

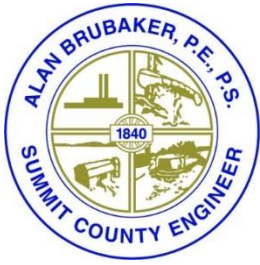
# **State of the Yellow Creek Watershed**

## **October 24, 2022 Update to Bath Township Surface Water Management District**

**Alan Brubaker, P.E., P.S. Summit County Engineer**

**David Koontz, P.E., S.I. Surface Water Management Coordinator**

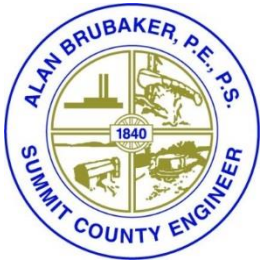
330-643-8010 or [SWMD@summitengineer.net](mailto:SWMD@summitengineer.net)



## State of the Yellow Creek Watershed 2022

### Surface Water Management District Background

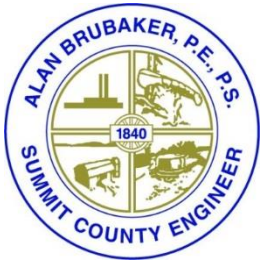
- Road and Bridge funds can not be used to work outside the road right of way, where many drainage problems occur.
- The Drainage Improvement Petition process is available but has not been used with much success.
- SCE spent nine years devising and evaluating various solutions to stormwater issues in Summit County.
- SCE developed the Surface Water Management District to *function as a utility* & charge single-family residential properties \$48/year and other properties \$48/year per 3,000 SF impervious surface area.
- The SWMD revenue is being used for studies, designs, and construction of projects, plus public outreach and involvement.



## State of the Yellow Creek Watershed 2022

### Surface Water Management District Expansion

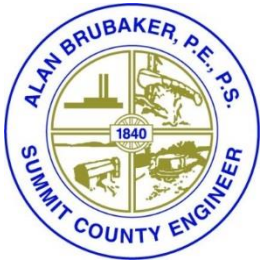
- OEPA Updated the NPDES Phase II Municipal Separate Storm Sewer System (MS4) permit regulations in April 2021.
- The MS4 communities' responsibilities are outlined in these Six Minimum Control Measures (MCMs):
  1. MCM 1 – Public Education & Outreach
  2. MCM 2 – Public Participation & Involvement
  3. MCM 3 – Illicit Discharge Detection & Elimination
  4. MCM 4 – Construction Site Runoff
  5. MCM 5 – Post-Construction Runoff Control
  6. MCM 6 – Pollution Prevention/Good Housekeeping for Municipal Operations



## State of the Yellow Creek Watershed 2022

### Surface Water Management District Expansion

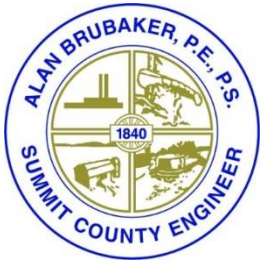
- Key elements of the new permit are increased responsibility for the local permit holders to diligently reach the public and to enforce the Illicit Discharge Detection and Elimination (IDDE) regulations – which includes mapping the public drainage system.
- OEPA had determined that the public outreach & involvement had not been successfully achieved by many communities.
- Townships don't have the power to enforce the IDDE rules, so the OEPA required that Summit County have enforcement authority.
- Summit County's OEPA MS4 permit compliance activities will be performed by the SWMD per Summit County Council on 6/27/22.
- The fee structure was not established by this legislation and the Executive's office is working on this in collaboration with the locals.



## State of the Yellow Creek Watershed 2022

# Surface Water Management District Expansion

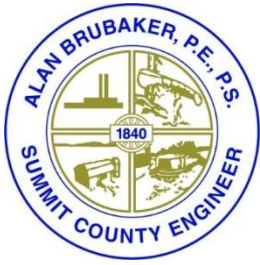
- The expanded SWMD will provide real benefits to the quality of water in our streams and rivers, along with relief from flooding.
- The SWMD covers the nine townships plus 3 communities that joined voluntarily: the City of Reminderville and the Villages of Boston Heights, Clinton and Lakemore.
- An advisory council consisting of county and local officials will be formed to provide guidance for the SWMD.
- Summit County Council and Executive have determined to “kick off” the expanded SWMD by completing the MS4 Mapping and watershed studies and implementing construction projects, utilizing ARPA funds.
- ARPA Projects in Bath will include Wye Road Drainage Impr. Phase 2, Idle Brook Bankfull Wetlands and Bonnebrook Pond (or other).



## State of the Yellow Creek Watershed 2022

### SWMD Bath Special District

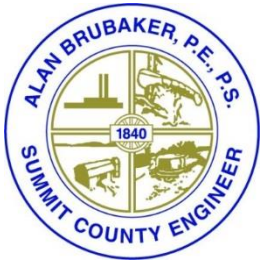
- Bath SWMD will remain as a Special District until June 2024.
- The SWMD no longer bills via invoices each June but will be on property tax bills starting January 2023.
- The SWMD-Bath revenue and funding will be available exclusively for projects that benefit Bath. Currently available for projects is approximately \$600,000. With anticipated revenue of \$300,000 for 2 more years, SWMD-Bath will have approximately \$1,200,000 available for projects.
- Starting January 2025, the new countywide SWMD fees will be collected and the Bath Special District fees will cease.



## State of the Yellow Creek Watershed 2022 Surface Water Management District Projects Status

### Three Projects are On-Going:

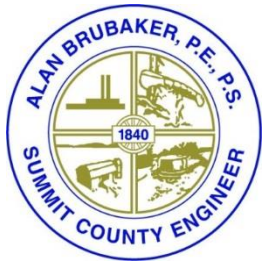
- Yellow Creek Watershed Study – started Autumn 2018, report submitted 2019, refinement and assistance continue.
- Wye Road Drainage Improvement – draft study started 2019, final study done in 2020-21, final design started early 2022.
- Idle Brook Bankfull Wetlands – identified in YCWS, criteria engineering contract awarded May 2022.



