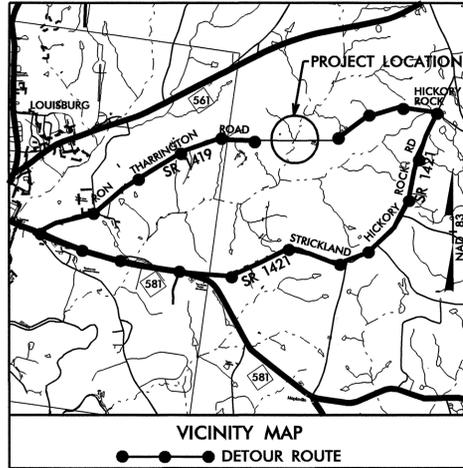


TIP PROJECT: B-4115

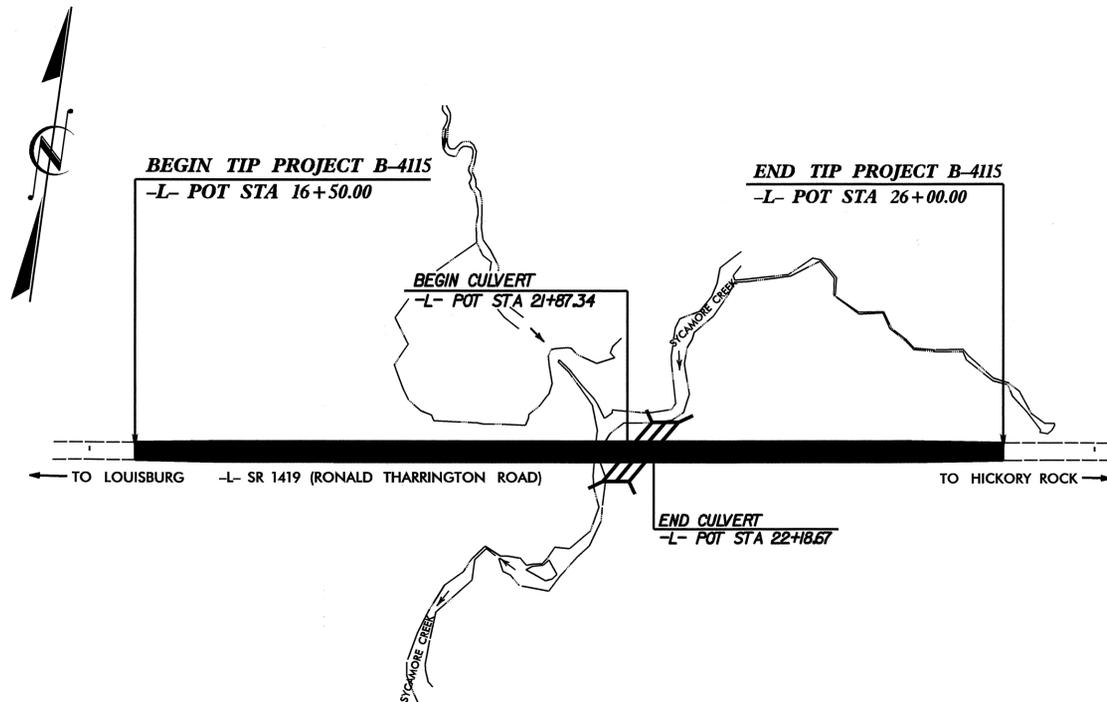
CONTRACT: C201925



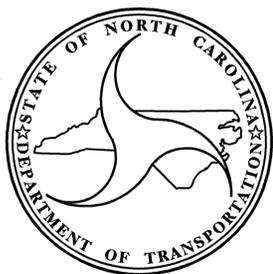
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FRANKLIN COUNTY

LOCATION: BRIDGE NO. 57 OVER SYCAMORE CREEK ON SR 1419
TYPE OF WORK: GRADING, DRAINAGE, CULVERT AND PAVING



CULVERT



| DESIGN DATA | |
|-----------------------|---------|
| ADT 2008 = | 646 |
| ADT 2028 = | 1063 |
| DHV = | 10 % |
| D = | 60 % |
| T = | 5 % * |
| V = | 60 MPH |
| RURAL MINOR COLLECTOR | |
| * TTST 3% | DUAL 2% |

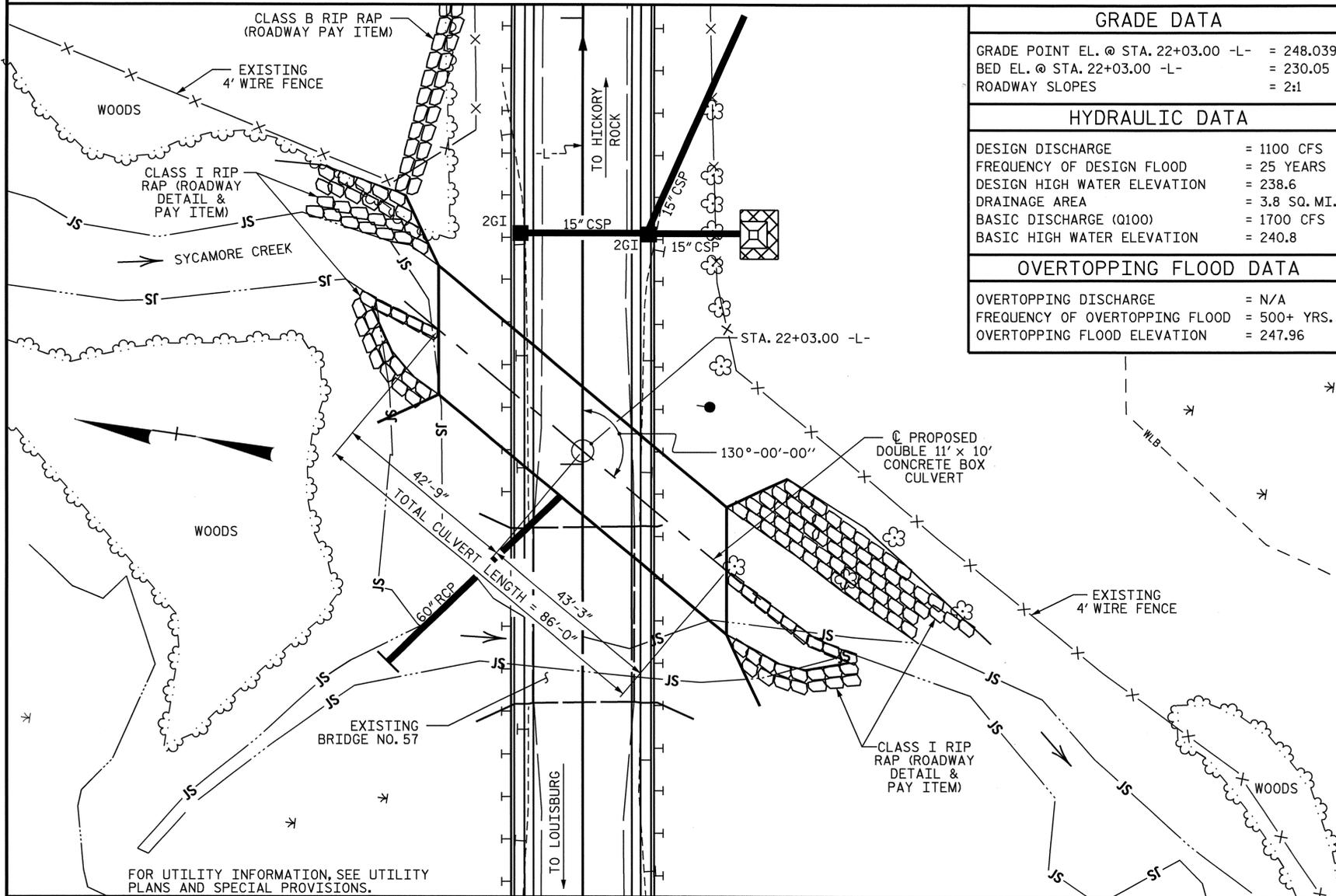
| PROJECT LENGTH | |
|-------------------------------------|------------|
| ROADWAY LENGTH TIP PROJECT B-4115 | = 0.174 MI |
| STRUCTURE LENGTH TIP PROJECT B-4115 | = 0.006 MI |
| TOTAL LENGTH TIP PROJECT B-4115 | = 0.180 MI |

| | |
|--|---|
| Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610 | |
| 2006 STANDARD SPECIFICATIONS | |
| LETTING DATE: SEPTEMBER 16, 2008 | ROY M. GIROLAMI, P.E. PROJECT ENGINEER LAURA E. SUTTON, P.E. PROJECT DESIGN ENGINEER |

| |
|--|
| STRUCTURE DESIGN UNIT 1000 BIRCH RIDGE DR. RALEIGH, NC 27610 |
|--|

| | |
|--|------|
| DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA P.E. STATE DESIGN ENGINEER DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION APPROVED DIVISION ADMINISTRATOR | DATE |
|--|------|

