



## **MVP Southgate Project**

Docket No. CP19-14-000

## **May 2019 Supplemental Filing Attachments**

May 2019



## **MVP Southgate Project**

Docket No. CP19-14-000

### **Attachment 1**

## **Changes to the MVP Southgate Project Workspaces and the Pipeline Route Table and Figures**

May 2019



Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route					
Tract ID	Modification No.	Approx. Begin MP	Approx. End MP	Length (miles)	Workspaces and Pipeline Route Description / Justification
VA-PI-002.000	MVP-VRA3-115-1251	0	---	---	Trim additional temporary workspace ("ATWS") 1001E to canopy line.
VA-PI-002.000	MVP-VRA3-115-1253	0	---	---	Trim ATWS 1001E to canopy line.
VA-PI-002.000	MVP-VRA3-115-1254	0	---	---	Trim ATWS 1001E to canopy line.
VA-PI-008.000, VA-PI-008.300, VA-PI-009.000	MVP-VRA3-116-1258	1.2	---	---	Delete TA-PI-003.
VA-PI-009.000	MVP-VRA3-093-1825	1.2	---	---	Change access road TA-PI-003 to tie back into the limit of disturbance ("LOD").
VA-PI-009.000	MVP-VRA3-093-1823	1.2	---	---	Delete ATWS 1019.
VA-PI-009.000	MVP-VRR3-080-1320 <u>a/</u>	1.2	1.4	0.2	Adjust route to avoid sensitive resource
VA-PI-009.000	MVP-VRA3-122-1122	1.2	---	---	Delete ATWS 1018 because TA-PI-003 was deleted.
VA-PI-009.000	MVP-VRA3-093-1829	1.3	---	---	Change ATWS 1020 to wrap around the new route.
VA-PI-009.000	MVP-VRA3-093-1827	1.3	---	---	Extend ATWS 1017 so that the access road change will have area for turnaround.
VA-PI-010.000	MVP-VRR3-116-1300	1.6	---	---	Widen out point of intersection ("PI") for access road TA-PI-004.
VA-PI-012.000	MVP-VRR3-098-1552	2.2	---	---	Adjust TA-PI-005 to avoid wetland
VA-PI-012.000	MVP-VRR3-116-1303	2.3	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-005.
VA-PI-012.000	MVP-VRR3-116-1304	2.3	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the east of TA-PI-005.
VA-PI-012.000	MVP-VRR3-116-1306	2.3	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-005.
VA-PI-012.000	MVP-VRA3-121-1111	2.3	---	---	Widen TA-PI-005 for safe vehicle transportation.
VA-PI-012.000, VA-PI-014.000	MVP-VRA3-058-1114	2.7	---	---	Remove TA-PI-005 from impacting tract VA-PI-014.000.
VA-PI-023.000	MVP-VRR3-117-2202	3.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-006.
VA-PI-022.000, VA-PI-023.000	MVP-VRA3-116-1309	3.6	---	---	Delete TA-PI-006A.
VA-PI-022.000, VA-PI-023.000	MVP-VRA3-115-1255	3.6	---	---	Move ATWS 1035 north into field and out of trees. Give the canopy line a 3-foot buffer.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
VA-PI-032.000	MVP-VRA3-116-1343	4.8	---	---	Delete ATWS 1048.
VA-PI-032.000	MVP-VRA3-116-1347	4.8	---	---	Delete TA-PI-009.
VA-PI-034.000, VA-PI-034.100	MVP-VRR3-119-1614	5.1	---	---	Add ATWS 25 feet x 100 feet for pull off.
VA-PI-034.100	MVP-VRR3-116-1559	5.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-011.
VA-PI-034.100	MVP-VRR3-116-1601	5.1	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the north of TA-PI-011.
VA-PI-034.100, VA-PI-034.200	MVP-VRA3-058-1226	5.2	---	---	Remove TA-PI-011 from impacting tract VA-PI-034.200.
VA-PI-036.000	MVP-VRR3-116-1604	5.6	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the east of TA-PI-015.
VA-PI-035.100, VA-PI-037.000	MVP-VRR3-116-1654	5.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-016.
VA-PI-036.000	MVP-VRA3-043-1340	6	---	---	Edit ATWS 1057 to be 100 foot x 200 foot rectangle.
VA-PI-036.000	MVP-VRA3-067-0940	6.2	---	---	Move ATWS 1059 north to avoid ground water testing well.
VA-PI-036.000, VA-PI-037.000	MVP-VRA3-043-1345	6.25	---	---	Edit ATWS 1060 to be 100 foot x 200 foot rectangle.
VA-PI-039.000	MVP-VRR3-116-1642	6.85	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-018.
VA-PI-038.000	MVP-VRR3-116-1611	6.85	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the south of TA-PI-018.
VA-PI-040.000	MVP-VRA3-116-1613	7	---	---	Move ATWS 1066 south to avoid slope.
VA-PI-041.000	MVP-VRA3-098-1408	7.2	---	---	Add Groundbed 1, Option 2 back in. Please call this "Groundbed 1, Alternate 2".
VA-PI-040.000.RC, VA-PI-041.000	MVP-VRA3-052-1712	7.2	---	---	Add gravel pull off.

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VA-PI-041.000	MVP-VRA3-058-1418	7.2	---	---	Groundbed 1, Option 2 no longer viable.
VA-PI-042.000	MVP-VRA3-037-1107	7.4	---	---	Change PA-PI-018B to MLV 2 to be 12 feet wide and centered on the centerline of easement.
VA-PI-042.000	MVP-VRA3-042-1140	7.4	---	---	Trim temporary workspace ("TWS") to stay 5 feet off of the existing facility fence.
VA-PI-045.001, VA-PI-045.000.RC	MVP-VRA3-059-1430	8.1	---	---	Add gravel pad near the rectifier location for the operations pickup trucks.
VA-PI-045.001, VA-PI-045.000.RC	MVP-VRR3-059-1434	8.1	---	---	Rename this "Groundbed 1, Alternate 4".
VA-PI-047.000	MVP-VRA3-116-1644	8.2	---	---	Delete TA-PI-021.
VA-PI-048.000	MVP-VRR3-116-1739	8.5	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-022.
VA-PI-048.000	MVP-VRR3-116-1740	8.5	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the south of TA-PI-022.
VA-PI-051.000	MVP-VRR3-117-2204	8.95	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-023.
VA-PI-051.000	MVP-VRR3-117-2205	8.95	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-023.
VA-PI-052.000	MVP-VRA3-116-1741	9.1	---	---	Delete TA-PI-024.
VA-PI-053.000, VA-PI-052.000.RC	MVP-VRA3-059-1451	9.35	---	---	Add gravel pad near the rectifier location for the operations pickup trucks
VA-PI-053.000	MVP-VRR3-059-1457	9.35	---	---	Rename this "Groundbed 1, Alternate 3".
VA-PI-053.000	MVP-VRR3-116-1744	9.6	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the west of TA-PI-025.
VA-PI-053.000	MVP-VRA3-098-1555	9.8	---	---	Trim TWS to avoid wetland.

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VA-PI-054.000, VA-PI-055.000, VA-PI-057.000	MVP-VRA3-087-1719	10.2	---	---	Remove TWS from tract VA-PI-057.000 completely.
VA-PI-072.000, VA-PI-073.000, VA-PI-065.000	MVP-VRA3-058-1404	10.65	---	---	Remove TWS from tract VA-PI-072.000, give the property line a 1-foot buffer.
VA-PI-065.000.RC, VA-PI-065.000	MVP-VRA3-344-1609	10.7	---	---	Add temporary driveway for landowner access.
VA-PI-075.000	MVP-VRA3-098-1410	10.8	---	---	Add Ground bed 1, Option 1 back in. Rename this "Groundbed 1, Alternate 1".
<u>VA-PI-065.000.RC</u>	MVP-VRA3-064-0832	10.8	---	---	Add gravel pull off back.
VA-PI-075.000	MVP-VRR3-116-1755	11.05	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-027.
VA-PI-075.000	MVP-VRA3-093-1830	11.1	---	---	Extend ATWS 1096 to property line. Give property line a 1 foot buffer.
VA-PI-082.000	MVP-VRA3-044-1119	12.4	---	---	Delete PA-PI-029 because it leads to an old location of an MLV.
VA-PI-088.000, VA-PI-089.000, VA-PI-090.000	MVP-VRA3-052-1552 a/	13.4	13.5	0.1	Adjust line to stay on VA-PI-089.000 and not impact VA-PI-088.000 at all, give the property line a 1-foot buffer.
VA-PI-090.000, VA-PI-091.000, VA-PI-090.100	MVP-VRA3-116-1756	13.65	---	---	Delete TA-PI-034.
VA-PI-092.200	MVP-VRR3-116-1758	14.15	---	---	Add ATWS 12.5 feet x 200 feet for pull off on the west of TA-PI-035.
VA-PI-092.200, VA-PI-092.300	MVP-VRA3-064-0909	14.15	---	---	Move TA-PI-035 over to avoid VA-PI-092.300. Give the property line a 1-foot buffer.
VA-PI-094.000	MVP-VRA3-122-0938	14.7	---	---	Trim ATWS 1118A to tree canopy line.
VA-PI-095.000, VA-PI-096.000	MVP-VRR3-112-1330	14.75	---	---	Move ATWS 1118B to the west side of LOD because of wetland.
VA-PI-099.000, VA-PI-099.100	MVP-VRA3-114-1546	14.9	---	---	MP 14.90 Delete TA-PI-036.
VA-PI-100.000	MVP-VRA3-114-1548	14.9	---	---	Move ATWS 1120 to the east side of LOD per landowner request (Pollok).
VA-PI-099.000	MVP-VRR3-114-1549	15.1	---	---	Adjust TA-PI-037 up the hill per landowner request (Pollok).
VA-PI-099.000	MVP-VRA3-114-1551	15.1	---	---	Move ATWS 1120A up the hill away from the pond per landowner request (Pollok).

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VA-PI-099.000, VA-PI-101.000	MVP-VRA3-114-1552 <u>a/</u>	15.4	15.5	0.1	Adjust the route to avoid sediment catch area per landowner request (Pollok).
VA-PI-102.000, VA-PI-102.100	MVP-VRA3-116-1759	15.8	---	---	Delete TA-PI-038.
VA-PI-114.000, VA-PI-115.000	MVP-VRA3-052-1554	16.45	---	---	Trim ATWS 1131 to not impact VA-PI-114.000 at all, give the property line a 1-foot buffer.
VA-PI-115.000, VA-PI-116.000	MVP-VRR3-116-1801	16.7	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the north of TA-PI-041. Stay inside of survey corridor.
VA-PI-115.000	MVP-VRA3-116-1802	16.7	---	---	Delete TA-PI-042.
VA-PI-115.100	MVP-VRR3-119-1616	17.2	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-043.
VA-PI-118.000	MVP-VRR3-119-1615	17.2	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-043.
VA-PI-118.000	MVP-VRA3-058-1426	17.3	---	---	Move ATWS 1137 south west to avoid clearing trees.
VA-PI-094.000	MVP-VRR3-112-1329	17.7	---	---	Move ATWS 1118A to the west side of LOD because of wetland.
VA-PI-121.000, VA-PI-118.000	MVP-VRR3-282-1108 <u>a/</u>	17.7	18.2	0.5	Adjust the centerline to avoid sensitive resource area.
VA-PI-121.000	MVP-VRR3-116-1804	18	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the east of TA-PI-046.
VA-PI-124.000	MVP-VRA3-037-1108	18.25	---	---	Change PA-PI-046A to MLV 3 to be 12 feet wide and centered on centerline of easement.
VA-PI-125.000, VA-PI-128.000	MVP-VRA3-116-1805	18.65	---	---	Delete TA-PI-048.
VA-PI-140.000	MVP-VRR3-116-1806	19.5	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the west of TA-PI-049.
VA-PI-152.000	MVP-VRR3-059-1503	20	---	---	Groundbed 2, ALt 2 seem to have power nearby.
VA-PI-151.000.RC	MVP-VRA3-059-1500	20	---	---	Add gravel pad near the rectifier location for the operations pickup trucks.

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VA-PI-154.000, VA-PI-154.200, VA-PI-156.000.RC, VA-PI-155.000, VA-PI-157.000	MVP-VRR3-117-2206	20.2	---	---	Extend TA-PI-051A to the property line. Give the property line a 1-foot buffer. Stay on VA-PI-154.000, VA-PI-154.200.
VA-PI-154.000	MVP-VRA3-123-1458	20.2	---	---	Trim TWS to stay 26 feet away from the residence.
VA-PI-154.200	MVP-VRA3-126-1538	20.25	---	---	Cut back some additional TWS to avoid car port not shown on IL but visible in custom Imagery and shot in by civil under MDS points. Give the carport a 5 foot buffer.
VA-PI-154.200	MVP-VRA3-127-1943	20.25	---	---	Trim TWS to be 26 feet away from residence.
VA-PI-160.000	MVP-VRR3-117-2112	20.5	---	---	Add ATWS 25 feet x 100 feet for pull off. Keep all on north east side and move the pull off north 100 feet.
VA-PI-160.000	MVP-VRR3-117-2110	20.5	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the west of TA-PI-052.
VA-PI-162.000.RC, VA-PI-163.000	MVP-VRR3-344-1427	21.1	---	---	Extend PA-PI-053 to the public road.
VA-PI-165.000, VA-PI-165.100	MVP-VRA3-117-2115	21.6	---	---	Remove TA-PI-055.
VA-PI-165.000	MVP-VRA3-120-1437	21.6	---	---	Remove ATWS 1168 because TA-PI-055 has been removed.
VA-PI-169.000	MVP-VRA3-098-1557	22	---	---	Trim TWS to keep the 75 feet neck down.
VA-PI-174.000	MVP-VRR3-119-1620	23	---	---	Add ATWS 25 feet x 100' for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-061.
VA-PI-172.000	MVP-VRR3-119-1618	23	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-061.
VA-PI-172.000	MVP-VRR3-119-1619	23	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-061.
VA-PI-178.100	MVP-VRR3-117-2118	24	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-PI-063.
VA-PI-178.000	MVP-VRA3-117-2124	24.6	---	---	Remove TA-PI-064.
VA-PI-180.000	MVP-VRR3-117-2126	24.8	---	---	Widen TA-PI-066 for safe vehicle transportation.

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VA-PI-180.000, NC-RO-001.000	MVP-VRA3-117-2129	26	---	---	Remove TA-PI-068.
NC-RO-001.000	MVP-VRA3-116-1458	26.2	---	---	Remove TA-RO-070.
NC-RO-004.000	MVP-VRA3-042-1142 <u>a/</u>	26.6	26.8	0.2	Adjust centerline to where the TWS is approximately 8 feet from the existing facility fence post.
NC-RO-004.000	MVP-VRA3-116-1503	26.7	---	---	Remove TA-RO-071.
NC-RO-004.000	MVP-VRA3-059-1604	26.7	---	---	Change ATWS 1209A from an ATWS to a turning flare of TA-RO-071.
NC-RO-004.000	MVP-VRA3-059-1607	26.7	---	---	Change ATWS 1211A from an ATWS to a turning flare of TA-RO-071.
NC-RO-005.000, NC-RO-004.000	MVP-VRR3-063-1316 <u>a/</u>	26.9	27.1	0.2	Adjust the centerline south because of Williams pipeline crosses in this same area, change the non-working side to the north for the crossing. Changes per field meeting with Williams Transco personnel.
NC-RO-005.000	MVP-VRA3-115-1257	27	---	---	Combine ATWS 1213 and 1213F to be 1 ATWS.
NC-RO-005.000	MVP-VRA3-063-1333	27	---	---	Move ATWS 1213A to PI.
NC-RO-005.000	MVP-VRA3-063-1334	27	---	---	Extend TA-RO-072A to ATWS 1213A.
NC-RO-005.000	MVP-VRA3-063-1519	27	---	---	Change the non-working side to be on the north side of permanent ROW when crossing existing pipelines.
NC-RO-005.000	MVP-VRA3-063-1337	27	---	---	Change the working side to be on the south side of permanent ROW when crossing existing pipelines.
NC-RO-005.000	MVP-VRA3-063-1335	27	---	---	Change TA-RO-073 to end at ATWS 1213. Delete ATWS 1213B.
NC-RO-005.000	MVP-VRA3-063-1331	27	---	---	Move ATWS 1213 down to PI make the dimensions to be 200 feet x 100 feet.
NC-RO-005.000	MVP-VRA3-063-1330	27	---	---	Add ATWS for road crossing 100 feet wide.
NC-RO-005.000	MVP-VRR3-116-1518	27	---	---	Reroute TA-RO-072A.
NC-RO-005.000	MVP-VRA3-116-1606	27.05	---	---	Extension of TA-RO-072B to cover private road from TWS to ATWS 1213F due to removal of TA-RO-073.
NC-RO-005.000	MVP-VRA3-122-0939	27.1	---	---	Delete ATWS 1213C.
NC-RO-005.000	MVP-VRA3-115-1300	27.1	---	---	Trim ATWS 1213A to avoid the wetland. Give the wetland a 5-foot buffer because this ATWS is needed for crossing the existing pipelines.

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NC-RO-005.000	MVP-VRA3-115-1258	27.1	---	---	Extend ATWS 1213A because of wetland.
NC-RO-005.000	MVP-VRA3-116-1520	27.15	---	---	Remove ATWS 1213B.
NC-RO-005.000	MVP-VRA3-116-1554	27.15	---	---	Remove TA-RO-073.
NC-RO-005.000	MVP-VRA3-122-0940	27.25	---	---	Reduce ATWS 1213D to 150 feet long from 280 feet long.
NC-RO-005.000; NC-RO-006.000	MVP-VRA3-116-1612	27.4	---	---	Remove TA-RO-073A.
NC-RO-006.000	MVP-VRA3-032-1359	27.4	---	---	Increase for more working area for stream crossing.
NC-RO-006.000, NC-RO-007.000	MVP-VRA3-087-1708 <u>a/</u>	27.7	28.7	1	<p>MP 27.40 to 28.30 - Adjust the route so that the TWS is at the edge of Williams Transco's ROW.</p> <p>MP 28.30 to 28.70 - Adjust the route so that the perm. ROW is butting up to the edge of their ROW.</p> <p>Offset the centerline of the closest pipe by 10 feet to the TWS. Making the centerline of MVPSG to centerline of their pipe 50 feet.</p> <p>Changes per field meeting with Williams Transco personnel.</p>
NC-RO-006.000	MVP-VRR3-116-1615	27.8	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the south of TA-RO-075.
NC-RO-006.000	MVP-VRR3-116-1619	28.2	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the south of PA-RO-000.
NC-RO-006.000	MVP-VRR3-116-1617	28.2	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of PA-RO-000.
NC-RO-006.000	MVP-VRR3-116-1622	28.6	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-076.
NC-RO-007.000	MVP-VRR3-116-2214	29.1	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the east of TA-RO-078.
NC-RO-007.000, NC-RO-007.200, NC-RO-009.000, NC-RO-010.000	MVP-VRA3-067-1000	29.6	---	---	Adjust TA-RO-079A to avoid tracts RO-007.200, 009.000, 010.000. Maintain road on NC-RO-007.000 only.
NC-RO-007.000; NC-RO-007.200	MVP-VRR3-116-2217	29.65	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-079A.
NC-RO-007.000	MVP-VRA3-045-1240	29.85	---	---	Add ATWS 25 feet wide for pull back sections and boring operations



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NC-RO-011.000; NC-RO-011.100	MVP-VRR3-116-2224	29.9	---	---	Widen PI in TA-RO-080 for safe vehicle transportation.
NC-RO-011.000; NC-RO-011.100	MVP-VRR3-116-2227	29.9	---	---	Widen PI in TA-RO-080 for safe vehicle transportation.
NC-RO-011.000	MVP-VRA3-087-0936	29.9	---	---	Trim ATWS 1247 to stay out of environmental buffer
NC-RO-011.000	MVP-VRA3-059-1608	29.9	---	---	Change ATWS 1247A from an ATWS to a turning flare of TA-RO-080
NC-RO-011.000	MVP-VRR3-116-2220	29.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-080.
NC-RO-011.000	MVP-VRR3-116-2222	29.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-080.
NC-RO-011.000	MVP-VRA3-130-1421	30	---	---	Change TWS for HDD from 5 feet to 3 feet per FERC request.
NC-RO-013.000, NC-RO-014.000, NC-RO-015.000, NC-RO-016.000	MVP-VRA3-130-1423	30.2	---	---	Change TWS for HDD from 5 feet to 3 feet per FERC request.
NC-RO-014.000, NC-RO-015.000	MVP-VRR3-088-1117	30.4	---	---	Add ATWS for hydro test water storage.
NC-RO-015.000	MVP-VRR3-088-1120	30.4	---	---	Add temporary access road for hydrotest.
NC-RO-022.000	MVP-VRA3-025-0829	30.9	---	---	Add ATWS because of stream neck downs
NC-RO-033.000	MVP-VRA3-116-2229	31.65	---	---	Remove TA-RO-084.
NC-RO-038.100	MVP-VRR3-116-2233	32.4	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the east of TA-RO-085.
NC-RO-038.000	MVP-VRR3-116-2231	32.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-085.
NC-RO-038.000	MVP-VRR3-119-1652	32.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-085.
NC-RO-038.000	MVP-VRA3-116-2234	32.5	---	---	Remove TA-RO-086
NC-RO-040.000	MVP-VRR3-116-2236	32.8	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the west of TA-PI-087.
NC-RO-039.000	MVP-VRR3-116-2237	32.8	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the north of TA-RO-087.
NC-RO-044.000	MVP-VRR3-116-2242	33.6	---	---	Widen PI on TA-RO-088 for safe vehicle transportation.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-RO-044.000	MVP-VRR3-116-2239	33.6	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-088.
NC-RO-044.000	MVP-VRR3-116-2240	33.6	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-088.
NC-RO-046.000, NC-RO-047.000	MVP-VRA3-063-1223	34.1	---	---	Remove TWS from this tract. Re-position onto NC-RO-047.000 if the area must be kept. Give the property line a 1-foot buffer
NC-RO-046.000, NC-RO-047.000	MVP-VRA3-353-1601	34.1	---	---	Add space for turning to TA-RO-089 for turning flare
NC-RO-047.300	MVP-VRR3-116-2244	34.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-089.
NC-RO-053.000	MVP-VRR3-119-1018	34.7	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-091.
NC-RO-059.000	MVP-VRR3-119-1020	35.45	---	---	Add ATWS 12.5 feet x 200 feet for pull off on the south of TA-RO-092.
NC-RO-059.000; NC-RO-058.000	MVP-VRA3-119-1023	35.65	---	---	Remove TA-RO-093
NC-RO-059.000	MVP-VRA3-340-1149	35.65	---	---	Add flare to TA-RO-093
NC-RO-058.000; NC-RO-059.000	MVP-VRR3-119-1026	35.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-094.
NC-RO-061.000; NC-RO-061.000.RC	MVP-VRA3-119-1028	36.2	---	---	Remove TA-RO-095.
NC-RO-067.000; NC-RO-068.000	MVP-VRA3-119-1030	36.75	---	---	Remove TA-RO-099.
NC-RO-069.000	MVP-VRA3-080-1335	37	---	---	Landowner request adjustment to access road to avoid recently planted trees.
NC-RO-069.000	MVP-VRR3-119-1032	37.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-100. Stay inside of survey corridor.
NC-RO-077.000	MVP-VRR3-119-1037	37.6	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-102.
NC-RO-080.000	MVP-VRA3-058-1427	37.8	---	---	Trim ATWS 1324A to be 25 feet away from existing pipelines.

Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route					
Tract ID	Modification No.	Approx. Begin MP	Approx. End MP	Length (miles)	Workspaces and Pipeline Route Description / Justification
NC-RO-080.000	MVP-VRA3-058-1429	37.81	---	---	Trim ATWS 1326 to be 25 feet away from existing pipelines.
NC-RO-080.000, NC-RO-082.000, NC-RO-083.000	MVP-VRA3-058-1431	37.9	---	---	Trim TWS to be 10 feet off set from existing pipeline.
NC-RO-085.000	MVP-VRR3-119-1040	38.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-103.
NC-RO-085.000	MVP-VRR3-119-1038	38.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-103.
NC-RO-087.000, NC-RO-088.000	MVP-VRA3-049-1100	38.2	---	---	Add ATWS 100 feet wide for crossing of foreign pipelines.
NC-RO-087.000, NC-RO-088.000	MVP-VRA3-049-1102	38.2	---	---	Move ATWS 1330 to the east side.
NC-RO-089.000	MVP-VRA3-119-1041	38.55	---	---	Remove TA-RO-104.
NC-RO-090.000	MVP-VRA3-119-1043	38.8	---	---	Add Rock Construction Entrance ("RCE") from Crutchfield Road to ATWS 1336 abutting TWS. RCE entrance to be across from TA-RO-106.
NC-RO-091.000	MVP-VRA3-119-1046	38.9	---	---	Shorten TA-RO-106 to meet western edge of ATWS 1338 and ATWS 1339.
NC-RO-094.000, NC-RO-094.100	MVP-VRA3-119-1653	39.4	---	---	Trim TA-RO-107 to stop at TA-RO-108.
NC-RO-094.200, NC-RO-094.300	MVP-VRA3-353-1605	39.4	---	---	Add space for turning to TA-RO-107.
NC-RO-100.100, NC-RO-097.000.RR	MVP-VRA3-058-1409	39.7	---	---	Remove PA-RO-109 from impacting tract NC-RO-100.100.
NC-RO-100.000, NC-RO-097.000.RR, NC-RO-100.100	MVP-VRA3-085-0834	39.7	---	---	Change PA-RO-109 to a temporary access road, TA-RO-109.
NC-RO-100.100,	MVP-VRR3-119-0934	39.7	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-109.
NC-RO-102.000	MVP-VRA3-121-1112	40.3	---	---	Make the access road 50-foot-wide with a 75-foot flare.
NC-RO-102.000, NC-RO-104.000	MVP-VRA3-121-1113	40.3	---	---	Trim TWS off NC-RO-104.000. Give the property a 1-foot buffer for the TWS.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-RO-101.000, NC-RO-103.000, NC-RO-104.000, NC-RO-102.000	MVP-VRR3-098-0836 <u>a/</u>	40.3	40.5	0.2	Reroute to avoid impacts to Ore property onto willing landowner.
NC-RO-102.000	MVP-VRA3-127-1945	40.3	---	---	Trim TWS to be 26 feet away from residence.
NC-RO-105.000	MVP-VRA3-120-1230	40.35	---	---	Add ATWS but stay inside of survey corridor for Ore Reroute.
NC-RO-105.000	MVP-VRA3-120-1232	40.35	---	---	Add ATWS but stay inside of survey corridor for Ore Reroute.
NC-RO-105.000	MVP-VRA3-120-1234	40.4	---	---	Add ATWS but stay inside of survey corridor for Ore Reroute.
NC-RO-105.000	MVP-VRA3-120-1233	40.4	---	---	Add ATWS but stay inside of survey corridor for Ore Reroute.
NC-RO-105.000	MVP-VRA3-120-1229 <u>a/</u>	40.4	40.5	0.1	Adjust route to avoid landowner leech field (Strader).
NC-RO-105.000	MVP-VRA3-058-1433	40.4	---	---	Trim TWS only to be 25 feet away from power pole.
NC-RO-105.000, NC-RO-105.100	MVP-VRA3-085-0947	40.9	---	---	Removed part of TA-RO-111. Give the property line of NC-RO-108.000 a 120-foot buffer.  Chicken Farm Road is a public road to approximately the west property line of NC-RO-108.000 at this point it becomes private.
NC-RO-108.000	MVP-VRA3-353-1607	40.9	---	---	Add space for turning to TA-RO-111 for turning flare.
NC-RO-108.000	MVP-VRA3-353-1606	40.9	---	---	Add space for turning to TA-RO-111 for turning flare.
NC-RO-108.000	MVP-VRR3-119-0936	40.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-111.
NC-RO-109.000	MVP-VRR3-119-0937	40.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-111.
NC-RO-109.000	MVP-VRR3-119-0938	40.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Keep it all on the north side of TA-RO-111.
NC-RO-111.000	MVP-VRR3-119-0940	41.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of PA-RO-112.
NC-RO-111.000	MVP-VRR3-119-0939	41.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-112.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-RO-112.000, NC-RO-112.100	MVP-VRR3-080-1327	41.7	---	---	Landowner request that we adjust the Access road to better fit his desires on the property.
NC-RO-112.000	MVP-VRA3-100-1700	41.8	---	---	Delete Groundbed 3, Alternate 1
NC-RO-112.000, NC-RO-112.100	MVP-VRA3-128-1037	41.8	---	---	Change PA-RO-113A to a temporary access road
NC-RO-112.000	MVP-VRR3-119-0944	41.8	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the south of PA-RO-113A. Move this pull off east to the property line, give the property line a 1-foot buffer
NC-RO-112.000	MVP-VRR3-119-0943	41.8	---	---	Add ATWS 25 feet x 100 feet for pull off. Flip the pull off to north side of PA-RO-113A.
NC-RO-112.200	MVP-VRA3-037-1110	42.2	---	---	Change PA-RO-114A to MLV 5 to be 12 feet wide and centered on centerline of easement.
NC-RO-117.000, NC-RO-117.100	MVP-VRR3-119-0945	42.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-115.
NC-RO-118.000	MVP-VRA3-087-0938	43.1	---	---	Extend ATWS 1384 for boring operations.
NC-RO-117.250	MVP-VRA3-087-1014	43.1	---	---	Trim TWS to avoid car port and water well. Give the car port and water well a 5 foot buffer.
NC-RO-122.000, NC-RO-122.100	MVP-VRA3-119-1241	43.15	---	---	Add RCE.
NC-RO-117.000.RC, NC-RO-118.000, NC-RO-117.250	MVP-VRA3-119-1239	43.15	---	---	Add RCE.
NC-RO-117.000.RC, NC-RO-117.250	MVP-VRA3-087-1721	43.15	---	---	Trim TWS to avoid car port, water well and driveway Give the car port and water well a 5-foot buffer.
NC-RO-121.000, NC-RO-122.000, NC-RO-117.000.RC	MVP-VRA3-119-1243	43.2	---	---	Remove TA-RO-115A.
NC-RO-122.000, NC-RO-122.100, NC-RO-124.000.RC	MVP-VRA3-119-1247	43.4	---	---	Add RCE.
NC-RO-122.000, NC-RO-122.100, NC-RO-124.000.RC	MVP-VRA3-119-1249	43.4	---	---	Remove TA-RO-117.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-RO-122.000, NC-RO-122.100, NC-RO-124.000.RC	MVP-VRA3-119-1251	43.4	---	---	Remove TA-RO-118.
NC-RO-122.000, NC-RO-122.100, NC-RO-124.000.RC	MVP-VRA3-119-1245	43.4	---	---	Add RCE.
NC-RO-133.000	MVP-VRR3-119-1305	43.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-119.
NC-RO-133.000	MVP-VRR3-119-1259	43.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-119.
NC-RO-133.000	MVP-VRR3-119-1306	44.1	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the south of TA-RO-122.
NC-RO-138.000	MVP-VRA3-119-1700	44.8	---	---	Remove TA-RO-124
NC-RO-138.000	MVP-VRA3-107-0918	44.9	---	---	Delete PA-RO-124A
NC-RO-138.000	MVP-VRA3-107-0917	44.9	---	---	Delete Groundbed 3 on the north side of the road. The new Groundbed 3 will be on the south side of the road
NC-RO-139.000	MVP-VRA3-077-1416	44.9	---	---	Deep Anode Bed 3 Location: approximate groundbed will be within 30 foot by 30-foot gravel pad at a location where drilling rig does not interfere with overhead power lines.
NC-RO-139.000	MVP-VRA3-077-1419	44.9	---	---	Gravel pull off.
NC-RO-139.000	MVP-VRR3-119-1308	45.3	---	---	Add ATWS 25' x 100' for pull off. Split the pull off to 12.5' on both sides of TA-RO-126.
NC-RO-140.000	MVP-VRA3-107-0841	45.5	---	---	ATWS 1415 is on a steep sloped landowner requested ATWS be moved to the indicated location.
NC-RO-142.000, NC-RO-143.000	MVP-VRR3-080-1329 <u>a/</u>	46	46.3	0.3	Landowner request that route adjustment to be as close to the existing corridor as possible.
NC-RO-143.400	MVP-VRA3-340-1319	46.1	---	---	Add flare to TA-RO-127 at public road.
NC-RO-143.400	MVP-VRR3-119-1309	46.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Keep all of pull off on the west side of TA-RO-127.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-RO-143.000	MVP-VRR3-119-1310	46.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-127.
NC-RO-148.505, NC-RO-148.515	MVP-VRR3-119-1311	46.75	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-129. Move east to stay out of environmental buffer.
NC-RO-149.100	MVP-VRR3-119-1313	47.3	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the east of TA-RO-130.
NC-RO-149.100	MVP-VRR3-119-1312	47.3	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-130.
NC-RO-157.000, NC-RO-157.000.RC	MVP-VRA3-119-1316	48.2	---	---	Add RCE.
NC-RO-156.000, NC-RO-157.000	MVP-VRA3-119-1314	48.2	---	---	Remove TA-RO-131.
NC-RO-157.000.RC, NC-RO-160.000	MVP-VRA3-119-1317	48.4	---	---	Add RCE.
NC-RO-159.000, NC-RO-160.000	MVP-VRA3-119-1321	48.5	---	---	Remove TA-RO-133. Access via RCE.
NC-RO-160.000	MVP-VRA3-106-1504	48.5	---	---	Add ATWS because the access road is being changed.
NC-RO-160.000, NC-RO-162.000	MVP-VRA3-106-1505	48.5	---	---	Delete ATWS 1447 because the access road is being changed.
NC-RO-159.000, NC-RO-160.000	MVP-VRR3-063-1229	48.5	---	---	Landowner request change in access road to line shown. Can go west to the ROW or back East to the existing road.
NC-RO-162.000, NC-RO-163.000	MVP-VRA3-052-1304	49.1	---	---	Trim ATWS 1451 to avoid NC-RO-163.000, give a 1-foot buffer to the property line
NC-RO-164.000, NC-RO-165.000	MVP-VRA3-058-1436	49.15	---	---	Trim TWS and ATWS to be 25 feet away from power pole.
NC-RO-165.000	MVP-VRR3-119-1319	49.2	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-135.
NC-RO-165.000	MVP-VRA3-025-0858	49.3	---	---	Trim ATWS to be outside of environmental buffer.
<u>NC-RO-168.000.RC</u>	MVP-VRA3-119-1323	49.5	---	---	Add RCE.
<u>NC-RO-168.000.RC</u>	MVP-VRA3-119-1324	49.5	---	---	Add RCE.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-RO-167.000, NC-RO-168.000, NC-RO-168.000.RC	MVP-VRA3-119-1325	49.5	---	---	Remove TA-RO-136.
NC-RO-169.000	MVP-VRA3-058-1607	49.55	---	---	Trim ATWS 1457 at tree line to stay outside of power line ROW.
NC-RO-170.000, NC-RO-171.000, NC-RO-172.000, NC-RO-173.000, NC-RO-174.000, NC-RO-175.000, NC-RO-177.000, NC-RO-178.000, NC-RO-179.000, NC-RO-180.000, NC-RO-181.000	MVP-VRA3-087-1019 <u>a/</u>	49.7	51.6	1.9	Adjust the route to be outside of Duke right-of-way ("ROW").
NC-RO-170.000	MVP-VRA3-340-1452	49.8	---	---	Add flare TA-RO-138 at public road
NC-RO-170.000	MVP-VRR3-119-1327	49.8	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-138.
NC-RO-174.200, NC-RO-174.400	MVP-VRR3-119-1328	50.3	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-139.
NC-RO-174.000	MVP-VRR3-119-1329	50.3	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-RO-139.
NC-RO-179.000	MVP-VRA3-025-0903	50.7	---	---	Trim TWS and move ATWS to be outside of environmental buffer.
NC-RO-179.000	MVP-VRA3-025-0901	50.7	---	---	Move ATWS outside of environmental buffer.
NC-AL-010.000	MVP-VRA3-037-1111	51.05	---	---	Change PA-AL-155A to MLV 6 to be 12 feet wide and centered on centerline of easement.
NC-RO-183.000	MVP-VRA3-353-1614	51.7	---	---	Add space for turning to TA-RO-142 for turning flare.
NC-GU-001.000, NC-RO-181.000, NC-RO-186.000	MVP-VRR3-058-1608 <u>a/</u>	52.3	52.5	0.2	Adjust centerline to cross the transmission power lines between the towers.
NC-AL-000.060, NC-AL-000.060.RC, NC-AL-000.065	MVP-VRA3-118-2045	53.3	---	---	Move RCE closer to Row and add to both sides of workspace.
NC-AL-000.060, NC-AL-000.060.RC, NC-AL-000.065	MVP-VRA3-118-2043	53.3	---	---	Add RCE to both sides of workspace.



**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-AL-000.065	MVP-VRA3-071-0825	53.35	---	---	Add TWS.
NC-AL-001.000, NC-AL-000.065	MVP-VRA3-118-2047	53.5	---	---	Remove TA-AL-152.
NC-AL-003.000	MVP-VRR3-119-2055	53.8	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-153.
NC-AL-006.000, NC-AL-006.100	MVP-VRR3-118-2049	54.25	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the west of TA-AL-154. Stay inside of survey corridor. Move north 40 feet.
NC-AL-006.000, NC-AL-006.100	MVP-VRR3-063-1231	54.3	---	---	Landowner has requested that TA-AL-154 be changed to the shown route and the remainder of the road be deleted.
NC-AL-006.000, NC-AL-006.100, NC-AL-008.100	MVP-VRR3-067-1007	54.7	---	---	Landowner offers this route as an alternate to TA-AL-154/155. New road to be completely on AL-008.100. This new road and VRR3-063-1231 will replace TA-AL-154/155.
NC-AL-008.100	MVP-VRR3-118-2050	54.7	---	---	Add ATWS 25 feet x 100 feet for pull off. Keep all of pull off on the west side of TA-AL-155.
NC-AL-009.000, NC-AL-009.000.RC	MVP-VRA3-118-2051	55.05	---	---	Add access road. RCE will be needed on both side of road.
NC-AL-018.000	MVP-VRA3-118-2053	55.6	---	---	Widen TA-AL-157.
NC-AL-027.000, NC-AL-028.000	MVP-VRA3-118-2054	56.3	---	---	Remove TA-AL-159.
NC-AL-033.000	MVP-VRA3-011-1011	56.9	---	---	Add area TA-AL-159A for turning flare.
NC-AL-033.000	MVP-VRR3-118-2056	56.9	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-159A. Move south east 125 feet to avoid tree clearing on the east side.
NC-AL-042.000, NC-AL-043.000	MVP-VRA3-073-1106	57.5	---	---	Move ATWS 1533 out of environmental buffer.
<u>NC-AL-043.000.RC</u>	MVP-VRA3-340-1544	57.7	---	---	Add flare to TA-AL-161 at public road.
NC-AL-043.000, NC-AL-044.000	MVP-VRR3-118-2057	57.75	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the west of TA-AL-161.
NC-AL-043.000, NC-AL-044.000	MVP-VRA3-127-1948	57.8	---	---	Trim ATWS 1536 to be 26 feet away from residence.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-AL-046.000	MVP-VRR3-118-2058	58.1	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-162.
NC-AL-046.000	MVP-VRR3-118-2059	58.1	---	---	Adjust TA-AL-162 over if possible.
NC-AL-050.100	MVP-VRA3-340-1611	58.4	---	---	Add flare to TA-AL-163 at public road.
NC-AL-050.100	MVP-VRR3-118-2101	58.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Keep all of the pull off on the east side TA-AL-163.
NC-AL-052.000	MVP-VRA3-340-1612	58.6	---	---	Add flare to PA-AL-164 at public road.
NC-AL-052.000, NC-AL-052.100	MVP-VRA3-118-2102	58.8	---	---	Remove PA-AL-164.
NC-AL-052.000	MVP-VRA3-059-0949	58.8	---	---	Change PA-AL-164 to a temporary access road.
NC-AL-066.000, NC-AL-066.000.RC, NC-AL-067.000	MVP-VRA3-118-2104	60	---	---	Add RCE.
NC-AL-066.000, NC-AL-066.000.RC, NC-AL-067.000	MVP-VRA3-118-2106	60	---	---	Add RCE.
NC-AL-066.000, NC-AL-067.000	MVP-VRA3-118-2107	60	---	---	Remove TA-AL-165.
NC-AL-068.000.RC, NC-AL-069.000	MVP-VRA3-118-2110	60.25	---	---	Add RCE.
NC-AL-067.001, NC-AL-068.000, NC- AL-068.000.RC	MVP-VRA3-118-2109	60.25	---	---	Add RCE.
NC-AL-070.000, NC-AL-071.000, NC-AL-072.000, NC-AL-074.000	MVP-VRA3-052-1605	60.4	---	---	Trim TWS to avoid tract NC-AL-071.000 and NC-AL-072.000, give the property line a 1-foot buffer.
NC-AL-076.100, NC-AL-076.600	MVP-VRR3-052-1608	61.15	---	---	Adjust TA-AL-167 to avoid NC-AL-076.600, give the property line a 1-foot buffer and wait for property boundary to be set.
NC-AL-076.100	MVP-VRR3-118-2112	61.15	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the west of TA-AL-167.
NC-AL-081.000	MVP-VRR3-118-2113	61.15	---	---	Add ATWS 12.5 feet x 200 feet for pull off on the west of TA-AL-168.
NC-AL-081.000	MVP-VRA3-118-2115	61.55	---	---	Widen TA-AL-168 PI.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-AL-086.000	MVP-VRR3-118-2116	62.4	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-169. Move west 80 feet to avoid tree clearing, and structure. When moving pull off please do not impact power pole.
NC-AL-088.000	MVP-VRA3-049-1326	62.8	---	---	Trim ATWS 1575 to stay off of NC-AL-088.000. Give the property a 1-foot buffer
NC-AL-098.000	MVP-VRR3-289-0846	63.25	---	---	Relocate access road TA-AL-171 to avoid landowner's house
NC-AL-101.000, NC-AL-102.000	MVP-VRA3-088-1634	63.4	---	---	Relocate access road TA-AL-171 to MP 63.25 that will be on NC-AL-098.000 so it does not go past landowners house
NC-AL-093.000, NC-AL-096.000, NC-AL-097.000, NC-AL-102.000	MVP-VRA3-130-1426	63.5	---	---	Change TWS for horizontal directional drill ("HDD") from 5 feet to 3 feet per FERC request.
NC-AL-104.000	MVP-VRA3-130-1428	63.7	---	---	Change TWS for HDD from 5 feet to 3 feet per FERC request.
NC-AL-103.000	MVP-VRA3-112-1332	64	---	---	Trim TWS to be outside of environmental buffer.
NC-AL-106.000	MVP-VRA3-112-1333	64.05	---	---	Trim TWS to be outside of environmental buffer.
MVF-NC-AL-007.000	MVP-VRA3-100-1701	64.8	---	---	Delete Groundbed 4, Alternate 1.
MVF-NC-AL-005.000.RC, MVF-NC-AL-007.000	MVP-VRA3-118-2117	64.8	---	---	Add RCE.
MVF-NC-AL-005.000.RC, MVF-NC-AL-007.000	MVP-VRA3-118-2119	64.8	---	---	Add RCE
NC-AL-120.000	MVP-VRA3-025-0909	65.65	---	---	Trim TWS to be outside of environmental buffer.
FA3-AL-008.000, FA3-AL-009.000	MVP-VRA3-029-0944	66.6	---	---	Trim TWS to make a 75 feet neck down.
FA3-AL-010.200, FA3-AL-010.300, FA3-AL-010.000, FA3-AL-010.100	MVP-VRA3-114-1235	66.7	---	---	Delete TA-AL-179A.
FA3-AL-010.300	MVP-VRA3-353-1618	66.7	---	---	Add space for turning to TA-AL-179A for turning flare.
FA3-AL-010.300	MVP-VRA3-353-1617	66.7	---	---	Add space for turning to TA-AL-179A for turning flare.

Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route					
Tract ID	Modification No.	Approx. Begin MP	Approx. End MP	Length (miles)	Workspaces and Pipeline Route Description / Justification
FA3-AL-010.200	MVP-VRA3-340-1624	66.7	---	---	Add flare to TA-AL-179A at public road.
NC-AL-131.000, NC-AL-132.000	MVP-VRR3-114-1238	67	---	---	Add temporary access road.
NC-AL-127.000, NC-AL-128.000, NC-AL-129.000, NC-AL-132.000, NC-AL-133.000, NC-AL-134.000, NC-AL-135.000, NC-AL-136.000, NC-AL-137.000	MVP-VRR3-108-1000 <u>a</u> /	67	67.9	0.9	Reroute to reduce impacts to East Alamance Quarry, Martin Marietta Materials Inc.
NC-AL-132.100	MVP-VRR3-118-2122	67.3	---	---	Add ATWS 12.5 feet x 100 feet for pull off on the north of TA-AL-180.
NC-AL-135.000	MVP-VRA3-087-1015	67.6	---	---	Trim ATWS 1619A to stay out of environmental buffer.
NC-AL-135.000, NC-AL-136.000	MVP-VRA3-052-1611	67.6	---	---	Trim ATWS 1619 to avoid NC-AL-136.000, give the property line a 1-foot buffer and wait for the property boundary to be set.
NC-AL-139.000	MVP-VRA3-340-1632	68	---	---	Add flare to TA-AL-181 at public road.
NC-AL-136.000, NC-AL-137.000	MVP-VRR3-118-2123	68	---	---	Add ATWS 25 feet x 100 feet for pull off. Keep pull off all north of TA-AL-181.
NC-AL-142.000, NC-AL-143.000	MVP-VRA3-114-1146	68.2	---	---	Delete MLV 7 it will be moved to south of Haw River Hopedale Road .
NC-AL-142.000, NC-AL-143.000	MVP-VRA3-100-1702	68.2	---	---	Delete Groundbed 4, Alternate 2.
NC-AL-143.400	MVP-VRA3-340-1634	68.2	---	---	Add flare to PA-AL-181A at public road.
NC-AL-143.300	MVP-VRR3-118-2125	68.2	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-181A.
NC-AL-143.000	MVP-VRR3-118-2126	68.2	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-181A.
NC-AL-143.000, NC-AL-143.100, NC-AL-143.200, NC-AL-143.300, NC-AL-143.400	MVP-VRA3-050-0915	68.25	---	---	Change PA-AL-181A to a temporary access road, keep the width of the AR 25 feet.
NC-AL-148.000	MVP-VRA3-114-1148	68.7	---	---	Move mainline valve ("MLV") 7 to south of Haw River Hopedale Road.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-AL-144.000.RC, NC-AL-148.000	MVP-VRA3-114-1150	68.7	---	---	Add permanent access road, 12 feet wide and centered on the centerline of easement
NC-AL-149.000	MVP-VRR3-118-2127	68.95	---	---	Add ATWS 25 feet x 100 feet for pull off. Keep pull off all south of TA-AL-185.
NC-AL-150.000	MVP-VRA3-123-1504	69.1	---	---	Trim ATWS 1649 to stay 26 feet away from the residence.
NC-AL-154.000	MVP-VRA3-067-1626	69.3	---	---	Extend ATWS 1651.
NC-AL-154.000, NC-AL-164.000	MVP-VRA3-067-1524	69.3	---	---	Trim ATWS 1651 to stay off of NC-AL-165.000.AR. Give the property line a 1-foot buffer.
NC-AL-162.000, NC-AL-165.000, NC-AL-161.000	MVP-VRA3-067-1525	69.4	---	---	Trim ATWS 1652 to stay off of NC-AL-165.000.AR. Give the property line a 1-foot buffer.
NC-AL-163.000, NC-AL-163.100	MVP-VRA3-052-1612	69.45	---	---	Trim TWS to avoid NC-AL-163.100, give the property line a 1-foot buffer.
NC-AL-166.000, NC-AL-167.000	MVP-VRR3-118-2131	69.5	---	---	Adjust TA-AL-187.
NC-AL-166.000, NC-AL-167.000	MVP-VRA3-067-1527	69.5	---	---	Trim ATWS 1653 to stay off of NC-AL-167.000. Give the property line a 1 foot buffer.
<u>NC-AL-166.000.RC</u>	MVP-VRA3-340-1637	69.5	---	---	Add flare to TA-AL-187 at public road.
NC-AL-165.000	MVP-VRR3-118-2129	69.5	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-187.
NC-AL-165.000	MVP-VRR3-118-2128	69.5	---	---	Add ATWS 25 feet x 100 feet for pull off. Split the pull off to 12.5 feet on both sides of TA-AL-187.
NC-AL-170.300, NC-AL-179.000, NC-AL-180.000, NC-AL-181.000	MVP-VRA3-011-0846	69.7	---	---	Trim ATWS to stay outside of the environmental buffer and neck down the TWS to 75 feet
NC-AL-181.000	MVP-VRA3-011-0844	69.7	---	---	Extend ATWS for additional construction workspace.
NC-AL-182.000, NC-AL-183.000, NC-AL-184.000	MVP-VRA3-116-1645	69.8	---	---	Add access road.
NC-AL-179.000, NC-AL-180.000, NC-AL-181.000	MVP-VRA3-127-1950	69.8	---	---	Trim ATWS 1653C and TWS to be 26 feet away from residence.
NC-AL-191.300, NC-AL-191.100	MVP-VRA3-067-1014	71	---	---	Delete access road TA-AL-188 this has been determined to be a public road. Give the property line a 10-foot buffer.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
NC-AL-192.000	MVP-VRA3-353-1620	71.5	---	---	Add space for turning to TA-AL-190 for turning flare.
NC-AL-192.000	MVP-VRA3-340-1642	71.55	---	---	Add flare to TA-AL-190 at public road.
NC-AL-199.000	MVP-VRA3-340-1645	72.4	---	---	Add flare to TA-AL-193 at public road.
NC-AL-203.000, NC-AL-204.000	MVP-VRA3-087-1809 <u>a</u> /	72.7	72.8	0.1	Landowner requested that pipeline be moved as far away from home as possible.
NC-AL-203.000	MVP-VRA3-087-1815	72.8	---	---	Trim TWS to avoid NC-AL-202.000.ABU. Give the property line a 1-foot buffer.
NC-AL-203.000	MVP-VRA3-087-1814	72.8	---	---	Trim TWS to avoid NC-AL-202.000.ABU. Give the property line a 1 foot buffer.
NC-AL-203.000	MVP-VRA3-087-1811	72.8	---	---	Add ATWS to compensate for the loss of TWS on the east side.
NC-AL-203.000, NC-AL-204.000	MVP-VRA3-086-1034	72.8	---	---	Add TWS back in because the delineated stream S-A18-118 does not cross the LOD.
NC-AL-204.000, NC-AL-205.000, NC-AL-206.000, NC-AL-207.000, NC-AL-210.000	MVP-VRR3-100-1449 <u>a</u> /	72.9	73.1	0.2	Adjust centerline to the west of pipeline route. Previous alignment would be unable to cross road and existing foreign line that resides within shoulder of major road. New alignment allows space to safely cross road and then foreign line.
NC-AL-206.000, NC-AL-208.000, FA5-AL-025.000, NC-AL-210.000	MVP-VRA3-065-1637	72.9	---	---	Extend survey corridor because of reroutes.
NC-AL-207.000, NC-AL-208.000	MVP-VRA3-052-1614	72.9	---	---	Trim ATWS 1691 to avoid NC-AL-208.000, give the property line a 1-foot buffer and wait for property boundary to be set.
NC-AL-210.000	MVP-VRA3-045-1242	73.1	---	---	Trim ATWS to be outside of the environmental buffer.
VA-PI-001.000, VA-PI-002.015	MVP-VRA3-119-1516	CY-01	---	---	Trim Contractor Yard ("CY")-01 to MDS points canopy line and the tree line.
VA-PI-142.200	MVP-VRA3-112-1225	CY-03	---	---	Trim CY-03 to be outside of environmental buffer.
VA-PI-142.200	MVP-VRA3-112-1227	CY-03	---	---	Trim CY-03 to be outside of environmental buffer
NC-RO-014.600	MVP-VRA3-122-1615	CY-04	---	---	Delete CY-04 due to proximity to church and zoning issues.
NC-RO-014.200.CY06	MVP-VRA3-354-1613	CY-06	---	---	Remove CY-06 from project footprint.
NC-GU-001.200	MVP-VRA3-122-1636	CY-09	---	---	Delete CY-09. A small green field tract, not close to project.

