



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

P.O. Box 1105, Richmond, Virginia 23218

(800) 592-5482

www.deq.virginia.gov

Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

March 27, 2024

VIA ELECTRONIC MAIL

Michael Liberati
Corteva Environmental Remediation
974 Centre Road, Building 735
Wilmington, DE 19805

RE: 2022 Leaf-off, 2022 Leaf-on and 2023 Leaf-on BMA Inspection Memos
Former DuPont Waynesboro Site AOC 4
Waynesboro, Virginia
EPA ID# VAD003114832

Dear Mr. Liberati,

This letter acknowledges the receipt and review of the *2022 Leaf-off, 2022 Leaf-on and 2023 Leaf-on BMA Inspection Memos* submitted October 9, 2023, to the Virginia Department of Environmental Quality, Office of Remediation Programs (Department) by AECOM on behalf of Corteva Agriscience. The memorandums document bank management inspection activities that occurred during that time.

The Department has no comments. Please contact me at 540-209-3663 or by email at William.jordan@deq.virginia.gov if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads 'W. Calvin Jordan'.

W. Calvin Jordan
Corrective Action Project Officer
Office of Remediation Programs

cc: Michael Sherrier, DSP
Bill Reese, AECOM
Tara Mason, Laura Stuart, VDEQ
Jacqueline Morrison, USEPA

Memorandum

To Michael Liberati, EIDP, Inc., a wholly owned subsidiary
of Corteva Agriscience LLC
Nancy Grosso, EIDP, Inc., a wholly owned subsidiary
of Corteva Agriscience LLC Page 1 of 9

CC Jen Badner, AECOM
Bill Reese, AECOM
Sagar Thakali, AECOM

Subject 2022 Leaf-on Maintenance Inspection
Former DuPont Waynesboro Site, Area of Concern 4

From Rich Judge, AECOM

Date September 14, 2023

This memorandum summarizes the 2022 Leaf-on Maintenance Inspections (maintenance inspection) for the Constitution Park, City Shops, Allied Ready Mix, Shiloh Baptist Church, and North Park Bank Management Areas (BMAs), conducted from June 7th – June 9th, 2022. Inspection activities were conducted as specified in the scope described in the Maintenance Plan and included as Appendix M of the Basis of Design Report, Phase 1A BMAs, South River AOC 4 (Anchor QEA et al., 2016). The purpose of the inspections is to identify potential BMA maintenance needs, focusing on vegetative development, bank stability, and the integrity of the installed bank stabilization features.

Additional attachments to this memorandum include maintenance inspection log (Table 1), photographic log, vegetation plot data (Table 2), and cap area inspection sheet for each BMA as follows:

- Attachment A – Constitution Park BMA
- Attachment B – City Shops BMA
- Attachment C – Allied Ready Mix BMA
- Attachment D – Shiloh Baptist Church BMA
- Attachment E – North Park BMA

This memorandum also presents the summarized Rapid Bioassessment Protocol (RBP) results, which, along with the vegetation plot data, will no longer be included in the Short-term Monitoring reports moving forward, and will instead be part of the BMA memoranda.

FINDINGS

Constitution Park

The 2022 leaf-on maintenance inspection conducted at the Constitution Park BMA documented stable bank conditions with improved native vegetation growth and increased invasive species coverage compared to the previous leaf-on inspection conducted in spring 2021 (AECOM, 2022a). Evidence of pedestrian traffic is present along improvised access paths but is reduced compared to the previous leaf-on inspection. Pedestrian traffic does not appear to be affecting the integrity of the bank treatment. Slightly increased erosion from

high water and human activity has occurred around the installed staircase and gravel path but both are still intact and will continue to be monitored. Almost all geocell is completely covered by vegetation and is thus not visible. Erosion control fabric and coir logs are almost completely degraded as designed and are being replaced by natural sediment deposition and vegetative growth, indicators that reflect long-term stability.

A summary of findings is provided below; complete details of the maintenance inspection including maintenance inspection field sheet (Table 1), Photographic Log, Riparian Vegetation Plot Summary (Table 2), and Cap Area Inspection Record are provided in Attachment A.

Vegetation

- Planted and natural recruitment of native vegetation remains present throughout the BMA. Herbaceous plugs continue to appear healthy. Estimated percent coverage of native vegetation throughout the BMA is 60%.
- Coverage of Japanese knotweed (*Fallopia japonica*) has increased, with numerous large patches present at, but not limited to: 00-25', +00', +50', +200', +250', +300', +400', +500', +525'. Unknown individuals were observed removing large portions of knotweed from the bank located upstream of the remediated area during the inspection.
- Estimated percent coverage of Japanese knotweed and other invasives (including *Ailanthus*) throughout the BMA is 40%.

Stability

- Consistent bank angles were documented, as constructed, throughout the BMA.
- Paths from foot traffic throughout the bank and along the toe of slope were noted, but do not appear to be affecting bank stability at this time. Evidence of foot traffic has remained the same since the most recent inspection.
- Limited areas of localized scour were documented. Minimal erosion was present in and around the bottom of the stone steps at 00+100'. Overall evidence of scour has remained the same since the most recent inspection.
- Evidence of two "at-risk" (i.e., may no longer be stable) trees: an American Sycamore (*Platanus occidentalis*) leaning heavily over the river between 00+50' and 00+100', and a previously noted Box Elder (*Acer negundo*) at 00+450'.

Installed Features

- Erosion control fabric has decomposed as designed throughout the BMA and is no longer visible.
- Rock toe features were intact with increased sediment deposition in the interstices.
- Large woody debris (LWD) were stable, and anchor chains were intact.
- Coir logs have decomposed as designed. Wooden coir log anchoring stakes remain in place.
- The installed gravel access path appears to be overgrown so much that it is difficult to observe the bank condition beneath. A slight depression on the path caused by water erosion and human activity is newly formed at the bottom of the stairs.
- Stone steps are intact but partially overgrown. The lowest step is slightly undercut but remains stable.
- No groundhog burrows were observed.

Riparian and Aquatic Habitat

Rapid Bioassessment Protocol (RBP) scores in 2022 remained generally similar or improved compared to 2021 and reflect the influence of adjacent land use at Constitution Park. All instream RBP habitat parameters were within the “sub-optimal” range. Most terrestrial (i.e., riparian) metric scores improved since 2021 as vegetative cover continues to increase. It is anticipated that the habitat and associated RBP scores will improve with ongoing management of invasive vegetation and as the vegetative community continues to mature and stabilize the bank.

City Shops

The maintenance inspection conducted at the City Shops BMA documented stable conditions throughout the BMA with minimal change compared to the previous leaf-on inspection conducted in spring 2021 (AECOM, 2022b). Overall, there was minimal scour along the bank face. Native grasses, saplings, and herbaceous vegetation are established. Almost all geocell is completely covered by vegetation and is thus not visible.

A summary of findings is provided below; complete details of the maintenance inspection including field sheets (Table 1), Photographic Log, Vegetation Plot Summary (Table 2), and the Cap Area Inspection Record are provided in Attachment B.

Vegetation

- The upper portions of the bank continued to exhibit dense stands of native grasses, saplings, and shrubs. The estimated percent coverage of native vegetation throughout the BMA is 90%.
- Larger trees left in place during remediation along the BMA are healthy and show no signs of stress, except for the smallest existing mature sycamore tree at 00+300’.
- Patches of invasive Japanese knotweed are present throughout the BMA including, but not limited to: 00+50’, +200’, +450’, +500’, +880’. These localized areas will continue to be monitored and treated, as necessary.
- Estimated percent coverage of Japanese knotweed and other invasive vegetation (including *Ailanthus* and *L. tatarica*) throughout the BMA is 10%.

Stability

- Riverbanks generally maintained a consistent bank angle throughout the BMA as constructed, with no sign of surface erosion, scour, or undercutting at the toe of slope within the remediated portions of the BMA.
- There was no evidence of recent erosion or “at-risk” trees within the remediated areas other than the previously identified dead existing mature sycamore at 00+300’. Several “at-risk” trees are present in the non-remediated portion of the BMA (00-25’ and 00+550’ to 00+700’).
- An area of erosion upstream of the remedial footprint shows signs of significant scour, minimally vegetated bank, and extensive exposed at-risk tree roots; this area will continue to be monitored to identify potential impacts to the adjacent, downstream BMAs.

Installed Features

- Erosion control fabric has mostly degraded, as designed, throughout the BMA. One small patch remains visible at 00+880’ but is mostly covered by vegetation.
- The installed rock toe was intact and is continuing to show evidence of desired sediment deposition throughout. Rip rap has been restored and there is no longer

scour at 00+350' after the City of Waynesboro Department of Public Works installed a new outfall pipe in October 2020.

- Previous inspections documented two installed LWD features that were displaced from their original positions; they remain stable with sediment filling in behind them. They remain within the remedial project area and will be monitored. Corrective actions will be implemented if warranted.
- Vegetative cover and localized scour at the base of the existing mature tree at location 00+300' is satisfactory.

Riparian and Aquatic Habitat

Riparian and aquatic habitat quality indicators, including riparian vegetation and aquatic habitat RBP metrics show very minor degradation at the City Shops BMA. The vegetative community continues to mature as native plants have become the dominate cover type. All habitat parameters ranked in the “sub-optimal” or “marginal” categories. Large boulders and woody debris remain anchored in place and are providing cover for fish. Vegetation has become well established and evidence of beaver cuttings are present along the entire bank. RBP scores are expected to improve over time.

Allied Ready Mix

The findings of the maintenance inspection conducted at the Allied Ready Mix BMA documented stable conditions throughout with increased vegetation cover and a decrease in exposed geocell and erosion control fabric compared to the previous leaf-on inspection conducted in the spring of 2021 (AECOM, 2022c). No erosion control fabric or geocell was visible due to degradation and high vegetative cover. Vegetative cover throughout the BMA is established with extensive natural recruitment occurring and limited Japanese knotweed present. Vegetative community growth, sediment deposition, and stability will continue to be monitored.

A summary of findings is provided below; complete details of the maintenance inspection including field sheets (Table 1), Photographic Log, Vegetation Plot Summary (Table 2), and the Cap Area Inspection Record are provided in Attachment C.

Vegetation

- Robust growth of planted native vegetation and natural recruitment along the stone toe was noted. The estimated percent coverage of native vegetation throughout the BMA is 90%.
- Stations exhibiting increased cover of invasive knotweed include 00-20', +200', +400', +750', +1250', and +1300'.
- Estimated percent coverage of Japanese knotweed and other invasive vegetation throughout the BMA is 10%.

Stability

- As built riverbank angles remained unchanged and consistent bank angles were maintained throughout the BMA as constructed.
- One “at-risk” tree upstream of 00+1250' in non-remediated bank section.
- Areas of localized scour within the BMA, mostly associated with foot traffic, were limited to isolated areas in the upstream BMA including: 00-20', +00', +50', +100'.

Heavy erosion continues to be present downstream of the last remediated section of the BMA. The downstream terminus of the bank treatment will continue to be monitored for signs of back cutting, which may undermine the integrity of the bank.

Installed Features

- The rock toe was intact throughout the BMA, with sediment deposition filling the interstices- providing substrate for natural recruitment of native plant species.
- Rip rap fortified outfall culverts, the Steel Run confluence, and the bank abutment remain intact and functioning as designed.

Riparian and Aquatic Habitat

Allied Ready Mix BMA RBP scores for in-stream habitat parameters decreased slightly in 2022, except for sediment deposition, which improved slightly. This can be partially attributed to the lack of near-shore habitat. No LWD or existing submerged logs can be found throughout the remediated portions of the BMA. Pool substrate characterization ranked as “marginal” due to the non-remediated sections that contained silt as the dominant substrate with very little aquatic vegetation present.

The habitat metric scores for riparian vegetative zone remained similar to 2021. Vegetative protection decreased from “optimal” to “marginal” along the left bank due to increasing Japanese knotweed cover but increased along the right bank. Riparian vegetative width was “marginal” due to a relatively short riparian zone width, which has remained the same since construction was completed. Riparian habitat will improve over time as vegetation continues to mature. The increased density of vegetation has also led to an observed reduction in human foot-traffic disturbance since the last inspection.

Shiloh Baptist Church

The maintenance inspection conducted at the Shiloh Baptist Church BMA documented mostly stable conditions with some new additions to bank stability outlined in the summary below. Grasses and seed mix species are mostly established except at 00+550’ where the bank was reconstructed after it failed in 2020 (Attachment D – Photo Log, Photo #26). Almost all geocell is completely covered by vegetation and is thus not visible.

A summary of findings is provided below; complete details of the maintenance inspection including field sheets (Table 1), Photographic Log, Vegetation Plot Summary (Table 2), and the Cap Area Inspection Record are provided in Attachment D.

Vegetation

- Installed saplings, shrubs, and grasses appear healthy and are becoming established throughout most of the BMA. Most live stakes have not established. The estimated percent coverage of native vegetation throughout the BMA is 80%.
- Re-seeded grasses planted during reconstruction following the 2020 bank failure at 00+550’ have not established.
- Large trees left in place during remediation along the BMA appear to be healthy and show no signs of stress.
- Larger patches of invasive Japanese knotweed are present, but not limited to the following locations: 00-25’, +00’, +150’, +250’, +300’, +350’, +400’, +500’, +550’, +600’, and throughout the bank above the greenway near the church.
- Estimated percent coverage of Japanese knotweed and other invasive vegetation throughout the BMA is 15%.
- “At-risk” trees include a sycamore at 00-25’, and several trees downstream of the end of the remediated area (00+975’).
- Possible future “at-risk” trees are located at stations 00+450’ (catalpa saplings) and 00+650’ (American sycamore). Roots are currently stable.

Stability

- Consistent bank slopes were documented throughout the BMA with no indication of any significant changes from the as-built condition.
- Slight scour was noted at stations 00-25', and downstream of 00+975', outside of the remediated area.
- Silt fencing installed during construction operations along the greenway downstream of the BMA appeared to be preventing erosion (Attachment D Photo Log, Photo #46).

Installed Features

- The installed rock toe was intact and showed no indication of movement.
- The armor-flex reinforced stormwater drain outlet at 00+350 was intact.
- Erosion control fabric was no longer exposed, except for the new section near 00+500'.
- Coir logs, erosion control fabric and rip rap were recently installed along the upper bank near 00+500' to repair damage caused by the bank reconstruction operation (Attachment D Photo Log, Photo #44, 45).
- One area of bank downstream of remediated portion was fortified with rip rap due to construction damage (Attachment D Photo Log, Photo #48).
- Two new corrugated drainage pipes were installed beneath the greenway to drain water from the parking lot and prevent ice buildup along the path during winter (Attachment D Photo Log, Photo #42, 43).

Riparian and Aquatic Habitat

Shiloh Baptist Church BMA post-remediation RBP scores in 2022 generally stayed the same or slightly improved over 2021. Most instream RBP habitat parameters for the Shiloh Baptist Church BMA remained "sub-optimal". This sub-optimal score is expected to improve over time as the stabilization and recovery of the bank post-2020 bank failure repairs improve. Substrate embeddedness improved from "sub-optimal" to "optimal". The habitat metric scores for vegetative protection and riparian vegetative zone generally stayed the same. It is expected that riparian habitat conditions will improve as vegetation becomes more established after minor construction repairs to the section of failed bank, and the recent improvements to drainage near the church parking lot.

North Park

The maintenance inspection conducted at the North Park documented mostly stable conditions at the remediated bank with limited areas of erosion. Mild erosion was present around the installed staircase and footpath near the upstream end of the downstream remediated section. Installed live stakes and other plantings appear healthy and are mostly establishing. Grasses and seed mix species are established. Occasional bare soil/dead grass remain between the rock toe and decomposing coir logs near the downriver end of the first remediated section. Erosion control fabric and geocell mostly no longer visible.

A summary of findings is provided below; complete details of the maintenance inspection including field sheets (Table 1), Photographic Log, Vegetation Plot Summary (Table 2) and the Cap Area Inspection Record are provided in Attachment E.

Vegetation

- Installed live stakes, saplings, and shrubs appear healthy and are becoming established throughout the BMA. The estimated percent coverage of native vegetation throughout the BMA is 90%.
- Large trees left in place during remediation along the BMA appear healthy and show no signs of stress.
- Patches of invasive Japanese knotweed are present at, but not limited to: 00+400', 00+450', 00+1100' and 00+1750'.
- Estimated percent coverage of Japanese knotweed and other invasive vegetation is 10%.

Stability

- Consistent bank slopes were documented throughout the BMA with no indication of changes from the as-built condition.
- There was slight scour and/or exposed roots documented at station 00-25' at the toe of slope, throughout the non-remediated section, and at 00+1550', 00+1900' at the bottom of the stairs, and downstream of the end of the remediated section at 00+2300'.
- Some gravel and smaller pebbles on the walking path between 00+1600' and 00+1900' have washed down towards the rock toe. The path was slightly slanted but remains in fair condition. Some small boulders in rock toe have tumbled into water between 00+1600' and 00+1900'.
- "At-risk" trees were identified and include several within the non-remediated portion of the bank, and the box elder at station 00+2300'.

Installed Features

- The installed rock toe remains intact in all areas outside of 00+1600' to 00+1900' where a few boulders have tumbled into the water.
- Erosion control fabric and geocell were no longer visible throughout the entire BMA due to dense vegetative cover.

Riparian and Aquatic Habitat

RBP scores at the North Park BMA remained similar or improved to previous years and continue to reflect the influence of adjacent land use. North Park BMA scores generally remained "sub-optimal". The "Epifaunal substrate/Available Cover" parameter was downgraded to "marginal" due to the lack of varied aquatic habitat observed throughout the BMA. The dominant substrate is comprised of large boulders, with no submerged logs. Habitat metrics are expected to continue to improve as vegetation further establishes.

RECOMMENDATIONS

The following monitoring and maintenance activities are recommended for each of the BMAs based on the findings of the 2022 leaf-on inspection:

Constitution Park

- Continue invasive species management (e.g., herbicide treatment or biocontrol) to meet preliminary success criteria of >80% vegetative cover and <10% invasive vegetative cover throughout the BMA, as defined in the Phase 1 Interim Measures Work Plan (Anchor QEA et al., 2015).
- Monitor bank erosion and stability of the stairway around 00+100', which experiences heavy foot-traffic.

City Shops

- Continue invasive species management (e.g., herbicide treatment or biocontrol) to meet preliminary success criteria.
- Continue to monitor the stability of two previously dislodged pieces of LWD that are now located near 00+450' & 00+880'.

Allied Ready Mix

- Continue invasive species management (e.g., herbicide treatment or biocontrol) to meet preliminary success criteria.
- Continue focused monitoring of downstream scour, especially with the potential for back-cutting just beyond the end of remediated section.

Shiloh Baptist Church

- Continue invasive species management (e.g., herbicide treatment or biocontrol) to meet preliminary success criteria.
- Continued monitoring of bank stability around Shiloh Baptist Church parking lot and beginning of Riverside Drive to ensure surface flow drainage improvements are continuing to work as designed.
- Closely document changes in vegetative cover and stability at the recently reconstructed section of upper bank at 00+550'.

North Park

- Continue invasive species management (e.g., herbicide treatment or biocontrol) to meet preliminary success criteria.
- Continue monitoring erosion around walking path above the rock toe and around stairs.

REFERENCES

AECOM 2022a. Constitution Park BMA - 2021 Leaf-on Maintenance Inspection, Former DuPont Waynesboro Site, Area of Concern 4. 9 November 2022.

AECOM 2022b. City Shops BMA - 2021 Leaf-on Maintenance Inspection, Former DuPont Waynesboro Site, Area of Concern 4. 9 November 2022.

AECOM 2022c. Allied Ready Mix BMA - 2021 Leaf-on Maintenance Inspection, Former DuPont Waynesboro Site, Area of Concern 4. 9 November 2022.



Anchor QEA, URS Corporation, E. I. du Pont de Nemours and Company. 2015. Final Interim Measures Design, Implementation, and Monitoring Work Plan, Phase 1 – South River Area of Concern 4. February 2015.

Anchor QEA, AECOM, and E.I. du Pont de Nemours and Company. 2016. Basis of Design Report, Phase 1A Bank Management Areas, South River Area of Concern 4. September 2016.

Attachment A
Constitution Park BMA

Attachment A - Table 1
2022 Leaf-On Maintenance Inspection Log
Constitution Park BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (ft)	Photo # (Attachment A)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	Y/N	Notes
00 + 25	1, 2	55	N (see notes)	Lower bank: ~20 degrees Upper bank: ~55 degrees	L	Large patches of invasive knotweed present	N	No trees adjacent to edge of water	NA	NA	NA	None.	Y	Low presence of scour 5' upstream of 00 + 25 Slight erosion at waters edge	N	None
00 + 00	3, 4	55	N (see notes)	Lower bank: ~30 degrees Upper bank: ~55 degrees	NA	No live stakes established. Large patches of invasive knotweed present (~50% cover); Sumac trees present	N	No trees adjacent to edge of water	NA	N	N	Coir logs decomposed, no erosion control fabric or geocell visible; stakes that previously held coir log are visible protruding from river	N	Slight scour and undercutting	Y	No erosion control fabric or geocell visible due to overgrown knotweed
00 + 50	5, 6	45	Y	Lower 3' of bank toe level	NA	Large patches of Japanese knotweed (~40% cover). Native Jewelweed, adult trees on bank include 2 Maples, Sumac, Sycamore	Y	Sycamore close to rock toe leaning heavily over river between 00+50' and 00+100'	NA	N	N	Coir logs decomposed, no erosion control fabric or geocell visible	N	Evidence of foot traffic along the toe of slope	Y	Sycamore tree at risk
00 + 100	7, 8	50	N (see notes)	Lower bank: ~20 degrees (rock toe); Upper bank: ~50 degrees	NA	Blue Flag Iris, Wing Stem, Nettle, Jewelweed, locust trees, catalpa saplings, and Sycamores present	N	No trees adjacent to edge of water	Y (Rock Toe)	N	N	Rock toe along bank and constructed river access steps intact with evidence of disturbance due to high water and/or human activity	Y	Sediment deposition adjacent to rock toe boulders, light scour under base of steps	Y	Increased erosion at bottom of stairs
00 + 150	9, 10	45	N (see notes)	Lower bank: ~15 degrees (rock toe); Upper bank: ~45 degrees	NA	Native vegetation is dominant - Soft Rush, Bulrush, Elderberry, Jewelweed, Maple, Sumac, Catalpa, Locust. Patch of invasive alyanthus	N	No trees adjacent to edge of water	Y (LWD and Rock Toe)	N	N	Geocell and erosion control fabric fully degraded and/or not visible	Y	Silt filling in behind LWD and in boulders; minimal scour and undercutting under rocks	N	None
00 + 200	11	55	Y	None	NA	Large patches of Japanese knotweed (~50% cover); Native vegetation includes - Pokeberry, Elderberry, Sycamore, Catalpa Saplings, and Jewelweed	N	No trees adjacent to edge of water	NA	N	N	Coir logs decomposed, no erosion control fabric or geocell visible; stakes that previously held coir log are visible protruding from river	Y	No evidence of foot traffic along the toe of slope; minimal scour and undercutting	Y	Increased knotweed cover and scour/undercutting
00 + 250	12, 13	55	Y	None	NA	Large patches of Japanese knotweed (~50% cover); No live stakes established. Native vegetation includes: Pokeberry, Jewelweed, Maple, Sumac and Catalpa saplings	N	No trees adjacent to edge of water	NA	N	N	Coir logs decomposed, no erosion control fabric or geocell visible; stakes that previously held coir log are visible protruding from river. Evidence of foot traffic along toe of slope	N	None	Y	Significant increase in knotweed cover
00 + 300	14	70	Y	None	NA	Large patches of Japanese knotweed (60% cover). Other vegetation includes: Slough Sumac, Crown Vetch, large adult Catalpa, large jewelweed patch at toe. Live stakes ~20% established	N	No trees adjacent to edge of water	NA	N	N	Coir logs decomposed, no erosion control fabric or geocell visible; stakes that previously held coir log are visible protruding from river	N	None	Y	Significant increase in knotweed cover
00 + 350	15, 16, 17	70	Y	None	NA	Invasive vegetation present: ~70% Japanese knotweed. Live stakes ~30% established. Native bank vegetation includes: Jewelweed, Curly Dock, Dogbane, and Blue Flag Iris	N	No trees adjacent to edge of water	NA	N	N	Coir logs decomposed, no erosion control fabric or geocell visible; No foot traffic or paths observed along toe of slope. Deck lookout on top of bank in good condition	Y	Minimal scour present at toe of slope	N	None
00 + 400	18, 19	60	Y	None	NA	Native vegetation present along top of bank with small patches of invasive knotweed (~10% cover) at toe of slope; No live stakes observed. Native vegetation includes: Black Walnut, Willow, Jewelweed, Pokeberry, Poison Ivy, Box Elder, and Catalpa saplings	N	No trees adjacent to edge of water	NA	N	N	No erosion control fabric or geocell visible	N	None	N	None
00 + 450	20	50	Y	None	NA	Japanese knotweed (~5% cover); Native vegetation present: Jewelweed, Box Elder, Locust, Curly Dock, Pokeberry	Y	Box Elder at risk	NA	N	N	No erosion control fabric or geocell visible	N	None	N	None
00 + 500	21, 22, 23	40	Y	The bank design has a decreased vertical bank height (~6') compared to upstream monitoring stations.	NA	Native vegetation present with patches of the invasive knotweed (~60% cover); No live stakes observed. Native vegetation observed: Jewelweed, Pokeberry, Wing Stem, and Catalpa	N	No trees adjacent to edge of water	NA	N	N	Coir logs decomposed, no erosion control fabric or geocell visible; stakes that previously held coir log are visible protruding from river	N	None	N	None
00 + 525	24, 25, 26	45	Y	Non-remediated section at end; Bank is 3 feet high	NA	Predominantly native vegetation cover; No live stakes observed. Japanese knotweed ~5% cover, Sycamore, Locust, American Elm, Jewelweed, Curly Dock, and Elderberry	N	No at risk trees adjacent to edge of water, Catalpa saplings establishing	NA	N	N	No erosion control fabric or geocell visible	N	None	N	None

Notes:

- Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
- A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
- The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
- At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
- Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor). As of Spring 2022 almost all of the fabric and geocell is either degraded or fully covered by vegetation
- The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)
- Grey shaded cells are portions of the bank that were not remediated

South River Photolog Constitution Park BMA Bank Monitoring Memo



Photo Number: 01		Location: 00 – 25'	
Date: 6/9/2022			
Direction: West			
Description: Lower bank ~20°; upper bank ~55°; no woody plants or trees adjacent to edge of water; large patch of invasive knotweed along water's edge			

Photo Number: 02		Location: 00 – 25'	
Date: 6/9/2022			
Direction: Northwest			
Description: View from upstream of remediated bank; low presence of scour 5' upstream of 00 – 25'; slight erosion at waters edge.			


**South River Photolog
Constitution Park BMA
Bank Monitoring Memo**

Photo Number: 03		Location: 00 + 00'	
Date: 6/9/2022			
Direction: West			
Description: Lower bank ~30°; upper bank ~55°; No live stakes visible; no trees adjacent to edge of water; knotweed cover ~50%; coir logs deteriorated; slight scour and undercutting;			

Photo Number: 04		Location: 00 + 00'	
Date: 6/9/2022			
Direction: West			
Description: Downstream view from beginning of remediated bank			

South River Photolog Constitution Park BMA Bank Monitoring Memo

Photo Number: 05	Location: 00 + 50'
Date: 6/9/2022	
Direction: West	
Description: ~45° consistent bank angle; 3' of bank toe level; No live stakes visible; no trees adjacent to edge of water; 30-40% invasive knotweed cover; at-risk sycamore 20 feet downstream	

Photo Number: 06	Location: 00 + 50'
Date: 6/9/2022	
Direction: West	
Description: Downstream view of at-risk sycamore at ~00+70'.	

