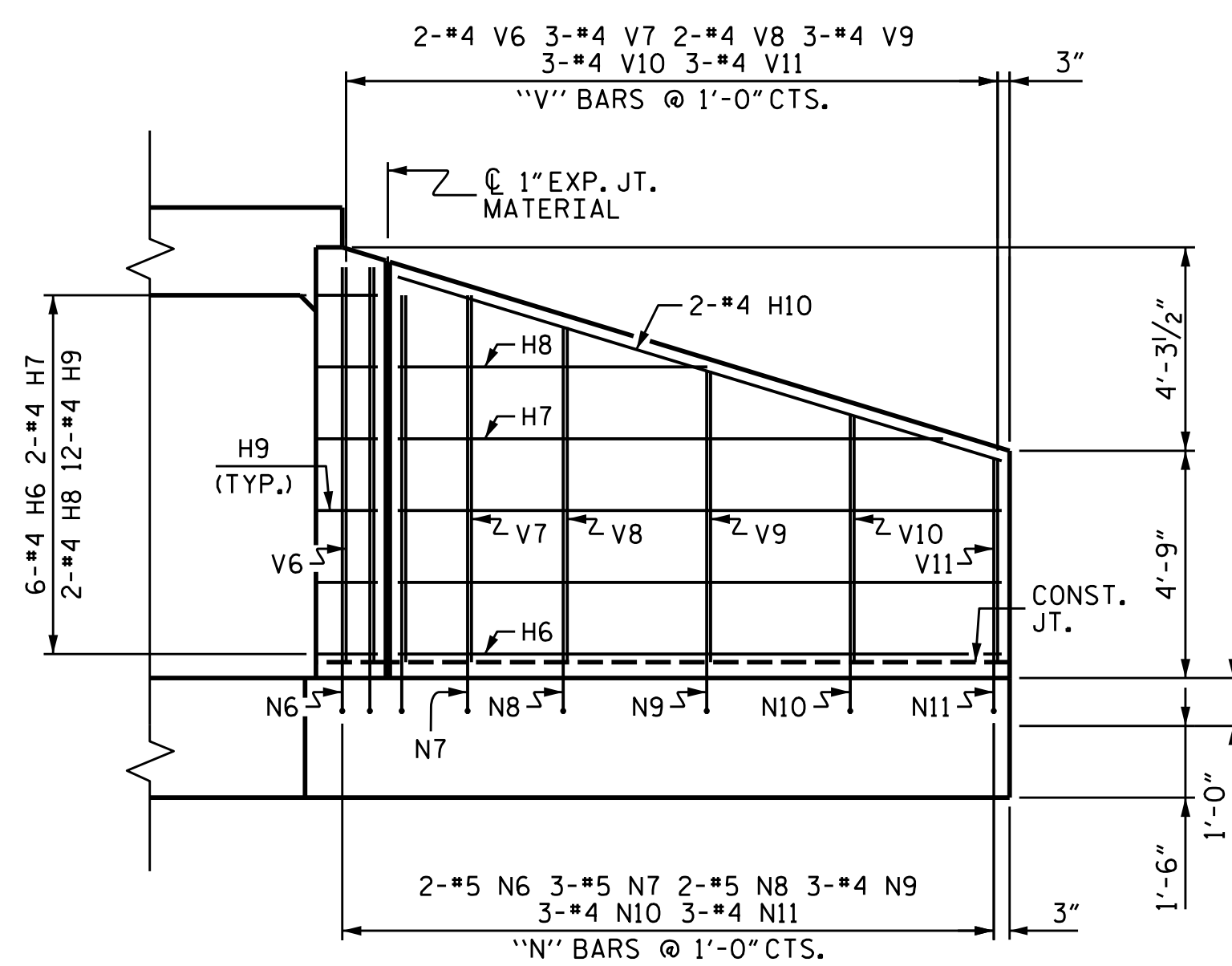


PLAN W1

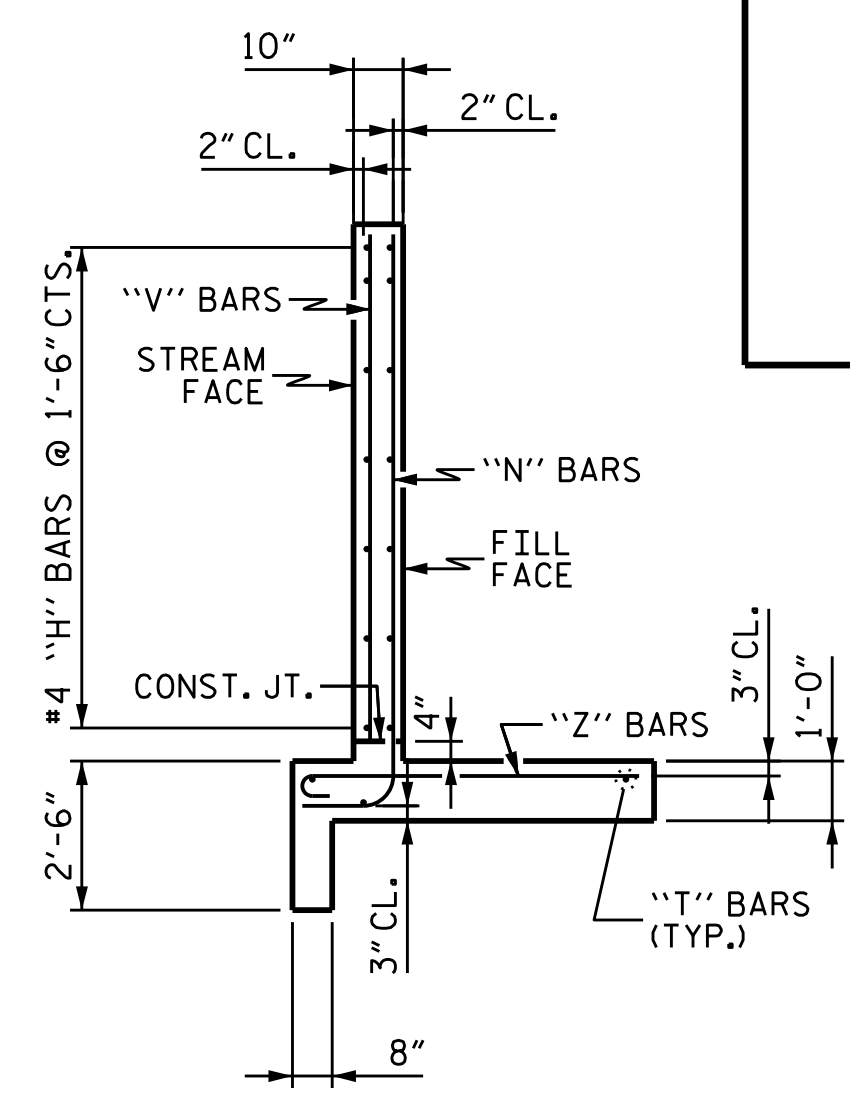
NOTE:
3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.



