Fairway Drive Stormwater Diversion project: 2024 Buncombe County Clean Water Fund



Town of Black Mountain

Anne Phillip, Stormwater Technician & Floodplain Administrator

May 15, 2026

Buncombe County Clean Water Fund

- The Clean Water Fund was established to engage local nonprofits and government organizations to improve water quality in Buncombe County.
- This fund supports Buncombe County's strategic plan vision of "high quality air, water, farmland and renewable energy for future generations."
- We are grateful to the Energy and Environmental Stewardship Subcommittee for your award of $75,000 for the TOBM Fairway Drive Stormwater Diversion project

2022 Stormwater Master Plan Update



Incorporated results of Stormwater Survey for residents of Black Mountain

2022 Stormwater Master Plan Update



Incorporated results of Stormwater Survey for residents of Black Mountain

2022 Stormwater Master Plan Update

5.0 Fairway Drive / Tomahawk Ave to Golf Course Ditch Diversion with Potential Flood Storage (PID#35)

Type(s): Diversion, Pipe Replacement

Scale: Small-Medium

Background: This ditch has complaints of blockage and flooding and has recently been dug deeper along Hiwassee Ave (appears to be associated with residential home construction) which could pose a potential safety concern and/or erosion control issue. The ditch carries approximately 12-acres draining to it, including runoff from Hiwassee Ave, Byrd Road, Hilltop Road, and adjacent upland areas. It outlets to a pipe system that crosses Tomahawk Ave just north of S Oconeechee Ave, crossing under private property before it outlets into the golf course. The outlet has sedimentation issues and appeared to be submerged during site inspection. The Town has subsequently worked on the area.

The system also gets an additional estimated 2.5 acres from the north side of Fairway Drive which crosses Tomahawk Ave in an existing pipe (NCDOT) at the intersection of Fairway Dr. It then enters a ditch on the golf course side of the road that terminates at the pipe outlet discussed in the first paragraph. During larger events there is overtopping (or was, prior to ditch excavation) at Tomahawk Ave where runoff exceeds ditch capacity and the road overtops which has resulted in erosion on Town golf course property.



Project Description: Install a pipe diversion under Tomahawk Ave on the south side of Fairway Dr to route flow out of the existing ditch network and onto golf course. Maintain, but reconfigure, the existing roadside ditch for less runoff and to eliminate any safety or water quality concerns. Determine the limits, condition and elevation of the existing pipe outlet behind residential homes and completely map pipe system to final outfall. Rehabilitate the existing 400-foot long swale through the woods on east side of Tomahawk Ave on golf course property by either diverting the swale onto the golf course (to ponding storage) or by addressing the deficiencies at the current end of the swale where no outlet seems to exist.

Components:

- 30 LF 24-30" CMP or RCP
- Ditch rehabilitation and/or extension, up to 400 LF rehab and 100-200 LF of new ditch or water quality swale
- Potential flood storage grading on golf fairway 0.5 – 1 acre-foot to treat 1-3" of rainfall; situate most of storage in areas that will least affect play on golf course – flood study may be required for this component of project. This component would make entire project eligible for various water quality grant funding.

