



A Showcase of 2008's Finest Storm Water Work

Brought to you by *Storm Water Solutions*

Compiled by *Caitlin Cunningham & Rebecca Wilhelm*

Hard work and innovation fuel the achievements and growth of the storm water industry. The SWS editorial staff recognizes and appreciates the groundbreaking initiatives to which you and your peers contribute, and we are proud to highlight this year's most impressive endeavors in our First Annual Top Storm Water Projects program.

SWS called for and accepted 2008 Top Storm Water Projects nominations from July through September, and the response was strong in terms of both the quantity and quality of submissions. To be considered, projects had to have been in a design or construction phase within the past 18 months.

From site planning and equipment production to construction work and project maintenance, each phase and function of a storm water undertaking is an important one. Of the utmost importance to a project's success, though, is all partners working collectively toward carefully crafted long-term goals.

Accordingly, the SWS editorial staff selected the 2008 program's winners based not on their projects' size or cost, but rather the challenges faced and the ingenuity and success of solutions implemented.

Many thanks to those storm water professionals who shared nominations, and congratulations to the designers, contractors, owners and other project participants honored in this special section. **SWS**

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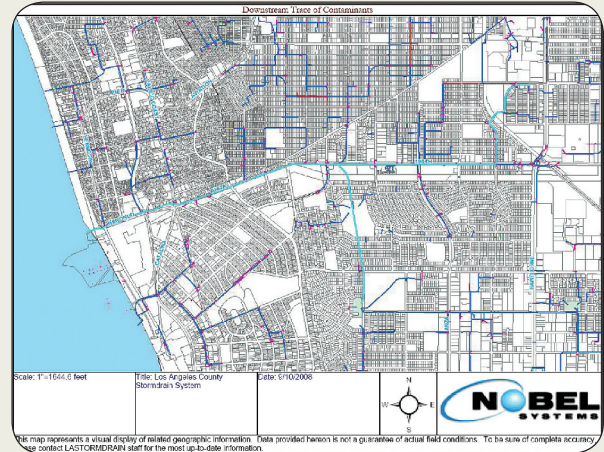
L.A. County Sanitation Storm Drain Initiative

In March 2006, Los Angeles County, Calif., Sanitation and Nobel Systems Inc. launched a cooperative effort to develop a comprehensive GIS layer of storm drains within the county and encourage its use and maintenance. Overall, more than 60,000 as-built drawings were processed.

Knowledge of the complete storm drain system did not exist; information was segmented by a few jurisdictions in different formats, often incomplete or contradictory. With storm drain regulation increasing, L.A. County's 88 cities and other stakeholders lacked the tools and information needed for proper management, analysis, emergency response and enforcement.

By May 2007, the project partners had captured the entire storm drain infrastructure in GIS using Nobel Systems' GeoViewer and ESRI's ArcIMS. This layer has proven an efficient means of communicating data such as who owns or maintains a particular pipe or catch basin. It has also provided for upstream and downstream flow tracing from a given point.

"While several benefits were realized upon completing the project," said Sean Christian of L.A. County Sanitation, "the true value of the storm drain initiative is the foundation that has been laid for the future benefits of local agencies and jurisdictions within Los Angeles County." ■



Cost: \$356,000

Size: 4,061 sq miles

Designer: Nobel Systems Inc.

Contractor: Nobel Systems Inc.

Owner: L.A. County Sanitation

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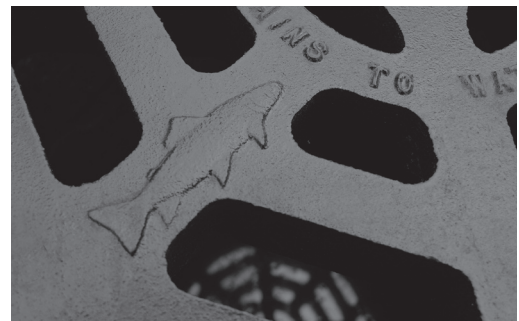


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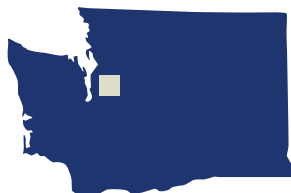
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SeaTac Airport Third Runway Project

In November 2005, the Port of Seattle hired Clear Water Compliance Services Inc. to treat storm water runoff at SeaTac Airport. Capacity issues had forced the Port and the Federal Aviation Administration to evaluate options to relieve airport traffic while shielding neighboring waters and their salmon populations.

Clear Water Compliance was contracted to redesign and implement large-scale chitosan-enhanced sand filtration (CESF), a flow-through chemical water treatment technology that combines the use of polymers/flocculants (chitosan, made from recycled crustacean shells) with pressurized sand filtration. It was deemed the only method capable of discharging treated storm water at 6,000 gal per minute, with a continuous effluent turbidity of less than 5 ntu. A combination of high-head and high-flow pumps, a complex series of retention and settling ponds and computerized control units were other key components in the airport's process. Equipment manufacturers included Yardney Water Filtration Systems, Godwin Pumps and Milton Roy.

