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LIST OF ACRONYMS AND ABBREVIATIONS

ACRONYM	Meaning
1987 Manual	US Army Corps of Engineers Wetland Delineation Manual
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GIS	Geographic Information Systems
GPS	Global Positioning System
HGM	Hydrogeomorphic
MVP	Mountain Valley Pipeline, Inc.
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
PEM	Palustrine Emergent
PFO	Palustrine Forested
Project	Mountain Valley Pipeline Project
PSS	Palustrine Scrub-Shrub
Regional Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation
	Manual: Eastern Mountains and Piedmont Region
ROW	Right-of-Way
Tetra Tech	Tetra Tech, Inc.
Transco	Transcontinental Gas Pipeline Company, LLC
UNT	Unnamed Tributary
UPL	Upland
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USFS	United States Forest Service
USGS	United States Geological Survey
VA	Virginia
WV	West Virginia

1.0 PROJECT INTRODUCTION

Mountain Valley Pipeline, Inc. (MVP), a joint venture between EQT Midstream Partners, LP and affiliates of NextEra Energy, Inc., WGL Holdings, Inc., Consolidated Edison Gas Midstream, LLC., and RGC Midstream, LLC, is proposing to construct and operate the Mountain Valley Pipeline Project (Project) located within 11 counties in West Virginia (WV) and six counties in Virginia (VA). MVP plans to construct an approximately 303-mile, 42-inch-diameter natural gas pipeline to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users, and power generation in the Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region.

The proposed pipeline will extend from the existing Equitrans, L.P. transmission system and other natural gas facilities in Wetzel County, WV to the Transcontinental Gas Pipe Line Company, LLC's (Transco) Zone 5 Compressor Station 165 in Pittsylvania County, VA. In addition to the pipeline, the Project will include approximately 171,600 horsepower of compression at three compressor stations currently planned along the route, as well as measurement, regulation, and other ancillary facilities required for the safe and reliable operation of the pipeline.

This Aquatic Resource Report for the proposed Project has been prepared by Tetra Tech, Inc. (Tetra Tech) on behalf of MVP. The proposed Project route on United States Forest Service (USFS) property in Monroe county, WV, Giles county, VA, and Montgomery county, VA is shown on United States Geological Survey (USGS) Project Location Maps (Figures 1-1 to 1-2). The content of this report presents the methodology, results, and conclusions of wetland delineation and stream identification activities completed for the proposed Project on USFS property in Monroe, Giles, and Montgomery counties.

2.0 METHODOLOGY

2.1 Wetland Delineation

United States Army Corps of Engineers (USACE) requires the use of the procedures enumerated in the USACE Wetland Delineation Manual (1987 Manual; Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (USACE Regional Supplement; Environmental Laboratory, 2012) for making jurisdictional determinations. According to the 1987 Manual (Environmental Laboratory, 1987), an area is defined as a wetland if, under normal circumstances, it meets all three of the following criteria:

- 1. Predominance of hydrophytic vegetation (plants adapted for life in saturated soil conditions);
- 2. Hydric soils (soils formed under water, or in saturated conditions); and
- 3. Wetland hydrology (presence of inundated or saturated soils at some time during the growing season).

Wetlands identified in the field were classified in accordance with the U.S. Fish and Wildlife Service's (USFWS) *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979), *A Hydrogeomorphic (HGM) Classification for Wetlands (*Brinson, 1993) and USACE Waters Type (USACE, 2007). Cowardin wetland classifications (Cowardin et al., 1979) are as follows:

- Palustrine emergent (PEM) emergent, herbaceous (non-woody) plants are the tallest life form with at least 30 percent aerial coverage
- Palustrine scrub-shrub (PSS) –woody plants less than six meters (20 feet) in height are the tallest life form with at least 30 percent aerial coverage, or, when trees or shrubs alone cover less than 30 percent of an area but in combination cover 30 percent or more. Trees are defined as woody plants at least six meters (20 feet) in height and shrubs are defined as woody plants less than six meters (20 feet) in height
- Palustrine forested (PFO) woody plants at least six meters (20 feet) in height are the tallest life form with at least 30 percent aerial coverage

Dominant vegetation was identified and classified according to *The National Wetland Plant List: 2016 wetland ratings* (Lichvar, 2016). Plant classifications are as follows:

Obligate (OBL) - essentially always found in wetlands; estimated probability >99% *Facultative Wetland (FACW)* - usually found in wetlands; estimated probability 67%-99% *Facultative (FAC)* - equally likely to occur in wetlands and non-wetlands; estimated probability 34%-66% *Facultative Upland (FACU)* - sometimes occurs in wetlands; estimated probability 1%-33% *Upland (UPL)* – rarely occurs in wetlands; estimated probability <1%

2.2 Stream Identification

Streams identified in the field were classified by Flow Regime, USACE Water Type (USACE, 2007), and Cowardin Classification (Cowardin et al., 1979).

Streams were designated in the field as ephemeral if they exhibited the following characteristics: ephemeral streams typically exhibit short duration flow derived from precipitation and precipitation driven run-off from the localized surrounding landscape. Ephemeral streams are located above the groundwater table and are not augmented by groundwater sources. Ephemeral streams are often dry. Therefore, no permanent fish species persistently reside in streams exhibiting this flow regime. Aquatic macroinvertebrates are also not common within this flow regime and the absence is often used to support the determination of a stream being ephemeral. As practical, the source of hydrology for a stream was identified. If the stream received no groundwater contributions then it was designated as ephemeral.

Streams were designated in the field as intermittent if they exhibited the following characteristics: intermittent streams exhibit periods of flowing water during the wet season (winter through spring), but normally flow does not persist year-round. Intermittent streams derive at least a portion of their hydrology

from ground water sources. Precipitation and precipitation driven run-off from the surrounding landscape serve as supplemental hydrologic contributors. Only pioneer fish species potentially occupy streams of this flow regime when conditions are optimal. Aquatic macroinvertebrate populations in intermittent streams differ from season to season depending on stream flow fluctuations. As practical, the source of hydrology for a stream was identified. If the stream received groundwater contributions then it was designated as either an intermittent or perennial.

Streams were designated in the field as perennial if they exhibited the following characteristics: perennial streams have continuous flow year-round during years of normal rainfall. Perennial streams, like intermittent streams, derive hydrology from ground water sources. Precipitation and precipitation driven run-off from the surrounding landscape serve as supplemental hydrologic contributors. Usually numerous ephemeral and intermittent streams are tributaries to perennial streams. These tributaries allow for a large enough drainage area and groundwater inflow to allow for continuous flow year-round. Various fish and macroinvertebrate species may be present if suitable water quality parameters are present.

2.3 Field Surveys

The field investigations for the proposed Project were performed on September 11 & 14, 2015; October 16 – 17, 2015; and June 17 & 28, 2016. The study area was at least 300-feet wide along the proposed pipeline right-of-way (ROW) and 100-feet wide along proposed access roads, in addition to specific areas identified for proposed workspaces. Study areas were investigated for the presence of potential wetlands and streams. The final study area is illustrated on Figures 1-1 to 1-2.

Preliminary site reconnaissance of the study area was conducted through a review of available Geographic Information Systems (GIS) resources. Existing information reviewed included the following:

- USGS topographic mapping (Figures 1-1 to 1-2; USGS, 2009)
- Natural Resources Conservation Service (NRCS) National Cooperative Soil Survey (Figures 2-1 to 2-2; NRCS, 2014)
- USFWS National Wetland Inventory (NWI) Mapping (Figures 3-1 to 3-2; USFWS, 2009)

Wetland delineation in the field involved the establishment of the wetland/upland margin with flagging hung at intervals that accurately depicted the outline of the boundary. The individual flags were then located using a Global Positioning System (GPS) receiver with sub-meter accuracy and later added to the Project area mapping. Wetland flagging was limited to the bounds of the investigated study area and wetlands are shown as closed or partially closed systems on the detail maps (Figures 4-1 to 4-22).

All wetlands and streams identified were given unique identification names (i.e. Wetland ID, Stream ID). For streams, the National Hydrography Dataset (NHD) mapped stream names (USGS, 2015) are also provided in the results. For identified streams without a NHD name, the identified stream was given the name, "Unnamed Tributary (UNT)", of the first named receiving waterbody.

Data concerning soils, hydrology, and vegetation were collected and recorded on USACE Wetland Determination Data Forms at wetlands and at upland point locations associated with each wetland. USACE Wetland Determination Forms are provided in Appendix A. Photographs depicting wetland topography and vegetation are included in Appendix B. Stream data sheets detailing stream characteristics are provided in Appendix C. Appendix D contains photographs of streams identified within the study area. A matrix of Project field personnel, summarizing professional experience, qualifications, and education, is included in Appendix E.

The proposed Project pipeline ROW is approximately 3.4 miles long on USFS property in Monroe, Giles, and Montgomery counties, with approximately 6.8 miles of existing access roads proposed for Project use. As of December 2016 MVP has conducted field surveys for wetlands and waterbodies on all of the proposed pipeline ROW and access roads proposed for Project use on USFS land in Monroe, Giles, and Montgomery counties.

3.0 RESULTS

The field investigations identified 5 areas within the Project study area on USFS land in Monroe, Giles, and Montgomery counties that met the wetland criteria outlined in the *1987 Manual* (Environmental Laboratory, 1987), as amended by the *USACE Regional Supplement* (Environmental Laboratory, 2012). Additionally, 21 streams were identified within the Project study area on USFS land in Monroe, Giles, and Montgomery counties.

The detail maps provided as Figures 4-1 to 4-22 illustrates the wetland and stream locations in relation to the study area. Tables 1 and 2 summarize wetland and stream information for all wetlands and streams identified within the Project study area.

3.1 Wetland Identification and Delineation

A review of the NRCS Soil Survey and hydric soil list indicates that there is one soil mapped within the study area classified as hydric or containing hydric components (Table 3). Hydric soils and soils with hydric components are often associated with wetlands. The NRCS soil survey mapping units are shown on Figures 2-1 to 2-2. Confirmation of the soil mapping units was not performed during this site evaluation.

A review of the USFWS NWI database indicates that there are no NWI mapped wetlands identified in the Project study area (Figures 3-1 to 3-2).

Based on our review of available GIS mapping data, evidence collected during field surveys, and best professional judgment, 5 wetlands were identified and delineated within the study area. These areas demonstrated the presence of all three wetland parameters required by the *1987 Manual* (Environmental Laboratory, 1987) and the USACE Regional Supplement (Environmental Laboratory, 2012):

- 1. Predominance of hydrophytic vegetation (plants adapted for life in saturated soil conditions);
- 2. Hydric soils (soils formed under water, or in saturated conditions); and
- 3. Wetland hydrology (presence of inundated or saturated soils at some time during the growing season).

A summary of each wetland identified and delineated within the Project study area is provided in Table 1. Table 1 shows the location of each wetland, Cowardin classification, HGM classification, Waters Type classification, the identity of any associated (i.e. abutting or adjacent) waterbodies, wetland size within the study area (in acres and square feet), whether the wetland boundary is open or closed (open wetland boundaries indicate that delineated wetlands continue beyond the Project study area), and dominant vegetation identified within the wetland. Wetlands with multiple habitat types (e.g. PEM and PSS) are considered a single wetland system and are counted as one wetland. The wetland size provided in Table 1 represents the size of the wetland delineated within the Project study area. Open boundary wetlands continue beyond the survey area; therefore, the size of open boundary wetlands may be larger than the size provided in Table 1.

USACE wetland determination data forms detailing the existing vegetation, soil characteristics, and hydrology for each wetland and its associated upland point are provided in Appendix A. Photographs of each delineated wetland are provided in Appendix B.

3.2 Stream Identification and Evaluation

Based on our review of available GIS mapping data, evidence collected during field surveys, and best professional judgment, 21 streams were identified and evaluated within the study area. Streams with braided channels, streams that have different flow regimes (e.g. ephemeral and intermittent) within the surveyed reach, and named streams with different field identification names are counted as single streams. A summary of each stream identified and evaluated within the Project study area is provided in Table 2. Table 2 shows the stream field identification name (Stream ID), the NHD mapped stream name (NHD

Stream Name), stream location, Flow Regime classification, Water Type classification, and top of bank width.

Stream data sheets detailing the bank and channel measurements, substrate composition, aquatic habitat, and hydrology are provided for each stream in Appendix C. Photographs of each identified stream are provided in Appendix D.

4.0 CONCLUSION

During the field investigations of the Project study area on USFS land in Monroe, Giles, and Montgomery counties, 5 locations were identified and delineated as wetlands in accordance with the *1987 Manual* (Environmental Laboratory, 1987) and the *USACE Regional Supplement* (Environmental Laboratory, 2012). In addition, 21 streams were identified and evaluated within the Project study area on USFS land in Monroe, Giles, and Montgomery counties. A summary of wetland and stream data is provided in Tables 1 and 2 and locations of all identified wetlands and streams are shown on Figures 4-1 to 4-22.

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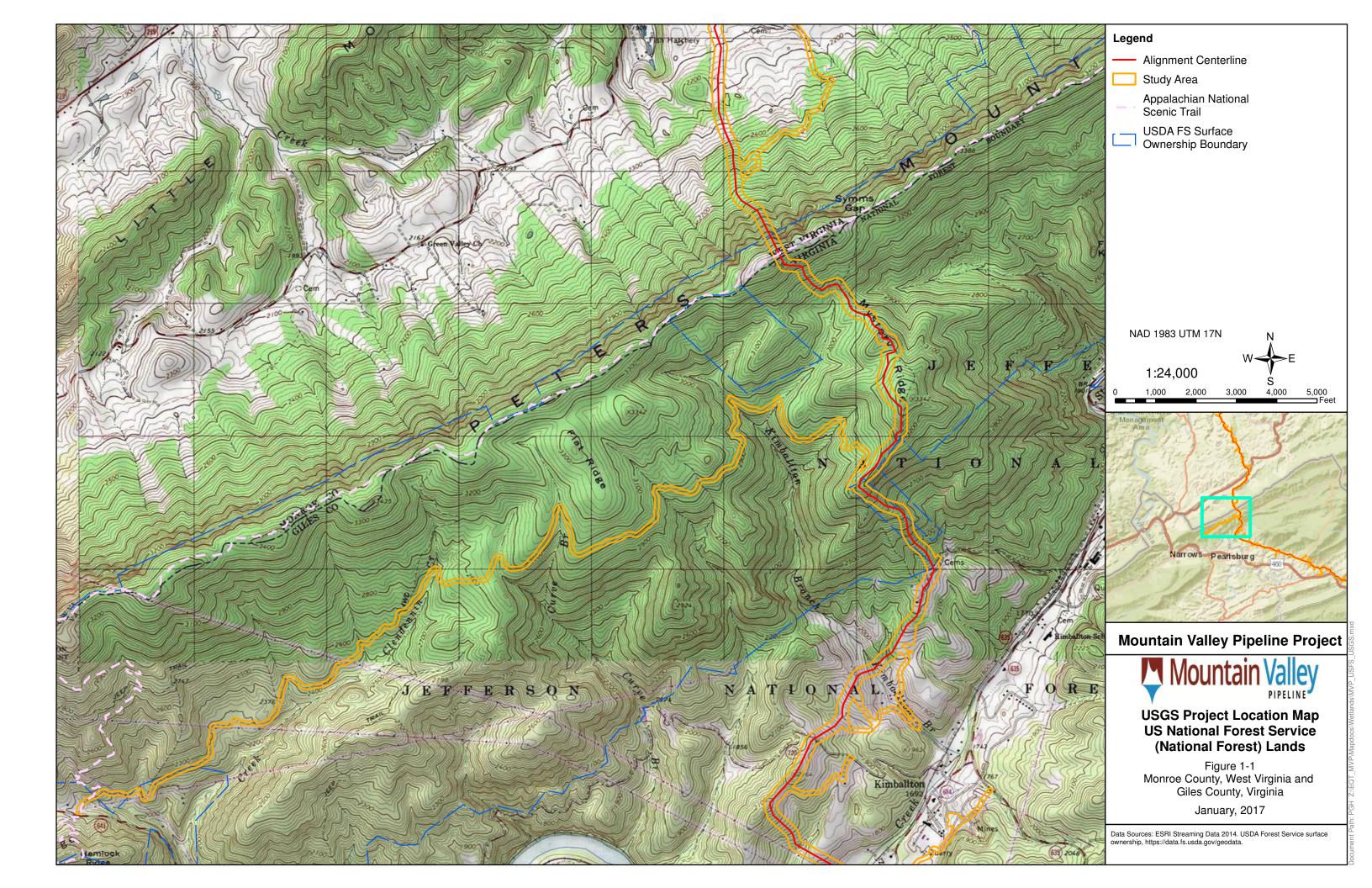
Figures

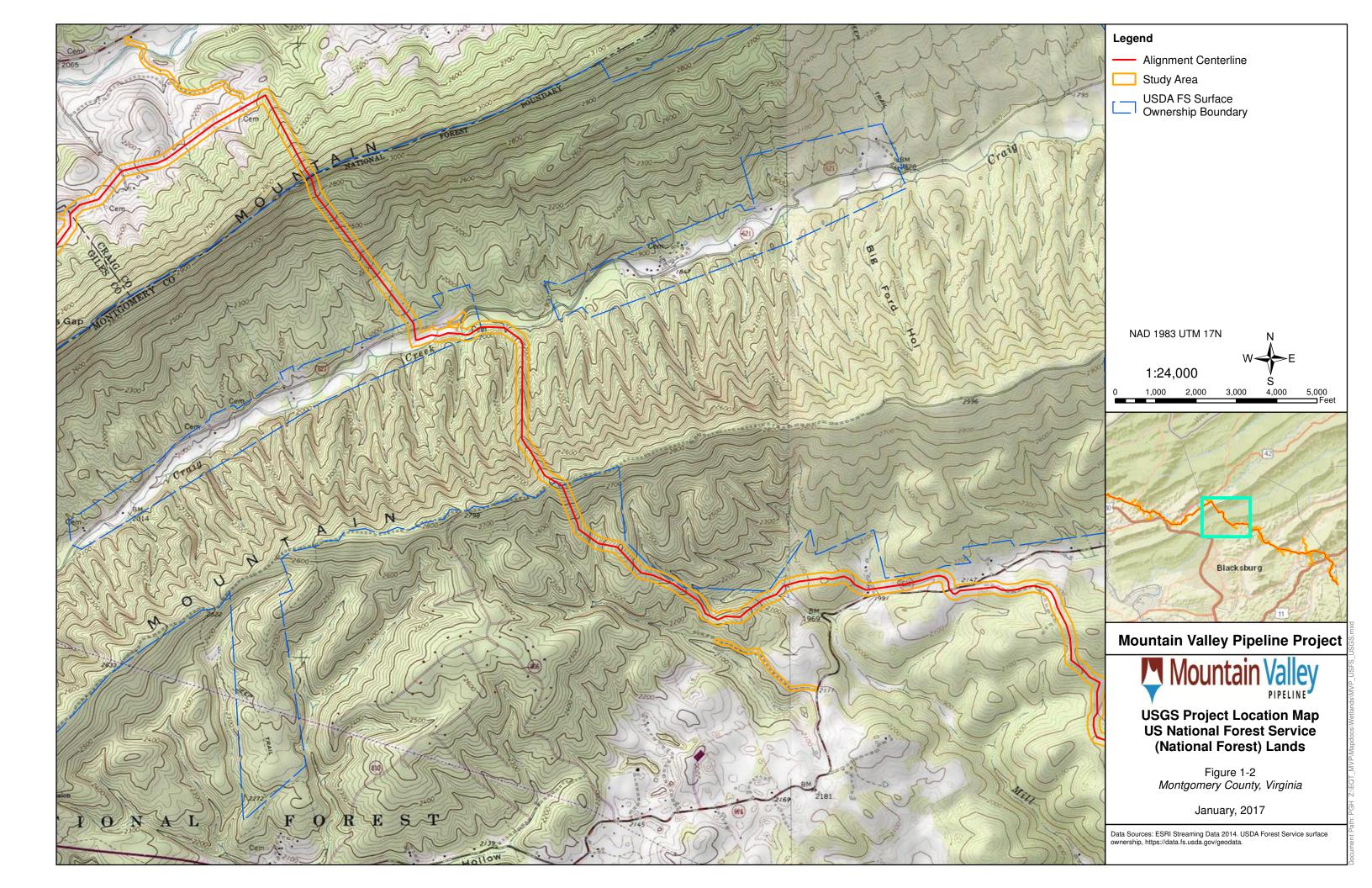
- Figures 1-1 to 1-2USGS Project Location Maps
- Figures 2-1 to 2-2 NRCS Soils Maps
- Figures 3-1 to 3-2 National Wetland Inventory Maps

