

# Appendix K Hydrology and Water Quality

## LA RIVER PATH



Metro<sup>®</sup>

	A	B	C
1	<b>Sediment Risk Factor Worksheet</b>		<b>Entry</b>
2	<b>A) R Factor</b>		
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	<a href="http://www.epa.gov/waterdata/rainfall-erosivity-factor-calculator">http://www.epa.gov/waterdata/rainfall-erosivity-factor-calculator</a>		
5	<b>R Factor Value</b>		168.3
6	<b>B) K Factor (weighted average, by area, for all site soils)</b>		
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	<a href="#">Site-specific K factor guidance</a>		
9	<b>K Factor Value</b>		0.32
10	<b>C) LS Factor (weighted average, by area, for all slopes)</b>		
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	<a href="#">LS Table</a>		
13	<b>LS Factor Value</b>		1.4
14			
15	<b>Watershed Erosion Estimate (=RxKxLS) in tons/acre</b>		75.40
16	<b>Site Sediment Risk Factor</b>		<b>High</b>
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
<b>A. Watershed Characteristics</b>	yes/no	
A.1. Does the disturbed area discharge (either directly or indirectly) to a <b>303(d)-listed waterbody impaired by sediment</b> (For help with impaired waterbodies please visit the link below) or has a <b>USEPA approved TMDL implementation plan for sediment</b> ?: <a href="http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml">http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml</a> <p style="text-align: center;"><b>OR</b></p>	<b>NO</b>	<b>Low</b>
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) <a href="http://www.waterboards.ca.gov/waterboards_map.shtml">http://www.waterboards.ca.gov/waterboards_map.shtml</a>		

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

Project Sediment Risk: **High**  
 Project RW Risk: **Low**  
 Project Combined Risk: **Level 2**

# Rainfall Erosivity Factor Calculator for Small Construction Sites

EPA's stormwater regulations allow NPDES permitting authorities to waive NPDES permitting requirements for stormwater discharges from small construction sites if:

- the construction site disturbs less than five acres, and
- the rainfall erosivity factor ("R" in the revised universal soil loss equation, or RUSLE) value is less than five during the period of construction activity.

If your small construction project is located in an area where EPA is the permitting authority and your R factor is less than five, you qualify for a low erosivity waiver (LEW) from NPDES stormwater permitting. If your small construction project does not qualify for a waiver, then NPDES stormwater permit coverage is required. Follow the steps below to calculate your R-Factor.

LEW certifications are submitted through the NPDES eReporting Tool or "CGP-NeT". Several states that are authorized to implement the NPDES permitting program also accept LEWs. Check with your state NPDES permitting authority for more information.

- [Submit your LEW through EPA's eReporting Tool](#)
- [List of states, Indian country, and territories where EPA is the permitting authority](#)
- [Construction Rainfall Erosivity Waiver Fact Sheet](#)
- [Appendix C of the 2017 CGP – Small Construction Waivers and Instructions](#)

The R-factor calculation can also be integrated directly into custom applications using the [R-Factor web service](#).

For questions or comments, email EPA's CGP staff at [cgp@epa.gov](mailto:cgp@epa.gov).

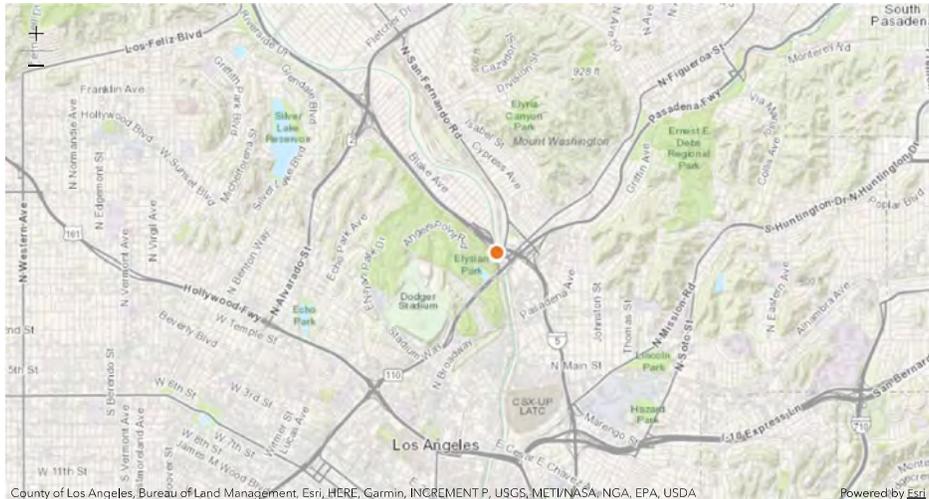
- Select the estimated start and end dates of construction by clicking the boxes and using the dropdown calendar.

The period of construction activity begins at initial earth disturbance and ends with final stabilization.

**Start Date:**  **End Date:**

- Locate your small construction project using the search box below or by clicking on the map.

