



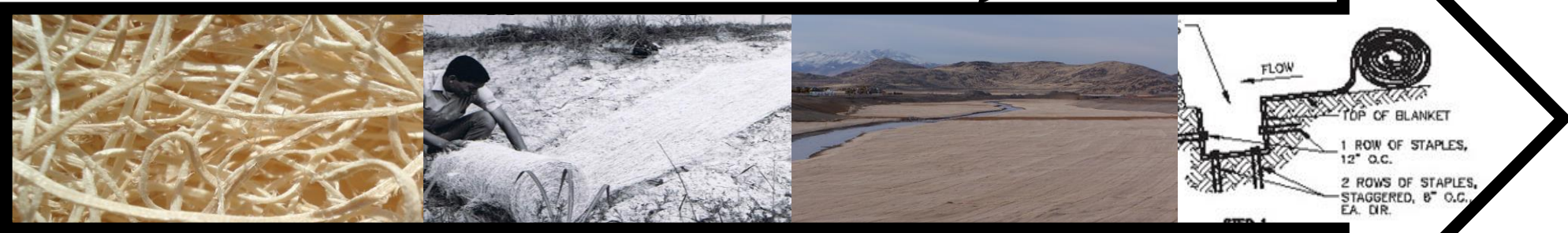
Dam or Filter – What’s the Difference When it Comes to Sediment Control?

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Continuous Innovation

1888
Curlex[®] packaging fibers

1980s
Curlex[®] II - 1st DN ECB
Curlex[®] III - 1st HD ECB



1960s
AEC Invents ECBs
"Curlex[®] I"

1990s
ErosionWorks[®]
Sediment Log[®]
QuickGRASS[®]
ErosionLab[®]

Continuous Innovation

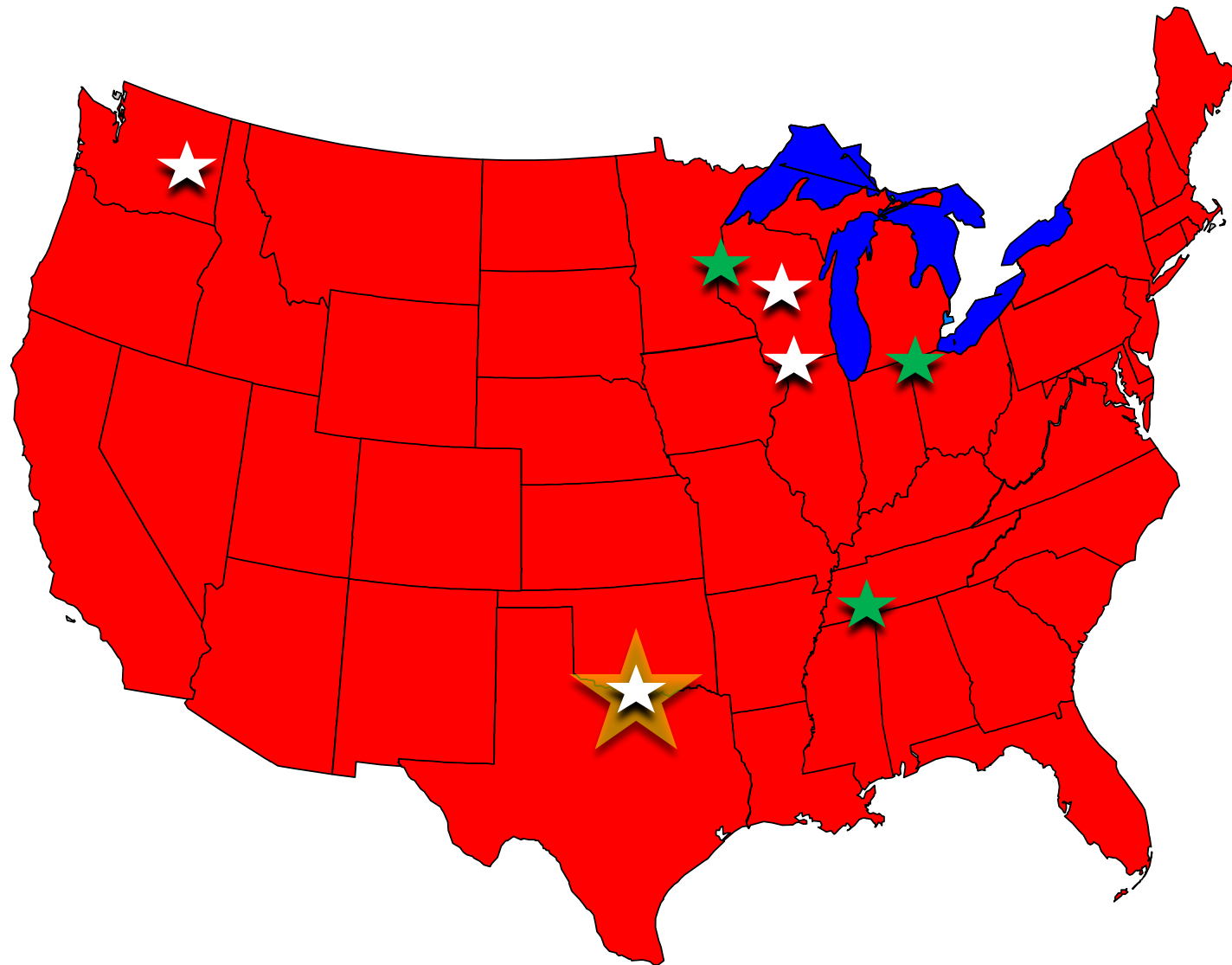
2000s
Recyclex® TRM
Curlex® NetFree™
E-Staple®

