

# WATERVALE CREEK STREAM RESTORATION

WATERVALE RD FALLSTON, MD 21047

**RESTORATION PLAN**

Watervale Creek and unnamed tributaries, the Use IV-P streams shown on this plan, are caught in a state of arrested degradation in the form of bed and bank erosion with no ability to reach a state of quasi-equilibrium without intervention. Potential causes of the degradation originate from historic realignment and straightening of the channel to accommodate a mill dam as well as lack of riparian vegetation and changes in the watershed characteristics. The channels are exhibiting vertical banks with high rates of erosion and minimal surface protection.

Approximately 3,517 linear feet of Watervale Creek and unnamed tributaries will be restored using several different techniques and reference conditions. Where possible, a multi-threaded stream-wetland complex using Stage Zero restoration concepts will be created to spread flood flows out into existing floodplain and maximize water quality and habitat benefits. In sections where infrastructure and valley type limits the lateral space available, a single-threaded channel will be created to increase resiliency of the stream and limit erosion. The existing channel invert will be elevated and the channel filled to allow for floodplain connectivity. Where possible, wetlands will be created and enhanced to provide additional water quality and habitat benefits. A vegetated buffer will be planted along the entire project area to jump start the ecological uplift from the project and return the site to a thriving, forested ecosystem.

On-site salvaged materials, such as wood, sod, gravel, and vegetation will be used for stabilization throughout the design. Materials will increase floodplain roughness, further slow water velocities and promoting nutrient cycling, sediment storage, and ecological diversity. Bioengineering practices such as sod matting, warm season grass plantings, and live stakes will accompany salvaged materials to further stabilize the site while providing shade and improved aquatic habitat.

**LEGEND**

- PROPERTY BOUNDARY
- - - EX. CONTOURS
- - - EX. STREAM CENTERLINE
- EX. ROADS
- EX. FLOODPLAIN - 100 YR
- EX. FENCELINE
- EX. WETLAND
- WB EX. WETLAND BUFFER (25 FT)
- PROP. STREAM CHANNEL
- PROP. STREAM TOB
- PROPOSED STAGE ZERO RESTORATION
- PROPOSED WETLAND ENHANCEMENT/ CREATION

**EXISTING CONDITIONS**



PHOTO 1. EXISTING CONDITIONS OF WATERVALE CREEK HAS VERTICAL BANKS AND HIGH EROSION POTENTIAL.



PHOTO 2. EXISTING CONDITIONS OF WATERVALE CREEK HAS NO FLOODPLAIN CONNECTION AND MINIMAL SURFACE PROTECTION.

