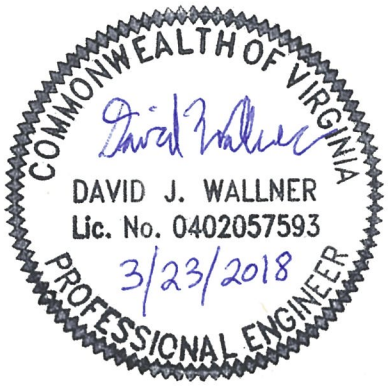
By virtue of this seal and signature, all supporting documents included in this package are accurate and support the design presented herein.



Spread 8

Spread 9

Area = 0.40 ac

Area = 0.65 ac

Area = 0.77 ac

Area = 0.23 ac

Area = 0.08 ac

Area = 0.09 ac

Area = 0.18 ac

Area = 0.13 ac

Area = 0.12 ac

Area = 0.11 ac

Area = 0.16 ac

Area = 0.07 ac

Area = 0.10 ac

Area = 0.18 ac

Area = 0.08 ac

Area = 0.06 ac

Area = 0.06 ac

Area = 0.27 ac

Area = 0.11 ac

Area = 0.12 ac

Area = 0.13 ac

Area = 0.21 ac

Area = 0.21 ac

Area = 0.11 ac

Area = 0.09 ac

Area = 0.08 ac

Area = 0.11

B

D

D

K

AB

SHEET 1
SHEET 2

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

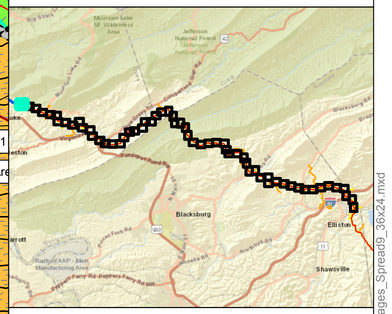
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 1 of 59

Giles County

March 5, 2018

	From	To
Pipeline Stationing -	10790+00	10820+00
Post Construction Plan No.	13.03PC	13.04PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: PGH: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.11 ac
Area = 0.09 ac
Area = 0.08 ac
Area = 0.11 ac
Area = 0.11 ac
Area = 0.25 ac
Area = 0.48 ac
Area = 1.43 ac
Area = 0.35 ac
Area = 0.32 ac
Area = 0.27 ac
Area = 0.33 ac
Water Bar 1.1
Area = 2.17 ac
Water Bar 1.2
Area = 0.30 ac
Water Bar 2
Area = 0.07 ac
Water Bar 3
Area = 0.09 ac
Water Bar 4
Area = 0.26 ac
Water Bar 5
Area = 0.14 ac
Water Bar 6
Area = 1.79 ac
Area = 0.10 ac
Area = 0.03 ac
Water Bar 7
Area = 0.68 ac
Water Bar 8
Area = 0.17 ac
Water Bar 9
Area = 0.18 ac
Water Bar 10
Area = 0.51 ac
Water Bar 11
Area = 0.68 ac
Water Bar 12
Area = 0.46 ac
Water Bar 13
Area = 0.28 ac
Water Bar 14
Area = 0.19 ac
Next Water Bar ID in sequence is Water Bar 17.
Area = 0.51 ac

All waterbars in D soils assumed to have CN>71, refer to site specific calculation.

All waterbars in D soils assumed to have CN>71, refer to site specific calculation.

B
D
B
D
B

Dun Creek Rd
Dun Creek Rd
Dun Creek Rd

SHEET 1
SHEET 2
SHEET 3

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

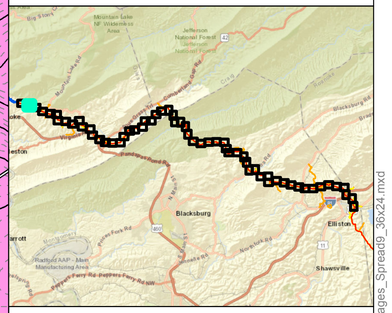
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 2 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	10818+00	10852+00
Post Construction Plan No.	13.04PC	13.05PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

B

D

B

Water Bar 14
Area = 0.19 ac

Next Water Bar ID in sequence
is Water Bar 17.

Area = 0.51 ac

All waterbars in D soils
assumed to have CN>71,
refer to site specific calculation.

Water Bar 17
Area = 0.87 ac

Previous Water Bar ID
in sequence is
Water Bar 14.

Wate
Area

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

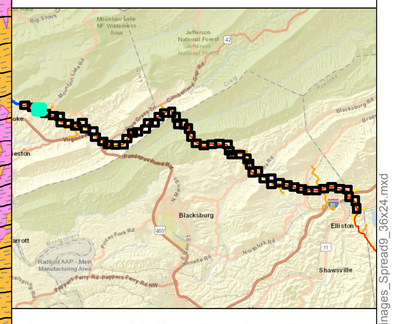
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 3 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	10847+00	10876+00
Post Construction Plan No.	13.05PC	13.06PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

All waterbars in D soils assumed to have CN>71, refer to site specific calculation.

Water Bar 17
Area = 0.87 ac

Previous Water Bar ID in sequence is Water Bar 14.

Water Bar 18
Area = 0.10 ac

Water Bar 19
Area = 0.19 ac

Water Bar 20
Area = 0.36 ac

Water Bar 21
Area = 0.05 ac

Water Bar 22
Area = 0.05 ac

Water Bar 23
Area = 0.06 ac

Water Bar 24
Area = 0.18 ac

Area = 0.33 ac

Area = 0.06 ac

Area = 1.43 ac

Area = 1.34 ac

Area = 0.05 ac

Area = 0.06 ac

Area = 0.06

Area = 0.05 ac

Area = 0.21 ac

D

C

B

C

C

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

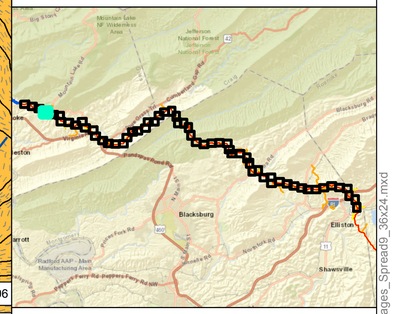
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 4 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	10871+00	10901+00
Post Construction Plan No.	13.06PC	13.07PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

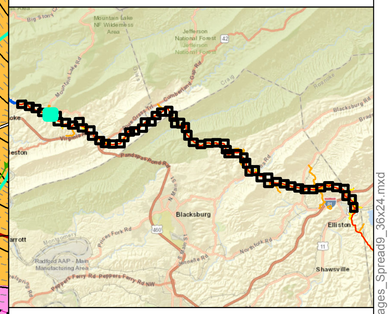
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 5 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	10900+00	10930+00
Post Construction Plan No.	13.07PC	13.08PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.05 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.05 ac
Area = 0.05 ac
Area = 0.07 ac
Area = 0.14 ac
Area = 0.18 ac
Area = 0.20 ac
Area = 0.28 ac
Area = 0.09 ac
Area = 0.56 ac
Area = 0.29 ac
Area = 0.16 ac
Area = 1.46 ac
Area = 0.11 ac
Area = 0.04 ac
Area = 0.10 ac
Area = 0.08 ac
Area = 0.06 ac
Area = 0.08 ac
Water Bar 25
Area = 1.92 ac
Area = 0.32 ac
Area = 0.09 ac
Area = 0.19 ac

W-E6
S-E6
S-E6-Upstream
S-E5
W-RR2
W-U20
S-U20
S-RR2
SHEET 4
SHEET 5
SHEET 6
SHEET 7
SHEET 8
SHEET 9
CD1
2490
2500
2510
2520
2530
2540
2550
2560
2570
2580
2590
2600
2610
2620
2630
2640
2650
2660
2670
2680
2690
2700
2710
2720
2730
2740
2750
2760
2770
2780
2790
2800
2810
2820
2830
2840
2850
2860
2870
2880

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

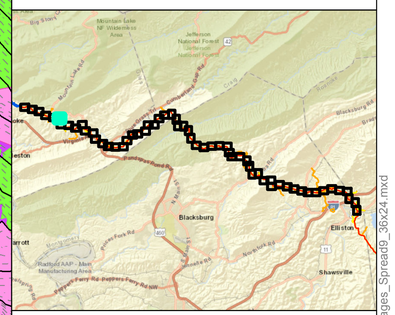
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 6 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	10922+00	10430+00
Post Construction Plan No.	13.08PC	13.08PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.11 ac
Area = 0.04 ac
Area = 0.10 ac
Area = 0.08 ac
Area = 0.06 ac
Area = 0.08 ac
Water Bar 25
Area = 1.92 ac
Area = 0.32 ac
Area = 0.09 ac
Area = 0.19 ac
Area = 0.18 ac
Water Bar 26
Area = 0.27 ac
Water Bar 27
Area = 0.68 ac
Water Bar 28
Area = 0.52 ac
Water Bar 29
Area = 0.08 ac
Water Bar 30
Area = 0.09 ac
Water Bar 31
All waterbars in D soils assumed to have CN>71, refer to site specific calculation.

D

D

B

All waterbars in D soils assumed to have CN>71, refer to site specific calculation.

Water Bar 31
Area = 0.08 ac

Water Bar 32
Area = 0.11 ac

Water Bar 33
Area = 0.09 ac

Water Bar 34
Area = 0.13 ac

Area = 0.11 ac

Area = 0.10 ac

Area = 0.10 ac

Area = 0.15 ac

Area = 0.17 ac

Area = 0.10 ac

Area = 0.44 ac

Area = 0.54 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.23 ac

Area = 0.05 ac

Area = 0.05 ac

Area = 0.04 ac

Area = 0.06 ac

Area = 0.07 ac

Area = 0.04 ac

Area = 0.05 ac

Area = 0.16

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

SHEET 6
SHEET 7

SHEET 7
SHEET 8

Stargum Rd

Stargum Rd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

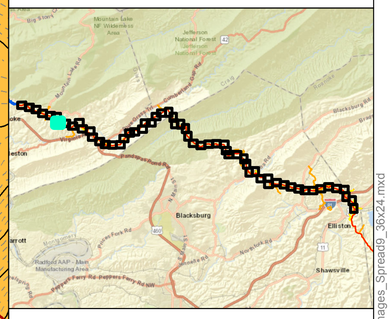
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 7 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	10943+00	10971+00
Post Construction Plan No.	13.08PC	13.09PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

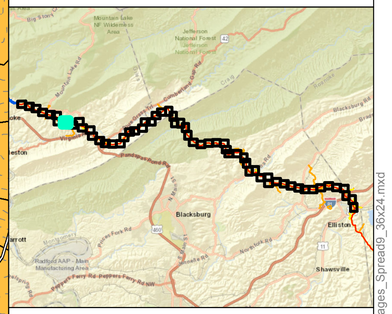
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 8 of 59

Giles County

March 5, 2018

	From	To
Pipeline Stationing -	10968+00	10999+00
Post Construction Plan No.	13.09PC	13.10PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

D

B

C

C

2170

2320

2380

2370

2350

2310

2290

2270

2230

2210

2250

2190

2280

2250

2080

2040

SHEET 7
SHEET 8

SHEET 8
SHEET 9

0.07 ac

a = 0.04 ac

Area = 0.05 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.16 ac

MVP-MLV-25

Area = 0.05 ac

Area = 0.10 ac

Area = 0.09 ac

Area = 0.05 ac

Area = 0.06 ac

Area = 0.18 ac

Area = 0.06 ac

Area = 0.27 ac

Area = 0.06 ac

Area = 0.21 ac

Area = 0.33 ac

Area = 0.06 ac

Area = 0.06 ac

Area = 0.07 ac

Area = 0.07 ac

Area = 0.06 ac

Area = 0.07 ac

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

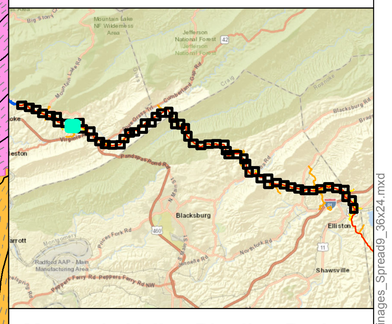
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 9 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	10995+00	11029+00
Post Construction Plan No.	13.10PC	13.11PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

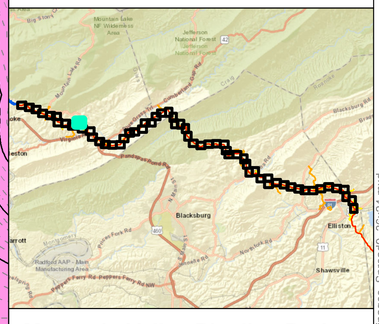
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 10 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11024+00	11040+00
Post Construction Plan No.	13.11PC	13.12PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Area = 0.26 ac

SHEET 9
SHEET 10

SHEET 10
SHEET 11

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.06 ac
Area = 0.12 ac
Area = 0.07 ac
Area = 0.12 ac
Area = 0.09 ac
Area = 0.13 ac
Area = 0.08 ac
Area = 0.05 ac
Area = 0.06 ac
All waterbars in D soils assumed to have CN>71, refer to site specific calculation.
Water Bar 35 Area = 0.2 ac
Water Bar 36 Area = 0.1 ac
Water Bar 36.1 Area = 0.09 ac
Water Bar 36.2 Area = 0.08 ac
Water Bar 36.3 Area = 0.06 ac
Water Bar 36.4 Area = 0.13 ac
Water Bar 36.5 Area = 0.22 ac
Water Bar 36.6 Area = 0.16 ac
Water Bar 36.7 Area = 0.22 ac
Water Bar 36.8 Area = 0.15 ac
Water Bar 37 Area = 0.08 ac
Area = 0.22 ac
SHEET 10
SHEET 11
SHEET 12
A
B
C
D

