

<u>By Email</u>

2200 Energy Drive | Canonsburg, PA 15317

844-MVP-TALK | mail@mountainvalleypipeline.info www.mountainvalleypipeline.info

March 4, 2021

Adam Fannin Senior Project Manager Huntington District U.S. Army Corps of Engineers 502 Eighth Street Huntington, West Virginia 27501

Jared Pritts Regulatory Specialist Pittsburgh District U.S. Army Corps of Engineers 2200 William S. Moore Federal Building 1000 Liberty Avenue Pittsburgh, Pennsylvania 15222

Todd Miller Chief, Southern Section Norfolk District U.S. Army Corps of Engineers 803 Front Street Norfolk, Virginia 23510 Steven Hardwick VWP Coordinator Va. Dep. of Environmental Quality 1111 E. Main Street Suite 1400 Richmond, Virginia 23219

Randy Owen Deputy Chief, Habitat Management Virginia Marine Resources Commission Building 96 380 Fenwick Road Fort Monroe, Virginia 23651

Re: Mountain Valley Pipeline Project USACE Nos: LRH-2015-00592-GBR; LPR-2015-798; NAO-2017-0898 VMRC No: 2017-1609 Information Update

Dear Messrs. Fannin, Pritts, Miller, Hardwick, and Owen:

On February 19 Mountain Valley provided an application to the U.S. Army Corps of Engineers (USACE) for an Individual Permit under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. This application was submitted jointly to the Huntington, Pittsburgh, and Norfolk Districts.

Mountain Valley also provided an application to the Virginia Department of Environmental Quality (VDEQ) for a Virginia Water Protection Permit and an application to the Virginia Marine Resources Commission (VMRC) to modify the Project's existing subaqueous lands permit.

Messrs. Fannin, Pritts, Miller, Hardwick, and Owen March 4, 2021 Page 2

Since the submission, Mountain Valley identified several updates to the tables listed below. The information is intended to completely replace the identified Tables in the applications.

- Table 2 (Stream Impacts)
- Table 3 (Wetland Impacts)
- Table 4 (Stream Impacts Summary)
- Table 5 (Wetland Impacts Summary)
- Table 8 (List of Affected Landowners): Mountain Valley is requesting that this Table is not subject to FOIA under Exemption 6.
- Table 15 (Crossing Method Determination Summary)
- Table 17 (Compensatory Wetland Mitigation)
- Table 18 (Compensatory Stream Mitigation)
- Table A-1 (West Virginia Stream Impacts)
- Table A-2 (West Virginia Wetland Impacts)
- Table A-3 (West Virginia Stream Impact Summary)
- Table A-4 (West Virginia Wetland Impact Summary)
- Table B-1 (Virginia Stream Impacts)
- Table B-2 (Virginia Wetland Impacts)
- Table B-3 (Virginia Stream Impact Summary)
- Table B-4 (Virginia Wetland Impact Summary)

The Mountain Valley Pipeline project team looks forward to working with you through the respective permitting processes. We welcome any comments or questions you may have regarding the enclosed information. Please feel free to contact me at (724) 873-3009 or MHoover@equitransmidstream.com.

Respectfully submitted, MOUNTAIN VALLEY PIPELINE, LLC by and through its operator, EQM Gathering Opco, LLC By:

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Matthew S. Hoover Environmental Permitting Supervisor

Enclosure (as stated)

cc: Teresa Spagna, USACE Kayla Osborne, USACE Kathy Emery, WVDEP Messrs. Fannin, Pritts, Miller, Hardwick, and Owen March 4, 2021 Page 3

> Scott Mandirola, WVDEP Brian Bridgewater, WVDEP Melanie Davenport, VDEQ Dave Davis, VDEQ



Table 2 (Stream Impacts)

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres)⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-J62	Right Fork Big Elk Creek	Harrison	Pittsburgh	39.445033	-80.482635	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0037	-	18	-	4-35
S-B75/F49	UNT to Goose Run	Harrison	Pittsburgh	39.436571	-80.475198	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0028	-	13		4-36
S-B74	Goose Run	Harrison	Pittsburgh	39.436245	-80.474976	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0018	-	9	-	4-36
S-B79	UNT to Big Elk Creek	Harrison	Pittsburgh	39.423571	-80.476278	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	11	-	0.0004		2	-	4-39
S-B79	UNT to Big Elk Creek	Harrison	Pittsburgh	39.423499	-80.476392	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Permanent Access Road	-	60	-	0.0021	-	7	4-39
S-B79	UNT to Big Elk Creek	Harrison	Pittsburgh	39.423434	-80.476486	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	24		0.0008	-	4	-	4-39
S-J54	UNT to Little Tenmile Creek	Harrison	Pittsburgh	39.400324	-80.479967	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Permanent Access Road	-	26	-	0.0048	-	23	4-43
S-J51	Little Tenmile Creek	Harrison	Pittsburgh	39.398116	-80.477174	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20		0.0138		67	-	4-43
S-A10a	Little Rockcamp Run	Harrison	Pittsburgh	39.370005	-80.484974	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20	-	0.0055	-	27		4-49
S-B2a	UNT to Rockcamp Run	Harrison	Pittsburgh	39.359262	-80.493290	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	115	-	0.0211		341	-	4-51
	•		-				RPW				97						
S-B3a	Rockcamp Run	Harrison	Pittsburgh	39.358871	-80.493707	Perennial		Warmwater Fishery, Tier 1	05020002	Pipeline ROW		-	0.0445	-	719	-	4-51
S-A128	Rockcamp Run	Harrison	Pittsburgh	39.355569	-80.4901	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Permanent Access Road	-	29	-	0.032	-	155	4-51
S-RR22	UNT to Grass Run	Harrison	Pittsburgh	39.342166	-80.512422	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20	-	0.0055	-	27		4-55
S-A11a	Grass Run	Harrison	Pittsburgh	39.335511	-80.522421	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	113	-	0.0311	-	502	-	4-56
S-A11a-Braid-1	Grass Run	Harrison	Pittsburgh	39.335500	-80.522502	Intermittent	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	11	-	0.0015	-	7	-	4-56
S-A11a-Braid-2	Grass Run	Harrison	Pittsburgh	39.335410	-80.522360	Intermittent	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	77	-	0.0088	-	143	-	4-56
S-OP8	UNT to Indian Run	Harrison	Pittsburgh	39.320959	-80.526445	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	-	41	-	0.0047	-	23	4-59
S-OP9	UNT to Indian Run	Harrison	Pittsburgh	39.320682	-80.526449	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	-	36	-	0.0025	-	12	4-59
S-B6a	Indian Run	Harrison	Pittsburgh	39.317309	-80.527175	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Temporary Access Road	30	-	0.0207	-	100	-	4-59
S-B6a	Indian Run	Harrison	Pittsburgh	39.317023	-80.526157	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20	-	0.0138	-	67	-	4-59
S-B7a	UNT to Indian Run	Harrison	Pittsburgh	39.316755	-80.526222	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0018	-	9	-	4-59
S-UU3	Salem Fork	Harrison	Pittsburgh	39.289870	-80.517903	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	76	-	0.1047	-	1,689	-	4-66
S-UU5	Halls Run	Harrison	Pittsburgh	39.253041	-80.540508	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	79	-	0.0073	-	117	-	4-74
S-K73	Coburn Fork	Harrison	Pittsburgh	39.243691	-80.553966	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	110	-	0.0126	-	204	-	4-77
S-K74	UNT to Coburn Fork	Harrison	Pittsburgh	39.243647	-80.553903	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	36	-	0.0021	-	10	-	4-77
S-K75	UNT to Coburn Fork	Harrison	Pittsburgh	39.243509	-80.554028	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	96	-	0.0066	-	107	-	4-77
S-K80	UNT to Turtletree Fork	Harrison	Pittsburgh	39.225747	-80.550164	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0014	-	7		4-80
S-CV9	UNT to Turtletree Fork	Harrison	Pittsburgh	39.22369	-80.548273	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20		0.0009		4		4-81
S-K81	Turtletree Fork	Harrison	Pittsburgh	39.223263	-80.547928	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	30		0.0028		13		4-81
S-CV10	UNT to Turtletree Fork	Harrison	Pittsburgh	39.221719	-80.546951	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0014		7		4-81
S-A106	UNT to Kincheloe Creek	Harrison	-	39.168435	-80.577625	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	168	-	0.001	-	47	-	4-92
			Pittsburgh												9		
S-A105	UNT to Kincheloe Creek	Harrison	Pittsburgh	39.168266	-80.577815	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0018	-	-	-	4-92
S-K94	Kincheloe Creek	Lewis	Pittsburgh	39.167831	-80.578867	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Temporary Access Road	18	-	0.0083		40	-	4-92
S-K82	UNT to Kincheloe Creek	Harrison	Pittsburgh	39.167753	-80.578181	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	110	-	0.0101	-	49	-	4-92
S-K94	Kincheloe Creek	Lewis	Pittsburgh	39.167575	-80.578144	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	79	-	0.0363	-	585	-	4-92
S-167	Smoke Camp Run	Lewis	Pittsburgh	39.137145	-80.577026	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	22	-	0.0040	-	20	-	4-99
S-J43	Right Fork Freemans Creek	Lewis	Pittsburgh	39.120579	-80.581328	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	22	-	0.0126	-	61	-	4-102
S-J44	UNT to Right Fork Freemans Creek	Lewis	Pittsburgh	39.114730	-80.586203	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	79	-	0.0073	-	117	-	4-103
S-K46	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.080252	-80.581430	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	93	-	0.0043	-	21	-	4-109
S-B67	Left Fork Freemans Creek	Lewis	Pittsburgh	39.079556	-80.581346	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	22	-	0.0061	-	29	-	4-110
S-B69	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.077790	-80.582932	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	86	-	0.0030	-	14	-	4-110
S-H184	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.069684	-80.580583	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	22	-	0.0051	-	24	-	4-111
S-H184a	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.069645	-80.580591	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	22	-	0.0051	-	24	-	4-111
S-H180	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.068217	-80.581025	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	68	-	0.0203	-	327	-	4-111
S-ST18	UNT to Mobley Run	Wetzel	Huntington	39.561766	-80.540136	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Permanent Access Road	21	-	0.0049	-	23	-	4-2
S-WX3	UNT to Mobley Run	Wetzel	Huntington	39.560611	-80.545823	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	ATWS	21	-	0.0024	-	12	-	4-1
S-A1a	North Fork Fishing Creek	Wetzel	Huntington	39.553946	-80.545046	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Pipeline ROW	80	-	0.0641	-	1,034	-	4-3
S-A3a	UNT to North Fork Fishing Creek	Wetzel	Huntington	39.551814	-80.545633	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	80	-	0.0166	-	267	-	4-4
S-J66	UNT to North Fork Fishing Creek	Wetzel	Huntington	39.546030	-80.544314	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0014		7		4-5
S-A5a	UNT to Fallen Timber Run	Wetzel	Huntington	39.534241	-80.540995	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	30	-	0.0028	-	13	-	4-8
S-A6a	Fallen Timber Run	Wetzel	Huntington	39.534023	-80.540889	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Timber Mat Crossing	20	-	0.0092	-	44	-	4-9
S-A125	Price Run	Wetzel	Huntington	39.503477	-80.532902	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Timber Mat Crossing	20	-	0.0161	-	78	-	4-19
S-A123	UNT to Price Run	Wetzel		39.503288	-80.532680	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	100		0.0276		445	-	4-19
S-A124 S-A118	UNT to Price Run		Huntington	39.503288	-80.532680		RPW			Pipeline ROW	79			-	176		4-19
		Wetzel	Huntington			Intermittent		Warmwater Fishery, Tier 2	05030201			-	0.0109	-		-	
S-A120	Stout Run	Wetzel	Huntington	39.489914	-80.522135	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Temporary Access Road	8	-	0.0011	-	5	-	4-23
S-A120	Stout Run	Wetzel	Huntington	39.489890	-80.522083	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Permanent Access Road	-	26	-	0.0036	-	15	4-23
S-A120	Stout Run	Wetzel	Huntington	39.489866	-80.522029	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Temporary Access Road	9	-	0.0012	-	6	-	4-23
S-A120	Stout Run	Wetzel	Huntington	39.489712	-80.520728	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Timber Mat Crossing	20	-	0.0028	-	13	-	4-23
S-A119	UNT to Stout Run	Wetzel	Huntington	39.489589	-80.520532	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	134	-	0.0154	-	74	-	4-23

S-QR34				Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Impact (linear ft)	Impact (linear ft)	Temporary Impact Area (acres)⁵	Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
	UNT to Stout Run	Wetzel	Huntington	39.489140	-80.520658	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	125	-	0.0072	-	24	4-23
S-QR34	UNT to Stout Run	Wetzel	Huntington	39.489062	-80.520519	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Temporary Access Road	8	-	0.0004	-	2	-	4-23
S-J60	Sams Run	Wetzel	Huntington	39.474354	-80.511825	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0064	-	31	-	4-26
S-J56	Manion Run	Wetzel	Huntington	39.464315	-80.502077	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0046	-	22	-	4-28
S-J56	Manion Run	Wetzel	Huntington	39.464105	-80.502318	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Temporary Access Road	23	-	0.0054	-	26	-	4-28
S-J56	Manion Run	Wetzel	Huntington	39.463899	-80.502594	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	41	-	0.0095	-	46	4-28
S-J59	UNT to Manion Run	Wetzel	Huntington	39.462705	-80.504726	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	7	-	0.0005	-	2	4-28
S-J59	UNT to Manion Run	Wetzel	Huntington	39.462684	-80.504736	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Temporary Access Road	10	-	0.0007	-	3	-	4-28
S-J58	UNT to Manion Run	Wetzel	Huntington	39.462546	-80.505386	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	26	-	0.0030	-	14	-	4-28
S-K77	Traugh Fork	Doddridge	Huntington	39.229029	-80.552534	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	37	-	0.0034	-	54	-	4-80
S-K77	Traugh Fork	Doddridge	Huntington	39.228942	-80.552437	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	93	-	0.0085	-	137	-	4-80
S-K67	UNT to Big Issac Creek	Doddridge	Huntington	39.210269	-80.553179	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	77	-	0.0177	-	285	-	4-84
S-K65	UNT to Big Issac Creek	Doddridge	Huntington	39.209813	-80.552450	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	90	-	0.0165	-	267	-	4-84
S-K54	UNT to Big Issac Creek	Doddridge	Huntington	39.207673	-80.552957	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0032	-	16	-	4-84
S-K58	UNT to Big Issac Creek	Doddridge	Huntington	39.205595	-80.553224	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0011	-	6	-	4-84
S-K59	UNT to Big Issac Creek	Doddridge	Huntington	39.204704	-80.553272	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0011	-	6	-	4-84
S-K60	UNT to Big Issac Creek	Doddridge	Huntington	39.203779	-80.553410	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0018	-	9	-	4-84
S-A110/K62	UNT to Laural Run	Doddridge	Huntington	39.201316	-80.553306	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	25	-	0.0040	-	13	4-85
S-A110/K62	UNT to Laural Run	Doddridge	Huntington	39.201286	-80.553425	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	59	-	0.0095	-	154	-	4-85
S-A111	Laural Run	Doddridge	Huntington	39.200749	-80.553190	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Pipeline ROW	77	-	0.0247		399	-	4-85
S-J46	Fink Creek	Lewis	Huntington	39.094778	-80.584826	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Timber Mat Crossing	22		0.0076	-	37	-	4-106
S-J47b	UNT to Fink Creek	Lewis	Huntington	39.094003	-80.585481	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22		0.0015	-	7	-	4-106
S-164	Leading Creek	Lewis	Huntington	39.052748	-80.582213	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22		0.0020		10		4-114
S-KK3a	UNT to Laurel Run	Lewis	Huntington	39.019605	-80.597895	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0010		5		4-119
S-KK5	UNT to Laurel Run	Lewis	Huntington	39.017783	-80.596853	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-119
S-KK5	UNT to Laurel Run	Lewis	Huntington	39.017738	-80.597017	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-119
S-KK5	UNT to Laurel Run	Lewis	Huntington	39.017718	-80.597027	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-119
S-KK6			-	39.017621	-80.596939		RPW		05030203		22		0.0015		7	-	4-119
S-KK7	UNT Laurel Run Laurel Run	Lewis	Huntington	39.017621	-80.597010	Intermittent	RPW	Warmwater Fishery, Tier 2 Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	15	-	4-119
			-							-	50				6	-	4-113
S-K45 S-K43	UNT to Cove Lick Cove Lick	Lewis	Huntington	39.002598	-80.595591	Ephemeral Perennial	NRPW RPW	Warmwater Fishery, Tier 2	05030203	ATWS Permanent Access Road		- 27	0.0011	- 0.0043		- 21	4-121
			Huntington	39.002111				Warmwater Fishery, Tier 2			-		-		-		
S-K43	Cove Lick	Lewis	Huntington	39.002045	-80.596098	Perennial	RPW NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0035	-	17	-	4-121
S-K38	UNT to Rock Run	Lewis	Huntington	38.992357	-80.592929	Ephemeral		Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-		-	
S-163	Sand Fork	Lewis	Huntington	38.969369	-80.593138	Perennial	RPW	Non-listed mussels, Warmwater Fishery, Tier 1	05030203	Pipeline ROW	60	-	0.0275	-	444	-	4-128
S-163	Sand Fork	Lewis	Huntington	38.969290	-80.593203	Perennial	RPW	Non-listed mussels, Warmwater Fishery, Tier 1	05030203	Permanent Access Road	-	26	-	0.0119	-	58	4-128
S-163	Sand Fork	Lewis	Huntington	38.969239	-80.593244	Perennial	RPW	Non-listed mussels, Warmwater Fishery, Tier 1	05030203	Temporary Access Road	8	-	0.0037	-	18	-	4-128
S-H160	Indian Fork	Lewis	Huntington	38.933179	-80.584562	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Timber Mat Crossing	23	-	0.0106	-	59	-	4-135
S-L76	Indian Fork	Lewis	Huntington	38.929761	-80.575251	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Permanent Access Road	33	-	0.0115	-	56	-	4-137
S-H153	UNT to Sugar Camp Run	Lewis	Huntington	38.922846	-80.579227	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	76	-	0.0262	-	423	-	4-136
S-H145	UNT to Indian Fork	Lewis	Huntington	38.918986	-80.573838	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	91	-	0.0313	-	505	-	4-140
S-H165	UNT to Indian Fork	Lewis	Huntington	38.918602	-80.573256	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	144	-	0.0198	-	320	-	4-140
S-CV3	Threelick Run	Lewis	Huntington	38.913415	-80.571854	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Timber Mat Crossing	22	-	0.0030	-	15	-	4-142
S-CD16	UNT to Second Big Run	Lewis	Huntington	38.904135	-80.563719	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	173	-	0.0318	-	154	-	4-144
S-VV13	Second Big Run	Lewis	Huntington	38.903930	-80.563537	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	80	-	0.0275	-	133	-	4-144
S-VV11	UNT to Second Big Run	Lewis	Huntington	38.903610	-80.563186	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	7	-	0.0007	-	3	-	4-144
S-VV12	UNT to Second Big Run	Lewis	Huntington	38.903575	-80.563308	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	77	-	0.0211	-	341	-	4-144
S-VV13d	Second Big Run	Lewis	Huntington	38.902549	-80.564778	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	61	-	0.0210	-	102	-	4-144
S-VV20	UNT to Second Big Run	Lewis	Huntington	38.900233	-80.563491	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	40	-	0.0028	-	13	-	4-145
S-VV19	UNT to Second Big Run	Lewis	Huntington	38.899505	-80.563925	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	62	-	0.0043	-	21	-	4-146
S-VV13b	Second Big Run	Lewis	Huntington	38.898431	-80.568250	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	42	-	0.0143	-	69	-	4-146
S-VV18	UNT to Second Big Run	Lewis	Huntington	38.897028	-80.567634	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	41	-	0.0075	-	36	-	4-146
S-VV16	UNT to Second Big Run	Lewis	Huntington	38.896271	-80.566551	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	293	-	0.0202	-	98	-	4-146
S-VV16	UNT to Second Big Run	Lewis	Huntington	38.895455	-80.566432	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	211	-	0.0145	-	70	-	4-146
S-UV11	Oil Creek	Lewis	Huntington	38.893014	-80.556192	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	51	-	0.0351	-	567	-	4-148
S-UV11	Oil Creek	Lewis	Huntington	38.893014	-80.556192	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	25	-	-	0	-	4-148
S-VV22	UNT to Oil Creek	Lewis	Huntington	38.890411	-80.550986	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	43	-	0.0029	-	12	-	4-148
S-VV21	UNT to Oil Creek	Lewis	Huntington	38.890221	-80.553817	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	18	-	0.0012	-	5	-	4-148
S-L61	Crooked Run	Lewis	Huntington	38.880040	-80.563579	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	30	-	0.0069	-	33	4-151
	Crooked Run	Lewis	Huntington	38.879034	-80.564307	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	28	-	0.0064	-	31	4-151

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-VV9	UNT to Clover Fork	Lewis	Huntington	38.863254	-80.525763	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0051	-	24	-	4-158
S-VV2	Clover Fork	Braxton	Huntington	38.862730	-80.525128	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	90		0.0412	-	664	-	4-159
S-L51	Barbecue Run	Braxton	Huntington	38.839355	-80.519693	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0101	-	49	-	4-161
S-J37	UNT to Barbecue Run	Braxton	Huntington	38.839133	-80.519716	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-162
S-L57	UNT to Barbecue Run	Braxton	Huntington	38.828310	-80.525753	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	-	26	-	0.0024	-	12	4-165
S-L57	UNT to Barbecue Run	Braxton	Huntington	38.828300	-80.525691	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road/ATWS	25	-	0.0023	-	11	-	4-165
S-L60	Left Fork Knawl Creek	Braxton	Huntington	38.824034	-80.524988	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	75	-	0.0517	-	833	-	4-165
S-LL1	Knawl Creek	Braxton	Huntington	38.823595	-80.525342	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	88	-	0.0607		980	-	4-165
S-IJ27	Little Knawl Creek	Braxton	Huntington	38.809593	-80.541252	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	34	-	0.0156	-	76	4-168
S-IJ32	UNT to Little Knawl Creek	Braxton	Huntington	38.809568	-80.537319	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	26	-	0.0030	-	14	4-168
S-IJ27	Little Knawl Creek	Braxton	Huntington	38.808878	-80.543272	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road		50		0.0230	-	111	4-168
S-QR30	UNT to Little Knawl Creek	Braxton	Huntington	38.807940	-80.535715	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	79		0.0274		442	-	4-168
S-JJ1	UNT to Keith Run	Braxton	Huntington	38.786930	-80.530028	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22		0.0071		34	-	4-172
S-160	UNT to Falls Run	Braxton	-	38.781068	-80.524577	Intermittent	RPW		05030203		22		0.0020		10		4-172
			Huntington					Warmwater Fishery, Tier 2		Timber Mat Crossing						-	
S-J70	Falls Run	Braxton	Huntington	38.778955	-80.525862	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	77	-	0.0530	-	854	-	4-174
S-K34	Hemp Patch Run	Braxton	Huntington	38.766123	-80.520308	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0025	-	12	-	4-178
S-K33	UNT to Hemp Patch Run	Braxton	Huntington	38.765714	-80.520032	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0010	-	5	-	4-178
S-H123	UNT to Elliott Run	Braxton	Huntington	38.761197	-80.514887	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	82	-	0.0113	-	183	-	4-178
S-H123	UNT to Elliott Run	Braxton	Huntington	38.760426	-80.513624	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	82	-	0.0113	-	182	-	4-178
S-H127	UNT to Elliott Run	Braxton	Huntington	38.755029	-80.513692	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0020	-	10	-	4-180
S-H132	Little Kanawha River	Braxton	Huntington	38.751499	-80.514919	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	120	-	0.0606	-	293	-	4-180
S-H129	UNT to Little Kanawha River	Braxton	Huntington	38.749321	-80.514337	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0010	-	5	-	4-183
S-H131	UNT to Little Kanawha River	Braxton	Huntington	38.749215	-80.514370	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0010	-	5	-	4-183
S-H117	Stonecoal Run	Braxton	Huntington	38.731020	-80.506280	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	82	-	0.0283	-	456	-	4-188
S-L46	UNT to Laurel Run	Braxton	Huntington	38.721880	-80.499258	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	78	-	0.0267	-	431	-	4-190
S-L44	UNT to Laurel Run	Braxton	Huntington	38.716945	-80.494589	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	81	-	0.0185	-	298	-	4-193
S-157	Mudlick Run	Braxton	Huntington	38.697413	-80.489560	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	77	-	0.0528	-	852	-	4-196
S-A96/A103	UNT to Left Fork Holly River	Webster	Huntington	38.688706	-80.478590	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	83		0.0114		185	-	4-198
S-A97	UNT to Left Fork Holly River	Webster	Huntington	38.688329	-80.478406	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	125		0.0229		370	-	4-198
S-A99	UNT to Left Fork Holly River	Webster	Huntington	38.688120	-80.478371	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	34		0.0039	-	19	-	4-198
S-A98	UNT to Left Fork Holly River	Webster	Huntington	38.687906	-80.478024	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW/Temporary Access	392		0.0629	-	1015	-	4-198
S-A100	Left Fork Holly River	Webster	Huntington	38.676643	-80.477940	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Road Timber Mat Crossing	22	-	0.0404		196	-	4-200
S-E78/E82/R1	UNT to Left Fork Holly River	Webster	Huntington	38.676223	-80.477663	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	102		0.0094		151	-	4-200
S-E76	UNT to Left Fork Holly River	Webster	-	38.674988	-80.477360		NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22		0.0015	-	7		4-200
	· · · · · · · · · · · · · · · · · · ·		Huntington			Ephemeral						-		-		-	
S-KK2	UNT to Left Fork Holly River	Webster	Huntington	38.672226	-80.476315	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	75	-	0.0052	-	84	-	4-200
S-KK3b	UNT to Left Fork Holly River	Webster	Huntington	38.672110	-80.476515	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	100	-	0.0069	-	111	-	4-201
S-KK4b	UNT to Left Fork Holly River	Webster	Huntington	38.671976	-80.476825	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	88	•	0.0061	-	98	-	4-201
S-E74	UNT to Left Fork Holly River	Webster	Huntington	38.671971	-80.476990	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	68	-	0.0062	-	30	-	4-200
S-F40	Oldlick Creek	Webster	Huntington	38.667943	-80.479023	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	22	-	0.0126	-	61	-	4-201
S-S1	UNT to Oldlick Creek	Webster	Huntington	38.667020	-80.478624	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	21	-	0.0010	-	5	-	4-201
S-S4	UNT to Oldlick Creek	Webster	Huntington	38.664389	-80.484709	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	45	-	0.0021	-	10	-	4-204
S-F43	UNT to Oldlick Creek	Webster	Huntington	38.663706	-80.478644	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	101	-	0.0232	-	375	-	4-202
S-E67	Right Fork Holly Creek	Webster	Huntington	38.648021	-80.489704	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	92	-	0.1803	-	2910	-	4-206
S-B62	Narrows Run	Webster	Huntington	38.646185	-80.486813	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	ATWS	15	-	0.0103	-	50	-	4-215
S-B62	Narrows Run	Webster	Huntington	38.643910	-80.485213	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Permanent Access Road	-	29	-	0.0200	-	97	4-215
S-E71	UNT to Elk River	Webster	Huntington	38.614405	-80.506004	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	44	-	0.0020	-	33	-	4-218
S-H111	UNT to Elk River	Webster	Huntington	38.613367	-80.504620	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0020	-	10	-	4-218
S-H111	UNT to Elk River	Webster	Huntington	38.613341	-80.504620	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0020	-	10	-	4-218
S-H114	UNT to Elk River	Webster	Huntington	38.613259	-80.504243	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0010	-	5	-	4-218
S-H112	UNT to Elk River	Webster	Huntington	38.613163	-80.504012	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0015	-	7	-	4-218
S-H113	UNT to Elk River	Webster	Huntington	38.612982	-80.503647	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	74	-	0.0203	-	327	-	4-218
S-H113	UNT to Elk River	Webster	Huntington	38.612878	-80.503687	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	9	-	0.0026	-	42	-	4-218
S-H113	UNT to Elk River	Webster	Huntington	38.612874	-80.503682	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	9	-	0.0026	-	41	-	4-218
S-H110	UNT to Houston Run	Webster	Huntington	38.587200	-80.509634	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22		0.0020		7	-	4-222
S-T29			-	38.579092	-80.525620		RPW			-	76	-	0.0015		847		4-222
	Houston Run	Webster	Huntington			Perennial		Warmwater Fishery, Tier 2	05050007	Pipeline ROW						-	
S-A83/A91	UNT to Camp Creek	Webster	Huntington	38.557064	-80.535592	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	75	-	0.0518	-	835	-	4-235
S-A93	UNT to Camp Creek	Webster	Huntington	38.556823	-80.535751	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Temporary Access Road	13	-	0.0025	-	12	-	4-235
S-A93	UNT to Camp Creek	Webster	Huntington	38.556682	-80.535572	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	105	-	0.0193	-	312	-	4-235
S-A92	UNT to Camp Creek	Webster	Huntington	38.556658	-80.535607	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	59	-	0.0175	-	282	-	4-235

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-H108	Lower Laurel Fork	Webster	Huntington	38.549358	-80.539260	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	78	-	0.0251	-	405	-	4-236
S-H105	UNT to Camp Creek	Webster	Huntington	38.548824	-80.539644	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	121	-	0.0083	-	135	-	4-236
S-H107	UNT to Camp Creek	Webster	Huntington	38.548467	-80.540073	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	10	-	0.0003	-	5	-	4-236
S-H107	UNT to Camp Creek	Webster	Huntington	38.548463	-80.540050	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Permanent Access Road	-	30	-	0.0010	-	3	4-236
S-H107	UNT to Camp Creek	Webster	Huntington	38.548378	-80.539980	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	90	-	0.0031	-	50	-	4-236
S-H104	Camp Creek	Webster	Huntington	38.548121	-80.540431	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	104	-	0.0360	-	580	-	4-236
S-H103	UNT to Camp Creek	Webster	Huntington	38.545817	-80.542972	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	37	-	0.0034	-	16	-	4-248
S-B34	Amos Run	Webster	Huntington	38.493956	-80.560990	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	81	-	0.0561	-	904	-	4-260
S-B35	UNT to Amos Run	Webster	Huntington	38.493884	-80.560969	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	80	-	0.0037	-	59	-	4-260
S-B36	UNT to Amos Run	Webster	Huntington	38.493819	-80.560919	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	72	-	0.0033	-	53	-	4-260
S-B37	UNT to Amos Run	Webster	Huntington	38.493750	-80.560898	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	82	-	0.0038	-	61	-	4-260
S-B38	UNT to Amos Run	Webster	Huntington	38.493723	-80.560843	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	43	-	0.0020	-	32	-	4-260
S-B42	UNT to Amos Run	Webster	Huntington	38.493645	-80.560892	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	101	-	0.0046	-	75	-	4-260
S-B39b	UNT to Amos Run	Webster	Huntington	38.493532	-80.560792	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	142		0.0008		13	-	4-260
S-B45	UNT to Amos Run	Webster	Huntington	38.493394	-80.560786	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	177		0.0122		196	-	4-260
S-B39a/B46	UNT to Amos Run	Webster	Huntington	38.493363	-80.560657	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	110		0.0076	_	122		4-260
S-B39b	UNT to Amos Run	Webster	Huntington	38.493352	-80.560574	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	3	-	0.0002		0	-	4-260
S-B39a/B46	UNT to Amos Run	Webster	Huntington	38.493227	-80.560529	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	11	-	0.0002	-	12	-	4-260
S-04	Lost Run	Webster	Huntington	38.483002	-80.556464	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	92	-	0.0379	-	612	-	4-263
S-04 S-05	UNT to Laurel Creek	Webster	-		-80.555499	Ephemeral	NRPW		05050007				0.0379	-	612	-	4-263
S-A81		Webster	Huntington	38.482251	-80.554668		NRPW	Category B-2 Trout Waters, Tier 2		Timber Mat Crossing	81	-	0.0010	-	18	-	4-263
	UNT to Laurel Creek		Huntington	38.481219		Ephemeral		Category B-2 Trout Waters, Tier 2	05050007	Temporary Access Road				-		-	
S-A79	Laurel Creek	Webster	Huntington	38.480782	-80.554682	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	55	-	0.0278	-	134	-	4-263
S-A80	UNT to Laurel Creek	Webster	Huntington	38.480687	-80.554061	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Temporary Access Road	104	-	0.0096	-	46	-	4-263
S-E58	Little Glade Run	Webster	Huntington	38.443669	-80.551989	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0040	-	20	-	4-269
S-E55	UNT to Laurel Creek	Webster	Huntington	38.440270	-80.559955	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	22	-	0.0010		5	-	4-271
S-F35	UNT to Birch River	Webster	Huntington	38.424082	-80.570710	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0025	-	12	-	4-278
S-F34	UNT to Birch River	Webster	Huntington	38.423988	-80.570680	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0025	-	12	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.422056	-80.569457	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	5	-	0.0006	-	11	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.421474	-80.570012	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	23	-	0.0027	-	13	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.418662	-80.573898	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	23	-	0.0027	-	13	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.418122	-80.574566	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	20	-	0.0023	-	3	-	4-278
S-F36b	UNT to Birch River	Webster	Huntington	38.417934	-80.576775	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	65	-	0.0300	-	145	-	4-279
S-F36b	UNT to Birch River	Webster	Huntington	38.417774	-80.576635	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	78	-	0.0359	-	580	-	4-279
S-F36b	UNT to Birch River	Webster	Huntington	38.417693	-80.576495	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	16	-	0.0074	-	36	-	4-279
S-F37	UNT to Birch River	Webster	Huntington	38.417651	-80.576431	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	20	-	0.0018	-	9	-	4-279
S-C49	UNT to Birch River	Webster	Huntington	38.416587	-80.577890	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0015	-	7	-	4-279
S-B33	UNT to Meadow Fork	Webster	Huntington	38.408941	-80.589063	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0051	-	24	-	4-281
S-B32-Braid	UNT to Meadow Fork	Webster	Huntington	38.405871	-80.591069	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0035	-	17	-	4-281
S-B32	UNT to Meadow Fork	Webster	Huntington	38.405683	-80.591116	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0035	-	17	-	4-281
S-EF40	UNT to Meadow Fork	Webster	Huntington	38.400883	-80.597787	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Anode Bed	52	-	0.0084	-	41	-	4-282
S-B30	UNT to Meadow Fork	Webster	Huntington	38.399733	-80.597536	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Anode Bed	27	-	0.0024	-	12	-	4-282
S-B29	Meadow Fork	Webster	Huntington	38.399618	-80.597332	Perennial	RPW	Warmwater Fishery, Tier 1	05050007	Pipeline ROW	85	-	0.0136	-	220	-	4-282
S-E50	UNT to Gauley River	Webster	Huntington	38.370597	-80.611921	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	93	-	0.0085	-	138	-	4-289
S-E52	UNT to Gauley River	Webster	Huntington	38.369110	-80.611761	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0015	-	7	-	4-290
S-E50	UNT to Gauley River	Webster	Huntington	38.367280	-80.612317	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	82	-	0.0075	-	122	-	4-289
S-E49	UNT to Gauley River	Nicholas	Huntington	38.365574	-80.613141	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	88	-	0.0020	-	33	-	4-290
S-E46	Strouds Creek	Webster	Huntington	38.363374	-80.617277	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0152	-	73	-	4-291
S-E46	Strouds Creek	Webster	Huntington	38.363326	-80.616955	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Temporary Access Road	43	-	0.0296	-	143	-	4-291
S-F21	Barn Run	Nicholas	Huntington	38.355859	-80.633328	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-293
S-F20	Barn Run	Nicholas	Huntington	38.355800	-80.633223	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	24	-	4-293
S-IJ57	UNT to Barn Run	Nicholas	Huntington	38.352362	-80.636401	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	82	-	0.0094	-	152	-	4-293
S-IJ59	UNT to Barn Run	Nicholas	Huntington	38.348372	-80.641152	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0035	-	17	-	4-295
S-IJ60	UNT to Rockcamp Run	Nicholas	Huntington	38.343699	-80.644721	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	77	-	0.0141	-	227	-	4-296
S-IJ62	UNT to Cherry Run	Nicholas	Huntington	38.343547	-80.647035	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	79	-	0.0054	-	88	-	4-296
S-B28	Cherry Run	Nicholas	Huntington	38.340083	-80.655413	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	24	-	4-298
S-B26	UNT to Cherry Run	Nicholas	Huntington	38.339012	-80.659609	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Temporary Access Road	43	-	0.0039	-	19	-	4-299
S-J32	Big Beaver Creek	Nicholas	Huntington	38.331763	-80.670342	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Timber Mat Crossing	22	-	0.0177	-	86	-	4-301
S-A76	UNT to Big Beaver Creek	Nicholas	Huntington	38.329126	-80.671211	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	77	-	0.0106	-	172	-	4-301
S-A75	UNT to Big Beaver Creek	Nicholas	Huntington	38.326001	-80.670358	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	84	-	0.0193	-	311	-	4-302
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Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-A74	UNT to Big Beaver Creek	Nicholas	Huntington	38.325540	-80.670150	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	75	-	0.0069	-	112	-	4-302
S-A73	UNT to Big Beaver Creek	Nicholas	Huntington	38.323815	-80.670069	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	83	-	0.0114	-	184	-	4-302
S-A72	UNT to Big Beaver Creek	Nicholas	Huntington	38.321687	-80.670952	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-302
S-A71	UNT to Big Beaver Creek	Nicholas	Huntington	38.321572	-80.670958	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-302
S-A71-Braid	UNT to Big Beaver Creek	Nicholas	Huntington	38.321548	-80.670969	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-302
S-A67	UNT to Big Beaver Creek	Nicholas	Huntington	38.317575	-80.671553	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	76	-	0.0121	-	196	-	4-303
S-A69	UNT to Big Beaver Creek	Nicholas	Huntington	38.317217	-80.671495	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	82	-	0.0113		183	-	4-303
S-A69	UNT to Big Beaver Creek	Nicholas	Huntington	38.317089	-80.671565	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	16	-	0.0022	-	36	-	4-303
S-H99	UNT to Big Beaver Creek	Nicholas	Huntington	38.312952	-80.673145	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	96		0.0088	-	142		4-304
S-H96	UNT to Big Beaver Creek	Nicholas	Huntington	38.309759	-80.675706	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Temporary Access Road	39	-	0.0018	-	9		4-304
S-H95		Nicholas	-		-80.675733		NRPW		05050005		259		0.0018		86	-	4-304
	UNT to Big Beaver Creek		Huntington	38.309738		Ephemeral		Warmwater Fishery, Tier 2		Temporary Access Road		-		-		-	
S-A65	Big Beaver Creek	Nicholas	Huntington	38.308183	-80.675347	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Pipeline ROW	77	-	0.1240	-	2000	-	4-304
S-A64	UNT to Granny Run	Nicholas	Huntington	38.304538	-80.673827	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	54	-	0.0086	-	139	-	4-306
S-N15	UNT to Granny Run	Nicholas	Huntington	38.301571	-80.674776	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0061	-	29	-	4-306
S-N14	Granny Run	Nicholas	Huntington	38.297014	-80.676341	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-307
S-N14	Granny Run	Nicholas	Huntington	38.296646	-80.676258	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-307
S-143	UNT to Big Run	Nicholas	Huntington	38.293473	-80.677158	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	24	-	4-308
S-144	Big Run	Nicholas	Huntington	38.291332	-80.679265	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-308
S-145	UNT to Big Run	Nicholas	Huntington	38.290061	-80.680304	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0030	-	15	-	4-308
S-147	UNT to Gauley River	Nicholas	Huntington	38.284291	-80.685885	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	80	-	0.0037	-	59	-	4-310
S-148	UNT to Gauley River	Nicholas	Huntington	38.280116	-80.687738	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	22	-	4-310
S-J28	UNT to Little Laurel Creek	Nicholas	Huntington	38.263235	-80.687908	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	79	-	0.0091	-	147	-	4-315
S-J25	UNT to Little Laurel Creek	Nicholas	Huntington	38.256682	-80.687348	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	77	-	0.0089	-	143	-	4-317
S-J24	UNT to Little Laurel Creek	Nicholas	Huntington	38.256302	-80.687350	Perennial	RPW	Category B-2 Trout Waters, Tier 1	05050005	Pipeline ROW	76		0.0261		422	_	4-317
S-J24	UNT to Little Laurel Creek	Nicholas	Huntington	38.256248	-80.687358	Perennial	RPW	Category B-2 Trout Waters, Tier 1	05050005	Pipeline ROW	76		0.0261		421		4-317
S-J23-EPH	UNT to Little Laurel Creek	Nicholas	-	38.234331	-80.707513		NRPW	Category B-2 Trout Waters, Tier 2	05050005		109	-	0.0025	_	41	-	4-326
			Huntington			Ephemeral				Pipeline ROW				-			
S-J22	UNT to Little Laurel Creek	Nicholas	Huntington	38.233718	-80.708268	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	85	-	0.0058	-	94	-	4-326
S-N10	Skelt Run	Nicholas	Huntington	38.231025	-80.710633	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	78	-	0.0071	-	115	-	4-327
S-N10-Braid	Skelt Run	Nicholas	Huntington	38.230934	-80.710804	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	101	-	0.0069	-	112	-	4-327
S-EE1	UNT to Skelt Run	Nicholas	Huntington	38.228924	-80.713076	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-327
S-N13-Braid	UNT to Skelt Run	Nicholas	Huntington	38.226869	-80.715487	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	37	-	0.0050	-	24	-	4-328
S-N13	UNT to Skelt Run	Nicholas	Huntington	38.226851	-80.715393	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	89	-	0.0041	-	66	-	4-328
S-L41	Jims Creek	Nicholas	Huntington	38.220793	-80.717100	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	76	-	0.0349	-	564	-	4-328
S-L38	UNT to Riley Branch	Nicholas	Huntington	38.205534	-80.718246	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	75	-	0.0052	-	83	-	4-340
S-L35	Riley Branch	Nicholas	Huntington	38.204372	-80.719778	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Temporary Access Road	52	-	0.0048	-	31	-	4-341
S-L35	Riley Branch	Nicholas	Huntington	38.203887	-80.719122	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	86	-	0.0079	-	128	-	4-341
S-L35	Riley Branch	Nicholas	Huntington	38.203097	-80.719248	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	87	-	0.0080	-	129	-	4-341
S-L35	Riley Branch	Nicholas	Huntington	38.200338	-80.717177	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	79	-	0.0072	-	117	-	4-341
S-137	UNT to Hominy Creek	Nicholas	Huntington	38.196644	-80.718856	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	40	-	0.0056	-	27	-	4-342
S-138	UNT to Hominy Creek	Nicholas	Huntington	38.194221	-80.719357	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	77	-	0.0089	-	143	-	4-342
S-139	UNT to Hominy Creek	Nicholas	Huntington	38.194025	-80.719298	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	79	-	0.0126	-	204	-	4-342
S-140	UNT to Hominy Creek	Nicholas	Huntington	38.187582	-80.723025	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	82	-	0.0120	-	214	-	4-343
S-140	UNT to Hominy Creek	Nicholas	Huntington	38.179384	-80.729497	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	78	-	0.0143	-	231	-	4-344
							RPW	Category B-2 Trout Waters, Tier 2			78						4-344
S-136	Hominy Creek	Nicholas	Huntington	38.178889	-80.729790	Perennial			05050005	Pipeline ROW		-	0.0976	-	1575	-	
S-131	UNT to Hominy Creek	Nicholas	Huntington	38.163802	-80.730743	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	73	-	0.0033	-	54	-	4-355
S-N8a	UNT to Hominy Creek	Nicholas	Huntington	38.162363	-80.733602	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-355
S-VV1	UNT to Hominy Creek	Nicholas	Huntington	38.161064	-80.735022	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-355
S-H88	Sugar Branch	Nicholas	Huntington	38.136744	-80.730560	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	76	-	0.0697	-	1125	-	4-359
S-H71	UNT to Hominy Creek	Nicholas	Huntington	38.124315	-80.735783	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	93	-	0.0257	-	415	-	4-362
S-H67	UNT to Hominy Creek	Nicholas	Huntington	38.120580	-80.736772	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	85	-	0.0235	-	379	-	4-363
S-H64	UNT to Hominy Creek	Nicholas	Huntington	38.116279	-80.735319	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	87	-	0.0060	-	96	-	4-364
S-V3	UNT to Hominy Creek	Nicholas	Huntington	38.115823	-80.730960	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0061	-	29	-	4-365
S-EF41	UNT to Hominy Creek	Nicholas	Huntington	38.107549	-80.726284	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	82	-	0.0038	-	61	-	4-366
S-J19	UNT to Meadow Creek	Greenbrier	Huntington	38.028599	-80.743623	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0010	-	5	-	4-382
S-J20	UNT to Meadow Creek	Greenbrier	Huntington	38.023801	-80.747266	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0152	-	73	-	4-385
S-125	UNT to Meadow Creek	Greenbrier	Huntington	38.020430	-80.753194	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	75	-	0.0086	-	139	-	4-390
S-126	UNT to Meadow Creek	Greenbrier	Huntington	38.019129	-80.755220	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	78	-	0.0090	-	145	-	4-390
S-127	UNT to Meadow Creek	Greenbrier	Huntington	38.018031	-80.755999	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0025	-	12	_	4-390
S-L26	UNT to Meadow River	Greenbrier	Huntington	37.981900	-80.755213	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	205	-	0.0141		227	-	4-397
		2.0010101									_00	I		I	1		

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-L26	UNT to Meadow River	Greenbrier	Huntington	37.980598	-80.754872	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	166	-	0.0114	-	184	-	4-397
S-EF38	UNT to Little Sewell Creek	Greenbrier	Huntington	37.963259	-80.733162	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0015	-	7	-	4-400
S-L24	UNT to Little Sewell Creek	Greenbrier	Huntington	37.963068	-80.733141	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-400
S-L27	UNT to Little Sewell Creek	Greenbrier	Huntington	37.960725	-80.732852	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0010	-	5	-	4-401
S-L30	UNT to Little Sewell Creek	Greenbrier	Huntington	37.954276	-80.739708	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	136	-	0.0093	-	151	-	4-402
S-L22	Little Sewell Creek	Greenbrier	Huntington	37.954035	-80.739868	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Pipeline ROW	75	-	0.0517	-	834	-	4-402
S-L20	UNT to Little Sewell Creek	Greenbrier	Huntington	37.949579	-80.742646	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	96		0.0111		179		4-403
S-L10	UNT to Boggs Creek	Greenbrier	Huntington	37.938308	-80.747009	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	103	_	0.0071	_	115	_	4-405
			-									-		-		-	
S-L11	UNT to Boggs Creek	Greenbrier	Huntington	37.938229	-80.746912	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	26	-	0.0018	-	9	-	4-405
S-I21	UNT to Boggs Creek	Greenbrier	Huntington	37.918228	-80.736774	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	30	-	0.0034	-	55	-	4-409
S-I21	UNT to Boggs Creek	Greenbrier	Huntington	37.918164	-80.736852	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	77	-	0.0089	-	143	-	4-409
S-122	UNT to Boggs Creek	Greenbrier	Huntington	37.918041	-80.736833	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	94	-	0.0043	-	70	-	4-409
S-I23a	UNT to Boggs Creek	Greenbrier	Huntington	37.917347	-80.738534	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	33	-	0.0030	-	10	4-409
S-IJ54	UNT to Boggs Creek	Greenbrier	Huntington	37.917125	-80.742425	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	31	-	0.0036	-	17	4-410
S-IJ53	UNT to Boggs Creek	Greenbrier	Huntington	37.916234	-80.744156	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	20	-	0.0055	-	27	4-410
S-HH8	UNT to Buffalo Creek	Greenbrier	Huntington	37.865308	-80.753802	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	ATWS	15		0.0007		3		4-421
S-K25/K18	UNT to Buffalo Creek	Greenbrier	Huntington	37.863772	-80.756993	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	ATWS	70		0.0096		156		4-421
S-K17	Buffalo Creek	Greenbrier	Huntington	37.863065	-80.757391	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	75	-	0.0432	-	698	-	4-420
S-K19	UNT to Buffalo Creek	Greenbrier	Huntington	37.860940	-80.757825	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	93	-	0.0102		172	-	4-421
S-K21			-	37.858566	-80.757825		RPW	Warmwater Fishery, Tier 2	05050005	· · · · · · · · · · · · · · · · · · ·	82	-	0.0189	-	304		4-421
	UNT to Buffalo Creek	Greenbrier	Huntington			Perennial				Pipeline ROW				-		-	
S-K22	UNT to Buffalo Creek	Greenbrier	Huntington	37.858315	-80.755546	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	78	-	0.0125	-	202	-	4-422
S-UV6	UNT to Morris Fork	Greenbrier	Huntington	37.854386	-80.754981	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	88	-	0.0161	-	260	-	4-422
S-UV2	Morris Fork	Greenbrier	Huntington	37.851318	-80.751436	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	28	-	0.0103	-	50	4-423
S-UV2	Morris Fork	Greenbrier	Huntington	37.851099	-80.752978	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	88	-	0.0324	-	523	-	4-423
S-U22	UNT to Meadow River	Greenbrier	Huntington	37.839558	-80.748496	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	80	-	0.0221	-	356	-	4-425
S-FF1	UNT to Meadow River	Greenbrier	Huntington	37.837560	-80.751903	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	11	-	0.0008	-	4	-	4-425
S-FF1	UNT to Meadow River	Greenbrier	Huntington	37.837519	-80.751898	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	31	-	0.0021	-	10	4-425
S-EE4	UNT to Red Spring Branch	Summers	Huntington	37.813881	-80.748817	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	137	-	0.0079	-	127	-	4-429
S-M6	UNT to Red Spring Branch	Summers	Huntington	37.807650	-80.746173	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	110		0.0101	-	163	-	4-430
S-J13	UNT to Patterson Creek	Summers	Huntington	37.797484	-80.733605	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	92		0.0085		137		4-432
												_		_		_	
S-J13	UNT to Patterson Creek	Summers	Huntington	37.796572	-80.732397	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	96	-	0.0088	-	142	-	4-432
S-J13	UNT to Patterson Creek	Summers	Huntington	37.795915	-80.731850	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	124	-	0.0114	-	183	-	4-432
S-M5	Red Spring Branch	Summers	Huntington	37.792243	-80.728802	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0030	-	15	-	4-433
S-M4	UNT to Red Spring Branch	Summers	Huntington	37.786834	-80.728719	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050004	Temporary Access Road	47	-	0.0032	-	16	-	4-434
S-I13	UNT to Lick Creek	Summers	Huntington	37.782534	-80.719085	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0076	-	37	-	4-437
S-I14	UNT to Lick Creek	Summers	Huntington	37.781099	-80.719318	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0035	-	17	-	4-437
S-I15	UNT to Lick Creek	Summers	Huntington	37.779878	-80.720470	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0051	-	24	-	4-437
S-I16	UNT to Lick Creek	Summers	Huntington	37.779381	-80.721388	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0020	-	10	-	4-440
S-I12	Lick Creek	Summers	Huntington	37.775891	-80.710797	Intermittent	RPW	Warmwater Fishery, Tier 1	05050004	Permanent Access Road	-	38	-	0.0035	-	11	4-438
S-I17	UNT to Lick Creek	Summers	Huntington	37.775160	-80.728058	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	78	-	0.0045	-	72	-	4-441
S-I10	UNT to Lick Creek	Summers	-	37.772437	-80.713781	Intermittent	RPW		05050004	Permanent Access Road		26		0.0018		9	4-439
S-110	Lick Creek		Huntington	37.772089	-80.732901		RPW	Warmwater Fishery, Tier 2 Warmwater Fishery, Tier 1	05050004	Pipeline ROW	- 77	- 20	0.0265	-	428	-	4-439
		Summers	Huntington			Perennial											
S-120	UNT to Lick Creek	Summers	Huntington	37.771406	-80.733241	Perennial	RPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	92	-	0.0212	-	342	-	4-441
S-N5	UNT to Hungard Creek	Summers	Huntington	37.704240	-80.744827	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	87	-	0.0040	-	65	-	4-459
S-K14	UNT to Righthand Fork Hungard Creek	Summers	Huntington	37.696788	-80.739242	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	97	-	0.0089	-	143	-	4-460
S-N3	UNT to Hungard Creek	Summers	Huntington	37.694776	-80.736952	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0025	-	12	-	4-461
S-N2	Hungard Creek	Summers	Huntington	37.694507	-80.736682	Perennial	RPW	Warmwater Fishery, Tier 1	05050003	Timber Mat Crossing	22	-	0.0101	-	49	-	4-461
S-CD23	UNT to Hungard Creek	Summers	Huntington	37.694228	-80.736099	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0045	-	22	-	4-461
S-N4	UNT to Hungard Creek	Summers	Huntington	37.693961	-80.735841	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0015	-	7	-	4-461
S-KL29	Right Fork Hungard Creek	Summers	Huntington	37.692932	-80.733839	Perennial	RPW	Warmwater Fishery, Tier 1	05050003	Pipeline ROW	75	-	0.0863	-	1392	-	4-461
S-M3	Hungard Creek	Summers	Huntington	37.692868	-80.734247	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	80	-	0.0183	-	295	-	4-461
S-CV17	UNT to Greenbrier River	Summers	Huntington	37.681865	-80.730095	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	76		0.0070		34	-	4-464
S-EF53	UNT to Greenbrier River	Summers	Huntington	37.681323	-80.729672	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	51	-	0.0095	-	46	-	4-464
S-19	UNT to Greenbrier River	Summers	Huntington	37.675977	-80.732822	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0035	-	17	-	4-465
S-K10	UNT to Greenbrier River	Summers	Huntington	37.675079	-80.734384	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	9	-	0.0013	-	6	-	4-465
S-K10	UNT to Greenbrier River	Summers	Huntington	37.675070	-80.734447	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Permanent Access Road	-	31	-	0.0043	-	21	4-465
S-K10	UNT to Greenbrier River	Summers	Huntington	37.675058	-80.734522	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	9	-	0.0013	-	6	-	4-465
			Huntington	37.673213	-80.729772	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	77	-	0.0176		284		4-465
S-L4	UNT to Greenbrier River	Summers	Huntington	01.010210				warnwater risitery, her z	0000000	r ipolitio r to tr		-	0.0110	-	204	-	

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-L1	UNT to Kelly Creek	Summers	Huntington	37.668076	-80.723470	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	76	-	0.0104	-	168	-	4-468
S-J5	Kelly Creek	Summers	Huntington	37.666864	-80.721794	Perennial	RPW	Warmwater Fishery, Tier 1	05050003	Pipeline ROW	103	-	0.0471	-	759	-	4-468
S-K4	UNT to Keller Creek	Summers	Huntington	37.665806	-80.725709	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	-	22	-	0.0010	-	4	4-468
S-J4	UNT to Keller Creek	Summers	Huntington	37.663926	-80.715460	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0025	-	12	-	4-469
S-G47	UNT to Wind Creek	Summers	Huntington	37.654112	-80.702579	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22		0.0010	-	5	-	4-471
S-G52	UNT to Wind Creek	Monroe	Huntington	37.627537	-80.695593	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22		0.0010	-	5	-	4-479
S-G49	UNT to Wind Creek	Monroe	Huntington	37.627381	-80.695679	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0101	-	49	-	4-479
S-G48	Wind Creek	Monroe	Huntington	37.627308	-80.695759	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0101	-	49	-	4-479
S-H61	UNT to Stoney Creek	Monroe	Huntington	37.618426	-80.699138	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0126	-	61	-	4-483
S-OP1	Stony Creek	Monroe	Huntington	37.600003	-80.700509	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	78	-	0.0090		145	-	4-487
S-IJ64	UNT to Little Stony Creek	Monroe	Huntington	37.591822	-80.705874	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0030	-	15	-	4-488
S-A63	Slate Run	Monroe	Huntington	37.560706	-80.709825	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road		25	-	0.0057		28	4-492
S-A63	Slate Run	Monroe	Huntington	37.560460	-80.710233	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	88	-	0.0203	0.0001	327	20	4-492
S-A61	UNT to Slate Run	Monroe	-		-80.709683		NRPW				8		0.0203	-	521	-	4-492
			Huntington	37.559351		Ephemeral		Warmwater Fishery, Tier 2	05050002	Temporary Access Road	0		0.0012	-	0	-	
S-A61	UNT to Slate Run	Monroe	Huntington	37.559334	-80.709736	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road	-	26	-	0.0041	-	14	4-493
S-A61	UNT to Slate Run	Monroe	Huntington	37.559328	-80.709792	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Temporary Access Road	8	-	0.0013	-	6	-	4-493
S-A61	UNT to Slate Run	Monroe	Huntington	37.559320	-80.710037	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	81	-	0.0131	-	211	-	4-493
S-A60	Slate Run	Monroe	Huntington	37.558698	-80.709966	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	87	-	0.0358	-	578	-	4-492
S-CV26	UNT to Slate Run	Monroe	Huntington	37.556445	-80.708883	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road	-	32	-	0.0044		21	4-493
S-D31	Indian Creek	Monroe	Huntington	37.554163	-80.710853	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	75	-	0.1120	-	1807	-	4-493
S-D29	UNT to Hans Creek	Monroe	Huntington	37.547394	-80.712099	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0020	-	10	-	4-494
S-D25	UNT to Hans Creek	Monroe	Huntington	37.538768	-80.718855	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0020	-	10	-	4-496
S-F18	UNT to Hans Creek	Monroe	Huntington	37.538273	-80.719070	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road	-	26	-	0.0107	-	52	4-496
S-F18	UNT to Hans Creek	Monroe	Huntington	37.536872	-80.716923	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0091	-	44	-	4-496
S-Z5	UNT to Hans Creek	Monroe	Huntington	37.524333	-80.711450	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	75	-	0.0034		56	-	4-499
S-Z4	UNT to Hans Creek	Monroe	Huntington	37.524302	-80.711444	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	75	-	0.0043	-	69	-	4-499
S-MN2	UNT to Hans Creek	Monroe	Huntington	37.520012	-80.707606	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	81		0.0130	-	210	-	4-500
S-CV19	Hans Creek	Monroe	Huntington	37.500284	-80.691498	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	77	-	0.0619		998	-	4-505
S-MN39	UNT to Blue Lick Creek	Monroe	Huntington	37.487733	-80.681765	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	22	-	0.0010	-	16	-	4-510
S-MN38	UNT to Blue Lick Creek	Monroe	Huntington	37.487721	-80.681929	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	22		0.0030		48	-	4-510
S-MN37	UNT to Blue Lick Creek	Monroe	Huntington	37.487584	-80.681992	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	95		0.0040		65	-	4-510
S-MN40	UNT to Blue Lick Creek	Monroe	-	37.487519	-80.681996		NRPW		05050002		37		0.0010	-	16	-	4-510
			Huntington			Ephemeral	NRPW	Warmwater Fishery, Tier 2		Pipeline ROW				•			
S-G44	UNT to Hans Creek	Monroe	Huntington	37.474870	-80.676267	Ephemeral		Warmwater Fishery, Tier 2	05050002	Pipeline ROW	86	-	0.0079	-	128	-	4-511
S-G43	UNT to Hans Creek	Monroe	Huntington	37.473139	-80.675738	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0025	-	12	-	4-511
S-G42	UNT to Hans Creek	Monroe	Huntington	37.472602	-80.675456	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	79	-	0.0055	-	88	-	4-512
S-MN45	UNT to Hans Creek	Monroe	Huntington	37.462878	-80.670284	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	87		0.0040	-	65	-	4-513
S-CV27	UNT to Hans Creek	Monroe	Huntington	37.462850	-80.669582	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	37	-	0.0017	-	8	-	4-513
S-E43	UNT to Dry Creek	Monroe	Huntington	37.453834	-80.664417	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	92	-	0.0147	-	237	-	4-515
S-E45	UNT to Dry Creek	Monroe	Huntington	37.453798	-80.664266	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	108	-	0.0074	-	120	-	4-515
S-E40	Dry Creek	Monroe	Huntington	37.451003	-80.667795	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Temporary Access Road	43	-	0.0117	-	57	-	4-515
S-E40	Dry Creek	Monroe	Huntington	37.450757	-80.667719	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	82	-	0.0227	-	366	-	4-515
S-E41	UNT to Dry Creek	Monroe	Huntington	37.450692	-80.667650	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	23	-	0.0010	-	5	-	4-516
S-C38	UNT to Painter Run	Monroe	Huntington	37.426915	-80.694499	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	89	-	0.0143	-	231	-	4-521
S-C39	Painter Run	Monroe	Huntington	37.426686	-80.694499	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	109	-	0.0125	-	202	-	4-521
S-C41	UNT to Painter Run	Monroe	Huntington	37.426161	-80.694592	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	143	-	0.0100	-	161	-	4-521
S-C40	UNT to Painter Run	Monroe	Huntington	37.425372	-80.693417	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Temporary Access Road	77	-	0.0053	-	26	-	4-521
S-Q12	UNT to Kimballton Branch	Giles	Norfolk	37.375311	-80.680878	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	86	-	0.0079	-	127	-	4-531
S-Q13	Kimballton Branch	Giles	Norfolk	37.374377	-80.682038	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	90	-	0.0310	-	500	-	4-532
S-P6	UNT to Stony Creek	Giles	Norfolk	37.362202	-80.688092	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	78	-	0.0107	-	173	-	4-535
S-S5-Braid-2	Stony Creek	Giles	Norfolk	37.360325	-80.684214	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0028	-	13	-	4-536
S-S5-Braid-1	Stony Creek	Giles	Norfolk	37.360276	-80.684193	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0032		16	-	4-536
S-S5	Stony Creek	Giles	Norfolk	37.360071	-80.683960	Perennial	RPW	Candy darter, Green floater, pistol grip, Natural	05050002	Timber Mat Crossing	40	-	0.0002	-	178		4-536
		Giles					NRPW	Trout, Coldwater Fishery, Stockable Trout				-					
S-G29	UNT to Dry Branch		Norfolk	37.350430	-80.658259	Ephemeral		•	05050002	Pipeline ROW	30		0.0028		13		4-541
S-G30	UNT to Dry Branch	Giles	Norfolk	37.350373	-80.658230	Ephemeral	NRPW	•	05050002	Pipeline ROW	85	-	0.0156	-	252	-	4-541
S-G32	Dry Branch	Giles	Norfolk	37.349095	-80.652040	Intermittent	RPW	-	05050002	Pipeline ROW	110	-	0.0152	-	244	-	4-542
S-G33	UNT to Dry Branch	Giles	Norfolk	37.348641	-80.647225	Perennial	RPW	-	05050002	Pipeline ROW	99	-	0.0182	-	293	-	4-542
S-G35	UNT to Little Stony Creek	Giles	Norfolk	37.344876	-80.633426	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	25	-	0.0115	-	69	-	4-544
S-SS4	UNT to Little Stony Creek	Giles	Norfolk	37.344859	-80.631295	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0014	-	7	-	4-544
S-G35		Giles	Norfolk	37.344779	-80.633379	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	25		0.0115		69		4-544

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-Z7	UNT to Little Stony Creek	Giles	Norfolk	37.344278	-80.626185	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0014	-	7	-	4-545
S-Z7-Braid-1	UNT to Little Stony Creek	Giles	Norfolk	37.344277	-80.626113	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0014	-	7	-	4-545
S-Z9	UNT to Little Stony Creek	Giles	Norfolk	37.344163	-80.628400	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0018	-	9	-	4-544
S-Z10	UNT to Little Stony Creek	Giles	Norfolk	37.342351	-80.620823	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0055	-	27	-	4-545
S-Z11	UNT to Little Stony Creek	Giles	Norfolk	37.342236	-80.620542	Perennial	RPW	Natural Trout, Coldwater Fishery, Stockable Trout	05050002	Timber Mat Crossing	20	-	0.0023	-	11	-	4-545
S-Z12-EPH	UNT to Little Stony Creek	Giles	Norfolk	37.342214	-80.620312	Ephemeral	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0028	-	13	-	4-545
S-Z13	Little Stony Creek	Giles	Norfolk	37.342172	-80.620090	Perennial	RPW	Natural Trout, Coldwater Fishery, Stockable Trout	05050002	Timber Mat Crossing	25	-	0.0115	-	69	-	4-545
S-Z14	UNT to Little Stony Creek	Giles	Norfolk	37.340977	-80.618031	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0018	-	9	-	4-545
S-YZ1	Doe Creek	Giles	Norfolk	37.338952	-80.614618	Intermittent	RPW	-	05050002	Temporary Access Road	102	-	0.0234	-	113	-	4-546
S-A34	UNT to Doe Creek	Giles	Norfolk	37.337763	-80.606008	Ephemeral	NRPW	-	05050002	Pipeline ROW	86	-	0.0138		223	-	4-548
S-A33	UNT to Doe Creek	Giles	Norfolk	37.337639	-80.605571	Ephemeral	NRPW	_	05050002	Pipeline ROW	111	-	0.0178		288	-	4-548
S-YZ1	Doe Creek	Giles	Norfolk	37.337562	-80.614711	Intermittent	RPW		05050002	Temporary Access Road	92	-	0.0211	-	102	-	4-546
S-YZ1	Doe Creek	Giles	Norfolk	37.337048	-80.614625	Intermittent	RPW		05050002	Temporary Access Road	121	-	0.0278		134	-	4-546
S-A32	UNT to Doe Creek	Giles	Norfolk	37.335094	-80.596868	Perennial	RPW		05050002	Pipeline ROW	78	-	0.0287	-	462	-	4-549
												-		-		-	
S-QQ2	Sinking Creek	Craig	Norfolk	37.333152	-80.429438	Perennial	RPW	Natural Trout, Coldwater Fishery, Stockable Trout	05050002	Temporary Access Road	40	-	0.0321	-	156	-	4-581
S-MN11-Upstream	UNT to Sinking Creek	Giles	Norfolk	37.332869	-80.559168	Ephemeral	NRPW	-	05050002	Temporary Access Road	15	-	0.0014	-	7	-	4-554
S-MN11-Upstream S-MN11-	UNT to Sinking Creek	Giles	Norfolk	37.332191	-80.559979	Ephemeral	NRPW	-	05050002	Temporary Access Road	30	-	0.0028	-	13	-	4-554
Downstream	UNT to Sinking Creek	Giles	Norfolk	37.332146	-80.560079	Ephemeral	NRPW	-	05050002	Temporary Access Road	37	-	0.0042	-	21	-	4-554
S-Y3	UNT to Doe Creek	Giles	Norfolk	37.331748	-80.583355	Ephemeral	NRPW	-	05050002	Timber Mat Crossing	20	-	0.0046	-	22	-	4-551
S-Y2	Doe Creek	Giles	Norfolk	37.331332	-80.583047	Perennial	RPW	-	05050002	Timber Mat Crossing	25	-	0.0115	-	69	-	4-551
S-PP4	UNT to Sinking Creek	Craig	Norfolk	37.328329	-80.422810	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	84	-	0.0039	-	62	-	4-579
S-PP3	UNT to Sinking Creek	Craig	Norfolk	37.326705	-80.425803	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	82	-	0.0056	-	91	-	4-579
S-RR4	UNT to Sinking Creek	Giles	Norfolk	37.326015	-80.556831	Perennial	RPW	-	05050002	Temporary Access Road	85	-	0.0059	-	28	-	4-556
S-E24	UNT to Sinking Creek	Giles	Norfolk	37.325728	-80.565082	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	81	-	0.0372	-	600	-	4-553
S-E25-Downstream	UNT to Sinking Creek	Giles	Norfolk	37.325638	-80.564680	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0037	-	18	-	4-553
S-E25-Upstream	UNT to Sinking Creek	Giles	Norfolk	37.325607	-80.564373	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	15	-	0.0034	-	17	-	4-553
S-E25-Downstream	UNT to Sinking Creek	Giles	Norfolk	37.325566	-80.564634	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0037	-	18	-	4-553
S-PP1	UNT to Sinking Creek	Craig	Norfolk	37.324781	-80.431446	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	86		0.0059	-	96	-	4-578
S-RR5	UNT to Sinking Creek	Giles	Norfolk	37.323702	-80.555627	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	83	-	0.0191	-	307	-	4-555
S-PA07	UNT to Sinking Creek	Giles	Norfolk	37.323533	-80.555257	Intermittent	RPW		05050002	Pipeline ROW	115	-	0.0053		85		4-555
S-IJ18-EPH	UNT to Sinking Creek	Giles	Norfolk	37.322737	-80.552396	Ephemeral	NRPW		05050002	Pipeline ROW	74	-	0.0102	-	164	-	4-555
S-IJ19		Giles	Norfolk	37.322194	-80.553058		NRPW		05050002		43	-	0.0039	-	19	-	4-555
S-IJ19	UNT to Sinking Creek	Giles		37.322194		Ephemeral				Temporary Access Road	45			-	4		4-555
	UNT to Sinking Creek		Norfolk		-80.55311	Ephemeral	NRPW	-	05050002	Temporary Access Road	-	-	0.0008	-		-	
S-IJ18-INT	UNT to Sinking Creek	Giles	Norfolk	37.321756	-80.553011	Intermittent	RPW	-	05050002	Temporary Access Road	44	-	0.0040	-	20	-	4-555
S-PP22	UNT to Craig Creek	Montgomery	Norfolk	37.321090	-80.412831	Intermittent	RPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	44	-	0.0040	-	20	-	4-584
S-0012	UNT to Sinking Creek	Giles	Norfolk	37.318956	-80.440648	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	25	-	0.0011	-	6	-	4-577
S-0013	UNT to Sinking Creek	Giles	Norfolk	37.318930	-80.440930	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	77	-	0.0354	-	570	-	4-577
S-0014	UNT to Sinking Creek	Giles	Norfolk	37.318647	-80.441619	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	86	-	0.0079	-	127	-	4-577
S-IJ17	UNT to Sinking Creek	Giles	Norfolk	37.318324	-80.547720	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	31	-	0.0057	-	28	-	4-558
S-IJ16-b	UNT to Sinking Creek	Giles	Norfolk	37.318246	-80.547711	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	78	-	0.0179	-	289	-	4-558
S-PP21	UNT to Craig Creek	Montgomery	Norfolk	37.317187	-80.409235	Perennial	RPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	20	-	0.0018	-	9	-	4-584
S-PP20	UNT to Craig Creek	Montgomery	Norfolk	37.316523	-80.408646	Perennial	RPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	20	-	0.0028	-	13	-	4-584
S-RR13	Craig Creek	Montgomery	Norfolk	37.314504	-80.402613	Perennial	RPW	Atlantic Pigtoe, Stockable Trout, Coldwater Fishery	02080201	Temporary Access Road	41	-	0.0329	-	159	-	4-585
S-HH18	UNT to Craig Creek	Montgomery	Norfolk	37.313910	-80.398683	Perennial	RPW	Atlatnic pigtoe, orangefin madtom Coldwater Fishery	02080201	Timber Mat Crossing	20	-	0.0028	-	13	-	4-586
S-RR14	UNT to Craig Creek	Montgomery	Norfolk	37.313615	-80.402521	Ephemeral	NRPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	20	-	0.0032	-	16	-	4-585
S-006	Craig Creek	Montgomery	Norfolk	37.313511	-80.404606	Perennial	RPW	Atlantic Pigtoe, Stockable Trout, Coldwater Fishery	02080201	Timber Mat Crossing	35	-	0.0161	-	136	-	4-585
S-QQ3	UNT to Sinking Creek	Giles	Norfolk	37.311869	-80.532365	Ephemeral	NRPW	-	05050002	Temporary Access Road	15	-	0.0007	-	3	-	4-560
S-IJ16-a	UNT to Sinking Creek	Giles	Norfolk	37.311730	-80.544091	Ephemeral	NRPW	-	05050002	Permanent Access Road	6	-	0.0010		5	-	4-559
S-IJ16-a	UNT to Sinking Creek	Giles	Norfolk	37.311730	-80.544091	Ephemeral	NRPW	-	05050002	Permanent Access Road		45	-	0.0072	-	35	4-559
S-NN17	Sinking Creek	Giles	Norfolk	37.311616	-80.515786	Perennial	RPW	Green floater, Non-listed mussels, Natural Trout,	05050002	Timber Mat Crossing	55	-	0.0253	-	336	-	4-564
S-KL43	UNT to Sinking Creek	Giles	Norfolk	37.307524	-80.466665	Perennial	RPW	Coldwater Fishery, Stockable Trout Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	75	-	0.0172	-	278	-	4-573
S-NL43	UNT to Sinking Creek	Giles	Norfolk	37.307524	-80.466003	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	84	-	0.0096		156		4-573
S-NN12	UNT to Sinking Creek	Giles	Norfolk	37.300454	-80.472911	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	88	-	0.0040	-	65	-	4-571
S-MN21	UNT to Mill Creek	Montgomery	Norfolk	37.299397	-80.391243	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery		Pipeline ROW	80	-	0.0129	-	207	-	4-588
S-MM17	UNT to Sinking Creek	Giles	Norfolk	37.298226	-80.480624	Perennial	RPW	-	05050002	Temporary Access Road	49	-	0.0022	-	11	-	4-569
S-MN22	UNT to Mill Creek	Montgomery	Norfolk	37.297166	-80.386612	Ephemeral	NRPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	96	-	0.0044	-	71	-	4-589
S-RR2	Greenbriar Branch	Giles	Norfolk	37.296666	-80.494174	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0037	-	18	-	4-567
	UNT to Greenbriar Branch	Giles	Norfolk	37.296612	-80.494165	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	0.0028	-	13	-	4-567
S-YZ6		01100															

