

# PRELIMINARY INFORMATION SHEET

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STANDARDS

- B-5 6/1/1994
- D-3 6/1/1994
- E-100 1/2/2004
- E-100A 1/2/2004
- E-101 5/30/2003
- E-102 6/30/2003
- E-102A 5/1/2004
- E-107A 8/8/1995
- E-127 8/8/1995
- E-136A 8/8/1995
- E-136B 8/8/1995
- E-160 5/20/1999
- E-161 8/18/1995
- E-163 5/20/1999
- E-164 5/20/1999
- G-1 1/3/2000
- G-1D 1/3/2000
- G-19 11/15/2002

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: March 11, 2005

DRAINAGE AREA : 1.5 sq. mi.  
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested.  
 STREAM CHARACTERISTICS : Moderately steep, mostly stable with some bank erosion.  
 NATURE OF STREAMBED : Mostly cobbles and gravel.

PEAK FLOW DATA

Q 2.33 = 95 cfs                      Q 50 = 310 cfs  
 Q 10 = 200 cfs                      Q 100 = 360 cfs  
 Q 25 = 260 cfs                      Q 500 = 500 cfs

DATE OF FLOOD OF RECORD : Unknown  
 ESTIMATED DISCHARGE : Unknown  
 WATER SURFACE ELEV. : Unknown  
 NATURAL STREAM VELOCITY : @ Q50 = 10.3 fps  
 ICE CONDITIONS : Moderate  
 DEBRIS : Moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes  
 IS ORDINARY RISE RAPID? Yes  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No  
 IF YES, DESCRIBE:

WATERSHED STORAGE: 1%      HEADWATERS: \_\_\_\_\_  
 UNIFORM: X  
 IMMEDIATELY ABOVE SITE: \_\_\_\_\_

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 10'-8" X 6'-11" CGMPPA  
 YEAR BUILT: 1955  
 CLEAR SPAN(NORMAL TO STREAM): 10'-8"  
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'-11"  
 WATERWAY OF FULL OPENING: 58 sq. ft.  
 DISPOSITION OF STRUCTURE: Remove  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1244.0'                      VELOCITY = 9.3 fps  
 Q10 = 1246.2'                      "                      11.8 fps  
 Q25 = 1247.0'                      "                      12.8 fps  
 Q50 = 1247.6'                      "                      13.5 fps  
 Q100 = 1248.4'                      "                      14.1 fps

LONG TERM STREAMBED CHANGES: Probable streambed degradation downstream.  
 Scour hole at outlet.

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 1249.5'  
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Jay                                      DISTANCE: 1,300'  
 HIGHWAY #: T.H. 12                      STRUCTURE #: 9  
 CLEAR SPAN: 8'                                      CLEAR HEIGHT: 9'  
 YEAR BUILT: Unknown                      FULL WATERWAY: 72 sq. ft.  
 STRUCTURE TYPE: Bridge

DOWNSTREAM STRUCTURE

TOWN: Jay                                      DISTANCE: 2,800'  
 HIGHWAY #: VT 105                      STRUCTURE #: 51  
 CLEAR SPAN: 15'-10"                      CLEAR HEIGHT: 9'-10"  
 YEAR BUILT: 1955                      FULL WATERWAY: 122 sq. ft.  
 STRUCTURE TYPE: CGMPPA

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	610	130	60	21	120
2025	790	140	60	29	210

20 year ESAL for flexible pavement from 2006 to 2026 : 1,240,000  
 40 year ESAL for flexible pavement from 2006 to 2046 : 3,110,000  
 Design Speed : 50 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast concrete box with stone fill in the bottom.

CLEAR SPAN(NORMAL TO STREAM): 15'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 6' maximum to 4.7' minimum  
 WATERWAY OF FULL OPENING: 81 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1244.0'                      VELOCITY = 8.2 fps  
 Q10 = 1245.8'                      "                      7.6 fps  
 Q25 = 1246.2'                      "                      8.7 fps  
 Q50 = 1246.5'                      "                      9.5 fps  
 Q100 = 1246.8'                      "                      10.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 1249.5'  
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1247.2'  
 VERTICAL CLEARANCE: @ Q50 = 0.7'

SCOUR: NRNA

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 3 cfs                      DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 1 cfs                      Less than 0.5'  
 ORDINARY HIGH WATER: 40 cfs                      2.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required.  
 CLEAR SPAN (NORMAL TO STREAM): \_\_\_\_\_  
 VERTICAL CLEARANCE ABOVE STREAMBED: \_\_\_\_\_  
 WATERWAY AREA OF FULL OPENING: \_\_\_\_\_

ADDITIONAL INFORMATION

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO HS-25
2. DESIGN SPAN 15' CLEAR SPAN
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL ON LEDGE
4. ALLOWABLE LOAD FOR PILING TYPE ESTIMATED LENGTH
5. STRUCTURAL STEEL AASHTO M270MM270 GRADE N/A
6. REINFORCING STEEL GRADE 60
7. CONCRETE, HIGH PERFORMANCE CLASS A fc: N/A  
CONCRETE, HIGH PERFORMANCE CLASS B fc: 3500 psi
8. DESIGN SOIL UNIT WEIGHT 140 pcf
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? ROAD CLOSED TO THROUGH TRAFFIC \*  
 IF YES, ON EXISTING STRUCTURE? NA  
 OR ON TEMPORARY BRIDGE? NA  
 ONE OR TWO-WAY TRAVEL? NA
2. TRAFFIC CONTROL SIGNALS REQUIRED? NA
3. ARE SIDEWALKS REQUIRED? NA  
 IF SO, ON WHAT SIDE? NA

\* SEE SHEETS 20-27 FOR DETOUR PLAN

PROJECT NAME: JAY  
 PROJECT NUMBER: ST STP CULV (2)

FILE NAME: s04b140pi.xls                      PLOT DATE: 10/11/2006  
 PROJECT MANAGER: W. SYMONDS                      DRAWN BY: G. SHANGRAW  
 DESIGNED BY: T. FILLBACH                      CHECKED BY: T. SUMNER  
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