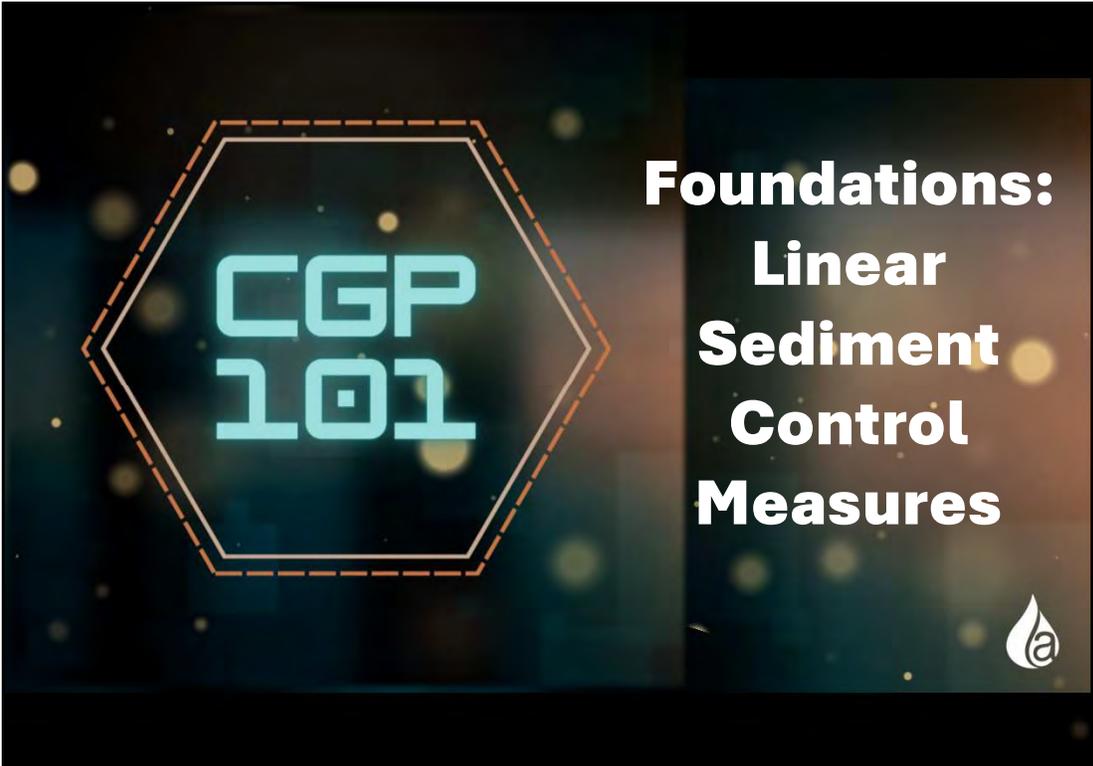




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Linear Sediment Control Foundations

- Construction General Permit requirements
- Types of linear sediment controls
- Where linear sediment controls should be installed
- Installation techniques

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Linear Sediment Control Foundations

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 **Linear Sediment Controls**

The USEPA 2022 CGP requires the following:

2022 CGP Permit Parts 1-9 (as modified))

2.2.3 Install sediment controls along any perimeter areas of the site that are downslope from any exposed earth disturbances.

2.2.1 Provide and maintain natural buffers and/or equivalent erosion and sediment controls for discharges to any receiving waters that is located within 50 feet of the site's earth disturbances.

a. The undisturbed natural buffer shall be maintained.

b. To protect the control line, the control line shall be installed and maintained.

c. After installation, the control line shall be maintained.

i. Compliance Alternatives. For any discharges to receiving waters located within 50 feet of your site's earth disturbances, you must comply with one of the following alternatives:

- i.** Provide and maintain a 50-foot undisturbed natural buffer; or
- ii.** Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve, in combination, the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or
- iii.** If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

ii. After a storm event, if there is evidence of stormwater circumventing or undercutting the perimeter control, extend controls and/or repair undercut areas to fix the problem.

