

AGENDA ITEM MEMO

BOARD MEETING DATE: October 5, 2022

TO: Board Members

THROUGH: Jeff Walker, Executive Administrator
Ashley Harden, General Counsel
John T. Dupnik, P.G., Deputy Executive Administrator,
Water Science and Conservation

FROM: Shae Luther, Program Specialist, Conservation Department
John Sutton, Manager, Conservation Department

SUBJECT: 2022 Texas Rain Catcher Awards

ACTION REQUESTED

Consider approving the 2022 Texas Rain Catcher Awards.

BACKGROUND

Rainwater harvesting is a valuable conservation strategy and drought-resilience tool. Collecting and storing rainwater can reduce the demand on local groundwater and public water supplies by providing an alternative water source for a variety of uses. In the 2022 State Water Plan, three regional water planning groups (Regions J, E, and K) recommend rainwater harvesting as a water management strategy. If implemented, these recommended strategies would produce an estimated 5,000 acre-feet of new water supply by 2070.

The Texas Water Development Board (TWDB) provides information and education to the public on all aspects of rainwater harvesting through our website and printed materials. The Texas Manual on Rainwater Harvesting (3rd edition), a popular guide published by the TWDB, introduces the concept of rainwater harvesting and describes the design of residential and small-scale commercial systems. The TWDB also makes an online rainwater harvesting training available, which is required for permitting staff in certain cities and counties.

The TWDB launched the Texas Rain Catcher Award in 2007 to promote rainwater harvesting, to educate the public about the benefits of rainwater harvesting, and to recognize those businesses, organizations, and individuals dedicated to conserving Texas'

precious water resources. Since the program's inception, the TWDB has bestowed 62 awards and recognized 4 honorable mentions.

The TWDB received a total of eight applications before the June 30th deadline for this year's award cycle. A panel of judges scored applications based on five criteria:

1. Demonstration of how the rainwater harvesting system has helped conserve surface water and/or groundwater through reduced dependency on conventional water supply systems
2. Demonstration of how the rainwater harvesting system has saved money for the owner
3. Originality and innovation as evidenced by the application of new knowledge, new application of existing knowledge, or an innovative mix of existing and new knowledge
4. Demonstration of how the system has benefited the environment (for example, reduced erosion or the threat of flooding) without itself adversely impacting the environment
5. Uniqueness of the system

Each judge scored and ranked the applications on these criteria. These rankings were then combined, and the applications with the highest ranking were selected for awards in each of four categories. For the agricultural category, TWDB judges selected the two highest ranking applications because the projects were very diverse, and agriculture has historically been underrepresented in award applications. Therefore, the judges felt it important to highlight rainwater harvesting in agriculture.

The following awardees are proposed for the 2022 Texas Rain Catcher Awards.

Agricultural

- Bill Nash/Raven Canyon, LLC (Kerr County; Hunt, Texas)
- Pecan Spring Ranch & Red Barn (Menard and McCulloch Counties; Menard, Texas)

Commercial

- Grundfos Headquarters – North America (Waller County; Brookshire, Texas)

Educational

- Reilly Elementary School Green Stormwater Retrofit (Travis County; Austin, Texas)

Governmental

- Prairielands Groundwater Conservation District – Rainwater Harvesting Program (Johnson County; Cleburne, Texas)

RECOMMENDATION

Based on the rankings and recommendations of the judges, the Executive Administrator recommends presenting each of the five identified applicants with a 2022 Texas Rain Catcher Award.

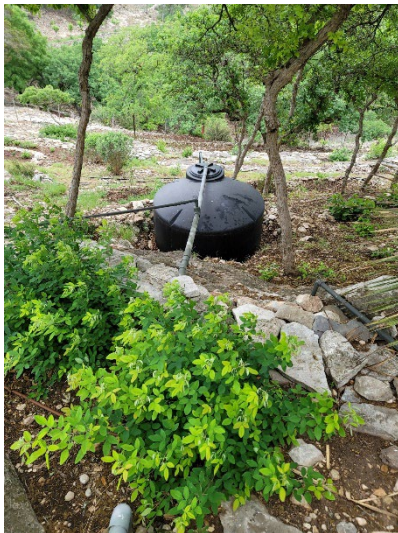
Attachment: Project Descriptions - Recommended 2022 Rain Catcher Awards

Project Descriptions - Recommended 2022 Rain Catcher Awards

Agricultural: Bill Nash/Raven Canyon, LLC (Kerr County; Hunt, Texas)

Raven Canyon uses rainwater harvesting in various forms to evenly distribute water to their unique orchards and gardens year-round. The orchards include 150 fruit trees of various types grown on terraces in a sheltered canyon. The terraces are two to three feet deep and well-draining, thereby requiring a steady supply of water. By collecting excess rainfall, Raven Canyon can store and redistribute water over a longer period using 5,000 feet of drip lines. This approach not only provides better quality water for better fruit production but also saves money by avoiding the cost of procuring water from other sources. Moreover, rainwater harvesting along with earth works, which includes the dirt terraces and rock walls, has allowed extensive habitat restoration within the canyon.

The entire canyon is managed for rainwater collection with the ability to store more than 27,000 gallons of water. The system includes three pressurized, UV-filtered systems of 1,650, 3,000, and 5,500 gallons; a 10,000-gallon concrete reservoir (pool); three 2,500-gallon accessory storage tanks; and nine rock dams and two stock tanks located at the bottom of the canyon. Habitat restoration through earth works has changed the water and mineral cycles of Raven Canyon and allowed more effective absorption and filtration, while rainwater harvesting has provided a consistent water supply throughout the year. These two combined efforts have made Raven Canyon a more productive habitat.



