

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	8/29/2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/2/2011

STANDARDS LIST

A-61	SLOPES IN SOLID ROCK EXCAV. (ADT UNDER 400 VPD)	06-01-1994
A-76	STANDARDS FOR TOWN & DEVELOPMENT ROADS	03-03-2003
B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	02-10-2014
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIUM)	02-10-2014
S-367A	BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING	05-24-2012
S-367B	GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM	05-24-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: May 29, 2014

DRAINAGE AREA : 13.5 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous, a mixture of forested and open land cover
 STREAM CHARACTERISTICS : Incised, alluvial, sinuous with failing banks, high sediment load
 NATURE OF STREAMBED : Sand, gravel, cobbles and boulders

PEAK FLOW DATA

Q 2.33 =	450 cfs	Q 50 =	1700 cfs
Q 10 =	1050 cfs	Q 100 =	2000 cfs
Q 25 =	1400 cfs	Q 500 =	2800 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 10.5 fps
 ICE CONDITIONS : Moderate
 DEBRIS : High potential with fallen trees in the channel
 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 steel beam bridge with concrete deck.
 YEAR BUILT: 1929
 CLEAR SPAN(NORMAL TO STREAM): 33'
 VERTICAL CLEARANCE ABOVE STREAMBED: 10'
 WATERWAY OF FULL OPENING: 330 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace with a new bridge
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1013.3'	VELOCITY =	7.1 fps
Q10 =	1015.2'	"	10.7 fps
Q25 =	1016.0'	"	11.7 fps
Q50 =	1016.7'	"	12.5 fps
Q100 =	1018.0'	"	13.2 fps

LONG TERM STREAMBED CHANGES: Unstable channel banks. No other long term changes apparent.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1021.7'
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: N.A. - stream divides DISTANCE:
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: N.A. - confluence DISTANCE:
 HIGHWAY #: 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 SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.8	1.32					
POSTING							
OPERATING	3.64	1.72	2.71	1.74	2.54	2.26	2.37
COMMENTS:							

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2016	200	50	59	1.5	15	20 year ESAL for flexible pavement from 2016 to 2036 : 85000
2036	210	50	59	2	20	40 year ESAL for flexible pavement from 2016 to 2056 : 199000
Design Speed : 35 mph						

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck.
 CLEAR SPAN(NORMAL TO STREAM): 77'
 VERTICAL CLEARANCE ABOVE STREAMBED: 10'
 WATERWAY OF FULL OPENING: 590 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1013.3'	VELOCITY=	6.8 fps
Q10 =	1015.1'	"	10.2 fps
Q25 =	1015.8'	"	10.7 fps
Q50 =	1016.4'	"	11.2 fps
Q100 =	1016.8'	"	11.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1022.4'
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1021.1'
 VERTICAL CLEARANCE: @ Q50 = 4.7'

SCOUR: Calculated contraction scour = 1' up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 30 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 15 cfs Depth = 1'
 ORDINARY HIGH WATER: 200 cfs Depth = 3'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. Road will be closed.
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _p : 3.0 INCH
3. DESIGN SPAN	L: 85.00 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: ---
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 : 4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: SEE GEN. NOTES
16. NOMINAL BEARING RESISTANCE OF ROCK	q _n : 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: SEE GEN. NOTES
18. PILE RESISTANCE FACTOR	φ: SEE GEN. NOTES
19. LATERAL PILE DEFLECTION	Δ: ---
20. BASIC WIND SPEED	V _{3s} : ---
21. MINIMUM GROUND SNOW LOAD	p _g : ---
22. SEISMIC DATA	PGA: SEE GEN. NOTES
	S _s : ---
	S ₁ : ---
23.	---
24.	---
25.	---
26.	---

PROJECT NAME: CRAFTSBURY
 PROJECT NUMBER: BO 1449(34)
 FILE NAME: s13j100excel.dgn PLOT DATE: 27-OCT-2015
 PROJECT LEADER: R. YOUNG DRAWN BY: S. COLEY
 DESIGNED BY: W. LAMMER CHECKED BY: W. LAMMER
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