South River Photolog Constitution Park BMA Bank Monitoring Memo



Photo Number: 07		Location: 00 + 100'	
Date: 6/9/2022			
Direction: West			
Description: Lower bank ~20° (rock toe); upper bank ~50°; live stakes not visible; at-risk trees sycamore upstream at 00+70'; sediment deposition adjacent to rock toe boulders.			

Photo Number: 08		Location: 00 + 100'	
Date: 6/9/2022			
Direction: West			
Description: Rock toe along bank and constructed river access stairs intact, but continues to deteriorate; erosion from high water and human activity has caused several holes and divots on the path at the bottom of the stairs			

**South River Photolog
Constitution Park BMA
Bank Monitoring Memo**

Photo Number: 09		Location: 00 + 150'	
Date: 6/9/2022			
Direction: West			
Description: Lower bank 15° (rock toe); upper bank ~45°; live stakes not visible; no trees adjacent to edge of water; native vegetation dominant; small patch of invasive <i>Ailanthus altissima</i> saplings.			

Photo Number: 10		Location: 00 + 150'	
Date: 6/9/2022			
Direction: Northwest			
Description: Downstream view of bank remediation; several large patches of knotweed visible			

South River Photolog Constitution Park BMA Bank Monitoring Memo


Photo Number: 11		Location: 00 + 200'	
Date: 6/9/2022			
Direction: Southwest			
Description: ~55° bank angle; large patches of invasive knotweed ~50% cover; coir logs deteriorated, but stakes that held logs visibly protruding from water; evidence of foot traffic along the toe of slope and coir logs; minimal scour along toe.			

Photo Number: 12		Location: 00 + 250'	
Date: 6/9/2022			
Direction: West			
Description: ~55° bank angle; few live stakes established; large patches of invasive knotweed cover ~50%; coir logs deteriorated, but stakes that held logs visibly protruding from water; no trees adjacent to edge of water.			

South River Photolog Constitution Park BMA Bank Monitoring Memo



Photo Number: 13	Location: 00 + 250'
Date: 6/9/2022	
Direction: West	
Description: Upstream view of remediated bank; patches of invasive knotweed present.	

Photo Number: 14	Location: 00 + 300'
Date: 6/9/2022	
Direction: West	
Description: ~70° bank angle; few live stakes established; large patches of invasive knotweed 50% cover; no geocell or erosion control visible; coir logs deteriorated, but stakes that held logs visibly protruding from water.	

South River Photolog Constitution Park BMA Bank Monitoring Memo


Photo Number: 15	Location: 00+350'
Date: 6/9/2022	
Direction: West	
Description: ~70° bank angle; no live stakes visible; Large patches of invasive knotweed ~70% cover; coir logs deteriorated, but stakes that held logs visibly protruding from water; lookout deck above bank on greenway.	

Photo Number: 16	Location: 00+350'
Date: 6/9/2022	
Direction: West	
Description: Upstream view of remediated bank	

South River Photolog Constitution Park BMA Bank Monitoring Memo


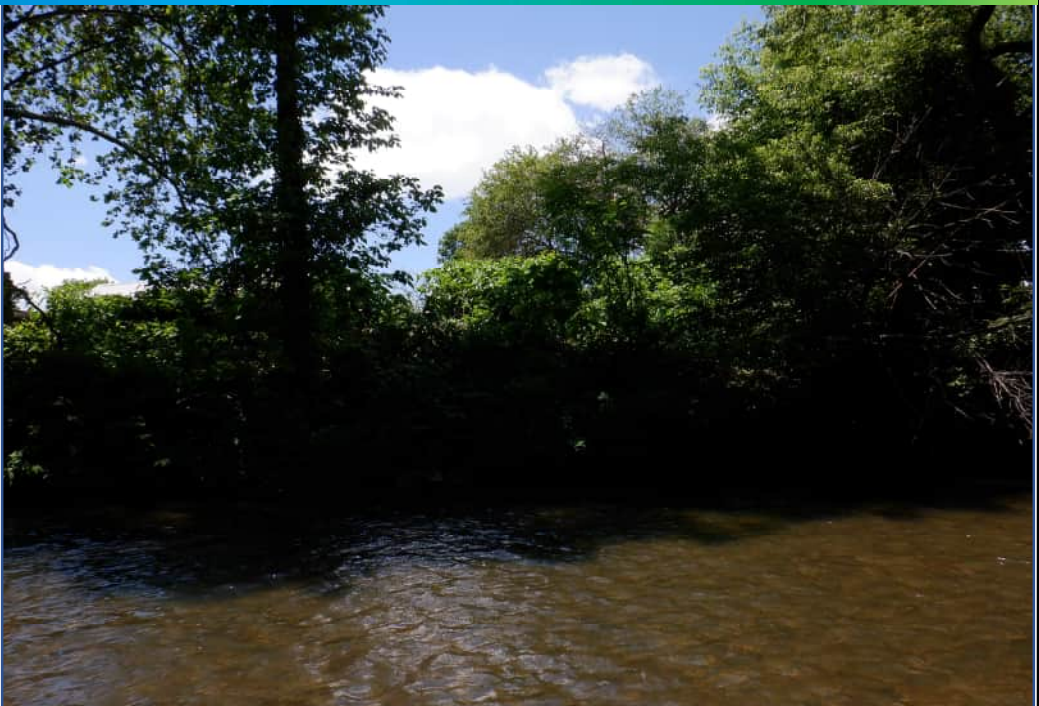
Photo Number: 17		Location: 00+350'	
Date: 6/9/2022			
Direction: Northwest			
Description: Downstream view of remediated bank; scour at toe.			

Photo Number: 18		Location: 00+400'	
Date: 6/9/2022			
Direction: Southwest			
Description: ~60° bank angle; no live stakes visible; small patch of invasive knotweed; mostly native vegetation along bank.			

South River Photolog Constitution Park BMA Bank Monitoring Memo



Photo Number: 19		Location: 00+400'	
Date: 6/9/2022			
Direction: West			
Description: Upstream view of remediated bank.			

Photo Number: 20		Location: 00+450'	
Date: 6/9/2022			
Direction: West			
Description: ~50° bank angle; native vegetation present along top of bank with small patches of invasive knotweed at toe of slope; at-risk Box Elder tree			

South River Photolog Constitution Park BMA Bank Monitoring Memo




Photo Number: 21		Location: 00+500'	
Date: 6/9/2022			
Direction: West			
Description: ~40° bank angle; no live stakes visible Large patch of invasive knotweed 60% cover; coir logs deteriorated, but stakes that held logs visibly protruding from water.			

Photo Number: 22		Location: 00+500'	
Date: 6/9/2022			
Direction: Southwest			
Description: Upstream view of bank remediation; at-risk tree present leaning over water, bark stripped from portion of trunk; undercutting.			

South River Photolog Constitution Park BMA Bank Monitoring Memo

Photo Number: 23		Location: 00+500'	
Date: 6/9/2022			
Direction: West			
Description: Downstream view from end of remediated bank; no trees or vegetation adjacent to water after remediated section.			

Photo Number: 24		Location: 00+525'	
Date: 6/9/2022			
Direction: Northwest			
Description: End of remediated section and beginning of non-remediated section; ~45° bank angle; bank is only 3 ft in height; no live stakes; small patch of invasive knotweed; mostly native vegetation.			

South River Photolog Constitution Park BMA Bank Monitoring Memo

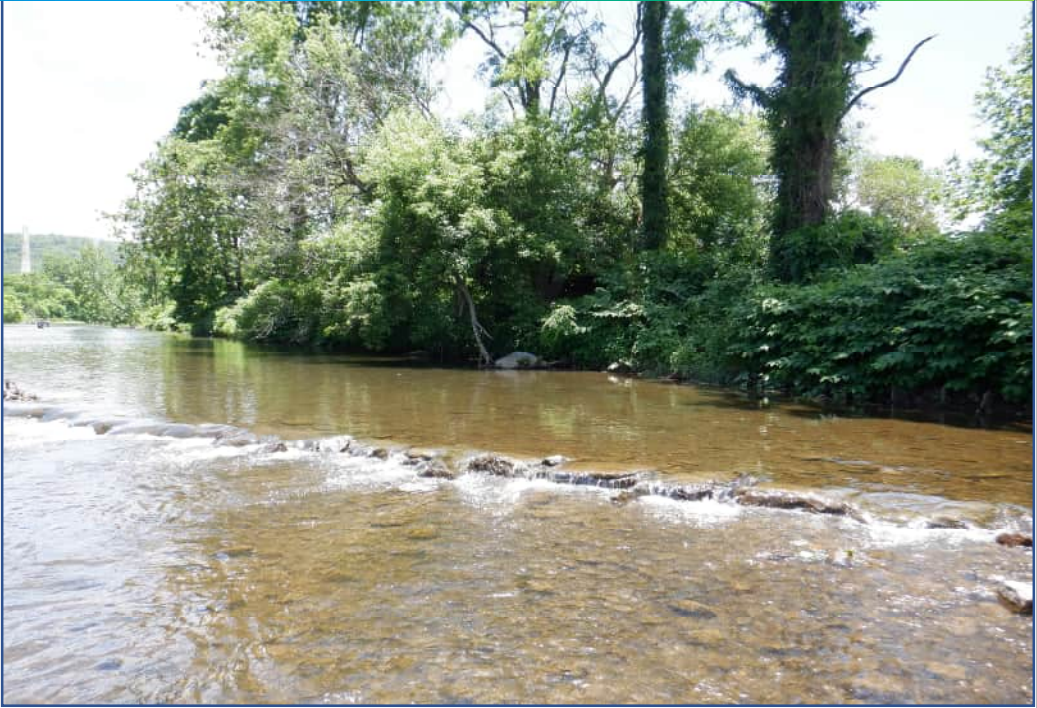

Photo Number: 25		Location: 00+525'	
Date: 6/9/2022			
Direction: West			
Description: Upstream view from end of remediated section; at-risk tree and invasive knotweed present.			

Photo Number: 26		Location: 00+525'	
Date: 6/9/2022			
Direction: Southwest			
Description: Downstream view from end of remediated bank; no trees or vegetation along bank below remediated section.			

Attachment A - Table 2
2022 Leaf-on Riparian Vegetation Plots
Constitution Park BMA
Former DuPont Waynesboro Site, Area of Concern 4

Vegetative Species		Absolute % Cover ¹
Scientific Name	Common Name	Spring
Tree/Vine Stratum		
<i>Acer rubrum</i>	Red Maple	10-25
<i>Catalpa speciosa</i>	Northern Catalpa	0-5
<i>Convolvulus arvensis</i>	Field Bindweed	0-2
<i>Platanus occidentalis</i>	American Sycamore	20
<i>Robinia pseudoacacia</i>	Black Locust	0-60
<i>Toxicodendron radicans</i>	Poison Ivy	5
Sapling/Shrub Stratum		
<i>Acer rubrum</i>	Red Maple	0-30
<i>Ailanthus altissima</i>	Tree of Heaven	0-2
<i>Catalpa speciosa</i>	Northern Catalpa	0-5
<i>Cornus amomum</i>	Silky Dogwood	0-5
<i>Lonicera japonica</i>	Japanese Honeysuckle	0-15
<i>Physocarpus opulifolius</i>	Atlantic Ninebark	0-5
<i>Platanus occidentalis</i>	American Sycamore	0-15
<i>Rhus typhina</i>	Staghorn Sumac	0-10
Herbaceous Stratum		
<i>Amaranthus spinosus</i>	Spiny Amaranth	0-10
<i>Andropogon gerardii</i>	Big Bluestem	0-15
<i>Arctium minus</i>	Lesser Burdock	0-2
<i>Convolvulus arvensis</i>	Field Bindweed	0-10
<i>Cyperus esculentus</i>	Yellow Nutsedge	0-2
<i>Elymus riparius</i>	Riverbank Wildrye	2-15
<i>Fallopia japonica</i>	Japanese Knotweed	20-80
<i>Festuca rubra</i>	Red Fescue	0-5
<i>Galium sp.</i>	Bedstraw	20
<i>Impatiens capensis</i>	Jewelweed	0-5
<i>Iris versicolor</i>	Blue Flag	0-2
<i>Lactuca serriola</i>	Prickly Lettuce	0-2
<i>Microstegium vimineum</i>	Japanese Stiltgrass	0-5
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	0-1
<i>Phytolacca americana</i>	Pokeberry	5-20
<i>Poa annua</i>	Annual Bluegrass	0-5
<i>Rubus spp.</i>	Raspberry	0-1
<i>Schizachyrium scoparium</i>	Little Bluestem	0-10
<i>Taraxacum spp.</i>	Dandelion	0-2
<i>Trifolium pratense</i>	Red Clover	0-1
<i>Vicia americana</i>	Purple Vetch	0-2

Notes:

1. Represents the range observed between two riparian vegetative survey plots per short-term monitoring station.

**Attachment A - Waynesboro Off-Site Cap Areas
Inspection Record Sheet
Maintenance Plan**

Location and property owner name: Constitution Park BMA		
Item	Status/Maintenance Needs	Repairs Needed?
Access Roads	NA	NA
Trails	Stairs, greenway, and installed gravel path intact, but showing wear and overgrown. Slight erosion present at bottom of stairs due to high water and human activity	2
Drainage Structures	NA	NA
Outfall Structures	NA	NA
Rip-Rap Protection	Intact	1
Cap System Vegetative Cover	Native vegetation is well established and healthy throughout. Increased presence of Japanese knotweed	2
Cap System Geosynthetics	No erosion control fabric or geocell visible due to degradation and high vegetative cover	1
Cap System Slope Stability	Slope is generally consistent and stable	1
Cap System Subsidence	Slight subsidence near the uppermost section of the BMA associated with foot traffic at the toe of the slope. Minimal scour and undercutting present at several stations	1
Fencing and Gates	Intact	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments:

There are large and small patches of invasive knotweed throughout the BMA. Knotweed coverage has increased compared to previous years. Treatment with herbicide is recommended. Stakes designed to hold coir logs in place are visible on the edge of the water. Coir logs are decomposed so stakes can be removed.

Inspected by: Sarah Bartle and Bill Storm

Date: June 9, 2022

Attachment B
City Shops BMA

Attachment B - Table 1
2022 Leaf-On Maintenance Inspection Log
City Shops BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (B) ¹	Photo # (Attachment B)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	Y/N	Notes
00 + 25	1	85	Y	None	H	High quantity of exposed roots on the bank which is obstructed from view in picture by herbaceous vegetation. ~80% vegetated: ~50% Honeysuckle, Ailanthus saplings	Y	At-risk trees present: Box Elder, Tree of Heaven (ailanthus)	NA	NA	NA	None	Y	Scour present throughout	N	None
00 + 00	2	70	N (see notes)	Lower bank: ~60 degrees Upper bank: ~80 degrees	NA	No exposed roots	N	No woody plants adjacent to edge of water	Y	N	N	No geocell or erosion control fabric visible	Y	Some scour present from rock toe to mid bank upstream of remediation	N	None
00 + 50	3, 4, 5	45	Y	None	NA	Predominantly native vegetation along top of rock toe - Catalpa and Sycamore saplings. Overall sumacs ~60% cover, Japanese knotweed observed	N	No woody plants adjacent to edge of water	Y (LWD and Rock Toe)	N	N	No geocell or erosion control fabric visible, LWD intact; sediment filling behind LWD	N	No scour present along rock toe	N	None
00 + 100	6, 7	45	Y	None	NA	Predominantly native vegetation along top of rock toe - Sumac ~60% cover, grasses, no knotweed. Sycamore saplings and jewelweed at toe	N	No woody plants adjacent to edge of water	Y (LWD and Rock Toe)	N	N	No geocell or erosion control fabric visible, LWD intact	N	No scour present along rock toe	N	None
00 + 150	8, 9	45	Y	None	NA	Predominantly native vegetation along top of Rock Toe - Sycamore saplings, Dogwoods, Sumac, Jewelweed at toe, Willow and Physocarpus	N	No woody plants adjacent to edge of water	Y (LWD and Rock Toe)	N	N	No geocell observed, ~5% erosion control fabric exposed on upper bank, LWD intact	N	No scour present along rock toe	Y	No knotweed visible
00 + 200	10, 11	45	Y	None	NA	Native vegetation along top of rock toe; Large patches of invasive knotweed present (~90% cover); sumac trees; access stairs covered by knotweed	N	No woody plants adjacent to edge of water	Y (LWD and Rock Toe)	N	N	No geocell or erosion control fabric visible, Rock stairs and gate present on upper half of bank but covered in knotweed	N	No scour present along rock toe; outfall pipe present within rock toe covered by knotweed	Y	More invasive knotweed present; no fabric exposed
00 + 250	12	45	Y	None	NA	Predominantly native vegetation along top of rock toe - Sumacs 15-20' tall, Sycamore saplings, Pokeberry, and Jewelweed	N	No woody plants adjacent to edge of water	Y (LWD and Rock Toe)	N	N	No geocell or erosion control fabric observed, LWD intact	N	No scour present along rock toe	Y	No fabric exposed
00 + 300	13	45	Y	None	NA	Native vegetation above rock toe - Elderberry ~80% cover, Sycamore trees, Willow saplings; Periwinkle ~25%. No knotweed observed	N	Smallest old growth Sycamore is dead; angled over river	Y (LWD and Rock Toe)	N	N	No geocell or erosion control fabric visible, LWD intact	N	No scour present along rock toe	Y	Log jam from top 1/2 of dead sycamore at water's edge on upstream side of LWD is now gone
00 + 350	14	45	Y	None	NA	Native vegetation above and in rock toe - Sumac, Sycamore trees, Jewelweed ~80% cover, and Catalpa saplings	N	None	Y (LWD and Rock Toe)	N	N	LWD intact, rock toe, geocell, erosion control fabric is stabilized around outfall pipe	N	Scour no longer present	Y	Rock toe above daylighted outfall pipe not collapsing anymore; no outfall related scour, vegetation establishing throughout rock toe
00 + 400	15, 16, 17	45	Y	None	NA	Predominantly native vegetation along top of rock toe - small Sycamores at toe of slope, Sumac, Silver Maple saplings. Invasive honeysuckle present. Jewelweed and grasses are dominant	N	No at-risk trees present	Y (LWD moved and Rock Toe)	N	N	No geocell or erosion control fabric visible, LWD remains in shifted position downstream of 00+400'	Y	No scour present along rock toe; two outfall pipes present within rock toe	Y	No fabric exposed
00 + 450	18	45	Y	None	NA	Native vegetation along top of rock toe - 4 Sycamores, and 1 Silver Maple; Some large trees present; Small patches of invasive knotweed present (~25% cover)	N	No at-risk trees present	Y (LWD and Rock Toe)	N	N	No geocell or erosion control fabric visible, Grasses present	N	No scour present along rock toe	N	None
00 + 500	19, 20, 21	45	Y	None	NA	Native vegetation along top of Rock Toe - Jewelweed (~30% cover), Elderberry, Raspberry, Elm sapling; some large trees present - Sycamore. Invasive Japanese knotweed (~25% cover)	N	No at-risk trees present	Y (Rock Toe)	N	N	No geocell or erosion control fabric visible	N	No scour present along rock toe	N	None
00 + 550	22	70	Y	None	H	Lower bank consists mostly of exposed roots	Y	Several large trees with exposed roots hanging over the river - Silver Maple and Sycamore. Dead tree and invasive Honeysuckle are "at-risk"	NA	NA	NA	Beginning of non-remediated section	Y	Entire lower bank shows large amounts of scour	Y	At-risk Silver Maple is now dead
00 + 600	23	75	Y	None	H	Lower bank consists mostly of exposed roots. Black Walnut, sycamores, dead locust tree	Y	Many exposed roots along the lower bank. At-risk trees include: dying Silver Maple, Hackberry, Sycamore	NA	NA	NA	None	Y	Entire lower bank shows large amounts of scour	Y	LWD now gone, trees dying
00 + 650	24, 25	85	Y	None	H	Bank consists mostly of exposed roots. Sycamore, locust, walnut tree. Strip of Jewelweed at toe of slope	Y	At-risk trees present along the upper bank - Hackberry, invasive Honeysuckle and Black Locust. Grapevines growing over dead at-risk trees	NA	NA	NA	None	Y	Entire bank shows large amounts of scour, exposed soil at toe	N	None

Attachment B - Table 1
2022 Leaf-On Maintenance Inspection Log
City Shops BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (B) ¹	Photo # (Attachment B)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	Y/N	Notes
00 + 700	26	85	Y	None	H	Bank consists mostly of exposed roots, with some vegetation growing on slope	Y	At-risk trees present along the upper bank: Hackberry, invasive Honeysuckle and Black Locust	NA	NA	NA	None	Y	Entire bank shows large amounts of scour, exposed soil at toe	Y	More vegetation growing on exposed slope
00 + 750	27, 28, 29	45	N (see notes)	Beginning of second remediated area. Upstream bank: ~80 degrees Downstream bank: ~45 degrees	M	Upper bank upstream of the remediation consists mostly of exposed roots. Invasive Japanese Knotweed ~2% cover, also present is Black Locust, Jewelweed ~10% cover, Willow ~25% cover, and Pokeweed ~20% cover	N	No at-risk trees present	Y	N	N	Beginning of second remediated section; no geocell or erosion control fabric visible	Y	Large amounts of scour above rock toe	N	None
00 + 800	30, 31	45	Y	None	NA	Planted vegetation well established above Rock Toe, vegetation establishing throughout Rock Toe - no invasive Knotweed observed. Elms sapling ~15% cover, Sycamore sapling at toe, Wing Stem and grasses also observed	N	No at-risk trees present	Y (LWD and Rock Toe)	N	N	No geocell or erosion control fabric visible, LWD and rock toe in good condition	N	No scour present along rock toe	Y	Vegetation establishing throughout rock toe
00 + 850	32, 33, 34	30	Y	None	NA	Planted vegetation well established above Rock Toe. Box Elder and Red Maple saplings, invasive Ailanthus sapling observed, invasive knotweed 20% cover. Jewelweed becoming established	N	No at-risk trees present	Y (LWD moved and Rock Toe)	N	N	No geocell or erosion control fabric visible, LWD originally placed here remains in place at 00+880'	N	No scour present along rock toe	N	None
00 + 880	35, 36	20	Y	None	NA	Planted vegetation well established above rock toe, Catalpa and Sycamore saplings and large Sycamore, invasive knotweed ~ 25% cover, Large patch of knotweed downstream of remediated area	N	No woody plants adjacent to edge of water	Y (LWD and Rock Toe)	Y	Y	Erosion control fabric covered in vegetation, sediment filling around shifted LWD from 00+850' and between both LWD structures, downstream end of shifted LWD is at a 45 degree angle from bank about 10-15 feet from the water's edge	N	No scour present along rock toe	N	None

Notes:

- Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
- A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
- The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
- At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
- Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor). As of Spring 2022 almost all of the fabric and geocell is either degraded or fully covered by vegetation
- The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)
- Grey shaded cells are portions of the bank that were not remediated.

South River Photolog City Shops BMA Bank Monitoring Memo


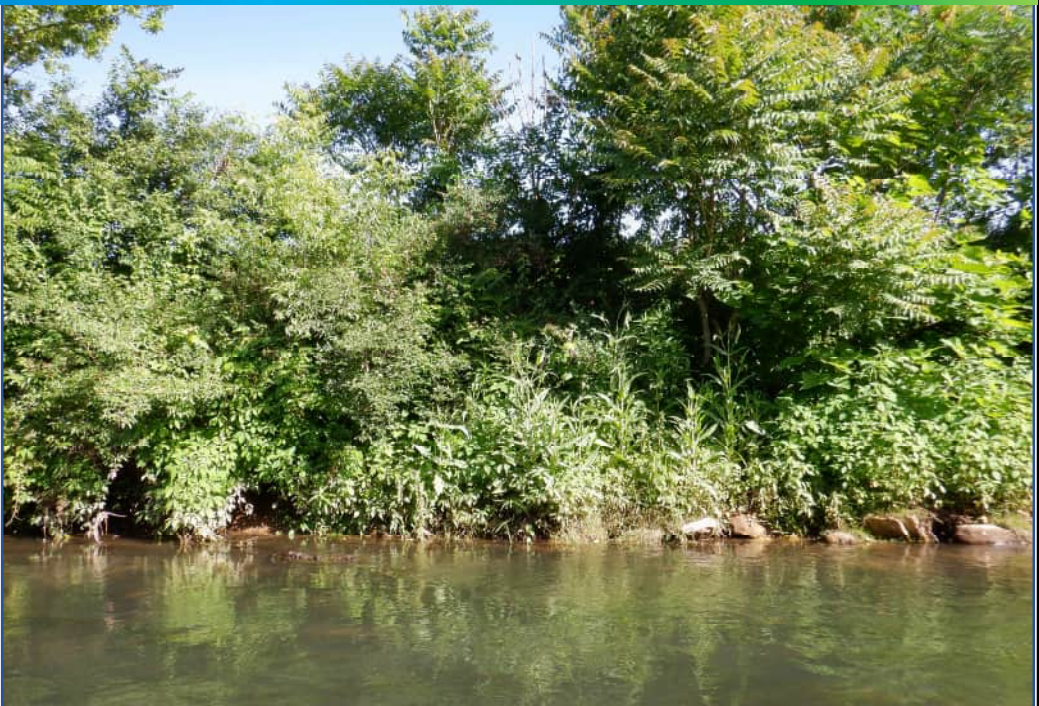
Photo Number: 01	Location: 00-25'
Date: 6/9/2022	
Direction: Northwest	
Description: Upstream of remediate bank; ~85° bank angle; high quantity of exposed roots on the bank; at-risk tree; 80% vegetated; scour present throughout.	

Photo Number: 02	Location: 00+00'
Date: 6/9/2022	
Direction: Northeast	
Description: Beginning of 1 st remediated bank; lower bank ~60°; upper bank ~80°; vegetation fully established and grasses establishing by rock toe base; some scour present from rock toe to mid bank upstream of remediation.	

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 03		Location: 00+50'	
Date: 6/9/2022			
Direction: Northwest			
Description: ~45° bank angle; predominantly native vegetation along top of rock toe; vegetation fully established; grasses establishing by rock toe base; no woody plants adjacent to edge of water.			

Photo Number: 04		Location: 00+50'	
Date: 6/9/2022			
Direction: West			
Description: Upstream view of remediated bank and end of non-remediated bank.			

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 05	Location: 00+50'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of remediated bank; rock toe intact; LWD intact; sediment filling behind LWD; no scour present along rock toe.	

Photo Number: 06	Location: 00+100'
Date: 6/9/2022	
Direction: Northwest	
Description: ~45° bank angle; predominantly native vegetation along top of rock toe; vegetation fully established; grasses establishing by rock toe base; no woody plants adjacent to edge of water; rock toe intact; LWD intact; no scour present along rock toe.	

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 07		Location: 00+100'	
Date: 6/9/2022			
Direction: East			
Description: View of center of river and opposite bank (STM08) from remediated bank.			

Photo Number: 08		Location: 00+150'	
Date: 6/9/2022			
Direction: Northwest			
Description: ~45° bank angle; predominantly native vegetation; vegetation fully established and grasses establishing by rock toe base; no woody plants adjacent to edge of water; no scour present along rock toe and outfall pipe present within.			

