



**The Intelligent Use of Water:™**  
Water-Efficient System and Product Overview

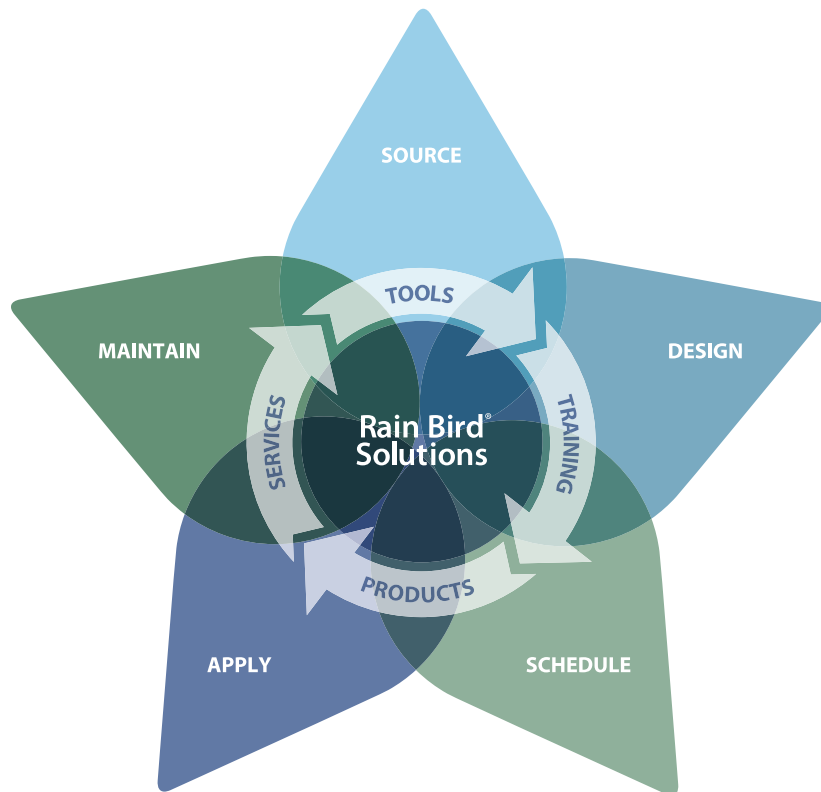


## Putting Water Efficiency to Work for You

For over 75 years, Rain Bird has been dedicated to using water responsibly. We call it The Intelligent Use of Water™ and it's the thinking behind our full suite of water-saving tools, training, services and products. Because of these solutions, Rain Bird is better positioned than any other irrigation manufacturer to help you efficiently source, design, schedule, apply and maintain the world's most precious resource.

## Good for our environment. Even better for your bottom line.

The landscape irrigation industry is changing. More restrictions are placed on water use every year. Irrigation professionals have two options: adapt and prosper...or be left behind. As the industry leader in water-efficient irrigation, Rain Bird can help your business thrive.



Don't allow your business to be left behind. Visit [www.rainbird.com](http://www.rainbird.com) or contact your Rain Bird sales representative.

## The Intelligent Use of Water™



Tap into underutilized supplies such as underground well water, gray water, black water, HVAC condensate, rainwater.

### TODAY'S RAIN BIRD SOLUTIONS

- Non-potable-water-ready:
  - Valves
  - Rotors
  - Sprays
  - Drip products
- Pumps:
  - Integrated Plug-N-Pump
  - Custom-engineered
- Aerators



Create landscapes as sustainable as they are beautiful.

### TODAY'S RAIN BIRD SOLUTIONS\*

- Design support and resources, including a referral network of top irrigation consultants and landscape architects in your area
- Comprehensive training
- LEED® point-eligible products\*\*
- CAD drawings



Optimize the timing, quantity and frequency of water applied to the landscape with leading-edge water management controls.

