MVP Variance Request Form

Variance Request No.:	MVP-015
Date Approval Requested by Contractor:	6/10/2019
Date Submitted by Chief Inspector to LEI:	6/12/2019
Date Received by FERC:	
FERC Approval Reference No.:	

Requested By:	Brent Ladd	**Spread:**	Project Wide	**Variance Type:**	PM
Request Prepared By *:	Megan Neylon			**Variance Sequence Number:**	MVP-015

* The FERC compliance monitor should be alerted and given a copy of the draft variance for review prior to submittal

Location (Use either Station or Milepost)

Station:	Project Wide	**To:**	Project Wide	**Milepost:**	Project Wide	**To:**	Project Wide
Alignment Sheet Number:	N/A			**Tract No.:**	Various		
Current Land Use/ Vegetative Cover:	All			**Other Agency Jurisdiction:**	None		

Nearby Features (Water body, T&E Habitat, Wetland, Noxious Weed Area, Residence (distance), Cultural Resource Site (distance) etc.):

☐ Noxious Weed Area ☐ Raptor Nest ☐ Residence (Distance)

☐ T/E Species Habitat ☐ Cultural Resource Site ☐ Water Well

☑ Other (Specify): Site Specific

In or w/in 50 feet of a wetland: ☑ Yes ☐ No

In or w/in 50 feet of a waterbody: ☑ Yes ☐ No

Wetland or Waterbody ID: Site Specific

Additional Stream footage impacted:	None	**Additional Wetland impacts:**	N/A
Net acreage affected:	0		
Tree Clearing Required:	0	**Acreage of tree clearing:**	0

Variance Level: ☐ Level 1 ☐ Level 2 ☑ Level 3

Variance From: ☑ Permit ☐ Plan ☐ Procedures ☐ EPPM ☐ Specification ☐ Drawing ☐ Mitigation Measure ☐ Line List ☐ Other: Describe:

Detailed Description of Variance: Attachments? ☑ **Yes** ☐ **No** Photos? ☐ Yes ☑ **No**

Mountain Valley requests a variance to change the crossing method of four streams from an open cut dry method as indicated in the FEIS to conventional bores. Updated alignment sheets can be found in Attachment 1 that include scaled drawings that identify areas to be disturbed by construction. A table of crossing method changes can be found in Attachment 2. All earth disturbance necessary to complete the crossings and spoil stockpile will remain within the previously permitted limits-of-disturbance. Resources will be protected using Reinforced Filtration Devices (RFDs), which may include Priority 1 Silt Fence, Triple Stacked Compost Filter Sock, or Super Silt Fence. A description of the geological conditions of each crossing is included in Attachment 3. As indicated in Mountain Valley's Karst Hazard Assessment, no karst topography is present in the area of these bores. While all of the conditions in attachment 3 are not expected to be encountered within the area of the bore pits, they do exist in the general area as indicated by the referenced geological map of West Virginia. A copy of an email from Michael Hatten, U.S. Army Corps of Engineers, Huntington District Chief, Regulatory Division confirms that boring under non-Section 10 waters is not a USACE jurisdictional activity is included in Attachment 4 . Bore pits and construction activities will be located outside of the Ordinary High Water Mark. Bore pits will be monitored and dewatered when necessary by utilizing a standard water pump. The pumps will discharge into dewatering structures that will be built in compliance with both FERC and WVDEP requirements. If at any time a temporary dewatering structure is required off LOD, Mountain Valley will obtain permission from the landowner prior to building the structure. In compliance with FERC Procedures Section V.B.9 regarding major waterbody crossings, specifically the Little Kanawha River, and erosion and sediment control plan and correspondence with the WVDEP is included in attachment 5. Bore profiles are included in attachment 6.
A list of streams and wetlands within 50 feet can be found below:
Streams: S-RR22, S-H127, S-H132, S-H129

List Attachments:	Attachment 1- Alignment Sheets; Attachment 2- Crossing Method Table; Attachment 3 - Geological Conditions; Attachment 4 - Email Correspondence USACE; Attachment 5 - Erosion and Sediment Control Plan and State Correspondence; Attachment 6 - Bore Plans	

Variance Justification:

Needed to reduce stream impacts and increase project restoration efforts.

For MVP Use Only

Additional Surveys Required			Surveyed Corridor Description	Additional Surveys Completed	
Cultural Survey	☐ Yes	☑ No	N/A	☐ **Yes**	☑ **No**
T & E Survey	☐ Yes	☑ No		☐ Yes	☑ No
Waterbodies/Wetlands	☐ Yes	☑ No		☐ **Yes**	☑ **No**

Proof of Previous Biological and Cultural Survey Clearance

N/A

Landowner:		**REDACTED**
Land Agent Contact		**Janna Arnold**
Landowner Approval Obtained	☑ **Yes** ☐ **No**	

Sign Off:	**Name**	**Signature**	**Date**
Construction Manager	*Brent Ladd*	*Brent Ladd*	6/18/2019
Lead Environmental Inspector	*Travis Huskins and Jason Hiles*	*Travis Huskins and Jason Hiles*	6/18/2019
Third Party Compliance Manager or monitor			
ROW Land Agent *	*Janna Arnold*	*Janna Arnold*	6/18/2019
Environmental Supervisor	*Megan Neylon*	*Megan Neylon*	6/18/2019

*signature denotes confirmed landowner approval

For FERC Compliance Monitor and Compliance Manager Use Only

Variance Approved:		Variance Denied:		Beyond Authority:	
Signature:					
Date:					
Stipulations:					

Spread No.: Project Wide

Variance Request No.: MVP-015

VARIANCE CONDITIONS

Name:		Title:		Organization:	

Conditions:

Name: Title: Organization:

Conditions:

Name: Title: Organization:

Conditions:

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Alignment
Sheets
Attachment 1

RIGHT-OF-WAY & OWNERSHIP DATA

Station From	Station To	Parcel(s)	Length
1066+55	1071+27	WV-HA-065	472 LF 475 SLOPE
1071+27	1073+72	WV-HA-066	245 LF 247 SLOPE
1073+72	1075+42	WV-HA-066 / WV-HA-065	170 LF 170 SLOPE
1075+42	1082+26	WV-HA-065	684 LF 692 SLOPE
1082+26	1083+32	WV-HA-065.01 / WV-HA-065	106 LF 110 SLOPE
1083+32	1089+04	WV-HA-065.01	572 LF 576 SLOPE
1089+04	1094+20	WV-HA-065.01 / WV-HA-065.02	516 LF 518 SLOPE
1094+20	1095+54	WV-HA-065.02	134 LF 135 SLOPE
1095+54	1098+47	WV-HA-065.03	293 LF 297 SLOPE
1098+47	1103+96	WV-HA-065.01 / WV-HA-065.03	549 LF 574 SLOPE
1103+96	1104+29	COUNTY ROUTE 5/4	33 LF - 36 SLOPE
1104+29	1105+01	WV-HA-065.01 / WV-HA-065.04	72 LF 80 SLOPE
1105+01	1111+49	WV-HA-065.01	648 LF 683 SLOPE
1111+49	1112+08	WV-HA-065.06 / WV-HA-065.01 / WV-HA-065.04	59 LF 62 SLOPE
1112+08	1112+80	WV-HA-065.06 / WV-HA-065.05 / WV-HA-065.04	72 LF 73 SLOPE
1112+80	1113+35	WV-HA-065.06 / WV-HA-065.05	55 LF 58 SLOPE
1113+35	1114+08	WV-HA-065.06	73 LF 78 SLOPE
1114+08	1121+91	WV-HA-065.06 / WV-HA-065.05	783 LF 793 SLOPE
1121+91	1122+77	WV-HA-065.06	86 LF 87 SLOPE
1122+77	1123+11	WV-HA-065.06 / WV-HA-076	34 LF 35 SLOPE
1123+11	1123+37	WV-HA-072 / WV-HA-065.06 / WV-HA-076	26 LF 28 SLOPE

DESIGN

Station From	Station To	PIPE / COATING	SLOPE DISTANCE
1066+55	1103+92	1	3794'
1103+92	1104+32	4	40'
1104+32	1106+29	1	206'
1106+29	1106+65	6	40'
1106+65	1123+37	1	1727'

CLASS LOCATION / HCA: 1

ENVIRONMENTAL

CONSTRUCTION EXCLUSION (1066+55 – 1123+37):
TIME OF YEAR RESTRICTION: NO CLEARING JUNE 1 - JULY 31
SEE TREE CLEARING PLAN FOR FURTHER DETAILS

T.O.Y.R.: NO CONSTRUCTION WITHIN STREAM S-RR22 APRIL 1ST TO JUNE 30TH

TIME OF YEAR RESTRICTION: NO CLEARING JUNE 1 - JULY 31
SEE TREE CLEARING PLAN FOR FURTHER DETAILS

WETLAND / STREAM: S-RR22 — 13 LF

PLAN VIEW

LEGEND

- STUDY CORRIDOR
- PROPOSED 42"PIPELINE
- NON-SURVEYED C/L
- 500' TICK MARK
- EXISTING PIPELINE
- PERMANENT EASEMENT
- WORK SPACE LIMITS
- PERMANENT ACCESS RD
- TEMPORARY ACCESS RD
- ANCILLARY SITE
- COUNTY LINE
- PROPERTY LINE
- ROAD RIGHT-OF-WAY
- FENCE LINE
- OVERHEAD POWER
- OVERHEAD TELEPHONE
- C/L ROAD
- C/L RAILROAD
- DELINEATED STREAM
- DELINEATED WETLAND
- BARRICADE FENCE
- PI SYMBOL
- PROPOSED TEST STATION
- MAILBOX
- LINE MARKER - VENT PIPE
- POWER/TELE POLE
- SIGN
- TOWER LEG
- TREE
- GUY ANCHOR
- TANK
- GAS VALVE
- WELL - GAS/OIL/WATER/ MONITORING
- POST - GATE/FENCE
- ELEC/GAS/WTR METER
- PEDESTAL - UTILITY
- MH - SANITARY/WATER
- CATCH BASIN - CULVERT
- ADDITIONAL TEMPORARY WORK SPACE(ATWS)
- ABOVE GROUND FACILITY
- LIMITS OF DISTURBANCE