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 09	Location: 00+150'
Date: 6/9/2022	
Direction: Southwest	
Description: Upstream view of remediated bank; rock toe intact; LWD intact; sediment filling behind LWD; no scour present along rock toe.	

Photo Number: 10	Location: 00+200'
Date: 6/9/2022	
Direction: Northwest	
Description: ~45° bank angle; Invasive Knotweed 90% cover, Knotweed completely covers rock stairs and gate present on upper half of bank; LWD intact; sediment filling behind LWD; no scour present along rock toe.	

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 11		Location: 00+200'	
Date: 6/9/2022			
Direction: Northeast			
Description: Downstream view of remediated bank; rock toe intact; LWD intact; sediment filling behind LWD; no scour present along rock toe.			

Photo Number: 12		Location: 00+250'	
Date: 6/9/2022			
Direction: Northwest			
Description: ~45° bank angle; predominately native vegetation along top of Rock Toe; no woody plants adjacent to edge of water; LWD intact; sediment filling in behind LWD, no scour present along Rock Toe.			

South River Photolog
City Shops BMA
Bank Monitoring Memo



Photo Number: 13		Location: 00+300'	
Date: 6/9/2022			
Direction: Northwest			
Description: ~45° bank angle; predominantly native vegetation along top of rock toe.			

Photo Number: 14		Location: 00+350'	
Date: 6/9/2022			
Direction: Northwest			
Description: ~45° bank angle; predominantly native vegetation with flood debris on top of intact rock toe; vegetation fully established; two outfall pipes present within rock toe, but no scour.			

South River Photolog City Shops BMA Bank Monitoring Memo


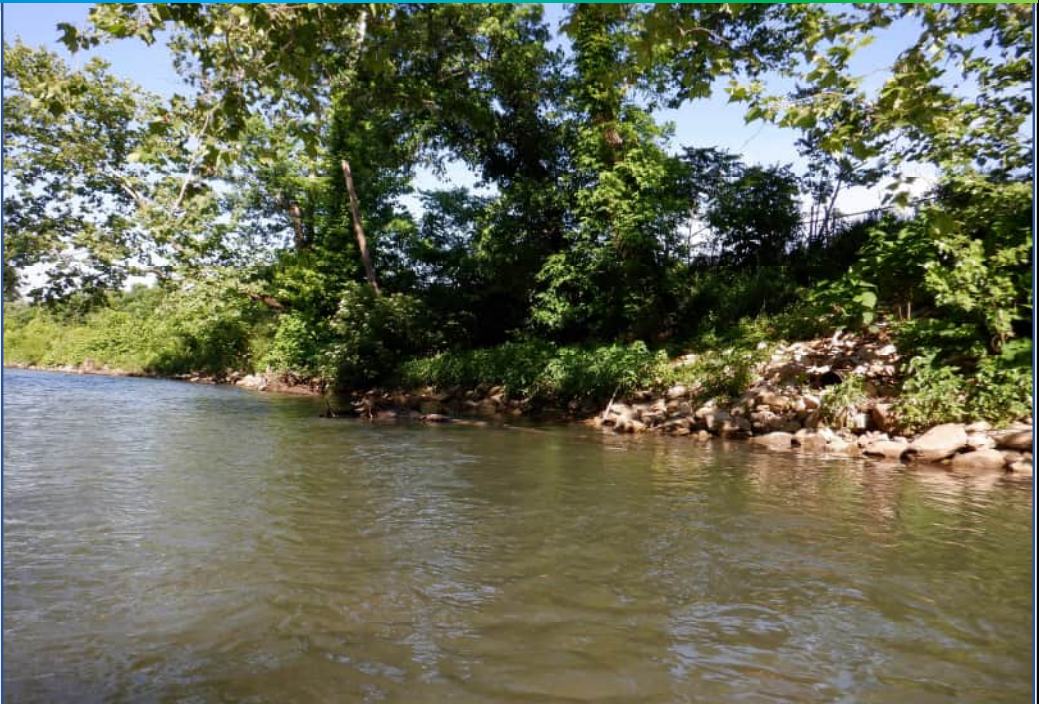
Photo Number: 15	Location: 00+400'
Date: 6/9/2022	
Direction: Northwest	
Description: ~45° bank angle; native vegetation fully established; some large trees present; LWD has shifted downstream; rock toe intact; no scour present along rock toe; 1st outfall pipe has broken hinge on door; 2nd outfall pipe has blocked opening and is covered by vegetation.	

Photo Number: 16	Location: 00+400'
Date: 6/9/2022	
Direction: Southwest	
Description: Upstream view of remediated bank.	

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 17	Location: 00+400'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of the end of the 1 st remediation bank; native vegetation along top of rock toe; vegetation fully established; some large trees present; small sycamore on mid-bank leaning over river at 45°; rock toe intact; no scour present along rock toe.	

Photo Number: 18	Location: 00+450'
Date: 6/9/2022	
Direction: Northwest	
Description: ~45° bank angle; native vegetation along top of rock toe; vegetation fully established; some large trees present; LWD from upstream shifted and is parallel to LWD; rock toe intact; no scour present along rock toe.	

South River Photolog City Shops BMA Bank Monitoring Memo


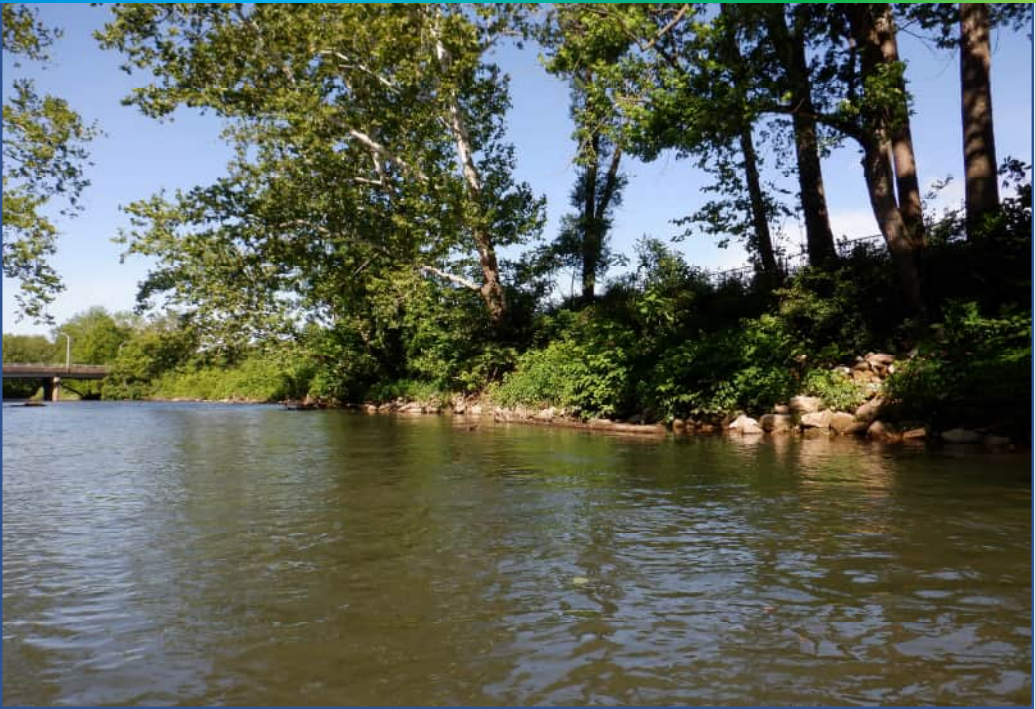
Photo Number: 19		Location: 00+500'	
Date: 6/9/2022			
Direction: Northwest			
Description: End of 1 st remediation area; ~45° bank angle; native vegetation along top of rock toe; vegetation fully established; some large trees present; small sycamore on mid-bank leaning over river at 45°; rock toe intact; no scour present along rock toe.			

Photo Number: 20		Location: 00+500'	
Date: 6/9/2022			
Direction: Southwest			
Description: Upstream view of remediated bank from end of first remediated section.			

South River Photolog
City Shops BMA
Bank Monitoring Memo


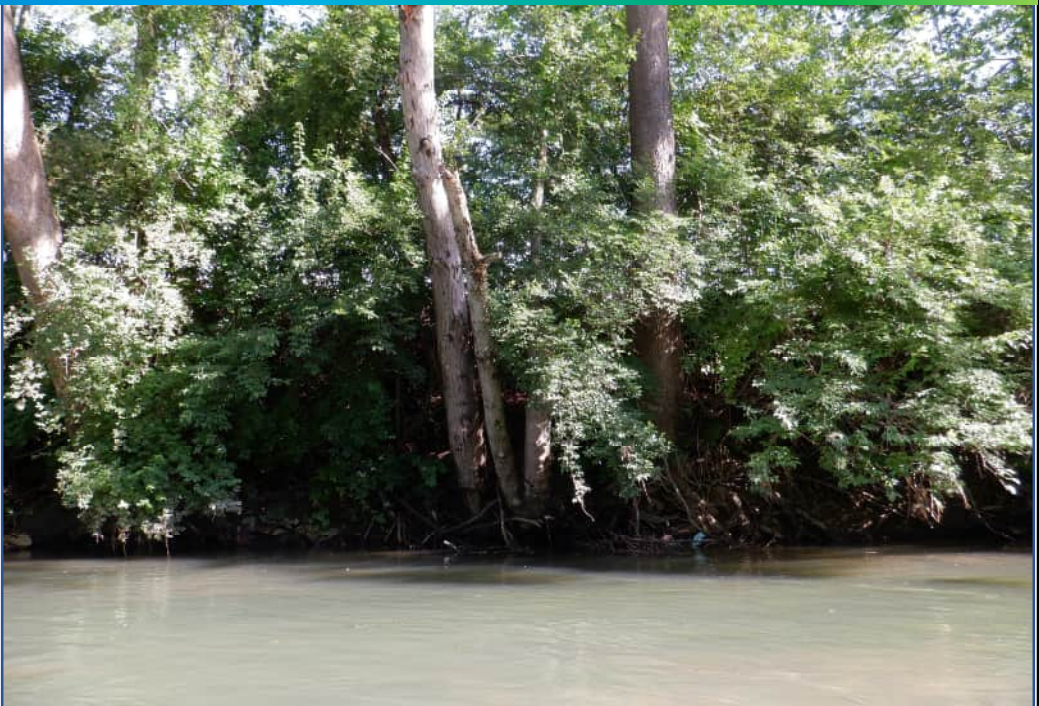
Photo Number: 21	Location: 00+500'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of non-remediated bank from end of first remediated section.	

Photo Number: 22	Location: 00+550'
Date: 6/9/2022	
Direction: Northwest	
Description: Start of non-remediated area; ~70° bank angle; significant bank erosion and undercutting; lower bank consists mostly of exposed roots; several large trees with exposed roots hanging over the river; entire lower bank shows large amounts of scour.	

South River Photolog City Shops BMA Bank Monitoring Memo


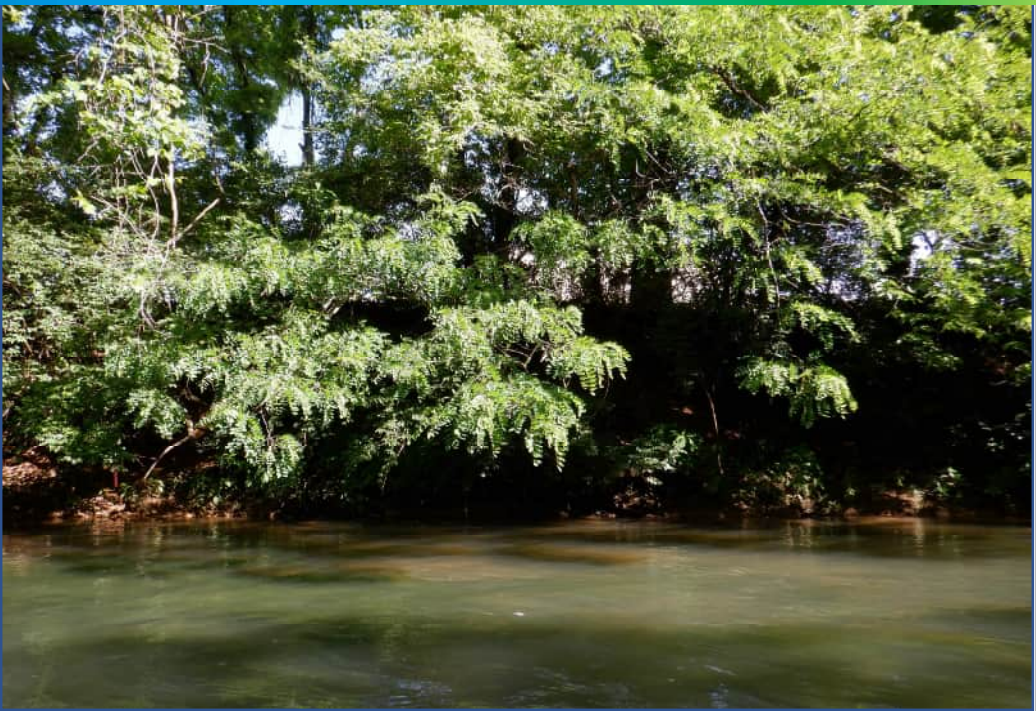

Photo Number: 23		Location: 00+600'
Date: 6/9/2022		
Direction: Northwest		
Description: ~75° bank angle; severe bank erosion and undercutting; bank consists mostly of exposed roots; at risk trees present along the upper bank, some of them beginning to die; entire bank shows large amounts of scour.		

Photo Number: 24		Location: 00+650'
Date: 6/9/2022		
Direction: Northwest		
Description: ~85° bank angle; severe bank erosion and undercutting; bank consists mostly of exposed roots; at risk trees present along the upper bank, some of them beginning to die; entire bank shows large amounts of scour.		

South River Photolog City Shops BMA Bank Monitoring Memo

Photo Number: 25	Location: 00+650'
Date: 6/9/2022	
Direction: Northwest	
Description: View of sever erosion, exposed roots, and at-risk trees common in this non-remediated section of bank.	

Photo Number: 26	Location: 00+700'
Date: 6/9/2022	
Direction: Northwest	
Description: End of non-remediated section. ~85° bank angle; severe bank erosion and undercutting; bank consists mostly of exposed roots; at risk trees present along the upper bank, some of them beginning to die; entire bank shows large amounts of scour.	

South River Photolog City Shops BMA Bank Monitoring Memo


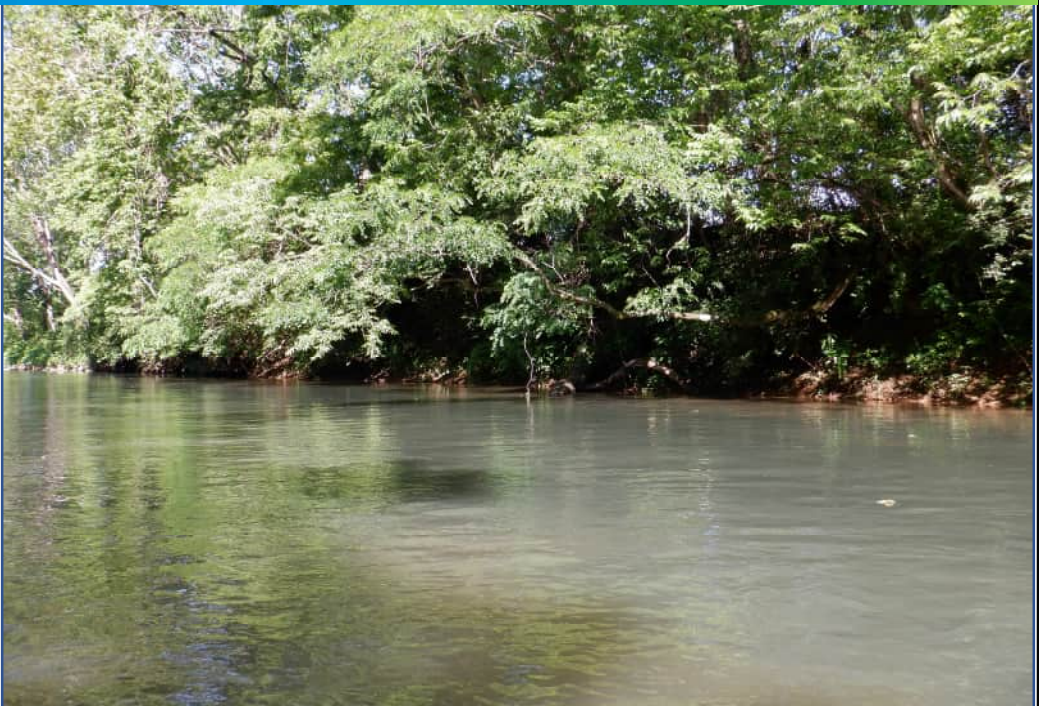
Photo Number: 27	Location: 00+750'
Date: 6/9/2022	
Direction: Northwest	
Description: Beginning of second remediated section; ~45° bank angle; vegetation well established above rock toe; no at-risk trees present; rock toe intact; LWD intact; no scour present along rock toe.	

Photo Number: 28	Location: 00+750'
Date: 6/9/2022	
Direction: Northwest	
Description: Upstream view of non-remediated bank from start of second remediated section.	

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 29	Location: 00+750'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of second remediated section.	

Photo Number: 30	Location: 00+800'
Date: 6/9/2022	
Direction: Northwest	
Description: ~45° bank angle; vegetation well established above rock toe; no at-risk trees present; rock toe intact; LWD intact; no scour present along rock toe.	

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 31	Location: 00+800'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of the end of the remediated bank.	

Photo Number: 32	Location: 00+850'
Date: 6/9/2022	
Direction: Northwest	
Description: ~45° bank angle; vegetation established about and in rock toe; knotweed 20% cover; <i>Ailanthus altissima</i> saplings present; no at-risk trees present; rock toe intact; LWD shifted downstream; no scour present along rock toe.	

South River Photolog
City Shops BMA
Bank Monitoring Memo


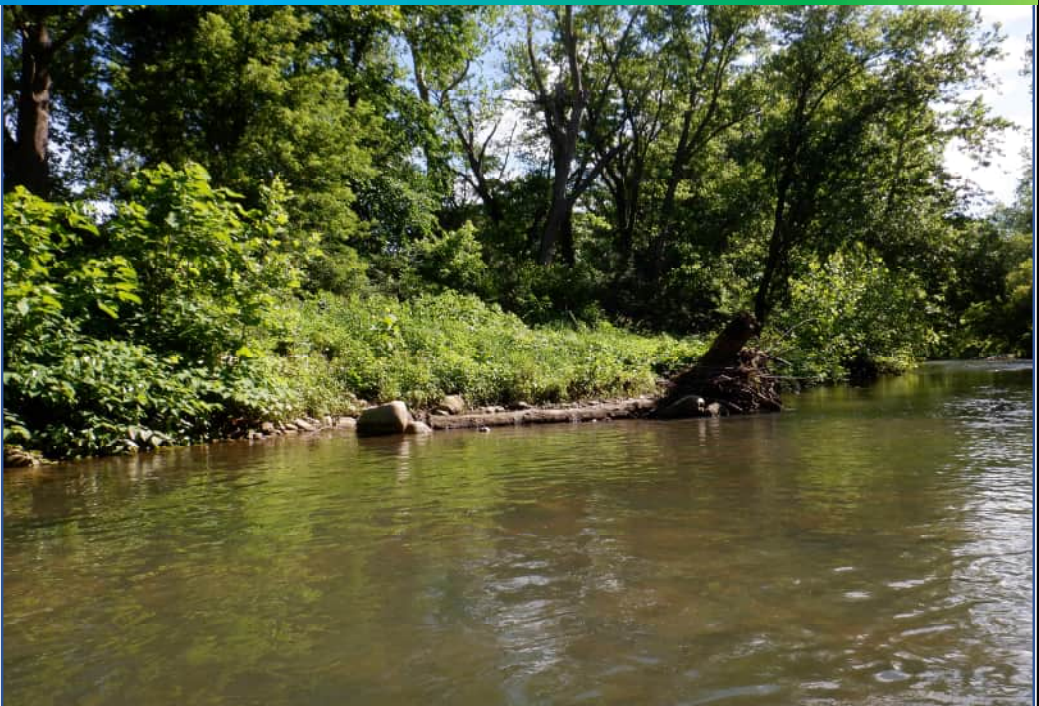
Photo Number: 33	Location: 00+850'
Date: 6/9/2022	
Direction: Northwest	
Description: Upstream view of remediated bank.	

Photo Number: 34	Location: 00+850'
Date: 6/9/2022	
Direction: Southeast	
Description: Downstream view of remediated bank; shifted LWD from 00+850 visible at 00+880.	

South River Photolog City Shops BMA Bank Monitoring Memo



Photo Number: 35	Location: 00+880'
Date: 6/9/2022	
Direction: Northwest	
Description: End of remediated bank; ~20° bank angle; LWD from 00+850 shifted here; vegetation well established above rock toe; no woody plants adjacent to edge of water; rock toe intact; no scour present along rock toe and lower bank.	

Photo Number: 36	Location: 00+880'
Date: 6/9/2022	
Direction: Southeast	
Description: Downstream view of non-remediated bank below BMA.	

Attachment B - Table 2
2022 Leaf-on Riparian Vegetation Plots
City Shops BMA
Former DuPont Waynesboro Site, Area of Concern 4

Vegetative Species		Absolute % Cover ¹
Scientific Name	Common Name	Spring
Tree/Vine Stratum		
<i>Acer negundo</i>	Box Elder	0-70
<i>Celastrus orbiculatus</i>	Oriental Bittersweet	0-60
<i>Juglans nigra</i>	Black Walnut	0-15
<i>Rhus typhina</i>	Staghorn Sumac	0-50
<i>Vitis vulpina</i>	Frost Grape	0-10
Sapling/Shrub Stratum		
<i>Acer rubrum</i>	Red Maple	0-2
<i>Betula nigra</i>	River Birch	0-10
<i>Catalpa speciosa</i>	Northern Catalpa	0-2
<i>Cornus sp.</i>	Dogwood sp.	0-5
<i>Elaeagnus umbellata</i>	Autumn Olive	0-2
<i>Fothergilla gardenii</i>	Dwarf Witch-alder	0-10
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	0-70
<i>Physocarpus opulifolius</i>	Atlantic Ninebark	0-10
<i>Platanus occidentalis</i>	American Sycamore	0-5
<i>Populus deltoides</i>	Eastern Cottonwood	0-5
<i>Rhus typhina</i>	Staghorn Sumac	0-20
<i>Senna marilandica</i>	Maryland Senna	0-20
Herbaceous Stratum		
<i>Acer negundo</i>	Box Elder	0-2
<i>Agrostis sp.</i>	Bentgrass	0-25
<i>Amaranthus spinosus</i>	Spiny Amaranth	0-40
<i>Andropogon gerardii</i>	Big Bluestem	15-30
<i>Barbarea vulgaris</i>	Yellow Rocket	0-5
<i>Brassica rapa</i>	Field Mustard	0-2
<i>Carex sp.</i>	Sedge sp.	0-60
<i>Chasmanthium latifolium</i>	Indian Woodoats	0-30
<i>Conoclinium coelestinum</i>	Blue Mistflower	0-1
<i>Convolvulus arvensis</i>	Field Bindweed	0-2
<i>Conyza canadensis</i>	Horseweed	0-5
<i>Coreopsis sp.</i>	Tickseed sp.	0-2
<i>Cynodon dactylon</i>	Bermuda Grass	0-2
<i>Cyperus esculentus</i>	Yellow Nutsedge	0-5
<i>Daucus carota</i>	Wild Carrot	0-2
<i>Elymus riparius</i>	Riverbank Wildrye	0-20
<i>Eupatorium perfoliatum</i>	Boneset	0-20
<i>Eurybia divaricata</i>	White Wood Aster	0-2
<i>Fallopia japonica</i>	Japanese Knotweed	0-5
<i>Galium sp.</i>	Bedstraw	0-5
<i>Lepidium virginicum</i>	Virginia Pepperweed	0-1
<i>Linaria vulgaris</i>	Butter-and-Eggs	0-5
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	0-30
<i>Oxalis stricta</i>	Common Yellow Woodsorrel	0-1
<i>Panicum virgatum</i>	Switchgrass	5-10

Attachment B - Table 2 (continued)
2022 Leaf-on Riparian Vegetation Plots
City Shops BMA
Former DuPont Waynesboro Site, Area of Concern 4

<i>Persicaria spp.</i>	Jumpseed (pink flower)	0-20
<i>Poa pratensis</i>	Kentucky Bluegrass	0-5
<i>Potentilla recta</i>	Sulphur Cinquefoil	0-1
<i>Ranunculus recurvatus</i>	Blisterwort	0-1
<i>Rumex spp.</i>	Sorrells/Docks	0-3
<i>Saponaria officinalis</i>	Soapwort	0-3
<i>Securigera varia</i>	Crownvetch	0-5
<i>Senna marilandica</i>	Maryland Senna	2-25
<i>Sonchus arvensis</i>	Perennial Sow-Thistle	0-2
<i>Trifolium repens</i>	White Clover	0-15
<i>Verbascum virgatum</i>	Wand Mullein	0-2
<i>Verbesina alternifolia</i>	Wingstem	0-15
<i>Vicia americana</i>	Purple Vetch	5-10

Notes:

1. Represents the range observed between two riparian vegetative survey plots per short-term monitoring station.

**Attachment B – Waynesboro Off-Site Cap Areas
Inspection Record Sheet
Maintenance Plan**

Location and property owner name: City Shops BMA		
Item	Status/Maintenance Needs	Repairs Needed?
Access Roads	NA	NA
Trails	Stairs intact, but completely covered in knotweed	2
Drainage Structures	Drainage structures intact	1
Outfall Structures	12" diameter outfall pipe at 00+350' in stable condition	1
Rip-Rap Protection	In good condition	1
Cap System Vegetative Cover	Plantings healthy: cap system is primarily covered in vegetation. Invasive knotweed prevalent throughout the BMA.	2
Cap System Geosynthetics	No geocell or erosion control fabric exposed due to degradation and vegetative cover. *LWD at locations 00+350' and 00+850' moved from original positions.	1
Cap System Slope Stability	Slope is consistent and stable along remediation	1
Cap System Subsidence	None observed	1
Fencing and Gates	Intact	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments:

*Two LWD features shifted downstream from 350' to 400' and 850' to 880'. Herbicide treatment is recommended for areas with Japanese knotweed.

