



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Improving Wetland and Stream Connectivity

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Wetland and Stream Grant Overview

Create a new position in the Water Resources Division (WRD) to develop programs relating to dam removals and stream restoration projects that involve floodplain and riparian wetlands.

- Develop trainings and materials for staff covering BMPs for stream projects.
- Host webinars for environmental professionals
- Improve processes relating to dam removals, stream restoration, and floodplain connectivity
- Coordinate with local communities and stakeholders on stream and floodplain/riparian wetland projects



Rationale for Funding

- Michigan previously only had one central staff member with the necessary experience to provide training and support.
- Not sufficient to provide statewide support on major stream projects and stream mitigation program
 - Enclosures, relocations, channelizations, dam removals, and stream and wetland restorations
- Create a role to focus on projects that increase stream and riparian wetland function
 - Dam removals, habitat restoration etc.
- Develop processes and provide additional expertise given the complex nature of stream and riparian restoration projects



Tasks for new position

- Develop processes and trainings to organizations planning wetland and stream projects to avoid and minimize impacts
- Develop statewide sediment curves
- Hold training for EGLE staff focusing on connectivity
- Promote Michigan Stream Team
- Work with DNR to develop new policies for BMPs on dam and barrier removal
- Host external trainings
- Develop Outreach materials



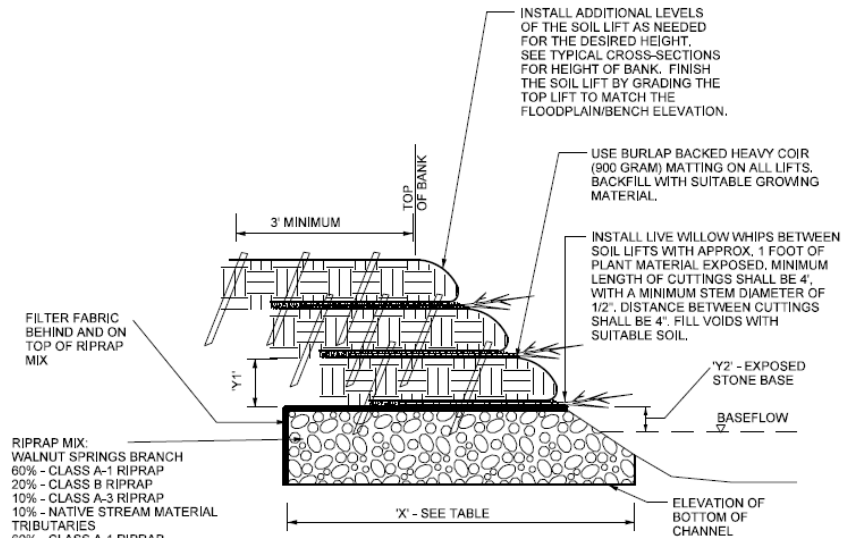
Technical Expertise in Restoration and Management Techniques

- Serve as point of contact for EGLE staff across all nine district offices
 - Pre-Application Meetings
 - Site visits
 - Review of engineering design plans
 - Provide comments
 - Permit conditions
- Focus on stream restoration projects
 - Channel Sizing and Profile Design
 - Stream Restoration associated with Dam Removals
 - Road Stream Crossings/Culvert Sizing
 - In-Stream Structures, Bank Stabilizations and BMPs
 - Violation and Enforcement Cases





Wildland Hydrology



RIPRAP MIX:
 WALNUT SPRINGS BRANCH
 60% - CLASS A-1 RIPRAP
 20% - CLASS B RIPRAP
 10% - CLASS A-3 RIPRAP
 10% - NATIVE STREAM MATERIAL
 TRIBUTARIES
 60% - CLASS A-1 RIPRAP
 30% - CLASS A-3 RIPRAP
 10% - NATIVE STREAM MATERIAL

NOTE:
 AT DESIGNER'S DIRECTION,
 INTERPERSE WITH WOODY
 DEBRIS TO ENHANCE HABITAT.

