



# FOR SLOPE EROSION CONTROL IN URBAN FREEWAYS IN ARID CLIMATES

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Relevant information developed 23 years ago is still in use today. The application has saved millions in maintenance costs and results in aesthetically pleasing, maintainable slopes on urban freeways.

## EXAMINED THE CHARACTER AND EXTENT OF SLOPE DAMAGE TO URBAN FREEWAY IN THE METRO PHOENIX-MESA AREA

- ❧ Reviewed existing knowledge of erosion and soils in the area.
- ❧ Developed a comprehensive listing program predicting erosion potential on freeway slopes incorporating both raindrops impact and overland flow stresses on slope surfaces.
- ❧ Effectiveness of vegetation to retard erosion was evaluated and found to be marginally effective in arid climates and light canopy coverage.
- ❧ Erosion resistance of slope soils in part is a function of maximum particle size and amount of particle larger than .18 inches.

## A SURFACE PROTECTION BEST MANAGEMENT PRACTICE WAS DEVELOPED USING:

» Particle size » Slope » Resistance to weathering

The rock covered surface acts as an intensely armored surface protecting underlying soils on slopes as steep as 26 degrees.

Maximum particle size to 1½ inches with a shape factor larger than 2 and gradations as below provide satisfactory protection. Current practice uses 1¼ inch rock.

## GRADATION REQUIREMENTS FOR THE 1 ¼ INCH GRANITE MULCH ARE AS FOLLOWS:

Passing Sieve	Percent
1¼ inch	100
¾ inch	60-80
½ inch	45-65
No. 40	5-20

The armoring only occurs when the material contains all of the gradations including the No. 40 size particles.

