



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Friday, March 14, 2025
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

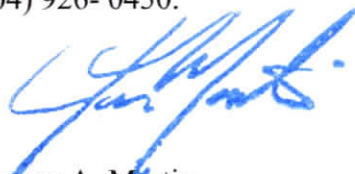
Re: Permit Modification Approval for Van Wie 1221 N-12H
47-041-05771-00-00

Adding an access road

HG ENERGY II APPALACHIA, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

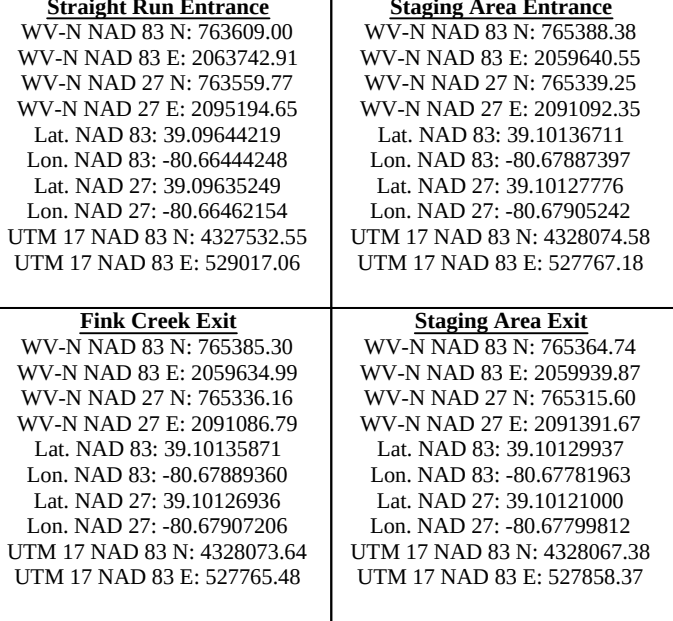


James A. Martin
Chief

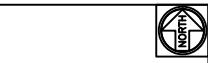
Operator's Well Number: Van Wie 1221 N-12H
Farm Name: HG Energy II Appalachia, LLC
U.S. WELL NUMBER: 47-041-05771-00-00
Horizontal 6A New Drill
Date Modification Issued: 3/14/2025

Promoting a healthy environment.

03/14/2025



consist of (2) 10,000 bbl (76' diameter)
secondary containment 12,000 bbl
) for processed water

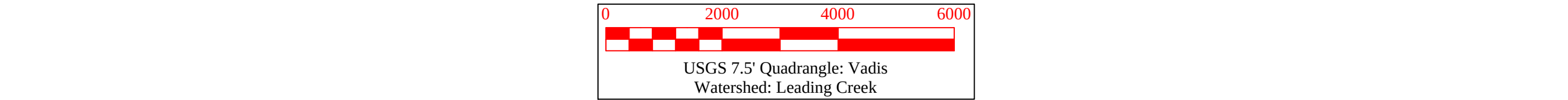


S-HI	S-HI
D 83 N: 763052.14	WV-N NAD 83 N: 763061.98
D 83 E: 2062633.11	WV-N NAD 83 E: 2062644.43
D 27 N: 763002.93	WV-N NAD 27 N: 763012.77
D 27 E: 2049048.85	WV-N NAD 27 E: 2049046.17
D 83 N: 763049.2456	Lon. NAD 83: 39.09495126
D 83 E: -80.66835948	Lon. NAD 83: -80.66831947
D 27 N: 763048.638	Lon. NAD 27: 39.0946159
D 27 E: -80.66853842	Lon. NAD 27: -80.66849841
D 83 (m): N: 4327362.87	UTM 17 NAD 83 (m): 4327365.87
D 83 (m): E: 252678.96	UTM 17 NAD 83 (m): 252682.41
S-HI	S-HI
D 83 N: 762940.37	WV-N NAD 83 N: 762950.44
D 83 E: 2062649.37	WV-N NAD 83 E: 2062649.69
D 27 N: 763091.40	WV-N NAD 27 N: 763091.24
D 27 E: 2039857.11	WV-N NAD 27 E: 2039864.44
D 83 N: 39.09462039	Lon. NAD 83: 39.09464729
D 83 E: -80.66916322	Lon. NAD 83: -80.66912321
D 27 N: 39.09453072	Lon. NAD 27: 39.09453765
D 27 E: -80.66932413	Lon. NAD 27: -80.66930213
D 83 (m): N: 4327328.88	UTM 17 NAD 83 (m): 4327331.88
D 83 (m): E: 252609.57	UTM 17 NAD 83 (m): 252613.02



