**Bioswales**

Cleaner Water Using Nature

“*A Bio-what?*”

Bioswales are man-made wetlands designed to aid the natural filtration of urban runoff water. A bioswale is a simple, vegetated earth depression, which allows water to slowly soak into the soil. Bioswales serve people while including and utilizing nature. Water that flows through fertilized lawns, parking lots and other urban areas often contains a wide variety of contaminants including sediments, petroleum products, excess nutrients, heavy metals and bacteria. Though not a total solution to the problems of urbanization and pollution, the implementation of bioswales can decrease the levels of these contaminants in downstream waters.

The bioswales at Manzanita Village are planted with locally-grown plants native to the Coos Bay Valley. Many of these native species have been formerly displaced or reduced in number.

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**The Bioswale Option**

The bioswales at Manzanita Village have been designed to cleanse runoff water from the downs and surrounding landscape, thereby moderating rainfall. The swales have a gentle slope, rock check-dams and several shallow catch basins. They flow east towards the lagoon. The upper edges of the bioswales are planted with native shrubs such as western goldenrod, salt marsh baccelaria and creeping wild rye. The basins are planted with native wetland species including basket rush, big head rush and common rush. The native species provide important habitat for birds, insects, small mammals and other wildlife while also protecting the land from erosion and pollution.

A bioswale filtering rain water

**The Benefits of Bioswales**

- Generate O₂, consume CO₂
- Ecosystem support for wildlife
- Groundwater recharge and percolation
- Increased species diversity
- Natural aesthetics
- Cleaner water through biofiltration
- Sediment removal
- Water conveyance
- Serves as a tool for education and interpretation

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**The Other Option**

Other methods of moving runoff water such as underground pipes and cement-lined culverts prevent any groundwater percolation and plant growth, negatively affecting species diversity and aesthetic appeal. In addition, since biofiltration is eliminated, runoff water in pipes and culverts carries its full load of contaminants to its eventual destination: the nearest creek, wetland or ocean.

**The Problems with Pipes & Culverts**

- Water cannot soak into soil
- Very poor wildlife and plant habitat
- Water carries all pollutants to its destination
- Visually unappealing
- No biofiltration

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In the last 150 years, California has lost 90% of its original wetlands. Creating bioswales helps mitigate historic wetland losses. The Cheadle Center for Biodiversity and Ecological Restoration (CCBER) is working with Housing and Residential Services to incorporate bioswales like those into new and existing developments on campus. Some of these constructed wetlands are monitored to measure their effectiveness in treating runoff water.