Innovative Green Solutions for Erosion and Sediment Control

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Objectives

1. Present important considerations when selecting sediment control products.
2. Present number of innovative green solutions for erosion and sediment control applications.
3. Show advantages of BioD-SiltCheck™ over existing check dams in construction site sediment control.
4. Show advantages of BioD-SuperWattle™ in applications of sediment control.
5. Show how to use the combination of coir products and polyacrylamide (PAM) in sediment control.

1

Important considerations when selecting sediment control products.

- Efficiency
- Cost
- Earth-friendliness

Efficiency

- **How well a product blocks and/or traps sediment while allowing sediment free water to pass through.**
- **Length of its functional life.**

Cost

Direct cost

- **Actual product cost**
- **Installation cost**
- **Maintenance cost**
- **Reusability**

Indirect cost

- **Removal cost, if necessary**
- **Waste hauling cost**
- **Waste disposal (landfill) costs**
- **Cost due to product failure**

Earth-friendliness

How well a product blends with the environment

- **During its use**
- **When it is disposed**
- **Left at the site**

Failure to consider the above described factors in selecting sediment control devices could result in:

- Poor performance
- High cost
- Adverse effects on the Environment

Examples of sediment control devices with:

- Poor performance
- High cost
- Adverse effects on the Environment

Each of these curb inlet protection devices will take 7 cubic feet of landfill space at the end of the project.

This is also true for similar products made of synthetic carpet waste.

- Poor performance
- High cost
- Adverse effects on the Environment

Waiting to be taken to a landfill

This is after only one time use.

This is also true for similar products made of synthetic carpet waste.

2

Innovative solutions for erosion and sediment control applications.

High performance;

Cost effective; and

Earth-friendly

Green Solutions

all natural and durable sediment and erosion control products and their associated BMPs.