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

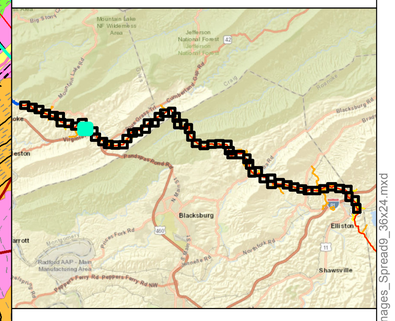
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

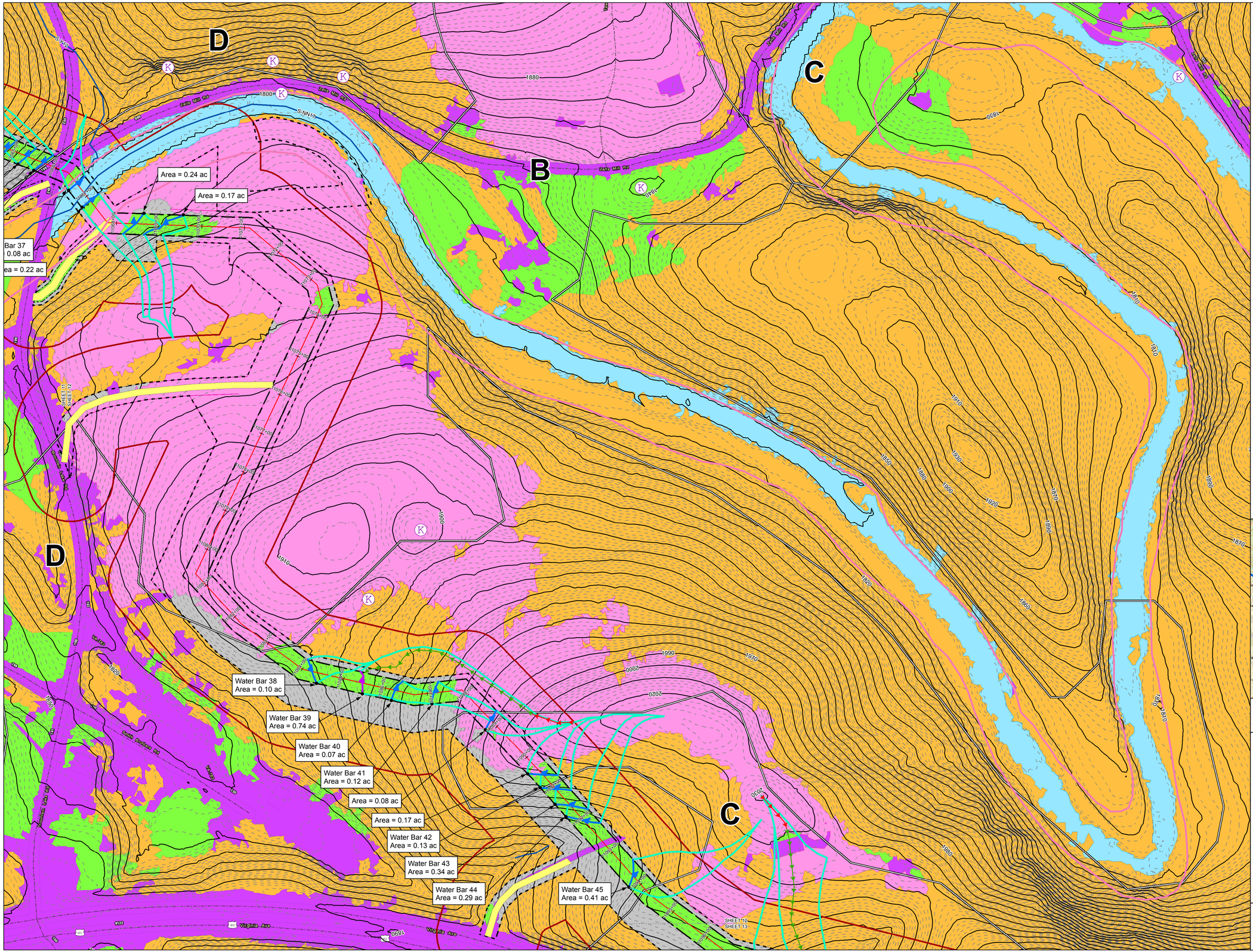
Drainage Map
Spread 9

Figure 11 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11040+00	11067+00
Post Construction Plan No.	13.12PC	13.12PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: PGH: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd


D
C
B
D
C
Area = 0.24 ac
Area = 0.17 ac
Bar 37
0.08 ac
ea = 0.22 ac
Water Bar 38
Area = 0.10 ac
Water Bar 39
Area = 0.74 ac
Water Bar 40
Area = 0.07 ac
Water Bar 41
Area = 0.12 ac
Area = 0.08 ac
Area = 0.17 ac
Water Bar 42
Area = 0.13 ac
Water Bar 43
Area = 0.34 ac
Water Bar 44
Area = 0.29 ac
Water Bar 45
Area = 0.41 ac
SHEET 11
SHEET 12
SHEET 12
SHEET 13
Virginia Ave
Virginia Ave
Wofford Ln
Wofford Ln
Wofford Ln
Wofford Ln
South Fincham Rd
Fincham Rd
Fincham Rd

Water Bar 46
Area = 0.26 ac

Water Bar 47
Area = 0.74 ac

Area = 0.12 ac

Area = 0.22 ac

Area = 0.11 ac

Area = 0.12 ac

Area = 0.11 ac

Area = 0.07 ac

Area = 0.06 ac

Area = 0.08 ac

Area = 0.10 ac

Area = 0.08 ac

Area = 0.12 ac

Area = 0.07 ac

Area = 0.06 ac

Area = 0.06 ac

Area = 0.18 ac

Area = 0.12 ac

Area = 0.07 ac

Area = 0.05 ac

Area = 0.06 ac

Area = 0.12 ac

Area = 0.06 ac

Area = 0.07 ac

Area = 0.10 ac

SHEET 12
SHEET 13

SHEET 14
SHEET 15

A
A
B
B
C
D
D

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

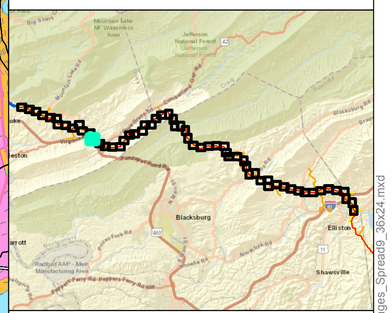
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

N
W E
S

1 " = 100 feet

100 0 100
Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 13 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11096+00	11127+00
Post Construction Plan No.	13.14PC	13.15PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.03 ac
Area = 0.03 ac
Area = 0.07 ac
Area = 0.06 ac
Area = 0.07 ac
Area = 0.03 ac
Area = 0.10 ac
Area = 0.03 ac
Area = 0.12 ac
Area = 0.11 ac
Area = 0.09 ac
Area = 0.09 ac
Area = 0.12 ac
Area = 0.22 ac
Area = 0.05 ac
Drainage required for Appendix – Spread 9
Area = 0.12 ac
A
B
C
D
Whistling Way Dr
Whistling Way
Virginia 700
Virginia 700
Virginia 700

Area = 0.22 ac
Area = 0.05 ac
Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.
Area = 0.07 ac
Water Bar 48 Area = 1.98 ac
Area = 0.05 ac
Area = 0.07 ac
Area = 0.09 ac
Area = 0.38 ac
Area = 0.06 ac
Area = 0.05 ac
Area = 0.05 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.04 ac
Area = 0.08 ac
Area = 0.13 ac
Area = 0.15 ac
Area = 0.13 ac
Area = 0.15 ac
Area = 0.35 ac
Area = 0.04 ac
Area = 0.12 ac
Area = 0.14 ac
Area = 0.09 ac
Area = 0.22 ac
Area = 0.16 ac
Area = 0.27 ac
Area = 0.16 ac
Area = 0.15 ac
Area = 0.08 ac

B

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

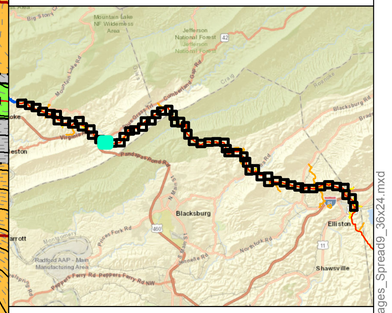
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map Spread 9

Figure 15 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11147+00	11180+00
Post Construction Plan No.	13.16PC	13.16PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

B

Area = 0.15 ac

Area = 0.08 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.13 ac

Area = 0.46 ac

Area = 0.74 ac

Area = 0.11 ac

Area = 0.08 ac

Area = 0.05 ac

Area = 0.14 ac

Area = 0.07 ac

Area = 0.07 ac

Area = 0.09 ac

SHEET 10
SHEET 10

SHEET 16
SHEET 16

S-MM18

P-MM2

S-MM2

W-MM10

W-KL10

2300 2250 2260 2270 2280 2290 2240 2230 2210

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

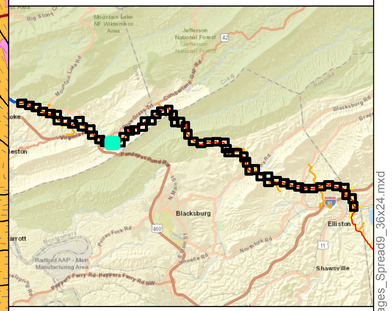
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 16 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11176+00	11204+00
Post Construction Plan No.	13.16PC	13.17PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

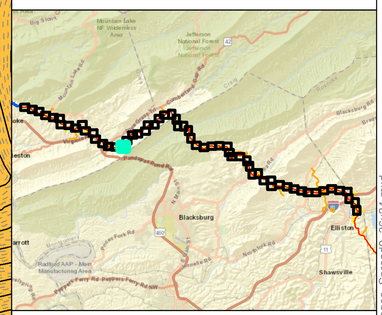
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 17 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing - Post Construction Plan No.	11203+00 13.17PC	11230+00 13.18PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mxdpdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.08 ac
Area = 0.07 ac
Area = 0.14 ac
Area = 0.20 ac
Area = 0.22 ac
Area = 0.11 ac
Area = 0.13 ac
Area = 0.19 ac
Area = 0.20 ac
Area = 0.19 ac
Area = 0.53 ac
Area = 0.13 ac
Area = 0.23 ac
Area = 0.07 ac
Area = 0.06 ac
Area = 0.10 ac
Area = 0.11 ac
Area = 0.10 ac
B
SHEET 19
SHEET 18
SHEET 18
SHEET 17
S-NN-03
S-NN-02
2090
2220
2260
2280
2320
Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

