

	A	B	C
1	Sediment Risk Factor Worksheet		Entry
2	A) R Factor		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	R Factor Value		45.32
6	B) K Factor (weighted average, by area, for all site soils)		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) 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 even though 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 rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	K Factor Value		0.28
10	C) LS Factor (weighted average, by area, for all slopes)		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	LS Factor Value		0.19
14			
15	Watershed Erosion Estimate (=RxKxLS) in tons/acre		2.411024
16	Site Sediment Risk Factor		Low
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	yes/no	
<p>A.1. Does the disturbed area discharge (either directly or indirectly) to a 303(d)-listed waterbody impaired by sediment? For help with impaired waterbodies please check the attached worksheet or visit the link below: 2006 Approved Sediment-impaired WBs Worksheet http://www.waterboards.ca.gov/water_issues/programs/tmdl/303dists2006_epa.shtml</p> <p style="text-align: center;"><u>OR</u></p>	No	Low
<p>A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? http://www.ice.ucdavis.edu/geowbs/asp/wbquse.asp</p>		

Combined Risk Level Matrix

		<u>Sediment Risk</u>		
		Low	Medium	High
<u>Receiving Water Risk</u>	Low	Level 1	Level 2	
	High	Level 2		Level 3

Project Sediment Risk: **Low**

Project RW Risk: **Low**

Project Combined Risk: **Level 1**

Risk Determination – R Factor Manual Calculation Document
For
DR Horton
Wildwood Construction Project
Manteca, CA

Reason: Project start date is July 24, 2013 and at the time of SWPPP preparation the EPA Erosivity Calculator was not available. Below is the note that was posted on the EPA Website:

EPA's online rainfall erosivity factor calculator is currently under construction. In the meantime, please use the [Construction Rainfall Erosivity Waiver Fact Sheet \(PDF\)](#) (13 pp, 1.81MB) to assist in determining the R Factor for a particular small construction site. [Appendix C \(PDF\)](#) (4 pp, 99K) of the 2012 CGP also provides information on small construction waivers.

Per the website's direction, as well as the State Water Board the R Factor for the project was calculated using the Construction Rainfall Erosivity Waiver Fact Sheet. The calculation is outlined below:

Manual Calculation Per the Fact Sheet

Steps 1-2: Estimated Construction Start and End Date

Project Start Date: July 24, 2013; nearest value is July 29 (50.7)

Project End Date: November 30, 2015; nearest value is November 26 (77.3)

Estimated Duration: ~28 Months

Step 3: Erosivity Index (EI) Zone based on Geographic Location

Project Location: Manteca, CA

Project Location within Figure 1: Erosivity Index Zone Map 23

Step 4: Erosivity Index (EI) Table

Erosivity Index (EI) Table based on project duration

1 year value is 100. Construction Schedule

$EI = 100 (\text{year 1}) + 100 (\text{year 2}) + (77.3-50.7) = 226.6$ or 226.6%

Step 5: Isoerodent Map for Project Location

Nearest Value for Project Location is 20.

Step 6: R Factor Calculation

Multiply percent value from Step 4 by the Isoerodent Map in Step 5

$$R = 20 \times 226.6\% = 20 \times 2.266 = 45.32$$

Project's R Factor = 45.32

RUSLE Equation for Project Risk Determination

$$A = 60.94 \times 0.28 \text{ (SMARTS K)} \times 0.19 \text{ (SMARTS LS)} = 2.411024 \text{ tons/acre/year}$$

Project's Sediment Risk = Low

Combined Risk Determination

Sediment Risk = Low

Receiving Water Risk = Low

Project Risk Level = Traditional Level 1

Combined Risk Level Matrix				
		<u>Sediment Risk</u>		
		Low	Medium	High
<u>Receiving Water Risk</u>	Low	Level 1	Level 2	
	High	Level 2		Level 3
Project Sediment Risk:		Low		
Project RW Risk:		Low		
Project Combined Risk:		Level 1		