

PRELIMINARY INFORMATION SHEET



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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: 9/20/00

DRAINAGE AREA: 4.9 sq. km

CHARACTER OF TERRAIN: Forested and mountainous

STREAM CHARACTERISTICS: Steep, flashy, sinuous

NATURE OF STREAMBED: Cobbles to large boulders

PEAK FLOW DATA

| | | | |
|----------|----------|---------|----------|
| Q 2.33 = | 5.8 cms | Q 50 = | 16.4 cms |
| Q 10 = | 11.3 cms | Q 100 = | 18.8 cms |
| Q 25 = | 14.2 cms | Q 500 = | 24.1 cms |

DATE OF FLOOD RECORD: November 1927

ESTIMATED DISCHARGE: Unknown

WATER SURFACE ELEV.: Unknown

NATURAL STREAM VELOCITY: @ Q25 = 3.0 mps

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? Yes

IF YES, DESCRIBE: The confluence of Roaring Brook and Lesure Brook is just below Bridge 14.

PROPOSED STRUCTURE

STRUCTURE TYPE: Single Span Concrete Slab Bridge

CLEAR SPAN(NORMAL TO STREAM): 7.0 m

VERTICAL CLEARANCE ABOVE STREAMBED: 2.3 m

WATERWAY OF FULL OPENING: 12.8 sq. m

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|---------|------------|---------|
| Q2.33 = | 393.0 m | VELOCITY = | 2.5 mps |
| Q10 = | 393.2 m | " | 3.2 mps |
| Q25 = | 393.3 m | " | 3.5 mps |
| Q50 = | 393.3 m | " | 3.6 mps |
| Q100 = | 393.4 m | " | 3.8 mps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No

FREQUENCY: Above Q100

RELIEF ELEVATION: 393.9 m

DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 393.5 m

VERTICAL CLEARANCE: @ Q25 = 0.5 m

SCOUR: No contraction scour at Q100 or Q500

REQUIRED CHANNEL PROTECTION: Type IV

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single Span Steel Beam Bridge

YEAR BUILT: 1934

CLEAR SPAN(NORMAL TO STREAM): 4.3 m

VERTICAL CLEARANCE ABOVE STREAMBED: 2.1 m

WATERWAY OF FULL OPENING: 8.3 sq. m

DISPOSITION OF STRUCTURE: Remove

TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|---------|------------|----------|
| Q2.33 = | 393.0 m | VELOCITY = | 3.3 mps |
| Q10 = | 393.2 m | " | 4.1 mps |
| Q25 = | 393.3 m | " | 4.4 mps |
| Q50 = | 393.6 m | " | 2.9 mps* |
| Q100 = | 393.7 m | " | 3.0 mps* |

LONG TERM STREAMBED CHANGES: None noted

PERMIT INFORMATION

| | | | |
|----------------------|----------|---------------------|-------|
| AVERAGE DAILY FLOW: | 0.1 cms | DEPTH OR ELEVATION: | |
| ORDINARY LOW WATER: | <0.1 cms | | 0.2 m |
| ORDINARY HIGH WATER: | 2.5 cms | | 1.0 m |

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single Span Bridge

CLEAR SPAN (NORMAL TO STREAM): 4.3 m (minimum)

VERTICAL CLEARANCE ABOVE STREAMBED: 2.1 m (minimum)

WATERWAY AREA OF FULL OPENING: 8.0 sq. m (minimum)

ADDITIONAL INFORMATION

LIST OF STANDARDS

| | |
|-----------|----------|
| B-5M | 01-03-00 |
| D-3M | 06-13-97 |
| D-6M | 06-13-97 |
| D-8M | 01-03-00 |
| D-15M | 06-13-97 |
| E-100M | 06-13-97 |
| E-101M | 06-13-97 |
| E-102M | 06-13-97 |
| E-102AM | 06-13-97 |
| E-106M | 06-13-97 |
| E-107M | 06-13-97 |
| E-107AM | 06-13-97 |
| G-1dM | 01-03-00 |
| G-1M | 01-03-00 |
| G-4M | 06-13-97 |
| SB-R6-82M | 07-10-97 |
| T-1M | 06-13-97 |
| T-2M | 06-13-97 |

IS THE ROADWAY OVERTOPPED BELOW Q100: * Yes

FREQUENCY: Q50

RELIEF ELEVATION: 393.6 m

DISCHARGE OVER ROAD @Q100: 1.0 cms

UPSTREAM STRUCTURE

TOWN: N/A DISTANCE: _____

HIGHWAY #: _____ STRUCTURE #: _____

CLEAR SPAN: _____ CLEAR HEIGHT: _____

YEAR BUILT: _____ FULL WATERWAY: _____

STRUCTURE TYPE: _____

DOWNSTREAM STRUCTURE

TOWN: N/A - Confluence of Roaring Brook DISTANCE: _____

HIGHWAY #: _____ STRUCTURE #: _____

CLEAR SPAN: _____ CLEAR HEIGHT: _____

YEAR BUILT: _____ FULL WATERWAY: _____

STRUCTURE TYPE: _____

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO: MS 22.5
- DESIGN SPAN: 7.415 m
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL: 260 kPa
- ALLOWABLE LOAD FOR PILING: N/A
- ESTIMATED LENGTH: _____
- STRUCTURAL STEEL AASHTO M270/M270M GRADE: N/A
- REINFORCING STEEL GRADE: 420
- HIGH PERFORMANCE CONCRETE CLASS B f'c: 25 Mpa
- SOIL UNIT WEIGHT: 22 kN/m³
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL: 230 kPa

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? YES
- IF YES, ON EXISTING STRUCTURE? NO
- OR ON TEMPORARY BRIDGE? YES
- ONE OR TWO-WAY TRAVEL? ONE-WAY
- TRAFFIC CONTROL SIGNALS REQUIRED? NO
- ARE SIDEWALKS REQUIRED? NO
- IF SO, ON WHAT SIDE? _____

LOAD FACTOR LOAD RATING (METRIC TONS)

| LOADING LEVELS | TRUCK | | | | | | |
|------------------|-------|----|-----|--------|---------|---------|---------|
| | M | MS | 3S2 | 6 AXLE | 3A STR. | 4A STR. | SA SEMI |
| INVENTORY A=2.17 | 28 | 57 | | | | | |
| POSTED A=1.55 | 40 | 72 | 83 | | 47 | 49 | 83 |
| OPERATING A=1.30 | | 86 | 99 | 89 | 56 | 59 | |

COMMENTS: $R_F = \frac{R_{MS} - 1.3 M_{MS}}{A \times M_{(1.3)}}$

TRAFFIC DATA

| YEAR | ADT | DHV | % D | % T | ADTT |
|------|-----|-----|-----|-----|------|
| 1999 | 220 | 30 | 0 | 28 | 27 |
| 2019 | 300 | 40 | 0 | 33 | 33 |

20 year ESAL for flexible pavement: 1999 to 2019 : 518,000

40 year ESAL for flexible pavement: 1999 to 2039 : 1,326,000

Design Speed: 40 km/h

