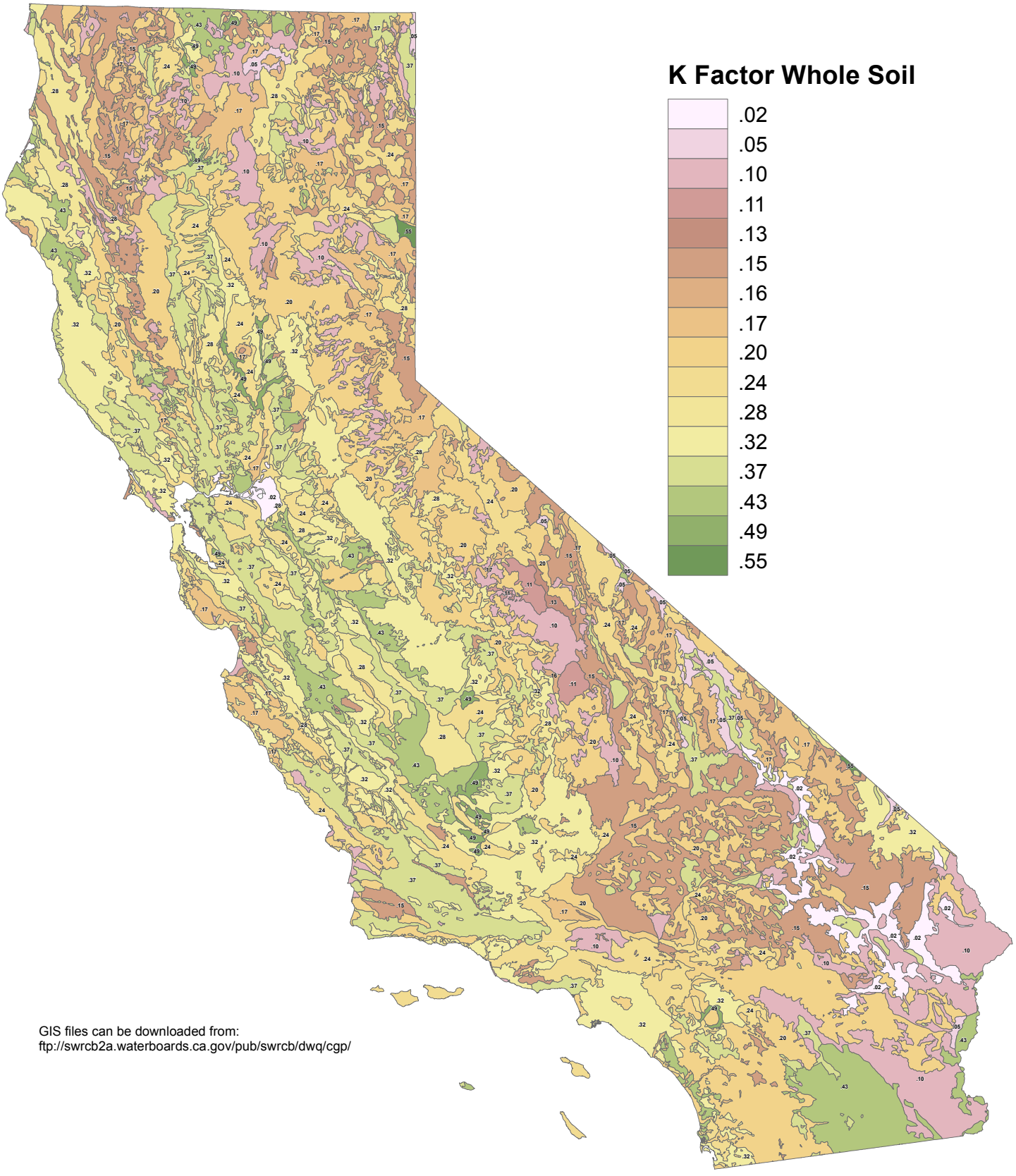
RUSLE K Values



GIS files can be downloaded from:
ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/

Water Boards

Data Source: *Natural Resources Conservation Service, U.S. Dept. of Agriculture and State Water Resources Control Board*

RUSLE K Factor Watershed Map Methodology

Objective:
To provide guidance for determining the Revised Universal Soil Loss Equation (RUSLE) K Factor with regards to the Construction General Permit. The K factor represents the combination of detachability of the soil, runoff potential of the soil, and the transportability of the sediment eroded from the soil. Using the methodology, a discharger will be able to identify the appropriate, areally-weighted K Factor value for a construction project.

Background:
The soil-erodibility factor (K) represents: (1) the susceptibility of soil or surface material to erosion, (2) the transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff, although these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high runoff rates and large runoff volumes. For more information on the Construction General Permit and references for the RUSLE, please visit:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

Data and Method:
Soil data was acquired from the Natural Resources Conservation Service (NRCS) and was used in conjunction with an NRCS Microsoft Access template and the NRCS Soil Data Viewer. The Microsoft Access template was used in conjunction with the data received from the Soil Data Mart to produce the background data needed to create the K Factor values (for whole soil) in ArcMap.

- The California subset of the U.S. General Soils Map dataset can be downloaded from: http://soildatamart.nrcs.usda.gov/Default.aspx
- The Microsoft Access template needed to produce K Factor values can be downloaded from: http://soildatamart.nrcs.usda.gov/Templates.aspx
- The GIS extension “Soil Data Viewer” used in creating this data can be downloaded from: http://soils.usda.gov/sdv/download.html

For a complete list of NRCS soil survey data and methods please visit:
- http://soildatamart.nrcs.usda.gov/SSURGOMetadata.aspx

Contact:
Please contact the Storm Water help desk with any questions or comments:
- Phone: 916-341-5537
- Email: stormwater@waterboards.ca.gov

Geographic Information System (GIS) Data can be accessed at:
ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/