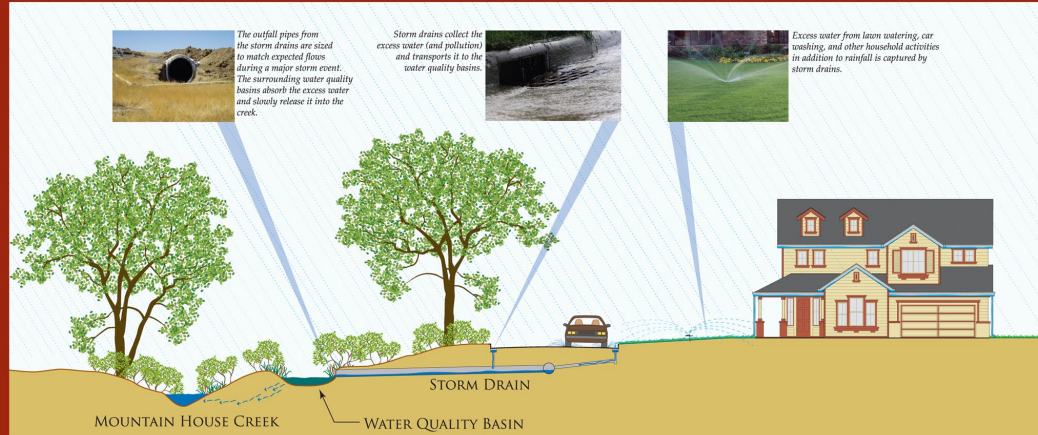


FILTERING STORMWATER AT MOUNTAIN HOUSE CREEK

Stormwater is the flow of excess water into a stream from surrounding areas during periods of intense rain. In a natural condition, the vegetation, the earth, and the stream itself can handle these conditions without adversely affecting the stream or the landscape. In most conditions, however, the impact of human development has adversely affected the natural balance and hindered the ability of the land to effectively deal with stormwater. In a built environment like that of Mountain House, when it rains water has less ability to naturally seep into the ground or slowly work its way to the river. Instead, with the impermeable surfaces of roofs, roads, and the limited vegetative cover of our neighborhoods, the water that falls as rain will make its way into a river or stream at a greatly accelerated rate. In storm conditions water rushes into a stream so quickly that it often causes serious flooding and erosion. The flooding occurs when waters that would either naturally enter into the ground or very slowly make their way to the river (either above or underground) all enter the stream system in a matter of minutes or hours as opposed to days. This can cause severe damage to the plants and animals that live along the stream's edge and throws the stream ecosystem out of balance. In addition the water entering the stream at an accelerated rate is often polluted and full of sediment. The pollution contains fertilizers and pesticides used on our lawns, the oil, gas and other pollutants that come from our cars, and from any number of sources that we use in our daily lives. Dealing with stormwater run-off is critical to keeping a stream healthy and viable.



At Mountain House, storm drains collect excess water from the surrounding villages and transport it to the water quality basins located within the Creek corridor. These basins hold the excess waters and slowly releases them into the Creek over time while simultaneously helping to filter and clean the storm run-off.

THE MOUNTAIN HOUSE SOLUTION

When the designers decided to restore Mountain House Creek they knew they would have to solve the issue of stormwater run-off if they wanted the restoration to be successful. The County of San Joaquin and the Mountain House Community Services District mandated that 100-year flood runoff from the development be limited to pre-development levels in the creek. To achieve this goal the designers used nature to help them. Along the creek a series of water quality basins have been created to capture and treat urban runoff before it can reach the river. Water that travels through storm drains enters into water quality basins where it is collected and stored. This allows sediments and pollutants in the water to settle out and allows the plants in the basin to begin filtering the

water through a process called phytoremediation. The basins are designed to aesthetically fit into the creek corridor and include emergent marsh and permanent ponds of water. The basins utilize natural processes that occur in wetlands and ponds to capture and neutralize stormwater pollutants cleaning urban runoff before it enters the creek. The basins also provide habitat for animals and plants.

After water is captured in a basin it will slowly percolate into the Creek underground—further filtering the water. This process dramatically slows down the rate at which water enters the creek, allowing the restored creek to grow and

thrive. The renewed growth from a restored creek then helps increase infiltration, slowing run-off and further reducing erosion, capturing more sediment and more beneficial nutrients.

The solution at Mountain House is one that is becoming more common as communities realize the impact they have on the natural systems of streams and rivers they surround. It is a system that allows for the development of land to meet a community's need while preserving the streams and rivers that help give a community character and a sense of place.

