



Streambank Management

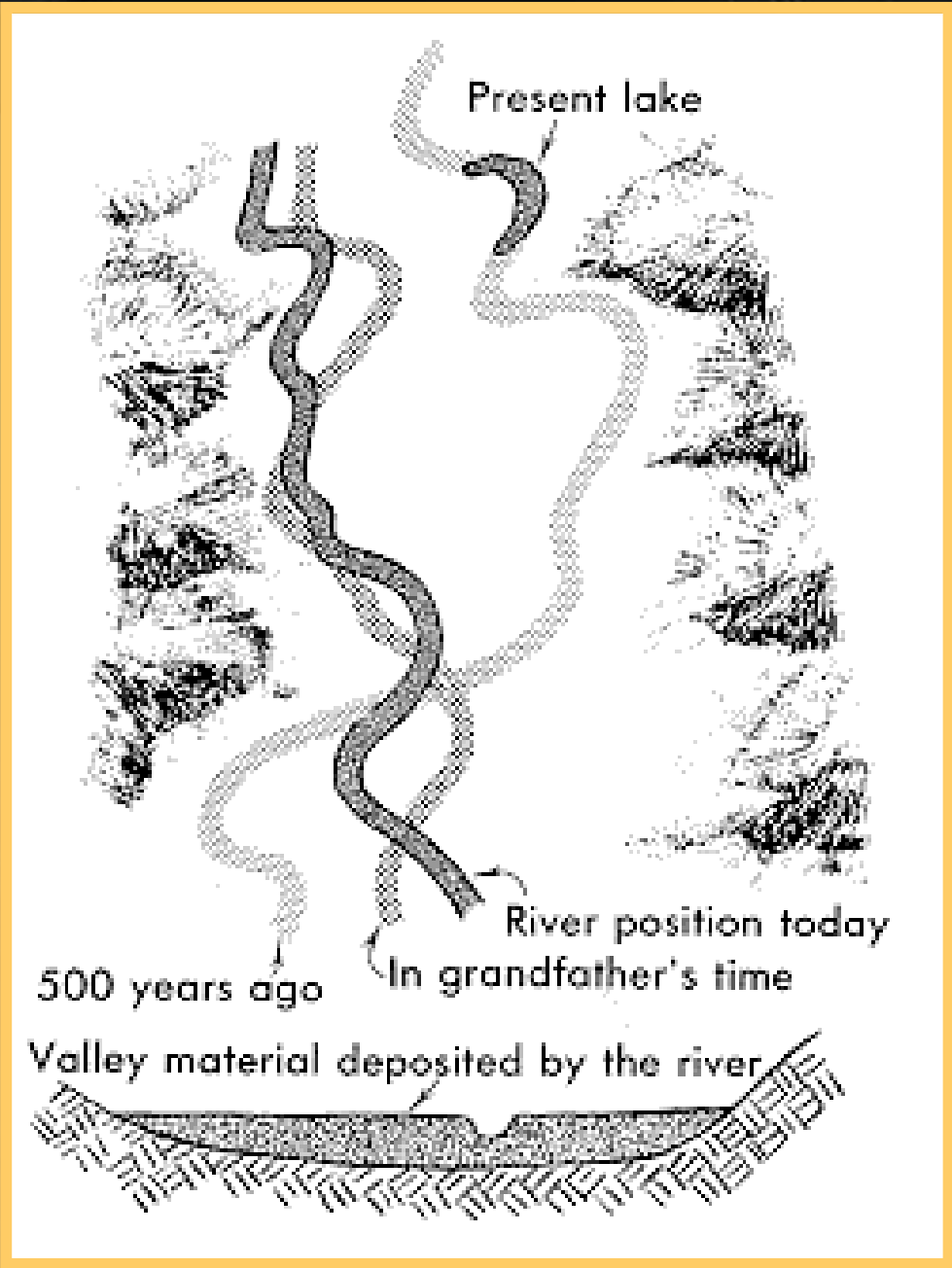
The Importance of Understanding the System

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Riparian Corridor Management
Technical Advisory Committee





RCM Principles and Practices

- The RCM principles and practices presented are a starting point for public and private property owners to protect, improve and restore riparian corridors.



RCM Principles and Practices

- Riparian Buffers are Critical
- What Happens to the Land Determines the Quality of the Water: Knowledge, Education and Advocacy
- Logjams, Bank Erosion and Flooding are Natural Processes
- Understand that your property is part of a larger system
- ASK FOR ADVICE

Streambank Management

- A five step approach
 - Education
 - Identification
 - Evaluation
 - Implementation
 - Maintenance

Education

- Provided access to the wealth of existing PI materials on the subject of streambank erosion and stabilization.
- In most cases, this step gives the homeowner the background needed to understand the bigger picture of what is occurring in the watershed.

Implementation

- Three basic approaches to stabilizing a streambank will be outlined.
 - SS-101: No Permit Needed, Homeowner activity
 - SS-201: Permit Needed, Homeowner activity
 - SS-301: Get a contractor.
- For 101 and 201, the basic methods will be provided and explained, with typical details, materials lists and costs provided.

Maintenance

- The most important part of any project is maintaining what is installed.
- The basics to maintaining a streambank project will be outlined.

Identification and Evaluation

- Steps 2 & 3 are the most critical to resolving the issues with any streambank site.
- Unfortunately, it is also the most difficult to explain.

Streambank Evaluation

- A set of criteria that can be used by a homeowner to easily identify and evaluate streambanks.
- Look at these following streambanks and answer the following questions...

