

**GENERAL**

1. THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE ROAD TO TRAFFIC FOR A MAXIMUM OF 4 CONSECUTIVE WEEKS FOR INSTALLATION OF THE NEW STRUCTURE. SEE SPECIAL PROVISIONS.
2. ALL DESIGN, MATERIALS, AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2012, AND ITS LATEST REVISIONS, AND THE VTRANS STRUCTURES DESIGN MANUAL.
3. THE SOIL PROPERTIES AND DESIGN PARAMETERS TO BE USED ARE AS FOLLOWS:

DESIGN LIVE LOAD:	HL - 93
FILL OVER THE STRUCTURE:	6 INCHES MINIMUM
DEPTH OF FOOTINGS BELOW STREAM BED:	6 FEET
MINIMUM CLEAR SPAN:	12 FEET
MINIMUM VERTICAL WATERWAY OPENING:	6 FEET
MAXIMUM ALLOWABLE SETTLEMENT:	
OF WHOLE STRUCTURE:	1 INCH
BETWEEN PRECAST UNITS:	.25 INCH

**FOUNDATION SOIL PARAMETERS**

UNIT WEIGHT:	130 PCF
FRICTION ANGLE:	36 DEGREES
COEFFICIENT OF FRICTION:	
FORMED CONCRETE AGAINST SOIL	0.40

FACTORED BEARING RESISTANCE:	
STRENGTH LIMIT STATE	
VARYING LINEARLY FROM 10 KSF AT 4' EFFECTIVE FOOTING WIDTH TO 16.5 KSF AT 12'	
EXTREME LIMIT STATE	
VARYING LINEARLY FROM 7 KSF AT 4' EFFECTIVE FOOTING WIDTH TO 21 KSF AT 12'	

**RETAINED SOIL PARAMETERS**

UNIT WEIGHT:	140 PCF
FRICTION ANGLE:	34 DEGREES
COEFFICIENT OF FRICTION:	
CONCRETE CAST AGAINST SOIL	0.55
FORMED CONCRETE AGAINST SOIL	0.49

4. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
5. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR REMOVAL OF THE EXISTING PIPE, ARCH, AND WINGWALLS.
6. DEWATERING SHALL BE INCLUDED IN ITEM 900.645 "TEMPORARY RELOCATION OF STREAM".
7. THE DESIGN SHALL INCLUDE THE EFFECTS OF ALL LOADS, NOT LIMITED TO LIVE LOAD, EARTH SURCHARGE AND HYDROSTATIC PRESSURE.
8. ITEM 900.645 "MAINTENANCE OF EXISTING WATER FLOWS" SHALL BE FULL COMPENSATION FOR INSTALLATION AND MAINTENANCE OF TEMPORARY WATER SERVICE AS INDICATED ON THE PLANS. TAKE NOTE THERE ARE TWO POTABLE WATERLINES IN THE VICINITY OF THE PROJECT, ONE IS TO BE TEMPORARILY RELOCATED AND THE OTHER LEFT UNDISTURBED. SEE R.O.W. LAYOUT FOR DETAILS. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THIS WATER LINE THROUGHOUT THE DURATION OF THE PROJECT AND FOR COORDINATING WORK ON THE LINE WITH ITS OWNER TO MINIMIZE DISRUPTION OF SERVICE. SEE SPECIAL PROVISIONS.

