

PIPELINE

MICHIGAN ASSOCIATION OF COUNTY DRAIN COMMISSIONERS

MANAGING MICHIGAN'S WATER RESOURCES SINCE 1899

—
**GRATIOT COUNTY
MAINTENANCE REQUESTS**

—
**RIBE DRAIN
2021 MACDC INNOVATION &
EXCELLENCE AWARD WINNER**

—
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PRESIDENT'S MESSAGE

BRIAN WENDLING

Saginaw County Public Works Commissioner



Greetings,

Let me start by saying thank you to all of my fellow Commissioners for your confidence and trust in me to serve as President of the MACDC. I am truly humbled and it is an absolute honor. I also want to take a moment to thank all of the District Chairs and those who have agreed to serve on any of the committees. Your commitment to the association is paramount and is very much appreciated. Finally, a big thank you to all of our past Presidents. As you all know, we've had some great leaders in the past, all unique in their own special way. Although they each brought something different to the table, what I've noticed to be common with all of them whether they knew it or not, is that they were all passionate and unwavering in their mission of looking ahead and making the association better.....just as the MACDC logo states "A view of the future".

Speaking of the future, there are several drain code amendments currently being worked on, most notably an overhaul of Chapter 22 that will allow us to better manage watersheds by providing all of us with tools not currently available. In addition to Chapter 22, there are also proposed amendments regarding meeting compensation for Board of Determination members, maintenance expenditure limitations, adding a county to a drainage district in sections 197 and 135, and part 307 lake level amendments. Some of these items will likely start moving through the process relatively soon. Please do your best to stay informed of these proposals in the event you receive a call from any of your legislators that may be seeking input or comment. Should you need any additional information or have any comments, do not hesitate to reach out to your District Chair.

One final note as it relates to drain code amendments: there was a recent change to Section 31 that requires a list of drains being assessed for maintenance and the amount being assessed to be posted on our websites by November 1 of each year. Being new to all of us, this would be an easy one to overlook. Just a subtle reminder as we begin to wrap things up for the year and near the time of having assessment rolls put together.

To wrap things up, thank you again for your support. I look forward to being your voice for the association as we continue to work on current issues and events but most importantly..... focus on our view of the future.

I look forward to seeing everyone at winter conference in February. Until then, enjoy life and be safe!!

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GRATIOT COUNTY MAINTENANCE REQUESTS

FROM THE PHONE TO THE FIELD USING ESRI SURVEY123

By: Max Clever, P.S., P.E., Spicer Group Inc.

GRATIOT COUNTY – FEW PEOPLE MANY DRAINS

In Gratiot County the expanses of corn, soybeans, and sugar beets are underpinned by 1270 miles of county drains. Supporting this network of drains, Drain Commissioner Bernie Barnes oversees a staff of four: Chief Deputy Carol Siggers, Project Manager and Deputy Joe Sherwood, Assessment Clerk and Deputy Jennie Bollinger, and Deputy Emma Hansen. Barnes relies on Joe Sherwood to provide boots-on-the-ground field investigation and inspections.

Until this year, keeping track of phone calls, field investigations and subsequent drain maintenance relied heavily on paper reports and phone calls. Hansen and Bollinger used to receive phone calls from landowners then log the call to a paper maintenance request, and Sherwood would have to either retrieve the maintenance request from the office or receive a phone call directing him to urgent problems.

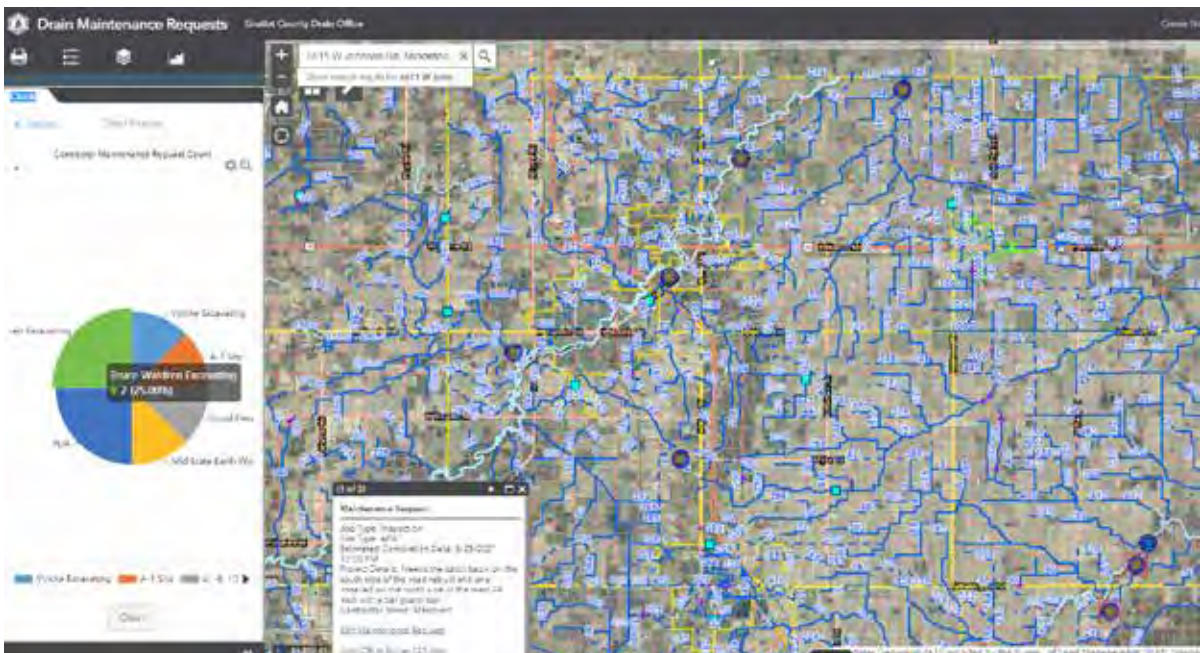
This workflow required hours of driving to and from the drain office located in the city of Ithaca. Field inspections were logged on paper forms

while pictures were taken with phones or cameras requiring back-office post processing to prepare finalized inspection reports. The drain office had been using desktop ArcGIS software for years to review drain jurisdiction, right of way, and maintenance history. With Covid necessitating the ability to decentralize from the office, Barnes knew there had to be a better way of utilizing this GIS and managing maintenance requests. He called Max Clever at Spicer Group to provide a solution that utilized his existing ESRI licenses.

Request Focused Maintenance

After a brief meeting between Barnes and Clever, the following capabilities were identified as crucial to the success of the adoption of the new system:

- Connect all work to a drain number and individual maintenance request
- Document phone calls
- Record field investigations
- Create report to send to contractors to perform work



Live overview map allows for more informed conversations with landowners.

- Record inspections of construction work
- Create reports of inspections and save to drain files

ESRI's Survey123 was identified as the optimal platform to achieve all these objectives as the tool is multiplatform capable, modifying reports is quick, and most importantly it is included with the existing maintenance package for users of ArcGIS Pro, which the drain office already had.

Recording the phone calls, or office visits requesting maintenance is a vital step in supporting the decision to perform work on a drain. Now, using a web app on their desktop, office staff log new phone calls directly to maintenance requests using the Survey 123 webpage. With this map-centric workflow, office staff can decide whether follow-up phone calls and additional conversations can be logged as new maintenance requests or appended to existing requests.

