MOUNTAIN VALLEY PROJECT - H600 LINE
PIPELINE ALIGNMENT
PENHOOK PCT., FRANKLIN CO., VA.
STA. 14555+30 TO STA. 14612+54

OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

RIGHT-OF-WAY & OWNERSHIP DATA

VA-FR-180 (897 LF, 905 SLOPE); STATE ROUTE 952 (54 LF, 54 SLOPE); VA-FR-180 (1266 LF, 1277 SLOPE); VA-FR-181 / VA-FR-180 (42 LF, 43 SLOPE); VA-FR-181 (438 LF, 439 SLOPE); VA-FR-182 / VA-FR-181 (351 LF, 352 SLOPE); VA-FR-182 (932 LF, 945 SLOPE); VA-FR-182 / VA-FR-183 (28 LF, 28 SLOPE); VA-FR-183 (291 LF, 297 SLOPE); VA-FR-184 / VA-FR-183 (413 LF, 421 SLOPE); VA-FR-184 (601 LF, 604 SLOPE); VA-FR-184 / VA-FR-185 (46 LF, 46 SLOPE); VA-FR-183 / VA-FR-185 (136 LF, 137 SLOPE); VA-FR-185 / VA-FR-183 (229 LF, 235 SLOPE)

DESIGN

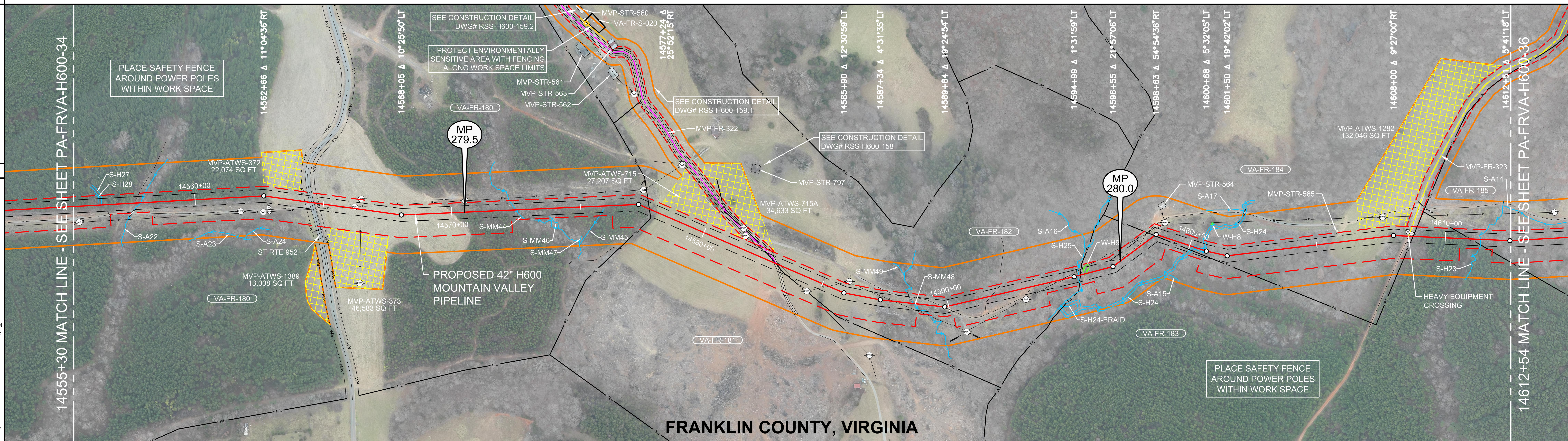
PIPE / COATING	1	4	1	6	1	6	1	6	1	2	1	6	1
SLOPE DISTANCE	892'	80'	2368'	40'	619'	40'	475'	80'	766'	40'	242'	40'	101'
CLASS LOCATION / HCA	1												

ENVIRONMENTAL

CONSTRUCTION EXCLUSION: TIME OF YEAR RESTRICTION: NO TREE CLEARING APRIL 1ST TO JULY 31ST

WETLAND / STREAM	S-H27	S-H28	S-A22	S-MM44	S-MM46	S-MM45	S-MM48	S-H25	W-H9	S-H24	S-H23
	10 LF	6 LF	8 LF	4 LF	3 LF	4 LF	7 LF	7 LF	25 LF	46 LF	5 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; BARRACADE 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

Scale: 0' 100' 200' 400'

REFERENCE DRAWINGS

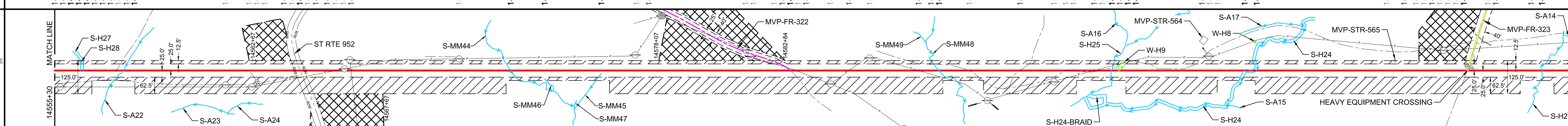
DRAWING NO.	DESCRIPTION
RSS-H600-158	RESIDENTIAL SITE SPECIFIC
RSS-H600-159.1	RESIDENTIAL SITE SPECIFIC
RSS-H600-159.2	RESIDENTIAL SITE SPECIFIC