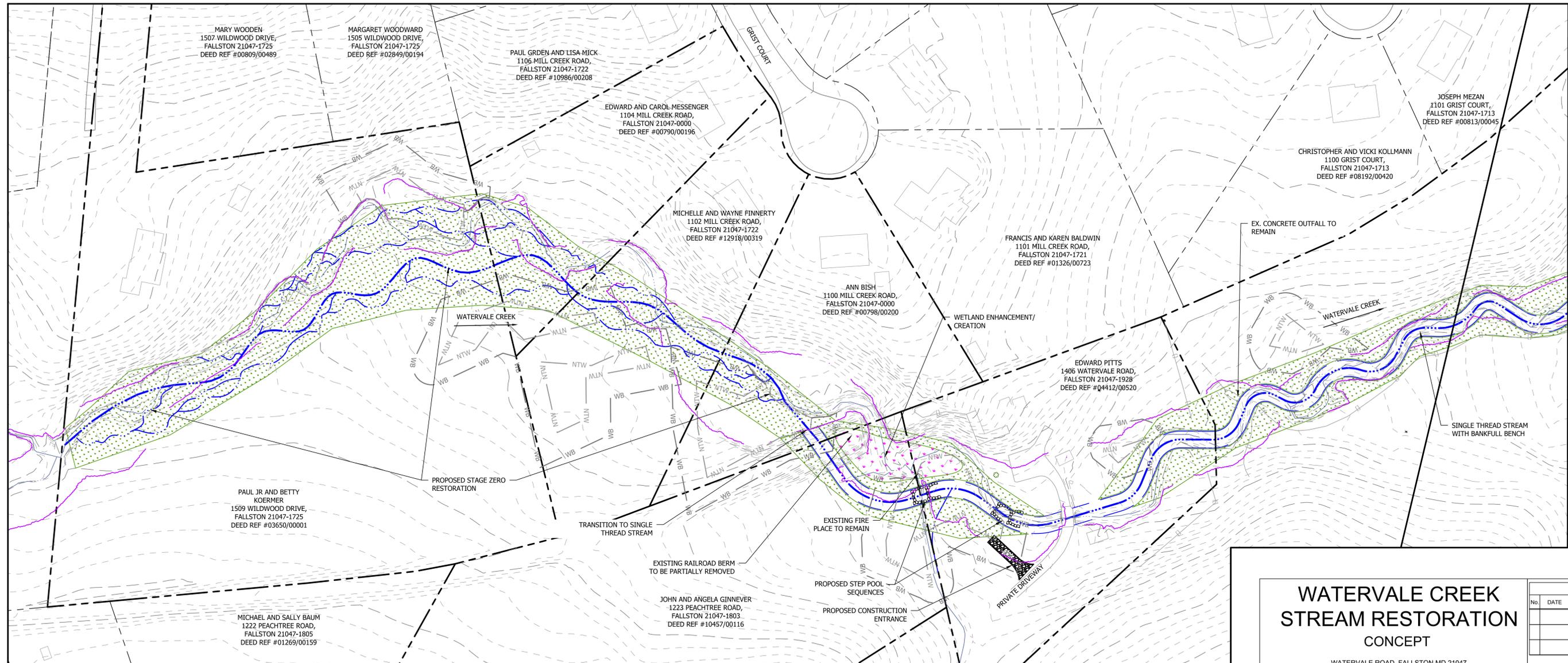
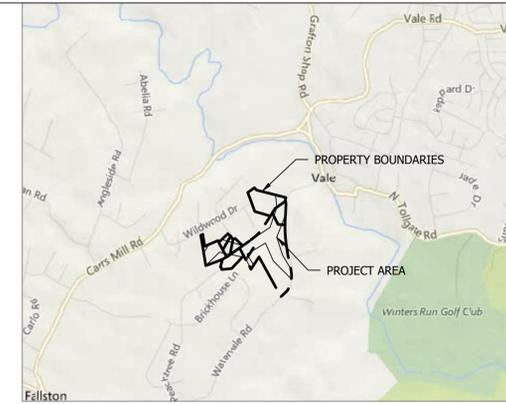
**PROPOSED CONDITIONS (EXAMPLE PROJECT)**



PHOTO 1. MULTI-THREADED STREAM-WETLAND COMPLEX.



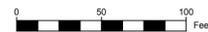
PHOTO 2. SINGLE THREAD CHANNEL WITH BANKFULL BENCHES AND WETLANDS.



