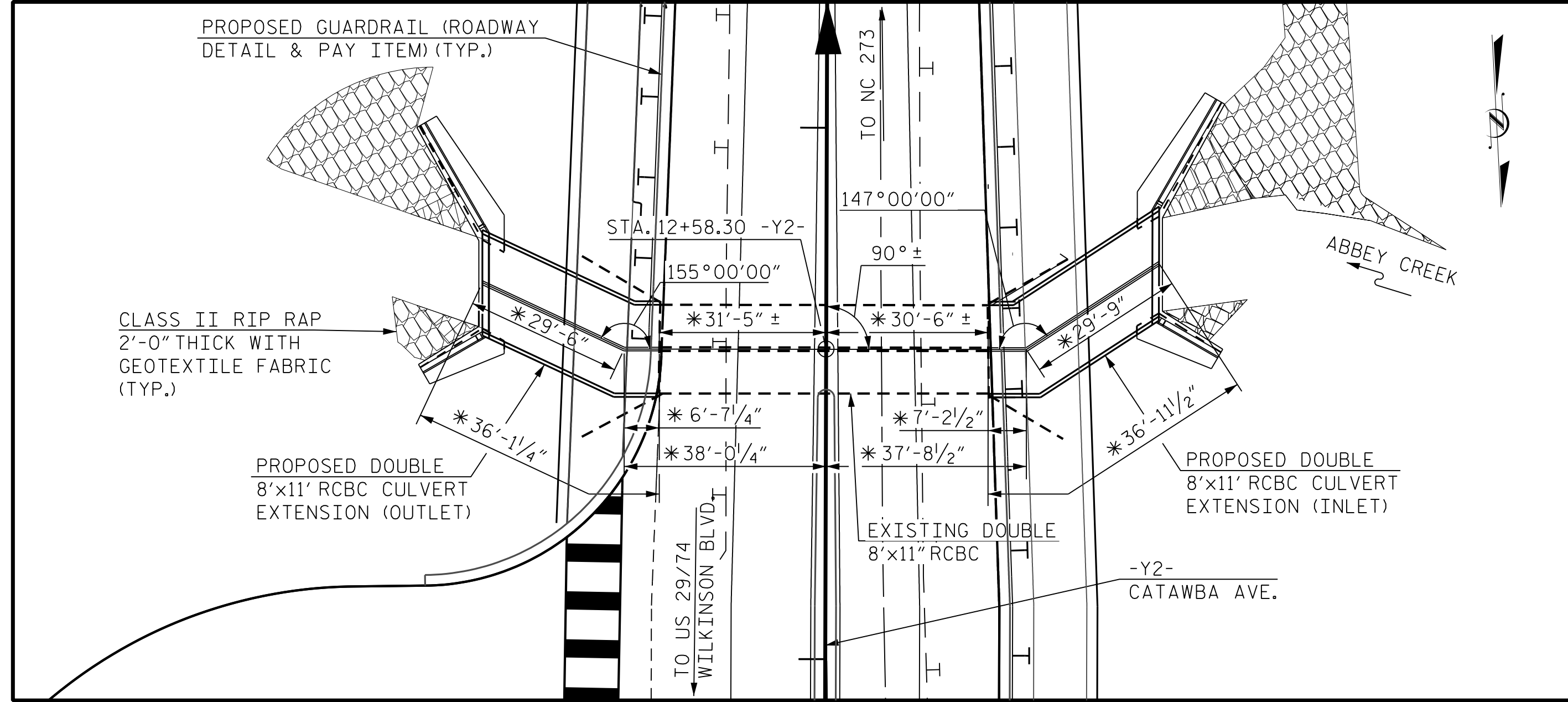
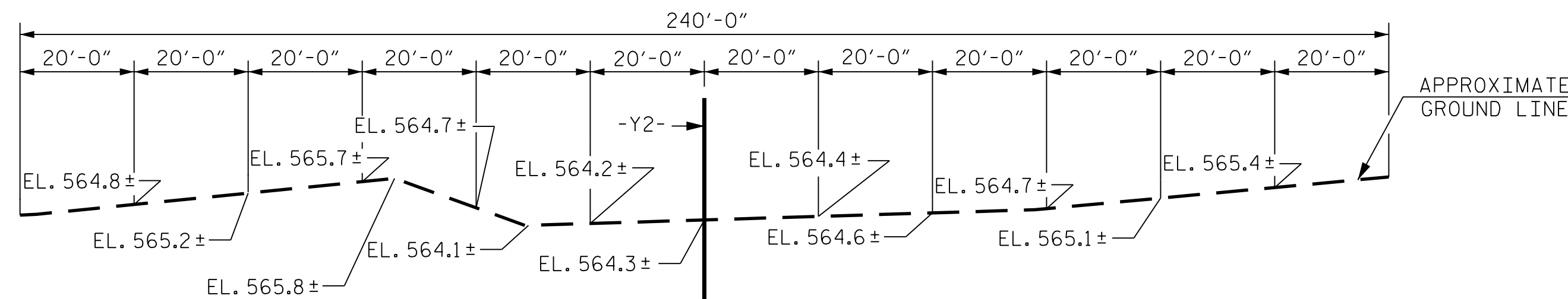


BENCH MARK: BM #2 -Y2- AT STA. 13+81.551 LT; BENCH TIE SET IN 14" HICKORY TREE, EL. 584.31, NAVD 88, N 550426, E 1399273



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS
 GRADE POINT ELEVATION AT STA. 12+58.3 -Y2- = 582.00
 BED ELEVATION AT STA. 12+58.3 -Y2- = 563.20
 ROADWAY SLOPES = 2:1



PROFILE ALONG C OF CULVERT

STRUCTURE QUANTITIES

CLASS A CONCRETE STAGE I		REINFORCING STEEL STAGE I	
BARREL @ 0.986 CY/FT	71.4 C.Y.	BARREL	16,558 LBS.
WING ETC.	19.3 C.Y.	WINGS ETC.	1,538 LBS.
TOTAL	90.7 C.Y.	TOTAL	18,096 LBS.
CLASS A CONCRETE STAGE II		REINFORCING STEEL STAGE II	
BARREL @ 0.620 CY/FT	44.8 C.Y.	BARREL	12,055 LBS.
WING ETC.	32.9 C.Y.	WINGS ETC.	2,642 LBS.
TOTAL	77.7 C.Y.	TOTAL	14,697 LBS.
CLASS A CONCRETE STAGE III		REINFORCING STEEL STAGE III	
BARREL @ 0.726 CY/FT	52.5 C.Y.	BARREL	9,572 LBS.
HEADWALL	2.0 C.Y.	TOTAL	9,572 LBS.
TOTAL	54.5 C.Y.		
CULVERT EXCAVATION ----- LUMP SUM		TYPE 4 GEOTEXTILE	
FOUNDATION CONDITIONING MATERIAL		STAGE I	187.3 S.Y.
STAGE I	190 TONS	STAGE II	182.7 S.Y.
STAGE II	150 TONS	TOTAL	370.0 S.Y.
TOTAL	340 TONS		

NOTES

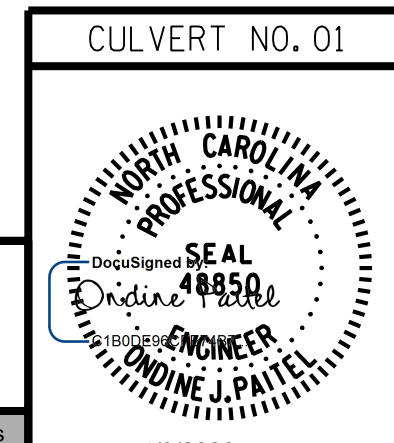
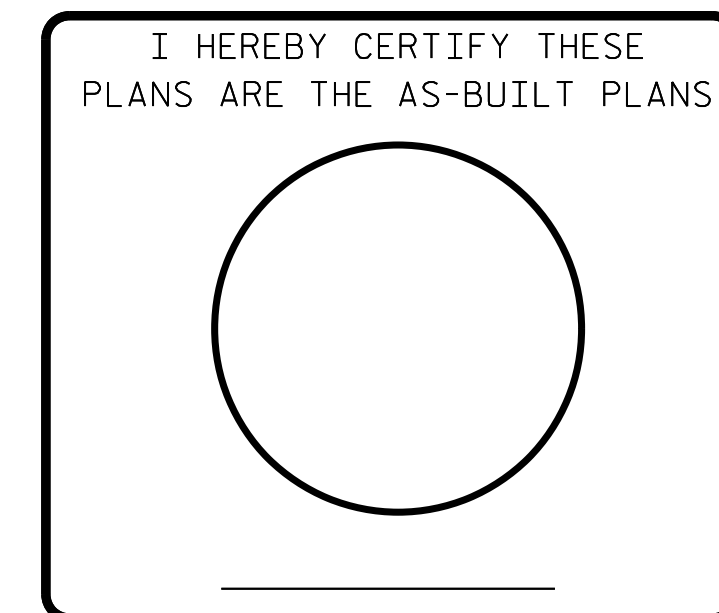
ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
 DESIGN FILL----- 7.0 FT. (MIN.), 8.3 FT. (MAX.)
 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.
 STAGING SEQUENCES STATED BELOW APPLY TO BOTH INLET AND OUTLET EXTENSIONS.
 CONCRETE IN STAGE I CULVERT TO BE POURED IN THE FOLLOWING ORDER:
 1. LEFT WING FOOTING, LEFT CURTAIN WALL, AND FLOOR SLAB OF FIRST LEFT BARREL INCLUDING 4" OF VERTICAL LEFT EXTERIOR AND INTERIOR WALLS.
 2. THE REMAINING PORTION OF LEFT EXTERIOR AND INTERIOR WALLS TO THE CONSTRUCTION JOINT AND WINGS FOR FULL HEIGHT.
 CONCRETE IN STAGE II CULVERT TO BE POURED IN THE FOLLOWING ORDER:
 1. RIGHT WING FOOTING, RIGHT CURTAIN WALL, AND FLOOR SLAB OF RIGHT SECOND BARREL INCLUDING 4" OF VERTICAL RIGHT EXTERIOR WALL.
 2. THE REMAINING PORTION OR RIGHT EXTERIOR WALL TO THE CONSTRUCTION JOINT AND WINGS FOR FULL HEIGHT.
 CONCRETE IN STAGE III CULVERT TO BE POURED IN THE FOLLOWING ORDER:
 1. ROOF SLAB, AND HEADWALLS.
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN 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.
 AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF THE EXTERIOR WALL ABOVE THE 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.
 A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WINGS COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 NO PRECAST BOX CULVERT OPTION WILL BE ALLOWED.
 FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
 EXCAVATE 1 FOOT BELOW BOTTOM OF CULVERT ELEVATION AND THEN PERFORM AN ADDITIONAL 2 FEET UNDERCUT EXCAVATION TO REMOVE SOFT/LOOSE ALLUVIAL MATERIAL FOR BEARING PURPOSES AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL (SELECT MATERIAL, CLASS VI)
 INSTALL TYPE 4 GEOTEXTILE AT THE BOTTOM OF EXCAVATION PRIOR TO PLACING FOUNDATION CONDITIONING MATERIAL. THE GEOTEXTILE SHOULD BE PLACED AT THE BOTTOM OF THE EXCAVATION AND WRAPPED UP THE SIDE WALLS OF THE EXCAVATION.
 NO CAMBER IS REQUIRED FOR THE CULVERT EXTENSIONS.
 DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.
 IF APPROVED BY THE 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 CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.
 THE EXISTING STRUCTURE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE, SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COSTS INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING STRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 TYPE 4 GEOTEXTILE IS INCLUDED IN THE COST OF FOUNDATION CONDITIONING MATERIAL.