## State of the Yellow Creek Watershed 2022 Status of Yellow Creek Watershed Study

### As-Authorized Tasks Continue:

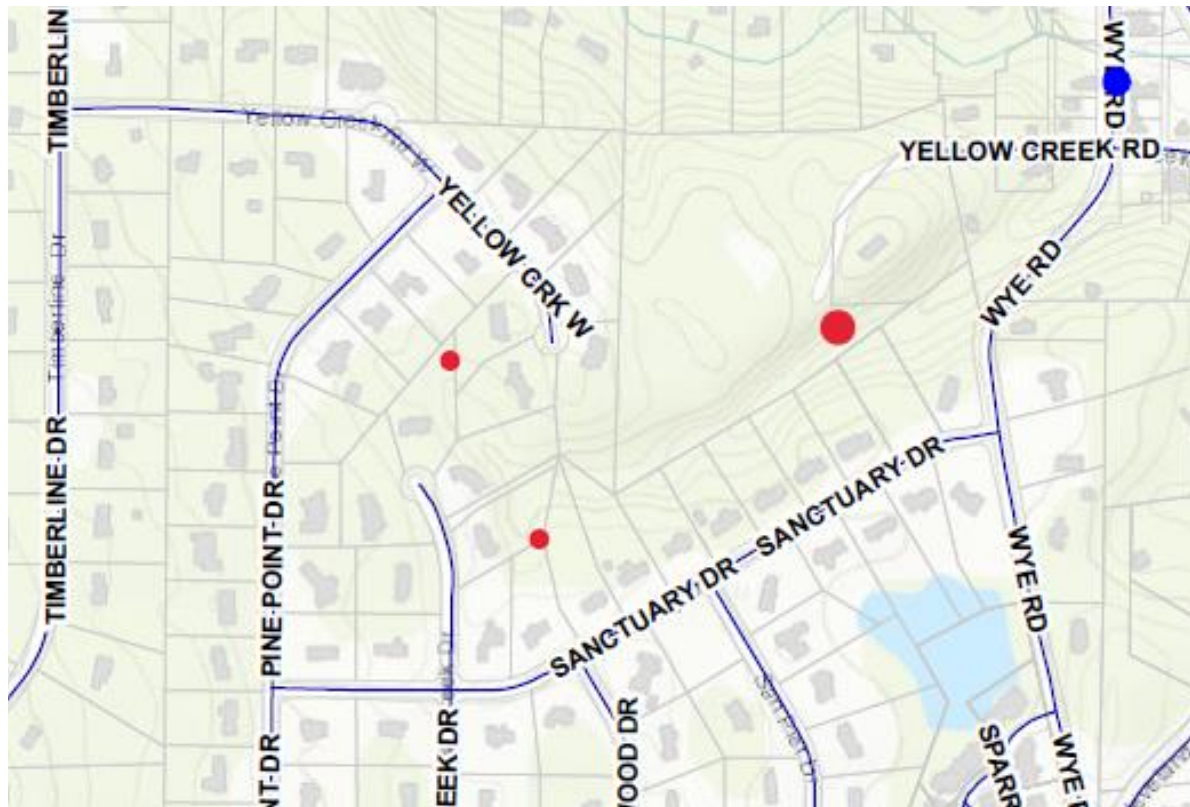
- Targeted Preliminary Watercourse Modeling
- Conceptual Opportunity Graphics and Documentation
- Priority Project Re-evaluation
- Stakeholder Engagement
- Programmatic/Crediting Assistance

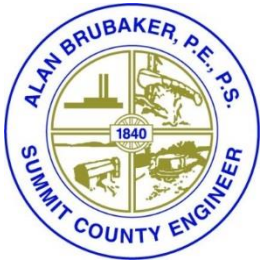


# State of the Yellow Creek Watershed 2022

## Status of Wye Road Drainage Improvement Project

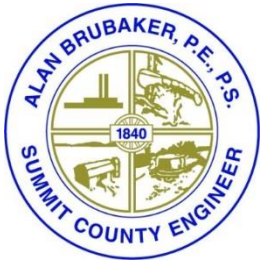
### Location Map





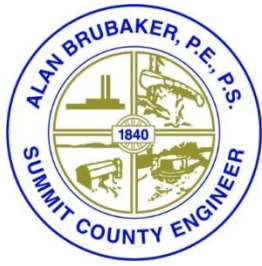
State of the Yellow Creek Watershed 2022  
Status of Wye Road Drainage Improvement Project

- Wye Road Drainage Improvement Project – will reduce flooding and erosion along this tributary to Yellow Creek.
- The project will be located primarily in the Sanctuary of Bath subdivision and will enlarge the existing detention basin, mitigate flooding on 2 lots and reduce in-stream erosion.
- The project has been split into 2 phases to maximize funding possibilities and for permitting from OEPA and Army Corps of Engineers.



State of the Yellow Creek Watershed 2022  
Status of Wye Road Drainage Improvement Project

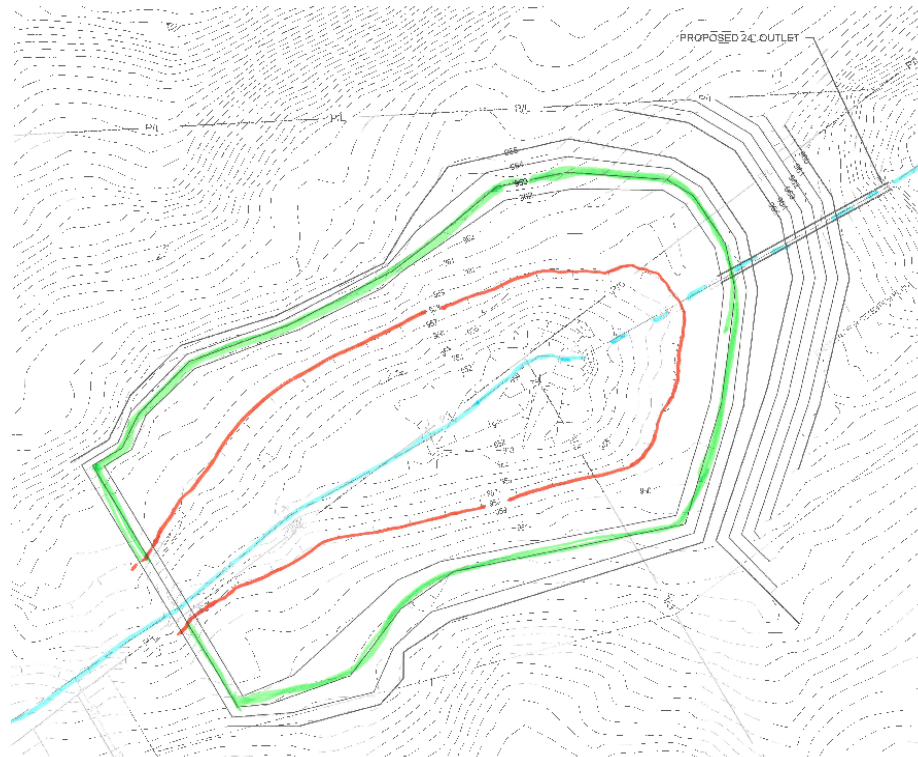
- Phase 1 Plans are 75% complete.
- Phase 1 construction cost estimate is \$350,250.  
Funding will be 80% EMA BRIC grant and 20% SWMD-Bath.
- Phase 1 construction schedule is Spring – Dec 2023.
- Phase 2 Plans are 30% complete.
- Phase 2 construction cost estimate is \$385,800.  
Funding will be 100% SWMD ARPA minus EMA BRIC if approved.
- Phase 2 construction schedule is Fall 2023 – Fall 2024.