### TODAY'S RAIN BIRD SOLUTIONS

- Automatic Controllers with Water-Efficient Features:
  - ESP-Modular
  - STPi Controller
  - ESP-LX Modular
- Smart Technologies:
  - ET Manager Products
  - ESP-SMT
  - SMRT-Y Soil Moisture Sensor
- Automatic Shut-off Devices:
  - RSD Rain Sensor
  - WR2 Wireless Rain and Rain/Freeze Sensors
- Central Control Systems:
  - Automatic ET-Based Scheduling
  - Flow Management
  - Flow Monitoring/Leak Detection
  - Cycle+Soak



Distribute water to the landscape as efficiently as possible.

### TODAY'S RAIN BIRD SOLUTIONS

- Water-smart rotor and spray features:
  - Pressure Regulating Stem (PRS) technology
  - Seal-A-Matic™ (SAM) check valves
- Landscape Drip: Direct-to-plant-root watering devices
- Root Watering Series
- High-efficiency nozzles:
  - Rain Curtain™ Nozzles
  - U-Series Nozzles
  - Matched Precipitation Rate (MPR) Nozzles
  - SQ Square Pattern Nozzle (formerly XPCN)
  - Rotary Nozzles



Maintain every aspect of the system to ensure efficient and affordable water use for the long haul.

### TODAY'S RAIN BIRD SOLUTIONS\*

- Durable products with worry-free warranties and built-in expandability
- Phone support and on-site service through certified service providers
- The Global Service Plan (GSP) for central control systems
- Comprehensive training

\* Not all of these services are offered by Rain Bird Corporation but we can help you locate quality providers of these services.  
 \*\*For more information on how to earn LEED points using Rain Bird products, visit <http://www.rainbird.com/landscape/technical/LEED.htm>

## Anatomy of a Water-Efficient Residential System

This residential design guide highlights Rain Bird product and technology solutions for a healthy landscape that uses less water.\*



### Sprays

#### In-Stem Pressure Regulation (30 or 45 psi)

Maintain optimal water pressure. Every 5 psi reduction in pressure reduces water usage by 6%–8%. A 70 psi system reduced to a recommended 30 psi for spray nozzles can provide more than 50% in water savings.<sup>1</sup>

- 1800-SAM Sprays
- 1800-SAM-PRS Sprays (30 psi)
- 1800-SAM-PRS (45 psi)

#### High Efficiency Nozzles

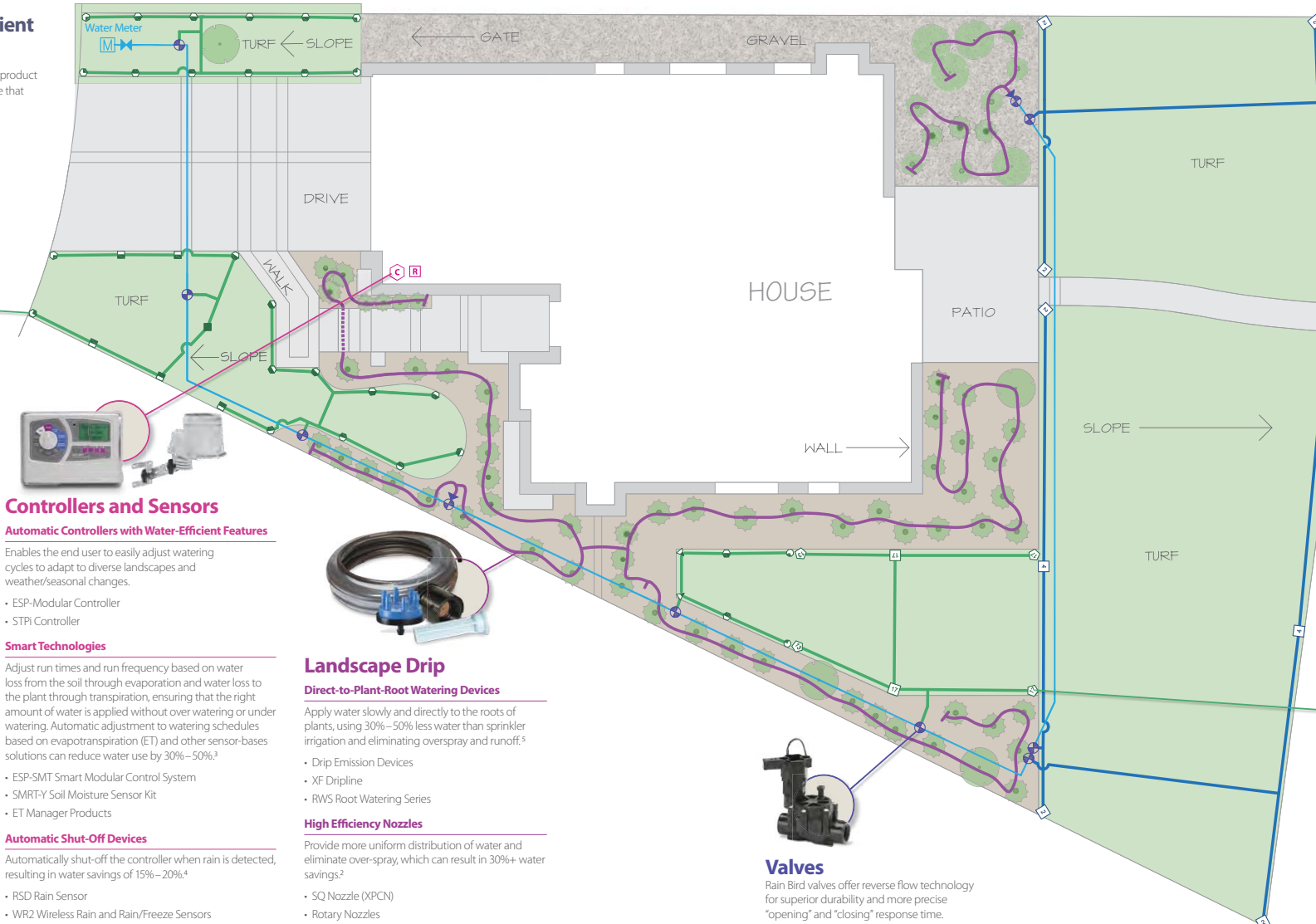
Provide more uniform distribution of water and eliminate over-spray, which can result in 30%+ water savings.<sup>2</sup>