**Table of Changes to the MVP Southgate Project Workspaces and the Pipeline Route**

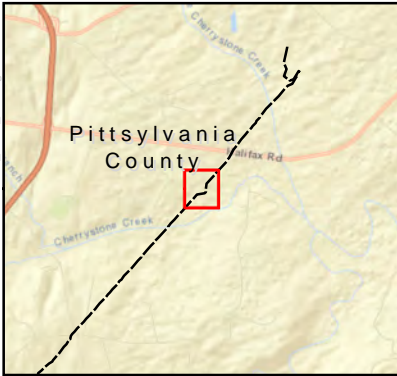
<b>Tract ID</b>	<b>Modification No.</b>	<b>Approx. Begin MP</b>	<b>Approx. End MP</b>	<b>Length (miles)</b>	<b>Workspaces and Pipeline Route Description / Justification</b>
VA-PI-207	MVP-VRR3-353-1417	CY-19	---	---	Add CY-19 optional storage/contractor yard.
VA-PI-207	MVP-VRA3-112-1228	CY-19	---	---	Trim CY-19 to be outside of environmental buffer
VA-PI-207.CY19	MVP-VRA3-031-1537	CY-19	---	---	Trim CY-19 to be inside VA-PI-207.CY19 only. Trim the edges to leave 10-foot gap from the tax map shape and the start of CY
VA-PI-218, VA-PI-220	MVP-VRR3-353-1421	CY-22	---	---	Add CY-22 optional storage/contractor yard.
VA-PI-218.CY22	MVP-VRA3-031-1619	CY-22	---	---	Trim CY-22 to be inside VA-PI-218.CY22 only. Trim the edges to leave 10-foot gap from the tax map shape and the start of CY
Caswell, North Carolina	MVP-VRR3-353-1425	CY-25	---	---	Add CY-25 optional storage/contractor yard.
NC-CA-001.000	MVP-VRA3-112-1300	CY-25	---	---	Trim CY-25 to be outside of environmental buffer. This will split the contractor yard in to two parts.
NC-CA-001.000	MVP-VRA3-112-1301	CY-25	---	---	Trim CY-25 to be outside of environmental buffer.
NC-CA-001.000	MVP-VRA3-112-1234	CY-25	---	---	Trim CY-25 to be outside of environmental buffer.
NC-CA-001.000	MVP-VRA3-112-1303	CY-25	---	---	Trim CY-25 to be outside of environmental buffer.
NC-CA-001.000	MVP-VRA3-112-1232	CY-25	---	---	Trim CY-25 to be outside of environmental buffer.
NC-AL-226, NC-AL-227	MVP-VRR3-353-1426	CY-26	---	---	Add CY-26 optional storage/contractor yard.
NC-AL-226, NC-AL-227	MVP-VRA3-112-1345	CY-26	---	---	Trim CY-26 to be outside of environmental buffer. This will split the contractor yard in to two parts.
NC-AL-226.CY26, NC-AL-227.CY26	MVP-VRA3-031-1622	CY-26	---	---	Trim CY-26 to be inside NC-AL-226.CY26 & NC-AL-227.CY26 only. Trim the edges to leave 10-foot gap from the tax map shape and the start of CY.

a/ See Proposed Route Modifications Figures.





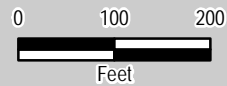
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 1 of 13

Modification: MVP-VRR3-080-1320

(ESRI World Imagery)

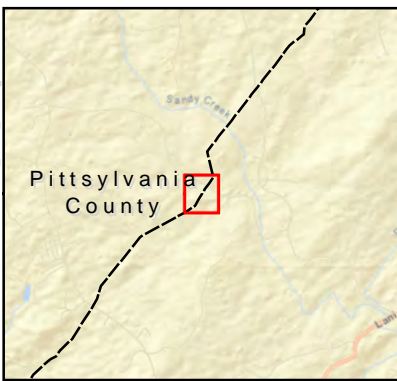


600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





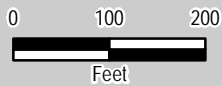
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 2 of 13

Modification: MVP-VRA3-052-1552

(ESRI World Imagery)

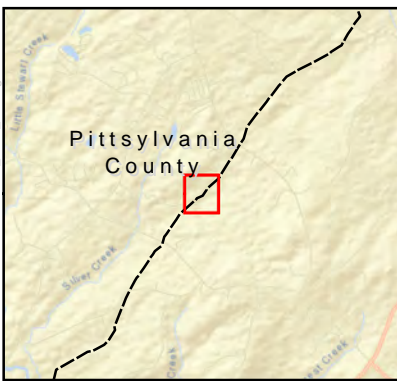


600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





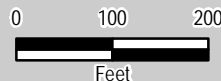
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 3 of 13

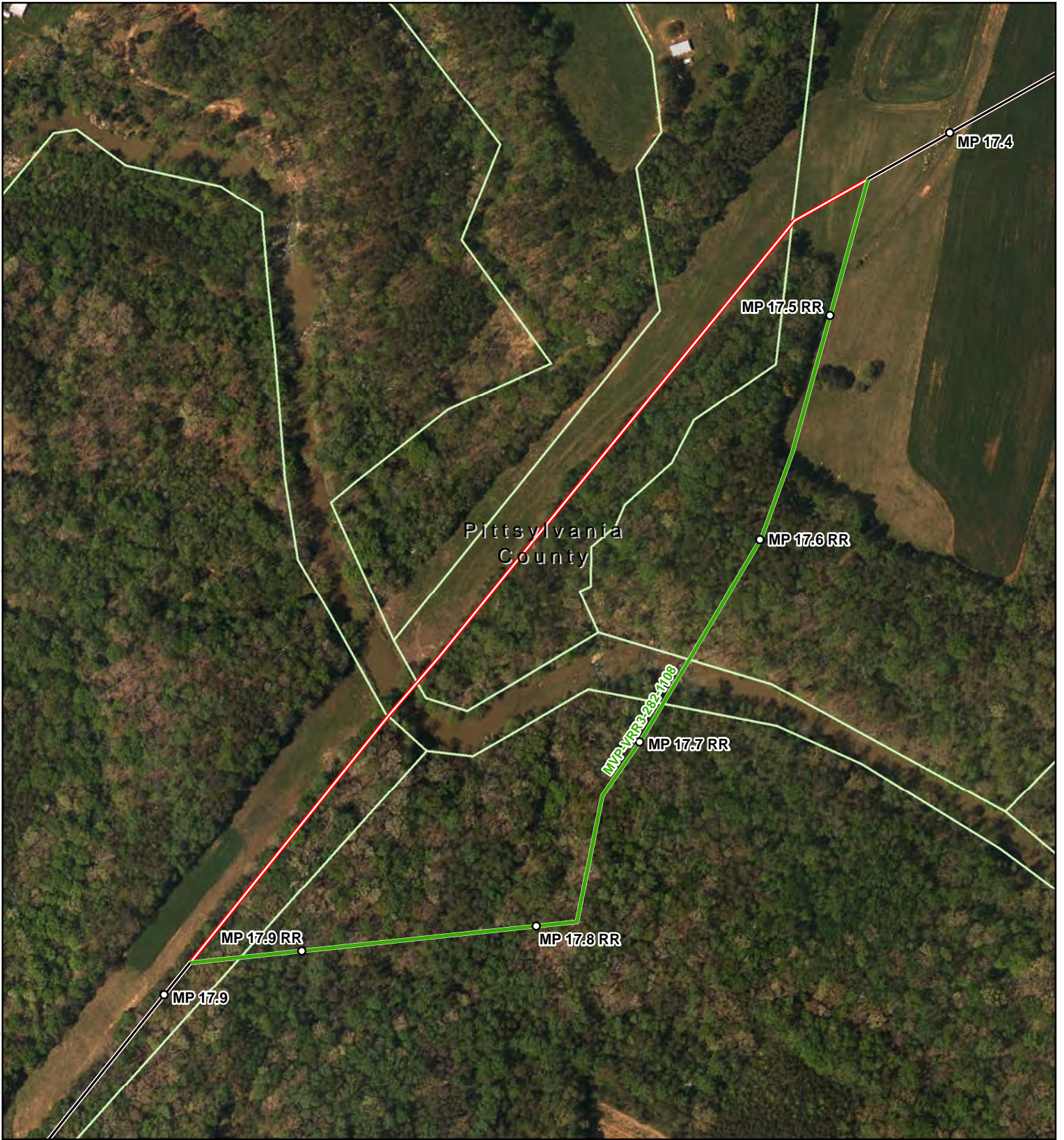
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(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





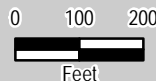
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 300 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 4 of 13

Modification: MVP-VRR3-282-1108

(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





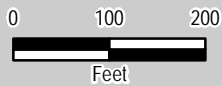
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

Data Sources: ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 5 of 13

Modification: MVP-VRA3-042-1142

(ESRI World Imagery)

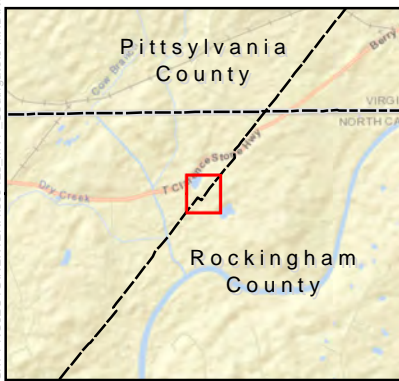


600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





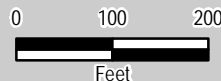
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 6 of 13

Modification: MVP-VRR3-063-1316

(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





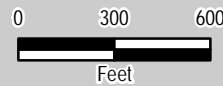
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 600 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 7 of 13

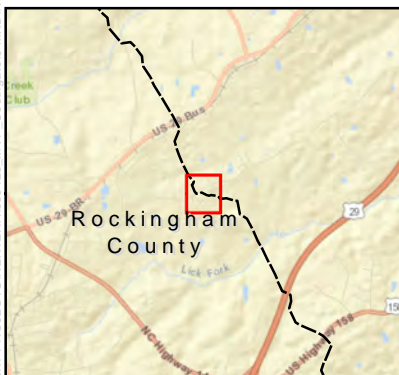
Modification: MVP-VRA3-087-1708

(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019

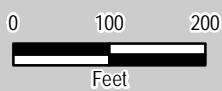




**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

Data Sources: ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 8 of 13

Modification: MVP-VRR3-098-0836 & MVP-VRA3-120-1229

(ESRI World Imagery)



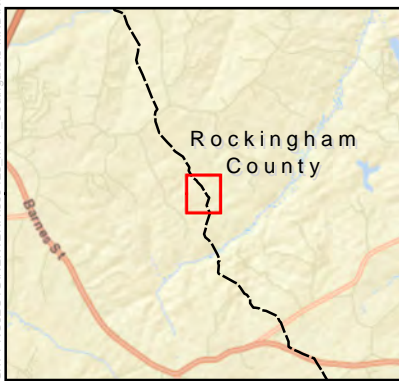
600 Willowbrook Ln  
West Chester, PA 19382  
May 2019

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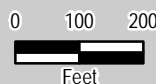
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 300 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 9 of 13

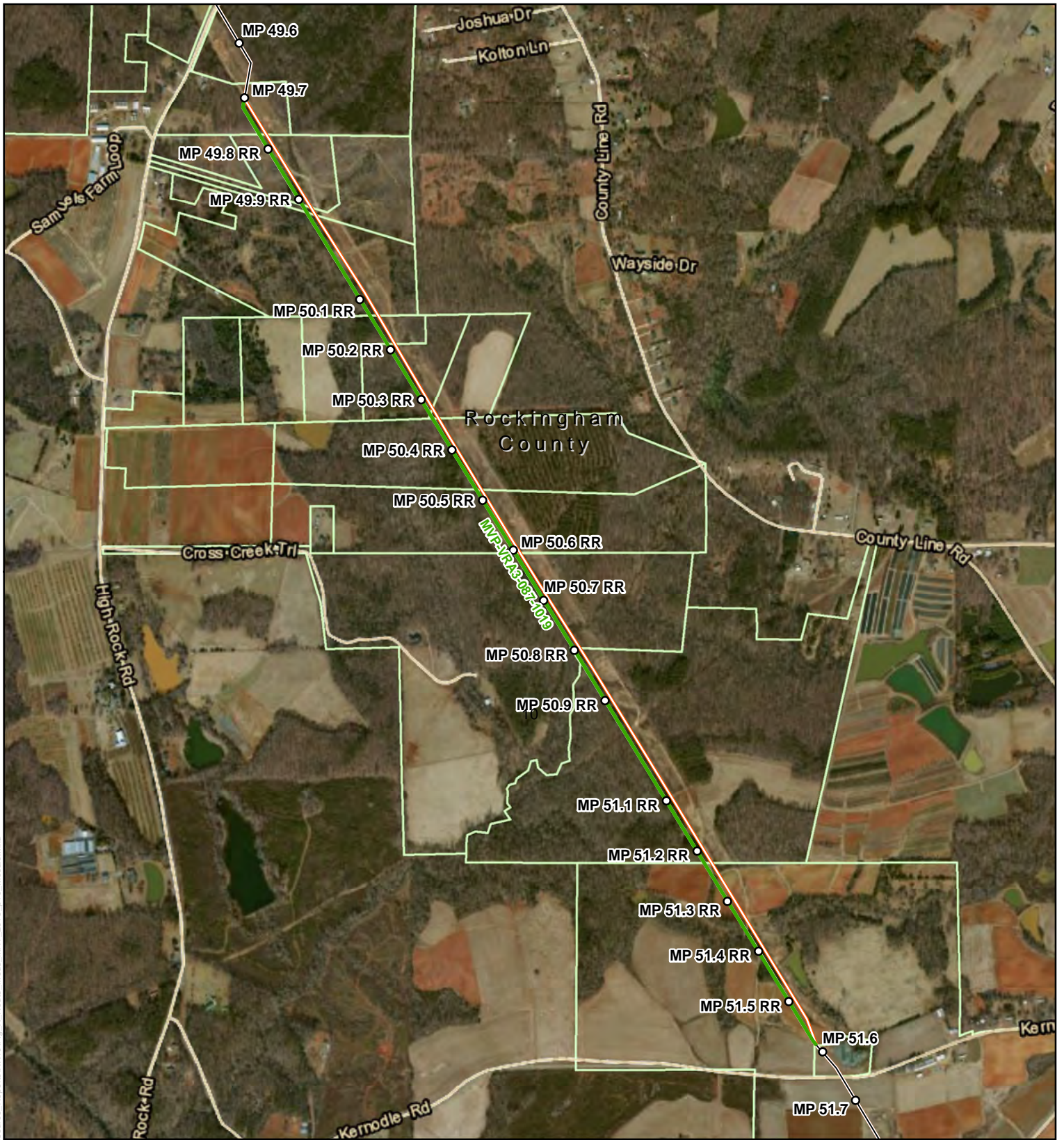
Modification: MVP-VRR3-080-1329

(ESRI World Imagery)

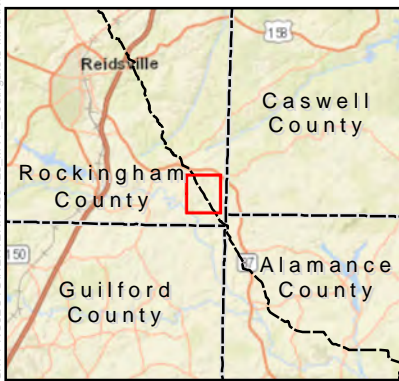


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West Chester, PA 19382  
May 2019





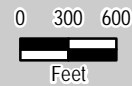
S:\PROJECTS\NEXTSTEP\300423 MVP\_South\016\MXD\Bresource\_Reports\RR10\Fig\_X\_Route\_Mocks\_MAY\_2019\_010\_Mosaic.mxd



**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

Data Sources: ESRI, EQT



1 inch = 1,200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 10 of 13

Modification: MVP-VRA3-087-1019

(ESRI World Imagery)

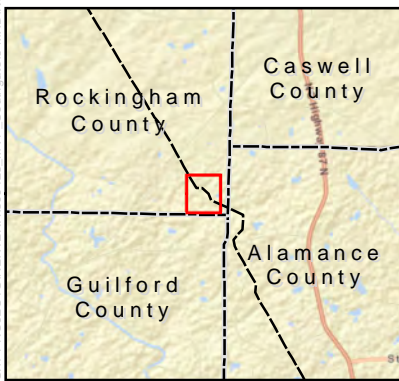


600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





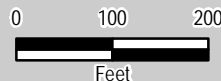
S:\4 PROJECTS\NEXT\ERPA\300423 MVP\_Southern\16\MXD\Bresource\_Reports\RR10\Fig\_X\_Route\_Mods\_MAY\_2019\_Mosaic.mxd



**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

Data Sources: ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 11 of 13

Modification: MVP-VRR3-058-1608

(ESRI World Imagery)

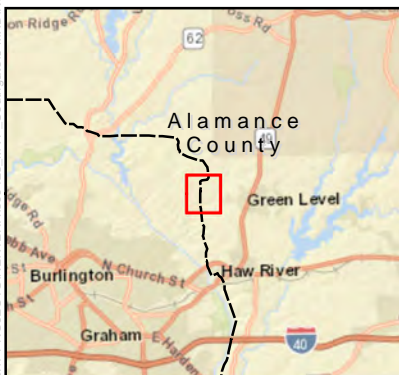


600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





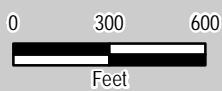
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 600 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 12 of 13

Modification: MVP-VRR3-108-1000

(ESRI World Imagery)

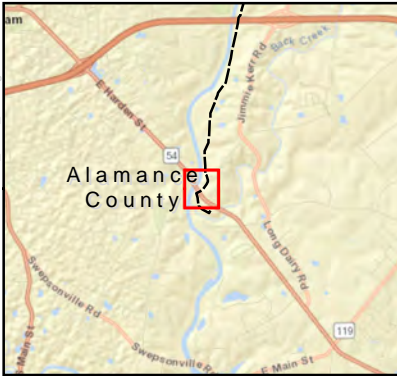


600 Willowbrook Ln  
West Chester, PA 19382  
May 2019





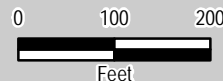
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**Legend**

- Mileposts
- Current Pipeline Route
- Previous Pipeline Route
- Proposed Modification
- Approximate Parcel Boundary
- County Boundary

**Data Sources:** ESRI, EQT



1 inch = 200 feet  
When Printed 8.5x11



**Proposed Route Modifications**

Sheet 13 of 13

Modifications: MVP-VRA3-087-1809 & MVP-VRR3-100-1449

(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019



## **MVP Southgate Project**

Docket No. CP19-14-000

### **Attachment 2**

## **Analysis of Two Martin Marietta Variations and a Town of Haw River Variation**

May 2019



### Comparison of the Current Pipeline and Martin Marietta Variation 1 (MP 66.96 – 67.12)

The Project evaluated a route variation that would relocate the current pipeline route to the west, further from the East Alamance Quarry, which is owned and operated by Martin Marietta Materials Inc. The Project evaluated the Martin Marietta Variation 1 between approximate MP 66.96 and MP 67.12 (see Figure 1). At MP 66.96, this variation extends southwest and southeast for approximately 0.2 mile and crosses open land. It rejoins the current pipeline route at MP 67.12.

As shown in Table 1, the primary advantages of the Martin Marietta Variation 1 are:

- Eliminates impacts to the East Alamance Quarry’s parcels for proposed future mining operations.

The primary disadvantages of the Martin Marietta Variation 1 are:

- affects more agricultural land;
- affects more forest land;
- increased impacts to private landowner’s structures; and
- closer proximity to private landowner’s pond

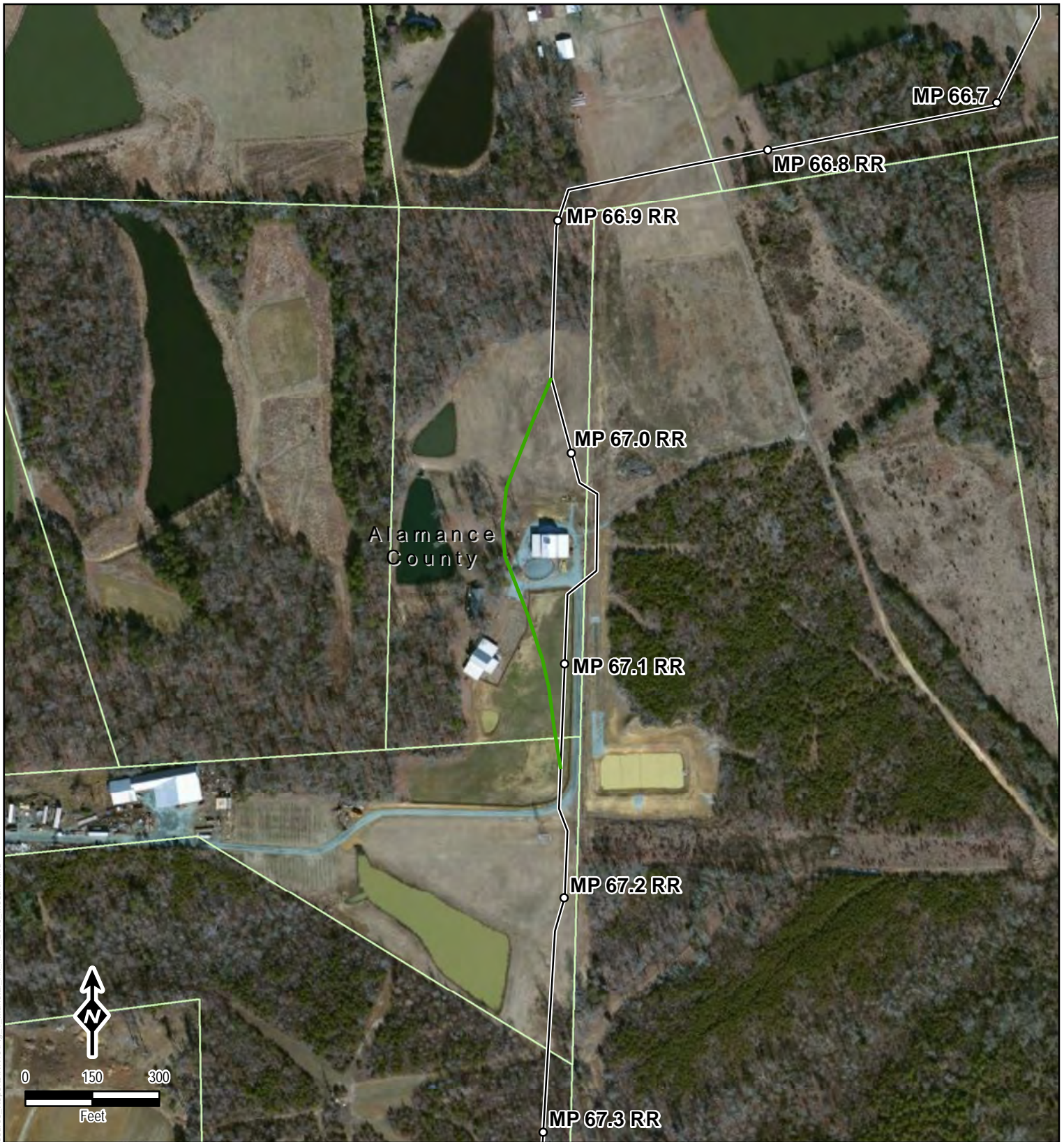
Potential constructability concerns of the Martin Marietta Variation 1 are:

- residential site specific construction plans would be required due to close proximity to structures.

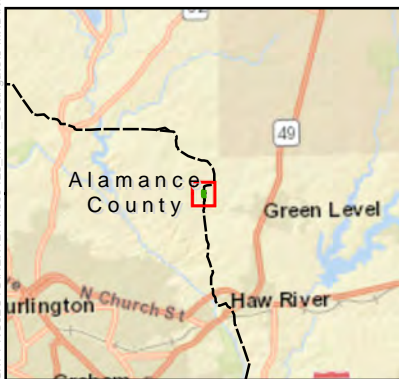
The Martin Marietta Variation 1 does not offer a significant environmental advantage over the current pipeline. The Project is committed to finding the most appropriate route to minimize impacts to the quarry.

Table 1 Comparison of the Current Pipeline Route and Martin Marietta Variation 1 (MP 66.96 – 67.12)			
Feature	Current Pipeline Route	Martin Marietta Variation 1 (MP 66.96 – 67.12)	Difference
Total length (miles)	0.2	0.2	0
Construction right-of-way (acres) <u>a</u> /	2.3	2.3	0
Permanent right-of-way (acres) <u>a</u> /	1.1	1.1	0
Total number of parcels crossed	2	2	0
Number of residences within 25 and 50 feet of the edge of the construction ROW (and associated additional temporary workspace)	0	0	0
Residential Land (miles)	0	0	0
Commercial/Industrial land (miles)	0	0	0
Unlisted/Potential Eligible Historic Properties (number)	0	0	0
National Trails, Recreation Trails, and Other Recreational Areas (number)	0	0	0
Number of waterbodies crossed	0	0	0
Number of NWI wetlands crossed	0	0	0
Total NWI wetland crossing length (feet)	0	0	0
NWI wetlands within construction ROW (acres) <u>b</u> /	0	0	0
Agricultural land within construction ROW (acres) <u>c</u> /	0	2.0	+2.0
Forest Areas (miles)	0.2	0.3	+0.1
Forested land affected during construction (acres)	1.9	2.3	+0.4
Forested land affected during operation (acres)	0.9	1.1	+0.2

<b>Table 1</b>			
<b>Comparison of the Current Pipeline Route and Martin Marietta Variation 1 (MP 66.96 – 67.12)</b>			
<b>Feature</b>	<b>Current Pipeline Route</b>	<b>Martin Marietta Variation 1 (MP 66.96 – 67.12)</b>	<b>Difference</b>
Length parallel or adjacent to existing ROW (miles)	0	0	0
<p>a/ Assuming 100-foot-wide construction ROW and 50-foot-wide permanent ROW.</p> <p>b/ Assuming 75-foot-wide construction ROW.</p> <p>c/ Includes pasture/hay and cultivated crops.</p> <p>ROW = right-of-way. NWI = National Wetland Inventory</p> <p><u>Information Sources:</u></p> <p>GIS – Analysis based on Geodatabase layers and shapefiles.</p> <p>NC Parcel Boundaries and Standard Fields - <a href="http://data.nconemap.gov/geoportal/catalog/search/resource/details.page">http://data.nconemap.gov/geoportal/catalog/search/resource/details.page</a></p> <p>NLCD – 2006 National Land Cover Data - <a href="http://www.epa.gov/mrlc/nlcd-2006.html">http://www.epa.gov/mrlc/nlcd-2006.html</a></p> <p>NWI – National Wetlands Inventory - <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a></p> <p>USGS – U.S. Geological Survey - <a href="http://www.usgs.gov/">http://www.usgs.gov/</a></p> <p>NHD – National Hydrography Dataset - <a href="http://nhd.usgs.gov/">http://nhd.usgs.gov/</a></p> <p>ESRI - GIS Mapping - <a href="http://www.esri.com/">http://www.esri.com/</a></p>			



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**Legend**

- Mileposts
- Current Pipeline Route
- Martin Marietta Variation 1
- Approximate Parcel Boundary
- County Boundary

Data Sources: ESRI, EQT

1 inch = 300 feet  
When Printed 8.5x11



**Figure 1**  
Sheet 1 of 1

**Martin Marietta Variation 1**

(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019



### Comparison of the Current Pipeline Route and Martin Marietta Variation 2 (MP 66.7 – 67.5)

The Project evaluated a route variation that would relocate the current pipeline route approximately 100 feet to the east. The Project evaluated the Martin Marietta Variation 2 between approximate MP 66.7 and MP 67.5 (see Figure 2). At MP 66.7, this variation extends southwest for approximately 0.2 mile and crosses mixed forest and open/agricultural land. The route then turns more southerly for approximately 0.7 mile crossing mostly forested land, open/agricultural land, a man-made pond, and electric utility right-of-way before it rejoins the current pipeline route at MP 67.5.

As shown in Table 2, the primary advantages of the Martin Marietta Variation 2 are:

- affects two fewer parcels;
- affects less agricultural land; and
- reduces impacts to private landowners.

The primary disadvantages of the Martin Marietta Variation 2 are:

- affects more forest land;
- potentially impacts proposed future mining operations of the East Alamance Quarry; and
- increased impacts to riparian buffer zones.

Potential constructability concerns of the Martin Marietta Variation 2 are:

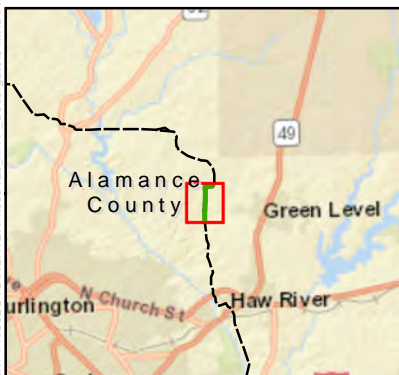
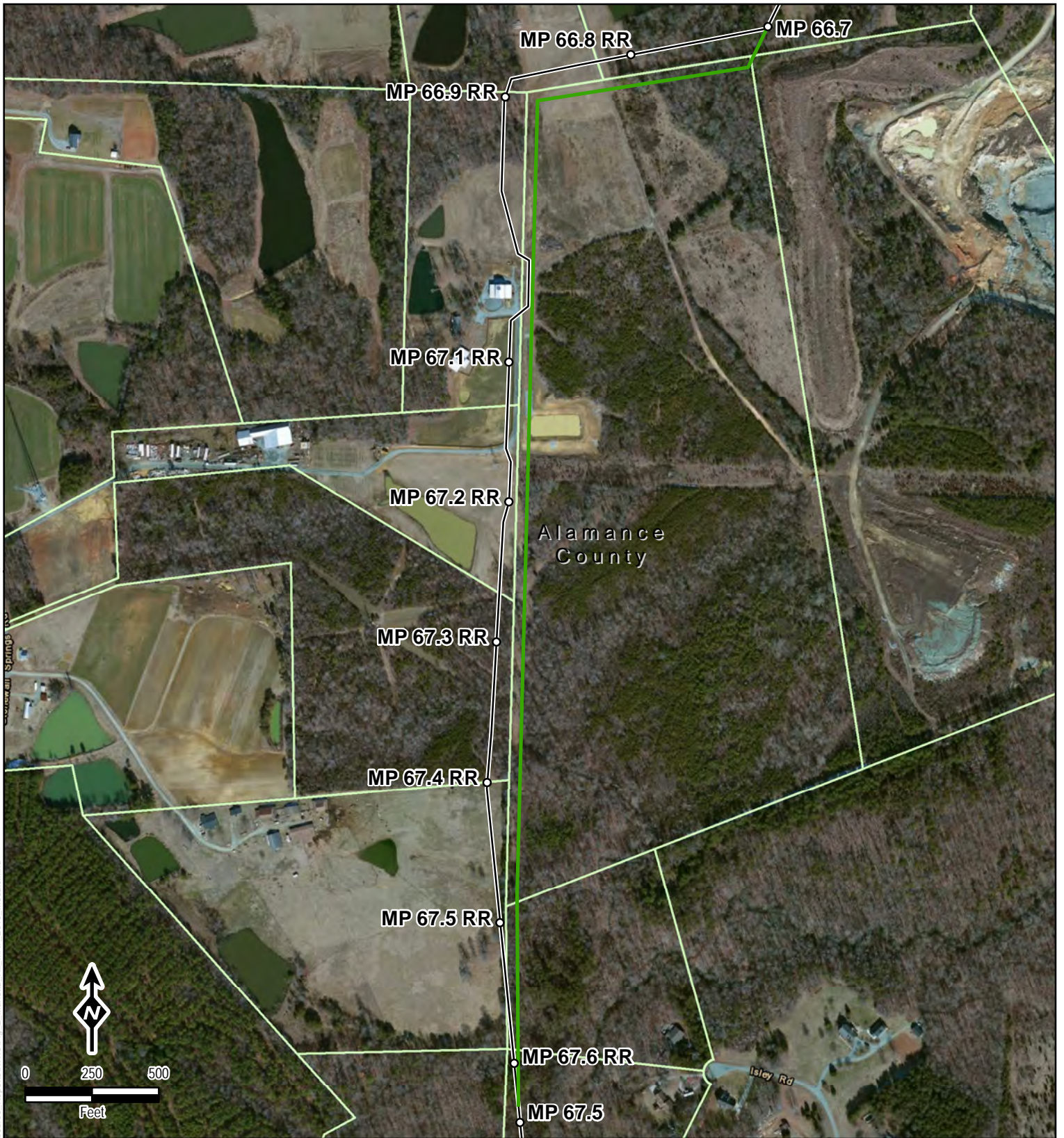
- potentially impacts man-made drainage system and pond.

The Martin Marietta Variation 2 does not offer a significant environmental advantage over the current pipeline. The Project is committed to finding the most appropriate route to minimize impacts to the quarry.

<b>Table 2</b>			
<b>Comparison of the Current Pipeline Route and Martin Marietta Variation 2 (MP 66.7 – 67.5)</b>			
<b>Feature</b>	<b>Current Pipeline Route</b>	<b>Martin Marietta Variation 2 (MP 66.7 – 67.5)</b>	<b>Difference</b>
Total length (miles)	0.9	0.9	0
Construction right-of-way (acres) <u>a/</u>	11.4	11.0	-0.4
Permanent right-of-way (acres) <u>a/</u>	5.7	5.5	-0.2
Total number of parcels crossed	7	5	-2
Number of residences within 25 and 50 feet of the edge of the construction ROW (and associated additional temporary workspace)	0	0	0
Residential Land (miles)	0	0	0
Commercial/Industrial land (miles)	0	0	0
Unlisted/Potential Eligible Historic Properties (number)	0	0	0
National Trails, Recreation Trails, and Other Recreational Areas (number)	0	0	0
Number of waterbodies crossed	2	2	0
Number of NWI wetlands crossed	0	0	0
Total NWI wetland crossing length (feet)	0	0	0
NWI wetlands within construction ROW (acres) <u>b/</u>	0	0	0

<b>Table 2</b>			
<b>Comparison of the Current Pipeline Route and Martin Marietta Variation 2 (MP 66.7 – 67.5)</b>			
<b>Feature</b>	<b>Current Pipeline Route</b>	<b>Martin Marietta Variation 2 (MP 66.7 – 67.5)</b>	<b>Difference</b>
Agricultural land within construction ROW (acres) <i>c/</i>	2.3	2	-0.3
Forest Areas (miles)	0.8	0.8	0
Forested land affected during construction (acres)	7.1	7.9	+0.8
Forested land affected during operation (acres)	3.5	4.0	+0.5
Length parallel or adjacent to existing ROW (miles)	0.5	0.5	0
<p><i>a/</i> Assuming 100-foot-wide construction ROW and 50-foot-wide permanent ROW.  <i>b/</i> Assuming 75-foot-wide construction ROW.  <i>c/</i> Includes pasture/hay and cultivated crops.            ROW = right-of-way. NWI = National Wetland Inventory  <u>Information Sources:</u>            GIS – Analysis based on Geodatabase layers and shapefiles.            NC Parcel Boundaries and Standard Fields - <a href="http://data.nconemap.gov/geoportal/catalog/search/resource/details.page">http://data.nconemap.gov/geoportal/catalog/search/resource/details.page</a>            NLCD – 2006 National Land Cover Data - <a href="http://www.epa.gov/mrlc/nlcd-2006.html">http://www.epa.gov/mrlc/nlcd-2006.html</a>            NWI – National Wetlands Inventory - <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a>            USGS – U.S. Geological Survey - <a href="http://www.usgs.gov/">http://www.usgs.gov/</a>            NHD – National Hydrography Dataset - <a href="http://nhd.usgs.gov/">http://nhd.usgs.gov/</a>            ESRI - GIS Mapping - <a href="http://www.esri.com/">http://www.esri.com/</a></p>			





**Legend**

- Mileposts
- Current Pipeline Route
- Martin Marietta Variation 2
- Approximate Parcel Boundary
- County Boundary

Data Sources: ESRI, EQT

1 inch = 500 feet  
When Printed 8.5x11



**Figure 2**  
Sheet 1 of 1

Martin Marietta Variation 2

(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019



### **Comparison of the Current Pipeline Route and Town of Haw River Variation (MP 69.52 to MP 69.95)**

The Project evaluated a route variation that would relocate the current pipeline route to the west, further from the Town of Haw River. The Project evaluated the Town of Haw River Variation between approximate MP 69.52 and MP 69.95 (see Figure 3). At MP 69.52, this variation extends south for approximately 0.35 mile and crosses mixed forested and commercial/industrial land and E. Main Street and railroad tracks. The route then turns southeast and east for approximately 0.15 mile and crosses a combination of open and forest land before it rejoins the current pipeline route at MP 69.95.

As shown in Table 3, the primary advantages of the Town of Haw River Variation are:

- affects one fewer resident within 25 feet of the edge of the construction right-of-way;
- affect less forest land;
- eliminate impacts and inconveniences to the Town of Haw municipal building;
- eliminate impacts and inconveniences to the Town of Haw Fire Station;
- eliminate impacts to the Town of Haw River recreation center
- eliminate the need to remove or relocate outdoor pavilion;
- expedite general construction activities in the area due to the ability to mainline construct rather than stove pipe construct for the current route;
- reduce general inconveniences to residents of the Town of Haw River by moving construction activities to a less populated and less frequented part of the town; and
- reduce the number of foreign utility line crossings.

The primary disadvantages of the Town of Haw River Variation are:

- greater length and associated land disturbance;
- repaving and resurfacing of Town of Haw River building parking lot;
- confined work areas;
- increased trench protection for public safety;
- increased occurrences of foreign utility lines that serve landowners; and
- increased traffic management and traffic inconveniences to residents.

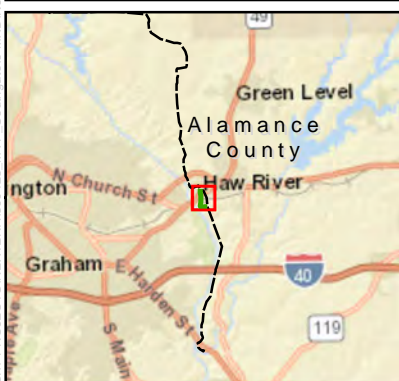
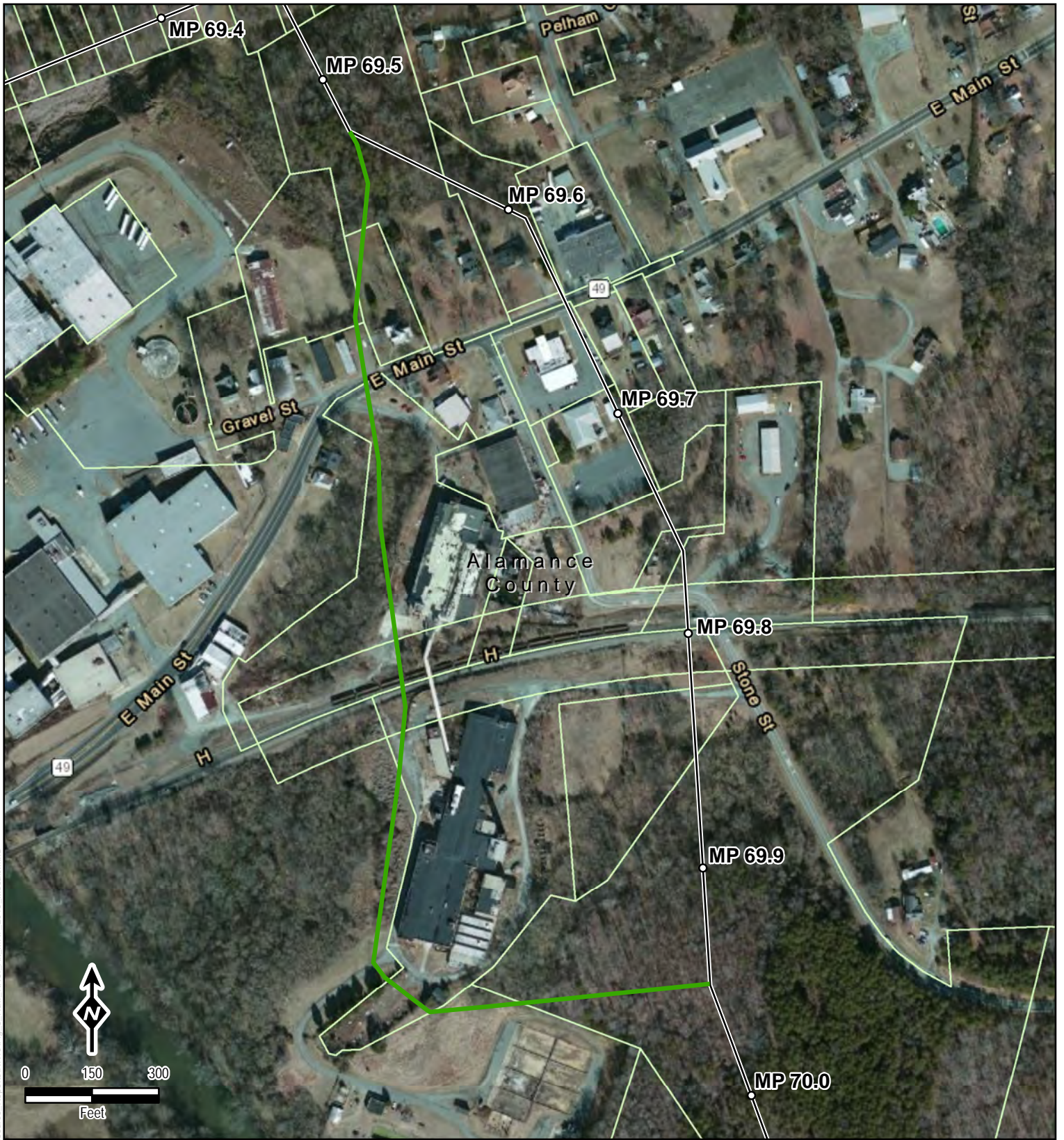
Potential constructability concerns of the Town of Haw River Variation are:

- colocation with existing sewer and water line

The Town of Haw River Variation does not offer a significant environmental advantage over the current pipeline but offers significant advantages regarding reduced impacts to landowners and Town residents. The Project is committed to finding the best route to minimize impacts to the Town of Haw River.