2022 conditions











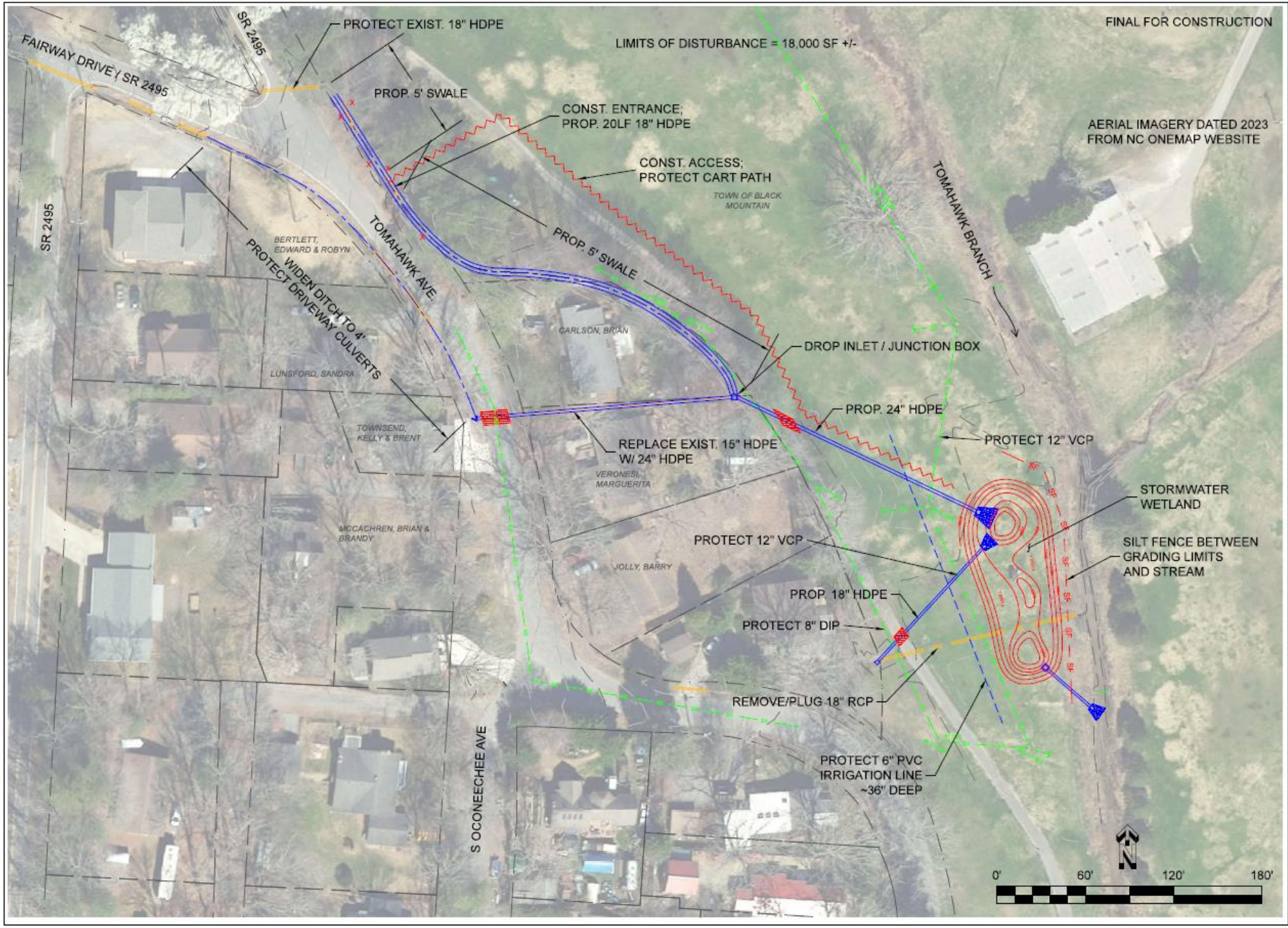
The design

Stormwater wetland

- 1” rainfall event for water quality
- 2-5 day drawdown time eliminates 85% Total Suspended Solids (TSS)

Upsized conveyances

- 10-year event
- Reduce flooding to structures between Tomahawk Ave and golf course
- Improve existing swales to better control runoff



A							
B							
C							
					DESCRIPTION	DATE	APP.

REVISIONS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22205 ANDREW DAVID BLOCK