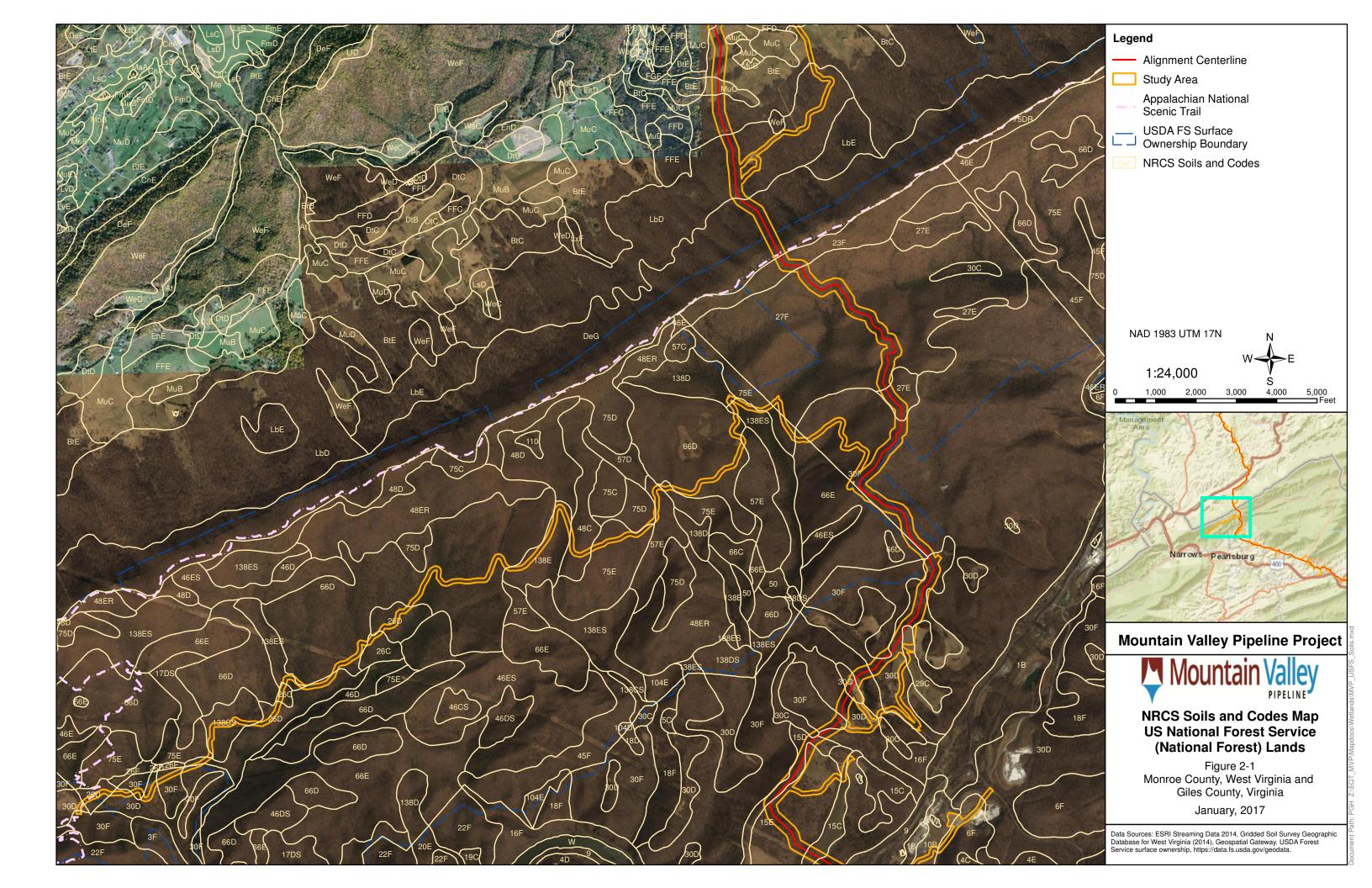
Detail Maps

- Figures 4-IND-1 to 4-IND-2 Index Detail Maps
- Figures 4-1 to 4-22

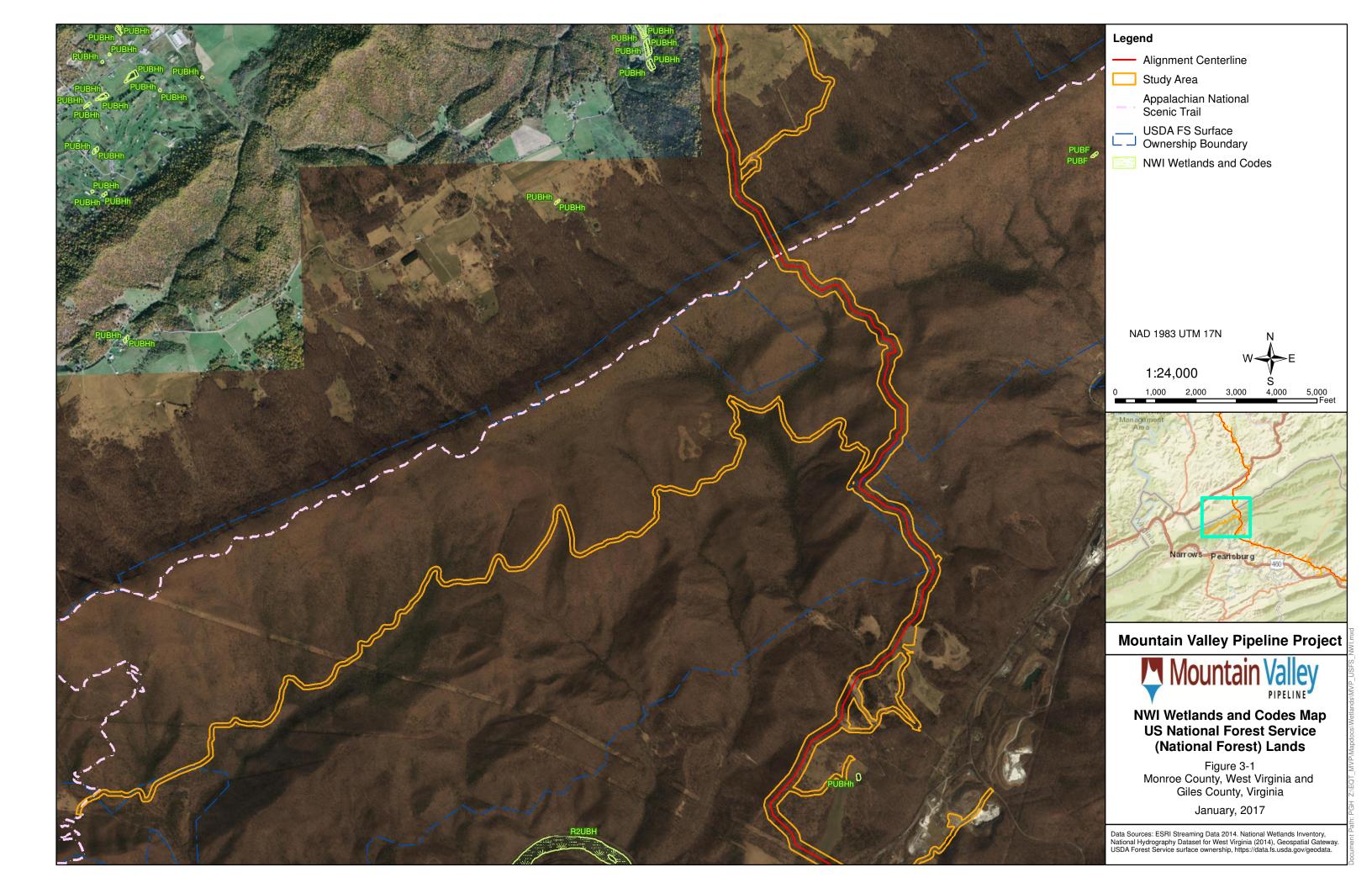
Tetra Tech



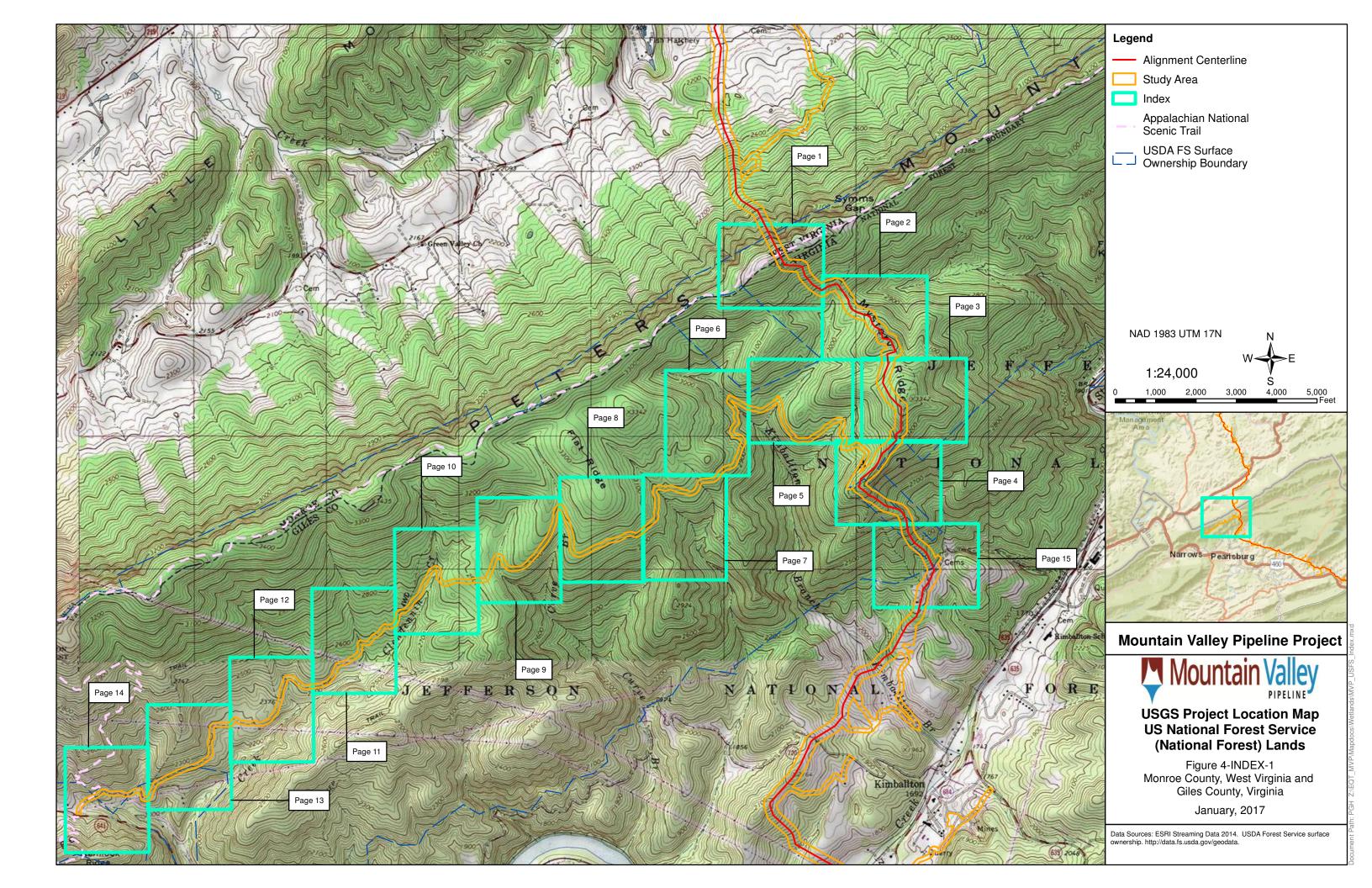


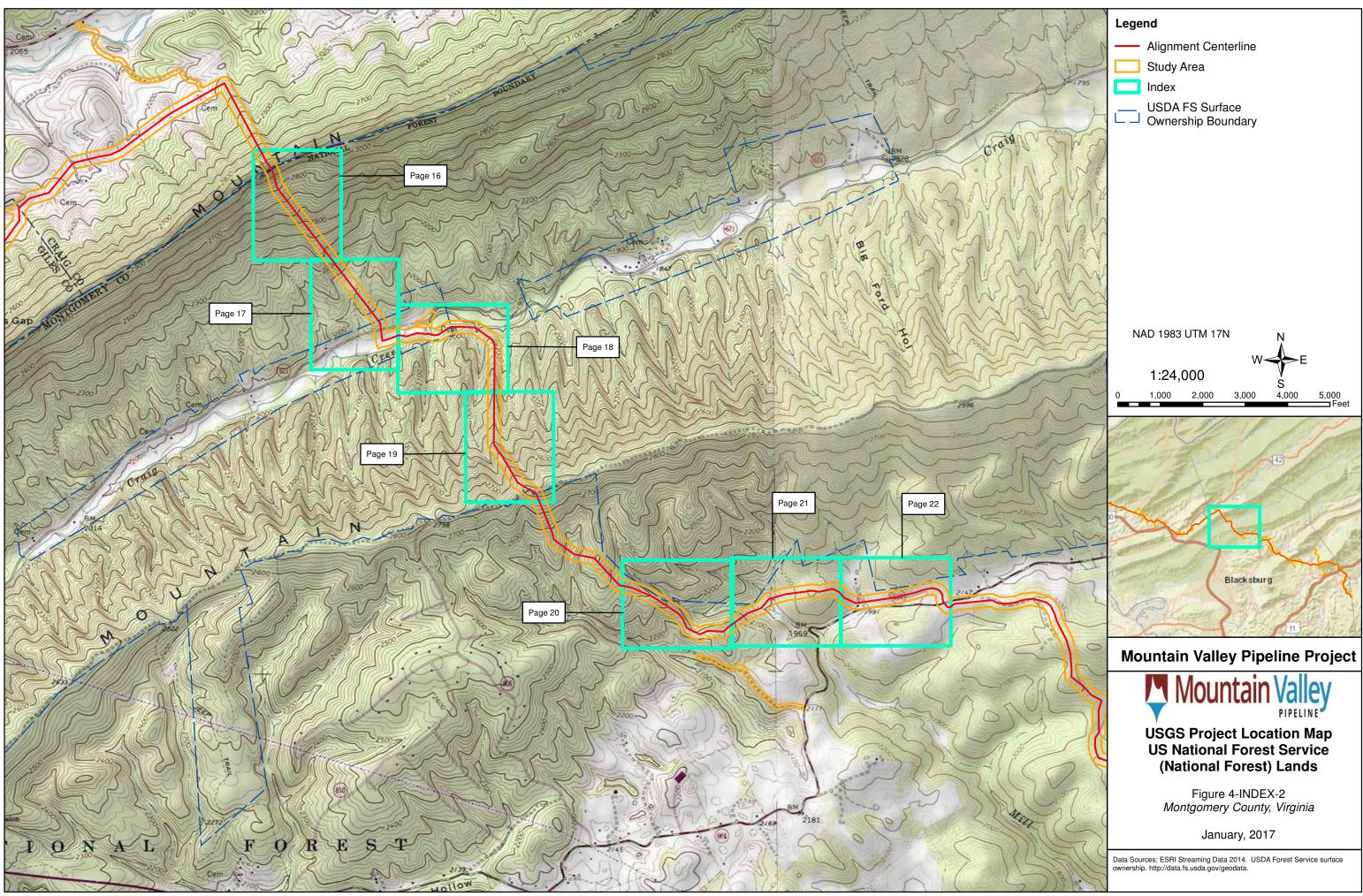






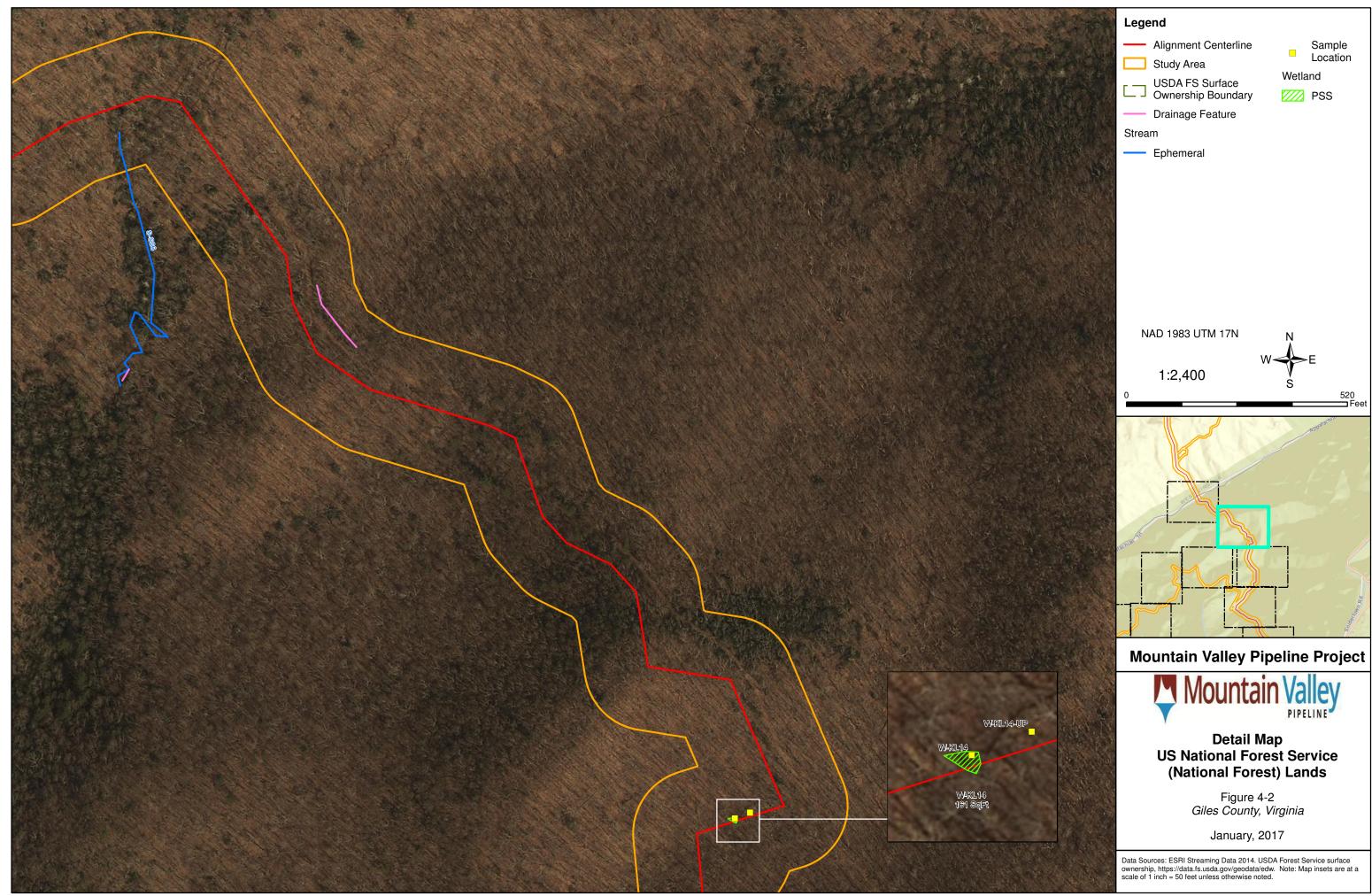






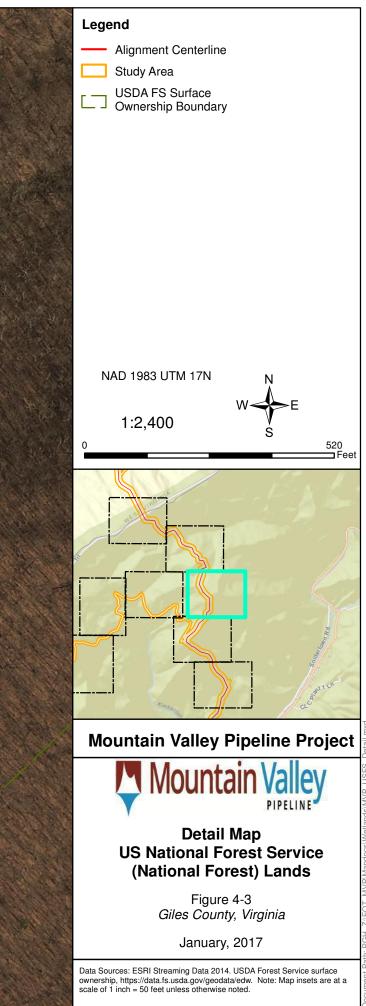


Legend
Alignment Centerline
Study Area
USDA FS Surface Ownership Boundary
Appalachian National Scenic Trail
County Boundary
Stream
Ephemeral
NAD 1983 UTM 17N N
1:2,400 S
Mountain Valley Pipeline Project
Detail Map US National Forest Service (National Forest) Lands
Figure 4-1 <i>Giles/Monroe County, Virginia</i>
January, 2017
Data Sources: ESRI Streaming Data 2014. USDA Forest Service surface ownership, https://data.fs.usda.gov/geodata/edw. Note: Map insets are at a scale of 1 inch = 50 feet unless otherwise noted.

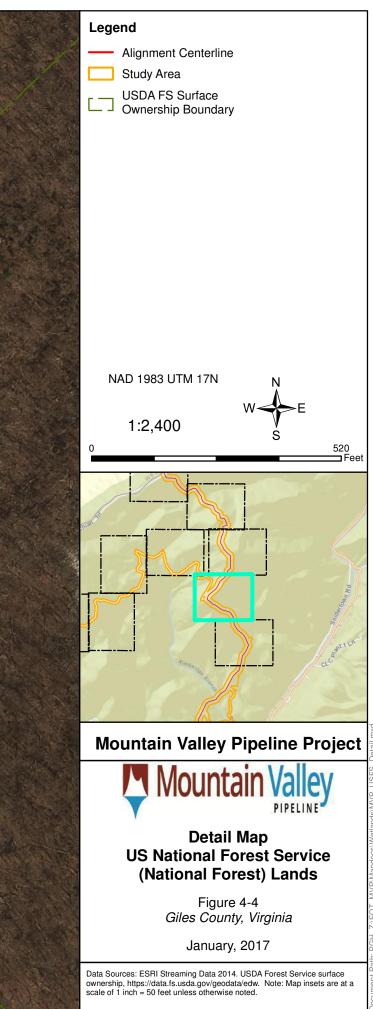


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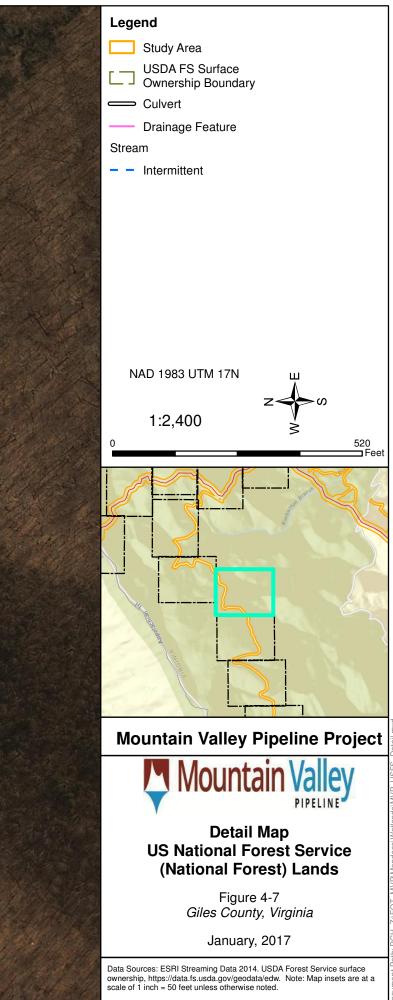




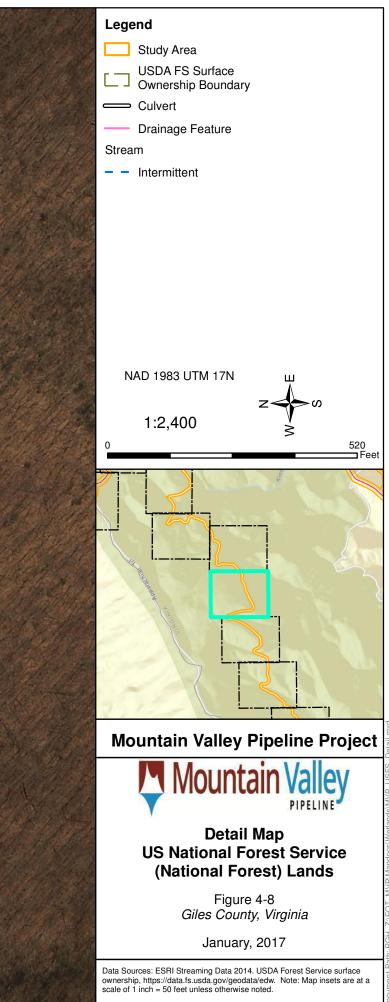


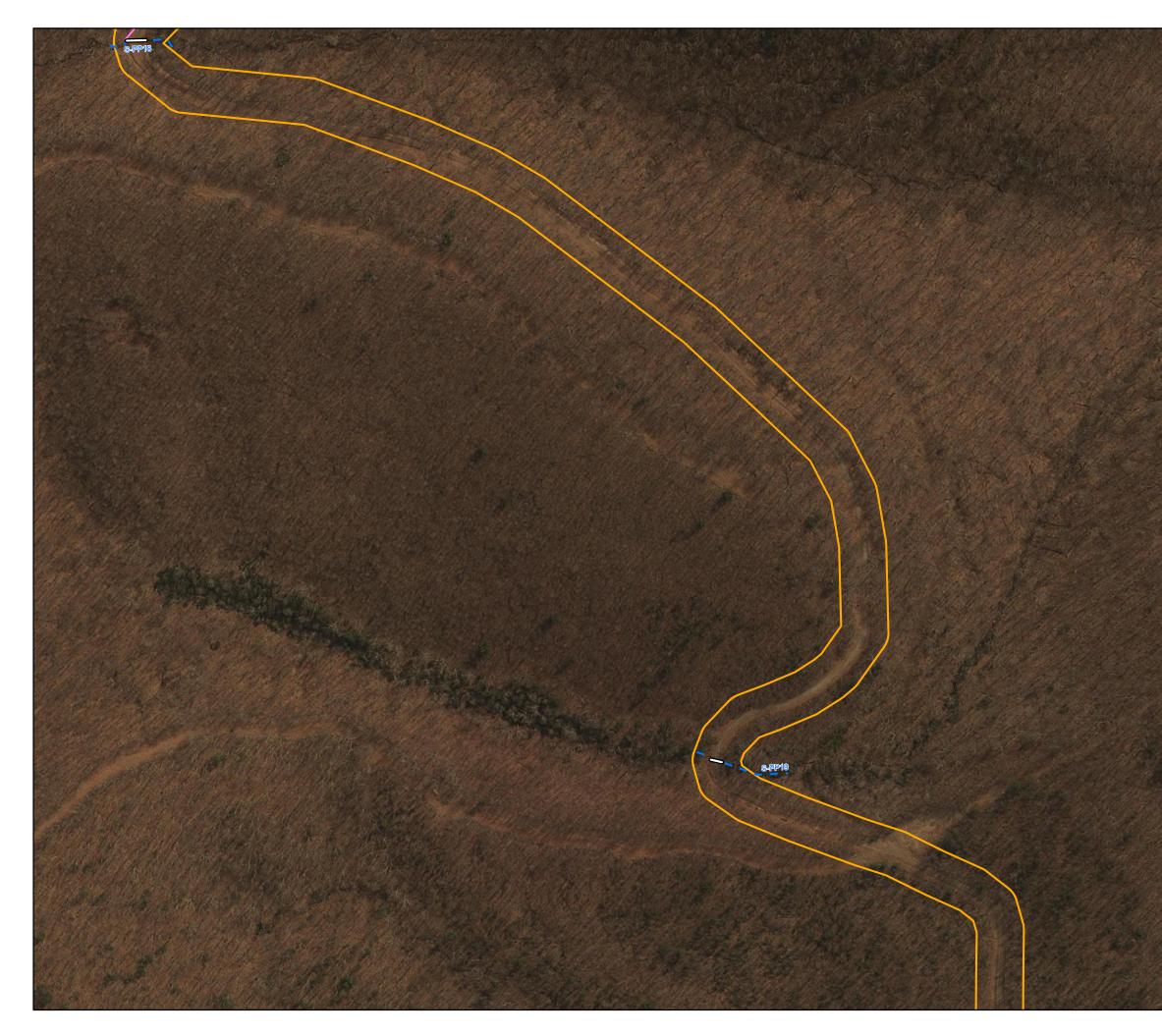
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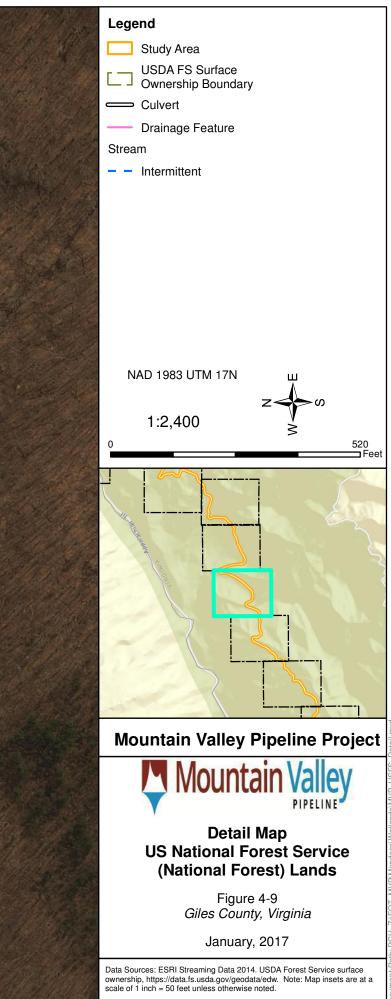


