

**Vermont Department of Environmental Conservation**

Watershed Management Division

Springfield Regional Office

100 Mineral Street, Suite 303

Springfield, VT 05156

[www.watershedmanagement.vt.gov](http://www.watershedmanagement.vt.gov)*Agency of Natural Resources*

[phone] 802-885-8855

[fax] 802-885-8890

[cell] 802-345-3510

**AUTHORIZATION TO CONDUCT STREAM ALTERATION ACTIVITIES**

Pursuant to Section C.2.2.3 of the VT Stream Alteration General Permit (Reporting activities not requiring an application)

Project Number: **SA-05-003-2015 Brattleboro Sargent Brook Sewer Crossing**

Applicant Name: Town of Brattleboro Department of Public Works

Contact: Steve Barrett

Mailing Address: 211 Fairground Road, Brattleboro, VT 05301

Phone: 802-254-4255

Project Location: Black Mountain Rd/I-91 crossing under Sargent Brook

Email: [sbarrett@brattleboro.org](mailto:sbarrett@brattleboro.org)

The Secretary of the Vermont Agency of Natural Resources (VT ANR) has determined that:

1. This project authorizes the replacement of a sanitary sewer crossing involving a directional bore installation followed by a stone rip-rap bed armor on top of the new pipe in an existing scour pool below the I-91 culvert outlet.
2. The proposed activity is eligible for coverage under the VT ANR Stream Alteration General Permit.
3. The proposed activity will meet the terms and conditions of the General Permit provided:
  - a) The project will be completed and approved as shown on the plans prepared by Hoyle Tanner dated 12/2014, and approved by the Vermont Agency of Natural Resources as attached herein.
  - b) The project will not adversely affect the public safety by increasing flood hazards.
  - c) The project will not significantly damage fish life or wildlife.
  - d) The project will not significantly damage the rights of riparian owners.
  - e) The project will not obstruct the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction. Streambed armor shall be sized as per the attached Streambed Stone Fill Guidance.
  - f) The project is conducted in a manner which minimizes or avoids any discharge of sediment or other pollutants to surface waters in violation of the VT Water Quality Standards.
  - g) The ANR River Management Engineer is notified by phone or email when construction begins and when the project is complete.
  - h) In-stream working dates for all GP activities are from July 1<sup>st</sup> through October 1<sup>st</sup>; any in-stream work outside these dates will require an Individual Stream Alteration Permit authorization by the River Management Engineer.
  - i) This authorization has been posted for three days public comment. This authorization constitutes final approval.

If there are any changes in the project plan or deviation in construction from the plan, the Permittee must notify the River Management Engineer immediately.

If the project is constructed as you have described, as shown on the above referenced approved plans and according to the above conditions, there is no reason to expect any violation of Vermont Water Quality Standards.

Signed this 27<sup>th</sup> day of January, 2015

This permit expires October 1, 2015.

David K. Mears, Commissioner

Department of Environmental Conservation

by 

Todd Menees, P.E., P.H., River Management Engineer

### **Streambed Stone Fill Design Guidance**

<b>Type</b>	<b>Velocity Range (fps)*</b>	<b>Embeddedness (in)</b>
E1	$V \leq 9$	18
E2	$9 < V \leq 11$	24
E3	$11 < V \leq 13$	36
E4	$13 < V \leq 15$	48

\*Maximum velocity should be based on a minimum 50-year design flow rate and calculated at the structure outlet.

### **Item xxx.xxx CY Streambed Stone Fill Specification**

Type E1. The longest dimension of the stone shall be at least 18 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 12 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

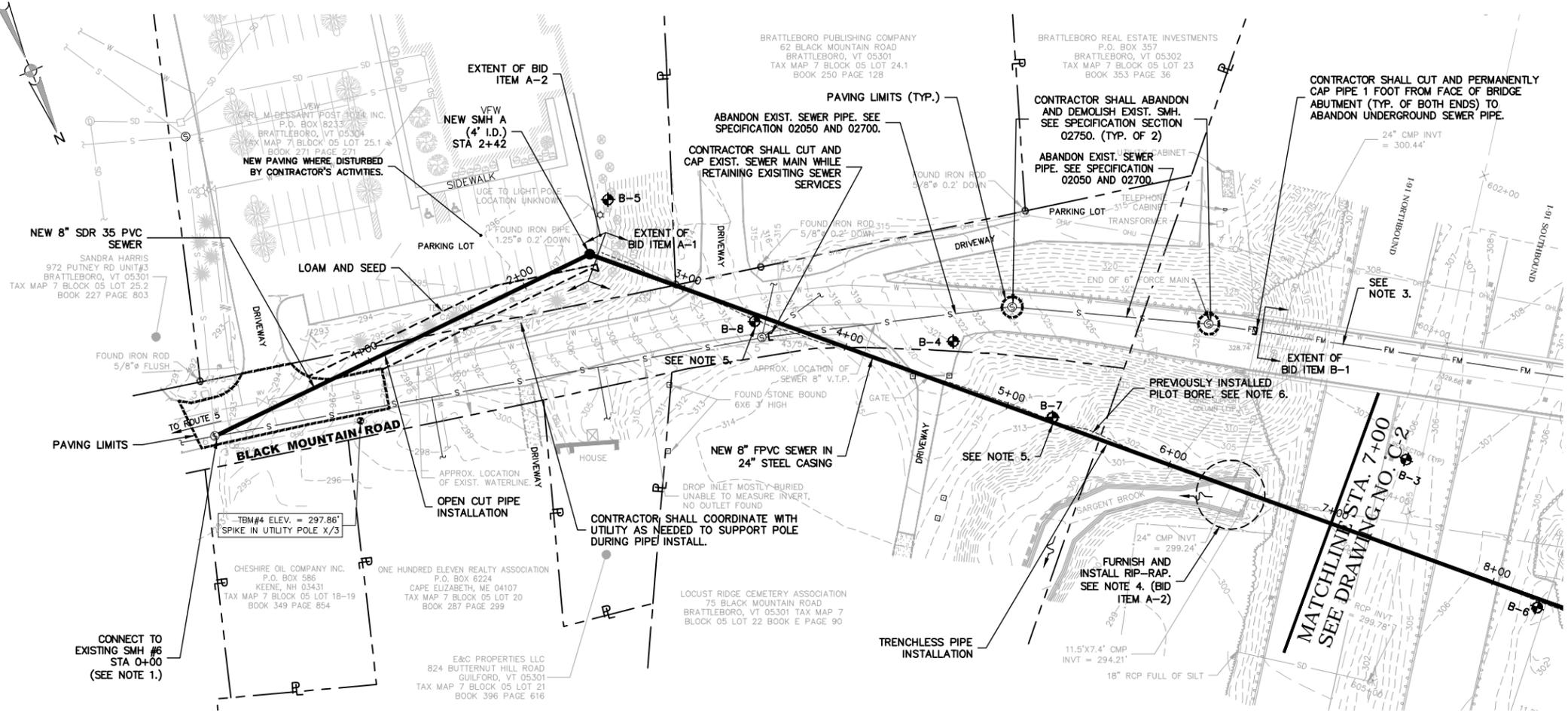
Type E2. The longest dimension of the stone shall be at least 24 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 18 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

