



Vermont Better Roads Grant Program



Cover Sheet

Please complete this page ONCE and return with your Grant Category Application(s)

Town/Organization: Richmond, VT

Primary Contact Person(s): Josh Arneson Title: Town Manager

Address: 203 Bridge St. (PO Box 285 mailing) Richmond 05477

Email: jarneson@richmondvt.gov Phone: (802) 434-5170

DUNS #: 019336999 Fiscal Year End Month (MM): 06



Vermont Better Roads Grant Program



MUST BE TOWN ADMINISTRATOR/MANAGER OR SELECT BOARD CHAIR

CATEGORY B/C/D

Please complete one application per project you are applying for.

Please check the Category you are applying for:

- ☒ B. Correction of a Road Related Erosion Problem and/or Stormwater Mitigation
☐ C. Correction of a Stream Bank, Lake Shore or Slope Related Problem
☐ D. Structure/culvert 36" diameter or greater

Municipality: Richmond, VT

Road Name: Snipe Ireland Road TH #: 12 Structure # (if applicable): _____

Road Type: Paved or Unpaved (select one) Road Class: 1 2 3 4 (select one)

Please provide a thorough description of the erosion/water quality problem (ex. Roadway has steep slope with no ditch which is causing severe roadway erosion, which outlets into the Lamoille River):

While this section of Snipe Ireland Road is not very steep, it is extremely close to the Snipe Ireland Brook, and is an economical location as there are 5 consecutive DNM segments, and 1 PM segment. The estimated project cost is less than \$35,000 and is reasonably low on a cost per segment basis. Disconnection practices and proper ditching and embankment stabilization are evidently lacking and are creating notable erosion issues and may jeopardize the navigability of the road if left untreated.

Has the town completed an MRGP compliant road erosion inventory?

☒ Yes ☐ No ☐ In progress

Project Length (linear feet along roadway): 1,968 ft.

Number of structures/culverts replaced/repaired: 1

Average slope of roadway: ☒ 0-5% ☐ 5-10% ☐ >10%

Provide a VERY detailed map of project location showing start and end points: ☒ Included

Provide a sketch of project location showing distances and project details: ☒ Included



Please provide the Road Segment ID (RSID) for your project. If several, please list all. In addition to the RSID please indicate what the resulting rating of each segment before construction as well as after construction in accordance with the MRGP.* (i.e., Fully Meets Standard, Partially Meets, Does Not Meet) For assistance, please contact Better Roads Staff (802)828-4585.

[illegible]



Vermont Better Roads Grant Program



*In order to "Fully Meet" the standards the road segment must have proper crown, removal of shoulder berms, proper ditching, proper conveyance and no erosion present at culvert inlets and outlets.

Environmental Concerns:

All projects require a review of potential impacts by our environmental team. To expedite the review process, please check the boxes below that describe existing structures/conditions to be replaced/maintained (if any) and the project description that applies (if any).

Existing Structures:	
<input type="checkbox"/> Steel/Plastic Culvert	<input type="checkbox"/> Concrete Box Culvert
<input type="checkbox"/> Stone Culvert – Take pictures	<input type="checkbox"/> Concrete Bridge
<input checked="" type="checkbox"/> Ditch	<input type="checkbox"/> Rolled Beam/Plate Girder Bridge
<input type="checkbox"/> Foundation remains, mill ruins, stone walls, other – Take pictures	<input type="checkbox"/> Stone abutments or piers – Take pictures
<input type="checkbox"/> Buildings within 300 feet of work - Take pictures	
Project Description:	
<input checked="" type="checkbox"/> New ditches will be established	<input checked="" type="checkbox"/> All work will be completed from the existing road or shoulder
<input checked="" type="checkbox"/> Reestablishing existing ditches only	<input type="checkbox"/> There will be excavation within 300 feet or a river or stream – Take pictures
<input type="checkbox"/> The structure is being replaced on existing location/alignment	<input type="checkbox"/> Road reclaiming, reconstruction, or widening
<input type="checkbox"/> Excavation within a floodplain – Take pictures	<input type="checkbox"/> Temporary off-road access is required
<input type="checkbox"/> Tree cutting/clearing – Take pictures	<input type="checkbox"/> The roadway will be realigned

Please describe the project and how it will create a positive water quality benefit (ex. Reshape 500' of ditch and line with 12 inch minus stone, to prevent sediment from entering the Lamoille River at the bottom of the hill):

With proper crowning, berm removal, and ditching, this roadway will result in less road surface erosion. Additionally, upgraded/new ditches, sediment traps and culverts will help water distribute evenly into forested areas instead of a more direct and unfiltered conveyance into the nearby Snipe Ireland Brook.

Please list any professionals or partners that assisted with planning this project (ANR River Management Engineer, Army Corps of Engineers, VTrans staff, Basin Planner, RPC staff, etc.):
Chris Dubin, Senior Transportation Planner - Chittenden County RPC

Is the project located in the town "Right of Way? (select one) ☒ Yes ☐ No ☐ Both

Please be aware, Municipalities are required to have an Agreement for Entry & Liability Release for any impacted properties (prior to the start of construction.)



Vermont Better Roads Grant Program



Budget:

Please attach a project budget and confirm below that is attached:

☒ Project budget IS attached

Are you applying to other grant programs to help fund this project? If so, what programs? Please note that Better Roads requires a 20% local match and Better Roads funding may not be used as match for other state or federally funded programs.