Field Investigations

Once created, new maintenance requests are made available for review in the field using the Survey 123 phone app. Being filtered by a status of "Inspection Needed," this app acts as a live to-do list for field investigations. Also, by utilizing an inbox, Survey 123 can operate completely offline and allow users to upload work later when they have internet.

While the maintenance request is a beginning point for the investigation for problems in the field, the actual proposed maintenance is mapped and photographed on related points and lines to specify what work is required to solve the problems in the field. Recording maintenance on a separate layer allows for more comprehensive instructions to be sent to the contractor.

Subcontracting Maintenance

Previously, one of the most time-consuming tasks in the office was to compile all the documents and photos related to the maintenance request and package it into a document that could be sent to contractors. Now, with Survey 123 reporting the prior phone calls, field investigation can be bundled and exported to either pdf or word documents and sent to the contractor.

In heavy construction months, the drain office may want to check on which contractors they have

Form based data entry is simple and intuitive.

Multiple points can be logged to one maintenance request

currently working on jobs. A simple pie chart shows which contractors are currently under contract.

Construction Inspection

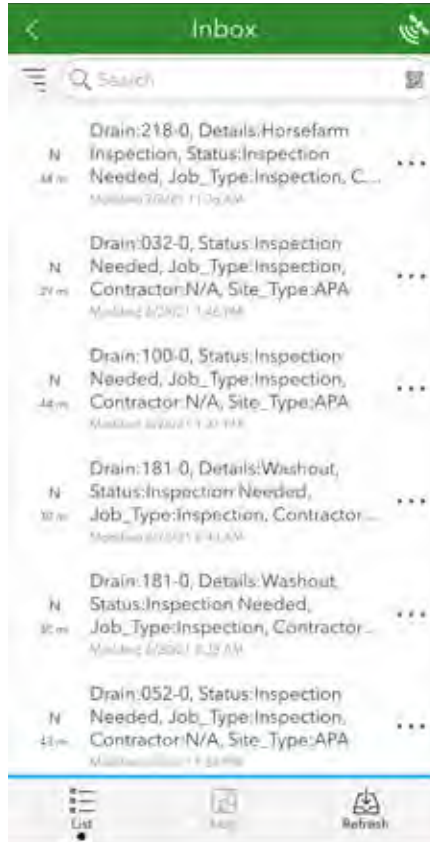
Performing construction inspection was another process that used to take extra time in packaging up photos and notes to form individual IDR reports. Again, using the survey 123 reporting tool, these inspections are printed to pdf or word as a final monument of the work that was done on the job.

“This system has allowed our office to run more efficiently with better record keeping.”

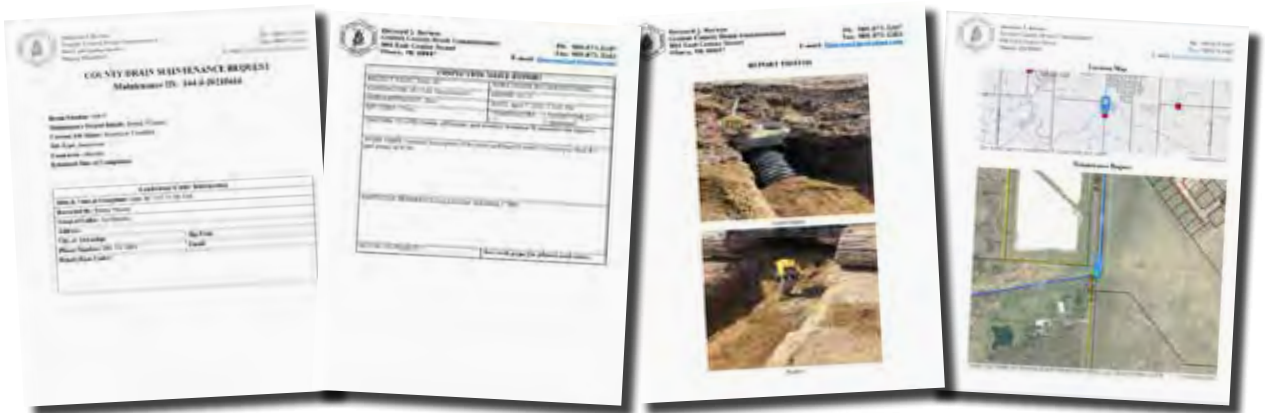
– Bernie Barnes, Gratiot County Drain Commissioner

FORECAST – CLOUDY

Although Gratiot County had been using ArcGIS desktop for years, the online GIS aspect of the platform had formerly been either too limited or too reliant on accessory server tools to really be an option for the county. It has been nearly 10 years since ArcGIS online was released. Survey 123 as a platform is even newer, having been released in 2015 and the reporting tools in 2019. Creating reports from field-collected GIS information had been something that required ArcGIS Enterprise. At the pace that ESRI keeps adding functionality, it serves drain offices well to stay tuned to what features might come next.



Task list can be sorted by distance to the job or other factors



Reporting tool can integrate inspection notes, photos, and maps into pdf or word documents.

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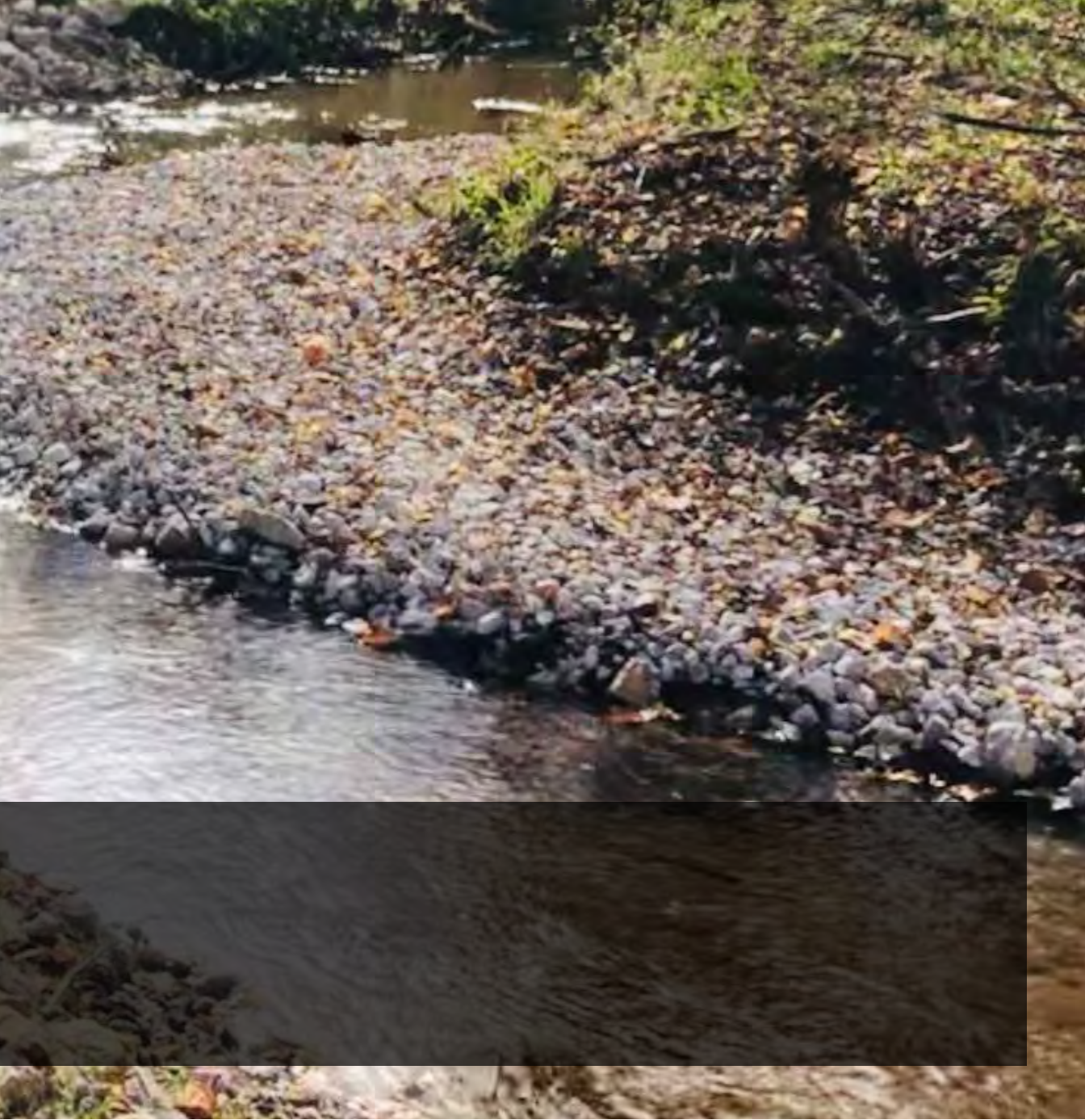
RIBE DRAIN 2021 MACDC INNOVATION & EXCELLENCE AWARD WINNER