<b>Table 3</b>			
<b>Comparison of the Current Pipeline Route and Town of Haw River Variation (MP 69.52 – 69.95)</b>			
<b>Feature</b>	<b>Current Pipeline Route</b>	<b>Town of Haw River Variation (MP 69.52 – 69.95)</b>	<b>Difference</b>
Total length (miles)	0.4	0.5	+0.1
Construction right-of-way (acres) <u>a/</u>	5.3	6.4	+1.1
Permanent right-of-way (acres) <u>a/</u>	2.6	3.1	+0.5
Total number of parcels crossed	9	9	0
Number of residences within 25 and 50 feet of the edge of the construction ROW (and associated additional temporary workspace)	3/3	2/3	-1/0
Residential Land (miles)	0	0.03	+0.03
Commercial/Industrial land (miles)	0.2	0.3	+0.1
Unlisted/Potential Eligible Historic Properties (number)	0	0	0
National Trails, Recreation Trails, and Other Recreational Areas (number)	1	1	0
Number of waterbodies crossed	1	1	0
Number of NWI wetlands crossed	0	0	0
Total NWI wetland crossing length (feet)	0	0	0
NWI wetlands within construction ROW (acres) <u>b/</u>	0	0	0
Agricultural land within construction ROW (acres) <u>c/</u>	0	0	0
Forest Areas (miles)	0.2	0.2	0
Forested land affected during construction (acres)	2.0	1.6	-0.4
Forested land affected during operation (acres)	1	0.8	-0.2
Length parallel or adjacent to existing ROW (miles)	0	0.3	+0.3
<p><u>a/</u> Assuming 100-foot-wide construction ROW and 50-foot-wide permanent ROW.</p> <p><u>b/</u> Assuming 75-foot-wide construction ROW.</p> <p><u>c/</u> Includes pasture/hay and cultivated crops.</p> <p>ROW = right-of-way. NWI = National Wetland Inventory</p> <p><u>Information Sources:</u></p> <p>GIS – Analysis based on Geodatabase layers and shapefiles.</p> <p>NC Parcel Boundaries and Standard Fields - <a href="http://data.nconemap.gov/geoportal/catalog/search/resource/details.page">http://data.nconemap.gov/geoportal/catalog/search/resource/details.page</a></p> <p>NLCD – 2006 National Land Cover Data - <a href="http://www.epa.gov/mrlc/nlcd-2006.html">http://www.epa.gov/mrlc/nlcd-2006.html</a></p> <p>NWI – National Wetlands Inventory - <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a></p> <p>USGS – U.S. Geological Survey - <a href="http://www.usgs.gov/">http://www.usgs.gov/</a></p> <p>NHD – National Hydrography Dataset - <a href="http://nhd.usgs.gov/">http://nhd.usgs.gov/</a></p> <p>ESRI - GIS Mapping - <a href="http://www.esri.com/">http://www.esri.com/</a></p>			





**Legend**

- Mileposts
- Current Pipeline Route
- Town of Haw River Variation
- - - County Boundary

Data Sources: ESRI, EQT

1 inch = 300 feet  
When Printed 8.5x11



**Figure 3**  
Sheet 1 of 1

Town of Haw River Variation

(ESRI World Imagery)



600 Willowbrook Ln  
West Chester, PA 19382  
May 2019



## **MVP Southgate Project**

Docket No. CP19-14-000

### **Attachment 3**

#### **Updated Agency Correspondence**

**(Sensitive Correspondence Provided Under  
Separate Cover and Labeled  
CUI//PRIV - DO NOT RELEASE)**

May 2019

**May 2019 Supplemental Correspondence from May 3, 2019 through May 22, 2019**

Name	Type of Stakeholder	Business	Business Title	State	Contact Date	Type of Contact	Contact Comments
Karen Higgins	NC Agencies	NC Department of Environmental Quality (NC DEQ)	Water Resources Supervisor	NC	5/3/2019	Email	Email notification stating the major variance application has been posted on a FTP website (link and cover letter provided).
					5/3/2019	Letter	MVP enclosed hard a copy of the Addendum to Major Variance Request for non-perpendicular stream crossing, Jordan Lake Watershed – 15A NCAC 02B.0267
					5/7/2019	Email	Ms. Homewood (Ms. Higgins also copied) verified the submittal of the MVP Southgate variance application.
					5/7/2019	Email	Email confirming a meeting time with MVP Southgate and NCDEQ to discuss buffer variance.
					5/16/2019	Meeting	Meeting in Raleigh Regional Field Office including Ms. Homewood, Ms. Higgins and the MVP Southgate team to discuss the Buffer Variance.
					5/22/19	Letter	MVP enclosed hard a copy of the Addendum to the Joint Permit Application.
Rene Hypes	VA Agencies	VA Department of Conservation and Recreation (VDCR), DNH	Environmental Manager I	VA	5/6/2019	Email	VDCR accepts survey methods and botanists
					5/17/2019	Email	MVP Southgate Provided A Mussel Survey Update and a Report Of The Virginia Mussel Survey Activity.
Todd Miller	Federal Agencies	U.S. Army Corps of Engineers (USACE), Norfolk District	Southern Section Chief	VA	5/3/2019	Email	Email notification stating the major variance application has been posted on the MVP Southgate website (link and cover letter provided).
				VA	5/22/19	Letter	MVP enclosed hard a copy of the Addendum to the Joint Permit Application.
David Bailey	Federal Agencies	U.S. Army Corps of Engineers (USACE), Raleigh Regulatory Field Office	Raleigh Regulatory Field Office	NC	5/3/19	Email	Email notification stating the major variance application has been posted on the MVP Southgate website (link and cover letter provided).
					5/22/2019	Letter	MVP enclosed hard a copy of the Addendum to the Joint Permit Application.
Benjamin Leach	VA Agencies	VA Department of Environmental Quality (VA DEQ)	Erosion & Sediment Control & Stormwater Management	VA	5/3/2019	Email	Hi Ben, As discussed previously, attached are two snips from our draft E&S plans showing two stream crossing locations with steep terrain surrounding the resources. These should provide a solid representative sample of our crossing details. Please let me know if you have any questions. Have a good weekend, Cory Chalmers * Environmental Coordinator 120 Professional Place, Bridgeport, WV 26330 Direct: 304.848.0061 * Mobile: 304.627.8173 cchalmers@equitransmidstream.com
					5/6/2019	Email	See attachment for more details.



**May 2019 Supplemental Correspondence from May 3, 2019 through May 22, 2019**

Name	Type of Stakeholder	Business	Business Title	State	Contact Date	Type of Contact	Contact Comments
Beth Roach	Tribes	Nottoway Indian Tribe of VA	Tribal Council Member	VA	5/7/2019	Phone Call	Ms. Roach, a Tribal Council Member, returned a call to MVP Southgate to inform that the Tribe would be signing the Confidentiality Agreement, thus allowing MVP to supply archaeological reports for their review,
					5/10/2019	Phone Call	Follow up conversation on taking next steps after the NDA is signed. MVP expects to begin coordinating with her by meeting face to face soon to share project progress, cultural information and schedule going forward.
Anne Richardson	Tribes	Rappahannock Tribe	Chief	VA	5/10/2019	Phone Call	MVP spoke with Anne Richards, Chief of the Rappahannock. She stated MVP Southgate is outside of their Area of Interest. However, if Human Remains are identified to let them know.
Vann Stancil	NC Agencies	NC Wildlife Resources Commission (NCWRC)	Special Project Coordinator	NC	5/7/2019	Email	Email conversation discussing the MVP Southgate surface water withdrawal.
					5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
John Ellis	Federal Agencies	U.S. Fish and Wildlife Service (USFWS), NC	Biologist	NC	5/7/2019	Email	Email conversation discussing the MVP Southgate surface water withdrawal.
					5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
Sarah McRae	Federal Agencies	U.S. Fish and Wildlife Service (USFWS), NC	Biologist	NC	5/7/2019	Email	Email conversation discussing the MVP Southgate surface water withdrawal.
					5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
Roger Kirchen	VA Agencies	VA Department of Historic Resources (VDHR), Division of Review and Compliance	Director	VA	5/10/2019	Email	Mr. Kirchen emailed MVP with DHR's comments for MVP Southgate Phase II sites.
					5/16/2019	Email	Mr. Kirchen emailed MVP with DHR's comments for MVP Southgate Archeological Phase II Report.
Sue Homewood	NC Agencies	NC Department of Environmental Quality (NC DEQ), Water Resources, Water Quality Regional Operations Section	Sr. Environmental Scientist	NC	5/3/2019	Email	Email regarding the submission of the updated variance application.
					5/3/2019	Email	Email notification stating the major variance application has been posted on a FTP website (link and cover letter provided).
					5/3/2019	Letter	MVP enclosed hard a copy of the Addendum to Major Variance Request for non-perpendicular stream crossing, Jordan Lake Watershed – 15A NCAC 02B.0267
					5/7/2019	Email	Email Confirming A Meeting Time with MVP Southgate And NCDEQ To Discuss Buffer Variance.
					5/7/2019	Email	Ms. Homewood (Ms. Higgins also copied) verified the submittal of the MVP Southgate variance application.

**May 2019 Supplemental Correspondence from May 3, 2019 through May 22, 2019**

Name	Type of Stakeholder	Business	Business Title	State	Contact Date	Type of Contact	Contact Comments
					5/16/2019	Meeting	Meeting in Raleigh Regional Field Office including Ms. Homewood, Ms. Higgins and the MVP Southgate team to discuss the Buffer Variance.
Renee Gledhill-Earley	NC Agencies	NC State Historic Preservation Office (NCSHPO)	Environmental Review Coordinator	NC	5/7/2019	Letter	North Carolina Department of Natural and Cultural Resources submitted comments to MVP Southgate on the Addendum Draft Report.
					5/13/2019	Letter	MVP enclosed hard and digital copies of Draft Addendum Report I for the Historic Architectural Survey for the MVP Southgate Pipeline Project, Rockingham, Alamance, Guilford, and Caswell Counties, North Carolina.
Rosie Blewitt-Golsch	NC Agencies	NC State Historic Preservation Office (NCSHPO)	State Archaeologist	NC	5/3/2019	Email	Discussion regarding cultural testing procedures.
					5/3/2019	Email	Email regarding the Tribal Site visit that occurred on April 25, 2019. MVP provided the PowerPoint slides shown at this meeting to Ms. Blewitt and Mr. Kirchen.
					5/20/2019	Email	MVP Southgate sent NCSHPO an update regarding the cultural deep testing.
W.A. (Tony) Hayes	Tribes	Occaneechi Band of the Saponi Nation	Tribal Chair	NC	5/15/2019	Phone Call	MVP Southgate Coordinating with Mr. Hayes for the Delivery Of Southgate Reports.
					5/17/2019	Email	MVP Southgate provided 3 CDs containing all of the Cultural Resource Reports.
Troy Anderson	Federal Agencies	U.S. Fish and Wildlife Service (USFWS), Virginia Field Office	Endangered Species/Conservation Planning Assistance Supervisor	VA	5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
Ernie Aschenbach	VA Agencies	VA Department of Game and Inland Fisheries (VDGIF)	Environmental Services Biologist	VA	5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
Brena Jones	NC Agencies	NC Wildlife Resources Commission (NCWRC)	Central Aquatic Wildlife Diversity Coordinator	NC	5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
Olivia Munzer	NC Agencies	NC Wildlife Resources Commission (NCWRC)	Western Piedmont Habitat Conservation Coordinator	VA	5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
Brian Watson	VA Agencies	VA Department of Game and Inland Fisheries (VDGIF)	Aquatic Resources Biologist/Malacologist	VA	5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.

**May 2019 Supplemental Correspondence from May 3, 2019 through May 22, 2019**

<b>Name</b>	<b>Type of Stakeholder</b>	<b>Business</b>	<b>Business Title</b>	<b>State</b>	<b>Contact Date</b>	<b>Type of Contact</b>	<b>Contact Comments</b>
Sumalee Hoskin	Federal Agencies	U.S. Fish and Wildlife Service (USFWS), Virginia Field Office	Fish & Wildlife Biologist	VA	5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
Jennifer Stanhope	Federal Agencies	U.S. Fish and Wildlife Service (USFWS), Virginia Field Office	Fish & Wildlife Biologist	VA	5/17/2019	Email	MVP Southgate provided a mussel survey update and a report of the Virginia mussel survey activity.
John Mintz	NC Agencies	NC Office of State Archaeology	Archaeologist	NC	5/20/2019	Email	MVP Southgate sent an update regarding the Cultural Deep Testing.



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www.mvpssouthgate.com

May 22, 2019

Mr. Todd Miller  
United States Army Corps of Engineers -Norfolk District  
803 Front Street,  
ATTN: CENAO-WR-R  
Norfolk, Virginia 23510-1011  
NAO-2018-1574

Mr. Dave Davis and Mr. Mike Johnson  
Virginia Department of Environmental Quality  
Office of Wetlands and Stream Protection  
Post Office Box 1105  
Richmond, Virginia 23218  
Application # 18-1892

Mr. Randy Owen  
Virginia Marine Resources Commission  
Habitat Management Division  
2600 Washington Avenue, 3rd Floor  
Newport News, Virginia 23607-0756  
Via Email: JPA.permits@mrc.virginia

RE: MVP Southgate Project, Pittsylvania County, Virginia  
Addendum to Pre-Construction Notification for Nationwide Permit 12 (NAO-2018-1574)  
Addendum to General Virginia 401 Water Quality Certification for NWP 12 Consistency/No Permit Required  
Addendum to Permit for subaqueous utility crossings of State-owned bottomlands

Dear Mr. Miller, Mr. Davis, Mr. Johnson, and Mr. Owen:

Mountain Valley Pipeline, LLC ("Mountain Valley") is providing an addendum to the Joint Permit Application ("JPA") for the MVP Southgate Project ("Project"). Mountain Valley is proposing to construct and operate the Project to provide timely, cost-effective access to new natural gas supplies to meet the growing needs of natural gas users in the southeastern United States ("U.S."). The Project is a separate project from the 303-mile Mountain Valley Pipeline that is currently under construction.

Subsequent to the initial submittal of the JPA, as well as the application to the Federal Energy Regulatory Commission ("FERC") for a Certificate of Public Convenience and Necessity, in November 2018, Mountain Valley has continued to evaluate the pipeline alignment and submitted a Supplemental Filing to FERC in March of 2019 reflecting modifications incorporated based on FERC review and stakeholder / agency comments. Mountain Valley is now providing this addendum to the JPA which reflects those changes as well as additional biological field surveys along with updated wetland and waterbody impact tables and drawings.

In March of 2019, the Southgate Project submitted a Wetland Delineation Addendum to FERC summarizing the second round of field surveys within the Virginia Project survey area based on additional survey access to identify the presence and delineate the boundaries of wetlands and other waters potentially subject to regulation by the USACE and Virginia Department of Environmental Quality. Since the submittal of the March 2019 addendum to FERC, additional field surveys have occurred, and the enclosed information reflects the most recent data.

As you know, a preliminary jurisdictional determination (PJD) review process is currently ongoing with the USACE-Norfolk District to review the delineated resources. To-date, several field visits have occurred with the USACE.

Mountain Valley appreciates the opportunity to provide this information in support of its request for the Joint USACE Section 404/VADEQ Section 401 authorization of the Project pursuant to Nationwide Permit 12 and Subaqueous utility crossing for state-owned bottomlands. Should you have any additional questions or further information to

complete your review of the Project, please do not hesitate to contact Alex Miller at 713-374-1599 or via email at [alex.miller@nexteraenergy.com](mailto:alex.miller@nexteraenergy.com) or me at 561-691-7054 or via email [kathy.salvador@nexteraenergy.com](mailto:kathy.salvador@nexteraenergy.com). Thank you for your continued consideration.

Sincerely,  
**Mountain Valley Pipeline, LLC**

*Kathy Salvador*  
Kathy Salvador  
Senior Director, Environmental Services

Attachments

CC: David Bailey, Corps, Wilmington District  
Alex Miller, MVP  
Travis Faul, MVP  
John Zimmer, TRC  
Lisa Walker, TRC  
Heather Patti, TRC





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May 22, 2019

Mr. David Bailey  
United States Army Corps of Engineers -Wilmington District  
Raleigh Regulatory Field Office  
3331 Heritage Trade Drive, Suite 105  
Wake Forest, North Carolina 27587  
SAW-2018-00887

Ms. Karen Higgins  
North Carolina Department of Environmental Quality  
Division of Water Resources  
401 & Buffer Permitting Unit, Wetlands Branch  
1617 Mail Service Center  
Raleigh, North Carolina 27699 -1617

RE: MVP Southgate Project, Rockingham and Alamance Counties, North Carolina  
Addendum to Pre-Construction Notification for Nationwide Permit 12 (SAW-2018-00887)  
Addendum to Application for Individual 401 Water Quality Certification (DWR# 20181638)  
Authorization for Buffer Impacts in Jordan Lake Watershed

Dear Mr. Bailey and Ms. Higgins:

Mountain Valley Pipeline, LLC ("Mountain Valley") is providing an addendum to the Joint Permit Application ("JPA") for the MVP Southgate Project ("Project"). Mountain Valley is proposing to construct and operate the Project to provide timely, cost-effective access to new natural gas supplies to meet the growing needs of natural gas users in the southeastern United States ("U.S."). The Project is a separate project from the 303-mile Mountain Valley Pipeline that is currently under construction.

Subsequent to the initial submittal of the JPA, as well as the application to the Federal Energy Regulatory Commission ("FERC") for a Certificate of Public Convenience and Necessity, in November 2018, Mountain Valley has continued to evaluate the pipeline alignment and submitted a Supplemental Filing to FERC in March of 2019 reflecting modifications incorporated based on FERC review and stakeholder / agency comments. Mountain Valley is now providing this addendum to the JPA which reflects those changes as well as additional biological field surveys along with updated wetland and waterbody impact tables and drawings.

In March of 2019, the Southgate Project submitted a Wetland Delineation Addendum to FERC summarizing the second round of field surveys within the North Carolina Project survey area based on additional survey access to identify the presence and delineate the boundaries of wetlands and other waters potentially subject to regulation by the USACE and North Carolina Department of Environmental Quality. In summary, Mountain Valley identified and delineated 17 additional wetlands, 15 extensions of previously delineated wetlands, 2 approximated wetlands, 3 new ponds, 29 new streams and 40 extended streams. Since the submittal of the March 2019 addendum to FERC, additional field surveys have occurred, and the enclosed information reflects the most recent data.

As you know, a preliminary jurisdictional determination (PJD) review process is currently ongoing with the USACE-Wilmington District and NC Department of Water Resources to review the delineated resources. To-date, several field visits have occurred with the USACE and NCDWR (in September of 2018) with additional field visits planned for the summer of 2019.

In addition to the PJD, Mountain Valley submitted a major variance application to the NCDWR on February 8<sup>th</sup>, 2019 for non-perpendicular stream crossings within the Jordan Lake Watershed (NC DWR# 20181638). This application is currently under review, and an addendum was submitted to NCDWR reflecting the supplemental information on May 3<sup>rd</sup>, 2019.



Mountain Valley appreciates the opportunity to provide this information in support of its request for the Joint USACE Section 404/NCDEQ Section 401 authorization of the Project pursuant to Nationwide Permit 12. Should you have any additional questions or further information to complete your review of the Project, please do not hesitate to contact Alex Miller at 713-374-1599 or via email at [alex.miller@nexteraenergy.com](mailto:alex.miller@nexteraenergy.com) or me at 561-691-7054 or via email [kathy.salvador@nexteraenergy.com](mailto:kathy.salvador@nexteraenergy.com). Thank you for your continued consideration.

Sincerely,  
**Mountain Valley Pipeline, LLC**



Kathy Salvador  
Senior Director, Environmental Services

Attachments

CC: Todd Miller, Corps, NAO  
Travis Faul, MVP  
John Zimmer, TRC  
Lisa Walker, TRC  
Heather Patti, TRC







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May 13, 2019

Ms. Renee Gledhill-Earley  
Environmental Review Coordinator  
North Carolina State Historic Preservation Office  
109 East Jones Street, Room 258  
Raleigh, North Carolina 27601

RE: MVP Southgate Project, Alamance, Rockingham, Guilford, and Caswell Counties, North Carolina  
ER 18-1041

Dear Ms. Gledhill-Earley:

Enclosed please find hard and digital copies of Draft Addendum Report I for the *Historic Architectural Survey for the MVP Southgate Pipeline Project, Rockingham, Alamance, Guilford, and Caswell Counties, North Carolina*. This report documents additional surveys completed through April 2019, including surveys of newly identified contractor yards in Guilford and Caswell counties.

Hard and digital copies of the survey forms for the newly documented resources are also included, and are also provided as a bound appendix to the report at the request of the FERC. TRC has arranged for the digital proof sheets for these resources to be completed by HPO staff (Invoice HPO-CB18/19-021).

We appreciate your continued assistance with the Project and thank you for your consideration of this information. Please do not hesitate to contact me at (919) 414-3420 / [tmillis@trccompanies.com](mailto:tmillis@trccompanies.com), or Ted Karpy nec at (615) 428-4639 / [tkarpy nec@trccompanies.com](mailto:tkarpy nec@trccompanies.com), if you have any questions or require any additional information.

Sincerely,

Tracy L. Millis  
Senior Archaeologist

Cc: Alex Miller, MVP Southgate, LLC  
Ted Karpy nec, TRC Environmental Corporation  
Paul Webb, TRC Environmental Corporation

## Webb, Paul

---

**From:** Webb, Paul  
**Sent:** Friday, May 3, 2019 1:15 PM  
**To:** Kirchen, Roger; 'John Mintz'; Blewitt, Rosemarie  
**Subject:** MVP\_Southgate\_Slides\_from\_Tribal-Visit  
**Attachments:** MVP\_Southgate\_Tribal\_Meeting\_TRC slides updated 5-1-2019.pdf

Roger/John/Rosie –

Attached fyi are the powerpoint slides from the April 25<sup>th</sup> MVP\_Southgate\_site visit at 31RK217 in North Carolina; these have been updated to include Rosie's contact info per John's request.

### Paul Webb

Cultural Resources Program Leader



5 Dogwood Road, Asheville, NC 28806

C 919.414.3418

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## Webb, Paul

---

**From:** Webb, Paul  
**Sent:** Friday, May 3, 2019 9:56 AM  
**To:** Blewitt, Rosemarie  
**Cc:** Millis, Tracy  
**Subject:** MVP Southgate (ER 18-1041) - 31RK217 testing procedures

Rosie –

Thanks for your time on the phone this morning. As we discussed, we are moving on to the last four 1 x 2 m units at 31RK217. As the work there so far has found no evidence of cultural deposits below the buried A horizon, we are now planning to limit our excavation in the underlying B horizon. We now plan to excavate one full sterile level into the B horizon in each unit, and then switch to a 50 x 50 cm unit to investigate the B horizon. Assuming there are no indications of deeper cultural deposits, that will conclude the investigation of the B horizon in each unit. If we do find any indications of deeper cultural deposits, however, full excavation will continue to the maximum practical depth in each unit.

I understand from our conversation that you approve of this change in procedures, but please let me know if you have any concerns.

Thanks again,

**Paul Webb**

Cultural Resources Program Leader



5 Dogwood Road, Asheville, NC 28806

C 919.414.3418

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CAUTION - EXTERNAL EMAIL

Hi Karen and Sue,

The addendum to the MVP Southgate's major variance application for the MVP Southgate project has been posted to the project website, in a folder entitled "May 2019 Addendum":

<https://trcextranet.trcsolutions.com/sites/CS-KM1/MVP-Southgate-Agency/SitePages/Home.aspx?RootFolder=%2Fsites%2FCS-KM1%2FMVP-Southgate-Agency%2FShared%20Documents%2FMajor%20Variance%20Application%2FMay%202019%20Addendum&FolderCTID=0x012000BB735D23F68CBE43B0EA67C7FE3D6E6E&View=%7BBCCBB181D-F76D-460C-9A9F-7E063BA81F3E%7D>

Earlier today I sent a hard copy of the maps to each of your offices. Please let me know if you need any additional hard copies, or if there are any issues opening up the files.

We look forward to continue working with you on this application! Have a great weekend,

**Heather Patti, PWS**  
Senior Ecologist



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T: 919-256-6236 | F: 919-838-9661 | C: 262-623-1079

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**Please note that our domain name and email addresses have changed**



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www.mvpssouthgate.com

May 3, 2019

Ms. Karen Higgins  
North Carolina Department of Environmental Quality  
Division of Water Resources  
401 & Buffer Permitting Unit, Wetlands Branch  
1617 Mail Service Center  
Raleigh, North Carolina 27699 -1617

Ms. Sue Homewood  
North Carolina Department of Environmental Quality  
Division of Water Resources  
Water Quality Regional Operations Section  
450 West Hanes Mill Road, Suite 300  
Winston-Salem, North Carolina 27105

RE: MVP Southgate Project (DWR # 20181638)  
Addendum to Major Variance Request for non-perpendicular stream crossings  
Jordan Lake Watershed - 15A NCAC 02B .0267

Dear Ms. Higgins & Ms. Homewood:

On February 8<sup>th</sup>, 2019, Mountain Valley Pipeline, LLC submitted a Major Variance application for construction and operation of the MVP Southgate Project ("Project") within the Jordan Lake Watershed. The Project is requesting the major variance in association with non-perpendicular stream crossings that will occur within portions of the Zone 1 and Zone 2 buffers of the Jordan Lake Watershed.

The Project has continued to work with landowners, stakeholders, and agencies to refine the proposed pipeline alignment and submitted a supplement to the Federal Energy Regulatory Commission in March of 2019. A portion of the modifications to the pipeline alignment and associated workspace occur within the Jordan Lake Watershed. In addition to the modifications submitted within the supplement, this addendum also reflects additional wetland and waterway delineation surveys that have been completed.

In accordance with 15A NCAC 02B.0267, the Project updated the alternatives analysis demonstrating the need for the major variance as well as the specific hardships that prevent the Project from being able to fully comply with the buffer rules at non-perpendicular stream crossings. Updated Project information and a summary of the justification for the requested variances are included as attachments, and include updated USGS Quad maps, published soil survey maps, and site-specific impact maps for non-perpendicular stream crossings for which the Project is seeking a variance.

It should be noted that on the few properties on which Mountain Valley currently does not have legal access, we applied 50' Jordan Lake Buffers to any surface waters shown on either the USGS or Soil Survey maps as required under 15A NCAC 02B .0267. As such, these may overestimate the buffers and it's possible that the buffer impacts requested in these areas may be reduced once Mountain Valley obtains legal access to these properties and on-site determinations with DWR staff occur. For these reasons, if the WQC/EMC were to issue a variance for this project prior to the finalization of the buffer impacts, we anticipate that any modifications would result in a reduction in overall impacts (not increase) and therefore DWR Staff should be able to review these without requiring them to go back to the WQC/EMC.



At this time, the majority of the proposed route has been determined. The potential reroutes that would be required to achieve perpendicular buffer crossings (Appendix D) if a variance is not approved, represent the largest potential for changes to the proposed route. As such, we look forward to discussing this submittal with you and receiving your feedback and direction to assist us in developing a route that is as complete as possible. Should you have any questions or require additional information to complete your review, please do not hesitate to contact Alex Miller at 713-374-1599 or via email at [alex.miller@nexteraenergy.com](mailto:alex.miller@nexteraenergy.com) or me at 561-691-7054 or via email [kathy.salvador@nexteraenergy.com](mailto:kathy.salvador@nexteraenergy.com). Thank you for your consideration.

Sincerely,  
**Mountain Valley Pipeline, LLC**



Kathy Salvador  
Senior Director, Environmental Services

Attachments

CC:

David Bailey, USACE  
Jean Gibby, USACE  
Todd Miller, USACE  
Travis Faul, MVP  
Heather Patti, TRC  
Kevin Martin, S&EC



CAUTION - EXTERNAL EMAIL

Great – thank you Sue!

**From:** Homewood, Sue <[sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov)>  
**Sent:** Tuesday, May 7, 2019 11:15 AM  
**To:** Patti, Heather <[HPatti@trccompanies.com](mailto:HPatti@trccompanies.com)>; Higgins, Karen <[karen.higgins@ncdenr.gov](mailto:karen.higgins@ncdenr.gov)>  
**Cc:** Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; Faul, Travis <[Travis.Faul@nexteraenergy.com](mailto:Travis.Faul@nexteraenergy.com)>; Zimmer, John <[JZimmer@trccompanies.com](mailto:JZimmer@trccompanies.com)>  
**Subject:** RE: [External] FW: MVP Southgate: Major Variance Addendum Submittal

The meeting will be in the 9<sup>th</sup> floor conference room of the Archdale Building.

The call in number is 704-342-6203

Thanks,

Sue Homewood  
Division of Water Resources, Winston Salem Regional Office  
Department of Environmental Quality

336 776 9693 office  
336 813 1863 mobile  
[Sue.Homewood@ncdenr.gov](mailto:Sue.Homewood@ncdenr.gov)

450 W. Hanes Mill Rd, Suite 300  
Winston Salem NC 27105

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**From:** Patti, Heather <[HPatti@trccompanies.com](mailto:HPatti@trccompanies.com)>  
**Sent:** Tuesday, May 7, 2019 11:12 AM  
**To:** Homewood, Sue <[sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov)>; Higgins, Karen <[karen.higgins@ncdenr.gov](mailto:karen.higgins@ncdenr.gov)>  
**Cc:** Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; Faul, Travis <[Travis.Faul@nexteraenergy.com](mailto:Travis.Faul@nexteraenergy.com)>; Zimmer, John <[JZimmer@trccompanies.com](mailto:JZimmer@trccompanies.com)>  
**Subject:** RE: [External] FW: MVP Southgate: Major Variance Addendum Submittal

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Ok, great. Yes, see you next week. I have the 16<sup>th</sup> down at 3PM but I think our meeting spot is still TBD.

CAUTION - EXTERNAL EMAIL

Thanks – will do.

**From:** Homewood, Sue <[sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov)>  
**Sent:** Friday, May 3, 2019 12:23 PM  
**To:** Patti, Heather <[HPatti@trccompanies.com](mailto:HPatti@trccompanies.com)>  
**Cc:** Higgins, Karen <[karen.higgins@ncdenr.gov](mailto:karen.higgins@ncdenr.gov)>; Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; Hamberg, Alexis <[Alexis.Hamberg@nexteraenergy.com](mailto:Alexis.Hamberg@nexteraenergy.com)>; Faul, Travis <[Travis.Faul@nexteraenergy.com](mailto:Travis.Faul@nexteraenergy.com)>; Zimmer, John <[JZimmer@trccompanies.com](mailto:JZimmer@trccompanies.com)>  
**Subject:** RE: [External] Southgate: Major Variance Addendum Submittal - hardcopies?

Hi Heather,

Please send one copy to my attention at the Winston-Salem Regional Office and one hard copy to Karen Higgins in our Central Office.

Thanks,

Sue Homewood  
Division of Water Resources, Winston Salem Regional Office  
Department of Environmental Quality

336 776 9693 office  
336 813 1863 mobile  
[Sue.Homewood@ncdenr.gov](mailto:Sue.Homewood@ncdenr.gov)

450 W. Hanes Mill Rd, Suite 300  
Winston Salem NC 27105

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

**From:** Patti, Heather <[HPatti@trccompanies.com](mailto:HPatti@trccompanies.com)>  
**Sent:** Friday, May 3, 2019 8:00 AM  
**To:** Homewood, Sue <[sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov)>  
**Cc:** Higgins, Karen <[karen.higgins@ncdenr.gov](mailto:karen.higgins@ncdenr.gov)>; Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; Hamberg, Alexis <[Alexis.Hamberg@nexteraenergy.com](mailto:Alexis.Hamberg@nexteraenergy.com)>; Faul, Travis <[Travis.Faul@nexteraenergy.com](mailto:Travis.Faul@nexteraenergy.com)>; Zimmer, John <[JZimmer@trccompanies.com](mailto:JZimmer@trccompanies.com)>  
**Subject:** [External] Southgate: Major Variance Addendum Submittal - hardcopies?

**CAUTION:** External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [report.spam@nc.gov](mailto:report.spam@nc.gov)

Hi Sue,

I hope all is well. We are submitting the updated variance application to you today and I wanted to see if you would like any hard copies of the maps fedex'd to your office in Winston Salem or dropped off in the Raleigh office? Previously I believe we've submitted 2 hard copies.

Let me know, thanks! Have a great weekend.

**Heather Patti, PWS**  
Senior Ecologist



5540 Centerview Drive, Suite 100, Raleigh, NC 27606  
T: 919-256-6236 | F: 919-838-9661 | C: 262-623-1079

[LinkedIn](#) | [Twitter](#) | [Blog](#) | [Flickr](#) | [www.TRCompanies.com](http://www.TRCompanies.com)

**Please note that our domain name and email addresses have changed**

**From:** Homewood, Sue <[sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov)>  
**Sent:** Tuesday, May 7, 2019 10:05 AM  
**To:** Patti, Heather <[HPatti@trccompanies.com](mailto:HPatti@trccompanies.com)>; Higgins, Karen <[karen.higgins@ncdenr.gov](mailto:karen.higgins@ncdenr.gov)>  
**Cc:** Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; Faul, Travis <[Travis.Faul@nexteraenergy.com](mailto:Travis.Faul@nexteraenergy.com)>; Zimmer, John <[JZimmer@trccompanies.com](mailto:JZimmer@trccompanies.com)>  
**Subject:** RE: [External] FW: MVP Southgate: Major Variance Addendum Submittal

CAUTION - EXTERNAL EMAIL

I was able to access them and download them to our Laserfische system for Karen. Thanks for checking. I also received my hard copies of the maps. See you next week.

Thanks,

Sue Homewood  
Division of Water Resources, Winston Salem Regional Office  
Department of Environmental Quality

336 776 9693 office  
336 813 1863 mobile  
[Sue.Homewood@ncdenr.gov](mailto:Sue.Homewood@ncdenr.gov)

450 W. Hanes Mill Rd, Suite 300  
Winston Salem NC 27105

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

**From:** Patti, Heather <[HPatti@trccompanies.com](mailto:HPatti@trccompanies.com)>  
**Sent:** Tuesday, May 7, 2019 8:56 AM  
**To:** Higgins, Karen <[karen.higgins@ncdenr.gov](mailto:karen.higgins@ncdenr.gov)>; Homewood, Sue <[sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov)>  
**Cc:** Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; Faul, Travis <[Travis.Faul@nexteraenergy.com](mailto:Travis.Faul@nexteraenergy.com)>; Zimmer, John <[JZimmer@trccompanies.com](mailto:JZimmer@trccompanies.com)>  
**Subject:** [External] FW: MVP Southgate: Major Variance Addendum Submittal

**CAUTION:** External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [report.spam@nc.gov](mailto:report.spam@nc.gov)

Morning Karen & Sue,

I'm checking in to make sure you were able to view/download our files for the major variance addendum. Please let me know when you have a moment.

Thank you!

Heather

**From:** Patti, Heather

**Sent:** Friday, May 3, 2019 2:37 PM

**To:** Higgins, Karen <[karen.higgins@ncdenr.gov](mailto:karen.higgins@ncdenr.gov)>; 'Homewood, Sue' <[sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov)>

**Cc:** [David.E.Bailey2@usace.army.mil](mailto:David.E.Bailey2@usace.army.mil); 'Miller, Todd M CIV USARMY CENAO (US)'

<[Todd.M.Miller@usace.army.mil](mailto:Todd.M.Miller@usace.army.mil)>; Faul, Travis <[Travis.Faul@nexteraenergy.com](mailto:Travis.Faul@nexteraenergy.com)>; Zimmer, John

<[JZimmer@trccompanies.com](mailto:JZimmer@trccompanies.com)>; Walker, Lisa <[LWalker@trccompanies.com](mailto:LWalker@trccompanies.com)>; Kevin Martin

<[kmartin@sandec.com](mailto:kmartin@sandec.com)>; 'Bob Zarzecki' <[bzarzecki@sandec.com](mailto:bzarzecki@sandec.com)>; Hamberg, Alexis

<[Alexis.Hamberg@nexteraenergy.com](mailto:Alexis.Hamberg@nexteraenergy.com)>

**Subject:** MVP Southgate: Major Variance Addendum Submittal

Hi Karen and Sue,

The addendum to the MVP Southgate's major variance application for the MVP Southgate project has been posted to the project website, in a folder entitled "May 2019 Addendum":

<https://trcextranet.trcsolutions.com/sites/CS-KM1/MVP-Southgate-Agency/SitePages/Home.aspx?RootFolder=%2Fsites%2FCS-KM1%2FMVP-Southgate-Agency%2FShared%20Documents%2FMajor%20Variance%20Application%2FMay%202019%20Addendum&FolderCTID=0x012000BB735D23F68CBE43B0EA67C7FE3D6E6E&View=%7BBCCBB181D-F76D-460C-9A9F-7E063BA81F3E%7D>

Earlier today I sent a hard copy of the maps to each of your offices. Please let me know if you need any additional hard copies, or if there are any issues opening up the files.

We look forward to continue working with you on this application! Have a great weekend,

Heather Patti, PWS  
Senior Ecologist



5540 Centerview Drive, Suite 100, Raleigh, NC 27606  
T: 919-256-6236 | F: 919-838-9661 | C: 262-623-1079

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**From:** Kirchen, Roger <[roger.kirchen@dhr.virginia.gov](mailto:roger.kirchen@dhr.virginia.gov)>  
**Sent:** Friday, May 10, 2019 2:12 PM  
**To:** Webb, Paul (Chapel Hill,NC-US) <[pwebb@trcsolutions.com](mailto:pwebb@trcsolutions.com)>  
**Cc:** Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; [tmillis@trcsolutions.com](mailto:tmillis@trcsolutions.com)  
**Subject:** MVP Southgate - Phase II at Sites 44PY0271, 44PY0445, and 44PY0451 (DHR File No. 2018-3545)

CAUTION - EXTERNAL EMAIL

Please see attached for DHR's comments on the referenced document and print for your files. No hardcopy to follow.

Roger

---

*Roger W. Kirchen, Director  
Review and Compliance Division  
Department of Historic Resources  
2801 Kensington Avenue  
Richmond, VA 23221  
phone: 804-482-6091  
[www.dhr.virginia.gov](http://www.dhr.virginia.gov)*

**From:** Stahl, Megan D. <[MStahl@equitransmidstream.com](mailto:MStahl@equitransmidstream.com)>

**Sent:** Tuesday, May 7, 2019 3:25 PM

**To:** [John\\_Ellis@fws.gov](mailto:John_Ellis@fws.gov); [sarah\\_mcrae@fws.gov](mailto:sarah_mcrae@fws.gov); Stancil, Vann F <[vann.stancil@ncwildlife.org](mailto:vann.stancil@ncwildlife.org)>

**Cc:** Miller, Alex <[Alex.Miller@nexteraenergy.com](mailto:Alex.Miller@nexteraenergy.com)>; Stephanie Frazier <[SFrazier@envsi.com](mailto:SFrazier@envsi.com)>; Chalmers, Cory M. <[CChalmers@equitransmidstream.com](mailto:CChalmers@equitransmidstream.com)>

**Subject:** MVP Southgate - surface water withdrawal

CAUTION - EXTERNAL EMAIL

John, Sarah, and Vann,

I am writing to follow up on the discussion between FWS and the MVP Southgate team last week.

The VA DEQ guidance for surface water withdrawals includes the following measures to avoid an adverse effect or impairment to surface water:

- Withdrawing no more than 10% of the instantaneous flow rate from the channel;
- Using the intake screens designed so that screen openings are not larger than 1 millimeter and;
- Ensuring that screen face intake velocities are not greater than 0.25 feet per second.

Can you confirm that no corresponding guidelines exist for North Carolina waters?

On the call we discussed the possibility of Southgate withdrawing water from the Dan River and you mentioned that no withdrawals should occur during critical life stages of anadromous, rare, threatened or endangered species. Can you confirm that for the Dan River this timeframe is between March – June?

Once you provide feedback on these items I will send the proposed draft plan for Southgate withdrawal and discharge for your review and comment.

Thank you,  
Megan

Megan Stahl  
Manager Environmental  
2200 Energy Drive  
Canonsburg, PA 15317  
T 412-553-7783  
C 412-737-2587

[mstahl@equitransmidstream.com](mailto:mstahl@equitransmidstream.com)

*\*Please note my new email address*



## Stephanie Frazier

---

**From:** Hypes, Rene' <rene.hypes@dcr.virginia.gov>  
**Sent:** Monday, May 06, 2019 7:57 AM  
**To:** Stephanie Frazier  
**Subject:** Re: MVP Southgate - botanist resumes

Hi Stephanie,

Thank you for sending the resumes for the MVP Southgate project botanists. I have coordinated the resumes with a DCR botanist and he approves of their qualifications to conduct the rare plant surveys for Piedmont Barbara's buttons, Downy phlox and American bluehearts all at the same time beginning on June 1, 2019.

Thank you for the continued coordination on this project.

Rene'

On Thu, May 2, 2019 at 5:02 PM Stephanie Frazier <[SFrazier@envsi.com](mailto:SFrazier@envsi.com)> wrote:

Good afternoon, Rene'

Thank you again for discussing plant survey questions with me this afternoon. For your consideration, attached please find resumes for our project botanists; the short forms are excerpts from the federal plant study plan that was provided to your office last year, but I also wanted to include the long form CV for Mr. Larry Brewer, who will lead our efforts. ESI is confident in his ability to identify the three species of interest (Piedmont Barbara's buttons, downy phlox and American bluehearts). As discussed this afternoon, we are tentatively planning a single field survey of these species beginning June 1. The survey will focus on areas where the Project and the Transco right-of-way are co-located in open canopy habitat. Survey results would be provided to VDCR for its review.

Please let me know if you have questions,

Stephanie



**Stephanie Frazier**

Senior Project Manager

Environmental Solutions & Innovations, Inc.

1341 Old Freedom Rd | Cranberry Twp., PA 15212

**office:** 513.591.4335 **cell:** 412.553.9457

[SFrazier@envsi.com](mailto:SFrazier@envsi.com) | [www.envsi.com](http://www.envsi.com)

--

S. Rene' Hypes

Project Review Coordinator

Department of Conservation and Recreation

Division of Natural Heritage

600 East Main Street, 24<sup>th</sup> Floor

Richmond, Virginia 23219

[804-371-2708](tel:804-371-2708) (phone)

[804-371-2674](tel:804-371-2674) (fax)

[rene.hypes@dcr.virginia.gov](mailto:rene.hypes@dcr.virginia.gov)

**Conserving VA's Biodiversity through Inventory, Protection and Stewardship**

<http://www.dcr.virginia.gov/natural-heritage>

## Contact Report for Benjamin Leach

<b>Contact ID 1017</b>	
Contact Status	<b>Completed</b>
Priority Level	<b>Medium</b>
Contact Date	05/03/2019
Type of Contact	Email
Type of Issue	No Issues were indentified with this contact
Issue Comments	Hi Ben, As discussed previously, attached are two snips from our draft E&S plans showing two stream crossing locations with steep terrain surrounding the resources. These should provide a solid representative sample of our crossing details. Please let me know if you have any questions. Have a good weekend, Cory Cory Chalmers * Environmental Coordinator 120 Professional Place, Bridgeport, WV 26330 Direct: 304.848.0061 * Mobile: 304.627.8173 cchalmers@equitransmidstream.com
Contacted By	N/A
Attachments	There are no files attached to this contact.
There are no followups for this contact.	

## Contact Report for Benjamin Leach

<b>Contact ID 1018</b>	
Contact Status	<b>Completed</b>
Priority Level	<b>Medium</b>
Contact Date	05/06/2019
Type of Contact	Email
Type of Issue	No Issues were indentified with this contact
Issue Comments	<p>They are 2' interval contours. Clean water diversions are definitely being utilized and shown as the red lines with arrows. These probably aren't good examples that represent their use. I'll remind them of the E&amp;S limitations—thank you! From: Leach, Benjamin Sent: Monday, May 06, 2019 9:43 AM To: Chalmers, Cory M. Subject: [EXTERNAL] Re: VA E&amp;S Stream Crossing Plans What is the contour intervals on those elevations? Also please make sure that your engineers are utilizing clean water diversions and not exceeding the limitations (e.g. receiving slope length, drainage area) of E&amp;S measures. On Fri, May 3, 2019 at 3:49 PM Chalmers, Cory M. &gt; wrote: Hi Ben, As discussed previously, attached are two snips from our draft E&amp;S plans showing two stream crossing locations with steep terrain surrounding the resources. These should provide a solid representative sample of our crossing details. Please let me know if you have any questions. Have a good weekend, Cory</p> <p>Cory Chalmers • Environmental Coordinator 120 Professional Place, Bridgeport, WV 26330 Direct: 304.848.0061 • Mobile: 304.627.8173 cchalmers@equitransmidstream.com -- ~ Ben</p> <p>Ben Leach, GISP Stormwater Team Lead of the Office of Stormwater Management Department of Environmental Quality +1 (804) 698-4037 - direct dial Benjamin.Leach@deq.virginia.gov www.deq.virginia.gov</p>
Contacted By	N/A
Attachments	There are no files attached to this contact.



There are no followups for this contact.

## Contact Report for Anne Richardson

<b>Contact ID 1020</b>	
Contact Status	<b>Completed</b>
Priority Level	<b>Medium</b>
Contact Date	05/10/2019
Type of Contact	Phone Call
Type of Issue	No Issues were indentified with this contact
Issue Comments	MVP spoke with Anne Richards, Chief of the Rappahannock. She stated MVP Southgate is outside of their Area of Interest. However, if Human Remains are identified to let them know.
Contacted By	Alex Miller
Attachments	There are no files attached to this contact.
There are no followups for this contact.	

## Contact Report for Beth Roach

<b>Contact ID 1015</b>	
Contact Status	<b>Completed</b>
Priority Level	<b>Medium</b>
Contact Date	05/07/2019
Type of Contact	Phone Call
Type of Issue	No Issues were indentified with this contact
Issue Comments	Ms. Roach, a Tribal Council Member, returned a call to MVP Southgate to inform that the Tribe would be signing the Confidentiality Agreement, thus allowing MVP to supply archaeological reports for their review,
Contacted By	N/A
Attachments	<ul style="list-style-type: none"><li>• <a href="#">[Nottoway-Roach]_5-7-19_Call_LOG.pdf</a></li></ul>
There are no followups for this contact.	



## Contact Report for Beth Roach

<b>Contact ID 1021</b>	
Contact Status	<b>Completed</b>
Priority Level	<b>Medium</b>
Contact Date	05/10/2019
Type of Contact	Phone Call
Type of Issue	No Issues were indentified with this contact
Issue Comments	Follow up conversation on taking next steps after the NDA is signed. MVP expects to begin coordinating with her by meeting face to face soon to share project progress, cultural information and schedule going forward.
Contacted By	N/A
Attachments	There are no files attached to this contact.
There are no followups for this contact.	

## Contact Report for W.A. (Tony) Hayes

<b>Contact ID 1026</b>	
Contact Status	<b>Completed</b>
Priority Level	<b>Medium</b>
Contact Date	05/15/2019
Type of Contact	Phone Call
Type of Issue	No Issues were indentified with this contact
Issue Comments	MVP Southgate coordinating with Mr. Hayes for the delivery of Southgate reports.
Contacted By	Alex Miller
Attachments	There are no files attached to this contact.
There are no followups for this contact.	



625 Liberty Avenue, Suite 1700 | Pittsburgh, PA 15222  
833-MV-SOUTH | mail@mvpssouthgate.com  
www.mvpssouthgate.com

May 3, 2019

Ms. Karen Higgins  
North Carolina Department of Environmental Quality  
Division of Water Resources  
401 & Buffer Permitting Unit, Wetlands Branch  
1617 Mail Service Center  
Raleigh, North Carolina 27699 -1617

Ms. Sue Homewood  
North Carolina Department of Environmental Quality  
Division of Water Resources  
Water Quality Regional Operations Section  
450 West Hanes Mill Road, Suite 300  
Winston-Salem, North Carolina 27105

RE: MVP Southgate Project (DWR # 20181638)  
Addendum to Major Variance Request for non-perpendicular stream crossings  
Jordan Lake Watershed - 15A NCAC 02B .0267

Dear Ms. Higgins & Ms. Homewood:

On February 8<sup>th</sup>, 2019, Mountain Valley Pipeline, LLC submitted a Major Variance application for construction and operation of the MVP Southgate Project ("Project") within the Jordan Lake Watershed. The Project is requesting the major variance in association with non-perpendicular stream crossings that will occur within portions of the Zone 1 and Zone 2 buffers of the Jordan Lake Watershed.

The Project has continued to work with landowners, stakeholders, and agencies to refine the proposed pipeline alignment and submitted a supplement to the Federal Energy Regulatory Commission in March of 2019. A portion of the modifications to the pipeline alignment and associated workspace occur within the Jordan Lake Watershed. In addition to the modifications submitted within the supplement, this addendum also reflects additional wetland and waterway delineation surveys that have been completed.

In accordance with 15A NCAC 02B.0267, the Project updated the alternatives analysis demonstrating the need for the major variance as well as the specific hardships that prevent the Project from being able to fully comply with the buffer rules at non-perpendicular stream crossings. Updated Project information and a summary of the justification for the requested variances are included as attachments, and include updated USGS Quad maps, published soil survey maps, and site-specific impact maps for non-perpendicular stream crossings for which the Project is seeking a variance.

It should be noted that on the few properties on which Mountain Valley currently does not have legal access, we applied 50' Jordan Lake Buffers to any surface waters shown on either the USGS or Soil Survey maps as required under 15A NCAC 02B .0267. As such, these may overestimate the buffers and it's possible that the buffer impacts requested in these areas may be reduced once Mountain Valley obtains legal access to these properties and on-site determinations with DWR staff occur. For these reasons, if the WQC/EMC were to issue a variance for this project prior to the finalization of the buffer impacts, we anticipate that any modifications would result in a reduction in overall impacts (not increase) and therefore DWR Staff should be able to review these without requiring them to go back to the WQC/EMC.



At this time, the majority of the proposed route has been determined. The potential reroutes that would be required to achieve perpendicular buffer crossings (Appendix D) if a variance is not approved, represent the largest potential for changes to the proposed route. As such, we look forward to discussing this submittal with you and receiving your feedback and direction to assist us in developing a route that is as complete as possible. Should you have any questions or require additional information to complete your review, please do not hesitate to contact Alex Miller at 713-374-1599 or via email at [alex.miller@nexteraenergy.com](mailto:alex.miller@nexteraenergy.com) or me at 561-691-7054 or via email [kathy.salvador@nexteraenergy.com](mailto:kathy.salvador@nexteraenergy.com). Thank you for your consideration.