Requested Grant Amount:	\$ 20,000 .00
+	
Local Match:	\$ 14,630 .00
=	
Total Project Cost:	\$ 34,630 .00

Requested Grant Amount Max:
\$20,000 Category B
\$40,000 Category C
\$60,000 Category D

See page 6 for more information on
calculating match

Estimated Completion Date: December 31, 2022

REQUIRED ATTACHMENTS:

Please use the documentation checklist below to ensure that all of the relevant items regarding your application have been included. It is preferred that your application is a single PDF file.

- ☒ Grant application cover sheet
- ☒ Grant application form, including chart with RSID and MRGP compliance before and after project completion
- ☒ Itemized Cost estimate for labor, equipment, and materials (see enclosed Cost Estimate Worksheet). If applicable, please break down funding by source (i.e. different grant sources).
- ☒ Detailed Project Location Map
- ☒ Sketch of proposed project and erosion control measures or other management practices, including distances in feet
 - ☐ Also show approximate location of town/other right-of-way and/or property lines and limits of work
- ☒ Photos must be color and clear to see.
 - ☐ Please make sure there are enough photos to get a good idea of the project area
- ☒ Other appropriate supporting documents.

By signing this application, I certify that all the information provided is accurate to the best of my knowledge. We will comply with all the requirements of the grant including making our books available for audit if required.

SIGNATURE OF APPLICANT:



Vermont Better Roads Grant Program



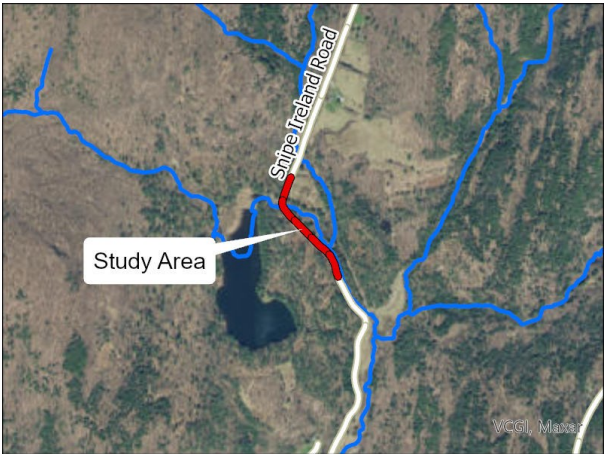


Name: Josh Arneson Title: Town Manager

MUST BE TOWN ADMINISTRATOR/MANAGER OR SELECT BOARD CHAIR

Vermont Better Roads Category B/C/D Grant Proposal Scoring Criteria

All applications will be scored on a sliding scale elected by the Better Roads Grant Selection Committee. Road BMP upgrades are considered the highest priority for grant funding when road segments are "hydrologically-connected," currently "not meeting" MRGP standards, and road slopes are greater than 10%

1. **Is the project using Best Management Practices (BMPs) that are proven and likely to maximize long term success, such as practices contained within the new VTrans Better Roads Manual and/or VT DEC MRGP Standards?? [maximum 20 points]**
 - The proposed project utilizes appropriate BMPs and has maximized the likelihood of long-term success (16-20 points)
 - The proposed project utilizes some appropriate BMPs but more could be done to increase the likelihood of success (11-15 points)
 - The proposed project does not utilize appropriate BMPs, or it is unclear whether the BMPs will be used appropriately and the likelihood of success is uncertain (0-10 points)
2. **What are the expected Water Quality Benefits within the watershed? [maximum 25 points]**
 - Project will lead to significant improvements to water quality (21-25 points)
 - Project will lead to moderate improvements to water quality (16-20 points)
 - Project will lead to small improvements to water quality (1-15 points)
 - Project will lead to no obvious improvements to water quality (0 points)
3. **Is the project in or does stormwater runoff from the project area drain into a hydrologically connected segment? [maximum 20 points]**
 - Yes; the entire project is in connected segment(s) (20 points)
 - Partially; part(s) of the project are in connected segments (5-19 points)
 - No; this project is not in a connected segment (0-5 points)
4. **Will the project result in full compliance of one or more segments in accordance with the Municipal Roads General Permit (MRGP)? [maximum 25 points]**
 - All segments within the project will be in full compliance (25 points)
 - One or more segments will be in full compliance, with all other segments in partial compliance (11 – 24 points)
 - One or more segments will be a minimum of partial compliance (1- 10 points)
 - Project does not meet compliance or not applicable (does not have hydrologically connected segments) (0 points)
5. **Is the project cost effective? [maximum 10 points]**
 - The cost of the project is low and the expected benefits are high (8-10 points)
 - The cost of the project is average and the expected benefits are average (5-7 points)
 - The cost of the project is high and the expected benefits are low (0-4 points)

Town: Richmond	Road Name: Snipe Ireland Road	Date Visited: 5/3/2021	
Road Segment IDs: 7055-Snipe-Ireland-Rd_10 to 15			
		Existing Conditions Average Slope: 3.4% Road Type: Gravel Conveyance Area/Turnout: 3 Erosion Types Present: Rill Drainage Culverts: 2 (Cross and Conveyance) Driveway Culverts: None	
Municipal Road General Permit Standards: + Meets Standard, -- Partially Meets Standard (needs work), X Does Not Meet Standard			
Roadway Crown/Travel Lane	--	Grader Berm/Windrow	X
Road Drainage	X	Conveyance Area/Turnout	X
Municipal Drainage Culverts	+	Driveway Culverts (within ROW)	N/A
Existing Conditions Notes: Snipe Ireland Road is a narrow gravel road with moderate slope near the top of the Town-managed Class III portion of the road. The segments are located along a floodplain wetland complex and include a culvert crossing Snipe Island Brook. The west side of the road through most of the segments lacks sufficient drainage and has a near continuous berm of cut material from the road construction. Recent clearing for a power line project has removed all woody vegetation from the ROW. The west ditch continues for a long distance, well beyond the mapped hydrologically connected segments. The ditch is filled in or missing in several areas with runoff spilling onto the road. Poor road drainage and shallow depth to bedrock caused a large road washout which was repaired with FEMA funds. Areas of rill erosion were observed.			
			
