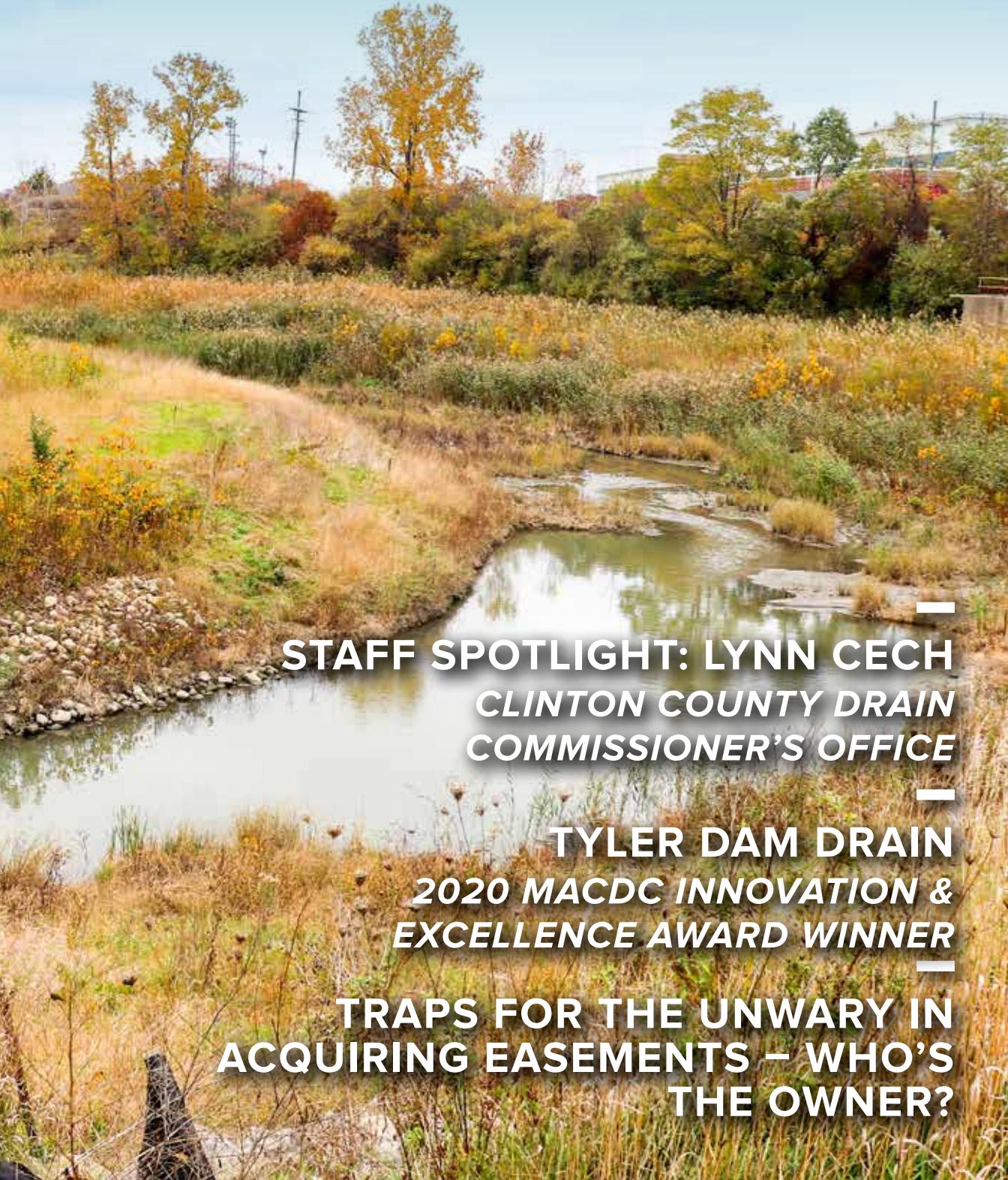


PIPELINE

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MANAGING MICHIGAN'S WATER RESOURCES SINCE 1899



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STAFF SPOTLIGHT: LYNN CECH
*CLINTON COUNTY DRAIN
COMMISSIONER'S OFFICE*
—

TYLER DAM DRAIN
*2020 MACDC INNOVATION &
EXCELLENCE AWARD WINNER*
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Cover Photo: Tyler Dam Drain after construction, provided by Spicer Group, Inc.

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PRESIDENT'S MESSAGE

JOE BUSH

Ottawa County Water Resources Commissioner



I don't know about you, but I think that 2020 could just "flow downstream" and be done... so much has happened in the last 5 months across our state, we all feel like waving our own white flag.

Writing anything that is super profound or something that you haven't heard before, just isn't going to happen. We all know that these are "unprecedented times" and again, I could go my whole life and be fine without ever hearing that phrase again.

Water, yes, it is still rising; flooding is still happening, and our conversations with engineers or constituents are now many times, held through Zoom. Times have definitely changed quickly.

To keep things simple, I thought I would share a couple of acronyms that may help us as we continue to work for our constituents and the people we come into contact with each and every day.

In our jobs, we all deal with **drainage** in some way, here are some reminders that we could all use.

D: Demonstrate leadership within your own county.

R: Recognize the capacity of the drain – what is it designed for? What is the area it is draining?

A: Assure that it is, or is not, the responsibility of the county to maintain.

I: Instruct the contractor to properly excavate and remove woody debris and sediment out of the drain.

N: Never underestimate the power of water flow.

A: Apply drain code when necessary and seek assistance if there is any misconceptions.

G: Gather information on drain prior to any work being done from county office.

E: Educate constituents on the importance of good drainage.

In every part of our infrastructure throughout our state, there is a **cost** to repair and/or maintain.

C: Can the work be done without a petition or a resolution from the township?

O: Organize the communication regarding the particular drain with the road commission and that township where the drain resides in.

S: Select proper contractors to complete maintenance and work on the drains.

T: Teamwork throughout the project by means of communication will be vital for a job well-done.

I consider each and every one of you essential in your own counties throughout our state. Please continue to be safe, work hard, and rest. As President, I continue to encourage you to reach out in any capacity that any of you may need – a piece of advice, a listening ear, whatever it may be, we are family and we are here for one another.

Take care and be well,

Joe Bush
MACDC President

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OF TRUCKS* 49

- RCP uses more trucks
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STAGING

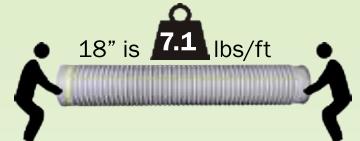


- HP Storm & N-12 are able to be stacked high
- Nest smaller diameters



- RCP stacks two high

STRINGING



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- Requires machinery

* Based on 5,000 feet of 30" diameter pipe.

