

AUTHORIZATION TO CONDUCT STREAM ALTERATION ACTIVITIES

Pursuant to Section C.2.2 of the VT Stream Alteration General Permit (Reporting activities not requiring an application)

Project Number: **SA-07-045-2016**

Watercourse: **Tributary to Beebe Pond**

Applicant Name: **Charles Reller**

Email: rellervermont@aol.com

Mailing Address: **4153 Route 30 Bomoseen, VT 05732**

Phone: **(303) 519-4090**

Project Location: **Stream bank on tributary to Beebe Pond**

Lat/Lon: **N 43.7367 / W 73.1809**

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

1. This project authorizes under **Section C.2.2.1, the placement of riprap stone and stacked rock wall at the toe of actively eroding slopes to prevent additional erosion while maintaining a minimum bankfull width of 12 feet.**
2. The proposed activity is eligible for coverage under the VT ANR Stream Alteration General Permit (SAGP).
3. The proposed activity will meet the terms and conditions of the General Permit provided:
 - a) The project will be completed **as noted on sketch by RME, as per details from the ANR Rivers Program Standard Practices, as discussed during the site meeting,** and as approved by the Vermont Agency of Natural Resources.
 - 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.
 - 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 is completed.
 - h) ***Normal in-stream Time of Year (TOY) working dates for all SAGP activities are from July 1st through October 1st, the applicant is authorized to complete this work outside these dates as long as the work area is effectively isolated from stream flows and any groundwater seepage is pumped into a well vegetated buffer 100 ' away.***
 - i) This authorization has been posted for three days public comment. This authorization constitutes final approval.

Additional Conditions:

Authorization to undertake stream alteration activities ends at a distance of 25 feet from the pond shoreline (mean high water). Please contact Lakes and Ponds staff to determine their jurisdiction, email ANR.WSMDShoreland@vermont.gov.

All exposed soil must be mulched with woodchips or comparable material to reduce erosion during until it is vegetated.

Contractor to schedule a pre-construction meeting and coordinate daily work activities with the RME via phone or email.

If there are any changes in the project plan or deviation in construction from the approved plans, Permittee must notify the ANR River Management Engineer immediately via phone (802) 490-6163 or email joshua.carvajal@vermont.gov

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 14th day of October, 2016

Alyssa B. Schuren, Commissioner
Department of Environmental Conservation

This permit expires on October 1, 2017.

by: 