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | B-4115 | | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33470.1.1 | BRZ-1419(2) | PE | |
| 33470.2.1 | BRZ-1419(2) | UTIL & ROW | |
| 33470.3.1 | BRZ-1419(2) | CONST. | |
| | | | |
| | | | |
| | | | |



LOCATION SKETCH

| GRADE DATA | |
|-------------------------------------|---------------|
| GRADE POINT EL. @ STA. 22+03.00 -L- | = 248.039 |
| BED EL. @ STA. 22+03.00 -L- | = 230.05 |
| ROADWAY SLOPES | = 2:1 |
| HYDRAULIC DATA | |
| DESIGN DISCHARGE | = 1100 CFS |
| FREQUENCY OF DESIGN FLOOD | = 25 YEARS |
| DESIGN HIGH WATER ELEVATION | = 238.6 |
| DRAINAGE AREA | = 3.8 SQ. MI. |
| BASIC DISCHARGE (Q100) | = 1700 CFS |
| BASIC HIGH WATER ELEVATION | = 240.8 |
| OVERTOPPING FLOOD DATA | |
| OVERTOPPING DISCHARGE | = N/A |
| FREQUENCY OF OVERTOPPING FLOOD | = 500+ YRS. |
| OVERTOPPING FLOOD ELEVATION | = 247.96 |

NOTES

- ASSUMED LIVE LOAD HS20 OR ALTERNATE LOADING.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- DESIGN FILL = 8.1 FEET.
- FOR OTHER DESIGN DATA AND NOTES, SEE SHEET SN.
- 3" DIA. WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN CULVERT TO BE POURED IN THE FOLLOWING ORDER:
- STAGE I FLOOR SLAB AND WING FOOTINGS INCLUDING 4" OF ALL VERTICAL WALLS.
 - THE REMAINING PORTIONS OF STAGE I WALLS, WINGS FULL HEIGHT, ROOF SLAB AND HEADWALLS.
 - STAGE II FLOOR SLAB AND WING FOOTINGS INCLUDING 4" OF ALL VERTICAL WALLS.
 - THE REMAINING PORTIONS OF STAGE II 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.
- AT THE CONTRACTORS 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.
- THE 60" Ø R.C. PIPE THROUGH THE SIDEWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.
- TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- 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.
- 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.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 41.5' WITH A CLEAR ROADWAY WIDTH OF 23.9' AND HAVING A TIMBER FLOOR SUPPORTED BY STEEL GIRDER AND FLOOR BEAM SYSTEM ON TIMBER ABUTMENTS WITH TIMBER PILES SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 22+03.00 -L-."
- THE CONTRACTOR 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 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.

| TOTAL STRUCTURE QUANTITIES | | |
|-------------------------------|----------|--------|
| REMOVAL OF EXISTING STRUCTURE | LUMP SUM | |
| CULVERT EXCAVATION | LUMP SUM | |
| FOUNDATION COND. MAT'L. | TONS | 146 |
| CLASS A CONCRETE | | |
| STAGE I | CU. YDS. | 159.3 |
| STAGE II | CU. YDS. | 121.2 |
| SILLS | CU. YDS. | 1.2 |
| TOTAL | CU. YDS. | 281.7 |
| REINFORCING STEEL | | |
| STAGE I | LBS. | 23,130 |
| STAGE II | LBS. | 20,920 |
| TOTAL | LBS. | 44,050 |

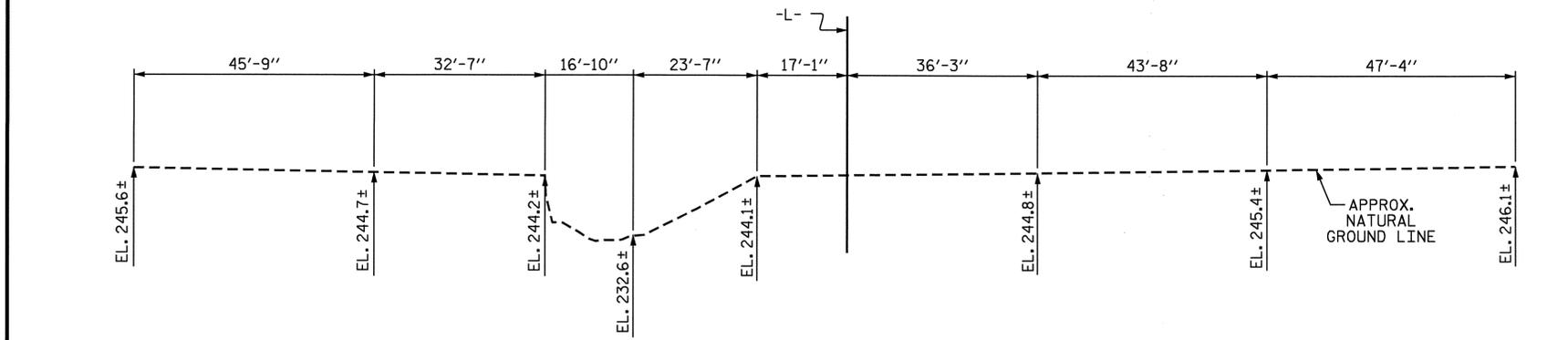
PROJECT NO. B-4115
FRANKLIN COUNTY
 STATION: 22+03.00 -L-
 SHEET 1 OF 5 REPLACES BRIDGE NO. 57