HYDRAULIC DATA

DESIGN DISCHARGE-----910 C.F.S.
 FREQUENCY OF DESIGN FLOOD-----25 YR.
 DESIGN HIGH WATER ELEVATION-----572.0
 DRAINAGE AREA-----1.3 SQ. MI.
 BASE DISCHARGE (Q100)-----1,553 C.F.S.
 BASE HIGH WATER ELEVATION-----575.63

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE-----2,400 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD-----500 YR. +
 OVERTOPPING FLOOD ELEVATION-----582.1
 OVERTOPPING OCCURS AT STA. 13+04 -Y2-



PROJECT NO. B-6051/U-6143
GASTON/MECKLENBURG COUNTY
 STATION: 12+58.30 -Y2-

SHEET 1 OF 10

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DOUBLE 8 FT. X 11 FT.
 CONCRETE BOX CULVERT
 INLET AND OUTLET EXTENSIONS

TOTAL STRUCTURE QUANTITIES

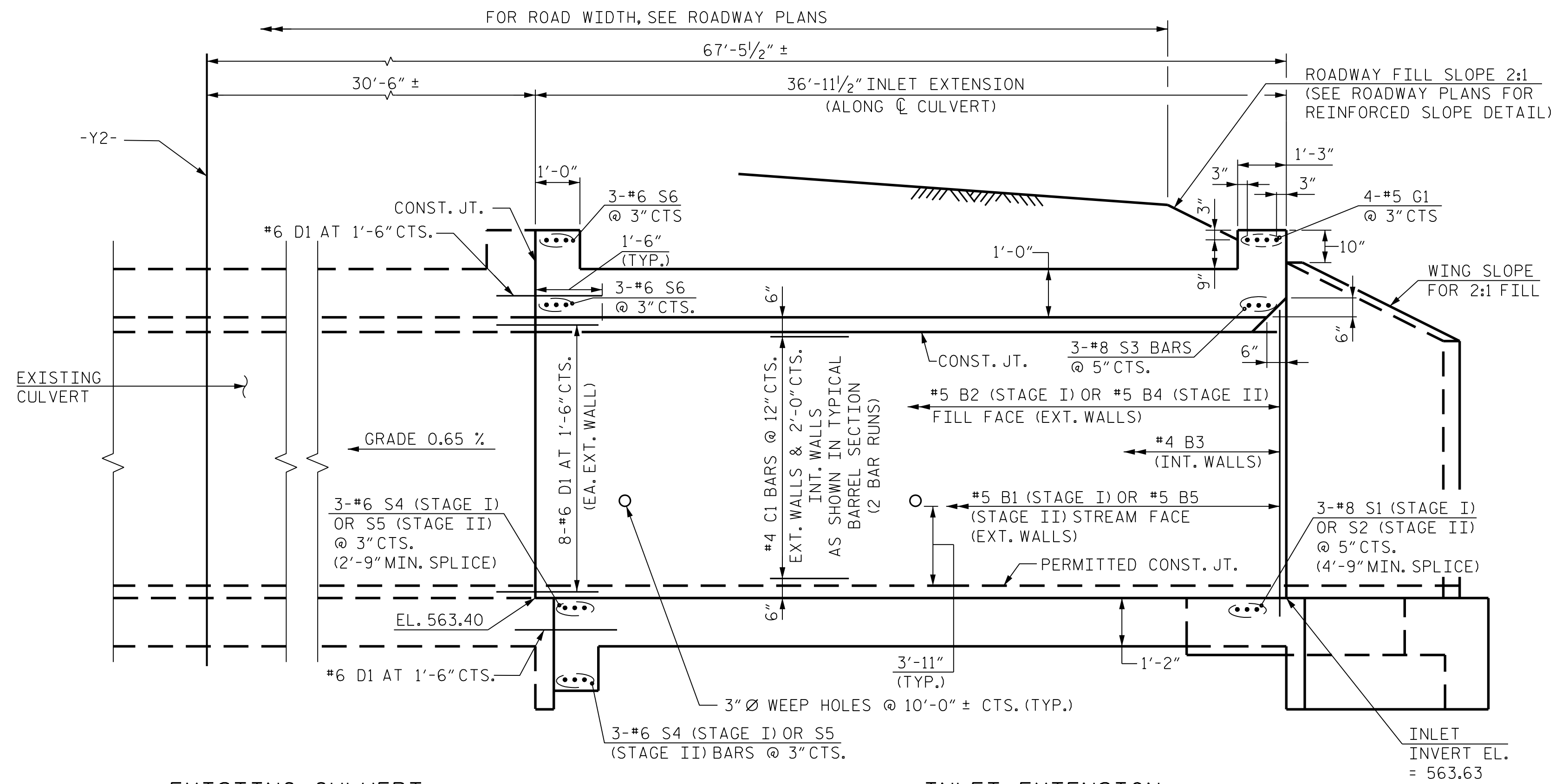
TOTAL CLASS A CONCRETE.....	222.9 C.Y.
TOTAL REINFORCING STEEL.....	42,365 LBS
FOUNDATION CONDITIONING MAT'L.....	340 TONS
CULVERT EXCAVATION.....	LUMP SUM

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1			3		
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					TOTAL SHEETS
					10

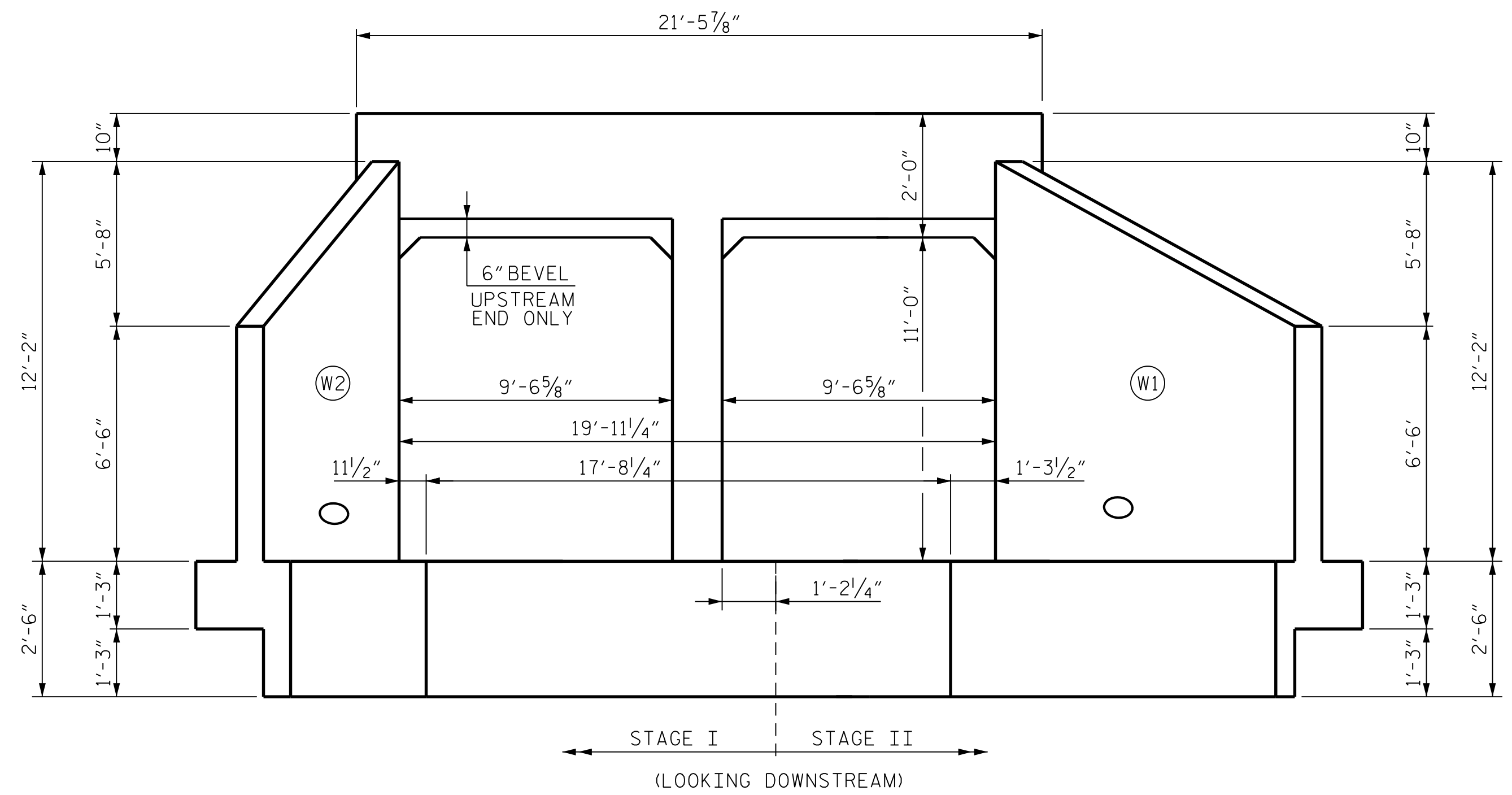
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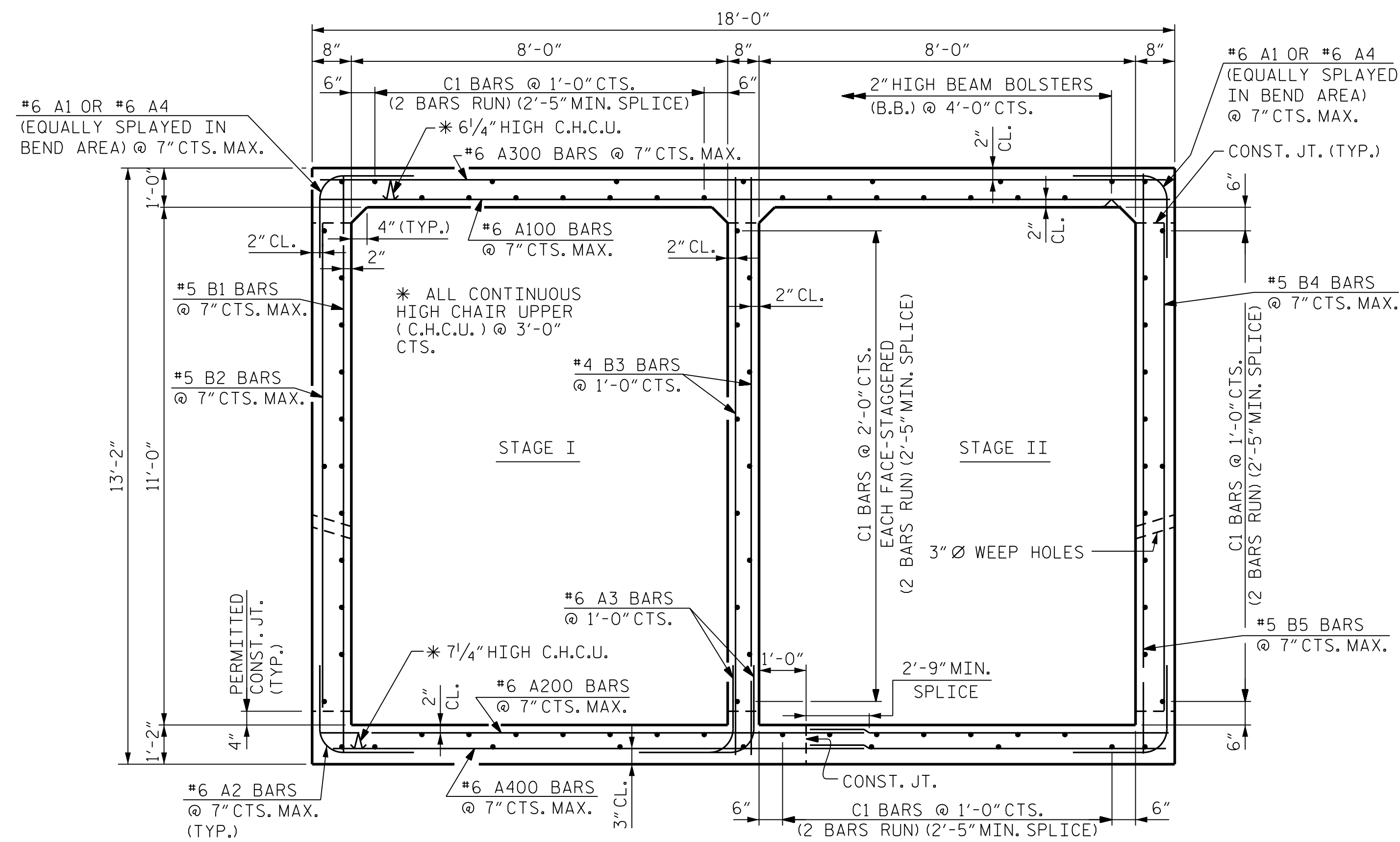
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 DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : JAN 2024