Questions

- Is there a problem? What is it?
- Can planting alone solve this problem?
- Can hand grading be accomplished on this site reasonably?
- Is this problem one that homeowners could solve?







You have a problem?





Streambank Management 101

- Criteria
 - Less than 3 ft high
 - Time and Distance
 - No exposed infrastructure, no impacted structure and no threat to safety
- No grading
- No MDEQ Permit needed
- Planting only. This is a TEMPORARY fix to the problem.



Time and
Distance

Time and Distance are
critical to streambank
stabilization



Time and Distance



Time and Distance



Time and Distance



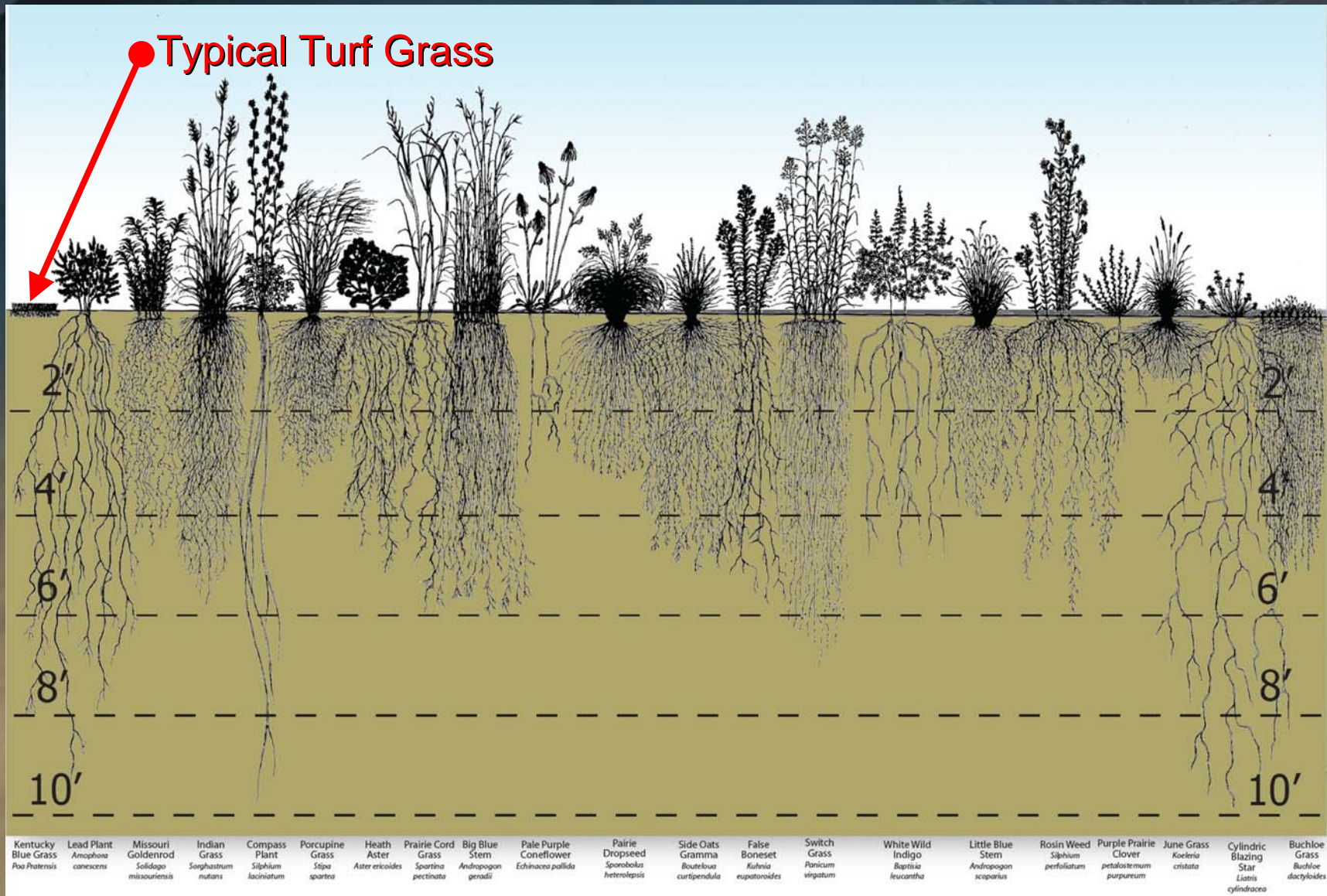
**Preserve the View
Stabilize the Bank**

