# Stream Biological Conditions EA Report

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| **Project Name** | H-600 Pipeline Spread C | **AFE** | 124300131 | **Spread** | H-600 Pipeline Spread C |
| **Contractor** | Precision | | | **Report #** | 211 |
| **Environmental Auditor** | Jeffrey Arbogast | | | **Date/Time** | 8/24/2023 10:01 AM |

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|---|---|---|---|---|---|
| **Stream ID** | S-LL1 | **Crossing Start Date** | 8/24/2023 | **Crossing Completion Date** | 9/2/2023 |
| **Milepost** | 68.87 | **Pre-Con Assessment Date** | 8/12/2023 | **Post-Con Assessment Date** | 9/5/2023 |
| **Station** | 3636+29 | **Bankfull Width (ft.)** | 21.5 | **Riffle:Pool Complexes Present?** | Yes |
| **State** | WV | **Stream Classification** | Perennial | | |
| **County** | Braxton | **303(d) Impairment Listing** | No | | |

| | Resource Post-Crossing Conditions | |
|---|---|---|
| 1 | Were all applicable resource specific crossing conditions satisfied? | Yes |
| | 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)<br>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? | Yes |
| 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 | Cobble (2-10") | Cobble (2-10") |
| 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.) | 2 | 3 |

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| | 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

Stream S-LL1's location is listed on the alignment sheet as being from station no. 3636+29 to 3636+65.

A dam and pump around was constructed with a flume pipe for back up. Well points, ditch dewatering and pump around ran continuously for the duration of this crossing. A dedicated crew was on site 24/7 to monitor these operations.

Expanded notes for question 9. A trench plug was installed on the coming in side (CIS) of the S-LL1 crossing at a distance of 11 feet from the top of bank. The going away side (GAS) trench plug was installed at a distance of 4 feet from the top of bank. Both locations confirmed by on site survey crew.

Expanded notes for question 17. The 50-foot riparian buffers are scheduled to be completed by end of day on 9/5/2023.

8/24/2023: A pump around was constructed prior so that sheet piling could be installed through the stream. A flume pipe was installed at the end of the day with the pump around left in place as backup.

8/25/2023: Rain out.

8/26/2023: Sheet piling H beam supports/braces with tie backs were installed for added safety. The top 12" of stream substrate was segregated and stockpiled away from subsoils (Ref. Restoration Work Plan, MVP Section 3.4). Ditch excavations were started on the GAS. Crew hit rock in the ditch line and spent much of the day hammering it out.

8/27/2023: The crew finished hammering out the rock in the ditch. The first joint of pipe was lowered in on the GAS of the stream and the first weld was completed. Digging on the CIS ditch line continued.

8/28/2023: Rain out. Two 6" pumps were moved to be used as backups in case the dam and pump system is overwhelmed.

8/29/2023: The dam and pump system was reinforced with sandbags and additional backup pumps due to a forecasted rain event. Ditch line digging continued. The stream section of pipe was jeep tested, lowered into the ditch and a weld was made. The next section of pipe was jeep tested and rock shielding was added. X-ray started taking shots of the two welds that had been made so far.

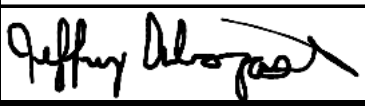
8/30/2023: X-ray finished shooting all of the completed welds. The last segment of ditch was opened up, the final section of pipe lowered in, the next weld was made and passed X-ray.

8/31/2023: Final weld was completed and passed X-ray inspection. Welds were jeep tested, sand blasted, and coating started.

9/1/2023: Coating was completed on all welds and river weights were added. Trench plugs were built with sandbags on both sides of the crossing. Backfilling of the trench was started.

9/2/2023: The contractor completed backfilling of the stream subsoil, removed the sheet piling, well points and flume. The top 12" of stream substrate was replaced. Stream elevation, width, and contour were confirmed via survey data and pre-construction photos. The 10-foot stream buffer topsoil was replaced and stabilized with riparian seed mix, erosion control blankets, and straw. Silt fence was placed 10 feet from top of banks.

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 | 9/5/2023 |

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**Required Photos**


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|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Downstream view of permitted impact area during pre-construction assessment. |


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|---|---|
| **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** | Pre-construction view from coming in side of crossing. |


| | |
|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Pre-construction view from going away side of crossing. |

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## Optional Photos


| | |
|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Post-construction view from coming in side of crossing. |


| | |
|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Post-construction view from going away side of crossing. |


| | |
|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Stream substrate being removed and segregated into super sacks. |


| | |
|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Lowering in a joint of pipe on the going away side of stream. |


| | |
|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Dam and pump system reinforced with multiple backups prior to forecast rain event. |


| | |
|---|---|
| **GPS Location** | See caption in photo |
| **Description** | Stream substrate being replaced in stream. Survey crews on hand to check elevations. |