HORIZONTAL STATIONING

14555+30 MATCH LINE
14555+47 POWER POLE 62'RT
14556+28 STREAM BANK(S-H27)
14556+33 STREAM(S-H28) 30'LT
14556+38 STREAM BANK(S-H27)
14556+61 CULVERT OPEN END 27'RT
14556+69 CULVERT OPEN END 52'RT
14557+42 CULVERT OPEN END 49'RT
14557+63 ℄ TRAIL(DIRT)
14557+63 CULVERT 27'RT
14557+89 ℄ STREAM(S-A22)
14561+74 POWER POLE 54'RT
14562+60 POWER POLE 62'RT
14562+92 GATE POST 42'RT
14562+97 GATE POST 58'RT
14564+27 RIGHT-OF-WAY
14564+45 EDGE OF ASPHALT
14564+54 ℄ ST RTE 952 - INDIAN CAVE ROAD
14564+63 EDGE OF ASPHALT
14564+81 RIGHT-OF-WAY
14565+90 OHP LINE
14566+22 POWER POLE 6'LT
14566+42 POWER POLE 41'LT
14566+47 OHP LINE
14570+54 POWER POLE 44'LT
14572+49 ℄ STREAM(S-MM44)
14573+77 ℄ STREAM(S-MM46) 32'RT
14575+90 ℄ STREAM(S-MM45) 11'RT
14577+24 POWER POLE 59'LT
14577+70 PROPERTY LINE
14581+35 POWER POLE 77'LT
14581+54 POWER POLE 52'LT
14582+94 EDGE OF GRAVEL
14583+02 PROPERTY LINE
14583+03 ACCESS RD -PERMANENT(MVP-FR-322)
14583+13 EDGE OF GRAVEL
14583+24 OHP LINE
14584+55 POWER POLE 51'RT
14585+25 OHP LINE
14586+03 POWER POLE 48'LT
14587+87 OHP LINE
14588+56 CULVERT OPEN END 8'LT
14588+64 ℄ STREAM(S-MM48)
14589+79 ℄ FIELD ROAD(GRAVEL)
14591+70 ℄ FIELD ROAD(DIRT)
14592+98 POWER POLE 43'RT
14593+42 ℄ FIELD ROAD(GRAVEL)
14593+52 ℄ FIELD ROAD(GRAVEL)
14594+49 OHP LINE
14594+68 ℄ FIELD ROAD(GRAVEL)
14595+15 ℄ STREAM(S-H25)
14595+24 PROPERTY LINE
14595+41 BEGIN WETLAND(W-H9)
14595+66 END WETLAND(W-H9) 22'LT
14598+56 PROPERTY LINE
14598+63 BLDG-TRAVEL TRAILER 97'LT
14598+81 POWER POLE 54'LT
14600+16 STREAM BANK(S-H24)
14600+62 STREAM BANK(S-H24)
14605+82 DEER BLIND 32'LT
14606+65 PROPERTY CORNER 161'RT
14607+65 POWER POLE 76'LT
14607+66 POWER POLE 76'LT
14607+73 PROPERTY CORNER 68'RT
14608+51 EDGE OF ROCK
14608+55 GATE POST 16'LT
14608+58 ℄ FIELD ROAD(GRAVEL)
14608+58 ACCESS RD - TEMPORARY (MVP-FR-323), HEAVY EQUIPMENT CROSSING
14608+70 GATE POST 10'LT
14608+75 PROPERTY LINE
14610+97 PROPERTY LINE
14611+37 ℄ STREAM(S-H23)
14612+54 MATCH LINE

WORK SPACE

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



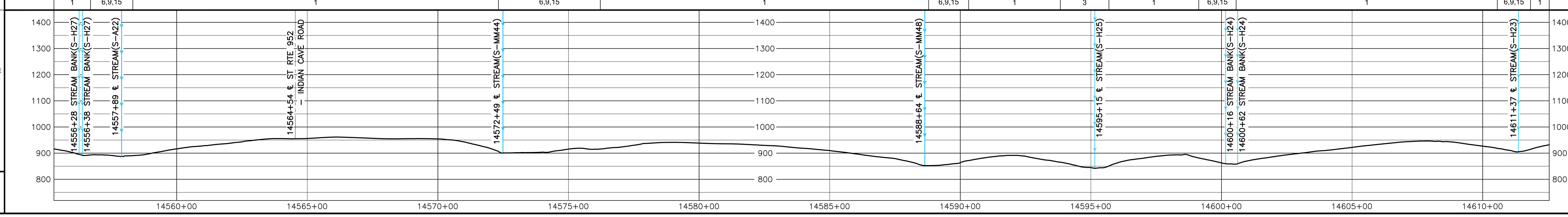
CONSTRUCTION METHOD

1	6,9,15	1	6,9,15	1	6,9,15	1	3	1	6,9,15	1	6,9,15	1

CONSTRUCTION METHOD KEY

1 - TYPICAL R/W WORKING SIDE RIGHT
1.1 - TYPICAL R/W WORKING SIDE RIGHT
2 - TYPICAL R/W WORKING SIDE LEFT
2.1 - TYPICAL 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
9 - WATERBODY X-ING OPEN CUT - WET DITCH
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

PROFILE



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	04-15-16	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

MATERIAL SUMMARY

MK. NO.	QTY.	DESCRIPTION
1	5463	42"O.D. X 0.617"W.T. X70, FUSION BONDED EPOXY
2	40	42"O.D. X 0.740"W.T. X70, FUSION BONDED EPOXY
4	80	42"O.D. X 0.617"W.T. X70, FBE & ARO
6	200	42"O.D. X 0.740"W.T. X70, FBE & ARO
		TYPE 1 TEST STATION - PIPELINE

APPROVED FOR CONSTRUCTION: REV. | BY | DATE

APPROVED FOR BIDDING: 3 | RRR | 09-03-16

APPROVED FOR FERC: 0 | RRR | 10-15-15; 4 | RRR | 10-14-16

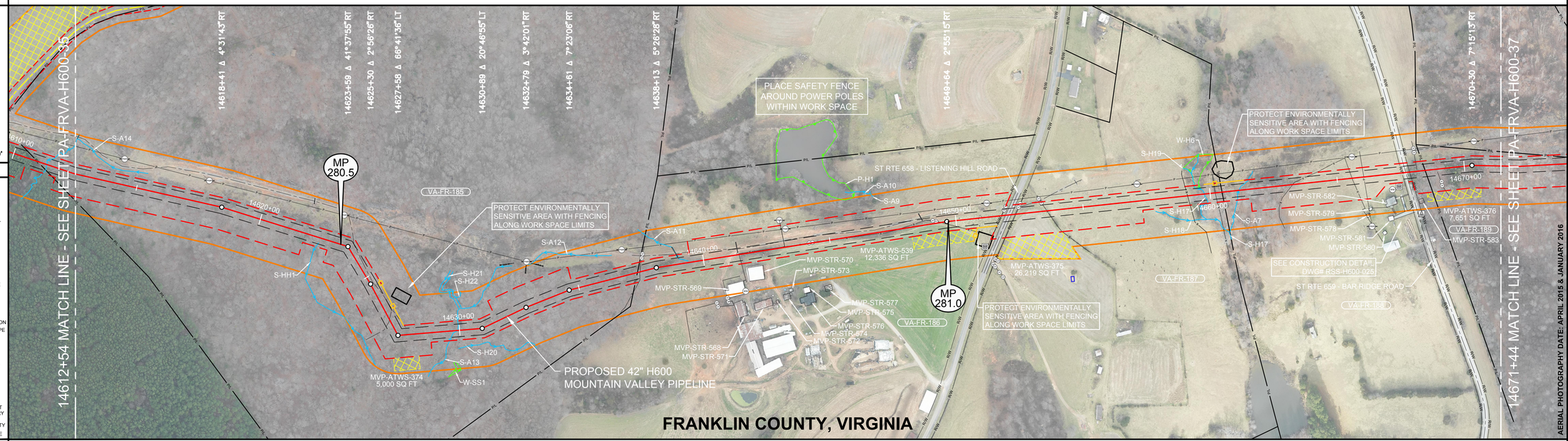
HOLLAND ENGINEERING
220 Hoover Boulevard, Suite 2, Holland, Michigan 49423-3766, T 616-392-5938 F 616-392-2116
26555 Evergreen Rd. Suite 430, Southfield, Michigan 48076, T 248-827-7322 F 248-827-7549
www.hollandengineering.com