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-MM18	UNT to Sinking Creek	Giles	Norfolk	37.296226	-80.481455	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	88	-	0.0101		163	-	4-569
S-IJ52	UNT to Mill Creek	Montgomery	Norfolk	37.296153	-80.367510	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	84	-	0.0309	-	498	-	4-591
S-EF65	Mill Creek	Montgomery	Norfolk	37.295743	-80.375921	Intermittent	RPW	Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery, Stockable Trout	03010101	Pipeline ROW	152	-	0.0209	-	338	-	4-590
S-G36	North Fork Roanoke River	Montgomery	Norfolk	37.268586	-80.313161	Perennial	RPW	Roanoke logperch, Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery	03010101	Temporary Access Road	26	-	0.0119	-	58	-	4-602
S-G38	UNT to North Fork Roanoke River	Montgomery	Norfolk	37.267002	-80.312898	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-603
S-G40	UNT to North Fork Roanoke River	Montgomery	Norfolk	37.264882	-80.307302	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-603
S-PP23	UNT to North Fork Roanoke River	Montgomery	Norfolk	37.264858	-80.307151	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0011	-	6	-	4-604
S-G39	UNT to North Fork Roanoke River	Montgomery	Norfolk	37.264817	-80.308486	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	82		0.0113	-	182	-	4-604
S-MM14	UNT to Flatwoods Branch	Montgomery	Norfolk	37.258717	-80.293210	Ephemeral	NRPW	-	03010101	Pipeline ROW	105	-	0.0169	-	272	-	4-608
S-MM15	UNT to Flatwoods Branch	Montgomery	Norfolk	37.258673	-80.296446	Intermittent	RPW	-	03010101	Pipeline ROW	82	-	0.0113	-	182	-	4-608
S-MM11	UNT to Flatwoods Branch	Montgomery	Norfolk	37.258403	-80.288186	Ephemeral	NRPW	-	03010101	Pipeline ROW	80		0.0147		237	-	4-609
S-F15	UNT to Flatwoods Branch	Montgomery	Norfolk	37.258198	-80.286029	Intermittent	RPW	-	03010101	Pipeline ROW	129		0.0178	-	287	-	4-609
S-MM13	UNT to Flatwoods Branch	Montgomery	Norfolk	37.258176	-80.289222	Ephemeral	NRPW	-	03010101	Pipeline ROW	85	-	0.0098		157	-	4-608
S-F16a/F16b	UNT to Flatwoods Branch	Montgomery	Norfolk	37.257998	-80.284735	Ephemeral	NRPW	-	03010101	Pipeline ROW	81		0.0056		90		4-609
S-C36	UNT to Flatwoods Branch	Montgomery	Norfolk	37.257260	-80.281611	Intermittent	RPW		03010101	Pipeline ROW	96		0.0066		107		4-609
S-C36	UNT to Flatwoods Branch			37.257133			RPW		03010101	•	36		0.0025	-	40	-	4-609
		Montgomery	Norfolk		-80.281475	Intermittent				Pipeline ROW		-		-		-	
S-MM31	UNT to Flatwoods Branch	Montgomery	Norfolk	37.256959	-80.280329	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-609
S-C29	Flatwoods Branch	Montgomery	Norfolk	37.256387	-80.278021	Ephemeral	NRPW	-	03010101	Pipeline ROW	46	-	0.0013	-	20	-	4-610
S-C25	UNT to Bradshaw Creek	Montgomery	Norfolk	37.254342	-80.267895	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	115	-	0.0079	-	128	-	4-611
S-C24	UNT to Bradshaw Creek	Montgomery	Norfolk	37.254135	-80.266743	Intermittent	RPW	Natural Trout, Coldwater Fishery Roanoke logperch, Orangefin madtom, Natural	03010101	Pipeline ROW	108	-	0.0074	-	120	-	4-611
S-C21	Bradshaw Creek	Montgomery	Norfolk	37.251791	-80.258990	Perennial	RPW	Trout, Coldwater Fishery	03010101	Timber Mat Crossing	25	-	0.0115	-	69	-	4-613
S-NN19	UNT to Roanoke River	Montgomery	Norfolk	37.244319	-80.206995	Intermittent	RPW	-	03010101	Pipeline ROW	76	-	0.0061	-	99	-	4-627
S-AB16	UNT to Roanoke River	Montgomery	Norfolk	37.231693	-80.198778	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0023	-	11	-	4-631
S-I1	UNT to Roanoke River	Montgomery	Norfolk	37.231179	-80.198460	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0064	-	31	-	4-631
S-CD12b	UNT to South Fork Roanoke River	Montgomery	Norfolk	37.229764	-80.201144	Perennial	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0028	-	13	-	4-631
S-EF19	UNT to Indian Run	Montgomery	Norfolk	37.216102	-80.197390	Ephemeral	NRPW	Warmwater Fishery, Tier 2	03010101	Pipeline ROW	79	-	0.0091	-	146	-	4-634
S-EF20a	UNT to Roanoke River	Montgomery	Norfolk	37.210922	-80.193318	Perennial	RPW	Orangefin madtom, Non-listed mussels	03010101	Pipeline ROW	80	-	0.0110	-	178	-	4-635
S-MM22	UNT to Roanoke River	Montgomery	Norfolk	37.205284	-80.187282	Perennial	RPW	Orangefin madtom, Non-listed mussels	03010101	Pipeline ROW	175	-	0.0603	-	972	-	4-637
S-IJ50	UNT to Roanoke River	Roanoke	Norfolk	37.194064	-80.167933	Perennial	RPW	Orangefin madtom, Non-listed mussels	03010101	Pipeline ROW	77	-	0.0442	-	713	-	4-641
S-Y13	UNT to Bottom Creek	Roanoke	Norfolk	37.187687	-80.151146	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	85	-	0.0156	-	252	-	4-644
S-Y14	UNT to Bottom Creek	Roanoke	Norfolk	37.187568	-80.151049	Perennial	RPW	Orangefin madtom, Non-listed mussels, Natural Trout. Coldwater Fishery	03010101	Pipeline ROW	77	-	0.0247	-	399	-	4-644
S-EF57	UNT to Bottom Creek	Roanoke	Norfolk	37.181736	-80.148948	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Temporary Access Road	42	-	0.0077		37	-	4-645
S-EF55	UNT to Bottom Creek	Roanoke	Norfolk	37.181506	-80.149497	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	33	-	0.0061		98	-	4-645
S-EF34b	UNT to Bottom Creek	Roanoke	Norfolk	37.181385	-80.149140	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	81		0.0186	-	300	-	4-645
S-EF33	UNT to Bottom Creek	Roanoke	Norfolk	37.179186	-80.141000	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	148	-	0.0306	-	493	-	4-647
S-IJ82	UNT to Bottom Creek	Roanoke	Norfolk	37.170458	-80.138216	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0069	-	33	-	4-648
S-IJ85	UNT to Bottom Creek	Roanoke	Norfolk	37.169474	-80.130356	Perennial	RPW	Natural Trout, Coldwater Fishery	03010101	Permanent Access Road	-	50	-	0.0092	-	44	4-650
S-IJ83	UNT to Bottom Creek	Boanoke	Norfolk	37.169211	-80.138258	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	148		0.0170		82		4-649
S-IJ88	Bottom Creek	Roanoke	Norfolk	37.168395	-80.138295	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery		Timber Mat Crossing	30	-	0.0450		726	-	4-649
S-IJ84	UNT to Bottom Creek	Roanoke	Norfolk	37.168361	-80.138381	Perennial	RPW			-			0.0430	-	58		4-649
								Orangefin madtom, Natural Trout, Coldwater Fishery		Timber Mat Crossing	35	-		-		-	
S-IJ89	UNT to Bottom Creek	Roanoke	Norfolk	37.165862	-80.139317	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0046	-	22	-	4-649
S-IJ90	UNT to Bottom Creek	Roanoke	Norfolk	37.165685	-80.139378	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0023	-	11	-	4-649
S-KL25	UNT to Mill Creek	Roanoke	Norfolk	37.160173	-80.134799	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	82	-	0.0094	-	152	-	4-651
S-ST9b	UNT to Mill Creek	Roanoke	Norfolk	37.154424	-80.129179	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery		Timber Mat Crossing	20	-	0.0069	-	33	-	4-652
S-KL55	UNT to Mill Creek	Roanoke	Norfolk	37.150009	-80.13246	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0069	-	33	-	4-653
S-IJ12	UNT to Mill Creek	Roanoke	Norfolk	37.148333	-80.133919	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery		Timber Mat Crossing	20	-	0.0060	-	29	-	4-653
S-EF44	UNT to Bottom Creek	Roanoke	Norfolk	37.143003	-80.138399	Intermittent	RPW	Natural Trout, Coldwater Fishery Orangefin madtom, Stockable Trout, Natural Trout,	03010101	Timber Mat Crossing	20	-	0.0032	-	16	-	4-654
S-IJ43	Mill Creek	Roanoke	Norfolk	37.138636	-80.139715	Perennial	RPW	Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0083	-	40	-	4-655
S-Y9	UNT to Mill Creek	Roanoke	Norfolk	37.134576	-80.137649	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	44	-	0.0040	-	20	-	4-656
S-Y7	UNT to Mill Creek	Roanoke	Norfolk	37.134481	-80.137622	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	32	-	0.0029	-	14	-	4-656
S-Y8	UNT to Mill Creek	Roanoke	Norfolk	37.134176	-80.137484	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-656
S-B22	UNT to Mill Creek	Roanoke	Norfolk	37.128922	-80.133769	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-659
S-B23	UNT to Mill Creek	Roanoke	Norfolk	37.128853	-80.133910	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	14	-	0.0006	-	3	-	4-659
S-B25	UNT to Mill Creek	Roanoke	Norfolk	37.128490	-80.132601	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	76	-	0.0087	-	42	-	4-659
S-B21	UNT to Mill Creek	Roanoke	Norfolk	37.128484	-80.130943	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	92	-	0.0084	-	136	-	4-659
S-H1	Green Creek	Franklin	Norfolk	37.127733	-80.116787	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	0.0046	-	22	-	4-661
S-G26	UNT to Green Creek	Franklin	Norfolk	37.127077	-80.111387	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0032	-	16	-	4-662
S-G27	UNT to Green Creek	Franklin	Norfolk	37.126962	-80.111052	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0032	-	16	-	4-662
S-G24	UNT to Green Creek	Franklin	Norfolk	37.126412	-80.121398	Intermittent	RPW	-	03010101	Pipeline ROW	75	-	0.0103	-	167	-	4-661
L		1	L	1	1	1	1	1			1	1	1	L	1	1	

S-G25			USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres)⁵	Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
0-020	UNT to Green Creek	Franklin	Norfolk	37.125398	-80.121401	Intermittent	RPW	-	03010101	Pipeline ROW	42	-	0.0067	-	33	-	4-661
S-RR18	UNT to Green Creek	Franklin	Norfolk	37.125055	-80.113578	Intermittent	RPW	-	03010101	Permanent Access Road	8	-	0.0004	-	2	-	4-662
S-D11	UNT to North Fork Blackwater River	Franklin	Norfolk	37.124137	-80.086182	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0046	-	22	-	4-666
S-D8	North Fork Blackwater River	Franklin	Norfolk	37.123098	-80.074673	Perennial	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	78	-	0.0216	-	349	-	4-667
S-D12	UNT to North Fork Blackwater	Franklin	Norfolk	37.121558	-80.085642	Intermittent	RPW	-	03010101	Pipeline ROW	54	-	0.0074	-	120	-	4-666
S-D13	River UNT to North Fork Blackwater	Franklin	Norfolk	37.121513	-80.085680	Intermittent	RPW	-	03010101	Pipeline ROW	117	-	0.0107	-	173	-	4-666
S-D14	River UNT to North Fork Blackwater River	Franklin	Norfolk	37.121473	-80.088457	Intermittent	RPW		03010101	Pipeline ROW	234		0.0161		260		4-666
	UNT to North Fork Blackwater						RPW									-	
S-114	River UNT to North Fork Blackwater	Franklin	Norfolk	37.115679	-80.060300	Perennial		Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0069	-	33	-	4-670
S-GH7	River UNT to North Fork Blackwater	Franklin	Norfolk	37.106614	-80.054219	Perennial	RPW	-	03010101	Timber Mat Crossing	20	-	0.0041	-	20	-	4-672
S-GH15	River UNT to North Fork Blackwater	Franklin	Norfolk	37.106177	-80.050105	Intermittent	RPW	-	03010101	Pipeline ROW	75	-	0.0069	-	111	-	4-674
S-GH14	River	Franklin	Norfolk	37.105883	-80.048861	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76	-	0.0070	-	113	-	4-674
S-GH11	UNT to North Fork Blackwater River	Franklin	Norfolk	37.104707	-80.046220	Intermittent	RPW	-	03010101	Pipeline ROW	77	-	0.0053	-	86	-	4-674
S-GH9	UNT to North Fork Blackwater River	Franklin	Norfolk	37.104329	-80.045343	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	78	-	0.0072	-	116	-	4-674
S-RR08	UNT to North Fork Blackwater River	Franklin	Norfolk	37.103290	-80.041868	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	0.0032	-	16	-	4-674
S-RR09	UNT to North Fork Blackwater River	Franklin	Norfolk	37.102491	-80.041046	Ephemeral	NRPW	-	03010101	Pipeline ROW	77	-	0.0159	-	257	-	4-675
S-RR11	UNT to North Fork Blackwater	Franklin	Norfolk	37.101127	-80.039653	Ephemeral	NRPW	-	03010101	Pipeline ROW	77	-	0.0124	-	200	-	4-675
S-IJ1	River UNT to North Fork Blackwater	Franklin	Norfolk	37.093062	-80.027724	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	107	-	0.0295	-	476	-	4-677
S-IJ2	River UNT to North Fork Blackwater	Franklin	Norfolk	37.092891	-80.027593	Intermittent	RPW	-	03010101	Pipeline ROW	40	-	0.00233	-	37	-	4-677
	River									•							
S-116	UNT to Little Creek UNT to North Fork Blackwater	Franklin	Norfolk	37.092697	-79.978402	Intermittent	NRPW	-	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-685
S-IJ3	River	Franklin	Norfolk	37.092600	-80.027231	Intermittent	RPW		03010101	Pipeline ROW	77	-	0.0088	-	143	-	4-677
S-GH6	UNT to Little Creek	Franklin	Norfolk	37.092397	-79.983227	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-684
S-II12	UNT to Little Creek	Franklin	Norfolk	37.091608	-79.987839	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0009	-	4	-	4-684
S-II11	UNT to Little Creek	Franklin	Norfolk	37.091564	-79.988051	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-684
S-118	UNT to Little Creek	Franklin	Norfolk	37.091413	-79.993944	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0009	-	4	-	4-683
S-119	UNT to Little Creek	Franklin	Norfolk	37.091382	-79.990620	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0092	-	44	-	4-683
S-117	UNT to Little Creek	Franklin	Norfolk	37.091354	-79.992013	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-683
S-IJ4	UNT to North Fork Blackwater	Franklin	Norfolk	37.091189	-80.024366	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-677
S-KL2	River UNT to Little Creek	Franklin	Norfolk	37.090361	-79.996354	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0017		8	-	4-682
S-GH2	UNT to Teels Creek	Franklin	Norfolk	37.090153	-79.953936	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0009		4		4-689
S-GH4	UNT to Teels Creek	Franklin	Norfolk	37.089812		Perennial	RPW		03010101				0.0023	-	11	-	4-688
					-79.956077					Timber Mat Crossing	20			-		-	
S-GH3	UNT to Teels Creek	Franklin	Norfolk	37.089745	-79.956042	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0028	-	13	-	4-688
S-IJ10	Little Creek	Franklin	Norfolk	37.089179	-80.005026	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-681
S-E29	UNT to Teels Creek	Franklin	Norfolk	37.089178	-79.950110	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	80	-	0.0147	-	237	-	4-689
S-E28	Teels Creek	Franklin	Norfolk	37.089047	-79.9613	Perennial	RPW	-	03010101	Pipeline ROW	82	-	0.0226	-	364	-	4-687
S-E28	Teels Creek	Franklin	Norfolk	37.085247	-79.948057	Perennial	RPW	-	03010101	Pipeline ROW	76	-	0.0209	-	338	-	4-687
S-E28	Teels Creek	Franklin	Norfolk	37.082875	-79.945556	Perennial	RPW	-	03010101	Pipeline ROW	101	-	0.0278	-	449	-	4-687
S-EF4	UNT to Teels Creek	Franklin	Norfolk	37.078963	-79.941911	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	80	-	0.0202	-	326	-	4-691
S-EF7	UNT to Teels Creek	Franklin	Norfolk	37.074664	-79.941123	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	0.0009	-	4	-	4-692
S-EF7	UNT to Teels Creek	Franklin	Norfolk	37.074636	-79.941336	Ephemeral	NRPW	-	03010101	ATWS	22	-	0.0010	-	5	-	4-692
S-EF12	Teels Creek	Franklin	Norfolk	37.073367	-79.939865	Perennial	RPW	-	03010101	Pipeline ROW	79		0.0363	-	585	-	4-692
S-MM42	UNT to Teels Creek	Franklin	Norfolk	37.070703	-79.937069	Ephemeral	NRPW	-	03010101	Pipeline ROW	81	-	0.0037		60	-	4-693
S-D23	Teels Creek	Franklin	Norfolk	37.070322	-79.931039	Perennial	RPW		03010101	Pipeline ROW	92	-	0.0479		772		4-694
S-D22	UNT to Teels Creek	Franklin	Norfolk	37.070101	-79.929732	Intermittent	RPW	-	03010101	Pipeline ROW	83	-	0.0152	-	246	-	4-694
S-D18	UNT to Teels Creek	Franklin	Norfolk	37.069560	-79.926213	Ephemeral	NRPW	-	03010101	Pipeline ROW	30	-	0.0014	-	7	-	4-694
S-RR15	UNT to Teels Creek	Franklin	Norfolk	37.069542	-79.933892	Perennial	RPW		03010101	Timber Mat Crossing	20	-	0.0006	-	31	-	4-694
S-D20	UNT to Teels Creek	Franklin	Norfolk	37.069485	-79.926230	Intermittent	RPW	-	03010101	Pipeline ROW	76	-	0.0140	-	225	-	4-694
S-EF48	UNT to Blackwater River	Franklin	Norfolk	37.064748	-79.874420	Intermittent	RPW		03010101	Pipeline ROW	86	-	0.0039	-	64	-	4-705
S-YZ4	UNT to Blackwater River	Franklin	Norfolk	37.064723	-79.878190	Ephemeral	NRPW	-	03010101	Pipeline ROW	84	-	0.0058	-	93	-	4-704
S-C14	Teels Creek	Franklin	Norfolk	37.063956	-79.921985	Perennial	RPW		03010101	Pipeline ROW	90	-	0.0839	-	1,353	-	4-696
S-YZ5	UNT to Blackwater River	Franklin	Norfolk	37.063464	-79.878281	Ephemeral	NRPW		03010101	Pipeline ROW	86	-	0.0079	-	127	-	4-704
S-KL41	UNT to Blackwater River	Franklin	Norfolk	37.062262	-79.862639	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	75	-	0.0207	-	333	-	4-706
S-KL39	UNT to Blackwater River	Franklin	Norfolk	37.061193	-79.880018	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	121	-	0.0181		291	-	4-704
S-C16	UNT to Teels Creek	Franklin	Norfolk	37.060610	-79.921179	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0069		33	_	4-696
S-KL54	UNT to Maggodee Creek	Franklin	Norfolk	37.059535	-79.840624	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76	-	0.0009	-	281		4-090
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S-C8	UNT to Blackwater River	Franklin	Norfolk	37.059098	-79.853595	Intermittent	RPW	-	03010101	Pipeline ROW	86	-	0.0099	-	159	-	4-708
S-F4	UNT to Blackwater River	Franklin	Norfolk	37.059060	-79.853379	Ephemeral	NRPW		03010101	Pipeline ROW	82	-	0.0188	-	91	-	4-708
S-C17	Teels Creek	Franklin	Norfolk	37.058390	-79.918015	Perennial	RPW		03010101	Timber Mat Crossing	30	-	0.0138	-	100	-	4-696
S-KL52	UNT to Maggodee Creek	Franklin	Norfolk	37.058165	-79.844877	Ephemeral	NRPW	-	03010101	Pipeline ROW	105	-	0.0024	-	39	-	4-709
S-S11	UNT to Maggodee Creek	Franklin	Norfolk	37.057776	-79.838583	Perennial	RPW	-	03010101	Temporary Access Road	41	-	0.0104	-	50	-	4-710

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-F8	UNT to Maggodee Creek	Franklin	Norfolk	37.057724	-79.836406	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	83	-	0.0572	-	922	-	4-710
S-CD6	Little Creek	Franklin	Norfolk	37.057584	-79.913921	Perennial	RPW	-	03010101	Pipeline ROW	77		0.1016	-	1,639	-	4-698
S-HH4	UNT to Maggodee Creek	Franklin	Norfolk	37.056594	-79.835785	Intermittent	RPW	-	03010101	Pipeline ROW	97		0.0200	-	323	-	4-711
S-KL51	UNT to Blackwater River	Franklin	Norfolk	37.056084	-79.850384	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	67		0.0085		136	-	4-708
S-KL38	UNT to Blackwater River	Franklin	Norfolk	37.055912	-79.883177	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	78		0.0125	-	202	-	4-702
S-C20	UNT to Maggodee Creek	Franklin	Norfolk	37.055193	-79.833881	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-711
S-C19	Maggodee Creek	Franklin	Norfolk	37.055147	-79.830098	Perennial	RPW		03010101	Pipeline ROW	75		0.0690	-	1,113	-	4-711
S-KL36	UNT to Blackwater River	Franklin	Norfolk	37.053336	-79.884604	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20		0.0034	-	17	-	4-702
S-F11	Blackwater River	Franklin	Norfolk	37.052843	-79.825711	Perennial	TNW	Non-listed mussels	03010101	Pipeline ROW	91		0.1553		2,506	-	4-712
S-KL35	UNT to Blackwater River	Franklin	Norfolk	37.052125	-79.886182	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	35		0.0020		10	-	4-702
S-F9b	UNT to Blackwater River	Franklin	Norfolk	37.049238	-79.817223	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76		0.0262		422	-	4-713
S-112	Little Creek	Franklin	Norfolk	37.049219	-79.908513	Perennial	RPW		03010101	Pipeline ROW	76		0.0745		1,203	-	4-699
S-F10	UNT to Blackwater River	Franklin	Norfolk	37.048037	-79.813934	Ephemeral	NRPW		03010101	Timber Mat Crossing	20		0.0041		20	-	4-713
S-CD1	UNT to Blackwater River	Franklin	Norfolk	37.047765	-79.897636	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	104		0.0041	-	135	-	4-701
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S-F9a	UNT to Blackwater River	Franklin	Norfolk	37.047172	-79.813000	Intermittent	RPW	•	03010101	Timber Mat Crossing	20	-	0.0069	•	33	-	4-713
S-MM29	UNT to Maple Branch	Franklin	Norfolk	37.043871	-79.822898	Perennial	RPW	-	03010101	Temporary Access Road	42	•	0.0145	•	70	-	4-714
S-MM23	Maple Branch	Franklin	Norfolk	37.043854	-79.822974	Perennial	RPW	-	03010101	Temporary Access Road	78		0.0358	-	173	-	4-714
S-GG4	UNT to Blackwater River	Franklin	Norfolk	37.042742	-79.809015	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	0.0046	-	22	-	4-716
S-A36	UNT to Foul Ground Creek	Franklin	Norfolk	37.037916	-79.804237	Ephemeral	NRPW	-	03010101	Pipeline ROW	77	-	0.0071	-	114	-	4-717
S-A38	UNT to Foul Ground Creek	Franklin	Norfolk	37.036271	-79.799442	Intermittent	RPW	-	03010101	Timber Mat Crossing	30	-	0.0062	-	30	-	4-718
S-A40	UNT to Foul Ground Creek	Franklin	Norfolk	37.036173	-79.799240	Intermittent	RPW		03010101	Timber Mat Crossing	13	-	0.0017	-	8	-	4-718
S-A41	Foul Ground Creek	Franklin	Norfolk	37.031714	-79.788213	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76	-	0.0209	-	338	-	4-720
S-GH36	UNT to Foul Ground Creek	Franklin	Norfolk	37.031063	-79.778588	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-721
S-KL17	UNT to Foul Ground Creek	Franklin	Norfolk	37.031011	-79.778435	Intermittent	RPW	-	03010101	Timber Mat Crossing	20		0.0023		11	-	4-721
S-GH37	UNT to Foul Ground Creek	Franklin	Norfolk	37.030974	-79.778190	Intermittent	RPW	-	03010101	Pipeline ROW	46	-	0.0032		15	-	4-721
S-GH38	UNT to Foul Ground Creek	Franklin	Norfolk	37.030972	-79.778083	Intermittent	RPW	-	03010101	Pipeline ROW	7		0.0005	-	2	-	4-721
S-GH39	UNT to Foul Ground Creek	Franklin	Norfolk	37.030861	-79.778069	Intermittent	RPW	-	03010101	Pipeline ROW	103	-	0.0095	-	153	-	4-721
S-GH40	UNT to Foul Ground Creek	Franklin	Norfolk	37.028893	-79.774785	Ephemeral	NRPW	-	03010101	Pipeline ROW	89	-	0.0061	-	99	-	4-721
S-GH44	UNT to Foul Ground Creek	Franklin	Norfolk	37.028392	-79.773359	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	103		0.0142	-	69	-	4-721
S-G22	UNT to Poplar Camp Creek	Franklin	Norfolk	37.019612	-79.761958	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	80		0.0220		356	-	4-723
S-G23	UNT to Poplar Camp Creek	Franklin	Norfolk	37.019526	-79.762002	Intermittent	RPW		03010101	Pipeline ROW	42	-	0.0029	-	14	-	4-723
S-G21	UNT to Poplar Camp Creek	Franklin	Norfolk	37.019359	-79.761643	Intermittent	RPW	-	03010101	Pipeline ROW	54	-	0.0037	-	18	-	4-723
S-G20	Poplar Camp Creek	Franklin	Norfolk	37.017364	-79.760000	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20		0.0046		22	-	4-724
S-G18	UNT to Blackwater River	Franklin	Norfolk	37.009236	-79.754238	Intermittent	RPW		03010101	Pipeline ROW	81		0.0037		60	-	4-725
S-G17	UNT to Blackwater River	Franklin	Norfolk	37.005496	-79.752655	Ephemeral	NRPW		03010101	Timber Mat Crossing	20		0.0023	-	11	_	4-726
										-	94			•		-	
S-E18	UNT to Blackwater River	Franklin	Norfolk	37.001271	-79.747749	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW		-	0.0151	-	244	-	4-727
S-E17	UNT to Blackwater River	Franklin	Norfolk	37.000529	-79.742760	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	95	•		•	281	-	4-727
S-E14	UNT to Blackwater River	Franklin	Norfolk	36.995814	-79.735144	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	82	•	0.0376	•	607	-	4-728
S-H38	UNT to Jacks Creek	Franklin	Norfolk	36.989430	-79.722366	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0055	-	27	-	4-730
S-H32	UNT to Jacks Creek	Franklin	Norfolk	36.988273	-79.708199	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0046	-	22	-	4-732
S-H37	UNT to Jacks Creek	Franklin	Norfolk	36.988031	-79.717450	Ephemeral	NRPW	-	03010101	Pipeline ROW	82	-	0.0113	-	182	-	4-731
S-H34	UNT to Jacks Creek	Franklin	Norfolk	36.988009	-79.711881	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-732
S-H36	UNT to Jacks Creek	Franklin	Norfolk	36.988008	-79.714922	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0014	-	7	-	4-731
S-H30	UNT to Jacks Creek	Franklin	Norfolk	36.987961	-79.702711	Intermittent	RPW		03010101	Pipeline ROW	4	-	0.0001	-	1	-	4-734
S-A18	UNT to Jacks Creek	Franklin	Norfolk	36.987818	-79.700634	Intermittent	RPW		03010101	Pipeline ROW	87	-	0.0052	-	84	-	4-734
S-A19/H26	UNT to Jacks Creek	Franklin	Norfolk	36.987719	-79.698901	Intermittent	RPW	-	03010101	Pipeline ROW	212	-	0.0341	-	550	-	4-734
S-A20	UNT to Jacks Creek	Franklin	Norfolk	36.987715	-79.698555	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0032	-	16	-	4-734
S-H28	UNT to Jacks Creek	Franklin	Norfolk	36.985174	-79.692272	Ephemeral	NRPW		03010101	Pipeline ROW	16	-	0.0022	-	11	-	4-735
S-H27	UNT to Jacks Creek	Franklin	Norfolk	36.985124	-79.692272	Ephemeral	NRPW		03010101	Pipeline ROW	36	-	0.0083	-	40	-	4-735
S-A22	UNT to Jacks Creek	Franklin	Norfolk	36.984846	-79.691870	Intermittent	RPW		03010101	Timber Mat Crossing	20		0.0037	-	18	-	4-735
S-MM44	UNT to Little Jacks Creek	Franklin	Norfolk	36.982507	-79.687818	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0018	-	9	-	4-735
S-MM46	UNT to Little Jacks Creek	Franklin	Norfolk	36.982240	-79.687500	Intermittent	RPW		03010101	Timber Mat Crossing	9		0.0006	-	3	-	4-735
S-MM45	UNT to Little Jacks Creek	Franklin	Norfolk	36.981971	-79.686901	Ephemeral	NRPW		03010101	Timber Mat Crossing	33		0.0030	-	15	-	4-735
S-MM48	UNT to Little Jacks Creek	Franklin	Norfolk	36.979223	-79.684192	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	25	-	0.0040	-	19	-	4-736
S-H25	Little Jacks Creek	Franklin	Norfolk	36.978529	-79.682186	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20		0.0032		16	-	4-736
S-H24	UNT to Little Jacks Creek	Franklin	Norfolk	36.978025	-79.680682	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20		0.0046		22	-	4-736
S-H23	UNT to Turkey Creek	Franklin	Norfolk	36.976421	-79.677525	Ephemeral	NRPW	-	03010101	Pipeline ROW	92		0.0106		170		4-738
S-H23 S-HH1	UNT to Turkey Creek	Franklin	Norfolk	36.976421	-79.677453	Ephemeral	NRPW	· · ·	03010101		92	-	0.0106	-	170		4-738
		Franklin								Pipeline ROW				-		-	
S-A13	Turkey Creek	Franklin	Norfolk	36.973282	-79.673075	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0037	-	18	-	4-738

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-A11	UNT to Turkey Creek	Franklin	Norfolk	36.973237	-79.669898	Ephemeral	NRPW	-	03010101	Pipeline ROW	55	-	0.0038	-	18	-	4-740
S-H17	Dinner Creek	Franklin	Norfolk	36.972125	-79.662987	Intermittent	RPW	-	03010101	Pipeline ROW	101	-	0.0185		299	-	4-741
S-A7	UNT to Dinner Creek	Franklin	Norfolk	36.972032	-79.662504	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0028	-	13	-	4-741
S-SS8	Polecat Creek	Franklin	Norfolk	36.970904	-79.657370	Perennial	RPW	Orangefin madtom,	03010101	Timber Mat Crossing	20	-	0.0037		18	-	4-741
S-CD8	UNT to Owens Creek	Franklin	Norfolk	36.970522	-79.653726	Intermittent	RPW	-	03010101	Pipeline ROW	78	-	0.0081		130	-	4-742
S-AB8	UNT to Owens Creek	Franklin	Norfolk	36.970133	-79.651328	Intermittent	RPW	-	03010101	Pipeline ROW	84	-	0.0077		124	-	4-742
S-DD3	Owens Creek	Franklin	Norfolk	36.969118	-79.645042	Intermittent	RPW	Orangefin madtom	03010101		20		0.0069		33	_	4-743
							RPW			Timber Mat Crossing		-				-	
S-G16	Strawfield Creek	Franklin	Norfolk	36.968640	-79.642174	Perennial		Orangefin madtom	03010101	Timber Mat Crossing	30	-	0.0138	•	100	-	4-743
S-G15	UNT to Parrot Branch	Franklin	Norfolk	36.967711	-79.636590	Intermittent	RPW	-	03010101	Pipeline ROW	88	-	0.0182		293	-	4-744
S-G13	Parrot Branch	Franklin	Norfolk	36.967025	-79.630747	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0037		18	-	4-744
S-D3	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.965631	-79.605542	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0046	-	22	-	4-747
S-D4	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.965600	-79.604894	Intermittent	RPW	-	03010101	Pipeline ROW	105	-	0.0145	-	233	-	4-747
S-D2	Jonnikin Creek	Pittsylvania	Norfolk	36.965405	-79.599130	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0083	-	40	-	4-748
S-D7	UNT to Jonnikin Creek	Franklin	Norfolk	36.964763	-79.617043	Intermittent	RPW	-	03010101	Pipeline ROW	80	-	0.0147	-	237	-	4-746
S-D1-EPH	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.964430	-79.595691	Ephemeral	NRPW	-	03010101	Pipeline ROW	61	-	0.0140	-	226	-	4-748
S-D1-INT	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.964407	-79.595841	Intermittent	RPW	-	03010101	Pipeline ROW	29	-	0.0067	-	32	-	4-748
S-G11	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.962420	-79.590500	Intermittent	RPW	-	03010101	Pipeline ROW	77	-	0.0106	-	171	-	4-749
S-G9	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.959361	-79.586437	Intermittent	RPW	-	03010101	Pipeline ROW	79	-	0.0073		117	-	4-751
		-						-		•							
S-G8	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.957805	-79.583545	Intermittent	RPW	-	03010101	Pipeline ROW	90	-	0.0083	-	133	-	4-751
S-Q15	UNT to Jonnikin Creek	Pittsylvania	Norfolk	36.957580	-79.583492	Ephemeral	NRPW	-	03010101	Pipeline ROW	103	-	0.0118	-	191	-	4-751
S-A6	UNT to Rocky Creek	Pittsylvania	Norfolk	36.952275	-79.580460	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0023	-	11	-	4-750
S-H11-Braid	UNT to Rocky Creek	Pittsylvania	Norfolk	36.949615	-79.579553	Ephemeral	NRPW	-	03010101	Pipeline ROW	85	-	0.0039	-	19	-	4-750
S-F2	UNT to Rocky Creek	Pittsylvania	Norfolk	36.944049	-79.571442	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	0.0032	-	16	-	4-753
S-C7	UNT to Rocky Creek	Pittsylvania	Norfolk	36.944016	-79.571517	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0092	-	44	-	4-753
S-C3	Harpen Creek	Pittsylvania	Norfolk	36.929762	-79.526109	Perennial	RPW	Roanoke logperch, Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0083	-	40	-	4-758
S-C4	UNT to Harpen Creek	Pittsylvania	Norfolk	36.929745	-79.526290	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	58	-	0.0053	-	26	-	4-758
S-H13	Harpen Creek	Pittsylvania	Norfolk	36.925105	-79.517350	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	77	-	0.0354	-	570	-	4-759
S-G6	UNT to Harpen Creek	Pittsylvania	Norfolk	36.920737	-79.505898	Intermittent	RPW	-	03010101	Pipeline ROW	80	-	0.0110		178	-	4-761
S-G5	UNT to Harpen Creek	Pittsylvania	Norfolk	36.917694	-79.496604	Ephemeral	NRPW		03010101	Pipeline ROW	77	-	0.0106		171		4-762
					-79.492669	Perennial	RPW						0.0138		100	-	4-762
S-G4	Harpen Creek	Pittsylvania	Norfolk	36.916463				Orangefin madtom	03010101	Timber Mat Crossing	30	-				-	
S-G3	UNT to Harpen Creek	Pittsylvania	Norfolk	36.915658	-79.490029	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0041		20	-	4-762
S-CC16	UNT to Harpen Creek	Pittsylvania	Norfolk	36.913003	-79.487838	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	0.0051	-	24	-	4-763
S-CC14	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.905329	-79.471492	Intermittent	RPW	-	03010105	Timber Mat Crossing	20	-	0.0037		18	-	4-765
S-CC13	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.905307	-79.471574	Intermittent	RPW	-	03010105	Timber Mat Crossing	20	-	0.0032	-	16	-	4-765
S-MM8	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.902991	-79.468220	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0028	-	13	-	4-766
S-CC15	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.901941	-79.466535	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0028		13	-	4-766
S-CC8	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.899437	-79.462685	Intermittent	RPW	-	03010105	Timber Mat Crossing	20	-	0.0037	-	18	-	4-766
S-CC5	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.899411	-79.462483	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0055	-	27	-	4-766
S-CC5	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.899248	-79.462396	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	54	-	0.0149	-	240	-	4-766
S-CC9	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.897740	-79.458046	Ephemeral	NRPW		03010105	Pipeline ROW	81	-	0.0102	-	165	-	4-767
S-CC10	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.897315	-79.456119	Intermittent	RPW	-	03010105	Pipeline ROW	78	-	0.0161		260	-	4-767
S-MM10	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.895915	-79.452960	Intermittent	RPW	-	03010105		9	-	0.0014		200	-	4-767
										Pipeline ROW	-						
S-CC11	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.895808	-79.452920	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	87	-	0.0160	-	258	-	4-768
S-CC1	Cherrystone Creek	Pittsylvania	Norfolk	36.894043	-79.445744	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	82	-	0.0282	-	456	-	4-769
S-CC3	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.893727	-79.444763	Ephemeral	NRPW	-	03010105	Pipeline ROW	91	-	0.0167	-	270	-	4-769
S-P5	UNT to Cherrystone Creek	Pittsylvania	Norfolk	36.892751	-79.440053	Ephemeral	NRPW	-	03010105	Timber Mat Crossing	20	-	0.0023	-	11	-	4-769
S-IJ35-EPH	UNT to Pole Bridge Branch	Pittsylvania	Norfolk	36.891451	-79.433781	Ephemeral	NRPW	-	03010105	Pipeline ROW	171	-	0.0157	-	253	-	4-770
S-Q4	UNT to Pole Bridge Branch	Pittsylvania	Norfolk	36.886114	-79.430914	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0023	-	11	-	4-771
S-Q3	Pole Bridge Branch	Pittsylvania	Norfolk	36.884444	-79.428220	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	75	-	0.0430	-	694	-	4-771
S-Q2	UNT to Pole Bridge Branch	Pittsylvania	Norfolk	36.884284	-79.427914	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0032	-	16	-	4-771
S-B6	UNT to Pole Bridge Branch	Pittsylvania	Norfolk	36.879063	-79.420189	Ephemeral	NRPW	-	03010105	Pipeline ROW	84	-	0.0193		311	-	4-772
S-B8	UNT to Pole Bridge Branch	Pittsylvania	Norfolk	36.877937	-79.417992	Intermittent	RPW	-	03010105	Pipeline ROW	82	-	0.0075		121	-	4-773
		-					RPW					-					4-773
S-B9	UNT to Pole Bridge Branch	Pittsylvania	Norfolk	36.877416	-79.416255	Perennial		Orangefin madtom	03010105	Pipeline ROW	78		0.0125	•	202		
S-DD4-Braid-1	UNT to Mill Creek	Pittsylvania	Norfolk	36.871651	-79.404061	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	67	-	0.0092		149	-	4-775
S-DD4	UNT to Mill Creek	Pittsylvania	Norfolk	36.871478	-79.403907	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	147	-	0.0202	-	327	-	4-775
S-KL27	UNT to Mill Creek	Pittsylvania	Norfolk	36.866534	-79.400511	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	84	-	0.0019	-	31	-	4-776
S-C1	Mill Creek	Pittsylvania	Norfolk	36.863513	-79.397914	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	92	-	0.0127	-	204	-	4-777
S-G2	Little Cherrystone Creek	Pittsylvania	Norfolk	36.851931	-79.386051	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0032		16		4-779

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-H55	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.843486	-79.369222	Ephemeral	NRPW		03010105	Timber Mat Crossing	20	-	0.0014	-	7	-	4-781
S-H54	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.841112	-79.366848	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0055		27	-	4-781
S-GG11	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.841093	-79.366942	Perennial	RPW		03010105	Timber Mat Crossing	46	-	0.0084		41	-	4-781
S-H3	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.834501	-79.360244	Intermittent	RPW	-	03010105	Pipeline ROW	18	-	0.0025	-	12	-	4-783
S-H5	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.833412	-79.359823	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	83	-	0.0152	-	246	-	4-783
S-001	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.830285	-79.356618	Intermittent	RPW	-	03010105	Pipeline ROW	84	-	0.0096		156	-	4-783
S-H44	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.829823	-79.346016	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	33	-	0.0061		29	-	4-785
S-H42	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.828993	-79.344442	Perennial	RPW	Orangefin madtom	03010105	Permanent Access Road	-	15	-	0.0017	-	11	4-785
S-H42	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.828958	-79.344315	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0032	-	16	-	4-785
S-002	UNT to Little Cherrystone Creek	Pittsylvania	Norfolk	36.828831	-79.353849	Intermittent	RPW		03010105	Pipeline ROW	78	-	0.0090	-	144	-	4-784
S-EF26	Little Cherrystone Creek	Pittsylvania	Norfolk	36.828207	-79.349814	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	0.0092	-	44	-	4-784

Notes: 1 2

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- For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, "Unidentified Tributary (UNT)", of the first named receiving waterbody
- In decimal degrees
- RPW = Relatively Permanent Waters
- NRPW = Non-Relatively Permanent Waters
- Traditional Navigable Waters
- See Section 1.9.2 and Section 4.2 for more information
- Acres are rounded to four decimal places.
- Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.
- Permanent fill associated with the construction of Permanent access road and facilities. Cubic yards are rounded to the nearest whole number.
- Permanent fill associated with the construction of Permanent access road and facilities.
- Cubic yards are rounded to the number.
- Permanent fill associated with the construction of Permanent access road and facilities.
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Table 3 (Wetland Impacts)

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-B55	Harrison	Pittsburgh	39.436246	-80.474973	PEM	RPWWD	05020002	Timber Mat Crossing	0.0054	-	-	26	-	4-36
W-J32-PEM-1	Harrison	Pittsburgh	39.391614	-80.477085	PEM	RPWWN	05020002	Temporary Access Road	0.0417	-	-	202	-	4-44
W-A10a	Harrison	Pittsburgh	39.369569	-80.485054	PEM	RPWWD	05020002	Timber Mat Crossing	0.0153	-	-	74	-	4-49
W-B1a	Harrison	Pittsburgh	39.360192	-80.492766	PEM	NRPWW	05020002	Pipeline ROW	0.0119	-	-	192	-	4-50
W-A40	Harrison	Pittsburgh	39.358924	-80.493367	PEM	RPWWN	05020002	Pipeline ROW/ATWS	0.3111	-	-	1,506	-	4-51
W-A39	Harrison	Pittsburgh	39.358865	-80.490797	PEM	RPWWN	05020002	Permanent Access Road	0.0280	-	-	136	-	4-51
W-ST11	Harrison	Pittsburgh	39.338239	-80.519656	PEM	NRPWW	05020002	Temporary Access Road/ATWS	0.0228	-	-	110	-	4-56
W-ST12-PEM W-ST12-PSS	Harrison	Pittsburgh	39.337471	-80.522128 -80.522185	PEM PSS	RPWWD RPWWD	05020002 05020002	Temporary Access Road/ATWS	0.0582	- 0.1444	-	282 699	-	4-56 4-56
W-S112-P35 W-B2a	Harrison Harrison	Pittsburgh Pittsburgh	39.337457 39.316856	-80.525315	PSS	RPWWD	05020002	Temporary Access Road/ATWS ATWS	- 0.1953		-	945	-	4-56 4-59
W-B2a W-B4a	Harrison	Pittsburgh	39.316784	-80.526129	PEM	RPWWD	05020002	Timber Mat Crossing	0.0214	-		104	-	4-59
W-UU1	Harrison	Pittsburgh	39.290258	-80.518898	PFO	RPWWD	05020002	Pipeline ROW	-	0.0045	-	22		4-66
W-UU3	Harrison	Pittsburgh	39.289750	-80.518517	PFO	RPWWN	05020002	Pipeline ROW	-	0.0065	-	105	-	4-66
W-UU4a	Harrison	Pittsburgh	39.253101	-80.540498	PEM	RPWWD	05020002	Pipeline ROW/ATWS	0.1268	-	-	2,046	-	4-74
W-F52	Harrison	Pittsburgh	39.250487	-80.551891	PEM	NRPWW	05020002	Temporary Access Road	0.0625	-	-	302	-	4-76
W-F54	Harrison	Pittsburgh	39.249640	-80.550121	PEM	NRPWW	05020002	Timber Mat Crossing	0.0042	-	-	20	-	4-76
W-F53	Harrison	Pittsburgh	39.249629	-80.549909	PEM	NRPWW	05020002	Timber Mat Crossing	0.0080	-	-	39	-	4-76
W-F55	Harrison	Pittsburgh	39.249464	-80.551040	PEM	NRPWW	05020002	Timber Mat Crossing	0.0173	-	-	84	-	4-76
W-K43	Harrison	Pittsburgh	39.243915	-80.553961	PEM	RPWWD	05020002	Pipeline ROW	0.2086	-	-	3,365	-	4-77
W-K44	Harrison	Pittsburgh	39.243493	-80.554033	PEM	RPWWD	05020002	Pipeline ROW	0.0671	-	-	1,083	-	4-77
W-CV15	Harrison	Pittsburgh	39.223490	-80.548109	PEM	RPWWD	05020002	Timber Mat Crossing	0.0512	-		248	-	4-81
W-J40	Lewis	Pittsburgh	39.167631	-80.578355	PEM	RPWWD	05020002	Pipeline ROW	0.2931	-	-	4,729	-	4-92
W-J40	Lewis	Pittsburgh	39.167564	-80.578800	PEM	RPWWD	05020002	Temporary Access Road	0.1812	-	-	877	-	4-92
W-A24	Harrison	Pittsburgh	39.165608	-80.569523	PEM	NRPWW	05020002	Temporary Access Road	0.0002	-	-	1	-	4-91
W-VV5	Lewis	Pittsburgh	39.137820	-80.576075	PEM	RPWWD	05020002	ATWS	0.0202	-	-	98	-	4-99
W-IJ23 W-IJ24	Lewis Lewis	Pittsburgh Pittsburgh	39.131093	-80.572126	PEM PEM	RPWWN RPWWN	05020002	Temporary Access Road	0.0065 0.0041	-	-	31 20	-	4-100 4-100
W-J20	Lewis	Pittsburgh	39.130718 39.116053	-80.571966 -80.589196	PEM	NRPWW	05020002 05020002	Temporary Access Road Permanent Access Road	0.0041	-	-	39	-	4-100
W-J20 W-J23	Lewis	Pittsburgh	39.114118	-80.586522	PEM	RPWWN	05020002	Pipeline ROW	0.0081	-	-	210	-	4-103
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W-K31	Lewis	Pittsburgh	39.080555	-80.581362	PEM	NRPWW	05020002	Pipeline ROW/Temporary Access Road	0.1135	-	-	549	-	4-109
W-ST14	Lewis	Pittsburgh	39.079947	-80.583108	PEM	RPWWD	05020002	Anode Bed	0.0394	-	-	191	-	4-110
W-ST15	Lewis	Pittsburgh	39.079855	-80.582499	PEM	RPWWN	05020002	Anode Bed	0.0711	-	-	344	-	4-110
W-B46	Lewis	Pittsburgh	39.079854	-80.581439	PEM	RPWWD	05020002	Pipeline ROW/Temporary Access Road	0.1255	-	-	607	-	4-110
W-B47	Lewis	Pittsburgh	39.079451	-80.581349	PEM	RPWWD	05020002	Timber Mat Crossing	0.0682	-	-	330	-	4-110
W-B51	Lewis	Pittsburgh	39.078107	-80.581235	PEM	NRPWW	05020002	Timber Mat Crossing	0.0035	-	-	17	-	4-110
W-B54	Lewis	Pittsburgh	39.073907	-80.581491	PEM	NRPWW	05020002	Timber Mat Crossing	0.0101	-	-	49	-	4-110
W-H112	Lewis	Pittsburgh	39.066480	-80.581624	PEM	NRPWW	05020002	Pipeline ROW	0.0231	-	-	373	-	4-111
W-ME1	Wetzel	Huntington	39.561837	-80.544176	PEM	RPWWD	05030201	ATWS	0.0382	-	-	185	-	4-1
W-ME2	Wetzel	Huntington	39.559744	-80.546756	PEM	RPWWN	05030201	ATWS	0.1036	-	-	501	-	4-1
W-ME3	Wetzel	Huntington	39.559075	-80.547489	PEM	RPWWN	05030201	ATWS	0.0869	-	-	421	-	4-1
W-A1a W-A2a	Wetzel Wetzel	Huntington Huntington	39.553912 39.553508	-80.544941 -80.545518	PEM PEM	RPWWD RPWWN	05030201 05030201	Pipeline ROW Timber Mat Crossing	0.0038	-	-	18 205	-	4-3 4-3
W-A2a W-A4a	Wetzel	Huntington	39.553508	-80.542833	PEM	NRPWW	05030201	Timber Mat Crossing	0.0424	-	-	34	-	4-3 4-5
W-J44 W-IJ31	Wetzel	Huntington	39.505764	-80.541781	PEM	RPWWN	05030201	ATWS	0.0992	-	-	480	-	4-18
W-IJ31	Wetzel	Huntington	39.505612	-80.541681	PEM	RPWWN	05030201	Permanent Access Road	-	-	0.0082	-	40	4-18
W-A27-PFO	Wetzel	Huntington	39.502389	-80.523497	PFO	RPWWD	05030201	Pipeline ROW	-	0.0547	-	882	-	4-20
W-A27-PEM	Wetzel	Huntington	39.502356	-80.523420	PEM	RPWWD	05030201	Pipeline ROW	0.0497	-	-	802	-	4-20
W-A35	Wetzel	Huntington	39.491159	-80.520537	PEM	NRPWW	05030201	Pipeline ROW	0.0066	-	-	107	-	4-23
W-A34	Wetzel	Huntington	39.489742	-80.520750	PEM	RPWWD	05030201	Timber Mat Crossing	0.0296	-	-	143	-	4-23
W-WX5	Wetzel	Huntington	39.463909	-80.502672	PEM	RPWWD	05030201	Temporary Access Road	0.0011	-	-	5	-	4-28
W-WX4	Wetzel	Huntington	39.463864	-80.502581	PEM	RPWWD	05030201	Temporary Access Road	0.0095	-	-	46	-	4-28
W-K52	Doddridge	Huntington	39.236762	-80.558524	PEM	RPWWN	05030201	Permanent Access Road	0.0021	-	-	10	-	4-78
W-K52	Doddridge	Huntington	39.236727	-80.558550	PEM	RPWWN	5030201	Permanent Access Road	-	-	0.0115	-	56	4-78
W-K45	Doddridge	Huntington	39.228900	-80.552328	PEM	RPWWD	05030201	Pipeline ROW	0.0401	-	-	648	-	4-80
W-K41	Doddridge	Huntington	39.208990	-80.551957	PEM	RPWWD	05030201	Timber Mat Crossing	0.0109	-	-	53	-	4-84
W-A23	Doddridge	Huntington	39.201188	-80.552996	PEM	RPWWD	05030201	Pipeline ROW	0.2701	-	-	4,358	-	4-85
W-A23	Doddridge	Huntington	39.201157	-80.553264	PEM	RPWWD	05030201	Permanent Access Road	-	-	0.0579	-	280	4-85
W-B57	Lewis	Huntington	39.111745	-80.587352	PEM	NRPWW	05030203	Pipeline ROW/Temporary Access Road	0.0336	-	-	163	-	4-104
W-K33-PSS	Lewis	Huntington	39.095059	-80.585064	PSS	RPWWD	05030203	Pipeline ROW	-	0.0024	-	12	-	4-106
W-K33-PEM W-K34-PEM	Lewis	Huntington	39.095056 39.093945	-80.584787	PEM PEM	RPWWD	05030203	Pipeline ROW Timber Mat Crossing	0.1544 0.0253	-	-	2,490	-	4-106
W-N34-PEIVI	Lewis	Huntington	39.093940	-80.585460	FEIVI	RPWWD	05030203	Timber wat Crossing	0.0203	-	-	122	-	4-106

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-H109	Lewis	Huntington	39.053324	-80.582020	PEM	NRPWW	05030203	Pipeline ROW	-	-	0.0027	-	13	4-114
W-I22-PEM	Lewis	Huntington	39.052952	-80.582437	PEM	RPWWD	05030203	ATWS	0.0018	-	-	9	-	4-114
W-I22-PEM	Lewis	Huntington	39.052768	-80.582196	PEM	RPWWD	05030203	Timber Mat Crossing	0.0162	-	-	78	-	4-114
W-I22-PEM	Lewis	Huntington	39.052760	-80.582147	PEM	RPWWD	05030203	Permanent Access Road	-	-	0.0059	-	28	4-114
W-KK6	Lewis	Huntington	39.017820	-80.596977	PEM	RPWWD	05030203	Timber Mat Crossing	0.0212	-	-	103	-	4-119
W-I15	Lewis	Huntington	38.968609	-80.592042	PEM	RPWWN	05030203	Pipeline ROW	0.0631	-	-	1,018	-	4-128
W-I16 W-I17	Lewis Lewis	Huntington Huntington	38.964758 38.964195	-80.590881 -80.590961	PEM PEM	NRPWW NRPWW	05030203 05030203	Timber Mat Crossing Timber Mat Crossing	0.0177 0.0017	-	-	86 8	-	4-129 4-129
W-I17	Lewis	Huntington	38.962362	-80.590607	PEM	NRPWW	05030203	Timber Mat Crossing	0.0379	-		183	-	4-129
W-120	Lewis	Huntington	38.962126	-80.590741	PEM	NRPWW	05030203	Timber Mat Crossing	0.0631	-	-	306	-	4-129
W-UU7	Lewis	Huntington	38.933646	-80.585074	PEM	NRPWW	05030203	Pipeline ROW	0.0038	-	-	19	-	4-135
W-H103	Lewis	Huntington	38.933290	-80.584765	PEM	RPWWN	05030203	ATWS	0.0037	-	-	18	-	4-135
W-H103	Lewis	Huntington	38.933290	-80.584765	PEM	RPWWN	05030203	Timber Mat Crossing	0.0050	-	-	24	-	4-135
W-H102	Lewis	Huntington	38.933168	-80.584990	PEM	RPWWN	05030203	ATWS	0.0129	-	-	62	-	4-135
W-H107	Lewis	Huntington	38.932901	-80.584200	PEM	RPWWD	05030203	Timber Mat Crossing	0.0328	-	-	159	-	4-135
W-H98	Lewis	Huntington	38.925976	-80.578373	PEM	NRPWW	05030203	Permanent Access Road	-	-	0.0331	-	160	4-136
W-H98	Lewis	Huntington	38.925868	-80.578367	PEM	NRPWW	05030203	Temporary Access Road	0.0032	-	-	15	-	4-136
W-H108	Lewis	Huntington	38.918766	-80.573564	PEM PEM	RPWWN	05030203 05030203	Timber Mat Crossing	0.0278 0.0039	-	-	134 19	-	4-140
W-H96 W-H95	Lewis Lewis	Huntington Huntington	38.913939 38.913311	-80.571910 -80.571953	PEM	RPWWD RPWWD	05030203	Timber Mat Crossing Timber Mat Crossing	0.0039	-	-	200	-	4-142 4-142
W-H95 W-VV9	Lewis	Huntington	38.904701	-80.563951	PEM	RPWWD	05030203	Pipeline ROW	0.0534	-	-	259	-	4-142
W-CD17	Lewis	Huntington	38.904074	-80.563709	PEM	RPWWD	05030203	Timber Mat Crossing	0.0335	_	-	162	-	4-144
W-CD16	Lewis	Huntington	38.903722	-80.563418	PEM	RPWWN	05030203	Temporary Access Road/ ATWS	0.0023	-	-	11	-	4-144
W-CD16	Lewis	Huntington	38.903722	-80.563418	PEM	RPWWN	05030203	Pipeline ROW	0.0226	-	-	365	-	4-144
W-VV8	Lewis	Huntington	38.903514	-80.563258	PEM	RPWWD	05030203	Pipeline ROW	0.0708	-	-	1,143	-	4-144
W-CD18	Lewis	Huntington	38.902751	-80.564644	PEM	RPWWD	05030203	Temporary Access Road	0.0322	-	-	156	-	4-144
W-CD19	Lewis	Huntington	38.902618	-80.564694	PEM	RPWWD	05030203	Temporary Access Road	0.0080	-	-	39	-	4-144
W-CD21	Lewis	Huntington	38.901049	-80.566582	PEM	RPWWN	05030203	Temporary Access Road	0.0161	-	-	78	-	4-146
W-CD23	Lewis	Huntington	38.898699	-80.568306	PEM	RPWWD	05030203	Temporary Access Road	0.0349	-	-	169	-	4-146
W-CD24	Lewis	Huntington	38.898648	-80.568238	PEM	RPWWD	05030203	Temporary Access Road	0.0094	-	-	45	-	4-146
W-CD36	Lewis	Huntington	38.898177	-80.568287	PEM	RPWWN	05030203	Temporary Access Road	0.0049	-	-	24	-	4-146
W-CD25 W-CD26	Lewis Lewis	Huntington	38.898021 38.897805	-80.568159 -80.568155	PEM PEM	RPWWN RPWWN	05030203 05030203	Temporary Access Road	0.0100 0.0114	-	-	48 55	-	4-146 4-146
W-CD26	Lewis	Huntington Huntington	38.897282	-80.567014	PEM	NRPWW	05030203	Temporary Access Road Temporary Access Road	0.0091	-	-	44	-	4-146
W-UV17	Lewis	Huntington	38.893199	-80.556196	PFO	RPWWN	05030203	Pipeline ROW	-	0.0055		27	-	4-140
W-ST16	Lewis	Huntington	38.892534	-80.556680	PEM	RPWWN	05030203	Temporary Anode Bed	0.0711	-	-	344	-	4-148
W-VV11	Lewis	Huntington	38.890576	-80.554852	PEM	NRPWW	05030203	Temporary Access Road	0.0246	-	-	119	-	4-148
W-VV12	Lewis	Huntington	38.890309	-80.553784	PEM	NRPWW	05030203	Temporary Access Road	0.0277	-	-	134	-	4-148
W-VV4-PEM	Lewis	Huntington	38.863280	-80.525705	PEM	RPWWD	05030203	Timber Mat Crossing	0.0131	-	-	64	-	4-158
W-VV4-PFO	Lewis	Huntington	38.863238	-80.525813	PFO	RPWWD	05030203	Timber Mat Crossing	-	0.0263	-	127	-	4-158
W-VV3-PEM	Lewis	Huntington	38.862795	-80.525190	PEM	RPWWD	05030203	Pipeline ROW	0.0447	-	-	721	-	4-158
W-VV3-PFO	Braxton	Huntington	38.862691	-80.525163	PFO	RPWWD	05030203	Pipeline ROW	-	0.0160	-	259	-	4-158
W-H90	Braxton	Huntington	38.760419	-80.513602	PEM	RPWWD	05030203	Pipeline ROW	0.0388	-	-	627	-	4-179
W-QR13	Braxton	Huntington	38.751445	-80.516905	PEM	RPWWN	05030203	Temporary Access Road	0.0618	-	-	299	-	4-180
W-QR12 W-QR11	Braxton	Huntington	38.749364 38.747846	-80.522081	PEM PEM	RPWWN RPWWN	05030203	Temporary Access Road	0.0881 0.0559	-	-	426 271	-	4-181 4-181
W-QR11 W-I11b	Braxton Braxton	Huntington Huntington	38.747846 38.708869	-80.521602 -80.489369	PEM	NRPWW	05030203 05050007	Temporary Access Road Timber Mat Crossing	0.0559	-	-	47	-	4-181 4-194
W-R2	Webster	Huntington	38.667178	-80.489369	PEM	RPWWD	05050007	Temporary Access Road	0.0620	-	-	300	-	4-194
W-KZ W-KK3	Webster	Huntington	38.667027	-80.478547	PEM	RPWWD	05050007	Pipeline ROW	0.0222	-	-	300	-	4-201
W-R3	Webster	Huntington	38.666869	-80.480889	PEM	NRPWW	05050007	Temporary Access Road	0.0155	-	-	75	-	4-201
W-F46	Webster	Huntington	38.664132	-80.479008	PEM	RPWWN	05050007	Timber Mat Crossing	0.0039		-	19	-	4-202
W-R4	Webster	Huntington	38.664021	-80.483434	PEM	NRPWW	05050007	Temporary Access Road	0.0432	-	-	209	-	4-204
W-H75	Webster	Huntington	38.607280	-80.504722	PEM	RPWWN	05050007	Pipeline ROW	0.0108	-	-	174	-	4-219
W-H79	Webster	Huntington	38.602069	-80.508493	PEM	NRPWW	05050007	Timber Mat Crossing	0.0077		-	125	-	4-220
W-H81	Webster	Huntington	38.599491	-80.506376	PEM	NRPWW	05050007	Timber Mat Crossing	0.0237	-	-	115	-	4-220
W-H82	Webster	Huntington	38.598415	-80.505238	PEM	NRPWW	05050007	Timber Mat Crossing	0.0128		-	62	-	4-221
W-H86 W-H83	Webster	Huntington	38.591803	-80.508481	PEM PEM	NRPWW NRPWW	05050007 05050007	Pipeline ROW	0.0013	-	-	6	-	4-222
	Webster	Huntington	38.591372	-80.508904				Pipeline ROW/Temporary Access Road		-	-	86	-	4-222
W-T4	Webster	Huntington	38.586855	-80.518697	PEM	NRPWW	05050007	Temporary Access Road	0.0403	-	-	195	-	4-224
W-H85 W-A20-PFO	Webster Webster	Huntington	38.586644 38.566923	-80.510350 -80.529968	PEM PFO	NRPWW NRPWW	05050007 05050007	Pipeline ROW Timber Mat Crossing	0.0069	- 0.0298	-	33 144	-	4-222 4-232
W-A20-PFO W-A20-PEM	Webster	Huntington Huntington	38.566923	-80.529968 -80.530098	PFO	NRPWW	05050007	Timber Mat Crossing	- 0.0117	0.0290	-	57	-	4-232
	A CD2IGI	Tunungtun	30.300910	-00.000080			0000007		0.0117		L -	51	-	7-232

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-A19	Webster	Huntington	38.557156	-80.538578	PEM	RPWWD	05050007	Temporary Access Road	0.0265	-	-	128	-	4-235
W-H70	Webster	Huntington	38.557097	-80.526293	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0057	-	28	4-238
W-H71	Webster	Huntington	38.556454	-80.526913	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0205	-	99	4-238
W-H72	Webster	Huntington	38.553783	-80.527760	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0064	-	31	4-237
W-H73	Webster	Huntington	38.553085	-80.528148	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0061	-	29	4-237
W-H74	Webster	Huntington	38.552748	-80.533585	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0115	-	56	4-237
W-H67	Webster	Huntington	38.549313	-80.539242	PFO	RPWWD	05050007	Pipeline ROW/Temporary Access Road	-	0.0908	-	1,465	-	4-236
W-H66	Webster	Huntington	38.548873	-80.539592	PFO	RPWWD	05050007	Pipeline ROW	-	0.2496	-	4,026	-	4-236
W-H64-PEM	Webster	Huntington	38.548175	-80.540709	PEM	RPWWD	05050007	Pipeline ROW	0.0276	-	-	133	-	4-236
W-H64-PSS	Webster	Huntington	38.548099	-80.540896	PSS	RPWWD	05050007	Pipeline ROW	-	0.0422	-	681	-	4-236
W-H64-PEM-2 W-H56	Webster	Huntington	38.548058 38.545807	-80.540847 -80.542983	PEM PEM	RPWWD RPWWD	05050007 05050007	Pipeline ROW	0.0289	-	-	466	-	4-236 4-248
W-013	Webster Webster	Huntington	38.533655	-80.513682	PEM	RPWWD	05050007	Pipeline ROW Permanent Access Road		-	0.0405	100	- 196	4-246
W-013 W-KL8	Webster	Huntington	38.519565	-80.545076	PEM	NRPWW	05050007	Pipeline ROW	- 0.0976	-	0.0405	- 472	-	4-244
W-RL8 W-H60	Webster	Huntington Huntington	38.517850	-80.544693	PEM	NRPWW	05050007	Timber Mat Crossing	0.0495	-	-	240	-	4-253
W-H60 W-H61	Webster	Huntington	38.517345	-80.545025	PEM	NRPWW	05050007	Timber Mat Crossing	0.0094	-	-	151	-	4-253
W-H61	Webster	Huntington	38.517147	-80.545591	PEM	NRPWW	05050007	Pipeline ROW	0.0335	-	-	162	-	4-253
W-B39	Webster	Huntington	38.508151	-80.559329	PEM	NRPWW	05050007	Pipeline ROW	0.0906	-	-	1,462	-	4-255
W-B39 W-B31	Webster	Huntington	38.494322	-80.561155	PEM	RPWWD	05050007	Pipeline ROW	0.0515	-	-	831	-	4-260
W-B35	Webster	Huntington	38.493757	-80.560962	PSS	RPWWD	05050007	Pipeline ROW	-	0.0108	-	174	_	4-260
W-A18	Webster	Huntington	38.481237	-80.555783	PEM	RPWWD	05050007	Temporary Access Road	0.2038	-	-	986	-	4-263
W-E28	Webster	Huntington	38.443010	-80.551309	PSS	RPWWD	05050007	Permanent Access Road	-	-	0.0084	-	40	4-269
W-E30	Webster	Huntington	38.441535	-80.550864	PEM	RPWWN	05050007	Temporary Access Road	-	-	0.0316	-	153	4-269
W-F26	Webster	Huntington	38.428623	-80.567054	PEM	NRPWW	05050007	Timber Mat Crossing	0.0045		-	22	-	4-277
W-F29	Webster	Huntington	38.424050	-80.570711	PEM	RPWWD	05050007	Timber Mat Crossing	0.0071	-	-	34	-	4-278
W-F28	Webster	Huntington	38.423890	-80.570659	PEM	RPWWD	05050007	Timber Mat Crossing	0.0071	-	-	34	-	4-278
W-F40	Webster	Huntington	38.421461	-80.570007	PSS	RPWWD	05050007	Temporary Access Road	-	0.0188	-	91	-	4-278
W-F41	Webster	Huntington	38.417599	-80.576458	PEM	RPWWD	05050007	Temporary Access Road	0.0002	-	-	1	-	4-279
W-B30	Webster	Huntington	38.405713	-80.591171	PEM	RPWWD	05050007	Timber Mat Crossing	0.0429	-	-	208	-	4-281
W-B28	Webster	Huntington	38.399940	-80.597527	PEM	RPWWD	05050007	Pipeline ROW/Anode Bed	0.2983	-	-	4,812	-	4-282
W-E21	Webster	Huntington	38.370595	-80.611923	PEM	RPWWD	05050005	Pipeline ROW	0.0389	-	-	627	-	4-289
W-E18-PEM	Webster	Huntington	38.367359	-80.612334	PEM	RPWWD	05050005	Pipeline ROW	0.0208	-	-	101	-	4-290
W-E18-PSS	Webster	Huntington	38.367284	-80.612248	PSS	RPWWD	05050005	Pipeline ROW	-	0.0538	-	868	-	4-290
W-E16	Nicholas	Huntington	38.364427	-80.614459	PEM	NRPWW	05050005	Timber Mat Crossing	0.0091	-	-	44	-	4-291
W-E13	Webster	Huntington	38.364017	-80.616570	PFO	RPWWN	05050005	Timber Mat Crossing	-	0.0107	-	52	-	4-291
W-F13	Nicholas	Huntington	38.356737	-80.631888	PEM	RPWWN	05050005	Timber Mat Crossing	0.0394	-	-	191	-	4-293
W-F12	Nicholas	Huntington	38.356528	-80.632264	PEM	RPWWD	05050005	Timber Mat Crossing	0.0576	-	-	279	-	4-293
W-F11	Nicholas	Huntington	38.355680	-80.633383	PEM	RPWWN	05050005	Timber Mat Crossing	0.0652	-	-	315	-	4-293
W-K23	Nicholas	Huntington	38.355273	-80.633811	PEM	RPWWN	05050005	Pipeline ROW	0.0489	-	-	789	-	4-293
W-K20	Nicholas	Huntington	38.354644	-80.634586	PEM	RPWWD	05050005	Timber Mat Crossing	0.0100		-	48	-	4-293
W-IJ51	Nicholas	Huntington	38.352366	-80.636369	PEM	RPWWD	05050005	Pipeline ROW	0.0410	-	-	662	-	4-293
W-IJ50	Nicholas	Huntington	38.350787	-80.637226	PEM PEM	RPWWN	05050005	Pipeline ROW	0.0528	-	-	852	-	4-294
W-IJ55 W-B27	Nicholas Nicholas	Huntington	38.343568 38.339713	-80.646491 -80.655364	PEM	RPWWN RPWWD	05050005	Pipeline ROW	0.0218 0.0874	-	-	352 423	-	4-296 4-299
W-B27 W-B26-PEM-1	Nicholas	Huntington Huntington	38.339713 38.339034	-80.655364 -80.659282	PEM	RPWWD	05050005	Timber Mat Crossing Temporary Access Road	0.0874	-	-	132	-	4-299
W-B26-PEM-1 W-B26-PEM-2	Nicholas	Huntington	38.338935	-80.659254	PEM	RPWWD	05050005	Temporary Access Road	0.0273	-	-	29	-	4-299
W-FF6-PSS	Nicholas	Huntington	38.337803	-80.658933	PSS	RPWWD	05050005	Timber Mat Crossing	-	0.0333	-	161	-	4-299
W-FF6-PEM	Nicholas	Huntington	38.337774	-80.658995	PEM	RPWWN	05050005	Timber Mat Crossing	0.0793	-	-	384	-	4-299
W-FF3	Nicholas	Huntington	38.332776	-80.669068	PEM	RPWWN	05050005	Pipeline ROW	0.0444	-	-	716	-	4-301
W-FF4	Nicholas	Huntington	38.329122	-80.671098	PEM	RPWWD	05050005	Pipeline ROW	0.0037	-	-	18	-	4-301
W-A17	Nicholas	Huntington	38.327813	-80.670776	PEM	NRPWW	05050005	Pipeline ROW	0.1300	-	-	2,098	-	4-301
W-A15	Nicholas	Huntington	38.323735	-80.670118	PSS	RPWWD	05050005	Pipeline ROW	-	0.0891	-	1,437	-	4-302
W-A14	Nicholas	Huntington	38.321643	-80.670901	PFO	RPWWD	05050005	Timber Mat Crossing	-	0.0374	-	181	-	4-302
W-H53	Nicholas	Huntington	38.313047	-80.673265	PEM	RPWWD	05050005	Pipeline ROW	0.0039	-	-	63	-	4-304
W-H50	Nicholas	Huntington	38.309707	-80.676585	PEM	NRPWW	05050005	Temporary Access Road	0.0114	-	-	55	-	4-304
W-N25	Nicholas	Huntington	38.302028	-80.674533	PEM	RPWWD	05050005	Timber Mat Crossing	0.0104		-	50	-	4-306
W-N24	Nicholas	Huntington	38.299148	-80.675928	PEM	RPWWN	05050005	Timber Mat Crossing	0.0031		-	15	-	4-307
W-N22	Nicholas	Huntington	38.296941	-80.676479	PEM	RPWWN	05050005	Timber Mat Crossing	0.0030		-	14	-	4-307
W-17	Nicholas	Huntington	38.293453	-80.677084	PFO	RPWWD	05050005	Timber Mat Crossing	-	0.0333	-	161	-	4-308
W-CV13	Nicholas	Huntington	38.273139	-80.686452	PEM	RPWWN	05050005	Permanent Access Road	0.0159	-	-	77	-	4-312
W-CV12	Nicholas	Huntington	38.271829	-80.685245	PEM	RPWWD	05050005	Temporary Access Road	0.0098	-	-	47	-	4-312
W-RS04	Nicholas	Huntington	38.264804	-80.683146	PEM	NRPWW	05050005	Temporary Access Road	0.0254	-	-	123	-	4-316

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-J8	Nicholas	Huntington	38.263168	-80.687930	PFO	RPWWD	05050005	Pipeline ROW	-	0.0533	-	860	-	4-315
W-MN4	Nicholas	Huntington	38.262968	-80.683949	PEM	RPWWD	05050005	Temporary Access Road	0.0463	-	-	224	-	4-316
W-J7	Nicholas	Huntington	38.233731	-80.708250	PFO	RPWWD	05050005	Pipeline ROW	-	0.0693	-	1,119	-	4-326
W-N18	Nicholas	Huntington	38.224246	-80.716448	PEM	NRPWW	05050005	Pipeline ROW	0.0075	-	-	36	-	4-328
W-L28	Nicholas	Huntington	38.203621	-80.719372	PEM	RPWWD	05050005	Pipeline ROW	0.0064	-	-	31	-	4-341
W-L27	Nicholas	Huntington	38.202610	-80.718505	PEM	RPWWN	05050005	Timber Mat Crossing	0.0029		-	14	-	4-341
W-I11a W-U7	Nicholas Nicholas	Huntington Huntington	38.179434 38.178298	-80.729511 -80.729744	PEM PEM	RPWWD RPWWN	05050005 05050005	Pipeline ROW ATWS	0.0579 0.0666	-	-	934 322	-	4-344 4-347
W-07 W-I5	Nicholas	Huntington	38.175595	-80.730736	PEM	RPWWN	05050005	Pipeline ROW	0.0082	-	-	133	-	4-347
W-VV2	Nicholas	Huntington	38.161072	-80.735000	PEM	RPWWD	05050005	Timber Mat Crossing	0.0002	-	-	66		4-355
W-N16	Nicholas	Huntington	38.157063	-80.738304	PEM	NRPWW	05050005	Timber Mat Crossing	0.0232	-	-	112	-	4-356
W-H41	Nicholas	Huntington	38.127873	-80.733868	PEM	RPWWN	05050005	Timber Mat Crossing	0.0151		-	73	-	4-362
W-H33	Nicholas	Huntington	38.124326	-80.735761	PEM	RPWWD	05050005	Pipeline ROW	0.0590	-	-	952	-	4-362
W-H35	Nicholas	Huntington	38.124117	-80.736018	PEM	RPWWN	05050005	Pipeline ROW	-	-	0.0177	-	285	4-362
W-H31	Nicholas	Huntington	38.116376	-80.735285	PEM	RPWWN	05050005	Pipeline ROW	0.0139	-	-	67	-	4-364
W-EF31	Nicholas	Huntington	38.107483	-80.726303	PEM	RPWWD	05050005	Pipeline ROW/ATWS	0.0208	-	-	336	-	4-366
W-M18	Greenbrier	Huntington	38.061194	-80.720732	PEM	NRPWW	05050005	Timber Mat Crossing	0.0364	-	-	176	-	4-374
W-M20	Greenbrier	Huntington	38.060869	-80.723064	PEM	NRPWW	05050005	Pipeline ROW	0.0031	-	-	15	-	4-374
W-M23	Greenbrier	Huntington	38.060683	-80.722348	PEM	NRPWW	05050005	Pipeline ROW	0.0616	-	-	994	-	4-374
W-M22 W-J6	Greenbrier Greenbrier	Huntington Huntington	38.060661 38.053361	-80.722616 -80.732198	PSS PFO	NRPWW RPWWD	05050005 05050005	Pipeline ROW Pipeline ROW	-	0.0039	-	19 1,201	-	4-374 4-376
W-50 W-ST27	Greenbrier	Huntington	38.029124	-80.742585	PEM	NRPWW	05050005	Temporary Access Road	0.0075	-	-	36	-	4-382
W-KL40	Greenbrier	Huntington	38.029060	-80.736807	PEM	RPWWD	05050005	Temporary Access Road	0.0312	-		151	-	4-388
W-ST28	Greenbrier	Huntington	38.028800	-80.743155	PEM	NRPWW	05050005	Temporary Access Road	0.0310	-	-	150	-	4-382
W-IJ60	Greenbrier	Huntington	38.024335	-80.739643	PEM	RPWWN	05050005	Temporary Access Road	0.0174	-	-	84	-	4-387
W-IJ59	Greenbrier	Huntington	38.022031	-80.743027	PEM	RPWWN	05050005	Temporary Access Road	0.0024	-	-	12	-	4-387
W-IJ58-PEM-3	Greenbrier	Huntington	38.021808	-80.743351	PEM	RPWWD	05050005	Temporary Access Road	0.0056	-	-	27	-	4-387
W-V6	Greenbrier	Huntington	37.993269	-80.756363	PEM	RPWWN	05050005	Temporary Access Road	0.0422	-	-	204	-	4-394
W-HS1	Greenbrier	Huntington	37.986454	-80.758418	PEM	NRPWW	05050005	Pipeline ROW	-	-	0.0360	-	581	4-395
W-QR2	Greenbrier	Huntington	37.983978	-80.756817	PEM	RPWWD	05050005	Permanent Access Road	-	-	0.0010	-	5	4-397
W-QR2	Greenbrier	Huntington	37.983212	-80.756099	PEM	RPWWD	05050005	Pipeline ROW/Temporary Access Road	0.2435	-	-	3,929	-	4-397
W-L16	Greenbrier	Huntington	37.980653	-80.754908	PEM	RPWWD	05050005	Pipeline ROW	0.0247	-	-	398	-	4-397
W-L19	Greenbrier	Huntington	37.954250	-80.739757	PEM	RPWWD	05050005	Pipeline ROW/Temporary Access Road	0.1060	-	-	1,711	-	4-402
W-L13	Greenbrier	Huntington	37.953825	-80.740037	PEM	RPWWN	05050005	Pipeline ROW	0.0316	-	-	509	-	4-402
W-L12	Greenbrier	Huntington	37.953736	-80.739892	PEM	RPWWN	05050005	Pipeline ROW	0.0075	-	-	36	-	4-402
W-L11	Greenbrier	Huntington	37.949563	-80.742715	PEM	RPWWD	05050005	Pipeline ROW	0.0194	-	-	94	-	4-403
W-L4	Greenbrier	Huntington	37.938675	-80.746774	PEM	RPWWN	05050005	Pipeline ROW	0.0404	-	-	196	-	4-405
W-L2	Greenbrier	Huntington	37.938326	-80.746878	PEM	RPWWD	05050005	Pipeline ROW/Temporary Access Road	0.0393	-	-	635	-	4-405
W-IJ47-PEM W-IJ47-PEM	Greenbrier	Huntington	37.916423	-80.743551	PEM	RPWWD	05050005	Permanent Access Road	-	-	0.0113	-	55	4-410
W-IJ47-PEM W-W10	Greenbrier Greenbrier	Huntington	37.916255 37.911495	-80.743867 -80.727880	PEM PEM	RPWWD NRPWW	05050005 05050005	Permanent Access Road Temporary Access Road	- 0.0488	-	0.0520	- 236	252	4-410 4-412
W-K7	Greenbrier	Huntington Huntington	37.863700	-80.757095	PEM	RPWWN	05050005	Pipeline ROW	0.0488	-	-	126	-	4-412
W-K7	Greenbrier	Huntington	37.863527	-80.757286	PEM	RPWWN	05050005	Pipeline ROW	0.3206	-	-	5,173	-	4-421
W-IJ30	Greenbrier	Huntington	37.862357	-80.757476	PEM	RPWWD	05050005	Pipeline ROW	0.3236	-	-	5,221	-	4-421
W-UV9	Greenbrier	Huntington	37.862309	-80.757756	PEM	RPWWN	05050005	Pipeline ROW	0.1090	-	-	1,759	-	4-421
W-UV11	Greenbrier	Huntington	37.861173	-80.757726	PEM	RPWWN	05050005	Pipeline ROW	0.0285	-	-	138	-	4-421
W-UV10	Greenbrier	Huntington	37.861066	-80.757954	PEM	RPWWN	05050005	Pipeline ROW	0.0035	-	-	17	-	4-421
W-K9-PEM-1	Greenbrier	Huntington	37.860916	-80.757817	PEM	RPWWD	05050005	Pipeline ROW	0.0354	-	-	572	-	4-421
W-K10	Greenbrier	Huntington	37.858743	-80.755724	PEM	RPWWN	05050005	Pipeline ROW	0.0068	-	-	33	-	4-422
W-UV4	Greenbrier	Huntington	37.854391	-80.755038	PSS	RPWWD	05050005	Pipeline ROW	-	0.0885	-	1,427	-	4-422
W-UV8	Greenbrier	Huntington	37.851590	-80.752937	PEM	RPWWD	05050005	Pipeline ROW	0.4913	-	-	7,926	-	4-423
W-EE4	Summers	Huntington	37.813845	-80.748769	PEM	RPWWD	05050004	Pipeline ROW	0.0453	-	-	730	-	4-429
W-M2	Summers	Huntington	37.807721	-80.746088	PEM	RPWWD	05050004	Pipeline ROW	0.1064	-	-	1,717	-	4-430
W-I10 W-EF40	Summers	Huntington	37.783907 37.693888	-80.718899	PEM PEM	NRPWW RPWWD	05050005 05050003	Permanent Access Road	- 0.0889	-	0.0550	- 430	266	4-437
W-EF40 W-MM20-PFO	Summers Summers	Huntington Huntington	37.693888	-80.735663 -80.730225	PEM PFO	RPWWD	05050003	Timber Mat Crossing Pipeline ROW, Temporary Access	0.0889	- 0.2990	-	430 3,773	-	4-461 4-464
		5						Road, ATWS						
W-EF36	Summers	Huntington	37.675423	-80.732001 -80.723493	PEM PEM	RPWWN	05050003	Timber Mat Crossing	0.0035	-	-	17	-	4-465
W-K2-PEM W-G7	Summers Summers	Huntington	37.668130 37.654106	-80.723493 -80.702592	PEM PEM	RPWWD NRPWW	05050003 05050003	Pipeline ROW Timber Mat Crossing	0.0140 0.0121	-	-	225 59	-	4-468 4-471
W-G7 W-OP1	Monroe	Huntington Huntington	37.600067	-80.702592	PEM	RPWWD	05050003	Pipeline ROW	0.0121	-	-	2,193	-	4-471 4-487
	MOITINE	nunungion	57.000007	-00.700400			00000000		0.1335	-	-	2,135	-	101-101