ELEVATION W2



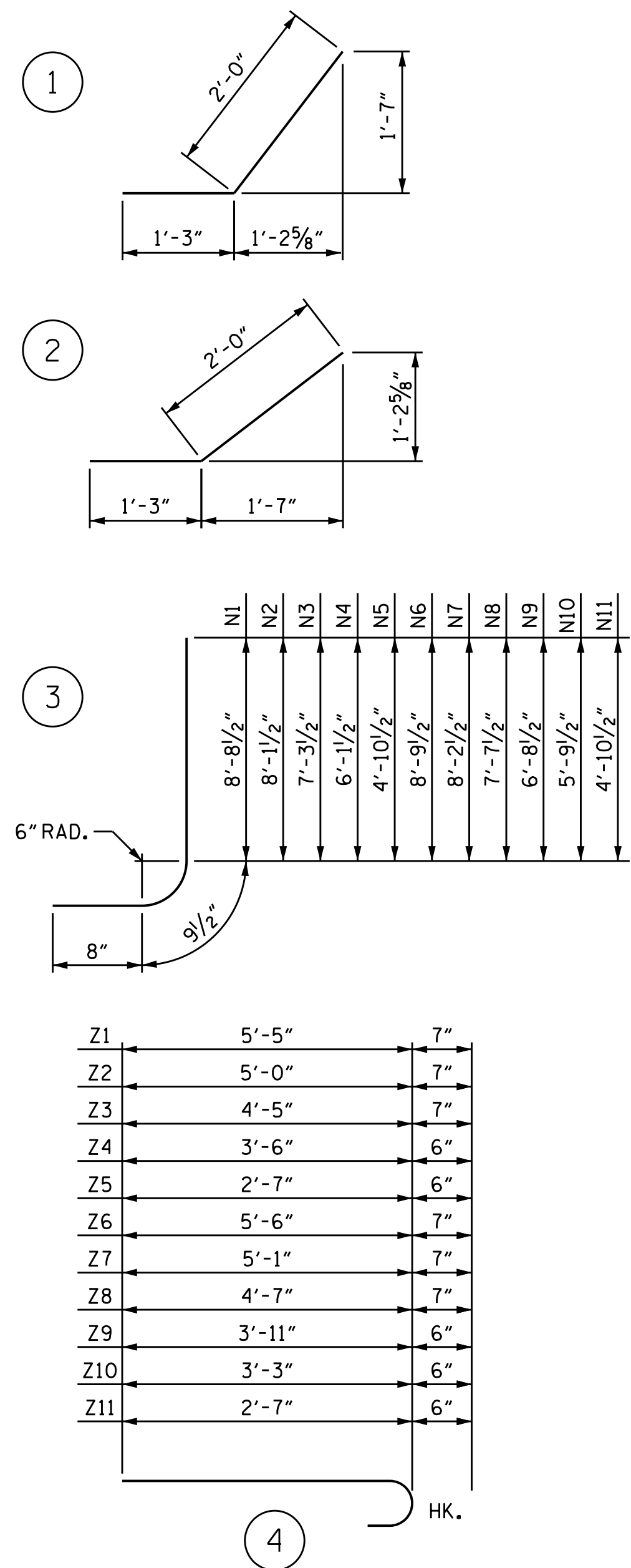
ELEVATION W1



TYPICAL WING SECTION

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	#6	STR	9'-1"	36
H2	#4	STR	8'-2"	11
H3	#4	STR	4'-5"	6
H4	#4	STR	3'-3"	26
H5	#4	STR	9'-10"	13
H6	#4	STR	12'-7"	50
H7	#4	STR	11'-4"	15
H8	#4	STR	6'-5"	9
H9	#4	STR	3'-3"	26
H10	#4	STR	13'-2"	18
N1	#5	STR	10'-2"	21
N2	#5	STR	9'-7"	20
N3	#5	STR	8'-9"	18
N4	#4	STR	7'-7"	15
N5	#4	STR	6'-4"	13
N6	#5	STR	10'-3"	21
N7	#5	STR	9'-8"	30
N8	#5	STR	9'-1"	19
N9	#4	STR	8'-2"	16
N10	#4	STR	7'-3"	15
N11	#4	STR	6'-4"	13
S1	#6	STR	6'-0"	54
T1	#5	STR	11'-0"	34
T2	#5	STR	14'-6"	45
V1	#4	STR	8'-2"	11
V2	#4	STR	7'-6"	10
V3	#4	STR	6'-9"	9
V4	#4	STR	5'-6"	11
V5	#4	STR	4'-4"	9
V6	#4	STR	8'-3"	11
V7	#4	STR	7'-8"	15
V8	#4	STR	7'-0"	9
V9	#4	STR	6'-1"	12
V10	#4	STR	5'-2"	10
V11	#4	STR	4'-3"	9
Z1	#5	STR	6'-0"	13
Z2	#5	STR	5'-7"	12
Z3	#5	STR	5'-0"	10
Z4	#4	STR	4'-0"	8
Z5	#4	STR	3'-1"	6
Z6	#5	STR	6'-1"	13
Z7	#5	STR	5'-8"	18
Z8	#5	STR	5'-2"	11
Z9	#4	STR	4'-5"	9
Z10	#4	STR	3'-9"	8
Z11	#4	STR	3'-1"	6

