

SITE DATA

Drainage Area 37.4 SQ. MI. Source DELINEATED USGS STREAMSTATS & ArcGIS USGS TOPO BASEMAP

River Basin CAPE FEAR Character RURAL

Stream Classification (Such as Trout, High Quality Water, etc.) C/Sw

Data on Existing Structure 1 SPAN @ 18', 1 SPAN @ 17', 1 SPAN @ 18'; RC DECK ON TIMBER JOISTS WITH TIMBER CAPS & PILES W/STEEL CRUTCH BENTS Total Waterway Opening 514 s.f.

Debris Potential: Low Moderate High X Waterway Opening Below 100yr. WS EL. 371 s.f.

Data on Structures Up and Down Stream US: BR420017 SPANS: 1@51'1", 1@51'1", 1@51'1"; PPC CORED SLAB W/RC CAPS ON H.PILES; HEIGHT CROWN TO BED = 10' | DS: BR 420131 SPANS: 1@28'9" 1@29', 1@28'9"; PPC CORED SLAB W/PPC CAPSH-PILES, CROWN TO BED = 12'

Design Control Elev. 178.6 ft. EXISTING Q100 WSEL @ RS 71440

Gage Station No. N/A Period of Records N/A yrs.

Max. Discharge N/A c.f.s. Date N/A Frequency N/A

Historical Flood Information: *SEE ADDITIONAL INFORMATION AND COMPUTATIONS SECTION

Date N/A Elev. N/A ft. Est. Freq. N/A yr. Source JAMES LEE (LOCAL RESIDENT) Period of Knowledge 5 yrs.

Date N/A Elev. 179.2' ± ft. Est. Freq. 500 yr. Source DARREN PITTMAN (DIVISION BRIDGE SUPERVISOR) Period of Knowledge 20 + yrs.

Historical Scour Info. : General N/A ft. Contraction N/A ft. Local N/A ft.

Channel Slope 0.00075 f/ft Source USGS TOPO Normal Water Surface Elev. 174.2' ± ft.

Manning's n: Left O.B. .15 Channel .046 Right O.B. .15 Source EFFECTIVE MODEL & FIELD VISIT PHOTOS

FEMA FIS LIMITED DETAIL STUDY

Flood Study /Status (EFF 10/32/16; REV 7/17/2007) Non-Encroachment Established? YES

Flood Study 100yr. Discharge 4604 c.f.s. WS Elev.: With Non-Encroachment 182.15 ft. Non-Encroachment 182.16 ft.

DESIGN DATA @ River Station 71411

Hydrological Method USGS SIR 2009-5158 (REGION IV)

Hydraulic Design Method HEC-RAS VERSION 4.1.0 B4544 BLACK RIVER SR1722

Floods Evaluated:	Freq. (yr.)	Q (c.f.s.)	Elev. (ft.)	Backwater (ft.)	Bridge Opening Velocity (f.p.s.)
@ River Station 71440	10	1600	176.8	0.2	2.6
	25	2200	177.4	0.3	3.2
	50	2700	177.9	0.4	3.6
	100	3300	178.3	0.4	4.0
100 FEMA	4604	179.3	-	5.3	
	500	4500	179.2	0.6	5.1
	OT	5575	179.8	0.7	5.7

Waterway Opening Provided Below: Design W.S. Elev. 409 s.f., 100yr W.S. Elev. 470 s.f., Total 645 s.f.,

Average Channel Velocity (Design) 2.3 f.p.s. Average Overbank Velocity (Design) 0.9 f.p.s.

Computed Scour : General N/A ft. Contraction 100YR: 1.5' 500YR: 3.5' ft. Local N/A ft.

Is a Floodway Revision Required? MOA TYPE 2A; MAX DECREASE 0.3' @ RS 71440

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
HYDRAULICS UNIT
RALEIGH, N. C.

I.D. No. B-4544 Project No. 38406.12 Proj. Station 19+65.00 -L-
County HARNETT Bridge Over BLACK RIVER Bridge Inv. No. 133
On Highway SR 1722 THREE BRIDGE RD Between SR 1703 RED HILL CHURCH RD and SR 1715 MEADOWLARK RD
Recommended Structure 1@80'; 33" BOX BEAM WITH 4' END BENT CAPS
Recommended Width of Roadway 30'-10" CLEAR RDY Skew 90°
Recommended Location is (Up, (A) Down) Stream from Existing Crossing. EXISTING LOCATION
Statewide Tier ☐ Regional Tier ☐ Sub-Regional Tier ☒
Bench Mark is BM#1 - RAILROAD SPIKE IN 13" PINE 115' EAST AND 113' NORTH OF
-L- STA. 10+00 Elev. 178.35 ft. Datum: NAVD 88
Temporary Crossing OFF-SITE DETOUR

Designed by: Rajender Gaddam
Assisted by: Alexander R Vinson
Project Engineer : Richard L Bollinger
Reviewed by: _____

Date 3/22/2017

RS&H

3/22/2017