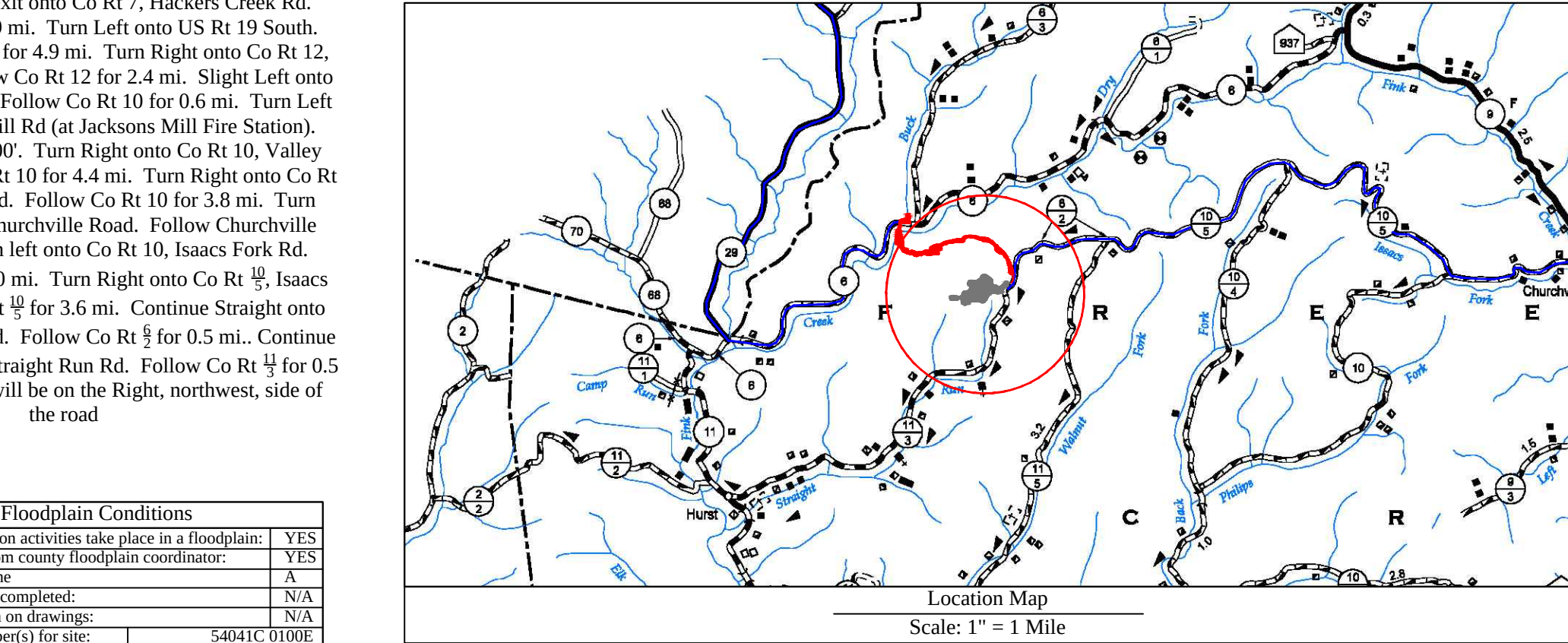
From I-79 North, turn left at the end of Follow Co Rt 10, Follow US Rt 10, Jackson Mill Rd, Co Rt 10, Old Mo Co Rt 10, Follow Co Rt 10, Chapel Rd. Follow 10, Freemans Co Right onto Co road for 0.2 mi. Follow Co Rt 10, Fork Rd. Follow Co Rt 5, Straight onto Co Rt 10, Straight onto Co mi. The site enters

Site Design, Construction Plan, &
Erosion and Sediment Control Plans
HG Energy LLC
Lewis County
Freemans Creek District
Latitude 39.09467556°
Longitude -80.66867393°
Leading Creek Watershed

[illegible]

Approach Routes:

ane Lew, WV. Take Exit 99 and turn
right onto Rt 7, Hackers Creek Rd.
0.6 mi. Turn Left onto US Rt 19 South.
0.9 for 4.9 mi. Turn Right onto Co Rt 12
0.6 mi. Follow Co Rt 12 for 2 mi. Slight Left onto
Follow Co Rt 10 for 0.6 mi. Turn Left
0.10 Rd (at Jacksons Mill Fire Station).
0.00. Turn Right onto Co Rt 10, Valley
0.10 Rd for 4.4 mi. Turn Right onto Co Rt
0.10 Rd. Follow Co Rt 10 for 3.8 mi. Turn
0.10 Churchville Road. Follow Churchville
0.10 left onto Co Rd 10, Isaacs Fork Rd.
0.10 mi. Turn Right onto Co Rt $\frac{1}{2}$, Isaacs
0.10 $\frac{1}{2}$ for 3.6 mi. Continue Straight onto
0.10. Follow Co Rt $\frac{1}{2}$ for 0.5 mi. Continue
0.10 Straight Run Rd. Follow Co Rt $\frac{1}{2}$ for 0.5
0.10 will be on the Right, northwest, side of
0.10 the road



