

MATERIAL ITEM	TOLERANCE
PAVEMENT	+/- 1/4"
SUB BASE	+/- 1"
SAND BORROW	+/- 1"

**TH 1
ROADWAY TYPICAL SECTION**

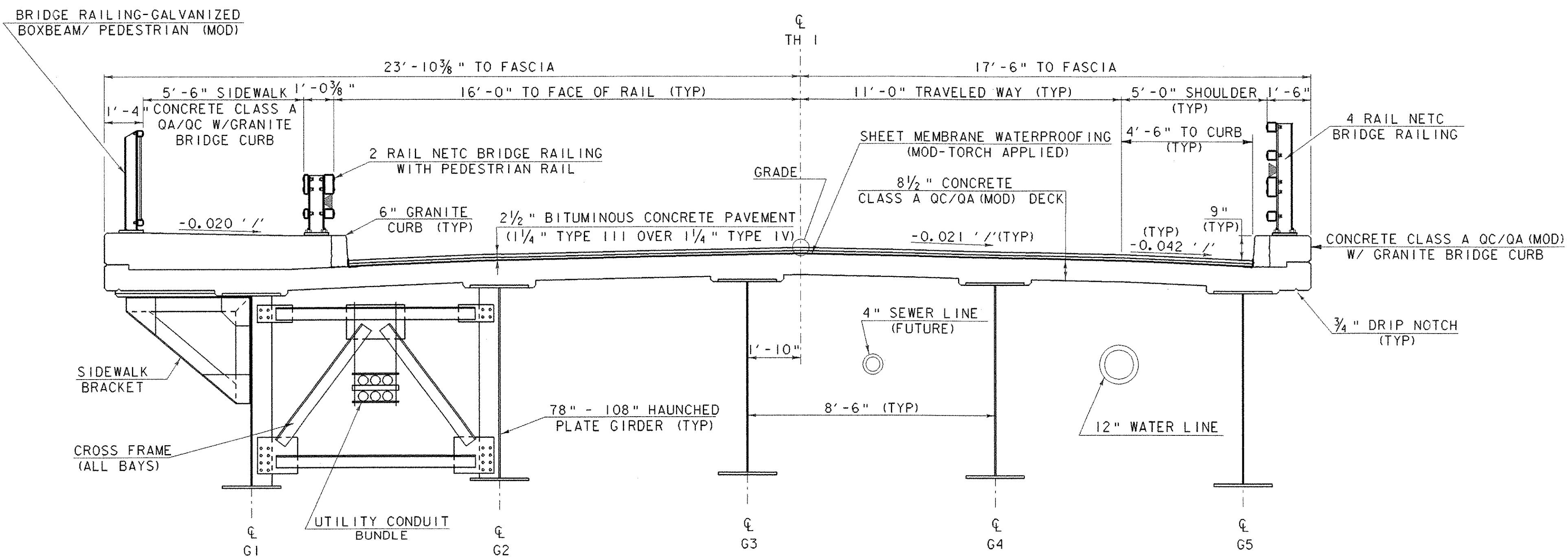
SCALE 3/8" = 1'-0"
1 0 1 2 3 4

***BITUMINOUS CONCRETE PAVEMENT**

- 1ST LIFT = 3" TYPE I
- 2ND LIFT = 2" TYPE II
- 3RD LIFT = 1 1/4" TYPE III

NOTE:

THE CLEAR ZONE SHALL BE 4' OUTSIDE THE FACE OF RAIL. WHEN NO RAIL IS PRESENT THE CLEAR ZONE SHALL BE 3' OUTSIDE THE FACE OF CURB.



BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"
1 0 1 2 3 4

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA: 604.6 sq. mi. (1565.8 sq. km)
 CHARACTER OF TERRAIN: Hilly to mountainous
 CHARACTER & TYPE OF STREAM: Semi-alluvial channel with some braiding and/or anabranching, moderate relief valley
 NATURE OF STREAMBED: Sand, gravel, cobbles, and ledge

DATE OF FLOOD OF RECORD: November 1927
 WATER SURFACE ELEV.: 482 +/- ESTIMATED DISCHARGE: Unknown
 NATURAL STREAM VELOCITY @ 025 = 11.4 fps (3.5 mps)
 ICE CONDITIONS: Moderate DEBRIS: Light
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE.

WATERSHED STORAGE 1/2 HEADWATERS UNIFORM THROUGHOUT WATERSHED X IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

STRUCTURE TYPE: Steel truss with 3 approach spans YEAR BUILT: 1928
 CLEAR SPAN (NORMAL TO STREAM): 175' + 3 @ 42' = 301' (92 m) total
 VERTICAL CLEARANCE ABOVE STREAMBED: 30' (9 m)
 WATERWAY OF FULL OPENING: 8100 sq. ft. (752 sq. m)
 DISPOSITION OF STRUCTURE: Remove

TYPE OF MATERIAL UNDER SUBSTRUCTURE: some substructure units may be on ledge, others are unknown

WATER SURFACE ELEV. @ 02.33= 461.9 VELOCITY= 7.6 fps (2.3 mps)
 010= 467.8 " = 10.2 fps (3.1 mps)
 025= 470.6 " = 11.4 fps (3.5 mps)
 050= 472.7 " = 11.9 fps (3.6 mps)
 0100= 474.6 " = 12.2 fps (3.7 mps)
 0100= 474.6 " = 12.2 fps (3.7 mps)