What to do with your riparian land

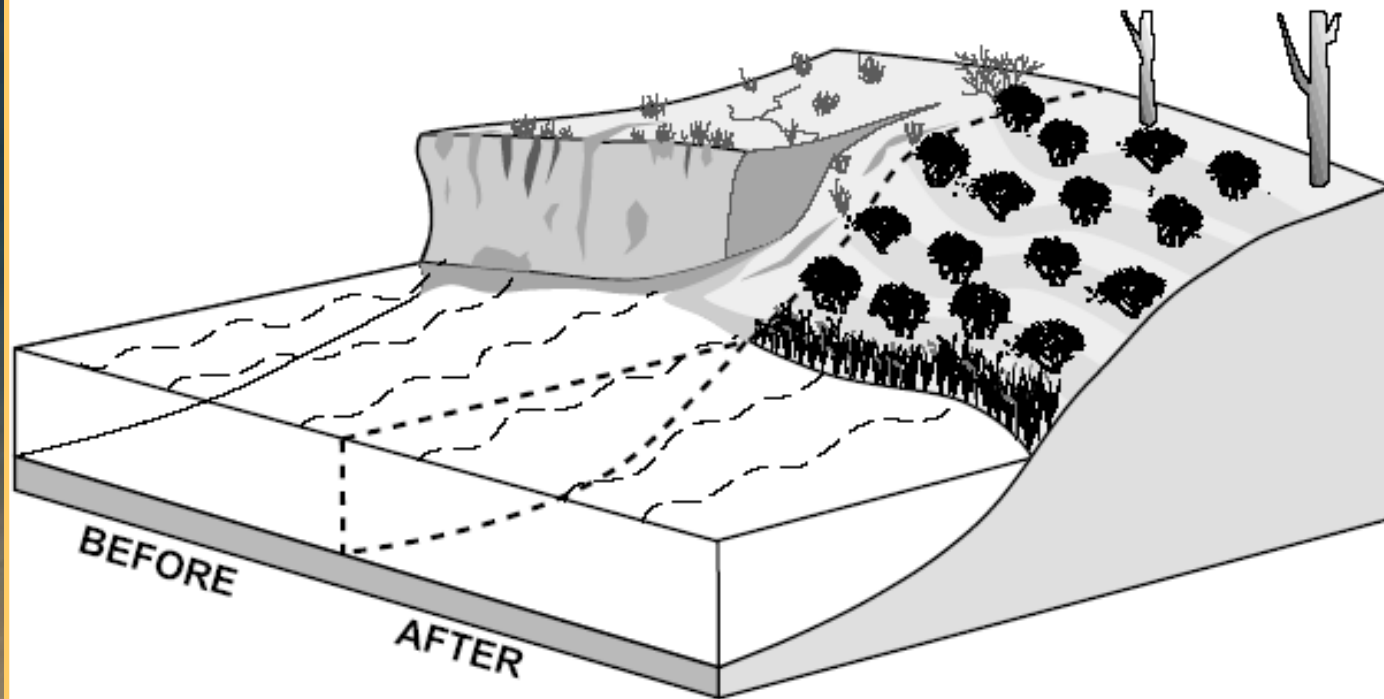
- Stop mowing it
 - Let the area adjacent to the water grow
- Remove invasive vegetation
- Plant a variety of native trees, shrubs, grasses, and wildflowers
- Extend existing buffers
- *ENJOY IT!*



Increased Root Mass = Increased Stability



Bank Shaping and Planting



Regrading streambanks to a stable slope, placing topsoil and other materials needed for sustaining plant growth, and selecting, installing and establishing appropriate plant species.









You have a bigger problem









Streambank Management 201

- Criteria
 - Less than 3 ft high, with room to work, OR
 - Very limited grading with vegetation removal
 - Time and Distance
 - No exposed infrastructure, no impacted structure and no threat to safety
- Limited grading and toe protection
- MDEQ Permit needed
- This is still a TEMPORARY fix to the problem.

Permits



Need a permit from the MDEQ for any work that fills in, builds structures or removes embedded material from the bottom of the stream to the 100 year floodplain line.

There are some very limited exceptions, but most projects that meet above criteria will need a permit