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 **Linear Sediment Controls**

The California 2022 CGP requires the following:

II.E. Sediment Controls

II.E.1. Dischargers shall implement the following site sediment controls:

a. Establish and maintain effective perimeter controls;

b. Install linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes according to sheet flow lengths as shown in Table 1 until the slope has reached Notice of Termination conditions for erosion protection. When infeasible to comply with Table 1 due to site-specific geology or topography, the QSD shall include in the SWPPP a justification for the use of an alternative method to protect slopes from erosion and sediment loss.

Table 1 - Critical Slope and Sheet Flow Length Combinations for Linear Sediment Reduction Barrier

Slope Ratio (Vertical to Horizontal)	Sheet flow length not to exceed
≤ 1:20	Per QSD's specification.
> 1:20 to ≤ 1:4	35 feet
> 1:4 to ≤ 1:3	20 feet
> 1:3 to ≤ 1:2	15 feet
> 1:2	10 feet

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Linear Sediment Controls

Other States Permits:

Michigan

e. Install sediment controls along any perimeter areas of the site that will receive pollutant discharges.

i. Remove sediment before it has accumulated to no more than one-half of the above-ground height of any perimeter control, or as specified in the cleanout volumes included in your approved plans.

characteristics, including the range of soil particle sizes expected to be present on the site;

it address
, and soil
along any
er control
rm event

ter control, exterior controls and/or repair undercut areas to

Table 11 —Construction SWPPP Development Requirements by State¹

State	Regulating Agency	Permit	SWPPP ² Template Available	Who Can Prepare a SWPPP
Alabama	Alabama Department of Environmental Management	Alabama Construction General Permit ALR100000 https://adem.alabama.gov/programs/water/permits/ALR10ConGen.pdf	Yes, https://adem.alabama.gov/programs/water/waterform/csw-cbMPPTemplate.pdf	Qualified Credentialed Professional (QCP) who is a licensed (in the State of Alabama) professional engineer (PE) or a Certified Professional in Erosion and Sediment Control (CPESC) as determined by EnviroCert International. Other registered or certified professionals eligible to be classified as a QCP include registered landscape architect, licensed land surveyor, registered geologist, registered forester, Registered Environmental Manager as determined by the National Registry of Environmental Professionals (NREP), or Certified Professional and Soil Scientist (CPSS) as determined by the Soil Science Society of America

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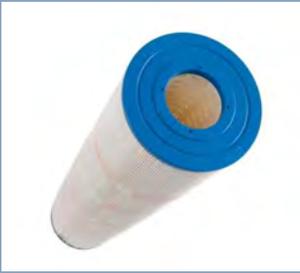
 **Why do they work?**



