Restoring Wetlands with an Award-Winning Partnership

The American family looked very different a couple hundred years ago than it does today. Most people lived in rural homes, and nearly every family wanted a piece of land to farm and live off of. With this in mind, the State of Minnesota chose to drain Manston Slough, a 2,500-acre wetland complex, and convert more than 75% of the wetland basin to cropland.

CONTINUED ON PAGE 2
While the State did successfully drain the wetland, farming in the area proved challenging. The flat topography resulted in slow drainage while water continued pouring into the basin from upstream. Wildlife in the area suffered, and numbers diminished as the vegetation that remained provided little value to waterfowl and aquatic species. After witnessing the long-term impacts of the drainage, the US Fish & Wildlife Service and the Minnesota DNR began acquiring property in the basin with the hopes of one day restoring the wetlands.

"In 2003, Minn. Governor Tim Pawlenty named the Manston Slough Restoration Project as one of his Clean Water Cabinet Pilot projects."

About ten years ago, the Buffalo-Red River Watershed District (BRRWD) brought together a group of agencies, including Houston Engineering, Inc. (HEI), to begin a discussion of a multi-use, comprehensive project that could achieve the goals of many different interests. The proposed project was ambitious and significant enough that in 2003, Minnesota Governor Tim Pawlenty named the Manston Slough Restoration Project as one of his Clean Water Cabinet Pilot projects.

More than a century after the drainage of Manston Slough, project partners set out to complete a large integrated project that would restore natural wetlands, provide increased habitat for waterfowl and other wildlife, improve water quality, provide important groundwater recharge to the Buffalo River aquifer, and provide flood damage reduction to residents and infrastructure.

**Project Development**

Years before the first shovel broke ground, the BRRWD and its partners began work behind the scenes. Without the support and easements from 33 landowners, the project would never have grown beyond a mere idea. At the same time, the BRRWD had to coordinate with state, county, and township officials whose roadways the project would directly impact. HEI provided design, construction management, and environmental services and served as technical advisor during the years of negotiations.

**Project Outcomes**

In 2013, after nearly six years of working to secure more than $6 million in funding and the necessary support of all those involved, construction began on the restoration of Manston Slough.

From 2013-2014, construction took place in the 6,000-acre project area. Despite the project’s massive scope and numerous potential complications, the project progressed smoothly, and the residents and agencies involved have already felt its positive impacts.

The Manston Slough project site stretched over 6,000 acres.

**PROJECT BENEFITS**

- 5.5 miles of new or improved conveyance systems for landowners
- 1,150 acres of restored wetland
- 2,500 acres of cropland were converted to prairie
- Restored habitat and breeding ground for waterfowl and migratory birds
- Reintroduction of aquatic species with safeguards against invasive species
- Improved flood protection through dikes and road raises
- Wetland drawdown capabilities through two stop-log structures

Water level control structure optimized for flood control and aquatic habitat.
Improving Safety, Function, and Aesthetics at Bismack’s Capitol Grounds

The North Dakota State Capitol recently expanded and improved the Capitol Grounds’ parking, landscaping, and traffic flow on the north side.

The Capitol wanted to create a space that, while remaining practical, also represented the beauty of North Dakota—a space that provided visitors and staff alike with a strong impression that North Dakotans could feel proud of.

HEI worked closely with Klein McCarthy Architects to create a lot that served practical needs while embracing natural aesthetic elements.

1. This turnabout allows vehicles easy access to the Capitol Building and separates traffic from pedestrians and parking stalls.

2. New sidewalks and greenspace along the building create a beautiful scene against the Capitol Building.

3. Walkways provide safety and protection to pedestrians from traffic.

4. A large mass earth stabilized retaining wall allows the realignment of the north access road to the Capitol Grounds facility.

