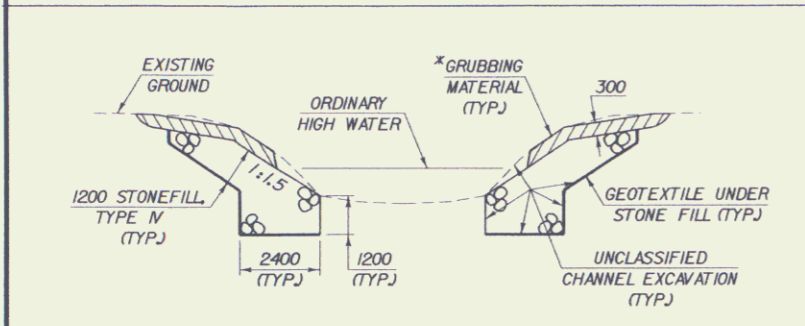
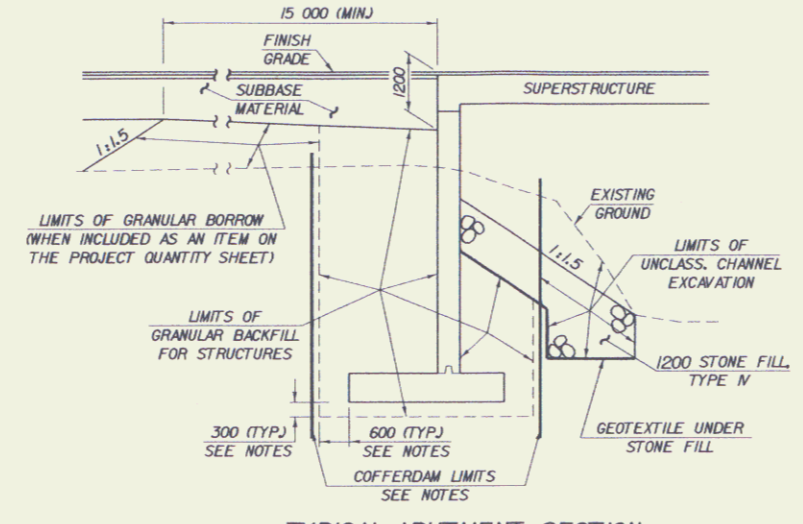


BRIDGE TYPICAL SECTION *40 TYPE III OVER 30 TYPE IV



TYPICAL CHANNEL SECTION (NOT TO SCALE)

* GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



TYPICAL ABUTMENT SECTION (NOT TO SCALE)

NOTES

- COFFERDAM LIMITS TO BE DETERMINED BY THE CONTRACTOR.
- FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS OF COFFERDAM HAVE BEEN ASSUMED TO BE 600 OUTSIDE THE PERIMETER OF THE FOOTING.
- 300 UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
- IF A COFFERDAM IS CONSTRUCTED WHICH IS MORE THAN THE INDICATED DISTANCE OUTSIDE THE FOOTING LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM LIMITS SHOWN WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

TRAFFIC DATA

	2002	2022
ADT	4070	5470
DHV	N/A	655
% D	N/A	56
% T	N/A	4
DESIGN SPEED	80 km/hr	
20 YEAR 18 KIP ESAL	3,546,000	
40 YEAR 18 KIP ESAL	12,016,000	

FINAL HYDRAULICS REPORT



HYDROLOGIC DATA

DRAINAGE AREA: 200.0 sq. km
 CHARACTER OF TERRAIN: Rolling hills to mountainous
 CHARACTER & TYPE OF STREAM: Straight, alluvial, probably incised, not braided or anabranching
 NATURE OF STREAMBED: Gravel, cobbles and boulders
 02.33= 34 cms 050= 127 cms
 010= 79 cms 0100= 149 cms
 025= 108 cms 0500= 212 cms
 DATE OF FLOOD OF RECORD: November, 1927, per FEMA F.I.S., Town of Lyndon
 WATER SURFACE ELEV.: Unknown ESTIMATED DISCHARGE: Unknown
 NATURAL STREAM VELOCITY @ 025 = 2.0 mps
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? Yes
 ICE CONDITIONS: Moderate DEBRIS: Moderate
 IS ORDINARY RISE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE:
 WATERSHED STORAGE: 3% HEADWATERS X UNIFORM THROUGHOUT WATERSHED IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge YEAR BUILT: 1928
 CLEAR SPAN (NORMAL TO STREAM): 16.2 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.8 m
 WATERWAY OF FULL OPENING: 58 sq. m
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown
 WATER SURFACE ELEV. @ 02.33= 225.6 VELOCITY= 1.7 mps
 010= 226.3 " 2.9 mps
 025= 226.7 " 3.5 mps
 050= 227.0 " 4.0 mps
 0100= 227.3 " 4.4 mps
 LONG TERM STREAM BED CHANGES: There is a 1 m deep scour hole through the existing bridge area.
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? No FREQUENCY: > Q100
 RELIEF ELEVATION: 229.0 DISCHARGE OVER ROAD @ Q100: None
 UPSTREAM STRUCTURE: TOWN: Burke DISTANCE: 3.7 km
 HIGHWAY NO.: I.H. 2 STRUCTURE NO.: 19
 STRUCTURE TYPE: Single span steel beam bridge, concrete deck
 CLEAR SPAN: 17.0 m CLEAR HEIGHT: 4.0 m
 YEAR BUILT: 1940 FULL WATERWAY: Not available
 DOWNSTREAM STRUCTURE: TOWN: Lyndon DISTANCE: 0.8 km
 HIGHWAY NO.: I.H. 40 STRUCTURE NO.: 42
 STRUCTURE TYPE: Single span steel beam bridge, concrete deck
 CLEAR SPAN: 23.5 m CLEAR HEIGHT: 3.8 m
 YEAR BUILT: 1965 FULL WATERWAY: Not available