9

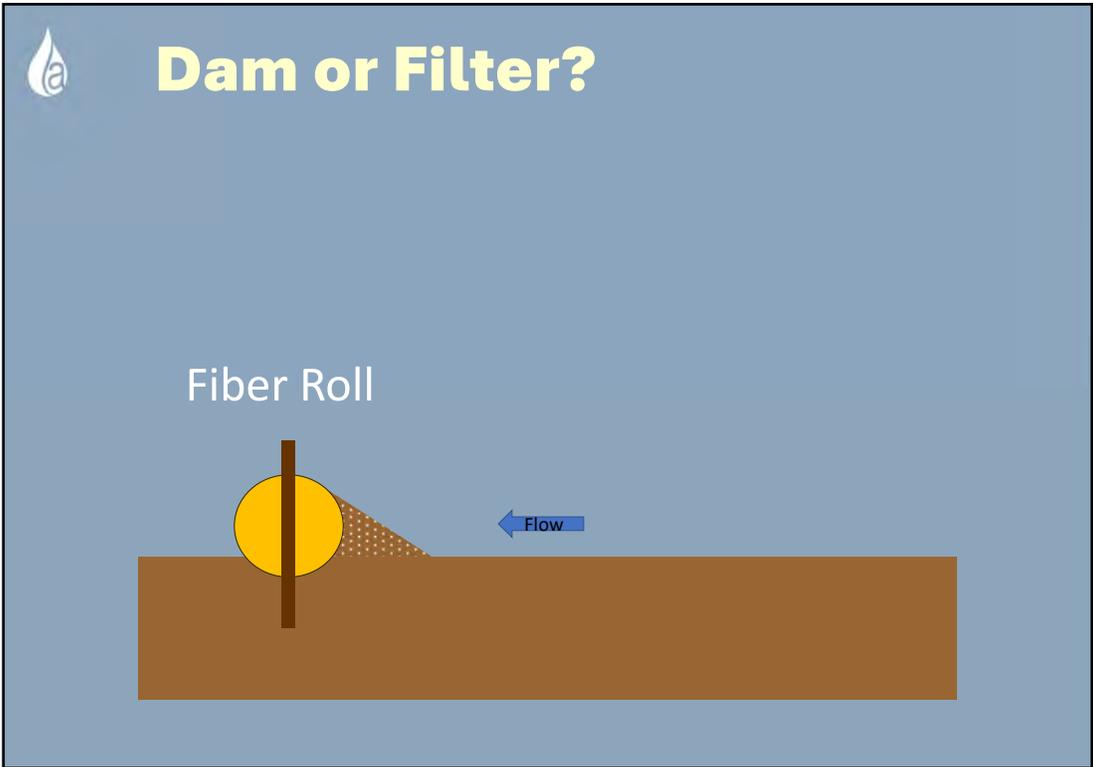
 **There are two basic categories**

Dams & Filters

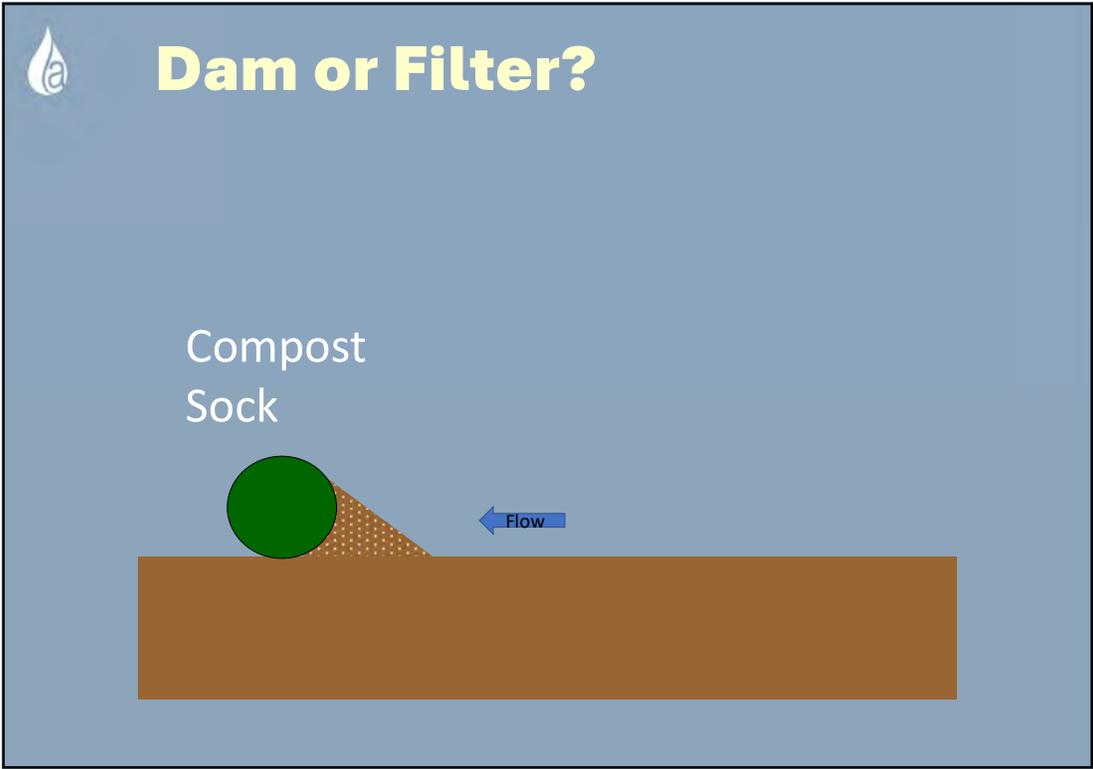



They are completely different structures and are engineered and installed in completely different ways.

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Dam or Filter?