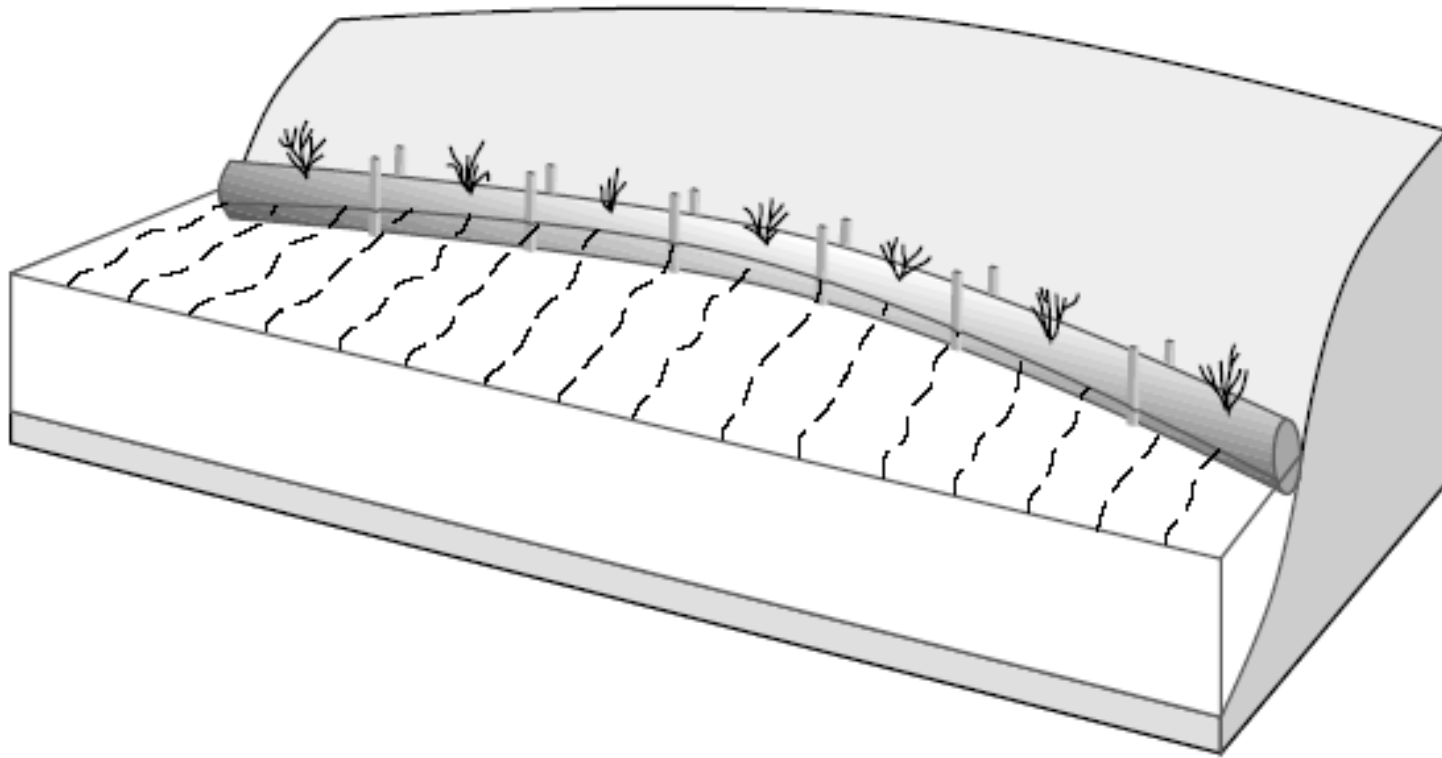








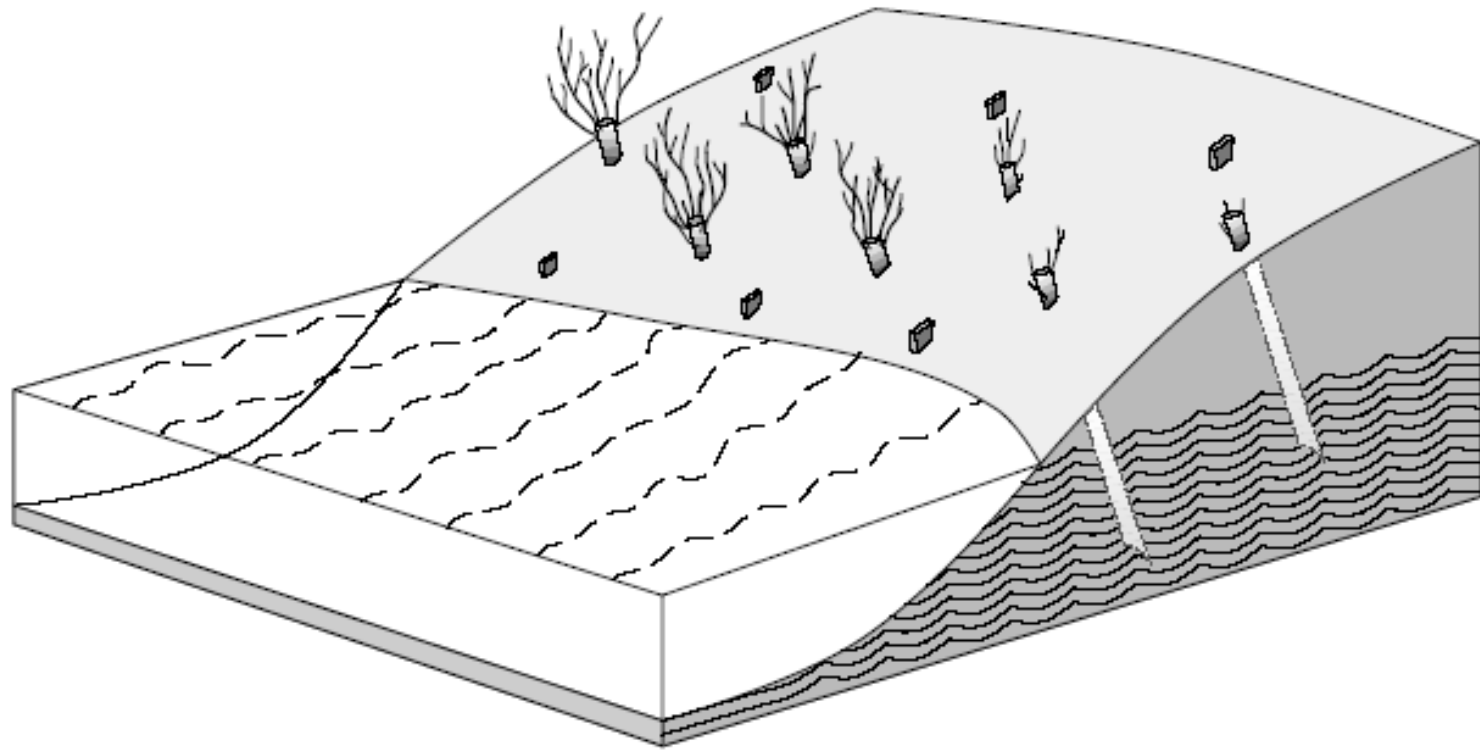
Coconut Fiber Roll



Cylindrical structures composed of coconut husk fibers bound together with twine woven from coconut material to protect slopes from erosion while trapping sediment which encourages plant growth within the fiber roll.



