

PIPELINE

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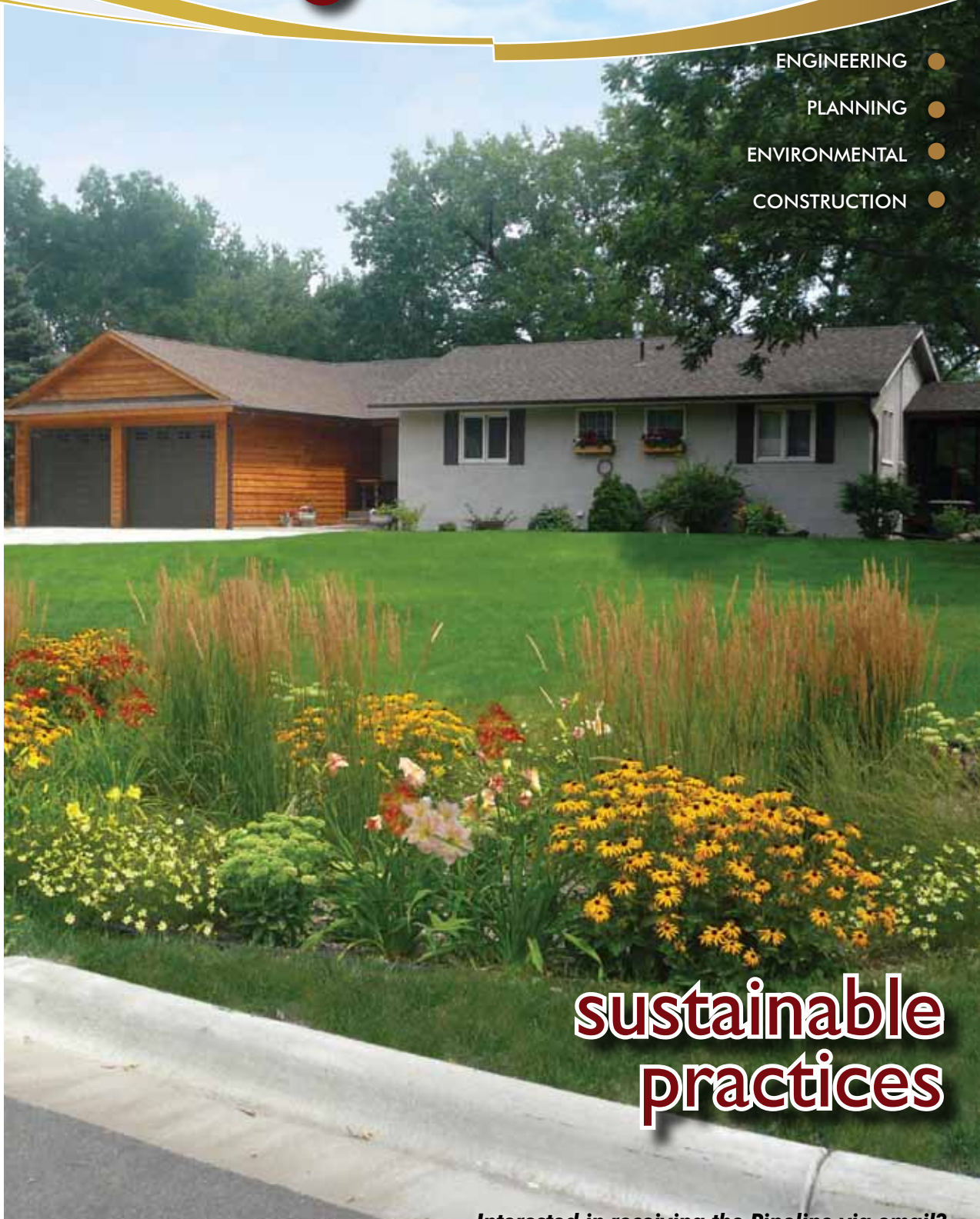
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**sustainable
practices**



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Enduring Significance

Sustainability means different things to different people. For instance, the Alliance for Sustainability strives “to bring about personal, organizational, and planetary sustainability through support of projects that are ecologically sound, economically viable, socially just, and humane.” The simplest and most fundamental way to define sustainability is “the capacity to endure.” Boy, who would have thought that all of us were being sustainable over the past few years during this economic downturn!

