STREAM BIOLOGICAL CONDITIONS
ENVIRONMENTAL AUDITOR REPORT

Version 2.3

Wetland Studies and Solutions, Inc.® a DAVEY company

Stream ID: S-C19	**Crossing Start Date:** 01/15/2024	**Crossing Completion Date:** 02/24/2024
Milepost: 269.4	**Pre-Con Assessment Date:** 01/15/2024	**Post-Con Assessment Date:** 03/01/2024
Station: 14233+68	**Stream Classification:** Perennial **(Perennial, Intermittent, Ephemeral)**	**Bankfull Width (ft.):** 45
County: Franklin	**303(d) Impairment Listing:** Impaired	**Riffle:Pool Complexes Present?** Yes

Item #	Resource Crossing Conditions	N/A	YES	NO
1.	Were all applicable resource specific crossing conditions satisfied? Time of Year Restrictions (TOYR)? Yes Fish Relocation? Yes Mussel Relocation? Yes		X	
2.	Is this resource designated a wild or stockable trout stream?			X
3.	Which crossing methods were utilized during the stream crossing? *(Select one or more)* Dam & Pump, Flume, Cofferdam, Conventional Bore, Horizontal Directional Drill (HDD) Bore?	Dam & Pump		
4.	Was the top 1-foot (12-inches) of streambed substrate segregated and stockpiled separate from trench spoils?		X	
5.	Was excess material not needed for backfill removed and disposed of in an upland area?		X	
6.	Was the top 12-inches of backfill made with clean native stream substrate?		X	
7.	Was the pre-construction survey data provided and utilized during restoration in attempt to re-establish pre-construction contours?		X	
8.	Were any field modifications to the stream implemented by project or regulatory personnel to address potential drainage or bank restoration limitations?		X	
9.	Were impervious trench breakers/plugs properly installed within 25-feet of top-of-bank to prevent subsurface erosion to or from the resource area?		X	
10.	Was permanent seed and stabilization material (straw or matting) applied to riparian areas and stream banks prior to re-establishing flow to the impact area of the channel?		X	
11.	Was the time of disturbance minimized by conducting resource work continuously to completion?		X	
12.	Have civil surveys been scheduled to verify as-built conditions meet pre-construction conditions in accordance with the project Mitigation Framework and federal/state permit requirements?		X	
13.	Are bareroot saplings required and/or scheduled to be planted for the dormant season (10/1 – 4/30)?		X	
14.	Did any unauthorized discharges to unpermitted resources occur during the crossing? If so, explain the corrective actions implemented in the Comments section and include additional photos.		X	

Item #	Biological Conditions	Pre-Con	Post-Con
15.	**Predominant Substrate Type (select one):** *Bedrock, Boulder (>10"), Cobble (2-10"), Gravel (0.1-2"), Sand (<0.1"), Mud/Silt/Clay*	Gravel (0.1-2")	Gravel (0.1-2")
16.	**Channel Conditions:** **Rating:** *1-Optimal (80-100% stable banks), 2-Suboptimal (60-80% stable banks), 3-Marginal (40-60% stable banks), 4-Poor (20-40% stable banks), 5-Severe (0-20% stable banks, highly eroded or unvegetated banks)*	2 - Suboptimal	1 - Optimal
17.	**Riparian Buffer Zone within ROW and ≤50 ft. from Stream Top-of-Bank:** **Rating:** *1-Optimal (60-100% heavy vegetative cover), 2-Suboptimal (30-60% mixed vegetated coverage), 3-Marginal (<30% vegetative coverage), 4-Poor (Mowed/maintained area or farmland, impervious area, sparsely vegetated coverage, etc.)*	2 - Suboptimal	4 - Poor
18.	**Instream Habitat Conditions:** **Examples:** *Varied substrate sizes, varied combination of water velocities/depths, presence of woody/leafy debris, stable substrate with low amount of mobile particles, low embeddedness, shade protection, undercut banks, root mats, submerged aquatic vegetation.* **Rating:** *1-Optimal (Habitat conditions present in >50% of resource), 2-Suboptimal (Habitat conditions in 30-50% of resource), 3-Marginal (Habitat conditions in 10-30% of resource), 4-Poor (Habitat conditions in 0-10% of resource)*	1 - Optimal	1 - Optimal
19.	**Channel Alterations:** **Examples:** *Straightened channel, non-MVP stream crossings, non-native riprap/rock along banks, concrete/gabions/concrete block, manmade embankments, constrictions w/in channel, livestock or agricultural impacts.* **Rating:** *1-Negligible (unaltered/natural stream), 2-Minor (20-40% of resource disrupted by channel alterations), 3-Moderate (40-80% of resource disrupted), 4-Severe (>80% of resource disrupted)*	1 - Negligible	4 - Severe