Sincerely,  
**Mountain Valley Pipeline, LLC**



Kathy Salvador  
Senior Director, Environmental Services

Attachments

CC:

David Bailey, USACE  
Jean Gibby, USACE  
Todd Miller, USACE  
Travis Faul, MVP  
Heather Patti, TRC  
Kevin Martin, S&EC



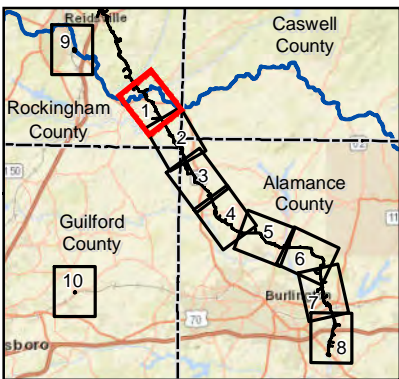
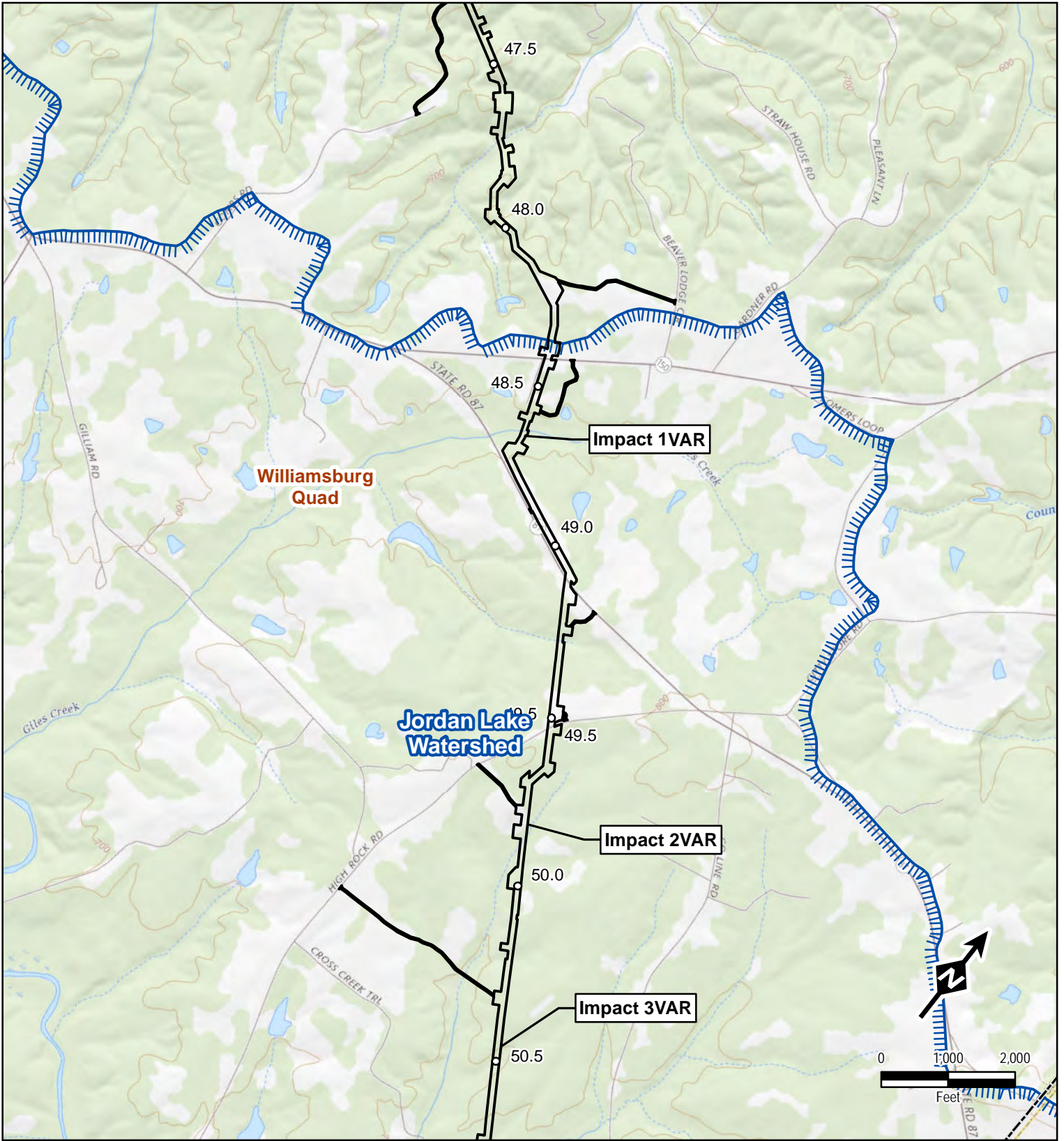


## **MVP Southgate Project**

### **Appendix A Jordan Watershed USGS Topographic Maps**

**May 2019**

SM-PROJECTS\NEXT\ERA\300423\_MVP\_Southgate\6-MXD\State\_Permittin\March\_Supplemental\_2019\_MM\Appendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:28:53 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▨ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- - - County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley**  
 PIPELINE, LLC

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps

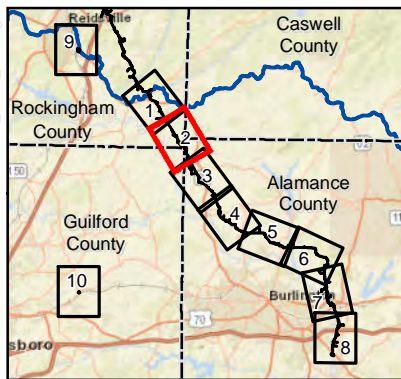
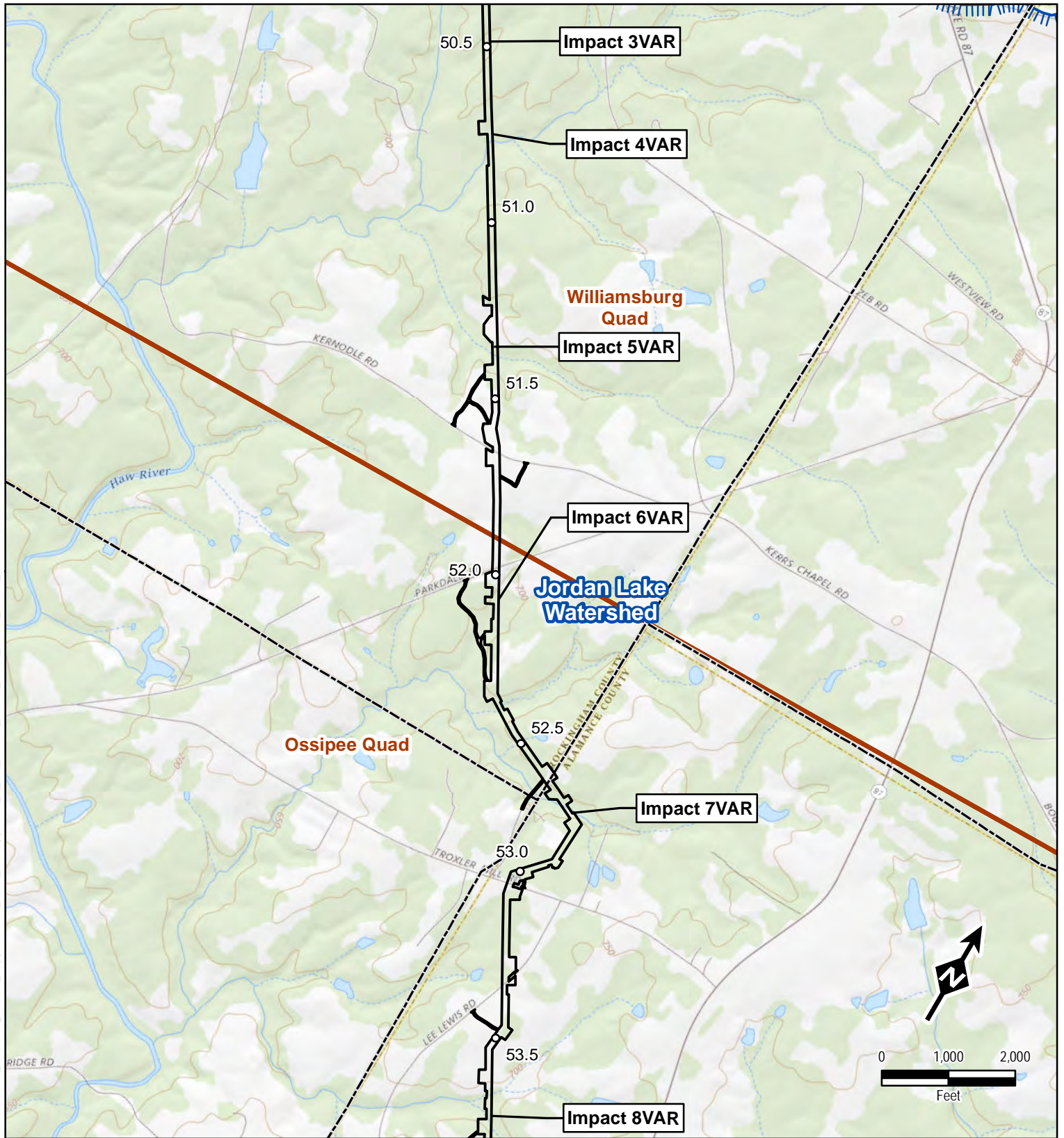
Rockingham County, NC  
 Sheet 1 of 10

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



SM-PROJECTS\NEXT\ERA\300423\_MVP\_Southgate\6-MXD\State\_Permittin\March\_Supplemental\_2019\_MM\Appendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:29:32 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▨ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- - - County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

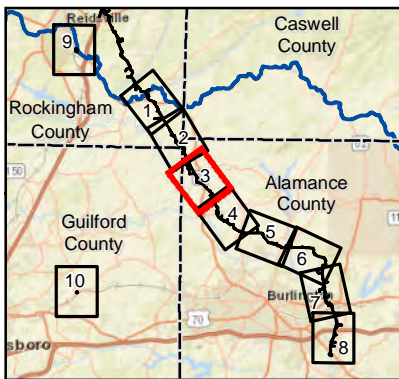
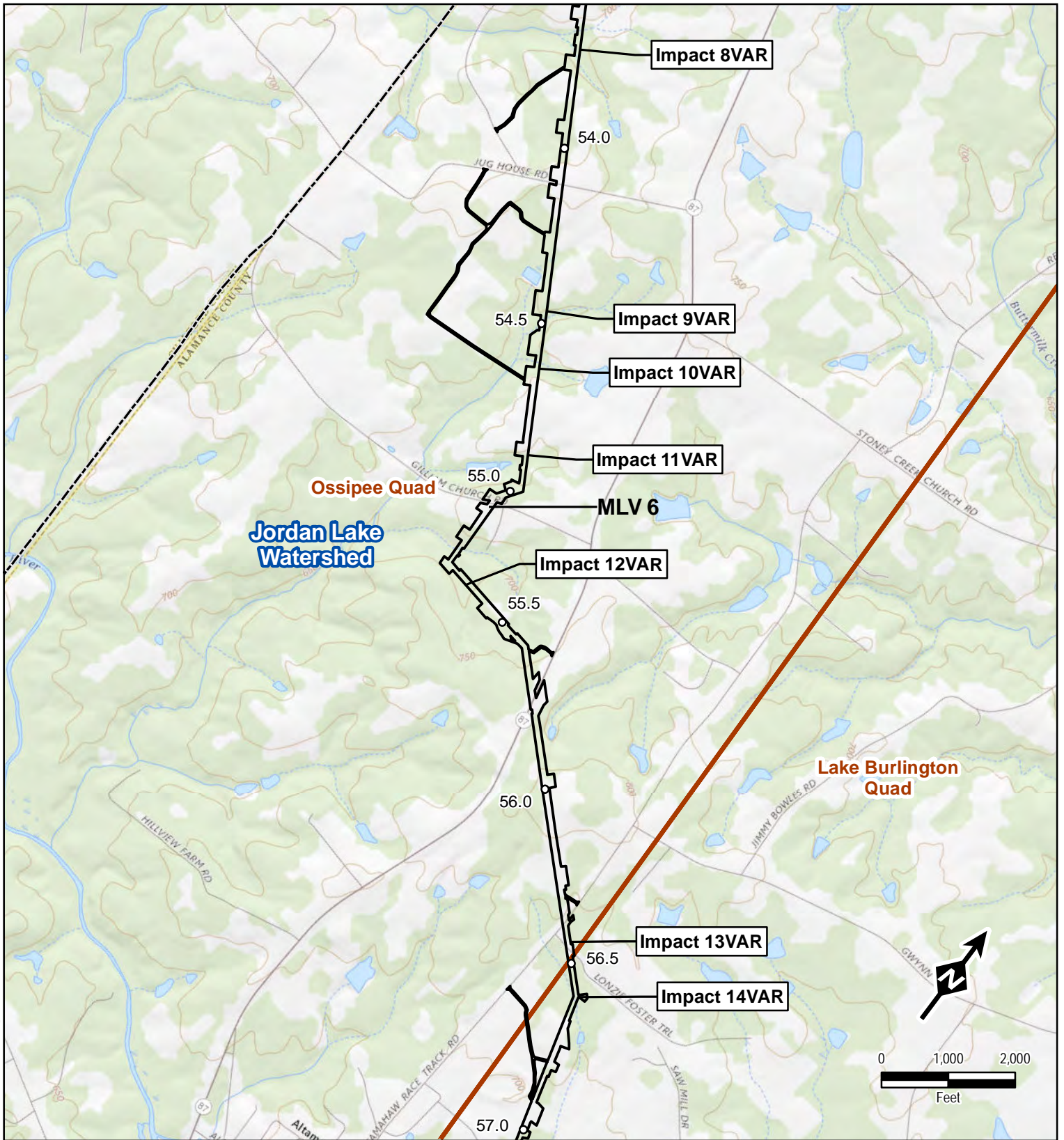
**Mountain Valley PIPELINE LLC**

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps  
 Rockingham, Guilford, & Alamance Counties, NC  
 Sheet 2 of 10

**TRC** Results you can rely on  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



SM-PROJECTS\NEXT\ERA\3000423\_MVP\_Southgate\6-MXD\State\_Permittin\March\_Supplemental\_2019\_MMVAppendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:27:35 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▭ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- ▭ County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley**  
 PIPELINE, LLC

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps

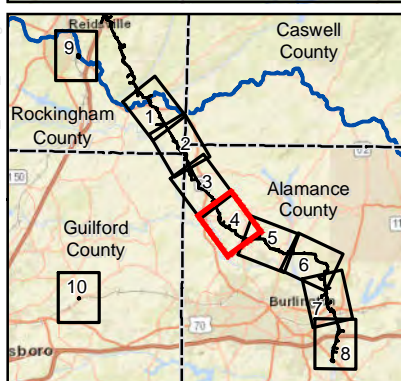
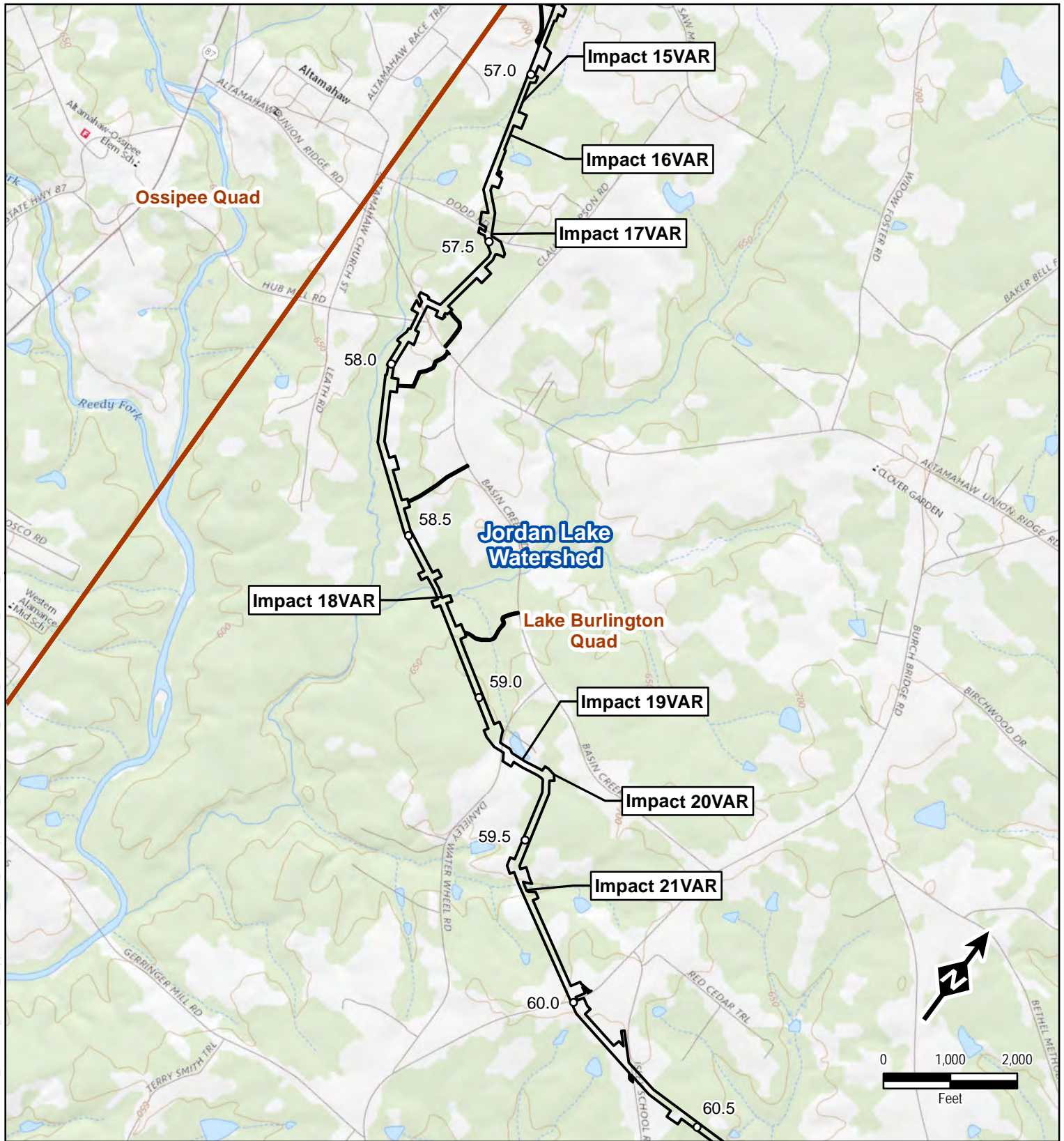
Alameda County, NC  
 Sheet 3 of 10

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



S:\1-PROJECTS\NEXT\ERA\300423\_MVP\_Southern\GIS\State\_Permitting\March\_Supplemental\_2019\_MMVAppendix\_A\_NC\_Jordan\_USGS\_Quad\_Map.mxd, Time: 10:27:38 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▭ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- ▭ County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley PIPELINE LLC**

**Appendix A**

Jordan Watershed  
 USGS Topographic Quad Maps

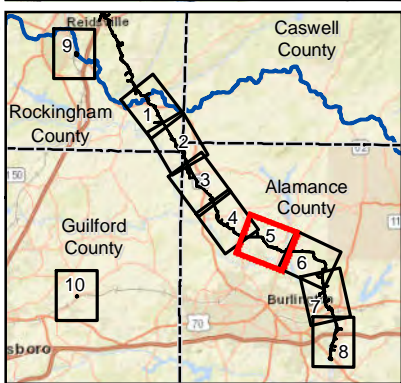
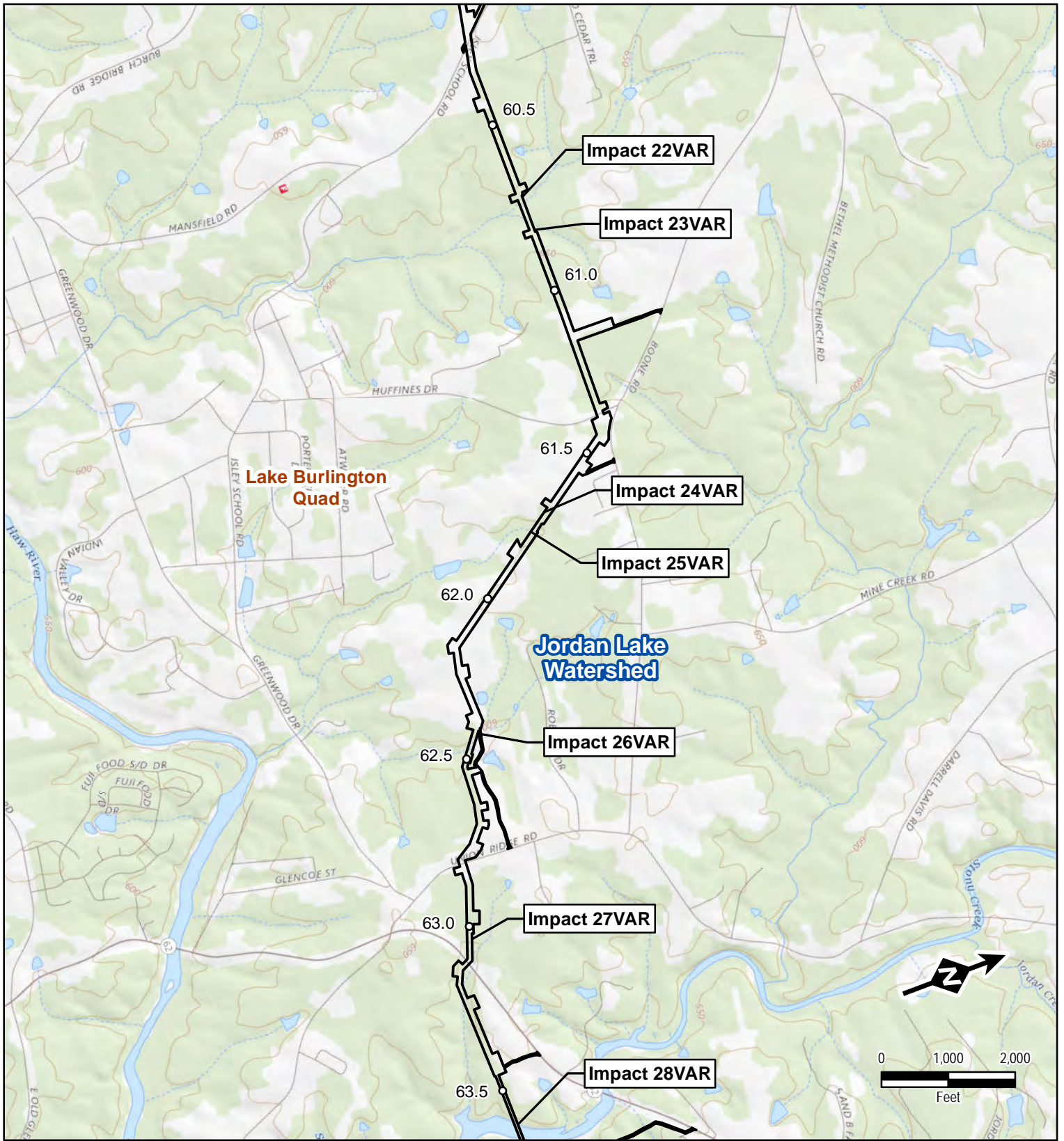
Alameda County, NC  
 Sheet 4 of 10

**TRC** Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



S:\1-PROJECTS\NEXT\ERA\300423\_MVP\_Southgate\6-MXD\State\_Permitt\March\_Supplemental\_2019\_MMVAppendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:27:40 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▨ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- - - County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley**  
 PIPELINE, LLC

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps

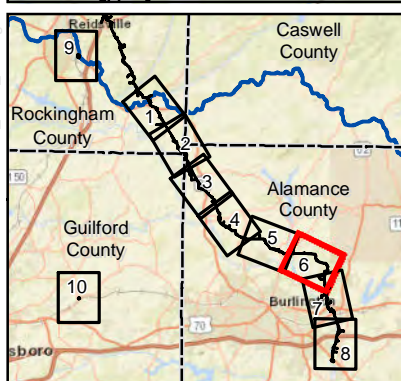
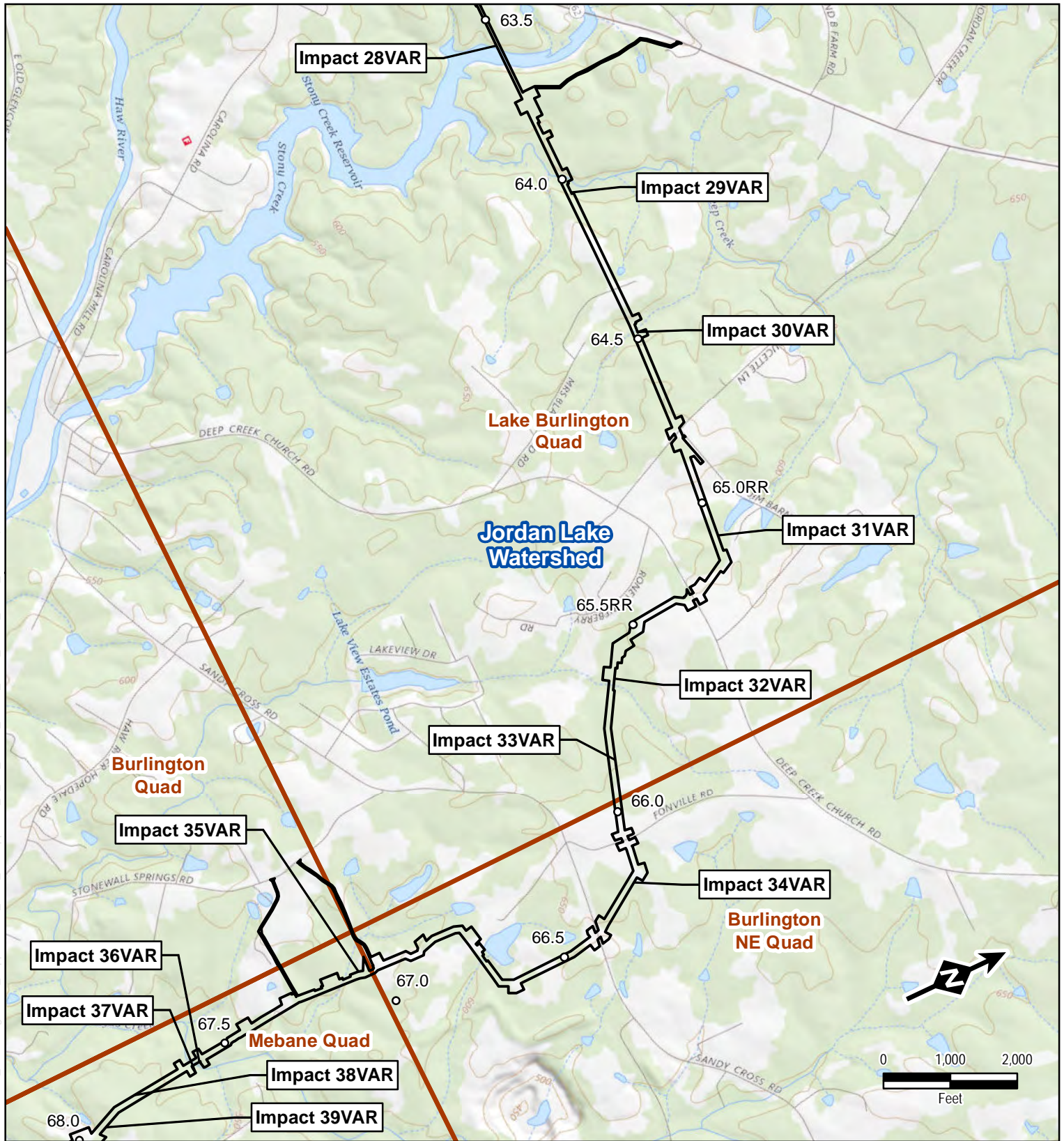
Alameda County, NC  
 Sheet 5 of 10

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



S:\1-PROJECTS\NEXT ERA\300423\_MVP\_Southern\State\_Permitting\March\_Supplemental\_2019\_MMVAppendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:27:43 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▨ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- - - County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley**  
 PIPELINE, LLC

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps

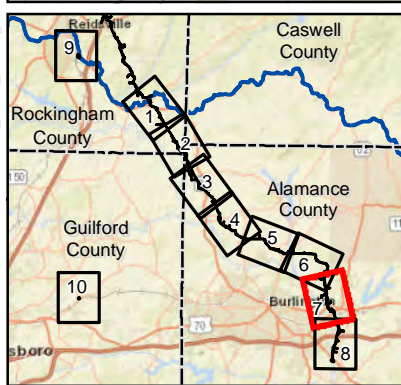
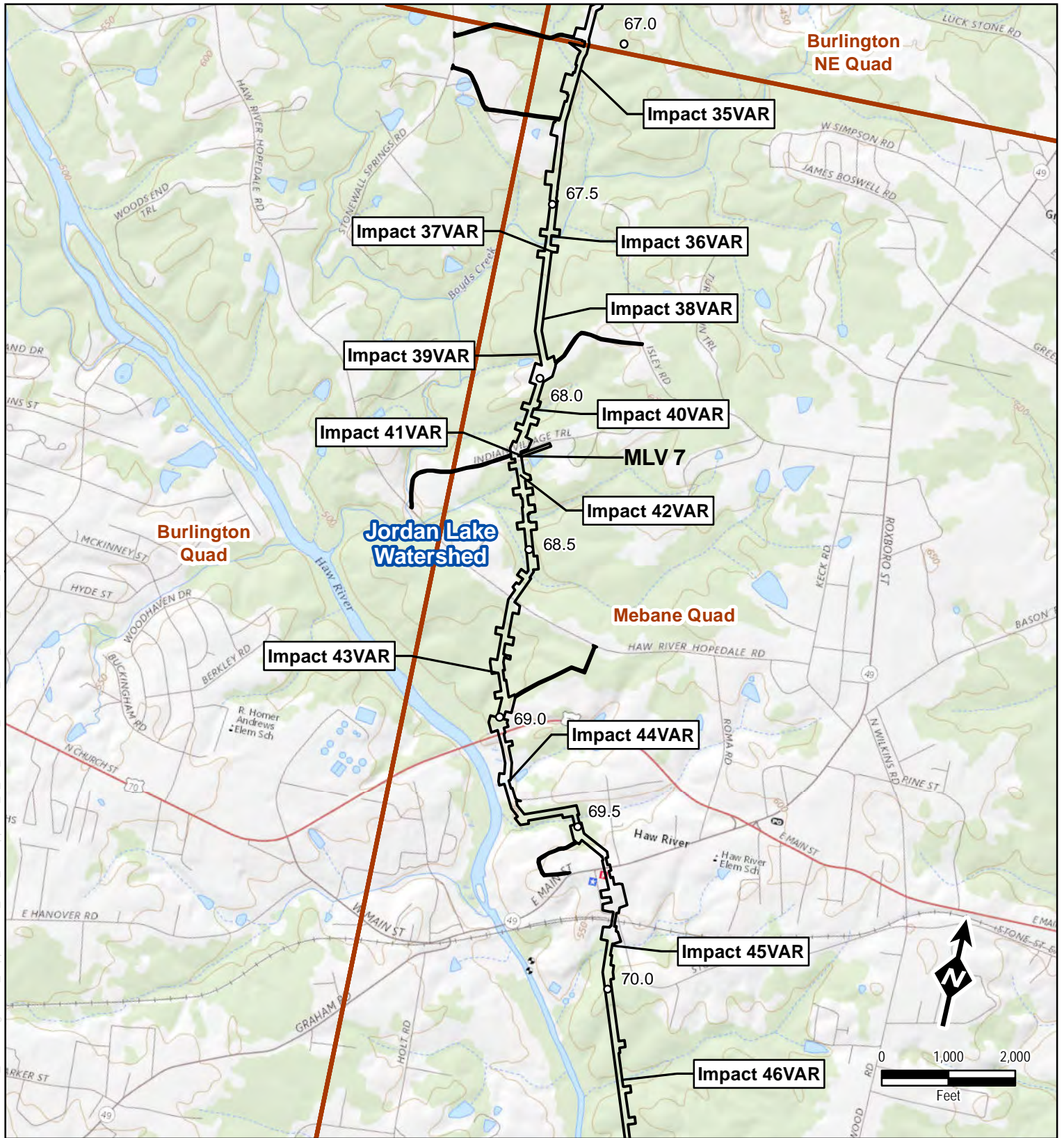
Alameda County, NC  
 Sheet 6 of 10

**TRC**  
 Resilience you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



SM-PROJECTS\NEXT\ERA\300423\_MVP\_Southgate\6-MXD\State\_Permittin\March\_Supplemental\_2019\_MM\Appendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:27:45 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▭ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- ▭ County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley**  
 PIPELINE LLC

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps

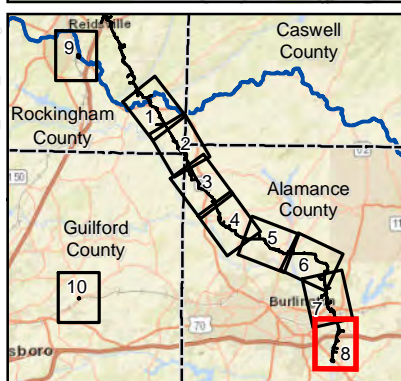
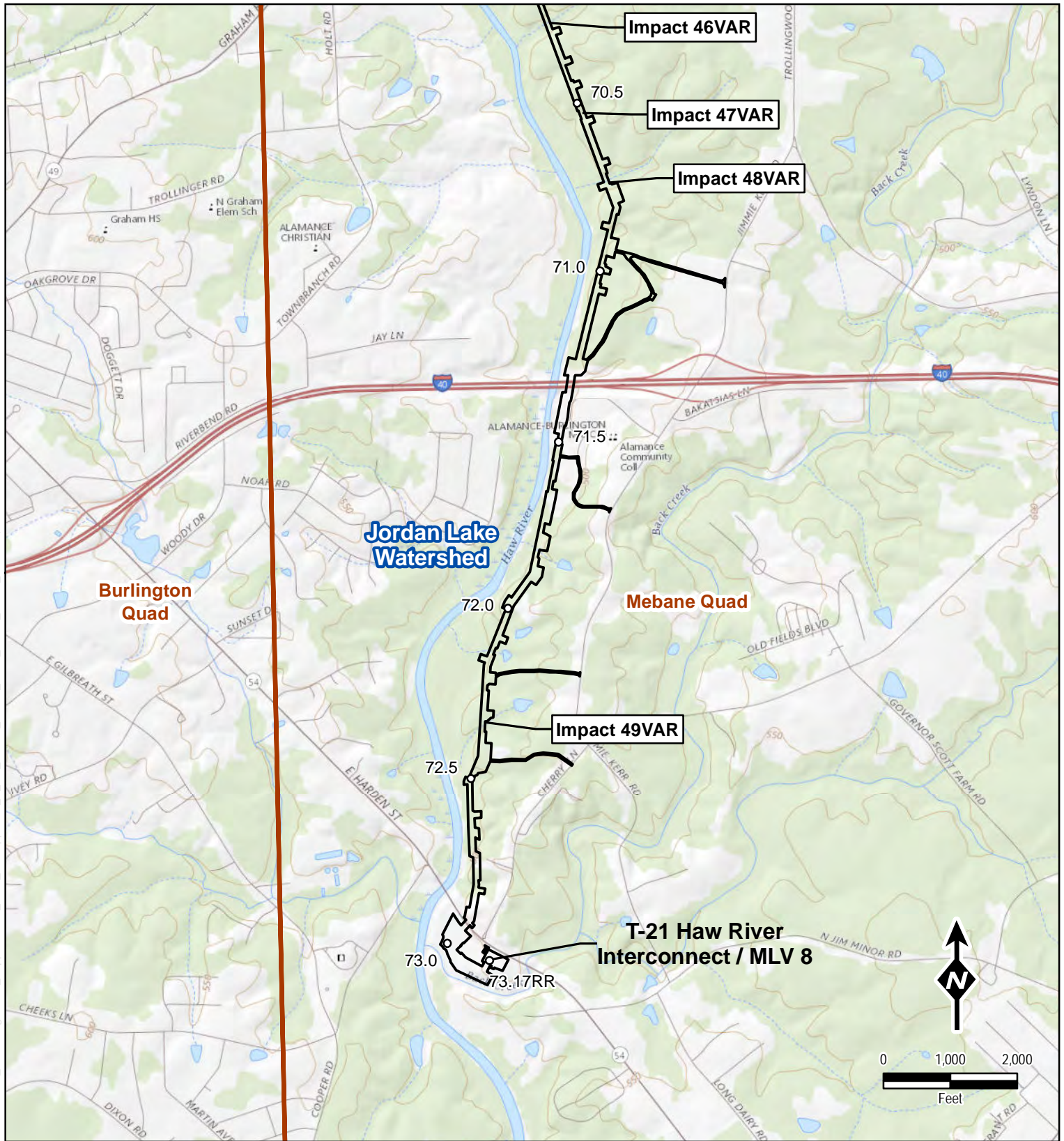
Alameda County, NC  
 Sheet 7 of 10

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



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**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▭ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- ▭ County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley**  
 PIPELINE LLC

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps

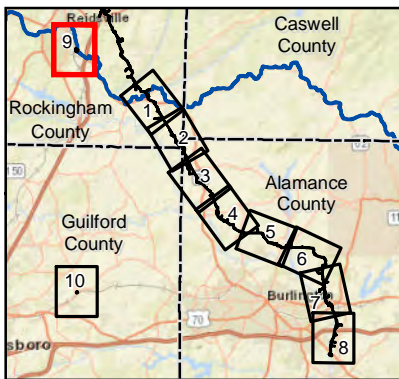
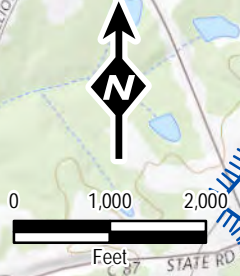
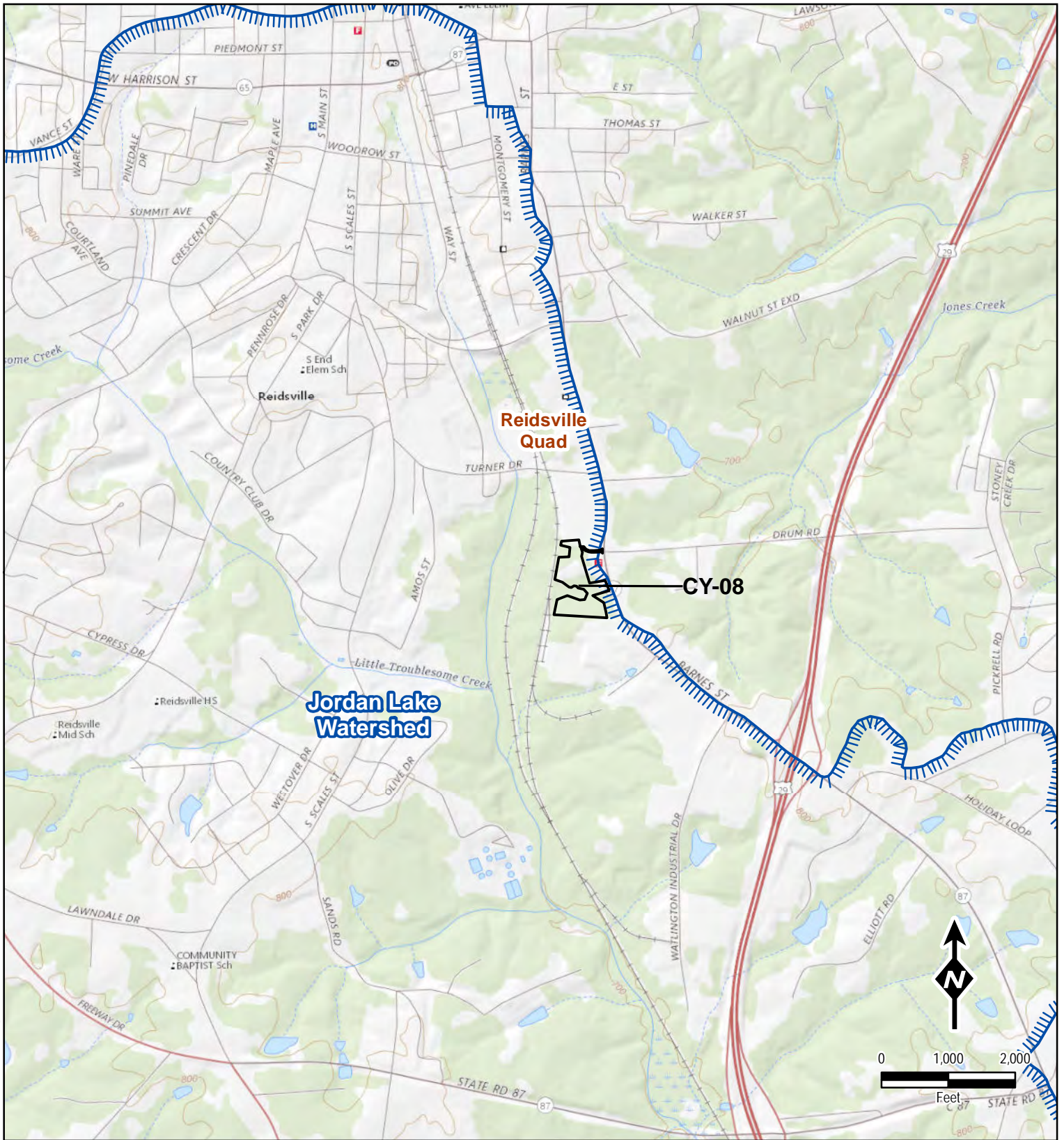
Alameda County, NC  
 Sheet 8 of 10

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



SM-PROJECTS\NEXT\ERA\300423\_MVP\_Southgate\6-MXD\State\_Permittin\March\_Supplemental\_2019\_MMVAppendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:27:50 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▨ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- - - County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley PIPELINE LLC**

**Appendix A**

Jordan Watershed  
 USGS Topographic Quad Maps

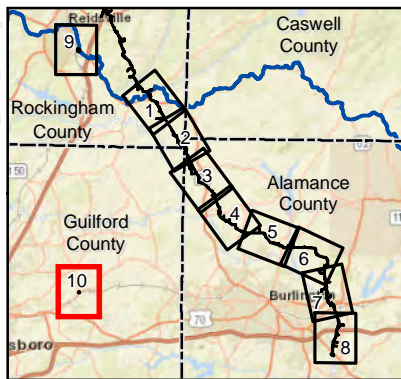
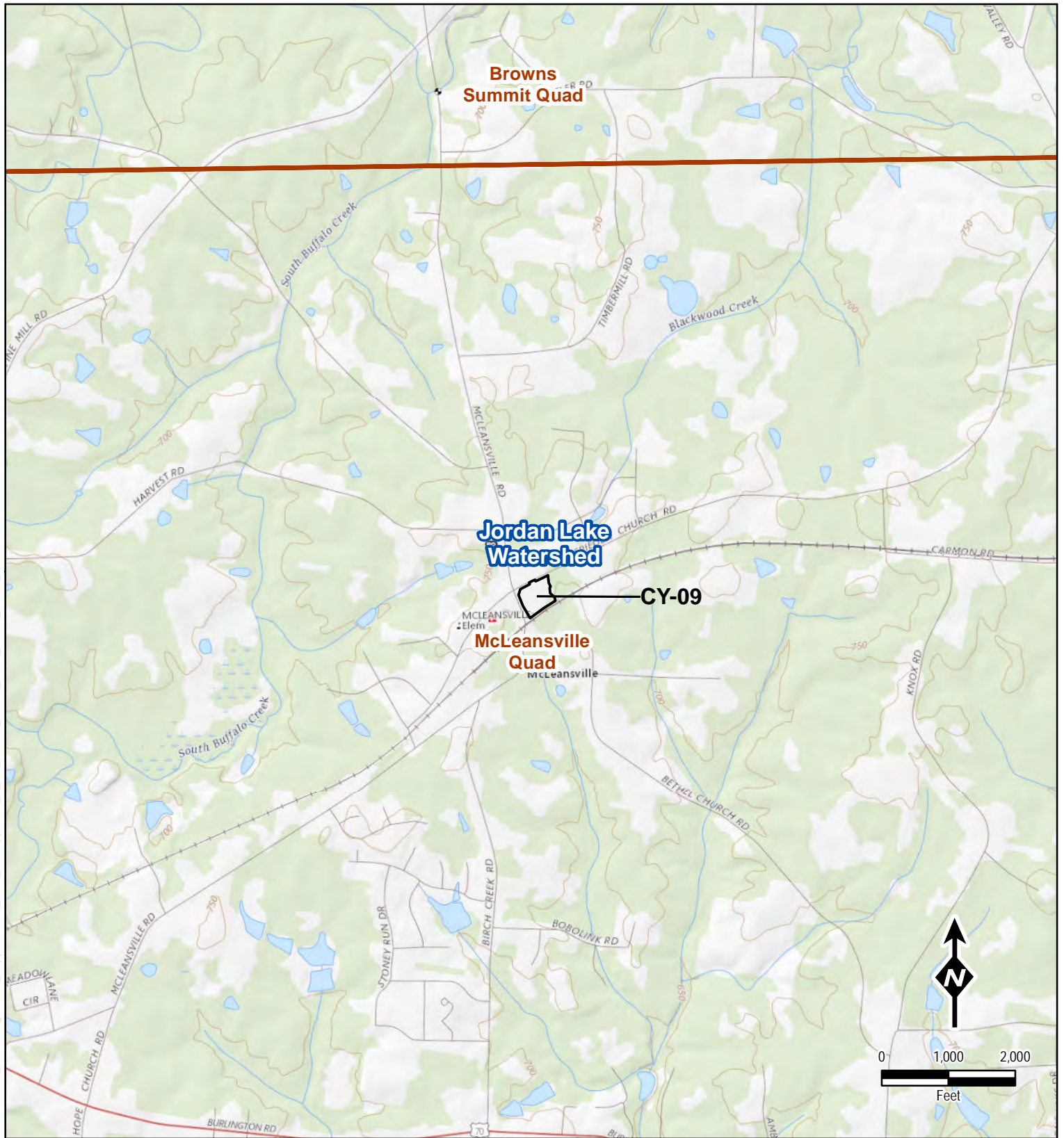
Rockingham County, NC  
 Sheet 9 of 10

**TRC** Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



SM-PROJECTS\NEXT\ERA\300423\_MVP\_Southgate\6-MXD\State\_Permittin\March\_Supplemental\_2019\_MMVAppendix\_A\_NC\_Jordan\_USGS\_Quad\_8x11P\_March\_MM.mxd; Time: 10:27:52 AM



**Legend**

- Mileposts
- ▭ Limits of Construction Right-of-Way
- ▨ Jordan Lake Watershed
- ▭ USGS Topo Quad Boundary
- - - County Boundary

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS  
 Basemap: USGS

1 inch = 2,000 feet  
 When Printed 8.5x11

**Mountain Valley**  
 PIPELINE LLC

**Appendix A**  
 Jordan Watershed  
 USGS Topographic Quad Maps

Guilford County, NC  
 Sheet 10 of 10

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019



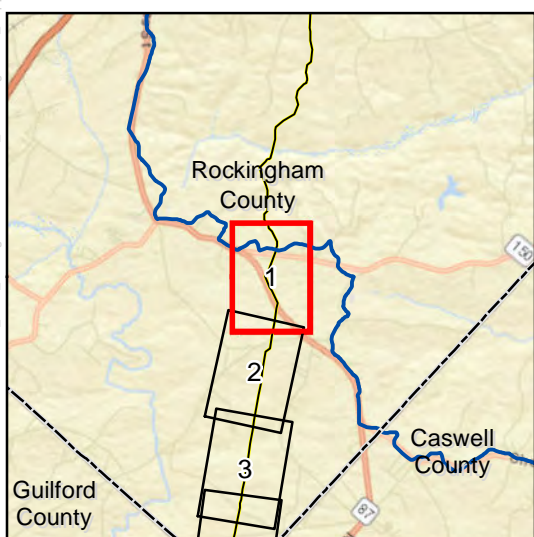
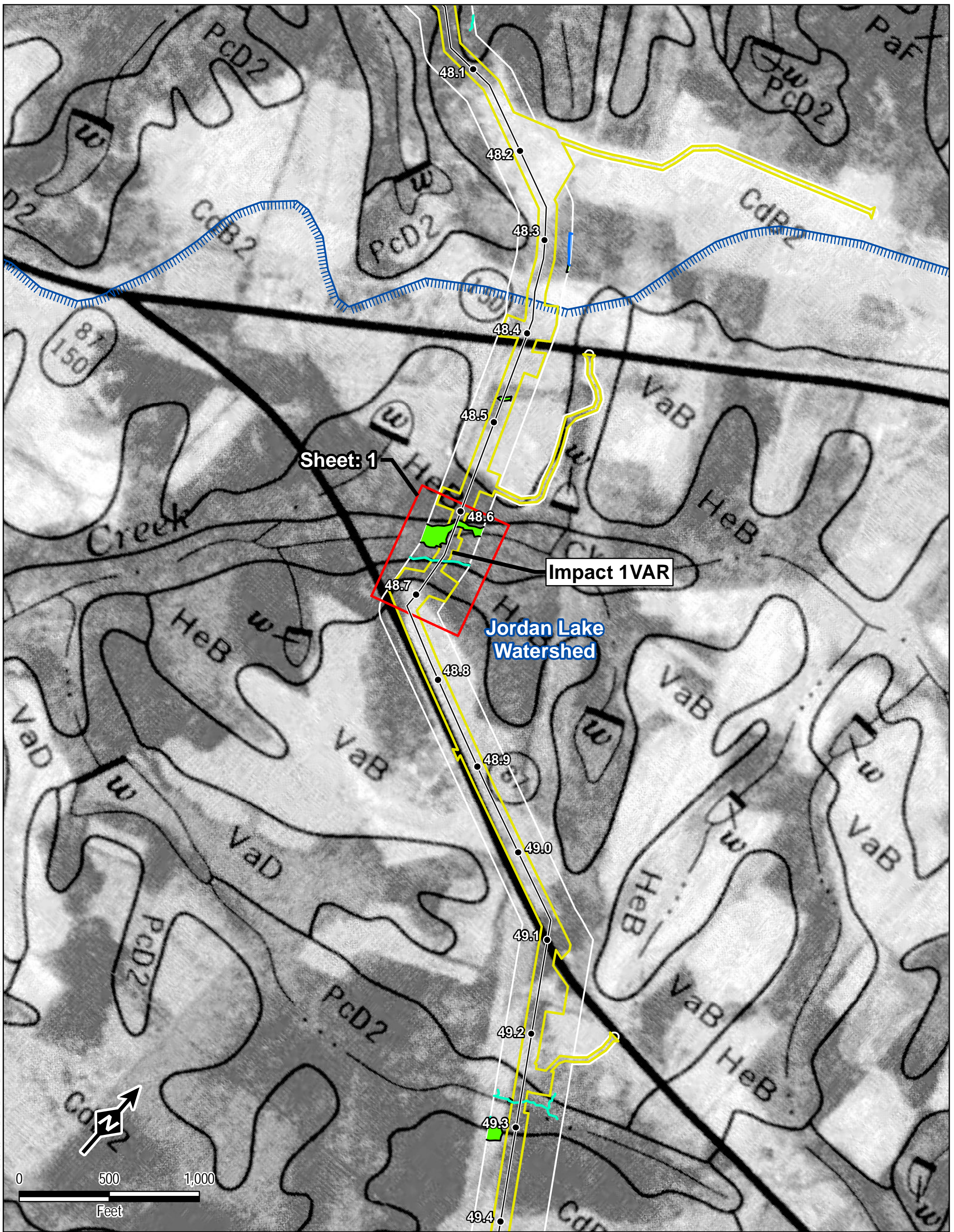


