



Natural and Biodegradable Coir Products for Effective Sediment Control During Construction



Sediment control during construction

The biggest challenge in the construction industry



Evaluate your BMP's

Are you wasting your time and money and also destroy our environment?



Proper sediment control practices are extremely important to protect and preserve our environment



The dangers of poor sediment control practices

1. Poor sediment control measures demands reconstruction



Increases construction costs

2. Poor sediment control measures create expensive and irreversible damages to aquatic systems



- More than 2 billion tons of sediment is deposited in water bodies every year.

Break the food chain while destroying the lake bottom ecosystem.

3. Poor sediment control measures leads to future flooding

Sediment deposition reduces the water holding capacity of lakes and rivers. Not sufficient space to hold runoff water during heavy rains.



Deposited sediment blocks the water diversion channels and create flooding during heavy rains.

Selecting effective sediment control products

Consider

- Efficiency
- Environmental friendliness
- Cost

Do it right the first time !

Efficiency

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

Environmentally friendliness

How well a product blends with the environment

1. During its use
2. When it is disposed
3. Left at the site

Costs

■ Direct costs

Actual product cost

Installation cost

Maintenance cost

Reusability



■ Indirect cost

Removal cost

Waste hauling cost

Waste disposal (landfill) costs



For effective sediment control

- Select proper products
- Install them properly



High water flow can wash away sod.

**Evaluate commonly used
sediment control products**

1. Hay bales



- Water will not go through the hay bales, but go around and between hay bales. No filtering. Efficiency very low.
- Environmentally friendliness – good.
- Cost – reasonable, no indirect costs.

2. Silt fence



- Water is filtered through the silt fence well. Too much water accumulation in heavy rain conditions.

Efficiency moderate.

(New problem - Be aware of a silt fence fabric in the market that has very low water permeability. Creates lot of problems.)

- Environmentally friendliness – poor
- Cost – reasonable, but high indirect costs

Rocks



- Water will go through it freely, no filtering. If not water will find alternative ways. Rocks move with heavy flow creating more erosion.

Efficiency low.

- Environmentally friendliness – poor.
- Cost – high material and maintenance cost, high indirect cost too.

Maintenance - rock check dam channels vs. natural check dam channels



Create a big eye
sore, hard to
maintain.



Results in easy-
to-maintain
channels

Sediment control

- Temporary application.
- Strong, biodegradable materials are more suitable.
- If non-biodegradable materials are used, they must be removed upon completion of construction. **This is difficult in many situations as well as increase costs.**
- Coconut fiber (coir) sediment control products are suitable for many applications.

What is coir ?

Fiber obtained from coconut husks
(Coconut fiber)



An abundant, renewable natural resource
(by-product)

Advantages of coir sediment control products

- Completely biodegradable.
- Strong and durable.
- No need for removal.
- No synthetic materials to interfere with wildlife activities.
- Work well with heavy equipment
- Economical



Coir sediment control products

1. Coir wattle – BioD-Watl™



Available sizes

6 in x 15 ft

9 in x 15 ft

9 in x 20 ft

12 in x 10 ft

20 in x 10 ft

**These are filled with extra cleaned
mattress coir fiber.**

a. Curb inlet protection



Easy to install and to remove. No concrete nails or special equipments are needed.

Make sure to leave space between the catch basin and the wattle for breathing.

b. Perimeter sediment control.



Prevent sediment moving from the construction site. At the same time allow movement of construction equipment.