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

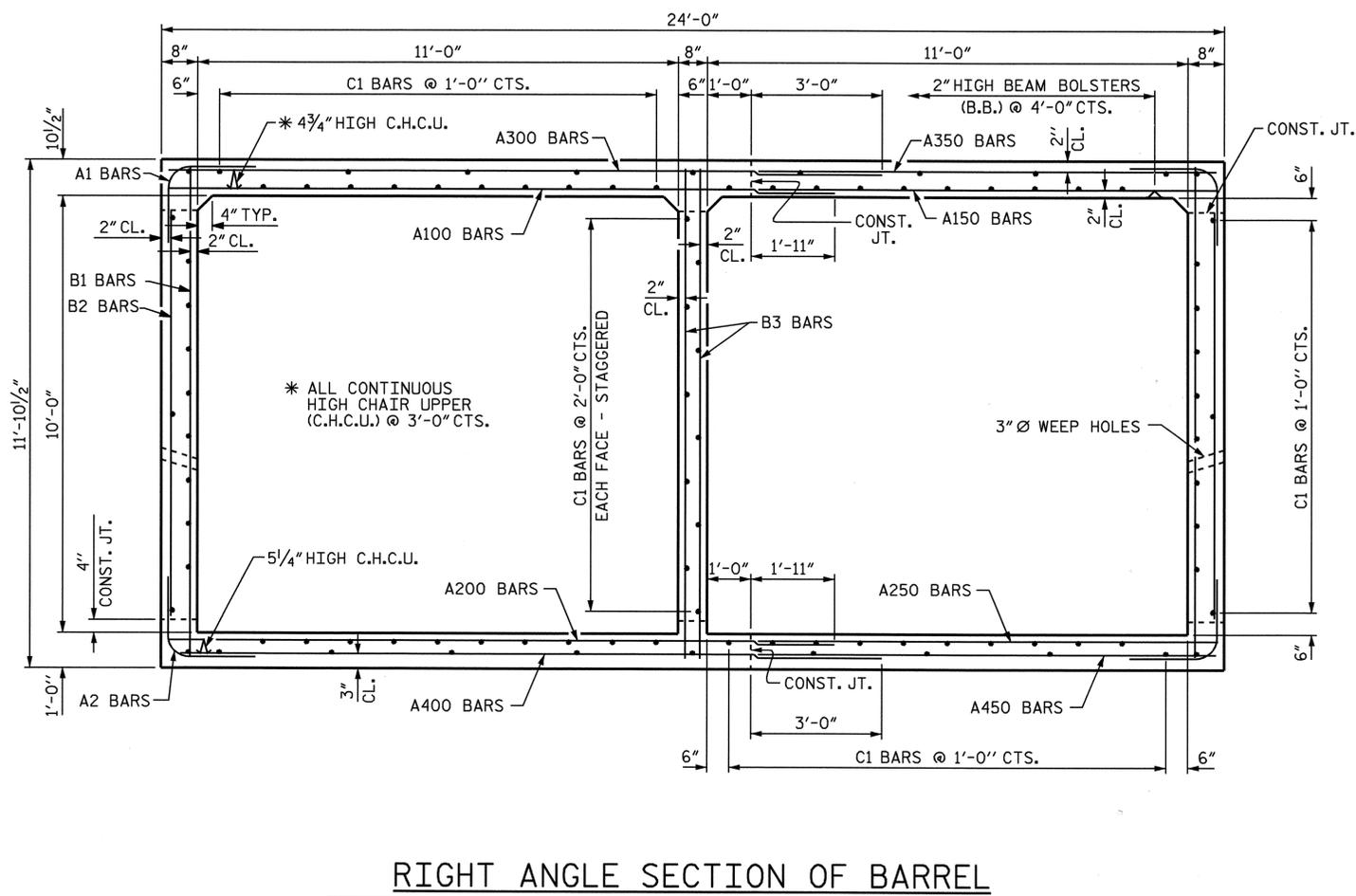
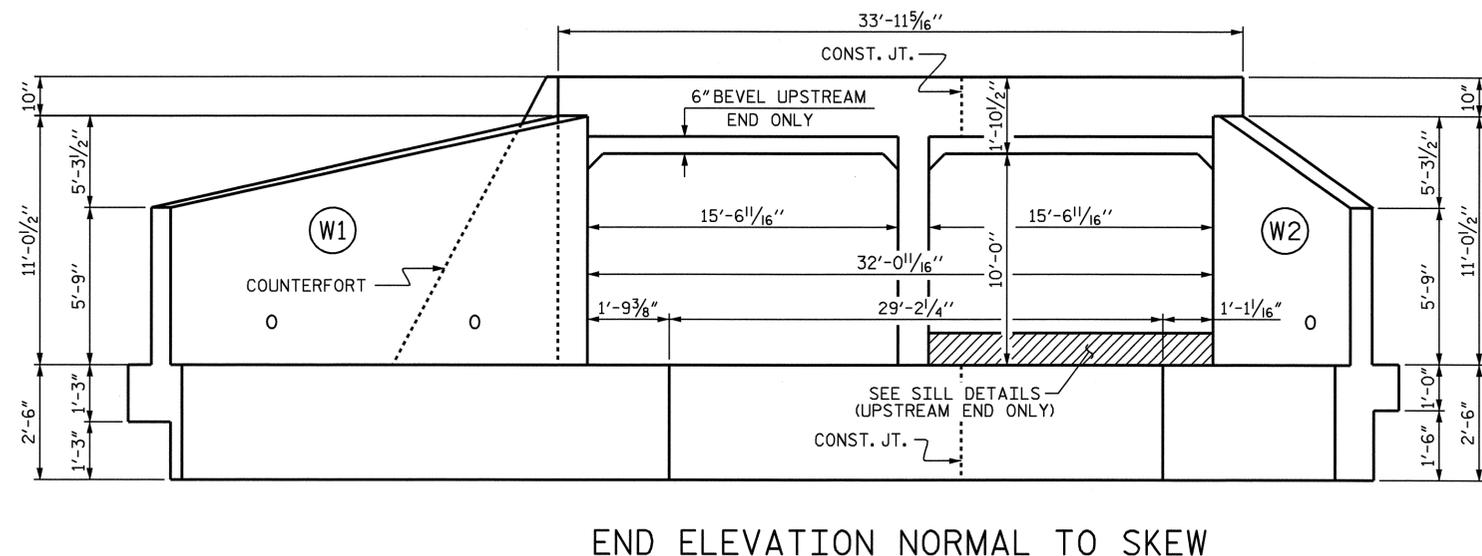
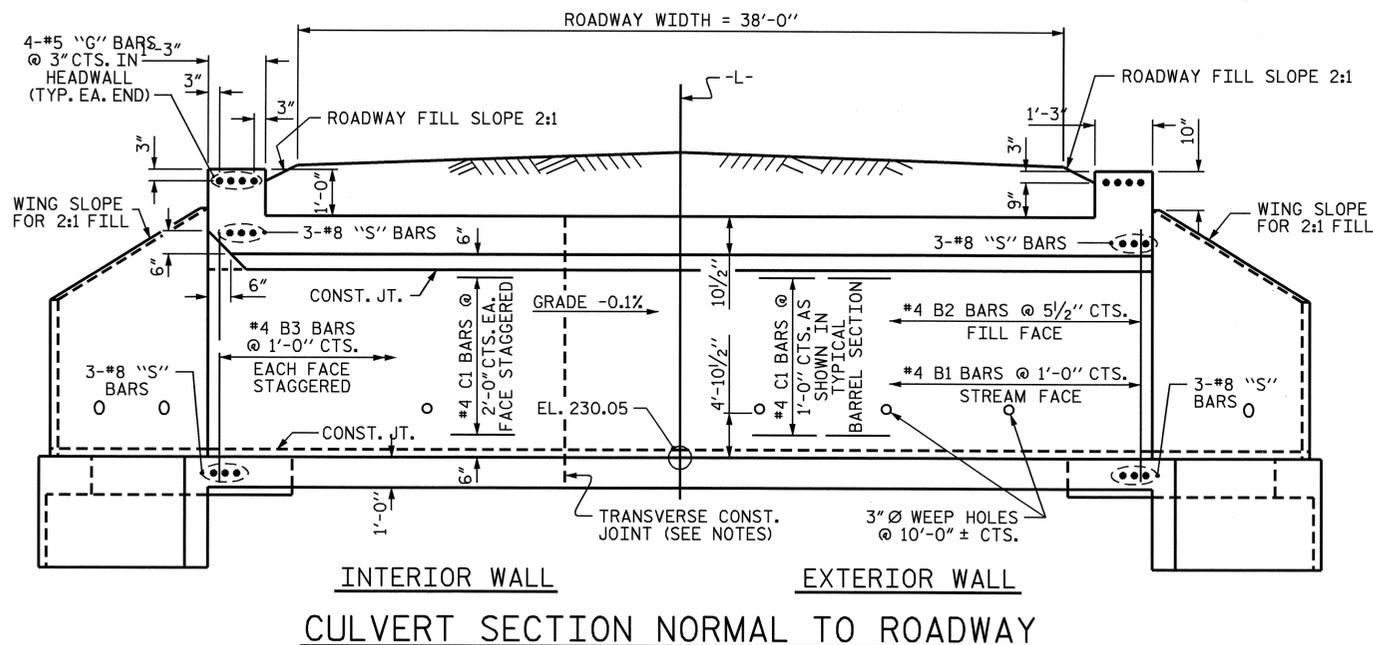
**DOUBLE BARREL
 11 FT. X 10 FT.
 CONCRETE BOX CULVERT
 130° SKEW**

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | C-1 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 5 |