REFERENCE DRAWINGS

DRAWING NO.	DESCRIPTION
MVP-AR-H600-02	ACCESS ROADS, ANCILLARY SITES, MAINLINE VALVES & LAUNCHER/RECEIVER SITES
FPCX-H600-044	FOREIGN PIPELINE X-ING PLAN
FPCX-H600-046	FOREIGN PIPELINE X-ING PLAN
FPCX-H600-047	FOREIGN PIPELINE X-ING PLAN
04-2016-0505	ROAD CROSSING PERMIT
RSS-H600-097	RESIDENTIAL SITE SPECIFIC
RSS-H600-107	RESIDENTIAL SITE SPECIFIC
P-W-H600-1204-01	CATHODIC PROTECTION STANDARD DRAWING

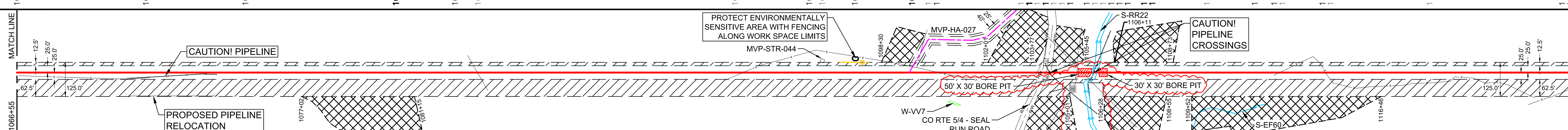
ISSUED FOR CONSTRUCTION

HORIZONTAL STATIONING

- 1066+55 MATCH LINE
- 1071+27 PROPERTY LINE
- 1074+91 PROPERTY LINE
- **1080+41 PROPOSED TYPE 1 TEST STATION**
- 1082+57 PROPERTY LINE
- 1083+42 FENCE – BARBED WIRE
- 1093+12 FENCE – BARBED WIRE PROPERTY LINE
- 1095+54 PROPERTY LINE
- 1096+02 BUILDING – DEER BLIND 36'LT
- 1097+20 SENSITIVE AREA 44'LT
- **1099+29 ACCESS RD – PERMANENT (MVP–HA–027)**
- 1100+15 FENCE – BARBED WIRE
- 1100+17 PROPERTY LINE
- 1103+81 FENCE – BARBED WIRE
- **1103+96 PROPOSED TYPE 1 TEST STATION,R/W**
- 1104+04 EDGE OF ASPHALT
- **1104+12 ℄ CO RTE 5/4–SEAL RUN RD**
- 1104+13 LINE MARKER 28'LT
- 1104+20 EDGE OF ASPHALT
- **1104+27 PIPELINE – FOREIGN – EQT 10"F1157**
- **PROPOSED TYPE 4A TEST STATION**
- 1104+29 RIGHT–OF–WAY
- 1104+39 FENCE – WIRE
- 1105+11 PEDESTAL – TELEPHONE 60'RT
- 1105+28 UNGRD UTILITY – TELEPHONE
- 1105+48 OHP LINE
- 1105+79 PIPELINE–FOREIGN–DOMINION 6"H15267
- **PROPOSED TYPE 4A TEST STATION**
- **1105+84 STREAM BANK(S–RR22)**
- **1105+97 STREAM BANK(S–RR22)**
- **PROPOSED TYPE 1 TEST STATION**
- 1110+08 PROPERTY CORNER 53'RT
- 1111+84 PROPERTY LINE
- 1112+55 PROPERTY LINE
- 1112+68 FENCE – BARBED WIRE
- 1114+32 PROPERTY LINE
- 1114+37 FENCE – BARBED WIRE
- 1118+22 PROPERTY CORNER 38'RT
- 1123+20 PROPERTY LINE
- 1123+37 MATCH LINE

WORK SPACE

- PROPOSED PIPELINE
- EXISTING PIPELINE
- ACCESS ROAD TEMPORARY WORK SPACE
- PERMANENT EASEMENT
- TEMPORARY WORK SPACE(TWS)
- ADD. TEMPORARY WORK SPACE(ATWS)



CONSTRUCTION METHOD

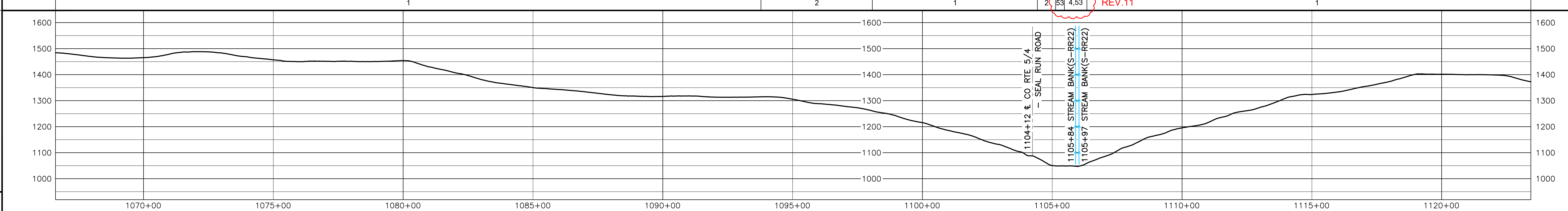
1066+55 –						
1	2	1	2	53	4,53	1

REV.11

CONSTRUCTION METHOD KEY

1 - TYPICAL R/W WORKING SIDE RIGHT
1.1 - TYPICAL R/W WORKING SIDE LEFT
2 - TOPSOIL SEGREGATED R/W WORKING SIDE RIGHT
2.1 - TOPSOIL SEGREGATED R/W WORKING SIDE LEFT
3 - TYPICAL WETLAND X-ING
4 - ROAD X-ING - BORE
5 - RAILROAD X-ING - BORE
6 - WATERBODY X-ING OPEN CUT - FLUME
7 - PARALLEL TO POWER LINE
8 - RIDGE CONSTRUCTION
10 - HDD ENTRY PLAN
11 - HDD EXIT PLAN
12 - HDD CONSTRUCTION
13 - PARALLEL TO POWER LINE
14 - PARALLEL TO POWER LINE
15 - WATERBODY X-ING OPEN CUT - DRY/DAM & PUMP
33 - SIDE HILL CONSTRUCTION
34 - 2-TONE SIDE HILL CONSTRUCTION
53 - REDUCED CONSTRUCTION R/W WITH TOPSOIL SEGREGATION
54 - REDUCED CONSTRUCTION R/W FOR NON-WETLAND OR STREAM REASONS

PROFILE



REVISIONS

REV.	BY	DATE	DESCRIPTION
4	HEI	10-14-16	OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC
5	HEI	11-9-16	REMOVED EQUATIONS
6	HEI	11-27-17	ISSUED FOR CONSTRUCTION
7	HEI	04-13-18	ISSUED FOR CONSTRUCTION - FERC REVISION REQUEST
8	HEI	10-04-18	ISSUED FOR VARIANCE - ADDED MVP-ATWS-1598
9	HEI	02-28-19	ISSUED FOR VARIANCE - ADDED MVP-ATWS-SM-057 FOR SLIP MITIGATION
10	HEI	05-28-19	ISSUED FOR VARIANCE - ADDED MVP-ATWS-SM-090 FOR SLIP MITIGATION
11	HEI	05-30-19	ISSUED FOR VARIANCE - REVISED STREAM S-RR22 CROSSING CONSTRUCTION METHOD AND ADDED BORE PITS

MATERIAL SUMMARY

MK. NO.	QTY.	DESCRIPTION
1	5727	42"O.D. X 0.617"W.T., X-70, FUSION BONDED EPOXY
4	40	42"O.D. X 0.740"W.T., X-70, FBE & ARO
6	40	42"O.D. X 0.617"W.T., X-70, FBE & ARO
	3	TYPE 1 TEST STATION - PIPELINE
	2	TYPE 4A TEST STATION - SINGLE LINE FOREIGN XING

APPROVED FOR CONSTRUCTION

REV.	BY	DATE
6	JJS	11-27-17
7	JJS	04-13-18

APPROVED FOR BIDDING

REV.	BY	DATE
3	RRR	09-03-16

APPROVED FOR FERC

REV.	BY	DATE
0	RRR	10-15-15
4	RRR	10-14-16
6	JJS	11-27-17
7	JJS	04-13-18

HOLLAND ENGINEERING
220 Hoover Boulevard, Suite 2
Holland, Michigan 49423-3766
T 616-392-5938 F 616-392-2116
26555 Evergreen Rd. Suite 430
Southfield, Michigan 48076
T 248-827-7322 F 248-827-7549
www.hollandengineering.com

Mountain Valley PIPELINE

PIPELINE ALIGNMENT
MOUNTAIN VALLEY PROJECT - H600 LINE
TENMILE DIST.,HARRISON CO.,W.V.
STA. 1066+55 TO STA. 1123+37

HORZ. SCALE: 1" = 200'	
DRAWN BY: HEI(DRF)	02/09/15
DRAFTING CK:	
ENGINEERING CK:	
CONSTRUCTION CK:	
ENVIRONMENTAL CK:	
AFE/P.O.NO.:	
HEI PROJECT NO.: 14-10-052	
DRAWING NO.: PA-HAWV-H600 -12	
SHEET 22 OF 329	REV. 11
DATE OF PLOT: 6/11/19 8:15 AM	

