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Cleaner streams.
Stronger neighborhoods.

Walhalla Ravine Restoration Project

Preferred Design Meeting

February 28, 2024

5:30 PM – 7:00 PM

City Representatives

Alana Shockey

Deputy Director, DPU Sustainability & Regulatory Compliance

Rob Priestas

Administrator, DPU Division of Sewers & Drains

Tim Swauger

Administrator, DPS Division of Refuse Collection

Paul Wilson

Assistant Administrator, DPU Division of Sewers & Drains

Janean Weber

Assistant Director, DPU Sustainability & Regulatory Compliance

The Engineering Team

Fang Cheng, PhD., P.E.

Sewer System Engineering Section Manager

20 years in the stormwater and wastewater management field. PhD research at OSU was on sediment transport and stream restoration.

Jehan Alkhayri, P.E.

Project Manager, City of Columbus

Over 17 years of experience as a professional engineer and project manager managing various capital improvement projects. Currently manages two projects in the Clintonville 3 area: Tulane Findley and Fredonia Piedmont.

Travis White, P.E.

Project Manager, Stantec

17 years' experience including 22 ecosystem restoration projects completed; 50+ miles of stream and river assessed; 12 wetlands designed; and 300+ rain gardens designed and implemented. Envision Sustainability Professional, Institute for Sustainable Infrastructure.



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Agenda

- Goals of Ravine Restoration
- Project Update & Presentation of Detailed Design
- Q&A
- Open House

Goals of Ravine Restoration: A Refresher

TIFFANY CONN
Community Relations Coordinator
City of Columbus

Blueprint Goals

Mitigate SSO Activations (sewer overflows)

- No more than ONCE every 10 years

Improve Water Quality

- 20% reduction in TSS

Goal: Reduce Sewer Overflows



Lateral Lining

- Keeps rainwater out of sanitary sewer
- Seals cracks and small breaks in pipe that carry rain away from your home to sewers



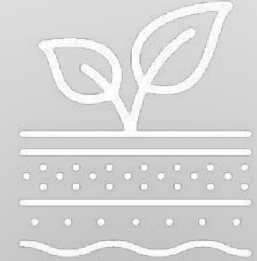
Roof Water Redirection

- Redirects rainwater away from your home and to the street, so that it can't enter the sewer through connection joints around your home



Sump Pumps

- Collects rainwater around your home's foundation
- Discharges rainwater into a pipe that discharges to the street



Green Infrastructure

- Filters rainwater from the street
- Removes pollutants and trash
- Makes rainwater cleaner when it reaches rivers and streams

Goal: Improve Water Quality



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Green Infrastructure

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What does Green Infrastructure do?

- Slows down the stormwater
 - Green infrastructure captures stormwater before it gets to the river/stream
 - Released slowly back into storm system
- Results in cleaner stormwater outfalls
 - Removes sediment (TSS) from stormwater

Total Suspended Solids (TSS)

- Organic and inorganic particles that float or “suspend” in water (do not dissolve)
 - Sediment runoff (silt, plankton, algae, etc.) from erosion
 - Fine metals
 - Some chemicals/nutrients
 - Trash/debris

Why does this matter?

- ✓ Clouds the water, preventing sunlight from reaching aquatic plants
- ✓ Reduces oxygen levels in the water
- ✓ Buries aquatic life and impacts food sources
- ✓ Carries toxins