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- 250 joints using HP Storm and N-12 (625 joints with RCP)



30" ADS Pipe:
Installation Rate
of 200 ft per day*

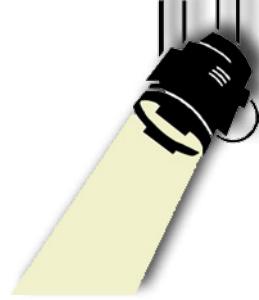


30" RCP:
Installation Rate
of 88 ft per day*

*Data compiled from RSMMeans

STAFF SPOTLIGHT: LYNN CECH

DRAIN ASSESSING SPECIALIST, CLINTON COUNTY DRAIN COMMISSIONER'S OFFICE



Cech

Walking into the Clinton County Drain Commissioner's office, the friendly face that greets you is that of Lynn Cech, long-time drain office employee. As the Drain Assessing Specialist for the office, Lynn's key responsibilities are handling drain assessments, providing assistance and support

through the entire drain petition process, responding to payoff inquiries, reviewing and distributing the mail, and answering phones. Lynn is a notary public, so she is also called upon to notarize drain easements, sometimes making house calls. As the only full-time administrative staff for the office, Lynn's job duties often run into the category of doing whatever is required

to get the job done. In addition to her drain office duties, Lynn provides the administrative support for the Clinton County Remonumentation program.

Lynn very much enjoys the autonomous nature of her position and appreciates the fact that if something does not get done, it is her fault only. However, the time limits involved with the assessing process can create challenges, as she often has to wait for others to complete their tasks before she can begin processing her assessments. Lynn also loves the multi-faceted nature of drain office work. She states, "When [the late] Tom [O'Bryant] told me it would take me two years to learn this job I thought he was crazy, as I am a fast learner; but there are so many aspects in this job that only come up once a year," so it turned out Tom "was right." The first year she worked in the office, Lynn didn't understand just how time sensitive drain assessments were,



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resulting in Tom making her work through a weekend to get them done. It was a lesson well-learned; she's never had to work another weekend to finish assessments since that time!

Working for a public office, Lynn understands that service is key. Even when that one frustrating member of the public calls and talks nonstop until hanging up, Lynn banks her frustration and presses on. Her work background has made her uniquely perfect for her role at the drain office. She started her career at a title office where she learned the intricacies and exactness required for dealing with property descriptions. She leveraged that experience to get her foot in the door at the County Register of Deeds office. And then she took the opportunity to join the drain office in 2000. All while keeping her day job, Lynn has maintained working in the ultimate service industry: waitressing at a local restaurant. While drain office administration and waitressing do not have obvious overlaps, the commitment to public service is paramount for both. Lynn says, "I love working with people." And it is that stellar public service that Lynn is known for in both settings. She is also an election worker for her local township.

This year marks Lynn's 20th anniversary at the drain office. All those years have been spent

working with Commissioner Phil Hanses and Deputy Jon Morrison. Lynn appreciates Phil's management style, although she sometimes (jokingly) threatens him with bodily harm when he makes last-minute changes to assessments. In 2005, Clinton County was one of the first counties to use BS&A for assessing, so she and Phil helped write the programs and mentored other counties using it.

Lynn says that Jon is very easy going and fun, but told of a time when, knowing of Lynn's aversion to bats, hid a dead one in a coffee can for her to find! While some might not laugh at this practical joke, Lynn takes it all in stride and says of the office, "We... have an awesome crew we work with here. That is what makes it easier to come to work every day. We all get along so well and our personalities click!"

When not working, Lynn enjoys spending time with family and friends, and in particular her boyfriend Kurt and his "wonderful" adult children at his place in rural St. Johns – a mini-farm that includes pigs, chickens and pheasants. One activity that has become a family holiday favorite is when Kurt and kids Jordan, Paige and Brian having a Food Network-type of cooking competition, with Lynn and the kids' significant others serving as judges.

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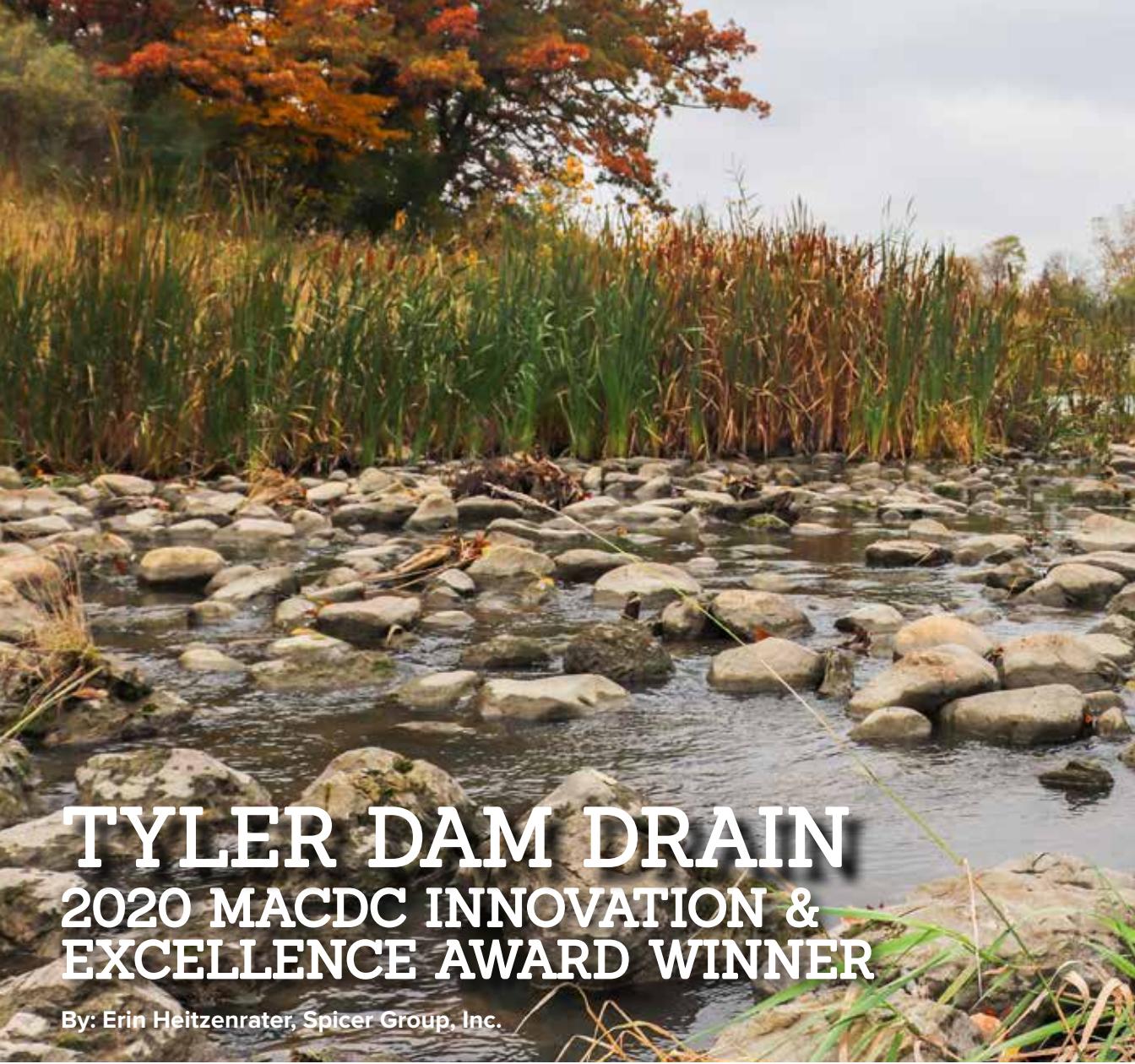
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TYLER DAM DRAIN 2020 MACDC INNOVATION & EXCELLENCE AWARD WINNER

By: Erin Heitzenrater, Spicer Group, Inc.