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-A13	Monroe	Huntington	37.559410	-80.710082	PEM	RPWWD	05050002	Pipeline ROW/Temporary Access Road	0.2991	-	-	4,826	-	4-493
W-A13	Monroe	Huntington	37.559332	-80.709734	PEM	RPWWD	05050002	Permanent Access Road	-	-	0.0228	-	110	4-493
W-MN14	Monroe	Huntington	37.520227	-80.707365	PEM	RPWWD	05050002	Pipeline ROW/Access Road/ATWS	0.0390	-	-	313	-	4-500
W-MN15 W-MN18-PEM	Monroe Monroe	Huntington	37.520166 37.487662	-80.707532 -80.681791	PEM PEM	RPWWN RPWWD	05050002 05050002	Pipeline ROW Pipeline ROW	0.0070 0.0510	-	-	113 823	-	4-500 4-510
W-MN18-PFO	Monroe	Huntington Huntington	37.487002	-80.681854	PFO	RPWWD	05050002	Pipeline ROW	-	- 0.1750	-	2,823	-	4-510
W-MN1	Monroe	Huntington	37.473153	-80.675740	PEM	RPWWD	05050002	Timber Mat Crossing	0.0187	-	-	90	-	4-512
W-G6	Monroe	Huntington	37.472534	-80.675718	PEM	RPWWD	05050002	Pipeline ROW	0.0684	-	-	1,103	-	4-512
W-CV25-PSS-1	Monroe	Huntington	37.462852	-80.669557	PSS PEM	RPWWD	05050002	Pipeline ROW	-	0.0270	-	436	-	4-513
W-MN24 W-CV25-PEM-2	Monroe Monroe	Huntington Huntington	37.462833 37.462746	-80.670273 -80.669518	PEM	NRPWW RPWWD	05050002 05050002	Pipeline ROW Pipeline ROW	0.0100	-	-	161 323	-	4-513 4-513
W-E12	Monroe	Huntington	37.450761	-80.667516	PEM	RPWWD	05050002	Pipeline ROW	0.0041	-	-	20	-	4-516
W-C14	Monroe	Huntington	37.427083	-80.694569	PEM	RPWWN	05050002	Pipeline ROW	0.0113	-	-	55	-	4-521
W-C13	Monroe	Huntington	37.426734	-80.694534	PEM	RPWWD	05050002	Pipeline ROW	0.2172	-	-	3,503	-	4-521
W-C17	Monroe	Huntington	37.425547	-80.693481 -80.641713	PEM PEM	RPWWD NRPWW	05050002 05050002	Temporary Access Road	0.0306	-	-	148	-	4-521 4-543
W-Z11 W-Z3	Giles Giles	Norfolk Norfolk	37.346591 37.342244	-80.620612	PEM	RPWWD	05050002	Pipeline ROW Timber Mat Crossing	-	- 0.0136	-	423 66	-	4-543
W-CD12	Giles	Norfolk	37.318644	-80.441717	PEM	RPWWD	05050002	Pipeline ROW	0.0208	-	-	335	-	4-577
W-MM10	Giles	Norfolk	37.298219	-80.480617	PEM	RPWWD	05050002	Temporary Access Road	0.0254	-	-	123	-	4-569
W-RR1b	Giles	Norfolk	37.296670	-80.494042	PEM	RPWWD	05050002	Timber Mat Crossing	0.0056	-	-	27	-	4-567
W-IJ46-PEM W-AD4	Montgomery	Norfolk Norfolk	37.296153 37.286984	-80.367508 -80.330124	PEM PEM	RPWWD RPWWD	03010101 03010101	Pipeline ROW Temporary Access Road	0.0294 0.0069	-	-	474 33	-	4-591 4-596
W-AD4 W-NN6	Montgomery Montgomery	Norfolk	37.268174	-80.330124	PEM	RPWWD	03010101	Timber Mat Crossing	0.0083	-	-	40	-	4-590
W-F9-PFO	Montgomery	Norfolk	37.258109	-80.285892	PFO	RPWWD	03010101	Pipeline ROW	-	0.0169	-	82	-	4-609
W-C12-PEM	Montgomery	Norfolk	37.257265	-80.281667	PEM	RPWWD	03010101	Pipeline ROW	0.2066	-	-	3,333	-	4-609
W-C12	Montgomery	Norfolk	37.257192	-80.281649	PFO	RPWWD	03010101	Pipeline ROW	-	0.0523	-	253	-	4-609
W-C11 W-C6	Montgomery Montgomery	Norfolk Norfolk	37.257107 37.255860	-80.281351 -80.275715	PSS PEM	RPWWD NRPWW	03010101 03010101	Pipeline ROW Timber Mat Crossing	- 0.0139	0.0461	-	223 67	-	4-609 4-610
W-C5	Montgomery	Norfolk	37.255606	-80.274237	PEM	NRPWW	03010101	Pipeline ROW	0.0454	-	-	732	-	4-610
W-AB7	Montgomery	Norfolk	37.231426	-80.198615	PEM	RPWWD	03010101	Timber Mat Crossing	0.0040	-	-	19	-	4-631
W-KL58	Montgomery	Norfolk	37.229183	-80.203106	PEM	RPWWD	03010101	Permanent Access Road	-	-	0.0392	-	190	4-631
W-EF5-PFO	Montgomery	Norfolk	37.210948	-80.193359	PFO	RPWWD	03010101	Pipeline ROW	-	0.0852	-	1,374	-	4-635
W-EF18 W-EF17	Roanoke Roanoke	Norfolk Norfolk	37.179449 37.179402	-80.140665 -80.140600	PSS PFO	RPWWD RPWWD	03010101 03010101	Temporary Access Road Temporary Access Road	-	0.0052	-	25 108	-	4-647 4-647
W-IJ94-PEM	Roanoke	Norfolk	37.170092	-80.138294	PEM	RPWWD	03010101	Timber Mat Crossing	0.0202	-	-	98	-	4-649
W-IJ96-PEM	Roanoke	Norfolk	37.169461	-80.130376	PEM	RPWWD	03010101	Permanent Access Road	-	-	0.0133	-	63	4-650
W-IJ96-PEM	Roanoke	Norfolk	37.169461	-80.130376	PEM	RPWWD	03010101	Permanent Access Road	0.0028	-	-	14	-	4-650
W-IJ97 W-IJ95-PSS	Roanoke Roanoke	Norfolk Norfolk	37.169197 37.169068	-80.129448 -80.138278	PEM PSS	RPWWD RPWWD	03010101 03010101	Permanent Access Road	-	- 0.0254	0.0005	- 123	2	4-650 4-649
W-IJ95-P33 W-IJ102	Roanoke	Norfolk	37.168289	-80.138375	PFO	RPWWD	03010101	Timber Mat Crossing Timber Mat Crossing	-	0.0234	-	48	-	4-649
W-KL17	Roanoke	Norfolk	37.160152	-80.134774	PSS	RPWWD	03010101	Pipeline ROW	-	0.0435	-	702	-	4-651
W-EF42	Roanoke	Norfolk	37.157611	-80.133722	PEM	RPWWD	03010101	Pipeline ROW	0.0083	-	-	40	-	4-652
W-HS02	Roanoke	Norfolk	37.157427	-80.133413	PEM	RPWWD	03010101	Pipeline ROW	0.2893	-	-	4,668	-	4-652
W-AB6-PEM-2 W-AB6-PFO-1	Roanoke Roanoke	Norfolk Norfolk	37.156825 37.156713	-80.131998 -80.131681	PEM PFO	RPWWD RPWWD	03010101 03010101	Pipeline ROW Pipeline ROW	0.3271	- 0.0618	-	5,277 997	-	4-652 4-652
W-AB6-PEM-1	Roanoke	Norfolk	37.156170	-80.131081	PEM	RPWWD	03010101	Pipeline ROW	0.0647	-	-	1,044	-	4-652
W-AB6-PSS	Roanoke	Norfolk	37.156034	-80.130603	PSS	RPWWD	03010101	Pipeline ROW	-	0.0061	-	30	-	4-652
W-AB5	Roanoke	Norfolk	37.155840	-80.130227	PFO	RPWWN	03010101	Pipeline ROW	-	0.0042	-	20	-	4-652
W-AB3-PEM-2	Roanoke	Norfolk	37.155664	-80.129569	PEM	RPWWD	03010101	Pipeline ROW	0.1547	-	-	2,495	-	4-652
W-EF46 W-KL48-PSS-1	Roanoke Roanoke	Norfolk Norfolk	37.154575 37.152292	-80.129122 -80.130022	PSS PSS	RPWWD RPWWD	03010101 03010101	Timber Mat Crossing Pipeline ROW	-	0.0682	-	330 733	-	4-652 4-653
W-KL48-PEM	Roanoke	Norfolk	37.152292	-80.130022	PSS PEM	RPWWD	03010101	Pipeline ROW	0.0063	-	-	31	-	4-653
W-KL48-PSS-2	Roanoke	Norfolk	37.150926	-80.131271	PSS	RPWWD	03010101	Pipeline ROW	-	0.0264	-	128	-	4-653
W-KL50	Roanoke	Norfolk	37.150728	-80.131537	PEM	RPWWN	03010101	Pipeline ROW	0.0408	-	-	658	-	4-653
W-KL49	Roanoke	Norfolk	37.150297	-80.132193	PEM	RPWWN	03010101	Timber Mat Crossing	0.0152	-	-	74	-	4-653
W-KL51-PEM W-KL51-PSS	Roanoke Roanoke	Norfolk Norfolk	37.150006 37.149975	-80.132403 -80.132476	PEM PSS	RPWWD RPWWD	03010101 03010101	Timber Mat Crossing Timber Mat Crossing	0.0063	- 0.0080	-	30 39	-	4-653 4-653
W-MN7-PEM	Roanoke	Norfolk	37.149975	-80.132476	PEM	RPWWD	03010101	Timber Mat Crossing	- 0.0116	-	-	56	-	4-653
W-EF44	Roanoke	Norfolk	37.142977	-80.138322	PEM	RPWWD	03010101	Timber Mat Crossing	0.0085	-	-	41	-	4-654
W-IJ36	Roanoke	Norfolk	37.138922	-80.139845	PSS	RPWWD	03010101	Timber Mat Crossing	-	0.1237	-	599	-	4-655
W-Z7	Roanoke	Norfolk	37.136601	-80.128216	PSS	RPWWD	03010101	Temporary Access Road	-	0.0003	-	1	-	4-657
W-Z6	Roanoke	Norfolk	37.136466	-80.128238	PFO	RPWWD	03010101	Temporary Access Road	-	0.0028	-	14	-	4-657

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-IJ62	Roanoke	Norfolk	37.135529	-80.134044	PEM	RPWWD	03010101	Temporary Access Road	0.0001	-	-	1	-	4-656
W-Y2	Roanoke	Norfolk	37.134284	-80.137448	PEM	RPWWD	03010101	Timber Mat Crossing	0.0189	-	-	91	-	4-656
W-IJ10	Roanoke	Norfolk	37.132561	-80.131744	PEM	RPWWD	03010101	Permanent Access Road	0.0020	-	-	10	-	4-656
W-Q11	Roanoke	Norfolk	37.132470	-80.131638	PEM	RPWWD	03010101	Permanent Access Road	0.0130	-	-	63	-	4-656
W-KL1	Roanoke	Norfolk	37.132456	-80.131463	PEM	RPWWN	03010101	Permanent Access Road	0.0018	-	-	9	-	4-656
W-B25-PEM-4	Roanoke	Norfolk	37.128942	-80.133774	PEM	RPWWD	03010101	Timber Mat Crossing	0.0093	-	-	45	-	4-659
W-B25-PEM-1 W-B24-PSS	Roanoke	Norfolk Norfolk	37.128645 37.128540	-80.133283 -80.130794	PEM PSS	RPWWD RPWWD	03010101 03010101	Pipeline ROW Pipeline ROW	0.1934	- 0.1637	-	3,120 2,641	-	4-659 4-659
W-B24-PS5 W-B24-PEM	Roanoke Roanoke	Norfolk	37.128530	-80.130794	PSS PEM	RPWWD	03010101	Pipeline ROW	- 0.1031	0.1637	-	1,663	-	4-659
W-B25-PSS-2	Roanoke	Norfolk	37.128527	-80.132335	PSS	RPWWD	03010101	Timber Mat Crossing	-	0.0830	-	402	-	4-659
W-B25-PEM-1	Roanoke	Norfolk	37.128449	-80.132802	PEM	RPWWD	03010101	Timber Mat Crossing	0.0140	-	-	68	-	4-659
W-B25-PEM-2	Roanoke	Norfolk	37.128436	-80.132646	PEM	RPWWD	03010101	Timber Mat Crossing	0.0048	-	-	78	-	4-659
W-ST2-PEM	Franklin	Norfolk	37.125329	-80.121460	PEM	RPWWD	03010101	Pipeline ROW	0.1142	-	-	1,842	-	4-661
W-RR4	Franklin	Norfolk	37.125117	-80.113530	PEM	RPWWD	03010101	Permanent Access Road	0.0216	-	-	105	-	4-662
W-RR3	Franklin	Norfolk	37.124214	-80.114746	PEM	RPWWD	03010101	Permanent Access Road	0.0019	-	-	9	-	4-662
W-KL41	Franklin	Norfolk	37.123851	-80.115802	PEM	RPWWD	03010101	Permanent Access Road	0.0229	-	-	111	-	4-661
W-D4	Franklin	Norfolk	37.122629	-80.076102	PEM	RPWWN	03010101	Permanent Access Road	0.0031	-	-	15	-	4-667
W-D4	Franklin	Norfolk	37.122625	-80.076071	PEM	RPWWN	03010101	Permanent Access Road	-	-	0.0009	-	4	4-667
W-D7-PEM	Franklin	Norfolk	37.121559	-80.085750	PEM	RPWWD	03010101	Pipeline ROW	0.0159	-	-	77	-	4-666
W-EF3	Franklin	Norfolk	37.117734	-80.095992	PEM	RPWWD	03010101	Permanent Access Road	0.0265	-	-	128	-	4-665
W-IJ1 W-IJ2-PSS	Franklin Franklin	Norfolk Norfolk	37.092927 37.092645	-80.027568 -80.027176	PEM PSS	RPWWD RPWWD	03010101 03010101	Pipeline ROW Pipeline ROW	0.0416	- 0.0080	-	671 129	-	4-677 4-677
W-IJ2-PSS W-IJ2-PEM	Franklin	Norfolk	37.092596	-80.027176	PEM	RPWWD	03010101	Pipeline ROW	- 0.0168	0.0080	-	271	-	4-677
W-GH2	Franklin	Norfolk	37.092404	-79.983182	PSS	RPWWD	03010101	Timber Mat Crossing	-	0.0130	-	63	-	4-684
W-II8	Franklin	Norfolk	37.091357	-79.992006	PEM	RPWWD	03010101	Timber Mat Crossing	0.0088	-	-	43	-	4-683
W-IJ6	Franklin	Norfolk	37.089156	-80.005036	PEM	RPWWD	03010101	Timber Mat Crossing	0.0046	-	-	22	-	4-681
W-E7	Franklin	Norfolk	37.084557	-79.947595	PEM	RPWWD	03010101	Pipeline ROW	0.2522	-	-	4,068	-	4-690
W-E8	Franklin	Norfolk	37.082843	-79.946100	PEM	RPWWD	03010101	Pipeline ROW	0.0691	-	-	1,114	-	4-690
W-EF51	Franklin	Norfolk	37.064781	-79.874460	PEM	RPWWD	03010101	Pipeline ROW	0.0133	-	-	64	-	4-705
W-KL43b	Franklin	Norfolk	37.059608	-79.840707	PEM	RPWWD	03010101	Pipeline ROW	0.0004	-	-	2	-	4-710
W-CD6	Franklin	Norfolk	37.057586	-79.915232	PEM	RPWWN	03010101	Timber Mat Crossing	0.0934	-	-	452	-	4-698
W-CD5	Franklin	Norfolk	37.055438	-79.910624	PFO	RPWWN	03010101	Pipeline ROW	-	0.1136	-	1,833	-	4-698
W-EF48	Franklin	Norfolk	37.052142	-79.886197	PEM	RPWWD	03010101	Timber Mat Crossing	0.0080	-	-	39	-	4-702
W-CD1 W-DD1	Franklin Franklin	Norfolk Norfolk	37.047767 37.031961	-79.897568 -79.788589	PFO PEM	RPWWD RPWWN	03010101 03010101	Pipeline ROW Pipeline ROW	- 0.0813	0.1106	-	1,785 1,312	-	4-701 4-720
W-DDT W-A12-PFO	Franklin	Norfolk	37.031961	-79.788099	PEM	RPWWN	03010101	Pipeline ROW	0.0613	- 0.0040	-	1,312	-	4-720
W-A12-PEM	Franklin	Norfolk	37.031643	-79.788111	PEM	RPWWD	03010101	Pipeline ROW	0.0651	-		1,050	-	4-720
W-GH16	Franklin	Norfolk	37.028394	-79.773243	PFO	RPWWD	03010101	Timber Mat Crossing	-	0.0657	-	318	-	4-722
W-H17	Franklin	Norfolk	36.989390	-79.722090	PFO	RPWWD	03010101	Timber Mat Crossing	-	0.0369	-	179	-	4-730
W-H11	Franklin	Norfolk	36.988077	-79.702803	PEM	RPWWD	03010101	Pipeline ROW	0.0468	-	-	755	-	4-734
W-H16	Franklin	Norfolk	36.988073	-79.714967	PEM	RPWWD	03010101	Timber Mat Crossing	0.0232	-	-	112	-	4-731
W-H14	Franklin	Norfolk	36.988069	-79.711841	PEM	RPWWD	03010101	Timber Mat Crossing	0.0061	-	-	30	-	4-732
W-A8	Franklin	Norfolk	36.987947	-79.700844	PEM	RPWWD	03010101	Pipeline ROW	0.0154	-	-	75	-	4-734
W-H15	Franklin	Norfolk	36.987938	-79.714829	PSS	RPWWD	03010101	Timber Mat Crossing	-	0.0071	-	35	-	4-731
W-H9	Franklin	Norfolk	36.978536	-79.682057	PEM	RPWWN	03010101	Timber Mat Crossing	0.0085	-	-	41	-	4-736
W-H6	Franklin	Norfolk	36.972189	-79.663042	PEM	RPWWD	03010101	Pipeline ROW	0.0057	-	-	28	-	4-741
W-D3	Pittsylvania	Norfolk	36.965318	-79.598760	PFO	RPWWN	03010101	Timber Mat Crossing	-	0.0285	-	138	-	4-748
W-MM17 W-B5	Franklin Pittsylvania	Norfolk Norfolk	36.964731 36.959293	-79.617067 -79.586201	PEM PEM	RPWWD RPWWN	03010101 03010101	Pipeline ROW Pipeline ROW	0.0068	-	-	110 23	-	4-746 4-751
W-B5 W-B4-PSS	Pittsylvania	Norfolk	36.959293	-79.586201 -79.583666	PEM	RPWWN	03010101	Pipeline ROW		- 0.0047		23	-	4-751
W-B4-P33 W-C1	Pittsylvania	Norfolk	36.929954	-79.526831	PSS	RPWWD	03010101	Timber Mat Crossing	- 0.0182	-	-	88	-	4-751
W-01 W-H5	Pittsylvania	Norfolk	36.924983	-79.517159	PEM	RPWWD	03010101	Pipeline ROW	0.2067	-	-	3,335	-	4-759
W-B3	Pittsylvania	Norfolk	36.916508	-79.492360	PEM	RPWWN	03010101	Timber Mat Crossing	0.0013	-	-	6	-	4-762
W-CC2-PEM	Pittsylvania	Norfolk	36.905418	-79.471566	PEM	RPWWD	03010105	Timber Mat Crossing	0.0272	-	-	132	-	4-765
W-MM5	Pittsylvania	Norfolk	36.903012	-79.468192	PSS	RPWWD	03010105	Timber Mat Crossing	-	0.0390	-	189	-	4-766
W-MM9	Pittsylvania	Norfolk	36.894087	-79.446110	PEM	RPWWN	03010105	Timber Mat Crossing	0.0108	-	-	52	-	4-769
W-MM8-PEM	Pittsylvania	Norfolk	36.894034	-79.445486	PEM	RPWWN	03010105	Pipeline ROW	0.0553	-	-	893	-	4-769
W-MM8-PFO	Pittsylvania	Norfolk	36.893930	-79.445461	PFO	RPWWN	03010105	Pipeline ROW	-	0.0421	-	679	-	4-769
W-Q2	Pittsylvania	Norfolk	36.884674	-79.428607	PFO	RPWWD	03010105	Pipeline ROW	-	0.3770	-	6,082	-	4-771
W-Q1	Pittsylvania	Norfolk	36.883985	-79.427305	PEM	RPWWD	03010105	Pipeline ROW	0.0146	-	-	236	-	4-771
W-G2	Pittsylvania	Norfolk	36.851816	-79.385930	PEM	RPWWD	03010105	Timber Mat Crossing	0.0346	-	-	167	-	4-779
W-H1	Pittsylvania	Norfolk	36.836097	-79.360895	PEM	RPWWN	03010105	Pipeline ROW	0.0110	-	-	53	-	4-782
W-EF6	Pittsylvania	Norfolk	36.835004	-79.339128	PFO	RPWWD	03010105	Pipeline ROW	-	0.0667	-	323	-	4-786

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴		Permanent Fill (cubic yards) ⁶	Figure
W-H2	Pittsylvania	Norfolk	36.834817	-79.360479	PEM	RPWWD	03010105	Pipeline ROW	0.7987	-	-	12,886	-	4-782
W-IJ21	Pittsylvania	Norfolk	36.834623	-79.338527	PFO	RPWWN	03010105	Timber Mat Crossing	-	0.0106	-	51	-	4-786
W-H3	Pittsylvania	Norfolk	36.833741	-79.360081	PEM	RPWWN	03010105	Pipeline ROW	0.0509	-	-	821	-	4-783
W-MM3	Pittsylvania	Norfolk	36.830361	-79.356631	PSS	RPWWD	03010105	Pipeline ROW	-	0.0340	-	548	-	4-783
W-IJ22-PEM	Pittsylvania	Norfolk	36.827780	-79.350264	PEM	RPWWD	03010105	Timber Mat Crossing	0.0390	-	-	189	-	4-784
W-IJ22-PFO	Pittsylvania	Norfolk	36.827748	-79.350295	PFO	RPWWD	03010105	Timber Mat Crossing	-	0.0785	-	380	-	4-784

Notes:

1 - In decimal degrees.

2 - PEM = Palustrine Emergent

- PSS = Palustrine Scrub-Shrub

- PFO = Palustrine Forested

- RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs)
 - RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs
 - NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Construction of access roads will not result in impacts to tidal wetlands or wetlands adjacent to tidal waters. Construction, maintenance, or expansion of substation facilities will not result in discharges to non-tidal wetlands adjacent to tidal waters of the United States.
 Acres are rounded to four decimal places.

5 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.

6 - Permanent fill associated with the construction of permanent access road and facilities. Cubic yards are rounded to the nearest whole number.



 Table 4 (Stream Impacts Summary)

USACE District	Cowardin Class	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Fill (cubic yards)	Permanent Fill (cubic yards)
	Ephemeral	617	137	500	42
Dittaburgh District	Intermittent	332	0	622	0
Pittsburgh District	Perennial	1,007	55	4,458	178
	Pittsburgh District Total	1,956	192	5,580	220
	Ephemeral	4,944	265	4,745	92
Uuntington District	Intermittent	5,624	296	8,511	152
Huntington District	Perennial	8,518	335	42,208	536
	Huntington District Total	19,086	896	55,464	780
	Ephemeral	3,966	45	6,274	35
Norfolk District	Intermittent	6,383	0	10,478	0
Norfolk District	Perennial	6,921	65	30,294	55
	Norfolk District Total	17,270	110	47,046	90
	Ephemeral	9,527	447	11,519	169
	Intermittent	12,339	296	19,611	152
All District	Perennial	16,446	455	76,960	769
	All Districts Grand total	38,312	1,198	108,090	1,090



Table 5 (Wetland Impacts Summary)

USACE District	Cowardin Class	Temporary Impacts (acres)	Permanent Conversion Impacts (acres)	Permanent Fill Impacts (acres)	Temporary Fill (cubic yards)	Permanent Fill (cubic yards)
	PEM	2.0423	0.0000	0.0000	18,284	0
Ditteburgh District	PSS	0.0000	0.1444	0.0000	699	0
Pittsburgh District	PFO	0.0000	0.0110	0.0000	127	0
	Pittsburgh District Total	2.0423	0.1554	0.0000	19,110	0
	PEM	7.9213	0.0000	0.4374	90,147	2,723
Huntington District	PSS	0.0000	0.3698	0.0084	5,306	40
Huntington District	PFO	0.0000	1.2251	0.0000	17,100	0
	Huntington District Total	7.9213	1.5949	0.4458	112,553	2,763
	PEM	3.9550	0.0000	0.0539	56,707	259
Norfolk District	PSS	0.0000	0.7644	0.0000	7,029	0
NOTOK DISTICT	PFO	0.0000	1.1898	0.0000	14,683	0
	Norfolk District Total	3.9550	1.9542	0.0539	78,419	259
	PEM	13.9186	0.0000	0.4913	165,138	2,982
	PSS	0.0000	1.2786	0.0084	13,034	40
All District	PFO	0.0000	2.4259	0.0000	31,910	0
	All Districts Grand Total	13.9186	3.7045	0.4997	210,082	3,022



Table 15 (Crossing Method Determination Summary)

		-			s	Evaluation Factor								
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
This crossing is situated or provide insufficient area for	– Dry-Ditch Open-Cut	\$178,577	N	N	648	51	106	N	-	69	Dry-Ditch Open-Cut	W-A1a, S-A1a	A-001	Huntington
allow sufficient work		\$451,592	N	N	648	51	106	Ν	28	69	Conventional Bore			. i al la la grott
This crossing is situated or	Day Ditch Orea Out	\$64,909	N	N	932	49	71	N	-	47	Dry-Ditch Open-Cut	0.425	A 002	Livetineten
provide insufficient are	– Dry-Ditch Open-Cut	\$754,544	N	N	932	49	71	N	34	47	Conventional Bore	S-A3a	A-003	Huntington
This one foot wide stream i would require an excessive		\$188,752	N	N	1432	44	59	N	-	203	Dry-Ditch Open-Cut			
resource which furth Furthermore, the time to c	– Dry-Ditch Open-Cut	\$3,194,292	N	N	1432	44	59	N	48	203	Conventional Bore	S-A124	A-005	Huntington
This crossing is located in a challenging winching syste		\$90,372	N	N	1268	62	74	N	-	95	Dry-Ditch Open-Cut	W-A27-PFO, W-		
additional tree clearing in	– Dry-Ditch Open-Cut	\$927,306	N	N	1268	62	74	N	36	95	Conventional Bore	A27-PEM, S-A118	A-006	Huntington
There are no significant co		\$102,339	Y	N	629	20	36	N	-	85	Dry-Ditch Open-Cut	S-A120, S-A119, W-		
methods. The direct aquati	 Conventional Bore 	\$506,135	Y	N	629	20	36	N	29	85	Conventional Bore	A34	A-008	Huntington
This small wetland is loc		\$28,000	N	N	350	47	57	N	-	40	Dry-Ditch Open-Cut			
crossing and provide insu twice as long and the cos	– Dry-Ditch Open-Cut	\$2,786,247	N	N	350	47	57	N	49	40	Conventional Bore	W-B1a	A-009	Pittsburgh
This crossing is located or		\$198,323	N	N	711	47	58	N	-	243	Dry-Ditch Open-Cut	S-B2a, W-A40, S-		
would require an excessiv crossing is nearly five time	– Dry-Ditch Open-Cut	\$3,362,357	N	N	711	47	58	N	49	243	Conventional Bore	B3a	A-010/011	Pittsburgh
This crossing is located require an excessively deep		\$114,692	N	N	375	59	79	N	-	96	Dry-Ditch Open-Cut	S-A11a, S-A11a-		
require an excessively deep is nearly four times as long	– Dry-Ditch Open-Cut	\$2,617,901	N	N	375	59	79	N	43	96	Conventional Bore	Braid-1, S-A11a- Braid-2	A-012	Pittsburgh
This narrow wetland (less th		\$21,000	Y	N	0	7	38	N	-	30	Dry-Ditch Open-Cut			
bore. In addition, the bore of s	- Dry-Ditch Open-Cut	\$162,784	Y	N	0	7	38	N	17	30	Conventional Bore	W-UU3	A-013	Pittsburgh

Crossing	Method	Decision	Rationale
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t on a long and steep slope on one side that would create logistically difficult construction conditions and for a bore pit spoils. Additionally, the presence of existing utilities and a completed road crossing do not rkspace for excavation of a bore pit and operation of conventional boring or tunneling equipment.
on a long and steep slope on one side that would involve logistically difficult construction conditions and area for a bore pit spoils. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.
m is situated on a long and steep slope that would involve logistically difficult construction conditions and sively deep bore pit for a trenchless crossing. An already completed stream crossing is located near this rther reduces the available work space and creates an insufficient area for a bore pit soil stockpile. o complete a trenchless crossing is nearly four times as long and the cost to bore is unreasonably high relative to the proposed construction method.
in a valley that has long and steep slopes on both sides which would require a technically and logistically stem. In addition, the deep bore pits would require additional areas to stockpile soils which may require g in known use Indiana Bat habitat. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.
constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
located on a steep slope would create logistically difficult construction conditions on both sides of the sufficient room for the spoils from the excessively deep bore pits. The bore duration is estimated to be cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.
t on a long and steep slope on one side that would create logistically difficult construction conditions and sively deep bore pit for a trenchless crossing. Furthermore, the estimated time to complete a trenchless imes as long and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.
ed at the base of a steep slope that would involve logistically difficult construction conditions and would sep bore pit for a trenchless crossing. Furthermore, the estimated time to complete a trenchless crossing ng and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.
s than five feet wide at the pipeline crossing) would be excessively expensive to complete as a trenchless re pits are of such depth (nearly 40-feet) that benching would be required, thereby increasing the amount of spoils created at the crossing and reducing the amount of available workspace.

			1		S	Evaluation Factor	1	-						
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
This crossing is located	– Dry-Ditch Open-Cut	\$264,165	N	N	808	45	55	N	-	73	Dry-Ditch Open-Cut	S-UU3	A-014	Pittsburgh
extensive ea		\$864,870	N	Ν	808	45	55	Ν	36	73	Conventional Bore			. nobulgit
This crossing is located of equipment winching sys Furthermore, the estimate ir		\$148,124	Y	Ν	412	32	48	Ν	-	190	Dry-Ditch Open-Cut	S-UU5, W-UU4	A-015	Dittohurgh
	- Dry-Ditch Open-Cut	\$1,215,184	Y	N	412	32	48	N	37	190	Conventional Bore	S-005, W-004	A-015	Pittsburgh
This crossing is located in winching system. In addit excavated. The lack of suffic comple	Day Ditch Orea Cut	\$222,731	N	N	453	36	58	N	-	286	Dry-Ditch Open-Cut	W-K43, S-K73, S-	A 046	Dittahurah
	— Dry-Ditch Open-Cu	\$1,469,361	N	N	453	36	58	N	36	286	Conventional Bore	K74, S-K75, W-K44		Pittsburgh
This crossing is located a winching system that is beyo	- Dry-Ditch Open-Cut	\$41,532	N	N	645	35	70	N	-	38	Dry-Ditch Open-Cut			
		\$363,615	N	N	645	35	70	N	28	38	Conventional Bore	W-K45, S-K77	A-017	Huntington
This crossing is located a winching system and a dee ut create a large volume of r complicates a trenchless o	- Dry-Ditch Open-Cut	\$60,206	N	N	341	51	77	N	-	36	Dry-Ditch Open-Cut			
		\$814,673	N	N	341	51	77	N	39	36	Conventional Bore	S-K67	A-018 S-	Huntington
This crossing is located ac pit for a trenchless crossing		\$55,234	Y	N	148	49	64	N	-	37	Dry-Ditch Open-Cut			
be excavated and stockpiled estimated time to complete	– Dry-Ditch Open-Cut	\$2,341,369	Y	N	148	49	64	N	41	37	Conventional Bore	S-K65	igton A-019A	Huntington
The estimated time to comp	- Dry-Ditch Open-Cut	\$194,600	Y	N	0	33	73	N	-	238	Dry-Ditch Open-Cut	S-A110/K62, W-		
bore pits are nearly 40-teel		\$1,387,946	Y	N	0	33	73	N	39	238	Conventional Bore	A23, S-A109	B-001	Huntington
This crossing is located conditions, an extensive	Dry-Ditch Open-Cut	\$77,982	N	N	667	58	75	N	-	38	Dry-Ditch Open-Cut			
reduces the available amou is more than double and		\$783,810	N	N	667	58	75	N	37	38	Conventional Bore	S-A111	B-001A	Huntington
The pipeline is already install		\$228,434	N	N	291	29	43	N	-	223	Dry-Ditch Open-Cut	W-J40, S-K82, S-		
excavation of a bore pit una	- סוע Ury-Ditch Open-Cut	\$861,237	N	N	291	29	43	N	25	223	Conventional Bore	W-J40, S-K82, S- K94	B-002	Pittsburgh

ed adjacent to long and steep slope that would involve logistically difficult construction conditions, an
equipment winching system, and an excessively deep bore pit for a trenchless crossing.

ed on long and steep slope that would involve logistically difficult construction conditions, an extensive system, and an excessively deep bore pit (37') that would require benching for a trenchless crossing. ated time to complete a trenchless crossing is nearly twice as long and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

d in a valley that has long and steep slopes on both sides which would require an extensive equipment ddition, the deep bore pits would require benching, which increases the total volume of material to be ufficient space to stockpile the material further complicates a trenchless crossing. The estimated time to uplete a trenchless crossing is nearly double and the cost is excessively expensive.

ed adjacent to a long and steep slope that would involve logistically difficult construction conditions, a eyond standard procedures and a deep bore pit for a trenchless crossing. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

ed adjacent to a steep slope that would involve logistically difficult construction conditions, an extensive deep bore pit for a trenchless crossing. In addition, the excessively deep bore pits (nearly 40 feet) would of material to be excavated and stockpile. The lack of sufficient space to stockpile the material further ess crossing. The estimated time to complete a trenchless crossing is more than double and the cost is unreasonably high relative to the proposed construction method.

adjacent to a steep slope that would involve logistically difficult construction conditions and a deep bore ing. In addition, the excessively deep bore pits (over 40 feet) would create a large volume of material to iled. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. The lete a trenchless crossing is more than four times longer than an open cut and the cost is unreasonably high relative to the proposed construction method.

mplete a trenchless crossing is nearly three times and the cost is excessively expensive. In addition, the set deep which requires benching, trench shoring, and sufficient room to create the bench and store the stockpiled material.

ted adjacent to a long and steep slope on one side that would involve logistically difficult construction ve winching system and a deep bore pit for a trenchless crossing. The proximity of adjacent resources nount of room to store the excavated material. Furthermore, the time to complete the trenchless crossing and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

stalled through a portion of the wetland at this crossing. The layout of a conventional bore would require nacceptably close to the installed pipe. Boring also would not avoid or minimize impacts to the resources because it would require excavation of a bore pit within the wetland.

							-	Evaluation Factor	s		•			
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Pittsburgh	B-003	S-J44	Dry-Ditch Open-Cut	46	-	N	70	44	1017	N	N	\$50,537	– Dry-Ditch Open-Cut	This stream is approximate that would create logist
			Conventional Bore	46	39	N	70	44	1017	N	Ν	\$843,053	-,,,	approximately 40 feet deep estimated time to complet
Huntington	B-005	W-K33-PEM	Dry-Ditch Open-Cut	117	-	N	75	57	496	N	N	\$81,900	– Dry-Ditch Open-Cut	This crossing is located a extensive winching system t would create a large volur further complicates a trench
Huntington	B-003	W-K33-FEIVI	Conventional Bore	117	48	N	75	57	496	Ν	N	\$2,950,226	Dry-Ditch Open-Cut	
Dittahurah	D 000	W 1/21	Dry-Ditch Open-Cut	96	-	N	62	55	220	Ν	N	\$67,200	Day Ditch Orea Cut	This crossing is situated on a feet), and provide insuffic nearly double of an ope
Pittsburgh	gh B-006 W-K3	W-K31	Conventional Bore	96	39	N	62	55	220	N	N	\$984,952	Dry-Ditch Open-Cu	
Dittalaurat	D 007	W 540	Dry-Ditch Open-Cut	143	-	N	56	21	417	N	N	\$100,100	- Dry-Ditch Open-Cut	This crossing is situated of winching systems, deep bor the trenchless crossing is do
Pittsburgh	B-007	W-B46	Conventional Bore	143	30	N	56	21	417	N	N	\$953,913		
D ¹¹¹ L	5.000	0.000	Dry-Ditch Open-Cut	45	-	N	32	20	0	N	Y	\$78,375	- Dry-Ditch Open-Cut	The trenchless crossing wou crossing. Furthermore, the ti tempor
Pittsburgh	B-008	S-H180	Conventional Bore	45	39	N	32	20	0	N	Y	\$840,215		
Dittahurah	B-009	W-H112	Dry-Ditch Open-Cut	260	-	N	9	4	0	N	Y	\$182,000	- Dry-Ditch Open-Cut	The open cut method wou conventional bore would re
Pittsburgh	P-009	W-H112	Conventional Bore	260	20	N	9	4	0	Ν	Y	\$920,569		pit. Furthermore, the copy propo
Huntington	B-010	S-163	Dry-Ditch Open-Cut	74	-	N	100	59	341	Ν	Ν	\$122,275		This crossing is located ir winching system and exce
Hunungton	B-010	3-103	Conventional Bore	74	52	N	100	59	341	N	N	\$3,046,374	Dry-Ditch Open-Cut	narrowed ROW and cour
11	5.044	W 145	Dry-Ditch Open-Cut	56	-	N	66	43	661	N	N	\$39,200	- Dry-Ditch Open-Cut	This crossing is situated
Huntington	B-011	W-I15	Conventional Bore	56	30	N	66	43	661	N	N	\$707,008		winching systems, deep bo tempor
Huptin-to-	B 010	W H402 C H402	Dry-Ditch Open-Cut	148	-	N	33	14	462	N	Y	\$187,175		There are no significant con:
Huntington	B-012	W-H103, S-H160	Conventional Bore	148	24	N	33	14	462	N	Y	\$639,254		methods. The direct aquatic

Crossing Method Decision Rationale

ately five feet wide where the pipeline crosses. It is located a steep valley, with extremely long slopes istically difficult construction conditions, require extensive winching systems, and bore pits would be ep. The lack of sufficient space to stockpile the material further complicates a trenchless crossing. The ete a trenchless crossing is three times longer than an open cut and the cost is excessively expensive.

ed adjacent to a long and steep slope that would involve logistically difficult construction conditions, an stem and a deep bore pit (48-feet) for a trenchless crossing. In addition, the excessively deep bore pits olume of material to be excavated and stockpiled. The lack of sufficient space to stockpile the material enchless crossing. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

on a steep slope that would involve logistically difficult construction conditions, deep bore pits (nearly 40ufficient area for a bore pit soil stockpile. Furthermore, the time to complete the trenchless crossing is open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

ed on a long and steep slope that would involve logistically difficult construction conditions, extensive bore pits, and provides insufficient area for a bore pit soil stockpile. Furthermore, the time to complete s double of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

would require bore pits that are 39-feet deep, which minimizes the available area to complete an efficient the time to complete the trenchless crossing is more than double of an open cut and the cost to avoid the mporary impacts is unreasonably high relative to the proposed construction method.

ould result in a temporary impact to 0.02 acre of PEM. Avoiding/minimizing this minor impact through a require a 20 feet deep bore pit - possibly requiring the operator to work from a shallow bench within the conventional bore crossing cost to avoid the temporary impacts is unreasonably high relative to the posed construction method and take nearly triple the amount of time to complete.

d in a valley that has long and steep slopes on both sides which would require an extensive equipment cessively deep bore pits. The available area to store the excess material is extremely limited due to the bounty road. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

ted on a long and steep slope that would involve logistically difficult construction conditions, extensive bore pits, and provides insufficient area for a bore pit soil stockpile. Furthermore the cost to avoid the iporary impacts is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

						•	-	Evaluation Factor	S		•			
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Huntington	B-013	S-H153	Dry-Ditch Open-Cut	42	-	N	58	41	567	N	N	\$82,922	– Dry-Ditch Open-Cut	This crossing is situated in a limits of the winching sy
5			Conventional Bore	42	36	Ν	58	41	567	N	N	\$776,893	, , , ,	insufficient area to store t
Huntington	B-014A	S-H145	Dry-Ditch Open-Cut	32	-	N	76	39	520	N	N	\$85,448	– Dry-Ditch Open-Cut	This crossing is adjacent to (nearly 40-feet), and pro crossing is nearly five times
Hunungton	D-014A	3-1145	Conventional Bore	32	39	Ν	76	39	520	Ν	N	\$803,321	Dry-Ditch Open-Cut	
Huntington	P 014P	S-H165	Dry-Ditch Open-Cut	17	-	Ν	61	55	599	Ν	Ν	\$35,892	Dr./ Ditch Open Cut	This small stream (less than conditions, 31-feet deep bo the trenchless crossing is nea
Huntington	gton B-014B S-H	3-1105	Conventional Bore	17	31	Ν	61	55	599	Ν	N	\$614,596	— Dry-Ditch Open-Cu	
	B-015A		Dry-Ditch Open-Cut	193	-	Ν	17	6	0	N	N	\$206,271	- Conventional Bore	There are no significant cor methods. The direct aquatic
Huntington	B-015A	S-CD16, S-VV13	Conventional Bore	193	25	N	17	6	0	N	N	\$776,098		
	5.6455	S-VV12, W-CD16,	Dry-Ditch Open-Cut	132	-	N	63	40	873	N	Y	\$162,400	- Dry-Ditch Open-Cut	This multiple resource cross slope that is extremely long, deep, resulting in an ex
Huntington	B-015B	W-VV8	Conventional Bore	132	35	N	63	40	873	N	Y	\$1,014,042		
Li untin ate a	B-016	S-UV11	Dry-Ditch Open-Cut	54	-	Ν	71	45	782	N	N	\$90,653	- Dry-Ditch Open-Cut	Stream S-UV11 is a peren
Huntington	B-010	5-0011	Conventional Bore	54	23	Ν	71	45	782	N	N	\$363,349		average slope exceed 45%
Huntington	B-017	W-VV3-PEM, W-	Dry-Ditch Open-Cut	145	-	Ν	40	32	439	Ν	Ν	\$179,415	Dr./ Ditch Open Cut	This crossing is immedia would require the pipe to l
Hunungton	B-017	VV3-PFO, S-VV2	Conventional Bore	145	30	Ν	40	32	439	Ν	N	\$959,589	- Dry-Ditch Open-Cut	facilitate connection to the
	0.001	0.1.00	Dry-Ditch Open-Cut	42	-	Ν	60	32	189	N	N	\$134,876	- Dry-Ditch Open-Cut	The pipeline has already b Trenchless methods are
Huntington	C-001	S-L60	Conventional Bore	42	16	N	60	32	189	N	N	\$192,273		completed road bore and adjacent to the crossing, w
Linutin stars	0.000		Dry-Ditch Open-Cut	66	-	N	57	48	420	N	N	\$171,170		This crossing is located adja exceeding 45%. The bo
Huntington	C-002	S-LL1	Conventional Bore	66	30	N	57	48	420	N	N	\$735,388	- Dry-Ditch Open-Cut	conditions, complicated w

Crossing Method Decision Rationale

n a valley with steep slopes on both sides of the resource. The topographical constraints complicate the system, creating a logistically difficult construction condition and deep bore pits. In addition there is a the bore pit stockpile in the immediate area. Furthermore the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.
t to a long and steep slope that would involve logistically difficult construction conditions, deep bore pits provide insufficient area for a bore pit soil stockpile. Furthermore, the time to complete the trenchless es the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method
an 10-feet wide) is situated on a long and steep slope that would involve logistically difficult construction bore pits, and provide insufficient area for a bore pit soil stockpile. Furthermore, the time to complete nearly six times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.
constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
ossing present several factors that support an open-cut crossing. The resources are located on a steep ig, which would require a winching system of nearly 900-feet. In addition, the bore pits would be 35-feet excessive amount of soil, with limited area for storage. The cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.
ennial stream located adjacent to a steep slope that is extremely long, nearly 800 feet in length with an %. The bore pits are estimated to be over 20 feet which would require benching and additional area for spoil storage.
iately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult because they o be installed too deeply to facilitate connection to the valve site. An open cut crossing is necessary to the mainline valve. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.
y been installed under Big Knawl Road and there is a fully restored steep hill adjacent to the pipe tie-in. re technically and logistically difficult for this crossing because they would require the removal of the and are not less environmentally damaging than this temporary stream impact because the steep hill h, which has been fully restored, would have to be re-disturbed to complete a bore. A minor temporary impact associated with the bore to maintain access will be required.

adjacent to a steep slope that is extremely long, approximately 420-feet in length with an average slope he bore pits are estimated to be nearly 30 feet. These factors create logistically difficult construction d winching systems, and excessive spoils. Furthermore, the time to complete the trenchless crossing is nearly double the duration a.

				-	s	Evaluation Factor								
hod	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
This small stream (less are projected to be near	– Dry-Ditch Open-Cu	\$58,173	N	N	609	52	79	N	-	47	Dry-Ditch Open-Cut	S-QR30	C-003	Huntington
pit soil stockpile. Furth ten		\$2,860,658	N	N	609	52	79	Ν	50	47	Conventional Bore			,
This stream is located in -Cut deep, which creates logis		\$149,548	N	N	886	57	70	N	-	62	Dry-Ditch Open-Cut	S-J70	C-004	Huntington
the cost to av	- Diy-Dich Open-Cu	\$2,848,682	N	N	886	57	70	N	49	62	Conventional Bore	3-370	C-004	Huntington
This small stream (le		\$115,859	N	N	431	22	36	N	-	130	Dry-Ditch Open-Cut	0.11400	0.005	11 miliantes
Furthermore, the time to the te	— Dry-Ditch Open-Cu	\$2,987,120	N	N	431	22	36	N	48	130	Conventional Bore	S-H123	ton C-005 \$	Huntington
These resources are lo winch hill length is great	Dry-Ditch Open-Cut	\$119,359	N	N	413	37	63	N	-	135	Dry-Ditch Open-Cut		0.000	11 miliantes
pit soil stockpile. Further		\$3,328,582	N	N	413	37	63	N	54	135	Conventional Bore	W-H90, S-H123	C-006	Huntington
This stream is located i	- Dry-Ditch Open-Cut	\$159,225	N	N	571	66	87	N	-	146	Dry-Ditch Open-Cut	0.1145	0.007	
the time to complete the		\$4,068,891	N	N	571	66	87	N	67	146	Conventional Bore	S-H117	C-007	Huntington
This stream is located i extreme winch hill cond	- Dry-Ditch Open-Cut	\$119,663	N	N	617	40	47	N	-	95	Dry-Ditch Open-Cut	S-L46	C-008	Luntington
the time to complete the		\$3,815,063	N	N	617	40	47	N	65	95	Conventional Bore	S-L40	C-008	Huntington
Avoiding/minimizing this		\$75,133	Y	N	52	27	38	N	-	57	Dry-Ditch Open-Cut	S-L44	C-009	Huptington
	Dry-Ditch Open-Cut	\$819,463	Y	N	52	27	38	N	36	57	Conventional Bore	3-L44	C-009	Huntington
This stream is located o	— Dry-Ditch Open-Cut	\$160,343	N	N	690	34	51	N	-	78	Dry-Ditch Open-Cut	0.157	0.040	11 miliantes
-Cut lack of sufficient work		\$2,894,090	N	N	690	34	51	N	49	78	Conventional Bore	S-157	C-010	Huntington
This small stream (less		\$75,460	N	N	201	38	43	N	-	80	Dry-Ditch Open-Cut	S 400/4402	0.014	Li uptio este s
-Cut to bore pit depths (nearl trenchless crossing is ne	— Dry-Ditch Open-Cu	\$903,006	N	N	201	38	43	N	37	80	Conventional Bore	S-A96/A103	C-011	Huntington

Crossing Method Decision Rationale

than 10-feet wide) is situated in a valley with long and steep slopes on both approaches. The bore pits y 50-feet deep, which creates logistically difficult construction conditions and insufficient area for a bore ermore, the time to complete the trenchless crossing is five times the duration and the cost to avoid the porary impacts is unreasonably high relative to the proposed construction method.

a valley with long and steep slopes on both approaches. The bore pits are projected to be nearly 50-feet tically difficult construction conditions and insufficient area for a bore pit soil stockpile. Furthermore, and pid the temporary impacts is unreasonably high relative to the proposed construction method.

ess than 10-feet wide) is located adjacent to a steep slope, creating an extremely difficult construction the winching requirements, bore pit depths (nearly 50-feet deep), and lack of sufficient work space. o complete the trenchless crossing is nearly four times the duration of an open cut and the cost to avoid emporary impacts is unreasonably high relative to the proposed construction method.

cated adjacent to a long and steep slopes. The bore pits are projected to be over 50-feet deep and the r than 400 feet, which creates logistically difficult construction conditions and insufficient area for a bore more, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method and the construction time is greater than six times an open cut.

n a valley with steep slopes on both approaches. The steep slopes, extremely deep bore pits (67-feet), ions and lack of sufficient work space create a situation that is conducive to an open cut. Furthermore, trenchless crossing is nearly three times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

a valley with steep slopes on both approaches. The steep slopes, extremely deep bore pits (65-feet), tions and lack of sufficient work space create a situation that is conducive to an open cut. Furthermore, trenchless crossing is more than double the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

minor impact through a conventional bore would require a deep bore pit - creating excessive spoil piles, ge. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

n a steep slope. The steep slope, extremely deep bore pits (49-feet), extreme winch hill conditions and pace create a situation that is conducive to an open cut. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

han 10-feet wide) is located on a steep slope, creating an extremely difficult construction procedure due 40-feet deep), steep slopes, and lack of sufficient work space. Furthermore, the time to complete the arly three times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

		-			s	Evaluation Factor								
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
These small streams are procedure due to bore pi	- Dry-Ditch Open-Cut	\$133,056	N	N	334	35	41	N	-	121	Dry-Ditch Open-Cut	S-A97, S-A98	C-012	Huntington
complete the trenchless c	_,	\$3,834,305	Ν	Ν	334	35	41	N	64	121	Conventional Bore			· · · · · · · · · · · · · · · · · · ·
There are multiple complica Fork Holly River at this loca and unfavorable flow condit crossing at this location ex complete this crossing with	- Conventional Bore	\$366,800	Ν	Ν	460	22	42	Y	-	124	Dry-Ditch Open-Cut	S-A100	C-013A	Huntington
		\$571,142	N	Ν	460	22	42	Y	24	124	Conventional Bore	3-4100	C-UTSA	Hundington
The stream is located next f limited area for storage. The increasing the noise, aest stabilizing		\$340,499	Y	N	0	7	27	N	-	84	Dry-Ditch Open-Cut	0 570/500/04	0.0125	11timetere
	Dry-Ditch Open-Cut	\$430,219	Y	N	0	7	27	N	21	84	Conventional Bore	5-E76/E62/R1	n C-013B S-E78/E82/R	Huntington
The open cut method would wide. Avoiding/minimizing t -Ditch Open-Cut feet on the edge of a steep space occupied by the bore cut and th		\$168,097	N	N	396	30	50	N	-	220	Dry-Ditch Open-Cut	S-KK2, S-KK3b, S-	0.045	l les d'autor
	bry-bitch Open-Cut	\$1,318,593	N	N	396	30	50	N	38	220	Conventional Bore	КК4Ь	C-015	Huntington
There are no significant con onal Bore methods. The direct aquatic	Conventional Bore	\$165,892	N	N	11	24	42	N	-	92	Dry-Ditch Open-Cut	0.540	0.040	l les d'autor
		\$526,000	N	N	11	24	42	N	29	92	Conventional Bore	S-F40	C-018	Huntington
Avoiding/minimizing this m		\$35,700	N	N	296	26	60	N	-	51	Dry-Ditch Open-Cut	W 1/2/20	0.040	11timetere
slope in an already reduced	- Dry-Ditch Open-Cut	\$217,815	N	N	296	26	60	N	16	51	Conventional Bore	W-ККЗ	C-019	Huntington
A trenchless crossing on thi	- Dry-Ditch Open-Cut	\$100,144	N	N	53	28	45	N	-	74	Dry-Ditch Open-Cut	0.540	0.000	
bench and interim ramp to a		\$794,631	N	N	53	28	45	N	32	74	Conventional Bore	S-F43	C-020	Huntington
The open cut method would a conventional bore would re	- Dry-Ditch Open-Cut	\$426,366	N	N	284	45	62	N	-	147	Dry-Ditch Open-Cut	0.555	0.00	11. 21. 1
a conventional bore would re of an interim ramp/bench. area that has already be		\$1,038,342	N	N	284	45	62	N	34	147	Conventional Bore	S-E67	C-021	Huntington
The Elk River will be crossed bore pits of this depth, seve within the proposed cros	Guided	\$860,247	Y	N	63	12	47	Y	-	296	Dry-Ditch Open-Cut	0.555	0.000	11. 21. 1
accomplish. In addition, thereby reducing the ava WVDNR as Group 1 mussel	Conventional Bore	\$3,112,112	Y	N	63	12	47	Y	49	296	Guided Conventional Bore	S-E68	C-022	Huntington

Crossing Method Decision Rationale

re less than 10-feet wide and are located on a steep slope, creating an extremely difficult construction pit depths (64-feet deep), steep slopes, and lack of sufficient work space. Furthermore, the time to s crossing is nearly 5 times the duration of an open cut and the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

licating factors at this crossing location that necessitated the development of a unique solution. The Left location is both wide and deep, and it is bounded on one side by a steep slope. Dealing with high water nditions, combined with the need to use winched equipment on one side of the river, make an open cut n extraordinarily challenging. Mountain Valley's engineering and construction staff developed a plan to with a conventional bore. A minor temporary impact associated with the bore to maintain access will be required.

ext to a steep slope and would require a bore pit exceeding 20 feet which creates excessive spoils in a The duration of the trenchless crossing is nearly three times longer than the open-cut process, thereby aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently ing this area will reduce the potential for sedimentation and erosion along the hillside.

uld result in a temporary impacts to three small UNTs to Left Fork Holly River, each less than three feet g these minor impacts through a conventional bore would require a relatively deep bore pit of nearly 40 p slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the re pit and spoil pile. The construction time for the bore is estimated to be five times as long as the open d the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

minor impact through a conventional bore would require an extensive winching system on a long steep ced area of work. In addition the cost to bore is unreasonably high relative to the proposed construction method.

this hillside would require bore pits that are greater than thirty feet deep, which necessitates the use of a o access the bore pit. The construction time for the bore is nearly twice as long as the open cut and the cost to bore is unreasonably high relative to the proposed construction method.

Id result in a temporary impact Right Fork Holly River. Avoiding/minimizing these minor impacts through d require a relatively deep bore pit of nearly 30 feet on the edge of a long steep slope and the excavation sh. The additional equipment and excess spoil materials will greatly limit the available space in a work been minimized. The construction time for the bore is nearly three times as long as the open cut.

sed using Microtunnel trenchless methodology. While Mountain Valley will typically avoid crossings with everal logistical constraints complicate the open cut methodology. There are numerous large boulders crossing - removing and restoring these to preconstruction contours would be extremely difficult to n, the stream depth complicates the constructability since a larger instream diversion would be required vailable space in a work area that has already been minimized. The Elk River is also classified by the sel stream. While mussel survey and relocation efforts were completed in 2019, completing a trenchless crossing will further minimize any potential impacts to mussel species.

					s	Evaluation Factor								
1	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
This small UNT to the Elk F depth, it is likely that the use	– Dry-Ditch Open-Cut	\$66,476	Y	N	0	18	26	N	-	84	Dry-Ditch Open-Cut	S-E71	C-023	Huntington
to be excavated and stock Furthermor		\$421,084	Y	N	0	18	26	N	20	84	Conventional Bore		0.020	Tuningon
There are no significant co		\$221,802	N	N	10	12	36	N	-	272	Dry-Ditch Open-Cut	S-H111, S-H114, S-		
methods. The direct aquatic	 Conventional Bore 	\$854,144	N	N	10	12	36	N	18	272	Conventional Bore	H112	C-024	Huntington
This UNT to the Elk River i would require the use of a b		\$82,656	Y	N	0	9	14	N	-	53	Dry-Ditch Open-Cut			
t excavated and stockpile. further complicates a t	– Dry-Ditch Open-Cut	\$415,319	Y	N	0	9	14	N	29	53	Conventional Bore	S-H113	C-025	Huntington
Avoiding/minimizing this		\$31,500	N	N	369	47	59	N	-	45	Dry-Ditch Open-Cut			
t operating from a bench	- Dry-Ditch Open-Cut	\$392,615	N	N	369	47	59	N	29	45	Conventional Bore	W-H75	C-026	Huntington
 The open cut method would 		\$54,600	Y	N	0	9	13	N	-	78	Dry-Ditch Open-Cut			
minor impact thro	– Dry-Ditch Open-Cut	\$294,440	Y	N	0	9	13	N	16	78	Conventional Bore	W-H86	C-027	Huntington
There are no significant co		\$251,373	Y	N	0	9	12	N	-	267	Dry-Ditch Open-Cut			
methods. The direct aquation	 Conventional Bore 	\$958,705	Y	N	0	9	12	N	22	267	Conventional Bore	S-H110	C-028	Huntington
The stream (Houston Run)		\$162,380	N	N	1903	13	32	N	-	78	Dry-Ditch Open-Cut			
t equipment and excess spo	- Dry-Ditch Open-Cut	\$299,008	N	N	1903	13	32	N	17	78	Conventional Bore	S-T29	C-029	Huntington
This UNT to Camp Creek is t nearly 50-feet deep which that is technically and logis		\$138,108	N	N	866	39	56	N	-	72	Dry-Ditch Open-Cut			
t that is technically and logis	- Dry-Ditch Open-Cut	\$2,767,971	N	N	866	39	56	N	47	72	Conventional Bore	S-A83/A91	C-030	Huntington
These two very small U		\$121,741	N	N	1190	39	78	N	-	120	Dry-Ditch Open-Cut			
t trenchless crossing on this of spoils and require a sign twice as long as the o	- Dry-Ditch Open-Cut	\$3,776,922	N	N	1190	39	78	N	63	120	Conventional Bore	S-A93, S-A92	C-031	Huntington

Crossing Method Decision Rationale

Diversities the first factoride bounded and in the second the state of the second
River (less than five feet wide) would require a bore pit that is a minimum of 20 feet deep. Due to this
se of a bench and interim access ramp would be required which would create a large volume of material
ckpile. The lack of sufficient space to stockpile the material further complicates a trenchless crossing.
ore, the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

r is located in an area that would require a bore pit depth of nearly 30 feet. The excavation to this depth a bench and interim access ramp would be required which would create a large volume of material to be e. The lack of sufficient space to stockpile the material in a work area that has already been minimized a trenchless crossing. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

s minor impact through a conventional bore would require a relatively deep bore pit, with an excavator th within the pit, at the edge of a steep slope. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

uld result in a temporary impact of approximately 0.001 acre of a PEM wetland. Avoiding/minimizing this rough a conventional bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

n) is located in a valley with extremely steep and long approaches. Avoiding/minimizing this minor impact al bore would require a deep bore pit of nearly 20 feet at the edge of long steep slopes. The additional poil materials will greatly limit the available space in a work area that has already been minimized, which increases the construction difficulty.

k is adjacent to a steep long slope . A trenchless crossing on this hillside would require bore pits that are ch would necessitate the use of a bench and interim ramp to access the bore pit and a winching system gistically difficult. The construction time for the bore is nearly three times as long as the open cut and the cost to bore is unreasonably high relative to the proposed construction method.

UNTs to Camp Creek are located on a long steep slope. Both streams are less than 10 feet wide. A nis hillside would require bore pits that are over 60-feet deep which would generate a significant amount gnificant winching system to be located on the reduced LOD. The construction time for the bore is nearly e open cut and the cost to bore is unreasonably high relative to the proposed construction method.

				-	s	Evaluation Factor								
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
Avoiding/minimizing these the edge of a very long and and bench and dramatically	– Drv-Ditch Open-Cut	\$307,728	N	N	1371	34	57	N	-	367	Dry-Ditch Open-Cut	S-H108, W-H67, W-	C-032	Huntington
would need to be loca	-,	\$1,699,237	Ν	N	1371	34	57	N	36	367	Conventional Bore	H66, S-H105		
This crossing is immed	– Dry-Ditch Open-Cut	\$39,885	Y	Ν	0	3	7	N	-	45	Dry-Ditch Open-Cut	S-H107	C-033	Huntington
connection to the v	Dry-Ditch Open-Cut	\$187,085	Y	N	0	3	7	N	13	45	Conventional Bore	5-1107	C-035	Hunungton
This crossing is adjacent to pipe to be installed too dee		\$173,907	Y	N	0	20	48	N	-	172	Dry-Ditch Open-Cut	W-H64-PEM, W- H64-PEM-2, W-H64-	C-034	Huntington
pipe to be installed too dee	Dry-Ditch Open-Cut	\$670,827	Y	N	0	20	48	N	20	172	Conventional Bore	PSS, S-H104	C-034	Huntington
There are no significant co	O	\$218,400	Y	N	0	8	20	N	-	312	Dry-Ditch Open-Cut	W 1100 W 1101	0.005	l lon for store
methods. The direct aquati	 Conventional Bore 	\$958,528	Y	N	0	8	20	N	16	312	Conventional Bore	W-H60, W-H61	C-035	Huntington
Avoiding/minimizing this m		\$70,700	N	N	288	23	36	N	-	101	Dry-Ditch Open-Cut		0.000	
with limited area for storage	– Dry-Ditch Open-Cut	\$505,869	N	N	288	23	36	N	24	101	Conventional Bore	W-B39	C-036	Huntington
Avoiding/minimizing this mi slope which would create	Day Ditab Orean Cut	\$69,300	Y	N	1103	31	36	N	-	99	Dry-Ditch Open-Cut	W-B31	C-037	Uuntinatan
being located within an	– Dry-Ditch Open-Cut	\$509,328	Y	Ν	1103	31	36	N	25	99	Conventional Bore	W-B31	0-037	Huntington
These crossings are locat excavation of an interim ra pits would need to be loc	Day Ditab Orean Cut	\$345,189	N	Ν	54	32	54	N	-	339	Dry-Ditch Open-Cut	S-B34, S-B35, S- B36, S-B37, S-B38, W-B35, S-B42, S-	0.020	Uuntinatan
trenchless crossing is ne impacts on nearby persons	– Dry-Ditch Open-Cut	\$1,656,313	N	N	54	32	54	N	38	339	Conventional Bore	W-B35, S-B42, S- B39b, S-B39a/B46, S-B45	C-038	Huntington
This crossing is situated or winching system, creating		\$137,791	N	N	1723	35	54	N	-	79	Dry-Ditch Open-Cut	0.04	0.000	l los dis store
store the bore pit stockpile	– Dry-Ditch Open-Cut	\$827,090	N	N	1723	35	54	N	33	79	Conventional Bore	S-04	C-039	Huntington
A trenchless crossing meth and blocking access to th		\$97,221	Y	N	0	11	27	N	-	38	Dry-Ditch Open-Cut	0 500	D 000	11 million alter
resource has been deemed perennial UNT to Birch Riv	– Dry-Ditch Open-Cut	\$345,345	Y	N	0	11	27	N	26	38	Conventional Bore	S-F36b	D-002	Huntington

Crossing Method Decision Rationale

se minor impacts through a conventional bore would require a relatively deep bore pit of nearly 40 feet on and steep slope, thereby requiring and extensive winching system and the excavation of an interim ramp ally increasing the space occupied by the bore pit and spoil pile. The excess spoils and winching system ocated on the already reduced LOD. The cost to bore is unreasonably high relative to the proposed construction method.

ediately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult due to the e valve site. An open cut crossing is necessary to facilitate the connection to the mainline valve.

t to a mainline valve. Trenchless crossing methods are logistically difficult because they would require the deeply to facilitate connection to the valve site. An open cut crossing is necessary to facilitate connection to the mainline valve.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

minor impact through a conventional bore would require a deep bore pit - creating excessive spoil piles, rage. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

minor impact through a conventional bore would require a deep bore pit on an extremely long and steep ate excessive spoil piles in a topographical setting that requires an extensive winching system, all while an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

cated along steep slopes and would require the installation of bore pits nearly 40 feet deep requiring the ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. The bore located on a steep slope that would require a logistically difficult winching process. The duration of the s nearly five times longer than the open-cut process, thereby increasing the noise, aesthetic, and other ons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

I on a long steep slope leading into the resource. The topographical constraints would create an extreme ing a logistically difficult construction condition and deep bore pits. In addition there is insufficient area to construction method.

ethod at this location could not be completed without excavating a bore pit within a landowner's driveway o their home. This situation would continue for several weeks. Accordingly, a trenchless crossing of this ned logistically impracticable. Additionally, boring is not "appropriate and practicable" for this crossing of a River because the temporary impacts to be avoided are minor, especially when considered in light of the significant adverse impacts on the homeowner.

	_				s	Evaluation Factor	-							
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
There are no significant co methods. The direct aquati	 Conventional Bore 	\$74,406	N	N	188	26	39	N	-	59	Dry-Ditch Open-Cut	S-B32, W-B30	D-004	Huntington
		\$350,135	Ν	N	188	26	39	N	20	59	Conventional Bore	,		
This crossing is located of piles, all while being locat	– Dry-Ditch Open-Cut	\$103,401	N	N	262	40	52	N	-	112	Dry-Ditch Open-Cut	W-B28, S-B29	D-005	Huntington
piles, all while being local	- Dry-Ditch Open-Cut	\$939,013	N	N	262	40	52	N	34	112	Conventional Bore	W-D20, 5-D29	D-005	Huntington
This crossing is located on this while being located wit	– Dry-Ditch Open-Cut	\$57,357	N	N	197	32	35	N	-	50	Dry-Ditch Open-Cut	0.550 W 524	D-006	Luntington
duration of the ope	- Dry-Ditch Open-Cut	\$689,980	N	N	197	32	35	N	30	50	Conventional Bore	S-E50, W-E21	D-006	Huntington
This crossing is located or piles, all while being locate		\$60,157	N	N	136	39	49	N	-	54	Dry-Ditch Open-Cut	S-E50, W-E18-PSS,	B 007	
t to protect the pipe coating, the	- Dry-Ditch Open-Cut	\$390,753	N	N	136	39	49	N	26	54	Conventional Bore	S-E50, W-E18-PSS, W-E18-PEM	D-007	Huntington
The UNT to Gauley River located on a slope that w		\$23,805	N	N	74	31	44	N	-	29	Dry-Ditch Open-Cut			
t being located within an alr	- Dry-Ditch Open-Cut	\$319,803	N	N	74	31	44	N	26	29	Conventional Bore	S-E49	D-008	Huntington
There are no significant co		\$151,288	N	N	371	27	35	N	-	59	Dry-Ditch Open-Cut	0.540	D. o.io	
methods. The direct aquation	 Conventional Bore 	\$414,078	N	N	371	27	35	N	27	59	Conventional Bore	S-E46	D-010	Huntington
There are no significant co methods. The direct aquatio		\$121,800	Y	N	0	4	7	N	-	174	Dry-Ditch Open-Cut	W-F12, W-F13, W-	D. O.L.	
methods. The direct aquation	 Conventional Bore 	\$562,319	Y	N	0	4	7	N	15	174	Conventional Bore	F15	D-011	Huntington
There are no significant co		\$109,699	Y	N	0	4	8	N	-	104	Dry-Ditch Open-Cut			
methods. The direct aquation	- Conventional Bore	\$381,930	Y	N	0	4	8	N	19	104	Conventional Bore	S-F20, W-F11	D-012	Huntington
This crossing is located adj		\$53,900	Y	N	32	26	42	N	-	77	Dry-Ditch Open-Cut		2.0/2	11. 2 .
t spoil piles, all while being	טרy-טונch Open-Cut	\$296,170	Y	N	32	26	42	N	17	77	Conventional Bore	W-K23	D-013	Huntington

Crossing Method Decision Rationale

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
d on a slope that would require bore pits greater than 30 feet deep which would create excessive spoil ated within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.
on a slope that would require bore pits that are 30 feet deep which would create excessive spoil piles, all vithin an already reduced LOD. Furthermore, the time to bore the resources is nearly three times the pen cut and the cost to bore is unreasonably high relative to the proposed construction method.
on a slope that would require bore pits that are nearly 30 feet deep which would create excessive spoil ated within an already reduced LOD. Because the pipeline ROW must remain free of woody vegetation g, a conversion impact is unavoidable. Furthermore, the time to bore the resources is nearly double and e cost to bore is unreasonably high relative to the proposed construction method.
er is approximately one foot in width, creating less than 0.01 acre of temporary impact. This crossing is would require bore pits that are nearly 30 feet deep which would create excessive spoil piles, all while already reduced LOD. Furthermore, the time to bore the resources is nearly double and the cost to bore is unreasonably high relative to the proposed construction method.
constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
djacent to a slope that would require bore pits that are nearly 20 feet deep which would create excessive g located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

		-			s	Evaluation Factor								
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The open cut would result located adjacent to a slope	– Dry-Ditch Open-Cut	\$38,154	N	N	92	32	54	N	-	37	Dry-Ditch Open-Cut	S-IJ57, W-IJ51	D-014	Huntington
bench and dramatica unreasonably	, , ,	\$707,895	N	N	92	32	54	N	33	37	Conventional Bore			5
This crossing is located or piles, all while being located		\$33,600	Y	N	0	17	24	N	-	48	Dry-Ditch Open-Cut	W-IJ50	D-015	Huntington
co		\$223,003	Y	Ν	0	17	24	N	19	48	Conventional Bore	W-1550	D-013	nunungion
The crossing of this sma temporary impact. This cro	Day Ditch Orea Cut	\$48,516	N	N	119	45	62	N	-	40	Dry-Ditch Open-Cut	S-IJ60	D-016	Unitiantea
t would create excessive spo bore is nearly six times t	- Dry-Ditch Open-Cut	\$2,404,428	N	N	119	45	62	N	42	40	Conventional Bore	5-1360	D-016	Huntington
The crossing of the small P		\$34,300	Y	N	0	23	40	N	-	49	Dry-Ditch Open-Cut			
a slope that would require within an already reduced L the o	- Dry-Ditch Open-Cut	\$723,681	Y	N	0	23	40	N	32	49	Conventional Bore	W-IJ55	D-017	Huntington
The crossing of this small L impact. This crossing is lo		\$20,473	N	N	74	28	54	N	-	18	Dry-Ditch Open-Cut			
t create excessive spoil piles is nearly double the time o	– Dry-Ditch Open-Cut	\$635,704	N	N	74	28	54	N	32	18	Conventional Bore	S-IJ62	D-018	Huntington
There are no significant co		\$70,318	Y	N	0	3	6	N	-	47	Dry-Ditch Open-Cut		5.640	
methods. The direct aquation	 Conventional Bore 	\$215,597	Y	N	0	3	6	N	18	47	Conventional Bore	S-B28, W-B27	D-019	Huntington
There are no significant co	O	\$110,600	Y	N	0	11	22	N	-	158	Dry-Ditch Open-Cut	W-FF6-PEM, W-	D 000	l les l'autor
methods. The direct aquation	- Conventional Bore	\$535,181	Y	N	0	11	22	N	19	158	Conventional Bore	W-FF6-PEM, W- FF6-PSS	D-020	Huntington
The crossing of the small		\$25,900	Y	N	0	11	23	N	-	37	Dry-Ditch Open-Cut		D. SS (Head a
	– Dry-Ditch Open-Cut	\$168,948	Y	N	0	11	23	N	14	37	Conventional Bore	W-FF3	D-021	Huntington
There are no significant co	0	\$207,247	N	N	10	19	28	N	-	117	Dry-Ditch Open-Cut	0.105		11. 27. 1
methods. The direct aquati	- Conventional Bore	\$542,142	N	N	10	19	28	N	23	117	Conventional Bore	S-J32	D-022	Huntington

Crossing Method Decision Rationale

sult in approximately 0.05 acre of temporary impacts to the wetland and stream system. This crossing is pe that would require bore pits that are over 30 feet deep requiring the excavation of an interim ramp and ically increasing the space occupied by the bore pit and spoil pile. Furthermore, the cost to bore is aly high relative to the proposed construction method and is estimated to take twice as long.

I on a slope that would require bore pits that are nearly 20 feet deep which would create excessive spoil ated within an already reduced LOD. Furthermore, the time to complete the bore is nearly double and the cost to bore is unreasonably high relative to the proposed construction method.

nall UNT to Rockcamp Run (less than 10 feet in width) open cut would result in less than 0.02 acre of rossing is located adjacent to a steep slope that would require bore pits that are over 40 feet deep which poil piles, all while being located within an already reduced LOD. Furthermore, the time to complete the s the open cut method and the cost to bore is unreasonably high relative to the proposed construction method.

II PEM system would result in approximately 0.02 acre of temporary impacts. This crossing is located on ire bore pits that are over 30 feet deep which would create excessive spoil piles, all while being located d LOD. Furthermore, the time to complete the bore is nearly double the time of the open cut method and the cost to bore is unreasonably high relative to the proposed construction method.

Il UNT to Cherry Run (less than 5 feet in width) open cut would result in less than 0.01 acre of temporary s located adjacent to a steep slope that would require bore pits that are nearly 30 feet deep which would iles, all while being located within an already reduced LOD. Furthermore, the time to complete the bore e of the open cut method and the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

III PEM system would result in approximately 0.04 acre of temporary impacts. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

					s	Evaluation Factors								
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The crossing of the small I The stream is less than ten	– Dry-Ditch Open-Cut	\$51,257	N	N	21	16	35	N	-	43	Dry-Ditch Open-Cut	S-A76, W-FF4	D-023	Huntington
of a ramp and benchir Furthermor		\$304,727	N	Ν	21	16	35	N	20	43	Conventional Bore	0700, W114	5 626	runingion
The duration of the trenchl aesthetic, and other impa		\$55,300	Y	Ν	0	9	16	N	-	79	Dry-Ditch Open-Cut	W 447	5.004	11
reduce the potential for sed	- Dry-Ditch Open-Cut	\$292,711	Y	N	0	9	16	N	15	79	Conventional Bore	W-A17	D-024	Huntington
Stream S-A75 is an UNT located adjacent to a slope		\$47,961	Y	N	0	13	31	N	-	25	Dry-Ditch Open-Cut		5.005	
t benching to successfully rea be difficult to store within t	- Dry-Ditch Open-Cut	\$271,913	Y	N	0	13	31	N	22	25	Conventional Bore	S-A75	D-025	Huntington
An open cut crossing woul that would require a bore		\$32,194	Y	N	0	14	31	N	-	29	Dry-Ditch Open-Cut			
reach the required depth within the already reduced	- Dry-Ditch Open-Cut	\$169,081	Y	N	0	14	31	N	19	29	Conventional Bore	S-A74	D-026	Huntington
The open cut would result ir a slope requiring bore pits		\$64,472	Y	N	0	13	18	N	-	59	Dry-Ditch Open-Cut			
t spoil piles, all while bein vegetation to protect the	- Dry-Ditch Open-Cut	\$377,539	Y	N	0	13	18	N	23	59	Conventional Bore	S-A73, W-A15	D-027	Huntington
There are no significant co		\$94,208	N	N	20	25	35	N	-	92	Dry-Ditch Open-Cut	W-A14, S-A72, S-		
methods. The direct aquatic	 Conventional Bore 	\$462,058	N	N	20	25	35	N	22	92	Conventional Bore	A71, S-A71-Braid	D-028	Huntington
Crossings D-029 and D-3 method at this location could their home. This situation		\$37,518	N	N	50	27	40	N	-	24	Dry-Ditch Open-Cut		5.000	
t deemed logistically imprac and intermittent UNT to Big in light of the significa	- Dry-Ditch Open-Cut	\$278,209	N	N	50	27	40	N	23	24	Conventional Bore	S-A67	D-029	Huntington
Crossings D-029 and D-3 method at this location could their home. This situation		\$62,886	Y	N	0	24	30	N	-	53	Dry-Ditch Open-Cut			
t deemed logistically imprac and intermittent UNT to Big in light of the significa	- Dry-Ditch Open-Cut	\$360,511	Y	N	0	24	30	N	23	53	Conventional Bore	S-A69	D-030	Huntington
The open cut would result small, less than five feet in		\$40,220	N	N	11	14	24	N	-	37	Dry-Ditch Open-Cut		D. ST.	there is a
t pits that are approximatel excessive spoil piles that wo the material. Furth	– Dry-Ditch Open-Cut	\$287,699	N	N	11	14	24	N	20	37	Conventional Bore	W-H53, S-H99	D-031	Huntington

Crossing Method Decision Rationale

Ill PEM system and UNT to Big Beaver Creek would result in less than 0.02 acre of temporary impacts. an feet in width. The bore pits associated with this crossing are 20 feet deep, which may require the use hing thereby creating excessive spoil piles, all while being located within an already reduced LOD. ore, the cost to bore is unreasonably high relative to the proposed construction method.

chless crossing would take longer to complete than the open-cut process, thereby increasing the noise, ipacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will edimentation and erosion along the hillside. In addition, the cost to bore is unreasonably high relative to the proposed construction method.

NT to Big Beaver Creek and would have approximately 0.02 acre of temporary impact. The resource is ope that would require a bore pit exceeding 20 feet. Bore pits of this depth require an interim ramp and reach the required depth. The deep excavation will create an excessive amount of spoil material that will in the already reduced LOD. In addition, the cost to bore is unreasonably high relative to the proposed construction method.

buld create approximately 0.007 acre of temporary impact. However the resource is located on a slope re pit nearing 20 feet. Bore pits of this depth may require an interim ramp and benching to successfully th. The deep excavation will create an excessive amount of spoil material that will be difficult to store d LOD. In addition, the cost to bore is unreasonably high relative to the proposed construction method.

t in approximately 0.10 acre of temporary impacts to the wetland and stream. This crossing is located on its that are over 20 feet deep which necessitate the use of a ramp and benching, resulting in excessive eing located within an already reduced LOD. Because the pipeline ROW must remain free of woody the pipe coating, a conversion impact to the wetland is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

-30 are immediately adjacent to each other and have been evaluated in concert. A trenchless crossing uld not be completed without excavating a bore pit within a landowner's driveway and blocking access to ion would continue for several weeks. Accordingly, a trenchless crossing of these resources has been acticable. Additionally, boring is not "appropriate and practicable" for these crossings (a small perennial Big Beaver Creek) because the temporary impacts to be avoided are minor, especially when considered icant adverse impacts on the homeowner. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

-30 are immediately adjacent to each other and have been evaluated in concert. A trenchless crossing uld not be completed without excavating a bore pit within a landowner's driveway and blocking access to ion would continue for several weeks. Accordingly, a trenchless crossing of these resources has been acticable. Additionally, boring is not "appropriate and practicable" for these crossings (a small perennial Big Beaver Creek) because the temporary impacts to be avoided are minor, especially when considered icant adverse impacts on the homeowner. Furthermore, the cost to avoid the temporary impacts is unreasonably high relative to the proposed construction method.

It in approximately 0.01 acre of temporary impacts to the wetland and stream. The stream is extremely in width and the wetland barely enters the LOD. However, the trenchless crossing would require bore tely 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile infhermore, the cost to bore is unreasonably high relative to the proposed construction method.

