385 N. Arrowhead Ave, First Floor, San Bernardino, CA 92415 | Phone: 909.387-8311 • Fax: 909.387.3249

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SAN BERNARDINO COUNTY

Land Use Services Department
Building & Safety Division

http://cms.sbcounty.gov/lus/BuildingSafety/PreConstErosionControl.aspx

GUIDELINES FOR EROSION AND SEDIMENT CONTROL PLANS

The purpose of this guide is to aid the contractor or owner in preparation of erosion control plans that comply with the regulations of the County of San Bernardino.

When development occurs, impervious surfaces such as roofs, sidewalks and driveways cause extra rainwater to leave the property. Erosion control is the practice of reducing soil loss due to rainwater runoff. While oftentimes one single project will not seem to have significant impact, the cumulative effect of development may cause significant soil erosion.

The County of San Bernardino adopted erosion control regulations for the following reasons:

1. Maintain water quality
2. Keep roads clear
3. Keep flood control channels clear
4. Retain top soil
5. Save loss of habitat in lakes and streams
6. Reduce downstream property damage
7. Recharge ground water
8. Help maintain native vegetation
9. Minimize flooding danger
10. Protect slopes from mudslides

In designated erosion control areas each development requires that erosion control facilities or devices be constructed and maintained. Erosion control plans or an Erosion Control Report are required to determine specific site requirements. For minor development proposals, the erosion control plan or report is not required to be prepared by a registered professional. A single dwelling or accessory structure on a single lot is normally considered in this category.

No site disturbance should occur until the construction permit is issued. The erosion control inspector will normally include a Pre-construction inspection for native trees and plants and a Flood Hazard inspection as part of the erosion control application. Be sure to obtain the San Bernardino County Guidelines on these subjects as well.

Erosion and sediment control practices should also be in conformance with the “California Stormwater Best Management Practice Handbook”. This handbook is available for viewing at all Building and Safety office locations.

On the site, property and building corners should be staked with address and lot numbers posted to aid in on-site inspections. After the application is accepted, indicate when the site is ready for the erosion control inspector to visit. The erosion control plan or report must be approved prior to permit issuance. Usually, down slope erosion control measures are required to be in place before other construction activities begin.

Erosion Control Standards

Erosion Control Standards are prescriptive requirements in lieu of erosion control plans that may be approved for single-family residential construction sites. The Standards make an assumption that the homeowner will add landscaping features that will aid in erosion control.

The Standards consist of the following minimum requirements:

A 6" deep by 18" wide trench filled with crushed rock, bark or approved equivalent material installed at the drip line of eave overhangs and along the drainage side and ends of impervious surfaces such as driveways and sidewalks. Detail H of this guide shows a cross section of this method.

When the retention area slopes more than 2' vertically, a horizontal barrier shall be installed in 2' vertical increments to increase absorption on sloping sites. Examples of these barriers are shown in cross sections A, B, C, D, & G of this guide.

When approved, acceptable variations may be calculated by multiplying the impervious surface area by 0.0375. For example, draining 1,000 square feet of roof area to a rain gutter with a downspout may be calculated as follows:

$$(1{,}000)(0.0375)=37.5 \text{ cubic feet}$$

Therefore the downspout may empty into a 37.5 cubic foot rock filled trench (2' wide x 3' deep by 6.25' long). A leach line dedicated to this purpose may also be calculated in the same manner.

An earth basin, without rock fill, may take advantage of the increased available volume as follows:

$$\frac{37.5}{3} = 12.5 \text{ cubic foot volume of earth basin}$$

If the Erosion Control Standards are proposed, obtain and complete an "Erosion Control Report" form available at all Building and Safety offices. Show all erosion control features, calculations and devices on the report; however, the complete plan requirements are not necessary unless the site inspection reveals the Standards will not perform satisfactorily.

Erosion Control Plan Requirements

When erosion control plans are required, prepare two (2) sets of plans drawn to scale upon substantial material. Plans shall be of sufficient clarity to indicate the nature and the extent of the work proposed. Show in detail how the project conforms to the erosion control regulations. The plans shall include the following information:

1. General location of the proposed site shown on an index may with street address and lot number.

2. Property lines and contours of the site, including finished contours to be achieved by grading, details of terrain, area drainage, streams and lakes

3. Protected trees should be shown. When possible, keep excavation out of the dripline of trees. Root aeration systems, such as well and tile, should be considered when spoil material is placed or stockpiled within the dripline of a tree.

