STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 09.02.01

LRFD

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STRUCTURAL DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES
SD-502.00	CONCRETE DETAILS AND NOTES
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: December 2006

DRAINAGE AREA : 24.8 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested.
STREAM CHARACTERISTICS : Sinuous valley stream with narrow flood plains.
NATURE OF STREAMBED : Gravel, cobbles and a few boulders.

PEAK FLOW DATA

Q 2.33 =	1000 cfs	Q 50 =	3700 cfs
Q 10 =	2200 cfs	Q 100 =	4400 cfs
Q 25 =	3000 cfs	Q 500 =	6600 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 8.5 fps
ICE CONDITIONS : Moderate to severe
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? Yes
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 steel beam bridge with concrete deck
YEAR BUILT: 1939
CLEAR SPAN(NORMAL TO STREAM): 58'
VERTICAL CLEARANCE ABOVE STREAMBED: 9.5'
WATERWAY OF FULL OPENING: 440 sq. ft.
DISPOSITION OF STRUCTURE: Remove
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	593.3'	VELOCITY =	8.1 fps
Q10 =	595.3'	"	9.8 fps
Q25 =	596.6'	"	10.4 fps
Q50 =	597.5'	"	11.0 fps
Q100 =	600.7'	"	10.1 fps

LONG TERM STREAMBED CHANGES: There is a gravel bar in the middle of the channel at the bridge, with flow along both abutments. No other streambed changes were noted.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 601.0'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Bethel DISTANCE: 2490'
HIGHWAY # : T.H. 79 STRUCTURE #: 48
CLEAR SPAN: 37' CLEAR HEIGHT: 15'
YEAR BUILT: 1927 FULL WATERWAY: 320 sq. ft.
STRUCTURE TYPE: Single span concrete T-beam bridge

DOWNSTREAM STRUCTURE

TOWN: Bethel DISTANCE: 2000'
HIGHWAY # : VT 107 STRUCTURE #: 12
CLEAR SPAN: 160' CLEAR HEIGHT: 20'
YEAR BUILT: 1959 FULL WATERWAY: 2700 sq. ft.
STRUCTURE TYPE: Two span steel beam bridge with concrete deck

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck

CLEAR SPAN(NORMAL TO STREAM): 73'
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 620 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	592.7'	VELOCITY=	7.7 fps
Q10 =	594.8'	"	8.3 fps
Q25 =	596.0'	"	8.3 fps
Q50 =	596.9'	"	8.5 fps
Q100 =	597.9'	"	8.7 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 602.7'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 598.6'
VERTICAL CLEARANCE: @ Q50 = 1.7'

SCOUR: 3.3' of scour up to a Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	35 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	20 cfs	Depth = 0.6'
ORDINARY HIGH WATER:	320 cfs	Depth = 2.6'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
CLEAR SPAN (NORMAL TO STREAM): 56' minimum
VERTICAL CLEARANCE ABOVE STREAMBED: Minimum beam elev. 597.1'
WATERWAY AREA OF FULL OPENING: 400 sq. ft. minimum

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	3.0 INCH
3. DESIGN SPAN	L:	117.00 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:	4.0 KSI
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:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 12X 84
22. EST. PILE LENGTH (ONE SUBSTRUCTURES)	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	1.03 INCH
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

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	**3.24**	**1.13**					
POSTING							
OPERATING	**4.21**	**1.46**	**1.85**	**1.13**	**1.86**	**1.65**	
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY	Rndr:	GEN. NOTE
2. PILE TEST RESISTANCE FACTOR	ϕ:	0.65
3. MAXIMUM PILE TIP ELEVATION		PER PLAN
4. 0		

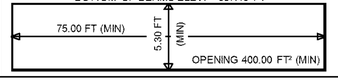
TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2012	1100	150	57	6.9	85
2032	1200	160	57	10.2	140

20 year ESAL for flexible pavement from 2012 to 2032 : 488000
40 year ESAL for flexible pavement from 2012 to 2052 : 1093000
Design Speed : 50 mph

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 597.10 FT



PROJECT NAME: **BETHEL**
PROJECT NUMBER: **BHF 0241(30)**

FILE NAME: **s95c002PI.xls**
PROJECT LEADER: **M.EVANS-MONGEON**
DESIGNED BY:
DRAWN BY: **G.ROKES**
CHECKED BY: **U.STANLEY**
PLOT DATE:

PRELIMINARY INFORMATION SHEET 1