Photo 1: West side of road lacking ditch with a berm close to the road edge. FEMA repair is to the east (right).		Photo 2: Location of proposed sediment trap where the northwest ditch enters the stream.	



Proposed Scope of Work

Roadway/Travel Lane Practices

X	Improve Road Crown		Adjust Road Grade
X	Remove Grader Berm/Lower Shoulder		Edge of Road Stabilization/Maintenance

Roadway Drainage Practices

X	Install New Ditch	X	Improve Existing Ditch
X	Side Slope Excavation for Ditch		

Conveyance/Turnout Practices

X	Install Turnout		Stabilize/Improve Existing Turnout
X	Install Sediment Trap		Stone Armor on Bank/Slope
	Install Check Dams in Existing Feature		

Culvert Practices

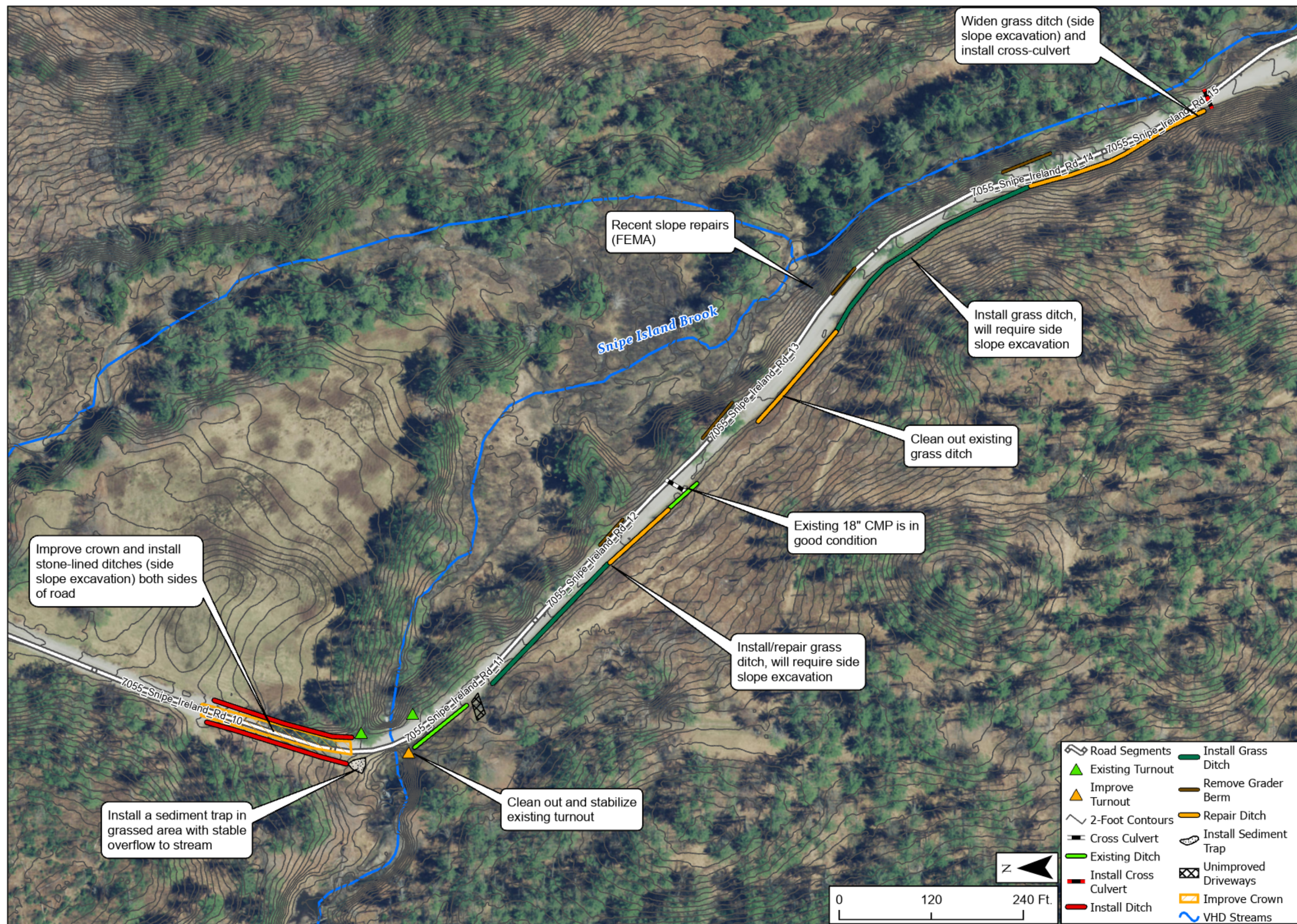
X	New Municipal Culvert		Upgrade Municipal Culvert
	New Driveway Culvert		Upgrade Driveway Culvert
	Headwall or Armor at Culvert Inlet/Outlet		Clean Sediment/Debris from Culvert