Organizations have searched for ways to fulfill the expectations of customers while addressing new environmental standards that will reduce the impact we have on the world. Sounds like a big task


“The first rule of sustainability is to align with natural forces, or at least not try to defy them.”

~ Paul Hawken

to undertake during this time of budget and staff reductions. Some of the initiatives are very challenging, while others are just a function of thinking about how to perform a task differently. At WSB, we don't believe that we should just blindly move forward if there is no return on the investment or if that return is only nominal.

In past issues of the Pipeline, we have shared our thoughts on how to use mechanical methods combined with alternative methods to reduce phosphorous loads. We mentioned ways we are improving through examples of adapting to new standards for complete streets and green infrastructure. This issue highlights even more sustainable ideas and practices that you may be able to incorporate into your next project.

We have to remember that with infrastructure projects, it is about the final result and not how we get there. It's fun to attempt to change in a way that will provide other larger benefits to systems that will never be able to thank us. Challenge us to show you how we can find ways to create sustainable systems for your community! As Paul Hawken notes, we need to embrace this new focus on sustainability and not try to fight it. By showing leadership and innovation, we can move the conversation in the direction we choose.



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Why not use

CONCRETE PAVEMENT

on your next project?

by Don Sterna, PE

It makes more sense than ever to look closely at the longevity, durability, and lower maintenance cost of using concrete.

T cost of using concrete. Advancements in pavement design allow us to provide “thinner”, lower cost Portland Cement Concrete pavements while significantly improving the life-cycle sustainability of your roadway infrastructure.

At WSB, we take pride in our ability to assist our clients by identifying cost effective, sustainable designs. We not only look at the initial project costs, but determine long term cost efficiencies to deal with the ever-changing global economy. We can help you make the right decision when it comes to choosing concrete or bituminous for your next roadway project.

Concrete pavements have long been considered the most cost effective and sustainable pavement choice for high volume roadways. These roadways carry heavy loads for long periods of time and generally receive minimal routine maintenance. Concrete works well under these conditions, but does require a higher initial financial investment than bituminous pavements. For lower volume county and city roadways, cost has generally been the deciding factor over the life-cycle cost benefits concrete affords.

Considering that we live and work in a global economy, with continuously rising, volatile oil prices, we need to consider the impact these factors have on bituminous installation and maintenance costs. It makes more sense than ever to look closely at the longevity, durability, and lower maintenance



Do land developers value sustainability? It might surprise some people to know that sustainability and creativity in land development are critical in today’s market, and are embraced by many developers. The floundering economy has done a good job of weeding out the novice and uneducated developers. The companies that are still in business are typically large, well funded companies that have a long term interest in continuing to build in the communities they currently serve. To accomplish this, they understand the importance of creating sustainable and aesthetically pleasing neighborhoods.

There are several ways that developers are creating attractive and sustainable communities.

Rain Gardens: They can be used to create buffers between lots and provide beautiful backdrops for homeowners to enjoy in their yards, rather than just the typical sod and token tree. If designed properly (including developing maintenance guidelines), rain gardens can reduce the size of stormwater ponds and thereby increase the land available for development.

Tree Preservation: Many agencies have tree ordinances in place, but some developers are taking it a step further. If the topography works, developers are saving trees, rather than simply removing them. This not only adds value to their land, but differentiates their developments with a more established feel, which is what buyers want.

Narrower Streets: There are obviously financial motives for this request, but there are benefits to the agency as well. Reduced street widths provide less impervious area, which helps reduce the size of the stormwater ponds needed to treat the runoff. In addition, eventually those streets will need to be seal coated, milled and overlaid, or completely replaced. Narrower streets will reduce those costs and reduce the natural resources that are required to complete those improvements.

At the end of the day, developers want their projects to look good and be sustainable because they know that those neighborhoods are going to be their biggest advocate for future projects. By working with agencies to develop creative and innovative site plans utilizing these and other sustainable designs, the end results are projects that everyone can be proud of.

what's
new at the

USGBC?

LEED for Neighborhood Development Certification

by Steve Gurney, PE



Brooklyn Center
Rain Garden

The US Green Building Council (USGBC) recently announced the full certification process for the Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) rating system. This new LEED rating system is the first rating system to focus on development beyond a single building or individual building complex.

During this economic downturn, LEED-ND may provide the advantage you need to distinguish your projects from those of neighboring communities. Studies have shown that houses in neighborhoods with above-average levels of walkability command a premium of about \$4,000 to \$34,000 (as opposed to just average levels) in the typical metropolitan areas studied.¹ The Centers for Disease Control and Prevention found that several of the LEED-ND rating system features encourage the development of healthy, active neighborhoods.² These are both strong selling points for people looking to relocate into a new neighborhood.

