

# PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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FINAL HYDRAULIC REPORT

PLAN SHEETS

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HYDROLOGIC DATA

Date: Jan. 5, 2011

DRAINAGE AREA : 4.4 sq. mi.  
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested with some open areas  
 STREAM CHARACTERISTICS : Steep, incised with some bank erosion downstream  
 NATURE OF STREAMBED : Gravel, cobbles and boulders

PEAK FLOW DATA

Q 2.33 =	350 cfs	Q 50 =	1200 cfs
Q 10 =	700 cfs	Q 100 =	1450 cfs
Q 25 =	950 cfs	Q 500 =	2150 cfs

DATE OF FLOOD OF RECORD : Unknown  
 ESTIMATED DISCHARGE : Unknown  
 WATER SURFACE ELEV. : Unknown  
 NATURAL STREAM VELOCITY : @ Q50 = 17.4 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 : Buried concrete bridge/box  
 YEAR BUILT : Built in 1926, Widened in 1937 and 1947  
 CLEAR SPAN(NORMAL TO STREAM): 9.5'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 10.5'  
 WATERWAY OF FULL OPENING: 100 sq. ft.  
 DISPOSITION OF STRUCTURE: Remove  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	830.8'	VELOCITY =	12.4 fps
Q10 =	834.5'	"	15.8 fps
Q25 =	836.6'	"	17.4 fps
Q50 =	838.6'	"	18.8 fps
Q100 =	841.3'	"	22.7 fps

LONG TERM STREAMBED CHANGES : Local scour through and downstream of the bridge.

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Just above Q100  
 RELIEF ELEVATION: 841.4'  
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Pittsfield DISTANCE: 3,200'  
 HIGHWAY #: T. H. 2 STRUCTURE #: 7  
 CLEAR SPAN: 15.5' CLEAR HEIGHT: 9.7'  
 YEAR BUILT: FULL WATERWAY: 118 sq. ft.  
 STRUCTURE TYPE: CGMPPA

DOWNSTREAM STRUCTURE

TOWN: NA - Confluence with the Tweed River DISTANCE: 1,300'  
 HIGHWAY #: STRUCTURE #:  
 CLEAR SPAN: CLEAR HEIGHT:  
 YEAR BUILT: FULL WATERWAY:  
 STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	HL-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: Buried precast concrete bridge  
 CLEAR SPAN(NORMAL TO STREAM): 24'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 8'  
 WATERWAY OF FULL OPENING: 180 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	829.3'	VELOCITY=	12.2 fps
Q10 =	830.5'	"	14.3 fps
Q25 =	831.1'	"	16.0 fps
Q50 =	831.7'	"	17.4 fps
Q100 =	832.3'	"	18.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 841.3'  
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 833.9' at inlet, 830.4' at outlet  
 VERTICAL CLEARANCE: @ Q50 = 2.2'

SCOUR: Contraction scour = 3' at Q100 and 4' at Q500. Long term channel degradation is estimated to be 1' at Q100 and 2' at Q500. Total scour at Q100 = 4' and at Q500 = 6'.  
 REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 10 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 5 cfs Depth = 1'  
 ORDINARY HIGH WATER: 150 cfs Depth = 3'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary required. Traffic maintained with phased construction.  
 CLEAR SPAN (NORMAL TO STREAM):  
 VERTICAL CLEARANCE ABOVE STREAMBED:  
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d <sub>p</sub> : ---
3. DESIGN SPAN	L: 24.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f <sub>y</sub> : ---
6. PRESTRESSED CONCRETE STRENGTH	f' <sub>c</sub> : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' <sub>cr</sub> : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' <sub>c</sub> : 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' <sub>c</sub> : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' <sub>c</sub> : 3.5 KSI
11. CONCRETE, CLASS C	f' <sub>c</sub> : 3.0 KSI
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f <sub>y</sub> : ---
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : SEE SHEET 3
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q <sub>p</sub> : ---
20. PILE YIELD STRENGTH ASTM A572	f <sub>y</sub> : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L <sub>p</sub> : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V <sub>3s</sub> : ---
26. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : ---
27. SEISMIC DATA	PGA: --- S <sub>s</sub> : --- S <sub>1</sub> : ---

PROJECT NAME: PITTSFIELD-STOCKBRIDGE

PROJECT NUMBER: STP 022-1(22)S

FILE NAME: s00b122pi.dgn PLOT DATE: 9/7/2011  
 PROJECT LEADER: C. P. WILLIAMS DRAWN BY: G. ROY  
 DESIGNED BY: R. YOUNG CHECKED BY: R. YOUNG  
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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2010	3500	390	51	12	468	20 year ESAL for flexible pavement from 2010 to 2030 : 4555000
2030	4300	490	51	17	811	40 year ESAL for flexible pavement from 2010 to 2050 : 11132000
						Design Speed : 45 mph