

BRIAR CHAPEL

GREAT RIDGE PARKWAY CULVERT

CONSTRUCTION DOCUMENTS

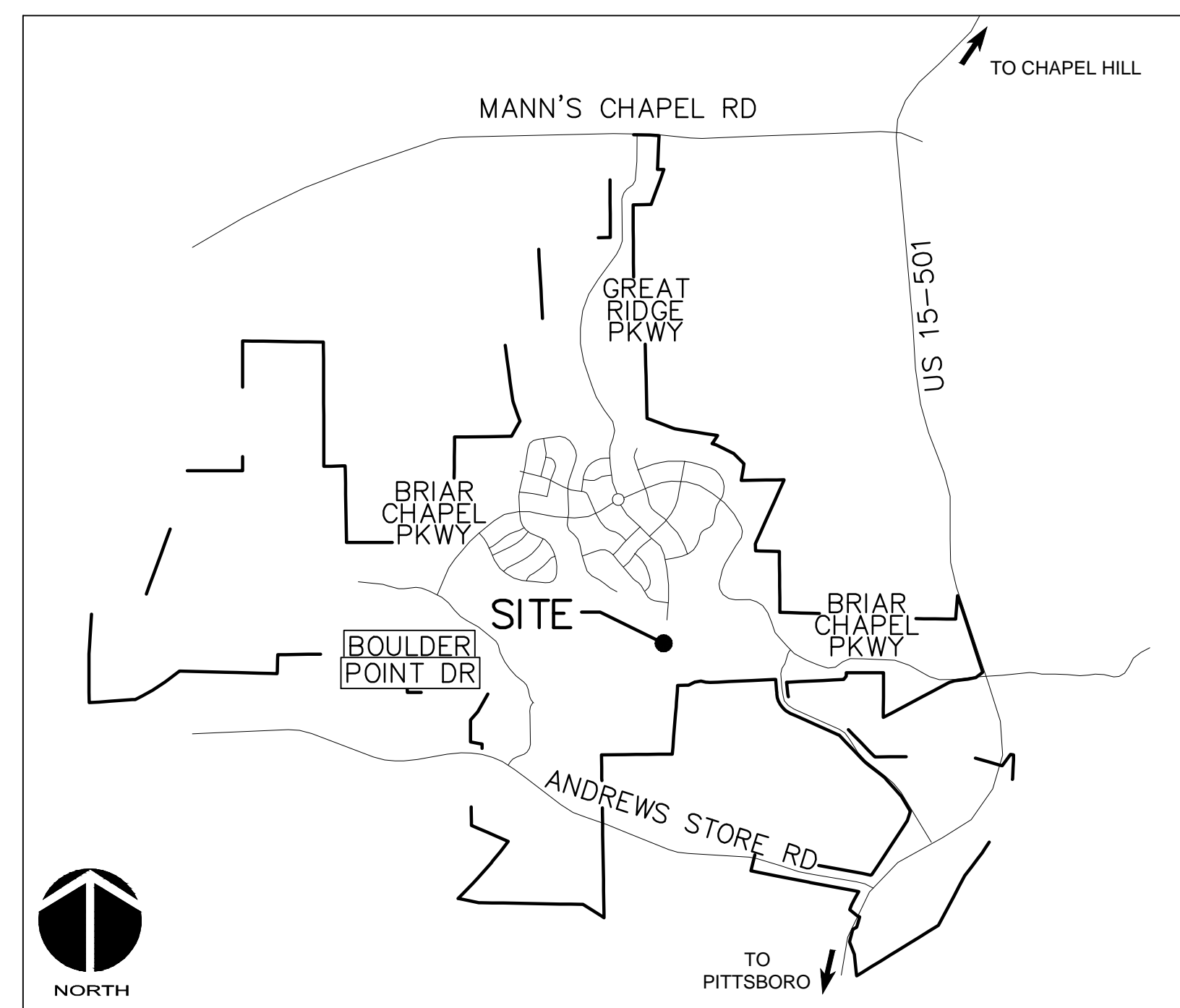
U.S. HWY 15-501 and MANN'S CHAPEL ROAD

CHATHAM COUNTY, NORTH CAROLINA

DATE: JUNE 14, 2013

COUNTY AND AGENCY CONTACTS

- | | |
|---|--|
| <p>A. Chatham County
 Planning Department
 Dunlap Building
 80 East Street
 Pittsboro, NC 27312
 (919) 542-8204 phone
 Contact: Jason Sullivan
 Email: jason.sullivan@chathamnc.org</p> | <p>D. NCDOT
 Division 8, District 1
 300 DOT Drive
 P.O. Box 1164
 Asheboro, NC 27204
 (336) 318-4000 phone
 Contact: Jeff B. Loflin, PE
 Email: jloflin@ncdot.gov</p> |
| <p>B. Chatham County
 Environmental Services
 Dunlap Building
 80 East Street
 Pittsboro, NC 27312
 (919) 542-0945 phone
 Contact: Dan LaMontagne, PE
 Email: dan.lamontagne@chathamnc.org</p> | <p>E. NCDENR
 Division of Water Quality
 2321 Crabtree Blvd., Suite 250
 Raleigh, NC 27604
 (919) 791-4200 phone
 Contact: Annette Lucas
 Email: Annette.Lucas@ncdenr.gov</p> |
| <p>C. Chatham County
 Soil Erosion and Sedimentation Control
 Dunlap Building
 80 East Street
 Pittsboro, NC 27312
 (919) 545-8339 phone
 Contact: Rachael Thorn
 Email: rachael.thorn@chathamnc.org</p> | <p>F. NCDENR
 Division of Environmental Health
 Public Water Supply Section
 1634 Mail Service Center
 Raleigh, NC 27699-1634
 (919) 715-3226 phone
 Contact: Henri Ou
 Email: heinrich.ou@ncdenr.gov</p> |



VICINITY MAP

NTS

PROJECT DATA

NAME OF PROJECT:
 GREAT RIDGE PARKWAY CULVERT
 CHATHAM COUNTY, NORTH CAROLINA

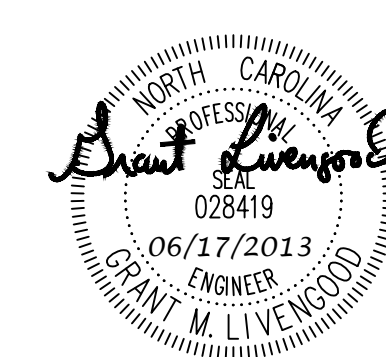
OWNER:
 NNP BRIAR CHAPEL, LLC
 16 WINDY KNOLL CIRCLE
 CHAPEL HILL, NC 27516
 PHONE: (919) 951-0700
 FAX: (919) 240-4963
 CONTACT: BILL MUMFORD, PE
 EMAIL: bmumford@newlandco.com

PREPARED BY:
 MCKIM & CREED
 1730 VARSITY DRIVE, SUITE 500
 RALEIGH, NORTH CAROLINA 27606
 PHONE: (919) 233-8091
 FAX: (919) 233-8031
 CONTACT: GRANT LIVENGOOD, PE
 EMAIL: glivengood@mckimcreed.com