A Combination of Issues

On the eastern edge of Washtenaw County, in Ypsilanti Charter Township, are two now-defunct factories that once churned out automobile parts for Ford, General Motors, and B-24 Liberator bombers during WWII. The Willow Run Creek meanders between these properties, and in the 1940's, a dam was built along the creek to create a stormwater impoundment pond in a natural ravine.

This impoundment was called “Tyler Pond” and provided water to fight fires for the factories. Tyler Pond was fed by stormwater, and the water level was controlled by the Tyler Dam. When the plants closed, the Tyler Dam was passed to the Charter Township of Ypsilanti. In 1995, the pond was the target of a \$75 million EPA Superfund clean-up because of the industrial nature of the area.

Spanning the width of Tyler Pond were two

sanitary sewer mains built in the 1970's that were supported by a timber trestle bridge. The 24-inch gravity sewer and a 36-inch force main connect to a pump station along Airport Road in Ypsilanti Township and a nearby wastewater treatment plant. The Ypsilanti Community Utilities Authority (YCUA) owns and operates the sanitary sewer lines and the wastewater treatment plant.

Spicer Group was hired by YCUA to conduct a structural analysis of the aging trestle bridges and developed several different options to replace or repair the trestle structure. Around the same time, safety inspections of the Tyler Dam identified potentially costly repairs that were needed to bring the dam up to MDEQ dam safety standards.

Separately, Ypsilanti Township had begun investigating removing or decommissioning the dam structure in 2010 to prevent long-term maintenance costs. Several options were



Tyler Dam Drain after construction with livestaking growth.

considered ranging from a temporary drawdown of the impoundment to the complete removal of the dam. A downstream lake community strongly opposed the dam removal due to the legacy of



Impoundment before construction.

toxic contamination and lingering clean-up needs on adjacent industrial sites.

Ultimately, Ypsilanti Township opted to permanently dewater the impoundment through an existing 54-inch pipe under the dam, leaving the dam in place. This solution allowed the dam to be decommissioned, minimizing future maintenance costs, and did not require full dam removal, which would have been a significant additional expense.

Partnering for a Solution

After Tyler Pond was dewatered, the natural channel would be restored to the ravine. To aid in the completion of both projects, Ypsilanti Township contacted the Washtenaw County Water Resources



Installing channel protection in the drain.

Beginning the Transformation

The WCWRC hired Spicer Group to design improvements that would transform Tyler Pond into a county drain. Spicer Group created a solution that incorporated the decommissioning of the dam, which had already been started by the Township, drawing down Tyler Pond, and replacing the failing utility trestle.

“Preliminary design had already been started on stream restoration,” Evan Pratt, P.E., the Washtenaw County Water Resources Commissioner said. “We and the Township were both thrilled that the Spicer team found over \$750,000 worth of value engineered savings from existing estimates.”

Commissioner (WCWRC) to follow the procedure of establishing the Tyler Pond as a new county drain, the Tyler Dam Drain, in Washtenaw County, as laid out in the Michigan Drain Code.

After receiving an application and petition from Ypsilanti Township to establish a portion of the Willow Run Creek as a county drain, the WCWRC office convened a board of determination on October 20, 2016, which included three property owners from Washtenaw County. Spicer Group presented the history of the Tyler Pond and the engineering observations on decommissioning the dam and establishing the new drain.

The Tyler Dam Drain provides continuous drainage from Tyler Dam and upstream county drains. It is connected to several Chapter 20 Drains that service more than 4,000 property owners in a dense urban area. Transportation infrastructure is also significant with roads making up 25 percent of the district. The Ypsilanti Township #7 Drain, Willow Run Drain, Beyer Relief Drain, Beyer Dam, and the Tyler Dam are all major infrastructure in the Washtenaw County drain system.

At the public hearing, many people attended and provided comments and information. The board of determination then found it necessary to proceed with establishing this portion of the creek as a new county drain. Petitioning the WCWRC to establish this portion as a county drain facilitated the necessary permitting and funding required to make these projects a reality.

Due to different funding streams being used, three different projects were bundled together.

“This was a situation where it was a real benefit to have one consultant managing all of the overlaps between design, permitting, and developing contracts to make it easier to assign costs to different funding sources,” Pratt said. “EGLE was also very accommodating by taking time to work together on the best permitting process for the big picture. It also helped that a single contractor won all divisions.”

The trestle that spanned more than 230 feet was replaced with a nearly 18-foot-high berm and large-diameter arch culvert structure that stretched over the newly established drain and was used to safely bury YCUA’s sanitary sewer pipes above the drain. The newly exposed ravine was then reconstructed into a natural two-stage channel county drain.



Armored storm sewer outfall under construction.

To convert the newly drained pond into a free-flowing county drain, a new channel had to be excavated through the sediment that had accumulated in the pond bottom. This boggy soil made it difficult for construction crews to access the area and bring in needed equipment. Also, the newly exposed drain bed was highly susceptible to erosion after having been under water constantly for several decades.

To prevent erosion and promote the overall drain health and water quality, biodegradable contour wattles were used after the drain banks were constructed, and substantial rip rap was put into place.

Additionally, more than a dozen outfalls from nearby residential and commercial areas were extended outwards into reinforced and armored channels. French drains were also implemented to reinforce the channel's drainage capacity and prevent soil erosion. Heavy riprap was then placed along the drain bank for reinforcement. Live staking was placed along the banks and various seed mixtures were used to preserve their shape and protect against erosion.

Utilizing Unique Solutions

Introducing a culvert for the drain and crossing in lieu of the proposed trestle was a relatively unique solution as normally, culverts are used primarily for transportation projects. Utility lines are routinely open cut or drilled under a water course. In this instance, using a culvert for two utility lines allowed the YCUA the opportunity to bury their previously exposed lines while saving considerable money compared to boring or constructing a new trestle.

The existing 24-inch gravity line could not have been buried below the drain due to elevation limitations. The 30-inch force main could have been directionally drilled under the drain but it would have been difficult to transition to meet the existing pipe inverts in the space available, and the construction would have been very costly.

By utilizing the culvert and "inverting" the typical drain/utility layout, the construction was relatively easy. The biggest challenge became armoring the embankment around the culvert to allow for short-term re-watering of the impoundment during extreme rain events. Large amounts of heavy rip-rap and fabric were used, and existing clay material from areas around the drain were used to stabilize the embankment under the utility lines.



Dewatering coffer dam around Tyler Dam.

An added benefit of the culvert is it also functions as a restricted outlet, providing for water quality benefits. This benefit was the primary reason Washtenaw County agreed to accept an aging dam into their systems. The county already owns another 1940's-era dam that has been used for water quality since acceptance in 1980.