By: Ryan McEnhill, P.E., Eng., Inc.

The Ribe Drain Drainage District is an approximately 5700-acre drainage district located in Dalton and Cedar Creek Townships of Muskegon County. The latest petition for the Ribe Drain was filed by residents in the Drainage District who were primarily located on West Lake and were experiencing prolonged high lake levels that were causing structure damage and inundated septic systems.

Upon inspection of the complete watercourse and initial scoping of the project in 2015 the issues to be addressed became apparent.

Due to the lack of routine maintenance on the system since becoming established as a County Drain, stabilization of the existing water course to restore natural stream function and prevent erosion was going to be paramount. The Drain consisted of a significant number of undersized and failing culverts that would need to be replaced, and sized appropriately, to improve stream flow, capacity, and fish passage. The final key element would be to provide an adequate outlet to the chain of lakes in the northern part of the District that would meet the Department of Natural Resources recommended lake level. To



properly solve the lake level issues, the project would have to include improving the channels between the lakes as well to make sure the lakes were properly equalized.

The Ribe Drain is a tributary of the Bear Creek watershed, which discharges to Bear Lake and Muskegon Lake (both Great Lakes Areas of Concern) and is 4.75 miles in length from its outlet to Bear Creek upstream to Twin Lake. The upstream end of the Ribe Drain provides lake level control for Twin, Middle, and West Lakes. A June 1984 MDNR Issued Permit prescribed lake levels to be 678.5 USGS during May 15 - October

15 and 678.0 USGS the remainder of the year.

The issue with the existing lake level control and 1984 design was an extremely flat gradient of 0.06% on the Ribe Drain downstream of the outlet headwall that made it difficult to relieve the lakes and adequately maintain the set levels. As originally configured, the existing design would only operate correctly with a completely free flowing outlet and would still require head pressure to adequately relieve the lakes. Any drain encumbrance (sediment accumulation, log jam, vegetation growth, dead animal, blocked culvert) would impact the lake

RIBE DRAIN CONT.

levels negatively. Due to the sedimentation and vegetation accumulation, and improperly sized and set culverts downstream, the issues began to compound.

Lake levels in 2015 were surveyed 14 inches above the issued permit for lake levels. The invert (bottom) of the 24-inch pipe is the prescribed lake level and was routinely well above that mark. The water staining on the headwall and wingwalls was an easily identifiable indicator of the long-term issue with high lake levels. The channels between the lakes were considered private watercourses and to our knowledge had never been maintained in a manner to achieve the prescribed lake levels. As such, the lake levels were higher in West Lake and Middle Lake than in Twin Lake where the control structure is located.

Three of the main goals of the project were to:

- Identify the locations of significant land loss from stream relocation due to fallen trees and logjams.
- Design a solution that would work in harmony with the natural landscape of the Drain and adjacent property to provide stabilization and sustainability for the long-term health of the Drain and its ecosystem.
- Provide an outlet that would adequately maintain prescribed lake levels

Upon review of the topographical survey conducted it became very apparent the 1984 design, which extended the Drain north and provided an outlet mechanism for the upstream chain of lakes, had a very small margin for error with regards to maintaining permitted lake levels. To alleviate this issue, we began investigating the feasibility of improving the hydraulics downstream of the outlet control structure by improving gradient on the drain centerline and capacity in the downstream culverts, many of which required replacement due to their deteriorating condition.

Two challenges presented themselves with deepening the system to provide relief to the lakes:

- Permitting from CSX and Genesee & Wyoming Railroad: A new 36-inch storm sewer crossing was required across the railroad tracks approximately 3,000 feet downstream of the lake.
- DTE Energy Natural Gas Pipeline: During

preliminary engineering it was discovered that the existing 12-inch pipeline was located only 18 inches below the bottom of the existing drain.

As part of the investigative process of the lake level control structure, drainage calculations were performed (both weir and peak discharge based on normal lake level fluctuations of similar sized lakes) which determined that neither the weir size nor the capacity of the 24-inch outlet pipe were the restrictive elements of proper lake level control. The project team utilized lake level monitoring and rain gauge data to monitor the natural rise and fall of lake levels in West Michigan of similar lake sizes and control structures similar to Twin, Middle and West Lakes to make that determination.

Additionally, the channels between the lakes would have to be improved to provide the necessary equalization of the water levels. West Lake was experiencing considerably higher lake levels than both Middle Lake and Twin Lake. To provide better equalization of water levels among the three lakes the project proposed to deepen the existing channel approximately 18 inches throughout (deeper in some locations due to sedimentation) and provide a rock lined cobblestone channel with impermeable liner to inhibit vegetative growth and maintain appropriate equalization. The area west of Middle Lake Road is part of a much larger wetland complex and the project restricted work to the main channel, while the remaining areas were left undisturbed.

Once we were able to determine that providing additional gradient was possible, we began the final design and permitting process with the Michigan EGLE (formerly DEQ), CSX and Genesee & Wyoming Railroads, and the Muskegon County Road Commission. We also continued discussions with DTE Energy on the coordination of the lowering of their facilities to an appropriate depth below the Drain (the depth and function as a 'primary transmission line' provided significant safety issues to public health, should an issue occur).

THE SOLUTION

The total cost of the project to improve the Drain was \$2.9 million. The project was divided into three construction contracts due to the



wide range of work required and to provide a competitive bid environment for each portion. The contract work was divided as follows:

Contract 1 consisted of stream restoration including 3,090 lineal feet of open drain construction, 16,285 lineal feet of open drain cleanout with in-stream structures including rock riffles, vanes, stream meanders, bank tapering and stabilization; and culvert installations for property access at five locations. The Contract was awarded to McCormick Sand, Inc.

