

# PRELIMINARY INFORMATION SHEET (BRIDGE)

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### FINAL HYDRAULIC REPORT

#### PLAN SHEETS

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#### STANDARDS LIST

|        |   |            |
|--------|---|------------|
| B-5    | SLOPE GRADING, EMBANKMENTS, MUCK                            | 06-01-1994 |
| B-12   | SIDE ROAD INTERSECTION, DEPRESSED RAMP                      | 06-01-1994 |
| B-71   | STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES              | 07-08-2005 |
| D-4    | VARIOUS DRAINAGE DETAILS                                    | 08-13-2007 |
| E-121  | STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD                 | 08-08-1995 |
| E-136B | STATE ROUTE MARKER SIGN DETAILS                             | 08-08-1995 |
| E-191  | PAVEMENT MARKING DETAILS                                    | 02-01-1999 |
| E-193  | PAVEMENT MARKING DETAILS                                    | 08-18-1995 |
| G-1    | STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)   | 11-10-2015 |
| G-1D   | STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN) | 02-10-2014 |
| G-19   | GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS           | 11-15-2002 |
| S-367A | BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING | 05-24-2012 |
| S-367B | GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM        | 05-24-2012 |
| T-1    | TRAFFIC CONTROL GENERAL NOTES                               | 04-25-2016 |
| T-2    | TRAFFIC SIGN GENERAL NOTES                                  | 04-25-2016 |
| T-10   | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING            | 08-06-2012 |
| T-13   | TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED             | 08-06-2012 |
| T-17   | TRAFFIC CONTROL MISCELLANEOUS DETAILS                       | 08-06-2012 |
| T-24   | TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPERATION  | 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-36   | CONSTRUCTION ZONE LONGITUDNAL DROP-OFFS FOR PAVING          | 08-06-2012 |
| T-42   | BRIDGE NUMBER PLAQUE  | 04-09-2014 |
| T-45   | SQUARE TUBE SIGN POST AND ANCHOR                            | 01-02-2013 |
| T-56   | STANDARD SIGN PLACEMENT                                     | 10-26-2015 |
| T-92   | ROUTE MARKER FRAME DETAILS                                  | 10-26-2015 |

#### DETAIL SHEETS

|            |                                    |            |
|------------|------------------------------------|------------|
| SD-501.00  | CONCRETE DETAILS AND NOTES         | 02-09-2012 |
| SD-502.00  | CONCRETE DETAILS AND NOTES         | 10-10-2012 |
| SD-516.10  | BRIDGE JOINT ASPHALTIC PLUG        | 08-29-2011 |
| SD-601.00  | STRUCTURAL STEEL DETAILS AND NOTES | 06-04-2010 |
| HSD-400.01 | SAFETY EDGE DETAIL                 | 03-29-2016 |
| HSD-621.06 | GUARDRAIL TERMINAL LABEL DETAIL    | 11-03-2015 |

#### HYDROLOGIC DATA

Date: October 2014

DRAINAGE AREA : 36.7 sq mi  
 CHARACTER OF TERRAIN : Mixture of open and forested with ponds and lakes  
 STREAM CHARACTERISTICS : Sinuous and incised  
 NATURE OF STREAMBED : Small gravel, fine sand & silt

#### PEAK FLOW DATA

|          |          |         |      |
|----------|----------|---------|------|
| Q 2.33 = | 1800 cfs | Q 50 =  | 4130 |
| Q 10 =   | 2975     | Q 100 = | 4775 |
| Q 25 =   | 3575     | Q 500 = | 6700 |

DATE OF FLOOD OF RECORD : Unknown  
 ESTIMATED DISCHARGE : Unknown  
 WATER SURFACE ELEV. : Unknown  
 NATURAL STREAM VELOCITY : @ Q25 = 5.5 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? Yes  
 IF YES, DESCRIBE : Downstream Bridge

WATERSHED STORAGE : 3% HEADWATERS :  
 UNIFORM : X  
 IMMEDIATELY ABOVE SITE :

#### EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : 3 Span Concrete Slab Bridge  
 YEAR BUILT : 1956  
 CLEAR SPAN(NORMAL TO STREAM): 47'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 8.7'  
 WATERWAY OF FULL OPENING: 295 sq ft  
 DISPOSITION OF STRUCTURE: Removal  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

#### WATER SURFACE ELEVATIONS AT:

|         |        |            |         |
|---------|--------|------------|---------|
| Q2.33 = | 855.2' | VELOCITY = | 7.2 fps |
| Q10 =   | 858.7' | "          | 5       |
| Q25 =   | 859.1' | "          | 6       |
| Q50 =   | 859.5' | "          | 6       |
| Q100 =  | 860.0' | "          | 6       |

#### LONG TERM STREAMBED CHANGES:

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Below Q10  
 RELIEF ELEVATION: 856.9'  
 DISCHARGE OVER ROAD @Q100: 3672 cfs

#### UPSTREAM STRUCTURE

TOWN: Barton DISTANCE: 2,800'  
 HIGHWAY #: 191 STRUCTURE #: C1021  
 CLEAR SPAN: ~30' CLEAR HEIGHT:  
 YEAR BUILT: 1971 FULL WATERWAY:  
 STRUCTURE TYPE: Twin cell concrete box