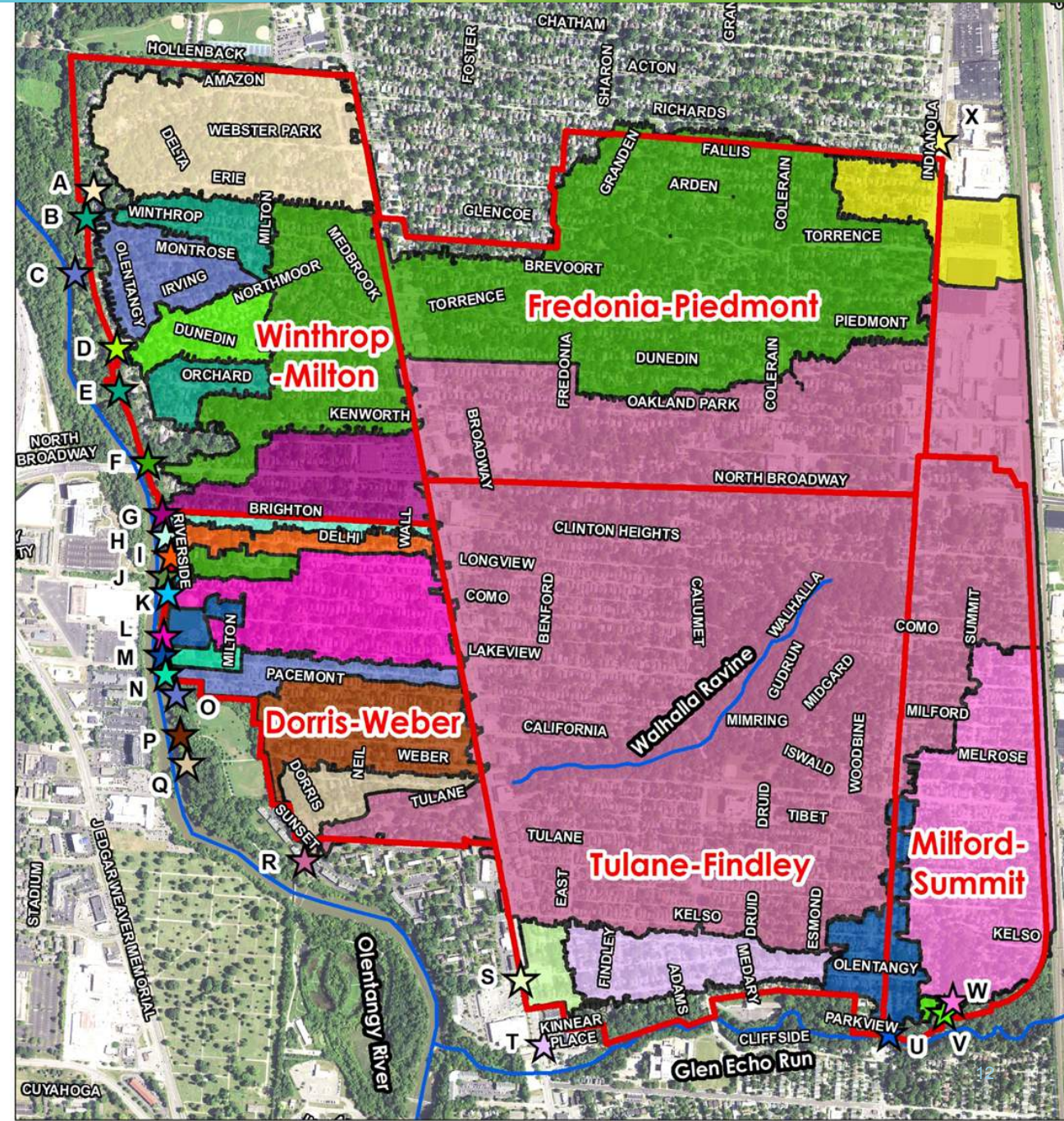
Methods to Reduce TSS

- **Green Infrastructure (rain gardens)**
 - Filters stormwater through soil media.
 - Stormwater is treated prior to entering storm sewers and traveling downstream to the Olentangy River.
- **Stream Restoration**
 - Chesapeake Bay Expert Panel, Protocol 1:
 - “This protocol provides an annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that would otherwise be delivered downstream from an actively enlarging or incising urban stream.”



Pieces of a larger puzzle

- Walhalla Ravine is part of the Blueprint plan and is located within the Tulane-Findlay project area
- By restoring banks on Walhalla Ravine, sediment is prevented from entering the Olentangy River downstream.
- Green infrastructure will be implemented throughout the Clintonville 3 project area



Timelines

Walhalla Ravine



Clintonville 3



Community Involvement-Walhalla

- **October 11, 2023** Walhalla Revised 60% Community Meeting
- **August 8, 2023** Walhalla Impacted Residents Revised 60% Meeting
- **October 26, 2022** Walhalla Ravine Onsite Meeting with DPU leadership
- **October 10, 2022** Walhalla Ravine 60% Meeting
- **October 2022** Impacted Resident Site Visits
- **June 8, 2022** FLOW Science Committee Meeting
- **November 24, 2021** Meeting with FLOW
- **September 21, 2021** Walhalla Ravine Resident Meeting (Impacted Residents)
- **August 20, 2021** Conversation with Friends of the Ravines and Walhalla Ravine Association
- **August 6, 2021** OEPA Acceptance
- **August 16, 2018** Walhalla Public Meeting

What we've heard

Concerns have primarily focused on:

- Wall
- Guardrail
- Road
 - Pedestrian safety
- Habitat
- Trees

Woonerf

Woonerf translates into a living street.

This street layout allows for pedestrians, cyclists, and vehicles to share the same space, in a safe way.

These roads provide safety and accessibility, it also integrates green spaces and sustainable design features to improve the environment.

Updated Concept- a living street



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Ravine Update

Old Rendering



New Rendering- Toward Clinton Heights



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New Rendering- Toward Longview

