APPENDIX B: TYPICAL DETAILS, IMAGES, AND SECTIONS

Appendix B general note: Throughout the duration of this project, the Project Team gathered a variety of site-specific and sample BGI photographs and, in some instances, generated typical sections and details to support the outreach, modeling, and concept development process. These resources are shared here to help visualize the BGI practices, advance future projects, and facilitate smoother implementation. It should be noted that most of the practices that have been recommended, including most of those shown in the following details and images, have been intentionally selected and focused on maximizing volume attenuation through increased storage and volume reduction through absorption, infiltration, groundwater recharge and/or hyporheic exchange. Without focusing on volume associated with these practices, appreciable flood reduction benefits from BGI practices would be greatly limited.

Stream, Wetland, and Floodplain Restoration

Figure B-1. A restored stream where the channel has been reconnected to the floodplain

Figure B-2. A completed stream restoration project with a pedestrian crossing using imbricated rock walls to maximize space for floodplain

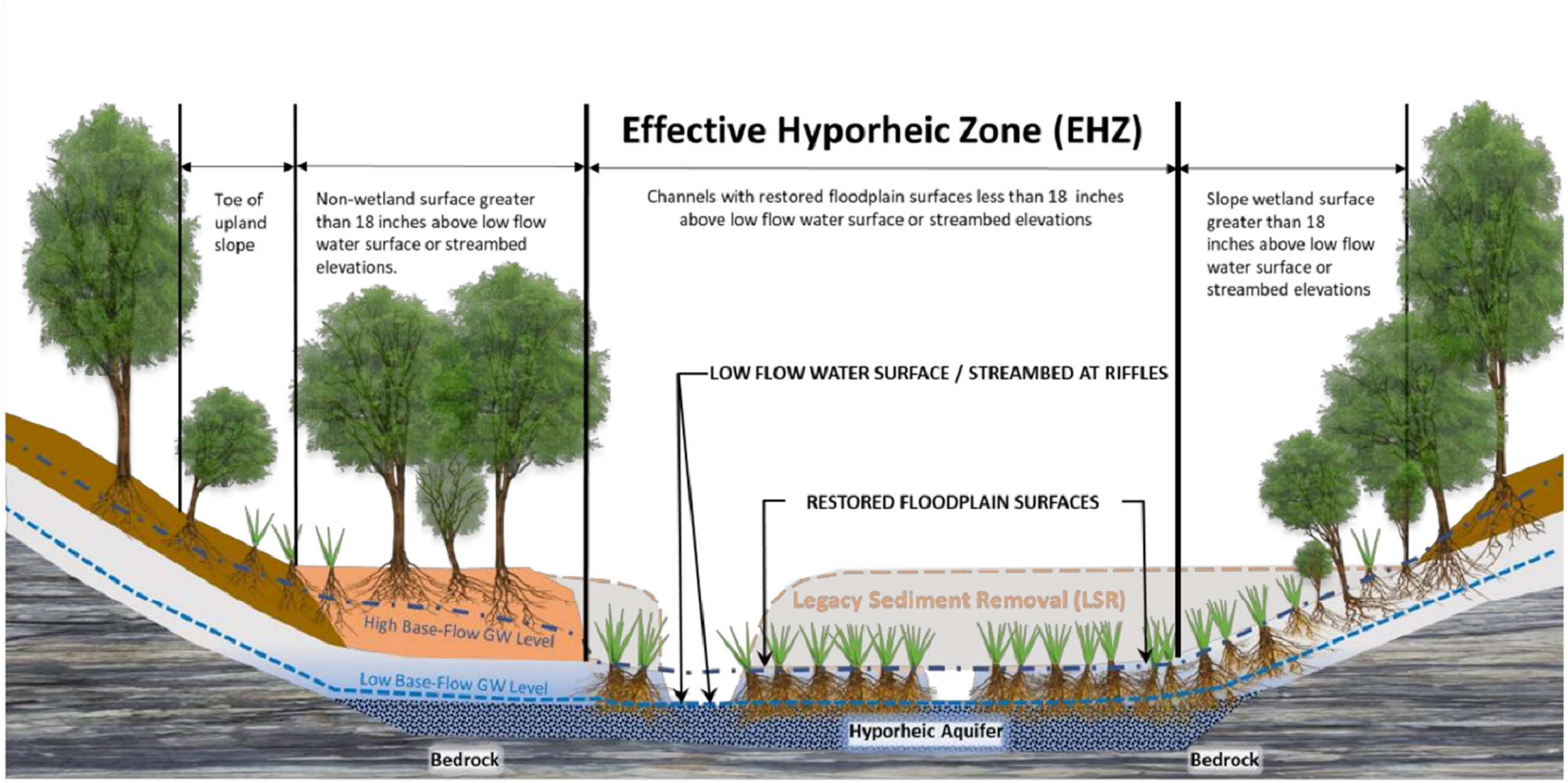

Figure B-3. Floodplain restoration using legacy sediment removal to reconnect the channel to its historic floodplain (Courtesy: Jeff Hartranft, PA DEP and Art Parola, University of Louisville)

Blue-Green Streets

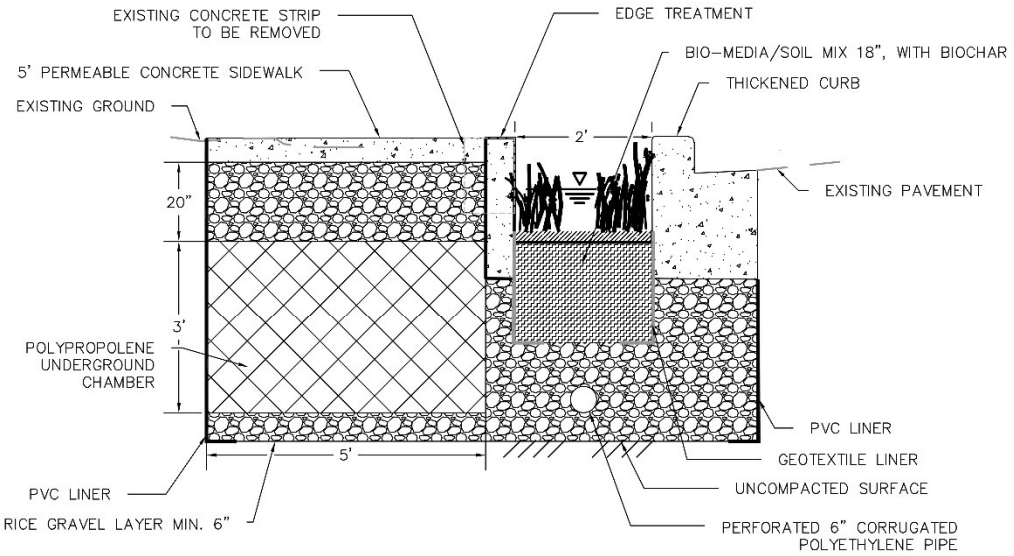

Figure B-4. Blue-green street typical section with bio-strip, permeable concrete sidewalk, and an underground storage tank