Comments/Remarks

01-15-24: Pre-construction meeting and auditor assessment completed. Resource shows signs of bank undercutting and erosion both within impact area and outside LOD. MVP EI is Keith Davis, PPL Foreman is Kevin Greene. Discussed crossing requirements and conditions including dewatering structure, water management, and fish relocation will be done first. Crews discussed a nearby cultural site that will be monitored and avoided by the crossing activities. Stream will be open-cut using a bladder dam to control water flow. Waiting to see if stream can be sheet-piled or if blasting is needed. One 24-inch pump will be used for dam and pump, and one 24-inch pump will be for backup, one 6-inch pump for ditch water and one-backup. Crews began working in C.I.S 8-feet into 10-feet buffer zone and 50-feet buffer zone. Buffer soil stockpiled in upland, leveling upland soil as needed to store soil. Spill kit is on-site, and turbidity curtains placed in stream to trap any potential sediment. Topsoil stabilized with mulch. -D. Fraise

01-16-24: Connect pipe to pumps, and welded pipe. -D. Fraise

01-17-24: Removed left bank topsoil and 50-feet buffer soil and stockpiled in upland soil. Installed pipe in-stream over plastic for pump around. Pump was turned on for testing. -D. Fraise

01-18-24: Pump is now operational, laid out plastic in stream to prevent scouring as pump release water from pump around. Remaining two feet of right bank topsoil was removed and stockpiled. Silt fence was placed at 10 and 50-feet from stream and bridge cleaned. -D. Fraise

01-19-24: Checking flow rate of stream, put 2 metal plates in stream for pumps to suck in water without getting debris clogs, partial installation of on upstream with sandbags, placed sheetpiling in-stream to slow stream rate of flow. -D. Fraise

01-20-24: Placed bladder dam in stream. Turned on 2 24-inch pumps on for pump around, fish relocation took place within workspace, additional sheet piling was placed across stream after fish relocation completed. -D. Fraise

01-21-24: Completed half of sheet piling installation across stream. Added more sandbags to dam on going away side of stream and three metal plates to hold back water. Dug test hole in left bank to see stream material type, added two 6-inch pumps to C. I. S to help keep down water from coming under bladder eroding left bank.
Item #14: Pumps couldn't hold back water for bladder dam, unfiltered sediment from construction activities flowed off site. Crew immediately responded with turbidity curtain installation across downstream. Added two 6-inch pumps to help convey streamflow around. All pumps are within secondary containments. Crews added sandbags in front left corner to try to seal leak, added sandbags to right bank to try to stabilize. Streamflow continued to overwhelm controls. Foreman called a meeting to come up with different plan, which is to pull all pumps out of stream, remove sheetpiling, remove bladder dam, metal plates and release stream flow. -D. Fraise

01-22-24: Auditor on site inspecting stream and turbidity curtains for sediment. Small amount observed settled within curtain. Added sandbags to left bank to add support from scour. Tree fell off from left bank while trying to stabilize bank, sandbags pulled from upstream, sheet piling and pump pipes pulled from stream, installed silt fence at 10- and 50-feet buffer and erosion matting. -D. Fraise