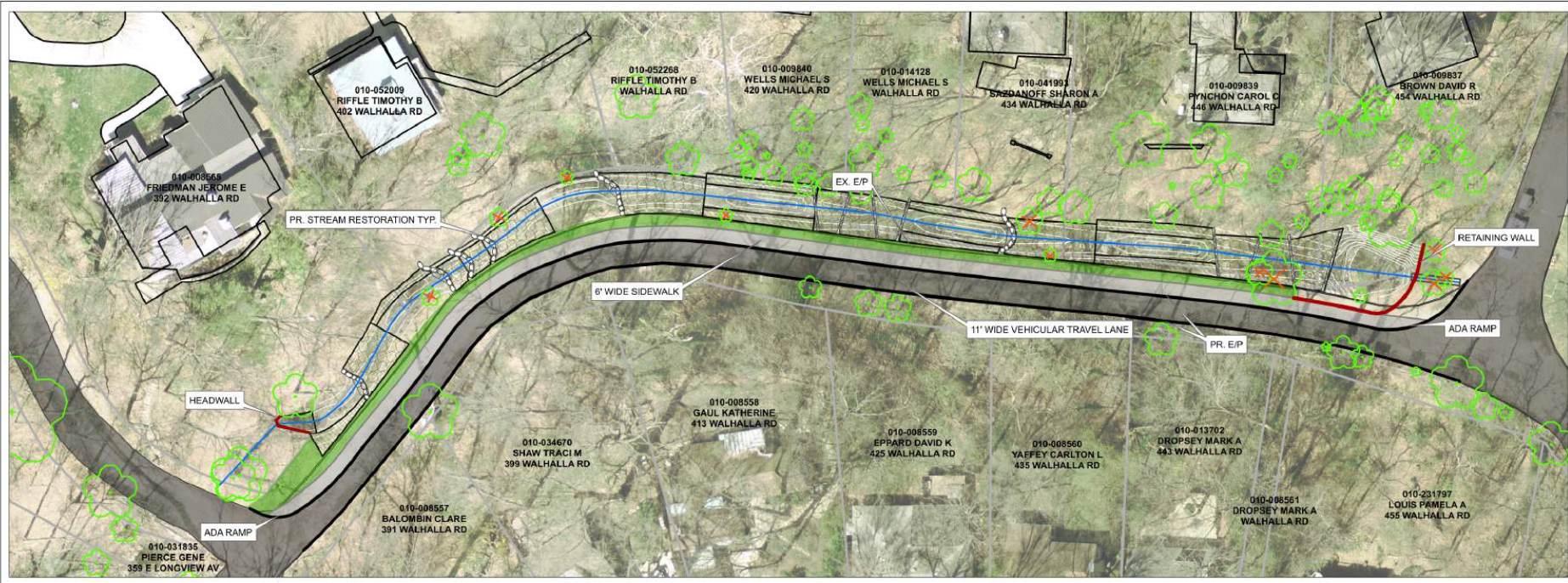


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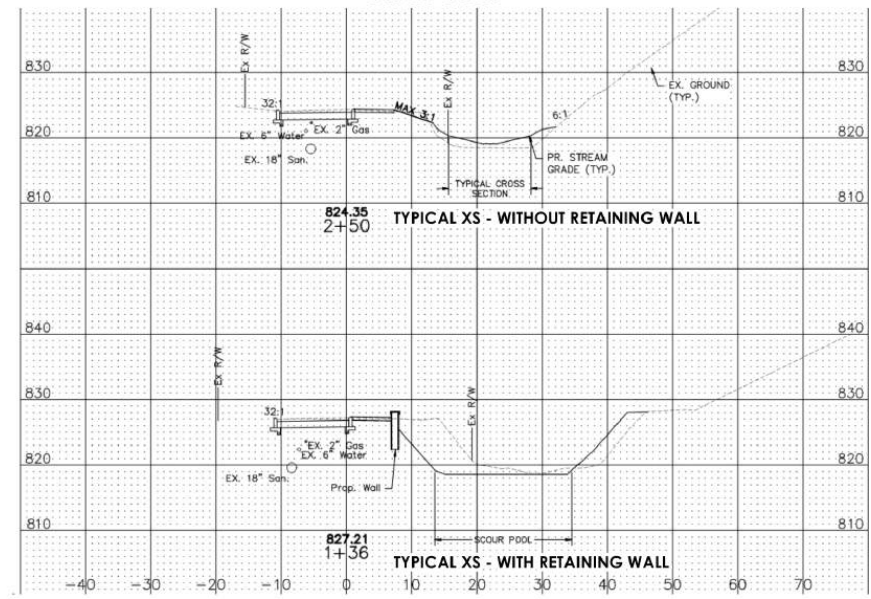
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Plan View Rendering

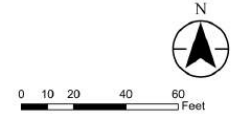


PLAN VIEW



PROFILE VIEW

Sheet No. **1** **DRAFT**
Walhalla Ravine Restoration
Alternative Grading Exhibit
City of Columbus
Division of Sewerage and Drainage
Project Location: Prepared by Stantec on 3/24/23
Columbus, Ohio 17348117



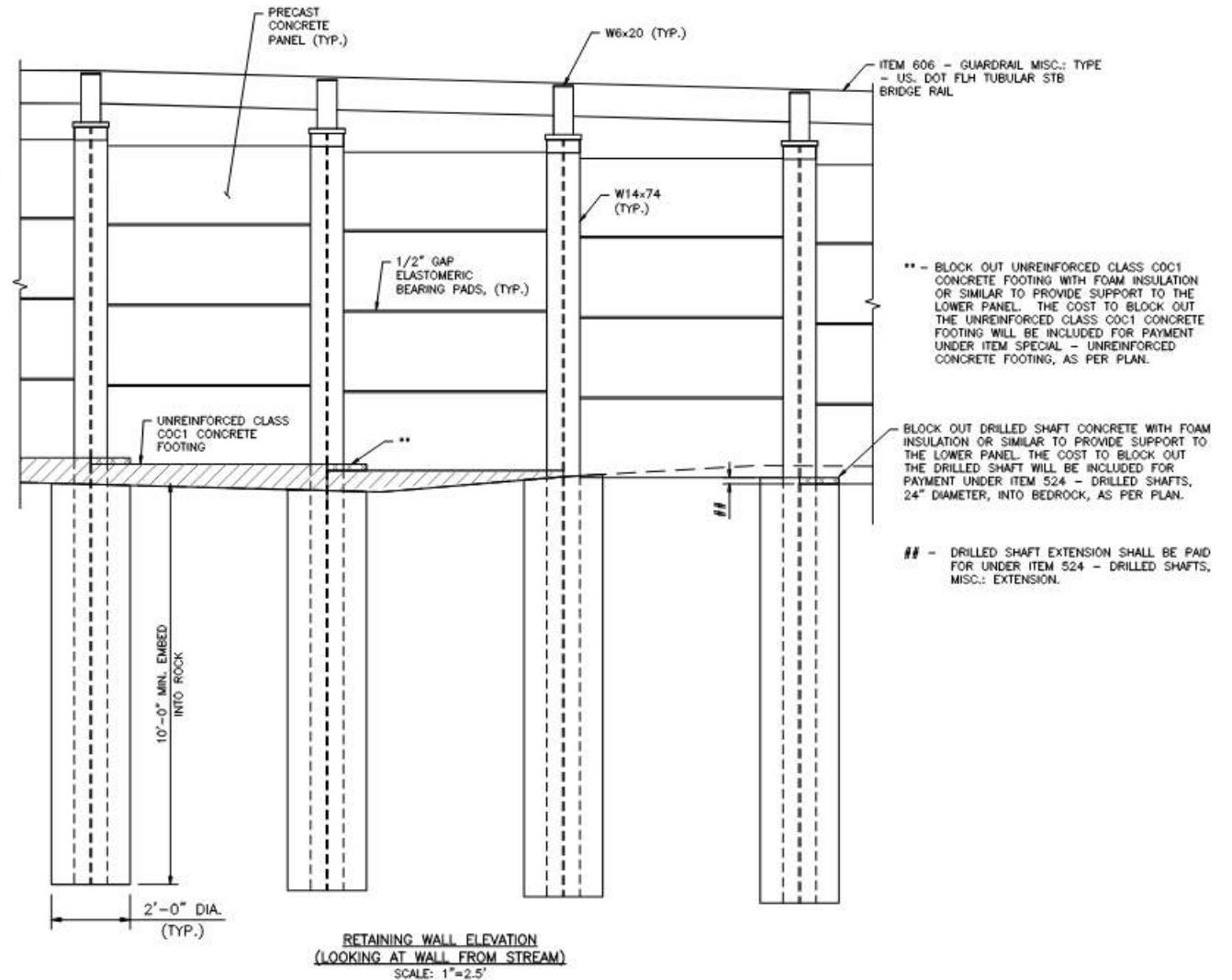
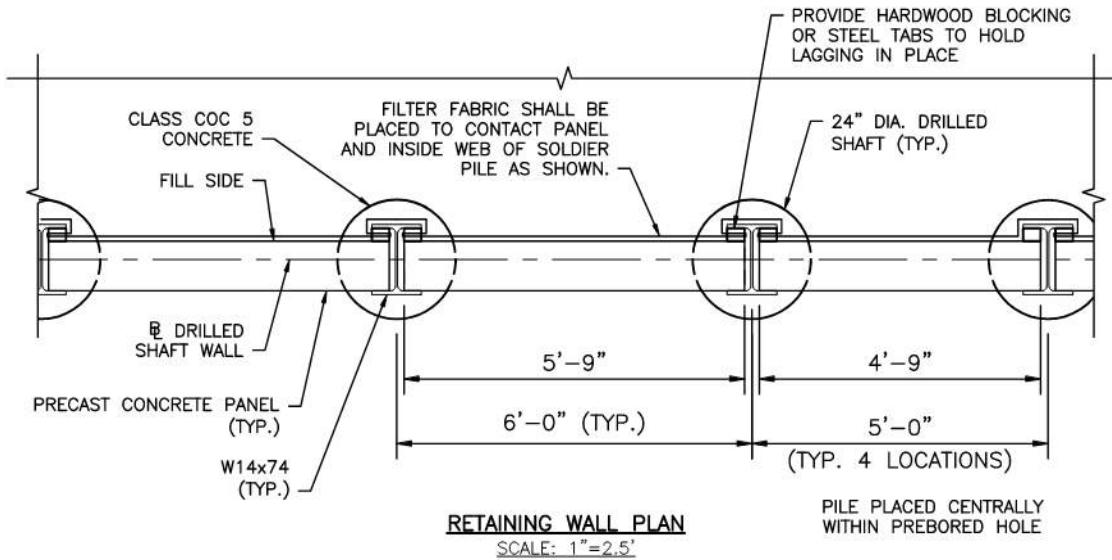
- Legend**
- Retaining Wall
 - Stream Centerline
 - Rock Toe with Live Brush Layering
 - Static Riffle
 - 6' Sidewalk (Proposed)
 - Walhalla Road
 - Green Space (Proposed)
 - Edge of Pavement (Proposed)
 - Edge of Pavement (Existing)
 - Right of Way and Property Lines
 - Trees (Existing)
 - Trees TBR