Crews completed construction in September 2008. Due to the success of the project, the Port has asked that CESF technology be implemented on the reconstruction of the entrance to the Port—the 160th Loop project. ■



Cost: \$8.3 million

Size: 362 acres/sq ft

Designers: Dallas Hoover & Kim Kumer, Clear Water Compliance Services Inc.

Contractors: Clear Water Compliance Services Inc. • Icon Materials • Scarcella • TTI

Owner: Port of Seattle

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Evergreen State Fairgrounds

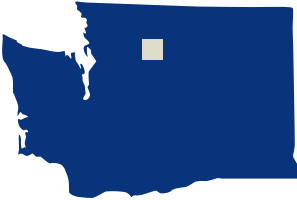
With a 2007 grant from the Washington State Department of Ecology as well as county funds, the Snohomish County, Wash., Surface Water Management Division recently installed multiple low-impact development (LID) improvements at eight sites throughout the Evergreen State Fairgrounds in Monroe, Wash.

"The Evergreen State Fairgrounds was considered an ideal LID demonstration site since over a million people attend events at the fairgrounds throughout the year," said Project Manager Gregg Farris, Snohomish County Public Works.

The improvements are designed to provide a 90 percent reduction in the volume of runoff generated by adjacent impervious surfaces, recharge groundwater and protect stream resources and water quality while providing LID public education.

Among the multiple improvements were: seven rain gardens, six types of porous surfaces, two bioretention planter boxes, compost-amended lawns and landscaping and infiltration trenches to help runoff get through slow-draining soils.

Some improvements also featured creative designs. "The most striking example is a walkway that used colored pervious pavers to create a series of mosaics designed by a Native American artist," Farris said. ■



Cost: \$500,000

Size: 54,230 sq ft

Designer: SvR

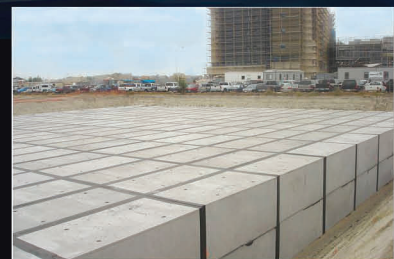
Contractors: Earthwork Enterprises Inc. • RMB Finoti Enterprise • Out West Landscape & Irrigation Inc.

Owner: Snohomish County, Wash.

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TD Bank Redevelopment Project & Rain Garden

The Hockessin Fire Co. proposed to purchase an adjacent abandoned gas station and redevelop portions of the combined 3.9-acre site located in Hockessin, Del. The site was in an area susceptible to sinkhole formation, within a regulated water resource protection area and near public drinking water supply wells.

Duffield Associates Inc. worked with TD Bank's site design team and civil engineer to develop a storm water management program for the site that utilized diffuse recharge practices to balance the sinkhole potential with the need for recharge.

Onsite storm water management practices include a large rain garden, underground rain storage tanks and rain harvesting of rooftop runoff for irrigation. The rain garden, with more than 6,000 sq ft of vegetated area and 450 ft of perimeter, accepts and treats runoff generated by the adjacent parking area. Rain harvesting of rooftop runoff also utilizes a separate rain tank to capture storm water runoff from approximately 4,000 sq ft of sloped roof and canopy.

"TD Bank is pleased and proud to have been instrumental in protecting the Hockessin community's water resources with such a creative and aesthetically pleasing solution," said Clarence Pollard of TD Bank. ■



Cost: \$5 million

Size: 170,000 sq ft

Designer: Duffield Associates Inc.

Contractors: Bencardino Excavating • Realty Landscaping

Owners: Hockessin Fire Co. • TD Bank

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Sun Prairie West Side Greenway

The city of Sun Prairie, Wis., wanted to provide storm water management for a 1,000-acre watershed to accommodate existing and projected development. The resulting Sun Prairie West Side Greenway combines storm water conveyance and management into one system, resulting in an attractive neighborhood amenity planted in native vegetation and featuring a two-acre wetland restoration along the 26-acre corridor.

"The design works with the natural drainage system to collect storm water runoff where it occurs and manage it along an existing watercourse," said Eric Thompson, P.E., project manager, MSA Professional Services Inc. "A traditional solution would call for a storm water detention pond that would occupy more land, require large and expensive infrastructure and be less effective."

The greenway width ranges from 250 to 400 ft. Since its construction, it has successfully controlled storm water runoff from one 50-year and two 100-year rainfall events in addition to having helped protect downstream property from flood damage.

"This environmentally pleasing facility meets our storm water needs while allowing for the reintroduction of prairie flowers and habitat for waterfowl," said Daryl Severson, city engineer for Sun Prairie. ■



Cost: \$1,056,288

Size: 1,106,424 sq ft

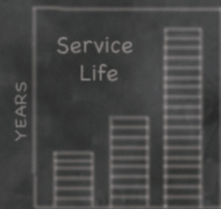
Designer: MSA Professional Services Inc.