RIGHT-OF-WAY & OWNERSHIP DATA

Station	Parcel	Length
3924+31 – 3933+00	WV-BR-035	869 LF / 873 SLOPE
3933+00 – 3934+79	WV-BR-036 / WV-BR-035	179 LF / 179 SLOPE
3934+79 – 3942+14	WV-BR-036	735 LF / 754 SLOPE
3942+14 – 3950+62	WV-BR-037	847 LF / 871 SLOPE
3950+62 – 3958+32	WV-BR-4404 (EQUATION: 3957+89 BK= 3957+27 AHD)	831 LF / 900 SLOPE
3958+32 – 3959+29	LITTLE KANAWHA RIVER	97 LF / 97 SLOPE
3959+29 – 3982+04	WV-BR-038	2275 LF / 2365 SLOPE

DESIGN

	3924+31 – 3944+25	3944+25 – 3945+05	3945+05 – 3957+67	3957+67 – 3959+67	3959+67 – 3967+05	3967+05 – 3967+85	3967+85 – 3982+04
PIPE / COATING	2	4	2	4	2	4	2
SLOPE DISTANCE	2079'	80'	1337'	200'	968'	80'	1293'
CLASS LOCATION / HCA	1						

REV.9

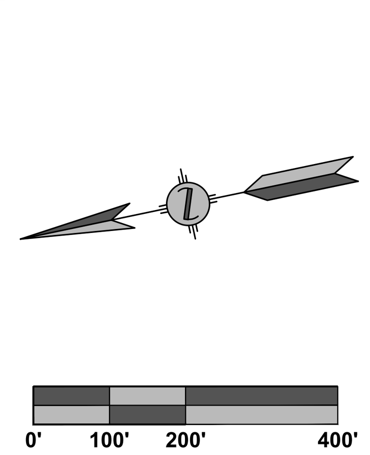
ENVIRONMENTAL

CONSTRUCTION EXCLUSION:

- TIME OF YEAR RESTRICTION: NO CLEARING JUNE 1 - JULY 31 SEE TREE CLEARING PLAN FOR FURTHER DETAILS
- T.O.Y.R.: NO CONSTRUCTION WITHIN STREAM S-H127 APRIL 1ST TO JUNE 30TH
- TIME OF YEAR RESTRICTION: NO CLEARING JUNE 1 - JULY 31 SEE TREE CLEARING PLAN FOR FURTHER DETAILS
- T.O.Y.R.: NO CONSTRUCTION WITHIN STREAMS S-L50 & S-H132 APRIL 1ST TO JUNE 30TH
- TIME OF YEAR RESTRICTION: NO CLEARING JUNE 1 - JULY 31 SEE TREE CLEARING PLAN FOR FURTHER DETAILS

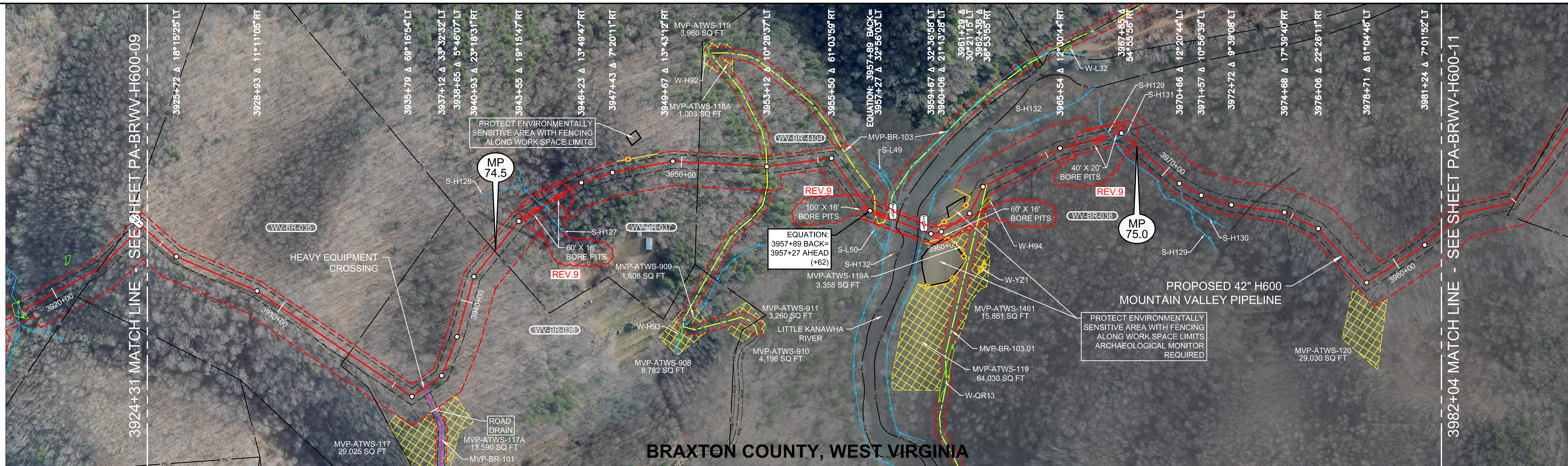
WETLAND / STREAM:

S-H127	S-L50	S-H132	W-H94	S-H129	S-H131	S-H130
4 LF	10 LF	121 LF	43 LF	2 LF	2 LF	16 LF



0' 100' 200' 400'

PLAN VIEW



LEGEND

- STUDY CORRIDOR
- PROPOSED 42"PIPELINE
- NON-SURVEYED C/L
- 500' TICK MARK
- EXISTING PIPELINE
- PERMANENT EASEMENT
- WORK SPACE LIMITS
- PERMANENT ACCESS RD
- TEMPORARY ACCESS RD
- ANCILLARY SITE
- COUNTY LINE
- PROPERTY LINE
- ROAD RIGHT-OF-WAY
- FENCE LINE
- OVERHEAD POWER
- OVERHEAD TELEPHONE
- C/L ROAD
- C/L RAILROAD
- DELINEATED STREAM
- DELINEATED WETLAND
- BARRICADE FENCE
- PI SYMBOL / PROPOSED TEST STATION
- MAILBOX / LINE MARKER - VENT PIPE
- POWER/TELE POLE
- SIGN / TOWER LEG
- TREE / GUY ANCHOR
- TANK / GAS VALVE
- WELL - GAS/OIL/WATER/ MONITORING
- POST - GATE/FENCE
- ELEC/GAS/WTR METER
- PEDESTAL - UTILITY
- MH - SANITARY/WATER
- CATCH BASIN - CULVERT
- ADDITIONAL TEMPORARY WORK SPACE(ATWS)
- ABOVE GROUND FACILITY
- LIMITS OF DISTURBANCE

AERIAL PHOTOGRAPHY DATE: APRIL 2015 & JANUARY 2016

REFERENCE DRAWINGS

DRAWING NO.	DESCRIPTION
MVP-AR-H600-04	ACCESS ROADS, ANCILLARY SITES, MAINLINE VALVES & LAUNCHER/RECEIVER SITES
MVP-QDAR-H600-27	ACCESS ROAD DETAIL MAP
P-W-H600-1204-01	CATHODIC PROTECTION STANDARD DRAWING

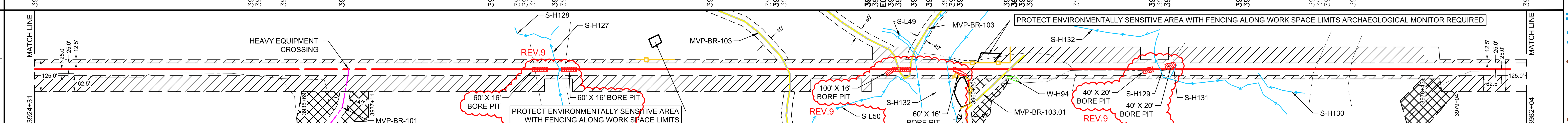
ISSUED FOR CONSTRUCTION

HORIZONTAL STATIONING

- 3924+31 MATCH LINE
- 3933+00 PROPERTY LINE
- 3933+06 PROPERTY CORNER 13'RT
- 3934+04 PROPERTY CORNER 11'RT
- **3936+32 ACCESS RD–PERMANENT(MVP–BR–101), HEAVY EQUIPMENT CROSSING**
- 3942+14 PROPERTY LINE
- 3943+17 EDGE OF DIRT
- 3943+21 ℄ FIELD ROAD(DIRT)
- 3943+25 EDGE OF DIRT
- **3944+65 ℄ STREAM(S–H127)**
- 3944+82 ℄ TRAIL(DIRT)
- 3950+61 PROPERTY LINE
- 3953+07 EDGE OF DIRT
- 3953+12 ACCESS RD – TEMPORARY(MVP–BR–103)
- 3953+17 EDGE OF DIRT
- **3957+75 PROPOSED RIVER WEIGHT – FLOODPLAIN**
- 3957+89 ℄ STREAM(S–L50)38'RT
- **EQUATION: 3957+89 BACK = 3957+27 AHEAD(+62)**
- 3957+37 ℄ STREAM(S–L50)38'RT
- 3957+48 ACCESS RD – TEMPORARY(MVP–BR–103), ℄ GROGORY ROAD
- 3957+92 ACCESS RD – TEMPORARY(MVP–BR–103), ℄ GROGORY ROAD
- 3958+18 STREAM BANK(S–H132), **PROPOSED TYPE 1 TEST STATION**
- 3958+37 PROPERTY LINE
- 3959+17 PROPERTY LINE
- 3959+39 STREAM BANK(S–H132), **PROPOSED TYPE 1 TEST STATION**
- 3961+71 BEGIN WETLAND(W–H94)34'RT
- **3961+93 PROPOSED RIVER WEIGHT – FLOODPLAIN**
- 3962+14 END WETLAND(W–H94)37'RT
- 3962+53 ACCESS RD – TEMPORARY (MVP–BR–103.01)
- 3964+17 ℄ FIELD ROAD(DIRT)
- **3967+45 ℄ STREAM(S–H129)**
- 3967+79 ℄ FIELD ROAD(DIRT)
- **3967+95 ℄ STREAM(S–H131)**
- **3970+80 ℄ STREAM BANK(S–H130)19'RT**
- **3970+96 ℄ STREAM BANK(S–H130)37'RT**
- 3973+38 EDGE OF DIRT
- 3973+41 ℄ FIELD ROAD(DIRT)
- 3973+45 EDGE OF DIRT
- 3974+80 ℄ FIELD ROAD(DIRT)
- 3982+04 MATCH LINE