Contract 2 consisted of the replacement of three roadway crossings with precast concrete box culvert, including a 10-foot by 5-foot box culvert with tapered end sections, an 8-foot by 4-foot with tapered end sections, and a 43-inch by 68-inch HE RCP culvert. The Contract was awarded to McCormick Sand, Inc.

Contract 3 consisted of a Railroad crossing via bore and jack of 73 lineal feet of 36-inch RCP storm sewer within a 54-inch steel casing pipe across railroad and 77 lineal feet of 36-inch RCP storm sewer within a 54-inch steel casing via open cut with concrete headwall and wing wall end treatments. The Contract was awarded to

Jackson-Merkey Contractors, Inc.

DESIGN OVERVIEW & SOLUTION

Stream Restoration

This project included the construction of a significant number and variety of in-stream Best Management Practices and structures that best accommodated the hydraulic and physical conditions of the stream including:

- J-Hook Vanes: 5 Each
- Cross Vanes: 11 Each
- Stream Meanders: 5,750 LF
- Riffle Zones: 1 Each
- Rock Clusters: 18 Each
- 2-Stage Channel: 2,350 LF
- Cobblestone Stilling Basin: 275 LF

The construction of the design techniques transforming this overgrown channel into a healthy meandering stream was an amazing sight to witness. The existing landscape had a natural meandering condition that we strived to enhance and stabilize. Working with the existing meanders to the extent possible, we graded and stabilized the banks, and used coir logs to stabilize the toe of slope of the stream;



each of these were critical elements of design. The design looked to leave existing vegetated and stable meander bars in place but also constructed gravel sedimentation bars where necessary, to stabilize the stream.

The Contractor for the stream restoration work, McCormick Sand, Inc., worked diligently with Eng., Inc. field staff to preserve trees and as much of the natural landscape as possible. Private landowners also contributed to our effort by allowing our team access to sensitive areas of the site.

During the middle of construction, in the spring of 2020, the area received 5.5 inches of rainfall in 24 hours. In a matter of days, this was followed up by a 3.5-inch rainfall event. The infrastructure that had already been constructed, but not yet fully vegetated and stabilized, held up incredibly well. These events acted as a stress test of the improvements; a test they passed.

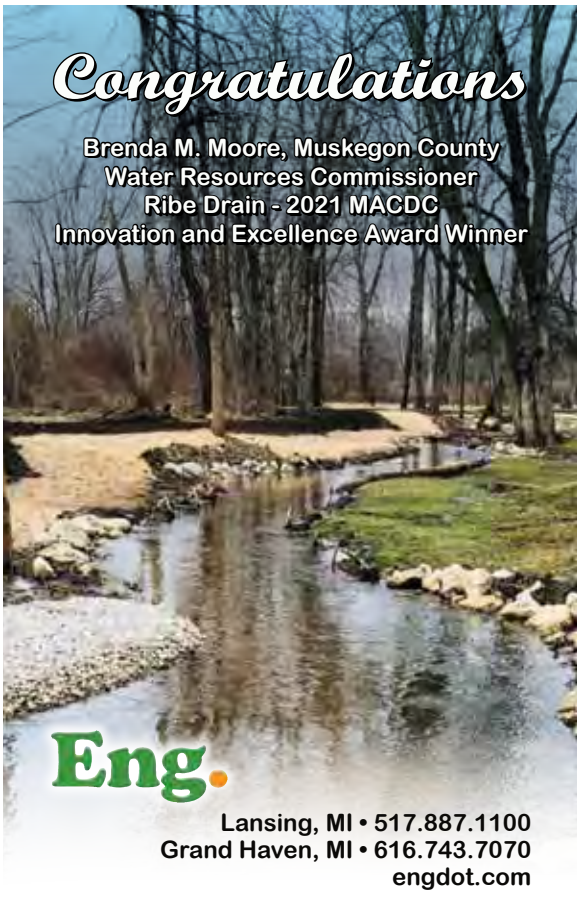
Culvert Replacements

Another component of this project was the coordination with the Muskegon County Road Commission for the replacement of several aging and inadequate culverts at Pillon Road, Bard Road, and Michillinda Road.

The Pillon Road replacement consisted of a 10-foot by 5-foot precast concrete box culvert, replacing a 120-inch by 86-inch CSP culvert, with precast headwall and end sections and two-stage channel construction on the entry and exit to the culvert.

The Bard Road culvert replacement consisted of a 10-foot by 4-foot precast concrete box culvert, replacing twin 36-inch CSP culverts, with precast concrete headwall and end sections.

The Michillinda Road culvert replacement consisted of a 43-inch by 68-inch HE RCP culvert which replaced an existing 42-inch CSP culvert that was failing and causing roadway damage. The HE RCP culvert had 45-degree bends fabricated due to the 90-degree bend in the stream at this location.



Congratulations

Brenda M. Moore, Muskegon County
Water Resources Commissioner
Ribe Drain - 2021 MACDC
Innovation and Excellence Award Winner

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Several other 95-inch by 67-inch CSP arch culverts were replaced for private stream crossings, replacing 60-inch and 66-inch CSP culverts, which are necessary to meet the bank full width of the stream and improve flow conditions. From speaking with residents prior to bidding, we were able to eliminate several aging culverts that were no longer in use and were acting as obstructions in the Drain. In doing so, we were able to restore the natural stream in these locations.

Railroad Crossing


To improve the hydraulics of the system in the upper watershed, and to provide a more reliable outlet and consistent lake level on the upstream chain of lakes, improvements were necessary at the railroad track crossing located approximately 3,000 feet downstream of the lake level control structure. A new 36-inch RCP culvert was proposed at a lower depth, within a 54-inch steel casing utilizing the bore and jack method. The existing 24-inch would be left in place to act as a secondary overflow pipe. We worked with CSX Railroad to obtain a Facility Encroachment Agreement and with Genesee & Wyoming

Railroad to obtain a Right of Entry permit.

The construction of the bore and jack was completed by Jackson-Merkey Contractors, Inc., utilizing RT Boring as a subcontractor over an approximately 3-week duration in the Summer of 2020. The precast concrete headwall and wingwalls were formed and reinforced in the field.

The impact on the water lake levels was immediate once the drain improvements and the 36-inch culvert under the railroad tracks was constructed at the lower elevation. Whereas the existing 24-inch culvert would be 50% full of water during previous conditions, the photograph shows the water levels near the lower 36-inch invert located 1.8 feet lower than the 24-inch.

To negate a sudden surge and allow for a slower release of the lake water a temporary check dam was constructed that would allow for a calculated drawdown over a period of weeks, as opposed to days. In doing so, any negative impacts



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downstream or stress to the system was avoided.

By the completion of the project, the lake levels were down to their permitted levels. The photo chronology below shows the dramatic difference in lake levels from preconstruction (early summer of 2020) to contract completion (late summer of 2020).

DTE Natural Gas Line Coordination

A major DTE natural gas pipeline runs under the Ribe Drain at Michillinda Road. While completing survey work in late 2017, we learned that the 12-inch pipeline was within 18 inches of the bottom of the drain: a potentially hazardous situation if not addressed. In early 2018, the project team met with representatives of DTE Energy to devise a plan to lower their facility and ensure the two projects coordinated efficiently.

DTE ultimately agreed to lower their gas line at their own expense - approximately 1 million dollars. The cost to relocate was so high due to the proximity of the lowering relative to the railroad right-of-way where the elevation and location of the connection point are fixed. DTE Energy completed the lowering in 2019 ahead of the contract work on the Ribe Drain.