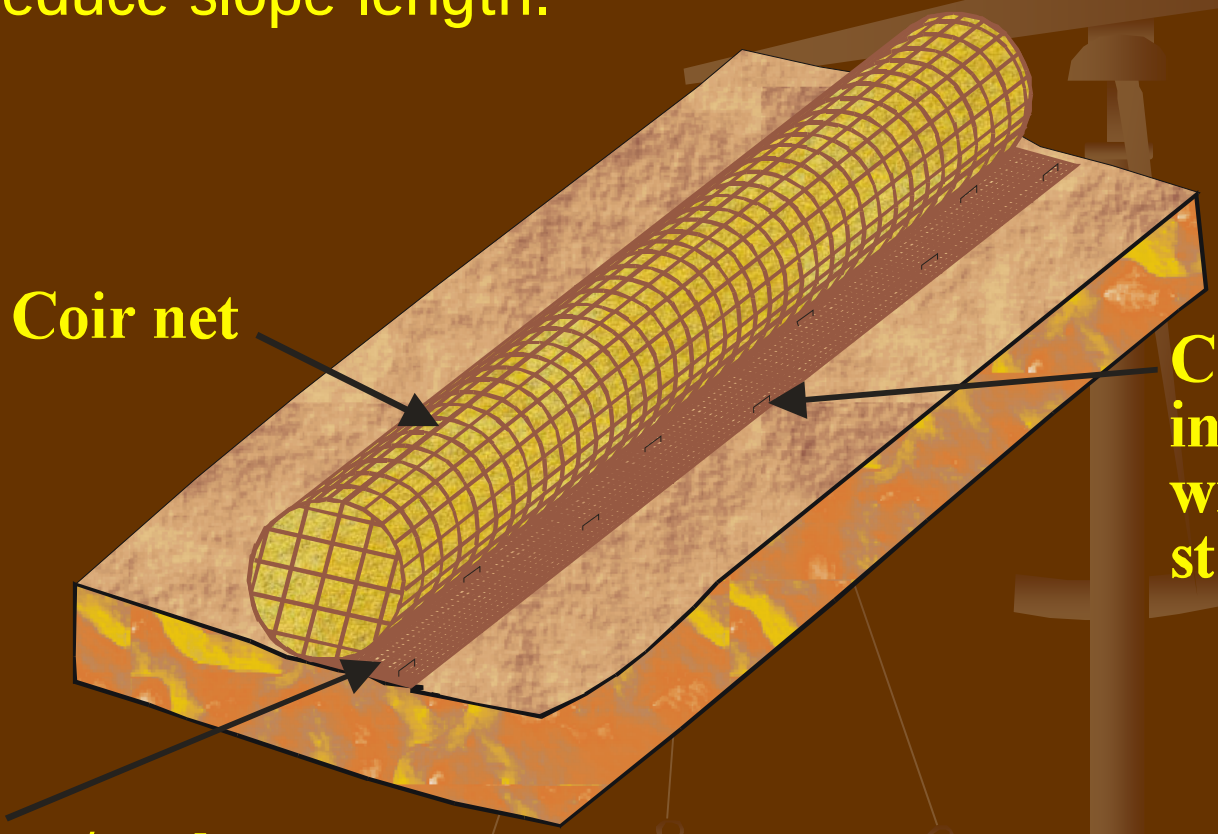
BioD-Watl™

Coir (coconut fiber) Wattle

BioD-SuperWattle™

Coir (coconut fiber) Wattle with an apron

Can be used for inlet protection, perimeter sediment control and to reduce slope length.



BioD-SiltCheck™

Coir (coconut fiber)
Check Dam

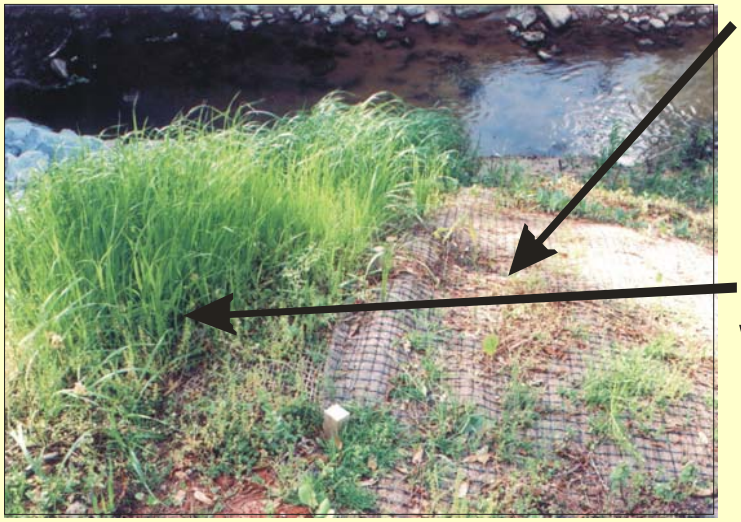
BioD-RockBag™

Coir (coconut fiber)
Rock Bag

BioD-Mat™

Coir (coconut fiber) woven Mat

Excellent alternative for many applications of permanent TRM's in erosion control



Problems in other types of organic mats

BioD-Block™

Excellent for earth-friendly streambank restorations

Designed by Tetra Tech, WA

Designed by Questa Engineering Corporation, CA

8 months later

2 years later

Coir (coconut fiber)

- Renewable natural resources.
- Natural, yet durable and strong. Last 3-6 years in the field.
- Byproduct of coconut.
- Every 7-8 weeks there is a coconut harvest.

Coconut husk

Coconut fiber

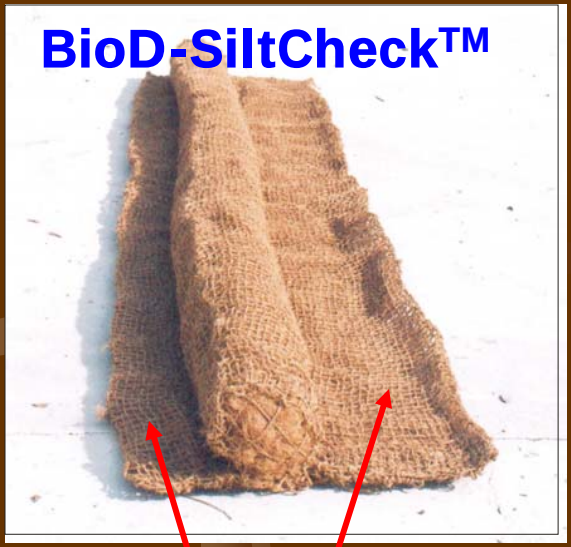
3

Advantages of BioD-SiltCheck™ over existing check dams in construction site erosion and sediment control.