WORK SPACE

- PROPOSED PIPELINE
- EXISTING PIPELINE
- ACCESS ROAD TEMPORARY WORK SPACE
- PERMANENT EASEMENT
- TEMPORARY WORK SPACE(TWS)
- ADD. TEMPORARY WORK SPACE(ATWS)



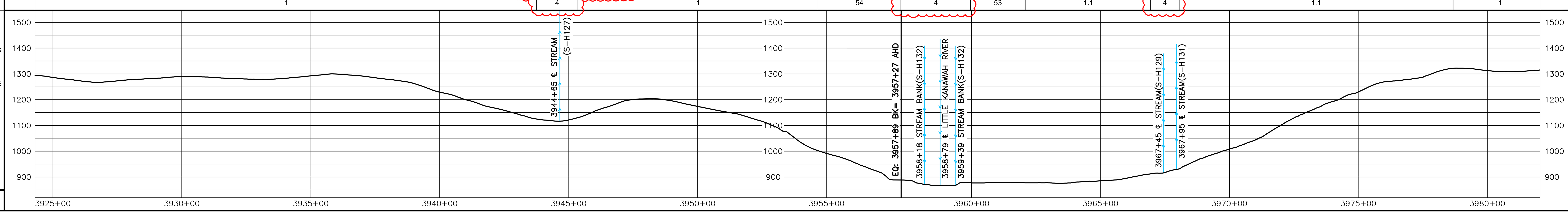
CONSTRUCTION METHOD

3924+31 – 3944+25	3944+25 – 3945+05	3945+05 – 3954+12	3954+12 – 3957+67	3957+67 – 3959+67	3959+67 – 3961+71	3961+71 – 3967+05	3967+05 – 3967+85	3967+85 – 3978+43	3978+43 – 3982+04
1	4	1	54	4	53	1.1	4	1.1	1

CONSTRUCTION METHOD KEY

- 1 - TYPICAL R/W WORKING SIDE RIGHT
- 1.1 - TYPICAL R/W WORKING SIDE LEFT
- 2 - TOPSOIL SEGREGATED R/W WORKING SIDE RIGHT
- 2.1 - TOPSOIL SEGREGATED R/W WORKING SIDE LEFT
- 3 - TYPICAL WETLAND X-ING
- 4 - ROAD X-ING - BORE
- 5 - RAILROAD X-ING - BORE
- 6 - WATERBODY X-ING OPEN CUT - FLUME
- 7 - PARALLEL TO POWER LINE
- 8 - RIDGE CONSTRUCTION
- 10 - HDD ENTRY PLAN
- 11 - HDD EXIT PLAN
- 12 - HDD CONSTRUCTION
- 13 - PARALLEL TO POWER LINE
- 14 - PARALLEL TO POWER LINE
- 15 - WATERBODY X-ING OPEN CUT - DRY/DAM & PUMP
- 33 - SIDE HILL CONSTRUCTION
- 34 - 2-TONE SIDE HILL CONSTRUCTION
- 53 - REDUCED CONSTRUCTION R/W WITH TOPSOIL SEGREGATION
- 54 - REDUCED CONSTRUCTION R/W FOR NON-WETLAND OR STREAM REASONS

PROFILE



MATERIAL SUMMARY

MK. NO.	QTY.	DESCRIPTION
2	5677	42"O.D. X 0.740"W.T., X-70, FUSION BONDED EPOXY
4	360	42"O.D. X 0.740"W.T., X-70, FBE & ARO
	2	TYPE 1 TEST STATION - PIPELINE
	2	RIVER WEIGHTS

REV.9

REVISIONS

REV.	BY	DATE	DESCRIPTION
0	HEI	10-15-15	REV. 4.0.0 ISSUED TO FERC
1	HEI	01-11-16	FERC DATA REQUEST No.1
2	HEI	04-14-16	FERC DATA REQUEST No.2
3	HEI	09-03-16	REV. 4.1.13 ISSUED FOR BID
4	HEI	10-14-16	OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC
5	HEI	11-09-16	REMOVED EQUATIONS
6	HEI	11-27-17	ISSUED FOR CONSTRUCTION
7	HEI	04-13-18	ISSUED FOR CONSTRUCTION - FERC REVISION REQUEST
8	HEI	04-14-18	BAT PORTAL VARIANCE STA. 3949+67 TO EQ: 3957+89 BACK=
9	HEI	06-04-19	ISSUED FOR VARIANCE - REVISED CONSTRUCTION METHOD FOR STREAMS S-H127, S-H132 & S-H129 AND ADDED BORE PITS

APPROVED FOR CONSTRUCTION

REV.	BY	DATE
6	JJS	11-27-17
7	JJS	04-13-18

APPROVED FOR BIDDING

REV.	BY	DATE
3	RRR	09-03-16

APPROVED FOR FERC

REV.	BY	DATE
0	RRR	10-15-15
4	RRR	10-14-16
6	JJS	11-27-17
7	JJS	04-13-18

HOLLAND ENGINEERING
220 Hoover Boulevard, Suite 2
Holland, Michigan 49423-3766
T 616-392-5938 F 616-392-2116
26555 Evergreen Rd. Suite 430
Southfield, Michigan 48076
T 248-827-7322 F 248-827-7549
www.hollandengineering.com

Mountain Valley PIPELINE

PIPELINE ALIGNMENT

MOUNTAIN VALLEY PROJECT - H600 LINE SALT LICK DIST., BRAXTON CO.,W.V. STA. 3924+31 TO STA. 3982+04

HORZ. SCALE: 1" = 200'	
DRAWN BY: HEI(DRF)	02/17/15
DRAFTING CK:	.
ENGINEERING CK:	.
CONSTRUCTION CK:	.
ENVIRONMENTAL CK:.	.
AFE/P.O.NO.:	
HEI PROJECT NO.: 14-10-052	
DRAWING NO.: PA-BRWV-H600 -10	
SHEET 82 OF 329	REV. 9
DATE OF PLOT: 06/12/19 8:56 AM	

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Crossing Method Table Attachment 2

Stream/ Wetland	Nearest Station	Milepost	Original Crossing Method	Update Proposed Crossing Method	Approximate Bore Pit Depth (feet)	Approximate Pipe Depth Below Resource (feet)
S-RR22 (UNT to Grass Run)	1105+84	20.8	Dry-Ditch Open Cut	Conventional Bore	15	5
S-H127 (UNT to Elliott Run)	3944+65	74.5	Dry-Ditch Open Cut	Conventional Bore	20	5
S-H132 (Little Kanawha River)	3958+79	74.8	Dry-Ditch Open Cut	Conventional Bore	20	5
S-H129 (UNT to Kanawha River)	3967+45	75.0	Dry-Ditch Open Cut	Conventional Bore	20	5

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Geological Conditions Attachment 3

Stream/ Wetland	Era	Period	Period 2	Class	Group	Formation	Coal
S-RR22 (UNT to Grass Run)	Paleozoic	Pennsylvanian	Permian	sedimentary	sandstone	Dunkard	Greene, Washington, Waynesburg
S-H127 (UNT to Elliott Run)	Paleozoic	Pennsylvanian	N/A	sedimentary	sandstone	Conemaugh	Allegheny
S-H132 (Little Kanawha River)	Paleozoic	Pennsylvanian	N/A	sedimentary	sandstone	Pottsville	Kanawha
S-H129 (UNT to Kanawha River)	Paleozoic	Pennsylvanian	N/A	sedimentary	sandstone	Pottsville	Kanawha

Reference: 1968 geological map of West Virginia. 1:250,000. D. H. Cardwell S. West Virginia Geological and Economic Survey

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Email
Correspondence
USACE
Attachment 4

Neylon, Megan

Subject: FW: Mountain Valley Pipeline (UNCLASSIFIED)

-----Original Message-----
From: Hatten, Michael E CIV USARMY CELRH (USA) [mailto:Michael.E.Hatten@usace.army.mil]
Sent: Friday, May 10, 2019 12:42 PM
To: Paul Friedman <Paul.Friedman@ferc.gov>
Cc: Hatten, Michael E CIV USARMY CELRH (USA) <Michael.E.Hatten@usace.army.mil>
Subject: FW: Mountain Valley Pipeline (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Paul,
As you requested today, below is a response to your question about horizontal directional drill (HDD) (or directional bore) under small non-Navigable streams (and Non-Section 10 designated slack waters), which ARE NOT regulated pursuant to Section 10 of the Rivers and Harbors Act, but ARE REGULATED by this office pursuant to Section 404 of the Clean Water Act:

*An HDD constructed entirely under these types of jurisdictional waters can be performed in a manner that would not constitute a discharge of dredged or fill material.

