



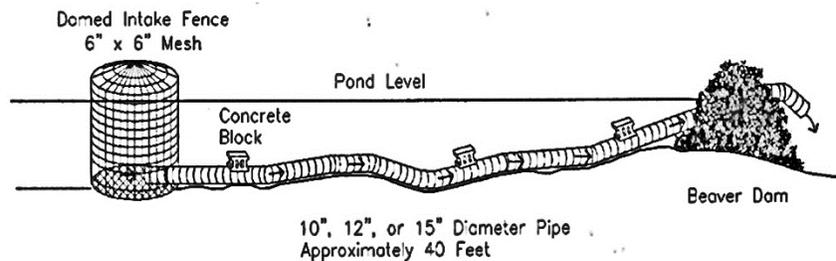
# BI Overview: Flow Devices

Beavers are a Keystone species that greatly benefit wildlife and the environment. However valuable though, sometimes their dams can cause flooding problems for people. If the beavers are removed we lose the beaver pond benefits. Also, new beavers will be attracted to the habitat creating a very costly cycle. In contrast, flow devices can protect property and retain beaver pond benefits.

What is a flow device? A flow device controls beaver damming to prevent flooding issues. Below are descriptions for four common flow device designs for different types of sites. The success rates cited are based on hundreds of installations.

## Flexible Pond Leveler

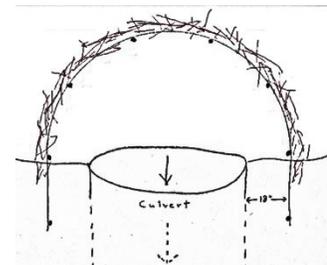
With a success rate of 90%, a Flexible Pond Leveler is usually the best option to resolve flooding from a free standing beaver dam. It is designed to prevent beavers from detecting water flow into the pipe so they won't block it. This creates a permanent leak in the dam. The height of the pipe in the dam controls the water level. The pipe inlet usually needs 3 feet of water depth to fool the beavers.



## Diversion Dam

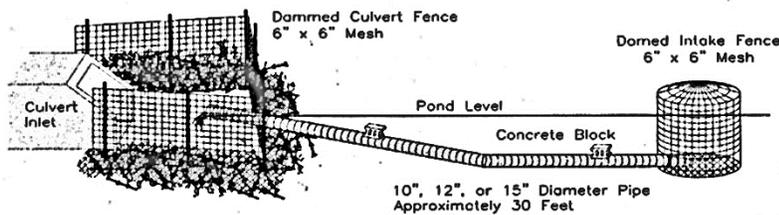
The simplest flow device designed to protect road culverts is the Diversion Dam. Blocked road culverts are the most common beaver problems because to a beaver a culvert pipe in a roadbed looks like a hole in a dam. By “fixing” the hole they can create a large pond. This is strong motivation.

The Diversion Dam is inexpensive and relatively easy to build. It has an 80% success rate. Basically you create an easier place for beavers to dam located 10 to 15 feet upstream of the culvert. As shown in the diagram, it can be constructed in a semicircle and can be made from of any kind of material (fencing, rocks, etc.) that encourages the beavers to dam there rather than the culvert. It works best if it holds back some water like a small beaver dam. It can be built to allow wildlife passage.



## Fence and Pipe Device

The most successful way to protect culverts or any manmade drainage structure from beaver damming is by using a Fence and Pipe flow device. With a 99% success rate, this device maintains water flow through 10", 12", or 15" diameter pipes. An exclusion fence protects the culvert from getting plugged, while the pipe acts as a hole in the beaver dammed fence.

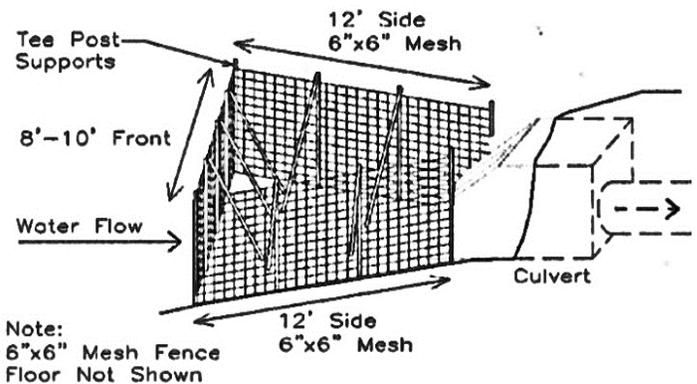


As seen in the diagram, the domed intake fence is sunk in the pond and is built large enough (usually 5-5.5' diameter) so that the beavers cannot feel or hear the water flow into the pipe. The Fence and Pipe device

controls the water level based upon the height of the pipe outlet. It just needs a water depth of 3 feet deep to work. Since beavers do not build dams much higher than their ponds, the pipe controls the height of the damming on the fence. Large storm runoff goes over the beaver dammed fence and through an unblocked culvert.

## Keystone Culvert Fence

Another way to protect road culverts is to install Keystone Fence. With a 95% success rate, this design completely eliminates damming near the culvert despite continued beaver presence. It works for three main reasons. First, it creates a large fence perimeter of 30 - 40 feet which discourages damming. Second, the fence forces the beaver to dam further and further from the culvert. Third, as the beaver dams further from the culvert the opening the water flows into widens so the damming stimuli of the sound and feel of moving water decreases the more they dam. This design is ideal for shallow water or high flow streams, but needs quarterly maintenance to remove floated debris.



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