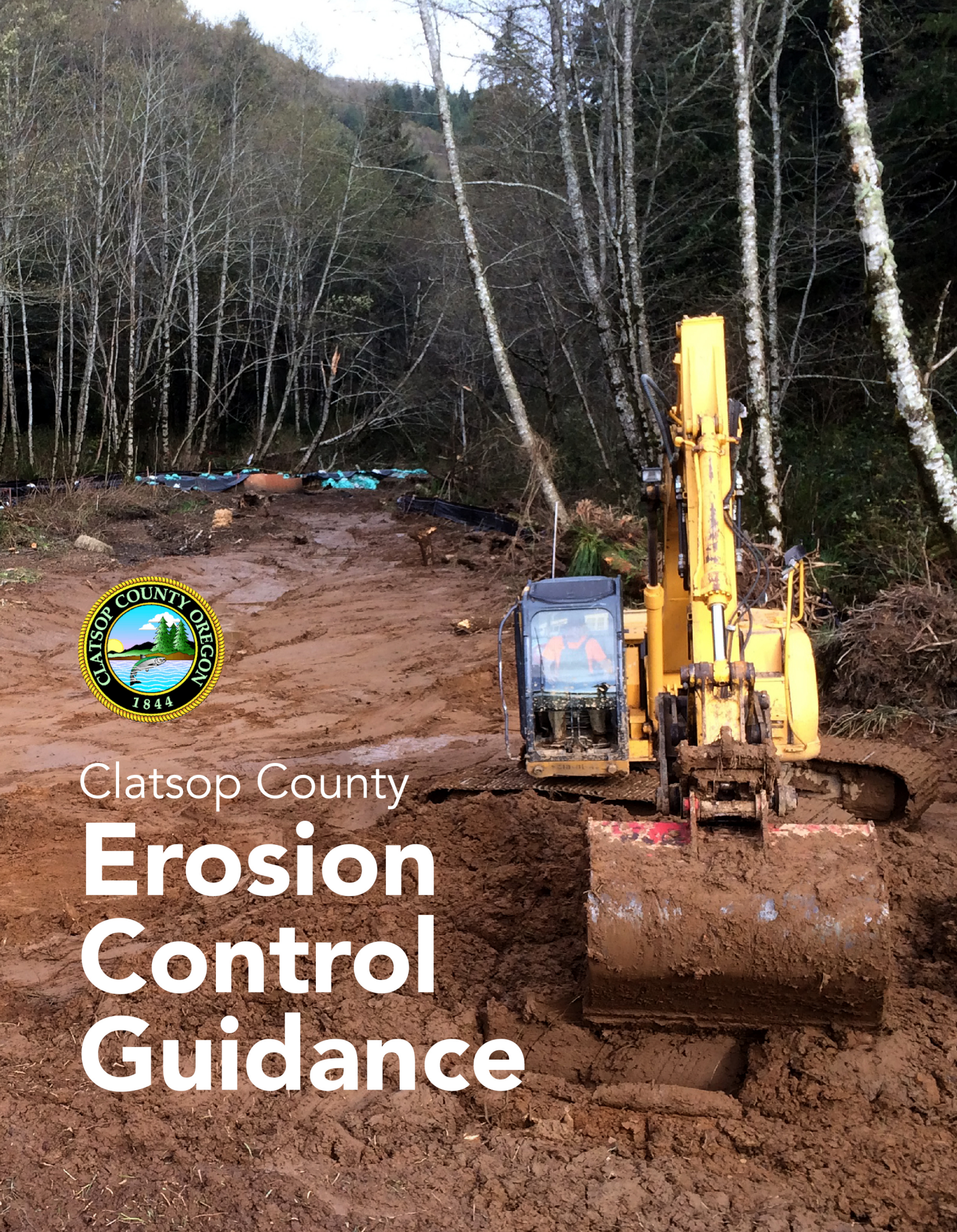

Clatsop County

Erosion Control Guidance

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crest
COLUMBIA RIVER ESTUARY STUDY TASKFORCE

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Introduction

Dear Applicant:

Water quality issues in Clatsop County and throughout Oregon impact fish-bearing streams, reducing their ability to support fish runs. Poor water quality cannot be attributed to a single cause. However, several common causes of water quality problems are well known. One of the most common is erosion from construction sites.

Erosion from construction sites is responsible for serious problems in the county. Fish habitat is degraded from soil that gets washed into streams. Salmon cannot successfully spawn in gravel that is clogged with fine sediments like those coming from construction sites. Shellfish growing areas can be destroyed by a heavy layer of fine sediments. Light cannot penetrate very deeply into sediment-laden waters, affecting the growth of vegetation in estuaries.

The most effective way to deal with soil erosion from construction sites is to prevent it from happening in the first place.

CREST, in conjunction with Clatsop County, has developed these technical assistance materials to control the problem of construction site erosion in Clatsop County. The following materials describe simple steps that can be taken to prevent erosion from occurring at your site. Inside, you will find instructions on how to prepare an Erosion Control Plan as well as straightforward instructions on how to use various inexpensive materials and methods to prevent soil erosion.

While water quality is a concern in Clatsop County, there are steps we can take to reduce run off. Preventing erosion from construction sites is one essential action we can take to protect water quality and the health of our rivers and streams.

Frequently Asked Questions

The Clatsop County Community Development Department is dedicated to the sustainable high-quality development of Clatsop County through job creation and retention; public and private partnerships; and safe, sanitary, and affordable housing stock. This mission is accomplished within each of its divisions by working to implement Board of Commissioner policies and priority strategies; soliciting and encouraging public input; and utilizing best practices and current information to continue to streamline processes and assist property owners.

Key Information about Clatsop County's Grading, Drainage & Erosion Control Requirements

County policies aim to manage development activities, including clearing, grading, excavation, and filling of the land, which can lead to soil erosion and the sedimentation of watercourses, wetlands, riparian areas, and public and private roadways. The intent of these policies is to protect the water quality of surface water, improve fish habitat, and preserve topsoil by developing and implementing standards to help reduce soil erosion related to land disturbing activities. In addition, these standards are to serve as guidelines to educate the public on steps to take to reduce soil erosion.

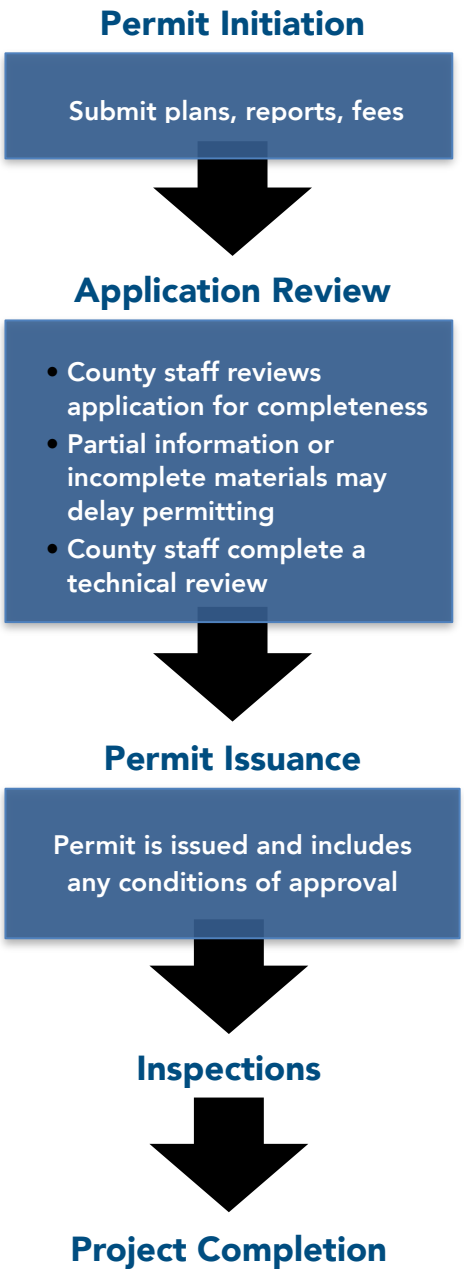
When is a Grading, Drainage & Erosion Control Permit required?