2018
TriNet® Family of 3-Netted TRMs



2012
Curlex® Bloc

AEC Locations

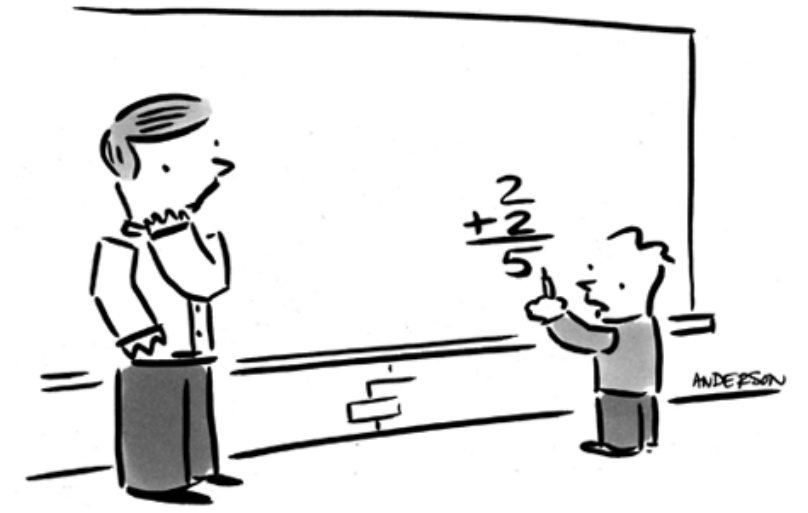


ErosionLab[®]



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WWW.ANDERTOONS.COM



"I prefer to think of it as added value."

Tools To Make Your Job Easier

- Online [Technical Support Library](#) contains all the support information you will need: specs, CAD details, staple patterns, etc.
[\(basic cross reference\)](#)
- Videos [YouTube Channel](#)
- ErosionWorks[®] free rainfall and channel erosion analysis & design software.
<http://www.erosionworks.com>

Sediment Control?

These are NOT Good Sediment Control Results



Learning from Mistakes



Erosion Control vs. Sediment Control

- **Erosion Control works to prevent soil from moving (keep it in its place)**
- **Sediment Control works to remove soil particles that have eroded and are being moved by water**

NOTE: Proper Erosion Control can greatly reduce the need for Sediment Control

Sediment Control?



What is Filtering vs. Damming?

- **Filtering products: flow rate ≥ 35 GPM/ft²**
filter by allowing contaminated runoff through their matrices; also provide velocity dissipation when flow rate is exceeded.
- **Damming products: flow rate < 35 GPM/ft²** dense products are designed to pool water, but in the process, they commonly reflect and redirect water flow and energy during concentrated flows

Filtering vs. Damming



Filtering vs. Damming



Donald, et al. 2014

- Auburn University has completed some fantastic research on ditch checks commonly used on construction sites.
- They discovered that the inclusion of an underlay (i.e. filter fabric) reduced the potential for scour/erosion underneath a practice, thereby maintaining the interface between the practice and channel.
- Their data confirms dense products can be successful in large-scale testing conditions by creating longer subcritical flow areas.

