FINAL
MY2 MONITORING REPORT

NESBIT SITE
Union County, North Carolina
Catawba River Basin
Cataloging Unit 03050103

DMS Project No. 100121
Full Delivery Contract No. 7868
DMS RFP No. 16-007704 (issued 9/6/2018)
USACE Action ID No. SAW-2019-00832
DWR Project No. 2019-0862

Data Collection: January 2023-November 2023
Submission: February 2024

Prepared for:

Mitigation Services
ENVIRONMENTAL QUALITY

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Response to DMS Comments – MY2 (2023)
Nesbit Stream and Wetland Mitigation Site, Union County
Catawba River Basin, Cataloging Unit 03050103
DMS Project ID No. 100121, Full Delivery Contract No. 7868, RFP No. 16-007704
USACE Action ID No. SAW-2019-00832, DWR Project No. 2019-0862

DMS Comments Received (Black Text) & Responses (Blue Text)

Report Document:

1. MY2 (2023) Monitoring Summary: Herbicide overspray is contributing to low stem density in portions of the site. Overspray impact is also considered an easement encroachment and needs to be added to the encroachment discussion. Due to the ongoing encroachments, a proposed boundary inspection schedule and action plan needs to be added to the MY2 (2023) report.
   Response: A bullet point discussing herbicide overspray was added to the encroachment section in the monitoring summary. A proposed boundary inspection schedule and action plan has been added as well.

2. 3.2 Wetland Assessment: The MY2 (2023) hydroperiods generally increased as compared to MY1 but both were considered low precipitation years. Incorporation of reference wetland gauge data for future drought year comparison would be informative for interpreting wetland performance. Soil borings adjacent to failing wells in future monitoring years may also help substantiate the success of the project wetlands. DMS recommends installing a wetland reference gauge prior to the start of the MY3 (2024) growing season.
   Response: We acknowledge that a reference gauge would provide a valuable data point, however given the Site wetlands are occurring within Wehadkee inclusions of the Secrest-Cid complex finding a viable reference site with a willing landowner within close proximity to the Site would be extremely difficult. We considered looking upstream of the Site within the Secrest-Cid complex soil map unit, but feel it would not be appropriate if wetlands exist there do to hydrology being affected by the presence of upstream features including the road and two ponds. We are encouraged by increase in hydroperiods from MY1 to MY2 given the climactic conditions, especially given that the gauges not meeting included hydroperiods of representative of jurisdictional wetlands. Soil profiles will be performed in MY4 at gauges not meeting hydrology success criteria in MY3.

3. Section 3.3 Vegetative Assessment: Large areas of tall grass are present onsite. Add discussion detailing treatment efforts made during MY2 and indicate if the stem count and plot performance is mainly being affected by herbaceous competition, invasive treatment or herbicide overspray.
   Response: The following information was added to the discussion of planted stem mortality in the second paragraph of Section 3.3: “Other isolated instances of planted stem mortality can be attributed to competition from a dense herbaceous layer and scattered occurrences of invasive species. Invasive species observed included cattail, privet, chinaberry, autumn olive, princess tree, and Johnson grass, which were both treated over multiple Site visits during July and August 2023. It is expected that invasive species treatments will help reduce competition and decrease planted stem mortality rates, although the majority of the planted stem mortality observed during MY2 can be attributed to the aforementioned agricultural herbicide overspray.”

4. Section 3.3 Vegetative Assessment: Please provide observations of the live stake performance.
   Response: The following sentence was added to the end of the second paragraph in Section 3.3: “Live stakes planted along stream banks are generally vigorous and were not observed to be affected by herbaceous competition or herbicide overspray.”

5. Appendix A. Figure 1 CCPV: Add any areas impacted by herbicide overspray that are not currently shown.
   Response: The areas observed to be impacted by herbicide overspray are depicted in yellow cross-hatching. The legend label has been updated to clarify that these are the areas affected by overspray.

6. Appendix A. Figure 1 - CCPV: Please add the marsh treatment areas and all supplemental planting areas to the CCPV.
   Response: Marsh treatment areas were added to the CCVP. No supplemental planting has occurred on site, and therefore no polygons were added to the figure.

7. Appendix A. Table 5 - Low Stem Density Areas: Areas impacted by herbicide overspray must be added to the Easement Encroachment Area section of Table 5.
   Response: The 3 low stem density polygons were added to the easement encroachment section of Table 5, and the definition column was updated accordingly.

8. Appendix A. - Photo Log: Thank you for providing photos showing the easement encroachment areas. The aerial photos are very useful in communicating the extent of the encroachments.
   Response: Understood.

9. Appendix D. - Hydrologic Data - Nesbit Glen Branch Crest Gauge Chart: Add lines showing bankfull and thalweg to the graph and add a legend showing each linetype.
   Response: Bankfull and thalweg elevations were added to the crest gauge graph. A legend was added to show each line type.

10. Appendix D. - Hydrologic Data - Nesbit Groundwater Gauge Charts 1-9: Add lines showing the ground surface and brackets showing the total number of consecutive days meeting the wetland criteria to the graphs. Add a legend showing each linetype/data point (precipitation, water level, depth criteria and ground surface).
    Response: A ground surface elevation line, bracket for consecutive days meeting criteria, and legend were added to each groundwater gauge graph.

11. Appendix E, Table 14 - Project Timeline: Add all extra activities conducted at the site including supplemental boundary marking, soil amendment application and planting to the table.
    Response: All Site activities were added to the table including the following: basal bark privet treatments, lime and fertilizer application, seeding, boundary marking, horse tape installation, and invasive treatments of parrotfeather, cattail, privet, chinaberry, autumn olive, princess tree, and Johnson grass.

DMS Site Inspection Comments:

1. Row Crop and Herbicide Encroachments: DMS conducted a site inspection on January 23, 2024. No new encroachments were observed in the areas protected with horse tape. Several small areas of new crop scalloping (non-taped areas) were noted along the eastern side of the site where newly sprouted grain is now visible within the conservation easement (one to two feet). The extent of herbicide impact was not evident anywhere onsite since the vegetation is currently dormant. Please include landowner correspondence for the current effort in the MY2 (2023) report appendices to document efforts to date. Please develop a plan and schedule for inspecting the easement boundary and indicate the proposed actions to eliminate future conservation easement encroachment. DMS plans to conduct a full MY3 (2024) Property Boundary Inspection later in the year.
   Response: Landowner correspondence has been included as requested. An additional landowner coordination meeting was held on 2/9/2024 after the DMS inspection. In Q1 2024 RS will be adding additional boundary markers discussed with the landowner to improve visibility from farm equipment. This will consist of 10’ tall 1.5” PVC markers with horse tape along all field boundaries. A followup meeting with the farm manager will occur in May/June of 2024 around wheat harvest to address potential impacts related to the planned soybean crop which will follow.

2. Ag Equipment Encroachment: Mud ruts and vegetation damage were seen where a combine crossed through the conservation easement on the western side of the site near Nesbit Road. The ruts are within a wetland enhancement area and are oriented perpendicular to the stream channel. Standing water filled the ruts at the time of the site visit and are of concern due to their wetland dewatering potential. The equipment crossed over a riffle, with minimal impact to the streambed, but live stake plantings along the streambank were damaged on both sides of the channel. Please indicate the plan to address these issues.
   Response: In Q1 2024 RS will add live stakes along the affected riffle and at the ruts where standing water was observed. The ruts will be addressed by hand to ensure they do now dewater the wetland area or encourage further encroachment in that area.

3. Marsh Treatment BMPs: Significant sediment deposition was seen in the marsh treatment areas installed as BMPs during construction. Erosional rills and incising ditches are developing upgradient in the adjacent crop fields resulting in sediment deposition in the BMPs which are now mostly filled with sediment. Please indicate the plans to address the issues and include them in the MY3 (2024) report.
   Response: The marsh treatment areas have functioned as designed to capture inbound sediment above the streams. The rills developing outside the easement area were not present during the design process and have contributed more sediment than expected, moderately shortening the effective lifespan of the BMPs. However, the vegetative buffer continues to function as expected therefore there are no plans to modify these structures.

4. UT2: UT2 Reach 1 is an Enhancement II reach approximately 112 feet long. A headcut has developed in the upper end of the reach and extends outside the conservation easement several feet upgradient into the crop field. Below the headcut, Reach 1 appears to have undergone channel incision since the MY2 (2023) data collection resulting in sediment deposition downstream in the UT2 Reach 2 restoration reach. Please discuss this issue and any repair actions in the MY3 (2024) report since its development has occurred following the MY2 (2023) monitoring period. Please note that additional coordination with the IRT (through DMS) and an Adaptive Management Plan (AMP) may be required based on the proposed project repair efforts.
   Response: Noted. This area will be monitored in 2024 and discussed in the MY3 report. If action is required appropriate coordination with DMS / IRT will be enacted.

Digital Deliverables:

1. The digital deliverables were within specification. Please include a full copy of the digital files in the final report submittal.
   Response: Understood. A final digital deliverable is included with this submittal.

Nesbit Year 2, 2023 Monitoring Summary

General Notes

- Several minor occurrences of easement encroachment continued during Year 2 (2023).
  - As agricultural encroachment in the form of scalloping between easement corners remained an issue during MY2, Restoration Systems (RS) installed horse tape in these areas in Q2 2023. This along with the additional easement signage installed in late 2022, has effectively ceased encroachment activities in these areas.
  - Several areas of agricultural herbicide overspray were observed during MY2 (2023) monitoring. The overspray resulted in an elevated rate of planted stem mortality in approximately 1.47 acres (9.2% of the planted area). RS continues to work with the landowner and tenant farmer to address overspray activities.
  - In late 2023, a combine was driven across the project near vegetation plot 1, where a pre-construction crossing once existed. This was the second occurrence of this type of encroachment in this area; the first occurred in late 2022. No evidence of impacts to the stream or wetland was observed by RS staff, who investigated the encroachment in late November 2023. Vegetation plot 1 was slightly affected by the encroachment. MY3 (2024) vegetation measurements will determine if any planted stems were affected. The landowner was notified, and additional signage added.
  - These areas are depicted on the CCPV with a total approximate acreage of 0.41 ac. The site photo log includes drone photos and ground photos of easement encroachment areas (Appendix A). RS continues to work with the landowner and farm operations to cease encroachment activities.
- Minor deer browse was observed on planted stems within the upper reaches of the Site. No evidence of beaver activity was observed.
- Encroachment areas (0.41 ac) and areas of low stem density due to herbicide overspray (1.47 ac) will be replanted with containerized stock from the approved planting list in winter 2023-2024. Only previously approved species will be used and the affected area (1.88 ac, 10.4%) of site is below the AMP threshold of 20% for replanting.

Site Maintenance Report (2023)

Invasive Species Work	Maintenance work
Herbicide treatments: Parrotfeather, cattail, privet, chinaberry, autumn olive, princess tree, Johnson Grass 7/3/2023, 7/16/2023, 7/23/2023, 7/24/2023 8/5/2023, 8/16/2023	6/5/23: Scalloping by farmer observed, landowner notification initiated. 6/6/23, 6/7/23: Additional boundary marking and horse tape along perimeter installed.

Streams

- Streams remained stable with little to no deviations from MY0.
- All engineered structures were stable and functioning within design parameters; no stream areas of concern were documented.
- One bankfull event was documented during MY2 (2023) (Table 11, Appendix D).

Vegetation

- Measurements of all 18 vegetation plots resulted in an average of 337 approved stems/acre. Nine of the sixteen permanent vegetation plots and one of the two temporary transects met the interim stem density success criteria.

- Plots 9, 10, 14, and 16 have shown a great reduction in planted stem density when compared to MY0 measurements, especially in plot 9 where no planted stems survived (Table 8, Appendix B). During MY2 (2023), it was noted that these areas appear to be affected by herbicide overspray from adjacent agriculture fields, which caused significant planted stem mortality within and around the plots. RS continues to work with the landowner and tenant farmer to address these issues. The low stem density areas account for 9.2% of the planting area and will continue to be monitored during MY3-7.
- In late 2022, several clusters of parrot feather (*Myriophyllum aquaticum*) were identified in the riffles above cross-section 12 of Glen Branch at the top of the Site. It is believed these clusters washed into the Site from upstream waters. Treatment for parrot feather occurred throughout 2023 and appear to have significantly reduced the populations within the Site stream channel. Parrot feather treatment will continue as needed through the remainder of the monitoring period.

Wetlands

- Four of the nine groundwater gauges met success criteria during MY2 (2023). Gauges 4, 6, 7, and 8 each had hydrology within 12 inches of the surface for the first 12% of the growing season except for a single day (April 6) where groundwater dropped below 12 inches. Gauge 2 had a hydroperiod of 5.35% of the growing season, with just 5 out of the first 30 days of the growing season having groundwater levels below 12 inches from the surface.
- When compared with 30-year 30-70th percentile rainfall, on-site rainfall amounts remained low through March, April, and May, apart from a 2-inch rainstorm on April 8 (Figure D1, Appendix D). With more consistent rainfall through the beginning of the growing season, it is expected that groundwater would remain sufficiently charged, and all gauges would have met the 12% hydroperiod performance standard early in the growing season.

MY2 (2023) Groundwater Hydrology Data

Gauge	12% Hydroperiod Success Criteria Achieved - Max Consecutive Days During Growing Season (Percentage)						
	Year 1 (2022)	Year 2 (2023)	Year 3 (2024)	Year 4 (2025)	Year 5 (2026)	Year 6 (2027)	Year 7 (2028)
1	No – 16 Days (6.6%)	Yes – 38 Days (15.64%)					
2	No – 4 Days (1.6%)	No- 13 Days (5.35%)					
3	Yes – 50 Days (20.6%)	Yes – 69 Days (28.4%)					
4	No – 27 Days (11.1%)	No – 25 Days (10.29%)					
5	Yes – 30 Days (12.3%)	Yes – 36 Days (14.81%)					
6	No – 8 Days (3.3%)	No – 20 Days (8.23%)					
7	No – 9 Days (3.7%)	No – 20 Days (8.23%)					
8	No – 6 Days (2.5%)	No – 20 Days (8.23%)					
9	Yes – 49 Days (20.2%)	Yes – 70 Days (28.81%)					

Site Monitoring Activity and Reporting History

Project Milestones	Stream Monitoring Complete	Vegetation Monitoring Complete	Wetland Monitoring	Data Analysis Complete	Completion or Delivery
Construction Earthwork	--	--	--	--	December 7, 2021
Planting	--	--	--	--	February 3, 2022
As-Built Documentation	Feb. 8-9, 2022	February 8, 2022	--	February 2022	September 2022
Year 1 Monitoring	Sep. 18, 2022	August 24, 2022	Feb. – Nov. 2022	November 2022	February 2023
Year 2 Monitoring	April 3, 2023	August 30, 2023	Jan. – Nov. 2023	November 2023	February 2024

Proposed Site Monitoring Schedule for MY3 (2024)

Project Activities	Schedule
Standard Monitoring	Visits at least quarterly
Herbicide Treatments	Two visits, estimated July and September
Additional Planned	Three planned additional visits with special attention to boundary issues to coincide with major farm activities including (1) wheat harvest/bean planting (2) Second herbicide application on beans and (3) soybean harvest.
Other	As needed based on agency visits and landowner requests

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APPENDICES

1 PROJECT SUMMARY

Restoration Systems, LLC (RS) has established the North Carolina Division of Mitigation Services (NCDMS) Nesbit Site (Site). The Site is on one parcel along the warm water Glen Branch and unnamed tributaries to Glen Branch in the Carolina Slate Belt portion of the Piedmont ecoregion of North Carolina. Located in the Catawba River Basin, cataloguing unit 03050103, the Site is in Targeted Local Watershed 030501003030030 and North Carolina Division of Water Resources (NCDWR) subbasin number 03-08-38. The Site is not located in a Local Watershed Plan (LWP), Regional Watershed Plan (RWP), or Targeted Resource Area (TRA). The Site watershed ranges from approximately 0.07 of a square mile (46 acres) on UT2 to 1.25 square miles (799 acres) at the Site's outfall.

1.1 Project Background, Components, and Structure

Located seven miles southwest of Monroe and five miles southeast of Waxhaw in the southwest corner of Union County near the North Carolina and South Carolina border, the Site encompasses 18.0 acres. Mitigation work within the Site included 1) stream restoration, 2) stream enhancement (Level I), 3) stream enhancement (Level II), 4) wetland reestablishment, 5) wetland rehabilitation, 6) wetland enhancement, and 7) vegetation planting. The Site is expected to provide 5198.736 warm water stream credits and 6.477 riparian wetland credits by closeout (Table 1, Page 2). A conservation easement was granted to the State of North Carolina and recorded at the Union County Register of Deeds on August 28, 2020.

Before construction, the Site was characterized by agricultural row crops. Site design was completed in June 2021. Construction started on October 7, 2021 and ended within a final walkthrough on December 20, 2021. The Site was planted on February 3, 2022. Completed project activities, reporting history, completion dates, and project contacts are summarized in Tables 14-15 (Appendix E).

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Table 1. Nesbit Mitigation Site (ID-100121) Project Mitigation Quantities and Credits

Project Segment	Original Mitigation Plan Ft/Ac	As-Built Ft/Ac	Original Mitigation Category	Original Restoration Level	Original Mitigation Ratio (X:1)	Credits	Comments
Stream							
Glen Br Reach 1	1275	1260	Warm	R	1.00000	1,275.000	
Glen Br Reach 2	63	62	Warm	EI	1.50000	42.000	
Glen Br Reach 3	2776	2763	Warm	R	1.00000	2,776.000	
UT 1A	314	314	Warm	EII	5.00000	62.800	
UT 1 Reach 1	253	253	Warm	EI	2.50000	101.200	
UT 1 Reach 2	381	373	Warm	R	1.00000	381.000	
UT 1 Reach 3	115	116	Warm	EII	2.50000	46.000	
UT 1 Reach 4	171	169	Warm	R	1.00000	171.000	
UT 2 Reach 1	112	112	Warm	EII	2.50000	44.800	
UT 2 Reach 2	197	197	Warm	R	1.00000	197.000	
					Total:	**5,096.800**	
Wetland							
Wetland Reestablishment	5.338	5.338	R	REE	1.00000	5.338	
Wetland Rehabilitation	0.902	0.902	R	RH	1.50000	0.601	
Wetland Enhancement	1.075	1.075	R	E	2.00000	0.538	
					Total:	**6.477**	

Project Credits

	Stream			Riparian	Non-Rip	Coastal
Restoration Level	Warm	Cool	Cold	Wetland	Wetland	Marsh
Restoration	4,800.000	0.000	0.000	0.000	0.000	0.000
Re-establishment				5.338	0.000	0.000
Rehabilitation				0.601	0.000	0.000
Enhancement				0.538	0.000	0.000
Enhancement I	143.200	0.000	0.000			
Enhancement II	153.600	0.000	0.000			
Preservation				0.000	0.000	0.000
Benthics	101.936	0.000	0.000	0.000	0.000	
Totals	**5,198.736**	**0.000**	**0.000**	**6.477**	**0.000**	**0.000**

Total Stream Credit **5,198.736**
Total Wetland Credit **6.477**

Wetland Mitigation Category

CM	Coastal Marsh
R	Riparian
NR	Non-Riparian

Restoration Level

HQP	High Quality Preservation
P	Preservation
E	Wetland Enhancement - Veg and Hydro
EII	Stream Enhancement II
EI	Stream Enhancement I
C	Wetland Creation
RH	Wetland Rehabilitation - Veg and Hydro
REE	Wetland Re-establishment Veg and Hydro
R	Restoration

Table 2. Summary: Goals, Performance, and Results

Goals	Objectives	Success Criteria
(1) HYDROLOGY		
- Minimize downstream flooding to the maximum extent possible. - Connect streams to functioning wetland systems.	- Construct a new channel at historic floodplain elevation to restore overbank flows and restore/enhance jurisdictional wetlands - Plant woody riparian buffer - Install marsh treatment areas - Remove agricultural row crops - Deep rip floodplain soils to reduce compaction and increase soil surface roughness - Protect riparian buffers with a perpetual conservation easement	- BHR not to exceed 1.2 - Document four overbank events in separate monitoring years - Attain Wetland Hydrology Success Criteria - Attain Vegetation Success Criteria - Conservation Easement recorded
- Increase stream stability within the Site so that channels are neither aggrading nor degrading.	- Construct channels with a proper pattern, dimension, and longitudinal profile - Remove agricultural row crops - Construct stable channels with the appropriate substrate - Upgrade forded crossings - Plant woody riparian buffer - Stabilize stream banks	- Cross-section measurements indicate a stable channel with the appropriate substrate - Visual documentation of stable channels and structures - BHR not to exceed 1.2 - < 10% change in BHR in any given year - Attain Vegetation Success Criteria
(1) WATER QUALITY		
- Remove direct nutrient and pollutant inputs from the Site and reduce contributions to downstream waters.	- Remove agricultural row crops and reduce agricultural land/inputs - Install marsh treatment areas - Plant woody riparian buffer - Restore/enhance jurisdictional wetlands adjacent to Site streams - Provide surface roughness and reduce compaction through deep ripping/plowing - Restore overbank flooding by constructing channels at historic floodplain elevation	- Attain Wetland Hydrology Success Criteria - Attain Vegetation Success Criteria
(1) HABITAT		
- Improve instream and streamside habitat.	- Construct stable channels with the appropriate substrate - Plant woody riparian buffer to provide organic matter and shade - Construct a new channel at historic floodplain elevation to restore overbank flows - Plant woody riparian buffer - Protect riparian buffers with a perpetual conservation easement - Restore/enhance jurisdictional wetlands adjacent to Site streams - Stabilize stream banks - Install in-stream structures	- Cross-section measurement indicates a stable channel with the appropriate substrate - Visual documentation of stable channels and in-stream structures - Attain Wetland Hydrology Success Criteria - Attain Vegetation Success Criteria - Conservation Easement recorded

1.2 Success Criteria

Monitoring and success criteria for stream restoration should relate to project goals and objectives identified from on-site North Carolina Stream Assessment Method (NC SAM) data collection (NC SFAT 2015). From a mitigation perspective, several of the goals and objectives are assumed to be functionally elevated by restoration activities without direct measurement. Other goals and objectives will be considered successful upon achieving success criteria. The following summarizes Site success criteria.

Table A. Success Criteria

Streams
• All streams must maintain an Ordinary High-Water Mark (OHWM), per RGL 05-05. • A continuous surface flow must be documented each year for at least 30 consecutive days. • Bank height ratio (BHR) cannot exceed 1.2 at any measured cross-section. • BHR at any measure riffle cross-section should not change by more than 10% from baseline condition during any given monitoring period. • The stream project shall remain stable, and all other performance standards shall be met through four separate bankfull events, occurring in individual years, during the monitoring years 1-7. • Intermittent streams will demonstrate at least 30-days consecutive flow.
Wetland Hydrology
• Annual saturation or inundation within the upper 12 inches of the soil surface for, at a minimum, 12 percent of the growing season during average climatic conditions.
Vegetation
• Within planted portions of the Site, a minimum of 320 stems per acre must be present at year 3; a minimum of 260 stems per acre must be present at year 5; and a minimum of 210 stems per acre must be present at year 7. • Trees must average 7 feet in height at year 5 and 10 feet in height at year 7 in each plot. • Planted and volunteer stems are counted, provided they are included in the approved planting list for the Site; natural recruits not on the planting list may be considered by the IRT on a case-by-case basis.

2 METHODS

Monitoring will be conducted in accordance with 2016 North Carolina Interagency Review Team (NCIRT) Guidelines. Monitoring will be conducted by Axiom Environmental, Inc based on the schedule in the following table. A monitoring summary is outlined in the table on page 6. Annual monitoring reports will be submitted to the NCDMS by Restoration Systems no later than December 1 of each monitoring year data is collected.

Table B. Monitoring Schedule

Resource	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Streams	x	x	x		x		x
Wetlands	x	x	x	x	x	x	x
Vegetation	x	x	x		x		x
Macroinvertebrates			x		x		x
Visual Assessment	x	x	x	x	x	x	x
Report Submittal	x	x	x	x	x	x	x

Table C. Monitoring Summary

Stream Parameters				
Parameter	**Method**	**Schedule/Frequency**	**Number/Extent**	**Data Collected/Reported**
Stream Profile	Full longitudinal survey	As-built (unless otherwise required)	All restored stream channels	Graphic and tabular data.
Stream Dimension	Cross-sections	Years 1, 2, 3, 5, and 7	Total of 12 cross-sections on restored channels	Graphic and tabular data.
Channel Stability	Visual Assessments	Yearly	All restored stream channels	Areas of concern will be depicted on a plan view figure with a written assessment and photographs
	Additional Cross-sections	Yearly	Only if instability is documented during monitoring	Graphic and tabular data.
Stream Hydrology	Continuous monitoring of surface water gauges and/or trail camera	Continuous recording through the monitoring period	1 surface water gauge on UT1 and 1 surface water gauge on UT2	Surface water data for each monitoring period
Bankfull Events	Continuous monitoring of surface water gauges and/or trail camera	Continuous recording through the monitoring period	1 surface water gauges on Glen Branch	Surface water data for each monitoring period
	Visual/Physical Evidence	Continuous through the monitoring period	All restored stream channels	Visual evidence, photo documentation, and/or rain data.
Benthic Macroinvertebrates	"Qual 4" method described in *Standard Operating Procedures for Collection and Analysis of Benthic Macroinvertebrates, Version 5.0* (NCDWR 2016)	Pre-construction, Years 3, 5, and 7 during the "index period" referenced in *Small Streams Biocriteria Development* (NCDWQ 2009)	3 stations (Glen Br upper and lower reaches, and the lower reach of UT 1)	Results* will be presented on a site-by-site basis and will include a list of taxa collected, an enumeration of *Ephemeroptera, Plecoptera,* and *Tricopetera* taxa as well as Biotic Index values.
Wetland Parameters				
Parameter	**Method**	**Schedule/Frequency**	**Number/Extent**	**Data Collected/Reported**
Wetland Restoration	Groundwater gauges	Years 1, 2, 3, 4, 5, 6, and 7 throughout the year with the growing season defined as March 17-November 14**	9 gauges spread throughout restored wetlands	Groundwater and rain data for each monitoring period
Vegetation Parameters				
Parameter	**Method**	**Schedule/Frequency**	**Number/Extent**	**Data Collected/Reported**
Vegetation establishment and vigor	Permanent vegetation plots 0.0247 acre (100 square meters) in size; *CVS-EEP Protocol for Recording Vegetation, Version 4.2* (Lee et al. 2008)	As-built, Years 1, 2, 3, 5, and 7	16 plots spread across the Site	Species, height, planted vs. volunteer, stems/acre
	Annual random vegetation plots, 0.0247 acre (100 square meters) in size	As-built, Years 1, 2, 3, 5, and 7	Only if poor vegetation grow is documented during monitoring	Species and height

*Benthic Macroinvertebrate sampling data will not be tied to success criteria; however, the data may be used as a tool to observe positive gains to in-stream habitat.