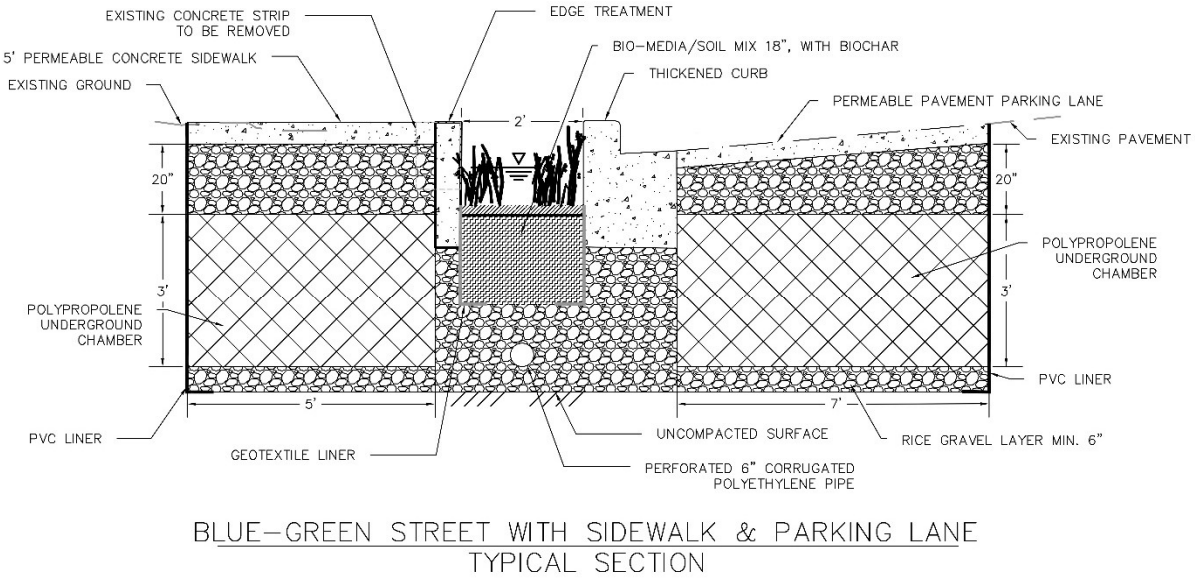

Figure B-5. Blue-green street typical section with bio-strip, both permeable concrete sidewalk and permeable pavement parking lane, and two underground storage tanks to maximize storage

Figure B-6. A completed blue-green street with permeable pavement and bio-retention area

Multi-Purpose Floodable Recreational Space

Figure B-7. A floodable recreational space using berms along the perimeter of the field and an inlet structure to control the water level

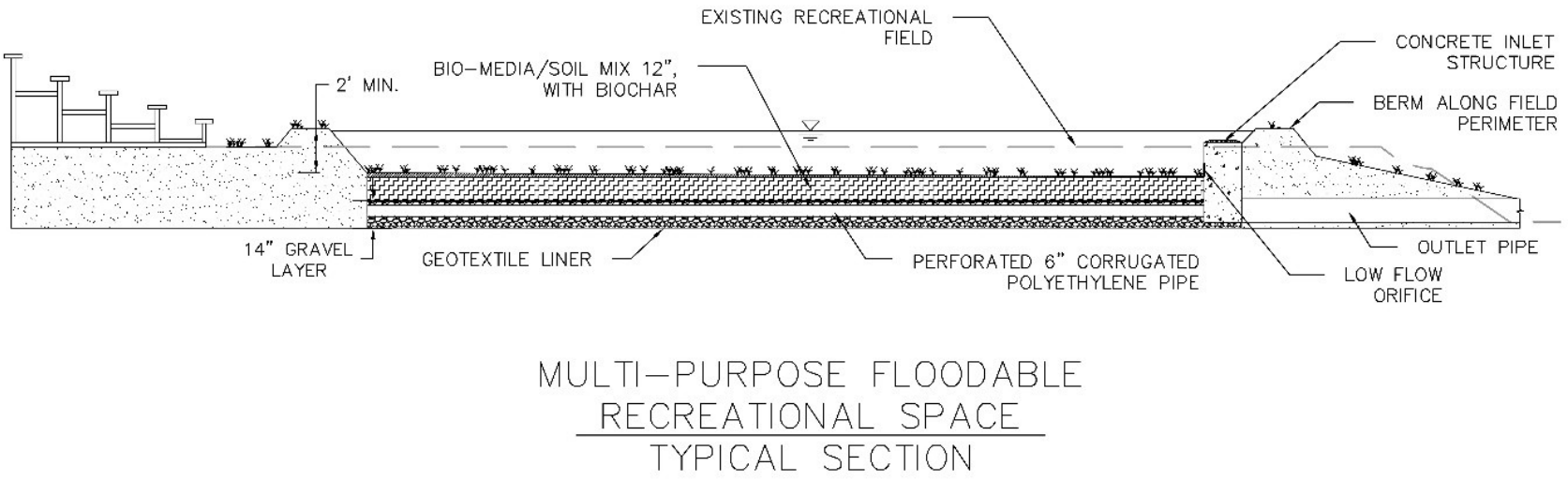

Figure B-8. Multi-purpose floodable recreational space typical section using berms and bio-soil to maximize storage and infiltration