WMSRDC Wetland Creation

In cooperation with the Ribe Drain project, the West Michigan Shoreline Regional Development Commission (WMSRDC) constructed a shallow water wetland with hydraulic connection to the Ribe Drain via placement of a 9-inch high diversion weir/check dam within the existing drain channel. The structure diverts flow through 1100 additional feet of created wetland to filter nutrients and sediments before discharging back to the Ribe Drain through a 24-inch HDPE culvert.

The project was completed and paid for with funding from the Great Lakes Restoration Initiative via Delta Institute.

This project allowed the Delta Institute and a coalition of community organizations to reduce sediment and nutrients in the 19,058-acre Bear Creek and Bear Lake watershed of the Muskegon Lake Area of Concern (AOC). The Bear Creek and Bear Lake Watershed Management Plan had identified the Ribe Drain as a major source of phosphorus contributing to

nutrient loading in Bear Creek and eventually to Bear Lake, a part of the Muskegon Lake AOC.

SUMMARY

The Ribe Drain project consisted of many different facets, design elements, partnerships, and permitting agencies coming together to produce a final product that will make a considerable difference to the environment and long-term health of the watershed. This significant improvement was accomplished by implementing many different in-stream best management practices along a 4.75-mile corridor of stream that lacked proper stream function and historical routine maintenance. The result of this project will provide long-lasting impacts to the Bear Creek, Bear Lake, and Muskegon Lake watersheds, which are on a path to be removed from Great Lakes Areas of Concerns due to projects just like this one. This project provided a much more reliable outlet to maintain the permitted lake level elevations on the upstream chain of lakes and all but eliminated the potential for future structure damage and septic system failure. We utilized many different partnerships with this project to reach the monumental goals of stream health, water quality, and long-term stability.



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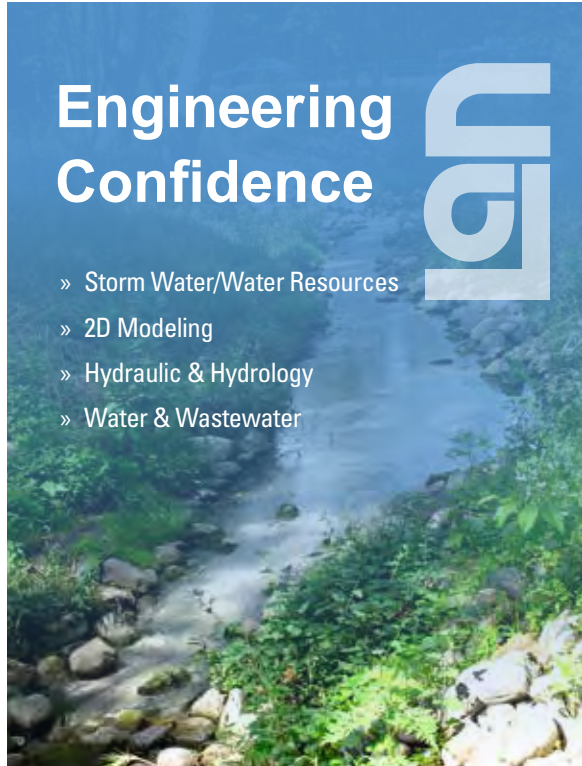


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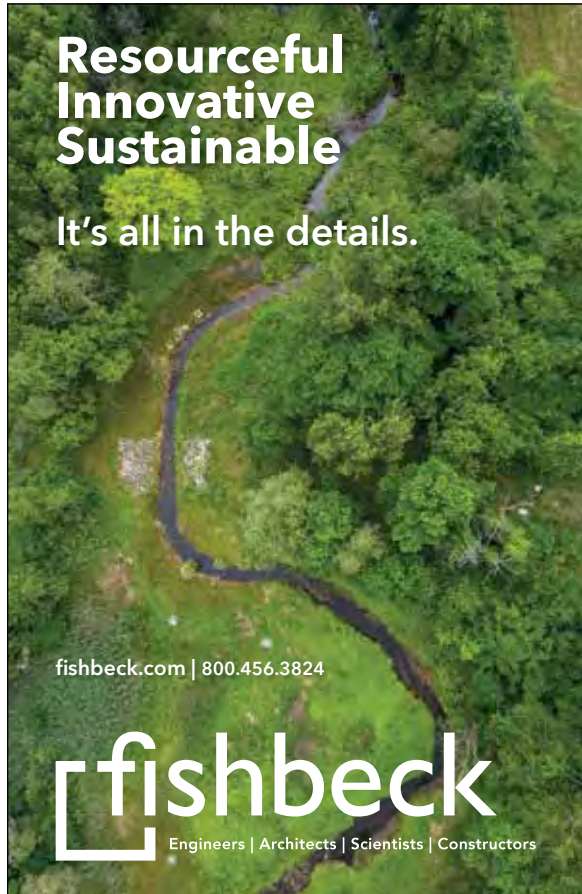
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Carbon Fiber Lining Restores Strength and Resilience to Northeast Sewage Pumping Station

By: **Brendan Lindberg, Oakland County Water Resources Commission**

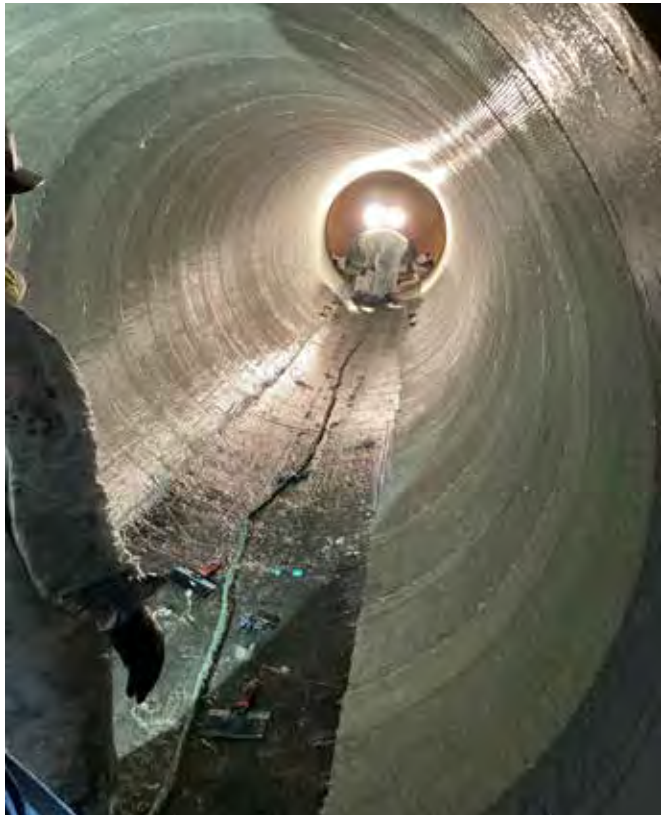
Oakland County Water Resources Commissioner Jim Nash and Macomb County Public Works Commissioner Candice S. Miller are proud to be restoring portions of the Oakland-Macomb Interceptor Drain Drainage District's (OMIDDD) Northeast Sewage Pumping Station with some of the industry's latest innovative pipe-lining technology. QuakeWrap's Wet Layup Liner, a fiber-reinforced polymer, is estimated to save the project approximately \$400,000 to rehabilitate four, 78-inch diameter pipes at the pump station.