## **MVP Southgate Project**

### **Appendix B Jordan Watershed Published Soil Survey Maps**

**May 2019**





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
- Delineated Stream Centerline
- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

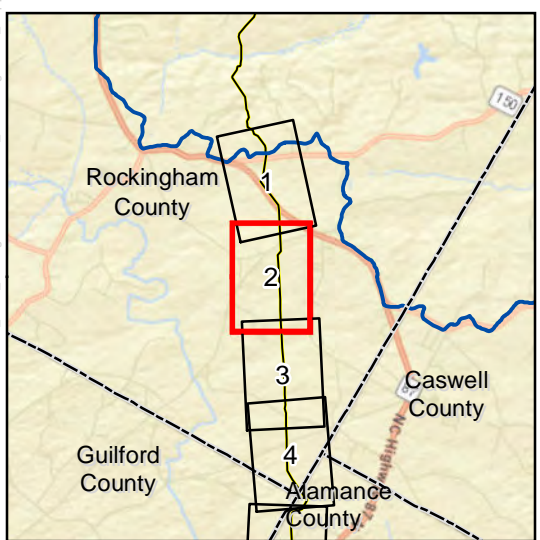
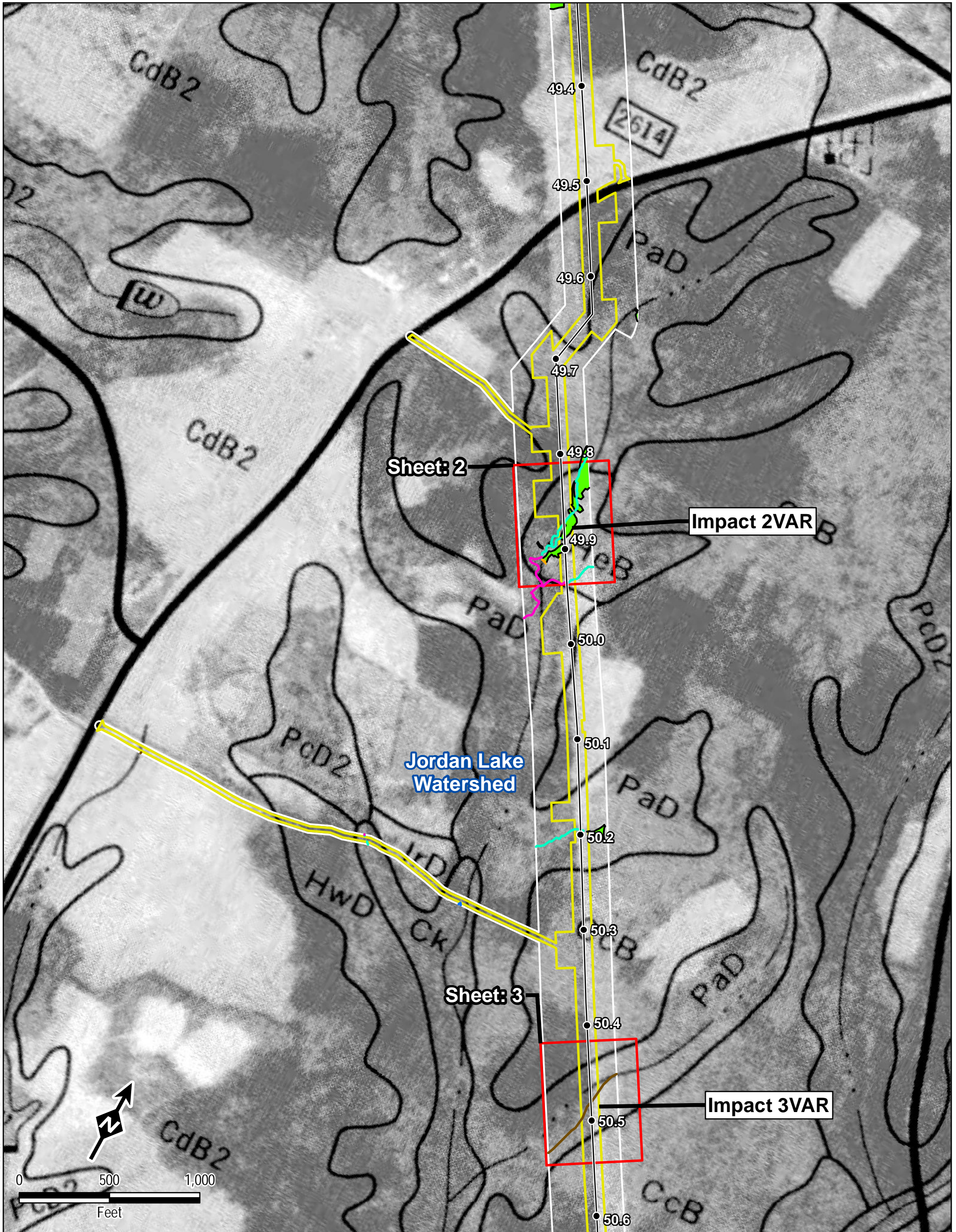
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Rockingham County, NC  
 Sheet 1 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





Legend		
● Mileposts	— H-650 Pipeline	— County Boundary
— Limits of Construction Right-of-Way	— Survey Area	<b>Modified Based On USACE Or State Review</b>
— Sheet	— Adjacent Sheet	— Stream
— Approximated Soil Survey Stream	— Approximated Surface Water Top Of Bank	— Delineated Stream Centerline
— Approximated Surface Water Top Of Bank	— Delineated Stream Centerline	— Approximated Surface Water
	— Delineated Surface Water	— Delineated Surface Water
	— Delineated Wetland Boundary	— Delineated Wetland
	— Approximated Wetland	— Delineated Wetland

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley PIPELINE LLC**

**Appendix B**

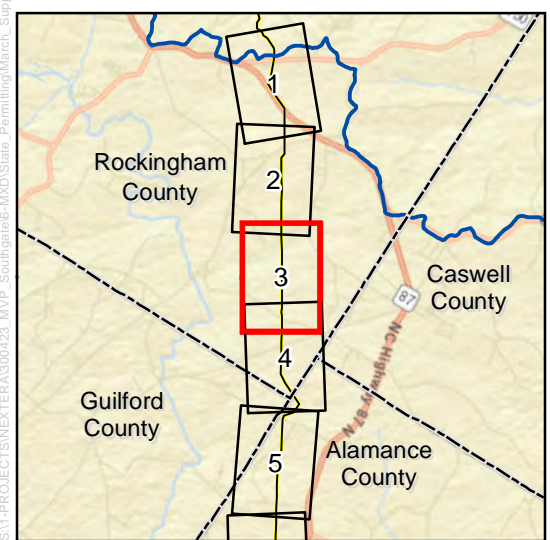
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Rockingham County, NC  
 Sheet 2 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

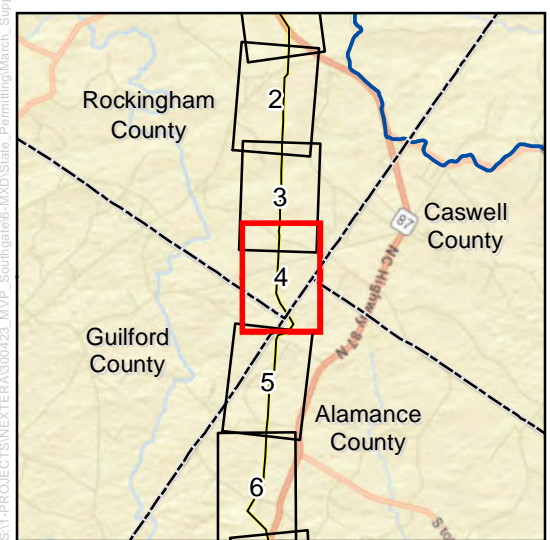
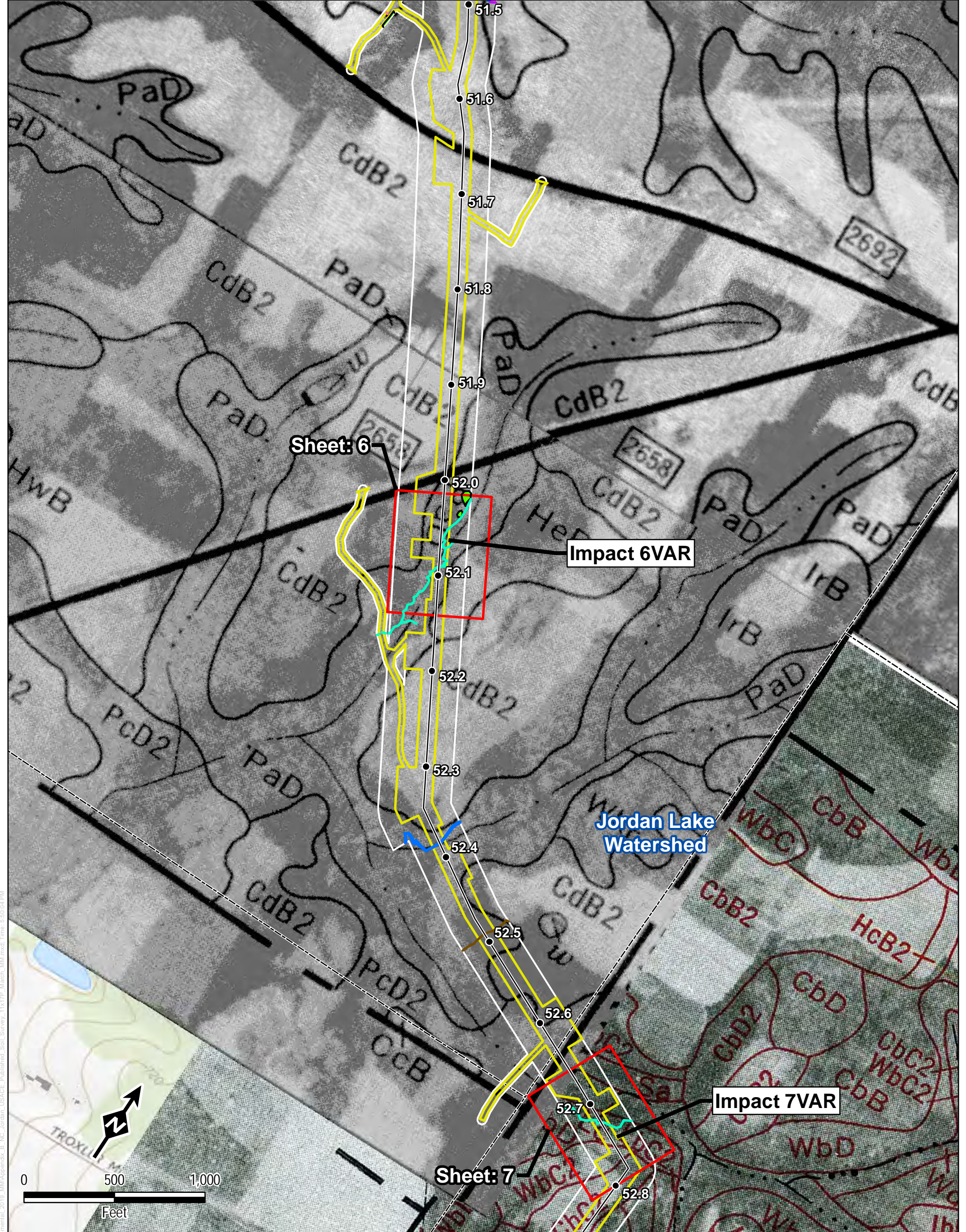
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Rockingham County, NC  
 Sheet 3 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley PIPELINE LLC**

**Appendix B**

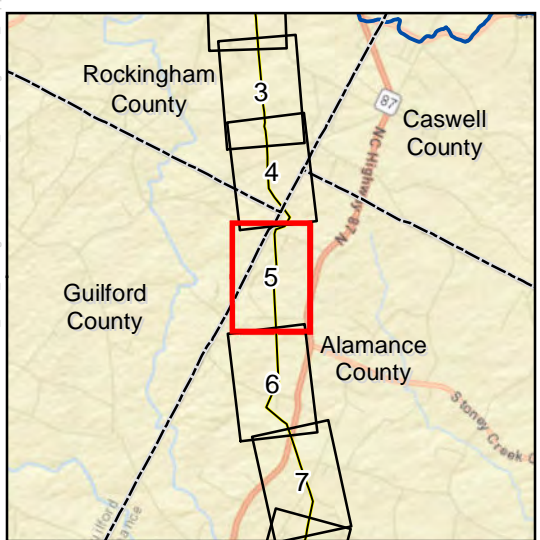
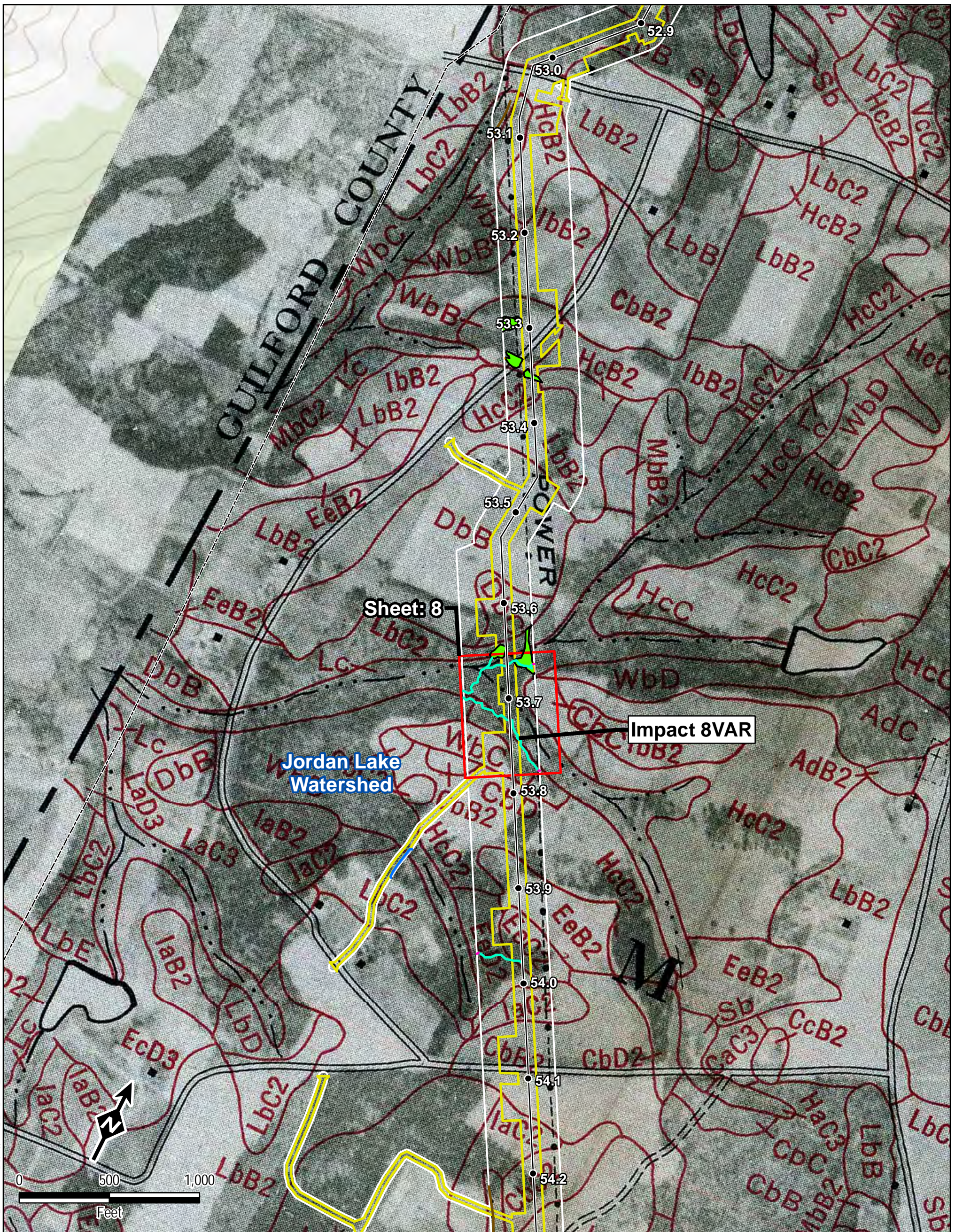
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Rockingham, Guilford, & Alamance Counties, NC  
 Sheet 4 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: May 2019





**Legend**

- Mileposts
- H-650 Pipeline
- Limits of Construction Right-of-Way
- Survey Area
- Sheet
- Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
- Delineated Stream Centerline
- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- County Boundary
- Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

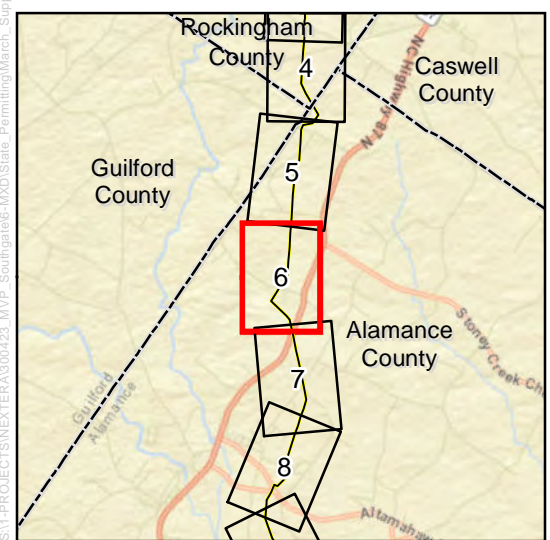
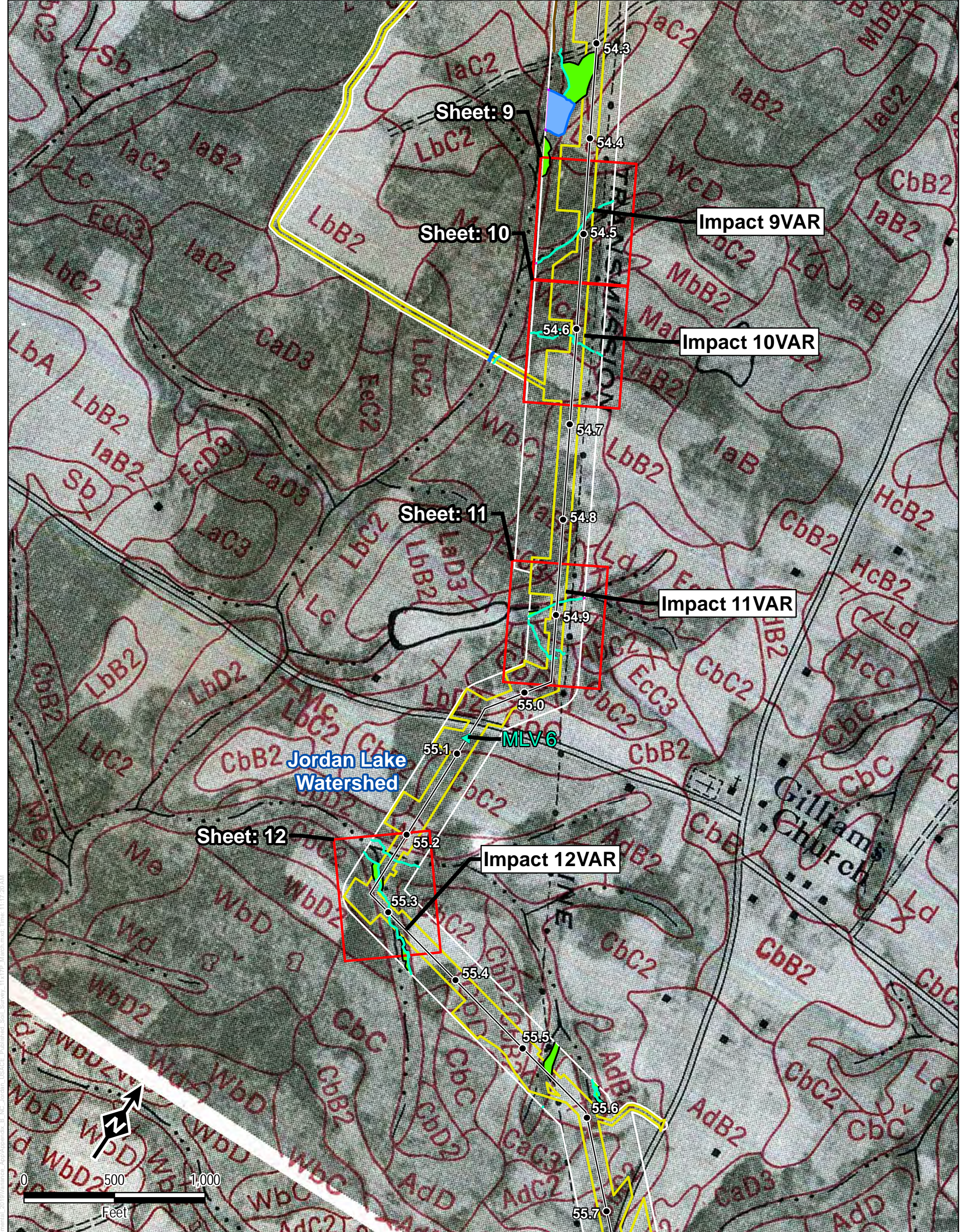
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 5 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

Valve Site	Approximated Stream Centerline	County Boundary
Mileposts	Delineated Surface Water Top Of Bank	<b>Modified Based On</b>
H-650 Pipeline	Delineated Stream Centerline	<b>USACE Or State Review</b>
Limits of Construction Right-of-Way	Approximated Surface Water	Stream
Survey Area	Delineated Surface Water	
Sheet	Delineated Wetland Boundary	
Adjacent Sheet	Approximated Wetland	
Approximated Soil Survey Stream	Delineated Wetland	
Approximated Surface Water Top Of Bank		

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

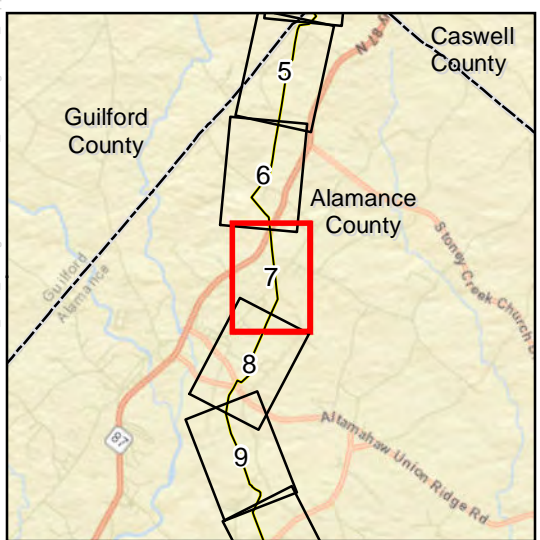
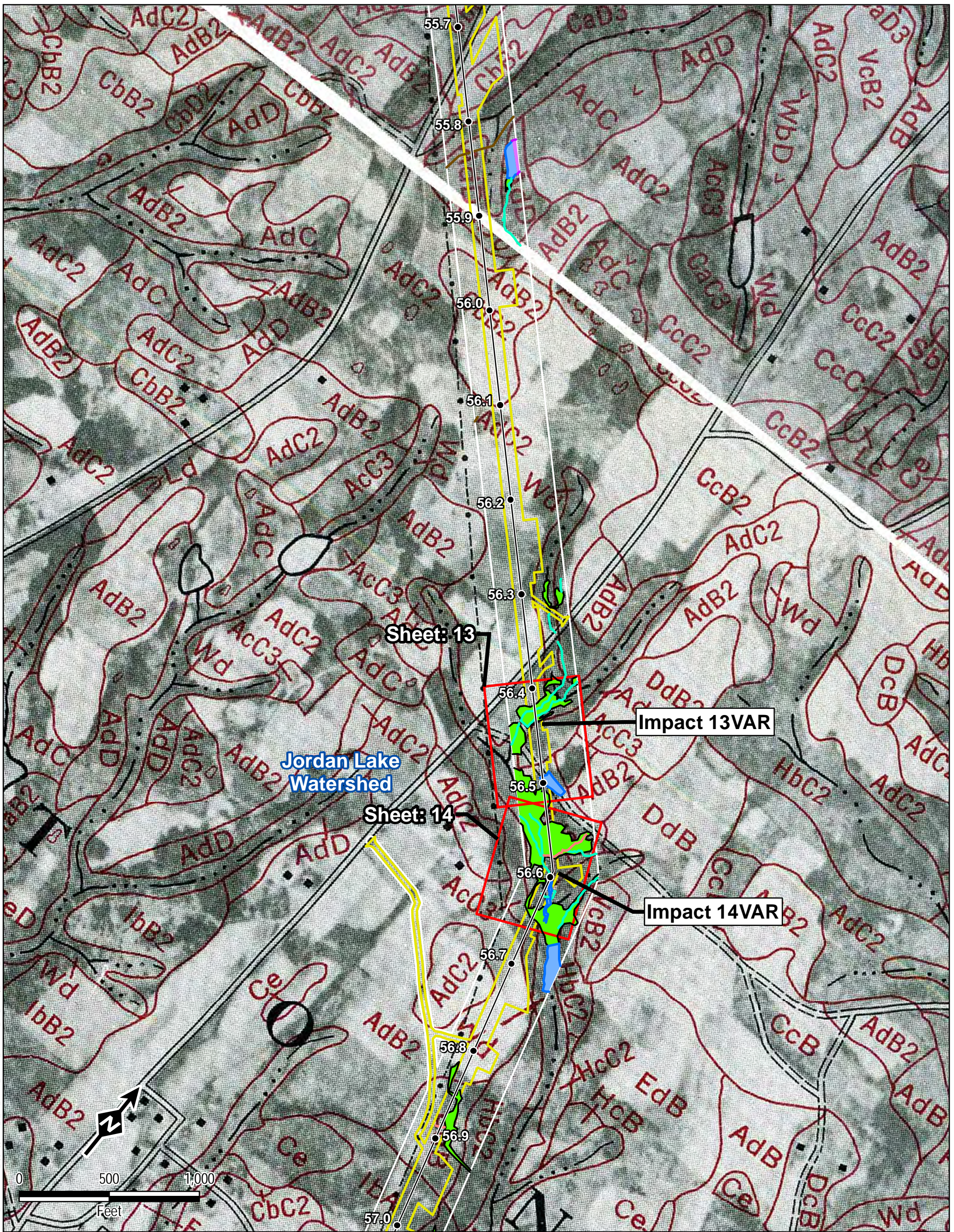
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alameda County, NC  
 Sheet 6 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary

**Modified Based On USACE Or State Review**

- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley PIPELINE LLC**

**Appendix B**

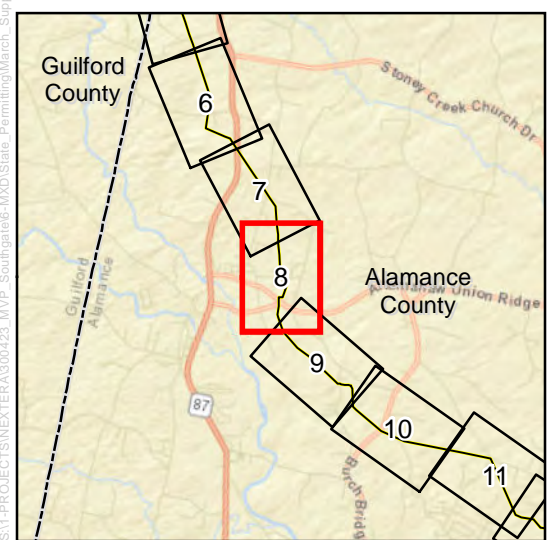
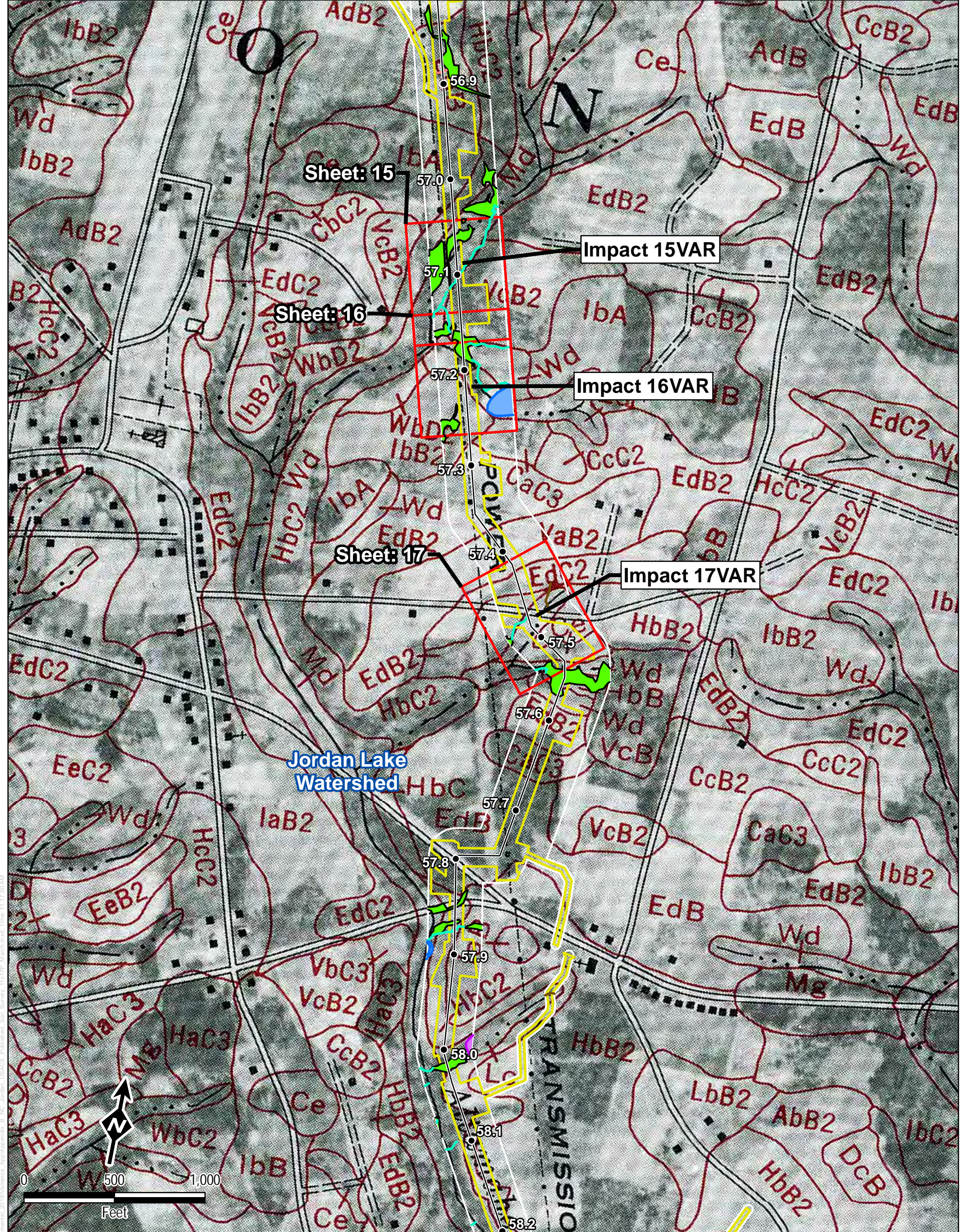
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 7 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- Limits of Construction Right-of-Way
- Survey Area
- Sheet
- Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
- Delineated Stream Centerline
- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- County Boundary
- Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

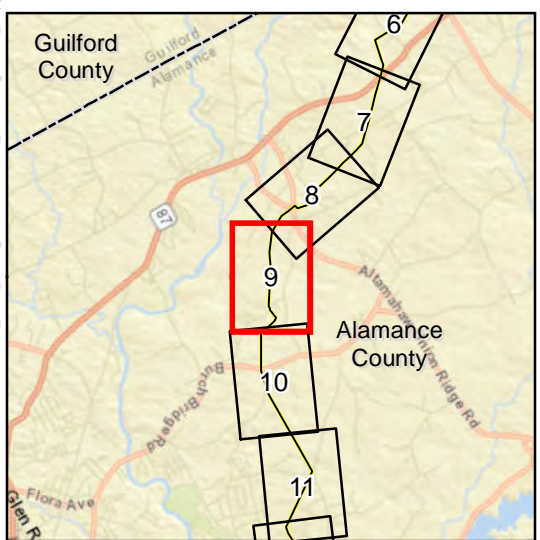
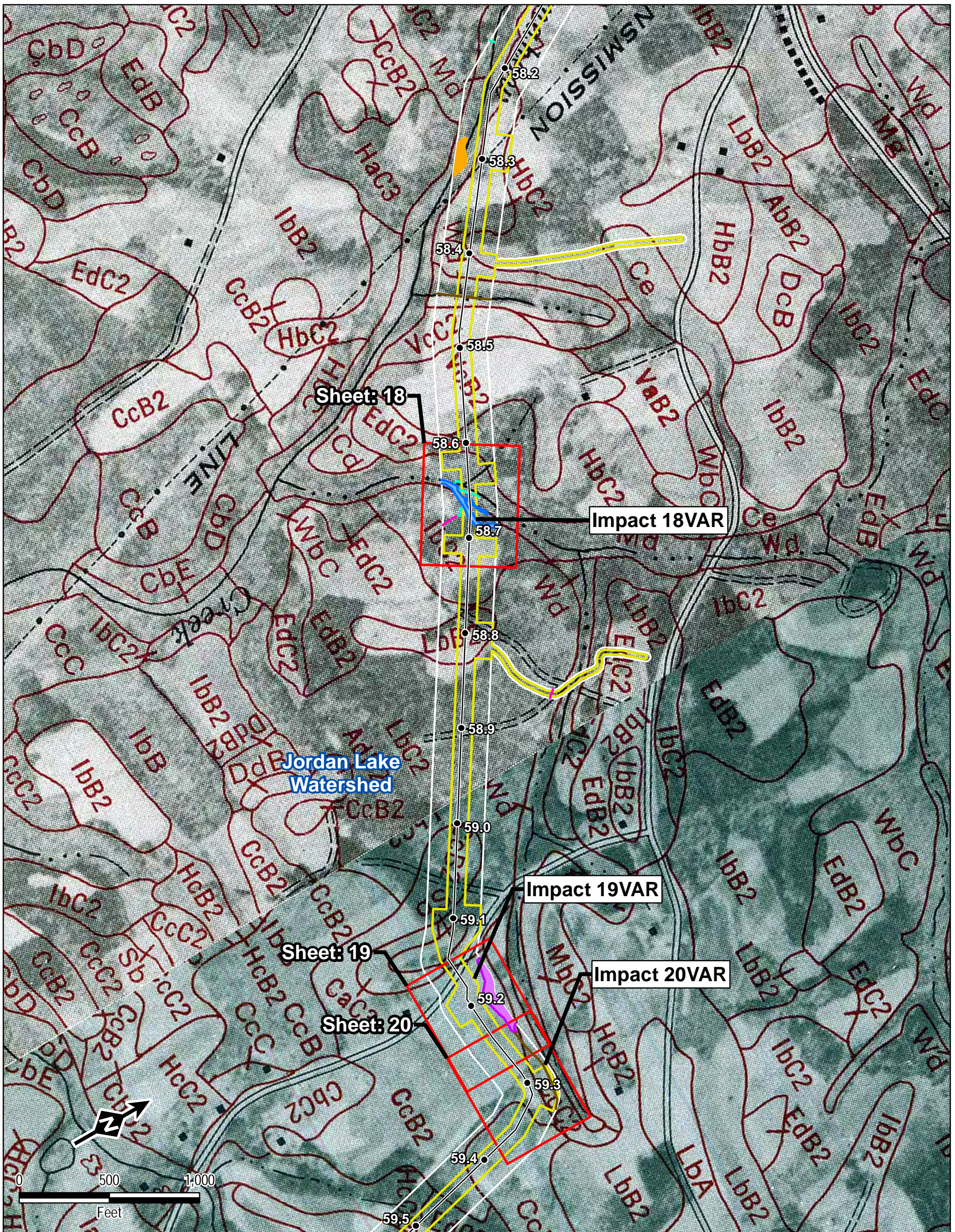
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 8 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- Limits of Construction Right-of-Way
- Survey Area
- Sheet
- Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
- Delineated Stream Centerline
- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- County Boundary
- Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

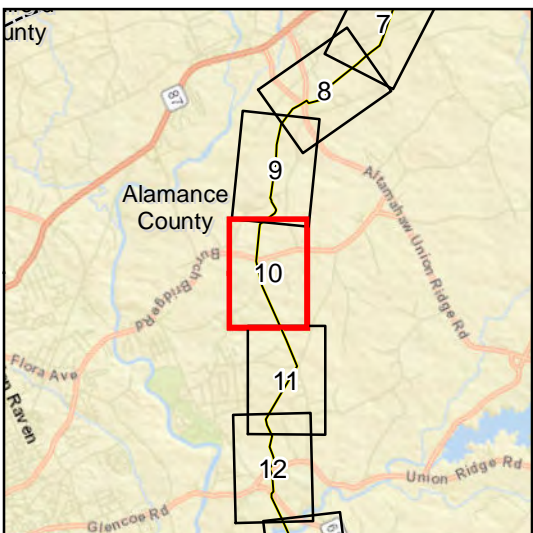
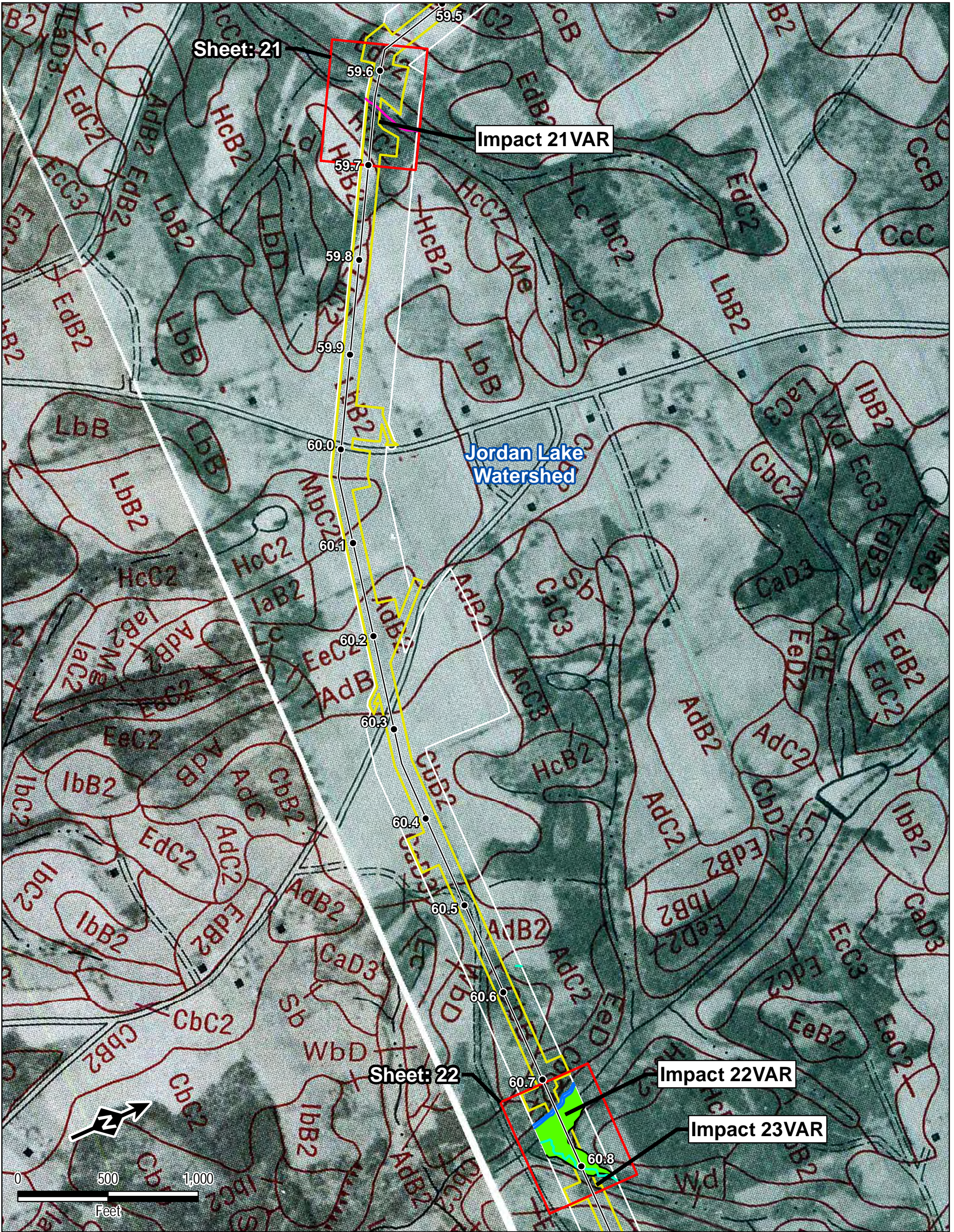
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 9 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- Limits of Construction Right-of-Way
- Survey Area
- Sheet
- Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
- Delineated Stream Centerline
- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- County Boundary
- Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley PIPELINE LLC**

**Appendix B**

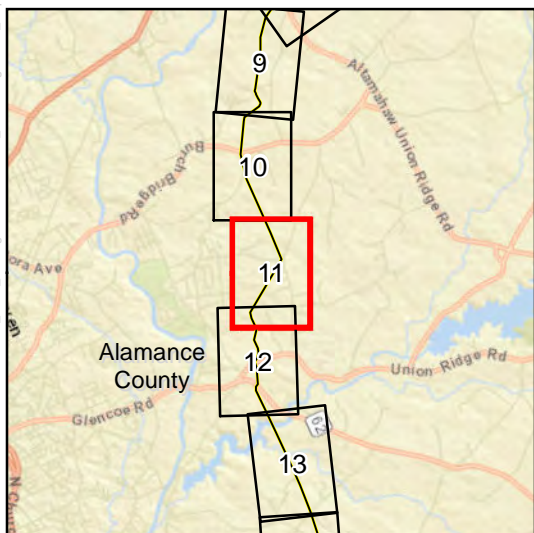
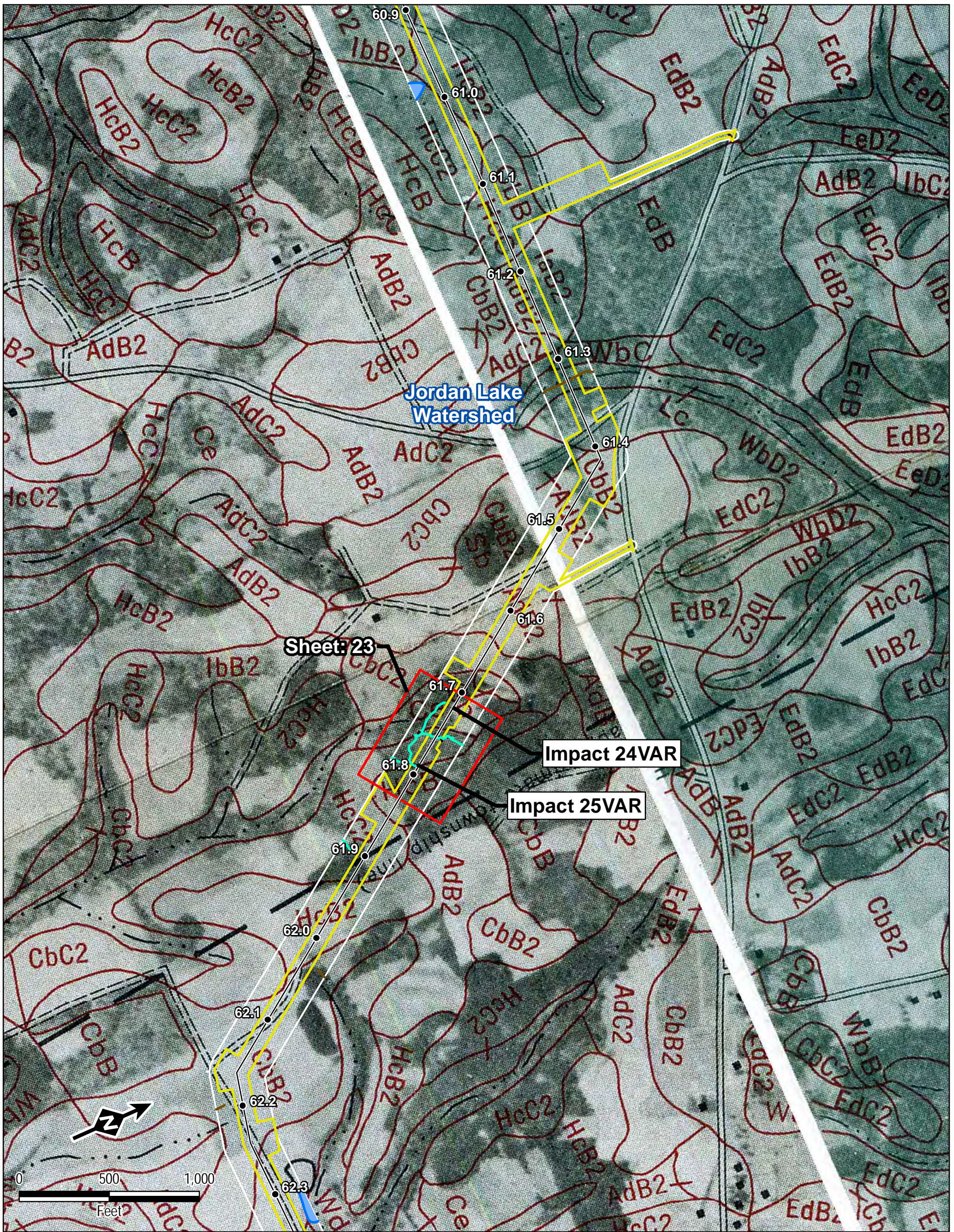
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 10 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