Washtenaw's goal for both dams is to allow fish passage while continuing to provide water quality benefits to a four-square mile district that was largely developed before detention and more modern stormwater management concepts. Willow Run discharges into Belleville Lake, an impoundment on the Huron River that is a popular fishing and recreational lake.

While the drain runs beneath the culvert and the sewer lines cross over top, this project reduced the risk of sanitary sewer failures and leaks into the waterway, improving the lifespan, maintenance, safety, and operation of the sewer lines for YCUA and the customers they serve.

Coordinating the Complex Plan

Transforming the Tyler Pond into a county drain while also considering two more municipality-owned asset improvement projects presented complex challenges for the project team and the contractor's construction crews to overcome. The project required consistent communication and carefully-coordinated construction activity.

In order to construct within the original Tyler Pond area, a cofferdam was constructed around the Tyler Dam to allow crews to draw the water down six inches per day, as dictated by the permit issued for the project.



Spicer Group Project Manager Bill Becker inspecting the finished Tyler Dam Drain project.

This process took several months to complete. To construct the culvert and drain, the Willow Run Creek that fed the original Tyler Pond was temporarily diverted around the culvert cofferdam.

Pumps were also kept on standby to handle increased flows in the stream. Once the pond was drained, construction crews also had to contend with saturated soils that made it difficult for equipment and workers to maneuver around the site.

Benefits to the Environment

The newly-established Tyler Dam Drain carries stormwater from upstream lands which are a mix of roadways, residential, and commercial uses, into the Willow Run Creek and ultimately into Belleville Lake.

Before this project, the only improvement that had been made to the area was a dredging of the pond to remove contaminated soils by the

Environmental Protection Agency in the 1990's. The existing stormwater outlets were in poor condition and undersized for flow now coming through them. The drain was filled with sediment. This did not create an environment that was conducive to overall drain health, water quality, or wildlife conditions in the area.

Spicer Group designed this project to create a free-flowing drain with a two-stage channel that allows for improved water quality downstream and an environment more conducive to native wildlife.

Removing decades worth of sediment from the drain bed allowed crews to place more than 1,160 square yards of heavy riprap on the newly formed drain banks for reinforcement. This helped stabilize the channel bottom in areas of steeper slopes and protected the banks against the high velocity water that flows into the drain from newly extended and reinforced outfalls.

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Installing sanitary sewer lines over new drain culvert.

The drain center was also designed to follow the naturally-formed ravine already in place. A meandering low-flow channel was designed to reduce overall sediment transport into Belleville Lake.

To also promote and improve the environment, more than 5,000 live stakes and plant plugs were installed along the drain banks to reduce the risk of severe erosion. Red osier dogwood live stakes, along with silky dogwood, grey dogwood, and arrowwood viburnum plant plugs take root and help protect and stabilize the drain banks, which improves the drain's overall health. A riparian seed mix was also used, which takes root and grows better under wet soil conditions.

Funding the Fix

Developing the Tyler Pond into the Tyler Dam Drain allowed the WCWRC to use Special Assessment funds to facilitate the necessary drain work needed. This made the project of decommissioning the dam and building the culvert over the drain cost effective.

The project would have strained Ypsilanti Township's budget to complete themselves, and would have been much more difficult for the Township to assess everyone in the drainage district. By combining the funding sources, the project was made much more feasible for each of the stakeholders.

Funding for the overall project was a mixture of State Revolving Funds for the utility culvert and associated utility work, Township funding for some limited work on the dam, and Special Assessment funds for the drain work. Due to sound legal advice in 1980 when the upstream

Beyer Dam was accepted by Washtenaw, a strong negotiating position allowed for contributions from a redeveloped industrial site to offset property owner costs. Because the district is the largest low-income part of the County, Pratt said it was very helpful going into the board of determination hearing knowing that the project would be funded with no drain assessments to property owners.

Keeping track of which pay items applied to which funding source required detailed record keeping and diligent monitoring in the field. Each funding source had their own specific requirements for contract language and payment procedures that needed to be followed.

Each portion of the project was also designed and constructed with maintenance costs in mind. Now that the project is finished, this area will cost less for the WCWRC to maintain, the Township will not have to expend funds to maintain the dam, and the buried utility lines across the culvert will be easier and safer for YCUA to maintain.



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PROTECTING MICHIGAN'S WATERS: HOW ONE SMALL LAKESHORE TOWNSHIP HELPED CLEAN UP THE GREAT LAKES

By: James Kirkwood, PE, Prein&Newhof

Being known as the Great Lakes State is not something most Michiganders take lightly. There is a considerable amount of pride in being associated with the blue waters and sandy beaches that attract people worldwide to vacation along our 3,288 miles of freshwater coastline, not to mention the number of us that head out to cottages, hotels, and campgrounds on the weekends. Throughout the State of Michigan, you are always within six miles of water—rivers, inland lakes, or a Great Lake—making our water resources a significant driver in our overall economy.



Looking north along the shore of Lake Huron

Sounds idyllic. Blue waters translating into millions of dollars that funnel into lakeside communities every year. But what happens when seasonal growth creates underlying infrastructure issues that turn blue waters into health and environmental threats, hazards severe enough to shut down recreational waterway use and significantly reduce revenue streams for the residents of these communities? What is the downside of not managing the necessary infrastructure needed to protect our communities and our resources?

The following is the story of how one Michigan-thumb-area township found itself entangled in this very situation. How a group of professionals—Federal, State, and local agencies, as well as legal, financial, and engineering consultants—came together and right-sided a serious situation into an economically viable and healthy solution for the community, area tributaries, and Lake Huron.

How it All Began...

Worth Township, Sanilac County, Michigan (population 3,669) is home to an influx of summer residents like so many other lakeshore communities in Michigan. With the onset of retiring baby boomers, this small Lake Huron

community began seeing the conversion of summer cottages into year-round retirement homes—the modern-day concept of living the dream, but one with the makings of a nightmare.

A popular three- to five-mile stretch along Lake Huron on M-25, home to both high groundwater tables and houses situated on small-sized lots, was

overloaded with onsite septic systems that were aging, undersized, and failing fast. While several homeowners remodeled and expanded, little thought was given to address the infrastructure below to accommodate larger dwellings.

Consequences? Untreated, septic effluent of human origins emptying into yards, roadside ditches, storm sewers, streams, and outfalls that poured into Lake Huron. This was a serious, ongoing, public-health risk overlooked for many years.

In 2003, the Michigan Department of Environmental Quality (MDEQ) conducted a water quality survey, which indicated surface water conditions in this area were of grave concern and progressively becoming worse. Approximately three miles of this five-mile length of lakeshore was placed on Michigan's list of impaired water bodies. Sewage conditions within the Township presented an extremely serious health and environmental hazard for anyone who lived, traveled, and swam in the area.

Through another round of water quality testing in 2004, the MDEQ determined that the levels of fecal coliform and E. coli bacteria were growing at alarming rates. Addressing the safety hazards, the MDEQ required the Township to enter into a district compliance agreement to construct a wastewater collection and treatment system by June of 2008.

