STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

SCOPE OF WORK

1. INSTALLATION OF CONSTRUCTION APPROACH SIGNING, WORK ZONE TRAFFIC MANAGEMENT PLAN AND TEMPORARY EROSION CONTROL FEATURES. ESTABLISHMENT OF CONSTRUCTION STAGING AREAS.
2. INSTALLATION OF TEMPORARY CAUSEWAY, COFFERDAM AND PILE FOUNDATION FOR PIER. CONSTRUCTION OF PROPOSED CAST-IN-PLACE CONCRETE WALL TYPE PIER.
3. INSTALLATION OF PILE FOUNDATIONS AND CONSTRUCTION OF PROPOSED CAST-IN-PLACE CONCRETE STUB ABUTMENTS.
4. INSTALLATION OF PREFABRICATED TRUSSES, FLOOR SYSTEM AND BRIDGE SUPPORTED UTILITIES.
5. INSTALLATION OF CAST-IN-PLACE CONCRETE DECK, CANTILEVERED SIDEWALK, APPROACH SLABS AND RAIL SYSTEMS.
6. CONSTRUCTION OF PROPOSED EMBANKMENTS AND RELATED OFFLINE APPROACH WORK.
7. SHIFT TRAFFIC TO NEW ALIGNMENT AND CONSTRUCT REMAINDER OF APPROACHES UNDER TEMPORARY, PARTIAL CLOSURES.
8. REMOVE PREFABRICATED, TEMPORARY SUPERSTRUCTURE (2008)AND STOCKPILE. REMOVE AND DISPOSE OF ORIGINAL SUPERSTRUCTURE (1928) AND MODIFY CONCRETE PORTION OF EXISTING ABUTMENTS. REMOVE EXISTING PIER BELOW MUDLINE.
9. COMPLETE FINAL GRADING, REMOVE TEMPORARY EROSION CONTROL FEATURES, CLEAN UP AND DEMOBILIZE FROM SITE.
10. OTHER WORK AS REQUIRED BY THE CONTRACT DOCUMENTS.

AS BUILT "REBAR" DETAIL
LEVEL I
TYPE:
GRADE:
LEVEL II
TYPE:
GRADE:
LEVEL III
TYPE:
GRADE:

CLOUGH HARBOUR & ASSOCIATES LLP

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date:

DRAINAGE AREA : 306.8 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous uplands with a wide valley at the site.
STREAM CHARACTERISTICS : Perennial, sinuous, probably incised and alluvial. Island at site.
NATURE OF STREAMBED : Sand, cobbles and some boulders

PEAK FLOW DATA

Q 2.33 =	6,500 cfs	Q 50 =	18,500 cfs
Q 10 =	12,600 cfs	Q 100 =	21,000 cfs
Q 25 =	15,600 cfs	Q 500 =	27,400 cfs

DATE OF FLOOD OF RECORD : 1927
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown

NATURAL STREAM VELOCITY : @ Q25 = 7.7 fps
ICE CONDITIONS : Moderate
DEBRIS: slight to moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Maybe
IF YES, DESCRIBE: Center Rutland Dam and a downstream railroad bridge may back water up to affect hydraulics at this site during some flows.

WATERSHED STORAGE: 1.0% HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Two span steel pony truss bridge with temporary bridge on top
YEAR BUILT: 1928
CLEAR SPAN(NORMAL TO STREAM): 71' + 89' = 160' total
VERTICAL CLEARANCE ABOVE STREAMBED: 18'
WATERWAY OF FULL OPENING: 2570 sq. ft.
DISPOSITION OF STRUCTURE: Remove. Replace with a new bridge downstream.
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	512.1'	VELOCITY =	9.5 fps
Q10 =	516.7'	"	8.0 fps
Q25 =	518.3'	"	8.5 fps
Q50 =	519.9'	"	8.9 fps
Q100 =	521.3'	"	9.0 fps

LONG TERM STREAMBED CHANGES: None known.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 521.6'
DISCHARGE OVER ROAD @Q100: none

UPSTREAM STRUCTURE

TOWN: Rutland City DISTANCE: 3,300'
HIGHWAY # : T.H. 8 (River Street) STRUCTURE #: 2
CLEAR SPAN: 123' + 73' = 196' total CLEAR HEIGHT: 14'
YEAR BUILT: 1928 FULL WATERWAY: 2,180 sq. ft.
STRUCTURE TYPE: Two span steel pony truss bridge

DOWNSTREAM STRUCTURE

TOWN: Rutland DISTANCE: 2,400'
HIGHWAY # : Railroad STRUCTURE #:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:
STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE							
INVENTORY							
POSTING							
OPERATING							
COMMENTS:	CONTRACTOR TO PROVIDE. SEE NOTE 18 ON SHEET 23.						

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2012	2100	260	61	0.9	130
2032	2200	270	61	1.2	190

20 year ESAL for flexible pavement from 2012 to 2032 : 716,000
40 year ESAL for flexible pavement from 2012 to 2052 : 1,670,000
Design Speed : 30 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Two span steel pony truss bridge

CLEAR SPAN(NORMAL TO STREAM): 90' + 108' = 198' total
VERTICAL CLEARANCE ABOVE STREAMBED: 18'
WATERWAY OF FULL OPENING: 2640 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	512.1'	VELOCITY=	11.7 fps
Q10 =	516.7'	"	7.9 fps
Q25 =	518.3'	"	8.4 fps
Q50 =	519.8'	"	8.8 fps
Q100 =	521.3'	"	8.9 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 521.6'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 522.5' ASSUMED BOTTOM CHORD
VERTICAL CLEARANCE: @ Q25 =4.2'

SCOUR: No long term degradation anticipated. 3' of contraction scour at Q100 and Q500. 9' of pier scour at Q100 and Q500. Total scour at pier = 12' at Q100 and Q500.
REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	640 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	280 cfs	Elev. 506'
ORDINARY HIGH WATER:	2800 cfs	Elev. 509'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. Traffic maintained on existing bridge.
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

Low elevation of 8 in. sewer main attached to prefabricated truss = 521.8'

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO HL-93
2. DESIGN SPAN 91' (SPAN 1) 111' (SPAN 2)
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
   ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING N/A
   TYPE HP14X102 (ABUT. 1 AND 2), HP 14X117 (PIER 1)
   ESTIMATED LENGTH 60' AVG. (ABUT. 1), 55' AVG. (PIER 1), 50' AVG. (ABUT. 2)
5. STRUCTURAL STEEL AASHTO M270M/M270 GRADE 50
6. REINFORCING STEEL GRADE 60
7. CONCRETE, HIGH PERFORMANCE CLASS A f'c: 4000 psi
   CONCRETE, HIGH PERFORMANCE CLASS B f'c: 3500 psi
8. DESIGN SOIL UNIT WEIGHT 140 pcf
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

TRAFFIC MAINTENANCE

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

PROJECT NAME: **RUTLAND CITY**
PROJECT NUMBER: **BRF 3000 (19)**

FILE NAME: **z08j096preliminfo.xls** PLOT DATE: **6/30/2014**
PROJECT LEADER: **M. SARGENT** DRAWN BY: **D. D'AMATO**
DESIGNED BY: **D. D'AMATO** CHECKED BY: **P. PERKINS**
PRELIMINARY INFORMATION SHEET SHEET **19** OF **245**