



City of Santa Barbara

Building & Safety Division

**EROSION/SEDIMENTATION
CONTROL PROGRAM**

December 2012

EROSION / SEDIMENTATION CONTROL AND STORMWATER QUALITY MANAGEMENT PROGRAM

1. Introduction

This Program identifies standards for erosion prevention, sediment control and stormwater quality management during construction, and long-term post-construction site stabilization. The purpose of this program is to eliminate and prevent conditions of significant erosion that have led to, or could lead to, degradation of water quality, loss of fish habitat, damage to property, loss of topsoil or vegetation cover, disruption of water supply, and increased danger from flooding in the City of Santa Barbara. In combination with other state, federal, and local laws and ordinances, these requirements are intended to protect the beneficial uses of waters within the watershed.

- Erosion prevention techniques are designed to protect soil particles from the force of rain and wind so that they will not erode. These techniques include, but are not limited to such things as construction scheduling, ground cover and plantings, and installation of erosion control matting.
- Sediment control measures are designed to capture soil particles after they have been dislodged in order to retain the soil particles on-site. These measures include, but are not limited to silt fences, sediment barriers, and settling or sediment detention basins. Both erosion prevention techniques and sediment control measures have appropriate uses; however, it has been shown that sediment control measures are less effective in preventing soil movement and water quality impacts than erosion prevention techniques.
- A [Standard Erosion Control Plan](#) (see Sect. 5) is the minimum requirement for any grading or land clearing for a development project. If the Building Official determines that the project site has slopes greater than 15%, the building site is adjacent to a critical area (such as a creek), the area of disturbed soil exceeds one acre, or special conditions or unusual hazards exist, a Detailed Erosion Control Plan will be required. A listing of the Best Management Practices (BMP's) to be utilized shall be included as part of any application for a Building Permit or a Grading Permit. Installation details for the selected measures shall also be included as part of the plan set.
- A [Detailed Erosion Control Plan](#) (see Sect. 6) is required on projects that have slopes greater than 15 percent, are adjacent to critical areas (such as a creek), the disturbed soil area is greater than 1 acre or where special conditions or unusual hazards exist. A listing of the Best Management Practices (BMP's) measures to be utilized shall be included as part of any application for a Building Permit or a Grading Permit. Installation details for the selected measures shall also be included as part of the Erosion Control Plan drawings. All BMP measures must be in place and functional before any other building inspection can occur.

2. Authorized Personnel

Persons authorized to prepare the Detailed Erosion Control Plans include:

- A Certified Professional Soil Erosion and Sediment Control Specialist,
- A California Licensed Civil Engineer,
- A California Licensed Landscape Architect,
- A California Registered Geologist, certified as an Engineering Geologist,
- A California Licensed Architect.

3. Slope Determination

Before Standard Erosion Control Measures can be applied to a project, it must be determined that the slope is not more than 15%. This is calculated according to the following procedures:

"Average slope" of a parcel of land or any portion thereof shall be computed by applying the formula ($S = .00229 \text{ IL} \div A$) to the natural slope of the land, before grading is commenced as determined from a topographic map conforming to National Mapping Standards and having a scale of not less than 1 inch equals 200 feet and a contour interval of not less than five feet (5'). The letters in this formula shall have the following significance:

S = The average slope of the land in percent.

I = The contour interval in feet.

L = The combined length of all contours in feet, excluding the length of contours in drainage channels and in natural water courses below the 25 year flood level.

A = The net area of parcel or portion thereof, in acres, after deducting all areas in drainage channels below the 25 year flood level, for which the slope is to be determined.

The City may require topographical contour mapping prepared by a licensed professional in order to determine slope.

4. Erosion Control and Stormwater Management Manuals

Applicants and landowners are directed to use the Best Management Practices (BMP's) outlined in the following reference manuals as the erosion control standards for Standard Erosion and Sediment Control Plans:

The [**Association of Bay Area Governments \(ABAG\) Manual of Standards for Erosion and Sediment Control \(Second Edition, May 1995\)**](#) the erosion control standards manual for planning and design in the City of Santa Barbara. Drawings and design details from this source may be used in submittal of Standard Erosion Control Measures and detailed Erosion Control Plans. Their website may be used for viewing and/or downloading of information.

www.cabmphandbooks.com/construction.asp

The [**Erosion and Sediment Control Field Manual**](#) available from the California Regional Water Quality Control Board, San Francisco Bay Region may be used by contractors and City inspectors in the field.

The [**California Stormwater Best Management Practices Handbooks**](#) available from the Stormwater Quality Task Force, March 1993. Separate handbooks are available for: 1) Construction Activity; 2) Industrial/Commercial; and, 3) Municipal work areas.

In addition several commercial publications and design drawings are available for preparation of Erosion Control Plans, such as Erosion Draw.

5. Standard Erosion and Sediment Control Plan Requirements

a) **Required Best Management Practices (BMPs).** The following BMPs for soil erosion and sediment control shall be used, as applicable, in a Standard Erosion Control Plan. Installation of these BMPs shall conform to the requirements found in the documents and/or websites listed in Section 4 of this policy.

