

PRELIMINARY INFORMATION SHEET



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STANDARDS

B-71	RESIDENTIAL AND COMMERCIAL DRIVES	7/8/2005
C-1	CURBS, BITUMINOUS CONCRETE SIDEWALKS GRANITE SLOPE EDGING VERTICAL GRANITE CURB PRECAST REINFORCED CONCRETE CURB CAST IN PLACE CONCRETE CURB BITUMINOUS CONCRETE CURB TREATED TIMBER CURB	1/3/2000
E-100	CONSTRUCTION APPROACH SIGNS	1/2/2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	1/2/2004
E-101	CONSTRUCTION SIGN DETAILS	5/30/2003
E-102	CONSTRUCTION SIGN DETAILS	6/30/2003
E-102A	CONSTRUCTION SIGN DETAILS	5/1/2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	3/1/2004
E-107	DELINEATION, BARRICADES AND DETOURS UTURNS ON DIVIDED HIGHWAYS	6/30/2003
E-107A	BREAKAWAY BARRICADE DETAILS	8/8/1995
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	8/18/1995
E-109	TRAFFIC CONTROL DEVICES FOR TEMPORARY TERMINATION OF FREEWAY FACILITIES	8/8/1995
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-136A	U.S. ROUTE MARKER SIGN DETAILS	8/8/1995
G-1	STEEL BEAM GUARDRAIL (50MPH & OVER) HEAVY DUTY STEEL BEAM GUARDRAIL TWISTED END TERMINAL ANCHOR FOR STEEL BEAM RAIL	1/3/2000
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS) HEAVY DUTY STEEL BEAM GUARDRAIL STEEL BEAM MEDIAN BARRIER ANCHOR FOR STEEL BEAM RAIL	1/3/2000
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11/15/2002

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: 1-30-08

DRAINAGE AREA : 129.5 sq km
 CHARACTER OF TERRAIN : Mountainous and forested
 STREAM CHARACTERISTICS : incised, sinuous to meandering channel with eroded banks.
 NATURE OF STREAMBED : Gravel, cobbles and boulders

PEAK FLOW DATA

Q 2.33 = 29.7 cms	Q 50 = 107.6 cms
Q 10 = 65.1 cms	Q 100 = 124.6 cms
Q 25 = 90.6 cms	Q 500 = 165.7 cms

DATE OF FLOOD RECORD : November 1927
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 1.2 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 : Several dams are within this watershed to include the Chittenden Reservoir, Glen Dam and the Rutland City Reservoir.

WATERSHED STORAGE : 3% HEADWATERS: UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Three span concrete T-beam bridge
 YEAR BUILT: 1931
 CLEAR SPAN(NORMAL TO STREAM): 29.3 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 4.2 m
 WATERWAY OF FULL OPENING: 87 sq m
 DISPOSITION OF STRUCTURE: Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: refer to boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 = 194.5 m	VELOCITY = 1.4 mps
Q10 = 195.0 m	" 1.9 mps
Q25 = 195.4 m	" 2.2 mps
Q50 = 195.6 m	" 2.5 mps
Q100 = 195.8 m	" 2.7 mps

LONG TERM STREAMBED CHANGES: None noted

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span integral abutment bridge

CLEAR SPAN(NORMAL TO STREAM): 33 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.7 m
 WATERWAY OF FULL OPENING: 77 sq m

WATER SURFACE ELEVATIONS AT:

Q2.33 = 194.4 m	VELOCITY = 1.4 mps
Q10 = 194.9 m	" 1.9 mps
Q25 = 195.2 m	" 2.2 mps
Q50 = 195.4 m	" 2.4 mps
Q100 = 195.6 m	" 2.7 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 196.7 m
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 196.04 m
 VERTICAL CLEARANCE: @ Q50 = 0.6 m

SCOUR: 1 meter of contraction scour at Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 3.0 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 1.5 cms 0.3 m
 ORDINARY HIGH WATER: 13.0 cms 1.0 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 22 m minimum (centered on the stream) *
 VERTICAL CLEARANCE ABOVE STREAMBED: Low beam elev. 196.0 m minimum
 WATERWAY AREA OF FULL OPENING: 59 sq m (minimum) *

ADDITIONAL INFORMATION

Stone fill should not constrict channel, abutment stems should be set at or below elevation 194.5m (below the stone fill). Piles should be designed to withstand a freestanding load down to elevation 190.3m.
 * No fill shall be placed within the 22 m minimum clear span that would reduce the waterway area.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 196.6 m
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Rutland DISTANCE: 0.6 km
 HIGHWAY #: TH-1 FAS 165 STRUCTURE #: 5
 CLEAR SPAN: 40 m CLEAR HEIGHT: 3 m
 YEAR BUILT: 1995 FULL WATERWAY: unknown
 STRUCTURE TYPE: Single span welded plate girder bridge

DOWNSTREAM STRUCTURE

TOWN: Rutland DISTANCE: 1.6 km
 HIGHWAY #: TH-19 STRUCTURE #: 9
 CLEAR SPAN: 29 m CLEAR HEIGHT: 4 m
 YEAR BUILT: 1950 FULL WATERWAY: unknown
 STRUCTURE TYPE: Single span rolled beam bridge

LOAD FACTOR - LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
INVENTORY	27	41					
POSTED	38	58	68		55	56	62
OPERATING		69	79	90	65	66	

COMMENTS:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2006	9400	1100	56	7	830
2026	12400	1200	56	8	1300

20 year ESAL for flexible pavement from 2006 to 2026 : 10464000
 40 year ESAL for flexible pavement from 2006 to 2046 : 27425000
 Design Speed : 80 km/h

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO LRFD HL-93
- DESIGN SPAN 34,000 m
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
ON LEDGE N/A
- PILING LOADS See General Notes Sheet
TYPE STEEL PILING, HP 360 X 132 (HP 14 X 89) Fy = 345 kPa (50 ksi)
ESTIMATED LENGTH 14 TO 23 m
- STRUCTURAL STEEL AASHTO M270/M270 GRADE 345W
- REINFORCING STEEL GRADE 420
- CONCRETE, HIGH PERFORMANCE CLASS A fc: 30 Mpa
CONCRETE, HIGH PERFORMANCE CLASS B fc: 25 Mpa
- DESIGN SOIL UNIT WEIGHT 22.00 kN/m³
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

TRAFFIC MAINTENANCE

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

PROJECT NAME: RUTLAND TOWN
 PROJECT NUMBER: BRF 019-3(48)

FILE NAME: s95b172pi.dgn PLOT DATE: 2/27/2008
 PROJECT MANAGER: R. WHITCOMB DRAWN BY: T. LACKEY
 DESIGNED BY: T. LACKEY CHECKED BY: R. WHITCOMB
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