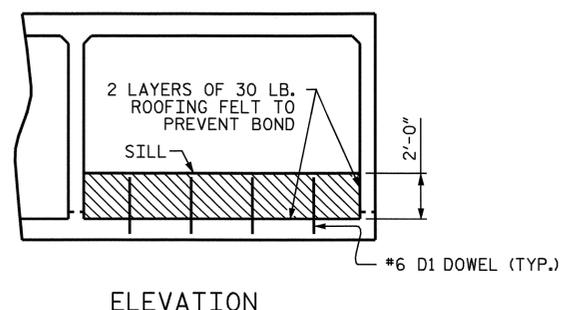
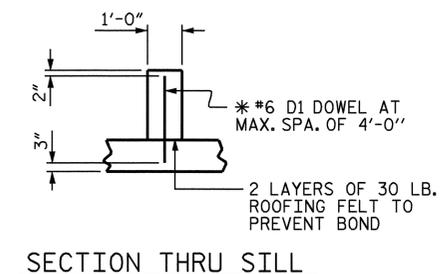


PROFILE ALONG CULVERT

DRAWN BY: B.L. GREEN DATE: 7/06
 CHECKED BY: E.C. LOCKLEAR DATE: 9/26/06



THERE ARE 94 "C" BARS IN SECTION OF BARREL.



SILL DETAIL

* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.

DRAWN BY: B.L. GREEN DATE: 9/06
 CHECKED BY: E.C. LOCKLEAR DATE: 9/26/06

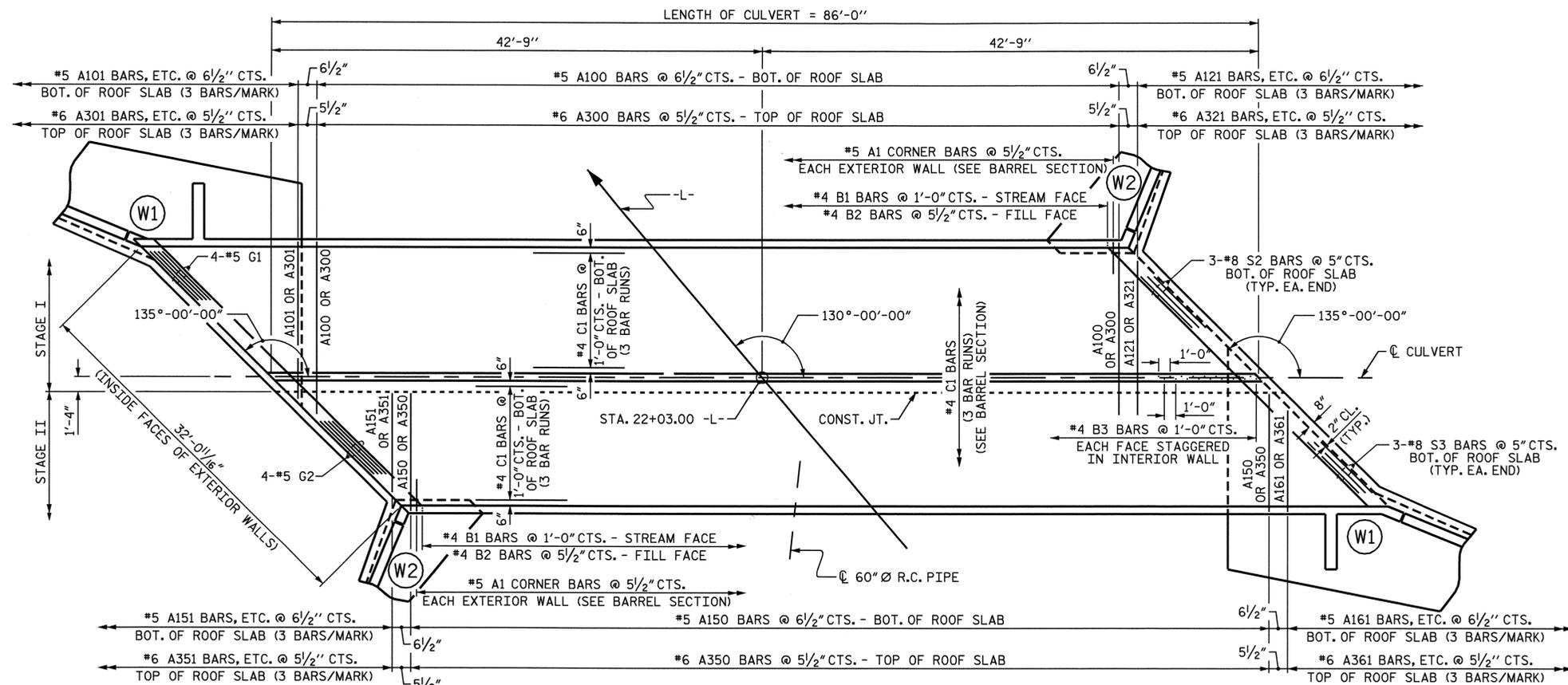
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 bgreen

PROJECT NO. B-4115
 FRANKLIN COUNTY
 STATION: 22+03.00 -L-
 SHEET 2 OF 5

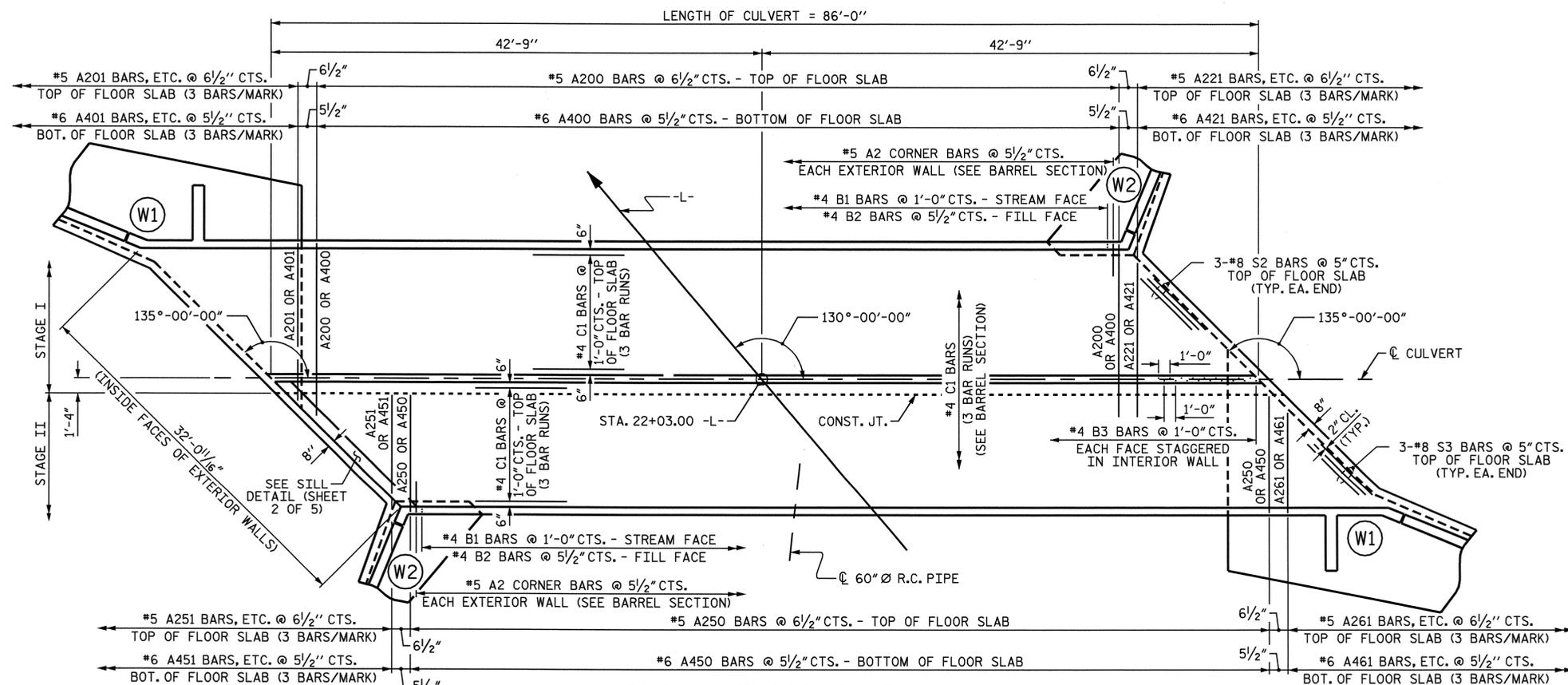
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE BARREL
 11 FT. X 10 FT.
 CONCRETE BOX CULVERT
 130° SKEW

| REVISIONS | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----------|----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| | | | | | C-2 |
| | | | | | TOTAL SHEETS 5 |





PLAN - ROOF SLAB



PLAN - FLOOR SLAB

THE 60" Ø R.C. PIPE THROUGH THE SIDEWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE. SEE DETAILS ON SHEET 4 OF 5.