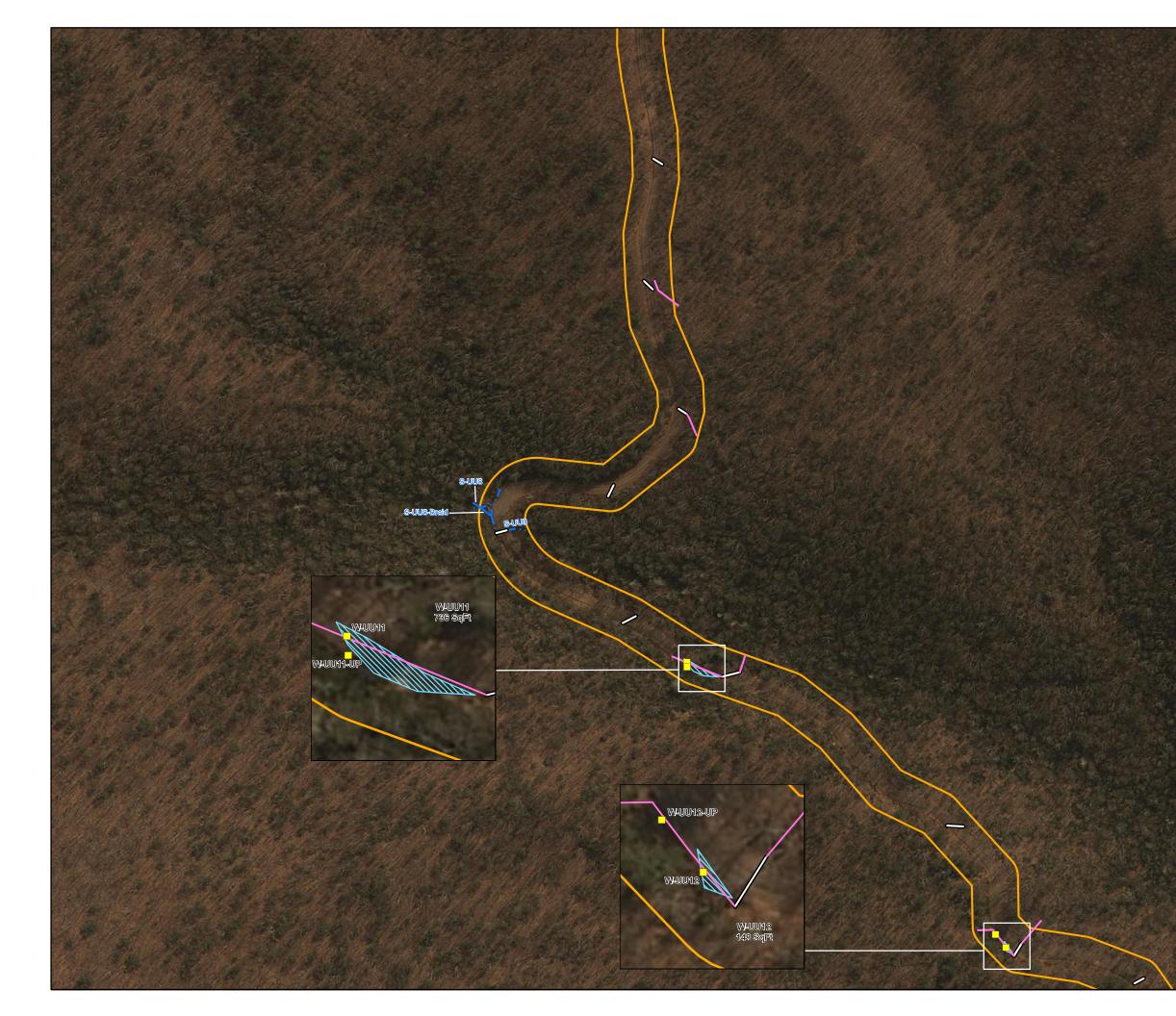


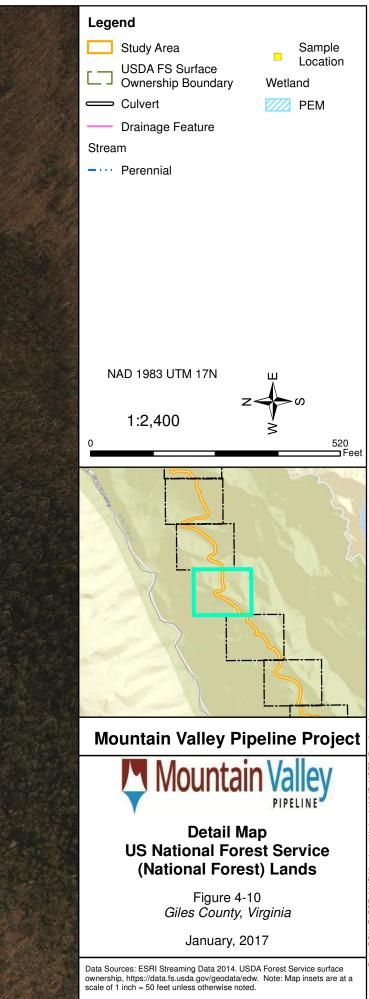


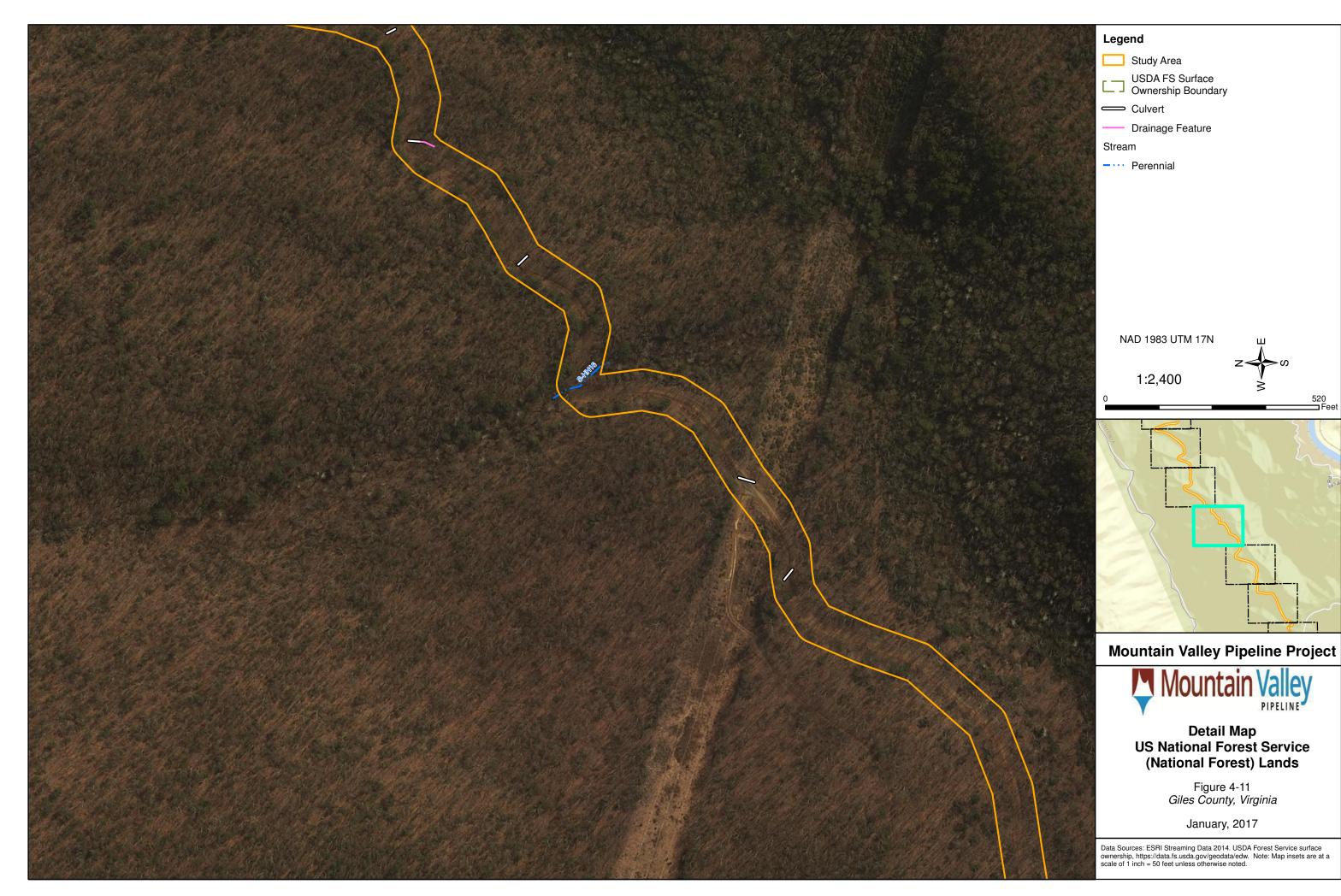








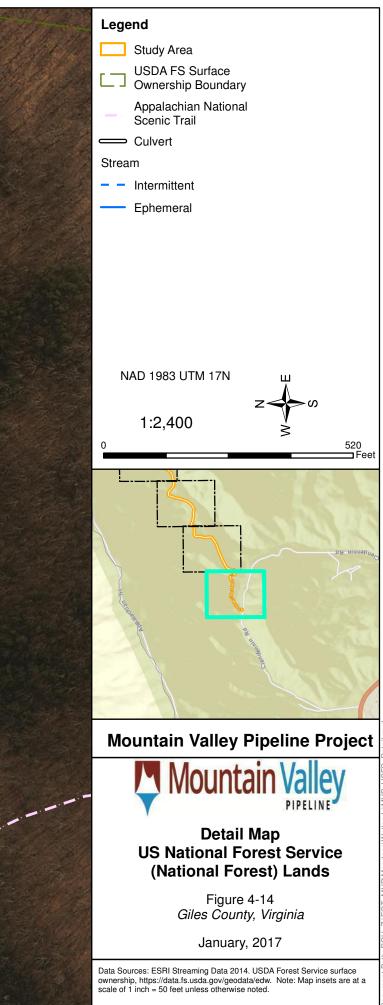






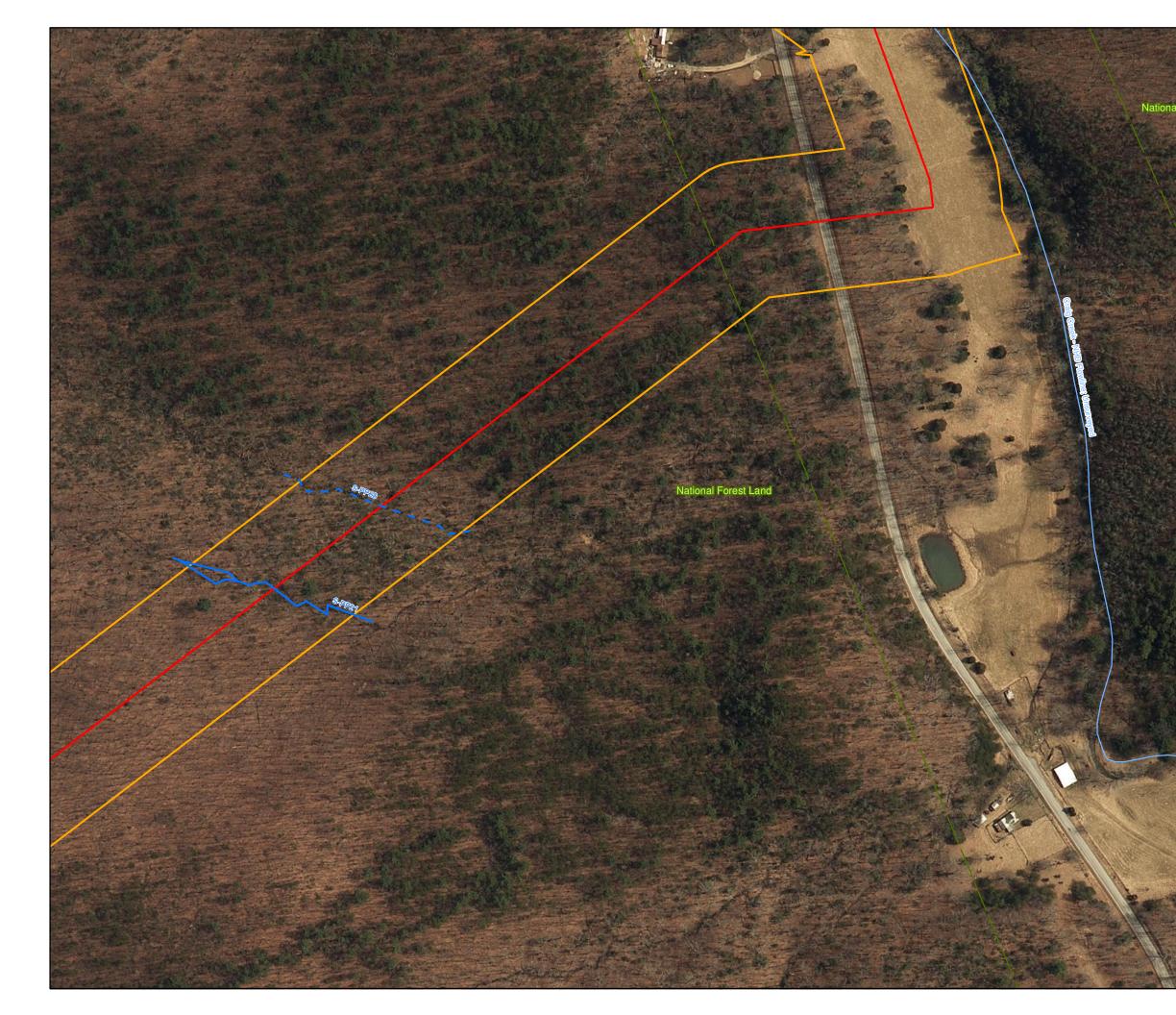


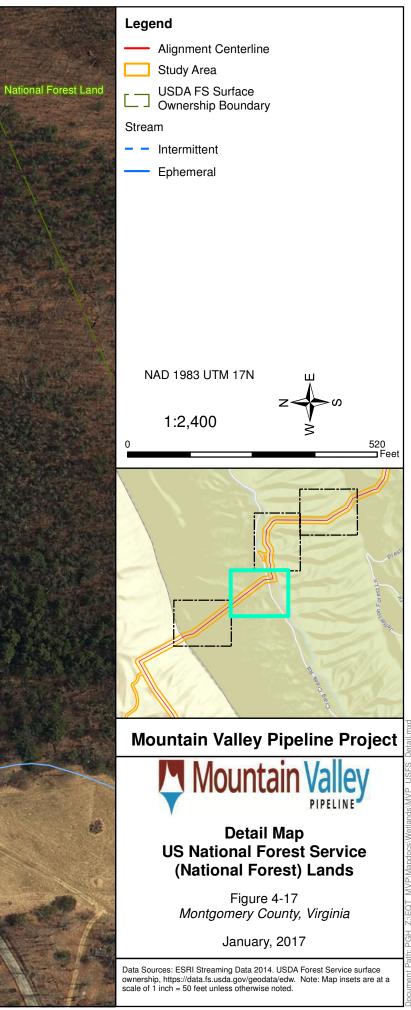


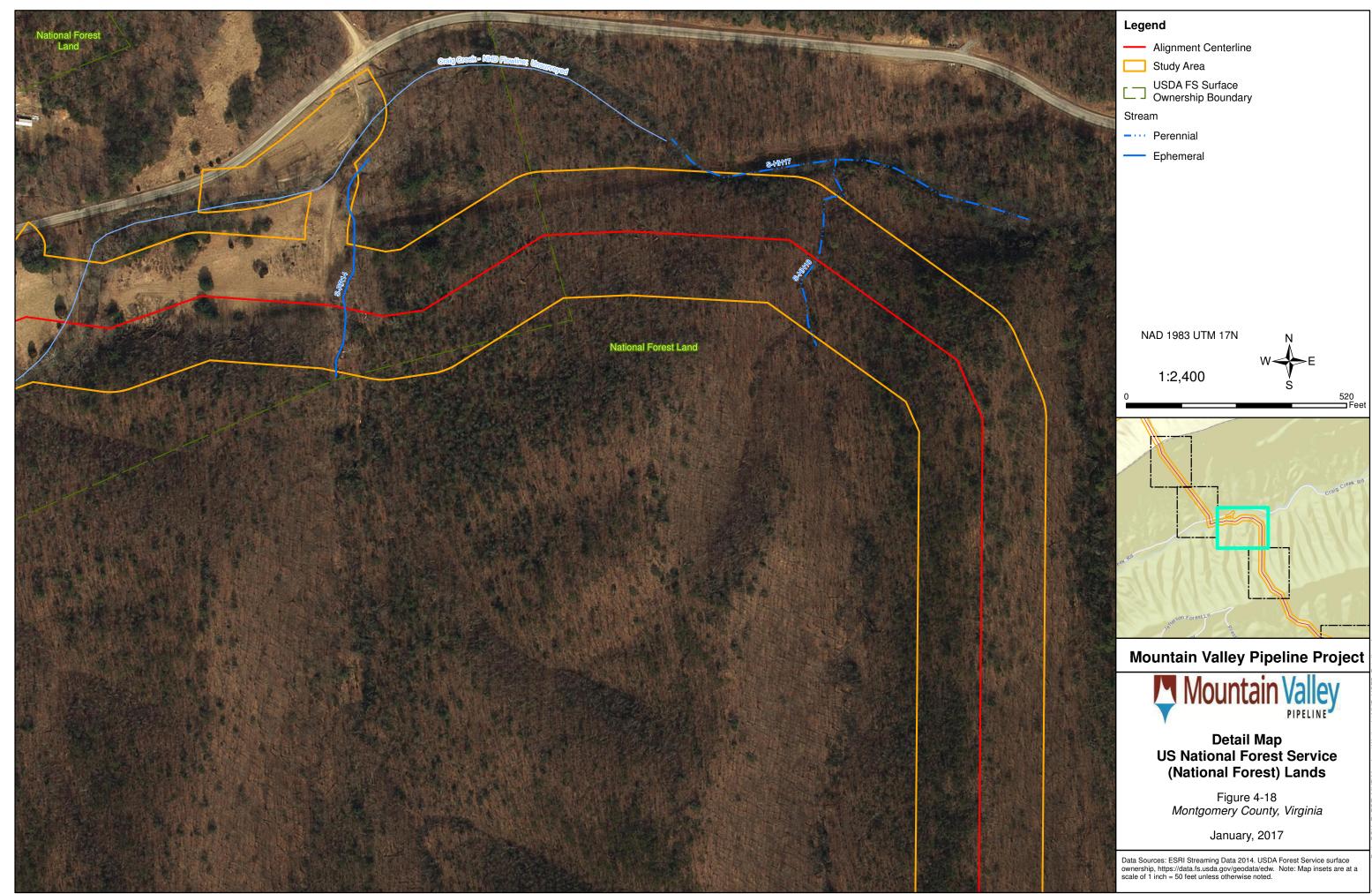




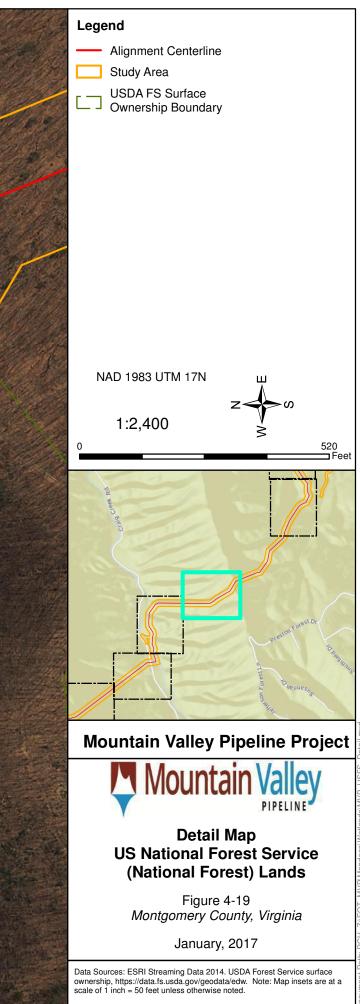


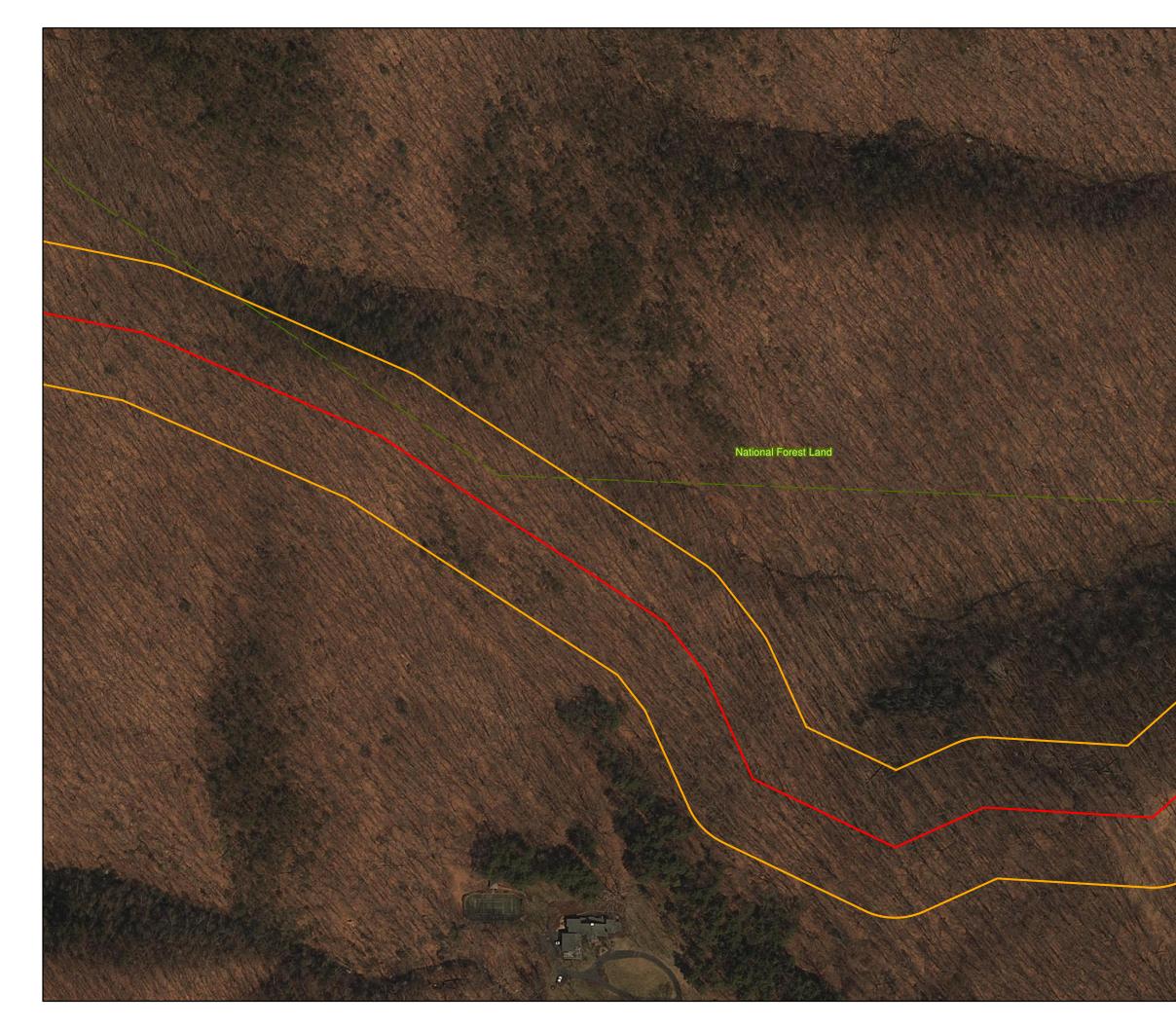


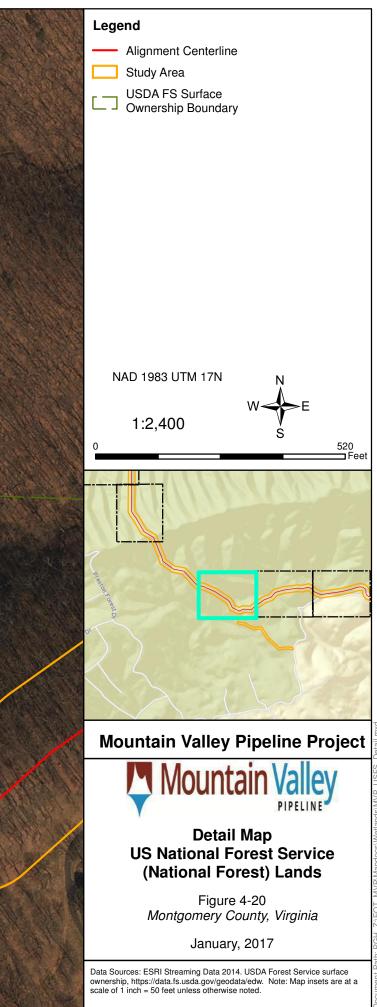


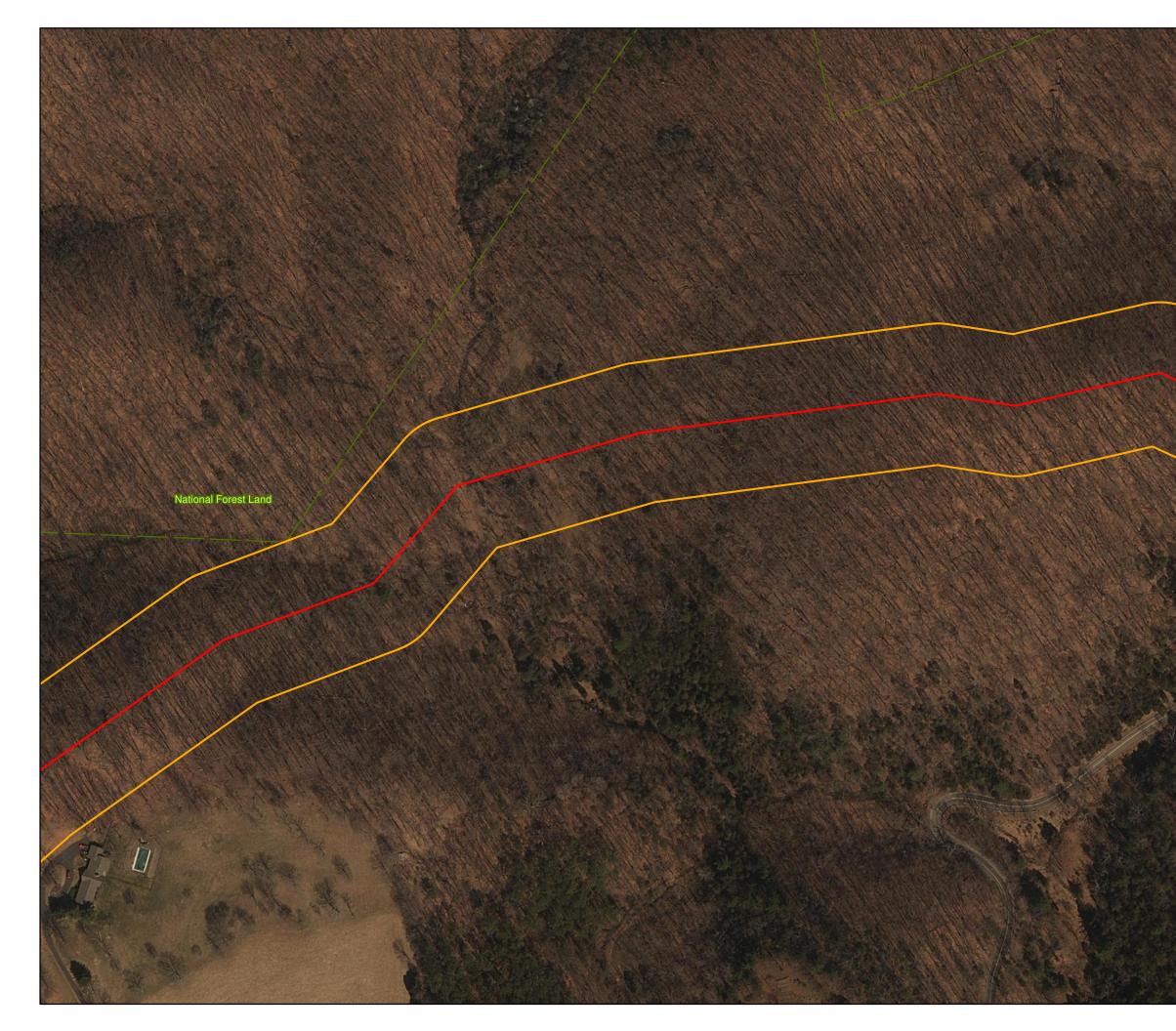


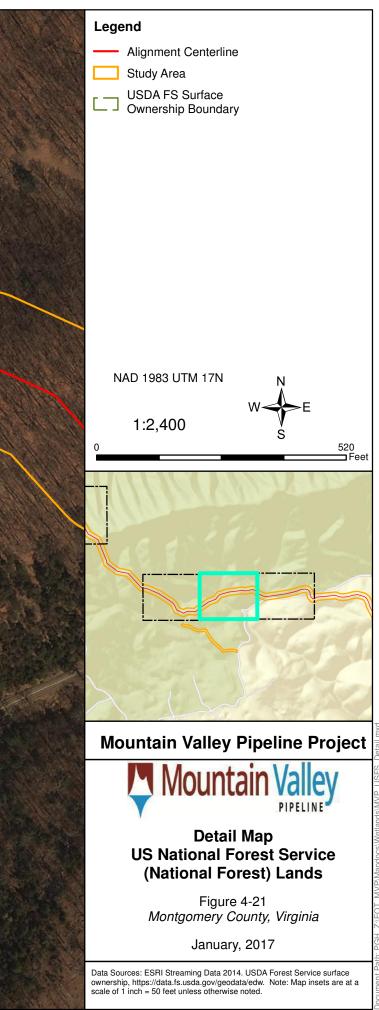


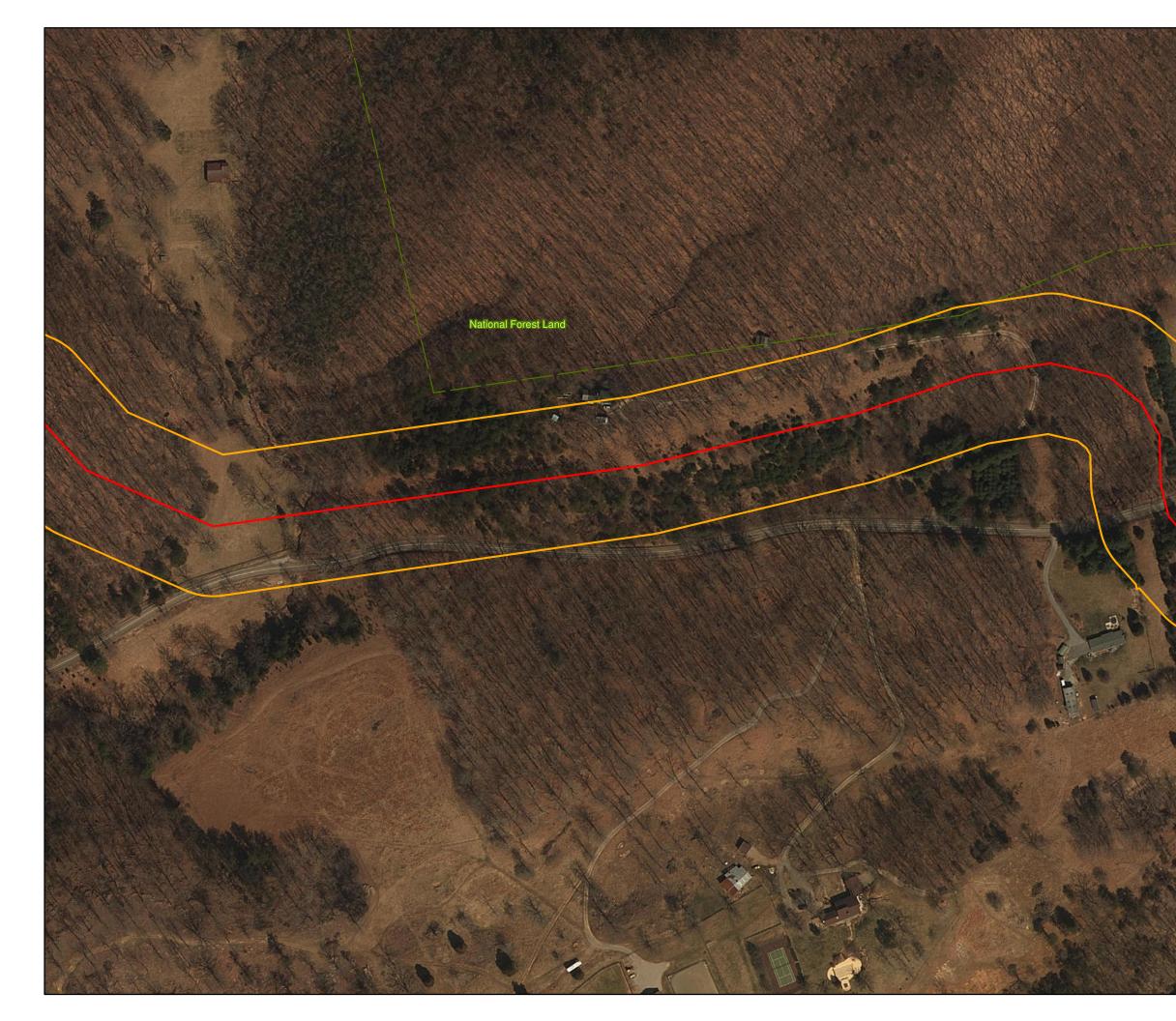


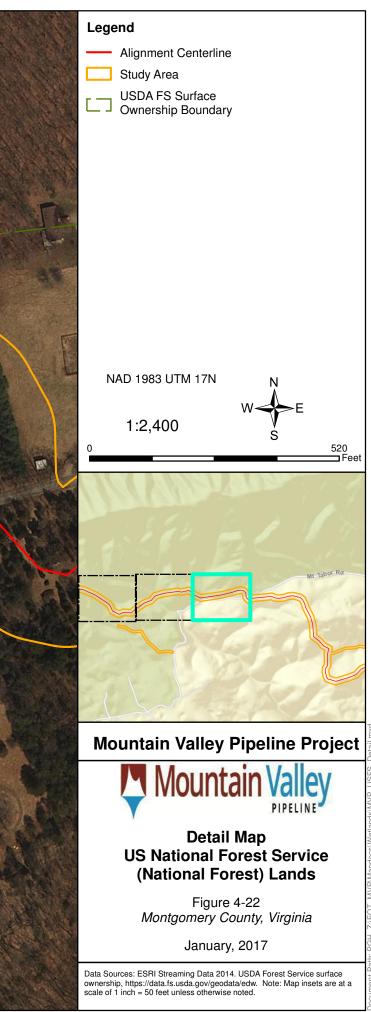












Tables

Table 1	Identified Wetlands
Table 2	Identified Streams
Table 3	Mapped Soils

Table 1. **Identified Wetlands**

Wetland ID	County	Latitude ¹	Longitude ¹	Cowardin Class ²	HGM ³	Water Type ⁴	Associated Waterbodies	Size (Acres) ⁵	Size (square feet) ⁵	Open/Closed Boundary	Dominant Species	Figure
W-KL14	Giles	37.395903	-80.680455	PSS	Depressional	ISOLATE	-	0.004	161	Closed	Nyssa sylvatica, Vaccinium corymbosum, Acer rubrum, Viola blanda	4-2
W-UU11	Giles	37.380254	-80.720485	PEM	Slope	RPWWD	Clendennin Creek	0.02	736	Open	Kalmia latifolia, Rhododendron maximum, Polytrichum commune, Lindera benzoin, Scirpus cyperinus	4-10
W-UU12	Giles	37.378364	-80.722579	PEM	Depressional	ISOLATE	-	0.003	148	Closed	Kalmia latifolia, Scirpus cyperinus, Mentha arvensis	4-10
W-HH15	Giles	37.371087	-80.736164	PEM	Depressional	ISOLATE	-	0.03	1,413	Open	Glyceria melicaria, Impatiens capensis	4-12
W-HH14	Giles	37.371001	-80.737201	PEM	Slope	RPWWD	S-HH15 (UNT to Clendennin Creek)	0.01	619	Closed	Scirpus polyphyllus, Glyceria melicaria	4-13

<u>Notes:</u> 1

- In decimal degrees. Coordinates show wetland test pit locations 2

- PEM = Palustrine Emergent

- PSS = Palustrine Scrub-Shrub

- PFO = Palustrine Forested

3 - HGM = Hydrogeomorphic

- RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs) 4

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

- NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

- Isolate = Isolated (interstate or intrastate) waters, including isolated wetlands

5 - Size of wetlands with open boundaries may be larger than shown in this table. See Section 3.1 for more information

Table 2. Identified Streams

Stream ID	NHD Stream Name ¹	County	Latitude ²	Longitude ²	Flow Regime	Water Type ³	Cowardin Class ⁴	Top of Bank Width (ft)	Figure
S-KL24	UNT to Kimballton Branch	Giles	37.400694	-80.687779	Ephemeral	NRPW	R6	3	4-1
S-SS3	UNT to Kimballton Branch	Giles	37.399029	-80.685094	Ephemeral	NRPW	R6	3.5	4-2
S-PP14	Kimballton Branch	Giles	37.392676	-80.693871	Perennial	RPW	R2RB1	14	4-6
S-PP15	UNT to Kimballton Branch	Giles	37.392628	-80.690067	Perennial	RPW	R3RB1	6	4-5
S-PP17	UNT to New River	Giles	37.386744	-80.700408	Intermittent	RPW	R4SB3	2	4-7
S-PP18	Curve Branch	Giles	37.385499	-80.708750	Intermittent	RPW	R4SB3	4	4-9
S-PP19	UNT to Curve Branch	Giles	37.382048	-80.714071	Intermittent	RPW	R4SB5	3	4-9
S-Q11	UNT to Stony Creek	Giles	37.381706	-80.676073	Ephemeral	NRPW	R6	6	4-15
S-UU8-Braid	Clendennin Creek	Giles	37.381470	-80.719305	Perennial	RPW	R2UB1	3	4-10
S-UU8	Clendennin Creek	Giles	37.381467	-80.719287	Perennial	RPW	R2UB1	3	4-10
S-UU9	Clendennin Creek	Giles	37.381405	-80.719414	Perennial	RPW	R2UB1	5	4-10
S-HH16	UNT to Clendennin Creek	Giles	37.376291	-80.725779	Perennial	RPW	R3RB2	5	4-11
S-HH15	UNT to Clendennin Creek	Giles	37.370798	-80.737186	Perennial	RPW	R3UB1	5	4-13
S-HH14	UNT to Clendennin Creek	Giles	37.370790	-80.738127	Ephemeral	NRPW	R6	3	4-13
S-HH12	UNT to Clendennin Creek	Giles	37.366134	-80.746301	Ephemeral	NRPW	R6	3	4-14
S-HH11	UNT to Clendennin Creek	Giles	37.366087	-80.747473	Ephemeral	NRPW	R6	4	4-14
S-SS2	UNT to Clendennin Creek	Giles	37.365645	-80.749167	Intermittent	RPW	R4SB3	10	4-14
S-PP22	UNT to Craig Creek	Montgomery	37.321203	-80.412889	Intermittent	RPW	R4SB5	2.5	4-16
S-PP21	UNT to Craig Creek	Montgomery	37.317297	-80.409219	Ephemeral	NRPW	R6	4	4-17
S-PP20	UNT to Craig Creek	Montgomery	37.316550	-80.408634	Intermittent	RPW	R4SB3	6	4-17
S-HH17	Craig Creek	Montgomery	37.314554	-80.398420	Perennial	RPW⁵	R2UB1	18	4-18
S-HH18	UNT to Craig Creek	Montgomery	37.314001	-80.398651	Perennial	RPW	R3RB1	6	4-18
S-RR14	UNT to Craig Creek	Montgomery	37.313894	-80.402445	Ephemeral	NRPW	R6	7	4-18

Notes:

3

- For identified streams without a NHD (National Hydrography Dataset) name, the identified stream was given the name, "Unidentified Tributary (UNT)", of the first named receiving waterbody

2 - In decimal degrees

- RPW = Relatively Permanent Waters

- NRPW = Non-Relatively Permanent Waters

- TNW = Traditional Navigable Waters

4 - See Cowardin et al., 1979

5 - Upstream of USACE-specified limit of TNW

Table 3. Mapped Soils

County	Map Unit Symbol	Map Unit Name	Hydric Classification
Giles	138CS	Oriskany very cobbly sandy loam, 3 to 15 percent slopes, rubbly	
Giles	138D	Oriskany very cobbly sandy loam, 15 to 35 percent slopes, very stony	-
Giles	138E	Oriskany very cobbly sandy loam, 35 to 60 percent slopes, very stony	-
Giles	138ES	Oriskany very cobbly sandy loam, 35 to 60 percent slopes, rubbly	-
Giles	23F	Lehew and Wallen soils, very stony, 35 to 65 percent slopes	-
Giles	26C	Jefferson loam, 3 to 15 percent slopes	-
Giles	26D	Jefferson loam, 15 to 35 percent slopes	-
Giles	27E	Lily-Bailegap complex, very stony, 15 to 35 percent slopes	-
Giles	27F	Lily-Bailegap complex, very stony, 35 to 65 percent slopes	-
Giles	30C	Nolichucky very stony sandy loam, 7 to 15 percent slopes	-
Giles	30D	Nolichucky very stony sandy loam, 15 to 30 percent slopes	-
Giles	30F	Nolichucky very stony sandy loam, 30 to 65 percent slopes	-
Giles	48C	Calvin very channery loam, 3 to 15 percent slopes, extremely stony	-
Giles	57E	Clymer sandy loam, 35 to 60 percent slopes	-
Giles	66D	Bailegap sandy loam, 15 to 35 percent slopes	-
Giles	66E	Bailegap sandy loam, 35 to 60 percent slopes	-
Giles	75D	Lily gravelly sandy loam, 15 to 35 percent slopes	-
Giles	75E	Lily gravelly sandy loam, 35 to 60 percent slopes	-
Montgomery	10	Craigsville soils	Hydric
Montgomery	10G	Calvin-Rough complex, 35 to 70 percent slopes, very stony	-
Montgomery	11F	Faywood silt loam, 30 to 65 percent slopes	-
Montgomery	13C	Frederick and Vertrees gravelly silt loams, 7 to 15 percent slopes	-
Montgomery	13D	Frederick and Vertrees gravelly silt loams, 15 to 25 percent slopes	-
Montgomery	16D	Groseclose and Poplimento soils, 15 to 25 percent slopes	-
Montgomery	16E	Groseclose and Poplimento soils, 25 to 60 percent slopes	-
Montgomery	1C	Berks-Clymer complex, 7 to 15 percent slopes	_
Montgomery	23C	Jefferson very stony soils, 7 to 15 percent slopes	
Montgomery	24D	Jefferson extremely stony soils, 7 to 25 percent slopes	-
Montgomery	4E	Berks-Rock outcrop complex, 25 to 70 percent slopes	-
Montgomery	5D	Berks-Weikert complex, 15 to 25 percent slopes	-
Montgomery	6E	Berks and Weikert soils, 25 to 65 percent slopes	-
Montgomery	7D	Berks and Weikert very stony soils, 15 to 35 percent slopes	_

APPENDIX A Wetland Determination Data Forms

Project/Site: MVP	City/County: Giles	Sampling Date: 06/28/2016
Applicant/Owner: MVP		State: VA Sampling Point: W-KL14
Investigator(s): J. Cook, J. Potrikus, K. Pulver		
Landform (hillslope, terrace, etc.): Depression	· · · · · · · · · · · · · · · · · · ·	
Subregion (LRR or MLRA): LRR N Lat:		
Soil Map Unit Name: 27F - Lily-Bailegap complex, ve		
Are climatic / hydrologic conditions on the site typical for	this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "Normal	Circumstances" present? Yes No 🗸
Are Vegetation, Soil, or Hydrology		
SUMMARY OF FINDINGS – Attach site ma		
	No Is the Sampled Area	
	Is the Sampled Area	
Wetland Hydrology Present? Yes		Yes 🥢 No
Demerler	HGM: Depressional Water Type: I	SOLATE
Isolated wetland. Due to the characte suspect this wetland was created from impac though the vegetation would allow for PSS c	ct. The nature of the feature lends mo	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check	all that apply)	Surface Soil Cracks (B6)
	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
	Dxidized Rhizospheres on Living Roots (C3)	Moss Trim Lines (B16)
	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burrows (C8)
	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
	Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)		Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)		Shallow Aquitard (D3) Microtopographic Relief (D4)
Aquatic Fauna (B13)		 Microtopographic (Celler (D4)) FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <u>V</u> No	Depth (inches): 1	
Water Table Present? Yes <u>V</u> No		
Saturation Present? Yes <u>V</u> No		ydrology Present? Yes 🖌 No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring we	ell, aerial photos, previous inspections), if avai	lable:
Remarks:		
Ponded depressional wetland formed by imp	acted soils.	

Sampling Point: W-KL14

, , ,	Abaaluta	Dominant	Indiaatar	Deminence Test werksheet
Tree Stratum (Plot size: <u>30'</u>)	Absolute	Dominant Species?		Dominance Test worksheet:
Nucce autorize				Number of Dominant Species
1. Nyssa sylvatica	15	<i>v</i>	FAC	That Are OBL, FACW, or FAC: (A)
2				
				Total Number of Dominant Species Across All Strata: 5 (B)
3				Species Across All Strata: 5 (B)
4		· · ·		Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of Multiply by
	15	= Total Cov	rer	Total % Cover of: Multiply by:
50% of total cover: 7.5				OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =
	20			
1. Vaccinium corymbosum	20	<u> </u>	FACW	FAC species x 3 =
2. Acer rubrum	10	~	FAC	FACU species x 4 =
3. Sassafras albidum	3			UPL species x 5 =
			<u>ACO</u>	
4		<u></u>		Column Totals: (A) (B)
5				Desiglance in the D/A
				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7			. <u> </u>	1 - Rapid Test for Hydrophytic Vegetation
8				
				✓ 2 - Dominance Test is >50%
9		·	·	3 - Prevalence Index is ≤3.0 ¹
	- 33	= Total Cov	rer	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover: <u>16.</u>	5 20% of	total cover	6.6	
Herb Stratum (Plot size: 5')				data in Remarks or on a separate sheet)
1 Viola blanda	5	~	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Vaccinum corymbosum	3	<u> </u>	FACW	
3. Acer rubrum	1		FAC	¹ Indicators of hydric soil and wetland hydrology must
		· · · · · · · · · · · · · · · · · · ·		be present, unless disturbed or problematic.
4		·		Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
7		·		height.
8				Conting/Chruth Woody plants evoluting vines loss
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
				m) tall.
10				
11				Herb – All herbaceous (non-woody) plants, regardless
	9	= Total Cov	rer	of size, and woody plants less than 3.28 ft tall.
50% of total cover:4.5		total cover:		
	2070 01			Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 15')	•			height.
1. Smilax rotundifolia	3		FAC	
2				
3			·	
4		· · ·		Hydrophytic
5				Vegetation
	0	Tatal Oa		Present? Yes V No
	-	= Total Cov		
50% of total cover: <u>1.5</u>	20% of	total cover	0.0	
Remarks: (Include photo numbers here or on a separate s	heet.)			
	,			

Profile Desc	ription: (Describe t	o the dep	in needed to docum	ent the i	ndicator of	or confirm	the absence of indicators.)
Depth	Matrix			Features		. 2	
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-6	10YR 3/1	100					SL
6-16	7.5YR 6/8	60					<u>SL</u>
	10YR 7/6	40					
							·
							··
		<u> </u>					·
	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	=Masked	Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	ndicators:						Indicators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2 cm Muck (A10) (MLRA 147)
	oipedon (A2)		Polyvalue Bel		· / ·		
Black Hi	. ,		Thin Dark Sur	. ,	•	47, 148)	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleyed		F2)		Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Mat	. ,			(MLRA 136, 147)
	ick (A10) (LRR N)	(Redox Dark S		,		Very Shallow Dark Surface (TF12)
	Below Dark Surface	e (A11)	Depleted Dark				✓ Other (Explain in Remarks)
	ark Surface (A12) lucky Mineral (S1) (L		Redox Depres Iron-Mangane		,		
	147, 148)	KK N,	MLRA 136		es (F12) (I	LKK N,	
	ileyed Matrix (S4)		Umbric Surfac		MI RA 13	6, 122)	³ Indicators of hydrophytic vegetation and
	edox (S5)		Piedmont Floo				
	Matrix (S6)		Red Parent M	•	. ,	•	
	_ayer (if observed):			`	<i>,</i> ,	,	
Type:							
Depth (inc	ches):						Hydric Soil Present? Yes 🖌 No

Remarks:

6-16 inches is disturbed gravel fill and impacted. No restrictive layer found. Due to the vegetation present, as well as standing water, it is suspected that the soils have been impacted and compressed/modified. Without impact, soil would likely qualify for Dark Surface (S7).

Project/Site: MVP	City/County: Giles	Sam	pling Date: 06/28/2016
Applicant/Owner: <u>MVP</u>			mpling Point: W-KL14-UP
Investigator(s): J. Cook, J. Potrikus, K. Pulver	Section, Township, Range: N/A		
Landform (hillslope, terrace, etc.): Hillslope	Local relief (concave, convex, none	_{):} Linear	Slope (%): <u>2</u>
Subregion (LRR or MLRA): LRR N Lat: 37.3959	41	80333	Datum: NAD 83
Soil Map Unit Name: 27F - Lily-Bailegap complex, very stony, 3	35 to 65 percent slopes	NWI classification:	None
Are climatic / hydrologic conditions on the site typical for this time of	of year? Yes 🔽 No (If	no, explain in Remark	(S.)
Are Vegetation, Soil, or Hydrology significa	antly disturbed? Are "Normal C	Circumstances" presen	t? Yes 🔽 No
Are Vegetation, Soil, or Hydrology naturally	y problematic? (If needed, ex	plain any answers in F	Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ving sampling point location	s, transects, imp	oortant features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	Is the Sampled Area within a Wetland?	Yes	No	<u>v</u>
Remarks: Cowardin Code: U	PLAND	HGM:	Water Type:			

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled Se Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Other (Explain in Remarks)	Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2)
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aguatic Equation (B12)	Microtopographic Relief (D4) FAC-Neutral Test (D5)
Aquatic Fauna (B13) Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes <u>No</u> <u>Ves</u> Depth (inches):	
Saturation Present? Yes No Ves Depth (inches):	Wetland Hydrology Present? Yes No
Saturation Present? Yes No _● Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective	

Sampling Point: W-KL14-UP

	Absolute	Dominant	Indiantar	Dominance Test worksheet:	
Tree Stratum (Plot size: <u>30</u> ')		Species?			
1 Quercus rubra	20	<u> </u>	FACU	Number of Dominant Species That Are OBL_EACW or EAC: 4 (A)	
··				That Are OBL, FACW, or FAC: (A)	
2. Sassafras albidum	10	<i>✓</i>	FACU	Total Number of Dominant	
_{3.} Nyssa sylvatica	7		FAC	Species Across All Strata:8 (B)	
1		· · ·			
4		· <u> </u>	·	Percent of Dominant Species	
5			·	That Are OBL, FACW, or FAC: 50 (A/E	3)
6					
7.				Prevalence Index worksheet:	
	37	Tatal Car		Total % Cover of: Multiply by:	
		= Total Cov		OBL species x 1 =	
50% of total cover: <u>18.5</u>	<u>20% of</u>	total cover	7.4		
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =	
1. Sassafras albidum	10	~	FACU	FAC species x 3 =	
2. Acer rubrum	20	~	FAC	FACU species x 4 =	
3. Acer pensylvanicum	5	·	FACU	UPL species x 5 =	
4				Column Totals: (A) (B))
5			·	Prevalence Index = B/A =	
6		· <u> </u>	·	Hydrophytic Vegetation Indicators:	
7					
8				1 - Rapid Test for Hydrophytic Vegetation	
			· · · · · · · · · · · · · · · · · · ·	2 - Dominance Test is >50%	
9			·	3 - Prevalence Index is ≤3.0 ¹	
		= Total Cov		4 - Morphological Adaptations ¹ (Provide supportir	na
50% of total cover: 17.5	5 20% of	total cover	7		ıy
Herb Stratum (Plot size: 5')				data in Remarks or on a separate sheet)	
1. Viola blanda	3	~		Problematic Hydrophytic Vegetation ¹ (Explain)	
			F <u>ACW</u>		
2. Vaccinum corymbosum	3	 ✓ 	FACW		
_{3.} Sassafras albidum	5	~	FACU	¹ Indicators of hydric soil and wetland hydrology must	
4 Quercus rubra	2	· · ·	·	be present, unless disturbed or problematic.	
		·	·	Definitions of Four Vegetation Strata:	
5. Acer rubrum	I		·		
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of	
7				more in diameter at breast height (DBH), regardless of height.	Л
		·	·	noight.	
8		· <u> </u>	·	Sapling/Shrub - Woody plants, excluding vines, less	;
9			. <u> </u>	than 3 in. DBH and greater than or equal to 3.28 ft (1	
10				m) tall.	
11.					
	1.4		·	Herb – All herbaceous (non-woody) plants, regardless	S
_		= Total Cov		of size, and woody plants less than 3.28 ft tall.	
50% of total cover: 7	20% of	total cover	2.8	Woody vine – All woody vines greater than 3.28 ft in	
Woody Vine Stratum (Plot size: 15')				height.	
1 Smilax rotundifolia	5	~	FAC		
2		· <u> </u>	·		
3					
4.					
	-			Hydrophytic	
5			·	Vegetation	
	5	= Total Cov	rer	Present? Yes No V	
50% of total cover: 2.5	20% of	total cover	<u> </u>		
Remarks: (Include photo numbers here or on a separate s	heet)				
	neet.)				
None					
					l

Depth (inches)	Matrix Color (moist)	%	Redo Color (moist)	<u>x Features</u> %	Type ¹	Loc ²	Texture		Remark	· C	
0-5	10YR 3/2	<u> </u>	Color (moist)	%	Туре	LOC	SIL		Remark	S	
5-10	10YR 5/4	100				. <u> </u>	SICL				
		·									
		·									
		·				. <u> </u>					
		·									
	oncentration, D=Dep	lation RM_R	aduard Matrix M		Sond Cr	inc	² Location: P		ng M_Motr	iv.	
	ndicators:			S=IVIASKEU	Sanu Gia	ans.		ators for Pr			oils ³ :
Histosol			Dark Surface	(\$7)				cm Muck (A		•	
-	vipedon (A2)		Polyvalue Be		e (S8) (N	ILRA 147.		oast Prairie			
Black Hi			Thin Dark Su		· / ·			(MLRA 14		-)	
	n Sulfide (A4)		Loamy Gleye				P	iedmont Flo		ils (F19)	
_ Stratified	I Layers (A5)		Depleted Ma	trix (F3)				(MLRA 13	6, 147)		
	ck (A10) (LRR N)		Redox Dark					ery Shallow		· · ·)
	Below Dark Surface	e (A11)	Depleted Da				C	ther (Explain	in in Remar	ks)	
	ark Surface (A12)		Redox Depre								
	lucky Mineral (S1) (L	.RR N,	Iron-Mangan		es (F12) (LRR N,					
	147, 148) leyed Matrix (S4)		MLRA 13 Umbric Surfa		MI PA 13	6 122)	³ Ind	icators of hy	(drophytic y	vegetation	and
-	edox (S5)		Piedmont Flo					tland hydro		-	
-	Matrix (S6)		Red Parent N					less disturb			,
	ayer (if observed):					···, · ··	/				
Type: 10											
	_{ches):} <u>Refusal, co</u>	mpressed	1				Hydric Soil	Present?	Yes	No	~
emarks:	,										
one											

Project/Site: MVP				Sampling Date: 10/16/2015
Applicant/Owner: MVP			State: VA	Sampling Point: W-UU11
Investigator(s): S. Townsend, A. Ha	atfield	Section, Township, Range: N/A		
Landform (hillslope, terrace, etc.): Hills				drainage Slope (%): 6%
Subregion (LRR or MLRA): LRRN				
Soil Map Unit Name: 66D - Bailegap	sandy loam, 15 to 35 p	ercent slopes	NWI classific	_{cation:} None
Are climatic / hydrologic conditions on th	e site typical for this time of ye	ear? Yes 🔽 No (I	f no, explain in R	Remarks.)
Are Vegetation, Soil, or H	-lydrology significantly	disturbed? Are "Normal (Circumstances" p	present? Yes 🖌 No
Are Vegetation, Soil, or H	Hydrology naturally pro	oblematic? (If needed, ex	plain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - At	ttach site map showinç	sampling point location	ns, transects	s, important features, etc
Hydrophytic Vegetation Present?	Yes 🖌 No			
Hydric Soil Present?	Yes V No	Is the Sampled Area within a Wetland?	Yes 🗸	Νο
Wetland Hydrology Present?			Tes	NO
Remarks:				
Cowardin Code: PEM				
HGM: SLOPE				
WT: RPWWD				
HYDROLOGY				
Wetlend I hadrele main die sterre			<u> </u>	

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required	Surface Soil Cracks (B6)	
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) 	 <u>Crieck all that appy</u> True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks) 	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2)
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)		 Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes No	o 🖌 Depth (inches):	
Water Table Present? Yes <u>Yes</u> No		
Saturation Present? Yes <u>Yes</u> No (includes capillary fringe)	Depth (inches): 0" Wetla	and Hydrology Present? Yes 🖌 No
Describe Recorded Data (stream gauge, moni	itoring well, aerial photos, previous inspections), i	if available:
Remarks:		

Jefferson National Forest. This is a seep wetland with saturation to the surface along slopes, as well as a narrow drainage channel approx 6" wide with <1" of surface water. Less than 15% of wetland area is dominated by moss. This point was taken upslope from area with surface water.