Green Stormwater Infrastructure

Figure B-9. Completed bioretention area in an urban community

Figure B-10. Bioretention planted with native flowering species

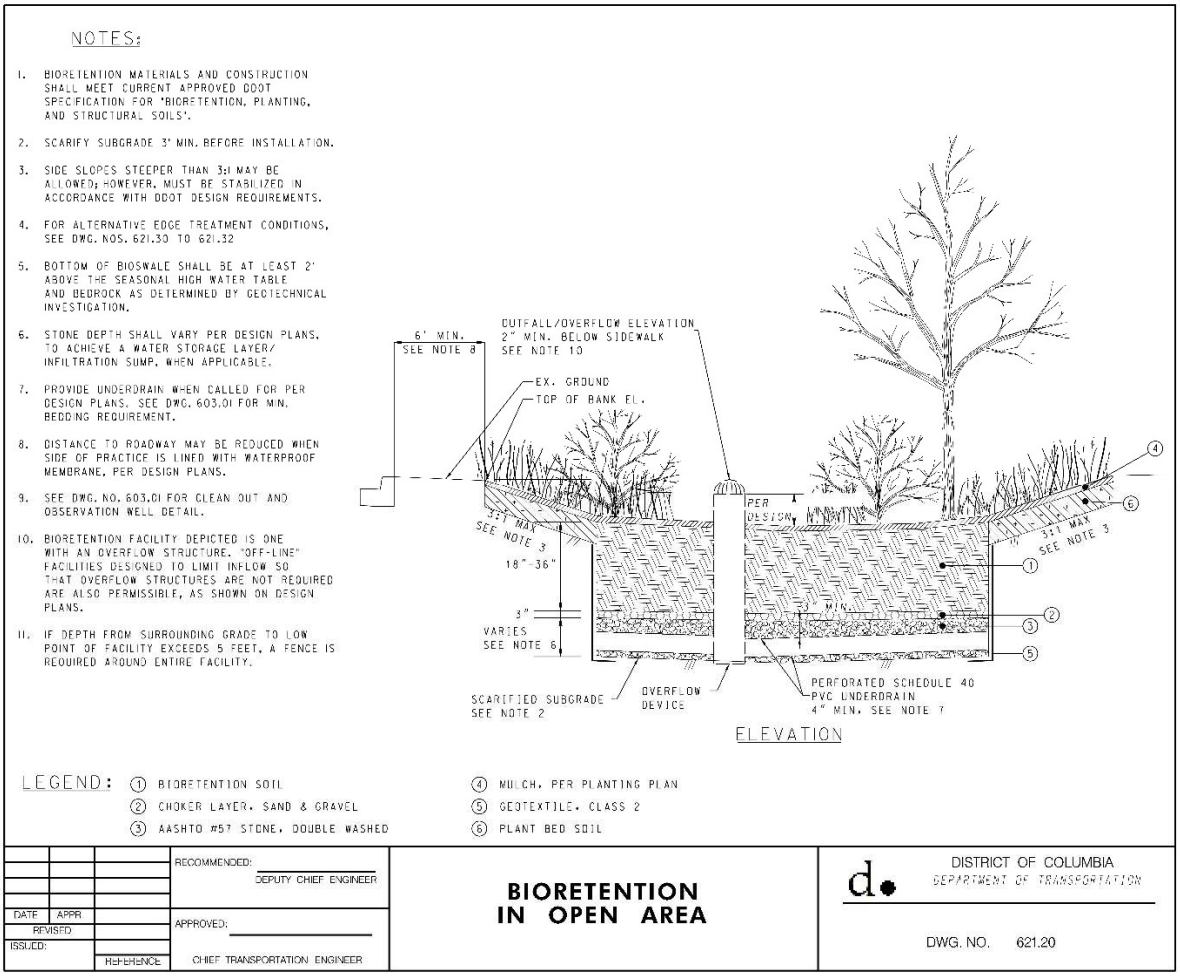

Figure B-11. The District of Columbia's green infrastructure standards for bioretention in an open area (DDOT Green Infrastructure Standards)

Tree Planting

Figure B-12. Tree planting enhanced with soil amendment to maximize storage and infiltration

Pond Retrofits

Figure B-13. Wet pond converted to a surface sand filter to maximize storage and infiltration