MATCHLINE SHEET 2



**CONCEPT PLAN**  
SCALE: 1" = 50'



## WATERVALE CREEK STREAM RESTORATION CONCEPT

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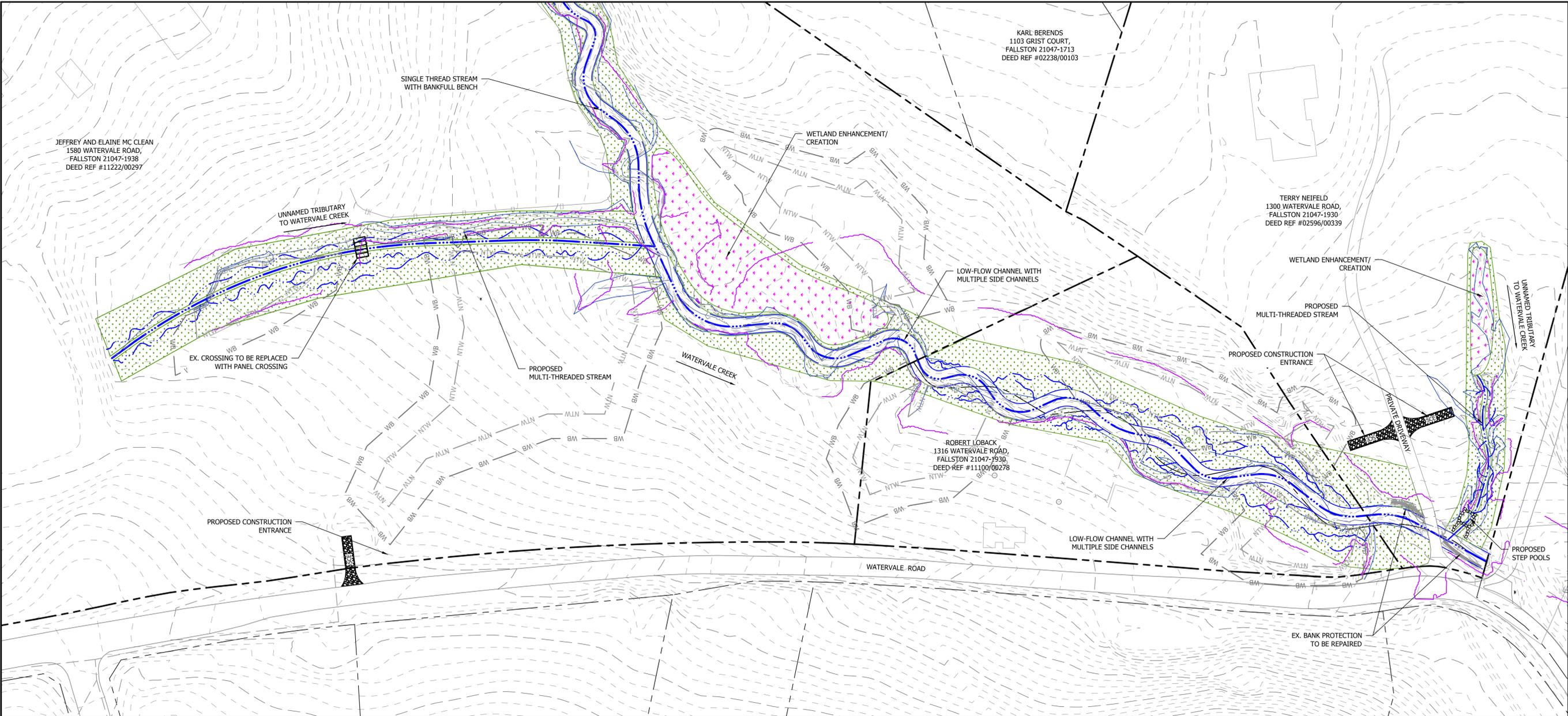
REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

CHECKED BY: CRH  
DESIGNED: CSM  
DRAWN: CSM  
PROJECT No.: 18-05-015  
DATE: 5/6/2019  
SHEET:

# WATERVALE CREEK STREAM RESTORATION

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MATCHLINE SHEET 1

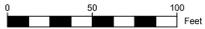


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**CONCEPT PLAN**  
SCALE: 1" = 50'