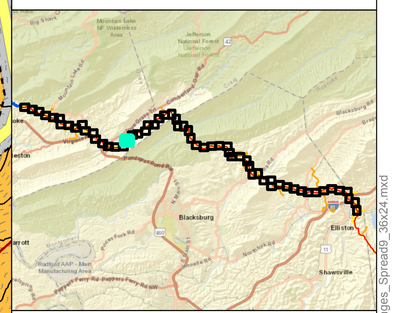
NAD 1983 UTM 17N

N
W E
S

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

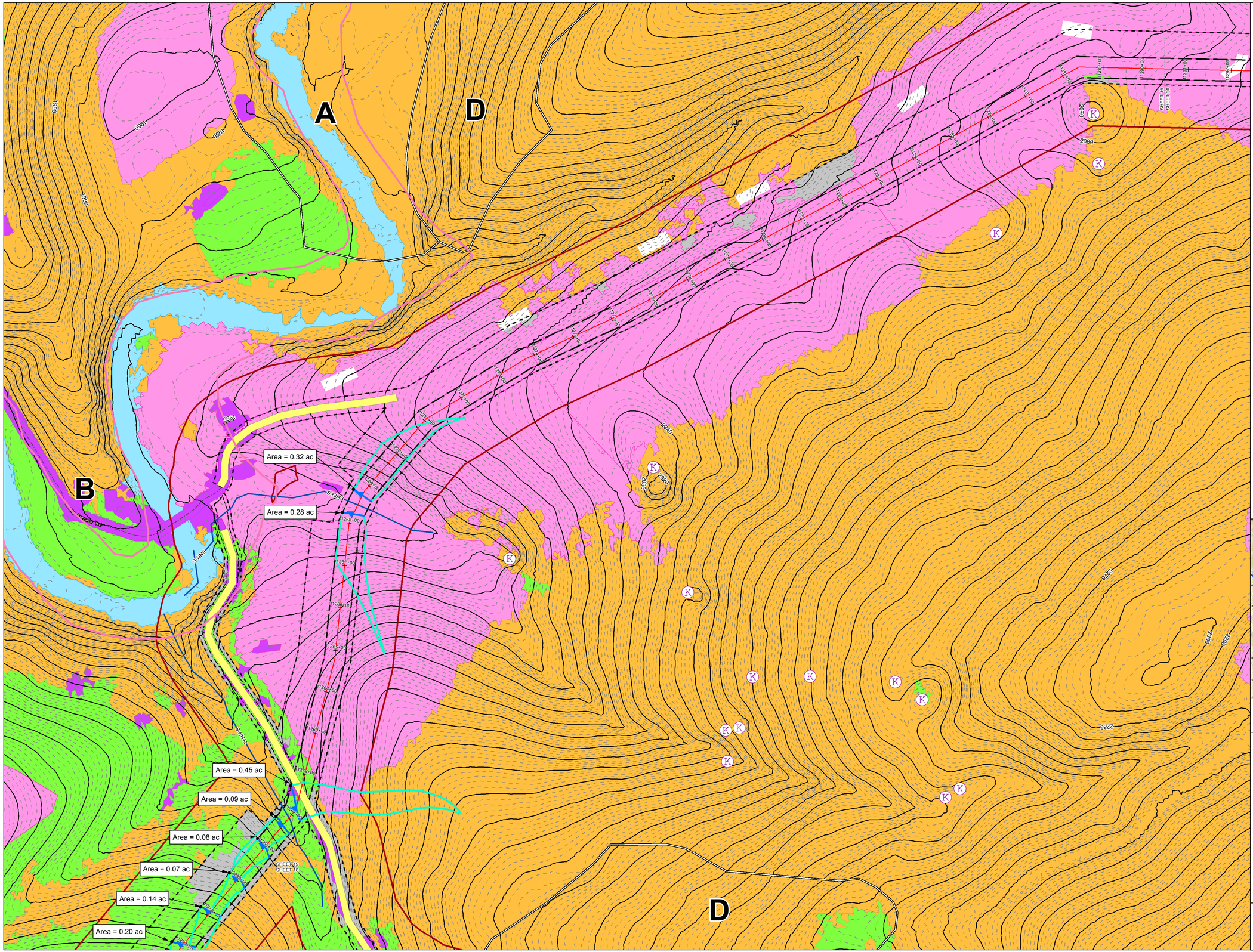
Drainage Map
Spread 9

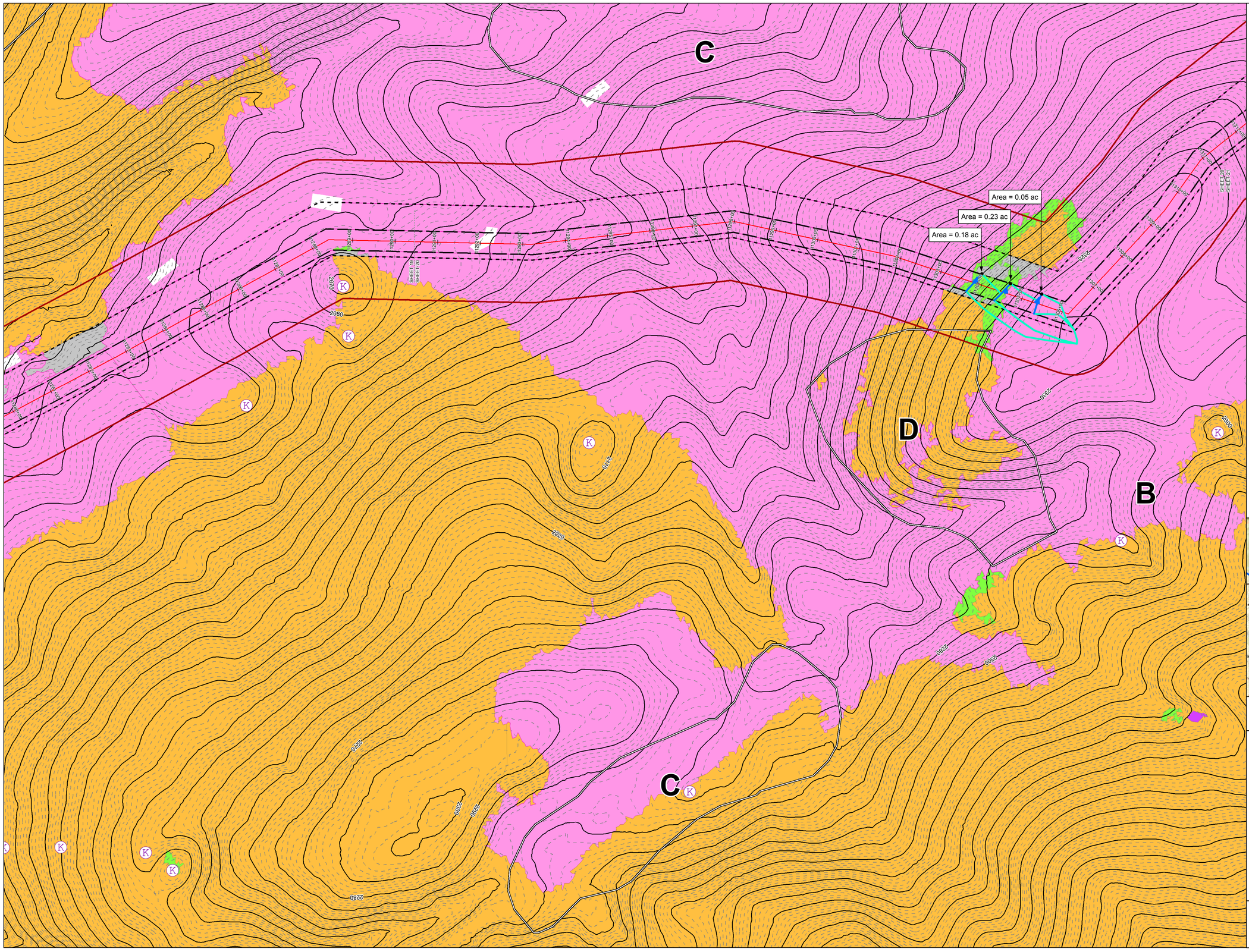
Figure 18 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11229+50	11260+50
Post Construction Plan No.	13.18PC	13.18PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd


A
D
B
D
Area = 0.32 ac
Area = 0.28 ac
Area = 0.45 ac
Area = 0.09 ac
Area = 0.08 ac
Area = 0.07 ac
Area = 0.14 ac
Area = 0.20 ac
SHEET 19
SHEET 18
SHEET 19
SHEET 20
S-KI43
S-NN5
S-NN4
1960
1980
2000
2020
2040
2060
2080
2100
2120
2140
2160
2180
2200
2220
2240
2260
2280
2300
2320
2340
2360
2380
2400
2420
2440
2460
2480
2500
2520
2540
2560
2580
2600
2620
2640
2660
2680
2700
2720
2740



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

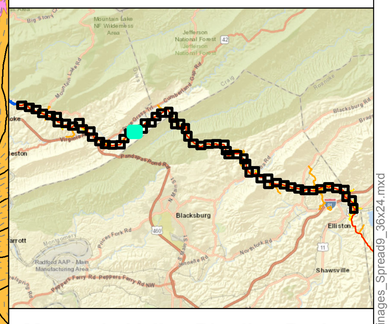
NAD 1983 UTM 17N

N W E S

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 20 of 59

Giles County

March 5, 2018

	From	To
Pipeline Stationing -	11280+00	11312+00
Post Construction Plan No.	13.21PC	13.21PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

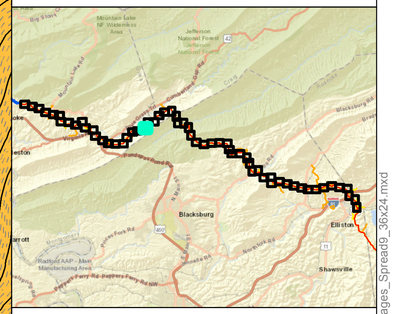
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

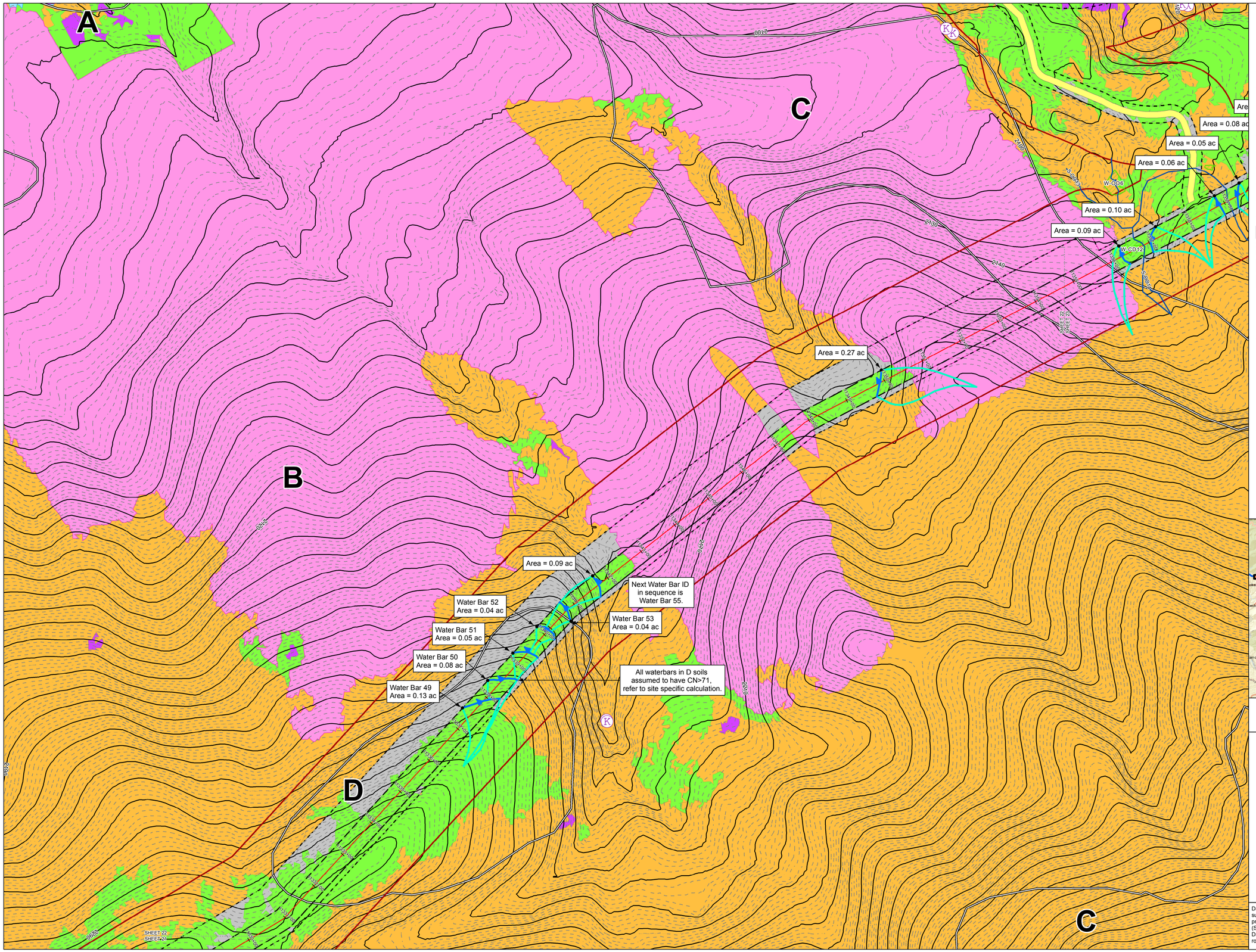
Drainage Map
Spread 9

Figure 21 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11310+00	11330+00
Post Construction Plan No.	13.21PC	13.22PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

N

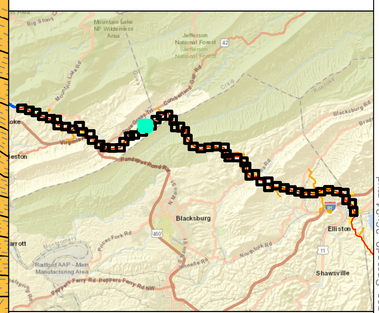
W E

S

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 22 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11329+50	11359+00
Post Construction Plan No.	13.22PC	13.23PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset. Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\DrainageMXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.5 ac
Area = 0.10 ac
Area = 0.15 ac
Area = 0.05 ac
Area = 0.05 ac
Area = 0.05 ac
Area = 0.08 ac
Area = 0.08 ac
Area = 0.08 ac
Area = 0.05 ac
Area = 0.06 ac
Area = 0.10 ac
Area = 0.09 ac
W-CD12
W-OO6
S-OO12
S-OO13
S-OO14
SHEET 24
SHEET 23
SHEET 22
C
C
B
A

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

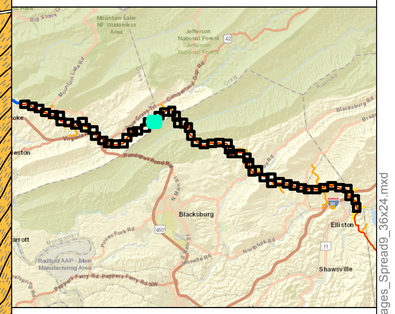
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