Mountain Valley PIPELINE

HORZ. SCALE: 1" = 200'	
DRAWN BY: HEI(DRF)	02/11/15
DRAFTING CK:	-
ENGINEERING CK:	-
CONSTRUCTION CK:	-
ENVIRONMENTAL CK:	-
AFE/P.O.NO.:	
HEI PROJECT NO.: 14-10-052	
DRAWING NO.: PA-FRVA-H600 -35	
SHEET 305 OF 329	REV. 4
DATE OF PLOT: 10/11/16 10:04 AM	

RIGHT-OF-WAY & OWNERSHIP DATA		VA-FR-185 2464 LF 2479 SLOPE; VA-FR-186 37 LF 37 SLOPE; VA-FR-185; VA-FR-186 1424 LF 1428 SLOPE; VA-FR-187 811 LF 815 SLOPE; VA-FR-188 708 LF 713 SLOPE; VA-FR-188 52 LF 52 SLOPE; VA-FR-189 30 LF 30 SLOPE; VA-FR-189 277 LF 277 SLOPE
DESIGN	PIPE / COATING	1; 6; 1; 4; 1; 6; 6; 6; 1; 4; 1
DESIGN	SLOPE DISTANCE	1728'; 40'; 2166'; 80'; 714'; 40'; 96'; 40'; 622'; 40'; 354'
DESIGN	CLASS LOCATION / HCA	1
ENVIRONMENTAL	CONSTRUCTION EXCLUSION	T.O.Y.R.: NO CONSTRUCTION MARCH 15TH TO MAY 31ST WITHIN STREAM S-A13; TIME OF YEAR RESTRICTION: NO TREE CLEARING APRIL 1ST TO JULY 31ST
ENVIRONMENTAL	WETLAND / STREAM	S-HH1 5 LF; S-A13 8 LF; S-A11 3 LF; W-H6 23 LF; S-H17 8 LF; S-A7 6 LF
ENVIRONMENTAL	.	
ENVIRONMENTAL	.	

PLAN VIEW



0' 100' 200' 400'

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
- BARRACADE 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

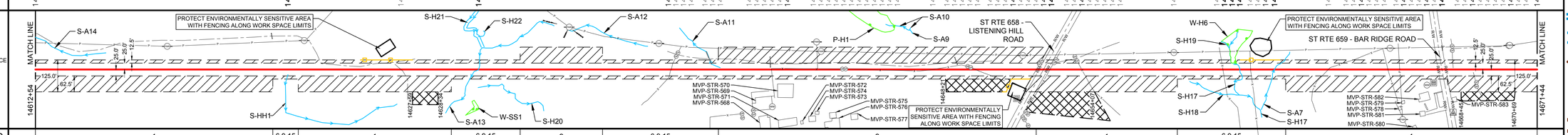
DRAWING NO.	DESCRIPTION
RSS-H600-025	RESIDENTIAL SITE SPECIFIC

HORIZONTAL STATIONING

14612+54 MATCH LINE; 14622+45 ℄ STREAM(S-HH1) 20'RT; 14626+88 ℄ FIELD ROAD(DIRT); 14629+93 ℄ STREAM(S-A13); 14637+37 PROPERTY LINE; 14637+48 FENCE – BARBED WIRE; 14637+61 GATE POST 66'LT; 14637+74 GATE POST 66'LT; 14638+85 CULVERT OPEN END 69'LT; 14639+29 CULVERT OPEN END 72'LT; 14639+40 ℄ STREAM(S-A11) 7'LT; 14641+25 BUILDING – BARN 178'RT; 14641+35 CULVERT OPEN END 49'LT; 14641+37 CULVERT OPEN END 109'LT; 14641+44 BUILDING – BARN 105'RT; 14641+41 FENCE – HOG WIRE; 14641+44 WELL – WATER 146'RT; 14642+28 BUILDING – BARN 57'RT; 14642+39 BUILDING – BARN 187'RT; 14642+64 BUILDING – SHED 199'RT; 14643+13 BUILDING – SHED 164'RT; 14643+13 BUILDING – SHED 81'RT; 14643+33 POWER POLE 54'LT; 14643+94 BUILDING – CARPORT 167'RT; 14644+06 BUILDING – HOUSE 190'RT; 14644+19 GATE POST 21'LT; 14644+44 GATE POST 22'LT; 14644+78 BUILDING – CARPORT 172'RT; 14645+19 FENCE – BARBED WIRE; 14647+74 FENCE – BARBED WIRE; 14648+59 CULVERT OPEN END 47'LT; 14648+70 CULVERT OPEN END 20'LT; 14649+44 GATE POST 81'LT; 14649+22 GATE POST 87'LT; 14649+41 FENCE – HOG WIRE; 14650+94 SENSITIVE AREA 89'RT; 14650+96 SENSITIVE AREA 79'RT; 14651+26 POWER POLE 55'LT; 14651+79 RIGHT-OF-WAY; 14651+79 FENCE – BARBED WIRE; 14651+92 GATE POST 21'LT; 14651+95 EDGE OF ASPHALT; 14652+07 GATE POST 21'LT; 14652+07 ℄ ST RTE 658 – LISTENING HILL ROAD; 14652+18 EDGE OF ASPHALT; 14652+33 RIGHT-OF-WAY; 14652+49 GATE POST 26'LT; 14652+56 GATE POST 40'LT; 14653+31 GATE POST 51'LT; 14653+53 GATE POST 53'LT; 14653+58 FENCE – BARBED WIRE; 14657+19 POWER POLE 66'LT; 14659+11 FENCE – WIRE; 14659+42 BLDG/W_WETLAND(W-H6) 38'LT; 14659+67 BLDG/W_WETLAND(W-H7) 23'LT; 14659+77 ℄ STREAM(S-H17); 14660+18 FENCE – HOG WIRE; 14660+20 FENCE – BARBED WIRE; 14660+47 PROPERTY LINE; 14661+13 ℄ STREAM(S-A7); 14663+25 FENCE – BARBED WIRE; 14665+59 FENCE – ELECTRIC; 14665+66 POWER POLE 83'LT; 14666+21 GATE POST 1'LT; 14666+08 BUILDING – BARN 144'RT; 14666+24 BUILDING – BARN 120'RT; 14666+66 BUILDING – BARN 217'RT; 14667+03 BUILDING – CARPORT 162'RT; 14667+11 WELL – WATER 61'RT; 14667+21 BUILDING – BARN 187'RT; 14667+38 PEDESTAL – TELEPHONE 52'RT; 14667+55 RIGHT-OF-WAY; 14667+62 EDGE OF DIRT; 14667+70 ℄ ST RTE 659 – BAR RIDGE ROAD; 14667+72 CULVERT OPEN END 74'LT; 14667+80 EDGE OF DIRT; 14667+85 RIGHT-OF-WAY; 14667+91 CULVERT OPEN END 40'RT; 14667+93 CULVERT OPEN END 61'RT; 14668+11 GATE POST 74'LT; 14668+26 BUILDING – BARN 107'RT; 14668+44 PROPERTY LINE; 14669+06 GATE POST 50'RT; 14669+06 GATE POST 66'RT; 14671+44 MATCH LINE