Type E3. The longest dimension of the stone shall be at least 36 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 24 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

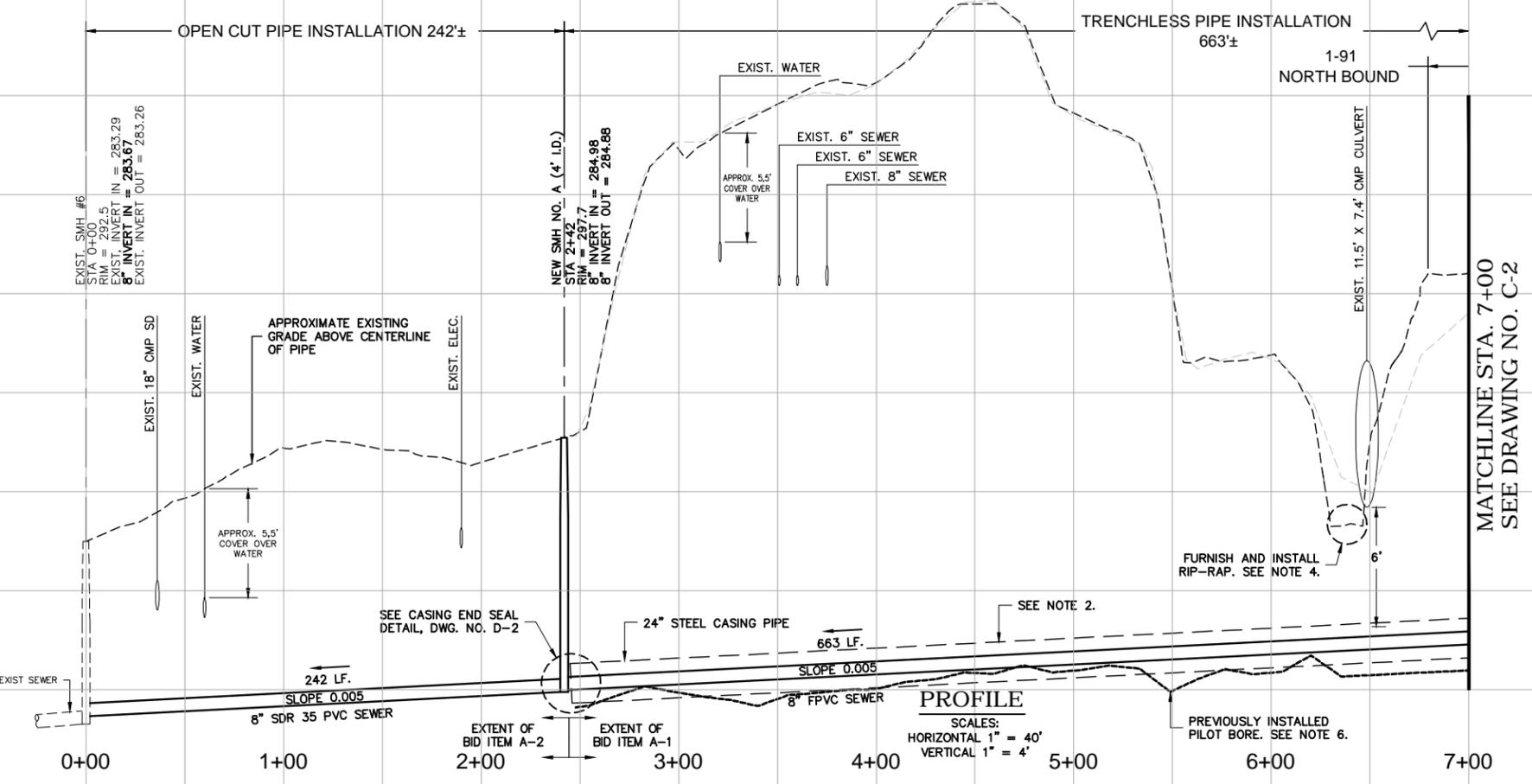
Type E4. The longest dimension of the stone shall be at least 48 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 36 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

### Notes

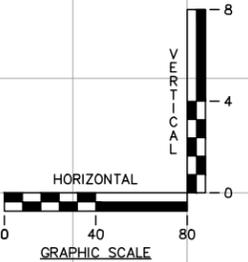
- The streambed stone fill shall be hard, blasted, angular rock other than serpentine rock containing the fibrous variety chrysotile (asbestos). Similar sized river sediment is an acceptable alternative as is a mixture of angular material and river sediment.
- Stone placed inside of a closed structure shall be placed such that the structure is not damaged.
- Care shall be taken to limit segregation of the materials.
- Add sand borrow item as needed to seal the bed and prevent subsurface flow.
- There shall be no subsurface flow upon final inspection.