		-			s	Evaluation Factor	-							
posed Ig Method	Proposed Crossing Metho	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The crossing o	− Dry-Ditch Open-Ci	\$321,268	N	N	441	45	58	N	-	99	Dry-Ditch Open-Cut	S-A65	D-032	Huntington
h Open-Cut the need for sign is nearly six tim		\$2,462,779	N	N	441	45	58	Ν	40	99	Conventional Bore			······g-···
There are no sig	Conventional Bore	\$70,014	N	Ν	132	33	39	Ν	-	40	Dry-Ditch Open-Cut	S-N15	D-034	Huntington
		\$323,617	N	N	132	33	39	N	23	40	Conventional Bore	3-1113	D-034	nunungion
There are no sig tional Bore methods. The dir	Conventional Bore	\$65,040	Y	Ν	0	6	12	N	-	44	Dry-Ditch Open-Cut	S-N14	D-035	Huntington
		\$202,516	Y	N	0	6	12	N	17	44	Conventional Bore	3-1114	D-035	Huntington
There are no sig	O	\$87,745	Y	N	0	16	26	N	-	73	Dry-Ditch Open-Cut		5.000	ll
tional Bore methods. The dir	 Conventional Bore 	\$389,867	Y	N	0	16	26	N	20	73	Conventional Bore	S-I43, W-I7	D-036	Huntington
There are no sig		\$52,288	Y	N	0	19	28	N	-	32	Dry-Ditch Open-Cut		D 007	
tional Bore methods. The di	 Conventional Bore 	\$177,595	Y	N	0	19	28	N	19	32	Conventional Bore	S-144	D-037	Huntington
There are no sig		\$33,704	N	N	10	21	51	N	-	20	Dry-Ditch Open-Cut	S-145	D-038	Huntington
tional Bore methods. The dir	 Conventional Bore 	\$143,539	N	N	10	21	51	N	19	20	Conventional Bore	5-140	D-038	Huntington
h Open-Cut Stream S-I47 is open cut is		\$24,803	Y	N	0	12	15	N	-	27	Dry-Ditch Open-Cut	S-147	D-039	
open cut is	- Dry-Ditch Open-Ci	\$140,568	Y	N	0	12	15	N	14	27	Conventional Bore	5-147	D-039	Huntington
There are no sig	O	\$59,850	N	N	41	16	33	N	-	35	Dry-Ditch Open-Cut	0.140	5.040	l la contra da con
tional Bore methods. The dir	Conventional Bor	\$163,272	N	N	41	16	33	N	14	35	Conventional Bore	S-148	D-040	Huntington
h Open Cut Mountain Valle		\$1,389,500	Y	N	1732	0	54	N	-	420	Dry-Ditch Open-Cut	0.100	D.011	l la materia
т ореп-оц	— Dry-Ditch Open-Ci	\$7,309,091	Y	N	1732	0	54	N	57	420	Microtunnel	S-J29	D-041	Huntington

Crossing Method Decision Rationale

aver Creek using a trenchless method would require bore pits up to 40-feet deep. The crossing is also g steep slope. The combination of deep bore pits and steep slopes would require excessive excavation, ock pile storage, and a using an extensive winching system. Furthermore, the time to complete the bore pen cut method and the cost to bore is unreasonably high relative to the proposed construction method.
constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
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constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
to Gauley River and is very small - less than five feet in width. The temporary impact associated with an in 0.01 acre. The cost to bore is unreasonably high relative to the proposed construction method.
constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
ommitted to the USFWS that the Gauley River would be bored to prevent possible impacts to potential Candy Darter habitat.

					s	Evaluation Factor								
1	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The open cut would result i a slope that would requir winching equipment, all v	– Dry-Ditch Open-Cut	\$78,505	N	N	306	27	43	N	-	87	Dry-Ditch Open-Cut	W-J8, S-J28	D-042	Huntington
woody vegetation to prote the resources is d	-,,,	\$484,406	N	N	306	27	43	N	26	87	Conventional Bore			,
The temporary impact ass		\$69,641	Y	Ν	0	18	29	N	-	73	Dry-Ditch Open-Cut	S-J25	D-043	11timetere
t excessive spoil piles that w the material. Fur	- Dry-Ditch Open-Cut	\$399,001	Y	Ν	0	18	29	N	21	73	Conventional Bore	3-120	D-043	Huntington
This area has been subje mainline valve to a differer t at this location over an		\$103,246	Y	Ν	0	9	31	N	-	73	Dry-Ditch Open-Cut	S-J24	D-044	Huntington
minimizes the time constru	– Dry-Ditch Open-Cut	\$284,818	Y	Ν	0	9	31	N	17	73	Conventional Bore	3-J24	D-044	Huntington
Stream S-J23 is an UNT f with an open cut is less that		\$20,978	Y	N	0	14	23	N	-	25	Dry-Ditch Open-Cut		D. 645	
t deep. Bore pits of this dep to be located within an alre	– Dry-Ditch Open-Cut	\$148,594	Y	N	0	14	23	N	17	25	Conventional Bore	S-J23-EPH	D-045	Huntington
The trenchless crossing w use of a ramp and benchin		\$52,396	Y	N	0	18	23	N	-	58	Dry-Ditch Open-Cut	0.000 1/1 17	5.640	
t minimized LOD is insuff protect the pipe coating, a	– Dry-Ditch Open-Cut	\$356,431	Y	N	0	18	23	N	21	58	Conventional Bore	S-J22, W-J7	D-046	Huntington
The resources are very sm		\$78,469	Y	N	0	18	25	N	-	84	Dry-Ditch Open-Cut	S-N10, S-N10-Braid	D.047	
^t spoil piles that would ne material. Furth	- Dry-Ditch Open-Cut	\$421,084	Y	N	0	18	25	N	20	84	Conventional Bore	S-N10, S-N10-Braid	D-047	Huntington
There are no significant co	Our set of Day	\$33,872	Y	N	0	11	17	N	-	30	Dry-Ditch Open-Cut	0.554	5.640	
methods. The direct aquati	 Conventional Bore 	\$153,650	Y	N	0	11	17	N	15	30	Conventional Bore	S-EE1	D-048	Huntington
The stream is a very sma are approximately 20 feet		\$26,485	Y	N	0	18	38	N	-	27	Dry-Ditch Open-Cut			
t spoil piles that would ne material. Furth	– Dry-Ditch Open-Cut	\$158,838	Y	N	0	18	38	N	18	27	Conventional Bore	S-N13	D-049	Huntington
The crossing of the Jim addition, the crossing is a , conventional bore would		\$132,036	N	N	644	63	77	N	-	88	Dry-Ditch Open-Cut		D. offic	I heading in
t require a technically Furthermore, the cost to be	– Dry-Ditch Open-Cut	\$3,413,379	N	N	644	63	77	N	58	88	Conventional Bore	S-L41	D-050	Huntington

Crossing Method Decision Rationale

It in approximately 0.06 acre of temporary impacts to the wetland and stream. This crossing is located on uire bore pits that are nearly 30 feet deep which would create excessive spoil piles and require multiple Il while being located within an already reduced LOD. Because the pipeline ROW must remain free of betet the pipe coating, a conversion impact to the wetland is unavoidable. Furthermore, the time to bore s double and the cost to bore is unreasonably high relative to the proposed construction method.

ssociated with an open cut is less than 0.01 acre. However, the trenchless crossing would require bore tately 20 feet deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in would need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile urthermore, the cost to bore is unreasonably high relative to the proposed construction method.

ject to frequent flooding from adjacent streams, which previously caused Mountain Valley to relocate a ent location. These conditions present an unacceptable risk for crews and equipment completing a bore in extended duration. Completing this crossing of a small UNT to Little Laurel Creek with an open cut ruction crews and equipment must be onsite, thereby greatly reducing risks to the safety of the crew, the environment, and the success of the crossing installation.

to Little Laurel Creek and is very small - less than two feet in width. The temporary impact associated han 0.01 acre. However, the trenchless crossing would require bore pits that are approximately 20 feet epth may necessitate the use of a ramp and benching, resulting in excessive spoil piles that would need ready reduced LOD. The minimized LOD is insufficient to stockpile the material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

would require bore pits that are approximately 20 feet deep. Bore pits of this depth may necessitate the ing, resulting in excessive spoil piles that would need to be located within an already reduced LOD. The ufficient to stockpile the material. Because the pipeline ROW must remain free of woody vegetation to I, a conversion impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

mall (less than five feet in width) UNT to Skelt Run. The trenchless crossing would require bore pits that at deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the hermore, the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

all (less than five feet in width) UNT to Skelt Run. The trenchless crossing would require bore pits that at deep. Bore pits of this depth may necessitate the use of a ramp and benching, resulting in excessive need to be located within an already reduced LOD. The minimized LOD is insufficient to stockpile the hermore, the cost to bore is unreasonably high relative to the proposed construction method.

ms Creek (S-L41) using a trenchless method would require bore pits that are nearly 60 feet deep. In at the base of an extremely long and steep approach. Avoiding/minimizing this minor impact through a d require a deep bore pit which would create excessive spoil piles in a topographical setting that would y and logistically difficult winching system, all while being located within an already reduced LOD. bore is unreasonably high relative to the proposed construction method and would take more than twice as long to complete.

								Evaluation Factor	rs					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Huntington	D-051	S-L38	Dry-Ditch Open-Cut	66	-	N	34	29	21	Ν	N	\$56,701	- Dry-Ditch Open-Cut	Stream S-L38 is an UNT t steep slope. The temporar bore pits that are approxima
Tuningon	2 001	0 200	Conventional Bore	66	32	N	34	29	21	N	N	\$771,927		deep bore pit which would difficult winching system, al
Huntington	D-052	S-L35	Dry-Ditch Open-Cut	28	-	N	29	21	10	N	N	\$34,350	Dry-Ditch Open-Cut	S-L35 is Riley Branch is less since the requirements asso require a bore pit exceed excavated material that mu
Tunungton	0-002	0-200	Conventional Bore	28	21	N	29	21	10	N	N	\$271,292	bry-bion open-out	access ramps and associat also located near a steep addition to the deep bore p
Huntington	D-053	S-L35	Dry-Ditch Open-Cut	42	-	N	30	16	o	N	Y	\$46,900	- Dry-Ditch Open-Cut	S-L35 is Riley Branch is less since the requirements asso require a bore pit excee excavated material that m
			Conventional Bore	42	21	N	30	16	0	N	Y	\$311,024		access ramps and associat also located near a steep addition to the deep bore p
Huntington	D-054	S-L35	Dry-Ditch Open-Cut	51	-	N	32	25	20	N	Ν	\$53,200	- Dry-Ditch Open-Cut	S-L35 is Riley Branch is less since the requirements asso require a bore pit excee excavated material that m
Tunington		0 200	Conventional Bore	51	33	N	32	25	20	N	Ν	\$747,627		access ramps and associal also located near a steep addition to the deep bore p
Huntington	D-055	S-137	Dry-Ditch Open-Cut	36	-	N	38	25	32	N	Y	\$46,550	- Dry-Ditch Open-Cut	This resource is an extrem steep slopes, the bore conventional bore would c
			Conventional Bore	36	20	N	38	25	32	N	Y	\$284,861		conventional bore would c
Huntington	D-056	S-138, S-139	Dry-Ditch Open-Cut	142	-	N	63	45	436	N	N	\$126,985	- Dry-Ditch Open-Cut	Both of these resources are bore pits for this crossing a require a deep bore pit wh
		0.00, 0.00	Conventional Bore	142	47	N	63	45	436	N	Ν	\$2,966,630		require a deep bore pit wh logistically difficult winchin
Huntington	D-057	S-140	Dry-Ditch Open-Cut	24	-	N	59	27	104	N	N	\$39,183	- Dry-Ditch Open-Cut	Stream S-I40 is an UNT to bore pits that are more tha
	2 00.		Conventional Bore	24	26	N	59	27	104	N	N	\$305,614		deep bore pit near a steep
Huntington	D-058	W-I11a, S-I41	Dry-Ditch Open-Cut	47	-	N	42	10	489	N	Y	\$62,159	- Dry-Ditch Open-Cut	D-058 and D-059 are a confounding constructabili The access to the location c
			Conventional Bore	47	13	N	42	10	489	N	Y	\$192,761		available for construction

Crossing Method Decision Rationale

IT to Riley Branch and is very small - less than five feet in width. The crossing is located adjacent to a rary impact associated with an open cut is less than 0.01 acre. The trenchless crossing would require mately 30 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a ld create excessive spoil piles in a topographical setting that would require a technically and logistically all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

ess than four feet wide through the project area. Crossing #D-052, 053, and 054 are discussed together sociated with a trenchless crossing are applicable to all three crossings. Each of these crossings would eeding 20 feet, with D-054 exceeding 30 feet. Bore pits of this depth result in a significant amount of must be stockpiled. The excess material is not only associated with the depth of the bore, but also the ciated benching that would be required to reach depths greater than 20 feet. Each of these crossings is sep slope which reduces the available area to stockpile soils without compromising worker safety. In e pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method.

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ess than four feet wide through the project area. Crossing #D-052, 053, and 054 are discussed together sociated with a trenchless crossing are applicable to all three crossings. Each of these crossings would eading 20 feet, with D-054 exceeding 30 feet. Bore pits of this depth result in a significant amount of must be stockpiled. The excess material is not only associated with the depth of the bore, but also the ciated benching that would be required to reach depths greater than 20 feet. Each of these crossings is seep slope which reduces the available area to stockpile soils without compromising worker safety. In e pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method.

emely small UNT to Hominy Creek. The width of the stream is less than 10 feet. Due to the location on ore pits for this stream are nearly 20 feet in depth. Avoiding/minimizing this minor impact through a d create excessively deep bore pits and spoil piles. Furthermore the cost to bore is unreasonably high relative to the proposed construction method.

re UNT to Hominy Creek and each is less than 10 feet in width. Due to the location on steep slopes, the g are nearly 50 feet in depth. Avoiding/minimizing this minor impact through a conventional bore would which would create excessive spoil piles in a topographical setting that would require a technically and stem and while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

to Hominy Creek and is very small - less than ten feet in width. The trenchless crossing would require than 20 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a ep slope which would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

adjacent crossings are discussed together due to their proximity. These crossings present multiple bility challenges that limit the available options and necessitated the development of a unique solution. n of these crossings is severely limited by long steep slopes, and there is insufficient suitable workspace on equipment and spoil piles necessary to complete a trenchless crossing. A minor temporary impact associated with the bore to maintain access will be required.

					S	Evaluation Factor								
k	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
D-058 and D-059 are a confounding constructabi t The access to the location	– Dry-Ditch Open-Cut	\$279,787	N	N	840	7	16	Y	-	116	Dry-Ditch Open-Cut	S-136	D-059	Huntington
available for construction	,	\$566,708	N	N	840	7	16	Y	26	116	Conventional Bore			· · · · · · · · · · · · · · · · · · ·
The bore pits for th Avoiding/minimizing this n typoil piles in a topograp	Dry-Ditch Open-Cut	\$26,015	Ν	Ν	424	32	38	Ν	-	25	Dry-Ditch Open-Cut	S-131	D-061	Huntington
located within an already re	Diy-Dich Open-Cui	\$271,913	N	Ν	424	32	38	N	22	25	Conventional Bore	3-131	D-001	Huntington
A trenchless crossing meth private drive. Completing		\$167,104	N	N	122	35	45	N	-	37	Dry-Ditch Open-Cut	S-H88	5.004	l les l'autor
t using road plates. A trencl the landowner's access ov	– Dry-Ditch Open-Cut	\$689,625	N	N	122	35	45	N	32	37	Conventional Bore	5-⊓00	E-001	Huntington
This group of resources a impact through a convent technically and logistically c		\$157,500	N	N	282	46	75	N	-	150	Dry-Ditch Open-Cut	S-H71, W-H33, W-	5.000	
^t technically and logistically c	– Dry-Ditch Open-Cut	\$4,789,334	N	N	282	46	75	N	80	150	Conventional Bore	H35	E-002	Huntington
The trenchless crossin		\$60,392	N	N	31	24	39	N	-	30	Dry-Ditch Open-Cut	0.1107	5.000	
t (approximately 0.02 acre) reduced LOD. Fu	Dry-Ditch Open-Cut	\$304,372	N	N	31	24	39	N	24	30	Conventional Bore	S-H67	E-003	Huntington
The trenchless crossir t (approximately 0.03 acre)		\$52,782	Y	Ν	0	10	26	N	-	54	Dry-Ditch Open-Cut	6 UC4 W U24	E 004	Uuntinatan
reduced LOD. Fu	– Dry-Ditch Open-Cut	\$372,484	Y	Ν	0	10	26	N	24	54	Conventional Bore	S-H64, W-H31	E-004	Huntington
There are no significant co	Conventional Para	\$240,231	N	Ν	342	26	47	N	-	56	Dry-Ditch Open-Cut	S-V3	E-005	Huntington
methods. The direct aquain		\$369,025	N	Ν	342	26	47	N	23	56	Conventional Bore	3-73	E-005	Hunungton
The trenchless crossir		\$44,212	Y	N	0	9	20	N	-	55	Dry-Ditch Open-Cut		5.000	l les l'autor
tt stockpiling significant an	– Dry-Ditch Open-Cut	\$347,918	Y	N	0	9	20	N	21	55	Conventional Bore	W-EF31, S-EF41	E-006	Huntington
There are no significant co	Conventional Da	\$156,100	Y	N	0	10	35	N	-	223	Dry-Ditch Open-Cut	W/ M/C	E 000	
methods. The direct aquati	- Conventional Bore	\$710,515	Y	N	0	10	35	N	17	223	Conventional Bore	W-M18	E-009	Huntington

Crossing Method Decision Rationale

e adjacent crossings are discussed together due to their proximity. These crossings present multiple bility challenges that limit the available options and necessitated the development of a unique solution. n of these crossings is severely limited by long steep slopes, and there is insufficient suitable workspace on equipment and spoil piles necessary to complete a trenchless crossing. A minor temporary impact associated with the bore to maintain access will be required.

this crossing are greater than 20 feet in depth and the crossing is located on a long steep slope. minor impact through a conventional bore would require a deep bore pit which would create excessive iphical setting that would require a technically and logistically difficult winching system, all while being reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

ethod at this location could not be completed without excavating a bore pit within proximity to a landowner ing an open cut in this location greatly reduces the construction duration and access can be maintained nchless crossing of this resource has been deemed logistically impracticable due to the need to maintain over an extended duration and the safety risk of operating heavy equipment for an extended time with a private landowner in close proximity and traversing the site.

are located adjacent to a steep slope with bore pits to be 80 feet deep. Avoiding/minimizing this minor ntional bore would create extremely excessive spoil piles in a topographical setting that would require a / difficult winching system, all while being located within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

sing would require bore pits that are more than 20 feet deep. Avoiding/minimizing this minor impact b) through a conventional bore would require a deep bore pit creating excessive spoil piles in an already urthermore, the cost to bore is unreasonably high relative to the proposed construction method.

sing would require bore pits that are more than 20 feet deep. Avoiding/minimizing this minor impact b) through a conventional bore would require a deep bore pit creating excessive spoil piles in an already urthermore, the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

ing would require bore pits that are more than 20 feet deep, which would necessitate benching and amounts of spoil material. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

					s	Evaluation Factor								
osed y Method	Proposed Crossing Metho	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The trenchless Open-Cut significant am	− Dry-Ditch Open-Ci	\$60,200	Y	N	o	16	26	N	-	86	Dry-Ditch Open-Cut	W-M22, W-M23	E-010	Huntington
coating, a cor		\$321,711	Y	N	0	16	26	Ν	17	86	Conventional Bore			
The trenchless significant am	− Dry-Ditch Open-Ci	\$70,700	Y	N	0	10	26	N	-	101	Dry-Ditch Open-Cut	W-J6	E-011	Huntington
coating, a cor	Dry-Ditch Open-Ci	\$355,146	Y	N	0	10	26	N	15	101	Conventional Bore	VV-J0	E-011	Huntington
	Convertional Date	\$298,496	N	N	327	16	43	N	-	255	Dry-Ditch Open-Cut	0.120	5.042	
ional Bore FERC has	 Conventional Bore 	\$1,399,653	N	N	327	16	43	N	37	255	Conventional Bore	S-J20	E-012	Huntington
Stream S-I25 is a bore pits that ar	Des Ditats Orace O	\$79,837	N	N	10	24	34	N	-	89	Dry-Ditch Open-Cut	0.105	5.040	
deep bore pit whit	— Dry-Ditch Open-Ci	\$490,082	N	N	10	24	34	N	26	89	Conventional Bore	S-125	E-013	Huntington
Stream S-I26 is a bore pits that ar		\$33,826	N	N	10	20	31	N	-	26	Dry-Ditch Open-Cut			
deep bore pit white	— Dry-Ditch Open-Ci	\$256,481	N	N	10	20	31	N	20	26	Conventional Bore	S-126	E-014	Huntington
There are no sig methods. The dire	O	\$46,828	Y	N	0	13	17	N	-	41	Dry-Ditch Open-Cut	0.107	5.045	
associated with	 Conventional Bore 	\$198,570	Y	N	0	13	17	N	18	41	Conventional Bore	S-127	E-015	Huntington
The bore pits for onen-Cut bore would	Des Ditats Orace O	\$28,700	N	N	724	33	54	N	-	41	Dry-Ditch Open-Cut		5.040	
topographical se already redu	— Dry-Ditch Open-Ci	\$700,977	N	N	724	33	54	N	32	41	Conventional Bore	W-HS1	E-016	Huntington
A trenchless cross and interim ra	Des Ditats Orace O	\$225,400	Y	N	0	8	10	N	-	322	Dry-Ditch Open-Cut	W/ 050	5.047	
Open-Cut excessive spoil	— Dry-Ditch Open-Ci	\$1,160,467	Y	N	0	8	10	N	27	322	Conventional Bore	W-QR2	E-017	Huntington
This crossing is Open-Cut would require th		\$42,210	Y	N	0	9	27	N	-	42	Dry-Ditch Open-Cut		E 040	11. m k ¹
open-Cut facilitate connec small inte	— Dry-Ditch Open-Ci	\$329,293	Y	N	0	9	27	N	23	42	Conventional Bore	S-L26, W-L16	E-018	Huntington

Crossing Method Decision Rationale

would require bore pits that are nearly 20 feet deep, which may necessitate benching and stockpiling spoil material. Because the pipeline ROW must remain free of woody vegetation to protect the pipe impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method and would take twice as long to complete.
would require bore pits that are nearly 20 feet deep, which may necessitate benching and stockpiling spoil material. Because the pipeline ROW must remain free of woody vegetation to protect the pipe impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed

construction method .

red the variance for this crossing which will be completed during the boring of the adjacent rail line.

F to Meadow Creek and is very small - less than ten feet in width. The trenchless crossing would require than 20 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a ld create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

T to Meadow Creek and is very small - less than ten feet in width. The trenchless crossing would require a than 20 feet deep. Avoiding/minimizing this minor impact through a conventional bore would require a ild create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

t constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact or to maintain access will be required. A minor temporary impact associated with the bore to maintain access will be required.

rossing are greater than 30 feet in depth . Avoiding/minimizing this minor impact through a conventional a deep bore pit on an extremely long and steep slope which would create excessive spoil piles in a hat would require a technically and logistically difficult winching system, all while being located within an D). Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

this location would require bore pits that are nearly thirty feet deep, which necessitates the use of a bench access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create n an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

diately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult because they to be installed too deeply to facilitate connection to the valve site. An open cut crossing is necessary to the mainline valve. Furthermore, using a conventional bore method to avoid a temporary impact to this t stream and wetland would be unreasonably high relative to the proposed construction method.

								Evaluation Factor	ſS			1	_	
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Huntington	E-019	S-L27	Dry-Ditch Open-Cut	90	-	N	18	11	0	Ν	Y	\$70,012	- Dry-Ditch Open-Cut	There are no significant co methods. The direct aquatic
			Conventional Bore	90	19	N	18	11	0	N	Y	\$342,198		
Huntington	E-020	S-L30, W-L19, W-	Dry-Ditch Open-Cut	315	-	N	77	46	1723	N	N	\$325,500	– Dry-Ditch Open-Cut	Due to the location on s extremely excessive spoil p
	2 020	L12, W-L13, S-L22	Conventional Bore	315	62	N	77	46	1723	Ν	N	\$4,275,783		all while being located prop
Huntington	E-021	W-L11, S-L20	Dry-Ditch Open-Cut	53	-	Ν	76	43	765	Ν	N	\$54,697	– Dry-Ditch Open-Cut	Due to the location, the b (approximately 0.03 acre) th
Tunungon	L-021	W-LTT, 3-L20	Conventional Bore	53	31	N	76	43	765	Ν	Ν	\$716,764	Diy-Dich Open-Gu	topographical setting that already reduced LOD.
Huntington	E-022	W-L4, S-L10, S-	Dry-Ditch Open-Cut	92	-	N	32	20	0	Ν	Y	\$85,538	– Dry-Ditch Open-Cut	A trenchless crossing in this a bench and interim ramp to
Tunungon	L-022	L11, W-L2	Conventional Bore	92	25	Ν	32	20	0	Ν	Y	\$489,462	Diy-Dicit Open-Gu	excessive spoil piles in ar
Huntington	E-023	S-121, S-122	Dry-Ditch Open-Cut	70	-	Ν	37	28	249	Ν	N	\$66,994	– Dry-Ditch Open-Cut	A trenchless crossing in this a bench and interim ramp to
Tunungon	2-020	0-121, 0-122	Conventional Bore	70	28	N	37	28	249	Ν	N	\$454,430	Diy-Dicit Open-Out	excessive spoil piles in ar
Huntington	F-001	W-K7, S-K17, W- IJ30, W-UV9, W-	Dry-Ditch Open-Cut	1168	-	N	28	20	92	Ν	Y	\$887,600	Dry Ditch Open Cut	A trenchless crossing in thi been avoided by the cu excessive spoil piles in an a
Tunungon	1-001	UV11, W-UV10, W- K9-PEM-1, S-K19	Direct Pipe	1168	15	Ν	28	20	92	Ν	Y	\$9,412,510	Diy-Dicit Open-Gu	the proposed method woul nearby persons. Fu
Huntington	F-002	S-K21, S-K22	Dry-Ditch Open-Cut	123	-	Ν	78	32	185	Ν	N	\$125,156	Dry-Ditch Open-Cut	The open cut method wor impact through a conventio thereby requiring the excave
Tunungon	1-002	0421, 0422	Conventional Bore	123	48	N	78	32	185	Ν	N	\$2,967,254	Diy-Dicit Open-Out	pit and spoil pile. Usir
Huntington	F-003	S-UV6, W-UV4	Dry-Ditch Open-Cut	70	-	N	49	27	52	Ν	N	\$75,861	- Dry-Ditch Open-Cut	A trenchless crossing of deep, which necessitates through a conventional bo
rianangion		0.000, 00-004	Conventional Bore	70	27	N	49	27	52	Ν	Ν	\$445,295		remain free of woody veget

Crossing Method Decision Rationale

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

n steep slopes, the bore pits for this crossing are greater than sixty feet in depth which would create I piles in a topographical setting that would require a technically and logistically difficult winching system, ed within an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the roposed construction method and would take nearly 60 days as long to complete.

e bore pits for this crossing are greater than thirty feet in depth. Avoiding/minimizing this minor impact) through a conventional bore would require a deep bore pit which would create excessive spoil piles in a at would require a technically and logistically difficult winching system, all while being located within an D. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

this location would require bore pits that are greater than twenty feet deep, which necessitates the use of p to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create a nalready reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

his location would require bore pits that are greater than twenty feet deep, which necessitates the use of o to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would create an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

this location would require bore pits that are nearly twenty feet deep. Numerous cultural resources have current alignment. Avoiding/minimizing this minor impact through a conventional bore would create n already reduced LOD. The trenchless crossing method would take nearly 160 days to complete, while ould take approximately 24 days to complete - compounding the noise, aesthetic, and other impacts on Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

vould result in a temporary impact to two small UNTs to Buffalo Creek. Avoiding/minimizing this minor tional bore would require an excessively deep bore pit greater than 40 feet at the edge of a steep slope, avation of an interim ramp and two benches and dramatically increasing the space occupied by the bore lsing a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as long to complete.

of this small UNT to Morris Fork and wetlands system would require bore pits that are nearly thirty feet tes the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact bore would create excessive spoil piles in an already reduced LOD. Because the pipeline ROW must getation to protect the pipe coating, a conversion impact is unavoidable. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

								Evaluation Factor	'S					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Hustington	F-004	W-UV8, S-UV2	Dry-Ditch Open-Cut	345	-	N	65	52	371	Ν	Ν	\$290,616	Dr. Diteb Open Cut	This crossing of a small L development of a unique s bench and dramatically incr this waterbody also increas waterbody from upland work
Huntington	F-004	W-0V8, 3-0V2	Guided Conventional Bore	345	36	N	65	52	371	Ν	Ν	\$1,169,818	– Dry-Ditch Open-Cut	of this location would take I persons. The open-cut m businesses. Accordingly, a
llusticator	5 0044	6 1122	Dry-Ditch Open-Cut	593	-	N	52	35	293	Ν	Ŷ	\$461,800	Der Ditch Oper Cut	This crossing presents mu solution. The proximity of thi pit depth nearing 40 feet a space occupied by the
Huntington	F-004A	S-U22	Guided Conventional Bore	593	37	N	52	35	293	N	Y	\$1,556,221	- Dry-Ditch Open-Cut	Sut complexity of this crossin during a bore. A trenchle the construction duration a trenchless crossing of
Huntington	F-005	W-EE4, S-EE4	Dry-Ditch Open-Cut	154	-	N	19	12	0	Ν	Y	\$120,716	- Dry-Ditch Open-Cut	A trenchless crossing of this deep, which necessitates
Huntington	F-003	W-EE4, 3-EE4	Conventional Bore	154	32	N	19	12	0	Ν	Y	\$1,021,669	Dry-Ditch Open-Cut	through a conventional b
Huntington	F-006	S-M6, W-M2	Dry-Ditch Open-Cut	163	-	N	47	32	51	N	N	\$130,313	- Dry-Ditch Open-Cut	A trenchless crossing of th feet deep, which necessitat through a conventional b
		,	Conventional Bore	163	38	N	47	32	51	N	N	\$1,156,828		through a conventional b unreasonably high rela
Huntington	F-007	S-J13	Dry-Ditch Open-Cut	37	-	N	25	15	0	N	Y	\$43,400	Dry-Ditch Open-Cut	S-J13 is an UNT to Patterso 009 are discussed togethe Each of these crossings w depth result in a significant a
Tunungon	1-007	0.010	Conventional Bore	37	22	N	25	15	0	Ν	Ŷ	\$305,969	- Diy-Dich Open-Out	the depth of the bore, but als feet. Crossing F-009 is in addition to the deep bore p
			Dry-Ditch Open-Cut	45	-	N	32	21	21	N	Y	\$49,000		S-J13 is an UNT to Patterso 009 are discussed togethe Each of these crossings w depth result in a significant a
Huntington	F-008	S-J13	Conventional Bore	45	21	N	32	21	21	N	Y	\$319,538	- Dry-Ditch Open-Cut	the depth of the bore, but als feet. Crossing F-009 is in addition to the deep bore p

Crossing Method Decision Rationale

all UNT to Morris Fork presents multiple challenges that limit the available options and necessitate the ue solution. A bore pit depth just short of 40 feet would required the excavation of an interim ramp and ncreases the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to ease the complexity of a bored crossing, increase safety risk to personnel, and add risk of impact to the ork during a bore. In addition, this crossing is in close proximity to residences, and a trenchless crossing ke longer than six weeks to complete -- compounding the noise, aesthetic, and other impacts on nearby t method reduces construction duration thereby minimizing the disruption the affected residences and y, a trenchless crossing of this resource has been deemed logistically difficult due to the compounding constructability constraints.

multiple challenges that limit the available options and necessitated the development of a site-specific this stream to the adjacent bore of Interstate-64 makes it difficult to tie-in a bore of this resource. A bore et at this location requires the excavation of an interim ramp and bench and dramatically increases the he bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to the waterbody increases the g if bored, increases safety risk to personnel, and adds risk of impact to the waterbody from upland work ss crossing would take more than six weeks to be completed. Use of the open-cut method would reduce and minimize noise and other disruptions to nearby persons due to construction activities. Accordingly, this resource has been deemed logistically difficult due to the compounding constructability constraints.

this small UNT to Red Spring Branch and wetland system would require bore pits greater than thirty feet tes the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact I bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

f this small UNT to Red Spring Branch and wetland system would require bore pits that are nearly forty itates the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact al bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is relative to the proposed construction method and would also take three times as long to complete.

rson Creek, a very small stream, and is crossed three times by the project. Crossing # F-007, 008, and ther since the requirements associated with a trenchless crossing are applicable to all three crossings. s would require a bore pit exceeding 20 feet, with F-009 being nearly thirty feet deep. Bore pits of this it amount of excavated material that must be stockpiled. The excess material is not only associated with also the access ramps and associated benching that would be required to reach depths greater than 20 in a topographical setting that would require a technically and logistically difficult winching system. In e pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method.

rson Creek, a very small stream, and is crossed three times by the project. Crossing # F-007, 008, and ther since the requirements associated with a trenchless crossing are applicable to all three crossings. swould require a bore pit exceeding 20 feet, with F-009 being nearly thirty feet deep. Bore pits of this it amount of excavated material that must be stockpiled. The excess material is not only associated with also the access ramps and associated benching that would be required to reach depths greater than 20 in a topographical setting that would require a technically and logistically difficult winching system. In e pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method.

								Evaluation Factors	S					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
			Dry-Ditch Open-Cut	75	-	Ν	42	34	419	Ν	Y	\$70,000		S-J13 is an UNT to Patterso 009 are discussed togethe Each of these crossings v depth result in a significant a
Huntington	F-009	S-J13	Conventional Bore	75	27	N	42	34	419	N	Y	\$459,485	- Dry-Ditch Open-Cut	the depth of the bore, but al feet. Crossing F-009 is ir addition to the deep bore p
Huntington	F-010	S-117	Dry-Ditch Open-Cut	43	-	N	56	44	1538	N	Ν	\$38,855	Dr./ Ditch Open Cut	The open cut method woul extremely long and stee conventional bore would r
Huntington	F-010	3-117	Conventional Bore	43	31	N	56	44	1538	Ν	Ν	\$688,384	Dry-Ditch Open-Cut	require a technically and l conventional bore crossing
Huntington	F-011	S-119	Dry-Ditch Open-Cut	66	-	N	50	36	1200	N	N	\$101,669	– Dry-Ditch Open-Cut	The open cut method woul and steep slope and requi would create excessive s
			Conventional Bore	66	44	N	50	36	1200	N	N	\$2,587,307		system, all while being lo this minor temp
Huntington	F-011A	S-120	Dry-Ditch Open-Cut	39	-	N	78	57	735	N	Ν	\$76,000	– Dry-Ditch Open-Cut	The open cut method woul long and steep slope an conventional bore would re
			Conventional Bore	39	35	N	78	57	735	N	Ν	\$750,110		require a technically and conventional bore crossing
Huntington	F-012	S-N5	Dry-Ditch Open-Cut	63	-	N	33	24	10	N	Ν	\$52,226	– Dry-Ditch Open-Cut	A trenchless crossing of th the use of a bench and in
			Conventional Bore	63	24	N	33	24	10	N	N	\$398,025		would create excessive spo
Huntington	F-013	S-K14	Dry-Ditch Open-Cut	35	-	N	40	34	252	N	Ν	\$44,164	– Dry-Ditch Open-Cut	A trenchless crossing necessitates the use of
			Conventional Bore	35	22	N	40	34	252	N	Ν	\$300,293		conventional bore would cr
Huntington	F-014	S-N3	Dry-Ditch Open-Cut	106	-	N	6	3	0	N	Y	\$97,922	 Conventional Bore 	There are no significant co methods. The direct aquatio
			Conventional Bore	106	15	N	6	3	0	Ν	Y	\$369,336		
Huntington	F-015	S-N2	Dry-Ditch Open-Cut	48	-	N	36	10	0	N	Y	\$107,232	 Conventional Bore 	There are no significant co methods. The direct aquatio
			Conventional Bore	48	15	Ν	36	10	0	Ν	Y	\$204,733		

Crossing Method Decision Rationale

erson Creek, a very small stream, and is crossed three times by the project. Crossing # F-007, 008, and ether since the requirements associated with a trenchless crossing are applicable to all three crossings. gs would require a bore pit exceeding 20 feet, with F-009 being nearly thirty feet deep. Bore pits of this and amount of excavated material that must be stockpiled. The excess material is not only associated with at also the access ramps and associated benching that would be required to reach depths greater than 20 is in a topographical setting that would require a technically and logistically difficult winching system. In ore pits and limited operating room, the costs to bore these crossings is unreasonably high relative to the proposed construction method.

buld result in a temporary impact to a small UNT to Lick Creek. The crossing is located at the base of an eep slope and require bore pits exceeding forty feet. Avoiding/minimizing this minor impact through a ld require a deep bore pit which would create excessive spoil piles in a topographical setting that would ad logistically difficult winching system, all while being located within an already reduced LOD. Using a ing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as long to complete.

puld result in a temporary impact to Lick Creek. The crossing is located at the base of an extremely long quire bore pits exceeding forty feet. Avoiding/minimizing this minor impact through a conventional bore e spoil piles in a topographical setting that would require a technically and logistically difficult winching located within an already reduced LOD. Using a conventional bore crossing method to avoid/minimize mporary impact would be unreasonably expensive and would take twice as long to complete.

rould result in a temporary impact to a small UNT to Lick Creek. The crossing is located on an extremely and require bore pits that are nearly forty feet deep. Avoiding/minimizing this minor impact through a I require a deep bore pit on which would create excessive spoil piles in a topographical setting that would nd logistically difficult winching system, all while being located within an already reduced LOD. Using a sing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as long to complete.

f this small UNT to Hungard Creek would require bore pits greater than 20 feet deep, which necessitates interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

ing of this small UNT to Hungard Creek would require bore pits greater than twenty feet deep, which of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a d create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

					s	Evaluation Factor								
1	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
This crossing is adjacent	 Conventional Bore 	\$98,350	Y	N	0	3	8	N	-	128	Dry-Ditch Open-Cut	S-CD23	F-016	Huntington
impact at this location t		\$431,772	Y	N	0	3	8	Ν	15	128	Conventional Bore			
There are no significant co	O	\$83,735	Y	Ν	0	4	9	N	-	99	Dry-Ditch Open-Cut		5.047	l l se fin et er
methods. The direct aquation	 Conventional Bore 	\$354,038	Y	N	0	4	9	N	16	99	Conventional Bore	S-N4, W-EF40	F-017	Huntington
The pipeline has already be		\$299,600	Y	N	0	0	46	N	-	208	Dry-Ditch Open-Cut			
t of pipe together if a trenchle to complete bore) to	- Dry-Ditch Open-Cut	\$1,229,729	Y	N	0	0	46	N	35	208	Conventional Bore	S-KL29	F-019	Huntington
Crossing these resource		-\$700	Y	N	0	0	0	N	-	0	Dry-Ditch Open-Cut	W-MM20-PFO, S-		
t	– Dry-Ditch Open-Cut	\$0	Y	N	0	0	0	N	0	0	Conventional Bore	CV17	F-020	Huntington
The Greenbrier River will be		\$2,287,563	Y	N	0	3	9	Y	-	1250	Dry-Ditch Open-Cut			
diversion system that woul also classified by the WVE completin	 Direct Pipe 	\$10,059,375	Y	N	0	3	9	Y	13	1250	Direct Pipe	S-18	F-021	Huntington
There are no significant co	O	\$124,405	Y	N	0	6	14	N	-	91	Dry-Ditch Open-Cut	0.10	5.000	
methods. The direct aquation	 Conventional Bore 	\$340,469	Y	N	0	6	14	N	18	91	Conventional Bore	S-19	F-022	Huntington
A trenchless crossing , necessitates the use of		\$51,375	N	N	293	33	42	N	-	30	Dry-Ditch Open-Cut		5.000	
t conventional bore would c	- Dry-Ditch Open-Cut	\$688,029	N	N	293	33	42	N	33	30	Conventional Bore	S-L4	F-023	Huntington
A trenchless crossing of the necessitates the use of		\$42,713	N	N	105	35	37	N	-	41	Dry-Ditch Open-Cut	0.5		
t conventional bore would ci	– Dry-Ditch Open-Cut	\$381,263	N	N	105	35	37	N	29	41	Conventional Bore	S-L2	F-024	Huntington
A trenchless crossing of t		\$49,003	N	N	146	41	60	N	-	40	Dry-Ditch Open-Cut		E 005	l lum Provide e
t which necessitates the use conventional bore would c	– Dry-Ditch Open-Cut	\$698,139	N	N	146	41	60	N	32	40	Conventional Bore	W-K2-PEM, S-L1	F-025	Huntington

Crossing Method Decision Rationale
cent to planned bored, which will allow the existing bore pits to be utilized to avoid/minimize the aquatic ion by boring. A minor temporary impact associated with the bore to maintain access will be required.
at constraints on available crossing methods or significant environmental impacts relevant to the available uatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
y been installed under an adjacent road (East Clayton Rd). There is no feasible way to tie the two sections chless method is used to install this crossing. Lastly, substantial increase in cost and lost time (four weeks) to avoid a temporary impact to this small, one-foot-wide stream is not appropriate and practicable.
nurces requires the pipeline to negotiate a bend that cannot be completed with any available trenchless crossing technology.
ill be crossed using the Direct Pipe trenchless methodology. The stream depth would require an instream vould severely limit the amount of usable workspace in an already reduced LOD. The Greenbrier River is VVDNR as Group 1 mussel stream. While mussel survey and relocation efforts were completed in 2020, eting a trenchless crossing will further minimize any potential impacts to mussel species.
nt constraints on available crossing methods or significant environmental impacts relevant to the available uatic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.
sing of this small UNT to Greenbrier River would require bore pits greater than thirty feet deep, which e of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a ld create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.
of this small UNT to Greenbrier River would require bore pits greater that are nearly 30 feet deep, which e of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a ld create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.
of this small wetland and small UNT to Kelly Creek would require bore pits greater than thirty feet deep, use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a ld create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the proposed construction method.

							Evaluation Factor	s					
ing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
26	S-J5	Dry-Ditch Open-Cut	42	-	N	82	57	240	Ν	Ν	\$100,783	Dry-Ditch Open-Cut	This crossing presents multi A bore pit depth greater than the bore pit and spoil pile.
20	3-00	Conventional Bore	42	24	N	82	57	240	Ν	Ν	\$338,428	- Dry-Diton Open-Cut	crossing, increase safety ris this crossing is on a proper
27	S-J4	Dry-Ditch Open-Cut	30	-	Ν	47	34	173	Ν	Ν	\$37,647	Conventional Bore	There are no significant cor methods. The direct aquatic
21	0-04	Conventional Bore	30	19	N	47	34	173	Ν	N	\$171,919		
28	W-OP1-PEM, S- OP1	Dry-Ditch Open-Cut	104	-	N	72	25	228	Ν	Ν	\$83,831	Dry-Ditch Open-Cut	The pipeline is already instal excavation of a bore pit una bore pit within the wetland, m
20	OP1	Conventional Bore	104	19	N	72	25	228	Ν	Ν	\$381,930	- Dry-Diton Open-Cut	much shorter duration impa temporary impact to these r fact
-030	S-A63, W-A13, S-	Dry-Ditch Open-Cut	742	-	N	20	9	0	Ν	Y	\$554,400		A trenchless crossing in th through a conventional bo unreasonably high relative
-030	A61, S-A60	Direct Pipe	742	15	N	20	9	0	Ν	Y	\$6,004,510	- Dry-Ditch Open-Cut	three times longer to comple nearby persons. Red
31	S-D31	Dry-Ditch Open-Cut	81	-	N	55	42	99	Ν	Ν	\$284,433	Dry-Ditch Open-Cut	This crossing presents multi A bore pit depth of nearly 4 occupied by the bore pit an crossing, increases safety ris
		Conventional Bore	81	38	Ν	55	42	99	Ν	Ν	\$924,113		this crossing is in close pr persons nearby for the ap method would redu
32	S-D25	Dry-Ditch Open-Cut	32	-	N	23	11	74	Ν	Y	\$36,432	Conventional Boro	There are no significant cor methods. The direct aquatic
32	3-023	Conventional Bore	32	19	N	23	11	74	Ν	Y	\$177,595		
34	S-Z5, S-Z4	Dry-Ditch Open-Cut	31	-	N	32	25	10	Y	N	\$30,454	- Dry-Ditch Open-Cut	Site conditions do not allow environmental impact. Furth
	0-20, 0-24	Conventional Bore	31	26	Ν	32	25	10	Y	Ν	\$325,479	Bry-Bion Open-Out	environmental impact. Furu
35	W-MN15, W-MN14	Dry-Ditch Open-Cut	88	-	N	51	33	191	Ν	Ν	\$86,108	- Dry-Ditch Open-Cut	A trenchless crossing of the necessitates the use of a conventional bore would cre
	S-MN2	Conventional Bore	88	20	N	51	33	191	N	N	\$432,436		high relative to the proposed noise, aesthetic, and other

Crossing Method Decision Rationale

ultiple challenges that limit the available options and necessitated the development of a unique solution. than 20 feet requires the excavation of an interim ramp and bench and increases the space occupied by ile. Steep slopes (greater than 30%) adjacent to these waterbodies increase the complexity of a bored y risk to personnel, and add risk of impact to the waterbody from upland work during a bore. In addition, perty with a well or spring. The open cut method reduces the construction duration near the well/spring.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

stalled through a portion of the wetland at this crossing. The layout of a conventional bore would require unacceptably close to the installed pipe. Additionally, a trenchless method would require excavation of a I, meaning that that a longer-duration bore pit in the wetland is not less environmentally damaging than a npact associated with an open cut through the wetland and adjacent stream. Lastly, the cost to avoid a e resources is unreasonably high relative to the proposed construction method, especially in light of the fact that boring does not materially avoid or minimize the impact at this location.

n this area would require bore pits that are nearly 20 feet deep. Avoiding/minimizing this minor impact I bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is tive to the proposed construction method. A trenchless crossing of this area would take approximately uplete than the proposed construction method -- compounding the noise, aesthetic, and other impacts on Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

ultiple challenges that limit the available options and necessitated the development of a unique solution. y 40 feet will require the excavation of an interim ramp and bench and dramatically increase the space and spoil pile. Steep slopes (greater than 30%) adjacent to stream increases the complexity of a bored risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. In addition, proximity to residences and/or businesses, which would cause increased noise and other impacts to approximately seven weeks that would be required to complete a trenchless crossing. The open-cut educe construction duration and minimize disruptions to persons due to construction activities.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

ow sufficient space to stockpile spoils from bore pits. Karst terrain increases the risk of bore failure and urthermore, avoiding this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive.

these small wetlands and small UNT to Hans Creek would require bore pits that are 20 feet deep, which of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably sed construction method. The proposed crossing method is also shorter in duration, which reduces the ter impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

								Evaluation Factor	ſS					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
			Dry-Ditch Open-Cut	84	-	N	53	28	536	Ν	Ν	\$148,571		This crossing presents multi A bore pit depth of nearly 3 occupied by the bore pit an crossing, increases safety rit the topographical constraint
Huntington	F-036	S-CV19	Conventional Bore	84	33	N	53	28	536	N	N	\$841,280	- Dry-Ditch Open-Cut	Furthermore, the cost to bor is also shorter in duration, crossing and permane Accordingly, a trenchles
Huntington	F-037	S-MN39, S-MN40, W-CV24, S-MN38, S-MN37, W-MN18-	Dry-Ditch Open-Cut	180	-	N	64	54	254	N	N	\$140,000	– Dry-Ditch Open-Cut	This crossing presents mult Installing a trenchless cro require winched equi
		PFO, W-MN18- PEM, W-MN1	Conventional Bore	180	38	N	64	54	254	N	N	\$1,205,073		Avoiding/minimize impacts six weeks and triple the temporary impa
Huntington	F-038	S-G44	Dry-Ditch Open-Cut	34	-	N	30	23	0	N	Y	\$38,869	– Dry-Ditch Open-Cut	A trenchless crossing of necessitates the use of conventional bore would cr
			Conventional Bore	34	24	N	30	23	0	N	Y	\$315,724		high relative to the propo noise, aesthetic, and other
Huntington	F-039	S-G43, W-MN1	Dry-Ditch Open-Cut	52	-	N	40	27	73	N	N	\$56,420	 Conventional Bore 	There are no significant co methods. The direct aquatic
			Conventional Bore	52	19	N	40	27	73	N	N	\$234,355		
Huntington	F-040	W-G6, S-G42	Dry-Ditch Open-Cut	83	-	N	61	51	312	N	N	\$69,021	– Dry-Ditch Open-Cut	A trenchless crossing of thi which necessitates the use conventional bore would cr
			Conventional Bore	83	34	N	61	51	312	N	N	\$856,711		high relative to the propose noise, aesthetic, and other
Huntington	F-041	S-MN45, W-MN24	Dry-Ditch Open-Cut	42	-	N	45	33	342	N	N	\$36,464	– Dry-Ditch Open-Cut	A trenchless crossing of necessitates the use of a long, steep slope, furth conventional bore would cr
		· · · · · · · · · · · · · · · · · · ·	Conventional Bore	42	30	N	45	33	342	N	Ν	\$667,277		high relative to the propose noise, aesthetic, and other
Huntington	F-042	W-CV25-PEM-2, W- CV25-PSS-1, S-	Dry-Ditch Open-Cut	50	-	N	27	13	0	N	Y	\$40,250	- Dry-Ditch Open-Cut	A trenchless crossing of the deep, which necessitates through a conventional b
	1 042	CV27	Conventional Bore	50	20	N	27	13	0	N	Y	\$324,593		unreasonably high relative reduces the noise, aes stabilizing
Huntington	F-043	S-E43, S-E45	Dry-Ditch Open-Cut	42	-	N	34	30	210	Y	N	\$58,269	- Dry-Ditch Open-Cut	Site conditions do not Cut technical challenges. Furt
			Conventional Bore	42	28	N	34	30	210	Y	Ν	\$374,967	.,	

Crossing Method Decision Rationale

ultiple challenges that limit the available options and necessitated the development of a unique solution. If y 30 feet will require the excavation of an interim ramp and bench and dramatically increase the space and spoil pile. Steep slopes (greater than 30%) adjacent to stream increases the complexity of a bored y risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. In addition, aints create a technical and logistical limit on a winching system further increasing the worker safety risk. bore is unreasonably high relative to the proposed construction method. The proposed crossing method on, which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the nently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside. less crossing of this resource has been deemed logistically difficult due to the multiple compounding constraints.

nultiple challenges that limit the available options and necessitated the development of a unique solution. crossing at this location would require a deep bore pit (38 feet) at the bottom of a steep hill that would quipment. There is insufficient space available at this location to stockpile spoils from the bore pit. cts to this cluster of small aquatic resources would require an extended construction period greater than the total greenhouse gas emissions associated with completed the crossing. Lastly, the cost to avoid a npact to these resources is unreasonably high relative to the proposed construction method

g of this small UNT to Hans Creek would require bore pits that are greater than 20 feet deep, which of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably posed construction method. The proposed crossing method is shorter in duration, which reduces the er impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

this small wetland and UNT to Hans Creek would require bore pits that are greater than thirty feet deep, use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably sed construction method. The proposed crossing method is also shorter in duration, which reduces the ter impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

g of this small wetland and UNT to Hans Creek would require bore pits that are thirty feet deep, which f a bench and interim ramp to access the bore pit. In addition the crossing is located at the bottom of a thren complicating construction and worker safety. Avoiding/minimizing this minor impact through a d create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably seed construction method. The proposed crossing method is also shorter in duration, which reduces the her impacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

these small wetlands and UNT to Hans Creek would require bore pits that are approximately twenty feet tes the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is ive to the proposed construction method. The proposed crossing method is shorter in duration, which esthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently ing this area will reduce the potential for sedimentation and erosion along the hillside.

t allow sufficient space to stockpile spoils from bore pits. Karst terrain presents greater logistical and hermore, avoiding this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive.

					s	Evaluation Factor								
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
Site conditions reduce the a	- Dry-Ditch Open-Cut	\$78,651	Ν	Y	295	25	41	Ν	-	48	Dry-Ditch Open-Cut	W-E12, S-E40, S-	F-044	Huntington
		\$200,166	Ν	Y	295	25	41	Ν	14	48	Conventional Bore	E41	1-044	Huntington
A trenchless crossing of th which necessitates the use conventional bore would		\$151,803	Y	Ν	10	19	31	N	-	181	Dry-Ditch Open-Cut	W-C14, W-C13, S-	5.045	
t logistical and technical ch method. The time to comp aesthetic, and other impa	- Dry-Ditch Open-Cut	\$778,581	Y	N	10	19	31	N	29	181	Conventional Bore	C38, S-C39	F-045	Huntington
The open cut method woul slope and require bore pits		\$61,161	N	N	295	46	56	N	-	72	Dry-Ditch Open-Cut	0.044	5.040	
t deep bore pit which wo conventional bore crossing	– Dry-Ditch Open-Cut	\$469,241	N	N	295	46	56	N	29	72	Conventional Bore	S-C41	F-046	Huntington
The open cut method wou steep slope and require bo		\$43,449	N	Y	75	44	64	N	-	42	Dry-Ditch Open-Cut	0.040	0.001	Marfalla
t require a deep bore pit challenges. Using a conve	- Dry-Ditch Open-Cut	\$3,119,195	N	Y	75	44	64	N	55	42	Conventional Bore	S-Q12	G-001	Norfolk
The open cut method wou require bore pits exceeding		\$118,248	N	Y	331	29	45	N	-	69	Dry-Ditch Open-Cut	0.040	0.000	Marfalla
t bore pit which would create a conventional bore crossing	- Dry-Ditch Open-Cut	\$798,710	N	Y	331	29	45	N	33	69	Conventional Bore	S-Q13	G-002	Norfolk
The open cut method wou slope and require bore pil	- Dry-Ditch Open-Cut	\$51,841	Ν	Y	84	32	42	N	-	44	Dry-Ditch Open-Cut	S-P6	G-003	Norfolk
t require a deep bore pit whic Using a conventional bore c	- Dry-Ditch Open-Cut	\$389,777	Ν	Y	84	32	42	N	29	44	Conventional Bore	5-70	G-003	Norfolk
There are no significant con trends the trends of the tren	Day Ditch Once Out	\$356,008	Ν	Ν	66	5	21	N	-	300	Dry-Ditch Open-Cut	S-S5-Braid-1, S-S5-	0.004	Naufalle
methods. The direct aquatic	- Dry-Ditch Open-Cut	\$445,322	N	N	66	5	21	N	0	300	Guided Conventional Bore	Braid-2, S-S5	G-004	Norfolk
The open cut method would feet in width. The crossing		\$70,917	N	Y	110	38	49	N	-	58	Dry-Ditch Open-Cut	0.000.0.000	0.005	Marfalla
t this minor impact through terrain increases the logistic temporary im	- Dry-Ditch Open-Cut	\$858,839	N	Y	110	38	49	N	38	58	Conventional Bore	S-G30, S-G29	G-005	Norfolk
The open cut method wou require bore pits greater ti deep bore pit adjacent to a	– Dry-Ditch Open-Cut	\$100,749	N	Y	607	28	46	N	-	100	Dry-Ditch Open-Cut	\$-G32	G-006	Norfolk
that would require a technic Karst terrain increases the l	- Dry-Ditch Open-Cut	\$503,031	N	Y	607	28	46	N	24	100	Conventional Bore	0-002	9000	NUTUK

Crossing Method Decision Rationale

e available space to stockpile spoils from bore pits. Karst terrain presents greater logistical and technical challenges.

these small wetlands and Painters Run would require bore pits that are approximately thirty feet deep, se of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact through a ild create excessive spoil piles in an already reduced LOD. In addition, the presence of steep slopes challenges. Furthermore, the cost to bore is unreasonably high relative to the proposed construction mplete the proposed crossing method is also shorter in duration (nearly half), which reduces the noise, pacts on nearby persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

ould result in a temporary impact to this small UNT to Painters Run. The crossing is located on a steep pits nearly 30 feet. Avoiding/minimizing this minor impact through a conventional bore would require a would create excessive spoil piles, all while being located within an already reduced LOD. Using a ing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take over forty days to complete.

ould result in a temporary impact to this small UNT to Kimballton Branch. The crossing is located on a bore pits exceeding fifty feet. Avoiding/minimizing this minor impact through a conventional bore would pit which would create excessive spoil piles. Karst terrain presents greater logistical and technical ventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take six times longer to complete.

vould result in a temporary impact to Kimballton Branch. The crossing is located on a steep slope and ing thirty feet. Avoiding/minimizing this minor impact through a conventional bore would require a deep te excessive spoil piles. Karst terrain increases the risk of bore failure and environmental impact. Using sing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take three times longer to complete.

vould result in a temporary impact to UNT to Stony Creek. The crossing is located adjacent to a steep pits nearly thirty feet deep. Avoiding/minimizing this minor impact through a conventional bore would which would create excessive spoil piles. Karst terrain increases the logistical and technical challenges. e crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take nearly twice as long to complete.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

buld result in a temporary impact to two UNT to Dry Branch. Both streams are very small - less than ten ng is located adjacent to a steep slope and require bore pits nearly forty feet deep. Avoiding/minimizing gh a conventional bore would require a deep bore pit which would create excessive spoil piles. Karst stical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor impact would be unreasonably expensive and would take three times longer to complete.

ould result in a temporary impact to Dry Branch. The crossing is located adjacent to a steep slope and r than twenty feet. Avoiding/minimizing this minor impact through a conventional bore would require a o an extremely long and steep slope which would create excessive spoil piles in a topographical setting inically and logistically difficult winching system, all while being located within an already reduced LOD. e logistical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would take twice as long to complete.

								Evaluation Factor	s					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	G-007	S-G33	Dry-Ditch Open-Cut	90	-	N	38	34	289	N	N	\$93,649	– Dry-Ditch Open-Cut	A trenchless crossing of this deep, which necessitates through a conventional b
			Conventional Bore	90	30	N	38	34	289	N	N	\$803,500	, , ,	unreasonably high relativ which reduces the noise, stabilizin
Norfolk	G-008	W-Z11	Dry-Ditch Open-Cut	60	-	N	39	26	220	Ν	Ν	\$42,000	– Dry-Ditch Open-Cut	A trenchless crossing of thi use of a bench and interim create excessive spoil p
NOTOK	6-000	W-2.11	Conventional Bore	60	21	Ν	39	26	220	Ν	Ν	\$362,107	Diy-Dici Open-Gu	proposed construction me other impacts on nearby per
Norfolk	G-009	S-G35	Dry-Ditch Open-Cut	139	-	Ν	38	34	608	Ν	N	\$225,223	 Conventional Bore 	Mountain Valley must use a
NOTOK	6-009	3-639	Conventional Bore	139	30	Ν	38	34	608	Ν	N	\$942,561		
Norfolk	G-010	S-SS4	Dry-Ditch Open-Cut	30	-	Ν	22	16	0	Ν	Y	\$30,059	- Conventional Bore	This stream is listed as trou
NOTOK	6-010	3-334	Conventional Bore	30	27	Ν	22	16	0	Ν	Y	\$331,776		A mino
No. 6 II.	0.014	0.70	Dry-Ditch Open-Cut	48	-	N	45	29	21	N	N	\$49,564	O	This stream is listed as trou
Norfolk	G-011	S-Z9	Conventional Bore	48	27	N	45	29	21	N	N	\$382,860	 Conventional Bore 	A mino
Norfolk	G-012	S-Z7, S-Z7-Braid-1	Dry-Ditch Open-Cut	47	-	Ν	24	14	0	Ν	Y	\$44,128	Conventional Para	There are no significant co methods. The direct aquatic
NOTOK	6-012	5-27, 5-27-Didlu-1	Conventional Bore	47	19	Ν	24	14	0	Ν	Y	\$220,165		methous. The direct aqualic
Norfolk	G-013	S-Z10, S-Z11, S- Z12-EPH, W-Z3, S-	Dry-Ditch Open-Cut	331	-	Ν	9	4	0	Ν	Y	\$322,599	Guided	There are no significant co methods. The direct aquatic
NOTOK	6-013	Z12-EFR, W-23, 3- Z13	Guided Conventional Bore	331	23	Ν	9	4	0	Ν	Y	\$701,437	Conventional Bore	methous. The direct aqualic
Norfolk	G-014	S-Z14	Dry-Ditch Open-Cut	53	-	Ν	37	32	292	Ν	N	\$53,882	Conventional B	There are no significant co methods. The direct aquatic
NOTOK	G-014	3-214	Conventional Bore	53	15	Ν	37	32	292	Ν	N	\$218,923		memous. me direct aquatic
Norfolk	G-015A	S-A34	Dry-Ditch Open-Cut	77	-	Ν	36	32	330	Y	N	\$74,900	– Dry-Ditch Open-Cut	The open cut method woul feet in width and would re
	G-UIDA	5-A34	Conventional Bore	77	29	Ν	36	32	330	Y	N	\$483,431	סייס Ury-Dilch Open-Cut	bore would require a deep challenges. Using a conv

Crossing Method Decision Rationale

this small UNT to Dry Branch (less than 10 feet) would require bore pits that are approximately thirty feet tes the use of a bench and interim ramp to access the bore pit. Avoiding/minimizing this minor impact I bore would create excessive spoil piles in an already reduced LOD. Furthermore, the cost to bore is tive to the proposed construction method. The proposed crossing method is also shorter in duration, e, aesthetic, and other impacts on nearby persons. Reducing the time at the crossing and permanently ing this area will reduce the potential for sedimentation and erosion along the hillside.

this small wetland would require bore pits that are greater than twenty feet deep, which necessitates the m ramp to access the bore pit. Avoiding/minimizing this minor impact through a conventional bore would il piles in an already reduced LOD. Furthermore, the cost to bore is unreasonably high relative to the method. The proposed crossing method is shorter in duration, which reduces the noise, aesthetic, and persons. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

e a conventional bore to cross an adjacent road (Big Branch Hollow Road). The bore can be extended to avoid this resource.

rout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. inor temporary impact associated with the bore to maintain access will be required.

out water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method. inor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

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constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

rould result in a temporary impact to a small UNT to Doe Creek. The stream is very small - less than ten d require bore pits nearly thirty feet deep. Avoiding/minimizing this minor impact through a conventional seep bore pit which would create excessive spoil piles. Karst terrain increases the logistical and technical onventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take twice as along to complete.

					rs	Evaluation Factor								
ŧ	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The open cut method woul feet in width and would req through a conventional	- Dry-Ditch Open-Cut	\$68,849	Y	Y	388	30	36	N	-	58	Dry-Ditch Open-Cut	S-A33	G-015B	Norfolk
stockpiling. Karst terrain avoid/minimize this mino	biy bion open out	\$383,836	Y	Y	388	30	36	N	24	58	Conventional Bore	0,000		Honoix
The open cut method wou slope and require bore pit require a deep bore pit adja setting that would require a	- Dry-Ditch Open-Cut	\$130,827	N	Y	975	32	36	N	-	103	Dry-Ditch Open-Cut	S-A32	G-016	Norfolk
LOD. Karst terrain in avoid/minimize this minor Reducing the time at the c	Dry-Ditch Open-Cut	\$2,474,130	N	Y	975	32	36	N	40	103	Conventional Bore	5-432	6-010	NOTOK
Mountain Valley must use a	- Conventional Bore	\$263,200	N	Y	328	25	52	N	-	246	Dry-Ditch Open-Cut	S-Y3, S-Y2	G-017	Norfolk
		\$1,374,111	N	Y	328	25	52	N	37	246	Conventional Bore	3-13, 3-12	6-017	NOTOK
This crossing is immediatel the two crossing locations	– Dry-Ditch Open-Cut	\$120,466	Y	N	0	13	28	N	-	69	Dry-Ditch Open-Cut	S-E24	G-019A	Norfolk
^t Furthermore, avoiding this t		\$780,441	Y	N	0	13	28	N	32	69	Conventional Bore			
There are no significant co methods. The direct aquatic	- Conventional Bore	\$99,400	Y	N	450	20	48	N	-	92	Dry-Ditch Open-Cut	S-E25-Downstream	G-019B	Norfolk
		\$347,874	Y	N	450	20	48	N	19	92	Conventional Bore			
The open cut method would slope and require bore pi require a deep bore pit adja	- Dry-Ditch Open-Cut	\$146,371	N	N	400	45	56	N	-	154	Dry-Ditch Open-Cut	S-RR5	G-020	Norfolk
LOD. Using a convention		\$1,076,478	N	N	400	45	56	N	35	154	Conventional Bore			
A trenchless crossing of Avoiding/minimizing this mir Furthermore, the cost to bor	- Dry-Ditch Open-Cut	\$21,300	N	N	11	13	41	N	-	22	Dry-Ditch Open-Cut	S-IJ18	G-020A	Norfolk
is shorter in duration, wh crossing and permane		\$149,215	N	N	11	13	41	N	19	22	Conventional Bore			
The open cut method wou slope and require bore p create excessive spoil pil Cut while being located wit	- Dry-Ditch Open-Cut	\$52,912	N	Y	537	42	70	N	-	50	Dry-Ditch Open-Cut	S-IJ16-b	G-022	Norfolk
conventional bore crossing take nearly twice as long t	,	\$744,789	N	Y	537	42	70	N	33	50	Conventional Bore			

Crossing Method Decision Rationale

buld result in a temporary impact to a small UNT to Doe Creek. The stream is very small - less than ten require bore pits greater than twenty feet deep on a steep slope. Avoiding/minimizing this minor impact hal bore would require a deep bore pit which would create excessive spoil piles, with limited room for rain increases the logistical and technical challenges. Using a conventional bore crossing method to inor temporary impact would be unreasonably expensive and would take twice as along to complete.

ould result in a temporary impact to an UNT to Doe Creek. The crossing is located adjacent to a steep pits up to forty feet in depth. Avoiding/minimizing this minor impact through a conventional bore would djacent to an extremely long and steep slope which would create excessive spoil piles in a topographical a technically and logistically difficult winching system, all while being located within an already reduced n increases the logistical and technical challenges. Using a conventional bore crossing method to or temporary impact would be unreasonably expensive and would take eight times longer to complete. e crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

e a conventional bore to cross an adjacent road (Doe Creek Road). The bore can be extended to avoid this resource.

tely adjacent to another crossing (G-019B) that will be bored. A significant change in elevation between ns does not allow the pipeline to be tied-in together unless this crossing is completed with an open cut. s temporary impact to a UNT to Sinking Creek with a conventional bore crossing would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

uld result in a temporary impact to an UNT to Sinking Creek. The crossing is located adjacent to a steep a pits nearly forty feet deep. Avoiding/minimizing this minor impact through a conventional bore would djacent to an extremely long and steep slope which would create excessive spoil piles in a topographical a technically and logistically difficult winching system, all while being located within an already reduced ntional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take longer to complete.

of this small stream (UNT to Sinking Creek) would require bore pits that are nearly twenty feet deep. ninor impact through a conventional bore would create excessive spoil piles in an already reduced LOD. wore is unreasonably high relative to the proposed construction method. The proposed crossing method which reduces the noise, aesthetic, and other impacts on nearby persons. Reducing the time at the nently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

uld result in a temporary impact to an UNT to Sinking Creek. The crossing is located adjacent to a steep pits up to thirty feet in depth. Avoiding/minimizing this minor impact through a conventional bore would les in a topographical setting that would require a technically and logistically difficult winching system, all thin an already reduced LOD. Karst terrain increases the logistical and technical challenges. Using a ing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would ng to complete. Reducing the time at the crossing and permanently stabilizing this area will reduce the potential for sedimentation and erosion along the hillside.

			Evaluation Factors											
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
Mountain Valley must use a cor	Conventional Bore	\$296,363	Ν	Y	372	40	62	Ν	-	140	Dry-Ditch Open-Cut	S-NN17	G-023	Norfolk
		\$607,416	Ν	Y	372	40	62	N	23	140	Conventional Bore	0-1117	0-025	Nonoik
Mountain Valley must use a co	0 1 15	\$129,388	Ν	Y	702	42	63	N	-	133	Dry-Ditch Open-Cut	S-RR2, S-YZ6, W-	0.001	
	Conventional Bore	\$633,223	N	Y	702	42	63	N	28	133	Conventional Bore	RR1b	G-024	Norfolk
The open cut method would resul ten feet in width and would requir		\$43,253	N	Y	349	41	45	N	-	35	Dry-Ditch Open-Cut			
conventional bore would require logistical and technical challenge would be un	- Dry-Ditch Open-Cut	\$282,023	N	Y	349	41	45	N	20	35	Conventional Bore	S-MM18	G-025	Norfolk
The open cut method would resul five feet in width and would re-		\$37,317	N	Y	276	28	41	N	-	41	Dry-Ditch Open-Cut			
conventional bore would require a terrain increases the logistical and temporary imp	- Dry-Ditch Open-Cut	\$299,051	N	Y	276	28	41	N	20	41	Conventional Bore	S-NN12	G-026	Norfolk
The open cut method would resul five feet in width and would requ		\$121,499	N	Y	43	26	38	N	-	147	Dry-Ditch Open-Cut			
conventional bore would require a terrain increases the logistical and temporary imp	- Dry-Ditch Open-Cut	\$636,416	N	Y	43	26	38	N	24	147	Conventional Bore	S-NN11	G-027	Norfolk
The open cut method would resul ten feet in width and would requ		\$61,648	N	Y	102	28	43	N	-	48	Dry-Ditch Open-Cut			
conventional bore would create ex	- Dry-Ditch Open-Cut	\$223,003	N	Y	102	28	43	N	19	48	Conventional Bore	S-KL43	G-028	Norfolk
The open cut method would result small - less than ten feet in widt		\$63,367	Y	Y	0	11	23	N	-	70	Dry-Ditch Open-Cut		0.000	
impact through a conventional bor the logistical and technical challeng would	- Dry-Ditch Open-Cut	\$399,622	Y	Y	0	11	23	N	22	70	Conventional Bore	W-CD12, S-OO14	G-029	Norfolk
The open cut method would resu residence, and a trenchless crossir		\$101,903	N	Y	73	21	41	N	-	45	Dry-Ditch Open-Cut			
aesthetic, and other impacts on ne to construction activities or	- Dry-Ditch Open-Cut	\$209,921	N	Y	73	21	41	N	18	45	Conventional Bore	S-0012, S-0013	G-030	Norfolk
The open cut method would rest crossing is in close proximity to a re		\$43,348	Y	Y	0	8	16	N	-	46	Dry-Ditch Open-Cut			
compounding the noise, aesthetic, minimize disruption due to const	- Ury-Uitch Open-Cut	\$199,057	Y	Y	0	8	16	N	15	46	Conventional Bore	S-PP1	G-031	Norfolk

Crossing Method Decision Rationale
t use a conventional bore to cross an adjacent road (Rt. 604). The bore can be extended to avoid this resource.
st use a conventional bore to cross an adjacent road (Rt. 42). The bore can be extended to avoid this resource.
rould result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than ould require bore pits approximately twenty feet deep. Avoiding/minimizing this minor impact through a uld require creating excessive spoil piles, with limited room for stockpiling. Karst terrain increases the challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact ould be unreasonably expensive and would take three times as along to complete.
rould result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than d would require bore pits that are twenty feet deep. Avoiding/minimizing this minor impact through a require a deep bore pit which would create excessive spoil piles, with limited room for stockpiling. Karst istical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor porary impact would be unreasonably expensive and would take longer to complete.
rould result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than would require bore pits greater than twenty feet deep. Avoiding/minimizing this minor impact through a require a deep bore pit which would create excessive spoil piles, with limited room for stockpiling. Karst istical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor porary impact would be unreasonably expensive and would take longer to complete.
rould result in a temporary impact to a small UNT to Sinking Creek. The stream is very small - less than vould require bore pits greater than twenty feet deep. Avoiding/minimizing this minor impact through a d create excessive spoil piles, with limited room for stockpiling. Karst terrain increases the logistical and technical challenges.
build result in a temporary impact to a small wetland and small UNT to Sinking Creek. The stream is very eet in width and would require bore pits greater than twenty feet deep. Avoiding/minimizing this minor ntional bore would create excessive spoil piles, with limited room for stockpiling. Karst terrain increases al challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive and would take longer to complete.
vould result in a temporary impact to two small UNTs to Sinking Creek. This crossing is in proximity to a ess crossing of this location would take nearly three times as long to complete compounding the noise, acts on nearby persons. The open-cut method reduces construction duration to minimize disruption due activities on the affected residents. Karst terrain increases the logistical and technical challenges.

I would result in a temporary impact to a small (three-feet wide) intermittent UNT to Sinking Creek. This imity to a residence, and a trenchless crossing of this location would take four times as long to complete -- , aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to ue to construction activities on the affected residents. Karst terrain increases the logistical and technical challenges.

		-			s	Evaluation Factor	-							
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The open cut method v increases the logistical	– Dry-Ditch Open-Cut	\$26,364	Y	Y	0	12	17	N	-	25	Dry-Ditch Open-Cut	S-PP3	G-032	Norfolk
		\$148,594	Y	Y	0	12	17	Ν	17	25	Conventional Bore		0.002	
The open cut method wo	Day Ditch Orea Out	\$34,742	Y	Y	0	11	22	N	-	38	Dry-Ditch Open-Cut	S-PP4	G-033	Nevfelle
terrain increases the logistic	- Dry-Ditch Open-Cut	\$158,084	Y	Y	0	11	22	N	11	38	Conventional Bore	5-224	G-033	Norfolk
		\$44,100	N	N	203	48	57	N	-	48	Dry-Ditch Open-Cut	0.0000	0.001	
Mountain	 Conventional Bore 	\$223,003	N	N	203	48	57	N	19	48	Conventional Bore	S-PP22	G-034	Norfolk
		\$38,975	N	N	0	26	33	N	-	35	Dry-Ditch Open-Cut			
Mountain	 Conventional Bore 	\$300,293	N	N	0	26	33	N	22	35	Conventional Bore	S-PP21	G-035	Norfolk
		\$58,844	Y	N	0	9	26	N	-	48	Dry-Ditch Open-Cut			
Mountair	 Conventional Bore 	\$218,435	Y	N	0	9	26	N	18	48	Conventional Bore	S-PP20	G-036	Norfolk
		\$166,001	Y	N	0	8	20	N	-	61	Dry-Ditch Open-Cut			
Mountain	 Conventional Bore 	\$223,358	Y	N	0	8	20	N	11	61	Conventional Bore	S-006	G-037	Norfolk
		\$52,813	N	N	21	19	33	N	-	38	Dry-Ditch Open-Cut			
Mountair	 Conventional Bore 	\$167,219	N	N	21	19	33	N	13	38	Conventional Bore	S-RR14	G-038	Norfolk
		\$59,609	N	N	216	24	42	N	-	55	Dry-Ditch Open-Cut			
Mountain	 Conventional Bore 	\$420,995	N	N	216	24	42	N	29	55	Conventional Bore	S-HH18	G-039	Norfolk
Access to this crossing loc day during period of active		\$40,296	N	N	287	42	53	N	-	32	Dry-Ditch Open-Cut	0.000	0.075	
day during period of active Furthermore, avoiding th	– Dry-Ditch Open-Cut	\$346,587	N	N	287	42	53	N	28	32	Conventional Bore	S-MN21	G-040	Norfolk

Crossing Method Decision Rationale od would result in a temporary impact to a small (three-feet wide) UNT to Sinking Creek. Karst terrain cal and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. would result in a temporary impact to a small (two-feet wide) intermittent UNT to Sinking Creek. Karst istical and technical challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. ain Valley has only been authorized to boring the streams in this section of the project. ain Valley has only been authorized to boring the streams in this section of the project. tain Valley has only been authorized to boring the streams in this section of the project. tain Valley has only been authorized to boring the streams in this section of the project. ain Valley has only been authorized to boring the streams in this section of the project.

ain Valley has only been authorized to boring the streams in this section of the project.

location is extremely limited and requires removal and replacement of approximately 200 waterbars per tive construction. Operating a boring operation at this location is logistically and technically challenging. g this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive.

						-		Evaluation Factor	s	•				
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	G-041	S-MN22	Dry-Ditch Open-Cut	40	-	N	30	24	0	Ν	Y	\$43,706	- Dry-Ditch Open-Cut	The open cut method would through a conventional bore
NOTOK	0-041	0-1011422	Conventional Bore	40	20	N	30	24	0	Ν	Y	\$296,213		excavation of an interim rar conventional bore cro
			Dry-Ditch Open-Cut	88	-	N	43	27	560	Y	N	\$166,301		Avoiding/minimizing this n thereby requiring the excava
Norfolk	G-042	S-EF65	Conventional Bore	88	22	N	43	27	560	Y	N	\$450,706	- Dry-Ditch Open-Cut	spoil pile. The stream is als in an alread
			Dry-Ditch Open-Cut	38	-	N	28	17	293	Y	N	\$58,103		The stream is located on a
Norfolk	G-043	S-EF62	Conventional Bore	38	16	N	28	17	293	Y	N	\$180,921	- Dry-Ditch Open-Cut	redu
		S-IJ52, W-IJ46-	Dry-Ditch Open-Cut	46	-	N	63	35	178	Y	N	\$57,673		Site conditions do not allow
Norfolk	G-044	PEM	Conventional Bore	46	24	N	63	35	178	Y	N	\$349,780	- Dry-Ditch Open-Cut	challenges. Furthermor
			Dry-Ditch Open-Cut	301	-	N	74	46	1576	N	N	\$232,364		The open cut method Avoiding/minimizing this mi
Norfolk	H-001	S-G39	Conventional Bore	301	36	N	74	46	1576	N	Ν	\$1,511,931	Dry-Ditch Open-Cut	a steep slope, thereby requ the bore pit and spoil pile. T and around the bore pit t safety risk to personnel, ar this location for spoil piles days, thereby increasing t bore crossing r
Nesfells	11.002	C MM45	Dry-Ditch Open-Cut	37	-	N	39	29	74	Ν	N	\$47,979	Des Ditch Oren Cut	The open cut method w Avoiding/minimizing this mi a steep slope, thereby requ
Norfolk	H-002	S-MM15	Conventional Bore	37	33	N	39	29	74	N	N	\$707,895	- Dry-Ditch Open-Cut	the bore pit and spoil pile.
Nic of alla	11.000	6 10/14	Dry-Ditch Open-Cut	100	-	N	42	33	243	Ν	N	\$104,394		The open cut method wou through a conventional bo
Norfolk	H-003	S-MM14	Conventional Bore	100	37	N	42	33	243	Ν	N	\$959,765	- Dry-Ditch Open-Cut	excavation of an interim ra conventional bore cro
Notelle	H-004	S-MM13	Dry-Ditch Open-Cut	33	-	N	59	34	33	N	N	\$41,924		The open cut method would this minor impact through slope, thereby requiring the
Norfolk	Π-004	S-IVINT3	Conventional Bore	33	32	N	59	34	33	Ν	N	\$678,274	Dry-Ditch Open-Cut	pit and spoil pile. This crossi twice as long to complete reduces construction duratio bore crossing r

Crossing Method Decision Rationale

uld result in a temporary impact to a small (four-feet wide) stream. Avoiding/minimizing this minor impact ore would require a relatively deep bore pit of 20 feet at the edge of a steep slope, thereby requiring the ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

s minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and also located on a steep slope that would require logistically and technically challenging winching system addy reduced work area. Karst terrain increases the logistical and technical challenges.

n a steep slope that would require logistically and technically challenging winching system in an already duced work area. Karst terrain increases the logistical and technical challenges.

ow sufficient space to stockpile spoils from bore pits. Karst terrain increases the logistical and technical nore, avoiding this temporary impact to this small stream with a conventional bore crossing would be unreasonably expensive and would take longer to complete.

nod would result in a temporary impact to a small (six-feet wide) intermittent UNT to Roanoke River. minor impact through a conventional bore would require a deep bore pit of nearly 40 feet at the edge of equiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by e. The slope adjacent to the crossing is steep and excessively long, requiring equipment operating within bit to be winched to other equipment. That increases the complexity of this crossing if bored, increases , and adds risk of impact to the waterbody from upland work during a bore. There is insufficient space at les from a bore pit. A conventional bore crossing would extend the duration of this crossing from 6 to 79 ng the greenhouse gas emissions associated with the crossing by nearly 1,400%. Using a conventional ge method to avoid/minimize this minor temporary impact would be unreasonably expensive.

d would result in a temporary impact to a small (six-feet wide) intermittent UNT to Flatwoods Branch. minor impact through a conventional bore would require a deep bore pit of nearly 30 feet at the edge of quiring the excavation of an interim ramp and bench and dramatically increasing the space occupied by le. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ould result in a temporary impact to a UNT to Flatwoods Branch. Avoiding/minimizing this minor impact bore would require a deep bore pit of nearly 40 feet at the edge of a steep slope, thereby requiring the ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. Using a rossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

uld result in a temporary impact to a small (five-feet wide) UNT to Flatwoods Branch. Avoiding/minimizing gh a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore ossing is in close proximity to a residence, and a trenchless crossing of this location would take more than lete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method ration to minimize disruption due to construction activities on the affected residents. Using a conventional g method to avoid/minimize this minor temporary impact would be unreasonably expensive.