EXISTING CULVERT INLET EXTENSION
CULVERT SECTION NORMAL TO ROADWAY

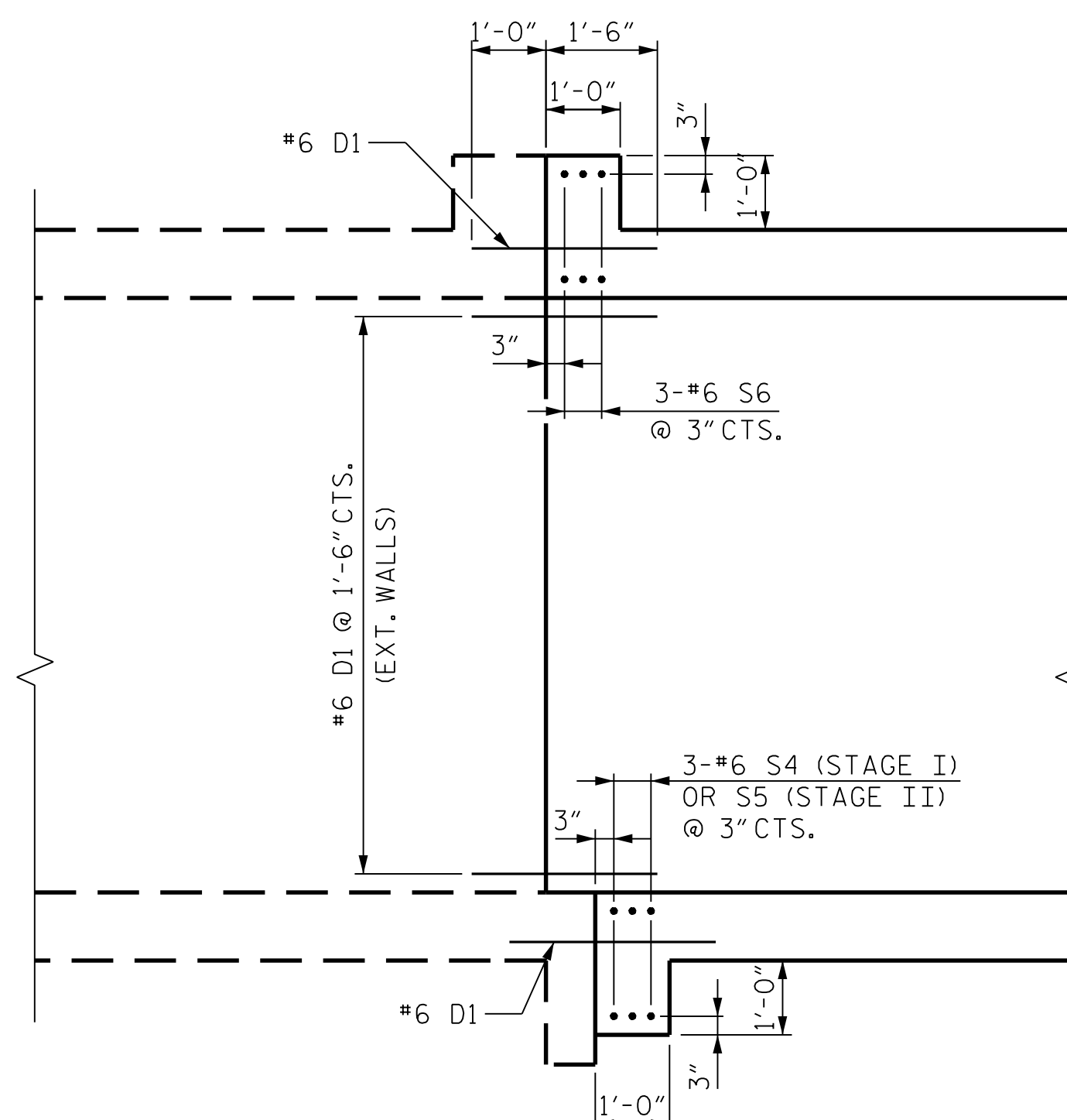


STAGE I STAGE II
 (LOOKING DOWNSTREAM)
END ELEVATION NORMAL TO SKEW



(LOOKING DOWNSTREAM)
RIGHT ANGLE SECTION OF BARREL

THERE ARE 81 C1 BARS IN SECTION OF BARREL.
 (2 BARS RUN) (2'-5\"/>



EXISTING BARREL PROPOSED EXTENSION
EDGE BEAM DETAIL

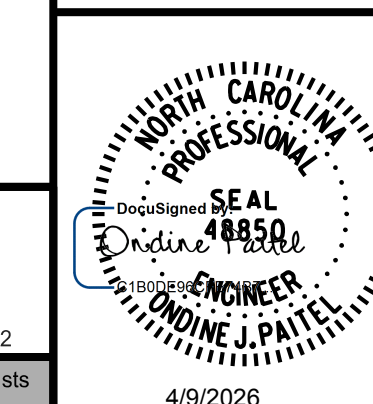
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 GASTON/MECKLENBURG COUNTY
 STATION: 12+58.30 -Y2-

SHEET 3 OF 10

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DOUBLE 8 FT. X 11 FT.
 CONCRETE BOX CULVERT
 SECTION - INLET EXTENSION

CULVERT NO. 01



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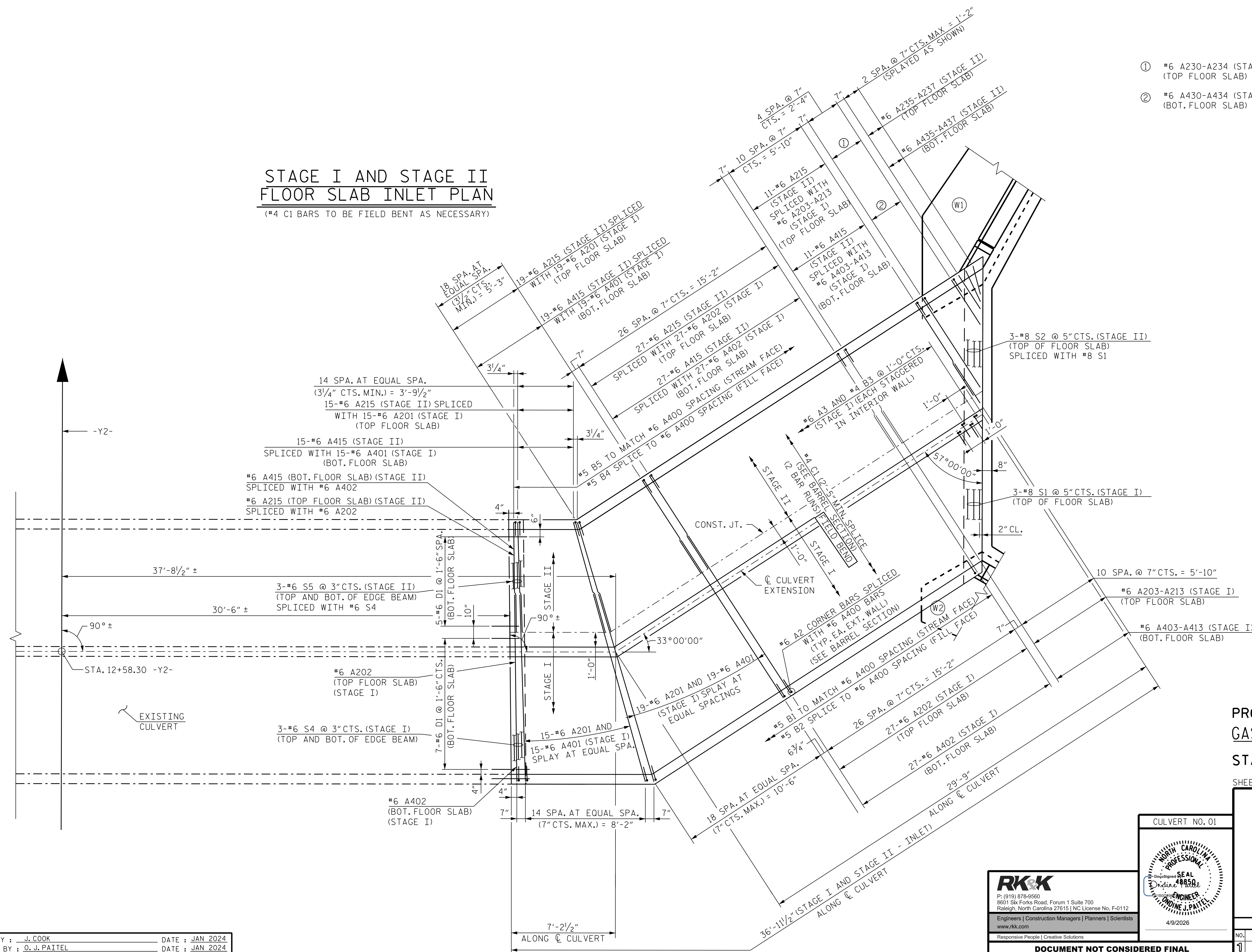
STAGE I AND STAGE II FLOOR SLAB INLET PLAN