Sampling Point: W-UU11

	Absolute	Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum (Plot size: <u>30'</u>)		Species?		Number of Dominant Species		
1				That Are OBL, FACW, or FAC:	4	(A)
2					······	()
				Total Number of Dominant	Б	
3				Species Across All Strata:	5	(B)
4				Percent of Dominant Species		
5				That Are OBL, FACW, or FAC:	80%	(A/B)
6						
7				Prevalence Index worksheet:		
	0	= Total Cov	er	Total % Cover of:	Multiply by:	
50% of total cover: 0		total cover:	-	OBL species x	. 1 =	_
Sapling/Shrub Stratum (Plot size: 15')				FACW species x	2 =	
1. Kalmia latifolia	15	~	FACU	FAC species x		
	5			FACU species x		
2. Rhododendron maximum	5	V	F <u>AC</u>			
3					. 5 =	
4				Column Totals: (A	4)	(B)
5						
6				Prevalence Index = B/A =		_
				Hydrophytic Vegetation Indica	ators:	
7				1 - Rapid Test for Hydrophy	tic Vegetation	
8				2 - Dominance Test is >50%	6	
9				3 - Prevalence Index is ≤3.0	\mathbf{D}^{1}	
		= Total Cov	er	4 - Morphological Adaptatio		nortina
50% of total cover: <u>10</u>	20% of	total cover:	4			porting
Herb Stratum (Plot size: 5')				data in Remarks or on a	•	
1. *Polytrichum commune	80	~	FAC	Problematic Hydrophytic Ve	egetation' (Explai	in)
2 Scirpus cyperinus	5	~	FACW			
3 Lindera benzoin	10	v	FAC	¹ Indicators of hydric soil and we		nust
4. Epilobium sp	5		P <u>AC</u>	be present, unless disturbed or	problematic.	
	· · · · · ·			Definitions of Four Vegetation	n Strata:	
5				Tree Woody plants evoluting	wines 2 in (7.6	om) or
6				Tree – Woody plants, excluding more in diameter at breast heigh		
7				height.	in (BBH), rogara	
8.						
9				Sapling/Shrub – Woody plants, than 3 in. DBH and greater than	, excluding vines	, less
				m) tall.	i or equal to 3.26	5 H (I
10		· · · · · · · · · · · · · · · · · · ·				
11	400	·		Herb - All herbaceous (non-woo		rdless
		= Total Cov		of size, and woody plants less th	han 3.28 ft tall.	
50% of total cover: <u>50</u>	20% of	total cover:	20	Woody vine – All woody vines of	oreater than 3 28	t ft in
Woody Vine Stratum (Plot size: 15')				height.	groater than 0.20	, , , , , , , , , , , , , , , , , , , ,
1						
2						
3						
		·				
4		·		Hydrophytic		
5				Vegetation	Na	
-		= Total Cov		Present? Yes	NO	
50% of total cover: 0	20% of	total cover:	0			
Remarks: (Include photo numbers here or on a separate s	heet.)		-		-	

*Polytrichum mosses are not on USDA wetland indicator status list. However, P. commune is noted as FAC in Gillrich and Bowman's 2010 "The Use of Bryophytes as Indicators of Hydric Soils and Wetland Hydrology during Wetland Delineations in the US." This would increase the dominance to 4 species of FAC, FACW, OBL for 57%.

Profile Desc	ription: (Describe t	o the dept	n needed to docur	nent the i	ndicator	or confirn	n the absence	of indicators.)
Depth	Matrix		Redo	x Feature	s			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6"	2.5YR 3/4	100						Moss, organic
6-12"	7.5YR 5/2	80	7.5YR 5/6	20	С	М	SL	
						·		
		<u> </u>				·		
		<u> </u>				·		
						. <u> </u>		
						·		
		<u> </u>				·		
$\frac{1}{1}$ Type: C=Cc	oncentration, D=Depl	etion RM-F	Reduced Matrix MS	S-Masker		ains	² Location: P	L=Pore Lining, M=Matrix.
Hydric Soil I								ators for Problematic Hydric Soils ³ :
Histosol			Dark Surface	e (S7)				cm Muck (A10) (MLRA 147)
	ipedon (A2)		Polyvalue Be	· · ·	ce (S8) (N	ILRA 147.		Coast Prairie Redox (A16)
Black His	,		Thin Dark Su				, _	(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		P	iedmont Floodplain Soils (F19)
Stratified	Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)
	ck (A10) (LRR N)		Redox Dark					ery Shallow Dark Surface (TF12)
	Below Dark Surface	e (A11)	Depleted Date		. ,		0	Other (Explain in Remarks)
	rk Surface (A12)		Redox Depre					
	ucky Mineral (S1) (L	RR N,	Iron-Mangan		es (F12) (LRR N,		
	147, 148)		MLRA 13	,			3 1	
	leyed Matrix (S4) edox (S5)		Umbric Surfa	, ,	•			icators of hydrophytic vegetation and atland hydrology must be present,
	Matrix (S6)		Red Parent N	•	• •	•	•	less disturbed or problematic.
	ayer (if observed):					A 127, 14		
Type: Ro								
	thes): <u>12"</u>						Hydric Soil	Present? Yes 🖌 No
	iles). <u></u>						Hydric Soli	
Remarks:								

Project/Site: MVP		Ci	ty/County: Gild	es		Sampling	Date: 10/	16/2015
Applicant/Owner: MVP				5	State: VA			<u>V-UU11-U</u> P
Investigator(s): S. Townsend, A. Hatf	ield	Se	ection, Townshi	p, Range: N/A				
Landform (hillslope, terrace, etc.): Hillslo					Slope cor	ncave	Slope (%): <u>2%</u>
Subregion (LRR or MLRA): LRRN	Lat:3	7.380265		_ Long: -80.72	20450		Datum: N	AD83
Soil Map Unit Name: 66D - Bailegap s								
Are climatic / hydrologic conditions on the	site typical for th	nis time of year	? Yes 🖌	No (If r	no, explain in	Remarks.)		
Are Vegetation, Soil, or Hy	drology	significantly di	sturbed?	Are "Normal Ci	rcumstances"	present?	Yes 🖌	No
Are Vegetation, Soil, or Hy	drology	naturally probl	ematic?	(If needed, exp	lain any answ	ers in Rema	arks.)	
SUMMARY OF FINDINGS – Atta	ach site map	showing s	ampling po	int locations	s, transect	s, import	ant feat	ures, etc.
Hydrophytic Vegetation Present?	Yes	No 🖌	la tha Car	nulad Area				
Hydric Soil Present?	Yes I	No 🖌	within a V	npled Area Vetland?	Yes	No	~	
Wetland Hydrology Present?	Yes I	No <u> </u>						
Remarks:								

Upland

Secondary Indicators (minimum of two required)
Surface Soil Cracks (B6)
Sparsely Vegetated Concave Surface (B8)
 Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
FAC-Neutral Test (D5)
Hydrology Present? Yes No ailable:

Sampling Point: W-UU11-UP

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)		Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				
3				Total Number of Dominant Species Across All Strata: 3 (B)
4				
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:0 (A/B)
6				Prevalence Index worksheet:
7		. <u> </u>		Total % Cover of: Multiply by:
<u>_</u>		= Total Cov	-	OBL species x 1 =
50% of total cover: <u>0</u>	20% of	f total cover:	0	
Sapling/Shrub Stratum (Plot size: 15')	_			FACW species x 2 =
1. Liriodendron tulipifera	5	<u> </u>	FACU	FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7		<u> </u>		1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9		<u> </u>		3 - Prevalence Index is $\leq 3.0^{1}$
	5	= Total Cov	er	
50% of total cover: 2.5	20% of	f total cover:	1	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5')				data in Remarks or on a separate sheet)
1. Agrostis sp.	30	~	ND	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Plantago lanceolata	5	<u> </u>	UPL	
3. Daucus carota	10	· · ·	UPL	¹ Indicators of hydric soil and wetland hydrology must
	5			be present, unless disturbed or problematic.
4. Solidago canadensis			F <u>ACU</u>	Definitions of Four Vegetation Strata:
5. Glechoma hederacea	10	<u> </u>	FACU	Tree Weeds right out with a since 2 in (7.0 cm) or
6		<u> </u>		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8				
9				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
				m) tall.
10				
11	60	·		Herb – All herbaceous (non-woody) plants, regardless
500/ // / 20		= Total Cov		of size, and woody plants less than 3.28 ft tall.
50% of total cover: <u>30</u>	20% 01	f total cover:	12	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 15')				height.
1				
2		<u> </u>		
3				
4				
5			. <u></u>	Hydrophytic
0	~			Vegetation Present? Yes No V
		= Total Cov		
50% of total cover: 0		i lotal cover:	0	
Remarks: (Include photo numbers here or on a separate s				
Agrostis cannot be identified to species due to la		-		-
is unlikely that Agrostis is OBL, and if it were FA	CW, the	prevalence	ce works	sheet would result in index of 3.3 at best.
ND - Not determined				

*Not identified to species, not included in dominance test

Profile Descr	iption: (Describe t	o the dep	th needed to docun	nent the i	ndicator	or confirn	n the absence	of indicators	s.)	
Depth	Matrix		Redo	x Feature	S					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-12	10YR 5/6	98	10YR 6/8	2	С	Μ	SL	Road	l base, rocl	ks 70%
						·		-		
						·				
										<u> </u>
						·				
										<u> </u>
<u> </u>										
¹ Type: C=Co	ncentration, D=Depl	etion, RM=	=Reduced Matrix, MS	S=Masked	d Sand Gr	ains.	² Location: F	L=Pore Lining	g, M=Matrix.	
Hydric Soil Ir	ndicators:						Indic	ators for Pro	blematic Hyd	dric Soils ³ :
Histosol (A1)		Dark Surface	(S7)			2	cm Muck (A1	0) (MLRA 14	7)
Histic Epi	pedon (A2)		Polyvalue Be	low Surfa	ce (S8) (/LRA 147,	, 148) (Coast Prairie F	Redox (A16)	
Black His	tic (A3)		Thin Dark Su	rface (S9)) (MLRA	147, 148)		(MLRA 147,	, 148)	
Hydroger	n Sulfide (A4)		Loamy Gleye	d Matrix (F2)		F	Piedmont Floo	dplain Soils (I	F19)
Stratified	Layers (A5)		Depleted Mat	rix (F3)				(MLRA 136,	, 147)	
2 cm Muc	k (A10) (LRR N)		Redox Dark S	Surface (F	-6)		\	/ery Shallow [Dark Surface	(TF12)
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface	e (F7)		(Other (Explain	in Remarks)	
	k Surface (A12)		Redox Depre							
	ucky Mineral (S1) (L	RR N,	Iron-Mangan		es (F12) (LRR N,				
	147, 148)		MLRA 13	•			2			
	eyed Matrix (S4)		Umbric Surfa	, ,	•			dicators of hyd		
Sandy Re			Piedmont Flo	•	, ,	•	•	etland hydrolo	••••••	
	Matrix (S6)		Red Parent N	laterial (F	21) (MLR	A 127, 147	7) ur	less disturbed	d or problema	tic.
	ayer (if observed):									
· · · ·	avel road base									
Depth (inc	hes): <u>12"</u>						Hydric Soi	I Present?	Yes	No 🔽
Remarks:							•			

Project/Site: MVP	City/County: Giles	Sampling Date: <u>10/16/2015</u>
Applicant/Owner: MVP	State: VA	Sampling Point: W-UU12
Investigator(s): S. Townsend, A. Hatfield	Section, Township, Range: <u>N/A</u>	
Landform (hillslope, terrace, etc.): Hillslope	ocal relief (concave, convex, none): <u>Concav</u>	e Slope (%): 2%
Subregion (LRR or MLRA): LRRN Lat: 37.378364	Long: -80.722579	Datum: NAD83
Soil Map Unit Name: 26D - Jefferson Ioam, 15-35% slopes	NWI clas	sification: None
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes 🖌 No (If no, explain i	n Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? Are "Normal Circumstance	es" present? Yes 🔽 No
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, explain any and	swers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transe	cts, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes	No No No	Is the Sampled Area within a Wetland?	Yes 🖌	No
Remarks:					
Cowardin Code: PEM HGM: Depressional WT: Isolate					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)		
	Dry-Season Water Table (C2)		
Field Observations:			
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	Wetland Hydrology Present? Yes <u>V</u> No tions), if available:		
Remarks:			

Sampling Point: W-UU12

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: 2 (A)
2				
3				Total Number of Dominant Species Across All Strata: 3 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
6				Prevalence Index worksheet:
7				
		= Total Cov	· .	
50% of total cover: 0	20% of	total cover:	0	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =
1. Kalmia latifolia	20	~	FACU	FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
				Column Totals: (A) (B)
4				(-)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9.				
	20	= Total Cov		3 - Prevalence Index is ≤3.0 ¹
50% of total cover: <u>10</u>		total cover:		4 - Morphological Adaptations ¹ (Provide supporting
	2070 01			data in Remarks or on a separate sheet)
	35	~		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Scirpus cyperinus			FACW	
2. Solidago sp.	20		ND	¹ Indicators of hydric soil and wetland hydrology must
3. Epilobium sp.	20		ND	be present, unless disturbed or problematic.
4. Mentha arvensis	25	~	FACW	Definitions of Four Vegetation Strata:
5. Poa sp.	10		ND	Deminions of Four Vegetation Strata.
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	110	= Total Cov	er	of size, and woody plants less than 3.28 ft tall.
50% of total cover: 55	20% of	total cover:	22	
Woody Vine Stratum (Plot size: 15')				Woody vine – All woody vines greater than 3.28 ft in
				height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
	~	= Total Cov	er	Present? Yes 🖌 No
50% of total cover:0		total cover:		
Remarks: (Include photo numbers here or on a separate s				
ND - Not determined				
*Not identified to species, not included in domination	ance test			

Depth Matrix Redox Features (inches) Color (moist) % Type' Loc ² Texture Remarks 0-14" 7.5YR 4/2 85 2.5YR 4/4 5 C M/PL SIL
0-14" 7.5YR 4/2 85 2.5YR 4/4 5 C M/PL SIL 7.5YR 5/8 10 C M/PL Image: Single Sing
T.5YR 5/8 10 C M/PL Type: The second s
Image: Second
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Stratified Layers (A5) ✓ Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)
Thick Dark Surface (A12) Redox Depressions (F8)
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N,
MLRA 147, 148) MLRA 136)
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present,
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic.
Restrictive Layer (if observed):
Type: Sandstone bedrock
Depth (inches): 14" Yes Yes No
Remarks:

Project/Site: MVP		City/County:	Giles		Sampling Da	_{ate:} 10/16/2015
Applicant/Owner: MVP			S	tate: VA		Point: W-UU12-UP
Investigator(s): S. Townsend, A. Hatt	field	Section, Towr	nship, Range: <mark>N/A</mark>			
Landform (hillslope, terrace, etc.): Hillslo				Access ro	bad terrace	Slope (%): <u>2%</u>
Subregion (LRR or MLRA): LRRN	Lat: 37.37	8433	Long: <u>-80.72</u>	2484	C	atum: NAV83
Soil Map Unit Name: 26D - Jefferson	loam, 15-35% sloj	pes		NWI classi	fication: None)
Are climatic / hydrologic conditions on the	site typical for this time	e of year? Yes 🔽	No (If n	o, explain in	Remarks.)	
Are Vegetation, Soil, or Hy	/drology signifi	icantly disturbed?	Are "Normal Cir	cumstances'	'present? Yes	s No
Are Vegetation, Soil, or Hy	drology natura	ally problematic?	(If needed, expl	ain any answ	vers in Remark	s.)
SUMMARY OF FINDINGS – Atta	ach site map sho	wing sampling	point locations	, transect	s, importar	nt features, etc.
Hydrophytic Vegetation Present?	Yes No					
Hydric Soil Present?	Yes No		- Is the Sampled Area - within a Wetland? Yes		No	
Wetland Hydrology Present?	Yes No	<u><</u>				
Remarks:						

Upland

	Secondary Indicators (minimum of two required)
e is required; check all that apply)	Surface Soil Cracks (B6)
True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C4)	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)
s No 💉 Depth (inches):	
s No Depth (inches):	
s No Depth (inches):	Wetland Hydrology Present? Yes No
gauge, monitoring well, aerial photos, previous ins	pections), if available:
	 True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Liv Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Thin Muck Surface (C7) Other (Explain in Remarks)

Sampling Point: W-UU12-UP

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30'</u>)	% Cover	Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC:1 (A)
2				
				Total Number of Dominant
3				Species Across All Strata:4 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 25 (A/B)
6				
		· · ·		Prevalence Index worksheet:
7	0			Total % Cover of: Multiply by:
0		= Total Co	-	OBL species x 1 =
50% of total cover: 0	20% of	total cover	r: <u>0</u>	
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =
1. Liriodendron tulipifera	10	 ✓ 	FACU	FAC species x 3 =
2. Acer saccharum	10	~	FACW	FACU species x 4 =
2		· · ·		UPL species x 5 =
3		· <u> </u>		Column Totals: (A) (B)
4				
5				Prevalence Index = B/A =
6				
7				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
8		· - <u></u>		2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
		= Total Co	ver	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover: <u>10</u>	20% of	total cover	r <u>.</u> 4	
Herb Stratum (Plot size: 5')				data in Remarks or on a separate sheet)
1. Symphyotrichum ericoides	20	~	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Trifolium repens	5		1,400	
		· <u> </u>		¹ Indicators of hydric soil and wetland hydrology must
_{3.} Rubus sp.	10			be present, unless disturbed or problematic.
4. Solidago canadensis	15	~	FACU	Definitions of Four Vegetation Strata:
5. Smilax rotundifolia	10			Deminions of Four vegetation Strata.
6. Ageratina altissima	5			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
7	. <u> </u>	·		height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10.				m) tall.
				, ,
11	05			Herb – All herbaceous (non-woody) plants, regardless
		= Total Co		of size, and woody plants less than 3.28 ft tall.
50% of total cover: <u>32.5</u>	5 20% of	total cover	r <u>13</u>	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 15')				height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
	0	= Total Co	ver	Present? Yes No V
50% of total cover:0		total cover	-	
			·	
Remarks: (Include photo numbers here or on a separate s	neet.)			

Profile Desc	ription: (Describe t	o the depth	n needed to docun	nent the i	ndicator	or confirm	the absence	of indicators.)
Depth								
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-14	10YR 4/4	97	10YR 6/8	3			SL	
							. <u> </u>	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil								ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2	cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be		ce (S8) (N	ILRA 147.		Coast Prairie Redox (A16)
Black Hi	,		Thin Dark Su				-,	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye	. ,		, -,	P	Piedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Mat		,			(MLRA 136, 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark S	Surface (F	-6)		V	/ery Shallow Dark Surface (TF12)
	Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)			Other (Explain in Remarks)
Thick Da	ark Surface (A12)		Redox Depre					
Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangane	ese Mass	es (F12) (LRR N,		
MLRA	A 147, 148)		MLRA 13	6)				
Sandy G	leyed Matrix (S4)		Umbric Surfa	ce (F13) ((MLRA 13	6, 122)	³ Ind	licators of hydrophytic vegetation and
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 14						(MLRA 14	8) we	etland hydrology must be present,
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic.							less disturbed or problematic.	
Restrictive I	_ayer (if observed):							
_{Type:} Sa	Indstone bedrock	(
Depth (in	_{ches):} <u>14"</u>						Hydric Soil	Present? Yes No 🖌
Remarks:								<u></u> <u></u>
	ors caused by sa	ndetono	lithice					
Orange co	ors caused by se							

Project/Site: MVP		City/County: Narrows/Gi	les	_ Sampling Date: <u>10/16/2015</u>				
Applicant/Owner: MVP			State: VA	Sampling Point: W-HH15				
Investigator(s): S Ryan, A Larson	, M Whitten	Section, Township, Range:	N/A					
Landform (hillslope, terrace, etc.): De	pression	Local relief (concave, convex,	Local relief (concave, convex, none): Concave Slope (%): 3					
Subregion (LRR or MLRA): LRRN	Lat: 37.37	1087 Long:	7 Long: -80.736164 Datum: NAD					
Soil Map Unit Name: Oriskany very cobbly sandy loam, 3 to 15 percent slopes, rubbly NWI classification: None								
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>//</u> No (If no, explain in Remarks.)								
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 🗾 🖌 No								
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)								
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
Hydrophytic Vegetation Present?	Yes 🖌 No							
Hydric Soil Present?	Yes V No	is the Sampled Are		No				
Wetland Hydrology Present?	Yes 🖌 No		103					
Remarks:		·						
Cowardin Code: PEM								
HGM: Depressional								

HYDROLOGY

Water Type: Isolate

Wetland Hydrology Indicato	rs:					Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					Surface Soil Cracks (B6)		
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeri Water-Stained Leaves (B Aquatic Fauna (B13) 	al Imagery (B		True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reducti Thin Muck Surface (Other (Explain in Re	dor (C1) res on Living l ed Iron (C4) on in Tilled Sc (C7)		 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) 	
Field Observations: Surface Water Present?	Yes	No 🖌	Depth (inches):				
Water Table Present?			Depth (inches):	8			
Saturation Present? Yes <u>V</u> No Depth (inches): 0 Wetland (includes capillary fringe)			Wetland H	lydrology Present? Yes 🖌 No			
Describe Recorded Data (stre	am gauge, mo	onitoring	well, aerial photos, pr	evious inspec	tions), if ava	ilable:	
Remarks:							
Wetland enters north sid	e of studv a	area and	d aoes underarou	und iust nor	th of Acce	ess Road. From there a drainage feature	

Wetland enters north side of study area and goes underground just north of Access Road. From there a drainage feature (vegetated and lacking defined bed/bank) crosses road via culvert and continues to south edge of study area. Small seeps observed near southern survey boundary but all seeps lacked both stream and wetland characteristics.

Sampling Point: W-HH15

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: <u>30'</u>)		Species?		Number of Dominant Species	
1			_	That Are OBL, FACW, or FAC: (A	4)
2					,
				Total Number of Dominant Species Across All Strata: 2 (B	۱
3				Species Across All Strata: 2 (B	5)
4		·		Percent of Dominant Species	
5		· <u> </u>		That Are OBL, FACW, or FAC: (A	√B)
6				Prevalence Index worksheet:	
7					
	0	= Total Co	ver	Total % Cover of: Multiply by:	
50% of total cover:0	20% of	total cover	: <u>0</u>	OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =	
1				FAC species x 3 =	
2				FACU species x 4 =	
				UPL species x 5 =	
3				Column Totals: (A) ((A))	(D)
4					(D)
5				Prevalence Index = B/A =	
6				Hydrophytic Vegetation Indicators:	
7					
8				1 - Rapid Test for Hydrophytic Vegetation	
				✓ 2 - Dominance Test is >50%	
9	0	Tatal Oa		3 - Prevalence Index is ≤3.0 ¹	
		= Total Co	-	4 - Morphological Adaptations ¹ (Provide suppor	rting
50% of total cover: <u>0</u> Herb Stratum (Plot size: 5')	20% 01	total cover	: 0	data in Remarks or on a separate sheet)	
<u></u>)	40			Problematic Hydrophytic Vegetation ¹ (Explain)	
1. Glyceria melicaria	40	<u> </u>	OBL		
2. Impatiens capensis	30	<u> </u>	FACW		
_{3.} Viola sp.	5		ND	¹ Indicators of hydric soil and wetland hydrology mus be present, unless disturbed or problematic.	St
4					
5				Definitions of Four Vegetation Strata:	
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm)) or
6				more in diameter at breast height (DBH), regardless	s of
7				height.	
8		·		Sapling/Shrub – Woody plants, excluding vines, les	ss
9				than 3 in. DBH and greater than or equal to 3.28 ft (
10				m) tall.	
11				Herb – All herbaceous (non-woody) plants, regardle	200
	75	= Total Co	ver	of size, and woody plants less than 3.28 ft tall.	533
50% of total cover: 0		total cover			
Woody Vine Stratum (Plot size: 30')			·	Woody vine – All woody vines greater than 3.28 ft i	in
				height.	
1		·			
2					
3					
4				Hydrophytic	
5				Vegetation	
	0	= Total Co	ver	Present? Yes 🖌 No	
50% of total cover: 0		total cover	~		
Remarks: (Include photo numbers here or on a separate s			·		
	sneet.)				

Profile Des	cription: (Describe	to the dep	th needed to docur	nent the i	ndicator	or confirm	the absence	of indicators.)	
Depth	Matrix			x Feature		12	Tartan	Deveda	
<u>(inches)</u> 0-20	Color (moist) 10YR 2/2		Color (moist)	%	Type ¹	Loc ²	Texture SL	Remarks	antant
0-20	101R 2/2	100						High organic o	content
		<u> </u>							
¹ Turney 0, 0	D Der	ation DM	Deduced Metric M				21	- Dana Lining M. Matrix	
Hydric Soil	oncentration, D=Dep	etion, RIVI=	Reduced Matrix, Ma	S=Masked	a Sand Gra	ains.		L=Pore Lining, M=Matrix. ators for Problematic Hy	dric Soils ³
Histosol			Dark Surface	(97)				cm Muck (A10) (MLRA 1	
	pipedon (A2)		Polyvalue Be	· · ·	ce (S8) (N	ILRA 147.		Coast Prairie Redox (A16)	<i>+1)</i>
	istic (A3)		Thin Dark Su					(MLRA 147, 148)	
	en Sulfide (A4)		Loamy Gleye	· · ·			P	Piedmont Floodplain Soils	(F19)
Stratifie	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)	
	uck (A10) (LRR N)		Redox Dark	•	,			ery Shallow Dark Surface	. ,
	d Below Dark Surface	e (A11)	Depleted Da				C	Other (Explain in Remarks)	
	ark Surface (A12)		Redox Depre						
	Mucky Mineral (S1) (L A 147, 148)	.RR N,	Iron-Mangan MLRA 13		es (F12) (LRR N,			
	Gleyed Matrix (S4)		Umbric Surfa			6 122)	³ Ind	licators of hydrophytic veg	etation and
	Redox (S5)		Piedmont Flo					etland hydrology must be p	
	d Matrix (S6)		Red Parent	•	• •	•	•	less disturbed or problem	
Restrictive	Layer (if observed):						-		
Type: N	one								
Depth (in	ches):						Hydric Soil	Present? Yes 🖌	No
Remarks:									

Project/Site: MVP	City/County: Giles		Sampling Date: 10/16/2015		
Applicant/Owner: MVP		State: VA	Sampling Point: W-HH15-UP		
Investigator(s): S Ryan, A Larson, M Whitten	Section, Township, R	_{ange:} N/A			
Landform (hillslope, terrace, etc.): Hillslope	Local relief (concave, co	nvex, none): Convex	Slope (%): <u>12</u>		
Subregion (LRR or MLRA): LRRN Lat:	37.371039 Lo	ong: <u>-80.736149</u>	Datum: NAD83		
Soil Map Unit Name: Oriskany very cobbly sandy loam, 3 to 15 percent slopes, rubbly NWI classification: N/A					
Are climatic / hydrologic conditions on the site typical fo	r this time of year? Yes No	(If no, explain in F	Remarks.)		
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are	e "Normal Circumstances"	present? Yes 🖌 No		
Are Vegetation, Soil, or Hydrology	naturally problematic? (If r	needed, explain any answe	ers in Remarks.)		
SUMMARY OF FINDINGS – Attach site ma	ap showing sampling point	locations, transects	s, important features, etc.		

