

PRELIMINARY INFORMATION SHEET (BRIDGE)

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: April 2015

DRAINAGE AREA: 34.7 sq. mi.
 CHARACTER OF TERRAIN: Mostly forested, small ponds, rural
 STREAM CHARACTERISTICS: Sinuous and alluvial
 NATURE OF STREAMBED: Cobbles, gravel, and sand

PEAK FLOW DATA

Q 2.33 = 1125 cfs	Q 50 = 3900 cfs
Q 10 = 2350 cfs	Q 100 = 4700 cfs
Q 25 = 3150 cfs	Q 500 = 6500 cfs

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q50 = 8.4 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: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete t-beam
 YEAR BUILT: 1923
 CLEAR SPAN(NORMAL TO STREAM): 43'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~10'
 WATERWAY OF FULL OPENING: 425 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 = 879.8'	VELOCITY = 5.2 fps
Q10 = 882.3'	7.5 fps
Q25 = 883.3'	9.5 fps
Q50 = 885.9'	9.5 fps
Q100 = 886.5'	11.2 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Below Q50
 RELIEF ELEVATION: 884.7'
 DISCHARGE OVER ROAD @Q100: 645 cfs

UPSTREAM STRUCTURE

TOWN: Stratford DISTANCE: 8600'
 HIGHWAY #: TH 2 STRUCTURE #: 28
 CLEAR SPAN: 26' CLEAR HEIGHT:
 YEAR BUILT: 1919 FULL WATERWAY:
 STRUCTURE TYPE: Concrete t-beam

DOWNSTREAM STRUCTURE

TOWN: Stratford DISTANCE: 4040'
 HIGHWAY #: TH 39 STRUCTURE #: 61
 CLEAR SPAN: 62' CLEAR HEIGHT:
 YEAR BUILT: 1919, Reconstructed in 1971 FULL WATERWAY:
 STRUCTURE TYPE: Rolled beam

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	SS2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

AS BUILT "REBAR" DETAIL

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

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam

CLEAR SPAN(NORMAL TO STREAM): 53'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~11.5'
 WATERWAY OF FULL OPENING: 565 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 879.4'	VELOCITY = 5.2 fps
Q10 = 882.0'	7.0 fps
Q25 = 883.1'	8.3 fps
Q50 = 884.0'	9.6 fps
Q100 = 884.8'	11.4 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 884.7'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 885.0'
 VERTICAL CLEARANCE: @ Q50 = 1.0'

SCOUR: 4' of contraction scour up to Q200
 Piles should be freestanding up to 6' below streambed elevation.
 REQUIRED CHANNEL PROTECTION: Stone Fill Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: DEPTH OR ELEVATION:
 ORDINARY LOW WATER:
 ORDINARY HIGH WATER:

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: 0.0 INCH
3. DESIGN SPAN	L: 57.00 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'c: ---
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. NOMINAL BEARING RESISTANCE OF SOL	qn: 4.0 KSF
15. SOL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK	qn: 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
18. PILE RESISTANCE FACTOR	φ: 0.65
19. LATERAL PILE DEFLECTION	Δ: ---
20. BASIC WIND SPEED	V3s: ---
21. MINIMUM GROUND SNOW LOAD	pg: ---
22. SEISMIC DATA	PGA: 0.65 S _s : --- S _i : ---
23.	---
24.	---
25.	---
26.	---

PROJECT NAME: STRAFFORD
 PROJECT NUMBER: BF 0177(10)

FILE NAME: r13j088pl.dgn PLOT DATE: 10-SEP-2015
 PROJECT LEADER: K. HIGGINS, P.E. DRAWN BY: R. KLINEFELTER
 DESIGNED BY: R. KLINEFELTER CHECKED BY: J. SALVATORI
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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2016 to 2036 : 228000
2016	1400	180	55	3.7	65	40 year ESAL for flexible pavement from 2016 to 2036 : 542000
2036	1500	190	55	6	110	Design Speed : 25 mph