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FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA= 393.4 square miles
CHARACTER OF TERRAIN:
CHARACTER & TYPE OF STREAM:

NATURE OF STREAMBED:

Q2.33= 8,300 cfs Q50= 18,000 cfs
Q10= 13,300 cfs Q100= 20,000 cfs
Q25= 15,600 cfs Q500= 25,500 cfs

DATE OF FLOOD OF RECORD:
WATER SURFACE ELEV.: ESTIMATED DISCHARGE:
NATURAL STREAM VELOCITY @ Q25 =
ICE CONDITIONS: DEBRIS:
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY?
IS ORDINARY RISE RAPID?
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS?
IF YES, DESCRIBE.

WATERSHED STORAGE ____ HEADWATERS ____ UNIFORM THROUGHOUT WATERSHED ____ IMMEDIATELY ABOVE SITE ____

EXISTING STRUCTURE

STRUCTURE TYPE: STEEL PONY TRUSS BRIDGE
YEAR BUILT: 1934
CLEAR SPAN (NORMAL TO STREAM): 119 feet
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY OF FULL OPENING:
DISPOSITION OF STRUCTURE: Rehabilitation
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Ledge

WATER SURFACE ELEV. @ Q2.33= 435.5 ft VELOCITY=
Q10= 442.6 ft "
Q25= 444.0 ft "
Q50= 445.4 ft "
Q100= 446.6 ft "

LONG TERM STREAM BED CHANGES:

IS THE ROADWAY OVERTOPPED BELOW THE Q100? FREQUENCY:
RELIEF ELEVATION: DISCHARGE OVER ROAD @ Q100:

UPSTREAM STRUCTURE: TOWN: DISTANCE:
HIGHWAY NO.: STRUCTURE NO.:
STRUCTURE TYPE:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:

DOWNSTREAM STRUCTURE: TOWN: DISTANCE:
HIGHWAY NO.: STRUCTURE NO.:
STRUCTURE TYPE:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:

PROPOSED STRUCTURE

STRUCTURE TYPE: N/A

CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY OF FULL OPENING:

WATER SURFACE ELEV. @ Q2.33= VELOCITY=
Q10= " =
Q25= " =
Q50= " =
Q100= " =

IS THE ROADWAY OVERTOPPED BELOW THE Q100? FREQUENCY:
RELIEF ELEVATION: DISCHARGE OVER ROAD @ Q100:

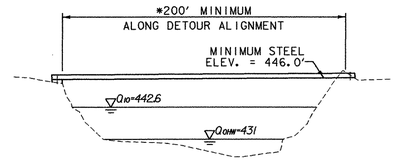
AVERAGE LOW ELEVATION OF SUPERSTRUCTURE:
VERTICAL CLEARANCE:

SCOUR:

REQUIRED CHANNEL PROTECTION:

PERMIT INFORMATION

AVERAGE DAILY FLOW: 800 cfs
ORDINARY LOW WATER: 350 cfs DEPTH: EL. 427'
ORDINARY HIGH WATER: 3,600 cfs DEPTH: EL. 431'



* - CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING A SINGLE SPAN OR TWO SPAN TEMPORARY BRIDGE. MAXIMUM PIER WIDTH SHALL BE 3 FEET.

TEMPORARY BRIDGE REQUIREMENTS
NTS

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO HS-20
2. DESIGN SPAN 125'
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING TYPE ESTIMATED LENGTH
5. STRUCTURAL STEEL AASHTO GRADE SEE PROJECT GENERAL NOTES
6. REINFORCING STEEL GRADE 60
   CONCRETE, HIGH PERFORMANCE CLASS A f'_c : 4000 PSI f_c=1600 psi
   CONCRETE, HIGH PERFORMANCE CLASS B f'_c : 3500 PSI f_c=1400 psi

TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE YES
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TWO WAY TRAFFIC CONTROL SIGNALS REQUIRED YES
   MINIMUM CLEAR SPAN (NORMAL TO STREAM) 200 feet MINIMUM CLEAR HEIGHT SEE TEMPORARY BRIDGE SKETCH
   MINIMUM WATERWAY AREA
   ARE SIDEWALKS REQUIRED? YES IF SO, ON WHAT SIDE? UPSTREAM
   STRUCTURE TYPE

LOAD FACTOR LOAD RATING (TONS)

LOADING LEVELS (LOAD FACTOR)	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY A=2.17; B=1.00	35	39					
POSTED A=1.55; B=1.40	48	55	60		51	53	56
OPERATING A=1.30; B=1.67		66	72	79	61	63	

TRUSS TOP CHORD OF BAY #2 & #7 ARE THE CONTROLLING MEMBER

STRENGTH RF= $\frac{\phi M_N - 1.3\, M_{DL}}{A \times M_{LL+I}}$

TRAFFIC DATA

YEAR	AADT	DHV	% D	% T	ADTT
2008	4900	550	52	2.1	220
2028	6000	680	52	3.2	410

20 year ESAL for flexible pavement 2008 to 2028 : 2,079,000
40 year ESAL for flexible pavement 2008 to 2048 : 5,391,000
Design speed: 25 mph

Stantec

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

FILE NAME: ...\Structures\Design\rich-pi.dgn PLOT DATE: 12/19/2007
PROJECT LEADER: MJC DRAWN BY: JTS
DESIGNED BY: SEB CHECKED BY: MJC
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