BioD-SiltCheck™

Filter aprons:

- Prevent undercutting
- Prevent erosion from over topping flow
- Trap sediment

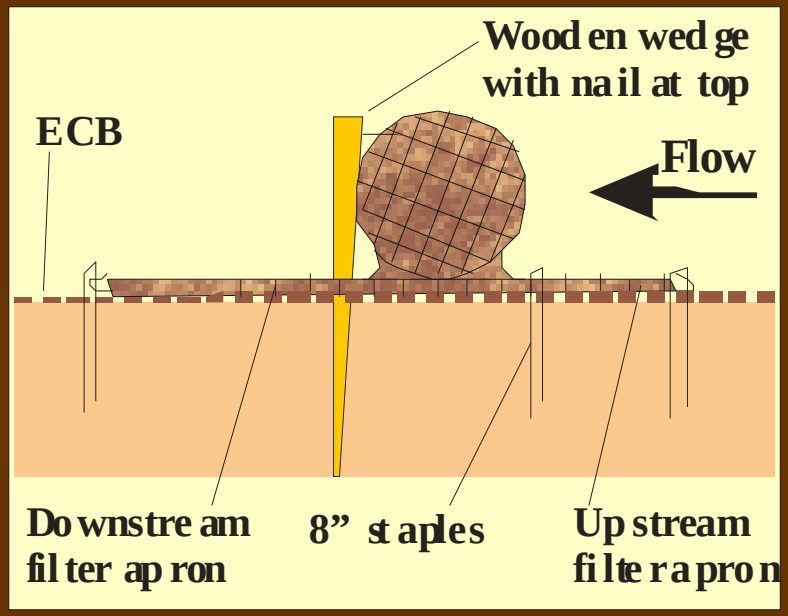


Filter aprons

Advantages of BioD-SiltCheck™

- Aprons.
- Environment friendly natural netting.
  - Friendly to wildlife
  - Durable, yet biodegradable
- No need to remove.
- Vegetation will grow on it.
- Easy, yet effective installation.
- Cost effective than other types of check dams.

Various forms of check dam failures


Wooden wedge
with nail at top
ECB
Flow
Downstream
filter apron
8” staples
Upstream
filter apron


After 3 years

After four years

Can you expect any better?

In many situations once grass has grown for 2 – 3 years there is no need of permanent check dams.

Permanent eyesore!