c. Protect water bodies



**Prevent sediment going
into water.**

Coir wattles over rock gabions

Protecting lake from sediment pollution and improving lake aesthetics



d. Protect grade inlets



e. Slope length reduction

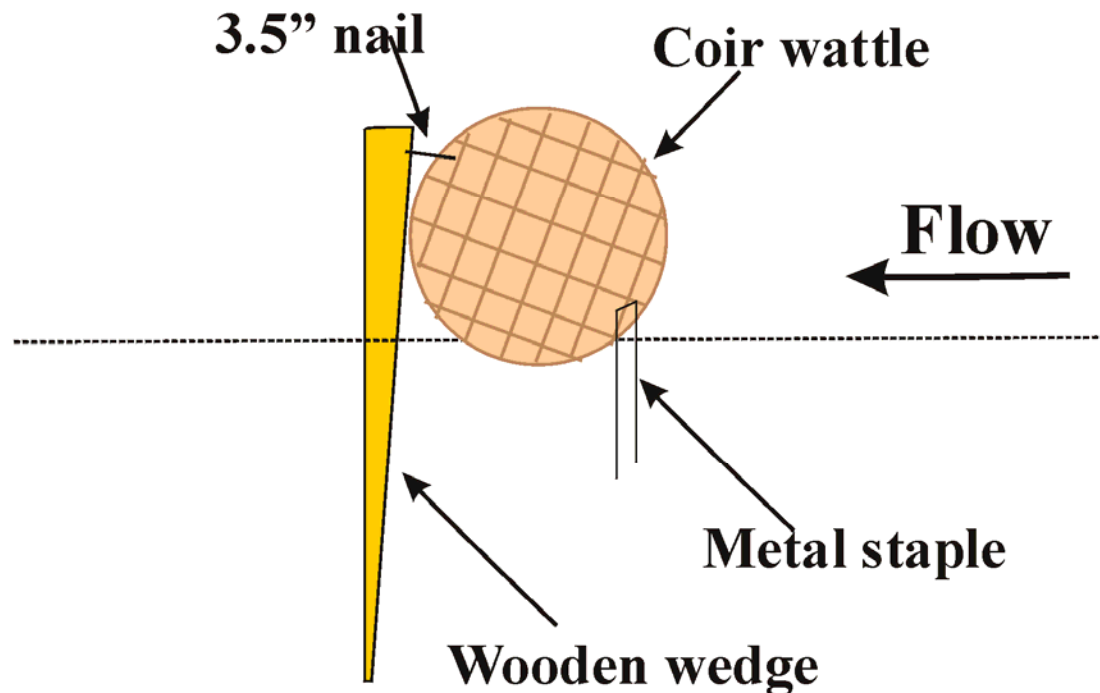


f. Check dams in channels



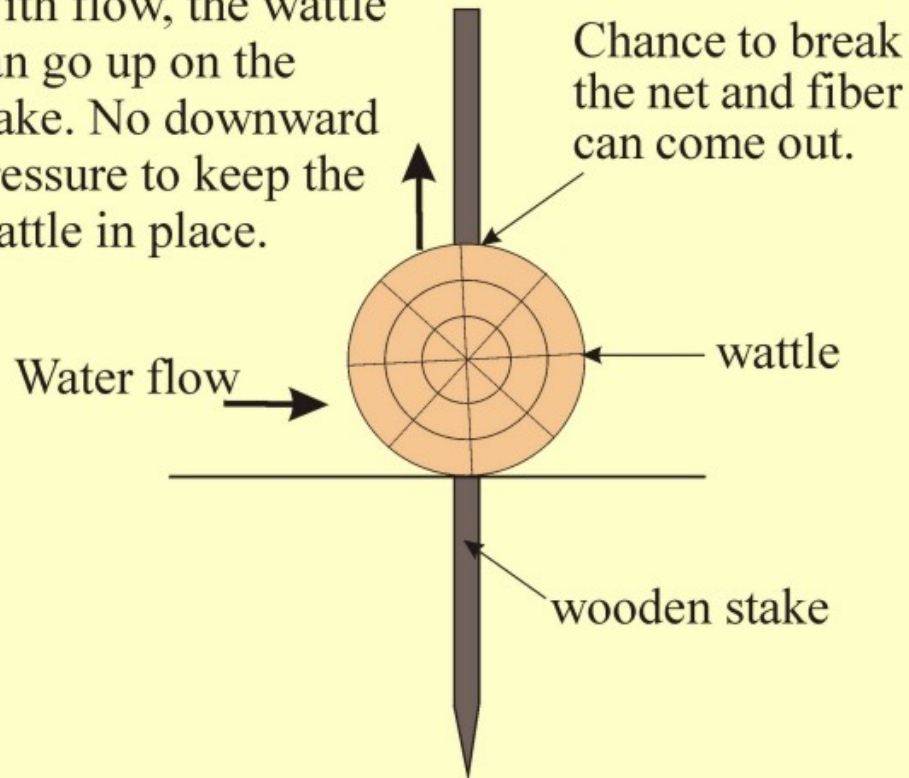
Proper installation assures the performance

Diagonally cut wooden wedges and metal staples keep the wattle in place for successful sediment control.