1221 Site
Emergency Number: 304-269-8241
Freemans Creek District, Lewis County, WV
Watershed: Leading Creek Watershed
Site 911 Address:

Property Owner Information - 1221 Well Site							
Freemans Creek District - Lewis County							
Owner	TM - Parcel	Well Pad	AST Pad	Access Road	Stockpiles	Add. Clearing	Total Disturbed
HG Energy II Appalachia, LLC	2D-31	0.00	0.00	0.00	0.03	0.10	0.13
HG Energy II Appalachia, LLC	2D-3	4.94	0.75	0.14	2.65	5.49	13.97
Anthony & Dawn Van W	2D-29	4.56	1.59	0.67	0.00	2.48	9.30
	Site Totals (Ac)	9.50	2.34	0.81	2.68	8.07	23.40

Property Owner Information - 1221 Fink Creek Access							
Freemans Creek District - Lewis County							
Owner	T/M - Parcel	Staging Area	Access Road	Topsoil/Excess	Add. Clearing	Total Disturbed	
Alice Keely et al	2D-48	1.09	0.23	0.24	1.19	2.75	
James II & Sheila Gum	2D-3.4	0.00	5.32	1.37	7.47	14.16	
James II & Sheila Gum	2C-7	0.00	3.31	0.47	3.81	7.59	
	Site Totals (Ac)	1.09	8.86	2.08	12.47	24.50	

Well Site Access Road			
Surface Owner	TM - Parcel	Road Length	Type
HG Energy II Appalachia, LLC.	2D-3	111.47'	New Access Road Construction
Anthony & Dawn Van Wie	2D-29	644.05'	New Access Road Construction

Fink Creek Access Road			
Surface Owner	TM - Parcel	Road Length	Type
Alice Keely et al	2D-48	286.52'	New Access Road Construction
James II & Sheila Gum	2D-3.4	3,108.37'	New Access Road Construction
James I & Sheila Gum	2C-7	2,555.68'	New Access Road Construction

Disturbed Area - Well Pad		Disturbed Area - Fink Creek Rd	
Well Pad Construction	9.50 AC	Staging Area Construction	1.09 AC
AST Pad Construction	2.34 AC	Topsoil Road Construction	8.86 AC
Access Road Construction	0.00 AC	Topsoil / Excess Material	12.47 AC
Spill/Excess Material	2.68 AC	Additional Clearing	12.47 AC
Additional Clearing	8.07 AC	Total Disturbed Area	24.50 AC
Total Disturbed Area	23.40 AC	Additional Information	
		Total Wooded Acres Disturbed	22.50 AC
		Total Linear Feet of Access Road	5,950.57

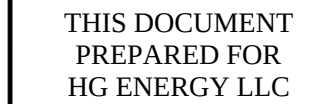
1221 Well Site Quantities - Well Site							
Description	Cut (CY)	Fill (CY)	Spill (CY)	Borrow (CY)	Max. Slope	Length of Slope	Est Topsoil (CY)
Well Pad	127,216.91	75,685.35	51,531.56	-	N/A	N/A	15,000.00
AST Pad	142,512.16	26,303.50	-	26,303.50	N/A	N/A	3,800.00
Well Pad Access Road	39.80	7,064.90	-	7,025.10	17.64%	250.18'	-
AST Pad Access Road	3.04	1,730.01	-	1,726.97	14.55%	169.46'	-
Landowner Access Road	-	27,358.80	-	27,358.80	N/A	N/A	-
Excess Material Stockpiles	-	-	-	-	-	-	-
Totals	127,425.12	138,456.68	51,531.56	60,563.12	-	-	-
	Total Spill (CY) =	-	-9,031.56	-	(Excess Spill Capacity)		

1221 Fink Creek Access Quantities						
Description	Cut (CY)	Fill (CY)	Spill (CY)	Borrow (CY)	Max. Slope	Length of Slope
Bypass Access Road	22,252.02	18,886.63	3,365.39	-	-20.38	78.83
Staging Area	2,320.28	819.95	1,500.33	-	N/A	N/A
Staging Area East Access	0.00	29.65	N/A	29.32	N/A	N/A
Staging Area West Access	2.21	6.93	-	4.72	N/A	N/A
Staging Area Stockpile	0.00	3,000.00	-	3,000.00	N/A	N/A
Bypass Access Road Stockpiles	0.00	19,000.00	-	19,000.00	N/A	N/A
Totals	24,574.84	41,743.16	4,865.72	22,034.64		
	Total Spill (CY)	= -17,168.32 (Excess Stockpile Capacity)				