Josh Carvajal, P.E. CFM, River Management Engineer

Standard Practices

Placed Rip Rap Wall



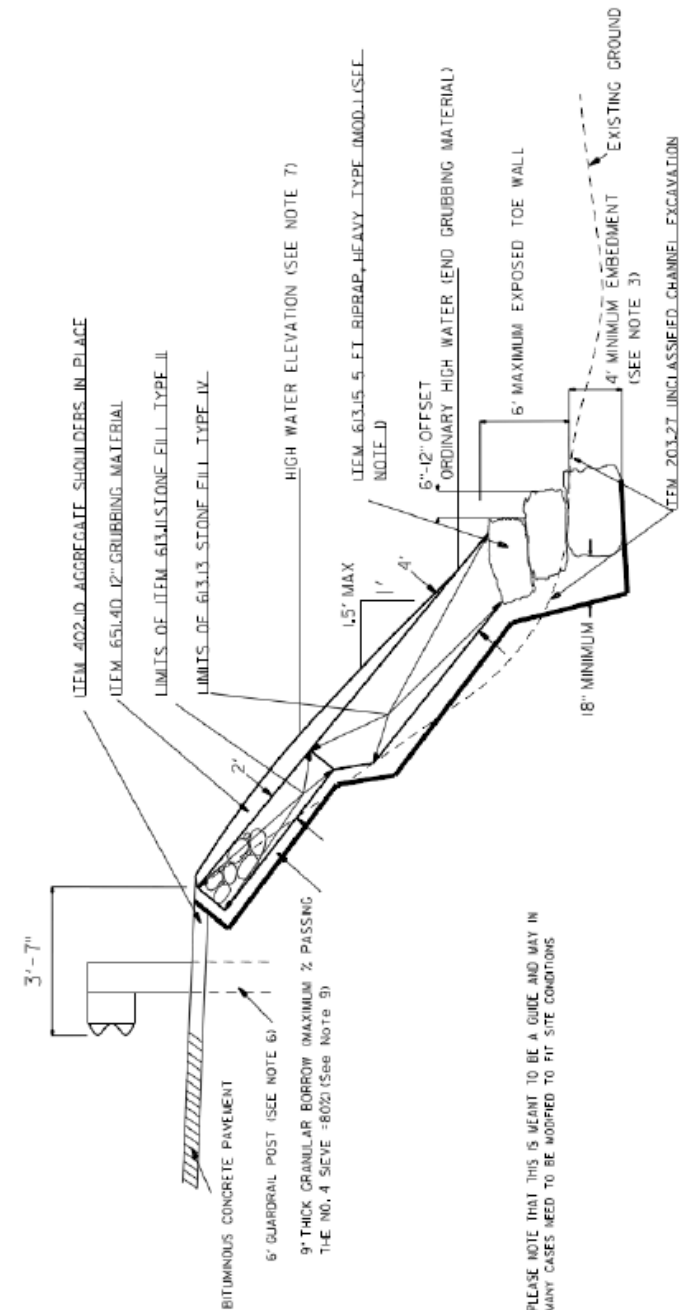
Figure 2. A placed Rip Rap Wall creates lateral channel stability. The steep slope at toe results in less horizontal fill which allows for attainment of full bankfull channel width in confined settings.

NOTES

1. Stone toe wall shall be constructed with stones of the specified size and in no cases shall the immediate dimension of any stone be less than 3'0".
2. Wall shall be constructed with staggered (ie. running) joints between rocks on adjacent tiers.
3. Footer rock shall be embedded below the channel a minimum of 4'0". Stacked section shall have no more than 6'0" of exposure.
4. Contractor shall carefully select and place individual stones to maximize contact with adjacent stones. Stones are shown as blocks to give contractor the idea of what you would like. They do not need to be cut stone.
5. To extent practical, stones shall dip toward embankment to better resist sliding.