DRAWN BY : B.L. GREEN DATE : 9/06
 CHECKED BY : E.C. LOCKLEAR DATE : 9/26/06

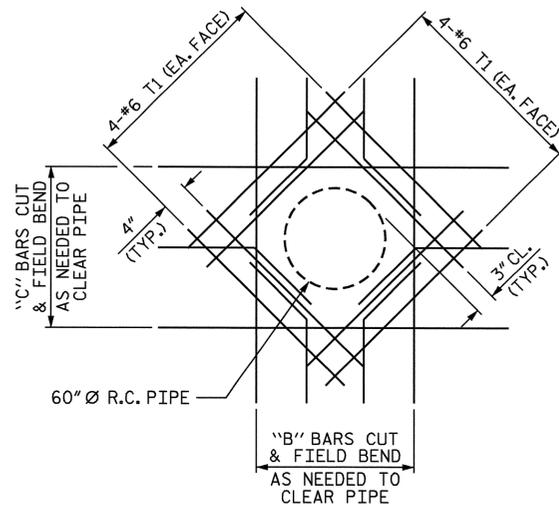
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 bgreen

PROJECT NO. B-4115
 FRANKLIN COUNTY
 STATION: 22+03.00 -L-
 SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE BARREL
 11 FT. X 10 FT.
 CONCRETE BOX CULVERT
 130° SKEW



| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | C-3 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 5 |



60" Ø R.C. PIPE THROUGH EXTERIOR WALL

BAR TYPE
ALL BAR DIMENSIONS ARE OUT TO OUT.

SPLICE LENGTHS CHART

| BAR | SIZE | SPLICE LENGTH |
|------------|------|---------------|
| A100, A200 | 5 | 1'-9" |
| A200, A400 | 6 | 2'-10" |
| B1 | 4 | 1'-9" |
| B3 | 4 | 1'-9" |
| C1 | 4 | 1'-11" |
| S2 & S3 | 8 | 4'-0" |
| G1 | 5 | 1'-9" |

BILL OF MATERIAL STAGE I

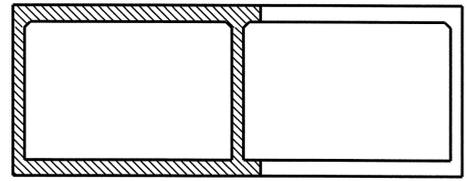
| BAR NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------|------|------|-------------|--------|
| A100 | 130 | #5 | STR 15'-1" | 2045 |
| A101 | 3 | #5 | STR 13'-9" | 43 |
| A102 | 3 | #5 | STR 12'-2" | 38 |
| A103 | 3 | #5 | STR 10'-6" | 33 |
| A104 | 3 | #5 | STR 8'-11" | 28 |
| A105 | 3 | #5 | STR 7'-3" | 23 |
| A106 | 3 | #5 | STR 5'-8" | 18 |
| A107 | 3 | #5 | STR 4'-0" | 13 |
| A108 | 3 | #5 | STR 2'-5" | 8 |
| A200 | 130 | #5 | STR 15'-1" | 2045 |
| A201 | 3 | #5 | STR 13'-9" | 43 |
| A202 | 3 | #5 | STR 12'-2" | 38 |
| A203 | 3 | #5 | STR 10'-6" | 33 |
| A204 | 3 | #5 | STR 8'-11" | 28 |
| A205 | 3 | #5 | STR 7'-3" | 23 |
| A206 | 3 | #5 | STR 5'-8" | 18 |
| A207 | 3 | #5 | STR 4'-0" | 13 |
| A208 | 3 | #5 | STR 2'-5" | 8 |
| A221 | 3 | #5 | STR 13'-5" | 42 |
| A222 | 3 | #5 | STR 11'-10" | 37 |
| A223 | 3 | #5 | STR 10'-2" | 32 |
| A224 | 3 | #5 | STR 8'-7" | 27 |
| A225 | 3 | #5 | STR 6'-11" | 22 |
| A226 | 3 | #5 | STR 5'-4" | 17 |
| A227 | 3 | #5 | STR 3'-8" | 11 |
| A300 | 151 | #6 | STR 16'-2" | 3667 |
| A301 | 3 | #6 | STR 15'-3" | 69 |
| A302 | 3 | #6 | STR 13'-11" | 63 |
| A303 | 3 | #6 | STR 12'-6" | 56 |
| A304 | 3 | #6 | STR 11'-2" | 50 |
| A305 | 3 | #6 | STR 9'-9" | 44 |
| A306 | 3 | #6 | STR 8'-5" | 38 |
| A307 | 3 | #6 | STR 7'-0" | 32 |
| A308 | 3 | #6 | STR 5'-8" | 26 |
| A309 | 3 | #6 | STR 4'-3" | 19 |
| A310 | 3 | #6 | STR 2'-11" | 13 |
| A400 | 151 | #6 | STR 16'-2" | 3667 |
| A401 | 3 | #6 | STR 15'-3" | 69 |
| A402 | 3 | #6 | STR 13'-11" | 63 |
| A403 | 3 | #6 | STR 12'-6" | 56 |
| A404 | 3 | #6 | STR 11'-2" | 50 |
| A405 | 3 | #6 | STR 9'-9" | 44 |
| A406 | 3 | #6 | STR 8'-5" | 38 |
| A407 | 3 | #6 | STR 7'-0" | 32 |
| A408 | 3 | #6 | STR 5'-8" | 26 |
| A409 | 3 | #6 | STR 4'-3" | 19 |
| A410 | 3 | #6 | STR 2'-11" | 13 |
| A421 | 3 | #6 | STR 14'-9" | 66 |
| A422 | 3 | #6 | STR 13'-5" | 60 |
| A423 | 3 | #6 | STR 12'-0" | 54 |
| A424 | 3 | #6 | STR 10'-8" | 48 |
| A425 | 3 | #6 | STR 9'-3" | 42 |
| A426 | 3 | #6 | STR 7'-11" | 36 |
| A427 | 3 | #6 | STR 6'-6" | 29 |
| A428 | 3 | #6 | STR 5'-2" | 23 |
| A429 | 3 | #6 | STR 3'-9" | 17 |
| A2 | 188 | #5 | 1 5'-8" | 1111 |
| B1 | 86 | #4 | STR 11'-4" | 651 |
| B2 | 188 | #4 | STR 9'-4" | 1172 |
| B3 | 172 | #4 | STR 11'-4" | 1302 |
| C1 | 114 | #4 | STR 29'-11" | 2278 |
| G1 | 8 | #5 | STR 21'-4" | 178 |
| S2 | 12 | #8 | STR 22'-10" | 732 |