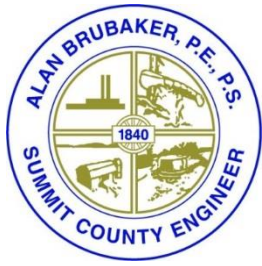


# State of the Yellow Creek Watershed 2022

## Wye Road Drainage Improvement Project

### Phase 1 - Proposed SWM Basin Expansion – 50% More Volume





# State of the Yellow Creek Watershed 2022

## Wye Road Drainage Improvement Project

### Phase 2 - Proposed Stream Improvements – Pools and Riffles

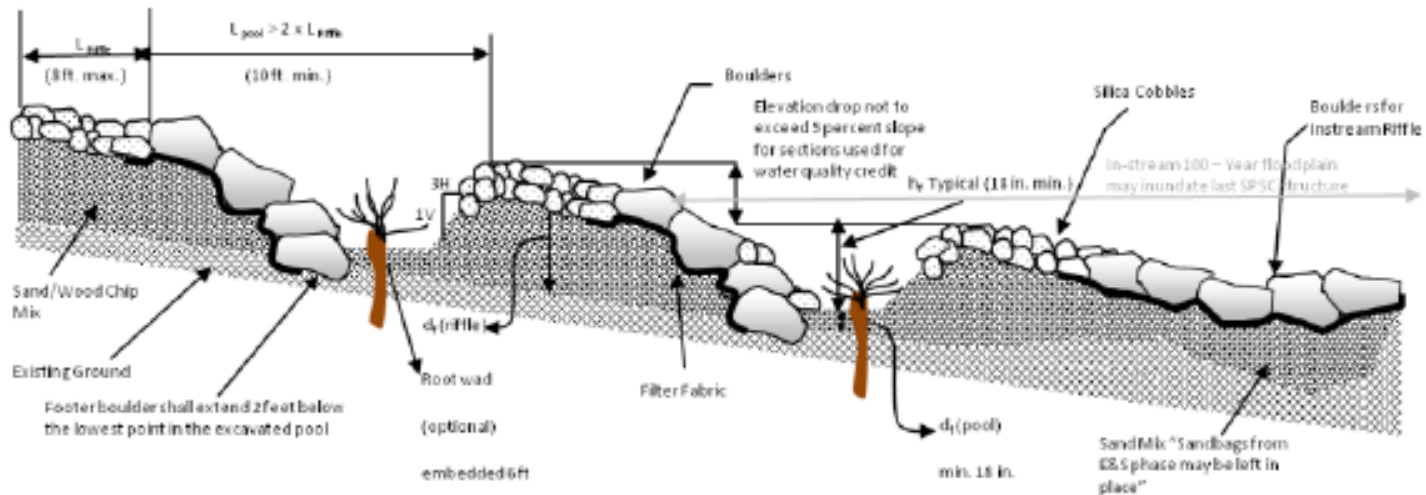
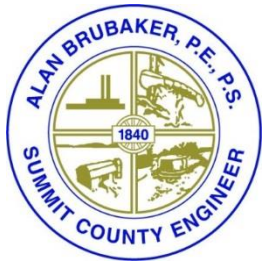


Figure 3: Profile View – Alternating Pools and Riffles<sup>1</sup>



# State of the Yellow Creek Watershed 2022 Wye Road Drainage Improvement Project

## Phase 2 - Proposed Stream Improvements – J-Hooks

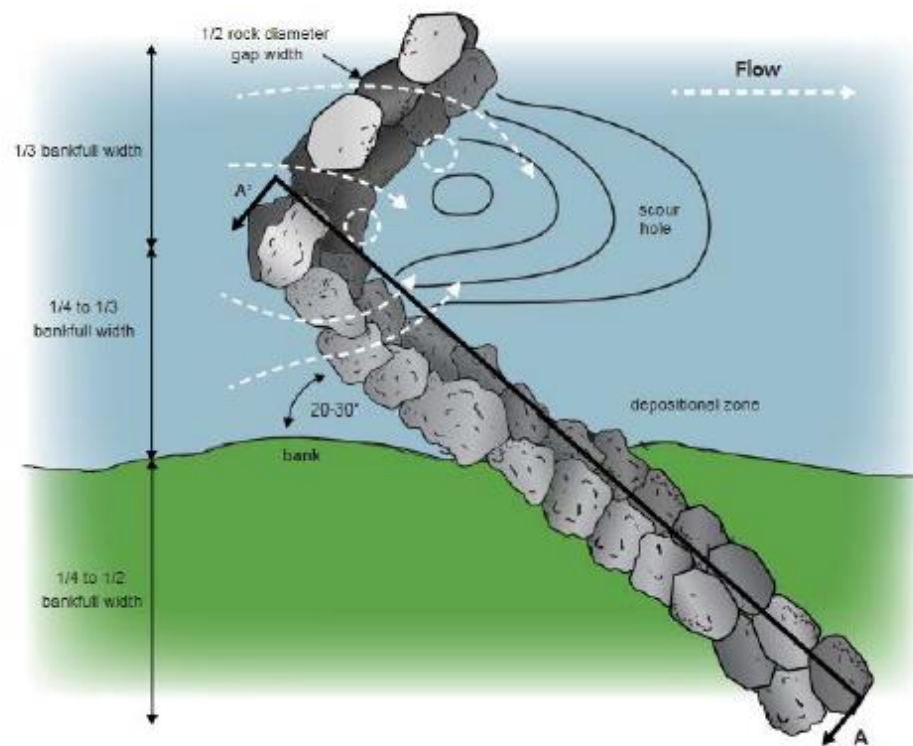
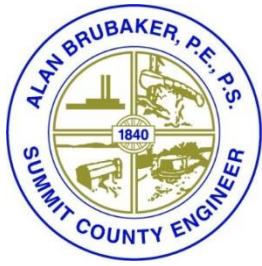
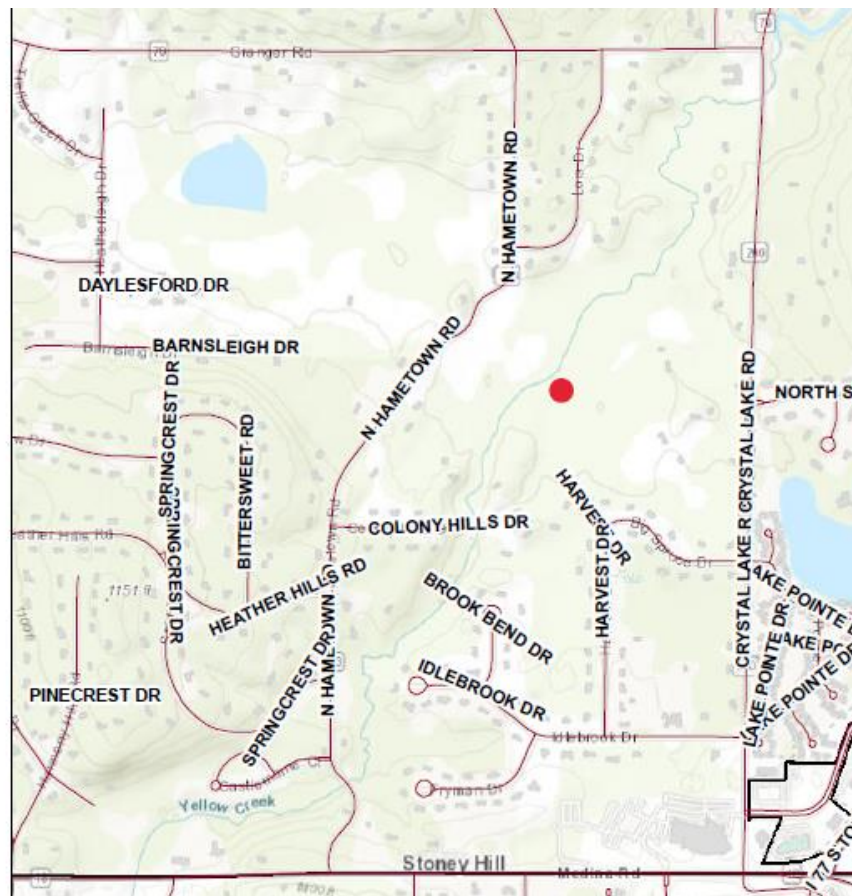