Common installation

With flow, the wattle can go up on the stake. No downward pressure to keep the wattle in place.



- Can damage net and fiber come out (specially the plastic nets).
- Wattle can move up / down, undercutting possible.

Advantages of coir wattles

1. Outer net

- a. Made of 80-lb strength bristle coir twines. Coir twine net is stronger than the plastic nets in other types of wattles.
- b. Coir twine net will not rip easily like the plastic nets in other wattles.
- c. Coir wattles can clean and reuse when they were used in catch basins.

- d. 100% biodegradable, no need for removal.
- e. Straw is a good wildlife feed, but not the coir. No damage to wildlife.
- f. Coir wattles net can easily cut and mend to any desired length with coir twine.
- g. Plastic nets become nuisance in the field and also harm reptiles, birds etc.

Environmentally friendly, strong & durable nets in coir wattles.

2. Filtering medium

- a. Mattress coir fiber in coir wattles filter sediment better than straw and wood fiber.**
- b. Unlike wood fiber and straw, coir fiber will not absorb water. Coir fiber decays at a much slower rate and holds its volume longer time.**
- c. Wildlife will eat straw, not the coir.**

- d. Wood fiber tends to absorb nitrogen from the ground, making it unavailable for vegetation.**
- e. Coir fiber can stand heavy equipment than straw and wood fiber.**
- f. Coir fiber is an excellent medium for plant growth. They improve soil conditions better than straw and wood fiber.**

Protect our environment with 100% natural products.

2. BioD-SiltCheck™

Coir check dam / ditch check

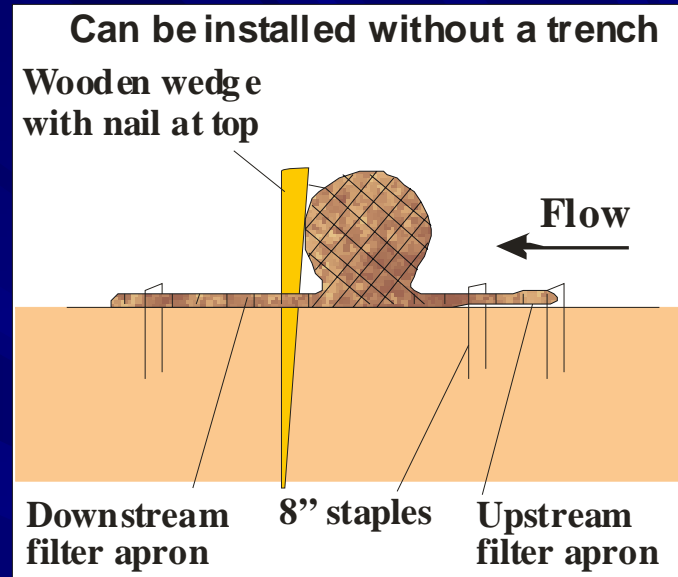
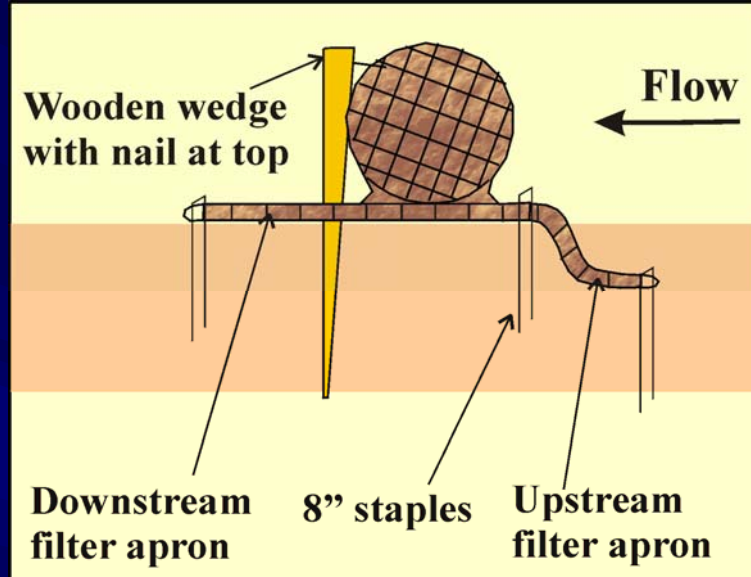
- A new product introduced in 2005.
- Excellent natural check dam.
- Capture sediment from the aprons too.
- 100% biodegradable.
- Easy to install.
- No need for removal.