Hydrostatic Pressure

Note: NTS

Surface Elevation of Water



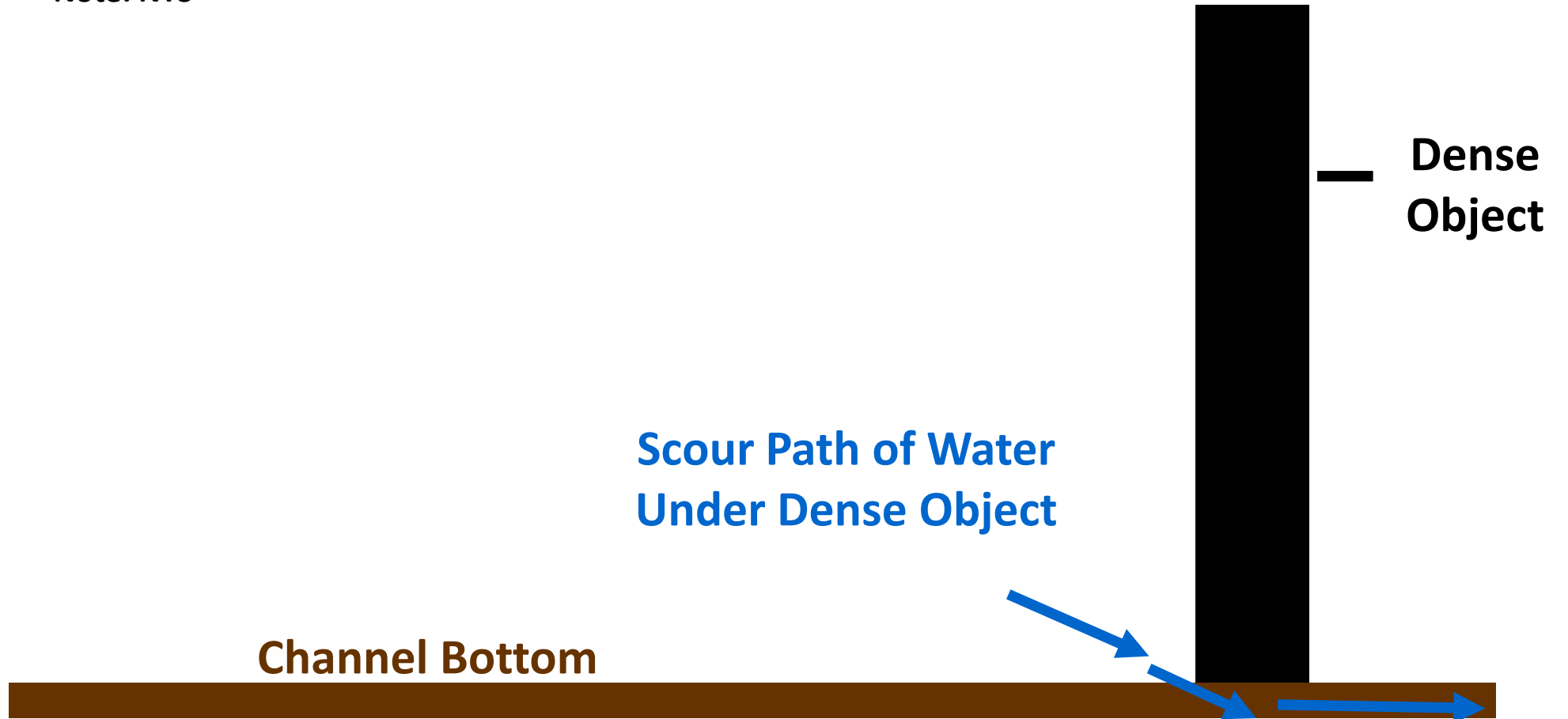
Hydrostatic pressure increases in proportion to depth measured from the surface because of the increasing weight of fluid exerting downward force from above.