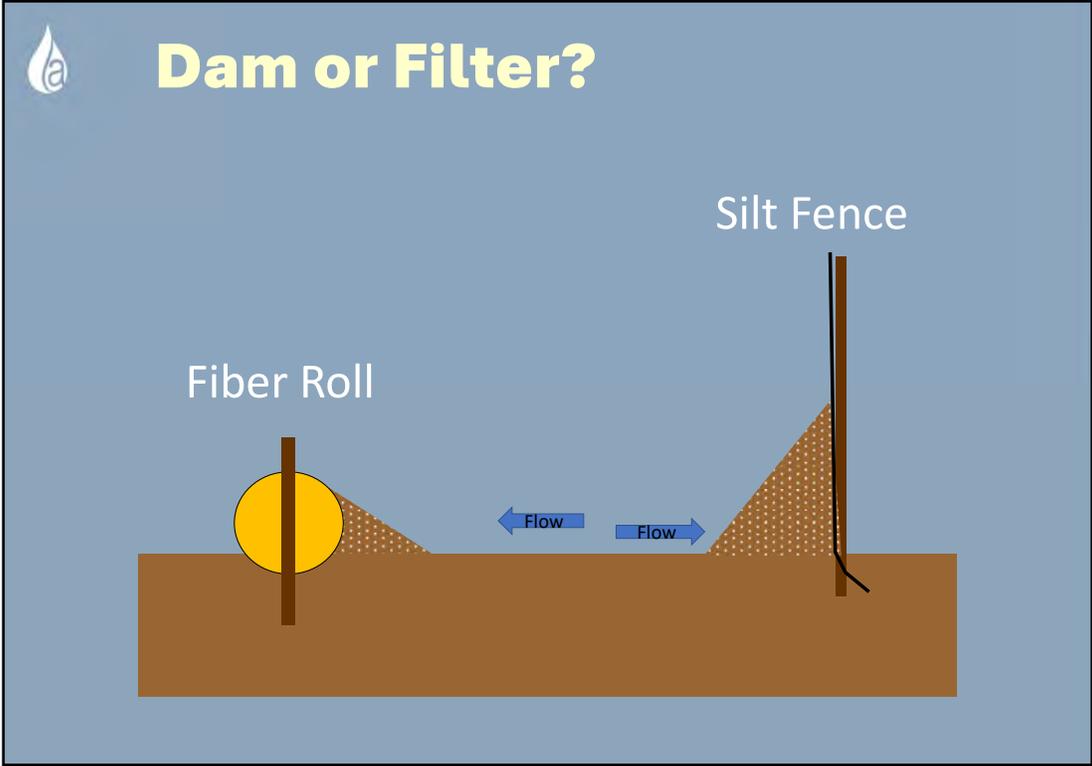
Compost Socks
Filter and slow the flow

13

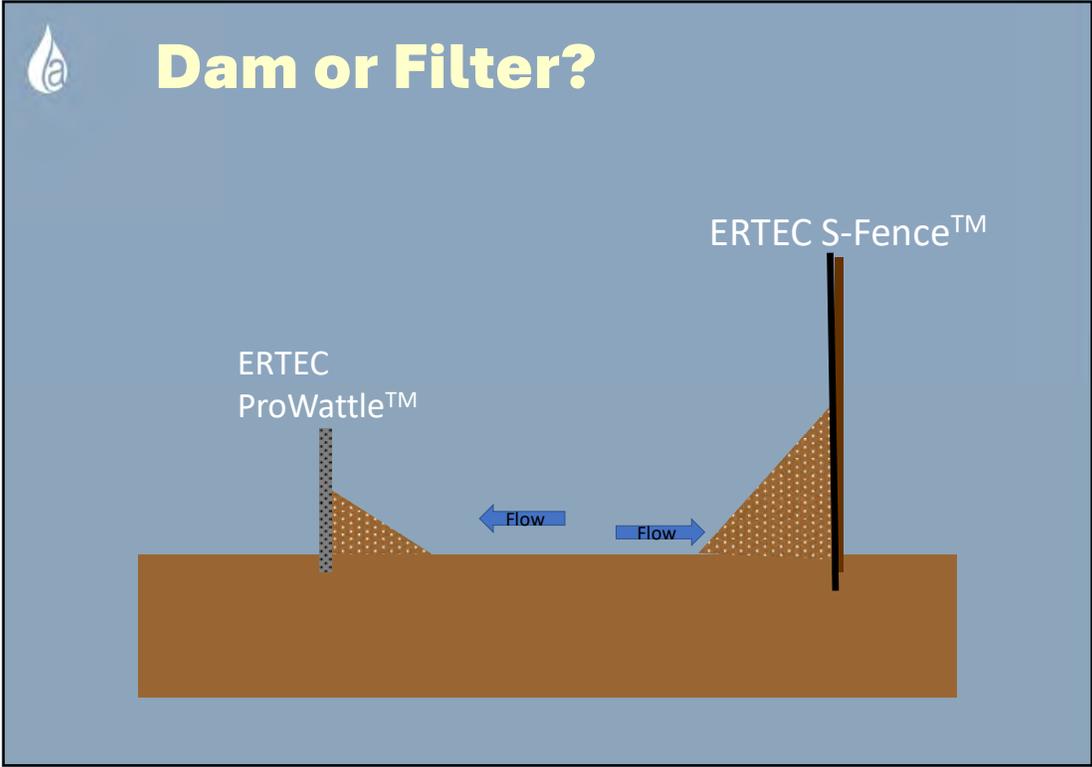
Dam or Filter?