Contractor: Agregol R&R Wash Materials

Owner: City of Sun Prairie, Wis.

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BMW of North America South Campus Expansion

To meet New Jersey Department of Environmental Protection Storm Water II requirements in Woodcliff Lake, N.J., and reduce impacts on downstream properties, BMW of North America integrated its existing South Campus building into a new design that addressed challenges such as the site's 80-ft vertical slopes. BaySaver and CONTECH treatment devices, a Natgun underground detention tank system, a nearly 2-acre retention pond and a small detention basin were installed.



Cost: \$80 million

Size: 80 acres/sq ft

Designers: Paulus • Sokolowski & Sartor LLC

Contractor: James Construction

Owner: BMW of North America LLC

Discovery Park

The city of Downey, Calif., redeveloped the industrial facility where the space shuttle Discovery was built into an athletic complex with four playing fields, a space learning center and visitor parking. A best management practice treatment train featuring filter strips, bioswales, CONTECH CDS units and a StormTrap retention/detention system helped improve runoff quality and reduce drain line conveyance deficiencies in a storm drain line serving a larger 4.9-sq-mile catchment that included the project site, a tributary area.



Cost: \$2.8 million

Size: 45,000 sq ft

Designers: City of Downey • StormTrap •

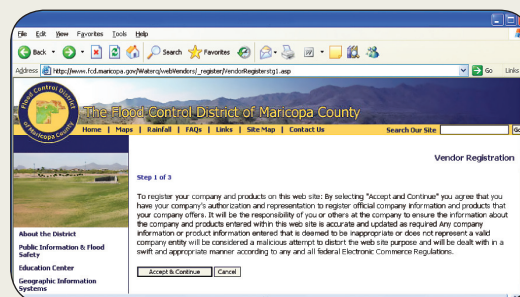
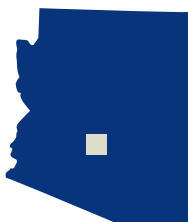
Psomas & Associates

Contractor: Griffith Co.

Owner: City of Downey

SPPVRA

The Flood Control District of Maricopa County, Ariz., set out to update its drainage design/erosion control manual, making it more accessible and user-friendly. The manual's extensive list of industry vendors and products led to the development of an online database, the Stormwater Pollution Prevention Vendor Registration Application (SPPVRA). The manual is now easily utilized as a reference far beyond county borders and in the past year, it has logged nearly 40,000 visits.



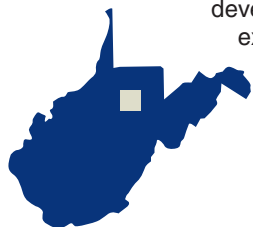
Cost: \$10,000

Designer: AMEC Earth & Environmental

Contractor: Ed Latimer, AMEC Earth & Environmental

Owner: Maricopa County Flood Control District

Charles Pointe South



As part of a multiyear project, partners collaborated to provide a master storm water management plan for 2,500 homes and 2 million sq ft of commercial development across severe topography and around existing streams and wetlands in Bridgeport, W.V. Storm water management basin construction, stream restoration and wetland mitigation took place under the state's largest individual National Pollutant Discharge Elimination System permit.



Cost: \$3 million
Size: 1,300 acres/sq ft
Designer: Kimley-Horn & Associates Inc.
Contractor: Various over multiple projects
Owner: Genesis Partners

Rincon Creek Restoration



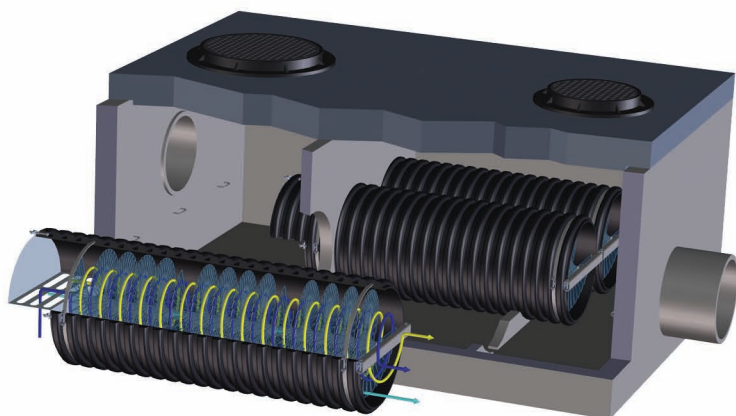
While conducting emergency replacement of a washed out Highway 150 bridge between Ventura and Santa Barbara counties in California, Caltrans aligned various projects, employing low-impact development solutions, restoring mobility and improving water quality in storm-damaged Rincon Creek. Due to the sensitive-habitat status of the area and to further ensure project success, Caltrans plans to maintain revegetation areas for five years and monitor for an additional three.



Cost: \$5.5 million
Size: 8 acres/sq ft
Designer: Caltrans, District 5, San Luis Obispo Region
Contractor: Security Paving Co. Inc.
Owner: Caltrans

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