WORK SPACE

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



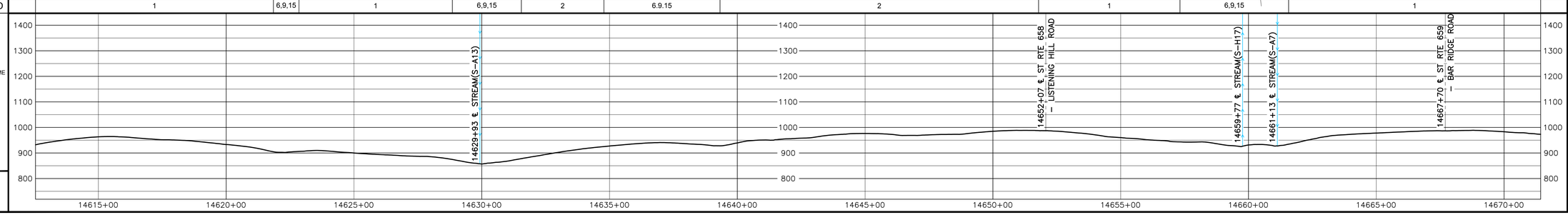
CONSTRUCTION METHOD

1; 6,9,15; 1; 6,9,15; 2; 6.9.15; 2; 1; 6,9,15; 1

CONSTRUCTION METHOD KEY

1 - TYPICAL R/W WORKING SIDE RIGHT
1.1 - TYPICAL R/W WORKING SIDE RIGHT
2 - TYPICAL R/W WORKING SIDE LEFT
2.1 - TYPICAL 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
9 - WATERBODY X-ING OPEN CUT - WET DITCH
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

PROFILE



OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

AERIAL PHOTOGRAPHY DATE: APRIL 2015 & JANUARY 2016

MATERIAL SUMMARY

MK. NO.	QTY.	DESCRIPTION
1	9480	42"O.D. X 0.617"W.T. X X70 FBE BONDED EPOXY
4	120	42"O.D. X 0.740"W.T. X X70 FBE & ARO
6	120	42"O.D. X 0.617"W.T. X X70 FBE & ARO

REVISIONS

REV.	BY	DATE	DESCRIPTION
0	HEI	10-15-15	REV. 4.0 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	06-17-16	REV. 4.1 ISSUED TO FERC
4	HEI	10-14-16	OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

APPROVED FOR CONSTRUCTION			
REV.	BY	DATE	
0		10-05-16	

APPROVED FOR BIDDING			
REV.	BY	DATE	
3	RRR	09-05-16	

APPROVED FOR FERC			
REV.	BY	DATE	
0	RRR	10-15-15	
4	RRR	10-14-16	

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www.hollandengineering.com

Mountain Valley PIPELINE

PIPELINE ALIGNMENT

MOUNTAIN VALLEY PROJECT - H600 LINE
PENHOOK PCT.,FRANKLIN CO.,VA.
STA. 14612+54 STA. 14671+44

HORZ. SCALE: 1" = 200'	
DRAWN BY: HEI(DRF)	02/11/15
DRAFTING CK:	.
ENGINEERING CK:	.
CONSTRUCTION CK:	.
ENVIRONMENTAL CK:	.
AFE/P.O.NO.:	
HEI PROJECT NO.:	14-10-052
DRAWING NO.:	PA-FRVA-H600 -36
SHEET 306 OF 329	REV. 4
DATE OF PLOT: 10/11/16 10:04 AM	

RIGHT-OF-WAY & OWNERSHIP DATA	VA-FR-189 174 LF 175 SLOPE	VA-FR-190 / VA-FR-189 374 LF 385 SLOPE	VA-FR-191 / VA-FR-190 / VA-FR-189 21 LF 21 SLOPE	VA-FR-191 / VA-FR-189 31 LF 32 SLOPE	VA-FR-191 640 LF 646 SLOPE	VA-FR-192 / VA-FR-191 77 LF 77 SLOPE	VA-FR-192 1758 LF 1780 SLOPE	VA-FR-193 / VA-FR-192 102 LF 103 SLOPE	VA-FR-193 576 LF 586 SLOPE	VA-FR-193 / VA-FR-194 151 LF 154 SLOPE	VA-FR-194 289 LF 294 SLOPE	VA-FR-193 / VA-FR-194 253 LF 254 SLOPE	VA-FR-193 426 LF 428 SLOPE	VA-FR-193 / VA-FR-194 95 LF 97 SLOPE	VA-FR-194 555 LF 565 SLOPE	VA-FR-195 326 LF 329 SLOPE

DESIGN								
PIPE / COATING	1	6	1	6	1	6	1
SLOPE DISTANCE	530'	40'	3730'	40'	818'	40'	728'
CLASS LOCATION / HCA	1						

Stations: 14671+44, 14676+52, 14677+02, 14713+83, 14714+23, 14722+33, 14722+73, 14729+92

ENVIRONMENTAL

CONSTRUCTION EXCLUSION: TIME OF YEAR RESTRICTION: NO TREE CLEARING APRIL 1ST TO JULY 31ST; T.O.Y.R.: NO CONSTRUCTION MARCH 15TH TO MAY 31ST WITHIN STREAM S-DD3; T.O.Y.R.: NO CONSTRUCTION MARCH 15TH TO MAY 31ST WITHIN STREAM S-G16

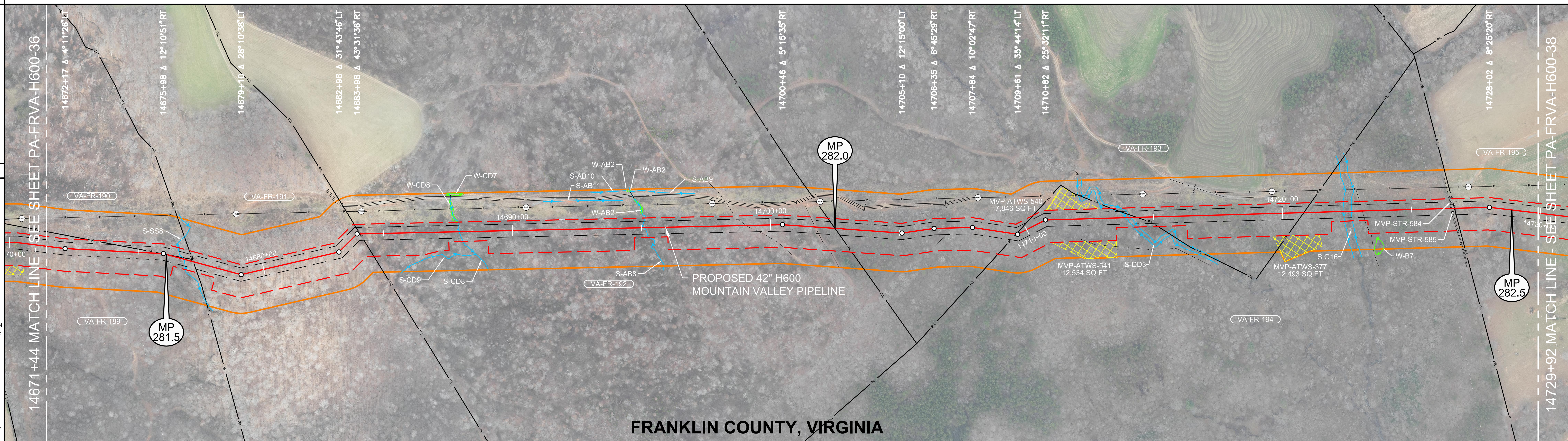
WETLAND / STREAM: S-SS8 8 LF; S-CD8 4.5 LF; S-AB8 4 LF; S-DD3 18 LF; S-G16 30 LF