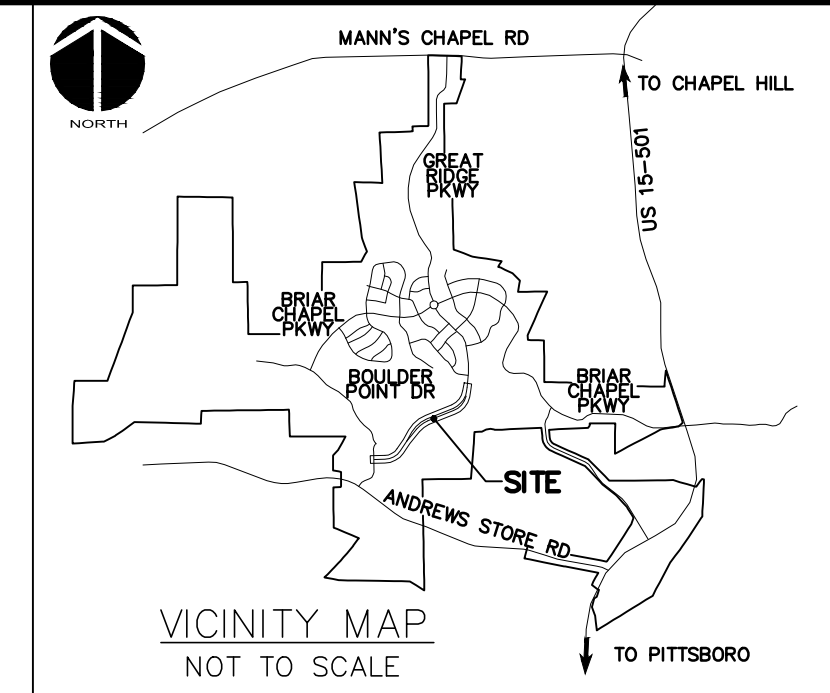
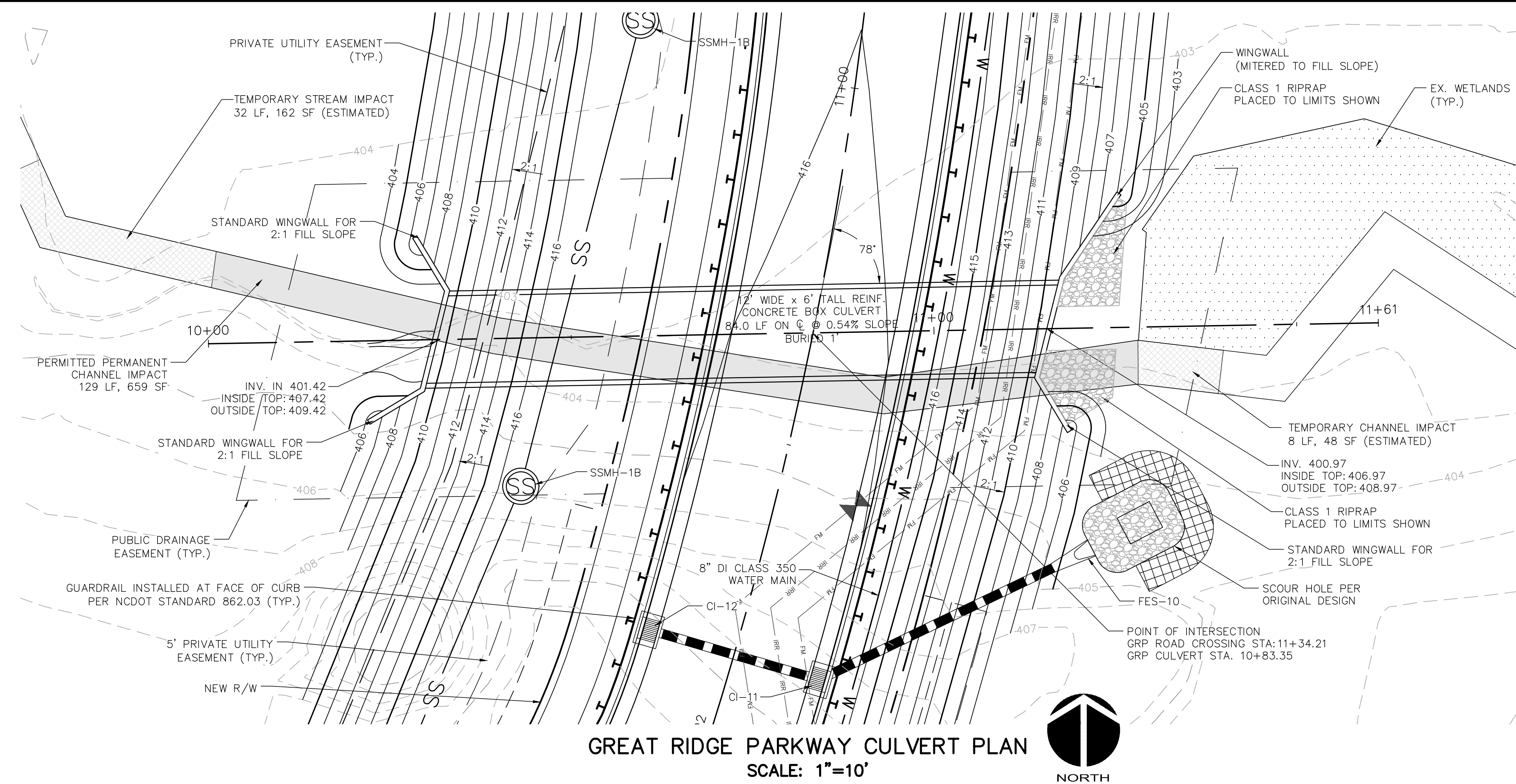
These improvements shall be constructed in accordance with the following plans, and the Standard Specifications of NCDOT and Chatham County.

SHEET INDEX

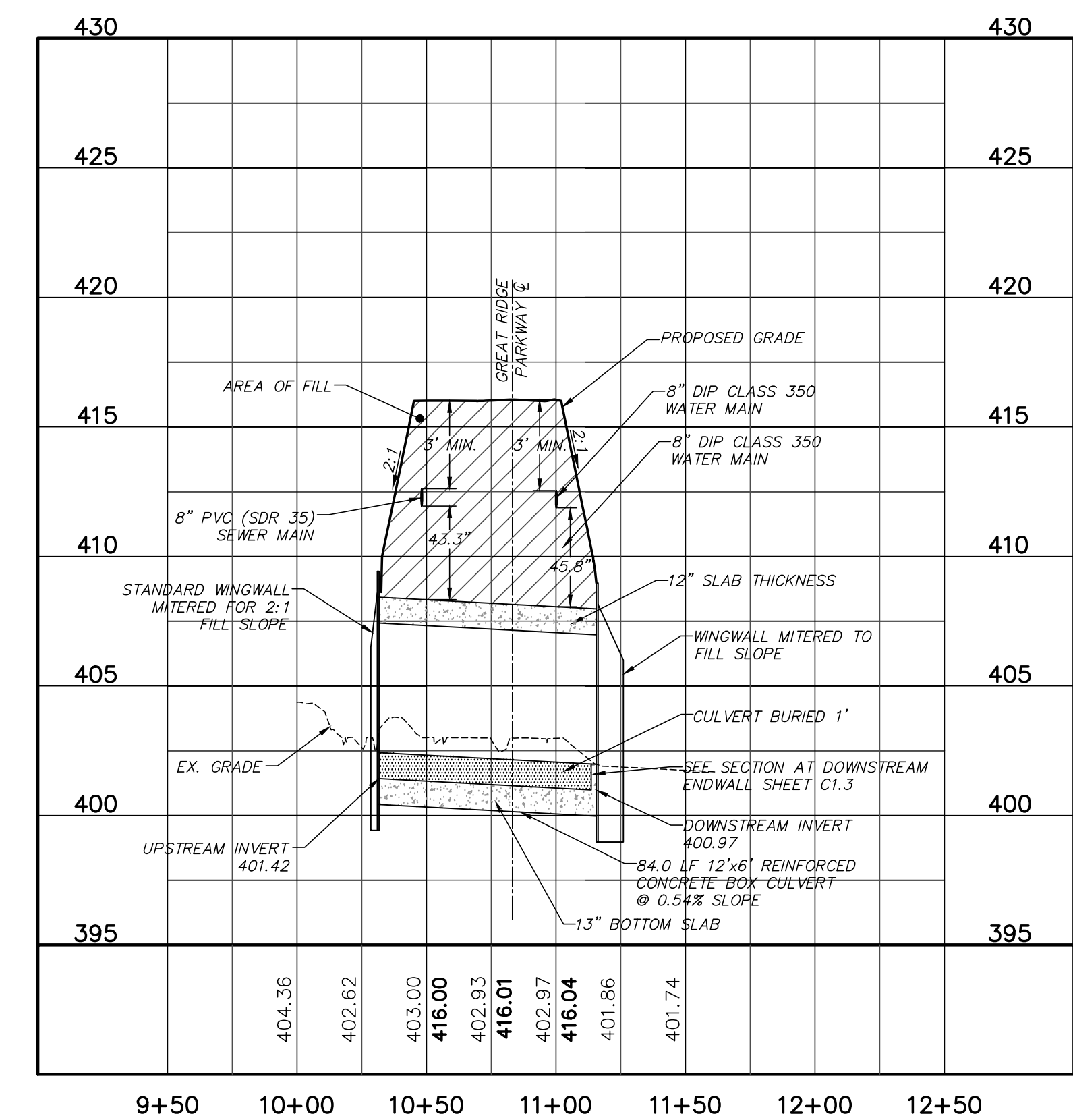
C0.1	COVER SHEET
C1.1	PLAN AND PROFILE
C1.2	STREAM CROSSING PLAN & PROFILE
C1.3	CULVERT DETAILS
C1.4	WING DETAILS



FINAL DRAWINGS
 FOR REVIEW ONLY



GREAT RIDGE PARKWAY CULVERT PLAN
SCALE: 1"=10'



GREAT RIDGE PARKWAY CULVERT PROFILE
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

- CULVERT CONSTRUCTION NOTES:**
- ASSUMED LIVE LOAD -----HS20-44 OR ALTERNATE LOADING.
 - DESIGN FILL----- 10 FT
 - FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
 - 3" # WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 - CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 - WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 - THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 - THE ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 - THIS BARREL STANDARD TO BE USED ONLY ON CULVERT ON 90° SKEW AND TO BE USED WITH STANDARD WING SHEET WITH THE SAME SKEW AND VERTICAL CLEARANCE.
 - 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.
 - AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR 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.
 - FOR FOUNDATION RECOMMENDATIONS, REFER TO THE GEOTECHNICAL INVESTIGATION REPORT PREPARED BY S&ME DATED MAY 20, 2013.
 - PROVIDE STONE BEDDING FOR CULVERT PER NCDOT STANDARDS OR THE GEOTECHNICAL INVESTIGATION, WHICHEVER IS MORE STRINGENT.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH: F'c= 3,000 PSI
REINFORCING STEEL: ASTM A615, GRADE 60
SOIL BEARING CAPACITY: 3,000 PSF