"Everything we know about this innovative lining product proves it to be extraordinary when used for this pump station," said Nash. "Its high quality will strengthen and restore current infrastructure, and the ease of installation allows for faster construction time at a lower cost."

"We're excited about the use of QuakeWrap for this project as part of the ongoing, important renovations and upgrades of the Northeast Sewage Pumping Station. It will extend the life of the discharge pipes and serve the system users and ratepayers of Macomb and Oakland counties who are part of the Oakland-Macomb Interceptor district for a long time," Miller said.

Famous for its lightweight, corrosion resistant technology, this product has received accolades for its strength and durability over time, not to mention, its contribution to reduced construction time. This carbon and glass fiber liner proved to be a lasting decision as OMIDDD was offered a 10-year warranty, including labor. The liner is leading the way in pipeline rehabilitation and Nash is enthusiastic to be among the first in the region to use this material to restore the interior wall of sewer pipes.

After the sewage flow was shut off and the prep work complete, crews successfully sealed and lined the pump discharge pipe in a matter of



days, which saved on the project schedule and cost. As part of the 10-year warranty, OMIDDD will continue to monitor the infrastructure every two years to ensure the intended liner performance.

The Northeast Sewage Pump Station is a part of the Oakland-Macomb Interceptor Drain which conveys sewage from 23 communities in Macomb and Oakland counties that comprise the Oakland-Macomb Interceptor Drain Drainage District. In an effort to restore acceptable functionality and reliability to station operations while saving time and money, the Drainage District's Board decided to rehabilitate and upgrade portions of the current infrastructure, such as the discharge piping, rather than demolish and replace the components individually.

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Bear Creek: \$1 Million Emergency Cleanup

PETROLEUM SPILL MAY HAVE BEEN SLOWLY BUILDING FOR DECADES

By: Norb Franz, Macomb County Public Works Office

When a fuel spill was discovered at a stream in the city of Warren, it reminded drain officials in Macomb County of the 1960s television comedy, “The Beverly Hillbillies.”

Dark petroleum appeared to be bubbling up from the bank of the Bear Creek. However, it was no TV show -- and certainly nothing to laugh about.

The discovery turned out to be one of the largest known incidents of environmental pollution ever in a river, stream or other open-air drain in Macomb County.

An emergency cleanup and property restoration in an important location of interstate commerce ensued and was completed in 2020. Total cost: \$1 million.

To a casual observer, the site today gives little – if any – indication of the extent of the contamination that occurred and the intensive remediation.

SURPRISING DISCOVERY

The Bear Creek Drain is approximately 11 miles long. It begins in southeastern Oakland County and runs diagonally from southwest Warren to the northeast. Approximately 75,000 people

reside in the Bear Creek drainage district, and it drains about 14,000 acres of property in southeastern Oakland County and the cities of Warren and Center Line in Macomb County. Much of it is enclosed. Near Interstate 696 and Mound Road, it is an open-air drain that reaches the Red Run Drain about two miles to the northeast. The Red Run Drain flows into the Clinton River, which flows into Lake St. Clair, a favorite among recreational boaters in the United States and Canada but also known as one of the best freshwater fishing lakes in the world.

In March 2019, a Macomb County Public Works Office inspector was in the area inspecting de-icing solution that got into the Bear Creek from an adjacent property. A short time later, the inspector spotted a petroleum-based sheen in the water of the Bear Creek, approximately 50 yards behind the BP gas station on Mound Road.

Reacting quickly, the Macomb County Public Works Office placed booms across the water to capture any harmful substances on the surface from flowing downstream. Public Works officials also notified the Warren Fire Department, the Macomb County Health Department and the Michigan Department of Environmental Quality.



Booms placed on the Bear Creek in Warren and the first of the steel sheeting to isolate the contaminated area to begin remediation, after a Macomb County Public Works inspector noticed old diesel fuel in the water.



The complete steel sheeting that was part of the intensive effort to halt the flow of old diesel fuel that had leaked in the Bear Creek Drain, part of a \$1 million cleanup.

Macomb County Public Works led the coordination with the agencies, which led to the property owner hiring PM Environmental as the lead contractor for the emergency containment, cleanup and property restoration that followed, and issued permits.

As part of the intensive effort, several sections of steel sheeting were placed to create a dam and isolate the area for remediation efforts to begin. Approximately 4 feet was excavated from the bottom of the channel in that area. More than 100 soil borings were performed to find the path the petroleum in the ground had travelled. That included borings through the concrete at the back of the gas station parcel, near the fuel storage tanks and fuel pumps.

During excavation of a section of the drain bank approximately 150 feet long and 20 feet high, a deteriorated and collapsed underground corrugated metal pipe was found that nobody knew was there. Inspectors estimated the pipe was at least 50 years old, but there was no official record of it. It had probably accumulated

petroleum product over several decades, some possibly from little spills but also unknown prior sources – potentially buried old barrels or tanks dating back long before the gas station was built in the mid-1990s.

The petroleum turned out to be old diesel fuel that was running along the outside of the deteriorated pipe, creating the visual reminder of the opening of “Beverly Hillbillies.” However, officials concluded the fuel had seeped through the ground for many years and eventually trickled into the water.

The pipe was removed and a containment trench was installed to catch the product and contain any future spills. The 12-month cleanup included cutting of trees and the excavation of dozens of truckloads of contaminated soil. Six hundred cubic yards of concrete from the paved area at the rear of the gas station property were removed.

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A stretch of bank on the west side of the Bear Creek Drain, behind a gas station on northbound Mound Road near Interstate 696 in Warren, has been fully restored after it was excavated in 2019 following the discovery of a major petroleum leak.

Other than monitoring wells, there is little indication that this restored bank of the Bear Creek Drain near Mound Road and Interstate 696 in Warren was the site of one of the worst fuel leaks ever discovered by the Macomb County Public Works Office.

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BEAR CREEK CLEANUP CONT.

The bank was eventually restored including new reinforced concrete pipe for drainage of stormwater. Rocks were placed to prevent erosion. Monitoring wells were installed to ensure stormwater flowing into the Bear Creek contains no petroleum or other harmful contaminants.

Top soil, grass seed, fertilizer and a mulch blanket were placed along the upper portion and top of the bank. By late summer 2020, grass had grown in about 90 percent of the seeded area.

All of the work was overseen and inspected daily by Macomb County Public Works construction engineers and inspectors.

MCPWO staff check those wells weekly and will continue to do so through 2021. Currently, the groundwater is clear and must remain so for a total of two years before the monitoring wells can be closed.

MINDFUL OF COMMERCE

In Macomb County, I-696 is located between Interstate 94 in St. Clair Shores on the east and neighboring Oakland County to the west, where it crosses Interstate 75 less than two miles from the Macomb-Oakland border. As such, it is a major route for interstate commerce.

The BP gas station is located on Mound Road, less than one mile from I-696. With its steady stream of semi-tractor trailers, it is the busiest diesel refueling station in Macomb County and one of the busiest in Michigan.

In Warren, Mound Road is located in a major industrial corridor of southeast Michigan and features numerous manufacturing firms including Fortune 500 companies such as General Motors and Fiat Chrysler Automobiles, and the U.S. Army TACOM complex.