(*4 C1 BARS TO BE FIELD BENT AS NECESSARY)

- ① #6 A230-A234 (STAGE II) (TOP FLOOR SLAB)
- ② #6 A430-A434 (STAGE II) (BOT. FLOOR SLAB)

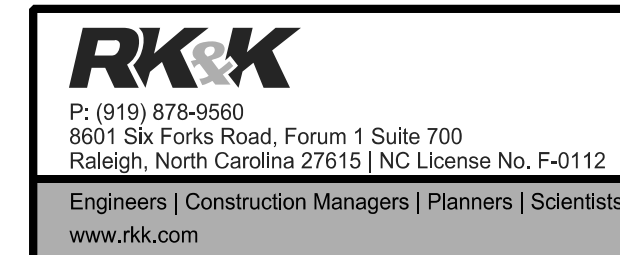
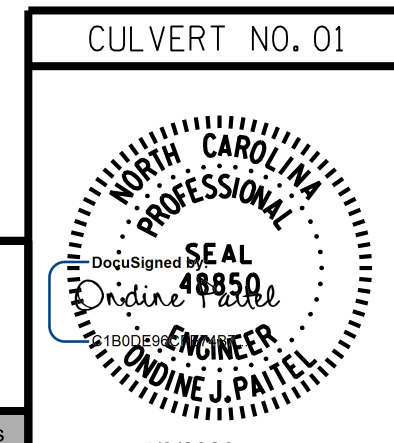
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 STATION: 12+58.30 -Y2-

SHEET 4 OF 10



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

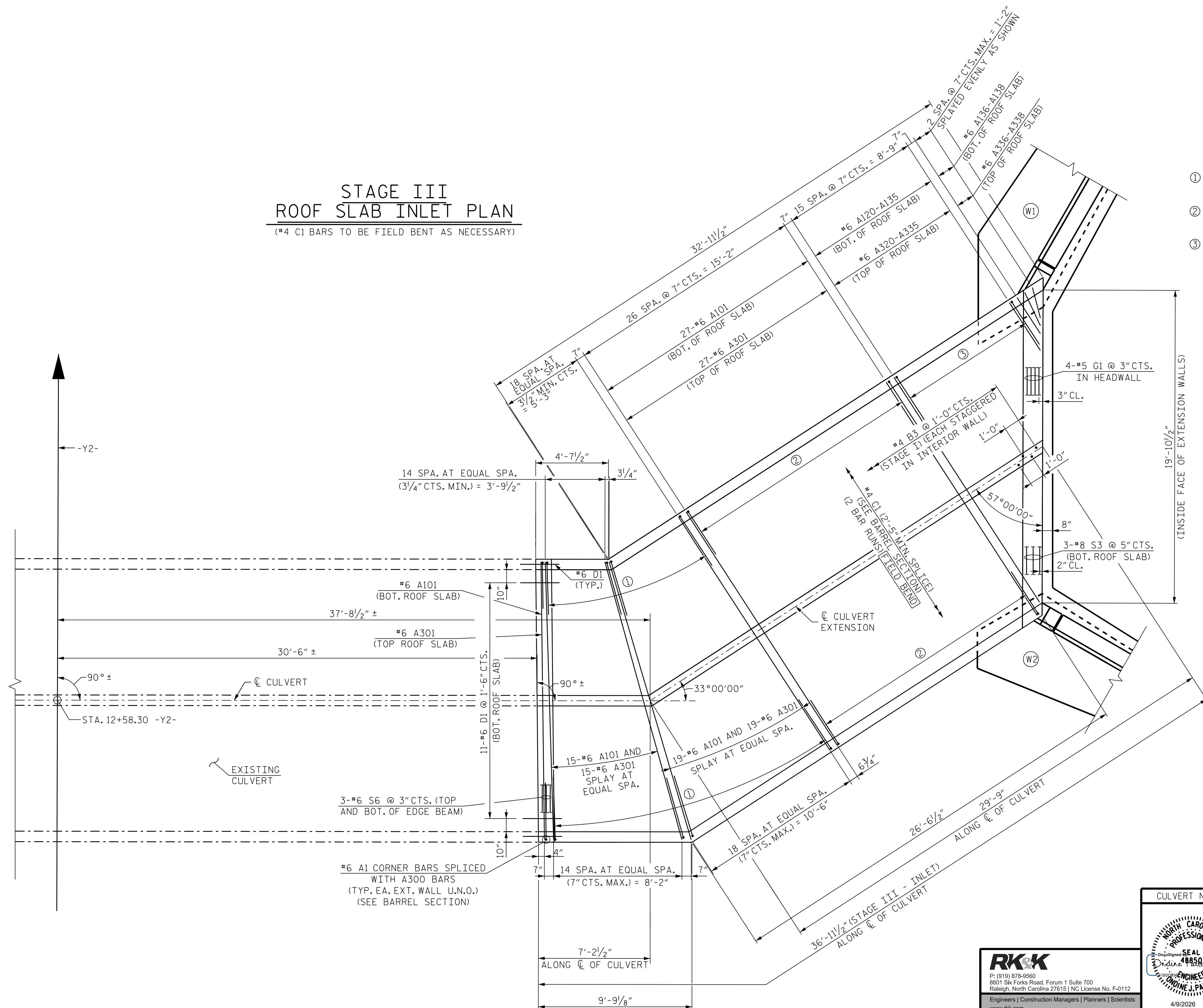
DOUBLE 8 FT. X 11 FT. CONCRETE BOX CULVERT INLET EXTENSION - PLAN - FLOOR SLAB

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STAGE III ROOF SLAB INLET PLAN

(*4 CI BARS TO BE FIELD BENT AS NECESSARY)

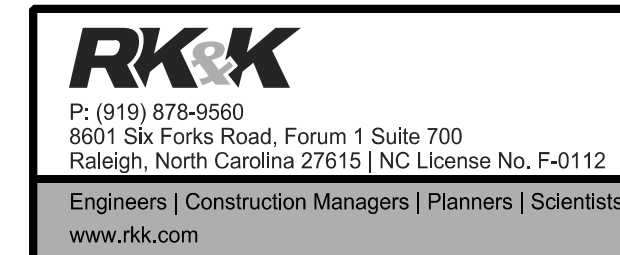
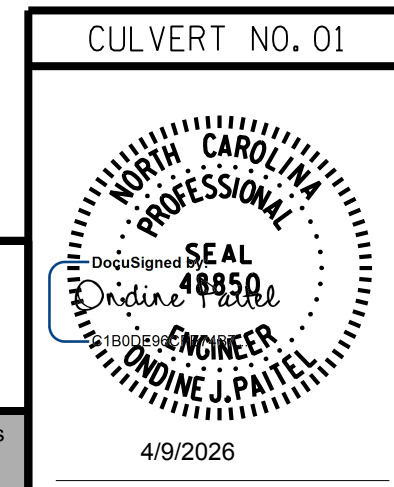


- ① 34-#6 A4 CORNER BARS SPLICED WITH A301 TYP. EACH EXTERIOR WALL (SEE BARREL SECTION)
- ② 27-#6 A1 CORNER BARS SPLICED WITH A300 BARS TYP. EACH EXTERIOR WALL (SEE BARREL SECTION)
- ③ 16-#6 A1 CORNER BARS SPLICED WITH A300 BARS TYP. EACH EXTERIOR WALL (SEE BARREL SECTION)

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GASTON/MECKLENBURG COUNTY
 STATION: 12+58.30 -Y2-

SHEET 5 OF 10

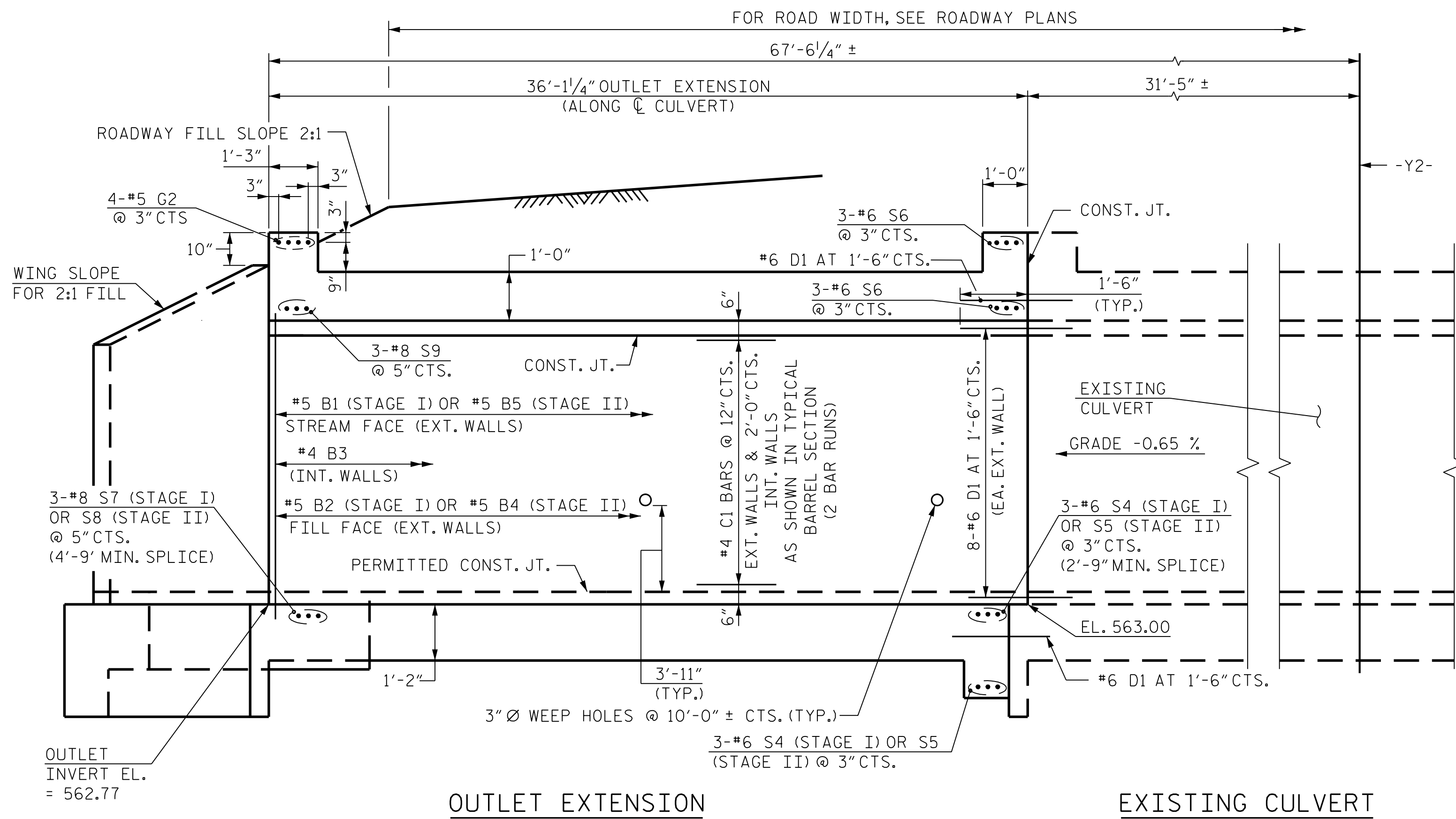
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DOUBLE 8 FT. X 11 FT. CONCRETE BOX CULVERT INLET EXTENSION PLAN - ROOF SLAB					
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					SHEET NO. C-5
					TOTAL SHEETS 10