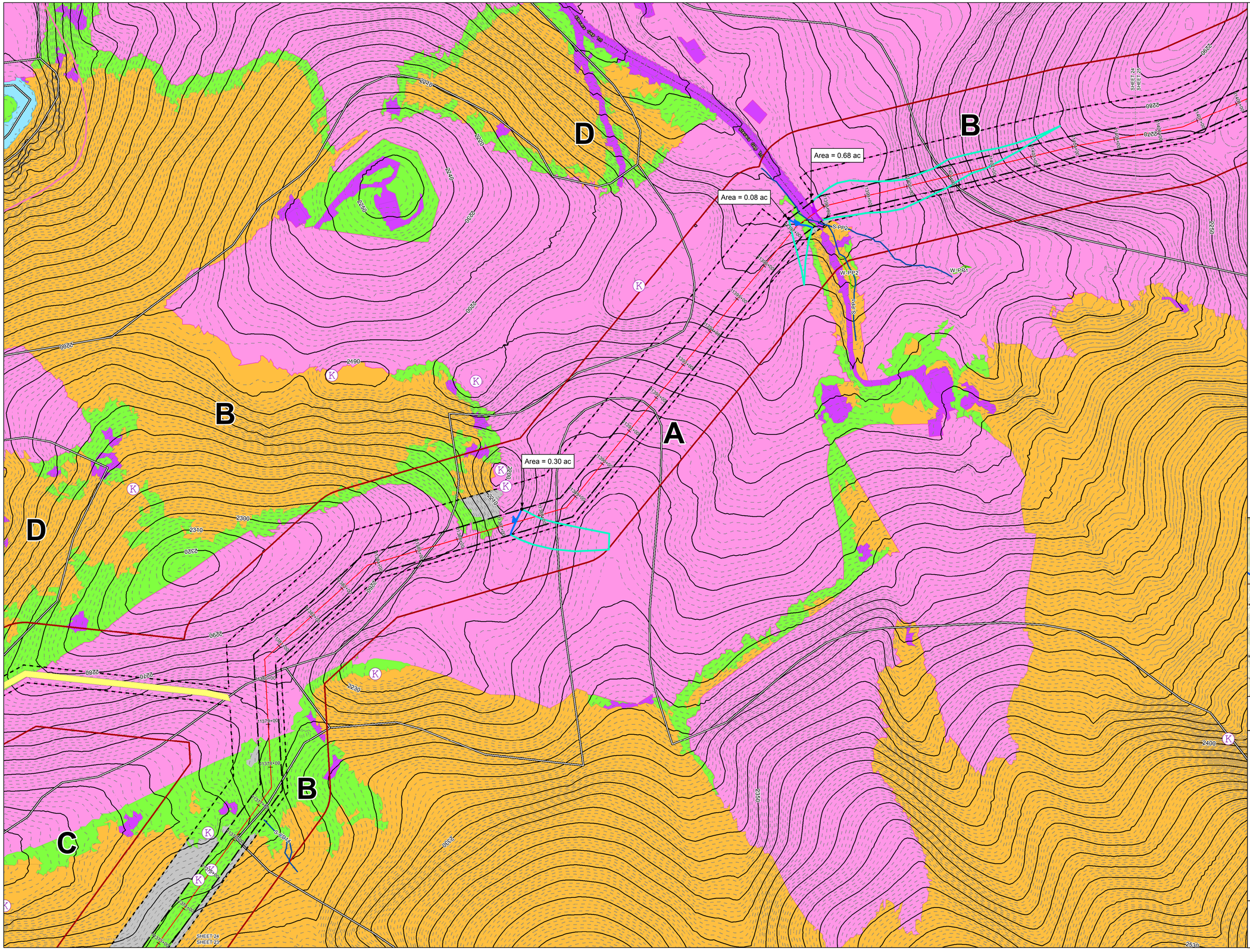
Drainage Map
Spread 9

Figure 23 of 59
Giles County
March 5, 2018

	From	To
Pipeline Stationing -	11350+00	11373+00
Post Construction Plan No.	13.23PC	13.23PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

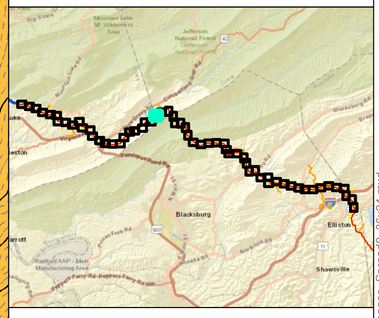
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

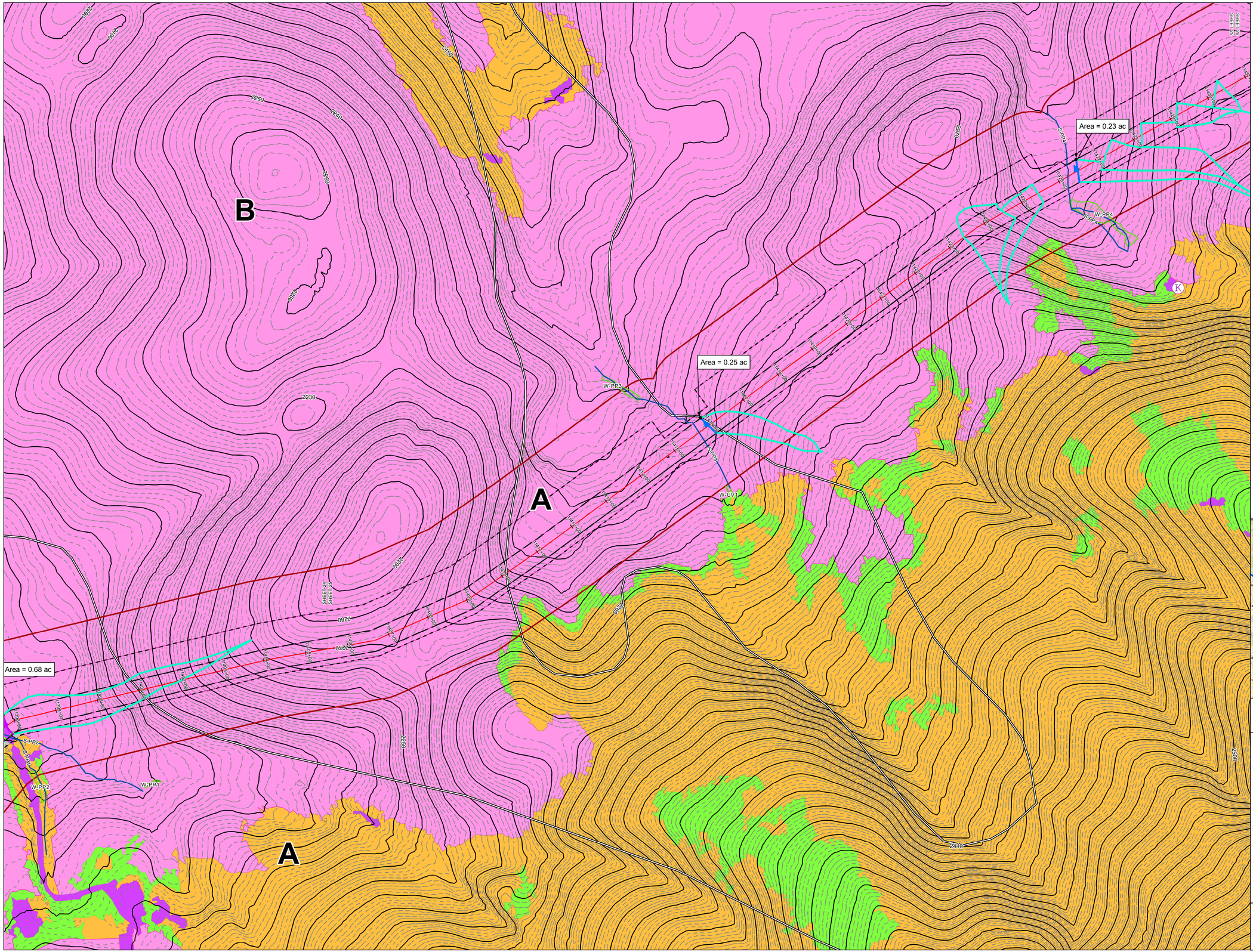
Drainage Map
Spread 9

Figure 24 of 59
Criag County
March 5, 2018

	From	To
Pipeline Stationing -	11373+00	11408+00
Post Construction Plan No.	13.23PC	13.25PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

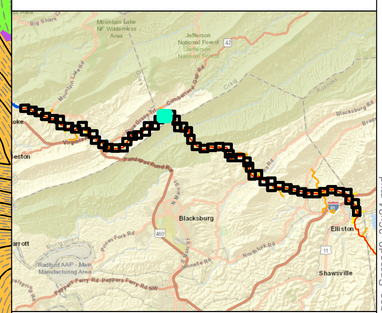
NAD 1983 UTM 17N

N
W E
S

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 25 of 59
Craig County
March 5, 2018

	From	To
Pipeline Stationing -	11398+00	11431+00
Post Construction Plan No.	13.25PC	13.25PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset. Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

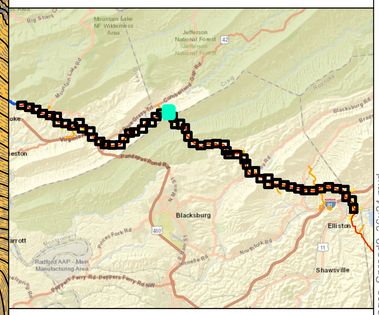
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 26 of 59
Criag County
March 5, 2018

	From	To
Pipeline Stationing -	11430+00	11466+00
Post Construction Plan No.	13.26PC	13.27PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from ViTA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

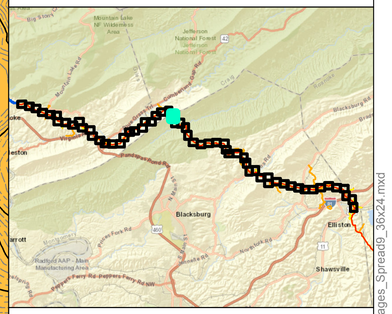
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 27 of 59

Montgomery County

March 5, 2018

	From	To
Pipeline Stationing -	11456+00	11488+00
Post Construction Plan No.	13.27PC	13.27PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.05 ac
Area = 0.04 ac
Area = 0.05 ac
Area = 0.06 ac
Area = 0.16 ac
Area = 0.06 ac
Area = 0.17 ac
Area = 0.15 ac
Area = 0.60 ac
Area = 0.11 ac
Area = 0.11 ac
Area = 0.19 ac
Area = 0.10 ac
Area = 0.07 ac
Area = 0.34 ac
Area = 0.12 ac
Water Bar 55
Area = 1.70 ac
Previous Water Bar ID in sequence is Water Bar 53.
Area = 0.14 ac
Area = 0.04 ac
Area = 0.08 ac
Area = 0.17 ac
Area = 0.06 ac
Area = 0.09 ac
Area = 0.04 ac
Area = 0.17 ac
Area = 0.06 ac
Area = 0.09 ac
Area = 0.08 ac
Area = 0.06 ac
Area = 0.07 ac
Area = 0.06 ac
Area = 0.08 ac
Area = 0.11 ac
Area = 0.14 ac
Area = 0.48 ac
Area = 0.56 ac
Area = 0.16 ac
Area = 0.07 ac
Area = 0.16 ac
Area = 0.12 ac
Area = 0.05 ac
Area = 0.05 ac
Area = 0.03 ac
Area = 0.10 ac
Area = 0.06 ac
Area = 0.10 ac
Area = 0.07 ac
Area = 0.12 ac
A
B
B
SHEET 26
SHEET 27
SHEET 27
SHEET 28

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

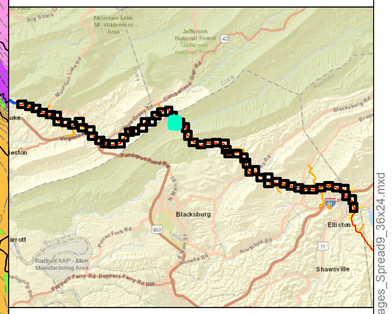
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 28 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11480+00	11504+00
Post Construction Plan No.	13.27PC	13.28PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

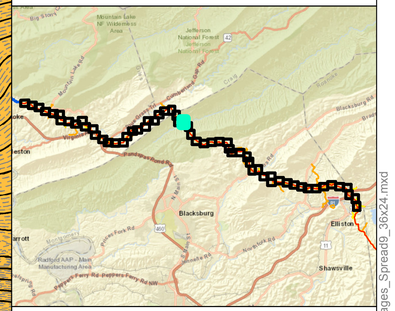
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 29 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11501+00	11530+00
Post Construction Plan No.	13.28PC	13.29PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

A
B
A
B
A

Area = 0.18 ac
Area = 0.29 ac
Area = 0.03 ac
Area = 0.17 ac
Area = 0.28 ac
Area = 0.34 ac
Area = 0.32 ac
Area = 0.14 ac
Area = 0.06 ac
Area = 0.04 ac
Area = 0.15 ac
Area = 0.10 ac
Area = 0.21 ac
Area = 0.09 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

SHEET 30
SHEET 29
SHEET 29
SHEET 28

S-RR14
S-RR13
S-007
S-006
S-K650

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.04 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.05 ac
Area = 0.09 ac
Area = 0.29 ac
Area = 0.07 ac
Area = 0.10 ac
Area = 0.17 ac
Area = 0.08 ac
Area = 0.18 ac
Area = 0.05 ac
Area = 0.01 ac
Area = 0.01 ac
Area = 0.02 ac
Area = 0.02 ac
Area = 0.01 ac
Area = 0.01 ac
Area = 0.02 ac
Area = 0.02 ac
Area = 0.01 ac
Area = 0.03 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.13 ac
Area = 0.08 ac
Area = 0.07 ac
Area = 0.07 ac
Area = 0.07 ac
Area = 0.10 ac
Area = 0.08 ac