COEFFICIENT	WSB STA. 14+62 - 47+62	WSB STA. 61+94 - 81+92	TRIBUTARIES
X	5.0'	5.0'	4.0'
Y1	0.8'	0.9'	0.5'
Y2	0.2'	0.3'	0.1'

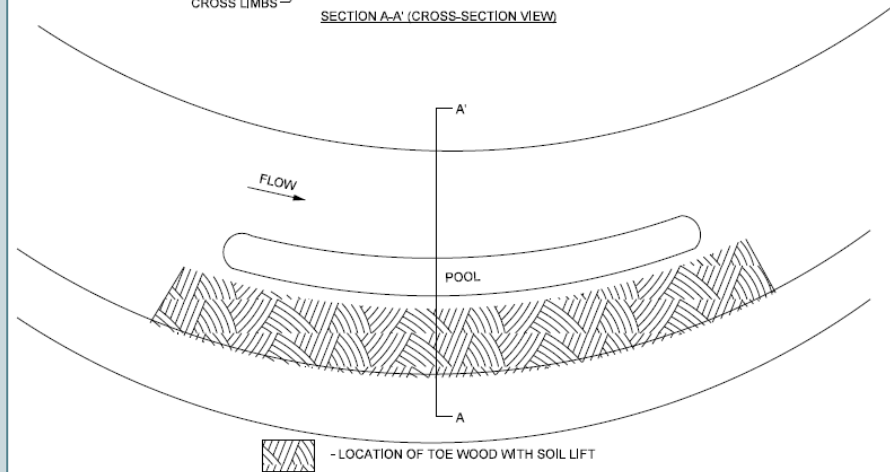
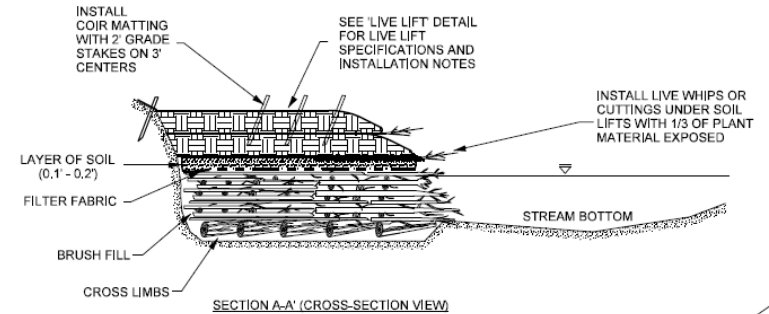
NOTES

USE 1.5"x1"x2" WOODEN STAKES ON 1' CENTERS.
 STAKES SHALL HAVE A 'ROOFING' NAIL AT TOP TO
 KEEP FABRIC FROM SLIPPING OFF.

DO NOT CUT DEEPER THAN THE EXISTING BEDROCK.
 IF BEDROCK IS ENCOUNTERED, ADJUST DEPTH OF RIPRAP
 FOOTER TO COMPENSATE FOR BEDROCK ELEVATION;
 OR ELIMINATE FOOTER AND BUILD THE FIRST LIFT ON
 THE BEDROCK AT THE DIRECTION OF THE ENGINEER.

VEGETATED SOIL LIFT

SCALE: NTS



PLAN VIEW

NOTES

STEP 1 - INSTALL 4" TO 10" CROSS LIMBS ANGLED 30 DEGREES UPSTREAM.