Ephemeral Stream Impact (Linear Feet) - Fink Creek Access Road					
Stream and Impact Cause	Culvert (LF)	Inlet/Outlet Structures Fill (LF)	Slope Fill (LF)	Const. Disturb. to LOD (LF)	Total Impact (LF)
Watercourse FE (Access Road)	-	10.00	86.60	12.43	109.03
Watercourse FA (Access Road)	-	12.21	45.95	5.00	63.16
				Total Stream Impacts	172.19

	Sheet	Description
domestic animals. and for poultry or dairy stream. y.	1	Cover Sheet
	V1	Schedule of Quantities
	N1-N4	Site Notes
	2-3	Pre-Construction Site Conditions
	4-5	Site Soil Map
	6	Clearing Exhibit
	7-8	Overall Plan View
	9-14	E&S Plan View
	15	Toe Key Exhibit
	16-23	Plan View
	24-27	Cross Sections - Well Pad
	28	Cross Sections - Well Pad Access Road
	29	Cross Sections - Staging Area
	30-32	Cross Sections - Access Road
	G1-G2	Geotechnical Exhibit
notes and reference diagrams attached hereto have been prepared in accordance with the Virginia Code of State Rules, Division of Environmental Protection, Office of reference diagrams included in this design constitutes a complete set of plans. necessary to construct the site in accordance with the design.	L1	Landowner Disturbed Area Exhibit
	S1	Site Reclamation
	M1-M2	Production Exhibit
	D1-D2	Erosion and Sediment Control Details
	R1	Access Road Details
	P1	Pad Details

Date 02-04-2025



Kelly Surveying
P.O. Box 254
Dailey, WV 26259
(304) 338-6984

Cover Sheet

1221 Fink Creek Access

Freemans Creek District
Lewis County, WV

Date: 02/04/2025
Scale: As Shown
Designed By: ZS
File No.
Sheet 1 of 32

Schedule of Quantities

Fink Access Road Pipe Schedule					
Pipe Crossing	Station	Length (ft)	Diameter (ft)	Type	Slope (%)
1	3+62	35	1.5	HDPE	2
2	7+26	35	1.5	HDPE	2
3	9+36	35	1.5	HDPE	2
4	12+37	30	1.5	HDPE	2
5	15+63	35	1.5	HDPE	2
6	18+68	35	1.5	HDPE	2
7	24+93	38	1.5	HDPE	2
8	28+25	40	1.5	HDPE	2
9	34+05	45	1.5	HDPE	2
10	39+30	30	1.5	HDPE	2
11	41+30	35	1.5	HDPE	2
12	46+00	35	1.5	HDPE	2
13	50+39	30	1.5	HDPE	2
14	51+95	32	1.5	HDPE	2
15	53+50	40	1.5	HDPE	2
16	56+83	45	1.5	HDPE	2
17	46+98	80	1.5	HDPE	2
18	51+27	55	1.5	HDPE	2
19	0+14	60	1.5	HDPE	2
20	0+10	80	1.5	HDPE	2

1221 Well Site Fink Creek Access

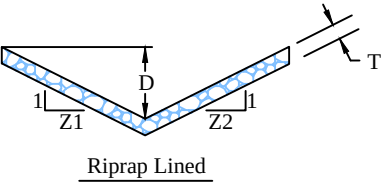
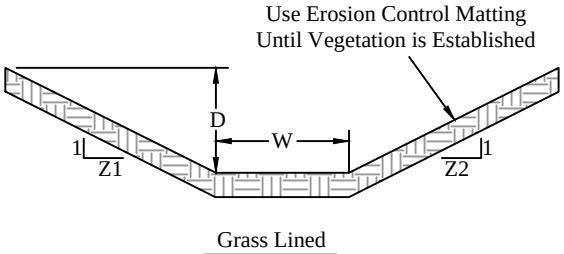
HG Energy LLC

Exhibit A: As-Built Modification

18" Filter Sock			1875
FS18 #1	19	FS18 #22	74
FS18 #2	25	FS18 #23	60
FS18 #3	45	FS18 #24	29
FS18 #4	35	FS18 #25	21
FS18 #5	50	FS18 #26	55
FS18 #6	63	FS18 #27	92
FS18 #7	45	FS18 #28	27
FS18 #8	36	FS18 #29	28
FS18 #9	26	FS18 #30	31
FS18 #10	41	FS18 #31	22
FS18 #11	69	FS18 #32	31
FS18 #12	71	FS18 #33	47
FS18 #13	65	FS18 #34	61
FS18 #14	56	FS18 #35	59
FS18 #15	26	FS18 #36	56
FS18 #16	54	FS18 #37	56
FS18 #17	22	FS18 #38	79
FS18 #18	42	FS18 #39	34
FS18 #19	30	FS18 #40	39
FS18 #20	31	FS18 #41	52
FS18 #21	23	FS18 #42	48

