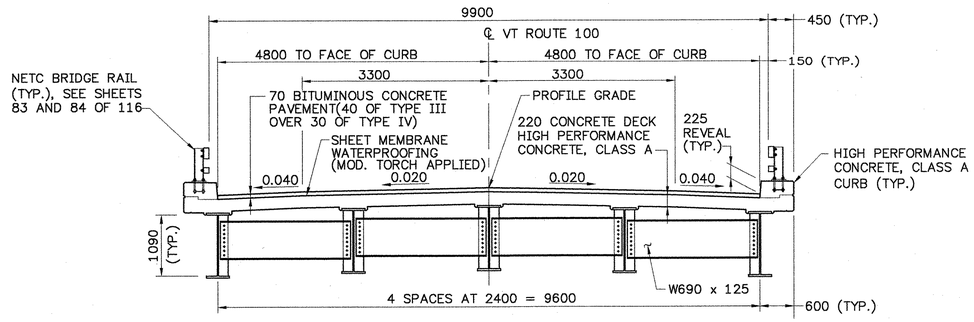
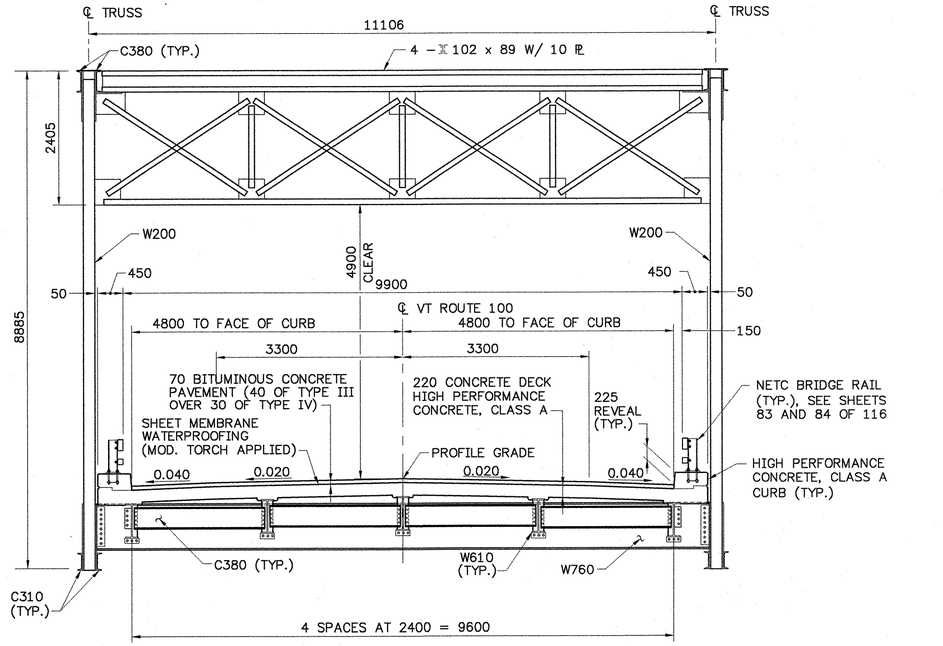


APPROACH BRIDGE TYPICAL SECTION



TRUSS BRIDGE TYPICAL SECTION

SCALE IN MILLIMETERS

0 1000 2000 4000

FINAL HYDRAULICS REPORT

VAOT Metric

HYDRAULIC DATA

1. DRAINAGE AREA 605.5 km^2
2. CHARACTER OF TERRAIN MOUNTAINOUS
3. CHARACTER AND TYPE OF STREAM PERENNIAL CONTROLLED BY COE DAMS
4. NATURE OF STREAMBED DEEP, DENSE, SANDY GRAVEL, COVERED BY BOULDER LAYER
   - Q2.33 95 m^3/s — Q50 370 m^3/s
   - Q10 200 m^3/s — Q100 450 m^3/s
   - Q25 280 m^3/s — Q500 740 m^3/s
5. DATE OF FLOOD OF RECORD UNCONTROLLED: NOV 1927; (CONTROLLED: APR 1987)
6. WATER SURFACE ELEVATION 169.0 (169.5) ESTIMATED DISCHARGE 736 (170–238) m^3/s
7. NATURAL STREAM VELOCITY @ Q 2.33 = 0.3 – 0.8 m/s
8. ICE CONDITIONS MODERATE TO HEAVY. DEBRIS LIGHT TO MODERATE
9. DOES THE STREAM REACH MAX. HIGHWATER ELEVATION RAPIDLY? UNCONTROLLED TRIBUTARIES BELOW BALL MOUNTAIN RESERVOIR ARE FLASHY.
10. IS ORDINARY RISE RAPID? DAM OPERATIONS DAMPEN RISE
11. IS STAGE AFFECTED BY UPSTREAM/DOWNSTREAM CONDITIONS? YES, COE DAMS
    IF YES, DESCRIBE: UPSTREAM BALL MOUNTAIN DAM CONTROLS DISCHARGE; DOWNSTREAM TOWNSHEND DAM CAN CAUSE HIGH BACKWATER.
12. WATERSHED STORAGE 62% HEADWATERS X UNIFORM THROUGHOUT WATERSHED IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