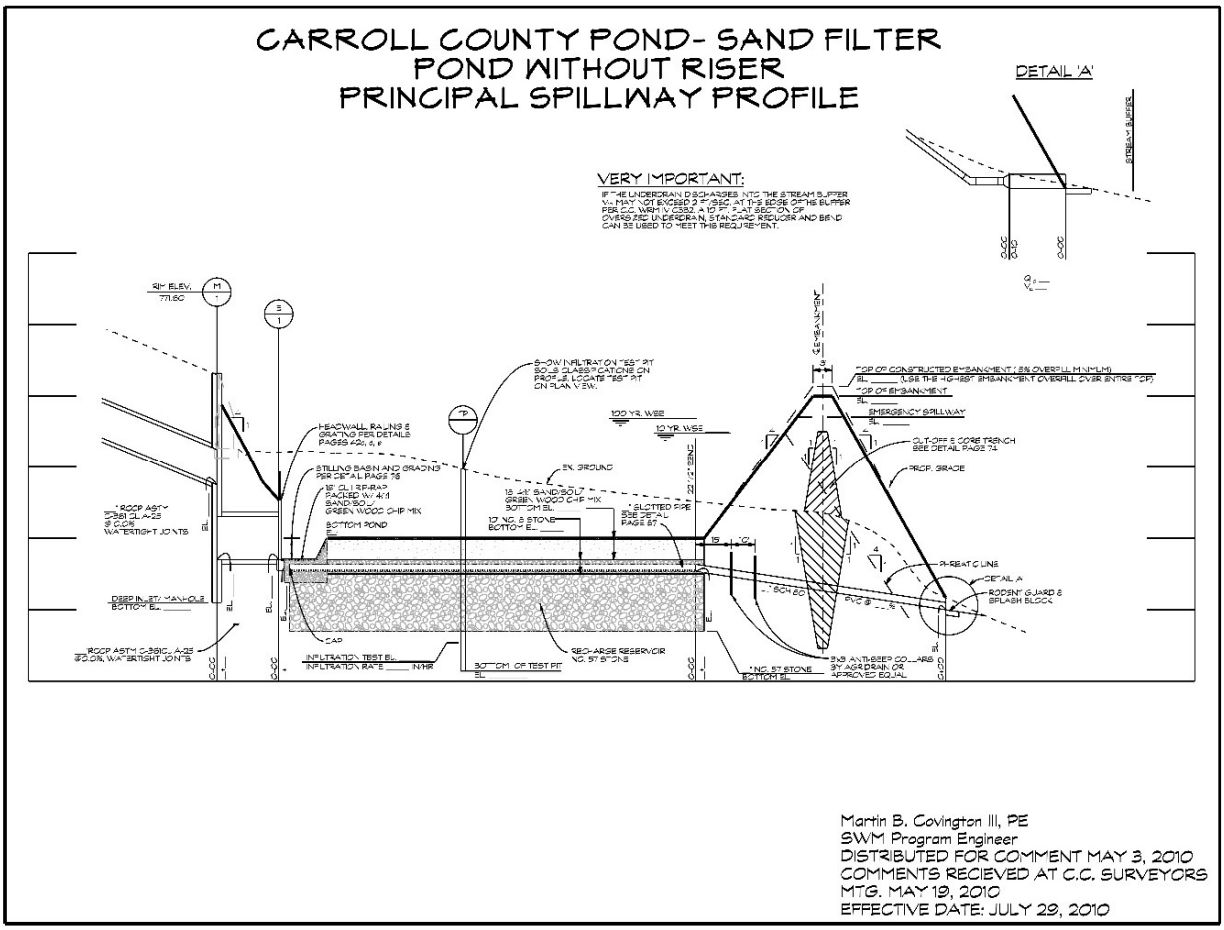

Figure B-14. Carroll County, Maryland's pond-sand filter detail (Carroll County Supplement to the 2000 Maryland Stormwater Design Manual Volumes I & II)

