STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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SD-516.10	BRIDGE JOINT ASHPALTIC PLUG	5/7/2010
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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

DATE: DECEMBER 30, 2011

DRAINAGE AREA: 41.4 SQ. MI.
CHARACTER OF TERRAIN: HILLY TO MOUNTAINOUS VALLEY SETTING
STREAM CHARACTERISTICS: CHANNELIZED SINUOUS, LITTLE TO NO FLOODPLAIN
NATURE OF STREAMBED: GRAVEL AND COBBLE

Q 2.33 =	2170 CFS	Q50 =	5750 CFS
Q 10 =	3300 CFS	Q 100 =	7100 CFS
Q 25 =	4600 CFS	Q 500 =	11300 CFS

DATE OF FLOOD OF RECORD: AUGUST 28, 2011
ESTIMATED DISCHARGE: 9420 CFS AT USGS 01334000
WATER SURFACE ELEVATION: UNKNOWN
NATURAL STREAM VELOCITY: 9.2 FPS @ Q50
ICE CONDITIONS: LOW TO MODERATE
DEBRIS: LOW TO 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 N/A

WATERSHED STORAGE: <5%
HEADWATERS: -
UNIFORM: X
IMMEDIATELY ABOVE SITE: -

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 3 SPAN STEEL BEAM, NON-CONTINUOUS
YEAR BUILT: 1938
CLEAR SPAN (NORMAL TO STREAM): 216.2 FT
VERTICAL CLEARANCE ABOVE STREAMBED: 15.8 FT
WATERWAY OF FULL OPENING: 2790 SQ FT
DISPOSITION OF STRUCTURE: REMOVE SUPERSTRUCTURE AND PORTION OF ABUTMENT CAP
TYPE OF MATERIAL UNDER SUBSTRUCTURE: ABUTMENTS AND PIERS ON GRAVEL

WATER SURFACE ELEVATIONS AT: ONE BRIDGE LENGTH UPSTREAM

Q 2.33 =	616.8 FT	VELOCITY =	7.4 FT/SEC
Q 10 =	617.4 FT	"	8.4 FT/SEC
Q 25 =	618.0 FT	"	9.3 FT/SEC
Q50 =	618.4 FT	"	9.9 FT/SEC
Q 100 =	618.9 FT	"	10.6 FT/SEC

LONG TERM STREAMBED CHANGES: THALWEG 2.5 FT LOWER THAN 1938 PLAN ELEV.
IS THE ROADWAY OVERTOPPED BELOW Q100? NO
FREQUENCY: N/A
RELIEF ELEVATION: 627.4
DISCHARGE OVER ROAD @ Q100: N/A

UPSTREAM STRUCTURE

TOWN: BENNINGTON, VT — DISTANCE: 600 FT
HIGHWAY #: U.S. ROUTE 7 — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTRUCTURE STRUCTURE

TOWN: BENNINGTON — DISTANCE: 2 MI.
HIGHWAY #: VT. ROUTE 279 (BENNINGTON CONNECTOR) — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	4.01	1.32					
POSTING							
OPERATING	5.21	1.71	3.12	1.97	2.86	2.57	2.74
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: 3 SPAN CONTINUOUS STEEL PLATE GIRDER

CLEAR SPAN (NORMAL TO STREAM): 229.6 FT
VERTICAL CLEARANCE ABOVE STREAMBED: 16.9 FT
WATERWAY OF FULL OPENING: 3050 SQ FT

WATER SURFACE ELEVATIONS AT: ONE BRIDGE LENGTH UPSTREAM

Q 2.33 =	616.8 FT	VELOCITY =	7.4 FT/SEC
Q 10 =	617.4 FT	"	8.4 FT/SEC
Q 25 =	618.0 FT	"	9.3 FT/SEC
Q50 =	618.4 FT	"	9.9 FT/SEC
Q 100 =	618.9 FT	"	10.6 FT/SEC

IS THE ROADWAY OVERTOPPED BELOW Q100? NO
FREQUENCY: N/A
RELIEF ELEVATION: 627.4
DISCHARGE OVER ROAD @ Q100: N/A
AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 627.5
VERTICAL CLEARANCE: 8.6 FT @ Q100

SCOUR: CALCULATED SCOUR DEPTH BELOW PIER FOOTINGS. EXISTING ABUTMENT HEAVY RIPRAP IN FAIR CONDITION AND TO BE LEFT IN PLACE
REQUIRED CHANNEL PROTECTION: HEAVY RIPRAP AT EXISTING PIERS

PERMIT INFORMATION

AVERAGE DAILY FLOW:	59 CFS	
ORDINARY LOW WATER:	27 CFS	DEPTH OR ELEVATION: 612.0 FT
ORDINARY HIGH WATER:	930 CFS	614.7 FT

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

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN SINGLE LANE NORTHBOUND TRAFFIC USING PHASED CONSTRUCTION SEQUENCE
2. DETOUR SOUTHBOUND TRAFFIC SOUTH ON VT ROUTE 7
3. SIDEWALK ON BRIDGE WILL BE CLOSED DURING CONSTRUCTION (SEE TRAFFIC CONTROL NOTES)

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	0.0 INCH
3. ABUTMENT BEARING TO BEARING LENGTH (THREE SPANS) (92.00 - 84.00 - 92.00) FT	L:	268.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND	f_y:	- - -
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	- - -
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	- - -
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	- - -
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	- - -
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	11.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
16. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	- - -
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
18. PILE RESISTANCE FACTOR	ϕ:	0.65
19. LATERAL PILE DEFLECTION	Δ:	1.36 INCH
20. BASIC WIND SPEED	V_{3s}:	100 MPH
21. MINIMUM GROUND SNOW LOAD	p_g:	- - -
22. SEISMIC DATA PGA: 9 %g	S_s:	25 %g
	S_1:	7 %g

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2013	10500	1100	56	2.9	320
2033	11000	1150	56	4.6	530

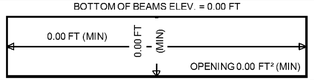
20 year ESAL for flexible pavement from 2013 to 2033 : 1577000
40 year ESAL for flexible pavement from 2013 to 2053 : 3548000
Design Speed : 30 mph

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 0.00 FT



PROJECT NAME: **BENNINGTON**
PROJECT NUMBER: **BRF 1000(16)**

FILE NAME: **z88j087bdr_pi.xls**
PROJECT LEADER: **R. HEBERT**
DESIGNED BY: **D. BURHANS**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 8/29/2014
DRAWN BY: **D. BURHANS**
CHECKED BY: **R. HEBERT**