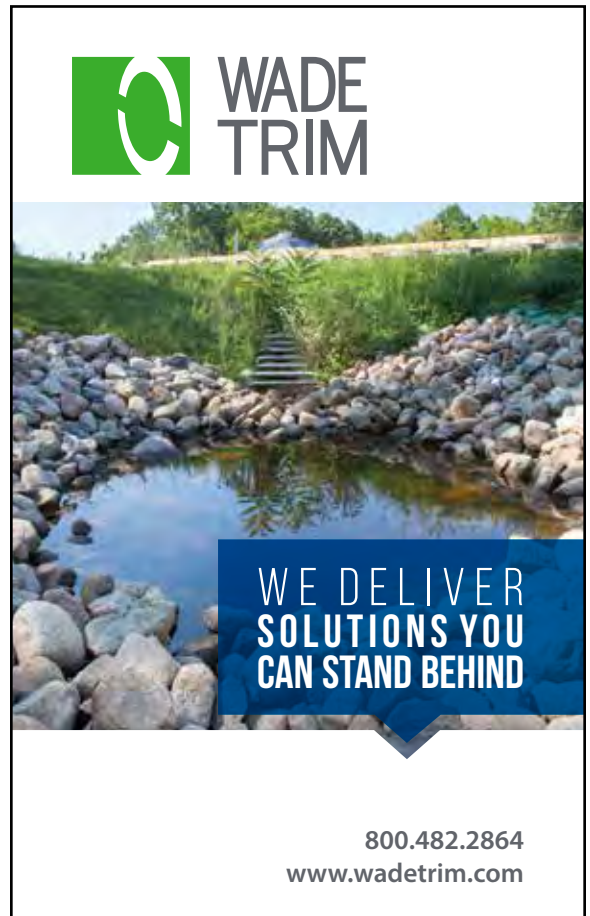
The owner of the BP gas station property was horrified by the pollution and cooperated with environmental remediation. Macomb County Public Works Commissioner Candice S. Miller has complimented the owner for his cooperation and effort.

“As we worked on this project, we kept an eye on the economic impact as well, as this is clearly one of the busiest diesel fuel stations in the state and we wanted to minimize impact on this important industrial corridor but still protect the water in the drain,” Miller said.

The cleanup was completed in 2020 without any closure of the gas station which would have had a negative economic impact.

The \$1 million cleanup cost was paid using Michigan Underground Storage Tank Authority funds.

“Our inspectors are out in the field every day, looking for problems. Our motto is, ‘We find ‘em, we fix ‘em,’” Miller said. “Along the Bear Creek Drain behind the BP gas station, it now looks like nothing ever happened there.”



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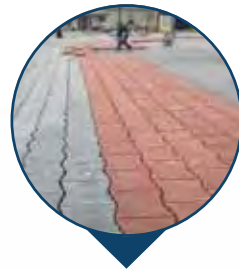
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2022 MACDC INNOVATION & EXCELLENCE AWARDS PROJECT SUBMITTALS NOW OPEN!

Pre-application Entry Form must be received by **5:00 PM, November 1, 2021**
Complete applications are due by **5:00 PM, December 1, 2021**

Application is available at <https://macdc.us/awards>

Awards Program | Rules and Procedures

Purpose and Goals

This Awards Program aims to:

- Recognize creative and innovative accomplishments of all scopes, sizes, and budgets, of Members and Associate Members of the Michigan Association of County Drain Commissioners (MACDC).
- Promote public awareness of the activities and contributions of MACDC, its Members and Associate Members.

Eligibility

Any MACDC Member or Associate Member may enter this Awards Program. Drain Commissioner(s) and/or Associate Member(s) may submit projects jointly or separately. Associate Members submitting separately must obtain the signature of the Drain Commissioner of record on their Entry Form.

Award Categories

MACDC's panel of judges will review submittals. Two projects will receive an *Innovation and Excellence* award. MACDC will provide one award for each winning project; recipients may purchase additional copies of the award. MACDC may also award Honorable Mention certificates to a maximum of two projects.

General Criteria

1. All entries must be submitted in accordance with the rules outlined in this document.
2. The project must have been conducted under the direct authority of the Drain Commissioner or through a Board of which the Drain Commissioner is a member.
3. A Member or Associate Member may enter as many qualified projects as they wish.
4. Projects that have received awards from other organizations may be entered.
5. Projects must have been completed and in use between April 1, 2019 and December 31, 2021.
6. Entries must comply with Submission Guidelines section of this document. Failure to comply may disqualify an entry. Please read the Guidelines thoroughly.
7. MACDC Awards Committee reserves the right to determine entry eligibility.
8. MACDC Awards Committee determines the Award Category based on submitted information.

Judges and Judging Criteria

The MACDC Awards Committee will evaluate entries based on the work completed by the entering organization(s). Finalists and winners are selected based on overall project excellence. Judges will evaluate and compare projects based on the following.

Judging Criteria (in no particular order):

1. Public involvement and education
2. Environmental and water quality benefits
3. Use of new materials
(including improving/finding new uses of existing materials)
4. Use of new technologies
(product/method/tool to solve problem)
5. Innovation
6. Complexity
7. Cost effectiveness

Note: Projects need not contain all seven of the above criteria. However, the more criteria that a project effectively encompasses, the greater consideration it will be given.

Electronic submissions are preferred*

Email Entry Form and Final Application packet to: admin@macdc.us

Questions?

Contact MACDC at **517-484-9761** or admin@macdc.us





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Public Finance

In coordination with the Public Infrastructure team, 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.

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ASSOCIATE MEMBER NEWS

SPICER GROUP, INC. ANNOUNCES 2021 PROMOTIONS

John W. Bradley, E.I.T., named as a new Associate

Spicer Group is proud to announce the recent promotion of John W. Bradley, E.I.T., as a new Associate. John joined Spicer's Municipal Group in our St. Johns office in June of 2014 as a Project Engineer. He became a Project Manager in 2018. John graduated from Michigan Technological University in 1999 with his bachelor's degree in Civil Engineering.



Bradley

Jeremy R. Dancer, P.S., named as a new Associate

Spicer Group is proud to announce the recent promotion of Jeremy R. Dancer, P.S., as a new Associate. Jeremy joined Spicer's Survey Group in our Saginaw office in November of 2014 as a Survey Technician. He then became a Staff Surveyor in 2017, and a Project Surveyor in 2020. Jeremy graduated from Ferris State University in 2012 with his bachelor's degree in Land Surveying and became a licensed Professional Surveyor in the state of Michigan 2016.



Dancer

Warren T. Miller, P.E., named as a new Associate

Spicer Group is proud to announce the recent promotion of Warren T. Miller, P.E., as a new Associate. Warren joined Spicer's Water Resources Group in our Saginaw office in January of 2014 as a Design Engineer. He became a Project Engineer in 2017, and a Project Manager in 2020. Warren graduated from Michigan Technological University in 2013 with his bachelor's degree in Environmental Engineering. In 2020, he became a licensed Professional Engineer in the state of Michigan.



Miller

F&V MOURNS PASSING OF CO-FOUNDER STEVE VANDEN BRINK



Vanden Brink

Fleis & VandenBrink (F&V) announced today the passing of co-founder Steven R. Vanden Brink. The Grand Rapids professional engineer started F&V with longtime business and personal friend Larry Fleis on Jan. 13, 1993.

"Steve and I had worked together for over four decades. He was a great partner and will be truly missed by our F&V family," said Larry J. Fleis, chairman of the Board of Director for F&V Companies, Inc.