**In accordance with IRT request after submittal of the MY0 report, the growing season for this site will be based on the latest 30-year WETS data (Station Monroe 2 SE, NC, 1991-2021) and is defined as March 17 to November 14 (243 days). Soil temperature and bud burst documentation will not be required to verify growing season start dates.

3 MONITORING YEAR 2– DATA ASSESSMENT

Annual monitoring and site visits were conducted between January and November 2023 to assess the condition of the project. Stream, wetland, and vegetation criteria for the Site follow the approved success criteria presented in the Mitigation Plan and summarized in Section 1.2; monitoring methods are detailed in Section 2.

3.1 Stream Assessment

Morphological surveys for MY2 were conducted in April 2023 and stream reaches were visually inspected during subsequent monitoring visits. All streams within the Site are stable and functioning as designed. Site streams continue to maintain an ordinary high-water mark, and no cross-sections have bank height ratios greater than 1.2. No stream areas of concern were identified during MY2. Refer to Appendix A for the Visual Stream Morphology Stability Assessment Table and Stream Photographs. Refer to Appendix C for Stream Geomorphology Data.

One bankfull event was documented during MY2 (2023) for a total of 2 bankfull events; one during each of the 2 monitoring years (Table 10, Appendix D). Additionally, UT1 and UT2 each maintained flow for well over 30 consecutive days during MY2, with 158 and 132 days respectively (Tables 13A-B, Appendix D).

3.2 Wetland Assessment

Four of the nine groundwater gauges met success criteria during MY2 (2023). Gauges 4, 6, 7, and 8 each had hydrology within 12 inches of the surface for the first 12% of the growing season except for a single day (April 6) where groundwater dropped below 12 inches. Gauge 2 had a hydroperiod of 5.35% of the growing season, with just 5 out of the first 30 days of the growing season having groundwater levels below 12 inches from the surface.

When compared with 30-year 30-70th percentile rainfall, on-site rainfall amounts remained low through March, April, and May, apart from a 2-inch rainstorm on April 8 (Figure D1, Appendix D). With more consistent rainfall through the beginning of the growing season, it is expected that groundwater would remain sufficiently charged, and all gauges would have met the 12% hydroperiod performance standard early in the growing season.

3.3 Vegetative Assessment

The MY2 vegetative survey was completed on August 30, 2023. Vegetation monitoring resulted in a sitewide stem density average of 337 planted stems per acre, above the interim requirement of 320 stems per acre at MY3. Nine of the sixteen permanent vegetation plots and one of the two temporary transects met the interim stem density success criteria. Please refer to Appendix A for Vegetation Plot Photographs and the Vegetation Condition Assessment Table, and Appendix B for Vegetation Plot Data.

Plots 9, 10, 14, and 16 have shown a great reduction in planted stem density when compared to MY0 measurements, especially in plot 9 where no planted stems survived (Table 8, Appendix B). During MY2 (2023), it was noted that these areas appear to be affected by herbicide overspray from adjacent agriculture fields, which caused significant planted stem mortality within and around the plots. RS continues to work with the landowner and tenant farmer to address these issues. Other isolated instances of planted stem mortality can be attributed to competition from a dense herbaceous layer and scattered occurrences of invasive species. Invasive species observed included cattail, privet, chinaberry, autumn olive, princess tree, and Johnson grass, which were both treated over multiple Site visits during July and August 2023. It is expected that invasive species treatments will help reduce competition and decrease planted stem mortality rates, although the majority of the planted stem mortality observed during MY2 can be attributed to the aforementioned agricultural herbicide overspray. Low stem density areas account for 9.2% of the planting area and will continue to be monitored during MY3-7. Live stakes planted along stream banks are generally vigorous and were not observed to be affected by herbaceous competition or herbicide overspray.

In late 2022, several clusters of parrot feather (*Myriophyllum aquaticum*) were identified in the riffles above cross-section 12 of Glen Branch at the top of the Site. It is believed these clusters washed into the Site from upstream waters. Treatment for parrot feather occurred throughout summer 2023 and appear to have significantly reduced the populations within the Site stream channel. Parrot feather treatment will continue as needed through the remainder of the monitoring period.

Table 3. Project Attribute Table					
Project Information					
Project Name	Nesbit Site				
Project County	Union County, North Carolina				
Project Area (acres)	18				
Project Coordinates (latitude & latitude)	34.8936, -80.6544				
Planted Area (acres)	16				
Project Watershed Summary Information					
Physiographic Province	Piedmont				
Project River Basin	Catawba				
USGS HUC for Project (14-digit)	03050103030030				
NCDWR Sub-basin for Project	03-08-38				
Project Drainage Area (acres)	798.8				
Percentage of Project Drainage Area that is Impervious	<5%				
CGIA Land Use Classification	Managed Herbaceous Cover				
Reach Summary Information					
Parameters	**Glen Br Upstream**	**Glen Br Downstream**	**UT 1A**	**UT1**	**UT 2**
Length of reach (linear feet)	1586	2499	314	971	309
Valley Classification & Confinement	Alluvial, confined				
Drainage Area (acres)	494.6	798.8	152.6	176.7	45.6
NCDWR Stream ID Score	--	--	28	33	30
Stream Thermal Regime	Warm				
Perennial, Intermittent, Ephemeral	Perennial	Perennial	Perennial/ Intermittent	Perennial	Perennial/ Intermittent
NCDWR Water Quality Classification	C				
Existing Morphological Description (Rosgen 1996)	Cg4	Eg 4	-----	Eg 4	Eg 6
Proposed Stream Classification (Rosgen 1996)	Ce 3/4	Ce 3/4	-----	Ce 3/4	Ce 3/4
Existing Evolutionary Stage (Simon and Hupp 1986)	III/IV	III/IV	III	II/III	II/III
Underlying Mapped Soils	Secrest Cid complex				
Drainage Class	Somewhat poorly drained				
Hydric Soil Status	Nonhydric (may contain hydric inclusions)				
Valley Slope	0.0077	0.0048	0.0204	0.0086	0.0147
FEMA Classification	AE floodway	AE floodway	NA	NA	AE floodway
Native Vegetation Community	Piedmont Alluvial Forest/Dry-Mesic Oak-Hickory Forest				
Watershed Land Use/Land Cover (Site)	30% forest, 65% ag. land, 5% low density residential/impervious surface				
Watershed Land Use/Land Cover (Uwharrie Reference Channel)	100% forest				
Percent Composition of Exotic Invasive Vegetation	15%				

Wetland Summary Information	
Parameters	**Wetlands**
Wetland acreage	5.338 acres reestablished & 1.977 acres enhanced/rehabilitated
Wetland Type	Riparian riverine
Mapped Soil Series	Secrest Cid Complex
Drainage Class	Somewhat Poorly drained
Hydric Soil Status	Nonhydric (may contain hydric inclusions)
Source of Hydrology	Groundwater, stream overbank
Hydrologic Impairment	Incised streams, compacted soils, agriculture
Native Vegetation Community	Piedmont/Low Mountain Alluvial Forest
% Composition of Exotic Invasive Vegetation	<5%
Restoration Method	Hydrologic and vegetative
Enhancement Method	---

Regulatory Considerations			
Regulation	**Applicable?**	**Resolved?**	**Supporting Documentation**
Waters of the United States-Section 401	Yes	Yes	Section 401 Certification
Waters of the United States-Section 404	Yes	Yes	Section 404 Permit
Endangered Species Act	Yes	Yes	CE Document (App E)
Historic Preservation Act	Yes	Yes	CE Document (App E)
Coastal Zone Management Act	No	--	NA
FEMA Floodplain Compliance	Yes	Yes	DMS FEMA Checklist (App E)
Essential Fisheries Habitat	No	--	NA

4 REFERENCES

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North Carolina Wetland Functional Assessment Team. (NC WFAT 2010). N.C. Wetland Assessment Method (NC WAM) User Manual. Version 4.1.

Appendix A: Visual Assessment Data

Figure 1. Current Conditions Plan View
Table 4A-C. Visual Stream Morphology Stability Assessment Table
Table 5. Vegetation Condition Assessment Table
Vegetation Plot Photographs
Site Photo Log

Legend

- Nesbit Easement = 18.0 ac
- Subject Parcel Boundary
- Stream Restoration
- Stream Enhancement (Level I)
- Stream Enhancement (Level II)
- Stream Generating No Credit
- Instream Structures
- Wetland Reestablishment
- Wetland Rehabilitation
- Wetland Enhancement
- Cross Sections
- Permanent Vegetation Plots Meeting MY3 Stem Density Requirement
- Permanent Vegetation Plots Not Meeting MY3 Stem Density Requirement
- Vegetation Plot Origins
- Temporary Vegetation Transects Meeting MY3 Stem Density Requirement
- Temporary Vegetation Transects Not Meeting MY3 Stem Density Requirement
- Goundwater Gauges Meeting Success Criteria
- Goundwater Gauges Not Meeting Success Criteria
- Rain Gauge/Soil Probe
- Stream Crest Gauge
- Stream Flow Gauge
- Photo Points
- Marsh Treatment Areas
- MY2 (2023) Easement Encroachment Areas
- MY2 (2023) Low Stem Density Areas (Herbicide Overspray)

UT-2
Glen Branch
UT-1
UT-1A
Nesbit Road
Rain Gauge
XS 1
XS 2
XS 3
XS 4
XS 5
XS 6
XS 7
XS 8
XS 9
XS 10
XS 11
XS 12

0 300 600 1,200 Feet

Note: Basemap is drone imagery from February 2022 overlaid on 2019 orthoimagery from NC OneMap.

N

Axiom Environmental, Inc.

Prepared for:

RESTORATION SYSTEMS | LLC

Project:

NESBIT SITE

Union County, NC

Title:

CURRENT CONDITIONS PLAN VIEW

Drawn by: KRJ

Date: DEC 2023

Scale: 1:3000

Project No.: 20-007

FIGURE

1

Table 4A. Visual Stream Stability Assessment

Reach	Glen Branch
Assessed Stream Length	4085
Assessed Bank Length	8170

Major Channel Category		Metric	Number Stable, Performing as Intended	Total Number in As-built	Amount of Unstable Footage	% Stable, Performing as Intended
Bank	**Surface Scour/Bare Bank**	Bank lacking vegetative cover resulting simply from poor growth and/or surface scour			0	100%
	Toe Erosion	Bank toe eroding to the extent that bank failure appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	100%
	Bank Failure	Fluvial and geotechnical - rotational, slumping, calving, or collapse			0	100%
				Totals	0	100%
Structure	**Grade Control**	Grade control structures exhibiting maintenance of grade across the sill.	32	32		100%
	Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in DMS monitoring guidance document)	32	32		100%

Table 4B. Visual Stream Stability Assessment

Reach	UT 1
Assessed Stream Length	971
Assessed Bank Length	1942

Major Channel Category		Metric	Number Stable, Performing as Intended	Total Number in As-built	Amount of Unstable Footage	% Stable, Performing as Intended
Bank	**Surface Scour/Bare Bank**	Bank lacking vegetative cover resulting simply from poor growth and/or surface scour			0	100%
	Toe Erosion	Bank toe eroding to the extent that bank failure appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	100%
	Bank Failure	Fluvial and geotechnical - rotational, slumping, calving, or collapse			0	100%
				Totals	0	100%
Structure	**Grade Control**	Grade control structures exhibiting maintenance of grade across the sill.	15	15		100%
	Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in DMS monitoring guidance document)	15	15		100%

Table 4C. Visual Stream Stability Assessment

Reach	UT 2
Assessed Stream Length	309
Assessed Bank Length	618

Major Channel Category		Metric	Number Stable, Performing as Intended	Total Number in As-built	Amount of Unstable Footage	% Stable, Performing as Intended
Bank	**Surface Scour/Bare Bank**	Bank lacking vegetative cover resulting simply from poor growth and/or surface scour			0	100%
	Toe Erosion	Bank toe eroding to the extent that bank failure appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	100%
	Bank Failure	Fluvial and geotechnical - rotational, slumping, calving, or collapse			0	100%
				Totals	0	100%
Structure	**Grade Control**	Grade control structures exhibiting maintenance of grade across the sill.	4	4		100%
	Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in DMS monitoring guidance document)	4	4		100%

Table 5. Visual Vegetation Assessment

Planted acreage **16.0**

Vegetation Category	Definitions	Mapping Threshold	Combined Acreage	% of Planted Acreage
Bare Areas	Very limited cover of both woody and herbaceous material.	0.10 acres	0.00	0.0%
Low Stem Density Areas	Woody stem densities clearly below target levels based on current MY stem count criteria. These three areas appear to be affected by herbicide overspray from adjacent agriculture fields.	0.10 acres	1.47	9.2%
		Total	1.47	9.2%
Areas of Poor Growth Rates	Planted areas where average height is not meeting current MY Performance Standard.	0.10 acres	0.00	0.0%
		Cumulative Total	1.47	9.2%

Easement Acreage **18.0**

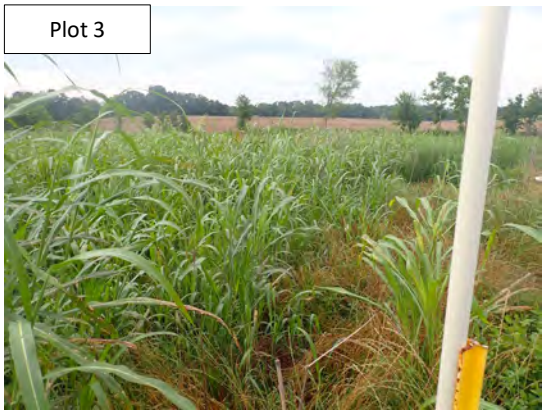
Vegetation Category	Definitions	Mapping Threshold	Combined Acreage	% of Easement Acreage
Invasive Areas of Concern	Invasives may occur outside of planted areas and within the easement and will therefore be calculated against the total easement acreage. Include species with the potential to directly outcompete native, young, woody stems in the short-term or community structure for existing communities. Species included in summation above should be identified in report summary.	0.10 acres	0.00	0.0%
Easement Encroachment Areas	Ten areas of scalloping between easement corners by row crop equipment. One area where a piece of heavy machinery drove across the easement (near vegetation plot 1). The areas have been marked with horse tape and additional easement signage. The 3 low stem density polygons (1.47 acres) listed above are included here as well, since herbicide overspray, which is the primary cause of stem mortality in these areas, is also considered easement encroachment.	none	14 polygons - 1.88 acres total	

Nesbit Site
MY2 (2023) Vegetation Monitoring Photographs

Plot 1

Plot 2

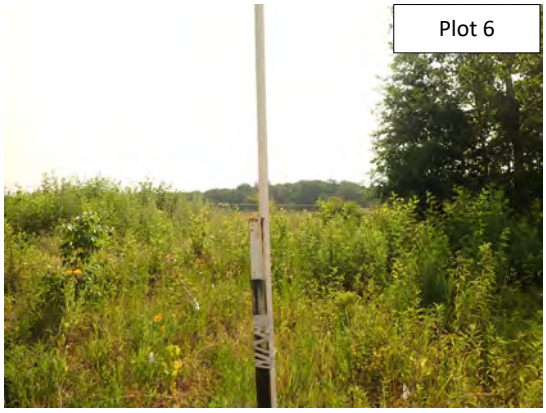
Plot 3



Plot 4

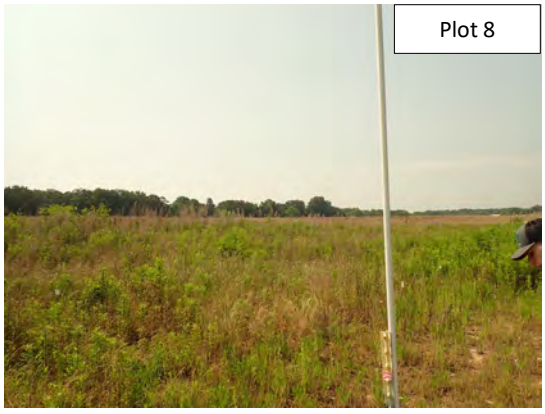
Plot 5

Plot 6



Plot 7

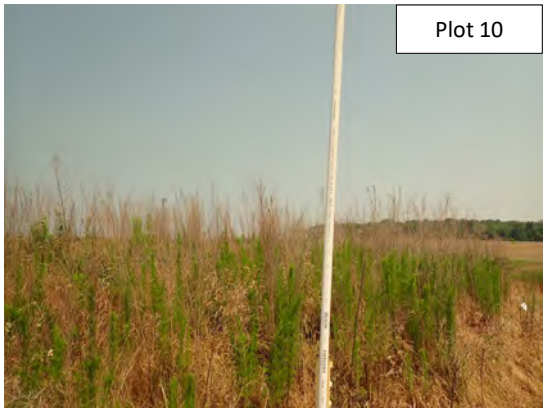
Plot 8



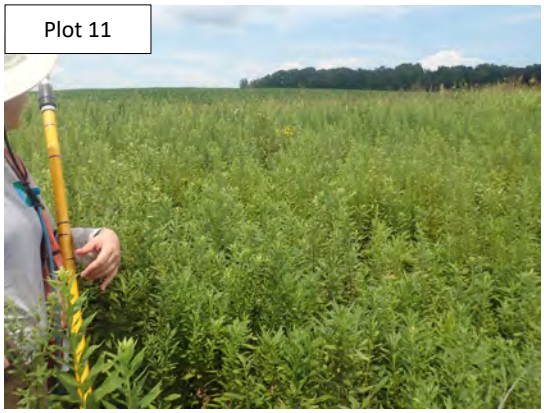
Nesbit Site
MY2 (2023) Vegetation Monitoring Photographs

Plot 9

Plot 10



Plot 11

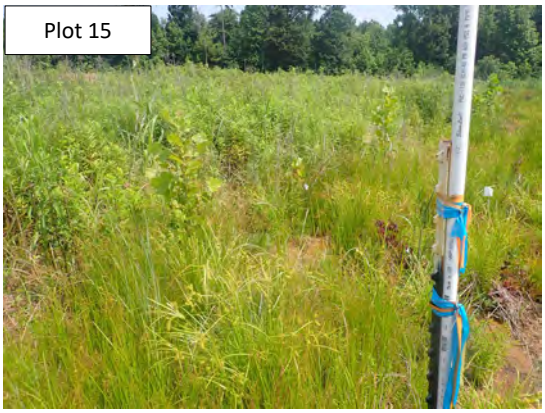


Plot 12

Plot 13

Plot 14

Plot 15



Plot 16

Nesbit Site
MY2 (2023) Transect Monitoring Photographs

Transect 1

Transect 2

Nesbit
MY-02 (2023) Photo Log

Photo 1: CCPV Permanent Photo Point 1
UT 1 Crossing, facing upstream

Photo 2: CCPV Permanent Photo Point 2
UT 1 Crossing, facing downstream

Nesbit
MY-02 (2023) Photo Log

Photo 3: CCPV Permanent Photo Point 3
Glen Branch Crossing, facing upstream

Photo 4: CCPV Permanent Photo Point 4
Glen Branch Crossing, facing downstream

Nesbit
MY-02 (2023) Photo Log

Photo 5: Site Overview, facing north

Photo 6: Glen Branch Upper Reach Overview

Nesbit
MY-02 (2023) Photo Log

Photo 7: Glen Branch Lower Reach

Photo 8: Glen Branch Upper Reach

Nesbit
MY-02 (2023) Photo Log

Photo 9: UT-1

Photo 10: UT-2 origin

Nesbit
MY-02 (2023) Photo Log

Photo 11: Site Outfall looking upstream

Photo 12: Glen Branch looking downstream near XS 5 and 6

Nesbit
MY-02 (2023) Photo Log

Photo 13: Glen Branch looking upstream near XS 5 and 6

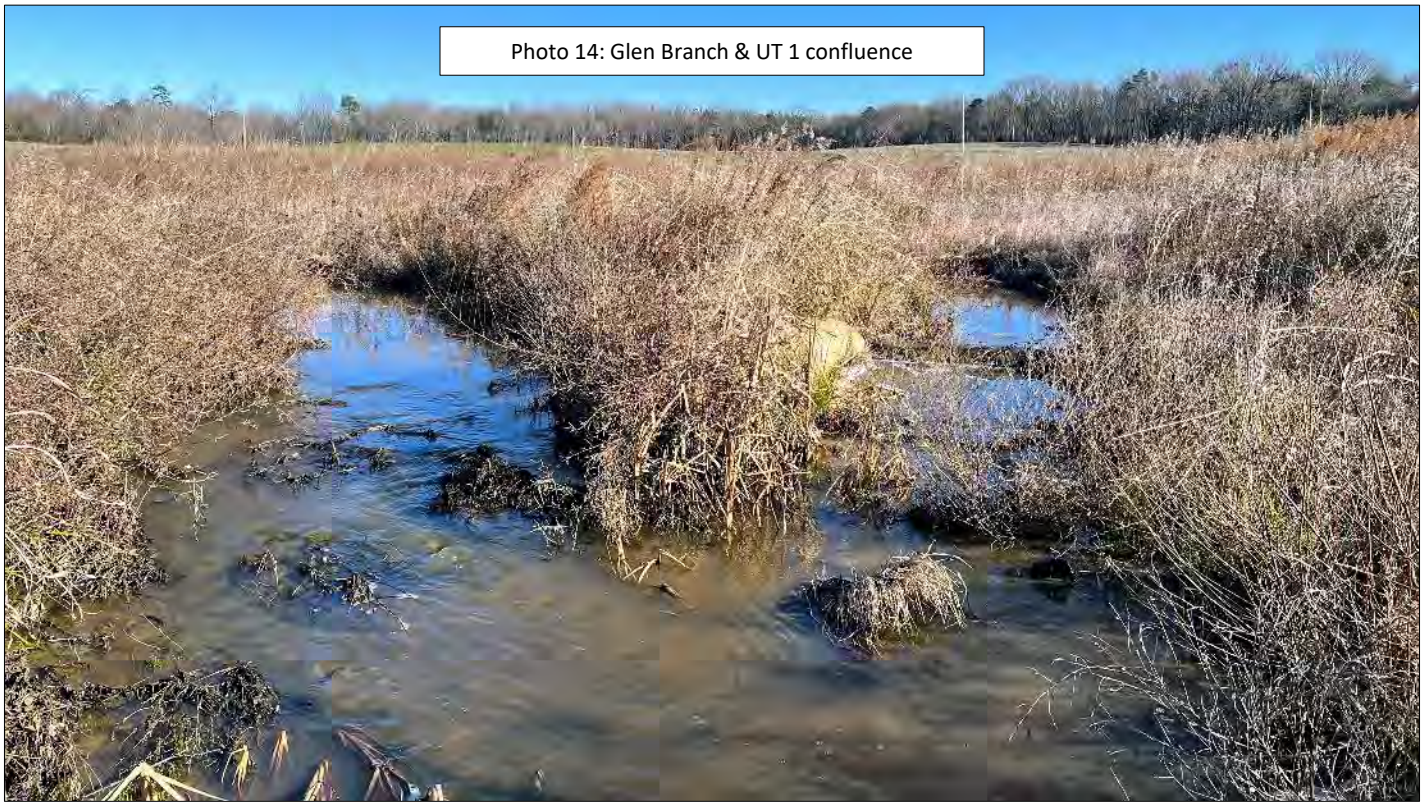


Photo 14: Glen Branch & UT 1 confluence

Nesbit
MY-02 (2023) Photo Log

Photo 15: Glen Branch ford crossing (near permanent photo points 3 and 4)