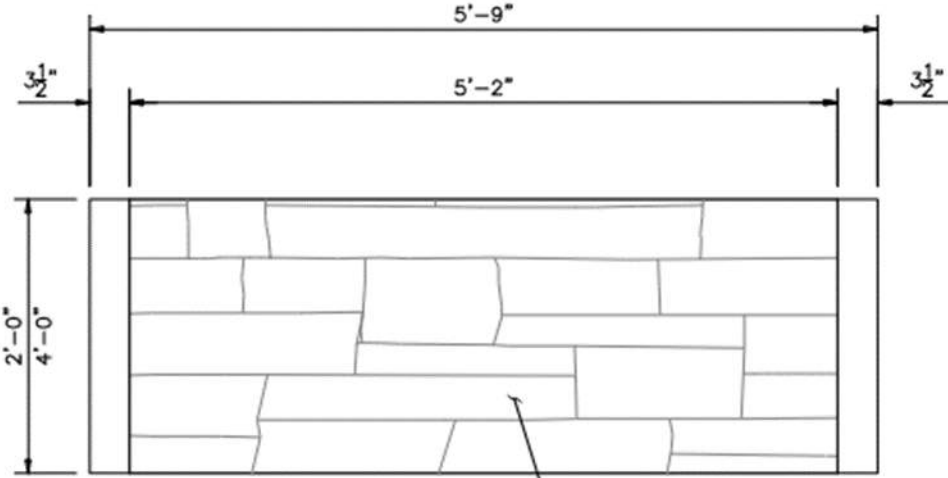
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Coordinate System:
NAD_1983_StatePlane_Ohio_South_FIPS_3402_Feet

Retaining Wall



Retaining Wall

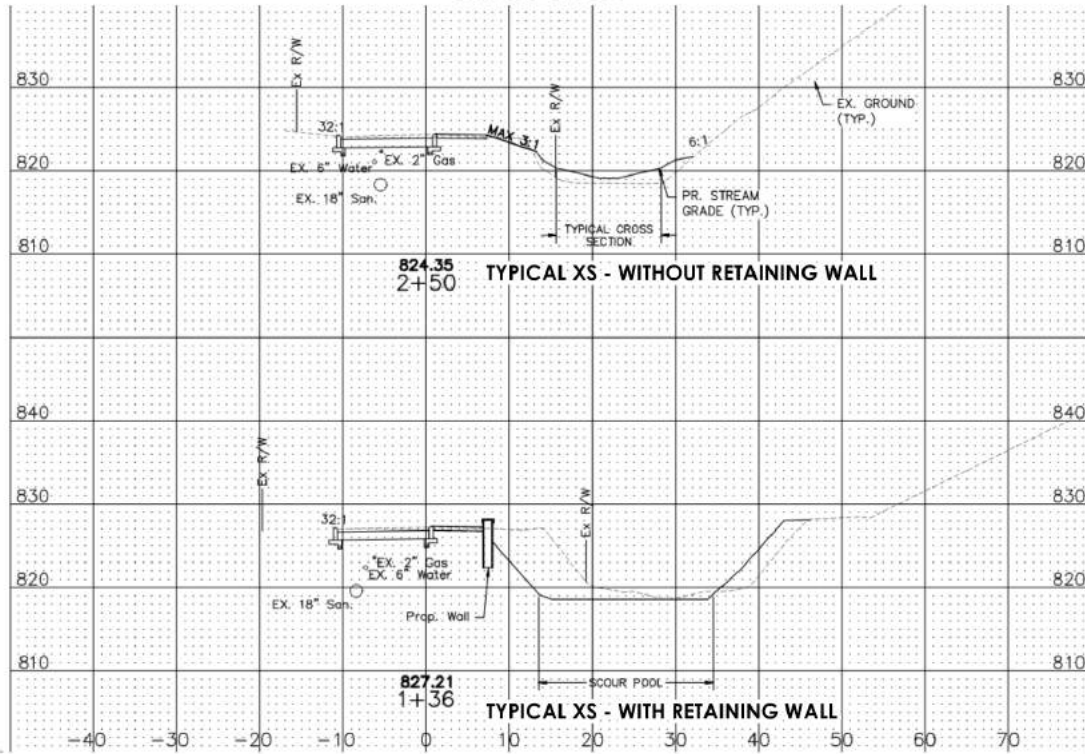


SEE FORMLINER ALTERNATIVES,
THIS SHEET.