Steve was Sr. Vice-President of F&V until the summer of 2015 when he suffered a major stroke. He died on July 23, 2021. Prior to his stroke, F&V grew to a staff of 200 people with nine offices in Michigan and Indiana.

Steve's wife, Therese, worked with the firm until Steve's stroke. She survives him along with two children.

"Our prayers and thoughts are with Therese and her family," said Fleis, who also worked with Steve at another Grand Rapids engineering firm before founding F&V.

Vanden Brink, 66, graduated from Michigan Tech with a civil engineer degree.

For decades, Steve built special relationships with many clients and engineers, inside and outside the F&V family. He was the engineer of record for a dozen municipalities through the years.

"Steve had a huge impact on my career. I will always appreciate all I learned from him both from an engineering perspective as well as a business perspective," said Paul R. Galdes, the first engineer that Larry and Steve hired. "Steve had a tenacity for taking care of F&V clients."

Galdes, now vice president of F&V and FVCI, said Steve was known for his red pen and providing

ASSOCIATE MEMBER NEWS CONT.

quality reviews of other staff's designs.

"Steve's attitude helped create a culture at F&V of quality in our designs that resulted in a great reputation with clients," Fleis added. "And he taught many younger staff things that aren't taught in schools."

John R. DeVol, F&V's president, said Steve was a great complement to Larry with Larry being the business minded one and Steve being the consummate engineer's engineer with a 'brilliant technical' mind.

"The major reason that F&V was so successful was because of the dynamic that worked between Steve and Larry, they balanced each other so perfectly," DeVol said. "Sometimes Steve didn't have a lot to say but when he spoke, it was very meaningful, very intelligent."

Aaron Catlin, former group manager, worked with Steve on various projects for 46 years.

"Steve became my mentor and my boss," Catlin said. "He taught me how to be a good designer, writer, project manager, and how to lead by example."

Catlin said Steve's nickname was red and not because of the color of his hair back in the early days.

"Maybe it was for his liberal use of the red pen!" Catlin noted. "Steve and I worked on hundreds of projects together as teammates, but most importantly, Steve became a friend."

"Someone to trust, someone to look up to ... you know, 46 years is a long time. I won't forget him."

JONES & HENRY ENGINEERS CELEBRATES WORLDWIDE PROFESSIONAL ENGINEERS

Jones & Henry Engineers is excited to join in the worldwide celebration of the 6th Annual Professional Engineers Day on August 4th, 2021! The first Professional Engineering license was issued in 1907 – just 19 years before Jones & Henry Engineers was founded in Toledo, Ohio, in 1926. Since that time, licensure has expanded

and Professional Engineers across the U.S. have made the commitment to protect the public health, safety, and welfare. Join us as we raise awareness about what it means to be a PE, recognize licensed PEs, and show appreciation for the work they do – each and every day.

Our team is dedicated to growth of our staff experience across all our office locations, expanding our capabilities in support of our clients' engineering needs in Water Plants and Distribution, Wastewater Plants and Collection, as well as underground Infrastructure and a variety of support needs.

Growing our depth of expertise in our Cincinnati, Ohio office, we have recently welcomed Bryan Bailey, PE as our new Director of Water and Associate of the firm. Remarking on this recent addition to the team, Jake Meinerding, PE, and Cincinnati Office Director notes, "I could not be any happier to add Bryan Bailey to our team. His background in water treatment and process design will, and has already been, a boon to our office and company as a whole. This was a vital first step in growing our Cincinnati Office. Bryan brings a unique background and water treatment knowledge that will help our office flourish for years to come."

Bryan offers, "In my time so far at Jones & Henry Engineers I have been impressed with the longevity of the relationships the team has with their clients and how invested Jones & Henry Engineers becomes in these communities. I am excited to be part of that tradition and look forward to building upon the past experiences and develop new ones."

Bryan brings with him a tremendous depth of expertise in the water industry. Bryan graduated from The Ohio State University in 1996, where he gained his Bachelor of Science degree in Civil Engineering. He earned his Master of Science degree in Mechanical Engineering from Wright State University and lastly, his Master of Business Administration degree from the University of Dayton. Bryan has held leadership positions within manufacturing and engineering companies, designing, and managing projects involving Drinking Water, Industrial Wastewater, Stormwater, Remediation Solutions, as well as the Design/Build of new commercial and

manufacturing facilities. Bryan has vast experience in leading “alternative delivery” projects with multidisciplinary engineering teams. His work has been as close to home as in Ohio, and as far away as Mexico, Germany, Sweden, and Australia. Bryan enjoys working in the industry, noting that after working on global projects for the last 10+ years, he is excited to help grow the Jones & Henry Engineers water group and work in support of local communities in our region. He holds a Professional Engineering license in Ohio, Indiana, Michigan, and Kentucky.

Bryan Bailey, PE
Director of Water

Why did you become an engineer?

"My motivation to be an engineer has its origins back in the days as a young child when I built houses with my Grandpa and Grandma. That feeling of creating and building was so tangible to me that I wanted that experience in my career. I love solving problems and helping people, which is what we do as engineers."

Jones & Henry Engineers #LicensedPEday



In honor of Annual PE day, we asked Bryan why he became an engineer, to which he replied, “My motivation to be an engineer has its origins back in the days as a young child when I built houses with my Grandpa and Grandma. That feeling of creating and building was so tangible to me that

I wanted that experience in my career. I love solving problems and helping people, which is what we do as engineers.” On that note, we look forward to solving many challenges and supporting clients across Ohio, Indiana, and Michigan with Bryan as our new Director of Water.

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MACDC EVENT CALENDAR

FEBRUARY 9-11, 2022

MACDC Annual Winter Conference
Grand Traverse Resort, Acme

JULY 13-15, 2022

MACDC Annual Summer Conference
Crystal Mountain Resort, Thompsonville

Editor's Note: to place your event on this calendar, contact us at admin@macdc.us or 517.484.9761.



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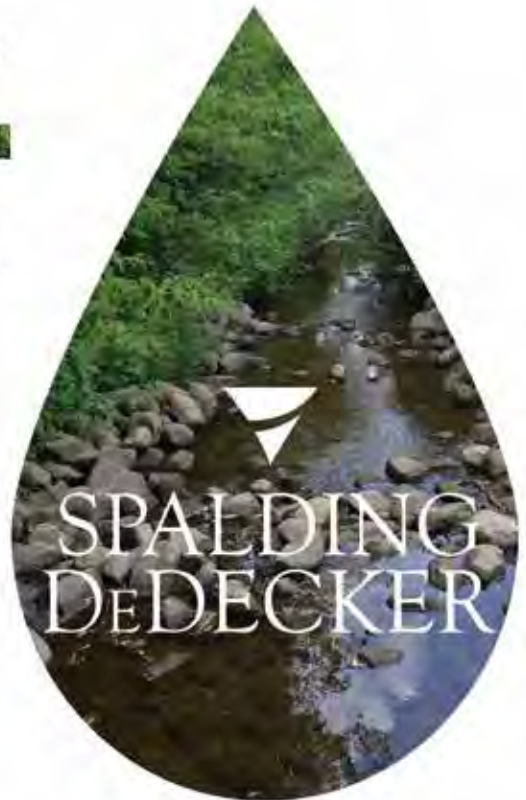
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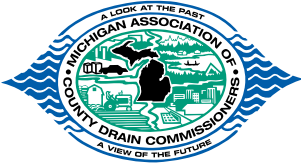


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