- Rotary Nozzles
- U-Series Nozzles
- Matched Precipitation Rate (MPR) Nozzles

#### Check Valve Devices

Prevent water from draining out of the system at the lowest sprinkler, which eliminates erosion and runoff.

- 1800-SAM Sprays
- 1800-SAM-PRS Sprays
- 1800-SAM-P45 Sprays



## Controllers and Sensors

### Automatic Controllers with Water-Efficient Features

Enables the end user to easily adjust watering cycles to adapt to diverse landscapes and weather/seasonal changes.

- ESP-Modular Controller
- STPI Controller

### Smart Technologies

Adjust run times and run frequency based on water loss from the soil through evaporation and water loss to the plant through transpiration, ensuring that the right amount of water is applied without over watering or under watering. Automatic adjustment to watering schedules based on evapotranspiration (ET) and other sensor-based solutions can reduce water use by 30%–50%.<sup>3</sup>

- ESP-SMT Smart Modular Control System
- SMRT-Y Soil Moisture Sensor Kit
- ET Manager Products

### Automatic Shut-Off Devices

Automatically shut-off the controller when rain is detected, resulting in water savings of 15%–20%.<sup>4</sup>

- RSD Rain Sensor
- WR2 Wireless Rain and Rain/Freeze Sensors

## Landscape Drip

### Direct-to-Plant-Root Watering Devices

Apply water slowly and directly to the roots of plants, using 30%–50% less water than sprinkler irrigation and eliminating overspray and runoff.<sup>5</sup>

- Drip Emission Devices
- XF Dripline
- RWS Root Watering Series

### High Efficiency Nozzles

Provide more uniform distribution of water and eliminate over-spray, which can result in 30%+ water savings.<sup>2</sup>

- SQ Nozzle (XPCN)
- Rotary Nozzles

## Valves

Rain Bird valves offer reverse flow technology for superior durability and more precise "opening" and "closing" response time.

## Rotors

### In-Stem Pressure Regulation

Prevent water loss caused by uneven water pressure. Every 5 psi reduction in pressure reduces water usage by 6%–8%.<sup>1</sup> The 5000PRS Series Rotor has documented 15%–45% water savings.<sup>6</sup>

- 5000/5000 Plus Series Rotors with PRS
- TSJ-PRS Swing Joints

### High Efficiency Nozzles

Rain Curtain™ nozzle technology delivers thick water droplets in a uniform, consistent pattern, eliminating over-spray which results in water savings.