PRECAST PANEL DETAIL
SCALE: 1"=1'



Road



Benefits of Ravine Restoration

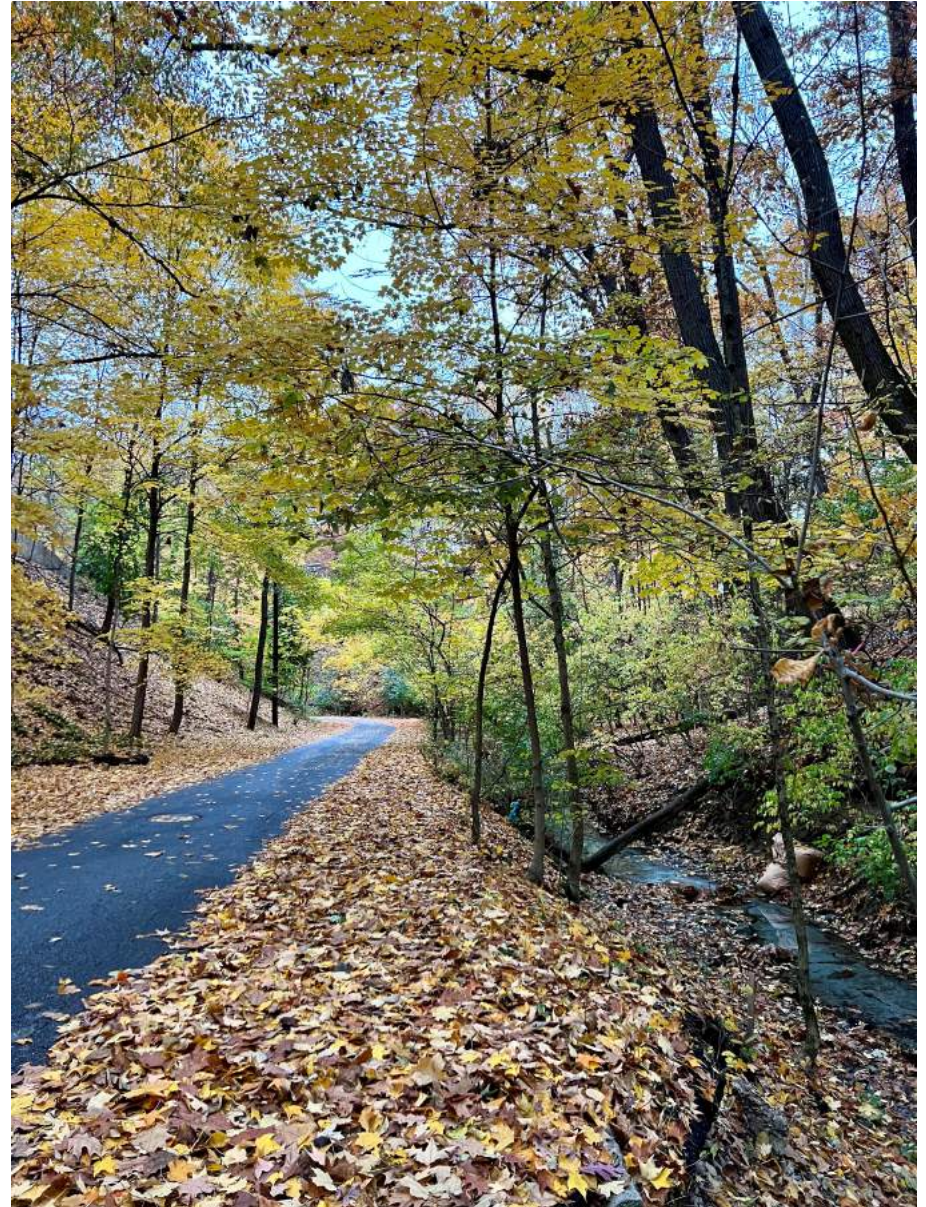
- Pool depths will be increased, which will provide energy dissipation and enhance habitat and water quality by providing cover for aquatic life and regulating water temperature.
- Riffles provide grade control and create turbulence for oxygenation of the water. Dissolved oxygen is essential for most aquatic organisms.

Benefits of Ravine Restoration

- The stabilization of the stream banks will prevent TSS from being introduced to the waterways and transported downstream.
- Vegetation, including live brush layering, bare root seedlings, and herbaceous plugs will be installed along the streambanks. Native riparian plantings are proposed to enhance biodiversity and provide shade and refuge for aquatic life.

Erosion Monitoring

- Repetitive Geomorphic Monitoring for Stream Bank Erosion Validation
 - Established 8 Permanent Cross Sections
 - Surveyed cross sections in 2018, 2019, and 2020.