HEADWATERS ENGINEERING
headwaters-eng.com
NCBELS Lic. No. C-4500

TOMAHAWK AVE DRAINAGE IMPROVEMENTS

BLACK MOUNTAIN, NC

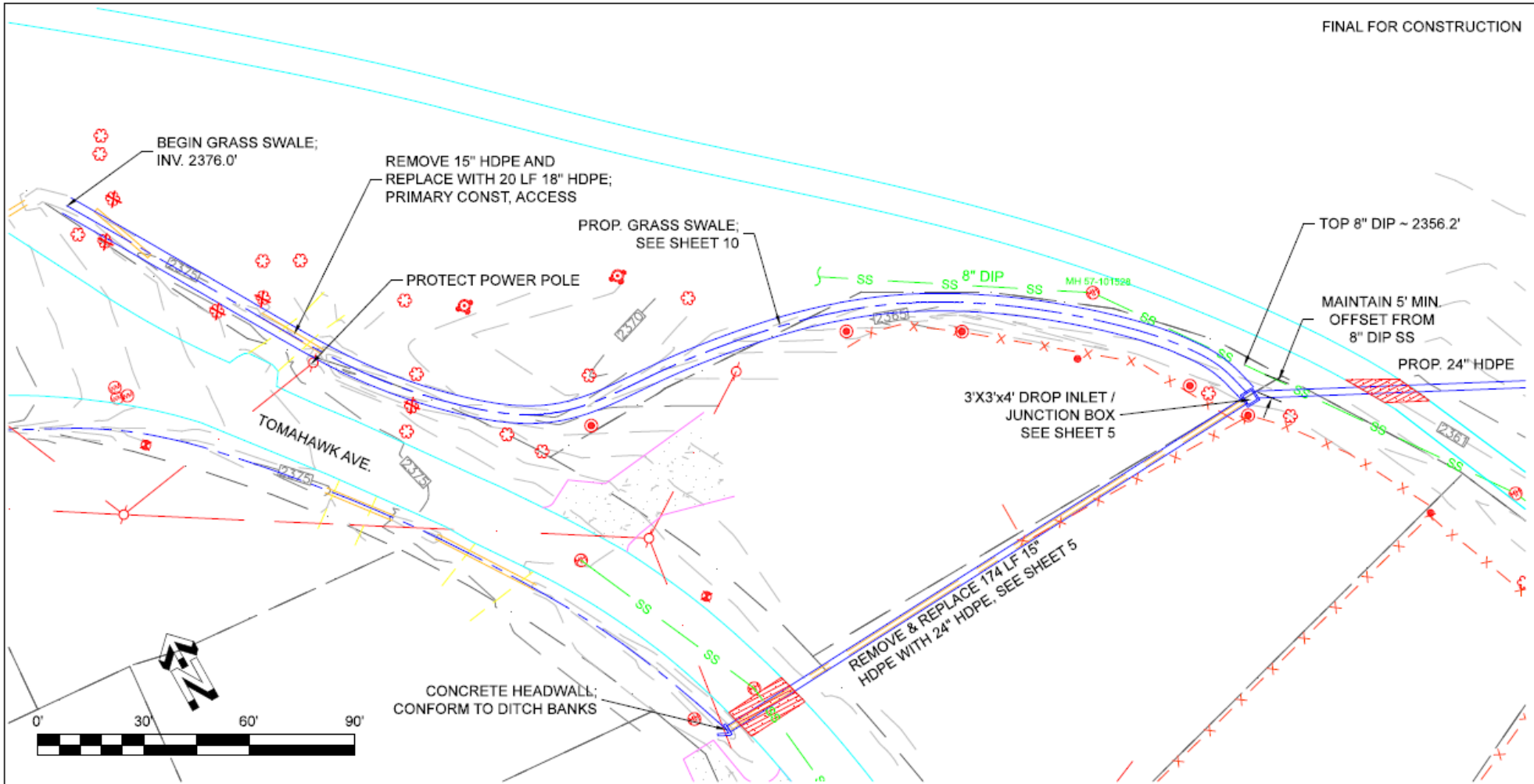
DATE: JAN. 2026

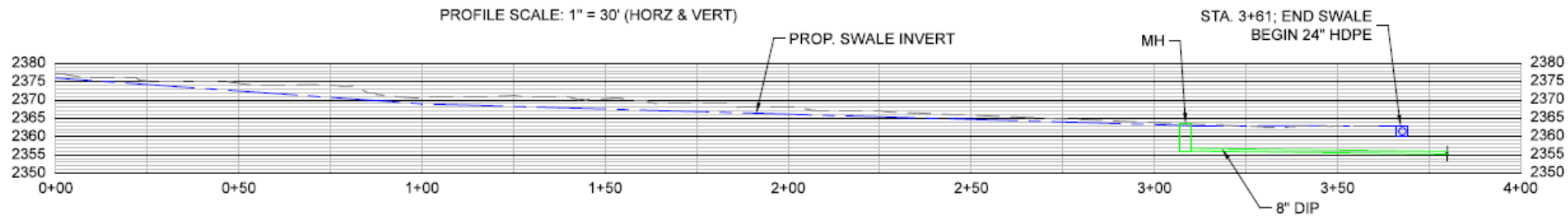
SCALE: AS SHOWN

OVERVIEW; E&S PLAN

SHEET 3 OF 10

FINAL FOR CONSTRUCTION





A							
B							
C							
						DESCRIPTION	DATE	APP.

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 22209 ENGINEER ANDREW DAVID BLACK