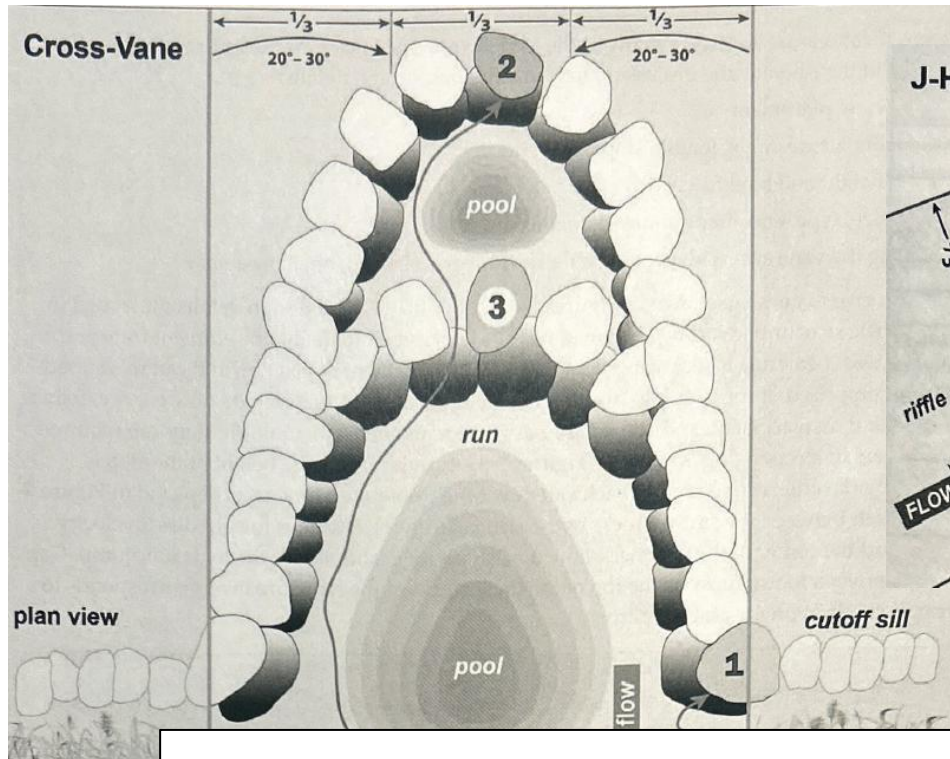
STEP 2 - FILL TOP OF CROSS LIMBS WITH BRUSH INSTALLED IN MULTIPLE DIRECTIONS.

STEP 3 - PLACE FILTER FABRIC OVER THE BRUSH AND ADD A LAYER OF SOIL ON TOP. SOIL LAYER IS APPROX 0.1' - 0.2' HIGH. THEN INSTALL SOIL LIFT.

