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VTRANS STANDARDS			
Standard	Description	DATE	DATE
B-5	EMBANKMENT ON EARTH SLOPE; EMBANKMENT ON ROCK SLOPE; EXCAVATION; TYPICAL SLOPE ROUNDING	34486	01-Jun-94
B-71	RESIDENTIAL AND COMMERCIAL DRIVES	38541	08-Jul-05
C-10	CURBING	39489	11-Feb-08
D-1	PRECAST REINFORCED CONCRETE PIPE DROP INLET WITH CAST IRON COVER	34486	01-Jun-94
E-100	CONSTRUCTION APPROACH SIGNS	37988	02-Jan-04
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	37988	02-Jan-04
E-101	CONSTRUCTION SIGN DETAILS	37771	30-May-03
E-102	CONSTRUCTION SIGN DETAILS	37802	30-Jun-03
E-102A	CONSTRUCTION SIGN DETAILS	38108	01-May-04
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	38047	01-Mar-04
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREA	37802	30-Jun-03
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	39972	08-Jun-09
E-108A	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS FOR PAVING	39972	08-Jun-09
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	34919	08-Aug-95
E-191	PAVEMENT MARKING DETAILS	36192	01-Feb-99
E-193	PAVEMENT MARKING DETAILS	34929	18-Aug-95
J-3	MAIL BOX SUPPORT DETAILS	34918	07-Aug-95

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: July 2009

DRAINAGE AREA : 22.7 sq. km
 CHARACTER OF TERRAIN : Hilly to mountainous
 STREAM CHARACTERISTICS : Sinuous, alluvial, probably incised
 NATURE OF STREAMBED : A mixture of silt, sand, gravel, cobbles and some stones.

PEAK FLOW DATA

Q 2.33 =	10 cms	Q 50 =	35 cms
Q 10 =	21 cms	Q 100 =	42 cms
Q 25 =	28 cms	Q 500 =	59 cms

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q25 = 0.6 mps
 ICE CONDITIONS : Moderate
 DEBRIS : Moderate to heavy
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
 IS ORDINARY RISE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Maybe
 IF YES, DESCRIBE : A downstream structure, T.H. 3 Br. 6, may back water up to this site during flood flows.

WATERSHED STORAGE : <1% HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Single span steel beam bridge with concrete deck
 YEAR BUILT : 1936
 CLEAR SPAN(NORMAL TO STREAM): 15.0 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 2.7 m
 WATERWAY OF FULL OPENING: 30.6 sq. m
 DISPOSITION OF STRUCTURE: Remove and replace with a new bridge
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	101.5 m	VELOCITY =	1.0 mps
Q10 =	101.9 m	"	1.4 mps
Q25 =	102.1 m	"	1.6 mps
Q50 =	102.2 m	"	1.8 mps
Q100 =	102.4 m	"	1.9 mps

LONG TERM STREAMBED CHANGES: Exposed log mat under abutment may indicate scour and/or stream degradation. Not enough information to make an accurate determination.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 103.0 m within the limits of the project survey
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: N.A. - The river divides upstream. DISTANCE:
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Hinesburg DISTANCE: 550 m
 HIGHWAY #: T.H. 3 STRUCTURE #: 6
 CLEAR SPAN: 6.1 m CLEAR HEIGHT: 3.0 m
 YEAR BUILT: 1948 FULL WATERWAY: Unknown
 STRUCTURE TYPE: Corrugated steel multi-plate arch

LOAD FACTOR - LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
INVENTORY	38	47					
POSTED	53	66	85		58	60	75
OPERATING		78	101	117	69	71	

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2003	4876	585	0.6	0.05	232
2023	6973	837	0.6	0.05	331

20 year ESAL for flexible pavement from 2003 to 2023 : 1,929,000
 40 year ESAL for flexible pavement from 2003 to 2023 : 4,794,650
 Design Speed : 65 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck

CLEAR SPAN(NORMAL TO STREAM): 17.0 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 2.5 m
 WATERWAY OF FULL OPENING: 31.1 sq. m