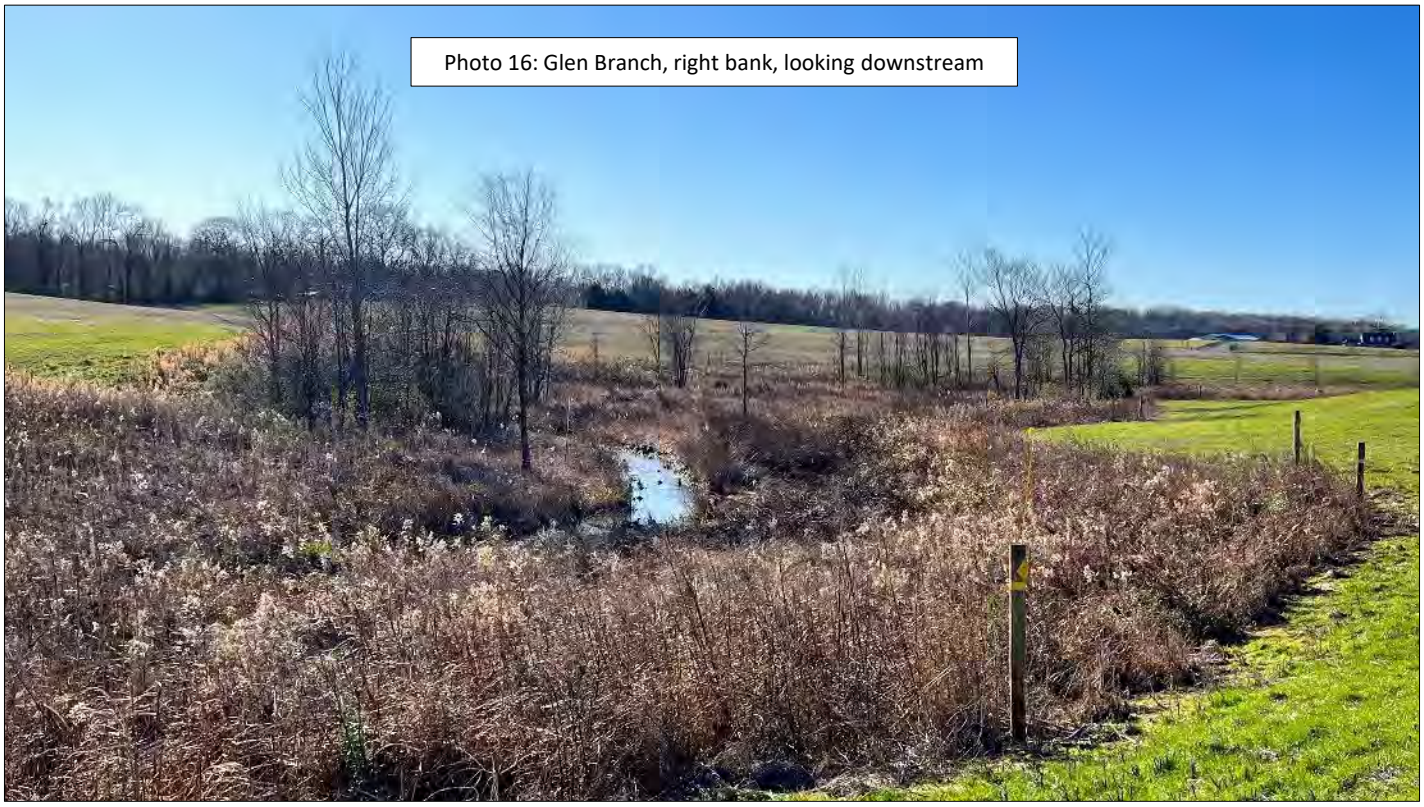


Photo 16: Glen Branch, right bank, looking downstream

Nesbit
MY-02 (2023) Photo Log

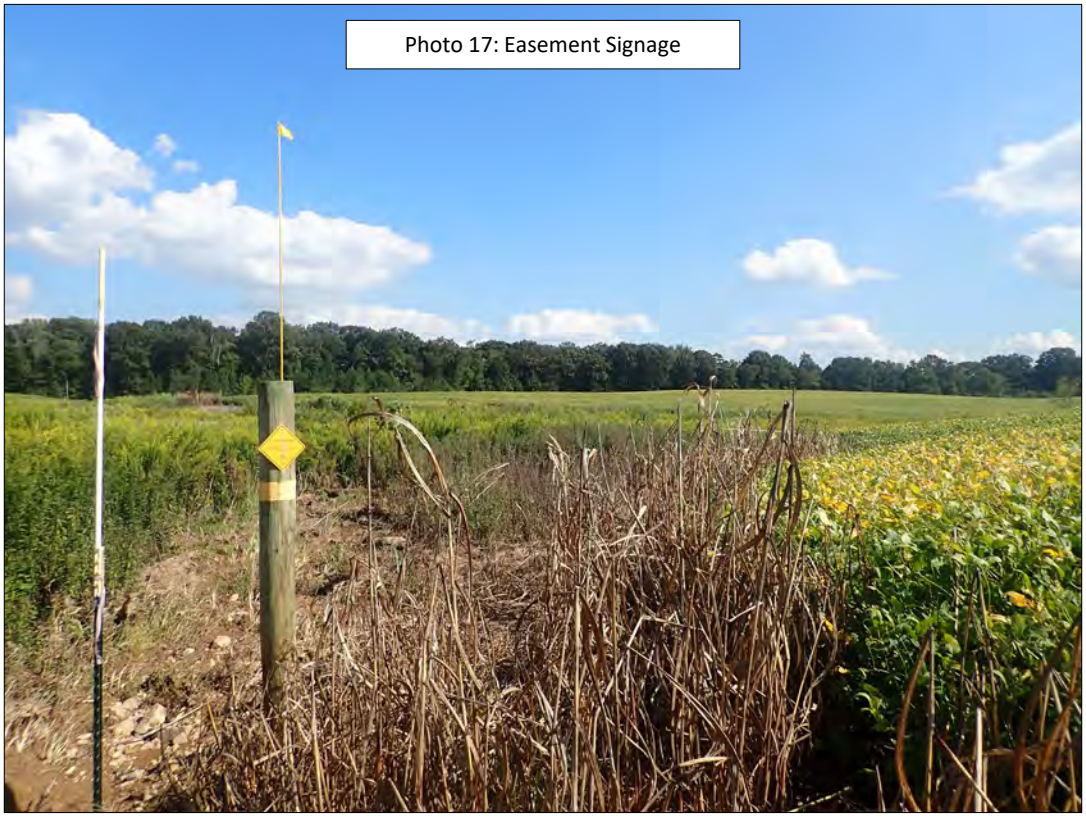


Photo 17: Easement Signage

Photo 18: Easement Signage

Nesbit
MY-02 (2023) Photo Log

Photo 19: Edge of Easement Glen Branch Lower Reach

Photo 20: UT1 crossing with easement signage

Nesbit
MY-02 (2023) Photo Log

Photo 21: Horse tape for further encroachment prevention

Photo 22: Horse tape for further encroachment prevention

Nesbit
MY-02 (2023) Photo Log

Photo 23: Glen Branch, easement encroachment near plot 1, from the western easement edge

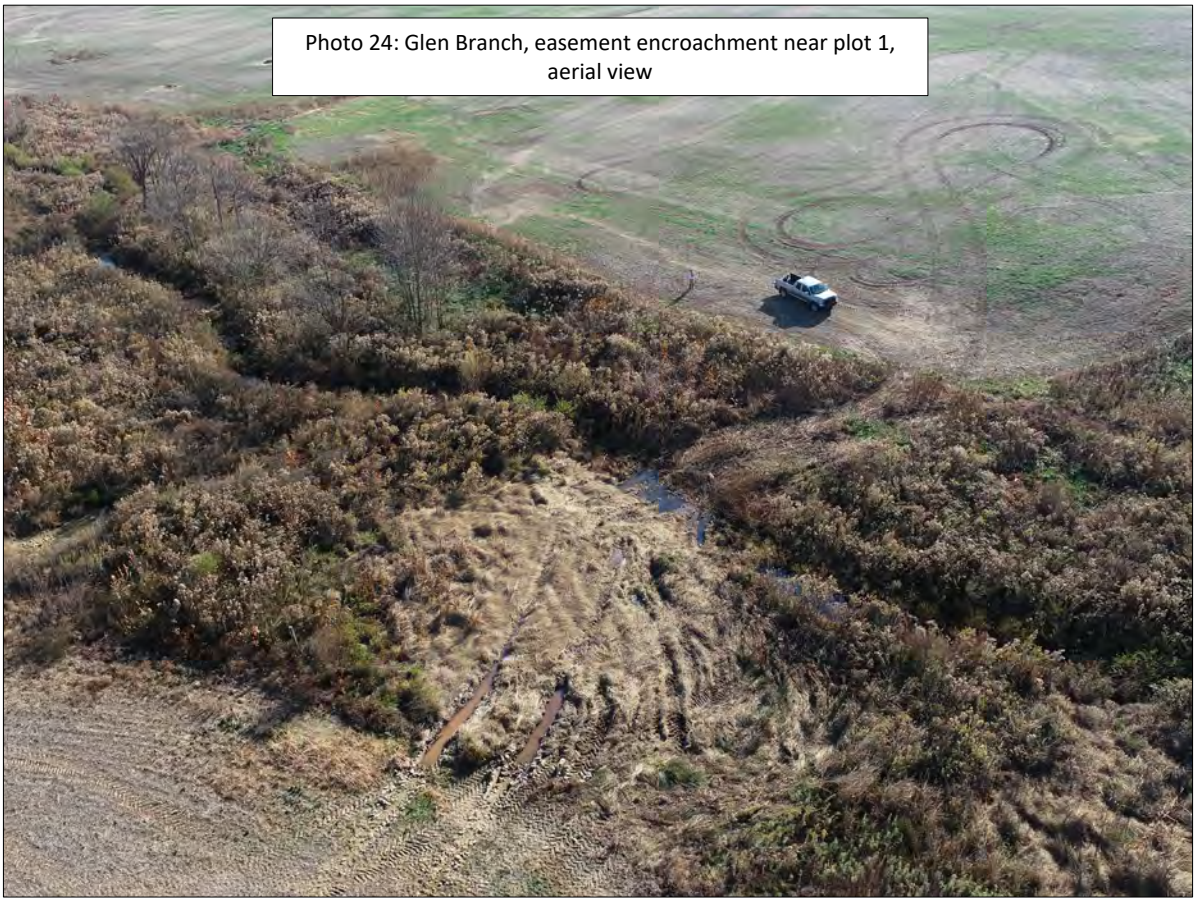


Photo 24: Glen Branch, easement encroachment near plot 1, aerial view

Nesbit
MY-02 (2023) Photo Log

Photo 25: Horse tape installed along areas of easement encroachment on Glen Branch

Photo 26: Horse tape installed along areas of easement encroachment on Glen Branch

Nesbit
MY-02 (2023) Photo Log

Photo 27: Horse tape installed along areas of easement encroachment on Glen Branch

Photo 28: Horse tape installed along areas of easement encroachment on UT1

Nesbit
MY-02 (2023) Photo Log

Photo 29: Bud Burst of *Liquidambar styraciflua*
Photo Taken 2/13/2023

Photo 30: Bud Burst of *Ulmus alata*
Photo Taken 2/13/23

Appendix B: Vegetation Data

Table 6A. Planted Bare-Root Woody Vegetation
Table 6B-C. Permanent Seed Mixes
Table 7. Vegetation Plot Counts and Densities
Table 8. Vegetation Plot Data Table from Vegetation Data Entry Tool

Table 6A. Planted Bare Root Woody Vegetation
Nesbit Site

Vegetation Association	Piedmont/Mountain Bottomland Forest*		Dry-Mesic Oak-Hickory Forest*		Stream-side Assemblage**		TOTAL
Area (acres)	**7.2**		**5.0**		**3.8**		**16.0**
Species	**# planted***	**% of total**	**# planted***	**% of total**	**# planted****	**% of total**	**# planted**
River birch (*Betula nigra*)	250	5	--	--	1750	17	2000
Shagbark hickory (*Carya cordiformis*)	500	10	--	--	--	--	500
Hackberry (*Celtis occidentalis*)	400	8	--	--	600	6	1000
Red bud (*Cercis canadensis*)	--	--	600	18	--	--	600
Silky dogwood (*Cornus amomum*)	350	7	--	--	2150	21	2500
Persimmon (*Diospyros virginiana*)	--	--	500	15	--	--	500
Green ash (*Fraxinus pennsylvanica*)	200	4.5	--	--	700	7	900
Tulip poplar (*Liriodendron tulipifera*)	200	4.5	150	4	650	6.5	1000
Red mulberry (*Morus rubra*)	--	--	150	4	350	3	500
Black gum (*Nyssa sylvatica*)	300	6	--	--	950	9	1250
Sycamore (*Platanus occidentalis*)	400	8	150	4	1700	16.5	2250
White oak (*Quercus alba*)	200	4.5	150	4	650	6	1000
Water oak (*Quercus nigra*)	1000	20	1000	30	--	--	2000
Willow oak (*Quercus phellos*)	200	4.5	--	--	800	8	1000
Red oak (*Quercus rubra*)	--	--	500	15	--	--	500
Shumard oak (*Quercus shumardii*)	600	12	--	--	--	--	600
American elm (*Ulmus americana*)	300	6	200	6	--	--	500
TOTAL	**4900**	**100**	**3400**	**100**	**10300**	**100**	**18600**

Table 6B. Permanent Seed Mix
Nesbit Site – Sitewide Mix

Species*	Percentage	Species*	Percentage
Achillea millefolium	0.4	*Gaillardia perennial*	2
Agrostis gigantea	15	*Helianthus angustifolius*	1
Agrostis hyemalis	5	*Heliopsis helianthoides*	1
Agrostis stolonifera	2	*Hibiscus moscheutos*	0.5
Baptisia australis	2	*Juncus tenuis*	0.5
Carex vulpinoidea	1	*Lespedeza capitata*	0.5
Chamaecrista fasciculata	1	*Liatris spicata*	1
Chamaecrista nictitans	1	*Monarda fistulosa*	0.5
Chrysanthemum leucanthemum	4.5	*Panicum clandestinum*	5
Chrysanthemum x superbum	3	*Panicum rigidulum*	0.5
Coreopsis lanceolata	4	*Penstemon digitalis*	1
Coreopsis tinctoria	4	*Rudbeckia amplexicaulis*	1
Cosmos bipinnatus	1	*Rudbeckia hirta*	3
Delphinium ajacis	2	*Schizachyrium scoparium*	5
Desmodium canadense	1	*Senna hebecarpa*	0.5
Echinacea purpurea	5	*Tridens flavus*	18
Elymus virginicus	5	*Verbena hastata*	1
Eupatorium perfoliatum	0.5		
		Total	**100**

Table 6C. Permanent Seed Mix
Nesbit Site – Streamside & Wetland Mix

Species*	Percentage	Species*	Percentage
Bidens aristosa	10	*Panicum rigidulum*	30
Carex albolutescens	6	*Panicum virgatum*	5
Elymus virginicus	15	*Rudbeckia hirta*	4
Helianthus angustifolius	10	*Sorghastrum nutans*	15
Juncus coriaceus	5		
		Total	**100**

* Both seed mixes were applied at 2 lbs per acre; however, in streamside areas, an additional 160 lbs of temporary soil health mix (turnip, clover, chicory) were applied along the easement boundary and in the upland areas.

Table 7. Planted Vegetation Totals

Nesbit Site

Plot #	Planted Stems/Acre	Success Criteria Met?
1	405	Yes
2	445	Yes
3	324	Yes
4	648	Yes
5	243	No
6	729	Yes
7	324	Yes
8	324	Yes
9	0	No
10	162	No
11	243	No
12	405	Yes
13	202	No
14	121	No
15	607	Yes
16	202	No
T1	486	Yes
T2	202	No
Average Planted Stems/Acre	337	**Yes**

Table 8. Vegetation Plot Data Table from Vegetation Data Entry Tool

Planted Acreage	16
Date of Initial Plant	2022-02-03
Date(s) of Supplemental Plant(s)	NA
Date(s) Mowing	NA
Date of Current Survey	2023-08-30
Plot size (ACRES)	0.0247

	Scientific Name	Common Name	Tree/Shrub	Indicator Status	Veg Plot 1 F		Veg Plot 2 F		Veg Plot 3 F		Veg Plot 4 F		Veg Plot 5 F		Veg Plot 6 F		Veg Plot 7 F		Veg Plot 8 F		Veg Plot 9 F	
					Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total
Species Included in Approved Mitigation Plan	Betula nigra	river birch	Tree	FACW									3	3								
	Carya cordiformis	bitternut hickory	Tree	FACU																		
	Cornus amomum	silky dogwood	Shrub	FACW			2	2	1	1	8	8			4	4			4	4		
	Diospyros virginiana	common persimmon	Tree	FAC							1	1			2	2						
	Fraxinus pennsylvanica	green ash	Tree	FACW		1	3	3			1	1	1	1			1	1				
	Liriodendron tulipifera	tuliptree	Tree	FACU					5	5					1	1						
	Morus rubra	red mulberry	Tree	FACU	1	1																
	Platanus occidentalis	American sycamore	Tree	FACW	3	3	5	5							3	3	7	7				
	Quercus alba	white oak	Tree	FACU											1	1			1	1		
	Quercus nigra	water oak	Tree	FAC			1	1			2	2	1	1								
	Quercus phellos	willow oak	Tree	FAC	3	3					2	2			7	7			1	1		
	Quercus rubra	northern red oak	Tree	FACU	1	1					1	1					1	1				
	Quercus shumardii	Shumard's oak	Tree	FAC																		
	Quercus sp.								3	3			1	1			1	1	1	1		
	Ulmus americana	American elm	Tree	FACW	1	1					1	1							1	1		
Sum	Performance Standard				9	10	11	11	9	9	16	16	6	6	18	18	10	10	8	8	0	0
Mitigation Plan Performance Standard	Current Year Stem Count					10		11		9		16		6		18		10		8		0
	Stems/Acre					405		445		324		648		243		729		324		324		0
	Species Count					6		4		3		7		4		6		4		5		0
	Dominant Species Composition (%)					30		45		56		50		50		39		70		50		0
	Average Plot Height (ft.)					2		3		2		2		2		2		2		1		
	% Invasives					0		0		0		0		0		0		0		0		
Post Mitigation Plan Performance Standard	Current Year Stem Count					10		11		9		16		6		18		10		8		0
	Stems/Acre					405		445		324		648		243		729		324		324		0
	Species Count					6		4		3		7		4		6		4		5		0
	Dominant Species Composition (%)					30		45		56		50		50		39		70		50		0
	Average Plot Height (ft.)					2		3		2		2		2		2		2		1		
	% Invasives					0		0		0		0		0		0		0		0		

1). Bolded species are proposed for the current monitoring year, italicized species are not approved, and a regular font indicates that the species has been approved.
2). The "Species Included in Approved Mitigation Plan" section contains only those species that were included in the original approved mitigation plan. The "Post Mitigation Plan Species" section includes species that are being proposed through a mitigation plan addendum for the current monitoring year (bolded) , species that have been approved in prior monitoring years through a mitigation plan addendum (regular font), and species that are not approved (italicized).
3). The "Mitigation Plan Performance Standard" section is derived only from stems included in the original mitigation plan, whereas the "Post Mitigation Plan Performance Standard" includes data from mitigation plan approved, post mitigation plan approved, and proposed stems.

Table 8. Vegetation Plot Data Table from Vegetation Data Entry Tool (continued)

Planted Acreage	16
Date of Initial Plant	2022-02-03
Date(s) of Supplemental Plant(s)	NA
Date(s) Mowing	NA
Date of Current Survey	2023-08-30
Plot size (ACRES)	0.0247

	Scientific Name	Common Name	Tree/Shrub	Indicator Status	Veg Plot 10 F		Veg Plot 11 F		Veg Plot 12 F		Veg Plot 13 F		Veg Plot 14 F		Veg Plot 15 F		Veg Plot 16 F		Veg Plot 1 R	Veg Plot 2 R
					Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Total	Total
Species Included in Approved Mitigation Plan	Betula nigra	river birch	Tree	FACW					4	4	1	1								
	Carya cordiformis	bitternut hickory	Tree	FACU							1	1								
	Cornus amomum	silky dogwood	Shrub	FACW			4	4							3	3				
	Diospyros virginiana	common persimmon	Tree	FAC			1	1			1	1					1	1		2
	Fraxinus pennsylvanica	green ash	Tree	FACW															6	
	Liriodendron tulipifera	tuliptree	Tree	FACU			1	1												
	Morus rubra	red mulberry	Tree	FACU																
	Platanus occidentalis	American sycamore	Tree	FACW					1	1					6	6	2	2	7	4
	Quercus alba	white oak	Tree	FACU	2	2	1	1							2	2	1	1		
	Quercus nigra	water oak	Tree	FAC					3	3			1	1	2	2				
	Quercus phellos	willow oak	Tree	FAC	3	3											1	1		
	Quercus rubra	northern red oak	Tree	FACU																
	Quercus shumardii	Shumard's oak	Tree	FAC					1	1			1	1						
	Quercus sp.								1	1	2	2	1	1	2	2				
	Ulmus americana	American elm	Tree	FACW																
Sum	Performance Standard				5	5	7	7	10	10	5	5	3	3	15	15	5	5	13	6
Mitigation Plan Performance Standard	Current Year Stem Count					5		7		10		5		3		15		5	13	6
	Stems/Acre					162		243		405		202		121		607		202	486	202
	Species Count					2		4		5		4		3		5		4	2	2
	Dominant Species Composition (%)					60		57		40		40		33		40		40	54	67
	Average Plot Height (ft.)					1		1		2		1		1		2		2	2	2
	% Invasives					0		0		0		0		0		0		0	0	0
Post Mitigation Plan Performance Standard	Current Year Stem Count					5		7		10		5		3		15		5	13	6
	Stems/Acre					162		243		405		202		121		607		202	486	202
	Species Count					2		4		5		4		3		5		4	2	2
	Dominant Species Composition (%)					60		57		40		40		33		40		40	54	67
	Average Plot Height (ft.)					1		1		2		1		1		2		2	2	2
	% Invasives					0		0		0		0		0		0		0	0	0

1). Bolded species are proposed for the current monitoring year, italicized species are not approved, and a regular font indicates that the species has been approved.
2). The "Species Included in Approved Mitigation Plan" section contains only those species that were included in the original approved mitigation plan. The "Post Mitigation Plan Species" section includes species that are being proposed through a mitigation plan addendum for the current monitoring year (bolded) , species that have been approved in prior monitoring years through a mitigation plan addendum (regular font), and species that are not approved (italicized).
3). The "Mitigation Plan Performance Standard" section is derived only from stems included in the original mitigation plan, whereas the "Post Mitigation Plan Performance Standard" includes data from mitigation plan approved, post mitigation plan approved, and proposed stems.

Appendix C: Stream Geomorphology Data

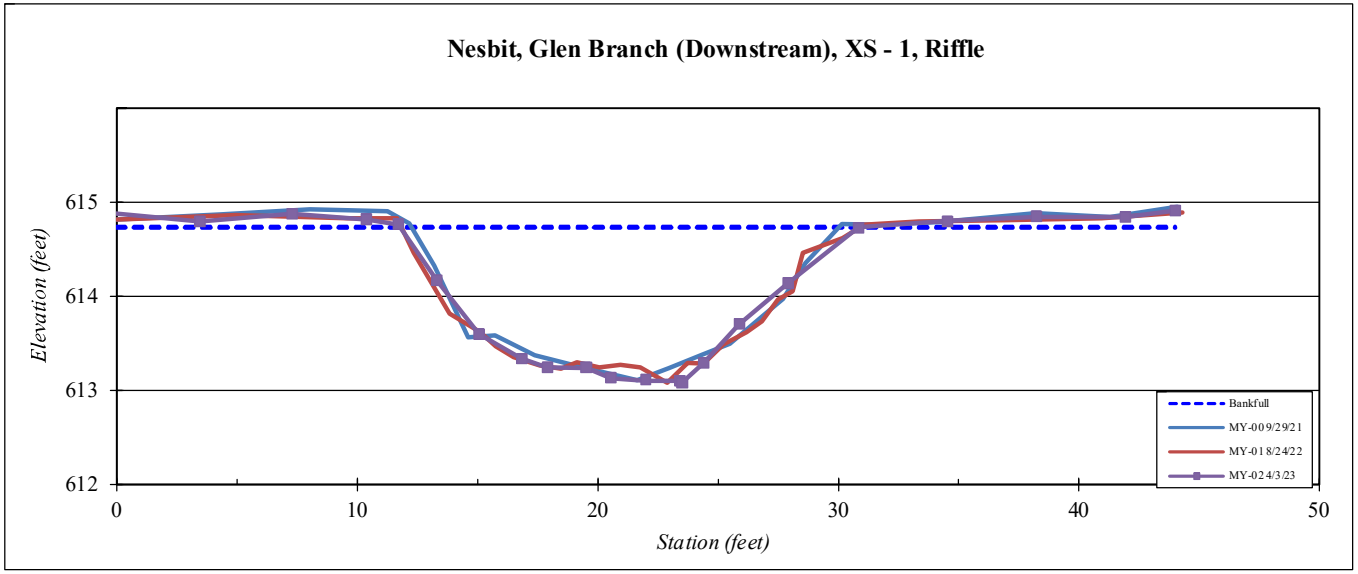
Cross-Sections with Annual Overlays
Table 9A-D. Baseline Stream Data Summary Tables
Table 10A-C. Cross-Section Morphology Monitoring Summary

Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Downstream), XS - 1, Riffle
Feature	Riffle
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
-0.2	614.9
3.5	614.8
7.3	614.9
10.4	614.8
11.7	614.8
13.3	614.1
15.1	613.5
16.8	613.2
17.9	613.1
19.5	613.1
20.6	612.9
22.0	612.9
23.4	612.9
23.5	612.9
24.4	613.1
25.9	613.6
27.9	614.1
30.8	614.7
34.6	614.8
38.2	614.9
41.9	614.87
44.0	614.9

SUMMARY DATA	
Bankfull Elevation:	614.74
Bank Hieght Ratio:	1.00
Thalweg Elevation:	612.88
LTOB Elevation:	614.74
LTOB Max Depth:	1.86
LTOB Cross Sectional Area:	22.8

Stream Type	E/C 5

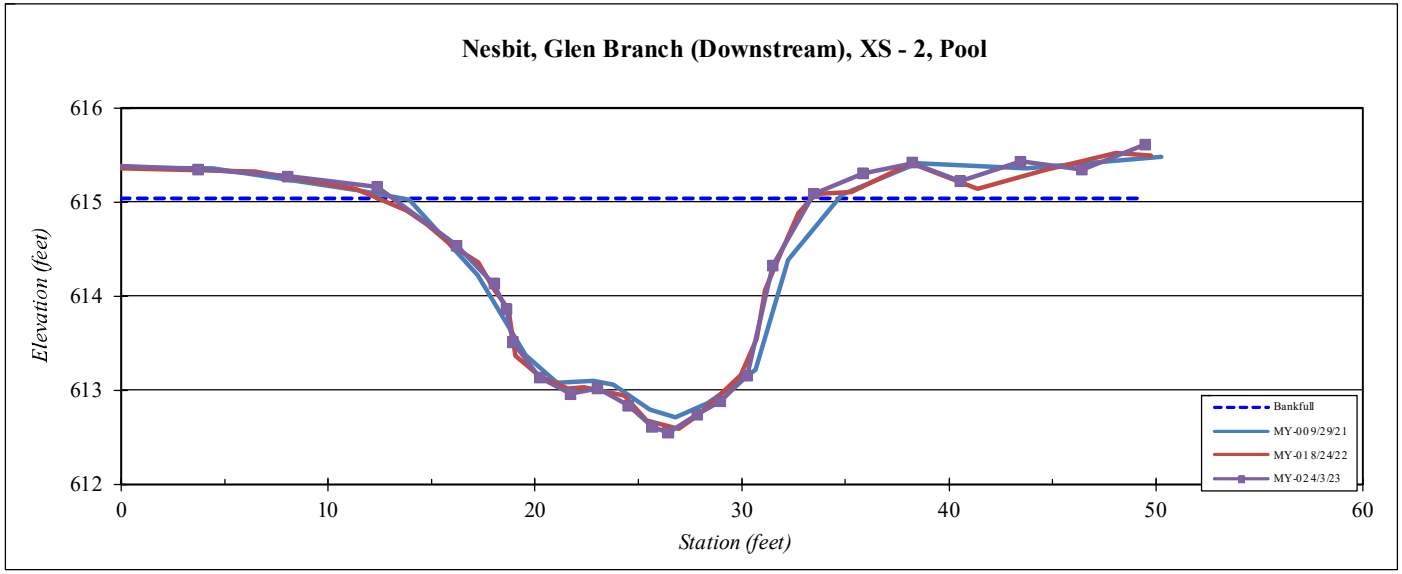


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Downstream), XS - 2, Pool
Feature	Pool
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
-0.3	615.5
3.7	615.4
8.0	615.4
12.4	615.2
16.2	614.5
18.0	614.1
18.6	613.8
18.9	613.4
20.2	612.9
21.7	612.7
23.0	612.8
24.5	612.6
25.7	612.3
26.4	612.3
27.8	612.5
29.0	612.6
30.3	613.0
31.5	614.3
33.5	615.1
35.8	615.4
38.2	615.52
40.6	615.3
43.5	615.5
46.4	615.4
49.5	615.7

