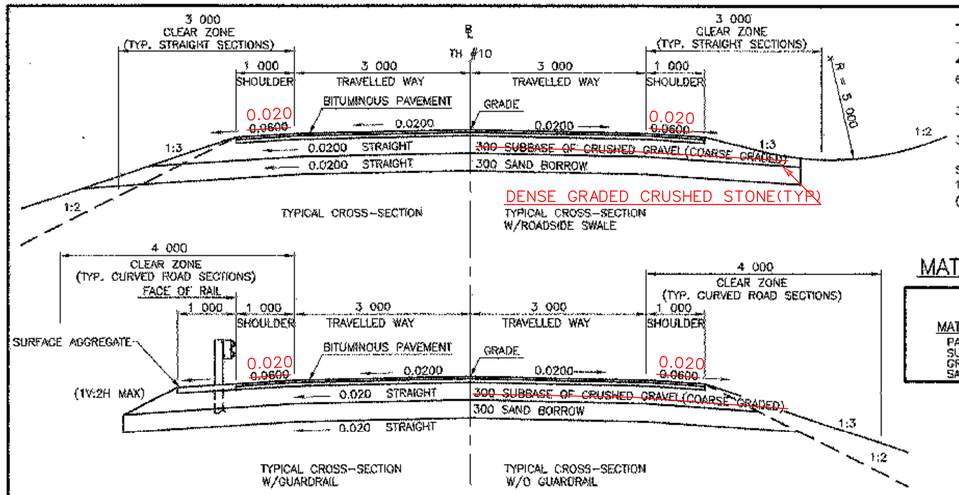
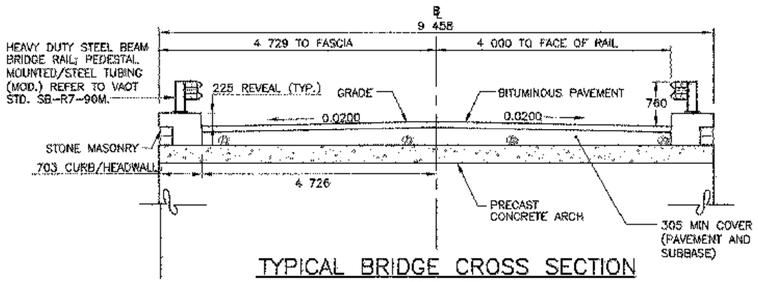


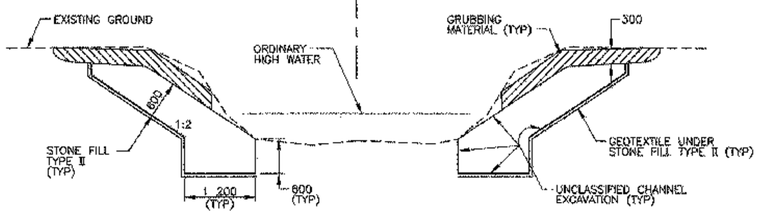
TYPICAL ROADWAY SECTIONS

SCALE 1:50



TYPICAL BRIDGE CROSS SECTION

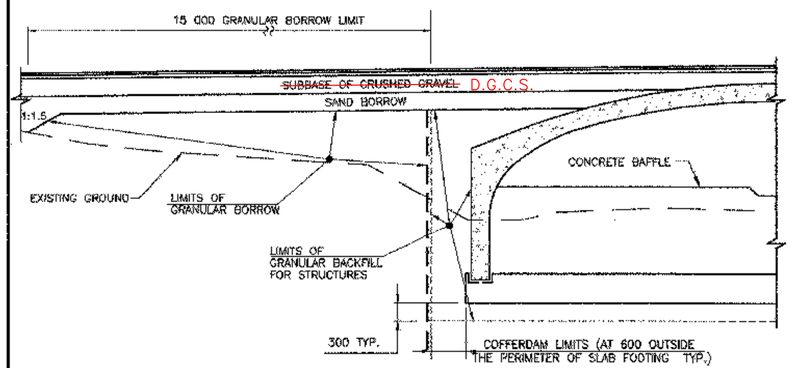
SCALE 1:50



NOTE: WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

TYPICAL CHANNEL SECTION

NOT TO SCALE.