Permits are required for land disturbing activities that include any of the following site conditions or project components:

- **Steep slopes:** >20% within the disturbed area
- **Proposed Slopes:** >3:1 and >6 feet in height of fill, or retaining walls >30"
- **Volume Removal/Fill:** >30 cubic yards, either imported, removed, or relocated on site (NOTE: >50 cubic yards in a wetland also requires a permit from the Oregon Department of State Lands and the US Army Corps of Engineers)
- **Disturbed Area:** >3,000 square feet of disturbed area (NOTE: >1 acre also requires a 1200-C permit from Oregon Department of Environmental Quality)
- **Roads/ Culverts:** Any new, realigned, or relocated for any proposed development
- **Commercial/ Industrial:** Any developments
- **Proximity to sensitive areas:**
    - Wellheads -- within 100 feet
    - Septic system drain fields (primary and reserve)
    - Streams – within 50 feet
    - Mapped or known wetlands – within 50 feet

Fees: The Grading, Drainage & Erosion Control Plan Review Fee is $70 for the first half hour and $100 per additional hour.

Grading, Draining & Erosion Control Permit Review Process



Clatsop County uses a Grading, Drainage & Erosion Control Plan Review process to manage activities including clearing, grading, excavation and filling of land which can lead to soil erosion and sedimentation of watercourses, wetlands, riparian areas and impacts to roadways.

The grading permit and the required erosion control measures can involve multiple permitting agencies, depending on the size of site disturbance. Agencies involved with erosion control may include:

- **US Army Corps of Engineers**
- **Department of State Lands**
- **Clatsop County Community Development Department**
- **Clatsop County Public Works Department**
- **Oregon Department of Environmental Quality (DEQ)** through the National Pollutant Discharge Elimination System (NPDES) permits for unincorporated county areas

Codes and Policies

Erosion Control Development Standards are outlined in Clatsop County *Land and Water Development and Use Code* Section 3.2000. This code section includes definitions related to grading and erosion and specific items required when submitting a plan/permit. The standards in this code also cover timelines for when protection measures must be in place and when temporary sediment materials may be removed.

Clatsop County requires an Erosion Control Plan for land disturbing activities, in conjunction with a development permit. Two maps and a formal statement are required. The following elements are specific requirements (drawn at an appropriate scale).

Area Map depicting accurate size and distances for the following elements:

1. The location of the development site in relation to the property boundaries.
2. The location of all adjacent roadways.
3. The location, size, and design of all existing and proposed structures.
4. The location of any lakes, rivers, streams, wetlands, channels, ditches or other watercourses on or near the development site.
5. The direction surface water flows.
6. Indication of the north direction.

Site Map containing the following elements:

1. The location of existing vegetation adjacent to any watercourse.
2. Areas where vegetative cover will be retained and the type and location of measures taken to protect vegetation from damage.
3. Areas where vegetative cover will be removed and the location of temporary and permanent erosion control measures to be used including, but not limited to silt fencing, blanket and mats, graveling, mulching, seeding, and sodding.
4. Indication of the north direction.
5. Indication of slope steepness. Include gradient of surface water flow.
6. The general slope characteristics of adjacent property.
7. Location of the construction access driveway(s) and vehicle parking area(s).
8. Location of soil stockpiles.

Statement containing the following elements:

1. A schedule of land disturbance activities, project phasing and the time frame for placement of both temporary and permanent erosion and sediment control measures.

2. The name, address, and phone number of the person(s) responsible for placement, inspection, and maintenance of the temporary and permanent erosion control measures.
3. A statement signed by the property owner and building contractor/ developer certifying that any land clearing, construction, or development involving the movement of earth shall conform to the Erosion Control Plan as approved by the Clatsop County Community Development Director.

Additional Design and Operation Standards and Requirements are listed in the County's code available online at https://www.co.clatsop.or.us/landuse

Planning Ahead – Before You Dig

By planning ahead, you can make construction easier and incur less cost repairing the landscape after the project is completed. Begin by reviewing the erosion control practices described in this guidance. Below is a list of best management practices (BMPs) that can be planned for and implemented from the start of your project.

Preserve Vegetation

Save and protect vegetation as much as possible to minimize bare soil areas that will be easily eroded.

- Talk with the excavator and contractor and find out how much of the construction area must be cleared of vegetation.
- The more vegetation that is left undisturbed on the construction site, the less soil erosion will occur. Landscaping after construction will be easier and less costly.
- If possible, rope or block off areas of vegetation to be preserved, including areas under larger trees to prevent vehicles and equipment from damaging roots or overhead branches.
- Vegetated strips are one of the best (and the cheapest!) tools to prevent any eroded material from ending up in a water body, road, or other undesirable location. Be sure to preserve vegetated strips downhill of the construction site, particularly before reaching any water body (including wetlands), road, building, etc. Do not rely on your silt fence as the only "safety" measure.

Gravel the Driveway

- Lay down a gravel driveway from the road or street entrance to the parking area.
- Use 3" minus crushed rock.
- The rock layer should be at least 6 inches deep.
- Make the driveway wide enough to handle all size vehicles that may enter the building site.
- Various drive-over products intended to knock dirt off tires at construction entrances are available on the market (e.g., FODS trackout control mats, mud mats, rumble strips), are reusable, and can be deployed quickly and more easily than a gravel

driveway, though they may not always be sufficient at containing soil onsite given the wet weather on the Oregon Coast. Highly saturated soil may not provide a solid base for drive over products.

- Gravelling the entrance driveway will keep vehicles from tracking soil and mud out of the building site. On steep sloping driveways, the gravel will help with keeping silt in runoff water from washing down the driveway.

Set Up a Parking Area

Confine vehicles to specific areas of the building site to protect more of the undisturbed ground.

- Set up a restricted parking area for vehicles coming on to the construction site.
- Use barriers to limit vehicle access to vegetated areas to minimize disturbances.

Stockpile Topsoil

- Remove topsoil from the building area and place it in a pile before construction begins to save valuable soil.
    - Designate an area where a topsoil pile can be placed away from the immediate construction area.
- Cover the pile with plastic, or an erosion blanket to avoid erosion and loss of soil. Remember to protect the plastic/blanket from the wind. If on asphalt or near a water body, surround the pile with a wattle or sock to further prevent soil loss.
- Use the soil for landscaping following construction.

Phased Clearing

- Clearing the building site in stages, with time to cover each stage before moving to the next, will minimize areas exposed to erosion.
- Stage work phases to minimize disturbed areas, particularly in the rainy season.

Seasonal Considerations

- If possible, avoid winter rainy season construction.
- Plan the major part of the excavation and foundation work for the late spring or summer when there is a minimum of rain and runoff. Seed large bare areas preferably between September 1 and October 1 to ensure that grass will have enough time to grow and establish itself before the heavy winter rains start. Where seeding will not germinate before the rainy season, mulch all bare soil areas, and maintain the mulch until spring.
- Steep or long slopes will need additional erosion controls at least through the first winter, as young vegetation will not well protect the soil from heavy rain impacts and may not hold saturated soils on steep slopes. Any synthetic blanket or mats will need to be collected later to prevent wildlife damage, while blankets or mats made entirely from natural materials may be left in place to decompose on site.

Builder and Contractor Compliance

- Make sure the building contractor understands your plans and can comply with them.