5. A series of parking stalls provides necessary handicap spaces.

6. HEI analyzed truck turning and improved the loading dock to accommodate trucks making regular deliveries to the Capitol.
Restoring Wild Rice in Lake Ogechie

After a long day of hunting without a single hit, a man returned to camp hungry and tired, only to find a simmerring pot of water filled with the best soup he had ever tasted.

This is the origin story told by Native Americans describing the first discovery of wild rice, or Manoomin, a thousand years ago. The grain has long been revered by tribes for its cultural significance of community, ceremony, and nutrition. A lake brimming with this “food that grows in water” is thought to be fertile ground for game that are also drawn to the sustenance.

Near Onamia, MN, Lake Ogechie was once one of these lakes, where the dip of a canoe paddle and threshing using ricing sticks could unearth bountiful wild rice. As years went by, rice faded away as man-made elements appeared. Logging camps on the adjacent Rum River and a dam constructed in 1933 altered historic water levels and the lake's production of wild rice. The original dam was built to restore wild rice and waterfowl, though anecdotal information suggests it did the opposite.

As of nearly ten years ago, both wild rice and waterfowl were all but gone.

**Project Development**

Around this time, HEI teamed with the Mille Lacs Band of Ojibwe (MLBO) to study the rice’s vanishing act. HEI strived to understand as much as possible about both the science and the history of the lake. This involved carefully studying the lake’s hydrology and listening to oral history from local observers. Through these efforts, we were able to conclude that the downstream dam had indeed created lake levels that essentially flooded the possibility for wild rice growth.

Because the structure responsible for altering Lake Ogechie levels was also serving a purpose in maintaining levels of Mille Lacs Lake, restoring the historic levels and increasing plant life was no easy task. HEI and the MLBO worked collaboratively to get the project through the permitting process. This multi-year effort included a feasibility study, environmental assessment worksheet (EAW), permitting, workshops, stakeholder involvement, and a strong commitment to finishing the project.

In 2014, plans for a new dam and modifications to Buckmore Dam emerged, and restoration began to look like a reality. Modifying Buckmore Dam lowers water levels in Lake Ogechie, which will create the shallow levels needed for vigorous native, naturally reproducing wild rice. The new dam maintains water levels in Mille Lacs Lake and allows for fish passage. A traditional blessing from MLBO on a blustery morning in February signaled the official start of the project.

In 2017, the project reached its final phase, and wild rice had made a comeback. A traditional blessing from MLBO on a blustery morning in February signaled the official start of the project.

HEI's team observing construction of the Ogechie Dam.

The original Ogechie Dam responsible for hindering wild rice growth.

Young wild rice growing downstream of Lake Ogechie.
HEI HIGHLIGHTS

HEI's roots started in surveying several decades ago. Since then, HEI has seen the industry evolve tremendously due to technology advancements.

In just the last 15 years, HEI has evolved from using chains, levels, and field books to satellites, iPads, and high powered computers in the field. What used to take three survey crew members now only requires one crew member to get the same job completed.

These improvements allow for the quicker, safer, less costly, and easier creation of large amounts of data needed for engineering projects, benefiting both clients and employees.

Surveying Today is Faster and Safer with New Technology

1. Trimble® S6
   - 11 units used companywide
   - Provides long range and superior accuracy that automatically corrects instrument pointing

2. Trimble R8 and R10 GNSS Receivers
   - 33 receivers used companywide (2 R8s and 31 R10s)
   - Provides less downtime in field with continuous GPS coverage

3. HyDrone™ RCV
   - Allows survey crews to record data safely from dry land
   - Can quickly and easily maneuver through lakes, ponds, and rivers

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Recreation on Lake Ogechie and its neighboring waters will continue to be savored. After observing the completed project, the same partners who began the project a decade ago happily walked away from the restored area as content as the man who surprisingly found his pot full of Manoomin.