Fiber Roll Curb Cutback

14



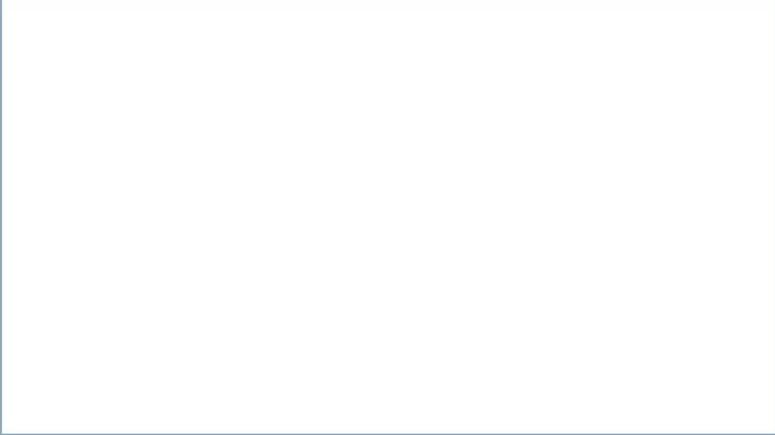
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 **Common Myths about Linear Sediment Controls**

Myth #1:
Fiber Rolls rolled out on the surface are effective



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 **Common Myths about Linear Sediment Controls**

Myth #2:
Doubling up linear sediment controls provides better protection.



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 **Common Myths about Linear Sediment Controls**

Myth #3:
Fiber rolls must always be keyed in.



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 **Common Myths about Linear Sediment Controls**

Myth #4:
Linear controls only need to be installed once and will last the duration of the project.



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Common Myths about Linear Sediment Controls

Myth #5:
Fiber rolls and silt fence are the only linear control options.



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Common Myths about Linear Sediment Controls

Myth #6:
Fiber rolls are the most economical option.

Table 8 - Linear Control Cost Comparisons

Linear Control Device (Assume 1,000 ft.)	Material Purchase Price	Labor and Equipment Cost to Maintain Effective Perimeter for 1 Year ⁴⁸	Cost/Linear Foot
Fiber roll <i>Hand Installed</i>	\$30/25-foot length	90 minutes (Installed at 662 ft./hr.) 4 workers @ \$35/hr. 2 Installations / year	\$2.82
Silt fence <i>Machine Trenched</i>	\$30/100-foot roll	136 minutes (Installed at 440 ft./hr.) Assume \$125/hr. equipment charge and \$58/hr. for the operator. 2 additional workers @ \$35/hr. 1 Installation/year	\$0.87
Compost sock <i>Hand Installed</i>	\$590/200 feet	43 minutes (Installed at 1,434 ft./hr.) 2 workers @ \$35/hr. 1 Installation / year	\$3.00
Curb cutback <i>Machine Trenched</i>	\$0	Assume \$125/hr. equipment charge and \$58/hr. for the operator. Assume 4 hours for initial install.	\$0.73