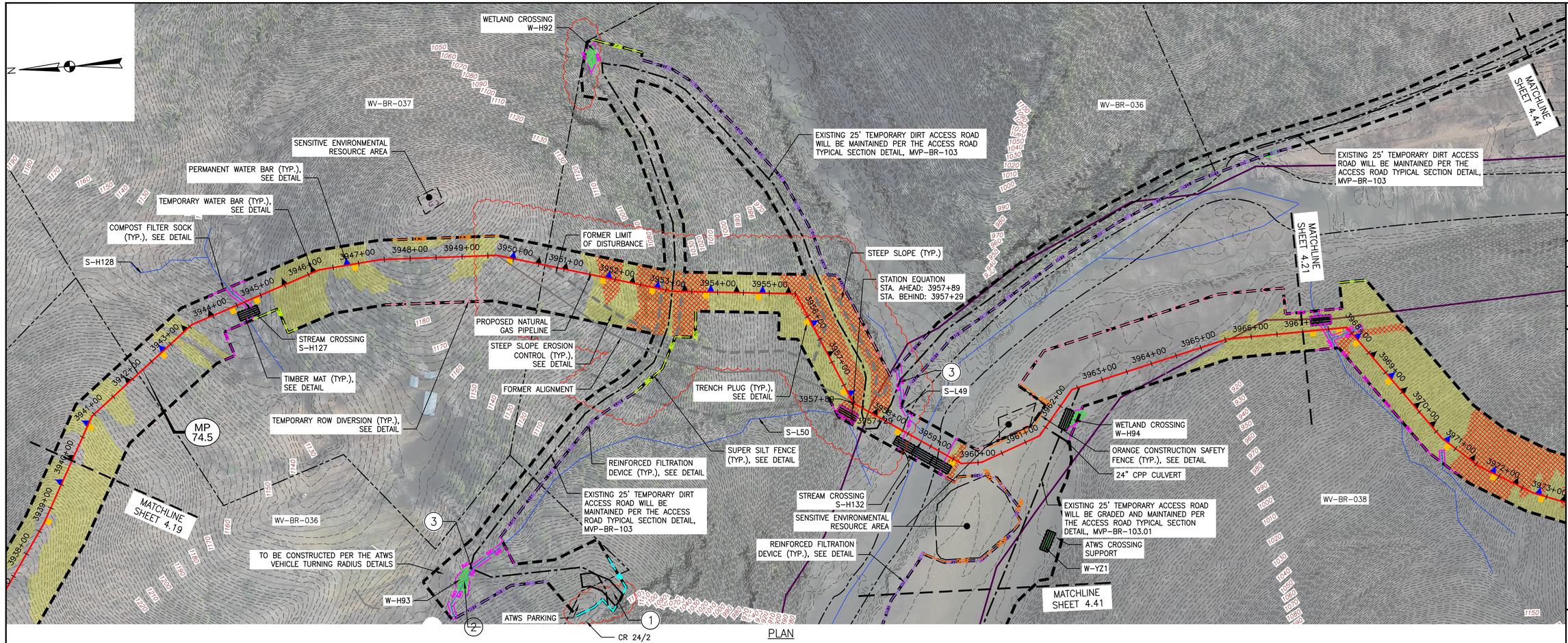
Thanks, Mike

Michael Hatten
U.S. Army Corps of Engineers, Huntington District Chief, Regulatory Division

304-399-5610 Phone 304-399-5085 Fax
304-399-6918 Direct 304-638-9573 Cell

Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

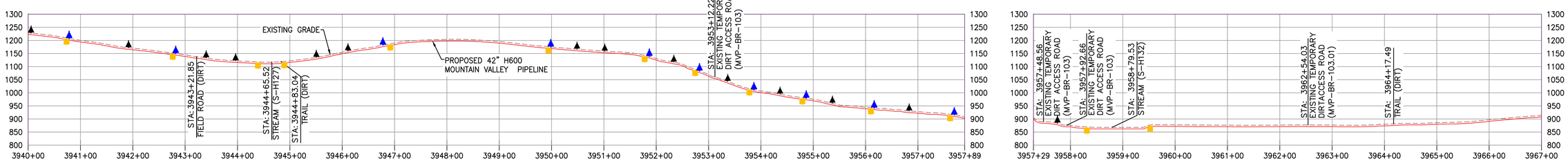
Erosion and Sediment Control Plan and State Correspondence Attachment 5



PLAN

SCALE: 1" = 100'

100 0 100 200



LEGEND

- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED ACCESS ROAD CENTERLINE
- PROPOSED PIPELINE
- SF — PROPOSED SILT FENCE (SEE NOTE 6)
- SSF — PROPOSED SUPER SILT FENCE
- OCSF — ORANGE CONSTRUCTION SAFETY FENCE
- CFS — PROPOSED COMPOST FILTER SOCK
- RFD — PROPOSED REINFORCED FILTRATION DEVICE
- PROPOSED TEMPORARY RIGHT OF WAY DIVERSION AND OUTLET
- EXISTING CULVERT
- STREAM
- WETLAND
- POND
- PROPOSED CULVERT WITH OUTLET PROTECTION
- TIMBER MAT
- STEEP SLOPE EROSION CONTROL (SEE NOTE 3)
- STEEP SLOPE (SEE NOTE 5)
- PROPOSED PERMANENT WATER BAR
- PROPOSED TEMPORARY WATER BAR
- PROPOSED BROAD BASED DIP
- PROPOSED TRENCH PLUG
- PROPOSED ROCK CONSTRUCTION ENTRANCE

PROFILE

HORIZONTAL SCALE: SCALE: 1" = 100'

100 0 100 200

VERTICAL SCALE: SCALE: 1" = 200'

200 0 200 400

ACCESS ROAD LEGEND

1. ROCK CONSTRUCTION ENTRANCE
2. WETLAND CROSSING
3. STREAM CROSSING

NOTES:

1. WATERBARS WITHIN AGRICULTURAL AREAS SHALL BE USED AS TEMPORARY FEATURES.
2. NO EROSION CONTROL MATTING SHALL BE INSTALLED IN AGRICULTURAL AREAS.
3. FLEXTERRA OR EQUIVALENT MAY BE USED AS A SUBSTITUTE TO EROSION CONTROL BLANKET AS DIRECTED BY MVP.
4. CONTRACTOR IS RESPONSIBLE TO IDENTIFY ALL UTILITIES. THE UTILITY LINES SHOWN ON THE PLAN ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NOT REPRESENT SURVEYED LINE INFORMATION.
5. SLOPES OF 30' OR GREATER EXIST. CONSTRUCTION FOR STEEP SLOPES TO BE PERFORMED USING STEEP SLOPE TECHNIQUES IDENTIFIED IN THE DETAIL SHEETS.
6. WHERE CONSTRUCTION CONDITIONS PRECLUDE THE USE OF DIVERSION DITCHES DUE TO SITE CONDITIONS THE CONTRACTOR WILL INSTALL SILT FENCE AT THE DIRECTION OF MVP.
7. IMPROVEMENTS TO PERMANENT AND TEMPORARY ACCESS ROADS WILL BE PERFORMED AS NEEDED AND BMP'S MAY BE SUBSTITUTED IF FIELD EVALUATIONS REQUIRE ADJUSTMENTS TO ACCOMODATE FIELD VERIFIED CONDITIONS.
8. WETLANDS AND STREAMS WILL BE CROSSED ACCORDING TO THE APPROPRIATE DETAILS. ACCESS ROADS WILL UTILIZE CULVERTS WHERE THEY EXIST AND NON-CULVERTED STREAMS OR STREAM SEGMENTS WILL BE CROSSED UTILIZING TIMBER MATS, BRIDGING, OR CULVERTS AS DICTATED BY FIELD CONDITIONS DURING CONSTRUCTION.

NO.:	DATE:	DWN.:	CHKD.:	APPD.:	DESCRIPTION:
3	06-21-18	KAL	RE	DW	WV E&S STATIONING CORRECTION
2	02-21-18	KAL	RE	DW	5.0 TO IFC ALIGNMENT CHANGES
1	01-26-18	KAL	RE	DW	IMPLEMENTATION PLAN ALIGNMENT CHANGES

REVISIONS:

Mountain Valley PIPELINE

EROSION AND SEDIMENT CONTROL PLANS

MOUNTAIN VALLEY PIPELINE PROJECT – H600 LINE

BRAXTON COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
555 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
complex world | CLEAR SOLUTIONS™
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

DRAWN BY:	KAL
CHECKED BY:	HT
APPROVED BY:	RE
DATE:	06/21/2018
SCALE:	AS SHOWN
SHT. NO.	4.20 OF 4.47

REVISION

TETRA TECH CAD FILE PATH: X:\CADD_Pittsburgh\EQT\7157 – MVP\4 – Braxton\E&S\7157ES004.20.dwg PLOTTED ON: 6/18/2018 8:45 AM PLOTTED BY: Rickabaugh, Greg PLOT FILE: ENVIRONMENTAL_COLOR.ctb

From: Adams, Rick D
To: Hoover, Matthew S.; Dickson, Nancy J
Subject: [EXTERNAL] RE: MVP - Stream Boring of Little Kanawha River
Date: Friday, June 28, 2019 4:31:47 PM

Hi Matt,

Nothing else needed for stormwater permitting. You're good to go.

Thanks,

-----Original Message-----
From: Hoover, Matthew S. <MHoover@equitransmidstream.com>
Sent: Friday, June 28, 2019 3:45 PM
To: Adams, Rick D <Rick.D.Adams@wv.gov>; Dickson, Nancy J <Nancy.J.Dickson@wv.gov>
Subject: RE: MVP - Stream Boring of Little Kanawha River

Hi Folks,
I'm just following up on this email to see if there is anything else you need from Mountain Valley for this crossing.

Thanks,
Matt

-----Original Message-----
From: Hoover, Matthew S.
Sent: Friday, June 21, 2019 1:23 PM
To: Adams, Rick D <Rick.D.Adams@wv.gov>; 'Dickson, Nancy J' <Nancy.J.Dickson@wv.gov>
Subject: MVP - Stream Boring of Little Kanawha River

Good Afternoon Rick and Nancy,
I've attached the boring plans for the Little Kanawha River in Braxton County. All work is located within the existing LOD and additional work areas will not be required. Instream work is not anticipated and the bore pits are located outside of the ordinary high water mark. Mountain Valley has acquired the stream activity permit.