Bridge and Culvert Modifications

Figure B-15. Completed culvert modification

Figure B-16. Completed culvert modification with multiple pipes

Storm Drain Outfall Retrofits

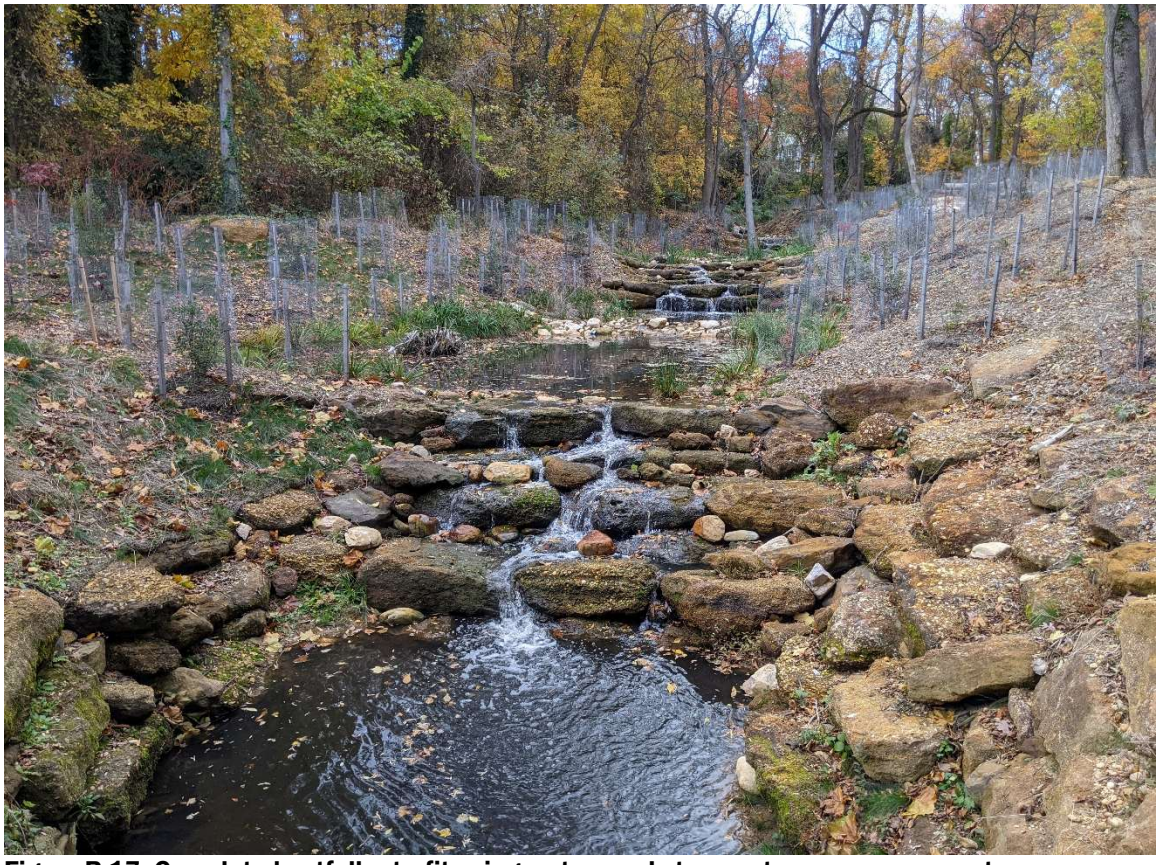

Figure B-17. Completed outfall retrofit using a step pool stormwater conveyance system