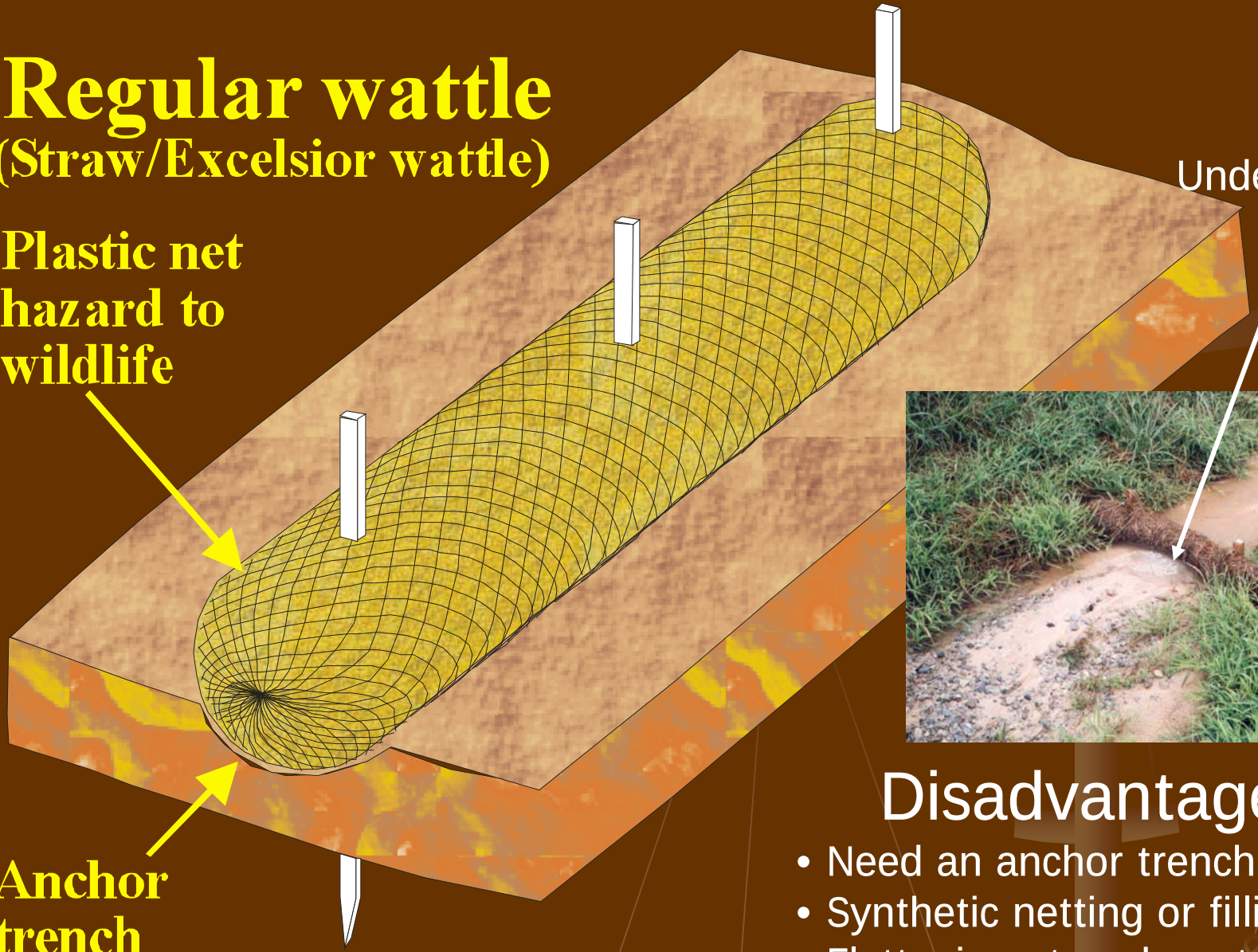
4

Advantages of BioD-SuperWattle™ in applications of construction site erosion and sediment control.

Advantages of BioD-SuperWattle™

- Anchor apron eliminates under-cutting.
- Environment friendly natural netting.
  - Friendly to wildlife
  - Durable, yet biodegradable
- No need to drive anchor stakes through the Super-Wattle.
- No need of an anchor trench increases effective height.
- Easy, yet effective installation.

Regular wattle
(Straw/Excelsior wattle)



Undercutting

Disadvantages

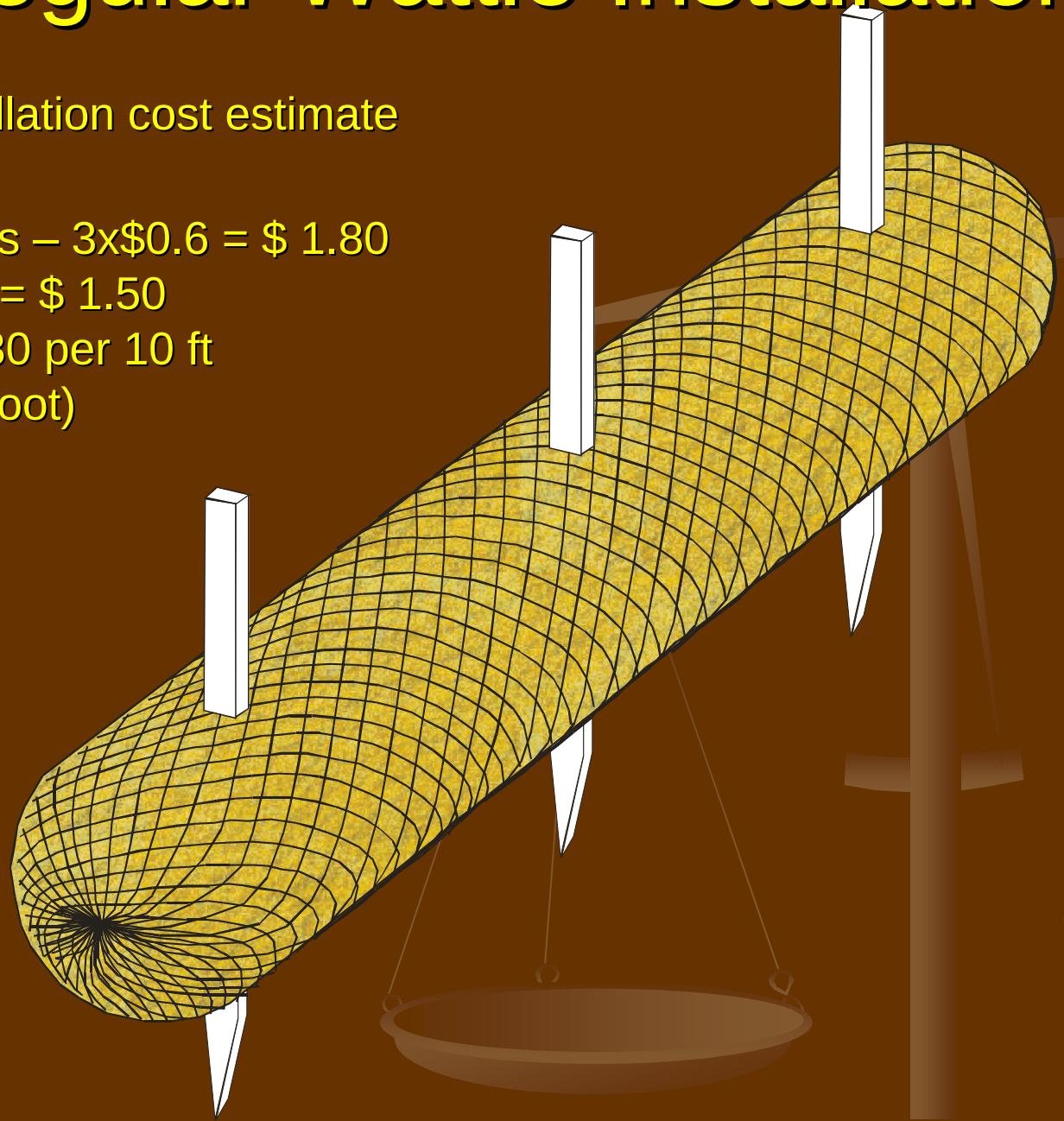
- Need an anchor trench
- Synthetic netting or filling
- Flattening at anchor stakes
- Undercutting
- Lower effective height
- Higher installation cost