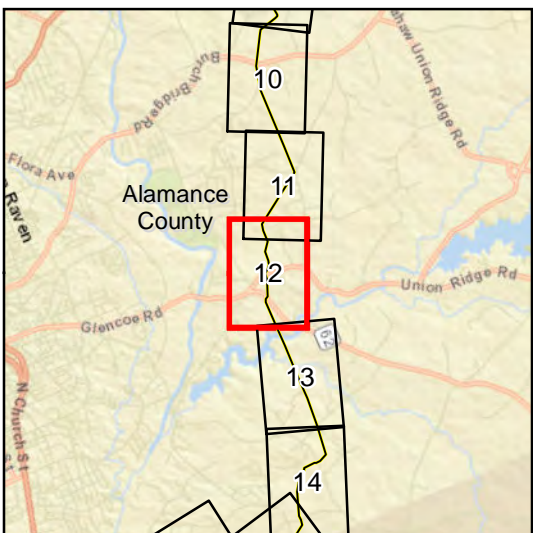
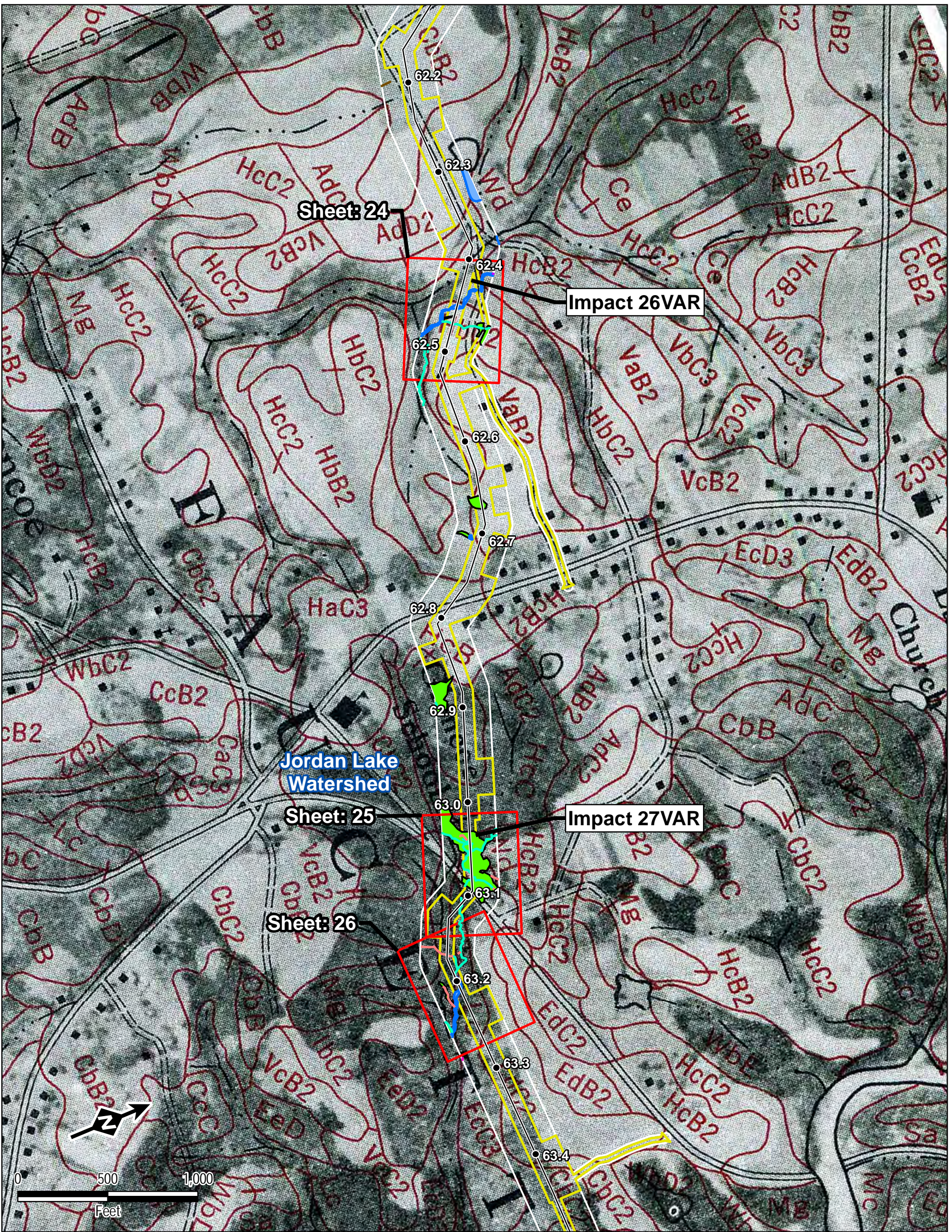
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 11 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- Limits of Construction Right-of-Way
- Survey Area
- Sheet
- Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
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- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- County Boundary
- Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley PIPELINE LLC**

**Appendix B**

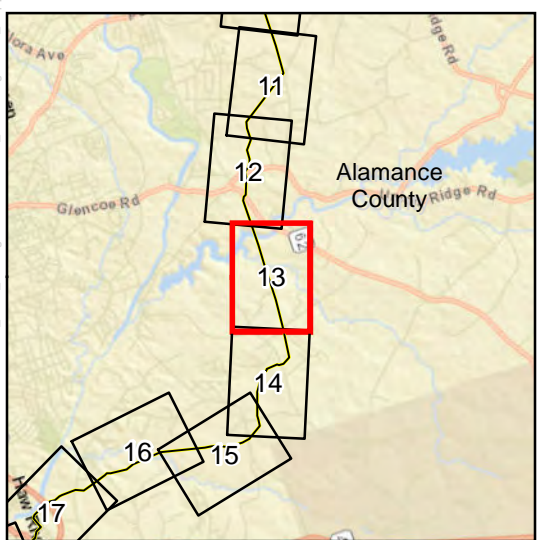
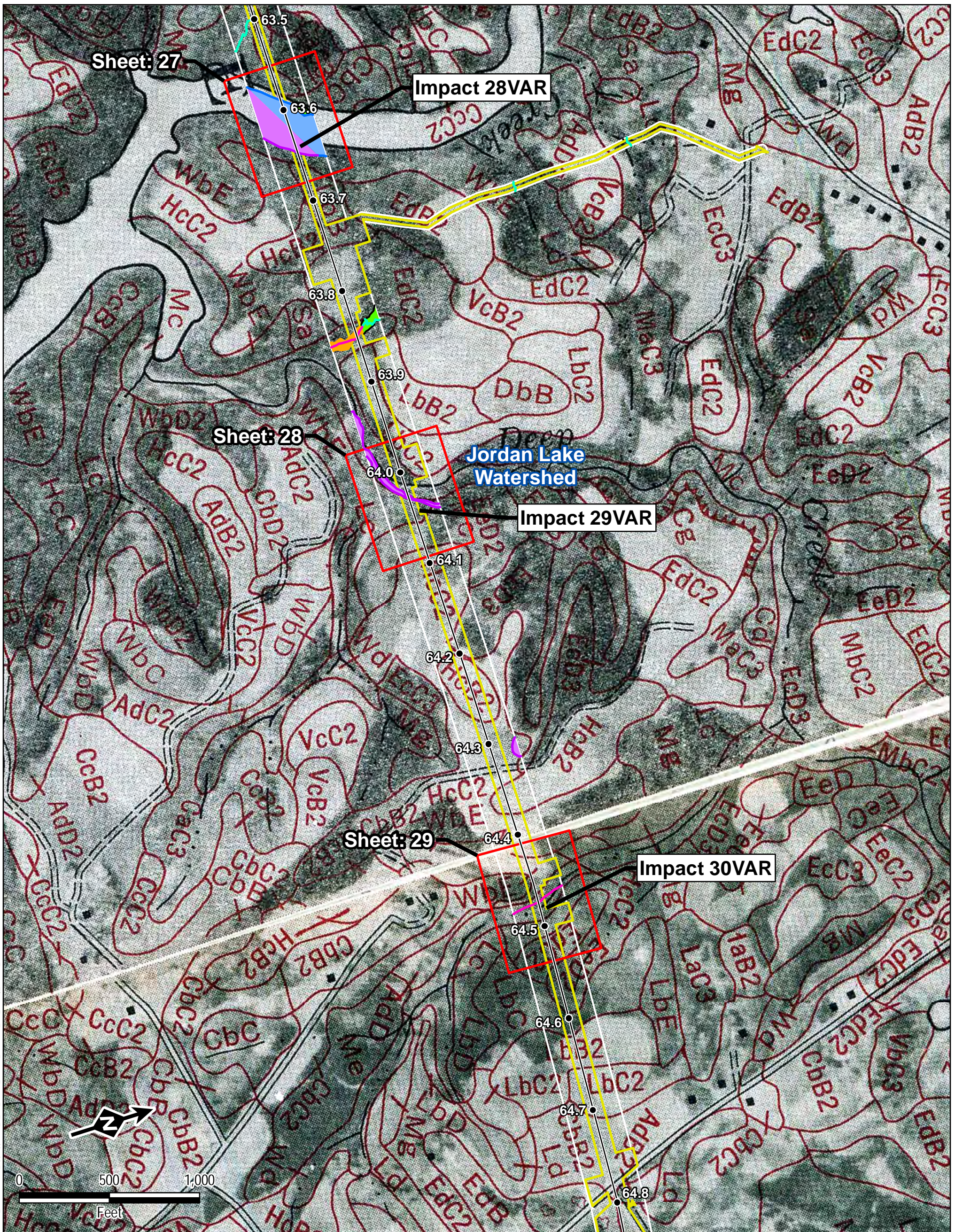
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 12 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- Limits of Construction Right-of-Way
- Survey Area
- Sheet
- Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
- Delineated Stream Centerline
- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- County Boundary
- Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

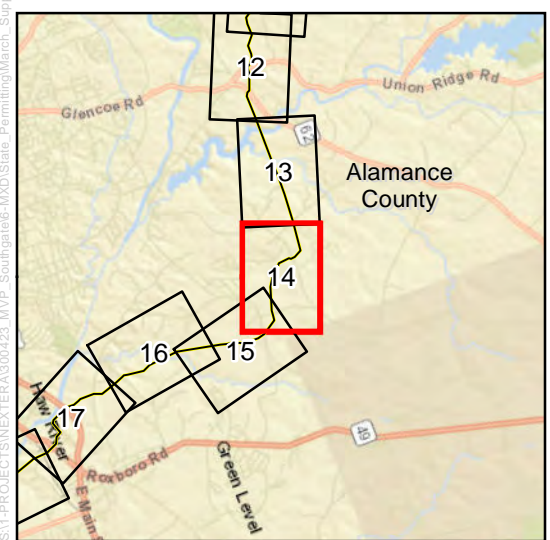
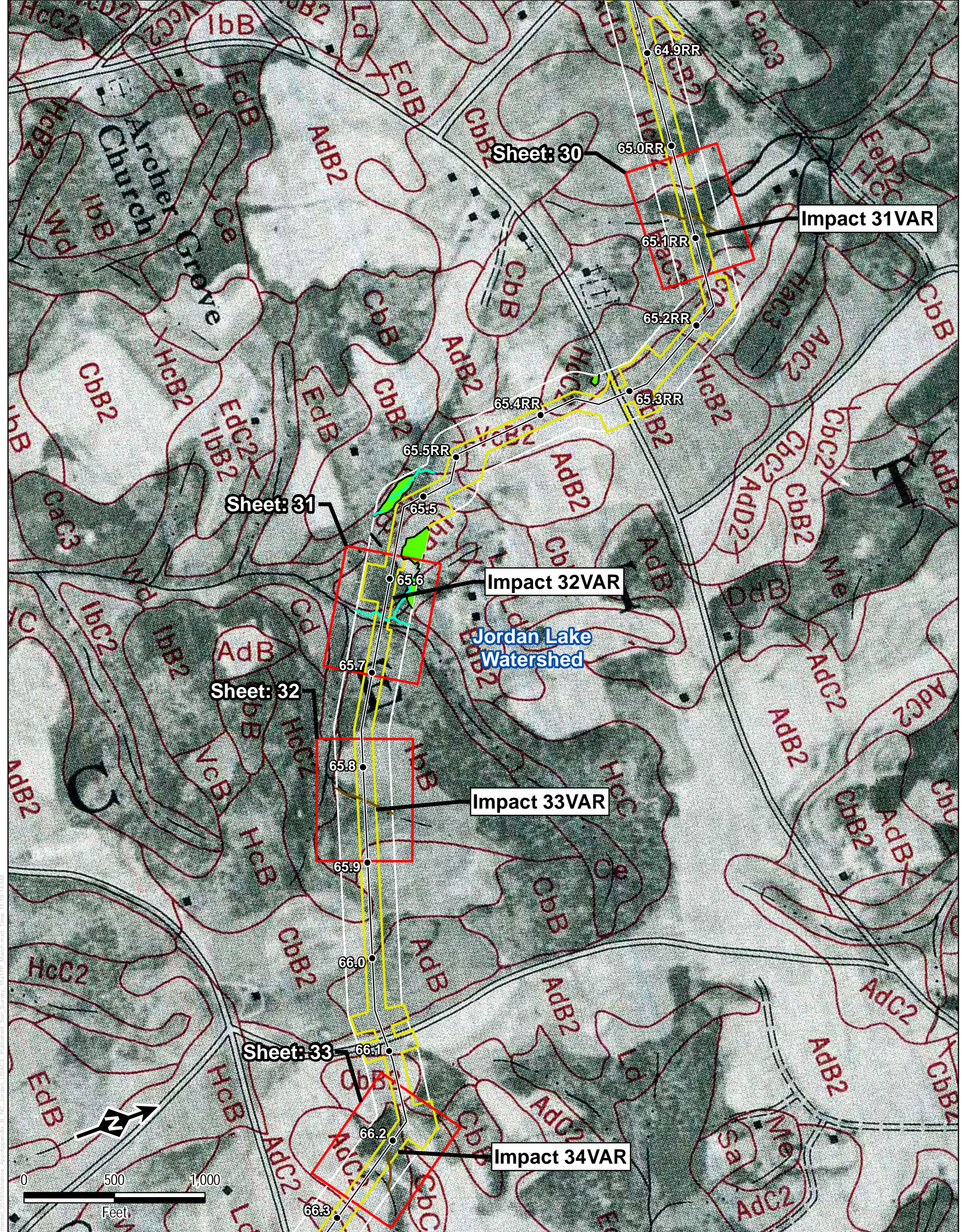
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alameda County, NC  
 Sheet 13 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- Limits of Construction Right-of-Way
- Survey Area
- Sheet
- Adjacent Sheet
- Approximated Soil Survey Stream
- Approximated Surface Water Top Of Bank
- Approximated Stream Centerline
- Delineated Surface Water Top Of Bank
- Delineated Stream Centerline
- Approximated Surface Water
- Delineated Surface Water
- Delineated Wetland Boundary
- Approximated Wetland
- Delineated Wetland
- County Boundary
- Modified Based On USACE Or State Review
- Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

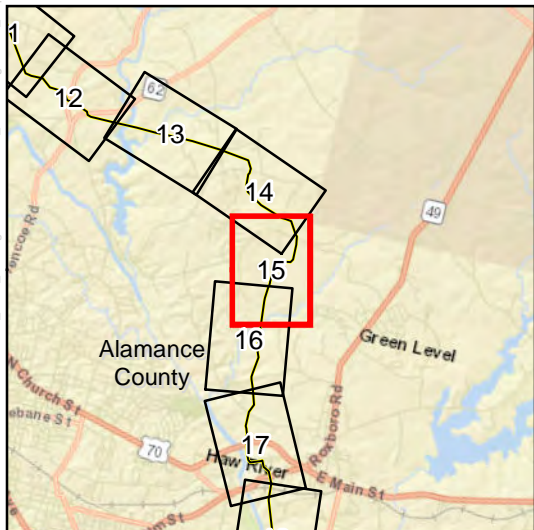
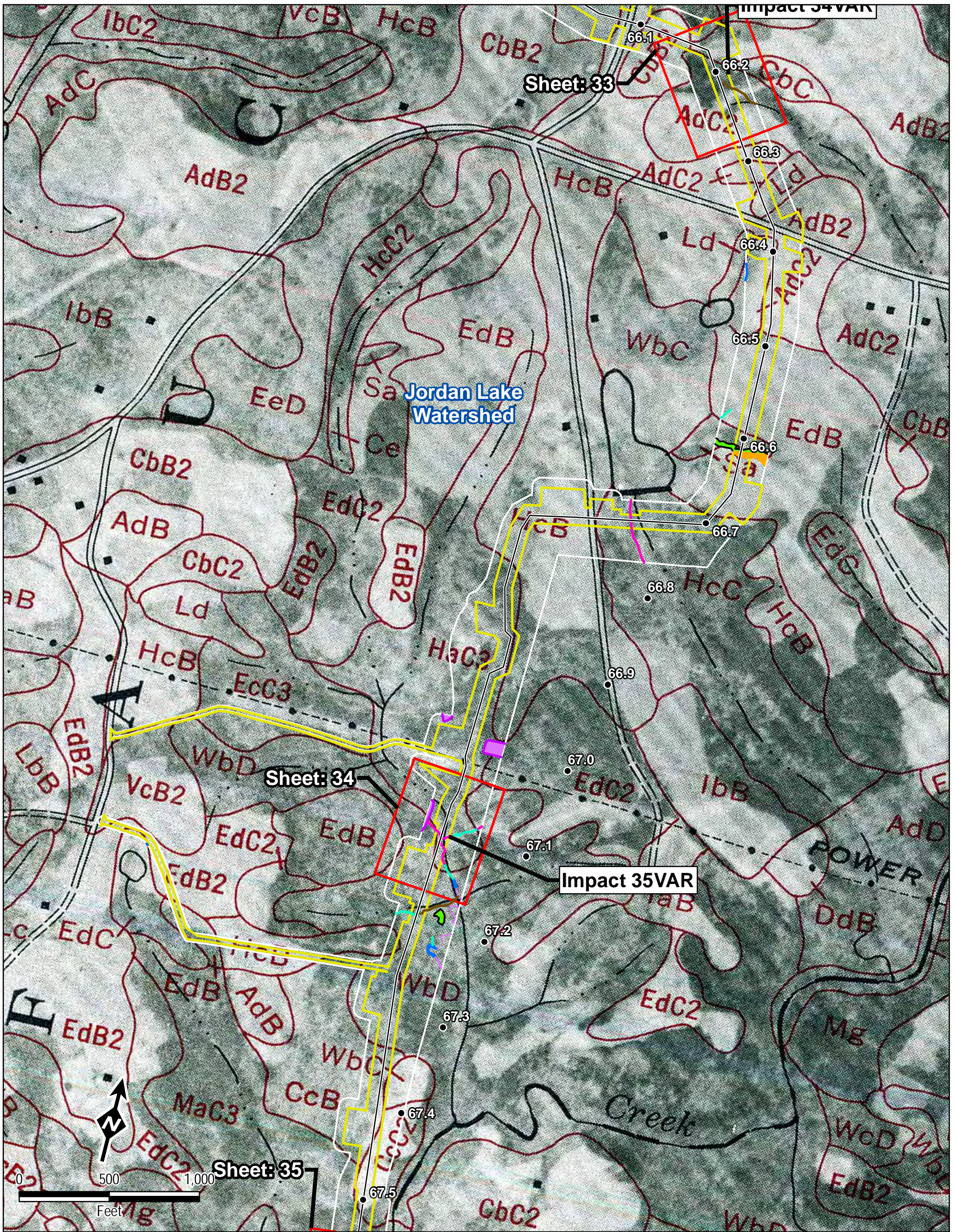
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 14 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: March 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

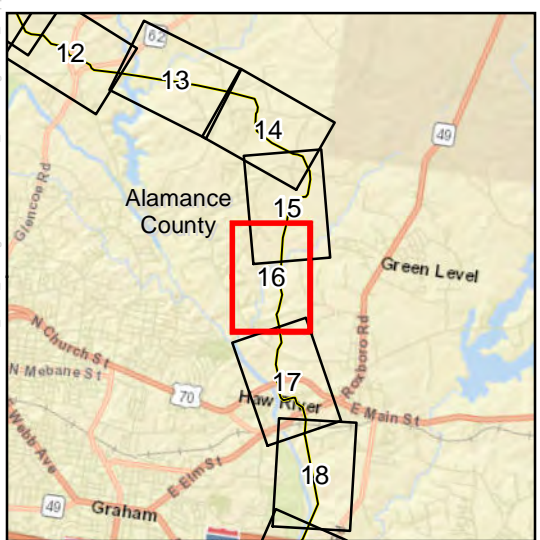
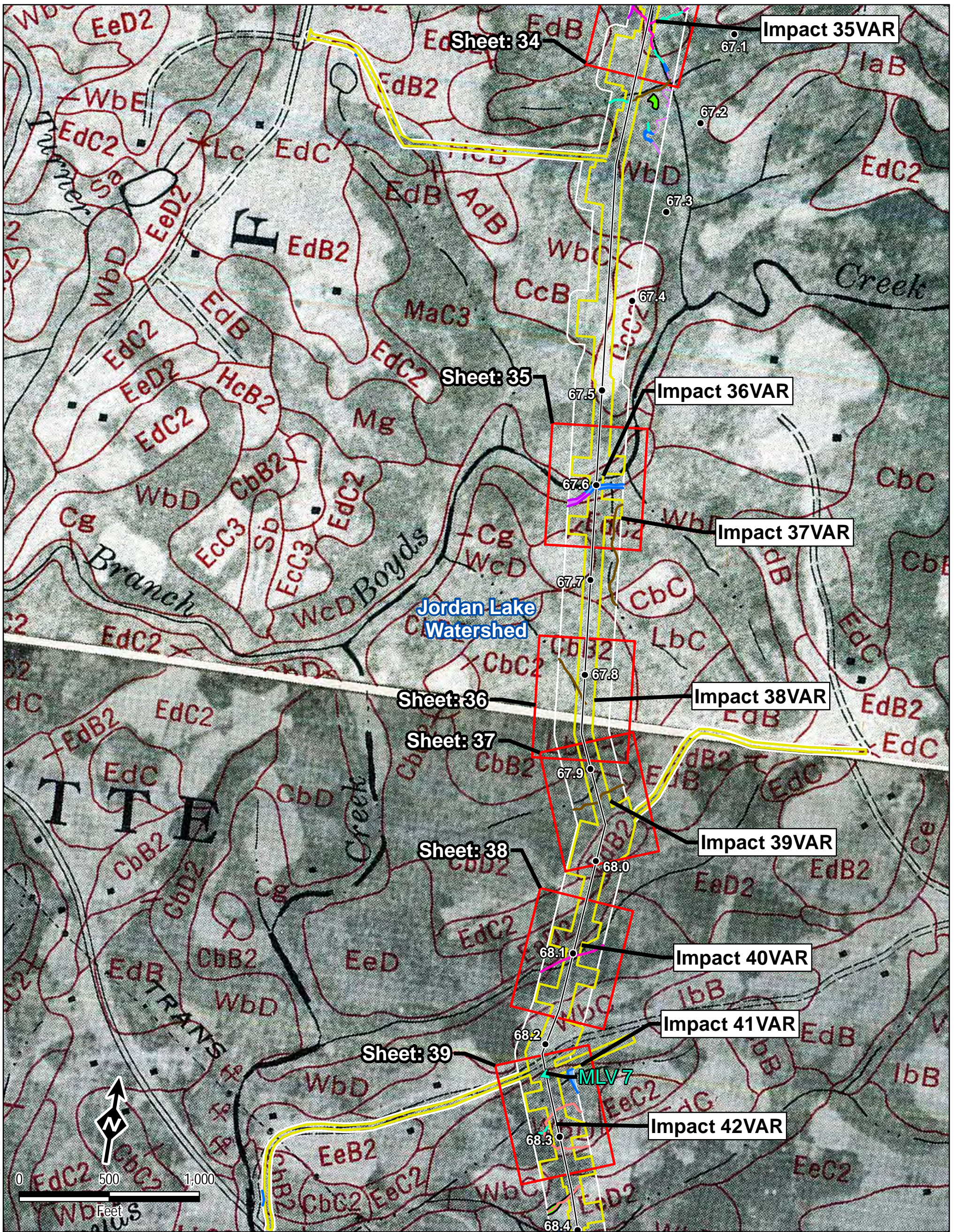
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 15 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





**Legend**

Valve Site	Approximated Stream Centerline	County Boundary
Mileposts	Delineated Surface Water Top Of Bank	<b>Modified Based On</b>
H-650 Pipeline	Delineated Stream Centerline	<b>USACE Or State Review</b>
Limits of Construction Right-of-Way	Approximated Surface Water	Stream
Survey Area	Delineated Surface Water	
Sheet	Delineated Wetland Boundary	
Adjacent Sheet	Approximated Wetland	
Approximated Soil Survey Stream	Delineated Wetland	
Approximated Surface Water Top Of Bank		

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Appendix B**

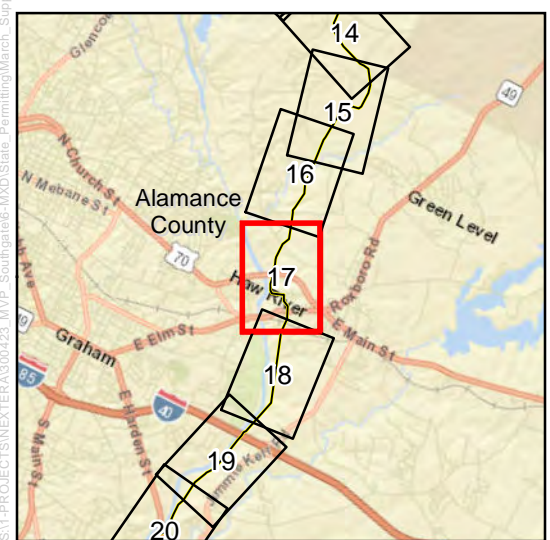
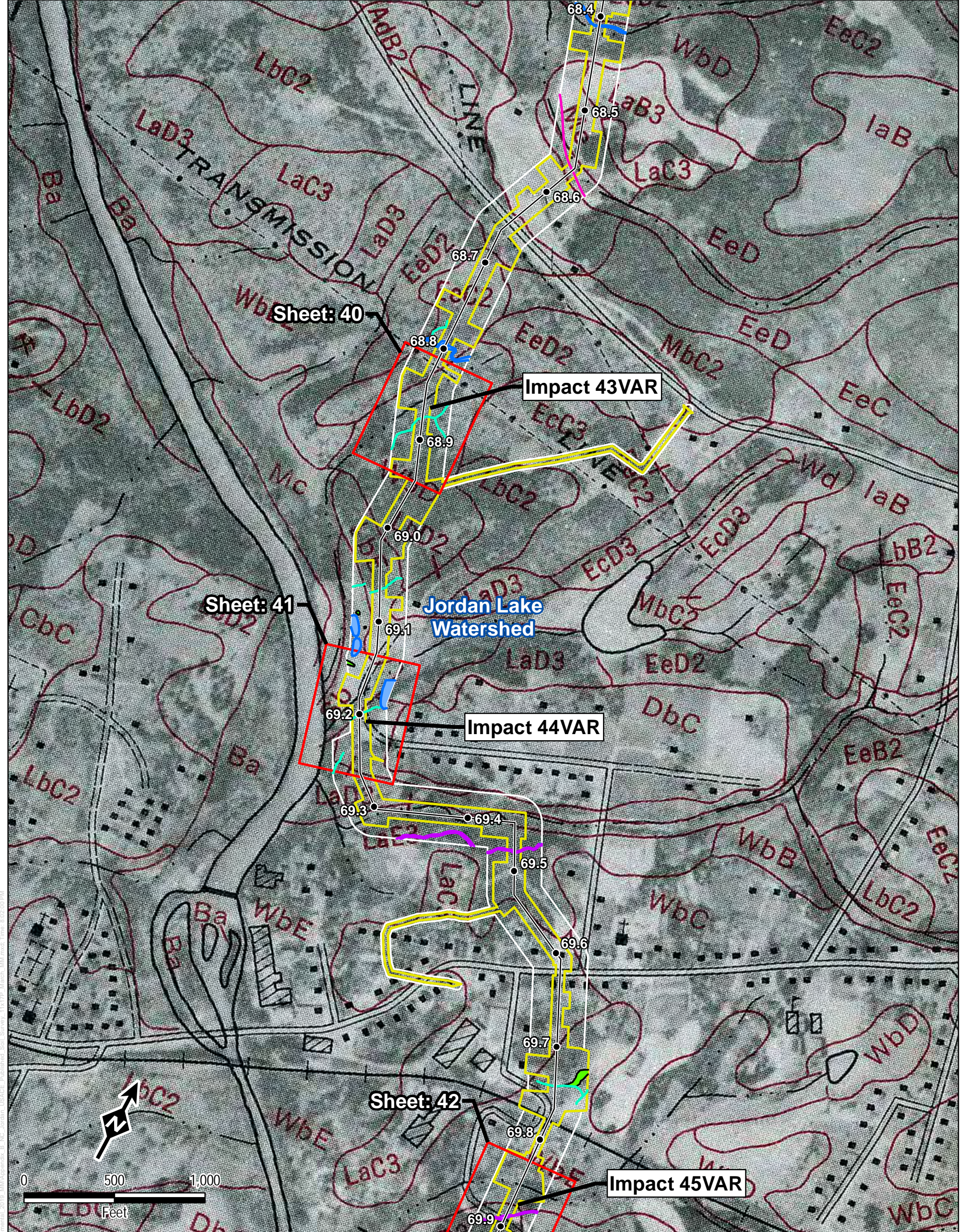
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 16 of 22

Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

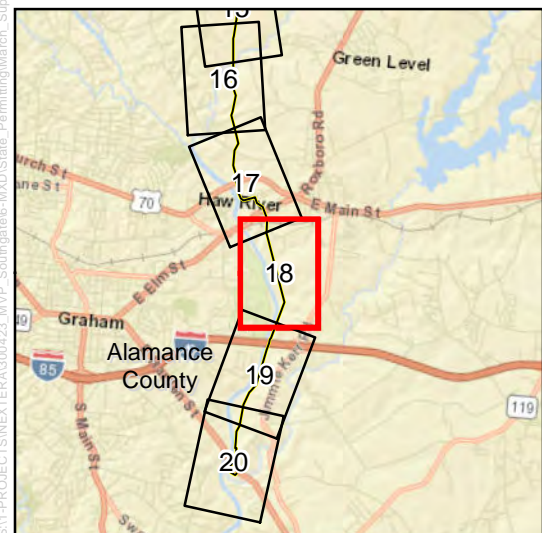
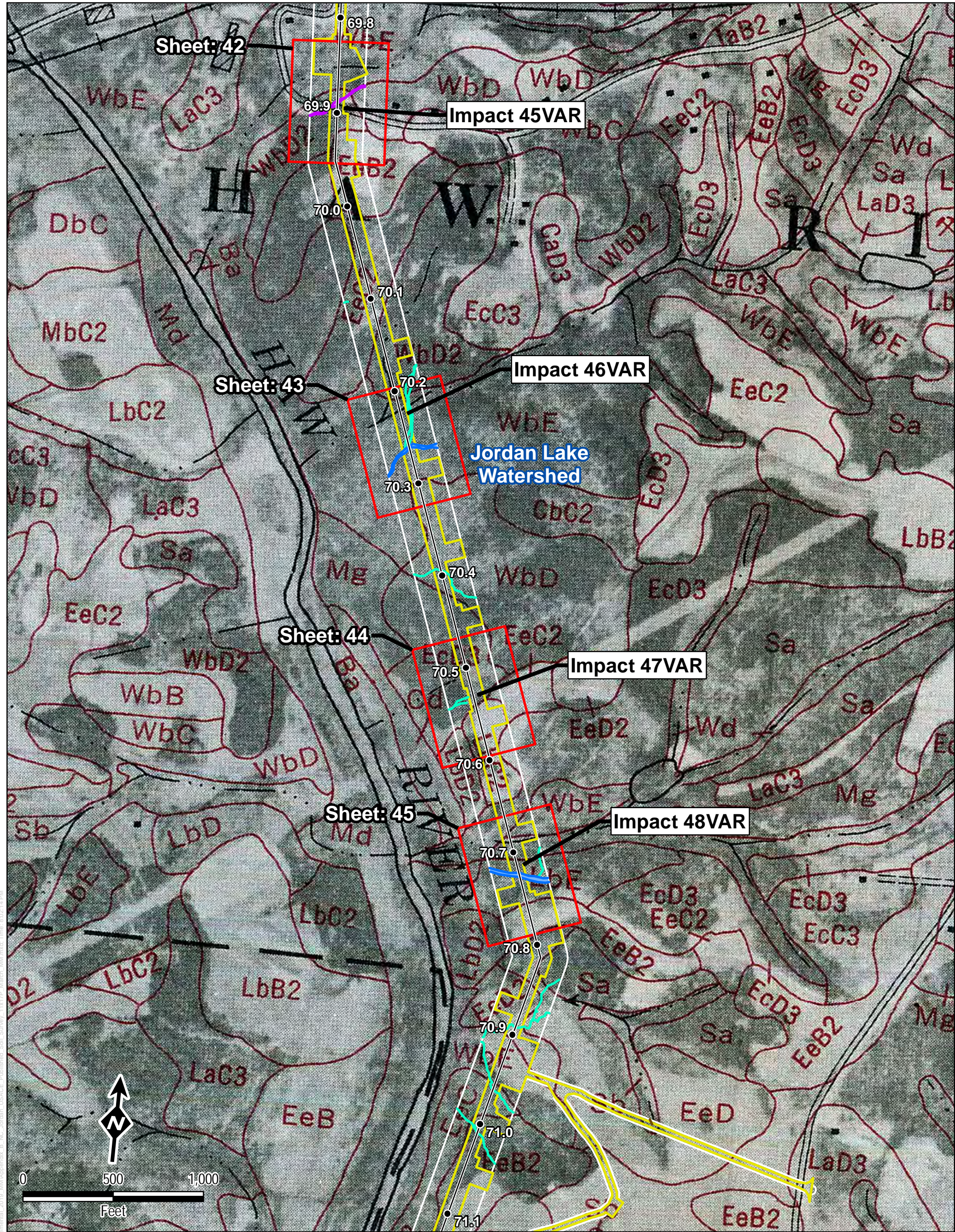
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 17 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

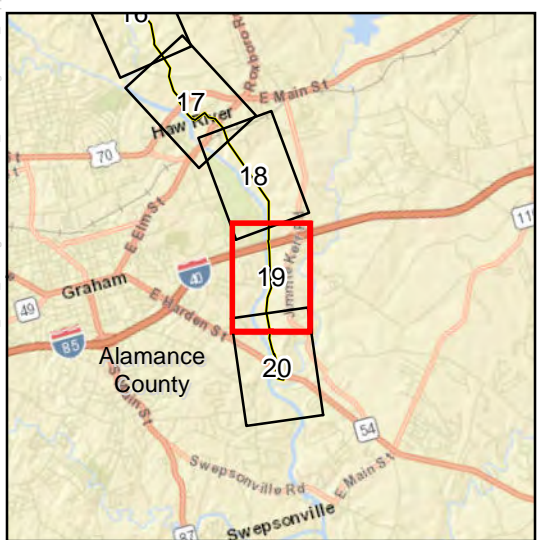
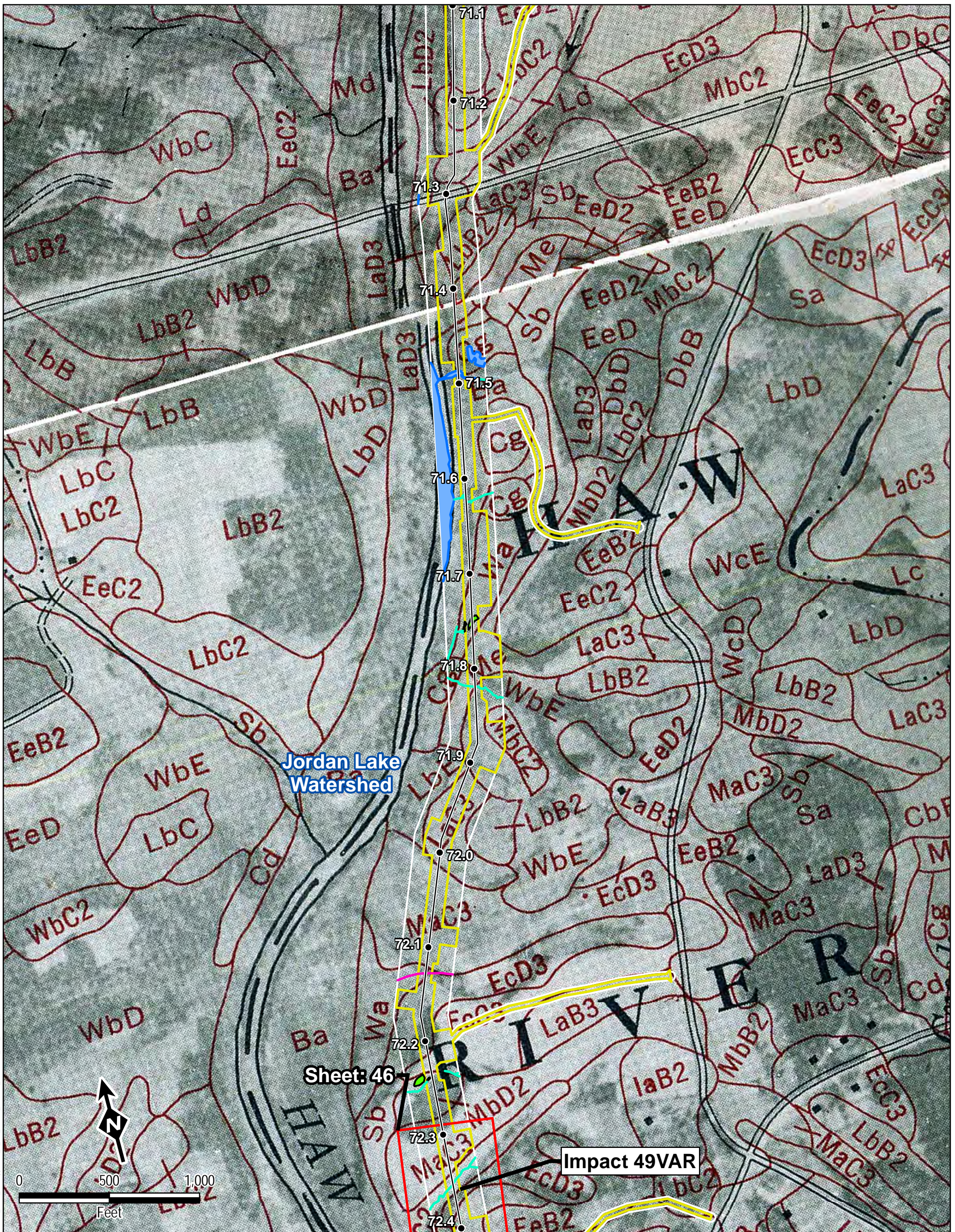
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 18 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





**Legend**

- Mileposts
- H-650 Pipeline
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- ▭ Sheet
- ▭ Adjacent Sheet
- ▭ Approximated Soil Survey Stream
- ▭ Approximated Surface Water Top Of Bank
- ▭ Approximated Stream Centerline
- ▭ Delineated Surface Water Top Of Bank
- ▭ Delineated Stream Centerline
- ▭ Approximated Surface Water
- ▭ Delineated Surface Water
- ▭ Delineated Wetland Boundary
- ▭ Approximated Wetland
- ▭ Delineated Wetland
- ▭ County Boundary
- ▭ Modified Based On USACE Or State Review
- ▭ Stream

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

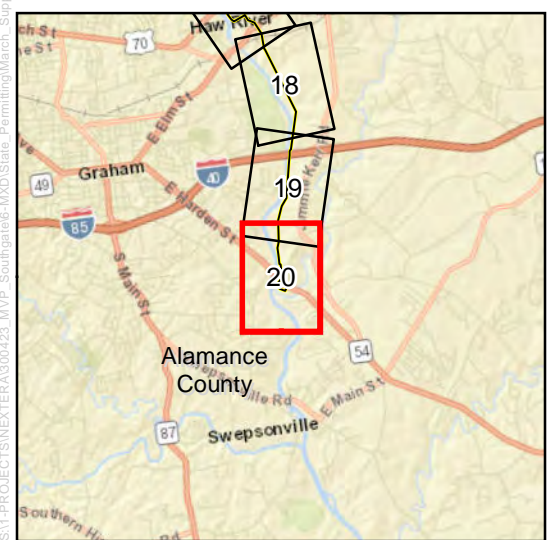
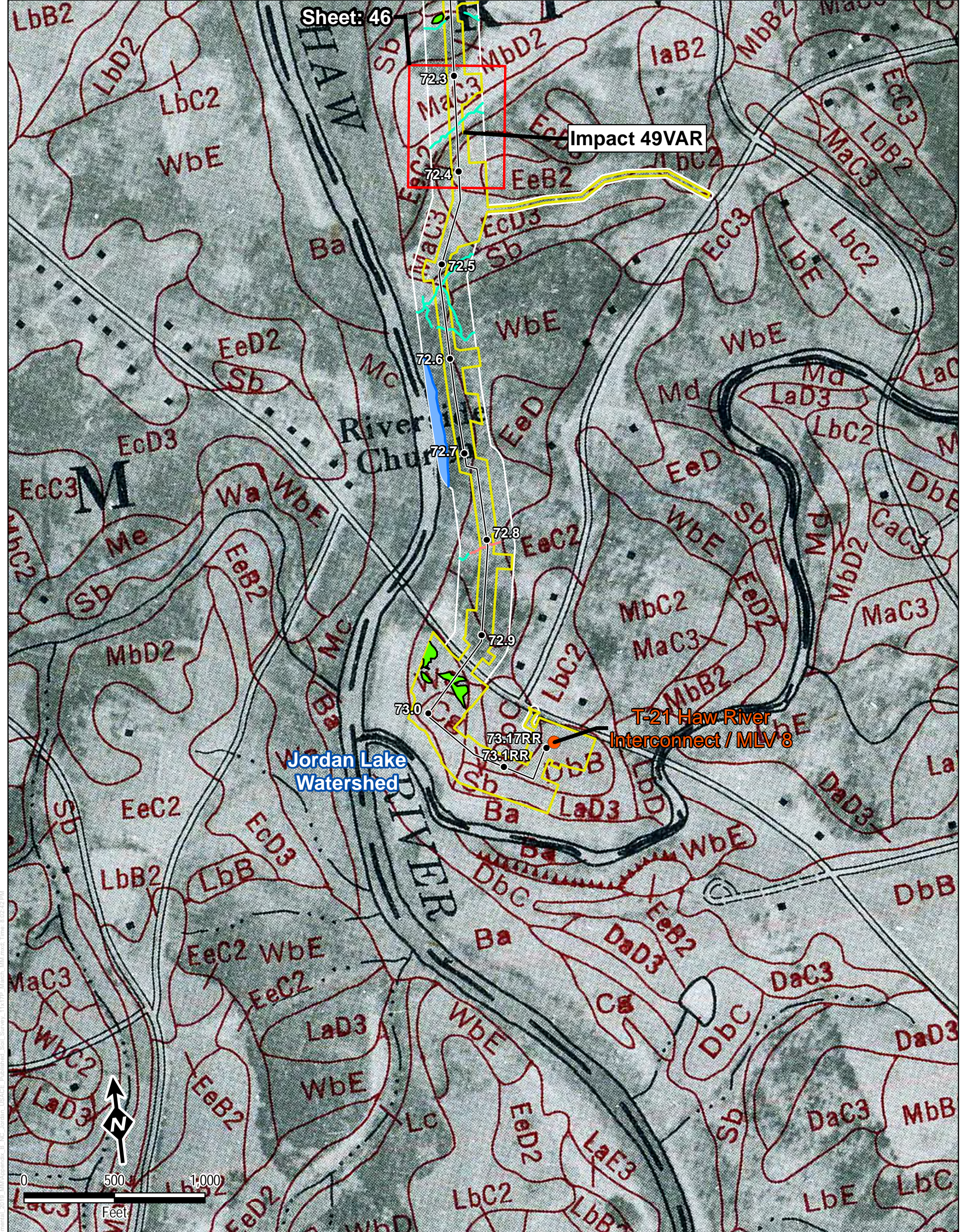
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 19 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





**Legend**

● Meter Station	— Approximated Stream Centerline	▭ County Boundary
● Mileposts	— Delineated Surface Water Top Of Bank	<b>Modified Based On</b>
— H-650 Pipeline	— Delineated Stream Centerline	<b>USACE Or State Review</b>
▭ Limits of Construction Right-of-Way	— Approximated Surface Water	— Stream
▭ Survey Area	— Delineated Surface Water	
▭ Sheet	— Delineated Wetland Boundary	
▭ Adjacent Sheet	— Approximated Wetland	
— Approximated Soil Survey Stream	— Delineated Wetland	
— Approximated Surface Water Top Of Bank	— Delineated Wetland	

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

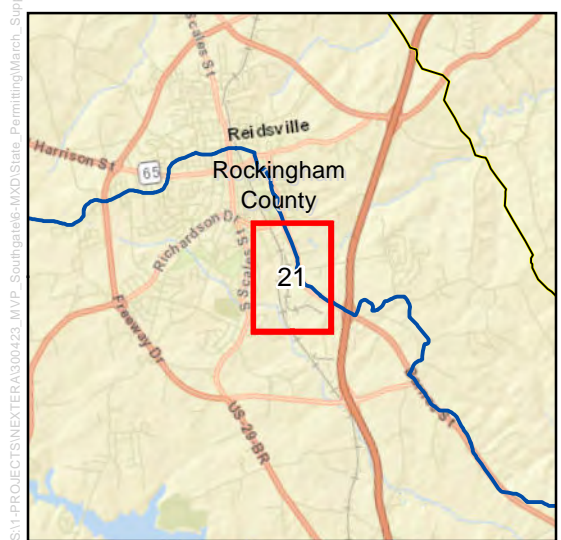
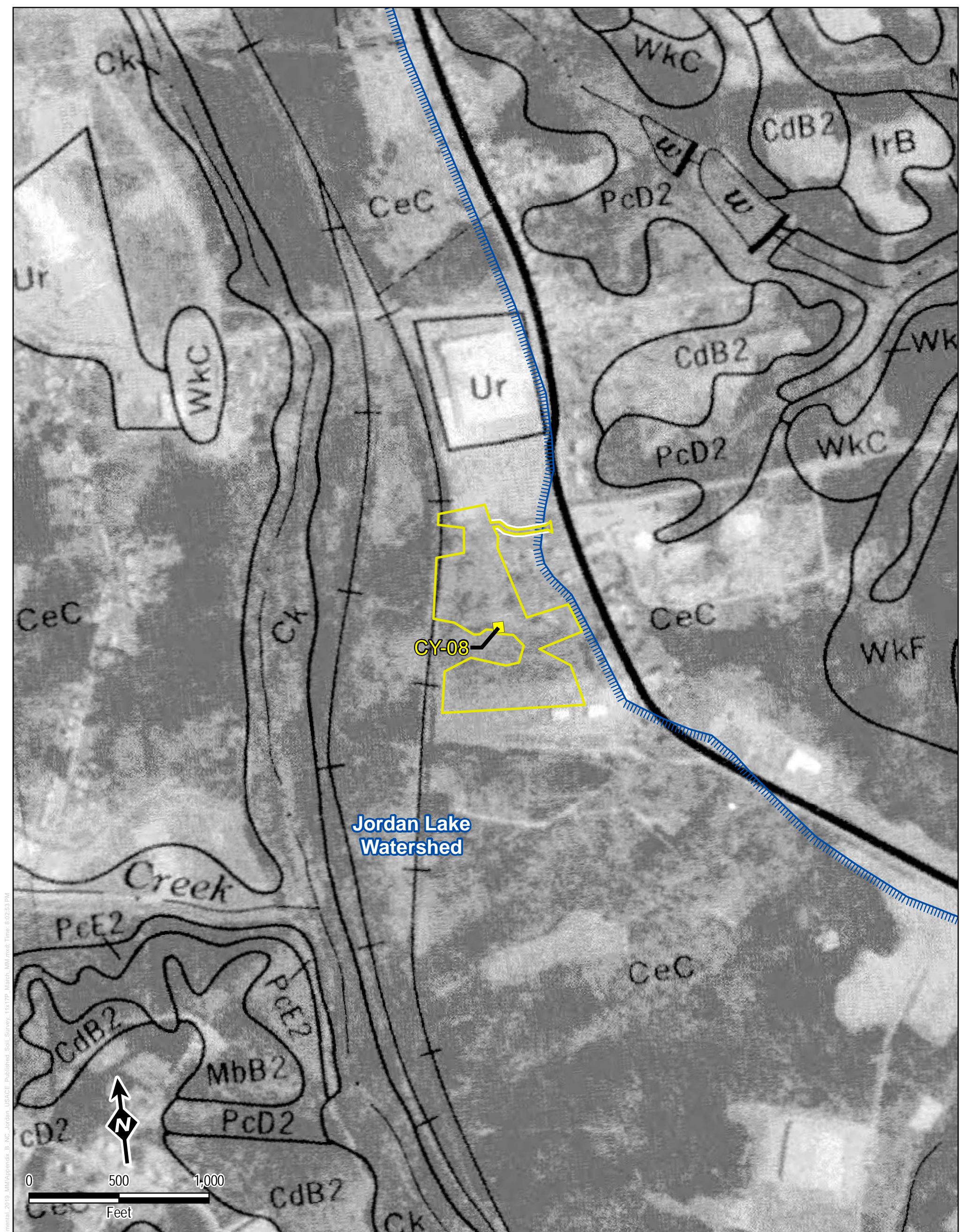
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Alamance County, NC  
 Sheet 20 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