4. Show all existing drainage structures, including curbs, berms, culverts and road dewatering devices.

5. Proposed construction, including all drainage directions, (i.e. roof design, driveway slope, natural slopes), proposed drainage channels, splash abatement, and other runoff control and erosion control measures, structures and devices. Include cross sections (with section line on the plan) and details of construction showing natural and modified slopes. Include all changes to existing drainage structures and proposed plan for construction and maintenance of runoff and erosion control facilities. Piles of flammable materials (i.e. pine needles) must not be within thirty (30) feet of structures.

6. Show the total lot area, total area of roofs and paving that will become non-permeable (in square feet). For single family residential uses on one lot, the total non-permeable area multiplied by 0.0375 equals the runoff increase in cubic feet per hour. This runoff calculation should be recorded on the plan and the volume shown in retention devices.

7. On sites where percolation tests are performed and all major developments, specific percolation information is required.

8. When spoil materials are to be removed from the site, list the following:

    a. Type of spoil material (i.e.: silts, sands cobbles and boulders; AC paving and concrete blocks, excavated decomposed granite),
    b. Location of disposal area,
    c. Method of processing and disposing of spoil material,
    d. Procedure in disposal area to prevent soil loss to adjacent water courses.

9. Delineation and dimensions of areas to be cleared during development activities (Access and Building Envelope Line). Note: Regional Water Quality Control Board notification and additional requirements apply when more than one (1) acre will be disturbed.

10. Access and parking for construction workers.

11. Materials stockpiles, including provisions to protect stockpile from erosion.

12. Revegetation proposal specifying types of plants for all surface to be exposed during development activities. Include cut and fill slopes, and protection for existing vegetation. Also, include plans for continuing maintenance of ground cover vegetation. When conifers are cut down, the stump shall be treated with granular borax within one (1) hour of cutting. All freshly cut logs used on site shall be treated with an insecticide or the bark removed. Slash shall be treated in a method approved by the Agriculture Commissioner.

13. Construction schedule. Include dates when temporary and permanent erosion control features will be in place; digging of footing trenches; and placing of backfill.

14. Name and address of the owner(s).

15. Assessors parcel number of the property on which the work is to be done.

16. North arrow, scale.

17. Name and location of nearest public road intersection.

18. Name, address, and phone number of person who prepared the plan.

Major Developments

For major development proposal, the erosion control plans shall be prepared by a registered civil engineer, a registered or a certified soil erosion and sediment control specialist. Detailed plans of all surface and subsurface drainage devices, runoff calculations, and other calculations demonstrating adequacy of drainage structures shall be included. A registered professional forester shall review and approve any erosion control plan within a forested area. Inspection by the person preparing the plan and a report of proper installation of control measures is required by the Director.

Major proposal generally include:

a. Grading in excess of on hundred (100) cubic yards.

b. Other projects of a similar nature determined by the Director to cause major land disturbance. Normally any subdivision type development, shopping center or commercial development where more than forty (40%) percent of the lot area is occupied by building and/or paved areas will be considered as a major development.

Erosion and Sediment Control Methods

Vegetative surface protection

Temporary: Rye
Rye Grass

*Permanent: Turf (outside tree outline)
Seeding
Tree, shrubs and vines

Non-vegetative surface protection

Mulching by gravel or crushed stone, wood chips or pine needles
chemical soil binder
Blanket by fiberglass, jute netting or excelsior netting

Parking lots
Streets
Paved channels
Buildings
Soil filtration fabrics

****Runoff Controls**

Diversions	A channel and ridge constructed across sloping land on or near the contour to divert surface runoff.
Bench terraces	Relatively flat areas constructed along the contour on sloping lands.
Detention basins	A basin usually formed by an earthen embankment in a stream channel that serves to regulate runoff and trap sediment. The mechanical removal of trapped sediment is usually necessary.
Outlet channels	Channels designed for the disposal of storm runoff from diversions, bench terraces, sediment detention basins and other structures.