Estimated Project Costs

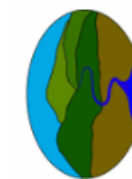
Practice	Units	Unit Cost	Quantity	Total
Improve Road Crown	Linear Foot	\$ 5	200	\$ 1,000
Raise Road Grade	Cubic Yard	\$ 40		\$ -
Remove Grader Berm/Lower Shoulder	Linear Foot	\$ 3	210	\$ 630
Edge of Road Stabilization/Maintenance	Linear Foot	\$ 8		\$ -
New Stone-Lined Ditch	Linear Foot	\$ 25	380	\$ 9,500
New Grass-Lined Ditch	Linear Foot	\$ 8	600	\$ 4,800
Side Slope Excavation for Ditch	Linear Foot	\$ 10	1300	\$13,000
Improve Existing Ditch (Stone)	Linear Foot	\$ 20		\$ -
Improve Existing Ditch (Grass)	Linear Foot	\$ 5	500	\$ 2,500
Install/Improve Turnout	Each	\$ 200	1	\$ 200
Install Sediment Trap	Each	\$ 1,500	1	\$ 1,500
Install Stone Armor (Bank/Slope)	Cubic Yard	\$ 40		\$ -
Install Check Dam	Each	\$ 40		\$ -
New/Upgrade Cross-Culvert (18" to 24")	Each	\$ 1,500	1	\$ 1,500
New/Upgrade Conveyance Culvert	Each	\$ 2,500		\$ -
New/Upgrade Driveway Culvert	Each	\$ 750		\$ -
Install Culvert Headwall/Armor	Each	\$ 300		\$ -
Remove Sediment/Debris from Culvert	Each	\$ 100		\$ -
		Total Cost:		\$34,630

Note: Estimated costs are maximum probable costs based on typical contractor rates. Actual costs will vary by municipality based on labor rates, availability of town-owned equipment, and cost of materials.





**Fitzgerald
Environmental
Associates, LLC.**



18 Severance Green, Suite 203
Colchester, VT 05446
Tel: 802.876.7778
www.fitzgeraldenvironmental.com

Notes

- Contours based on 0.7-M LIDAR DEM
- Proposed work based on FEA site visit on 5/3/2021

CCRPC Road Erosion Inventory

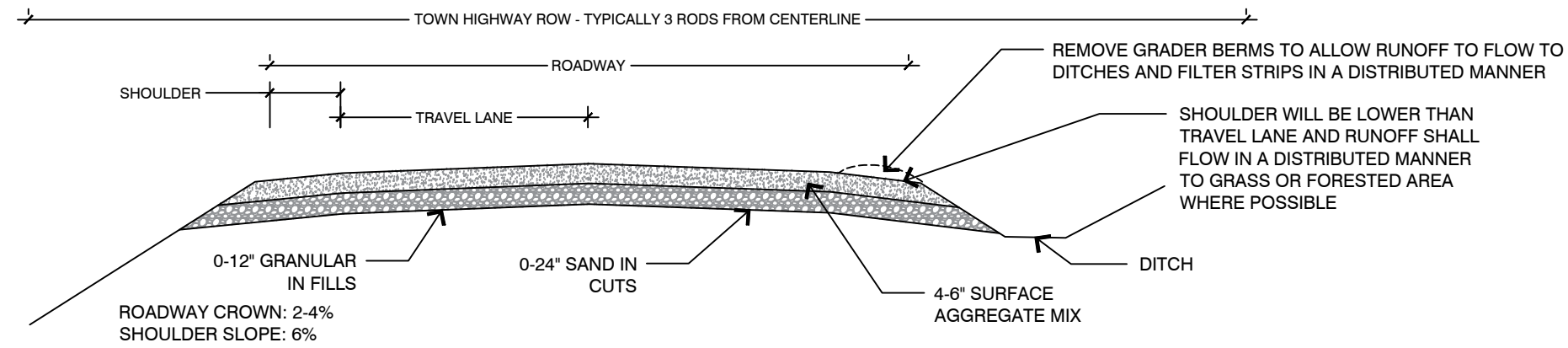
Snipe Ireland Road Richmond, VT

FCP Drawn	JHB Checked
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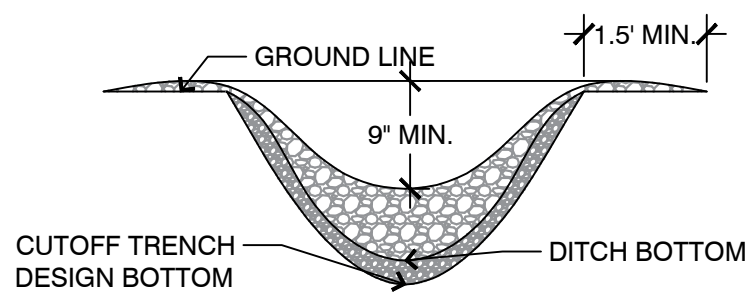
Scale 1" = 120 ft.

Date 6/23/2021

1
SHEET NO.

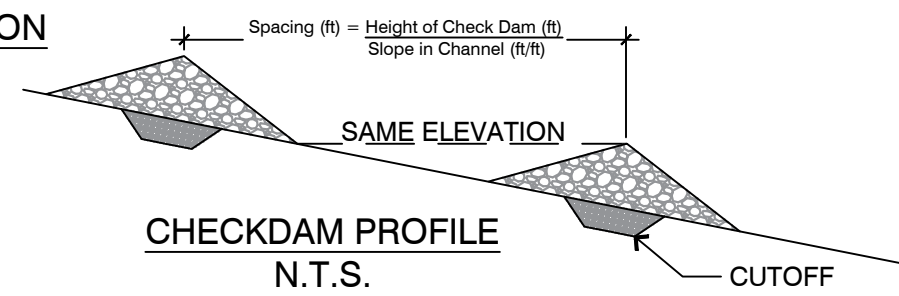


GRAVEL ROADWAY CROWN - TYPICAL DETAIL
N.T.S

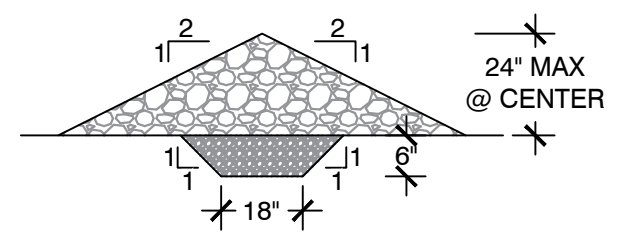


CHECKDAM SECTION
N.T.S.

