

PRELIMINARY INFORMATION SHEET

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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: April 2000

DRAINAGE AREA : 408 square miles
 CHARACTER OF TERRAIN : Mountainous, rolling hills and agricultural lands
 STREAM CHARACTERISTICS : Perennial, sinuous, not braided, equiwidth
 NATURE OF STREAMBED : Gravel to cobble and boulders with some ledge

PEAK FLOW DATA

Q 2.33 = 11,600 cfs Q 50 = 42,000 cfs
 Q 10 = 25,400 cfs Q 100 = 51,000 cfs
 Q 25 = 34,300 cfs Q 500 = 76,000 cfs

DATE OF FLOOD RECORD : November 1927
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : 542 feet (Approximate according to COE 12/73 Study)
 NATURAL STREAM VELOCITY : @ Q50 = 11.6 fps
 ICE CONDITIONS : moderate
 DEBRIS : moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE :

WATERSHED STORAGE : 1% Est. HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Through truss w/ 5 rolled beam approach spans, 4 to south, 1 to north
 YEAR BUILT : 1928
 CLEAR SPAN(NORMAL TO STREAM) : Total = 330 feet
 VERTICAL CLEARANCE ABOVE STREAMBED : 25 feet (over main channel)
 WATERWAY OF FULL OPENING : Total = 6200 square feet
 DISPOSITION OF STRUCTURE : Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 = 527.7 feet* VELOCITY = 6.0 fps
 Q10 = 532.4 feet* - 9.8 fps
 Q25 = 535.3 feet* - 11.2 fps
 Q50 = 537.9 feet* - 11.6 fps
 Q100 = 540.7 feet* - 12.2 fps

LONG TERM STREAMBED CHANGES : Unknown

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 539.4 feet
 DISCHARGE OVER ROAD @Q100 : None - due to drawdown through the bridge

UPSTREAM STRUCTURE

TOWN : N/A - confluence 600 feet upstream**
 HIGHWAY # : DISTANCE :
 CLEAR SPAN : STRUCTURE # :
 YEAR BUILT : CLEAR HEIGHT :
 STRUCTURE TYPE : FULL WATERWAY :

DOWNSTREAM STRUCTURE

TOWN : Royalton DISTANCE : 3.2 miles
 HIGHWAY # : I-89 STRUCTURE # : 26-S
 CLEAR SPAN : 889 feet CLEAR HEIGHT : 17 feet
 YEAR BUILT : 1968 FULL WATERWAY : 12,600 sf
 STRUCTURE TYPE : 6-span continuous welded plate girder

LOAD FACTOR - LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
INVENTORY							
POSTED							
OPERATING							

COMMENTS:

TRAFFIC DATA

YEAR	ADT	DHV	% D	ADTT
2007	6500	730	56	580
2027	8400	920	56	1100

20 year ESAL for flexible pavement from 2007 to 2027 : 4,644,000
 40 year ESAL for flexible pavement from 2007 to 2047 : 11,775,000
 Design Speed : 25 mph

PROPOSED STRUCTURE

STRUCTURE TYPE : Through truss main span w/1 rolled beam approach span on south side

CLEAR SPAN(NORMAL TO STREAM) : Total = 311 feet
 VERTICAL CLEARANCE ABOVE STREAMBED : 25 feet (over main channel)
 WATERWAY OF FULL OPENING : Total = 6250 square feet

WATER SURFACE ELEVATIONS AT:

Q2.33 = 527.7 feet* VELOCITY = 6.0 fps
 Q10 = 532.3 feet* - 9.8 fps
 Q25 = 535.3 feet* - 11.2 fps
 Q50 = 537.9 feet* - 11.6 fps
 Q100 = 540.9 feet* - 12.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 539.8 feet
 DISCHARGE OVER ROAD @Q100 : None - due to drawdown through the bridge

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 540.3 feet
 VERTICAL CLEARANCE : @ Q50 = 2.4 feet

SCOUR : Maximum contraction scour @ Q100 = 4 feet
 Maximum pier scour @ Q500 = 9 feet
 REQUIRED CHANNEL PROTECTION : Type IV Stone Fill

PERMIT INFORMATION

AVERAGE DAILY FLOW : 850 cfs DEPTH OR ELEVATION :
 ORDINARY LOW WATER : 375 cfs 515 feet
 ORDINARY HIGH WATER : 5000 cfs 520 feet

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : Maximum of 1 pier, low steel elev. = 533.3 feet
 CLEAR SPAN (NORMAL TO STREAM) : Total = 385 feet
 VERTICAL CLEARANCE ABOVE STREAMBED : 23 feet (B.O.S. elev = 537.0 feet)
 WATERWAY AREA OF FULL OPENING : 4700 square feet

ADDITIONAL INFORMATION

* WSE's are reported 250 feet upstream of the existing and proposed bridge(s) centerline.
 ** Confluence of White River and the Third Branch of the White River.
 *** Temporary bridge designed to be in through the winter.
 Pier piles should be designed to be freestanding above elevation 505.5 feet.

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO : HL-93
- DESIGN SPAN : APPROACH SPAN = 67.5' TRUSS SPAN = 250'
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL : SEE NOTE
ON LEDGE
- ALLOWABLE LOAD FOR PLNG : SEE NOTE
TYPE
- ESTIMATED LENGTH : SEE NOTE
- STRUCTURAL STEEL AASHTO M270MM270 GRADE : 50 GALVANIZED
- REINFORCING STEEL GRADE : 60
- CONCRETE, HIGH PERFORMANCE CLASS A fc : 4000 psi
CONCRETE, HIGH PERFORMANCE CLASS B fc : 3500 psi
- DESIGN SOIL UNIT WEIGHT : 140 pcf
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL :

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? YES
 IF YES, ON EXISTING STRUCTURE? NO
 OR ON TEMPORARY BRIDGE? YES
 ONE OR TWO-WAY TRAVEL? TWO
- TRAFFIC CONTROL SIGNALS REQUIRED? NO
 IF SO, ON WHAT SIDE? YES (URBAN ENVIRONMENT)
 RIGHT
- ARE SIDEWALKS REQUIRED? YES (URBAN ENVIRONMENT)
 IF SO, ON WHAT SIDE? RIGHT

PROJECT NAME : BETHEL

PROJECT NUMBER : BRF 022-1(14)

FILE NAME : I:\br2\br161\pi.xls PLOT DATE : 4/2/2008
 PROJECT MANAGER : M. EVANS-MONGEON DRAWN BY : T. HUSK
 DESIGNED BY : G. COLGROVE CHECKED BY : G. COLGROVE
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