Waterway Stabilization	Drip structures, street and parking lot inlets, piling, jetties, groins, gabions, rock cribs, riprap, concrete, or sod in a design to dissipate energy and reduce the erosive power of flowing water.
Straw, hay bales or sandbag	To form diversion, basins, waterway stabilization, or some combinations of these (for some areas).

* Most permanent methods can be used on a temporary basis, but usually cost more than methods that are commonly temporary.

** May be either temporary or permanent and either within or outside of the construction area.

PLANT MATERIALS SPECIFICATIONS

(Further information is available from Ag Extension Master Gardeners 909/391-7526 or other qualified professionals).

Plant materials to be installed for compliance with the Erosion and Sediment Control Ordinance should exhibit the following characteristics:

1. Climatic suitability (continuous capability of vigorous survival physiologically and mechanically under the climatic variations of the locale).

2. Erosion control effectiveness (rapid growth of structure, above and below ground, to provide effective precipitation breakup, overland flow inhabitation, soil retention, water percolation on the specific site).

3. Low water requirement (strong performance with minimum irrigation demand).

4. Low toxicity (relatively non-poisonous parts requiring no special precautions for safety of human or animal life).

5. Pest-hardiness (absence of unusual susceptibility to any plant pest(s) indigenous or introduced).

6. Freedom from noxious elements (absence of injurious parts or coverings or disagreeable exudants or odors).

7. Cultural adaptability (compatibility with normal maintenance practices and with the specific site use requiring no extraordinary care).

8. Fire resistance (inhibition to fire spread not significantly increasing fuel loadings).

9. Acidic soil tolerance (adaptability to the generally somewhat acid mountain conifer forest soils).

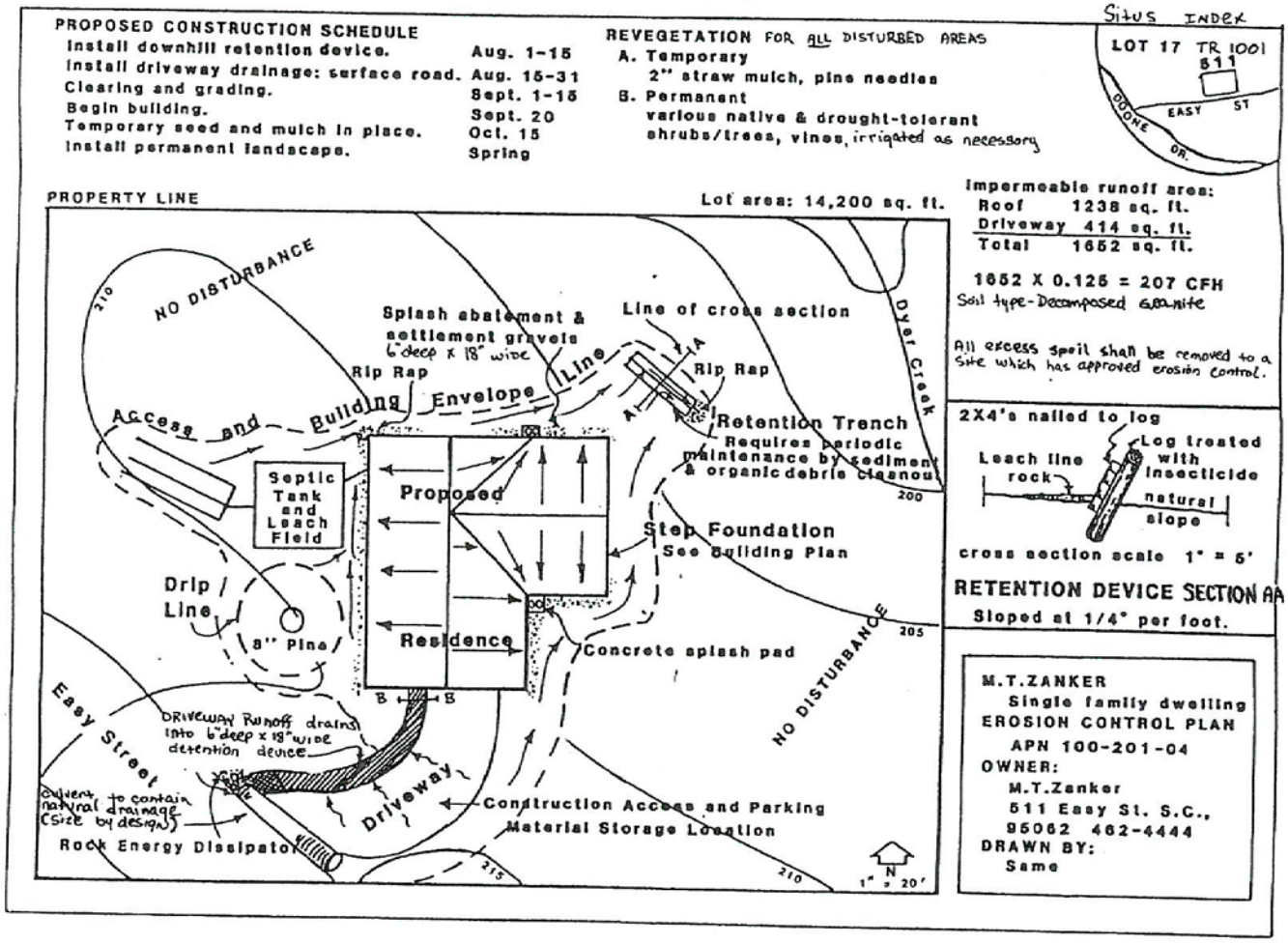
10. Smog resistance (high natural immunity to the effects of airborne pollutants).

