

Water Watch



Storm water treatment

Many people believe that storm water is treated before it is released, but the fact is that most storm water is not treated. The City of Orem employs many means to handle storm water and disperse it downstream. This article will explain the purpose of some storm drainage features, including some of the treatment measures employed.

Piped Systems

There are a few piped systems in the city. Many of these have detention basins and wetlands to help remove pollutants and trash.

Detention Basins

Detention basins are designed primarily for the purpose of providing storage from runoff and to control downstream flow rates. This is important for flood control and allows for cost savings by requir-

ing smaller pipe sizes downstream. Detention basins can also be used however, for pollutant treatment.

The City has nearly 20 detention basins. Most handle only high storm flows. They provide only limited treatment of storm water.

Dry extended detention basins are effective at removing suspended solids, and moderately effective at removing nutrients and other metals which have bonded with sedi-

Detention Basin at 400 N 1200 W



ments. During small storms, the detention basin at 400 N 1200 W acts as a dry extended detention basin.

Constructed Wetlands

Wetlands are generally capable of removing pollutants through the processes of sedimentation, filtration, adsorption, microbial decomposition, and vegetative uptake. With this broad capability, they are generally able to remove sediments, nutrients, oil and grease, bacteria, metals and the denitrification of water with moderate success. Because of its affinity for sediments, wetlands are capable of intercepting lead with great success, and are fairly capable of removing ammonia, total phosphorous and zinc.

The City employs two wetlands areas for storm water treatment. One is located south of Business Park Dr. The other is a newly constructed area just southwest

Continued on back

If you wouldn't drink it, don't dump it!

City of Orem Public Works
1450 W 550 North
Orem, UT 84057
Phone: 801-229-7500
Fax: 801-229-7599



of the University Pkwy & I-15 interchange. It is still awaiting vegetation to establish itself.

This new wetlands is about two acres in size and features natural contouring, two islands and a permanent wetland pool. Even before the vegetation has been established, birds are already nesting in the area.

This wetlands is expected to remove nearly all sediment and other trash from storm water. It also will remove oil and petroleum products and significantly reduce amounts of lead, copper and zinc.

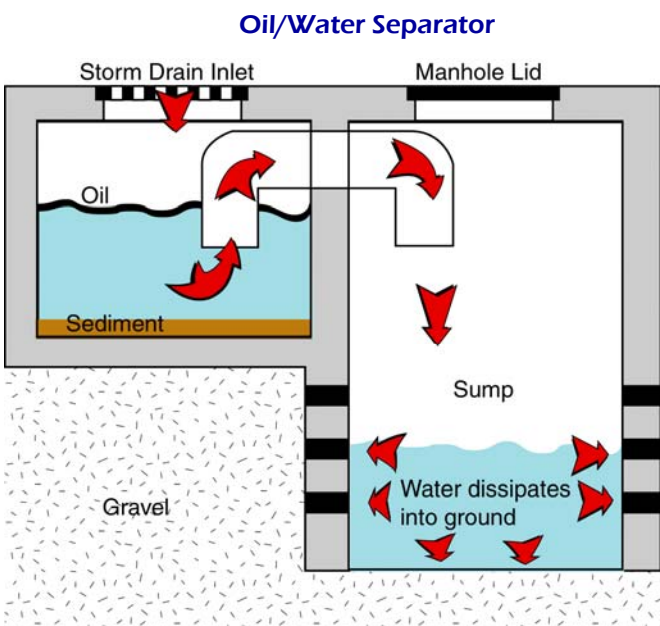
Sumps

The most common storm drainage feature in Orem is a sump, also known as a dry well or a French drain. These inlets consist of a perforated manhole body structure that is surrounded by gravel. The gravel allows water to slowly dissipate into groundwater.

Sumps are found throughout the City where highly permeable soils are found. They are very effective in handling storm water quantity but have little effect on storm water quality. Because of this, the City has established wellhead protection zones to protect drinking water sources under the City. New sumps are not allowed in these protection zones.

Oil/Water Separators

Oil/Water separators, also known as water quality inlets, are designed to remove sediment and petroleum based products from runoff from impervious surfaces before the runoff is conveyed into the storm water system or into an infiltration basin or trench.



The idea is simple, oil and other petroleum products are less dense than water and therefore float. Sediment or dirt is heavier than water and will settle out of the water if given the opportunity.

An oil/water separator slows

the water down enough to allow oil to collect on top of the catch basin and dirt to settle to the bottom. Water from the center depth of the basin is forced through a pipe into the sump for dissipation.

They are most effective where utilized primarily for spill control and spill mitigation. Examples of areas where oil/water separator can be effective are gas stations, maintenance and repair shops, vehicle storage yards, areas of high vehicle traffic, etc.

These type inlets have been required on sumps in new construction since 1999.

Amount of Water Treated

While the City is trying to assure that storm water is as clean as possible before being discharged into Utah Lake, there is a long way to go. As of 2002, only about 10% of the City is drained by piped systems that include detention basins and only about 3% of the City is drained by systems that include wetlands for treatment. That leaves nearly 90% of storm water runoff untreated.

Even with the measures we are taking, nothing can make a greater difference than the efforts of all citizens. We encourage you to

- sweep your gutters,
- rake your leaves,
- shovel or blow snow back onto your lawn instead of into the street,
- pick up litter,
- recycle oil and other petroleum products,
- clean up after pets,
- dispose of household chemicals responsibly.