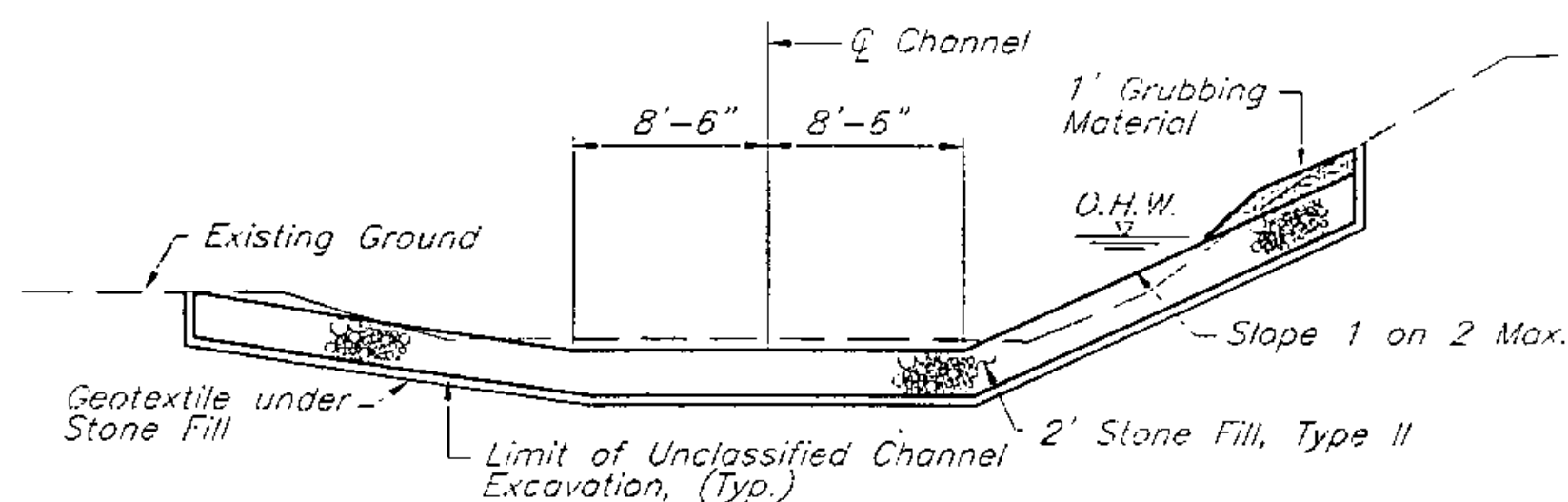


TYPICAL CULVERT SECTION
Scale: 1/4"=1'-0"



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

| DRAWING INDEX | |
|---------------|--------------------------------------|
| DWG. NO. | DESCRIPTION |
| BC200 | Sections, Quantities and Notes |
| BC201 | Boring Logs 1 |
| BC202 | Culvert Earthwork Limits & Details |
| BC203 | Plan & Elevation |
| BC204 | Wingwall Plan, Elevation and Details |
| BC205 | X- Section Sta. 8+35 to 9+10 |
| BC206 | X- Section Sta 9+20 to 9+52.21 |
| BC207 | X- Section Sta 9+60 to 10+55 |
| BC208 | X- Section Sta 10+65 to 11+35 |

| QUANTITIES | | | | |
|------------|--|------|----------|-------|
| ITEM NO. | DESCRIPTION | UNIT | QUANTITY | FINAL |
| 203.27 | UNCLASSIFIED CHANNEL EXCAVATION | CY | 810 | |
| 203.32 | GRANULAR BORROW | CY | 940 | |
| 204.20 | TRENCH EXCAVATION OF EARTH | CY | 10 | |
| 204.25 | STRUCTURE EXCAVATION | CY | 1,200 | |
| 204.30 | GRANULAR BACKFILL FOR STRUCTURES | CY | 200 | |
| 204.30 | GRANULAR BACKFILL FOR STRUCTURES (MOD) | CY | 90 | |
| 501.25 | CONCRETE CLASS B | QY | 21 | |
| 507.15 | REINFORCING STEEL | LB | 3,970 | |
| 514.10 | WATER REPELLENT | GAL | 14 | |
| 519.20 | SHEET MEMBRANE WATERPROOFING | SY | 420 | |
| 540.10 | PRECAST CONCRETE BOX (BAY RD.) | LS | 1 | |
| 613.11 | STONE FILL, TYPE II | CY | 340 | |
| 649.31 | GEOTEXTILE UNDER STONE FILL | SY | 890 | |
| 651.40 | GRUBBING MATERIAL | SY | 510 | |