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	Is the Sampled Area within a Wetland?	Yes	No
Remarks: Upland					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled S	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No <u> V</u> Depth (inches):	
Water Table Present? Yes No <u> Depth (inches): </u>	
Saturation Present? Yes <u>No</u> Depth (inches): <u>(includes capillary fringe)</u>	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	itions), if available:
Remarks:	

Sampling Point: <u>W-HH15-UP</u>

Tige Statum (Ploy size:30'		Absolute	Dominant	Indicator	Dominance Test worksheet:
Lindendron tulipifera 35 ✓ FACU That Are OBL, FACW, or FAC: 0 (A) 2 Pinus strobus 30 ✓ FACU That Are OBL, FACW, or FAC: 0 (A) 4. Betula alleghaniensis 10 ✓ VIPL Species Across All Strats: 5 (B) 5. -	Tree Stratum (Plot size: 30')				
2 Pinus strobus 30 ✓ FACU Total Number of Dominant 5 (5) 3 0.ydgendrum arboreum 20 ✓ UPL Species Across All Strata: 5 (6) 4					· •
3. Oxydendrum arboreum 20 ✓ UpL 4. Betula alleghaniensis 10 FAC 5. 10 FAC 6. 7. 0 7. 95 = Total Cover 50% of total cover. 15 7 7. 95 = Total Cover 9. 5 FACU 9. 40 = Total Cover 8. 9 40 = Total Cover 9. 40 = Total Cover 8. 9 40 = Total Cover 9. 40 = Total Cover 8. 9 2.0% of total cover. 8 9. 40 = Total Cover 8 9. 40 = Total Cover 8 9. 40 = Total Cover 8 9. 9 - - 10. 2.0%	··	-			
4. Betula alleghaniensis 10 FAC 5. FAC Percent of Dominant Species 0 (AB) 7.			· <u> </u>		
5			<u> </u>		Species Across All Strata:5 (B)
5.	4. Betula alleghaniensis	10		FAC	Percent of Dominant Species
6	5				
7.					
Total Cover Total Cover Total Score of: Multiply by: Saping/Shub_Stratum (Plot size: 15') 9 1 <t< td=""><td></td><td></td><td></td><td></td><td>Prevalence Index worksheet:</td></t<>					Prevalence Index worksheet:
50% of total cover: 47.5 20% of total cover: 19 Sapling/Shrub_Stratum 5 FACU 2. Sassafras albidum 5 FACU 3. Robinia psuedoaccia 15 ✓ 4. Oxydendrum arboreum 10 ✓ 5. Ouercus montana 5 FACU 6. — — 7. — — 8. — — 9. _ — 50% of total cover: 20 20% of total cover: 9. _ — 10. _ UPL species _ 3. motion arbaic 5 FACU 9. _ — — 2. > Ominance Test is >50% … 3. _ — — 4. _ — — 2. > Otial cover: _ 2 3. _ — — 4. _ — — 5. _ — — 6. _ — — <td>·</td> <td>95</td> <td>Tatal Cau</td> <td></td> <td>Total % Cover of: Multiply by:</td>	·	95	Tatal Cau		Total % Cover of: Multiply by:
Saptind/Shrub Stratum (Plot size: 15') FACU FACU species x 2 =	500 statelesson 17 F			•••	
1. Liriodendron tulipifera 5 FACU FACU FACU species x 3 =		<u>20% of</u>	total cover:	13	
2 Sassafras albidum 5 FACU 3. Robinia psuedoacacia 15 ✓ 4. Oxydendrum arboreum 10 ✓ 5. Quercus montana 5 FACU 6. 5 FACU 7. 6 1 8. 9 40 9. 40 Total Cover 8. 9 3 9. 50% of total cover: 20 20% of total cover: 20 20% of total cover: 8. 9	Sapling/Shrub Stratum (Plot size: 15)	_			
3. Robinia psuedoacacia 15 ✓ FACU 4. Oxydendrum arboreum 10 ✓ UPL 5. Ouercus montana 5 FACU 6. — — (A)				FACU	
4 Oxydendrum arboreum 10 ✓ UPL Column Totals: (A) (B) 5. Guercus montana 5 FACU FACU Prevalence Index = B/A =	2. Sassafras albidum	5		FACU	FACU species x 4 =
4 Oxydendrum arboreum 10 ✓ UPL Column Totals:(A)(B) 5 Guercus montana 5 FACU Prevalence Index = B/A =	3. Robinia psuedoacacia	15	✓	FACU	UPL species x 5 =
5 Ouercus montana 5 FACU Prevalence Index = B/A =	0	10	 ✓ 		Column Totals: (A) (B)
6. Prevalence Index = B/A =			·		
6.	5. Quercus montana	- 5		FACU	Prevalence Index = B/A =
7.	6				
8	7				
9. 40 = Total Cover 3 · Prevalence Index is \$30's Herb Stratum (Plot size: 5') 20% of total cover: 8 - 4 · Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) 1.					
40 = Total Cover 50% of total cover: 20 1. 20% of total cover: 8 4. 2. 20% of total cover: 3. - 4. - 5. - 6. - 7. - 6. - 7. - 8. - 9. - 10. - 10. - 10. - 11. - 6. - 7. - 8. - 9. - 10. - 10. - 10. - 11. - 0. - 50% of total cover: 0 20% of total cover: 0 20% of total cover: 0 20% of total cover: 0 <					2 - Dominance Test is >50%
50% of total cover: 20 20% of total cover: 8 Herb Stratum (Plot size: 5')	9	40			3 - Prevalence Index is ≤3.0 ¹
Sub% of total cover: 20% of total cover: 0 Herb Stratum (Plot size: 51) 1					4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size:)		20% of	total cover:	0	
1.	Herb Stratum (Plot size:)				
2.	1				
3.					
4.					¹ Indicators of hydric soil and wetland hydrology must
5.					
6.					Definitions of Four Vegetation Strata:
0.	5				Trop Woody plants, excluding vines, 2 in (7.6 cm) or
7.	6				
8.	7				
9	8.				
10. m) tall. 11. 0 = Total Cover 50% of total cover: 0 = Total Cover 20% of total cover: 0 10. 0 = Total Cover 0 = Total Cover 0	8		· <u> </u>		
$\frac{0}{20\% \text{ of total cover:}} = \frac{0}{20\% \text{ of total cover:}} = \frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$ $\frac{0}{20\% \text{ of total cover:}} = \frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$ $\frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$ $\frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$ $\frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$ $\frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$ $\frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$ $\frac{0}{20\% \text{ of total cover:}} = \frac{0}{0} = \text{Total Cover}$	9				
$ \begin{array}{c} 0 = \text{Total Cover} \\ 0$	10				
$\frac{50\% \text{ of total cover:} 0}{30'} = 1 \text{ total cover:} 0$ $\frac{6}{20\% \text{ of total cover:} 0}{1$	11	. <u> </u>			Herb – All herbaceous (non-woody) plants, regardless
Woody Vine Stratum (Plot size:) Woody vine Stratum (Plot size:) 1		0	= Total Cov	er	of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)		20% of	total cover:	0	We advertise Allowed to the second to the second to the second se
1.	Woody Vine Stratum (Plot size: 30')				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$					
3.					
4.			·		
5. Vegetation 50% of total cover: 50% of total cover: No	3				
5. 0 = Total Cover Vegetation 50% of total cover: 0 20% of total cover: 0	4				Hydrophytic
$0 = \text{Total Cover}$ 50% of total cover: 0 20% of total cover: 0 Yes No \checkmark	5				
50% of total cover: 0 20% of total cover: 0		0	= Total Cov	er	
	50% of total cover: 0				
Remarks. (include photo numbers here of on a separate sheet.)					
	Remarks. (include photo numbers here of on a separate s	neet.)			

	ription: (Describe	to the dept				or confirm	the absence	of indicato	rs.)	
Depth (inches)	Matrix Color (moist)	%	Redo: Color (moist)	x Features %	s Type ¹	Loc ²	Texture		Remarks	
<u>(incries)</u> 0-4		100		70	<u> </u>	LUC	SL		No Redo	
	10R 3/2	·							NO REUC	X
4-10	10R 3/3	100					SL			
		·								
		·								
		·								
		·								
		·								
		·								
1 Type: C=C	oncentration, D=Dep	letion RM-	Reduced Matrix MS	S-Masked	Sand Gra	ains	² Location: Pl	–Pore Linir	ng, M=Matrix.	
Hydric Soil					ound one				oblematic Hy	
Histosol			Dark Surface	(\$7)					(10) (MLRA 1	
	bipedon (A2)		Polyvalue Be		ce (S8) (N	LRA 147.			Redox (A16)	,
Black Hi	• • •		Thin Dark Su				, <u> </u>	(MLRA 147		
	en Sulfide (A4)		Loamy Gleye			,,	Р	•	odplain Soils	(F19)
	d Layers (A5)		Depleted Mat		,			(MLRA 136	•	· · ·
	ick (A10) (LRR N)		Redox Dark S	Surface (F	[:] 6)		V		Dark Surface	(TF12)
Depleted	d Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)		0	ther (Explai	n in Remarks))
Thick Da	ark Surface (A12)		Redox Depre	ssions (Fa	3)					
	lucky Mineral (S1) (L	.RR N,	Iron-Mangan	ese Masse	es (F12) (I	_RR N,				
	A 147, 148)		MLRA 13							
	Bleyed Matrix (S4)		Umbric Surfa						drophytic veg	
	Redox (S5)		Piedmont Flo	•	. ,	•	•	•	ogy must be p	
	Matrix (S6)		Red Parent N	laterial (F	21) (MLR	A 127, 147) unl	ess disturbe	ed or problem	atic.
	Layer (if observed):									
Type: Ro										
Depth (ind	ches): <u>10</u>						Hydric Soil	Present?	Yes	No 🔽
Remarks:							1			

Project/Site: MVP	City/County: Giles Sampling Date: 10/16/2015
Applicant/Owner: MVP	State: VA Sampling Point: W-HH14
Investigator(s): S Ryan, A Larson, M Whitten	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Slope Lo	cal relief (concave, convex, none): <u>Concave</u> Slope (%): <u>3</u>
Subregion (LRR or MLRA): LRRN Lat: 37.371001	Long: <u>-80.737201</u> Datum: NAD83
Soil Map Unit Name: Oriskany very cobbly sandy loam, 3 to	15 percent slopes, rubbly NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🗾 No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	v disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes 🖌 Yes 🖌 Yes 🖌	No No No	Is the Sampled Area within a Wetland?	Yes 🖌	No
Remarks: Cowardin Code: PEM HGM: RPWWD Water Type: Slope					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
✓ Surface Water (A1)	Sparsely Vegetated Concave Surface (B8)
✓ High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	 Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	ls (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	 Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes 🖌 No Depth (inches): 1	
Water Table Present? Yes <u>V</u> No Depth (inches): 0	
Saturation Present? Yes <u>Ves</u> No <u>Depth (inches)</u> : 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <u>V</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if available:
Remarks:	

Sampling Point: W-HH14

001	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 2 (B)
4				· · · · · · · · · · · · · · · · · · ·
				Percent of Dominant Species That Are OBL_FACW_ or FAC: 100 (A/B)
5				That Are OBL, FACW, or FAC: 100 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of:Multiply by:
		= Total Cov		
50% of total cover: 0	20% of	total cover:	0	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
				Column Totals: (A) (B)
4				
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				✓ 1 - Rapid Test for Hydrophytic Vegetation
8				✓ 2 - Dominance Test is >50%
9				
	~	= Total Cov	er	3 - Prevalence Index is ≤3.0 ¹
50% of total cover:0		total cover:	-	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5')				data in Remarks or on a separate sheet)
1. Scirpus polyphyllus	20	~	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Glyceria melicaria	15	· ·		
			<u>OBL</u>	¹ Indicators of hydric soil and wetland hydrology must
3. Impatiens capensis	5		FACW	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of height.
				noight.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	40	= Total Cov	er	of size, and woody plants less than 3.28 ft tall.
50% of total cover: 20	20% of	total cover:	8	We advise Allowed wines restantion 2.00.4 in
Woody Vine Stratum (Plot size: 30')				Woody vine – All woody vines greater than 3.28 ft in height.
1				Toight.
2				
3				
4				Hydrophytic
5				Vegetation
	0	= Total Cov	er	Present? Yes V No
50% of total cover: 0	20% of	total cover:	0	
Remarks: (Include photo numbers here or on a separate s	heet.)			
Sparsely vegetated.	,			
oparoory vogetated.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix		Redox Features				
(inches)	Color (moist)	%	Color (moist)		Type ¹	Loc ²	Texture Remarks
0-7	10YR 3/2	95	10YR 5/8	5	С	Μ	CL
7-16	10YR 4/4	100					CL
			·				· · · · · _ · _ · _
							·
					. <u></u>		
¹ Type: C=Co	oncentration, D=Depl	etion, RM=	Reduced Matrix, MS	S=Masked	I Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:						Indicators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2 cm Muck (A10) (MLRA 147)
Histic Ep	oipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147,	, 148) Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	rface (S9)) (MLRA 1	47, 148)	(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye		F2)		Piedmont Floodplain Soils (F19)
Stratified	l Layers (A5)		Depleted Mat	rix (F3)			(MLRA 136, 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark S	Surface (F	6)		Very Shallow Dark Surface (TF12)
	d Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)		Other (Explain in Remarks)
Thick Da	ark Surface (A12)		Redox Depre	ssions (F	8)		
Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangane	ese Mass	es (F12) (I	LRR N,	
	A 147, 148)		MLRA 13				
Sandy G	ileyed Matrix (S4)		Umbric Surfa	ce (F13) ((MLRA 13	6, 122)	³ Indicators of hydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	, , ,
	Matrix (S6)		Red Parent M	laterial (F	21) (MLR	A 127, 147	7) unless disturbed or problematic.
	_ayer (if observed):						
Type: No	one						
Depth (ind	ches):						Hydric Soil Present? Yes 🖌 No
Remarks:							•

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP	City/County: Gile	S	Sampling Date: 10/16/2015
Applicant/Owner: MVP		State: VA	Sampling Point: W-HH14-UP
Investigator(s): S Ryan, A Larson, M Whitten	Section, Township	o, Range: <mark>N/A</mark>	
Landform (hillslope, terrace, etc.): Hillslope	Local relief (concave	, convex, none): Convex	Slope (%): <u>0</u>
Subregion (LRR or MLRA): LRRN Lat:	37.370940	Long: -80.737265	Datum: NAD83
Soil Map Unit Name: Oriskany very cobbly sand	y loam, 3 to 15 percent slop	p es, rubbly NWI classifi	cation: N/A
Are climatic / hydrologic conditions on the site typical for	or this time of year? Yes	No (If no, explain in I	Remarks.)
Are Vegetation, Soil, or Hydrology	significantly disturbed?	Are "Normal Circumstances"	present? Yes 🚩 No
Are Vegetation, Soil, or Hydrology	naturally problematic?	(If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site m	ap showing sampling po	int locations, transects	s, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	Is the Sampled Area within a Wetland?	Yes	No
Remarks: Upland					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)		
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)		
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)		
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)		
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	ils (C6) Crayfish Burrows (C8)		
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)	Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)		
Water-Stained Leaves (B9)	Microtopographic Relief (D4)		
Aquatic Fauna (B13)	FAC-Neutral Test (D5)		
Field Observations:			
Surface Water Present? Yes No 🖌 Depth (inches):			
Water Table Present? Yes No 🖌 Depth (inches):			
Saturation Present? Yes No <u></u>	Wetland Hydrology Present? Yes No		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:		
Remarks:			

HYDROLOGY

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W-HH14-UP

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')		Species?		
Liriodendron tulipifera	50	~	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
2. Acer saccharum	10			
				Total Number of Dominant
_{3.} Carya sp.	10		ND	Species Across All Strata: <u>2</u> (B)
4				Description of Description
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)
6				Prevalence Index worksheet:
7		·		Total % Cover of: Multiply by:
		= Total Cov		
50% of total cover: 0	20% of	total cover:	0	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =
1. Liriodendron tulipifera	20	~	FACU	FAC species x 3 =
2				FACU species x 4 =
2				UPL species x 5 =
3		·		
4				Column Totals: (A) (B)
5				Provolonco Indox - P/A -
6				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
	20	= Total Cov	er	
50% of total cover:0				4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5')				data in Remarks or on a separate sheet)
(i ist size:)				Problematic Hydrophytic Vegetation ¹ (Explain)
1				
2				¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Deminions of Four Vegetation Strata.
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7		·		height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				
	0			Herb – All herbaceous (non-woody) plants, regardless
		= Total Cov	-	of size, and woody plants less than 3.28 ft tall.
50% of total cover: 0	20% of	total cover:	0	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: <u>30'</u>)				height.
1				
2				
3				
4		·		Hydrophytic
5				Vegetation
	0	= Total Cov	er	Present? Yes No V
50% of total cover: 0	20% of	total cover:	0	
Remarks: (Include photo numbers here or on a separate s	heet.)			1
	,			

Depth	cription: (Describe Matrix			x Feature					,	
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture		Remarks	
0-6	10YR 3/3	100					CL		No Redo	x
6-10	10YR 4/4	100					CL			
		·								
		·								
		·								
		·								
		·								
1							2			
Hydric Soil	oncentration, D=Dep	letion, RM=	Reduced Matrix, MS	S=Masked	I Sand Gra	ains.	² Location: PL		og, M=Matrix. Distantic Hy	dric Soils ³ .
Histosol			Dark Surface	(97)					10) (MLRA 1	
	pipedon (A2)		Polyvalue Be	. ,	ce (S8) (M	I RA 147.		•	Redox (A16)	
	istic (A3)		Thin Dark Su				•	(MLRA 147	()	
	en Sulfide (A4)		Loamy Gleye	• • •	•			•	odplain Soils	(F19)
	d Layers (A5)		Depleted Ma		,			(MLRA 136		()
	uck (A10) (LRR N)		Redox Dark	. ,	6)			•	Dark Surface	(TF12)
	d Below Dark Surfac	e (A11)	Depleted Da	•	,				n in Remarks)	
Thick D	ark Surface (A12)		Redox Depre							
Sandy M	Mucky Mineral (S1) (L	.RR N,	Iron-Mangan	ese Mass	es (F12) (I	RR N,				
MLR	A 147, 148)		MLRA 13	6)						
Sandy C	Gleyed Matrix (S4)		Umbric Surfa	ice (F13) (MLRA 13	6, 122)	³ Indi	cators of hy	drophytic veg	etation and
Sandy F	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	8) wet	land hydrole	ogy must be p	present,
	d Matrix (S6)		Red Parent M	Material (F	21) (MLR	A 127, 147	') unle	ess disturbe	ed or problema	atic.
	Layer (if observed):									
Type: R	ock									
Depth (in	ches): <u>10</u>						Hydric Soil	Present?	Yes	No 🖌
Remarks:										

APPENDIX B Wetland Photographs



 Photograph Number:
 1
 Feature Name:
 W-KL14
 Cowardin Class:
 PSS

 Direction:
 W
 Date:
 6/28/2016



 Photograph Number:
 2
 Feature Name:
 W-UU11
 Cowardin Class:
 PEM

 Direction:
 SW
 Date:
 10/16/2015



Photograph Number: Direction:

WSW

Feature Name: W-UU12

Cowardin Class: PEM Date: 10/16/2015



Photograph Number: 4 Feature Name: W-HH15 Cowardin Class: PEM Direction: SSW Date: 10/16/2015



 Photograph Number:
 5
 Feature Name:
 W-HH14
 Cowardin Class:
 PEM

 Direction:
 WSW
 Date:
 10/16/2015

APPENDIX C Stream Data Sheets

STREAM ID	STREAM ID S-KL24		STREAM NA	STREAM NAME UNT to Kimballton Branch			
CLIENT MVP			PROJECT N	PROJECT NAME MVP			
LAT 37.400694 LONG -80.687779				DATE 06/28/2016 COUNTY Giles			
INVESTIGATO	ok, J. Potrikus, I	K. Pulver					
WATER TYPE	RPW	NRPW	FLOW REG	IME] Interm	ittent Ephemeral		
CHANNEL FEATURES Water Depth: 0.00 Water Width: 0.0 Ordinary High Water			Vidth: <u>3.0</u> ft Height: t RB <u>1.5</u> ft <u>0.00</u> in <u>0.0</u> ft Water Mark (Width): Water Mark (Height)	<u>1.5</u> ft	Sinuosity ✓ Low N Gradient Flat ✓ Mo (0.5/100 ft) ✓ Mo (2 ft/) Stream Erosion ✓ Moderate Artificial, Modified or Chann No Yes ✓ No Uthin Roadside Ditch Yes No Culvert Present Yes Culvert Material:	100 ft) (10 ft/100 ft) Heavy nelized ⊻_No	
FLOW CHARACTER	ISTICS	Water Preser ✓ No water, s Stream bed Stream bed Flowing wa Velocity Fast Slow	tream bed dry I moist vater		Proportion of Reach Repress Morphology Types (Only entername Riffle % Run Pool % Turbidity	r if water present) %	
INOR		JBSTRATE CO d add up to 100			ORGANIC SUBSTRATE COM (does not necessarily add u		
Substrate Type	Dia	neter	% Composition in Sampling Reach	Substrat Type	te Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse		
Boulder		56 mm (10")		Doundo	plant materials (CPOM)	50	
Cobble		mm (2.5"-10")	30	Muck-Muc	d black, very fine organic		
Gravel		nm (0.1"-2.5")			(FPOM)		
Sand		-2mm (gritty)	30	Mari	analy also il for any of		
Silt		4-0.06 mm	40	Marl	grey, shell fragments		
Ont Close num 40 Internet of the second seco					ute 15-30ft		

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

STREAM ID S-SS3			STREAM NA	STREAM NAME UNT to Kimballton Branch			
LAT 37.399029 LONG -80.685094			1 DATE 09/11/	/2015			
CLIENT MV	Р		PROJECT N	AME	MVP		
INVESTIGATORS L. Canty, E. Foster, A. Carrano							
FLOW REGIN Perennial		nt Epheme	eral 🖌 WATER TY	PE RPW —	NRPW 🖌		
		Estimate N	leasurements		Stream Erosion		
			k Width: 3.5 ft		NoneModerate	Heavy	
		Top of Ban	k Height:		Artificial, Modified or Char	nelized	
		LB 2.0	ft RB <u>2.0</u>	ft	Yes V No	menzeu	
CHANNEL FE	ATUDES	Water Dept	h: 0.00 in				
CHANNEL FE	AIURES	Water Widt			Dam PresentYes	∕_No	
			Mark: <u>0.0</u> in		Sinuosity Low	Medium 🖌 High	
		Flow Direct					
		TIOW DIRECT			Gradient Flat ✓ Moderate	Severe	
					(0.5/100 ft (2 ft/100 ft)		
		Water Pres			Proportion of Reach Repres	esented by Stream	
		✓ No water, stream bed dry Stream bed moist			Morphology TypesRiffle%Run%		
		Standing			Pool %		
FLOW CHARACTER	ISTICS	Flowing water			Turbidity ClearSlightly turbidTurbid		
		Velocity Fast	Moderate		OpaqueStained Other		
		Slow					
INOR		STRATE CO			RGANIC SUBSTRATE CON		
Outestasts	(should a	add up to 100	,		does not necessarily add u		
Substrate Type	Diame	eter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse		
Boulder		mm (10")			plant materials (CPOM)	50	
Cobble		m (2.5"-10")		Muck-Mud	black, very fine organic		
Gravel		n (0.1"-2.5")	25		(FPOM)		
Sand		nm (gritty)					
Silt		0.06 mm	25	Marl	grey, shell fragments		
Clay	< 0.004	mm (slick)	50				
		Predomina ✓ Forest	Int Surrounding Lan Commer		Indicate the dominant type ✓ Trees Shrub		
		Field/Pa				ceous	
WATEDOUED		Agricult	ural Resident	tial	Floodplain Width		
WATERSHED FEATURES		Other:				rate 15-30ft	
		Canopy Co	over		✓ Narrow <16ft		
Partly open		✓ Partly o	penPartly sh	aded	Wetland PresentYes		
		Open		Wetland ID	<u> </u>		
			•••		dominant species present		
AQUATIC VEC	GETATION	Rooted	• —	Rooted subm Attached alga	• <u> </u>	tingFree floating	
				niacheù aiga			
MACROINVER							
OR OTHER	TEDIATES	′					

STREAM ID S-PP14			STREAM NA	STREAM NAME Kimballton Branch			
LAT 37.392676 LONG -80.693871			1 DATE 10/16	/2015			
CLIENT MV	P		PROJECT N	AME	MVP		
INVESTIGATORS D. Hadersbeck, T. Woods, D. McCollough							
FLOW REGIME WATER TYPE							
Perennial	Perennial 🖌 Intermittent Ephemeral TNW RPW 🖌 NRPW						
		Estimate N	leasurements		Stream Erosion		
			k Width: <u>14 ft</u>		<u>✓</u> NoneModerate	Heavy	
		Top of Ban	k Height:		Artificial, Modified or Char	nolizod	
		LB 1.0	ft RB <u>10.0</u>	in	✓ Yes No	menzeu	
CHANNEL FE		Water Dept	h: 8.00 in				
CHANNEL FE	ATURES	Water Widt	h: 5.0 ft		Dam PresentYes _	<u>∕</u> No	
		High Water	Mark: <u>8.0 in</u>		Sinuosity Low	Medium 🖌 High	
		-	ion: Southeast		Gradient		
					Gradient FlatModerateSevere		
						(10 ft/100 ft)	
		Water Pres			Proportion of Reach Repre Morphology Types	esented by Stream	
		No water, stream bed dry Stream bed moist Standing water			Riffle 30 % Run 50 % Pool 20 %		
FLOW							
CHARACTER	ISTICS	Flowing	water		Turbidity		
		Velocity			✓ ClearSlightly turbidTurbid		
					OpaqueStained		
		Slow			Other		
INOR		STRATE CO		-	RGANIC SUBSTRATE CON does not necessarily add u		
INOR Substrate Type		add up to 10		-	does not necessarily add u	p to 100%)	
Substrate	(should Diame	add up to 100	0%) % Composition in Sampling Reach	Gubstrate Type	does not necessarily add u Characteristic sticks, wood, coarse	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder	(should) Diame > 256	add up to 100 eter mm (10")	0%) % Composition in	(e Substrate	does not necessarily add u Characteristic	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble	(should) Diame > 256 64-256 m	add up to 100 eter mm (10") im (2.5"-10")	0%) % Composition in Sampling Reach 20 30	Gubstrate Type	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel	(should) Diame > 256 64-256 m 2-64 mm	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5")	0%) % Composition in Sampling Reach 20 30 30 30	(t Substrate Type Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM)	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should) Diame > 256 64-256 m 2-64 mm 0.06-2r	add up to 100 eter mm (10") im (2.5"-10") n (0.1"-2.5") nm (gritty)	0%) % Composition in Sampling Reach 20 30	(Substrate Type Detritus Muck-Mud	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM)	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1	add up to 100 eter mm (10") mm (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm	0%) % Composition in Sampling Reach 20 30 30 30	(t Substrate Type Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick)	0%) % Composition in Sampling Reach 20 30 30 20 	(t Substrate Type Detritus Muck-Mud Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments	p to 100%) % Composition in Sampling Area 55	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest	0%) % Composition in Sampling Reach 20 30 30 20 ant Surrounding Lar Commer	(Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub	p to 100%) % Composition in Sampling Area 55	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa	0%) % Composition in Sampling Reach 20 30 30 20 ant Surrounding Lar Commer asture Industria	(Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type	p to 100%) % Composition in Sampling Area 55	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult	0%) % Composition in Sampling Reach 20 30 30 20 ant Surrounding Lar Commer asture Industria	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 55 55 (Check one) s ceous	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa	0%) % Composition in Sampling Reach 20 30 30 20 mt Surrounding Lar Commer asture Industria	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Wide > 30ft Moder	p to 100%) % Composition in Sampling Area 55	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") mm (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co	% Composition in Sampling Reach 20 30 20 30 20 Image: Superson of the second	Contraction (Contraction) Substrate Type Detritus Muck-Mud Marl Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 55 55 (Check one) s ceous	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o	% Composition in Sampling Reach 20 30 30 20 30 20 Image: Supervised and Supervised	Contraction (Contraction) Substrate Type Detritus Muck-Mud Marl Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Wide > 30ft ✓ Modei Narrow <16ft	p to 100%) % Composition in Sampling Area 55 55 (Check one) s ceous rate 15-30ft	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shadeo	% Composition in Sampling Reach 20 30 20 30 20 Image: Supervised and Su	(Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Moder Wide > 30ft ✓ Moder Narrow <16ft	p to 100%) % Composition in Sampling Area 55 55 (Check one) s ceous rate 15-30ft	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should) Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shadeo Indicate th	% Composition in Sampling Reach 20 30 20 30 20 Image: Supervised and Supervised an	(Substrate Type Detritus Muck-Mud Marl Marl tial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herba Floodplain Width Wide > 30ft ✓ Narrow <16ft	p to 100%) % Composition in Sampling Area 55 55 ceous rate 15-30ft ✓ No	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should) Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shadeo Indicate th	% Composition in Sampling Reach 20 30 20 30 20 Image: Superstand Stress of Stress	(Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herba Floodplain Width Wide > 30ft ✓ Narrow <16ft	p to 100%) % Composition in Sampling Area 55 55 ceous rate 15-30ft ✓ No	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should) Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shadeo Indicate th Rooted	% Composition in Sampling Reach 20 30 20 30 20 Image: Superstand Stress of Stress	(Substrate Type Detritus Muck-Mud Marl Marl duse cial tial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herba Floodplain Width Wide > 30ft ✓ Narrow <16ft	p to 100%) % Composition in Sampling Area 55 55 ceous rate 15-30ft ✓ No	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should) Diame > 256 64-256 m 2-64 mm 0.06-2r 0.004-1 < 0.004	add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shadeo Indicate th 	% Composition in Sampling Reach 20 30 20 30 20 Image: Superstand Stress of Stress	(Substrate Type Detritus Muck-Mud Marl Marl tial aded d record the c Rooted submo Attached alga	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herba Floodplain Width Wide > 30ft ✓ Narrow <16ft	p to 100%) % Composition in Sampling Area 55 55 ceous rate 15-30ft ✓ No	

STREAM ID S-PP15			STREAM NA	ME UNT to P	Kimballton Branch	
LAT 37.392628 LONG -80.690067			7 DATE 10/16/	2015		
CLIENT MVP PROJECT				AME I	MVP	
INVESTIGATORS D. Hadersbeck, T. Woods, D. McCollough						
FLOW REGIME WATER TYPE Perennial Intermittent Ephemeral TNW RPW NRPW						
				N W		
			leasurements		Stream Erosion	
		•	k Width: <u>6</u> ft		✓ NoneModerate _	Heavy
		Top of Banl	•		Artificial, Modified or Chan	nelized
		LB <u>6.0</u>		n	Yes No	
CHANNEL FE	ATURES	Water Dept	h: <u>6.00 in</u>		Dam PresentYes	No
		Water Widt	h: <u>3.0 ft</u>			
		High Water	Mark: 8.0 in		Sinuosity Low	Medium 🖌 High
		Flow Direct	ion: Southwest		Gradient	
						Severe (10 ft/100 ft)
		Water Pres	sent		Proportion of Reach Repre	,
			r, stream bed dry		Morphology Types	-
			ped moist		Riffle 30 % Run 50	%
FLOW		Standing			Pool 20 %	
CHARACTER	ISTICS	<u>r</u> i lowing	Water		Turbidity	
		Velocity			✓ ClearSlightly t OpagueStained	urbidTurbid
		Fast . Slow	<u> Moderate </u>		OpaqueStained Other	
INORGANIC SUBSTRATE COMPONENTS ORGANIC SUBSTRATE COMPONENTS						
INOR	GANIC SUB	STRATE CO	MPONENTS	0	RGANIC SUBSTRATE COM	PONENTS
		STRATE CO add up to 100	0%)	(0	RGANIC SUBSTRATE COM does not necessarily add up	o to 100%)
INOR Substrate Type		add up to 100				
Substrate	(should a	add up to 100	0%) % Composition in	(c Substrate Type	toes not necessarily add up Characteristic sticks, wood, coarse	o to 100%) % Composition in
Substrate Type	(should a Diame > 256	add up to 100 ter mm (10")	0%) % Composition in	(o Substrate	does not necessarily add up Characteristic	o to 100%) % Composition in
Substrate Type Bedrock Boulder Cobble	(should a Diame > 256 64-256 m	add up to 100 ter mm (10") m (2.5"-10")	0%) % Composition in Sampling Reach 20 30	(c Substrate Type	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	o to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder Cobble Gravel	(should a Diame > 256 64-256 m 2-64 mm	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5")	0%) % Composition in Sampling Reach 20 30 30 30	(c Substrate Type Detritus	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM)	o to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty)	0%) % Composition in Sampling Reach 20 30	(d Substrate Type Detritus Muck-Mud	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM)	o to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm	0%) % Composition in Sampling Reach 20 30 30 30	(c Substrate Type Detritus	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	o to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick)	0%) % Composition in Sampling Reach 20 30 30 20	(c Substrate Type Detritus Muck-Mud Marl	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments	o to 100%) % Composition in Sampling Area 65
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick)	0%) % Composition in Sampling Reach 20 30 30 30	(d Substrate Type Detritus Muck-Mud Marl duse	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM)	o to 100%) % Composition in Sampling Area 65 (Check one)
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina	0%) % Composition in Sampling Reach 20 30 30 20 mt Surrounding Lan Commer asture Industrial	(d Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type	o to 100%) % Composition in Sampling Area 65 65 (Check one)
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Forest Forest Agricult	0%) % Composition in Sampling Reach 20 30 30 20 ant Surrounding Lan Commer asture Industrial	(c Substrate Type Detritus Muck-Mud Marl Marl cial	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ TreesShrubs GrassesHerbac	o to 100%) % Composition in Sampling Area 65 65 (Check one)
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa	0%) % Composition in Sampling Reach 20 30 30 20 ant Surrounding Lan Commer asture Industrial	(c Substrate Type Detritus Muck-Mud Marl Marl cial	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herbar Floodplain Width Wide > 30ft ✓	o to 100%) % Composition in Sampling Area 65 65 (Check one)
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other: Canopy Co	% Composition in Sampling Reach 20 30 20 30 20 Image: Superstand Street Stre	(c Substrate Type Detritus Muck-Mud Marl duse cial	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type Grasses Herback Floodplain Width	o to 100%) % Composition in Sampling Area 65 (Check one) Sceous
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest — Field/Pa — Agricult — Other: Canopy Co ✓ Partly o	% Composition in Sampling Reach 20 30 30 20 30 20 Image: Street state sta	(c Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ TreesShrubs GrassesHerbac Floodplain Width Wide > 30ftModer Narrow <16ft Wetland PresentYes	o to 100%) % Composition in Sampling Area 65 (Check one) ceous ate 15-30ft
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Ca ✓ Partly o Shaded	% Composition in Sampling Reach 20 30 20 30 20 Image: Super structure s	(c Substrate Type Detritus Muck-Mud Marl duse cial	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees	o to 100%) % Composition in Sampling Area 65 (Check one) ceous ate 15-30ft
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	% Composition in Sampling Reach 20 30 20 30 20 Image: Supervised and Su	(c Substrate Type Detritus Muck-Mud Marl duse cial ial aded	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees	o to 100%) % Composition in Sampling Area 65 (Check one) sceous ate 15-30ft ✓ No
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	% Composition in Sampling Reach 20 30 20 30 20 asture Industrial wrat Resident over pen Partly shall Open e dominant type and emergent	(c Substrate Type Detritus Muck-Mud Marl duse cial	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herbar Floodplain Width Wide > 30ft ✓ Narrow <16ft	o to 100%) % Composition in Sampling Area 65 (Check one) sceous ate 15-30ft ✓ No
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th _ Rooted	% Composition in Sampling Reach 20 30 20 30 20 asture Industrial wrat Resident over pen Partly shall Open e dominant type and emergent	(c Substrate Type Detritus Muck-Mud Marl duse cial ial aded	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herbar Floodplain Width Wide > 30ft ✓ Narrow <16ft	o to 100%) % Composition in Sampling Area 65 (Check one) sceous ate 15-30ft ✓ No
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 n	add up to 100 tter mm (10") m (2.5"-10") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th Rooted Floating	% Composition in Sampling Reach 20 30 20 30 20 asture Industrial wrat Resident over pen Partly shall Open e dominant type and emergent	(c Substrate Type Detritus Muck-Mud Marl duse cial ial aded d record the c Rooted subme Attached algae	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Grasses Herbar Floodplain Width Wide > 30ft ✓ Narrow <16ft	o to 100%) % Composition in Sampling Area 65 (Check one) sceous ate 15-30ft ✓ No

	Stream traverses a culvert under the road.
MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES	