Belted Silt Retention Fence			1757
BSRF #1	27	BSRF #17	31
BSRF #2	30	BSRF #18	35
BSRF #3	49	BSRF #19	129
BSRF #4	39	BSRF #20	216
BSRF #5	55	BSRF #21	41
BSRF #6	68	BSRF #22	37
BSRF #7	50	BSRF #23	42
BSRF #8	37	BSRF #24	35
BSRF #9	31	BSRF #25	26
BSRF #10	46	BSRF #26	69
BSRF #11	127	BSRF #27	58
BSRF #12	54	BSRF #28	58
BSRF #13	41	BSRF #29	48
BSRF #14	68	BSRF #30	50
BSRF #15	48	BSRF #31	29
BSRF #16	58	BSRF #32	25

Super Silt Fence			3918
SSF #1	34	SSF #23	63
SSF #2	36	SSF #24	67
SSF #3	27	SSF #25	52
SSF #4	52	SSF #26	51
SSF #5	57	SSF #27	43
SSF #6	137	SSF #28	35
SSF #7	77	SSF #29	27
SSF #8	104	SSF #30	33
SSF #9	216	SSF #31	34
SSF #10	39	SSF #32	32
SSF #11	52	SSF #33	36
SSF #12	58	SSF #34	33
SSF #13	41	SSF #35	98
SSF #14	39	SSF #36	57
SSF #15	83	SSF #37	33
SSF #16	60	SSF #38	63
SSF #17	61	SSF #39	82
SSF #18	88	SSF #40	30
SSF #19	121	SSF #41	30
SSF #20	58	SSF #42	38
SSF #21	64	SSF #43	47
SSF #22	38	SSF #44	32



Rock Lined Channel						
Channel ID	Min Depth (D) (ft)	Width (W) (ft)	z1	z2	T (ft)	Riprap Size D50 (in)
Sump A Outlet	2	4	2	2	1	R4
Sump B Outlet	2	4	2	2	1	R4
Sump C Outlet	2	4	2	2	1	R4
Bench 1 Outlet	2	0	2	2	0.75	R3
AST Drain A	2	0	2	2	1	R4
AST Drain B	2	0	2	2	1	R4
AST Drain C	2	0	2	2	1	R4

Toe Keys	
Toe Key	Toe Key Length (ft)
A	383
B	2037
C	237
D	287
E	255
F	430
G	137
H	340
J	183
K	313
L	1394
M	306
N	470
O	87

Surface Areas			
Area Name	Area (Ac.)	Area (SF)	Area (SY)
Well Pad	5.62	244,841	27,205
Well Pad Access Road	0.40	17,596	1,956
AST Pad	1.05	45,567	5,063
AST Pad Access Road	0.14	6,306	701

Earthwork & Capacity Reports

The earthwork quantities provided are an estimate for consideration. The quantities shown are calculated using a 1:1 Cut / Swell & Shrink factor. The quantities shown may be greater or less than actually excavated. The engineer is not responsible for variances from the estimated quantities and does not certify to their accuracy.

<u>Well Pad Report</u> Top of pad elevation: 1251.77 Cut Slope: 50.00% 2.00:1 Fill Slope: 50.00% 2.00:1 Pad Earthwork Volumes Total cut : 3,434,856.5 C.F., 127,216.91 C.Y. Total fill: 2,043,504.5 C.F., 75,685.35 C.Y.	<u>Stockpile #1 Pad Report</u> Cut Slope: 50.00% 2.00:1 Fill Slope: 50.00% 2.00:1 Pad Earthwork Volumes Total cut : 0.0 C.F., 0.00 C.Y. Total fill: 216,002.9 C.F., 8,000.11 C.Y.
<u>AST Pad Report</u> Top of pad elevation: 1229.00 Cut Slope: 50.00% 2.00:1 Fill Slope: 50.00% 2.00:1 Pad Earthwork Volumes Total cut : 3,849.3 C.F., 142.57 C.Y. Total fill: 710,194.6 C.F., 26,303.50 C.Y.	<u>Stockpile #2 Pad Report</u> Cut Slope: 50.00% 2.00:1 26.57° Fill Slope: 50.00% 2.00:1 26.57° Pad Earthwork Volumes Total cut : 35.1 C.F., 1.30 C.Y. Total fill: 135,399.7 C.F., 5,014.80 C.Y.
<u>Well Pad Access Road Report</u> Processing 0+00.000 to 5+08.218 Total Cut : 991.983 C.F., 36,740 C.Y. Total Fill: 144042.971 C.F., 5334.925 C.Y.	<u>Stockpile #3 Pad Report</u> Cut Slope: 50.00% 2.00:1 26.57° Fill Slope: 50.00% 2.00:1 26.57° Pad Earthwork Volumes Total cut : 0.0 C.F., 0.00 C.Y. Total fill: 22,588.2 C.F., 836.60 C.Y.
<u>AST Access Road Report</u> Processing 0+00.000 to 2+47.299 Total Cut : 81.956 C.F., 3.035 C.Y. Total Fill: 46710.155 C.F., 1730.006 C.Y.	<u>Stockpile #4 Pad Report</u> Cut Slope: 50.00% 2.00:1 26.57° Fill Slope: 50.00% 2.00:1 26.57° Pad Earthwork Volumes Total cut : 1.2 C.F., 0.05 C.Y. Total fill: 243,167.5 C.F., 9,006.20 C.Y.
	<u>Stockpile #5 Pad Report</u> Cut Slope: 50.00% 2.00:1 26.57° Fill Slope: 50.00% 2.00:1 26.57° Pad Earthwork Volumes Total cut : 0.0 C.F., 0.00 C.Y. Total fill: 121,529.5 C.F., 4,501.09 C.Y.