REV. NO.	DESCRIPTIONS	DATE
1	FOR REVIEW ONLY	2013.06.13



MCKIM & CREED

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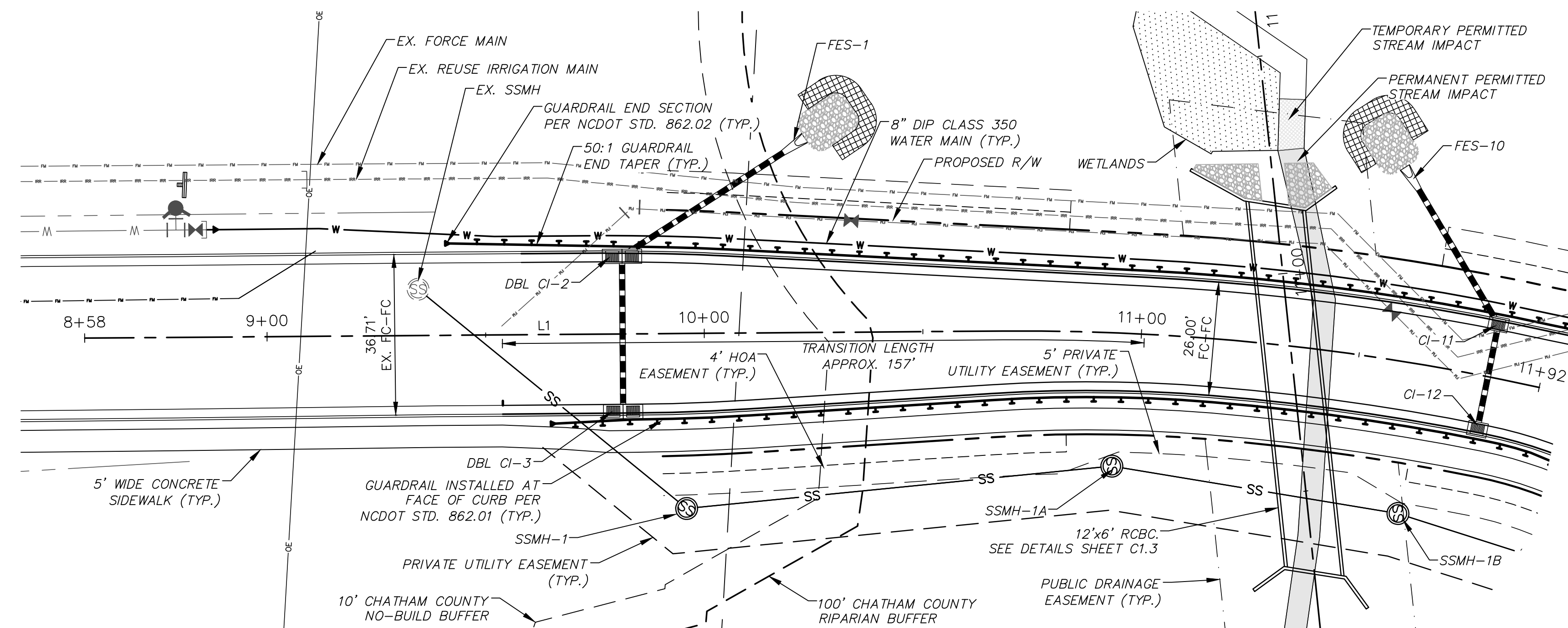
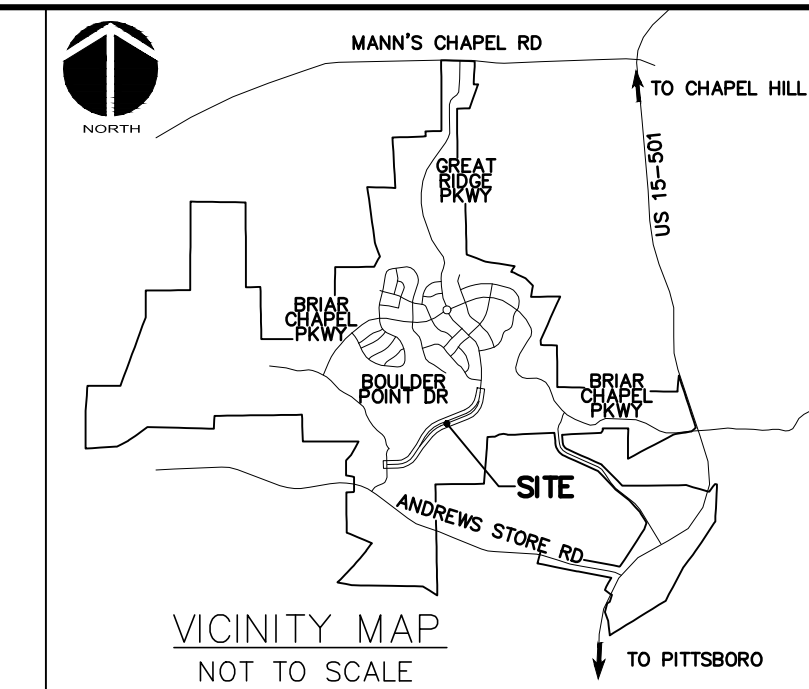
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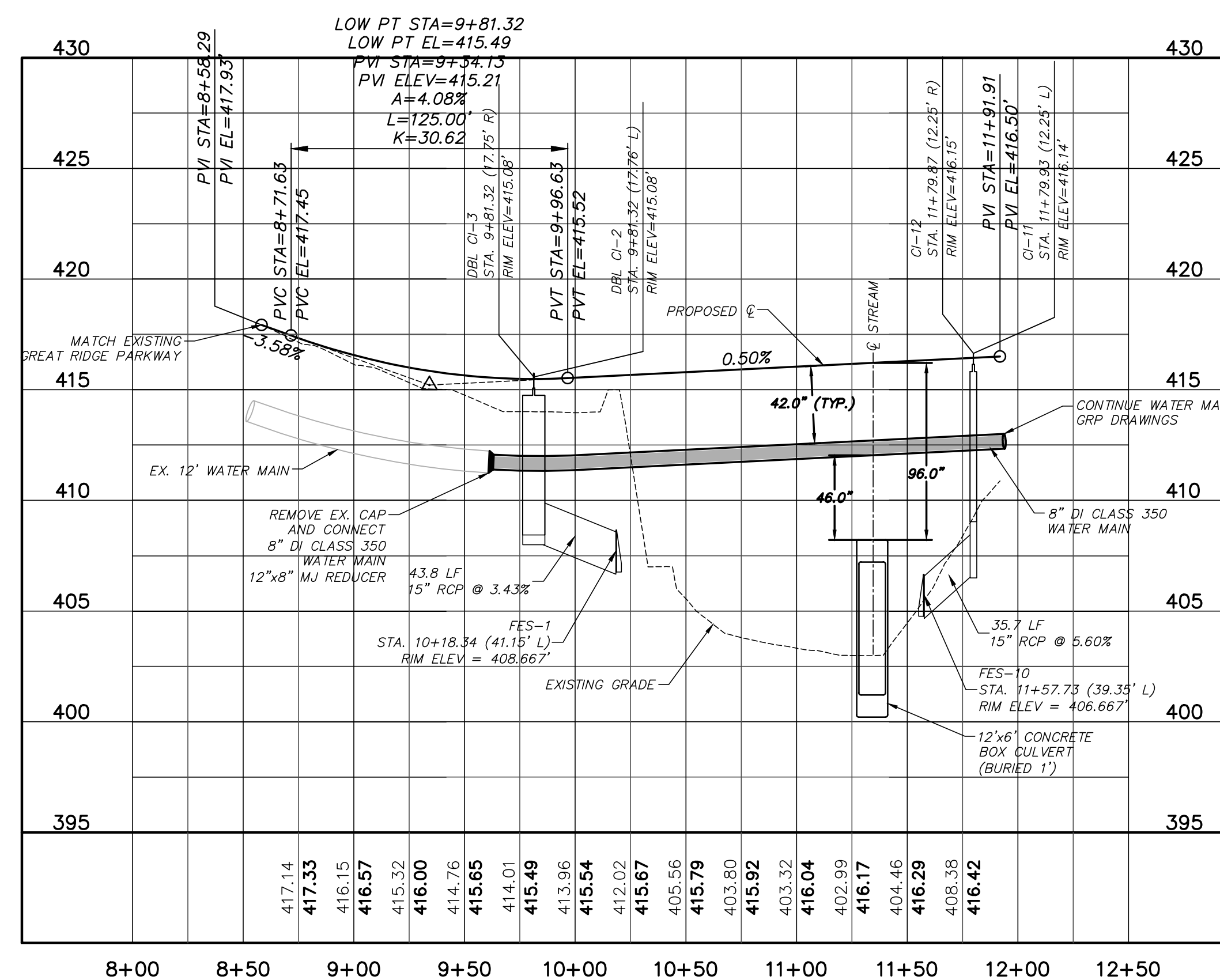
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GREAT RIDGE PARKWAY CULVERT
CHATHAM COUNTY, NORTH CAROLINA

PLAN & PROFILE

DATE: MAY 24, 2013	SCALE: 1" = 50'	NSC FILE NUMBER: C1.X
MCE PROJ. # 02735-0080	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C1.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR: CHS		
STATUS: FINAL DRAWING FOR REVIEW ONLY	REVISION: 1	



GREAT RIDGE PARKWAY STREAM CROSSING PLAN
 (VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 11+91.91)
 SCALE: 1"=20'

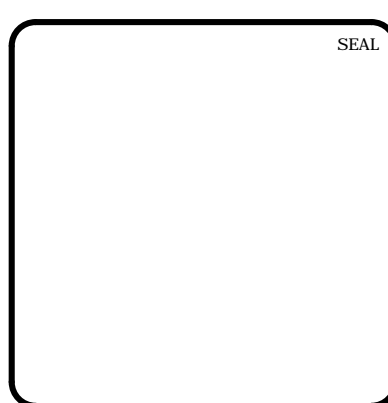


GREAT RIDGE PARKWAY STREAM CROSSING PROFILE
 (STA. 10+00 TO 11+91.91)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-11	FES-10	407.00	405.00	15"	RCP	35.7	5.60%
CI-12	CI-11	411.65	411.50	15"	RCP	24.5	0.61%
DBL CI-2	FES-1	408.50	407.00	15"	RCP	43.8	3.43%
DBL CI-3	DBL CI-2	411.00	410.50	15"	RCP	35.5	1.41%

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-1	EX. SSMH	411.15	410.78	8"	PVC	79.3	0.47%
SSMH-1A	SSMH-1	411.65	411.25	8"	PVC	97.7	0.41%
SSMH-1B	SSMH-1A	412.05	411.75	8"	PVC	66.3	0.45%
SSMH-2	SSMH-1B	412.45	412.15	8"	PVC	62.1	0.48%
SSMH-3	SSMH-2	413.75	412.55	8"	PVC	99.1	1.21%
SSMH-4	SSMH-3	416.00	413.95	8"	PVC	129.5	1.58%