Standard Practices

STONE FILL SLOPE PROTECTION WITH STONE TOE WALL



PLEASE NOTE THAT THIS IS MEANT TO BE A GUIDE AND MAY IN MANY CASES NEED TO BE MODIFIED TO FIT SITE CONDITIONS

Standard Practices

Stone Fill

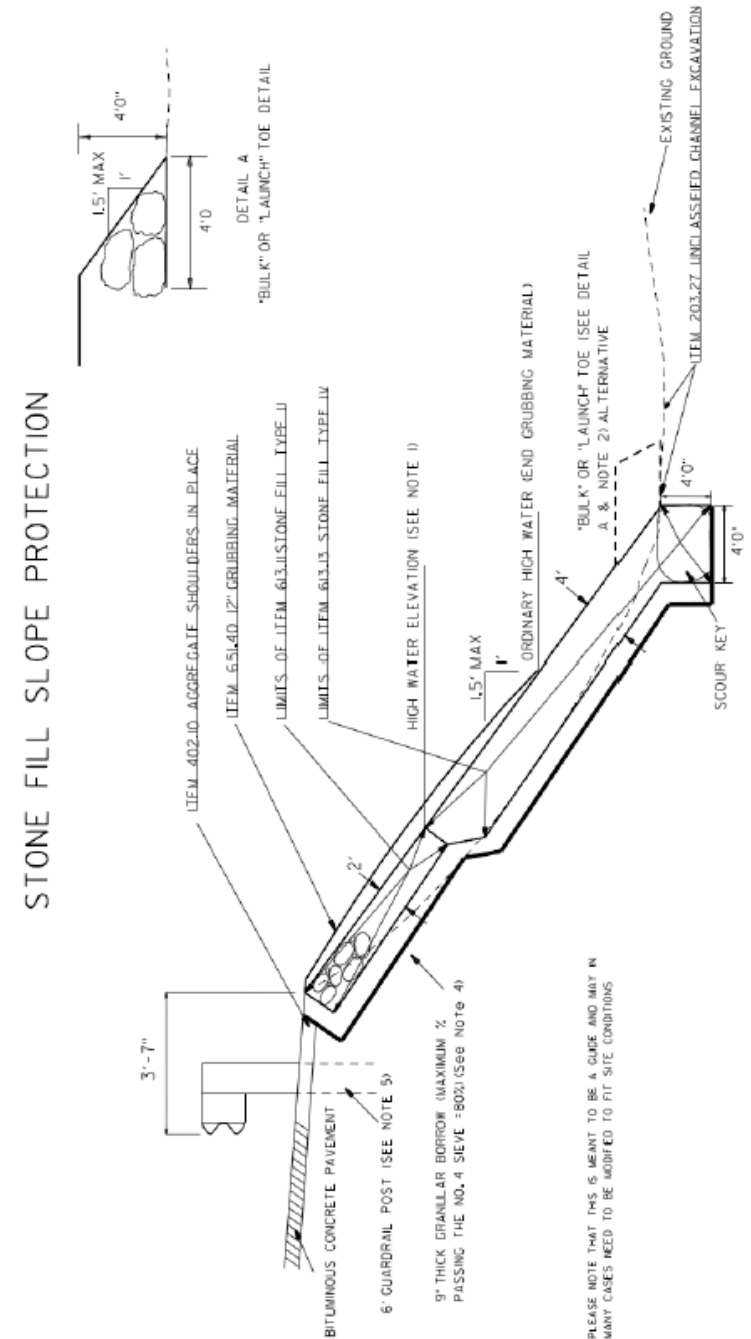


Figure 1. Stone Fill serves as an immobile surface that protects the underlying bank from erosion.

CONSIDERATIONS

- Slope
- Material Gradation
- Thickness
 - Keyway (vertical and lateral)
 - Top Elevation (1 ft above low floodplain on opposite bank or Q50)
- Underlayment/Bedding

Standard Practices



PLEASE NOTE THAT THIS IS MEANT TO BE A GUIDE AND MAY IN MANY CASES NEED TO BE MODIFIED TO FIT SITE CONDITIONS



Live Staking Vegetation

Bank stabilization

Lake friendly living
means using lakeshore
BEST MANAGEMENT
PRACTICES

BMP

Live Staking Vegetation:
Acceptable best management practice for addressing stormwater runoff from impervious surface under the Shoreland Protection Act (Chapter 49A of Title 10, § 1441 *et seq.*).

LAKE BENEFITS

Healthy vegetation in shoreland areas provides shade, stormwater filtering, food for aquatic organisms, and bank stability.

MATERIALS

Native lakeshore species can be collected from an approved site or purchased from a local plant nursery. Live stakes, like other plants, should be planted in areas with suitable soils, moisture and sunlight. See the Planting and Renaturalizing Areas BMP for a listing of live stake species and planting specifications.

Description: Live stakes are living woody plant cuttings capable of quickly rooting in moist soils. These vegetative cuttings are generally ½ - 2 inches in diameter and 1-3 feet long and large enough to be pushed down lightly as stakes. Live staking is most suitable for areas with low to moderate slopes. Since it may take two or more growing seasons for the plantings to become well established, live stakes should be installed in conjunction with temporary erosion control measures such as seeding and mulching.

Purpose: Live stakes make a good, low-cost source of plant materials for stabilizing banks and restoring shoreland vegetation. Healthy vegetation in shoreland areas provides shade, stormwater filtering, food for aquatic organisms, and bank stability.