11. Freedom from the tendency to aggressively displace native vegetation (i.e. Spanish broom [Spartium Junceum]).

In addition, native plant lists should be used in selecting landscaping vegetation. Permanently irrigated turf should not be planted within the dripline of native trees.

A Typical EROSION,RUNOFF and SEDIMENT CONTROL Plan...

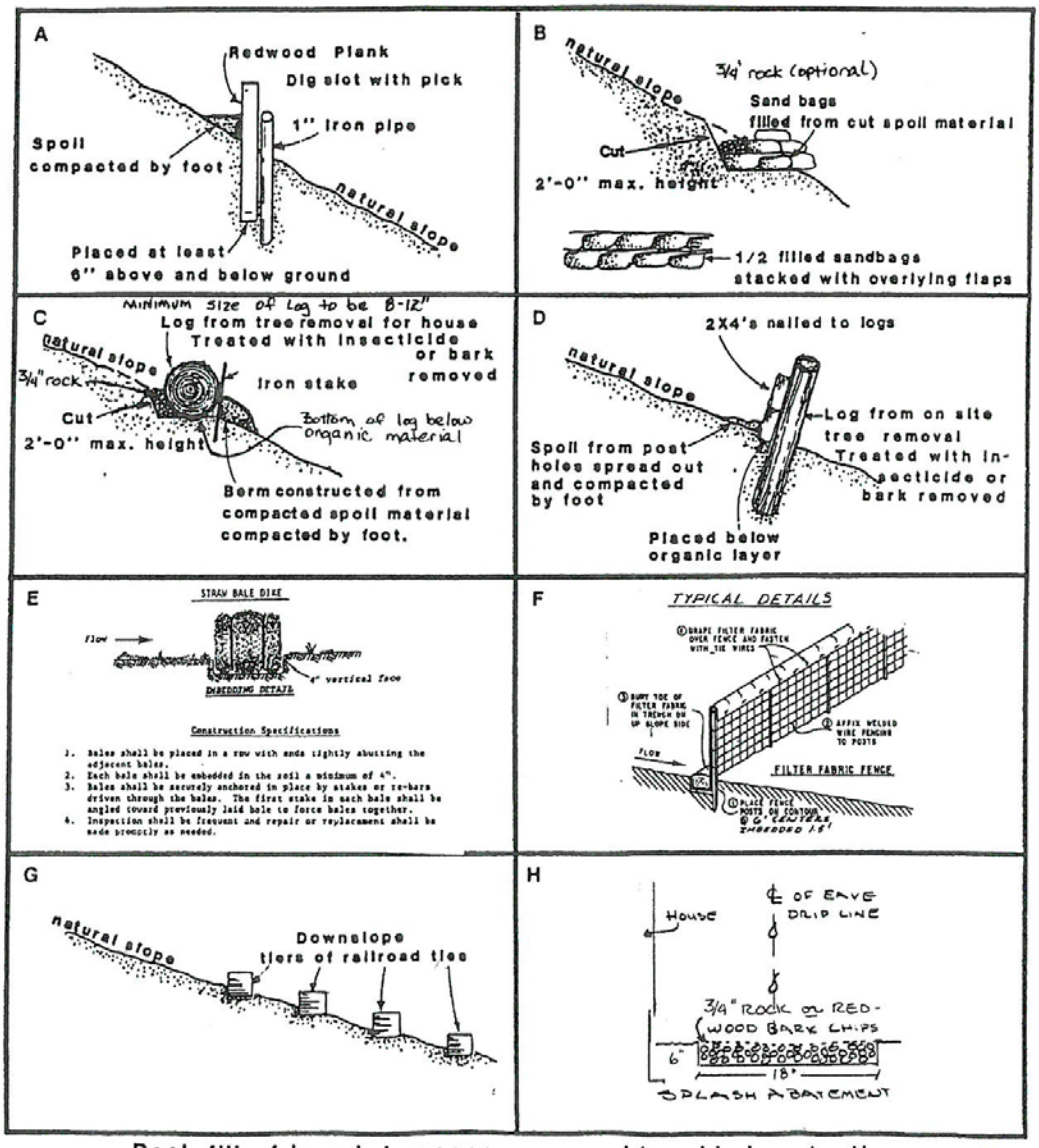
Should be at least 18" X 24" and be submitted in duplicate.



