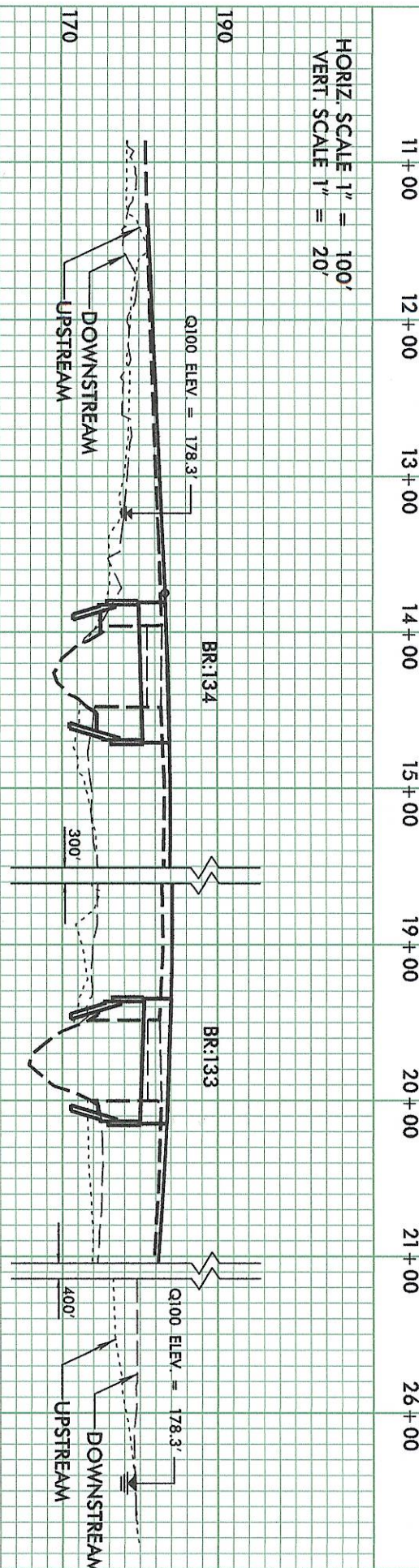
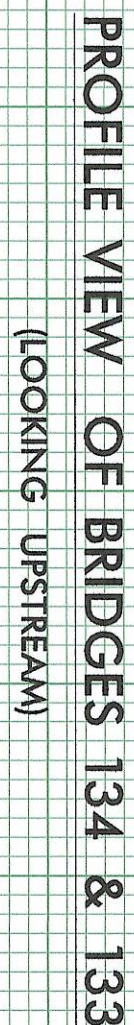
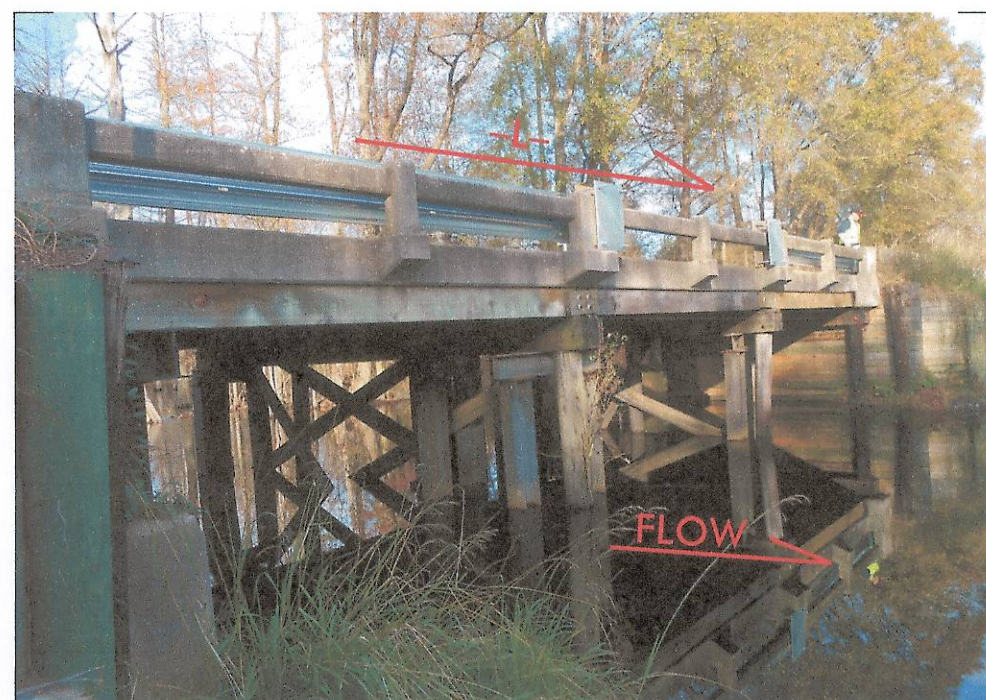