PLAN VIEW

0' 100' 200' 400'

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; BARRACADE 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



OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

REFERENCE DRAWINGS

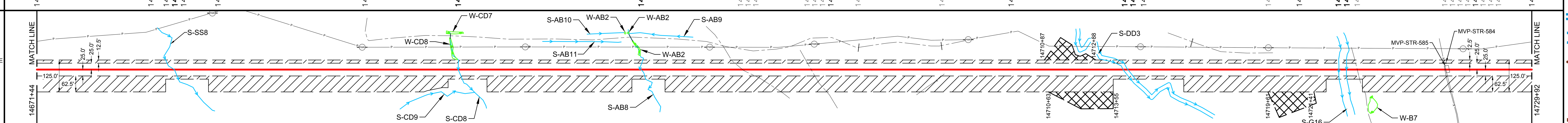
DRAWING NO.	DESCRIPTION

HORIZONTAL STATIONING

14671+44 MATCH LINE
14675+90 PROPERTY LINE
14676+12 PROPERTY LINE
14676+82 ℄ STREAM(S-SS8)
14677+18 PROPERTY LINE
14678+52 PROPERTY LINE
14684+09 PROPERTY LINE
14687+92 STREAM(S-CD8)
14695+08 ℄ STREAM(S-AB8)
14698+97 EDGE OF DIRT
14699+04 ℄ TRAIL(DIRT)
14699+12 EDGE OF DIRT
14701+67 EDGE OF DIRT
14701+73 ℄ TRAIL(DIRT)
14701+79 EDGE OF DIRT
14702+50 PROPERTY LINE
14703+57 CULVERT OPEN END 71'LT
14706+85 CULVERT OPEN END 78'LT
14709+56 PROPERTY LINE
14713+94 STREAM BANK(S-DD3)
14714+12 STREAM BANK(S-DD3)
14714+36 PROPERTY LINE
14719+62 POWER POLE 85'LT
14720+83 PROPERTY LINE
14722+38 STREAM BANK(S-G16)
14722+68 STREAM BANK(S-G16)
14723+10 ℄ FIELD ROAD(DIRT)
14726+52 FENCE - BARBED WIRE
14726+53 DEER BLIND 23'LT
14726+55 BUILDING - BARN
14726+56 FENCE - HOG WIRE
14726+66 PROPERTY LINE
14726+69 BUILDING - BARN
14726+71 BUILDING - BARN 11'RT
14727+23 POWER POLE 81'LT
14729+92 MATCH LINE

WORK SPACE

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

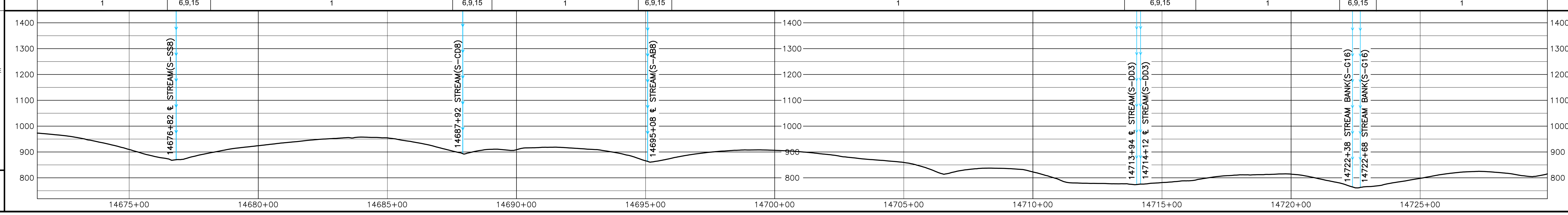


CONSTRUCTION METHOD

1	6,9,15	1	6,9,15	1	6,9,15	1	6,9,15	1	6,9,15	1

CONSTRUCTION METHOD KEY
1 - TYPICAL R/W WORKING SIDE RIGHT
1.1 - TYPICAL R/W WORKING SIDE RIGHT
2 - TYPICAL R/W WORKING SIDE LEFT
2.1 - TYPICAL 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
9 - WATERBODY X-ING OPEN CUT - WET DITCH
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

PROFILE



AERIAL PHOTOGRAPHY DATE: APRIL 2015 & JANUARY 2016

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

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

MATERIAL SUMMARY

MK. NO.	QTY.	DESCRIPTION
1	5806	42"O.D. X 0.617"W.T., X-70, FUSION BONDED EPOXY
6	120	42"O.D. X 0.617"W.T., X-70, FBE & ARO
		TYPE 1 TEST STATION - PIPELINE

APPROVED FOR CONSTRUCTION

REV.	BY	DATE
.	.	.