BILL OF MATERIAL STAGE II

| BAR NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---------|------|------|-------------|--------|
| A150 | 139 | #5 | STR 10'-4" | 1498 |
| A151 | 3 | #5 | STR 8'-8" | 27 |
| A152 | 3 | #5 | STR 7'-1" | 22 |
| A153 | 3 | #5 | STR 5'-5" | 17 |
| A154 | 3 | #5 | STR 3'-10" | 12 |
| A155 | 3 | #5 | STR 2'-2" | 7 |
| A161 | 3 | #5 | STR 8'-11" | 28 |
| A162 | 3 | #5 | STR 7'-3" | 23 |
| A163 | 3 | #5 | STR 5'-8" | 18 |
| A164 | 3 | #5 | STR 4'-0" | 13 |
| A165 | 3 | #5 | STR 2'-5" | 8 |
| A250 | 139 | #5 | STR 10'-4" | 1498 |
| A251 | 3 | #5 | STR 8'-8" | 27 |
| A252 | 3 | #5 | STR 7'-1" | 22 |
| A253 | 3 | #5 | STR 5'-5" | 17 |
| A254 | 3 | #5 | STR 3'-10" | 12 |
| A255 | 3 | #5 | STR 2'-2" | 7 |
| A261 | 3 | #5 | STR 8'-11" | 28 |
| A262 | 3 | #5 | STR 7'-3" | 23 |
| A263 | 3 | #5 | STR 5'-8" | 18 |
| A264 | 3 | #5 | STR 4'-0" | 13 |
| A265 | 3 | #5 | STR 2'-5" | 8 |
| A350 | 163 | #6 | STR 10'-4" | 2530 |
| A351 | 3 | #6 | STR 9'-0" | 41 |
| A352 | 3 | #6 | STR 7'-7" | 34 |
| A353 | 3 | #6 | STR 6'-3" | 28 |
| A354 | 3 | #6 | STR 4'-10" | 22 |
| A355 | 3 | #6 | STR 3'-6" | 16 |
| A361 | 3 | #6 | STR 9'-9" | 44 |
| A362 | 3 | #6 | STR 8'-5" | 38 |
| A363 | 3 | #6 | STR 7'-0" | 32 |
| A364 | 3 | #6 | STR 5'-8" | 26 |
| A365 | 3 | #6 | STR 4'-3" | 19 |
| A366 | 3 | #6 | STR 2'-11" | 13 |
| A450 | 163 | #6 | STR 10'-4" | 2530 |
| A451 | 3 | #6 | STR 9'-0" | 41 |
| A452 | 3 | #6 | STR 7'-7" | 34 |
| A453 | 3 | #6 | STR 6'-3" | 28 |
| A454 | 3 | #6 | STR 4'-10" | 22 |
| A455 | 3 | #6 | STR 3'-6" | 16 |
| A461 | 3 | #6 | STR 9'-9" | 44 |
| A462 | 3 | #6 | STR 8'-5" | 38 |
| A463 | 3 | #6 | STR 7'-0" | 32 |
| A464 | 3 | #6 | STR 5'-8" | 26 |
| A465 | 3 | #6 | STR 4'-3" | 19 |
| A466 | 3 | #6 | STR 2'-11" | 13 |
| A1 | 376 | #5 | 1 5'-8" | 2222 |
| A2 | 188 | #5 | 1 5'-8" | 1111 |
| B1 | 86 | #4 | STR 11'-4" | 651 |
| B2 | 188 | #4 | STR 9'-4" | 1172 |
| C1 | 168 | #4 | STR 29'-11" | 3357 |
| D1 | 4 | #6 | STR 2'-7" | 16 |
| G2 | 8 | #5 | STR 10'-4" | 86 |
| S3 | 12 | #8 | STR 14'-8" | 470 |
| T1 | 32 | #6 | STR 6'-6" | 312 |

REINFORCING STEEL LBS 20,639

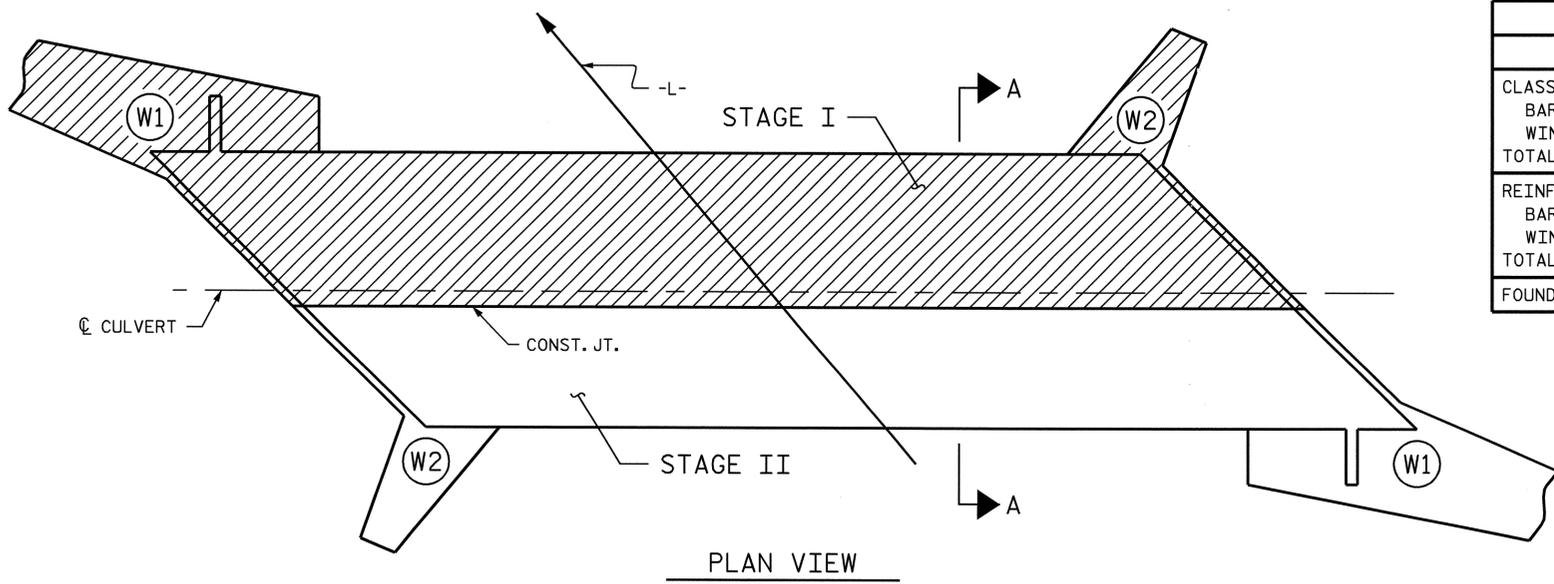
REINFORCING STEEL LBS 18,429



SECTION A-A

STRUCTURE QUANTITIES

| STAGE I | | STAGE II | |
|-------------------------|----------------|-------------------------|----------------|
| CLASS A CONCRETE | | CLASS A CONCRETE | |
| BARREL @ 1.424 CY/FT | CU. YDS. 122.5 | BARREL @ 0.990 CY/FT | CU. YDS. 85.1 |
| WINGS, ETC. | CU. YDS. 36.8 | WINGS, ETC. | CU. YDS. 36.1 |
| TOTAL | CU. YDS. 159.3 | TOTAL | CU. YDS. 121.2 |
| REINFORCING STEEL | | REINFORCING STEEL | |
| BARREL | LBS. 20,639 | BARREL | LBS. 18,429 |
| WINGS | LBS. 2,491 | INLET WINGS, ETC. | LBS. 2,491 |
| TOTAL | LBS. 23,130 | TOTAL | LBS. 20,920 |
| FOUNDATION COND. MAT'L. | TONS 81 | FOUNDATION COND. MAT'L. | TONS 65 |



CONSTRUCTION SEQUENCE

PROJECT NO. B-4115
FRANKLIN COUNTY
STATION: 22+03.00 -L-
SHEET 4 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
DOUBLE BARREL
11 FT. X 10 FT.
CONCRETE BOX CULVERT
130° SKEW