Project Outcome

This restoration effort was only realized through the continued partnership of MLBO, HEI, and the Minnesota DNR. “From concept to completion, Houston Engineering has been with us all the way,” stated Perry Bunting, the Environmental Programs Manager for MLBO; “they have been a one-stop shop that has taken our vision and made it a reality. From project feasibility to the end of construction, Houston had the know-how to bring our project to fruition. This restoration effort has been a 10-plus year marathon with many different hurdles encountered along the way; most people probably can’t appreciate all the meetings, permits, and coordination efforts we’ve had to endure. Without Houston’s capabilities, expertise, and experience leading us along, I know we wouldn’t be where we are at today. The team of Mark Deutschman, Greg Bowles, and Dan Bogart have been such an integral part of this project’s overall success that I can’t thank them enough.”

"Without Houston’s capabilities, expertise, and experience leading us along, I know we wouldn’t be where we are at today.”

Late in the summer of 2015, HEI’s original team visited the constructed dam, which revealed spawning suckers and clear shallow water. Evidence that, only months into the new dam’s life, wildlife is returning to the site and restoration is underway. In years to come, wild rice production is expected to grow and return as a bountiful resource for the Ojibwe of Minnesota.

The HEI-MLBO team leaves the project site after a job well done.

The HEI-MLBO team leaves the project site after a job well done.
URBAN AND COMMUNITY PLANNING SERVICES OFFER COMPREHENSIVE SOLUTIONS

“It’s an exciting time at Houston Engineering as we continue to grow in positive ways to better serve our clients,” says Jeff LeDoux, President and CEO, on the addition of urban and community planning services to HEI.

Planning is a dynamic profession that works to improve the welfare of people and their communities by creating more convenient, equitable, healthful, efficient, and attractive places for present and future generations.

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Michael Domitrovich serves as the Urban & Community Planning Services Director at HEI. He has more than 35 years of experience in municipal and land planning, 22 of which he served the City of Fargo and helped lead the City to the incredible growth it continues to see today.

HEI is excited to add Michael to our talented team of professionals. His skillset and experience allow HEI to provide even more comprehensive solutions to benefit clients and communities.

“I’m very excited with the addition of planning at HEI. It will make projects even more well thought out from the start. Planning increases our value to our clients by making us an even better-rounded, full service engineering firm; it simply blends so well with the other urban civil design services we provide.”

Meet Michael

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Michael J. Domitrovich, APA
mdomitrovich@houstoneng.com
701.237.5065

Community Planning

Community planning can spur or hinder a sense of community, and its importance cannot be ignored. By providing the necessities for a comfortable life through proper planning, people can feel at ease and at home within their communities, creating a sense of pride, unique identity, and familiarity.

Streetscapes

Some cities will never feel like “urban jungles.” That comes in part from proper streetscapes. When planned correctly, a small downtown can feel like an urban shopping hub, and a busy city can appear to have sprung up in the middle of nature.

Master Planning

Few great things are created by accident. They are carefully fusssed over, molded, guided, broken down, and molded again. The best master plans balance tradition and advancement by utilizing attractive buffers and setbacks to protect the softer sides of the community from the hustle and bustle.

Urban Design

A common guiding force draws various disciplines together into a single unified purpose, bringing character and identity to neighborhoods, buildings, and cities that communities can proudly embrace. Urban design unifies architects, civil engineers, landscape architects, developers, and more with a common goal.

A successful planner can transform mobility, sustainability, and revitalization from mere buzzwords into reality.
EMPLOYEE SPOTLIGHT

It’s not often in today’s world that employees stick to one company for several decades. That’s not the case for four employees at HEI who have been with our company since its early years in the 70s. Learn what they have to say about their tenure at HEI.

What contributed to your long tenure?  
The work environment at HEI was always very welcoming and nurturing. I always enjoyed coming to work every morning. Most of all, I had the opportunity to work with many great people at HEI. Even after retiring from the company, I wanted to keep involved and connected with the ongoing success of the firm.