SUMMARY DATA	
Bankfull Elevation:	615.09
Bank Hieght Ratio:	1.02
Thalweg Elevation:	612.28
LTOB Elevation:	615.14
LTOB Max Depth:	2.87
LTOB Cross Sectional Area:	34.3

Stream Type	E/C 5

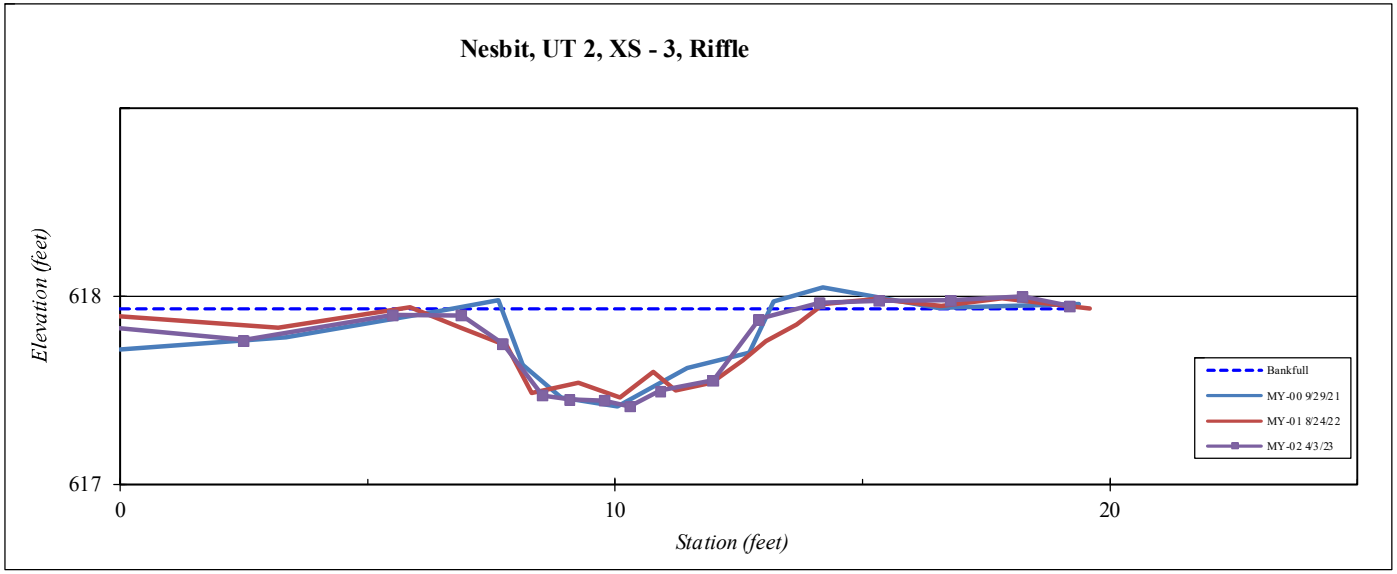


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	UT 2, XS - 3, Riffle
Feature	Riffle
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
-0.4	618.3
2.5	618.2
5.5	618.3
6.9	618.3
7.7	618.2
8.5	617.8
9.1	617.8
9.8	617.8
10.3	617.8
10.9	617.9
12.0	617.9
12.9	618.3
14.1	618.4
15.3	618.4
16.8	618.4
18.2	618.4
19.2	618.4

SUMMARY DATA	
Bankfull Elevation:	618.36
Bank Hieght Ratio:	0.89
Thalweg Elevation:	617.77
LTOB Elevation:	618.30
LTOB Max Depth:	0.52
LTOB Cross Sectional Area:	2.0

Stream Type	E/C 5

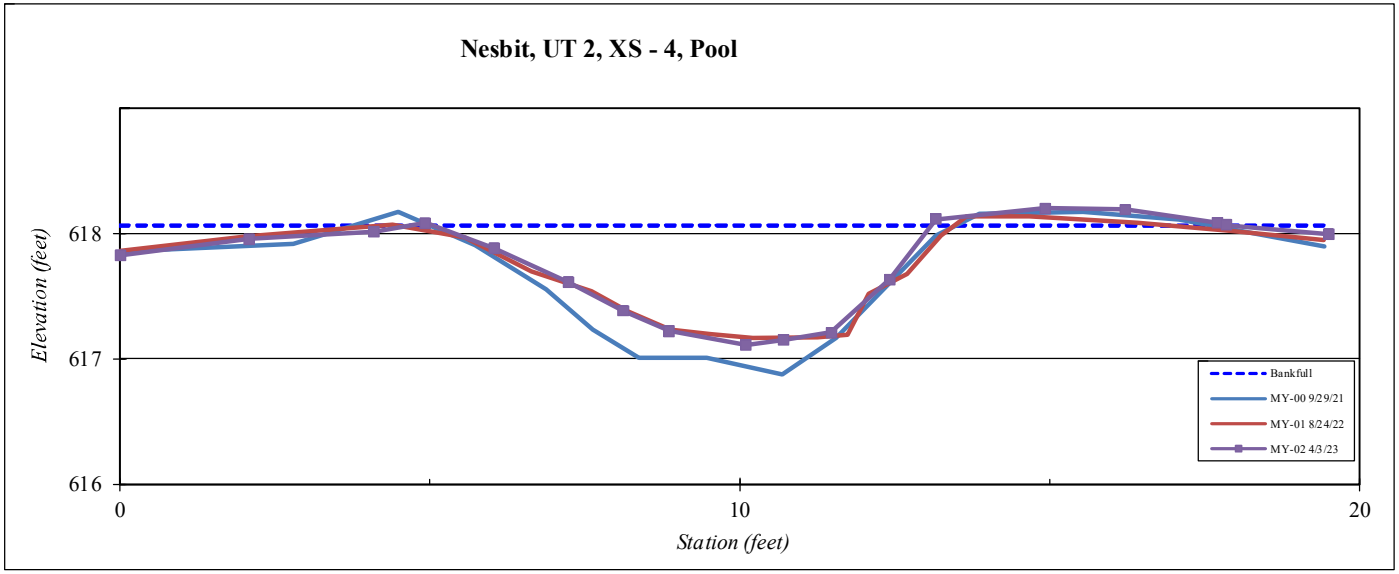


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	UT 2, XS - 4, Pool
Feature	Pool
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
0.0	618.2
2.1	618.4
4.1	618.5
4.9	618.5
6.0	618.3
7.2	618.0
8.1	617.7
8.9	617.6
10.1	617.4
10.7	617.5
11.5	617.5
12.4	618.0
13.2	618.6
14.9	618.7
16.2	618.7
17.7	618.5
17.9	618.5
19.5	618.4

SUMMARY DATA	
Bankfull Elevation:	618.51
Bank Hieght Ratio:	1.02
Thalweg Elevation:	617.43
LTOB Elevation:	618.53
LTOB Max Depth:	1.10
LTOB Cross Sectional Area:	5.4

Stream Type	E/C 5

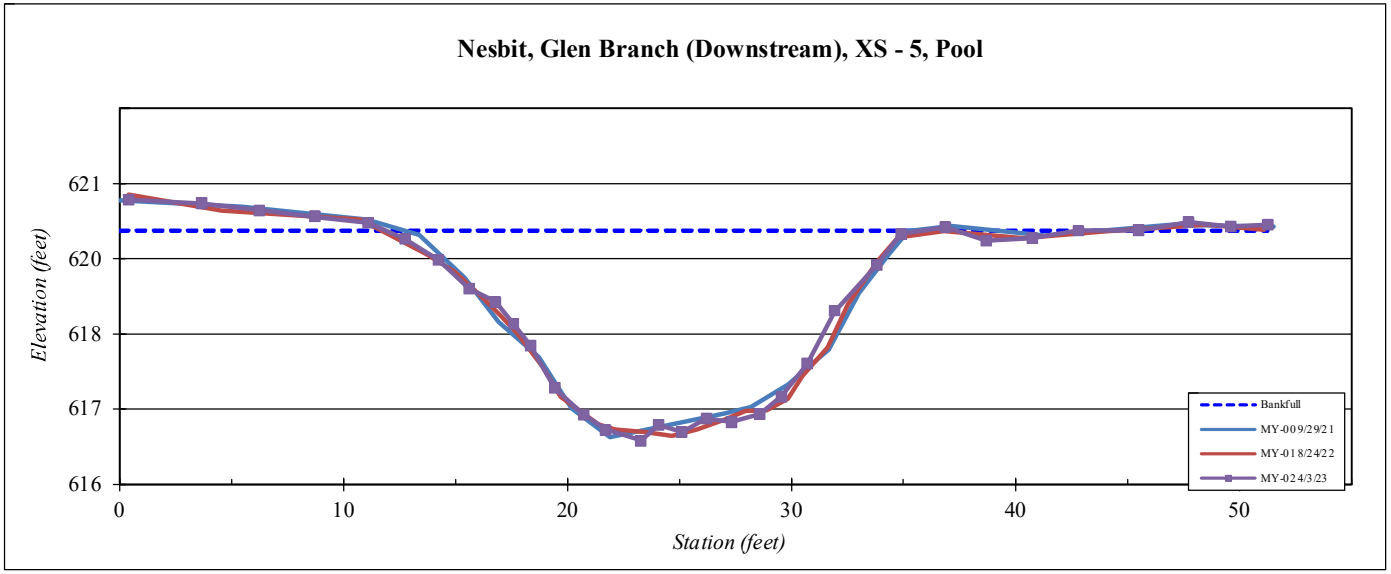


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Downstream), XS - 5, Pool
Feature	Pool
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
0.4	620.5
3.7	620.4
6.2	620.3
8.7	620.2
11.1	620.1
12.7	619.9
14.2	619.6
15.6	619.1
16.8	618.9
17.6	618.6
18.3	618.3
19.4	617.6
20.7	617.2
21.7	617.0
23.3	616.8
24.1	617.1
25.1	617.0
26.2	617.2
27.3	617.1
28.6	617.2
29.6	617.5
30.7	618.0
31.9	618.8
33.8	619.5
34.9	619.9
36.9	620.0
38.7	619.8
40.8	619.9
42.8	620.0
45.5	620.0
47.7	620.1
49.6	620.1
51.3	620.1

SUMMARY DATA	
Bankfull Elevation:	619.99
Bank Hieght Ratio:	0.99
Thalweg Elevation:	616.83
LTOB Elevation:	619.94
LTOB Max Depth:	3.11
LTOB Cross Sectional Area:	41.3

Stream Type	E/C 5

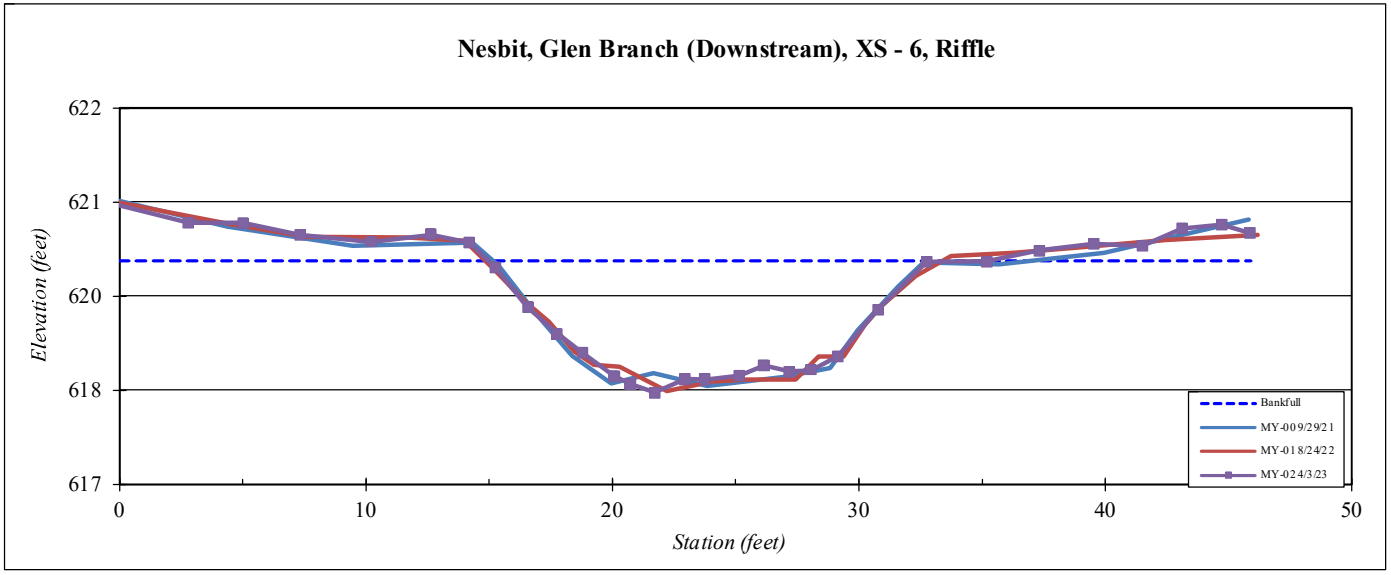


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Downstream), XS - 6, Riffle
Feature	Riffle
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
-0.1	620.7
2.8	620.5
5.0	620.4
7.3	620.3
10.2	620.2
12.6	620.3
14.2	620.2
15.3	619.9
16.6	619.4
17.7	619.1
18.8	618.9
20.1	618.6
20.7	618.5
21.7	618.4
23.0	618.6
23.8	618.6
25.2	618.6
26.2	618.7
27.2	618.7
28.1	618.7
29.2	618.85
30.8	619.4
32.8	620.0
35.2	620.0
37.3	620.1
39.5	620.2
41.5	620.2
43.1	620.4
44.7	620.4
45.9	620.3

SUMMARY DATA	
Bankfull Elevation:	619.99
Bank Hieght Ratio:	0.99
Thalweg Elevation:	618.41
LTOB Elevation:	619.98
LTOB Max Depth:	1.57
LTOB Cross Sectional Area:	18.3

Stream Type	E/C 5

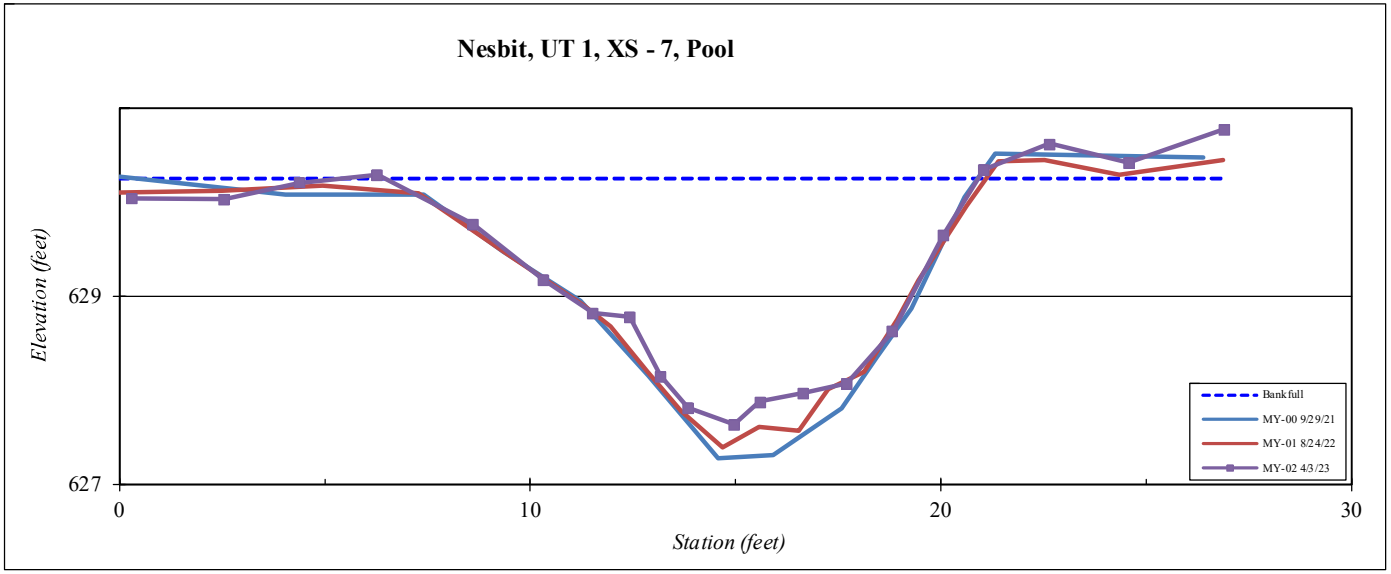


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	UT 1, XS - 7, Pool
Feature	Pool
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
0.3	629.2
2.5	629.2
4.4	629.3
6.3	629.3
8.6	629.0
10.3	628.7
11.5	628.5
12.4	628.5
13.2	628.1
13.8	627.9
15.0	627.8
15.6	628.0
16.6	628.0
17.7	628.1
18.8	628.4
20.1	629.0
21.0	629.4
22.6	629.5
24.6	629.4
26.9	629.6

SUMMARY DATA	
Bankfull Elevation:	629.32
Bank Hieght Ratio:	1.01
Thalweg Elevation:	627.84
LTOB Elevation:	629.34
LTOB Max Depth:	1.50
LTOB Cross Sectional Area:	11.9

Stream Type	E/C 5

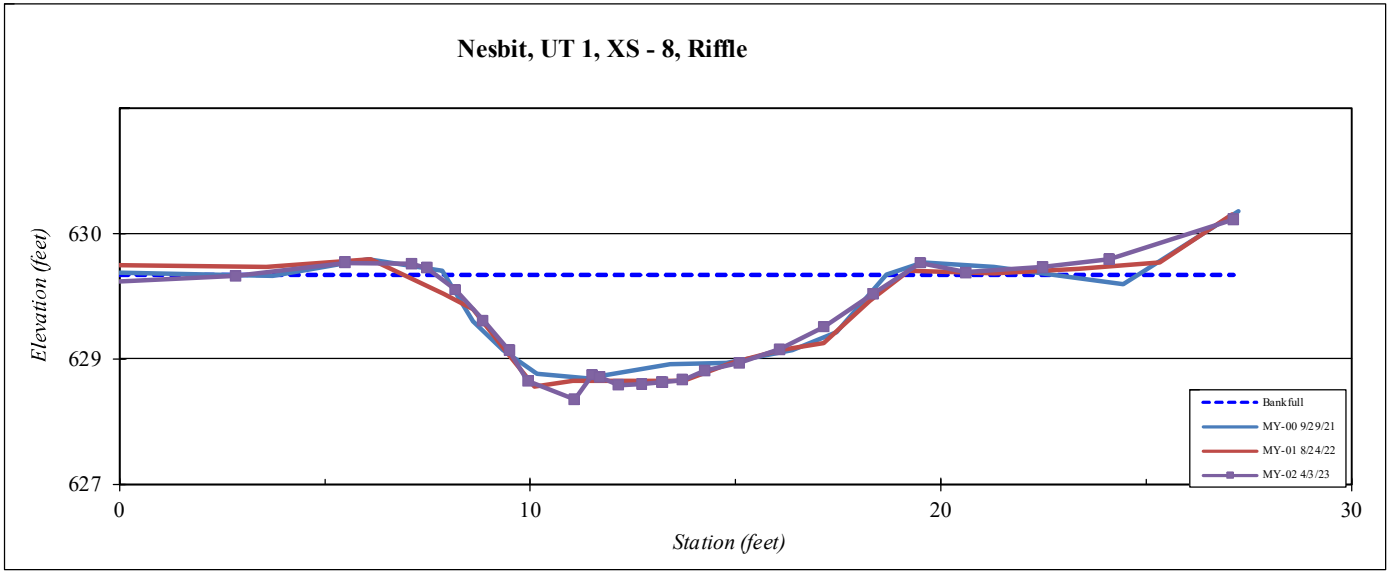


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	UT 1, XS - 8, Riffle
Feature	Riffle
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
-0.1	629.3
2.8	629.4
5.5	629.5
7.1	629.5
7.5	629.4
8.2	629.2
8.8	629.0
9.5	628.7
9.9	628.4
11.1	628.2
11.5	628.5
11.7	628.5
12.1	628.4
12.7	628.4
13.2	628.4
13.7	628.4
14.2	628.5
15.1	628.6
16.1	628.7
17.1	628.9
18.3	629.20
19.5	629.5
20.6	629.4
22.5	629.4
24.1	629.5
27.1	629.9

SUMMARY DATA	
Bankfull Elevation:	629.37
Bank Hieght Ratio:	1.05
Thalweg Elevation:	628.25
LTOB Elevation:	629.43
LTOB Max Depth:	1.19
LTOB Cross Sectional Area:	8.4

Stream Type	E/C 5

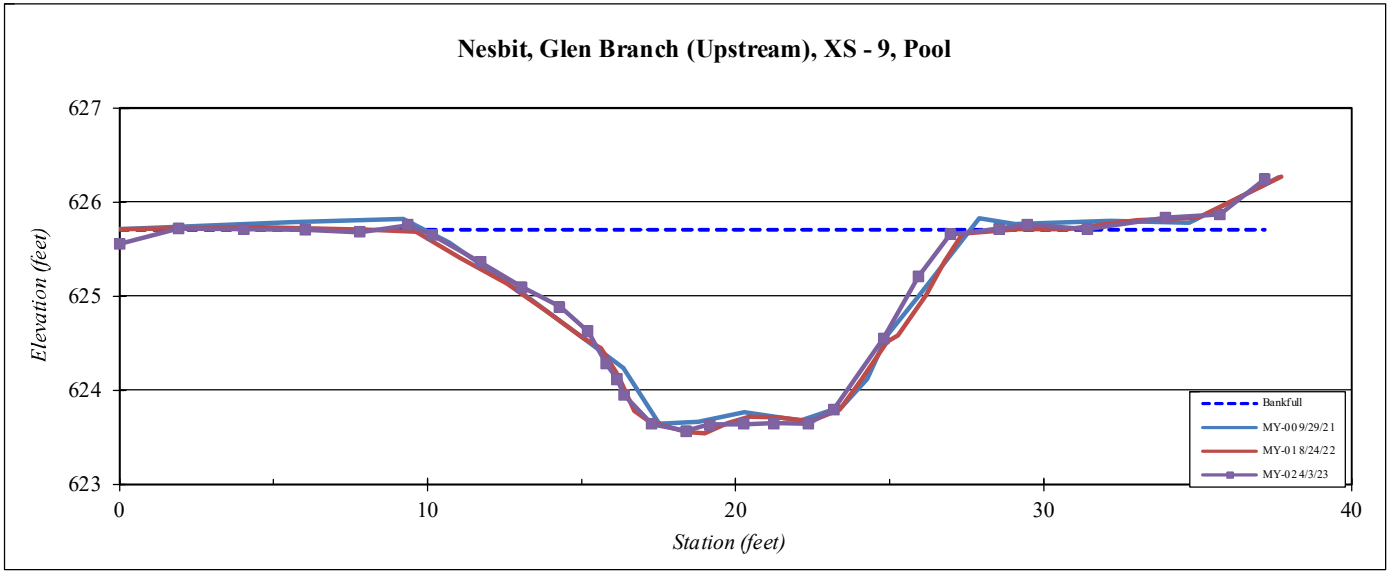


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Upstream), XS - 9, Pool
Feature	Pool
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
0.0	625.9
1.9	626.0
4.0	626.0
6.0	626.0
7.8	626.0
9.4	626.1
10.1	626.0
11.7	625.6
13.0	625.3
14.3	625.1
15.2	624.8
15.8	624.4
16.2	624.2
16.4	624.0
17.3	623.7
18.4	623.6
19.1	623.7
20.3	623.7
21.3	623.7
22.4	623.7
23.2	623.86
24.8	624.7
25.9	625.5
27.0	626.0
28.6	626.0
29.5	626.1
31.4	626.0
34.0	626.2
35.7	626.2
37.2	626.6

SUMMARY DATA	
Bankfull Elevation:	626.02
Bank Hieght Ratio:	0.97
Thalweg Elevation:	623.60
LTOB Elevation:	625.96
LTOB Max Depth:	2.36
LTOB Cross Sectional Area:	23.9

Stream Type	E/C 5

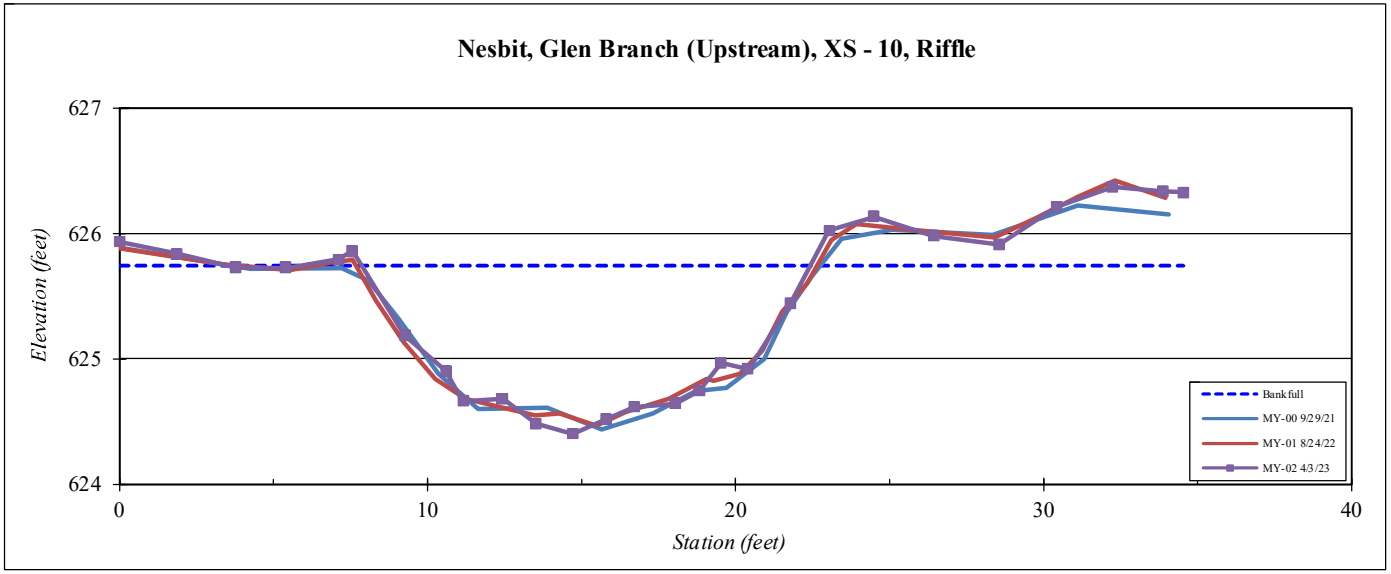


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Upstream), XS - 10, Riffle
Feature	Riffle
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
0.0	626.3
1.8	626.2
3.8	626.0
5.4	626.0
7.1	626.1
7.5	626.2
9.3	625.4
10.6	625.1
11.2	624.8
12.4	624.9
13.5	624.6
14.7	624.5
15.8	624.7
16.7	624.8
18.0	624.8
18.8	624.9
19.5	625.2
20.4	625.1
21.8	625.7
23.0	626.4
24.5	626.50
26.4	626.3
28.6	626.3
30.4	626.6
32.2	626.8
33.9	626.7
34.5	626.7

