

# Lake Wise Info Sheet



## Shoreland Best Management Practices for Lake-friendly Living.

### Benefits

- Water Quality
- Prevents Erosion
- Slow, Spread, Sink Stormwater
- Low Cost
- Low Maintenance
- Small spaces
- Protection & Resiliency

VT DEC suggested BMP for shorelands & BMP under the VTrans Better Roads Program

### Related Info Sheets:

- Vegetated Swales
- Turnouts & Rock Aprons
- Driveways & Lake Roads

# CHECK DAMS

## Upland stormwater management



Delaware Department of Transportation

### Description.

Check dams are stone piles placed in a concentrated flow of water like a swale or drainage ditch to slow and filter stormwater and promote ponding.

'U'- shaped stone check dam slows road runoff.

### Applicability.

Concentrated stormwater flows from ditches, swales, or culverts can move at high velocities, transport pollutants, and cause severe erosion such as gullyng. Check dams can be installed in those channels to slow stormwater velocities and encourage ponding on the upslope side of the dam, allowing sediments to settle out and water to infiltrate. Space requirements are minimal. Note that logs, brush, sand or gravel bags, or fiber rolls could be used in place of stone.

### How to.

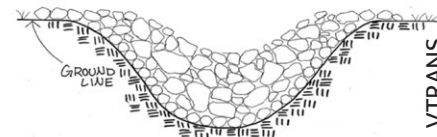
1. Determine the area where check dams will be installed and estimate the slope of the channel. Refer to the table to the right to determine the check dams spacing required for your site.

Using a tape measure, mark the spots where check dams will be placed. Avoid removing vegetation during installation.

2. Excavate a shallow trench across the channel perpendicular to the flow. To increase the effectiveness of rock check dams, a shallow pool upstream of the dam can also be excavated.

3. Place stones along the bottom of the trench and the downstream side, making sure that the stones are stable.

### Check dam shape.



### Check Dam Spacing Guide.

Swale Slope (%)	Spacing (feet)
1	200
2	100
4	50
6	30
8	25

Adapted from The Vermont Guide to Stormwater Management for Homeowners and Small Businesses (2018).

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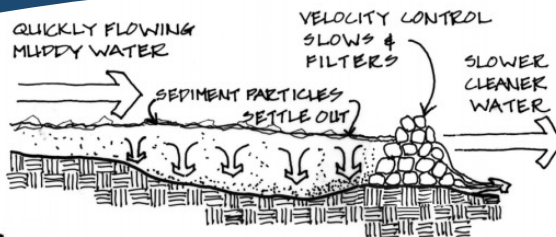
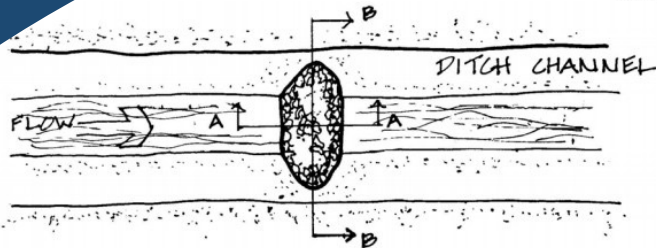
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
WATERSHED MANAGEMENT DIVISION



Graphics by Greenleaf Design, LLC



Plan view.



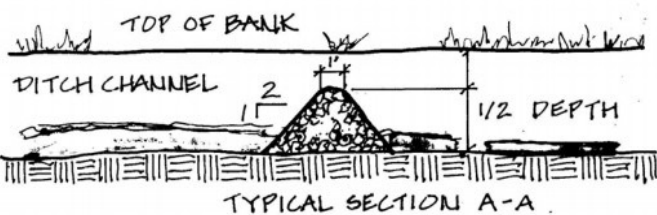
Section view of a stone check dam slowing runoff velocity and settling sediment particles.

### Materials.

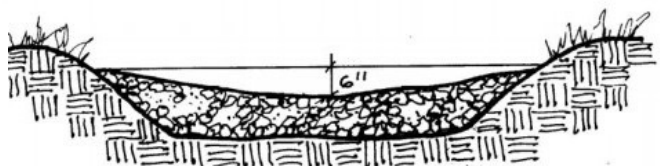
- ☀ Stakes, string, level, measuring tape
- ☀ Spray paint or string
- ☀ Shovel
- ☀ Clean stone, size depends on storm-water velocity, but generally 3 to 5 inch

### The dirt on sediment: too much can...

- > Smother fish spawning and feeding habitat
- > Kill small bottom-dwelling organisms
- > Disrupt food chain
- > Disturb reproductive cycles of aquatic organisms
- > Reduce water clarity and change chemical balance
- > Add excess nutrients that can result in algae blooms
- > Increase frequency of flooding by filling river channels
- > Diminish recreational uses



TYPICAL SECTION A-A



TYPICAL SECTION B-B

Plan view and section views of dam dimensions.

### How to.

4. Stack stones on top of the stable base stones. The base should be about twice as wide as the top of the check dam to ensure stability. Check dam height should be not more than 1/2 of the depth of the channel. Ensure that the stone used in the dam construction is large enough that it will not be dislodged by stormwater flows.

5. Check dams should be slightly "U" shaped with a lower point in the middle of the channel. The low point should be about 6 inches lower than the sides of the check dam.

### Maintenance.

Periodically remove accumulated debris and sediment upslope from the check dams. Inspect the check dams after large rain events and in the spring. If dams are damaged, reconstruct them. Fill in or repair areas where check dam undercutting or bypasses have occurred.

### For more information...

- 💧 The Vermont Stormwater Management Manual Rule and Design Guidance (Ch. 6.5.3, 2017)
- 💧 The Vermont Better Roads Manual (2019)
- 💧 Contact your VT DEC Basin Planner, River Management Engineer, and/or town office for assistance with design, funding, and permits.