01-23-24: Removed sandbag dam, removed all extra sandbags from in stream, and completed site cleanup from recent activities. Added erosion matting to upland soil. Removal of dam stability pipes from stream on left bank caused tree to fall off left bank. Tree that fell into resource area, was strapped, pulled out of stream, and placed in upland soil. Turbidity curtains placed on both streambanks, removed both 24-inch pumps and pipes from by stream and placed in storage. Metal plates were removed from the stream. Removed plastic and sandbags from downstream that were installed for preventing scour. -D. Fraise

01-24-24: Auditor inspected site for ECD installations and functionality within 10- and 50-feet buffer, no off-site sediment observed. Rain day and no active work near or in resource. -D. Fraise

01-25-24: Auditor inspected site for ECD installations and functionality within 10- and 50-feet buffer, no off-site sediment observed. Rain day and no active work near or in resource. -D. Fraise

01-26-24: Auditor inspected site for ECD installations and functionality within 10- and 50-feet buffer, no off-site sediment observed. Rain day and no active work near or in resource. -D. Fraise

01-27-24: Place timber wood pallets on site and reorganized equipment by stream. -D. Fraise

01-30-24: DEQ present onsite. Bank repaired following rain event (GAS). Mats installed within 10' buffer for new pump around setup. Two 24" pumps installed in the stream channel and stabilized with pipe stanchions. -K. Douglas

01-31-24 DEQ present onsite. Sheet piles installed within the buffer on both sides of crossing. General maintenance of ECDs. No notable changes to in-stream conditions observed. -K. Douglas

02-01-24 DEQ present onsite. Installation of piles ongoing. Streamflow volume is too high following recent rain events to allow for work on dam. -K. Douglas

02-02-24: Sheet piling installed across half of stream and added sandbags to dam part of stream temporarily to see if pumps could handle pumping up water. Sandbags removed and crews started building bridge across stream for sheetpiling operator to reach to continue sheetpiling across stream. Sheet piling operator on second bridge continues sheet piling. Four metal plates were added to downstream to prevent scouring. -D. Fraise

02-03-24: Completed sheet pile across stream, bladder dam installed in-stream and two 24-inch pumps are placed in front of bladder dam to convey stream flow around. Set two 3-inch pumps to pump water into bladder to fill, and crews installed a sandbag dam for pump around discharge. Placed one 6-inch and two 3-inch pumps for ditch water. Fish relocation took place within construction workspace. Approximately 100 fish were caught and nine different species identified. Streambed substrate removal occurred in phases to ensure only top 12" were removed. The first 6 inches of stream bed material was placed on top of other top 6 inches of stream bed material in stream and conveyed towards the GAS of right-of-way for stockpiling. Sheet piling installed for trench excavation in stream. -D. Fraise

02-04-24: Continue sheet piling for ditch line and leveled out upland soil as resource soils were stockpiled in upland. Removed the second 6-inches of substrate and stockpiled on existing 6-inches of substrate in stream. Removed second 6-inches of substrate and stockpiled on wood pallets covered with Visqueen plastic. Upon removing subsoil near bridge trench sheet pile on right bank began to collapse and caved into trench. Removing bridge due to safety concerns, removed riprap from on both sides of banks from under bridge, leveling out soil to make soil solid, removed sheetpile from ditch line, excavating soil for bell hole. -D. Fraise

02-05-24: Pump around operational, dewatering structure discharging clear water, and crews are excavated soil for pipe placement. Laid out timber mats for side booms to carry pipe, pipe laid in trench, welding first section of pipe, x-rayed pipe, backfilling with initial subsoil began.
Item #14: During evening site work, the pumps for pump around malfunctioned and had issues staying operational. Stream overflowed bladder dam despite crews adding two 8-inch pumps as support, and flooded the work zone. Unfiltered construction water discharged around downstream dam, but Auditor did not observed sediment accumulate within the observable area from the LOD. 24-inch pumps are back operational, water flow pumped down off of bladder. Crew removed both 8-inch pumps from resource. -D. Fraise