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck
 CLEAR SPAN (NORMAL TO STREAM): 19.0 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.7 m
 WATERWAY OF FULL OPENING: 61 sq. m
 WATER SURFACE ELEV. @ 02.33= 225.6 VELOCITY= 1.7 mps
 010= 226.3 " 2.9 mps
 025= 226.7 " 3.5 mps
 050= 227.0 " 4.0 mps
 0100= 227.2 " 4.2 mps
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? No FREQUENCY: > Q100
 RELIEF ELEVATION: 229.0 DISCHARGE OVER ROAD @ Q100: None
 AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 227.7 m
 VERTICAL CLEARANCE @ Q100 = 0.5 m
 SCOUR: 0.5 m of contraction scour at Q100, 1.0 m at 0500
 REQUIRED CHANNEL PROTECTION: Stone Fills, Type IV

PERMIT INFORMATION

ORDINARY LOW WATER: 2.0 cms ELEV.: 224.5
 ORDINARY HIGH WATER: 14.7 cms ELEV.: 225.0
 CLEAR SPAN (NORMAL TO STREAM): 15 m minimum
 VERTICAL CLEARANCE ABOVE STREAMBED: Bottom of beams elev. 227.1 minimum
 WATERWAY OF FULL OPENING: 46 sq. m minimum

DESIGN CRITERIA:

- DESIGN LIVE LOAD AASHTO: MS 225
- DESIGN SPAN: 200 Meters
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL: ON LEDGE ESTIMATED LENGTH
- ALLOWABLE LOAD FOR PILING: TYPE
- STRUCTURAL STEEL AASHTO GRADE: M 270/M 270 M GRADE 345
- REINFORCING STEEL GRADE: 420
- CONCRETE CLASS A: $f_c = 30 \text{ MPa}$
- CONCRETE CLASS B: $f_c = 25 \text{ MPa}$
- SILICA-FUME CONCRETE: $f_c = 35 \text{ MPa}$

TRAFFIC MAINTENANCE:

- IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE YES
- TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TWO-WAY TRAFFIC CONTROL SIGNALS REQUIRED NO

ARE SIDEWALKS REQUIRED? IF SO, ON WHAT SIDE?

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of LYNDON Bridge No. 8
 Highway No. VT 114 Log Sta. Surv. Sta.
 VT 114 OVER THE EAST BRANCH
 PRELIMINARY INFORMATION
 Designed By M.FOWLER Drawn By M.FOWLER
 Checked By Date Bridge Design Supervisor
 C.KELLER Date 8/98
 PROJECT LYNDON PROJECT NO. BRS 0269(B)S
 I.G.C. Info. /str5/85e041/de041pl.dgn de041plj
 R. O. W. SHEET (4) OF 11 SHEETS

LOAD FACTOR LOAD RATING (TONS)

LOADING LEVELS (LOAD FACTOR)	TRUCK					
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR. 5A. SEMI
INVENTORY						
A=2.17 B=1.00						
POSTED						
A=1.55 B=1.40						
OPERATING						
A=1.30 B=1.67						

STRENGTH $RF = \frac{\phi M_N - 1.3 M_{DL}}{A \times M_{LL+1}}$ SERVICEABILITY $RF = B \left[\frac{.95 F_y S_{LL+1} - M_{DL} S_{LL+1} - M_{DL} S_{LL+1}}{1.67 M_{LL+1}} \right]$

/str5/85e041/de041plj