REINFORCING STEEL FOR 2 WINGS 774 LBS.
CLASS A CONCRETE
WING 1 (PHASE II) 6.4 CY
WING 2 (PHASE I) 4.9 CY
TOTAL 11.3 CY

ASSEMBLED BY : NMW DATE : 3/18
CHECKED BY : MGC DATE : 3/18
DRAWN BY : CCJ 01/00
CHECKED BY : RWW 03/00

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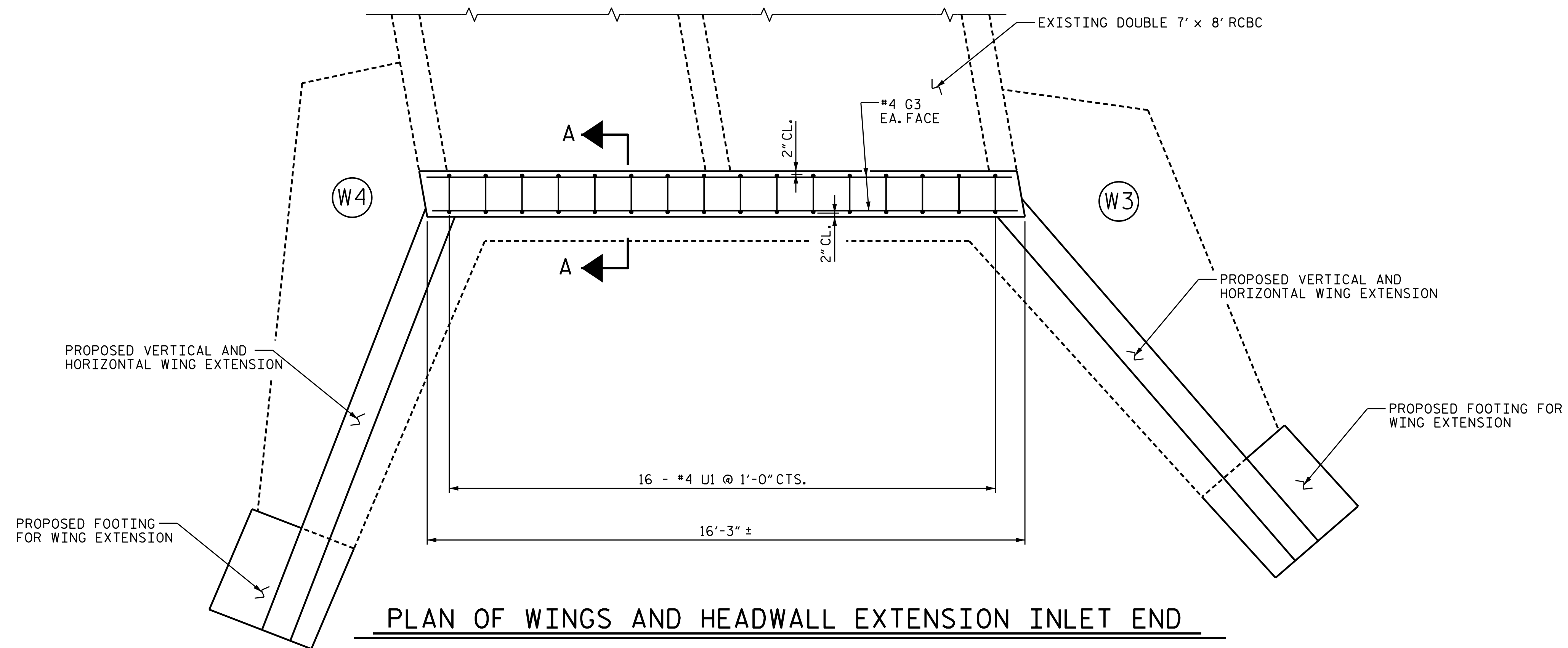
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PROJECT NO. W-5212N
GASTON COUNTY
STATION: 324+60.00-L-
SHEET 7 OF 9

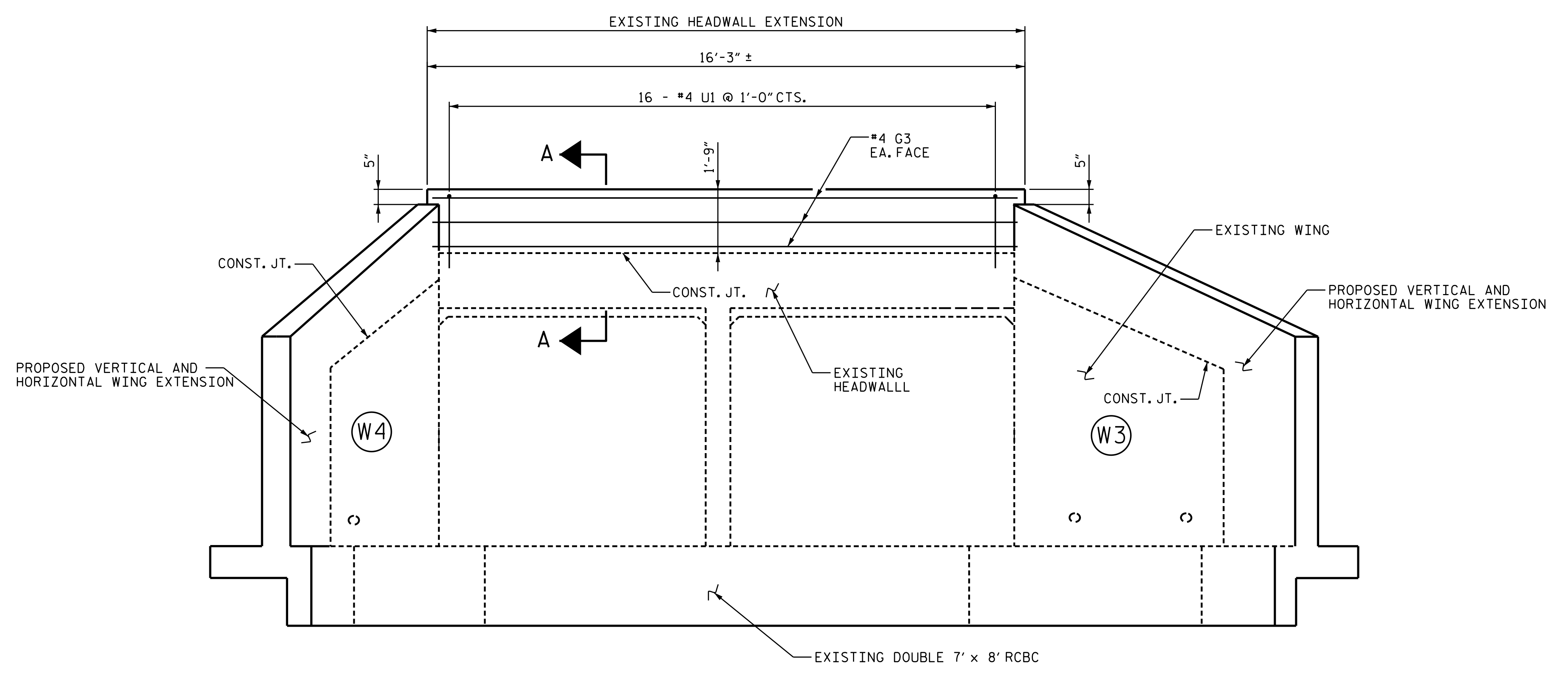
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD WINGS FOR CONCRETE BOX CULVERT
H = 8'-0" SLOPE = 2:1
80° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C2-7
1			3			TOTAL SHEETS 18
2			4			