PLAN  
SCALE: 1" = 40'



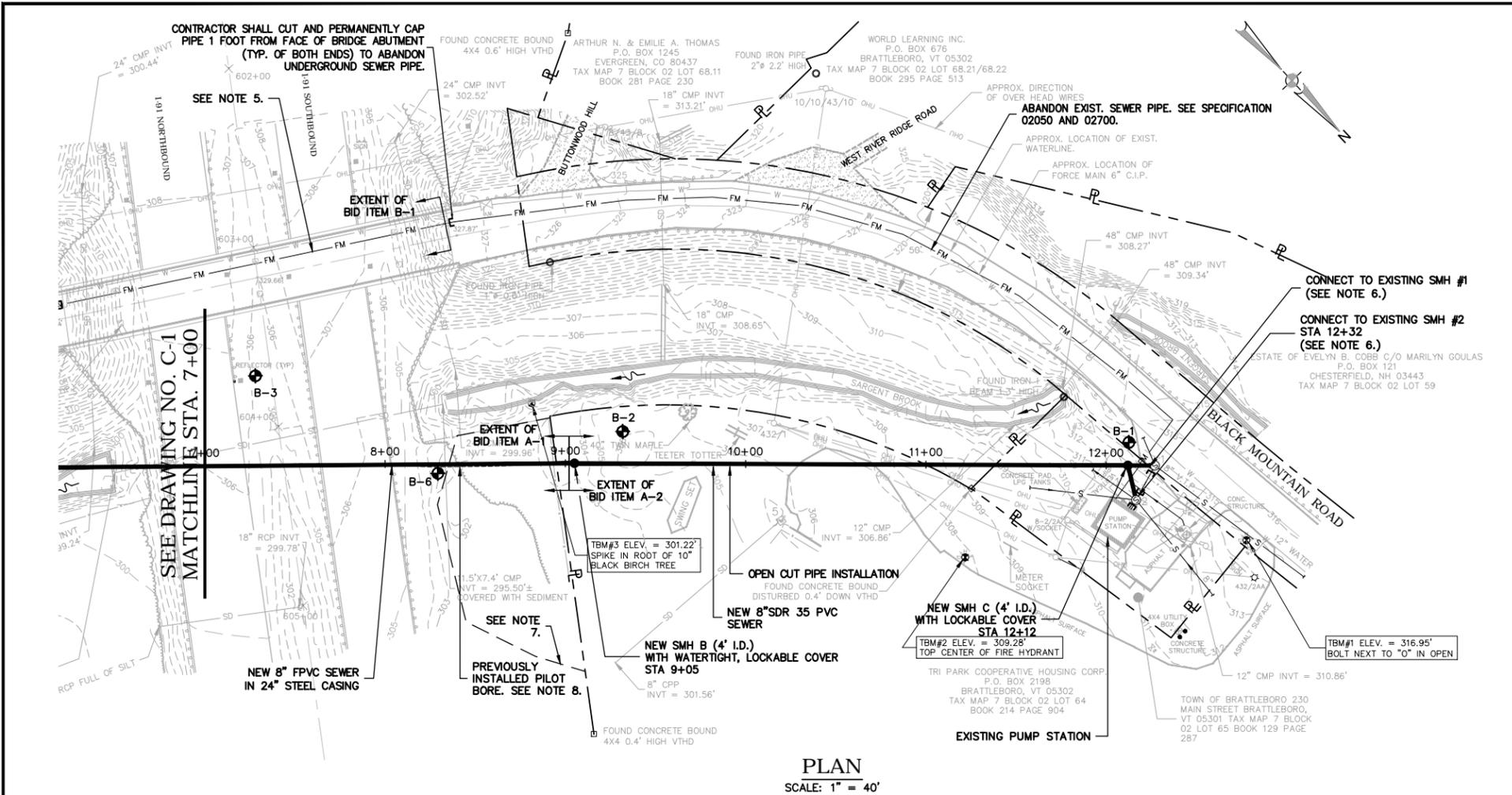
PROFILE  
SCALES:  
HORIZONTAL 1" = 40'  
VERTICAL 1" = 4'



