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FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA = 606 ACRES = 0.95MI²
 CHARACTER OF TERRAIN: ROLLING (HILLS)
 CHARACTER & TYPE OF STREAM: PERENNIAL, PROBABLY INCISED, SINUOUS, NOT BRAIDED, NOT ANABRANCHED
 NATURE OF STREAMBED: SILT-CLAY AND STONE
 Q2.33= 70 ft³/s 050= 275 ft³/s
 Q10= 160 ft³/s 0100= 325 ft³/s
 Q25= 230 ft³/s 0500= 440 ft³/s
 DATE OF FLOOD OF RECORD: NO RECORD
 WATER SURFACE ELEV: UNKNOWN ESTIMATED DISCHARGE: UNKNOWN
 NATURAL STREAM VELOCITY @ Q50: 0.38 ft/s
 ICE CONDITIONS: SLIGHT DEBRIS: SLIGHT
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? NO
 IS ORDINARY RISE RAPID? NO
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? YES
 IF YES, DESCRIBE: POND JUST DOWNSTREAM OF STRUCTURE
 WATERSHED STORAGE: 0.262 HEADWATERS: N/A UNIFORM THROUGHOUT WATERSHED: N/A
 IMMEDIATELY ABOVE SITE: N/A

EXISTING STRUCTURE

STRUCTURE TYPE: 4' W X 5' H CONCRETE BOX YEAR BUILT: UNKNOWN
 CLEAR SPAN (NORMAL TO STREAM): 4'
 VERTICAL CLEARANCE ABOVE STREAMBED: 5'
 WATERWAY OF FULL OPENING: 20 ft²
 DISPOSITION OF STRUCTURE: REMOVE
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: UNKNOWN
 WATER SURFACE ELEV. @ Q2.33= 1240.51 ft VELOCITY= 6.41 ft/s
 Q10= 1242.98 ft VELOCITY= 8.23 ft/s
 Q25= 1245.69 ft VELOCITY= 9.25 ft/s
 Q50= 1248.10 ft VELOCITY= 9.85 ft/s
 Q100= 1250.40 ft VELOCITY= 10.42 ft/s
 LONG TERM STREAM BED CHANGES: UNKNOWN
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
 RELIEF ELEVATION: 1250.16 ft DISCHARGE OVER ROAD @ Q100: 12.80 cfs
 UPSTREAM STRUCTURE: TOWN: CABOT DISTANCE: 0.162 MILE
 HIGHWAY NO.: 56 STRUCTURE NO.:
 STRUCTURE TYPE: UNKNOWN
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 DOWNSTREAM STRUCTURE: TOWN: CABOT DISTANCE: 0.697 MILE
 HIGHWAY NO.: 49 STRUCTURE NO.:
 STRUCTURE TYPE: UNKNOWN
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:

PROPOSED STRUCTURE

STRUCTURE TYPE: PRECAST CONCRETE BOX CULVERT
 CLEAR SPAN (NORMAL TO STREAM): 7'-0"
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'-0"
 WATERWAY OF FULL OPENING: 42 ft²
 WATER SURFACE ELEV. @ Q2.33= 1240.72 ft VELOCITY= 5.94 ft/s
 Q10= 1241.50 ft VELOCITY= 8.19 ft/s
 Q25= 1242.25 ft VELOCITY= 9.25 ft/s
 Q50= 1242.75 ft VELOCITY= 9.85 ft/s
 Q100= 1243.33 ft VELOCITY= 10.41 ft/s
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
 RELIEF ELEVATION: 1253.75 ft DISCHARGE OVER ROAD @ Q100: 0
 AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1241.01 ft
 VERTICAL CLEARANCE @ Q50: SUBMERGED
 SCOUR: CONTRACTION SCOUR = 0 ft (Q100) & 0 ft (Q500)
 REQUIRED CHANNEL PROTECTION: TYPE II STONE IN FRONT OF CULVERT

PERMIT INFORMATION

AVERAGE DAILY FLOW: 3.29 ft³/s (CALCULATED)
 ORDINARY LOW WATER: 0.97 ft³/s (CALCULATED) DEPTH: 0.2 ft
 ORDINARY HIGH WATER: TO ft³/s (Q2.33) DEPTH: 1.6 ft

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
 CLEAR SPAN (NORMAL TO STREAM): N/A
 VERTICAL CLEARANCE ABOVE STREAM BED: N/A
 WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL COMMENTS

DESIGN CRITERIA:

- DESIGN LIVE LOAD AASHTO HS-20
- DESIGN SPAN 7'-0"
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
- ULTIMATE CAPACITY OF PILE N/A TYPE N/A ESTIMATED LENGTH N/A
- STRUCTURAL STEEL AASHTO GRADE N/A
- REINFORCING STEEL GRADE 60
- CONCRETE, HIGH PERFORMANCE CLASS A f_c : 4000 PSI
- CONCRETE, HIGH PERFORMANCE CLASS B f_c : 3500 PSI

TRAFFIC MAINTENANCE:

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

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of CABOT-DANVILLE	Bridge No. 85
Highway No. U.S. ROUTE 2	Log Sta. Surv. Sta. 164+27
U.S. ROUTE 2 OVER EXISTING STREAM	
PRELIMINARY INFORMATION SHEET	
Designed By	Drawn By AA
Checked By ECA/SMV	Bridge Design Supervisor SMV Date 09/2010
PROJECT CABOT-DANVILLE	PROJECT NO. F 028-3(26)
I.G.C. info.	PRINTED: 10/25/2010
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