02-06-24: On-site MVP environmental inspector informed Auditor that the project received an modification approval due to failure of pumps that banks will be restored out of sequence from traditional restoration process. EI informed Auditor that the 24 inch pumps failed at approximately 4am due to fuel cell malfunction. Trench subsoil was backfilled into the resource, and the top 12" of stream substrate were placed back in stream. Bladder dam was drained out, removed sand bags from discharge pump around dam, removed timber mats, removed sheetpiling from in front of bladder dam, and added a turbidity curtain to right bank. All dams were removed and streamflow released by removing steel plates from discharge dam, turbid water flowed downstream during dam removals. Removed three metal plates that was in stream for scour protection. Streambanks and buffer zones were seeded and temporary stabilized. Crews placed turbidity curtain on left bank, and removed both 24 inch pumps. -D. Fraise

02-07-24: Restoration process continues. Crews removed the pump around pipes from stream, removed sandbags, and Geotech plastic from stream. Trench breaker installations underway on going away side of pipe, and upland backfilling is underway. Survey team on site surveying left bank for preconstruction contours. Minor modification to re-establish left bank grade and stabilized with more seeding and curlex. Edges of matting were keyed-in approximately 6 inches, and silt fence placed on 10- and 50-feet buffer zone. -D. Fraise

02-08-24 Keyed-in curlex matting 6-inches for areas missed. Survey team re-shot left bank. -D. Fraise

2-09-13-2024: No active work. -D. Fraise

02-14-24: Excavating upland ends of pipe for tie-in. -D. Fraise

02-15-24: Excavation for bell hole and tie-ins. -D. Fraise

02-16-24: Preparation for upland tie ins and bank stability efforts started. No impact to biological conditions. -T. Turner Jr.

02-17-24: Crew hand digging around MVP in preparation to lower-in upland pipe. Welding crew on-site preparing for welding. Pipe lowered and welded on GAS. Welding, coating, and sandblasting were conducted on GAS, and with no impact to biological conditions were observed. -T. Turner Jr.

02-19-24: Crew installed trench breakers on CIS. Additionally, 2 trench drains were installed, Riprap streambank stabilization preparation. Welding, coating, jeep testing, and sandblasting completed. Backfill has begun, and no impact to biological conditions observed during work activities. -T. Turner Jr.

02-20-24: Sand blasting on GAS, daylight drain installation, sandbag installations on GAS, and continued backfill on CIS. No impact to biological conditions observed. -T. Turner Jr.

02-21-24: Riprap transported to right bank. ECDs were installed and no impact to biological conditions was observed. -T. Turner Jr.

02-23-24: Inclement weather, crews mitigating sediment runoff that has entered resource. Turbidity curtain installed on RB of impact area to settle any sediment material, as well as, non-permitted downstream due to dewatering structure flow eroding bank. Riprap in staging to be installed on right bank of crossing impact area. Impact to resource notifications have been made with supporting photographs -T. Turner Jr.

02-24-24: Environmental crews continue with mitigation efforts to remove sediment from resource. Seed and straw (Landowner preferred seed-mix) placed in vegetated areas outside of dewatering structure where sedimentation deposition settled. DEQ staff on-site inspected and cleared restoration effort. Crews removed turbidity curtains from downstream off-ROW area. -T. Turner Jr.

02-26-24: Crew working on installation on riprap on RB. Work suspended due to potential sediment traveling to neighboring resource during installation. -T. Turner Jr.

02-27-24: Crew cleaning site up in preparation for inclement weather -T. Turner Jr.

02-28-24: Left bank curlex was removed to install geotextile fabric underlayment. Turbidity curtain placed inside stream LB in preparation for riprap install. LB riprap installed and completed. -T. Turner Jr.

02-29- 24: Temporary stabilized 50ft buffer with curlex and appropriate seed mix. Installed geotextile fabric underlayment and riprap on right bank. Turbidity curtain in place on RB. No sediment discharge observed. -T. Turner Jr.

