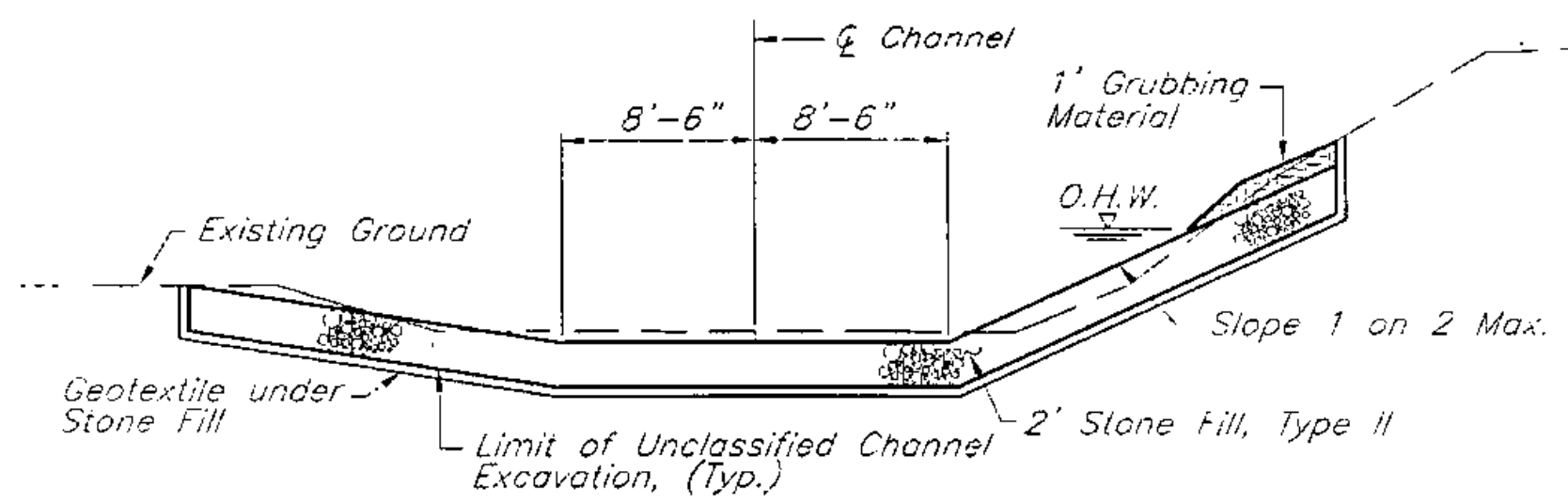


TYPICAL CULVERT SECTION  
Scale: 1/4"=1'-0"



TYPICAL CHANNEL SECTION  
Scale: 1/8"=1'-0"

DRAWING INDEX	
DWG. NO.	DESCRIPTION
BC100	Sections, Quantities and Notes
BC101	Boring Logs 1
BC102	Boring Logs 2
BC103	Culvert Earthwork Limits & Details
BC104	Plan & Elevation
BC105	Phase 1 Construction Plan
BC106	Phase 2 Construction Plan
BC107	Phase 1, 2 & 3 Construction Section
BC108	Wingwall Plan, Elevation and Details
BC109	X- Section Sta. 118+55 to 119+30
BC110	X- Section Sta 119+40 to 119+70
BC111	X- Section Sta 120+33 to 120+63
BC112	X- Section Sta 120+90 to 121+65
BC113	X- Section Sta 121+90 to 122+40

QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	FINAL
203.27	UNCLASSIFIED CHANNEL EXCAVATION	CY	1,590	
203.32	GRANULAR BORROW	CY	1,150	
204.20	TRENCH EXCAVATION OF EARTH	CY	10	
204.25	STRUCTURE EXCAVATION	CY	1,970	
204.30	GRANULAR BACKFILL FOR STRUCTURES	CY	270	
204.30	GRANULAR BACKFILL FOR STRUCTURES (MOD)	CY	140	
501.25	CONCRETE - CLASS B	CY	27	
505.36	TEMPORARY STEEL SHEET PILING	SF	4,370	
507.15	REINFORCING STEEL	LB	5,130	
514.10	WATER REPELLENT	GAL	19	
519.20	SHEET MEMBRANE WATERPROOFING	SY	620	
540.10	PRECAST CONCRETE BOX (US 7)	LS	1	
613.11	STONE FILL, TYPE II	CY	670	
620.11	CHAIN - LINK FENCE, 4 FEET (MOD)	LF	135	
649.31	GEOTEXTILE UNDER STONE FILL	SY	1,580	
651.40	GRUBBING MATERIAL	SY	1,000	