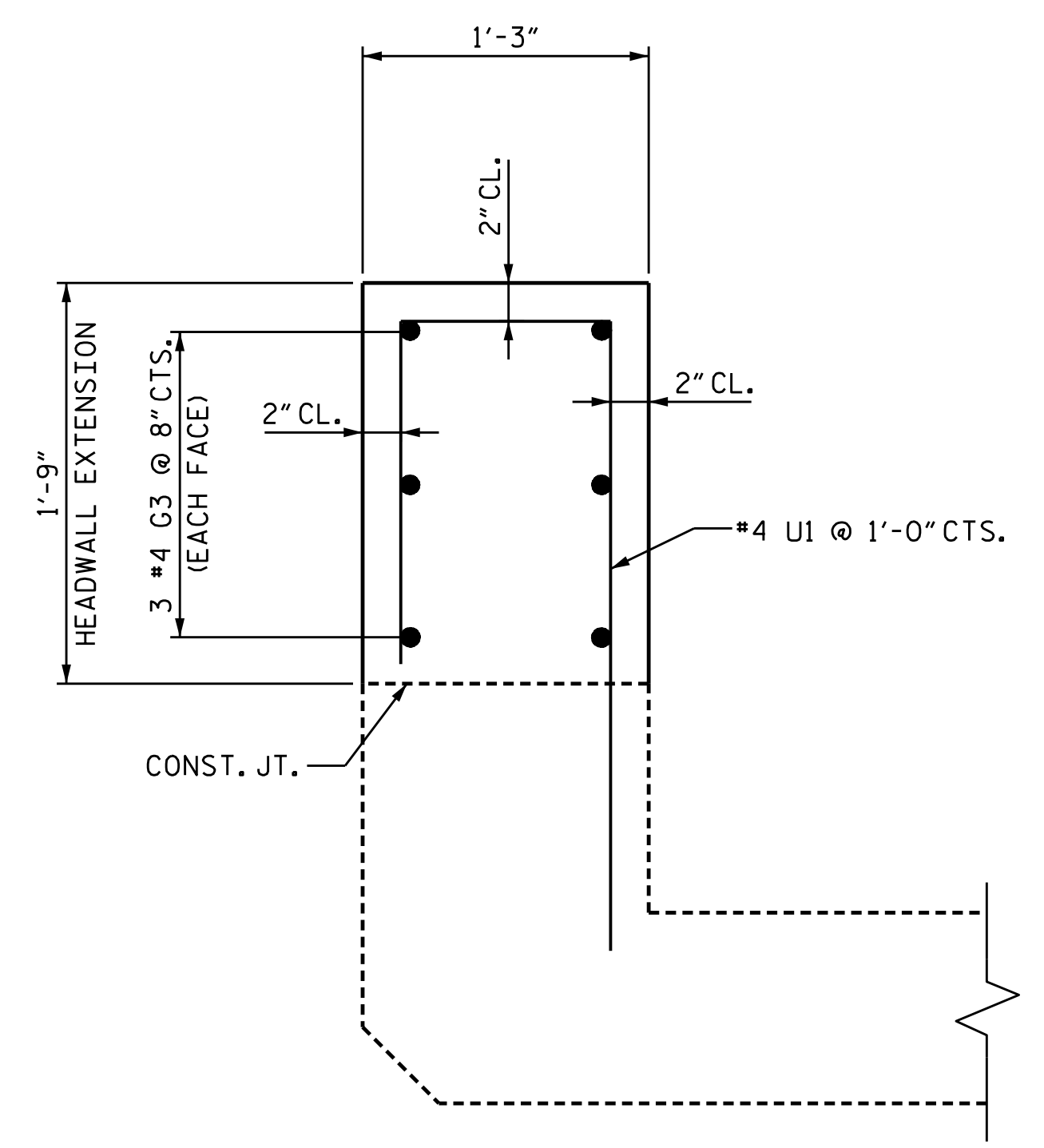


PLAN OF WINGS AND HEADWALL EXTENSION INLET END



ELEVATION OF HEADWALL EXTENSION INLET END NORMAL TO SKEW

NOTES:
 FOR DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.
 THE RESIDENT ENGINEER SHALL CHECK THE HEIGHT OF THE HEADWALL AND WING EXTENSIONS BEFORE CONSTRUCTION TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 DOWELS SHALL BE USED TO CONNECT THE HEADWALL EXTENSION AND THE WING EXTENSIONS TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.