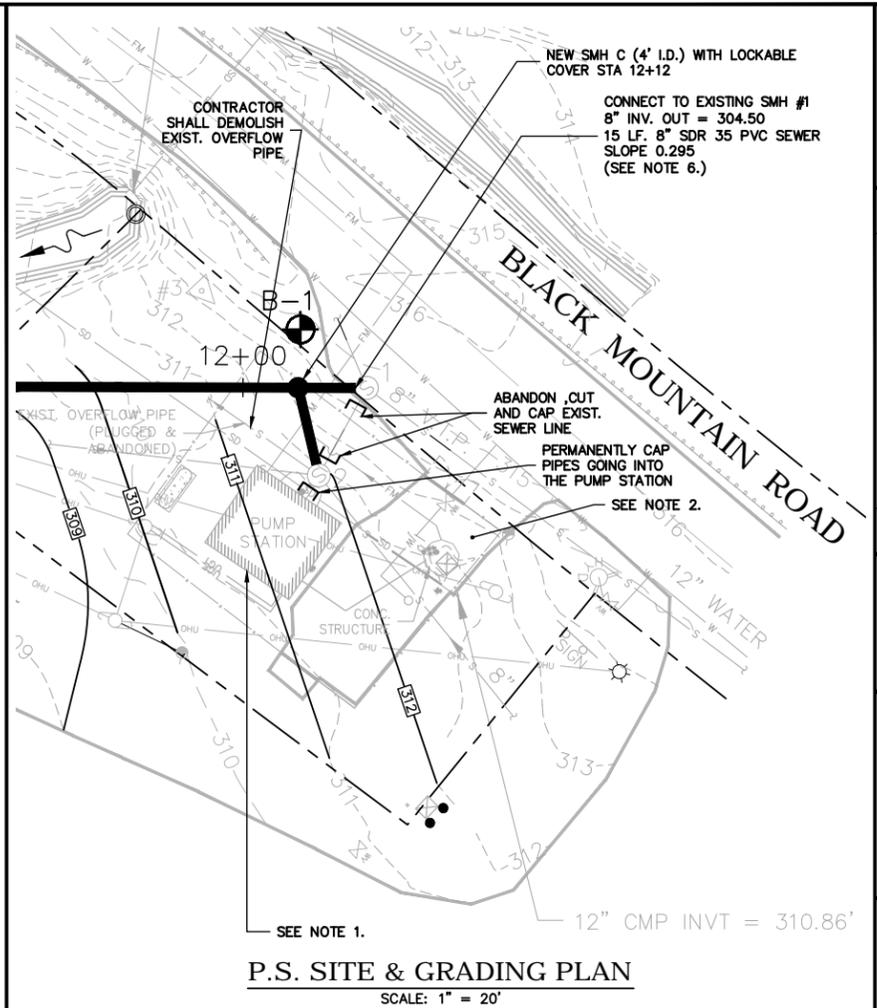
NOTES:

- CONTRACTOR SHALL DEMOLISH EXISTING INVERT AND REWORK INVERT IN EXISTING SMH #6. INVERT SHALL MEET THE MANHOLE DETAILS REQUIREMENTS ON DWG. NO. D-1.
- NOTE THAT IT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET THE PIPE GRADE REQUIREMENTS SHOWN ON THESE DRAWINGS AND IN SPECIFICATION 02600.
- IF BID ITEM B-1 IS ACCEPTED BY THE OWNER, CONTRACTOR SHALL DEMOLISH EXIST. SEWER FORCE MAIN PIPE FROM BRIDGE. REFER TO VTRANS PERMIT AND BID ITEM B-1 FOR REQUIREMENTS. REFER TO BLACK MOUNTAIN ROAD BRIDGE PIPE SUPPORT DETAIL, DWG. NO. D-2.
- PRIOR TO IN-STREAM WET WORK, COORDINATE PRE-CONSTRUCTION MEETING IN ACCORDANCE WITH SPECIFICATION 01900. CONTRACTOR SHALL REMOVE AND RETAIN NATIVE STREAM BED MATERIAL, 2' DEEP, FOR A DISTANCE OF 10' FROM THE FACE OF THE CULVERT OUTLET, FULL WIDTH OF STREAM CHANNEL. FURNISH AND INSTALL 2' MINUS ANGULAR ROCK RIP-RAP. REINSTALL 6" TO 1'-0" OF RETAINED NATIVE MATERIAL ON TOP OF 2' MINUS ANGULAR ROCK. CONTRACTOR IS RESPONSIBLE FOR BYPASS AND CONTROL OF SARGENT BROOK DURING INSTALLATION OF RIP-RAP.
- REFER TO SPECIFICATION 02600 FOR GROUND WATER MONITORING WELLS AND BORINGS THAT WERE NOT GROUTED.
- A 4" PILOT BORE WAS ADVANCED AS SHOWN ON THIS PLAN AND PROFILE BY ENGINEERS CONSTRUCTION, INC. (ECI) OF WILLISTON, VT IN JULY 2014. THE LOCATION OF THE PILOT BORE AS DEPICTED IS BASED ON INFORMATION FROM ECI. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MEET THE PIPE GRADE AND ALIGNMENT REQUIREMENTS SHOWN ON THESE DRAWINGS AND IN SPECIFICATION 02600.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF ONE LANE OF TRAFFIC ON BLACK MOUNTAIN ROAD AT ALL TIMES. CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR LOCAL ROAD LANE CLOSURES. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL.