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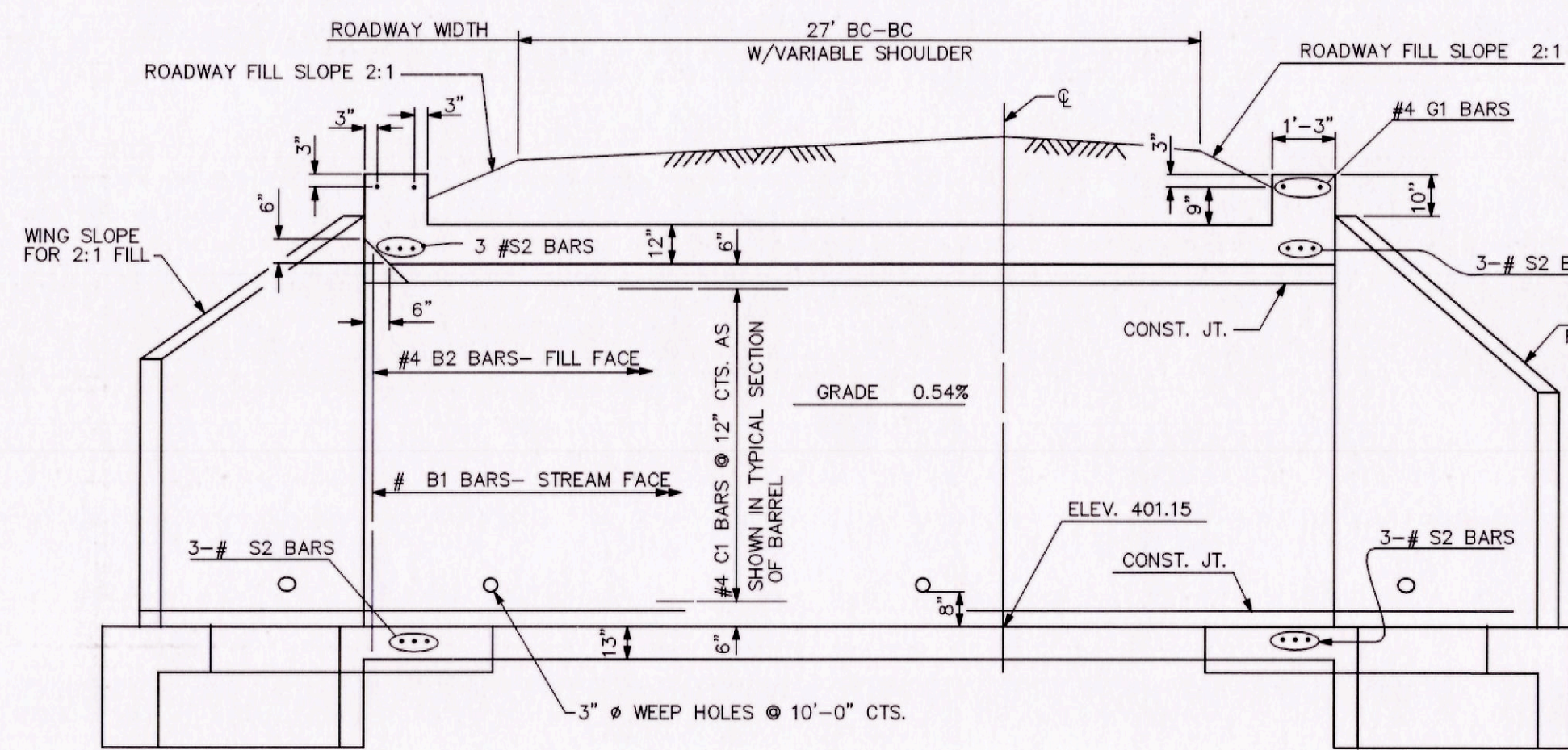


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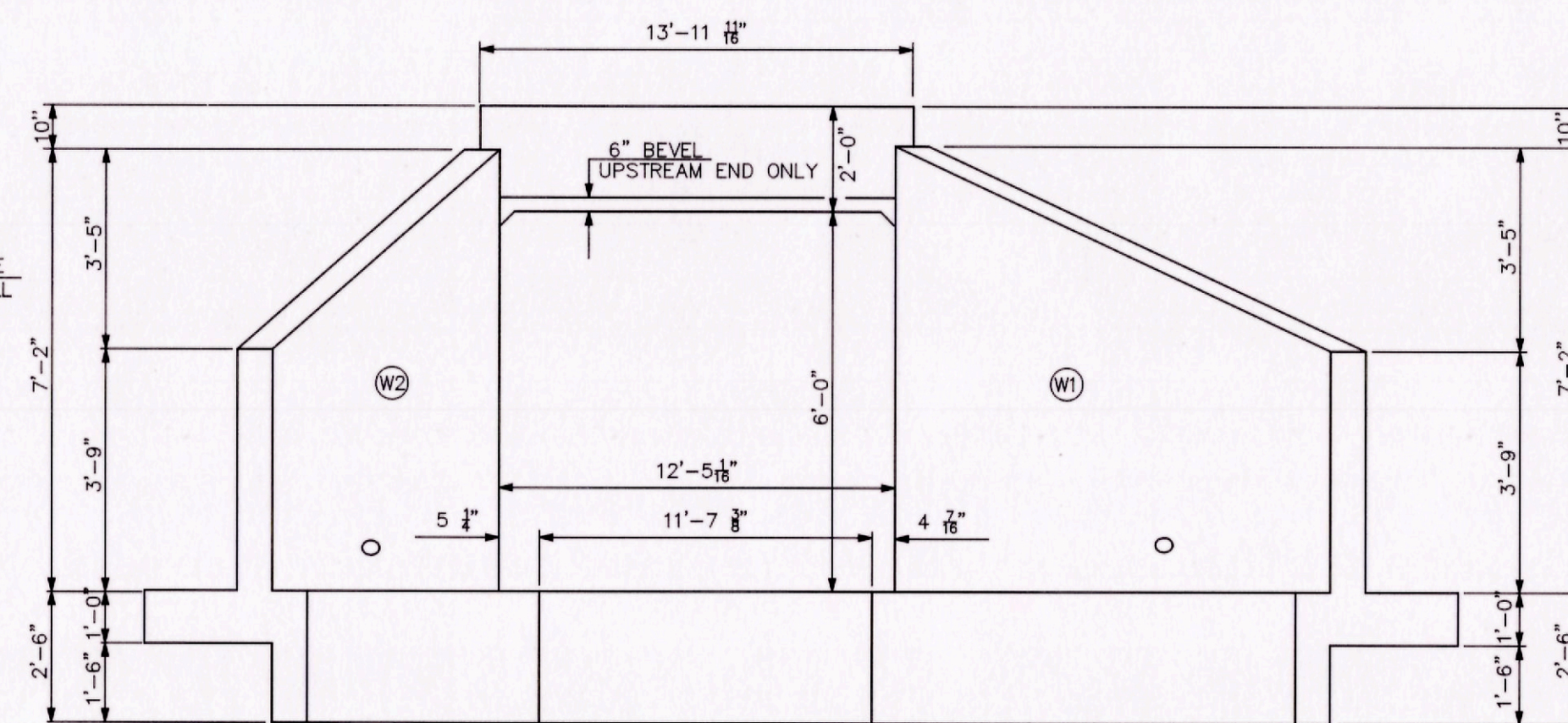
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BRIAR CHAPEL
GREAT RIDGE PARKWAY CULVERT
CHATHAM COUNTY, NORTH CAROLINA
STREAM CROSSING
PLAN & PROFILE

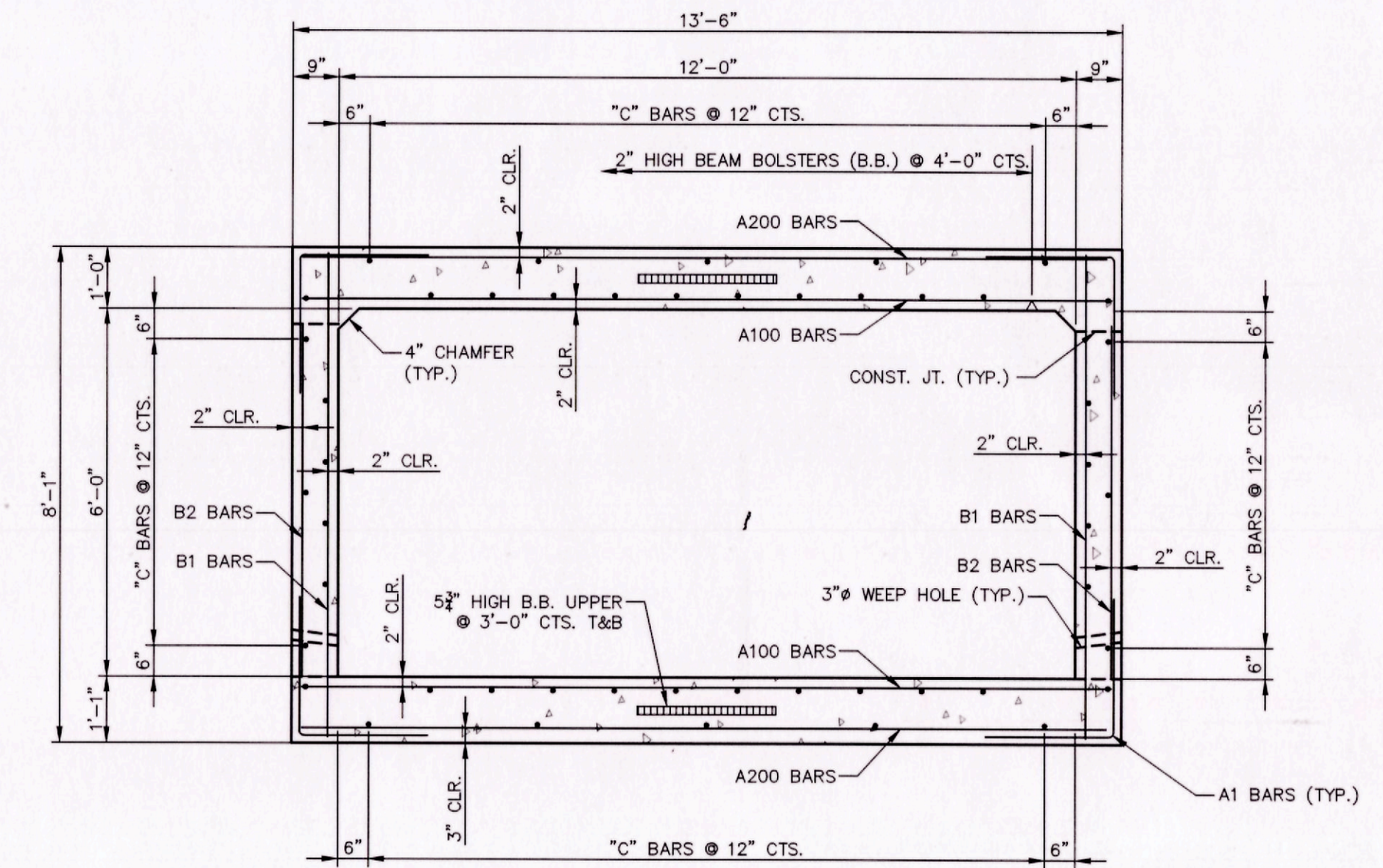
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DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR: CHS		
STATUS: FINAL DRAWING FOR REVIEW ONLY	REVISION: 1	