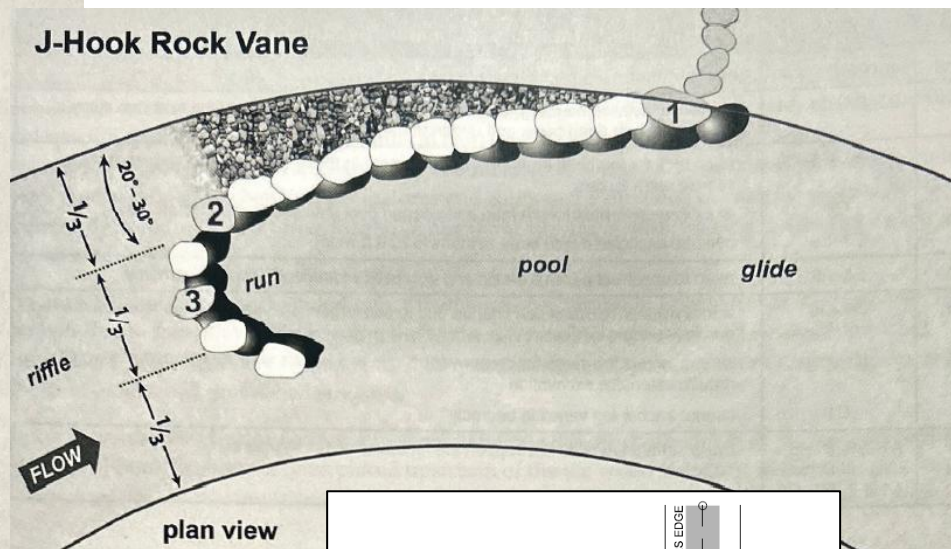
TOE WOOD WITH SOIL LIFT

SCALE: NTS

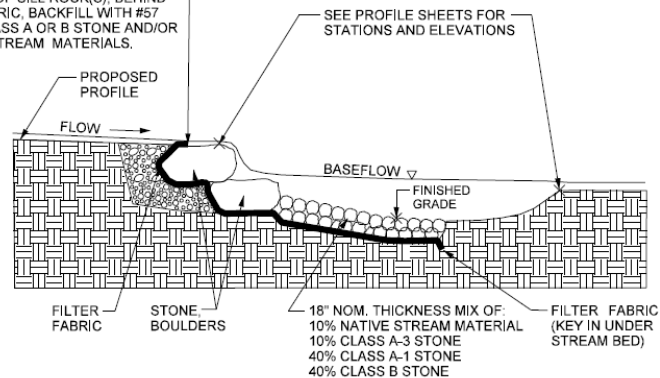
Cross-Vane



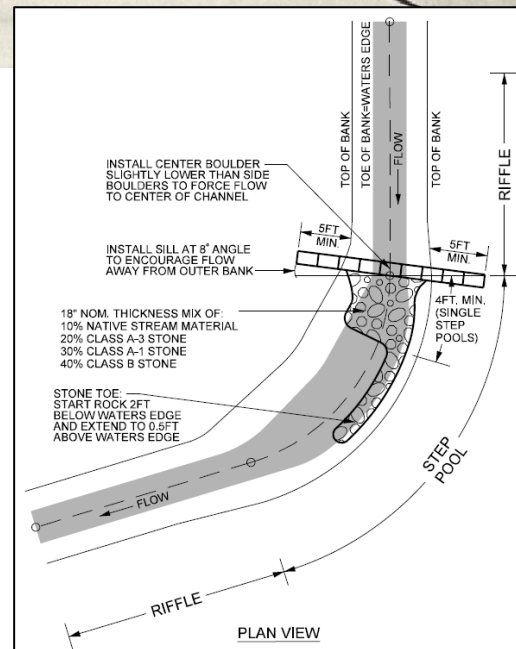
J-Hook Rock Vane



LAY FILTER FABRIC OVER UPSTREAM TOP EDGE OF SILL ROCK(S); BEHIND FILTER FABRIC, BACKFILL WITH #57 STONE, CLASS A OR B STONE AND/OR NATURAL STREAM MATERIALS.



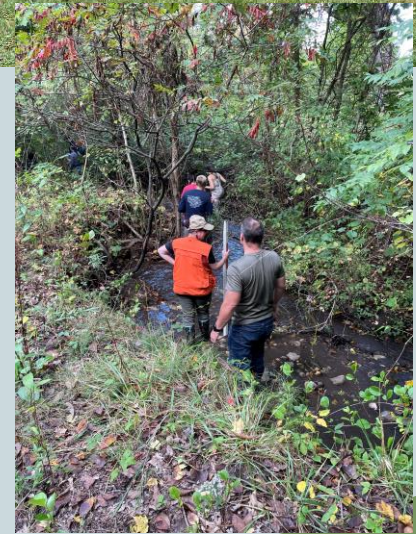
PROFILE VIEW





Bankfull Trainings

- Bankfull is the point at which the channel fills and begins to overtop and flow onto the floodplain.
- Considered the channel forming flow and is essential to riparian wetlands.
- Hosted two trainings in 2024 and two trainings in 2025.
- 45 staff members within EGLE attended the 2024 Bankfull Trainings between the two days
- 47 participants attended the 2025 bankfull trainings and included both EGLE staff and external practitioners
- Trainings were broken up into classroom sessions and then time in the field

