



Guide to Erosion Prevention and Sediment Control During Construction Activities Polk County, Oregon

(Updated May 2009)

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2.1 Gravel Construction Entrances

Purpose

To reduce the amount of mud, dirt, rock, etc., transported onto roads by motor vehicles or stormwater runoff by constructing a stabilized pad of gravel at approved entrances/exits to construction sites.

Conditions Where Practice Applies

At any construction site where traffic will be leaving the site and moving directly onto public roads, other paved areas, or other approved access points.

Design Criteria/Specifications

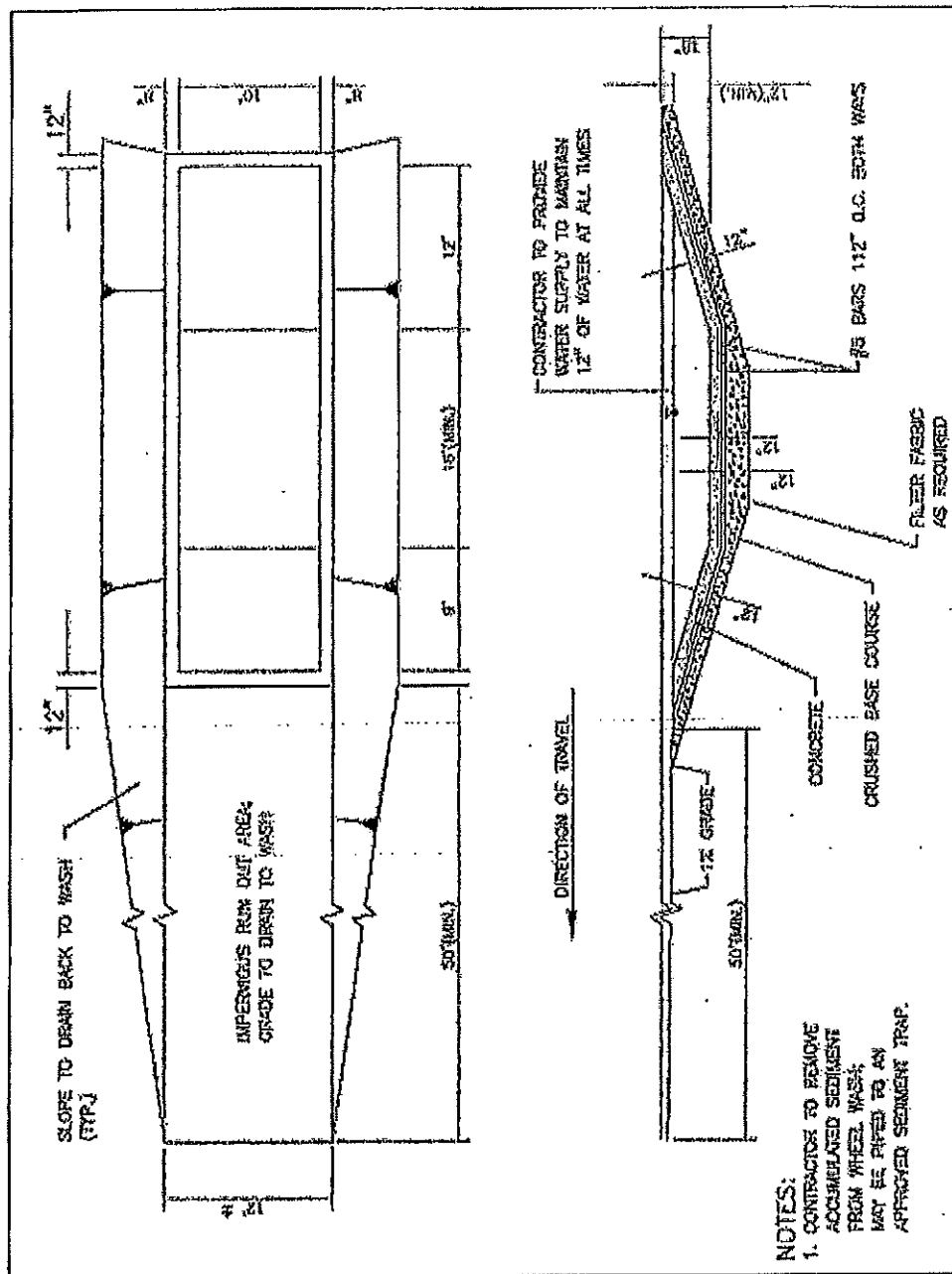
- A. See Figure 1 for details.
- B. Material should be clean pit run or crushed rock (1"-minus for all single family, duplex, and manufactured home sites and 2-6" for all other construction sites).
- C. The gravel pad should be at least 8 inches thick and 50 feet in length. Width should be the full width of the vehicle ingress and egress area. (A 20-foot minimum pad length may be acceptable as approved for single family, duplex, and manufactured home sites.)
- D. Use subgrade reinforcement geotextile under gravel pads for all but construction of a single family/duplex residence and manufactured home placement.
- E. Additional gravel may have to be added periodically to maintain proper function of the pad.
- F. Additional Measures: If the gravel pad does not adequately remove dirt and mud from vehicle wheels such that mud and dirt tracking is evident off site, additional measures should be taken. Such measures may include washing off wheels before vehicles leave the site (see Figure 2) or other construction techniques/work operations modifications.
- G. Do not install aggregate on paved surfaces. Use curb wood ramps.
- H. Install construction entrance prior to any site work.
- I. Whenever possible, construct the aggregate pad on a firm compacted subgrade, Install geotextile under aggregate when subgrade is not stable or is "pumping" up into the pad.