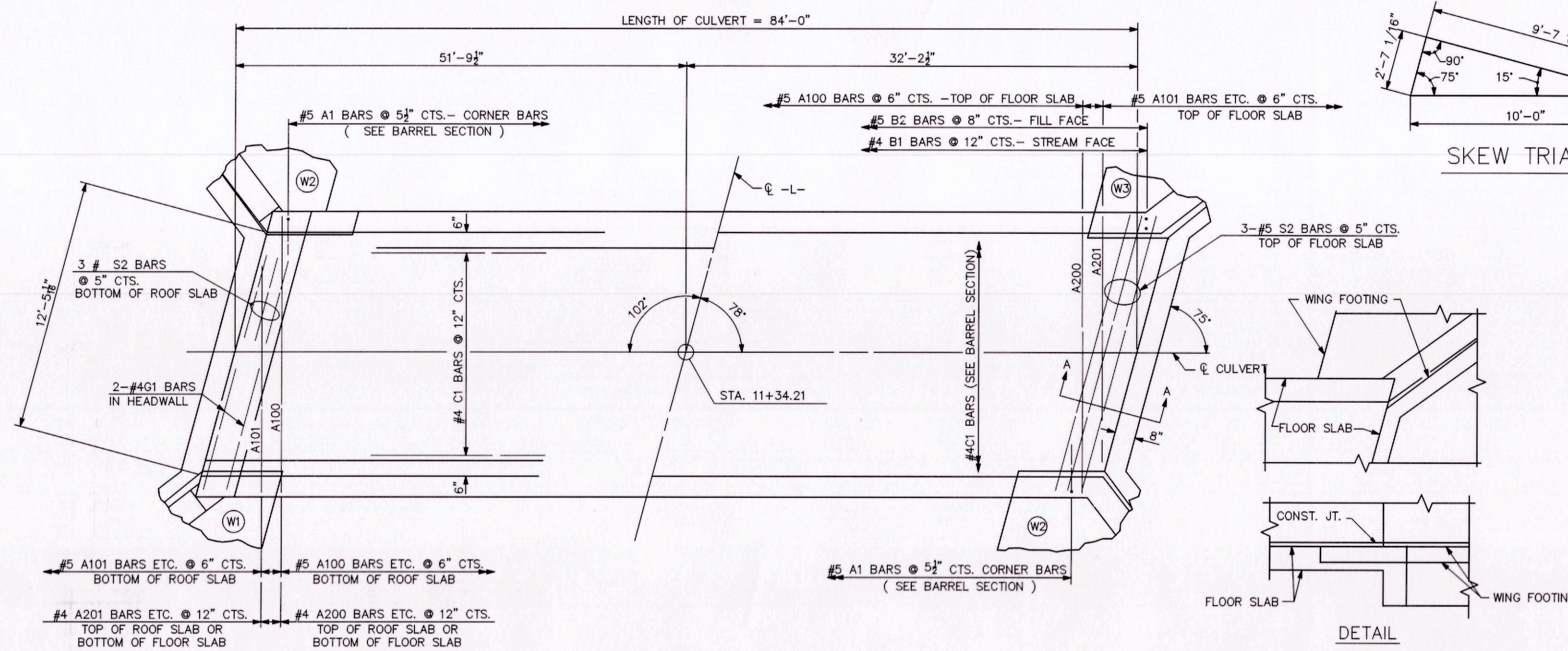
CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW - UPSTREAM END



STRAIGHT BOX SECTION
THERE ARE 42 C1 BARS IN THE CULVERT BARREL SECTION.

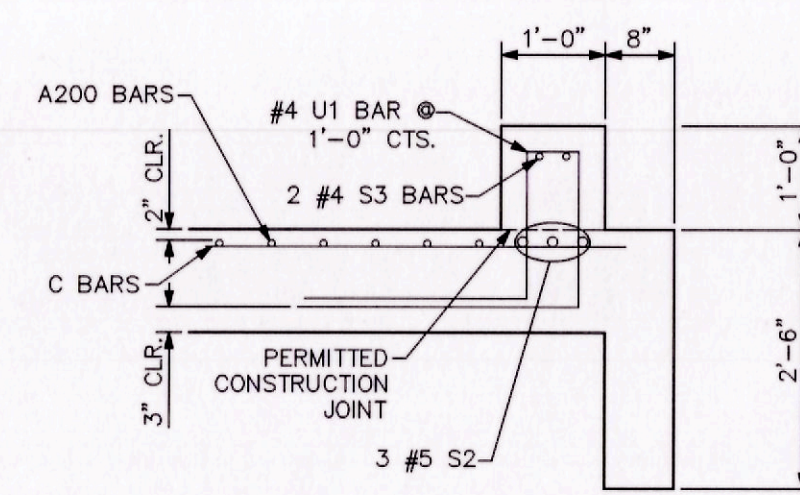


PART PLAN - ROOF SLAB PART PLAN - FLOOR SLAB

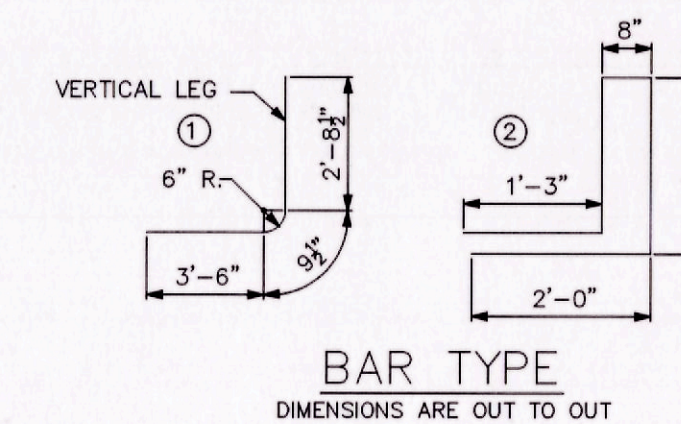
NOTE: ROADWAY SKEW IS 78°. CULVERT IS TO BE BUILT BASED ON A 75° STANDARD SKEW FOR HEADWALLS.

DETAIL
CONNECTION OF WING FOOTING AND FLOOR SLAB WHEN SLAB IS THICKER THAN FOOTING

SKEW TRIANGLE



AA-SECTION
DOWNSTREAM END WALL



BAR TYPE
DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	736	#5	1	7'-0"	5374
A100	322	#5	STR	13'-2"	4422
A101	4	#5	STR	11'-3"	47
A102	4	#5	STR	9'-4"	39
A103	4	#5	STR	7'-6"	31
A104	4	#5	STR	5'-9"	24
A105	4	#5	STR	3'-10"	16
A200	170	#4	STR	13'-2"	1495
A201	4	#4	STR	9'-4"	25
A202	4	#4	STR	5'-9"	15
B1	170	#4	STR	7'-8"	871
B2	254	#5	STR	5'-8"	1501
C1	126	#4	STR	29'-2"	2455
G1	4	#4	STR	13'-7"	36
S2	12	#5	STR	13'-7"	170
S3	2	#4	STR	13'-7"	18
U1	12	#4	2	5'-7"	45
REINFORCING STEEL					
CULVERT BARREL				16,584	LBS
FOR 4 WINGS				1,083	LBS
TOTAL				17,667	LBS
CLASS A CONCRETE					
CULVERT BARREL				115.5	CY
WINGS, ETC.				18.6	CY
TOTAL				132.1	CY

QUANTITIES OF REINFORCING STEEL AND CONCRETE ARE TO BE CONSIDERED AS APPROXIMATE. THE CONTRACTOR IS TO VERIFY QUANTITIES PRIOR TO ORDERING MATERIALS.