Inspected by: Sarah Bartle and Bill Storm

Date: June 9, 2022

Attachment C
Allied Ready Mix BMA

Attachment C - Table 1
2022 Leaf-on Maintenance Inspection Log
Allied Ready Mix BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (B) ¹	Photo # (Attachment C)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁷	Notes	Scour Present (Y/N) ⁸	Notes	(Y/N)	Notes
00 + 20	1, 2	20	Y	None	NA	Invasive Japanese knotweed ~ 40% cover; Catalpa, Pokeweed and invasive Honeysuckle present	N	No woody plants adjacent to edge of water	NA	NA	NA	No fabric or geocell installed; upstream of remediation	N	Some scour associated with foot traffic along bank	N	None
00 + 00	3, 4	45	Y	None	NA	Vegetation established on slope; no evidence of live stakes, Jewelweed ~30% cover; Pokeweed, Curly Dock, large Elderberry shrub, grasses ~65% cover, one invasive Ailanthus sapling	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	Y	Some scour associated with foot traffic along bank; sand deposition above rock toe	N	None
00 + 50	5, 6	50	Y	None	NA	Minimal vegetation adjacent to water, no evidence of live stakes, Elderberry ~25% cover, Cut Leaf Coneflower ~5% cover, Jewelweed and Dogwoods ~25% cover, grasses ~55% cover	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	Y	Minimal scour present; sand deposition at toe of bank	N	None
00 + 100	7, 8, 9	50	Y	None	NA	Native herbaceous vegetation adjacent to water; live stakes 30% established, observed Box Elder, Jewelweed at toe ~25% cover, invasive Ailanthus sapling, Silver Maples, Sumacs, Willows, Dogwoods ~15% cover, and grasses making up remaining cover	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Scour at rock toe	N	None
00 + 150	10	50	Y	None	NA	Native herbaceous vegetation adjacent to water, live stakes ~60% established; also present: Elderberry ~30% cover, Dogwood ~30% cover, Sycamore, Elm, Jewelweed, and Willows	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	N	None
00 + 200	11	50	Y	None	NA	Native herbaceous vegetation established; live stakes ~70% established - Dogwoods and Willows, Elderberry ~60% cover, Jewelweed and Willows ~10% cover, intermixed grasses, and Dogwoods	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	N	None
00 + 250	12	50	Y	None	NA	Native herbaceous vegetation established; live stakes ~50% established, Sycamore sapling at top of slope, grasses ~70% cover, Willows, Elderberry ~20% cover, Jewelweed and Dogwood ~25% cover	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, no exposed soil	N	Sand deposition at toe of bank	N	None
00 + 300	13, 14	40	Y	None	NA	Native herbaceous vegetation established; live stakes ~40% established; jewelweed at toe; trampled grasses from improvised path on upstream portion of slope	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand and gravel deposition at toe of bank	N	None
00 + 350	15	50	Y	None	NA	Native herbaceous vegetation established; no evidence of live stakes; Elderberry; jewelweed at toe; pedestrian path at toe	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	N	None
00 + 400	16	50	Y	None	NA	Native vegetation established; no evidence of live stakes; Large patches of invasive Knotweed present on both sides of the outfall, Sycamore, Maple saplings at toe, mostly grasses ~80% cover; large Sycamore with Poison ivy, Willows	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, outfall pipe and drainage features intact, rock toe intact	N	Sand deposition at toe of bank	Y	Increased cover of Japanese knotweed present on both sides of outfall
00 + 450	17, 18	60	Y	None	NA	Bank completely covered in native vegetation; no evidence of live stakes; Nettle, Jewelweed, Elderberry ~30% cover, Catalpa sapling at toe	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	N	None
00 + 500	19	60	Y	None	NA	Bank completely covered in native vegetation; Willow stakes present; dead Sycamore with crack in trunk at top of slope is snapped in half; Elderberry ~5% cover	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	Y	Dead Sycamore tree is snapped in half
00 + 550	20, 21	50	N	Lower bank: ~30 degrees Upper bank: ~50 degrees	NA	Bank completely covered in native vegetation; no evidence of live stakes; Grasses ~75% cover, Elderberry ~30% cover, small Sycamore and Maples establishing at toe of slope, Catalpa sapling, Jewelweed and Curly Dock at toe	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible; LWD from dead tree that snapped in half at 00+500'	N	Sand deposition at toe of bank	Y	New LWD from dead Sycamore snapped in half at 00+500'
00 + 600	22	45	N	Lower bank: ~30 degrees Upper bank: ~45 degrees	NA	Bank completely covered in native vegetation; no evidence of live stakes; grasses are dominant, Sycamores at top of slope, Soft Rush, Nettle and Maples at toe	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	N	None
00 + 650	23	45	N	Lower bank: ~30 degrees Upper bank: ~45 degrees	NA	Bank completely covered in native vegetation; no evidence of live stakes; grasses ~80% cover, Soft Stem Bulrush, Mint, Catalpa, Sycamore sapling, small Maples at toe of slope	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	N	None

Attachment C - Table 1
2022 Leaf-on Maintenance Inspection Log
Allied Ready Mix BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (ft) ¹	Photo # (Attachment C)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	(Y/N)	Notes
00 + 700	24, 25, 26	45	N	Lower bank: ~30 degrees Upper bank: ~45 degrees	NA	Bank completely covered in native vegetation; no evidence of live stakes; small Sycamores, Willows, and Maples at toe of slope, Nettle, grasses are dominant	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Sand deposition at toe of bank	N	None
00 + 750	27, 28	45	N	Lower bank: ~30 degrees Upper bank: ~45 degrees	NA	Bank completely covered in native vegetation; no evidence of live stakes; Trampled vegetation from walking path to river, grasses are dominant, along with Nighthade and Nettles, knotweed 3% cover, 5 large Sycamores on bank, Red Maples at toe	N	No at-risk trees present in remediated area	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, improvised access path present	N	None	Y	Small patch of Japanese knotweed present
00 + 1250	29, 30	20	N	Non-remediated upstream section: ~80 degrees Remediated section: ~40 degrees	H	Exposed roots just upstream of remediated bank; no evidence of live stakes; large patches of invasive knotweed present by rip rap edge upstream (~85% cover), Jewelweed ~15% cover, increased pedestrian access and a new rope swing chair hanging from Box Elder over water	Y	One large Box elder tree just upstream of remediated bank; scour present around roots	Y (Rock Toe)	NA	NA	Entirely rip rap portion of bank; remediation downstream	Y	Scour under box elder tree and upstream of remediated section	N	None
00 + 1300	31, 32	20	Y	Fortified tributary channel	NA	Native vegetation established; no evidence of live stakes; invasive Japanese knotweed present ~80% cover along rip-rap, Jewelweed at ~20% cover, also present are Willows, Elderberry, and Sycamore saplings	N	No at-risk trees present	Y (Rock Toe)	NA	NA	Entirely rip rap portion of bank	N	Sediment deposition by rock toe	N	None
00 + 1350	33	50	Y	None	NA	Native herbaceous vegetation established; no evidence of live stakes; Box Elder dominant, Jewelweed and grasses are dominant ~90% cover, large Silver Maple at top of slope	N	No at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	N	None
00 + 1400	34, 35	50	Y	None	NA	Native herbaceous vegetation established; no evidence of live stakes; Catalpa saplings present on slope, no knotweed, Curly Dock, Jewelweed and grasses are ~95% cover, Catalpa sapling at-risk	N	No large at-risk trees present	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	N	None
00 + 1450	36, 37	80	N	Lower bank: ~45 degrees Upper bank: ~80 degrees	NA	Native herbaceous vegetation establishing; no evidence of live stakes, mature Black Walnuts create canopy, grasses are dominant ~95% cover	N	No at-risk trees present	Y (Rock Toe)	N	N	End of remediated section, no erosion control or geocell visible; Rip rap fortified bank abutment intact	Y	Slight scour at rock toe, erosion observed downstream of station	Y	Vegetation filling in and covering eroded bank and rock toe, no fabric exposed
00 + 1500	38	90	Y	Bank heavily undercut downstream of remediation	H	Severe root exposure downstream of remediated bank; erosion is too severe for vegetation to establish around rock toe, vegetation established at top of slope is dominated by mature Black Walnuts, Sycamores, Honeysuckle bush, no knotweed present	Y	High density of at-risk trees downstream of remediated bank	NA	NA	NA	No fabric or geocell installed; downstream of remediation	Y	Heavy erosion present downstream of remediated BMA	Y	Additional severe bank erosion

Notes:

- Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
- A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
- The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
- At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
- Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor). As of Spring 2022 almost all of the fabric and geocell is either degraded or fully covered by vegetation
- The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)
- Grey shaded cells are portions of the bank that were not remediated

South River Photolog Allied Ready BMA Bank Monitoring Memo


Photo Number: 01		Location: 00-20'	
Date: 6/9/2022			
Direction: Southeast			
Description: Non-remediated section directly upstream of remediation; ~20° bank angle; invasive knotweed 40% cover; no woody plants adjacent to edge of water; no fabric or geocell installed; Some scour associated with foot traffic along bank.			

Photo Number: 02		Location: 00-20'	
Date: 6/9/2022			
Direction: Northeast			
Description: Downstream view from non-remediated section under 2 nd Street overpass.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 03	Location: 00+00'
Date: 6/9/2022	
Direction: Southeast	
Description: ~45° bank angle; start of 1 st remediation section; herbaceous vegetation fully established; no at-risk trees present; invasive <i>Ailanthus altissima</i> saplings; rock toe intact with sand deposition above; some scour associated with foot traffic along bank; erosion control fabric and geocell no longer exposed.	

Photo Number: 04	Location: 00+00'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view from beginning of remediated area.	

South River Photolog Allied Ready BMA Bank Monitoring Memo



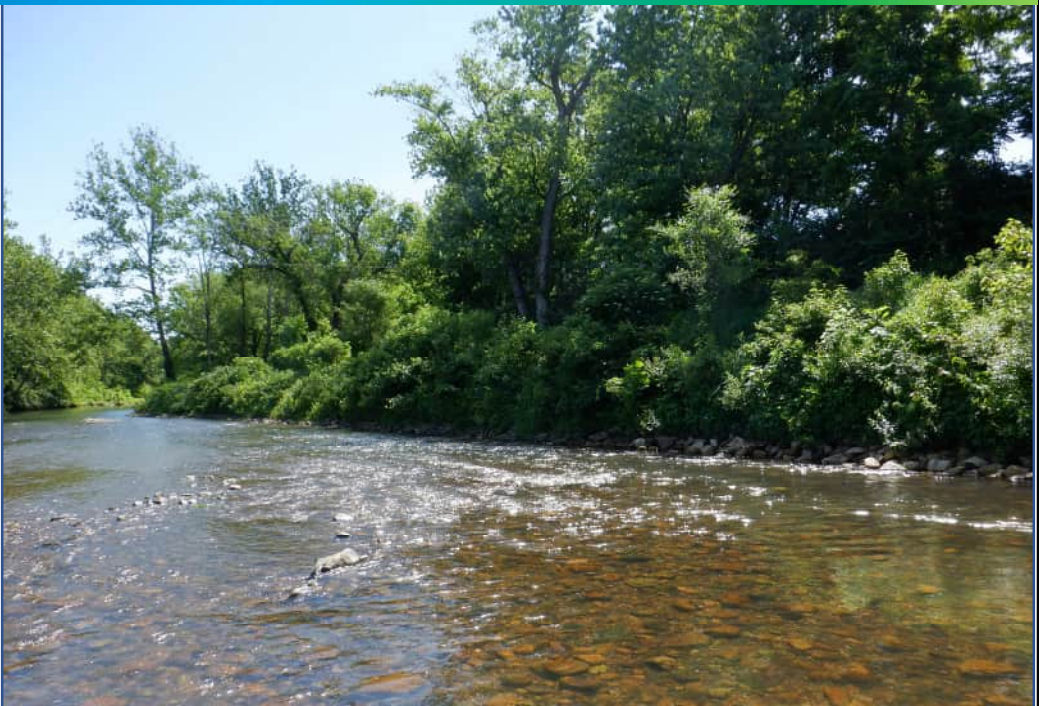
Photo Number: 05		Location: 00+50'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~50° bank angle; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; scour present where fabric is torn; sand deposition at toe of bank.			

Photo Number: 06		Location: 00+50'	
Date: 6/9/2022			
Direction: Northeast			
Description: Downstream view of remediated bank.			

South River Photolog Allied Ready BMA Bank Monitoring Memo

Photo Number: 07		Location: 00+100'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~50° bank angle; few live stakes observed; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact.			

Photo Number: 08		Location: 00+100'	
Date: 6/9/2022			
Direction: Northeast			
Description: Downstream view of remediated bank.			

South River Photolog Allied Ready BMA Bank Monitoring Memo


Photo Number: 09		Location: 00+100'	
Date: 6/9/2022			
Direction: Southwest			
Description: Upstream view of remediated bank.			

Photo Number: 10		Location: 00+150'	
Date: 6/9/2022			
Direction: East			
Description: ~50° bank angle; live stakes 60% established; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; erosion control fabric and geocell no longer exposed.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 11		Location: 00+200'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~50° bank angle; live stakes 70% established; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank; erosion control fabric no longer exposed.			

Photo Number: 12		Location: 0+250'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~50° bank angle; live stakes 50% established; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank; erosion control fabric no longer exposed.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 13	Location: 00+300'
Date: 6/9/2022	
Direction: Southeast	
Description: ~50° bank angle; live stakes 40% established; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.	

Photo Number: 14	Location: 00+300'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of remediated bank.	

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 15		Location: 00+350'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~50° bank angle; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; footpath; sand deposition at toe of bank.			

Photo Number: 16		Location: 00+400'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~50° bank angle; large patches of invasive knotweed surrounding outfall; native herbaceous vegetation established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 17		Location: 00+450'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~60° bank angle; native herbaceous vegetation fully established; no at- risk trees present; rock toe intact; sand deposition at toe of bank.			

Photo Number: 18		Location: 00+450'	
Date: 6/9/2022			
Direction: Southwest			
Description: Upstream view of remediated bank.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



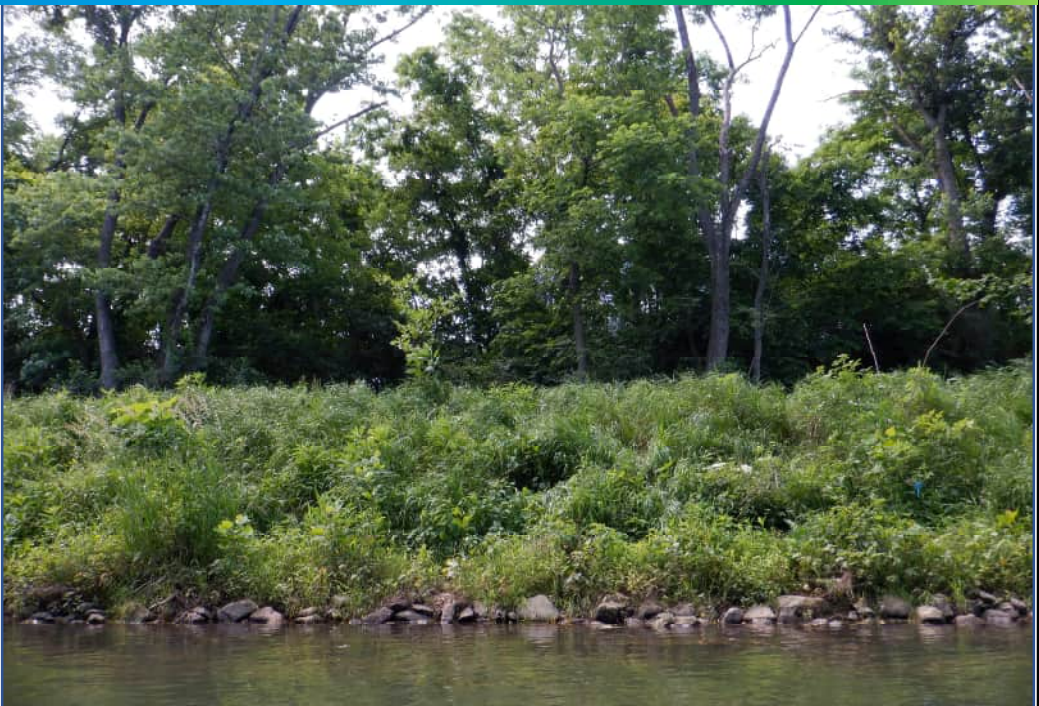
Photo Number: 19		Location: 00+500'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~60° bank angle; no live stakes observed; native herbaceous vegetation fully established; no at-risk trees present; new LWD downstream from tree on upper bank snapping in half; rock toe intact; sand deposition at toe of bank and above rock toe.			

Photo Number: 20		Location: 00+550'	
Date: 6/9/2022			
Direction: Southeast			
Description: Lower bank ~30°; upper bank ~50°; no live stakes observed; native herbaceous vegetation fully established; no at-risk trees present; new LWD from tree at top of bank at 00+500 snapping in half; rock toe intact; sand deposition at toe of bank.			

South River Photolog Allied Ready BMA Bank Monitoring Memo

Photo Number: 21	Location: 00+550'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of remediated bank.	

Photo Number: 22	Location: 00+600'
Date: 6/9/2022	
Direction: Southeast	
Description: Lower bank ~30°; upper bank ~45°; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.	

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 23		Location: 00+650'	
Date: 6/9/2022			
Direction: Southeast			
Description: Lower bank ~30°; upper bank ~45°; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			

Photo Number: 24		Location: 00+700'	
Date: 6/9/2022			
Direction: Southeast			
Description: Lower bank ~30°; upper bank ~45°; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 25		Location: 00+700'
Date: 6/9/2022		
Direction: Northeast		
Description: Downstream view off the end of the first remediated bank section.		

Photo Number: 26		Location: 00+700'
Date: 6/9/2022		
Direction: Southwest		
Description: Upstream view of remediated bank.		

South River Photolog Allied Ready BMA Bank Monitoring Memo


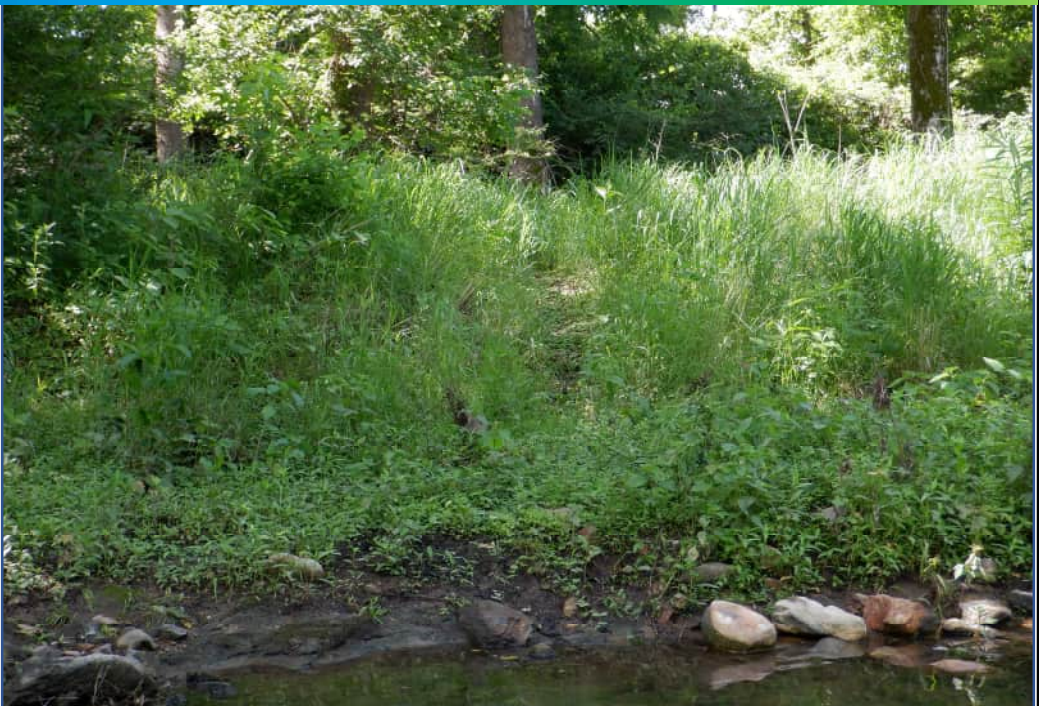
Photo Number: 27	Location: 00+750'
Date: 6/9/2022	
Direction: Southeast	
Description: End of first remediated section; lower bank ~30°; upper bank ~45°; native herbaceous vegetation fully established; no at-risk trees in remediated area; rock toe intact; sand deposition at toe of bank; footpath present.	

Photo Number: 28	Location: 00+750'
Date: 6/9/2022	
Direction: East	
Description: View of trampled grasses caused by improvised footpath at end of first remediated section.	

South River Photolog Allied Ready BMA Bank Monitoring Memo


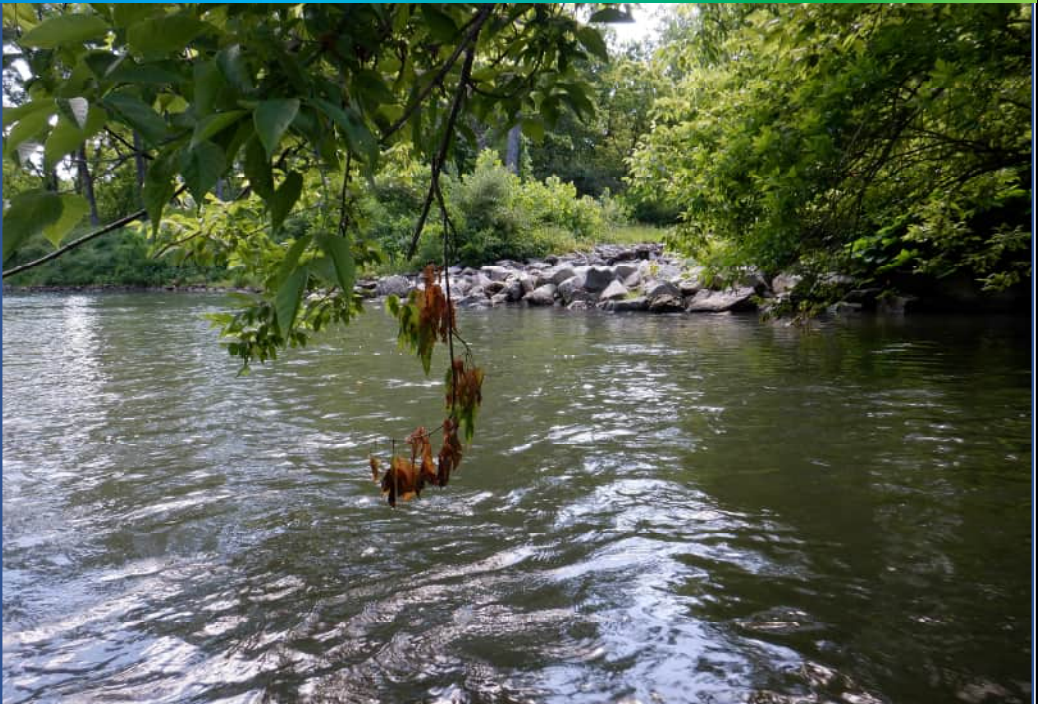
Photo Number: 29	Location: 00+1250'
Date: 6/9/2022	
Direction: Southeast	
Description: Start of 2 nd remediated section; bank angle non-remediated upstream section ~80°; remediated section ~40°; exposed roots just upstream of remediated bank; native herbaceous vegetation fully established; one large at-risk tree just upstream of remediated bank.	

Photo Number: 30	Location: 00+1250'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view from beginning of second remediated area; entirely rip-rap portion of bank at start of second remediated section.	

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 31	Location: 00+1300'
Date: 6/9/2022	
Direction: Southeast	
Description: ~30° bank angle; fortified tributary channel; entirely rip-rap portion of bank; large patches of invasive knotweed along rip-rap section; vegetation established around rock toe; sediment deposition by rock toe.	

Photo Number: 32	Location: 00+1300'
Date: 6/9/2022	
Direction: Northeast	
Description: Downstream view of remediated bank.	

South River Photolog Allied Ready BMA Bank Monitoring Memo


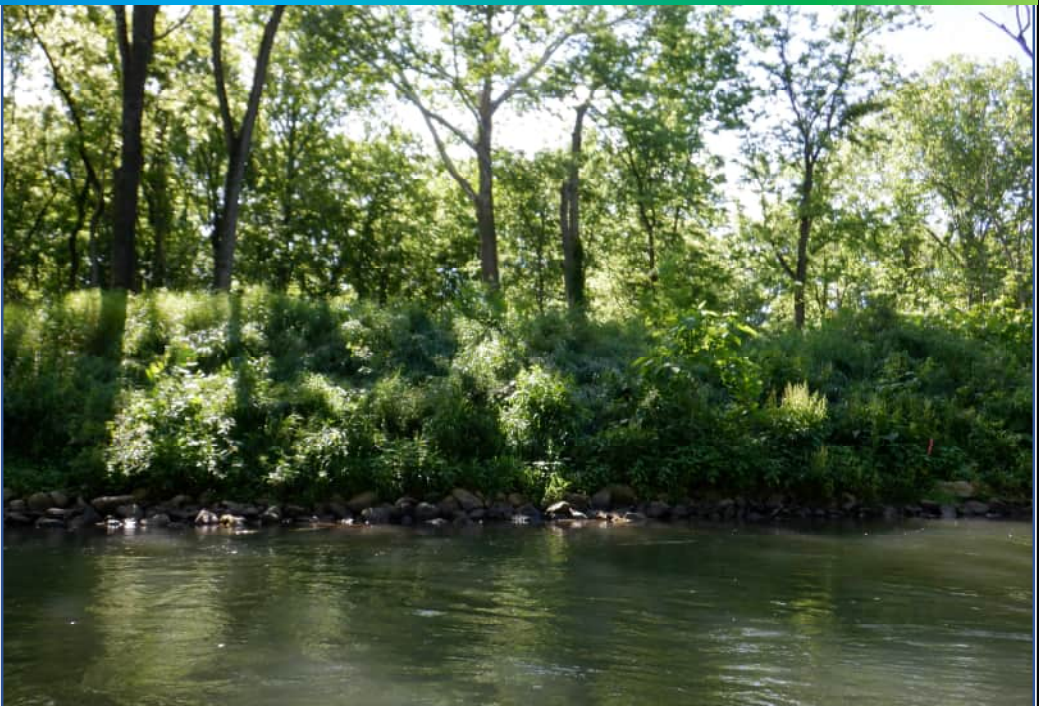
Photo Number: 33		Location: 00+1350'	
Date: 6/9/2022			
Direction: East			
Description: ~50° bank angle; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact.			

Photo Number: 34		Location: 00+1400'	
Date: 6/9/2022			
Direction: Southeast			
Description: ~50° bank angle; native herbaceous vegetation fully established; no at-risk trees present; rock toe intact.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 35		Location: 00+1400'	
Date: 6/9/2022			
Direction: Northeast			
Description: Downstream view of remediated bank and start to non-remediated section.			

Photo Number: 36		Location: 00+1450'	
Date: 6/9/2022			
Direction: East			
Description: ~80° bank angle; end of 2 nd remediation section; rip-rap fortified bank abutment intact; native herbaceous vegetation fully established and starting to grow in rip-rap section; heavy erosion present downstream of remediated BMA.			

South River Photolog Allied Ready BMA Bank Monitoring Memo



Photo Number: 37		Location: 00+1450'	
Date: 6/9/2022			
Direction: Southeast			
Description: Downstream view of end of 2 nd remediated section; bank heavily undercut downstream of remediation; severe root exposure downstream of remediated bank; high density of at-risk trees downstream of remediated bank.			

Photo Number: 38		Location: 00+1500'	
Date: 6/9/2022			
Direction: East			
Description: ~90° bank angle; non-remediated section at end remediated bank; native herbaceous vegetation fully established; severe erosion present downstream of remediated BMA; severe root exposure downstream of remediated bank; high density of at-risk trees downstream of remediated bank.			