SUMMARY DATA	
Bankfull Elevation:	626.06
Bank Hieght Ratio:	1.09
Thalweg Elevation:	624.55
LTOB Elevation:	626.19
LTOB Max Depth:	1.65
LTOB Cross Sectional Area:	16.7

Stream Type	E/C 5

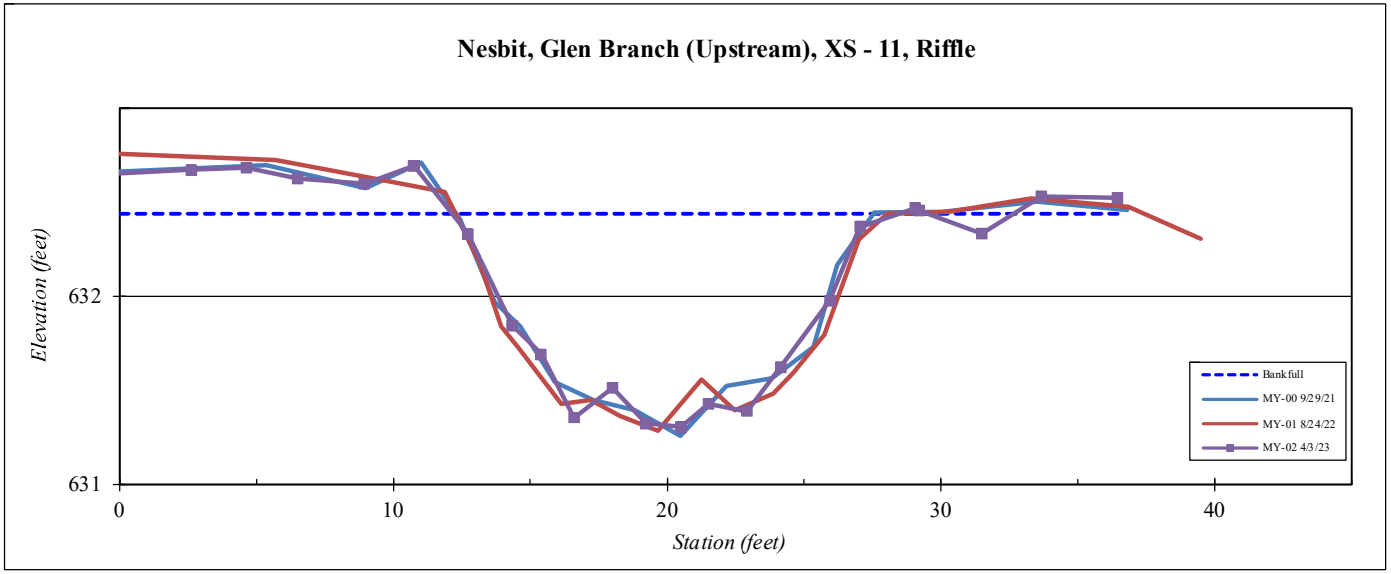


Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Upstream), XS - 11, Riffle
Feature	Riffle
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
-0.1	632.7
2.6	632.8
4.6	632.8
6.5	632.7
8.9	632.7
10.7	632.8
10.8	632.8
12.7	632.4
14.3	631.8
15.4	631.7
16.6	631.3
18.0	631.5
19.2	631.2
20.5	631.2
21.5	631.4
22.9	631.3
24.1	631.6
25.9	632.0
27.0	632.4
29.1	632.5
29.2	632.52
31.5	632.4
33.7	632.6
36.4	632.6

SUMMARY DATA	
Bankfull Elevation:	632.50
Bank Hieght Ratio:	1.02
Thalweg Elevation:	631.22
LTOB Elevation:	632.52
LTOB Max Depth:	1.30
LTOB Cross Sectional Area:	13.5

Stream Type	E/C 5



Site	Nesbit
Watershed:	Catawba River Basin, 03050103
XS ID	Glen Br (Upstream), XS - 12, Pool
Feature	Pool
Date:	4/3/2023
Field Crew:	Adams

Station	Elevation
0.0	633.1
2.5	632.9
4.3	632.6
6.4	632.8
8.4	632.7
11.1	632.4
12.3	632.1
12.9	632.0
13.5	631.4
14.6	631.0
15.8	630.7
17.1	630.5
18.2	630.3
19.4	630.5
20.8	630.3
21.7	630.6
22.6	630.8
23.7	630.9
24.6	631.1
25.7	631.9
27.3	632.78
29.2	633.0
31.4	632.9
33.8	633.1
35.7	633.1
37.8	633.0

SUMMARY DATA	
Bankfull Elevation:	632.68
Bank Hieght Ratio:	1.03
Thalweg Elevation:	630.26
LTOB Elevation:	632.74
LTOB Max Depth:	2.48
LTOB Cross Sectional Area:	27.3

Stream Type	E/C 5

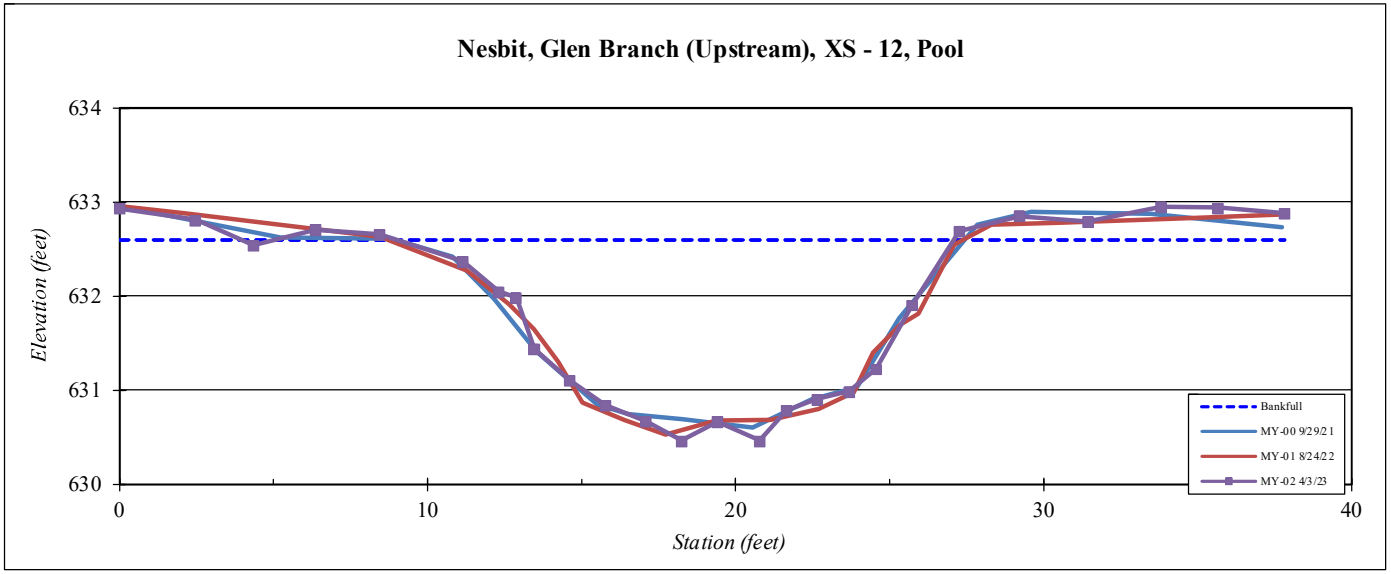


Table 9A. Baseline Stream Data Summary Nesbit - Glen Branch (Upstream)										
Parameter	**Pre-Existing Condition (applicaple)**					**Design**		**Monitoring Baseline (MY0)**		
Riffle Only	Min	Mean	Med	Max	n	Min	Max	Min	Max	n
Bankfull Width (ft)	11.0		15.1	26	7	14.2	16.3	15.2	15.4	2
Floodprone Width (ft)	16		50	100	7	50	100	75	75	2
Bankfull Mean Depth (ft)	0.6		1.1	1.5	7	1	1.2	0.9	1.0	2
Bankfull Max Depth (ft)	1.3		2	2.2	7	1.3	1.8	1.3	1.4	2
Bankfull Cross Sectional Area (ft^2)	16.7		16.7	16.7	7	16.7	16.7	13.1	14.7	2
Width/Depth Ratio	7.3		13.7	43.3	7	12	16	16.2	17.8	2
Entrenchment Ratio	1.4		2.8	6.5	7	3.5	6.1	4.9	4.9	2
Bank Height Ratio	**1**		**1.8**	**2.2**	**7**	**1**	**1.3**	1	1	**2**
Max part size (mm) mobilized at bankfull										
Rosgen Classification	Cg 4					Ce 3/4		Ce 3/4		
Bankfull Discharge (cfs)	68.7					68.7		68.7		
Sinuosity (ft)	1.03					1.15		1.15		
Water Surface Slope (Channel) (ft/ft)	0..75					0.0067		0.006		
Other										

Table 9B. Baseline Stream Data Summary Nesbit - Glen Branch (Downstream)										
Parameter	**Pre-Existing Condition (applicaple)**					**Design**		**Monitoring Baseline (MY0)**		
Riffle Only	Min	Mean	Med	Max	n	Min	Max	Min	Max	n
Bankfull Width (ft)	11.2		15.7	18.2	7	16.7	19.3	17.4	18.0	2
Floodprone Width (ft)	25		100	100	7	50	150	100	100	2
Bankfull Mean Depth (ft)	1.3		1.5	2.1	7	1.4	1.4	1.1	1.3	2
Bankfull Max Depth (ft)	1.6		2.4	2.8	7	1.5	2.1	1.5	1.9	2
Bankfull Cross Sectional Area (ft^2)	23.2		23.2	23.2	7	23.2	23.2	18.4	22.8	2
Width/Depth Ratio	5.3		10.5	14	7	12	16	14.1	16.4	2
Entrenchment Ratio	1.4		5.9	8.9	7	3	7.8	5.6	5.8	2
Bank Height Ratio	**1.3**		**1.7**	**2.1**	**7**	**1**	**1.3**	1	1	**2**
Max part size (mm) mobilized at bankfull										
Rosgen Classification	Eg 4					Ce 3/4		Ce 3/4		
Bankfull Discharge (cfs)	97.3					97.3		97.3		
Sinuosity (ft)	1.03					1.15		1.15		
Water Surface Slope (Channel) (ft/ft)	0.0047					0.0042		0.0046		
Other										

Table 9C. Baseline Stream Data Summary Nesbit - UT 1										
Parameter	**Pre-Existing Condition (applicaple)**					**Design**		**Monitoring Baseline (MY0)**		
Riffle Only	Min	Mean	Med	Max	n	Min	Max	Min	Max	n
Bankfull Width (ft)	7.1		8.7	9.5	5	10	11.6	11.0	11.0	1
Floodprone Width (ft)	20		29	50	5	50	100	75.0	75.0	1
Bankfull Mean Depth (ft)	0.9		1	1.2	5	0.7	0.8	0.7	0.7	1
Bankfull Max Depth (ft)	0.9		1	1.3	5	0.9	1.3	1.0	1.0	1
Bankfull Cross Sectional Area (ft^2)	8.4		8.4	8.4	5	8.4	8.4	7.6	7.6	1
Width/Depth Ratio	5.9		8.7	10.6	5	12	16	15.9	15.9	1
Entrenchment Ratio	2.5		3.2	7	5	5	8.6	6.8	6.8	1
Bank Height Ratio	**1.4**		**1.7**	**1.8**	**5**	**1**	**1.3**	1.0	1.0	**1**
Max part size (mm) mobilized at bankfull										
Rosgen Classification	Eg 4					Ce 3/4		Ce 3/4		
Bankfull Discharge (cfs)	32.9					32.9		32.9		
Sinuosity (ft)	1.06					1.15		1.15		
Water Surface Slope (Channel) (ft/ft)	0.0081					0.0075		0.0069		
Other										

Table 9D. Baseline Stream Data Summary Nesbit - UT 2										
Parameter	**Pre-Existing Condition (applicaple)**					**Design**		**Monitoring Baseline (MY0)**		
Riffle Only	Min	Mean	Med	Max	n	Min	Max	Min	Max	n
Bankfull Width (ft)	3.4		4.7	7.9	3	6.2	7.2	5.6	5.6	1
Floodprone Width (ft)	7		30	50	3	25	75	100.0	100.0	1
Bankfull Mean Depth (ft)	0.4		0.7	0.9	3	0.4	0.5	0.4	0.4	1
Bankfull Max Depth (ft)	0.6		1.1	1.5	3	0.6	0.8	0.6	0.6	1
Bankfull Cross Sectional Area (ft^2)	3.2		3.2	3.2	3	3.2	3.2	2.4	2.4	1
Width/Depth Ratio	3.8		6.7	19.8	3	12	16	13.1	13.1	1
Entrenchment Ratio	1.5		3.8	14.7	3	4	10.5	17.8	17.8	1
Bank Height Ratio	**1.6**		**2.5**	**8.7**	**3**	**1**	**1.3**	1.0	1.0	**1**
Max part size (mm) mobilized at bankfull										
Rosgen Classification	Eg 6					Ce 3/4		Ce 3/4		
Bankfull Discharge (cfs)	11.8					11.8		11.8		
Sinuosity (ft)	1.03					1.15		1.15		
Water Surface Slope (Channel) (ft/ft)	0.0143					0.0128		0.0089		
Other										

Table 10A. Monitoring Data - Cross Section Morphology Monitoring Summary

(Nesbit/ DMS:100121) Glen Branch Upstream

	Glen Br (Upstream) - XS 1 (Riffle)							Glen Br (Upstream) - XS 2 (Pool)							Glen Br (Upstream) - XS 5 (Pool)							Glen Br (Upstream) - XS 6 (Riffle)						
	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+
Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area	614.79	614.74	614.74					615.07	615.11	615.09					619.98	619.95	619.99					619.97	619.98	619.99				
Bank Height Ratio_Based on AB Bankfull[1] Area	1.00	1.02	1.00					1.00	1.01	1.02					1.00	1.01	0.99					1.00	1.05	0.99				
Thalweg Elevation	612.90	612.88	612.88					612.46	612.32	612.28					616.89	616.90	616.83					618.49	618.43	618.41				
LTOB[2] Elevation	614.79	614.77	614.74					615.07	615.14	615.14					619.98	619.99	619.94					619.97	620.05	619.98				
LTOB[2] Max Depth (ft)	1.88	1.90	1.86					2.61	2.82	2.87					3.09	3.08	3.11					1.48	1.62	1.57				
LTOB[2] Cross Sectional Area (ft^2)	22.87	23.48	22.81					33.22	34.03	34.34					42.28	43.21	41.30					18.45	19.87	18.30				

Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area							
Bank Height Ratio_Based on AB Bankfull[1] Area							
Thalweg Elevation							
LTOB[2] Elevation							
LTOB[2] Max Depth (ft)							
LTOB[2] Cross Sectional Area (ft^2)							

The above morphology parameters reflect the 2018 guidance that arose from the mitigation technical workgroup consisting of DMS, the IRT and industry mitigation providers/practitioners. The outcome resulted in the focus on three primary morphological parameters of interest for the purposes of tracking channel change moving forward. They are the bank height ratio using a constant As-built bankfull area and the cross sectional area and max depth based on each years low top of bank. These are calculated as follows:

1 **- Bank Height Ratio (BHR)** takes the As-built bankful area as the basis for adjusting each subsequent years bankfull elevation. For example if the As-built bankfull area was 10 ft2, then the MY1 bankfull elevation would be adjusted until the calculated bankfull area within the MY1 cross section survey = 10 ft2. The BHR would then be calculated with the difference between the low top of bank (LTOB) elevation for MY1 and the thalweg elevation for MY1 in the numerator with the difference between the MY1 bankfull elevation and the MY1 thalweg elevation in the denominator. This same process is then carried out in each successive year.

2 - **LTOB Area and Max depth -** These are based on the LTOB elevation for each years survey (The same elevation used for the LTOB in the BHR calculation). Area below the LTOB elevation will be used and tracked for each year as above. The difference between the LTOB elevation and the thalweg elevation (same as in the BHR calculation) will be recroded and tracked above as LTOB max depth.

Note: The smaller the channel the closer the survey measurements are to their limit of reliable detection, therefore inter-annual variation in morphological measurement (as a percentage) is by default magnified as channel size decereases. Some of the variability above is the result of this factor and some is due to the large amount of depositional sediments observed.

Table 10B. Monitoring Data - Cross Section Morphology Monitoring Summary

(Nesbit/ DMS:100121) Glen Branch Downstream

	Glen Br (Downstream) - XS 9 (Pool)							Glen Br (Downstream) - XS 10 (Riffle)							Glen Br (Downstream) - XS 11 (Riffle)							Glen Br (Downstream) - XS 12 (Pool)														
	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+								
Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area	626.03	625.95	626.02					626.04	626.05	626.06					632.51	632.46	632.50					632.69	632.67	632.68												
Bank Height Ratio_Based on AB Bankfull[1] Area	1.03	1.03	0.97					1.00	1.05	1.09					1.00	1.03	1.02					1.00	1.02	1.03												
Thalweg Elevation	623.71	623.57	623.60					624.59	624.62	624.55					631.16	631.19	631.22					630.43	630.34	630.26												
LTOB[2] Elevation	626.09	626.02	625.96					626.04	626.12	626.19					632.51	632.50	632.52					632.69	632.72	632.74												
LTOB[2] Max Depth (ft)	2.38	2.45	2.36					1.45	1.50	1.65					1.34	1.31	1.30					2.27	2.38	2.48												
LTOB[2] Cross Sectional Area (ft^2)	26.04	26.21	23.88					14.74	15.77	16.67					13.17	13.83	13.53					26.11	27.04	27.28												
Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area																																				
Bank Height Ratio_Based on AB Bankfull[1] Area																																				
Thalweg Elevation																																				
LTOB[2] Elevation																																				
LTOB[2] Max Depth (ft)																																				
LTOB[2] Cross Sectional Area (ft^2)																																				
Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area																																				
Bank Height Ratio_Based on AB Bankfull[1] Area																																				
Thalweg Elevation																																				
LTOB[2] Elevation																																				
LTOB[2] Max Depth (ft)																																				
LTOB[2] Cross Sectional Area (ft^2)																																				

The above morphology parameters reflect the 2018 guidance that arose from the mitigation technical workgroup consisting of DMS, the IRT and industry mitigation providers/practitioners. The outcome resulted in the focus on three primary morphological parameters of interest for the purposes of tracking channel change moving forward. They are the bank height ratio using a constant As-built bankfull area and the cross sectional area and max depth based on each years low top of bank. These are calculated as follows:

1 **- Bank Height Ratio (BHR)** takes the As-built bankful area as the basis for adjusting each subsequent years bankfull elevation. For example if the As-built bankfull area was 10 ft2, then the MY1 bankfull elevation would be adjusted until the calculated bankfull area within the MY1 cross section survey = 10 ft2. The BHR would then be calculated with the difference between the low top of bank (LTOB) elevation for MY1 and the thalweg elevation for MY1 in the numerator with the difference between the MY1 bankfull elevation and the MY1 thalweg elevation in the denominator. This same process is then carried out in each successive year.

2 - **LTOB Area and Max depth -** These are based on the LTOB elevation for each years survey (The same elevation used for the LTOB in the BHR calculation). Area below the LTOB elevation will be used and tracked for each year as above. The difference between the LTOB elevation and the thalweg elevation (same as in the BHR calculation) will be recroded and tracked above as LTOB max depth.

Note: The smaller the channel the closer the survey measurements are to their limit of reliable detection, therefore inter-annual variation in morphological measurement (as a percentage) is by default magnified as channel size decereases. Some of the variability above is the result of this factor and some is due to the large amount of depositional sediments observed.

Table 10C. Monitoring Data - Cross Section Morphology Monitoring Summary

(Nesbit/ DMS:100121) UT 1 and UT 2

	UT 1 - Cross Section 7 (Pool)							UT 1 - Cross Section 8 (Riffle)							UT 2 - Cross Section 3 (Riffle)							UT 2 - Cross Section 4 (Pool)														
	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+	MY0	MY1	MY2	MY3	MY5	MY7	MY+									
Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area	629.22	629.26	629.32					629.40	629.35	629.37					618.41	618.35	618.36					618.33	618.49	618.51												
Bank Height Ratio_Based on AB Bankfull[1] Area	1.00	1.01	1.01					1.00	1.06	1.05					1.00	1.05	0.89					1.00	1.02	1.02												
Thalweg Elevation	627.64	627.70	627.84					628.44	628.36	628.25					617.78	617.83	617.77					617.17	617.50	617.43												
LTOB[2] Elevation	629.22	629.28	629.34					629.40	629.41	629.43					618.41	618.37	618.30					618.33	618.52	618.53												
LTOB[2] Max Depth (ft)	1.58	1.58	1.50					0.96	1.05	1.18					0.64	0.54	0.52					1.17	1.02	1.10												
LTOB[2] Cross Sectional Area (ft^2)	11.58	11.81	11.91					7.66	8.42	8.36					2.43	2.64	2.04					5.26	5.47	5.42												
Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area																																				
Bank Height Ratio_Based on AB Bankfull[1] Area																																				
Thalweg Elevation																																				
LTOB[2] Elevation																																				
LTOB[2] Max Depth (ft)																																				
LTOB[2] Cross Sectional Area (ft^2)																																				
Bankfull Elevation (ft) - Based on AB-Bankfull[1] Area																																				
Bank Height Ratio_Based on AB Bankfull[1] Area																																				
Thalweg Elevation																																				
LTOB[2] Elevation																																				
LTOB[2] Max Depth (ft)																																				
LTOB[2] Cross Sectional Area (ft^2)																																				

The above morphology parameters reflect the 2018 guidance that arose from the mitigation technical workgroup consisting of DMS, the IRT and industry mitigation providers/practitioners. The outcome resulted in the focus on three primary morphological parameters of interest for the purposes of tracking channel change moving forward. They are the bank height ratio using a constant As-built bankfull area and the cross sectional area and max depth based on each years low top of bank. These are calculated as follows:

1 - **Bank Height Ratio (BHR)** takes the As-built bankful area as the basis for adjusting each subsequent years bankfull elevation. For example if the As-built bankfull area was 10 ft2, then the MY1 bankfull elevation would be adjusted until the calculated bankfull area within the MY1 cross section survey = 10 ft2. The BHR would then be calculated with the difference between the low top of bank (LTOB) elevation for MY1 and the thalweg elevation for MY1 in the numerator with the difference between the MY1 bankfull elevation and the MY1 thalweg elevation in the denominator. This same process is then carried out in each successive year.

2 - **LTOB Area and Max depth -** These are based on the LTOB elevation for each years survey (The same elevation used for the LTOB in the BHR calculation). Area below the LTOB elevation will be used and tracked for each year as above. The difference between the LTOB elevation and the thalweg elevation (same as in the BHR calculation) will be recroded and tracked above as LTOB max depth.

Note: The smaller the channel the closer the survey measurements are to their limit of reliable detection, therefore inter-annual variation in morphological measurement (as a percentage) is by default magnified as channel size decereases. Some of the variability above is the result of this factor and some is due to the large amount of depositional sediments observed.