NO.	DESCRIPTION	DATE
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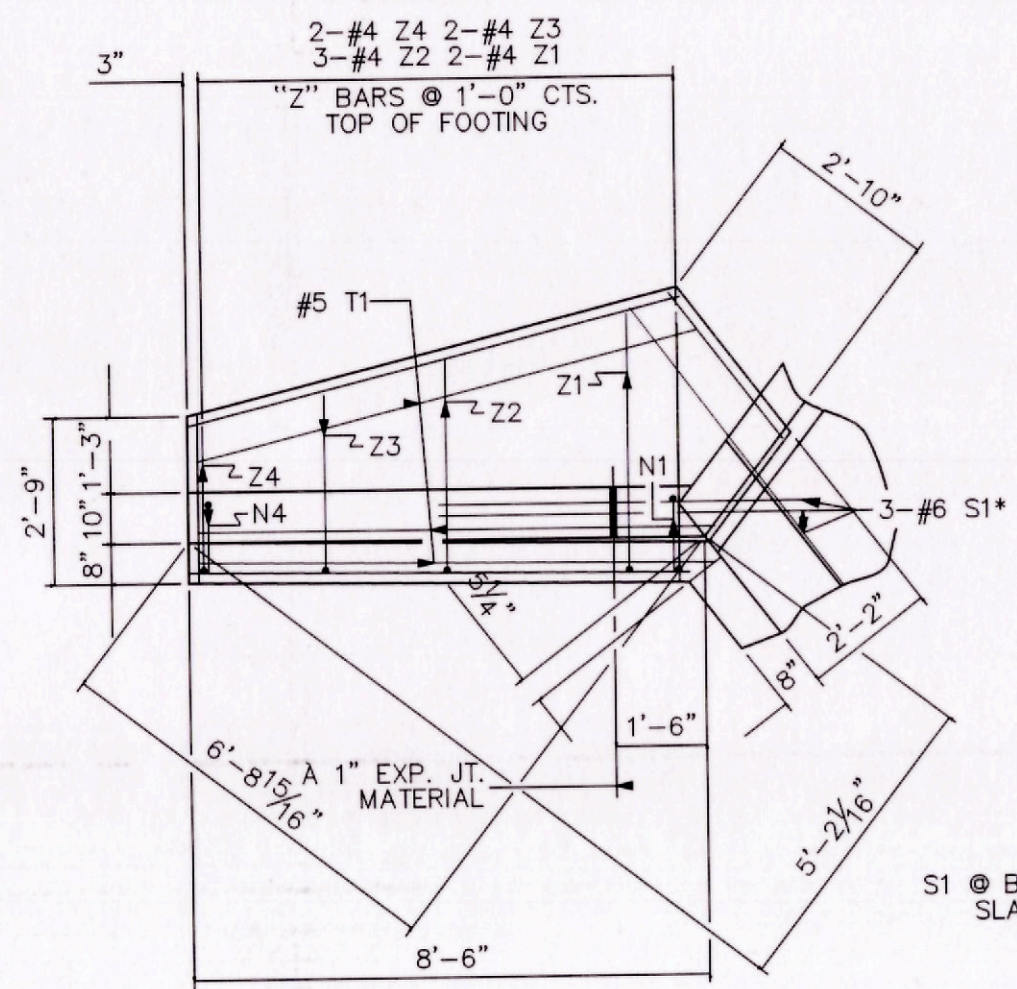
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**BRIAR CHAPEL
GREAT RIDGE PARKWAY CULVERT
CHATHAM COUNTY, NORTH CAROLINA**

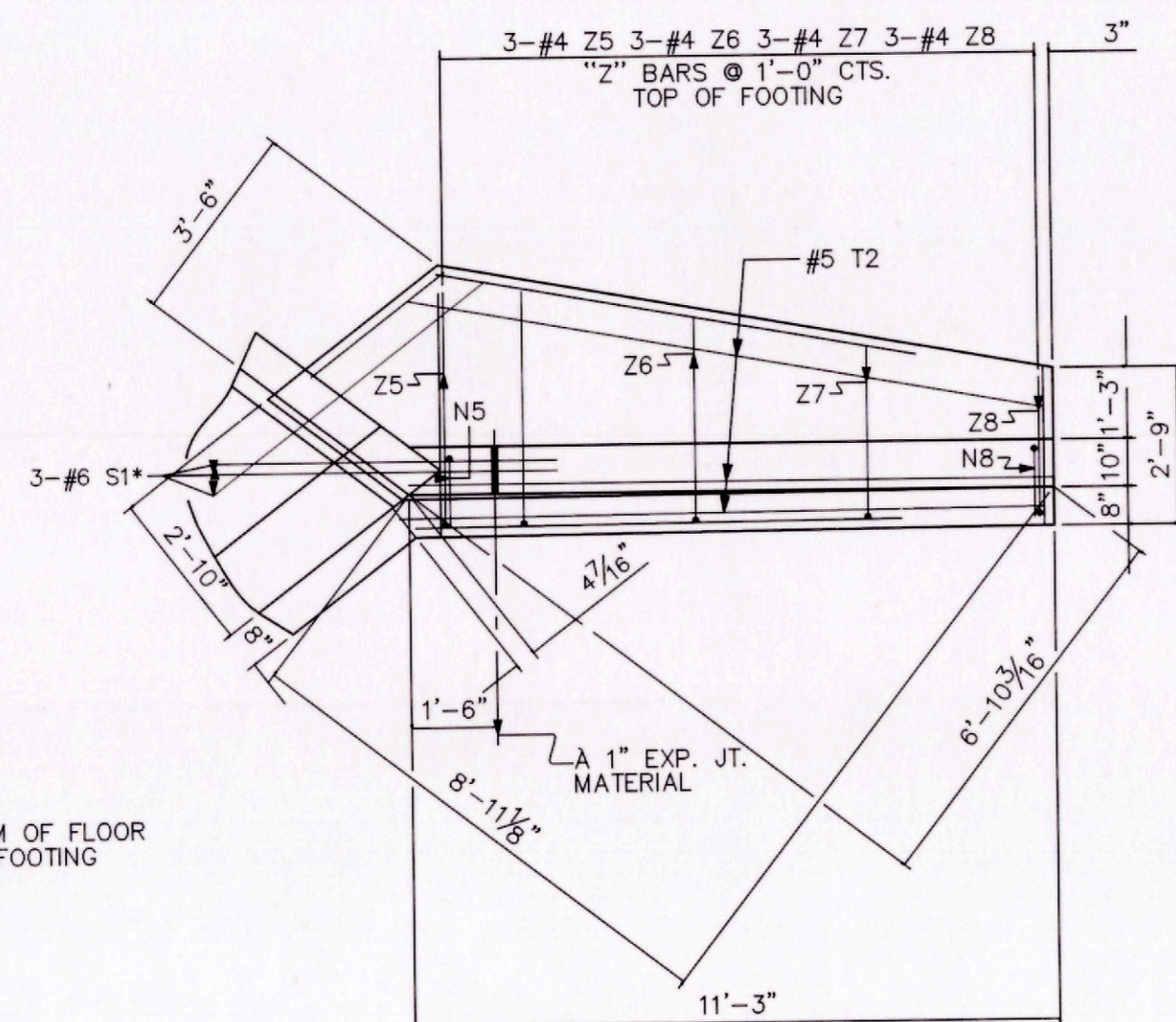
CULVERT DETAILS

DATE:	MAY 24, 2013
NICE PROJ. #	02735-0080
DRAWN	GCA
DESIGNED	GCA
CHECKED	CHG
PROJ. MGR.	CHS

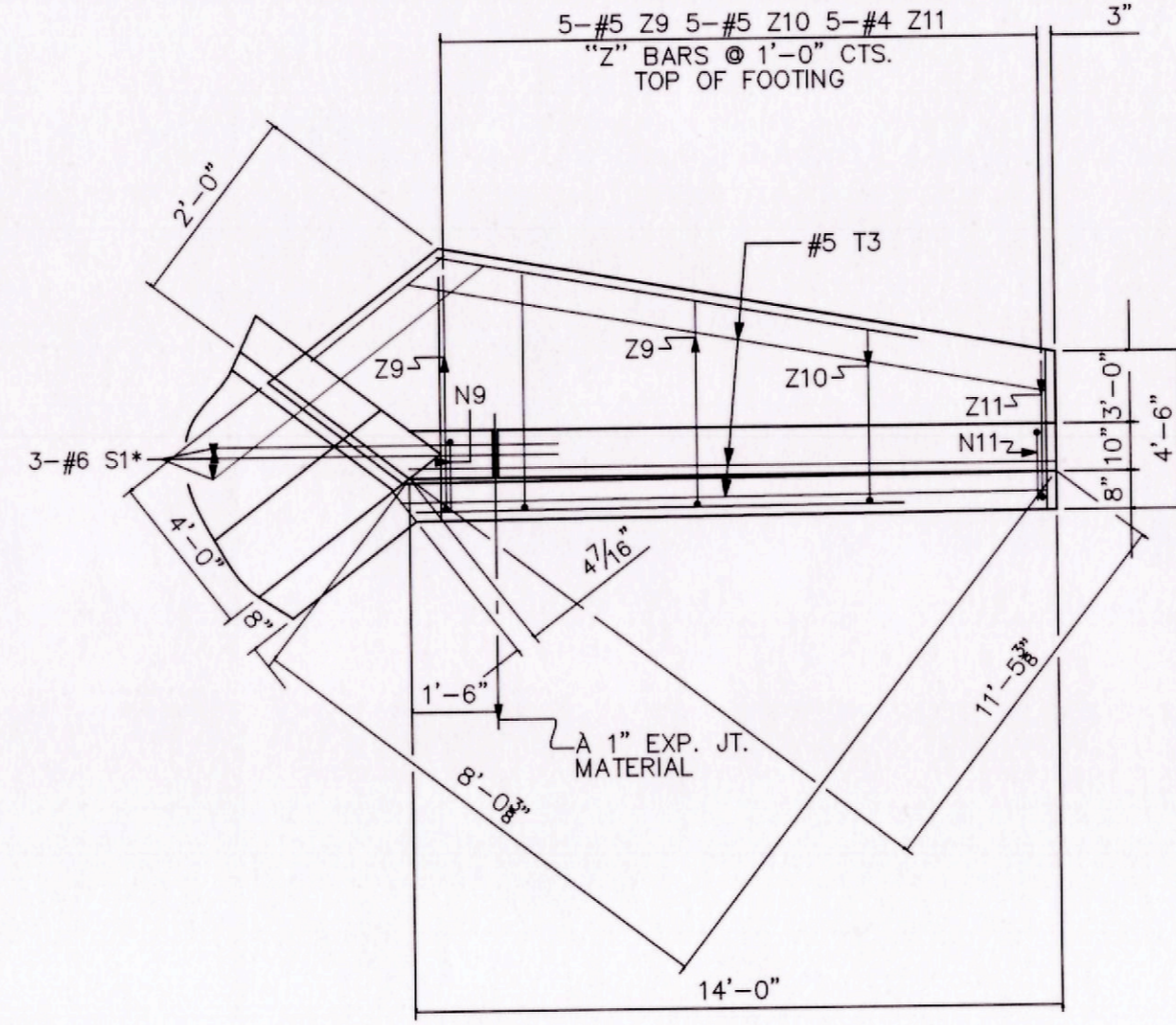
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STATUS:	FINAL DRAWING FOR REVIEW ONLY	
REVISION	1	