A
A
B

W-HH16
S-HH19
S-HH17
S-HH18
SHEET 30
SHEET 31

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

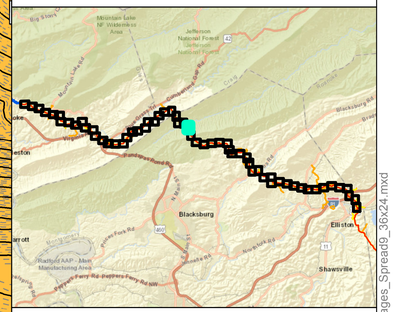
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 30 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11524+00	11559+00
Post Construction Plan No.	13.29PC	13.30PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

B

A

Area = 0.04 ac

Area = 0.26 ac

Area = 0.21 ac

Area = 0.22 ac

Area = 0.19 ac

Area = 0.18 ac

Area = 0.07 ac

Area = 0.15 ac

Area = 0.12 ac

Area = 0.32 ac

Area = 0.25 ac

Area = 0.08 ac

Area = 0.06 ac

Area = 0.08 ac

Area = 0.07 ac

Area = 0.05 ac

Area = 0.05 ac

Area = 0.05 ac

Area = 0.06 ac

Area = 0.04 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.04 ac

Area = 0.03 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.08 ac

Area = 0.04 ac

Area = 0.04 ac

Area = 0.04 ac

Area = 0.07 ac

Area = 0.04 ac

Area = 0.04 ac

Area = 0.05 ac

0.07 ac

SHEET 31

SHEET 32

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

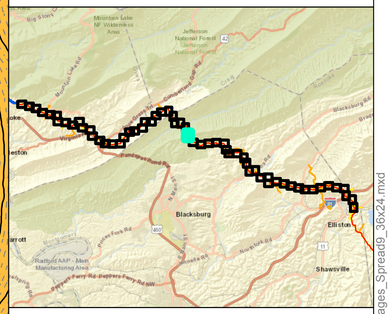
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 31 of 59

Montgomery County

March 5, 2018

	From	To
Pipeline Stationing -	1557+00	11589+00
Post Construction Plan No.	13.30PC	13.31PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.04 ac
Area = 0.09 ac
Area = 0.08 ac
Area = 0.07 ac
Area = 0.09 ac
Area = 0.05 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.09 ac
Area = 0.08 ac
Area = 0.04 ac
Area = 0.15 ac
Area = 0.09 ac
Area = 0.10 ac
Area = 0.06 ac
Area = 0.11 ac
Area = 0.12 ac
Area = 0.22 ac
Area = 0.11 ac
Area = 0.16 ac
Area = 0.31 ac
Area = 0.18 ac
Area = 0.23 ac
Area = 0.08 ac

A

B

W_KL46

S_WN20

S_WN21

S_WN22

S_SR1

S_SR2

S_SR3

SHEET 31
SHEET 32

SHEET 33
SHEET 34

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

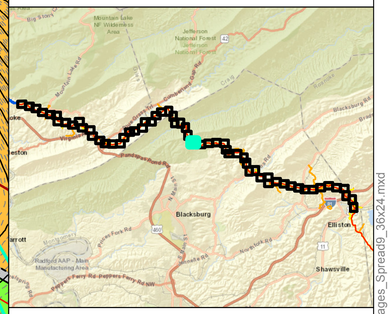
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 32 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11589+00	11590+00/30+50
Post Construction Plan No.	13.31PC	13.32PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

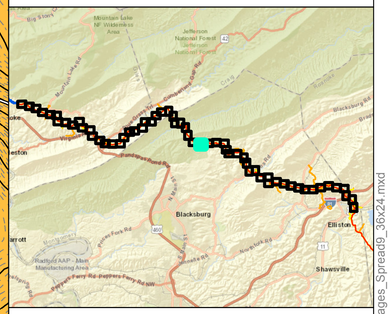
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 33 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11590+00/28+00	11590+00/62+00
Post Construction Plan No.	13.32PC	13.33PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.18 ac
Area = 0.23 ac
Area = 0.08 ac
Area = 0.07 ac
Area = 0.08 ac
Area = 0.05 ac
Area = 0.07 ac
Area = 0.07 ac
Area = 0.06 ac
Area = 0.04 ac
Area = 0.34 ac
Area = 0.08 ac
Area = 0.04 ac
Area = 0.06 ac
Area = 0.07 ac
Area = 0.06 ac
Area = 0.04 ac
Area = 0.03 ac
Area = 0.05 ac
Area = 0.22 ac
Area = 0.04 ac
Area = 0.4 ac
Area = 0.05 ac
Area = 0.05 ac
Area = 0.04 ac
Area = 0.09 ac

A
B
C
C
A
C

SHEET 42
SHEET 43
SHEET 43
SHEET 44

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

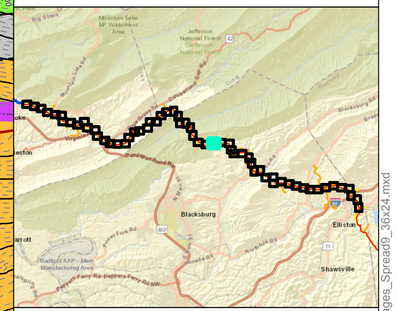
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map Spread 9

Figure 34 of 59

Montgomery County

March 5, 2018

	From	To
Pipeline Stationing -	11590+00/61+00	11590+00/91+00
Post Construction Plan No.	13.33PC	13.34PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

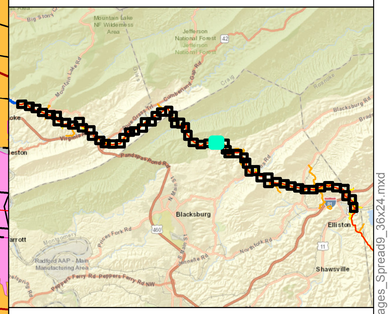
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

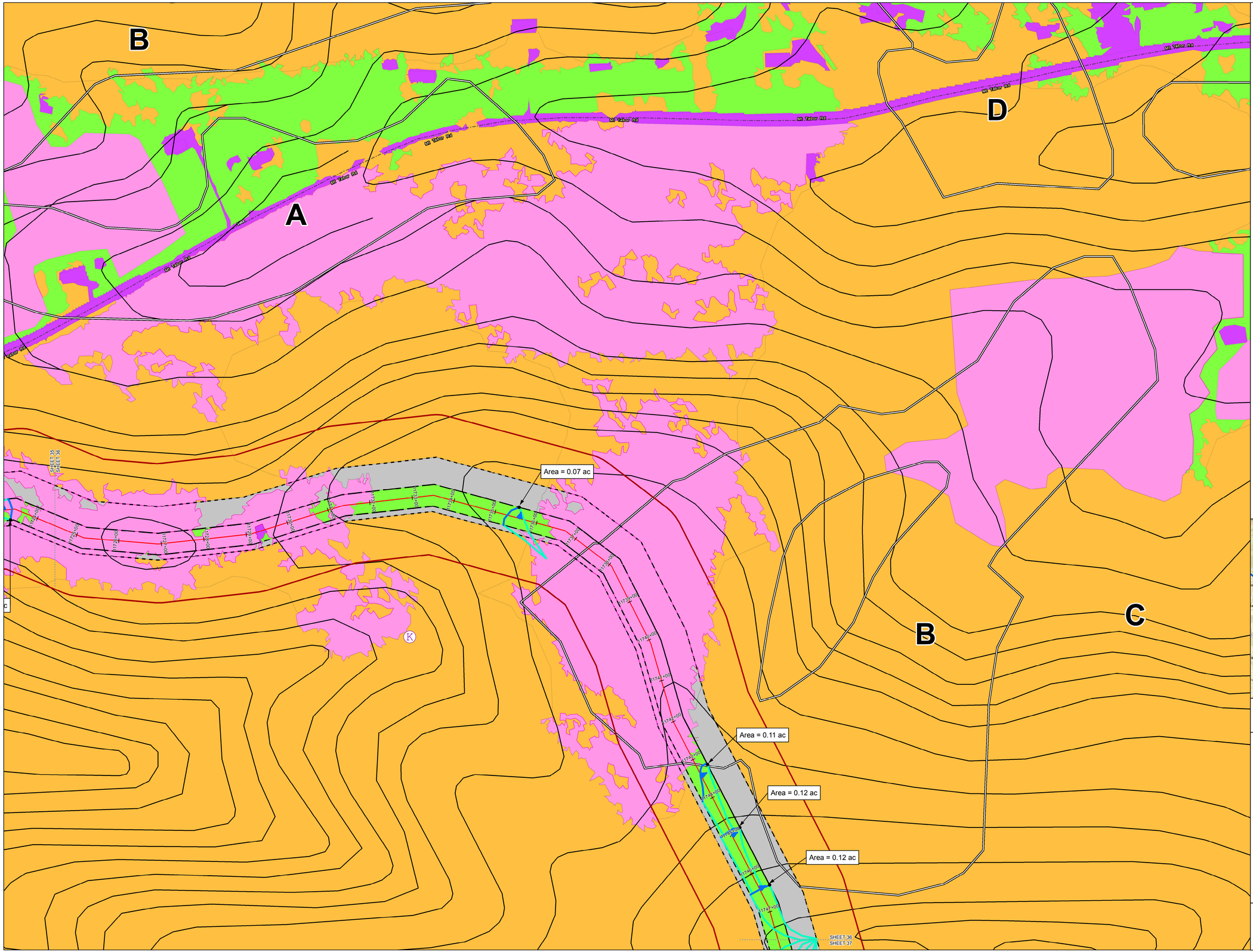
Drainage Map
Spread 9

Figure 35 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11590+00/89+00	11725+00
Post Construction Plan No.	13.34PC	13.35PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

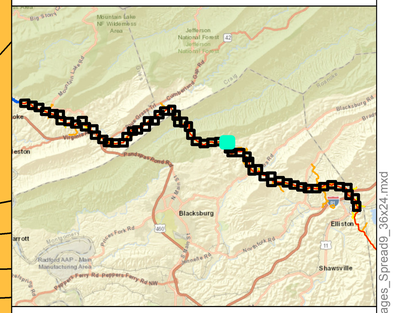
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 36 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11724+00	11747+00
Post Construction Plan No.	13.35PC	13.37PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

SHEET 36
SHEET 37

Area = 0.05 ac
Area = 0.09 ac
Area = 0.17 ac
Area = 0.17 ac
Area = 0.08 ac
Area = 0.11 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.17 ac
Area = 0.22 ac
Area = 0.13 ac
Area = 0.06 ac
Area = 0.05 ac
Area = 0.3 ac
Area = 0.11 ac

11748+00
11750+00
11752+00
11754+00
11756+00
11758+00
11760+00
11762+00
11764+00
11766+00
11768+00
11769+00
11770+00
11772+00
11772+00

B
C
B
B
B

K
K
K

SHEET 37
SHEET 38

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

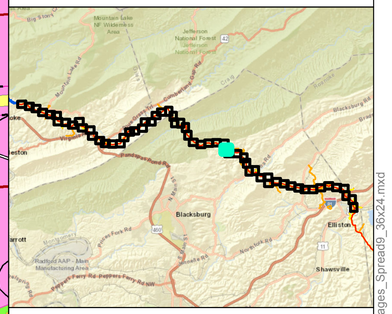
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N
W E
S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

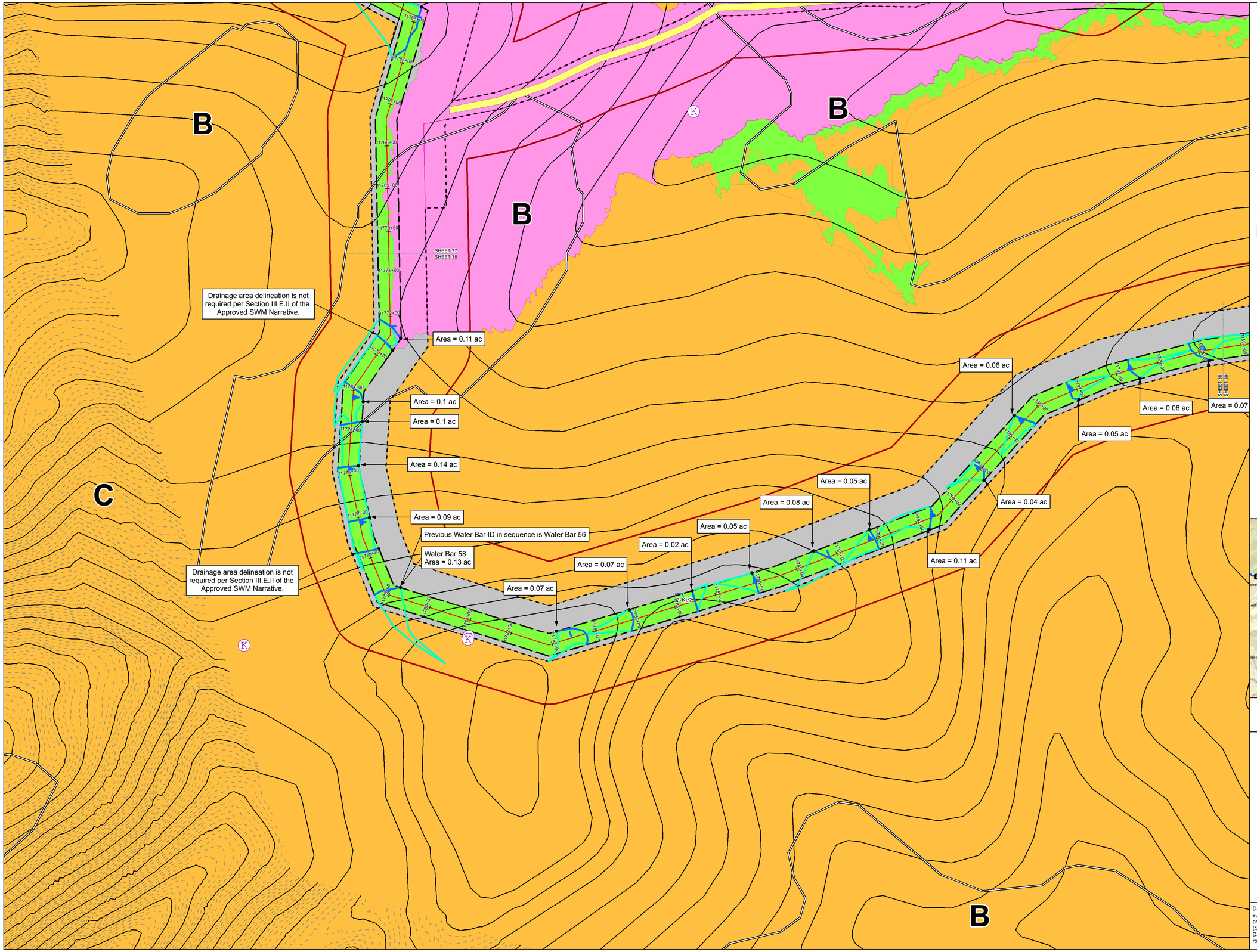
Drainage Map
Spread 9

Figure 37 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11748+00	11774+00
Post Construction Plan No.	13.37PC	13.38PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