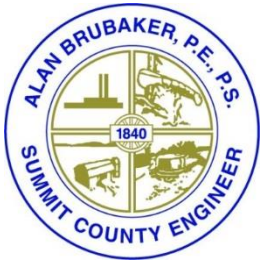
Figure 4: Plan View of a J-Hook Cross-Vane<sup>2</sup>



# State of the Yellow Creek Watershed 2022 Idle Brook Bankfull Wetlands Project

## Location Map

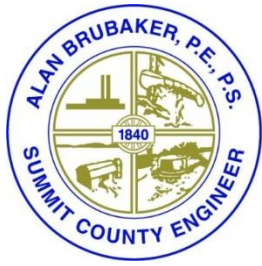




## State of the Yellow Creek Watershed 2022

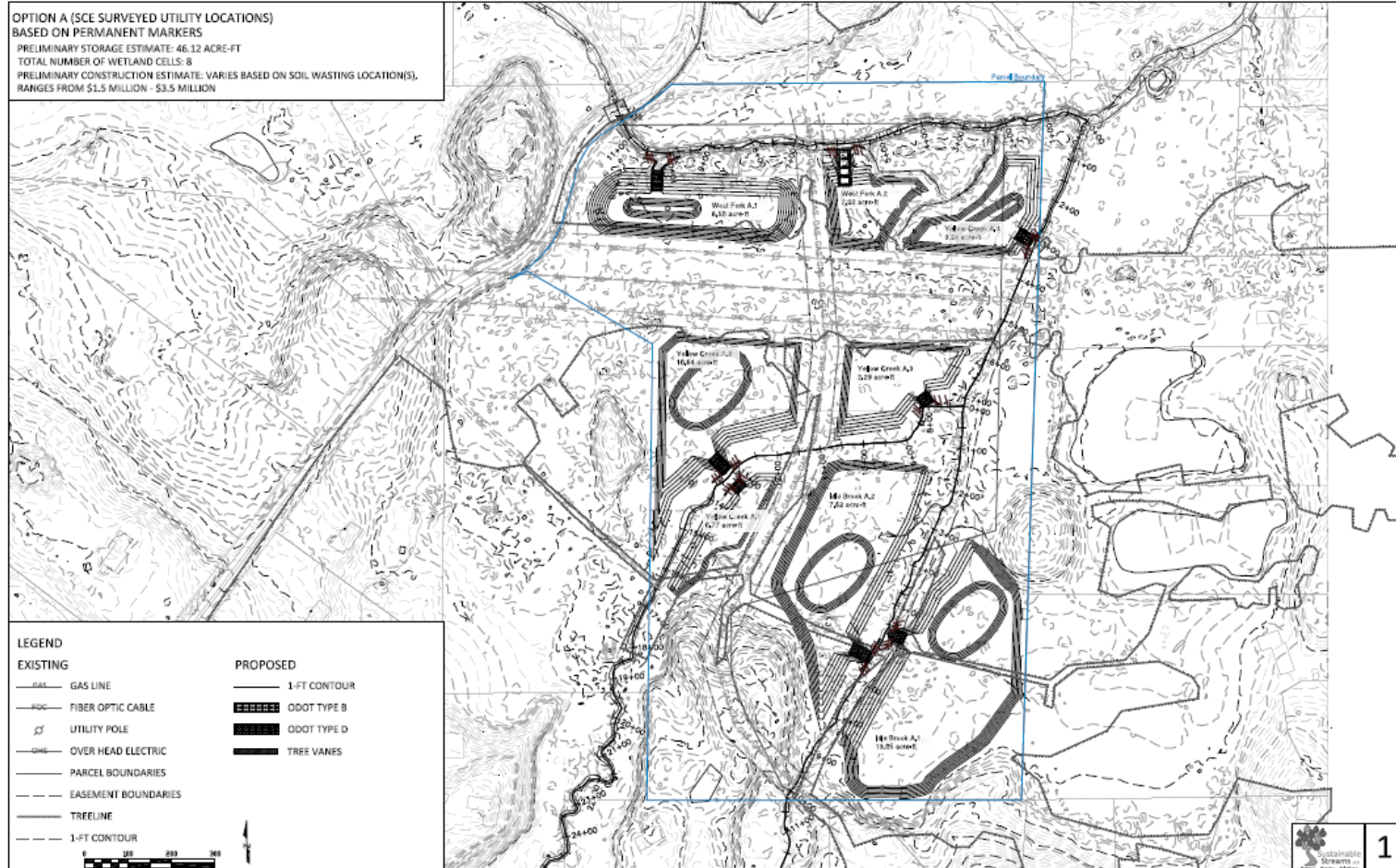
### Idle Brook Bankfull Wetlands Project