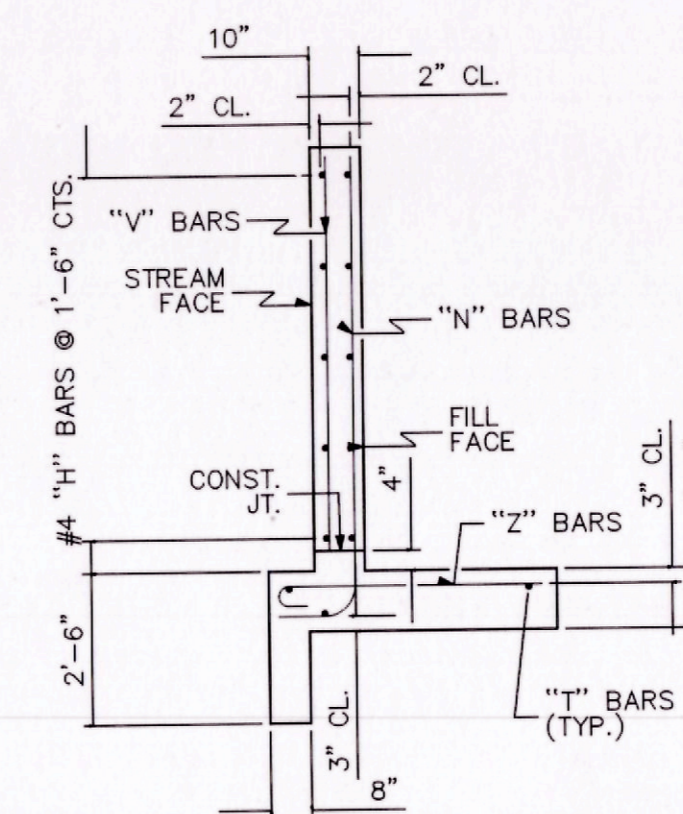
PLAN W2



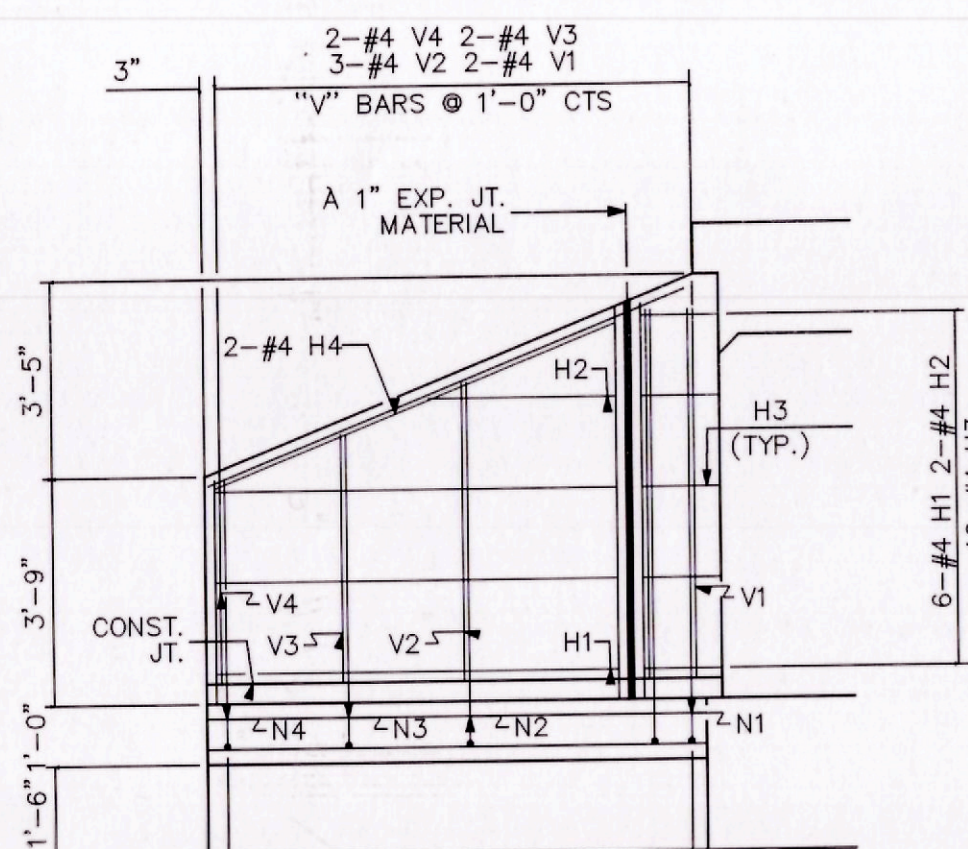
PLAN W1



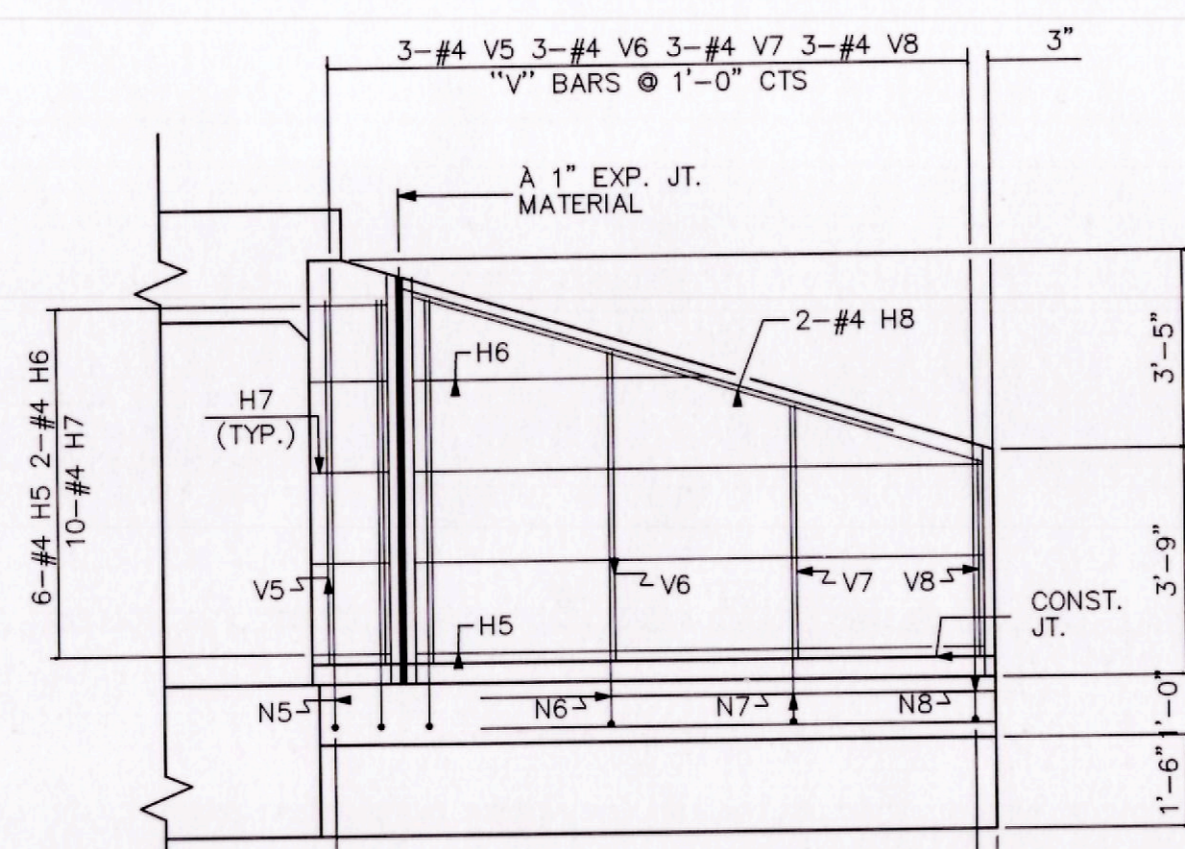
PLAN W3



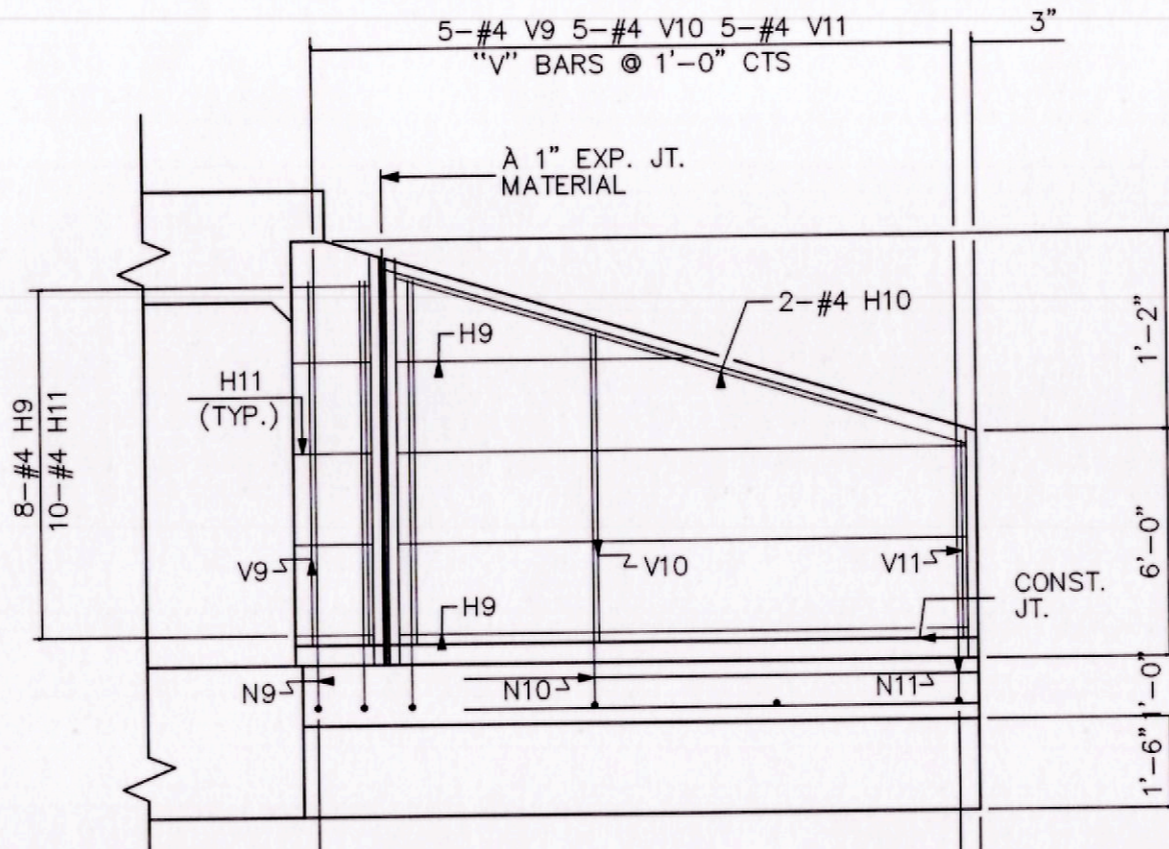
TYPICAL WING SECTION



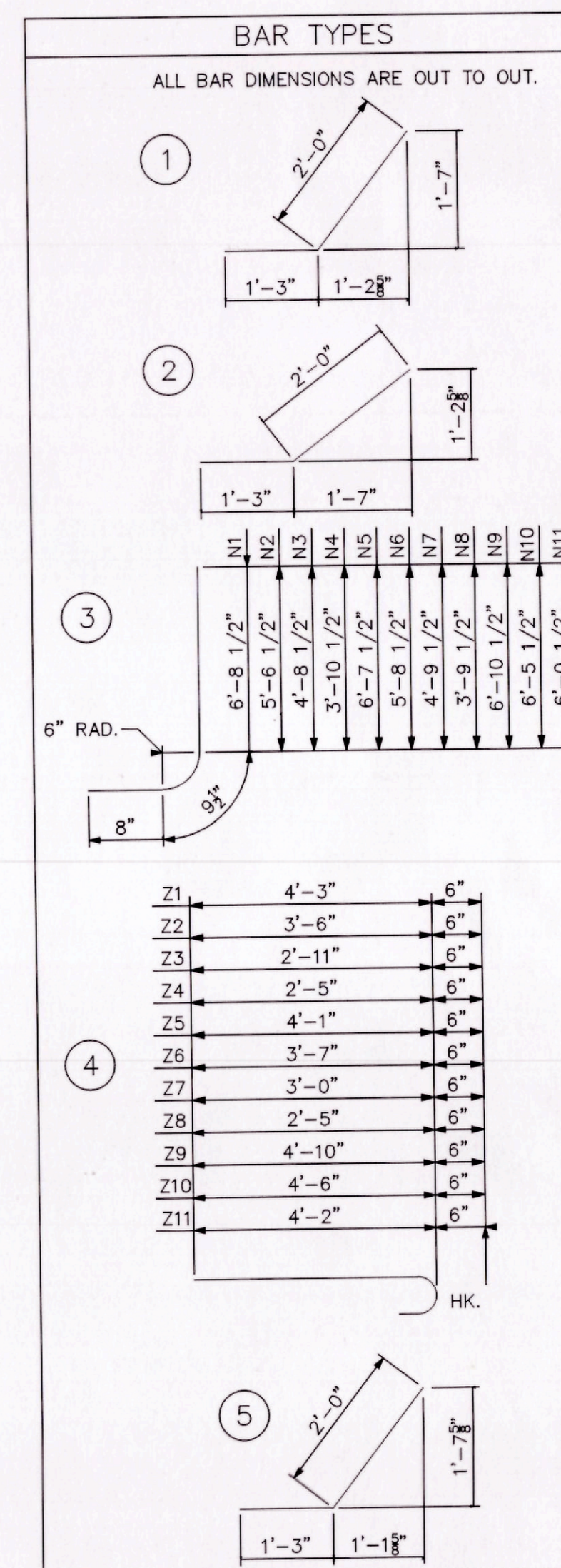
ELEVATION W2



ELEVATION W1

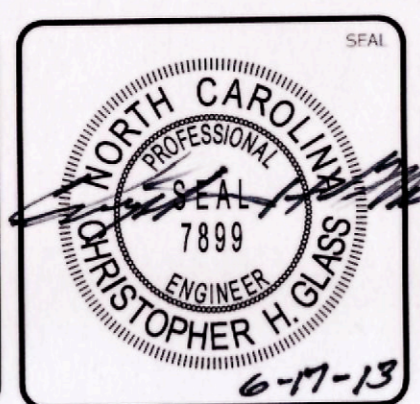


ELEVATION W3



BILL OF MATERIAL				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR 6'-7"	53
H2	4	#4	STR 3'-1"	8
H3	20	#4	STR 3'-3"	43
H4	4	#4	STR 7'-1"	19
H5	6	#4	STR 9'-4"	37
H6	2	#4	STR 4'-10"	7
H7	10	#4	STR 3'-3"	22
H8	2	#4	STR 9'-9"	13
H9	8	#4	STR 12'-2"	65
H10	2	#4	STR 12'-3"	16
H11	10	#4	STR 3'-3"	22
N1	4	#4	STR 8'-2"	22
N2	6	#4	STR 7'-1"	28
N3	4	#4	STR 6'-2"	16
N4	4	#4	STR 5'-4"	14
N5	3	#4	STR 8'-1"	16
N6	3	#4	STR 7'-2"	14
N7	3	#4	STR 6'-3"	13
N8	3	#4	STR 5'-3"	11
N9	5	#4	STR 8'-4"	43
N10	5	#4	STR 7'-11"	26
N11	5	#4	STR 7'-6"	25
S1	12	#6	STR 6'-0"	108
T1	6	#5	STR 8'-6"	53
T2	3	#5	STR 11'-3"	35
T3	3	#5	STR 14'-0"	44
