

# PIPE KEEPERS

PROGRAM INFORMATION

LEAGUE TO SAVE LAKE TAHOE

KEEP TAHOE BLUE



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## ABOUT THE PIPE KEEPERS PROGRAM

Pipe Keepers is the League's citizen science program to address stormwater runoff that flows into Lake Tahoe. When rain hits our roads and parking lots it washes fine sediment — the number one threat to Lake clarity — and other pollutants into storm drains that lead to the Lake. Volunteer efforts help League staff to abate stormwater pollution at “runoff restoration” events by making infrastructure improvements that don't require major construction. The Pipe Keeper program also supports scientific research to identify pollution sources through hands-on opportunities and the Citizen Science Tahoe app.

## JOIN PIPE KEEPERS

Tier 1: Simply download the free Citizen Science Tahoe smartphone app, [citizensciencetahoe.org](http://citizensciencetahoe.org), and use it to report any stormwater problems you see throughout the Lake Tahoe Basin, such as **illicit discharge, dumping, damaged infrastructure, flooding, erosion, or other maintenance needs**. Stormwater infrastructure is all around us and exists in many different forms. Check out the Infrastructure Photo Guide shown below to help you identify the different types of infrastructure, then see if you can spot them on your next neighborhood walk.

Tier 2: Want to get more involved? Complete a volunteer waiver to be added to our Pipe Keepers email list and receive information about hands-on volunteer opportunities, including Runoff Restoration and Stormwater Sampling events. Runoff Restoration events help keep stormwater infrastructure functioning properly to protect Lake Tahoe's health and clarity. During Stormwater Sampling events, trained volunteers conduct field tests and collect stormwater samples for lab analysis to determine the quality of stormwater entering Lake Tahoe.

### TIER 1

REPORT STORMWATER PROBLEMS ON  
THE CITIZEN SCIENCE TAHOE APP:



### TIER 2

BECOME ELIGIBLE FOR PIPE KEEPERS  
EVENTS BY COMPLETING A WAIVER:

**VOLUNTEER WAIVER**

# INFRASTRUCTURE PHOTO GUIDE

## PIPES



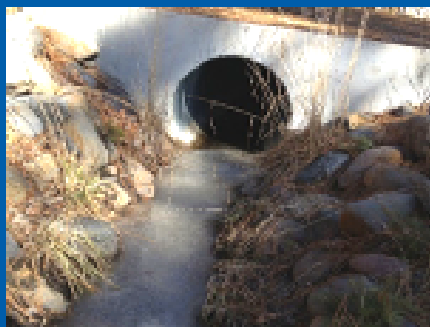
**Pipes** are tubes of metal, plastic, or other material used to carry water.

## DRAINS



**Drains** are designed to remove excess rain and groundwater from impervious surfaces such as paved streets, parking lots, footpaths, sidewalks, and roofs. Drains come in many sizes and designs, but all have a grate.

## CULVERTS



**Culverts** are tunnels that carry an open drain under a road.

## PIPE GRATES



**Pipe grates** are placed over a pipe to catch solid materials traveling through the pipe.

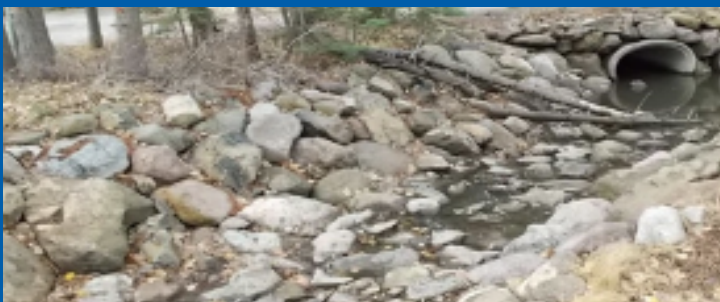
## SEDIMENT TRAPS (OR VAULTS)



**Sediment traps (or vaults)** are underground structures that allow sediment to settle out of flowing stormwater and remain in the bottom of the trap, which can be emptied when full. Water escapes via a pipe, but only when the trap is full. In some versions of this system, the traps are large enough that water cannot escape via a pipe; instead, water infiltrates into the ground or evaporates.

NOTE: The third and fourth photos show unseen, underground infrastructure.

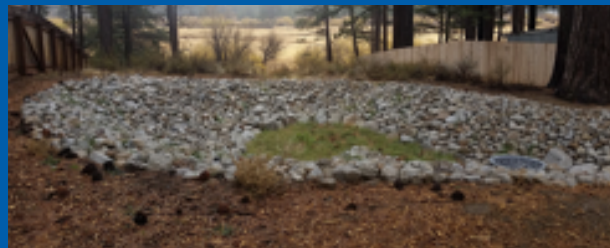
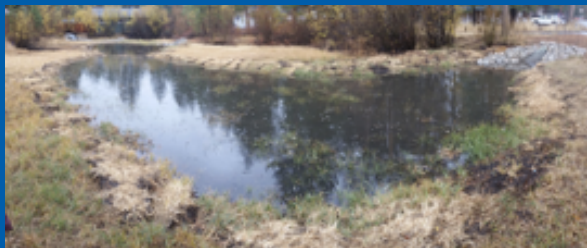
## RIP-RAP



**Rip-rap** is loose stone used to prevent erosion by slowing down fast moving water.



## INFILTRATION BASINS



**Infiltration basins** are shallow, man-made ponds or engineered wetlands that allow stormwater to infiltrate into the soil. Some basins can also include dry wells or other overflow systems to prevent flooding.

## DRY WELLS



**Dry wells** are structures that allow water to percolate directly into the ground, as well as direct any excess water further downstream into other stormdrains, basins, and sediment traps. They may look like raised stormdrains and can be found along your neighborhood streets. Some dry wells are used as overflows within basins to collect and direct excess water out of the basin to prevent flooding in roads and neighborhoods..

# WHAT IS THE OILY SHEEN ON THE LAKE SURFACE?

## NATURALLY OCCURRING BACTERIA



It could be a **naturally occurring bacteria** creating the oily sheen on the water surface. This can happen in especially warm, shallow water (often present during drought conditions). Typically these are *iron or magnesium oxidizing (loving) bacteria*.

## BACTERIA OR PETROLEUM?



To tell if it is **bacteria**, put a stick in the middle of the "oily sheen" and swirl. If the "oily sheen" breaks up into smaller fragments it is not oil. If it just swirls and does not break apart then it is likely **petroleum-based oil**. If you suspect it is petroleum-based oil then please submit a report and photos on the Citizen Science Tahoe app and note whether or not you conducted the "swirl test."

# EQUIPMENT TO MONITOR OR MEASURE STORMWATER:

## AUTOSAMPLER



## FLOW METER