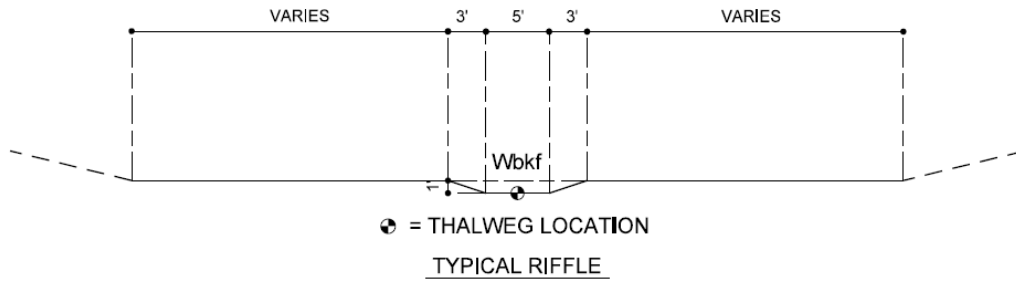




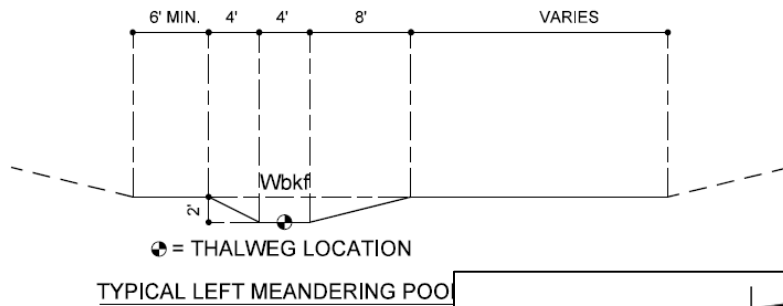




WALNUT SPRINGS BRANCH STA. 14+62.4 - 32+30.7

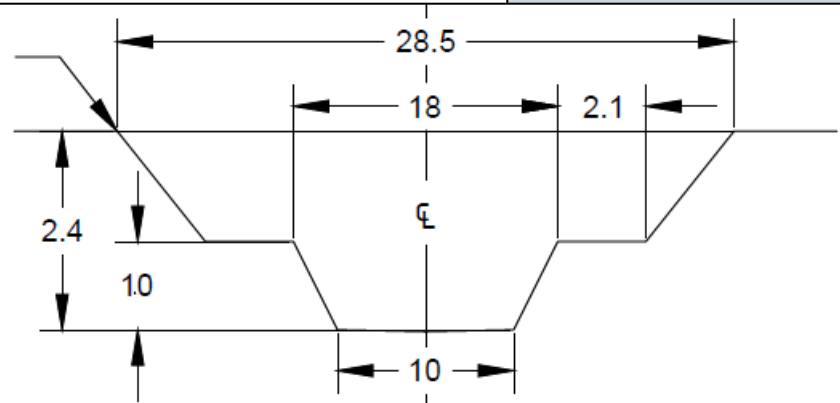


TIE BACK TO
EXISTING
GRADE AT 3:1 SLOPE
(TYPICAL)