- 3500 and 5000 Series Rotors

### Check Valve Devices

Prevent water from draining out of the system at the lowest sprinkler, which eliminates erosion and runoff.

- 3500 and 5000 SAM Series Rotors

## Rotary Nozzles

Rain Bird Rotary Nozzles require 60% less flow and offer up to 30% in water savings.<sup>7</sup>

\*All claims of water savings dependent on proper design, installation and maintenance of irrigation products. Actual water savings may vary from user to user depending on weather, irrigation system and site conditions and previous irrigation practices.

<sup>1</sup>Derived from Bernoulli's equation (S.19). Refer to Roberson, Crowe, Engineering Fluid Mechanics (Fourth Edition), Houghton Mifflin Co., Boston MA 1998. <sup>2</sup>U-Series nozzle water savings based on manufacturer's testing. Rotary-type nozzles use 20%–30% less water than traditional spray heads because they operate with lower precipitation rates, greater uniformity of distribution, and a greater radius of coverage, according to the Metropolitan Water District of Southern California. Savings of 22%–41% were also shown with rotary-type nozzles (please see complete study at [http://www.cwmc.org/landscape\\_task\\_force/Solomon\\_Kissinger\\_Landscape\\_Irrigation\\_Report\\_05-06-05](http://www.cwmc.org/landscape_task_force/Solomon_Kissinger_Landscape_Irrigation_Report_05-06-05)). <sup>3</sup>Based on water agency Irvine Ranch Water District, City of Santa Barbara, Cities of Boulder, Longmont, Greenly and manufacturer case studies of ET-type controllers.

<sup>4</sup>Water savings confirmed in the Water-Efficient Irrigation Study Final Report (May 12, 2003), conducted by the Saving Water Partnership (a coalition of water purveyors in the Puget Sound Region of Washington), "Watermark, ET, and M.A. Fowell, Efficient Irrigation, North Carolina Extension Service, Publication Number AG-508-6, March 1996, 21 January 2005. <sup>5</sup>The 5000PRS Rotor has been awarded the Smart Approved WaterMark Certification, Australia's outdoor water-saving labeling program for products that help reduce water use outside the home. An independent testing panel confirmed that the Rain Bird 5000 PRS delivers 15%–45% water savings when compared to non-pressure regulated competitive rotors. <sup>6</sup>Rain Bird's 5000PRS rotors consume 3.70 gpm versus 1.60 gpm for rotary nozzles, which is about 60% less flow.

## Anatomy of a Water-Efficient Commercial System

This commercial design guide highlights Rain Bird product and technology solutions for a healthy landscape that uses less water.\*

### Rotors

#### In-Stem Pressure Regulation

Prevent water loss caused by uneven water pressure. Every 5 psi reduction in pressure reduces water usage by 6%–8%.<sup>1</sup> The 5000 PRS Series Rotor has documented 15%–45% water savings.<sup>2</sup>

- 5000/5000 Plus Series Rotors with PRS
- TSJ-PRS Swing Joints

#### High Efficiency Nozzles

Rain Curtain™ nozzle technology delivers thick water droplets in a uniform, consistent pattern, eliminating over-spray, which results in water savings.

- All Rain Bird Rotors

#### Check Valve Devices

Prevent water from draining out of the system at the lowest sprinkler, which eliminates erosion and runoff.

- All Rain Bird Rotors

#### Vandal Resistance

Vandal-resistant rotors prevent water loss due to damage and abuse.

- 5500 and 8005 Series Rotors

### Central Control Systems

#### Automatic ET-Based Scheduling

Adjusts run times based on water loss from the soil through evaporation and water loss through plant transpiration, ensuring that the right amount of water is applied without over watering or under watering. Automatic adjustment to watering schedules based on evapotranspiration (ET) can reduce water use by 20%–40%.<sup>3</sup>

- Maxicom<sup>2</sup>
- SiteControl
- IQ (programmable ET)

#### Flow Management

Optimizes available water and watering windows by automatically managing total flow demand placed on the water sources.

