



FACT Sheet: Elevated Riparian Optimizer (ERO) Structures

ERO habitat structures form a constricting/narrowing of the stream using the Bernoulli principle to increase the velocity and raise the riparian to control volume and optimize the force of the water in selected locations.

Figure 1: The riparian banks are elevated using 2-6 anchor rocks on the sides and 1 to 3 large flat rocks for the base of the unit. This aggressively narrows the stream through the ERO structure.

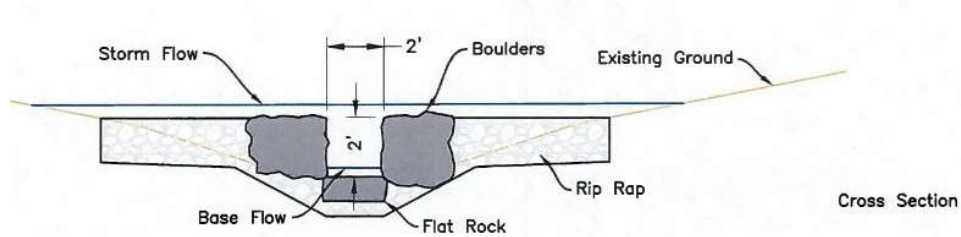


Figure 2: The ERO is in idle mode at approximately 30 % capacity during low water or base flows, but when in flood the added water with the given velocity fills the ERO to capacity and provides enough energy to scour the sand from the stream below.

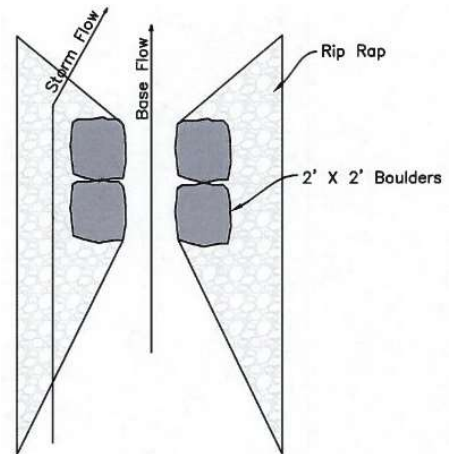
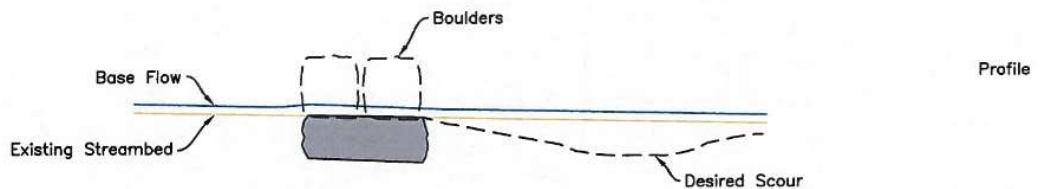


Figure 3: The result is deep water habitat for about 20 feet or more downstream of the structure. Brook trout will have year-round habitat in headwater streams otherwise choked with sand.





A typical Condition on the upper South Fork Kinnickinnic River



A year after installation, the ERO has scoured approximately 9 cubic yards of sand.



After 15 months and 3 significant rain events, maximum depth is 42 inches and river has cleaned a previously installed luncker structure providing 3 feet of overhead cover.