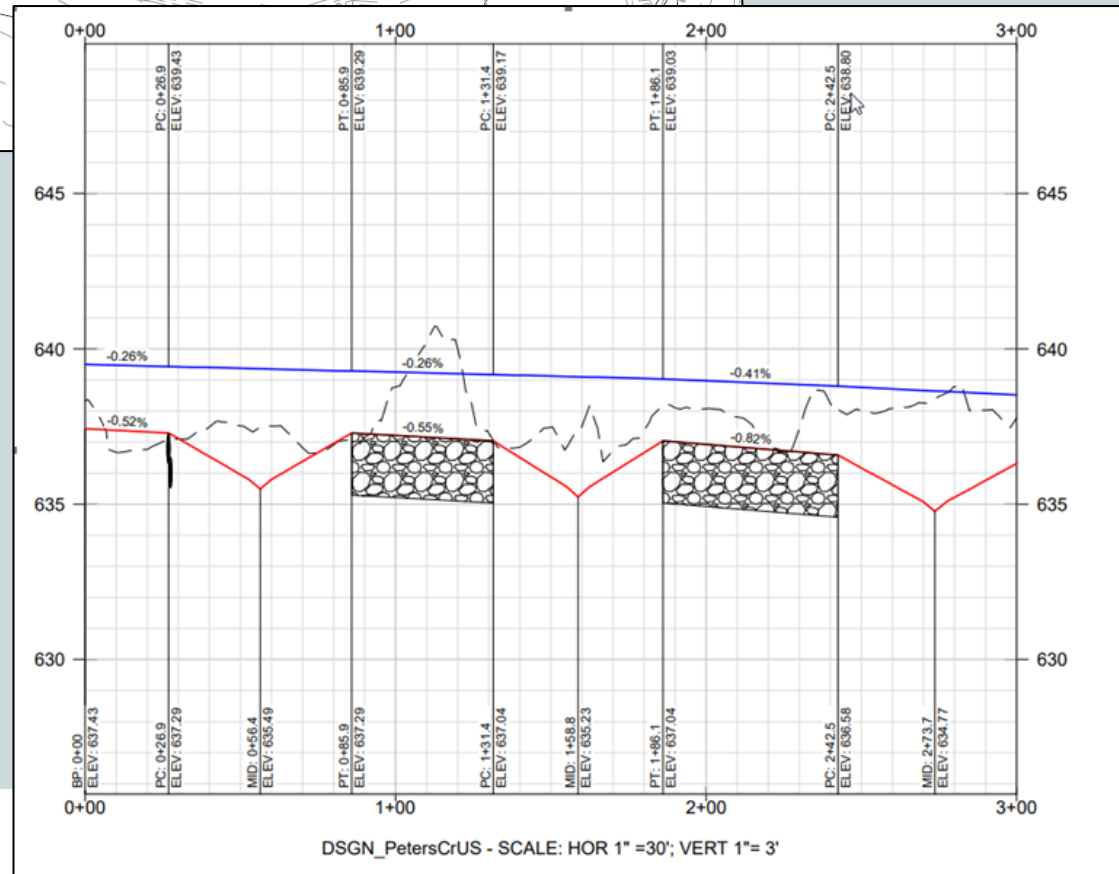
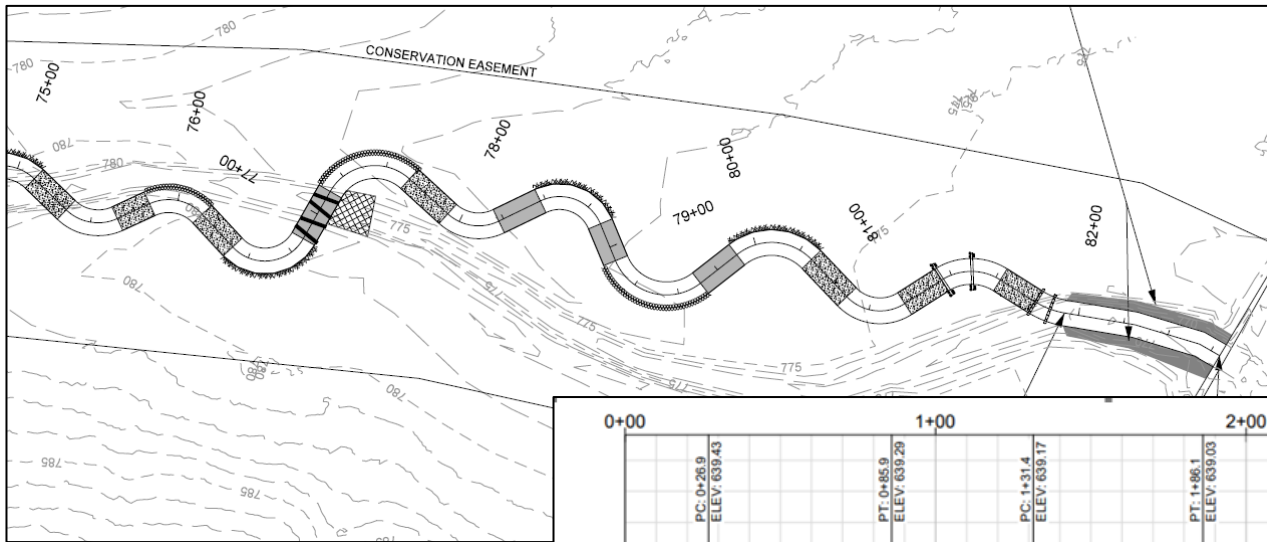