STREAM ID S-PP17			STREAM NAME UNT to New River					
LAT 37.386744 LONG -80.700408		B DATE 10/16/	/2015					
CLIENT MV	Р		PROJECT N	AME	MVP			
INVESTIGATORS D. Hadersbeck, T. Woods, D. McCollough								
FLOW REGIN Perennial _	IE Intermitte	nt 🖌 Epheme	eral TNW		NRPW			
			-					
			leasurements k Width [.] 2 ft		Stream Erosion ✓ None Moderate	Неауу		
		. op of Dame fraum				ricavy		
		Top of Ban		in.	Artificial, Modified or Chan	nelized		
			in RB <u>6.0</u>	<u></u>	⊻ YesNo			
CHANNEL FE	ATURES		h: <u>3.00 in</u>		Dam PresentYes	No		
		Water Widt						
		High Water	Mark: <u>6.0 in</u>		Sinuosity Low	Medium <u>r</u> High		
		Flow Direct	ion: South		Gradient			
					FlatModerate (0.5/100 ft(2 ft/100 ft)	Severe (10 ft/100 ft)		
		Water Pres	sont		Proportion of Reach Repre	. ,		
			r, stream bed dry		Morphology Types	-		
		Stream bed moist Standing water			Riffle 20 % Run 60 % Pool 20 %			
FLOW								
CHARACTER	ISTICS	Flowing	water		Turbidity			
		Velocity			ClearSlightly turbidTurbid			
		Fast Moderate			OpaqueStained Other			
		Slow						
INOR		STRATE CO add up to 100			RGANIC SUBSTRATE COM does not necessarily add u	p to 100%)		
INOR Substrate Type		STRATE CO add up to 100			does not necessarily add u	p to 100%)		
Substrate	(should a	STRATE CO add up to 100	0%) % Composition in Sampling Reach 20	(Substrate Type	does not necessarily add u Characteristic sticks, wood, coarse	p to 100%) % Composition in Sampling Area		
Substrate Type Bedrock Boulder	(should a Diame > 256	STRATE CO add up to 100 iter mm (10")	0%) % Composition in Sampling Reach	(Substrate	does not necessarily add u	p to 100%) % Composition in		
Substrate Type Bedrock Boulder Cobble	(should a Diame > 256 64-256 m	STRATE CO add up to 100 eter mm (10") m (2.5"-10")	0%) % Composition in Sampling Reach 20 20 30	(Substrate Type	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area		
Substrate Type Bedrock Boulder Cobble Gravel	(should a Diame > 256 64-256 m 2-64 mm	STRATE CO add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5")	0%) % Composition in Sampling Reach 20 20 20	(r Substrate Type · Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM)	p to 100%) % Composition in Sampling Area		
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n	STRATE CO add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty)	0%) % Composition in Sampling Reach 20 20 30	(i Substrate Type Detritus Muck-Mud	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM)	p to 100%) % Composition in Sampling Area		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	STRATE CO add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm	0%) % Composition in Sampling Reach 20 20 30	(r Substrate Type · Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area		
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	STRATE CO add up to 100 eter mm (10") mm (2.5"-10") n (0.1"-2.5") nm (gritty) D.06 mm mm (slick)	0%) % Composition in Sampling Reach 20 20 30 30 30	(i Substrate Type Detritus Muck-Mud Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments	p to 100%) % Composition in Sampling Area 80		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	STRATE CO add up to 100 eter mm (10") mm (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina	0%) % Composition in Sampling Reach 20 20 30 30 30 	(i Substrate Type Detritus Muck-Mud Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type	p to 100%) % Composition in Sampling Area 80		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	STRATE CO add up to 100 eter mm (10") mm (2.5"-10") n (0.1"-2.5") nm (gritty) D.06 mm mm (slick)	0%) % Composition in Sampling Reach 20 20 30 30 30 30 mt Surrounding Lan Commer	(i Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments	p to 100%) % Composition in Sampling Area 80 80		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	STRATE CO add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult	0%) % Composition in Sampling Reach 20 20 30 30 30 	(i Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add up Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba	p to 100%) % Composition in Sampling Area 80 80		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	STRATE CO add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa	0%) % Composition in Sampling Reach 20 20 30 30 30 Comment Comment Surrounding Lan Comment Surrounding Lan Comment Com	(i Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type Y Trees Shrub Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 80 80		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	STRATE CO add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult	% Composition in Sampling Reach 20 20 30 30 30 Commer Commer Industrial Ural Resident	(i Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type Y Trees Shrub Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 80 6 (Check one) s ceous		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	STRATE CO add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest	% Composition in Sampling Reach 20 20 30 30 30 Commer commer Industrial ural Resident over Partly sh	(i Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Wide > 30ft ✓ Moder Narrow <16ft	p to 100%) % Composition in Sampling Area 80 (Check one) s ceous rate 15-30ft		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	STRATE CO add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest	% Composition in Sampling Reach 20 20 30 30 30 Commer asture Industrial ural Resident Over Partly sh	(i Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Moder	p to 100%) % Composition in Sampling Area 80 (Check one) s ceous rate 15-30ft		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	STRATE COl add up to 100 atter mm (10") m (2.5"-10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Other: Canopy Co ✓ Partly o Shaded	% Composition in Sampling Reach 20 20 30 30 asture Industrial wrat Period Over pen Partly sh Open	((Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ TreesShrub GrassesHerba Floodplain Width Wide > 30ftModer Narrow <16ft Wetland PresentYes	p to 100%) % Composition in Sampling Area 80 (Check one) s ceous rate 15-30ft		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 n	STRATE CO add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Field/Pa Ganopy Co ✓ Partly o Shaded Indicate th _ Rooted	% Composition in Sampling Reach 20 20 30 30 30 asture Industrial wrat Period Open e dominant type and emergent	((Substrate Type Detritus Muck-Mud Marl Marl tial aded d record the o	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Moder Wetland Present Yes Wetland ID Teose present egent Rooted float	p to 100%) % Composition in Sampling Area 80 (Check one) s ceous rate 15-30ft ✓ No		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 n	STRATE CO add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	% Composition in Sampling Reach 20 20 30 30 30 asture Industrial wrat Period Open e dominant type and emergent	((Substrate Type Detritus Muck-Mud Marl Marl tial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Moder Wetland Present Yes Wetland ID Teose present egent Rooted float	p to 100%) % Composition in Sampling Area 80 (Check one) s ceous rate 15-30ft ✓ No		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 n	STRATE CO add up to 100 eter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Field/Pa Ganopy Co ✓ Partly o Shaded Indicate th _ Rooted	% Composition in Sampling Reach 20 20 30 30 30 asture Industrial wrat Period Open e dominant type and emergent	((Substrate Type Detritus Muck-Mud Marl Marl tial aded d record the o	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Moder Wetland Present Yes Wetland ID Teose present egent Rooted float	p to 100%) % Composition in Sampling Area 80 (Check one) s ceous rate 15-30ft ✓ No		
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 n	STRATE CO add up to 100 eter (10") (0.1"-2.5") (0.1"-	% Composition in Sampling Reach 20 20 30 30 30 asture Industrial wrat Resident over pen Partly sh Open e dominant type and emergent g algae	((Substrate Type Detritus Muck-Mud Marl Marl duse cial tial aded d record the o Rooted subm Attached alga	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Moder Wetland Present Yes Wetland ID Teose present egent Rooted float	p to 100%) % Composition in Sampling Area 80 (Check one) s ceous rate 15-30ft ✓ No ingFree floating		

	Stream emerges from high side of road from black plastic tubing then traverses a culvert under the road.
MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES	

STREAM ID S-PP18 STREAM NAME Curve Branch							
LAT 37.385499	9 LON	G -80.708750					
CLIENT MVP PROJECT NAME MVP							
INVESTIGATORS D. Hadersbeck, T. Woods, D. McCollough							
FLOW REGIM Perennial	FLOW REGIME WATER TYPE Perennial Intermittent Ephemeral TNW RPW NRPW						
			-				
			width [.] 4 ft		Stream Erosion <u> V</u> NoneModerate	Heavy	
		Top of Bank Width: <u>4</u> ft Top of Bank Height:					
			U U	in	Artificial, Modified or Char	nnelized	
		LB <u>6.0</u> i		<u> </u>	Yes No		
CHANNEL FE	ATURES		h: <u>3.00 in</u>		Dam PresentYes	✓ No	
		Water Widtl			Sinuosity Low	Medium 🖌 High	
		-	Mark: <u>6.0 in</u>				
		Flow Direct	ion: Southwest		Gradient Flat <u>✔</u> Moderate	Sovoro	
					(0.5/100 ft (2 ft/100 ft)		
		Water Pres			Proportion of Reach Repre	esented by Stream	
		No water Stream b	, stream bed dry		Morphology Types Riffle 20 % Run 60	%	
		Standing water			Pool 20 %	,0	
FLOW CHARACTERI	STICS	Flowing	water		Track fields		
		Valaaitu			Turbidity ClearSlightly	turbid <u> </u> Turbid	
		Velocity Fast	Moderate		OpaqueStained		
		✓ Slow			Other		
INOR		STRATE COI add up to 100			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate	Diame	ter	% Composition in		Characteristic	% Composition in Sampling Area	
Type Bedrock			Sampling Reach 20	Туре		Sampling Area	
Boulder	> 256	mm (10")	20	Detritus	sticks, wood, coarse plant materials (CPOM)	80	
Cobble		m (2.5"-10")	30		black, very fine organic		
Gravel		n (0.1"-2.5")	30	Muck-Mud	(FPOM)		
Sand		nm (gritty)					
Silt	0.004-0	0.06 mm		Marl	grey, shell fragments		
Clay		mm (slick)					
		Predomina	nt Surrounding Lan		Indicate the dominant type		
		✓ Forest Field/Pa	Commer asture Industrial		✓ Trees Shrub Grasses Herba	nceous	
		Agricult					
WATERSHED FEATURES		Other:			Floodplain Width Wide > 30ft ✔ Mode	rate 15-30ft	
TEATORES		Canopy Co	wor		Narrow <16ft		
		_ <u>✓</u> Partly o		aded	Matter d Dura and Mar		
		Shaded	Open		Wetland PresentYes Wetland ID	<u>✓</u> No	
		Indicate the			dominant species present		
AQUATIC VEC	GETATION		· —	Rooted subm	·	tingFree floating	
		Floating	aigae	Attached alga	e		
		Stream eme	erges from high side	of road from b	lack plastic tubing then trave	rses a culvert under	

	Stream emerges from high side of road from black plastic tubing then traverses a culvert under the road.
MACROINVERTEBRATES OR OTHER WILDLIFE ORSERVED/OTHER	
OBSERVED/OTHER OBSERVATIONS AND NOTES	

STREAM ID	S-PP19		STREAM NA	ME UNT to (Curve Branch	
LAT 37.38204	8 <u>LO</u> N	G -80.714071	1 DATE 10/16/	2015		
CLIENT MV	Р		PROJECT N	AME	MVP	
INVESTIGATO	ORS D. Hade	rsbeck, T. Wo	oods, D. McCollough			
FLOW REGIME WATER TYPE Perennial Intermittent Ephemeral TNW RPW NRPW						
					A	
			leasurements k Width [.] 3 ft		Stream Erosion	Heavy
		Top of Dank Lleight:				-
		•	ft RB <u>1.0 ¹</u>	ft	Artificial, Modified or Char	nnelized
			h: 3.00 in	<u> </u>	⊻ YesNo	
CHANNEL FE	ATURES				Dam Present Yes	✓ No
		Water Widt			Sinuosity Low	Modium 🕢 High
		-	Mark: <u>1.0 ft</u>			
		Flow Direct	ion: South		Gradient	0
						Severe (10 ft/100 ft)
		Water Pres	sent		Proportion of Reach Repre	
			r, stream bed dry		Morphology Types	-
		Stream bed moist Standing water			Riffle % Run 80 Pool 20 %	%
FLOW					Pool 20 %	
CHARACTER	ISTICS	<u> </u>			Turbidity	
		Velocity Fast Moderate		✓ ClearSlightly ✓ OpaqueStained		
			✓ Slow		Other	
INORGANIC SUBSTRATE COMPONENTS ORGANIC SUBSTRATE COMPONENTS						
INOR						
		add up to 100	0%)	(does not necessarily add u	p to 100%)
Substrate Type		add up to 100			does not necessarily add u	p to 100%)
Substrate	(should a	add up to 100	% Composition in	(e Substrate Type	does not necessarily add u Characteristic sticks, wood, coarse	p to 100%) % Composition in Sampling Area
Substrate Type	(should a Diame	add up to 100	% Composition in	(Substrate	does not necessarily add u Characteristic	p to 100%) % Composition in Sampling Area
Substrate Type Bedrock	(should a Diame > 256	add up to 100 ter	0%) % Composition in Sampling Reach	(Substrate Type Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder	(should a Diame > 256 64-256 m	add up to 100 ter mm (10")	0%) % Composition in Sampling Reach 10 20 20	(e Substrate Type	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM)	p to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2r	add up to 100 ter mm (10") m (2.5"-10") (0.1"-2.5") nm (gritty)	0%) % Composition in Sampling Reach 10 20	(Substrate Type Detritus Muck-Mud	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM)	p to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 ter mm (10") m (2.5"-10") i (0.1"-2.5") nm (gritty) 0.06 mm	0%) % Composition in Sampling Reach 10 20 20	(Substrate Type Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick)	0%) % Composition in Sampling Reach 10 20 20 20 10 40	(Substrate Type Detritus Muck-Mud Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments	p to 100%) % Composition in Sampling Area 70
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina	0%) % Composition in Sampling Reach 10 20 20 10 40 ant Surrounding Lan	(Substrate Type Detritus Muck-Mud Marl duse	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type	p to 100%) % Composition in Sampling Area 70 70
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick)	0%) % Composition in Sampling Reach 10 20 20 10 40 ant Surrounding Lan Commer	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub	p to 100%) % Composition in Sampling Area 70 70
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	add up to 100 ter mm (10") m (2.5"-10") nm (2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Forest Forest Forest	0%) % Composition in Sampling Reach 10 20 20 20 10 40 mt Surrounding Lan Commer asture Industrial	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type \checkmark Trees Shrub Grasses Herba	p to 100%) % Composition in Sampling Area 70 70 e (Check one)
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	add up to 100 ter mm (10") m (2.5"-10") nm (2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa	0%) % Composition in Sampling Reach 10 20 20 20 10 40 mt Surrounding Lan Commer asture Industrial	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 70 70 (Check one) (Check one) (Saceous
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	add up to 100 ter mm (10") m (2.5"-10") (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other:	% Composition in Sampling Reach 10 20 20 10 20 10 20 10 20 10 20 10 20 10 40 Commer asture Industrial wral Resident	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 70 70 e (Check one)
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	add up to 100 ter mm (10") m (2.5"-10") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Forest Forest Forest	% Composition in Sampling Reach 10 20 20 20 20 20 10 20 10 20 10 40 Commer asture Industrial ural Resident	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Mode Wide > 30ft ✓ Mode Narrow <16ft	p to 100%) % Composition in Sampling Area 70 6 (Check one) 95 aceous arate 15-30ft
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	add up to 100 ter mm (10") m (2.5"-10") 0 (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other: Canopy Co	% Composition in Sampling Reach 10 20 20 20 20 10 20 10 20 10 20 10 20 10 40 Int Surrounding Lan Sover pen Partly share	(Substrate Type Detritus Muck-Mud Marl Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Mode	p to 100%) % Composition in Sampling Area 70 6 (Check one) 95 aceous arate 15-30ft
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 h	add up to 100 ter mm (10") m (2.5"-10") (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other: Canopy Co _ Partly o _ Shaded	% Composition in Sampling Reach 10 20 10 20 10 20 10 20 10 20 10 20 20 10 40 Commer asture Industrial ural Resident over Pen Open Open	(Substrate Type Detritus Muck-Mud Marl duse cial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Mode Wide > 30ft ✓ Mode Wetland Present _Yes	p to 100%) % Composition in Sampling Area 70 6 (Check one) 95 aceous arate 15-30ft
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") (0.1"-2.5") mm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other: Canopy Co ✓ Partly o _ Shaded Indicate th _ Rooted	% Composition in Sampling Reach 10 20 20 20 20 10 40 Int Surrounding Lan asture Industrial ural Resident over Partly shadow open Open e dominant type and emergent	(Substrate Type Detritus Muck-Mud Marl duse cial ial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Mode Wide > 30ft ✓ Mode Narrow <16ft	p to 100%) % Composition in Sampling Area 70 2 (Check one) 3s aceous arate 15-30ft ⊻ No
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") (0.1"-2.5") mm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	% Composition in Sampling Reach 10 20 20 20 20 10 40 Int Surrounding Lan asture Industrial ural Resident over Partly shadow open Open e dominant type and emergent	(Substrate Type Detritus Muck-Mud Marl duse cial ial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Mode Wide > 30ft ✓ Mode Narrow <16ft	p to 100%) % Composition in Sampling Area 70 (Check one) (Check one) (Saceous aceous arate 15-30ft V No
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") (0.1"-2.5") mm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other: Canopy Co ✓ Partly o _ Shaded Indicate th _ Rooted	% Composition in Sampling Reach 10 20 20 20 20 10 40 Int Surrounding Lan asture Industrial ural Resident over Partly shadow open Open e dominant type and emergent	(Substrate Type Detritus Muck-Mud Marl duse cial ial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Mode Wide > 30ft ✓ Mode Narrow <16ft	p to 100%) % Composition in Sampling Area 70 2 (Check one) 3s aceous arate 15-30ft ⊻ No
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") (0.1"-2.5") mm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other: Canopy Co ✓ Partly o _ Shaded Indicate th _ Rooted _ Floating	% Composition in Sampling Reach 10 20 20 20 20 10 40 Int Surrounding Lan asture Industrial ural Resident over Partly shadow open Open e dominant type and emergent	(Substrate Type Detritus Muck-Mud Marl duse cial dial aded d record the of Rooted submo Attached alga	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width ✓ Mode Wide > 30ft ✓ Mode Narrow <16ft	p to 100%) % Composition in Sampling Area 70 70 € (Check one) % aceous arate 15-30ft ⊻ No

	Stream traverses a culvert under the road.
MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES	

STREAM ID S	-Q11		STREAM NA	STREAM NAME UNT to Stony Creek			
LAT 37.381706 LONG -80.676073					,		
CLIENT MVP			PROJECT N				
INVESTIGATO		A.Grech, L. S					
FLOW REGIN	1E		WATER TY	PE			
		nt Epheme		RPW —	NRPW 🖌		
Top of Bank Hei		k Width: <u>6.0 ft</u> k Height: <u>n</u> RB <u>4.0</u> h: <u>0.00 in</u> h: <u>0.0 ft</u> Mark: <u>0.0 in</u>	<u>in</u>		nnelized		
FLOW CHARACTERISTICS		Stream b Standing Flowing v	r, stream bed dry bed moist g water		Proportion of Reach Representation of Reach Reac	esented by Stream % turbidTurbid	
INOR		STRATE COM			RGANIC SUBSTRATE COM does not necessarily add u		
Substrate Type	Diame	-	% Composition in Sampling Reach			% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse	10	
Boulder Cobble		mm (10") Im (2.5"-10")	5		plant materials (CPOM)	10	
Gravel		וייי (2.5°-10°) וי (0.1"-2.5")	<u>10</u> 25	Muck-Mud	black, very fine organic (FPOM)		
Sand		nm (gritty)	30		· · · · · · ·		
Silt		0.06 mm	20	Marl	grey, shell fragments		
Clay		mm (slick)	10	1			
WATERSHED Predomina ✓ Forest ✓ Field/P ✓ Agricult ✓ Other: Canopy Co Partity co		✓ Forest — Field/Pa _ Agricultu	ural Resident	rcial I tial	Floodplain Width	nceous rate 15-30ft	
AQUATIC VEGETATION Rooted emer Floating alga		emergent	d record the c Rooted subme Attached alga	· <u> </u>	tingFree floating		
MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES							

STREAM ID S	-UU8-Braid			STREAM NAME Clendennin Creek			
LAT 37.381470 LONG -80.719305			5 DATE 10/16	/2015			
CLIENT MVP			PROJECT N	AME MVP			
INVESTIGATO		send, A. Hatf					
FLOW REGIN Perennial	IE ム Intermitter	nt Ephem	eral TNW		NRPW		
		Top of Ban	fleasurements k Width: <u>3.0 ft</u> k Height:		Stream Erosion <u>✓</u> NoneModerate		
		Top of Bank Height: LB 1.0 ft RB <u>1.0 ft</u>			Artificial, Modified or Char Yes V No	nnelized	
CHANNEL FE	ATURES	Water Dept	th: <u>1.00 in</u>		Dam Present Yes		
		Water Widt					
		-	Mark: <u>1.0 ft</u>		Sinuosity 🖌 Low	Medium High	
		Flow Direct	tion: <u>South</u>		Gradient <u>✓</u> Flat <u>✓</u> Moderate	Severe	
					(0.5/100 ft (2 ft/100 ft)	(10 ft/100 ft)	
		Water Pres	sent r, stream bed dry		Proportion of Reach Repre Morphology Types	esented by Stream	
		Stream I	bed moist		Riffle 100 % Run	%	
FLOW		Standing water			Pool %		
CHARACTER	ISTICS	Velocity		Turbidity ✓ ClearSlightly	turbid <u> </u> Turbid		
					OpaqueStained		
		✓ Slow			Other		
INORGANIC SUBSTRATE COMPON (should add up to 100%)				-	RGANIC SUBSTRATE CON does not necessarily add u		
Substrate		•	% Composition in	-		% Composition in	
Туре	Diame	ter	Sampling Reach	Туре	Characteristic	Sampling Area	
Bedrock	> 256 -	mm (10")		Detritus	sticks, wood, coarse plant materials (CPOM)	5	
Boulder Cobble		mm (10") m (2.5"-10")	35			5	
Gravel		(0.1"-2.5")	30	Muck-Mud	black, very fine organic (FPOM)		
Sand		nm (gritty)	30				
Silt	0.004-0).06 mm	5	Marl	grey, shell fragments		
Clay		mm (slick)					
		Predomina	ant Surrounding Lar Commer	nduse	Indicate the dominant type ✓ Trees Shrub	(Check one)	
		Forest				ceous	
WATERSHED		Agricult	ural Residen	tial	Floodplain Width		
FEATURES		Other:			✓ Wide > 30ft Mode	rate 15-30ft	
		Canopy Co		adad	Narrow <16ft		
		Partiy d Shaded		aueu	Wetland PresentYes _ Wetland ID		
		Indicate th	e dominant type an	d record the	dominant species present		
AQUATIC VEC	GETATION	Rooted	emergent	Rooted subm	ergentRooted float	tingFree floating	
		Floating	y aigae	Attached alga			
		Braid of S-I	11.18				
		51010 01 3-0					
	RTEBRATES						
OR OTHER WILDLIFE							
OBSERVED/C OBSERVATIO							
NOTES							

STREAM ID	S-UU8		STREAM NA	STREAM NAME Clendennin Creek			
LAT 37.38146		IG -80.71928 ⁻	10/10				
CLIENT MV	Р		PROJECT N	AME	MVP		
INVESTIGAT	ORS S. Towr	nsend, A. Hatt	field				
FLOW REGIN	1E		WATER TY				
Perennial 🖌 Intermittent Ephemeral TNW RPW 🗹 NRPW							
		Estimate M	leasurements		Stream Erosion		
			k Width: <u>3 ft</u>		✓ NoneModerate	<u> </u>	
		Top of Bank Height:			Artificial, Modified or Char	nalizad	
		LB <u>1.0</u>	ft RB <u>1.0</u>	ft	Yes _ No	intelized	
CHANNEL FE	ATURES	Water Dep	th: <u>1.00 in</u>				
ONANILLI		Water Widt	h: <u>2.5 ft</u>		Dam Present Yes	<u>∕</u> No	
		High Water	Mark: <u>1.0 ft</u>		Sinuosity 🖌 Low	Medium 🖌 High	
		Flow Direct	tion: South		Gradient		
					✓ Flat ✓ Moderate		
		Weter Dree			(0.5/100 ft (2 ft/100 ft)		
		Water Pres No wate	r, stream bed dry		Proportion of Reach Repre Morphology Types	sented by Stream	
			bed moist		Riffle 100 % Run %		
FLOW		✓ Flowing water			Pool %		
CHARACTER	ISTICS				Turbidity └ ClearSlightly turbidTurbid OpaqueStained		
		Velocity FastModerate					
		Fast ✔ Slow			Other		
			MPONENTS	C	RGANIC SUBSTRATE COM	PONENTS	
		add up to 10		(does not necessarily add u	p to 100%)	
Substrate Type	Diame	eter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse		
Boulder	> 256	mm (10")		Detitus	plant materials (CPOM)	5	
Cobble		ım (2.5"-10")	35	Muck-Mud	black, very fine organic		
Gravel		1 (0.1"-2.5")	30		(FPOM)		
Sand		nm (gritty)	30	Mari			
Silt Clay		0.06 mm mm (slick)	5	Marl	grey, shell fragments		
Oldy	· 0.004	· ,	ant Surrounding Lar	nduse	Indicate the dominant type	(Check one)	
		 Forest 	Commer	cial	✓ Trees Shrub	s	
		Field/P			GrassesHerba	ceous	
WATERSHED	I	Agricult Other:	turalResident	ual	Floodplain Width		
FEATURES					<u> </u>	rate 15-30ft	
Canopy Cover Partly oper Shaded				aded	Narrow <16ft		
				Wetland PresentYes Wetland ID	<u>✓</u> No		
		Indicate th	e dominant type and	d record the	dominant species present		
AQUATIC VE	GETATION	Rooted	emergent	Rooted subm	ergentRooted float	tingFree floating	
		Floating	g algae	Attached alga	e		
		-					
MACROINVE							
OR OTHER	LEDRAIES	'					

STREAM ID	S-UU9		STREAM NA	STREAM NAME Clendennin Creek			
LAT 37.38140		IG -80.719414	4 DATE 10/16/	DATE 10/16/2015			
CLIENT MVP			PROJECT N	AME	MVP		
INVESTIGAT	ORS S. Towr	send, A. Hatf	ïeld				
FLOW REGIN	ΛE	nt Ephem	WATER TY				
Perenniai		nt <u> Epnem</u>	eral TNW	RPW -	NRPW		
			leasurements		Stream Erosion		
		Top of Bank Width: <u>5</u> ft			<u>✓</u> NoneModerate	Heavy	
		Top of Ban	0		Artificial, Modified or Char	nnelized	
		LB <u>1.5</u>		ft	⊻ YesNo		
CHANNEL FE	ATURES	Water Dept	th: 2.00 in		Dam Present Yes		
		Water Widt	h: <u>3.5 ft</u>				
		High Water	Mark: <u>1.5 ft</u>		Sinuosity Low	Medium 🖌 High	
		Flow Direct	tion: West		Gradient		
						Severe (10 ft/100 ft)	
		Water Pres	sent		Proportion of Reach Repre	,	
			r, stream bed dry		Morphology Types	-	
		Stream bed moist Standing water			Riffle 100 % Run % Pool %		
FLOW CHARACTER							
CHARACTER	101100				Turbidity <u>✓</u> ClearSlightly turbidTurbid		
		Velocity Fast	Moderate		OpaqueStained		
✓ Slow					Other		
INORGANIC SUBSTRATE COMPO				-	RGANIC SUBSTRATE COM		
Substrate	(snould a	add up to 10	% Composition in	(Substrate	does not necessarily add u	% Composition in	
Туре	Diame	ter	Sampling Reach	Туре	Characteristic	Sampling Area	
Bedrock			15	Detritus	sticks, wood, coarse		
Boulder		mm (10")	5	Doundo	plant materials (CPOM)	5	
Cobble		m (2.5"-10")	45	Muck-Mud	black, very fine organic		
Gravel		1 (0.1"-2.5")	15		(FPOM)		
Sand Silt		nm (gritty)	15	Marl	arov shall fragmanta		
Clay		0.06 mm mm (slick)	5	Wan	grey, shell fragments		
City	0.001	· ,	ant Surrounding Lan	duse	Indicate the dominant type	(Check one)	
		 Forest 	Commer		✓ Trees Shrub	s	
		Field/Pa			GrassesHerba	ceous	
WATERSHED	1	Agricult Other:	ural Resident	liai	Floodplain Width		
FEATURES					Wide > 30ftMode ✓ Narrow <16ft	rate 15-30ft	
Canopy Cover Partly open Shaded				hehe			
			aueu	Wetland PresentYes Wetland ID	<u>✓</u> No		
		Indicate th	e dominant type and	d record the	dominant species present		
AQUATIC VE	GETATION	Rooted	emergent	Rooted subm	ergentRooted float	tingFree floating	
		Floating	g algae	Attached alga	le		
MACROINVE	RTEBRATES	;					
OR OTHER							

STREAM ID	S-HH16		STREAM NA	STREAM NAME UNT to Clendennin Creek			
LAT 37.37629	1 LON	G -80.725779	DATE 10/16	/2015			
CLIENT MV	Р		PROJECT N	AME	MVP		
INVESTIGATO	DRS S Ryan,	A Larson, M	Whitten				
FLOW REGIN			WATER TY	PE			
Perennial	Intermitte	nt Epheme	eral TNW	RPW 🖌	NRPW		
		Ectimato M	leasurements		Stream Erosion		
			< Width: <u>5 ft</u>		✓ None Moderate	Heavy	
		Top of Bank Height:					
			t RB_2.0	ft	Artificial, Modified or Char	nelized	
			h: 2.00 in	<u> </u>	Yes 🖌 No		
CHANNEL FE	ATURES				Dam PresentYes _	∠ No	
		Water Widt			Sinuosity 🖌 Low	Modium / High	
		-	Mark: <u>4.0 in</u>				
		Flow Direct	ion: Southeast		Gradient	4.0	
					FlatModerate (0.5/100 ft (2 ft/100 ft)		
		Water Pres	ent		Proportion of Reach Repre	, ,	
			, stream bed dry		Morphology Types	-	
			ped moist		Riffle % Run 40	%	
FLOW		Standing water			Pool 60 %		
CHARACTER	ISTICS				Turbidity		
Velocity					✓ ClearSlightly	turbid <u> </u> Turbid	
			Moderate		OpaqueStained		
Other							
INOR		STRATE CO		-	RGANIC SUBSTRATE CON does not necessarily add u		
	(should a	add up to 100	0%)	(does not necessarily add u	p to 100%)	
INOR Substrate Type		add up to 100		(does not necessarily add u		
Substrate	(should a	add up to 100	%) % Composition in	(Substrate Type	does not necessarily add u Characteristic sticks, wood, coarse	p to 100%) % Composition in Sampling Area	
Substrate Type	(should a Diame	add up to 100	%) % Composition in	(Substrate	does not necessarily add u Characteristic	p to 100%) % Composition in	
Substrate Type Bedrock	(should a Diame > 256	add up to 100	9%) % Composition in Sampling Reach	Gubstrate Type Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel	(should a Diame > 256 64-256 m	add up to 100 ter mm (10")	0%) % Composition in Sampling Reach 60 30	(Substrate Type	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM)	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty)	9%) % Composition in Sampling Reach 60	(Substrate Type Detritus Muck-Mud	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM)	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm	0%) % Composition in Sampling Reach 60 30	Gubstrate Type Detritus	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic	p to 100%) % Composition in Sampling Area	
Substrate Type Bedrock Boulder Cobble Gravel Sand	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) D.06 mm mm (slick)	0%) % Composition in Sampling Reach 60 30 10	(Substrate Type Detritus Muck-Mud Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments	p to 100%) % Composition in Sampling Area 40	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina	0%) % Composition in Sampling Reach 60 30 10 10	(Substrate Type Detritus Muck-Mud Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type	p to 100%) % Composition in Sampling Area 40 • (Check one)	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) D.06 mm mm (slick)	0%) % Composition in Sampling Reach 60 30 10 10 int Surrounding Lar Commer	(Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments	p to 100%) % Composition in Sampling Area 40 40	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ⊻ Forest	0%) % Composition in Sampling Reach 60 30 10 nt Surrounding Lar Commer asture Industria	(Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba	p to 100%) % Composition in Sampling Area 40 40	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa	0%) % Composition in Sampling Reach 60 30 10 nt Surrounding Lar Commer asture Industria	(Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 40 40 (Check one) s ceous	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other:	% Composition in Sampling Reach 60 30 10 10 Int Surrounding Lar Commer asture Industria Industria ural Resident	(Substrate Type Detritus Muck-Mud Marl Marl	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width	p to 100%) % Composition in Sampling Area 40 40	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 tter mm (10") m (2.5"-10") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co	9%) % Composition in Sampling Reach 60 30 10 Int Surrounding Lar asture Industria ural Resident	(Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Wide > 30ft ✓ Moder Narrow <16ft	p to 100%) % Composition in Sampling Area 40 (Check one) s ceous rate 15-30ft	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 tter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest _ Field/Pa _ Agricult _ Other:	%) % Composition in Sampling Reach 60 30 10 Industria Commer asture Industria ural Residen over Partly sh	(Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Wide > 30ft ✓ Moder Wetland Present Yes	p to 100%) % Composition in Sampling Area 40 (Check one) s ceous rate 15-30ft	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded	% Composition in Sampling Reach 60 30 10 10 Int Surrounding Lar Commer asture Industria ural Resident over Partly sh Open Open	(Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Modes Narrow <16ft	p to 100%) % Composition in Sampling Area 40 (Check one) s ceous rate 15-30ft	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	%) % Composition in Sampling Reach 60 30 10 Industria Commer Industria ural Pen Partly sh Open e dominant type and	(Substrate Type Detritus Muck-Mud Marl Marl tial	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Modea Narrow <16ft	p to 100%) % Composition in Sampling Area 40 40 ceous ceous rate 15-30ft ✓ No	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	%) % Composition in Sampling Reach 60 30 10 Int Surrounding Lar asture Industria ural Pen Partly sh Open e dominant type and emergent	(Substrate Type Detritus Muck-Mud Marl Marl duse cial tial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Modet Narrow <16ft	p to 100%) % Composition in Sampling Area 40 40 ceous ceous rate 15-30ft ✓ No	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th _ Rooted	%) % Composition in Sampling Reach 60 30 10 Int Surrounding Lar asture Industria ural Pen Partly sh Open e dominant type and emergent	(Substrate Type Detritus Muck-Mud Marl Marl duse cial tial aded	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Modet Narrow <16ft	p to 100%) % Composition in Sampling Area 40 40 ceous ceous rate 15-30ft ✓ No	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-(< 0.004 f	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Cc ✓ Partly o Shaded Indicate th Rooted Floating	%) % Composition in Sampling Reach 60 30 10 Int Surrounding Lar asture Industria ural Pen Partly sh Open e dominant type and emergent	(Substrate Type Detritus Muck-Mud Marl Marl duse cial tial aded d record the o Rooted subm Attached alga	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Modet Narrow <16ft	p to 100%) % Composition in Sampling Area 40 40 ceous ceous rate 15-30ft ✓ No	
Substrate Type Bedrock Boulder Cobble Gravel Sand Silt Clay WATERSHED FEATURES	(should a Diame > 256 64-256 m 2-64 mm 0.06-2n 0.004-0 < 0.004 f < 0.004 f	add up to 100 ter mm (10") m (2.5"-10") n (0.1"-2.5") nm (gritty) 0.06 mm mm (slick) Predomina ✓ Forest — Field/Pa — Agricult — Other: Canopy Co ✓ Partly o — Shaded Indicate th — Rooted — Floating	%) % Composition in Sampling Reach 60 30 10 Industria Commer Industria ural Partly sh Open e dominant type and emergent g algae	(Substrate Type Detritus Muck-Mud Marl Marl duse cial tial aded d record the o Rooted subm Attached alga	does not necessarily add u Characteristic sticks, wood, coarse plant materials (CPOM) black, very fine organic (FPOM) grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Modet Narrow <16ft	p to 100%) % Composition in Sampling Area 40 40 ceous ceous rate 15-30ft ✓ No	

STREAM ID	S-HH15		STREAM NA	STREAM NAME UNT to Clendennin Creek			
LAT 37.370798 LONG -80.737186			6 DATE 10/16/	/2015			
CLIENT MVI	2		PROJECT N	AME	MVP		
INVESTIGATO)RS S Ryan,	A Larson, M	Whitten				
FLOW REGIM			WATER TY				
Perennial 上	Intermitte	nt Epheme	eral TNW	RPW 🖌	NRPW		
Estimate Measu Top of Bank Widt Top of Bank Heig LB 1.5 ft Water Depth: 1.0 Water Width: 2.0 High Water Mark: Flow Direction: 5			k Width: <u>5 ft</u> k Height: f <u>t</u> RB <u>1.5</u> h: <u>1.00 in</u> h: <u>2.0 ft</u> Mark: <u>4.0 in</u>	<u>ft</u>	Stream Erosion ✓ None Moderate Artificial, Modified or Char Yes ✓ No Dam Present Yes Sinuosity Low ✓ Gradient ✓ Moderate ✓ (0.5/100 ft ✓ Moderate 2	nnelized ⊻_No Medium _⊻_High	
FLOW Stream bed model CHARACTERISTICS Standing water Velocity Velocity			r, stream bed dry oed moist g water		Proportion of Reach Representation of Reach Rea	%	
INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)							
Substrate Type	Diame	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock		(10)		Detritus	sticks, wood, coarse plant materials (CPOM)	75	
Boulder		mm (10") m (2.5" 10")			,	75	
Cobble Gravel		m (2.5"-10") (0.1"-2.5")	<u>30</u> 10	Muck-Mud	black, very fine organic (FPOM)		
Sand		nm (gritty)	40		(******)		
Silt		0.06 mm	20	Marl	grey, shell fragments		
Clay			20		3 • 9 • • 3 • • • 3		
WATERSHED FEATURES Cano		 ✓ Forest Field/Pa Agricult Other: Canopy Ca Partly of	Field/Pasture Industrial Agricultural Residential		Indicate the dominant type (Check one) ✓ TreesShrubs GrassesHerbaceous Floodplain Width Wide > 30ftModerate 15-30ft ✓ Narrow <16ft Wetland Present ✓ YesNo Wetland ID W-HHT4		
AQUATIC VEGETATION			emergent	d record the c Rooted submo Attached alga	• <u> </u>	ingFree floating	
		0.	· · ·		and and an 10 states		
MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES Stream enters survey area and crosses AR via culvert and flows south out of survey area. W-HH14 drains into stream north of AR.					ot survey area.		