SECTION A-A

PROJECT NO. W-5212N
GASTON COUNTY
 STATION: 324+60.00-L-
 SHEET 8 OF 9

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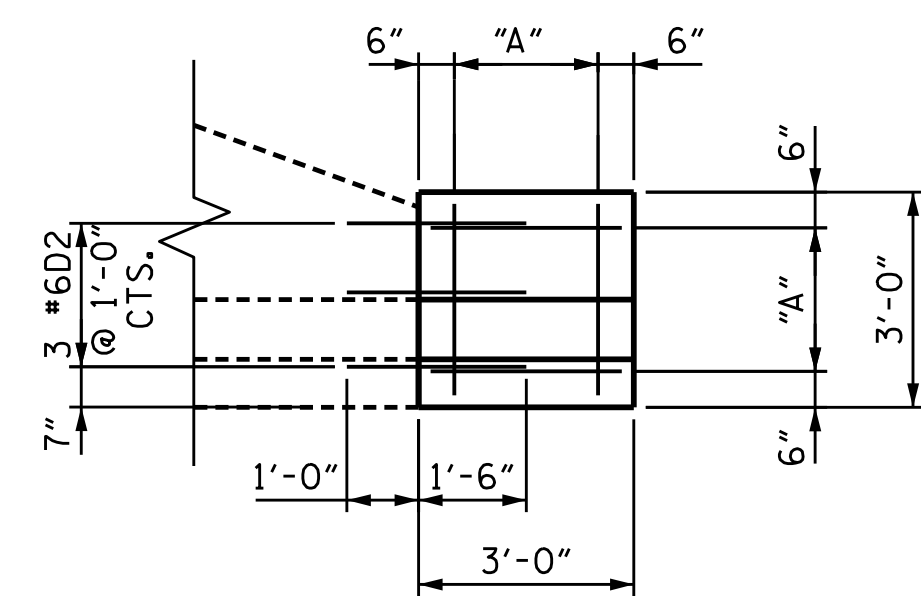
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

VERTICAL EXTENSION OF EXISTING HEADWALL INLET END

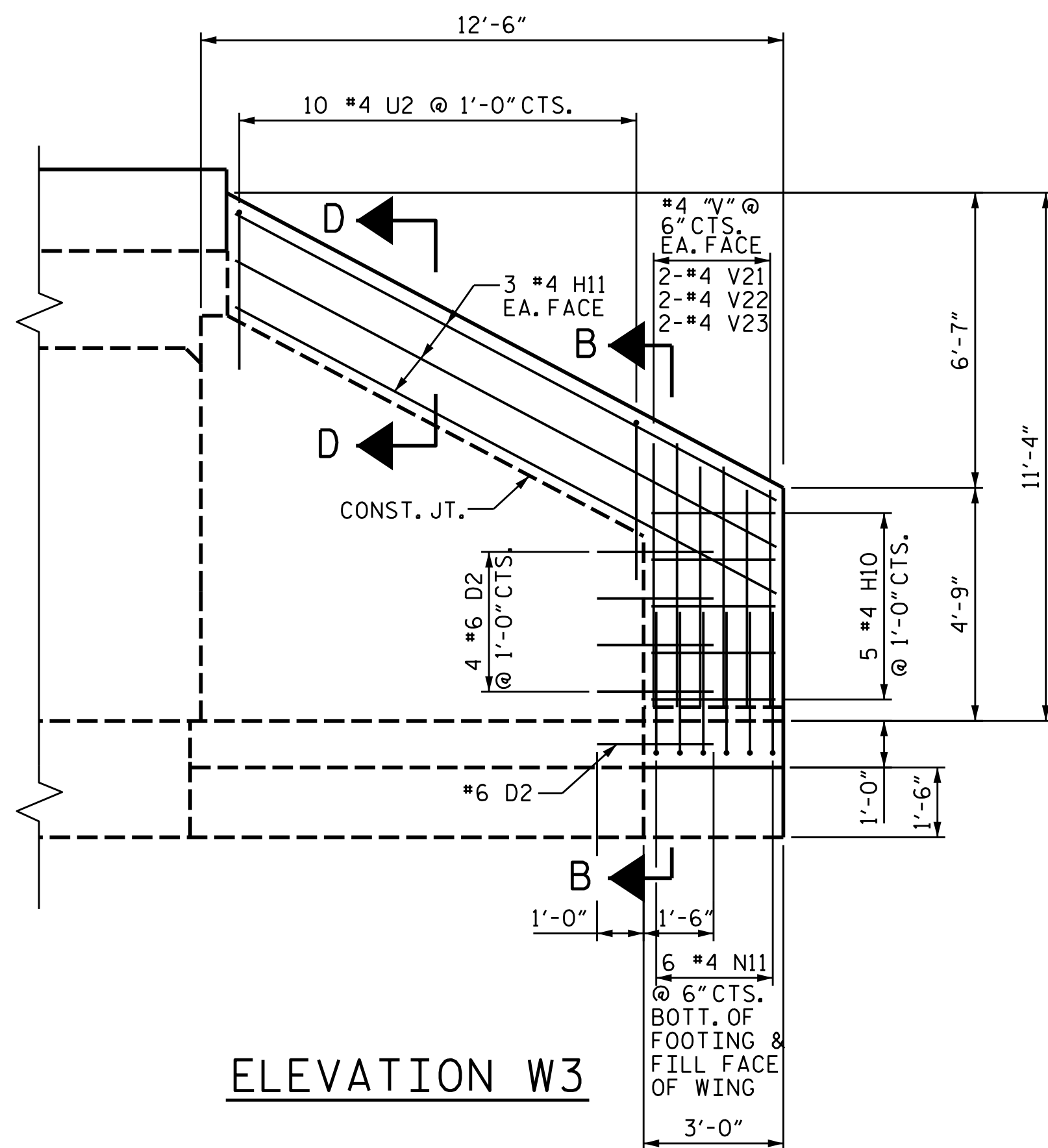
DRAWN BY : NMW DATE : 3/18
 CHECKED BY : MGC DATE : 3/18
 DESIGN ENGINEER OF RECORD : MGC DATE : 9/18

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C2-8
1			3			TOTAL SHEETS
2			4			18

"A" = 3 #4 T3 @ 1'-0" CTS.
(TOP OF FOOTING & BOTTOM OF FOOTING)