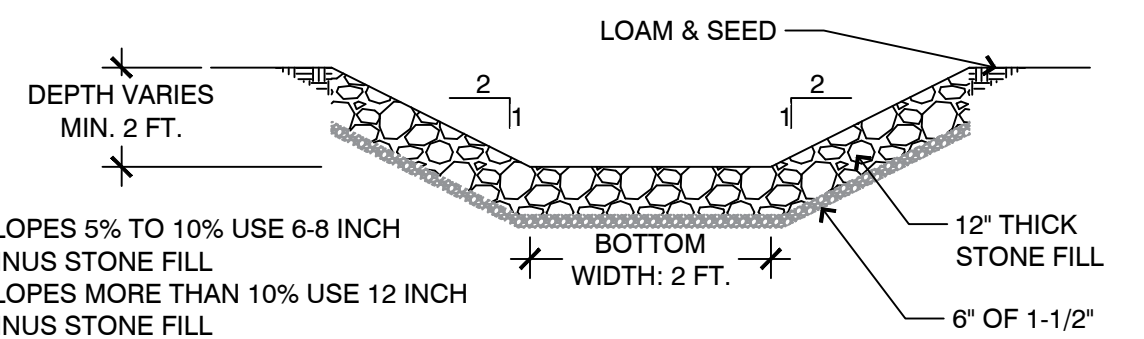
- USE MIX OF 2 TO 9 INCH STONE
- SIDE SLOPES 2:1 OR FLATTER
- SPAN WIDTH OF CHANNEL AND UP SIDES OF BANKS
- SPACE SO THAT THE TOE OF THE UPSTREAM DAM IS THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM
- PERIODICALLY REMOVE ACCUMULATED SEDIMENT AND DEBRIS TO ALLOW CHANNEL TO DRAIN THROUGH THE STONE AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM
- IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, A LINER OF STONE SHOULD BE INSTALLED



CHECKDAM PROFILE
N.T.S.

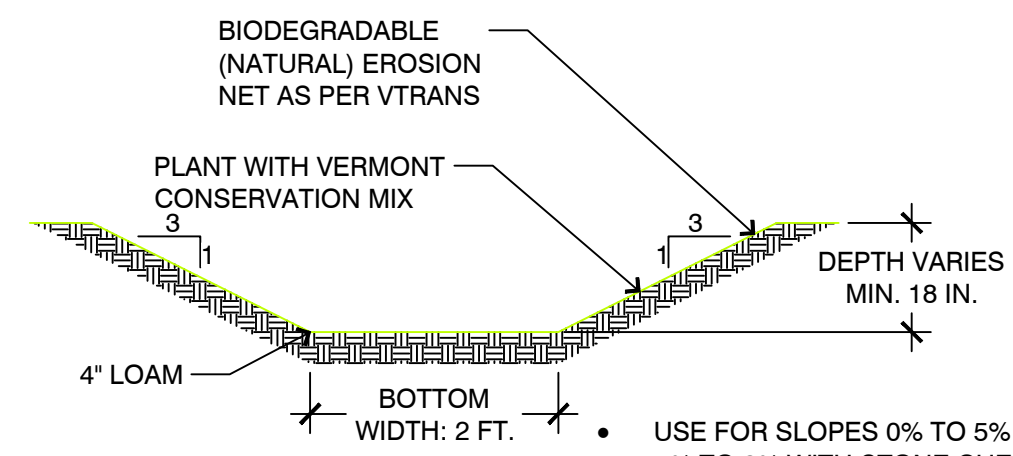


CHECKDAM PROFILE DETAIL
N.T.S.



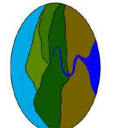
STONE LINED DITCH - TYPICAL DETAIL
N.T.S

- SLOPES 5% TO 10% USE 6-8 INCH MINUS STONE FILL
- SLOPES MORE THAN 10% USE 12 INCH MINUS STONE FILL



GRASS LINED DITCH - TYPICAL DETAIL
N.T.S

- USE FOR SLOPES 0% TO 5% OR 5% TO 8% WITH STONE CHECK DAMS OR DISCONNECTION PRACTICES EVERY 164 FEET
- NO BARE SOILS ALLOWED
- USE TRAPEZOIDAL OR PARABOLIC CROSS SECTION