**Legend**

Contractor Yard	Approximated Stream Centerline	County Boundary
Mileposts	Delineated Surface Water Top Of Bank	<b>Modified Based On</b>
Limits of Construction Right-of-Way	Delineated Stream Centerline	<b>USACE Or State Review</b>
Survey Area	Approximated Surface Water	Stream
Sheet	Delineated Surface Water	
Adjacent Sheet	Delineated Wetland Boundary	
Approximated Soil Survey Stream	Approximated Wetland	
Approximated Surface Water Top Of Bank	Delineated Wetland	

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Appendix B**

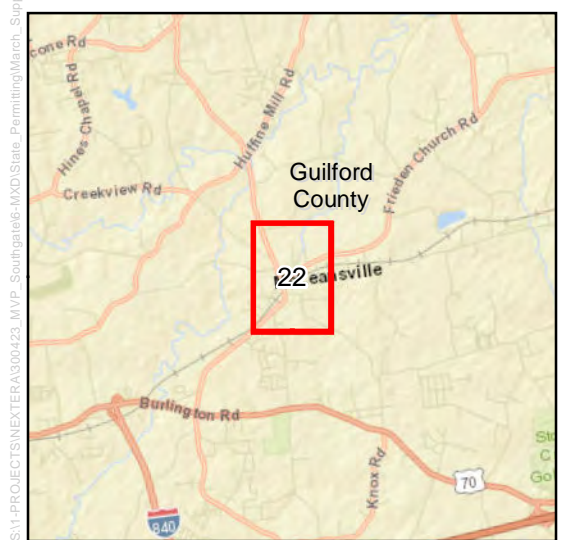
Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Rockingham County, NC  
 Sheet 21 of 22

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019

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**Legend**

Contractor Yard	Approximated Stream Centerline	County Boundary
Mileposts	Delineated Surface Water Top Of Bank	<b>Modified Based On</b>
Limits of Construction Right-of-Way	Delineated Stream Centerline	<b>USACE Or State Review</b>
Survey Area	Approximated Surface Water	Stream
Sheet	Delineated Surface Water	
Adjacent Sheet	Delineated Wetland Boundary	
Approximated Soil Survey Stream	Approximated Wetland	
Approximated Surface Water Top Of Bank	Delineated Wetland	

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS  
 Basemap: Published Soil Survey Maps

1 inch = 500 feet  
 When Printed 11x17

**Mountain Valley**  
 PIPELINE LLC

**Appendix B**

Jordan Lake Watershed  
 Published Soil Survey  
 With Major Variance Resources

Guilford County, NC  
 Sheet 22 of 22

**TRC**  
 Results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019



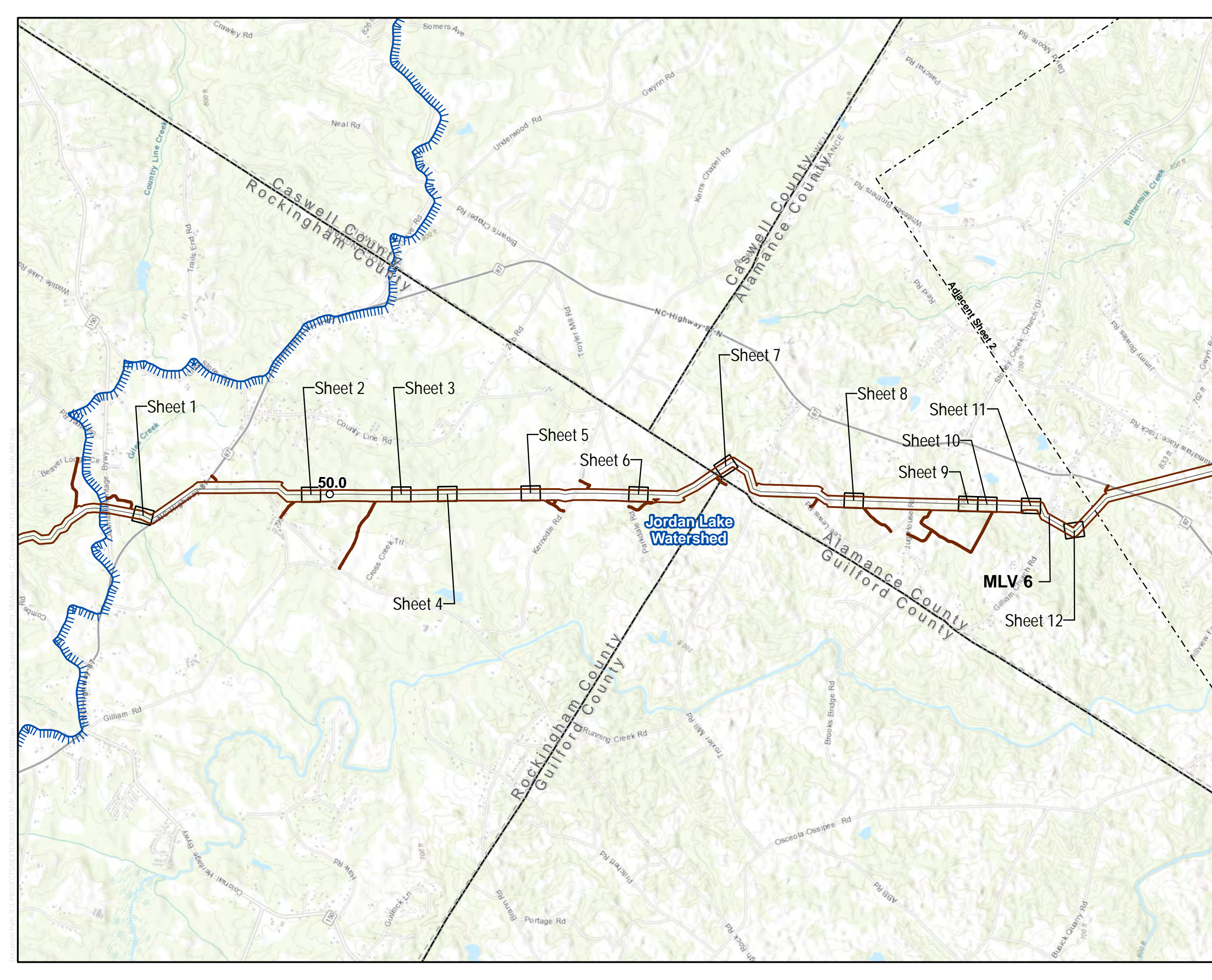


## **MVP Southgate Project**

### **Appendix C Jordan Watershed Impact Overview Maps**

**May 2019**

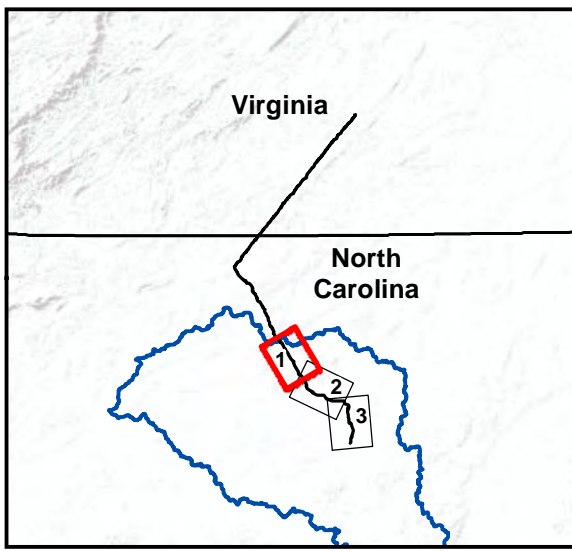




**Legend**

- Mileposts
- H-650 Pipeline
- Impact Sheet
- ▭ Survey Area
- ▭ Jordan Lake Watershed
- ▭ County Boundary
- ▭ Adjacent Sheet

Data Sources: EQT, ESRI, TRC, USGS  
 Basemap: World Topographic Map, ESRI  
 1 inch = 0.6 miles  
 When Printed 11x17

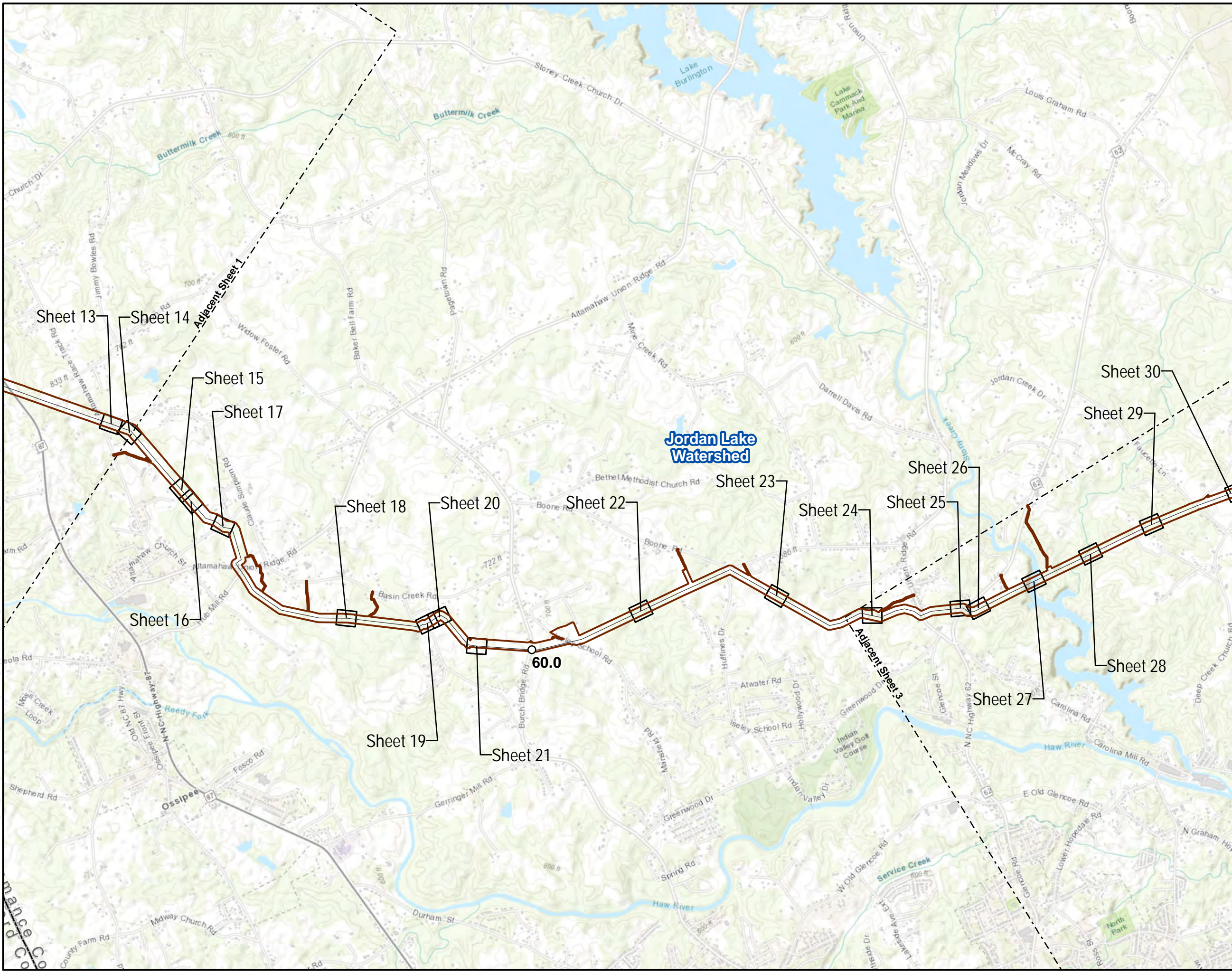


**Appendix C**  
**Jordan Lake Watershed Overview**  
 Rockingham And Alamance Counties, NC  
 Sheet 1 of 3

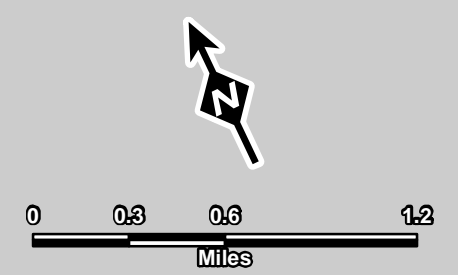
600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019

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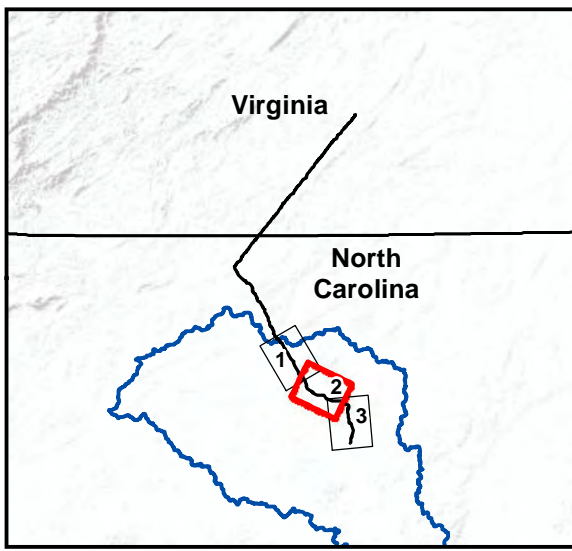




- Legend**
- Mileposts
  - H-650 Pipeline
  - Impact Sheet
  - ▭ Survey Area
  - ▨ Jordan Lake Watershed
  - ▭ County Boundary
  - ▭ Adjacent Sheet



Data Sources: EQT, ESRI, TRC, USGS  
 Basemap: World Topographic Map, ESRI  
 1 inch = 0.6 miles  
 When Printed 11x17

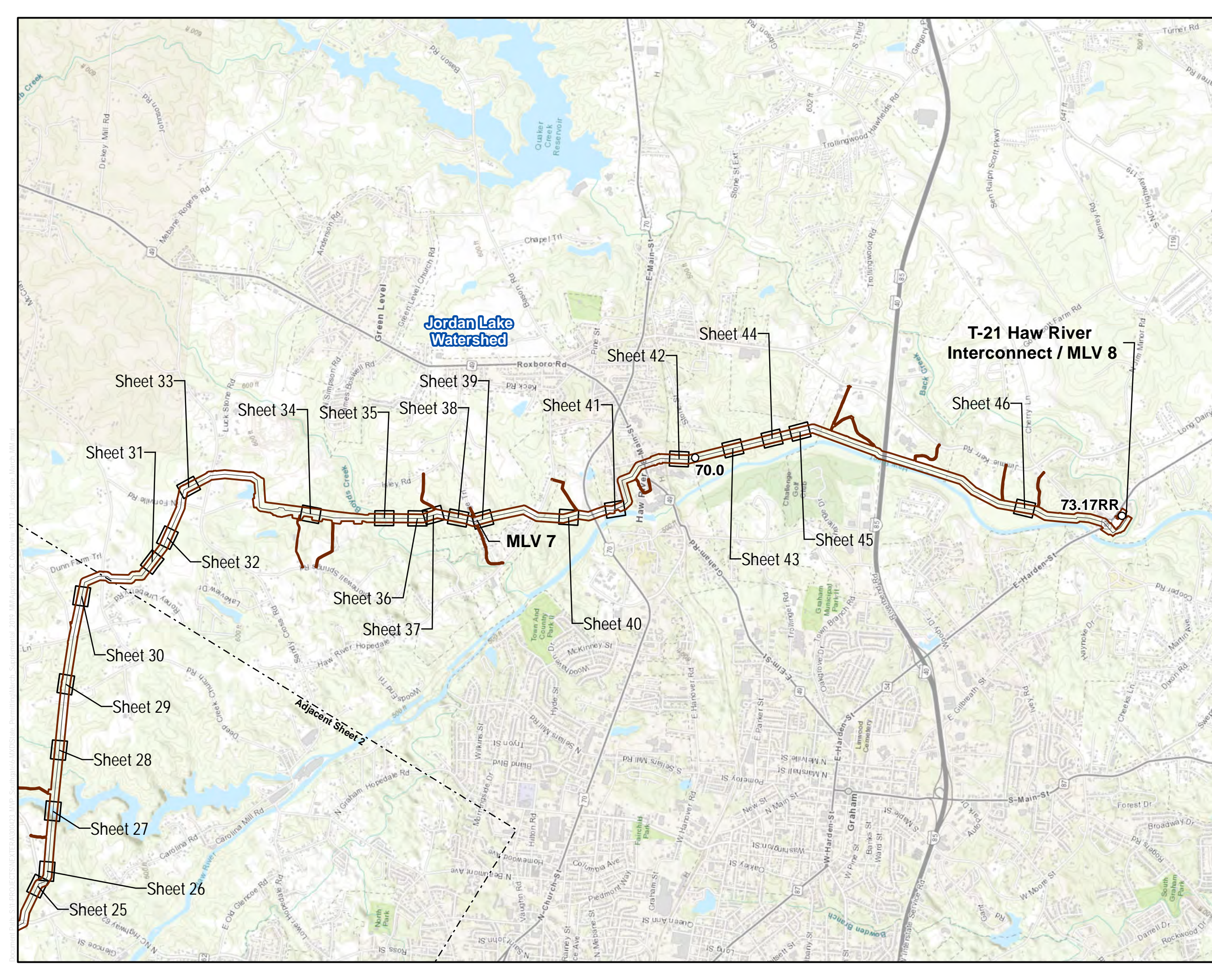


**Appendix C**  
**Jordan Lake Watershed Overview**  
 Alamance County, NC  
 Sheet 2 of 3

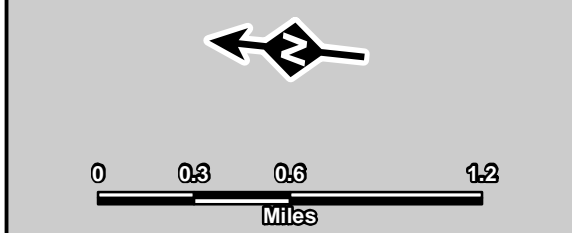


600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019

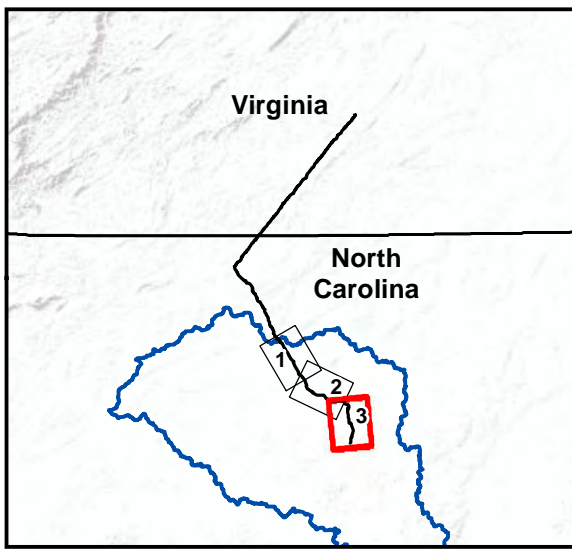




- Legend**
- Mileposts
  - H-650 Pipeline
  - Impact Sheet
  - ▭ Survey Area
  - ▭ Jordan Lake Watershed
  - ▭ County Boundary
  - ▭ Adjacent Sheet



Data Sources: EQT, ESRI, TRC, USGS  
 Basemap: World Topographic Map, ESRI  
 1 inch = 0.6 miles  
 When Printed 11x17



**Appendix C**  
**Jordan Lake Watershed Overview**  
 Alamance County, NC  
 Sheet 3 of 3

Document Path: S:\PROJECTS\XET\RA\00423\_MVP\_Southtopo6\_HX0DState\_Permittin\March\_Supplemental\_2019\_MM\Appendix C\_Overview\_11x17.mxd





## **MVP Southgate Project**

### **Appendix C Jordan Watershed Impact Maps**

**May 2019**



Impact 1VAR:  
 Zone 1 Temporary: 1,948 Sq. Ft.  
 Zone 1 Operational: 3,277 Sq. Ft.\*  
 Zone 2 Temporary: 1,103 Sq. Ft.  
 Zone 2 Operational: 2,241 Sq. Ft.

Crossing  
 Angle: 59°

**Legend**

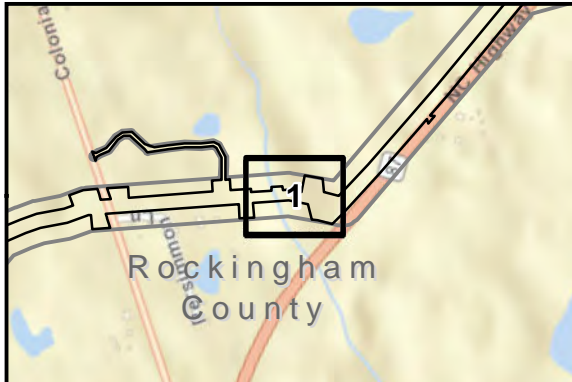
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	— Approx. and Delin. Surface Water
□ Operational HDD	— Approx. Surface Water
□ Limits of Construction Right-of-Way	— Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17

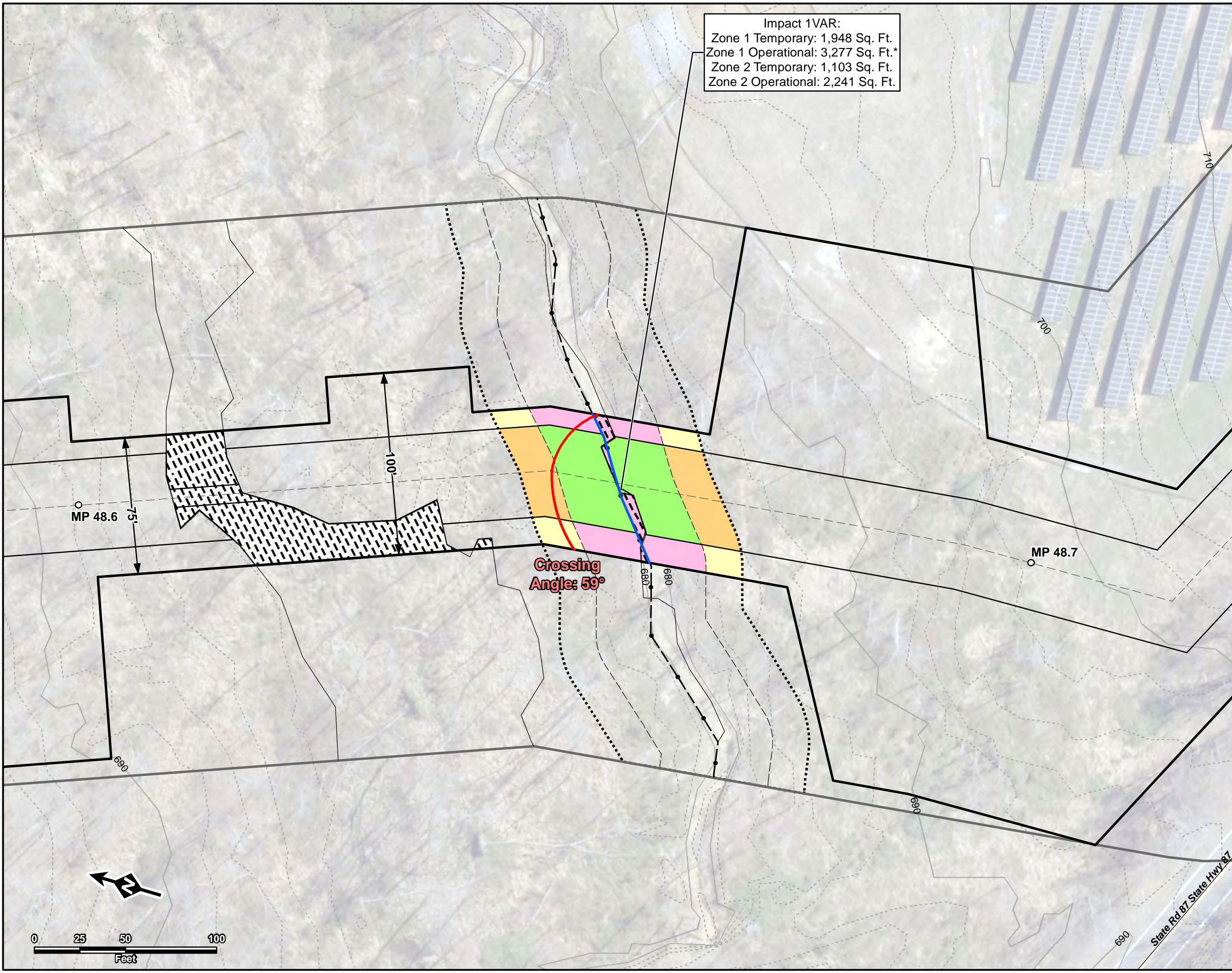


**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Rockingham, NC  
 Sheet 1 of 46

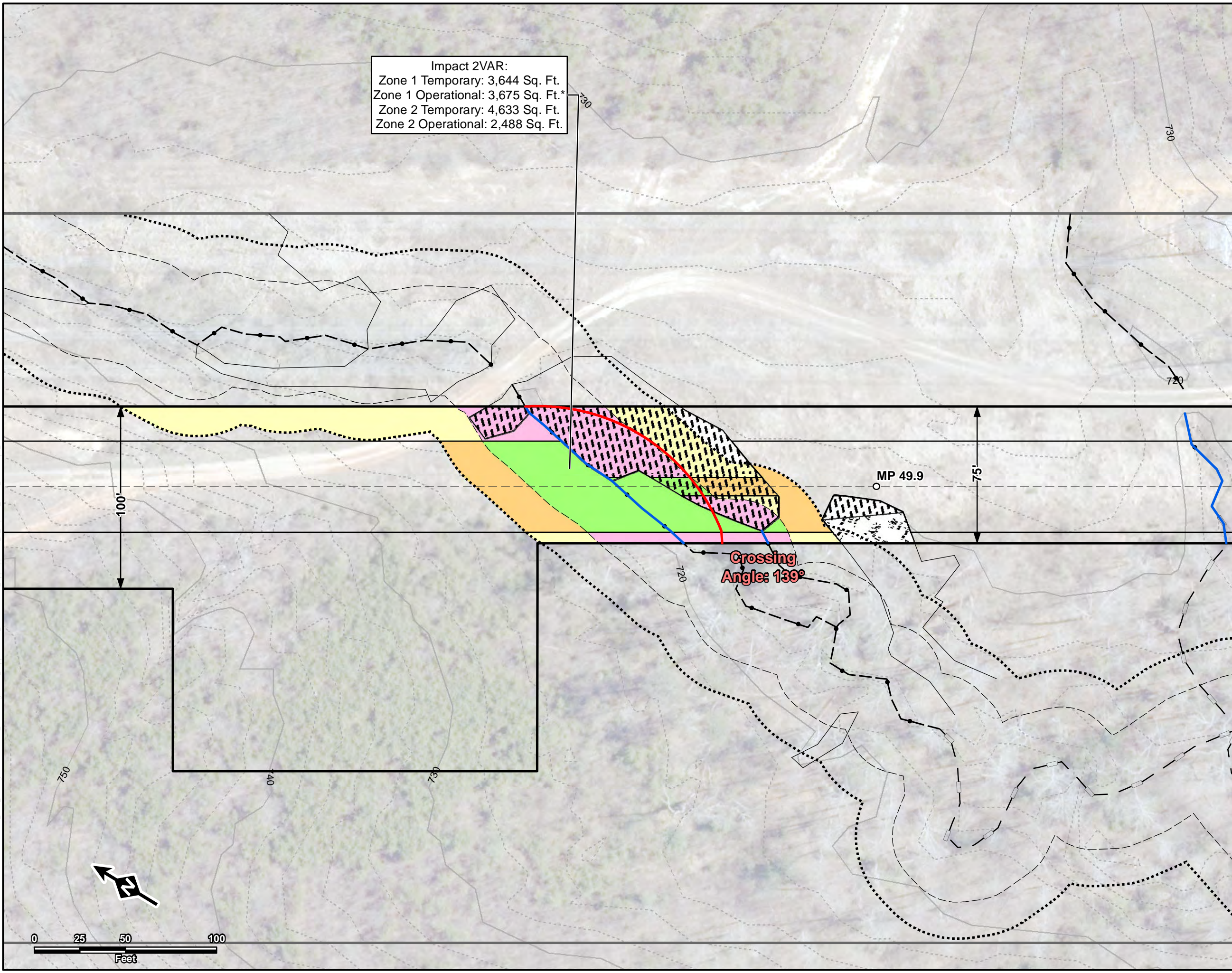
**TRC**  
 TRC logo with tagline 'Results you can rely on'

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019



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Impact 2VAR:  
 Zone 1 Temporary: 3,644 Sq. Ft.  
 Zone 1 Operational: 3,675 Sq. Ft.\*  
 Zone 2 Temporary: 4,633 Sq. Ft.  
 Zone 2 Operational: 2,488 Sq. Ft.

Crossing  
 Angle: 139°

**Legend**

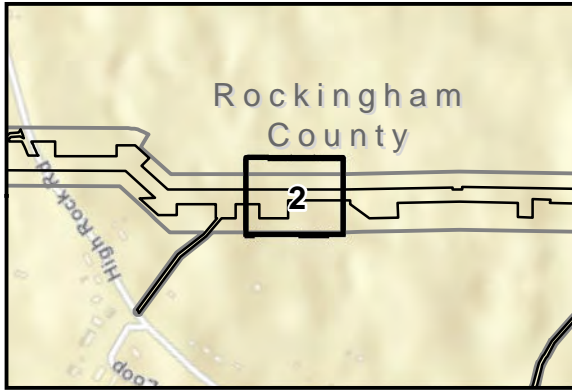
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	— Approx. and Delin. Surface Water
□ Operational HDD	— Approx. Surface Water
□ Limits of Construction Right-of-Way	— Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



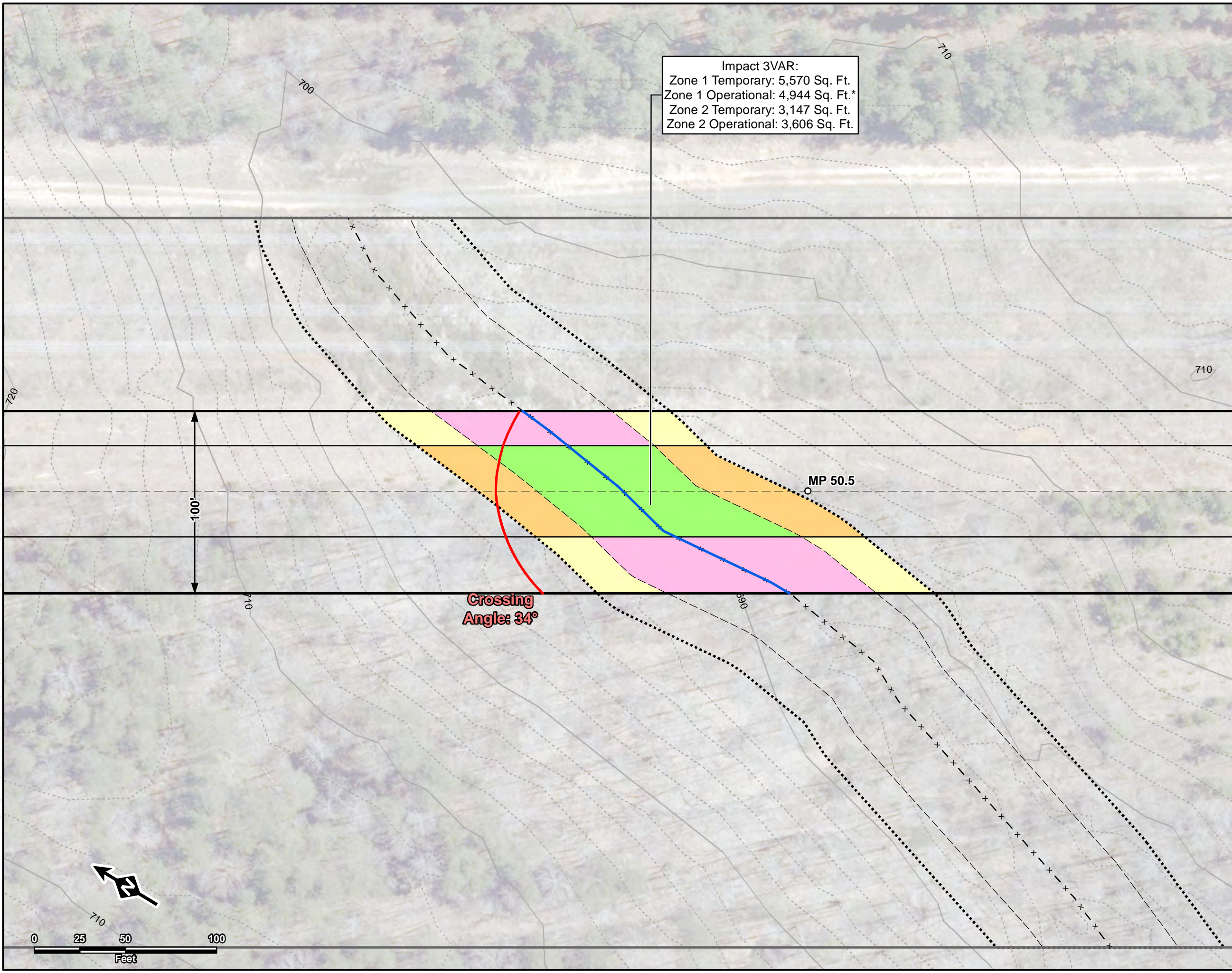
**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Rockingham, NC  
 Sheet 2 of 46

**TRC**  
 results you can rely on

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





Impact 3VAR:  
 Zone 1 Temporary: 5,570 Sq. Ft.  
 Zone 1 Operational: 4,944 Sq. Ft.\*  
 Zone 2 Temporary: 3,147 Sq. Ft.  
 Zone 2 Operational: 3,606 Sq. Ft.

Crossing  
 Angle: 34°

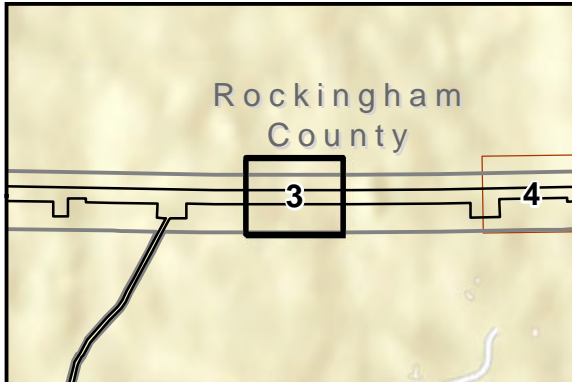
**Legend**

- Mileposts
- Access Road
- ↔ Construction Corridor Width
- - - H-650 Pipeline
- Operational Workspace
- ▨ Operational HDD
- ▭ Limits of Construction Right-of-Way
- ▭ Survey Area
- - - Approx. Surface Water Bank
- Approx. Stream Centerline
- - - Delin. Surface Water Bank
- Delin. Stream Centerline
- x - - - Approx. Soil Survey Stream
- Delin. Wetland Boundary
- Zone 1
- Zone 2
- Stream Centerline
- Approx. and Delin. Surface Water
- Approx. Surface Water
- Delin. Surface Water
- ▨ Delin. PEM/PSS Wetland
- ▨ Delin. PFO Wetland
- Zone 1
- Zone 2
- Zone 1
- Zone 2
- Stream

**Notes:**

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.
- \* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



Appendix C  
 Jordan Lake Watershed Impacts  
 Rockingham, NC  
 Sheet 3 of 46



600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019



**Impact 4VAR:**  
 Zone 1 Temporary: 5,969 Sq. Ft.  
 Zone 1 Operational: 1,959 Sq. Ft.\*  
 Zone 2 Temporary: 1,420 Sq. Ft.  
 Zone 2 Operational: 7,485 Sq. Ft.

**Crossing  
 Angle: 70°**

MP 50.8

75'

100'

**Legend**

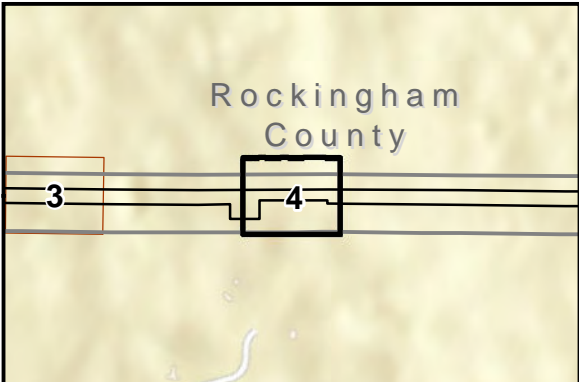
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	— Approx. and Delin. Surface Water
□ Operational HDD	— Approx. Surface Water
□ Limits of Construction Right-of-Way	— Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

**Notes:**

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17

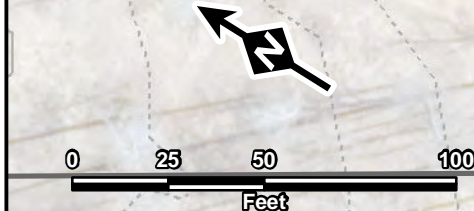


**Mountain Valley PIPELINE, LLC**

**Appendix C**  
 Jordan Lake Watershed Impacts  
 Rockingham, NC  
 Sheet 4 of 46

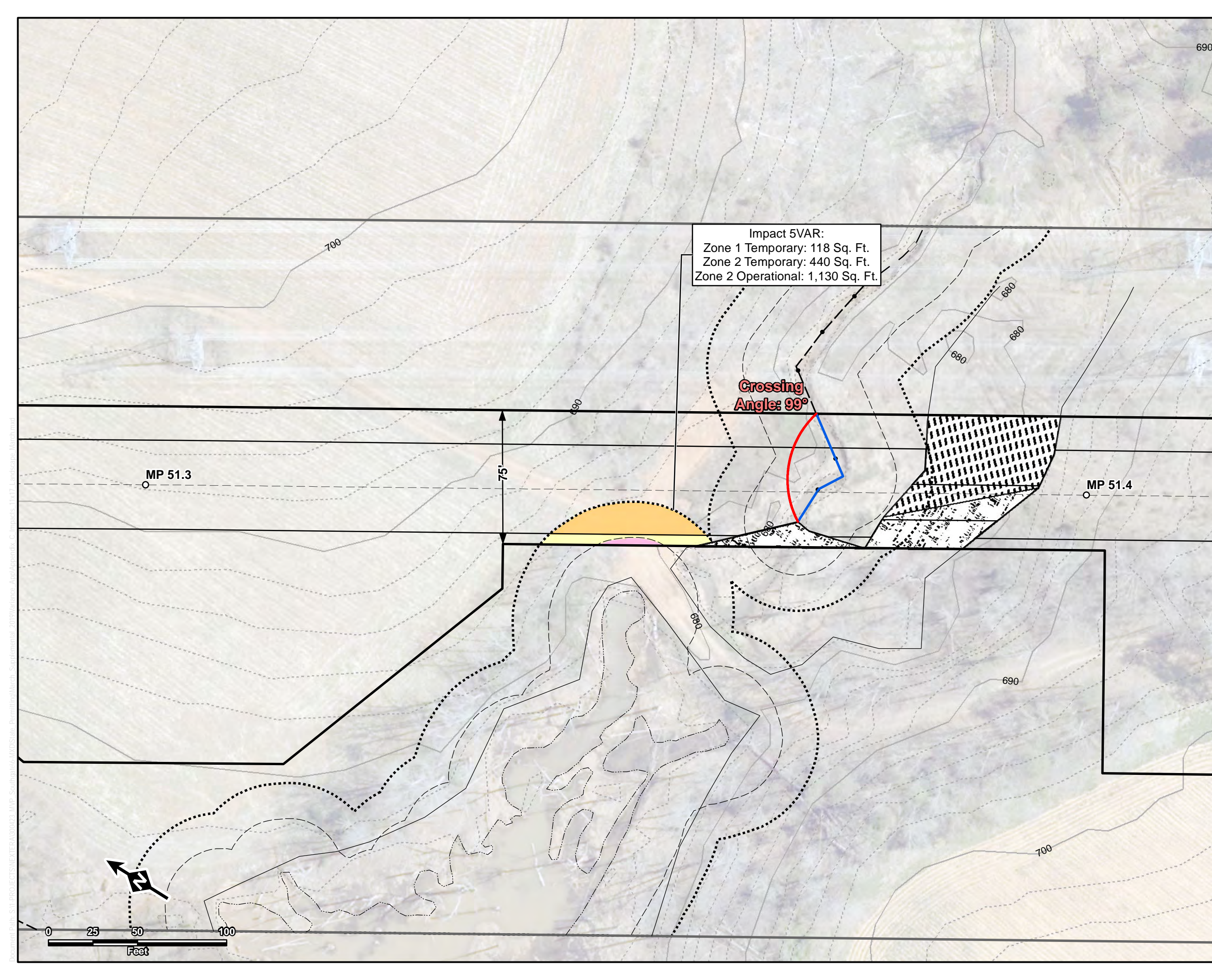
600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019

**TRC**  
 TRC CONSULTANTS, INC.



Document Path: S:\1-PROJ\JECTS\WEX\TERRA\00423\_MVP\_Southtopo\6-MXD\State\_Permitt\Map\Rockingham\Appendix C Impacts\_417\_Landscape\_March.mxd





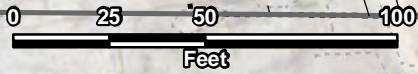
Impact 5VAR:  
 Zone 1 Temporary: 118 Sq. Ft.  
 Zone 2 Temporary: 440 Sq. Ft.  
 Zone 2 Operational: 1,130 Sq. Ft.

Crossing  
 Angle: 99°

MP 51.3

MP 51.4

75'



**Legend**

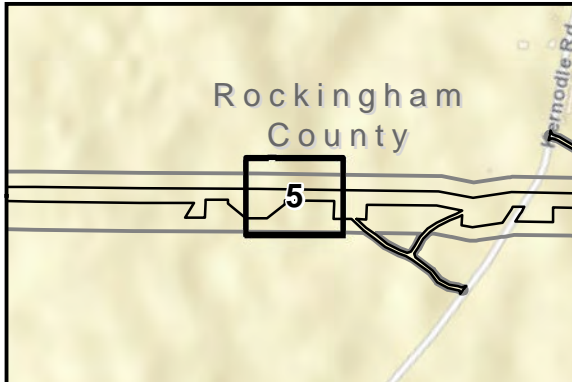
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	□ Approx. and Delin. Surface Water
□ Operational HDD	□ Approx. Surface Water
□ Limits of Construction Right-of-Way	□ Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Rockingham, NC  
 Sheet 5 of 46

**TRC**  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019



**Impact 6VAR:**  
 Zone 1 Temporary: 5,996 Sq. Ft.  
 Zone 1 Operational: 10,619 Sq. Ft.\*  
 Zone 2 Temporary: 2,721 Sq. Ft.  
 Zone 2 Operational: 5,815 Sq. Ft.

