

PRELIMINARY INFORMATION SHEET



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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: 11-9-04
 DRAINAGE AREA: 59.4 sq. km
 CHARACTER OF TERRAIN: Rolling to Mountainous with little to narrow flood plain.
 STREAM CHARACTERISTICS: Slight meander, channel bend upstream from bridge.
 NATURE OF STREAMBED: Gravel, cobbles and boulders

PEAK FLOW DATA

Q 2.33 =	20.0 cms	Q 50 =	100.1 cms
Q 10 =	67.3 cms	Q 100 =	143.8 cms
Q 25 =	94.0 cms	Q 500 =	177.0 cms

DATE OF FLOOD OF RECORD: 1927
 ESTIMATED DISCHARGE: unknown
 WATER SURFACE ELEV.: 205.3 m
 NATURAL STREAM VELOCITY: @ Q50 = 2.3 mps (maximum in the vicinity of the bridge)
 ICE CONDITIONS: Moderate
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGH-WATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE: Confluence with the White River is located approximately 100 m downstream from the bridge.

WATERSHED STORAGE: < 1% HEADWATERS:
 UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 3 span concrete T-beam bridge with spill thru abutments
 YEAR BUILT: Built in 1930, reconstructed in 1964
 CLEAR SPAN(NORMAL TO STREAM): 47 m (with two 1 m wide piers)
 VERTICAL CLEARANCE ABOVE STREAMBED: 9 m
 WATERWAY OF FULL OPENING: 409 sm
 DISPOSITION OF STRUCTURE: To be removed
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	202.9 m	VELOCITY =	2.6 mps
Q10 =	203.8 m	"	3.1 mps
Q25 =	204.4 m	"	2.9 mps
Q50 =	204.5 m	"	2.8 mps
Q100 =	205.0 m	"	3.4 mps

LONG TERM STREAMBED CHANGES: There is some minor local scour at the piers and through the bridge area. Other long term changes are unknown.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: N/A
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Stockbridge DISTANCE: 780 m
 HIGHWAY #: T.H. 36 STRUCTURE #: 5
 CLEAR SPAN: 14.6 m CLEAR HEIGHT: 4.6 m
 YEAR BUILT: 1992 FULL WATERWAY: Unknown
 STRUCTURE TYPE: Single span rolled beam bridge

DOWNSTREAM STRUCTURE

TOWN: N/A - Confluence with White River DISTANCE: N/A
 HIGHWAY #: N/A STRUCTURE #: N/A
 CLEAR SPAN: N/A CLEAR HEIGHT: N/A
 YEAR BUILT: N/A FULL WATERWAY: N/A
 STRUCTURE TYPE: N/A

LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A STR.	4A STR.	SA SEMI
INVENTORY	0	0					
POSTED	0	0	0		0	0	0
OPERATING		0	0	0	0	0	

COMMENTS: 0

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	3900	540	52.0	5.0	300
2025	5200	700	52.0	5.0	360

20 year ESAL for flexible pavement from 2005 to 2025 : 3,759,000
 40 year ESAL for flexible pavement from 2005 to 2045 : 9,232,000
 Design Speed : 80 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span curved steel girder bridge.
 CLEAR SPAN(NORMAL TO STREAM): 40.0 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 11.8 m
 WATERWAY OF FULL OPENING: 386 sm

WATER SURFACE ELEVATIONS AT:

Q2.33 =	202.9 m	VELOCITY =	1.8 m
Q10 =	203.8 m	"	2.9 m
Q25 =	204.4 m	"	2.6 m
Q50 =	204.5 m	"	2.6 m
Q100 =	205.0 m	"	3.0 m

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: N/A
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 213.7 m
 VERTICAL CLEARANCE: @ Q50 = 9.2 m

SCOUR: The bridge abutments are above the Q500, so the bridge does not cause scour. There will be some local scour due to the existing piers and the roadway & stone fill construction.
 REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 11.0 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 0.6 cms 0.2 m
 ORDINARY HIGH WATER: 20.0 cms 0.9 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: The existing bridge will be used during construction.
 CLEAR SPAN (NORMAL TO STREAM): N/A
 VERTICAL CLEARANCE ABOVE STREAMBED: N/A
 WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

Reported water surface elevations and velocities were obtained using water surface elevation information available from the White River FIS flood profile as a downstream boundary condition. HEC-RAS was run with equal frequency floods on Stony Brook and the White River. Velocities will be higher when the White River is lower.

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO MS-22.5
- DESIGN SPAN 45 METERS
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL ON LEDGE
- ALLOWABLE LOAD FOR PILING TYPE ESTIMATED LENGTH
- STRUCTURAL STEEL AASHTO GRADE M270M GRADE 345W
- REINFORCING STEEL GRADE 420
- CONCRETE, HIGH PERFORMANCE CLASS A fc: 30 Mpa
CONCRETE, HIGH PERFORMANCE CLASS B fc: 25 Mpa
- SOIL UNIT WEIGHT
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? YES
 IF YES, ON EXISTING STRUCTURE YES
 OR ON TEMPORARY BRIDGE EXISTING STRUCTURE
- TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY
 TRAFFIC CONTROL SIGNALS REQUIRED
 MINIMUM CLEAR SPAN (NORMAL TO STREAM):
 WATERWAY OF FULL OPENING:
 VERTICAL CLEARANCE ABOVE STREAMBED:
 ARE SIDEWALKS REQUIRED?
 IF SO, ON WHAT SIDE?
 STRUCTURE TYPE:

PROJECT NAME: STOCKBRIDGE
 PROJECT NUMBER: BRF 022-1(20)SC
 FILE NAME: de039excel.dgn PLOT DATE: 9/14/2007
 PROJECT LEADER: C.P. WILLIAMS DRAWN BY: H.J. SALLS
 DESIGNED BY: CHECKED BY: R.S. YOUNG
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