

PRELIMINARY INFORMATION SHEET

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STANDARDS LIST

C-10	CURBING	02-11-2008
D-11	STEEL OR IRON GRATES & COVERS (TYPE A)	06-01-1984
D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TYPE D & E	06-01-1994
E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-141	REGULATORY SIGN DETAILS	09-20-1995
E-154	WARNING SIGN DETAILS	05-01-2004
E-155	WARNING SIGN DETAILS	05-01-2004
E-164	SQUARE STEEL SIGN POST	06-08-2009
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
G-16	STEEL BEAM GUARDRAIL ATTACHMENTS TO EXISTING BRIDGE, TERMINAL CONNECTOR FOR STEEL BEAM GUARDRAIL	06-01-1994

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: May 18, 2009

DRAINAGE AREA : 631 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous
 STREAM CHARACTERISTICS : Sinuous, incised, large stream
 NATURE OF STREAMBED : Silt and ledge

PEAK FLOW DATA

Q 2.33 = 4,500 cfs Q 50 = 11,000 cfs
 Q 10 = 7,750 cfs Q 100 = 13,000 cfs
 Q 25 = 9,500 cfs Q 500 = 16,000 cfs

DATE OF FLOOD OF RECORD : November 1927
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Approximately 320'
 NATURAL STREAM VELOCITY : @ Q25 = Not calculated. *
 ICE CONDITIONS : Low
 DEBRIS : Low
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE : A dam downstream backs water up through the bridge and controls the hydraulics at this site.

WATERSHED STORAGE : 6% HEADWATERS : X
 UNIFORM :
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : 3-span covered bridge
 YEAR BUILT : 1853 1820, reconstructed in 1980
 CLEAR SPAN(NORMAL TO STREAM) : 169' total
 VERTICAL CLEARANCE ABOVE STREAMBED : 19'
 WATERWAY OF FULL OPENING :
 DISPOSITION OF STRUCTURE : Rehabilitate
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 = * VELOCITY = *
 Q10 = 317.7' " "
 Q25 = " "
 Q50 = 318.6' " "
 Q100 = 320.3' " "

LONG TERM STREAMBED CHANGES : None noted

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 327.6'
 DISCHARGE OVER ROAD @Q100 : None

UPSTREAM STRUCTURE

TOWN : Middlebury DISTANCE : 1.0 mi.
 HIGHWAY # : VT 30 (TH 2 - Main Street) STRUCTURE # : 101
 CLEAR SPAN : Three spans at 40' each = 120' CLEAR HEIGHT : 26'
 YEAR BUILT : 1893 FULL WATERWAY :
 STRUCTURE TYPE : Three span stone arch

DOWNSTREAM STRUCTURE

TOWN : New Haven - Weybridge DISTANCE : 4.3 mi.
 HIGHWAY # : TH 7 STRUCTURE # : 26
 CLEAR SPAN : 148' CLEAR HEIGHT : 16'
 YEAR BUILT : 1908 FULL WATERWAY :
 STRUCTURE TYPE : Steel through truss bridge

WORKING STRESS LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	4	-	-	-	-	-	-
POSTED	4	-	-	-	-	-	-
OPERATING	-	-	-	-	-	-	-

COMMENTS : BOTTOM CHORD AND FLOOR BEAMS CONTROL THE LOAD RATING

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2010	1900	200	55	1.2	30
2030	2000	210	55	1.5	45

20 year ESAL for flexible pavement from 2010 to 2030 : 92,000
 40 year ESAL for flexible pavement from 2010 to 2050 : NA
 Design Speed : 25 mph

PROPOSED STRUCTURE

STRUCTURE TYPE : Rehabilitated 3-span covered bridge

CLEAR SPAN(NORMAL TO STREAM) : 169' total
 VERTICAL CLEARANCE ABOVE STREAMBED : 19'
 WATERWAY OF FULL OPENING :

WATER SURFACE ELEVATIONS AT:

Q2.33 = * VELOCITY = *
 Q10 = 317.7' " "
 Q25 = " "
 Q50 = 318.6' " "
 Q100 = 320.3' " "

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 327.6'
 DISCHARGE OVER ROAD @Q100 : None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 324.9'
 VERTICAL CLEARANCE : @ Q100 = 4.6'

SCOUR : *

REQUIRED CHANNEL PROTECTION : Stone Fill, Type II where needed

PERMIT INFORMATION

AVERAGE DAILY FLOW : 1330 cfs DEPTH OR ELEVATION :
 ORDINARY LOW WATER : 560 cfs Elev. 314'
 ORDINARY HIGH WATER : 1930 cfs Elev. 316'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : None
 CLEAR SPAN (NORMAL TO STREAM) :
 VERTICAL CLEARANCE ABOVE STREAMBED :
 WATERWAY AREA OF FULL OPENING :

ADDITIONAL INFORMATION

This project is for rehabilitation of the existing bridge with no hydraulic changes anticipated.
 *No hydraulic study was done for this project. Water surface elevations are from the 1984 Middlebury Flood Insurance Study.

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO : H4
- DESIGN SPAN : 3 SPAN CONTINUOUS - 180 FEET TOTAL
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL : NA
ON LEDGE : NA
- ALLOWABLE LOAD FOR PILING : NA
TYPE : NA
ESTIMATED LENGTH : NA
- STRUCTURAL STEEL AASHTO M270M/M270 GRADE : 50W
- REINFORCING STEEL GRADE : 60
- CONCRETE, HIGH PERFORMANCE CLASS A fc : N/A
CONCRETE, HIGH PERFORMANCE CLASS B fc : 3500 psi
- DESIGN SOIL UNIT WEIGHT : 140 PCF
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL : NA

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? : NO - BRIDGE CLOSED DURING CONSTRUCTION
IF YES, ON EXISTING STRUCTURE? :
OR ON TEMPORARY BRIDGE? :
ONE OR TWO-WAY TRAVEL? :
- TRAFFIC CONTROL SIGNALS REQUIRED? : NO
- ARE SIDEWALKS REQUIRED? : YES - MAINTAIN ACCESS AT ALL TIMES
IF SO, ON WHAT SIDE? : -

PROJECT NAME : MIDDLEBURY WEYBRIDGE

PROJECT NUMBER : BHO 1445(33)

FILE NAME : Z06J086PI.xls PLOT DATE : 07/22/2011
 PROJECT MANAGER : M.D.SARGENT DRAWN BY : J.B.MCQUAID
 DESIGNED BY : J.BICJA CHECKED BY : S.T.JAMES
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