

PRELIMINARY INFORMATION SHEET (BRIDGE 28)

LRFD

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STANDARDS LIST

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: November 2010

DRAINAGE AREA : 69.5 sq. mi.
 CHARACTER OF TERRAIN : Mixture of woods and open fields
 STREAM CHARACTERISTICS : Meandering and incised
 NATURE OF STREAMBED : Silty sand, ledge waterfall downstream

PEAK FLOW DATA

Q 2.33 = 3000 cfs Q 50 = 6400 cfs
 Q 10 = 4300 cfs Q 100 = 7600 cfs
 Q 25 = 5400 cfs Q 500 = 10,300 cfs

DATE OF FLOOD OF RECORD : unknown
 ESTIMATED DISCHARGE : unknown
 WATER SURFACE ELEV. : unknown
 NATURAL STREAM VELOCITY : @ Q50 = 10.6 fps
 ICE CONDITIONS : moderate
 DEBRIS : light 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:

WATERSHED STORAGE : <1% HEADWATERS :
 UNIFORM :
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : 3-span concrete T-beam bridge
 YEAR BUILT : 1925
 CLEAR SPAN(NORMAL TO STREAM) : 100'
 VERTICAL CLEARANCE ABOVE STREAMBED : 15'
 WATERWAY OF FULL OPENING : 630 sq. ft.
 DISPOSITION OF STRUCTURE : Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 = 516.5' VELOCITY = 16.3 fps
 Q10 = 518.7' " 18.5 fps
 Q25 = 520.3' " 19.9 fps
 Q50 = 521.8' " 21.1 fps
 Q100 = 523.4' " 20.1 fps

LONG TERM STREAMBED CHANGES : None

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 524.9'
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Bethel DISTANCE: 13,840'
 HIGHWAY #: TH 6 STRUCTURE #: BR 39
 CLEAR SPAN: 49' CLEAR HEIGHT: 12.5'
 YEAR BUILT: 1938 FULL WATERWAY:
 STRUCTURE TYPE: Rolled beam

DOWNSTREAM STRUCTURE

TOWN: Royalton DISTANCE: 3100'
 HIGHWAY #: VT 14 STRUCTURE #: BR 27
 CLEAR SPAN: 89' CLEAR HEIGHT: 12'
 YEAR BUILT: 1927 FULL WATERWAY: 755 sq. ft.
 STRUCTURE TYPE: 3-span concrete T-beam

LRFR LOAD RATING FACTORS

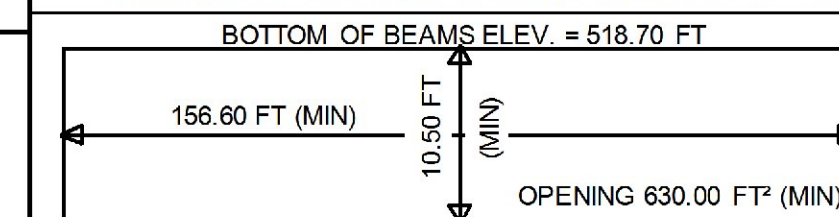
LOADING LEVELS	TRUCK						
	HL-93	HL-93	SS2	6 AXLE	3A STR	4A STR	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.6	1.09					
POSTING							
OPERATING	3.36	1.14	2.34	1.39	2.43	2.14	
COMMENTS:							

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2003 to 2023 : 2667000
2003	1500	210	59	8	170	40 year ESAL for flexible pavement from 2003 to 2043 : 6477000
2023	2000	280	59	8	230	Design Speed : 30 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge
 CLEAR SPAN(NORMAL TO STREAM): 113'
 VERTICAL CLEARANCE ABOVE STREAMBED: 13.5'
 WATERWAY OF FULL OPENING: 1110 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 514.2' VELOCITY = 15.4 fps
 Q10 = 515.4' " 16.6 fps
 Q25 = 516.5' " 17.5 fps
 Q50 = 517.4' " 18.1 fps
 Q100 = 518.5' " 18.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 525.8'
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 520.5'
 VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: 2.0' @ Q100.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 145 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 70 cfs 2.5'
 ORDINARY HIGH WATER: 1300 cfs 6.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: 2-span bridge
 CLEAR SPAN (NORMAL TO STREAM): 56.8' + 99.7' = 156.6'
 VERTICAL CLEARANCE ABOVE STREAMBED: 518.7' minimum
 WATERWAY AREA OF FULL OPENING: 650 sq. ft.

ADDITIONAL INFORMATION

NAVD 88 elevations

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	dp: 3.0 INCH
3. DESIGN SPAN	L: 119.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	fy: ---
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	fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	fy: 50 KSI
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	qn: 4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.50
17. NOMINAL BEARING RESISTANCE OF ROCK	qn: 45.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
19. NOMINAL AXIAL PILE RESISTANCE	qp: ---
20. PILE YIELD STRENGTH ASTM A572	fy: ---
21. PILE SIZE	---
22. EST. PILE LENGTH	Lp: ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V3s: ---
26. MINIMUM GROUND SNOW LOAD	pg: ---
27. SEISMIC DATA	PGA: --- S: --- Sf: ---

PROJECT NAME: **ROYALTON**
 PROJECT NUMBER: **BRS 0147(13)**

FILE NAME: \BR 28\86e055pi_28.dgn PLOT DATE: 8/8/2013
 PROJECT LEADER: C. CARLSON DRAWN BY: L. BULLOCK
 DESIGNED BY: D. PETERSON CHECKED BY: D. PETERSON
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