STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

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FINAL HYDRAULIC REPORT - BR NO. 75-3

HYDROLOGIC DATA

Date: November 2009

DRAINAGE AREA :
CHARACTER OF TERRAIN :
STREAM CHARACTERISTICS :
NATURE OF STREAMBED :

PEAK FLOW DATA

Q 2.33 =		Q 50 =	275 cfs
Q 10 =		Q 100 =	325 cfs
Q 25 =		Q 500 =	

DATE OF FLOOD OF RECORD :
ESTIMATED DISCHARGE:
WATER SURFACE ELEV.:
NATURAL STREAM VELOCITY :
ICE CONDITIONS :
DEBRIS:
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY?
IS ORDINARY RISE RAPID?
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS?
IF YES, DESCRIBE:

WATERSHED STORAGE: HEADWATERS:
UNIFORM:
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 9' CGMPP
YEAR BUILT: 1964
CLEAR SPAN(NORMAL TO STREAM): 9'
VERTICAL CLEARANCE ABOVE STREAMBED: 9'
WATERWAY OF FULL OPENING: 63.6 sq. ft.
DISPOSITION OF STRUCTURE: Insert liner
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =		VELOCITY =	
Q10 =		"	
Q25 =		"	
Q50 =	111.68'	"	10.0 fps
Q100 =	112.50'	"	10.5 fps

LONG TERM STREAMBED CHANGES:

IS THE ROADWAY OVERTOPPED BELOW Q100: NO
FREQUENCY:
RELIEF ELEVATION:
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: DISTANCE:
HIGHWAY # : STRUCTURE #:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: DISTANCE:
HIGHWAY # : STRUCTURE #:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:
STRUCTURE TYPE:

XXXX LOAD RATING (TONS)

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

COMMENTS:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT

20 year ESAL for flexible pavement from to :
40 year ESAL for flexible pavement from to :
Design Speed : mph

PROPOSED STRUCTURE

STRUCTURE TYPE: 5' CAAP Liner / 5' pipe, with full beveled inlet headwall

CLEAR SPAN(NORMAL TO STREAM): 5'
VERTICAL CLEARANCE ABOVE STREAMBED: 5'
WATERWAY OF FULL OPENING: 39.3

WATER SURFACE ELEVATIONS AT:

Q2.33 =		VELOCITY=	
Q10 =		"	
Q25 =		"	
Q50 =	110.30'	"	10.0/ 7.0 fps
Q100 =	111.24'	"	10.4/ 7.0 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: NO
FREQUENCY:
RELIEF ELEVATION:
DISCHARGE OVER ROAD @Q100:

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE:
VERTICAL CLEARANCE:

SCOUR: Not calculated for culverts
REQUIRED CHANNEL PROTECTION: Stone fill, Type II

PERMIT INFORMATION

AVERAGE DAILY FLOW: DEPTH OR ELEVATION:
ORDINARY LOW WATER:
ORDINARY HIGH WATER:

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

The above final hydraulics are based on the following information:
Existing 108" pipe inlet elev. = 104.4', outlet elev. 103.7', length = 331.0', slope = 0.2%
New 60" CMP liner pipe inlet elev. = 104.9', outlet elev. 103.1' , length = 311.7', slope = 0.6%
New 60" Aluminum pipe inlet elev. = 105.4', outlet elev. 103.6' , length = 311.7', slope = 0.6%

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO N/A
2. DESIGN SPAN N/A
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 3 ksf
   ON LEDGE 10 ksf
4. ALLOWABLE LOAD FOR PILING N/A
   TYPE N/A
   ESTIMATED LENGTH N/A
5. STRUCTURAL STEEL AASHTO M270M/M270 GRADE N/A
6. REINFORCING STEEL GRADE 60
7. CONCRETE, HIGH PERFORMANCE CLASS A f'c: N/A
   CONCRETE, HIGH PERFORMANCE CLASS B f'c: 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? YES
   IF YES, ON EXISTING STRUCTURE? ON EXISTING STRUCTURE
   OR ON TEMPORARY BRIDGE?
   ONE OR TWO-WAY TRAVEL?
2. TRAFFIC CONTROL SIGNALS REQUIRED? NO
3. ARE SIDEWALKS REQUIRED? NO
   IF SO, ON WHAT SIDE?

PROJECT NAME: **SOUTH BURLINGTON - COLCHESTER**
PROJECT NUMBER: **IM CULV (23)**

FILE NAME: **z09a046engpi02.xls**
PROJECT LEADER: **BENOIT**
DESIGNED BY: **RPH**
PLOT DATE: **2/8/2011**
DRAWN BY: **RPH**
CHECKED BY: **BRC**