Attachment C - Table 2
2022 Leaf-on Riparian Vegetation Plots
Allied Ready Mix BMA
Former DuPont Waynesboro Site, Area of Concern 4

Vegetative Species		Absolute % Cover ¹
Scientific Name	Common Name	Spring
Tree/Vine Stratum		
<i>Acer saccharinum</i>	Silver Maple	30-50
<i>Celastrus orbiculatus</i>	Oriental Bittersweet	0-15
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	0-20
<i>Platanus occidentalis</i>	American Sycamore	0-5
<i>Toxicodendron radicans</i>	Poison Ivy	0-10
Sapling/Shrub Stratum		
<i>Acer rubrum</i>	Red Maple	0-15
<i>Acer saccharinum</i>	Silver Maple	1-15
<i>Ailanthus altissima</i>	Tree of Heaven	0-5
<i>Betula nigra</i>	River Birch	0-5
<i>Cornus alba</i>	Tatarian Dogwood	0-15
<i>Cornus racemosa</i>	Gray Dogwood	0-5
<i>Elaeagnus umbellata</i>	Autumn Olive	0-15
<i>Lonicera japonica</i>	Japanese Honeysuckle	0-5
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	0-35
<i>Physocarpus opulifolius</i>	Atlantic Ninebark	1-5
<i>Platanus occidentalis</i>	American Sycamore	0-20
<i>Populus deltoides</i>	Eastern Cottonwood	0-10
<i>Prunus sp.</i>	Cherry sp.	0-2
<i>Rubus fruticosus</i>	Blackberry	0-5
<i>Rubus spp.</i>	Raspberry	0-3
<i>Salix nigra</i>	Black Willow	0-20
<i>Sambucus spp.</i>	Elderberry	0-40
<i>Ulmus pumila</i>	Siberian Elm	0-5
Herbaceous Stratum		
<i>Acer rubrum</i>	Red Maple	0-5
<i>Alliaria petiolata</i>	Garlic Mustard	0-5
<i>Amaranthus spinosus</i>	Spiny Amaranth	0-2
<i>Andropogon gerardii</i>	Big Bluestem	2-0
<i>Arctium minus</i>	Lesser Burdock	2-25
<i>Axonopus spp.</i>	Carpet Grass	10-20
<i>Carex sp.</i>	Sedge sp.	0-3
<i>Chasmanthium latifolium</i>	Indian Woodoats	20-30
<i>Cirsium sp.</i>	Thistle sp.	0-1
<i>Dichanthelium clandestinum</i>	Deertongue Grass	1-5
<i>Elymus riparius</i>	Riverbank Wildrye	35-90
<i>Eupatorium perfoliatum</i>	Common Boneset	0-5
<i>Eurybia divaricata</i>	White Wood Aster	0-2
<i>Eutrochium purpureum</i>	Joe-Pye Weed	2-0
<i>Fallopia japonica</i>	Japanese Knotweed	10-70
<i>Galium aparine</i>	Bedstraw	0-40
<i>Impatiens capensis</i>	Jewelweed	15-70
<i>Lepidium campestre</i>	Field Pepperweed	0-1
<i>Lespedeza thunbergii</i>	Thunberg's Lespedeza	0-1
<i>Microstegium vimineum</i>	Japanese Stiltgrass	0-10

Attachment C - Table 2 (continued)
2022 Leaf-on Riparian Vegetation Plots
Allied Ready Mix BMA
Former DuPont Waynesboro Site, Area of Concern 4

<i>Panicum virgatum</i>	Switchgrass	0-5
<i>Perilla frutescens</i>	Beefsteak Plant	0-40
<i>Persicaria pensylvanica</i>	Pennsylvania Smartweed	1-25
<i>Phytolacca americana</i>	Pokeberry	0-1
<i>Pilea pumila</i>	Clearweed	0-2
<i>Rosa multiflora</i>	Multiflora Rose	5-0
<i>Rumex obtusifolius</i>	Broad-Leaved Dock	0-3
<i>Salix sp. (live stakes)</i>	Willow sp.	1-5
<i>Securigera varia</i>	Crownvetch	0-10
<i>Senna marilandica</i>	Maryland Senna	0-20
<i>Solidago spp.</i>	Goldenrod sp.	0-5
<i>Sorghastrum nutans</i>	Indiangrass	0-2
<i>Tridens flavus</i>	Purpletop Grass	0-10
<i>Trifolium repens</i>	White Clover	0-10
<i>Verbascum thapsus</i>	Great Mullein	0-5
<i>Verbesina alternifolia</i>	Wingstem	5-0
<i>Vicia americana</i>	Purple Vetch	1-5
<i>Vicia sativa</i>	Common Vetch	0-1

Notes:

1. Represents the range observed between two riparian vegetative survey plots per short-term monitoring station.

**Attachment C - Waynesboro Off-Site Cap Areas
Inspection Record Sheet
Maintenance Plan**

Location and property owner name: Allied Ready Mix BMA		
Item	Status/Maintenance Needs	Repairs Needed?
Access Roads	Some wash-out of gravel access road near fortified tributary channel; end of access road beginning to become overgrown	1
Trails	Some improvised civilian pathways present near upstream and downstream portions of BMA	1
Drainage Structures	Drainage structures intact	1
Outfall Structures	Outfall structures intact at 00+400'	1
Rip-Rap Protection	Rip rap at 00+1300' and around outfall structure at 00+400' intact and in good condition	1
Cap System Vegetative Cover	Installed live stakes 40-70% established along the bank from 00+50' to 00+350', other areas have few stakes visible; native vegetation has covered most of the erosion control fabric, particularly in the downstream portion of the BMA; foot traffic appears to hamper growth and caused localized bare areas upstream; Japanese knotweed is present throughout	2
Cap System Geosynthetics	No erosion control fabric or geocell visibly exposed from the river and vegetation appears healthy and well established	1
Cap System Slope Stability	Slope is generally consistent and stable along the remediated portion of the BMA. Heavy erosion present downstream of the last remediated section of the BMA	1
Cap System Subsidence	No cap system subsidence observed	1
Fencing and Gates	Intact	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments: Herbicide treatment is recommended for the areas with Japanese knotweed

Inspected by: Sarah Bartle and Bill Storm

Date: June 9, 2022

Attachment D
Shiloh Baptist Church BMA

Attachment D - Table 1
2022 Leaf-On Maintenance Inspection Log
Shiloh Baptist Church BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (B) ¹	Photo # (Attachment D)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	Y/N	Notes
00 + 25	1	30	Y	None	M	Significant vegetation, exposed roots along bank; Slippery Elm; Sycamores; invasive Knotweed ~30%; Access pathways present	Y	Small Sycamore at-risk	N	NA	NA	Upstream of remediation	Y	Minimal scour present	N	None
00 + 00	2, 3, 4	30	Y	None	NA	Significant vegetation established; live stakes and plantings not established; invasive Knotweed ~50% cover	N	Top half of Slippery Elm upstream is dead	Y (Rock Toe)	N	N	No geocell visible; culvert just upstream of remediation in fair condition	N	No evidence of sediment deposition	Y	Increased abundance of Japanese knotweed downstream of outfall
00 + 50	5, 6	65	Y	None	NA	Herbaceous vegetation establishing; live stakes not established; Jewelweed and many Elms establishing, no invasive vegetation, sediment deposition observed	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, rock toe intact	N	Evidence of sediment deposition	N	None
00 + 100	7, 8, 9	50	N	Lower bank: ~40 degrees Upper bank: ~60 degrees	NA	Herbaceous vegetation establishing; grasses are dominant; Jewelweed and Elms at toe, live stakes not established, footpath observed, no invasive vegetation	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	N	None
00 + 150	10, 11	50	N	Lower bank: ~40 degrees Upper bank: ~60 degrees Above GW: ~60 degrees	NA	Herbaceous vegetation establishing; live stakes not established; jewelweed, elms establishing; large patches of knotweed on bank above greenway	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	N	None
00 + 200	12	65	N	Lower bank: ~40 degrees Upper bank: ~60 degrees Above GW: ~70 degrees	NA	Herbaceous vegetation establishing; live stakes not established; herbaceous vegetation establishing above Greenway; Maples, Elms, Oaks, and Catalpa saplings and Jewelweed growing around and in rock toe	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, greenway is intact, newly installed corrugated drainage pipe present	N	Evidence of sediment deposition	Y	Corrugated drainage pipe installed under Greenway
00 + 250	13, 14, 15	55	N	Lower bank: ~45 degrees Upper bank: ~65 degrees Above GW: ~70 degrees	NA	Herbaceous vegetation establishing; live stakes not established; vegetation above Greenway impacted by construction; planted shrubs intact; invasive knotweed establishing in rock toe	N	No trees adjacent to edge of water.	Y (Extensive Rock Toe)	N	N	No erosion control fabric or geocell visible, greenway is intact, newly installed corrugated drainage pipe present	N	Evidence of sediment deposition	Y	Corrugated drainage pipe installed under Greenway
00 + 300	16, 17	65	N	Lower bank: ~45 degrees Upper bank: ~80 degrees Above GW: ~70 degrees	NA	Herbaceous vegetation establishing; live stakes not established; invasive princess tree growing quickly; grasses dominant above rock toe; vegetation above Greenway impacted by construction; planted saplings and shrubs intact; knotweed establishing in rock toe: ~5% cover	N	No trees adjacent to edge of water	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	Y	Invasive princess tree growing quickly, patch of knotweed is larger
00 + 350	18	50	Y	None	NA	Grasses establishing around outfall; grasses are dominant; Jewelweed, Elderberry, Sycamore, Silver Maple, Virginia Creeper and Elms also present; Japanese knotweed ~2% cover	N	No trees adjacent to edge of water	Y (Rock Toe)	N	N	Entirely riprap; large plastic corrugated pipe and Armor flex mat installed and intact	N	Gravel deposition below outfall; sediment deposits at 00+325; no scour	N	None
00 + 400	19, 20	50	N	Lower bank: ~45 degrees Upper bank: ~50 degrees	NA	Dense herbaceous vegetation establishing; saplings and shrub plantings intact and establishing; Pokeberry, dying Black Walnut, Box Elder, Sycamore saplings, minimal Knotweed	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition between rocks	N	None
00 + 450	21, 22	50	N	Lower bank: ~45 degrees Upper bank: ~55 degrees	NA	Dense herbaceous vegetation established; Saplings and shrub plantings intact and establishing; Grasses are dominant; Elderberry is dominant in shrub stratum; invasive Princess trees	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	N	None
00 + 500	23, 24, 25	55	N	Lower bank: ~45 degrees Upper bank: ~65 degrees	NA	Dense herbaceous vegetation established on non-restored bank; Saplings and shrub plantings intact and establishing; No live stake growth; Elderberry ~10% cover, Thistle ~30% cover, invasive Knotweed ~20% cover	N	None	Y (Rock Toe)	N	Y	Erosion control fabric visible by new cobbles, more rocks and rip-rap on bank downstream due to construction damage, no geocell visible	N	Evidence of sediment deposition	Y	Rocks and rip-rap placed on upper bank for support after it failed during construction, the end of this location is the beginning of the bank that previously failed and was restored
00 + 550	26, 27	65	N	Lower bank: ~60 degrees Upper bank: ~70 degrees	NA	Dead grasses dominant; Jewelweed at toe of slope; bank failed in 2020 - was repaired and replanted with grass mix; grass mix has not established, some herbaceous vegetation established: ~20% vegetation cover	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	Y	Grass did not establish so restored bank is primarily dead grass with limited herbaceous vegetation
00 + 600	28	55	Y	None	NA	Dead grasses dominant; Jewelweed at toe of slope; Bank failed in 2020 - was repaired and replanted with grass mix, grass mix has not established, some herbaceous vegetation established: ~40% vegetation cover	N	Possible Sycamore at future risk adjacent to edge of water	Y (Rock Toe)	Y	N	Geocell exposed on bare soil at top of restored bank, no fabric exposed	N	Evidence of sediment deposition	Y	Grass did not establish so restored bank is primarily dead grass with limited herbaceous vegetation, geocell exposed at top of bank
00 + 650	29	65	N	Lower bank: ~60 degrees Upper bank: ~70 degrees	NA	Herbaceous vegetation established with few patches of bare soil; saplings and shrub plantings establishing; growth observed on Willow live stakes; sparse Knotweed in rock toe; Cherry sapling; 2 Sycamore trees; Jewelweed and grasses dominant	Y	Sycamore potentially "at-risk"	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, patches of bare soil present	N	Evidence of sediment deposition	N	None

Attachment D - Table 1
2022 Leaf-On Maintenance Inspection Log
Shiloh Baptist Church BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (ft) ¹	Photo # (Attachment D)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	Y/N	Notes
00 + 700	30, 31, 32	50	Y	None	NA	Herbaceous vegetation established; saplings and shrub plantings intact and establishing, slight scour on bank, Jewelweed and grasses dominant, ~1% Honeysuckle cover, Locust saplings, patches of exposed soil	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, patches of bare soil present, surface water runoff at top of bank	N	Evidence of sediment deposition	N	None
00 + 750	33	60	Y	None	NA	Dense herbaceous vegetation established; grasses are dominant ~95% cover, large Sycamore, Jewelweed and Elderberry; no live stake growth, saplings and shrub plantings intact and establishing	N	Possible Sycamore at future risk, adjacent to edge of water	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	N	None
00 + 800	34	65	Y	None	NA	Dense herbaceous vegetation established; grasses are dominant; no live stakes observed; Jewelweed ~25% cover; Sycamore	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	N	None
00 + 850	35	75	Y	None	NA	Dense herbaceous vegetation established; grasses are dominant; Elms, Honeysuckle, Goldenrod, Pokeberry, Elderberry, Jewelweed well established in rock toe	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition	N	None
00 + 900	36	70	Y	None	NA	Dense herbaceous vegetation established; grasses are ~95% cover; two large Black Walnuts: one is dying, Locust sapling, Pokeberry, Jewelweed at toe	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	Evidence of sediment deposition at toe of slope	N	None
00 + 950	37	65	N	Lower bank: ~70 degrees Upper bank: ~60 degrees	NA	Dense herbaceous vegetation established; grasses are dominant; Jewelweed, Pokeweed, large Black Walnut, Silver Maple, saplings and shrub plantings intact and establishing; sparse Knotweed in rock toe	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	No evidence of sediment deposition	N	None
00 + 975	38, 39, 40, 41	60	Y	End of remediation	NA	Dense herbaceous vegetation established; non-remediated area has established vegetative cover- Sycamore saplings, Chokeberry, Boneset, Honeysuckle, grasses are dominant, no Knotweed	Y	Exposed roots and at-risk trees present downstream of remediation	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, cobble rip rap added to top of bank near Greenway during construction	Y	No evidence of sediment deposition; scour present downstream of remediation	Y	Cobbles put in place during construction
Shiloh Baptist Church Parking Lot	42, 43	5	Y	None	NA	No exposed roots around parking lot; shrubs, herbaceous vegetation, and grasses growing around perimeter and are being maintained except around the south edge, exposed soil around repaired corrugated pipe on bank above GW behind parking lot	N	No trees around perimeter of parking lot	NA	NA	NA	Parking lot and stairway intact	N	None	Y	Second season for parking lot inspection

- Notes:**
- Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
 - A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
 - The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
 - At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
 - Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
 - Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor). As of Spring 2022 almost all of the fabric and geocell is either degraded or fully covered by vegetation
 - The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)
 - Grey shaded cells are portions of the bank that were not remediated
 - Greenway extension is under construction above remediated bank causing rocks and bare soil to become exposed. This also led to fabric and geocell exposure in areas where they are not yet degraded.

South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo



Photo Number: 01	Location: 00-25'
Date: 6/7/2022	
Direction: West	
Description: ~ 30° bank angle; level shelf mid-bank but grade above and below are the same; some vegetation; exposed roots along bank; access pathways present; invasive knotweed 30% cover; small sycamore at-risk; upstream of remediation; minimal scour present.	

Photo Number: 02	Location: 00+00'
Date: 6/7/2022	
Direction: West	
Description: ~ 45° bank angle; minimal grasses established; invasive knotweed 50% cover; top half of Slippery Elm adjacent to river upstream is dead; culvert just upstream of remediation; evidence of sediment deposition in rock toe under concrete by culvert.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**

Photo Number: 03

Location: 00-00'

Date: 6/7/2022

Direction: South

Description:
Upstream view from the beginning of the remediated bank.



Photo Number: 04

Location: 00+00'

Date: 6/7/2022


Direction: North

Description:
Downstream view of the remediated bank from the beginning of the remediation.



**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**

Photo Number: 05		Location: 00+50'	
Date: 6/7/2022			
Direction: West			
Description: ~ 65° bank angle; minimal grasses established; vegetation 95% cover; sycamore sapling and several Elm saplings establishing; rock toe intact; evidence of sediment deposition in rock toe.			

Photo Number: 06		Location: 00+50'	
Date: 6/7/2022			
Direction: South			
Description: Upstream view of remediated bank.			

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 07	Location: 00+100'
Date: 6/7/2022	
Direction: West	
Description: ~ 50° bank angle; lower bank ~40°; upper bank ~60°; vegetation 95% cover; several elm saplings establishing on bank; rock toe intact; footpath present; evidence of sediment deposition in rock toe.	

Photo Number: 08	Location: 00+100'
Date: 6/7/2022	
Direction: South	
Description: Upstream view of remediated bank.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**

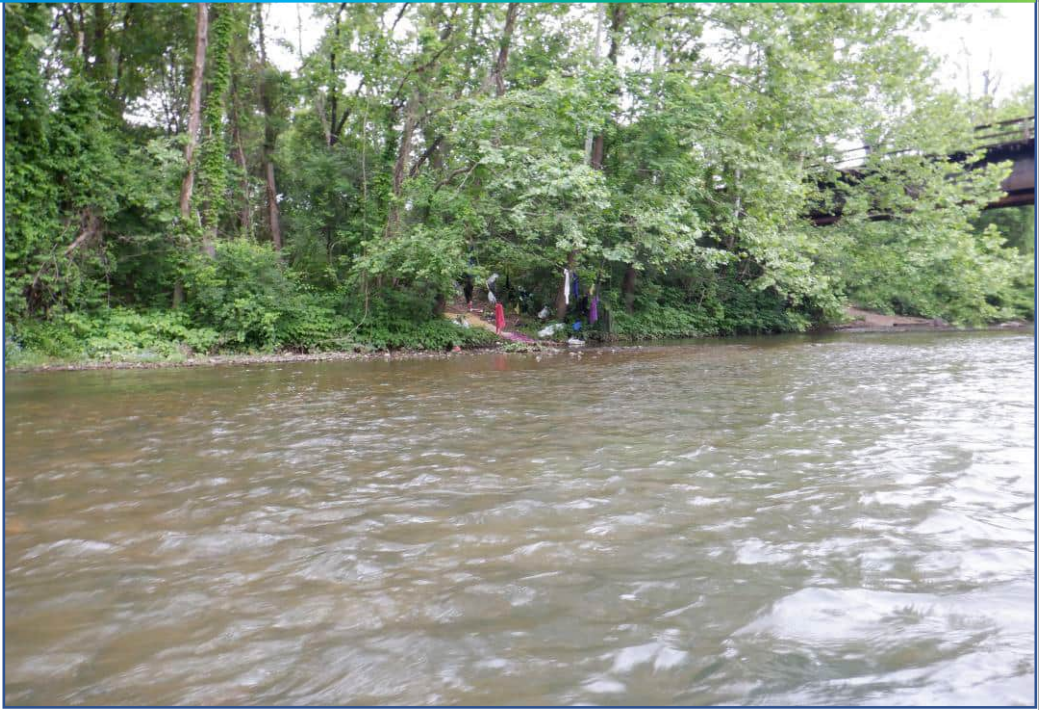

Photo Number: 09	Location: 00+100'
Date: 6/7/2022	
Direction: East	
Description: View of bank opposite to remediated bank.	

Photo Number: 10	Location: 00+150'
Date: 6/7/2022	
Direction: West	
Description: ~ 50° bank angle; lower bank ~40°; upper bank ~60°; Above GW ~60°; large patches of knotweed completely cover bank above GW; vegetation 95% cover; several elm saplings adjacent to edge of water; evidence of sediment deposition in rock toe.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 11	Location: 00+150'
Date: 6/7/2022	
Direction: North	
Description: Downstream view of remediated bank.	

Photo Number: 12	Location: 00+200'
Date: 6/7/2022	
Direction: West	
Description: ~ 65° bank angle; lower bank ~40°; upper bank ~60°; Above GW ~70°; vegetation 95% cover; maple and elm saplings adjacent to edge of water; rock toe intact; evidence of sediment deposition in rock toe.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 13		Location: 00+250'	
Date: 6/7/2022			
Direction: West			
Description: ~ 65° bank angle; lower bank ~45°; upper bank ~65°; above GW ~70°; vegetation 95% cover; invasive knotweed establishing in rock toe; vegetation above GW impacted by construction; rock toe intact; plastic corrugated pipe exposed on bank above GW.			

Photo Number: 14		Location: 00+250'	
Date: 6/7/2022			
Direction: South			
Description: Upstream view of remediated bank.			

South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo



Photo Number: 15		Location: 00+250'	
Date: 6/7/2022			
Direction: North			
Description: Downstream view of remediated bank; knotweed and princess tree visible.			

Photo Number: 16		Location: 00+300'	
Date: 6/7/2022			
Direction: West			
Description: ~ 65° bank angle; lower bank ~45°; upper bank ~80°; above GW ~70°; vegetation 90% cover; invasive knotweed establishing in rock toe 3% cover; vegetation above GW impacted by vegetation; drainage pipe across GW cut; rock toe intact with evidence of sediment deposition.			

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 17		Location: 00+300'	
Date: 6/7/2022			
Direction: North			
Description: Downstream view of remediated banks.			

Photo Number: 18		Location: 00+350'	
Date: 6/7/2022			
Direction: West			
Description: ~ 65° bank angle; vegetation 95% cover; small patch of invasive knotweed 2% cover; several saplings growing in and around rock toe; entirely riprap; large plastic corrugated pipe and Armorflex mat below outfall intact; gravel deposition at outfall.			

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 19	Location: 00+400'
Date: 6/7/2022	
Direction: West	
Description: ~ 50° bank angle; lower bank ~45°; upper bank ~50°; some grasses established; vegetation 95% cover; dying Black Walnut near top of bank; rock toe intact; evidence of sediment deposition in rock toe.	

Photo Number: 20	Location: 00+400'
Date: 6/7/2022	
Direction: North	
Description: Downstream view of remediated bank.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 21		Location: 00+450'	
Date: 6/7/2022			
Direction: West			
Description: ~ 50° bank angle; lower bank ~45°; upper bank ~55°; some grasses established; vegetation 95% cover; invasive princess tree growing in rock toe; vegetation and sapling growth in rock toe; rock toe intact.			

Photo Number: 22		Location: 00+450'	
Date: 6/7/2022			
Direction: North			
Description: Downstream view of remediated bank, including section of previously failed bank now covered in dead grass.			

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 23 Location: 00+500'	
<p>Date: 6/7/2022</p> <hr/> <p>Direction: West</p> <hr/> <p>Description: ~ 65° bank angle; lower bank; ~45°; upper bank; ~65°; vegetation 70% cover; invasive knotweed 20% cover; no at-risk trees present; rip-rap and erosion control fabric added to upper bank damaged by construction.</p>	

Photo Number: 24 Location: 00+500'	
<p>Date: 6/7/2022</p> <hr/> <p>Direction: Northwest</p> <hr/> <p>Description: Downstream view of remediated bank, including the section that was repaired due to construction damage. Grass did not establish on previously restored bank, few herbaceous vegetation growing in its place.</p>	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 25		Location: 00+500'
Date: 6/7/2022		
Direction: South		
Description: Upstream view of remediated bank.		

Photo Number: 26		Location: 00+550'
Date: 6/7/2022		
Direction: West		
Description: ~ 65° bank angle; lower bank; ~60°; upper bank; ~70°; reseeded grasses not establishing on restored bank section; vegetation 20% cover, 80% dead grass; repaired bank intact; no trees adjacent to edge of water; rock toe intact; evidence of sediment deposition in rock toe.		

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 27		Location: 00+550'	
Date: 6/7/2022			
Direction: North			
Description: Downstream view of remediated bank; no trees adjacent to edge of water; rock toe intact; repaired bank intact; evidence of sediment deposition in rock toe.			

Photo Number: 28		Location: 00+600'	
Date: 6/7/2022			
Direction: West			
Description: ~ 55° bank angle; reseeded grasses not establishing on restored bank section; vegetation 40% cover, 60% dead grass; repaired bank intact; no trees adjacent to edge of water; rock toe intact;			

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**

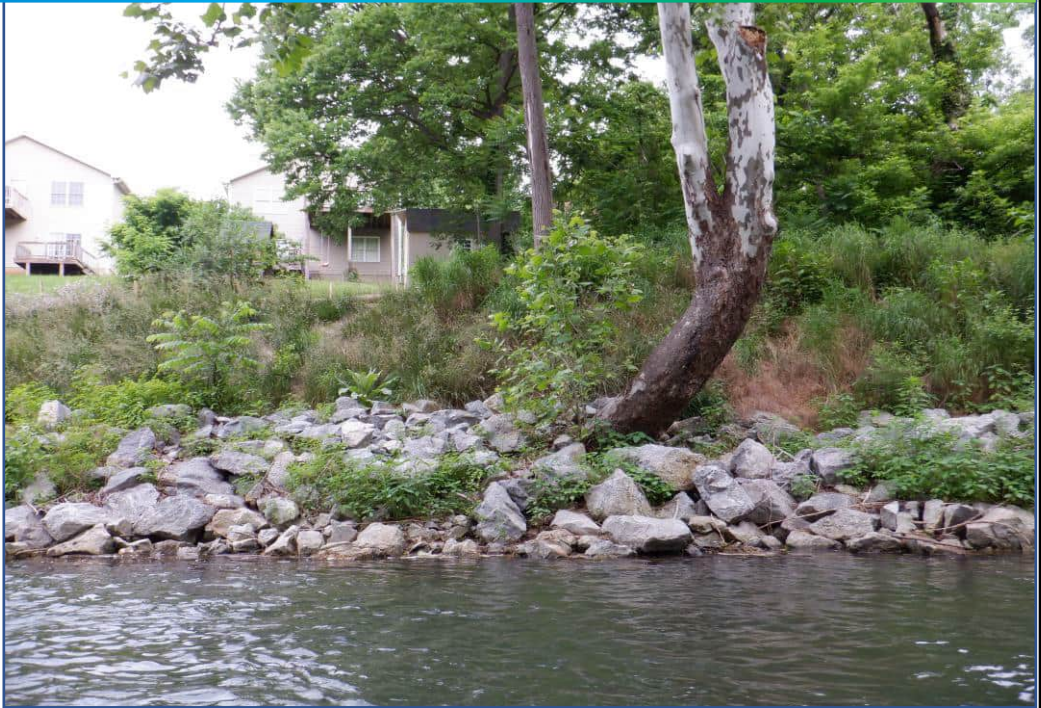

Photo Number: 29	Location: 00+650'
Date: 6/7/2022	
Direction: West	
Description: ~ 65° bank angle; lower bank ~45°; upper bank ~50°; end of restored bank; herbaceous vegetation establishing with patches of thick mats of dead grasses on restored bank where grass did not establish; vegetation 75% cover; bank 25% exposed; large sycamore potentially at-risk.	

Photo Number: 30	Location: 00+700'
Date: 6/7/2022	
Direction: West	
Description: ~ 50° bank angle; herbaceous vegetation established ; locust saplings established in rock toe not yet at risk; several patches of bare soil exposed.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 31		Location: 00+700'	
Date: 6/7/2022			
Direction: South			
Description: Upstream view of remediated bank.			

Photo Number: 32		Location: 00+700'	
Date: 6/7/2022			
Direction: North			
Description: Downstream view of remediated bank.			

South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo



Photo Number: 33	Location: 00+750'
Date: 6/7/2022	
Direction: West	
Description: ~ 60° bank angle; grasses and herbaceous vegetation established; vegetation 80% cover; no trees adjacent to edge of water; rock toe intact; evidence of sediment deposition in rock toe.	