V1	4	#4	STR 6'-1"	16
V2	6	#4	STR 4'-11"	20
V3	4	#4	STR 4'-1"	11
V4	4	#4	STR 3'-4"	9
V5	3	#4	STR 6'-0"	12
V6	3	#4	STR 5'-1"	10
V7	3	#4	STR 4'-2"	8
V8	3	#4	STR 3'-3"	7
V9	5	#4	STR 6'-2"	21
V10	5	#4	STR 5'-9"	19
V11	5	#4	STR 5'-4"	18
Z1	4	#4	STR 4'-9"	13
Z2	6	#4	STR 4'-0"	16
Z3	4	#4	STR 3'-5"	9
Z4	4	#4	STR 2'-11"	8
Z5	3	#4	STR 4'-7"	9
Z6	3	#4	STR 4'-1"	8
Z7	3	#4	STR 3'-6"	7
Z8	3	#4	STR 2'-11"	6
Z9	5	#5	STR 5'-5"	28
Z10	5	#5	STR 4'-9"	27
Z11	5	#5	STR 4'-9"	28
REINFORCING STEEL			1,083 LBS	
FOR 4 WINGS				
CLASS A CONCRETE				
4 WINGS			12.7	CY
2 HEADWALLS			1.3	CY
2 END CURTAIN WALLS			2.6	CY
TOTAL			16.6	CY

REV. NO.	DESCRIPTION	DATE
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CHATHAM COUNTY, NORTH CAROLINA

WING DETAILS

DATE:	MAY 24, 2013	SCALE:	HORIZONTAL: 1" = 50'	VERTICAL: N/A	HMC FILE NUMBER: C1.X
MCE PROJ. #	02735-0080	DRAWN:	GCA	CHECKED:	CHG
DESIGNED:	GCA	PROJ. MGR.:	CHS		
STATUS: FINAL DRAWING FOR REVIEW ONLY				REVISION: 1	