1221 Fink Bypass Access Road Report

Processing 0+00.00 to 58+33.53
Total Cut : 600804.45 C.F., 22252.02 C.Y.
Total Fill: 509939.04 C.F., 18886.63 C.Y.

Staging Area Pad Report

Cut Slope: 50.00% 2.00:1
Fill Slope: 50.00% 2.00:1

Pad Earthwork Volumes
Total cut : 62,647.5 C.F., 2,320.28 C.Y.
Total fill: 22,138.6 C.F., 819.95 C.Y.

Staging Area East Access Road Report

Processing 0+00.00 to 0+72.40
Total Cut : 8.81 C.F., 0.33 C.Y.
Total Fill: 800.61 C.F., 29.65 C.Y.

Staging Area West Access Road Report

Processing 0+00.00 to 0+44.64
Total Cut : 59.78 C.F., 2.21 C.Y.
Total Fill: 187.21 C.F., 6.93 C.Y.

Staging Area Stockpile Pad Report

Cut Slope: 50.00% 2.00:1
Fill Slope: 50.00% 2.00:1

Pad Earthwork Volumes
Total cut : 0.0 C.F., 0.00 C.Y.
Total fill: 81,002.5 C.F., 3,000.09 C.Y.

Stockpile #1 Report

Cut Slope: 50.00% 2.00:1
Fill Slope: 50.00% 2.00:1

Pad Earthwork Volumes
Total cut : 0.0 C.F., 0.00 C.Y.
Total fill: 215,999.4 C.F., 8,000.00 C.Y.

Stockpile #2 Report

Cut Slope: 50.00% 2.00:1
Fill Slope: 50.00% 2.00:1

Pad Earthwork Volumes
Total cut : 0.0 C.F., 0.00 C.Y.
Total fill: 162,000.2 C.F., 6,000.01 C.Y.

Stockpile #3 Report

Cut Slope: 50.00% 2.00:1
Fill Slope: 50.00% 2.00:1

Pad Earthwork Volumes
Total cut : 0.5 C.F., 0.02 C.Y.
Total fill: 135,003.2 C.F., 5,000.12 C.Y.

03/14/2025



Revision
Design
Date
02-04-2025



THIS DOCUMENT
PREPARED FOR
HG ENERGY LLC



Schedule of Quantities
1221 Well Site
Freemans Creek District
Lewis County, WV

Date: 02/04/2025
Scale: As Shown
Designed By: ZS
File No.
Sheet V1 of V1

1. OBJECTIVES

VEGETATIVE COVER OF 70% OR GREATER WOULD GENERALLY MEET THIS REQUIREMENT. CONSIDERATIONS FOR THE IMPROVEMENT OF WATER QUALITY AND WILDLIFE HABITAT ARE INCORPORATED INTO THIS SECTION. WITH PRIOR AND DOCUMENTED APPROVAL, THESE STANDARDS MAY BE ADJUSTED AND MODIFIED TO MEET INDIVIDUAL SITE REQUIREMENTS.

1. WATER CONTROL

2. SEEDBED PREPARATION

THE SEEDBED MUST BE LOOSE AT THE TIME OF SEEDING. APPLICATIONS OF SEED ON HARD GROUND WILL RESULT IN A POOR STAND OF VEGETATION. THE SOIL SURFACE MUST BE LOOSENEED (MINIMUM OF 3 INCHES) BY DISKING ON THE CONTOUR, OR BY BULLDOZER TRACKING UP AND DOWN THE SLOPE. BACKLAPPING IS ACCEPTABLE ON GENTLE SLOPES SUCH AS THE BENCH OR ROAD BED. IF SEEDING PLOTS ARE TO BE AVAILABLE, 50% MORE SEED SHALL BE ADDED TO THE RECOMMENDED RATES SHOWN IN TABLES 3-4. WHERE HYDROSEEDING OF SEEDBEDS MAY NOT BE NECESSARY IF ADEQUATE SITE PREPARATION WAS PERFORMED. APPLY ALL NUTRIENT REQUIREMENTS IMMEDIATELY PRIOR TO SEEDING. SOIL FERTILITY AND pH LEVELS SHOULD BE TESTED AND ADJUSTED ACCORDING TO THE SEED SPECIES PLANTED. WHERE SAMPLING IS IMPRACTICAL OR NOT FEASIBLE, AN ALL-INCLUSIVE FERTILIZER RECOMMENDATION MAY BE USED AS SHOWN IN TABLE 1.