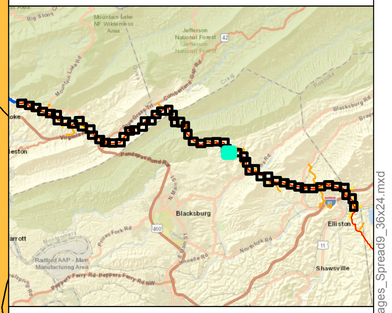
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

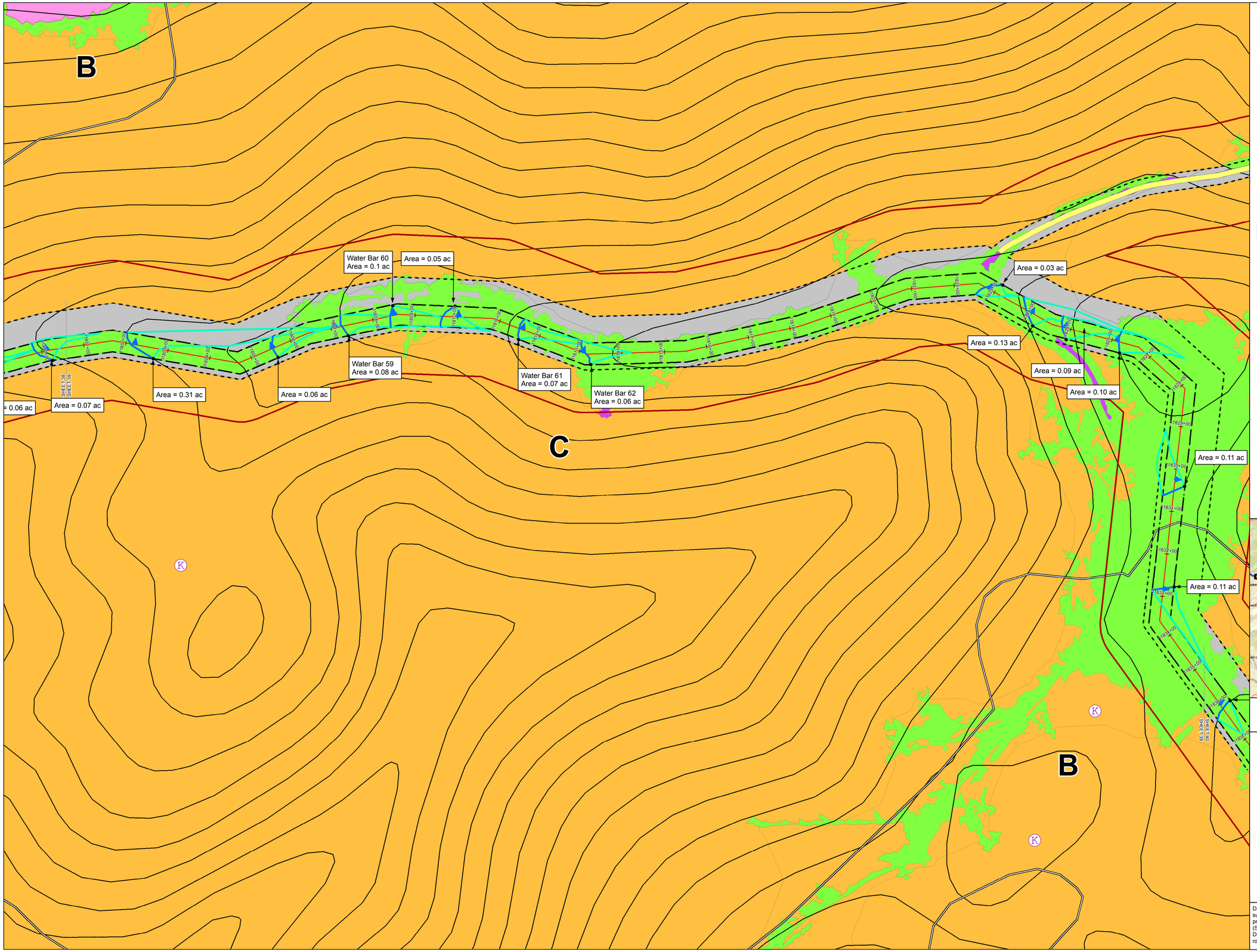
Drainage Map
Spread 9

Figure 38 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11765+00	11801+00
Post Construction Plan No.	13.37PC	13.38PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

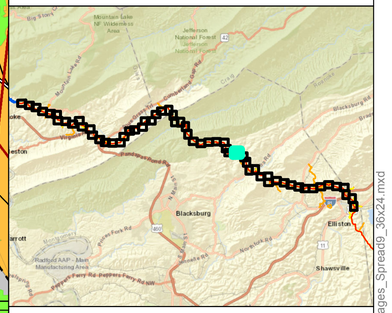
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 39 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11800+00	11837+00
Post Construction Plan No.	13.38PC	13.40PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

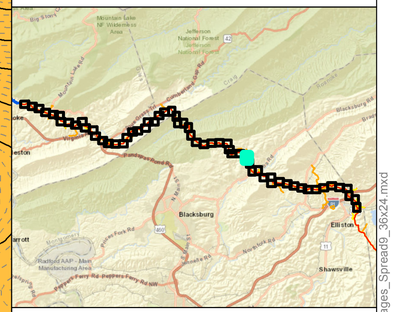
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N E S W



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 40 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11835+00	11865+00
Post Construction Plan No.	13.39PC	13.40PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

B

C

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.05 ac
Area = 0.08 ac
Area = 0.54 ac
Area = 0.19 ac
Area = 0.93 ac
Area = 0.49 ac
Area = 0.45 ac
Area = 0.05 ac
Area = 0.28 ac
Area = 0.14 ac
Area = 0.14 ac
Area = 0.15 ac
Area = 0.09 ac
Area = 0.08 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.09 ac
Area = 0.07 ac
Area = 0.07 ac
Area = 0.11 ac
Area = 0.21 ac
Area = 0.12 ac
Area = 0.10 ac
Area = 0.14 ac
Area = 0.04 ac
Area = 0.07 ac
Area = 0.08 ac

SHEET 41
SHEET 42

SHEET 40
SHEET 41

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

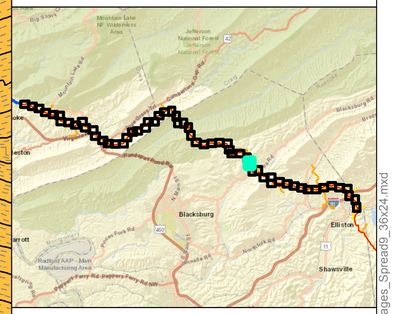
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 41 of 59

Montgomery County

March 5, 2018

	From	To
Pipeline Stationing -	11854+00	11883+00/2+00
Post Construction Plan No.	13.41PC	13.42PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

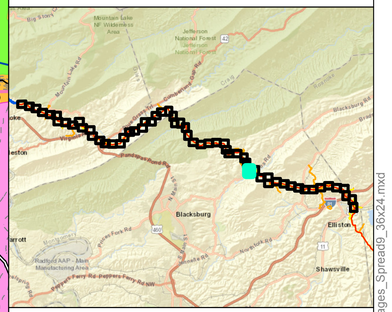
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 42 of 59

Montgomery County

March 5, 2018

	From	To
Pipeline Stationing -	11883+00	11883+00/31+00
Post Construction Plan No.	13.42PC	13.43PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

All waterbars in D soils assumed to have CN>71, refer to site specific calculation.

Previous Water Bar ID in sequence is Water Bar 63.

Next Water Bar ID in sequence is Water Bar 66.

Water Bar 71 Area = 0.2 ac

Area = 0.10 ac

Water Bar 70 Area = 0.14 ac

Area = 0.06 ac

Water Bar 69 Area = 0.37 ac

Water Bar 68 Area = 0.51 ac

Water Bar 67 Area = 0.17 ac

Water Bar 66 Area = 0.14 ac

Water Bar 63 Area = 0.31 ac

Area = 0.07 ac

Area = 0.12 ac

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

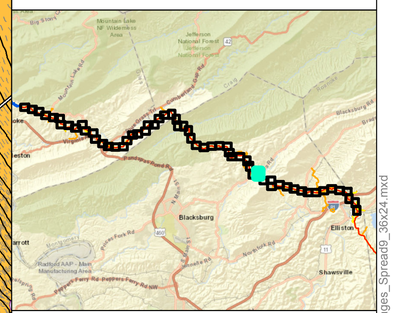
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 43 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11883+00/31+00	11940+00
Post Construction Plan No.	13.43PC	13.44PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: PGH P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.27 ac
Area = 0.11 ac
Area = 0.08 ac
Area = 0.06 ac
Area = 0.05 ac
Area = 0.04 ac
Area = 0.06 ac
Area = 0.06 ac
Area = 0.05 ac
Area = 0.11 ac
Area = 0.56 ac
Area = 0.06 ac
Area = 0.09 ac
Area = 0.05 ac
Area = 0.03 ac
Area = 0.05 ac
Area = 0.06 ac
Area = 0.04 ac
Area = 0.1 ac
Area = 0.06 ac
Area = 0.09 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

A B C D

SHEET 43
SHEET 44
SHEET 45

W-PP8
W-G5
S-G39
S-G40
S-PP8

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

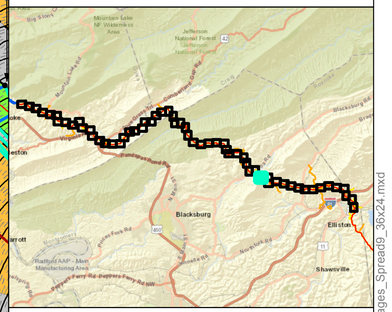
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 44 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11940+00	11969+00
Post Construction Plan No.	13.44PC	13.45PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

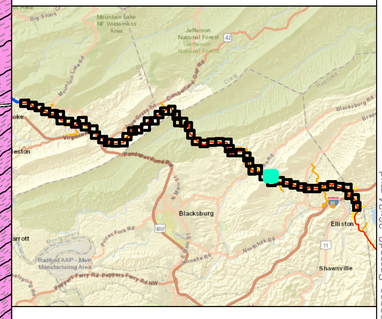
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 45 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11963+00	11985+00
Post Construction Plan No.	13.45PC	13.45PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.54 ac

Area = 0.62 ac

Area = 0.07 ac

SHEET 45
SHEET 46

SHEET 46
SHEET 47

C

B

A

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.06 ac

Area = 0.13 ac

Area = 0.04 ac

Area = 0.07 ac

Area = 0.17 ac

Area = 0.12 ac

Area = 0.12 ac

Area = 0.08 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

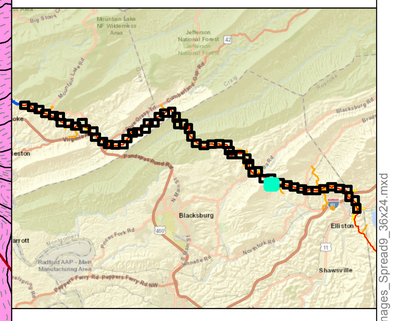
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