EXISTING STRUCTURE

1. STRUCTURE TYPE SINGLE CELL CAST IN-PLACE CONCRETE BOX CULVERT OVERALL LENGTH 62'-0"	INVENTORY RATING N/A
2. SPAN LENGTHS CENTER TO CENTER OF BEARINGS N/A	
3. CLEAR SPAN LENGTHS MINIMUM TO STREAM 12 FT	
4. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM) 105.5 SQ. FT.	VERTICAL CLEARANCE ABOVE STREAMBED 10 FT
5. WATER SURFACE ELEVATION @ D.P.33 145.06	WATER SURFACE ELEVATION @ D.50 149
6. WATER SURFACE ELEVATION AT FLOOD OF RECORD UNKNOWN	YEAR N/A
7. DOES ALL WATER PASS THROUGH EXISTING STRUCTURE? YES IF NOT, AT WHAT FREQUENCY AND ELEVATION DOES RELIEF OCCUR? N/A	ESTIMATED DISCHARGE UNKNOWN
8. TYPE OF SUBSTRUCTURE FOUNDATION MATERIAL SANDY SILT, TILL	
9. DISPOSITION OF STRUCTURE TO BE REMOVED	

NEW STRUCTURE

1. STRUCTURE TYPE SINGLE CELL PRECAST CONCRETE 3-SIDED CULVERT OVERALL LENGTH 145'-0"	
2. SPAN LENGTHS CENTER TO CENTER OF BEARINGS N/A	
3. VERTICAL CLEARANCE ABOVE STREAMBED OR ROAD UNDER 7 FT	
4. CLEAR SPAN LENGTHS MINIMUM TO STREAM 17 FT	
5. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM) 119.0 SQ. FT.	
6. ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES? SANITARY SEWER	

HYDRAULIC DATA:

D.P.33	300 CFS	WATER ELEVATION	143.65 FT	VELOCITY	5.68 FPS
D.10	500 CFS	WATER ELEVATION	146.70 FT	VELOCITY	6.67 FPS
D.25	725 CFS	WATER ELEVATION	148.10 FT	VELOCITY	7.93 FPS
D.50	900 CFS	WATER ELEVATION	149.25 FT	VELOCITY	7.96 FPS
D.100	1100 CFS	WATER ELEVATION	153.70 FT	VELOCITY	9.17 FPS

2. DRAINAGE AREA 5.15 SQ. MILES	CHARACTER OF TERRAIN	GENUINELY ROLLING HILLS
3. ARE THERE OBSTACLES IN A PIPE IN THE STREAM? N/A		
4. DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? NO	IS ORDINARY PIKE PAPER? NO	
5. NATURE OF NATURAL SURFACES SANDY SILT, TILL		
6. ESTIMATED SCOUR DEPTH N/A	COMMENT ON DEPTH N/A	ICE N/A
7. WILL ALL WATER PASS THROUGH NEW STRUCTURE? YES IF NOT, WHAT FREQUENCY AND ELEVATION WILL RELIEF OCCUR? N/A		
8. VERTICAL CLEARANCE ABOVE STREAMBED OR ROAD UNDER NONE		
9. ALLOWABLE WATER SURFACE ELEVATION 153.07 FT	LIMITED BY TOP OF CONCRETE HEADWALL @ THE INLET	
10. IS DESIGN STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO	IF YES, DESCRIBE	
11. ORDINARY LOW WATER FL. 142	DEPTH 4 IN	ORDINARY HIGH WATER FL. 145.65
12. AVERAGE DAILY FLOW UNKNOWN	STEAM BANK OR CHANNEL PROTECTION REQUIRED 2' STONE FILL, TYPE II	DEPTH 3.98 FT
13. DISTANCE TO EXISTING IN-STREAM STRUCTURE 280 FT	SPAN 15.00 FT	WATERWAY AREA OF FULL OPENING 120.00 SF
14. DISTANCE TO EXISTING IN-STREAM STRUCTURE UNKNOWN	SPAN UNKNOWN	WATERWAY AREA OF FULL OPENING UNKNOWN

ALLOWABLE STRESSES:

1. DESIGN LIVE LOAD AASHTO HS25		
2. ALLOWABLE LOAD FOR SUPPORT FOOTINGS ON SOIL 4000 PSF	ON LEDGE N/A	
3. ALLOWABLE LOAD FOR PILING N/A	TYPE N/A	ESTIMATED LENGTH N/A
4. ALLOWABLE STRESS FOR STRUCTURAL STEEL AASHTO N/A	TENSION N/A	
5. ALLOWABLE STRESS FOR PILING STEEL GRADE 60 TENSION 24,000 PSI	COMPRESSION 20,000 PSI	
6. ALLOWABLE STRESS FOR CONCRETE CLASS B F <sub>c</sub> 3,000 PSI	F <sub>t</sub> 1,400 PSI	

TRAFFIC MAINTENANCE:

