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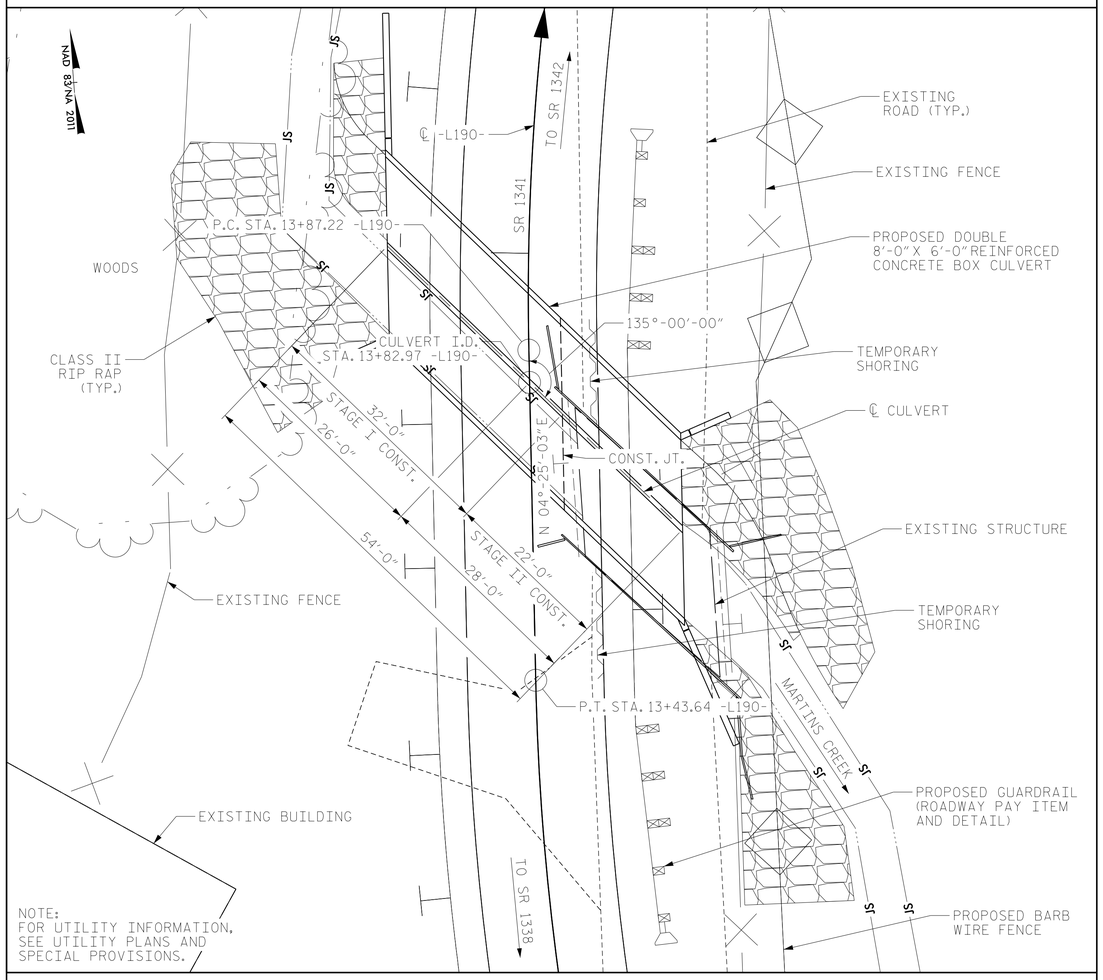
BM#2: SPIKE IN BASE OF 15" WALNUT 41' LT. OF STA. 14+52.00 -L190-, ELEV. 2541.59



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING

DESIGN FILL = 3.50' MAX. AND 2.75' MIN.

CONCRETE CULVERTS TO BE POURED IN THE FOLLOWING ORDER FOR EACH STAGE:

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

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

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

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 20'-9" TIMBER FLOOR ON I-BEAMS WITH TIMBER CAPS, POSTS, AND SILLS @ 5'-6" CENTERS AND CLEAR ROADWAY WIDTH OF 16'-11" 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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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 COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE STRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

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 13+82.97 -L190-".

BED MATERIAL PLACED BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL BETWEEN THE LOWER SILLS. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADATION SIZE SIMILAR TO THAT OF CLASS II RIP RAP. STONES LARGER THAN 23 INCHES SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL. BED MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER.

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

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL 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.

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.

EXCAVATE AT LEAST 1 FOOT BELOW BOTTOM OF CULVERT AND REPLACE WTH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICLE 414-4 OF THE STANDARD SPECIFICATIONS.