HEADWATERS ENGINEERING
headwaters-eng.com
NCBELS Lic. No. C-4500

TOMAHAWK AVE DRAINAGE IMPROVEMENTS

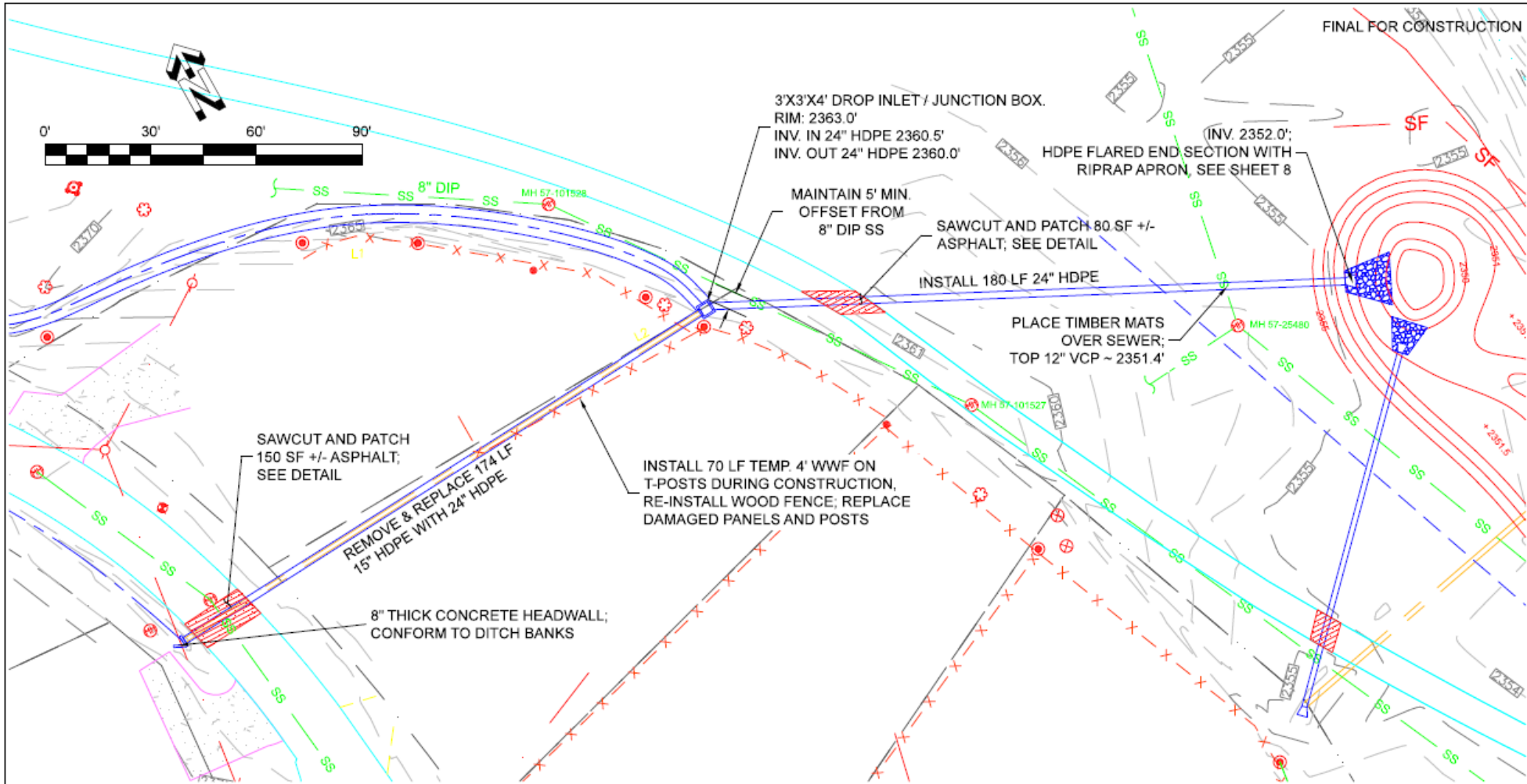
BLACK MOUNTAIN, NC

DATE: JAN. 2026

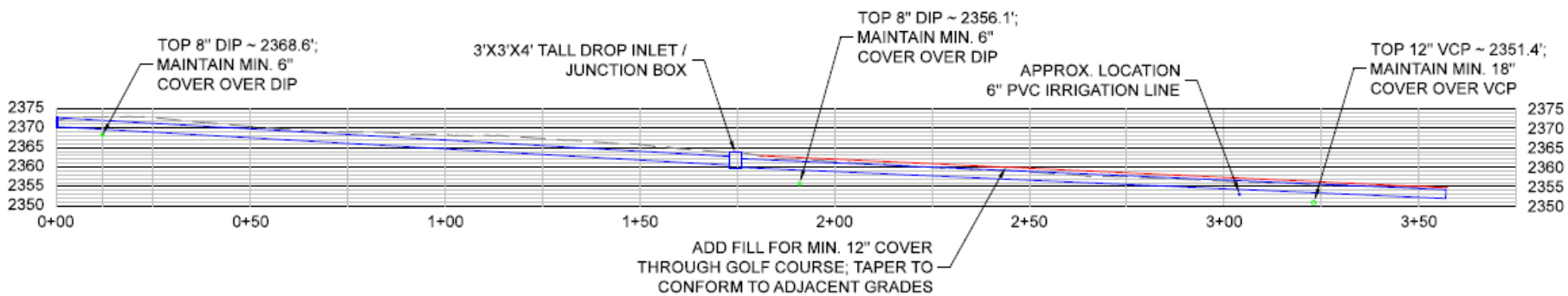
SCALE: AS SHOWN

SWALE
PLAN & PROFILE

SHEET 4 OF 10



PROFILE SCALE: 1" = 30' (HORZ & VERT)



A							
B							
C							
					DESCRIPTION	DATE	APP.