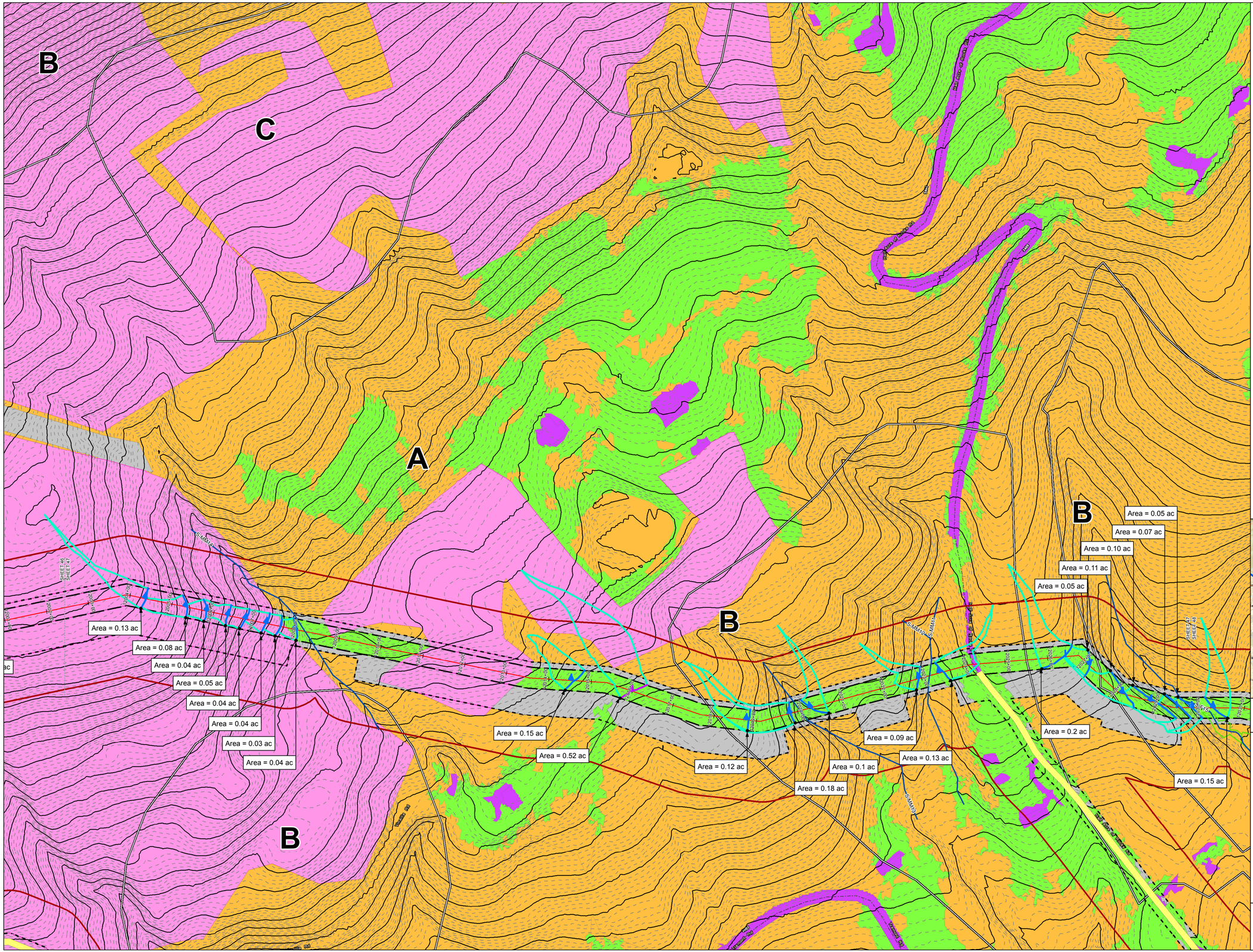
Drainage Map
Spread 9

Figure 46 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	11985+00	12003+00
Post Construction Plan No.	13.45PC	13.46PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

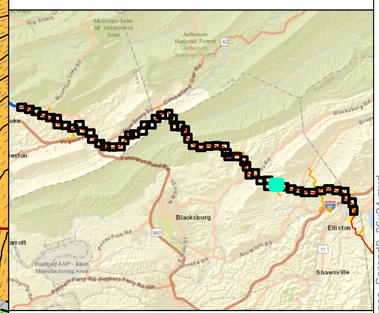
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 47 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12001+00	12031+00
Post Construction Plan No.	13.46PC	13.47PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: PGH P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

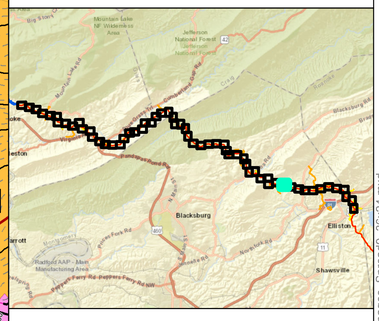
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

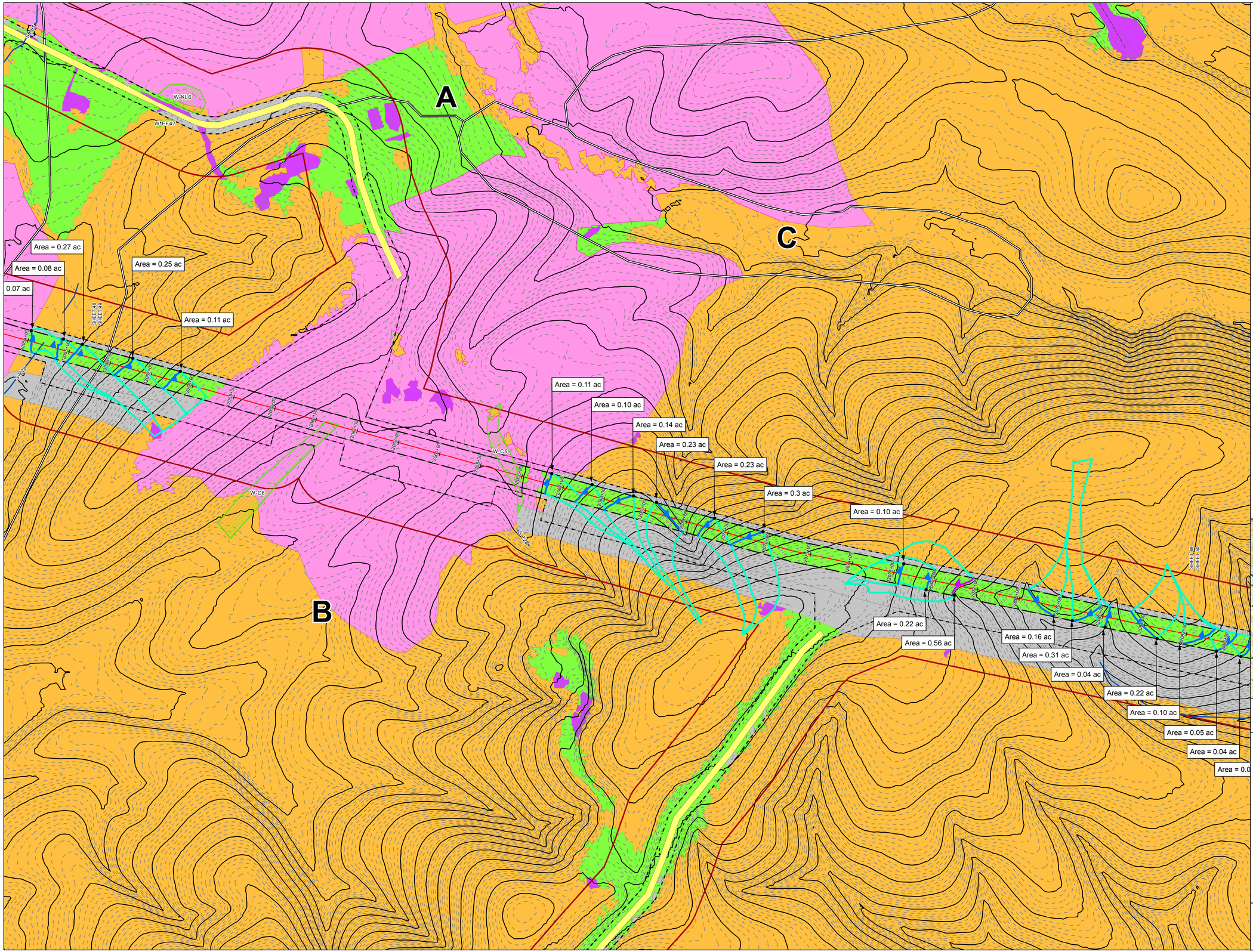
Drainage Map
Spread 9

Figure 48 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12029+00	12059+00
Post Construction Plan No.	13.47PC	13.48PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

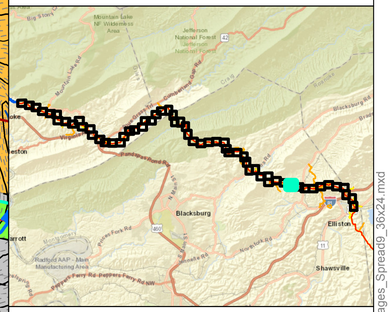
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 49 of 59

Montgomery County

March 5, 2018

	From	To
Pipeline Stationing -	12054+00	12083+00
Post Construction Plan No.	13.48PC	13.49PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.05 ac
Area = 0.06 ac
Area = 0.20 ac
Area = 0.29 ac
Area = 0.09 ac
Area = 0.33 ac
Area = 0.12 ac
Area = 0.14 ac
Area = 0.22 ac
Area = 0.10 ac
Area = 0.05 ac
Area = 0.04 ac
Area = 0.03 ac
Area = 0.34 ac
Area = 0.11 ac
Area = 0.12 ac
Area = 0.06 ac
Area = 0.11 ac

A
B
C

SHEET 49
SHEET 50
SHEET 51
SHEET 52

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

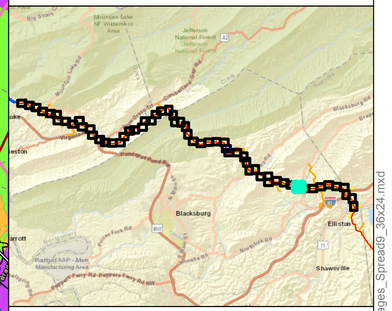
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 50 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12081+00	12112+00
Post Construction Plan No.	13.49PC	13.50PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.33 ac

Area = 0.12 ac

Area = 0.14 ac

Area = 0.33 ac

Area = 0.31 ac

Area = 0.04 ac

Area = 0.03 ac

Area = 0.02 ac

Area = 0.08 ac

Area = 0.06 ac

Area = 0.05 ac

Area = 0.05 ac

Area = 0.04 ac

Area = 0.04 ac

Area = 0.03 ac

Area = 0.06 ac

Area = 0.06 ac

Area = 0.06 ac

Area = 0.09 ac

Area = 0.07 ac

Area = 0.05 ac

Area = 0.04 ac

Area = 0.02 ac

Area = 0.03 ac

Water Bar 72
Area = 1.34 ac

Next Water Bar ID in sequence is Water Bar 74.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

A

B

B

C

SHEET 91

SHEET 93

SHEET 93

SHEET 92

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

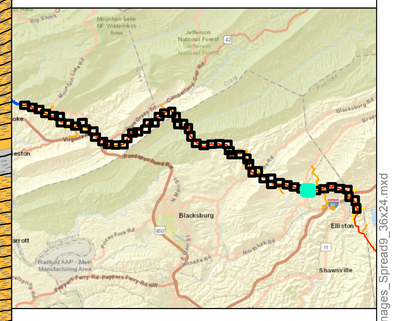
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 51 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12103+00/1+00	12138+00
Post Construction Plan No.	13.50PC	13.51PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.05 ac
Area = 0.04 ac
Area = 0.09 ac
Area = 0.07 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.03 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.05 ac
Area = 0.06 ac
Area = 0.05 ac
Area = 0.09 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.15 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.05 ac
Area = 0.08 ac
Area = 0.08 ac
Area = 0.04 ac
Area = 0.06 ac
Area = 0.05 ac

B

SHEET 52
SHEET 53

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

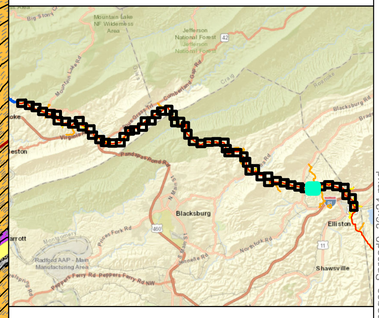
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 52 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12137+00	12166+00
Post Construction Plan No.	13.51PC	13.52PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Area = 0.04 ac
Area = 0.03 ac
Area = 0.07 ac
Area = 0.07 ac
Area = 0.04 ac
Area = 0.02 ac
Area = 0.02 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.05 ac
Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.
Area = 0.04 ac
Area = 0.07 ac
Area = 0.06 ac
Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.
B
A
SHEET 53
SHEET 54
SHEET 52
SHEET 53
Mountain Valley Pipeline
Mountain Valley Pipeline

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

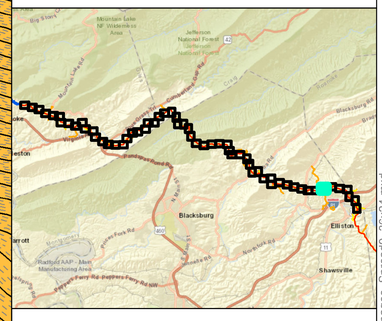
NAD 1983 UTM 17N

N W E S

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Drainage Map
Spread 9

Figure 53 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12165+00	12196+00
Post Construction Plan No.	13.52PC	13.53PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.05 ac

