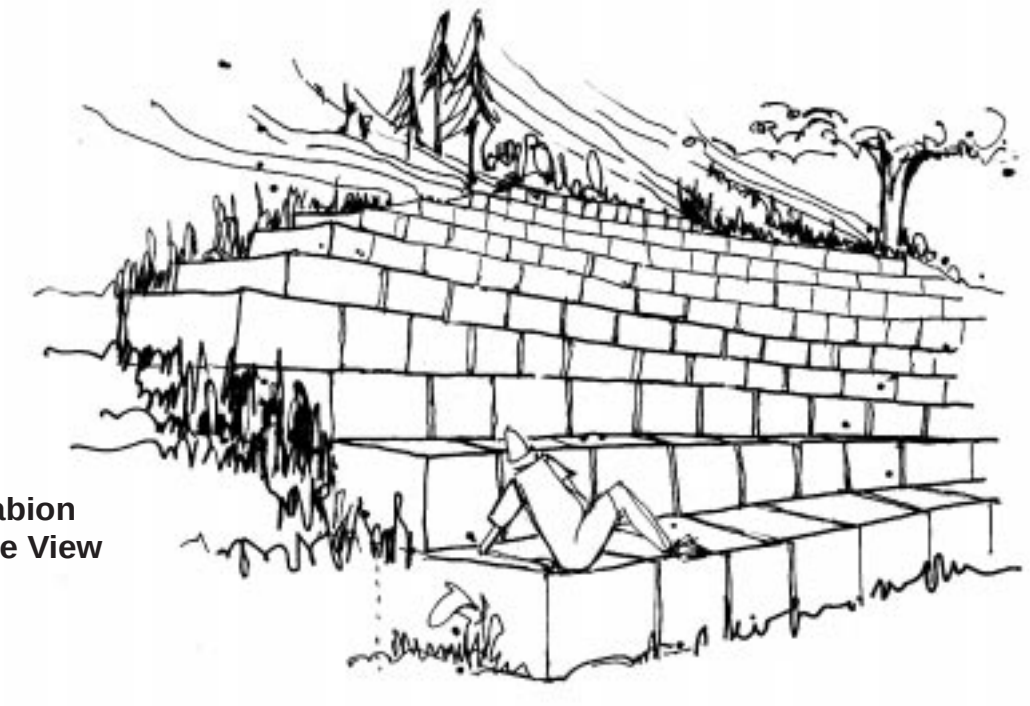
PRIMARY USE: Improve habitat for plants and animals.
ADDITIONAL USES: Enhance aesthetics through establishment of vegetation.

VEGETATED ROCK GABIONS/GABIONS

What is it? A gabion is a rectangular basket made of heavily galvanized wire mesh filled with small to medium size rock. The gabions are laced together and installed at the base of a bank to form a structural toe or sidewall. Vegetation may be incorporated by placing live branches between each layer of rock filled baskets. These branches take root inside the gabions and in the soil behind the structures. Their roots eventually consolidate the structure and bind it to the slope.

Purpose

Gabions are used to stop undercutting and/or scouring at the base of steep slopes, they are attractive when plants are growing between them, and they can be used to create a steeper, more stable side slope than can be built with riprap. The habitat provided by gabion deflectors is at least as good as natural habitat, and the undercuts formed under gabions as they twist or settle provide good cover.



Rock Gabion Pespective View

Limitations

The wire mesh of the basket is subject to sediment and ice abrasion as well as to extremes in water pH. They are expensive to build and frequently need costly repairs.. The major objections to their use have been for reasons of aesthetics; unless plants are growing between the layers of gabions, they do not blend well into natural settings. For walls taller than one basket height, an engineer should be consulted. Suitable rock may not be available nearby.

Materials

Small to medium size rock for filling gabions. Wire mesh or vinyl coated wire mesh for basket construction.

