Stream Biological Conditions EA Report

Project Name	H-600 Pipeline Spread E	**AFE**	124300134	**Spread**	H-600 Pipeline Spread E
Contractor	Price Gregory			**Report #**	284
Environmental Auditor	Jessica Yeager			**Date/Time**	10/9/2023 3:17 PM

Stream ID	S-I25	**Crossing Start Date**	10/9/2023	**Crossing Completion Date**	11/1/2023
Milepost	140.94	**Pre-Con Assessment Date**	10/9/2023	**Post-Con Assessment Date**	11/1/2023
Station	7441+63	**Bankfull Width (ft.)**	10.2	**Riffle:Pool Complexes Present?**	No
State	WV	**Stream Classification**	Intermittent		
County	Greenbrier	**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?	Yes
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	Bedrock, Boulder (>10")	Bedrock, Boulder (>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	1
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)	3	3
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)	2	3

Additional Notes

Pre-Construction Notes
Pre-Construction Meeting - 10/9/2023 @ 1500; post construction assessment completed immediately afterwards. Bankfull Width measured at OHWM at centerline. 15. Substrate a mix of boulder size rocks and a sand/silt/clay (Photo 1). 16. Banks highly stable due to rock component. 17. Riparian buffer on RDB limited due to road. 18. No flow noted on the surface during survey. Previous observations indicate portion of the stream drops for a short length in ROW. Size of portion of substrate (boulders) reduce ideal habitat. Timber mat present (travel lane)

10/9/2023 - Construction started immediately after pre-construction meeting; began to remove upland soil. Dams for flume put in place. Began to remove substrate; however, consists of a large number of boulder sized rocks (Photo 2).

10/10/2023 - Additional topsoil and substrate removal. More large rocks encountered. Soils separated into bank, channel and buffer piles (Photo 3). Water seeping through soils (groundwater). Blasting preparation including mats. Blasting occurred/mats removed.

10/11/2023 - Excavation of trench through aquatic resource/riparian areas (Photo 4). Hammering bedrock and debris excavation.

10/12/2023-10/20/2023 - Work in and around the aquatic resource area included hammering bedrock and the road surface, excavating debris, removal of additional soil from riparian area, pumping water from trench to dewatering structure, removal of material from road cut, placement of jersey barriers, timber mats, and metal road plates, welding (outside of resource), maintenance of flume, maintenance of road, placement of sandbags for bedding in the trench, utility line handled addressed. Rain occurred on 10/14/2023 and 10/16/2023.

10/21/23-10/24/2023 - installed pump-around system that could be utilized during pipe placement (flume removed). Continued excavations, hammering, and placement of padding. Pipe moved (Photo 5) and placed into trench through resource area (10/21/2023). Flume system restored. Welding, lifting pipe, cutting, x-ray, additional sandbag padding ongoing in and around resource area. Placement of jersey barriers, timber mats, and metal road plates and road maintenance also ongoing. Work upgradient on road crossing and backfilling on opposite side of road.

10/25/2023-10/28/2023 - Additional sandbags added to trench; backfilling in and adjacent to aquatic resource area; began constructing trench breakers adjacent to stream and those adjacent to road (concrete); adding bedding to area under the flume and in riparian area. Trench breaker on LDB complete. Placement of jersey barriers, timber mats, and metal road plates and road maintenance ongoing. Work upgrading on road crossing and backfilling with sand under opposite side of road. Trench box delivered and placed (10/28/2023).

10/30/2023-11/1/2023 - Completed backfilling and trench breaker construction (Photo 6). Removal of trench box. Contouring of stream channel. Survey checked elevations. Restoration of riparian soils. Restoration of banks and substrate. Dam removed. Seeding and placement of curlex and jute. Road between breakers filled with concrete. Survey completed elevations (Photo 7). Hand placement of large substrate (Photo 8). Restoration Complete.

Post Construction Notes
16., 17. Crossing and riparian areas have been recently restored. These areas will be monitored until 80% vegetative coverage has been achieved and areas that do not have 80% vegetative cover within 30 days will be reseeded.
19. Does not include timber mats that remain in place for travel lane.

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
Jessica Yeager		Potesta	11/1/2023

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Required Photos

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

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

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

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

GPS Location	See Photo
Description	Photo 1: Stream substrate prior to construction.

GPS Location	See Photo
Description	Photo 2: Removal of large substrate and bank material.

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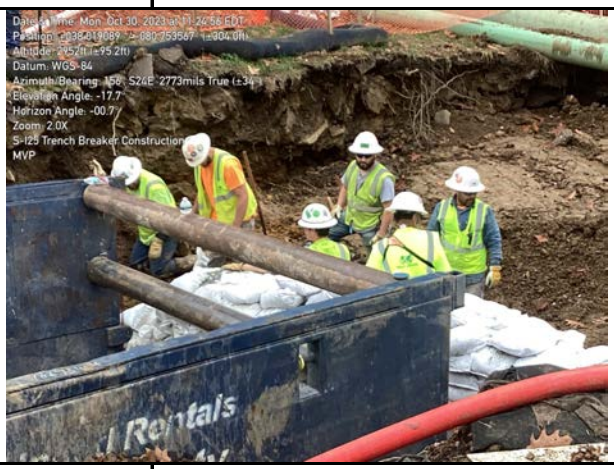
Optional Photos

GPS Location	See Photo
Description	Photo 3: Soils segregated and covered in upland area.

GPS Location	See Photo
Description	Photo 4: Excavating through aquatic resource area.

GPS Location	See Photo
Description	Photo 5: Moving pipe to place in aquatic resource area.



GPS Location	See Photo
Description	Photo 6: RDB trench breaker construction.

GPS Location	See Photo
Description	Photo 7: Overview of restoration; survey completing measurements of thalweg.

GPS Location	See Photo
Description	Photo 8: Hand placement of large substrate.