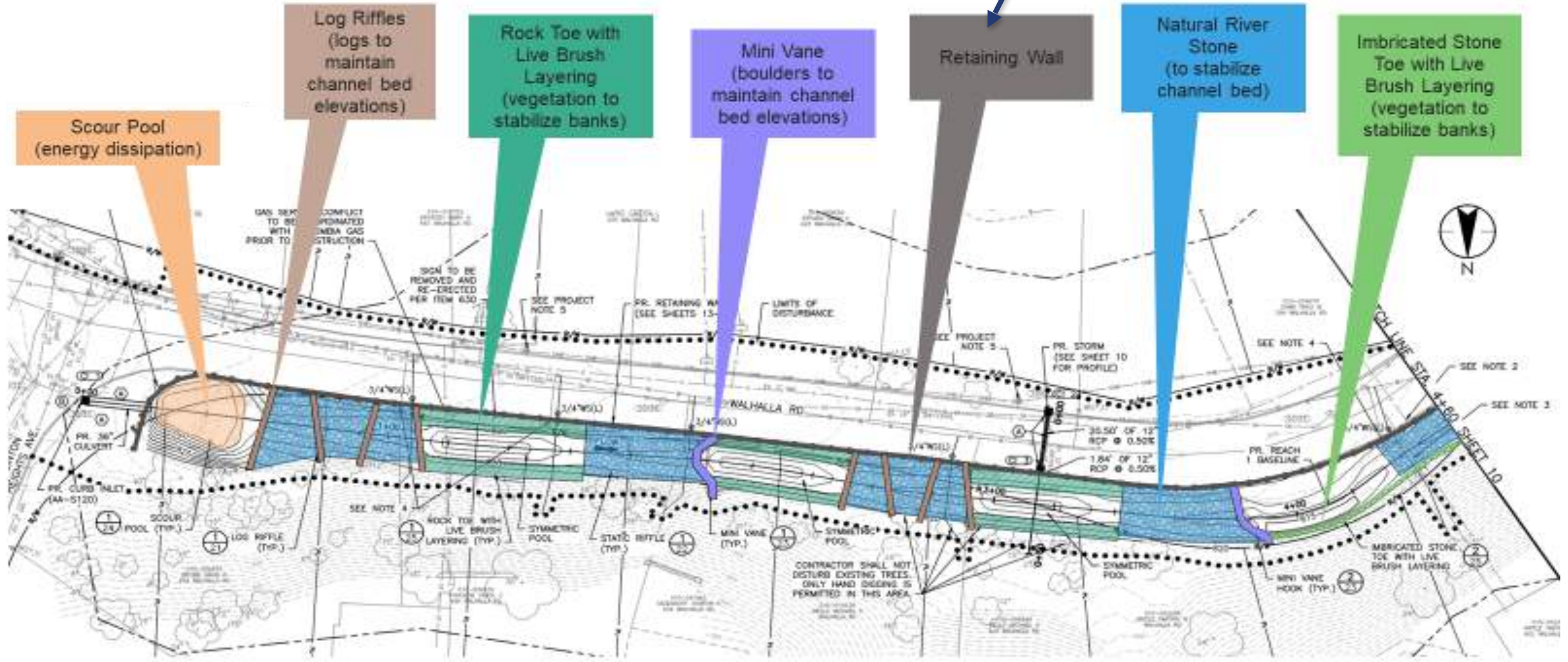


Streambank Erosion Assessment - Conclusions

- Blueprint project objective:
 - 20% TSS reduction = 4.95 tons / year TSS removal for Clintonville 3
- From field measurements, Walhalla Ravine Restoration will reduce 4.05 tons / year TSS
- Traditional GI to be used to reduce remaining 0.9 tons / year TSS
 - Walhalla Ravine Restoration to significantly reduce amount of GI needed in other project areas.