How to:

Collecting Vegetative Cuttings. Most plants can not be reproduced by collecting and planting a vegetated cutting, but for those that can, cuttings should be collected from established/mature plants. This is a cost effective option that does not weaken the adult plant, but through pruning, is likely to invigorate it. Make sure to ask permission to take any cuttings from a mature plant that is growing on someone else's property. For best results, live stakes should be harvested and planted while the parent plant is dormant in late October until the ground is frozen, or in the spring before plants start to leaf-out. Northern counties should aim for spring plantings because the frost heaves plants that are not well established. When gathering live stakes, make sure part of the thick end of the branches are at least ½ inch in diameter (the larger the diameter the better).



Source: Maine DEP

1. Make a straight cut at the narrow end of the branch (toward the tip of the branch). At the thicker end (toward the trunk) cut the branch at an angle, so that it makes a point. This way you will know which end is up and it will also be easier to drive the stakes into the ground. If the wrong end of the branch is put in the ground the stake will die.

Live Staking Vegetation

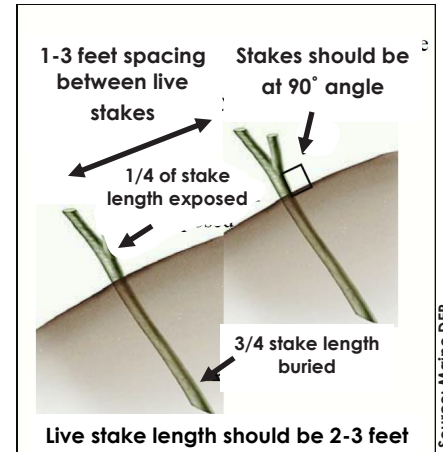
Bank stabilization

2. Once a cut has been made, remove all side branches and leaves. This helps prevent the stakes from drying out. Keep the cut slender side branches, or whips, intact. These whips can be used in the installation process.
3. To increase the survival rate of the stakes, it is best to plant within 24 hours of collection. Until the planting, keep the stakes damp by wrapping them in wet burlap sacks or soaking them in buckets of water. If the stakes are being planted on a hot day, make sure to store them in the shade.

Purchasing Vegetative Cuttings. Local nurseries may carry live stakes. When purchasing live stakes, ensure that the plant species are native to Vermont.

Planting.

1. The site should be prepared before planting the live stakes. Invasive species should be cut back. For a listing of noxious and nuisance species that can be removed from the shoreland without a permit, visit the Fact Sheet on [Noxious and Nuisance Plants](#) on the Shoreland Permitting web site. For how to control invasive species, visit the Fact Sheet on [Managing Invasive Species](#).
2. In conjunction with live staking, cover bare soil with annual grasses and hay mulch to hold the soil and help prevent weed establishment until the stakes are established.
3. Push (or use a rubber mallet) to carefully drive the pointed end of each live stake into the bank. If the stake doesn't go into the ground easily, use a metal rod to first create a hole the length of the stake.
4. Stakes should be planted at a 90° angle with ¼ of the stake (including a few buds) sticking out of the ground. When planting, leave 1-3 feet spacing between the individual stakes. If the stake will be shaded by surrounding vegetation, use longer stakes and leave one foot sticking above the ground. If a willow stake, in particular, gets too much shade, it will drop its new leaves and die.
5. The side branches, or whips, that were snipped off during the collection process will grow nicely if they are planted in very moist areas at the edges of a lakeshore. Push them into the ground as far as they will go without breaking.



Maintenance: To increase survival, the live stakes could be watered once a week during their first growing season. If a bank is severely eroded or steep it will need more stabilization than live staking. Contact the Lake Wise Program for more information and guidance.



***Cornus sericea*, Redosier dogwood**
Height: 7-9 feet
Growth Rate: fast
Hardiness Zone: 2
Light: part to full sun
four season aesthetic value



***Cornus racemosa*, Grey dogwood**
Height: 15 feet
Growth Rate: fast
Hardiness Zone: 2
Light: part to full sun
four season aesthetic value



***Salix discolor*, Pussy willow**
Height: 10-15 feet
Growth Rate: fast
Hardiness Zone: 2
Light: full sun
four season aesthetic value