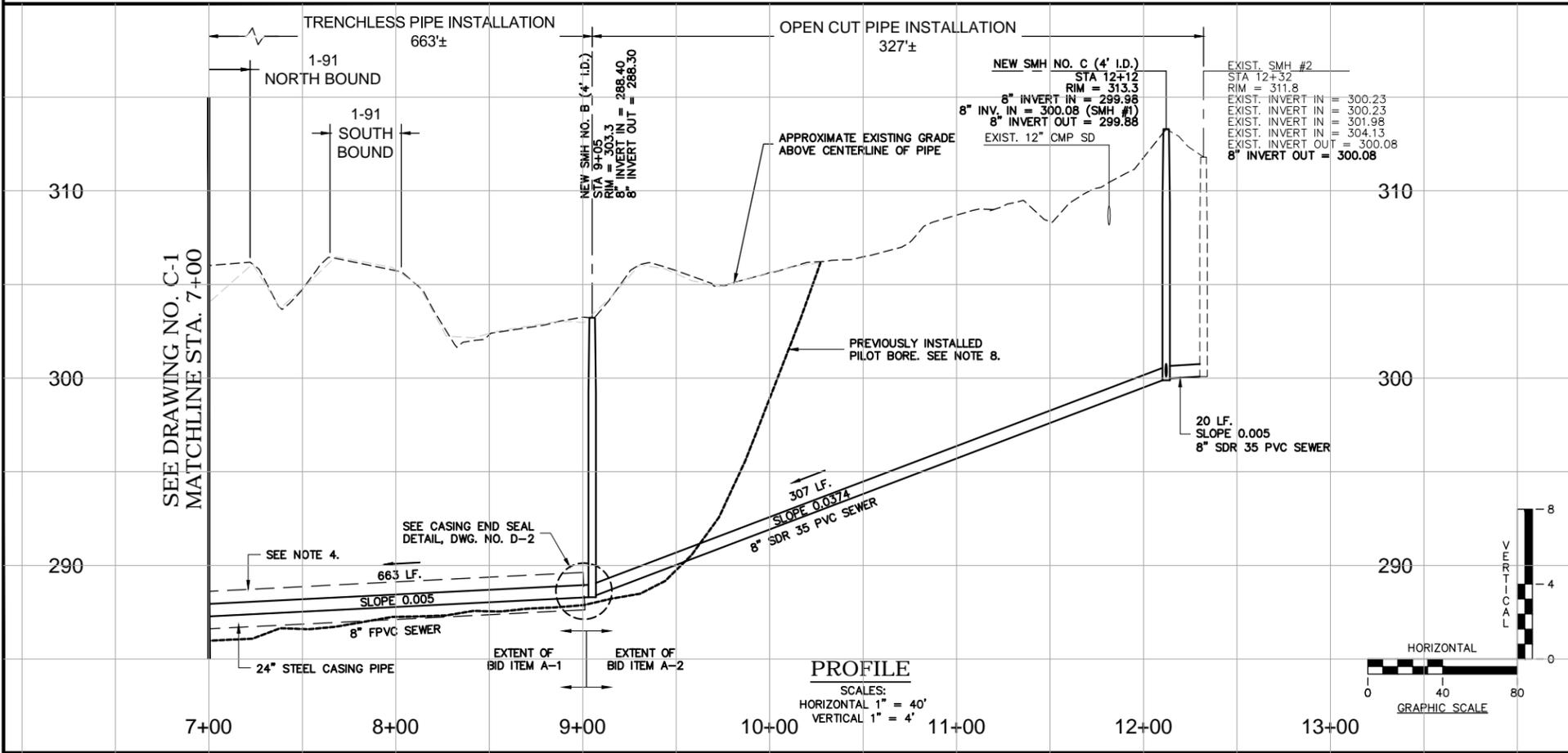
ENGINEER	
PROJECT NO.	122004
FILE NAME	122004-C01
DESIGNED BY	DM
DRAWN BY	HEM
CHECKED BY	MVS
DATE	DECEMBER 2014
SCALE	AS SHOWN
<b>Hoyle, Tanner &amp; Associates, Inc.</b> 125 College Street-4th Floor, Burlington, VT 05401 Tel (802) 860-1331 Fax (802) 860-6499 Web: www.hoyletanner.com © Copyright 2014 Hoyle, Tanner & Associates, Inc.	
TOWN OF BRATTLEBORO, VERMONT BLACK MOUNTAIN ROAD GRAVITY SEWER <b>BLACK MOUNTAIN ROAD</b> <b>PLAN AND PROFILE</b> STA. 0+00 TO STA. 7+00	
DRAWING NO.	
<b>C-1</b>	
SHEET 3 OF 15	