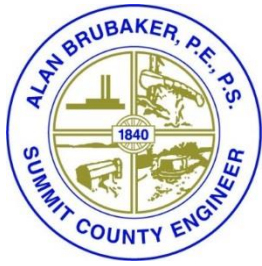
- Will re-establish the stream's connection to the adjacent floodplains, remove invasive species, and reconstruct the wetlands with native plants.
- This improved area will provide enhanced habitat for flora and fauna and will store stormwater. Yellow Creek velocities & erosion will be reduced as will flooding.
- Project construction cost is estimated at \$1.5M - \$3.0M (depending on soils), Funded by SWMD ARPA. We'll apply for a Clean Ohio Greenspace grant next month.
- Project Site is on 4 parcels owned by Summit County.
- The project consists of 7 or 8 unique wetland cells which might be expanded onto Ohio Edison ROW.
- Construction by Design-Build firm in 2023 – 2024.



# State of the Yellow Creek Watershed 2022 Idle Brook Bankfull Wetlands Project

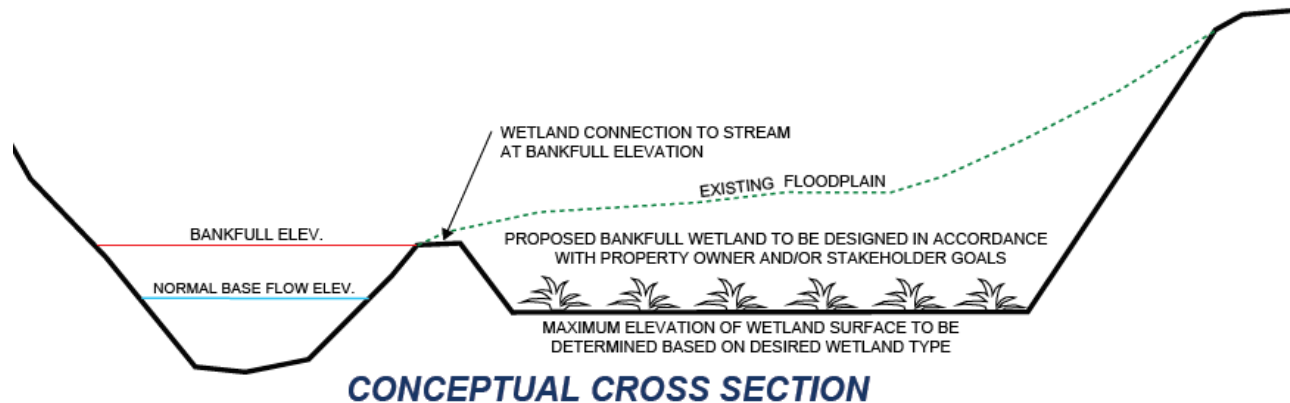
DRAFT (FOR DISCUSSION) PRELIMINARY CONCEPTUAL PLANS - NOT FOR CONSTRUCTION



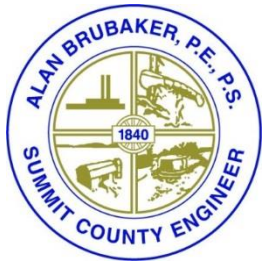


# State of the Yellow Creek Watershed 2022

## Idle Brook Bankfull Wetlands Project



- Add new storage specifically designed to offload erosive flows
- Created in undevelopable floodplain areas
- Could be optimized to reduce the erosive power of the 1-year discharge, particularly during summer storms



## State of the Yellow Creek Watershed 2022 Idle Brook Bankfull Wetlands Project

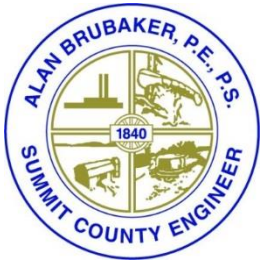
The creek are incised, cut off from the natural floodplain.  
The project will restore this connection.



Actual Existing Condition



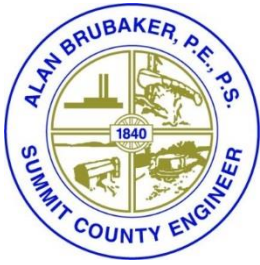
Proposed Condition



## State of the Yellow Creek Watershed Other Projects & Issues That May Impact Yellow Creek

I-77 Third Lane – we have received and reviewed the plans from ODOT. They will comply with OEPA's construction and post-construction stormwater management rules.

- ODOT is not required to provide stormwater detention, but they must provide long-term storm water quality treatment of the roadway runoff, and the plans show 20 Vegetated Filter Strips for this in the Bath segment.
- We are reviewing the plans and looking for opportunities to establish stormwater quality / flood mitigation facilities downstream from the I-77 discharge points.



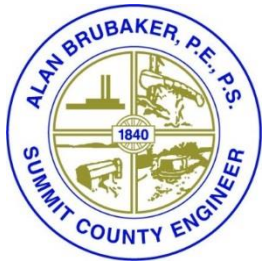
## State of the Yellow Creek Watershed SWMD Grading Permit Summary

- Streams, waterways, wetlands and ditches shall remain open and free-flowing, shall not be altered without a permit, and shall not be polluted.
- Filling and grading operations and construction of ponds, bridges, culverts, and storm sewers must meet standards, and are subject to plan review and permit requirements.
- Existing bridges, culverts, and storm sewers must be properly sized and kept free-flowing so that the waterway is not impeded, or they may be ordered removed.
- Enforcement, appeal, and penalty provisions are in place.
- Permit Fee is \$25.00 base fee plus \$2.00 per each 100 Cu. Yd. of earthwork.
- Permit Bond is required for work involving pond or wetland or over 500 Cu. Yd. of earthwork.

SWMD grading permit projects may also require approval from other agencies:

- Riparian Corridor work requires a Township Zoning Permit.
- Over one acre disturbance requires approval from the SWCD, and smaller projects must include compliant erosion control measures.
- FEMA Floodway work requires approval from the Summit County Floodplain Administrator/Chief Building Official.