03-1-24: Restoration of topsoil, ECD (Erosion Control Devices), stabilization, and seeding completed. Straw-mats, seeds, and filter socks to mark the 10- foot buffers and 50-foot buffer of left bank have been established. Erosion control matting installed per specifications.

Item #8 & #19: Stream modifications and alterations include riprap streambank stabilizations on both right and left banks. -T. Turner Jr.

Impacts to streambank biological conditions and unauthorized discharge of construction material was observed during the crossing activity.

In accordance with the Mountain Valley Pipeline Consent Decree, Case No. CL18006874-00, (Issued October 11, 2019) this independent report was completed to document the on-site monitoring of instream invertebrate and fisheries resources during all construction activity related to waterbody and wetland crossings, and document instream conditions and any impacts to the resources.

This report was written by	Darrell Fraise *Print Name*	Darrell F *Signature*	03/04/2024 *Date*

Required Photos

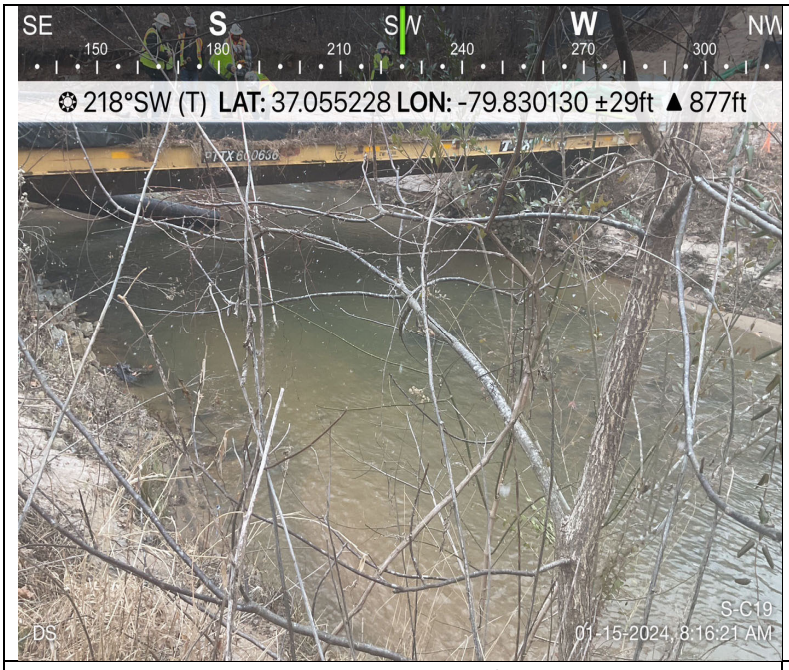

Photo Description: Downstream view of permitted impact area during pre-construction assessment.

Photo Description: Conditions of the downstream area outside the ROW during pre-construction assessment.

Photo Description: Downstream view of permitted impact area during post-construction assessment.

Photo Description: Conditions of the downstream area outside the ROW during post-construction assessment.

Optional Additional Photos

Photo Description: Fish relocation crew on-site removing fish after construction area isolated with dam & pump.

Photo Description: Dewatering structure installed and utilized on-site throughout pipe installation.

Photo Description: Bladder dam and two 24-inch pumps used for dam and pump around.

Photo Description: Installation of rip rap along stream banks to aid in long-term stability of pipeline crossing.

Progress Photos

Photo Description: Bank stabilized following rain event (GAS).