Wheel washing should be done on the gravel pad or in an approved wheel wash structure located onsite, adjacent to and on the site interior side of the gravel pad. Wash water should be properly drained through a silt-trapping structure prior to leaving the construction site. See Figure 2 for details of a typical wheel wash structure.

Another additional measure is to construct gravel filter berms across on-site traffic wheel paths to capture and retain sediment. Berms should be 1 foot high with 3:1 side slopes, constructed of ¾- to 3-inch well-graded or crushed rock with less than 5 percent fines. Berms should be inspected regularly and accumulated sediment removed and rock added or replaced as needed. Berms should be spaced as follows:

- Every 300 feet on slopes less than 5 percent.
- Every 200 feet on slopes between 5 and 10 percent.
- Every 100 feet on slopes greater than 10 percent.

Figure 2. Wheel Wash



K. When sediment fence approaches its termination point, turn fence uphill and extend one full panel (6 feet).

Figure 3. Sediment Fence

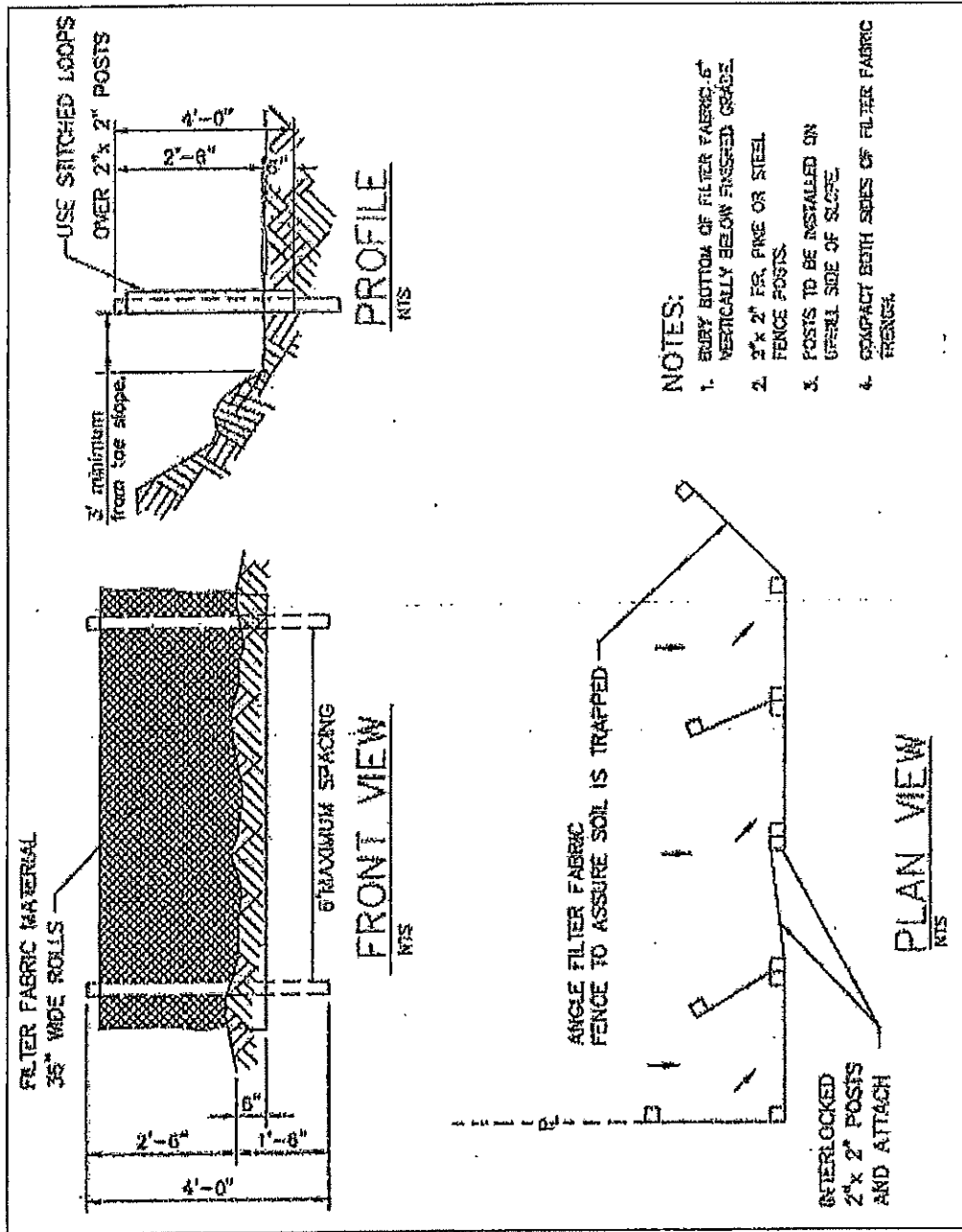


Figure 4. Straw Bale Overland Flow

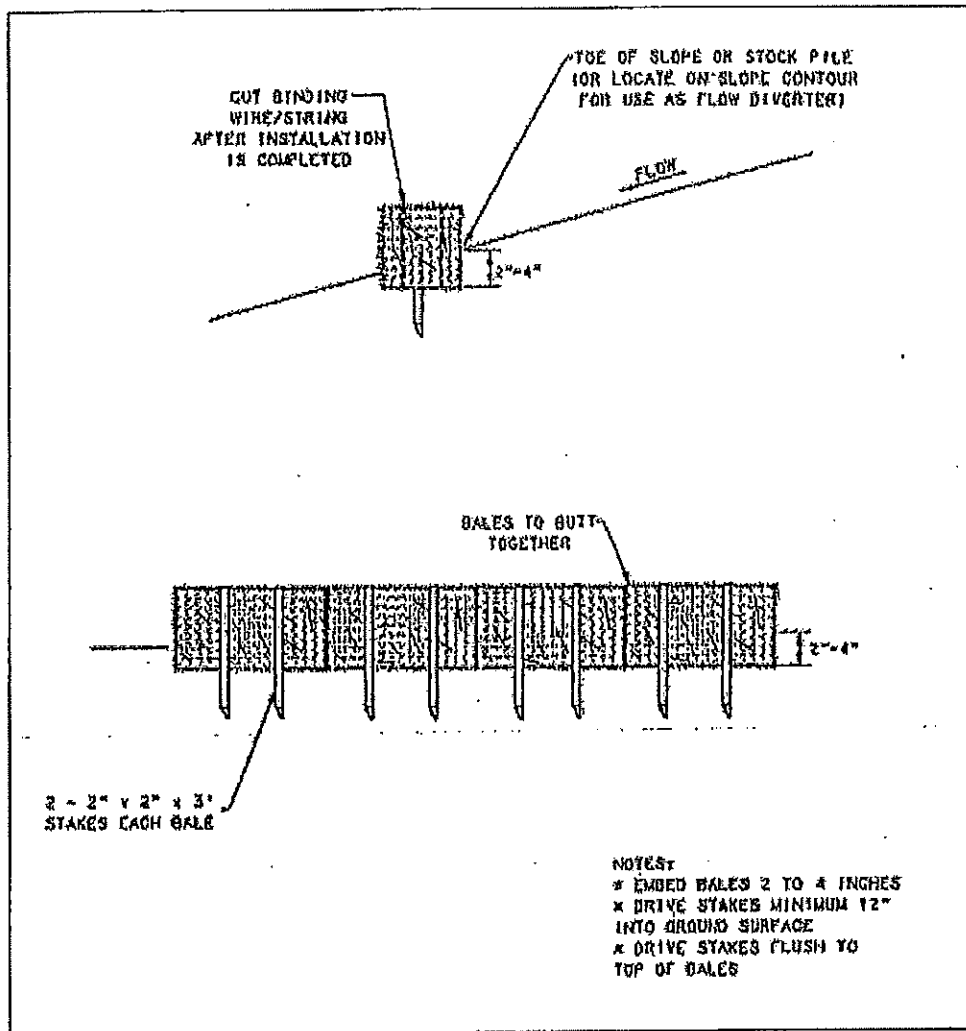
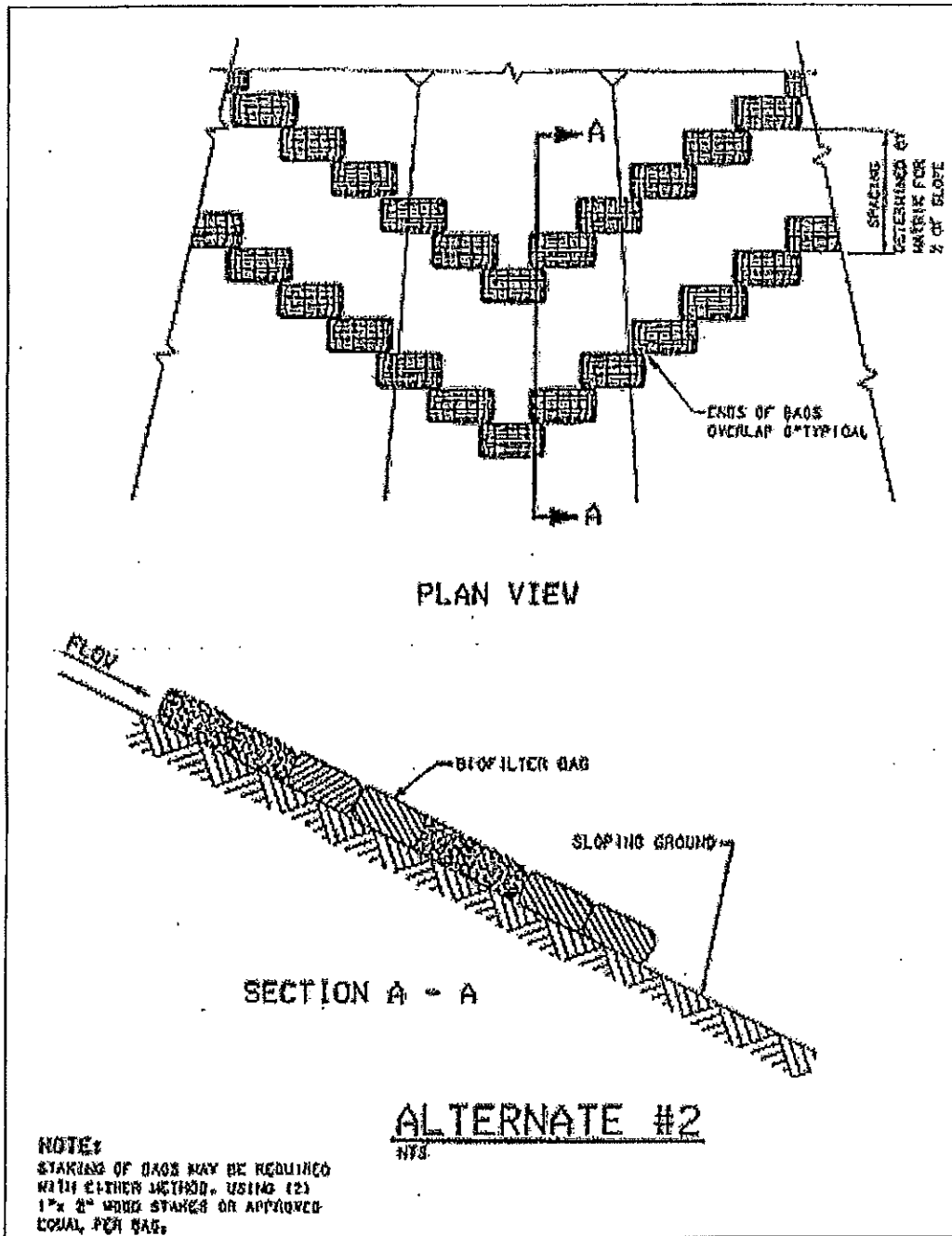