The MDEQ filed a lawsuit against the Township in 2007 for failure to carry out the agreement.



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PROTECTING MICHIGAN'S WATERS CONT.

The court ruled in favor of the MDEQ. However, the Township still had not moved forward by the original deadline and was found in contempt of the ruling. Township officials cited lack of financial resources and filed an appeal with the State Court of Appeals asserting the estimated cost for construction would be roughly \$30,000 per household, hardly an amount the average resident could afford with a median household income (MHI) of \$37,129. It was also argued that a municipality does not bear the responsibility for residents polluting waters with human sewage.

Worth Township finally conceded in early 2010 to the agreement and hired a consultant to engineer a system. Design was halted later that summer after a Court of Appeals ruling declared that the MDEQ could not force the Township into constructing a treatment system.

The MDEQ appealed the Appellate Court ruling to the Michigan Supreme Court. In May of 2012, the Supreme Court reversed the decision and established that a municipality is responsible for illegal discharges into Michigan waters. Nine years after the initial water quality survey, the final ruling required the Township to pick up where it left off and construct a suitable system for their community.

And Now, the Rest of the Story...

In 2010, the newly appointed Worth Township Supervisor, Phil Essenmacher, contacted the Rural Community Assistance Partnership (RCAP)—a national network of non-profit organizations that provide technical assistance, training, resources, and support to rural communities—for help in navigating the murky waters of planning and financing infrastructure projects. RCAP advocated for the township and helped organize and execute a plan of action that would comply with the court ruling and keep the project at an affordable cost for residents.

A team met monthly in Lansing for more than a



Pump station #3

According to Sanilac County Drain Commissioner Greg Alexander, “This circumstance is a troublesome situation to say the least. If the Township prevailed at the Supreme Court level, the MDEQ’s ability to enforce the Clean Water Act would have been severely compromised. The MDEQ would not have been able to require cities, townships, or counties to eliminate raw sewage discharges into the environment. This project alone sets precedence for all future work for enforcing the cleanup of our water resources in the Great Lakes Basin.

“When the team at Prein&Newhof stepped in to design the project, the first order of business was to design an affordable project. They worked collaboratively with the Township, County, USDA, and the MDEQ, now EGLE, to not only design an efficient system but one that was cost-effective. In the history of the USDA, Worth Township is the single largest loan and grant program ever awarded in Michigan, which demonstrates the severity of the situation.”

year. Members of the team consisted of officials from the United State Department of Agriculture Rural Development (USDA), MDEQ, RCAP, Sanilac County Health Department, as well as consultants from bond counsel Dickinson Wright, and financial planner Bendzinski & Co.

At the urging of the USDA, RCAP conducted an income survey, which required responses from ninety-eight percent of the proposed, year-round sewer-district residents. A large-percentage sample size was crucial for an accurate estimate of the MHI, since year-round residents only made up about 40 percent of the properties within the proposed sewer district.

In late 2012, RCAP reached out to Prein&Newhof for a professional opinion on the wastewater conditions and review of the plans designed by a previous engineering firm hired by the Township. Boots on the ground, Prein&Newhof started with an evaluation of area terrain only to discover the challenge of deep ravines separating the surrounding neighborhoods. The preliminary engineering design developed by Prein&Newhof demonstrated that the total number of pump stations initially proposed could feasibly be reduced from fourteen to eight. A further recommendation implemented a lagoon wastewater treatment facility rather than a mechanical treatment plant to minimize construction costs, as well as annual operation and maintenance costs.

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Municipal Law

Clark Hill's Municipal Law Group represents over 200 municipalities including drain and water resources commissioners, drainage boards, counties, county road commissions, cities, townships and villages. Clark Hill serves as general counsel of numerous other government and inter-governmental entities including brownfield redevelopment authorities, fire and other emergency services boards, school districts, sanitary sewer authorities and more.

Public Finance

In coordination with the Municipal Law Group, Clark Hill's Public Finance Group has comprehensive knowledge of federal and state laws that govern the issuance of tax-exempt debt as well as state and local election laws. Clark Hill has a wealth of experience in drafting all legal documents relating to the issuance of tax-exempt debt for drain and water resources commissioners.

Environmental & Natural Resources Law

Clark Hill's Environment, Energy & Natural Resources Group provides counseling and litigation experience with deep substantive knowledge in all areas of state and federal environmental laws and regulations. Our services include regulator counseling and defending environmental remediation and enforcement actions.

CLARK HILL

Eleven years after the first water quality survey, the Township took another step forward, and hired Prein&Newhof to redesign and administer the construction of a wastewater collection and treatment system. Securing a funding source was now the top priority for the project. The USDA offered ultra-low financing rates and a 40-year payback period. The income survey previously completed by RCAP demonstrated that the Township qualified for these ultra-low rates.

With the project back on pace, the MDEQ issued construction permits in October 2016. The Township advertised five separate contracts for bids in January of 2017 with a bid opening date scheduled for February 15.

While all signs indicated any major hurdles for the project had been overcome and the treatment system was soon to be a reality, recession backlash stepped in to give the project another obstacle. Construction budgets for the project had been estimated during the recession when bids were not only at a low, but contractor competition also had largely been heightened. In 2014, when the economy began to recover, contractor pricing began to make a steady climb back up the scale.

In 2017, the estimate of probable cost for the five contracts was \$36 million, well over the original USDA budgeted estimate of \$20.1 million from 2012. Bids came in at \$33.9 million—sixty nine percent over the original budget. The four contractors (Raymond Excavating [2 contracts], Boddy Construction, Dunigan Bros., and Pamar Enterprises) agreed to sign affidavits holding their bids for the next eight months while the USDA reviewed the project, completed their national pooling of funds, found the dollars, and obligated subsequent funding.

By the third week of July 2017, the USDA approved the additional funding. As required by Michigan law, a public meeting was scheduled for property owners to object to their special assessments with thirty additional days to file an appeal with the Sanilac County Circuit Court. Only eleven property owners out of 1,700+ appealed their assessments. The small number of appeals allowed the Township and the USDA the opportunity to move forward with the bond closing. The four contractors that held promise to their bid amounts received Notices of Award for the project on the day of the bond closing.

Worth Township obtained a \$30.4 million loan and an \$8.9 million grant through the USDA Water & Environmental Program, as well as an additional \$3.2 million grant from the MDEQ to

pay for the project. This \$42.5 million included the costs for land and easement acquisitions, as well as construction, legal, financial, and engineering services plus contingencies. Interest rate terms on the USDA loan were at two percent with amortization over 40 years. The Township established a \$15,000 assessment per residential equivalent unit (REU) on all properties within the proposed sewer district. Property owners will pay monthly user fees to cover the operation and maintenance of the system, as well as a small portion of the debt reduction.

Sanilac County stepped in with available bonding capacity and authorized the sale of the \$30.4 million in municipal bonds. Greg Alexander, Sanilac County Drain Commissioner also administered the five construction contracts for the project—three pipe contracts, one pump station contract, and one lagoon treatment facility contract. He also administered the professional services agreement for the construction engineering phase of the project.

