



Upper Watts Branch Stream Restoration

Design Implications and Lessons Learned During Construction

2022 National Stream Restoration Conference
K Session – Stream Restoration Case Studies
Paul Le Bel, PE

Background

Upper Watts Branch Forest Preserve

- Evaluate Environmental And Ecological Conditions
- Identify Opportunities For Ecological Restoration And Uplift
- Determine Risk To Exposed Assets



Background

- Priority I-IV Stream Adjustment To Restore Stable Channel Form And Function,
- Cost-effective Long-term Protection For Existing Sanitary, Drinking Water, And Stormwater Infrastructure
- H&H Flow Regime Modeling,
- Hard & Bio-engineered Structures,
- Planting Plans
- Reforested Wetland



Background

- Reuse Of Naturally Occurring On-site Resources
- Construction July 2017 - April 2018.
- During Construction, Hazen Worked Closely With The Owner And Contractor To Ensure Construction Met The Design Intent.



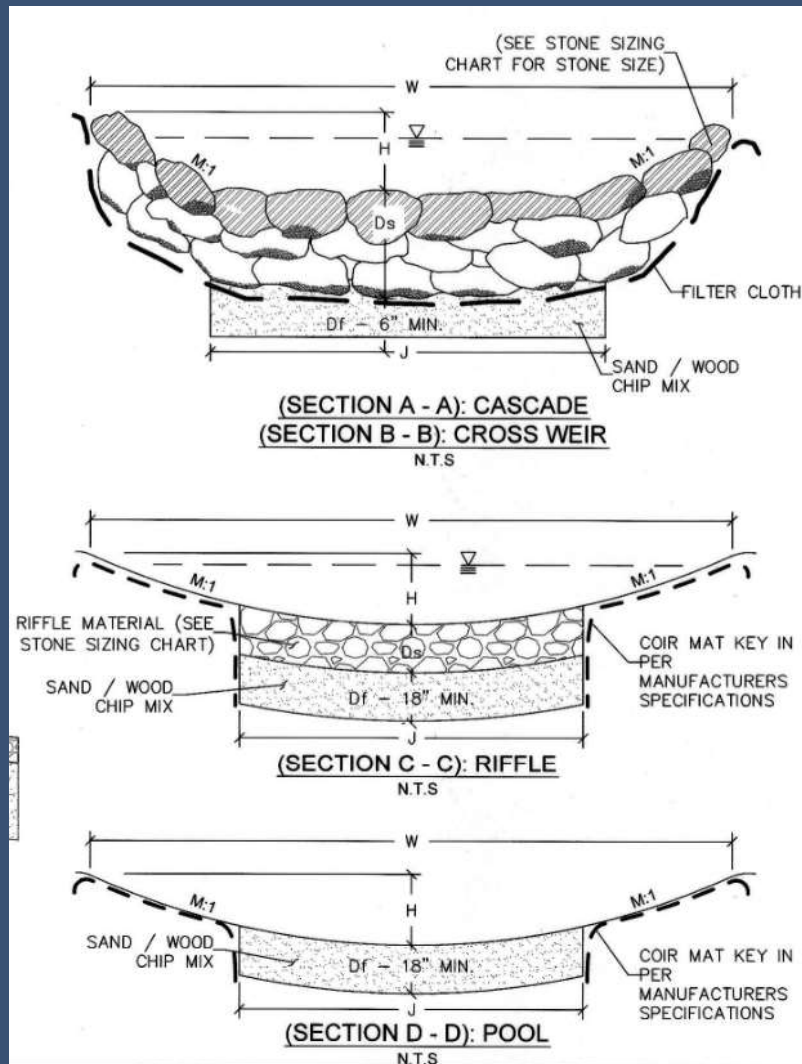
Hazen

CPJ
Associates



Communication

Reporting Mechanisms For Immediate/Actionable Feedback & Record Documentation



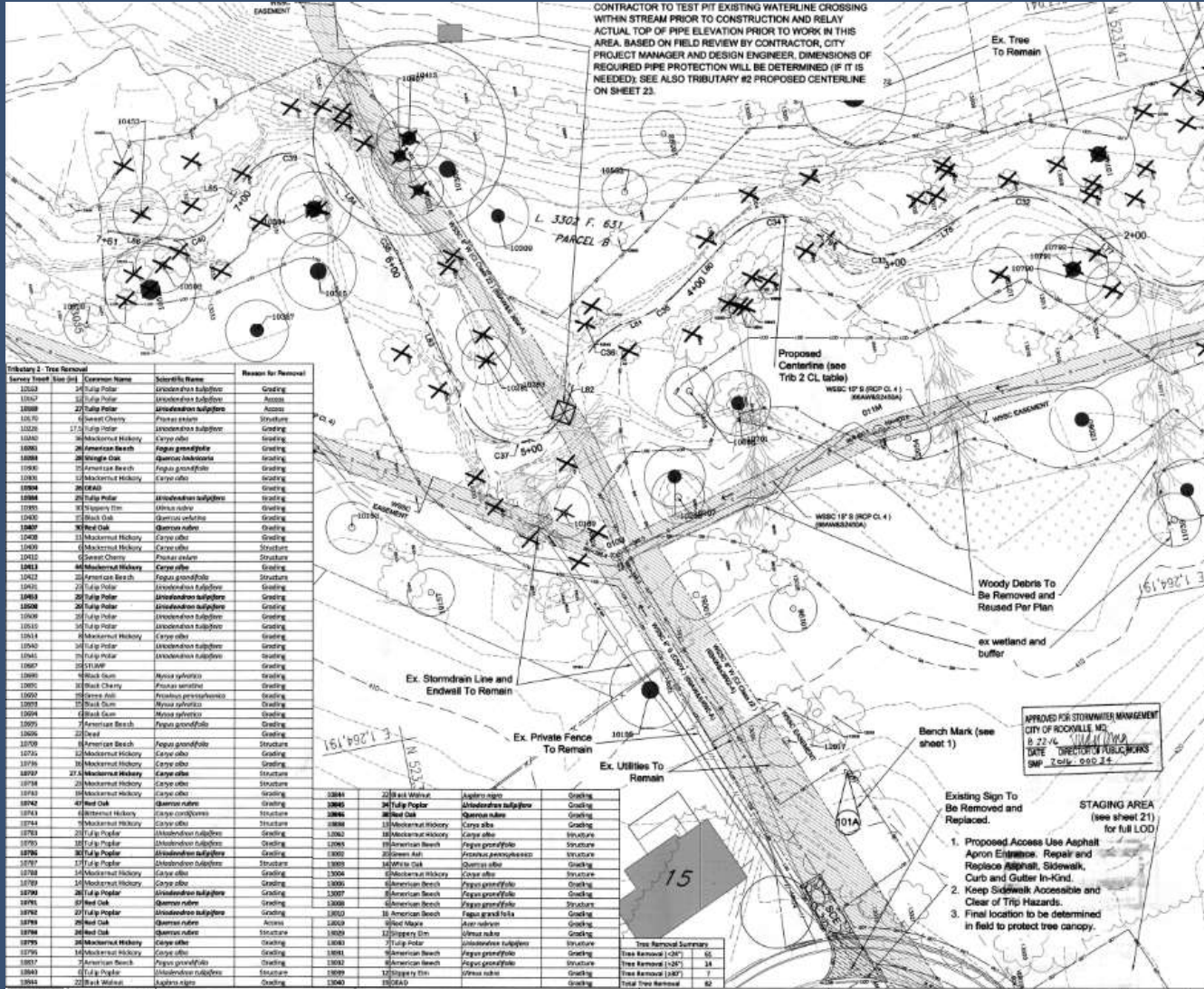
Scheduling

Importance Of Designer Presence During The First Installation Of Any Structure Type



Reuse of On-Site Trees – wood budget development and implementation

Wood Budget Development And Implementation



Toe Wood Revetments

Design Implications For Biological Uplift And Lessons Learned During Construction

