

State Water Board's Post-Construction Stormwater Calculator

Instructions for El Centro

Important: This workbook must be completed for each Drainage Management Area (DMA) in the project site. For example, if your project has four DMAs, you will need to complete this workbook four times. The following instructions are separated for each worksheet in the workbook.

Volume Calculator. Applies to all project DMAs. The steps are labeled on the worksheet.

Project Information. Include the project name, Waste Discharge Identification (WDID) if the project is subject to State Construction General Permit, the date, and the DMA. Please be sure that the DMA ID matches exactly with what is shown on the map.

Step 1a) The 85th percentile storm event for El Centro is 0.41 inches.

Step b) El Centro is located in Imperial County. Imperial should be selected.

Step 1c) El Centro 2 SSW should be selected.

Step 2) Please select the soil type at the project site (A, B, C, or D). This can be found using USDA NRCS maps or a site geotechnical investigation report.

Step 3) Select the most appropriate option that describes the existing land at the project site that has not been developed. Many new development projects in El Centro will use natural desert for this selection. Redevelopment projects must take into account any agricultural land or landscaping onsite.

Step 4) Select the most appropriate option that describes the proposed land at the project site that will not be developed. Projects that propose typical Southern California landscaping that requires irrigation (i.e. palm trees and lawns) for most of the pervious areas in the developed condition will select the option 'A mix of lawn, grass, pasture and tress covering more than 75% of the open space'. Drought tolerant landscaping that requires less frequent irrigation can be considered 'A mix of lawn, grass, pasture and tress covering less than 50% of the open space. If the remaining pervious area in the proposed condition is to be kept as-is (no soil amendments, non-native plants, or irrigation), the selection 'Natural Desert Landscape' is appropriate for most new development projects in El Centro.

Step 5) Enter the total project area.

Step 6) Enter the DMA area for the DMA that is being analyzed.

Step 7) Enter the impervious area in the existing and proposed conditions for the DMA (NOT the project area). Please separate rooftop areas from other impervious areas like streets, sidewalks, parking lots, courtyards, etc. within the DMA.

Step 8) Do not fill this section out. It will be filled out automatically later on based on information in other sections.

Step 9) Do not fill this section out. It will be filled out automatically later on based on information in other sections.

Porous Pavement. Only applies if porous pavement is proposed in the DMA being analyzed (includes brick without grout, cobbles, reinforced grass pavement, porous gravel pavement, and poured porous concrete and asphalt pavement).

Please enter the footprint of each type of porous pavement option in the proposed condition for the DMA being analyzed. Enter the values in the appropriate blue cells. The value of equivalent areas will be automatically generated.

For brick without grout, cobbles, reinforced grass pavement, and porous gravel pavement, please note that if the base is less than 12 inches, it must be considered separately that if the base is 12 inches or more.

For poured porous concrete and asphalt pavement, four different base depths are addressed separately. The pavement area must be addressed separately if the base is less than 4 inches, between 4 and 8 inches, between 8 and 12 inches, or 12 inches or more.

Tree Planting. Only applies if existing trees are to be protected or new trees are to be planted on the DMA being analyzed.

Enter the number of proposed trees in the DMA being analyzed. Differentiate between evergreen trees (i.e. palms, pines) and deciduous trees (i.e. Crape Myrtle). Enter the values in the appropriate blue cells. The value for area credit will be automatically generated.

For each existing tree that is to be protected in place in the DMA being analyzed, measure and record the thickness (diameter) of the trunk of the tree 4.5 feet above the grounds surface.

Measure the tree canopy extent (the outermost leaves) and calculate the square feet under the canopy as accurately as possible. Enter the values into the appropriate cells.

Provide a detailed explanation of how the trees will be maintained. Include information on who is responsible for maintenance, the irrigation demand, the type of irrigation system that will be in place in the proposed condition, and guidelines for pest control and vegetation management (pruning).

Downspout Disconnection. Only applies if proposed downspout disconnections are in the DMA being analyzed. A downspout disconnection is when the downspout fully directs the rooftop runoff to a landscaped area to promote infiltration.

Make a selection (Yes or No) for the four questions. Required information to answer these questions includes measurements at the downspout(s) in the DMA, a grading plan of the existing and/or proposed rooftop surface(s) in the DMA, and the runoff volume(s) from the downspout(s).

If there is existing rooftop in the DMA being analyzed, enter the percentage of rooftop that drains to a disconnected downspout. Enter the value in the appropriate blue cell.

If there is proposed rooftop in the DMA being analyzed, enter the percentage of rooftop that drains to a disconnected downspout. Enter the value in the appropriate blue cell.

Impervious Area Disconnection. Only applies if all flow path lengths in the proposed condition in the DMA are less than 75 feet.

Make a selection (Yes or No) for the three questions.

A flow path of 75 feet or more can be intercepted by a French drain, bioretention area, gravel trench, or equivalent to break the flow path into multiple segments that are all less than 75 feet to meet this criterion. If this criterion is met, select 'Yes' for the first question.

If the impervious area in the DMA is less than 5,000 square feet, select 'Yes' for the second question.

Enter the percentage of the existing and proposed disconnected impervious area in the appropriate blue cells.

GreenRoofs. Only applies if the DMA being analyzed includes proposed green roofs.

Make a selection (Yes or No) for the three questions.

For the existing and proposed conditions, enter the percentage of rooftop in the DMA that is green roof. Enter the values in the appropriate blue cells.

Stream Buffer. Only applies if the DMA being analyzed produces runoff that is to be conveyed to a flood-prone area in the proposed condition and meets the criteria in the four questions.

Make a selection (Yes or No) for the four questions.

For the existing and proposed conditions, subtract the impervious area that has been addressed using the Downspout and/or Impervious Area Disconnection credits from the impervious surface area within the DMA that drains to a stream buffer. Add these values to the appropriate blue cells.

Vegetated Swale. Only applies if the DMA being analyzed has proposed vegetated swales designed in accordance with Treatment Control BMP 30 (TC-30 - Vegetated Swale) from the California Stormwater BMP Handbook, New Development and Redevelopment.

Make a selection (Yes or No) for the two questions.

For the existing and proposed conditions, subtract the impervious area that has been addressed using the Downspout and/or Impervious Area Disconnection credits from the impervious surface area within the DMA that drains to a vegetated swale. Add these values to the appropriate blue cells.

Rain Barrels & Cisterns. Only applies if the DMA being analyzed includes a rain barrel or cistern in the proposed condition.

Enter the total number of rain barrels/cisterns in the first blue cell. Enter the average capacity of the rain barrels/cisterns in the second blue cell. The third value (capacity) will be automatically generated. If there are two or more units that have very different capacities (it is hard to determine an average capacity), you can use this worksheet for each unit, and the sum the capacities to get the whole capacity for the DMA. The third value will be automatically generated.

Soil Quality. Applies to DMAs with proposed landscaping.

The bulk densities of the soils used for landscaping within the DMA being analyzed must be known. Compare the bulk densities of the soils with the values provided in Table 1 on the worksheet. Make a selection (Yes or No) to the first question.

Answer the second or third questions based on the available information for the landscaping soils in the DMA.

Answer the fourth and fifth question.

The credit volume should be automatically generated.

Last step: Go back to the 'Volume Calculator' worksheet. Ensure that the value for "Project-Related Volume Increase with Credits (cu ft)" is 0. If it is not zero, additional measures must be implemented to reduce the post-project runoff volume for the DMA. Readjust the necessary worksheets within the workbook and check the value again until it reaches 0. Once the value reads 0, the DMA satisfies the requirements.