The overall project consisted of 150,000 feet (28 miles) of gravity sewer and pressurized force main, eight pump stations, and a lagoon treatment facility. Ninety percent of the wastewater collection system spanned four miles north–south along the coast of Lake Huron and one-half mile



Constructing liners on pond #2



Transfer structure & pond #2

east–west between M-25 and Lake Huron. The system was designed to transport 290,000 gallons per day (maximum flow) to the lagoons located two miles to the west of the collection system.

During the design phase, Township officials approved the purchase of seventy-two acres of land for the new lagoon treatment facility. The lagoons were constructed with a geo-synthetic clay liner (GCL). A PVC liner on top of the GCL underlays each pond. Twelve inches of sand cover the PVC liner, and six inches of stone riprap overlays the sand.

The lagoons consist of five ponds: the first two small aeration ponds act in series to clarify the wastewater while the other three large oxidation ponds act to polish the wastewater. The effluent is then released every spring and fall through a discharge pipe to a natural waterway that outlets to Lake Huron.

The gravity sewer pipe was solid-wall PVC, and the force main was fusible HDPE pipe. The pump stations were built using concrete wet wells with submersible pumps. Seven of the pump stations were duplexes (two pumps), while the largest station was a triplex station (three pumps).



Pond #3 & #4



Completed wastewater lagoon treatment facility

The Township had installed a potable water distribution system in 2000 and had poor record drawings, which complicated the sewer design, as well as construction. MDEQ requires a 10-foot separation between water main and sanitary sewer—keeping the field observers alert looking out for the old water mains. The construction engineering team, which included BMJ Engineers as a subconsultant, was challenged with implementing field design changes when any water mains were exposed in a sewer trench. Project engineers also had to make on-the-spot design revisions in the field to avoid any contractor-requested downtime.

The project required 169 private easements, which involved drawing initial easement descriptions for the right-of-way acquisition consultant to use when approaching property owners. There were several discussions with owners that led to alternate easement routes due to plans for property improvements.

Throughout construction, Greg Alexander, Phil Essenmacher, and Prein&Newhof attended monthly progress meetings with each of the five contractors. Greg chaired monthly BPW meetings to review and approve contractors' payment applications and change order requests. During the height of construction, payment estimates were averaging \$3 million to \$4 million per month with a peak month of \$5.1 million.

While it took well over a decade to get to a point of designing and constructing a treatment system, it only took eighteen months to construct. With construction completed in May 2019, homeowners have since been connecting to the new sewer system.

After many years, costly legal battles, and unforeseen circumstances, Worth Township finally resolved their need for implementing a cost-effective and efficient community wastewater collection and treatment system. Residents and visitors alike are now assured of safe and healthy surface waters. Homeowners are investing in their properties and building new homes, and the Township can claim the rights for being that idyllic community along the shores of Lake Huron. The Township took the steps necessary to comply with the US EPA Clean Water Act, which ensures the waters within the Great Lakes Basin are clean and safe and will continue to be a source of economic prosperity for Michigan.

TRAPS FOR THE UNWARY IN ACQUIRING EASEMENTS – WHO’S THE OWNER?

By: John S. Brennan, Fahey Schultz Burzych Rhodes

One of the more challenging aspects of getting a drain project off the ground is acquiring easement rights over the newly added or relocated route and course of the drain that traverses over private property. Unfortunately, there is no alternative; Section 73 of the Drain Code requires it. Landowners are often willing to work with drain commissioners and will often donate the needed easement to the drainage district. Other times, landowners will accept compensation in return for the easements, sometimes asking for certain conditions to be placed in the easement language.

Easement acquisition, however, is often not as simple as it sounds. The easement that a landowner provides for a drain is subject to other interests in the property that already exist at the time the easement is given. These could include mortgages, conflicting easements, oil and gas leases, land contracts, deed covenants, and residential or commercial leases to name a few. Any one of these interests could undermine the easement rights obtained from the landowner and could create the need to reacquire (and perhaps re-compensate for) the easement. While the Drain Code itself may not require that all these interests be legally addressed, other law might. That “might” turns into “will” when it comes to condemnation.

When landowners are unwilling to give an easement, drainage districts are entitled to use condemnation (eminent domain) to acquire the necessary rights. No one likes to use eminent domain both because it is unpopular with constituents and expensive. It is tempting to save money and time in the condemnation process by taking short cuts, but these have led to costly results under the Uniform Condemnation Procedures Act (UCPA), the statute that governs the process.

One of the very first steps under the UCPA is to obtain a professional appraisal and submit a good faith written offer to the owner of the property in an amount the agency considers to be just compensation. The UCPA defines an “owner” much more broadly than one might think. It defines “owner” as “a person, fiduciary,

partnership, association, corporation, or a governmental unit or agency having an estate, title, or interest, including beneficial, possessory, and security interest, in a property sought to be condemned.” So “owner” means more than its common usage and includes lessees, mortgagees, statutory lien holders, easement holders, even trust beneficiaries and others who are not in physical possession of the land. Under the UCPA, all of these persons or entities are “owners” and must be sent the good faith offer.

The consequences for failing to locate and include all of these other interested persons was made clear just over a year ago by the Michigan Court of Appeals in *Board of County Road Commissioners v. Shankle*. In this condemnation action, landowners claimed that the circuit court did not have the power to hear the case simply because the condemning agency did not provide a copy of the good faith offer to all who had an interest in the property. And they won.

In *Shankle*, a county road commission sought temporary grading permits or agreements and permanent right-of-way easements for a road improvement project. The road commission made good faith offers to the landowners, who were in physical possession of the land. However, it failed to send the offers to others with a legal interest in the property. The Court of Appeals held that strict compliance with the UCPA is required for a court to have subject-matter jurisdiction (the power to hear the case). So, because not everyone defined as an “owner” in the UCPA received the offer, the Court of Appeals held that the circuit court could not even entertain the case. The road commission had to start the process all over again.

Why didn’t the road commission send an offer to all interested parties? The answer might seem logical: someone else may have an easement on the property, but nowhere near the easement being taken, so there’s no conflict. Most mortgage companies don’t know or don’t care about easements (until, of course, they do). A trust beneficiary might not know that he or she even has an interest in the property. A statutory lien might have expired. These types of arguments were made to the Court of Appeals in *Shankle*,

and the Court held that it doesn't matter. It's up to those other interests to decide what they do or don't want to do with the offer.

Paying attention to persons who have other interests in property will sometimes create a log jam in the easement acquisition process. Mortgage companies may want compensation for subjecting their interest to the easement. Prior easement holders may demand crossing agreements or certain conditions be placed in the easement. Lien holders may want their liens discharged. However, ignoring them and then having to restart the condemnation process will lead to duplicative costs and may even require that a new assessment be obtained.

There is no short cut around obtaining a current title report prior to making a good faith offer and dealing with any interest that appears in the record. It is also advisable, especially where commercial property is involved, to investigate whether there are any tenants. Even they are "owners" under the UCPA. The process may seem tedious, but it can save vast amounts of money, time, and effort in the long run by ensuring the condemnation process goes forward smoothly.