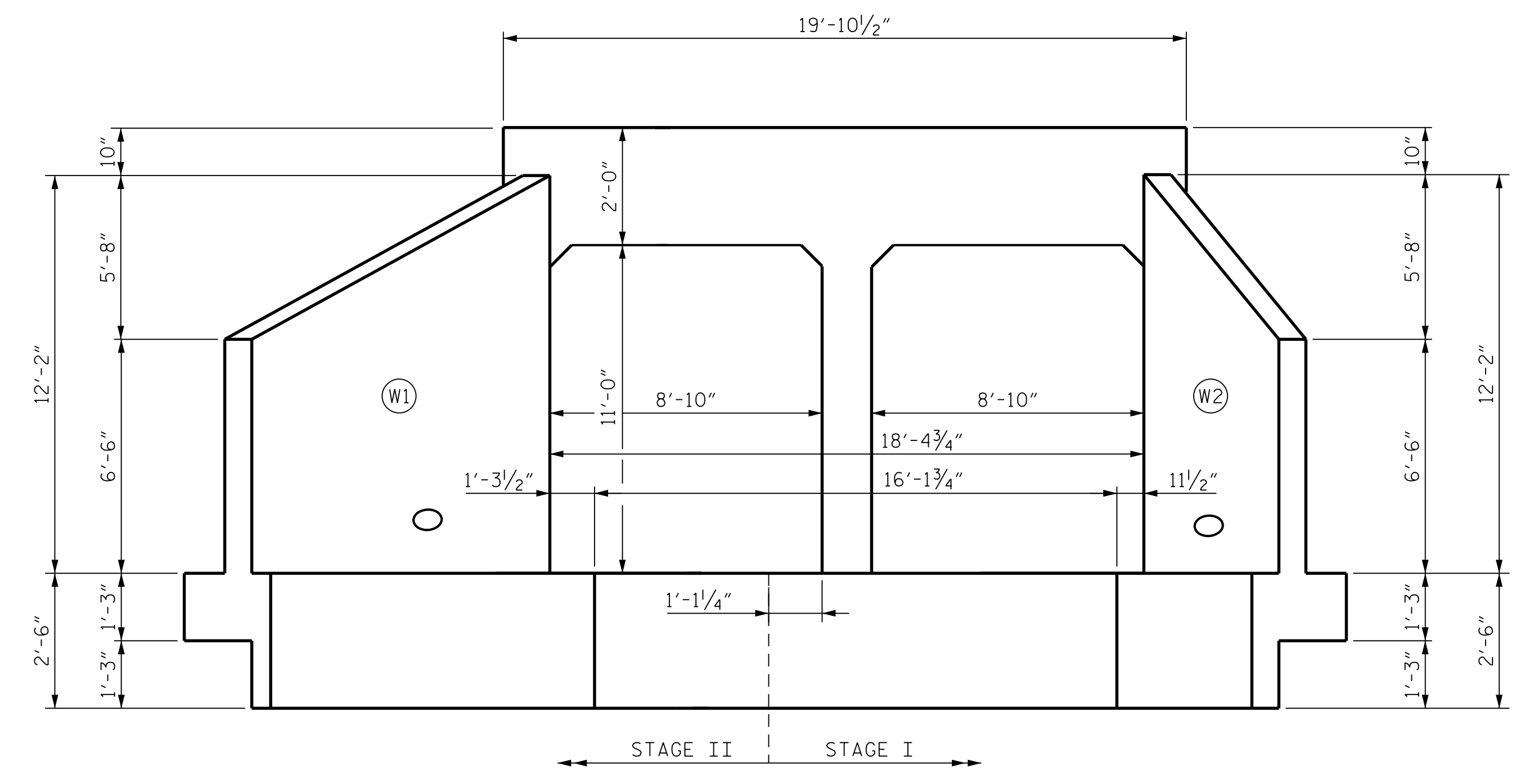
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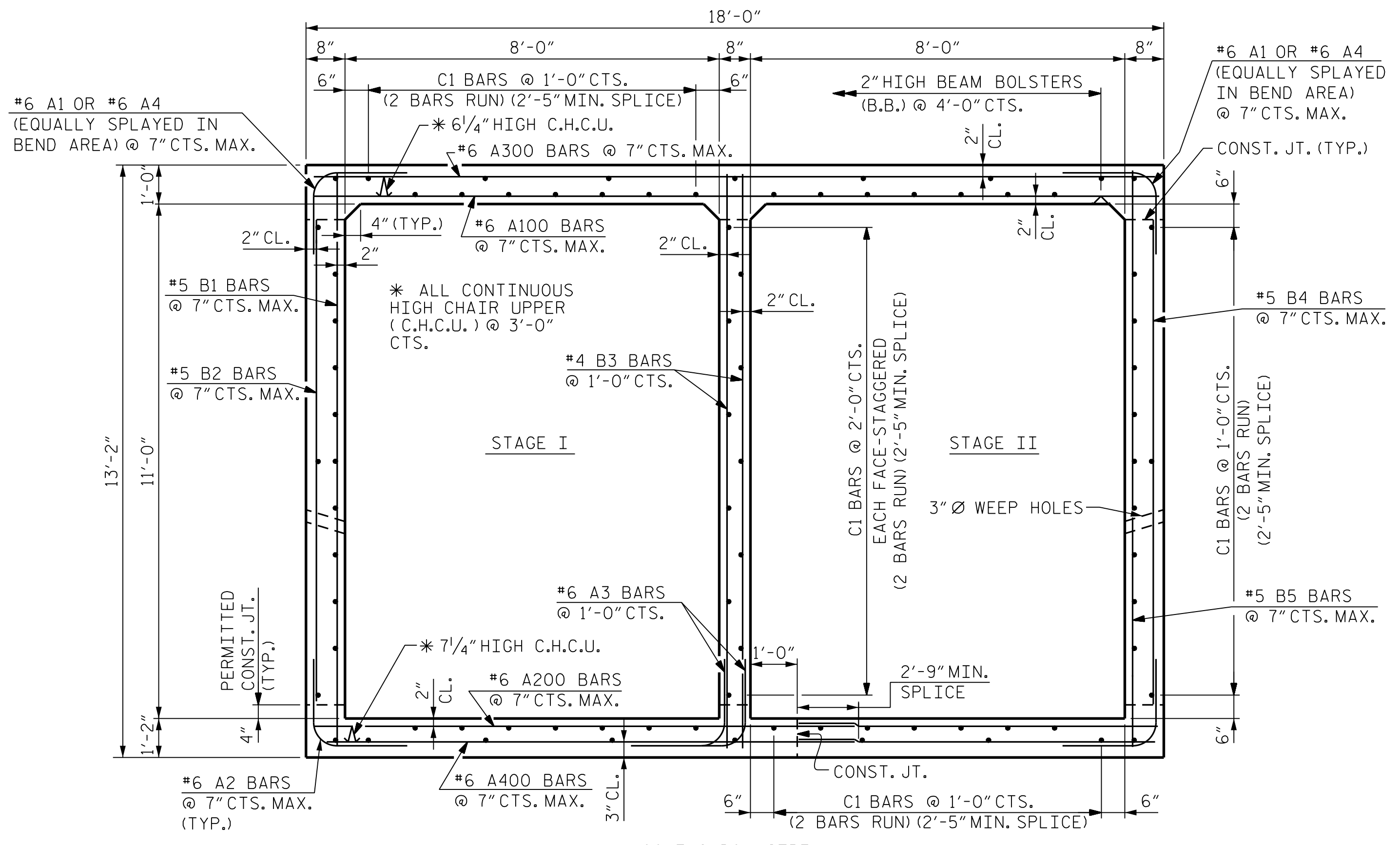
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OUTLET EXTENSION EXISTING CULVERT
CULVERT SECTION NORMAL TO ROADWAY