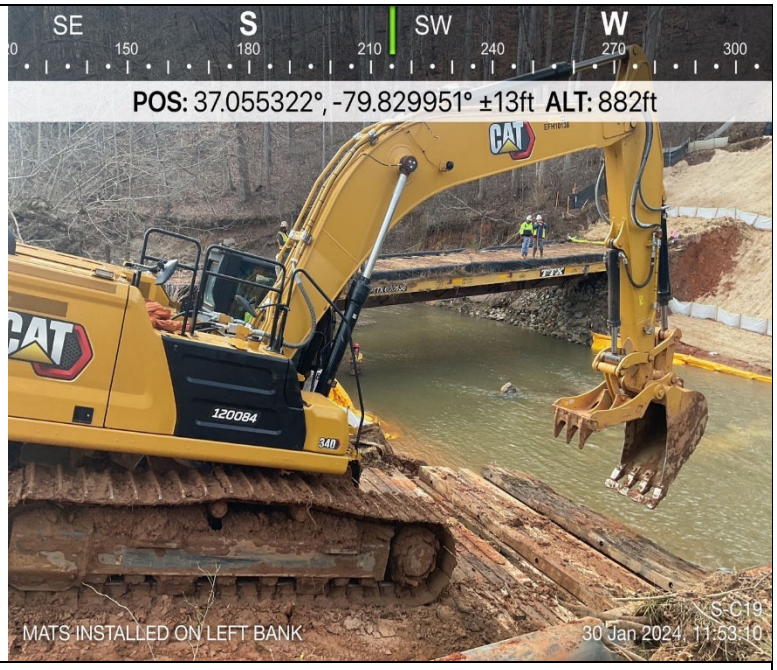

Photo Description: Timber mats placed on left bank for pump around setup.

Photo Description: Two 24” pumps installed in stream channel and pipes for pump around. Crews working from timber matting for support.

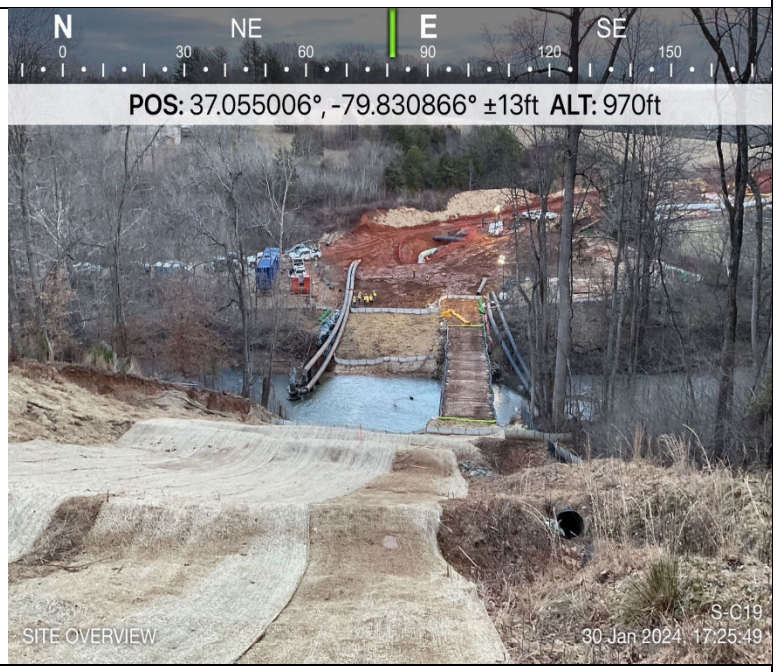

Photo Description: Site overview.

Progress Photos

Photo Description: Sheet pilings (GAS).

Photo Description: Sheet pilings (CIS).

Photo Description: 10’ FERC buffer restored (GAS).