APPROVED FOR BIDDING

REV.	BY	DATE
3	RRR	09-03-16

APPROVED FOR FERC

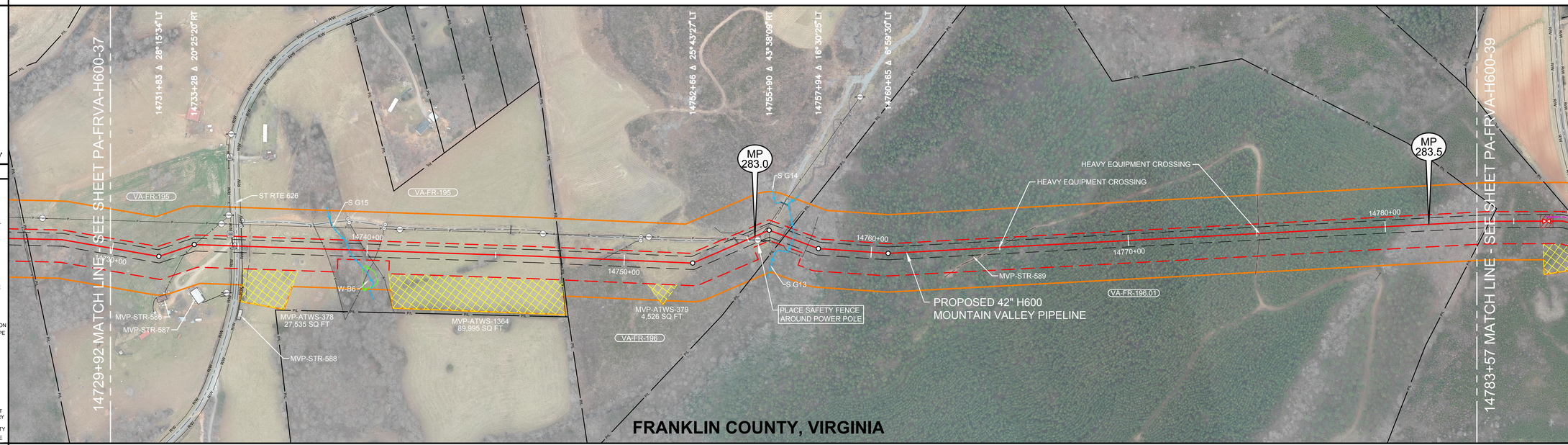
REV.	BY	DATE
0	RRR	10-15-15
4	RRR	10-14-16

Mountain Valley PIPELINE

PIPELINE ALIGNMENT
MOUNTAIN VALLEY PROJECT - H600 LINE
XXXXX DIST.,FRANKLIN CO.,VA.
STA. 14671+44 TO STA. 14729+92

HORZ. SCALE: 1" = 200'	
DRAWN BY: HEI(DRF)	02/11/15
DRAFTING CK:	.
ENGINEERING CK:	.
CONSTRUCTION CK:	.
ENVIRONMENTAL CK:	.
AFE/P.O.NO.:	
HEI PROJECT NO.: 14-10-052	
DRAWING NO.: PA-FRVA-H600 -37	
SHEET 307 OF 329	REV. 4
DATE OF PLOT: 10/11/16 10:05 AM	

RIGHT-OF-WAY & OWNERSHIP DATA																															
		14729+92	VA-FR-195 482 LF 489 SLOPE		14734+74	14734+74 ALT ROUTE 626 401 LF 405 SLOPE 14735+14	VA-FR-195 1240 LF 1252 SLOPE				14747+54	VA-FR-196 888 LF 893 SLOPE			14756+42	VA-FR-196 / VA-FR-196.01 24 LF 24 SLOPE	14758+66	VA-FR-196.01 2691 LF 2723 SLOPE								14783+57
DESIGN	PIPE / COATING	14729+92	1		14734+74	4	14735+14 1		14739+11	6	14739+51	1			14756+69	6	14757+09	1		14764+78	2	14765+18 1			14774+91	2	14775+31 1			14783+57
	SLOPE DISTANCE		489'			40'	404'			40'		1728'				40'		790'			40'	979'				40'	831'			
	CLASS LOCATION / HCA		1																											
ENVIRONMENTAL	CONSTRUCTION EXCLUSION	14729+92	TIME OF YEAR RESTRICTION: NO TREE CLEARING APRIL 1ST TO JULY 31ST												T.O.Y.R.: NO CONSTRUCTION MARCH 15TH TO MAY 31ST WITHIN STREAM S-G13			TIME OF YEAR RESTRICTION: NO TREE CLEARING APRIL 1ST TO JULY 31ST										14783+57
	WETLAND / STREAM									S-G15 9 LF						S-G13 9 LF														
	.																													
	.																													



PLAN VIEW

0' 100' 200' 400'

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
- BARRACADE 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

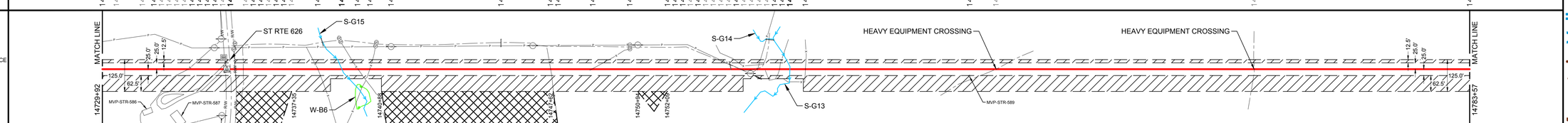
DRAWING NO.	DESCRIPTION

HORIZONTAL STATIONING

14729+92 MATCH LINE
14731+83 BUILDING – BARN 150'RT
14732+85 BUILDING – HOUSE 161'RT
14733+30 FENCE – HOG WIRE
14734+31 POWER POLE 84'LT
14734+52 EDGE OF DIRT – TELEPHONE 45'LT
14734+68 PEDESTAL
14734+73 EDGE OF DIRT
14734+74 RIGHT-OF-WAY
14734+75 CULVERT OPEN END 33'LT
14734+77 CULVERT OPEN END 2'LT
14734+80 MAILBOX
14734+81 EDGE OF ASPHALT
14734+94 ℄ ST RTE 626 – RAMSEY MEMORIAL ROAD
14735+03 EDGE OF ASPHALT
14735+07 GATE POST 78'RT
14735+12 FENCE – HOG WIRE
14735+13 BUILDING – STALL 244'RT
14735+14 RIGHT-OF-WAY
14735+17 CULVERT OPEN END 77'LT
14735+44 ℄ FIELD ROAD(DIRT)
14738+37 FENCE – HOG WIRE
14739+31 ℄ STREAM(S-G15)
14739+93 FENCE – HOG WIRE
14740+42 FENCE – HOG WIRE
14741+25 POWER POLE 86'LT
14745+56 CULVERT OPEN END 85'LT
14747+50 FENCE – BARBED WIRE
14747+54 PROPERTY LINE
14749+16 FENCE – BARBED WIRE
14750+61 GATE POST 78'LT
14754+51 CULVERT OPEN END 29'LT
14754+57 CULVERT
14754+77 CULVERT
14754+80 EDGE OF ROCK
14754+95 OHP LINE
14754+96 ℄ FIELD ROAD(ROCK)
14755+51 ℄ POWER POLE 17'RT
14755+51 ℄ FIELD ROAD(ROCK)
14755+62 GUY ANCHOR 31'RT
14755+63 OHP LINE
14755+67 GUY ANCHOR 34'RT
14755+77 GUY ANCHOR 37'RT
14755+74 EDGE OF ROCK
14756+08 GUY ANCHOR 36'RT
14756+49 FENCE – BARBED WIRE
14756+51 PROPERTY LINE
14756+89 ℄ STREAM(S-G13)
14757+50 FENCE – BARBED WIRE
14763+95 DEER BLIND 23'RT
14764+98 ℄ FIELD ROAD(DIRT)
14775+11 ℄ TRAIL(DIRT)
14783+57 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