Similar disadvantage in products made of carpet waste

Regular Wattle Installation

Rough installation cost estimate

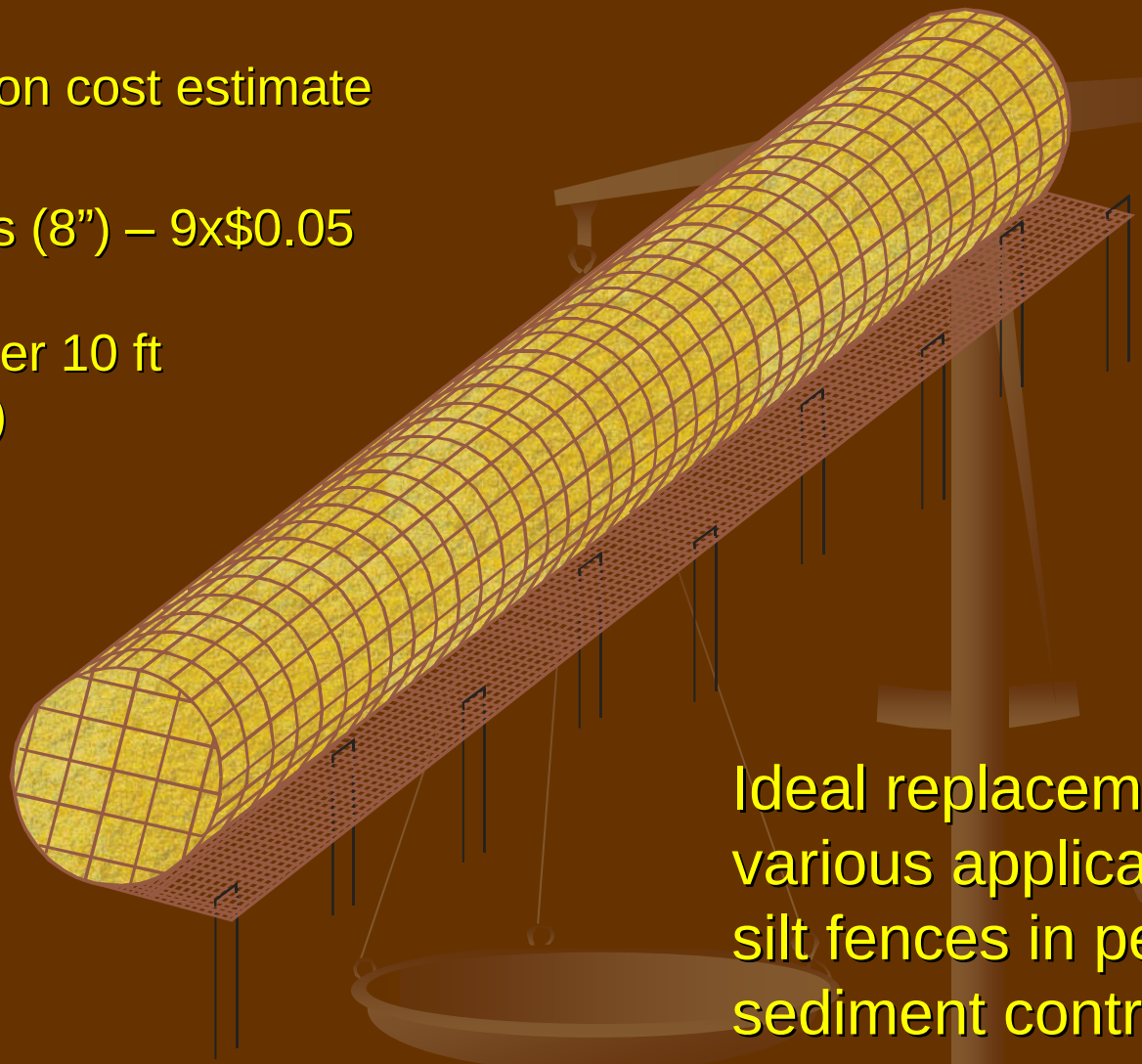
10 ft length
3 long stakes – 3x$0.6 = $ 1.80
2”-3” trench = $ 1.50
Total = $ 3.30 per 10 ft
($ 0.33 per foot)