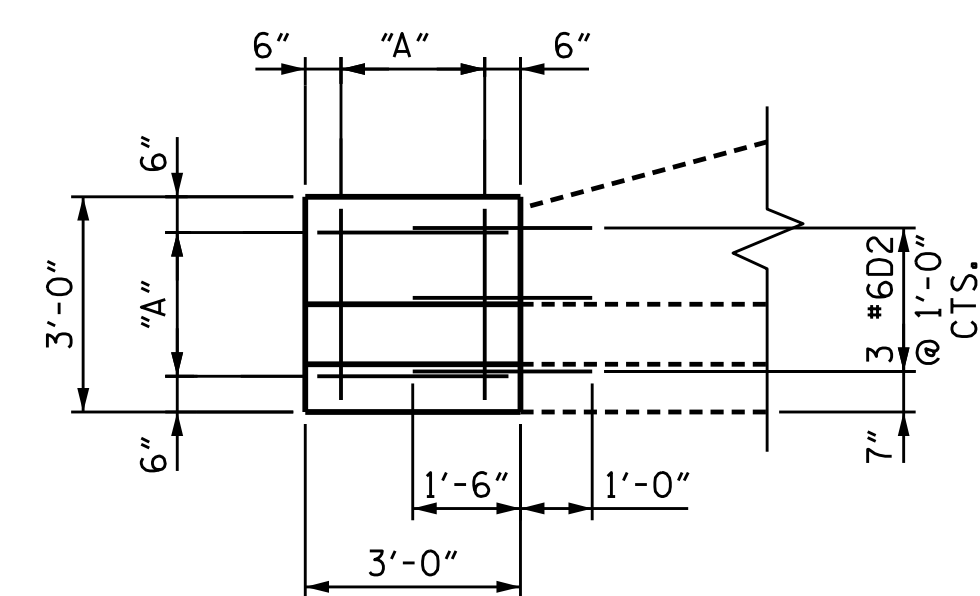


PLAN W3

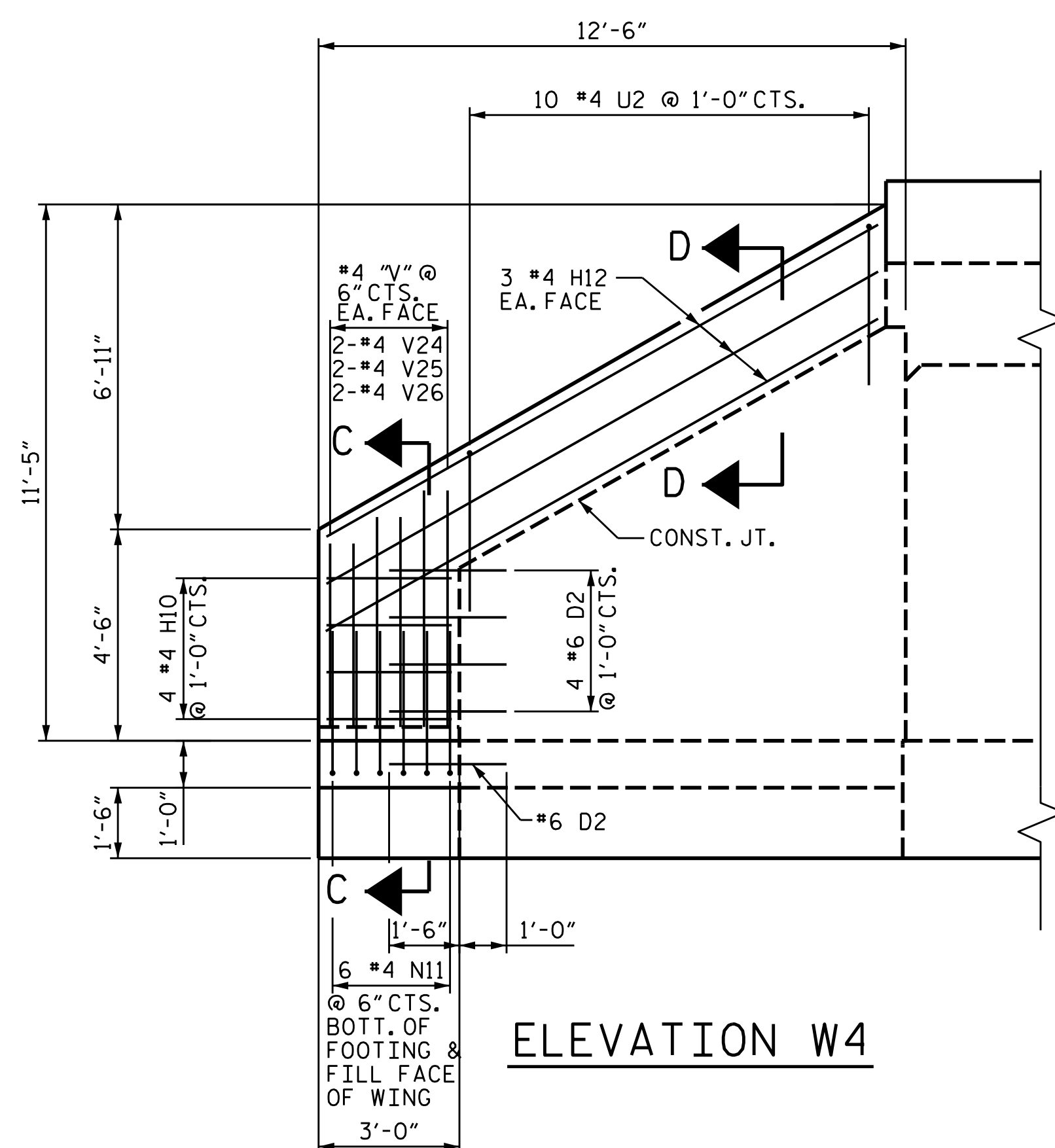


ELEVATION W3