TYPICAL ABUTMENT SECTION

SCALE 1:50

1000 0 1000 2000 4000

SCALE IN MILLIMETERS

TYPICAL SECTIONS

40 BITUMINOUS CONCRETE PAVEMENT (TYPE III)
60 BITUMINOUS CONCRETE PAVEMENT (TYPE II)

300 SUBBASE OF CRUSHED GRAVEL (COARSE GRADED)

300 SAND BORROW

SHOULDERS:
100 BITUMINOUS CONCRETE PAVEMENT
(40 TYPE III OVER 60 TYPE II)

MATERIALS TOLERANCE TABLE

MATERIAL ITEM	THICKNESS TOLERANCE IN MILLIMETERS
PAVEMENT (TOTAL DEPTH)	± 6
SUBBASE	± 25
GRANULAR BORROW	± 25
SAND BORROW	± 25

BRIDGE PAVEMENT

TOP LIFT 40 TYPE III

BOTTOM LIFT 60 TYPE II

EMULSIFIED ASPHALT BETWEEN LIFTS

$$\text{STRENGTH RF} = \frac{\phi M_n - 1.3M_{DL}}{A \times M_{LL+I}}$$

$$\text{*SERVICEABILITY RF} = B \left[\frac{.95F_y S_{LL+I} - M_{DL}\frac{S_{LL+I}}{S_C} - M_{SDL}\frac{S_{LL+I}}{S_C}}{1.67\ M_{LL+I}}\right]$$

LOAD FACTOR LOAD RATING (METRIC TONS)

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

SEEDING FORMULA
RURAL AREAS

% WT.	KG/HA	NAME	PURITY %	GERM %
37.1	26	CREEPING RED FESCUE	98	85
37.1	26	TALL FESCUE	95	90
5.7	4	RED TOP	95	90
14.4	10	BIRDSFOOT TREFOIL	98	85
5.7	4	ANNUAL RYE GRASS	95	85
100.0	70			

THE SEED MIXTURE SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS WEED SEED.

SEED TO BE APPLIED PER SEEDING FORMULA OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 KG/HA. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4 500 KG/HA, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4 500 KG/HA OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.0679 L/m² BETWEEN SUCCESSIVE COURSES OF PAVEMENT AT THE DISCRETION OF THE ENGINEER.

COFFERDAM NOTES:

1. COFFERDAM LIMITS TO BE DETERMINED BY CONTRACTOR
2. FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS OF COFFERDAM HAVE BEEN ASSUMED TO BE 600 OUTSIDE THE PERIMETER OF THE SLAB FOOTING.
3. 300 UNDERCUT SHALL BE USED UNDER ENTIRE ARCH AND WINGWALL FOOTINGS AND EXTEND 300 BEYOND EDGE.
4. IF A COFFERDAM IS CONSTRUCTED WHICH IS MORE THAN THE INDICATED MINIMUM DISTANCE OUTSIDE THE FOOTING LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE MINIMUM COFFERDAM LIMITS SHOWN WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

TRAFFIC DATA

1995 ADT = 460
1995 DHV = 64
2015 ADT = 635
2015 DHV = 91
D = 54%
T = 1%
DESIGN SPEED = 50 km/h
ESALS (FLEXIBLE) TOTAL BOTH DIRECTIONS (1995-2015) 109,500
(1995-2035) 349,500

FINAL HYDRAULICS REPORT

VAOT Metric

HYDROLOGIC DATA

DRAINAGE AREA= 48.606 sq. km
CHARACTER OF TERRAIN: RURAL, MOUNTAINOUS WITH SIGNIFICANT WETLAND STORAGE
CHARACTER & TYPE OF STREAM: RURAL, SINUOUS WITH LARGE FLOOD PLAINS; ALLUVIAL AND LATERALLY UNSTABLE
NATURE OF STREAMBED: 0.9% GRADIENT, SILT AND GRAVEL

Q2.33= 8 cms Q50= 31 cms
Q10= 17 cms Q100= 41 cms
Q25= 23 cms Q500= 70 cms

DATE OF FLOOD OF RECORD: NOVEMBER 1927
WATER SURFACE ELEV.: NOT AVAILABLE ESTIMATED DISCHARGE: NOT AVAILABLE
NATURAL STREAM VELOCITY @ Q 25 2.3 m/s
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 13% HEADWATERS YES UNIFORM THROUGHOUT WATERSHED - - -
IMMEDIATELY ABOVE SITE YES

EXISTING STRUCTURE

STRUCTURE TYPE: DECK HAS BEEN REMOVED YEAR BUILT: 1919
CLEAR SPAN (NORMAL TO STREAM): 6.85 m
VERTICAL CLEARANCE ABOVE STREAMBED: 0.845± m
WATERWAY OF FULL OPENING: 5.02 sq m
DISPOSITION OF STRUCTURE: BRIDGE DECK IS REMOVED; ABUTMENTS TO BE DISPOSED OF
TYPE OF MATERIAL UNDER SUBSTRUCTURE: MEDIUM DENSE SANDY GRAVEL AND SILT