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VAN BUREN COUNTY: HOW THE DRAIN OFFICE STEPPED INTO THE 21ST CENTURY WITH DIGITAL TRANSFORMATION

By: Ryan Miller, GISP, Wightman

Gone are the days where County office staff dust off decades old ledgers to pull property details such as names, legal descriptions, or lot sizes if an office needs to create an assessment district. No longer do staff need to spend countless hours looking at a pencil drawn map trying to determine property lines and contours in an effort to create and understand an assessment. Digital transformation (DT) is creating opportunities for easier workflows, faster search processes, and more accurate datasets for County officials across the state.

Digital transformation is simply the art of using technology – think computers and specialized software or programming - to analyze, sort, and provide accurate deliverables more efficiently and faster than traditional methods of data sorting. With many County budgets shrinking, it is imperative to utilize tools that create less work for staff.

Van Buren County, nestled just above the Michigan/Indiana border in southwest Michigan, encompasses four cities, seven villages, and 18 townships. Founded in 1829, the County ranks 25th out of 83 in the state based on county population (76,258) and 29th in terms of the size/footprint of the county (1,090 square miles).

This level of population and area has led to an incredible amount of land parcels and transactions.

Digital transformation is a big deal. So big, in fact, IDC estimated the total spending on digital transformations exceeded \$2 trillion in 2019. Many industries are behind the curve on their



Python code used behind the custom ArcGIS drain district tool

own digital transformation. Using DT in the form of redesigning outdated practices is viewed as the primary driver by 51% of the government agencies as noted in a June 2019 joint study by Government Business Council and Ernst & Young LLP. Twenty-nine percent of government agencies interviewed pointed to data analytics as having the greatest impact on public sector transformation.

The Van Buren County Drain Office knows firsthand how digital transformation can positively impact a department. In 2006, the Drain Office started working with the County

GIS (Geographic Information System) department to digitally preserve their legal drain courses and drain district records. Drain courses and districts were mapped in the GIS system using the historic, often paper legal descriptions and documents. Some of the documents dated back to the late-1800's and are extremely fragile and sometimes nearly illegible. In the last few years, the Drain Office had the opportunity to scan and preserve the historical documents through Michigan's Stormwater, Asset Management, and Wastewater (SAW) grant program. According to Michigan's Department of Environment, Great Lakes, and Energy, the SAW program, which began in 2013, allows government units the opportunity to create, update, improve, or finalize asset management plans (AMPs) for wastewater and stormwater systems. AMPs are detailed plans that have three goals: save money, streamline and improve services to taxpayers, and inform taxpayers of potential improvements needed to the systems.

Investing in DT provides organizations like the Drain Office many advantages and opportunities.

The Van Buren County Drain Office, like many, was looking for ways to do more with the time they had. In accordance with Michigan Drain Code Act 40 of Public Acts of 1956 as amended, staff wear many hats while managing the establishment, construction, and maintenance of over 540 county drains and stormwater management systems, 15 lake level control structures, Soil Erosion and Sedimentation Control (SESC) permitting, and a site plan development review program. Thankfully, the Drain Office has a wealth of experience and knowledge at its disposal. Joe Parman has spent 15 years as the Van Buren County Drain Commissioner and leads a team of three including a Professional Engineer and Surveyor, a Deputy Drain Commissioner, and an SESC and Drain Maintenance Supervisor.

The Drain Commissioners Office’s forward-thinking methodology of digitizing old land records led to increased efficiencies within its agency when it came time to administer assessments for drain projects. Wightman’s GIS team created a drain assessment tool that, using Drain Office and County GIS data, provides a fast and efficient way for staff to select a specific area on a digital map, push a button, and (dispense/create) an Excel spreadsheet that contains all property information including owner, mailing address, and parcel number. That spreadsheet can be used to facilitate communications with the affected property owners that live within a drainage district of any projects that requires assessment for improving, constructing, or

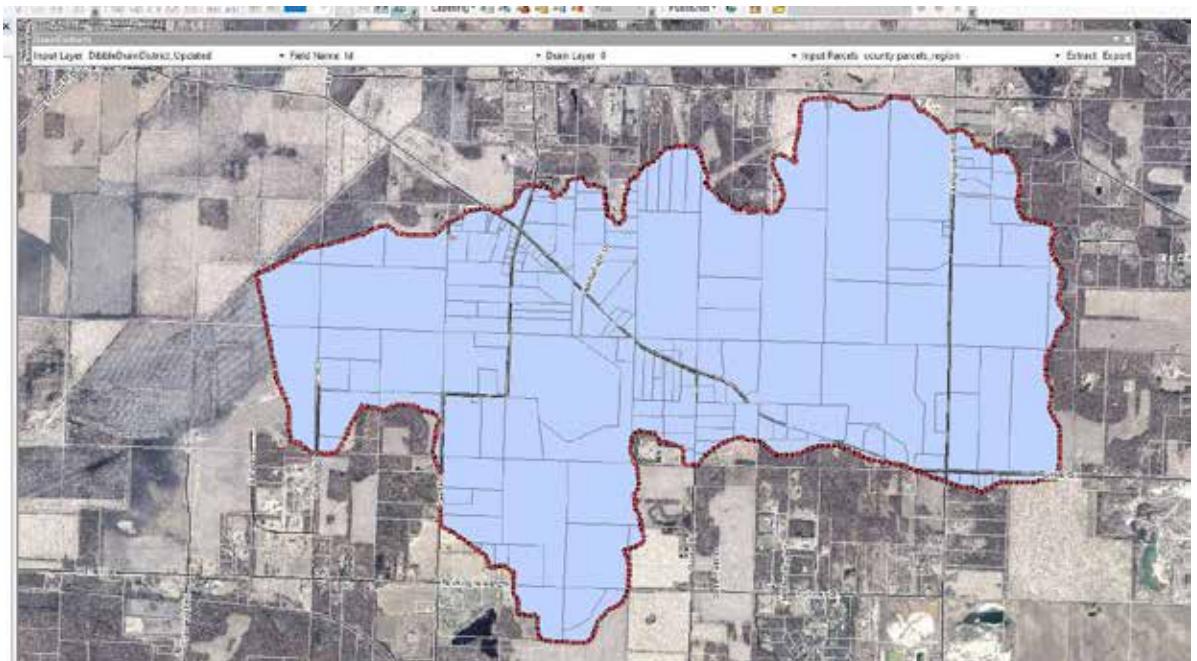
maintaining a drain. The tool also offers Drain Office staff the ability to quickly develop assessment rolls for use during the assessment process.

With faster data mining times, staff is able to efficiently provide contractors more accurate estimates for drain construction and maintenance projects. Most importantly, the use of DT equals an accurate, fair, and equitable assessment to landowners and a responsible use of taxpayer dollars.

Data used for mailings and assessments can now be gathered in seconds by the Drain Office. Following training led by Wightman GIS staff, changes and updates to the information can be made in CAD by drain employees and then that data is transferred back to the GIS database. This technology is not proprietary and can be utilized by any drain office.