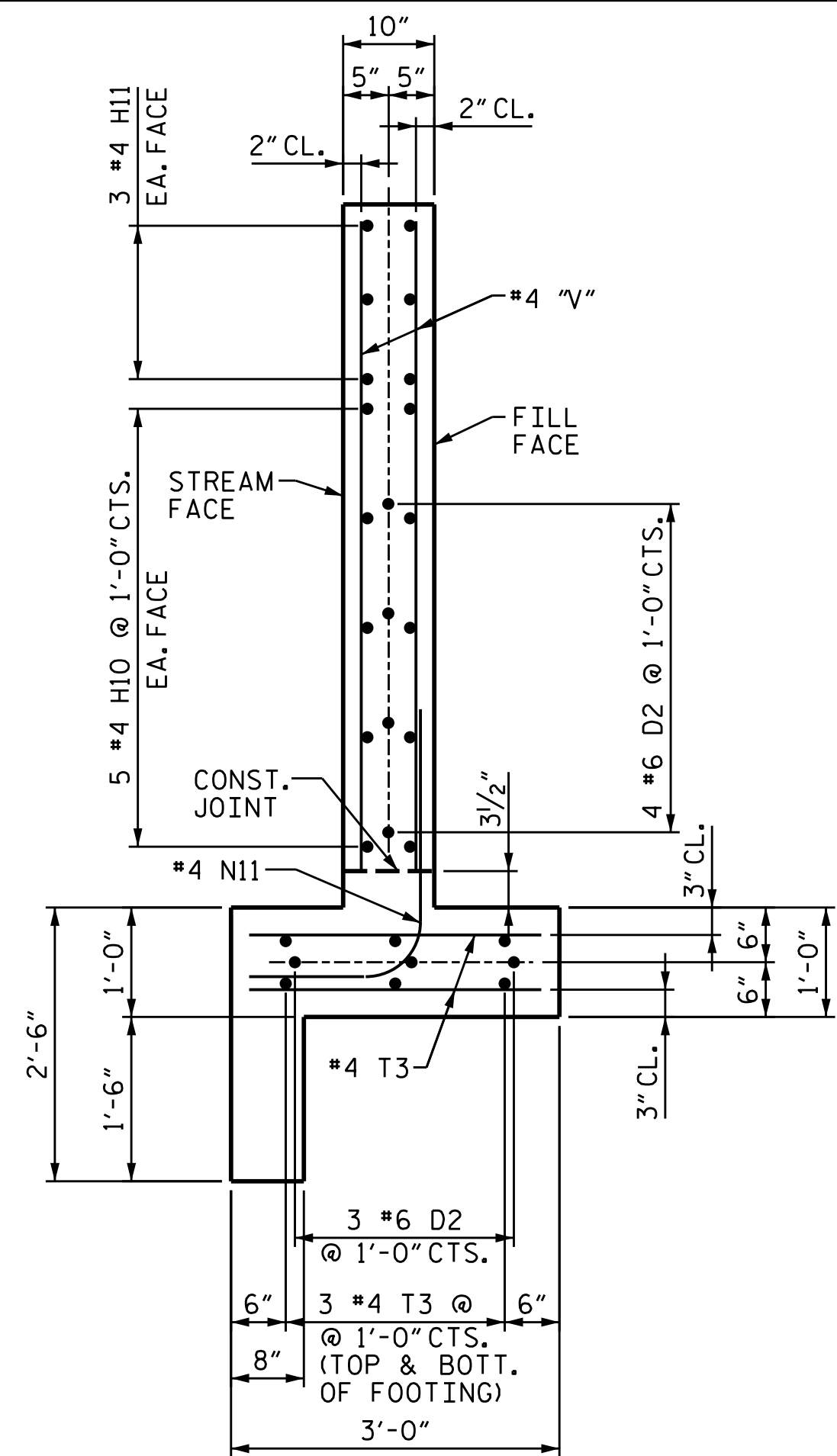
"A" = 3 #4 T3 @ 1'-0" CTS.
(TOP OF FOOTING & BOTTOM OF FOOTING)