Excellent natural check dam



Proper installation



Cost Savings from:

- Easy installation
- Low maintenance
- No need of removal



Benefits to Environment by:

- Not filling landfills
- Not disturbing deposited sediment
- Using wildlife friendly material



3. BioD-Mat™

Woven bristle coir blankets

- 100% biodegradable
- Last 4 -6 years
- No plastic materials to interfere with future maintenance or with wildlife activities
- Sediment trap in the open areas.
- Vegetation comes through the mat very easily.
- Flexible blanket, easy to install.



Runoff water diversion channel restoration

Poor channel restoration in construction sites is the most common mistake and this contributes to most sediment pollution.

Strong, durable channel liners are required for successful channel restoration and to prevent sediment movement.

Straw Mats and excelsior (wood fiber) mats should not be used in channels

Loose fiber in the mat wash away with water flow.



Rocks are not good channel liners



Rocks move with water flow creating erosion.



Vegetation is the best way to restore channels

Open weave blankets support vegetation establishment better than synthetic permanent mats



Woven bristle coir mat

Composite permanent mat

Strong durable woven coir mats with
coir silt check or coir wattle provide
successful channel restoration



No loose fiber to wash away from the mat.
Natural check dams break the flow and
collect sediment.

Types of bristle coir woven mats for channel restoration

BioD-Mat 70



**780 g/m²
48% open area**

BioD-Mat 90



**980 g/m²
38% open area**

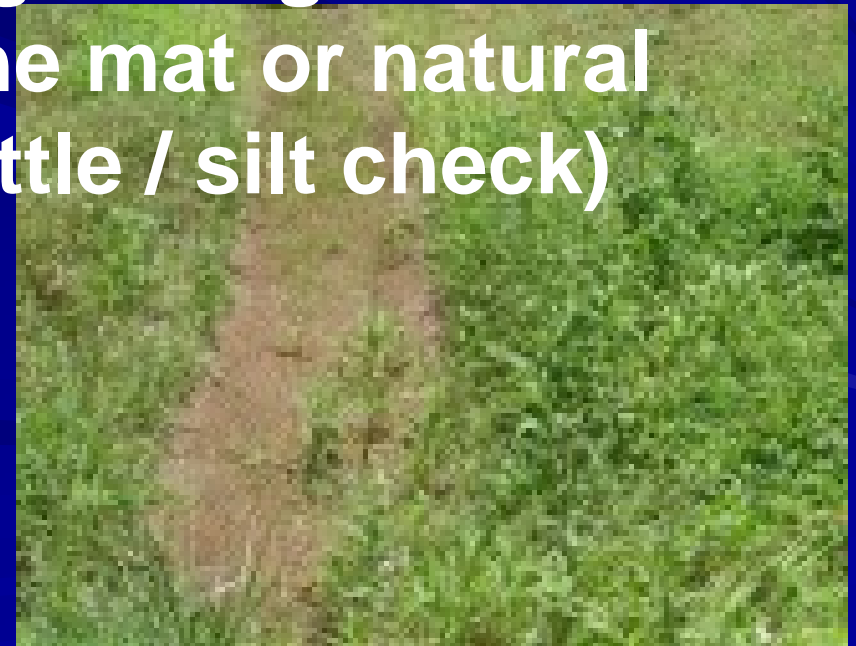
**Roll sizes: 3.28 ft x 83 ft, 6.5 ft x 165 ft;
9.8 ft x 165 ft and 13 ft x 83 ft.**

Effective channel restoration with BioD-Mat blankets



Vegetation coming through the mat.