APPLY LIME TO BRING SOIL pH TO A RANGE SUITABLE (pH 6.0) FOR THE PLANNED SPECIES. IN ABSENCE OF A SOIL TEST, 3 TONS / ACRE OF LIME MAY BE APPLIED (150 LBS / 1,000 SF). INCORPORATE THE APPROPRIATE AMOUNT OF LIME AND/OR FERTILIZER IN THE SLURRY MIX WHEN HYDROSEEDING.

1. TEMPORARY SEEDING

WITH SEDIMENT CONTROLS MUST BE ESTABLISHED WHERE RUNOFF WILL GO DIRECTLY INTO A STREAM. IMMEDIATELY UPON CONSTRUCTION OF THE SITE (SITE INCLUDES ROADS AND LOCATION), VEGETATION MUST BE ESTABLISHED ON ROAD BANK AND LOCATION SLOPES. A PERMANENT VEGETATIVE COVER SHALL BE APPLIED TO ALL AREAS THAT WILL BE LEFT UNWORKED FOR A PERIOD OF MORE THAN 6 MONTHS.

PERMANENT PLANT SPECIES, AND PLANTING RATES. TABLE 3 GIVES RECOMMENDED TYPES OF TEMPORARY VEGETATION, RATES OF APPLICATION, AND OPTIMUM SEEDING DATES. IN SITUATIONS WHERE ANOTHER COVER IS DESIRED, CONTACT THE LOCAL SOIL CONSERVATION DISTRICT FOR SEEDING RECOMMENDATIONS.

APPLIED BY BROADCASTING, DRILLING, OR BY HYDROSEEDING ACCORDING TO THE RATES INDICATED IN TABLE 1. FERTILIZER ALL PLANTING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. NECESSARY SITE PREPARATION, ROUGHENING OF THE SOIL SURFACE, SHOULD BE PERFORMED JUST PRIOR TO SEEDING. SEEDBED PREPARATION MAY NOT BE REQUIRED ON NEWLY DISTURBED AREAS.

Species	N (lb/ac)	P2O5 (lb/ac)	K2O (lb/ac)	Example Rec. (per ac)
Cool Season Grass	40.00	80.00	80.00	400 lbs. 10-20-20
Cool Season Grass & Legume	30.00	60.00	60.00	300 lbs. 10-20-20
Temporary Cover	40.00	40.00	40.00	200 lbs. 19-19-19

Note: These rates should be increased by 50% if planted Apr 15 - Aug 1 and Oct 1 - Mar 1

A. GENERAL
PERMANENT VEGETATIVE COVER WILL BE ESTABLISHED WHERE NO FURTHER SOIL DISTURBANCE IS ANTICIPATED OR NEEDED. SOIL FERTILITY AND PH LEVEL SHOULD BE TESTED AND ADJUSTED ACCORDING TO THE SEED SPECIES PLANTED. PLANTING OF PERMANENT VEGETATIVE CROPS MUST BE PERFORMED ON ALL DISTURBED AREAS AFTER THE COMPLETION OF THE DRILLING PROCESS. ANY SITE THAT CONTAINS SIGNIFICANT AMOUNTS OF TOPSOIL SHALL HAVE THE TOPSOIL REMOVED AND STOCKPILED WHEN FEASIBLE. TOPSOIL SHOULD NOT BE ADDED TO SLOPES STEEPER THAN 2:1 UNLESS A GOOD BONDING TO THE SUB-LAYER CAN BE ACHIEVED. AFTER PROPER GRADING AND SEEDBED PREPARATION, THE VEGETATION WILL REESTABLISH GROUND COVER FOR THE CONTROL OF SURFACE WATER RUNOFF AND EROSION

ALL REQUIRED SEEDBED PREPARATION, LOOSENING OF SOIL BY DISKING OR DOZER TRACKING, SHOULD BE PERFORMED JUST PRIOR TO SEEDING. IF SEEDBED PREPARATION IS NOT FEASIBLE, 50% MORE SEED SHALL BE ADDED TO THE RECOMMENDED RATES SHOWN IN TABLES IV 3-4.