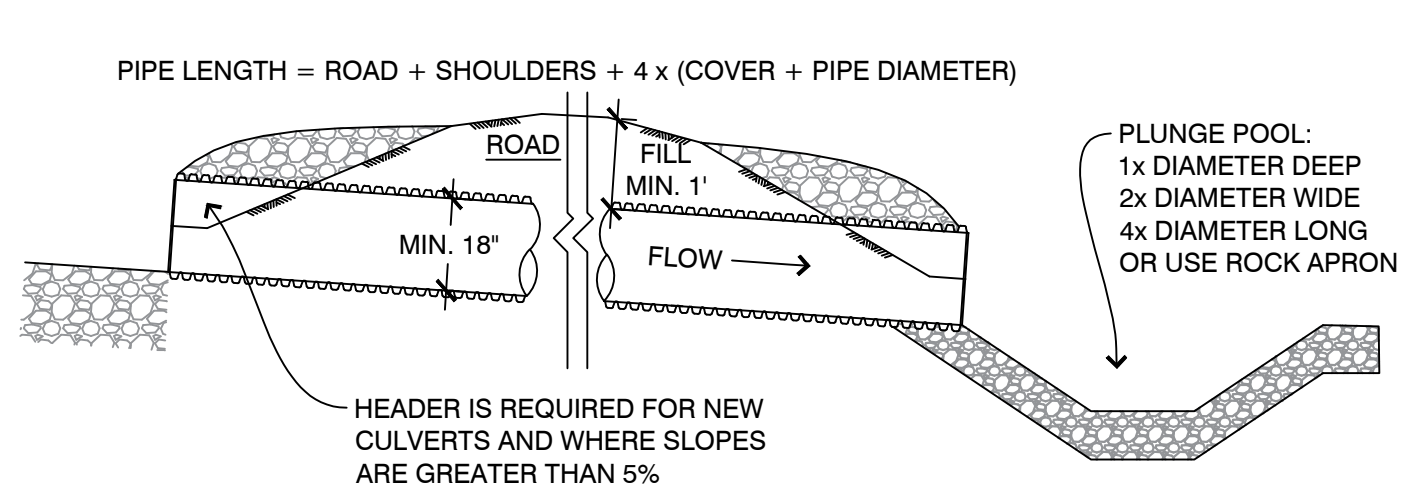


Fitzgerald Environmental Associates, LLC
18 Severance Green, Suite 203
Colchester, VT 05446
Telephone: 802.876.7778
www.fitzgeraldenvironmental.com

Reference Note: Adapted from "Vermont Better Backroads Manual, Clean Water you can Afford" a publication of the Northern Vermont & George D. Aiken Resource Conservation Development Councils, November 1995, Updated 2002, 2009.

Details - Road Drainage
CCRPC Road Erosion Inventory
Chittenden County, Vermont

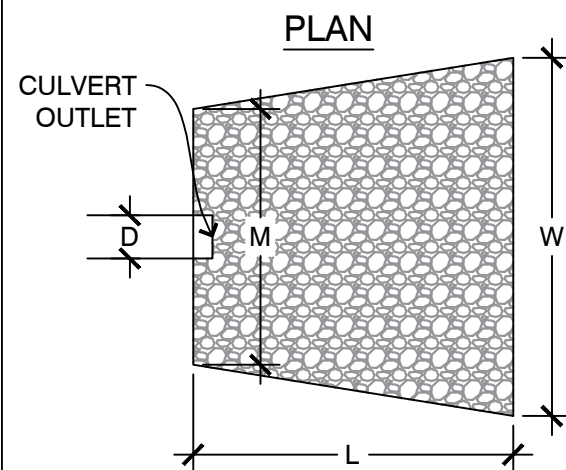
FCP DRAWN	EPF CHECKED
NOT TO SCALE SCALE	
June 30, 2021 DATE	
D-1 SHEET NO.	



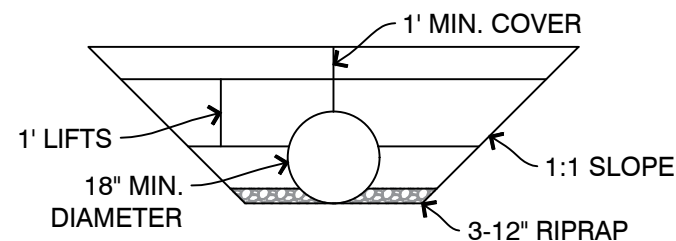
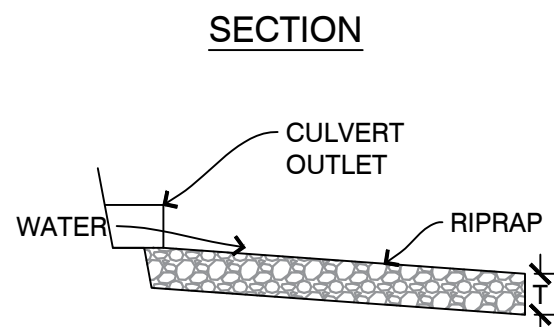
CULVERT PROFILE & CROSS SECTION
N.T.S

Rock Apron Specifications					
Culvert Diameter (D)	Riprap Size	T (in.)	N (ft.)	W (ft.)	L (ft.)
18 Inches	3-12 Inch	18	4.5	14.5	10
24 Inches	3-12 Inch	18	6	20	14

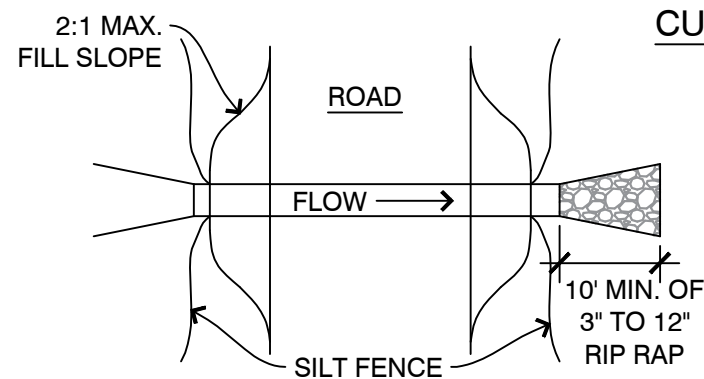
D = Diameter of Culvert
T = Depth of Stone Apron
N = Width of Apron near Culvert
W = Width at Downhill End of Apron
L = Length of Apron