REVISIONS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22209 DAVID ANDREW BLICK

HEADWATERS ENGINEERING
headwaters-eng.com
NCBELS Lic. No. C-4500

TOMAHAWK AVE DRAINAGE IMPROVEMENTS

BLACK MOUNTAIN, NC

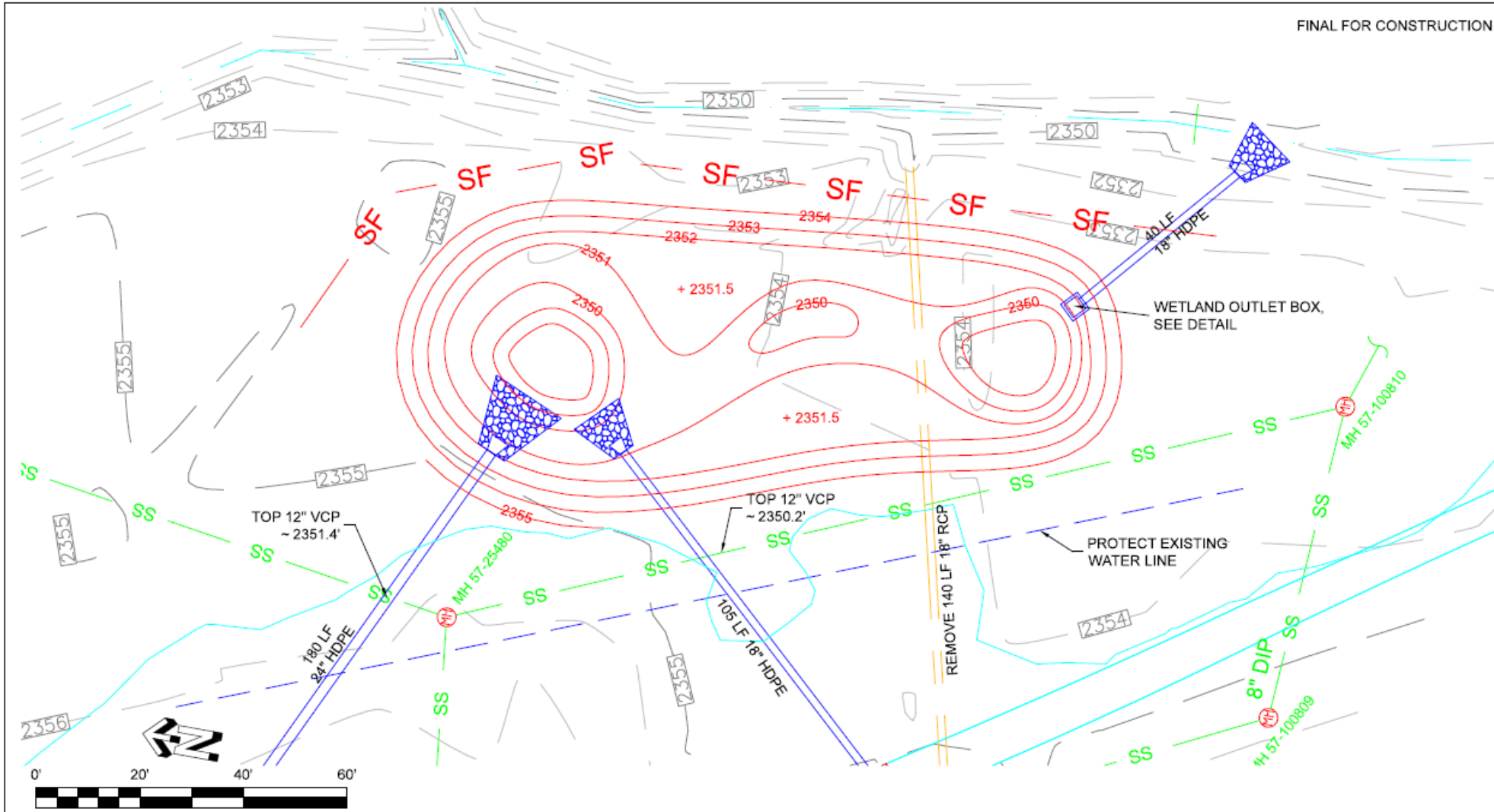
DATE: JAN. 2026

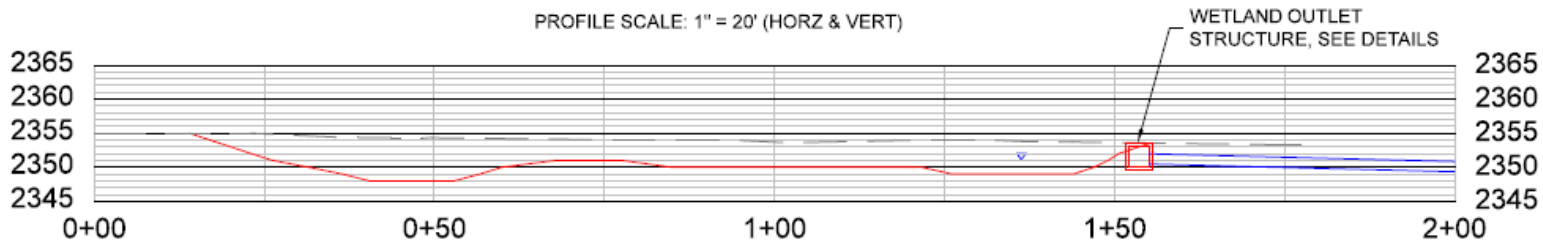
SCALE: AS SHOWN

NORTH CULVERT PLAN & PROFILE

SHEET 5 OF 10

FINAL FOR CONSTRUCTION





A							
B							
C							
						DESCRIPTION	DATE	APP.

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 22209 ENGINEER ANDREW DAVID BLOCK