Figure 6. Biofilter Bag Overland Flow



2.4 Undisturbed Vegetative Buffers

Purpose

To provide a natural, vegetated buffer area for filtering erosion from construction areas, as an alternate in certain cases or a supplemental measure to sediment barriers.

Conditions Where Practice Applies

An undisturbed vegetated buffer may be used as an alternate to a sediment barrier at the toe of the site slopes if the buffer meets the following criteria:

- A. The buffer is an undisturbed grassed area or covered with other dense vegetation.
- B. The buffer is downhill and in the drainage path from the construction/disturbed area.
- C. There are no concentrated or channeled flows from the disturbed site entering the buffer.
- D. The buffer area is owned by the applicant or approved for such use in writing by the owner.
- E. Slopes in the buffer and its drainage area are less than 10 percent.
- F. The grassed buffer area impacted by the potential disturbed area runoff is at least equal in dimensions to the uphill construction/disturbed area draining to it.
- G. Clearly establish construction limits with orange construction safety fence and signs spaced 100 feet apart.

2.5 Temporary Grasses and Permanent Vegetative Cover

Purpose

To reduce erosion and sedimentation by stabilizing exposed soils with vegetation and mulching.

Conditions Where Practice Applies

- A. Ground surfaces exposed during the wet season (October 15 through April 30).
- B. Areas which will not be subjected to heavy wear by on-going construction traffic.
- C. Exposed ground surfaces at end of construction period (permanent cover should be established prior to removal of any erosion control measures).
- D. Temporary or permanent stabilization of new or disturbed ditches or swales.

Design Criteria/Specifications: Temporary Erosion Control Grasses

- A. Temporary grass cover measures should be fully established by October 15 or other cover measures will have to implemented until adequate grass coverage is achieved.
- B. Hydromulch should be applied with grass seed at a rate of 2000 pound/acre. On slopes steeper than 10 percent, hydroseed and mulch should be applied with a bonding agent (tackifier). Application rate and methodology to be in accordance with seed supplier recommendations.
- C. Dry, loose, weed-free straw used as mulch should be applied at double the hydromulch application requirement (4000 pound/acre). Anchor straw by working in by hand or with equipment (rollers, cleat tracks, etc.).
- D. Mulch should be spread uniformly immediately following seeding.
- E. Soil Preparation: Top soil should be prepared according to landscape plans, if available, or recommendations of grass seed supplier. It is recommended that slopes be roughened before seeding by "track-walking" (driving a crawling tractor up and down slopes to leave a pattern of

- o Grass growth is expected to be slow;
- o The soils are highly erodible;
- o There is a water body close to the disturbed area; or
- o Significant precipitation is anticipated before the grass will provide effective cover.

2.7 Erosion and Matting Blankets

Purpose

To provide immediate protection and physical stabilization of disturbed soils. Typically used when vegetative cover cannot be achieved due to soils, slopes, or time of year. Can be used to enhance success of seeding, planting, and/or sodding.

