

PRELIMINARY INFORMATION SHEET -- (BRIDGE)

LRFD

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

PLAN SHEETS

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STANDARDS LIST

| | | |
|-------|---|------------|
| D-1 | PRECAST REINFORCED CONCRETE DROP INLET DETAILS | 06-01-1994 |
| D-6 | REINFORCED CONCRETE DROP INLET W/GRATE (DITCHES) | 06-01-1994 |
| D-8 | REINFORCED CONCRETE DROP INLET WITH PRECAST COVER & GRATE | 01-03-2000 |
| D-11 | STEEL OR IRON GRATES & COVERS (TYPE A) | 06-01-1994 |
| D-16 | DRAINAGE DETAILS INCLUDING DROP INLETS, IRON GRATE TYPE B&C, CONC END | 06-01-1994 |
| E-134 | BRIDGE NUMBER PLAQUE | 08-08-1995 |
| E-193 | PAVEMENT MARKING DETAILS | 08-18-1995 |
| G-1 | STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS) | 02-10-2014 |
| G-1D | STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN) | 02-10-2014 |
| J-1 | PROJECT AND BOUNDARY MARKERS | 06-01-1994 |
| J-3 | MAIL BOX SUPPORT DETAILS | 08-07-1995 |
| T-1 | TRAFFIC CONTROL GENERAL NOTES | 08-06-2012 |
| T-10 | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING | 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-31 | CONSTRUCTION SIGN DETAILS | 08-06-2012 |
| T-45 | SQUARE TUBE SIGN POST AND ANCHOR | 01-02-2013 |

STRUCTURAL DETAIL SHEETS

| | | |
|-----------|----------------------------|----------|
| SD-501.00 | CONCRETE DETAILS AND NOTES | 5/7/2010 |
| SD-502.00 | CONCRETE DETAILS AND NOTES | 5/7/2010 |

HYDROLOGIC DATA

Date: March 2011

DRAINAGE AREA: 1.2 sq. mi.
 CHARACTER OF TERRAIN: Rural, mostly forested, steep
 STREAM CHARACTERISTICS: Sinuous, incised, steep
 NATURE OF STREAMBED: Cobbles and gravel

PEAK FLOW DATA

| | | | |
|----------|---------|---------|---------|
| Q 2.33 = | 80 cfs | Q 50 = | 300 cfs |
| Q 10 = | 185 cfs | Q 100 = | 350 cfs |
| Q 25 = | 250 cfs | Q 500 = | 490 cfs |

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q25 = 17.6 cfs
 ICE CONDITIONS: Moderate to heavy
 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: 6' diameter CMP extended with 10' span by 10' rise concrete arch
 YEAR BUILT:
 CLEAR SPAN(NORMAL TO STREAM): 6'
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'
 WATERWAY OF FULL OPENING: 28 sq. ft.
 DISPOSITION OF STRUCTURE: Dispose and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|---------|------------|----------|
| Q2.33 = | 1006.6' | VELOCITY = | 10.9 fps |
| Q10 = | 1009.3' | " | 12.6 fps |
| Q25 = | 1010.8' | " | 13.2 fps |
| Q50 = | 1011.9' | " | 13.6 fps |
| Q100 = | 1014.0' | " | 14.0 fps |

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 1019.9'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: N/A DISTANCE:
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Shrewsbury DISTANCE: 1000'
 HIGHWAY #: VT 103 STRUCTURE #: BR 53
 CLEAR SPAN: 12' CLEAR HEIGHT: 9'
 YEAR BUILT: 1949 FULL WATERWAY: 112 sq. ft.
 STRUCTURE TYPE: Reinforced concrete box

LRFR LOAD RATING FACTORS

| LOADING LEVELS | TRUCK | | | | | |
|----------------|-------|-----|--------|---------|---------|---------|
| | HL-93 | 3S2 | 6 AXLE | 3A STR. | 4A STR. | 5A SEMI |
| TONNAGE | 20 | 36 | 66 | 30 | 34.5 | 38 |
| INVENTORY | | | | | | |
| POSTING | | | | | | |
| OPERATING | | | | | | |
| COMMENTS: | | | | | | |

AS BUILT "REBAR" DETAIL

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

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Arch
 CLEAR SPAN(NORMAL TO STREAM): 12'
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'
 WATERWAY OF FULL OPENING: 65 cf

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|---------|-----------|----------|
| Q2.33 = | 1004.8' | VELOCITY= | 9.2 fps |
| Q10 = | 1006.2' | " | 12.0 fps |
| Q25 = | 1006.9' | " | 12.8 fps |
| Q50 = | 1007.4' | " | 13.3 fps |
| Q100 = | 1007.9' | " | 13.7 fps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 1019.9'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1009.2'
 VERTICAL CLEARANCE: @ Q25 = 2.3'

SCOUR: Contraction scour 0' up to Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

| | | |
|----------------------|--------|---------------------|
| AVERAGE DAILY FLOW: | 3 cfs | DEPTH OR ELEVATION: |
| ORDINARY LOW WATER: | 2 cfs | 0.5' |
| ORDINARY HIGH WATER: | 35 cfs | 1.5' |

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None 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. SEE PROJECT NOTES SHEET - NOTE 23.
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: 12.00 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. 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. SOIL UNIT WEIGHT | γ: 0.140 KCF |
| 15. NOMINAL BEARING RESISTANCE OF SOL | q _n : 7.2 KSF |
| 16. SOL 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 | q _p : --- |
| 20. PILE YIELD STRENGTH ASTM A572 | f _y : --- |
| 21. PILE SIZE | --- |
| 22. EST. PILE LENGTH | L _p : --- |
| 23. PILE RESISTANCE FACTOR | φ: --- |
| 24. LATERAL PILE DEFLECTION | Δ: --- |
| 25. BASIC WIND SPEED | V _{3s} : --- |
| 26. MINIMUM GROUND SNOW LOAD | p _g : --- |
| 27. SEISMIC DATA | PGA: --- S _s : --- S ₁ : --- |

PROJECT NAME: **SHREWSBURY**
 PROJECT NUMBER: **STP 1443 (44)**

FILE NAME: s94j154pi.xls PLOT DATE: 5/12/2014
 PROJECT LEADER: C. CARLSON DRAWN BY: M. LONGSTREET
 DESIGNED BY: N. VAN DEN BERG CHECKED BY: J. LACROIX
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TRAFFIC DATA

| YEAR | ADT | DHV | % D | % T | ADTT | |
|------|-----|-----|-----|------|------|---|
| 2001 | 430 | 60 | 60 | <1.0 | 15 | 20 year ESAL for flexible pavement from 2001 to 2021 : 124000 |
| 2021 | 580 | 80 | 60 | <1.0 | 20 | 40 year ESAL for flexible pavement from 2001 to 2041 : 284000 |
| | | | | | | Design Speed : 25 mph |