STREAM ID	S-HH14		STREAM NA	STREAM NAME UNT to Clendennin Creek			
LAT 37.37079		G -80.738127	7 DATE 10/16/				
CLIENT MVF			PROJECT N	AME	MVP		
INVESTIGATO)RS S Ryan,	A Larson, M	Whitten				
FLOW REGIM		nt Epheme	eral 🖌 WATER TY		NRPW 🖌		
T erenna –							
Estimate Measu Top of Bank Widt Top of Bank Heig LB 1.5 ft Water Depth: 0.0 Water Width: 0.0 High Water Mark Flow Direction: 2			k Width: <u>3 ft</u> k Height: f <u>t</u> RB <u>1.5</u> h: <u>0.00 ft</u> h: <u>0.0 ft</u> Mark: <u>3.0 in</u>	<u>ft</u>	Stream Erosion ✓ None Moderate Artificial, Modified or Char Yes ✓ No Dam Present Yes Sinuosity Low ✓ Gradient ✓ Moderate ✓ 0.5/100 ft ✓ Moderate	nnelized ⊻_No Medium _⊻_High	
FLOW CHARACTERISTICS			r, stream bed dry oed moist g water		Proportion of Reach Representations of Reach R	% turbid <u> </u> Turbid	
INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)							
Substrate Type	Diame	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse		
Boulder		mm (10")			plant materials (CPOM)	90	
Cobble Gravel		m (2.5"-10") (0.1"-2.5")	40	Muck-Mud	black, very fine organic (FPOM)		
Sand		nm (gritty)	10 10				
Silt).06 mm	80	Marl	grey, shell fragments		
Clay			00		g. cy, enen nagmente		
WATERSHED Predom Vector Field Matter Agria Canopy Part		Predomina ✓ Forest Field/Pa _ Agricult _ Other: Canopy Co _ Partly o ✓ Shaded	ural Resident	cial	Floodplain Width	nceous rate 15-30ft	
AQUATIC VEGETATION			emergent	d record the of Rooted submo Attached alga	· <u> </u>	tingFree floating	
Stream begins in survey area then parallels AR before crossing AR via culvert then exits survarea flowing SW. MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES					vert then exits survey		

STREAM ID	S-HH12			STREAM NAME UNT to Clendennin Creek			
LAT 37.36613		G -80.746301	DATE 10/16/				
CLIENT MV			PROJECT NA	ME	MVP		
INVESTIGATO)RS S Ryan,	A Larson, M W	/hitten				
FLOW REGIN		nt Ephemera	al VATER TYP		NRPW 🖌		
i erennar -							
Estimate Measu Top of Bank Widt Top of Bank Heig LB 1.0 ft Water Depth: 0.0 Water Width: 0.0 High Water Mark Flow Direction: 5			Width: <u>3 ft</u> Height: <u>RB 1.0 f</u> <u>0.00 ft</u> <u>0.0 ft</u> Mark: <u>3.0 in</u>	<u>'t</u>		nnelized	
FLOW CHARACTERISTICS			stream bed dry d moist water		Proportion of Reach Repre Morphology Types Riffle % Run Pool % Turbidity ClearSlightly OpaqueStained Other	%	
INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)							
Substrate Type	Diame	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock		(10))		Detritus	sticks, wood, coarse plant materials (CPOM)	100	
Boulder Cobble		mm (10")	40		,	100	
Gravel		m (2.5"-10") (0.1"-2.5")	10 20	Muck-Mud	black, very fine organic (FPOM)		
Sand		nm (gritty)	35		()		
Silt).06 mm	35	Marl	grey, shell fragments		
Clay					<u> </u>		
		ral Resident	cial ial	Floodplain Width	s ceous rate 15-30ft		
				d record the c Rooted subme Attached algae	ergentRooted float	ingFree floating	
		a :-					
Crosses AR via culvert then exits survey area to the S. Marginal bed/bank characteristics with majority of survey area, with better defined bed/bank near southern survey boundary and outside survey area to south. WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES							

STREAM ID S-HH11			STREAM NA	STREAM NAME UNT to Clendennin Creek			
LAT 37.36608	7 LON	G -80.747473	DATE 10/16/	DATE 10/16/2015			
CLIENT MVI			PROJECT NA	AME	MVP		
INVESTIGATO)RS S Ryan,	A Larson, M W	/hitten				
FLOW REGIM		at Enhance			NRPW 🖌		
Perenniai -		nt Ephemera	al 🖌 🛛 TNW 🔔	RPW	NRPW		
Estimate Measure Top of Bank Widt Top of Bank Heige LB 1.5 ft Water Depth: 0.1 Water Width: 0.0 High Water Marke Flow Direction: 2		Width: <u>4 ft</u> Height: <u>RB 1.5 f</u> <u>0.00 ft</u> <u>0.0 ft</u> Mark: <u>3.0 in</u>	<u>'t</u>	Stream Erosion ✓ None Moderate Heavy Artificial, Modified or Channelized Yes ✓ No Dam Present Yes ✓ No Sinuosity Low ✓ Medium ✓ High Gradient Flat ✓ Moderate Severe (0.5/100 ft (2 ft/100 ft) (10 ft/100 ft)			
FLOW CHARACTERISTICS		Water Present No water, stream bed dry ✓ Stream bed moist Standing water Flowing water Velocity Fast Moderate Slow		Proportion of Reach Repre Morphology Types Riffle % Run Pool % Turbidity ClearSlightly OpaqueStained Other	% turbidTurbid		
INORGANIC SUBSTRATE COMPON (should add up to 100%)				RGANIC SUBSTRATE CON does not necessarily add u			
Substrate Type	Diamet	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock	> 050 -	(10")		Detritus	sticks, wood, coarse plant materials (CPOM)	80	
Boulder Cobble		nm (10") m (2.5"-10")	20		,	00	
Gravel		(0.1"-2.5")	20 20	Muck-Mud	black, very fine organic (FPOM)		
Sand		nm (gritty)	35				
Silt		0.06 mm	25	Marl	grey, shell fragments		
Clay	< 0.004 r	nm (slick)	20				
WATERSHED FEATURES		Predominant Surrounding Landuse		Indicate the dominant type (Check one) ✓ TreesShrubs GrassesHerbaceous Floodplain Width Wide > 30ftModerate 15-30ft ✓ Narrow <16ft Wetland PresentYesNo Wetland ID			
AQUATIC VEGETATION Rooted emer Floating alga		emergent	d record the c Rooted submo Attached alga	·	tingFree floating		
		a 15					
MACROINVEF OR OTHER WILDLIFE OBSERVED/O OBSERVATIO NOTES	THER		via culvert then exits	s survey area	to the SE.		

STREAM ID S-SS2			STREAM NA	STREAM NAME UNT to Clendennin Creek			
LAT 37.36564	5 LON	IG -80.749167	DATE 09/11/	DATE 09/11/2015			
CLIENT MV	Р		PROJECT N	AME	MVP		
INVESTIGAT	ORS L. Canty	, E. Foster, A.	Carrano				
FLOW REGIN							
Perennial _		nt 🚣 Epheme	erai <u>INVV</u>	KPW 🚣	NRPW		
			easurements		Stream Erosion		
		Top of Bank Width: <u>10</u> ft			None <u><</u> Moderate	<u> </u>	
CHANNEL FEATURES		Top of Bank	0		Artificial, Modified or Char	nnelized	
		LB_20.0 i		in	Yes 🖌 No		
		Water Dept	h: 0.00 in		Dam PresentYes	No	
		Water Width					
		-	Mark: <u>4.0 in</u>		Sinuosity <u>v</u> Low	Medium 🖌 High	
		Flow Directi	on: <u>South</u>		Gradient	2	
						Severe (10 ft/100 ft)	
		Water Pres	ent		Proportion of Reach Repre	,	
			, stream bed dry		Morphology Types Riffle % Run	%	
		Stream bed moist Standing water			Pool %	70	
FLOW CHARACTERISTICS		Flowing water		Touch I did a			
		Volocity			Turbidity ClearSlightly	turbidTurbid	
		Velocity Fast	Moderate		OpaqueStained		
		Slow			Other		
INORGANIC SUBSTRATE COMPON (should add up to 100%)				RGANIC SUBSTRATE COM does not necessarily add u			
Substrate	Diame	-	% Composition in	Substrate	-	% Composition in	
Type Bedrock			Sampling Reach	Туре		Sampling Area	
Boulder	> 256	mm (10")	25	Detritus	sticks, wood, coarse plant materials (CPOM)	15	
Cobble		im (2.5"-10")	25		black, very fine organic	-	
Gravel		n (0.1"-2.5")	30	Muck-Mud	(FPOM)		
Sand	0.06-2r	nm (gritty)					
Silt	0.004-0	0.06 mm	10	Marl	grey, shell fragments		
Clay	< 0.004	mm (slick)	10				
		Predomina ✓ Forest	nt Surrounding Lan Commer		Indicate the dominant type ✓ Trees Shrub		
		Field/Pasture Industrial			Grasses Herbaceous		
WATERSHED				ial	Floodplain Width		
FEATURES		Other:			Wide > 30ftMode	rate 15-30ft	
		Canopy Cover			✓ Narrow <16ft		
		✓ Partly of Shadod		aded	Wetland PresentYes	✓ No	
		Shaded			Wetland ID		
AQUATIC VE	GETATION			d record the Rooted subm	dominant species present ergent Rooted float	ing Free floating	
		Floating	· –	Attached alga	· _	<u> </u>	
MACROINVER OR OTHER WILDLIFE OBSERVED/C		5					

STREAM ID	S-PP22		STREAM NA	STREAM NAME UNT to Craig Creek				
LAT 37.321203 LONG -80.412889			DATE 10/17/	DATE 10/17/2015				
CLIENT MVI	C		PROJECT N	AME	MVP			
INVESTIGATO	DRS D. Hade	rsbeck, T. Wo	ods, D. McCollough					
FLOW REGIM	IE		WATER TYP					
Perennial	Intermitter	nt 🖌 Ephemer	ral TNW	RPW 💆	NRPW			
Estimate Measure Top of Bank Wid Top of Bank Heig LB 0.5 ft Water Depth: 1. Water Width: 1.0 High Water Mark Flow Direction:			Width: <u>2.5 ft</u> Height: RB <u>0.5 f</u> : <u>1.00 in</u> : <u>1.0 ft</u> Mark: <u>6.0 in</u>	<u>ft</u>	Stream Erosion None ✓ Moderate Heavy Artificial, Modified or Channelized Yes ✓ No Dam Present Yes ✓ No Sinuosity ✓ Low Medium ✓ High Gradient Koderate ✓ Severe (10 ft/100 ft)			
FLOW CHARACTERISTICS		Water Present No water, stream bed dry Stream bed moist Standing water ✓ Flowing water Velocity Fast Moderate ✓ Slow		Proportion of Reach Represented by Stream Morphology Types Riffle 10 % Run 90 % Pool % Turbidity ✓ ClearSlightly turbidTurbid OpaqueStained Other				
INOR		STRATE COM add up to 100 ⁶			RGANIC SUBSTRATE CON does not necessarily add u			
Substrate Type	Diame	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area		
Bedrock				Detritus	sticks, wood, coarse			
Boulder		mm (10")	10		plant materials (CPOM)	70		
Cobble		m (2.5"-10")	10	Muck-Mud	black, very fine organic			
Gravel		(0.1"-2.5")	20		(FPOM)			
Sand Silt		nm (gritty)).06 mm	20	Marl	arov, shall fragmanta			
		nm (slick)	40	IVIAII	grey, shell fragments			
Clay < 0.004		Predominant Surrounding Landuse ✓ Forest Commercial Field/Pasture Industrial Agricultural Residential Other: Other:			Floodplain Width Wide > 30ft <u>v</u> Mode			
		Canopy Cover Partly openPartly shaded ShadedOpen			Narrow <16ft Wetland PresentYes _✔_No Wetland ID			
AQUATIC VEGETATION Rooted eme		emergent	d record the of Rooted submo Attached alga	• <u> </u>	tingFree floating			
MACROINVEF OR OTHER WILDLIFE OBSERVED/O OBSERVATIO NOTES	THER		ces from spring or se	eep then retur	ns underground at the end p	oint		

STREAM ID	S-PP21		STREAM NA	STREAM NAME UNT to Craig Creek			
LAT 37.31729	7 LON	G -80.409219					
CLIENT MV			PROJECT N		MVP		
INVESTIGATORS D. Hadersbeck, T. Woods, D. McCollough							
FLOW REGIME WATER TYPE Perennial Intermittent Ephemeral TNW RPW NRPW							
			leasurements k Width: 4 ^{ft}		Stream Erosion None <u>✔</u> Moderate	Heavy	
		Top of Bank Height:					
		LB_0.5	0	ft	Artificial, Modified or Chan	nnelized	
			h: 3.00 in	<u></u>	Yes 🖌 No		
CHANNEL FE	ATURES	Water Dept			Dam PresentYes	∠ No	
					Sinuosity Low	Medium 🖌 High	
		-	Mark: <u>10.0 in</u>				
		Flow Direct	ion: Southwest		Gradient Flat _✓ Moderate _	Severe	
						(10 ft/100 ft)	
		Water Pres			Proportion of Reach Repre	esented by Stream	
			r, stream bed dry		Morphology Types Riffle 10 % Run 70	%	
		Stream bed moist Standing water			Pool 20 %	70	
FLOW CHARACTER	ISTICS	Flowing water					
		Velocity			Turbidity <u>✓</u> ClearSlightly t	turbid <u> </u> Turbid	
		Fast Moderate			OpaqueStained		
		✓ Slow			Other		
INOR		STRATE CO add up to 10			RGANIC SUBSTRATE COM does not necessarily add u		
Substrate Type	Diame	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse		
Boulder		mm (10")	10	Detitido	plant materials (CPOM)	70	
Cobble		m (2.5"-10")	20	Muck-Mud	black, very fine organic		
Gravel		1 (0.1"-2.5")	30		(FPOM)		
Sand		nm (gritty)	20	-			
Silt		0.06 mm <u>20</u>					
01			20	Marl	grey, shell fragments		
Clay		mm (slick)		_		(0)	
Clay		mm (slick)	ant Surrounding Lan	duse	Indicate the dominant type		
Clay		mm (slick) Predomin a	ant Surrounding Lan Commer astureIndustrial	i duse cial	Indicate the dominant type	s	
	< 0.004	mm (slick)	ant Surrounding Lan Commer astureIndustrial	i duse cial	Indicate the dominant type Trees	s	
Clay WATERSHED FEATURES	< 0.004	mm (slick)	ant Surrounding Lan Commer astureIndustrial	i duse cial	Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Moder	s	
WATERSHED	< 0.004	mm (slick) Predomina Forest Field/Pa Agricult Other: Canopy Co	ant Surrounding Lan Commer asture Industrial ural Resident	i duse cial tial	Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width	s ceous	
WATERSHED	< 0.004	mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Ca ✓ Partly o	ant Surrounding Lan Commer asture Industrial ural Resident over	i duse cial tial	Indicate the dominant type ✓ TreesShrub GrassesHerba Floodplain Width Wide > 30ftModer Narrow <16ft	s ceous rate 15-30ft	
WATERSHED	< 0.004	mm (slick) Predomina Forest Field/Pa Agricult Other: Canopy Co	ant Surrounding Lan Commer astureIndustrial uralResident over penPartly sha	i duse cial tial	Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Moder	s` ceous rate 15-30ft	
WATERSHED	< 0.004	mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	ant Surrounding Lan Commer asture Industrial ural Resident over pen Partly sha Open e dominant type and	iduse cial iial aded d record the o	Indicate the dominant type ✓ TreesShrub GrassesHerba Floodplain Width Wide > 30ftModer Narrow <16ft Wetland PresentYes Wetland ID dominant species present	s ceous rate 15-30ft <u> v</u> No	
WATERSHED	< 0.004	mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th Rooted	ant Surrounding Lan Commer asture Industrial ural Resident over pen Partly sha Open e dominant type and emergent	i duse cial iial aded	Indicate the dominant type ✓ TreesShrub GrassesHerba Floodplain Width Wide > 30ftModer Narrow <16ft Wetland PresentYes Wetland ID dominant species present ergentRooted float	s ceous rate 15-30ft <u> v</u> No	
WATERSHED	< 0.004	mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th	ant Surrounding Lan Commer asture Industrial ural Resident over pen Partly sha Open e dominant type and emergent	iduse cial tial aded d record the o	Indicate the dominant type ✓ TreesShrub GrassesHerba Floodplain Width Wide > 30ftModer Narrow <16ft Wetland PresentYes Wetland ID dominant species present ergentRooted float	s ceous rate 15-30ft <u> v</u> No	
WATERSHED	< 0.004	mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co ✓ Partly o Shaded Indicate th Rooted	ant Surrounding Lan Commer asture Industrial ural Resident over pen Partly sha Open e dominant type and emergent	iduse cial tial aded d record the o	Indicate the dominant type ✓ TreesShrub GrassesHerba Floodplain Width Wide > 30ftModer Narrow <16ft Wetland PresentYes Wetland ID dominant species present ergentRooted float	s ceous rate 15-30ft <u> v</u> No	

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STREAM ID S-PP20			STRFAM NA	STREAM NAME UNT to Craig Creek			
	LAT 37.316550 LONG -80.408634			DATE 10/17/2015			
			PROJECT N		MVP		
		ersbeck, T. Wo	oods, D. McCollough				
FLOW REGIN	1E		WATER TY	PE			
Perennial _	Intermitte	nt <u>🖌</u> Epheme	eral TNW		NRPW		
Estimate Measurements Stream Erosion							
			k Width: 6 ft		✓ NoneModerate	Heavy	
		Top of Ban				-	
		•		ft	Artificial, Modified or Char Yes ✔ No	nnelized	
			h: 4.00 in	_			
CHANNEL FE	ATURES	Water Widt			Dam PresentYes	∠ No	
			Mark: <u>10.0_in</u>		Sinuosity Low	Medium 🖌 High	
		Flow Direct	ion: Southwest		Gradient		
					FlatModerate		
					(0.5/100 ft (2 ft/100 ft)		
		Water Pres			Proportion of Reach Repre Morphology Types	esented by Stream	
		No water, stream bed dry Stream bed moist			Riffle 10 % Run 70	%	
FLOW	EL OW		g water		Pool 20 %		
CHARACTER	ISTICS	✓ Flowing water			Turbidity		
		Velocity			✓ ClearSlightly		
		Fast Moderate			OpaqueStained		
		✓ Slow			Other		
INOR		STRATE CO add up to 10	0%)	(RGANIC SUBSTRATE CON does not necessarily add u	p to 100%)	
Substrate Type	Diame	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse		
Boulder		mm (10")	10		plant materials (CPOM)	70	
Cobble		m (2.5"-10")	20	Muck-Mud	black, very fine organic		
Gravel		n (0.1"-2.5")	30		(FPOM)		
Sand		nm (gritty)	20	Mort	grey, shell fragments		
Silt Clay		0.06 mm mm (slick)	20	Marl			
Cidy			Int Surrounding Lan	alusa	Indicate the dominant type	(Chack ana)	
		rredomina <u>✓</u> Forest	Commer	rcial	Indicate the dominant type <u> ✓</u> Trees Shrub		
		Field/Pa			Grasses Herba	iceous	
WATERSHED		Agricult Other:	ural Resident	tial	Floodplain Width		
FEATURES		Other.				rate 15-30ft	
			over		Narrow <16ft		
		_ ∠ Partly o Shaded		aded	Wetland PresentYes	<u>.</u> ✓ No	
					Wetland ID		
		Indicate the dominant type and record the dominant species present					
AQUATIC VE	GETATION	Rooted emergentRooted submergentRooted floatingFree floating					
AQUATIC VEC	GETATION		• —	Rooted subm Attached alga	· _	ingFree lioating	
AQUATIC VE	GETATION	Rooted	• —		· _	tingFree libating	
	GETATION	Rooted	• —		· _	ingFree hoating	

|--|

			· · · · · · · · · · · · · · · · · · ·				
STREAM ID S-HH17			STREAM NA	STREAM NAME Craig Creek			
LAT 37.31455	4 LON	IG -80.398420) DATE 10/17/	DATE 10/17/2015			
CLIENT MV	Р		PROJECT NA	AME	MVP		
INVESTIGATO	DRS S Ryan,	A Larson, M	Whitten, A Carrano				
FLOW REGIN			WATER TYP				
Perennial		nt Epheme	eral TNW	RPW 🖌	NRPW		
		Estimate N	leasurements		Stream Erosion		
		Top of Ban	k Width: <u>18 ft</u>		<u>✓</u> NoneModerate	Heavy	
		Top of Bank	k Height:		Artificial, Modified or Char	nelized	
CHANNEL FEATURES		LB_4.0	<u>ft</u> RB <u>4.0</u> f	ft	Yes _ No		
		Water Dept	th: <u>12.00 in</u>		— <u> </u>		
		Water Widt	h: <u>10.0 ft</u>		Dam PresentYes _	<u>/ No</u>	
			Mark: <u>12.0 in</u>		Sinuosity Low _	Medium High	
		Flow Direct	_		Gradient		
					✓ FlatModerate	Severe	
						(10 ft/100 ft)	
		Water Pres	sent r, stream bed dry		Proportion of Reach Repre	esented by Stream	
			bed moist		Morphology Types Riffle % Run 60 %		
FLOW CHARACTERISTICS		Standing water			Pool 40 %		
		Flowing water			Turbidity		
		Velocity			✓ ClearSlightly turbidTurbid		
			Moderate		OpaqueStained		
		✓ Slow			Other		
INOR		STRATE COI add up to 100			RGANIC SUBSTRATE CON does not necessarily add u		
Substrate		-	% Composition in	Substrate % Co		% Composition in	
Туре	Diame	ler	Sampling Reach	Type Detritus	Characteristic	Sampling Area	
Bedrock					sticks, wood, coarse		
Boulder		mm (10")	10		plant materials (CPOM)	15	
Cobble		im (2.5"-10")	40	Muck-Mud	black, very fine organic (FPOM)		
Gravel		า (0.1"-2.5")	30				
		and (anith i)					
Sand		nm (gritty)		Mort			
Silt	0.004-0	0.06 mm	20	Mari	grey, shell fragments		
	0.004-0	0.06 mm mm (slick)		_	grey, shell fragments	(Chock one)	
Silt	0.004-0	0.06 mm mm (slick)	20 ant Surrounding Lan Commer	duse			
Silt	0.004-0	0.06 mm mm (slick) Predomina	ant Surrounding Lan Commer astureIndustrial	iduse cial	grey, shell fragments Indicate the dominant type	s	
Silt Clay	0.004-0 < 0.004	0.06 mm mm (slick) Predomina <u>v</u> Forest Field/Pa Agricult	ant Surrounding Lan Commer astureIndustrial	iduse cial	grey, shell fragments Indicate the dominant type TreesShrubGrassesHerba	s	
Silt	0.004-0 < 0.004	0.06 mm mm (slick) Predomina <u> </u>	ant Surrounding Lan Commer astureIndustrial	iduse cial	grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Moder	s	
Silt Clay WATERSHED	0.004-0 < 0.004	0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co	ant Surrounding Lan Commer astureIndustrial uralResident	iduse cial I tial	grey, shell fragments Indicate the dominant type Trees Shrub Grasses Herba Floodplain Width	s ceous	
Silt Clay WATERSHED	0.004-0 < 0.004	0.06 mm mm (slick) Predomina ✓ Forest — Field/Pa — Agricult — Other: Canopy Co — Partly o	ant Surrounding Lan Commer astureIndustrial suralResident over penPartly sha	iduse cial I tial	grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Moder ✓ Narrow <16ft	s ceous rate 15-30ft	
Silt Clay WATERSHED	0.004-0 < 0.004	0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co	ant Surrounding Lan Commer astureIndustrial uralResident	iduse cial I tial	grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft Moder	s ceous rate 15-30ft	
Silt Clay WATERSHED FEATURES	0.004-0	0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co Partly o ✓ Shaded Indicate th	ant Surrounding Lan Commer astureIndustrial curalResident over penPartly sha dOpen e dominant type and	iduse cial itial aded d record the o	grey, shell fragments Indicate the dominant type ✓ Trees Shrub Grasses Herba Floodplain Width Wide > 30ft ✓ Narrow <16ft Wetland PresentYes Wetland ID dominant species present	s ceous rate 15-30ft <u> V</u> No	
Silt Clay WATERSHED	0.004-0	0.06 mm mm (slick) Predomina ✓ Forest Field/Pa Agricult Other: Canopy Co Partly o ✓ Shaded Indicate th	ant Surrounding Lan Commer astureIndustrial uralResident over penPartly sha Open Open e dominant type and emergent	iduse cial i tial	grey, shell fragments Indicate the dominant type ✓ TreesShrubGrassesHerba Floodplain WidthWide > 30ftModer ✓ Narrow <16ft Wetland PresentYes Wetland ID dominant species present ergentRooted float	s ceous rate 15-30ft <u> V</u> No	
Silt Clay WATERSHED FEATURES	0.004-0	0.06 mm mm (slick) Predomina ✓ Forest — Field/Pa — Agricult — Other: Canopy Co — Partly o ✓ Shaded Indicate th — Rooted	ant Surrounding Lan Commer astureIndustrial uralResident over penPartly sha Open Open e dominant type and emergent	iduse cial i tial aded d record the o	grey, shell fragments Indicate the dominant type ✓ TreesShrubGrassesHerba Floodplain WidthWide > 30ftModer ✓ Narrow <16ft Wetland PresentYes Wetland ID dominant species present ergentRooted float	s ceous rate 15-30ft <u> V</u> No	
Silt Clay WATERSHED FEATURES	0.004-0	0.06 mm mm (slick) Predomina ✓ Forest — Field/Pa — Agricult — Other: Canopy Co — Partly o ✓ Shaded Indicate th — Rooted	ant Surrounding Lan Commer astureIndustrial uralResident over penPartly sha Open Open e dominant type and emergent	iduse cial i tial aded d record the o	grey, shell fragments Indicate the dominant type ✓ TreesShrubGrassesHerba Floodplain WidthWide > 30ftModer ✓ Narrow <16ft Wetland PresentYes Wetland ID dominant species present ergentRooted float	s ceous rate 15-30ft <u> V</u> No	
Silt Clay WATERSHED FEATURES	0.004-0	0.06 mm mm (slick) Predomina ✓ Forest — Field/Pa — Agricult — Other: Canopy Co — Partly o ✓ Shaded Indicate th — Rooted	ant Surrounding Lan Commer astureIndustrial uralResident over penPartly sha Open Open e dominant type and emergent	iduse cial i tial aded d record the o	grey, shell fragments Indicate the dominant type ✓ TreesShrubGrassesHerba Floodplain WidthWide > 30ftModer ✓ Narrow <16ft Wetland PresentYes Wetland ID dominant species present ergentRooted float	s ceous rate 15-30ft <u> V</u> No	

STREAM ID	S-HH18		STREAM NA	STREAM NAME UNT to Craig Creek			
LAT 37.31400		G -80.398651	DATE 10/17/	DATE 10/17/2015			
CLIENT MVI			PROJECT N	AME	MVP		
INVESTIGATO)RS S Ryan,	A Larson, M \	Whitten, A Carrano				
FLOW REGIM		nt Epheme	eral TNW		NRPW		
Ferenniai -							
Estimate Measure Top of Bank Widt Top of Bank Heig LB 3.0 ft Water Depth: 2.0 Water Width: 2.0 High Water Mark: Flow Direction: 1			: Width: <u>6</u> ft : Height: t RB <u>2.0</u> ft n: <u>2.00 in</u> n: <u>2.0 ft</u> Mark: <u>2.0 in</u>	<u>ft</u>	Stream Erosion ✓ None Moderate Heavy Artificial, Modified or Channelized Yes ✓ No Dam Present Yes ✓ No Sinuosity Low ✓ Medium ✓ High Gradient Severe (0.5/100 ft) Severe (0.5/100 ft) ✓ Moderate Severe		
FLOW CHARACTERISTICS		Water Present No water, stream bed dry Stream bed moist Standing water ✔ Flowing water ✔ Velocity Fast Moderate ✔ Slow		Proportion of Reach Representation of Reach Rea	% turbidTurbid		
INOR	INORGANIC SUBSTRATE COMPON (should add up to 100%)				RGANIC SUBSTRATE CON does not necessarily add u		
Substrate Type	Diame	ter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock			60	Detritus	sticks, wood, coarse		
Boulder		mm (10")	5		plant materials (CPOM)	10	
Cobble		m (2.5"-10")	20	Muck-Mud	black, very fine organic (FPOM)		
Gravel Sand		(0.1"-2.5") nm (gritty)	15				
Sand).06 mm		Marl	grey, shell fragments		
Clay		mm (slick)		Wall	grey, shen nagmento		
WATERSHED FEATURES		Predominant Surrounding Landuse ✓ Forest Commercial Field/Pasture Industrial Agricultural Residential Other: Canopy Cover Partly open Partly open Partly shaded ✓ Shaded Open		Indicate the dominant type (Check one) ✓ Trees Shrubs Grasses Herbaceous Floodplain Width Wide > 30ft Moderate 15-30ft ✓ Narrow <16ft Wetland Present Yes ✓ No Wetland ID			
AQUATIC VEGETATION		emergent	d record the c Rooted submo Attached alga	·	ingFree floating		
		Stream joins	S-HH17				
MACROINVER OR OTHER WILDLIFE OBSERVED/O OBSERVATIO NOTES	THER		, , , , , , , , , , , , , , , , , , ,				

STREAM ID	S-RR14		STREAM NA	STREAM NAME UNT to Craig Creek			
LAT 37.31389	LON	IG -80.40244	5 DATE 09/14/	DATE 09/14/2015			
CLIENT MV	Р		PROJECT N	AME	MVP		
INVESTIGAT	ORS J. Cook	, R. Keyser, D	D. McCullough				
FLOW REGIN Perennial		nt Ephem	eral 🖌 WATER TY	PE RPW	NRPW 🖌		
		Estimato N	leasurements		Stream Erosion		
			k Width: <u>7 ft</u>		NoneModerate	Heavy	
CHANNEL FEATURES		Ton of Donk Lloight:			Artificial, Modified or Char	malizad	
		LB 2.0	ft RB 18.0	in	Yes ✓ No	inelized	
		Water Dep		-			
		Water Widt			Dam PresentYes	∠ No	
			Mark: <u>3.0 in</u>		Sinuosity 🖌 Low	Medium 🖌 High	
		-	tion: North				
		I IOW BIICO			Gradient <u>✓</u> FlatModerate _	Severe	
					(0.5/100 ft (2 ft/100 ft)		
		Water Pres			Proportion of Reach Repre	esented by Stream	
		✓ No water, stream bed dry Stream bed moist			Morphology Types Riffle % Run %		
FLOW CHARACTERISTICS		Standing water Flowing water			Pool %		
					TurbidityClearSlightly turbidTurbic		
		Slow		1	Other		
INOR		STRATE CO add up to 10			RGANIC SUBSTRATE COM does not necessarily add u		
Substrate Type	Diame	eter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock				Detritus	sticks, wood, coarse		
Boulder		mm (10")	10	Detilitio	plant materials (CPOM)	10	
Cobble		im (2.5"-10")	30	Muck-Mud	black, very fine organic		
Gravel		1 (0.1"-2.5")	35		(FPOM)		
Sand		nm (gritty)	25	Mort	arov shall fragmanta		
Silt Clay		0.06 mm mm (slick)		Marl	grey, shell fragments		
Cidy	• 0.004	· ,	l ant Surrounding Lan	duse	Indicate the dominant type	(Check one)	
		<u>✓</u> Forest	Commer		<u>✓</u> Trees Shrub		
		Field/Pasture Industrial			Grasses Herbaceous		
WATERSHED)	Agricult Other:	tural Resident	tial	Floodplain Width		
FEATURES						rate 15-30ft	
		Canopy Co		adad	✓ Narrow <16ft		
		Partly of Shadeo		aueu	Wetland PresentYes	<u>✓</u> No	
				d 1000014	Wetland ID		
AQUATIC VE	GETATION			Rooted subm	dominant species present ergent Rooted float	ting Free floating	
	_		· —	Attached alga	• <u> </u>	· 0	
MACROINVER OR OTHER	RIEBRATES	5					

APPENDIX D Stream Photographs



Photograph Number: 1 Flow Regime: Ephemeral Feature Name: S-KL24 Е Direction: Date: 7/11/2016



Photograph Number: 2 Direction: SSE Feature Name: S-SS3

Flow Regime: Ephemeral Date: 9/11/2015



Photograph Number:3Feature Name:S-PP14Flow Regime:PerennialDirection:NWDate:10/16/2015



Photograph Number:4Feature Name:S-PP15Flow Regime:PerennialDirection:NNEDate:10/16/2015



Photograph Number:5Feature Name:S-PP17Flow Regime:IntermittentDirection:SEDate:10/16/2015



Photograph Number:6Feature Name:S-PP18Flow Regime:IntermittentDirection:WDate:10/16/2015



Photograph Number: 7 Flow Regime: Feature Name: S-PP19 Intermittent s 10/16/2015 Direction: Date:



Photograph Number: 8 Direction: Ν

Feature Name: S-Q11

Flow Regime:

Ephemeral Date: 6/17/2015



Photograph Number:9Feature Name:S-UU8-BraidFlow Regime:PerennialDirection:SSWDate:10/16/2015



Photograph Number:10Feature Name:S-UU8Flow Regime:PerennialDirection:NDate:10/16/2015



Photograph Number:11Feature Name:S-UU9Flow Regime:PerennialDirection:SSWDate:10/16/2015



Photograph Number:12Feature Name:S-HH16Flow Regime:PerennialDirection:NWDate:10/16/2015



Photograph Number:13Feature Name:S-HH15Flow Regime:PerennialDirection:SDate:10/16/2015



Photograph Number:14Feature Name:S-HH14Flow Regime:EphemeralDirection:SDate:10/16/2015



Photograph Number:15Feature Name:S-HH12Flow Regime:EphemeralDirection:NDate:10/16/2015



Photograph Number:16Feature Name:S-HH11Flow Regime:EphemeralDirection:NWDate:10/16/2015



Photograph Number:17Direction:SE

Feature Name: S-SS2

Flow Regime: Intermittent Date: 9/11/2015



Photograph Number:18Feature Name:S-PP22Flow Regime:IntermittentDirection:NEDate:10/17/2015



Photograph Number:19Feature Name:S-PP21Flow Regime:EphemeralDirection:NEDate:10/17/2015



Photograph Number:20Feature Name:S-PP20Flow Regime:IntermittentDirection:SSWDate:10/17/2015



Photograph Number:21Feature Name:S-HH17Flow Regime:PerennialDirection:WDate:10/17/2015



Photograph Number:22Feature Name:S-HH18Flow Regime:PerennialDirection:NDate:10/17/2015



Photograph Number:23Feature Name:S-RR14Flow Regime:EphemeralDirection:NDate:9/14/2015

APPENDIX E Project Field Personnel

Project Field Personnel

Name	Job Title	Degree	Years of Experience	Summary
Whitten, Mike	Environmental Scientist	B.S. Mathematics, M.S. Environmental Sciences	26	26 years performing wildlife and endangered species surveys, habitat evaluations, and ecological risk assessments; one year experience conducting stream and wetland delineations. Training includes USACE Wetland Delineation Training Program, and 40-Hour OSHA Compliance Course and annual refreshers.
Townsend, Sara	Ecologist	B.S. Watershed Science, M.S. Wildlife Ecology Conservation	20	Fifteen years conducting jurisdictional wetland delineations, USACE Wetland Delineation Training, U.S. Forest Service stream assessment protocol training.
Hadersbeck, David	Wildlife Biologist II	B.S. Wildlife Ecology	13+	Extensive experience with avian research, botanical surveys, and wetland delineations ranging across the United States.
Ryan, Stephen	Biologist IV	B.S. Wildlife & Fisheries Science	6	Seven years employed in environmental sciences with an additional four years in construction management. Responsibilities have included wetland/stream delineation and mapping, reproduction and dispersal studies of migrant waterfowl, Phase I bog turtle assessments, Phase I northern log-eared bat assessments, environmental site assessments, endangered shorebird surveys, vernal pool surveys, critical issues analysis assessments, preparation of general and individual permits for development within regulated areas (freshwater wetlands, flood hazard areas, and coastal zones), and technical review/writing.
Larson, Andy	Environmental Scientist II	B.S. Environmental Science: Freshwater Ecology	4+	Going into 5th year with the company as part time employee focusing on fisheries projects and general biological surveys. Minored in Geography: Soils Science and Chemistry, with a focus of wetland studies with B.S.
Cook, James	Environmental Scientist II	BS in Biology, M.S. Environmental Science	3+	Over three years of wetland delineation/mapping experience throughout East Coast and Alaska. Training includes a Masters degree with a focus on wetland science, membership in the Society for Wetland Science, and certification for Wetland Professional in Training.
Foster, Emily	Biologist II	B.S. Biology, M.S. Environmental Science	3+	Over three years experience conducting wetland delineations and assessments in multiple regions. Member of the Society for Wetland Scientists (SWS), and Wetland Professional in Training (WPIT) certification through the SWS.
Pulver, Kevin	Environmental Scientist II	B.S. Environmental Science/Studies/Watershed Management	2+	Two years experience conducting stream and wetland delineations. USACE Wetland Delineation Training Program certificate from Swamp School Institute.
Potrikus, Jennifer	Biologist I	B.A Biology, M.S Conservation Biology	<1	6 months in the consulting field as a field biologist focused on wetland and stream delineations. Other areas include invasive species and threatened/endangered species assessments.