Photo Number: 34	Location: 00+800'
Date: 6/7/2022	
Direction: West	
Description: ~ 65° bank angle; grasses and herbaceous vegetation established; vegetation 80% cover; no trees adjacent to edge of water; rock toe intact; evidence of sediment deposition in rock toe.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**


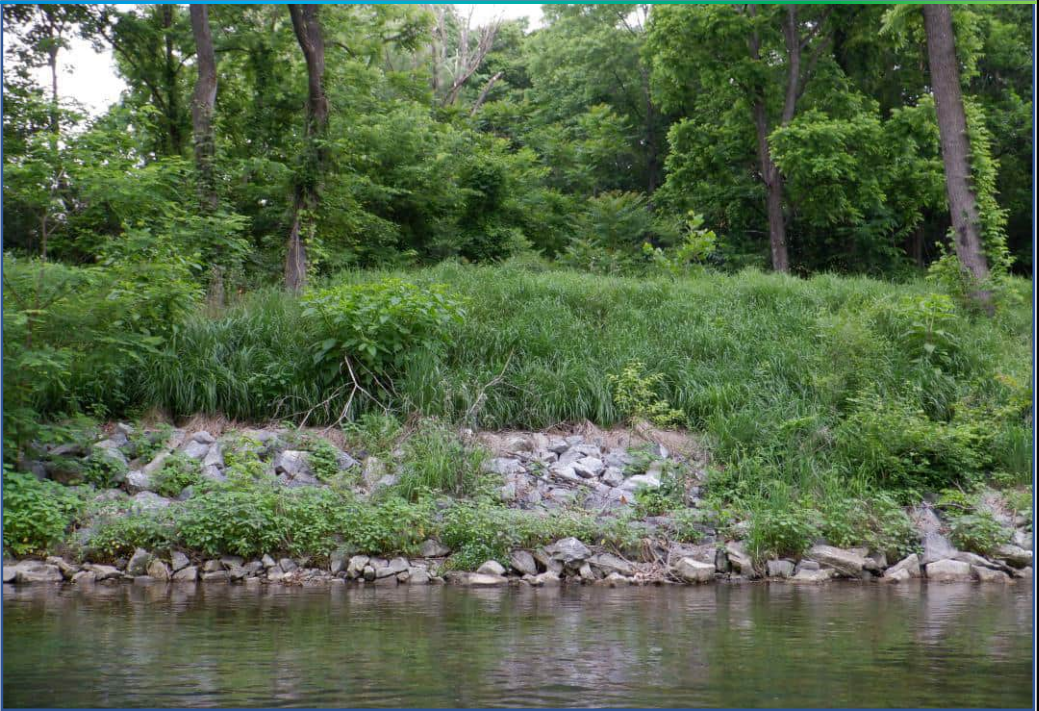
Photo Number: 35		Location: 00+850'	
Date: 6/7/2022			
Direction: West			
Description: ~ 75° bank angle; grasses and herbaceous vegetation established; vegetation 90% cover; no trees adjacent to edge of water; rock toe intact; evidence of sediment deposition in rock toe			

Photo Number: 36		Location: 00+900'	
Date: 6/7/2022			
Direction: West			
Description: ~ 70° bank angle; grasses and herbaceous vegetation established; vegetation 90% cover; no trees adjacent to edge of water; rock toe intact; evidence of sediment deposition in rock toe			

South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

Photo Number: 37

Location: 00+950'

Date: 6/7/2022

Direction: West

Description:

~ 65° bank angle;
lower bank ~70°;
upper bank ~60°;
grasses established
along upper bank;
vegetation 90% cover;
no at-risk trees
present; rock toe
intact; evidence of
sediment deposition
in rock toe.

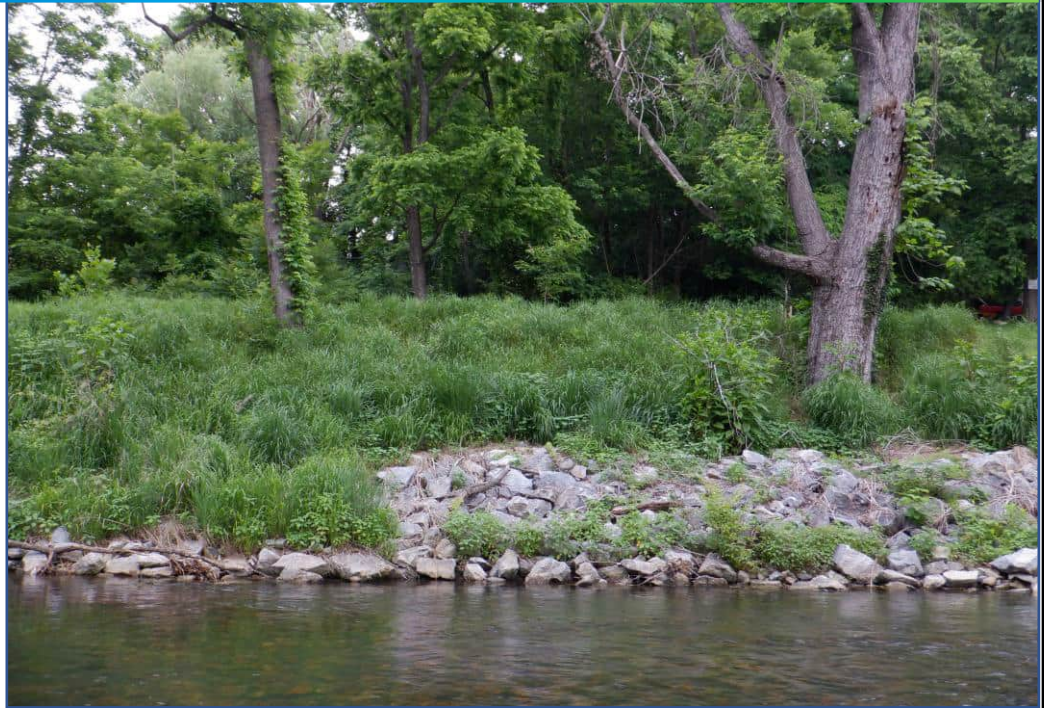


Photo Number: 38

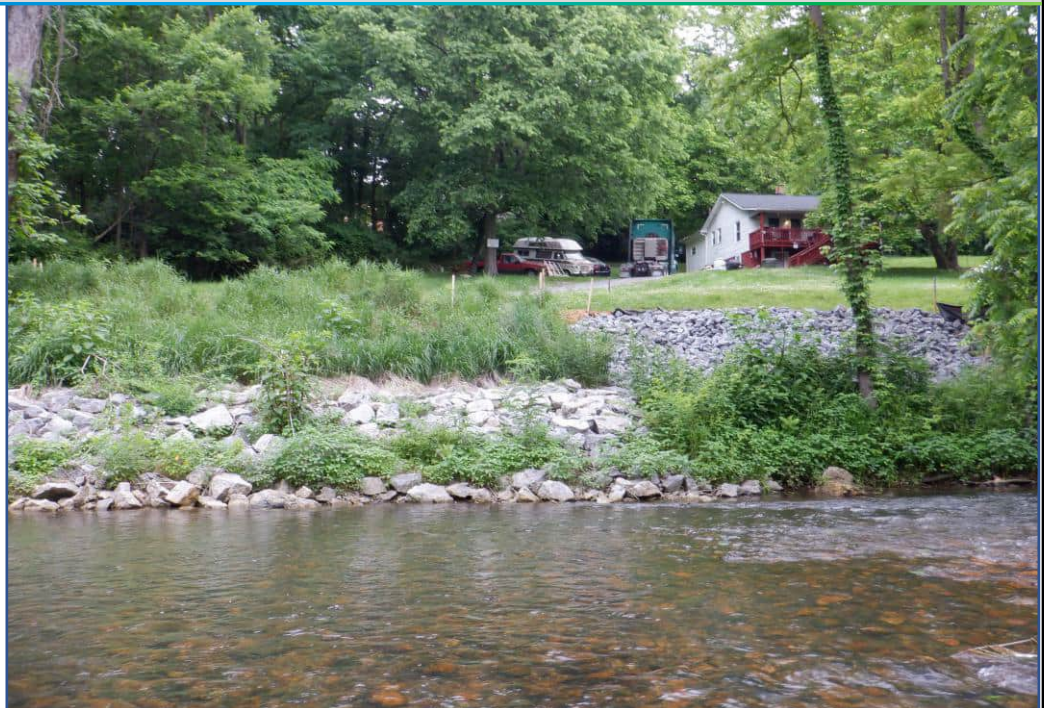
Location: 00+975'

Date: 6/7/2022

Direction: West

Description:

~ 60° bank angle; end
of remediation;
grasses established
along upper bank;
vegetation 90%
cover; new cobbles
added on top of bank
after remediated
section due to GW
construction; rock
toe intact; evidence
of sediment
deposition.



**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**



Photo Number: 39		Location: 00+975'	
Date: 6/7/2022			
Direction: South			
Description: Upstream view from the end of the remediated bank.			

Photo Number: 40		Location: 00+975'	
Date: 6/7/2022			
Direction: Northwest			
Description: View of the non-remediated bank immediately following remediated area; new cobble added for GW construction.			

South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo



Photo Number: 41	Location: 00+975'
Date: 6/7/2022	
Direction: North	
Description: Downstream view from end of remediated bank; exposed roots and at-risk trees present downstream of remediation; evidence of sediment deposition; scour present downstream of remediation.	

Photo Number: 42	Location: Greenway
Date: 6/7/2022	
Direction: West	
Description: Bank with replaced drainage pipe above GW; vegetation on bank above GW impacted by construction of GW.	

South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo


Photo Number: 43	Location: Greenway
Date: 6/7/2022	
Direction: West	
Description: Bank with replaced drainage pipe above GW; vegetation on bank above GW impacted by construction of GW.	

Photo Number: 44	Location: Greenway at 00+500'
Date: 6/7/2022	
Direction: Northeast	
Description: View of bank that was reinforced after construction damage; cobbles and erosion control fabric placed on previously restored bank.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**

Photo Number: 45	Location: Greenway at 00+500'
Date: 6/7/2022	
Direction: East	
Description: View of bank that was reinforced after construction damage; cobbles and erosion control fabric placed on previously restored bank.	

Photo Number: 46	Location: Downstream
Date: 6/7/2022	
Direction: West	
Description: Construction along greenway downstream of remediated bank. Silt fencing in place.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**

Photo Number: 47

Location: Downstream

Date: 6/7/2022

Direction: North

Description:
At-risk tree in non-remediated section of bank downstream of remediated section.



Photo Number: 48

Location: Downstream

Date: 6/7/2022

Direction: North

Description:
Rip rap cobble added to bank due to construction damage downstream of remediated bank.



South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo



Photo Number: 49	Location: Downstream
Date: 6/7/2022	
Direction: South	
Description: At-risk trees in the non-remediated section downstream of the remediated bank.	

Photo Number: 50	Location: Downstream
Date: 6/7/2022	
Direction: North	
Description: Ongoing construction and at-risk trees present in non-remediated bank downstream of remediated area. Silt fencing is helping prevent erosion.	

**South River Photolog
Shiloh Baptist Church BMA
Bank Monitoring Memo**

Photo Number: 51

Location: Downstream

Date: 6/7/2022

Direction: West

Description:
Ongoing construction and at-risk trees present in non-remediated bank downstream of remediated area.



Attachment D - Table 2
2022 Leaf-on Riparian Vegetation Plots
Shiloh Baptist Church BMA
Former DuPont Waynesboro Site, Area of Concern 4

Vegetative Species		Absolute % Cover ¹
Scientific Name	Common Name	Spring
Tree/Vine Stratum		
<i>Catalpa speciosa</i>	Northern Catalpa	5
<i>Convolvulus arvensis</i>	Field bindweed	2
<i>Juglans nigra</i>	Black Walnut	0-30
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	0-10
<i>Platanus occidentalis</i>	American Sycamore	20-60
<i>Toxicodendron radicans</i>	Poison Ivy	0-15
<i>Vitis vulpina</i>	Frost Grape	0-10
Sapling/Shrub Stratum		
<i>Acer negundo</i>	Box Elder	0-2
<i>Acer rubrum</i>	Red Maple	5
<i>Acer saccharinum</i>	Silver Maple	10
<i>Acer saccharum</i>	Sugar Maple	5-10
<i>Betula nigra</i>	River Birch	0-2
<i>Juglans nigra</i>	Black Walnut	5
<i>Lonicera maackii</i>	Amur Honeysuckle	0-2
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	0-10
<i>Morus alba</i>	White Mulberry	5
<i>Morus rubra</i>	Red Mulberry	0-1
<i>Paulownia tomentosa</i>	Princess Tree	15
<i>Platanus occidentalis</i>	American Sycamore	5-10
<i>Populus deltoides</i>	Eastern Cottonwood	0-1
Herbaceous Stratum		
<i>Andropogon gerardii</i>	Big Bluestem	0-10
<i>Carex sp.</i>	Sedge sp.	0-2
<i>Chasmanthium latifolium</i>	Indian Woodoats	15-60
<i>Conyza canadensis</i>	Horseweed	2
<i>Daucus carota</i>	Wild Carrot	0-1
<i>Elymus riparius</i>	Riverbank Wildrye	15-60
<i>Eupatoreum purpureum</i>	Joe-Pye Weed	0-10
<i>Eupatorium perfoliatum</i>	Common Boneset	5
<i>Fallopia japonica</i>	Japanese Knotweed	0-50
<i>Galium sp.</i>	Bedstraw	5-15
<i>Glechoma hederacea</i>	Ground Ivy	0-1
<i>Helenium autumnale</i>	Sneezeweed	0-2
<i>Impatiens capensis</i>	Jewelweed	20
<i>Lactuca virosa</i>	Bitter Lettuce	2
<i>Mellilotus officinalis</i>	Yellow Sweetclover	0-3
<i>Mentha spp.</i>	Mint	0-1
<i>Panicum virgatum</i>	Switchgrass	5-10
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	0-10
<i>Persicaria pensylvanica</i>	Pennsylvania Smartweed	2-15
<i>Phytolacca americana</i>	Pokeberry	5-45

Attachment D - Table 2 (continued)
2022 Leaf-on Riparian Vegetation Plots
Shiloh Baptist Church BMA
Former DuPont Waynesboro Site, Area of Concern 4

<i>Rosa multiflora</i>	Multiflora Rose	0-5
<i>Sambucus nigra</i>	Elderberry	0-15
<i>Securigera varia</i>	Crownvetch	1-20
<i>Senna marilandica</i>	Maryland Senna	0-2
<i>Solidago sp.</i>	Goldenrod sp.	0-2
<i>Sonchus sp.</i>	Sow Thistle	0-5
<i>Symphyotrichum ericoides</i>	White Aster	0-5
<i>Symphyotrichum novae-angliae</i>	New England Aster	0-3
<i>Tridens flavus</i>	Purpletop Grass	20-70
<i>Trifolium repens</i>	White Clover	10
<i>Verbascum blattaria</i>	Moth Mullein	0-1
<i>Verbesina alternifolia</i>	Wingstem	0-5

Notes:
1. Represents the range observed between two riparian vegetative survey plots per short-term monitoring station.

**Attachment D - Waynesboro Off-Site Cap Areas
Inspection Record Sheet
Maintenance Plan**

Location and property owner name: Shiloh Baptist Church BMA		
Item	Status/Maintenance Needs	Repairs Needed?
Access Roads	NA	NA
Trails	In good condition	1
Drainage Structures	Drainage structures intact, new corrugated piping recently installed beneath greenway in good condition	1
Outfall Structures	Outfall structures intact	1
Rip-Rap Protection	Rip-rap intact	1
Cap System Vegetative Cover	Most vegetation has established. 75% of grasses have not yet established on portion of bank that failed and was restored at 00+550' and 00+600'. Japanese knotweed present throughout	2
Cap System Geosynthetics	Torn fabric and exposed geocell at 00+600' because construction of greenway led to exposed soil. Fabric visible along cobble at top of bank at 00+500' where bank had previously failed and was restored; construction of the greenway led to additional damages at this location, so the cobbles and fabric were put in place	1
Cap System Slope Stability	Slope is consistent and stable along remediation; new cobbles at 00+500' because of damage from construction of greenway	1
Cap System Subsidence	None observed	1
Fencing and Gates	Fencing and gates intact. Landowner/city installed gates in upper reach	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments:

Continue to monitor erosional impact of surface runoff from Riverside Drive and church parking lot. Monitor geosynthetics at 00+600'. Herbicide treatment of Japanese knotweed is recommended.

Inspected by: Sarah Bartle and Bill Storm

Date: June 7, 2022

Attachment E
North Park BMA

Attachment E - Table 1
2022 Leaf-On Maintenance Inspection Log
North Park BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (ft) ¹	Photo # (Attachment E)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁷	Notes	Scour Present (Y/N) ⁸	Notes	Y/N	Notes
00 + 25	1, 2	60	N	Upper bank: ~30 degrees Mid-bank: ~70 degrees Lower bank: ~20 degrees	H	Roots exposed at toe of slope, Honeysuckle bush, 3 mature Walnut trees, Wing Stem, patches of exposed soil	N	None	NA	NA	NA	None	Y	Scour present at toe of slope	N	None
00 + 00	3, 4	45	N	Upper bank: ~10 degrees Mid-bank: ~70 degrees Lower bank: ~20 degrees	NA	Herbaceous vegetation ~60% cover, patches of bare soil, Jewelweed established in rock toe, Black Walnuts and Sycamore present	Y	Sycamore is possibly "at-risk"	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 50	5	50	N	Upper bank: ~50 degrees Lower bank: ~20 degrees	NA	Herbaceous vegetation 85% cover, Jewelweed is established at toe of slope, horseneed and grass dominant, Jewelweed established in rock toe, Sycamore trees present	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 100	6, 7, 8	60	N	Upper bank: ~60 degrees Lower bank: ~10 degrees	NA	Herbaceous vegetation ~90% cover, 3 Sycamores on bank, Jewelweed established in rock toe	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 150	9	60	N	Upper bank: ~60 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation ~80% cover, native grasses and horseneed dominant, occasional bare spots, Jewelweed at toe of slope; Walnut and Catalpa trees	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 200	10	60	N	Upper bank: ~60 degrees Lower bank: ~45 degrees	NA	Herbaceous vegetation 95% cover; grasses, Oats, Horseneed, Jewelweed at toe of slope	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 250	11	70	N	Upper bank: ~70 degrees Lower bank: ~45 degrees	NA	Herbaceous vegetation 90% cover; grasses and Horseneed are dominant	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 300	12, 13, 14	70	N	Upper bank: ~70 degrees Lower bank: ~45 degrees	NA	Herbaceous vegetation 95% cover, Black Walnut tree with Poison Ivy vine, Oats ~100% cover, Jewelweed ~10% cover at toe of slope	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 350	15	70	N	Upper bank: ~70 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 95% cover; Oats are dominant: ~70% cover; Jewelweed at toe ~5% cover	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 400	16	50	N	Upper bank: ~50 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 95% cover, 3 walnut trees, large patches of invasive knotweed ~50% cover, Poison Ivy around Black Walnuts	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 450	17	50	N	Upper bank: ~50 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 95% cover; grasses dominant, invasive knotweed 5% cover, sumac saplings, Jewelweed at toe	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 500	18	60	Y	None	NA	Herbaceous vegetation 95% cover; dominated by grasses and Horseneed, Jewelweed at toe ~5% cover, grasses are dominant	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 550	19	60	Y	None	NA	Herbaceous vegetation 95% cover; grasses are dominant ~60% cover, Red Maple tree, some invasive Honeysuckle establishing	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 600	20	60	Y	None	NA	Herbaceous vegetation 85% cover, Black Walnut tree, Jewelweed established at toe of slope, planted Birch tree; patches of invasive Honeysuckle	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric visible
00 + 650	21	60	N	Upper bank: ~60 degrees Lower bank: ~45 degrees	NA	Herbaceous vegetation 80% cover, bare soil between mid-bank coir log and rock toe, Black Walnut tree, planted Red Maple	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, coir log exposed mid-bank	N	None	Y	No erosion control fabric visible

Attachment E - Table 1
2022 Leaf-On Maintenance Inspection Log
North Park BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (R) ¹	Photo # (Attachment E)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁷	Notes	Scour Present (Y/N) ⁸	Notes	Y/N	Notes
00+700	22, 23, 24	50	N	Upper bank: ~50 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 75% cover, bare soil between mid-bank coir log and rock toe, 2 Black Walnuts with Poison Ivy, Jewelweed ~15% cover at toe, grasses are dominant	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, coir log exposed mid-bank	N	None	Y	No erosion control fabric or geocell visible
00+750	25	50	N	Upper bank: ~60 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 75% cover, bare soil between mid-bank coir log and rock toe, Sycamores present, grasses dominant	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, coir log exposed mid-bank	N	None	Y	No erosion control fabric or geocell visible
00+800	26	60	Y	None	NA	Herbaceous vegetation 75% cover, bare soil between mid-bank coir log and rock toe, Sycamore, Maples and Birch trees, grasses are dominant	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible, coir log exposed mid-bank	N	None	Y	No erosion control fabric or geocell visible
00+850	27	45	N	Upper bank: ~45 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 95% cover, growth observed on Willow live stakes; Sycamore, Elderberry and 2 Paw Paw trees are healthy	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+900	28	50	N	Upper bank: ~50 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 95% cover, native grasses are dominant	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+950	29	50	N	Upper bank: ~50 degrees Lower bank: ~35 degrees	NA	Herbaceous vegetation 95% cover, native grasses are dominant, Dogwoods and Sycamore present	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+1000	30	50	N	Upper bank: ~55 degrees Lower bank: ~35 degrees	NA	Herbaceous vegetation 95% cover, Sweet Pea ~10% cover; Invasive Crown Vetch ~ 2% cover; Native grasses are dominant	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+1050	31, 32, 33	65	N	Upper bank: ~65 degrees Lower bank: ~45 degrees	NA	End of first remediated bank section; herbaceous vegetation 95% cover, native grasses are dominant ~85% cover	N	None	Y (Rock Toe)	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+1100	34, 35	65	Y	None	NA	Beginning of non-remediated section, invasive knotweed ~60% cover, native Pokeberry ~20, invasive Honeysuckle ~10%, Oats and grasses throughout, Yucca plants	N	None	NA	NA	NA	None	Y	Scour present at toe of slope	N	None
00+1150	36	65	Y	None	NA	Fallen Sycamore, vegetative cover ~100%	N	None	NA	NA	NA	None	Y	Scour present at toe of slope	N	None
00+1200	37	50	Y	None	L	Exposed roots ~5%; LWD along bank from dead tree, invasive Honeysuckle, Black Walnuts, Silver Maples, Red Maple, established vegetation cover	N	None	NA	NA	NA	None	Y	Scour and undercutting present at toe of slope	N	None
00+1250	38, 39	65	Y	None	NA	Access path to the river with improvised stairs, Silver Maple, vegetation cover ~100% cover; shaded, pedestrian access path	N base	None	NA	NA	NA	None	Y	Scour present at toe of slope, significant erosion at of improvised access path	N	None
00+1300	40	45	Y	None	H	Access path to the river, exposed roots	Y	Sycamore, Silver Maple	NA	NA	NA	None	Y	Scour present at toe of slope	N	None
00+1350	41	45	Y	None	H	Exposed roots, invasive Honeysuckle along bank	Y	Silver Maple	NA	NA	NA	None	Y	Scour under roots	N	None
00+1400	42	45	Y	None	H	Significantly exposed roots, Black Walnut, Red Maple, pedestrian path/access	Y	Black Walnut, Red Maple	NA	NA	NA	None	Y	Minimal scour under roots, exposed rocks and gravel	N	None

Attachment E - Table 1
2022 Leaf-On Maintenance Inspection Log
North Park BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (R) ¹	Photo # (Attachment E)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	Y/N	Notes
00+1450	43	65	Y	None	H	Significantly exposed roots; Black Walnut, invasive Honeysuckle	Y	Black Walnut	NA	NA	NA	None	Y	Minimal scour under roots, exposed rocks and gravel	N	None
00+1500	44	55	Y	None	H	End of non-remediated section; Black Walnut, Sycamore, invasive Honeysuckle	N	None	NA	NA	NA	None	Y	Scour under roots, gravel and pebbles at toe	N	None
00+1550	45, 46, 47	60	Y	None	L	Beginning of second remediated bank section, herbaceous vegetation 75% cover, exposed roots and soil upstream of remediated section	N	None	Y	N	N	Exposed roots and soil, no erosion control fabric or geocell visible	Y	Scour under toe of slope	Y	No erosion control fabric or geocell visible
00+1600	48, 49, 50	45	Y	None	NA	Herbaceous vegetation 95% cover, grasses dominant, Jewelweed establishing in rock toe, Sycamore saplings	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+1650	51, 52, 53	45	Y	None	NA	Vegetation cover adjacent to stairs ~95% cover; grasses, Sycamore saplings, Coreopsis, rock toe intact, stairs and kayak ramp intact	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	N	None
00+1700	54, 55, 56	50	N	Upper bank: ~50 degrees Lower bank: ~20 degrees	NA	Herbaceous vegetation 95% cover, 3 Sycamores surrounded by gravel, pedestrian access path at toe of slope slanted due to erosion, parts of rock toe around path moved- likely by human activity	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	Same day repairs to exposed geocell and fabric
00+1750	57	65	N	Upper bank: ~65 degrees Lower bank: ~20 degrees	NA	Herbaceous vegetation 95% cover, 5 isolated patches of invasive knotweed, Jewelweed at toe of slope, Walnut saplings	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+1800	58	65	N	Upper bank: ~65 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 95% cover, Sycamore tree, pedestrian access path at toe of slope	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+1850	59, 60, 61	45	N	Upper bank: ~45 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation 95% cover, small Sycamore saplings are establishing, small patches of invasive knotweed ~5%; pedestrian access path at toe of slope	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+1900	62	50	N	Upper bank: ~50 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation ~95% cover, no knotweed observed, Jewelweed at toe of slope, slight scour at toe of stairs, pedestrian access path at toe of slope	N	None	Y	N	N	No erosion control fabric or geocell visible	Y	Slight scour at toe of stairs	Y	No erosion control fabric or geocell visible, new patch of Japanese knotweed
00+1950	63	70	N	Upper bank: ~70 degrees Lower bank: ~20 degrees	NA	Herbaceous vegetation ~95% cover, Willow live stakes are establishing, Jewelweed at toe of slope, culvert is in good condition, patch of invasive knotweed ~3%, no pedestrian pathway	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+2000	64	75	N	Upper bank: ~75 degrees Lower bank: ~20 degrees	NA	Herbaceous vegetation ~95% cover, exposed patches of soil ~2% above rock toe	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+2050	65	60	N	Upper bank: ~60 degrees Lower bank: ~30 degrees	NA	Herbaceous vegetation ~95% cover; Jewelweed at toe of slope, invasive knotweed 3% cover	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible, no exposed soil
00+2100	66	70	Y	None	NA	Herbaceous vegetation ~95% cover, vegetation establishing in rock toe	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+2150	67	70	Y	None	NA	Native vegetation cover ~95%; grasses are dominant; Jewelweed and Blue Vervain establishing at toe of slope	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible

Attachment E - Table 1
2022 Leaf-On Maintenance Inspection Log
North Park BMA
Former DuPont Waynesboro Site, Area of Concern 4