TIE BACK TO
EXISTING
GRADE AT 3:1 SLOPE
(TYPICAL)

BANKFULL
STAGE



TYPICAL SECTION - RIFFLE



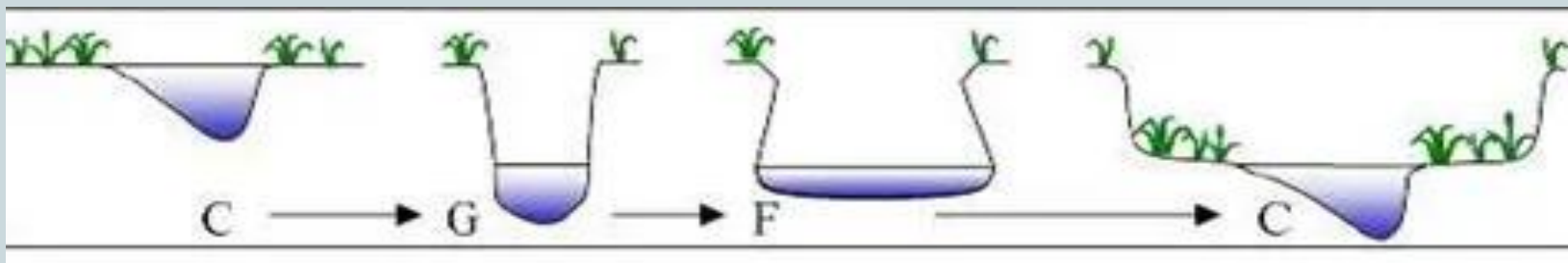
Stakeholder Engagement

- Michigan County Drain Commissioners
- Michigan DNR
- MDOT
- Wetland and Stream Practitioners
- General Public



Michigan County Drain Commissioners

- Collaborate with Michigan Drain Commissioners to better understand stream/wetland function and improve BMPs
- Attend bi-annual Michigan Association of County Drain Commissioner Conferences