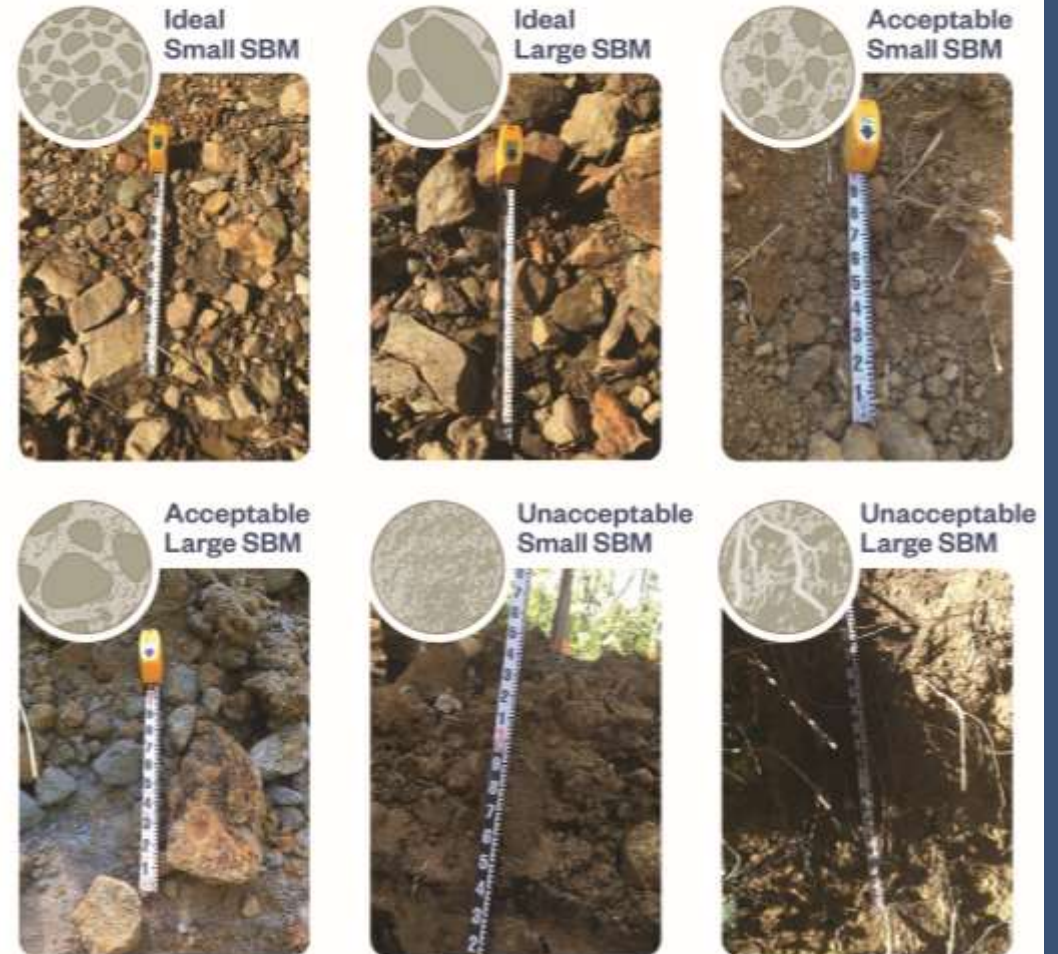


Reuse of Streambed Material (SBM)

Development Of Site Specific Photo Field Guide For SBM Identification And Scoring



Upper Watts Branch Stream Restoration Field Guide
for Stream Bed Material (SBM) Reuse



Step Pool Storm Conveyance (SPSC) for Outfall Stabilization

Design Implications For Sand Bed Retention And Lessons Learned During Construction



No Splash Rock = Sand Blow Out



Splash Rock = No Blow Out

Hyporheic Zone Improvements

Design Implications For Increased Nutrient Cycling And Lessons Learned During Construction