Agricultural: Pecan Spring Ranch & Red Barn (Menard and McCulloch Counties; Menard Texas)

The rainwater harvesting system at Pecan Spring Ranch makes use of history to supply water to their livestock, gardens, and area wildlife. The ranch has transformed their Red Barn, a Dutch-shaped 80-foot by 100-foot barn built around 1898, into the catchment surface for their system by retrofitting it with metal roofing and 12-inch stainless steel box gutters on each side. Collecting rainwater has saved them money by reducing the need to use and maintain the existing water well powered by an electrical submersible pump, which also reduces reliance on local groundwater, and it has eliminated the need and cost of drilling a new well.

Pecan Spring Ranch’s rainwater collection system consists of three different storage areas: a 25,000-gallon covered rock tank, a 1,000-gallon stainless steel tank, and a 2,000-gallon clay-lined surface water pond, for a combined storage total of 28,000 gallons. Rainwater fills the tanks first before overflow is piped underground to the pond, which also collects surface runoff. The Red Barn, used for feed storage and as a work area, now serves another purpose in its history: a major rainwater collection tool that benefits the ranch’s plants and animals.



Commercial: Grundfos Headquarters – North America (Waller County; Brookshire, Texas)

Grundfos Headquarters' rainwater harvesting system has reduced potable water consumption by just over 86 percent annually, and the entire project has received Leadership in Energy and Environmental Design (LEED) platinum certification and exemplary performance for water conservation. The water is used for cooling tower makeup, all flush fixtures, the courtyard water fountain, and pumps and equipment used in a flexible exhibition area. The system, in conjunction with detention ponds, rain gardens, infiltration drainage swales/basins, and permeable pavement is anticipated to have the capacity to store the 95th percentile rainfall generated within the project site's boundaries. This low-impact development using integrated management practices allows for full development of the property while maintaining pre-development hydrologic functions.

The project harvests and treats rainwater on site, collecting from two buildings and the courtyard area of the main office building. The collection area totals 31,730 square-feet. Water is stored in two 50,000-gallon underground storage tanks before being distributed to the utility building where it is processed through the Grundfos AQ-Pure water treatment system, the first of its kind in the United States. The treatment system ensures adequate quality of the water while minimizing corrosion. Based on the capture area and annual average rainfall, the project team anticipates the system will collect approximately 873,183 gallons of rainwater annually.



Educational: Reilly Elementary School Green Stormwater Retrofit (Travis County; Austin, Texas)

The Reilly Elementary School project is part of a larger outreach project, the Rain Catcher Pilot Program, developed and funded by the City of Austin. The Reilly project uses passively draining cisterns designed to capture and store rainwater allowing it to infiltrate back into the ground instead of flowing directly into streams and adding to poor water quality, erosion, and minor flooding. Additionally, some system components are plumbed to watering spigots and a chicken coop watering bowl with the option to use auxiliary outputs for whatever needs arise. The project further demonstrates to students and the public how a combination of rainwater harvesting and rain gardens can be used as an auxiliary water source to beautify the landscape, reduce common erosion problems, and provide continued learning opportunities.

The project uses 12 cisterns of various sizes and materials, along with 5 rain gardens, to capture rainwater from 76,627 square feet of rooftops and parking lots. The system reduces runoff from the site by an estimated 621,785 gallons per year, with much of it infiltrating back into the ground. Cisterns range in size from 500 to 2,500 gallons and include three different types of subsurface irrigation methods fit to a variety of conditions and needs. The rain gardens range in volume from 600 to 1,200 cubic feet. With the help of educational signage, this site allows people to see, touch, and evaluate the different practices and approaches that accomplish the goals of green infrastructure and rainwater harvesting.



Rain garden in bloom at Reilly Elementary School



Governmental: Prairielands Groundwater Conservation District Rainwater Harvesting Program (Johnson County; Cleburne, Texas)

The Prairieland Groundwater Conservation District (District) offsets the demands and potential impacts of their new office facility on the environment and water resources by using the rooftop footprint to capture rainwater. They further minimized impact on the environment by installing two metal cisterns with only a six-foot diameter, along with a rain garden and native plant beds. To accommodate the rain garden area, a large portion of turfgrass was removed. The area irrigated by the rainwater harvesting system has provided food and habitat for a variety of bees, butterflies, and hummingbirds. Additionally, the District promotes rainwater harvesting with a robust education program to correspond with the on-site utilization. The District's Water Education Trailer (WET) includes a rainwater harvesting model with a rainfall simulator, water collection calculator, and diorama of a traditional residential rainwater harvesting system. Since 2015, approximately 8,000 people have participated in demonstrations of the rainwater model within the WET.

The District's rainwater harvesting system includes a 2,300-gallon and a 2,100-gallon cistern, both collecting approximately 18,700 gallons each year. The kidney-shaped, 29-foot by 12-foot rain garden collects an additional 34,750 gallons a year from downspouts and another 7,900 gallons from direct rainfall. Between the cisterns and rain garden, an average of 80,000 gallons of water is captured over the course of a year. The system has proven useful and cost-effective by providing a dependable water source during dry times, which saved the District from relying on the public water supply while still allowing them to water efficiently through drip irrigation. Because of this consistency, there has been little to no need to replace any of the initial landscaping, thus saving additional money.

