STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 09.02.03

LRFD

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STANDARDS LIST

E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-106	TRAFFIC CONTROL- MISCELLANEOUS DETAILS	03-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
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

STRUCTURES DETAILS

SD-501.00	CONCRETE DETAILS AND NOTES	04-07-2010
SD-502.00	CONCRETE DETAILS AND NOTES	05-04-2010

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2014	230	55	58	7.1	15
2034	260	60	58	8.7	20

20 year ESAL for flexible pavement from 2014 to 2034 : 54000

40 year ESAL for flexible pavement from 2014 to 2054 : 110600

Design Speed : 35 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Jan. 2013

DRAINAGE AREA : 4.3 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountaious, mostly forested with some open areas
STREAM CHARACTERISTICS : Sinuous, alluvial and probably incised
NATURE OF STREAMBED : Mostly gravel and cobbles with some sand and boulders

PEAK FLOW DATA

Q 2.33 =	240 cfs	Q 50 =	910 cfs
Q 10 =	540 cfs	Q 100 =	1100 cfs
Q 25 =	730 cfs	Q 500 =	1500 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q25 = 9.0 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
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 timber deck
YEAR BUILT: 1939
CLEAR SPAN(NORMAL TO STREAM): 18'
VERTICAL CLEARANCE ABOVE STREAMBED: 6.5'
WATERWAY OF FULL OPENING: 108 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	961.3'	VELOCITY =	7.3 fps
Q10 =	963.5'	"	10.1 fps
Q25 =	964.3'	"	11.0 fps
Q50 =	965.8'	"	8.4 fps
Q100 =	966.5'	"	8.5 fps

LONG TERM STREAMBED CHANGES: Unknown

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Between Q25 and Q50
RELIEF ELEVATION: 965.5'
DISCHARGE OVER ROAD @Q100: 110 cfs

UPSTREAM STRUCTURE

TOWN: Woodstock DISTANCE: 2500'
HIGHWAY # : TH 19 STRUCTURE #: 24
CLEAR SPAN: 23' CLEAR HEIGHT: 7.0'
YEAR BUILT: 1914 FULL WATERWAY:
STRUCTURE TYPE: Single span bridge with steel beams and timber deck

DOWNSTRUCTURE STRUCTURE

TOWN: Woodstock DISTANCE: 1200'
HIGHWAY # : TH 18 STRUCTURE #: 22
CLEAR SPAN: 35' CLEAR HEIGHT: 10'
YEAR BUILT: 1980 FULL WATERWAY:
STRUCTURE TYPE: Concrete slab bridge

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							
POSTING							
OPERATING							
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast concrete structure*

CLEAR SPAN(NORMAL TO STREAM): 32' minimum, on pedestal walls
VERTICAL CLEARANCE ABOVE STREAMBED: 7.0'
WATERWAY OF FULL OPENING: 145 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	961.0'	VELOCITY=	6.9 fps
Q10 =	962.0'	"	8.6 fps
Q25 =	962.6'	"	9.4 fps
Q50 =	963.1'	"	9.9 fps
Q100 =	963.8'	"	10.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 965.5'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 964.6'
VERTICAL CLEARANCE: @ Q25 = 2.0'

SCOUR: Contraction and long term scour = 2' at Q100 and 3' at Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	9 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	4 cfs	Depth = 0.5'
ORDINARY HIGH WATER:	100 cfs	Depth = 2.0'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

* This final hydraulics is based on a precast concrete arch. The contractor may choose to construct a precast concrete bridge or rigid frame with an equal or larger waterway opening than the arch listed above. If so, water surface elevations at high flows may be slightly lower.

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. DESIGN SPAN	L:	32.00 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	f_y:	- - -
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	SEE SHEET 3
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	- - -
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:	- - -
21. PILE SIZE		- - -
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	- - -
24. LATERAL PILE DEFLECTION	Δ:	- - -
25. BASIC WIND SPEED	V_{3s}:	- - -
26. MINIMUM GROUND SNOW LOAD	p_g:	- - -
27. SEISMIC DATA PGA : - - -	S_s:	- - -
	S_1:	- - -

PROJECT NAME: **WOODSTOCK**
PROJECT NUMBER: **BRO 1444(55)**

FILE NAME: **s95j294pi.dgn**
PROJECT LEADER: **K.M. HIGGINS**
DESIGNED BY: **J. SALVATORI**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 2/13/2013
DRAWN BY: **J. SALVATORI**
CHECKED BY: **W. LAMMER**