HEADWATERS ENGINEERING
headwaters-eng.com
NCBELS Lic. No. C-4500

TOMAHAWK AVE DRAINAGE IMPROVEMENTS

BLACK MOUNTAIN, NC

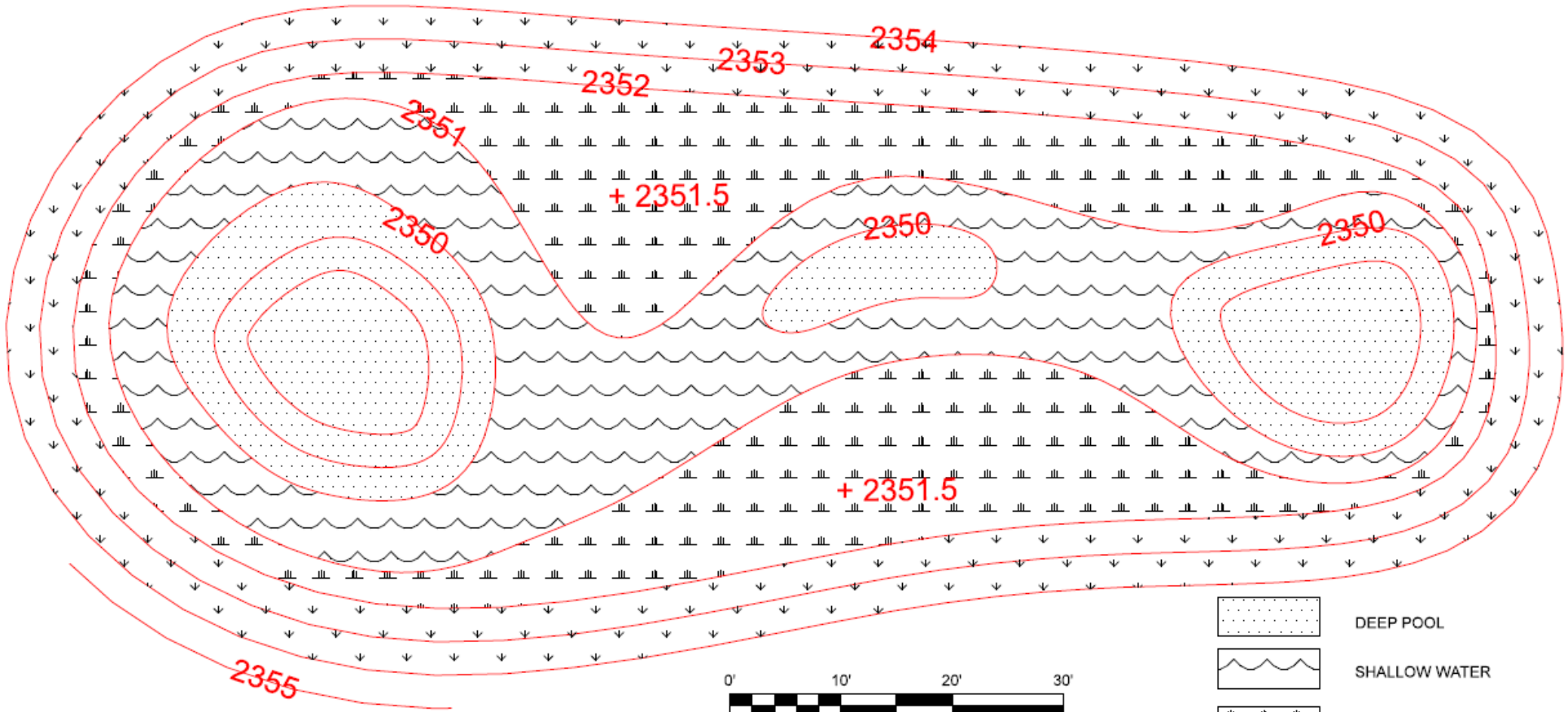
DATE: JAN. 2026

SCALE: AS SHOWN

WETLAND PLAN & PROFILE

SHEET 7 OF 10

FINAL FOR CONSTRUCTION



SHALLOW WATER ZONE PLANTINGS - PLUGS @ 2' O.C. SELECT AT LEAST 6	
Common Name	Scientific Name
Broadleaf arrowhead	Sagittaria latifolia
Arrow arum	Peltandra virginica
Wool grass	Scirpus cyperinus
Pickerelweed	Pontederia cordata
Soft Rush	Juncus effusus
Lizard's tail	Saururus cernuus
Softstem bulrush	Schoenoplectus tabernaemontani

TEMP. INUNDATION ZONE PLANTINGS - PLUGS @ 2' O.C. SELECT AT LEAST 3	
Common Name	Scientific Name
River Oats	Chasmanthium latifolium
Tickseed	Coreopsis lanceolata
Purple cone flower	Echinacea purpurea
Swamp Sunflower	Helianthus angustifolius
Bee balm	Monarda fistulosa
Ironweed	Vernonia noveboracensis
Switchgrass	Panicum virgatum

TEMPORARY SEED MIX - APPLIED TO DISTURBED AREAS			
Application Dates	Common Name	Scientific Name	Rate (lb/1,000 sf)
August 15 to May 1	Rye Grain	Secale cereale	2
May 1 to August 15	Browntop Millet	Panicum ramosum	1

UPLAND SEED: KY BLUEGRASS MIX APPLIED AT 2 LB/1000 SF

MULCHING: WHEAT OR OAT STRAW MULCH APPLIED AT 2 BALES/1,000 SF

					APP.
A				DESCRIPTION	DATE
B					
C					

REVISIONS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22209 DAVID ANDREW BLOCK