Some Typical Cross Sections of Contour Bench Terraces, Diversions and Retention Trenches

(Equivalent Methods are Encouraged and Acceptable)

Note: Usually sloped at 1/4" per foot downward toward upslope direction of affected natural drainage with riprap at downhill end.



Rock fill of bench terraces can provide added protection.

6/13/05

EROSION AND SEDIMENT CONTROL FEES

Any person filing an application for a permit or plan review to do erosion and sediment control work shall pay a fee at the time of filing according to the following schedule. These fees are in addition to the fees charged for the building and grading or other permits for permanent work as specified elsewhere in this section. **However, no such erosion control fee shall exceed 50% of the total building and grading permit fee.**

When both building and grading is to take place on the same project, the fee charged in accordance with this subsection shall be the larger of the two fees specified below.

(1) Erosion and Sediment Control Permit, and Plan Review Fees. Except for those determined to be minor projects as specified below.

(A) Residential Lot/Unit Fees

NUMBER OF DWELLING UNITS OR LOTS	FEE
1	$368.00
2 - 4	per unit/lot = $ 92.00 (plus cumulative total of $368.00)
5 and Over	per unit/lot = $ 46.00 (plus cumulative total of $552.00)

EROSION AND SEDIMENT CONTROL FEES

(B)	Addition to any residential dwelling units, including accessory structures (garages, pools, retaining walls, etc.)	$138.00
(C)	Small nonresidential and additions (less than 5,000 square feet)	$368.00
(D)	Large nonresidential and additions (5,000 square feet and greater)	$736.00
(E)	Grading up to 100 cubic yards	$138.00
	Grading 101 to 10,000 cubic yards	$368.00
	Grading 10,001 to 100,000 cubic yards	$920.00
	Grading 100,001 and over cubic yards	$1,162.35
(F)	Land clearing or other land disturbing activity without grading or building greater than 1 acre	$368.00

(2) Minor Erosion and Sediment Control Permit and Plan Review Fees:

A minor erosion and sediment control project is any project where the permit expense for the project requiring such an erosion and sediment control permit for plan review is less than $500.00.

Minor Permit or Plan Review Fee $138.00

(3) Erosion Control Variance and Appeal Fees.

(A)	Request for Variance, to be paid at time of filing	$552.00
(B)	The fee for an appeal is: Planning Commission	$1,490.00