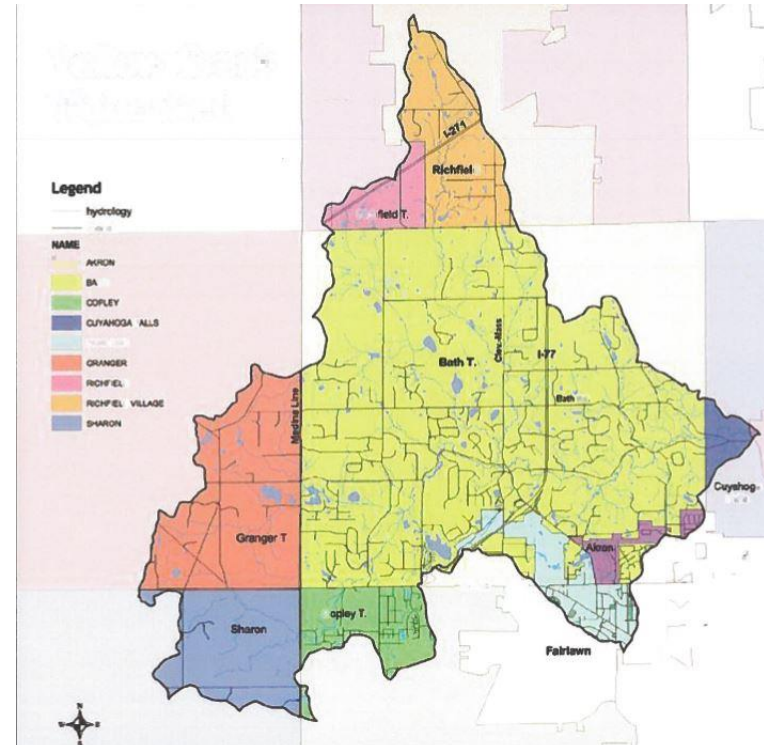
*(The full code is found in Chapter 942 Appendix A and on the SWMD webpage)*



# State of the Yellow Creek Watershed 2022

## Map of Yellow Creek Watershed

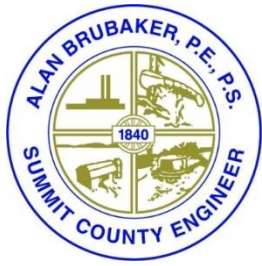
- The Yellow Creek Watershed measures 31 square miles and extends beyond Bath Twp. to 8 other communities.
- Bath also is part of 4 other watersheds: Rocky River, Furnace Run, Sand Run, and Schocalog Run.
- The SWMD is fortunate to be able to support the efforts of Stephanie Deibel as Yellow Creek Watershed Coordinator.



**Table 1: Municipalities within the Yellow Creek HUC-12**

Municipality	Area (acres)	Coverage (%)
Bath Township	11800	60
Copley Township	960	4
Richfield Township	540	3
Village of Richfield	1420	7
Cuyahoga Falls	230	1
City of Akron	210	1
Fairlawn	810	4
Granger Township	2510	12.5
Sharon Township	1500	7.5

*Note: Areas and percentages are approximate.*



# State of the Yellow Creek Watershed 2022 Watershed Coordinator Report



## A Stream of Prosperity

*“implementation of conservation technical and education assistance”*



Inventory & Evaluation



Set Goals & Identify Solutions



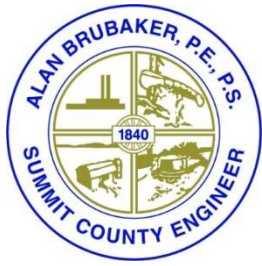
Implement Controls & Solutions

The Yellow Creek Watershed provides visitors with 31 square miles of scenic vistas and varied terrain.

Early Bath settlers harnessed the power of Yellow Creek, building more than 20 mills to spin wool and mill grain and wood.

A tributary of the Cuyahoga River, Yellow Creek has a healthier ecology and better water quality than many of the streams feeding the Cuyahoga River.

Friends of Yellow Creek is a community group dedicated to preserving and improving the



# State of the Yellow Creek Watershed 2022 Watershed Coordinator Report



## 2022 Program Year

*TECHINICAL AND EDUCATION ASSISTANCE*

**cleveland water alliance**

*Invest. Innovate and Accelerate*



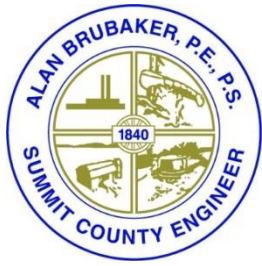
### ☐ Water Quality Monitoring

7 volunteers at 8 stream sampling locations

Chemistry and biological sampling

### ☐ Story map of Yellow Creek

WQ data, stormwater features, restoration projects...



# State of the Yellow Creek Watershed 2022 Watershed Coordinator Report



## 2022 Program Year

### TECHINICAL AND EDUCATION ASSISTANCE

#### MACRO MONDAY



#### FISH FRIDAY

Lake Appreciation Month

Iowa Darter  
*Etheostoma exile*

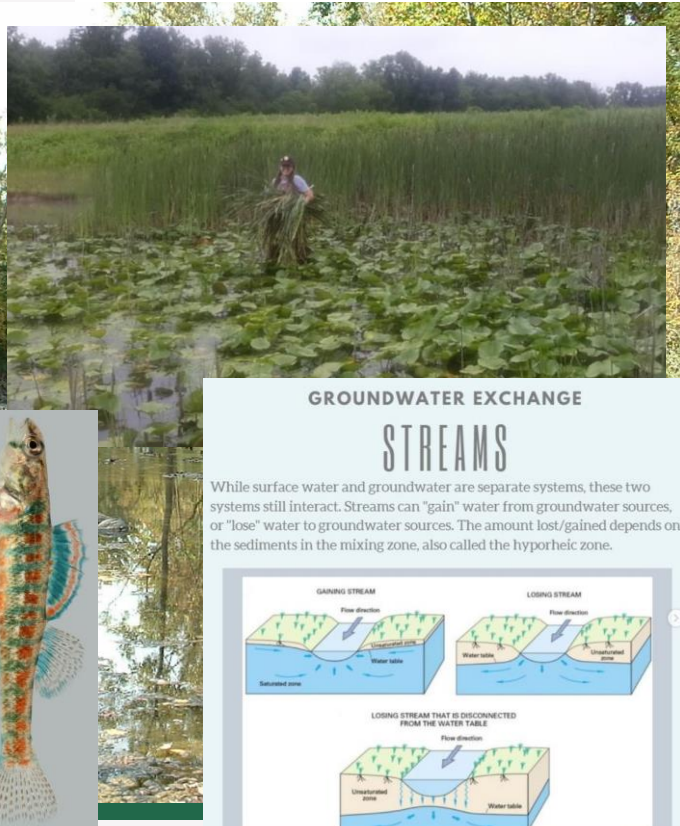
STATUS: Endangered

ENVIRONMENT: Glacially formed natural lakes, man-made lakes/reservoirs (Portage Lakes)