PLANT SURVEY FOR THE PROPOSED AND ALTERNATIVE BLUE RIDGE PARKWAY CROSSINGS

MOUNTAIN VALLEY PIPELINE

15 August 2016

Prepared for:

National Park Service Blue Ridge Parkway 199 Hemphill Knob Road Asheville, NC 28803

Prepared on behalf of:



Prepared by:



Environmental Solutions & Innovations, Inc.

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Appendices

Appendix A: Photographs

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1.0 Introduction

Mountain Valley Pipeline, LLC (MVP), a joint venture between EQT Midstream Partners, LP and affiliates of NextEra Energy, Inc., Con Edison Gas Midstream, LLC, WGL Holdings, Inc., Vega Energy Partners, Ltd., and RGC Midstream, LLC, is seeking a Certificate of Public Convenience and Necessity (Certificate) from the Federal Energy Regulatory Commission (FERC) pursuant to Section 7(c) of the Natural Gas Act authorizing it to construct and operate the proposed Mountain Valley Pipeline Project (Project) located in 17 counties in West Virginia and Virginia. MVP plans to construct an approximately 301-mile, 42-inch-diameter natural gas pipeline to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies (LDCs), industrial users and power generation in the Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region.

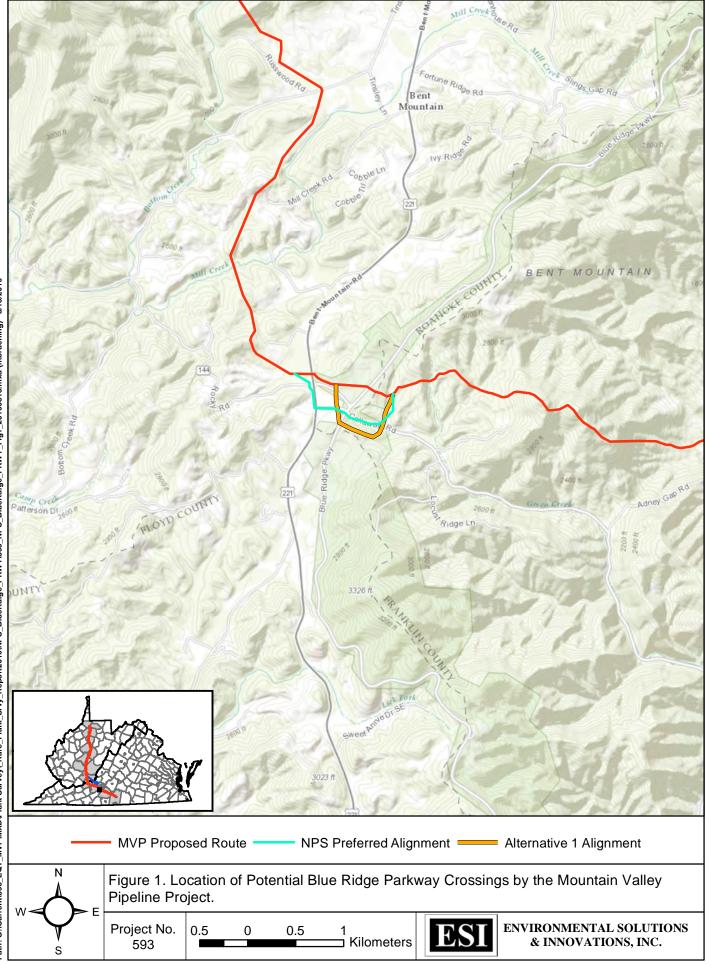
The proposed pipeline will extend from the existing Equitrans, L.P. transmission system and other natural gas facilities in Wetzel County, West Virginia to Transcontinental Gas Pipe Line Company, LLC's (Transco) Zone 5 compressor station 165 in Pittsylvania County, Virginia. In addition to the pipeline, the Project will include approximately 171,600 horsepower (hp) of compression at three compressor stations currently planned along the route, as well as measurement, regulation, and other ancillary facilities required for the safe and reliable operation of the pipeline. The pipeline is designed to transport up to 2.0 million dekatherms per day of natural gas.

The Project is currently proposed to cross the Blue Ridge Parkway National Park (BRP) in Roanoke and Franklin Counties, Virginia between approximate mileposts 244.0 and 244.5 (Figures 1 and 2). The survey area, as defined in the Special Use Permit (Permit #2016.076) approved on May 23, 2016, is defined as an area extending 300 feet north and south from N37° 07.477' and W80° 07.603', extending east and west to the BRP boundaries.

Two potential crossings are identified in Permit #2016.076 (MVP Proposed Alignment and National Park Service [NPS] Preferred Alignment). A third crossing (Alternative 1 Alignment) was added in a permit amendment on June 1, 2016.

This report provides details of plant surveys conducted along the MVP Proposed Alignment, NPS Preferred Alignment, and Alternative 1 Alignment.





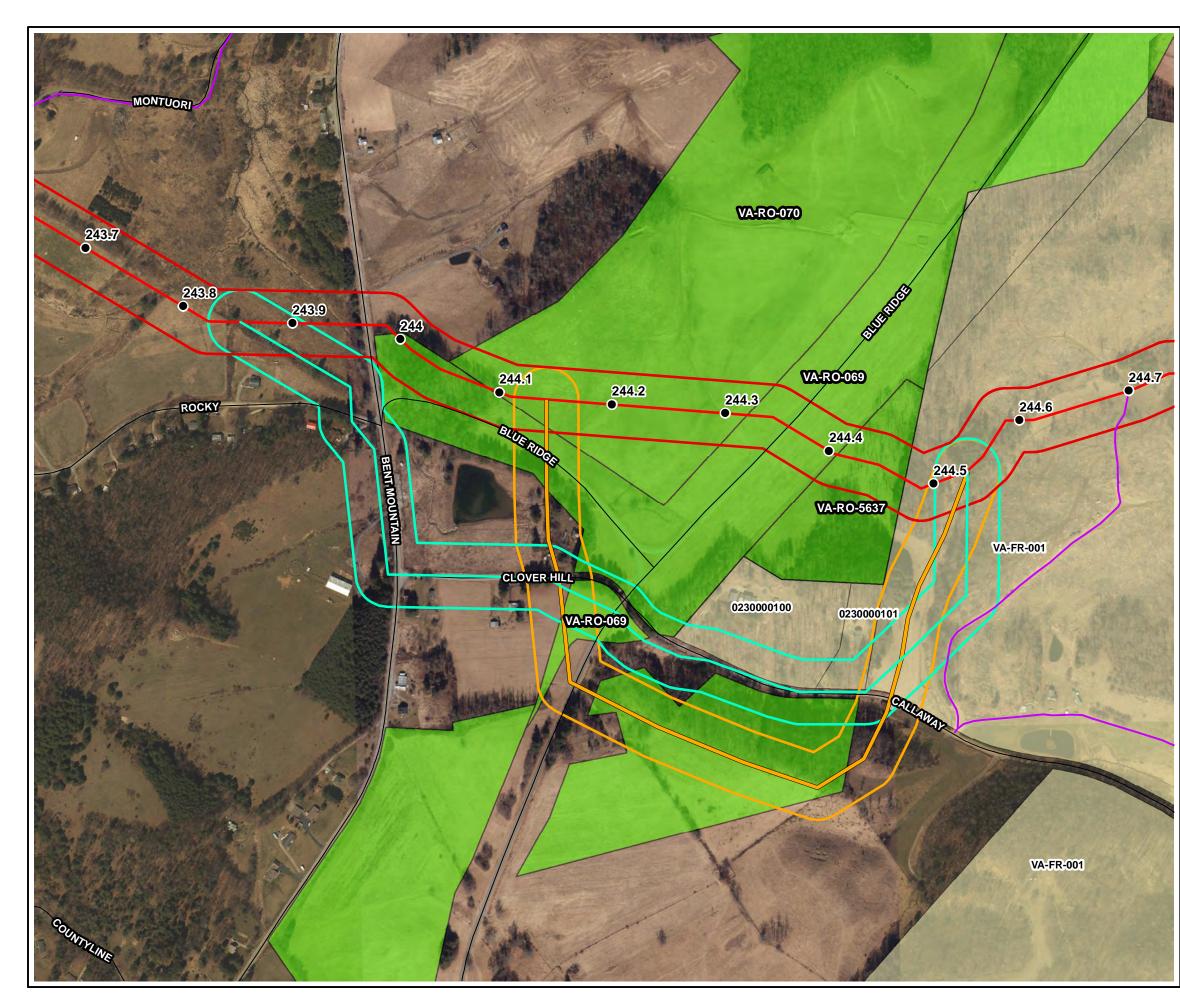
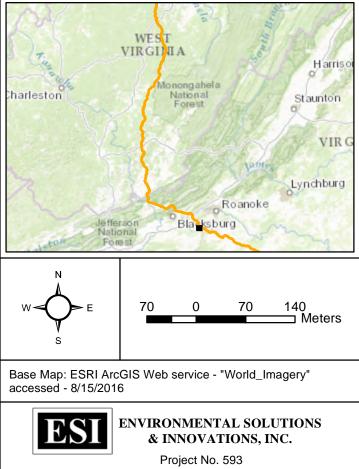


Figure 2: Location of Surveys along the Potential Blue Ridge Parkway Crossings by the Mountain Valley Pipeline Project.

- MVP Rev 4.0.0 Milepost
- Proposed MVP Access Road
- Proposed MVP Alignment
- --- NPS Preferred Alignment
- Alternative 1 Alignment
- Proposed MVP Alignment Survey Buffer
- NPS Preferred Alignment Survey Buffer
- Alternative 1 Alignment Survey Buffer
- National Park Service Parcel
- Privately owned parcel

NOTE: NPS Preferred Alignment with Buffer and Alternative 1 Alignment (20160524) with buffer had been supplied by client on May 2016.



2.0 Plant Survey

Plant surveys are completed using a meander search technique across the 300-foot wide environmental survey corridor. In areas where habitat conditions are highly suitable for protected species, more intensive searches are employed. Any protected plants are noted and GPS coordinates recorded. Additionally, habitat suitability is also noted.

Target plant species are based on a desktop assessment and Project coordination with respective federal and state agencies; however, any plant species of interest are documented if identified in the field.

3.0 Results

A plant survey was conducted by ESI scientists on BRP parcels on June 6, 2016 as well as privately-owned parcels on June 30, 2016 and July 21, 2016. Multiple plant communities were observed, including: pasture/hayfield, pasture with scattered trees, planted pines/early successional forest, young forest, scrub-shrub wetland, emergent wetland, and over-mature/old-growth forest. No threatened or endangered plant species were identified within these communities.

3.1.1 Pasture/Hayfield

This plant community was found along the majority of the MVP Proposed Alignment as well as areas along Alternative 1 Alignment. Dominant herbaceous species observed were meadow fescue (*Festuca pratensis*), orchard grass (*Dactylis glomerata*), timothy (*Phleum pratense*), and white clover (*Triflorum repans*).

3.1.2 Pasture with Scattered Trees

This plant community was found along a small portion of the MVP proposed alignment. The dominant tree observed in this area was black locust (*Robinia pseudoacacia*). Dominant herbaceous species observed were meadow fescue, orchard grass, timothy, and white clover.

3.1.3 Planted Pines/Early Successional Forest

Small areas of plant pines / early successional forest were found in the central parts of the NPS Preferred Alignment and Alternative 1 Alignment. It is primarily composed of a row of white pine (*Pinus strobus*) as well as scattered early successional trees such



as white ash (*Fraxinus americana*) and black cherry (*Prunus serotina*). The dominant shrub observed in this area was the invasive exotic multiflora rose (*Rosa multiflora*).

3.1.4 Young Forest

Young forest was observed along the central part of the NPS Preferred Alignment. The most abundant trees observed in this area were sassafras (*Sassafras albidum*), black locust, white oak (*Quercus alba*), and tulip tree (*Liriodendron tulipifera*). The dominant shrub was the invasive exotic multiflora rose. Dominant herbaceous species observed were poison ivy (*Toxicodendron radicans*), Christmas fern (*Polystichum acrostichoides*), and white snakeroot (*Ageratina altissima*).

3.1.5 Scrub-shrub Wetland

One scrub-shrub wetland was observed on the western portion of the MVP Proposed Alignment. The dominant tree in this area was silky dogwood (*Cornus amomum*). Dominant herbaceous species observed included skunk cabbage (*Symplocarpus foetidus*) and orange jewelweed (*Impatiens capensis*).

3.1.6 Emergent Wetland

One emergent wetland was observed on the southeastern portion of the NPS Preferred Alignment. The dominant species observed in this area were rice-cut grass (*Leezia orzoides*), orange jewelweed, and field horsetail (*Equisetum arvense*).

3.1.7 Mature Forest

Forested habitat exhibiting characteristics of mature forest was observed on the western part of the MVP Proposed Alignment as well as the southeastern parts of the NPS Preferred Alignment and Alternative 1 Alignment (Figure 3). Many of the trees in these areas were 3 - 4 feet diameter at breast height (DBH). These areas also exhibited other characteristics of this forest type, including: no signs of past tree cutting, uneven age tree size distribution, rich herb layer, natural downed logs, and relatively low amount of invasive plant species.

Dominant trees in these forests included red oak (*Quercus rubra*), white oak, tulip tree, white pine, and red maple (*Acer rubrum*). Other trees observed were chestnut oak (*Quercus montana*), cucumber magnolia (*Magnolia acuminata*), sweet birch (*Betula lenta*), and black gum (*Nyssa sylvatica*). The most abundant shrubs were spicebush (*Lindera benzoin*), great rhododendron (*Rhododendron maximum*), flowering dogwood (*Cornus florida*), common greenbrier (*Smilax rotundifloia*), and the invasive exotic multiflora rose. Herbaceous species observed in these areas included black cohosh (*Actaea racemosa*), poison ivy, zigzag goldenrod (*Solidago flexicalus*), orange jewelweed, wild geranium (*Geranium maculatum*), wood nettle (*Laportea canadensis*), Enchanter's nightshade (*Circaea canadensis*), hooked buttercup (*Ranuculus recurvatus*), aniseroot (*Osmorhiza longistylis*), Virginia creeper (*Parthenocissus quinquefolia*), common blue violet (*Viola sororia*), tall rattlesnake root (*Nabalus altissimus*), marginal shield fern (*Dryopteris marginalis*), New York fern

Pesi 593 Blue Ridge Parkway



(*Parathelypteris noveboracensis*), Virginia waterleaf (*Hydrophyllum virginianum*), early meadow rue (*Thalictrum dioicum*), partridgeberry (*Mitchella repens*), nodding fescue (*Festuca subverticillata*), Indian cucumber-root (*Medeola virginiana*), hog peanut (*Amphicarpaea bracteata*), wild yam (*Dioscorea villosa*), water hemlock (*Cicuta bulbifera*), great yellow wood-sorrel (*Oxalis grandis*), trillium (*Trillium* sp.), bloodroot (*Sanguinaria canadensis*), honewort (*Cryptotaenia canadensis*), mayapple (*Podophyllum peltatum*), and the invasive exotic garlic mustard (*Alliaria petiolata*).

The locations of the mature trees are shown on Figure 3 and the corresponding photographs are in Appendix A.

4.0 Conclusion

No rare plants were observed during field surveys along the MVP Proposed Alignment, NPS Preferred Alignment, or Alternative 1 Alignment. Most of the plant communities observed within the assessment areas were of low ecological quality with the exception of the mature forest areas and the wetlands.



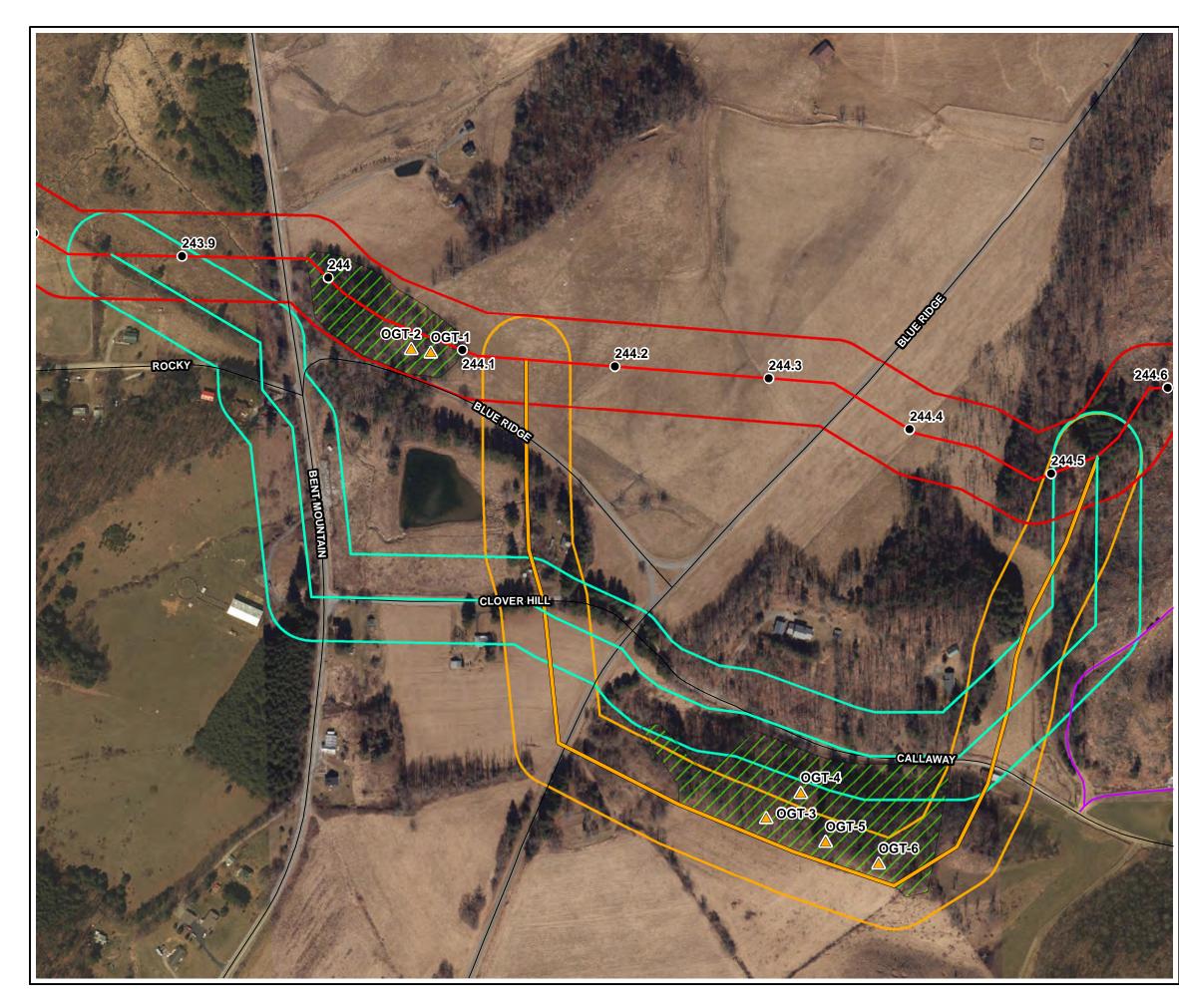
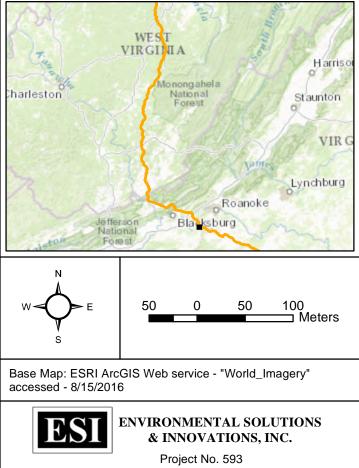


Figure 3. Location of Mature Forest along the Potential Blue Ridge Parkway Crossings by the Mountain Valley Pipeline Project.

- Proposed MVP Milepost
- ▲ Location of Large Mature Trees
- Proposed MVP Access Road
- Proposed MVP Alignment
- ---- NPS Preferred Alignment
- Alternative 1 Alignment
- NPS Blue Ridge Parkway Mature Forest
- Proposed MVP Alignment Survey Buffer
- NPS Preferred Alignment Survey Buffer
- Alternative 1 Alignment Survey Buffer

NOTE: NPS Preferred Alignment with Buffer and Alternative 1 Alignment (20160524) with buffer had been supplied by client on May 2016.



APPENDIX A PHOTOGRAPHS





OGT-1 White Oak (Q*uercus alba*)



OGT-2 Tulip Tree (*Liriodendron tulipifera*)



OGT-3 Red Oak (Q*uercus rubra*)



OGT-4 Red Oak *(Quercus rubra)*



OGT-5 Chestnut Oak (Quercus montana)



OGT-6 Cucumber Magnolia (*Magnolia acuminata*)

Mountain Valley Pipeline Project

Docket No. CP16-10-000

Attachment DR4 General 7

							Attachr	ment DR4 General 7	7							
						Survey	y Status for Ca	athodic Protection	Ground Beds							
Area (sq ft)	Name	County	State	Impact	Cultural Survey Status	Cultural Survey Results	Wetland Survey Status	Wetland Survey Results	Eagle Survey Status	Eagle Survey Results	Loggerhe ad Shrike Survey Status	Loggerhead Shrike Survey Results	Plant Survey Status	Plant Survey Results	Portal Survey Status	Portal Survey Results
16,875	MVP-CPGB-12	Webster	West Virginia	Permanent	Complete	No Features Found	Complete	S-EF40, S-B30, W-EF29, W-B28	NA	NA	NA	NA	NA	NA	Complete	No Features Found
16,767	MVP-CPGB-06	Lewis	West Virginia	Permanent	Complete	No Features Found	Complete	S-163	NA	NA	NA	NA	NA	NA	Complete	No Features Found
671	MVP-CPGB-19	Monroe	West Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	Incomplete	N/A	NA	NA	NA	NA	Complete	No Features Found
524	MVP-CPGB-19	Monroe	West Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	Incomplete	N/A	NA	NA	NA	NA	Complete	No Features Found
14,610	MVP-CPGB-02	Harrison	West Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
17,183	MVP-CPGB-04	Harrison	West Virginia	Permanent	Complete	46DO111, 46DO109	Complete	W-A23	NA	NA	NA	NA	NA	NA	Complete	No Features Found
16,915	MVP-CPGB-05	Lewis	West Virginia	Temporary	Complete	No Features Found	Complete	W-B46, W-ST14, W-ST15 No Features	NA	NA	NA	NA	NA	NA	Complete	No Features Found
9,889	MVP-CPGB-06	Lewis	West Virginia	Temporary	Complete	No Features Found	Complete	Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
14,313	MVP-CPGB-07	Lewis	West Virginia	Permanent	Complete	No Features Found	Complete	W-ST16	NA	NA	NA	NA	NA	NA	Complete	No Features Found
14,832	MVP-CPGB-08	Braxton	West Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
14,217	MVP-CPGB-11	Webster	West Virginia	Temporary	Incomplete	N/A	Incomplete	N/A	NA	NA	NA	NA	NA	NA	Incomplete	N/A
8,895	MVP-CPGB-13	Nicholas	West Virginia	Temporary	Complete	No Features Found	Complete	No Features Found No Features	NA	NA	NA	NA	NA	NA	Complete	No Features Found
,	MVP-CPGB-14	Nicholas	West Virginia	Temporary	Complete	No Features Found	Complete	Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
13,450	MVP-CPGB-17	Summers	West Virginia	Temporary	Incomplete	N/A	Incomplete	N/A	NA	NA	NA	NA	NA	NA	Complete	No Features Found
13,116	MVP-CPGB-19	Monroe	West Virginia	Temporary	Complete	No Features Found	Incomplete	N/A	Incomplete	N/A	NA	NA	NA	NA	Incomplete	N/A
11,653	MVP-CPGB-20	Monroe	West Virginia	Temporary	Complete	No Features Found	Incomplete	N/A No Features	NA	NA No Features	NA	NA	NA	NA No Features	Complete	No Features Found
12,756	MVP-CPGB-21	Giles	Virginia	Permanent	Complete	No Features Found	Complete	Found No Features	Complete	Found No Features	NA	NA No Features	Complete	Found	Complete	No Features Found
10,441	MVP-CPGB-24	Montgomery	Virginia	Temporary	Complete	No Features Found	Complete	Found No Features	Complete	Found	Complete	Found	NA	NA	Complete	No Features Found
11,915	MVP-CPGB-01B	Wetzel	West Virginia	Permanent	Complete	No Features Found	Complete	Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
	MVP-CPGB-03	Harrison	West Virginia	Permanent	Complete	46HS137	Complete	W-B2A	NA	NA	NA	NA	NA	NA	Complete	No Features Found
14,329	MVP-CPGB-19	Monroe	West Virginia	Permanent	Complete	No Features Found	Incomplete	N/A No Features	Incomplete	N/A No Features	NA	NA	NA	NA	N/A	Incomplete
14,757	MVP-CPGB-30	Pittsylvania	Virginia	Permanent	Complete	No Features Found	Complete	Found No Features	Complete	Found No Features	NA	NA	NA	NA	Complete	No Features Found
13,776	MVP-CPGB-27	Franklin	Virginia	Permanent	Complete	No Features Found	Complete	Found	Complete	Found	NA	NA	NA	NA	Complete	No Features Found
13,392	MVP-CPGB-27	Franklin	Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found
15,675	MVP-CPGB-16	Greenbrier	West Virginia	Permanent	Complete	No Features Found	Complete	S-EF39, W-EF28	NA	NA	NA	NA	Complete	No Features Found	Complete	No Features Found
2,257	MVP-CPGB-16	Greenbrier	West Virginia	Temporary	Complete	No Features Found	Complete	No Features Found No Features	NA	NA	NA	NA	Complete	No Features Found No Features	Complete	No Features Found
4,110	MVP-CPGB-16	Greenbrier	West Virginia	Temporary	Complete	No Features Found	Complete	Found	NA	NA	NA	NA	Complete	Found	Complete	No Features Found
13,163	MVP-CPGB-07	Lewis	West Virginia	Temporary	Complete	No Features Found	Complete	W-ST16	NA	NA	NA	NA	NA	NA	Complete	No Features Found
625	MVP-CPGB-10	Webster	West Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found	Complete	No Features Found
625	MVP-CPGB-09	Webster	West Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
16,834	MVP-CPGB-08	Braxton	West Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found

							Attachi	ment DR4 General 7	7							
						Surve	y Status for C	athodic Protection	Ground Beds							
Area (sq ft)	Name	County	State	Impact	Cultural Survey Status	Cultural Survey Results	Wetland Survey Status	Wetland Survey Results	Eagle Survey Status	Eagle Survey Results	Loggerhe ad Shrike Survey Status	Loggerhead Shrike Survey Results	Plant Survey Status	Plant Survey Results	Portal Survey Status	Portal Survey Results
15,143	MVP-CPGB-28	Franklin	Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found
17,586	MVP-CPGB-03	Harrison	West Virginia	Temporary	Complete	No Features Found	Complete	W-B2A	NA	NA	NA	NA	NA	NA	Complete	No Features Found
14,012	MVP-CPGB-12	Webster	West Virginia	Temporary	Complete	No Features Found	Complete	S-EF40, W- EF29, W-B28 No Features	NA	NA	NA	NA	NA	NA	Complete	No Features Found
9,401	MVP-CPGB-13	Nicholas	West Virginia	Permanent	Complete	No Features Found	Complete	Found No Features	NA	NA	NA	NA	NA	NA	Complete	No Features Found
18,132	MVP-CPGB-01A	Wetzel	West Virginia	Temporary	Complete	46WZ132	Complete	Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
16,868	MVP-CPGB-05	Lewis	West Virginia	Permanent	Complete	No Features Found	Complete	W-B46, W-ST15	NA	NA	NA	NA	NA	NA	Complete	No Features Found
17,271	MVP-CPGB-04	Harrison	West Virginia	Temporary	Complete	46DO109	Complete	W-A23	NA	NA	NA	NA	NA	NA	Complete	No Features Found
11,344	MVP-CPGB-01B	Wetzel	West Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
16,346	MVP-CPGB-02	Harrison	West Virginia	Permanent	Complete	No Features Found	Complete	No Features Found No Features	NA	NA	NA	NA	NA	NA	Complete	No Features Found
625	MVP-CPGB-15	Greenbrier	West Virginia	Permanent	Complete	46GB494	Complete	Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
625	MVP-CPGB-18	Summers	West Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found
14,608	MVP-CPGB-30	Pittsylvania	Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found
	MVP-CPGB-29	Pittsylvania	Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	Complete	No Features Found	Complete	No Features Found
10.050			\ <i>r</i>				0 1 1	No Features	0 1 1	No Features	0 1 1	No Features				
12,059	MVP-CPGB-24	Montgomery	Virginia	Permanent	Complete	No Features Found	Complete	Found No Features	Complete	Found No Features	Complete	Found	NA	NA No Features	Complete	No Features Found
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,	MVP-CPGB-20	Monroe	West Virginia	Permanent	Complete	No Features Found	Complete	Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
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	MVP-CPGB-14	Nicholas	West Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found
14,654	MVP-CPGB-11	Webster	West Virginia	Permanent	Incomplete	N/A	Incomplete	N/A	NA	NA No Footuroo	NA	NA	NA	NA	Incomplete	N/A
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17,949	MVP-CPGB-29	Pittsylvania	Virginia	Temporary	Complete	No Features Found	Complete	Found	Complete	Found	NA	NA	Complete		Complete	No Features Found
	MVP-CPGB-16	Greenbrier	West Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found	Complete	No Features Found
20,086	MVP-CPGB-22	Giles	Virginia	Temporary	Complete	44GS0231	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found
21,945	MVP-CPGB-22	Giles	Virginia	Permanent	Complete	44GS0231	Complete	S-NN17 No Features	Complete	No Features Found No Features	NA	NA	NA	NA	Complete	No Features Found
6,432	MVP-CPGB-26	Franklin	Virginia	Temporary	Complete	No Features Found	Complete	Found No Features	Complete	Found No Features	NA	NA	NA	NA	Complete	No Features Found
17,411	MVP-CPGB-26	Franklin	Virginia	Permanent	Complete	No Features Found	Complete	Found No Features	Complete	Found No Features	NA	NA	NA	NA	Complete	No Features Found
9,207	MVP-CPGB-26	Franklin	Virginia	Temporary	Complete	44FR0397	Complete	Found	Complete	Found	NA	NA	NA	NA	Complete	No Features Found
10,839	MVP-CPGB-23	Montgomery	Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	Complete	No Features Found
12,362	MVP-CPGB-23	Montgomery	Virginia	Permanent	Complete	44MY0576	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	Complete	No Features Found
	MVP-CPGB-01A	Wetzel	West Virginia	Permanent		46WZ132	Complete	No Features Found	NA	NA	NA	NA	NA	NA	Complete	No Features Found

							Attach	ment DR4 General 7	,							
						Surve	y Status for C	athodic Protection	Ground Beds							
Area (sq ft)	Name	County	State	Impact	Cultural Survey Status	Cultural Survey Results	Wetland Survey Status	Wetland Survey Results	Eagle Survey Status	Eagle Survey Results	Loggerhe ad Shrike Survey Status	Loggerhead Shrike Survey Results	Plant Survey Status	Plant Survey Results	Portal Survey Status	Portal Survey Results
	MVP-CPGB-25	Roanoke	Virginia	Temporary	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found
11,282	MVP-CPGB-25	Roanoke	Virginia	Permanent	Complete	No Features Found	Complete	No Features Found	Complete	No Features Found	NA	NA	NA	NA	Complete	No Features Found
NA = Su	rvey is not applicab	le to that area a	nd/or resource pe	r the approved s	urvey protoco	I for each resource.										