Dense Object

Channel Bottom

Possible Scour When Concentrated Flow Hits Dense Object

Note: NTS



Scour Under



Scour Under



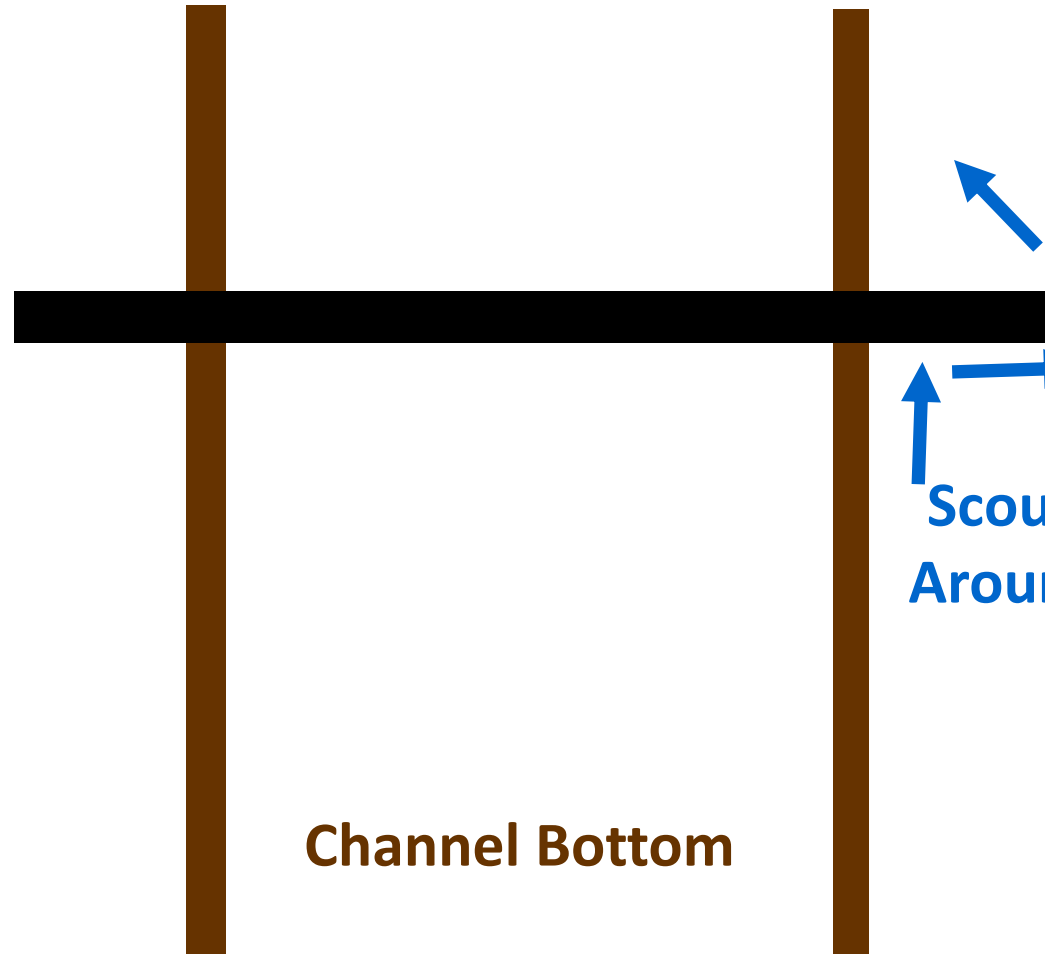
More is not Always Better



Possible Scour When Concentrated Flow Hits Dense Object

Note: NTS

Dense
Object



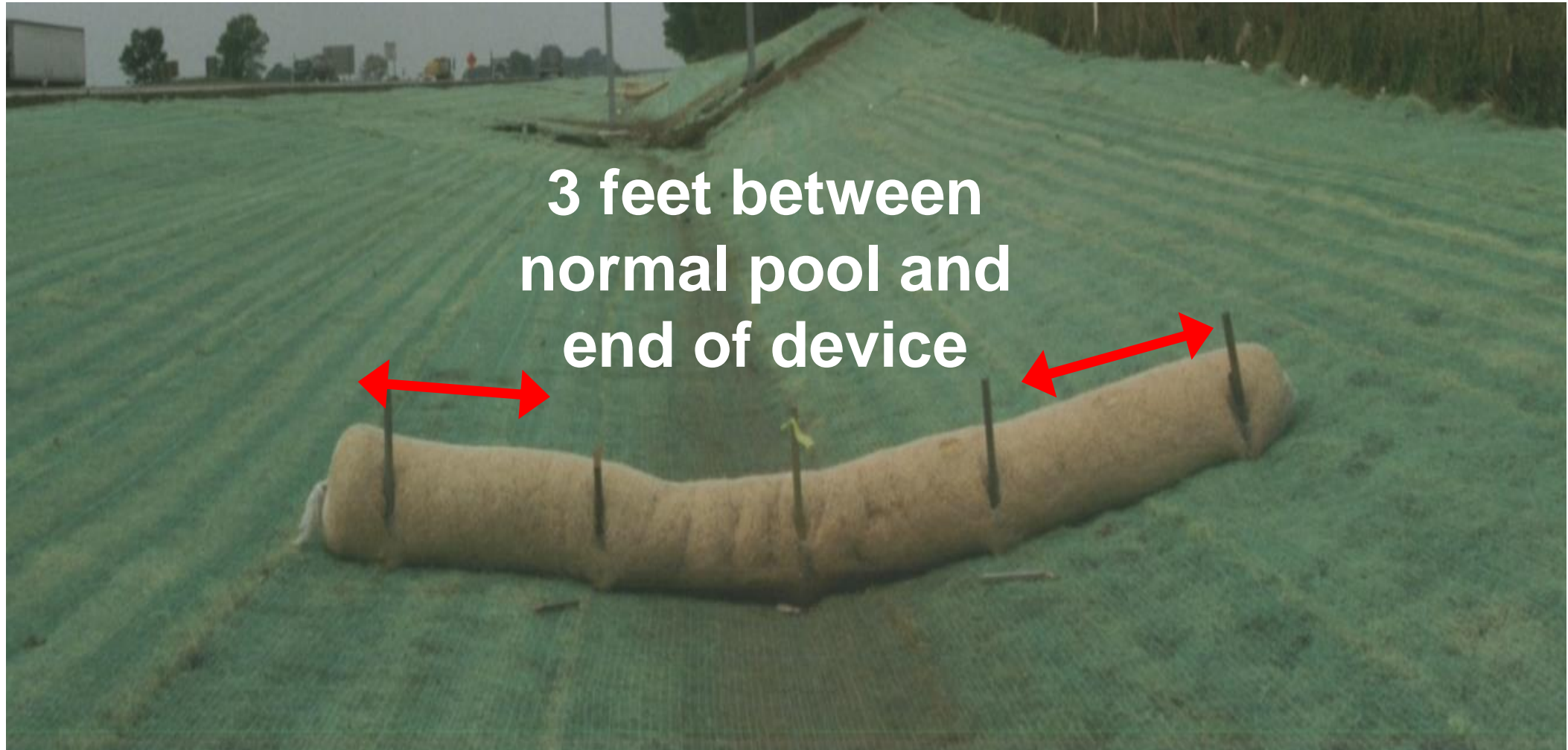
Scour Path of Water