**CONCRETE**

9. THE RIGID FRAME OR ARCH, HEADWALLS, WINGWALLS, AND FOOTINGS SHALL BE PRECAST CONCRETE CONFORMING TO SECTION 540 OF THE SPECIFICATIONS AND SHALL MEET PLAN DIMENSIONS WHERE REQUIRED. ALL PRECAST COMPONENTS OF THE STRUCTURE WILL BE PAID FOR UNDER ITEMS:  
540.10 "PRECAST CONCRETE STRUCTURE (12'-0" X 12'-0" X 120'-0" FRAME OR ARCH TYPE)"  
540.10 "PRECAST CONCRETE STRUCTURE (WINGWALL #1)"  
540.10 "PRECAST CONCRETE STRUCTURE (WINGWALL #2)"  
540.10 "PRECAST CONCRETE STRUCTURE (WINGWALL #3)"  
540.10 "PRECAST CONCRETE STRUCTURE (WINGWALL #4)"
10. DESIGN OF ALL ELEMENTS, ANCHORAGE, AND CONNECTIONS OF THE PRECAST STRUCTURES ARE THE RESPONSIBILITY OF THE PRECAST SUPPLIER. THIS DESIGN SHALL ALSO INCLUDE BUT NOT BE LIMITED TO DESIGN OF ALL EXCAVATIONS, INSTALLATION PROCEDURES, AND BACKFILLING REQUIREMENTS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FABRICATOR'S APPROVED DESIGN. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR THE PRECAST RIGID FRAME OR ARCH IN ACCORDANCE WITH SECTION 105. ALL DESIGN AND SUPPORTING CALCULATIONS SHALL BE SIGNED, STAMPED AND DATED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE ENGINEERING IN THE STATE OF VERMONT. NOTE THAT THE FABRICATOR ASSUMES ALL LIABILITY FOR THE ADEQUACY AND ACCURACY OF THE RIGID FRAME OR ARCH DESIGN, INCLUDING ALL EXCAVATION, INSTALLATION, AND BACKFILLING DESIGN.
11. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE SHOP APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE STRUCTURE BETWEEN THE INLET AND OUTLET. ALL WORK IS INCIDENTAL TO THE 540.10 "PRECAST CONCRETE STRUCTURE" BID ITEMS.
12. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1".

13. REINFORCING STEEL COVER SHALL BE 3". PLACEMENT TOLERANCES SHALL BE:  
SPACING: +/- 1 INCH  
CLEARANCE: +/- 1/4 INCH

14. PRECAST TOLERANCES:  
HEIGHT/WIDTH: +/- 1/2 INCH  
LENGTH: +/- 1 INCH

15. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL 1 REINFORCING STEEL. REINFORCING STEEL WILL BE INCLUDED FOR PAYMENT UNDER APPROPRIATE SECTION 540 CONTRACT ITEM.

16. THE PROPOSED STRUCTURE SHALL BE A THREE-SIDED RIGID FRAME OR ARCH WITH A MINIMUM CLEAR SPAN OF 12'. THE LUMP SUM COST FOR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (12'-0" X 12'-0" X 120'-0" FRAME OR ARCH TYPE)" SHALL INCLUDE THE PRECAST RIGID FRAME OR ARCH, HEADWALLS, FOOTINGS, MECHANICAL CONNECTIONS AND JOINT WATERPROOFING MEASURES AND ALL RELATED ENGINEERING DESIGN WORK.

17. THE LUMP SUM COST FOR EACH ITEM 540.10 "PRECAST CONCRETE STRUCTURE (WINGWALL #)" SHALL INCLUDE THE PRECAST WINGWALL, FOOTINGS AND MECHANICAL CONNECTIONS.

18. THE PRECAST STRUCTURE DETAILS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL CONFIGURATION WILL BE DEPENDENT ON THE FABRICATOR. THE FINAL SPAN, CLEAR OPENING, AND LENGTH ARE TO BE AS DIMENSIONED IN THESE PLANS.

19. NO HOLES SHALL BE DRILLED IN THE RIGID FRAME OR ARCH WITHOUT THE APPROVAL OF THE FABRICATOR AND THE AGENCY.

20. THE USE OF EQUIPMENT AND THE METHOD OF BACKFILLING AROUND THE BURIED STRUCTURE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. CARE SHALL BE TAKEN WHEN BACKFILLING AGAINST JOINT WATERPROOFING MATERIALS.

21. JOINTS BETWEEN ALL ABUTTING PRECAST UNITS SHALL BE WATERTIGHT AND MECHANICALLY CONNECTED. THE COMPLETED STRUCTURE SHALL BE FREE OF WATER LEAKS AND CRACKS.

**TRAFFIC CONTROL**

22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED PRIOR TO, DURING, AND AFTER THE CLOSURE PERIOD. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

23. THE TOWN SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTAINANCE OF ALL OFF PROJECT DETOUR SIGNAGE.

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

FILE NAME: s94j154gen.dgn	PLOT DATE: 19-AUG-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: N. VANDENBERG	CHECKED BY: J. LACROIX
PROJECT NOTES	SHEET 6 OF 36