Since LEED-ND focuses on development projects, our clients have more opportunity to be actively involved in projects than in the past.

In order for the new rating system to function most efficiently, all government groups should be involved early in the planning process. This includes policy-makers, planners, economic development officials, engineering groups, and park officials. In the past, many of these stakeholders were not involved until the very late stages of review, when their input could have little or potentially expensive impact.

Points are awarded to developments that provide sustainable designs through the use of habitat management, proximity to jobs, mixed-use (and diverse) communities, and use of green infrastructure. Similar to other LEED systems, different rankings (Silver, Gold, Platinum) can be achieved based on the number of points earned. The USGBC has established Regional Priority Credits to reward projects with up to four "bonus" points for developments that focus on regional hot-button issues.

For more information, including strategies for promoting LEED-ND in your community, log onto the USGBC website (www.usgbc.org) or contact Steve Gurney at 763.287.7164 / sgurney@wsbeng.com.

LEED-ND has three stages of certification, which relate to the phases of the real estate development process:

stage 1 **Conditionally Approved Plan:**

provides the conditional approval of a LEED-ND plan available for projects before they have completed the entitlements, or public review, process. It is envisioned that completing Stage 1 will help projects get support from the local government and from the community.

stage 2 **Pre-Certified Plan:**

pre-certifies a LEED-ND plan and is applicable for fully entitled projects or projects under construction. Completing this review can help projects secure financing, expedite permitting, or attract tenants.

stage 3 **Certified Neighborhood Development:**

completed projects formally apply for LEED certification to recognize that the project has achieved all of the prerequisites and credits attempted.



ASK THE ENGINEER



In this issue, Jamie Wallerstedt, PE, answers a few questions on sustainability. Jamie is a project engineer in WSB's Water/Wastewater Group with nine years of engineering experience and a Civil Engineering Master's Degree specialized in environmental engineering.

What types of projects or design concepts do your clients consider sustainable?

When I meet with clients about sustainable projects, they typically ask about ways to save the agency money, in either operations and maintenance costs or up-front construction costs. This mindset of cost savings often leads to adding sustainable aspects to a project, such as using energy efficient equipment or low maintenance installations.

How have you modified your design thought process over the past few years to address the notion of sustainability?

I approach every project looking for a variety of ways that sustainable aspects can be added to the project. This gives the client options as to what direction they want their project to go. Sustainable design has, in some ways, become standard practice, and it is not hard to incorporate ideas into projects. Some clients are very interested in "green" projects to both save money and to educate their residents as to how the agency is protecting its surroundings.

Do you believe that your clients will accept sustainable design features for a project even if the initial project costs are higher?

Sustainable design does sometimes lead to higher initial project costs, but we illustrate the savings in operations and maintenance over the life span of the project or how the life span is extended. We show our clients how spending more money up front on sustainable ideas can be worth it. Even in today's economic times, we have found that our clients understand this, and are often willing to make extra efforts up front for a better, more sustainable end product.

Footnotes:

1. "How Walkability Raises Home Values in U.S. Cities" by Joe Cortright - http://blog.walkscore.com/wp-content/uploads/2009/08/WalkingTheWalk_CEOsforCities.pdf

2. "LEED-ND and Healthy Neighborhoods - An Expert Panel Review" by the Centers for Disease Control and Prevention - <http://www.usgbc.org/ShowFile.aspx?DocumentID=5895>

A Few Recent Sustainable Projects

Twin Lakes Parkway Improvements ROSEVILLE

This project covers Twin Lakes Parkway from Cleveland Avenue to a roundabout at Mount Ridge Road which transitions Twin Lakes Parkway to County Road C2. WSB and a project partner collaborated on innovative design solutions to project challenges. One key solution was using landscaping and underground infiltration basins to treat stormwater. This project also includes an underground facility designed to use re-use stormwater as irrigation for the landscaping in the new right of way. This design reduced the cost of buying right of way to place drainage ponds, made the project more environmentally friendly than most roadways of its type, and made the area aesthetically pleasing.