Around Dense Object

Channel Bottom

Scour Around

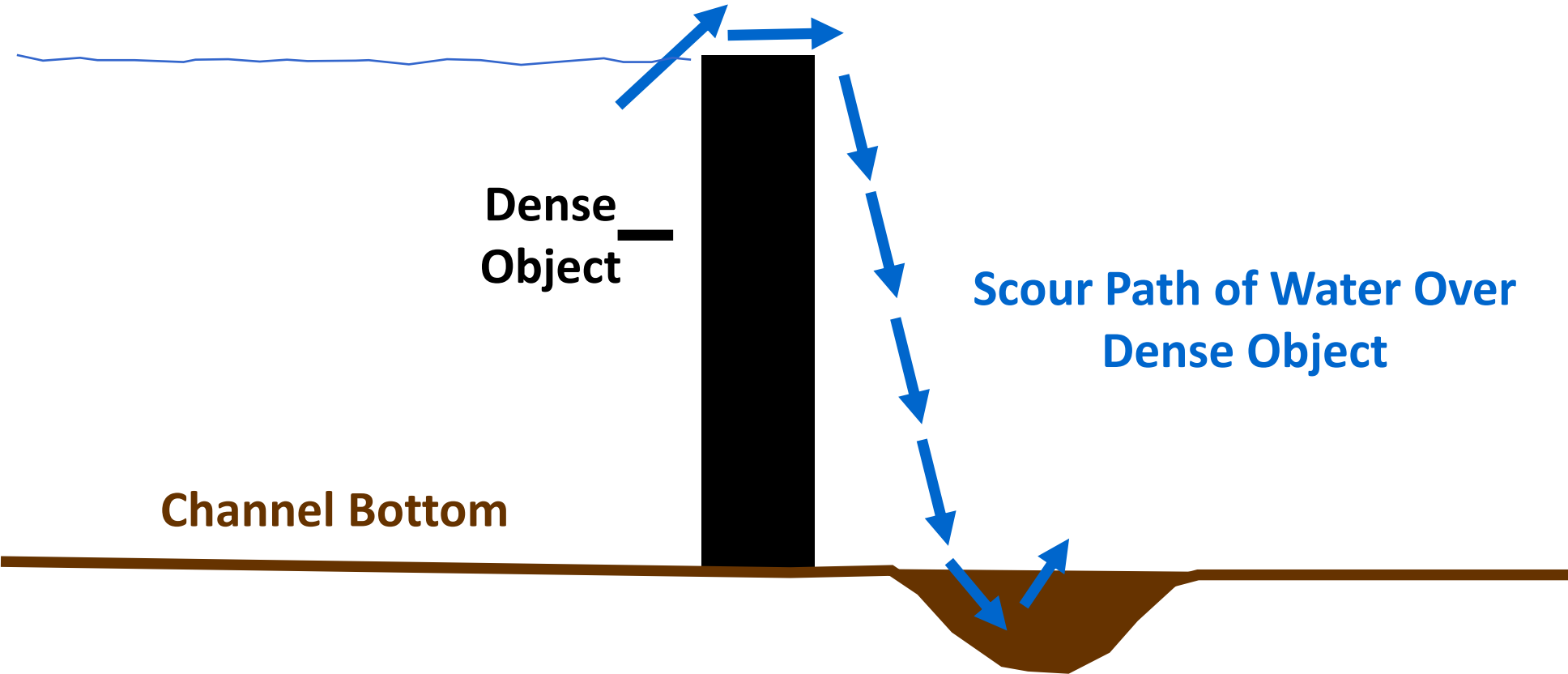


Installation is Always Key



Possible Scour When Flow Overtops an Object

Note: NTS



Scour From Overtopping



**Scour hole and no
vegetation downstream of
where dense product was
installed.**

**Footprint of where dense
product was removed.**