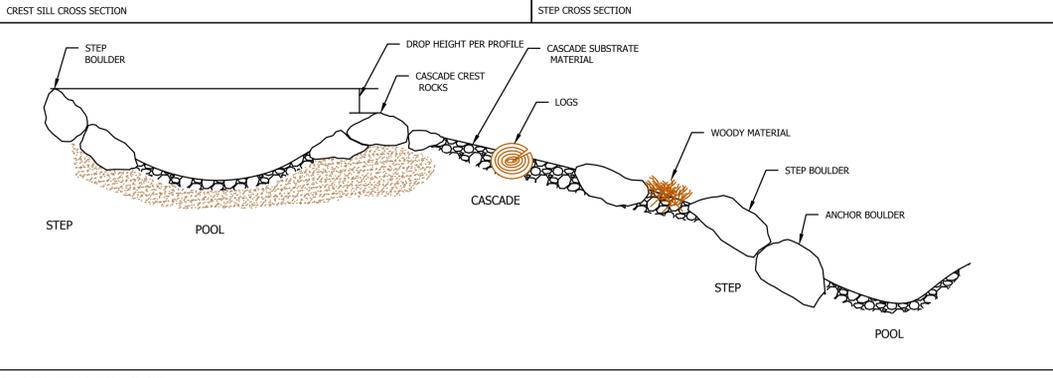
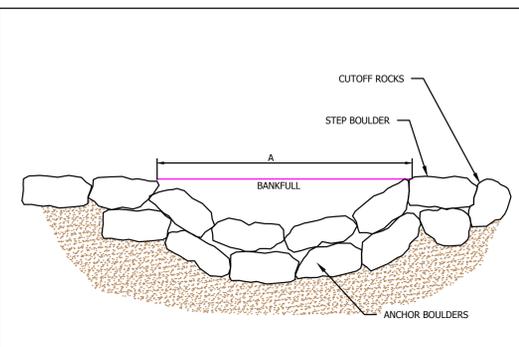
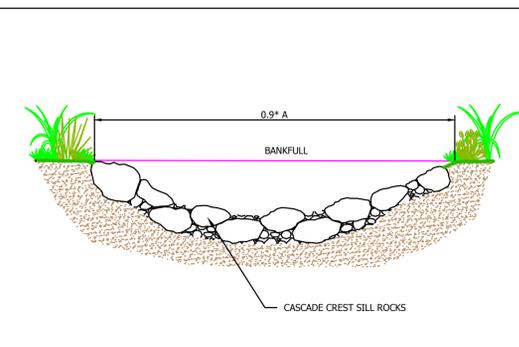