$$\begin{aligned} \text{USGS SIR 2009-5158 (REGION IV)} & \quad \text{DRAINAGE AREA} = 37.4 \text{ SQ. MI.} \\ Q_{10} = 174 \text{ (DA)}^{0.617} &= 174 \text{ (37.4)}^{0.617} = 1600 \text{ cfs} \\ Q_{25} = 245 \text{ (DA)}^{0.606} &= 245 \text{ (37.4)}^{0.606} = 2200 \text{ cfs} \\ Q_{50} = 309 \text{ (DA)}^{0.600} &= 309 \text{ (37.4)}^{0.600} = 2700 \text{ cfs} \\ Q_{100} = 380 \text{ (DA)}^{0.594} &= 380 \text{ (37.4)}^{0.594} = 3300 \text{ cfs} \\ Q_{500} = 550 \text{ (DA)}^{0.583} &= 550 \text{ (37.4)}^{0.583} = 4500 \text{ cfs} \\ \text{FEMA: } Q_{100} = 4604 \text{ cfs} & \quad \text{DA} = 37.50 \text{ SQ. MI.} \end{aligned}$$

Stream

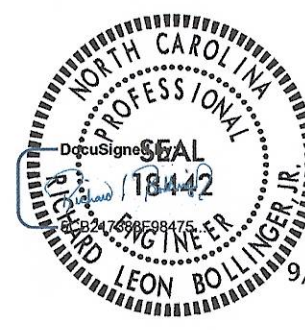
BRIDGE SURVEY & HYDRAULIC DESIGN REPORT		
N. C. DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS HYDRAULICS UNIT RALEIGH, N. C.		
I.D. No. <u>B-4544</u>	Project No. <u>38406.1.2</u>	Proj. Station <u>14+26.00 -L-</u>
County <u>HARNETT</u>	Bridge Over <u>BLACK RIVER OVERFLOW</u>	Bridge Inv. No. <u>134</u>
On Highway <u>SR 1722</u>	Between <u>SR 1703</u>	and <u>SR 1715</u>
<u>THREE BRIDGE RD</u>	<u>RED HILL CHURCH RD</u>	<u>MEADOWLARK RD</u>
Recommended Structure <u>1@90'; 33" BOX BEAM WITH 4' END BENT CAPS</u>		
Recommended Width of Roadway <u>30'-10" CLEAR RDY</u>	Skew <u>75°</u>	
Recommended Location is <u>(Up, At) Down</u> Stream from Existing Crossing. <u>EXISTING LOCATION</u>		
Statewide Tier ☐	Regional Tier ☐	Sub-Regional Tier ☒
Bench Mark is <u>BM#1 - RAILROAD SPIKE IN 13" PINE 115' EAST AND 113' NORTH OF</u>		
<u>-L-</u> STA. <u>10+00</u>	Elev. <u>178.35</u>	ft. Datum: <u>NAVD 88</u>
Temporary Crossing <u>OFF-SITE DETOUR</u>		



Designed by: Rajender Gaddam
Assisted by: Alexander R Vinson
Project Engineer : Richard L Bollinger
Reviewed by: Craig A. Frohman Jr.

Date 9/13/2016

RS&H



9/13/2016