STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

Metric

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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: 05/02/01

DRAINAGE AREA : 68 sq km
CHARACTER OF TERRAIN : Forested, rolling to hilly
STREAM CHARACTERISTICS : Straight with some moderate meandering
NATURE OF STREAMBED : gravel, cobbles, boulders, some ledge

PEAK FLOW DATA

Q 2.33 =	42 cms	Q 50 =	113 cms
Q 10 =	71 cms	Q 100 =	136 cms
Q 25 =	92 cms	Q 500 =	215 cms

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q25 = 4.0 mps
ICE CONDITIONS : Minor
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? yes
IS ORDINARY RISE RAPID? yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? no
IF YES, DESCRIBE: N/A

WATERSHED STORAGE: 10%
HEADWATERS: X
UNIFORM:
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single Span Wooden Covered Bridge
YEAR BUILT: 1879
CLEAR SPAN(NORMAL TO STREAM): 16.8 m
VERTICAL CLEARANCE ABOVE STREAMBED: 4.6m (avg. low superstructure elev. = 125.0m)
WATERWAY OF FULL OPENING: 74 sm
DISPOSITION OF STRUCTURE: Retain for pedestrian use
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	122.1 m	VELOCITY =	3.4 mps
Q10 =	122.7 m	"	4.3 mps
Q25 =	123.2 m	"	4.8 mps
Q50 =	123.5 m	"	5.2 mps
Q100 =	123.9 m	"	5.6 mps

LONG TERM STREAMBED CHANGES: 0.3m scour through bridge area

IS THE ROADWAY OVERTOPPED BELOW Q100: no
FREQUENCY: Greater than Q100
RELIEF ELEVATION: 126m
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Brattleboro — DISTANCE: 460m
HIGHWAY # : TH 372 — STRUCTURE #: BR 51
CLEAR SPAN: 15.2 m — CLEAR HEIGHT: 3.0 m
YEAR BUILT: 1994 — FULL WATERWAY: 44 sm
STRUCTURE TYPE: Concrete Slab Bridge

DOWNSTREAM STRUCTURE

TOWN: Brattleboro — DISTANCE: 1040m
HIGHWAY # : I 91 SB — STRUCTURE #: 6-S
CLEAR SPAN: 120.4 m — CLEAR HEIGHT: 24.4m
YEAR BUILT: 1960 — FULL WATERWAY: 2900 sm
STRUCTURE TYPE: 3 span plate girder bridge

PROPOSED STRUCTURE

STRUCTURE TYPE: Single Span Plate Girder Bridge

CLEAR SPAN(NORMAL TO STREAM): 26.5m
VERTICAL CLEARANCE ABOVE STREAMBED: 5.0 m
WATERWAY OF FULL OPENING: 103 sm

WATER SURFACE ELEVATIONS AT:

Q2.33 =	122.1 m	VELOCITY=	3.0 mps
Q10 =	122.7 m	"	3.7 mps
Q25 =	123.1 m	"	4.0 mps
Q50 =	123.5 m	"	4.3 mps
Q100 =	123.9 m	"	4.6 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: no
FREQUENCY: greater than Q100
RELIEF ELEVATION: 126.6 m
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 124.9 m
VERTICAL CLEARANCE: @ Q25 = 1.8 m

SCOUR: No Contraction Scour @ Q100.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	1.5 cms	
ORDINARY LOW WATER:	0.7 cms	DEPTH OR ELEVATION: 0.1 m
ORDINARY HIGH WATER:	18 cms	0.6 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

Water surface elevations are reported upstream of the existing covered bridge for both the existing and proposed structures. Velocities are reported at the indicated bridge.

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO: MS 22.5
2. DESIGN SPAN: 27.000m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL
   ON LEDGE
4. ALLOWABLE LOAD FOR PILING
   TYPE
   ESTIMATED LENGTH
5. STRUCTURAL STEEL AASHTO M270/M270M GRADE: 345W
6. REINFORCING STEEL GRADE: 420
7. CONCRETE CLASS A (HPC-A) f'c: 30 Mpa
   CONCRETE CLASS B (HPC-B) f'c: 25 Mpa
8. SOIL UNIT WEIGHT: 22 kN/m³
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? YES
   IF YES, ON EXISTING STRUCTURE? YES
   OR ON TEMPORARY BRIDGE? N/A
   ONE OR TWO-WAY TRAVEL? N/A
2. TRAFFIC CONTROL SIGNALS REQUIRED? NO
3. ARE SIDEWALKS REQUIRED? NO
   IF SO, ON WHAT SIDE? N/A

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2001	3660	505	57	4	115
2021	4750	645	57	3	130

20 year ESAL for flexible pavement: 2001 to 2021 : 1,687,000
40 year ESAL for flexible pavement: 2001 to 2041 : 3,881,000
Design Speed : 40 km/h

LOAD FACTOR LOAD RATING (TONS) COVERED BRIDGE

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	SA. SEMI
INVENTORY							
POSTED							
OPERATING							

COMMENTS:

LOAD FACTOR LOAD RATING (TONS) NEW BRIDGE

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	SA. SEMI
INVENTORY							
POSTED							
OPERATING							

COMMENTS:

PROJECT NAME: BRATTLEBORO
PROJECT NUMBER: BRF 2000 (21)S

FILE NAME: \96\228\Structures\sj228pi.xls — PLOT DATE: 7/17/03
PROJECT MANAGER: R.R. WHITCOMB — DRAWN BY:
DESIGNED BY: — CHECKED BY:
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