1. STRUCTURE TYPE: STEEL TRUSS W/STEEL GIRDER APPROACH SPANS YEAR BUILT: 1929
2. CLEAR SPAN (NORMAL TO STREAM): 12 m – 49 m – 12 m
3. VERTICAL CLEARANCE ABOVE STREAMBED: 5.5 m
4. WATERWAY OF FULL OPENING: 351 m^2
5. DISPOSITION OF STRUCTURE: TO BE REMOVED
6. TYPE OF MATERIAL UNDER SUBSTRUCTURE: SANDY GRAVEL
7. WATER SURFACE ELEVATION* @ Q2.33= 167.04 (169.80) m VELOCITY= 1.14 (0.26) m/s
   - Q10= 167.60 (169.82) m = 1.54 (0.54) m/s
   - Q25= 167.98 (169.83) m = 1.72 (0.76) m/s
   - Q50= 168.34 (169.86) m = 1.90 (0.99) m/s
   - Q100= 168.62 (169.89) m = 2.03 (1.18) m/s

* WATER SURFACE ELEVATIONS LISTED ARE BASED ON A UNCONTROLLED STREAM FLOW AND NO BACKWATER FROM THE TOWNSHEND DAM. WATER SURFACE ELEVATIONS FOR THE CONTROLLED STREAM FLOW WITH BACKWATER FROM THE TOWNSHEND DAM ARE LISTED IN PARENTHESES.

8. LONG TERM STREAM BED CHANGES: NONE
9. IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: NA
10. RELIEF ELEVATION: NA DISCHARGE OVER ROAD @Q100: NA
11. UPSTREAM STRUCTURE: TOWN: JAMAICA DISTANCE: 2.17 km
    HIGHWAY NO.: VT30 STRUCTURE NO.: 29
    STRUCTURE TYPE: 2 SPAN CONT. COMPOSITE PLATE GIRDER
    CLEAR SPAN: 31m – 31m CLEAR HEIGHT: 5.8 m
    YEAR BUILT: 1988 FULL WATERWAY: 227.6m^2
12. DOWNSTREAM STRUCTURE: TOWN: TOWNSHEND DISTANCE: 6.12 km
    HIGHWAY NO.: NA STRUCTURE NO.: NA
    STRUCTURE TYPE: COE TOWNSHEND DAM
    CLEAR SPAN: NA CLEAR HEIGHT: NA
    YEAR BUILT: 1961 FULL WATERWAY: NA

PROPOSED STRUCTURE

STRUCTURE GEOMETRY:

1. STRUCTURE TYPE STEEL TRUSS AND PLATE GIRDER WITH CENTER PIER
2. CLEAR SPAN LENGTH(S) NORMAL TO STREAM: 48.8 m – 31.0 m
3. VERTICAL CLEARANCE ABOVE STREAMBED: 6.4 m
4. ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES? NO

HYDRAULIC DATA:

1. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): 406 m^2
2. WATER SURFACE ELEVATION* @ Q 2.33 = 167.04 (169.80) m VELOCITY= 1.15 (0.26) m/s
   - Q 10 = 167.59 (169.81) m = 1.54 (0.55) m/s
   - Q 25 = 167.97 (169.83) m = 1.73 (0.76) m/s
   - Q 50 = 168.33 (169.85) m = 1.90 (0.99) m/s
   - Q 100 = 168.61 (169.87) m = 2.04 (1.19) m/s
3. IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: NA
4. RELIEF ELEVATION: NA DISCHARGE OVER ROAD @Q100: NA
5. AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 170.60 m
6. VERTICAL CLEARANCE @Q 100: CONTROLLED = 0.8 m; UNCONTROLLED = 2.4 m
7. SCOUR: Q100: CONTRACTION SCOUR = 0.9m, PIER SCOUR = 7.2m, ABUT. 1 = 4.3m, ABUT. 2 = 5.7m.
8. REQUIRED CHANNEL PROTECTION: STONE FILL, TYPE IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 13.8 m^3/s
ORDINARY LOW WATER: 6.0 m^3/s DEPTH: 0.6 m
ORDINARY HIGH WATER: 40.7 m^3/s DEPTH: 1.1 m

TRAFFIC DATA

FUNCTIONAL CLASSIFICATION MINOR ARTERIAL

- 2002 ADT = 1700
- 2022 ADT = 2300
- 2022 ADTT = 220
- 2002 DHV = 320
- 2022 DHV = 430
- D = 55%
- T = 6%
- V = 80 km/h
- 2002–2022 18 KIP ESAL = 1 483 000
- 2002–2042 18 KIP ESAL = 3 763 000

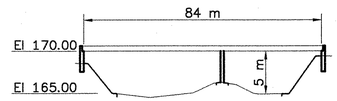
TEMPORARY BRIDGE REQUIREMENTS

1. STRUCTURE TYPE MULTI–SPAN BRIDGE
2. CLEAR SPAN LENGTH(S) NORMAL TO STREAM: 84 m TOTAL
3. VERTICAL CLEARANCE ABOVE STREAMBED: SEE NOTES BELOW
4. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): 332 m^2 SEE NOTES BELOW

NOTE: 1. LOW STEEL FOR TEMPORARY BRIDGE IS EL. 170.0 W/ NO FILL BELOW EL. 167.0

TRAFFIC MAINTENANCE:

1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE ____ OR ON TEMPORARY BRIDGE X
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY ONE WAY
   TRAFFIC CONTROL SIGNALS REQUIRED YES
   ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE? ____
   STRUCTURE TYPE: BRIDGE



NOTES:

1. ALL HORIZONTAL REQUIREMENTS ARE PERPENDICULAR TO THE STREAM.
2. THE CONTRACTOR SHALL NOT CUT EXISTING STREAM BANKS TO PROVIDE MINIMUM OPENINGS.
3. IF THE TEMPORARY PIER IS TO BE IN PLACE DURING THE WINTER EXTRA PRECAUTIONS SHALL BE TAKEN TO ACCOUNT FOR ICE DEBRIS.

DESIGN CRITERIA:

1. DESIGN LIVE LOAD AASHTO MS22.5
2. DESIGN SPAN TRUSS: 48.79 m APPROACH: 31.00 m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL ____ ON LEDGE ____
4. ALLOWABLE LOAD FOR PILING 858 kN TYPE HP 360 X 108 ESTIMATED LENGTH 14 m
5. STRUCTURAL STEEL AASHTO GRADE TRUSS: M270M GR345 APPROACH: M270M GR 345W
6. REINFORCING STEEL GRADE 420
7. CONCRETE HIGH PERFORMANCE CLASS A f'_c 30 MPa
   CONCRETE HIGH PERFORMANCE CLASS B f'_c 25 MPa
   CONCRETE CLASS B f'_c 25 MPa

LOAD RATING (TONS)(LOAD FACTOR)

RATING LEVEL	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	5A.SEMI
INVENTORY	24	44					
POSTED	34	62	75		51	54	72
OPERATING		74	90	94	61	64	

REVISIONS

NO.	DESCRIPTION	BY & DATE

CLD CONSULTING ENGINEERS
540 Commercial St.
Manchester, NH 03101
PH: (603) 668–8223
FAX: (603) 668–8802
E–MAIL: CLD@CLDENGINEERS.COM

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of JAMAICA	Bridge No. 80
	Log Sta.
Highway No. VT. ROUTE 100	Surv. Sta.

VT. ROUTE 100 OVER THE WEST RIVER

PRELIMINARY INFORMATION (1 OF 2)

Designed By LMM/LKP/JH	Drawn By. GFB
Checked By LMM Date 2/02	Bridge Design Supervisor LMM Date 2/02
PROJECT JAMAICA	PROJECT NO. BRF 013–1(8)
I.G.C. Info.	
Bridge Sheet No.	Sheet 3 Of 116

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