Appendix D: Hydrologic Data

Table 11. Verification of Bankfull Events

Date of Data Collection	Date of Occurrence	Method	Photo (if available)
July 11, 2022	July 11, 2022	Crest gauges documented a bankfull event on Glen Branch and UT2 after 2.55" of rain was recorded between July 6-11, 2022 at an on-site rain gauge. Glen Branch crested at 1.80 ft, and UT2 crested at 1.36 ft.	--
June 8, 2023	April 8, 2023	Flow gauges documented a bankfull event on UT1 and UT2 after 2.04" of rain was recorded on April 8, 2023 by an on-site rain gauge. Additionally, wrack was observed in the floodplain of UT1 during the subsequent Site visit.	1

Photo 1: Wrack in the UT1 floodplain after a bankfull event

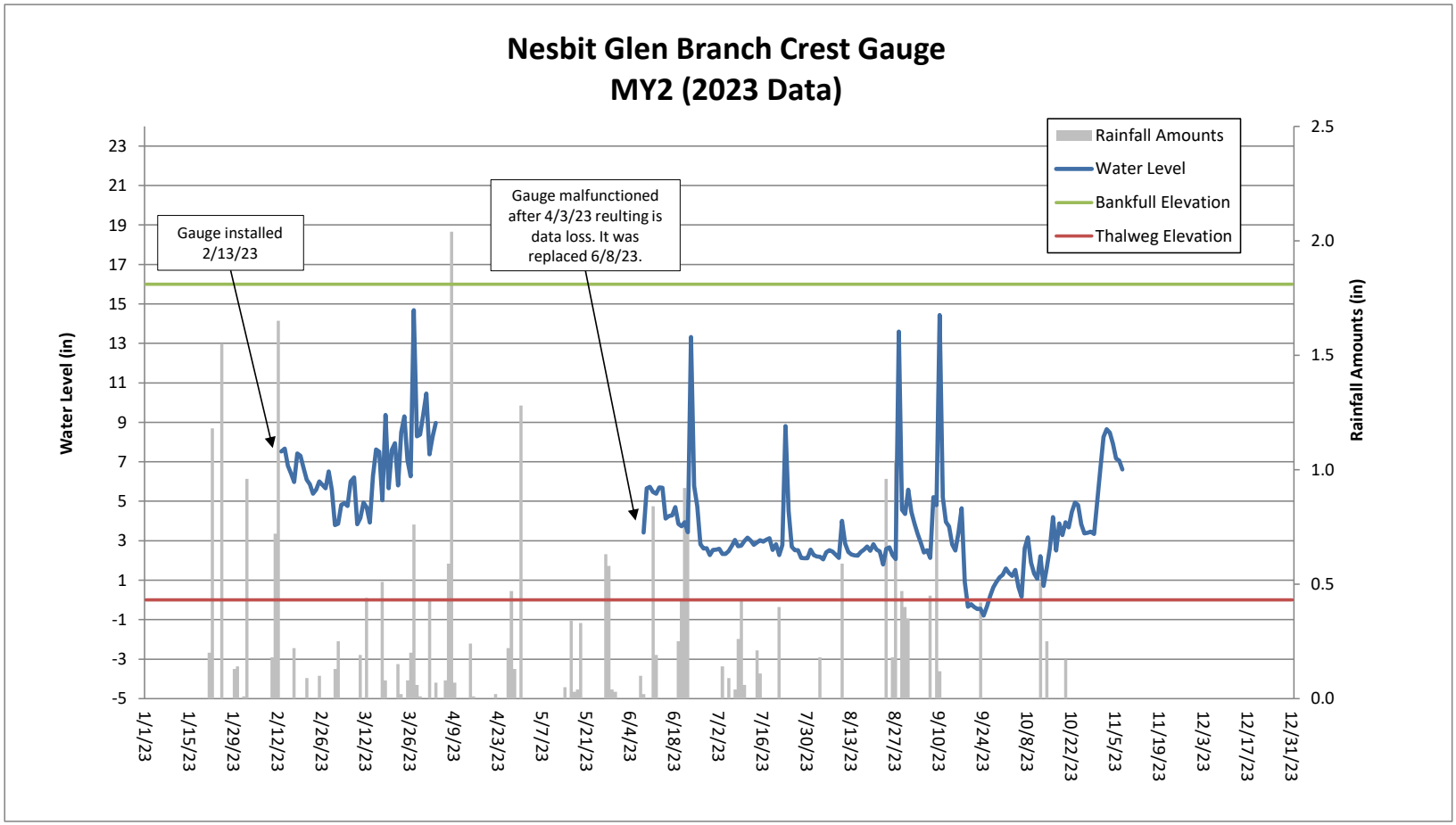
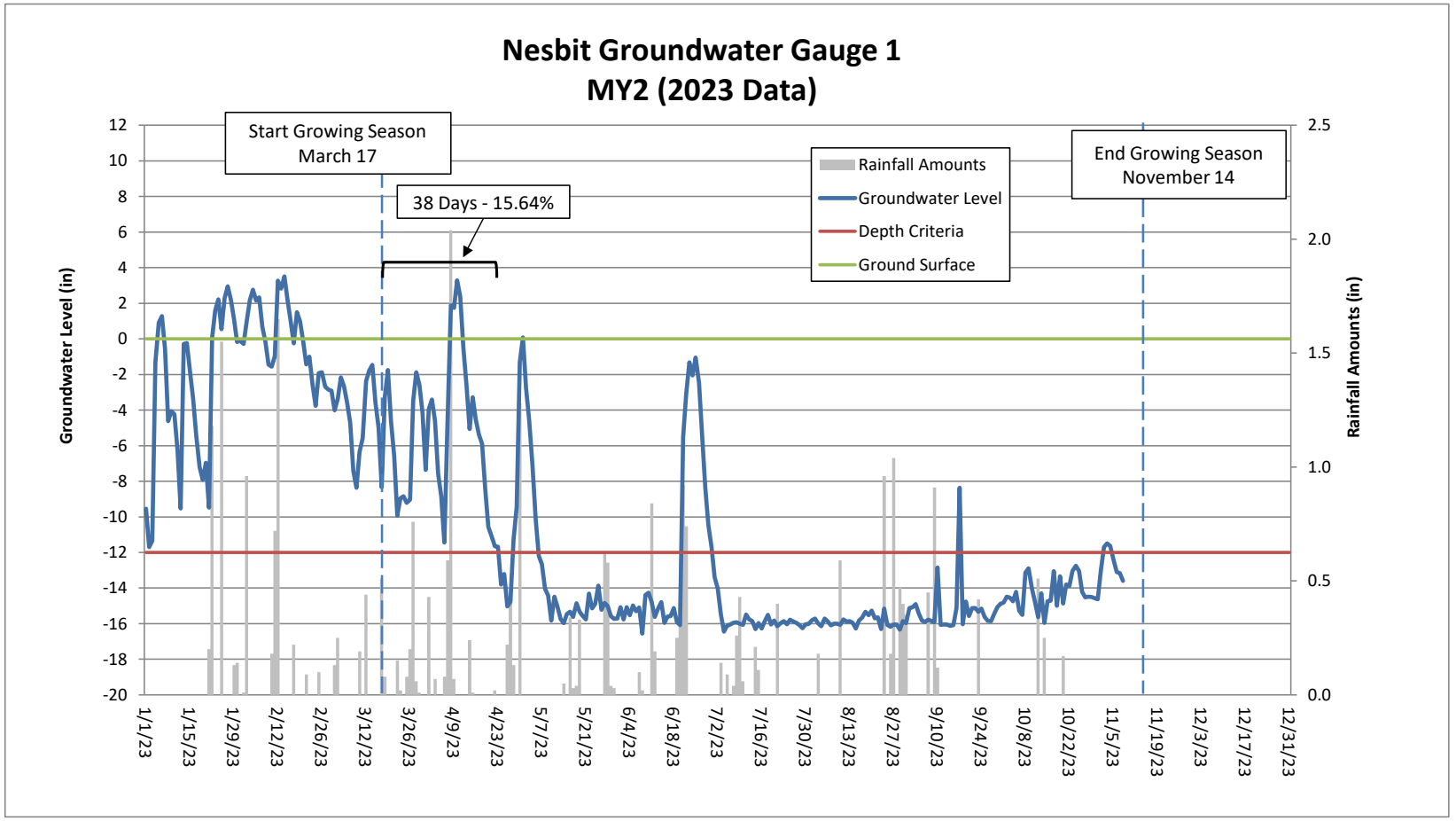

Nesbit Glen Branch Crest Gauge
MY2 (2023 Data)
Rainfall Amounts
Water Level
Bankfull Elevation
Thalweg Elevation
Gauge installed 2/13/23
Gauge malfunctioned after 4/3/23 reulting is data loss. It was replaced 6/8/23.
Water Level (in)
Rainfall Amounts (in)
23
21
19
17
15
13
11
9
7
5
3
1
-1
-3
-5
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23

Table 12. Groundwater Hydrology Data
Summary of Monitoring Period/Hydrology Success Criteria by Year

Gauge	12% Hydroperiod Success Criteria Achieved - Max Consecutive Days During Growing Season (Percentage)						
	Year 1 (2022)	Year 2 (2023)	Year 3 (2024)	Year 4 (2025)	Year 5 (2026)	Year 6 (2027)	Year 7 (2028)
1	No – 16 Days (6.6%)	Yes – 38 Days (15.64%)					
2	No – 4 Days (1.6%)	No – 13 Days (5.35%)					
3	Yes – 50 Days (20.6%)	Yes – 69 Days (28.4%)					
4	No – 27 Days (11.1%)	No – 25 Days (10.29%)					
5	Yes – 30 Days (12.3%)	Yes – 36 Days (14.81%)					
6	No – 8 Days (3.3%)	No – 20 Days (8.23%)					
7	No – 9 Days (3.7%)	No – 20 Days (8.23%)					
8	No – 6 Days (2.5%)	No – 20 Days (8.23%)					
9	Yes – 49 Days (20.2%)	Yes – 70 Days (28.81%)					


Nesbit Groundwater Gauge 1
MY2 (2023 Data)
Start Growing Season
March 17
38 Days - 15.64%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
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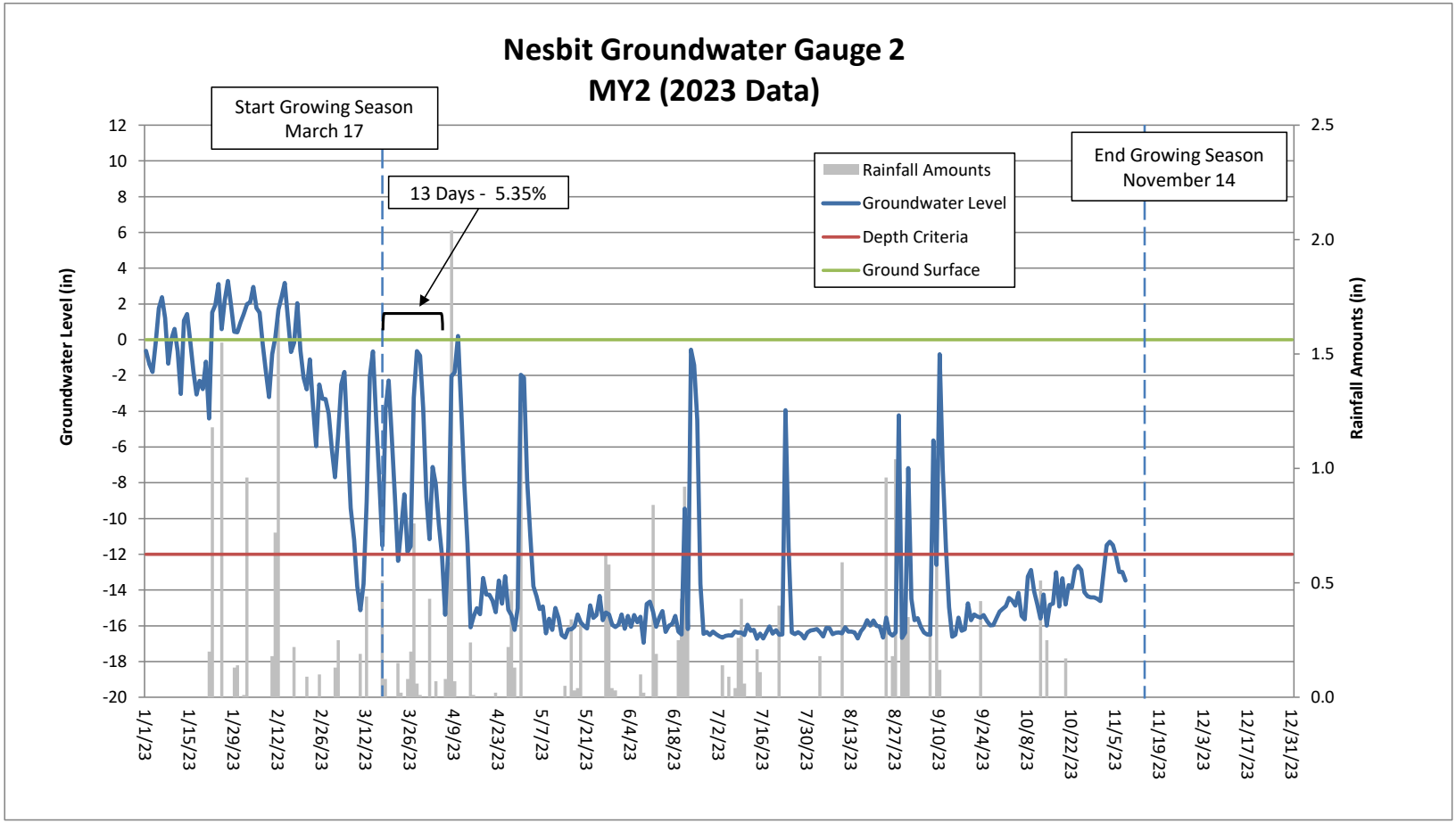
11/19/23
12/3/23
12/17/23
12/31/23


Nesbit Groundwater Gauge 2
MY2 (2023 Data)
Start Growing Season
March 17
13 Days - 5.35%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
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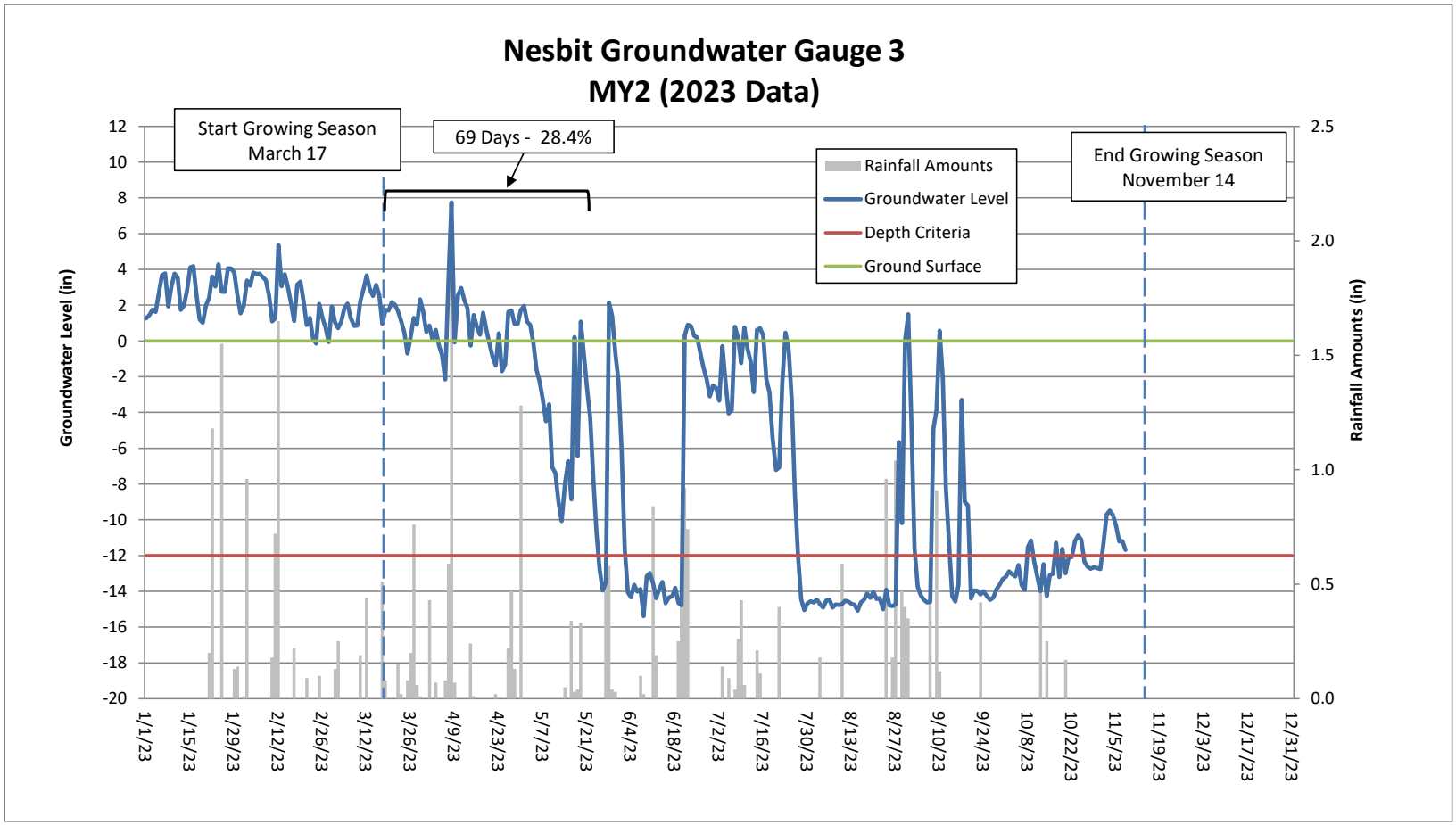
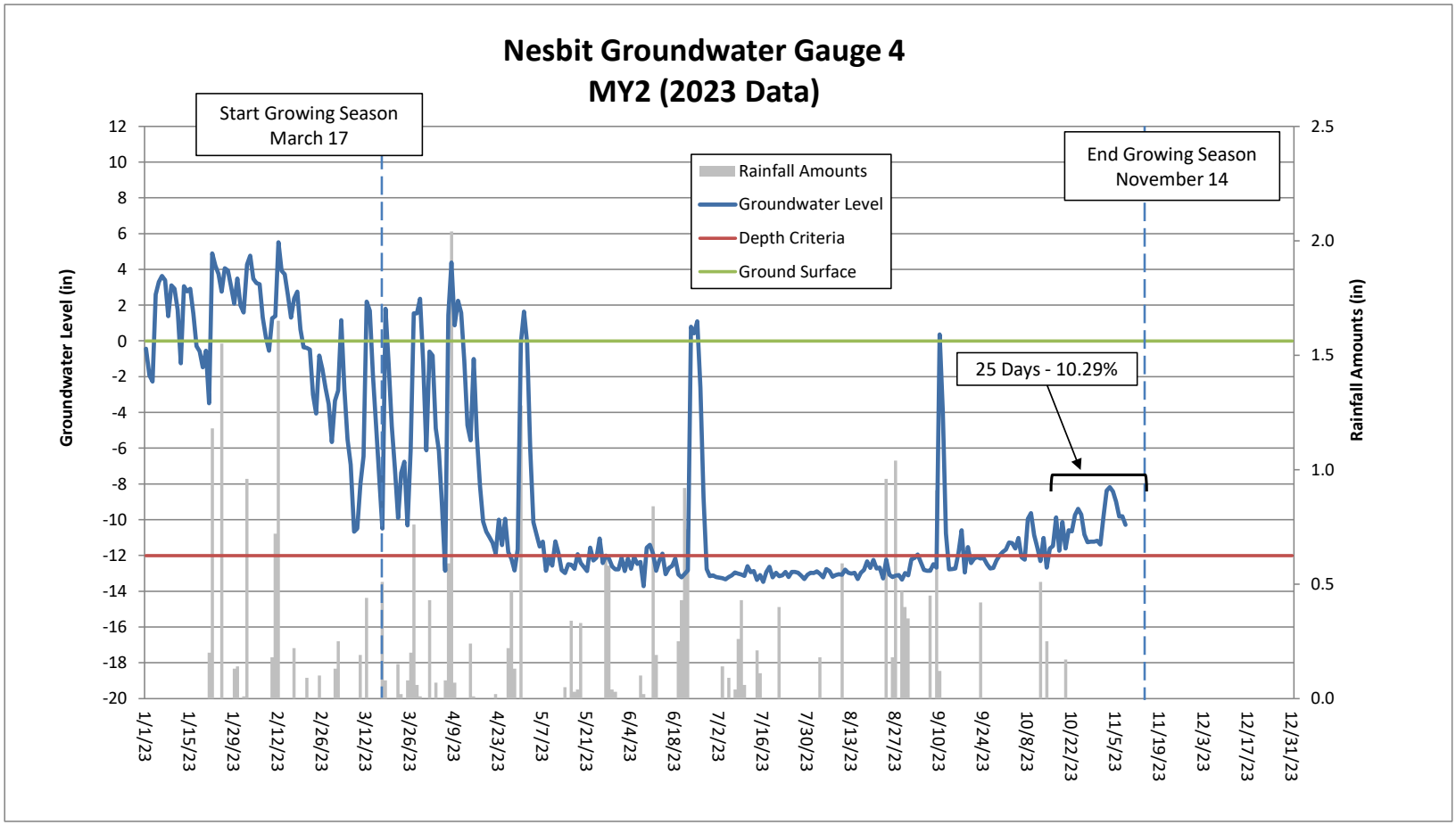
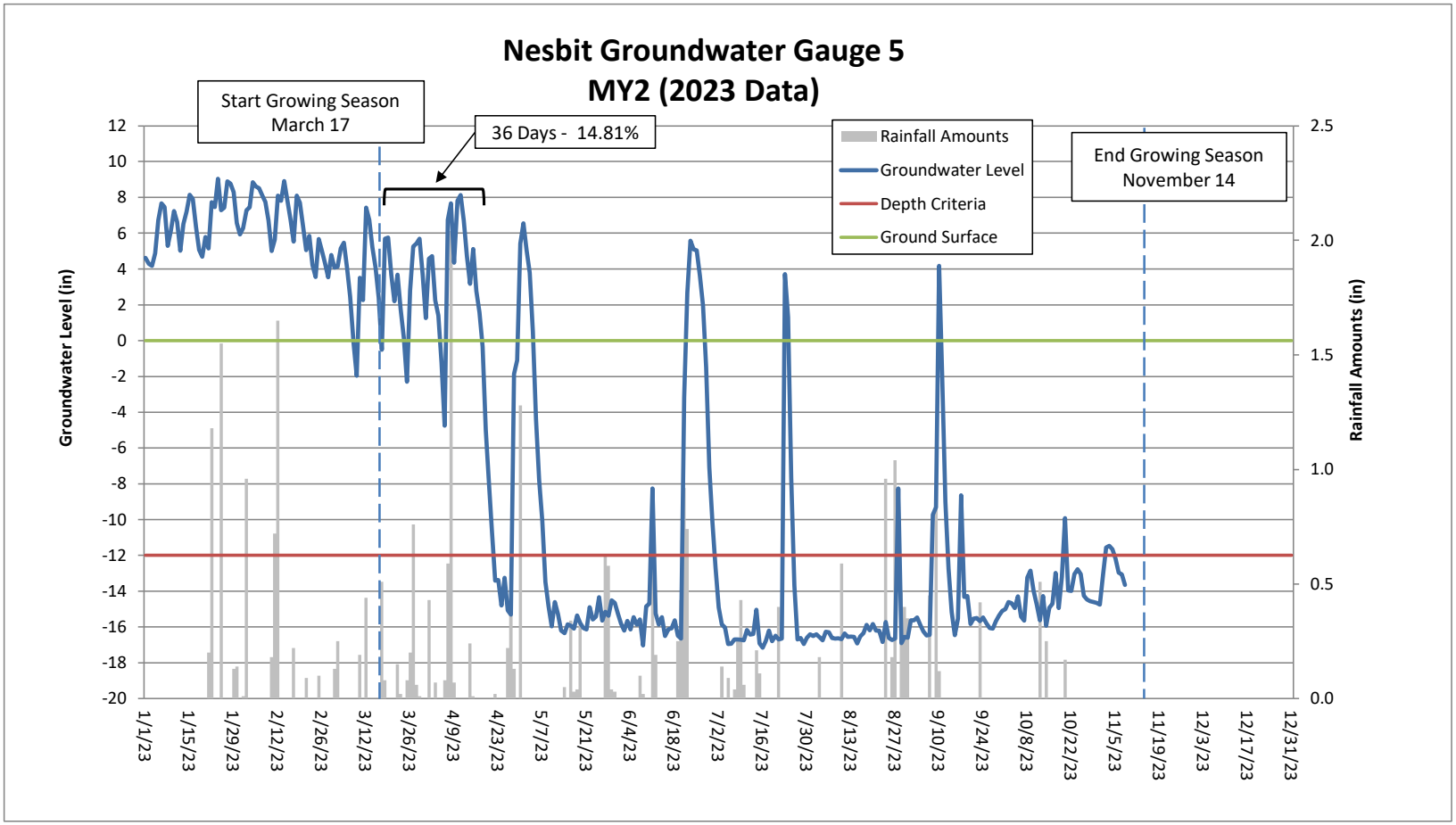
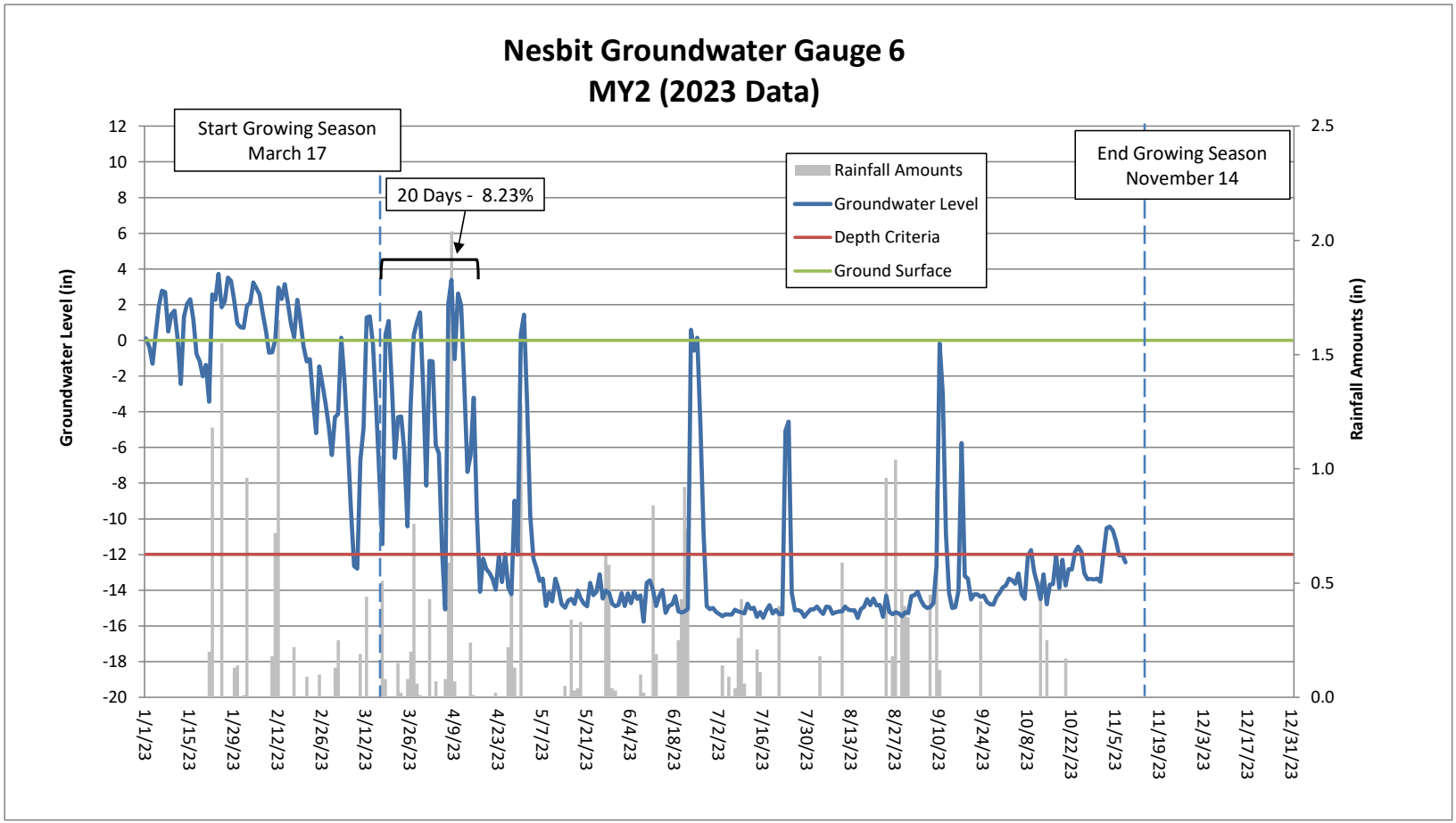
11/19/23
12/3/23
12/17/23
12/31/23