EXISTING STRUCTURE

1. STRUCTURE TYPE CORRUGATED STEEL ARCH OVERALL LENGTH 63'-6" INVENTORY RATING N/A

2. SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS N/A

3. CLEAR SPAN LENGTH(S) NORMAL TO STREAM 15

4. WATERWAY AREA OF FULL OPENING NORMAL TO STREAM 113.50 SQ. FT. VERTICAL CLEARANCE ABOVE STREAMBED 9'-5"

5. WATER SURFACE ELEVATION @ 0.50% 142.30 UNKNOWN WATER SURFACE ELEVATION @ 0.50% 144.26

6. WATER SURFACE ELEVATION AT FLOOD OF RECORD N/A YEAR N/A ESTIMATED DISCHARGE UNKNOWN

7. DOES ALL WATER PASS THROUGH EXISTING STRUCTURE? YES IF NOT, AT WHAT FREQUENCY AND ELEVATION DOES RELIEF OCCUR? N/A

8. TYPE OF SUBSTRUCTURE FOUNDATION MATERIAL SANDY SILT, TILL

9. DISPOSITION OF STRUCTURE REMOVAL OF ENTIRE EXISTING CULVERT

NEW STRUCTURE

STRUCTURE GEOMETRY:

1. STRUCTURE TYPE SINGLE CELL PRECAST CONCRETE 3-SIDED CULVERT OVERALL LENGTH 95'-0"

2. SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS N/A

3. VERTICAL CLEARANCE ABOVE STREAMBED OR ROAD UNDER 7 FT

4. CLEAR SPAN LENGTH(S) NORMAL TO STREAM 17 FT

5. WATERWAY AREA OF FULL OPENING NORMAL TO STREAM 119.00 SQ. FT.

6. ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES? NO

HYDRAULIC DATA:

1. 0.25 310 CFS WATER ELEVATION 143.01 FT VELOCITY 5.87 FPS

0.50 510 CFS WATER ELEVATION 143.85 FT VELOCITY 6.75 FPS

0.75 735 CFS WATER ELEVATION 144.82 FT VELOCITY 7.66 FPS

1.00 915 CFS WATER ELEVATION 145.40 FT VELOCITY 8.11 FPS

1.25 1115 CFS WATER ELEVATION 149.12 FT VELOCITY 9.29 FPS

2. DRAINAGE AREA 5.32 SQ. MILES CHARACTER OF TERRAIN GENTLY ROLLING HILLS

3. ARE THERE OBJECTIONS TO A DIKE IN THE STREAM? N/A

4. DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION FREQUENTLY? NO IS ORDINARY RISE RAPID? NO

5. NATURE OF NATURAL SIFTS AND DEPOSITS SANDY SILT, TILL

6. ESTIMATED SCOUR DEPTH N/A COMMENT ON BRIFT 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 10' IS 0 FT

9. ALLOWABLE WATER SURFACE ELEVATION 147.67 FT LIMITED BY TOP OF CONCRETE HEADWALL @ THE OUTLET

10. IS DESIGN STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO IF YES, DESCRIBE

11. ORDINARY LOW WATER 137.45 FT DEPTH 4 IN ORDINARY HIGH WATER 143.01 FT DEPTH 5.9 FT

12. AVERAGE DAILY FLOW UNKNOWN STEAMBANK OR CHANNEL PROTECTION REQUIRED 2' STONE FILL, TYPE II

13. DISTANCE TO EXISTING UPSTREAM STRUCTURE 280 FT SPAN PROP. 15 FT WATERWAY AREA OF FULL OPENING 120.00 SF

14. DISTANCE TO EXISTING DOWNSTREAM STRUCTURE 1700 FT SPAN 10 FT WATERWAY AREA OF FULL OPENING 85.00 SF

ALLOWABLE STRESSES:

1. DESIGN LIVE LOAD AASHTO HS25

2. ALLOWABLE LOAD FOR OPENING 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 REINFORCING STEEL GRADE 60 TENSION 25,000 PSI COMPRESSION 20,000 PSI

6. ALLOWABLE STRESS FOR CONCRETE CLASS B f_t 3,500 PSI f_c 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 REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED N/A

MINIMUM CLEAR SPAN 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. The 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 BC202.
- 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. 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.
- Bay Road will be closed to traffic to construct the new box culvert. See Traffic Control Drawing 6A for Bay Road detour plan.

PRECAST NOTES:

- For Precast Notes refer to Sheet BC204.

| REVISION: | | BY & DATE |
|-----------|-------------|-----------|
| NO. | DESCRIPTION | |
| | | |

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

Town Of SHELBURNE Bridge No. N/A
Highway No. U.S. ROUTE 7 Log Sta. N/A
BAY ROAD OVER MUNROE BROOK
Surv. Sta. 141+61.31

SECTIONS, QUANTITIES AND NOTES

Designed By L.Janik Drawn By S.Scaffer
Checked By J.Corriss Date April 2003 Bridge Design Supervisor W.Windus Date April 2003

PROJECT SHELBURNE PROJECT NO. NHECC FECC 019-4(27)
I.G.C. Info

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