**PLAN**  
SCALE: 1" = 40'



**P.S. SITE & GRADING PLAN**  
SCALE: 1" = 20'

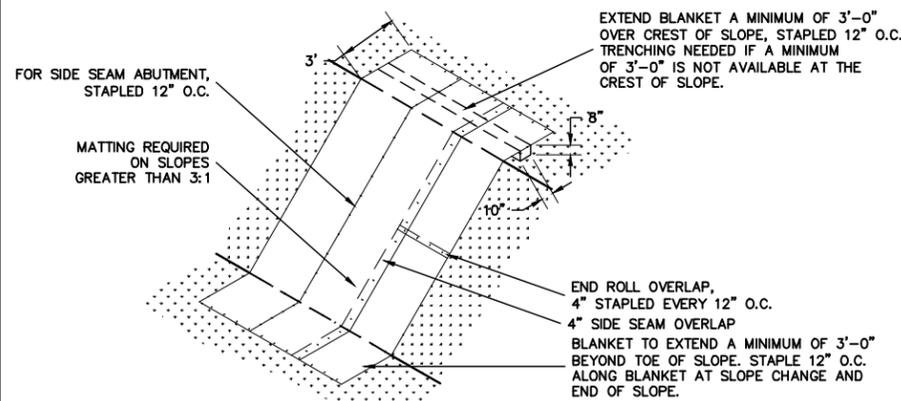


**PROFILE**  
SCALES:  
HORIZONTAL 1" = 40'  
VERTICAL 1" = 4'

**NOTES:**

- SEE DRAWING DEM-1 FOR DEMOLITION OF EXISTING PUMP STATION.
- THE EXISTING PUMP STATION BITUMINOUS DRIVEWAY SHALL BE REMOVED AND REPLACED WITH 1'-0" LOAM AND SEED.
- SITE SAFETY SHALL BE THE CONTRACTOR'S RESPONSIBILITY. NOTE THAT SECTIONS OF THIS PIPE WILL BE INSTALLED THROUGH A PLAYGROUND. SAFETY MEASURES TO PROTECT THE PUBLIC SHALL BE EMPLOYED, INSTALLED AND MAINTAINED BY THE CONTRACTOR.
- NOTE THAT IT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET THE PIPE GRADE REQUIREMENTS SHOWN ON THESE DRAWINGS AND IN SPECIFICATION 02600.
- IF BID ITEM B-1 IS ACCEPTED BY THE OWNER, CONTRACTOR SHALL DEMOLISH EXIST. SEWER FORCE MAIN PIPE FROM BRIDGE. REFER TO VTRANS PERMIT AND BID ITEM B-1 FOR REQUIREMENTS. REFER TO BLACK MOUNTAIN ROAD BRIDGE PIPE SUPPORT DETAIL, DWG. NO. D-2.
- CONTRACTOR SHALL DEMOLISH EXISTING INVERT AND REWORK INVERT IN SMH #1 AND SMH #2. INVERT SHALL MEET THE MANHOLE DETAILS REQUIREMENTS ON DWG. NO. D-1.
- VTRANS WILL ALLOW ACCESS TO THIS AREA FOR STAGING AND STORAGE, FROM THE FENCELINE TO 5' WEST OF THE TOE OF SLOPE. ACCESS TO THIS AREA WILL BE FROM THE TRI-PARK SIDE, NEVER FROM THE HIGHWAY SIDE. IF FENCING IS REMOVED, CONTRACTOR SHALL ENSURE THAT A MEANS TO CONTROL ACCESS TO THE HIGHWAY RIGHT OF WAY IS SECURED AT THE END OF EACH DAY. FENCING REMOVED SHALL BE RETAINED FOR REINSTALLATION BY THE CONTRACTOR. FENCING DAMAGED SHALL BE REPLACED BY THE CONTRACTOR IN KIND. SPECIFIC USES OF THIS AREA SHALL BE DISCUSSED AT THE PRE-CONSTRUCTION MEETING AND WILL BE SUBJECT TO VTRANS/ENGINEER APPROVAL.
- A 4" PILOT BORE WAS ADVANCED AS SHOWN ON THIS PLAN AND PROFILE BY ENGINEERS CONSTRUCTION, INC. (ECI) OF WILLISTON, VT IN JULY 2014. THE LOCATION OF THE PILOT BORE AS DEPICTED IS BASED ON INFORMATION FROM ECI. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MEET THE PIPE GRADE AND ALIGNMENT REQUIREMENTS SHOWN ON THESE DRAWINGS AND IN SPECIFICATION 02600.

ENGINEER  
  
 PROJECT NO. 122004  
 FILE NAME 122004-C02  
 DESIGNED BY DBM  
 DRAWN BY HEM  
 CHECKED BY MVS  
 DATE: DECEMBER 2014  
 SCALE: AS SHOWN  
 TOWN OF BRATTLEBORO, VERMONT  
 BLACK MOUNTAIN ROAD GRAVITY SEWER  
 BLACK MOUNTAIN ROAD  
 PLAN AND PROFILE  
 STA. 7+00 TO STA. 12+32  
 DRAWING NO. C-2  
 SHEET 4 OF 15

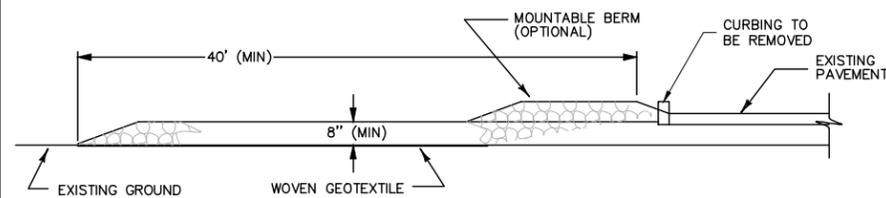


**NOTES:**

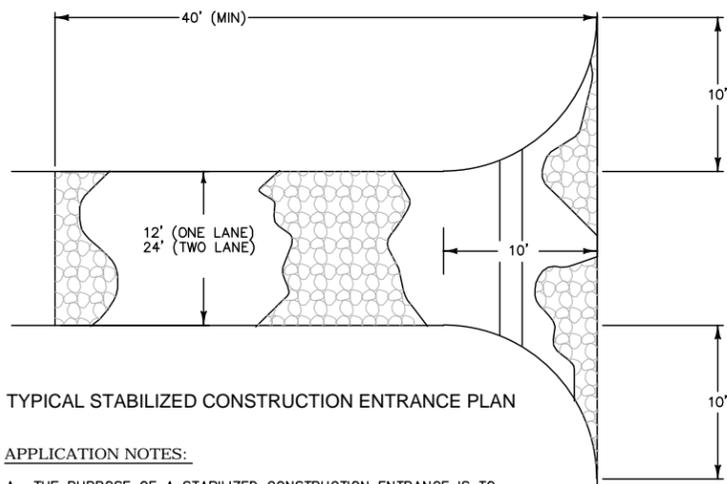
- MATting TO BE USED SHALL BE CURLEX® 01 MANUFACTURED BY AMERICAN EXCELSIOR COMPANY, OR APPROVED EQUAL.
- STAPLE PATTERNS ARE DEPENDENT ON SITE CONDITIONS. SEE CURLEX® STAPLE PATTERN GUIDE FOR DETAILS.

**EROSION CONTROL MATTING SLOPE DETAIL**

N.T.S.