Specific Erosion Control Measures

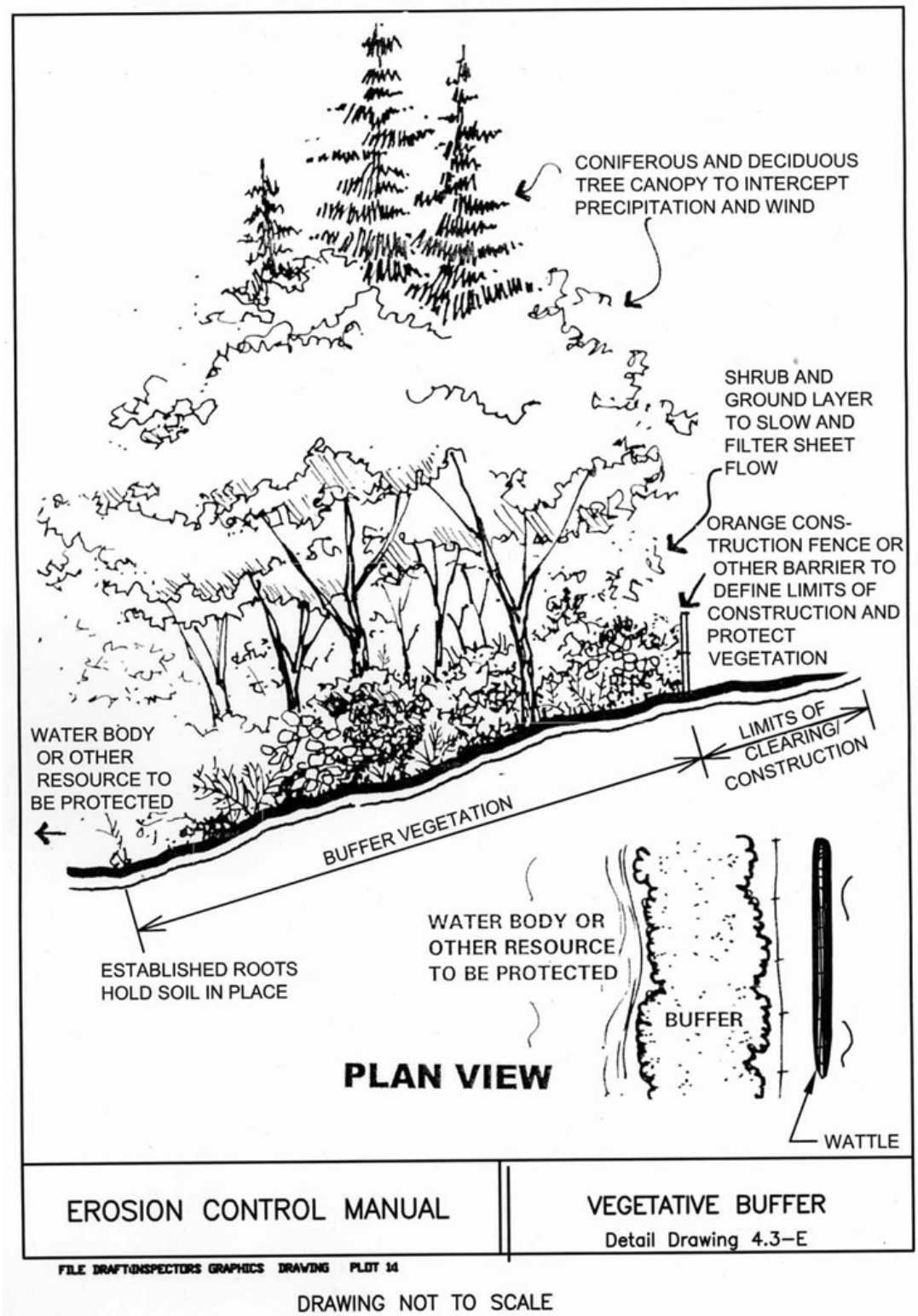
Projects may require different types of erosion control measures, depending on the topography, vegetation, and construction being completed at the site. Below are descriptions and drawings of specific erosion control measures that are considered best management practices for addressing erosion at constructions sites. These measures include filter strips, both vegetated and natural buffers; a gravel entrance; revegetation; silt fencing, storm drain inlet protection; straw mulch; slope checks; and blankets and mats.

Filter Strips

Vegetated Filter Strip - A vegetated section of land designed to accept runoff as overland sheet flow from up-slope development. The purpose of these vegetated areas is to slow down the flow of water and trap particles of sediment, allowing them to settle out of the runoff and be captured on site. Vegetated filter strips are recommended for slopes up to approximately 12 percent and the surface area of the filter strip must be equal to or preferably greater than the surface area of the development area being treated. Filter strips may closely resemble many natural vegetated forms, from grass slopes to riparian forest. A filter strip cannot treat high velocity flows; therefore, they have generally been recommended for use in agriculture and low density developments.

A vegetated filter strip differs from a natural buffer in that the filter strip has been designed and constructed specifically for the purpose of sediment removal. A filter strip can also be an enhanced natural buffer whereby the sediment removal capability of the natural buffer is improved through engineering and maintenance activities such as land grading. Periodic inspection, repair and regrading are required to prevent channelization of the slope. Inspection and maintenance are especially important following storm events. Excessive use of pesticides, fertilizers and other chemicals should be avoided on vegetated filter strips and to avoid soil compaction, vehicular and pedestrian foot traffic should be kept to a minimum.

Natural Buffer A low sloping area of grassy or woody vegetation located between a pollutant source and a waterbody. A natural buffer is formed when a designated portion of a developed piece of land is left unaltered from its current state. A natural buffer differs from a vegetated filter strip in that it is "natural" and it need not be solely used for water quality purposes. The riparian regions adjacent to waterbodies are natural buffer zones, but may need some enhancement through additional plantings or grading of channelized areas to reduce concentrated flows.


CONIFEROUS AND DECIDUOUS TREE CANOPY TO INTERCEPT PRECIPITATION AND WIND
SHRUB AND GROUND LAYER TO SLOW AND FILTER SHEET FLOW
ORANGE CONS-TRUCTION FENCE OR OTHER BARRIER TO DEFINE LIMITS OF CONSTRUCTION AND PROTECT VEGETATION
WATER BODY OR OTHER RESOURCE TO BE PROTECTED
LIMITS OF CLEARING/ CONSTRUCTION
BUFFER VEGETATION
ESTABLISHED ROOTS HOLD SOIL IN PLACE
WATER BODY OR OTHER RESOURCE TO BE PROTECTED
BUFFER
PLAN VIEW
WATTLE
EROSION CONTROL MANUAL
VEGETATIVE BUFFER
Detail Drawing 4.3–E
FILE DRAFT\INSPECTORS GRAPHICS DRAWING PLOT 14
DRAWING NOT TO SCALE

Gravel Entrance

What is it?

A graveled entrance roadway to the construction site.

Purpose

To provide a temporary hard surface for vehicle traffic to minimize disturbance of soil. Unimproved soil entrance ways quickly turn to mud in a rainstorm and will not only bog down vehicles but leave a big sign to the public on the road stating "poor erosion control here."

How it works

The graveled surface allows water to drain off the road surface and keeps the road surface hard and stable in the heaviest traffic area. The gravel entrance way also serves as a base for a paved driveway.

Where to use it

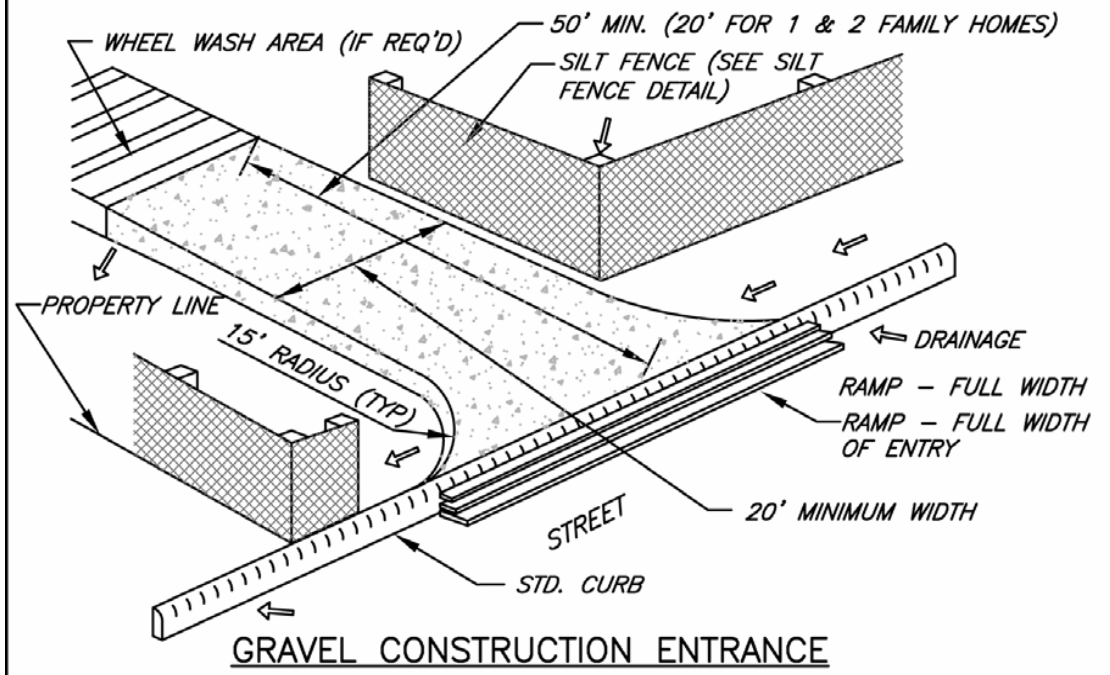
At the entrance to the construction site.