1 | 6,9,15 | 1 | 6,9,15 | 1

CONSTRUCTION METHOD KEY

1 - TYPICAL R/W WORKING SIDE RIGHT
1.1 - TYPICAL R/W WORKING SIDE RIGHT
2 - TYPICAL R/W WORKING SIDE LEFT
2.1 - TYPICAL R/W WORKING SIDE LEFT
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4 - ROAD X-ING - BORE
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8 - RIDGE CONSTRUCTION
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13 - PARALLEL TO POWER LINE
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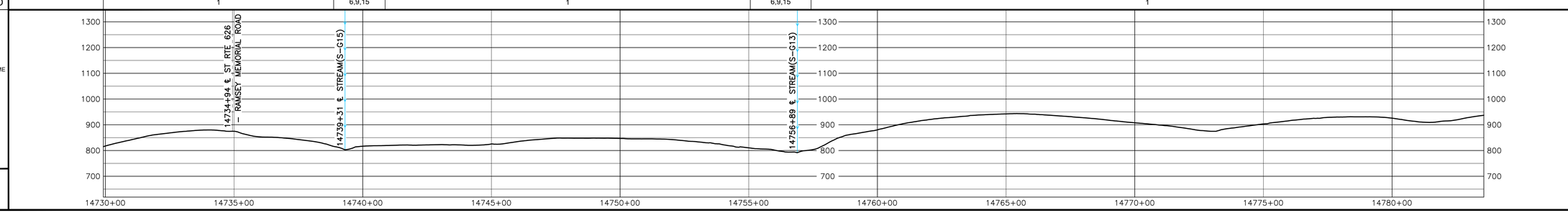
15 - WATERBODY X-ING OPEN CUT - DRY/DAM & PUMP
33 - SIDE HILL CONSTRUCTION
34 - 2-TONE SIDE HILL CONSTRUCTION

PROFILE



OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

HOLLAND ENGINEERING
220 Hoover Boulevard, Suite 2 | 26555 Evergreen Rd. Suite 430
Holland, Michigan 49423-3766 | Southfield, Michigan 48076
T 616.396.6068 F 616.396.6076 | T 248.357.1220 F 248.357.2949
www.hollandengineering.com

REVISIONS

REV.	BY	DATE	DESCRIPTION
0	HEI	10-5-15	REV. 4.0 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	09-13-16	REV. 4.1 ISSUED TO FERC
4	HEI	10-14-16	OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

MATERIAL SUMMARY

AERIAL PHOTOGRAPHY DATE: APRIL 2015 & JANUARY 2016

MK. NO.	QTY.	DESCRIPTION
1	9221	42"O.D. X 0.617"W.T. X70 FBE BONDED EPOXY
2	80	42"O.D. X 0.740"W.T. X70 FBE & ARO
4	40	42"O.D. X 0.740"W.T. X70 FBE & ARO
5	40	42"O.D. X 0.740"W.T. X70 FBE & ARO
6	80	42"O.D. X 0.617"W.T. X70 FBE & ARO
		TYPE 1 TEST STATION - PIPELINE

APPROVED FOR CONSTRUCTION		
REV.	BY	DATE
-		

APPROVED FOR BIDDING		
REV.	BY	DATE
3	RRR	09-05-16

APPROVED FOR FERC		
REV.	BY	DATE
0	RRR	10-15-15
4	RRR	10-14-16

Mountain Valley PIPELINE

PIPELINE ALIGNMENT

MOUNTAIN VALLEY PROJECT - H600 LINE
XXXXX DIST.,FRANKLIN CO.,VA.
STA. 14729+92 TO STA. 14783+57

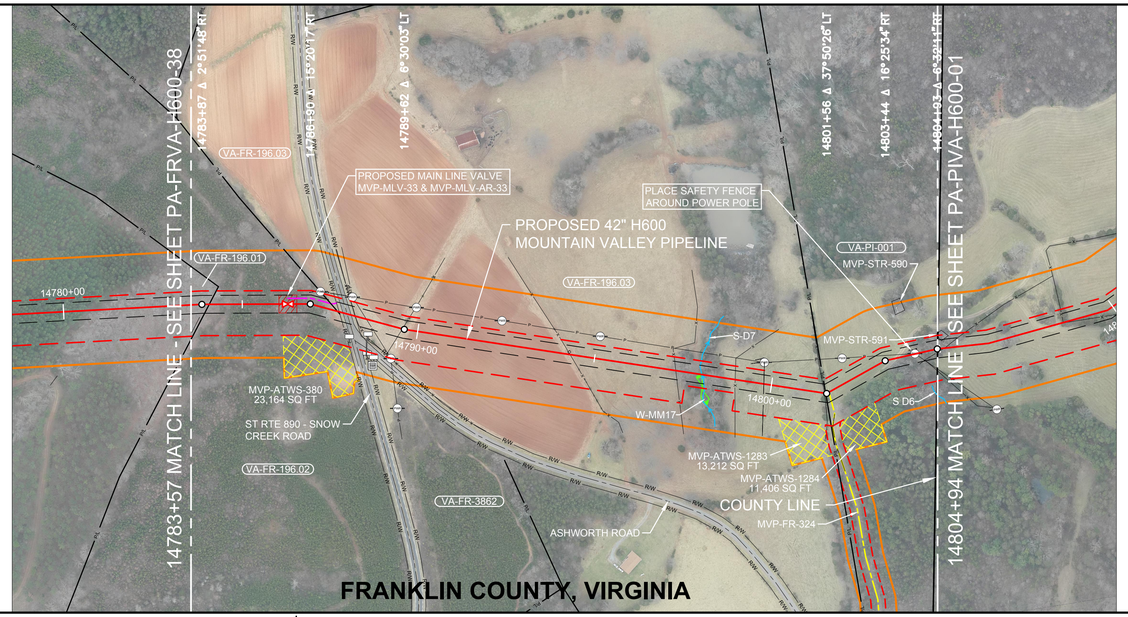
HORZ. SCALE: 1" = 200'	
DRAWN BY: HEI(DRF)	02/11/15
DRAFTING CK:	.
ENGINEERING CK:	.
CONSTRUCTION CK:	.
ENVIRONMENTAL CK:	.
AFE/P.O.NO.:	
HEI PROJECT NO.:	14-10-052
DRAWING NO.:	PA-FRVA-H600 -38
SHEET 308 OF 329	REV. 4
DATE OF PLOT: 10/11/16 10:05 AM	

RIGHT-OF-WAY & OWNERSHIP DATA		VA-FR-196.01 / VA-FR-196.02: 70 LF, 70 SLOPE; VA-FR-196.02: 286 LF, 286 SLOPE; VA-FR-196.03: 37 LF, 37 SLOPE; VA-FR-196.02: 100 LF, 100 SLOPE; VA-FR-196.03 / ST RTE 890 / VA-FR-196.02: 56 LF, 56 SLOPE; VA-FR-196.03 / ST RTE 890 / ASHWORTH RD / VA-FR-3862: 45 LF, 45 SLOPE; VA-FR-196.03: 1203 LF, 1210 SLOPE; VA-PI-001: 340 LF, 341 SLOPE
DESIGN	PIPE / COATING	1 / 4 / 1 / 6 / 1
DESIGN	SLOPE DISTANCE	401' / 80' / 948' / 40' / 676'
DESIGN	CLASS LOCATION / HCA	1
ENVIRONMENTAL	CONSTRUCTION EXCLUSION	TIME OF YEAR RESTRICTION: NO TREE CLEARING APRIL 1ST TO JULY 31ST
ENVIRONMENTAL	WETLAND / STREAM	W-MM17: 23 LF; S-D7: 8 LF
ENVIRONMENTAL	.	
ENVIRONMENTAL	.	