**Location:**  **Search**



- Click the "Calculate R Factor" button below to calculate an R Factor for your small construction project.

**Calculate R Factor**

## Facility Information

<b>Start Date:</b> 07/01/2024	<b>Latitude:</b> 34.0821
<b>End Date:</b> 06/30/2025	<b>Longitude:</b> -118.2276

### Calculation Results

Rainfall erosivity factor (R Factor) = **56.1**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

**You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage.** If you are located in an [area where EPA is the permitting authority](#), you must submit a Notice of Intent (NOI) through the [NPDES eReporting Tool \(NeT\)](#). Otherwise, you must seek coverage under your state's CGP.

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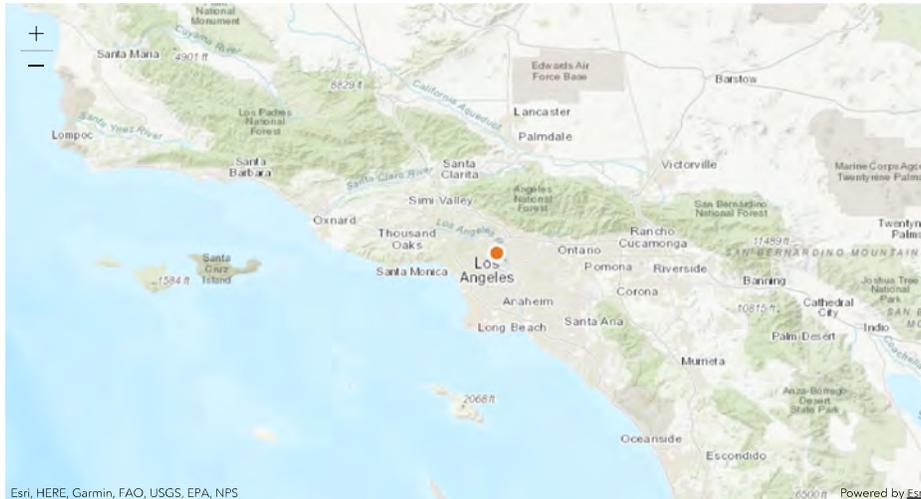
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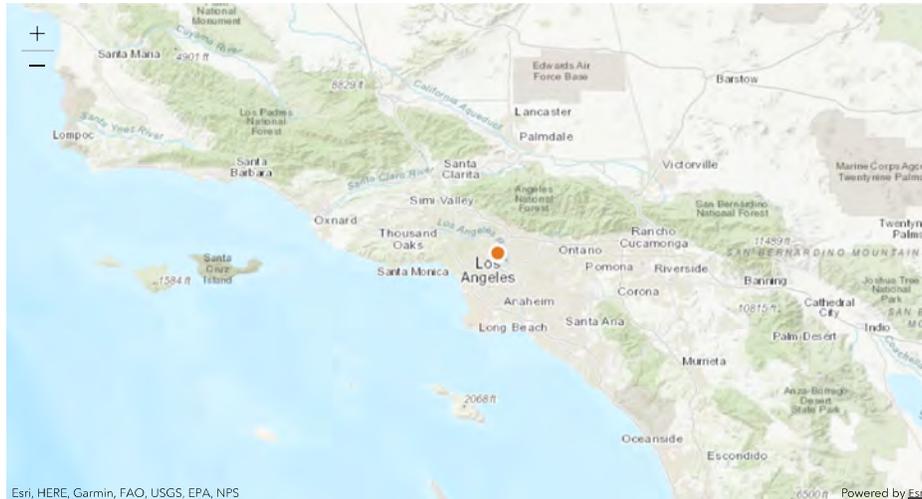
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## Rainfall Erosivity Factor R

2/3/2021

<b>Construction Start (per schedule)</b>	7/1/2024
<b>Construction End (per schedule)</b>	6/30/2027
Total Construction Time (Months)	36
Total Construction Time (Years)	3

<https://lew.epa.gov/>

On November 2020, Erosivity Calculator was revised to only calculate an R factor for up to one year of Construction.

For projects spanning multiple years, repeat the R factor calculation for each additional year (or portion of a year) that construction activities are planned to occur. Then add all output values for each year to determine the Overall R Factor.

Year	Start	End	R Factor
Year 1	7/1/2024	6/30/2025	56.1
Year 2	7/1/2025	6/30/2026	56.1
Year 3	7/1/2026	6/30/2027	56.1
<b>Overall R Factor</b>			<b>168.3</b>

# K-Factor

0.24

0.24

0.24

Los Angeles Los Angeles

Long Beach Fwy

0.32

0.32

East Los Angeles

Whittier Blvd



Santa Ana Fwy

0.32



# LS-Factor

2

2.91

3.04

Los Angeles Los Angeles

0.16

1.4

East Los Angeles

0.16



Long Beach Fwy

Whittier Blvd

Santa Ana Fwy



3 mi