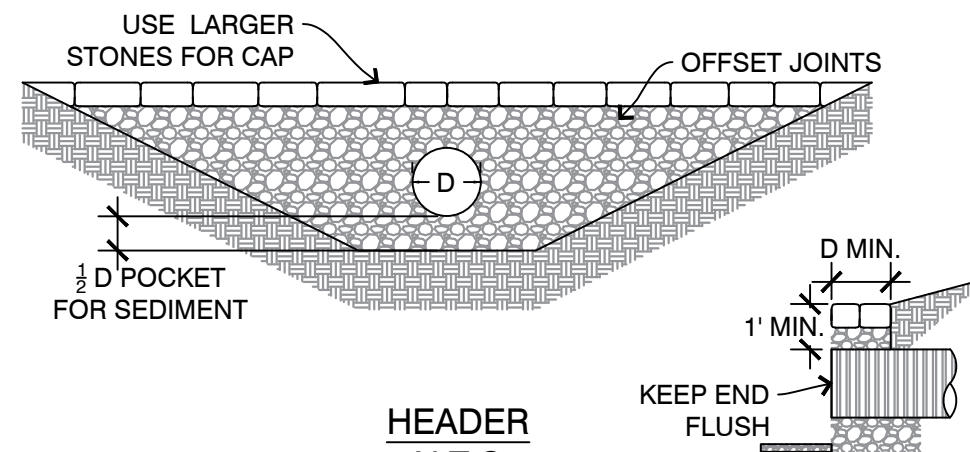
ROCK APRON
N.T.S



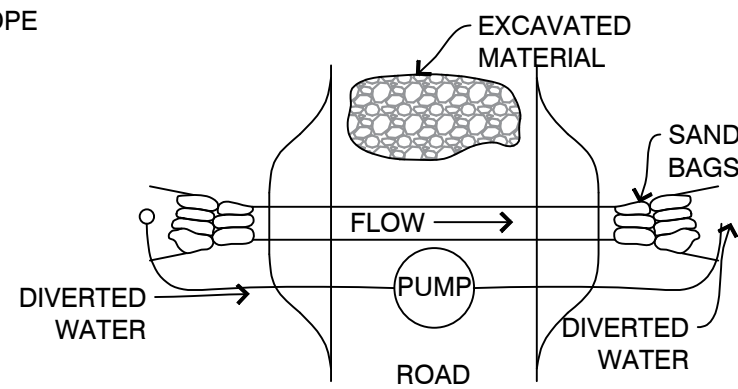
CULVERT CROSS SECTION
N.T.S



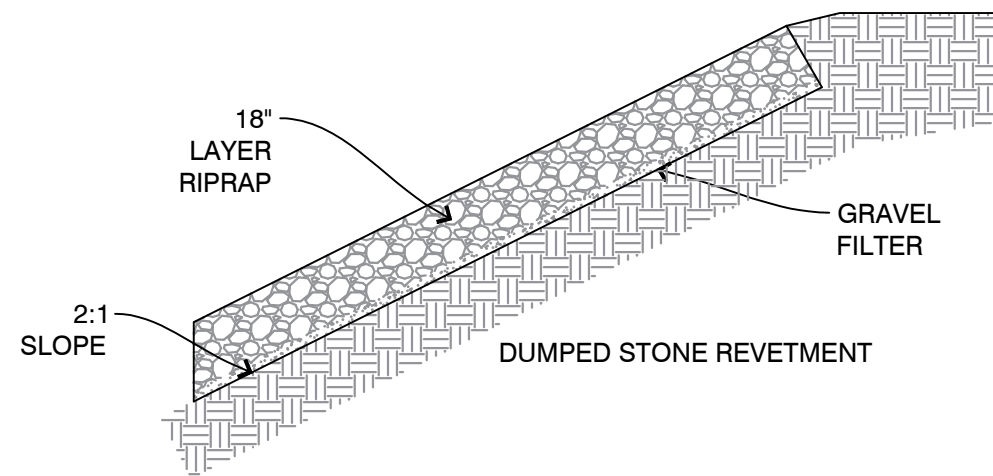
CULVERT PLAN VIEW
N.T.S



HEADER
N.T.S

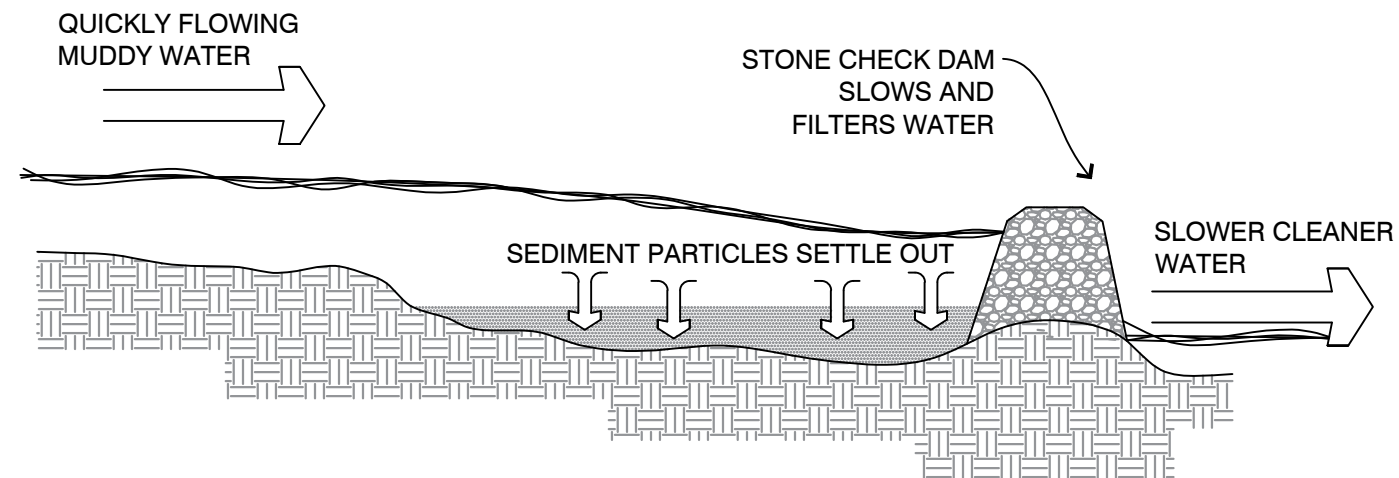


CULVERT INSTALLATION FLOW BYPASS
N.T.S



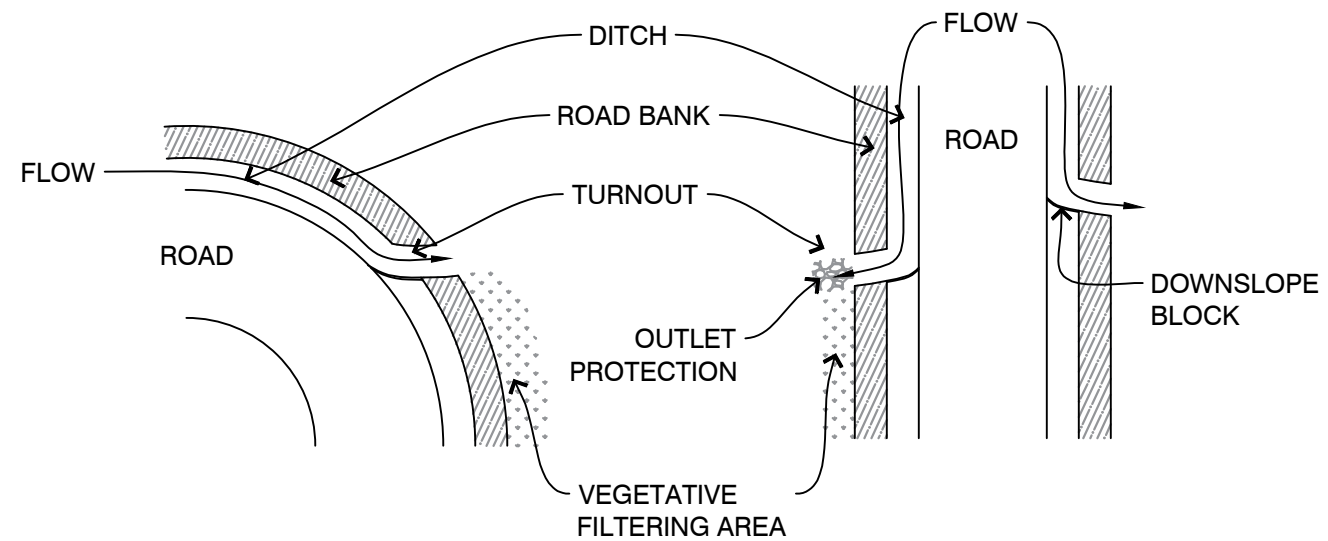
STONE ARMOR (BANK/SLOPE)
N.T.S

- RIPRAP SIZE IS BASED ON QUANTITY AND VELOCITY OF WATER
- ALWAYS CONTACT A STREAM ALTERATION ENGINEER BEFORE INSTALLING RIPRAP AT A STREAM BANK
- USE ANGULAR STONE
- COVER WITH GRUBBINGS OR TOPSOIL AND SEED. IF ON A STREAM BANK, ONLY APPLY ABOVE ORDINARY HIGH WATER.
- CONSIDER PLANTING WITH ADDITIONAL VEGETATION



SEDIMENT TRAP
N.T.S

- INSPECT ANNUALLY AND AFTER LARGE STORMS
- REMOVE ACCUMULATED SEDIMENT WHEN HALF FULL



TURN-OUT
N.T.S

- AVOID DIRECT OUTLET TO SURFACE WATERS
- STABILIZE OUTLET BASED ON SLOPE:
 - 0% TO 5% STABILIZE WITH GRASS
 - 5% TO 10% STABILIZE WITH 6-8 INCH MINUS STONE
 - GREATER THAN 10% STABILIZE WITH 12 INCH MINUS STONE



December 15, 2021

Josh Arneson
Town Manager
Town of Richmond, VT
P.O. Box 285
Richmond VT 05477
802 434 5170

RE: FY23 Better Roads Category B grant request

Dear Josh,

The Chittenden County Regional Planning Commission is pleased to support your Category B grant request to the VTrans FY23 Better Roads program. This grant is a key component as the town of Richmond continues to upgrade its stormwater infrastructure to reduce erosion and soil loss in priority areas. Additionally, these upgrades will help Richmond advance towards meeting their goals of the Municipal Roads General Permit through segment upgrades.

Furthermore, this project helps implement the following specific sections of the *Chittenden County ECOS Plan*, the combined Regional Plan, Metropolitan Transportation Plan and Comprehensive Economic Development Strategy for the County:

- Transportation Goal (Section 2.5.3): Provide accessible, safe, efficient, interconnected, secure, equitable, and sustainable mobility choices for our region's businesses, residents and visitors;
- Water Quality Strategy (Section 3.2.3): Improve the safety, water quality, and habitat of our rivers, streams, wetlands and lakes in each watershed; and
- Improves and maintains infrastructure to help support the Sustainable Growth Strategy (3.2.2): Strive for 80% of New Development in Areas Planned for Growth, Which Amounts to 15% of Our Land Area.

Thank you for the opportunity to support this project and we look forward to working with you in completing the project should your grant request be successful.

Sincerely,

Chris Dubin
Senior Transportation Planner