REVISIONS

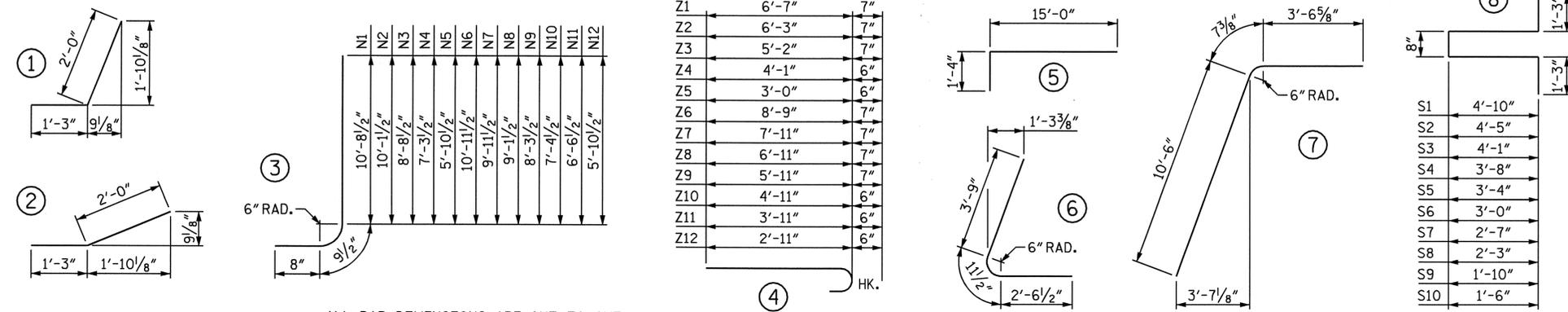
| NO. | BY: | DATE: | NO. | BY: | DATE: |
|-----|-----|-------|-----|-----|-------|
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. C-4
TOTAL SHEETS 5

DRAWN BY: B.L. GREEN DATE: 7/06
CHECKED BY: E.C. LOCKLEAR DATE: 9/26/06

04-AUG-2008 14:16
d:\b4115_sd.cu.01.dgn
bgreen

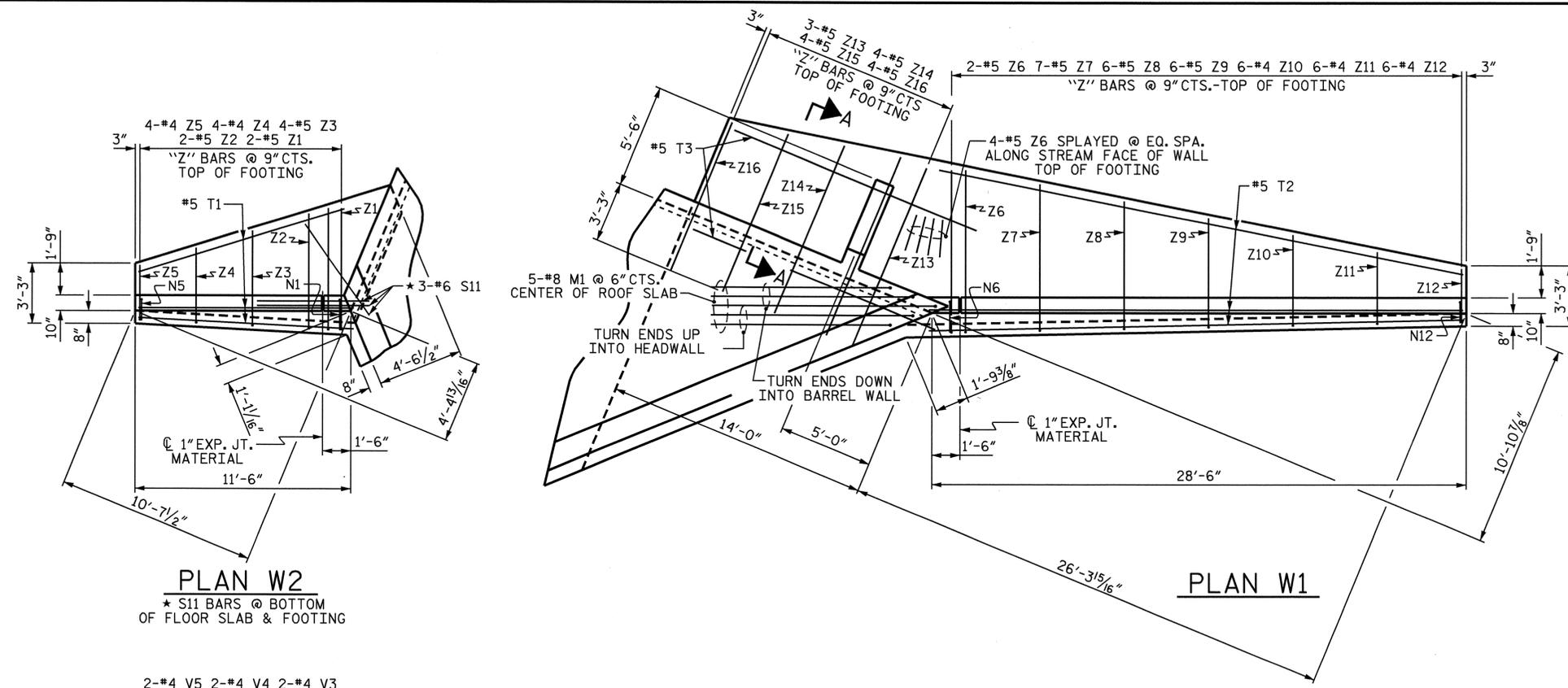
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