**No damage to the mat or natural
check dam (wattle / silt check)**



Effective channel restoration with BioD-Mat blankets



Effective channel restoration with BioD-Mat blankets



Woven coir mats also can be used
to restore eroded channels



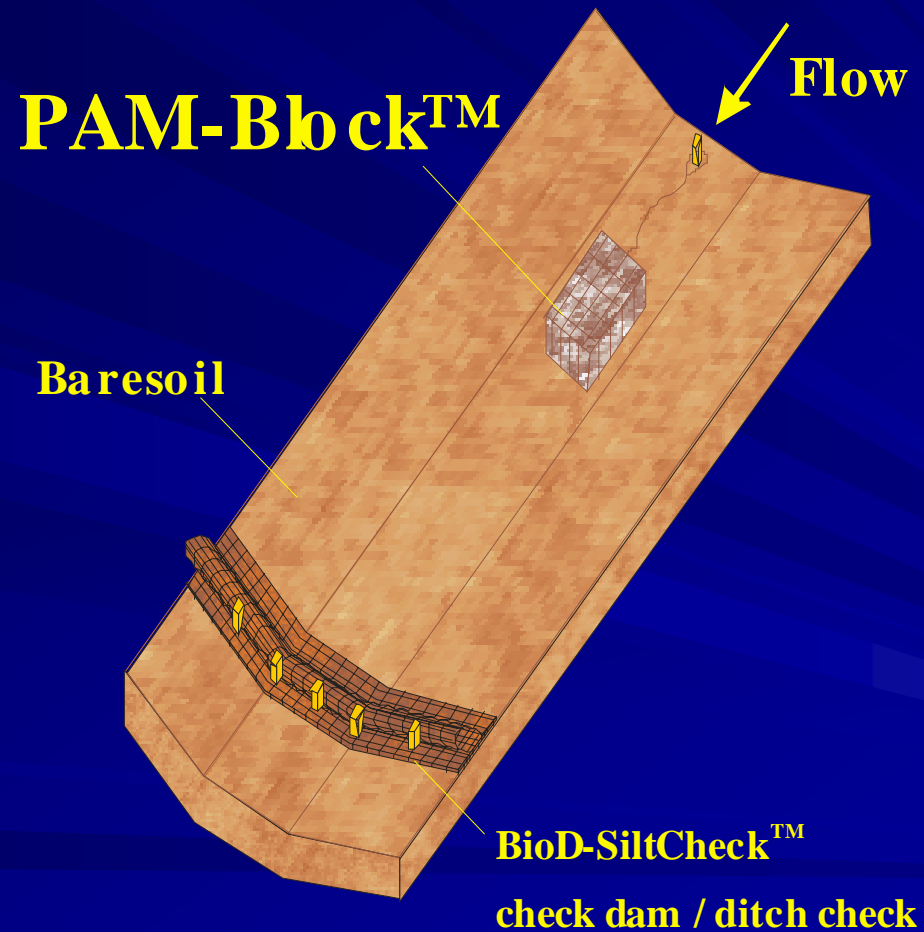
4. PAM-Block™

Polyacrylamide-coir Sediment Control Block



- Semi-solid PAM block wrapped with coconut fiber.
- Coconut fiber in the PAM gel matrix.
- Wrapped with coconut fiber twine.
- Coconut twine to secure PAM-Block.

Field Application of PAM-Block



5. BioD-RockBag™

Earth-friendly coir rock bag



Bag size: 24 in x 10 in



Easy to connect design

Failing synthetic rock bags



Coir rock bag does not create any non-degradable waste which require disposal in landfills. It also perform better than any synthetic rock bags.

BioD-Watl
BioD-SiltCheck
BioD-Mat
PAM-Block
BioD-RockBag

**The Choice of Professionals Who Care
about Our Environment!**