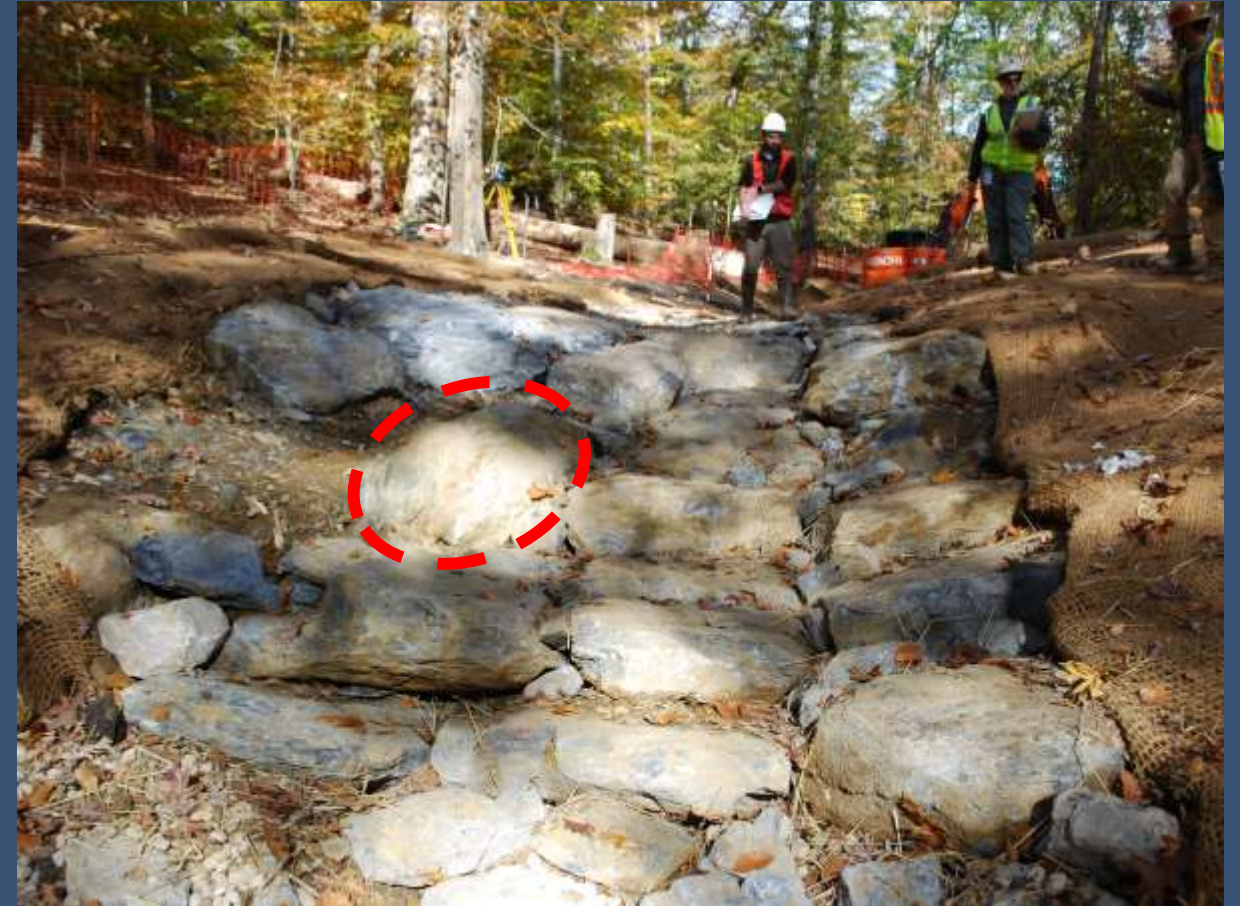
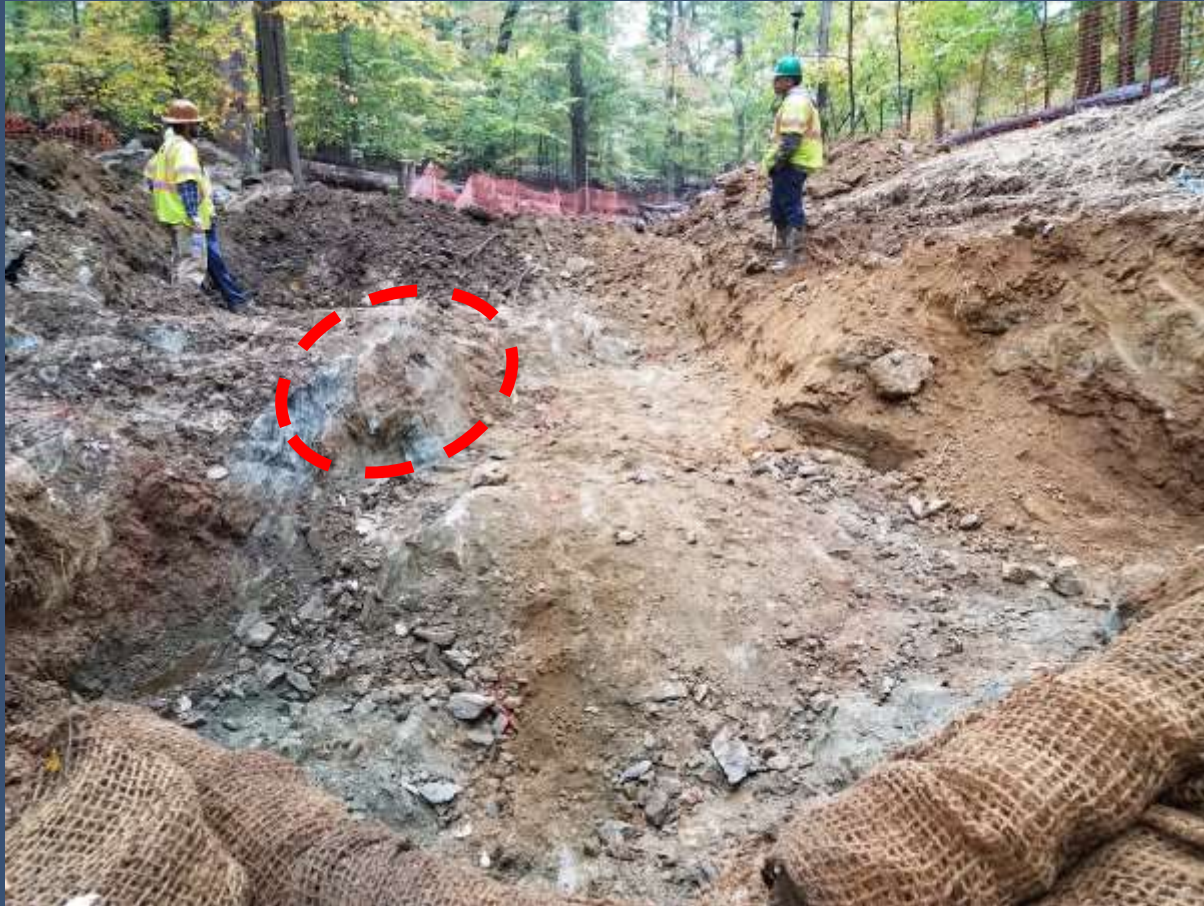
Hyporheic Zone Improvements

Design Implications For Increased Nutrient Cycling And Lessons Learned During Construction



Bedrock Triage

Incorporating Unanticipated Bedrock And Provide Stable Transitions



Lessons Learned Summary



Lessons Learned Summary



BUBBA Awards – 2nd Place for 2021 Best Stream Restoration



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Upper Watts Branch Forest Preserve Environmental Stabilization

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Upper Watts Branch Forest Preserve Environmental Stabilization



Best Stream Restoration

This category recognizes outstanding projects in the stream corridor that are explicitly designed to enhance the function, stability, and ecosystem services of an urban stream.

Questions?

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