SIZE: 1.5 - 3 inches

FOOD: Insect larvae and other aquatic invertebrates

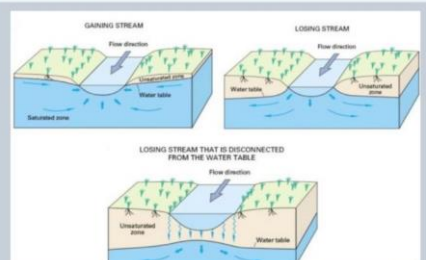
BREEDING: Females lay eggs near the waters edge and males guard the eggs until they hatch!



#### GROUNDWATER EXCHANGE

#### STREAMS

While surface water and groundwater are separate systems, these two systems still interact. Streams can "gain" water from groundwater sources, or "lose" water to groundwater sources. The amount lost/gained depends on the sediments in the mixing zone, also called the hyporheic zone.



#### ❑ Outreach and Events

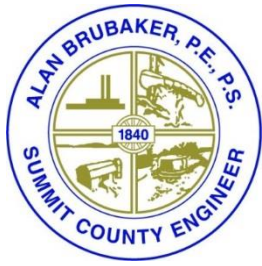
riparian guidebook  
watershed tour  
social media

#### ❑ NPSIS Plan

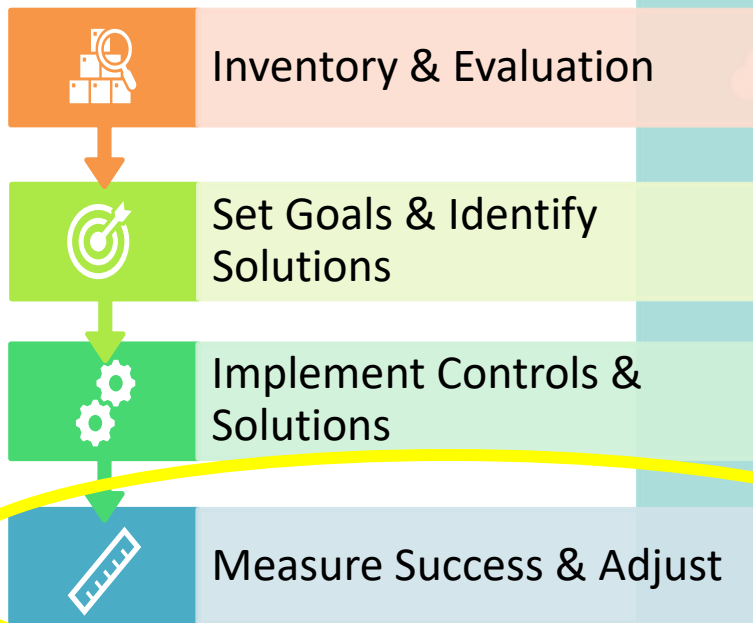
project updates,  
stakeholder meetings

#### ❑ Stream Maintenance Manual

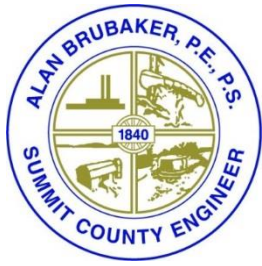
draft manual in progress



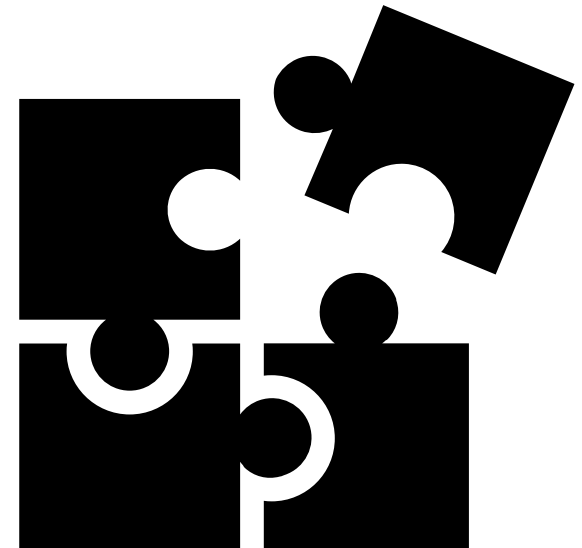
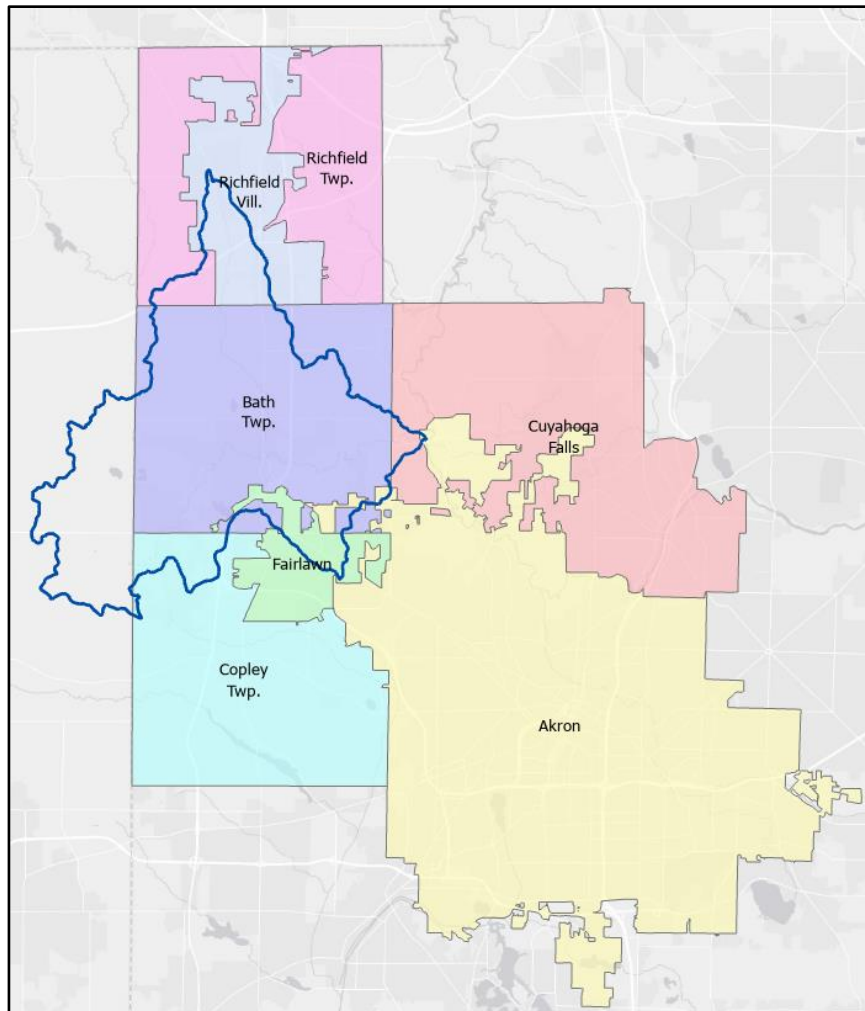
# State of the Yellow Creek Watershed 2022 Watershed Coordinator Report