Nesbit Groundwater Gauge 3
MY2 (2023 Data)
Start Growing Season
March 17
69 Days - 28.4%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23


Nesbit Groundwater Gauge 4
MY2 (2023 Data)
Start Growing Season
March 17
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
25 Days - 10.29%
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23


Nesbit Groundwater Gauge 5
MY2 (2023 Data)
Start Growing Season
March 17
36 Days - 14.81%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23


Nesbit Groundwater Gauge 6
MY2 (2023 Data)
Start Growing Season
March 17
20 Days - 8.23%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
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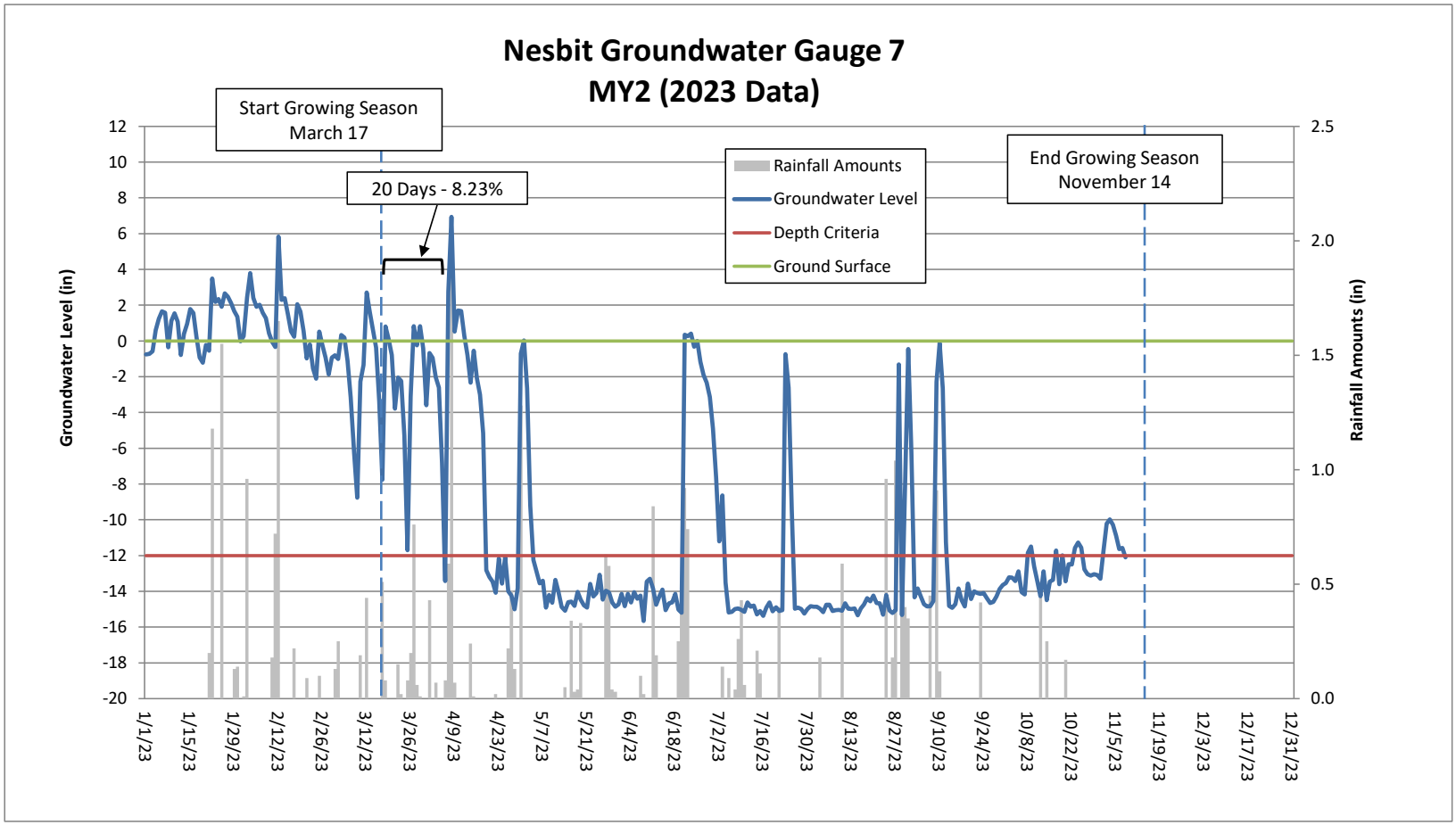
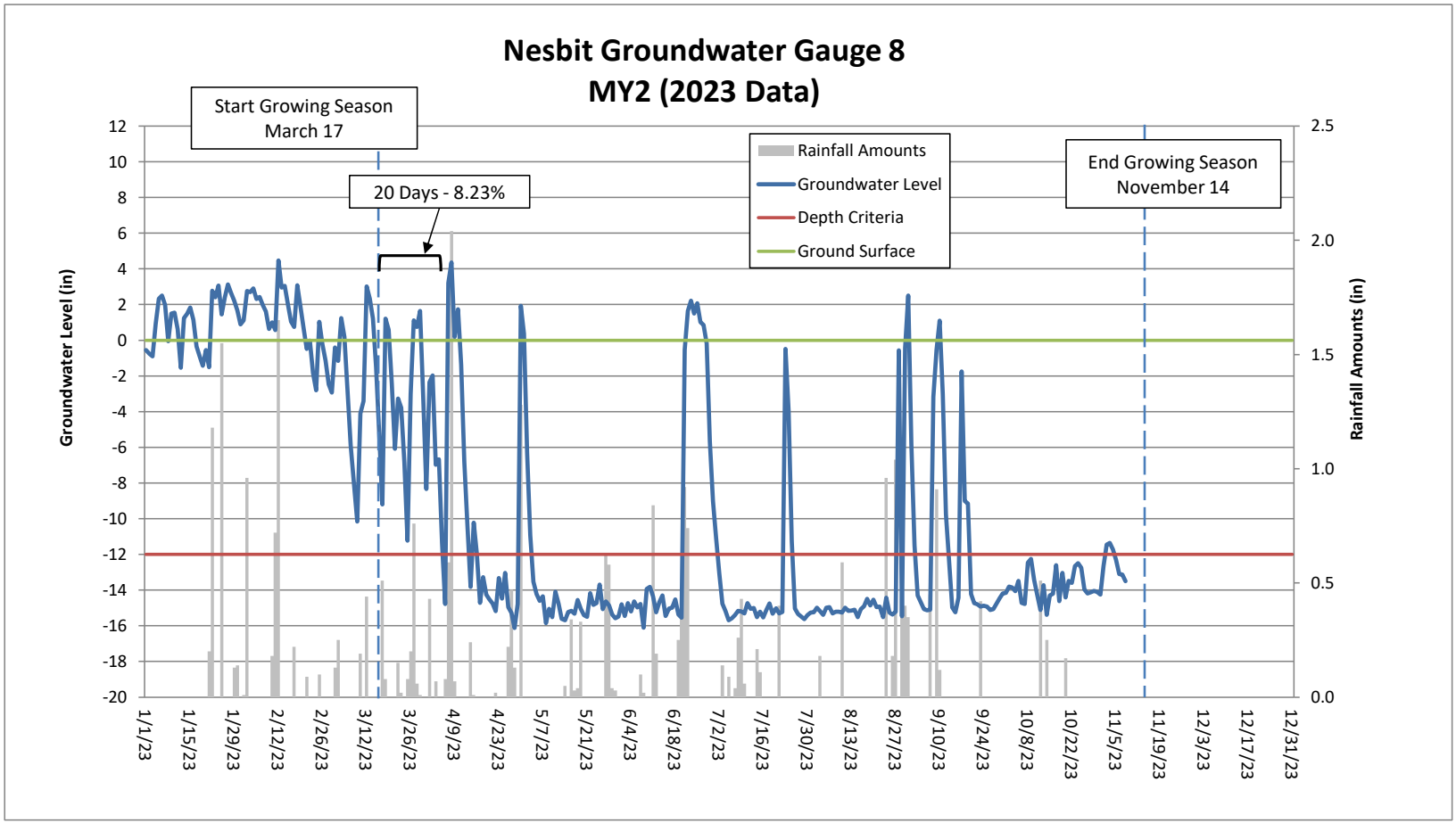
11/19/23
12/3/23
12/17/23
12/31/23


Nesbit Groundwater Gauge 7
MY2 (2023 Data)
Start Growing Season
March 17
20 Days - 8.23%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23


Nesbit Groundwater Gauge 8
MY2 (2023 Data)
Start Growing Season
March 17
20 Days - 8.23%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23

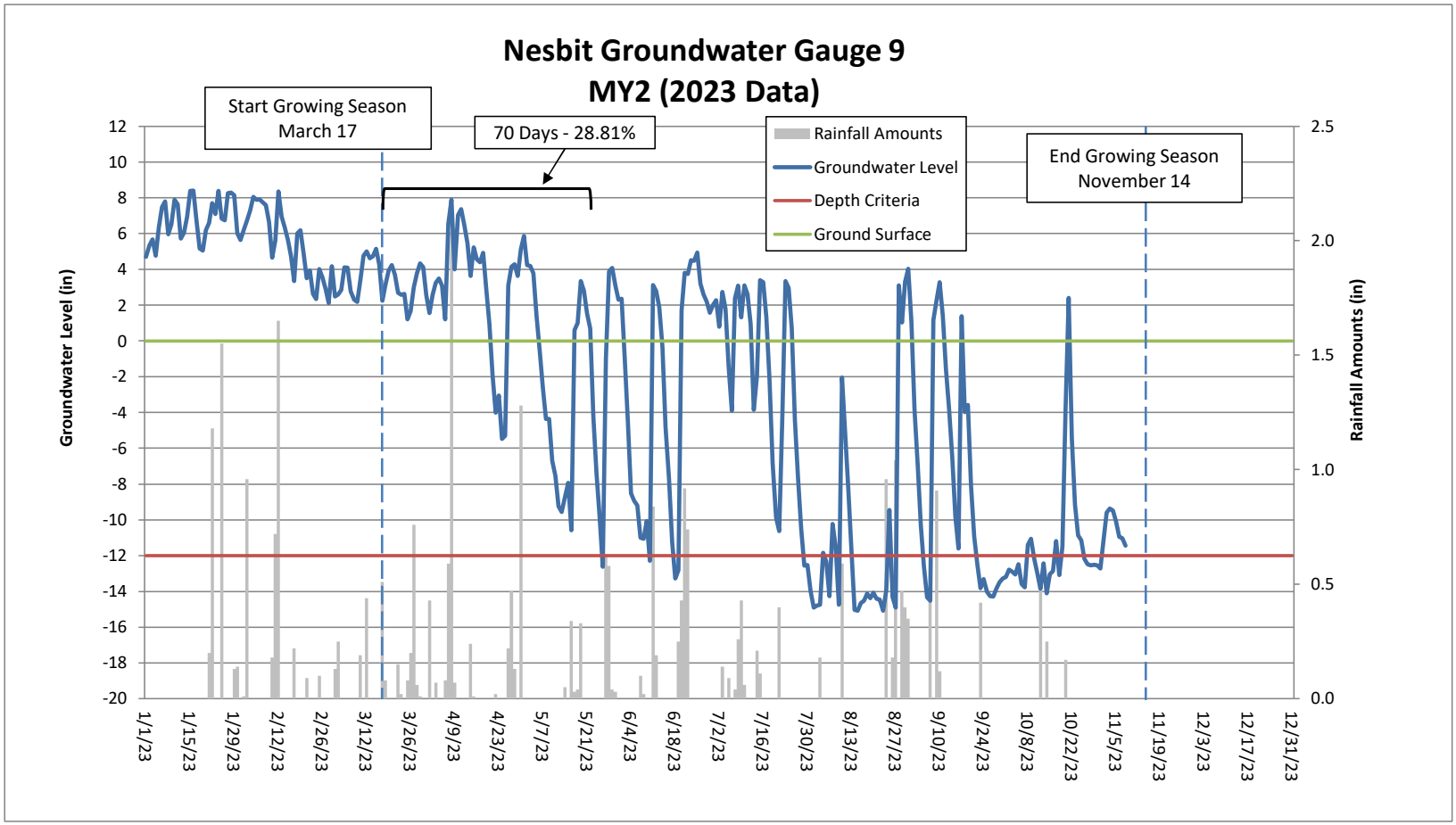
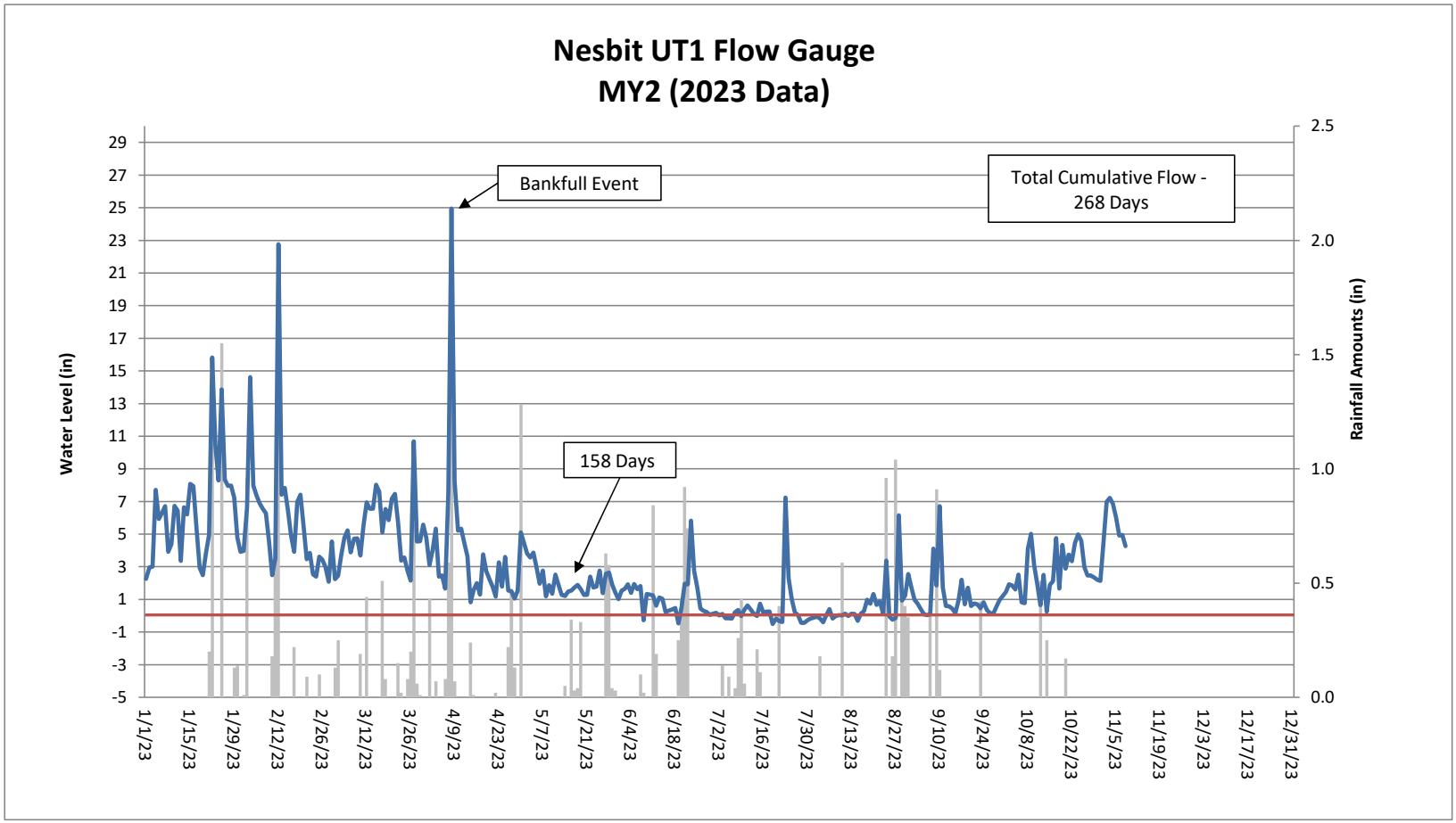

Nesbit Groundwater Gauge 9
MY2 (2023 Data)
Start Growing Season
March 17
70 Days - 28.81%
End Growing Season
November 14
Rainfall Amounts
Groundwater Level
Depth Criteria
Ground Surface
Groundwater Level (in)
Rainfall Amounts (in)
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23

Table 13A. UT-1 Channel Evidence

UT-1 Upstream Channel Evidence	Year 2 (2023)
Max consecutive days channel flow	158
Total cumulative days channel flow	286
Presence of litter and debris (wracking)	Yes
Leaf litter disturbed or washed away	Yes
Matted, bent, or absence of vegetation (herbaceous or otherwise)	Yes
Sediment deposition and/or scour indicating sediment transport	Yes
Water staining due to continual presence of water	Yes
Formation of channel bed and banks	Yes
Sediment sorting within the primary path of flow	Yes
Sediment shelving or a natural line impressed on the banks	Yes
Change in plant community (absence or destruction of terrestrial vegetation and/or transition to species adapted for flow or inundation for a long duration, including hydrophytes)	Yes
Development of channel pattern (meander bends and/or channel braiding) at natural topographic breaks, woody debris piles, or plant root systems	Yes
Exposure of woody plant roots within the primary path of flow	No
Other:	

Table 13B. UT-2 Channel Evidence

UT-2 Channel Evidence	Year 2 (2023)
Max consecutive days channel flow	132
Total cumulative days channel flow	297
Presence of litter and debris (wracking)	Yes
Leaf litter disturbed or washed away	Yes
Matted, bent, or absence of vegetation (herbaceous or otherwise)	Yes
Sediment deposition and/or scour indicating sediment transport	Yes
Water staining due to continual presence of water	Yes
Formation of channel bed and banks	Yes
Sediment sorting within the primary path of flow	Yes
Sediment shelving or a natural line impressed on the banks	Yes
Change in plant community (absence or destruction of terrestrial vegetation and/or transition to species adapted for flow or inundation for a long duration, including hydrophytes)	Yes
Development of channel pattern (meander bends and/or channel braiding) at natural topographic breaks, woody debris piles, or plant root systems	Yes
Exposure of woody plant roots within the primary path of flow	No
Other:	


Nesbit UT1 Flow Gauge
MY2 (2023 Data)
Water Level (in)
Rainfall Amounts (in)
Bankfull Event
Total Cumulative Flow - 268 Days
158 Days
29
27
25
23
21
19
17
15
13
11
9
7
5
3
1
-1
-3
-5
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
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10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23

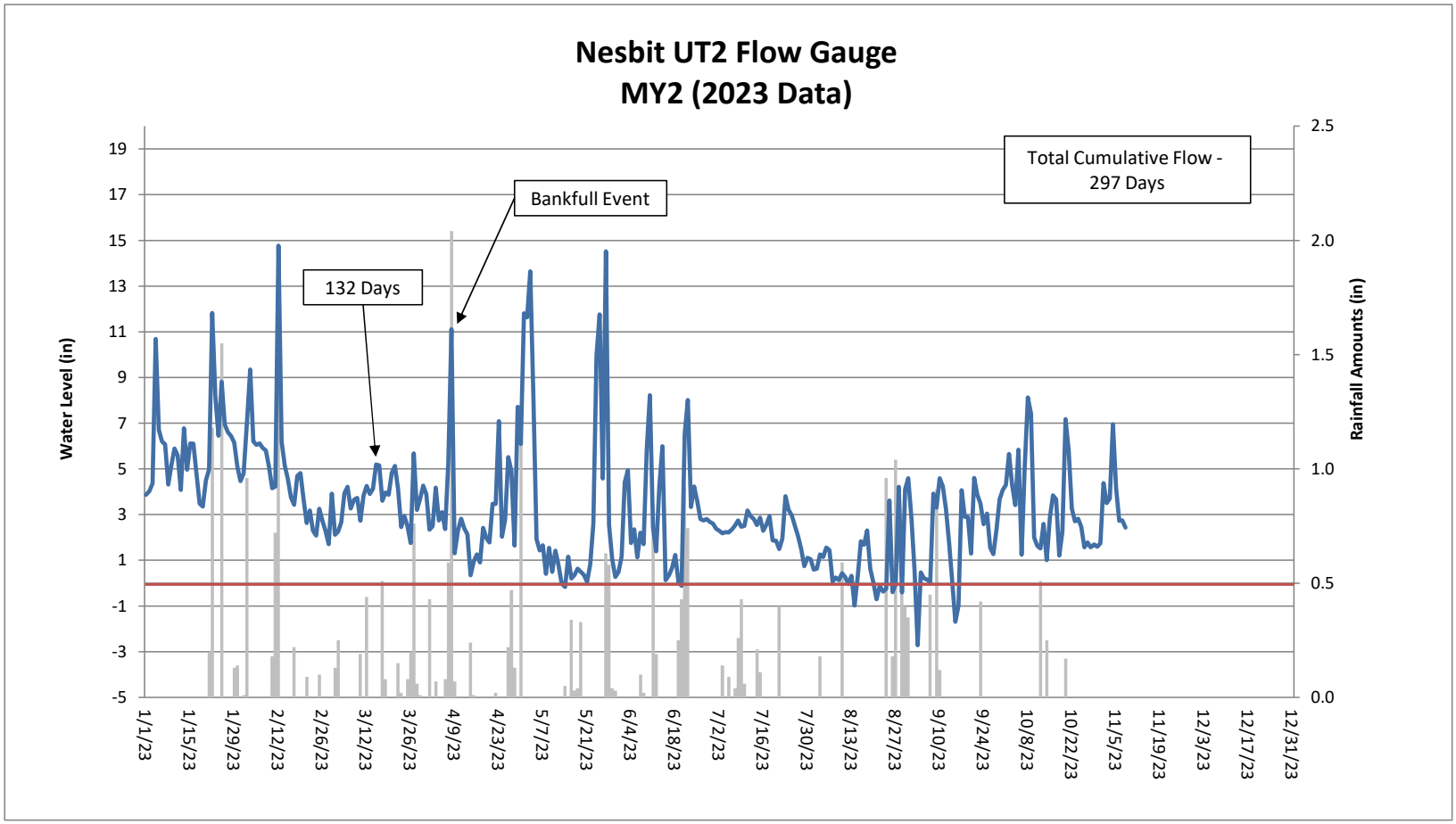
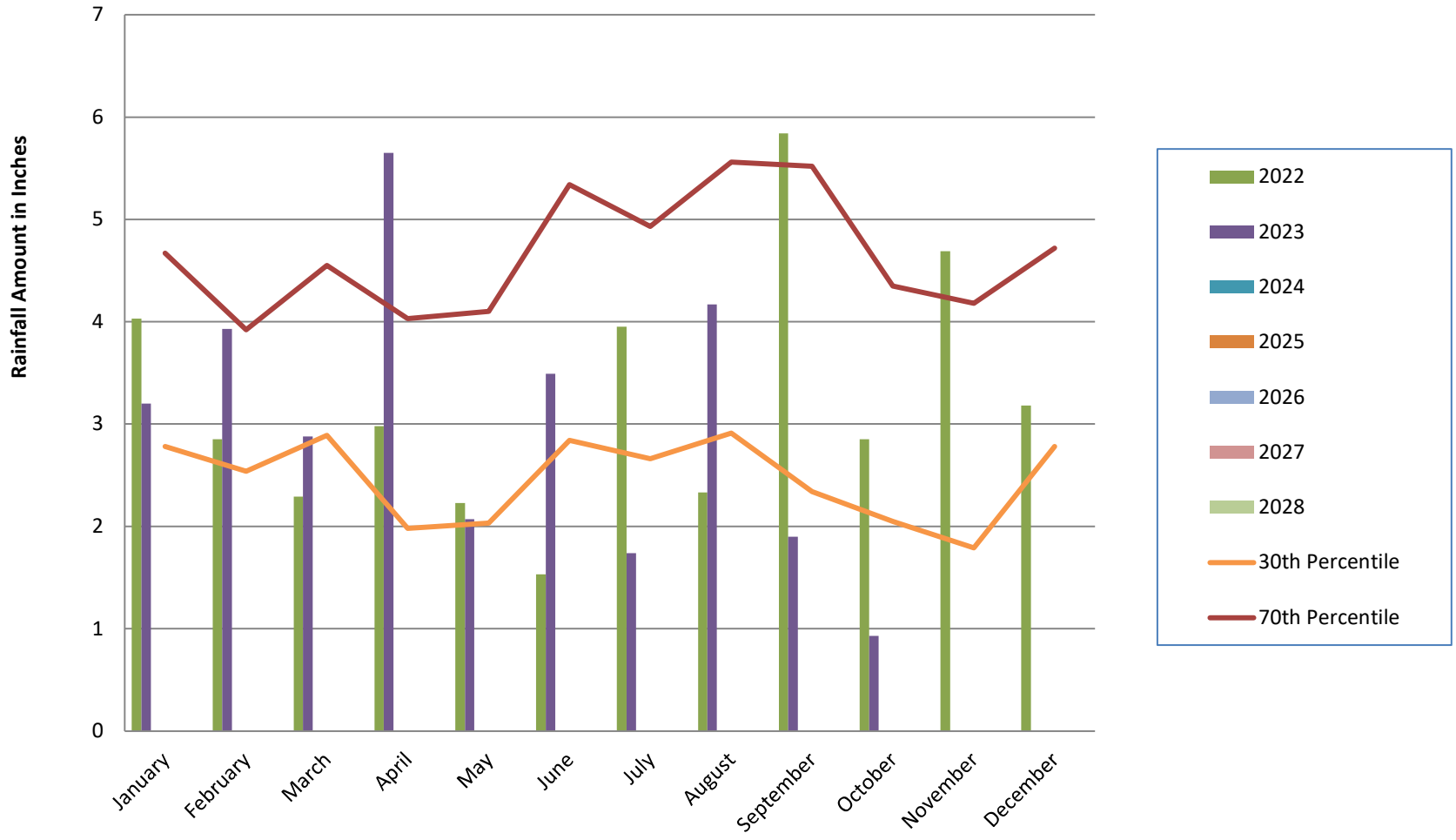