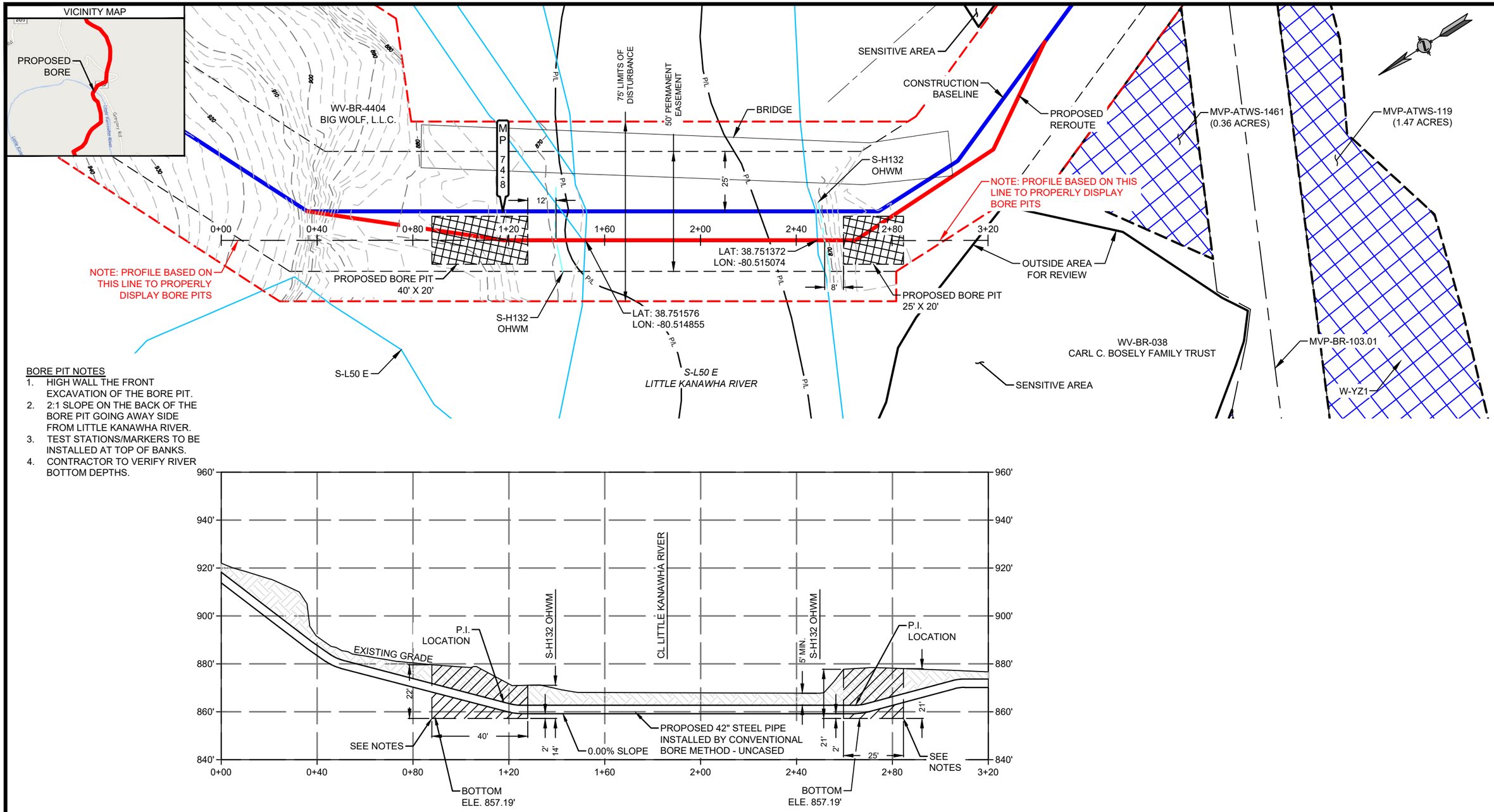
The crossing will be done via conventional bore and not HDD.

At your convenience, please confirm the Department does not require additional information to complete this crossing.

Thanks,

Matt Hoover
Sr. Environmental Coordinator
2200 Energy Drive, 2nd Floor
Canonsburg, PA 15317
Office: (724) 873-3009
Cell: (412) 258-5627

mhoover@equitransmidstream.com
*Please note my new email address



BORE PIT NOTES

1. HIGH WALL THE FRONT EXCAVATION OF THE BORE PIT.
2. 2:1 SLOPE ON THE BACK OF THE BORE PIT GOING AWAY SIDE FROM LITTLE KANAWHA RIVER.
3. TEST STATIONS/MARKERS TO BE INSTALLED AT TOP OF BANKS.
4. CONTRACTOR TO VERIFY RIVER BOTTOM DEPTHS.

LEGEND

- CONSTRUCTION BASELINE
- FOREIGN PIPELINE
- PERMANENT ACCESS RD
- DRAIN TILE
- FENCE LINE
- OVERHEAD POWER
- OVERHEAD TELEPHONE
- C/L STREAM
- C/L ROAD
- C/L RAILROAD
- WETLAND
- TOWNSHIP BOUNDARY
- PROPERTY LINE
- MILEPOST (TENTHS OF A MILE)
- POWER/TELE POLE
- SACK WEIGHT
- TRENCH BREAKER
- ACTIVE SLIDE AREA
- GUY ANCHOR
- GAS VALVE
- CULVERT

SCALE: 1" = 40'

0' 20' 40' 80'

REV	DATE	BY	DESCRIPTION	CHK.
1	06/10/19	BJO	REVISED PER NEW TOPO	JAW
0	05/31/19	BJO	ISSUE FOR REVIEW	JAW

PROJECT NO: 61538

encompass
ENCOMPASS SERVICES, LLC
1370 WASHINGTON PIKE, SUITE 308
BRIDGEVILLE, PA 15017

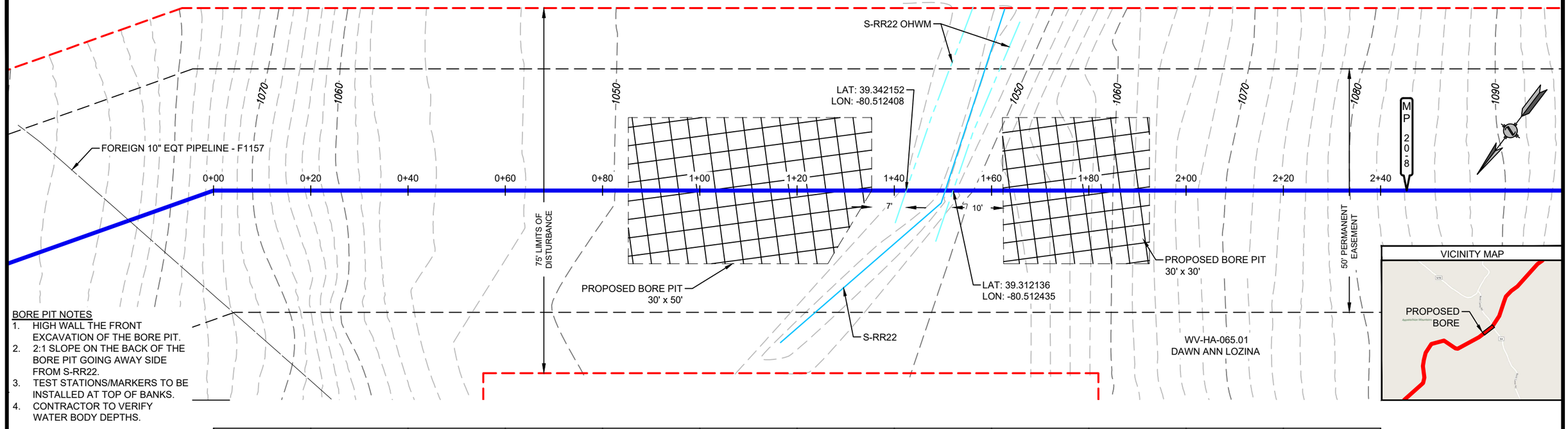
MOUNTAIN VALLEY PIPLINE, LLC

LITTLE KANAWHA RIVER
MP 74.8
BRAXTON COUNTY WEST VIRGINIA

DRAWN BY: BJO	DATE: 05/31/19	DWG. NO. C-BP-WV-BR-4404	REV. 1
CHECKED BY: JAW	DATE: 05/31/19		
SCALE: 1"=40'	APP BY: TN	SHEET NO.	

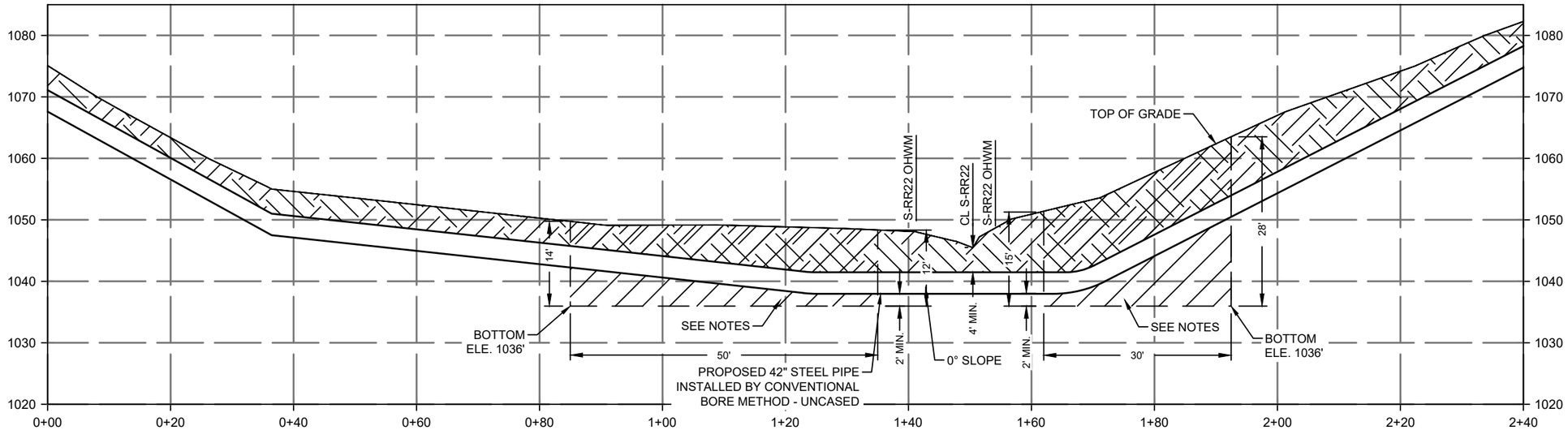
Mountain Valley Pipeline, LLC
Mountain Valley Pipeline Project
Docket No. CP16-10-000

Bore Plans
Attachment 6



BORE PIT NOTES

1. HIGH WALL THE FRONT EXCAVATION OF THE BORE PIT.
2. 2:1 SLOPE ON THE BACK OF THE BORE PIT GOING AWAY SIDE FROM S-RR22.
3. TEST STATIONS/MARKERS TO BE INSTALLED AT TOP OF BANKS.
4. CONTRACTOR TO VERIFY WATER BODY DEPTHS.