**TYPICAL CONSTRUCTION ENTRANCE PROFILE**



**TYPICAL STABILIZED CONSTRUCTION ENTRANCE PLAN**

**APPLICATION NOTES:**

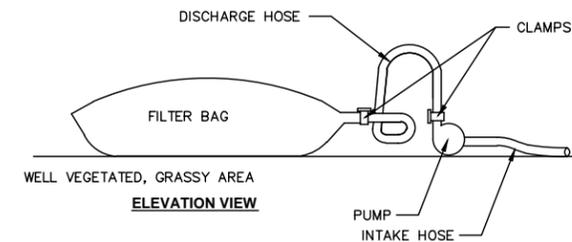
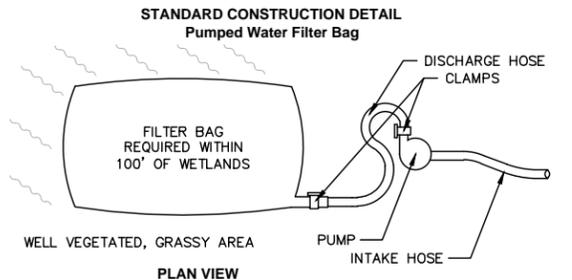
- THE PURPOSE OF A STABILIZED CONSTRUCTION ENTRANCE IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY OR STREETS.

**GENERAL NOTES:**

- STONE SIZE - USE CLEAN STONE WITH GRADATION BETWEEN 1 INCHES AND 4 INCHES .
- LENGTH - 40 FEET (MIN)
- THICKNESS - 18 INCHES (MIN)
- WIDTH - 12 FEET (MIN)
- GEOTEXTILE UNDER STONE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- WHEN WASHING OF VEHICLE IS NECESSARY, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- THE ENTRANCE SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT.
- MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- AT THE TIME OF REMOVAL OF THE STABILIZED CONSTRUCTION ENTRANCE THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.

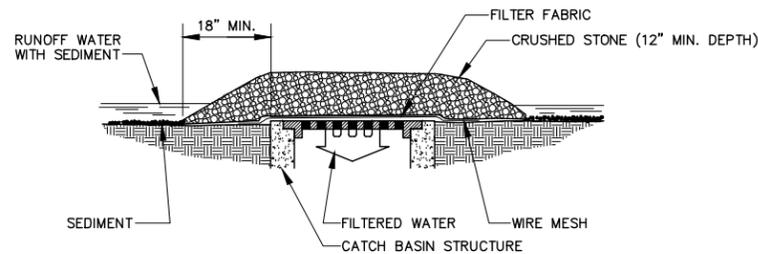
**CONSTRUCTION ENTRANCE DETAIL**

N.T.S.



**FILTER BAG DISCHARGE DETAIL**

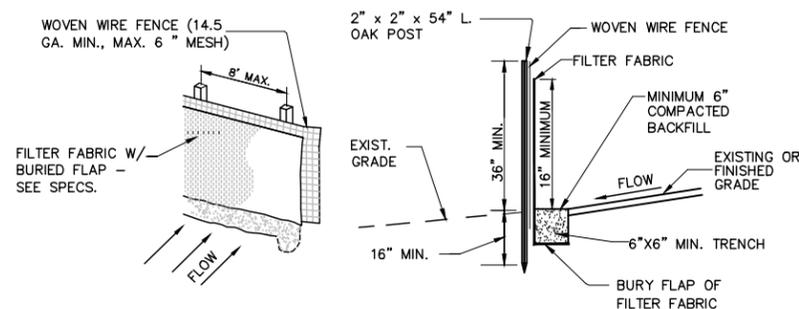
N.T.S.



- A WIRE MESH SHALL BE PLACED OVER THE DROP INLET OR CURB OPENING SO THAT THE ENTIRE OPENING AND A MINIMUM OF 12 INCHES AROUND THE OPENING ARE COVERED BY THE MESH. THE MESH MAY BE ORDINARY HARDWARE CLOTH OR WIRE MESH WITH OPENINGS UP TO 1/4 INCH.
- THE WIRE MESH SHALL BE COVERED WITH CLEAN COARSE AGGREGATE SUCH AS CRUSHED STONE FOR A MINIMUM DEPTH OF 12 INCHES. CRUSHED STONE SHALL BE BEDDING STONE FOR SEWERS (ASTM STONE SIZE NO. 67). SEE SPECIFICATIONS.
- THE COARSE AGGREGATE SHALL EXTEND AT LEAST 18 INCHES BEYOND ALL SIDES OF THE CATCH BASIN/DRAIN OPENING.
- THIS SEDIMENTATION CONTROL SHALL BE UTILIZED AT ALL CATCH BASINS ENCOUNTERED.

**SEDIMENTATION CONTROL AT CATCH BASIN**

N.T.S.



**NOTES FOR SILT FENCE**

- SPACING OF WOOD FENCE POSTS NOT TO EXCEED 8'-0".
- SILT FENCE SHALL BE INSTALLED BEFORE ANY EARTH REMOVAL OR EXCAVATION TAKES PLACE.
- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO POSTS WITH WIRE TIES OR STAPLES AT TOP, MIDPOINT AND BOTTOM.
- FILTER FABRIC TO BE FASTENED SECURELY TO WOVEN WIRE FENCE.
- OVERLAP BY 6", FOLD AND STAPLE ADJOINING SECTIONS OF FILTER FABRIC.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED, AND THE MATERIAL REMOVED WHEN "BULGES" DEVELOP. DO NOT DEPOSIT MATERIAL NEAR WETLANDS OR WATERCOURSES.
- FILTER FABRIC SHALL BE ENTRENCHED 6" MIN. BELOW EXISTING OR FINISHED GRADE.

**SILT FENCE DETAIL**

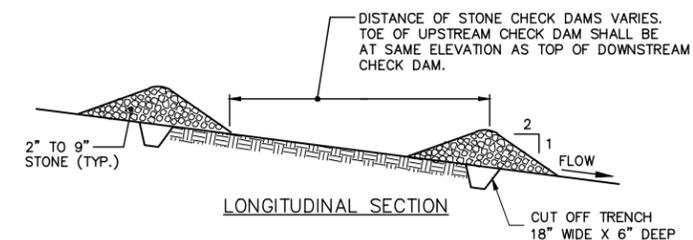
N.T.S.