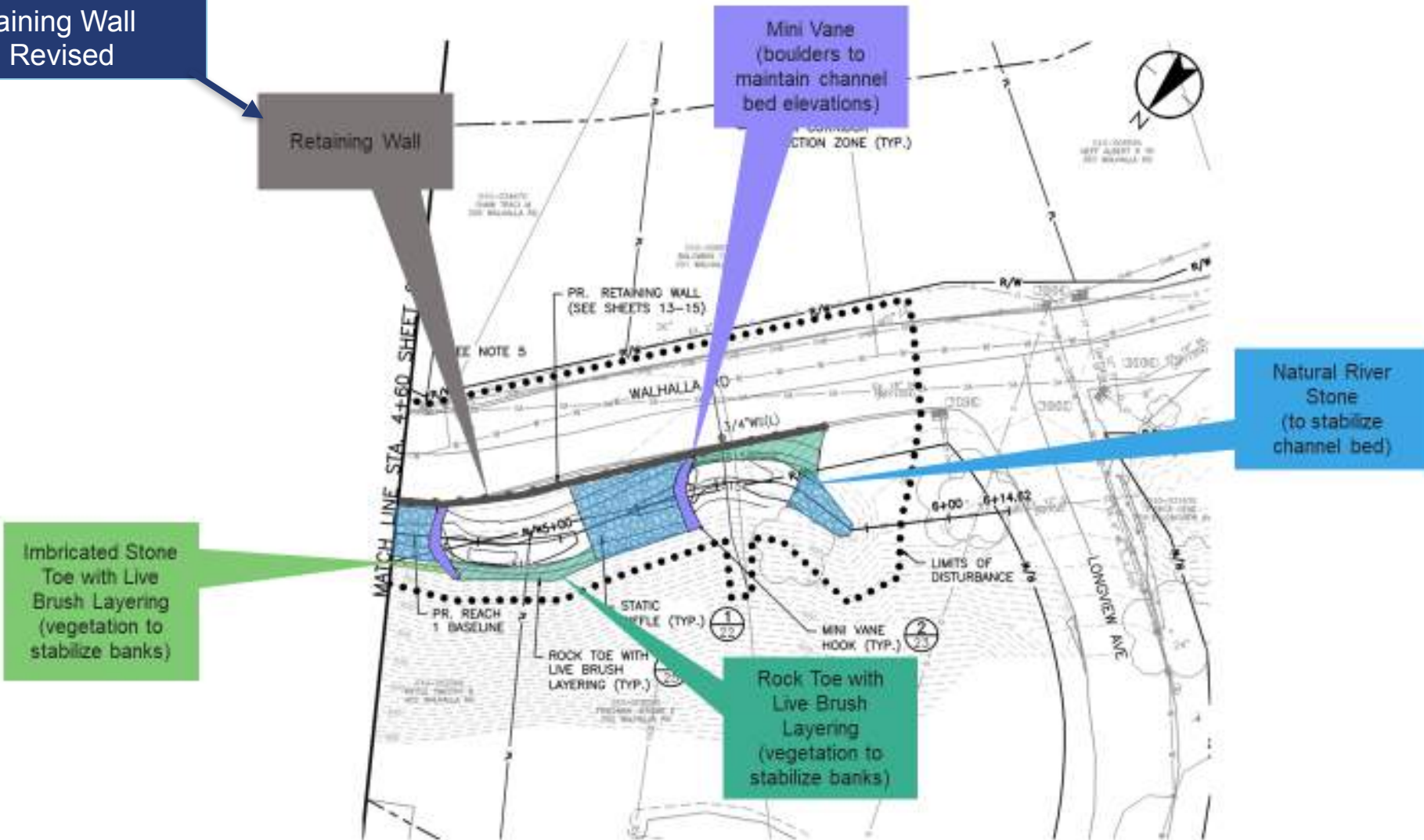
Habitat

NOTE: Retaining Wall Limits to be Revised

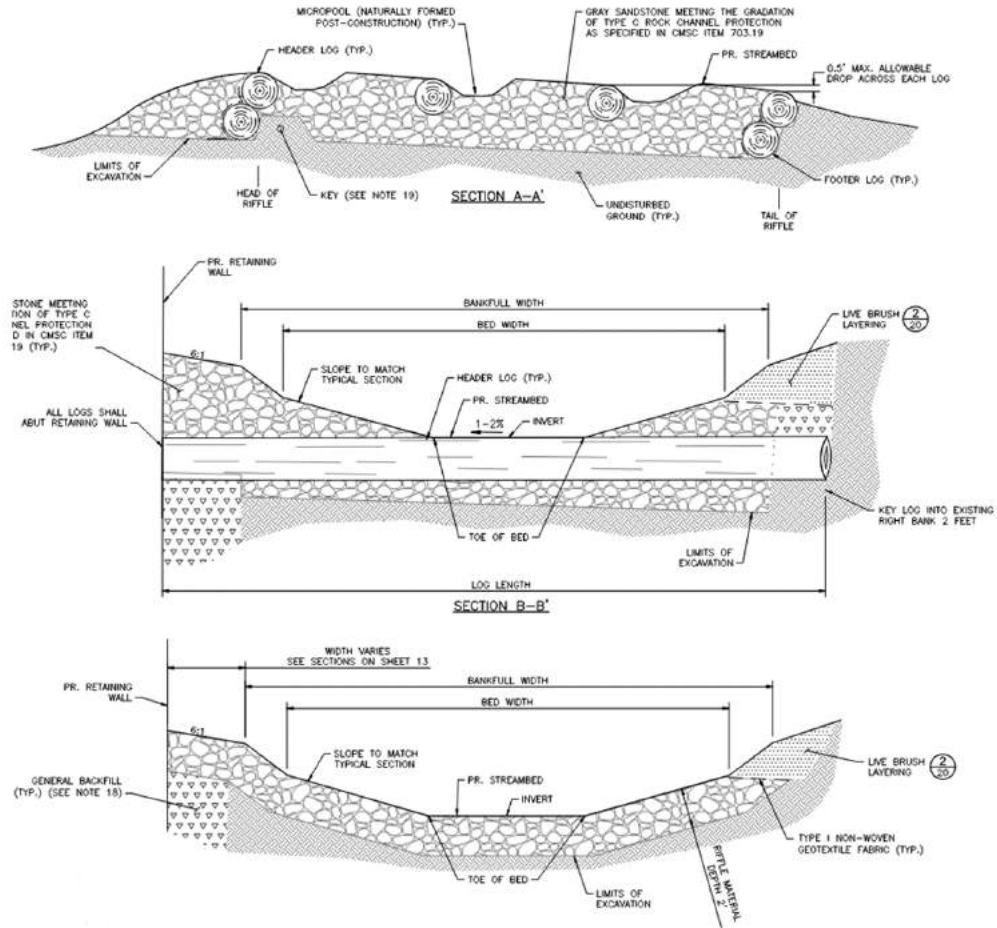


Habitat

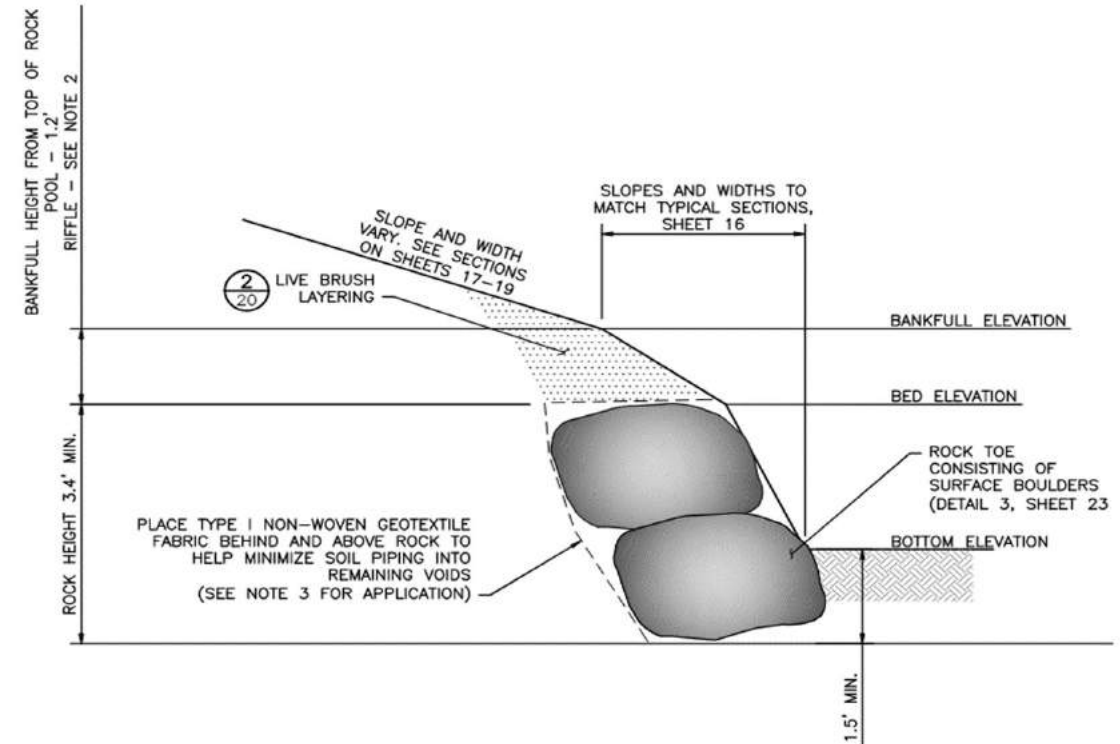
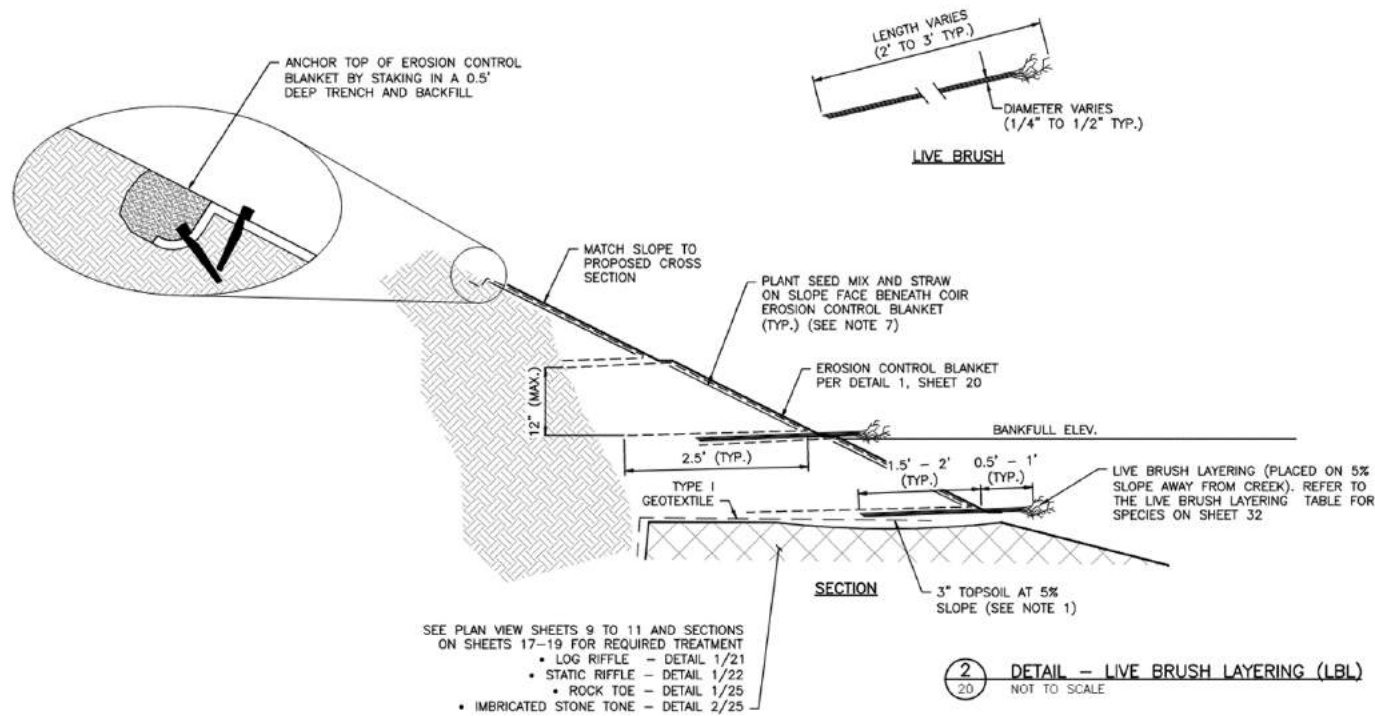
NOTE: Retaining Wall Limits to be Revised



