

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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STRUCTURES DETAILS SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	05-07-2010
SD-502.00	CONCRETE DETAILS AND NOTES	10-10-2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	05-07-2010
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	06-04-2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	05-02-2011

STANDARDS LIST

T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
E-120	STANDARD SIGN PLACEMENT - EXPRESSWAY & FREEWAY	08-08-1995
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-127	ROUTE MARKINGS AT RURAL INTERSECTIONS	08-08-1995
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-138B	STATE ROUTE MARKER SIGN DETAILS	08-08-1995
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1B	BOX BEAM GUARD RAIL	06-01-1994
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: FEBRUARY 2013

DRAINAGE AREA : 10.15 SQ MI
 CHARACTER OF TERRAIN : FORESTED, MOUNTAINOUS
 STREAM CHARACTERISTICS : MEANDERING, PARALLEL TO VT 100
 NATURE OF STREAMBED : GRAVEL, COBBLES

PEAK FLOW DATA

Q 2.33 =	400 CFS	Q 50 =	1500
Q 10 =	900	Q 100 =	1800
Q 25 =	1200	Q 500 =	2520

DATE OF FLOOD OF RECORD : UNKNOWN
 ESTIMATED DISCHARGE : UNKNOWN
 WATER SURFACE ELEV. : UNKNOWN
 NATURAL STREAM VELOCITY : @ Q50 = 9.8 FPS
 ICE CONDITIONS : MODERATE
 DEBRIS : 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 : SINGLE SPAN ROLLED BEAM
 YEAR BUILT : 1939
 CLEAR SPAN(NORMAL TO STREAM): 48 FT
 VERTICAL CLEARANCE ABOVE STREAMBED: 10.8 FT
 WATERWAY OF FULL OPENING: 360 SQ FT
 DISPOSITION OF STRUCTURE: PARTIAL REMOVAL
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: UNKNOWN

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1132.3 FT	VELOCITY =	6.3 FPS
Q10 =	1134.1	"	7.9
Q25 =	1134.9	"	8.7
Q50 =	1136.5	"	9.7
Q100 =	1137.1	"	10.6

LONG TERM STREAMBED CHANGES :
 IS THE ROADWAY OVERTOPPED BELOW Q100: NO
 FREQUENCY: N/A
 RELIEF ELEVATION: 1142.8 FT
 DISCHARGE OVER ROAD @Q100: 0

UPSTREAM STRUCTURE

TOWN: WARREN DISTANCE: 4,000 FT
 HIGHWAY #: VT 100 STRUCTURE #: BR 165
 CLEAR SPAN: 32 FT CLEAR HEIGHT: 6 FT
 YEAR BUILT: 2012 FULL WATERWAY: 180 SQ FT
 STRUCTURE TYPE: PRECAST CONCRETE RIGID FRAME

DOWNSTREAM STRUCTURE

TOWN: WARREN DISTANCE: 4,500 FT
 HIGHWAY #: VT 100 STRUCTURE #: BR 167
 CLEAR SPAN: 80 FT CLEAR HEIGHT: 12 FT
 YEAR BUILT: 1957 FULL WATERWAY:
 STRUCTURE TYPE: SINGLE SPAN ROLLED BEAM

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	3.56	1.88					
POSTING							
OPERATING	4.61	2.44	3.27	2.08	3.14	2.83	2.89
COMMENTS:	SERVICEABILITY (DEFLECTION) GOVERNS DESIGN						

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2014 to 2034 : 378000
2014	1100	140	55	5.6	65	40 year ESAL for flexible pavement from 2014 to 2054 : 873000
2034	1200	160	55	8.7	110	Design Speed : 50 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE
 CLEAR SPAN(NORMAL TO STREAM): 82 FT
 VERTICAL CLEARANCE ABOVE STREAMBED: 10 FT
 WATERWAY OF FULL OPENING: 420 SQ FT

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1132.3 FT	VELOCITY =	6.3 FPS
Q10 =	1134.0	"	7.9
Q25 =	1134.9	"	8.7
Q50 =	1136.4	"	9.7
Q100 =	1137.0	"	10.6

IS THE ROADWAY OVERTOPPED BELOW Q100: NO
 FREQUENCY: N/A
 RELIEF ELEVATION: 1142.8 FT
 DISCHARGE OVER ROAD @Q100: 0

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1138.0 FT
 VERTICAL CLEARANCE: @ Q50 = 1.6 FT

SCOUR: 1.5' @ Q100

REQUIRED CHANNEL PROTECTION: STONE FILL, TYPE IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 21 CFS DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 10 DEPTH = 0.5 FT
 ORDINARY HIGH WATER: 172 DEPTH = 2 FT

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

OHW AND OLW ARE AVERAGE DEPTHS MEASURED UPSTREAM AND DOWNSTREAM OF THE BRIDGE.

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 : 3.0 INCH
3. DESIGN SPAN	L: 101.50 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f _y : ---
6. PRESTRESSED CONCRETE STRENGTH	f' _c : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : ---
8. SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	f' _c : 7.0 KSI
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 (WEATHERING)	f _y : 50 KSI
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q _n : ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q _n : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE (SEE PROJECT NOTES)	q _p : ---
20. PILE YIELD STRENGTH ASTM A572	f _y : 50 KSI
21. PILE SIZE	HP 12X74
22. EST. PILE LENGTH	L _p : ---
ABUTMENT NO. 1 = 19 FT ABUTMENT NO. 2 = 19 FT	
23. PILE RESISTANCE FACTOR	φ: 0.45
24. LATERAL PILE DEFLECTION	Δ: 0.50 INCH
25. BASIC WIND SPEED	V _{3s} : 100 MPH
26. MINIMUM GROUND SNOW LOAD	p _g : ---
27. SEISMIC DATA	PGA: --- S _s : --- S ₁ : ---

PROJECT NAME: WARREN
 PROJECT NUMBER: BRF 013-4(32)

FILE NAME: z10b424frm.dgn PLOT DATE: 10/11/2013
 PROJECT LEADER: R.YOUNG DRAWN BY: P.DUSTIN
 DESIGNED BY: VTRANS/D.KULL CHECKED BY: T.KENDRICK
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PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY (SEE GENERAL NOTES) R_{pd} :
2. PILE TEST RESISTANCE FACTOR (SEE GENERAL NOTES) ϕ :
3. MAXIMUM PILE TIP ELEVATION **SEE BELOW**
4. PILES MUST BE DRIVEN A MINIMUM OF 19 FEET BELOW BOTTOM OF ABUTMENT REGARDLESS IF REQUIRED DRIVING RESISTANCE HAS BEEN MET.