- Maxicom<sup>2</sup>
- SiteControl



#### Flow Monitoring/Leak Detection

Reduces water loss by monitoring flows in real time to locate and isolate excessive flows caused by broken pipes, vandalized sprinklers or failed valves.

- Maxicom<sup>2</sup>
- SiteControl
- MDC2

#### Cycle+Soak™

Eliminates runoff by applying water at a rate the soil can absorb, such as slopes, compacted soils and areas of poor drainage.

- Maxicom<sup>2</sup>
- SiteControl
- IQ

### Controllers and Sensors

#### Automatic Controllers with Water-Efficient Features

Enables the end user to easily adjust watering cycles to adapt to diverse landscapes and weather/seasonal changes.

- ESP-LX Modular Controller
- ESP-Modular Controller

#### Smart Technologies

Adjust run times and run frequency based on water loss from the soil through evaporation and to the plant through transpiration, ensuring that the right amount of water is applied. Automatic adjustment to watering schedules based on evapotranspiration (ET) and other sensor-based solutions can reduce water use by 30%–50%.<sup>3</sup>

- ET Manager Products
- SMRT-Y Soil Moisture Sensor Kit
- ESP-SMT (Smart Modular Controller)

#### Automatic Shut-Off Devices

Automatically shut-off the controller when rain is detected, resulting in water savings of 15%–20%.<sup>4</sup>

- RSD Rain Sensor
- WR2 Wireless Rain/Rain-freeze Sensors



### Pump Stations

Boost pressure to correct levels. Because low pressure can result in poor, uneven performance of nozzles, users frequently over-water the entire landscape to water the dry spots. Pumps boost pressure and prevent this problem from occurring.

- Low Profile (LP) Pump Station
- D-, DP-, and DPX-Series Pump Stations
- Intermediate Flow Pump Stations
- Main Irrigation Pump Stations



### Valves

Pressure regulation for valves maintains constant water pressure to prevent water waste caused by misting and fogging at the head.

- PRS Dial Module



### Sprays

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- 1800-SAM Sprays
- 1800-SAM-PRS Sprays (30 psi)
- 1800-SAM-PRS (45 psi)

#### High Efficiency Nozzles

Provide more uniform distribution of water and eliminate over-spray, which can result in 30%+ water savings.<sup>5</sup>

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### Landscape Drip

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<sup>1</sup>Derived from Bernoulli equation (S. 118, Refer to Roberson/Canino, Engineering Fluid Mechanics (Fourth Edition), Houghton Mifflin Co., Boston MA 1998). <sup>2</sup>The 5000 PRS Rotor has been awarded the Smart Approved WaterMark Certification, Australia's outdoor water saving labeling program for products that help reduce water use outside the home. An independent testing panel confirmed that the Rain Bird 5000 PRS delivers 15% to 45% water savings when compared to non-pressure regulated competitive rotors. <sup>3</sup>Water savings are average values for multiple installations. Case studies verifying these water savings can be found on the LEED website as well as [www.rainbird.com/landscape/site\\_reports/index.htm](http://www.rainbird.com/landscape/site_reports/index.htm). <sup>4</sup>Blauberack, T.E., and M.A. Powell, Efficient Irrigation, North Carolina Extension Service, Publication Number AG-508-6, March 1996, 21 January 2005. <sup>5</sup>U-Series nozzle water savings based on manufacturer's testing. Rotary-type nozzles use 20-30% less water than traditional spray heads because they operate with lower precipitation rates, greater uniformity of distribution, and a greater radius of coverage, according to the Metropolitan Water District of Southern California. Savings of 22-41% were also shown with rotary-type nozzles (please see complete study at [http://www.cawac.org/landscape\\_tool\\_flow/flow\\_solutions\\_watering/Landscape\\_Irrigation\\_Report\\_02-06-02](http://www.cawac.org/landscape_tool_flow/flow_solutions_watering/Landscape_Irrigation_Report_02-06-02)).