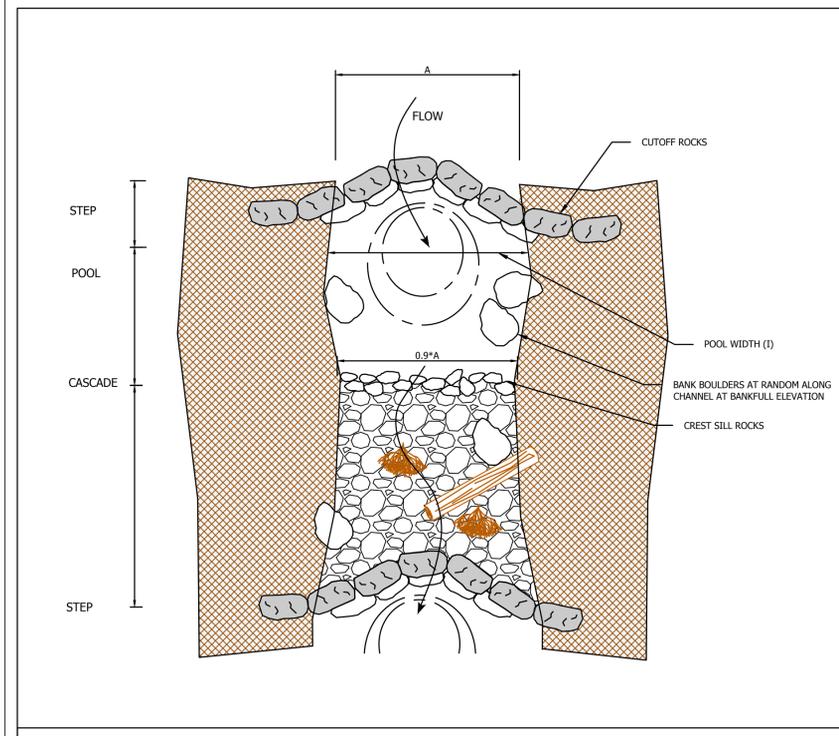
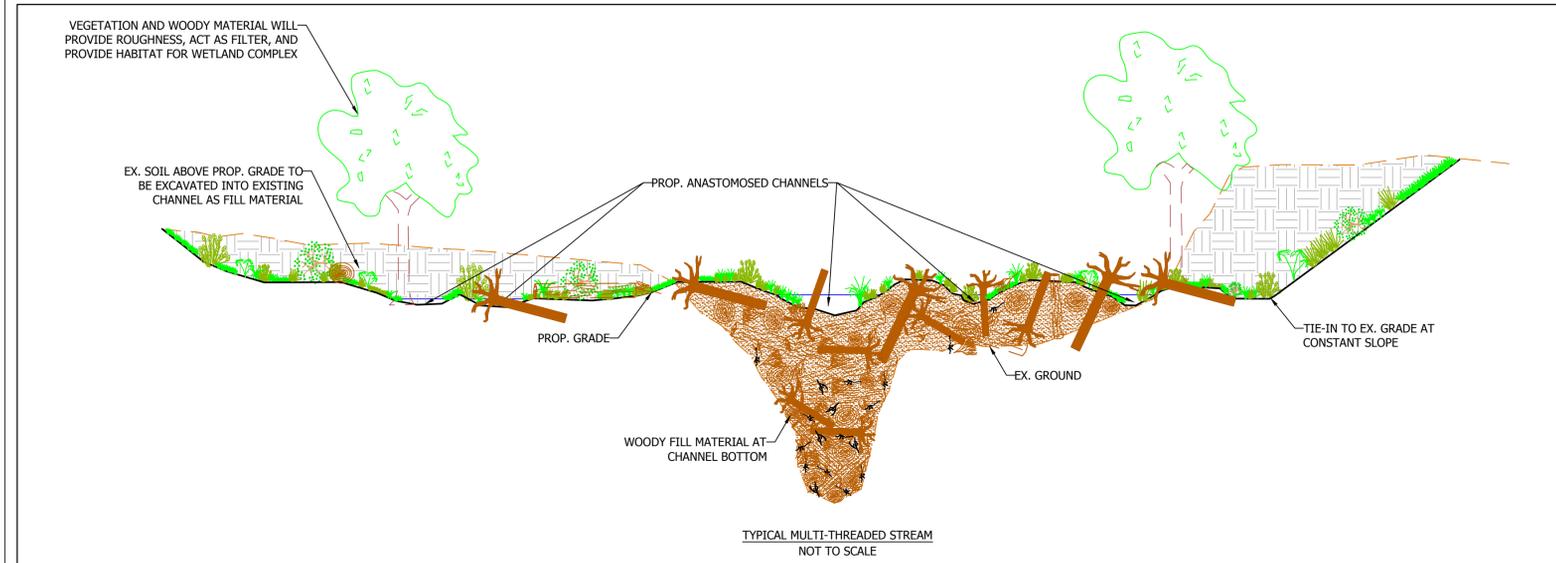
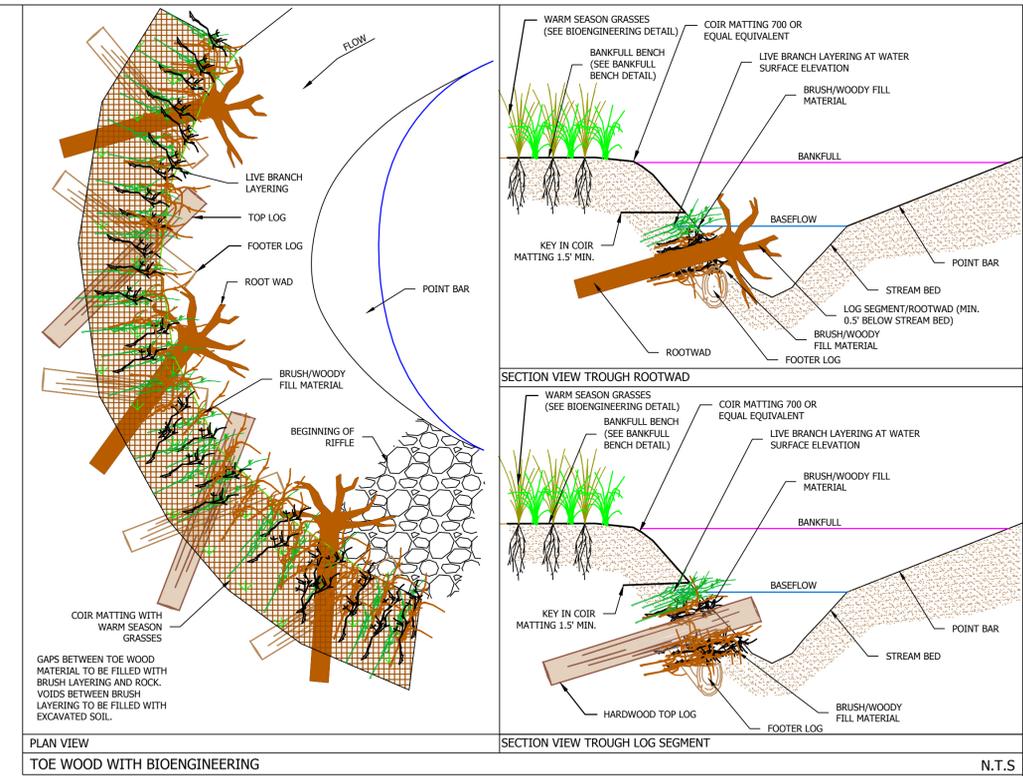