WATER SURFACE ELEV. @ Q2.33= 252.30 m VELOCITY= 1.46 m/s
Q10= 252.97 m " 3.12 m/s
Q25= 253.26 m " 3.52 m/s
Q50= 253.42 m " 3.41 m/s
Q100= 253.56 m " 3.48 m/s

LONG TERM STREAMBED CHANGES: LATERALLY UNSTABLE

IS THE ROADWAY OVERTOPPED BELOW THE Q100? YES FREQUENCY: Q 25
RELIEF ELEVATION: 253.029 DISCHARGE OVER ROAD @ Q100: 23 cms

UPSTREAM STRUCTURE: TOWN: CLARENDON DISTANCE: 350 m
HIGHWAY NO.: TH #3 STRUCTURE NO.: BR 15
STRUCTURE TYPE: CONCRETE T-BEAM
CLEAR SPAN: 20.12 m CLEAR HEIGHT: 3.35 m
YEAR BUILT: 1938 FULL WATERWAY: 67.4 sq m

DOWNSTREAM STRUCTURE: TOWN: CLARENDON DISTANCE: 3.6 km
HIGHWAY NO.: TH #18 STRUCTURE NO.: BR 24
STRUCTURE TYPE: CONCRETE T-BEAM
CLEAR SPAN: 10.06 m CLEAR HEIGHT: 2.44 m
YEAR BUILT: 1949 FULL WATERWAY: 24.5 sq m

PROPOSED STRUCTURE

STRUCTURE TYPE: PRECAST CONCRETE ARCH BRIDGE

CLEAR SPAN (NORMAL TO STREAM): 9.754 m
VERTICAL CLEARANCE ABOVE STREAMBED: 1.594 m (TO APEX OF ARCH)
WATERWAY OF FULL OPENING: 11.09 sq m

WATER SURFACE ELEV. @ Q2.33= 252.17 m VELOCITY= 1.80 m/s
Q10= 252.60 m " = 2.53 m/s
Q25= 252.89 m " = 3.09 m/s
Q50= 253.48 m " = 2.36 m/s
Q100= 253.68 m " = 2.58 m/s

IS THE ROADWAY OVERTOPPED BELOW THE Q100? YES FREQUENCY: Q 50
RELIEF ELEVATION: 253.176 DISCHARGE OVER ROAD @ Q100: 13 cms

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: NOT APPLICABLE (APEX = EL. 252.894)
VERTICAL CLEARANCE @ Q 25 NO CLEARANCE

SCOUR: 1.5 m
REQUIRED CHANNEL PROTECTION: TYPE II STONE FILL

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1.1 cms ELEV: 251.82
ORDINARY LOW WATER: 0.5 cms ELEV: 251.74
ORDINARY HIGH WATER: 3.3 cms ELEV: 251.90

ADDITIONAL COMMENTS

POOR FOUNDATION CONDITIONS REQUIRE A FULL BOTTOM SLAB TO ELIMINATE DIFFERENTIAL SETTLEMENT.

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO MS 22.5
2. DESIGN SPAN 9754 ℄ BRG TO ℄ BRG
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 120 kPa ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING N/A TYPE N/A ESTIMATED LENGTH N/A
5. STRUCTURAL STEEL AASHTO 270M/M 270 GRADE N/A
6. REINFORCING STEEL GRADE 420
7. CONCRETE CLASS A f'_c 30 MPa
   CLASS B f'_c 25 MPa
   SILICA FUME f'_c 35 MPa

TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? NO IF YES, ON EXISTING STRUCTURE N/A OR ON TEMPORARY BRIDGE N/A
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED N/A
   MINIMUM CLEAR SPAN (NORMAL TO STREAM): N/A VERTICAL CLEARANCE ABOVE STREAMBED: N/A
   WATERWAY OF FULL OPENING: N/A
   ARE SIDEWALKS REQUIRED? N/A IF SO, ON WHAT SIDE? N/A
   STRUCTURE TYPE: N/A

REVISIONS

NO.	DESCRIPTION	BY & DATE

DuBois & King inc.
engineering planning management development

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CLARENDON, VERMONT — Bridge No. 25 — Log Sto.
TOWN HIGHWAY NO. 10 — Surv. Sto.
TOWN HIGHWAY NO. 10 OVER THE CLARENDON RIVER

PRELIMINARY INFORMATION SHEET

Designed by: W.S. CHESBROUGH Drawn by: N.B. DIMICK
Checked by: K.S. MARSHIA date: Bridge Design Supervisor J.W. TUCKER date
VAOT PROJECT NO. BRO 1443(27) DK PROJECT NO. R13567F5
Bridge Sheet No. Sheet 2 of 25

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