LEGEND

- CONSTRUCTION BASELINE
- FOREIGN PIPELINE
- PERMANENT ACCESS RD
- DRAIN TILE
- FENCE LINE
- OVERHEAD POWER
- OVERHEAD TELEPHONE
- C/L STREAM
- C/L ROAD
- C/L RAILROAD
- WETLAND
- TOWNSHIP BOUNDARY
- PROPERTY LINE
- MILEPOST (TENTHS OF A MILE)
- POWER/TELE POLE
- SACK WEIGHT
- TRENCH BREAKER
- ACTIVE SLIDE AREA
- GUY ANCHOR
- GAS VALVE
- CULVERT

SCALE: 1" = 20'

0' 10' 20' 40'

REV	DATE	BY	DESCRIPTION	CHK.
1	08/07/19	REH	REVISED PER COMMENTS	JAW
0	05/28/19	BJO	ISSUE FOR REVIEW	JAW

PROJECT NO: 61538

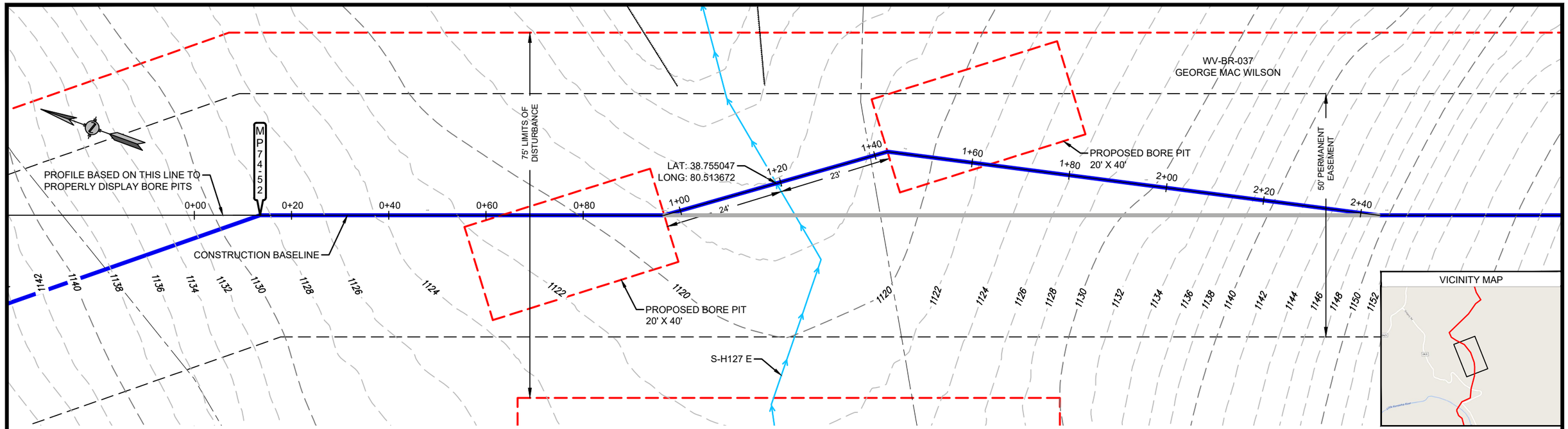
encompass
ENCOMPASS SERVICES, LLC
1370 WASHINGTON PIKE, SUITE 308
BRIDGEVILLE, PA 15017

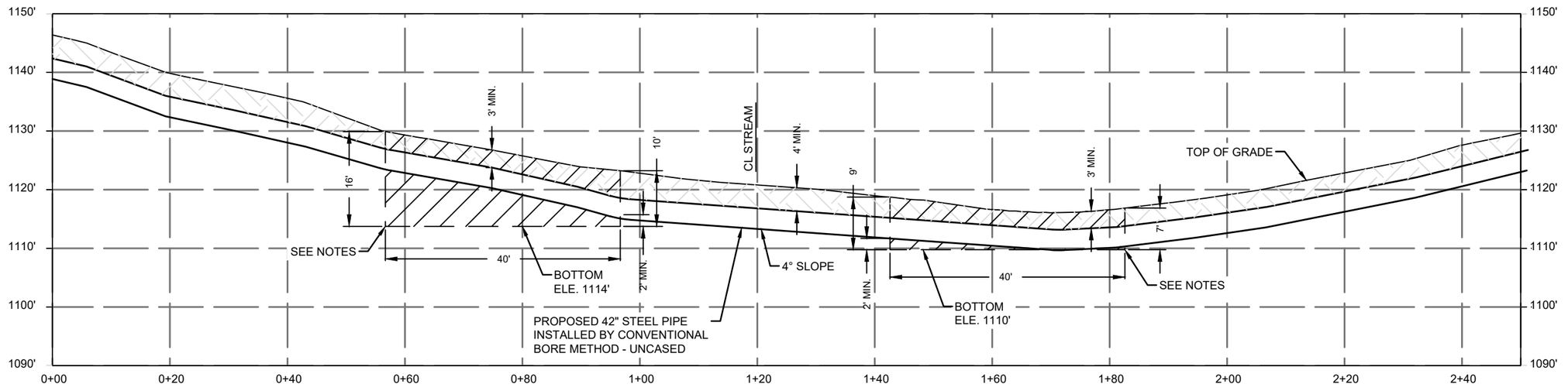
MOUNTAIN VALLEY PIPLINE, LLC

PROPOSED BORE OF S-RR22
MP 20.8

HARRISON COUNTY — WEST VIRGINIA

DRAWN BY: BJO	DATE: 05/28/19	DWG. NO. A-BV-WV-HA-065.01	REV. 1
CHECKED BY: JAW	DATE: 05/28/19		
SCALE: 1"=20'	APP BY: TN	SHEET NO.	





BORE PIT NOTES

1. HIGH WALL THE FRONT EXCAVATION OF THE BORE PIT.
2. 2:1 SLOPE ON THE BACK OF THE BORE PIT GOING AWAY SIDE FROM STREAMS
3. TEST STATIONS/MARKERS TO BE INSTALLED AT TOP OF BANKS.
4. CONTRACTOR TO VERIFY WATERBODY DEPTH

LEGEND

- CONSTRUCTION BASELINE
- FOREIGN PIPELINE
- PERMANENT ACCESS RD
- DRAIN TILE
- FENCE LINE
- OVERHEAD POWER
- OVERHEAD TELEPHONE
- C/L STREAM
- C/L ROAD
- C/L RAILROAD
- WETLAND
- TOWNSHIP BOUNDARY
- PROPERTY LINE
- MILEPOST (TENTHS OF A MILE)
- POWER/TELE POLE
- SACK WEIGHT
- TRENCH BREAKER
- ACTIVE SLIDE AREA
- GUY ANCHOR
- GAS VALVE
- CULVERT

SCALE: 1" = 60'

0' 30' 60' 120'