Gravel Construction Entrance. A gravel construction entrance is generally required where vehicle traffic is anticipated off of existing paved or graveled roads. If there is more than one vehicle access point, a gravel construction entrance should be installed at each entrance. The responsibility for field design to meet site conditions, and maintenance of the construction entrances remains with the property owner or construction contractor. The owner/contractor shall remain responsible for the clean-up of any mud or dirt that is tracked onto streets or paved areas, even with the installation of gravel construction entrances.

Vehicles or equipment shall not enter a property adjacent to a creek, watercourse, or storm water facility unless adequate measures are installed to prevent physical erosion into the water.

Catch Basin Protection. A filter system shall be used on catch basins (drop inlets) in public and private streets, and parking areas as a means of sediment control. Alternate methods will require the approval of the City.

Sediment Filters/Barriers. For all projects, a silt fence or straw wattle dike shall be installed along the down slope edge of the disturbed area, prior to the commencement of grading. The sediment filter structures will be located so that all runoff from the construction site is filtered, or passes through a sediment detention basin prior to crossing a property line, entering a creek, or entering the City storm drain system. Sediment shall be removed when the depth of sediment exceeds one half of the height of the structure. Silt fences and straw wattles shall be installed according to the standard references cited.

Straw wattles can be used as dikes to stabilize temporary channel flow lines or as a perimeter filter barrier. Straw wattles must be installed in a trench, staked and backfilled if they are to be effective in reducing flow velocity and filtering sediment from runoff.

Straw wattles should not remain in place more than 12 months after installation unless it can be determined significant deterioration has not occurred. When used as a perimeter filter, sediment should be removed when material is within 3 inches of the top of any wattle.

Silt fences should be installed where sediment from sheet flow or rill and gully erosion will enter directly onto adjacent property. When installing, it is important the fabric material be anchored into a trench and backfilled.

Maintenance of filter fences is similar to that of straw wattles in that the fabric must be inspected and needed repairs implemented after every storm event. Sediment deposits shall be removed when material reaches a depth of more than one-half of the fence height.

Plastic Sheeting Plastic sheeting shall generally not be used as an erosion control measure over large areas. Plastic sheeting may be used to protect small, highly erodible areas, or to protect temporary stockpiles of material. If plastic sheeting is used, all resulting concentrated water flow from the plastic must be directed to a properly designed or existing drainage system able to handle the runoff without causing additional erosion.

Existing Vegetation and Revegetation. As far as is practicable, existing vegetation shall be protected and left in place, in accordance with the clearing limits shown on the approved Building Permit or Grading Permit and the approved Erosion Control Plans. The exception is where exotic

plant materials are to be removed, or fire fuels reduced in accordance with an approved Plan. Work areas shall be carefully located and marked to reduce unnecessary damage to existing vegetation.

Slope Protection: Hydro-seeding alone will normally not be considered satisfactory erosion protection for disturbed slopes steeper than 4H:1V. Disturbed slopes steeper than 4H:1V shall be protected using straw and tackifier. The installation of erosion control blankets shall be required for all disturbed slopes steeper than 2.5H:1V and greater than 20 feet in slope length. Installation of straw wattles staked on contour shall be required for all slopes steeper than 4H:1V with slope lengths greater than 30 feet. Straw wattles or silt fencing shall be installed at the toe of all slopes steeper than 4H:1V, and along (just below) top of bank along all creeks.

Wet Weather Measures. On sites where vegetation and ground cover have been removed from more than 0.5 acre of land, vegetative ground cover shall be planted on or before **September 15** with the ground cover established by **October 15**. As an alternative, if a protective ground cover is not established by **October 15**, the open areas shall be protected through the winter with straw mulch, erosion blankets, the installation of additional straw wattles, or other method(s) approved by the City.

Seeding. Seeding shall be as follows, or as recommended by a California Licensed Landscape Architect or a Certified Professional Soil Erosion and Sediment Control Specialist.

SEED MIX ONE		SEED MIX TWO	
(Application rate = 40 kg/ha or 35 lb/ac)		Application rate=40 kg/ha or 35 lbs/acre)	
blando brome	40%	blando brome	35%
zorro annual fescue	8%	rose clover	20%
lana vetch	12%	annual ryegrass	15%
rose clover	15%	crimson clover	10%
crimson clover	15%	creeping red fescue	5%
sub clover	<u>10%</u>	zorro annual fescue	<u>5%</u>
TOTAL	100%	TOTAL	100%

Fertilizer

12-12-12 450 kg/ha (400 lb/ac), or 15-15-15 340 kg/ha (300 lb/ac), or 16-20-0 340 kg/ha (300 lb/ac).

Mulch

Straw 3,400 kg/ha (3,000 lb/ac), or wood fiber (if hydroseeded) 2,300 kg/ha (2,000 lb/ac)

b) Additional Erosion Control Measures. In addition to the required best management practices, the following erosion control measures shall be implemented as part of the standard erosion control plan when applicable.