Lyndale Avenue Interchange RICHFIELD AND BLOOMINGTON

WSB and its partners teamed to provide the City of Richfield with engineering services to complete the design for a new single-point diamond interchange at Lyndale Avenue and I-494. Sustainable practices on the project included recycling all the existing concrete from the bridge, roadway, and retaining walls. The material was stockpiled onsite, crushed, and incorporated into the new road base. This drastically reduced the amount of export and import of material within the urban environment. In addition, the landscape design of the project included a combination of colored, stamped concrete and non-irrigated planting areas, planted with a combination of native shrubs and grasses that require little to no maintenance.

2011 American Council of Engineering Companies of Minnesota (ACEC/MN) Engineering Excellence Honor Award

TH 95 and CSAH 29 Bridges MILLE LACS COUNTY

The project included a new bridge on CSAH 29 and an adjacent bridge on TH 95, both over the Rum River in Princeton. To provide a sustainable project, WSB utilized a finite element model, which produces the most accurate and efficient design possible, reducing steel and concrete needs. Recycled materials were used in the construction of both bridges. The steel reinforcement contains up to 90% recycled material and the concrete mixes contain recycled fly ash. WSB also recycled the existing bridges almost in their entirety. Crushed concrete was recycled as aggregate base material. Steel reinforcement and railing was separated out, which meant over 3,000 cubic yards of concrete and 300,000 lbs of steel was recycled.

2011 American Concrete Pipe Association (ACPA) Project Achievement Award



Wind Project NOBLES COUNTY

This energy project included installing 134 turbines within an 18,000 acre area. These turbines will generate approximately 200 MW of clean, wind powered electricity. For this sustainable project, WSB sited turbines to reduce environmental impacts and support approval of the permit application. A field review was conducted to assess habitat and identify wetlands to assist in minimizing impacts and completing the permitting process. WSB's biologists completed a biological assessment report to include the results of bird/bat assessments, wetland evaluations, and habitat review. Early coordination with regulatory agencies and other stakeholders made certain we were aware of study area environmental issues.

Asset Management System CHANHASSEN

WSB worked with the City of Chanhassen to implement a Cartegraph-based Asset Management System (AMS). The AMS aids the City in maintaining compliance with the National Pollutant Discharge Elimination System, which controls water pollution by regulating point sources. WSB's design of Chanhassen's AMS is unique in that it is built completely around mobile technology – a sustainable solution. This mobility allows City staff to quickly and efficiently record maintenance and inspections of storm, sanitary, and water utility infrastructure. The mobile system provides staff with easy-to-use mobile tools and wireless data uploads, improving maintenance record accuracy. This improvement recently provided the City with a rapid return on investment. Upon request for information about a water main break, City staff was able to quickly produce water main maintenance records from a variety of entities, minimizing staff research time.

CSAH 21 Improvements SCOTT COUNTY

The roadway improvements, from CSAH 42 to Highway 169, consisted of a three mile extension of the four-lane divided highway on a new alignment. It also involved development of a 545 car park-and-ride lot with pedestrian accommodations, stormwater infiltration, and water quality ponds. Sustainability was designed into many aspects of the project. Stormwater treatment and volume reduction were achieved by maximizing infiltration areas in inverted medians and directing the cross slope of the trails away from the roadway. This took advantage of the grassy in-slopes, bio swales within the park-and-ride lot, and infiltration cells adjacent to the stormwater ponds. Concrete pavement was selected to reduce the long term maintenance costs and improve the performance life. The park-and-ride lot incorporated the use of LED lighting and the bus shelter was designed with a green roof to lessen the carbon footprint of the facility. The project also incorporated two pedestrian and two wildlife underpasses to facilitate grade separated movements across CSAH 21. An extensive landscaping plan was developed to restore the vegetation along the corridor.

wsb office news

2011 Promotions

We are pleased to announce the 2011 promotions to our Shareholder, Technical Associates, and Associates Groups.



(from left to right)

Mark Erichson, PE, Shareholder

Brandi Popenhagen, PE, Associate

Mike Rief, PE, Shareholder

Derek Schmidt, PE, Associate

Brian Bourassa, PE, Associate

Tim Andler, Technical Associate

Sonya Henning, PE, Associate

Kyle Klasen, PLS, Technical Associate

Internal Sustainable Efforts

- created ride share map to encourage car-pooling and/or biking
- provided reusable dinnerware in lunch room to reduce use of plastic silverware
- no longer use styrofoam
- replaced old coffee warmer with air pots
- replaced some light switches to motion sensors
- co-mingled recycling bins throughout office
- shred and recycle documents
- encourage energy conservation through shutting off office lights and computers at night
- submit paperless timesheets to managers
- use video conferencing
- publish "living green" article in monthly internal newsletter