BioD-SuperWattle Installation

Rough installation cost estimate

10 ft length
12 metal staples (8”) – 9x$0.05
= $ 0.60
Total = $ 0.60 per 10 ft
($ 0.06 per foot)

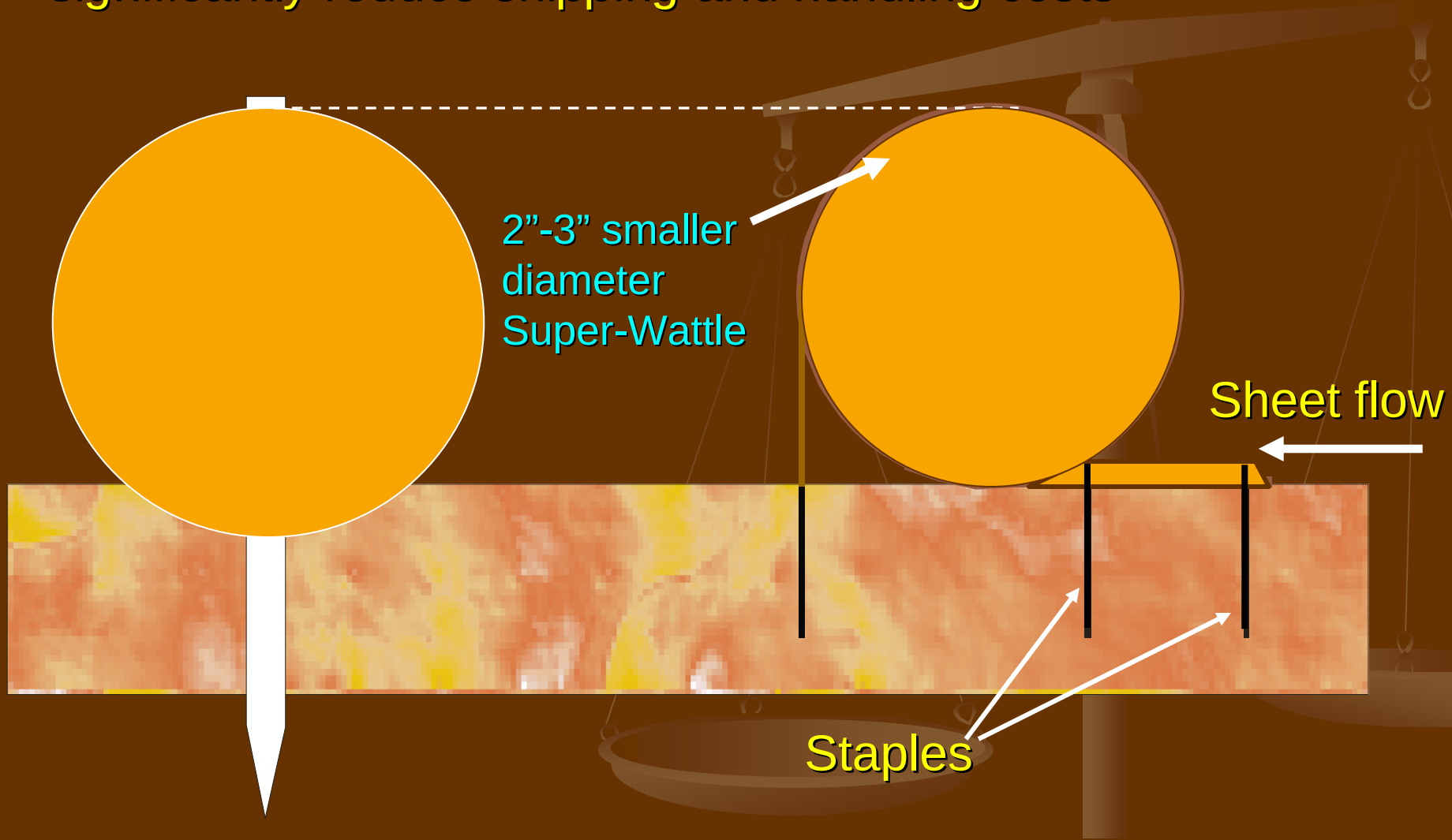


Ideal replacement for various applications of silt fences in perimeter sediment control.