Nesbit UT2 Flow Gauge
MY2 (2023 Data)
Water Level (in)
Rainfall Amounts (in)
Total Cumulative Flow - 297 Days
Bankfull Event
132 Days
19
17
15
13
11
9
7
5
3
1
-1
-3
-5
2.5
2.0
1.5
1.0
0.5
0.0
1/1/23
1/15/23
1/29/23
2/12/23
2/26/23
3/12/23
3/26/23
4/9/23
4/23/23
5/7/23
5/21/23
6/4/23
6/18/23
7/2/23
7/16/23
7/30/23
8/13/23
8/27/23
9/10/23
9/24/23
10/8/23
10/22/23
11/5/23
11/19/23
12/3/23
12/17/23
12/31/23

Figure D1: Nesbit
30-70 Percentile Graph for Rainfall
Current year data from onsite rain gauge
30-70th percentile data from WETS Station: Monroe 2 SE, NC (1992-2022)



WETS Table

WETS Station: MONROE 2 SE, NC								
Requested years: 1992 - 2022								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	53.0	31.1	42.0	3.94	2.78	4.67	6	1.6
Feb	56.8	33.6	45.2	3.36	2.54	3.92	6	0.6
Mar	64.6	39.7	52.2	3.89	2.89	4.55	6	0.3
Apr	73.8	47.9	60.8	3.32	1.98	4.03	5	0.1
May	80.6	57.0	68.8	3.38	2.03	4.10	5	0.0
Jun	87.6	65.6	76.6	4.43	2.84	5.34	7	0.0
Jul	90.9	69.1	80.0	4.10	2.66	4.93	7	0.0
Aug	88.9	68.1	78.5	4.61	2.91	5.56	7	0.0
Sep	83.4	61.8	72.6	4.52	2.34	5.52	5	0.0
Oct	73.9	49.7	61.8	3.61	2.05	4.35	4	0.0
Nov	63.7	38.7	51.2	3.42	1.79	4.18	5	0.0
Dec	55.5	33.6	44.6	3.97	2.78	4.72	6	0.2
Annual:					41.88	50.57		
Average	72.7	49.7	61.2	-	-	-	-	-
Total	-	-	-	46.56			70	2.8

GROWING SEASON DATES			
Years with missing data:	24 deg = 3	28 deg = 1	32 deg = 1
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 28	28 deg = 30	32 deg = 30
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	2/28 to 12/2: 277 days	3/17 to 11/14: 242 days	4/4 to 11/3: 213 days
70 percent *	2/22 to 12/9: 290 days	3/12 to 11/19: 252 days	3/30 to 11/9: 224 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1896	2.07	5.53	M1.50	2.00	4.24	7.38	9.21	1.42	M3.30	1.58	3.37	2.37	43.97
1897	2.27	5.85	6.07	4.81	3.63	4.22	6.73	2.05	2.02	1.91	2.40	2.17	44.13
1898	2.34	0.84	4.07	3.16	1.28	3.46	5.10	11.65	4.72	4.72	M4.22	1.11	46.67
1899	3.68	8.66	5.23	2.21	2.55	3.02	4.59	2.97	3.09	7.10	3.43	2.73	49.26
1900	1.84	4.93	4.78	5.63	0.92	5.57	6.95	3.50	1.62	2.78	5.76	5.17	49.45
1901	2.83	1.71	5.00	8.54	7.20	8.15	3.50	14.00	6.24	2.16	0.64	6.40	66.37
1902	3.12	6.81	3.19	2.12	2.23	3.29	2.79	5.49	4.25	5.54	4.50	3.13	46.46
1903	3.03	8.63	6.53	3.32	0.59	11.07	1.71	4.62	3.03	3.40	1.21	1.56	48.70

1904	2.59	4.15	2.22	0.85	2.34	4.34	5.46	11.89	1.31	0.98	3.64	3.78	43.55
1905	1.69	5.32	1.83	4.66	6.68	0.93	4.70	11.01	1.31	0.97	0.82	7.09	47.01
1906	5.14	1.25	5.06	2.17	3.96	4.65	7.51	6.65	3.40	6.02	0.66	2.50	48.97
1907	0.24	3.62	1.76	4.13	4.34	8.39	5.84	2.43	3.94	0.27	5.00	6.40	46.36
1908	M5.21	5.62	4.67	3.82	3.21	3.88	4.80	19.38	5.09	7.52	1.68	4.19	69.07
1909	1.27	4.27	2.79	2.47	5.60	6.95	2.98	3.00	2.51	1.31	0.20	2.94	36.29
1910	3.45	3.88	1.36	1.08	4.49	6.15	4.86	5.42	1.70	4.23	0.36	3.35	40.33
1911	2.50	1.83	2.55	1.83	0.64	1.68	1.96	5.64	3.69	5.02	3.33	6.12	36.79
1912	3.66	6.98	7.68	1.89	3.70	7.97	4.25	2.93	6.02	1.73	3.93	2.37	53.11
1913	4.68	3.78	7.52	2.40	3.00	4.47	5.22	4.04	5.74	M2.28	2.69	4.41	50.23
1914	2.70	M3.09	2.32	3.42	0.25	4.16	5.34	4.62	2.06	3.30	M3.23	6.90	41.39
1915	6.28	2.13	3.81	1.54	4.90	5.53	2.08	7.40	2.59	3.01	2.50	3.27	45.04
1916	2.64	4.76	1.95	1.24	4.46	5.21	12.44	4.12	0.85	1.68	0.49	1.86	41.70
1917	2.67	4.45	4.56	3.92	4.07	6.75	4.46	2.36	4.97	3.94	1.24	1.59	44.98
1918	4.81	1.29	2.15	6.46	2.19	2.29	5.05	4.21	3.78	2.23	2.39	3.72	40.57
1919	5.42	4.44	2.67	2.75	5.89	2.88	8.49	3.50	1.01	3.51	0.56	1.95	43.07
1920	3.79	4.56	4.79	3.73	1.37	3.89	4.20	9.51	2.67	0.53	4.05	4.21	47.30
1921	4.84	5.45	3.56	2.47	6.02	4.15	3.69	3.67	1.15	1.39	3.20	1.67	41.26
1922	3.71	7.88	9.00	7.41	3.63	5.20	3.98	3.71	0.88	4.44	1.15	4.36	55.35
1923	4.07	4.03	5.12	3.40	4.46	0.69	4.83	3.22	3.16	1.23	2.39	2.19	38.79
1924	3.95	4.91	1.58	5.36	3.50	2.64	3.53	0.15	9.55	1.00	2.09	4.41	42.67
1925	6.36	1.52	2.40	1.89	1.42	3.77	2.08	1.73	0.80	2.21	M2.65	2.70	29.53
1926	5.01	4.04	4.85	1.31	1.07	2.44	7.71	5.14	0.98	1.29	4.16	3.48	41.48
1927	0.84	3.36	3.96	2.62	1.13	4.32	4.21	2.43	1.81	5.31	1.49	6.68	38.16
1928	0.73	4.18	2.68	7.80	3.80	6.33	2.48	10.58	11.74	2.14	0.61	1.29	54.36
1929	2.63	8.70	9.09	3.13	5.20	3.22	5.33	4.97	6.70	7.49	5.33	3.88	65.67
1930	3.51	0.91	2.21	1.09	3.12	4.91	3.42	4.34	4.17	1.34	4.51	3.84	37.37
1931	2.19	1.44	2.12	4.00	5.92	1.25	8.40	12.00	0.00	1.35	0.16	6.60	45.43
1932	6.17	3.71	3.88	2.91	4.82	8.21	3.53	1.70	2.17	9.95	3.01	5.44	55.50
1933	2.65	3.52	1.56	3.60	2.94	2.99	4.39	6.22	0.71	1.29	0.77	1.41	32.05
1934	1.52	2.75	4.30	2.78	5.06	4.34	4.94	4.50	3.61	3.00	4.27	3.00	44.07
1935	2.81	2.83	2.16	4.26	3.72	1.77	3.99	2.57	M7.52	0.70	2.52	2.73	37.58
1936	8.17	4.73	7.13	7.60	0.07	4.05	3.41	5.41	5.12	5.46	1.48	5.76	58.39
1937	5.49	3.68	2.13	5.90	1.30	10.30	1.91	5.96	0.50	1.98	2.28	2.47	43.90

1938	2.09	0.67	2.43	4.16	2.14	5.83	7.31	2.52	3.79	1.06	2.21	3.31	37.52
1939	3.36	8.58	2.91	2.70	1.86	3.23	8.05	7.13	1.76	0.44	1.40	M2.64	44.06
1940	2.90	2.82	2.13	1.96	2.63	2.28	3.16	3.35	0.63	0.73	5.96	2.57	31.12
1941	M2.13	2.47	2.82	2.89	0.04	5.23	3.97	8.36	1.89	1.84	0.73	5.38	37.75
1942	2.43	3.38	6.93	1.75	5.93	3.96	6.30	6.01	3.43	2.06	2.83	3.21	48.22
1943	4.31	1.67	5.42	2.94	2.68	4.84	3.41	2.41	2.01	0.26	0.79	3.81	34.55
1944	M3.80	6.62	7.76	5.97	0.87	2.72	9.39	1.87	2.63	3.35	2.61	1.74	49.33
1945	2.48	5.21	1.51	2.61	2.78	2.36	3.03	3.98	11.44	1.57	1.49	6.62	45.08
1946	2.90	2.25	1.99	4.54	2.04	3.17	11.25	3.60	M2.33	5.48	1.71	1.11	42.37
1947	5.96	0.99	4.29	3.78	1.16	3.06	2.70	3.39	5.17	2.50	6.36	2.52	41.88
1948	4.30	3.58	5.32	3.34	5.14	3.18	2.90	3.82	5.58	2.34	11.12	5.88	56.50
1949	3.37	4.12	M1.93	4.99	6.44	1.95	4.18	8.68	9.78	3.47	2.76	2.41	54.08
1950	2.16	1.52	3.21	1.17	2.23	2.67	5.00	3.66	3.35	1.87	1.87	2.81	31.52
1951	1.72	M0.89	4.47	4.45	0.50	6.30	4.18	3.44	6.76	0.40	3.19	4.66	40.96
1952	3.29	5.16	6.90	3.53	3.91	2.32	5.21	13.00	3.07	0.80	M1.35	3.82	52.36
1953	3.05	4.77	4.17	3.26	3.47	2.71	5.44	8.59	5.88	0.17	1.01	6.09	48.61
1954	5.89		4.46	1.75	3.34	0.56	5.87	1.38	T	5.81	2.39	3.02	34.47
1955	3.49	3.67	1.90	5.59	2.79	3.61	6.69	2.67	1.83	4.37	2.85	0.44	39.90
1956	1.48	6.38	3.92	3.27	2.56	1.97	2.56	3.65	6.31	2.51	1.37	1.91	37.89
1957	2.21	2.84	4.15	1.84	8.25	3.92	2.26	4.43	6.26	2.12	8.80	1.90	48.98
1958	4.70	3.40	3.29	4.93	3.15	4.61	6.90	2.54	0.27	4.24	0.95	4.32	43.30
1959	2.72	3.03	3.96	5.73	2.17	1.78	12.19	5.43	8.30	5.70	0.66	2.47	54.14
1960	6.05	7.81	4.91	3.88	2.51	5.03	5.82	9.02	1.96	2.31	1.60	2.32	53.22
1961	2.41	6.61	5.29	4.28	3.33	5.84	1.42	4.34	0.20	0.75	2.12	4.60	41.19
1962	6.80	4.80	4.53	3.75	1.06	4.60	4.30	1.48	7.72	0.34	5.65	3.42	48.45
1963	3.79	4.07	3.70	3.07	6.20	3.80	4.71	2.08	4.23	0.20	3.99	3.35	43.19
1964	5.54	5.33	5.43	3.51	1.56	3.11	8.32	8.90	2.74	10.47	1.56	5.09	61.56
1965	2.15	3.70	6.15	3.95	0.31	4.84	8.22	4.84	1.60	2.11	2.44	0.68	40.99
1966	4.87	4.88	3.36	2.45	4.17	1.94	2.27	3.42	8.28	4.28	1.06	2.64	43.62
1967	1.98	4.32	1.59	2.54	4.26	2.10	4.64	11.61	4.40	0.63	3.82	4.41	46.30
1968	5.98	0.80	2.52	1.72	4.04	4.05	3.93	3.91	0.16	3.02	5.18	2.74	38.05
1969	2.40	5.24	4.22	4.72	2.76	4.63	5.36	7.11	4.39	2.87	0.87	3.64	48.21
1970	2.49	3.26	4.88	1.29	4.66	0.64	M4.65	7.95	1.10	7.64	1.39	2.49	42.44
1971	6.03	4.67	6.61	2.96	5.45	5.04	5.05	7.84	1.67	8.72	2.01	2.02	58.07

1972	4.96	4.27	3.54	1.29	5.99	4.51	3.64	2.11	3.18	1.42	3.56	9.07	47.54
1973	5.11	4.75	4.89	5.98	4.18	8.99	4.64	1.55	2.36	2.22	0.35	5.66	50.68
1974	3.40	4.73	3.26	3.71	5.55	2.78	3.57	5.40	6.59	T	2.67	5.15	46.81
1975	7.03	4.12	7.58	2.28	6.86	4.25	8.32	3.17	7.11	1.29	2.79	4.76	59.56
1976	2.00	1.23	4.49	0.48	4.27	7.17	4.92	2.03	3.90	7.03	3.29	4.63	45.44
1977	3.74	1.35	8.59	1.51	1.15	4.52	1.24	5.92	6.93	7.69	2.87	2.49	48.00
1978	7.87	0.63	4.39	2.12	4.03	5.01	9.70	2.69	0.86	1.25	2.95	2.48	43.98
1979	5.49	6.40	3.37	5.00	2.55	5.68	3.92	1.00	8.41	2.32	6.70	1.40	52.24
1980	4.78	M1.50	9.86	1.54	3.30	2.46	2.69	0.69	9.14	3.91	4.05	0.96	44.88
1981	0.48	3.93	1.95	0.56	2.10	1.57	8.71	2.63	2.90	2.93	0.81	7.75	36.32
1982	M4.00	7.01	1.87	4.16	4.14	5.86	3.77	4.15	4.24	6.54	2.65	5.65	54.04
1983	3.71	6.22	8.68	4.14	2.44	2.87	0.75	7.26	2.21	1.91	4.35	9.06	53.60
1984	6.26	6.27	5.10	4.15	5.12	2.53	7.18	2.92	0.27	2.00	1.48	3.09	46.37
1985	4.28	3.95	1.30	1.46	3.77	5.82	6.09	10.63	0.05	4.64	6.46	0.92	49.37
1986	1.40	1.23	3.08	0.85	1.13	1.16	2.84	13.66	1.63	2.88	4.73	3.92	38.51
1987	7.77	4.65	5.75	3.25	0.95	6.96	2.71	2.61	M10.54	0.48	4.80	3.05	53.52
1988	4.43	1.49	2.33	2.24	2.69	2.81	4.17	7.17	3.64	3.35	4.15	1.51	39.98
1989	1.77	5.56	8.05	5.14	5.89	5.34	6.12	4.22	5.48	6.58	2.39	3.66	60.20
1990	3.22	6.21	3.44	2.58	7.00	0.35	5.90	4.24	1.22	15.94	2.45	3.50	56.05
1991	6.08	M1.96	7.49	6.08	3.09	5.43	7.38	6.96	1.66	1.48	2.22	3.53	53.36
1992	3.17	3.64	3.52	3.00	4.62	6.62	0.80	6.28	1.26	6.18	6.17	M2.64	47.90
1993	6.55	3.23	8.32	3.41	3.52	1.45	3.19	3.91	3.34	2.60	3.77	3.44	46.73
1994	4.26	3.44	4.99	0.75	2.55	7.97	6.47	3.02	5.63	3.38	3.07	2.38	47.91
1995	4.37	4.91	2.72	0.60	3.09	5.83	1.40	9.11	2.61	7.42	4.41	1.36	47.83
1996	3.92	2.64	5.37	4.02	1.30	3.71	3.06	5.37	5.19	4.41	3.80	2.63	45.42
1997	4.09	4.15	4.32	4.71	M1.74	2.98	M8.95	0.32	2.47	4.43	4.59	4.32	47.07
1998	9.81	5.27	5.24	5.28	3.70	2.89	6.45	3.70	7.42	3.86	1.66	3.36	58.64
1999	4.97	2.13	2.42	3.84	2.42	3.60	1.14	1.74	11.36	4.47	1.80	1.54	41.43
2000	M6.29	2.70	2.95	3.61	1.22	3.39	4.22	3.58	8.06	0.00	2.83	1.41	40.26
2001	1.80	2.27	5.54	1.56	1.90	4.70	4.99	1.04	2.74	2.91	0.71	2.30	32.46
2002	5.54	1.63	3.72	1.07	2.35	1.26	3.78	4.19	5.12	6.20	3.69	4.72	43.27
2003	1.90	6.14	8.04	6.85	5.21	5.32	6.65	6.01	3.66	2.75	1.20	2.30	56.03
2004	0.91	3.98	1.30	1.03	0.91	7.23	6.18	5.96	13.90	2.57	2.56	2.14	48.67
2005	2.03	M3.07	M4.22	3.04	M1.01	M5.28	M3.39	8.79	0.17	4.38	M2.49	M5.13	43.00

2006	2.62	1.71	1.35	M2.25	1.93	10.83	1.00	6.87	M3.11	4.41	8.31	3.38	47.77
2007	M1.73	3.43	2.56	M1.89	0.87	4.40	0.96	2.85	1.37	3.44	M0.31	4.70	28.51
2008	2.13	4.16	3.44	6.06	2.37	M0.99	3.29	8.85	4.72	M1.64	3.09	5.86	46.60
2009	M2.60	M1.70	6.55	M1.65	M3.83	M2.46	6.16	2.30	1.30	3.37	7.26	8.71	47.89
2010	M5.05	M4.00	M2.55	M0.96	M4.39	8.29	M3.75	M4.71	M0.62	M0.07	1.44	M2.00	37.83
2011	1.76	M2.59	M5.68	M2.62	M7.79	M4.46	M2.42	M5.13	M4.43	4.69	M3.01		44.58
2012	M3.93	1.32	M3.02	M2.40	M5.22	M1.66	M5.33	9.83	4.79	1.75	M1.24	M3.90	44.39
2013	4.48	3.66	3.08	5.09	1.70	7.68	5.54	4.19	1.46	0.23	2.99	5.79	45.89
2014	3.45	2.89	5.10	5.61	4.05	3.76	6.24	2.11	6.55	1.68	5.12	M4.85	51.41
2015	M2.66	2.98	2.62	4.32	0.79	2.07	4.33	7.41	2.61	7.92	9.50	M7.21	54.42
2016	2.09	3.10	2.42	0.79	5.25	3.55	2.98	2.45	3.92	5.80	0.22	3.08	35.65
2017	5.51	1.31	2.62	6.27	5.87	8.08	5.49	2.67	3.95	1.77	0.73	3.22	47.49
2018	4.47	2.43	3.95	3.81	2.94	2.65	3.30	4.73	12.36	5.59	6.83	8.64	61.70
2019	4.59	3.70	3.94	4.84	3.41	4.14	1.87	6.45	0.66	3.33	3.28	7.15	47.36
2020	4.88	6.89	3.26	6.41	11.95	1.96	4.17	3.45	5.59	5.66	5.22	3.18	62.62
2021	4.24	5.95	2.42	0.97	1.73	4.25	2.71	3.59	1.49	2.03	1.04	3.92	34.34
2022	6.29	3.22	3.34	4.26	3.61	1.22	6.81	2.33	4.41	2.85	3.66	M1.01	43.01

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2022-12-13

Appendix E: Project Timeline and Contact Info

Table 14. Project Timeline
Table 15. Project Contacts
Email with Farm Manager about encroachments

Table 14. Project Timeline

Activity or Deliverable	Data Collection Complete	Task Completion or Deliverable Submission
Project Instituted	NA	Apr-19
Mitigation Plan Approved	Jun-20	May-21
Construction (Grading) Completed	NA	07-Dec-21
Planting Completed	NA	3-Feb-22
As-built Survey Completed	NA	Jun-22
MY-0 Baseline Report	Feb-22	Sep-22
Basal Bark Treatment for Privet	NA	11-Sep-22
Basal Bark Treatment for Privet	NA	9-Oct-22
Lime, fertilizer, seeding, and enhanced boundary marking	NA	30-Nov-22
MY-1 Monitoring Report	Nov-22	Feb-23
Landwoner discussions initiated regarding encroachment, boundary marking, horse tape installation	NA	7-Jun-23
Herbicide Treatments: parrotfeather, cattail, privet, chinaberry, autumn olive, princess tree, Johnson grass	NA	3-Jul-23, 16-Jul-23, 23-Jul-23, 24-Jul-23, 5-Aug-23, 16-Aug-23
MY-2 Monitoring Report	Nov-23	Feb-24

Table 15. Project Contacts

Nesbit Stream and Wetland Mitigation Site/100121	
Provider	Restoration Systems, LLC 1101 Haynes Street, Suite 211 Raleigh, NC 27604
Mitigation Provider POC	Worth Creech 919-755-9490
Designer	Axiom Environmental, Inc. 218 Snow Ave Raleigh, NC 27603
Primary project design POC	Grant Lewis 919-215-1693
Construction Contractor	Land Mechanics Designs, Inc. 126 Circle G Lane Willow Spring, NC 27592
	Charles Hill 919-639-6132

From: Alex Duchesneau
To: Harrell, Matthew
Cc: Holz, Raymond; franklinhowey@aol.com
Subject: RE: Nesbit Road Conservation Easement- Scalloping
Date: Tuesday, June 13, 2023 8:55:27 AM

Hi Matthew –

Thank you for highlighting this for us.

We did emphasize this to our team, but we will have another discussion to ensure we stay out of the designated areas. We apologize for the impact here and will do our best to make this right going forward.

Thanks,
Alex

From: Harrell, Matthew <Matthew.Harrell@davey.com>
Sent: Wednesday, June 7, 2023 3:28 PM
To: Alex Duchesneau <Alex.Duchesneau14@outlook.com>
Cc: Holz, Raymond <Raymond.Holz@davey.com>; franklinhowey@aol.com
Subject: Re: Nesbit Road Conservation Easement- Scalloping

Hi Alex,

This email is a follow-up and recap to our phone conversation on Monday. Please respond to acknowledge receipt.

Several weeks back we spoke by phone to discuss avoiding easement encroachments during planting this year. Specific mention was made of using only designated crossings and avoiding scalloping caused by overspray/spray drift/planting. You followed up with your crew and confirmed that you had clear mapping of the easement boundary and that planting was likely to occur soon.

On Monday 6/5/23 I inspected the easement boundary to verify that planting activities had avoided impacts to the project. Unfortunately, I was disappointed to see that there was considerable overspray into the easement as well as planting within the easement. Some areas were improved from last season, and I did not note any impromptu crossings outside of the designated corridors, both of which I appreciate. However, there was damage to easement boundary signs and markers. See attachment for photos. This damage combined with the encroachment itself reflects a continued pattern of encroachment which needs to be resolved.

On Tuesday 6/6/23 we began adding additional easement boundary posts and a high visibility marker (horse tape fencing) in the most affected areas. I expect that you will be making your postemergence herbicide treatment in about 4 weeks and we want to make sure that the equipment operator can clearly see the areas which were problematic last time. In the coming weeks we will quantify the acres impacted by recent encroachments. Those areas will need to be

replanted with appropriate trees in November/December 2023. I will keep you posted on our plans/efforts to repair the damage.

In the meantime, please reiterate the need to avoid overspray and other encroachments with your field crews.

-Matthew

Matthew Harrell | Project Manager
Davey Mitigation
P: 252-299-1655
E: matthew.harrell@davey.com

From: Alex Duchesneau <Alex.Duchesneau14@outlook.com>
Sent: Monday, December 5, 2022 10:26 AM
To: Matthew Harrell <mharrell@restorationsystems.com>
Cc: Ray Holz <rholz@restorationsystems.com>; franklinhowey@aol.com <franklinhowey@aol.com>
Subject: RE: Nesbit Road Conservation Easement- Scalloping

Hi Matt-

I know we talked over the phone, but I wanted to get you a response in writing.

We have had staff meetings about this and our hope is that those will deter our encroachment into the easement going forward. We apologize for the scalloping that occurred and will do our best to ensure it does not happen in the future.

Once again, we appreciate you working with us and we will continue to emphasize the boundaries of each easement to our staff as they harvest and plant in 2023.

Thanks,
Alex

From: Matthew Harrell <mharrell@restorationsystems.com>
Sent: Thursday, November 3, 2022 10:24 AM
To: Alex Duchesneau <Alex.Duchesneau14@outlook.com>
Cc: Ray Holz <rholz@restorationsystems.com>; franklinhowey@aol.com
Subject: Nesbit Road Conservation Easement- Scalloping

Hi Alex,

As we discussed yesterday the State DMS folks have called out scalloping along the easement boundary. This is where farm activities have slightly encroached into the easement. See attached pictures. The State takes this seriously and we need to make sure to get it taken care of sooner rather than later.

There are about ten areas like this along the boundary where we will have to add boundary posts to satisfy the State. As soon as the beans are harvested I will add those posts. As discussed yesterday, I will also add a taller pole to the existing corner markers to make it easier for your guys to see while operating equipment- I suspect some of the existing wooden posts were hard to see in the Johnson grass. On your end please make sure the equipment operators know that the easement is a no-go zone. I've attached a kmz of the boundary so everyone can readily see where the lines are.

Thanks,
Matthew

Matthew Harrell
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c: 252.299.1655 |p: 919.755.9490
www.restorationsystems.com