“Digital transformation and GIS not only allow us to be efficient internally, but they also provide a means of communication to the community. Having accurate, timely, and consistent information about our drain assets at our fingertips allows us to make good data-driven decisions,” Drain Commissioner Parman stated.

Moving forward, the goal for the Van Buren County Drain Office is to continue to provide innovative service to the citizens of the County and to work in concert with the internal resources to grow the use of GIS in others areas of the



Custom ArcGIS drain district toolbar used to create mailing lists and assessment rolls

Drain Office and County. They have their eyes set on other GIS solutions for work management and more mobile access to their data. By collaboratively working together in concert with digital transformation in mind, both offices can save taxpayer dollars and time and that's a win for everyone.

Ryan Miller, GISP, is the GIS Manager at Wightman. With 15 years' experience in the field, he is an accomplished professional. He works with clients to acquire, analyze, manage, and interpret spatial datasets. In addition to managing a staff of four GIS professionals, he is responsible for business development, staff development, and project management within the department.



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ASSOCIATE MEMBER NEWS

F&V ADDS 10 STAFF, INCLUDING NEW CHIEF FINANCIAL OFFICER

Fleis & VandenBrink (F&V) has added 10 Michigan staff members including a new chief financial officer.

Kate Harms, a former director of financial operations for a computer hardware reseller and IT services provider, will oversee F&V's accounting team and be the main contact with banks and financial institutions.

"Kate will be working closely with the executive team to help set, monitor and meet our financial goals," said Paul R. Galdes, principal and president of F&V. "Kate brings a wealth of ability and experience as a CFO and controller as well as in the human resources and legal fields that she managed in her last position."

Additional hires at the F&V headquarters in Grand Rapids include Andrew Filler, landscape architect; Blake Blackford, construction technician; Kirstin Pimental, marketing administrative assistant; and Tyler Wittmann, Lauren Kirkconnell, Bandhan Ayon, all engineers-in-training (EITs).

Additional hires company-wide include: Deepak Gupta, PE, project manager; and Micah Burgess, engineer-in-training, West Michigan Group.

"The most difficult aspect of growth in today's environment is finding qualified people," Galdes added. "I am extremely proud of our Human Resources group and current employees for finding and attracting so many great new additions to our team."

Harms has spent most of her career in the accounting/financial world. She is a certified public accountant and has a master's degree in business administration.

Filler joins the Development and Enhancement Group with enhancement and parks development experience. A graduate of Michigan State University's landscape architecture program, Filler will be developing parks master plans and construction documents, assisting with

5-year recreation plans and will complement the group's rapidly growing capabilities in presentation graphics.

Blackford, a Central Michigan University engineering technology graduate, joins the Construction Services Group. His duties include project oversight, daily quantity tracking and record drawing reports. Blackford's experience as a foreman working for the family's contracting/masonry company will benefit clients.



Blackford



Pimental

Pimental has 20 years of experience in publishing, marketing and graphic design and has a bachelor's degree in communications from Liberty University. The part-timer brings great energy and interpersonal skills to the marketing team. Her experience in maintaining databases with law enforcement as well as assisting in a variety of different marketing functions will benefit the team.



Wittman

Wittmann, a recent Michigan Technological University grad with a degree in environmental engineering, joins the Process Group after interning last year. He has previous operations experience in both municipal and industrial wastewater treatment plants. His positive attitude and willingness to take on the next challenge has helped him hit the ground running at F&V.



Kirkconnell

Kirkconnell, a Michigan Technological University environmental engineering graduate, joins the Process

Group. The entry level engineer will assist with water and wastewater design and construction projects and preparing Asset Management Plans

(AMPs) for communities. She will also prepare design documents for treatment facilities and administer construction contracts.

Gupta, who has private consulting and road commission experience, has a civil engineering degree from the University of Michigan and a master's degree in design engineering from Saginaw Valley State University. His unique skillset with managerial experience for regional county Road Commissions will help Gupta in client relationships and overseeing road and municipal projects in East Michigan. He will work out of the Midland office.



Gupta



Burgess

Burgess is a bridge engineer working in the Farmington Hills office. She graduated from Wayne State University with a civil and environmental engineering degrees. She joins F&V with four years' experience in civil/structural engineering. Her primary duties include bridge design, drafting and analysis.



Ayon

Ayon is a traffic engineer-in-training with experience in transportation planning and landside operations. He will work out of the Grand Rapids office but will be working to support the Traffic Group, providing traffic, transportation planning and parking services. Avon has two master's degrees from Western Michigan University, in geographic information science and civil engineering.

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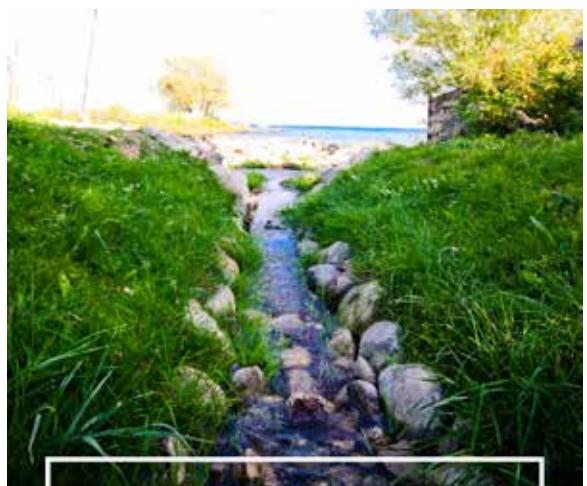
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Editor's Note: to place your event on this
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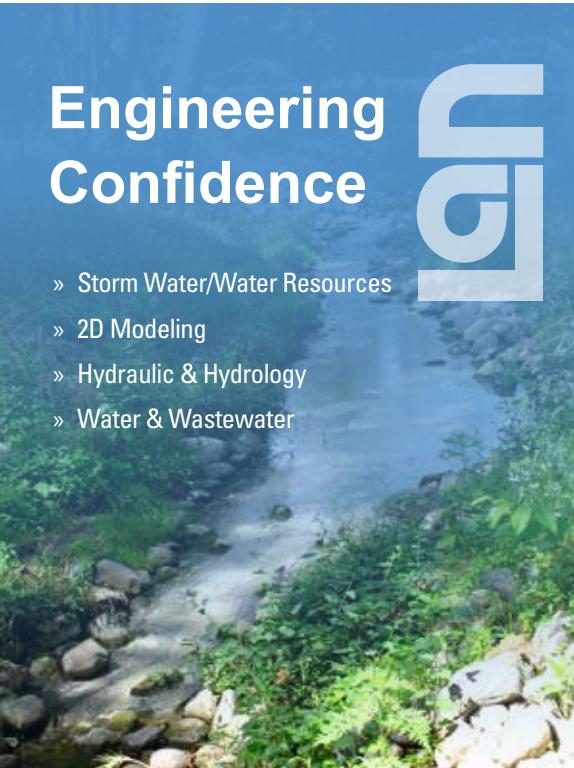
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