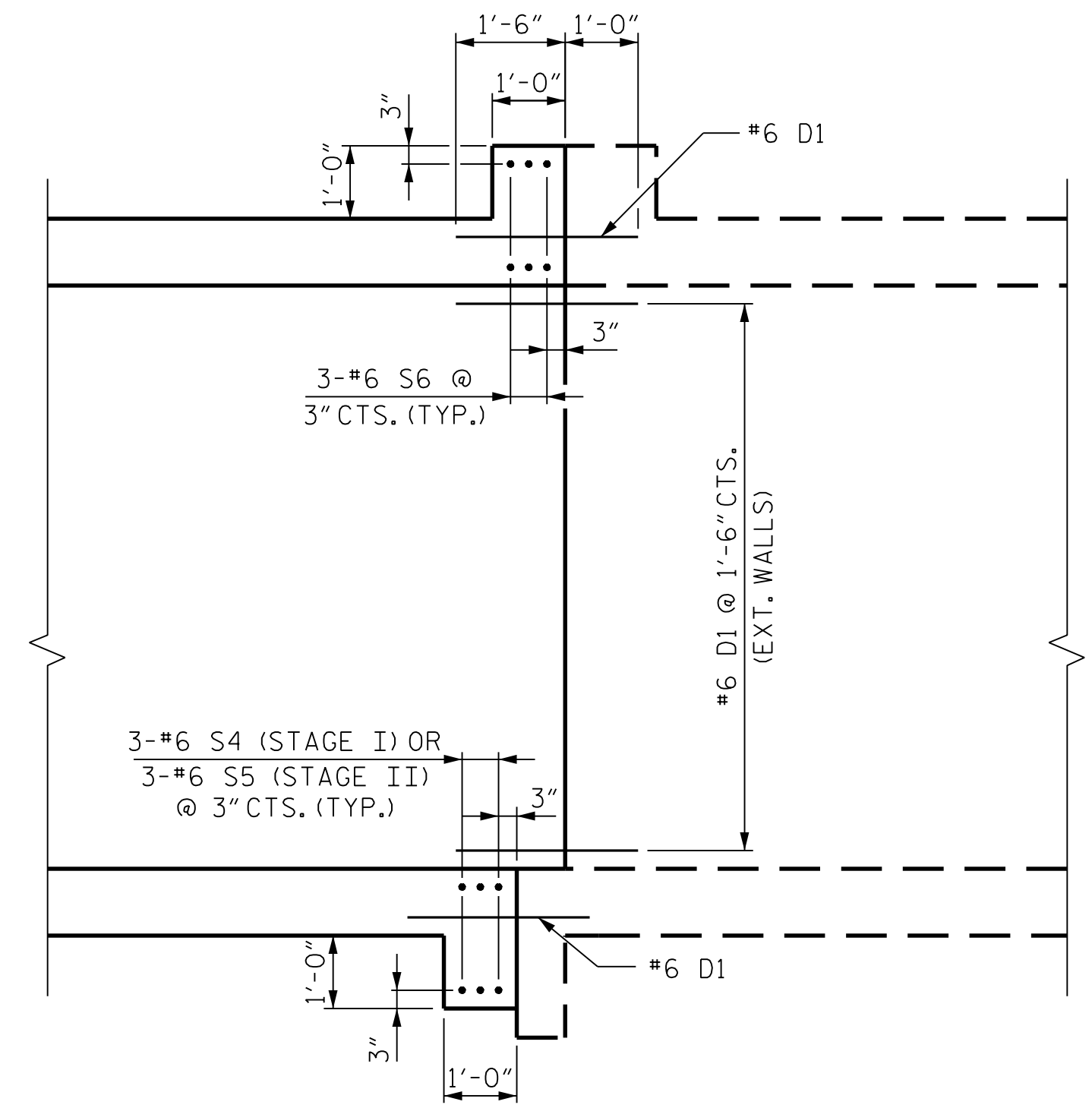


(LOOKING UPSTREAM)
END ELEVATION NORMAL TO SKEW



(LOOKING DOWNSTREAM)
RIGHT ANGLE SECTION OF BARREL

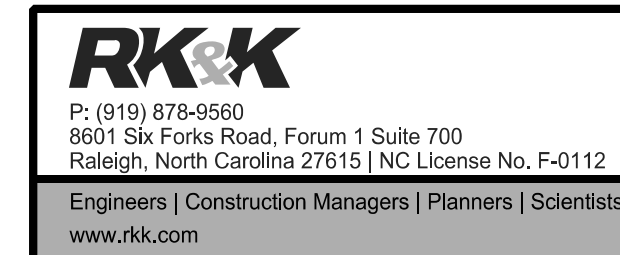
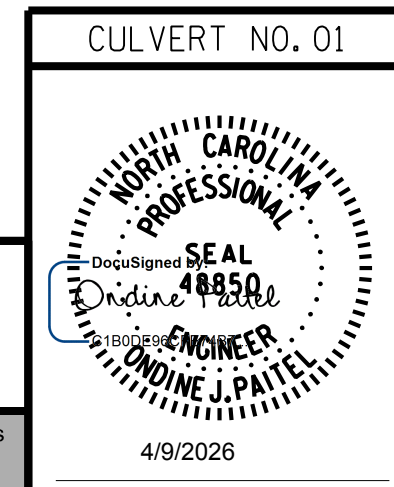
THERE ARE 81 "C1" BARS IN SECTION OF BARREL.
 (2 BARS RUN) (2'-5" MIN. SPLICE)



PROPOSED EXTENSION EXISTING BARREL
EDGE BEAM DETAIL

PROJECT NO. B-6051/U-6143
 GASTON/MECKLENBURG COUNTY
 STATION: 12+58.30 -Y2-
 SHEET 6 OF 10

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE 8 FT. X 11 FT.
 CONCRETE BOX CULVERT
 SECTION - OUTLET EXTENSION



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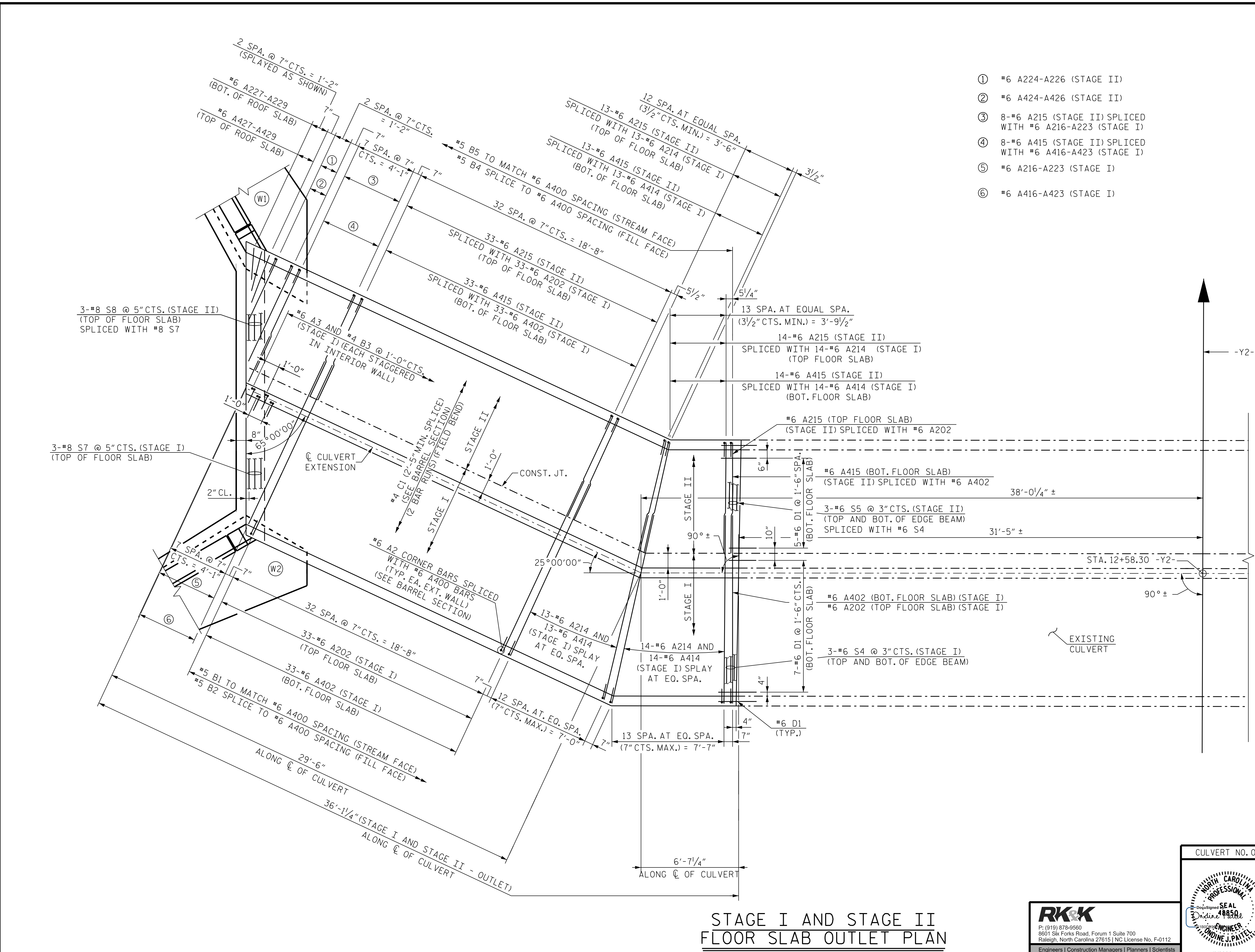
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- ① #6 A224-A226 (STAGE II)
- ② #6 A424-A426 (STAGE II)
- ③ 8-#6 A215 (STAGE II) SPLICED WITH #6 A216-A223 (STAGE I)
- ④ 8-#6 A415 (STAGE II) SPLICED WITH #6 A416-A423 (STAGE I)
- ⑤ #6 A216-A223 (STAGE I)
- ⑥ #6 A416-A423 (STAGE I)

STAGE I AND STAGE II FLOOR SLAB OUTLET PLAN
(*4 CI BARS TO BE FIELD BENT AS NECESSARY)

PROJECT NO. B-6051/U-6143
GASTON/MECKLENBURG COUNTY
STATION: 12+58.30 -Y2-

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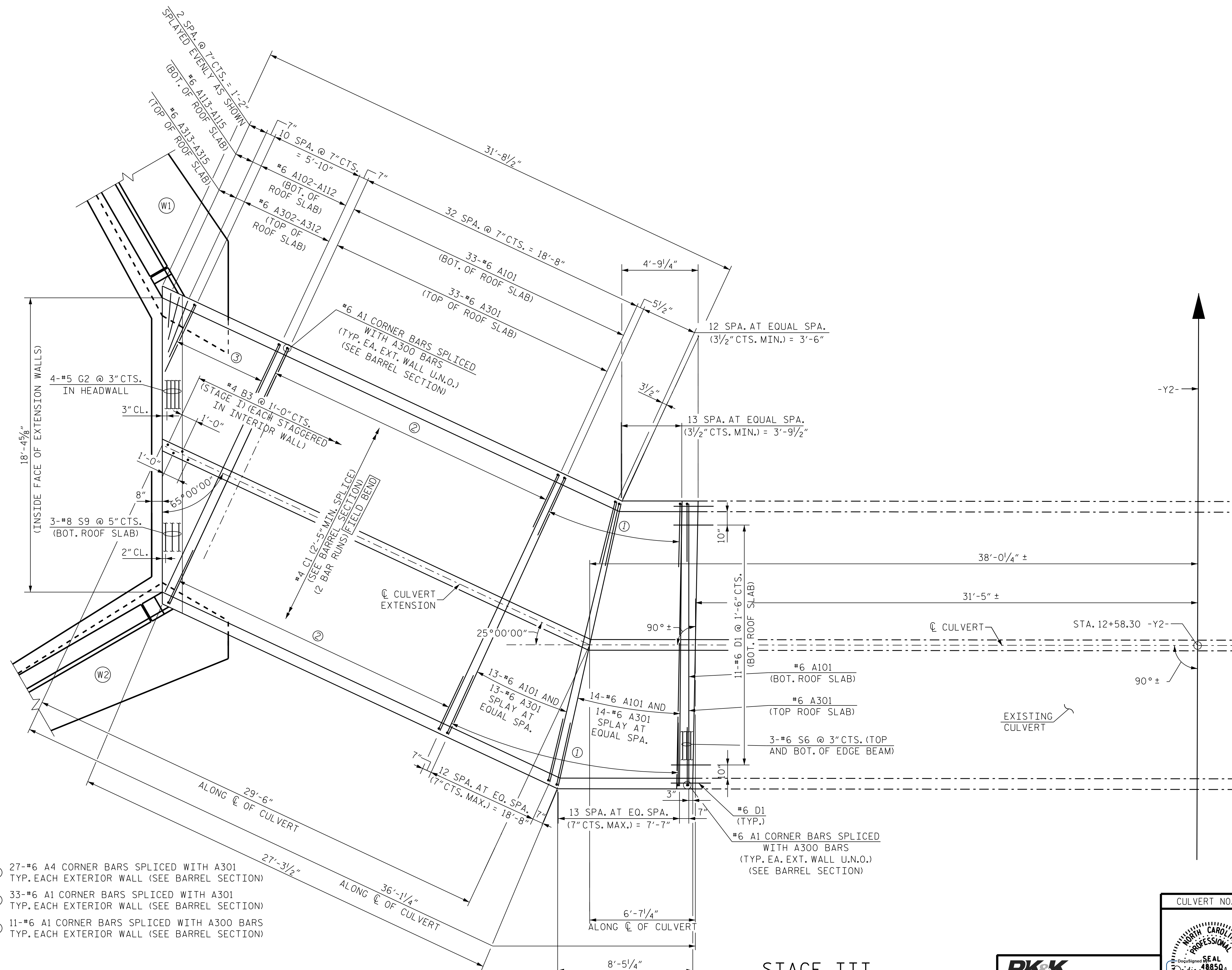
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DOUBLE 8 FT. X 11 FT. CONCRETE BOX CULVERT OUTLET EXTENSION - PLAN - FLOOR SLAB