LONG TERM STREAM BED CHANGES: None noted since 1927 flood
 IS THE ROADWAY OVERTOPPED BELOW THE 0100? No FREQUENCY: ---
 RELIEF ELEVATION: 479.6 DISCHARGE OVER ROAD @ 0100: None

UPSTREAM STRUCTURE: TOWN: Royalton DISTANCE: 1.2 mi. (1.9 km)
 HIGHWAY NO.: Railroad STRUCTURE NO.: N.A.
 STRUCTURE TYPE: N.A.
 CLEAR SPAN: N.A. CLEAR HEIGHT: N.A.
 YEAR BUILT: N.A. FULL WATERWAY: N.A.
 YEAR BUILT: N.A. FULL WATERWAY: N.A.
 DOWNSTREAM STRUCTURE: TOWN: Sharon DISTANCE: 3.9 mi. (6.3 km)
 HIGHWAY NO.: 189 STRUCTURE NO.: 17
 STRUCTURE TYPE: 4 span plate girder
 CLEAR SPAN: 801' (244 m) CLEAR HEIGHT: 95' (29 m)
 YEAR BUILT: 1968 FULL WATERWAY: N/A

DESIGN CRITERIA:

1. DESIGN LIVE LOAD AASHTO HS-25
2. DESIGN SPAN 196' - 196'
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE 10 KSF
4. ALLOWABLE LOAD FOR STEEL PILING 155 KIPS TYPE STEEL HP 14x73 ESTIMATED LENGTH 22 FT +/- (ABUTMENT #1)
5. STRUCTURAL STEEL AASHTO GRADE M270 GRADE 50W
6. REINFORCING STEEL GRADE 60
7. CONCRETE CLASS A OC/OA (MOD) f'c : 5500 PSI
 CONCRETE CLASS B f'c : 3500 PSI

TRAFFIC MAINTENANCE:

1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE YES OR ON TEMPORARY BRIDGE YES (SEE TEMP. DETOUR SHEET)
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TWO TRAFFIC CONTROL SIGNALS REQUIRED NO
 MINIMUM CLEAR SPAN (NORMAL TO STREAM): 100' (30.5 m) minimum for approach span
 VERTICAL CLEARANCE ABOVE STREAMBED: BOTTOM OF STEEL = 474.0 (MINIMUM)
 ARE SIDEWALKS REQUIRED? YES IF SO, ON WHAT SIDE? DOWNSTREAM (SEE NOTES ON SHEET 14)
 STRUCTURE TYPE

LOAD FACTOR LOAD RATING (TONS)

LOADING LEVELS (LOAD FACTOR)	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY A=2.17; B=1.00	31	56					
POSTED A=1.55; B=1.40	44	79	105		94	95	102
OPERATING A=1.30; B=1.67		95	125	133	112	113	

STRENGTH RF = $\frac{0.9 M_N - 1.3 M_{DL}}{A \times M_{LL+1}}$ SERVICEABILITY RF = B $\left[\frac{0.95 F_y S_{LL+1} - M_{DL} S_{PK}}{1.67 M_{LL+1}} - M_{SD} \frac{S_{LL+1}}{S_{PK}} \right]$

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2000	3640	505	52	4	255
2020	4920	660	52	4	350

18 kip ESAL for flexible pavement from 2000 to 2020: 3,008,000
 18 kip ESAL for flexible pavement from 2000 to 2040: 7,457,000
 Design speed: 25 MPH

PROPOSED STRUCTURE

STRUCTURE TYPE: Two span plate girder bridge
 CLEAR SPAN (NORMAL TO STREAM): 2 spans 188' = 374' (114 m) total
 VERTICAL CLEARANCE ABOVE STREAMBED: 26' (8 m)
 WATERWAY OF FULL OPENING: 8500 sq. ft. (790 sq. m)

WATER SURFACE ELEV. @ 02.33= 461.7 VELOCITY= 7.6 fps (2.3 mps)
 010= 467.3 " = 10.2 fps (3.1 mps)
 025= 469.9 " = 11.4 fps (3.5 mps)
 050= 471.9 " = 11.9 fps (3.6 mps)
 0100= 473.9 " = 11.9 fps (3.7 mps)

IS THE ROADWAY OVERTOPPED BELOW THE 0100? No FREQUENCY: ---
 RELIEF ELEVATION: 480.3 DISCHARGE OVER ROAD @ 0100: None

AVERAGE LOW ELEVATION OF SUPERSTRADE: 476.1
 VERTICAL CLEARANCE @ 0100 = 2.2 ft. (0.7 m)

SCOUR: Total 0100 scour depth at pier = 15 ft. (4.6 m), except in ledge

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1270 cfs (36 cms)
 ORDINARY LOW WATER: 540 cfs (15 cms) ELEV.: 454.0
 ORDINARY HIGH WATER: 5600 cfs (159 cms) ELEV.: 458.0

ADDITIONAL COMMENTS

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of **ROYALTON** Bridge No. **3**
 Highway No. **TH 1** Log Sta.
 Surv. Sta.

TH OVER THE WHITE RIVER

PRELIMINARY INFORMATION SHEET

Designed By **W.B. SYMONDS** Drawn By **W.B. SYMONDS**
 Checked By **C.P. WILLIAMS** Date **9/96** Bridge Design Supervisor **C.P. WILLIAMS** Date **9/00**

PROJECT **ROYALTON** PROJECT NO. **BRZ 1444(22)**

I.G.C. Info. **M:\89\099\Structures\sj099pl.dgn** s\j099pl.j
 Bridge Sheet No. Sheet **3** of **118**