Log Riffle



Rock Toe with Live Brush Layering



Post-Construction Photos of Live Brush Layering



Picture taken 1-month post-construction

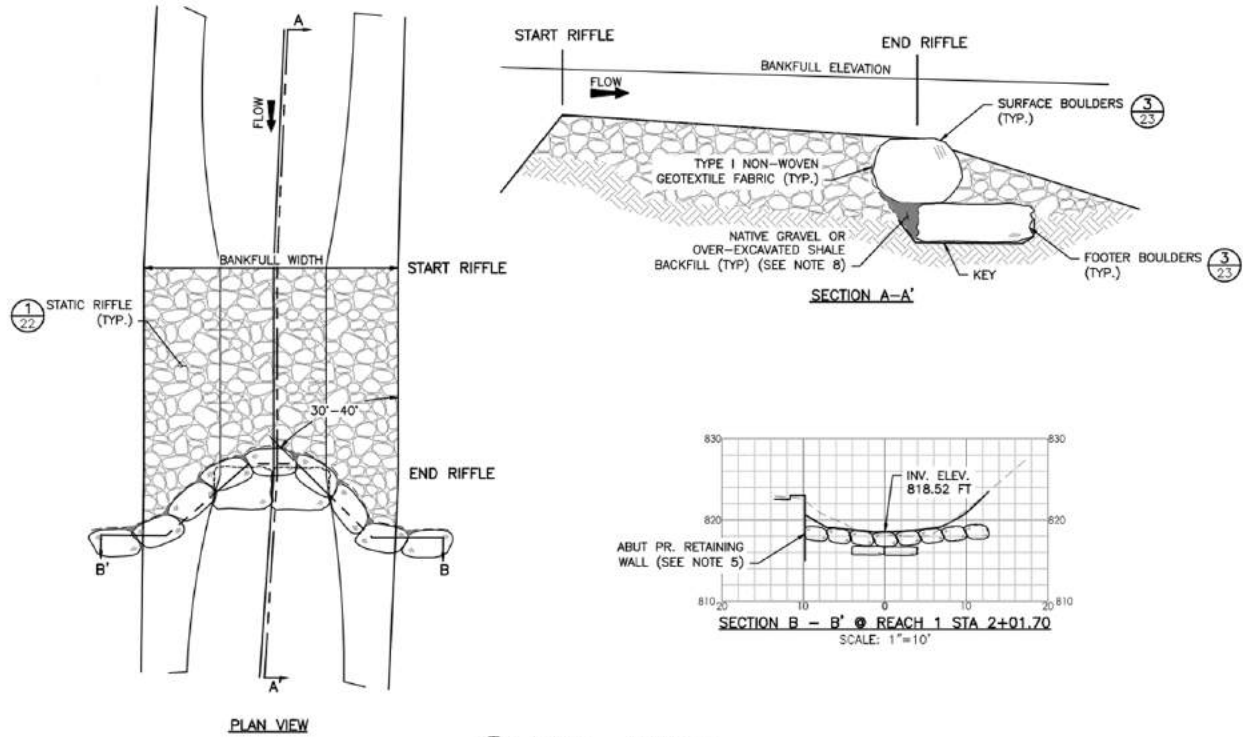


Picture taken 2-years post-construction



Picture taken 2-years post-construction

Mini Vane



1 23 DETAIL - MINI VANE
NOT TO SCALE



Trees

- How many trees will be lost due to this project?
 - 14 trees 8" DBH or greater
- What considerations were made about the importance of preserving the canopy?
 - After meeting with each impacted homeowner, the design team made changes to reduce tree loss and preserve canopy where feasible.

ADDRESS	DIAMETER	SPECIES
310 WALHALLA ROAD	18"	OAK
402 WALHALLA ROAD	12"	ASH
402 WALHALLA ROAD	12"	MAPLE
402 WALHALLA ROAD	12"	BLACK CHERRY
402 WALHALLA ROAD	12"	ELM
434 WALHALLA ROAD	8"	ASH
434 WALHALLA ROAD	36"	OAK
446 WALHALLA ROAD	10"	MAPLE
446 WALHALLA ROAD	18"	SYCAMORE
446 WALHALLA ROAD	24"	SYCAMORE
454 WALHALLA ROAD	8"	ASH
454 WALHALLA ROAD	12"	MAPLE
454 WALHALLA ROAD	12"	MULBERRY
454 WALHALLA ROAD	16"	OAK

Walhalla Ravine Concepts



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Q&A

Tonight's Open House

Talk with our team

- Visit [Travis and Rachael](#) to get property-specific questions answered
- Talk to [Tiffany, Fang, and Jehan](#) about general project questions

Learn More

- Visit the Blueprint table to ask project questions, view exhibits, and sign up for construction updates!

Sign up for a sump pump

- Blueprint Columbus offers free sump pump installation for qualifying homeowners
- To learn more and sign-up visit: blueprintneighborhoods.com or call (614) 645-1253
- **Ask a team member today to sign you up!**

Your Outreach Team



614-645-1253

blueprintneighborhoods.com



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Thank you!

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