WATER SURFACE ELEVATIONS AT:

Q2.33 =	101.5 m	VELOCITY=	0.8 mps
Q10 =	101.9 m	"	1.2 mps
Q25 =	102.1 m	"	1.4 mps
Q50 =	102.2 m	"	1.5 mps
Q100 =	102.4 m	"	1.7 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 103.0 m within the limits of the project survey
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 102.6 m
 VERTICAL CLEARANCE: @ Q25 = 0.5 m

SCOUR: Calculated contraction scour is 1.0 m at Q100 and 1.5 m at Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 0.5 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 0.2 cms Elev. 100.3 m
 ORDINARY HIGH WATER: 4.3 cms Elev. 101.0 m

TEMPORARY BRIDGE REQUIREMENTS

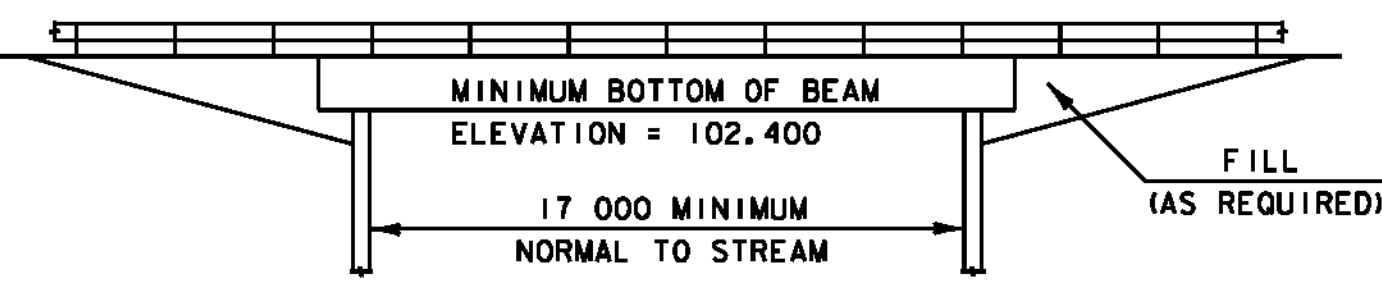
STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 17 m, minimum
 VERTICAL CLEARANCE ABOVE STREAMBED: Elev. 102.4 m, minimum
 WATERWAY AREA OF FULL OPENING: 25.3 sq. m, minimum

ADDITIONAL INFORMATION

Note: The project survey is based on an assumed vertical datum. This final hydraulics report is based on the same assumed vertical datum as the plans.
 There is a beaver dam under the bridge. That dam affects hydraulics at the site, but it was not considered in the above final hydraulics, as it is not a permanent feature and changes over time.

- DESIGN CRITERIA**
- DESIGN LIVE LOAD AASHTO MS22.5
 - DESIGN SPAN 18.200 m
 - ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
ON LEDGE N/A
 - ALLOWABLE LOAD FOR PILING 841 kN
TYPE HP 250 X 62 GRADE 345
ESTIMATED LENGTH ABT. 1 = 27m ABT. 2 = 30m (Including 1.000 embedded)
 - STRUCTURAL STEEL AASHTO M270/MM270 GRADE 250 (Painted)
 - REINFORCING STEEL GRADE 420
 - CONCRETE, HIGH PERFORMANCE CLASS A fc: 30 Mpa
CONCRETE, HIGH PERFORMANCE CLASS B fc: 25 Mpa
 - DESIGN SOIL UNIT WEIGHT 22kN/m3
 - DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

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



TEMPORARY BRIDGE DETOUR DETAIL
(NOT TO SCALE)

PROJECT NAME: HINESBURG
 PROJECT NUMBER: STP 0199(2)
 FILE NAME: 01j282structures01j282pi.dgn PLOT DATE: 3/2/2011
 PROJECT MANAGER: C. CARLSON DRAWN BY: C. MOONEY
 DESIGNED BY: W. LAMMER CHECKED BY: C. CARLSON
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