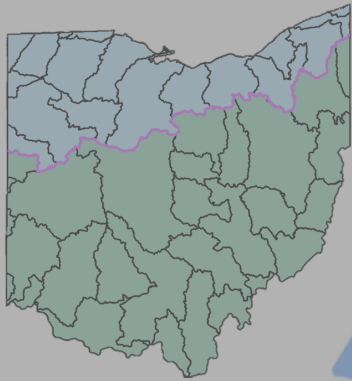


**2023 Program Year –  
*to be continued...***

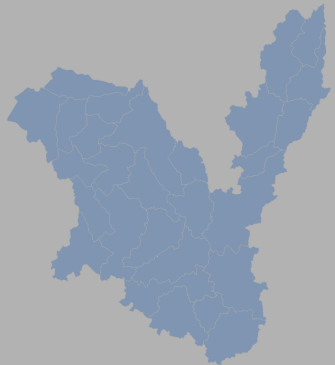


# State of the Yellow Creek Watershed 2022 Watershed Coordinator Report





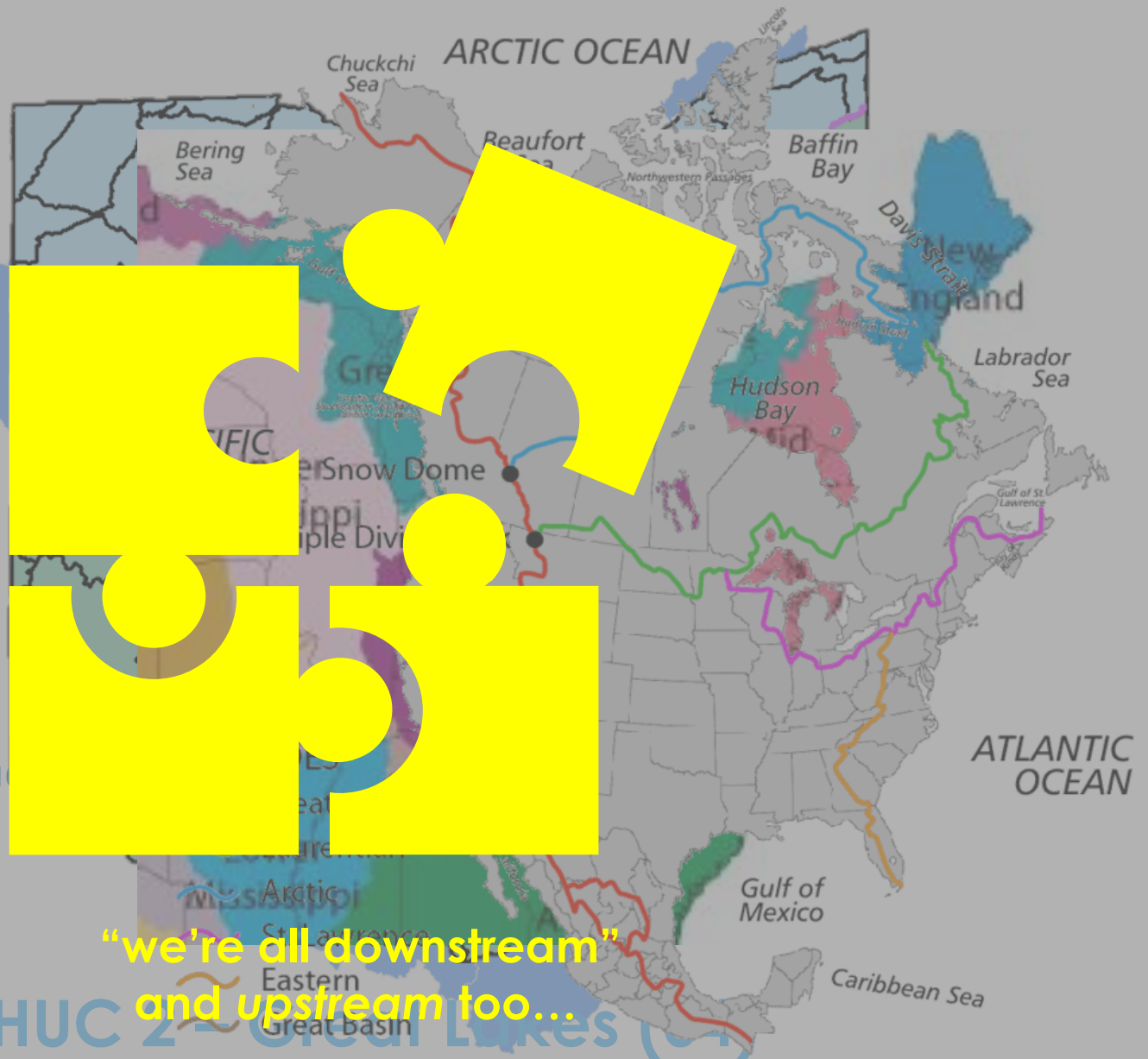
HUC 2 – Great Lakes (04)



HUC 8 – Cuyahoga River (04110002)



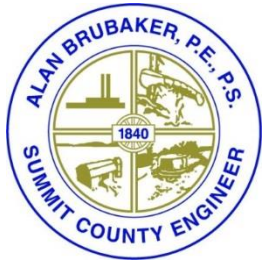
HUC 12 - YELLOW CREEK (04110002-04-02)



"we're all downstream"  
and upstream too...

HUC 8 – Cuyahoga River (04110002)

HUC 12 - YELLOW CREEK (04110002-04-02)



# State of the Yellow Creek Watershed Update

## October 24, 2022