Roger Hagen  
Civil Engineer  
42 years at HEI

What’s a favorite project you worked on?  
Rural water days in the late 70s and 80s through the 90s were pretty special. I developed the design program for my master’s in civil engineering. We had very few guidelines to work with, [yet] the program worked! Thousands of miles of pipe, several pump stations, and treatment plants brought good, reliable water to thousands of people who had very little water or very poor quality water.

Gail Zehren  
Proposal Assistant  
41 years at HEI

Do you have a funny memory?  
One time a horse didn’t like me in his pasture [while surveying]. When it came time to leave, he stayed between me and the gate. I honked my horn but then he turned and kicked the truck, taking out the grill and turn signal.

What advice can you give to current employees?  
You have access to a wealth of knowledge and experience possessed by your fellow employees. Do not be afraid to tap that knowledge. The knowledge and experience you gain in working at HEI not only benefits the company but also is a valuable investment in professional development.

Lawrence Woodbury  
Civil Engineer  
41 years at HEI

Any final thoughts on HEI?  
As I look back on my 42 years at HEI, I feel fortunate for having been able to experience being on the survey crew, inspecting, being a design engineer (I still do design!), becoming a project engineer, being a project manager (working with great clients), an owner, and on the Board [of Directors]. It’s been a very fulfilling career, and I have had the enjoyment of working with the original owners and all the rest of the newer owners throughout the years. For me, it ended up being a perfect fit.

Gail transitioning from typewriter to a CPT computer with 8” floppy disks in 1988.

What contributed to your long tenure?  
The great people and that I was encouraged to grow and learn with the company. Everyone works so hard here, but [HEI] values its employees and makes sure we have fun also.

Gail Zehren  
Proposal Assistant  
41 years at HEI

Do you have a funny memory?  
As one of my bosses was on the phone making a job offer, I heard him ask for “Rod Person” and knew he was looking at the “position applying for” line instead of the person’s name! We had a good laugh over that one!

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WELCOME NEW EMPLOYEES

Michael Domitrovich, APA
Urban & Community Planning Services Director
Fargo

Kelly Elkin
Survey Technician
Dickinson

Kathy Fenger
Admin. Assistant
BRRWD

Nic Graham
Survey CAD Technician
Bismarck

Nate Hesse
Survey Technician
Fargo

Gary Holt, PLS
Professional Land Surveyor
Bismarck

Martin Joyce, EI
Civil Engineer
Fargo

Ken Kirby
Survey Technician
Minot

Paul LeClaire, EI
Civil Engineer
Fargo

Jeff Lutz
Environmental Scientist
Maple Grove

Kristin Michels
Admin. Assistant
Minot

Jerry Neu
Designer
Maple Grove

Rachel Olm
Scientist
Maple Grove

Doug Perkins
Office Manager/Project Manager
Dickinson

Hannah Rollin, EI
Civil Engineer
Fargo

Alex Schmidt, EIT
Civil Engineer
Maple Grove

Paul Voeltz, EI
Civil Engineer
Fargo

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Years of Service

**MILESTONES**

**20 years**
- Curt Skarpohl, PE, PLS, CFedS, CFM
  Principal/Civil Engineer
  Fargo
- Jeremy Wurgler, PLS, CST
  Survey Technician
  Fargo
- Don "DJ" Josund, CST
  Survey Technician
  Fargo

**10 years**
- Ron Adrian, PE
  Civil Engineer
  Thief River Falls
- Ryan Haring, CST, LSI
  Survey Technician
  Fargo
- Jeff Langan, PE
  Principal/Office Manager
  Thief River Falls
- Doug Litterer, PE
  Designer
  Maple Grove

**5 years**
- Brent Aakre, EI
  Civil Engineer
  Fargo
- Matt Isley, PE
  Civil Engineer
  Fargo
- Kody Jacobsen
  Civil Engineer
  Minot
- Adam Nies, PE
  Civil Engineer
  Fargo
- Casey Rieke
  IT Support Technician
  Fargo
- Aaron Schmidt, EI
  Civil Engineer
  Bismarck