Scour From Overtopping



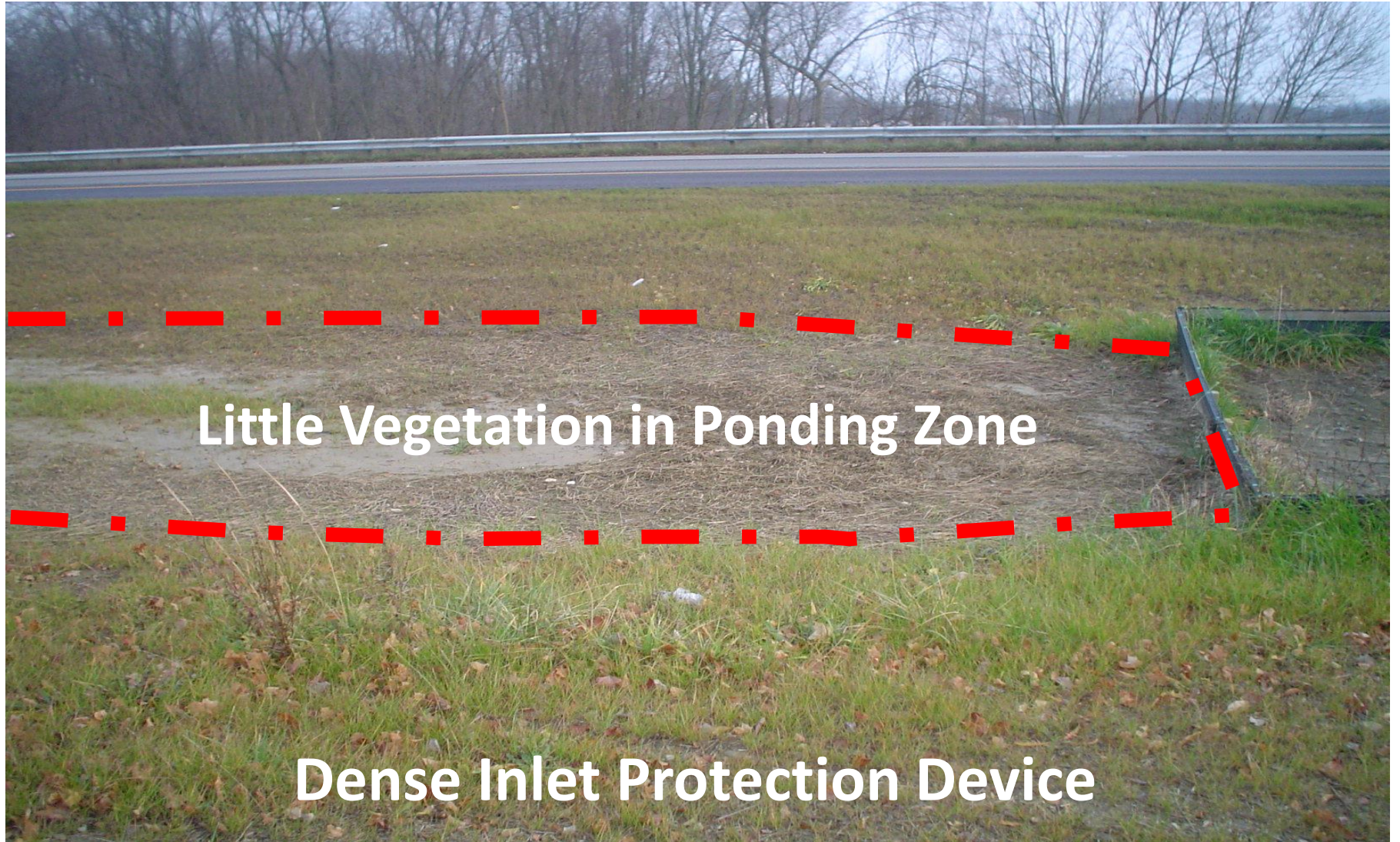
Scour From Overtopping



Damming Products & Vegetation

- **Underlayment fabric prevents vegetation establishment.**
- **Ponded water reduces vegetation establishment.**
- **Bare soil in ponded areas introduces weak spot in the channel for erosion to start.**