14783+57 — 14784+27 — 14787+13 — 14787+50 — 14788+50 — 14789+50 — 14789+51 — 14801+54 — 14804+94

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
- BARRACADE 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

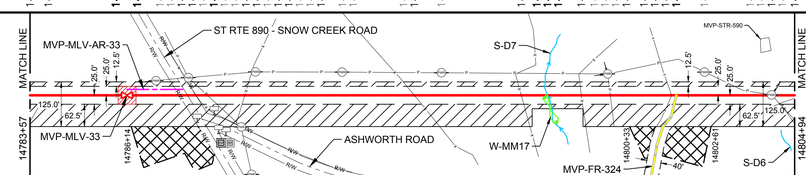
HORIZONTAL STATIONING

14783+57 MATCH LINE
14784+08 PROPERTY LINE
14786+27 PROPOSED MAIN LINE VALVE (MVP-MLV-33)
14786+27 ACCESS ROAD – PERMANENT (MVP-MLV-AR-33)16'LT
14787+01 GUY ANCHOR 40'LT
14787+09 POWER POLE 41'LT
14787+69 PROPERTY LINE
14787+74 RIGHT OF WAY
14787+85 EDGE OF ASPHALT
14787+97 ST RTE 890 - SNOW CREEK ROAD
14788+07 POWER POLE 45'LT
14788+09 EDGE OF ASPHALT
14788+20 FENCE – HOG WIRE
14788+21 RIGHT OF WAY
14788+51 ASGN 77'RT
14788+52 OHP LINE
14788+69 CULVERT OPEN END 53'RT
14788+71 SIGN 55'RT
14788+77 GUY ANCHOR 85'RT
14789+57 FENCE – BARBED WIRE
14789+87 POWER POLE 66'LT
14792+29 POWER POLE 65'LT
14794+27 WATER TROUGH 7'LT
14794+31 FENCE – BARBED WIRE
14795+07 POWER POLE 63'LT
14797+30 FENCE – HOG WIRE
14797+89 BEGIN WETLAND(W-MM17) 10'RT
14798+03 STREAM(S-D7)
14798+12 END WETLAND(W-MM17) 38'RT
14798+98 FENCE – HOG WIRE
14799+57 GUY ANCHOR 58'LT
14799+68 POWER POLE 70'LT
14799+78 POWER POLE 60'LT
14799+79 OHP LINE
14801+37 PROPERTY CORNER 43'LT
14801+50 FENCE – BARBED WIRE
14801+54 PROPERTY LINE
14801+63 ACCESS RD – TEMPORARY (MVP-FR-324)
14802+42 POWER POLE 65'LT
14804+00 BUILDING – HOUSE 119'LT
14804+29 POWER POLE 11'LT
14804+34 OHP LINE
14804+38 GUY ANCHOR 13'LT
14804+94 MATCH LINE,END FRANKLIN CO., BEGIN PITTSYLVANIA COUNTY

OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

WORK SPACE

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



CONSTRUCTION METHOD

CONSTRUCTION METHOD KEY

1 - TYPICAL R/W WORKING SIDE RIGHT
1.1 - TYPICAL R/W WORKING SIDE RIGHT
2 - TYPICAL R/W WORKING SIDE LEFT
2.1 - TYPICAL R/W WORKING SIDE LEFT
3 - TYPICAL WETLAND X-ING
4 - ROAD X-ING - BORE
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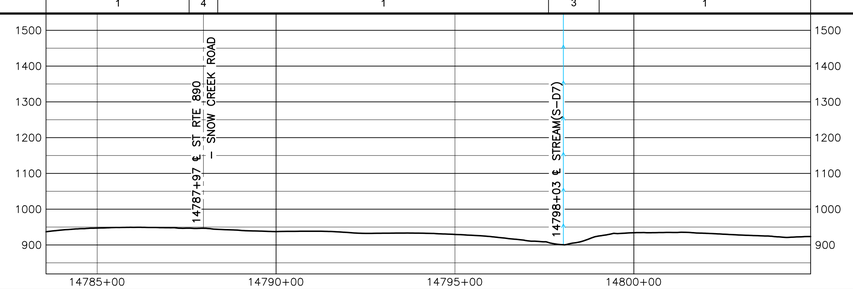
PROFILE



AERIAL PHOTOGRAPHY DATE: APRIL 2015 & JANUARY 2016

MATERIAL SUMMARY			
MK. NO.	QTY.	DESCRIPTION	
1	2025	42"O.D. X 0.617"W.T. X-70, FBE BONDED EPOXY	
4	80	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	
		TYPE 1 TEST STATION - PIPELINE	

APPROVED FOR CONSTRUCTION		
REV.	BY	DATE
-	-	-

APPROVED FOR BIDDING		
REV.	BY	DATE
3	RRR	09-05-16

APPROVED FOR FERC		
REV.	BY	DATE
0	RRR	10-15-15
4	RRR	09-14-16

REVISIONS

REV.	BY	DATE	DESCRIPTION
0	HEI	10-15-15	REV. 4.0 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	09-05-16	FERC DATA REQUEST No.3
4	HEI	10-14-16	OCTOBER 2016 PROPOSED ROUTE - ISSUED TO FERC

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Southfield, Michigan 48076
T 248.557.7220 F 248.557.7249
www.hollandengineering.com

Mountain Valley PIPELINE

PIPELINE ALIGNMENT

MOUNTAIN VALLEY PROJECT - H600 LINE
XXXXX DIST.,FRANKLIN CO.,VA.
STA. 14783+57 TO STA. 14804+94

HORZ. SCALE: 1" = 200'	
DRAWN BY: HEI(DRF)	02/11/15
DRAFTING CK:	.
ENGINEERING CK:	.
CONSTRUCTION CK:	.
ENVIRONMENTAL CK:	.
AFE/P.O.NO.:	
HEI PROJECT NO.:	14-10-052
DRAWING NO.:	PA-FRVA-H600 -39
SHEET 309 OF 329	REV. 4
DATE OF PLOT: 10/11/16 10:05 AM	