

PRELIMINARY INFORMATION SHEET

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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: 1/15/08

DRAINAGE AREA : 40.5 sq.mi.
 CHARACTER OF TERRAIN : Mountainous to hilly, mostly forested
 STREAM CHARACTERISTICS : Small, perennial, sinuous
 NATURE OF STREAMBED : Gravel, cobbles to boulders

PEAK FLOW DATA

Q 2.33 =	2120 cfs	Q 50 =	7420 cfs
Q 10 =	4590 cfs	Q 100 =	8830 cfs
Q 25 =	6360 cfs	Q 500 =	11,480 cfs

DATE OF FLOOD OF RECORD : September 1938
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q25 = 11.5 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% HEADWATERS : _____
 UNIFORM : X
 IMMEDIATELY ABOVE SITE : _____

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Single span timber covered bridge
 YEAR BUILT : 1859 Unknown - reconstructed in 1950
 CLEAR SPAN (NORMAL TO STREAM) : 76 ft
 VERTICAL CLEARANCE ABOVE STREAMBED : 17 ft
 WATERWAY OF FULL OPENING : 1285 sq. ft.
 DISPOSITION OF STRUCTURE : Reconstruct
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	545.6 ft	VELOCITY =	7.2 fps
Q10 =	548.2 ft	"	10.5 fps
Q25 =	549.9 ft	"	13.1 fps
Q50 =	550.9 ft	"	14.8 fps
Q100 =	551.8 ft	"	15.4 fps

LONG TERM STREAMBED CHANGES : Approximately 3 ft of scour directly under the bridge.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 554.8 ft
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Newfane DISTANCE: 5250 ft
 HIGHWAY #: TH-26 STRUCTURE #: 49
 CLEAR SPAN: 147.6 ft CLEAR HEIGHT: 16 ft
 YEAR BUILT: 1939 FULL WATERWAY: Unknown
 STRUCTURE TYPE: Steel truss

DOWNSTREAM STRUCTURE

TOWN: Newfane DISTANCE: 3940 ft
 HIGHWAY #: TH-2 STRUCTURE #: 12
 CLEAR SPAN: 75.5 ft CLEAR HEIGHT: 34.1 ft
 YEAR BUILT: 1929 FULL WATERWAY: Unknown
 STRUCTURE TYPE: Concrete Arch

ASD LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	23	-	-	-	-	-	-
POSTED	28	-	-	-	-	-	-
OPERATING	-	-	-	-	-	-	-

COMMENTS: FLOOR BEAM IN BENDING CONTROLS

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2009	1600	180	53	6.4	80
2029	2000	230	53	10.9	170

20 year ESAL for flexible pavement from 2009 to 2029 : 314000
 40 year ESAL for flexible pavement from 2029 to 2049 : 794000
 Design Speed : 25 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Reconstruct existing timber covered bridge

CLEAR SPAN (NORMAL TO STREAM): 76 ft
 VERTICAL CLEARANCE ABOVE STREAMBED: 17 ft
 WATERWAY OF FULL OPENING: 1285 sq.ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	545.6 ft	VELOCITY =	7.2 fps
Q10 =	548.2 ft	"	10.5 fps
Q25 =	549.9 ft	"	13.1 fps
Q50 =	550.9 ft	"	14.8 fps
Q100 =	551.8 ft	"	15.4 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 554.8 ft
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 557.0 ft
 VERTICAL CLEARANCE: @ Q25 = 7.1 ft

SCOUR: Estimated contraction scour at 3 ft.
 REQUIRED CHANNEL PROTECTION: Type IV stone fill

PERMIT INFORMATION

AVERAGE DAILY FLOW: 81 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 35 cfs 1.0 ft
 ORDINARY HIGH WATER: 901 cfs 4.9 ft

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO : H 20-44
- DESIGN SPAN : 104 ft
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL : 4 ksf
ON LEDGE : 10 ksf
- ALLOWABLE LOAD FOR PILING : N/A
TYPE :
ESTIMATED LENGTH :
- STRUCTURAL STEEL AASHTO M270M/M270 GRADE
- REINFORCING STEEL GRADE : 60
- CONCRETE, HIGH PERFORMANCE CLASS A fc : N/A
CONCRETE, HIGH PERFORMANCE CLASS B fc : 3500 psi
- DESIGN SOIL UNIT WEIGHT : 140 pcf
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL : 1.21 ksf

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? : Yes, Detour
IF YES, ON EXISTING STRUCTURE? : TH 19, 47 & 26
OR ON TEMPORARY BRIDGE?
ONE OR TWO-WAY TRAVEL? : Two Way, See Project Notes
- TRAFFIC CONTROL SIGNALS REQUIRED? : No
- ARE SIDEWALKS REQUIRED? : No
IF SO, ON WHAT SIDE? :

PROJECT NAME: NEWFANE
 PROJECT NUMBER: BHF 0106(4)S

FILE NAME: 96j230'str's96j230pi.xls PLOT DATE: 5/4/2009
 PROJECT LEADER: R. WHITCOMB DRAWN BY: T. LACKEY
 DESIGNED BY: T. LACKEY CHECKED BY: R. WHITCOMB
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