Lack of Vegetation Due to Ponding



Little Vegetation in Ponding Zone

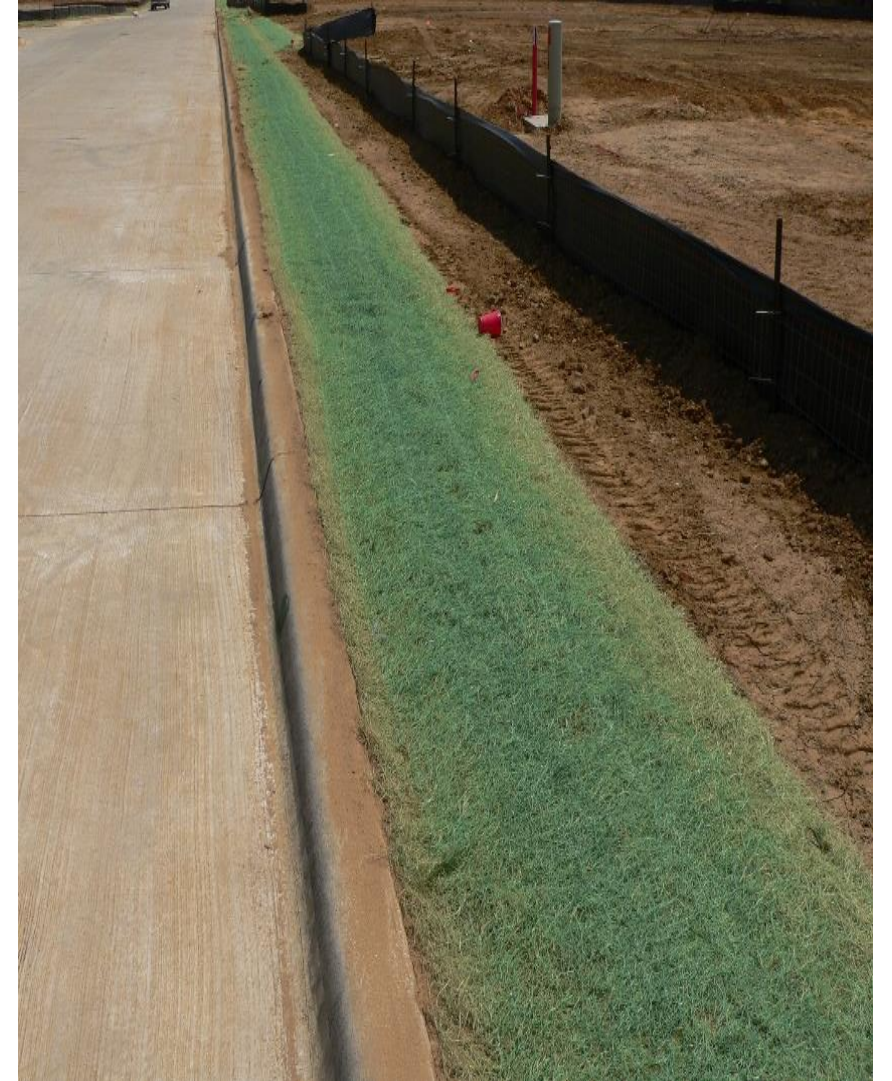
Dense Inlet Protection Device

“Blow Outs” Using Damming Devices



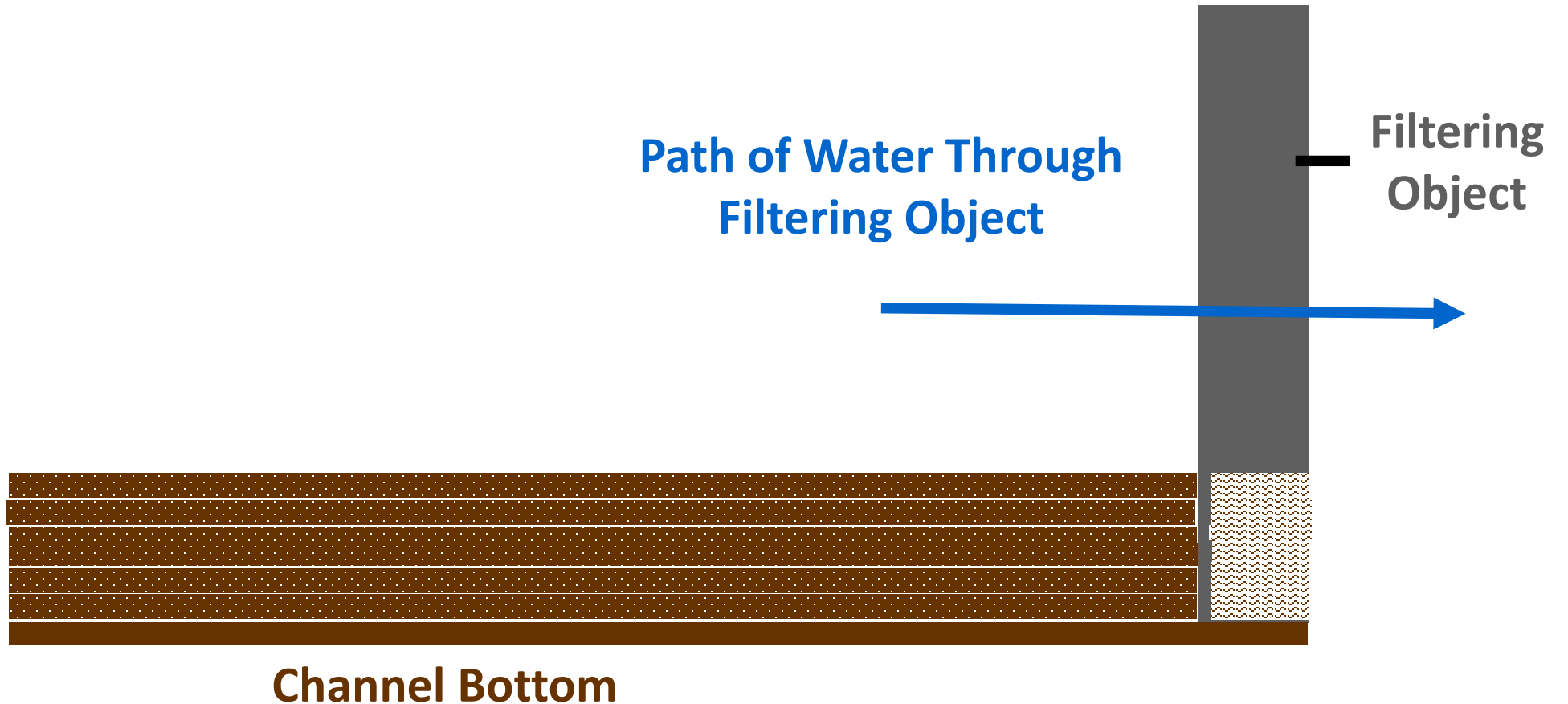
Applications for Damming Products

- **Temporary sediment control channels.**
 - Remember to include underlayment to prevent scour
- **Sheet flow applications**
- **Perimeter control**
- **Slope interruption**