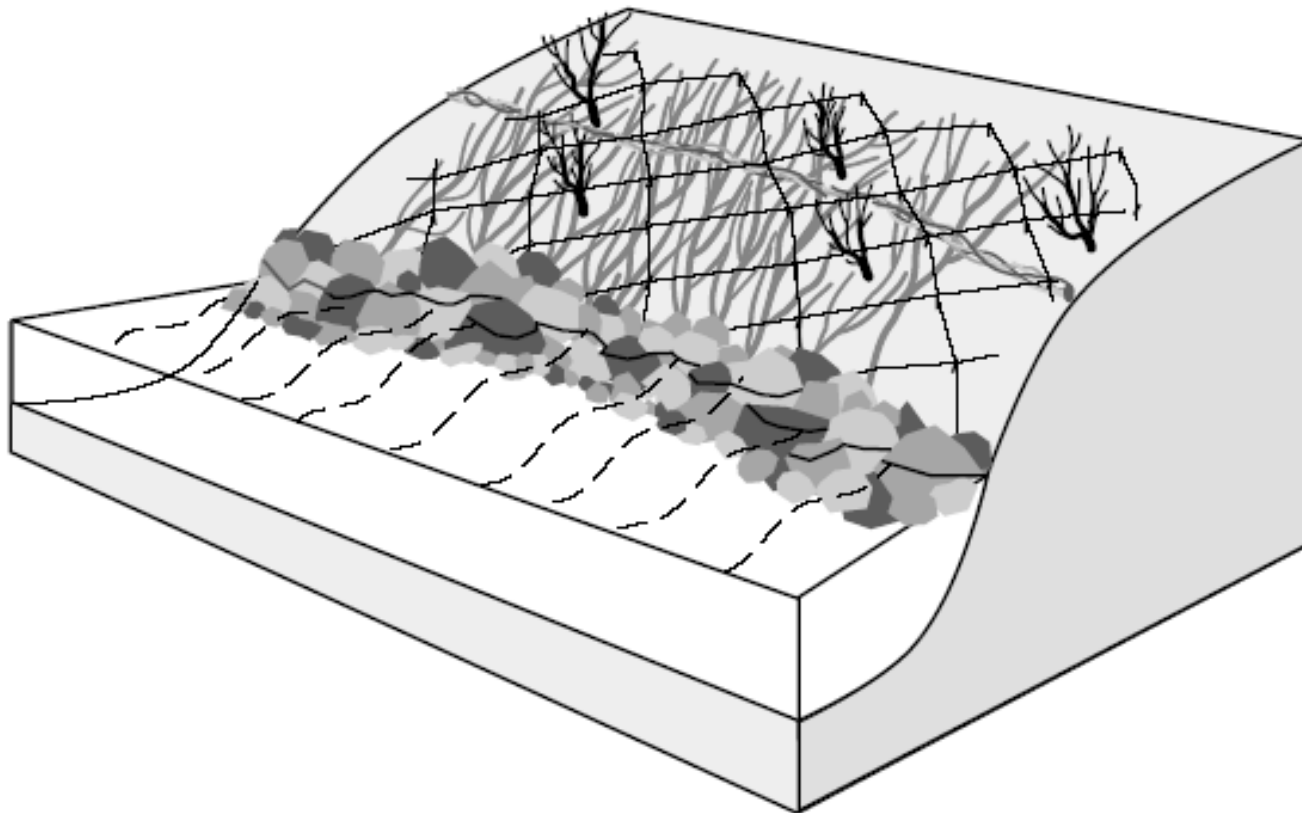
Live Stakes



Live, woody cuttings which are tamped into the soil to root, grow and create a living root mat that stabilizes the soil by reinforcing and binding soil particles together, and by extracting excess soil moisture.



Brush Mattresses



Combination of live stakes, live facines, and branch cuttings installed to cover and physically protect streambanks; eventually to sprout and establish numerous individual plants.

