

2020/21

Project Description

The San Antonio River Authority (River Authority) Watershed Wise Rebate provides funds for construction of Low Impact Development (LID) Best Management Practices (BMPs) to treat stormwater runoff within Bexar, Wilson, Karnes and Goliad counties. The purpose of this rebate is to promote the use of LID techniques to address stormwater runoff. All BMPs must be designed according to the San Antonio River Basin Low Impact Development Technical Design Guidance Manual, Second Edition May 2019 (SARB LID Technical Design Manual - refer to link below).

Rebate Details

- Rebate limits per project: Minimum \$15,000
- No limit on number of BMPs per project; Limit of one application per project
- Rebate only for construction of BMPs according to SARB LID Technical Design Manual
- BMPs must use design process from SARB LID Technical Design Manual
- Rebate is proportional to runoff volume from 1.5" storm (1.18" for redevelopment)
- Rebate is calculated, based on unit rates (refer to page 3)
- Open to public, private or environmental non-profit projects in Bexar, Wilson, Karnes or Goliad counties
- Private residences and required permitted BMPs are ineligible
- Application must meet requirement for % treated volume (60% of the runoff from all new impervious areas)
- Rebate Agreement signed by landowner required; covers operations and maintenance
- Rebate funds are issued after 2-step verification: Approval in writing of Construction Documents and Project Completion Inspection
- The San Antonio River Authority reserves the right to correct rebate calculation errors if they occur
- Project must be complete by June 30, 2022
- Rebate is payable to landowner only

Application

The application consists of three parts. All three parts must be submitted in order for your application to be complete, and reviewed by River Authority.

1. Watershed Wise Rebate Application (Complete second page of this document)
2. Project Map and Cross-section Details (Refer to next section. All items must be included)
3. [SARA Stormwater BMP Rebate Worksheet](#)

Submit the application, project map, cross-section details and worksheet to SARAREbate@sariverauthority.org starting Monday, February 1, 2021 at 8 AM CST through Friday, February 26, 2021 at 5 PM CST. Include **Watershed Wise Rebate** in subject line.

Project Map and Cross-section Details Checklist

1. Research LID and BMPs (refer to link below)
 - San Antonio River Basin Low Impact Development Technical Design Guidance Manual
<https://www.sariverauthority.org/resources/san-antonio-river-basin-lid-technical-guidance-manual-0>
2. Use the SARB LID Technical Manual to develop an LID-based site plan (refer to pg.14 of manual).
3. Use the SARB LID Technical Manual to select, size and place LID BMPs.
4. Develop a project map including the following:
 - Property boundary and total area (square feet)
 - All impervious areas (eg. parking lot, office building roof, hardscape) label area (square feet) of each
 - Proposed drainage watersheds. Label area (square feet) of each watershed
 - Existing and proposed contours with elevation (feet)
 - Hydrologic Soil Group boundaries and labels - [Instructions](#)
 - Proposed LID BMPs
 - Flowpaths to BMPs
5. Draw a cross-section with dimensions for each volume based BMP in your design to show construction details.
6. Include calculations of target volume and treatment volume for each BMP.

It is the responsibility of the applicant to communicate the BMP design intent, show calculations for target volume and treatment volume and show how BMP design details support the BMP footprint. Only complete designs will be accepted and reviewed.

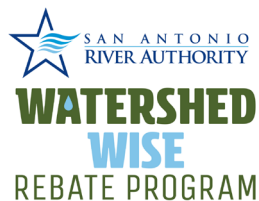
Requirements

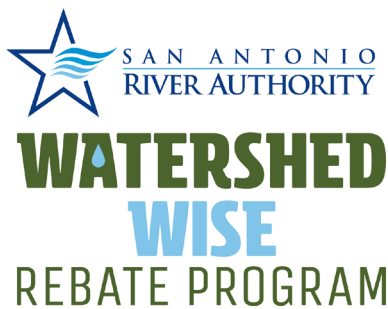
- At least 60% of the runoff from all impervious areas is treated by BMPs.
- Landowner must sign [Rebate Agreement](#).

Project Description

Project Details

Project Name			
Project Address			
City	State	ZIP	County
Primary Contact			
Name		Title	
Phone		Email	
Project Partners			
Developer		Civil Engineer	
Architect		Landscape Architect	
Geotechnical Engineer		Contractor	
Landowner			
Project Timeline			
Start Date		End Date	
Construction Start Date		Construction End Date	
Briefly describe project and stormwater treatment:			





Rebate Calculation Equations - Use worksheet to calculate

Required worksheet available here: [SARA Stormwater BMP Rebate Worksheet](#)

If Treated Volume is less than Target Volume:

$$\text{Rebate} = (\text{Treated Volume} / \text{Target Volume}) \times \text{Unit Volume Rebate} \times \text{Treated Volume}^1 \quad \text{[Equation 1]}$$

- **Treated Volume**¹ is the volume of treated stormwater based on BMP design details.
- **Target Volume** is the volume of stormwater from a 1.5" storm generated by impervious area and flowing to the specific BMP
- $(\text{Treated Volume}) / (\text{Target Volume}) = \text{Percentage of target volume from 1.5" storm}$

If Treated Volume is greater than or equal to Target Volume:

$$\text{Rebate} = \text{Unit Volume Rebate} \times \text{Target Volume}^1 \quad \text{[Equation 2]}$$

¹Treated Volume limited to Target Volume. No rebate for treatment beyond 1.5".