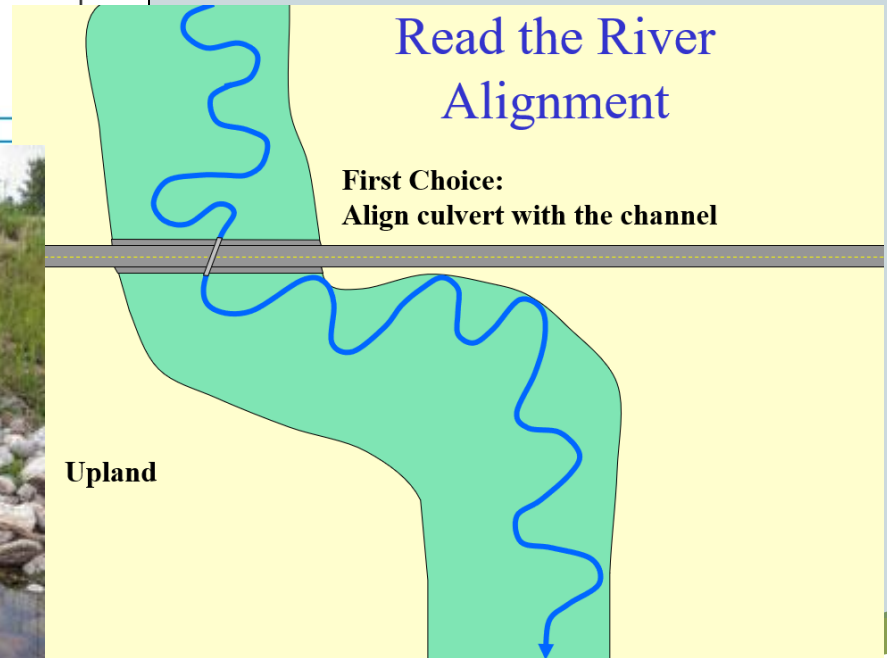
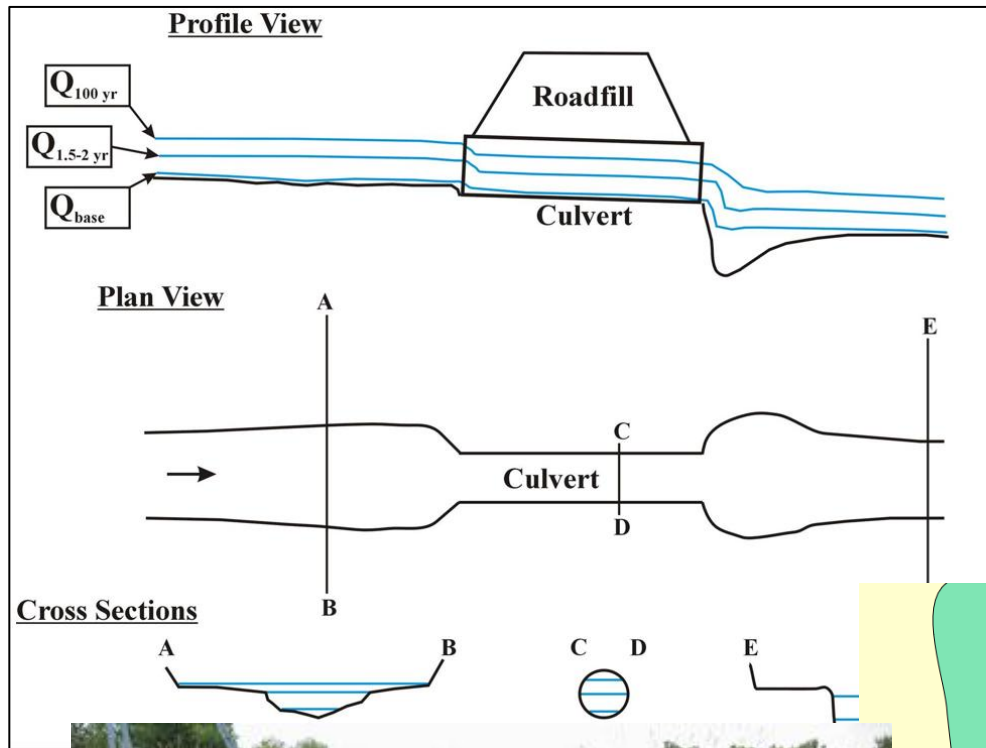




Stakeholder Outreach

- Presented at 2023 Michigan Wetlands Association (MWA) Conference
 - Stream and Wetland Connectivity
 - Assisted with presentation on the MiSQT
- Presented at 2023 Transportation and Environment Conference on Road Stream Crossing BMPs





Trainings & Conferences

- Rosgen Level III & IV
- Stream Functions Pyramid and Quantification Tool Workshop
- USDA Road Stream Crossing Training
- 2024 National Stream Restoration Conference



Ongoing Projects

- Dam Safety and Stream Restoration
- Drain Commissioner Erosion Study
- Sediment Curves
- Michigan Stream Team
- Technical Review Documents







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