How to install

- The gravel drive should be wide enough to handle all size vehicles that may enter the construction site.
- In most cases, use 3" minus crushed base rock. In severe conditions, use 6" to 8" pit rock.
- The rock layer should be at least 6 inches deep.

See the diagram on the next page for a typical graveled driveway.

Gravel Construction Entrance



GRAVEL CONSTRUCTION ENTRANCE

EROSION CONTROL MANUAL	GRAVEL CONSTRUCTION ENTRANCE Detail Drawing 4.2–A

FILE DRAFT\INSPECTORS GRAPHICS DRAWING DR 3.3.1 PLOT 14

Revegetation

What is it?

Seeding or sodding bare soil with grass or vegetative cover. Seeding can be done by hand or by hydroseeding. Hydroseeding is done by spraying a mixture of seed, fertilizer, mulch, and a type of adhesive over large areas with a pump. Sodding is the laying down of already growing grass or vegetative cover.

Purpose

To provide a temporary or permanent cover of plants that will stabilize the soil and prevent erosion.

How it works

The grass or cover plants reduce rain impacts to soil, slow down water flowing on slopes and prevent channeling in the soil. The plant roots bind the soil and prevent soil erosion.

Where to use it

- As a temporary measure on bare slopes and in drainage ditches.
- As a temporary measure on soil stockpiles.
- As a permanent measure on all bare soil surfaces.

How to install seeding

Seeding is the least expensive way to add vegetation to a site, but it is also the slowest and the least guaranteed. Plants grown from seed take time to become sufficiently established to stabilize soil, especially on slopes, compacted soils, or in poor growing conditions (e.g., drought, sandy soil, solid clay). The delay in plant growth often requires additional soil stabilization techniques be used to prevent loss of seed and loss of soil before plant establishment. Mulching helps but is not sufficient on steep slopes, where biodegradable fabric or blankets should be used on top of seeds.

Seeding or planting should occur well before the onset of the rainy season. Seeding should be completed before October 1. Projects occurring in the spring or summer may need to be seeded again in September to ensure adequate seed source. Seeded areas should be protected from wind, rain, and birds, such as by mulching.

1. If soil is compacted, till it first. Spread a layer of 4 to 6 inches of topsoil if none exists.
2. Fertilize with approximately 10 lb. of fertilizer per 1000 square feet.
3. Seed with an appropriate mix for the site (see Table 1).
4. Rake lightly to cover seed with about 1/ 4" of soil.
5. Mulch with straw if necessary when the rainy season is starting. Use about one bale per 1000 sq. ft. on slopes. Anchor straw by punching into soil.

Seed mixes shall be designed to achieve erosion control within a short germination period (14 days). In general, use of quick-growing, sterile grasses and grains in mixture with permanent vegetative cover is recommended to achieve quick cover of exposed soils.

Seeding rates are based on a minimum acceptable Pure Live Seed rate (PLS) of 80%. When the PLS is below 80%, seeding rates shall be adjusted accordingly.

Seeding rates must be combined to achieve a minimum overall seeding rate of 100 lbs. per acre.

When possible, seed supplies shall be selected from sources that grow native/local genetic strains (Table 2). These supplies will usually contain fewer weed species that could be noxious or invasive to the local environment.

Native seed mixes and plants for erosion control, both temporary and permanent measures are recommended. Although perennial ryegrass and non-native clovers are allowed for erosion control, these plants are invasive and can create problems off of your site.

Table 1 – Seed Mixtures

Site Characteristic	Mixture	Erosion Control Sow Rate (pounds per acre)
Temporary cover on construction sites	Annual or Hybrid Ryegrass	30
Temporary cover on construction sites	Cereal Grains	100
Stabilization of roadways and other disturbed areas	Annual or Hybrid Ryegrass	3
Stabilization of roadways and other disturbed areas	Tall Fescue	18
Stabilization of roadways and other disturbed areas	Creeping Red Fescue	8
Stabilization of roadways and other disturbed areas	Bentgrass	1
Stabilization of roadways and other disturbed areas	Big Trefoil	4

Table 2 – Native Grasses and Other Ground Cover Plants for Temporary or Permanent Vegetative Cover

Scientific Name	Common Name	Optimal Sowing Season	Erosion Control Sow Rate (pounds per acre)
Taller Grasses			
Wetter Areas			
Agrostis exarate	Spike bentgrass	Early fall/spring	30
Hordeum brachyanthe rum	Meadow barley	Early fall/spring	40
Drier Areas			
Bromus sitchensis	Sitka brome	Early fall/spring	40
Bromus carinatus	California brome	Early fall/spring	40
Elymus glaucus	Blue wildrye	Early fall/spring	40
Elymus trachycaulus	Slender wheatgrass	Early fall/spring	40
Shorter Grasses			
Wetter Areas			
Deschampsi a elongata	Slender hairgrass	Early fall/spring	30
Recommended Non-Native Cover Crop Species			
Festuca rubra var. commutate	Chewings fescue	Year round	30-40
Triticum spp.	Wheat	Year round	60
Avena spp.	Oats	Year round	60
Regreen	Sterile wheat hybrid	Year round	50
Recommended Quick Establishment or Temporary Cover Crop Species			
Deschampsi a elongata	Slender hairgrass	Early fall/spring	30
Festuca rubra var. commutata	Chewings fescue	Year round	30-40
Hordeum brachyanthe rum	Meadow barley	Early fall/spring	40
Bromus sitchensis	Sitka brome	Early fall/spring	40
Bromus carinatus	California brome	Early fall/spring	40
Elymus glaucus	Blue wildrye	Early fall/spring	40
Elymus trachycaulus	Slender wheatgrass	Early fall/spring	40

Sodding

1. Sodding can be done any time of year.
2. Till soil if it is compacted. Spread a layer of 4 to 6 inches of topsoil if none exists.
3. Fertilize with approximately 10 lb. of fertilizer per 1000 square feet.
4. Lightly water soil.
5. On slopes, lay sod starting at the bottom and work toward the top. Peg each piece down in several places.
6. Maintain other erosion control measures, such as silt fences or straw bales, until vegetation has taken hold. Heavy rain will wash sod off slopes if it is not well established.

Silt Fencing

What is it?

Silt fencing is a continuous sheet of woven material about 3 feet in height. It is supplied in rolls of 100-300 feet. It is usually made of plastic having some resistance to deterioration by sunlight. The weave forms tiny holes in the material so that water will pass through but soil and silt will be trapped. It is made with pre-formed pockets every 5 or 6 feet to insert stakes. Silt fence should be installed so that the stakes remain on the downhill side of the fabric if the stitched pockets tear open.

Purpose

To reduce dirt and soil running off the construction site in water flows by providing a barrier to catch soil and slowing water runoff velocity. Provides some sediment filtration. Silt fabric does not prevent erosion, it merely prevents eroded material from travelling off the site. Always use other soil stabilization techniques to prevent soil from eroding in the first place.