Selected BMP rebates are based on area. See Table 2: Unit Area Rebate

Best Management Practice	Unit Volume Rebate (\$/cu. ft.)
Bioretention or Bioswale	\$13.25
Bioretention or Bioswale w/ liner	\$13.75
Bioretention or Bioswale w/ underdrain	\$17.75
Bioretention or Bioswale w/ liner and underdrain	\$18.25
Permeable Pavement ²	\$18.75
Permeable Pavement w/ underdrain ²	\$25.50
Planter Box	\$17.00
Sand Filter, Infiltrating	\$8.00
Sand Filter, Non-Infiltrating	\$9.25
Cistern ³	\$26.50

² The maximum drainage area to permeable pavement area ratio is 3:1.

³ Cistern can NOT use potable water backup.

Best Management Practice	Unit Area Rebate (\$/sq. ft.)
Green Roof, Extensive > 4" < 6"	\$18.50
Green Roof, Intensive > 6"	\$21.25
Vegetated Swale ⁴	\$2.00
Vegetated Filter Strip ⁴	\$1.50
Riparian Buffer ⁵	\$3.00

⁴ Must be installed as pretreatment or conveyance to other BMP(s), not as standalone BMP. Must be sized according to SARB LID Technical Manual.

⁵ Riparian Buffer minimum width 15 feet from top of bank.

Design Example

A 220 ft. x 45 ft. parking lot is part of a new development shown in Figure 1. There are 16 spaces, each 10 ft x 20 ft. The maximum drainage area to permeable pavement area ratio for this example is 1:1. Therefore a ridge (dashed line) is introduced to make two drainage areas, D1 and D2. The ridge is placed so the area of D1 equals the area of the permeable pavement, 3200 sq. ft. The parking lot is designed so that all stormwater runoff in D1 drains to the 16 permeable parking spaces and stormwater from D2 flows to a drain. The spaces use permeable pavers with a gravel storage layer to store and treat the stormwater. Only stormwater from D1 drains to the permeable area. Figure 2 below shows the design cross-section. The soils at this site drain fast and an underdrain is not required.

Total impervious area = 45 ft. x 220 ft. = 9,000 sq. ft.

Target volume = (drainage area D1 + area of pavers) x target depth of rainfall

Target volume = 6,400 sq. ft. x 0.125 ft. (1.5") = 800 cu. ft.

Depth of gravel drainage layer is set at 0.5'. Note: this does not allow for enough void space to store the entire target volume, therefore the rebate is only a fraction of possible rebate.

Treated volume = amount of storage in permeable pavement

Treated volume = (depth of gravel x porosity of gravel) x area of pavers

Treated volume = (0.5 ft. x 0.4 (40% void space) x 16 spaces x 10 ft. x 20 ft.

Treated volume = 0.2 ft x 16 x 10 ft. x 20 ft. = 640 cu. ft.

Since the Treated volume < Target volume we use Equation 2 to calculate the rebate:

Rebate = (Treated volume / Target volume) x Unit Volume Rebate x Treated volume

Rebate = (640 cu. ft. / 800 cu. ft.) x \$18.75 / cu. ft. x 640 cu. ft.

Rebate = (0.8) x \$15,000

Rebate = \$12,000 (If the complete target volume was stored in gravel layer, then rebate = \$15,000)

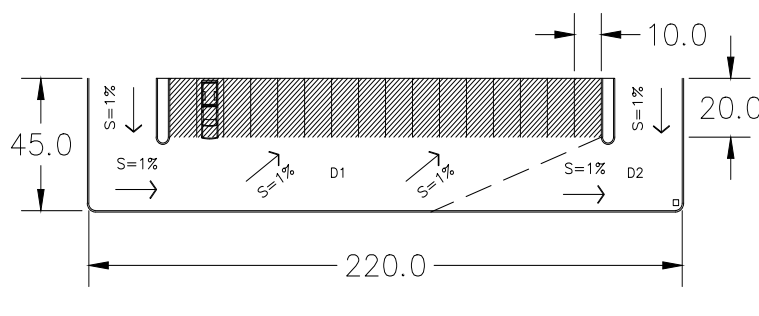


Figure 1 - Parking Area Plan View

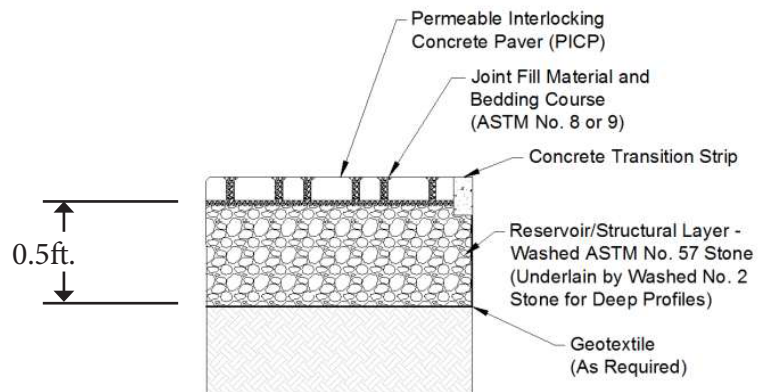


Figure 2 - Permeable Pavement Cross-section