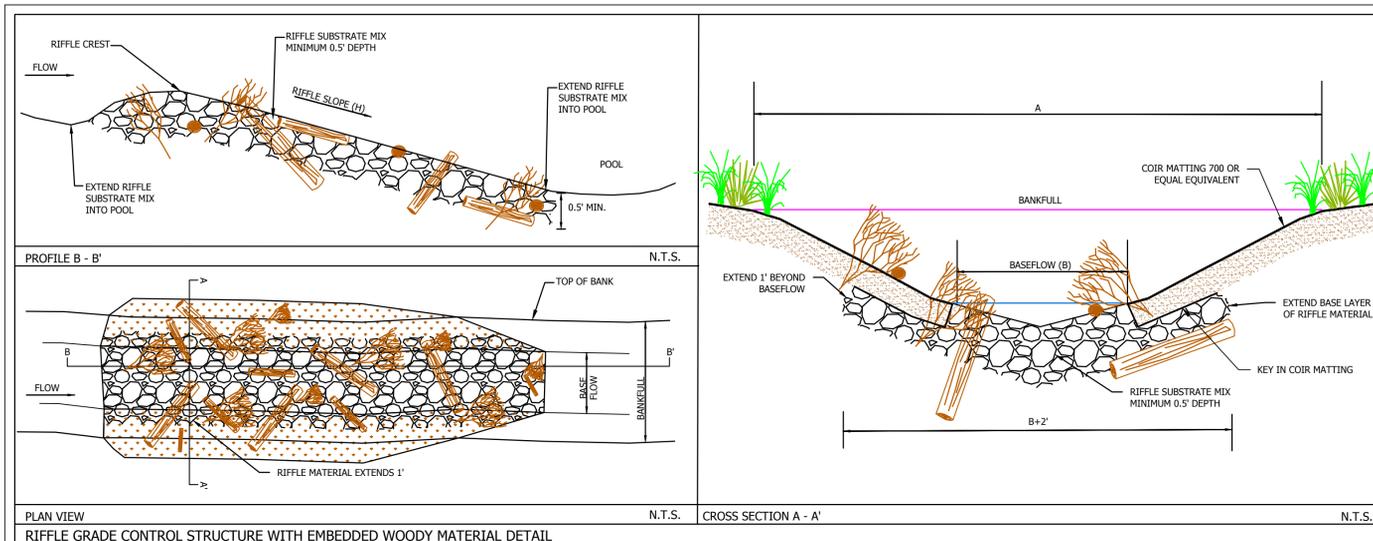
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