How it works

The fence creates a barrier to slow water flows. The soil and silt have a chance to settle out of the water. The water is filtered through the fence and runs off, leaving the soil and silt behind.

Where to use it

- Down slope of disturbed areas and at the boundary of cleared areas.
- At the bottom or toe of soil stockpiles.
- At intervals along the slopes of large disturbed areas.
- At the bottom of steep banks.

Where not to use it

- Across streams

How to install silt fencing

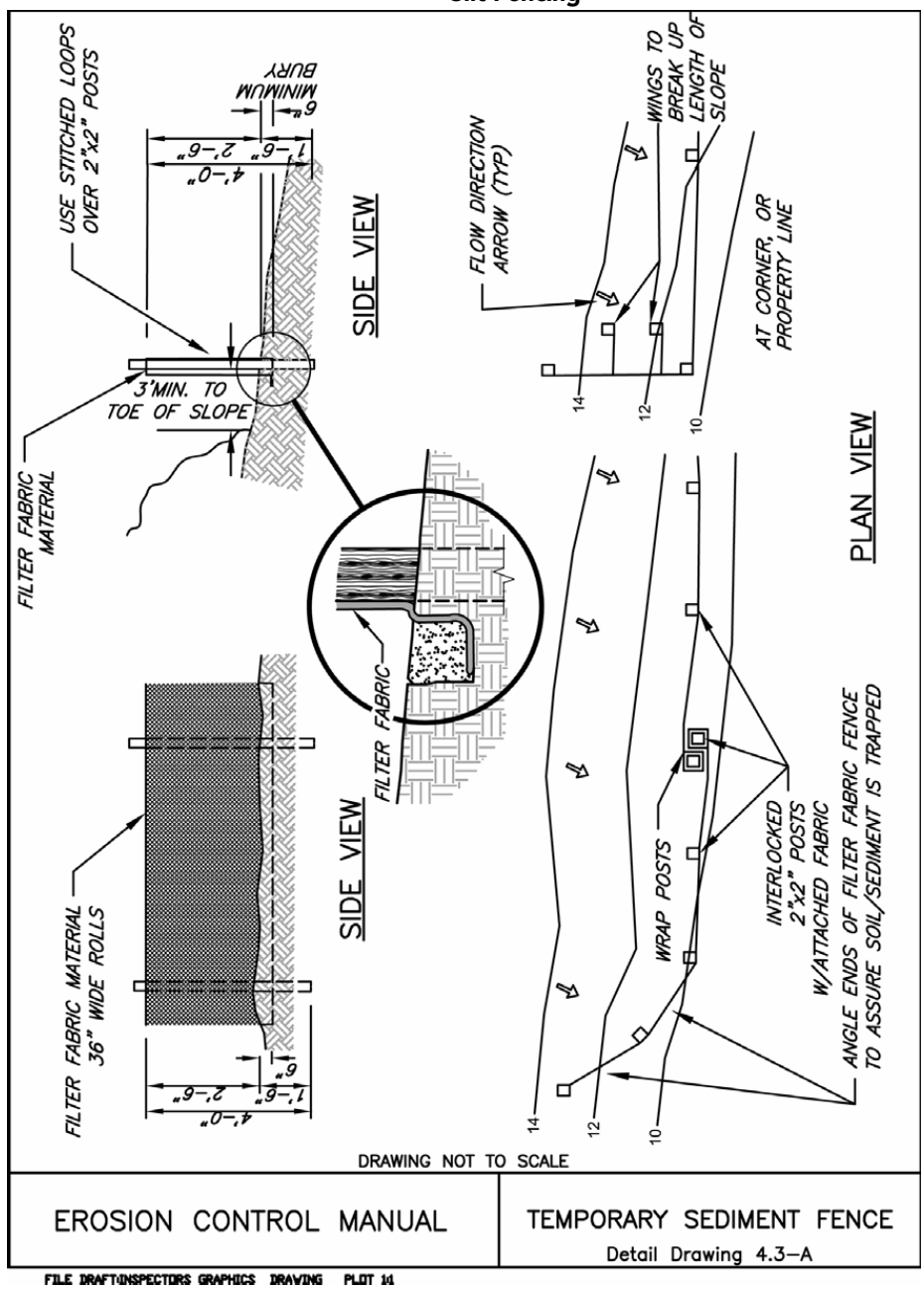
1. Fencing comes with loops stitched into the fabric to attach the fence to 2" x 2" posts. The posts are driven into the ground and should not be more than 6 feet apart.

2. The bottom of the fencing is buried 6 inches by digging a narrow trench on the uphill side of the fencing. The soil from the trench.is placed against the uphill side of the fencing. This holds the bottom of the fencing down to keep water from running underneath.
3. Avoid joints in the fence line. If a joint is necessary, interlock the fencing ends with two posts at the interlock.

Maintenance

- Check periodically to be sure the fence has not been undermined by water flows or has been knocked down.
- Remove soil sediment build-ups of more than 1 foot deep from behind the fence.

Silt Fencing



Storm Drain Inlet Protection

What is it?

A barrier of various materials surrounding a storm drain inlet. Preventing sediment from entering storm drains is not an erosion control technique and is not sufficient as a stand-alone measure. Many types and brands exist for different applications and different types of inlets; chose the one that works the best for your application.

Purpose

To prevent silt and sediment from entering storm drain systems.

How it works

Storm water is filtered to remove silt and sediment before the water enters the storm drain.