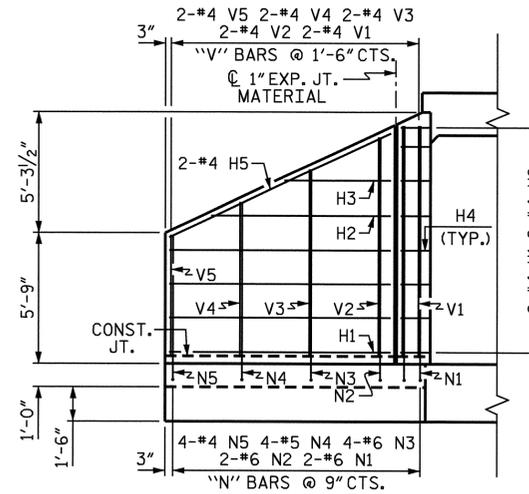
BILL OF MATERIAL - STAGE I OR STAGE II

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT | BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|-----|-----|------|------|---------|--------|--|-----|------|------|--------|--------|
| B10 | 2 | #4 | STR | 11'-4" | 15 | T1 | 3 | #5 | STR | 11'-5" | 36 |
| | | | | | | T2 | 3 | #5 | STR | 28'-6" | 89 |
| C10 | 13 | #6 | STR | 10'-0" | 195 | T3 | 2 | #5 | STR | 14'-0" | 29 |
| H1 | 8 | #4 | STR | 9'-7" | 51 | V1 | 2 | #4 | STR | 10'-1" | 13 |
| H2 | 2 | #4 | STR | 7'-9" | 10 | V2 | 2 | #4 | STR | 9'-7" | 13 |
| H3 | 2 | #4 | STR | 4'-7" | 6 | V3 | 2 | #4 | STR | 8'-2" | 11 |
| H4 | 16 | #4 | 1 | 3'-3" | 35 | V4 | 2 | #4 | STR | 6'-9" | 9 |
| H5 | 2 | #4 | STR | 10'-7" | 14 | V5 | 2 | #4 | STR | 5'-4" | 7 |
| H6 | 8 | #4 | STR | 26'-7" | 142 | V6 | 2 | #4 | STR | 10'-5" | 14 |
| H7 | 2 | #4 | STR | 21'-11" | 29 | V7 | 4 | #4 | STR | 9'-5" | 25 |
| H8 | 2 | #4 | STR | 14'-0" | 19 | V8 | 3 | #4 | STR | 8'-6" | 17 |
| H9 | 2 | #4 | STR | 6'-2" | 8 | V9 | 3 | #4 | STR | 7'-8" | 15 |
| H10 | 16 | #4 | 2 | 3'-3" | 35 | V10 | 3 | #4 | STR | 6'-10" | 14 |
| H11 | 2 | #4 | STR | 27'-1" | 36 | V11 | 3 | #4 | STR | 6'-0" | 12 |
| | | | | | | V12 | 3 | #4 | STR | 5'-3" | 11 |
| M1 | 5 | #8 | 5 | 16'-4" | 218 | V13 | 2 | #4 | STR | 9'-6" | 13 |
| | | | | | | V14 | 2 | #4 | STR | 5'-0" | 7 |
| N1 | 2 | #6 | 3 | 12'-2" | 37 | Z1 | 2 | #5 | 4 | 7'-2" | 15 |
| N2 | 2 | #6 | 3 | 11'-7" | 35 | Z2 | 2 | #5 | 4 | 6'-10" | 14 |
| N3 | 4 | #6 | 3 | 10'-2" | 61 | Z3 | 4 | #5 | 4 | 5'-9" | 24 |
| N4 | 4 | #5 | 3 | 8'-9" | 37 | Z4 | 4 | #4 | 4 | 4'-7" | 12 |
| N5 | 4 | #4 | 3 | 7'-4" | 20 | Z5 | 4 | #4 | 4 | 3'-6" | 9 |
| N6 | 2 | #6 | 3 | 12'-5" | 37 | Z6 | 6 | #5 | 4 | 9'-4" | 58 |
| N7 | 7 | #6 | 3 | 11'-5" | 120 | Z7 | 7 | #5 | 4 | 8'-6" | 62 |
| N8 | 6 | #6 | 3 | 10'-7" | 95 | Z8 | 6 | #5 | 4 | 7'-6" | 47 |
| N9 | 6 | #5 | 3 | 9'-9" | 61 | Z9 | 6 | #5 | 4 | 6'-6" | 41 |
| N10 | 6 | #5 | 3 | 8'-10" | 55 | Z10 | 6 | #4 | 4 | 5'-5" | 22 |
| N11 | 6 | #4 | 3 | 8'-0" | 32 | Z11 | 6 | #4 | 4 | 4'-5" | 18 |
| N12 | 6 | #4 | 3 | 7'-4" | 29 | Z12 | 6 | #4 | 4 | 3'-5" | 14 |
| P1 | 2 | #9 | 6 | 7'-3" | 49 | Z13 | 3 | #5 | STR | 10'-4" | 32 |
| P2 | 2 | #9 | 7 | 14'-8" | 100 | Z14 | 4 | #5 | STR | 9'-9" | 41 |
| | | | | | | Z15 | 4 | #5 | STR | 9'-2" | 38 |
| S1 | 1 | #4 | 8 | 12'-10" | 9 | Z16 | 4 | #5 | STR | 8'-7" | 36 |
| S2 | 1 | #4 | 8 | 12'-0" | 8 | REINFORCING STEEL FOR 2 WINGS LBS. 2,491 | | | | | |
| S3 | 1 | #4 | 8 | 11'-4" | 8 | CLASS A CONCRETE - STAGE I | | | | | |
| S4 | 1 | #4 | 8 | 10'-6" | 7 | 2 WINGS CU. YDS. 33.1 | | | | | |
| S5 | 1 | #4 | 8 | 9'-10" | 7 | 2 HEADWALLS CU. YDS. 1.7 | | | | | |
| S6 | 1 | #4 | 8 | 9'-2" | 6 | 2 END CURTAIN WALLS CU. YDS. 2.0 | | | | | |
| S7 | 1 | #4 | 8 | 8'-4" | 6 | STAGE I TOTAL | | | | | |
| S8 | 1 | #4 | 8 | 7'-8" | 5 | CLASS A CONCRETE - STAGE II | | | | | |
| S9 | 1 | #4 | 8 | 6'-10" | 5 | 2 WINGS CU. YDS. 33.1 | | | | | |
| S10 | 1 | #4 | 8 | 6'-2" | 4 | 2 HEADWALLS CU. YDS. 1.4 | | | | | |
| S11 | 3 | #6 | STR | 6'-0" | 27 | 2 END CURTAIN WALLS CU. YDS. 1.6 | | | | | |
| | | | | | | STAGE II TOTAL CU. YDS. 36.1 | | | | | |

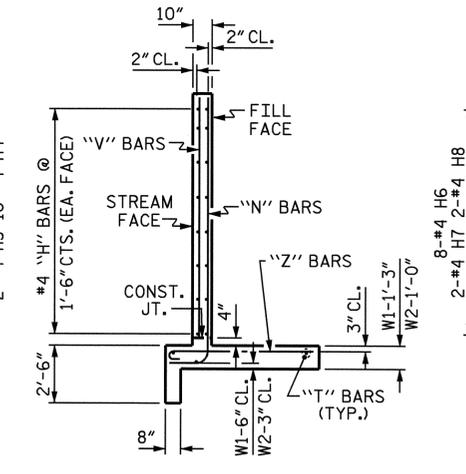


PLAN W2
* S11 BARS @ BOTTOM OF FLOOR SLAB & FOOTING

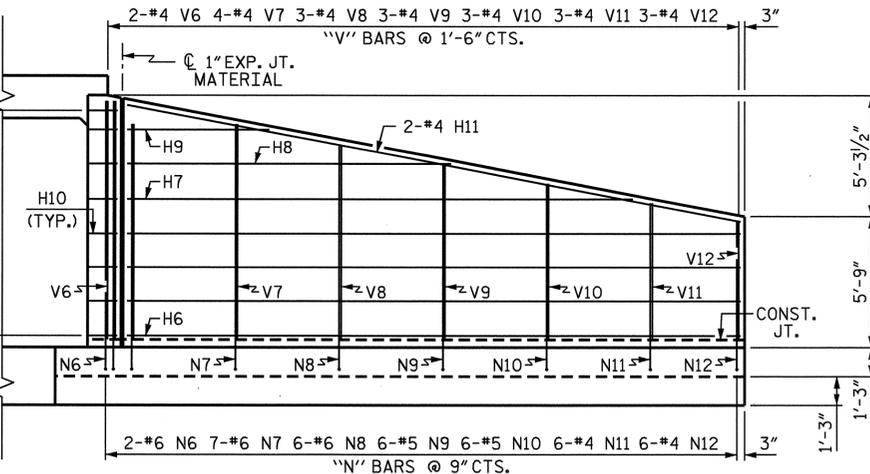
PLAN W1



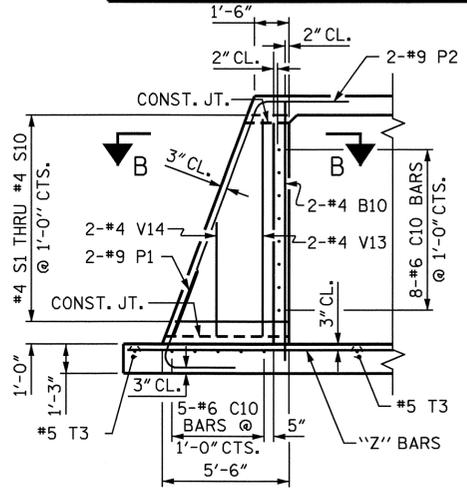
ELEVATION W2



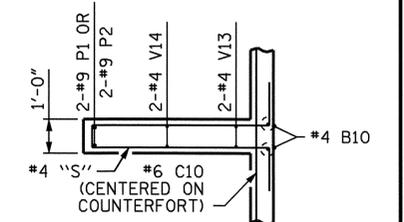
TYPICAL WING SECTION



ELEVATION W1



SECTION A-A
STANDARD REINFORCING STEEL IN BARREL NOT SHOWN



SECTION B-B

PROJECT NO. B-4115
FRANKLIN COUNTY
STATION: 22+03.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
WINGS FOR
MULTIPLE BARREL
CONCRETE BOX CULVERT
H = 10'-0" SLOPE = 2:1
45° OR 135° SKEW



DRAWN BY: L.E. SUTTON DATE: 4/10/08
CHECKED BY: P.C. BREWER DATE: 4/22/08

| REVISIONS | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-----------|
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

