STATE OF VERMONT
AGENCY OF TRANSPORTATION

# PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
**LRFD**

## INDEX OF SHEETS

### PLAN SHEETS



### STANDARDS LIST

| | | |
|---|---|---|
| B-71 | STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES | 07-08-2005 |
| E-121 | STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD | 08-08-1995 |
| E-136B | STATE ROUTE MARKER SIGN DETAILS | 08-08-1995 |
| E-193 | PAVEMENT MARKING DETAILS | 08-18-1995 |
| G-19 | GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS | 11-15-2002 |
| J-3 | MAIL BOX SUPPORT DETAILS | 08-07-1995 |
| S-364A | BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM | 02-10-2014 |
| S-364B | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 02-10-2014 |
| S-364C | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 02-10-2014 |
| S-364D | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| T-1 | TRAFFIC CONTROL GENERAL NOTES | 08-06-2012 |
| T-10 | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING | 08-06-2012 |
| T-17 | TRAFFIC CONTROL MISCELLANEOUS DETAILS | 08-06-2012 |
| T-28 | CONSTRUCTION SIGN DETAILS | 08-06-2012 |
| T-30 | CONSTRUCTION SIGN DETAILS | 08-06-2012 |
| T-35 | CONSTRUCTION ZONE LONGITUDNAL DROP-OFFS | 08-06-2012 |
| T-40 | DELINEATORS AND MILEPOSTS | 01-02-2013 |
| T-42 | BRIDGE NUMBER PLAQUE | 04-09-2014 |
| T-44 | MILEMARKER DETAILS STATE AND TOWN HIGHWAYS | 04-09-2014 |
| T-45 | SQUARE TUBE SIGN POST AND ANCHOR | 01-02-2013 |

### STRUCTURES DETAIL SHEETS

| | | |
|---|---|---|
| SD-501.00 | CONCRETE DETAILS AND NOTES | 2/9/2012 |
| SD-502.00 | CONCRETE DETAILS AND NOTES | 10/10/2012 |
| SD-516.10 | BRIDGE JOINT ASHPALTIC PLUG | 8/29/2011 |
| SD-601.00 | STRUCTURAL STEEL DETAILS AND NOTES | 6/4/2010 |
| SD-602.00 | STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES | 5/2/2011 |

## FINAL HYDRAULIC REPORT

### HYDROLOGIC DATA

Date: November 2014

DRAINAGE AREA : 9.1 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly wooded
STREAM CHARACTERISTICS : Sinuous, incised and alluvial
NATURE OF STREAMBED : Boulders, cobbles, gravel

PEAK FLOW DATA

| | | | |
|---|---|---|---|
| Q 2.33 = | 800 cfs | Q 50 = | 3275 cfs |
| Q 10 = | 1885 cfs | Q 100 = | 4070 cfs |
| Q 25 = | 2580 cfs | Q 500 = | 6800 cfs |

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 7.9 fps
ICE CONDITIONS : Moderate
DEBRIS: Low to moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
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: Steel beam and concrete deck
YEAR BUILT: 1959
CLEAR SPAN(NORMAL TO STREAM): ~25'
VERTICAL CLEARANCE ABOVE STREAMBED: ~8'
WATERWAY OF FULL OPENING: 180 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

| | | | |
|---|---|---|---|
| Q2.33 = | 1426.1' | VELOCITY = | 7.4 fps |
| Q10 = | 1429.3' | " | 9.2 fps |
| Q25 = | 1432.1' | " | 12.6 fps |
| Q50 = | 1432.4' | " | 12.9 fps |
| Q100 = | 1432.4' | " | 13.7 fps |

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Below Q25
RELIEF ELEVATION: 1431.7'
DISCHARGE OVER ROAD @Q100: 1640 cfs

### UPSTREAM STRUCTURE

TOWN: Weston — DISTANCE: 2920'
HIGHWAY # : 14 — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

### DOWNSTREAM STRUCTURE

TOWN: Weston — DISTANCE: 2530'
HIGHWAY # : 22 — STRUCTURE #: 29
CLEAR SPAN: ~67' — CLEAR HEIGHT:
YEAR BUILT: 1939 — FULL WATERWAY:
STRUCTURE TYPE: Rolled beam bridge

### LRFR LOAD RATING FACTORS

| LOADING LEVELS | TRUCK | | | | | | |
|---|---|---|---|---|---|---|---|
| | H-20 | HL-93 | 3S2 | 6 AXLE | 3A. STR. | 4A. STR. | 5A. SEMI |
| TONNAGE | **20** | **36** | **36** | **66** | **30** | **34.5** | **38** |
| INVENTORY | 1.94 | 1.04 | | | | | |
| POSTING | | | | | | | |
| OPERATING | 2.60 | 1.39 | 2.42 | 1.49 | 1.93 | 1.74 | 1.98 |
| COMMENTS: | FOR NEXT BEAM SUPERSTRUCTURE | | | | | | |

| LOADING LEVELS | TRUCK | | | | | | |
|---|---|---|---|---|---|---|---|
| | H-20 | HL-93 | 3S2 | 6 AXLE | 3A. STR. | 4A. STR. | 5A. SEMI |
| TONNAGE | **20** | **36** | **36** | **66** | **30** | **34.5** | **38** |
| INVENTORY | 2.41 | 1.28 | | | | | |
| POSTING | | | | | | | |
| OPERATING | 3.12 | 1.65 | 2.19 | 1.40 | 1.80 | 1.62 | 1.82 |
| COMMENTS: | FOR PBU SUPERSTRUCTURE | | | | | | |

