

ATTACHMENT 1  
Water Availability  
June 22, 2010

To demonstrate the reasonable likelihood that unappropriated water is available for diversion, streamflow during the requested diversion season (November 1 to March 31) is estimated at each POD by using the following formula:

$$Q=CIA$$

Where Q = Average seasonal runoff (AF) @ POD

C = Runoff coefficient

I = Average seasonal precipitation (ft.)

A = Watershed area (ac.) above POD

Runoff Coefficient is calculated using the Caltrans Highway Design criteria as follows:

POD#1

Relief: Watershed area = 9 ac. of rolling hills (.18) and 45.5 ac. of steep, rugged terrain (.30). Weighted relief factor = .28

Soil infiltration: Soils are Henneke gravelly loam with a low infiltration capacity. Soil factor = .08

Vegetal Cover: 9 ac. of grazed grassland with poor cover (.15) and 45.5 ac. of woodland with areas of grazed grassland (.07). Weighted cover factor = .08

Surface: The watershed consists of one steep, shallow drainage. Surface factor = .11

$$C = 0.28 + 0.08 + 0.08 + 0.11 = 0.55$$

POD#2

Relief: The watershed above POD #2 is approximately 17.5 acres of rolling hills. Relief factor = .18

Soil infiltration: Soils are largely Henneke gravelly loam with a low infiltration capacity. Soil factor = .08

Vegetal Cover: The majority of the watershed is grazed grassland with a few scattered trees. Cover factor = .11

Surface: The watershed consists of small, moderately sloped drainages. Surface factor = .10

$$C = 0.18 + 0.08 + 0.11 + 0.10 = 0.47$$

Average seasonal rainfall as recorded at the NCDC St. Helena station (#047646) is as follows:

November = 4.0 in.

December = 6.5 in.

January = 7.9 in.

February = 5.8 in.

March = 4.8 in.

29.0 in. = 2.42 ft.

Average Seasonal Runoff @ POD #1:  $Q = .55(2.42)(54.5) = 72.5$  AFA

Average Seasonal Runoff @ POD #2:  $Q = .47(2.42)(17.5) = 19.9$  AFA

This application seeks diversion of 3 AF at POD #1 and 5 AF at POD #2. It is reasonable to expect that water is available.