2.1 Slope

Bonding strips sandwich the fabric to the post.

Five (5) staples -
½” x 1 ½” - through strip.

Prevents teardown and horizontal shifting. The system gains strength through the use of all the posts.
The fence is field installed on a 2.1 slope with a 12’ radius. It is placed on oak posts - 1 ¼” x 1 ¾”. The posts are placed on 4’ centers.

A stabilized bar was set in place to monitor the deflection of the post and the fabric.
Loose dirt is placed at the top of the slope then shot with a 2” fire hose and allowed to back drain to the fence.

A high pressure 2” fire hose produces silt, sediment and foam.
Dr. Risse and Dr. Thompson prepare for the field test.

Measurements are taken at 2” intervals -
This one appears to be at 12” capacity.
Test Continues

Note the blue dots on the post – this indicates a level of 12” or the point of being $\frac{1}{2}$ full.
Test nears capacity. Note the straight top of the fence under the tension of water and mud.

Question: What is the horizontal pressure of mud and water?
Please see our study.

In background - second loop is being prepared.

Flow through the fabric is restricted by the sediment content. This happens with all fabric, woven or non-woven. This picture shows why the structural combination of the system is so important.

A system is only as good as its weakest link.
Second loop testing similar to the first.

About 4” from the top the pressure of the water found the point of least resistance and undermined - resulting in the loss of water.
This site is now loaded with water producing the most weight that we could put behind the fence.

Note how the pressure is now distributed up the upper side of the fence on the hill.

Second test loop was filled in with the front-end loader to full capacity.
Water is loaded until the dirt will not absorb any more.

Cannot load more weight behind the fence.

This is the start of the picture history. This test site has been monitored and documented through thirty (30) months of testing.

Rain ~ Sleet
Cold ~ Heat
Sun ~ Wind
Jan. 2006
Rainfall – 3 ¼”

- No Failures
- No Tear Down
- Under Stress
Feb. 2006
Rainfall - 4 ½”

- No Failures
- No Teardown
Mar 2006
Rainfall – 2 ½”

Test site unchanged.
Dirt has settled approximately 2” below top of fence.
April 2006
Rainfall – 1 ¼”

- No Failures
- No Change
May 2006
Rainfall – 2 ½”

Seasons change – Plants begin to grow
June 2006
Rainfall – 2 1/8”

No Teardown
No Change
Dirt begins to fill in behind the fence, allowing some water to run over at the low point.
Aug 2006
Rainfall – 3 ¾”

Note tension at the top of the hill.
Sept 2006
Rainfall – 3 ¾”

➢ No Change
➢ No Failures
Oct 2006
Season changes again. UV protection appears to be adequate.

Rainfall – 3 ¾”

No failure of the fabric even at the post.

Note the small tree in the front.
Nov 2006

Rainfall – 3 ¾”

No failures of the post, fabric, or the application method.

No maintenance.
Water runs over the front.

December 2006
Rainfall - 1 ¼”
March 2007

Rainfall - 4"

Sediment fills void at the top and runs over - no failures of the system.
April 2007

Rainfall – ¾”

New Season

Fabric begins to mold - no failures.
Still in place with no failures of the system due to material failures.

No Rainfall

May 2007

Some deterioration of the fabric noted.
June 2007

Rainfall - 1 ¾”

Small tree is growing -
(reference to 10/06 notation)

No Failures
Aug 2007
Rainfall - 2 ¼”
The seasons are changing again.

No failures of the BSRF system
Oct 2007
Rainfall – 2 ¼”
No Fabric Failures
No installation system failures
TEST SITE AFTER 24 MONTHS

FIELD VISIT
- No Failures
- No Broken Posts
- No Fabric Failures

UV - 2 Years of Sun - Rain - Cold - Heat - Humidity
Dec 2007

- No fabric tears at the post
- No holes
- No teardown

These photos were taken TWO YEARS after Test Site was established.

Dec. 2007
Rainfall - 4 ½”
Feb 2008

Fabric has mold.

Rainfall – 4 ¼”
June 2008 ~ 30 Months

Fabric has deteriorated considerably - little strength

Rainfall – 2”
What else should be required of a temporary sediment control product, practice or system?

The BSRF system meets the Federal guidelines for efficiency.

It utilizes a renewable resource (wood posts) and disintegrates in the landfill.
Demonstrates structural capabilities
Simulates a tree falling on the fence.

No teardown of the total system. Independent panels.