### PROPOSED STRUCTURE

STRUCTURE TYPE: Prestressed Concrete NEXT beams or PBUs

CLEAR SPAN(NORMAL TO STREAM): 50'
VERTICAL CLEARANCE ABOVE STREAMBED: ~8.5'
WATERWAY OF FULL OPENING: 360 sq. ft.

WATER SURFACE ELEVATIONS AT:

| | | | |
|---|---|---|---|
| Q2.33 = | 1425.4' | VELOCITY= | 6.7 fps |
| Q10 = | 1427.5' | " | 9.0 fps |
| Q25 = | 1427.7' | " | 12.0 fps |
| Q50 = | 1428.4' | " | 13.4 fps |
| Q100 = | 1429.2' | " | 14.3 fps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 1432.3'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1429.4'
VERTICAL CLEARANCE: @ Q50 = 1.0'

SCOUR: 0' of contraction scour up through Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

### PERMIT INFORMATION

| | | |
|---|---|---|
| AVERAGE DAILY FLOW: | 20 cfs | |
| ORDINARY LOW WATER: | 10 cfs | DEPTH OR ELEVATION: ~0.5' |
| ORDINARY HIGH WATER: | 345 cfs | ~3.0' |

### TEMPORARY BRIDGE REQUIREMENTS

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

### ADDITIONAL INFORMATION

### TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

### DESIGN VALUES

| | | |
|---|---|---|
| 1. DESIGN LIVE LOAD | | HL-93 |
| 2. FUTURE PAVEMENT | $d_P$: | 0.0 INCH |
| 3. DESIGN SPAN | $L$: | 60.50 FT |
| 4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) | $\Delta$: | 1.60 INCH |
| 5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX) | $f_y$: | 270 KSI |
| 6. PRESTRESSED CONCRETE STRENGTH | $f'_c$: | 7.0 KSI |
| 7. PRESTRESSED CONCRETE RELEASE STRENGTH | $f'_{ci}$: | 5.5 KSI |
| 8. CONCRETE, HIGH PERFORMANCE CLASS AA | $f'_c$: | --- |
| 9. CONCRETE, HIGH PERFORMANCE CLASS A | $f'_c$: | 4.0 KSI |
| 10. CONCRETE, HIGH PERFORMANCE CLASS B | $f'_c$: | --- |
| 11. CONCRETE, CLASS C | $f'_c$: | --- |
| 12. REINFORCING STEEL | $f_y$: | 60 KSI |
| 13. STRUCTURAL STEEL AASHTO M270 (GALVANIZED OR METALIZED) | $f_y$: | 50 KSI |
| 14. NOMINAL BEARING RESISTANCE OF SOIL | $q_n$: | --- |
| 15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | $\phi$: | --- |
| 16. NOMINAL BEARING RESISTANCE OF ROCK | $q_n$: | --- |
| 17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | $\phi$: | --- |
| 18. PILE RESISTANCE FACTOR | $\phi$: | --- |
| 19. LATERAL PILE DEFLECTION | $\Delta$: | --- |
| 20. BASIC WIND SPEED | $V_{3s}$: | --- |
| 21. MINIMUM GROUND SNOW LOAD | $p_g$: | --- |
| 22. SEISMIC DATA — PGA: 0 | $S_s$: | --- |
| | $S_1$: | --- |
| 23. | | |
| 24. | | --- |
| 25. | | --- |
| 26. | | --- |

### AS BUILT "REBAR" DETAIL

| LEVEL I | LEVEL II | LEVEL III |
|---|---|---|
| TYPE: | TYPE: | TYPE: |
| GRADE: | GRADE: | GRADE: |

### TRAFFIC DATA

| YEAR | ADT | DHV | % D | % T | ADTT |
|---|---|---|---|---|---|
| 2016 | 1900 | 330 | 57 | 8.9 | 150 |
| 2036 | 2000 | 350 | 57 | 14.2 | 250 |

20 year ESAL for flexible pavement from 2016 to 2036 : 768000
40 year ESAL for flexible pavement from 2016 to 2056 : 1753000
Design Speed : 50 mph

PROJECT NAME: **WESTON**
PROJECT NUMBER: **BF 013-2(13)**

FILE NAME: **57673pi Sheet.xls**
PROJECT LEADER: **M.A. COLGAN**
DESIGNED BY: **J.J. WESTCOTT**
**PRELIMINARY INFORMATION SHEET**

PLOT DATE: 9/30/2015
DRAWN BY: **J.J. WESTCOTT**
CHECKED BY: **S.E. BURBANK**
SHEET 2 OF 68

VHB 57673