		Evaluation Factors												
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	H-005	S-MM11	Dry-Ditch Open-Cut	34	-	N	46	24	33	N	Ν	\$54,178	– Dry-Ditch Open-Cut	The open cut meth Avoiding/minimizing this mi the edge of a steep slope, t occupied by the bore pit and
			Conventional Bore	34	25	N	46	24	33	Ν	Ν	\$324,859	,	would take more than twice open-cut method reduces ca open cut method would red bore crossing r
Norfolk	H-006	W-F9-PFO, S-F15	Dry-Ditch Open-Cut	55	-	N	56	17	0	Ν	Y	\$85,276	– Dry-Ditch Open-Cut	The open cut method we wetland (0.02 ac). Avoidir exceeding 30 feet at the ec increasing the space occupi
NOTOK	11-000	W-I 5-FT 0, 3-I 13	Conventional Bore	55	35	Ν	56	17	0	Ν	Y	\$795,517	Diy-Dich Open-Gu	of this location would take to The open-cut method reduct The open cut method v conventional bore cross
Norfolk	H-007	S-F16a/F16b	Dry-Ditch Open-Cut	32	-	Ν	30	15	0	Ν	Y	\$32,899	– Dry-Ditch Open-Cut	The open cut meth Avoiding/minimizing this min edge of a steep slope, th occupied by the bore pit and
NOTOK	11-007	3-1 100/1 100	Conventional Bore	32	27	Ν	30	15	0	Ν	Y	\$337,452	Diy-Dich Open-Gu	would take nearly twice as lo cut method reduces constru cut method would reduce th crossing me
Norfolk	H-008	S-C33, S-C36, W-	Dry-Ditch Open-Cut	313	-	N	21	15	0	Ν	Y	\$240,100	– Dry-Ditch Open-Cut	The open cut method wou through a conventional bc interim ramp and bench
NOTOK	H-006	C11	Conventional Bore	313	23	N	21	15	0	Ν	Y	\$1,098,387	Dry-Ditch Open-Cut	crossing would extend
Norfolk	H-009	S-MM31	Dry-Ditch Open-Cut	40	-	N	5	3	0	Ν	Y	\$43,566	 Conventional Bore 	There are no significant co methods. The direct aquatic
NOTOK	11-009	3-1010131	Conventional Bore	40	11	Ν	5	3	0	Ν	Y	\$163,760		
Norfolk	H-010	S-C29	Dry-Ditch Open-Cut	44	-	N	21	16	0	Ν	Y	\$35,326	– Dry-Ditch Open-Cut	The open cut method wo crossing would extend the d
NOTOK	11-010	3-029	Conventional Bore	44	17	Ν	21	16	0	Ν	Y	\$202,516	Diy-Dich Open-Gu	with the crossing by over 45
Norfolk	H-012	W-C5	Dry-Ditch Open-Cut	68	-	N	31	19	0	Ν	Y	\$47,600	– Dry-Ditch Open-Cut	The open cut method would through a conventional bor and bench and dramatica
Nonoix	11012		Conventional Bore	68	23	N	31	19	0	Ν	Y	\$403,081		extend the duration of th crossing by over 400%. I
Norfolk	H-013	S-C25	Dry-Ditch Open-Cut	65	-	N	39	29	52	Ν	Ν	\$62,093	- Dry-Ditch Open-Cut	The open cut method would this minor impact throug thereby requiring the excava
NOTOK	11-013	0-020	Conventional Bore	65	38	N	39	29	52	Ν	Ν	\$878,705		spoil pile. A conventiona greenhouse gas emis av
Norfolk	H-014	S-C24	Dry-Ditch Open-Cut	67	-	N	38	20	21	Ν	Ν	\$64,412	– Dry-Ditch Open-Cut	The open cut method wor through a conventional b requiring the excavation of
			Conventional Bore	67	34	N	38	20	21	Ν	Ν	\$811,304		pile. A conventional b greenhouse gas emis av

Crossing Method Decision Rationale

ethod would result in a temporary impact to a small (nine-feet wide) UNT to Flatwoods Branch. minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet at e, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location ice as long to complete – compounding the noise, aesthetic, and other impacts on nearby persons. The s construction duration to minimize disruption due to construction activities on the affected residents. The reduce the construction duration near a private drinking water well on the property. Using a conventional g method to avoid/minimize this minor temporary impact would be unreasonably expensive.

would result in a temporary impact to an intermittent UNT to Flatwoods Branch and an adjacent PFO ding/minimizing this minor impact through a conventional bore would require a relatively deep bore pit edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically upied by the bore pit and spoil pile. This crossing is in proximity to residences, and a trenchless crossing e twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. uces construction duration to minimize disruption due to construction activities on the affected residents. d would reduce the construction duration near a private drinking water well on the property. Using a sissing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.

ethod would result in a temporary impact to a small (three-feet wide) UNT to Flatwoods Branch. minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet at the thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to residences, and a trenchless crossing of this location s long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The opentruction duration to minimize disruption due to construction activities on the affected residents. The open a the construction near a private drinking water well on the property. Using a conventional bore nethod to avoid/minimize this minor temporary impact would be unreasonably expensive.

vould result in a temporary impact to a UNT to Flatwoods Branch. Avoiding/minimizing this minor impact I bore would require a relatively deep bore pit more than 20 feet, thereby requiring the excavation of an ch and dramatically increasing the space occupied by the bore pit and spoil pile. A conventional bore nd the duration of this crossing from 2 to 30 days, thereby increasing the greenhouse gas emissions associated with the crossing by over 1500%.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

vould result in a temporary impact to the small (one-foot wide) Flatwoods Branch. A conventional bore a duration of this crossing from 2 to 9 days, thereby increasing the greenhouse gas emissions associated 450%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ald result in a small temporary impact to a PEM wetland (0.05 ac). Avoiding/minimizing this minor impact ore would require a deep bore pit of nearly 20 feet, thereby requiring the excavation of an interim ramp cally increasing the space occupied by the bore pit and spoil pile. A conventional bore crossing would this crossing from 2 to 8 days, thereby increasing the greenhouse gas emissions associated with the . Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

uld result in a temporary impact to a small (five-feet wide) UNT to Bradshaw Creek. Avoiding/minimizing ugh a conventional bore would require a deep bore pit of nearly 40 feet at the edge of a steep slope, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and nal bore crossing would extend the duration of this crossing from 2 to 18 days, thereby increasing the hissions associated with the crossing by over 900%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

rould result in a temporary impact to a UNT to Bradshaw Creek. Avoiding/minimizing this minor impact I bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil I bore crossing would extend the duration of this crossing from 2 to 18 days, thereby increasing the insistions associated with the crossing by over 900%. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

						•		Evaluation Factor	s	•		•		
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	H-015	S-C21	Dry-Ditch Open-Cut	90	-	N	18	6	21	Ν	Ν	\$168,191	- Conventional Bore	There are no significant cor methods. The direct aquatic
			Conventional Bore	90	26	N	18	6	21	Ν	N	\$492,920		
Norfolk	H-017	S-0016	Dry-Ditch Open-Cut	360	-	N	45	36	282	Y	N	\$266,002	- Conventional Bore	Mountain Valley must use a
HOHOIK	11-017	0.0010	Conventional Bore	360	39	Ν	45	36	282	Y	Ν	\$1,734,180		
Norfolk	H-018	S-NN19	Dry-Ditch Open-Cut	34	-	N	53	27	11	Y	N	\$36,153	- Dry-Ditch Open-Cut	The open cut method would this minor impact through a slope, thereby requiring the pit and spoil pile. This cross
			Conventional Bore	34	33	N	53	27	11	Y	N	\$699,381		weeks to complete com construction duration to mi logistical and technical cha
Norfolk	H-019	S-NN16, W-NN8	Dry-Ditch Open-Cut	316	-	N	23	14	0	Y	Y	\$504,735	- Dry-Ditch Open-Cut	Mountain Valley must use
			Microtunnel	316	31	N	23	14	0	Y	Y	\$3,726,351		
Norfolk	H-020	S-I1, S-AB16, W-	Dry-Ditch Open-Cut	280	-	N	4	3	74	Y	Y	\$244,999	- Conventional Bore	Mountain Valley must use
Nonloik	11 020	AB7	Conventional Bore	280	16	N	4	3	74	Y	Y	\$867,713		
Norfolk	H-021	S-CD12b	Dry-Ditch Open-Cut	38	-	N	3	2	0	Ν	Y	\$37,100	- Conventional Bore	There are no significant cor methods. The direct aquatic
			Conventional Bore	38	11	N	3	2	0	N	Y	\$158,084		
Norfolk	H-022	W-KL58	Dry-Ditch Open-Cut	114	-	N	1	0	0	Ν	Y	\$79,800	- Conventional Bore	There are no significant co methods. The direct aquatic
			Conventional Bore	114	12	N	1	0	o	N	Y	\$378,338		
Norfolk	H-023	S-EF19	Dry-Ditch Open-Cut	30	-	N	76	60	647	N	N	\$24,179	- Dry-Ditch Open-Cut	The open cut method woul minor impact through a tree excavation of an interim ran pile. The slope adjacent to
			Microtunnel	30	51	N	76	60	647	Ν	Ν	\$3,081,818		pit to be winched to other e and adds risk of impact to th from a bore pit. Using a tr

Crossing Method Decision Rationale

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

e a conventional bore to cross an adjacent road (I-81). The bore can be extended to avoid this resource.

vould result in a temporary impact to a small (four-feet wide) UNT to Roanoke River. Avoiding/minimizing gh a conventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore crossing is in close proximity to a residence, and a trenchless crossing of this location would take three compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces o minimize disruption due to construction activities on the affected residents. Karst terrain increases the challenges. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

se microtunneling to cross an adjacent road (Rt. 11). The bore can be extended to avoid this resource.

se microtunneling to cross an adjacent road (Rt. 11). The bore can be extended to avoid this resource.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

rould result in a temporary impact to a small (one-foot wide) UNT to Indian Run. Avoiding/minimizing this trenchless crossing would require an excessively deep bore pit exceeding 50 feet, thereby requiring the r ramp and up to three benches and dramatically increasing the space occupied by the bore pit and spoil to the crossing is steep and excessively long, requiring equipment operating within and around the bore er equipment. That increases the complexity of this crossing if bored, increases safety risk to personnel, to the waterbody from upland work during a bore. There is insufficient space at this location for spoil piles a trenchless method to avoid/minimize this minor temporary impact would be unreasonably expensive.

		Evaluation Factors												
	Proposed Crossing Metho	Total Cost (\$)	Sufficient Stockpile Storage Available		Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The open cut mel wetland (0.11 ac). pit greater than space occupi		\$80,005	Ν	N	768	52	63	N	-	83	Dry-Ditch Open-Cut			
equipment ope	Dry-Ditch Open-C	\$2,635,553	N	N	768	52	63	N	44	83	Conventional Bore	W-EF5-PFO, S- EF20a	H-024	Norfolk
ch Opon Cut The stream is loca	– Dry-Ditch Open-C	\$192,500	N	N	2582	25	33	N	-	200	Dry-Ditch Open-Cut	S-MM22	H-025	Norfolk
are n		\$645,242	Ν	N	2582	25	33	N	17	200	Conventional Bore	3-10110122	11-025	NOTOK
The open cut mett through a trenchle interim ramp and ch Open-Cut adjacent to the	Dry-Ditch Open-C	\$96,784	N	N	2681	66	74	N	-	88	Dry-Ditch Open-Cut	S-IJ50	H-026	Norfolk
winched to other risk of impact to t bore pit. Usi		\$4,098,182	Ν	N	2681	66	74	N	59	88	Microtunnel	0.000	11 020	Nonoix
The open cut met is steep and exc ch Open-Cut That increase	Dry-Ditch Open-C	\$124,613	Ν	N	670	45	66	N	-	104	Dry-Ditch Open-Cut	S-Y13, S-Y14	H-027	Norfolk
waterbody from conventional		\$989,387	Ν	N	670	45	66	N	38	104	Conventional Bore	0-110, 0-114	11-027	Nonoik
The open cut me impacts throug excavation of an ir slope adjacent to		\$105,000	Ν	N	508	51	63	N	-	100	Dry-Ditch Open-Cut	S-EF34b, S-EF55	H-028	Norfolk
winched to other of risk of impact to t bore pit. Using a	— Dry-Ditch Open-C	\$2,738,344	Ν	N	508	51	63	N	45	100	Conventional Bore	3-EF34D, 3-EF33	H-020	NOTOK
The open cu Avoiding/minim ch Open-Cut thereby requiring t	Dry-Ditch Open-C	\$48,809	Ν	N	560	19	42	N	-	43	Dry-Ditch Open-Cut	S-EF33	H-029	Norfolk
spoil pile. Using	Diy-Dion Open-O	\$688,384	Ν	N	560	19	42	N	31	43	Conventional Bore	0-2100	11-025	Nonoik
ntional Bore The stream is a	- Conventional Bor	\$70,275	Y	N	0	14	25	N	-	73	Dry-Ditch Open-Cut	S-IJ82	H-030	Norfolk
		\$453,809	Y	N	0	14	25	N	27	73	Conventional Bore	3-1362	п-030	NOTOK
Orangefii ntional Bore avoided/minimi	 Conventional Bor 	\$292,224	Y	N	0	12	25	N	-	362	Dry-Ditch Open-Cut	W-IJ94-PEM, W- IJ95-PSS, S-IJ83, S	H-031	Norfolk
		\$1,283,121	Y	N	0	12	25	N	28	362	Conventional Bore	IJ88, S-IJ84, W- IJ102		NOTOK

Crossing Method Decision Rationale

ould result in a temporary impact to a small (five-feet wide) UNT to Roanoke River and an adjacent PFO ing/minimizing these minor impacts through a conventional bore would require an excessively deep bore t, thereby requiring the excavation of an interim ramp and two benches and dramatically increasing the he bore pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring within and around the bore pit to be winched to other equipment. That increases the complexity of this ases safety risk to personnel, and adds risk of impact to the waterbody from upland work during a bore. see at this location for spoil piles from a bore pit. In forested wetlands, a 30-foot corridor generally must be sees. Accordingly, conversion impacts to the PFO wetland are unavoidable, even if a bore is used. This e proximity to a residence, and a trenchless crossing of this location would take 27 days -- compounding and other impacts on nearby persons. The open-cut method reduces construction duration to minimize uction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.

a slope that will increase the logistical and technical difficulty of crossing this small stream. The bore pits) feet deep which makes stockpiling the spoils on such steep slope and logistical challenge.

buld result in a temporary impact to a small UNT to Roanoke River. Avoiding/minimizing this minor impact ssing would require an excessively deep bore pit of nearly 60 feet, thereby requiring the excavation of an three benches and dramatically increasing the space occupied by the bore pit and spoil pile. The slope ing is steep and excessively long, requiring equipment operating within and around the bore pit to be nent. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds terbody from upland work during a bore. There is insufficient space at this location for spoil piles from a enchless method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ould result in a temporary impact to two small UNTs to Bottom Creek. The slope adjacent to the crossing ly long, requiring equipment operating within and around the bore pit to be winched to other equipment. complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the d work during a bore. There is insufficient space at this location for spoil piles from a bore pit. Using a rossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.

would result in a temporary impact to two small UNTs to Bottom Creek. Avoiding/minimizing these minor inventional bore would require an excessively deep bore pit greater than 40 feet, thereby requiring the ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. The ossing is steep and excessively long, requiring equipment operating within and around the bore pit to be nent. That increases the complexity of this crossing if bored, increases safety risk to personnel, and adds terbody from upland work during a bore. There is insufficient space at this location for spoil piles from a entional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.

nod would result in a temporary impact to a small (five-feet wide) intermittent UNT to Bottom Creek. his minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and ventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

vater and the direct aquatic impact will be avoided/minimized by use of the conventional bore method.

om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

			Evaluation Factors											
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
Orangefin madtom avoided/minimized by us	 Conventional Bore 	\$94,134	N	N	212	22	34	N	-	108	Dry-Ditch Open-Cut	S-IJ89, S-IJ90	H-032	Norfolk
		\$507,465	N	N	212	22	34	N	22	108	Conventional Bore			
The open cut method wou wetland (0.04 ac). The slo around the bore pit to be wir to personnel, and adds risk		\$53,001	N	N	521	9	14	N	-	59	Dry-Ditch Open-Cut	W-KL17, S-KL25	H-033	Norfolk
for spoil piles from a bore increases the duration of the cut method reduces co	Diy-Dich Open-Cut	\$240,519	Ν	N	521	9	14	N	16	59	Conventional Bore	W-RE17, 3-RE23	n-033	NUTUR
The open cut method would residences, and a trenchle		\$41,300	Y	N	0	12	15	N	-	59	Dry-Ditch Open-Cut	W 12 45		N 6 . II.
aesthetic, and other impact to construction activities on t	– Dry-Ditch Open-Cut	\$240,519	Y	N	0	12	15	N	16	59	Conventional Bore	W-KL15	H-035	Norfolk
The open cut method woul bore pits in wetland area crossing would take more th		\$1,120,000	Y	N	0	2	4	N	-	1600	Dry-Ditch Open-Cut	W-EF42, W-HS02, W-AB6-PEM-2, W- AB6-PFO-1, W-AB6		
footprint of the crossing avoid/minimize the temporal	– Dry-Ditch Open-Cut	\$12,845,673	Y	N	0	2	4	N	10	1600	Direct Pipe	PEM-1, W-AB6- PSS, W-AB5, W- AB3-PEM-2	H-036	Norfolk
Orangefin madtom		\$152,132	N	N	10	17	31	N	-	179	Dry-Ditch Open-Cut			
avoided/minimized by use	 Conventional Bore 	\$699,827	N	N	10	17	31	N	21	179	Conventional Bore	W-EF46, S-ST9b	H-040	Norfolk
The open cut method wou		\$49,000	Y	N	0	5	10	N	-	70	Dry-Ditch Open-Cut			
avi	– Dry-Ditch Open-Cut	\$276,304	Y	N	0	5	10	N	17	70	Conventional Bore	W-KL48-PSS-1	H-041	Norfolk
Orangefin madtom	Our of the I Dec	\$181,156	Y	N	0	13	17	N	-	202	Dry-Ditch Open-Cut	W-KL49-PEM, W-		N f. II.
avoided/minimized by use	 Conventional Bore 	\$774,236	Y	N	0	13	17	N	22	202	Conventional Bore	KL51-PEM, S-KL55, W-KL51-PSS	H-042	Norfolk
Orangefin madtom		\$74,999	N	N	340	22	31	N	-	87	Dry-Ditch Open-Cut	W-MN7-PEM, S-		
avoided/minimized by use	 Conventional Bore 	\$475,272	N	N	340	22	31	N	25	87	Conventional Bore	W-MN7-PEM, S- IJ12	H-043	Norfolk
There are no significant co	Compatible 12	\$49,054	N	N	84	33	45	N	-	45	Dry-Ditch Open-Cut			N1
There are no significant co methods. The	 Conventional Bore 	\$319,538	N	N	84	33	45	N	21	45	Conventional Bore	S-EF44, W-EF44	H-044	Norfolk

Crossing Method Decision Rationale

om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

ould result in a temporary impact to a small (three-feet wide) intermittent UNT to Mill Creek and a PSS slope adjacent to the crossing is steep and excessively long, requiring equipment operating within and winched to other equipment. That increases the complexity of this crossing if bored, increases safety risk sk of impact to the waterbody from upland work during a bore. There is insufficient space at this location ore pit. This crossing also is in close proximity to a residence, and a trenchless crossing of this location the crossing work -- compounding the noise, aesthetic, and other impacts on nearby persons. The openconstruction duration to minimize disruption due to construction activities on the affected residents.

buld result in a small temporary impact to a PEM wetland (0.03 ac). This crossing is in close proximity to hless crossing of this location nearly triples the duration of the crossing work -- compounding the noise, acts on nearby persons. The open-cut method reduces construction duration to minimize disruption due on the affected residents. Using a conventional bore crossing method to avoid/minimize the impact to this PEM would be unreasonably expensive.

ould result in a small temporary impacts several closely grouped wetland features. To avoid excavating ireas, Direct Pipe would be necessary to span the excessively long crossing distance. The trenchless e than one month to complete (as opposed to three days for an open cut crossing). The greenhouse gas sing would therefore increase by over 1,400%. Furthermore, using a Direct Pipe crossing method to orary impacts to these features would be unreasonably expensive. A minor temporary impact associated with the bore to maintain access will be required.

om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

ould result in a small temporary impact to PSS wetland. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available ne direct aquatic impact will be avoided/minimized by use of the conventional bore method.

	_	-	Evaluation Factors											
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
Orangefin madtom	 Conventional Bore 	\$251,003	N	N	230	26	43	N	-	282	Dry-Ditch Open-Cut	W-IJ36, S-IJ43	H-045	Norfolk
		\$1,348,393	Ν	N	230	26	43	Ν	30	282	Conventional Bore			
Orangefin madtor	O	\$117,275	N	Ν	43	24	44	N	-	140	Dry-Ditch Open-Cut			Martella
	 Conventional Bore 	\$625,685	N	N	43	24	44	N	25	140	Conventional Bore	S-Y7, W-Y2, S-Y8	H-046	Norfolk
Orangefin madtorr		\$59,056	Y	N	0	5	9	N	-	64	Dry-Ditch Open-Cut			
	 Conventional Bore 	\$245,574	Y	N	0	5	9	N	14	64	Conventional Bore	S-B22	H-047A	Norfolk
The open cut method wo		\$107,800	Y	N	0	4	9	N	-	154	Dry-Ditch Open-Cut			
aesthetic, and other impac	– Dry-Ditch Open-Cut	\$496,425	Y	N	0	4	9	N	13	154	Conventional Bore	W-B25-PEM-1	H-047B	Norfolk
There are no significant co		\$202,035	Y	N	0	1	3	N	-	253	Dry-Ditch Open-Cut	W-B25-PSS-2, S-		
methods. The	 Conventional Bore 	\$768,251	Y	N	0	1	3	N	11	253	Conventional Bore	B25	H-048A	Norfolk
The pipeline is already insta excavation of a bore pit un		\$176,494	Y	N	0	6	9	N	-	228	Dry-Ditch Open-Cut	W-B24-PEM, W-		
bore pit within the wetland damaging than a much s	– Dry-Ditch Open-Cut	\$829,754	Y	N	0	6	9	N	20	228	Conventional Bore	B24-PSS, S-B21	H-048B	Norfolk
The open cut meth Avoiding/minimizing these of a steep slope, thereby r		\$95,320	N	N	130	48	57	N	-	96	Dry-Ditch Open-Cut	W-ST2-PEM, S-		
by the bore pit and spoil pile the duration of the crossin open-cut method reduce Using a conventional bore	– Dry-Ditch Open-Cut	\$930,144	N	N	130	48	57	N	36	96	Conventional Bore	G24, S-G25	H-051	Norfolk
The open cut method wou steep and excessively long		\$65,800	N	N	729	24	34	N	-	79	Dry-Ditch Open-Cut			
increases the complexity from upland w	– Dry-Ditch Open-Cut	\$310,980	N	N	729	24	34	N	19	79	Conventional Bore	S-D14	H-052	Norfolk
The open cut method wo PEM wetland. Avoiding/		\$84,077	N	N	83	20	27	N	-	89	Dry-Ditch Open-Cut	W-D7-PEM, S-D13,		
exceeding 20 feet at the e increasing the space occu	- Dry-Ditch Open-Cut	\$471,813	N	N	83	20	27	N	24	89	Conventional Bore	S-D12	H-053	Norfolk

Crossing Method Decision Rationale
om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.
om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.
om habitat may be present in this stream and it is a trout water. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.
vould result in a small (0.19 ac) temporary impact to PEM wetland. This crossing is in close proximity to and a trenchless crossing of this location would take 30 days to complete compounding the noise, acts on nearby persons. The open-cut method reduces construction duration to minimize disruption due to construction activities on the affected residents.
constraints on available crossing methods or significant environmental impacts relevant to the available he direct aquatic impact will be avoided/minimized by use of the conventional bore method.
stalled through a portion of the wetland at this crossing. The layout of a conventional bore would require unacceptably close to the installed pipe. Additionally, a trenchless method would require excavation of a nd, meaning that that a longer-duration bore pit in the wetland (3 to 4 weeks) is not less environmentally shorter duration impact associated with an open cut through the wetlands and adjacent four-foot-wide UNT to Mill Creek.
ethod would result in a temporary impact to two small UNTs to Green Creek and a PEM wetland. e minor impacts through a conventional bore would require a deep bore pit of nearly 40 feet at the edge r requiring the excavation of an interim ramp and bench and dramatically increasing the space occupied bile. This crossing is in close proximity to a residence, and a trenchless crossing of this location increases sing from 2 to 19 days – compounding the noise, aesthetic, and other impacts on nearby persons. The created construction duration to minimize disruption due to construction activities on the affected residents. re crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.
ould result in a temporary impact to a small (three-feet wide) UNT. The slope adjacent to the crossing is ng, requiring equipment operating within and around the bore pit to be winched to other equipment. That ty of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the waterbody work during a bore. There is insufficient space at this location for spoil piles from a bore pit.
vould result in a temporary impact to two small intermittent UNTs to North Fork Blackwater River and a g/minimizing these minor impacts through a conventional bore would require a relatively deep bore pit edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically cupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.

			Evaluation Factors						•					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	H-054	S-D11	Dry-Ditch Open-Cut	81	-	N	33	10	51	N	N	\$119,688	 Conventional Bore 	There are no significant cor methods. The direct aquatic
			Conventional Bore	81	22	N	33	10	51	Ν	Ν	\$430,840		
Norfolk	H-055	S-D8	Dry-Ditch Open-Cut	60	-	N	43	37	585	Ν	Z	\$107,791	– Dry-Ditch Open-Cut	The open cut method w Avoiding/minimizing these requiring the excavation of spoil pile. The slope adjace
NOTOK	11-035	3-00	Conventional Bore	60	35	Ν	43	37	585	Ν	Ν	\$809,707		bore pit to be winched to personnel, and adds risk o for spoil piles from a bore pit
Norfolk	H-056	S-GH15	Dry-Ditch Open-Cut	35	-	N	62	54	148	Ν	Z	\$38,526	– Dry-Ditch Open-Cut	The open cut method wou River. Avoiding/minimizing
NOTOK	1-030	3-6113	Conventional Bore	35	24	Ν	62	54	148	Ν	Ν	\$318,562		space occupied by the bore
Nasfalls	H-057	S-GH14	Dry-Ditch Open-Cut	54	-	N	48	34	109	Ν	N	\$52,050	Day Ditch Orea Cut	The open cut method w Avoiding/minimizing this m
Norfolk	-US/	S-GH14	Conventional Bore	54	36	N	48	34	109	Ν	N	\$810,949	– Dry-Ditch Open-Cut	the edge of a steep slope, occupied by the bore pit and
Nasfalls	H-058	S-GH11	Dry-Ditch Open-Cut	31	-	N	54	42	231	Ν	N	\$32,688	Day Ditch Orea Cut	The open cut method we Avoiding/minimizing this m the edge of a steep slope, i occupied by the bore pit and
Norfolk	n-030	3-6111	Conventional Bore	31	32	N	54	42	231	Ν	N	\$672,598	– Dry-Ditch Open-Cut	would take longer to complete reduces construction duration would reduce the construct method
Norfolk	H-059	S-GH9	Dry-Ditch Open-Cut	48	-	N	47	24	62	Ν	N	\$48,203	Day Ditch Orea Cut	The open cut method w Avoiding/minimizing this m the edge of a steep slope, occupied by the bore pit and
NOTOK	H-039	3-919	Conventional Bore	48	34	N	47	24	62	Ν	Ν	\$757,382	- Dry-Ditch Open-Cut	would take nearly twice as lo cut method reduces constru- conventional bore cro
Norfolk	H-060	S-RR08	Dry-Ditch Open-Cut	43	-	N	20	12	0	Ν	Y	\$54,799	 Conventional Bore 	There are no significant co methods. The direct aquatic
NOTOK	n-000	3-6600	Conventional Bore	43	15	N	20	12	0	Ν	Y	\$190,543		
Norfolk	H-061	S-RR09	Dry-Ditch Open-Cut	30	-	N	56	34	64	Ν	N	\$48,428	- Dry-Ditch Open-Cut	The open cut method w Avoiding/minimizing this m the edge of a steep slope, i
NOTOK	n-vo I	3-1119	Conventional Bore	30	31	N	56	34	64	Ν	N	\$651,490	bry-bitch Open-out	occupied by the bore pit and would take nearly twice as lo cut method reduces constru conventional bore cro
Norfolk	H-062	S-RR11	Dry-Ditch Open-Cut	38	-	N	39	26	136	Ν	Ν	\$51,125	– Dry-Ditch Open-Cut	The open cut method w Blackwater River. Avoiding, greater than 20 feet at th
NOTOK	11-002	-1111 	Conventional Bore	38	27	N	39	26	136	N	N	\$354,480	Sry-Siten Open-out	dramatically increasing

Crossing Method Decision Rationale

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

d would result in a temporary impact to a small (four-feet wide) UNT to North Fork Blackwater River. se minor impacts through a conventional bore would require a deep bore pit exceeding 30 feet, thereby of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and cent to the crossing is steep and excessively long, requiring equipment operating within and around the d to other equipment. That increases the complexity of this crossing if bored, increases safety risk to x of impact to the waterbody from upland work during a bore. There is insufficient space at this location pit. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

rould result in a temporary impact to a small (four-feet wide) intermittent UNT to North Fork Blackwater ing this minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 ps lope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the ore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

d would result in a temporary impact to a small (four-feet wide) UNT to North Fork Blackwater River. minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at e, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

would result in a temporary impact to a small (three-feet wide) intermittent UNT to Blackwater River. minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at e, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location uplete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method ation to minimize disruption due to construction activities on the affected residents. The open cut method ruction duration near private drinking water wells on the property. Using a conventional bore crossing d to avoid/minimize this minor temporary impact would be unreasonably expensive.

d would result in a temporary impact to a small (four-feet wide) UNT to North Fork Blackwater River. minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at e, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location s long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The openstruction duration to minimize disruption due to construction activities on the affected residents. Using a crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

I would result in a temporary impact to a small (nine-feet wide) UNT to North Fork Blackwater River. minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at e, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location s long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The openstruction duration to minimize disruption due to construction activities on the affected residents. Using a rossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

would result in a temporary impact to a small (seven-feet wide) UNT to North Fork Blackwater River g/minimizing this minor impact through a conventional bore would require an excessively deep bore pit the edge of a steep slope, thereby requiring the excavation of an interim ramp and two benches and ng the space occupied by the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

								Evaluation Factor	S					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
			Dry-Ditch Open-Cut	133	-	N	44	37	928	Ν	Ν	\$135,744		The open cut method woul (0.002 ac). Avoiding/minin greater than 40 feet, thereb occupied by the bore pit a
Norfolk	H-063	S-IJ1, W-IJ1, S-IJ2	Conventional Bore	133	41	N	44	37	928	Ν	Ν	\$2,613,815	Dry-Ditch Open-Cut	operating within and around
Norfolk	I-001	S-E28	Dry-Ditch Open-Cut	56	-	N	46	18	0	Ν	Y	\$95,200	Day Ditch Orean Cut	This crossing is immedial would require the pipe to l
NOTOK	1-001	3-E20	Conventional Bore	56	16	N	46	18	0	Ν	Y	\$232,005	- Dry-Ditch Open-Cut	
Norfolk	I-001A	S-GH3	Dry-Ditch Open-Cut	22	-	N	41	19	31	Ν	Ν	\$33,100	 Conventional Bore 	There are no significant co methods. The direct aquatic
Nonoik	POUR	0-0110	Conventional Bore	22	14	Ν	41	19	31	Ν	Ν	\$126,378		
Norfolk	1-002	S-E29	Dry-Ditch Open-Cut	52	-	Ν	4	2	0	Ν	Y	\$65,383	– Dry-Ditch Open-Cut	This UNT to Teels Creek i due to natural conditions u the banks, which will provi
NOTOK	1-002	3-E29	Conventional Bore	52	14	N	4	2	0	Ν	Y	\$211,518	Dry-Ditch Open-Cut	stream. That work can be
Norfolk	1-003	S-E28	Dry-Ditch Open-Cut	45	-	N	15	3	0	Ν	Y	\$87,500	– Dry-Ditch Open-Cut	Teels Creek in an area wi conditions unrelated to pi which will provide greater pi
NOTOK	1-003	3-E20	Conventional Bore	45	15	N	15	3	0	Ν	Y	\$196,219	- Dry-Ditch Open-Cut	work can be done efficient
Norfolk	1-004	W-E7	Dry-Ditch Open-Cut	298	-	N	18	6	0	Ν	Y	\$208,600	Dr./ Ditch Open Cut	Avoiding/minimizing these thereby requiring the excav pit and spoil pile. This cross complete compounding t
NOTOK	1-004	VV-E7	Conventional Bore	298	21	N	18	6	0	Ν	Y	\$1,037,547	Dry-Ditch Open-Cut	duration to minimize disru construction duration
Norfolk	I-005A	W-E8	Dry-Ditch Open-Cut	150	-	N	37	29	0	Ν	Y	\$105,000	Dr./ Ditch Open Cut	The open cut method wo impacts through a conve thereby requiring the excav pit and spoil pile. This cross
NOTOK	1-005A	VV-EO	Conventional Bore	150	27	N	37	29	0	Ν	Y	\$672,334	– Dry-Ditch Open-Cut	complete compounding the duration to minimize disrupt
Norfolk	I-005B	S-E28	Dry-Ditch Open-Cut	67	-	N	24	18	0	Ν	Y	\$102,900	- Dry-Ditch Open-Cut	This Section of Teels Creek due to natural conditions un
NOTOK	1-0030	3-E20	Conventional Bore	67	23	N	24	18	0	Ν	Y	\$400,243	Dry-Diton Open-Cul	the banks, which will provi stream. That work can be

Crossing Method Decision Rationale

ould result in a temporary impact to two small UNTs to North Fork Blackwater River and a PEM wetland inimizing these minor impacts through a conventional bore would require an excessively deep bore pit reby requiring the excavation of an interim ramp and two benches and dramatically increasing the space pit and spoil pile. The slope adjacent to the crossing is steep and excessively long, requiring equipment and the bore pit to be winched to other equipment. That increases the complexity of this crossing if bored, personnel, and adds risk of impact to the waterbody from upland work during a bore. There is insufficient spoil piles from a bore pit. This crossing is in close proximity to a residence, and a trenchless crossing early three times as long to complete -- compounding the noise, aesthetic, and other impacts on nearby nethod reduces construction duration to minimize disruption due to construction activities on the affected method would reduce the construction duration near a private drinking water well on the property. Using a cossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.

diately adjacent to a mainline valve. Trenchless crossing methods are logistically difficult because they to be installed too deeply to facilitate connection to the valve site. An open cut crossing is necessary to facilitate connection to the mainline valve.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

ek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding s unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize ovide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location.

with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural oppeline construction. Instream work will be necessary to permanently restore and stabilize the banks, r protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That iently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location.

ese minor impacts through a conventional bore would require a relatively deep bore pit of nearly 30 feet, cavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore ossing is in close proximity to residences, and a trenchless crossing of this location would take 14 days to g the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction isruption due to construction activities on the affected residents. The open cut method would reduce the ion near private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize the impact to this PEM would be unreasonably expensive.

would result in a small temporary impact (0.07 ac) to a PEM wetland. Avoiding/minimizing these minor nventional bore would require a relatively deep bore pit of nearly 30 feet on the edge of a steep slope, cavation of an interim ramp and two benches and dramatically increasing the space occupied by the bore ossing is in close proximity to residences, and a trenchless crossing of this location would take 19 days to g the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction uption due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize the impact to this PEM would be unreasonably expensive.

eek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding s unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize ovide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the be done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location.

	Evaluation Factors													
ACE strict	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
orfolk	1-006	S-EF4	Dry-Ditch Open-Cut	59	-	N	48	29	62	N	N	\$81,979	Dry-Ditch Open-Cut	This intermittent UNT to Tee eroding due to natural con- stabilize the banks, which
			Conventional Bore	59	34	N	48	29	62	N	N	\$788,600		loads in the stream. The temporary stream impacts crossing
orfolk	I-007	S-EF12	Dry-Ditch Open-Cut	68	-	Ν	8	2	124	N	N	\$123,232	Dry-Ditch Open-Cut	This UNT to Teels Creek due to natural conditions u the banks, which will provi
ITOK	1-007	5-EF 12	Conventional Bore	68	16	N	8	2	124	N	N	\$266,060	- Dry-Ditch Open-Cut	stream. That work can be
-6-11-	I-008	S-MM42	Dry-Ditch Open-Cut	43	-	N	25	18	0	N	Y	\$37,690	– Dry-Ditch Open-Cut -	The open cut method woul minor impact through a excavation of an interim crossing is in close proximit
rfolk	1-008	S-IVIIVI42	Conventional Bore	43	23	N	25	18	0	N	Y	\$332,131		 compounding the noise, a minimize disruption due to duration near private drin
<i>.</i>	1.000	0.001/5	Dry-Ditch Open-Cut	60	-	N	25	12	30	N	N	\$102,185	- Conventional Bore	Although the bore pits ass
rfolk	I-009	S-RR15	Conventional Bore	60	20	N	25	12	30	N	N	\$352,973		equipment ar
<i>.</i>	1.040	0.000	Dry-Ditch Open-Cut	71	-	N	39	19	87	N	N	\$136,216	- Dry-Ditch Open-Cut	The stream banks at th Instream work will be ne pipeline and have the benef
rfolk	I-010	S-D23	Conventional Bore	71	28	N	39	19	87	N	N	\$457,268		after completion of an oper construction constraints, inc
-6-11-		0.500	Dry-Ditch Open-Cut	42	-	N	31	21	0	N	Y	\$61,662		The open cut method Avoiding/minimizing this n
rfolk	I-011	S-D22	Conventional Bore	42	21	N	31	21	0	N	Y	\$311,024	- Dry-Ditch Open-Cut	edge of a steep slope, th occupied by the bore pit an
-6-11-	1.010	0.500	Dry-Ditch Open-Cut	29	-	N	35	27	113	N	N	\$43,964		The open cut method Avoiding/minimizing this n edge of a steep slope, th
rfolk	I-012	S-D20	Conventional Bore	29	28	N	35	27	113	N	N	\$338,073	- Dry-Ditch Open-Cut	occupied by the bore pit an would take more than twice open-cut method reduces Using a conventional bore
<i>.</i>			Dry-Ditch Open-Cut	90	-	N	40	28	53	N	N	\$271,204		Teels Creek is in an area v conditions unrelated to p which will provide greater p
Norfolk	I-013	S-C14	Conventional Bore	90	38	Ν	40	28	53	N	N	\$949,655	- Dry-Ditch Open-Cut	work can be done efficien unavoidable at this location both sides of the creek, o
Norfolk	I-014	S-C17	Dry-Ditch Open-Cut	62	-	Ν	21	16	0	N	Y	\$187,051		Roanoke logperch habi
			Conventional Bore	62	20	N	21	16	0	N	Y	\$358,649	- Conventional Bore	

Crossing Method Decision Rationale

eels Creek is in an area with highly erodible solids. The stream banks at the crossing location are rapidly nditions unrelated to pipeline construction. Instream work will be necessary to permanently restore and ich will provide greater protection for the pipeline and have the benefit of reducing long-term sediment hat work can be done efficiently and effectively after completion of an open-cut crossing. Therefore, s are unavoidable at this location. Furthermore, it would be unreasonably expensive to use a trenchless ng to avoid only a fraction of the aquatic impact to this small (three-foot wide) stream.

k is in an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding unrelated to pipeline construction. Instream work will be necessary to permanently restore and stabilize vide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the e done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location.

ould result in a temporary impact to a small (two-feet wide) UNT to Teels Creek. Avoiding/minimizing this a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the im ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. This mity to residences, and a trenchless crossing of this location would take nearly twice as long to complete a sesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to to construction activities on the affected residents. The open cut method would reduce the construction drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ssociated with this crossing are 20 feet deep, the relatively flat approaches are reasonable for winching and the excessive spoils associated with deeper bore pits can be managed appropriately.

the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. tecessary to permanently restore and stabilize the banks, which will provide greater protection for the efit of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively encut crossing. Therefore, temporary stream impacts are unavoidable at this location. This location has ncluding winch-hill construction and limited space for soil stockpiles. The open cut method also reduces the construction duration near a private drinking water well on the property.

od would result in a temporary impact to a small (eight-feet wide) intermittent UNT to Teels Creek. minor impact through a conventional bore would require a relatively deep bore pit nearly 20 feet at the thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

od would result in a temporary impact to a small (eight-feet wide) intermittent UNT to Teels Creek. minor impact through a conventional bore would require a relatively deep bore pit nearly 30 feet at the thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location ice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The ses construction duration to minimize disruption due to construction activities on the affected residents. ore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

a with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That ently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are on. Construction constraints at this location include a bore pit depth of nearly 40 feet and steep slopes on s, one of which would require winched equipment. The open cut method also reduces the construction duration near a private drinking water well on the property.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.

				Evaluation Factors										
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	I-015	S-CD6	Dry-Ditch Open-Cut	109	-	N	4	1	o	N	Y	\$276,201	- Drv-Ditch Open-Cut	Teels Creek is in an area w conditions unrelated to pi which will provide greater pr
			Conventional Bore	109	20	N	4	1	0	N	Y	\$492,034		work can be done efficien
Naufalls	I-016	W. CDC	Dry-Ditch Open-Cut	94	-	N	4	1	0	Ν	Y	\$65,800	Convertional Data	There are no significant co
Norfolk	1-016	W-CD6	Conventional Bore	94	11	N	4	1	0	N	Y	\$317,011	 Conventional Bore 	methods. The direct aquation
No. 6 He	1047	W ODS	Dry-Ditch Open-Cut	88	-	N	67	54	122	N	N	\$61,600		The open cut method we impacts through a conven slope, thereby requiring th the bore pit and spoil pile.
Norfolk	I-017	W-CD5	Conventional Bore	88	52	N	67	54	122	N	N	\$3,086,106	– Dry-Ditch Open-Cut	the duration of the crossin open-cut method reduces Because the pipeline ROW with any crossing method. I
		0.110	Dry-Ditch Open-Cut	98	-	N	13	3	0	N	Y	\$278,804	– Dry-Ditch Open-Cut	Little Creek is in an area w conditions unrelated to pi which will provide greater pi
Norfolk	I-018	S-II2	Conventional Bore	98	20	N	13	3	0	N	Y	\$460,816		work can be done efficien unavoidable at this locatio
			Dry-Ditch Open-Cut	110	-	N	22	12	0	N	Y	\$89,800	- Dry-Ditch Open-Cut	This crossing is in close pro
Norfolk	I-019	S-CD1, W-CD1	Conventional Bore	110	18	N	22	12	0	N	Y	\$394,390		long to complete comp construction
No. 6 He	1.000		Dry-Ditch Open-Cut	72	-	N	32	14	106	N	N	\$62,773	Querrative I Pres	There are no significant co
Norfolk	I-020	S-KL35, W-EF48	Conventional Bore	72	16	N	32	14	106	N	N	\$277,412	 Conventional Bore 	methods. The direct aquation
No. 6 He	1.004	0.1/1.00	Dry-Ditch Open-Cut	39	-	N	34	18	32	N	Y	\$55,130	Querrative I Pres	There are no significant co
Norfolk	I-021	S-KL36	Conventional Bore	39	17	N	34	18	32	N	Y	\$188,326	 Conventional Bore 	methods. The direct aquation
	1.005	0.11.07	Dry-Ditch Open-Cut	200	-	N	54	24	0	N	Y	\$165,254		The pipeline has already be
Norfolk	I-022	S-KL38	Conventional Bore	200	35	N	54	24	o	N	Y	\$1,207,025	- Dry-Ditch Open-Cut	together if a trenchless me the Blac
		I-023 S-KL39 -	.023 S-KL39 -	3 B-KL39 Dry-Ditch Open-Cut 98 - N 40 31 Conventional Bore 98 32 N 40 31	85	N	N	\$92,713	The open cut meth Avoiding/minimizing this m the edge of a steep slope, occupied by the bore pit anc					
Norfolk	1-023				S-KL39	Conventional Bore	98	32	N	40	31	85	N	N

Crossing Method Decision Rationale

with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That ently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this location.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

would result in a small temporary impact (0.11 ac) to a PFO wetland. Avoiding/minimizing these minor entional bore would require an excessively deep bore pit exceeding 50 feet on the edge of a very steep the excavation of an interim ramp and two benches and dramatically increasing the space occupied by e. This crossing is in proximity to a residence, and a trenchless crossing of this location would increase sing from 4 to 35 days -- compounding the noise, aesthetic, and other impacts on nearby persons. The ses construction duration to minimize disruption due to construction activities on the affected residents. W must remain free of woody vegetation to protect the pipe coating, a conversion impact is unavoidable I. Using a conventional bore crossing method to avoid/minimize a portion of the impact to this PFO would be unreasonably expensive.

with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to natural pipeline construction. Instream work will be necessary to permanently restore and stabilize the banks, protection for the pipeline and have the benefit of reducing long-term sediment loads in the stream. That ently and effectively after completion of an open-cut crossing. Therefore, temporary stream impacts are tion. The open cut method also reduces the construction duration near a private drinking water wells on the property.

proximity to a residence, and a trenchless crossing of this location would take nearly four times longer to mpounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces on duration to minimize disruption due to construction activities on the affected residents.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

been installed under an adjacent road (Hwy. 220). There is no feasible way to tie the two sections of pipe nethod is used to install this crossing. Furthermore, avoiding this temporary impact to this small UNT to lackwater River with a conventional bore crossing would be unreasonably expensive.

ethod would result in a temporary impact to a small (seven-feet wide) UNT to Blackwater River. minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet at e, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of this location s long to complete – compounding the noise, aesthetic, and other impacts on nearby persons. The open uce the construction duration near private drinking water wells on the property. The open-cut method ation to minimize disruption due to construction activities on the affected residents. Using a conventional g method to avoid/minimize this minor temporary impact would be unreasonably expensive.

					-											
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method			
Norfolk	1-024	S-YZ5	Dry-Ditch Open-Cut	40	-	N	31	19	o	N	Y	\$43,080	– Dry-Ditch Open-Cut	The open cut method would this minor impact through a thereby requiring the excava spoil pile. This crossing is in		
			Conventional Bore	40	28	N	31	19	0	N	Y	\$369,291	, , , ,	twice as long to complete reduces construction durati bore crossing r		
Norfolk	1-025	S-YZ4	Dry-Ditch Open-Cut	32	-	N	37	28	52	N	N	\$33,182	– Dry-Ditch Open-Cut	The open cut met Avoiding/minimizing this n edge of a steep slope, th occupied by the bore pit an		
NOTOK	1-023	3-124	Conventional Bore	32	22	Ν	37	28	52	Ν	Ν	\$291,779	Diy-Dich Open-Gu	location would take longer method reduces constructic method would reduce th crossing me		
Norfolk	1-026	S-EF48, W-EF51	Dry-Ditch Open-Cut	42	-	N	32	29	0	Ν	Y	\$36,404	Dr./ Ditch Open Cut	The open cut method wou adjacent PEM wetland (0. deep bore pit nearly 30 fr dramatically increasing the and a trenchless crossing		
NOTOK	1-020	3-Er40, W-Er31	Conventional Bore	42	28	N	32	29	0	N	Y	\$374,967		activities on he affected res on the property. Usin		
Norfolk	I-027	S-KL41	Dry-Ditch Open-Cut	48	-	N	41	32	83	Ν	Ν	\$75,690	– Dry-Ditch Open-Cut	The open cut method wor through a conventional b requiring the excavation of		
NOTOK	1-027	3-NL41	Conventional Bore	48	33	N	41	32	83	Ν	Ν	\$739,113		pile. It also would increase duration near a private dr		
Norfolk	1-028	S-C8	Dry-Ditch Open-Cut	44	-	N	32	23	31	N	N	\$48,854	– Dry-Ditch Open-Cut	The open cut method v Avoiding/minimizing this mi edge of a steep slope, th		
NOTOK	1-020	3-00	Conventional Bore	44	28	N	32	23	31	N	N	\$380,643		occupied by the bore pit an would reduce the constr crossing me		
Norfolk	1-029	S-KL51	Dry-Ditch Open-Cut	45	-	N	36	27	105	N	N	\$50,762	Dr./ Ditch Open Cut	The open cut method woul through a conventional b requiring the excavation of pile. This crossing is in clo		
NOTOK	1-029	3-6231	Conventional Bore	45	24	N	36	27	105	Ν	Ν	\$346,942	- Dry-Ditch Open-Cut	long to complete comp construction duration to m reduce the construction dur av		
Norfolk	1-030	S-KL52	Dry-Ditch Open-Cut	59	-	Ν	23	18	0	Ν	Y	\$45,967	– Dry-Ditch Open-Cut	The open cut method would through a conventional be interim ramp and a bench proximity to a residence,		
NOTOK	1-050	U-NEUZ	Conventional Bore	59	23	Ν	23	18	0	Ν	Y	\$377,539	Diy-Dich Open-Gu	noise, aesthetic, and other i due to construction activitie drinking water wells on the		
Norfolk	I-031	S-KL54	Dry-Ditch Open-Cut	32	-	N	29	21	0	N	Y	\$57,639		The open-cut method would through a conventional excavation of an interim r		
NOTIOK	1-031	0-nL04	Conventional Bore	32	20	N	29	21	0	N	Y	\$273,509	– Dry-Ditch Open-Cut	crossing is in proximity compounding the noise, ac minimize disruption due to		
Norfolk	1.020		Dry-Ditch Open-Cut	206	-	N	32	26	0	N	Y	\$257,327	tog	The pipeline has already by together if a trenchless met		
NOTOK	I-032	I-032	S-F8	S-F8	Conventional Bore	206	41	N	32	26	0	N	Y	\$2,820,988	- Dry-Ditch Open-Cut	depth exceeding 40 feet, v occupied by the bore pit a

Crossing Method Decision Rationale

Ild result in a temporary impact to a small (four-feet wide) UNT to Blackwater River. Avoiding/minimizing a conventional bore would require a relatively deep bore pit nearly 30 feet at the edge of a steep slope, vation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and in close proximity to several residences, and a trenchless crossing of this location would take more than etc. - compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method ation to minimize disruption due to construction activities on the affected residents. Using a conventional g method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ethod would result in a temporary impact to a small (three-feet wide) UNT to Blackwater River. minor impact through a conventional bore would require a relatively deep bore pit nearly 30 feet at the thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space and spoil pile. This crossing is in close proximity to several residences, and a trenchless crossing of this er to complete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut tion duration to minimize disruption due to construction activities on the affected residents. The open cut the construction duration near private drinking water wells on the property. Using a conventional bore nethod to avoid/minimize this minor temporary impact would be unreasonably expensive.

buld result in a temporary impact to a small (two-feet wide) intermittent UNT to Blackwater River and an (0.01 ac). Avoiding/minimizing this minor impact through a conventional bore would require a relatively if eet at the edge of a steep slope, thereby requiring the excavation of an interim ramp and bench and e space occupied by the bore pit and spoil pile. This crossing is in close proximity to several residences, og of this location would take twice as long to complete – compounding the noise, aesthetic, and other rooms. The open-cut method reduces construction duration to minimize disruption due to construction esidents. The open cut method would reduce the construction duration near a private drinking water well sing a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

vould result in a temporary impact to a UNT to Blackwater River. Avoiding/minimizing this minor impact I bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil use the duration of the crossing from 8 to 33 days. The open cut method would reduce the construction drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

I would result in a temporary impact to a small (five-feet wide) intermittent UNT to Blackwater River. minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet at the thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space nd spoil pile. It also would increase the duration of the crossing from 5 to 11 days. The open cut method truction duration near several private drinking water wells on the property. Using a conventional bore nethod to avoid/minimize this minor temporary impact would be unreasonably expensive.

uld result in a temporary impact to a small (six-feet wide) stream. Avoiding/minimizing this minor impact l bore would require a relatively deep bore pit exceeding 20 feet at the edge of a steep slope, thereby of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil lose proximity to a residence, and a trenchless crossing of this location would take more than twice as mpounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces minimize disruption due to construction activities on the affected residents. The open cut method would uration near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

uld result in a temporary impact to a small (one-foot wide) stream. Avoiding/minimizing this minor impact bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an h and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in close e, and a trenchless crossing of this location would take twice as long to complete -- compounding the er impacts on nearby persons. The open-cut method reduces construction duration to minimize disruption ties on the affected residents. The open-cut method would reduce the construction duration near private the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

uld result in a temporary impact to a small (one-foot wide) stream. Avoiding/minimizing this minor impact nal bore would require a relatively deep bore pit that is nearly 20 feet deep, potentially requiring the ramp and a bench and dramatically increasing the space occupied by the bore pit and spoil pile. This ity to a residence, and a trenchless crossing of this location would take twice as long to complete – aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to to construction activities on the affected residents. The open-cut method would reduce the construction duration near private drinking water wells on the property.

been installed under an adjacent road (Rt. 122). There is no feasible way to tie the two sections of pipe ethod is used to install this crossing. If a trenchless crossing were attempted, it would require a bore pit which would require the excavation of an interim ramp and bench and dramatically increase the space t and spoil pile. Lastly, avoiding this temporary impact to this small UNT to the Maggodee Creek with a conventional bore crossing would be unreasonably expensive.

	Evaluation Factors						_								
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method		
Norfolk	I-033	S-HH4	Dry-Ditch Open-Cut	63	-	N	29	18	20	N	N	\$77,464	– Dry-Ditch Open-Cut	The open cut method wou minor impact through a con thereby requiring the excava spoil pile. This crossing	
			Conventional Bore	63	32	N	29	18	20	N	N	\$763,413		complete compounding t duration to minimize disrupt to a	
Norfolk	I-034	S-C20	Dry-Ditch Open-Cut	52	-	N	20	13	0	N	Y	\$50,437	 Conventional Bore 	There are no significant co methods. The direct aquatic	
NOTOK	1-034	3-620	Conventional Bore	52	17	N	20	13	0	Ν	Y	\$225,220			
Norfolk	I-035	S-C19	Dry-Ditch Open-Cut	100	-	Ν	49	41	234	Ν	Ν	\$227,598	– Dry-Ditch Open-Cut	The open-cut method wou conventional bore woul requiring the excavation of spoil pile. This crossing	
NOTOK	1-055	0-019	Microtunnel	100	46	N	49	41	234	Ν	Ν	\$3,509,091		complete compounding t duration to minimize disru av	
Norfolk	I-036	S-F11	Dry-Ditch Open-Cut	139	-	N	56	40	100	Ν	Ν	\$415,926	- Dry-Ditch Open-Cut	The Blackwater River's construction. Instream protection for the pipelin	
NOTOK	1-030	3-611	Conventional Bore	139	39	N	56	40	100	Ν	N	\$1,106,985		efficiently and effectively a location. A trenchless cro would be just short of 40-	
Marfalla	1.007	S-F9b	Dry-Ditch Open-Cut	56	-	N	37	30	62	N	N	\$92,048	- Dry-Ditch Open-Cut	The open cut method wo through a conventional b requiring the excavation o pile. This crossing is in clos	
Norfolk	I-037	5-F9D	Conventional Bore	56	31	N	37	30	62	N	N	\$725,278		compounding the noise, as minimize disruption due to duration near several priva	
Norfolk	I-038	S-F10	Dry-Ditch Open-Cut	47	-	N	16	9	0	Ν	Y	\$72,699	Conventional Para	There are no significant co methods. The direct aquatio	
NOTOK	1-036	5-F 10	Conventional Bore	47	16	N	16	9	0	Ν	Y	\$206,463		methods. The direct aquatic	
Norfolk	1.020	S-F9a	Dry-Ditch Open-Cut	66	-	N	20	12	0	Ν	Y	\$98,700	Convertional Data	There are no significant co	
ΝΟΓΤΟΙΚ	I-039	5-r9a	Conventional Bore	66	20	N	20	12	0	N	Y	\$370,001	- Conventional Bore	methods. The direct aquation	
h1		6.001	Dry-Ditch Open-Cut	53	-	N	18	13	0	N	Y	\$56,010	Committee 15	There are no significant co	
Norfolk	I-040	S-GG4	Conventional Bore	53	17	N	18	13	0	N	Y	\$228,058	 Conventional Bore 	methods. The direct aquatic	
h1		0.400	Dry-Ditch Open-Cut	51	-	N	21	10	0	N	Y	\$49,896		The open cut me Avoiding/minimizing this thereby requiring the excav	
Norfolk	1-041	141 S-A36 —	I-041 S-A36	Conventional Bore	51	22	N	21	10	0	N	Y	\$345,700	– Dry-Ditch Open-Cut	spoil pile. This crossing is twice as long to complet reduces construction durati bore crossing

Crossing Method Decision Rationale

vould result in a temporary impact to an intermittent UNT to Maggodee Creek. Avoiding/minimizing this onventional bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and ag is in close proximity to residences, and a trenchless crossing of this location would take 17 days to g the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction uption due to construction activities on the affected residents. Using a conventional bore crossing method avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

would result in a temporary impact to Maggodee Creek. Avoiding/minimizing this minor impact through a ould require an excessively deep bore pit of greater than 40 feet at the edge of a steep slope, thereby of an interim ramp and two benches and dramatically increasing the space occupied by the bore pit and ing is in close proximity to residences, and a trenchless crossing of this location would take 34 days to g the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction sruption due to construction activities on the affected residents. Using a microtunnel crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

r's banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline m work will be necessary to permanently restore and stabilize the banks, which will provide greater line and have the benefit of reducing long-term sediment loads in the stream. That work can be done after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this rossing at this location also faces significant constructability constraints. The bore pits for this crossing 0-feet deep. Site conditions do not allow sufficient space to stockpile spoils from bore pits of that size.

vould result in a temporary impact to a UNT to Blackwater River. Avoiding/minimizing this minor impact I bore would require a relatively deep bore pit exceeding 30 feet at the edge of a steep slope, thereby of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil ose proximity to residences, and a trenchless crossing of this location would take 16 days to complete -aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to to construction activities on the affected residents. The open cut method would reduce the construction vate drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

ethod would result in a temporary impact to a small (four-feet wide) UNT to Foul Ground Creek. s minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and is in close proximity to several residences, and a trenchless crossing of this location would take nearly lete -- compounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method ation to minimize disruption due to construction activities on the affected residents. Using a conventional g method to avoid/minimize this minor temporary impact would be unreasonably expensive.

		-	Evaluation Factors											
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
There are no significant cor methods. The direct aquatic	 Conventional Bore 	\$92,243	Y	N	0	16	20	N	-	78	Dry-Ditch Open-Cut	S-A38	I-042	Norfolk
		\$404,056	Y	Ν	0	16	20	N	20	78	Conventional Bore			
Foul Ground Creek is in an natural conditions unrelate banks, which will provide		\$121,800	Y	Ν	0	10	14	Ν	-	114	Dry-Ditch Open-Cut	S-A41	I-043A	Norfolk
stream. That work can be c impacts are unavoidable at	– Dry-Ditch Open-Cut	\$401,175	Y	N	0	10	14	N	17	114	Conventional Bore	5-441	I-043A	Norfolk
The open cut method wou	Day Ditch Orea Out	\$77,000	Y	N	0	7	14	N	-	110	Dry-Ditch Open-Cut	W-DD1	10125	Naufalle
construction time for this cro		\$394,390	Y	N	0	7	14	N	18	110	Conventional Bore	רטם-יי	I-043B	Norfolk
There are no significant co	Conventional Bore	\$89,600	Y	N	0	9	21	N	-	103	Dry-Ditch Open-Cut			
methods. The direct aquatic		\$379,092	Y	N	0	9	21	N	19	103	Conventional Bore	S-GH36, S-KL17	I-044A	Norfolk
The open cut method wo Avoiding/minimizing this thereby requiring the excava	- Dry-Ditch Open-Cut	\$56,700	Y	N	0	23	27	N	-	61	Dry-Ditch Open-Cut			
spoil pile. It also would construction duration nea av		\$410,619	Y	N	0	23	27	N	26	61	Conventional Bore	S-GH39	I-044B	Norfolk
The open-cut meth Avoiding/minimizing this m thereby requiring the excava		\$50,751	Y	N	0	13	17	N	-	57	Dry-Ditch Open-Cut			
spoil pile. It also would do several private drinking w	– Dry-Ditch Open-Cut	\$362,728	Y	N	0	13	17	N	22	57	Conventional Bore	S-GH40	I-045	Norfolk
There are no significant co methods. The direct aquatic		\$181,597	Y	N	0	7	11	N	-	217	Dry-Ditch Open-Cut	S-GH44 S-GH38 S		
methods. The direct aquatic	 Conventional Bore 	\$798,536	Y	N	0	7	11	N	20	217	Conventional Bore	S-GH44, S-GH38, S IJ47, W-GH16	I-046	Norfolk
The open cut method would through a conventional b requiring the excavation of		\$76,133	N	N	87	38	50	N	-	48	Dry-Ditch Open-Cut			
pile. It also would increase duration near two private d	Dry-Ditch Open-Cut	\$812,190	N	N	87	38	50	N	37	48	Conventional Bore	S-G22	I-047	Norfolk
There are no significant co Bore methods. The direct aquatic		\$81,267	N	N	93	18	39	N	-	62	Dry-Ditch Open-Cut	S-G20		
	- Conventional Bore	\$244,465	N	N	93	18	39	N	15	62	Conventional Bore		18 S-G20	S-G20

Crossing Method Decision Rationale

constraints on available crossing methods or significant environmental impacts relevant to the available
tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact
associated with the bore to maintain access will be required.

an area with highly erodible solids. The stream banks at the crossing location are rapidly eroding due to lated to pipeline construction. Instream work will be necessary to permanently restore and stabilize the ide greater protection for the pipeline and have the benefit of reducing long-term sediment loads in the e done efficiently and effectively after completion of an open-cut crossing. Therefore, temporary stream at this location. Lastly, it would be unreasonably expensive to use a trenchless crossing to avoid only a fraction of the aquatic impact to this resource.

rould result in a small (0.05 ac) temporary impact to PEM wetland. The open cut method would reduce crossing by 11 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

would result in a temporary impact to a small (four-feet wide) intermittent UNT to Foul Ground Creek. is minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and uld increase the duration of the crossing from 8 to 25 days. The open cut method would reduce the ear several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

thod would result in a temporary impact to a small (three-feet wide) UNT to Foul Ground Creek. minor impact through a conventional bore would require a relatively deep bore pit of exceeding 20 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and double the duration of the crossing. The open-cut method would reduce the construction duration near g water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

buld result in a temporary impact to a UNT to Poplar Camp Creek. Avoiding/minimizing this minor impact al bore would require a relatively deep bore pit of nearly 40 feet on the edge of a steep slope, thereby of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and spoil ase the duration of the crossing from 4 to 44 days. The open cut method would reduce the construction e drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

		Evaluation Factors												
	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
The open cut method would	– Dry-Ditch Open-Cut	\$33,422	Ν	N	10	18	35	Ν	-	37	Dry-Ditch Open-Cut	S-G18	I-049	Norfolk
conventional bore cros	Bry Bron open out	\$191,785	Ν	N	10	18	35	N	19	37	Conventional Bore		1040	Nonoix
The open cut meth Avoiding/minimizing these	- Dry-Ditch Open-Cut	\$54,216	Y	N	0	18	27	Ν	-	38	Dry-Ditch Open-Cut	0.540	1.050	Newfelle
feet, thereby requiring the e pit and spoil pile. Usin	- Dry-Ditch Open-Cut	\$299,672	Y	N	0	18	27	N	21	38	Conventional Bore	S-E18	I-050	Norfolk
The open-cut method wo residence, and a trenchles	- Dry-Ditch Open-Cut	\$88,594	Y	N	32	16	35	N	-	77	Dry-Ditch Open-Cut	S-E17	I-051	Newfells
and other impacts on no construction activities on		\$291,602	Y	N	32	16	35	N	16	77	Conventional Bore	5-E17	1-051	Norfolk
The open-cut method would through a conventional bo interim ramp and bench and	- Dry-Ditch Open-Cut	\$117,336	Y	N	0	18	25	N	-	60	Dry-Ditch Open-Cut			
to a residence, and a tre aesthetic, and other impact to construction activities or		\$398,646	Y	N	0	18	25	N	25	60	Conventional Bore	S-E14	I-052	Norfolk
Orangefin madtom habita	Conventional Bore	\$164,668	Y	N	0	6	18	N	-	169	Dry-Ditch Open-Cut			
		\$680,582	Y	N	0	6	18	N	22	169	Conventional Bore	S-H38, W-H17	I-053	Norfolk
The open cut method would minor impact through a conv thereby requiring the excava		\$45,685	N	N	31	23	47	N	-	35	Dry-Ditch Open-Cut	0.1107	1-054	bl - of elle
spoil pile. This crossing is complete compounding th duration to minimize disrupti to a	- Dry-Ditch Open-Cut	\$702,219	N	N	31	23	47	N	33	35	Conventional Bore	S-H37	1-054	Norfolk
Orangefin madtom habit	Our stand Day	\$168,404	N	N	10	25	31	N	-	84	Dry-Ditch Open-Cut	0.100.00.100	1055	bl - of alla
	 Conventional Bore 	\$786,472	N	N	10	25	31	N	30	84	Conventional Bore	S-H36, W-H16	I-055	Norfolk
Orangefin madtom habita		\$33,003	N	N	32	24	40	N	-	32	Dry-Ditch Open-Cut			
Orangefin madtom habi	Conventional Bore	\$310,048	N	N	32	24	40	N	24	32	Conventional Bore	S-H34	I-056	Norfolk
Orangefin madtom habita	0	N \$68,296	N	N	74	29	38	N	-	46	Dry-Ditch Open-Cut		1055	
Orangefin madtom habita	 Conventional Bore 	\$368,049	N	N	74	29		-057 S-H32 —		57 S-H32	I-057	Norfolk		

Crossing Method Decision Rationale

uld result in a temporary impact to a small (two-feet wide) intermittent UNT to the Blackwater River. The
d reduce by half the construction duration near a private drinking water well on the property. Using a
rossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ethod would result in a temporary impact to a small (eight-feet wide) UNT to Blackwater River. se minor impacts through a conventional bore would require a relatively deep bore pit of exceeding 20 e excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore sing a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

would result in a temporary impact to a UNT to the Blackwater River. This crossing is in proximity to a less crossing of this location would take twice as long to complete -- compounding the noise, aesthetic, n nearby persons. The open-cut method reduces construction duration to minimize disruption due to on the affected residents. The open-cut method would reduce the construction duration near a private drinking water well on the property.

ould result in a temporary impact to a UNT to the Blackwater River. Avoiding/minimizing this minor impact I bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the excavation of an and dramatically increasing the space occupied by the bore pit and spoil pile. This crossing is in proximity a trenchless crossing of this location would take twice as long to complete -- compounding the noise, sacts on nearby persons. The open-cut method reduces construction duration to minimize disruption due s on the affected residents. The open cut method would reduce the construction duration near a private drinking water well on the property.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.

uld result in a temporary impact to the small (six-feet wide) UNT to Jacks Creek. Avoiding/minimizing this onventional bore would require a relatively deep bore pit exceeding 30 feet on the edge of a steep slope, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and g is in close proximity to a residence, and a trenchless crossing of this location would take 15 days to g the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction pition due to construction activities on the affected residents. Using a conventional bore crossing method o avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.

USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method		
Norfolk	I-058	W-H11	Dry-Ditch Open-Cut	83	-	N	32	18	0	N	Y	\$58,100	– Dry-Ditch Open-Cut	The open cut method would conventional bore would r bench and dramatically incr residences, and a trenchles	
			Conventional Bore	83	30	N	32	18	0	N	Y	\$783,634		other impacts on nearby pe activities on the affected resi on the property. Using	
Norfolk	1-059	S-A18	Dry-Ditch Open-Cut	92	-	N	26	17	0	N	Y	\$80,003	Dr./ Ditch Open Cut	The open cut method Avoiding/minimizing this thereby requiring the excava spoil pile. This crossing is ir	
NOTOK	1-039	3-410	Conventional Bore	92	24	Ν	26	17	0	Ν	Y	\$480,327	Diy-Dich Open-Gu	compounding the noise, ae minimize disruption due	
Norfolk	I-060A	S-A19/H26	Dry-Ditch Open-Cut	93	-	Ν	39	28	52	Ν	Y	\$149,100	- Dry-Ditch Open-Cut	The open cut method woul impact through a conven	
NOTOK	1-000A	3-419/1120	Conventional Bore	93	41	N	39	28	52	Ν	Y	\$2,500,296		excavation of an interim ra Using a conventional bore	
Netfelly	I-060B	S-A20	Dry-Ditch Open-Cut	82	-	N	39	23	0	N	Y	\$81,900	 Conventional Bore 	Orangefin madtom habita	
Norfolk	1-060B	5-A20	Conventional Bore	82	39	N	39	23	0	Ν	Y	\$945,220			
Netfelly	I-061A	S-A22	Dry-Ditch Open-Cut	52	-	N	27	18	0	Ν	Y	\$67,900	Conventional Bore	There are no significant co methods. The direct aquatic	
Norfolk	1-001A	3-A22	Conventional Bore	52	16	N	27	18	0	N	Y	\$220,653		methous. The direct aqualic	
Norfolk	I-061B	S-H27	Dry-Ditch Open-Cut	60	-	N	28	14	0	N	Y	\$77,000	Day Ditch Orean Cut	The open cut method would through a conventional b	
NOTOK	1-0618	<u>з-п27</u>	Conventional Bore	60	29	N	28	14	0	Ν	Y	\$435,185	- Dry-Ditch Open-Cut	interim ramp and bench an crossing me	
Netfelly	1-062	S-MM44	Dry-Ditch Open-Cut	54	-	N	36	24	0	Ν	Y	\$54,544	- Conventional Bore	Orangefin madtom habit	
Norfolk	1-002	S-IVIM44	Conventional Bore	54	36	N	36	24	0	N	Y	\$810,949		conventional bore m	
Notella	1000	0.1111/0	Dry-Ditch Open-Cut	83	-	N	29	18	0	N	Y	\$91,845	Querra in a l Dan	Orangefin madtom habit	
Norfolk	I-063	S-MM48	Conventional Bore	83	29	N	29	18	0	N	Y	\$500,459	 Conventional Bore 	conventional bore m	
K1	1064		Dry-Ditch Open-Cut	31	-	N	40	21	31	N	N	\$53,320		Orangefin madtom habita	
Norfolk	I-064	S-H25, W-H9	I-064 S-H25, W-H9	Conventional Bore	31	26	N	40	21	31	N	N	\$325,479	 Conventional Bore 	conventional bore m

Crossing Method Decision Rationale

Ild result in a small temporary impact to a PEM wetland. Avoiding/minimizing this minor impact through a ld require a relatively deep bore pit of 30 feet, thereby requiring the excavation of an interim ramp and ncreasing the space occupied by the bore pit and spoil pile. This crossing is in close proximity to several heless crossing of this location would take 17 days to complete -- compounding the noise, aesthetic, and persons. The open-cut method reduces construction duration to minimize disruption due to construction esidents. The open cut method would reduce the construction duration near a private drinking water well sing a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ood would result in a temporary impact to the small (four-feet wide) intermittent UNT to Jacks Creek. his minor impact through a conventional bore would require a relatively deep bore pit of nearly 20 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and is in proximity to a residence, and a trenchless crossing of this location would take 13 days to complete --, aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to due to construction activities on the affected residents. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ould result in a temporary impact to an intermittent UNT to Jacks Creek. Avoiding/minimizing this minor entional bore would require an excessively deep bore pit of greater than 40 feet, thereby requiring the n ramp and two benches and dramatically increasing the space occupied by the bore pit and spoil pile. ore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the conventional bore method.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

Id result in a temporary impact to a small UNT to Jacks Creek. Avoiding/minimizing these minor impacts I bore would require a relatively deep bore pit of nearly 30 feet, thereby requiring the excavation of an and dramatically increasing the space occupied by the bore pit and spoil pile. Using a conventional bore nethod to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

	_				rs	Evaluation Factor	1	1						
d ⊧thod	Proposed Crossing Methor	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
Bore Orangefin madtom	 Conventional Bore 	\$216,378	Y	N	0	21	31	N	-	79	Dry-Ditch Open-Cut	S-H24	I-065	Norfolk
conventional b		\$479,972	Y	N	0	21	31	Ν	28	79	Conventional Bore			
The open cut me Avoiding/minimizing thereby requiring the e spoil pile. This crossir	– Dry-Ditch Open-Cu	\$49,679	Y	N	0	23	30	N	-	45	Dry-Ditch Open-Cut	S-H23	1-066	Norfolk
as long to complete - construction duration crossir		\$374,346	Y	Ν	0	23	30	Ν	27	45	Conventional Bore	3-1123	1-000	NOTOK
Boro Orangefin madtom	 Conventional Bore 	\$81,560	Y	N	0	16	21	N	-	54	Dry-Ditch Open-Cut	S-A13	I-067	Norfolk
conventional b		\$335,945	Y	N	0	16	21	N	20	54	Conventional Bore	0410	1-007	Nonoik
Orangefin madtom	 Conventional Bore 	\$74,200	Y	N	0	10	23	N	-	61	Dry-Ditch Open-Cut	S-A7	I-069A	Norfolk
conventional b		\$259,897	Y	N	0	10	23	Ν	19	61	Conventional Bore	3-A/	1-009A	NOTOK
The open cut Avoiding/minimizin thereby requiring the e spoil pile. This crossin	– Dry-Ditch Open-Cu	\$86,898	Y	N	0	20	27	Ν	-	90	Dry-Ditch Open-Cut	S-H17	I-069B	Norfolk
compounding the nois minimize disruption d duration near several		\$511,190	Y	N	0	20	27	N	28	90	Conventional Bore	3-117	1-0030	NOTOK
Bore Orangefin madtom	 Conventional Bore 	\$77,803	Y	N	0	24	31	Ν	-	51	Dry-Ditch Open-Cut	S-SS8	I-070	Norfolk
conventional b		\$382,239	Y	N	0	24	31	N	26	51	Conventional Bore	3-330	1-070	NOTOK
The open cut m Avoiding/minimizing en-Cut thereby requiring the e spoil pile. Using a c		\$43,598	Y	Ν	0	24	27	N	-	38	Dry-Ditch Open-Cut	S-CD8	I-071	Norfolk
spoil pile. Using a c		\$354,480	Y	N	0	24	27	N	27	38	Conventional Bore	3-600	1-071	NOTOK
The open cut m Avoiding/minimizing t		\$49,580	Ν	N	11	24	35	N	-	44	Dry-Ditch Open-Cut	S-AB8	I-072	Norfolk
en-Cut on the edge of a short the space occupie	Dry-Diton Open-Cu	\$746,030	Ν	N	11	24	35	N	34	44	Conventional Bore	3-400	1-072	
Bore Orangefin madtom	 Conventional Bore 	\$121,514	Y	N	91	8	10	N	-	81	Dry-Ditch Open-Cut	S-DD3	I-073	Norfolk
conventional b		\$302,954	Y	N	91	8	10	N	16	81	Conventional Bore	6-000	1-07-3	HOHOR

Crossing Method Decision Rationale

oitat may	be present in this :	stream. The direct	aquatic impact w	vill be avoided/mini	mized by use of the
method.	A minor temporary	y impact associate	d with the bore to	o maintain access	will be required.