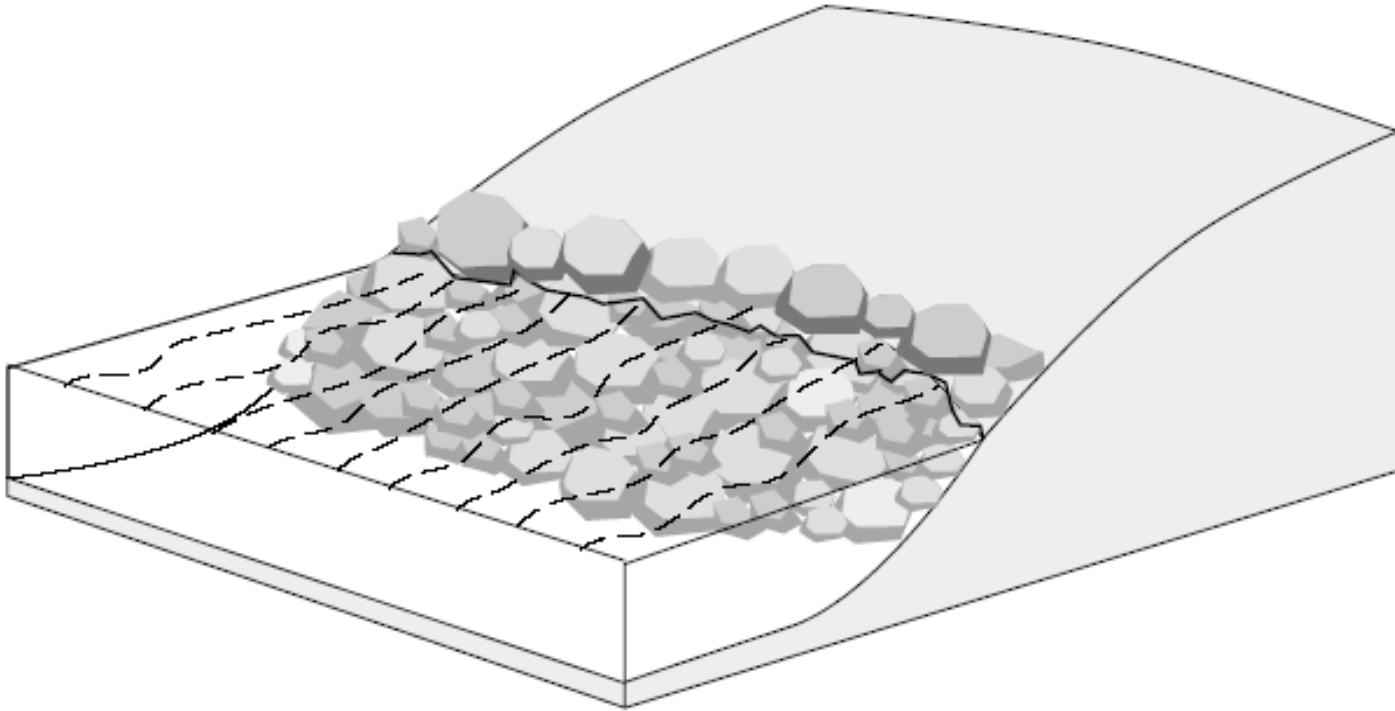








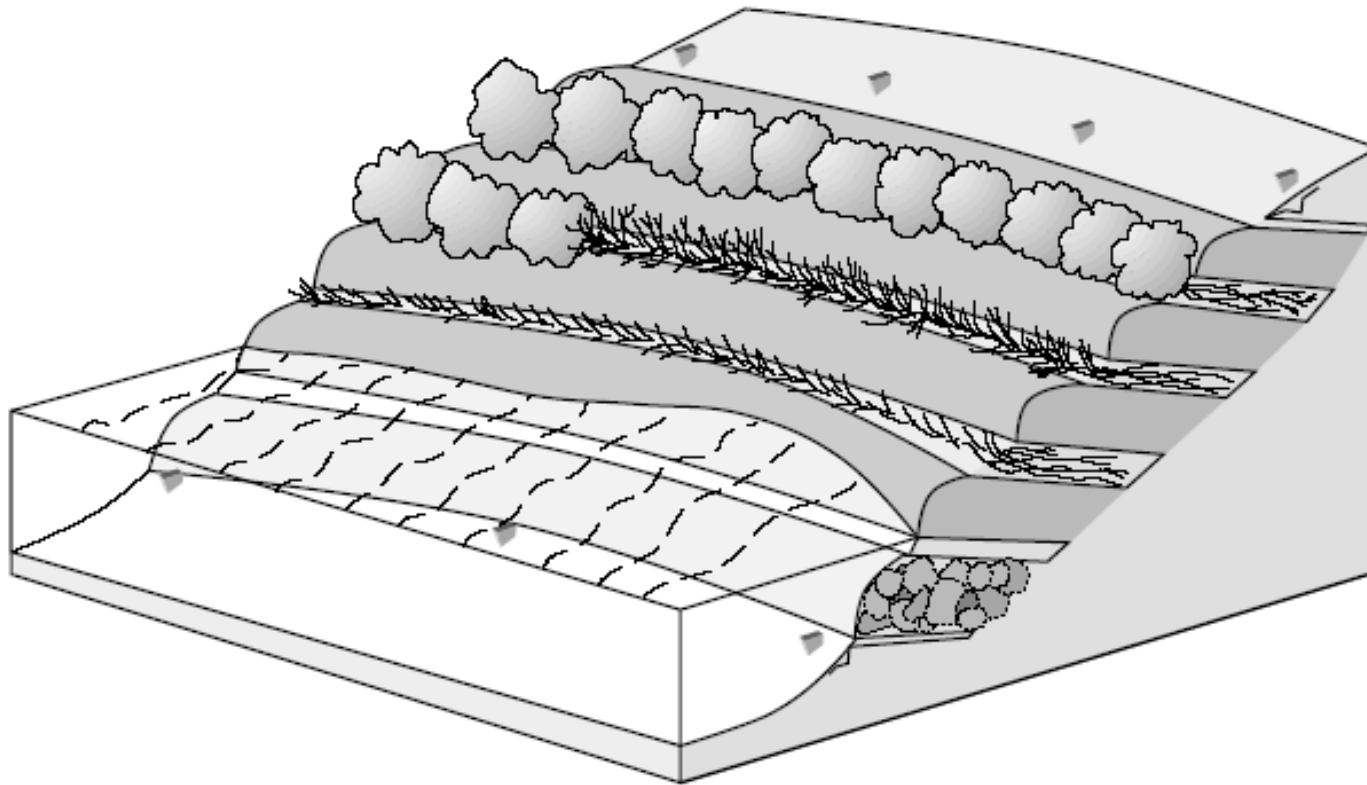
Stone Toe Protection



A ridge of quarried rock or stream cobble placed at the toe of the streambank as an armor to deflect flow from the bank, stabilize the slope and promote sediment deposition.



Vegetated Geogrids



Alternating layers of live branch cuttings and compacted soil with natural or synthetic geotextile materials wrapped around each soil lift to rebuild and vegetate eroded streambanks.