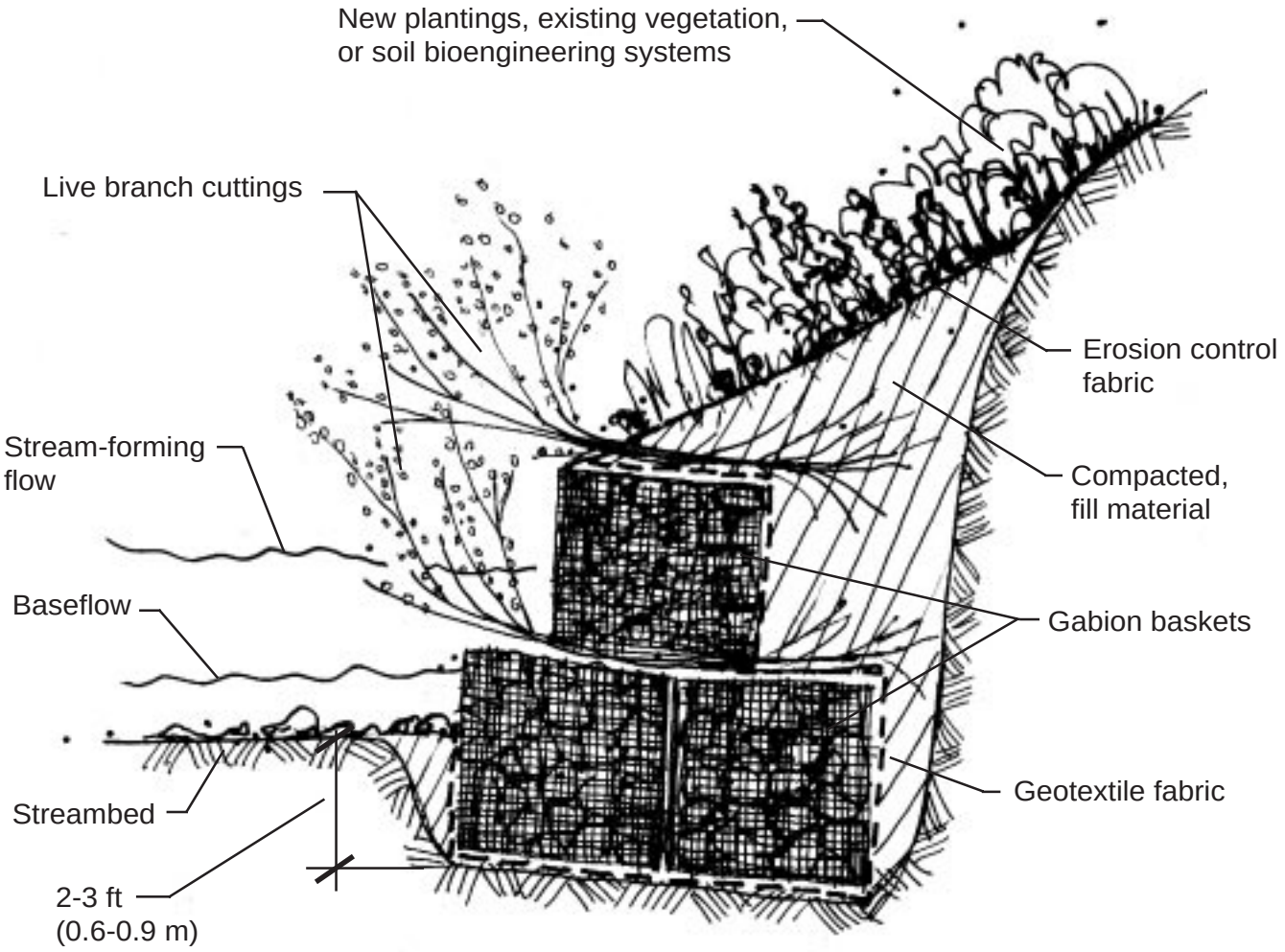
Installation

To install bottom course of gabion baskets, excavate to a depth which is unlikely to be undercut, at least 2 ft (0.6 m) below channel bottom. Assemble, place, and partly fill gabions with rock. Do not align vertical joints. Lace baskets together. Finish filling baskets with rock. Place backfill between and behind baskets. Place branch cuttings on top of soil with basal end penetrating the fill material behind the baskets. Compact soil over cuttings. Repeat layers until the required height is reached. Tiebacks must be installed at both the upstream and downstream ends.

Source: Stream Corridor Restoration Handbook, USDA; The Restoration of Rivers and Streams, Gore, James A.; Engineering Field Handbook, NRCS.

VEGETATED ROCK GABIONS/GABIONS

Additional Drawings:



Vegetated Rock Gabion
Section View

Source: Stream Corridor Restoration Handbook, USDA; The Restoration of Rivers and Streams, Gore, James A.; Engineering Field Handbook, NRCS.