In the second provide the second provided the

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

thod would result in a temporary impact to the small (seven-feet wide) intermittent Dinner Creek. his minor impact through a conventional bore would require a relatively deep bore pit nearing 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and is in proximity to a residence, and a trenchless crossing of this location would take 22 days to complete -aesthetic, and other impacts on nearby persons. The open-cut method reduces construction duration to to construction activities on the affected residents. The open cut method would reduce the construction vate drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

nod would result in a temporary impact to a small (five-feet wide) intermittent UNT to Owens Creek. see minor impacts through a conventional bore would require a relatively deep bore pit of nearly 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and ventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

od would result in a temporary impact to a small (five-feet wide) intermittent UNT to Owens Creek. se minor impacts through a conventional bore would require a relatively deep bore pit exceeding 30 feet t steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing y the bore pit and spoil pile. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

					s	Evaluation Factor								
d	Proposed Crossing Method	Total Cost (\$)	Sufficient Stockpile Storage Available	Karst Terrain Present	Maximum Winch Hill Length (feet)	Maximum Average Slope (%)	Maximum Steep Slope (%)	Deep Stream	Pit Depth	Crossing Length	Crossing Methods Evaluated	Waterbody	Crossing #	USACE District
Orangefin madtom habit	 Conventional Bore 	\$142,157	Y	N	0	23	34	N	-	53	Dry-Ditch Open-Cut	S-G16	I-074	Norfolk
conventional bore m		\$716,764	Y	N	0	23	34	N	31	53	Conventional Bore			
The open cut method woul minor impact through a co steep slope, thereby requirin		\$72,205	Y	N	10	20	31	N	-	54	Dry-Ditch Open-Cut	S-G15	1-075	Norfelk
t bore pit and spoil pile. It construction duration near av	– Dry-Ditch Open-Cut	\$756,141	Y	N	10	20	31	N	33	54	Conventional Bore	5-615	1-075	Norfolk
Orangefin madtom habit		\$57,417	N	N	107	36	57	N	-	42	Dry-Ditch Open-Cut		1.070	
conventional bore m	 Conventional Bore 	\$356,697	N	N	107	36	57	N	26	42	Conventional Bore	S-G13	I-076	Norfolk
The open cut method w Avoiding/minimizing this mi the edge of a short but ste the space occupied by the		\$57,474	N	N	21	20	36	N	-	39	Dry-Ditch Open-Cut			
this location would take mo persons. The open-cut meth residents. The open cut me Using a conventional bore	- Dry-Ditch Open-Cut	\$339,049	N	N	21	20	36	N	25	39	Conventional Bore	S-D7, W-MM17	I-077	Norfolk
Orangefin madtom habit		\$65,776	Y	N	0	16	28	N	-	43	Dry-Ditch Open-Cut			
conventional bore m	 Conventional Bore 	\$195,111	Y	N	0	16	28	N	16	43	Conventional Bore	S-D3	I-078	Norfolk
The open cut method Avoiding/minimizing these		\$73,648	N	N	10	20	35	N	-	62	Dry-Ditch Open-Cut			
t thereby requiring the excava spoil pile. Using a conver	- Dry-Ditch Open-Cut	\$870,191	N	N	10	20	35	N	38	62	Conventional Bore	S-D4	I-079	Norfolk
Orangefin madtom habit		\$102,144	N	N	96	21	41	N	-	54	Dry-Ditch Open-Cut			
conventional bore m	 Conventional Bore 	\$240,031	N	N	96	21	41	N	19	54	Conventional Bore	S-D2, W-D3	I-080	Norfolk
Avoiding/minimizing this thereby requiring the excava spoil pile. The stream construction. Instream		\$95,632	Y	N	0	19	28	N	-	82	Dry-Ditch Open-Cut			
t protection for the pipelin efficiently and effectively at location. It would be unrea	– Dry-Ditch Open-Cut	\$497,621	Y	N	0	19	28	N	29	82	Conventional Bore	S-D1-EPH	I-081	Norfolk
The open cut method v Avoiding/minimizing this r thereby requiring the excava spoil pile. This crossing is ir		\$59,983	Y	N	0	16	35	N	-	55	Dry-Ditch Open-Cut	2.21	1.00-	
as long to complete con construction duration to mi reduce the construction du method	– Dry-Ditch Open-Cut	\$758,979	Y	N	0	16	35	N	33	55	Conventional Bore	S-G11	I-082	Norfolk

Crossing Method Decision Rationale

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

buld result in a temporary impact to a small intermittent UNT to Parrott Branch. Avoiding/minimizing this conventional bore would require a relatively deep bore pit exceeding 30 feet on the edge of a short but irring the excavation of an interim ramp and bench and dramatically increasing the space occupied by the It also would more than double the duration of the crossing. The open cut method would reduce the ear several private drinking water wells on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

I would result in a temporary impact to the small (nine-feet wide) intermittent UNT to Jonnikin Creek. minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet on steep slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing be bore pit and spoil pile. This crossing is in close proximity to a residence, and a trenchless crossing of more than twice as long to complete -- compounding the noise, aesthetic, and other impacts on nearby lethod reduces construction duration to minimize disruption due to construction activities on the affected nethod would reduce the construction duration near several private drinking water wells on the property. pre crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

od would result in a temporary impact to a small (six-feet wide) intermittent UNT to Jonnikin Creek. se minor impacts through a conventional bore would require a relatively deep bore pit of nearly 40 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and rentional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

is minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and m banks at the crossing location are rapidly eroding due to natural conditions unrelated to pipeline m work will be necessary to permanently restore and stabilize the banks, which will provide greater line and have the benefit of reducing long-term sediment loads in the stream. That work can be done after completion of an open-cut crossing. Therefore, temporary stream impacts are unavoidable at this reasonably expensive to use a trenchless crossing to avoid only a fraction of the aquatic impact to this UNT to Jonnikin Creek.

d would result in a temporary impact to the small (six-feet wide) intermittent UNT to Jonnikin Creek. s minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and in close proximity to a residence, and a trenchless crossing of this location would take more than twice ompounding the noise, aesthetic, and other impacts on nearby persons. The open-cut method reduces minimize disruption due to construction activities on the affected residents. The open cut method would duration near several private drinking water wells on the property. Using a conventional bore crossing d to avoid/minimize this minor temporary impact would be unreasonably expensive.

								Evaluation Factor	s	-				
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	I-083	S-G9, W-B5	Dry-Ditch Open-Cut	44	-	N	24	14	10	N	N	\$45,226	Dry-Ditch Open-Cut	The open cut method w Avoiding/minimizing this mi the edge of a short slope, t
		0.00, 11.20	Conventional Bore	44	20	N	24	14	10	N	N	\$307,565	2.9 2.101 0 201 0 4	occupied by the bore pit a bore crossing r
Norfolk	I-084A	S-G8	Dry-Ditch Open-Cut	41	-	N	24	16	0	Ν	Y	\$42,700		The open cut method v Avoiding/minimizing this r thereby requiring the excava
NOTOK	I-004A	3-36	Conventional Bore	41	21	N	24	16	0	Ν	Y	\$308,186	Diy-Dicit Open-Cut	spoil pile. It also would ind av
Norfolk	I-084B	S-Q15	Dry-Ditch Open-Cut	48	-	N	26	22	0	N	Y	\$54,600		The open cut method would this minor impact through excavation of an interim r
NOTOK	I-064B	3-415	Conventional Bore	48	25	N	26	22	0	N	Y	\$364,590	– Dry-Ditch Open-Cut	would increase the duration
Newfelle	Loop	0.40	Dry-Ditch Open-Cut	44	-	N	28	21	0	N	Y	\$51,308	O	Orangefin madtom habit
Norfolk	I-085	S-A6	Conventional Bore	44	22	N	28	21	0	N	Y	\$325,834	 Conventional Bore 	conventional bore m
Newfelle	1.000	0.07	Dry-Ditch Open-Cut	65	-	N	42	19	96	N	N	\$115,499	O	Orangefin madtom habit
Norfolk	I-086	S-C7	Conventional Bore	65	19	N	42	19	96	N	N	\$271,248	 Conventional Bore 	conventional bore m
Newfells	1.007	5.04.5.02	Dry-Ditch Open-Cut	126	-	N	34	27	115	N	N	\$153,189	Conventional Data	Orangefin madtom habit
Norfolk	I-087	S-C4, S-C3	Conventional Bore	126	27	N	34	27	115	N	N	\$604,222	 Conventional Bore 	conventional bore m
Norfelle	I-088	S-H13, W-H5	Dry-Ditch Open-Cut	173	-	N	33	25	21	N	N	\$191,262		The stream banks at the Instream work will be nee pipeline and have the benef after completion of an open-
Norfolk	1-000	S-п I3, W-пэ	Conventional Bore	173	35	N	33	25	21	N	N	\$1,130,399	Dry-Ditch Open-Cut	after completion of an open- unreasonably expens
Naufa II.	1.000	5.00	Dry-Ditch Open-Cut	60	-	N	30	23	0	N	Y	\$63,951		The open cut method woul this minor impact through
Norfolk	I-089	S-G6	Conventional Bore	60	34	N	30	23	0	N	Y	\$791,438	- Dry-Ditch Open-Cut	excavation of an interim n would more than double t
Manfelli	1.000	0.05	Dry-Ditch Open-Cut	50	-	N	26	17	0	N	Y	\$56,003		The open cut method woul this minor impact through
Norfolk	I-090	S-G5	Conventional Bore	50	26	N	26	17	0	N	Y	\$379,401	– Dry-Ditch Open-Cut	excavation of an interim r would increase the duration

Crossing Method Decision Rationale

d would result in a temporary impact to the small (four-feet wide) intermittent UNT to Jonnikin Creek. minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet on e, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the space it and spoil pile. It also would increase the duration of the crossing by one week. Using a conventional g method to avoid/minimize this minor temporary impact would be unreasonably expensive.

d would result in a temporary impact to the small (four-feet wide) intermittent UNT to Jonnikin Creek. s minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and increase the duration of the crossing from 5 to 17 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ould result in a temporary impact to the small (six-feet wide) UNT to Jonnikin Creek. Avoiding/minimizing igh a conventional bore would require a relatively deep bore pit exceeding 20 feet, thereby requiring the m ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also tion of the crossing from 5 to 17 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

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bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required.

the crossing location are rapidly eroding due to natural conditions unrelated to pipeline construction. necessary to permanently restore and stabilize the banks, which will provide greater protection for the neft of reducing long-term sediment loads in the stream. That work can be done efficiently and effectively encut crossing. Therefore, temporary stream impacts are unavoidable at this location. Lastly, it would be nsive to use a trenchless crossing to avoid only a fraction of the aquatic impact to this UNT to Little Cherrystone Creek and adjacent wetland.

buld result in a temporary impact to the small (six-feet wide) UNT to Harpen Creek. Avoiding/minimizing gh a conventional bore would require a relatively deep bore pit exceeding 30 feet, thereby requiring the n ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also e the duration of the crossing. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ould result in a temporary impact to the small (six-feet wide) UNT to Harpen Creek. Avoiding/minimizing gh a conventional bore would require a relatively deep bore pit exceeding 30 feet, thereby requiring the n ramp and bench and dramatically increasing the space occupied by the bore pit and spoil pile. It also tion of the crossing from 4 to 10 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

								Evaluation Factor	s					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	I-091	S-G4	Dry-Ditch Open-Cut	74	-	N	30	18	0	N	Y	\$167,471	 Conventional Bore 	Orangefin madtom habit
			Conventional Bore	74	32	N	30	18	0	N	Y	\$794,631		conventional bore m
No. 6 II.	1.000	0.00	Dry-Ditch Open-Cut	39	-	Ν	31	17	0	Ν	Y	\$61,935		Orangefin madtom habit
Norfolk	I-092	S-G3	Conventional Bore	39	20	N	31	17	0	N	Y	\$293,375	 Conventional Bore 	conventional bore m
			Dry-Ditch Open-Cut	52	-	N	18	11	0	N	Y	\$75,678		Orangefin madtom habit
Norfolk	I-093	S-CC16	Conventional Bore	52	16	N	18	11	0	N	Y	\$220,653	 Conventional Bore 	conventional bore m
			Dry-Ditch Open-Cut	110	-	N	25	18	0	N	Y	\$105,108		There are no significant co methods. The direct aquatic
Norfolk	I-094	S-CC13, S-CC14	Conventional Bore	110	23	N	25	18	0	N	Y	\$522,276	 Conventional Bore 	methods. The direct aduation
	1.005		Dry-Ditch Open-Cut	39	-	N	20	14	0	N	Y	\$48,302		There are no significant co
Norfolk	I-095	S-MM8, W-MM5	Conventional Bore	39	19	N	20	14	0	N	Y	\$197,461	 Conventional Bore 	methods. The direct aquation
No. 6 II.	1-096	0.0045	Dry-Ditch Open-Cut	33	-	N	18	14	0	N	Y	\$45,144	Querra in a Dara	There are no significant co
Norfolk	1-090	S-CC15	Conventional Bore	33	18	Ν	18	14	0	N	Y	\$175,866	 Conventional Bore 	methods. The direct aquatic
Norfolk	1-097	S-CC8, S-CC5	Dry-Ditch Open-Cut	78	-	Ν	32	11	10	Ν	Ν	\$128,994	 Conventional Bore 	There are no significant co methods. The direct aquatic
NOTOK	1-097	3-000, 3-000	Conventional Bore	78	14	Ν	32	11	10	N	N	\$285,306		
Norfolk	1-098	S-CC9	Dry-Ditch Open-Cut	42	-	N	45	26	21	N	N	\$48,685		The open cut meth Avoiding/minimizing this r
INOTIOIK	1-090	3-669	Conventional Bore	42	35	N	45	26	21	N	N	\$758,623	יאס Upen-Cut Open-Cut	thereby requiring the excava spoil pile. It also would inc av
Norfolk	1-099	S-CC10	Dry-Ditch Open-Cut	38	-	N	38	20	21	N	N	\$58,726	– Dry-Ditch Open-Cut	The open cut method wo Avoiding/minimizing this r thereby requiring the excava
Norfolk	1-088	3-0010	Conventional Bore	38	32	Ν	38	20	21	N	Ν	\$692,463	יאר סוגריין שישישישישישישישישישישישישישישישישישי	thereby requiring the excava spoil pile. It also would construction duration av

Crossing Method Decision Rationale bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required. bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required. bitat may be present in this stream. The direct aquatic impact will be avoided/minimized by use of the method. A minor temporary impact associated with the bore to maintain access will be required. constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required. thod would result in a temporary impact to the small (six-feet wide) UNT to Cherrystone Creek. s minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and increase the duration of the crossing from 4 to 10 days. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive. vould result in a temporary impact to the small (nine-feet wide) intermittent UNT to Cherrystone Creek. s minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and buld increase the duration of the crossing from 4 to 10 days. The open cut method would reduce the on near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

								Evaluation Factor	S					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	I-100	S-CC11	Dry-Ditch Open-Cut	42	-	Ν	44	19	0	Ν	Y	\$60,039	- Dry-Ditch Open-Cut	The open cut metho Avoiding/minimizing this min edge of a short but steep s
Nonoik	1-100	0-0011	Conventional Bore	42	27	Ν	44	19	0	Ν	Y	\$365,832		space occupied by the bore method would reduce the crossing met
Norfolk	I-101A	W-MM9	Dry-Ditch Open-Cut	35	-	Ν	44	26	52	Ν	Ν	\$83,561	Convertional Data	There are no significant co
NOTOK	1-101A	VV-IVIIVI9	Conventional Bore	35	18	Ν	44	26	52	Ν	Ν	\$181,542	- Conventional Bore	methods. The direct aquatic
Norfolk	I-101B	W-MM8-PFO, W-	Dry-Ditch Open-Cut	161	-	Ν	20	8	32	Ν	Y	\$172,200	Des Ditch Oren Cut	The open cut method wou wetland features (PEM and deep bore pit of nearly 40
NOTOK	1-1018	MM8-PEM, S-CC1	Conventional Bore	161	38	N	20	8	32	N	Y	\$1,151,152	- Dry-Ditch Open-Cut	space occupied by the bore method would reduce the must remain free of woody Using a conventional bore of
Norfolk	I-102	S-CC3	Dry-Ditch Open-Cut	38	-	Ν	40	21	0	Ν	Y	\$56,288	- Dry-Ditch Open-Cut	The open cut metho Avoiding/minimizing this mir edge, thereby requiring the
NOTOK	1-102	3-003	Conventional Bore	38	30	Ν	40	21	0	Ν	Y	\$655,925	- Dry-Ditch Open-Cut	pit and spoil pile. It also w construction duration av
Norfolk	I-103	S-P5	Dry-Ditch Open-Cut	47	-	Ν	12	10	0	Ν	Y	\$56,790	- Conventional Bore	There are no significant co methods. The direct aquatic
NOTOK	1-103	0*F 0	Conventional Bore	47	11	Ν	12	10	0	Ν	Y	\$183,626		
Norfolk	I-104	S-IJ35-EPH	Dry-Ditch Open-Cut	32	-	N	23	16	0	Ν	Y	\$36,895	- Dry-Ditch Open-Cut	The open cut metho Avoiding/minimizing this mi
NOTOK	1-104	3-1333-LF11	Conventional Bore	32	23	Ν	23	16	0	Ν	Y	\$300,913	Dry-Diton Open-Cut	The open cut method v conventional bore cro
Norfolk	I-105	S-Q4	Dry-Ditch Open-Cut	48	-	N	22	7	0	Ν	Y	\$56,601	Conventional Bore	There are no significant co methods. The direct aquatic
	100		Conventional Bore	48	19	N	22	7	0	Ν	Y	\$223,003		
Norfolk	I-106A	S-Q2	Dry-Ditch Open-Cut	51	-	N	17	15	o	N	Y	\$123,204	- Conventional Bore	There are no significant co methods. The direct aquatic
			Conventional Bore	51	16	Ν	17	15	0	Ν	Y	\$217,815		

Crossing Method Decision Rationale

thod would result in a temporary impact to the small (nine-feet wide) UNT to Cherrystone Creek. ninor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet on the p slope, thereby requiring the excavation of an interim ramp and bench and dramatically increasing the ore pit and spoil pile. It also would increase the duration of the crossing from 4 to 10 days. The open cut the construction duration near a private drinking water well on the property. Using a conventional bore nethod to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

would result in a temporary impact to the small intermittent UNT to Cherrystone Creek and two adjacent ind PFO). Avoiding/minimizing these minor impacts through a conventional bore would require a relatively 40 feet , thereby requiring the excavation of an interim ramp and bench and dramatically increasing the pore pit and spoil pile. It also would increase the duration of the crossing from 4 to 60 days. The open cut the construction duration near a private drinking water well on the property. Because the pipeline ROW ody vegetation to protect the pipe coating, a conversion impact is unavoidable with any crossing method. are crossing method to avoid/minimize these minor temporary impacts would be unreasonably expensive.

thod would result in a temporary impact to the small (eight-feet wide) UNT to Cherrystone Creek. minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet on the the excavation of an interim ramp and bench and dramatically increasing the space occupied by the bore to would increase the duration of the crossing from 4 to 10 days. The open cut method would reduce the on near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

thod would result in a temporary impact to the small (five-feet wide) UNT to Pole Bridge Branch. minor impact through a conventional bore would increase the duration of the crossing from 4 to 11 days. d would reduce the construction duration near a private drinking water well on the property. Using a crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

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								Evaluation Factor	S					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)	Karst Terrain Present	Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
			Dry-Ditch Open-Cut	319	-	Ν	17	6	0	Ν	Y	\$253,621		This crossing presents mu solution. A bore pit de dramatically increases t waterbody increases the c
Norfolk	I-106B	W-Q2, S-Q3	Guided Conventional Bore	319	26	N	17	6	0	Ν	Y	\$711,028	Dry-Ditch Open-Cut	waterbody from upland we water wells on the property. to 60 days for a guided cor crossing by 15 times. Furth th
Norfolk	I-107	W-Q1	Dry-Ditch Open-Cut	55	-	N	10	8	0	N	Y	\$38,500	– Dry-Ditch Open-Cut	The open cut method would conventional bore would
Nonoik	- 107	Wildi	Conventional Bore	55	16	Ν	10	8	0	Ν	Y	\$229,167		construction duration av
Norfolk	I-108	S-B6	Dry-Ditch Open-Cut	55	-	Ν	42	19	0	N	Y	\$80,024	– Dry-Ditch Open-Cut	The open cut method wor Avoiding/minimizing this thereby requiring the excava
Nonoix	- 100	0-20	Conventional Bore	55	36	N	42	19	0	N	Y	\$813,787	Dry-Diton Open-Out	spoil pile. It also would construction duration av
Norfolk	I-109	S-B8	Dry-Ditch Open-Cut	43	-	N	31	16	0	N	Y	\$46,214	– Dry-Ditch Open-Cut	The open cut method wo Avoiding/minimizing this thereby requiring the excava
			Conventional Bore	43	29	N	31	16	0	N	Y	\$386,939		spoil pile. It also would construction duration av
Norfolk	I-110	S-B9	Dry-Ditch Open-Cut	41	-	Ν	19	13	0	N	Y	\$53,226	- Dry-Ditch Open-Cut	The open cut methor Avoiding/minimizing this r thereby requiring the excava
Nonoik		0-00	Conventional Bore	41	22	Ν	19	13	0	N	Y	\$317,320	Dry-Diton Open-Out	spoil pile. Using a conver
Norfolk	I-111	S-DD4	Dry-Ditch Open-Cut	230	-	Ν	9	5	0	N	Y	\$213,500	– Dry-Ditch Open-Cut	The pipeline has alread together if a trenchless m
Nonoik		0-504	Conventional Bore	230	17	Ν	9	5	0	N	Y	\$730,381		which indicates
Norfolk	i-111A	S-DD4	Dry-Ditch Open-Cut	33	-	Ν	23	13	0	N	Y	\$75,600	Conventional Bore	There are no significant co methods. The direct aquatio
Nonoik	FILA	0-504	Conventional Bore	33	15	Ν	23	13	0	N	Y	\$162,164		
Norfolk	I-112	S-KL27	Dry-Ditch Open-Cut	33	-	N	12	7	0	N	Y	\$27,032	– Dry-Ditch Open-Cut	The open cut method would duration of the crossing.
			Conventional Bore	33	15	N	12	7	0	Ν	Y	\$162,164		Saraasi si ula diddding.

Crossing Method Decision Rationale

multiple challenges that limit the available options and necessitated the development of a site-specific t depth exceeding 20 feet at this location requires the excavation of an interim ramp and bench and es the space occupied by the bore pit and spoil pile. Steep slopes (greater than 30%) adjacent to the e complexity of this crossing if bored, increases safety risk to personnel, and adds risk of impact to the d work during a bore. The open cut method also reduces the construction duration near private drinking rty. Attempting a conventional bore would extend the duration of this crossing from 5 days for an open cut conventional bore – which also would increase the total greenhouse gas emissions associated with this urthermore, the other significant environmental impacts associated with a trenchless crossing method at this location outweigh the minimized temporary impact to Pole Bridge Branch.

Ind result in a small temporary impact to a PEM wetland. Avoiding/minimizing this minor impact through a suld increase the duration of the crossing from 4 to 43 days. The open cut method would reduce the on near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

would result in a temporary impact to the small (five-feet wide) intermittent UNT to Pole Bridge Branch. nis minor impact through a conventional bore would require a relatively deep bore pit of nearly 40 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and buld increase the duration of the crossing from 4 to 11 days. The open cut method would reduce the on near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

would result in a temporary impact to the small (five-feet wide) intermittent UNT to Pole Bridge Branch. his minor impact through a conventional bore would require a relatively deep bore pit of nearly 30 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and buld increase the duration of the crossing from 4 to 44 days. The open cut method would reduce the on near a private drinking water well on the property. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

nod would result in a temporary impact to the small (seven-feet wide) UNT to Pole Bridge Branch. s minor impact through a conventional bore would require a relatively deep bore pit exceeding 20 feet, avation of an interim ramp and bench and dramatically increasing the space occupied by the bore pit and ventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ady been installed under an adjacent railroad. There is no feasible way to tie the two sections of pipe method is used to install this crossing. Furthermore, the railroad bore encountered difficult conditions, tes that completing another crossing at this location has a higher degree of potential failure.

constraints on available crossing methods or significant environmental impacts relevant to the available tic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

uld result in a temporary impact to the small (one-foot wide) UNT to Mill Creek. It also would double the g. Using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

								Evaluation Factor	s					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	I-113	S-C1	Dry-Ditch Open-Cut	61	-	N	38	11	o	N	Y	\$64,849	– Dry-Ditch Open-Cut	The open cut method would through a conventional bor within the pit, at the ed
			Conventional Bore	61	31	N	38	11	0	N	Y	\$739,468	,	excavation of an interim rar a conventional bore cr
Nerfelle	I-114	S-G2, W-G2	Dry-Ditch Open-Cut	122	-	Ν	35	16	11	Ν	Y	\$111,010	 Conventional Bore 	There are no significant co
Norfolk	1-114	3-62, W-62	Conventional Bore	122	21	N	35	16	11	N	Y	\$538,062	Conventional Bore	methods. The direct aquation
Nerfelle	I-115	S-B2	Dry-Ditch Open-Cut	40	-	N	21	12	0	N	Y	\$46,015	Convertional Data	There are no significant co methods. The direct aquati
Norfolk	1-115	5-62	Conventional Bore	40	18	N	21	12	0	N	Y	\$195,732	 Conventional Bore 	methods, the direct aquain
Marfalla	1.110	0.1155	Dry-Ditch Open-Cut	40	-	N	13	8	0	N	Y	\$38,950	Querra in a l Dara	There are no significant co
Norfolk	I-116	S-H55	Conventional Bore	40	16	N	13	8	0	N	Y	\$186,597	 Conventional Bore 	methods. The direct aquati
			Dry-Ditch Open-Cut	56	-	N	15	9	0	N	Y	\$88,685		There are no significant co
Norfolk	I-117	S-H54	Conventional Bore	56	16	N	15	9	0	N	Y	\$232,005	 Conventional Bore 	methods. The direct aquation
Newfells	140	S-H5, W-H1, W-H2,	Dry-Ditch Open-Cut	835	-	N	22	7	0	N	Y	\$616,507	Day Ditab Orea Cut	Due a close cluster of wei direct pipe method would crossing from seven days for
Norfolk	I-118	S-H3, W-H3	Direct Pipe	835	0	N	22	7	0	N	Y	\$6,680,000	- Dry-Ditch Open-Cut	with the crossing by nearly water wells on the property. foot wide) intermittent s
N - felle	1.110		Dry-Ditch Open-Cut	59	-	N	35	20	10	N	N	\$58,931		The open cut method wou PSS wetland. Avoiding/min 30 feet, with equipment of
Norfolk	I-119	S-001, W-MM3	Conventional Bore	59	27	N	35	20	10	N	N	\$414,078	- Dry-Ditch Open-Cut	duration of the crossing duration near multiple an
Marfalla	1400	0.000	Dry-Ditch Open-Cut	37	-	N	40	22	0	N	Y	\$44,417		The open cut meth Avoiding/minimizing this m
Norfolk	I-120	S-002	Conventional Bore	37	31	N	40	22	0	N	Y	\$671,356	טינכח Upen-Cul	an excavator operating from crossing. Furthermore, t
No. of a Us		S-EF26, W-IJ22-	Dry-Ditch Open-Cut	405	-	N	18	9	0	N	Y	\$357,812	Converting 1.5	There are no significant co
Norfolk	I-121	PFO, W-IJ22-PEM	Conventional Bore	405	19	N	18	9	0	N	Y	\$1,236,163	 Conventional Bore 	methods. The direct aquati

Crossing Method Decision Rationale

buld result in a temporary impact to the small intermittent Mill Creek. Avoiding/minimizing this minor impact bore would require a relatively deep bore pit exceeding 30 feet with an excavator operating from a bench edge of short but steep slope, and nearly triple the duration of the crossing. It also would require the ramp and bench, thereby dramatically increasing the space occupied by the bore pit and spoil pile. Using e crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

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constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

wetlands that would be crossed in one undertaking, this crossing is unusually long at over 800 feet. The uld be necessary to cross these features. That crossing would method would extend the duration of this rs for an open cut to 99 days for the trenchless method (increasing greenhouse gas emissions associated arly 1,900%). The open cut method would reduce the construction duration near multiple private drinking rty. Using a Direct Pipe crossing method to avoid/minimize these minor temporary impacts two a small (6nt stream, small (8-foot wide) perennial stream, and two small PEM wetlands would be unreasonably expensive.

ould result in a temporary impact to a small intermittent UNT to Little Cherrystone Creek and an adjacent ninimizing this minor impact through a conventional bore would require a relatively deep bore pit of nearly nt operating within a bore pit at the edge of short but steep slope, as well as more than quadrupling the sing and the relevant greenhouse gas emissions. The open cut method would reduce the construction ole private drinking water wells on the property. Lastly, using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

ethod would result in a temporary impact to a small intermittent UNT to Little Cherrystone Creek. minor impact through a conventional bore would require a relatively deep bore pit exceeding 30 feet with rom a bench within the pit, at the edge of short but steep slope, and more than double the duration of the e, using a conventional bore crossing method to avoid/minimize this minor temporary impact would be unreasonably expensive.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

								Evaluation Factor	s					
USACE District	Crossing #	Waterbody	Crossing Methods Evaluated	Crossing Length	Pit Depth	Deep Stream	Maximum Steep Slope (%)	Maximum Average Slope (%)	Maximum Winch Hill Length (feet)		Sufficient Stockpile Storage Available	Total Cost (\$)	Proposed Crossing Method	
Norfolk	I-122	S-H44	Dry-Ditch Open-Cut	68	-	N	10	8	0	Ν	Y	\$87,003	Conventional Bore	There are no significant cor methods. The direct aquatic
Nonoix	1-122	0-11-1	Conventional Bore	68	17	N	10	8	0	Ν	Y	\$270,628		methods. The direct aquate
Norfolk	I-123	S-H42	Dry-Ditch Open-Cut	43	-	N	20	8	0	Ν	Y	\$68,600	Conventional Boro	There are no significant cor methods. The direct aquatic
NOTOK	1-123	J-1142	Conventional Bore	43	23	Ν	20	8	0	Ν	Y	\$332,131		metrious. The uneer aquatic
Norfolk	I-124	W-EF6	Dry-Ditch Open-Cut	155	-	N	5	3	30	Ν	Ν	\$108,500	Dry-Ditch Open-Cut	To protect the integrity of the a 30-foot corridor generally The conventional bore me
NOTOK	1-124	W-LI 0	Conventional Bore	155	13	Ν	5	3	30	Ν	Ν	\$499,263		proximity to a residence, an noise, aesthetic, and other

Crossing Method Decision Rationale

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

constraints on available crossing methods or significant environmental impacts relevant to the available atic impact will be avoided/minimized by use of the conventional bore method. A minor temporary impact associated with the bore to maintain access will be required.

f the pipeline coating, woody vegetation cannot be allowed to grow close to the pipe. In forested wetlands, rally must be maintained free of trees. Accordingly, conversion impacts to this wetland are unavoidable. e method also entails significant environmental consequences at this location. This crossing is in close and a trenchless crossing of this location would take nearly four weeks to complete -- compounding the ther impacts on nearby residents. The longer-duration bore also nearly quadruples the greenhouse gas emissions associated with the crossing.



Table 17 (Compensatory Wetland Mitigation)

Table 17. (revised 3/2/2021) Compensatory Wetland Mitigation Individual Permit Application Mountain Valley Pipeline Project

Feature	USACE District	HUC 8 Name	HUC 8 #	Cowardin Class ¹	Impact (acres)	Impact Type	Mitigation Evaluation Method ²	Projected Mitigation Requirement	Proposed Mitigation Type ³
W-IJ31	Huntington	Middle Ohio	05030201	PEM	0.0082	Permanent Fill	SWVM	0.0082	Kincheloe
W-A27-PFO	Huntington	Middle Ohio	05030201	PFO	0.0547	Permanent Conversion	SWVM	0.0547	Kincheloe
W-A23	Huntington	Middle Ohio	05030201	PEM	0.0579	Permanent Fill	SWVM	0.0579	Kincheloe
W-H109	Huntington	Little Kanawha	05030203	PEM	0.0027	Permanent Fill	SWVM	0.0027	Kincheloe
W-K33-PSS	Huntington	Little Kanawha	05030203	PSS	0.0024	Permanent Conversion	SWVM	0.0024	Kincheloe
W-I22-PEM	Huntington	Little Kanawha	05030203	PEM	0.0059	Permanent Fill	SWVM	0.0059	Kincheloe
W-H98	Huntington	Little Kanawha	05030203	PEM	0.0331	Permanent Fill	SWVM	0.0331	Kincheloe
W-UV17	Huntington	Little Kanawha	05030203	PFO	0.0055	Permanent Conversion	SWVM	0.0055	Kincheloe
W-VV4-PFO	Huntington	Little Kanawha	05030203	PFO	0.0263	Permanent Conversion	SWVM	0.0263	Kincheloe
W-VV3-PFO	Huntington	Little Kanawha	05030203	PFO PFO	0.0160	Permanent Conversion	SWVM SWVM	0.0160	Kincheloe
W-A20-PFO W-H70	Huntington	Elk Elk	05050007 05050007	PFO	0.0298	Permanent Conversion Permanent Fill	SWVM	0.0298 0.0057	Beverly Beverly
W-H70 W-H71	Huntington Huntington	Elk	05050007	PEM	0.0057	Permanent Fill	SWVM	0.0057	Beverly
W-H72	Huntington	Elk	05050007	PEM	0.0205	Permanent Fill	SWVM	0.0205	Beverly
W-H73	Huntington	Elk	05050007	PEM	0.0061	Permanent Fill	SWVM	0.0061	Beverly
W-H73 W-H74	Huntington	Elk	05050007	PEM	0.0001	Permanent Fill	SWVM	0.0115	Beverly
W-H67	Huntington	Elk	05050007	PFO	0.0908	Permanent Conversion	SWVM	0.0908	Beverly
W-H66	Huntington	Elk	05050007	PFO	0.2496	Permanent Conversion	SWVM	0.2496	Beverly
W-H64-PSS	Huntington	Elk	05050007	PSS	0.0422	Permanent Conversion	SWVM	0.0422	Beverly
W-013	Huntington	Elk	05050007	PEM	0.0405	Permanent Fill	SWVM	0.0405	Beverly
W-B35	Huntington	Elk	05050007	PSS	0.0108	Permanent Conversion	SWVM	0.0108	Beverly
W-E28	Huntington	Elk	05050007	PSS	0.0084	Permanent Fill	SWVM	0.0084	Beverly
W-E30	Huntington	Elk	05050007	PEM	0.0316	Permanent Fill	SWVM	0.0316	Beverly
W-F40	Huntington	Elk	05050007	PSS	0.0188	Permanent Conversion	SWVM	0.0188	Beverly
W-E18-PSS	Huntington	Gauley	05050005	PSS	0.0538	Permanent Conversion	SWVM	0.0538	Spanishburg
W-E13	Huntington	Gauley	05050005	PFO	0.0107	Permanent Conversion	SWVM	0.0107	Spanishburg
W-FF6-PSS	Huntington	Gauley	05050005	PSS	0.0333	Permanent Conversion	SWVM	0.0333	Spanishburg
W-A15	Huntington	Gauley	05050005	PSS	0.0891	Permanent Conversion	SWVM	0.0891	Spanishburg
W-A14	Huntington	Gauley	05050005	PFO	0.0374	Permanent Conversion	SWVM	0.0374	Spanishburg
W-17	Huntington	Gauley	05050005	PFO	0.0333	Permanent Conversion	SWVM	0.0333	Spanishburg
W-J8	Huntington	Gauley	05050005	PFO	0.0533	Permanent Conversion	SWVM	0.0533	Spanishburg
W-J7	Huntington	Gauley	05050005	PFO	0.0693	Permanent Conversion	SWVM	0.0693	Spanishburg
W-H35	Huntington	Gauley	05050005	PEM	0.0177	Permanent Fill	SWVM	0.0177	Spanishburg
W-M22	Huntington	Gauley	05050005	PSS	0.0039	Permanent Conversion	SWVM	0.0039	Spanishburg
W-J6	°	· · · · · · · · · · · · · · · · · · ·	05050005	PFO	0.0744		SWVM	0.0744	· · ·
	Huntington	Gauley		PFO		Permanent Conversion			Spanishburg
W-HS1	Huntington	Gauley	05050005	PEM	0.0360	Permanent Fill	SWVM	0.0360	Spanishburg
W-QR2	Huntington	Gauley	05050005	PEM	0.0010	Permanent Fill	SWVM SWVM	0.0010	Spanishburg
W-IJ47-PEM W-UV4	Huntington Huntington	Gauley Gauley	05050005 05050005	PEM	0.0633 0.0885	Permanent Fill Permanent Conversion	SWVM	0.0633 0.0885	Spanishburg Spanishburg
W-I10	Huntington	Gauley	05050005	PEM	0.0550	Permanent Fill	SWVM	0.0550	Spanishburg
W-ITO W-MM20-PFO	Huntington	Gauley Greenbrier	05050003	PFO	0.0550	Permanent Conversion	SWVM	0.2990	Spanishburg
W-A13	Huntington	Upper New	05050002	PEM	0.0228	Permanent Fill	SWVM	0.0228	Spanishburg
W-MN18-PFO	Huntington	Upper New	05050002	PFO	0.1750	Permanent Conversion	SWVM	0.1750	Spanishburg
W-CV25-PSS-1	Huntington	Upper New	05050002	PSS	0.0270	Permanent Conversion	SWVM	0.0270	Spanishburg
W-UU1	Pittsburgh	West Fork	05020002	PFO	0.0045	Permanent Conversion	SWVM	0.0045	Kincheloe
W-UU3	Pittsburgh	West Fork	05020002	PFO	0.0065	Permanent Conversion	SWVM	0.0065	Kincheloe
W-ST12-PSS	Pittsburgh	West Fork	05020002	PSS	0.1444	Permanent Conversion	SWVM	0.1444	Kincheloe
W-K52	Pittsburgh	West Fork	05020002	PEM	0.0115	Permanent Fill	SWVM	0.0115	Kincheloe
W-Z3	Norfolk	Middle New	05050002	PSS	0.0136	Permanent Conversion	1:1	0.01360	No Mitigation Proposed ⁴
W-F9-PFO	Norfolk	Upper Roanoke	03010101	PFO	0.0169	Permanent Conversion	1:1	0.01690	Banister Bend
W-C12	Norfolk	Upper Roanoke	03010101	PFO	0.0523	Permanent Conversion	1:1	0.0523	Banister Bend
W-C11	Norfolk	Upper Roanoke	03010101	PSS	0.0461	Permanent Conversion	1 : 1	0.04610	Banister Bend
W-KL58	Norfolk	Upper Roanoke	03010101	PEM	0.0392	Permanent Fill	1:1	0.0392	Banister Bend



Table 18 (Compensatory Stream Mitigation)

Table 17. (revised 3/2/2021) Compensatory Wetland Mitigation Individual Permit Application Mountain Valley Pipeline Project

Feature	USACE District	HUC 8 Name	HUC 8 #	Cowardin Class ¹	Impact (acres)	Impact Type	Mitigation Evaluation Method ²	Projected Mitigation Requirement	Proposed Mitigation Type ³
W-EF5-PFO	Norfolk	Upper Roanoke	03010101	PFO	0.0852	Permanent Conversion	1:1	0.0852	Banister Bend
W-EF18	Norfolk	Upper Roanoke	03010101	PSS	0.0052	Permanent Conversion	1:1	0.0052	Banister Bend
W-EF17	Norfolk	Upper Roanoke	03010101	PFO	0.0224	Permanent Conversion	1:1	0.0224	Banister Bend
W-IJ96-PEM	Norfolk	Upper Roanoke	03010101	PEM	0.0133	Permanent Fill	1:1	0.0133	Banister Bend
W-IJ97	Norfolk	Upper Roanoke	03010101	PEM	0.0005	Permanent Fill	1:1	0.0005	Banister Bend
W-IJ95-PSS	Norfolk	Upper Roanoke	03010101	PSS	0.0254	Permanent Conversion	1:1	0.0254	Banister Bend
W-IJ102	Norfolk	Upper Roanoke	03010101	PFO	0.0100	Permanent Conversion	1:1	0.0100	Banister Bend
W-KL17	Norfolk	Upper Roanoke	03010101	PSS	0.0435	Permanent Conversion	1:1	0.0435	Banister Bend
W-AB6-PFO-1	Norfolk	Upper Roanoke	03010101	PFO	0.0618	Permanent Conversion	1:1	0.0618	Banister Bend
W-AB6-PSS	Norfolk	Upper Roanoke	03010101	PSS	0.0061	Permanent Conversion	1:1	0.0061	Banister Bend
W-AB5	Norfolk	Upper Roanoke	03010101	PFO	0.0042	Permanent Conversion	1:1	0.0042	Banister Bend
W-EF46	Norfolk	Upper Roanoke	03010101	PSS	0.0682	Permanent Conversion	1:1	0.0682	Banister Bend
W-KL48-PSS-1	Norfolk	Upper Roanoke	03010101	PSS	0.0454	Permanent Conversion	1:1	0.04540	Banister Bend
W-KL48-PSS-2	Norfolk	Upper Roanoke	03010101	PSS	0.0264	Permanent Conversion	1:1	0.0264	Banister Bend
W-KL51-PSS	Norfolk	Upper Roanoke	03010101	PSS	0.0080	Permanent Conversion	1:1	0.00800	Banister Bend
W-IJ36	Norfolk	Upper Roanoke	03010101	PSS	0.1237	Permanent Conversion	1:1	0.1237	Banister Bend
W-Z7	Norfolk	Upper Roanoke	03010101	PSS	0.0003	Permanent Conversion	1:1	0.0003	Banister Bend
W-Z6	Norfolk	Upper Roanoke	03010101	PFO	0.0028	Permanent Conversion	1:1	0.0028	Banister Bend
W-B24-PSS	Norfolk	Upper Roanoke	03010101	PSS	0.1637	Permanent Conversion	1:1	0.1637	Banister Bend
W-B25-PSS-2	Norfolk	Upper Roanoke	03010101	PSS	0.0830	Permanent Conversion	1:1	0.08300	Banister Bend
W-D4	Norfolk	Upper Roanoke	03010101	PEM	0.0009	Permanent Fill	1:1	0.0009	Banister Bend
W-IJ2-PSS	Norfolk	Upper Roanoke	03010101	PSS	0.0080	Permanent Conversion	1:1	0.0080	Banister Bend
W-GH2	Norfolk	Upper Roanoke	03010101	PSS	0.0130	Permanent Conversion	1:1	0.0130	Banister Bend
W-CD5	Norfolk	Upper Roanoke	03010101	PFO	0.1136	Permanent Conversion	1:1	0.1136	Banister Bend
W-CD1	Norfolk	Upper Roanoke	03010101	PFO	0.1106	Permanent Conversion	1:1	0.1106	Banister Bend
W-A12-PFO	Norfolk	Upper Roanoke	03010101	PFO	0.0040	Permanent Conversion	1:1	0.00400	Banister Bend
W-GH16	Norfolk	Upper Roanoke	03010101	PFO	0.0657	Permanent Conversion	1:1	0.06570	Banister Bend
W-H17	Norfolk	Upper Roanoke	03010101	PFO	0.0369	Permanent Conversion	1:1	0.03690	Banister Bend
W-H15	Norfolk	Upper Roanoke	03010101	PSS	0.0071	Permanent Conversion	1:1	0.0071	Banister Bend
W-D3	Norfolk	Upper Roanoke	03010101	PFO	0.0285	Permanent Conversion	1:1	0.02850	Banister Bend
W-B4-PSS	Norfolk	Upper Roanoke	03010101	PSS	0.0047	Permanent Conversion	1:1	0.0047	Banister Bend
W-MM5	Norfolk	Banister	03010105	PSS	0.0390	Permanent Conversion	1 : 1	0.03900	Banister Bend
W-MM8-PFO	Norfolk	Banister	03010105	PFO	0.0421	Permanent Conversion	1:1	0.04210	Banister Bend
W-Q2	Norfolk	Banister	03010105	PFO	0.3770	Permanent Conversion	1:1	0.3770	Banister Bend
W-EF6	Norfolk	Banister	03010105	PFO	0.0667	Permanent Conversion	1:1	0.06670	Banister Bend
W-IJ21	Norfolk	Banister	03010105	PFO	0.0106	Permanent Conversion	1:1	0.0106	Banister Bend
W-MM3	Norfolk	Banister	03010105	PSS	0.0340	Permanent Conversion	1:1	0.03400	Banister Bend
W-IJ22-PFO	Norfolk	Banister	03010105	PFO	0.0785	Permanent Conversion	1:1	0.07850	Banister Bend
				TOTAL	4.2042	-	-	4.2042	

Notes:

Field classification
 In WV, the SWVM

- In WV, the SWVM (Stream and Wetland Valuation Metric) was used to determine mitigation credit requirements

- In VA, per VDEQ and USACE guidance, mitigation ratios are 1:1 for PEM fill, PSS conversion, and PFO conversion impacts.

3 - Proposed mitigation bank based on the location of the impact and availability of mitigation credits in the impact area.

- Kincheloe - Kincheloe Mitigation Bank

- Beverly - Beverly Mitigation Bank

- Spanishburg - Spanishburg Mitigation Bank

- Banister Bend - Banister Bend Mitigation Bank

4 - Mountain Valley does not propose to purchase credits for impacts associated with wetland W-Z3. The proposed impact is 0.0136 acre conversion from PSS to PEM in the Middle New watershed. No wetland credits are available as no mitigation banks provide coverage within the river basin in which the impacts occur. As a result, Mountain Valley requested use of credits from VARTF that was denied without comment by The Nature Conservancy (TNC) on November 1, 2017. Permittee-responsible mitigation for this minimal impact is not practicable. Because compensatory mitigation is not required for this de minimis wetland impact, and there are no practicable options to provide such mitigation, MVP does not propose to provide any additional individual compensatory mitigation for the impact to W-Z3.

Table 18. (revised 3/2/2021)Compensatory Stream MitigationIndividual Permit ApplicationMountain Valley Pipeline Project

Feature	USACE District	HUC 8 Name	HUC 8 #	Flow Regime	Impact (LF)	Mitigation Evaluation Method ¹	Projected Mitigation Requirement	Proposed Mitigation Type ²
S-A128	Pittsburgh	West Fork	05020002	Perennial	29	SWVM	24	Kincheloe
S-OP9	Pittsburgh	West Fork	05020002	Ephemeral	36	SWVM	30	Kincheloe
S-OP8	Pittsburgh	West Fork	05020002	Ephemeral	41	SWVM	29	Kincheloe
S-B79	Pittsburgh	West Fork	05020002	Ephemeral	60	SWVM	23	Kincheloe
S-J54	Pittsburgh	West Fork	05020002	Perennial	26	SWVM	17	Kincheloe
S-A120	Huntington	Middle Ohio	05030201	Intermittent	26	SWVM	13	Foster Run
S-QR34	Huntington	Middle Ohio	05030201	Ephemeral	125	SWVM	65	Foster Run
S-J56	Huntington	Middle Ohio	05030201	Perennial	41	SWVM	32	Foster Run
S-J59	Huntington	Middle Ohio	05030201	Intermittent	7	SWVM	4	Foster Run
S-A110/K62	Huntington	Middle Ohio	05030201	Intermittent	25	SWVM	10	Foster Run
S-K43	Huntington	Little Kanawha	05030203	Perennial	27	SWVM	18	Hayes Run
S-163	Huntington	Little Kanawha	05030203	Perennial	26	SWVM	18	Hayes Run
S-UV11	Huntington	Little Kanawha	05030203	Perennial	25	SWVM	18	Hayes Run
S-L61	Huntington	Little Kanawha	05030203	Intermittent	58	SWVM	40	Hayes Run
S-L57	Huntington	Little Kanawha	05030203	Ephemeral	26	SWVM	13	Hayes Run
S-IJ27	Huntington	Little Kanawha	05030203	Perennial	84	SWVM	63	Hayes Run
S-IJ32	Huntington	Little Kanawha	05030203	Ephemeral	26	SWVM	17	Hayes Run
S-B62	Huntington	Elk	05050007	Perennial	29	SWVM	24	Spanishburg
S-H107	Huntington	Elk	05050007	Intermittent	30	SWVM	12	Spanishburg
S-I23a	Huntington	Gauley	05050005	Intermittent	33	SWVM	18	Spanishburg
S-IJ54	Huntington	Gauley	05050005	Ephemeral	31	SWVM	17	Spanishburg
S-IJ53	Huntington	Gauley	05050005	Perennial	20	SWVM	12	Spanishburg
S-FF1	Huntington	Gauley	05050005	Ephemeral	31	SWVM	31	Spanishburg
S-UV2	Huntington	Gauley	05050005	Perennial	28	SWVM	17	Spanishburg
S-I12	Huntington	Lower New	05050004	Intermittent	38	SWVM	22	Spanishburg
S-I10	Huntington	Lower New	05050004	Intermittent	26	SWVM	18	Spanishburg
S-K10	Huntington	Greenbrier	05050003	Intermittent	31	SWVM	11	Spanishburg
S-K4	Huntington	Greenbrier	05050003	Intermittent	22	SWVM	8	Spanishburg
S-A63	Huntington	Upper New	05050002	Perennial	25	SWVM	16	Spanishburg
S-A61	Huntington	Upper New	05050002	Ephemeral	26	SWVM	14	Spanishburg
S-CV26	Huntington	Upper New	05050002	Perennial	32	SWVM	20	Spanishburg
S-F18	Huntington	Upper New	5050002	Perennial	26	SWVM	17	Spanishburg
S-IJ16-a	Norfolk	Middle New	05050002	Ephemeral	45	USM	23	Graham and David
S-IJ85	Norfolk	Upper Roanoke	03010101	Perennial	50	1:1*	50	Graham and David
S-H42	Norfolk	Banister	03010105	Perennial	15	USM	21	Graham and David
				TOTAL	1.226		785	

Notes:

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1 - In WV, the SWVM (Stream and Wetland Valuation Metric) was used to determine mitigation credit requirements

- In VA, mitigation ratio values for stream impacts were calculated using Unified Stream Methodology (USM), except where noted.

- Proposed mitigation bank based on the location of the impact and availability of mitigation credits in the impact area.

- Kincheloe Kincheloe Wetland and Stream Mitigation Bank
 - Foster Run Foster Run Mitigation Bank

- Hayes Run - Hayes Run Stream and Wetland Mitigation Bank

- Spanishburg - Spanishburg Mitigation Bank

-Graham and David - Graham and David Mitigation Bank

* - Unified Stream Methodology field evaluation has not been performed for S-IJ85. Compensatory mitigation requirement ratio of impacts : credits is assumed to be 1:1.



Table A-1 (West Virginia Stream Impacts)

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-J62	Right Fork Big Elk Creek	Harrison	Pittsburgh	39.445033	-80.482635	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0037	-	18	-	4-35
S-B75/F49	UNT to Goose Run	Harrison	Pittsburgh	39.436571	-80.475198	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0028	-	13		4-36
S-B74	Goose Run	Harrison	Pittsburgh	39.436245	-80.474976	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0018	-	9	-	4-36
S-B79	UNT to Big Elk Creek	Harrison	Pittsburgh	39.423571	-80.476278	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	11	-	0.0004	-	2	-	4-39
S-B79	UNT to Big Elk Creek	Harrison	Pittsburgh	39.423499	-80.476392	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Permanent Access Road	-	60	-	0.0021	-	7	4-39
S-B79	UNT to Big Elk Creek	Harrison	Pittsburgh	39.423434	-80.476486	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	24	-	0.0008	-	4	-	4-39
S-J54	UNT to Little Tenmile Creek	Harrison	Pittsburgh	39.400324	-80.479967	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Permanent Access Road	-	26	-	0.0048	-	23	4-43
S-J51	Little Tenmile Creek	Harrison	Pittsburgh	39.398116	-80.477174	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20	_	0.0138	-	67		4-43
S-A10a	Little Rockcamp Run	Harrison	Pittsburgh	39.370005	-80.484974	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20	-	0.0055		27		4-49
							NRPW									-	
S-B2a	UNT to Rockcamp Run	Harrison	Pittsburgh	39.359262	-80.493290	Ephemeral		Warmwater Fishery, Tier 2	05020002	Pipeline ROW	115		0.0211	-	341		4-51
S-B3a	Rockcamp Run	Harrison	Pittsburgh	39.358871	-80.493707	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	97	•	0.0445	-	719	-	4-51
S-A128	Rockcamp Run	Harrison	Pittsburgh	39.355569	-80.4901	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Permanent Access Road	-	29	-	0.032	-	155	4-51
S-RR22	UNT to Grass Run	Harrison	Pittsburgh	39.342166	-80.512422	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20	-	0.0055	-	27		4-55
S-A11a	Grass Run	Harrison	Pittsburgh	39.335511	-80.522421	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	113	-	0.0311	-	502	-	4-56
S-A11a-Braid-1	Grass Run	Harrison	Pittsburgh	39.335500	-80.522502	Intermittent	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	11	-	0.0015	-	7	-	4-56
S-A11a-Braid-2	Grass Run	Harrison	Pittsburgh	39.335410	-80.522360	Intermittent	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	77	-	0.0088	-	143	-	4-56
S-OP8	UNT to Indian Run	Harrison	Pittsburgh	39.320959	-80.526445	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	-	41	-	0.0047	-	23	4-59
S-OP9	UNT to Indian Run	Harrison	Pittsburgh	39.320682	-80.526449	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	-	36	-	0.0025	-	12	4-59
S-B6a	Indian Run	Harrison	Pittsburgh	39.317309	-80.527175	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Temporary Access Road	30	-	0.0207	-	100	-	4-59
S-B6a	Indian Run	Harrison	Pittsburgh	39.317023	-80.526157	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	20	-	0.0138	-	67	-	4-59
S-B7a	UNT to Indian Run	Harrison	Pittsburgh	39.316755	-80.526222	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0018	-	9	-	4-59
S-UU3	Salem Fork	Harrison	Pittsburgh	39.289870	-80.517903	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	76	-	0.1047	-	1,689	-	4-66
S-UU5	Halls Run	Harrison	Pittsburgh	39.253041	-80.540508	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	79		0.0073		117		4-74
S-K73	Coburn Fork	Harrison		39.243691	-80.553966	Perennial	RPW		05020002	Pipeline ROW	110	-	0.0126	-	204	_	4-77
			Pittsburgh					Warmwater Fishery, Tier 1				-		-		-	
S-K74	UNT to Coburn Fork	Harrison	Pittsburgh	39.243647	-80.553903	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	36	•	0.0021	-	10	-	4-77
S-K75	UNT to Coburn Fork	Harrison	Pittsburgh	39.243509	-80.554028	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	96	-	0.0066	-	107	-	4-77
S-K80	UNT to Turtletree Fork	Harrison	Pittsburgh	39.225747	-80.550164	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0014	-	7		4-80
S-CV9	UNT to Turtletree Fork	Harrison	Pittsburgh	39.22369	-80.548273	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0009	-	4		4-81
S-K81	Turtletree Fork	Harrison	Pittsburgh	39.223263	-80.547928	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	30	-	0.0028	-	13		4-81
S-CV10	UNT to Turtletree Fork	Harrison	Pittsburgh	39.221719	-80.546951	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0014	-	7		4-81
S-A106	UNT to Kincheloe Creek	Harrison	Pittsburgh	39.168435	-80.577625	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	168	-	0.001	-	47	-	4-92
S-A105	UNT to Kincheloe Creek	Harrison	Pittsburgh	39.168266	-80.577815	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	20	-	0.0018	-	9	-	4-92
S-K94	Kincheloe Creek	Lewis	Pittsburgh	39.167831	-80.578867	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Temporary Access Road	18	-	0.0083	-	40	-	4-92
S-K82	UNT to Kincheloe Creek	Harrison	Pittsburgh	39.167753	-80.578181	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	110	-	0.0101	-	49	-	4-92
S-K94	Kincheloe Creek	Lewis	Pittsburgh	39.167575	-80.578144	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Pipeline ROW	79	-	0.0363	-	585	-	4-92
S-167	Smoke Camp Run	Lewis	Pittsburgh	39.137145	-80.577026	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	22	-	0.0040	-	20	-	4-99
S-J43	Right Fork Freemans Creek	Lewis	Pittsburgh	39.120579	-80.581328	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	22	-	0.0126	-	61	-	4-102
S-J44	UNT to Right Fork Freemans Creek	Lewis	Pittsburgh	39.114730	-80.586203	Perennial	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	79		0.0073	-	117		4-103
							NRPW					-		-			
S-K46	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.080252	-80.581430	Ephemeral		Warmwater Fishery, Tier 2	05020002	Pipeline ROW	93	-	0.0043	-	21	-	4-109
S-B67	Left Fork Freemans Creek	Lewis	Pittsburgh	39.079556	-80.581346	Perennial	RPW	Warmwater Fishery, Tier 1	05020002	Timber Mat Crossing	22	-	0.0061	-	29	-	4-110
S-B69	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.077790	-80.582932	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Temporary Access Road	86	-	0.0030	-	14	-	4-110
S-H184	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.069684	-80.580583	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	22	-	0.0051	-	24	-	4-111
S-H184a	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.069645	-80.580591	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05020002	Timber Mat Crossing	22	-	0.0051	-	24	-	4-111
S-H180	UNT to Left Fork Freemans Creek	Lewis	Pittsburgh	39.068217	-80.581025	Intermittent	RPW	Warmwater Fishery, Tier 2	05020002	Pipeline ROW	68	-	0.0203	-	327	-	4-111
S-ST18	UNT to Mobley Run	Wetzel	Huntington	39.561766	-80.540136	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Permanent Access Road	21	-	0.0049	-	23	-	4-2
S-WX3	UNT to Mobley Run	Wetzel	Huntington	39.560611	-80.545823	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	ATWS	21	-	0.0024	-	12	-	4-1
S-A1a	North Fork Fishing Creek	Wetzel	Huntington	39.553946	-80.545046	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Pipeline ROW	80	-	0.0641	-	1,034	-	4-3
S-A3a	UNT to North Fork Fishing Creek	Wetzel	Huntington	39.551814	-80.545633	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	80	-	0.0166	-	267	-	4-4
S-J66	UNT to North Fork Fishing Creek	Wetzel	Huntington	39.546030	-80.544314	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0014		7		4-5
S-A5a	UNT to Fallen Timber Run	Wetzel	Huntington	39.534241	-80.540995	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	30		0.0028		13	-	4-8
S-A6a	Fallen Timber Run	Wetzel	Huntington	39.534023	-80.540889	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Timber Mat Crossing	20		0.0092		44	-	4-9
S-A125	Price Run	Wetzel	Huntington	39.503477	-80.532902	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Timber Mat Crossing	20		0.0161		78		4-19
S-A124	UNT to Price Run	Wetzel	Huntington	39.503288	-80.532680	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	100	-	0.0276	-	445	-	4-19
S-A118	UNT to Price Run	Wetzel	Huntington	39.502399	-80.523520	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	79	-	0.0109	-	176	-	4-20
S-A120	Stout Run	Wetzel	Huntington	39.489914	-80.522135	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Temporary Access Road	8		0.0011	-	5	-	4-23
S-A120	Stout Run	Wetzel	Huntington	39.489890	-80.522083	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Permanent Access Road	-	26	-	0.0036	-	15	4-23
S-A120	Stout Run	Wetzel	Huntington	39.489866	-80.522029	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Temporary Access Road	9	-	0.0012	-	6	-	4-23
S-A120	Stout Run	Wetzel	Huntington	39.489712	-80.520728	Intermittent	RPW	Warmwater Fishery, Tier 1	05030201	Timber Mat Crossing	20	-	0.0028	-	13	-	4-23
S-A119	UNT to Stout Run	Wetzel	Huntington	39.489589	-80.520532	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	134	-	0.0154	-	74	-	4-23
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Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-QR34	UNT to Stout Run	Wetzel	Huntington	39.489140	-80.520658	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	125	-	0.0072	-	24	4-23
S-QR34	UNT to Stout Run	Wetzel	Huntington	39.489062	-80.520519	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Temporary Access Road	8	-	0.0004	-	2	-	4-23
S-J60	Sams Run	Wetzel	Huntington	39.474354	-80.511825	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0064	-	31	-	4-26
S-J56	Manion Run	Wetzel	Huntington	39.464315	-80.502077	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0046	-	22	-	4-28
S-J56	Manion Run	Wetzel	Huntington	39.464105	-80.502318	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Temporary Access Road	23	-	0.0054	-	26	-	4-28
S-J56	Manion Run	Wetzel	Huntington	39.463899	-80.502594	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	41	-	0.0095	-	46	4-28
S-J59	UNT to Manion Run	Wetzel	Huntington	39.462705	-80.504726	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	7	-	0.0005	-	2	4-28
S-J59	UNT to Manion Run	Wetzel	Huntington	39.462684	-80.504736	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Temporary Access Road	10		0.0007	-	3	-	4-28
S-J58	UNT to Manion Run	Wetzel	Huntington	39.462546	-80.505386	Perennial	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	26		0.0030		14		4-28
							RPW	Warmwater Fishery, Tier 2			37	_			54	-	
S-K77	Traugh Fork	Doddridge	Huntington	39.229029	-80.552534	Intermittent			05030201	Pipeline ROW			0.0034	-			4-80
S-K77	Traugh Fork	Doddridge	Huntington	39.228942	-80.552437	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	93	-	0.0085	-	137	-	4-80
S-K67	UNT to Big Issac Creek	Doddridge	Huntington	39.210269	-80.553179	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	77	-	0.0177	-	285	-	4-84
S-K65	UNT to Big Issac Creek	Doddridge	Huntington	39.209813	-80.552450	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	90	-	0.0165	-	267	-	4-84
S-K54	UNT to Big Issac Creek	Doddridge	Huntington	39.207673	-80.552957	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0032	-	16	-	4-84
S-K58	UNT to Big Issac Creek	Doddridge	Huntington	39.205595	-80.553224	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0011	-	6	-	4-84
S-K59	UNT to Big Issac Creek	Doddridge	Huntington	39.204704	-80.553272	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0011	-	6	-	4-84
S-K60	UNT to Big Issac Creek	Doddridge	Huntington	39.203779	-80.553410	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030201	Timber Mat Crossing	20	-	0.0018	-	9	-	4-84
S-A110/K62	UNT to Laural Run	Doddridge	Huntington	39.201316	-80.553306	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Permanent Access Road	-	25	-	0.0040	-	13	4-85
S-A110/K62	UNT to Laural Run	Doddridge	Huntington	39.201286	-80.553425	Intermittent	RPW	Warmwater Fishery, Tier 2	05030201	Pipeline ROW	59	-	0.0095	-	154	-	4-85
S-A111	Laural Run	Doddridge	Huntington	39.200749	-80.553190	Perennial	RPW	Warmwater Fishery, Tier 1	05030201	Pipeline ROW	77	-	0.0247	-	399	-	4-85
S-J46	Fink Creek	Lewis	Huntington	39.094778	-80.584826	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Timber Mat Crossing	22	-	0.0076	-	37	-	4-106
S-J47b	UNT to Fink Creek	Lewis	Huntington	39.094003	-80.585481	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-106
S-164	Leading Creek	Lewis	Huntington	39.052748	-80.582213	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22		0.0020		10		4-114
S-KK3a	UNT to Laurel Run	Lewis		39.019605	-80.597895	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	_	0.0010	-	5		4-119
			Huntington							- -					7		
S-KK5	UNT to Laurel Run	Lewis	Huntington	39.017783	-80.596853	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-		-	4-119
S-KK5	UNT to Laurel Run	Lewis	Huntington	39.017738	-80.597017	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015		7	-	4-119
S-KK5	UNT to Laurel Run	Lewis	Huntington	39.017718	-80.597027	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-119
S-KK6	UNT Laurel Run	Lewis	Huntington	39.017621	-80.596939	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-119
S-KK7	Laurel Run	Lewis	Huntington	39.017519	-80.597010	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0030	-	15	-	4-119
S-K45	UNT to Cove Lick	Lewis	Huntington	39.002598	-80.595591	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	ATWS	50	-	0.0011	-	6	-	4-121
S-K43	Cove Lick	Lewis	Huntington	39.002111	-80.595843	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	27	-	0.0043	-	21	4-121
S-K43	Cove Lick	Lewis	Huntington	39.002045	-80.596098	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0035	-	17	-	4-121
S-K38	UNT to Rock Run	Lewis	Huntington	38.992357	-80.592929	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-123
S-163	Sand Fork	Lewis	Huntington	38.969369	-80.593138	Perennial	RPW	Non-listed mussels, Warmwater Fishery, Tier 1	05030203	Pipeline ROW	60	-	0.0275	-	444	-	4-128
S-163	Sand Fork	Lewis	Huntington	38.969290	-80.593203	Perennial	RPW	Non-listed mussels, Warmwater Fishery, Tier 1	05030203	Permanent Access Road	-	26	-	0.0119	-	58	4-128
S-163	Sand Fork	Lewis	Huntington	38.969239	-80.593244	Perennial	RPW	Non-listed mussels, Warmwater Fishery, Tier 1	05030203	Temporary Access Road	8	-	0.0037	-	18	-	4-128
S-H160	Indian Fork	Lewis	Huntington	38.933179	-80.584562	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Timber Mat Crossing	23	-	0.0106	-	59	-	4-135
S-L76	Indian Fork	Lewis	Huntington	38.929761	-80.575251	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Permanent Access Road	33	-	0.0115	-	56	-	4-137
S-H153	UNT to Sugar Camp Run	Lewis	Huntington	38.922846	-80.579227	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	76	-	0.0262		423	-	4-136
S-H145	UNT to Indian Fork	Lewis	Huntington	38.918986	-80.573838	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	91	-	0.0313		505	-	4-140
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S-H165	UNT to Indian Fork	Lewis	Huntington	38.918602	-80.573256	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	144	-	0.0198	-	320	-	4-140
S-CV3	Threelick Run	Lewis	Huntington	38.913415	-80.571854	Perennial	RPW	Warmwater Fishery, Tier 1	05030203	Timber Mat Crossing	22	-	0.0030	-	15	-	4-142
S-CD16	UNT to Second Big Run	Lewis	Huntington	38.904135	-80.563719	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	173	-	0.0318	-	154	-	4-144
S-VV13	Second Big Run	Lewis	Huntington	38.903930	-80.563537	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	80	-	0.0275	-	133	-	4-144
S-VV11	UNT to Second Big Run	Lewis	Huntington	38.903610	-80.563186	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	7	-	0.0007	-	3	-	4-144
S-VV12	UNT to Second Big Run	Lewis	Huntington	38.903575	-80.563308	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	77	-	0.0211	-	341	-	4-144
S-VV13d	Second Big Run	Lewis	Huntington	38.902549	-80.564778	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	61	-	0.0210	-	102	-	4-144
S-VV20	UNT to Second Big Run	Lewis	Huntington	38.900233	-80.563491	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	40	-	0.0028	-	13	-	4-145
S-VV19	UNT to Second Big Run	Lewis	Huntington	38.899505	-80.563925	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	62	-	0.0043	-	21	-	4-146
S-VV13b	Second Big Run	Lewis	Huntington	38.898431	-80.568250	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	42	-	0.0143	-	69	-	4-146
S-VV18	UNT to Second Big Run	Lewis	Huntington	38.897028	-80.567634	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	41	-	0.0075	-	36	-	4-146
S-VV16	UNT to Second Big Run	Lewis	Huntington	38.896271	-80.566551	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	293	-	0.0202	-	98	-	4-146
S-VV16	UNT to Second Big Run	Lewis	Huntington	38.895455	-80.566432	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	211	-	0.0145	-	70	-	4-146
S-UV11	Oil Creek	Lewis	Huntington	38.893014	-80.556192	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	51	-	0.0351	-	567	-	4-148
S-UV11	Oil Creek	Lewis	Huntington	38.893014	-80.556192	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	25	-	-	0	-	4-148
S-VV22	UNT to Oil Creek	Lewis	Huntington	38.890411	-80.550986	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	43		0.0029	-	12	-	4-148
S-VV21	UNT to Oil Creek	Lewis	Huntington	38.890221	-80.553817	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road	18		0.0012	-	5		4-148
S-L61	Crooked Run			38.890221	-80.553817	Intermittent	RPW	Warmwater Fishery, Tier 2 Warmwater Fishery, Tier 2	05030203	Permanent Access Road	10	- 30	0.0012	- 0.0069	J	- 33	4-148
		Lewis	Huntington								-		-		-		
S-L61	Crooked Run	Lewis	Huntington	38.879034	-80.564307	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	28	-	0.0064	-	31	4-151

S-VV2 S-VV9 S-L51 S-J37 S-L57 S-L57 S-L57 S-L60 S-L11 S-IJ27 S-IJ32	Clover Fork UNT to Clover Fork Barbecue Run UNT to Barbecue Run UNT to Barbecue Run UNT to Barbecue Run LNT to Barbecue Run Left Fork Knawl Creek	Braxton Lewis Braxton Braxton	Huntington Huntington Huntington	38.862730 38.863254	-80.525128	Perennial	RPW	Warmwater Fishery, Tier 2	0500000	Pipeline ROW	90	-	0.0412				
S-L51 S-J37 S-L57 S-L57 S-L60 S-LL1 S-JJ27	Barbecue Run UNT to Barbecue Run UNT to Barbecue Run UNT to Barbecue Run Left Fork Knawl Creek	Braxton Braxton		38.863254				Wannador Honory, Hor 2	05030203		00	_	0.0412	-	664	-	4-159
S-J37 S-L57 S-L57 S-L60 S-L11 S-J327	UNT to Barbecue Run UNT to Barbecue Run UNT to Barbecue Run Left Fork Knawl Creek	Braxton	Huntington		-80.525763	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0051		24	-	4-158
S-L57 S-L57 S-L60 S-L1 S-JJ27	UNT to Barbecue Run UNT to Barbecue Run Left Fork Knawl Creek			38.839355	-80.519693	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0101		49	-	4-161
S-L57 S-L60 S-L1 S-IJ27	UNT to Barbecue Run Left Fork Knawl Creek	Brouton	Huntington	38.839133	-80.519716	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0015	-	7	-	4-162
S-L60 S-LL1 S-IJ27	Left Fork Knawl Creek	Braxton	Huntington	38.828310	-80.525753	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road		26	-	0.0024	-	12	4-165
S-LL1 S-IJ27		Braxton	Huntington	38.828300	-80.525691	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Temporary Access Road/ATWS	25	-	0.0023		11	-	4-165
S-IJ27		Braxton	Huntington	38.824034	-80.524988	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	75	-	0.0517	-	833	-	4-165
	Knawl Creek	Braxton	Huntington	38.823595	-80.525342	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	88	-	0.0607	-	980	-	4-165
S-IJ32	Little Knawl Creek	Braxton	Huntington	38.809593	-80.541252	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	34	-	0.0156	-	76	4-168
	UNT to Little Knawl Creek	Braxton	Huntington	38.809568	-80.537319	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road	-	26	-	0.0030	-	14	4-168
S-IJ27	Little Knawl Creek	Braxton	Huntington	38.808878	-80.543272	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Permanent Access Road		50	-	0.0230	-	111	4-168
S-QR30	UNT to Little Knawl Creek	Braxton	Huntington	38.807940	-80.535715	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	79	-	0.0274	-	442	-	4-168
S-JJ1	UNT to Keith Run	Braxton	Huntington	38.786930	-80.530028	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0071	-	34	-	4-172
S-160	UNT to Falls Run	Braxton	Huntington	38.781068	-80.524577	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0020	-	10	-	4-174
S-J70	Falls Run	Braxton	Huntington	38.778955	-80.525862	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	77		0.0530		854	-	4-174
S-K34	Hemp Patch Run	Braxton	Huntington	38.766123	-80.520308	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0025		12	-	4-178
S-K33	UNT to Hemp Patch Run	Braxton	Huntington	38.765714	-80.520032	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0010		5	-	4-178
S-H123	UNT to Elliott Run	Braxton	Huntington	38.761197	-80.514887	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	82	-	0.0113	-	183	-	4-178
S-H123	UNT to Elliott Run	Braxton	Huntington	38.760426	-80.513624	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	82	-	0.0113		182	-	4-178
S-H127	UNT to Elliott Run	Braxton	Huntington	38.755029	-80.513692	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0020		10	-	4-180
S-H132	Little Kanawha River	Braxton	Huntington	38.751499	-80.514919	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	120	-	0.0606		293	-	4-180
S-H129	UNT to Little Kanawha River	Braxton	Huntington	38.749321	-80.514337	Intermittent	RPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22	-	0.0010		5		4-183
S-H131	UNT to Little Kanawha River	Braxton	Huntington	38.749215	-80.514370	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05030203	Timber Mat Crossing	22		0.0010		5	-	4-183
S-H117	Stonecoal Run	Braxton	Huntington	38.731020	-80.506280	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	82	-	0.0283	-	456	-	4-188
S-L46	UNT to Laurel Run	Braxton	Huntington	38.721880	-80.499258	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	78	-	0.0267		430	-	4-188
S-L44	UNT to Laurel Run	Braxton	Huntington	38.716945	-80.494589	Perennial	RPW	Warmwater Fishery, Tier 2	05030203	Pipeline ROW	81	-	0.0185	-	298	-	4-193
S-157			-		-80.489560		RPW			-	77						4-195
	Mudlick Run	Braxton	Huntington	38.697413		Perennial		Warmwater Fishery, Tier 2	05050007	Pipeline ROW		-	0.0528	-	852	-	
S-A96/A103 S-A97	UNT to Left Fork Holly River	Webster	Huntington	38.688706 38.688329	-80.478590	Ephemeral	NRPW RPW	Warmwater Fishery, Tier 2 Warmwater Fishery, Tier 2	05050007	Pipeline ROW Pipeline ROW	83	-	0.0114	-	185 370	-	4-198 4-198
			Huntington									-		-		-	
S-A99	UNT to Left Fork Holly River	Webster	Huntington	38.688120	-80.478371	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW Pipeline ROW/Temporary Access	34	-	0.0039	-	19	-	4-198
S-A98	UNT to Left Fork Holly River	Webster	Huntington	38.687906	-80.478024	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Road	392	-	0.0629	-	1015	-	4-198
S-A100	Left Fork Holly River	Webster	Huntington	38.676643	-80.477940	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	22	-	0.0404	-	196	-	4-200
S-E78/E82/R1	UNT to Left Fork Holly River	Webster	Huntington	38.676223	-80.477663	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	102	-	0.0094	-	151	-	4-200
S-E76	UNT to Left Fork Holly River	Webster	Huntington	38.674988	-80.477360	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0015	-	7	-	4-200
S-KK2	UNT to Left Fork Holly River	Webster	Huntington	38.672226	-80.476315	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	75	-	0.0052	-	84	-	4-200
S-KK3b	UNT to Left Fork Holly River	Webster	Huntington	38.672110	-80.476515	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	100	-	0.0069	-	111	-	4-201
S-KK4b	UNT to Left Fork Holly River	Webster	Huntington	38.671976	-80.476825	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	88	-	0.0061	-	98	-	4-201
S-E74	UNT to Left Fork Holly River	Webster	Huntington	38.671971	-80.476990	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	68	-	0.0062	-	30	-	4-200
S-F40	Oldlick Creek	Webster	Huntington	38.667943	-80.479023	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	22	-	0.0126	-	61	-	4-201
S-S1	UNT to Oldlick Creek	Webster	Huntington	38.667020	-80.478624	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	21	-	0.0010		5	-	4-201
S-S4	UNT to Oldlick Creek	Webster	Huntington	38.664389	-80.484709	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	45	-	0.0021	-	10	-	4-204
S-F43	UNT to Oldlick Creek	Webster	Huntington	38.663706	-80.478644	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	101	-	0.0232	-	375	-	4-202
S-E67	Right Fork Holly Creek	Webster	Huntington	38.648021	-80.489704	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	92	-	0.1803	-	2910	-	4-206
S-B62	Narrows Run	Webster	Huntington	38.646185	-80.486813	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	ATWS	15	-	0.0103	-	50	-	4-215
S-B62	Narrows Run	Webster	Huntington	38.643910	-80.485213	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Permanent Access Road	-	29	-	0.0200	-	97	4-215
S-E71	UNT to Elk River	Webster	Huntington	38.614405	-80.506004	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	44	-	0.0020	-	33	-	4-218
S-H111	UNT to Elk River	Webster	Huntington	38.613367	-80.504620	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0020	-	10	-	4-218
S-H111	UNT to Elk River	Webster	Huntington	38.613341	-80.504620	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0020	-	10	-	4-218
S-H114	UNT to Elk River	Webster	Huntington	38.613259	-80.504243	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0010	-	5	-	4-218
S-H112	UNT to Elk River	Webster	Huntington	38.613163	-80.504012	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0015	-	7	-	4-218
S-H113	UNT to Elk River	Webster	Huntington	38.612982	-80.503647	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	74	-	0.0203	-	327	-	4-218
S-H113	UNT to Elk River	Webster	Huntington	38.612878	-80.503687	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	9	-	0.0026	-	42	-	4-218
S-H113	UNT to Elk River	Webster	Huntington	38.612874	-80.503682	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	9	-	0.0026	-	41	-	4-218
S-H110	UNT to Houston Run	Webster	Huntington	38.587200	-80.509634	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0015	-	7	-	4-222
S-T29	Houston Run	Webster	Huntington	38.579092	-80.525620	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	76		0.0525	-	847	-	4-230
S-A83/A91	UNT to Camp Creek	Webster	Huntington	38.557064	-80.535592	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	75	-	0.0518	-	835	-	4-235
S-A93	UNT to Camp Creek	Webster	Huntington	38.556823	-80.535751	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Temporary Access Road	13	-	0.0025	-	12	-	4-235
S-A93	UNT to Camp Creek	Webster	Huntington	38.556682	-80.535572	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	105	-	0.0193	-	312	-	4-235
S-A92	UNT to Camp Creek	Webster	Huntington	38.556658	-80.535607	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	59	-	0.0175	-	282	-	4-235

