Landau Associates has provided clients with geotechnical engineering, natural resources services, and environmental engineering and science in support of site and infrastructure development since 1982.

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With six offices serving the Pacific Northwest, we have earned a strong reputation for responsiveness and quality in support of our clients' projects.

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DEPARTMENT OF ECOLOGY
State of Washington

Design, permitting and construction of the Arlington "Old Town Wetland" project is largely funded by $715,000 in grants from the Department of Ecology.

ARLINGTON'S OLD TOWN WETLAND

OPEN HOUSE AUGUST 24, 2011

Stormwater, Site Solutions and the Stillaguamish

Landau Associates designed a 10-acre constructed stormwater treatment wetland for the City of Arlington which will provide outdoor recreation opportunities for the public and enhanced wildlife habitat, while naturally treating stormwater runoff. The constructed wetland will treat stormwater from Arlington's "Old Town" Downtown drainage basin and, eventually, will treat reclaimed water from the City's Water Reclamation Facility before it is discharged to the Stillaguamish River. This water quality project incorporates Low-Impact Development (LID) techniques and consists of a series of wetland cells and weirs that are intended to improve water quality by means of infiltration, aeration, and vegetative uptake. The wetland will serve as an ecological connection between the existing Washington State Department of Transportation wetland mitigation area and the Stillaguamish River corridor.

Project Goals

Improved Water Quality

- Reduced water temperature
- Increase dissolved oxygen
- Reduced toxins and biological oxygen demands

Reduce Peak Flows

Water storage in four wetland cells and a long sinuous route for water travel will reduce peak flows to the Stillaguamish River.

Native Plantings

Native plants help improve water quality and once established, native plants in the right place require little maintenance.

Public Recreation Features

- Shoreline access
- Wildlife viewing areas
- Educational opportunities
- 4,200-foot trail network

Wildlife Areas

- Provide multiple habitat types
- Connectivity to other habitats
- Nesting boxes, snags and rock piles

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CITY OF ARLINGTON

PROJECT OVERVIEW

In 2000 the City of Arlington obtained a 27 acre parcel, through purchase and donation, that has over 1,400-feet of Stillaguamish River frontage. The Stillaguamish River is the fifth largest tributary to Puget Sound and the City is the basin's largest point discharger of stormwater from a municipal storm-sewer system. The City was awarded two separate grants from the Department of Ecology for the design, permitting, and construction of a stormwater wetland to augment their system with natural treatment methods.

Landau Associate's team of geotechnical and environmental engineers along with natural resources staff carefully investigated pertinent aspects of the site including soil characterization, hydrology, and infiltration capacity to develop a desired option for meeting the project goals within the constraints of the site.

Approximately 29,000 cubic yards of soil was excavated and about 14,400 cubic yards of native soils was replaced and regraded to create four wetland cells. This will provide 8.9 acre-feet of additional storage for surface water. Approximately 10,000 yards of upper topsoil was re-used as a planting medium for native plants, while structural soil and gravel was placed to construct the berms, trails and maintenance road.

The constructed wetland will also serve as a public park, with recreational and educational opportunities. The City will be looking for volunteers to assist with wetland vegetation planting and for others to team with the City under the "Adopt a Park" program to maintain the wetland - please call Bill Blake at the City (360 403-3440) for more information.

The wetland is designed with four cells that will provide various stormwater treatment ranging from nutrient uptake to temperature cooling. As the wetland vegetation grows and matures, it will begin to provide an urban habitat for birds and other wetland wildlife. A 4,200-foot trail network will include three pedestrian bridges over the weir structures and will provide a relaxing area for hikers to walk. Wayside exhibits and viewing areas will inform visitors of the environmental benefits an urban stormwater wetland.

WETLAND CELL 1

Wetland Cell 1 provides a short-term holding area for newly collected stormwater. Stormwater will be detained in this initial storage cell, allowing suspended solids and associated nutrients and toxicants to drop out of the stormwater.

WETLAND CELL 2

Wetland Cell 2 provides storage and increased retention time for interaction with soils and vegetation for nutrient cycling. Increased stormwater storage in this cell will help to reduce peak flows to the Stillaguamish River, as well as provide relief from periodic river flooding during storm events.

WETLAND CELL 3

Wetland Cell 3 provides additional storage and treatment. Increased retention time improves water quality by allowing more time for sediment to be filtered out and deposited. This cell will offer a mixture of shade trees and exposed areas. Light exposure, through the sun's ultraviolet radiation, helps to reduce bacteria, shade is beneficial for temperature moderation.

WETLAND CELL 4

This wetland cell will serve primarily as a conveyance of naturally treated stormwater to the river corridor. Stormwater in this cell will splash over rounded cobble channel which will aerate the water and raise the amount of dissolved oxygen before discharging to the Stillaguamish River. Dissolved oxygen is crucial for fish and aquatic organisms.