Regular wattle

BioD-SupperWattle

2”-3” smaller diameter in BioD-SuperWattle will have significantly reduce shipping and handling costs



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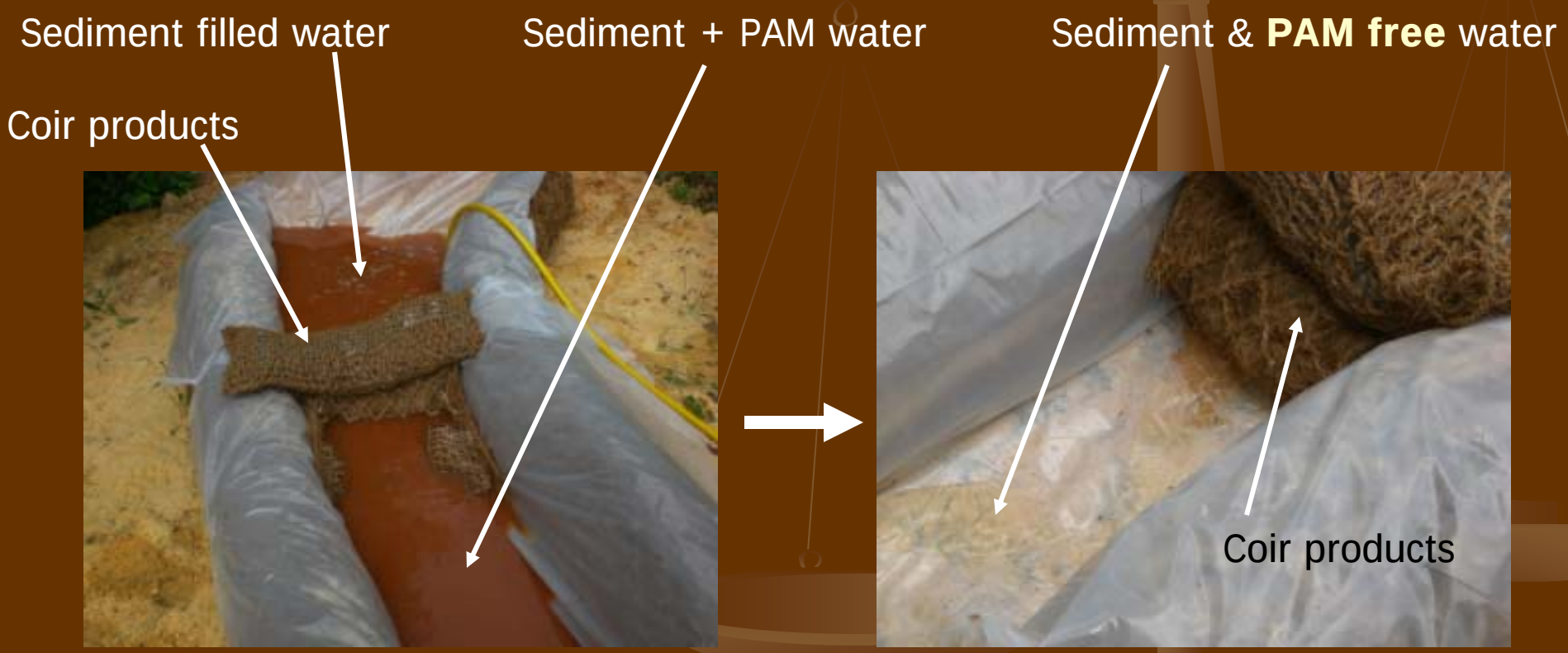
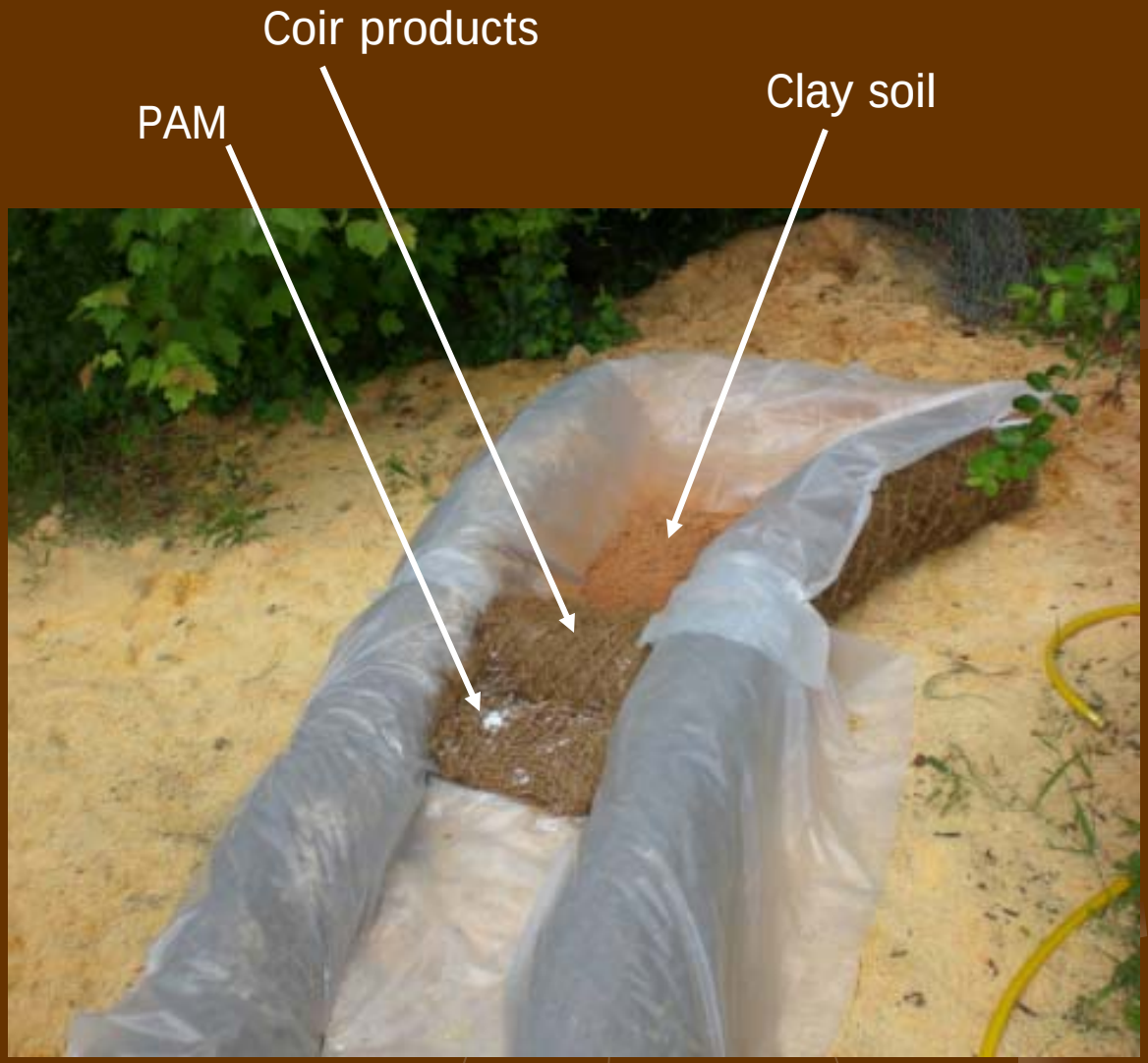
Use of coir products and polyacrylamide (PAM) to control sediment



Combination of coir products and PAM:

- Can be used for various erosion and sediment control applications in construction sites, dewatering, and detention ponds.
- Allows to reduce the quantity of PAM needed.
- Allows to stop PAM getting into water bodies.
- Traps sediment as well as PAM in the system.
- Efficiently control sediment.
- Cost effective, and
- Friendly to environment.

A simple demonstration to show the effectiveness of combination of coir and PAM in soil erosion and sediment control


Coir products
PAM
Clay soil


Coir filter 2
Coir filter 1
Coir & PAM check 2
Coir & PAM check 1

Flocculated sediment

Significantly sediment free water

Coir Filter 1

Trapped sediment & PAM

Coir Filter 2

No visible PAM

This is just a demonstration of capabilities of combination of coir products and PAM in erosion and sediment control.

Sediment filled water

Flocculated sediment

Sediment & **PAM free** water

Coir & PAM
Check 1

Coir Filter 2


Thank you
For your next Erosion & Sediment control design consider GREEN solutions