Station (R) ¹	Photo # (Attachment E)	Undercutting			Exposed Roots		At-Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection	
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) ²	Notes	Exposed Roots (L/M/H) ³	Notes	At-Risk Trees Present (Y/N) ⁴	Notes	Rock Toe/LWD (Y/N) ⁵	Geocell Visible (Y/N) ⁶	Erosion Control Fabric Visible (Y/N) ⁶	Notes	Scour Present (Y/N) ⁷	Notes	Y/N	Notes
00+2200	68, 69, 70	60	Y	None	NA	Native vegetation cover ~95%; grasses are dominant, Black Walnut tree, rock toe widens at downstream end ~8' wide	N	None	Y	N	N	No erosion control fabric or geocell visible	N	None	Y	No erosion control fabric or geocell visible
00+2250	71	65	Y	None	NA	End of remediated bank, herbaceous vegetation ~95% cover, Black Walnut, extended rock toe	N	None	Y	N	N	No erosion control fabric or geocell visible; extended rock toe 8 ft up bank	N	None	Y	No erosion control fabric or geocell visible
00+2300	72	60	Y	None	M	Non-remediated, exposed roots of Box Elder tree, invasive Honeysuckle, Black Walnut, water pipe box and pedestrian access at toe	Y	Box Elder	NA	NA	NA	None	Y	Scour under tree roots	N	None
00+2350	73, 74	65	Y	None	M	Invasive Honeysuckle, Black Walnut exhibits exposed roots	Y	Black Walnut	NA	NA	NA	None	Y	Significant scour under roots	N	None
00+2380	75, 76	70	Y	None	NA	Invasive Honeysuckle alongside bridge abutment, Elm sapling and Ailanthus tree at risk, Jewelweed at toe of slope	Y	Elm sapling and Ailanthus (Princess tree)	NA	NA	NA	None	Y	Minimal scour under roots	N	None

Notes:

- Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
- A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
- The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
- At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
- Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor). As of Spring 2022 almost all of the fabric and geocell is either degraded or fully covered by vegetation
- The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)
- Grey shaded cells are portions of the bank that were not remediated

South River Photolog North Park BMA Bank Monitoring Memo


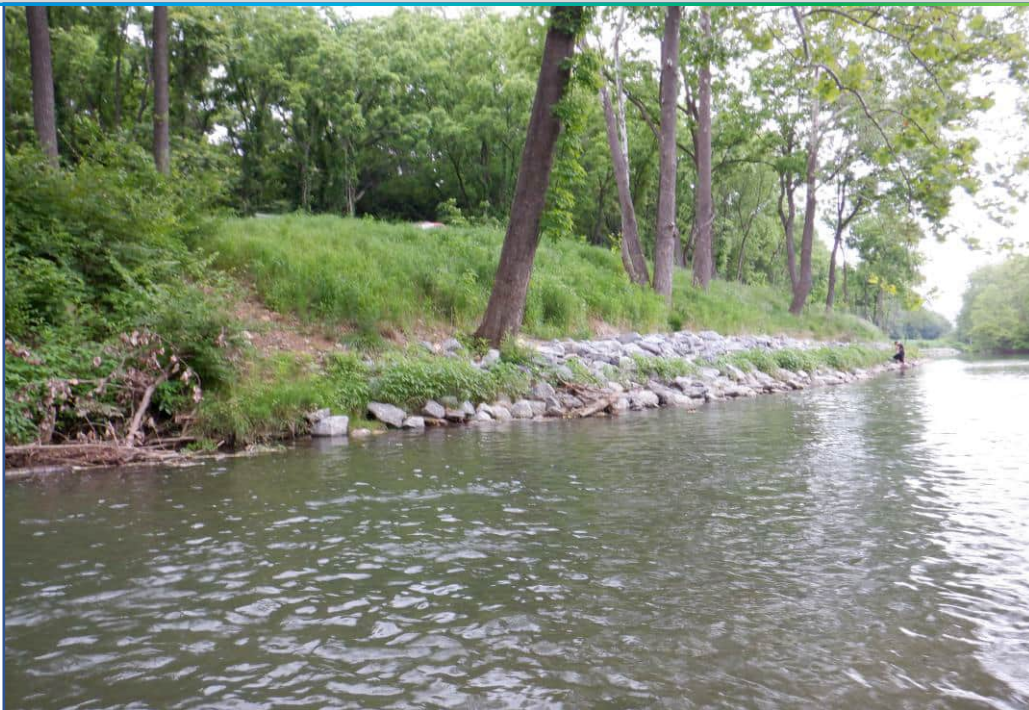
Photo Number: 01	Location: 00-25'
Date: 6/7/2022	
Direction: Northwest	
Description: Upstream of remediation; ~ 60° bank angle; vertical drop at toe; undercut bank with exposed roots; no woody vegetation; minimal scour present; bank undercut.	

Photo Number: 02	Location: 00-25'
Date: 6/7/2022	
Direction: North	
Description: Downstream view from start of remediated section	

South River Photolog North Park BMA Bank Monitoring Memo

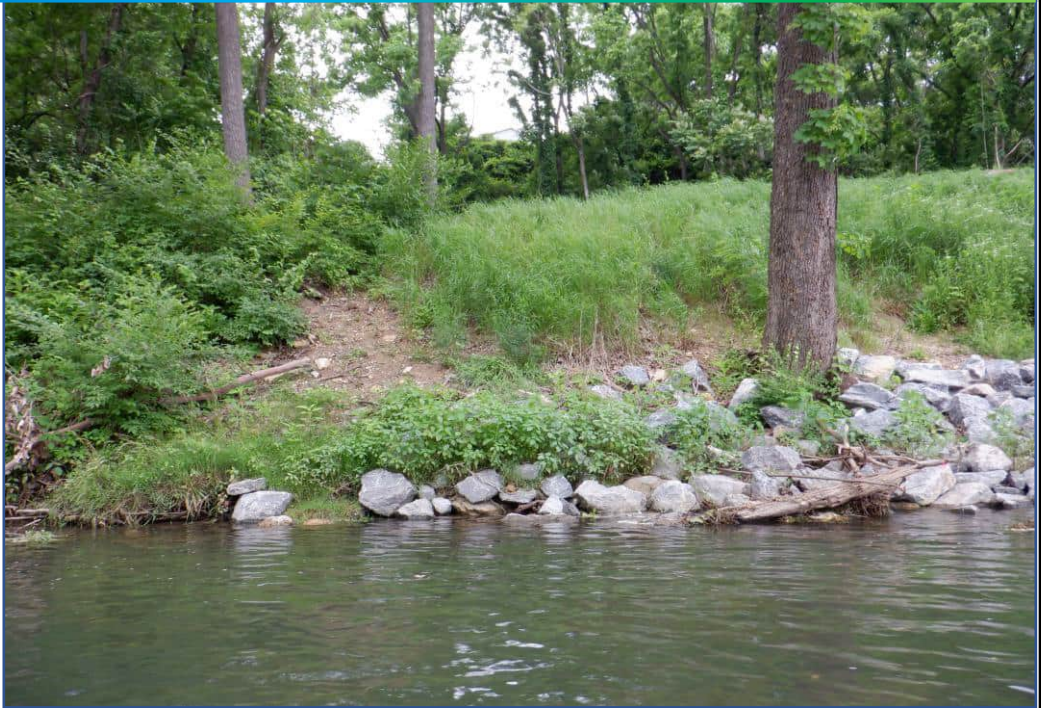
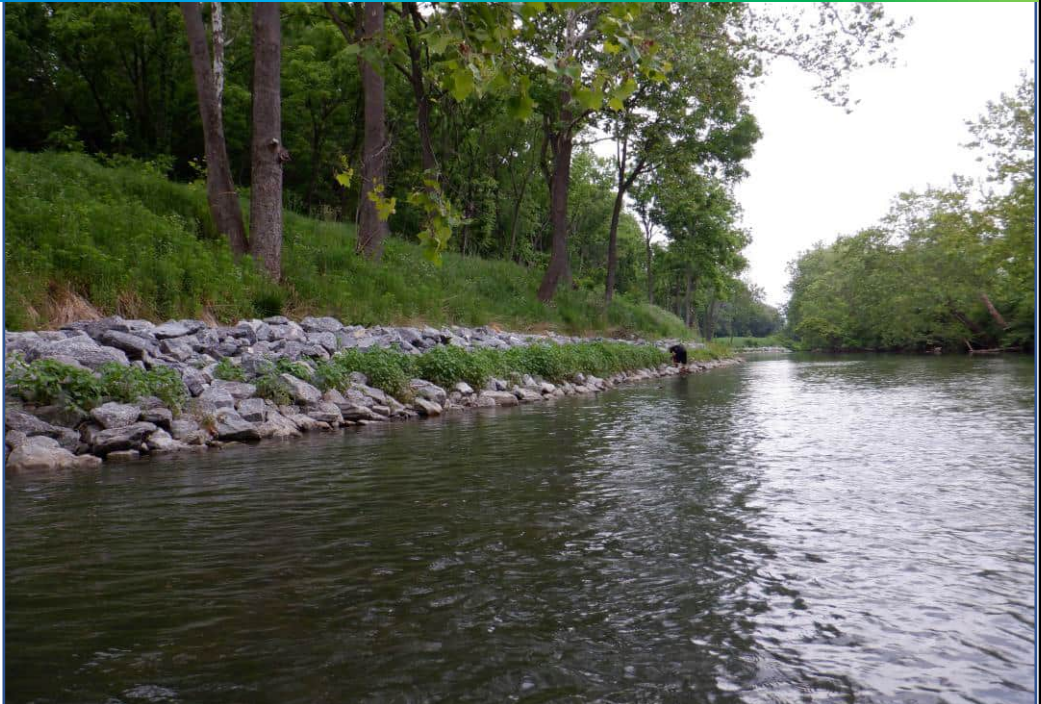
Photo Number: 03	Location: 00-00'
Date: 6/7/2022	
Direction: Northwest	
Description: Start of 1 st remediated section; ~ 60° bank angle; vegetation 60% cover; bare soil at beginning of remediated section, no at-risk trees present; footpath at edge of remediation;	

Photo Number: 04	Location: 00+00'
Date: 6/7/2022	
Direction: Northeast	
Description: Downstream view of remediated bank from beginning of remediation.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**



Photo Number: 05	Location: 00+50'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 50° bank angle; vegetation 85% cover; no at-risk trees present; fine sediment deposition.	

Photo Number: 06	Location: 00+100'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 60° bank angle vegetation 90% cover; no at-risk trees present; vegetation growing in rock toe;.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**



Photo Number: 07	Location: 00+100'
Date: 6/7/2022	
Direction: Northeast	
Description: Downstream view of remediated bank.	

Photo Number: 08	Location: 00+100'
Date: 6/7/2022	
Direction: Southwest	
Description: Upstream view of remediated bank.	

South River Photolog North Park BMA Bank Monitoring Memo


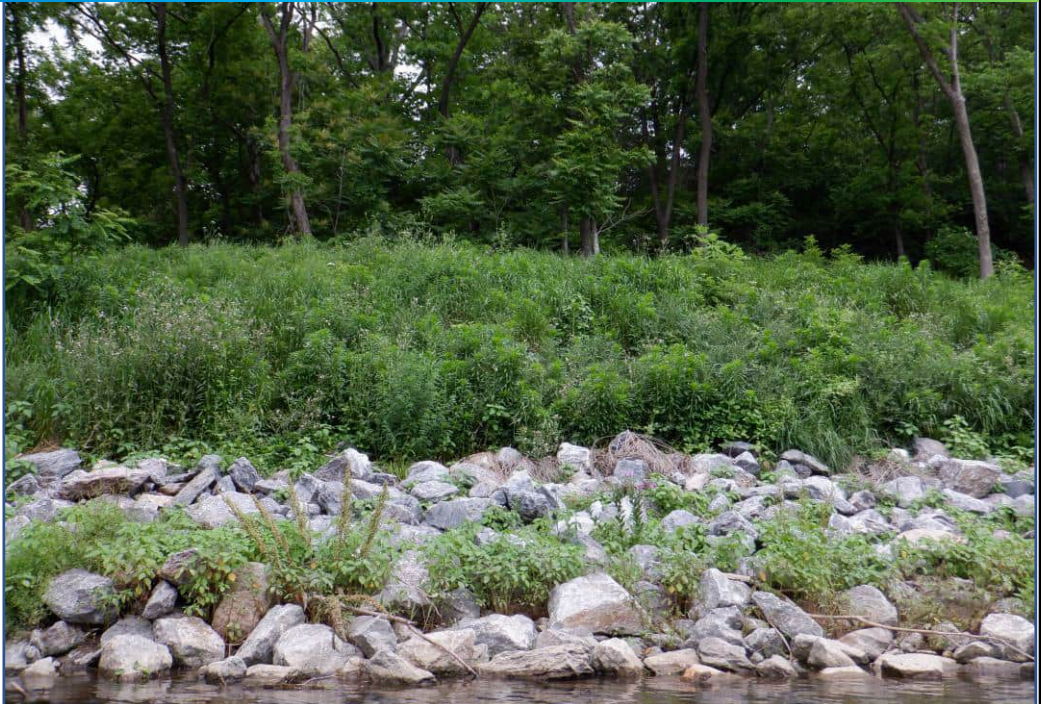
Photo Number: 09	Location: 00+150'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 60° bank angle; vegetation 80% cover; jewelweed establishing in rock toe; rock toe intact; moderate sediment deposition.	

Photo Number: 10	Location: 00+200'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 60° bank angle; vegetation 95% cover; trees present mid bank; rock toe intact, plants establishing in rock toe; moderate sediment deposition.	

South River Photolog North Park BMA Bank Monitoring Memo

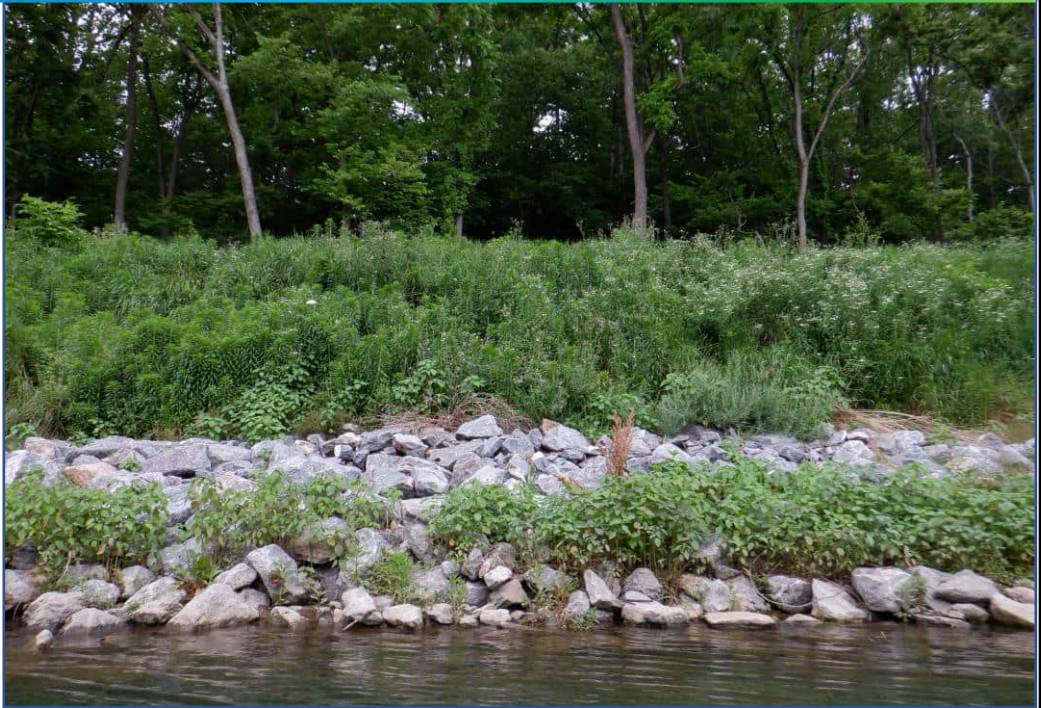
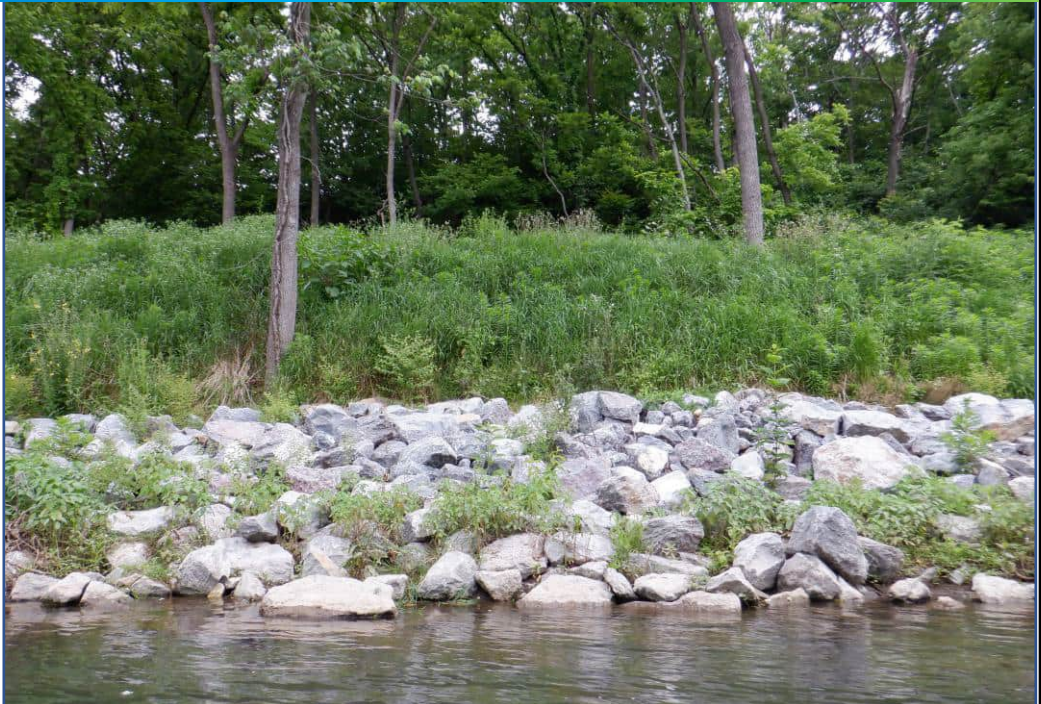
Photo Number: 11	Location: 00+250'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 70° bank angle; vegetation 90% cover; rock toe intact; ; moderate sediment deposition.	

Photo Number: 12	Location: 00+300'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 70° bank angle; vegetation 95% cover; trees present mid bank; rock toe intact; moderate sediment deposition.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**


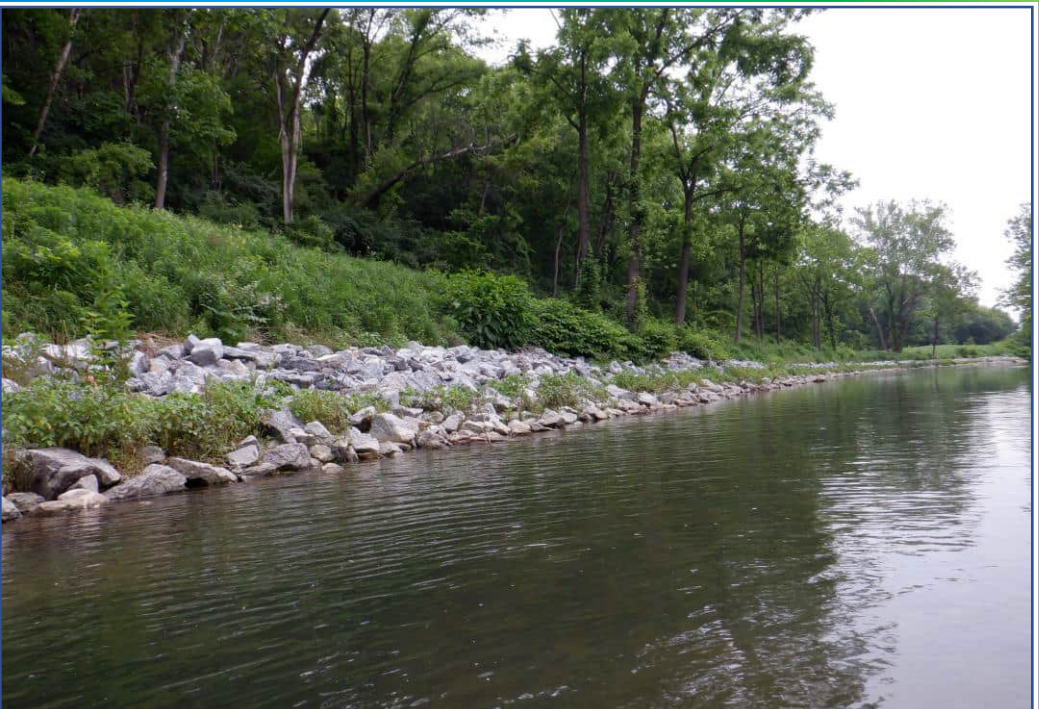
Photo Number: 13		Location: 00+300'
Date: 6/7/2022		
Direction: Southwest		
Description: Upstream view of remediated bank.		

Photo Number: 14		Location: 00+300'
Date: 6/7/2022		
Direction: Northeast		
Description: Downstream view of remediated bank.		

South River Photolog North Park BMA Bank Monitoring Memo


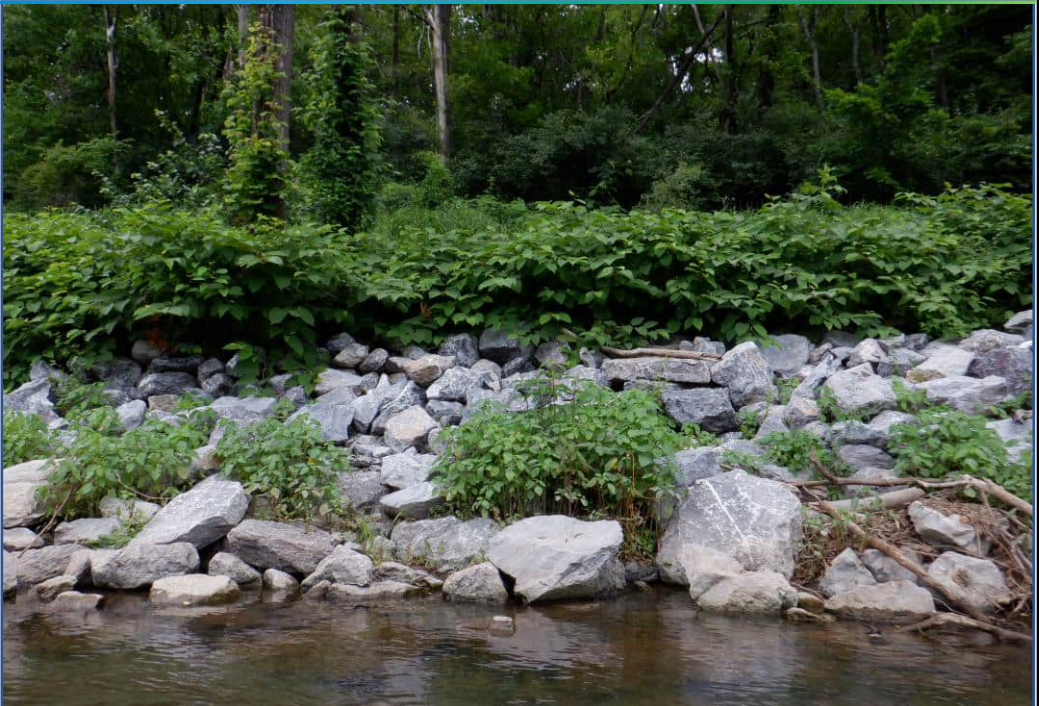
Photo Number: 15	Location: 00+350'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 70° bank angle; vegetation 95% cover; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.	

Photo Number: 16	Location: 00+400'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 70° bank angle; vegetation 95% cover; large patches of invasive knotweed 50% cover; trees near rock toe in good condition; rock toe intact, plants establishing in rock toe; minimal sediment deposition.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**


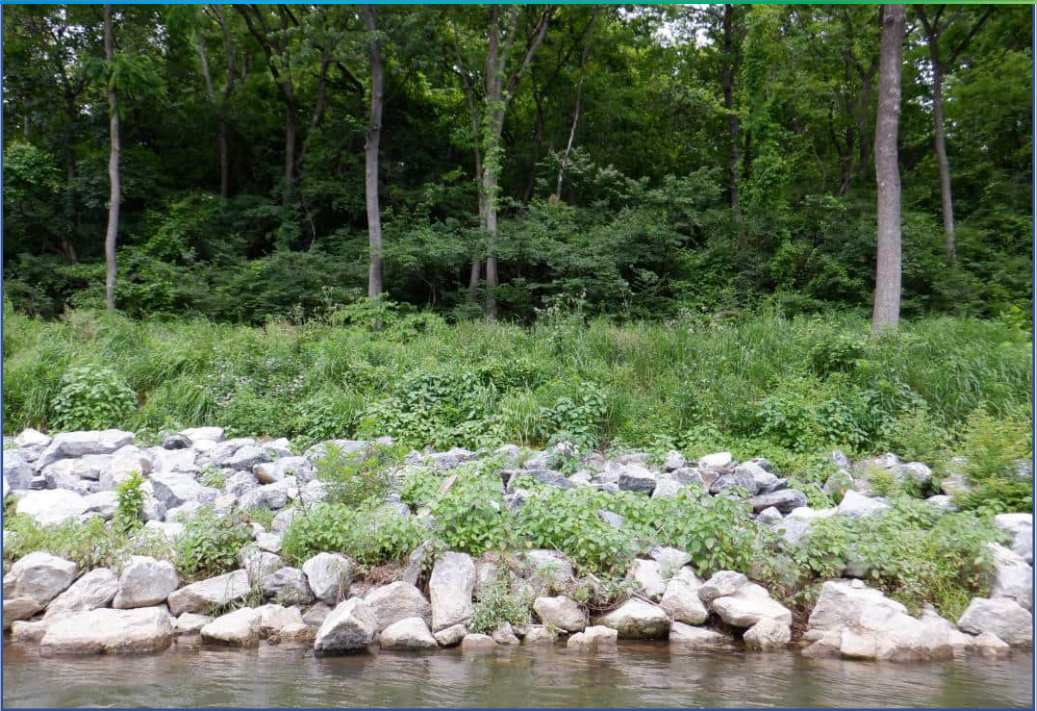
Photo Number: 17	Location: 00+450'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 50° bank angle; vegetation 95% cover; invasive knotweed 5% cover; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.	

Photo Number: 18	Location: 00+500'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 60° bank angle; vegetation 95% cover; rock toe intact; jewelweed establishing in rock toe; minimal sediment deposition.	