Conditions Where Practice Applies

- A. On areas of steep slopes (greater than 50 percent) and areas of moderate slopes that are prone to erosion.
- B. As a cover on ground surfaces exposed during the wet season (October 15 through April 30).
- C. As a supplemental aid to seed and/or mulch treatment on slopes or in ditches or swales.

Design Criteria/Specifications

- A. Erosion blankets may be used on level areas and on slopes up to 1:1. Where soil is highly erodible, netting should only be used in conjunction with an organic mulch such as straw or wood fiber. The blanket should be applied so that it is in complete contact with the soil; if it is not, erosion will occur beneath it. Erosion blankets should be securely anchored to the slope in accordance with manufacturer's recommendations. Surface should be graded smooth before blankets are installed. Remove all debris and undulations larger than 2 inches in any dimension.
- B. Organic matting materials (excelsior, jute, or coir) biodegrade and are useful for applications requiring stabilization for up to three months. Use organic blankets, which retain moisture and provide organic matter to the soil, for slope protection and short-term waterway protection and to improve the speed and success of revegetation.
 - o Excelsior brand (aspen wood fiber), woven straw, and coir (coconut fiber) blankets may be installed without mulch because they provide complete surface protection.
- C. Synthetic mats are made from non-biodegradable material and will remain in place for years (some photodegradation does occur). Use purely synthetic blankets for long-term stabilization of waterways.
 - o Turf Reinforcement Mats (TRM) are made from polymer netting or monofilaments formed into a synthetic 3-D mat. TRMs protect seed and increase germination and also act as part of the root structure; giving the turf higher strength.
 - o Erosion Control and Revegetation Mats (ECRM), composed of heat-fused monofilaments or monofilaments stitched between netting, act as permanent mulch. ECRM allow growth through the mat.
- D. Channel or swale applications:
 - o Lengthwise overlap: Minimum 12 inches
 - o Crosswise overlap: Minimum 6 inches
 - o Avoid joining material in center of ditch or swale

2.9 Storm Drain Inlet Protection

Purpose

To prevent sediment from entering storm drain systems prior to permanent stabilization of disturbed areas.