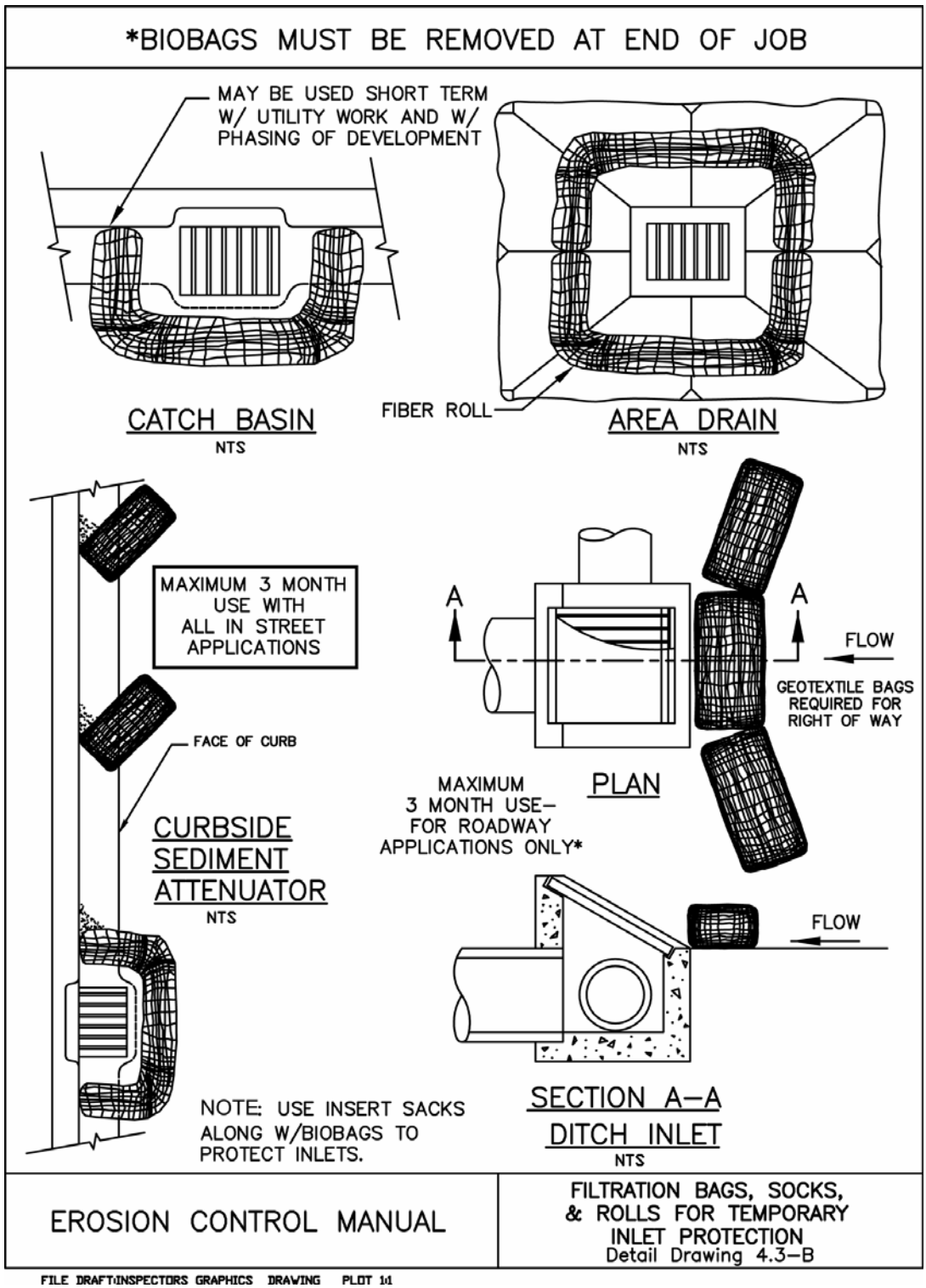
Where to use it

As a temporary measure around storm drain inlets until disturbed soil areas on the construction site are stabilized.

How to install

Refer to drawings below or manufacturer's instructions.

Storm Drain Inlet Protection



Straw Mulch

What is it?

Straw mulch is cut straw that comes in bales, square or round weighing from 50 to a few hundred pounds. It is readily available from farm and landscape supply stores and some garden supply stores.

Purpose

Reduces erosion by providing a protective cover over disturbed or reseeded soils that decrease the impact of rain directly on soil, slowing soil mobilization. Straw mulch will not stop water or mud once it has started to move. Using straw mulch will increase nutrients to the soil to enhance plant growth.

How it works

The straw slows down the speed of water runoff and spreads out the flow. By slowing the speed, the water will not pick up as much soil. By spreading out water flow, the water cannot concentrate in gullies and pick up force and speed.

Where to use it

- As a cover over unvegetated ground on gentle or moderate slopes.
- As a cover for stockpiles of soil, particularly topsoil.
- As a mulch to help establish vegetation in seeded areas.

How to install it

1. Straw should be spread to a thickness of at least 2 inches.
2. Straw should be stabilized in place either by hand or by machine punching the straw into the soil.
3. On steeper slopes, cover with jute netting to hold straw in place.

Maintenance

Check at regular intervals and after rainstorms and spread new straw over thinning or washed-out areas.

Slope Checks

What is it?

Slope checks are a category of best management practices that are installed on the contour of slopes to reduce the effective length of the slope, slowing or stopping water and sediment as it travels down the slope. There are many types of slope checks, they fall into two main categories. Constructed slope checks are structures built onto or into the slope itself, such as water bars, gradient terracing, brush barriers, and gravel berms. Wattle-type slope checks are rolls of materials that are installed on top of the slope to intercept water/mud, and include straw wattles, coir logs, compost socks, gravel/rock tubes, and excelsior wattles.

Purpose
Slow or stop water and sediment as it travels down slope.

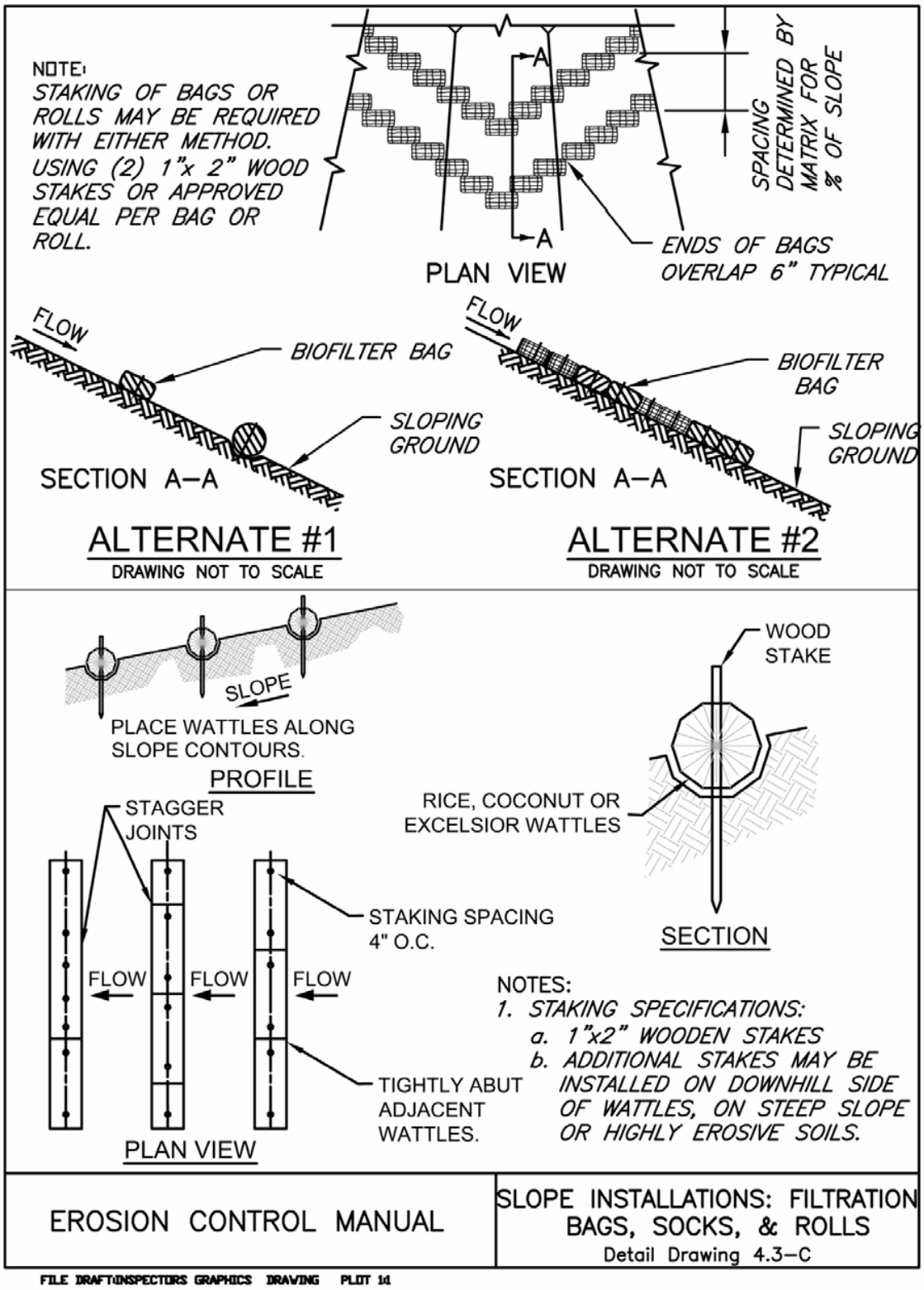
How it works
Slope checks reduce the energy of water and sediment traveling downhill, both reducing the erosive potential of that material and preventing sediment from leaving the slope entirely. Slope checks reduce erosion but do not stop water or sediment from flowing between the checks, which means slope checks should be paired with additional best management practices to prevent the mobilization of water/sediment in the first place. Some slope checks (such as compost socks) are better at catching and holding fine sediment than others.

Where to use it
On steep or long slopes, especially on large areas of exposed soil. Steeper slopes, areas with high rainfall, and highly erosive soils call for more closely spaced checks than in lower risk areas.

How to install it
Installation instruction varies by type. All slope checks should be installed parallel to the slope. Wattle-type checks should overlap, be keyed and trenched in on the uphill side, and be well staked (follow dealers specific installation instructions for method and spacing of stakes).

Maintenance
All slope checks must be monitored for water damage, particularly after heavy rains. Constructed checks may wash away in sections or fill in; wattle-type checks may come loose and move downhill or allow water/sediment to travel underneath them. Note that most wattle-type checks absorb some amount of water and may become heavy and difficult to move when wet.

