

PRELIMINARY INFORMATION SHEET

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FINAL HYDRAULIC REPORT

PLAN SHEETS

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E-100	01-02-2004
E-101	05-30-2003
E-102	06-30-2003
E-106	03-01-2004
E-110	08-08-1995
E-111	03-11-1997
G-1	01-03-2000
G-17A	09-27-2002
G-17B	09-27-2002
G-19	11-15-2002

HYDROLOGIC DATA Date: Aug. 21, 2012

DRAINAGE AREA : 40.2 sq. mi.
 CHARACTER OF TERRAIN : Ranges from Steep Mountainous to Flat Valley
 STREAM CHARACTERISTICS : Steep Braided Stream
 NATURE OF STREAMBED : Gravel and Small Boulders

PEAK FLOW DATA

Q 2.33 =	1,550 cfs	Q 50 =	5,750 cfs
Q 10 =	3,300 cfs	Q 100 =	7,100 cfs
Q 25 =	4,700 cfs	Q 500 =	11,300 cfs

DATE OF FLOOD OF RECORD : 8/28/2011 (Tropical Storm Irene)
 ESTIMATED DISCHARGE : 9,420 cfs
 WATER SURFACE ELEV. : Unknown

NATURAL STREAM VELOCITY : @ Q25 = 8 to 12 fps
 ICE CONDITIONS : Moderate
 DEBRIS : High
 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 : -

WATERSHED STORAGE : Minimal HEADWATERS : -
 UNIFORM : -
 IMMEDIATELY ABOVE SITE : -

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : 3 Span Continuous, Composite Rolled Beam
 YEAR BUILT : 1940, Reconstructed 1989
 CLEAR SPAN(NORMAL TO STREAM) : 69.7' (Span 1) 69.3' (Span 2) 68.7' (Span 3)
 VERTICAL CLEARANCE ABOVE STREAMBED : 26' Max
 WATERWAY OF FULL OPENING : 3,571 sq. ft.
 DISPOSITION OF STRUCTURE : Retain, retrofit spread foundations
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : Stratified soil deposits

WATER SURFACE ELEVATIONS AT:

Q2.33 =	908.0' (FIELD VERIFIED)	VELOCITY =	4.4 fps
Q10 =	909.4'	"	5.9 fps
Q25 =	910.3'	"	6.6 fps
Q50 =	910.9'	"	7.0 fps
Q100 =	911.6'	"	7.5 fps

LONG TERM STREAMBED CHANGES : Vertically Stable, Laterally Active

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY : -
 RELIEF ELEVATION : 926.8
 DISCHARGE OVER ROAD @Q100: -

UPSTREAM STRUCTURE

TOWN : Woodford DISTANCE : 1.76 miles
 HIGHWAY # : VT Route 9 STRUCTURE # : 11
 CLEAR SPAN : 275' CLEAR HEIGHT : N.A.
 YEAR BUILT : 2007 FULL WATERWAY : N.A.
 STRUCTURE TYPE : 3 Span Steel Stringer

DOWNSTREAM STRUCTURE

TOWN : Bennington DISTANCE : 0.68 miles
 HIGHWAY # : VT Route 279 STRUCTURE # : 15N and 15S
 CLEAR SPAN : 475' CLEAR HEIGHT : 41 ft.
 YEAR BUILT : 2011 FULL WATERWAY : 13,420 sq. ft.
 STRUCTURE TYPE : 3 Span Curved Continuous Plate Girder

XXXX LOAD RATING (TONS)

LOADING LEVELS		TRUCK						
		H	HS	3S2	6 AXLE	3A STR	4A STR	5A SEM
INVENTORY								
POSTED								
OPERATING								
COMMENTS:								

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT

20 year ESAL for flexible pavement from to :
 40 year ESAL for flexible pavement from to :
 Design Speed : mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Retain existing structure, retrofit existing spread footings

CLEAR SPAN(NORMAL TO STREAM): -
 VERTICAL CLEARANCE ABOVE STREAMBED: 26' Max
 WATERWAY OF FULL OPENING: 3,593 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	908.1'	VELOCITY=	4.4 fps
Q10 =	909.4'	"	5.9 fps
Q25 =	910.3'	"	6.6 fps
Q50 =	910.9'	"	7.0 fps
Q100 =	911.6'	"	7.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY : -
 RELIEF ELEVATION : 926.8
 DISCHARGE OVER ROAD @Q100: -

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 926.3
 VERTICAL CLEARANCE: @ Q25 = 926.3 - 910.3 = 16 ft

SCOUR: @ Q500 Total Scour = 0.0 (Abutment 1), 21.6' (Pier 1), 23.1' (Pier 2),
 6.4' (Abutment 2)

REQUIRED CHANNEL PROTECTION: Riprap, Heavy Type (at Piers 1 and 2)

PERMIT INFORMATION

AVERAGE DAILY FLOW: 125 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: - 903.5'
 ORDINARY HIGH WATER: - 905.0'

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

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO HL-93 (Impact excluded for pile loads)
- DESIGN SPAN -
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL -
ON LEDGE -
- ALLOWABLE LOAD FOR PILING Contractor-designed
TYPE Cased Micropiles
ESTIMATED LENGTH 70'
- STRUCTURAL STEEL AASHTO M270M/M270 GRADE -
- REINFORCING STEEL GRADE 60
- CONCRETE, HIGH PERFORMANCE CLASS A fc: -
CONCRETE, HIGH PERFORMANCE CLASS B fc: 3500 psi
- DESIGN 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? No
ONE OR TWO-WAY TRAVEL? Two-Way
- TRAFFIC CONTROL SIGNALS REQUIRED? No
- ARE SIDEWALKS REQUIRED? No
IF SO, ON WHAT SIDE? N/A

PROJECT NAME: BENNINGTON
 PROJECT NUMBER: ER BHF 010-1(45)
 FILE NAME: z11b326_pl.xls PLOT DATE: 8/21/2012
 PROJECT LEADER: DEG DRAWN BY: KJK
 DESIGNED BY: BTH CHECKED BY: SAW
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