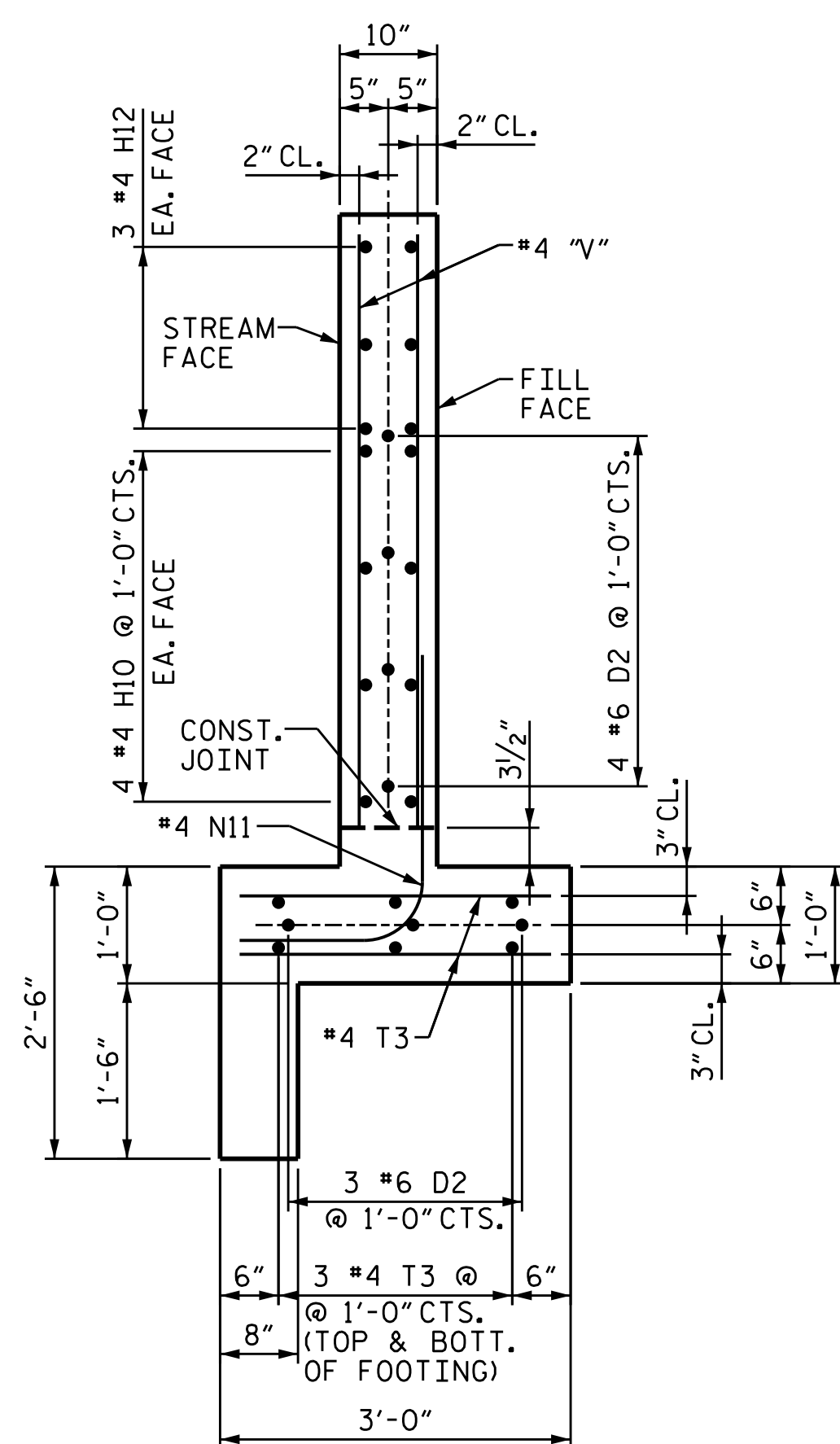
PLAN W4



ELEVATION W4



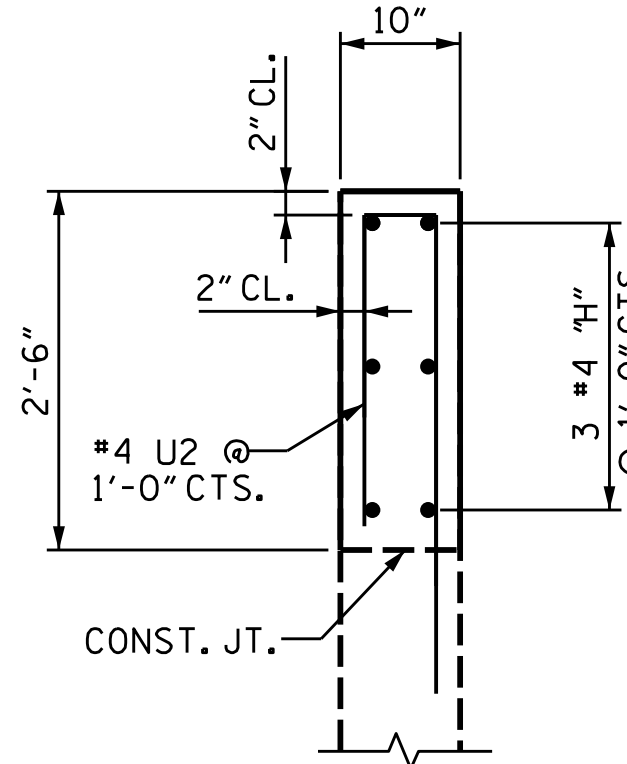
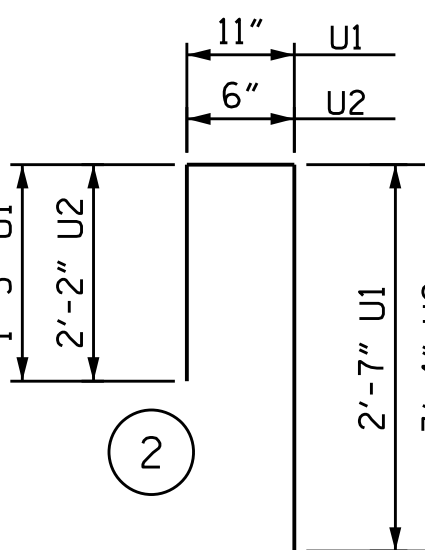
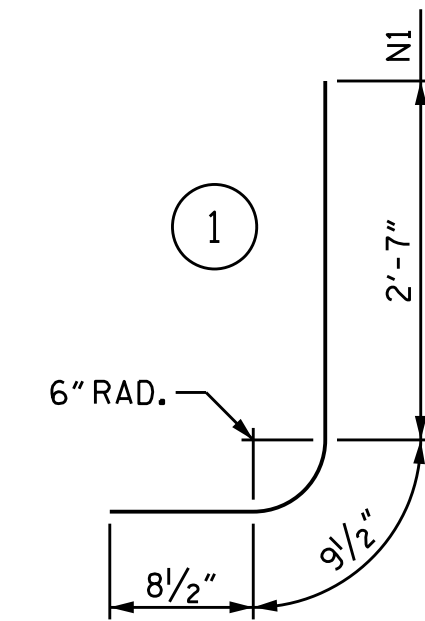
SECTION B-B



SECTION C-C

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION D-D

BAR SCHEDULE FOR EXISTING WINGS W3 & W4 EXTENSIONS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D2	14	#6	STR.	2'-6"	53
H10	9	#4	STR.	2'-8"	16
H11	6	#4	STR.	14'-0"	56
H12	6	#4	STR.	14'-3"	57
N11	12	#4	1	4'-1"	33
T3	24	#4	STR.	2'-8"	43
U2	20	#4	2	6'-0"	80
V21	4	#4	STR.	4'-5"	12
V22	4	#4	STR.	4'-11"	13
V23	4	#4	STR.	5'-5"	14
V24	4	#4	STR.	4'-2"	11
V25	4	#4	STR.	4'-8"	12
V26	4	#4	STR.	5'-3"	14

REINFORCING STEEL 414 LBS.

BAR SCHEDULE FOR EXISTING HEADWALL EXTENSION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
G3	6	#4	STR.	15'-11"	64
U1	16	#4	2	4'-11"	53

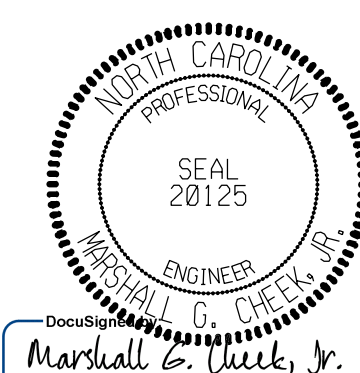
REINFORCING STEEL 117 LBS.

REINFORCING STEEL
2 EXISTING WING EXTENSIONS 414 LBS.
EXISTING HEADWALL EXTENSION 117 LBS.
TOTAL 531 LBS.

CLASS A CONCRETE
2 EXISTING WING EXTENSIONS 3.2 C.Y.
EXISTING HEADWALL EXTENSION 1.3 C.Y.
TOTAL 4.5 C.Y.

PROJECT NO. W-5212N
GASTON COUNTY
STATION: 324+60-L-
SHEET 9 OF 9

RELEASED FOR CONSTRUCTION



9/6/2018 10:46:49 AM PDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH: (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INLET END WING EXTENSIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C2-9
1			3			TOTAL SHEETS 18
2			4			

DRAWN BY: NMW DATE: 3/18
CHECKED BY: MGC DATE: 3/18
DESIGN ENGINEER OF RECORD: MGC DATE: 9/18

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 $\frac{1}{2}$ " 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. FINIS 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.