- During any clearing, earth moving and/or grading phases of the project, water trucks or sprinkler systems shall be used in sufficient quantities to prevent dust from leaving the site. In addition, the entire area of disturbed soils shall be wetted down during the early morning hours and at the end of each day in such a manner as to create a crust.
- During the construction phase of the project, water trucks or sprinkler systems shall be used to keep all areas of vehicular movement damp enough to prevent dust raised from leaving the site. As a minimum, this will include the wetting down of such areas in the late morning hours and at the close of each day's activities.
- All trucks hauling soil materials to and from the site shall be covered with a tarp to prevent dust from blowing off the truck.

- All alleyways, circulation routes, haul routes, streets and sidewalks shall be kept clean and clear of dirt, dust and debris in a manner acceptable to the City of Santa Barbara's Public Works Department as outlined in their "Procedures for the Control of Runoff into Storm Drains and Watercourses". At a minimum, said areas shall be cleaned at the end of each working day or more often if directed by City personnel. The flushing of dirt or debris to storm drain or sanitary sewer facilities shall not be permitted. Failure to keep these areas clean will result in the issuance of a "Stop Work" order, which will not be released until such time as the area is cleaned in a manner acceptable to the City. Earth moving and grading activities shall be limited to the hours between 7:00 A.M. and 6:00 P.M. or as specified in the approved Erosion Control Plan or the project conditions of approval.
- After the completion of the clearing, grading, or excavation phase, the entire area of disturbed soil shall be treated to prevent wind pick up of the soil. Any one of the following methods may accomplish this:
 - The seeding and or watering of the site until such time as the ground cover has taken root.
 - The spreading of soil binders.
 - The wetting down of the area in such a manner as to create a crust on the surface and the repeated soaking of the area, as necessary, to maintain the crust and prevent soil blowing.
- The contractor or builder shall designate a person or persons to monitor the storm water pollution prevention and dust control programs, and to order increased watering as necessary to prevent the transport of dust off-site, and additional BMPs to prevent storm water pollutants from entering public right-of-way. This person's duty shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such person or persons shall be provided to the City of Santa Barbara Community Development Department and be placed on the plans.

c) Protection Measure Removal

The erosion prevention and sediment control measures shall remain in place and be maintained in good condition until all disturbed soil areas are permanently stabilized by installation and establishment of landscaping, grass, mulching, or are otherwise covered and protected from erosion.

d) Standard Erosion Control Measures Submittal Requirements

The plans sheets for a **Standard Erosion Control Plan** shall include the following information:

- Specific measures to be installed
- Specific locations where measures will be installed.
- Installation details.

6. Detailed Erosion Control Plan Requirements

The Detailed Erosion Control Plan submittal must comply with all of the requirements for the Standard Erosion Control Measures and also include a written narrative and detailed site plan and typical drawings and details.

a) Narrative

Written narrative (to be included with Plan) on letterhead or signed plan sheet of person responsible for Plan preparation shall include:

- Proposed schedule of grading activities and infrastructure milestones in a chronological format, including dates for beginning of phased grading areas and dates that areas will be stabilized. For example, easterly slope rough grading complete, streets graded, storm sewers and inlets installed, paving complete on Street X, creek outfall structure complete, etc.
- Description of potentially affected areas adjacent to site.
- Description of soils, geology, vegetation and nearby creeks.
- Description of critical areas of high erosion potential; unstable slopes.
- Description of erosion control measures on slopes, lots, streets, etc.
- Description of sediment detention basins, including design assumption and calculations.
- Description of emergency erosion and sediment control measures to be implemented for storms within 48 hours.
- Name and 24 hour telephone number of person responsible for erosion and sediment control.

b) Site Plan

The site plan shall include the following information:

- Scale, north arrow and legend.
- Vicinity map.
- Watershed boundaries within project.
- Contours and spot elevations indicating runoff patterns before and after grading.
- Critical areas within or near the project (creeks, wetlands, landslides, steep slopes, etc.).
- Limits of clearing and grading.
- Creek top of bank, delineation of any Creek Buffer Areas and existing vegetation and any special trees/wetlands to be fenced and protected.
- Location and types of temporary and permanent erosion and sediment control measures.
- Site access locations.
- Signature block for plan preparer.
- Additional plans that may be needed to illustrate narrative addressing stages of construction such as street graded-no storm drains; storm system installed; streets paved; etc.

7. BMP Maintenance Requirements.

The permittee shall maintain the facilities and erosion control measures prescribed in the approved *Erosion Control Plan (Standard or Detailed)* so as to continue to be effective throughout the construction and establishment of permanent vegetation phases of the project. If the facilities and techniques approved in the Erosion Control Plans are not effective or sufficient, as determined by a City site inspection, the permittee shall submit a revised Plan within three working days of written notification by the City of unacceptable site erosion conditions. Upon approval of the revised plan by the City, the permittee shall immediately implement the additional facilities and measures included in the revised plan. In cases where significant erosion is likely to occur, the City may require that the applicant install interim control measures prior to submittal of the revised Erosion Control Plan