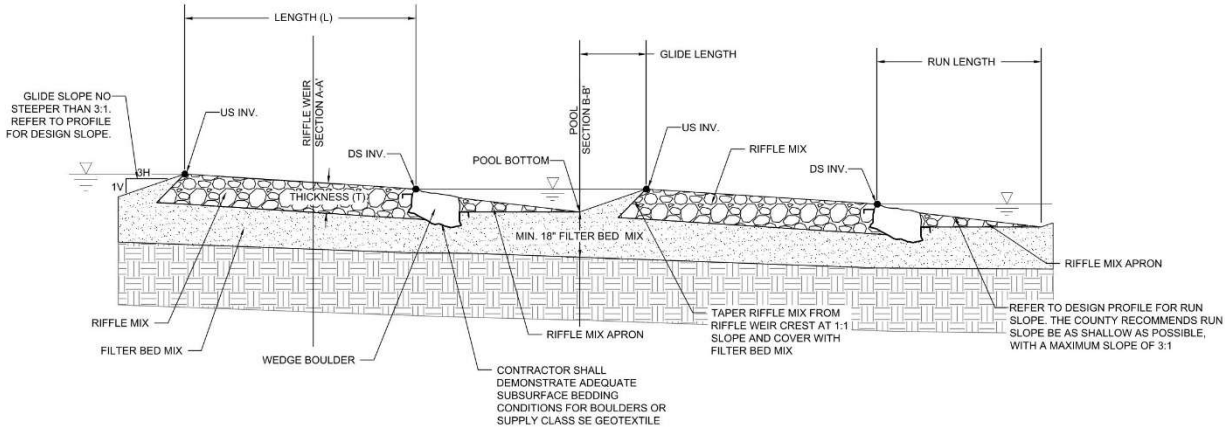

Figure B-18. Typical SPSC profile (Anne Arundel County Design Guidelines for Step Pool Stormwater Conveyance Systems)

Stream Daylighting

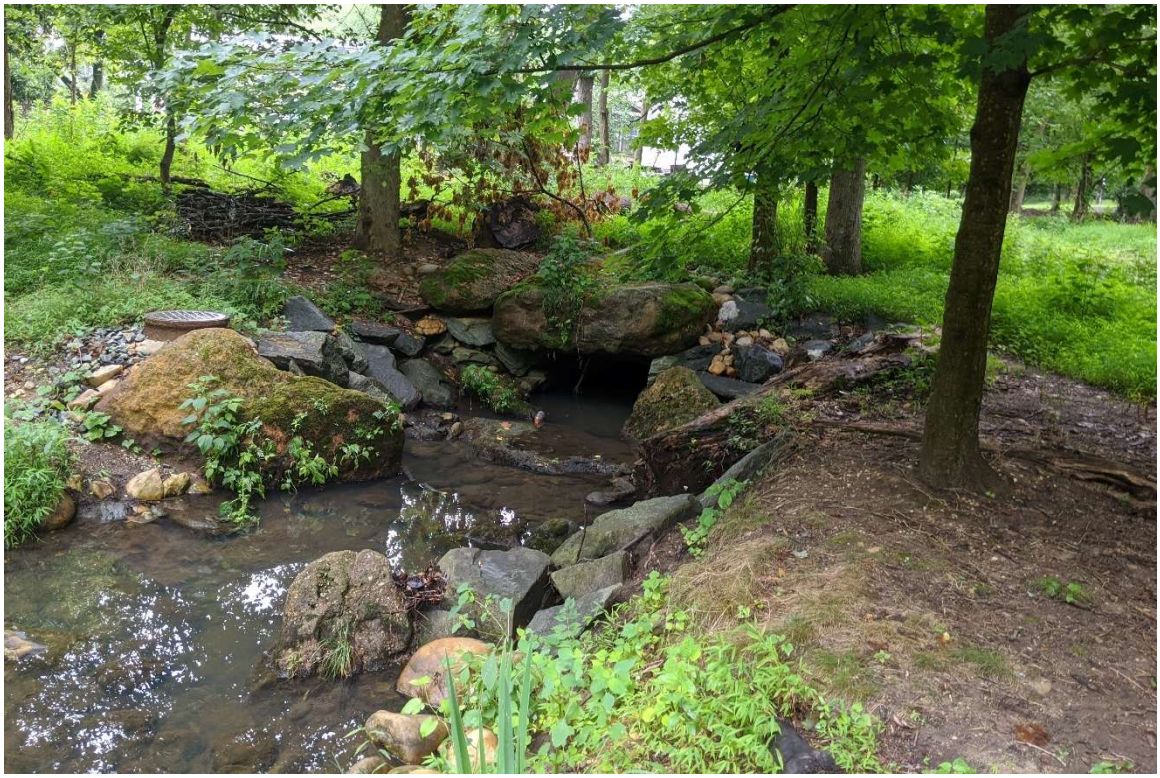

Figure B-19. Upstream end of stream daylighting project where the stream connects to the existing storm drain network

Figure B-20. Naturalized stream that was previously confined below ground within the storm drain system