Our Newest Staff



(from left to right)

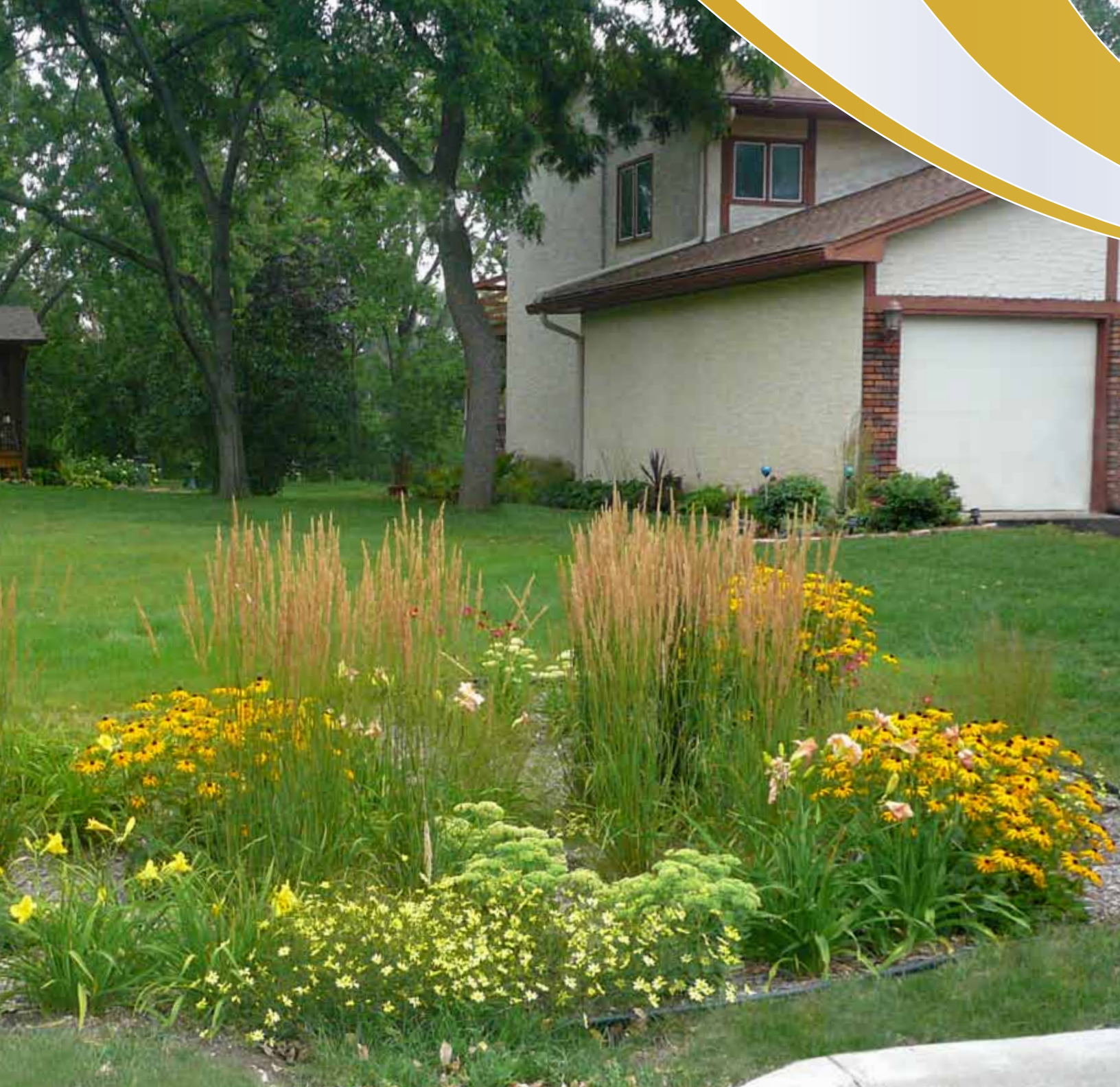
Jeff Peters, CPESC, CESSWI
Environmental Compliance Specialist

Kelsey Johnson
Community Planner

Jason Wedel, PE
Municipal Senior Project Manager

Elizabeth Foster
Water Resources Administrative Assistant

Dan Draeger
Senior Network Administrator



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