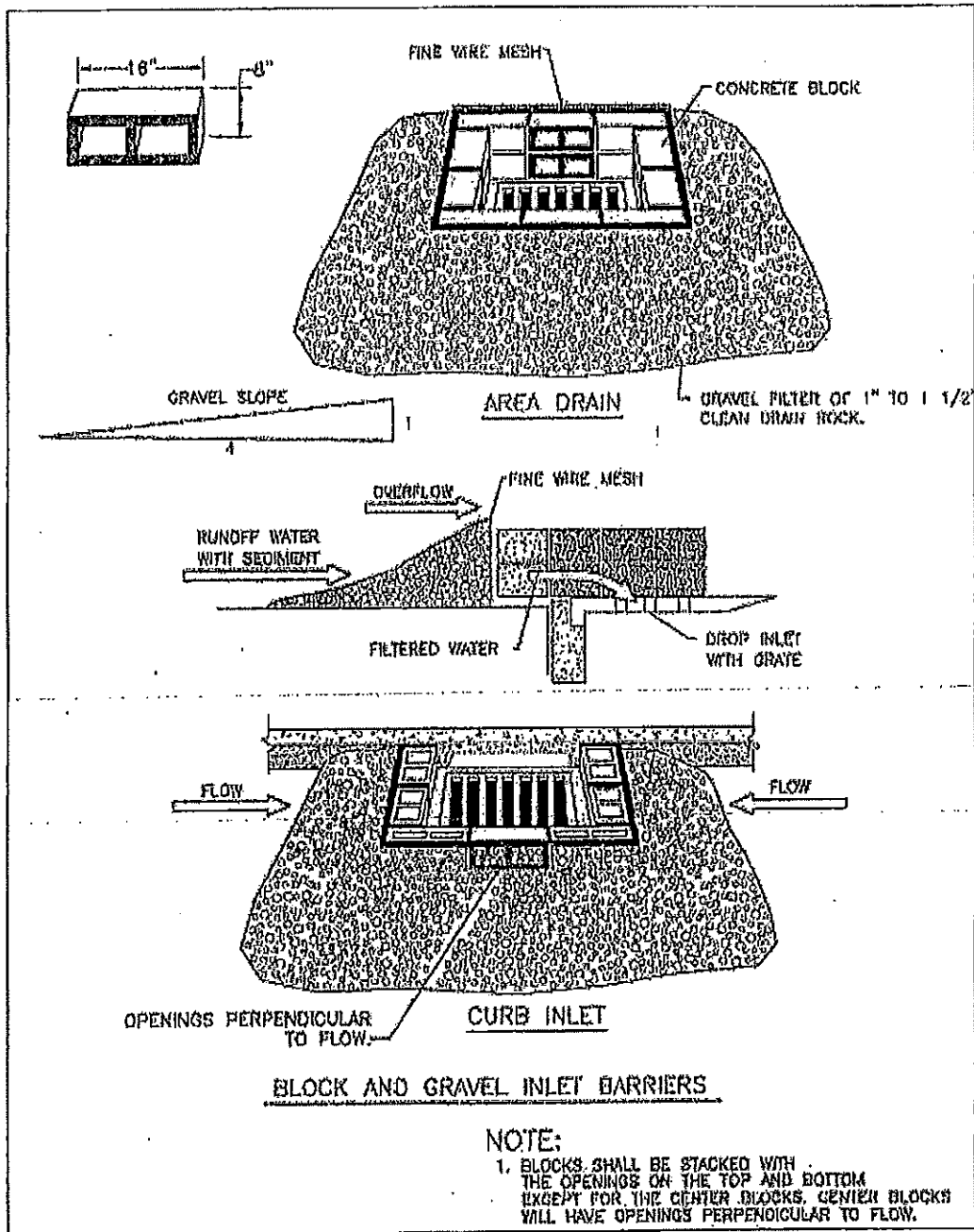
Conditions Where Practice Applies

- A. Adjacent to and immediately downhill of utility type construction in existing paved areas with catch basin drainage.
- B. In public right-of-way areas for use during approved flushing operations.
- C. Adjacent to and downstream from any temporary stockpiles of construction materials, used in conjunction with plastic sheet covering.

Design Criteria/Specifications

- A. Design criteria and specifications for four recommended alternative methods of storm drain inlet protection are presented on Figures 8 through 10.
- B. Berms may be required to direct drainage to flow through the filters and prevent bypassing of the inlets.
- C. At no time should more than one foot depth of sediment be allowed to accumulate against storm drain inlet protection measures. Sediment should be removed and inlet protection measures restored as needed to maintain their sediment trapping and filtering capability.
- D. Place inlet protection in areas where water can pond and where ponding will not have adverse impacts. Allow for an approved overflow in a severe storm event.

Figure 9. Block & Gravel Inlet Barrier



3.0 Post-Construction Best Management Practices

Roof tops, parking lots, and driveways create impervious surfaces that concentrate stormwater runoff. Stormwater flowing over these developments pick up oil and other particle matter that can be harmful to riparian ecosystems. In order to decrease the quantity and increase the quality of stormwater that enters the County rivers and streams, construction operators should plan how to minimize stormwater runoff from new development prior to beginning construction. An online guidance handbook is available on the Polk County Stormwater Web Page (<http://www.co.polk.or.us/Stormwater>) that describes best management practices that can be used to minimize the impact of development on County rivers and streams. These best management practices include:

- ◇ Maintain native vegetation along rivers, streams, and sloped areas of your property
- ◇ Vegetated/Grassed Swales
- ◇ Bioretention (Rain Gardens)
- ◇ Pervious Pavement
- ◇ Downspout Disconnection
- ◇ Rain Barrel Construction

Resources and Contacts

- Polk County Community Development Department.....(503) 623-9237
(Building, Planning, Environmental Health, Code Enforcement)
- Oregon DEQ Salem Office.....(800) 349-7677
- Polk County Stormwater Web Page.....<http://www.co.polk.or.us/Stormwater>
- Oregon DEQ Stormwater Web Page... <http://www.deq.state.or.us/wq/stormwater/stormwater.htm>

The Polk County Community Development Department is located on the second floor of the Polk County Courthouse, 850 Main Street, Dallas, OR 97338.