REV	DATE	BY	DESCRIPTION	CHK.
0	05/29/19	TGF	ISSUE FOR REVIEW	BJO

PROJECT NO: 61538

encompass

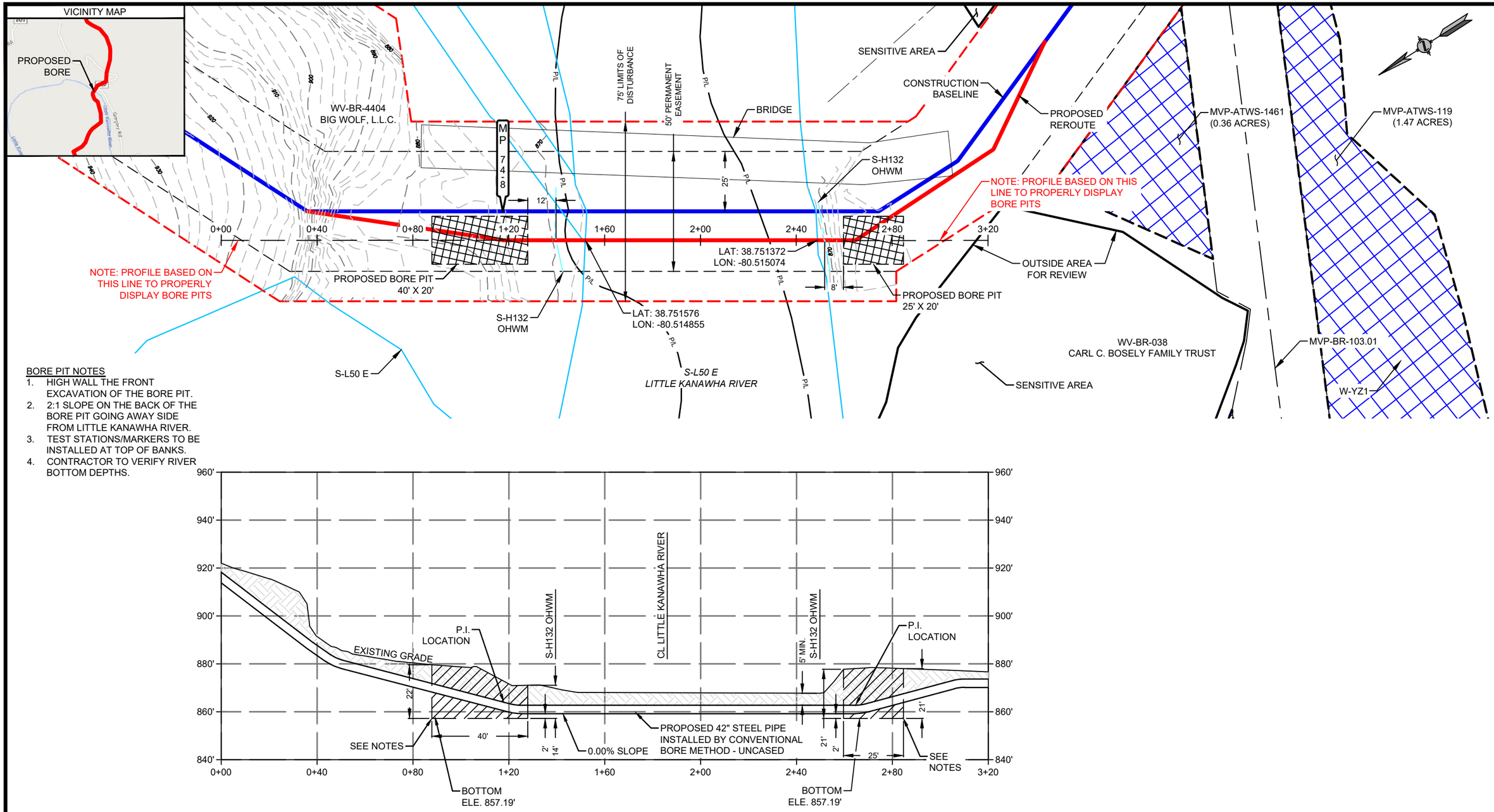
ENCOMPASS SERVICES, LLC
1370 WASHINGTON PIKE, SUITE 308
BRIDGEVILLE, PA 15017

MOUNTAIN VALLEY PIPLINE, LLC

BORE PIT VARIANCE
MP 74.5

BRAXTON COUNTY WEST VIRGINIA

DRAWN BY: TGF	DATE: 05/29/19	DWG. NO. C-BP-WV-BR-037	REV. 0
CHECKED BY: BJO	DATE: 05/29/19		
SCALE: 1"=20'	APP BY: TN	SHEET NO.	



BORE PIT NOTES

1. HIGH WALL THE FRONT EXCAVATION OF THE BORE PIT.
2. 2:1 SLOPE ON THE BACK OF THE BORE PIT GOING AWAY SIDE FROM LITTLE KANAWHA RIVER.
3. TEST STATIONS/MARKERS TO BE INSTALLED AT TOP OF BANKS.
4. CONTRACTOR TO VERIFY RIVER BOTTOM DEPTHS.

LEGEND

- CONSTRUCTION BASELINE
- FOREIGN PIPELINE
- PERMANENT ACCESS RD
- DRAIN TILE
- FENCE LINE
- OVERHEAD POWER
- OVERHEAD TELEPHONE
- C/L STREAM
- C/L ROAD
- C/L RAILROAD
- WETLAND
- TOWNSHIP BOUNDARY
- PROPERTY LINE
- MILEPOST (TENTHS OF A MILE)
- POWER/TELE POLE
- SACK WEIGHT
- TRENCH BREAKER
- ACTIVE SLIDE AREA
- GUY ANCHOR
- GAS VALVE
- CULVERT

SCALE: 1" = 40'

0' 20' 40' 80'

REV	DATE	BY	DESCRIPTION	CHK.
1	06/10/19	BJO	REVISED PER NEW TOPO	JAW
0	05/31/19	BJO	ISSUE FOR REVIEW	JAW

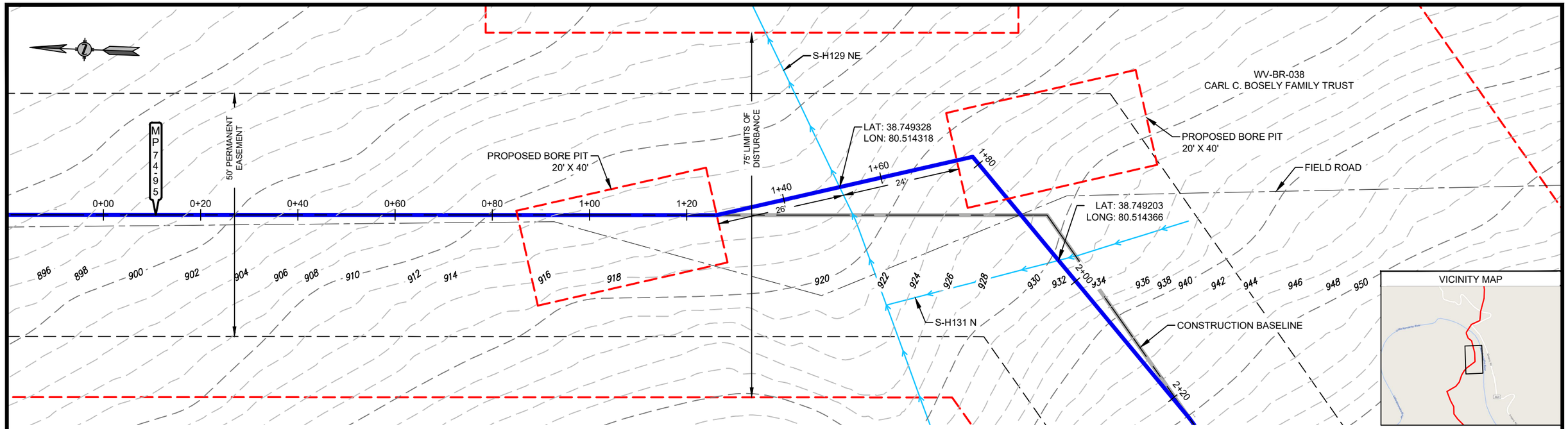
PROJECT NO: 61538

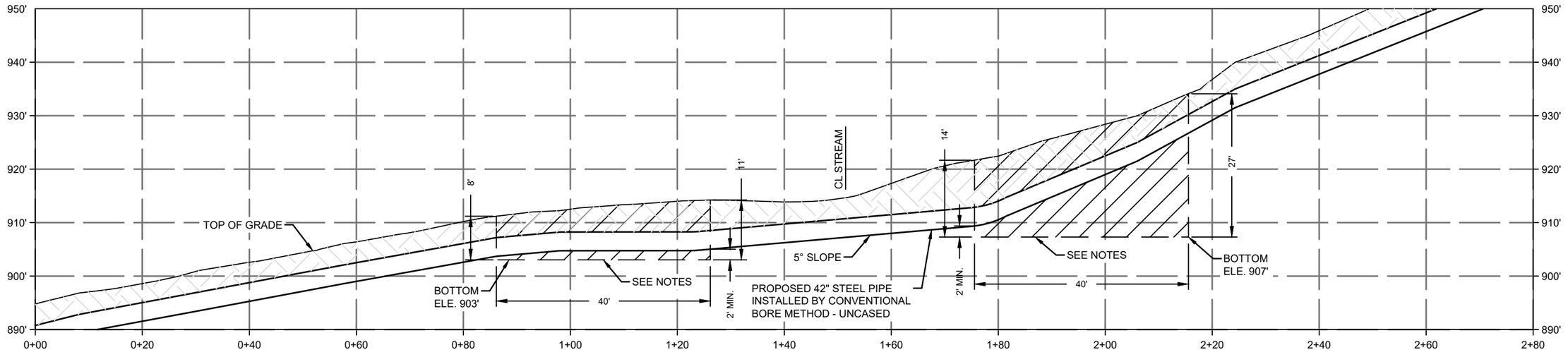
encompass
ENCOMPASS SERVICES, LLC
1370 WASHINGTON PIKE, SUITE 308
BRIDGEVILLE, PA 15017

MOUNTAIN VALLEY PIPLINE, LLC

LITTLE KANAWHA RIVER
MP 74.8
BRAXTON COUNTY WEST VIRGINIA

DRAWN BY: BJO	DATE: 05/31/19	DWG. NO. C-BP-WV-BR-4404	REV. 1
CHECKED BY: JAW	DATE: 05/31/19		
SCALE: 1"=40'	APP BY: TN	SHEET NO.	





BORE PIT NOTES
1. HIGH WALL THE FRONT EXCAVATION OF THE BORE PIT.
2. 2:1 SLOPE ON THE BACK OF THE BORE PIT GOING AWAY SIDE FROM STREAMS
3. TEST STATIONS/MARKERS TO BE INSTALLED AT TOP OF BANKS.
4. CONTRACTOR TO VERIFY WATERBODY DEPTH

LEGEND

- CONSTRUCTION BASELINE
- FOREIGN PIPELINE
- PERMANENT ACCESS RD
- DRAIN TILE
- FENCE LINE
- OVERHEAD POWER
- OVERHEAD TELEPHONE
- C/L STREAM
- C/L ROAD
- C/L RAILROAD
- WETLAND
- TOWNSHIP BOUNDARY
- PROPERTY LINE
- MILEPOST (TENTHS OF A MILE)
- POWER/TELE POLE
- SACK WEIGHT
- TRENCH BREAKER
- ACTIVE SLIDE AREA
- GUY ANCHOR
- GAS VALVE
- CULVERT

SCALE: 1" = 60'
0' 30' 60' 120'

REV	DATE	BY	DESCRIPTION	CHK.
0	05/29/19	TGF	ISSUE FOR REVIEW	BJO

PROJECT NO: 61538

encompass
ENCOMPASS SERVICES, LLC
1370 WASHINGTON PIKE, SUITE 308
BRIDGEVILLE, PA 15017

MOUNTAIN VALLEY PIPLINE, LLC

BORE PIT VARIENCE
MP 75.0
BRAXTON COUNTY WEST VIRGINIA

DRAWN BY: TGF	DATE: 05/29/19	DWG. NO. C-BP-WV-BR-038B	REV. 0
CHECKED BY: BJO	DATE: 05/29/19		
SCALE: 1"=20'	APP BY: TN	SHEET NO.	