#### DOWNSTREAM STRUCTURE

TOWN: Barton Village DISTANCE: 2,650'  
 HIGHWAY #: TH 5 (Elm St) STRUCTURE #: Br55  
 CLEAR SPAN: ~60' CLEAR HEIGHT:  
 YEAR BUILT: 1919 FULL WATERWAY:  
 STRUCTURE TYPE: Granite and concrete slab bridge

#### LRFR LOAD RATING FACTORS

| LOADING LEVELS | TRUCK |       |      |        |         |         |        |
|----------------|-------|-------|------|--------|---------|---------|--------|
|                | H-20  | HL-93 | 3S2  | 6 AXLE | 3A STR. | 4A STR. | 5A SEM |
| TONNAGE        | 20    | 36    | 36   | 66     | 30      | 34.5    | 38     |
| INVENTORY      | 2.04  | 1.10  |      |        |         |         |        |
| POSTING        |       |       |      |        |         |         |        |
| OPERATING      | 2.76  | 1.42  | 2.43 | 1.58   | 2.03    | 1.82    | 2.03   |
| COMMENTS:      |       |       |      |        |         |         |        |

#### AS BUILT "REBAR" DETAIL

| 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 2016 to 2036 : 240000 |
|------|------|-----|-----|-----|------|---|
| 2016 | 1100 | 120 | 64  | 2.7 | 30   | 40 year ESAL for flexible pavement from 2016 to 2056 : 567000 |
| 2036 | 1200 | 140 | 64  | 3.5 | 45   | Design Speed : 15 mph   |

#### PROPOSED STRUCTURE

STRUCTURE TYPE: Single Span Pre-stressed Concrete Solid Slab Bridge

CLEAR SPAN(NORMAL TO STREAM): 60'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 9.3'  
 WATERWAY OF FULL OPENING: 407 sq ft

#### WATER SURFACE ELEVATIONS AT:

|         |        |           |         |
|---------|--------|-----------|---------|
| Q2.33 = | 854.6' | VELOCITY= | 8.4 fps |
| Q10 =   | 858.5' | "         | 4.9     |
| Q25 =   | 859.0' | "         | 5.4     |
| Q50 =   | 859.5' | "         | 5.7     |
| Q100 =  | 860.0' | "         | 5.9     |

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Below Q10  
 RELIEF ELEVATION: 856.7'  
 DISCHARGE OVER ROAD @Q100: 3140 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 855.35'  
 VERTICAL CLEARANCE: @ Q2.33 = 0.72'

SCOUR: 6.0' - Minimum design scour depth

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

#### PERMIT INFORMATION

AVERAGE DAILY FLOW: 75 DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 35 848.2'  
 ORDINARY HIGH WATER: 775 851.9'

#### TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No Temporary Structure Required  
 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 <sub>p</sub> : 0.0 INCH                                    |
| 3. DESIGN SPAN   | L: 66.00 FT  |
| 4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) | Δ: 1.63 INCH   |
| 5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)    | f <sub>y</sub> : 270 KSI                                     |
| 6. PRESTRESSED CONCRETE STRENGTH                           | f'c: 9.0 KSI   |
| 7. PRESTRESSED CONCRETE RELEASE STRENGTH                   | f'ci: 6.0 KSI  |
| 8. CONCRETE, HIGH PERFORMANCE CLASS AA                     | f'c: ---   |
| 9. CONCRETE, HIGH PERFORMANCE CLASS A                      | f'c: ---   |
| 10. CONCRETE, HIGH PERFORMANCE CLASS B                     | f'c: ---   |
| 11. CONCRETE, CLASS C                                      | f'c: ---   |
| 12. REINFORCING STEEL                                      | f <sub>y</sub> : 60 KSI                                      |
| 13. STRUCTURAL STEEL AASHTO M270                           | f <sub>y</sub> : ---   |
| 14. NOMINAL BEARING RESISTANCE OF SOIL                     | q <sub>n</sub> : ---   |
| 15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)  | φ: ---   |
| 16. NOMINAL BEARING RESISTANCE OF ROCK                     | q <sub>n</sub> : ---   |
| 17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)  | φ: ---   |
| 18. PILE RESISTANCE FACTOR                                 | φ: 0.65  |
| 19. LATERAL PILE DEFLECTION                                | Δ: 0.29 INCH   |
| 20. BASIC WIND SPEED                                       | V <sub>3s</sub> : 100 MPH                                    |
| 21. MINIMUM GROUND SNOW LOAD                               | p <sub>g</sub> : ---   |
| 22. SEISMIC DATA   | PGA: 8 %g<br>S <sub>s</sub> : 18 %g<br>S <sub>T</sub> : 6 %g |
| 23.  | ---  |
| 24.  | ---  |
| 25.  | ---  |
| 26.  | ---  |

PROJECT NAME: **BARTON VILLAGE**  
 PROJECT NUMBER: **BO 1449(33)**

FILE NAME: z13j078pi.dgn PLOT DATE: 6/30/2016  
 PROJECT LEADER: J. OLUND DRAWN BY: S. MORGAN  
 DESIGNED BY: J. OLUND CHECKED BY: D. MYERS  
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