

PRELIMINARY INFORMATION SHEET (BRIDGE)

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-136B	STATE ROUTE MARKER DETAILS	08-08-1995
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1BM	BOX BEAM GUARD RAIL	06-13-1997
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	04-25-2016
T-2	TRAFFIC SIGN GENERAL NOTES	04-25-2016
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-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-40	DELINEATORS AND MILEPOSTS	01-02-2013
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-44	MILEMARKER DETAILS STATE AND TOWN HIGHWAYS	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

STRUCTURES & HSD DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	02-09-2012
SD-502.00	CONCRETE DETAILS AND NOTES	10-10-2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	08-29-2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	06-04-2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	05-02-2011
HSD-400.01	SAFETY EDGE DETAILS	03-29-2016
HSD-621.06	GUARDRAIL TERMINAL LABEL DETAILS	11-03-2015

HYDROLOGIC DATA

Date: January 2015

DRAINAGE AREA : 151.3 sq. mi.
 CHARACTER OF TERRAIN : Mostly forested, rural
 STREAM CHARACTERISTICS : Incised, sinuous and alluvial
 NATURE OF STREAMBED : Cobbles, gravel and sand

PEAK FLOW DATA

Q 2.33 =	3800 cfs	Q 50 =	10,700 cfs
Q 10 =	7000 cfs	Q 100 =	13,000 cfs
Q 25 =	9000 cfs	Q 500 =	16,900 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 11.3 fps
 ICE CONDITIONS : Moderate to heavy
 DEBRIS : Low
 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 : 3-span rolled beam with concrete deck
 YEAR BUILT : 1933
 CLEAR SPAN(NORMAL TO STREAM) : 135' with 2 piers @ 3.67' wide = 128'
 VERTICAL CLEARANCE ABOVE STREAMBED : ~16'
 WATERWAY OF FULL OPENING : 1450 sq. ft.
 DISPOSITION OF STRUCTURE : Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	472.4'	VELOCITY =	5.8 fps
Q10 =	474.4'	"	9.0 fps
Q25 =	475.6'	"	10.7 fps
Q50 =	476.7'	"	11.6 fps
Q100 =	480.1'	"	12.3 fps

LONG TERM STREAMBED CHANGES : None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY : Between Q50 and Q100
 RELIEF ELEVATION : 479.6'
 DISCHARGE OVER ROAD @Q100: 125 cfs

UPSTREAM STRUCTURE

TOWN : Bradford DISTANCE : 13,025'
 HIGHWAY # : VT 25 STRUCTURE # : 5
 CLEAR SPAN : 207' CLEAR HEIGHT : 13.6'
 YEAR BUILT : 1982 FULL WATERWAY :
 STRUCTURE TYPE : 2 span steel girder

DOWNSTREAM STRUCTURE

TOWN : Bradford DISTANCE : 1530'
 HIGHWAY # : I-91 STRUCTURE # : 59S
 CLEAR SPAN : 271' CLEAR HEIGHT :
 YEAR BUILT : 1973 FULL WATERWAY :
 STRUCTURE TYPE : 2 span plate girder

LRFD 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	3.1	1.21					
POSTING							
OPERATING	4.02	1.56	2.61	1.57	2.75	2.42	2.37
COMMENTS:							

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2016 to 2036
2016	1400	180	53	10.7	140	645000
2036	1500	190	53	15.6	230	1464000

Design Speed : 30 mph

PROPOSED STRUCTURE

STRUCTURE TYPE : Single span steel girder
 CLEAR SPAN(NORMAL TO STREAM) : 119'
 VERTICAL CLEARANCE ABOVE STREAMBED : ~16'
 WATERWAY OF FULL OPENING : 1500 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	472.1'	VELOCITY =	5.3 fps
Q10 =	474.0'	"	8.4 fps
Q25 =	475.2'	"	10.0 fps
Q50 =	476.2'	"	11.1 fps
Q100 =	477.5'	"	12.3 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY : N/A
 RELIEF ELEVATION : 480.5'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 477.6'
 VERTICAL CLEARANCE : @ Q50 = 1.4'

SCOUR : Contraction scour = 2' @ Q500

REQUIRED CHANNEL PROTECTION : Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW : 315 cfs DEPTH OR ELEVATION :
 ORDINARY LOW WATER : 140 cfs ~465.9'
 ORDINARY HIGH WATER : 1630 cfs ~469.5'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : None required
 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 dp: 3.0 INCH
3. DESIGN SPAN L: 140.00 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: ---
9. CONCRETE, HIGH PERFORMANCE CLASS A f'c: ---
10. CONCRETE, HIGH PERFORMANCE CLASS B f'c: 3.5 KSI
11. CONCRETE, CLASS C f'c: ---
12. REINFORCING STEEL fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270 fy: 50 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL qn: ---
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK qn: ---
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: ---
18. PILE RESISTANCE FACTOR φ: 0.65
19. LATERAL PILE DEFLECTION Δ: 0.50 INCH
20. BASIC WIND SPEED V3s: ---
21. MINIMUM GROUND SNOW LOAD pg: ---
22. SEISMIC DATA PGA: 0.65 Ss: --- S1: ---

PROJECT NAME : BRADFORD

PROJECT NUMBER : BF 0191 (29)

FILE NAME : s13c054pi.dgn PLOT DATE : 11/2/2016
 PROJECT LEADER : C. CARLSON DRAWN BY : G. ROY
 DESIGNED BY : M. EVANS-MONGEON CHECKED BY : M. EVANS-MONGEON
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