South River Photolog North Park BMA Bank Monitoring Memo

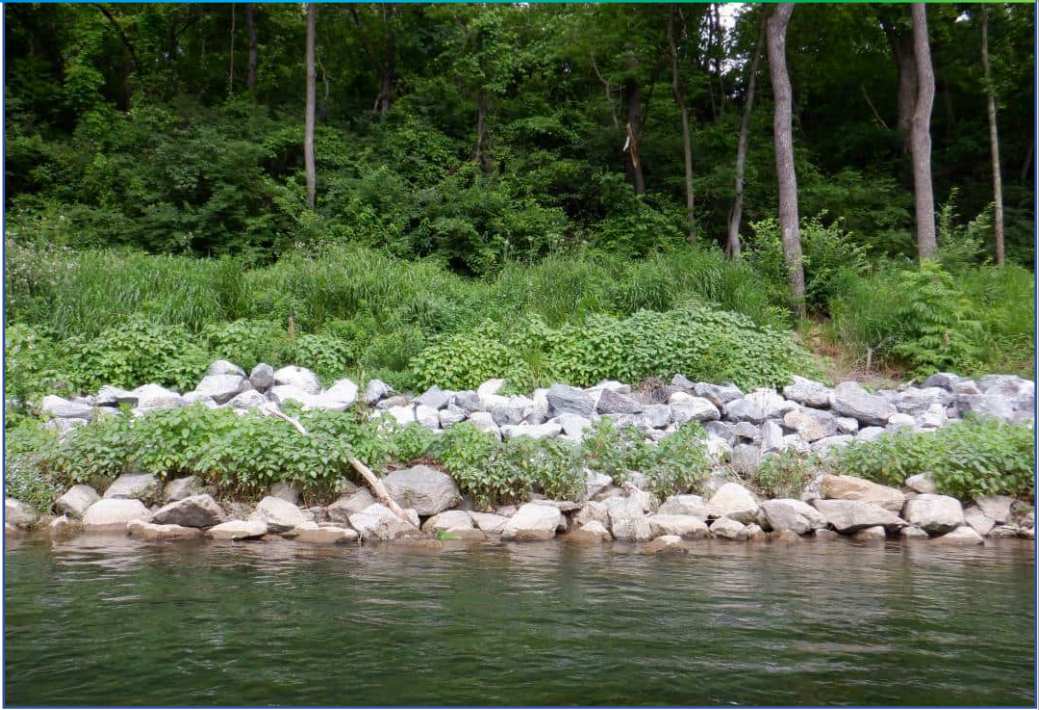

Photo Number: 19	Location: 00+550'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 50° bank angle; vegetation 60% cover; improvised access leading to bare soil around black walnut trees; rock toe intact; minimal sediment deposition; plants established.	

Photo Number: 20	Location: 00+600'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 60° bank angle; vegetation 85% cover; coir logs degrading but exposed, significant erosion between coir log and top of intact rock toe; rock toe intact, jewelweed establishing in toe; minimal sediment deposition;	

South River Photolog North Park BMA Bank Monitoring Memo


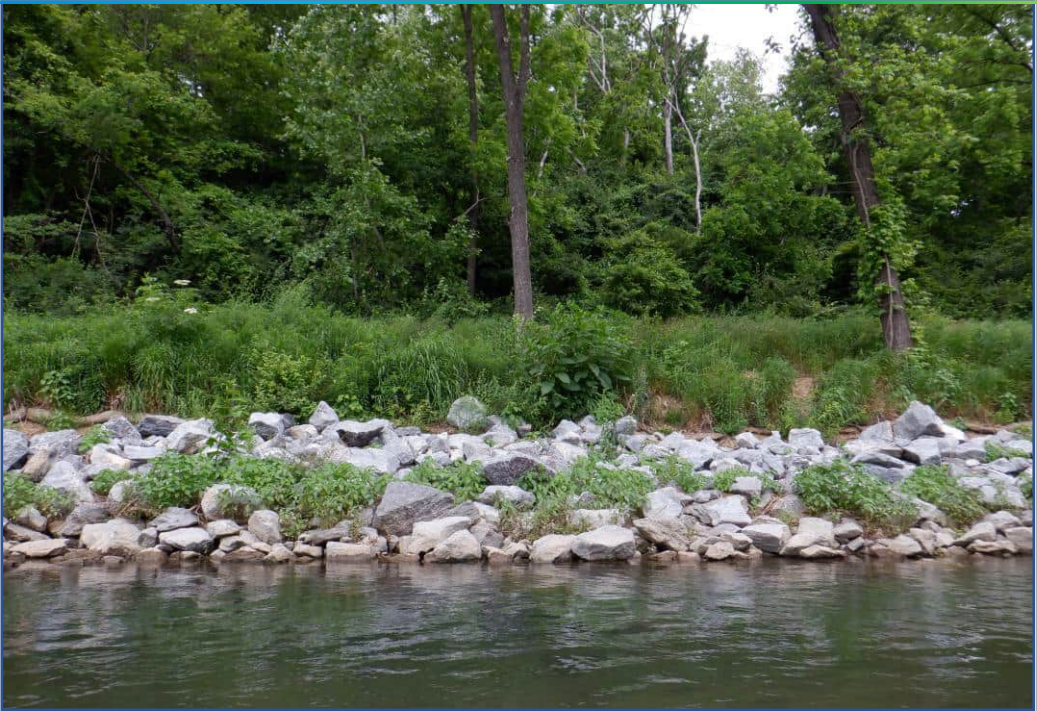
Photo Number: 21	Location: 00+650'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 60° bank angle; vegetation 75% cover; coir logs degrading but exposed, erosion and no vegetation between coir logs and rock toe; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.	

Photo Number: 22	Location: 00+700'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 50° bank angle; vegetation 75% cover; coir logs degrading but exposed, erosion and no vegetation between coir logs and rock toe; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.	

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 23		Location: 00+700'	
Date: 6/7/2022			
Direction: Southwest			
Description: Upstream view of remediated bank.			

Photo Number: 24		Location: 00+700'	
Date: 6/7/2022			
Direction: Northeast			
Description: Downstream view of remediated bank.			

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 25	Location: 00+750'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 50° bank angle; vegetation 75% cover; coir logs degrading but exposed, erosion and no vegetation between coir logs and rock toe; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.	

Photo Number: 26	Location: 00+800'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 50° bank angle; vegetation 75% cover; coir logs degrading but exposed, erosion and no vegetation between coir logs and rock toe; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.	

South River Photolog North Park BMA Bank Monitoring Memo

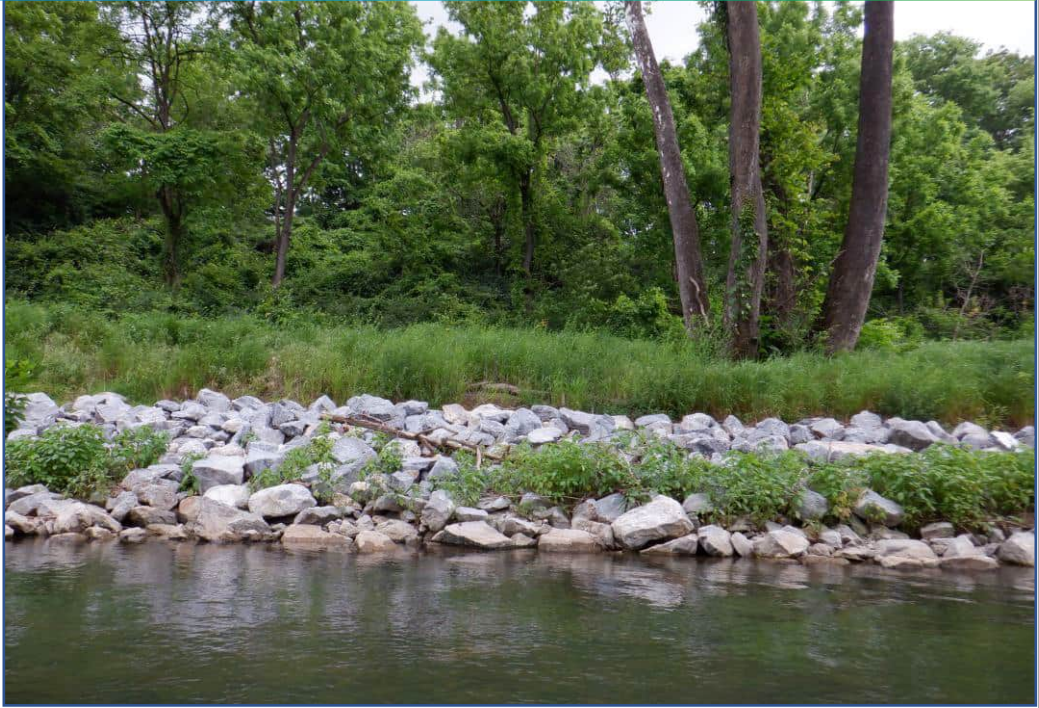

Photo Number: 27	Location: 00+850'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 45° bank angle; vegetation 80% cover; group of 4 trees near top of bank in good condition; coir log deteriorated but still visible; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.	

Photo Number: 28	Location: 00+900'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 50° bank angle; vegetation 80% cover; tree in good condition; rock toe intact, jewelweed establishing in rock toe; coir log deteriorated; minimal sediment deposition.	

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 29		Location: 00+950'	
Date: 6/7/2022			
Direction: Northwest			
Description: ~ 50° bank angle, vegetation 95% cover; rock toe intact, jewelweed establishing in rock toe; minimal sediment deposition.			

Photo Number: 30		Location: 00+1000'	
Date: 6/7/2022			
Direction: Northwest			
Description: ~ 50° bank angle vegetation 95% cover; rock toe intact; minimal sediment deposition.			

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 31	Location: 00+1050'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 45° bank angle; end of 1 st remediation area; vegetation 90% cover; rock toe intact; minimal sediment deposition.	

Photo Number: 32	Location: 00+1050'
Date: 6/7/2022	
Direction: East	
Description: Downstream view of non-remediated bank section from end of first remediated section.	

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 33		Location: 00+1050'
Date: 6/7/2022		
Direction: West		
Description: Upstream view from end of first remediated section.		

Photo Number: 34		Location: 00+1100'
Date: 6/7/2022		
Direction: North		
Description: Start of non-remediated section; ~ 65° bank angle; vegetation 70% cover; invasive knotweed 60% cover; minimal undercutting at toe of bank; minimal scour at end of remediation.		

South River Photolog North Park BMA Bank Monitoring Memo

Photo Number: 35		Location: 00+1100'	
Date: 6/7/2022			
Direction: Northwest			
Description: Upstream view of remediated bank from beginning of non-remediated section.			

Photo Number: 36		Location: 00+1150'	
Date: 6/7/2022			
Direction: North			
Description: Non-remediated section; ~ 45° bank angle; vegetation 80% cover; one tree mid bank in good condition; fallen sycamore in water; minimal undercutting at toe of bank; minimal scour.			

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 37		Location: 00+1200'	
Date: 6/7/2022			
Direction: North			
Description: Non-remediated section; ~ 50° bank angle; vegetation 95% cover; 3 trees mid bank in good condition; minimal undercutting and scour at toe of bank; exposed roots; LWD present.			

Photo Number: 38		Location: 00+1250'	
Date: 6/7/2022			
Direction: North			
Description: Non-remediated section; ~ 65° bank angle; access path with improvised stairs; vegetation on mid and upper bank; vegetation 30% cover; one tree mid bank in good condition; scour and erosion evident at base of access path.			

**South River Photolog
North Park BMA
Bank Monitoring Memo****Photo Number:** 39**Location:** 00+1250'**Date:** 6/7/2022**Direction:** North**Description:**

View of access path and wooden steps present from top of bank to mid bank then a mostly vertical drop from scour and erosion at the base of steps.


**Photo Number:** 40**Location:** 00+1300'**Date:** 6/7/2022**Direction:** North**Description:**

Non-remediated section; ~ 45° bank angle; exposed roots on tree at toe; vegetation 60% cover; improvised access path present, leading to exposed soil; 1 tree at toe and 1 at mid bank; tree mid bank appears to be dead; significant undercutting mostly at toe of bank; some scour at exposed roots at toe of bank.




South River Photolog North Park BMA Bank Monitoring Memo

Photo Number: 41		Location: 00+1350'	
Date: 6/7/2022			
Direction: North			
Description: Non-remediated section; ~ 45° bank angle; entire bank shows exposed roots; vegetation 70% cover; 1 tree at toe and 3 at mid bank in good condition; undercutting at bank toe.			

Photo Number: 42		Location: 00+1400'	
Date: 6/7/2022			
Direction: North			
Description: Non-remediated section; ~ 45° bank angle; highly exposed roots throughout bank; vegetation 40% cover; improvised access oath present; one tree mid bank in good condition; bank undercutting at base of toe; no scour.			

**South River Photolog
North Park BMA
Bank Monitoring Memo**

Photo Number: 43		Location: 00+1450'	
Date: 6/7/2022			
Direction: North			
Description: Non-remediated section; ~ 50° bank angle; exposed roots throughout bank; vegetation 80% cover; one tree mid bank in good condition; bank undercutting at base of toe; minimal scour.			

Photo Number: 44		Location: 00+1500'	
Date: 6/7/2022			
Direction: North			
Description: End of non-remediated section; ~ 60° bank angle; vegetation 70% cover; 1 tree at toe and 1 on upper bank in good condition; footpath; minimal undercutting at tree roots at toe of bank; minimal scour at exposed tree roots at toe.			

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 45	Location: 00+1550'
Date: 6/7/2022	
Direction: North	
Description: Start of 2 nd section of bank remediation; ~60° bank angle; vegetation 90% cover; rock toe intact, significant undercutting, with large exposed root, and bare ground just upstream of remediated section.	

Photo Number: 46	Location: 00+1550'
Date: 6/7/2022	
Direction: North	
Description: Downstream view of remediated bank from beginning of second remediated section.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**


Photo Number: 47		Location: 00+1550'	
Date: 6/7/2022			
Direction: West			
Description: Upstream view of non-remediated bank.			

Photo Number: 48		Location: 00+1600'	
Date: 6/7/2022			
Direction: North			
Description: ~ 50° bank angle; vegetation 95% cover; rock toe intact; minimal sediment deposition; vegetation fully established.			

**South River Photolog
North Park BMA
Bank Monitoring Memo**



Photo Number: 49		Location: 00+1600'
Date: 6/7/2022		
Direction: West		
Description: Upstream view of remediated bank.		

Photo Number: 50		Location: 00+1600'
Date: 6/7/2022		
Direction: East		
Description: Downstream view of remediated bank.		

**South River Photolog
North Park BMA
Bank Monitoring Memo**



Photo Number: 51		Location: 00+1650'	
Date: 6/7/2022			
Direction: North			
Description: ~ 45° bank angle; live stakes and plantings not established; vegetation 95% cover; no at-risk trees present; erosion control fabric 5% exposed; kayak launch and steps intact; path not level, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water; minimal sediment deposition.			

Photo Number: 52		Location: 00+1650'	
Date: 6/7/2022			
Direction: East			
Description: Upstream view of remediated bank,, small boulders tumbled into water, path beginning to slant due to erosion.			

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 53	Location: 00+1650'
Date: 6/7/2022	
Direction: West	
Description: Downstream view of remediated bank; small boulders tumbled into water.	

Photo Number: 54	Location: 00+1700'
Date: 6/7/2022	
Direction: North	
Description: ~ 50° bank angle; vegetation 95% cover; group of 4 trees above gravel walking path in good condition; rock toe intact; walking path above rock toe starting to slant due to erosion; small boulders tumbled into water.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**




Photo Number: 55		Location: 00+1700'	
Date: 6/7/2022			
Direction: West			
Description: Upstream view of remediated bank; path slanted, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water.			

Photo Number: 56		Location: 00+1700'	
Date: 6/7/2022			
Direction: East			
Description: Downstream view of remediated bank; path slanted, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water.			

South River Photolog North Park BMA Bank Monitoring Memo

Photo Number: 57		Location: 00+1750'	
Date: 6/7/2022			
Direction: North			
Description: ~ 65° bank angle; vegetation 95% cover; rock toe intact; walking path above rock toe; path slanted, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water; minimal sediment deposition.			

Photo Number: 58		Location: 00+1800'	
Date: 6/7/2022			
Direction: North			
Description: ~ 65° bank angle; vegetation 95% cover; rock toe intact; walking path above rock toe; path slanted, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water.			

**South River Photolog
North Park BMA
Bank Monitoring Memo**



Photo Number: 59		Location: 00+1850'	
Date: 6/7/2022			
Direction: North			
Description: ~ 45° bank angle; vegetation 95% cover; no at-risk trees present; rock toe intact; walking path above rock toe, gravel dust visible, small boulders tumbled into water; minimal sediment deposition; boulders tumbled into water.			

Photo Number: 60		Location: 00+1850'	
Date: 6/7/2022			
Direction: East			
Description: Downstream view of remediated bank.			

South River Photolog North Park BMA Bank Monitoring Memo


Photo Number: 61	Location: 00+1850'
Date: 6/7/2022	
Direction: West	
Description: Upstream view of remediated bank.	

Photo Number: 62	Location: 00+1900'
Date: 6/7/2022	
Direction: North	
Description: ~ 50° bank angle vegetation 95% cover; constructed wooden staircase intact; walking path above rock toe; gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water; minimal sediment deposition.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**



Photo Number: 63		Location: 00+1950'
Date: 6/7/2022		
Direction: North		
Description: ~ 70° bank angle; vegetation 95% cover; concrete outfall pipe above rock toe intact; rock toe intact; minimal sediment deposition.		

Photo Number: 64		Location: 00+2000'
Date: 6/7/2022		
Direction: North		
Description: ~ 75° bank angle; vegetation 95% cover; rock toe intact; minimal sediment deposition.		

**South River Photolog
North Park BMA
Bank Monitoring Memo**




Photo Number: 65		Location: 00+2050'	
Date: 6/7/2022			
Direction: North			
Description: ~ 60° bank angle; vegetation 95% cover; rock toe intact; minimal sediment deposition.			

Photo Number: 66		Location: 00+2100'	
Date: 6/7/2022			
Direction: North			
Description: ~ 70° bank angle; vegetation 95% cover; rock toe intact; minimal sediment deposition.			

**South River Photolog
North Park BMA
Bank Monitoring Memo**

Photo Number: 67		Location: 00+2150'	
Date: 6/7/2022			
Direction: North			
Description: ~ 70° bank angle; vegetation 95% cover; rock toe intact; minimal sediment deposition.			

Photo Number: 68		Location: 00+2200'	
Date: 6/7/2022			
Direction: Northwest			
Description: ~ 60° bank angle; vegetation 95% cover; one tree mid bank in good condition; rock toe intact; minimal sediment deposition.			

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 69		Location: 00+2200'	
Date: 6/7/2022			
Direction: West			
Description: Upstream view of remediated bank.			

Photo Number: 70		Location: 00+2200'	
Date: 6/7/2022			
Direction: North			
Description: Downstream view of remediated bank.			

South River Photolog North Park BMA Bank Monitoring Memo



Photo Number: 71		Location: 00+2250'	
Date: 6/7/2022			
Direction: Northwest			
Description: ~ 65° bank angle; end of 2 nd remediated section; vegetation 95% cover; 1 tree mid bank in good condition; footpath at end of remediation; higher intact rock toe in this section.			

Photo Number: 72		Location: 00+2300'	
Date: 6/7/2022			
Direction: Northwest			
Description: Start of non-remediated section; ~60° bank angle; woody vegetation throughout bank; medium exposed roots mid to lower bank; Box Elder Tree at-risk; sparse vegetation; bank undercutting; no scour.			

**South River Photolog
North Park BMA
Bank Monitoring Memo**


Photo Number: 73	Location: 00+2350'
Date: 6/7/2022	
Direction: Northwest	
Description: ~ 65° bank angle; woody vegetation mid to upper bank; highly exposed roots; no vegetation established adjacent to water's edge; several trees on upper bank in good condition, trees at risk leaning above rock toe.	

Photo Number: 74	Location: 00+2350'
Date: 6/7/2022	
Direction: West	
Description: View of at-risk tree with highly exposed roots.	

South River Photolog North Park BMA Bank Monitoring Memo

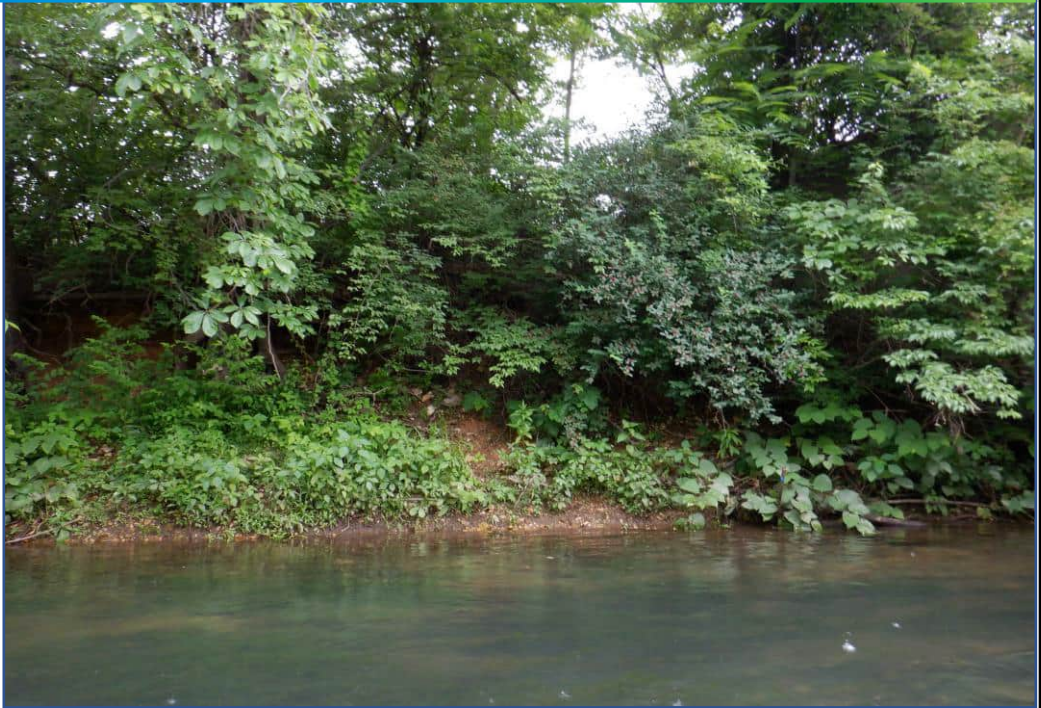

Photo Number: 75	Location: 00+2380'
Date: 6/7/2022	
Direction: North	
Description: ~ 65° bank angle; woody vegetation throughout bank; medium exposed roots mid to lower bank; sparse vegetation; several trees on upper bank in good condition; at-risk elm saplings and ailanthus; roots severely exposed.	

Photo Number: 76	Location: 00+2380'
Date: 6/7/2022	
Direction: Northwest	
Description: Upstream view from end of non-remediated bank.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**

Photo Number: 77		Location: North Park	
Date: 6/7/2022			
Direction: Northeast			
Description: Greenway above remediated bank in North Park.			

Photo Number: 78		Location: North Park	
Date: 6/7/2022			
Direction: West			
Description: Greenway above remediated bank in North Park. Largely flat; large trees present across greenspace in North Park in good condition.			

South River Photolog North Park BMA Bank Monitoring Memo


Photo Number: 79		Location: North Park	
Date: 6/7/2022			
Direction: South			
Description: Public river access; wooden stairs and kayak rail. Stairs in good condition			

Photo Number: 80		Location: North Park	
Date: 6/7/2022			
Direction: West			
Description: Greenway above remediated bank in North Park; Greenway intact and ready for pavement; some ruts along GW from vehicles; construction to connect North Park and Shiloh section of GW underway.			

South River Photolog North Park BMA Bank Monitoring Memo


Photo Number: 81	Location: North Park
Date: 6/7/2022	
Direction: West	
Description: Greenway above remediated bank in North Park; Greenway intact and ready for pavement; some ruts along GW from vehicles; construction to connect North Park and Shiloh section of GW underway.	

Photo Number: 82	Location: North Park
Date: 6/7/2022	
Direction: West	
Description: Basketball court in North Park in good condition; bare soil exposed in areas around court.	

**South River Photolog
North Park BMA
Bank Monitoring Memo**

Photo Number: 83

Location: North Park

Date: 6/7/2022

Direction: West

Description:

Basketball court in North Park in good condition; bare soil exposed in areas around court.



Attachment E - Table 2
2022 Leaf-on Riparian Vegetation Plots
North Park BMA
Former DuPont Waynesboro Site, Area of Concern 4

Vegetative Species		Absolute % Cover ¹
Scientific Name	Common Name	Spring
Tree/Vine Stratum		
<i>Acer saccharum</i>	Sugar Maple	0-10
<i>Ampelopsis brevipedunculata</i>	Porcelainberry	5
<i>Catalpa speciosa</i>	Northern Catalpa	0-15
<i>Cercis Canadensis</i>	Eastern Redbud	0-25
<i>Clematis terniflora</i>	Sweet Autumn Virginsbower	0-1
<i>Juglans nigra</i>	Black Walnut	15-50
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	5
<i>Platanus occidentalis</i>	American Sycamore	5-10
<i>Quercus montana</i>	Chestnut Oak	0-30
<i>Robinia pseudoacacia</i>	Black Locust	0-30
<i>Toxicodendron radicans</i>	Poison Ivy	5-35
<i>Vitis Vulpina</i>	Frost Grape	5
Sapling/Shrub Stratum		
<i>Acer rubrum</i>	Red Maple	2-5
<i>Asimina spp.</i>	Pawpaw	0-1
<i>Juglans nigra</i>	Black Walnut	0-25
<i>Lindera benzoin</i>	Northern Spicebush	0-10
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	70-90
<i>Rosa multiflora</i>	Multiflora Rose	5-10
<i>Sambucus spp.</i>	Elderberry	0-2
<i>Viburnum dentatum</i>	Arrowwood	0-2
Herbaceous Stratum		
<i>Acer platanoides</i>	Norway Maple	0-2
<i>Ambrosia spp.</i>	Ragweed	0-1
<i>Avena sativa</i>	Common Oats	0-95
<i>Chasmanthium latifolium</i>	Northern Woodoats	70-80
<i>Conyza canadensis</i>	Horseweed	0-2
<i>Cyperus esculentus</i>	Yellow Nutsedge	0-10
<i>Daucus carota</i>	Wild Carrot	1-1
<i>Elymus riparius</i>	Riverbank Wildrye	0-1
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	0-1
<i>Festuca rubra</i>	Red Fescue	0-5
<i>Glechoma hederacea</i>	Ground Ivy	0-10
<i>Lactuca virosa</i>	Bitter Lettuce	0-1
<i>Lindera benzoin</i>	Northern Spicebush	0-10
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	0-3
<i>Melilotus officinalis</i>	Yellow Sweetclover	0-1
<i>Rubus idaeus</i>	Red Raspberry	0-5
<i>Setaria sp.</i>	Bristlegrass	0-10
<i>Solidago rugosa</i>	Wrinkleleaf Goldenrod	0-5
<i>Taraxacum spp.</i>	Dandelion	0-1

Notes:

1. Represents the range observed between two riparian vegetative survey plots per short-term monitoring station.

**Attachment E - Waynesboro Off-Site Cap Areas
Inspection Record Sheet
Maintenance Plan**

Location and property owner name: North Park BMA		
Item	Status/Maintenance Needs	Repairs Needed?
Access Roads	NA	NA
Trails	Gravel pathway and greenway in good condition, some pedestrian foot paths. Path along river sloped in some areas due to erosion; Some small gravel and gravel dust on top of trail has washed away.	1
Drainage Structures	None Observed	1
Outfall Structures	Outfall structures intact	1
Rip-Rap Protection	Rip rap intact	1
Cap System Vegetative Cover	Installed live stakes and native vegetation are establishing. Larger patches of invasive knotweed present in multiple locations. Occasional bare spots between rock toe and coir log on bank from 00+650' to +600'	1
Cap System Geosynthetics	Erosion control fabric no longer exposed.	1
Cap System Slope Stability	Slope is consistent and stable along remediation. Scour documented at several stations in non-remediated sections.	1
Cap System Subsidence	None observed	1
Fencing and Gates	Intact	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments: Recommended herbicide treatment for areas of Japanese knotweed. Continue to monitor pathway and rock toe for erosion along river.

Inspected by: Sarah Bartle and Bill Storm

Date: June 9, 2022