Slope Checks



Blankets and Mats

What is it?

Blankets and mats are sheets of material that are unrolled over soil to provide a continuous cover. They can be made out of many different kinds of materials. The most common types are made by sandwiching a fill material between two sheets of woven fabric, but other types are made of a single sheet of thickly woven material. Some materials will decompose on site while others must be removed to prevent becoming plastic trash. Some materials can also trap small wildlife in the mesh.

Purpose

Blankets and mats reduce the impact of rain on soil, help prevent mobilization of sediment, reduce the energy of moving water/sediment, and protect seeds installed underneath.

How it works

Blankets and mats work in two main ways: by covering the soil to reduce the impact of rain and prevent sediment splash, and by providing a continuous contact with soil to prevent sediment from moving even when saturated. Any gaps between the fabric and the soil will allow soil movement.

Where to use it

Moderate to steep slopes or on low slopes where costs from erosion would be high.

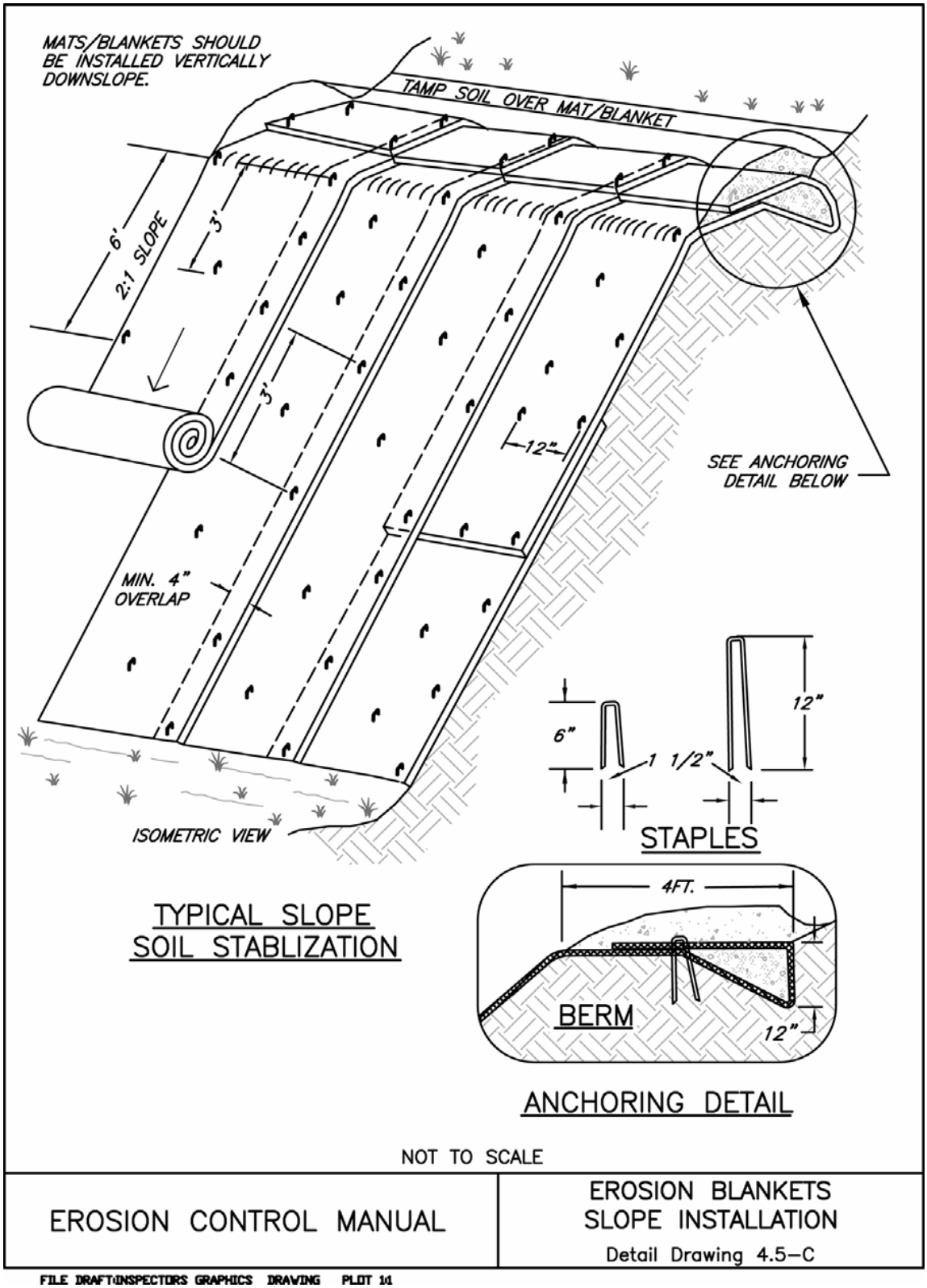
How to install it

Grade slopes before installation to prevent gaps between fabric and soil. "Track walk" heavy machinery vertically up and down slope to create texture perpendicular to the slope. Seed or hydroseed under the fabric. Blankets and mats should always be installed starting at the top of the hill so they can be rolled open downhill (slowly) to reduce installation effort. The top edge should be keyed in and well stapled. Blankets and mats should always overlap with each other, with the downhill fabric installed under the uphill fabric. Fabric must be stapled into the soil with metal staples or wooden pegs. Follow manufacturer's instructions for staple size and frequency, keeping in mind the slope, water volumes, and duration of installation.

Maintenance

Blankets and mats should be monitored to ensure they are not pulling loose at the top and that no rills or gullies are forming underneath them. Erosion under the fabric may be hard to detect but must be addressed promptly to prevent it from rapidly becoming worse.

Erosion Blankets Slope Installation



Tips for Preparing an Erosion Control Plan & Permit

Review the "lay of the land"

- What direction will water run off the site?
- How steep are the slopes on the site?
- Are there any natural drainage channels on the site?
- Are there any springs on the site?
- How will excavation on the site affect where runoff water will go?
- Where will runoff water go as it leaves the site?

Explain activities at the site

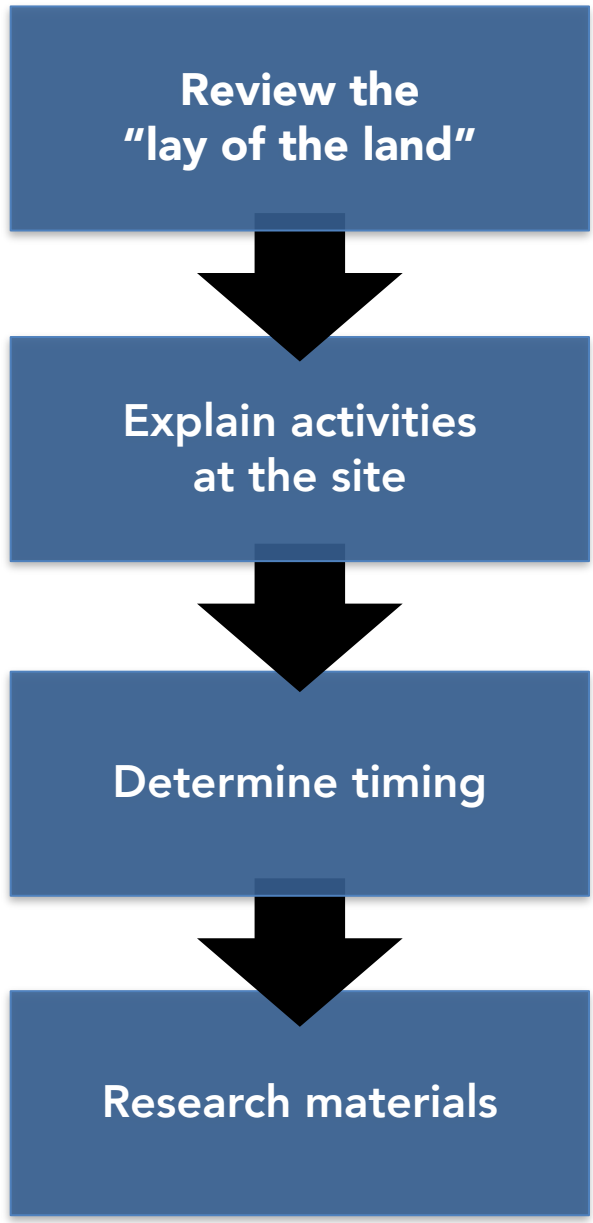
- What areas will be cleared of vegetation?
- Where will there be excavation?
- Where will vehicles be parked?
- How will vehicles enter and leave the site?
- Where can soil be stockpiled?