Area = 0.11 ac

Area = 0.08 ac

Area = 0.07 ac

Area = 0.07 ac

Area = 0.10 ac

Area = 0.12 ac

Area = 0.07 ac

Area = 0.05 ac

Area = 0.11 ac

Area = 0.04 ac

Area = 0.05 ac

Area = 0.05 ac

Area = 0.02 ac

2 ac

B

SHEET 53
SHEET 54

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.06 ac

Area = 0.05 ac

Area = 0.09 ac

Area = 0.05 ac

Area = 0.08 ac

Area = 0.05 ac

Area = 0.07 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.10 ac

Area = 0.06 ac

Area = 0.06 ac

Area = 0.03 ac

Area = 0.09 ac

Area = 0.13 ac

Area = 0.13 ac

Area = 0.18 ac

Area = 0.17 ac

Area = 0.06 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

SHEET 54
SHEET 55

Area =

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

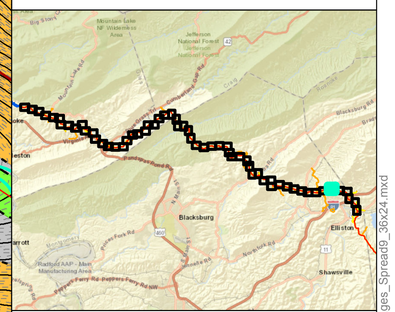
NAD 1983 UTM 17N

N
W E
S

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 54 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12195+00	12230+00
Post Construction Plan No.	13.53PC	13.54PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.04 ac
Area = 0.05 ac
Area = 0.07 ac
Area = 0.07 ac
Area = 0.08 ac
Area = 0.06 ac
Area = 0.07 ac
Area = 0.06 ac
Area = 0.03 ac
Area = 0.04 ac
Area = 0.06 ac
Area = 0.09 ac
Area = 0.07 ac
Area = 0.04 ac
Area = 0.04
Area = 0.05 ac
Area = 0.05 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.05 ac

SHEET 54
SHEET 55
SHEET 56
SHEET 57
SHEET 58
SHEET 59
SHEET 60
SHEET 61
SHEET 62
SHEET 63
SHEET 64
SHEET 65
SHEET 66
SHEET 67
SHEET 68
SHEET 69
SHEET 70
SHEET 71
SHEET 72
SHEET 73
SHEET

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Area = 0.04 ac

Area = 0.04 ac

Area = 0.04 ac

Area = 0.02 ac

Area = 0.02 ac

Area = 0.05 ac

Area = 0.02 ac

Area = 0.06 ac

Area = 0.04 ac

Area = 0.04 ac

Area = 0.05 ac

Area = 0.04 ac

Area = 0.10 ac

Area = 0.04 ac

Area = 0.04 ac

Area = 0.06 ac

Area = 0.07 ac

Area = 0.08 ac

Area = 0.11 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

B

C

D

SHEET 55
SHEET 56

SHEET 56
SHEET 57

SWMN20

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

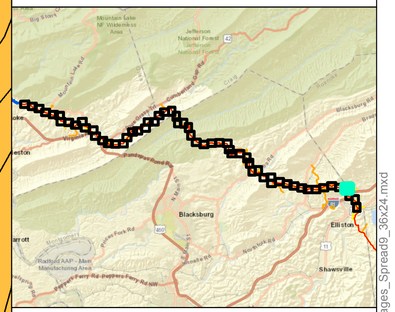
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions, and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet

N W E S



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 56 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12256+00	12277+00
Post Construction Plan No.	13.55PC	13.56PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

SHEET 57
SHEET 58

SHEET 59

Area = 0.37 ac
Area = 0.05 ac
Area = 0.06 ac
Area = 0.09 ac
Area = 0.06 ac
Area = 0.25 ac
Water Bar 74
Area = 0.08 ac
Previous Water Bar ID in sequence is Water Bar 72.
Area = 0.17 ac
Area = 0.09 ac
Area = 0.12 ac
Area = 0.07 ac
Area = 0.08 ac
Area = 0.09 ac
Area = 0.07 ac
Area = 0.04 ac
Area = 0.03 ac
Area = 0.04 ac
Area = 0.04 ac
Area = 0.03 ac
Area = 0.05 ac
Area = 0.05 ac
Area = 0.16 ac
Area = 0.08 ac
Area = 0.05 ac
Area = 0.10 ac
Area = 0.09 ac
Area = 0.15 ac
Area = 0.11 ac
Area = 0.16 ac
Area = 0.14 ac
Area = 0.13 ac
Area = 0.16 ac
Area = 0.09 ac

Drainage area delineation is not required per Section III.E.II of the Approved SWM Narrative.

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

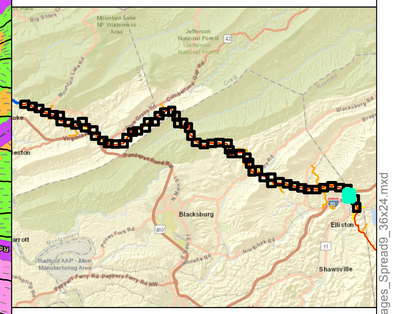
2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100 Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 57 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12276+00	12310+00
Post Construction Plan No.	13.56PC	13.57PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd

C

D

B

C

C

C

A

MVP-MLV-27

Area = 0.41 ac

Area = 0.11 ac

Area = 0.36 ac

Area = 0.09 ac

Area = 0.04 ac

Area = 0.06 ac

Area = 0.13 ac

Area = 0.08 ac

Area =

Gentrytown Cir

SHEET 55
SHEET 56

SHEET 57
SHEET 58

Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

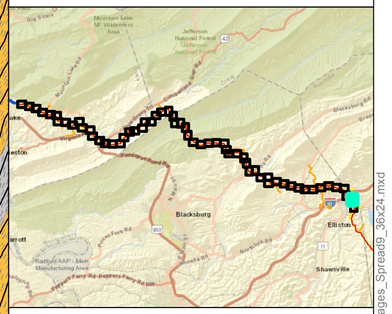
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

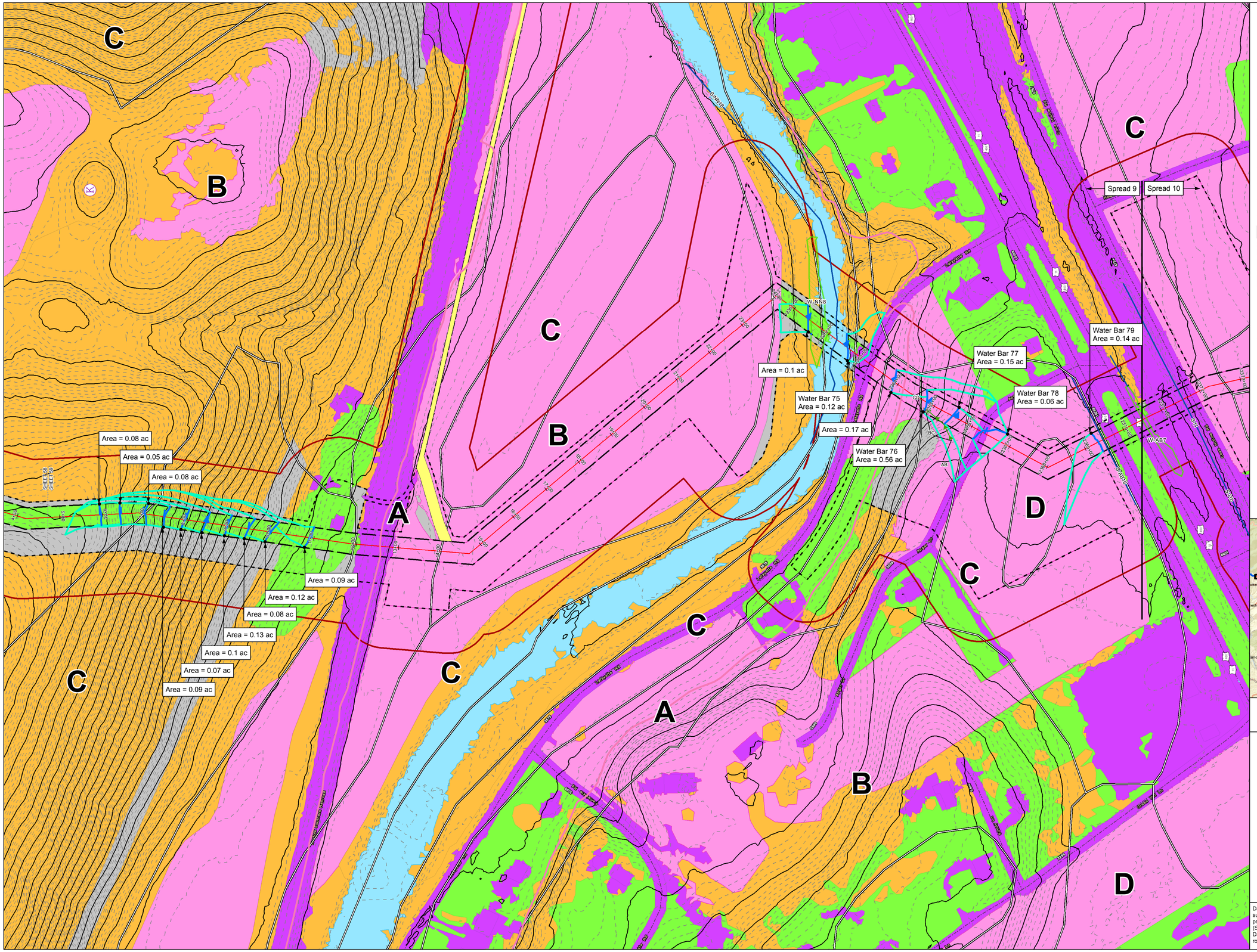
Drainage Map
Spread 9

Figure 58 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12310+00	12331+00/6+00
Post Construction Plan No.	13.57PC	13.58PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd



Legend

- Karst Feature
- Approximate Location of Water Bar End Treatment
- Permanent Water Bar 10-ft End Treatment
- Permanent Water Bar 15-ft End Treatment
- Permanent Water Bar 20-ft End Treatment
- Sheetflow
- Shallow Concentrated Flow
- Streams
- Stationing
- Alignment Centerline
- Permanent Easement
- Limit of Disturbance
- MLV Site
- Access Road Permanent Easement
- Existing Impervious Surveyed Road Edge
- New/Proposed Impervious Road Edge
- Water Bar Drainage Area
- 100-year Floodplain
- Pond
- Wetland
- Hydrologic Soil Groups
- 100 ft Buffer off of Limits of Disturbance
- Agricultural
- Barren
- Brush
- Forest
- Impervious
- Meadow
- Open Water
- 10-foot Contour
- 2-foot Contour
- State Road Centerline

Notes:
1) Note that only waterbars with a number designation required site specific analysis. Refer to "Appendix – Spread 9 Site Specific Analyses" for all calculations related to waterbar end treatment and drainage area analysis.

2) Unless otherwise noted, the water bar drainage areas on this sheet are less than or equal to 1.5-acres and have a CN less than or equal to 71 and thus do not need a site specific calculation. In HSG A and B soils, it can be determined by inspection if the CN exceeds 71 because impervious cover must exceed 60% in A soils and 32% in B soils (assuming a worst case of meadow conditions in the remainder of the water bar drainage area). A weighted CN is provided for water bar drainage areas with HSG C soils and any impervious cover. Water bar drainage areas with HSG D soils are assumed to have a CN greater than 71. A site specific calculation is provided if the water bar drainage area is greater than 1.5-acres or has a CN greater than 71. Site specific calculations will use the Rational Method equation with runoff coefficients contained in VASWMH Table 4-5a and 4-5b.

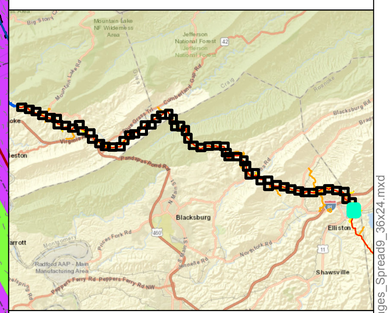
3) Per the Approved Test Area Stormwater Narrative (1/22/2018), Section II.A and II.B, the 75-foot temporary construction and 50-foot permanent ROW will be restored to predevelopment conditions except where that condition is forested. In this case the 75-foot temporary construction LOD post-development condition will be brush (seeded with a mix of herbaceous and woody species) and may naturally return to forest condition subject to landowner actions; and the 50-foot permanent ROW when indicated will be seeded and restored to meadow conditions.

NAD 1983 UTM 17N

1 " = 100 feet

100 0 100

Feet



Mountain Valley Pipeline Project

Mountain Valley PIPELINE

Drainage Map
Spread 9

Figure 59 of 59
Montgomery County
March 5, 2018

	From	To
Pipeline Stationing -	12331+00/4+00	12371+00
Post Construction Plan No.	13.58PC	13.59PC

Data Sources: Imagery from ESRI Streaming Data 2014, Delineated streams surveyed by Tetra Tech Inc. 2014 to 2017, Elevation data derived from LiDAR provided by EQT 2016, Soils from NRCS Gridded Soil Survey Geographic (SSURGO) database 2014, Forest cover land use from the VGIN Land Cover Dataset, Transportation data from VITA map layer 2016, Existing and proposed roads were surveyed by EQT.

Document Path: P:\GIS\EQT_MVP\Mapdocs\Drainage\MXD\MVP_Drainages_Spread9_36x24.mxd