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-H108	Lower Laurel Fork	Webster	Huntington	38.549358	-80.539260	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	78	-	0.0251	-	405	-	4-236
S-H105	UNT to Camp Creek	Webster	Huntington	38.548824	-80.539644	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	121	-	0.0083	-	135	-	4-236
S-H107	UNT to Camp Creek	Webster	Huntington	38.548467	-80.540073	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	10	-	0.0003	-	5	-	4-236
S-H107	UNT to Camp Creek	Webster	Huntington	38.548463	-80.540050	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Permanent Access Road	-	30	-	0.0010	-	3	4-236
S-H107	UNT to Camp Creek	Webster	Huntington	38.548378	-80.539980	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	90	-	0.0031	-	50	-	4-236
S-H104	Camp Creek	Webster	Huntington	38.548121	-80.540431	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	104	-	0.0360	-	580	-	4-236
S-H103	UNT to Camp Creek	Webster	Huntington	38.545817	-80.542972	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Pipeline ROW	37	-	0.0034	-	16	-	4-248
S-B34	Amos Run	Webster	Huntington	38.493956	-80.560990	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	81	-	0.0561	-	904	-	4-260
S-B35	UNT to Amos Run	Webster	Huntington	38.493884	-80.560969	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	80	-	0.0037	-	59	-	4-260
S-B36	UNT to Amos Run	Webster	Huntington	38.493819	-80.560919	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	72	-	0.0033	-	53	-	4-260
S-B37	UNT to Amos Run	Webster	Huntington	38.493750	-80.560898	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	82	-	0.0038	-	61	-	4-260
S-B38	UNT to Amos Run	Webster	Huntington	38.493723	-80.560843	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	43	-	0.0020	-	32	-	4-260
S-B42	UNT to Amos Run	Webster	Huntington	38.493645	-80.560892	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	101	-	0.0046	-	75	-	4-260
S-B39b	UNT to Amos Run	Webster	Huntington	38.493532	-80.560792	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	142	-	0.0008	-	13	-	4-260
S-B45	UNT to Amos Run	Webster	Huntington	38.493394	-80.560786	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	177	-	0.0122	-	196	-	4-260
S-B39a/B46	UNT to Amos Run	Webster	Huntington	38.493363	-80.560657	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	110	-	0.0076	-	122	-	4-260
S-B39b	UNT to Amos Run	Webster	Huntington	38.493352	-80.560574	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	3	-	0.0002	-	0	-	4-260
S-B39a/B46	UNT to Amos Run	Webster	Huntington	38.493227	-80.560529	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	11	-	0.0007	-	12	-	4-260
S-04	Lost Run	Webster	Huntington	38.483002	-80.556464	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	92	-	0.0379	-	612	-	4-263
S-O5	UNT to Laurel Creek	Webster	Huntington	38.482251	-80.555499	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	22	-	0.0010	-	5	-	4-263
S-A81	UNT to Laurel Creek	Webster	Huntington	38.481219	-80.554668	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Temporary Access Road	81		0.0037	-	18	-	4-263
S-A79	Laurel Creek	Webster	Huntington	38.480782	-80.554682	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	55	-	0.0278	-	134	-	4-263
S-A80	UNT to Laurel Creek	Webster	Huntington	38.480687	-80.554061	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050007	Temporary Access Road	104		0.0096		46	-	4-263
S-E58	Little Glade Run	Webster	Huntington	38.443669	-80.551989	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0040	-	20	-	4-269
S-E55	UNT to Laurel Creek	Webster	Huntington	38.440270	-80.559955	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050007	Timber Mat Crossing	22	-	0.0010	-	5	-	4-271
S-F35	UNT to Birch River	Webster	Huntington	38.424082	-80.570710	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0025	-	12	-	4-278
S-F34	UNT to Birch River	Webster	Huntington	38.423988	-80.570680	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0025	-	12	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.422056	-80.569457	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	5	-	0.0006	-	11	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.421474	-80.570012	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	23	-	0.0027	-	13	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.418662	-80.573898	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	23	-	0.0027	-	13	-	4-278
S-F36a	UNT to Birch River	Webster	Huntington	38.418122	-80.574566	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	20	-	0.0023	-	3	-	4-278
S-F36b	UNT to Birch River	Webster	Huntington	38.417934	-80.576775	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	65	-	0.0300	-	145	-	4-279
S-F36b	UNT to Birch River	Webster	Huntington	38.417774	-80.576635	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Pipeline ROW	78	-	0.0359		580	-	4-279
S-F36b	UNT to Birch River	Webster	Huntington	38.417693	-80.576495	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	16	-	0.0074	-	36	-	4-279
S-F37	UNT to Birch River	Webster	Huntington	38.417651	-80.576431	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Temporary Access Road	20	-	0.0018	-	9	-	4-279
S-C49	UNT to Birch River	Webster	Huntington	38.416587	-80.577890	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0015	-	7	-	4-279
S-B33	UNT to Meadow Fork	Webster	Huntington	38.408941	-80.589063	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22	-	0.0051	-	24	-	4-281
S-B32-Braid	UNT to Meadow Fork	Webster	Huntington	38.405871	-80.591069	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22		0.0035		17	-	4-281
S-B32	UNT to Meadow Fork	Webster	Huntington	38.405683	-80.591116	Perennial	RPW	Warmwater Fishery, Tier 2	05050007	Timber Mat Crossing	22		0.0035		17	-	4-281
S-EF40	UNT to Meadow Fork	Webster	Huntington	38.400883	-80.597787	Intermittent	RPW	Warmwater Fishery, Tier 2	05050007	Anode Bed	52	-	0.0084		41	-	4-282
S-B30	UNT to Meadow Fork	Webster	Huntington	38.399733	-80.597536	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050007	Anode Bed	27	-	0.0024		12	-	4-282
S-B29	Meadow Fork	Webster	Huntington	38.399618	-80.597332	Perennial	RPW	Warmwater Fishery, Tier 1	05050007	Pipeline ROW	85	-	0.0136	-	220	-	4-282
S-E50	UNT to Gauley River	Webster	Huntington	38.370597	-80.611921	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	93	-	0.0085	-	138	-	4-289
S-E52	UNT to Gauley River	Webster	Huntington	38.369110	-80.611761	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0015	-	7	_	4-290
S-E50	UNT to Gauley River	Webster	Huntington	38.367280	-80.612317	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	82	-	0.0075	-	122	-	4-289
S-E49	UNT to Gauley River	Nicholas	Huntington	38.365574	-80.613141	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	88	-	0.0020	-	33	-	4-290
S-E46	Strouds Creek	Webster	Huntington	38.363374	-80.617277	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0152	-	73	-	4-291
S-E46	Strouds Creek	Webster	Huntington	38.363326	-80.616955	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Temporary Access Road	43	-	0.0296	-	143	-	4-291
S-F21	Barn Run	Nicholas	Huntington	38.355859	-80.633328	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-293
S-F20	Barn Run	Nicholas	Huntington	38.355800	-80.633223	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	24	-	4-293
S-IJ57	UNT to Barn Run	Nicholas	Huntington	38.352362	-80.636401	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	82	-	0.0094	-	152	-	4-293
S-1J59	UNT to Barn Run	Nicholas	Huntington	38.348372	-80.641152	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0035		132		4-295
S-IJ60	UNT to Rockcamp Run	Nicholas	Huntington	38.343699	-80.644721	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	77	-	0.0141	-	227	-	4-295
S-1J62	UNT to Cherry Run	Nicholas	Huntington	38.343699	-80.647035	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	77	-	0.0141	-	88	-	4-296
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S-B28	Cherry Run	Nicholas	Huntington	38.340083	-80.655413	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	24	-	4-298
S-B26	UNT to Cherry Run	Nicholas	Huntington	38.339012	-80.659609	Intermittent	RPW	Warmwater Fishery, Tier 1	05050005	Temporary Access Road	43	-	0.0039	-	19	-	4-299
S-J32	Big Beaver Creek	Nicholas	Huntington	38.331763	-80.670342	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Timber Mat Crossing	22	-	0.0177	-	86	-	4-301
S-A76	UNT to Big Beaver Creek	Nicholas	Huntington	38.329126	-80.671211	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	77	-	0.0106	-	172	-	4-301
S-A75	UNT to Big Beaver Creek	Nicholas	Huntington	38.326001	-80.670358	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	84	-	0.0193	-	311	-	4-302

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-A74	UNT to Big Beaver Creek	Nicholas	Huntington	38.325540	-80.670150	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	75	-	0.0069	-	112	-	4-302
S-A73	UNT to Big Beaver Creek	Nicholas	Huntington	38.323815	-80.670069	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	83	-	0.0114	-	184	-	4-302
S-A72	UNT to Big Beaver Creek	Nicholas	Huntington	38.321687	-80.670952	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-302
S-A71	UNT to Big Beaver Creek	Nicholas	Huntington	38.321572	-80.670958	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-302
S-A71-Braid	UNT to Big Beaver Creek	Nicholas	Huntington	38.321548	-80.670969	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-302
S-A67	UNT to Big Beaver Creek	Nicholas	Huntington	38.317575	-80.671553	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	76	-	0.0121		196	-	4-303
S-A69	UNT to Big Beaver Creek	Nicholas	Huntington	38.317217	-80.671495	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	82	-	0.0113	-	183	_	4-303
S-A69	UNT to Big Beaver Creek	Nicholas	Huntington	38.317089	-80.671565	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	16	-	0.0022		36		4-303
S-H99	UNT to Big Beaver Creek	Nicholas	-	38.312952	-80.673145	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	96		0.0088		142		4-304
			Huntington					-									
S-H96	UNT to Big Beaver Creek	Nicholas	Huntington	38.309759	-80.675706	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Temporary Access Road	39	-	0.0018		9	-	4-304
S-H95	UNT to Big Beaver Creek	Nicholas	Huntington	38.309738	-80.675733	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Temporary Access Road	259	-	0.0178	-	86	-	4-304
S-A65	Big Beaver Creek	Nicholas	Huntington	38.308183	-80.675347	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Pipeline ROW	77	-	0.1240	-	2000	-	4-304
S-A64	UNT to Granny Run	Nicholas	Huntington	38.304538	-80.673827	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	54	-	0.0086	-	139	-	4-306
S-N15	UNT to Granny Run	Nicholas	Huntington	38.301571	-80.674776	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0061	-	29	-	4-306
S-N14	Granny Run	Nicholas	Huntington	38.297014	-80.676341	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-307
S-N14	Granny Run	Nicholas	Huntington	38.296646	-80.676258	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-307
S-143	UNT to Big Run	Nicholas	Huntington	38.293473	-80.677158	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	24	-	4-308
S-144	Big Run	Nicholas	Huntington	38.291332	-80.679265	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0040	-	20	-	4-308
S-145	UNT to Big Run	Nicholas	Huntington	38.290061	-80.680304	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0030	-	15	-	4-308
S-147	UNT to Gauley River	Nicholas	Huntington	38.284291	-80.685885	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	80	-	0.0037		59	-	4-310
S-148	UNT to Gauley River	Nicholas	Huntington	38.280116	-80.687738	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0051	-	22		4-310
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S-J28	UNT to Little Laurel Creek	Nicholas	Huntington	38.263235	-80.687908	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	79	-	0.0091	•	147	-	4-315
S-J25	UNT to Little Laurel Creek	Nicholas	Huntington	38.256682	-80.687348	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	77	-	0.0089	-	143	-	4-317
S-J24	UNT to Little Laurel Creek	Nicholas	Huntington	38.256302	-80.687350	Perennial	RPW	Category B-2 Trout Waters, Tier 1	05050005	Pipeline ROW	76	-	0.0261	-	422	-	4-317
S-J24	UNT to Little Laurel Creek	Nicholas	Huntington	38.256248	-80.687358	Perennial	RPW	Category B-2 Trout Waters, Tier 1	05050005	Pipeline ROW	76	-	0.0261	-	421	-	4-317
S-J23-EPH	UNT to Little Laurel Creek	Nicholas	Huntington	38.234331	-80.707513	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	109	-	0.0025	-	41	-	4-326
S-J22	UNT to Little Laurel Creek	Nicholas	Huntington	38.233718	-80.708268	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	85	-	0.0058	-	94	-	4-326
S-N10	Skelt Run	Nicholas	Huntington	38.231025	-80.710633	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	78	-	0.0071	-	115	-	4-327
S-N10-Braid	Skelt Run	Nicholas	Huntington	38.230934	-80.710804	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	101	-	0.0069	-	112	-	4-327
S-EE1	UNT to Skelt Run	Nicholas	Huntington	38.228924	-80.713076	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-327
S-N13-Braid	UNT to Skelt Run	Nicholas	Huntington	38.226869	-80.715487	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	37	-	0.0050	-	24	_	4-328
S-N13	UNT to Skelt Run	Nicholas	Huntington	38.226851	-80.715393	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	89	-	0.0041		66	-	4-328
S-L41	Jims Creek	Nicholas		38.220793	-80.717100		RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	76	-	0.0349	-	564		4-328
			Huntington			Perennial								-			
S-L38	UNT to Riley Branch	Nicholas	Huntington	38.205534	-80.718246	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	75	-	0.0052	-	83	-	4-340
S-L35	Riley Branch	Nicholas	Huntington	38.204372	-80.719778	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Temporary Access Road	52	-	0.0048	-	31	-	4-341
S-L35	Riley Branch	Nicholas	Huntington	38.203887	-80.719122	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	86	-	0.0079	-	128	-	4-341
S-L35	Riley Branch	Nicholas	Huntington	38.203097	-80.719248	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	87	-	0.0080	-	129	-	4-341
S-L35	Riley Branch	Nicholas	Huntington	38.200338	-80.717177	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	79	-	0.0072	-	117	-	4-341
S-137	UNT to Hominy Creek	Nicholas	Huntington	38.196644	-80.718856	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	40	-	0.0056	-	27	-	4-342
S-138	UNT to Hominy Creek	Nicholas	Huntington	38.194221	-80.719357	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	77	-	0.0089	-	143	-	4-342
S-139	UNT to Hominy Creek	Nicholas	Huntington	38.194025	-80.719298	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	79	-	0.0126	-	204	-	4-342
S-140	UNT to Hominy Creek	Nicholas	Huntington	38.187582	-80.723025	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	82	-	0.0133	-	214	-	4-343
S-I41	UNT to Hominy Creek	Nicholas	Huntington	38.179384	-80.729497	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	78	-	0.0143	-	231	-	4-344
S-136	Hominy Creek	Nicholas	Huntington	38.178889	-80.729790	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	77	-	0.0976	-	1575	-	4-347
S-I31	UNT to Hominy Creek	Nicholas	Huntington	38.163802	-80.730743	Ephemeral	NRPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	73	-	0.0033		54		4-355
S-N8a	UNT to Hominy Creek	Nicholas		38.162363	-80.733602	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0033	-	10		4-355
			Huntington														
S-VV1	UNT to Hominy Creek	Nicholas	Huntington	38.161064	-80.735022	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-355
S-H88	Sugar Branch	Nicholas	Huntington	38.136744	-80.730560	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	76	-	0.0697	-	1125	-	4-359
S-H71	UNT to Hominy Creek	Nicholas	Huntington	38.124315	-80.735783	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	93	-	0.0257	-	415	-	4-362
S-H67	UNT to Hominy Creek	Nicholas	Huntington	38.120580	-80.736772	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	85	-	0.0235	-	379	-	4-363
S-H64	UNT to Hominy Creek	Nicholas	Huntington	38.116279	-80.735319	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	87	-	0.0060	-	96	-	4-364
S-V3	UNT to Hominy Creek	Nicholas	Huntington	38.115823	-80.730960	Perennial	RPW	Category B-2 Trout Waters, Tier 2	05050005	Timber Mat Crossing	22	-	0.0061	-	29	-	4-365
S-EF41	UNT to Hominy Creek	Nicholas	Huntington	38.107549	-80.726284	Intermittent	RPW	Category B-2 Trout Waters, Tier 2	05050005	Pipeline ROW	82	-	0.0038	-	61	-	4-366
S-J19	UNT to Meadow Creek	Greenbrier	Huntington	38.028599	-80.743623	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0010	-	5	-	4-382
S-J20	UNT to Meadow Creek	Greenbrier	Huntington	38.023801	-80.747266	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0152	-	73	-	4-385
S-125	UNT to Meadow Creek	Greenbrier	Huntington	38.020430	-80.753194	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	75	-	0.0086		139		4-390
			-				RPW					-					
S-126	UNT to Meadow Creek	Greenbrier	Huntington	38.019129	-80.755220	Intermittent		Warmwater Fishery, Tier 2	05050005	Pipeline ROW	78		0.0090	-	145	-	4-390
S-127	UNT to Meadow Creek	Greenbrier	Huntington	38.018031	-80.755999	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0025	-	12	-	4-390
S-L26	UNT to Meadow River	Greenbrier	Huntington	37.981900	-80.755213	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	205	-	0.0141	-	227	-	4-397

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-L26	UNT to Meadow River	Greenbrier	Huntington	37.980598	-80.754872	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	166	-	0.0114	-	184	-	4-397
S-EF38	UNT to Little Sewell Creek	Greenbrier	Huntington	37.963259	-80.733162	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0015	-	7	-	4-400
S-L24	UNT to Little Sewell Creek	Greenbrier	Huntington	37.963068	-80.733141	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0020	-	10	-	4-400
S-L27	UNT to Little Sewell Creek	Greenbrier	Huntington	37.960725	-80.732852	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Timber Mat Crossing	22	-	0.0010	-	5	-	4-401
S-L30	UNT to Little Sewell Creek	Greenbrier	Huntington	37.954276	-80.739708	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	136	-	0.0093	-	151	-	4-402
S-L22	Little Sewell Creek	Greenbrier	Huntington	37.954035	-80.739868	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Pipeline ROW	75	-	0.0517	-	834	-	4-402
S-L20	UNT to Little Sewell Creek	Greenbrier	Huntington	37.949579	-80.742646	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	96	-	0.0111	-	179	-	4-403
S-L10	UNT to Boggs Creek	Greenbrier	Huntington	37.938308	-80.747009	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	103	-	0.0071		115	-	4-405
S-L11	UNT to Boggs Creek	Greenbrier	Huntington	37.938229	-80.746912	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	26	-	0.0018	-	9	-	4-405
S-I21	UNT to Boggs Creek	Greenbrier	Huntington	37.918228	-80.736774	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	30	-	0.0034	-	55	-	4-409
S-I21	UNT to Boggs Creek	Greenbrier	Huntington	37.918164	-80.736852	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	77	-	0.0089	-	143	-	4-409
S-I22	UNT to Boggs Creek	Greenbrier	Huntington	37.918041	-80.736833	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	94	-	0.0043		70	-	4-409
S-123a	UNT to Boggs Creek	Greenbrier	Huntington	37.917347	-80.738534	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	33	-	0.0030	-	10	4-409
S-IJ54	UNT to Boggs Creek	Greenbrier	Huntington	37.917125	-80.742425	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	31	-	0.0036	-	17	4-410
S-IJ53	UNT to Boggs Creek	Greenbrier	Huntington	37.916234	-80.744156	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road		20		0.0055		27	4-410
S-HH8	UNT to Buffalo Creek	Greenbrier	Huntington	37.865308	-80.753802	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	ATWS	15	20	0.0007	0.0000	3	2.7	4-421
S-K25/K18	UNT to Buffalo Creek	Greenbrier	Huntington	37.863772	-80.756993	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	ATWS	70		0.0096		156		4-421
S-K17	Buffalo Creek	Greenbrier	Huntington	37.863065	-80.757391	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Pipeline ROW	75		0.0432		698		4-420
		-	-				RPW				93		0.0432	-			
S-K19	UNT to Buffalo Creek	Greenbrier	Huntington	37.860940	-80.757825	Intermittent		Warmwater Fishery, Tier 2	05050005	Pipeline ROW		-			172	-	4-421
S-K21	UNT to Buffalo Creek	Greenbrier	Huntington	37.858566	-80.755584	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	82	-	0.0189	-	304	-	4-422
S-K22	UNT to Buffalo Creek	Greenbrier	Huntington	37.858315	-80.755546	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	78	-	0.0125	-	202	-	4-422
S-UV6	UNT to Morris Fork	Greenbrier	Huntington	37.854386	-80.754981	Perennial	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	88	-	0.0161	-	260	-	4-422
S-UV2	Morris Fork	Greenbrier	Huntington	37.851318	-80.751436	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Permanent Access Road	-	28	-	0.0103	-	50	4-423
S-UV2	Morris Fork	Greenbrier	Huntington	37.851099	-80.752978	Perennial	RPW	Warmwater Fishery, Tier 1	05050005	Pipeline ROW	88	-	0.0324		523	-	4-423
S-U22	UNT to Meadow River	Greenbrier	Huntington	37.839558	-80.748496	Intermittent	RPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	80	-	0.0221	-	356	-	4-425
S-FF1	UNT to Meadow River	Greenbrier	Huntington	37.837560	-80.751903	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	11	-	0.0008	-	4	-	4-425
S-FF1	UNT to Meadow River	Greenbrier	Huntington	37.837519	-80.751898	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Permanent Access Road	-	31	-	0.0021	-	10	4-425
S-EE4	UNT to Red Spring Branch	Summers	Huntington	37.813881	-80.748817	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	137	-	0.0079	-	127	-	4-429
S-M6	UNT to Red Spring Branch	Summers	Huntington	37.807650	-80.746173	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	110		0.0101	-	163	-	4-430
S-J13	UNT to Patterson Creek	Summers	Huntington	37.797484	-80.733605	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	92	-	0.0085	-	137	-	4-432
S-J13	UNT to Patterson Creek	Summers	Huntington	37.796572	-80.732397	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	96	-	0.0088	-	142	-	4-432
S-J13	UNT to Patterson Creek	Summers	Huntington	37.795915	-80.731850	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050005	Pipeline ROW	124	-	0.0114	-	183	-	4-432
S-M5	Red Spring Branch	Summers	Huntington	37.792243	-80.728802	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0030	-	15	-	4-433
S-M4	UNT to Red Spring Branch	Summers	Huntington	37.786834	-80.728719	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050004	Temporary Access Road	47	-	0.0032	-	16	-	4-434
S-I13	UNT to Lick Creek	Summers	Huntington	37.782534	-80.719085	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0076	-	37	-	4-437
S-I14	UNT to Lick Creek	Summers	Huntington	37.781099	-80.719318	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0035	-	17	-	4-437
S-I15	UNT to Lick Creek	Summers	Huntington	37.779878	-80.720470	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0051		24	-	4-437
S-I16	UNT to Lick Creek	Summers	Huntington	37.779381	-80.721388	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Timber Mat Crossing	22	-	0.0020	-	10	-	4-440
S-I12	Lick Creek	Summers	Huntington	37.775891	-80.710797	Intermittent	RPW	Warmwater Fishery, Tier 1	05050004	Permanent Access Road	-	38	-	0.0035	-	11	4-438
S-I17	UNT to Lick Creek	Summers	Huntington	37.775160	-80.728058	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	78	-	0.0045	-	72	-	4-441
S-I10	UNT to Lick Creek	Summers	Huntington	37.772437	-80.713781	Intermittent	RPW	Warmwater Fishery, Tier 2	05050004	Permanent Access Road	-	26	-	0.0018	-	9	4-439
S-I19	Lick Creek	Summers	Huntington	37.772089	-80.732901	Perennial	RPW	Warmwater Fishery, Tier 1	05050004	Pipeline ROW	77	-	0.0265	-	428	-	4-441
S-120	UNT to Lick Creek	Summers	Huntington	37.771406	-80.733241	Perennial	RPW	Warmwater Fishery, Tier 2	05050004	Pipeline ROW	92	-	0.0212		342		4-441
S-N5	UNT to Hungard Creek	Summers	Huntington	37.704240	-80.744827	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	87	-	0.0040	-	65	_	4-459
S-K14	UNT to Righthand Fork Hungard Creek	Summers	Huntington	37.696788	-80.739242	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	97	-	0.0089	-	143	-	4-460
S-N3	UNT to Hungard Creek	Summers	Huntington	37.694776	-80.736952	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	_	0.0025	-	140		4-461
S-N2	Hungard Creek	Summers	Huntington	37.694507	-80.736682	Perennial	RPW	Warmwater Fishery, Tier 1	05050003	Timber Mat Crossing	22	-	0.0023	-	49		4-461
S-CD23	UNT to Hungard Creek	Summers	Huntington	37.694228	-80.736099	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0045	_	22	-	4-461
S-N4	UNT to Hungard Creek	Summers	Huntington	37.693961	-80.735841	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0045	-	7		4-461
			-				RPW			-	75	-		-	1392	-	4-461
S-KL29	Right Fork Hungard Creek	Summers	Huntington	37.692932	-80.733839	Perennial		Warmwater Fishery, Tier 1	05050003	Pipeline ROW			0.0863	-		-	
S-M3	Hungard Creek	Summers	Huntington	37.692868	-80.734247	Perennial	RPW	Warmwater Fishery, Tier 1	05050003	Pipeline ROW	80	-	0.0183	-	295	-	4-461
S-CV17	UNT to Greenbrier River	Summers	Huntington	37.681865	-80.730095	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	76	-	0.0070	-	34	-	4-464
S-EF53	UNT to Greenbrier River	Summers	Huntington	37.681323	-80.729672	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	51	-	0.0095	-	46	-	4-464
S-19	UNT to Greenbrier River	Summers	Huntington	37.675977	-80.732822	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0035	-	17	-	4-465
S-K10	UNT to Greenbrier River	Summers	Huntington	37.675079	-80.734384	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	9	-	0.0013	-	6	-	4-465
S-K10	UNT to Greenbrier River	Summers	Huntington	37.675070	-80.734447	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Permanent Access Road	-	31	-	0.0043	-	21	4-465
S-K10	UNT to Greenbrier River	Summers	Huntington	37.675058	-80.734522	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	9	-	0.0013	-	6	-	4-465
S-L4	UNT to Greenbrier River	Summers	Huntington	37.673213	-80.729772	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	77	-	0.0176	-	284	-	4-465
		Summers	Huntington	37.671392	-80.728311	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	88		0.0081	-	130	-	4-467

Stream ID	NHD Stream Name ¹	County	USACE District	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres) ⁵	Permanent Impact Area (acres) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-L1	UNT to Kelly Creek	Summers	Huntington	37.668076	-80.723470	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	76	-	0.0104	-	168	-	4-468
S-J5	Kelly Creek	Summers	Huntington	37.666864	-80.721794	Perennial	RPW	Warmwater Fishery, Tier 1	05050003	Pipeline ROW	103	-	0.0471	-	759	-	4-468
S-K4	UNT to Keller Creek	Summers	Huntington	37.665806	-80.725709	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Temporary Access Road	-	22	-	0.0010	-	4	4-468
S-J4	UNT to Keller Creek	Summers	Huntington	37.663926	-80.715460	Intermittent	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0025	-	12	-	4-469
S-G47	UNT to Wind Creek	Summers	Huntington	37.654112	-80.702579	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0010	-	5	-	4-471
S-G52	UNT to Wind Creek	Monroe	Huntington	37.627537	-80.695593	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0010	-	5	-	4-479
S-G49	UNT to Wind Creek	Monroe	Huntington	37.627381	-80.695679	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0101	-	49	-	4-479
S-G48	Wind Creek	Monroe	Huntington	37.627308	-80.695759	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0101	-	49	-	4-479
S-H61	UNT to Stoney Creek	Monroe	Huntington	37.618426	-80.699138	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0126	-	61	-	4-483
S-OP1	Stony Creek	Monroe	Huntington	37.600003	-80.700509	Perennial	RPW	Warmwater Fishery, Tier 2	05050003	Pipeline ROW	78	-	0.0090	-	145	-	4-487
S-IJ64	UNT to Little Stony Creek	Monroe	Huntington	37.591822	-80.705874	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050003	Timber Mat Crossing	22	-	0.0030	-	15	-	4-488
S-A63	Slate Run	Monroe	Huntington	37.560706	-80.709825	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road	-	25	-	0.0057	-	28	4-492
S-A63	Slate Run	Monroe	Huntington	37.560460	-80.710233	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	88	-	0.0203	-	327	-	4-492
S-A61	UNT to Slate Run	Monroe	Huntington	37.559351	-80.709683	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Temporary Access Road	8	-	0.0012	-	6	-	4-493
S-A61	UNT to Slate Run	Monroe	Huntington	37.559334	-80.709736	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road	-	26	-	0.0041	-	14	4-493
S-A61	UNT to Slate Run	Monroe	Huntington	37.559328	-80.709792	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Temporary Access Road	8	-	0.0013	-	6	-	4-493
S-A61	UNT to Slate Run	Monroe	Huntington	37.559320	-80.710037	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	81	-	0.0131	-	211	-	4-493
S-A60	Slate Run	Monroe	Huntington	37.558698	-80.709966	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	87	-	0.0358	-	578	-	4-492
S-CV26	UNT to Slate Run	Monroe	Huntington	37.556445	-80.708883	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road	-	32	-	0.0044		21	4-493
S-D31	Indian Creek	Monroe	Huntington	37.554163	-80.710853	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	75	-	0.1120	-	1807	-	4-493
S-D29	UNT to Hans Creek	Monroe	Huntington	37.547394	-80.712099	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0020	-	10	-	4-494
S-D25	UNT to Hans Creek	Monroe	Huntington	37.538768	-80.718855	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0020		10	-	4-496
S-F18	UNT to Hans Creek	Monroe	Huntington	37.538273	-80.719070	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Permanent Access Road	-	26	-	0.0107	-	52	4-496
S-F18	UNT to Hans Creek	Monroe	Huntington	37.536872	-80.716923	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0091	-	44	-	4-496
S-Z5	UNT to Hans Creek	Monroe	Huntington	37.524333	-80.711450	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	75	-	0.0034	-	56	-	4-499
S-Z4	UNT to Hans Creek	Monroe	Huntington	37.524302	-80.711444	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	75	-	0.0043	-	69	-	4-499
S-MN2	UNT to Hans Creek	Monroe	Huntington	37.520012	-80.707606	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	81		0.0130	-	210	-	4-500
S-CV19	Hans Creek	Monroe	Huntington	37.500284	-80.691498	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	77	-	0.0619	-	998	-	4-505
S-MN39	UNT to Blue Lick Creek	Monroe	Huntington	37.487733	-80.681765	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	22	-	0.0010	-	16	-	4-510
S-MN38	UNT to Blue Lick Creek	Monroe	Huntington	37.487721	-80.681929	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	22		0.0030	-	48	-	4-510
S-MN37	UNT to Blue Lick Creek	Monroe	Huntington	37.487584	-80.681992	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	95		0.0040	-	65	-	4-510
S-MN40	UNT to Blue Lick Creek	Monroe	Huntington	37.487519	-80.681996	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	37		0.0010	-	16		4-510
S-G44	UNT to Hans Creek	Monroe	Huntington	37.474870	-80.676267	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	86	-	0.0079	-	128	-	4-511
S-G43	UNT to Hans Creek	Monroe	Huntington	37.473139	-80.675738	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Timber Mat Crossing	22	-	0.0025	-	12	-	4-511
S-G42	UNT to Hans Creek	Monroe	Huntington	37.472602	-80.675456	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	79	-	0.0055	-	88		4-512
S-MN45	UNT to Hans Creek	Monroe	Huntington	37.462878	-80.670284	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	87		0.0040	-	65	-	4-513
S-CV27	UNT to Hans Creek	Monroe	Huntington	37.462850	-80.669582	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	37	-	0.0017	-	8	-	4-513
S-E43	UNT to Dry Creek	Monroe	Huntington	37.453834	-80.664417	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	92	-	0.0147	-	237	-	4-515
S-E45	UNT to Dry Creek	Monroe	Huntington	37.453798	-80.664266	Ephemeral	NRPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	108	-	0.0074	-	120	-	4-515
S-E40	Dry Creek	Monroe	Huntington	37.451003	-80.667795	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Temporary Access Road	43	-	0.0117	-	57		4-515
S-E40	Dry Creek	Monroe	Huntington	37.450757	-80.667719	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	82	-	0.0227	-	366	-	4-515
S-E41	UNT to Dry Creek	Monroe	Huntington	37.450692	-80.667650	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	23	-	0.0010	-	5	-	4-516
S-C38	UNT to Painter Run	Monroe	Huntington	37.426915	-80.694499	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	89	-	0.0143	-	231		4-521
S-C39	Painter Run	Monroe	Huntington	37.426686	-80.694499	Perennial	RPW	Warmwater Fishery, Tier 1	05050002	Pipeline ROW	109	-	0.0125	-	202	-	4-521
S-C41	UNT to Painter Run	Monroe	Huntington	37.426161	-80.694592	Intermittent	RPW	Warmwater Fishery, Tier 2	05050002	Pipeline ROW	143	-	0.0100	-	161	-	4-521
S-C40	UNT to Painter Run	Monroe	Huntington	37.425372	-80.693417	Perennial	RPW	Warmwater Fishery, Tier 2	05050002	Temporary Access Road	77	-	0.0053	-	26	-	4-521

Notes: 1

4 5

For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, "Unidentified Tributary (UNT)", of the first named receiving waterbody
In decimal degrees
RPW = Relatively Permanent Waters
NRPW = Non-Relatively Permanent Waters
TNW = Traditional Navigable Waters
See Section 1.9.2 and Section 4.2 for more information
Acres are rounded to four decimal places.
Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.
Permanent fill associated with the construction of Permanent access road and facilities. Cubic yards are rounded to the nearest whole number. 2 3



Table A-2 (West Virginia Wetland Impacts)

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-B55	Harrison	Pittsburgh	39.436246	-80.474973	PEM	RPWWD	05020002	Timber Mat Crossing	0.0054	-	-	26	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration	4-36
W-J32-PEM-1	Harrison	Pittsburgh	39.391614	-80.477085	PEM	RPWWN	05020002	Temporary Access Road	0.0417	-	-	202	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-44
W-A10a	Harrison	Pittsburgh	39.369569	-80.485054	PEM	RPWWD	05020002	Timber Mat Crossing	0.0153	-	-	74	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention	4-49
W-B1a	Harrison	Pittsburgh	39.360192	-80.492766	PEM	NRPWW	05020002	Pipeline ROW	0.0119	-	-	192	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration	4-50
W-A40	Harrison	Pittsburgh	39.358924	-80.493367	PEM	RPWWN	05020002	Pipeline ROW/ATWS	0.3111	-	-	1,506	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration	4-51
W-A39	Harrison	Pittsburgh	39.358865	-80.490797	PEM	RPWWN	05020002	Permanent Access Road	0.0280	-	-	136	-	Sediment/Toxicant/Pathogen Retention	4-51
W-ST11	Harrison	Pittsburgh	39.338239	-80.519656	PEM	NRPWW	05020002	Temporary Access Road/ATWS	0.0228	-	-	110	-	Sediment/Toxicant/Pathogen Retention	4-56
W-ST12-PEM	Harrison	Pittsburgh	39.337471	-80.522128	PEM	RPWWD	05020002	Temporary Access Road/ATWS	0.0582	-	-	282	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export	4-56
W-ST12-PSS	Harrison	Pittsburgh	39.337457	-80.522185	PSS	RPWWD	05020002	Temporary Access Road/ATWS	-	0.1444	-	699	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export	4-56
W-B2a	Harrison	Pittsburgh	39.316856	-80.525315	PEM	RPWWD	05020002	ATWS	0.1953	-	-	945	-	Sediment/Toxicant Retention, Nutrient Removal	4-59
W-B4a	Harrison	Pittsburgh	39.316784	-80.526129	PEM	RPWWD	05020002	Timber Mat Crossing	0.0214	-	-	104	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-59
W-UU1	Harrison	Pittsburgh	39.290258	-80.518898	PFO	RPWWD	05020002	Pipeline ROW	-	0.0045	-	22	-	Sediment/Toxicant/Pathogen Retention	4-66
W-UU3	Harrison	Pittsburgh	39.289750	-80.518517	PFO	RPWWN	05020002	Pipeline ROW	-	0.0065	-	105	-	Sediment/Toxicant/Pathogen Retention	4-66
W-UU4a	Harrison	Pittsburgh	39.253101	-80.540498	PEM	RPWWD	05020002	Pipeline ROW/ATWS	0.1268	-	-	2,046	-	Groundwater Recharge/Discharge; Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-74
W-F52	Harrison	Pittsburgh	39.250487	-80.551891	PEM	NRPWW	05020002	Temporary Access Road	0.0625	-	-	302	-	Sediment/Toxicant/Pathogen Retention	4-76
W-F54	Harrison	Pittsburgh	39.249640	-80.550121	PEM	NRPWW	05020002	Timber Mat Crossing	0.0042	-	-	20	-	Sediment/Toxicant/Pathogen Retention	4-76
W-F53	Harrison	Pittsburgh	39.249629	-80.549909	PEM	NRPWW	05020002	Timber Mat Crossing	0.0080	-	-	39	-	Sediment/Toxicant/Pathogen Retention	4-76
W-F55	Harrison	Pittsburgh	39.249464	-80.551040	PEM	NRPWW	05020002	Timber Mat Crossing	0.0173	-	-	84	-	Sediment/Toxicant/Pathogen Retention	4-76

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-K43	Harrison	Pittsburgh	39.243915	-80.553961	PEM	RPWWD	05020002	Pipeline ROW	0.2086	-	-	3,365	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-77
W-K44	Harrison	Pittsburgh	39.243493	-80.554033	PEM	RPWWD	05020002	Pipeline ROW	0.0671	-	-	1,083	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration	4-77
W-CV15	Harrison	Pittsburgh	39.223490	-80.548109	PEM	RPWWD	05020002	Timber Mat Crossing	0.0512	-		248	-	Groundwater Recharge/Discharge; Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-81
W-J40	Lewis	Pittsburgh	39.167631	-80.578355	PEM	RPWWD	05020002	Pipeline ROW	0.2931	-	-	4,729	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization	4-92
W-J40	Lewis	Pittsburgh	39.167564	-80.578800	PEM	RPWWD	05020002	Temporary Access Road	0.1812	-	-	877	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization	4-92
W-A24	Harrison	Pittsburgh	39.165608	-80.569523	PEM	NRPWW	05020002	Temporary Access Road	0.0002	-	-	1	-	Sediment/Toxicant/Pathogen Retention	4-91
W-VV5	Lewis	Pittsburgh	39.137820	-80.576075	PEM	RPWWD	05020002	ATWS	0.0202	-	-	98	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization; Nutrient Removal/Retention/Transformation	4-99
W-IJ23	Lewis	Pittsburgh	39.131093	-80.572126	PEM	RPWWN	05020002	Temporary Access Road	0.0065	-	-	31	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-100
W-IJ24	Lewis	Pittsburgh	39.130718	-80.571966	PEM	RPWWN	05020002	Temporary Access Road	0.0041	-	-	20	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-100
W-J20	Lewis	Pittsburgh	39.116053	-80.589196	PEM	NRPWW	05020002	Permanent Access Road	0.0081	-	-	39	-	Sediment/Toxicant/Pathogen Retention	4-103
W-J23	Lewis	Pittsburgh	39.114118	-80.586522	PEM	RPWWN	05020002	Pipeline ROW	0.0130	-	-	210	-	Sediment/Toxicant/Pathogen Retention	4-103
W-K31	Lewis	Pittsburgh	39.080555	-80.581362	PEM	NRPWW	05020002	Pipeline ROW/Temporary Access Road	0.1135	-	-	549	-	Sediment/Toxicant/Pathogen Retention	4-109
W-ST14	Lewis	Pittsburgh	39.079947	-80.583108	PEM	RPWWD	05020002	Anode Bed	0.0394	-	-	191	-	Sediment/Toxicant/Pathogen Retention	4-110
W-ST15	Lewis	Pittsburgh	39.079855	-80.582499	PEM	RPWWN	05020002	Anode Bed	0.0711	-	-	344	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-110
W-B46	Lewis	Pittsburgh	39.079854	-80.581439	PEM	RPWWD	05020002	Pipeline ROW/Temporary Access Road	0.1255	-	-	607	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-110
W-B47	Lewis	Pittsburgh	39.079451	-80.581349	PEM	RPWWD	05020002	Timber Mat Crossing	0.0682	-	-	330	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-110
W-B51	Lewis	Pittsburgh	39.078107	-80.581235	PEM	NRPWW	05020002	Timber Mat Crossing	0.0035	-	-	17	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-110
W-B54	Lewis	Pittsburgh	39.073907	-80.581491	PEM	NRPWW	05020002	Timber Mat Crossing	0.0101	-	-	49	-	Sediment/Toxicant/Pathogen Retention	4-110

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-H112	Lewis	Pittsburgh	39.066480	-80.581624	PEM	NRPWW	05020002	Pipeline ROW	0.0231	-	-	373	-	Sediment/Toxicant/Pathogen Retention	4-111
W-ME1	Wetzel	Huntington	39.561837	-80.544176	PEM	RPWWD	05030201	ATWS	0.0382	-	-	185	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration	4-1
W-ME2	Wetzel	Huntington	39.559744	-80.546756	PEM	RPWWN	05030201	ATWS	0.1036	-	-	501	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention	4-1
W-ME3	Wetzel	Huntington	39.559075	-80.547489	PEM	RPWWN	05030201	ATWS	0.0869	-	-	421	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention	4-1
W-A1a	Wetzel	Huntington	39.553912	-80.544941	PEM	RPWWD	05030201	Pipeline ROW	0.0038	-	-	18	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration	4-3
W-A2a	Wetzel	Huntington	39.553508	-80.545518	PEM	RPWWN	05030201	Timber Mat Crossing	0.0424	-	-	205	-	Sediment/Toxicant/Pathogen Retention	4-3
W-A4a	Wetzel	Huntington	39.544642	-80.542833	PEM	NRPWW	05030201	Timber Mat Crossing	0.0070	-	-	34	-	Sediment/Toxicant/Pathogen Retention	4-5
W-IJ31	Wetzel	Huntington	39.505764	-80.541781	PEM	RPWWN	05030201	ATWS	0.0992	-	-	480	-	Sediment/Toxicant/Pathogen Retention	4-18
W-IJ31	Wetzel	Huntington	39.505612	-80.541681	PEM	RPWWN	05030201	Permanent Access Road	-	-	0.0082	-	40	Sediment/Toxicant/Pathogen Retention	4-18
W-A27-PFO	Wetzel	Huntington	39.502389	-80.523497	PFO	RPWWD	05030201	Pipeline ROW	-	0.0547	-	882	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration	4-20
W-A27-PEM	Wetzel	Huntington	39.502356	-80.523420	PEM	RPWWD	05030201	Pipeline ROW	0.0497	-	-	802	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration	4-20
W-A35	Wetzel	Huntington	39.491159	-80.520537	PEM	NRPWW	05030201	Pipeline ROW	0.0066	-	-	107	-	Sediment/Toxicant/Pathogen Retention	4-23
W-A34	Wetzel	Huntington	39.489742	-80.520750	PEM	RPWWD	05030201	Timber Mat Crossing	0.0296	-	-	143	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Floodflow Alteration	4-23
W-WX5	Wetzel	Huntington	39.463909	-80.502672	PEM	RPWWD	05030201	Temporary Access Road	0.0011	-	-	5	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-28
W-WX4	Wetzel	Huntington	39.463864	-80.502581	PEM	RPWWD	05030201	Temporary Access Road	0.0095	-	-	46	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-28
W-K52	Doddridge	Huntington	39.236762	-80.558524	PEM	RPWWN	05030201	Permanent Access Road	0.0021	-	-	10	-	Sediment/Toxicant/Pathogen Retention	4-78
W-K52	Doddridge	Huntington	39.236727	-80.558550	PEM	RPWWN	5030201	Permanent Access Road	-	-	0.0115	-	56	Sediment/Toxicant/Pathogen Retention	4-78
W-K45	Doddridge	Huntington	39.228900	-80.552328	PEM	RPWWD	05030201	Pipeline ROW	0.0401	-	-	648	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-80

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-K41	Doddridge	Huntington	39.208990	-80.551957	PEM	RPWWD	05030201	Timber Mat Crossing	0.0109	-	-	53	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-84
W-A23	Doddridge	Huntington	39.201188	-80.552996	PEM	RPWWD	05030201	Pipeline ROW	0.2701	-	-	4,358	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization	4-85
W-A23	Doddridge	Huntington	39.201157	-80.553264	PEM	RPWWD	05030201	Permanent Access Road	-	-	0.0579	-	280	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Sediment/Shoreline Stabilization	4-85
W-B57	Lewis	Huntington	39.111745	-80.587352	PEM	NRPWW	05030203	Pipeline ROW/Temporary Access Road	0.0336	-	-	163	-	Sediment/Toxicant/Pathogen Retention	4-104
W-K33-PSS	Lewis	Huntington	39.095059	-80.585064	PSS	RPWWD	05030203	Pipeline ROW	-	0.0024	-	12	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-106
W-K33-PEM	Lewis	Huntington	39.095056	-80.584787	PEM	RPWWD	05030203	Pipeline ROW	0.1544	-	-	2,490	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-106
W-K34-PEM	Lewis	Huntington	39.093945	-80.585460	PEM	RPWWD	05030203	Timber Mat Crossing	0.0253	-	-	122	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-106
W-H109	Lewis	Huntington	39.053324	-80.582020	PEM	NRPWW	05030203	Pipeline ROW	-	-	0.0027	-	13	Sediment/Toxicant/Pathogen Retention	4-114
W-I22-PEM	Lewis	Huntington	39.052952	-80.582437	PEM	RPWWD	05030203	ATWS	0.0018	-	-	9	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration	4-114
W-I22-PEM	Lewis	Huntington	39.052768	-80.582196	PEM	RPWWD	05030203	Timber Mat Crossing	0.0162	-	-	78	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration	4-114
W-I22-PEM	Lewis	Huntington	39.052760	-80.582147	PEM	RPWWD	05030203	Permanent Access Road	-	-	0.0059	-	28	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration	4-114
W-KK6	Lewis	Huntington	39.017820	-80.596977	PEM	RPWWD	05030203	Timber Mat Crossing	0.0212	-	-	103	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-119
W-I15	Lewis	Huntington	38.968609	-80.592042	PEM	RPWWN	05030203	Pipeline ROW	0.0631	-	-	1,018	-	Sediment/Toxicant/Pathogen Retention	4-128
W-I16	Lewis	Huntington	38.964758	-80.590881	PEM	NRPWW	05030203	Timber Mat Crossing	0.0177	-	-	86	-	Sediment/Toxicant/Pathogen Retention	4-129
W-I17	Lewis	Huntington	38.964195	-80.590961	PEM	NRPWW	05030203	Timber Mat Crossing	0.0017		-	8	-	Sediment/Toxicant/Pathogen Retention	4-129
W-I20	Lewis	Huntington	38.962362	-80.590607	PEM	NRPWW	05030203	Timber Mat Crossing	0.0379	-	-	183	-	Sediment/Toxicant/Pathogen Retention; Wildlife Habitat	4-129
W-I21	Lewis	Huntington	38.962126	-80.590741	PEM	NRPWW	05030203	Timber Mat Crossing	0.0631	-	-	306	-	Sediment/Toxicant/Pathogen Retention	4-129
W-UU7	Lewis	Huntington	38.933646	-80.585074	PEM	NRPWW	05030203	Pipeline ROW	0.0038	-	-	19	-	Sediment/Toxicant/Pathogen Retention	4-135

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-H103	Lewis	Huntington	38.933290	-80.584765	PEM	RPWWN	05030203	ATWS	0.0037	-	-	18	-	Sediment/Toxicant/Pathogen Retention	4-135
W-H103	Lewis	Huntington	38.933290	-80.584765	PEM	RPWWN	05030203	Timber Mat Crossing	0.0050	-	-	24	-	Sediment/Toxicant/Pathogen Retention	4-135
W-H102	Lewis	Huntington	38.933168	-80.584990	PEM	RPWWN	05030203	ATWS	0.0129	-	-	62	-	Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-135
W-H107	Lewis	Huntington	38.932901	-80.584200	PEM	RPWWD	05030203	Timber Mat Crossing	0.0328	-	-	159	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-135
W-H98	Lewis	Huntington	38.925976	-80.578373	PEM	NRPWW	05030203	Permanent Access Road	-	-	0.0331	-	160	Sediment/Toxicant/Pathogen Retention	4-136
W-H98	Lewis	Huntington	38.925868	-80.578367	PEM	NRPWW	05030203	Temporary Access Road	0.0032	-	-	15	-	Sediment/Toxicant/Pathogen Retention	4-136
W-H108	Lewis	Huntington	38.918766	-80.573564	PEM	RPWWN	05030203	Timber Mat Crossing	0.0278	-	-	134	-	Sediment/Toxicant/Pathogen Retention	4-140
W-H96	Lewis	Huntington	38.913939	-80.571910	PEM	RPWWD	05030203	Timber Mat Crossing	0.0039		-	19	-	Sediment/Toxicant/Pathogen Retention	4-142
W-H95	Lewis	Huntington	38.913311	-80.571953	PEM	RPWWD	05030203	Timber Mat Crossing	0.0414	-	-	200	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-142
W-VV9	Lewis	Huntington	38.904701	-80.563951	PEM	RPWWD	05030203	Pipeline ROW	0.0534	-	-	259	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-144
W-CD17	Lewis	Huntington	38.904074	-80.563709	PEM	RPWWD	05030203	Timber Mat Crossing	0.0335		-	162	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-144
W-CD16	Lewis	Huntington	38.903722	-80.563418	PEM	RPWWN	05030203	Temporary Access Road/ ATWS	0.0023	-	-	11	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-144
W-CD16	Lewis	Huntington	38.903722	-80.563418	PEM	RPWWN	05030203	Pipeline ROW	0.0226	-	-	365	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-144
W-VV8	Lewis	Huntington	38.903514	-80.563258	PEM	RPWWD	05030203	Pipeline ROW	0.0708	-	-	1,143	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-144
W-CD18	Lewis	Huntington	38.902751	-80.564644	PEM	RPWWD	05030203	Temporary Access Road	0.0322	-	-	156	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-144
W-CD19	Lewis	Huntington	38.902618	-80.564694	PEM	RPWWD	05030203	Temporary Access Road	0.0080	-	-	39	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-144
W-CD21	Lewis	Huntington	38.901049	-80.566582	PEM	RPWWN	05030203	Temporary Access Road	0.0161	-	-	78	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-146
W-CD23	Lewis	Huntington	38.898699	-80.568306	PEM	RPWWD	05030203	Temporary Access Road	0.0349	-	-	169	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-146

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-CD24	Lewis	Huntington	38.898648	-80.568238	PEM	RPWWD	05030203	Temporary Access Road	0.0094	-	-	45	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-146
W-CD36	Lewis	Huntington	38.898177	-80.568287	PEM	RPWWN	05030203	Temporary Access Road	0.0049	-	-	24	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-146
W-CD25	Lewis	Huntington	38.898021	-80.568159	PEM	RPWWN	05030203	Temporary Access Road	0.0100	-	-	48	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-146
W-CD26	Lewis	Huntington	38.897805	-80.568155	PEM	RPWWN	05030203	Temporary Access Road	0.0114	-	-	55	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-146
W-VV10	Lewis	Huntington	38.897282	-80.567014	PEM	NRPWW	05030203	Temporary Access Road	0.0091	-	-	44	-	Sediment/Toxicant/Pathogen Retention	4-146
W-UV17	Lewis	Huntington	38.893199	-80.556196	PFO	RPWWN	05030203	Pipeline ROW	-	0.0055	-	27	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-148
W-ST16	Lewis	Huntington	38.892534	-80.556680	PEM	RPWWN	05030203	Temporary Anode Bed	0.0711	-	-	344	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-148
W-VV11	Lewis	Huntington	38.890576	-80.554852	PEM	NRPWW	05030203	Temporary Access Road	0.0246	-	-	119	-	Sediment/Toxicant/Pathogen Retention	4-148
W-VV12	Lewis	Huntington	38.890309	-80.553784	PEM	NRPWW	05030203	Temporary Access Road	0.0277	-	-	134	-	Sediment/Toxicant/Pathogen Retention	4-148
W-VV4-PEM	Lewis	Huntington	38.863280	-80.525705	PEM	RPWWD	05030203	Timber Mat Crossing	0.0131	-	-	64	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-158
W-VV4-PFO	Lewis	Huntington	38.863238	-80.525813	PFO	RPWWD	05030203	Timber Mat Crossing	-	0.0263	-	127	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-158
W-VV3-PEM	Lewis	Huntington	38.862795	-80.525190	PEM	RPWWD	05030203	Pipeline ROW	0.0447	-	-	721	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-158
W-VV3-PFO	Braxton	Huntington	38.862691	-80.525163	PFO	RPWWD	05030203	Pipeline ROW	-	0.0160	-	259	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-158
W-H90	Braxton	Huntington	38.760419	-80.513602	PEM	RPWWD	05030203	Pipeline ROW	0.0388	-	-	627	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-179
W-QR13	Braxton	Huntington	38.751445	-80.516905	PEM	RPWWN	05030203	Temporary Access Road	0.0618	-	-	299	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-180
W-QR12	Braxton	Huntington	38.749364	-80.522081	PEM	RPWWN	05030203	Temporary Access Road	0.0881	-	-	426	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-181
W-QR11	Braxton	Huntington	38.747846	-80.521602	PEM	RPWWN	05030203	Temporary Access Road	0.0559	-	-	271	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-181
W-I11b	Braxton	Huntington	38.708869	-80.489369	PEM	NRPWW	05050007	Timber Mat Crossing	0.0098	-	-	47	-	Sediment/Toxicant/Pathogen Retention	4-194

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-R2	Webster	Huntington	38.667178	-80.480225	PEM	RPWWD	05050007	Temporary Access Road	0.0620	-	-	300	-	Sediment/Toxicant/Pathogen Retention	4-201
W-ККЗ	Webster	Huntington	38.667027	-80.478547	PEM	RPWWD	05050007	Pipeline ROW	0.0222	-	-	357	-	Sediment/Toxicant/Pathogen Retention	4-201
W-R3	Webster	Huntington	38.666869	-80.480889	PEM	NRPWW	05050007	Temporary Access Road	0.0155	-	-	75	-	Sediment/Toxicant/Pathogen Retention	4-201
W-F46	Webster	Huntington	38.664132	-80.479008	PEM	RPWWN	05050007	Timber Mat Crossing	0.0039		-	19	-	Sediment/Toxicant/Pathogen Retention	4-202
W-R4	Webster	Huntington	38.664021	-80.483434	PEM	NRPWW	05050007	Temporary Access Road	0.0432	-	-	209	-	Sediment/Toxicant/Pathogen Retention	4-204
W-H75	Webster	Huntington	38.607280	-80.504722	PEM	RPWWN	05050007	Pipeline ROW	0.0108	-	-	174	-	Sediment/Toxicant/Pathogen Retention	4-219
W-H79	Webster	Huntington	38.602069	-80.508493	PEM	NRPWW	05050007	Timber Mat Crossing	0.0077		-	125	-	Sediment/Toxicant/Pathogen Retention	4-220
W-H81	Webster	Huntington	38.599491	-80.506376	PEM	NRPWW	05050007	Timber Mat Crossing	0.0237	-	-	115	-	Sediment/Toxicant/Pathogen Retention	4-220
W-H82	Webster	Huntington	38.598415	-80.505238	PEM	NRPWW	05050007	Timber Mat Crossing	0.0128		-	62	-	Sediment/Toxicant/Pathogen Retention	4-221
W-H86	Webster	Huntington	38.591803	-80.508481	PEM	NRPWW	05050007	Pipeline ROW	0.0013	-	-	6	-	Sediment/Toxicant/Pathogen Retention	4-222
W-H83	Webster	Huntington	38.591372	-80.508904	PEM	NRPWW	05050007	Pipeline ROW/Temporary Access Road	0.0177	-	-	86	-	Sediment/Toxicant/Pathogen Retention	4-222
W-T4	Webster	Huntington	38.586855	-80.518697	PEM	NRPWW	05050007	Temporary Access Road	0.0403	-	-	195	-	Sediment/Toxicant/Pathogen Retention	4-224
W-H85	Webster	Huntington	38.586644	-80.510350	PEM	NRPWW	05050007	Pipeline ROW	0.0069	-	-	33	-	Sediment/Toxicant/Pathogen Retention	4-222
W-A20-PFO	Webster	Huntington	38.566923	-80.529968	PFO	NRPWW	05050007	Timber Mat Crossing	-	0.0298	-	144	-	Sediment/Toxicant/Pathogen Retention; Production Export; Wildlife Habitat	4-232
W-A20-PEM	Webster	Huntington	38.566910	-80.530098	PEM	NRPWW	05050007	Timber Mat Crossing	0.0117		-	57	-	Sediment/Toxicant/Pathogen Retention; Production Export; Wildlife Habitat	4-232
W-A19	Webster	Huntington	38.557156	-80.538578	PEM	RPWWD	05050007	Temporary Access Road	0.0265	-	-	128	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-235
W-H70	Webster	Huntington	38.557097	-80.526293	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0057	-	28	Sediment/Toxicant/Pathogen Retention	4-238
W-H71	Webster	Huntington	38.556454	-80.526913	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0205	-	99	Sediment/Toxicant/Pathogen Retention; Wildlife Habitat	4-238

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-H72	Webster	Huntington	38.553783	-80.527760	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0064	-	31	Sediment/Toxicant/Pathogen Retention	4-237
W-H73	Webster	Huntington	38.553085	-80.528148	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0061	-	29	Sediment/Toxicant/Pathogen Retention	4-237
W-H74	Webster	Huntington	38.552748	-80.533585	PEM	NRPWW	05050007	Permanent Access Road	-	-	0.0115	-	56	Sediment/Toxicant/Pathogen Retention	4-237
W-H67	Webster	Huntington	38.549313	-80.539242	PFO	RPWWD	05050007	Pipeline ROW/Temporary Access Road	-	0.0908	-	1,465	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat	4-236
W-H66	Webster	Huntington	38.548873	-80.539592	PFO	RPWWD	05050007	Pipeline ROW	-	0.2496	-	4,026	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat	4-236
W-H64-PEM	Webster	Huntington	38.548175	-80.540709	PEM	RPWWD	05050007	Pipeline ROW	0.0276	-	-	133	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-236
W-H64-PSS	Webster	Huntington	38.548099	-80.540896	PSS	RPWWD	05050007	Pipeline ROW	-	0.0422	-	681	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-236
W-H64-PEM-2	Webster	Huntington	38.548058	-80.540847	PEM	RPWWD	05050007	Pipeline ROW	0.0289	-	-	466	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-236
W-H56	Webster	Huntington	38.545807	-80.542983	PEM	RPWWD	05050007	Pipeline ROW	0.0206	-	-	100	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat	4-248
W-013	Webster	Huntington	38.533655	-80.513682	PEM	RPWWN	05050007	Permanent Access Road	-	-	0.0405	-	196	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-244
W-KL8	Webster	Huntington	38.519565	-80.545076	PEM	NRPWW	05050007	Pipeline ROW	0.0976	-	-	472	-	Sediment/Toxicant/Pathogen Retention	4-252
W-H60	Webster	Huntington	38.517850	-80.544693	PEM	NRPWW	05050007	Timber Mat Crossing	0.0495	-	-	240	-	Sediment/Toxicant/Pathogen Retention	4-253
W-H61	Webster	Huntington	38.517345	-80.545025	PEM	NRPWW	05050007	Timber Mat Crossing	0.0094		-	151	-	Sediment/Toxicant/Pathogen Retention; Wildlife Habitat	4-253
W-H62	Webster	Huntington	38.517147	-80.545591	PEM	NRPWW	05050007	Pipeline ROW	0.0335	-	-	162	-	Sediment/Toxicant/Pathogen Retention; Wildlife Habitat	4-253
W-B39	Webster	Huntington	38.508151	-80.559329	PEM	NRPWW	05050007	Pipeline ROW	0.0906	-	-	1,462	-	Sediment/Toxicant/Pathogen Retention	4-255
W-B31	Webster	Huntington	38.494322	-80.561155	PEM	RPWWD	05050007	Pipeline ROW	0.0515	-	-	831	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-260
W-B35	Webster	Huntington	38.493757	-80.560962	PSS	RPWWD	05050007	Pipeline ROW	-	0.0108	-	174	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-260
W-A18	Webster	Huntington	38.481237	-80.555783	PEM	RPWWD	05050007	Temporary Access Road	0.2038	-	-	986	-	Sediment/Toxicant/Pathogen Retention	4-263

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-E28	Webster	Huntington	38.443010	-80.551309	PSS	RPWWD	05050007	Permanent Access Road	-	-	0.0084	-	40	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Wildlife Habitat	4-269
W-E30	Webster	Huntington	38.441535	-80.550864	PEM	RPWWN	05050007	Temporary Access Road	-	-	0.0316	-	153	Sediment/Toxicant/Pathogen Retention	4-269
W-F26	Webster	Huntington	38.428623	-80.567054	PEM	NRPWW	05050007	Timber Mat Crossing	0.0045		-	22	-	Sediment/Toxicant/Pathogen Retention	4-277
W-F29	Webster	Huntington	38.424050	-80.570711	PEM	RPWWD	05050007	Timber Mat Crossing	0.0071	-	-	34	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-278
W-F28	Webster	Huntington	38.423890	-80.570659	PEM	RPWWD	05050007	Timber Mat Crossing	0.0071	-	-	34	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-278
W-F40	Webster	Huntington	38.421461	-80.570007	PSS	RPWWD	05050007	Temporary Access Road	-	0.0188	-	91	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-278
W-F41	Webster	Huntington	38.417599	-80.576458	PEM	RPWWD	05050007	Temporary Access Road	0.0002	-	-	1	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-279
W-B30	Webster	Huntington	38.405713	-80.591171	PEM	RPWWD	05050007	Timber Mat Crossing	0.0429	-	-	208	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-281
W-B28	Webster	Huntington	38.399940	-80.597527	PEM	RPWWD	05050007	Pipeline ROW/Anode Bed	0.2983	-	-	4,812	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-282
W-E21	Webster	Huntington	38.370595	-80.611923	PEM	RPWWD	05050005	Pipeline ROW	0.0389	-	-	627	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-289
W-E18-PEM	Webster	Huntington	38.367359	-80.612334	PEM	RPWWD	05050005	Pipeline ROW	0.0208	-	-	101	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-290
W-E18-PSS	Webster	Huntington	38.367284	-80.612248	PSS	RPWWD	05050005	Pipeline ROW	-	0.0538	-	868	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Production Export; Wildlife Habitat	4-290
W-E16	Nicholas	Huntington	38.364427	-80.614459	PEM	NRPWW	05050005	Timber Mat Crossing	0.0091	-	-	44	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-291
W-E13	Webster	Huntington	38.364017	-80.616570	PFO	RPWWN	05050005	Timber Mat Crossing	-	0.0107	-	52	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-291
W-F13	Nicholas	Huntington	38.356737	-80.631888	PEM	RPWWN	05050005	Timber Mat Crossing	0.0394	-	-	191	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-293
W-F12	Nicholas	Huntington	38.356528	-80.632264	PEM	RPWWD	05050005	Timber Mat Crossing	0.0576	-	-	279	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-293
W-F11	Nicholas	Huntington	38.355680	-80.633383	PEM	RPWWN	05050005	Timber Mat Crossing	0.0652	-	-	315	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-293
W-K23	Nicholas	Huntington	38.355273	-80.633811	PEM	RPWWN	05050005	Pipeline ROW	0.0489	-	-	789	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-293

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-K20	Nicholas	Huntington	38.354644	-80.634586	PEM	RPWWD	05050005	Timber Mat Crossing	0.0100		-	48	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-293
W-IJ51	Nicholas	Huntington	38.352366	-80.636369	PEM	RPWWD	05050005	Pipeline ROW	0.0410	-	-	662	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-293
W-IJ50	Nicholas	Huntington	38.350787	-80.637226	PEM	RPWWN	05050005	Pipeline ROW	0.0528	-	-	852	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-294
W-IJ55	Nicholas	Huntington	38.343568	-80.646491	PEM	RPWWN	05050005	Pipeline ROW	0.0218	-	-	352	-	Sediment/Toxicant/Pathogen Retention	4-296
W-B27	Nicholas	Huntington	38.339713	-80.655364	PEM	RPWWD	05050005	Timber Mat Crossing	0.0874	-	-	423	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-299
W-B26-PEM-1	Nicholas	Huntington	38.339034	-80.659282	PEM	RPWWD	05050005	Temporary Access Road	0.0273	-	-	132	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-299
W-B26-PEM-2	Nicholas	Huntington	38.338935	-80.659254	PEM	RPWWD	05050005	Temporary Access Road	0.0060	-	-	29	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-299
W-FF6-PSS	Nicholas	Huntington	38.337803	-80.658933	PSS	RPWWN	05050005	Timber Mat Crossing	-	0.0333	-	161	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Wildlife Habitat	4-299
W-FF6-PEM	Nicholas	Huntington	38.337774	-80.658995	PEM	RPWWN	05050005	Timber Mat Crossing	0.0793	-	-	384	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-299
W-FF3	Nicholas	Huntington	38.332776	-80.669068	PEM	RPWWN	05050005	Pipeline ROW	0.0444	-	-	716	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-301
W-FF4	Nicholas	Huntington	38.329122	-80.671098	PEM	RPWWD	05050005	Pipeline ROW	0.0037	-	-	18	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-301
W-A17	Nicholas	Huntington	38.327813	-80.670776	PEM	NRPWW	05050005	Pipeline ROW	0.1300	-	-	2,098	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-301
W-A15	Nicholas	Huntington	38.323735	-80.670118	PSS	RPWWD	05050005	Pipeline ROW	-	0.0891	-	1,437	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat	4-302
W-A14	Nicholas	Huntington	38.321643	-80.670901	PFO	RPWWD	05050005	Timber Mat Crossing	-	0.0374	-	181	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat	4-302
W-H53	Nicholas	Huntington	38.313047	-80.673265	PEM	RPWWD	05050005	Pipeline ROW	0.0039	-	-	63	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-304
W-H50	Nicholas	Huntington	38.309707	-80.676585	PEM	NRPWW	05050005	Temporary Access Road	0.0114	-	-	55	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-304
W-N25	Nicholas	Huntington	38.302028	-80.674533	PEM	RPWWD	05050005	Timber Mat Crossing	0.0104		-	50	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-306
W-N24	Nicholas	Huntington	38.299148	-80.675928	PEM	RPWWN	05050005	Timber Mat Crossing	0.0031		-	15	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-307

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-N22	Nicholas	Huntington	38.296941	-80.676479	PEM	RPWWN	05050005	Timber Mat Crossing	0.0030		-	14	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-307
W-17	Nicholas	Huntington	38.293453	-80.677084	PFO	RPWWD	05050005	Timber Mat Crossing	-	0.0333	-	161	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat	4-308
W-CV13	Nicholas	Huntington	38.273139	-80.686452	PEM	RPWWN	05050005	Permanent Access Road	0.0159	-	-	77	-	Sediment/Toxicant/Pathogen Retention	4-312
W-CV12	Nicholas	Huntington	38.271829	-80.685245	PEM	RPWWD	05050005	Temporary Access Road	0.0098	-	-	47	-	Sediment/Toxicant/Pathogen Retention	4-312
W-RS04	Nicholas	Huntington	38.264804	-80.683146	PEM	NRPWW	05050005	Temporary Access Road	0.0254	-	-	123	-	Sediment/Toxicant/Pathogen Retention	4-316
W-J8	Nicholas	Huntington	38.263168	-80.687930	PFO	RPWWD	05050005	Pipeline ROW	-	0.0533	-	860	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Production Export; Wildlife Habitat	4-315
W-MN4	Nicholas	Huntington	38.262968	-80.683949	PEM	RPWWD	05050005	Temporary Access Road	0.0463	-	-	224	-	Sediment/Toxicant/Pathogen Retention	4-316
W-J7	Nicholas	Huntington	38.233731	-80.708250	PFO	RPWWD	05050005	Pipeline ROW	-	0.0693	-	1,119	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration; Wildlife Habitat; Production Export	4-326
W-N18	Nicholas	Huntington	38.224246	-80.716448	PEM	NRPWW	05050005	Pipeline ROW	0.0075	-	-	36	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-328
W-L28	Nicholas	Huntington	38.203621	-80.719372	PEM	RPWWD	05050005	Pipeline ROW	0.0064	-	-	31	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-341
W-L27	Nicholas	Huntington	38.202610	-80.718505	PEM	RPWWN	05050005	Timber Mat Crossing	0.0029		-	14	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-341
W-I11a	Nicholas	Huntington	38.179434	-80.729511	PEM	RPWWD	05050005	Pipeline ROW	0.0579	-	-	934	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration	4-344
W-U7	Nicholas	Huntington	38.178298	-80.729744	PEM	RPWWN	05050005	ATWS	0.0666	-	-	322	-	Sediment/Toxicant/Pathogen Retention; Wildlife Habitat	4-347
W-15	Nicholas	Huntington	38.175595	-80.730736	PEM	RPWWN	05050005	Pipeline ROW	0.0082	-	-	133	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-347
W-VV2	Nicholas	Huntington	38.161072	-80.735000	PEM	RPWWD	05050005	Timber Mat Crossing	0.0136	-	-	66	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Floodflow Alteration; Sediment/Shoreline Stabilization	4-355
W-N16	Nicholas	Huntington	38.157063	-80.738304	PEM	NRPWW	05050005	Timber Mat Crossing	0.0232	-	-	112	-	Sediment/Toxicant/Pathogen Retention	4-356
W-H41	Nicholas	Huntington	38.127873	-80.733868	PEM	RPWWN	05050005	Timber Mat Crossing	0.0151		-	73	-	Sediment/Toxicant/Pathogen Retention	4-362

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-H33	Nicholas	Huntington	38.124326	-80.735761	PEM	RPWWD	05050005	Pipeline ROW	0.0590	-	-	952	-	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Sediment/Shoreline Stabilization, Production Export	4-362
W-H35	Nicholas	Huntington	38.124117	-80.736018	PEM	RPWWN	05050005	Pipeline ROW	-	-	0.0177	-	285	Sediment/Toxicant/Pathogen Retention	4-362
W-H31	Nicholas	Huntington	38.116376	-80.735285	PEM	RPWWN	05050005	Pipeline ROW	0.0139	-	-	67	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-364
W-EF31	Nicholas	Huntington	38.107483	-80.726303	PEM	RPWWD	05050005	Pipeline ROW/ATWS	0.0208	-	-	336	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-366
W-M18	Greenbrier	Huntington	38.061194	-80.720732	PEM	NRPWW	05050005	Timber Mat Crossing	0.0364	-	-	176	-	Sediment/Toxicant/Pathogen Retention	4-374
W-M20	Greenbrier	Huntington	38.060869	-80.723064	PEM	NRPWW	05050005	Pipeline ROW	0.0031	-	-	15	-	Sediment/Toxicant/Pathogen Retention	4-374
W-M23	Greenbrier	Huntington	38.060683	-80.722348	PEM	NRPWW	05050005	Pipeline ROW	0.0616	-	-	994	-	Sediment/Toxicant/Pathogen Retention	4-374
W-M22	Greenbrier	Huntington	38.060661	-80.722616	PSS	NRPWW	05050005	Pipeline ROW	-	0.0039	-	19	-	Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export	4-374
W-J6	Greenbrier	Huntington	38.053361	-80.732198	PFO	RPWWD	05050005	Pipeline ROW	-	0.0744	-	1,201	-	Sediment/Toxicant/Pathogen Retention; Wildlife Habitat; Production Export	4-376
W-ST27	Greenbrier	Huntington	38.029124	-80.742585	PEM	NRPWW	05050005	Temporary Access Road	0.0075	-	-	36	-	Sediment/Toxicant/Pathogen Retention	4-382
W-KL40	Greenbrier	Huntington	38.029060	-80.736807	PEM	RPWWD	05050005	Temporary Access Road	0.0312	-	-	151	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-388
W-ST28	Greenbrier	Huntington	38.028800	-80.743155	PEM	NRPWW	05050005	Temporary Access Road	0.0310	-	-	150	-	Sediment/Toxicant/Pathogen Retention	4-382
W-IJ60	Greenbrier	Huntington	38.024335	-80.739643	PEM	RPWWN	05050005	Temporary Access Road	0.0174	-	-	84	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-387
W-IJ59	Greenbrier	Huntington	38.022031	-80.743027	PEM	RPWWN	05050005	Temporary Access Road	0.0024	-	-	12	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-387
W-IJ58-PEM-3	Greenbrier	Huntington	38.021808	-80.743351	PEM	RPWWD	05050005	Temporary Access Road	0.0056	-	-	27	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-387
W-V6	Greenbrier	Huntington	37.993269	-80.756363	PEM	RPWWN	05050005	Temporary Access Road	0.0422	-	-	204	-	Sediment/Toxicant/Pathogen Retention	4-394
W-HS1	Greenbrier	Huntington	37.986454	-80.758418	PEM	NRPWW	05050005	Pipeline ROW	-	-	0.0360	-	581	Sediment/Toxicant/Pathogen Retention	4-395

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-QR2	Greenbrier	Huntington	37.983978	-80.756817	PEM	RPWWD	05050005	Permanent Access Road	-	-	0.0010	-	5	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export	4-397
W-QR2	Greenbrier	Huntington	37.983212	-80.756099	PEM	RPWWD	05050005	Pipeline ROW/Temporary Access Road	0.2435	-	-	3,929	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export	4-397
W-L16	Greenbrier	Huntington	37.980653	-80.754908	PEM	RPWWD	05050005	Pipeline ROW	0.0247	-	-	398	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-397
W-L19	Greenbrier	Huntington	37.954250	-80.739757	PEM	RPWWD	05050005	Pipeline ROW/Temporary Access Road	0.1060	-	-	1,711	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-402
W-L13	Greenbrier	Huntington	37.953825	-80.740037	PEM	RPWWN	05050005	Pipeline ROW	0.0316	-	-	509	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Wildlife Habitat	4-402
W-L12	Greenbrier	Huntington	37.953736	-80.739892	PEM	RPWWN	05050005	Pipeline ROW	0.0075	-	-	36	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-402
W-L11	Greenbrier	Huntington	37.949563	-80.742715	PEM	RPWWD	05050005	Pipeline ROW	0.0194	-	-	94	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-403
W-L4	Greenbrier	Huntington	37.938675	-80.746774	PEM	RPWWN	05050005	Pipeline ROW	0.0404	-	-	196	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-405
W-L2	Greenbrier	Huntington	37.938326	-80.746878	PEM	RPWWD	05050005	Pipeline ROW/Temporary Access Road	0.0393	-	-	635	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Floodflow Alteration	4-405
W-IJ47-PEM	Greenbrier	Huntington	37.916423	-80.743551	PEM	RPWWD	05050005	Permanent Access Road	-	-	0.0113	-	55	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export	4-410
W-IJ47-PEM	Greenbrier	Huntington	37.916255	-80.743867	PEM	RPWWD	05050005	Permanent Access Road	-	-	0.0520	-	252	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export	4-410
W-W10	Greenbrier	Huntington	37.911495	-80.727880	PEM	NRPWW	05050005	Temporary Access Road	0.0488	-	-	236	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-412
W-K7	Greenbrier	Huntington	37.863700	-80.757095	PEM	RPWWN	05050005	Pipeline ROW	0.0078	-	-	126	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-421
W-K7	Greenbrier	Huntington	37.863527	-80.757286	PEM	RPWWN	05050005	Pipeline ROW	0.3206	-	-	5,173	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-421
W-IJ30	Greenbrier	Huntington	37.862357	-80.757476	PEM	RPWWD	05050005	Pipeline ROW	0.3236	-	-	5,221	-	Floodflow Alteration, Sediment/Toxicant/Pathogen Retention	4-421
W-UV9	Greenbrier	Huntington	37.862309	-80.757756	PEM	RPWWN	05050005	Pipeline ROW	0.1090	-	-	1,759	-	Floodflow Alteration, Sediment/Toxicant/Pathogen Retention	4-421
W-UV11	Greenbrier	Huntington	37.861173	-80.757726	PEM	RPWWN	05050005	Pipeline ROW	0.0285	-	-	138	-	Sediment/Toxicant/Pathogen Retention	4-421
W-UV10	Greenbrier	Huntington	37.861066	-80.757954	PEM	RPWWN	05050005	Pipeline ROW	0.0035	-	-	17	-	Sediment/Toxicant/Pathogen Retention	4-421

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-K9-PEM-1	Greenbrier	Huntington	37.860916	-80.757817	PEM	RPWWD	05050005	Pipeline ROW	0.0354	-	-	572	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export	4-421
W-K10	Greenbrier	Huntington	37.858743	-80.755724	PEM	RPWWN	05050005	Pipeline ROW	0.0068	-	-	33	-	Sediment/Toxicant/Pathogen Retention	4-422
W-UV4	Greenbrier	Huntington	37.854391	-80.755038	PSS	RPWWD	05050005	Pipeline ROW	-	0.0885	-	1,427	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Wildlife Habitat, Production Export	4-422
W-UV8	Greenbrier	Huntington	37.851590	-80.752937	PEM	RPWWD	05050005	Pipeline ROW	0.4913	-	-	7,926	-	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-423
W-EE4	Summers	Huntington	37.813845	-80.748769	PEM	RPWWD	05050004	Pipeline ROW	0.0453	-	-	730	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Wildlife Habitat	4-429
W-M2	Summers	Huntington	37.807721	-80.746088	PEM	RPWWD	05050004	Pipeline ROW	0.1064	-	-	1,717	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation; Wildlife Habitat	4-430
W-I10	Summers	Huntington	37.783907	-80.718899	PEM	NRPWW	05050005	Permanent Access Road	-	-	0.0550	-	266	Sediment/Toxicant/Pathogen Retention	4-437
W-EF40	Summers	Huntington	37.693888	-80.735663	PEM	RPWWD	05050003	Timber Mat Crossing	0.0889	-	-	430	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention	4-461
W-MM20-PFO	Summers	Huntington	37.681648	-80.730225	PFO	RPWWD	05050003	Pipeline ROW, Temporary Access Road, ATWS	-	0.2990	-	3,773	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Floodflow Alteration	4-464
W-EF36	Summers	Huntington	37.675423	-80.732001	PEM	RPWWN	05050003	Timber Mat Crossing	0.0035	-	-	17	-	Sediment/Toxicant/Pathogen Retention	4-465
W-K2-PEM	Summers	Huntington	37.668130	-80.723493	PEM	RPWWD	05050003	Pipeline ROW	0.0140	-	-	225	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention	4-468
W-G7	Summers	Huntington	37.654106	-80.702592	PEM	NRPWW	05050003	Timber Mat Crossing	0.0121	-	-	59	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-471
W-OP1	Monroe	Huntington	37.600067	-80.700400	PEM	RPWWD	05050003	Pipeline ROW	0.1359	-	-	2,193	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation, Sediment/Shoreline Stabilization	4-487
W-A13	Monroe	Huntington	37.559410	-80.710082	PEM	RPWWD	05050002	Pipeline ROW/Temporary Access Road	0.2991	-	-	4,826	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-493
W-A13	Monroe	Huntington	37.559332	-80.709734	PEM	RPWWD	05050002	Permanent Access Road	-	-	0.0228	-	110	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-493
W-MN14	Monroe	Huntington	37.520227	-80.707365	PEM	RPWWD	05050002	Pipeline ROW/Access Road/ATWS	0.0390	-	-	313	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-500
W-MN15	Monroe	Huntington	37.520166	-80.707532	PEM	RPWWN	05050002	Pipeline ROW	0.0070	-	-	113	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-500
W-MN18-PEM	Monroe	Huntington	37.487662	-80.681791	PEM	RPWWD	05050002	Pipeline ROW	0.0510	-	-	823	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention	4-510

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (acres) ⁴	Permanent Conversion Impacts (acres) ⁴	Permanent Fill Impacts (acres) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Wetland Functions and Values ⁷	Figure
W-MN18-PFO	Monroe	Huntington	37.487474	-80.681854	PFO	RPWWD	05050002	Pipeline ROW	-	0.1750	-	2,823	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention	4-510
W-MN1	Monroe	Huntington	37.473153	-80.675740	PEM	RPWWD	05050002	Timber Mat Crossing	0.0187	-	-	90	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal, Sediment/Shoreline Stabilization	4-512
W-G6	Monroe	Huntington	37.472534	-80.675718	PEM	RPWWD	05050002	Pipeline ROW	0.0684	-	-	1,103	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-512
W-CV25-PSS-1	Monroe	Huntington	37.462852	-80.669557	PSS	RPWWD	05050002	Pipeline ROW	-	0.0270	-	436	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-513
W-MN24	Monroe	Huntington	37.462833	-80.670273	PEM	NRPWW	05050002	Pipeline ROW	0.0100	-	-	161	-	Sediment/Toxicant Retention, Nutrient Removal/Retention/Transformation	4-513
W-CV25-PEM-2	Monroe	Huntington	37.462746	-80.669518	PEM	RPWWD	05050002	Pipeline ROW	0.0200	-	-	323	-	Groundwater Recharge/Discharge, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention/Transformation	4-513
W-E12	Monroe	Huntington	37.450761	-80.667516	PEM	RPWWD	05050002	Pipeline ROW	0.0041	-	-	20	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-516
W-C14	Monroe	Huntington	37.427083	-80.694569	PEM	RPWWN	05050002	Pipeline ROW	0.0113	-	-	55	-	Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-521
W-C13	Monroe	Huntington	37.426734	-80.694534	PEM	RPWWD	05050002	Pipeline ROW	0.2172	-	-	3,503	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-521
W-C17	Monroe	Huntington	37.425547	-80.693481	PEM	RPWWD	05050002	Temporary Access Road	0.0306	-	-	148	-	Groundwater Recharge/Discharge; Sediment/Toxicant/Pathogen Retention; Nutrient Removal/Retention/Transformation	4-521

Notes:

- In decimal degrees.