**CONSTRUCTION DEWATERING NOTES:**

- THE CONTRACTOR WILL PROVIDE DEWATERING EQUIPMENT (I.E. PUMPS, HOSES, ETC.,) CAPABLE OF CONTROLLING GROUNDWATER ENCOUNTERED IN THE EXCAVATIONS SUCH THAT ALL CAN BE PERFORMED "IN THE DRY."
- AS NEEDED, CONSTRUCTION DEWATERING DISCHARGED TO THE SUBSURFACE OR TO SURFACE WATER BODY/DRAINAGE SYSTEM SHALL BE PRETREATED FOR SEDIMENT REMOVAL BY RESIDING IN A FILTER BAG OR FRACTIONATION/SEDIMENTATION TANK PRIOR TO DISCHARGE. UNDER NO CIRCUMSTANCES IS WATER FROM THE SEDIMENTATION TANK TO BE DISCHARGED DIRECTLY TO A WETLAND RESOURCE AREA. WATER FROM THE SEDIMENTATION TANK MUST BE DISCHARGED THROUGH A CATCH BASIN WITH AN ADEQUATE AND FUNCTIONING SUMP OR THROUGH A SEDIMENTATION TRAP PRIOR TO ENTERING A WETLAND RESOURCE AREA OR RECEIVING WATER. THE OUTLET MUST BE INSPECTED DURING OPERATION TO CONFIRM THAT SEDIMENT IS NOT BEING DISCHARGED TO A WETLAND RESOURCE AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PROPER NPDES PERMITTING FOR CONSTRUCTION DEWATERING ACTIVITIES.

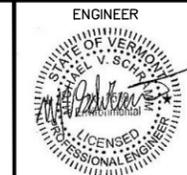
**EROSION CONTROL NOTES:**

- THE CONTRACTOR SHALL FULLY COMPLY WITH ALL LOCAL AND STATE REGULATIONS.
- THE CONTRACTOR SHALL FURNISH, INSTALL AND PERFORM ALL NECESSARY REQUIREMENTS TO COMPLY WITH THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL AND THESE PLANS AND SPECIFICATIONS. THE MORE STRINGENT SHALL APPLY.
- THE CONTRACTOR SHALL PHASE CONSTRUCTION ACTIVITIES TO MINIMIZE THE TIME THAT SOIL IS LEFT DISTURBED.
- PROPERLY ENTRENCHED SILTATION FENCE SHALL BE INSTALLED IMMEDIATELY OUTSIDE OF THE PAVEMENT OR AS SHOWN ON THE PLANS.
- SILT FENCE INSTALLATIONS SHALL BE INSPECTED FOR THE FOLLOWING:
  - \* VISIBLE DAMAGE TO SILT FENCE INSTALLATIONS.
  - \* SEDIMENT ACCUMULATION. SEDIMENT REMOVAL SHALL OCCUR WHEN SEDIMENT HAS ACCUMULATED TO NO MORE THAN ONE THIRD THE HEIGHT OF THE FENCE.
  - \* SIGNS OF CHANNEL OR GULLY EROSION FORMATION PARALLEL TO THE FENCE.
  - \* SIGNS OF DETERIORATED OR CLOGGED GEOTEXTILE; REPLACE AS NEEDED.
  - \* SIGNS OF UNDER CUTTING OR PIPING.
  - \* STAKES SHALL BE SECURED TO THE GROUND.
- INSPECTIONS OF THE PROJECT SITE AND ALL EROSION CONTROL BARRIERS BY THE CONTRACTOR SHALL OCCUR DAILY AND AFTER EVERY SIGNIFICANT PRECIPITATION EVENT (EXCEEDING 1/2-INCH PRECIPITATION).
- TEMPORARY STONE CHECK DAMS SHALL BE INSTALLED AT MINIMUM 100-FOOT INTERVALS PRIOR TO ANY RAIN EVENT. MATERIALS SHALL BE STORED ON PROJECT SITE AT ALL TIMES.
- IN ADDITION LIME SHALL BE ADDED TO THE TOPSOIL IN AMOUNTS AS NECESSARY TO ACHIEVE THE REQUIRED PH AS SPECIFIED.
- SHOULD SEASONAL LIMITATIONS MAKE ESTABLISHMENT OF GRASS ON AREAS TOPSOILED, SEEDED, AND MULCHED UNREALISTIC, SUCH AREAS SHALL BE TREATED WITH BONDED FIBER MULCH.
- ALL AREAS DISTURBED SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- ALL CUT & FILL SLOPES SHALL BE LOAMED AND SEEDED WITHIN 72 HOURS OF ESTABLISHING FINISHED GRADE.
- ALL DITCHES, SWALES, PONDS SHALL BE STABILIZED PRIOR TO DIRECTING RUN-OFF.
- IF THE PROJECT CONTINUES INTO THE WINTER THE FOLLOWING CRITERIA SHALL BE MET:
  - \* ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES STEEPER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
  - \* ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.



**STONE CHECK DAM DETAILS**

N.T.S.



DATE	DESCRIPTION	ISSUE

HOYLE, TANNER PROJECT NO. 122004	FILE NAME 122004-D03
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DESIGNED BY MVS	DATE DECEMBER 2014
CHECKED BY HEM	SCALE AS SHOWN
DRAWN BY DBM	

TOWN OF BRATTLEBORO, VERMONT  
BLACK MOUNTAIN ROAD GRAVITY SEWER

**EROSION CONTROL DETAILS**

DRAWING NO.  
**D-3**