## Rain Bird® Products Specifically Designed for Use with Non-Potable Water



Purple Landscape Dripline



Control Zone Kits



Purple Valve Box Lids



Purple Covers for Spray Heads:  
1800® Series and UNI-Spray™ Series  
Purple Plastic Shrub Adapter



RWS Root Watering  
with Purple Cap



Purple Covers for Rotors:  
3500, 5000/5000 Plus, 5500,  
Falcon® 6504, 7005, 8005 and  
2045A Maxi-Paw™



PESB-R Series Valves:  
Reclaimed water valves  
available in 1", 1 1/2", 2" sizes



EFB-CP Series Valves:  
Reclaimed water valves  
available in 1", 1 1/4", 1 1/2", 2" sizes



Quick Coupling Valves  
with locking purple covers:  
33DNP, 44NP and 5NP

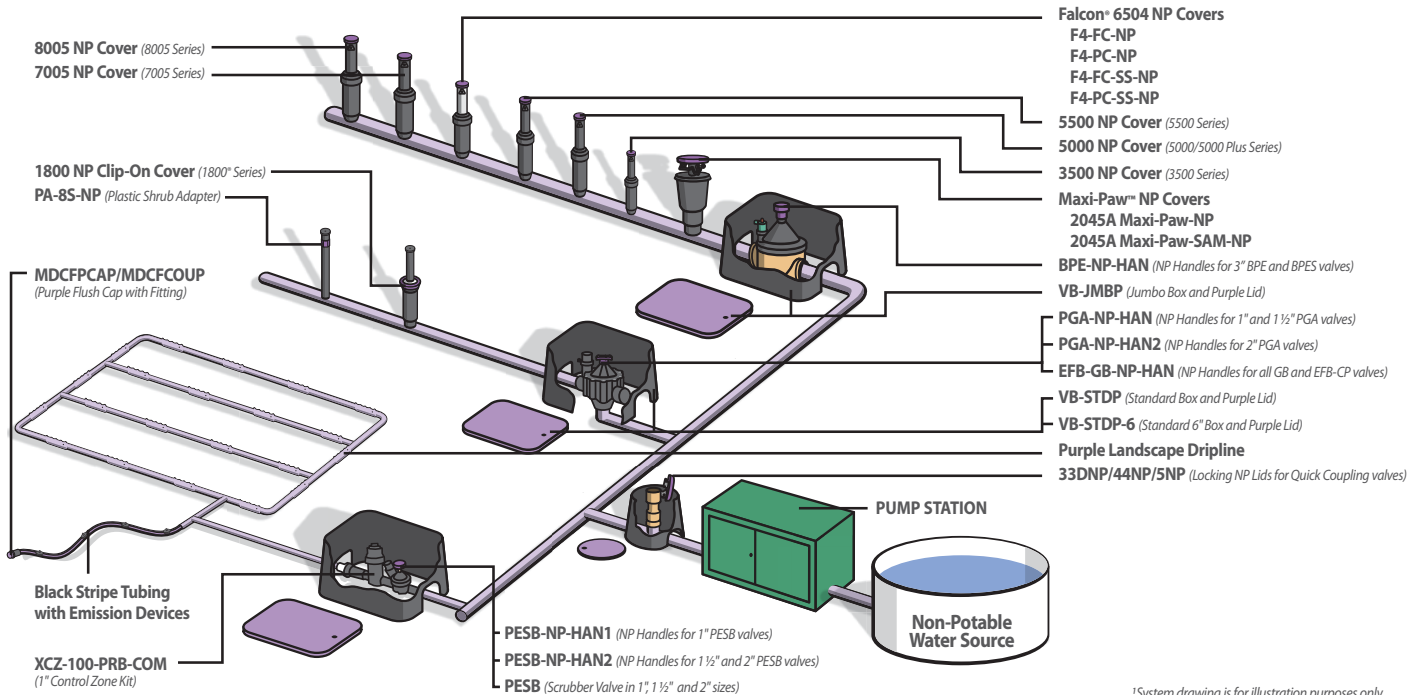


Purple Flush Cap  
with Fitting



Purple PC Diffuser  
Cap and Diffuser  
Bug Cap

## Anatomy of a Non-Potable Water Irrigation System<sup>1</sup>



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