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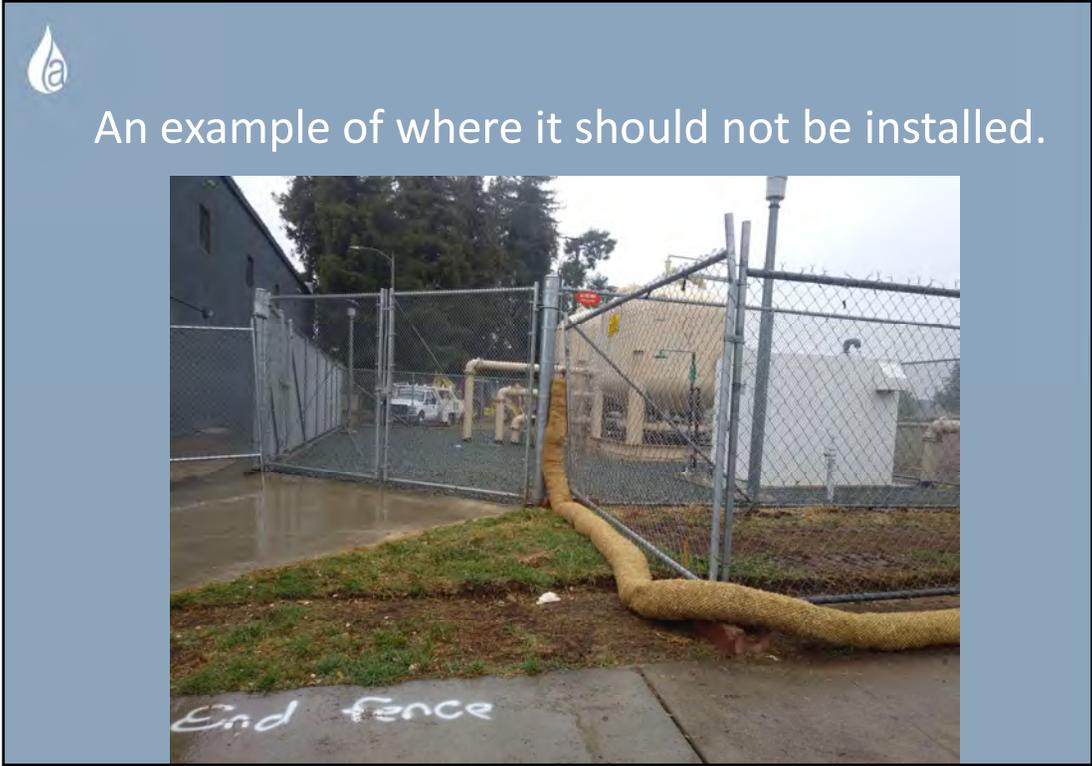
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An example of where it should not be installed.



24



An example of where it should not be installed.

25



An example of how it should not be installed.

26



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A good example of linear sediment controls on the face of a slope.

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 **Linear Sediment Control Summary**

When utilizing linear control measures, the following design and installation criteria is important to consider:

- **Determine where linear controls should be placed.** Sometimes they are called perimeter controls, but not every project needs or should have them installed around the perimeter. They should never run up or down a hill but should be placed horizontally along the toe of the slope and along the face of the slope. They should also be placed where water runs onto and off the project.
- **The linear control device should be installed so that it is level as possible.** You want to have level water backing up behind the device. Otherwise, water will flow to the low spot and bypass the device. Cross-barriers along the linear control will prevent lateral movement of water. J-hooking the devices will also help prevent accumulated water from bypassing the device.

perimeter = a+b+c+d

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Linear Sediment Control Summary

When utilizing linear control measures, the following design and installation criteria is important to consider:

- **Linear controls should have good conformance to the underlying soil so that runoff will not exploit weak points or gaps under the device.** These devices tend to act as miniature dams, which risk hydraulic pressure from water held behind the device to cause erosion to occur at weak points or gaps.
- **Be creative! Utilize resources already on hand like vegetation, logs, rocks, berms, etc.** Remember, you don't have to circle the project site with fiber roll or silt fence.
- **Plan for the future. Consider the life span of the selected linear control device.** Is it biodegradable and can be left in place, or will it need to be removed after its intended purpose has been completed? Can a long term permanent linear control be used instead of a temporary one?

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Linear Sediment Control Foundations

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To the
Construction
Sandbox

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