Determine timing

- What time of year is the best for building?
- Can construction be phased in several stages?

Research materials

- Matting and mulch prevent the direct impact of falling rain on bare soil.
- Silt fence and blankets and mats prevent concentrated water flows that make gullies.
- Biofilter bags filter silt and sediments from runoff before it enters storm drains, culverts, or ditches.



Preparing an Erosion Control Plan

Preparing Your Erosion Control Plan

Included in this guidance is a blank form that you can use to draw your Soil Erosion Control Plan. A photocopy of your architectural site plan could be substituted for this form.

On the next page is an example Erosion Control Plan with descriptions of the various components and measures that make up the plan.

Steps to prepare the plan:

1. Draw the streets and roadways leading to the property.
2. Draw the boundaries of the property.
3. Indicate which direction is north.
4. Draw the proposed location of the building on the site.
5. Add arrows showing the direction water will flow off the property.
6. Indicate the steepness of slopes by classifying them as steep, moderate, or gentle.
7. Designate areas where vegetation will be left undisturbed.
8. Draw the access driveway and designate an area for vehicle parking.
9. Determine where soil will be stockpiled.
10. Determine what erosion control measures will be used. Draw and label the control measures.

Sample Erosion Control Plan

Erosion Control Matting (E)
- Install lengths from top to bottom on steep slopes.
- Follow manufacturer's recommendation for staple

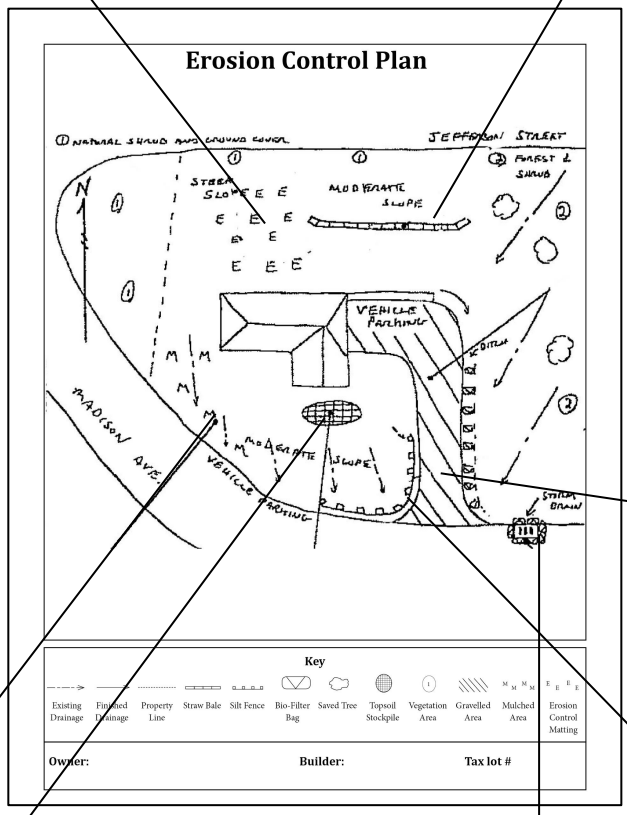
Regular Cleanup
- Clean up soil tracked onto streets by vehicle traffic and return to jobsite.
- After heavy rains clean up soil

Downspout Extenders
- Route water to a vegetated or paved area.
- Install as soon as gutters and downspouts are completed.

Revegetation
- Seed, sod, or mulch bare soil as soon as possible.
- Use seed as recommended

Straw Mulch (M)
- Spread on shallow slopes.

Soil Piles
- Locate away from downslope streets, driveways, streams, or drainageways and away from vehicle parking and traffic.



Inlet Protection
- Use biofilter bags as protection to slow and filter runoff from job site before it enters storm drains.
- Maintain inlet protection by regular cleaning to avoid clogging and street flooding.

Slope Checks
- Install immediately following grading.
- Place parallel to the contour of the land.
- Installation varies by type; wattle-type checks should overlap, be keyed and trenched in on the uphill side, and be well staked (follow dealers specific installation instructions for method and spacing of stakes).
- All slope checks must be

Gravel Drive
- Install a single access drive using 3" aggregate.
- Lay gravel at least 6" deep and wide enough to

Silt Fence
- Install immediately following grading.
- Place parallel to the contour of the land to allow water to pond behind barrier.
- Entrench 4" deep.
- Stake silt fence 1 stake every 6'.
- No gaps between sections of fence.
- Inspect and repair once a

Erosion Control Plan

Key

Owner: **Builder:** **Tax lot #**

Glossary

BMP - A best management practice (BMP) is a physical, chemical, structural or managerial practice that prevents, reduces or treats contamination of water or which prevents or reduces soil erosion.

Brush barriers - A temporary sediment barrier constructed at the perimeter of a disturbed area, using residue materials (e.g., small tree branches, root mats, stone, or other debris left over from site clearing and grubbing). Brush barriers are used to trap and retain sediment from limited disturbed areas.

Coir logs (see Wattles) - A natural fiber product designed to provide soil stabilization and support along river banks, slopes, steams, hillsides, and other erosion prone areas.

Compost socks, Gravel/rock socks/tubes, Wood fiber bags, etc.
Filtration bags and socks are a series of contained filtration materials that can be used to slow flows and provide settling of sediments in runoff. This group includes biofilter bags, gravel socks, sand bags, compost socks, and wood fiber bags. Bags and socks are made in various sizes of plastic mesh or geotextile cloth and filled with a variety of organic or inorganic materials designed to filter and detain flows and sediment. The most common fill material is wood products, such as bark chips.

FODS trackout control mats (https://getfods.com/), Mud mats, or Rumble strips -
Vehicles leaving construction sites track sediment onto adjoining roadways. This sediment can create safety hazards and contribute significantly to sediment pollution in waterways. The purpose of a vehicle tracking BMP is to prevent soil and mud on work vehicles from being carried offsite and deposited on public roads, parking lots, and other areas.

Gradient terracing - An effective treatment to control erosion on sloping areas. The level steps of a terrace reduce water velocity by slowing or stopping the downhill flow of water. By decreasing water velocity, terraces gives the water time to seep into the ground, minimizing erosion.

Gravel berms - A variety of filtration media can be placed around the perimeter of the construction site as a sediment control berm, with or without a confining sock or bag. These berms are most commonly created of gravel and compost. They are usually continuous berms placed by machine.

National Pollutant Discharge Elimination System ((NPDES) - The NPDES permit is a requirement of the Federal Water Pollution Control Act (Clean Water Act) and Oregon law.

Oregon Department of Environmental Quality has been given authority from the Environmental Protection Agency to issue these permits. NPDES permits are required for "point source" discharges of pollutants to surface waters. The term "point source" refers to a natural or human-made conveyance such as pipe culverts, ditches, catch basins or any other type of channel. Certain industries and activities, including construction, are also required to obtain NPDES permits for stormwater runoff.

Water bar - A ridge or ridge and channel constructed diagonally across a sloping road that is subject to erosion. Used to prevent erosion by diverting runoff at selected intervals.

Wattles (excelsior or straw) - Wattles (logs) are an erosion and sediment control device used to minimize erosion on construction sites. Wattles assist in stabilizing construction disturbances by shortening slope lengths, reducing water flow velocities and trapping sediment on site. Effective installation of wattles can minimize sheet and rill erosion.

Wattles are made of either weed-free certified straw (rice or wheat) or excelsior (shaved wood fibers). These tubes of straw or excelsior are encased in either UV degradable plastic netting or 100% biodegradable burlap.