1. IS TRAFFIC TO BE MAINTAINED? YES	IF YES, ON EXISTING STRUCTURE YES	OR ON TEMPORARY BRIDGE NO
2. TEMPORARY BRIDGE PROVISIONS FOR TWO-WAY N/A	TRAFFIC CONTROL SIGNALS REQUIRED N/A	
MINIMUM CLEAR SIGN N/A	MINIMUM CLEAR HEIGHT N/A	MINIMUM WATERWAY AREA N/A
ARE SIDEWALKS REQUIRED? N/A	IF SO, ON WHAT SIDE? N/A	

GENERAL NOTES:

- All Materials and Construction shall conform to State of Vermont, Agency of Transportation, 2001 Standard Specifications for Highway and Bridge Construction and its latest revisions and the AASHTO Standard Specifications for Highway Bridges and its latest revisions.
- All exposed edges of concrete shall be chamfered 1" by 1".
- All precautions shall be taken to prevent siltation or pollution into the stream. Refer to Standard Specifications, Section 105. All water pumped from excavation area shall be clarified prior to being allowed to mix with the stream flow. State water quality standards shall be maintained at all times.
- In-Stream Construction shall occur only between June 1 and October 1, unless the contractor obtains written permission from the Agency of Natural Resources to do the work outside of that time frame.
- Bed Material to be placed within the Box shall be material excavated from the channel or the tailings of a Topsoil screening operation with gradation adjusted to conform to the following table:  

Stone/Sieve Size	% Finer, by Weight
24"	100
12"	20-50
#4	0-30
#200	0-5

The bed material is subject to approval by the Engineer and the Agency of Natural Resources Stream Alteration Engineer, and will be paid for under Item 204.30, Granular Backfill for Structures (MOD).
- The Concrete Baffles shall be spaced from 8'-0" to 10'-0" on-center, with the center of the baffle set at a minimum of 1'-6" from either end of a box segment.
- The Cast-In-Place Concrete Baffles and the Cast-In-Place Corners shall be paid for under Item 501.25, Concrete-Class B, and Item 507.15, Reinforcing Steel. Contractor shall have the option of using Precast Concrete Baffles, which shall be paid for under the same items as the Cast-In-Place Concrete Baffles. Details of Precast Concrete Baffles shall be submitted for approval.
- The removal of the existing structure shall be considered subsidiary to Item 204.25, Structure Excavation. Any part of the existing structure which lies outside the excavation limits of the new culvert and the new roadway section may be either left in place or removed by the Contractor.
- Water Repellent shall be applied to all exposed concrete surfaces, except for the underside of the culvert roof between the drip beads.
- The Granular Backfill for Structures to be placed against the sheet membrane waterproofing on the top of the box shall not contain sharp angular pieces, which could damage the membrane. The Contractor may choose to substitute sand borrow in this area. For earthwork details, see Sheet BC103.
- Sheets BC105-BC107 show a possible construction staging scheme conceived by the Designer. The Contractor shall be responsible for the actual staging scheme. All work must be done in the dry and all box sections shall be completely installed before the stream is allowed to flow through them. A Temporary Stream Diversion System is necessary to carry Munroe Brook during construction. Sheets BC105-BC107 do not show a diversion system. The Contractor shall prepare and submit a Temporary Stream Diversion Plan to carry Munroe Brook during construction of the new culvert. The plan shall depict measures proposed to prevent erosion and sedimentation and maintain stream water quality. After work is completed, any temporary pipes located outside the limits of the new culvert may either be removed or filled with flowable fill and capped. The cost of stream diversion, including any temporary piping or dewatering, shall be subsidiary to all other items.
- For additional information, see Typical Roadway Sections, Profiles, Roadway Cross Sections, Roadway Plans, and Special Provisions.

PRECAST NOTES:

- For Precast Notes refer to Sheet BC102.

STATE OF VERMONT  
AGENCY OF TRANSPORTATION

NO.	REVISIONS DESCRIPTION	BY & DATE	Town Or SHELburnE	Bridge No. 145
			Highway No. U.S. ROUTE 7	Log Sta. 196+79
				Surv. Sta. 319+30
U.S. ROUTE 7 OVER MUNROE BROOK SECTIONS, QUANTITIES AND NOTES				
Designed By L.Jarvis	Checked By J.Cortiss	Date April 2003	Drawn By S.Scotcher	Bridge Design Supervisor W.Windus
PROJECT SHELburnE			PROJECT NO. NHECC FECC 019-4(27)	
I.G.C. Info.				
Bridge Sheet No. BC100			Sheet 440 of 537	

ERDMAN ANTHONY  
CONSULTING ENGINEERS  
Rochester, New York    Camp Hill, Pennsylvania  
Boston, Massachusetts