HEADWATERS ENGINEERING
headwaters-eng.com
NCBELS Lic. No. C-4500

TOMAHAWK AVE DRAINAGE IMPROVEMENTS

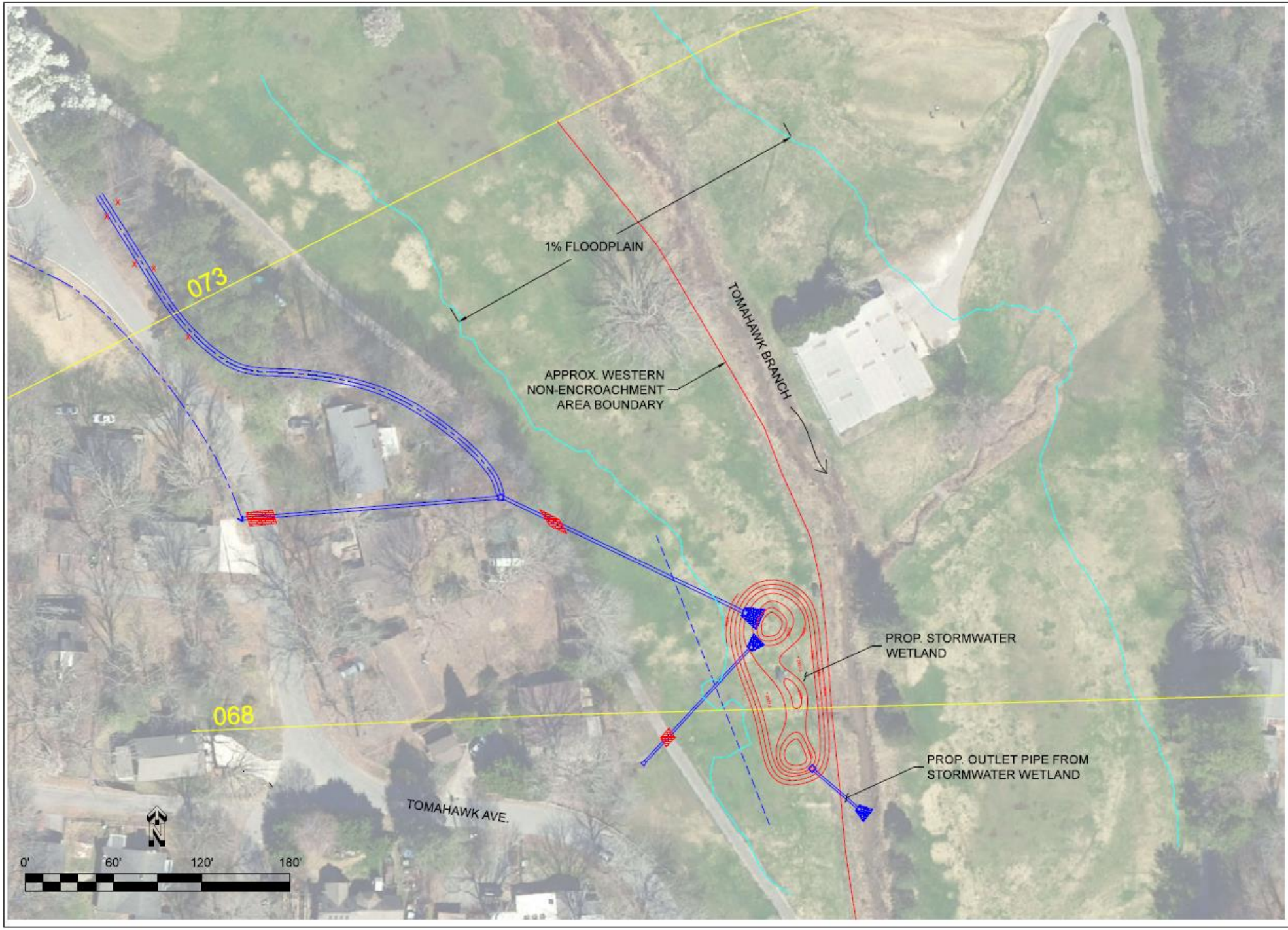
BLACK MOUNTAIN, NC

DATE: JAN. 2026

SCALE: AS SHOWN

WETLAND PLANTING

SHEET 9 OF 10



						APP.
A					DESCRIPTION	DATE
B						
C						

REVISIONS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22208 DAVID ANDREW BLACK

HEADWATERS ENGINEERING
headwaters-eng.com
NCBELS Lic. No. C-4500

TOMAHAWK AVE DRAINAGE IMPROVEMENTS

BLACK MOUNTAIN, NC

DATE: JAN. 2026

SCALE: AS SHOWN

WORKMAP

SHEET 1 OF 1

Original proposed timeline

July 2024 – December 2024

- Mapping and evaluating the condition of the existing pipe outlet system behind residential homes.
- Engineering/Design and Permitting for the project.

January 2025 – March 2025

- Installation of the pipe diversion under Tomahawk Avenue.
- Reconfiguration of the roadside ditch along Tomahawk Avenue.
- Rehabilitating a swale through the woods on the east side of Tomahawk Ave.

April 2025 – May 2025

- Development of final report, including a breakdown of expenditures.
- Host a site visit and/or provide presentation to the Board of Commissioners highlighting the achievements of the program.

Actual timeline

July/August 2024- planning, sent in SOW
September 2024- Helene
February 2025- Headwaters Engineering: assessment, preliminary design, topo survey
March 2025- Headwaters Engineering: conceptual plan for property owner discussions
April/ May 2025- I reached out to property owners by mail and in person
May- Sept 2025- easement discussions with Town attorney, use of previously recorded utility easements
Nov 2025 – discussions with property owners addressing project concerns
Dec 2025- Town resolution to accept previously recorded utility easements
Jan 2026- Headwaters sent construction plans to MSD to coordinate with them regarding their lines in the area.
Feb 2026- select construction company bidder
March 2026- pre-construction meeting, construction begins
May 2026- swales are completed, excavation of stormwater wetland complete, need to remove soil after dewatering, culvert to be put in between 602 and 604 Tomahawk Ave

March 19, 2026
Pre-construction meeting: contractors, MSD, Engineer, town

Construction began days later with silt fence installation and work on swales




DO NOT
PUSH

Improved swales













Issues during excavation:





Clay pipe broken- MSD was called, verified that the pipe was not sewer pipe, but routing of underground spring water

Unmapped water line broken- had served Golf Maintenance Shop but was not marked with the utility locate. Public works capped the line.


CAT



Thank you for your support for water quality improvement projects through the Clean Water Fund!

Anne Phillip, CFM
Stormwater Technician and Floodplain Administrator
828-419-9374
Anne.Phillip@tobm.org