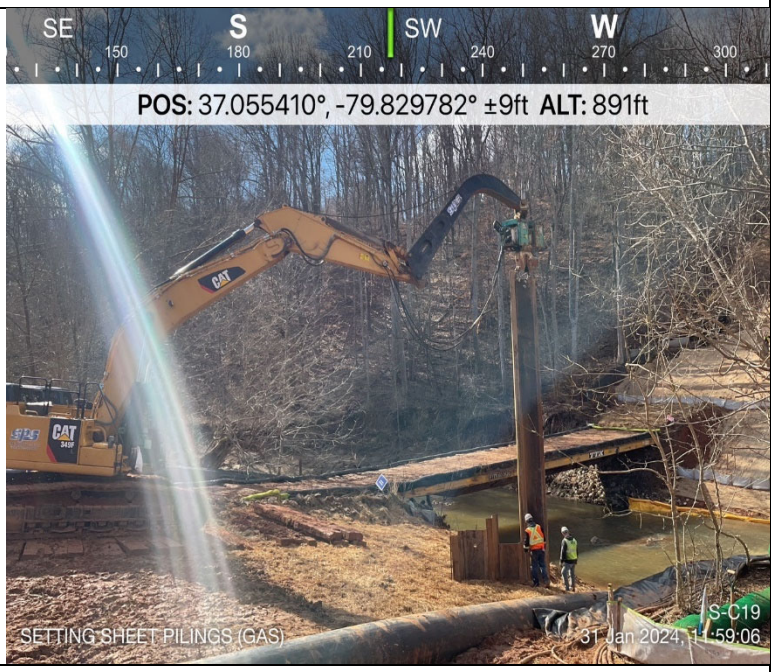

Photo Description: Installation of sheet pilings begins (GAS).

Progress Photos

Photo Description: Installation of sheet piles (CIS).

Photo Description: Installation of sheet piles (CIS).

Photo Description: Installation of sheet piles (CIS).

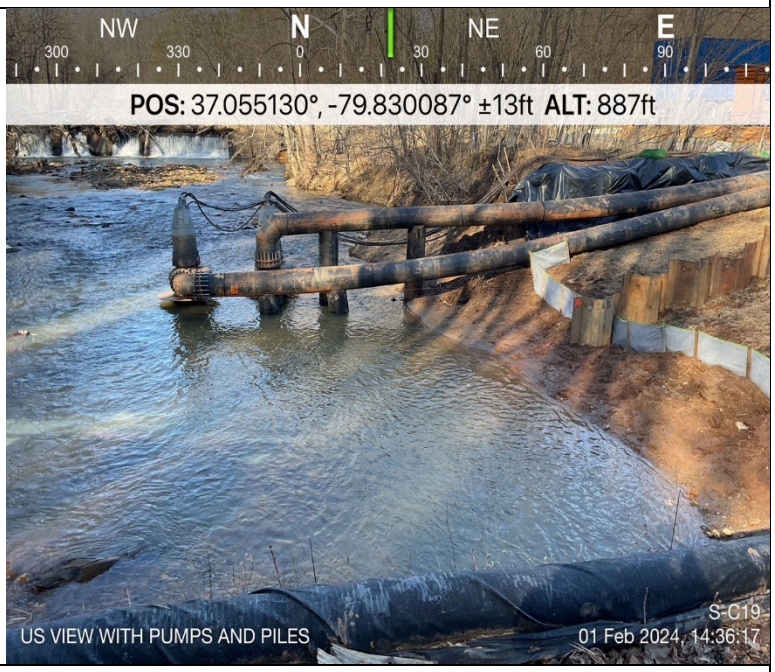

Photo Description: Upstream view with 24” pumps and sheet piles on left bank.

Progress Photos

Photo Description: Trench breaker installation on CIS

Photo Description: Trench breakers installation on CIS.

Photo Description: Backfill CIS of resource crossing.

Photo Description: Riprap for stream banks staging on-site.

Progress Photos

Photo Description: Seed mix applied to impacted area.

Photo Description: Riprap installation underway on right bank of resource.

Photo Description: Cleanup of sediment from downstream area from dewatering structure runoff.

Photo Description: Turbidity curtain installed at areas where streambank erosion or remediations are observed or completed.

Progress Photos

Photo Description: Stream overflowed downstream dam.

Photo Description: Bladder didn't seal

Photo Description: Tried to use back up pumps to hold water off bladder.

Photo Description: Holding pump in air so stream does not contact or contaminant stream. Streamflow entered into the workspace and discharge downstream.