SUBGRADE SHOULD BE VERIFIED BY ENGINEER OR THEIR REPRESENTATIVE PRIOR TO PLACING FOUNDATION CONDITIONING MATERIAL.

SEE SECTION 414 OF THE STANDARD SPECIFICATIONS FOR CULVERT EXCAVATION AND BACKFILLING.

BACKFILL WITH SELECT MATERIALS, CLASS II OR CLASS III MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

SEE ROADWAY DETAIL DRAWING 862.03 FOR GUARDRAIL OVER CULVERT.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR MAINTENANCE OF TRAFFIC, SEE TRANSPORTATION MANAGEMENT PLAN.

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.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

HYDRAULIC DATA

DESIGN DISCHARGE	= 480 CFS
FREQUENCY OF DESIGN DISCHARGE	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 2,536.30'
DRAINAGE AREA	= 1.30 SQ MI
BASE DISCHARGE (Q100)	= 700 CFS
BASE HIGH WATER ELEVATION	= 2,537.90'

OVERTOPPING FLOOD DATA

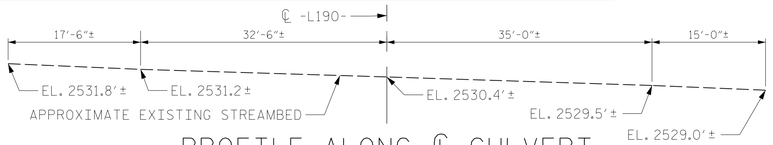
OVERTOPPING DISCHARGE	= 1,100 CFS
FREQUENCY OF OVERTOPPING	= 500+ YRS
OVERTOPPING ELEVATION	= 2,540.90'

GRADE DATA -L190-

GRADE POINT EL. @ STA. 13+82.97 -L190-	= 2,538.6'
BED EL. @ STA. 13+82.97 -L190-	= 2,529.4'
ROADWAY FILL SLOPES	= 2:1 MAX.

PROFILE DATA -L190-

PI = 12+98.00	PI = 14+78.00
EL. = 2,537.92'	EL. = 2,539.29'
VC = 100'	VC = 232'
K = 32	K = 49
G1 = 3.9205%	G1 = 0.7583%
G2 = 0.7583%	G2 = 5.4884%



PROFILE ALONG ℄ CULVERT

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE
BARREL @ 1.95 C.Y./FT

STAGE I		
CULVERT	66.1	C.Y.
WING ETC.	13.4	C.Y.
TOTAL	79.5	C.Y.
STAGE II		
CULVERT	46.3	C.Y.
WING ETC.	12.3	C.Y.
TOTAL	58.6	C.Y.
TOTAL CONCRETE	138.1	C.Y.

REINFORCING STEEL

STAGE I		
CULVERT	7,752	LBS.
WING ETC.	723	LBS.
TOTAL	8,475	LBS.
STAGE II		
CULVERT	5,399	LBS.
WING ETC.	583	LBS.
TOTAL	5,982	LBS.
TOTAL STEEL	14,457	LBS.

FOUNDATION CONDITIONING MATERIAL

STAGE I	50	TONS
STAGE II	35	TONS
TOTAL	85	TONS

REMOVAL OF EXISTING STRUCTURE STA. 13+82.97 -L190- — LUMP SUM

CULVERT EXCAVATION STA. 13+82.97 -L190- — LUMP SUM

CLASS II RIP RAP — 175 TONS

GEOTEXTILE FOR DRAINAGE — 194 SY

ASBESTOS ASSESSMENT — LUMP SUM

PROJECT NO. BP14.R002
HAYWOOD COUNTY
STATION: 13+82.97 -L190-

SHEET 1 OF 10 REPLACES BRIDGE 430190

DRAWN BY : N. CUANY DATE : 02/2024
CHECKED BY : M. ACOSTA DATE : 02/2024
DESIGN ENGINEER OF RECORD: M. ACOSTA DATE : 08/2025

NORTH CAROLINA PROFESSIONAL SEAL 049002 ENGINEER MATTHEW R. ACOSTA
11/24/2025

RS&H Architects-Engineers-Planners, Inc.
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www.rsandh.com
North Carolina License Nos. 50073 ° F-0493 ° C-28

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 8'-0" X 6'-0" CONCRETE BOX CULVERT

FOR MARTINS CREEK ON SR 1341 BETWEEN SR 1338 AND SR 1342

135° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C4-1
1			3			TOTAL SHEETS
2			4			10

8/8/2025
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