**SALUTE TO OUR VETERANS**

**VETERANS DAY 11/11**

- Ron Adrian, PE
  Civil Engineer
  Thief River Falls
- Brent Barber
  Civil Technician
  Fargo
- Kelly Elkin
  Survey Technician
  Dickinson
- Danny Imdieke
  Civil Construction Tech.
  Bismarck
- Travis Johnson, PE
  Civil Engineer
  Bismarck
- Danielle Scheffler
  Admin, Assistant
  BRRWD
- Dan Sunram
  Survey Technician
  Fargo
- Jerry Wallace, EI
  Civil Engineer
  Fargo
- Sherwin Wanner, PE
  Principal/Office Manager
  Bismarck
- Lawrence Woodbury, PE, PhD
  Civil Engineer
  Fargo
HEI’s annual golf tournament coordinated by our Bismarck office had another great year raising $11,000 for the Dakotas Region of the American Red Cross.

The tournament was held on May 29 at Prairie West Golf Course. Participants of the 19 golf teams enjoyed games during the 18-hole scramble, such as Bean the Bozo, Par-3 Poker, door prizes, and more. The tournament started in 2011 to raise funds after the devasting floods in central North Dakota that affected Minot, Bismarck, Mandan, and the surrounding communities. HEI has since continued the partnership with the American Red Cross to continue to raise funds to support disaster relief efforts in the Dakotas Region. Many thanks to all the sponsors and supporters of this wonderful event!

**New for 2016**
We’re excited to announce registration will be online for the 2016 tournament! Visit our website for updates.

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**TAILGATE WITH HEI!**
Stop by HEI’s tailgating spot to get fired up for Bison games at the Fargodome!

All of our clients and employees are welcome to stop by our tent and celebrate. Look for the HEI flag in Lot G Row B 1-2.
1. Several employees showed off their athletic abilities during the Corporate Cup hosted by the Fargo Moorhead West Fargo Chamber.

2. HEI employees at Boo at the Zoo in Minot gave out treats to more than 1,000 kids.

3. Bismarck employees showed off their pumpkin carving skills for Halloween.

4. HEI hosted its first companywide Steps Challenge to encourage moving during the workday. Jeff Renner won the grand prize of 8 PTO hours.

5. Employees participated in the Ronald McDonald House Charities Share-A-Meal program in Fargo by cooking comfort foods for families with children in the hospital.

**Accomplishments & Recognition**

Storm Water Solutions (SWS) featured Joe Lewis, PE, CFM, as a rising star among the next generation of stormwater and erosion control industry leaders in the SWS 10th Anniversary Special Edition. Lewis was recognized for his unique blending of civil engineering and GIS technologies.

Drew Kessler was interviewed by Soybean Business magazine to bust the myths on Minnesota’s new buffer legislation that designates an estimated 110,000 acres of land for buffer strips statewide. The article was featured in the September–October issue.

Luke Beckermann
Structures
Fargo

Matt Isley
Structures
Fargo

Adam Nies
Water Resources
Fargo
VOTED AMONG TOP 50 BEST COMPANIES BY PRAIRIE BUSINESS

HEI once again earned a spot among the 50 Best Places to Work in the Northern Plains according to Prairie Business magazine. This is the second consecutive year HEI has received this honor.

The magazine used anonymous employee satisfaction surveys to rate companies according to various criteria such as work environment, employee benefits, and employee happiness. Nearly 2,500 surveys nominating more than 140 companies were submitted.

HEI is extremely proud to receive this great honor and recognition. We have always prided ourselves on having a strong, positive work environment and family-friendly company culture.

OUR WEBSITE HAS A NEW LOOK
and it’s mobile friendly :) check it out today! www.houstoneng.com