**Legend**

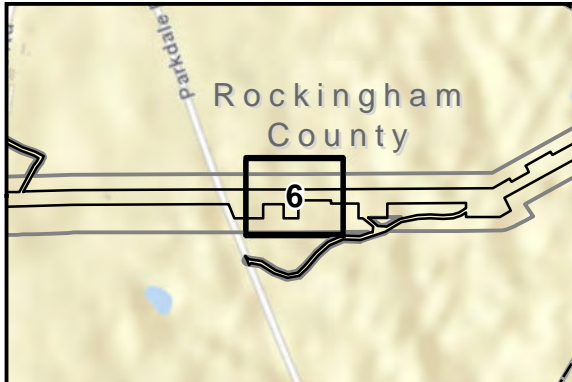
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	— Approx. and Delin. Surface Water
□ Operational HDD	— Approx. Surface Water
□ Limits of Construction Right-of-Way	— Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	■ Zone 1
— Approx. Stream Centerline	■ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	■ Zone 1
× - - - Approx. Soil Survey Stream	■ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

**Notes:**

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

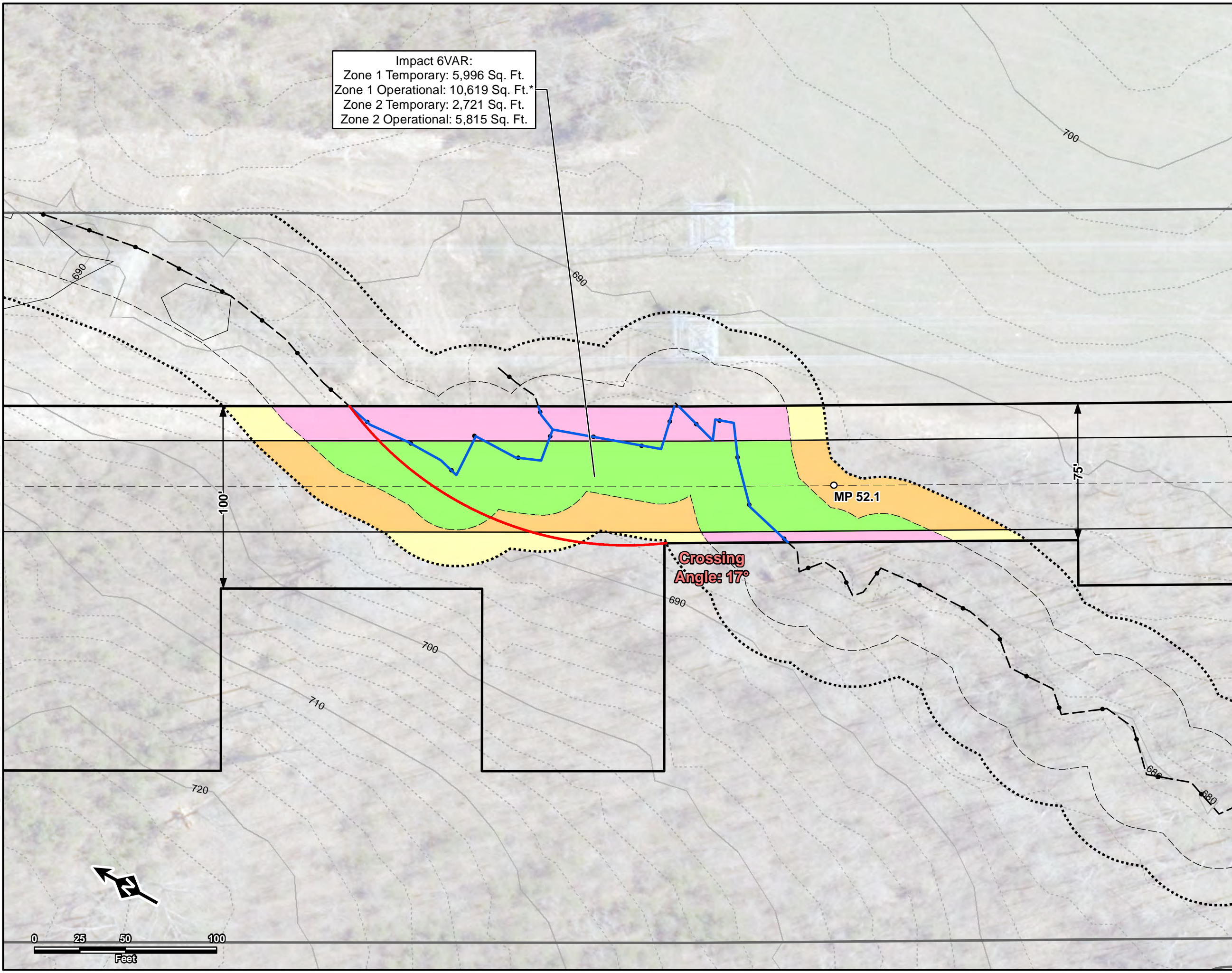
Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



**Mountain Valley PIPELINE, LLC**

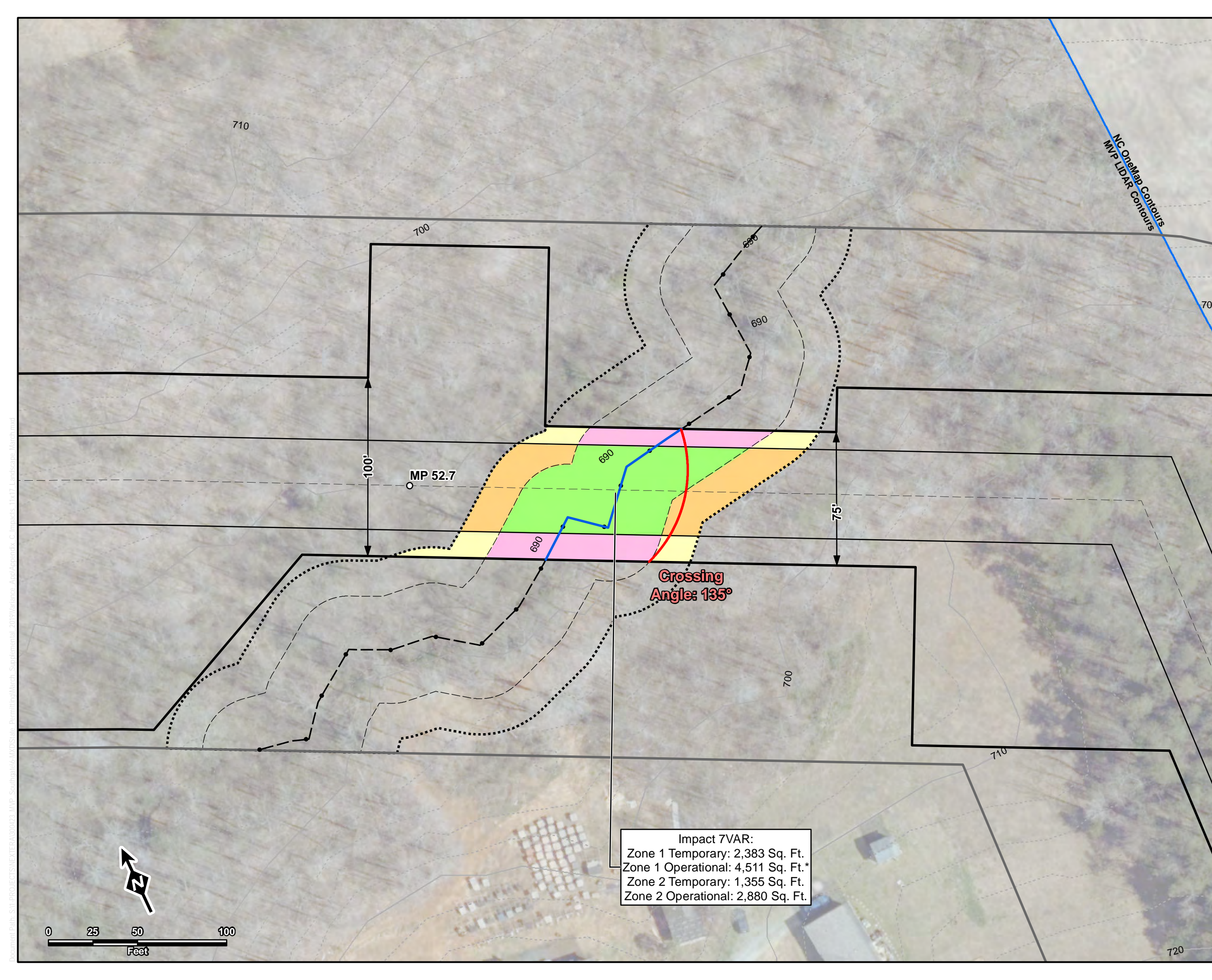
**Appendix C**  
 Jordan Lake Watershed Impacts  
 Rockingham, NC  
 Sheet 6 of 46

**TRC** 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019



Document Path: S:\1-PROJECTS\NEXTERA\00423\_MVP\_Southtopole6-HXD\State\_Permitting\Merch\_Supplemental\_2019\Variance\_App\Appendix C Impacts\_17\_Landscape\_Merch.mxd





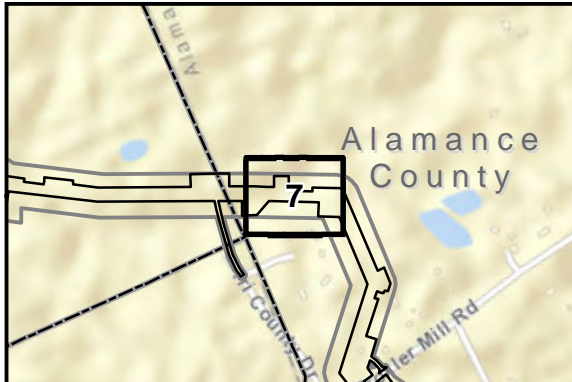
### Legend

○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	— Approx. and Delin. Surface Water
□ Operational HDD	— Approx. Surface Water
□ Limits of Construction Right-of-Way	— Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	■ Zone 1
— Approx. Stream Centerline	■ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	■ Zone 1
× — Approx. Soil Survey Stream	■ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

**Notes:**

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.
- \* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



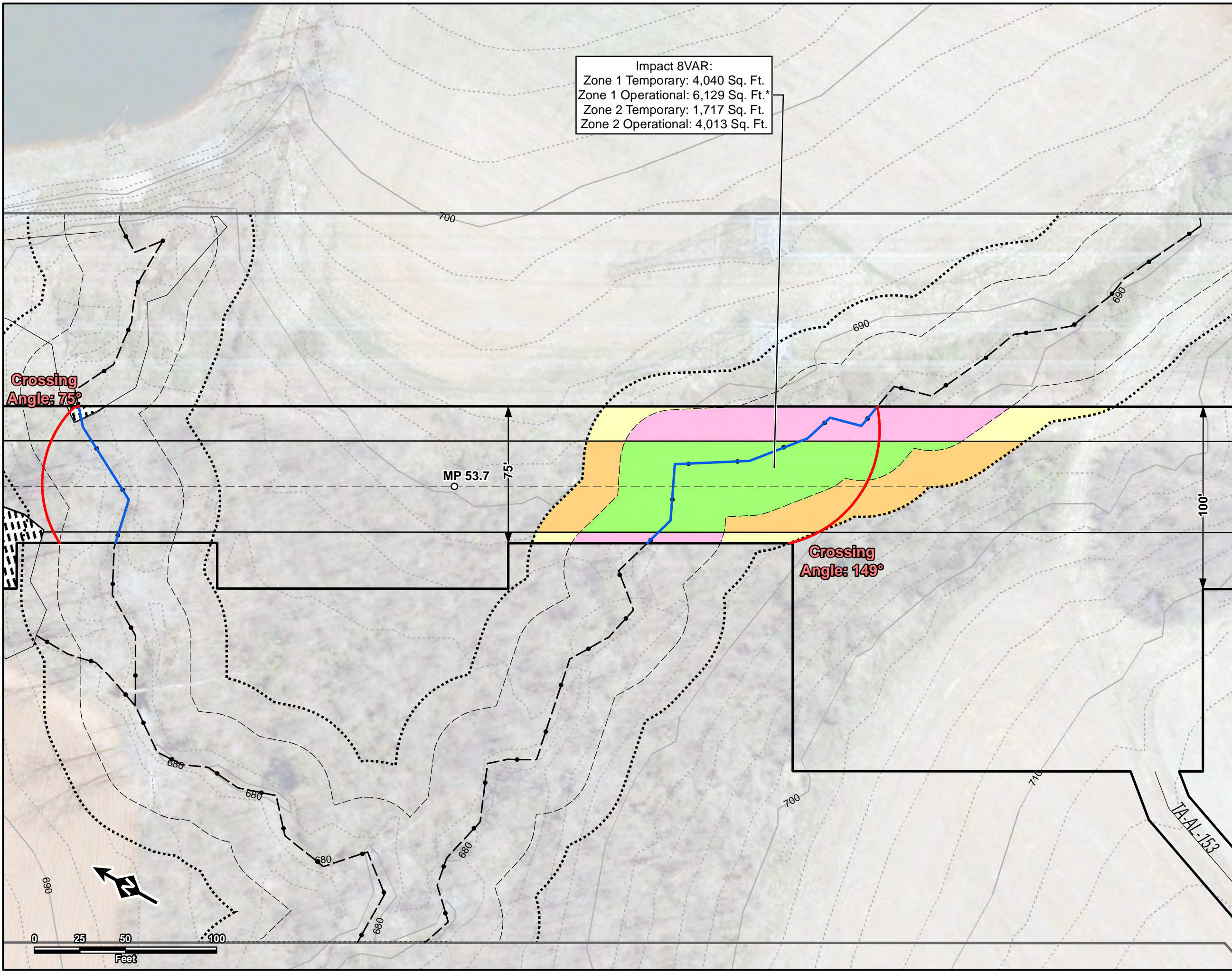
**Impact 7VAR:**  
 Zone 1 Temporary: 2,383 Sq. Ft.  
 Zone 1 Operational: 4,511 Sq. Ft.\*  
 Zone 2 Temporary: 1,355 Sq. Ft.  
 Zone 2 Operational: 2,880 Sq. Ft.

**Mountain Valley PIPELINE, LLC**

**Appendix C**  
 Jordan Lake Watershed Impacts  
 Alamance, NC  
 Sheet 7 of 46

**TRC**  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





Impact 8VAR:  
 Zone 1 Temporary: 4,040 Sq. Ft.  
 Zone 1 Operational: 6,129 Sq. Ft.\*  
 Zone 2 Temporary: 1,717 Sq. Ft.  
 Zone 2 Operational: 4,013 Sq. Ft.

**Legend**

- Mileposts
- Access Road
- ↔ Construction Corridor Width
- - - H-650 Pipeline
- Operational Workspace
- Operational HDD
- Limits of Construction Right-of-Way
- Survey Area
- - - Approx. Surface Water Bank
- Approx. Stream Centerline
- Delin. Surface Water Bank
- Delin. Stream Centerline
- × - - - Approx. Soil Survey Stream
- Delin. Wetland Boundary
- Zone 1
- Zone 2
- Stream Centerline
- Approx. and Delin. Surface Water
- Approx. Surface Water
- Delin. Surface Water
- Delin. PEM/PSS Wetland
- Delin. PFO Wetland
- Zone 1
- Zone 2
- Zone 1
- Zone 2
- Stream

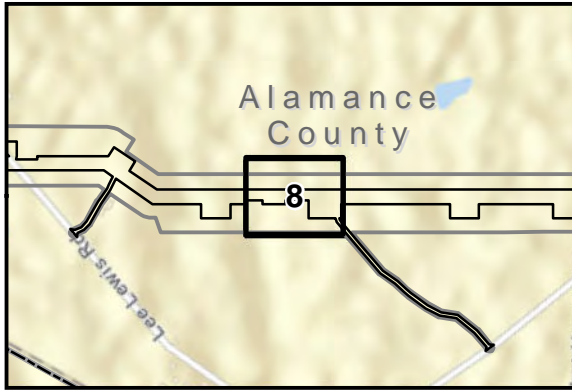
**Resources**

**Notes:**

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



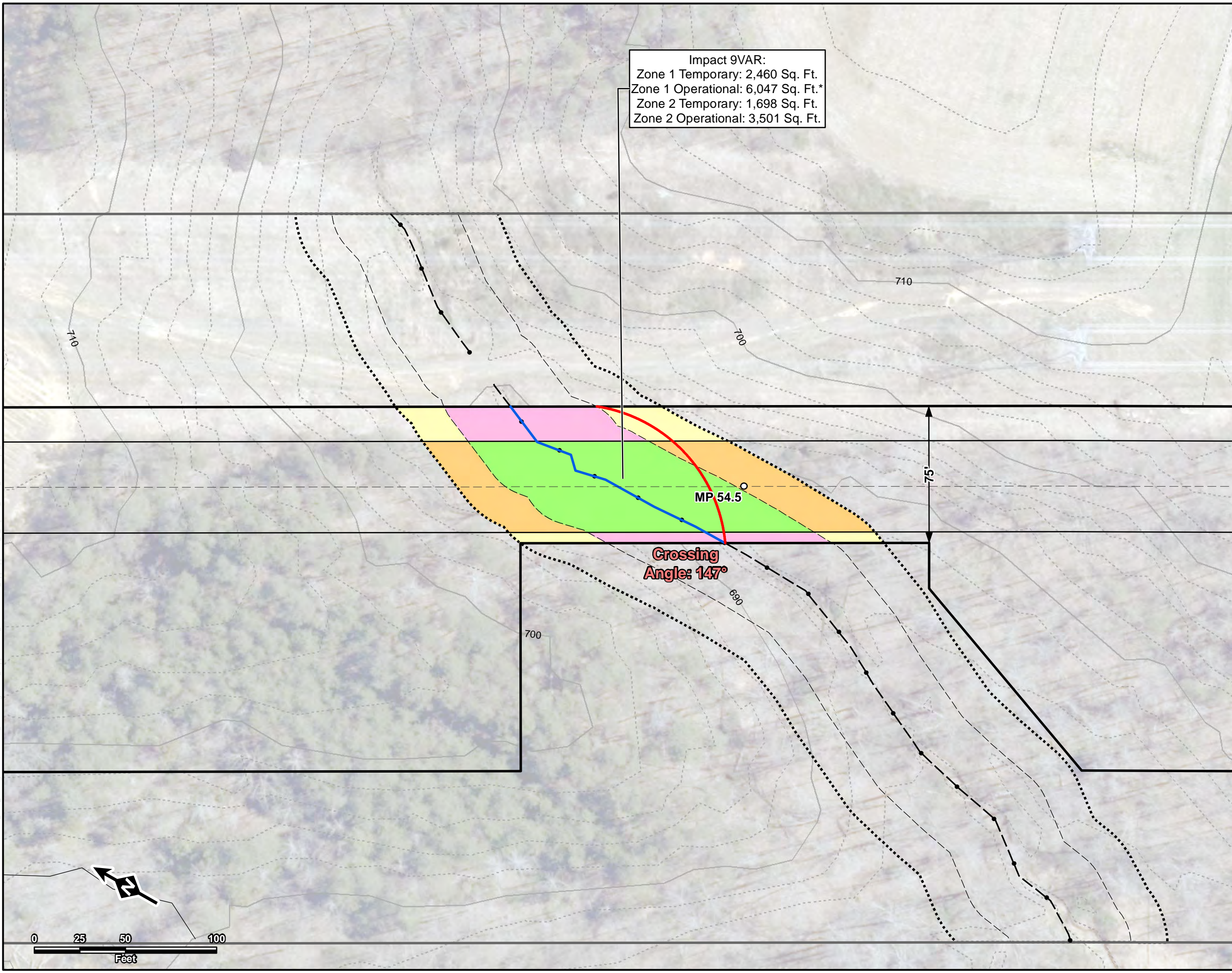
**Mountain Valley**  
PIPELINE, LLC

**Appendix C**  
Jordan Lake Watershed Impacts  
Alamance, NC  
Sheet 8 of 46

TRC  
TRC you can rely on

600 Willowbrook Ln  
West Chester, PA 19382  
Date: April 2019





Impact 9VAR:  
 Zone 1 Temporary: 2,460 Sq. Ft.  
 Zone 1 Operational: 6,047 Sq. Ft.\*  
 Zone 2 Temporary: 1,698 Sq. Ft.  
 Zone 2 Operational: 3,501 Sq. Ft.

**Legend**

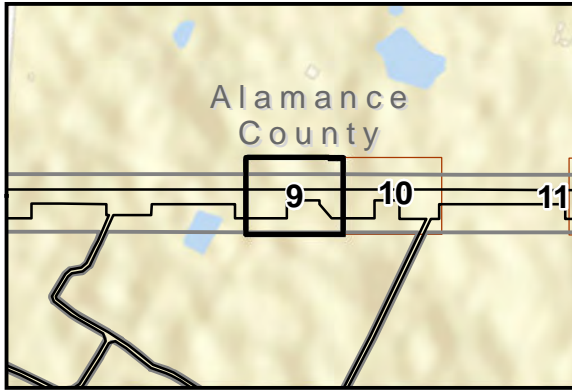
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	□ Approx. and Delin. Surface Water
□ Operational HDD	□ Approx. Surface Water
□ Limits of Construction Right-of-Way	□ Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
x - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EQT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



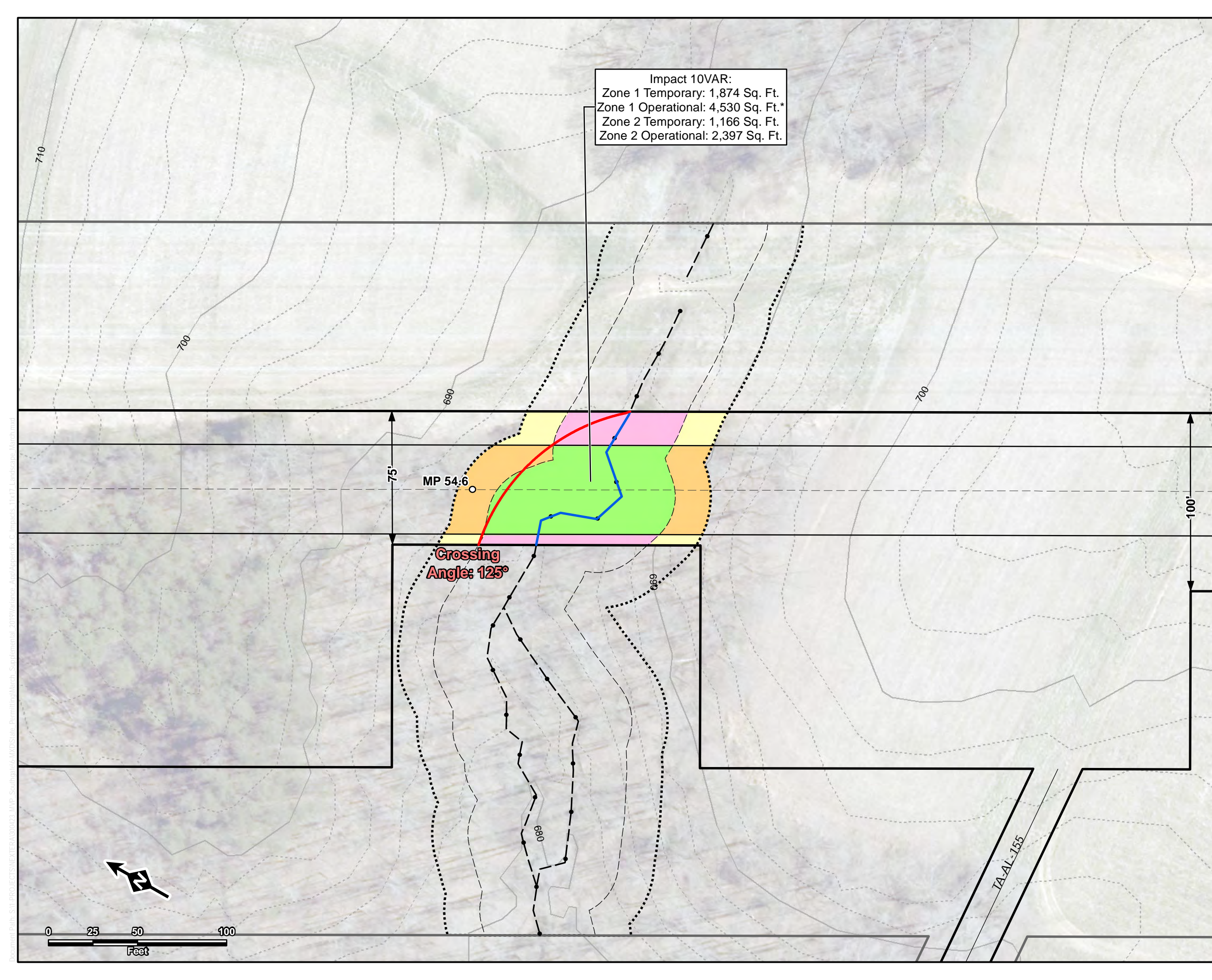
**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Alamance, NC  
 Sheet 9 of 46

**TRC**  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019

Document Path: S:\1-PRO-JECTS\WEXTER\04023 MVP\_Southtopo\6-MXD\State\_Permittinq\Merch\_Supplemental\_2019\Verance\_App\Appendix C\Impacts\_k17\_Landscape\_Merch.mxd





Impact 10VAR:  
 Zone 1 Temporary: 1,874 Sq. Ft.  
 Zone 1 Operational: 4,530 Sq. Ft.\*  
 Zone 2 Temporary: 1,166 Sq. Ft.  
 Zone 2 Operational: 2,397 Sq. Ft.

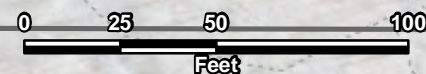
75'

MP 54.6

**Crossing  
 Angle: 125°**

100'

TA-AL-155



### Legend

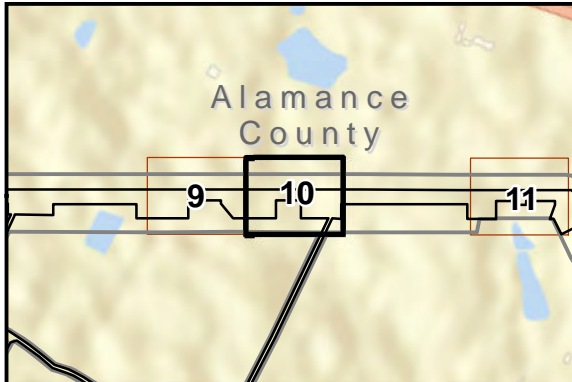
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
--- H-650 Pipeline	— Stream Centerline
□ Operational Workspace	□ Approx. and Delin. Surface Water
□ Operational HDD	□ Approx. Surface Water
□ Limits of Construction Right-of-Way	□ Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
--- Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
--- Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× — Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



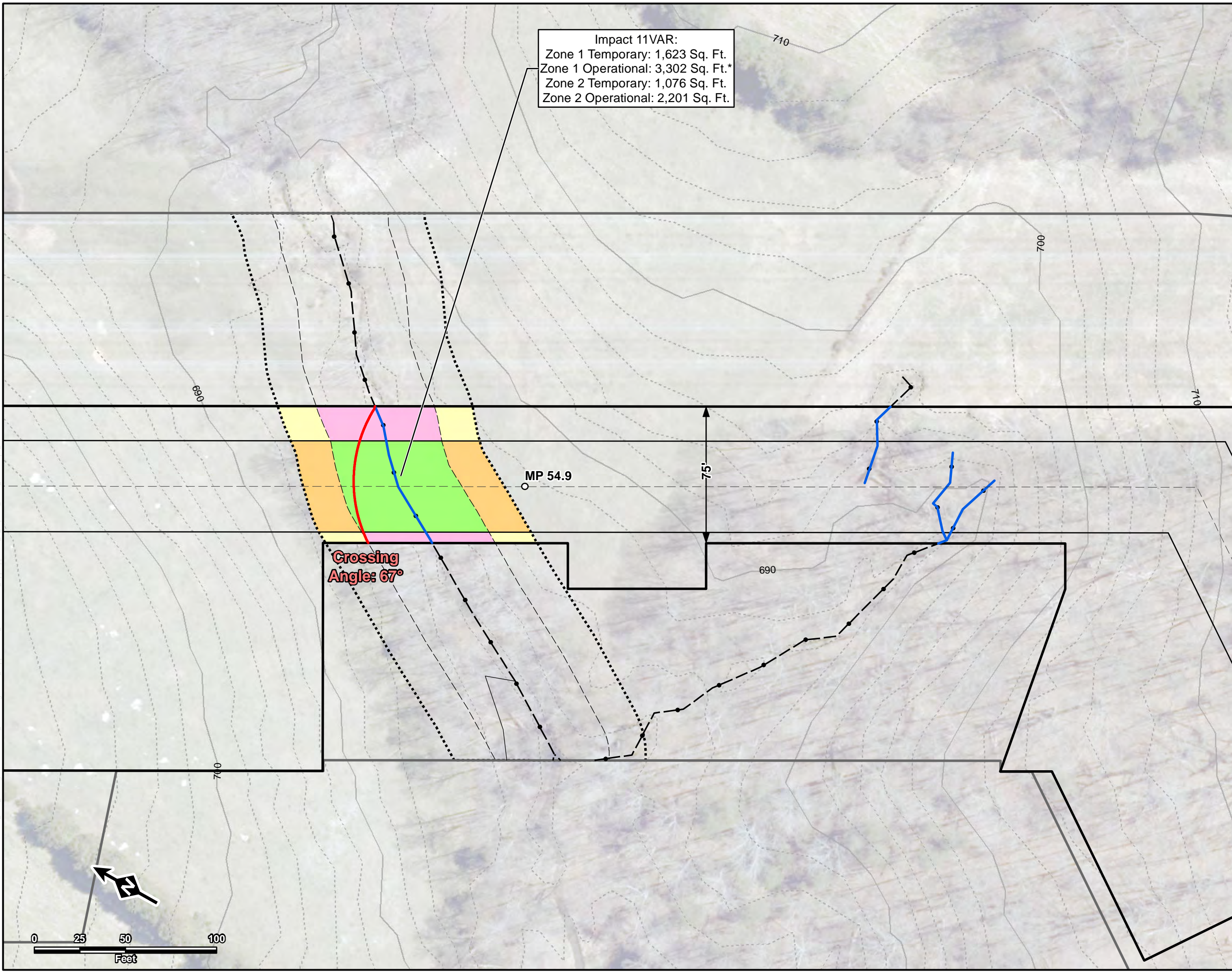
**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Alamance, NC  
 Sheet 10 of 46

**TRC**  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019



Document Path: S:\1-PROJECTS\WATER\RA\00423\_MVP\_Southtopo\6-MXD\State\_Permitting\March\_Supplemental\_2019\VAR\Impact\_11VAR.mxd



Impact 11VAR:  
Zone 1 Temporary: 1,623 Sq. Ft.  
Zone 1 Operational: 3,302 Sq. Ft.\*  
Zone 2 Temporary: 1,076 Sq. Ft.  
Zone 2 Operational: 2,201 Sq. Ft.

Crossing  
Angle: 67°

MP 54.9

75'



**Legend**

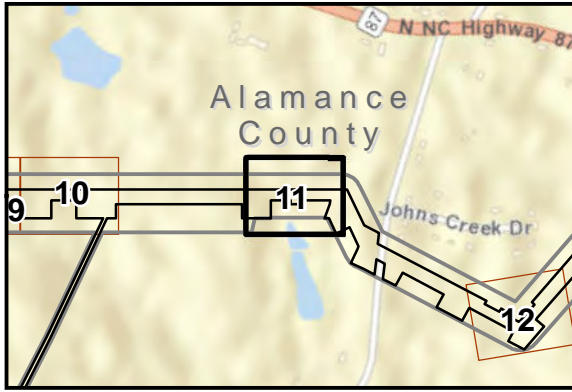
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	— Approx. and Delin. Surface Water
□ Operational HDD	— Approx. Surface Water
□ Limits of Construction Right-of-Way	— Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
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- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17

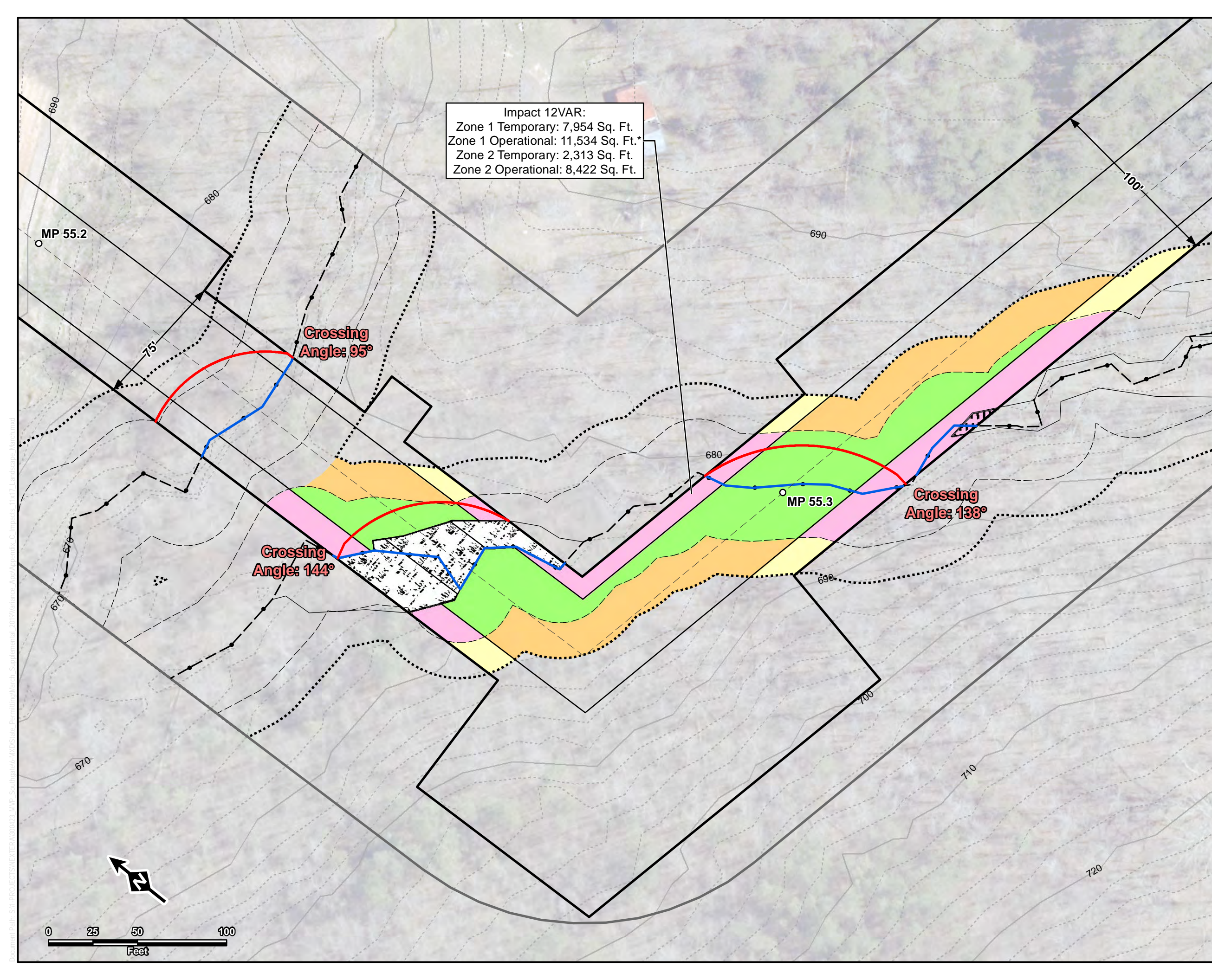


**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Alamance, NC  
 Sheet 11 of 46

**TRC**  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





Impact 12VAR:  
 Zone 1 Temporary: 7,954 Sq. Ft.  
 Zone 1 Operational: 11,534 Sq. Ft.\*  
 Zone 2 Temporary: 2,313 Sq. Ft.  
 Zone 2 Operational: 8,422 Sq. Ft.

### Legend

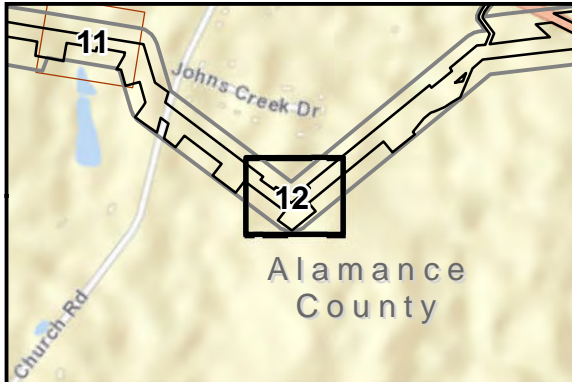
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	□ Approx. and Delin. Surface Water
□ Operational HDD	□ Approx. Surface Water
□ Limits of Construction Right-of-Way	□ Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
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- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17

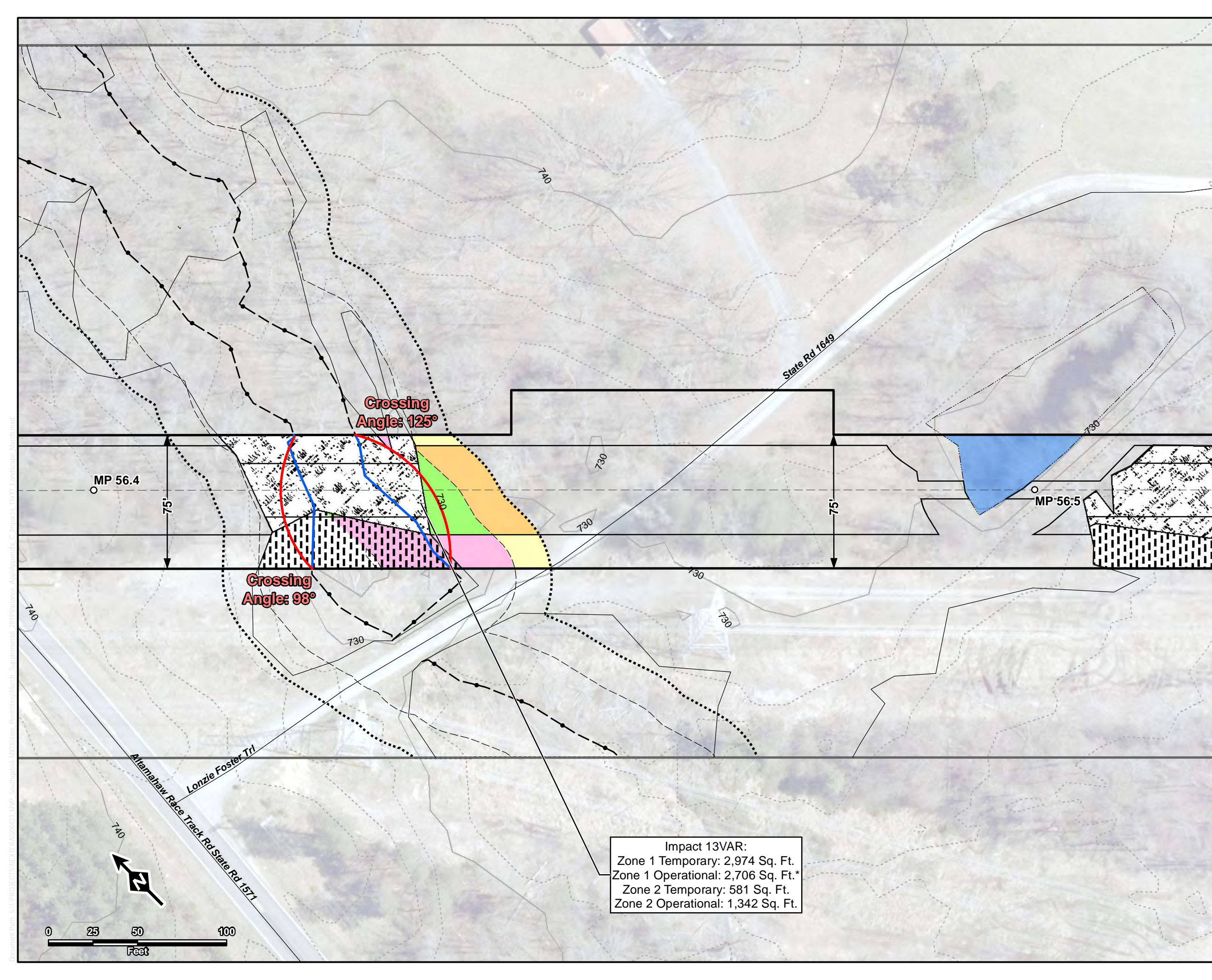


**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Alamance, NC  
 Sheet 12 of 46

**TRC**  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





### Legend

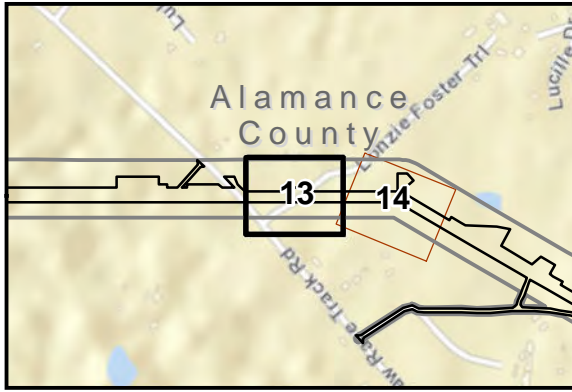
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	□ Approx. and Delin. Surface Water
□ Operational HDD	□ Approx. Surface Water
□ Limits of Construction Right-of-Way	□ Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

**Notes:**

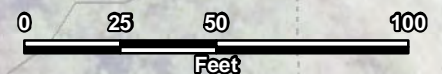
- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



**Impact 13VAR:**  
 Zone 1 Temporary: 2,974 Sq. Ft.  
 Zone 1 Operational: 2,706 Sq. Ft.\*  
 Zone 2 Temporary: 581 Sq. Ft.  
 Zone 2 Operational: 1,342 Sq. Ft.



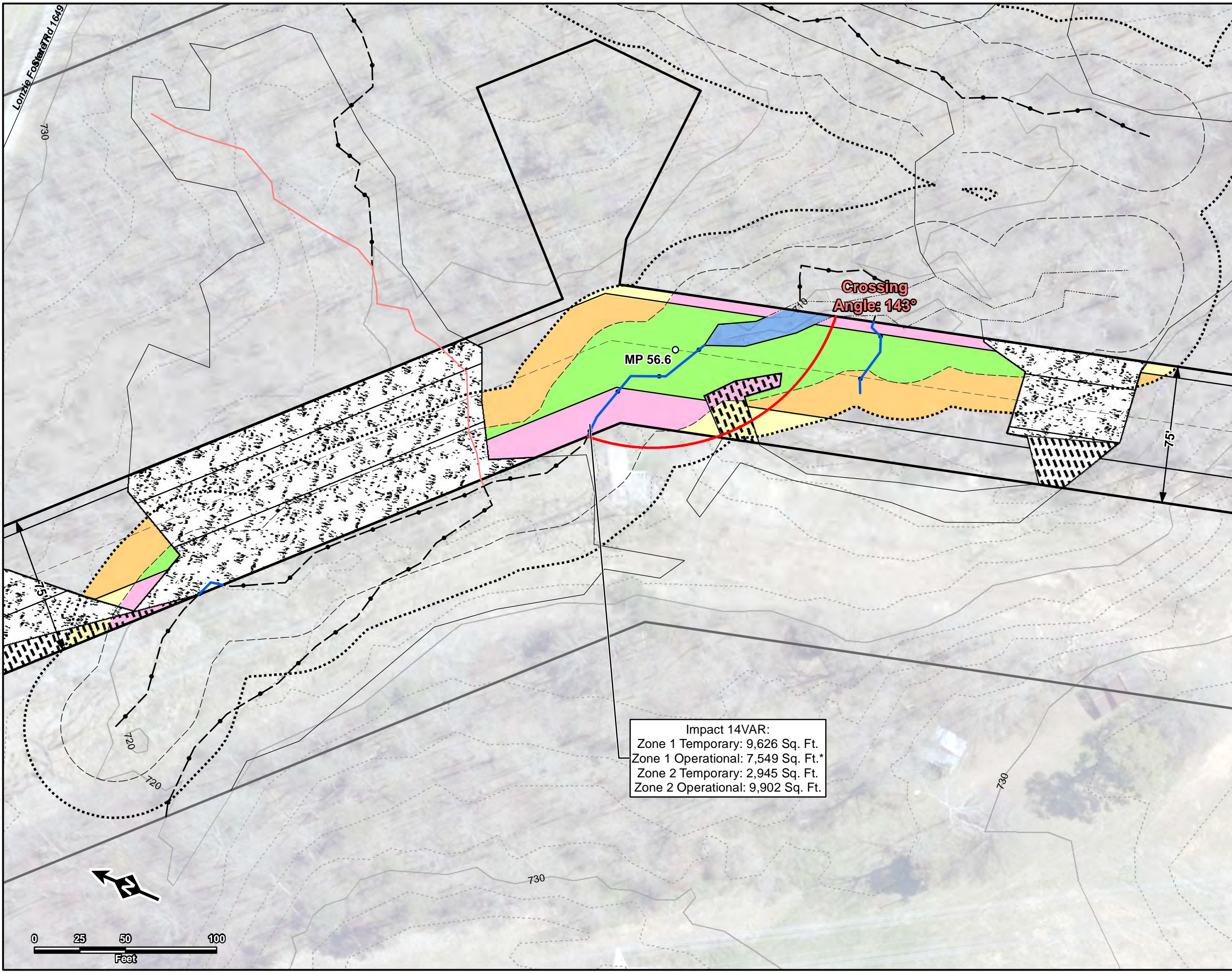
**Mountain Valley PIPELINE, LLC**

**Appendix C**  
 Jordan Lake Watershed Impacts  
 Alamanace, NC  
 Sheet 13 of 46

**TRC**  
 TRC logo with tagline 'TRC you're you can rely on'

600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019





Impact 14VAR:  
 Zone 1 Temporary: 9,626 Sq. Ft.  
 Zone 1 Operational: 7,549 Sq. Ft.\*  
 Zone 2 Temporary: 2,945 Sq. Ft.  
 Zone 2 Operational: 9,902 Sq. Ft.

### Legend

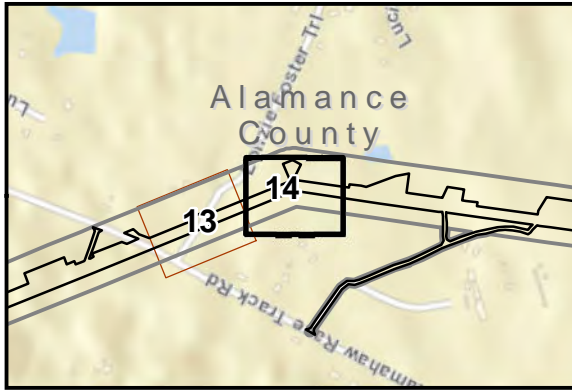
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
--- H-650 Pipeline	— Stream Centerline
□ Operational Workspace	□ Approx. and Delin. Surface Water
□ Operational HDD	□ Approx. Surface Water
□ Limits of Construction Right-of-Way	□ Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
--- Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
--- Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× — Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

Notes:

- Temporary Impacts for Zone 1 and Zone 2 will be revegetated with native tree seedlings.
- Operational Impacts are Permanent Impacts Due To Vegetation Maintenance
- Zone 1 Operational Impact will be revegetated with native grass seeding.\*
- Zone 2 Impacts will be revegetated with native grass seeding unless otherwise noted.
- Zone 2 only parallel impacts are an exempt activity.

\* Requires Mitigation at 3:1 Ratio

Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



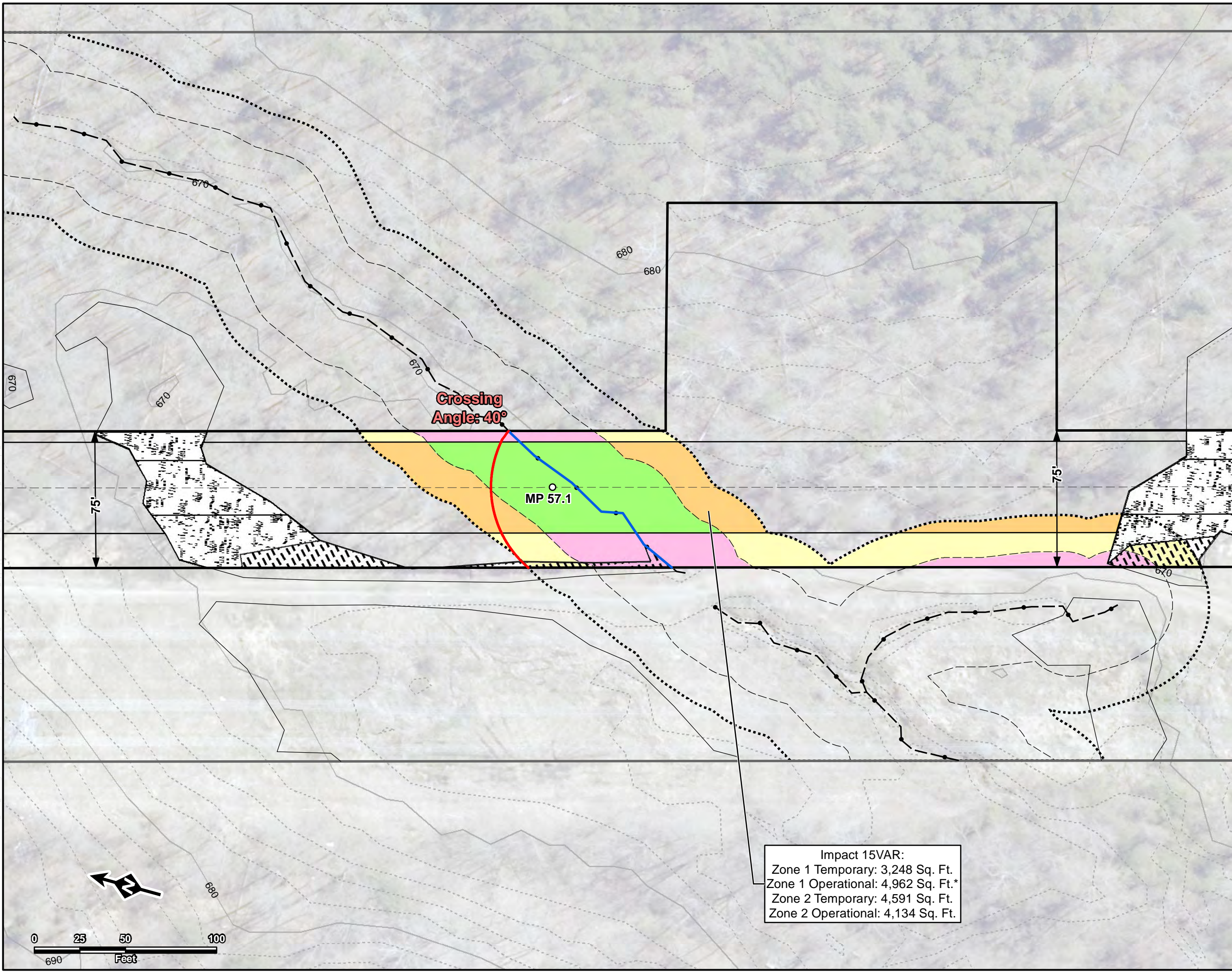
**Mountain Valley PIPELINE, LLC**

Appendix C  
 Jordan Lake Watershed Impacts  
 Alamance, NC  
 Sheet 14 of 46

**TRC**  
 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019



Document Path: S:\1-PROJECTS\WEXTERA\04023\_MVP\_Southtopo\6-MXD\State\_Permitting\March\_Supplemental\_2019\Wexter\Appendix C\_Impacts\Appendix C\_Impacts\_March.mxd



### Legend

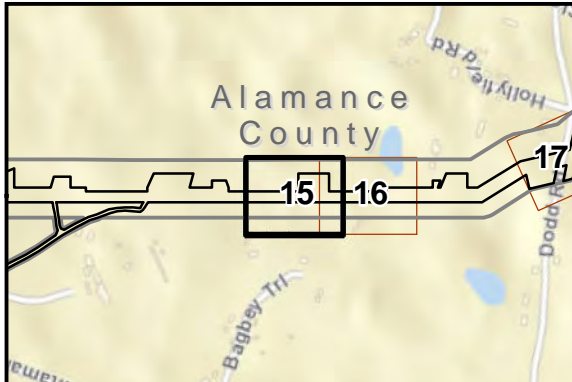
○ Mileposts	□ Zone 1
— Access Road	□ Zone 2
↔ Construction Corridor Width	<b>Temporary Impacts</b>
- - - H-650 Pipeline	— Stream Centerline
□ Operational Workspace	□ Approx. and Delin. Surface Water
□ Operational HDD	□ Approx. Surface Water
□ Limits of Construction Right-of-Way	□ Delin. Surface Water
□ Survey Area	▨ Delin. PEM/PSS Wetland
<b>Resources</b>	▨ Delin. PFO Wetland
- - - Approx. Surface Water Bank	□ Zone 1
— Approx. Stream Centerline	□ Zone 2
- - - Delin. Surface Water Bank	<b>Operational Impacts</b>
— Delin. Stream Centerline	□ Zone 1
× - - Approx. Soil Survey Stream	□ Zone 2
— Delin. Wetland Boundary	<b>Modified Based On USACE Or State Review</b>
	— Stream

**Notes:**

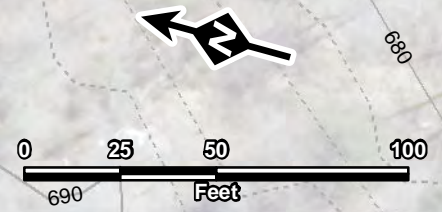
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- Zone 2 only parallel impacts are an exempt activity.


\* Requires Mitigation at 3:1 Ratio


Data Sources: EOT, ESRI, NC OneMap, TRC, USGS 1 inch = 50 Feet  
 Basemap: Lidar 2' Contour, NC OneMap 2' Contour When Printed 11x17



**Impact 15VAR:**  
 Zone 1 Temporary: 3,248 Sq. Ft.  
 Zone 1 Operational: 4,962 Sq. Ft.\*  
 Zone 2 Temporary: 4,591 Sq. Ft.  
 Zone 2 Operational: 4,134 Sq. Ft.



  
**Appendix C**  
**Jordan Lake Watershed Impacts**  
 Alamance, NC  
 Sheet 15 of 46


 600 Willowbrook Ln  
 West Chester, PA 19382  
 Date: April 2019