Stream Biological Conditions EA Report

Project Name	H-600 Pipeline Spread C	**AFE**	124300131	**Spread**	H-600 Pipeline Spread C
Contractor	Precision			**Report #**	475
Environmental Auditor	Jeffrey Arbogast			**Date/Time**	12/29/2023 12:38 PM

Stream ID	S-B39B	**Crossing Start Date**	12/29/2023	**Crossing Completion Date**	1/5/2024
Milepost	97.88	**Pre-Con Assessment Date**	12/28/2023	**Post-Con Assessment Date**	1/6/2024
Station	5167+98	**Bankfull Width (ft.)**	3.0	**Riffle:Pool Complexes Present?**	No
State	WV	**Stream Classification**	Ephemeral		
County	Webster	**303(d) Impairment Listing**	No		

	Resource Post-Crossing Conditions	
1	Were all applicable resource specific crossing conditions satisfied?	N/A
	Time of Year Restrictions (TOYR)? N/A Mussel Relocation? N/A	
2	This question is not applicable in WV.	
3	Which crossing methods were utilized during the stream crossing? (If so select one or more) Dam & Pump X Flume X Cofferdam Conventional Bore Horizontal Directional Drill (HDD) Bore	
4	Was the top 1-foot (12-inches) of streambed substrate segregated and stockpiled separate from trench spoils?	Yes
5	Was excess material not needed for backfill removed and disposed of in an upland area?	N/A
6	Was the top 12-inches of backfill made with clean native stream substrate?	Yes
7	Was the pre-construction survey data utilized during restoration in attempt to re-establish pre-construction contours?	Yes
8	Were any field modifications to the stream implemented by project or regulatory personnel to address potential drainage or bank restoration limitations?	No
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?	See Below
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?	Yes
11	Was the time of disturbance minimized by conducting resource work continuously to completion?	Yes
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?	Yes
13	Are bareroot saplings required and/or scheduled to be planted for the dormant season (10/1 - 4/30)?	N/A
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.	No

	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	Mud/Silt/Clay	Mud/Silt/Clay
16	**Channel Conditions:Rating:** 1-Optimal (80-100% stable banks), 2-Sub-optimal (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	1	2
17	**Riparian Buffer Zone within ROW and ≤50 ft. from Stream Top-of-Bank: Rating:** 1-Optimal (60-100% heavy vegetative cover), 2-Sub-optimal (30-60% mixed vegetated coverage), 3-Marginal (<30% vegetative coverage), 4-Poor (Mowed/maintained area or farmland, impervious area, sparsely vegetated coverage, etc.)	1	3

AFE	124300131	Date/Time	12/29/2023 12:38 PM	Report #	475

	Biological Conditions Continued	Pre-Con	Post-Con
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, Varied combination of water velocities, 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	2
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	2

Additional Notes

A dam and pump around was built prior to any disturbance within the 10' stream buffer. A ditch dewatering system was set up and used on an as needed basis throughout the stream crossing. A flume pipe will be used for overnight and weekend conveyance of the stream.

Stream S-B39B is in close proximity to multiple other resource crossings. The overlapping buffer areas that intertwine the stream channels and wetland boundaries caused traditional trench breaker placement and the immediate restoration of the buffer zone to be impractical.

Expanded notes for question 9: Bentonite trench breakers were built at 51' from the coming in side (CIS) and at 25' from the going away side (GAS) ordinary high water marks. The onsite civil survey crew verified the trench breaker locations.

12/29/2023: Topsoil from the 10' stream buffer zone was stripped and segregated on plastic sheeting in an upland area. Afterward the stream substrate was placed in super sacks and stored in an upland area. The native stream subsoil was separated so it could be used as backfill material. Excavation of the ditch was extended through to the last feature in the area that is to be crossed (S-B45).

12/30/2023: Ditching was completed, the next section of pipe was lowered in and a weld was made.

12/31/2023: The trench was backfilled from CIS of S-B35 through to the GAS of S-B39B. The subsoil was brought back to pre-construction elevation in preparation to restore multiple resources after the New Year holiday break.

1/1/2024: Holiday break.

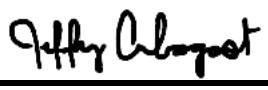
1/2/2024: Multiple adjacent resource crossings were completed (S-B35, S-B36, S-B37, S-B38 and W-B35). The proximity of S-B39B to the bell hole prevented it from being reclaimed at this time.

1/3/2024: The next two pipe sections were made up and the ditch was extended enough for them to be lowered in the next day.

1/4/2024: The final two sections of pipe that extend through the last three stream crossings (S-B39B, S-B39A/B46 and S-B45) were lowered in and welded by the end of the day.

1/5/2024: The ditch was backfilled using the native material removed during the excavation of the trench prior to restoring the streams substrate to the channel. The stream banks were reconstructed through the 10' buffer, and all contours, elevations, and other significant points were verified by civil survey. The stream banks were properly seeded prior to installing erosion control blankets, straw mulch, and silt fence. The dam and pump around conveyance system was removed and natural flow was re-established.

In accordance with the Mountain Valley Pipeline Comprehensive Stream and Wetland Monitoring, Restoration and Mitigation Framework, 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.

Name	Signature	Company	Date
Jeffrey Arbogast		SWCA	1/6/2024

AFE	124300131	Date/Time	12/29/2023 12:38 PM	Report #	475

Required Photos

GPS Location	See Caption in Photo
Description	Downstream view of permitted impact area during pre-construction assessment.

GPS Location	See Caption in Photo
Description	Downstream view of unimpacted area during pre-construction assessment.

GPS Location	See Caption in Photo
Description	Downstream view of permitted impact area during post-construction assessment.

GPS Location	See Caption in Photo
Description	Downstream view of unimpacted area during post-construction assessment.

GPS Location	See Caption in Photo
Description	Stream channel standing on GAS facing the CIS pre-construction.

GPS Location	See Caption in Photo
Description	Stream channel standing on GAS facing the CIS post-construction.

AFE	124300131	Date/Time	12/29/2023 12:38 PM	Report #	475

Optional Photos

GPS Location	See Caption in Photo
Description	Stream substrate being placed in super sacks.

GPS Location	See Caption in Photo
Description	Stream subsoil being removed and hauled to an upland area.

GPS Location	See Caption in Photo
Description	Lowering in.

GPS Location	See Caption in Photo
Description	View of the GAS bentonite breaker. Backfill has started.

GPS Location	See Caption in Photo
Description	Stream substrate being worked back into the channel.

GPS Location	See Caption in Photo
Description	Topsoil being spread out in the buffer zone.