

PRELIMINARY INFORMATION SHEET (BRIDGE)

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PLAN SHEETS

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STANDARDS LIST

| | | |
|--------|---|------------|
| E-121 | STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD | 08-08-1995 |
| E-134 | BRIDGE NUMBER PLAQUE | 08-08-1995 |
| E-138 | MILE MARKER DETAILS - STATE & TOWN HIGHWAYS | 05-30-2003 |
| E-140 | REGULATORY SIGN DETAILS | 08-30-1996 |
| E-141 | REGULATORY SIGN DETAILS | 09-20-1995 |
| E-143 | REGULATORY SIGN DETAILS | 06-15-2004 |
| E-155 | WARNING SIGN DETAILS | 05-01-2004 |
| E-171A | TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS | 08-09-1995 |
| E-172 | VEHICLE DETECTOR LOOP DETAILS | 08-09-1995 |
| E-193 | PAVEMENT MARKING DETAILS | 08-18-1995 |
| J-3 | MAIL BOX SUPPORT DETAILS | 08-07-1995 |
| G-1 | STEEL BEAM GUARDRAIL WITH STEEL POSTS | 01-03-2000 |
| G-1D | ANCHOR FOR STEEL BEAM GUARDRAIL | 01-03-2000 |
| T-1 | TRAFFIC CONTROL GENERAL NOTES | 08-06-2012 |
| T-10 | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNS | 08-06-2012 |
| T-17 | TRAFFIC CONTROL - MISCELLANEOUS DETAILS | 08-06-2012 |
| T-28 | CONSTRUCTION SIGN DETAILS | 08-06-2012 |
| T-29 | CONSTRUCTION SIGN DETAILS | 08-06-2012 |
| T-30 | CONSTRUCTION SIGN DETAILS | 08-06-2012 |
| T-35 | CONSTRUCTION ZONE LONGITUDINAL DROP OFFS FOR PAVING | 08-06-2012 |
| T-36 | CONSTRUCTION ZONE LONGITUDINAL DROP OFFS FOR PAVING | 08-06-2012 |
| T-40 | DELINEATORS AND MILE POSTS | 01-02-2013 |
| T-45 | SQUARE STEEL SIGN POST AND ANCHOR | 01-02-2013 |

STRUCTURE DETAIL SHEETS

| | | |
|-----------|-----------------------------|------------|
| SD-516.10 | BRIDGE JOINT ASPHALTIC PLUG | 08-29-2011 |
|-----------|-----------------------------|------------|

BRIDGE 7 FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: April 2013

DRAINAGE AREA: 1.5 sq. mi.
 CHARACTER OF TERRAIN: Mountainous, forested, rural
 STREAM CHARACTERISTICS: Incised and alluvial
 NATURE OF STREAMBED: Gravel and cobbles

PEAK FLOW DATA

| | | | |
|----------|---------|---------|---------|
| Q 2.33 = | 120 cfs | Q 50 = | 450 cfs |
| Q 10 = | 275 cfs | Q 100 = | 530 cfs |
| Q 25 = | 360 cfs | Q 500 = | 740 cfs |

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q50 = 12.5 fps
 ICE CONDITIONS: Moderate
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGH-WATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE: Possibly by the water surface elevations of the Third Branch of the White River

WATERSHED STORAGE: <1% HEADWATERS: UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Multi-plate pipe arch
 YEAR BUILT: 1968
 CLEAR SPAN(NORMAL TO STREAM): 13' - 5"
 VERTICAL CLEARANCE ABOVE STREAMBED: 8' - 5"
 WATERWAY OF FULL OPENING: ~89 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|--------|------------|----------|
| Q2.33 = | 763.6' | VELOCITY = | 9.8 fps |
| Q10 = | 765.3' | " | 12.5 fps |
| Q25 = | 766.1' | " | 14.0 fps |
| Q50 = | 766.9' | " | 15.4 fps |
| Q100 = | 767.5' | " | 16.2 fps |

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No

FREQUENCY: N/A
 RELIEF ELEVATION: 772.5'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: None DISTANCE: _____
 HIGHWAY #: _____ STRUCTURE #: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 STRUCTURE TYPE: _____

DOWNSTREAM STRUCTURE

TOWN: Braintree DISTANCE: 0'
 HIGHWAY #: _____ STRUCTURE #: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 STRUCTURE TYPE: Confluence with Third Branch of the White River

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 | | | | | | | |
| POSTING | | | | | | | |
| OPERATING | | | | | | | |
| 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 2014 to 2034 : 251000 |
|------|------|-----|-----|-----|------|---|
| 2014 | 1000 | 130 | 59 | 4.8 | 75 | 40 year ESAL for flexible pavement from 2014 to 2054 : 600000 |
| 2034 | 1100 | 150 | 59 | 7.4 | 130 | Design Speed : 50 mph |

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Box
 CLEAR SPAN(NORMAL TO STREAM): 16'
 VERTICAL CLEARANCE ABOVE STREAMBED: 7'
 WATERWAY OF FULL OPENING: 112 sq. ft.

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|--------|-----------|----------|
| Q2.33 = | 761.0' | VELOCITY= | 9.1 fps |
| Q10 = | 762.3' | " | 12.3 fps |
| Q25 = | 762.9' | " | 13.9 fps |
| Q50 = | 763.4' | " | 15.1 fps |
| Q100 = | 763.9' | " | 16.0 fps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 772.5'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 766.3'
 VERTICAL CLEARANCE: @ Q50 = 2.9'

SCOUR: Scour is not calculated for a box.

REQUIRED CHANNEL PROTECTION: Riprap, Heavy Type

PERMIT INFORMATION

AVERAGE DAILY FLOW: 5 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 2 cfs 0.5'
 ORDINARY HIGH WATER: 55 cfs 1.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required. Phased construction
 CLEAR SPAN (NORMAL TO STREAM): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: _____
 WATERWAY AREA OF FULL OPENING: _____

ADDITIONAL INFORMATION

All the above information is provided without the Third Branch at flood stage. We have no information on flood stage for the Third Branch.

TRAFFIC MAINTENANCE NOTES

1. TRAFFIC WILL BE MAINTAINED ON AN OFFSITE 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 : 0.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ : ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX) f_y : _____
6. PRESTRESSED CONCRETE STRENGTH f'_c : _____
7. PRESTRESSED CONCRETE RELEASE STRENGTH f'_{ci} : _____
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_y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 f_y : ---
14. NOMINAL BEARING RESISTANCE OF SOIL q_n : SEE GEO. RPT
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : 0.45
16. NOMINAL BEARING RESISTANCE OF ROCK q_n : NA
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---
18. PILE RESISTANCE FACTOR ϕ : NA
19. LATERAL PILE DEFLECTION Δ : ---
20. BASIC WIND SPEED V_{3s} : ---
21. MINIMUM GROUND SNOWLOAD P_g : ---
22. SEISMIC DATA PGA : 0 S_s : --- S_T : ---
23. _____
24. _____
25. _____
26. _____

PROJECT NAME: BRAINTREE
 PROJECT NUMBER: ER STP 0187(12)

FILE NAME: z12c526pi.xls PLOT DATE: 1/10/2014
 PROJECT LEADER: G. EDWARDS DRAWN BY: I. MAYNARD
 DESIGNED BY: I. MAYNARD CHECKED BY: M. FOISY
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