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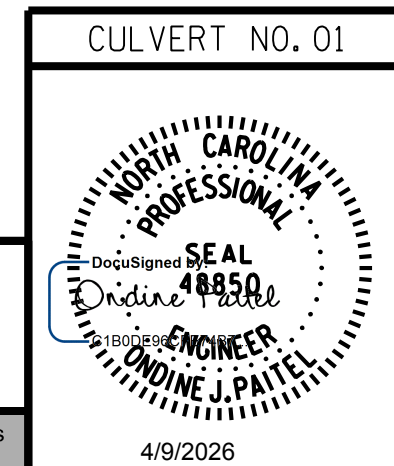


- ① 27-#6 A4 CORNER BARS SPLICED WITH A301 TYP. EACH EXTERIOR WALL (SEE BARREL SECTION)
- ② 33-#6 A1 CORNER BARS SPLICED WITH A301 TYP. EACH EXTERIOR WALL (SEE BARREL SECTION)
- ③ 11-#6 A1 CORNER BARS SPLICED WITH A300 BARS TYP. EACH EXTERIOR WALL (SEE BARREL SECTION)

**STAGE III
ROOF SLAB OUTLET PLAN**
(*4 C1 BARS TO BE FIELD BENT AS NECESSARY)

PROJECT NO. B-6051/U-6143
GASTON/MECKLENBURG COUNTY
STATION: 12+58.30 -Y2-

SHEET 8 OF 10



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**DOUBLE 8 FT. X 11 FT.
CONCRETE BOX CULVERT
OUTLET EXTENSION -
PLAN - ROOF SLAB**

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BILL OF MATERIAL (STAGE I) INLET EXTENSION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	28	#6	1	7'-11"	333
A2	62	#6	1	7'-1"	660
A3	76	#6	1	7'-1"	809
A4	34	#6	1	8'-3"	421
A201	34	#6	STR.	13'-10"	706
A202	28	#6	STR.	12'-11"	543
A203	1	#6	STR.	12'-3"	18
A204	1	#6	STR.	11'-4"	17
A205	1	#6	STR.	10'-6"	16
A206	1	#6	STR.	9'-7"	14
A207	1	#6	STR.	8'-8"	13
A208	1	#6	STR.	7'-9"	12
A209	1	#6	STR.	6'-11"	10
A210	1	#6	STR.	6'-0"	9
A211	1	#6	STR.	5'-1"	8
A212	1	#6	STR.	4'-2"	6
A213	1	#6	STR.	3'-4"	5
A401	34	#6	STR.	13'-10"	706
A402	28	#6	STR.	12'-11"	543
A403	1	#6	STR.	12'-3"	18
A404	1	#6	STR.	11'-4"	17
A405	1	#6	STR.	10'-6"	16
A406	1	#6	STR.	9'-7"	14
A407	1	#6	STR.	8'-8"	13
A408	1	#6	STR.	7'-9"	12
A409	1	#6	STR.	6'-11"	10
A410	1	#6	STR.	6'-0"	9
A411	1	#6	STR.	5'-1"	8
A412	1	#6	STR.	4'-2"	6
A413	1	#6	STR.	3'-4"	5
B1	62	#5	STR.	12'-8"	819
B2	62	#5	STR.	10'-2"	657
B3	76	#4	STR.	12'-8"	643
C1	72	#4	STR.	20'-0"	962
D1	25	#6	STR.	2'-6"	94
S1	3	#8	STR.	16'-10"	135
S4	6	#6	STR.	12'-9"	115
REINFORCING STEEL					8,402 LBS.

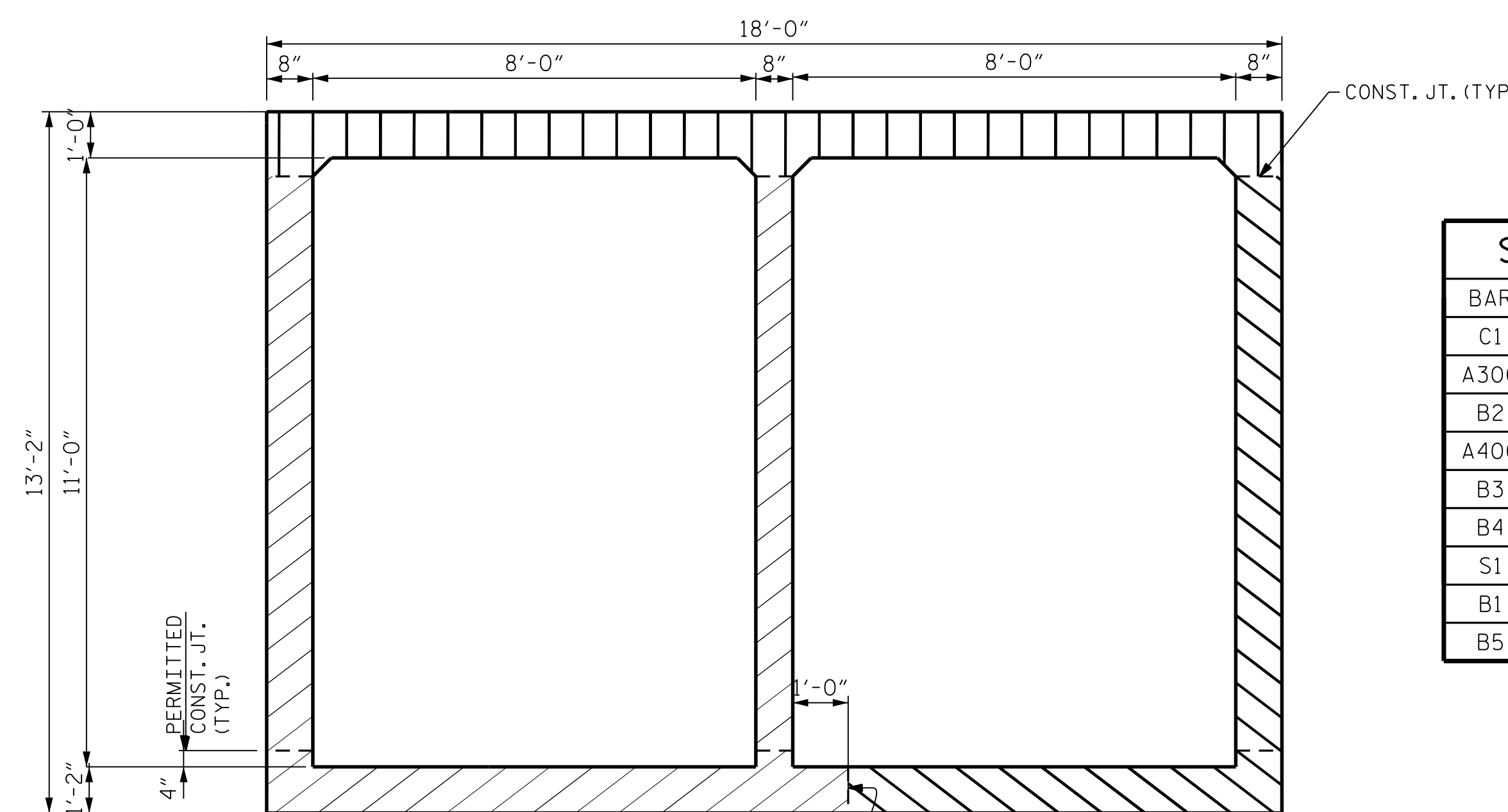
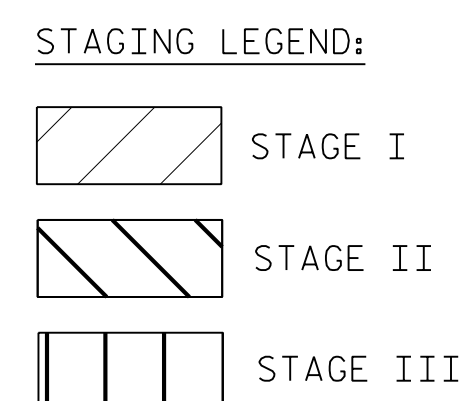
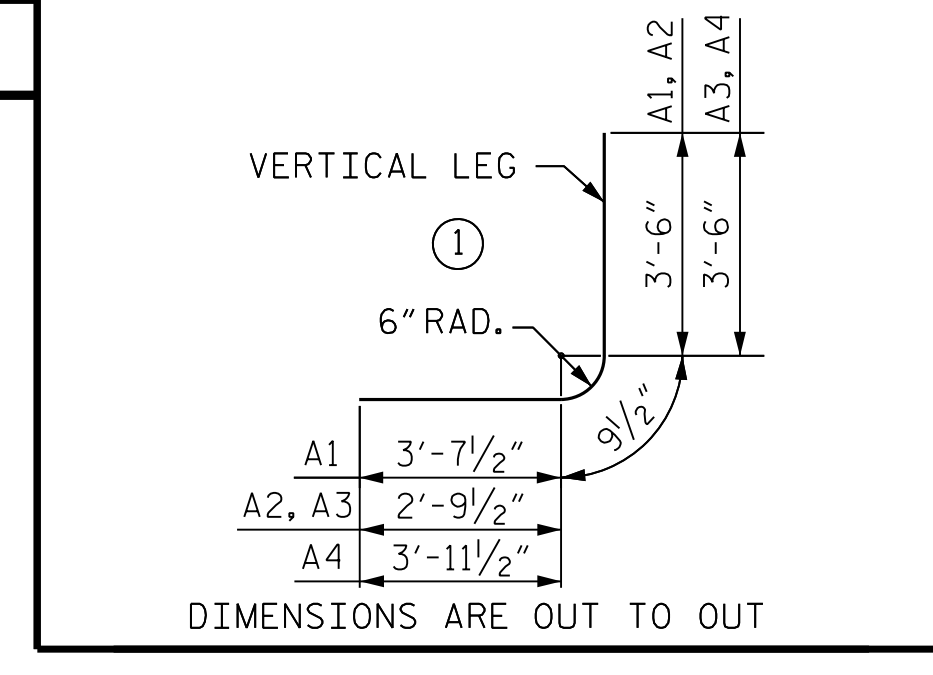
BILL OF MATERIAL (STAGE I) OUTLET EXTENSION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	34	#6	1	7'-11"	404
A2	61	#6	1	7'-1"	649
A3	74	#6	1	7'-1"	787
A4	27	#6	1	8'-3"	335
A202	34	#6	STR.	12'-11"	659
A204	27	#6	STR.	13'-6"	547
A216	1	#6	STR.	12'-4"	19
A217	1	#6	STR.	11'-1"	17
A218	1	#6	STR.	9'-10"	15
A219	1	#6	STR.	8'-7"	13
A220	1	#6	STR.	7'-4"	11
A221	1	#6	STR.	6'-1"	9
A222	1	#6	STR.	4'-10"	7
A223	1	#6	STR.	3'-7"	5
A402	34	#6	STR.	12'-11"	659
A414	27	#6	STR.	13'-6"	547
A416	1	#6	STR.	12'-4"	19
A417	1	#6	STR.	11'-1"	17
A418	1	#6	STR.	9'-10"	15
A419	1	#6	STR.	8'-7"	13
A420	1	#6	STR.	7'-4"	11
A421	1	#6	STR.	6'-1"	9
A422	1	#6	STR.	4'-10"	7
A423	1	#6	STR.	3'-7"	5
B1	61	#5	STR.	12'-8"	806
B2	61	#5	STR.	10'-2"	647
B3	74	#4	STR.	12'-8"	626
C1	72	#4	STR.	20'-0"	962
D1	25	#6	STR.	2'-6"	94
REINFORCING STEEL					8,156 LBS.