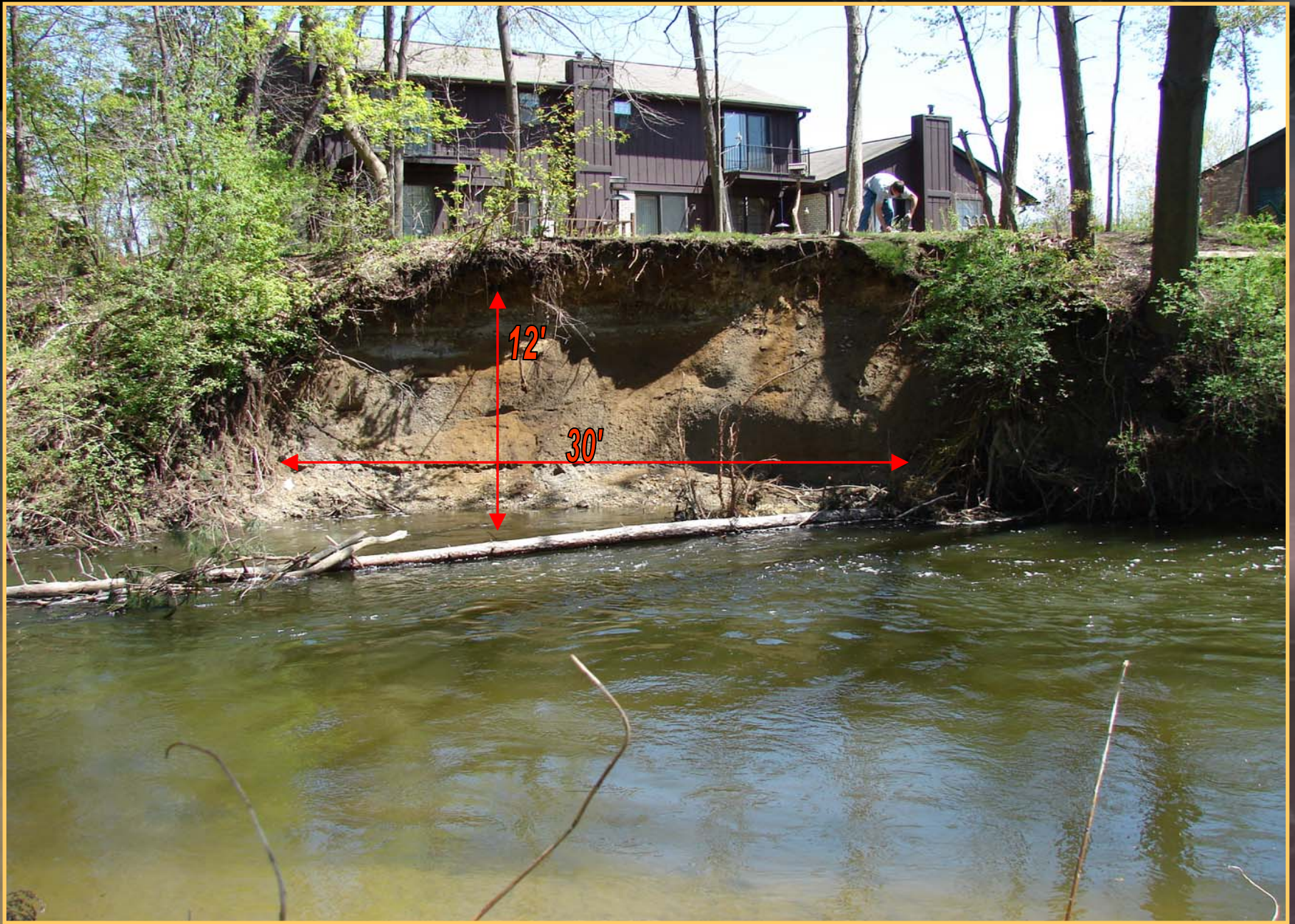
The background features a smooth gradient from a dark blue at the top to a deep purple at the bottom. Faint, light-colored technical diagrams, including gears and circuit-like patterns, are overlaid on the background. A solid black horizontal line is positioned near the top of the image.