PEM = Palustrine Emergent
 PSS = Palustrine Scrub-Shrub

- PFO = Palustrine Forested - RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs) 3

- RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs - NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

- Construction of access roads will not result in impacts to tidal wetlands or wetlands adjacent to tidal waters. Construction, maintenance, or expansion of substation facilities will not result in discharges to non-tidal wetlands adjacent to tidal waters of the United States. Acres are rounded to four decimal places. - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number. 4 5

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 Permanent fill associated with the construction of permanent access road and facilities. Cubic yards are rounded to the nearest whole number.
 Functions and Values were determined using *The Highway Methodology Workbook Supplement: Wetland Functions and Values; A Descriptive Approach*, NAEEP-360-1-30a. New England District: USACE, 1999. 7



Table A-3 (West Virginia Stream Impact Summary)

USACE District	Cowardin Class	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Fill (cubic yards)	Permanent Fill (cubic yards)
	Ephemeral	617	137	500	42
Dittaburgh District	Intermittent	332	0	622	0
Pittsburgh District	Perennial	1,007	55	4,458	178
	Pittsburgh District Total	1,956	192	5,580	220
	Ephemeral	4,966	265	4,761	92
Huntington District	Intermittent	5,599	296	8,445	152
Huntington District	Perennial	8,586	363	42,750	586
	Huntington District Total	19,151	924	55,956	830
	Ephemeral	5,583	402	5,261	134
All District	Intermittent	5,931	296	9,067	152
All District	Perennial	9,593	418	47,208	764
	All Districts Grand total	21,107	1,116	61,536	1,050



Table A-4 (West Virginia Wetland Impact Summary)

Table A-4. West Virginia Wetland Impacts Summary (revised 3/1/2021)Individual Permit ApplicationMountain Valley Pipeline Project

USACE District	Cowardin Class	Temporary Impacts (acres)	Permanent Conversion Impacts (acres)	Permanent Fill Impacts (acres)	Temporary Fill (cubic yards)	Permanent Fill (cubic yards)
	PEM	2.2376	0.0000	0.0000	19,229	0
Dittaburgh District	PSS	0.0000	0.1444	0.0000	699	0
Pittsburgh District	PFO	0.0000	0.0110	0.0000	127	0
	Pittsburgh District Total	2.2376	0.1554	0.0000	20,055	0
	PEM	7.9213	0.0000	0.4374	90,148	2,723
Uuntington District	PSS	0.0000	0.3698	0.0084	5,306	40
Huntington District	PFO	0.0000	1.2251	0.0000	17,100	0
	Huntington District Total	7.9213	1.5949	0.4458	112,554	2,763
	PEM	10.1589	0.0000	0.4374	109,377	2,723
	PSS	0.0000	0.5142	0.0084	6,005	40
All District	PFO	0.0000	1.2361	0.0000	17,227	0
	All Districts Grand Total	10.1589	1.7503	0.4458	132,609	2,763



Table B-1 (Virginia Stream Impacts)

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (square feet) ⁵	Permanent Impact Area (square feet) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-Q12	UNT to Kimballton Branch	Giles	37.375311	-80.680878	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	86	-	344	-	127	-	4-531
S-Q13	Kimballton Branch	Giles	37.374377	-80.682038	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	90	-	1350	-	500	-	4-532
S-P6	UNT to Stony Creek	Giles	37.362202	-80.688092	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	78	-	466	-	173	-	4-535
S-S5-Braid-2	Stony Creek	Giles	37.360325	-80.684214	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	122	-	13	-	4-536
S-S5-Braid-1	Stony Creek	Giles	37.360276	-80.684193	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	139	-	16	-	4-536
S-S5	Stony Creek	Giles	37.360071	-80.683960	Perennial	RPW	Candy darter, Green floater, pistol grip, Natural Trout, Coldwater Fishery, Stockable Trout	05050002	Timber Mat Crossing	40	-	802	-	178	-	4-536
S-G29	UNT to Dry Branch	Giles	37.350430	-80.658259	Ephemeral	NRPW	-	05050002	Pipeline ROW	30	-	122	-	13	-	4-541
S-G30	UNT to Dry Branch	Giles	37.350373	-80.658230	Ephemeral	NRPW	-	05050002	Pipeline ROW	85		680	-	252	-	4-541
S-G32	Dry Branch	Giles	37.349095	-80.652040	Intermittent	RPW	-	05050002	Pipeline ROW	110		662	-	244	-	4-542
S-G33	UNT to Dry Branch	Giles	37.348641	-80.647225	Perennial	RPW	-	05050002	Pipeline ROW	99	-	793	-	293	-	4-542
S-G35	UNT to Little Stony Creek	Giles	37.344876	-80.633426	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	25		501		69	-	4-544
S-SS4	UNT to Little Stony Creek	Giles	37.344859	-80.631295	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20		61		7		4-544
S-G35	UNT to Little Story Creek	Giles	37.344779	-80.633379	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	25		501		69	_	4-544
S-27	UNT to Little Stony Creek	Giles	37.344278	-80.626185	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	61	-	7	-	4-545
											-	61	-	7	-	
S-Z7-Braid-1	UNT to Little Stony Creek	Giles	37.344277	-80.626113	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-		-		-	4-545
S-Z9	UNT to Little Stony Creek	Giles	37.344163	-80.628400	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	78	-	9	-	4-544
S-Z10	UNT to Little Stony Creek	Giles	37.342351	-80.620823	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	240	-	27	-	4-545
S-Z11	UNT to Little Stony Creek	Giles	37.342236	-80.620542	Perennial	RPW	Natural Trout, Coldwater Fishery, Stockable Trout	05050002	Timber Mat Crossing	20	-	100	-	11	-	4-545
S-Z12-EPH	UNT to Little Stony Creek	Giles	37.342214	-80.620312	Ephemeral	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	122	-	13	-	4-545
S-Z13	Little Stony Creek	Giles	37.342172	-80.620090	Perennial	RPW	Natural Trout, Coldwater Fishery, Stockable Trout	05050002	Timber Mat Crossing	25	-	501	-	69	-	4-545
S-Z14	UNT to Little Stony Creek	Giles	37.340977	-80.618031	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	78	-	9	-	4-545
S-YZ1	Doe Creek	Giles	37.338952	-80.614618	Intermittent	RPW	-	05050002	Temporary Access Road	102	-	1019	-	113	-	4-546
S-A34	UNT to Doe Creek	Giles	37.337763	-80.606008	Ephemeral	NRPW	-	05050002	Pipeline ROW	86	-	601	-	223	-	4-548
S-A33	UNT to Doe Creek	Giles	37.337639	-80.605571	Ephemeral	NRPW	-	05050002	Pipeline ROW	111	-	775	-	288	-	4-548
S-YZ1	Doe Creek	Giles	37.337562	-80.614711	Intermittent	RPW	-	05050002	Temporary Access Road	92	-	919	-	102	-	4-546
S-YZ1	Doe Creek	Giles	37.337048	-80.614625	Intermittent	RPW	-	05050002	Temporary Access Road	121	-	1211	-	134	-	4-546
S-A32	UNT to Doe Creek	Giles	37.335094	-80.596868	Perennial	RPW	-	05050002	Pipeline ROW	78	-	1250	-	462	-	4-549
S-QQ2	Sinking Creek	Craig	37.333152	-80.429438	Perennial	RPW	Natural Trout, Coldwater Fishery, Stockable Trout	05050002	Temporary Access Road	40	-	1398	-	156	-	4-581
S-MN11-Upstream	UNT to Sinking Creek	Giles	37.332869	-80.559168	Ephemeral	NRPW	-	05050002	Temporary Access Road	15		61	-	7	-	4-554
S-MN11-Upstream	UNT to Sinking Creek	Giles	37.332191	-80.559979	Ephemeral	NRPW	-	05050002	Temporary Access Road	30	-	122	-	13	-	4-554
S-MN11-	UNT to Sinking Creek	Giles	37.332146	-80.560079	Ephemeral	NRPW	-	05050002	Temporary Access Road	37		183	-	21	-	4-554
Downstream S-Y3	UNT to Doe Creek	Giles	37.331748	-80.583355	Ephemeral	NRPW	-	05050002	Timber Mat Crossing	20	-	200	-	22	-	4-551
S-Y2	Doe Creek	Giles	37.331332	-80.583047	Perennial	RPW	-	05050002	Timber Mat Crossing	25		501		69	_	4-551
S-PP4	UNT to Sinking Creek	Craig	37.328329	-80.422810	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	84		170		62		4-579
S-PP3	UNT to Sinking Creek	Craig	37.326705	-80.425803	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	82	-	244	-	91	-	4-579
S-RR4	-	-				RPW					-	244	-	-	-	
	UNT to Sinking Creek	Giles	37.326015	-80.556831	Perennial		-	05050002	Temporary Access Road	85	-		-	28	-	4-556
S-E24	UNT to Sinking Creek	Giles	37.325728	-80.565082	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	81	-	1620	-	600	-	4-553
S-E25-Downstream	UNT to Sinking Creek	Giles	37.325638	-80.564680	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	161	-	18	-	4-553
S-E25-Upstream	UNT to Sinking Creek	Giles	37.325607	-80.564373	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	15	-	148	-	17	-	4-553
S-E25-Downstream	UNT to Sinking Creek	Giles	37.325566	-80.564634	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	161	-	18	-	4-553
S-PP1	UNT to Sinking Creek	Craig	37.324781	-80.431446	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	86	-	257	-	96	-	4-578
S-RR5	UNT to Sinking Creek	Giles	37.323702	-80.555627	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	83	-	832	-	307	-	4-555
S-PA07	UNT to Sinking Creek	Giles	37.323533	-80.555257	Intermittent	RPW	-	05050002	Pipeline ROW	115	-	231	-	85	-	4-555
S-IJ18-EPH	UNT to Sinking Creek	Giles	37.322737	-80.552396	Ephemeral	NRPW	-	05050002	Pipeline ROW	74	-	444	-	164	-	4-555
S-IJ19	UNT to Sinking Creek	Giles	37.322194	-80.553058	Ephemeral	NRPW	-	05050002	Temporary Access Road	43	-	170	-	19	-	4-555
S-IJ19	UNT to Sinking Creek	Giles	37.321823	-80.55311	Ephemeral	NRPW	-	05050002	Temporary Access Road	9	-	35	-	4	-	4-555
S-IJ18-INT	UNT to Sinking Creek	Giles	37.321756	-80.553011	Intermittent	RPW	-	05050002	Temporary Access Road	44	-	174	-	20	-	4-555
S-PP22	UNT to Craig Creek	Montgomery	37.321090	-80.412831	Intermittent	RPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	44	-	174	-	20	-	4-584
S-0012	UNT to Sinking Creek	Giles	37.318956	-80.440648	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	25	-	48	-	6	-	4-577
S-0013	UNT to Sinking Creek	Giles	37.318930	-80.440930	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	77	-	1542	-	570	-	4-577
S-0014	UNT to Sinking Creek	Giles	37.318647	-80.441619	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	86		344	-	127	-	4-577
S-IJ17	UNT to Sinking Creek	Giles	37.318324	-80.547720	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	31	-	248	-	28	-	4-558
S-IJ16-b	UNT to Sinking Creek	Giles	37.318246	-80.547711	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	78	-	780	_	289	-	4-558
		-									-		-	289	-	
S-PP21	UNT to Craig Creek	Montgomery	37.317187	-80.409235	Perennial	RPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	20	-	78	-	я	-	4-584

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (square feet) ⁵	Permanent Impact Area (square feet) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-PP20	UNT to Craig Creek	Montgomery	37.316523	-80.408646	Perennial	RPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	20	-	122	-	13	-	4-584
S-RR13	Craig Creek	Montgomery	37.314504	-80.402613	Perennial	RPW	Atlantic Pigtoe, Stockable Trout, Coldwater Fishery	02080201	Temporary Access Road	41	-	1433	-	159	-	4-585
S-HH18	UNT to Craig Creek	Montgomery	37.313910	-80.398683	Perennial	RPW	Atlatnic pigtoe, orangefin madtom Coldwater Fishery	02080201	Timber Mat Crossing	20	-	122	-	13	-	4-586
S-RR14	UNT to Craig Creek	Montgomery	37.313615	-80.402521	Ephemeral	NRPW	Atlantic Pigtoe, Coldwater Fishery	02080201	Timber Mat Crossing	20	-	139	-	16	-	4-585
S-006	Craig Creek	Montgomery	37.313511	-80.404606	Perennial	RPW	Atlantic Pigtoe, Stockable Trout, Coldwater Fishery	02080201	Timber Mat Crossing	35	-	701	-	136	-	4-585
S-QQ3	UNT to Sinking Creek	Giles	37.311869	-80.532365	Ephemeral	NRPW	-	05050002	Temporary Access Road	15	-	30		3	-	4-560
S-IJ16-a	UNT to Sinking Creek	Giles	37.311730	-80.544091	Ephemeral	NRPW	-	05050002	Permanent Access Road	6	-	44	-	5	-	4-559
S-IJ16-a	UNT to Sinking Creek	Giles	37.311730	-80.544091	Ephemeral	NRPW	-	05050002	Permanent Access Road	-	45	-	314	-	35	4-559
S-NN17	Sinking Creek	Giles	37.311616	-80.515786	Perennial	RPW	Green floater, Non-listed mussels, Natural Trout,	05050002	Timber Mat Crossing	55	-	1102		336	-	4-564
S-KL43	UNT to Sinking Creek	Giles	37.307524	-80.466665	Perennial	RPW	Coldwater Fishery, Stockable Trout Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	75	-	749	-	278	-	4-573
S-NN11	UNT to Sinking Creek	Giles	37.305508	-80.467231	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	84	-	418		156		4-573
S-NN12	UNT to Sinking Creek	Giles	37.300454	-80.472911	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	88		174		65		4-571
S-MN21	UNT to Mill Creek	Montgomery	37.299397	-80.391243	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	80		562		207		4-588
S-MM17		Giles	37.298226	-80.480624	Perennial	RPW		05050002	Temporary Access Road	49	-	96		11		4-569
	UNT to Sinking Creek						-				-		-			
S-MN22	UNT to Mill Creek	Montgomery	37.297166	-80.386612	Ephemeral	NRPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	96	-	192	-	71	-	4-589
S-RR2	Greenbriar Branch	Giles	37.296666	-80.494174	Perennial	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	161	-	18	-	4-567
S-YZ6	UNT to Greenbriar Branch	Giles	37.296612	-80.494165	Intermittent	RPW	Natural Trout, Coldwater Fishery	05050002	Timber Mat Crossing	20	-	122	-	13	-	4-567
S-EF62	UNT to Mill Creek	Montgomery	37.296356	-80.375118	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	76	-	836	-	310	-	4-590
S-MM18	UNT to Sinking Creek	Giles	37.296226	-80.481455	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	05050002	Pipeline ROW	88	-	440	-	163	-	4-569
S-IJ52	UNT to Mill Creek	Montgomery	37.296153	-80.367510	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	84	-	1346	-	498	-	4-591
S-EF65	Mill Creek	Montgomery	37.295743	-80.375921	Intermittent	RPW	Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery, Stockable Trout	03010101	Pipeline ROW	152	-	910	-	338	-	4-590
S-G36	North Fork Roanoke River	Montgomery	37.268586	-80.313161	Perennial	RPW	Roanoke logperch, Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery	03010101	Temporary Access Road	26	-	518	-	58	-	4-602
S-G38	UNT to North Fork Roanoke River	Montgomery	37.267002	-80.312898	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	61	-	7	-	4-603
S-G40	UNT to North Fork Roanoke River	Montgomery	37.264882	-80.307302	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	61	-	7	-	4-603
S-PP23	UNT to North Fork Roanoke River	Montgomery	37.264858	-80.307151	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	48	-	6	-	4-604
S-G39	UNT to North Fork Roanoke River	Montgomery	37.264817	-80.308486	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	82	-	492	-	182	-	4-604
S-MM14	UNT to Flatwoods Branch	Montgomery	37.258717	-80.293210	Ephemeral	NRPW	-	03010101	Pipeline ROW	105	-	736	-	272	-	4-608
S-MM15	UNT to Flatwoods Branch	Montgomery	37.258673	-80.296446	Intermittent	RPW	-	03010101	Pipeline ROW	82	-	492	-	182	-	4-608
S-MM11	UNT to Flatwoods Branch	Montgomery	37.258403	-80.288186	Ephemeral	NRPW	-	03010101	Pipeline ROW	80	-	640	-	237	-	4-609
S-F15	UNT to Flatwoods Branch	Montgomery	37.258198	-80.286029	Intermittent	RPW	-	03010101	Pipeline ROW	129	-	775	-	287	-	4-609
S-MM13	UNT to Flatwoods Branch	Montgomery	37.258176	-80.289222	Ephemeral	NRPW	-	03010101	Pipeline ROW	85	-	427	-	157	-	4-608
S-F16a/F16b	UNT to Flatwoods Branch	Montgomery	37.257998	-80.284735	Ephemeral	NRPW		03010101	Pipeline ROW	81	-	244	-	90	-	4-609
S-C36	UNT to Flatwoods Branch	Montgomery	37.257260	-80.281611	Intermittent	RPW	-	03010101	Pipeline ROW	96	-	287		107	-	4-609
S-C36	UNT to Flatwoods Branch	Montgomery	37.257133	-80.281475	Intermittent	RPW	-	03010101	Pipeline ROW	36		109		40		4-609
S-MM31	UNT to Flatwoods Branch	Montgomery	37.256959	-80.280329	Ephemeral	NRPW		03010101	Timber Mat Crossing	20		78	-	40		4-609
		• •			Ephemeral	NRPW	-	03010101		46	-	57	-	20	-	4-610
S-C29	Flatwoods Branch	Montgomery	37.256387	-80.278021			-		Pipeline ROW		-		-		-	
S-C25	UNT to Bradshaw Creek	Montgomery	37.254342	-80.267895	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	115	-	344	-	128	-	4-611
S-C24	UNT to Bradshaw Creek	Montgomery	37.254135	-80.266743	Intermittent	RPW	Natural Trout, Coldwater Fishery Roanoke logperch, Orangefin madtom, Natural Trout,	03010101	Pipeline ROW	108	-	322	-	120	-	4-611
S-C21	Bradshaw Creek	Montgomery	37.251791	-80.258990	Perennial	RPW	Coldwater Fishery	03010101	Timber Mat Crossing	25	-	501	-	69	-	4-613
S-NN19	UNT to Roanoke River	Montgomery	37.244319	-80.206995	Intermittent	RPW	-	03010101	Pipeline ROW	76	-	266	-	99	-	4-627
S-AB16	UNT to Roanoke River	Montgomery	37.231693	-80.198778	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	100	-	11	-	4-631
S-I1	UNT to Roanoke River	Montgomery	37.231179	-80.198460	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	279	-	31	-	4-631
S-CD12b	UNT to South Fork Roanoke River	Montgomery	37.229764	-80.201144	Perennial	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	122	-	13	-	4-631
S-EF19	UNT to Indian Run	Montgomery	37.216102	-80.197390	Ephemeral	NRPW	Warmwater Fishery, Tier 2	03010101	Pipeline ROW	79	-	396	-	146	-	4-634
S-EF20a	UNT to Roanoke River	Montgomery	37.210922	-80.193318	Perennial	RPW	Orangefin madtom, Non-listed mussels	03010101	Pipeline ROW	80	-	479	-	178	-	4-635
S-MM22	UNT to Roanoke River	Montgomery	37.205284	-80.187282	Perennial	RPW	Orangefin madtom, Non-listed mussels	03010101	Pipeline ROW	175	-	2627	-	972	-	4-637
S-IJ50	UNT to Roanoke River	Roanoke	37.194064	-80.167933	Perennial	RPW	Orangefin madtom, Non-listed mussels	03010101	Pipeline ROW	77	-	1925	-	713	-	4-641
S-Y13	UNT to Bottom Creek	Roanoke	37.187687	-80.151146	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	85	-	680	-	252	-	4-644
S-Y14	UNT to Bottom Creek	Roanoke	37.187568	-80.151049	Perennial	RPW	Orangefin madtom, Non-listed mussels, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	77	-	1076	-	399	-	4-644
S-EF57	UNT to Bottom Creek	Roanoke	37.181736	-80.148948	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Temporary Access Road	42	-	335	-	37	-	4-645
S-EF55	UNT to Bottom Creek	Roanoke	37.181506	-80.149497	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	33	-	266	-	98	-	4-645
S-EF34b	UNT to Bottom Creek	Roanoke	37.181385	-80.149140	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	81	-	810	-	300	-	4-645
S-EF33	UNT to Bottom Creek	Roanoke	37.179186	-80.141000	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	148	-	1333	-	493		4-647
					Intermittent	RPW					-		-			
S-IJ82	UNT to Bottom Creek	Roanoke	37.170458	-80.138216	mermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	301	-	33	-	4-648

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (square feet) ⁵	Permanent Impact Area (square feet) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-IJ85	UNT to Bottom Creek	Roanoke	37.169474	-80.130356	Perennial	RPW	Natural Trout, Coldwater Fishery	03010101	Permanent Access Road	-	50	-	401	-	44	4-650
S-IJ83	UNT to Bottom Creek	Roanoke	37.169211	-80.138258	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	148	-	741		82	-	4-649
S-IJ88	Bottom Creek	Roanoke	37.168395	-80.138295	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	30	-	1960	-	726	-	4-649
S-IJ84	UNT to Bottom Creek	Roanoke	37.168361	-80.138381	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	35	-	527	-	58	-	4-649
S-IJ89	UNT to Bottom Creek	Roanoke	37.165862	-80.139317	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	200		22	-	4-649
S-IJ90	UNT to Bottom Creek	Roanoke	37.165685	-80.139378	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	100		11	-	4-649
S-KL25	UNT to Mill Creek	Roanoke	37.160173	-80.134799	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	82	-	409	-	152	-	4-651
S-ST9b	UNT to Mill Creek	Roanoke	37.154424	-80.129179	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	301	-	33	-	4-652
S-KL55	UNT to Mill Creek	Roanoke	37.150009	-80.13246	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	301	-	33	-	4-653
S-IJ12	UNT to Mill Creek	Roanoke	37.148333	-80.133919	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	261	-	29	-	4-653
S-EF44	UNT to Bottom Creek	Roanoke	37.143003	-80.138399	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	139	-	16	-	4-654
S-IJ43	Mill Creek	Roanoke	37.138636	-80.139715	Perennial	RPW	Orangefin madtom, Stockable Trout, Natural Trout,	03010101	Timber Mat Crossing	20	-	362		40	-	4-655
S-Y9	UNT to Mill Creek	Roanoke	37.134576	-80.137649	Intermittent	RPW	Coldwater Fishery Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	44	-	174	-	20	-	4-656
S-Y7	UNT to Mill Creek	Roanoke	37.134481	-80.137622	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	32	-	126	-	14	-	4-656
S-Y8	UNT to Mill Creek	Roanoke	37.134176	-80.137484	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	78	-	9	-	4-656
S-B22	UNT to Mill Creek	Roanoke	37.128922	-80.133769	Perennial	RPW	Orangefin mattern, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	78	-	9	-	4-659
S-B22	UNT to Mill Creek	Roanoke	37.128853	-80.133910	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	14	-	26	-	3		4-659
			-						Timber Mat Crossing							
S-B25	UNT to Mill Creek	Roanoke	37.128490	-80.132601	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010101	- 5	76	-	379	-	42	-	4-659
S-B21	UNT to Mill Creek	Roanoke	37.128484	-80.130943	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	92	-	366	-	136	-	4-659
S-H1	Green Creek	Franklin	37.127733	-80.116787	Perennial	RPW	Orangefin madtom, Natural Trout, Coldwater Fishery	03010101	Timber Mat Crossing	20	-	200	-	22	-	4-661
S-G26	UNT to Green Creek	Franklin	37.127077	-80.111387	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	139	-	16	-	4-662
S-G27	UNT to Green Creek	Franklin	37.126962	-80.111052	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	139	-	16	-	4-662
S-G24	UNT to Green Creek	Franklin	37.126412	-80.121398	Intermittent	RPW	-	03010101	Pipeline ROW	75	-	449	-	167	-	4-661
S-G25	UNT to Green Creek	Franklin	37.125398	-80.121401	Intermittent	RPW	-	03010101	Pipeline ROW	42	-	292	-	33	-	4-661
S-RR18	UNT to Green Creek	Franklin	37.125055	-80.113578	Intermittent	RPW	-	03010101	Permanent Access Road	8	-	17	-	2	-	4-662
S-D11	UNT to North Fork Blackwater River	Franklin	37.124137	-80.086182	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	200	-	22	-	4-666
S-D8	North Fork Blackwater River	Franklin	37.123098	-80.074673	Perennial	RPW	Natural Trout, Coldwater Fishery	03010101	Pipeline ROW	78	-	941		349	-	4-667
S-D12	UNT to North Fork Blackwater River	Franklin	37.121558	-80.085642	Intermittent	RPW	-	03010101	Pipeline ROW	54	-	322		120	-	4-666
S-D13	UNT to North Fork Blackwater River	Franklin	37.121513	-80.085680	Intermittent	RPW	-	03010101	Pipeline ROW	117	-	466	-	173	-	4-666
S-D14	UNT to North Fork Blackwater River	Franklin	37.121473	-80.088457	Intermittent	RPW	-	03010101	Pipeline ROW	234	-	701	-	260	-	4-666
S-114	UNT to North Fork Blackwater River	Franklin	37.115679	-80.060300	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	301		33	-	4-670
S-GH7	UNT to North Fork Blackwater River	Franklin	37.106614	-80.054219	Perennial	RPW	-	03010101	Timber Mat Crossing	20	-	179	-	20	-	4-672
S-GH15	UNT to North Fork Blackwater River	Franklin	37.106177	-80.050105	Intermittent	RPW	-	03010101	Pipeline ROW	75	-	301	-	111	-	4-674
S-GH14	UNT to North Fork Blackwater River	Franklin	37.105883	-80.048861	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76	-	305	-	113	-	4-674
S-GH11	UNT to North Fork Blackwater	Franklin	37.104707	-80.046220	Intermittent	RPW	-	03010101	Pipeline ROW	77	-	231		86	-	4-674
S-GH9	UNT to North Fork Blackwater River	Franklin	37.104329	-80.045343	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	78	-	314		116	-	4-674
S-RR08	UNT to North Fork Blackwater River	Franklin	37.103290	-80.041868	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	139	-	16	-	4-674
S-RR09	UNT to North Fork Blackwater River	Franklin	37.102491	-80.041046	Ephemeral	NRPW		03010101	Pipeline ROW	77	-	693	-	257	-	4-675
S-RR11	UNT to North Fork Blackwater	Franklin	37.101127	-80.039653	Ephemeral	NRPW	-	03010101	Pipeline ROW	77		540		200		4-675
S-IJ1	River UNT to North Fork Blackwater	Franklin	37.093062	-80.027724	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	107	-	1285	-	476	-	4-677
S-IJ2	River UNT to North Fork Blackwater	Franklin	37.092891	-80.027593	Intermittent	RPW	-	03010101	Pipeline ROW	40	-	100	-	37	-	4-677
S-116	River UNT to Little Creek	Franklin	37.092697	-79.978402	Intermittent	NRPW	-	03010101	Timber Mat Crossing	20	-	61	-	7	-	4-685
S-IJ3	UNT to North Fork Blackwater	Franklin	37.092600	-80.027231	Intermittent	RPW		03010101	Pipeline ROW	77	-	383	-	143	-	4-677
S-GH6	River UNT to Little Creek	Franklin	37.092397	-79.983227	Perennial	RPW	- Orangefin madtom	03010101	Timber Mat Crossing	20	-	61	-	7	-	4-684
S-II12	UNT to Little Creek	Franklin	37.092397	-79.983227	Intermittent	RPW	-	03010101		20		39	-	4	-	4-684
			-						Timber Mat Crossing		-					
S-II11	UNT to Little Creek	Franklin	37.091564	-79.988051	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	78	-	9	-	4-684
S-118	UNT to Little Creek	Franklin	37.091413	-79.993944	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	39	-	4	-	4-683
S-119	UNT to Little Creek	Franklin	37.091382	-79.990620	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	401	-	44	-	4-683
S-117	UNT to Little Creek UNT to North Fork Blackwater	Franklin	37.091354	-79.992013	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	78	-	9	-	4-683
S-IJ4	River	Franklin	37.091189	-80.024366	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	78	-	9	-	4-677
S-KL2	UNT to Little Creek	Franklin	37.090361	-79.996354	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	74	-	8	-	4-682
S-GH2	UNT to Teels Creek	Franklin	37.090153	-79.953936	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	39	-	4	-	4-689
S-GH4	UNT to Teels Creek	Franklin	37.089812	-79.956077	Perennial	RPW		03010101	Timber Mat Crossing	20	-	100	-	11	-	4-688
S-GH3	UNT to Teels Creek	Franklin	37.089745	-79.956042	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	122	-	13	-	4-688

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (square feet) ⁵	Permanent Impact Area (square feet) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-IJ10	Little Creek	Franklin	37.089179	-80.005026	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	61	-	7	-	4-681
S-E29	UNT to Teels Creek	Franklin	37.089178	-79.950110	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	80	-	640	-	237		4-689
S-E28	Teels Creek	Franklin	37.089047	-79.9613	Perennial	RPW	-	03010101	Pipeline ROW	82	-	984	-	364	-	4-687
S-E28	Teels Creek	Franklin	37.085247	-79.948057	Perennial	RPW	-	03010101	Pipeline ROW	76	-	910	-	338	-	4-687
S-E28	Teels Creek	Franklin	37.082875	-79.945556	Perennial	RPW	-	03010101	Pipeline ROW	101	-	1211	-	449	-	4-687
S-EF4	UNT to Teels Creek	Franklin	37.078963	-79.941911	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	80	-	880	-	326	-	4-691
S-EF7	UNT to Teels Creek	Franklin	37.074664	-79.941123	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	39	-	4	-	4-692
S-EF7	UNT to Teels Creek	Franklin	37.074636	-79.941336	Ephemeral	NRPW	-	03010101	ATWS	22	-	44	-	5	-	4-692
S-EF12	Teels Creek	Franklin	37.073367	-79.939865	Perennial	RPW	-	03010101	Pipeline ROW	79	-	1581		585	-	4-692
S-MM42	UNT to Teels Creek	Franklin	37.070703	-79.937069	Ephemeral	NRPW	-	03010101	Pipeline ROW	81	-	161		60	-	4-693
S-D23	Teels Creek	Franklin	37.070322	-79.931039	Perennial	RPW	-	03010101	Pipeline ROW	92	-	2087	-	772	-	4-694
S-D22	UNT to Teels Creek	Franklin	37.070101	-79.929732	Intermittent	RPW		03010101	Pipeline ROW	83	_	662	-	246	-	4-694
S-D18	UNT to Teels Creek	Franklin	37.069560	-79.926213	Ephemeral	NRPW	-	03010101	Pipeline ROW	30	-	61	-	7	-	4-694
S-RR15	UNT to Teels Creek	Franklin	37.069542	-79.933892		RPW		03010101		20	-	26		31		4-694
				-	Perennial		-	+ +	Timber Mat Crossing	-	-	-	-		-	
S-D20	UNT to Teels Creek	Franklin	37.069485	-79.926230	Intermittent	RPW	-	03010101	Pipeline ROW	76	-	610	-	225	-	4-694
S-EF48	UNT to Blackwater River	Franklin	37.064748	-79.874420	Intermittent	RPW	-	03010101	Pipeline ROW	86	-	170	-	64	-	4-705
S-YZ4	UNT to Blackwater River	Franklin	37.064723	-79.878190	Ephemeral	NRPW	-	03010101	Pipeline ROW	84	-	253	-	93	-	4-704
S-C14	Teels Creek	Franklin	37.063956	-79.921985	Perennial	RPW	-	03010101	Pipeline ROW	90	-	3655	-	1,353	-	4-696
S-YZ5	UNT to Blackwater River	Franklin	37.063464	-79.878281	Ephemeral	NRPW	-	03010101	Pipeline ROW	86	-	344	-	127	-	4-704
S-KL41	UNT to Blackwater River	Franklin	37.062262	-79.862639	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	75	-	902	-	333	-	4-706
S-KL39	UNT to Blackwater River	Franklin	37.061193	-79.880018	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	121	-	788	-	291	-	4-704
S-C16	UNT to Teels Creek	Franklin	37.060610	-79.921179	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	301	-	33	-	4-696
S-KL54	UNT to Maggodee Creek	Franklin	37.059535	-79.840624	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76	-	758	-	281	-	4-710
S-C8	UNT to Blackwater River	Franklin	37.059098	-79.853595	Intermittent	RPW	-	03010101	Pipeline ROW	86	-	431	-	159	-	4-708
S-F4	UNT to Blackwater River	Franklin	37.059060	-79.853379	Ephemeral	NRPW	-	03010101	Pipeline ROW	82	-	819	-	91	-	4-708
S-C17	Teels Creek	Franklin	37.058390	-79.918015	Perennial	RPW	-	03010101	Timber Mat Crossing	30	-	601	-	100	-	4-696
S-KL52	UNT to Maggodee Creek	Franklin	37.058165	-79.844877	Ephemeral	NRPW	-	03010101	Pipeline ROW	105	-	105	-	39	-	4-709
S-S11	UNT to Maggodee Creek	Franklin	37.057776	-79.838583	Perennial	RPW	-	03010101	Temporary Access Road	41	-	453	-	50	-	4-710
S-F8	UNT to Maggodee Creek	Franklin	37.057724	-79.836406	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	83	-	2492	-	922	-	4-710
S-CD6	Little Creek	Franklin	37.057584	-79.913921	Perennial	RPW	-	03010101	Pipeline ROW	77	-	4426	-	1,639	-	4-698
S-HH4	UNT to Maggodee Creek	Franklin	37.056594	-79.835785	Intermittent	RPW	-	03010101	Pipeline ROW	97	-	871		323	-	4-711
S-KL51	UNT to Blackwater River	Franklin	37.056084	-79.850384	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	67	-	370	-	136	-	4-708
S-KL38	UNT to Blackwater River	Franklin	37.055912	-79.883177	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	78	_	545	-	202	-	4-702
S-C20	UNT to Maggodee Creek	Franklin	37.055193	-79.833881	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20		78	-	9	-	4-711
S-C19	Maggodee Creek	Franklin	37.055147	-79.830098	Perennial	RPW	-	03010101	Pipeline ROW	75	-	3006	-	1,113	-	4-711
S-KL36	UNT to Blackwater River	Franklin	37.053336	-79.884604		RPW	- Orangefin madtom	03010101	Timber Mat Crossing	20	-	148	-	1,113	-	4-702
				-	Perennial		-		-	-	-		-		-	
S-F11	Blackwater River	Franklin	37.052843	-79.825711	Perennial	TNW	Non-listed mussels	03010101	Pipeline ROW	91	-	6765	-	2,506	-	4-712
S-KL35	UNT to Blackwater River	Franklin	37.052125	-79.886182	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	35	-	87	-	10	-	4-702
S-F9b	UNT to Blackwater River	Franklin	37.049238	-79.817223	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76	-	1141	-	422	-	4-713
S-112	Little Creek	Franklin	37.049219	-79.908513	Perennial	RPW	-	03010101	Pipeline ROW	76	-	3245	-	1,203	-	4-699
S-F10	UNT to Blackwater River	Franklin	37.048037	-79.813934	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	179	-	20	-	4-713
S-CD1	UNT to Blackwater River	Franklin	37.047765	-79.897636	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	104	-	366	-	135	-	4-701
S-F9a	UNT to Blackwater River	Franklin	37.047172	-79.813000	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	301	-	33	-	4-713
S-MM29	UNT to Maple Branch	Franklin	37.043871	-79.822898	Perennial	RPW	-	03010101	Temporary Access Road	42	-	632	-	70	-	4-714
S-MM23	Maple Branch	Franklin	37.043854	-79.822974	Perennial	RPW	-	03010101	Temporary Access Road	78	-	1559	-	173	-	4-714
S-GG4	UNT to Blackwater River	Franklin	37.042742	-79.809015	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	200	-	22	-	4-716
S-A36	UNT to Foul Ground Creek	Franklin	37.037916	-79.804237	Ephemeral	NRPW	-	03010101	Pipeline ROW	77	-	309	-	114	-	4-717
S-A38	UNT to Foul Ground Creek	Franklin	37.036271	-79.799442	Intermittent	RPW	-	03010101	Timber Mat Crossing	30	-	270	-	30	-	4-718
S-A40	UNT to Foul Ground Creek	Franklin	37.036173	-79.799240	Intermittent	RPW	-	03010101	Timber Mat Crossing	13	-	74	-	8	-	4-718
S-A41	Foul Ground Creek	Franklin	37.031714	-79.788213	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	76	-	910	-	338	-	4-720
S-GH36	UNT to Foul Ground Creek	Franklin	37.031063	-79.778588	Intermittent	RPW		03010101	Timber Mat Crossing	20	-	61	-	7	-	4-721
S-KL17	UNT to Foul Ground Creek	Franklin	37.031011	-79.778435	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	100	-	11		4-721
S-GH37	UNT to Foul Ground Creek	Franklin	37.030974	-79.778190	Intermittent	RPW		03010101	Pipeline ROW	46	-	139	-	15	-	4-721
S-GH38	UNT to Foul Ground Creek	Franklin	37.030972	-79.778083	Intermittent	RPW	-	03010101	Pipeline ROW	7	_	22		2	-	4-721
0-01100		T GAINIT	51.000312		Crimeene	11.14	-	33010101		· · ·		~~~	-	-	-	+121

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (square feet) ⁵	Permanent Impact Area (square feet) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-GH39	UNT to Foul Ground Creek	Franklin	37.030861	-79.778069	Intermittent	RPW	-	03010101	Pipeline ROW	103	-	414	-	153	-	4-721
S-GH40	UNT to Foul Ground Creek	Franklin	37.028893	-79.774785	Ephemeral	NRPW	-	03010101	Pipeline ROW	89	-	266	-	99	-	4-721
S-GH44	UNT to Foul Ground Creek	Franklin	37.028392	-79.773359	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	103	-	619	-	69	-	4-721
S-G22	UNT to Poplar Camp Creek	Franklin	37.019612	-79.761958	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	80	-	958	-	356	-	4-723
S-G23	UNT to Poplar Camp Creek	Franklin	37.019526	-79.762002	Intermittent	RPW	-	03010101	Pipeline ROW	42	-	126	-	14	-	4-723
S-G21	UNT to Poplar Camp Creek	Franklin	37.019359	-79.761643	Intermittent	RPW	-	03010101	Pipeline ROW	54	-	161	-	18	-	4-723
S-G20	Poplar Camp Creek	Franklin	37.017364	-79.760000	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	200	-	22	-	4-724
S-G18	UNT to Blackwater River	Franklin	37.009236	-79.754238	Intermittent	RPW	-	03010101	Pipeline ROW	81	-	161	-	60	-	4-725
S-G17	UNT to Blackwater River	Franklin	37.005496	-79.752655	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	100	-	11	-	4-726
S-E18	UNT to Blackwater River	Franklin	37.001271	-79.747749	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	94	-	658	-	244	-	4-727
S-E17	UNT to Blackwater River	Franklin	37.000529	-79.742760	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	95	-	758	-	281	-	4-727
S-E14	UNT to Blackwater River	Franklin	36.995814	-79.735144	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	82	-	1638	-	607	-	4-728
S-H38	UNT to Jacks Creek	Franklin	36.989430	-79.722366	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	240	-	27	-	4-730
S-H32	UNT to Jacks Creek	Franklin	36.988273	-79.708199	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	200	-	22	-	4-732
S-H37	UNT to Jacks Creek	Franklin	36.988031	-79.717450	Ephemeral	NRPW	-	03010101	Pipeline ROW	82	-	492	-	182	-	4-731
S-H34	UNT to Jacks Creek	Franklin	36.988009	-79.711881	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	61	-	7	-	4-732
S-H36	UNT to Jacks Creek	Franklin	36.988008	-79.714922	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	61	-	7	-	4-731
S-H30	UNT to Jacks Creek	Franklin	36.987961	-79.702711	Intermittent	RPW	-	03010101	Pipeline ROW	4	-	4	-	1	-	4-734
S-A18	UNT to Jacks Creek	Franklin	36.987818	-79.700634	Intermittent	RPW	-	03010101	Pipeline ROW	87	-	227	-	84	-	4-734
S-A19/H26	UNT to Jacks Creek	Franklin	36.987719	-79.698901	Intermittent	RPW	-	03010101	Pipeline ROW	212	-	1485	-	550	-	4-734
S-A20	UNT to Jacks Creek	Franklin	36.987715	-79.698555	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	139	-	16	-	4-734
S-H28	UNT to Jacks Creek	Franklin	36.985174	-79.692272	Ephemeral	NRPW		03010101	Pipeline ROW	16	-	96	-	11	-	4-735
S-H27	UNT to Jacks Creek	Franklin	36.985124	-79.692272	Ephemeral	NRPW	-	03010101	Pipeline ROW	36	-	362	-	40	-	4-735
S-A22	UNT to Jacks Creek	Franklin	36.984846	-79.691870	Intermittent	RPW	-	03010101	Timber Mat Crossing	20	-	161	-	18	-	4-735
S-MM44	UNT to Little Jacks Creek	Franklin	36.982507	-79.687818	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20		78	-	9	-	4-735
S-MM46	UNT to Little Jacks Creek	Franklin	36.982240	-79.687500	Intermittent	RPW	-	03010101	Timber Mat Crossing	9	-	26	-	3	-	4-735
S-MM45	UNT to Little Jacks Creek	Franklin	36.981971	-79.686901	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	33	-	131	-	15	-	4-735
S-MM48	UNT to Little Jacks Creek	Franklin	36.979223	-79.684192	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	25	-	174	-	19	-	4-736
S-H25	Little Jacks Creek	Franklin	36.978529	-79.682186	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20		139	-	16	-	4-736
S-H24	UNT to Little Jacks Creek	Franklin	36.978025	-79.680682	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	200	-	22	-	4-736
S-H23	UNT to Turkey Creek	Franklin	36.976421	-79.677525	Ephemeral	NRPW		03010101	Pipeline ROW	92		462		170	_	4-738
S-HH1	UNT to Turkey Creek	Franklin	36.974647	-79.674453	Ephemeral	NRPW	-	03010101	Pipeline ROW	18		91		10	_	4-738
S-A13	Turkey Creek	Franklin	36.973282	-79.673075	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20		161		18		4-738
S-A11	UNT to Turkey Creek	Franklin	36.973237	-79.669898	Ephemeral	NRPW	-	03010101	Pipeline ROW	55		166		18		4-740
S-H17	Dinner Creek	Franklin	36.972125	-79.662987	Intermittent	RPW		03010101	Pipeline ROW	101		806		299		4-741
S-A7	UNT to Dinner Creek	Franklin	36.972032	-79.662504	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	122	-	13		4-741
S-SS8	Polecat Creek	Franklin	36.970904	-79.657370	Perennial	RPW	Orangefin madtom,	03010101	Timber Mat Crossing	20	-	161	-	18	-	4-741
S-CD8	UNT to Owens Creek	Franklin	36.970522	-79.653726	Intermittent	RPW	-	03010101	Pipeline ROW	78	-	353		130	-	4-741
S-AB8	UNT to Owens Creek	Franklin	36.970322	-79.651328	Intermittent	RPW		03010101	Pipeline ROW	84	-	335	-	130	-	4-742
	Owens Creek	Franklin	36.969118			RPW		03010101			-			33		4-742
S-DD3				-79.645042	Intermittent		Orangefin madtom		Timber Mat Crossing	20	-	301	-		-	
S-G16	Strawfield Creek	Franklin	36.968640	-79.642174	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	30	-	601	-	100	-	4-743
S-G15	UNT to Parrot Branch	Franklin	36.967711	-79.636590	Intermittent	RPW	-	03010101	Pipeline ROW	88	-	793	-	293	-	4-744
S-G13	Parrot Branch	Franklin	36.967025	-79.630747	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	161	-	18	-	4-744
S-D3	UNT to Jonnikin Creek	Pittsylvania	36.965631	-79.605542	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	200	-	22	-	4-747
S-D4	UNT to Jonnikin Creek	Pittsylvania	36.965600	-79.604894	Intermittent	RPW	-	03010101	Pipeline ROW	105	-	632	-	233	-	4-747
S-D2	Jonnikin Creek	Pittsylvania	36.965405	-79.599130	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	362	-	40	-	4-748
S-D7	UNT to Jonnikin Creek	Franklin	36.964763	-79.617043	Intermittent	RPW		03010101	Pipeline ROW	80	-	640	-	237	-	4-746
S-D1-EPH	UNT to Jonnikin Creek	Pittsylvania	36.964430	-79.595691	Ephemeral	NRPW		03010101	Pipeline ROW	61	-	610	-	226	-	4-748
S-D1-INT	UNT to Jonnikin Creek	Pittsylvania	36.964407	-79.595841	Intermittent	RPW	-	03010101	Pipeline ROW	29	-	292	-	32	-	4-748
S-G11	UNT to Jonnikin Creek	Pittsylvania	36.962420	-79.590500	Intermittent	RPW	-	03010101	Pipeline ROW	77	-	462	-	171	-	4-749
S-G9	UNT to Jonnikin Creek	Pittsylvania	36.959361	-79.586437	Intermittent	RPW	-	03010101	Pipeline ROW	79	-	318	-	117	-	4-751
S-G8	UNT to Jonnikin Creek	Pittsylvania	36.957805	-79.583545	Intermittent	RPW	-	03010101	Pipeline ROW	90	-	362	-	133	-	4-751
S-Q15	UNT to Jonnikin Creek	Pittsylvania	36.957580	-79.583492	Ephemeral	NRPW	-	03010101	Pipeline ROW	103	-	514	-	191	-	4-751
S-A6	UNT to Rocky Creek	Pittsylvania	36.952275	-79.580460	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	100	-	11	-	4-750

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (square feet) ⁵	Permanent Impact Area (square feet) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-H11-Braid	UNT to Rocky Creek	Pittsylvania	36.949615	-79.579553	Ephemeral	NRPW	-	03010101	Pipeline ROW	85	-	170	-	19	-	4-750
S-F2	UNT to Rocky Creek	Pittsylvania	36.944049	-79.571442	Ephemeral	NRPW	-	03010101	Timber Mat Crossing	20	-	139	-	16	-	4-753
S-C7	UNT to Rocky Creek	Pittsylvania	36.944016	-79.571517	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	401	-	44	-	4-753
S-C3	Harpen Creek	Pittsylvania	36.929762	-79.526109	Perennial	RPW	Roanoke logperch, Orangefin madtom	03010101	Timber Mat Crossing	20	-	362	-	40	-	4-758
S-C4	UNT to Harpen Creek	Pittsylvania	36.929745	-79.526290	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	58	-	231	-	26	-	4-758
S-H13	Harpen Creek	Pittsylvania	36.925105	-79.517350	Perennial	RPW	Orangefin madtom	03010101	Pipeline ROW	77	-	1542	-	570	-	4-759
S-G6	UNT to Harpen Creek	Pittsylvania	36.920737	-79.505898	Intermittent	RPW	-	03010101	Pipeline ROW	80	-	479	-	178	-	4-761
S-G5	UNT to Harpen Creek	Pittsylvania	36.917694	-79.496604	Ephemeral	NRPW	-	03010101	Pipeline ROW	77	-	462	-	171	-	4-762
S-G4	Harpen Creek	Pittsylvania	36.916463	-79.492669	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	30	-	601	-	100	-	4-762
S-G3	UNT to Harpen Creek	Pittsylvania	36.915658	-79.490029	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	179	-	20	-	4-762
S-CC16	UNT to Harpen Creek	Pittsylvania	36.913003	-79.487838	Perennial	RPW	Orangefin madtom	03010101	Timber Mat Crossing	20	-	222	-	24	-	4-763
S-CC14	UNT to Cherrystone Creek	Pittsylvania	36.905329	-79.471492	Intermittent	RPW	-	03010105	Timber Mat Crossing	20	-	161	-	18	-	4-765
S-CC13	UNT to Cherrystone Creek	Pittsylvania	36.905307	-79.471574	Intermittent	RPW	-	03010105	Timber Mat Crossing	20	-	139	-	16	-	4-765
S-MM8	UNT to Cherrystone Creek	Pittsylvania	36.902991	-79.468220	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	122	-	13	-	4-766
S-CC15	UNT to Cherrystone Creek	Pittsylvania	36.901941	-79.466535	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	122	-	13	-	4-766
S-CC8	UNT to Cherrystone Creek	Pittsylvania	36.899437	-79.462685	Intermittent	RPW	-	03010105	Timber Mat Crossing	20	-	161	-	18	-	4-766
S-CC5	UNT to Cherrystone Creek	Pittsylvania	36.899411	-79.462483	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	240	-	27	-	4-766
S-CC5	UNT to Cherrystone Creek	Pittsylvania	36.899248	-79.462396	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	54		649	-	240	-	4-766
S-CC9	UNT to Cherrystone Creek	Pittsylvania	36.897740	-79.458046	Ephemeral	NRPW	-	03010105	Pipeline ROW	81	-	444	-	165	-	4-767
S-CC10	UNT to Cherrystone Creek	Pittsylvania	36.897315	-79.456119	Intermittent	RPW	-	03010105	Pipeline ROW	78	-	701	-	260	-	4-767
S-MM10	UNT to Cherrystone Creek	Pittsylvania	36.895915	-79.452960	Intermittent	RPW	-	03010105	Pipeline ROW	9	-	61	-	7	-	4-768
S-CC11	UNT to Cherrystone Creek	Pittsylvania	36.895808	-79.452920	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	87	-	697	-	258	-	4-768
S-CC1	Cherrystone Creek	Pittsylvania	36.894043	-79.445744	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	82	-	1228	-	456	-	4-769
S-CC3	UNT to Cherrystone Creek	Pittsylvania	36.893727	-79.444763	Ephemeral	NRPW	-	03010105	Pipeline ROW	91	-	727	-	270	-	4-769
S-P5	UNT to Cherrystone Creek	Pittsylvania	36.892751	-79.440053	Ephemeral	NRPW	-	03010105	Timber Mat Crossing	20	-	100	-	11	-	4-769
S-IJ35-EPH	UNT to Pole Bridge Branch	Pittsylvania	36.891451	-79.433781	Ephemeral	NRPW	-	03010105	Pipeline ROW	171	-	684	-	253	-	4-770
S-Q4	UNT to Pole Bridge Branch	Pittsylvania	36.886114	-79.430914	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20		100	-	11		4-771
S-Q3	Pole Bridge Branch	Pittsylvania	36.884444	-79.428220	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	75		1873	-	694	-	4-771
S-Q2	UNT to Pole Bridge Branch	Pittsylvania	36.884284	-79.427914	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20		139	-	16		4-771
S-B6	UNT to Pole Bridge Branch	Pittsylvania	36.879063	-79.420189	Ephemeral	NRPW	-	03010105	Pipeline ROW	84	-	841	-	311	-	4-772
S-B8	UNT to Pole Bridge Branch	Pittsylvania	36.877937	-79.417992	Intermittent	RPW	-	03010105	Pipeline ROW	82	-	327	-	121	-	4-773
S-B9	UNT to Pole Bridge Branch	Pittsylvania	36.877416	-79.416255	Perennial	RPW	Orangefin madtom	03010105	Pipeline ROW	78	-	545	-	202	-	4-773
S-DD4-Braid-1	UNT to Mill Creek	Pittsylvania	36.871651	-79.404061	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	67	-	401	-	149	-	4-775
S-DD4	UNT to Mill Creek	Pittsylvania	36.871478	-79.403907	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	147	-	880	-	327	-	4-775
S-KL27	UNT to Mill Creek	Pittsylvania	36.866534	-79.400511	Ephemeral	NRPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	84	-	83	-	31	-	4-776
S-C1	Mill Creek	Pittsylvania	36.863513	-79.397914	Intermittent	RPW	Natural Trout, Coldwater Fishery	03010105	Pipeline ROW	92	-	553	-	204	-	4-777
S-G2	Little Cherrystone Creek	Pittsylvania	36.851931	-79.386051	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20		139	-	16	-	4-779
S-B2	UNT to Little Cherrystone Creek	Pittsylvania	36.849394	-79.377780	Ephemeral	NRPW	-	03010105	Timber Mat Crossing	20		100	-	11		4-780
S-H55	UNT to Little Cherrystone Creek	Pittsylvania	36.843486	-79.369222	Ephemeral	NRPW		03010105	Timber Mat Crossing	20		61		7	-	4-781
S-H54	UNT to Little Cherrystone Creek	Pittsylvania	36.841112	-79.366848	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20		240		27		4-781
S-GG11	UNT to Little Cherrystone Creek	Pittsylvania	36.841093	-79.366942	Perennial	RPW	-	03010105	Timber Mat Crossing	46	-	366	-	41		4-781
S-H3	UNT to Little Cherrystone Creek	Pittsylvania	36.834501	-79.360244	Intermittent	RPW	-	03010105	Pipeline ROW	18		109	-	12	-	4-781
S-H5	UNT to Little Cherrystone Creek	Pittsylvania	36.833412	-79.359823	Perennial	RPW	- Orangefin madtom	03010105	Pipeline ROW	83	-	662		246		4-783
S-H5 S-001			36.833412	-79.359823		RPW		03010105	Pipeline ROW	83	-	418	-	156	-	4-783
S-H44	UNT to Little Cherrystone Creek	Pittsylvania	36.830285	-79.356618	Intermittent	RPW	- Orangafia madtam	03010105		33	-	266	-	29	-	4-785
S-H44 S-H42	UNT to Little Cherrystone Creek	Pittsylvania		-79.346016	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	33	-	200	- 74	29	- 14	4-785
	UNT to Little Cherrystone Creek	Pittsylvania	36.828993		Perennial		Orangefin madtom		Permanent Access Road	-	15	-	/4	- 10	11	
S-H42	UNT to Little Cherrystone Creek	Pittsylvania	36.828958	-79.344315	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	139	-	16	-	4-785

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Stream Designation ⁴	HUC 8	Impact Type	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (square feet) ⁵	Permanent Impact Area (square feet) ⁵	Temporary Fill (cubic yard) ⁶	Permanent Fill (cubic yard) ⁷	Figure
S-002	UNT to Little Cherrystone Creek	Pittsylvania	36.828831	-79.353849	Intermittent	RPW	-	03010105	Pipeline ROW	78	-	392	-	144	-	4-784
S-EF26	Little Cherrystone Creek	Pittsylvania	36.828207	-79.349814	Perennial	RPW	Orangefin madtom	03010105	Timber Mat Crossing	20	-	401	-	44	-	4-784

Notes: 1

For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, "Unidentified Tributary (UNT)", of the first named receiving waterbody
In decimal degrees
RPW = Relatively Permanent Waters
NRPW = Non-Relatively Permanent Waters
TNW = Traditional Navigable Waters
See Section 1.9.2 and Section 4.2 for more information
Impact square feet are rounded to the nearest whole number.
Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.
Permanent fill associated with the construction of Permanent access road and facilities. Cubic yards are rounded to the nearest whole number.

2 3



Table B-2 (Virginia Wetland Impacts)

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (square feet) ⁴	Permanent Conversion Impacts (square feet) ⁴	Permanent Fill Impacts (square feet) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-Z11	Giles	Norfolk	37.346591	-80.641713	PEM	NRPWW	05050002	Pipeline ROW	1,141	-	-	423	-	4-543
W-Z3	Giles	Norfolk	37.342244	-80.620612	PSS	RPWWD	05050002	Timber Mat Crossing	-	592	-	66	-	4-545
W-CD12	Giles	Norfolk	37.318644	-80.441717	PEM	RPWWD	05050002	Pipeline ROW	906	-	-	335	-	4-577
W-MM10	Giles	Norfolk	37.298219	-80.480617	PEM	RPWWD	05050002	Temporary Access Road	1,106	-	-	123	-	4-569
W-RR1b	Giles	Norfolk	37.296670	-80.494042	PEM	RPWWD	05050002	Timber Mat Crossing	244	-	-	27	-	4-567
W-IJ46-PEM	Montgomery	Norfolk	37.296153	-80.367508	PEM	RPWWD	03010101	Pipeline ROW	1,281	-	-	474	-	4-591
W-AD4	Montgomery	Norfolk	37.286984	-80.330124	PEM	RPWWD	03010101	Temporary Access Road	301	-	-	33	-	4-596
W-NN6	Montgomery	Norfolk	37.268174	-80.316468	PEM	RPWWN	03010101	Timber Mat Crossing	362	-	-	40	-	4-603
W-F9-PFO	Montgomery	Norfolk	37.258109	-80.285892	PFO	RPWWD	03010101	Pipeline ROW	-	736	-	82	-	4-609
W-C12-PEM	Montgomery	Norfolk	37.257265	-80.281667	PEM	RPWWD	03010101	Pipeline ROW	8,999	-	-	3,333	-	4-609
W-C12	Montgomery	Norfolk	37.257192	-80.281649	PFO	RPWWD	03010101	Pipeline ROW	-	2,278	-	253	-	4-609 4-609
W-C11 W-C6	Montgomery	Norfolk Norfolk	37.257107 37.255860	-80.281351 -80.275715	PSS PEM	RPWWD NRPWW	03010101 03010101	Pipeline ROW	- 605	2,008	-	223 67	-	4-609 4-610
W-C6 W-C5	Montgomery	Norfolk	37.255606	-80.275715	PEM	NRPWW	03010101	Timber Mat Crossing Pipeline ROW	1,978	-	-	732	-	4-610 4-610
W-C5 W-AB7	Montgomery Montgomery	Norfolk	37.235606	-80.198615	PEM	RPWWD	03010101	Timber Mat Crossing	1,978	-	-	19	-	4-610
W-KL58	, s	Norfolk	37.229183	-80.203106	PEM	RPWWD	03010101	Permanent Access Road		-	1,707		- 190	4-631
W-EF5-PFO	Montgomery Montgomery	Norfolk	37.210948	-80.193359	PFO	RPWWD	03010101	Pipeline ROW	-	- 3,711	-	- 1,374	-	4-635
W-EF18	Roanoke	Norfolk	37.179449	-80.140665	PSS	RPWWD	03010101	Temporary Access Road	-	227	-	25	-	4-647
W-EF10 W-EF17	Roanoke	Norfolk	37.179449	-80.140605	PSS PFO	RPWWD	03010101	Temporary Access Road	-	976	-	108	-	4-647
W-EF17 W-IJ94-PEM	Roanoke	Norfolk	37.179402	-80.138294	PEM	RPWWD	03010101	Timber Mat Crossing	- 880	-	-	98	-	4-649
W-IJ94-PEM	Roanoke	Norfolk	37.169461	-80.130376	PEM	RPWWD	03010101	Permanent Access Road	000	-	579	-	63	4-650
W-IJ96-PEM	Roanoke	Norfolk	37.169461	-80.130376	PEM	RPWWD	03010101	Permanent Access Road	122		575	- 14	-	4-650
W-IJ97	Roanoke	Norfolk	37.169197	-80.129448	PEM	RPWWD	03010101	Permanent Access Road	-		22	-	2	4-650
W-IJ95-PSS	Roanoke	Norfolk	37.169068	-80.138278	PSS	RPWWD	03010101	Timber Mat Crossing		1,106		123	-	4-649
W-IJ102	Roanoke	Norfolk	37.168289	-80.138375	PFO	RPWWD	03010101	Timber Mat Crossing		436		48		4-649
W-KL17	Roanoke	Norfolk	37.160152	-80.134774	PSS	RPWWD	03010101	Pipeline ROW	-	1,895	-	702	-	4-651
W-KL16*	Roanoke	Norfolk	37.159927	-80.134257	PEM	ISOLATE	03010101	Timber Mat Crossing	618	-	-	69	_	4-651
W-KL15*	Roanoke	Norfolk	37.158853	-80.133802	PEM	ISOLATE	03010101	Pipeline ROW	1,451	-		537	_	4-651
W-EF42	Roanoke	Norfolk	37.157611	-80.133722	PEM	RPWWD	03010101	Pipeline ROW	362	-	-	40	-	4-652
W-HS02	Roanoke	Norfolk	37.157427	-80.133413	PEM	RPWWD	03010101	Pipeline ROW	12,602	-	-	4,668	-	4-652
W-AB6-PEM-2	Roanoke	Norfolk	37.156825	-80.131998	PEM	RPWWD	03010101	Pipeline ROW	14,248	-	-	5,277	-	4-652
W-AB6-PFO-1	Roanoke	Norfolk	37.156713	-80.131681	PFO	RPWWD	03010101	Pipeline ROW	-	2,692	-	997	-	4-652
W-AB6-PEM-1	Roanoke	Norfolk	37.156170	-80.130794	PEM	RPWWD	03010101	Pipeline ROW	2,818	-	-	1,044	-	4-652
W-AB6-PSS	Roanoke	Norfolk	37.156034	-80.130603	PSS	RPWWD	03010101	Pipeline ROW	-	266	-	30	-	4-652
W-AB5	Roanoke	Norfolk	37.155840	-80.130227	PFO	RPWWN	03010101	Pipeline ROW	-	183	-	20	-	4-652
W-AB3-PEM-2	Roanoke	Norfolk	37.155664	-80.129569	PEM	RPWWD	03010101	Pipeline ROW	6,739	-	-	2,495	-	4-652
W-EF46	Roanoke	Norfolk	37.154575	-80.129122	PSS	RPWWD	03010101	Timber Mat Crossing	-	2,971	-	330	-	4-652
W-KL48-PSS-1	Roanoke	Norfolk	37.152292	-80.130022	PSS	RPWWD	03010101	Pipeline ROW	-	1,978	-	733	-	4-653
W-KL48-PEM	Roanoke	Norfolk	37.151965	-80.130049	PEM	RPWWD	03010101	Pipeline ROW	274	-	-	31	-	4-653
W-KL48-PSS-2	Roanoke	Norfolk	37.150926	-80.131271	PSS	RPWWD	03010101	Pipeline ROW	-	1,150	-	128	-	4-653
W-KL50	Roanoke	Norfolk	37.150728	-80.131537	PEM	RPWWN	03010101	Pipeline ROW	1,777	-	-	658	-	4-653
W-KL49	Roanoke	Norfolk	37.150297	-80.132193	PEM	RPWWN	03010101	Timber Mat Crossing	662	-	-	74	-	4-653
W-KL51-PEM	Roanoke	Norfolk	37.150006	-80.132403	PEM	RPWWD	03010101	Timber Mat Crossing	274	-	-	30	-	4-653
W-KL51-PSS	Roanoke	Norfolk	37.149975	-80.132476	PSS	RPWWD	03010101	Timber Mat Crossing	-	348	-	39	-	4-653
W-MN7-PEM	Roanoke	Norfolk	37.148328	-80.133901	PEM	RPWWD	03010101	Timber Mat Crossing	505	-	-	56	-	4-653
W-EF44	Roanoke	Norfolk	37.142977	-80.138322	PEM	RPWWD	03010101	Timber Mat Crossing	370	-	-	41	-	4-654
W-IJ36	Roanoke	Norfolk	37.138922	-80.139845	PSS	RPWWD	03010101	Timber Mat Crossing	-	5,388	-	599	-	4-655
W-Z7	Roanoke	Norfolk	37.136601	-80.128216	PSS	RPWWD	03010101	Temporary Access Road	-	13	-	1	-	4-657
W-Z6	Roanoke	Norfolk	37.136466	-80.128238	PFO	RPWWD	03010101	Temporary Access Road	-	122	-	14	-	4-657
W-IJ62	Roanoke	Norfolk	37.135529	-80.134044	PEM	RPWWD	03010101	Temporary Access Road	4	-	-	1	-	4-656
W-Y2	Roanoke	Norfolk	37.134284	-80.137448	PEM	RPWWD	03010101	Timber Mat Crossing	823	-	-	91	-	4-656
W-IJ10	Roanoke	Norfolk	37.132561	-80.131744	PEM	RPWWD	03010101	Permanent Access Road	87	-	-	10	-	4-656
W-Q11	Roanoke	Norfolk	37.132470	-80.131638	PEM	RPWWD	03010101	Permanent Access Road	566	-	-	63	-	4-656
W-KL1	Roanoke	Norfolk	37.132456	-80.131463	PEM	RPWWN	03010101	Permanent Access Road	78	-	-	9	-	4-656
W-B25-PEM-4	Roanoke	Norfolk	37.128942	-80.133774	PEM	RPWWD	03010101	Timber Mat Crossing	405	-	-	45	-	4-659
W-B25-PEM-1	Roanoke	Norfolk	37.128645	-80.133283	PEM	RPWWD	03010101	Pipeline ROW	8,425	-	-	3,120	-	4-659
W-B24-PSS	Roanoke	Norfolk	37.128540	-80.130794	PSS	RPWWD	03010101	Pipeline ROW	-	7,131	-	2,641	-	4-659
W-B24-PEM	Roanoke	Norfolk	37.128530	-80.131060	PEM	RPWWD	03010101	Pipeline ROW	4,491	-	-	1,663	-	4-659
W-B25-PSS-2	Roanoke	Norfolk	37.128527	-80.132335	PSS	RPWWD	03010101	Timber Mat Crossing	-	3,615	-	402	-	4-659
W-B25-PEM-1	Roanoke	Norfolk	37.128449	-80.132802	PEM	RPWWD	03010101	Timber Mat Crossing	610	-	-	68	-	4-659
W-B25-PEM-2	Roanoke	Norfolk	37.128436	-80.132646	PEM	RPWWD	03010101	Timber Mat Crossing	209	-	-	78	-	4-659
W-ST2-PEM	Franklin	Norfolk	37.125329	-80.121460	PEM	RPWWD	03010101	Pipeline ROW	4,975	-	-	1,842	-	4-661
W-RR4	Franklin	Norfolk	37.125117	-80.113530	PEM	RPWWD	03010101	Permanent Access Road	941	-	-	105	-	4-662

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (square feet) ⁴	Permanent Conversion Impacts (square feet) ⁴	Permanent Fill Impacts (square feet) ⁴	Temporary Fill (cubic yards) ⁵	Permanent Fill (cubic yards) ⁶	Figure
W-RR3	Franklin	Norfolk	37.124214	-80.114746	PEM	RPWWD	03010101	Permanent Access Road	83	-	-	9	-	4-662
W-KL41	Franklin	Norfolk	37.123851	-80.115802	PEM	RPWWD	03010101	Permanent Access Road	998	-	-	111	-	4-661
W-D4	Franklin	Norfolk	37.122629	-80.076102	PEM	RPWWN	03010101	Permanent Access Road	135	-	-	15	-	4-667
W-D4	Franklin	Norfolk	37.122625	-80.076071	PEM	RPWWN	03010101	Permanent Access Road	-	-	39	-	4	4-667
W-D7-PEM	Franklin	Norfolk	37.121559	-80.085750	PEM	RPWWD	03010101	Pipeline ROW	693	-	-	77	-	4-666
W-EF3	Franklin	Norfolk	37.117734	-80.095992	PEM	RPWWD	03010101	Permanent Access Road	1,154	-	-	128	-	4-665
W-IJ1	Franklin	Norfolk	37.092927	-80.027568	PEM	RPWWD	03010101	Pipeline ROW	1,812	-	-	671	-	4-677
W-IJ2-PSS	Franklin	Norfolk	37.092645	-80.027176	PSS	RPWWD	03010101	Pipeline ROW	-	348	-	129	-	4-677
W-IJ2-PEM	Franklin	Norfolk	37.092596	-80.027214	PEM	RPWWD	03010101	Pipeline ROW	732	-	-	271	-	4-677
W-GH2	Franklin	Norfolk	37.092404	-79.983182	PSS	RPWWD	03010101	Timber Mat Crossing	-	566	-	63	-	4-684
W-II8	Franklin	Norfolk	37.091357	-79.992006	PEM	RPWWD	03010101	Timber Mat Crossing	383	-	-	43	-	4-683
W-IJ6	Franklin	Norfolk	37.089156	-80.005036	PEM	RPWWD	03010101	Timber Mat Crossing	200	-	-	22	-	4-681
W-E7	Franklin	Norfolk	37.084557	-79.947595	PEM	RPWWD	03010101	Pipeline ROW	10,986	-	-	4,068	-	4-690
W-E8	Franklin	Norfolk	37.082843	-79.946100	PEM	RPWWD	03010101	Pipeline ROW	3,010	-	-	1,114	-	4-690
W-EF51	Franklin	Norfolk	37.064781	-79.874460	PEM	RPWWD	03010101	Pipeline ROW	579	-	-	64	-	4-705
W-KL43b	Franklin	Norfolk	37.059608	-79.840707	PEM	RPWWD	03010101	Pipeline ROW	17	-	-	2	-	4-710
W-CD6	Franklin	Norfolk	37.057586	-79.915232	PEM	RPWWN	03010101	Timber Mat Crossing	4,069	-	-	452	-	4-698
W-CD5	Franklin	Norfolk	37.055438	-79.910624	PFO	RPWWN	03010101	Pipeline ROW	-	4,948	-	1,833	-	4-698
W-EF48	Franklin	Norfolk	37.052142	-79.886197	PEM	RPWWD	03010101	Timber Mat Crossing	348	-	-	39	-	4-702
W-CD1	Franklin	Norfolk	37.047767	-79.897568	PFO	RPWWD	03010101	Pipeline ROW	-	4,818	-	1,785	-	4-701
W-DD1	Franklin	Norfolk	37.031961	-79.788589	PEM	RPWWN	03010101	Pipeline ROW	3,541	-	_	1,312	-	4-720
W-A12-PFO	Franklin	Norfolk	37.031754	-79.788099	PFO	RPWWD	03010101	Pipeline ROW	-	174	-	19	-	4-720
W-A12-PEM	Franklin	Norfolk	37.031643	-79.788111	PEM	RPWWD	03010101	Pipeline ROW	2,836	-		1,050		4-720
W-GH16	Franklin	Norfolk	37.028394	-79.773243	PFO	RPWWD	03010101	Timber Mat Crossing	-	2,862		318	-	4-722
W-GI110 W-H17	Franklin	Norfolk	36.989390	-79.722090	PFO	RPWWD	03010101	Timber Mat Crossing		1,607	-	179	-	4-722
W-H11	Franklin	Norfolk	36.988077	-79.702803	PEM	RPWWD	03010101	Pipeline ROW	2,039	-		755		4-734
W-H16	Franklin	Norfolk	36.988073	-79.714967	PEM	RPWWD	03010101	Timber Mat Crossing	1,011		-	112		4-731
W-H14	Franklin	Norfolk	36.988069	-79.711841	PEM	RPWWD	03010101	Timber Mat Crossing	266		-	30	-	4-732
W-A8	Franklin	Norfolk	36.987947	-79.700844	PEM	RPWWD	03010101	Pipeline ROW	671		-	75	-	4-734
W-A8 W-H15	Franklin	Norfolk	36.987938	-79.714829	PEM	RPWWD	03010101	Timber Mat Crossing	-	309	-	35	-	4-734
W-H9	Franklin	Norfolk	36.978536	-79.682057	PEM	RPWWD	03010101	Timber Mat Crossing	370		-	41	-	4-736
W-H9 W-H6	Franklin	Norfolk	36.972189	-79.663042	PEM	RPWWD	03010101	Pipeline ROW	248	-	-	28	-	4-730
W-H6 W-D3		Norfolk	36.965318	-79.598760	PEM	RPWWN	03010101			- 1,241	-	138	-	4-741
W-D3 W-MM17	Pittsylvania Franklin	Norfolk	36.964731	-79.598760	PFO	RPWWN	03010101	Timber Mat Crossing Pipeline ROW	- 296		-	130	-	4-746
									296	-	-		-	
W-B5	Pittsylvania	Norfolk	36.959293	-79.586201	PEM	RPWWN	03010101	Pipeline ROW		-	-	23	-	4-751
W-B4-PSS	Pittsylvania	Norfolk	36.957884	-79.583666	PSS	RPWWD	03010101	Pipeline ROW	-	205	-	23	-	4-751
W-C1	Pittsylvania	Norfolk	36.929954	-79.526831	PEM	RPWWN	03010101	Timber Mat Crossing	793	-	-	88	-	4-758
W-H5	Pittsylvania	Norfolk	36.924983	-79.517159	PEM	RPWWD	03010101	Pipeline ROW	9,004	-	-	3,335	-	4-759
W-B3	Pittsylvania	Norfolk	36.916508	-79.492360	PEM	RPWWN	03010101	Timber Mat Crossing	57	-	-	6	-	4-762
W-CC2-PEM	Pittsylvania	Norfolk	36.905418	-79.471566	PEM	RPWWD	03010105	Timber Mat Crossing	1,185	-	-	132	-	4-765
W-MM5	Pittsylvania	Norfolk	36.903012	-79.468192	PSS	RPWWD	03010105	Timber Mat Crossing	-	1,699	-	189	-	4-766
W-MM9	Pittsylvania	Norfolk	36.894087	-79.446110	PEM	RPWWN	03010105	Timber Mat Crossing	470	-	-	52	-	4-769
W-MM8-PEM	Pittsylvania	Norfolk	36.894034	-79.445486	PEM	RPWWN	03010105	Pipeline ROW	2,409	-	-	893	-	4-769
W-MM8-PFO	Pittsylvania	Norfolk	36.893930	-79.445461	PFO	RPWWN	03010105	Pipeline ROW	-	1,834	-	679	-	4-769
W-Q2	Pittsylvania	Norfolk	36.884674	-79.428607	PFO	RPWWD	03010105	Pipeline ROW	-	16,422	-	6,082	-	4-771
W-Q1	Pittsylvania	Norfolk	36.883985	-79.427305	PEM	RPWWD	03010105	Pipeline ROW	636	-	-	236	-	4-771
W-G2	Pittsylvania	Norfolk	36.851816	-79.385930	PEM	RPWWD	03010105	Timber Mat Crossing	1,507	-	-	167	-	4-779
W-H1	Pittsylvania	Norfolk	36.836097	-79.360895	PEM	RPWWN	03010105	Pipeline ROW	479	-	-	53	-	4-782
W-EF6	Pittsylvania	Norfolk	36.835004	-79.339128	PFO	RPWWD	03010105	Pipeline ROW	-	2,905	-	323	-	4-786
W-H2	Pittsylvania	Norfolk	36.834817	-79.360479	PEM	RPWWD	03010105	Pipeline ROW	34,791	-	-	12,886	-	4-782

Wetland ID	County	USACE District	Latitude ¹	Longitude ¹	Cowardin Class ²	USACE Water Type ³	HUC 8	Impact Type	Temporary Impacts (square feet) ⁴	Permanent Conversion Impacts (square feet) ⁴	Permanent Fill Impacts (square feet) ⁴	•	Permanent Fill (cubic yards) ⁶	Figure
W-IJ21	Pittsylvania	Norfolk	36.834623	-79.338527	PFO	RPWWN	03010105	Timber Mat Crossing	-	462	-	51	-	4-786
W-H3	Pittsylvania	Norfolk	36.833741	-79.360081	PEM	RPWWN	03010105	Pipeline ROW	2,217	-	-	821	-	4-783
W-MM3	Pittsylvania	Norfolk	36.830361	-79.356631	PSS	RPWWD	03010105	Pipeline ROW	-	1,481	-	548	-	4-783
W-IJ22-PEM	Pittsylvania	Norfolk	36.827780	-79.350264	PEM	RPWWD	03010105	Timber Mat Crossing	1,699	-	-	189	-	4-784
W-IJ22-PFO	Pittsylvania	Norfolk	36.827748	-79.350295	PFO	RPWWD	03010105	Timber Mat Crossing	-	3,419	-	380	-	4-784

Notes:

- In decimal degrees. 1

2 - PEM = Palustrine Emergent

- PSS = Palustrine Scrub-Shrub

- PFO = Palustrine Forested

- RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs) 3 - RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs - NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

4 - Construction of access roads will not result in impacts to tidal wetlands or wetlands adjacent to tidal waters. Construction, maintenance, or expansion of substation facilities will not result in discharges to non-tidal wetlands adjacent to tidal waters of the United States. - Impact square feet are rounded to the nearest whole number.

5 - Temporary fill discharge into waters of the U.S. Cubic yards are rounded to the nearest whole number.

- Permanent fill associated with the construction of permanent access road and facilities. Cubic yards are rounded to the nearest whole number. 6

* - VDEQ does not require a VWPP for W-KL15 or W-KL16 per the VDEQ 1/23/2018 IWOMEV Determination



Table B-3 (Virginia Stream Impact Summary)

Cowardin Class	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Fill (cubic yards)	Permanent Fill (cubic yards)
Ephemeral	3,966	45	6,274	35
Intermittent	6,383	0	10,478	0
Perennial	6,921	65	30,294	55
Norfolk District Total	17,270	110	47,046	90



 Table B-4 (Virginia Wetland Impact Summary)

Cowardin Class	Temporary Impacts (square feet) ¹	Permanent Conversion Impacts (square feet)	Permanent Fill Impacts (square feet)	Temporary Fill (cubic yards)	Permanent Fill (cubic yards)	
PEM	174,346	0	2,347	57,313	259	
PSS	0	33,296	0	7,029	0	
PFO	0	51,826	0	14,683	0	
Norfolk District Total	174,346	85,122	2,347	78,419	259	

Notes:

1

- Includes temporary impacts to W-KL15 and W-KL16, two isolated wetland that VDEQ does not require a VWPP for per the VDEQ 1/23/2018 IWOMEV Determination.