BILL OF MATERIAL (STAGE II) INLET EXTENSION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	44	#6	1	7'-11"	524
A2	78	#6	1	7'-1"	830
A4	34	#6	1	8'-3"	421
A215	73	#6	STR.	7'-6"	822
A230	1	#6	STR.	7'-2"	11
A231	1	#6	STR.	6'-3"	9
A232	1	#6	STR.	5'-4"	8
A233	1	#6	STR.	4'-6"	7
A234	1	#6	STR.	3'-7"	5
A235	1	#6	STR.	2'-8"	4
A236	1	#6	STR.	2'-4"	4
A237	1	#6	STR.	2'-0"	3
A415	73	#6	STR.	7'-6"	822
A430	1	#6	STR.	7'-2"	11
A431	1	#6	STR.	6'-3"	9
A432	1	#6	STR.	5'-4"	8
A433	1	#6	STR.	4'-6"	7
A434	1	#6	STR.	3'-7"	5
A435	1	#6	STR.	2'-8"	4
A436	1	#6	STR.	2'-4"	4
A437	1	#6	STR.	2'-0"	3
B4	81	#5	STR.	10'-2"	859
B5	81	#5	STR.	12'-8"	1,070
C1	44	#4	STR.	20'-0"	588
D1	14	#6	STR.	2'-6"	53
S2	3	#8	STR.	8'-11"	71
S5	6	#6	STR.	7'-4"	66
REINFORCING STEEL					6,228 LBS.

BILL OF MATERIAL (STAGE II) OUTLET EXTENSION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	45	#6	1	7'-11"	535
A2	72	#6	1	7'-1"	766
A4	27	#6	1	8'-3"	335
A215	69	#6	STR.	7'-6"	777
A224	1	#6	STR.	7'-1"	11
A225	1	#6	STR.	5'-10"	9
A226	1	#6	STR.	4'-7"	7
A227	1	#6	STR.	3'-5"	5
A228	1	#6	STR.	2'-9"	4
A229	1	#6	STR.	2'-2"	3
A415	69	#6	STR.	7'-6"	777
A424	1	#6	STR.	7'-1"	11
A425	1	#6	STR.	5'-10"	9
A426	1	#6	STR.	4'-7"	7
A427	1	#6	STR.	3'-5"	5
A428	1	#6	STR.	2'-9"	4
A429	1	#6	STR.	2'-2"	3
B4	75	#5	STR.	10'-2"	795
B5	75	#5	STR.	12'-8"	991
C1	44	#4	STR.	20'-0"	588
S5	6	#6	STR.	7'-4"	66
S8	3	#8	STR.	8'-3"	66
REINFORCING STEEL					5,827 LBS.

BILL OF MATERIAL (STAGE III) INLET EXTENSION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A101	62	#6	STR.	17'-8"	1,646
A120	1	#6	STR.	17'-0"	26
A121	1	#6	STR.	16'-1"	24
A122	1	#6	STR.	15'-3"	23
A123	1	#6	STR.	14'-4"	22
A124	1	#6	STR.	13'-5"	20
A125	1	#6	STR.	12'-6"	19
A126	1	#6	STR.	11'-8"	18
A127	1	#6	STR.	10'-9"	16
A128	1	#6	STR.	9'-10"	15
A129	1	#6	STR.	8'-11"	13
A130	1	#6	STR.	8'-1"	12
A131	1	#6	STR.	7'-2"	11
A132	1	#6	STR.	6'-3"	9
A133	1	#6	STR.	5'-4"	8
A134	1	#6	STR.	4'-6"	7
A135	1	#6	STR.	3'-7"	5
A136	1	#6	STR.	2'-8"	4
A137	1	#6	STR.	2'-4"	4
A138	1	#6	STR.	2'-0"	3
A301	62	#6	STR.	17'-8"	1,646
A320	1	#6	STR.	17'-0"	26
A321	1	#6	STR.	16'-1"	24
A322	1	#6	STR.	15'-3"	23
A333	1	#6	STR.	14'-4"	22
A324	1	#6	STR.	13'-5"	20
A325	1	#6	STR.	12'-6"	19
A326	1	#6	STR.	11'-8"	18
A327	1	#6	STR.	10'-9"	16
A328	1	#6	STR.	9'-10"	15
A329	1	#6	STR.	8'-11"	13
A330	1	#6	STR.	8'-1"	12
A331	1	#6	STR.	7'-2"	11
A332	1	#6	STR.	6'-3"	9
A333	1	#6	STR.	5'-4"	8
A334	1	#6	STR.	4'-6"	7
A335	1	#6	STR.	3'-7"	5
A336	1	#6	STR.	2'-8"	4
A337	1	#6	STR.	2'-4"	4
A338	1	#6	STR.	2'-0"	3
C1	46	#4	STR.	20'-0"	615
D1	13	#6	STR.	2'-6"	49
G1	4	#5	STR.	21'-1"	88
S3	3	#8	STR.	21'-1"	169
S6	6	#6	STR.	17'-8"	159
REINFORCING STEEL					4,890 LBS.

BILL OF MATERIAL (STAGE III) OUTLET EXTENSION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A101	61	#6	STR.	17'-8"	1,619
A102	1	#6	STR.	17'-1"	26
A103	1	#6	STR.	15'-10"	24
A104	1	#6	STR.	14'-7"	22
A105	1	#6	STR.	13'-4"	20
A106	1	#6	STR.	12'-1"	18
A107	1	#6	STR.	10'-10"	16
A108	1	#6	STR.	9'-7"	14
A109	1	#6	STR.	8'-4"	13
A110	1	#6	STR.	7'-1"	11
A111	1	#6	STR.	5'-10"	9
A112	1	#6	STR.	4'-7"	7
A113	1	#6	STR.	3'-6"	5
A114	1	#6	STR.	2'-10"	4
A115	1	#6	STR.	2'-2"	3
A301	61	#6	STR.	17'-8"	1,619
A302	1	#6	STR.	17'-1"	26
A303	1	#6	STR.	15'-10"	24
A304	1	#6	STR.	14'-7"	22
A305	1	#6	STR.	13'-4"	20
A306	1	#6	STR.	12'-1"	18
A307	1	#6	STR.	10'-10"	16
A308	1	#6	STR.	9'-7"	14
A309	1	#6	STR.	8'-4"	13
A310	1	#6	STR.	7'-1"	11
A311	1	#6	STR.	5'-10"	9
A312	1	#6	STR.	4'-7"	7
A313	1	#6	STR.	3'-6"	5
A314	1	#6	STR.	2'-10"	4
A315	1	#6	STR.	2'-2"	3
C1	46	#4	STR.	20'-0"	615
D1	13	#6	STR.	2'-6"	49
G2	4	#5	STR.	19'-6"	81
S6	6	#6	STR.	17'-8"	159
S9	3	#8	STR.	19'-6"	156
REINFORCING STEEL					4,682 LBS.



STAGE I	
FOUNDATION CONDITIONING MAT'L.	190 TONS
* REINFORCING STEEL	16,558 LBS.
* CLASS "A" CONCRETE	71.4 C.Y.
TYPE 4 GEOTEXTILE	187.3 S.Y.

STAGE II	
FOUNDATION CONDITIONING MAT'L	150 TONS
* REINFORCING STEEL	12,055 LBS.
* CLASS "A" CONCRETE	44.8 C.Y.
TYPE 4 GEOTEXTILE	182.7 S.Y.

STAGE III	
* REINFORCING STEEL	9,572 LBS.
* CLASS "A" CONCRETE	52.5 C.Y.

* REINFORCING STEEL AND CLASS "A" CONCRETE QUANTITIES SHOWN ARE FOR BARRELS ONLY. FOR QUANTITIES FOR WINGS, HEADWALLS AND CURTAIN WALLS, SEE SHEET 10 OF 10 "STANDARD WINGS FOR CONCRETE BOX CULVERT"

SPLICE LENGTHS		
BAR	SIZE	SPLICE LENGTHS
C1	#4	2'-5"
A300	#6	3'-7"
B2	#5	2'-9"
A400	#6	2'-9"
B3	#4	2'-9"
B4	#5	2'-9"
S1	#8	4'-9"
B1	#5	2'-4"
B5	#5	2'-4"

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CULVERT NO. 01

4/9/2026

PROJECT NO. B-6051/U-6143
 GASTON/MECKLENBURG COUNTY
 STATION: 12+58.30 -Y2-
 SHEET 9 OF 10

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DOUBLE 8 FT. X 11 FT.
 CONCRETE BOX CULVERT
 EXTENSIONS -
 STAGING SEQUENCES &
 BILL OF MATERIALS

DRAWN BY : J. COOK DATE : JAN 2024
 CHECKED BY : O. J. PAITEL DATE : JAN 2024
 DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : JAN 2024

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. 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.