When Concentrated Runoff Flows Through a Filtering Device

Note: NTS



Filtering Device in the Field



Filtering Device in the Field

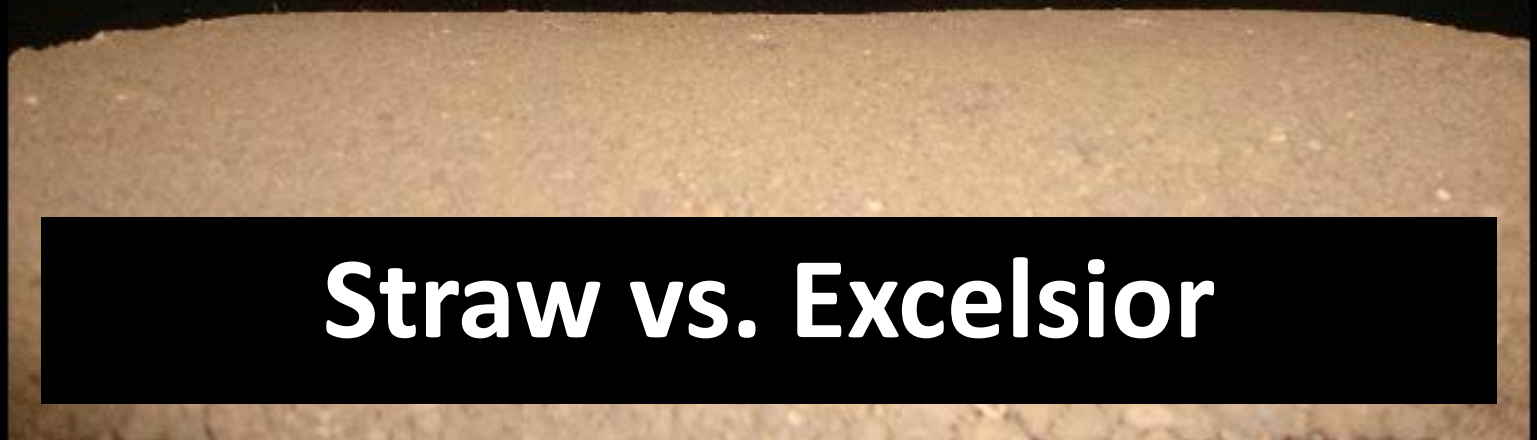


Excelsior vs. Straw Over Dozer Tracks

**Straw lays flat and Excelsior
Expands**

Bare Soil

Straw vs. Excelsior



Filtering Device in the Field



Filter Device Evaluations



Pre-flow



Post-flow



Filtering Device in the Field



Vegetated Channel Using Filtering Device

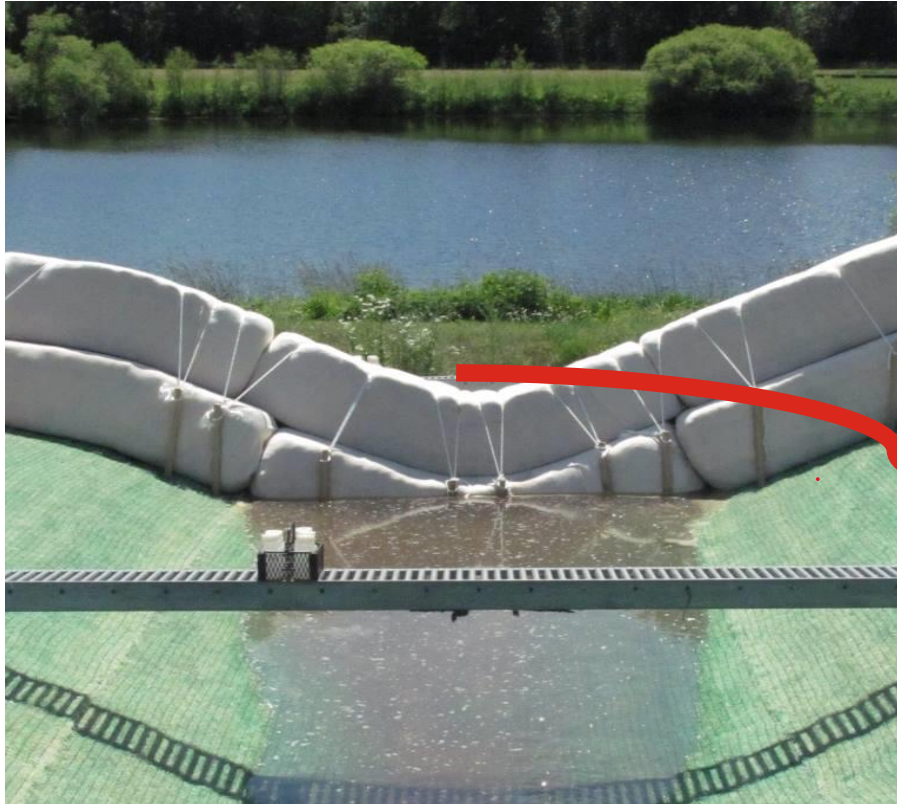


Filtering Products

- Flow rate ≥ 35 GPM/ft²
- Porous design allows for water to flow through fiber matrix.
- Sediment and other contaminants are trapped within matrix.



Great Lakes Aspen Excelsior Highly Effective Natural Filter



3rd Party ASTM D5141 Results
35 GPM/ft² flow rate
92% Filtering Efficiency!



Fly Ash Slurry Filtration Results
94.8% reduction of fly ash slurry TSS
87.7% reduction of fly ash slurry NTU

Great Lakes Aspen Excelsior Fibers Truly Filter Contaminated Runoff

- **Independent research has quantified aspen excelsior fiber's unique capability to remove polynuclear aromatic hydrocarbons (PAHs), which are typical components of asphalts, fuels, oils, and greases.**

- **Source: Boving and Zhang, Chemosphere 54 (2004) 831-839**

Some Great Lakes Aspen Excelsior Fibers are EPA Approved Oil Sorbents



Filtered Runoff



Applications for Filtering Products

- **Temporary or permanent sediment control channels.**
 - **Porous matrix usually translates to a flexible device that conforms to subgrade.**
- **Sheet Flow**
- **Perimeter Control**
- **Slope Interruption**

Summary

- **Every BMP has its place when installed properly in the right application.**
- **Large-scale testing has shown dense damming devices to work well in temporary sediment control applications in conjunction with underlayment fabric. These are applications where vegetation is not desired.**
- **Damming products have a good history in sheet flow applications such as perimeter control and slope interruption.**

Summary (cont.)

- **Filtering and Damming devices do not function or perform equally in areas of concentrated flows.**
- **Hydraulic challenges can be created when damming devices are used without underlayment material in permanent channelized flow areas where vegetation is desired. Filtering devices are designed to dissipate velocity, filter contaminated runoff, and encourage vegetation establishment.**



Thank You

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