You have a problem you and
your neighbors cannot solve









Streambank Management 301

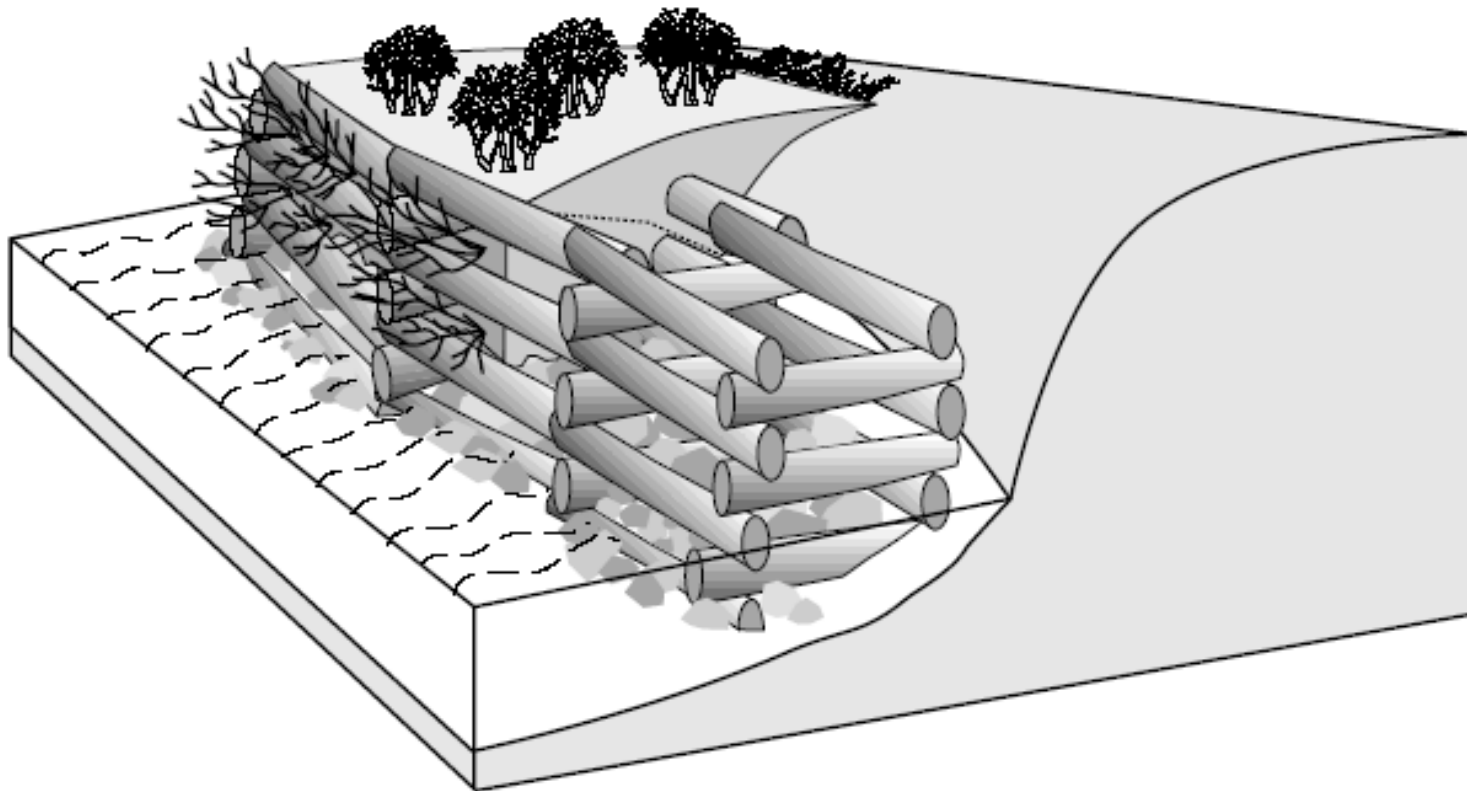
- Criteria
 - More than 3 ft high or no room to work.
 - No Time and Distance
 - Exposed infrastructure, impacted structure or threat to safety
- Grading and structural controls are necessary
- MDEQ Permit needed
- This is a more permanent but still is considered a TEMPORARY fix to the problem.

The background features a dark blue and purple gradient with faint, light-colored technical diagrams and a globe. The diagrams include various geometric shapes, lines, and circular patterns, suggesting a scientific or engineering context. A globe is visible in the upper left corner, partially obscured by a dark shape.

Call a Environmental
Consultant



Live Cribwalls



Hollow, box-like interlocking arrangements of untreated log or timber members filled above baseflow with alternate layers of soil material and live branch cuttings that root and gradually take over the structural functions of the wood members.



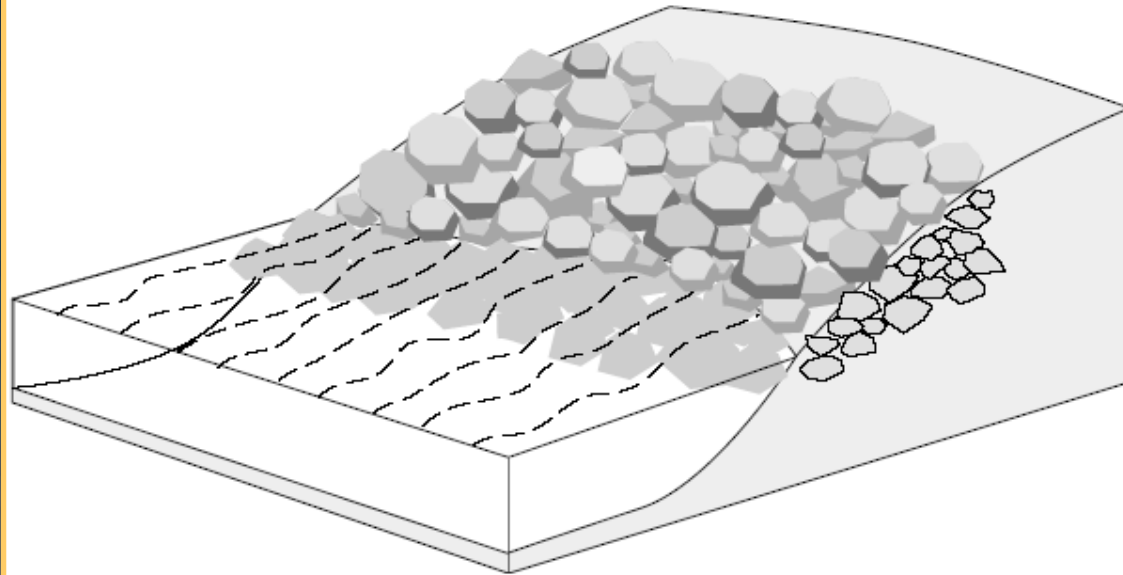






Just because it works,
does not make it right

Riprap



- Appropriate where long term durability is needed, design discharge are high, there is a significant threat to life or high value property, or there is no practical way to otherwise incorporate vegetation into the design.
- Should, where appropriate, be used with soil bioengineering systems and vegetative plantings to stabilize the upper bank and ensure a regenerative source of streambank vegetation.
- Should not be placed to an elevation above which vegetative or soil bioengineering systems are an appropriate alternative.



The background features a light-colored, textured surface with faint, technical-style drawings of mechanical parts and gears. A large, dark, curved shape, resembling a stylized globe or a lens, is positioned in the lower half of the frame. The text is overlaid on this dark shape.

Rivers are alive and a
part of a larger system

This system is complex and dynamic