



Storm Proofed Roads



Roads are storm-proofed when runoff and sediment delivery to streams is strictly minimized. This is accomplished by dispersing road surface drainage, protecting stream crossings from failure or diversion, and preventing failure of unstable cutbanks or fillslopes from delivering sediment to a stream.

For more information related to road storm proofing visit: NapaWatersheds.org/Roads

Stream Crossings

- ✓ Ensure that culvert inlet, outlet, and bottom are open and in sound condition.
- ✓ Ensure that culverted stream crossings have no diversion potential (see critical dips Typical drawing below).
- ✓ Ensure that culverted stream crossing inlets have low plug potential (see single-post trash rack Typical drawing below).

Cutbanks and Fillslopes

- ✓ Monitor cutbanks and fillslopes for slumping, rock falls, or other landsliding.
- ✓ Excavated soil should be placed in locations where it will not enter a stream.
- ✓ Excavated soils should be placed where it will not cause further slope failures or landslides.
- ✓ Unstable soils may be too saturated to excavate during the rainy season so treatments may have to wait until dryer time of year.
- ✓ Monitor access and carry a chainsaw - fire-damaged trees may fall on road surface throughout winter.

Road Surface Drainage

- ✓ All road surfaces can be storm proofed by implementing a variety of surface drainage techniques including construction of rolling dips and /or waterbars, and berm removal (see Typical drawings below).
- ✓ Ditches and cutbanks can be storm proofed by frequently draining them with rolling dips or waterbars &/or ditch relief culverts. Ensure that these features do not discharge to streams or onto active (or potentially active) landslide areas.
- ✓ Monitor outflow from rolling dips, waterbars, and ditch relief culverts during the rainy season.
- ✓ Watch for gully development along the outside edge of the road throughout the rainy season. If gullies do develop then dewater them to best extent possible.