WHEN HYDROSEEDING, SEEDBED PREPARATIONS MAY NOT BE NECESSARY IF ADEQUATE SITE PREPARATION WAS PERFORMED. INCORPORATE THE APPROPRIATE AMOUNT OF LIME AND/OR FERTILIZER IN THE SLURRY MIX WHEN HYDROSEEDING. WHEN HYDROSEEDING, FIRST MIX THE LIME, FERTILIZER, AND HYDRO-MULCH IN THE RECOMMENDED AMOUNT OF WATER. MIX THE SEED AND INOCULANT TOGETHER WITHIN ONE HOUR PRIOR TO PLANTING, AND ADD THE SLURRY JUST BEFORE SEEDING. APPLY THE SLURRY UNIFORMLY OVER THE PREPARED SITE. ASSURE THAT AGITATION IS CONTINUOUS THROUGHOUT THE SEEDING OPERATION AND THAT THE MIX IS APPLIED WITHIN ONE HOUR OF INITIAL MIXING.

1. LIME SHALL BE APPLIED TO ALL PERMANENT SEEDINGS. THE pH OF THE SOIL IS TO BE DETERMINED AND LIME APPLIED ACCORDINGLY. ONCE THE pH IS KNOWN, SELECT THE AMOUNT OF LIME TO BE APPLIED FROM TABLE IV-5.
2. FERTILIZER SHALL BE APPLIED IN ALL PERMANENT SEEDINGS. APPLY THE EQUIVALENT OF 500 LBS MINIMUM 10-20-20 FERTILIZER PER ACRE OR USE THE AMOUNT OF FERTILIZER AND LIME RECOMMENDED BY A CERTIFIED SOIL TEST.
3. APPLICATION: FOR BEST RESULTS AND MAXIMUM BENEFITS, THE LIME AND FERTILIZER ARE TO BE APPLIED AT THE TIME OF SEEDBED PREPARATION.

PLANNERS SHOULD TAKE INTO CONSIDERATION THE SPECIES MAKEUP OF THE EXISTING PASTURE AND THE LANDOWNER'S FUTURE PASTURE MANAGEMENT PLANS WHEN RECOMMENDING SEED MIXTURES. SELECTION: FROM TABLES IV 4a AND b. PERMANENT SEEDING MIXTURES SHALL BE SUITABLE FOR ESTABLISHMENT IN WEST VIRGINIA.

1. ALL LEGUMES MUST BE PLANTED WITH THE PROPER INOCULANT PRIOR TO SEEDING
2. 'LATHCO' FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK
3. ONLY ENDOPHYTE FREE VARIETIES OF TALL FESCUE SHOULD BE USED. TALL FESCUE AND CROWN VETCH ARE ALSO A VERY INVASIVE SPECIES NON-NATIVE TO WEST VIRGINIA.
4. FOR UNPREPARED SEEDBEDS OR SEEDING OUTSIDE THE OPTIMUM TIMEFRAMES, ADD 50% MORE SEED TO THE SPECIFIED RATE.

MIXTURES IN TABLE 4b ARE MORE WILDLIFE AND FARM-FRIENDLY; THOSE LISTED IN BOLD ARE SUITABLE FOR USE IN SHADED WOODLAND SETTINGS. MIXTURES IN ITALIC ARE SUITABLE FOR USE IN FILTER STRIPS.

CONSIDER THE USE OF NATIVE PLANTS OR LOCALLY ADAPTED PLANTS WHEN SELECTING COVER TYPES AND SPECIES FOR WILDLIFE HABITAT. WILDLIFE FRIENDLY SPECIES OR MIXES THAT HAVE MULTIPLE VALUES SHOULD BE CONSIDERED. SEE WILDLIFE FRIENDLY SPECIES/MIXTURES IN TABLE IV-4b. CONSIDER SELECTING NO OR LOW MAINTENANCE LONG-LIVED PLANTS ADAPTABLE TO SITES WHICH MAY BE DIFFICULT TO MAINTAIN WITH EQUIPMENT.

THE APPLICATION OF STRAW, HAY, OR OTHER SUITABLE MATERIALS TO THE SOIL SURFACE TO PREVENT EROSION. STRAW MADE FROM WHEAT OR OATS IS THE PREFERRED MULCH, THE USE OF HAY IS PERMISSIBLE, BUT NOT ENCOURAGED DUE TO THE RISK OF SPREADING INVASIVE SPECIES. MULCH MUST BE APPLIED TO ALL TEMPORARY AND PERMANENT SEEDING ON ALL DISTURBED AREA. DEPENDING ON SITE CONDITIONS, IN CRITICAL AREAS SUCH AS WATERWAYS, OR STEEP SLOPES, ADDITIONAL OR SUBSTITUTE SOIL PROTECTIVE MEASURES MAY BE USED IF DEEMED NECESSARY. EXAMPLES INCLUDE JUTE MESH AND SOIL STABILIZATION BLANKETS OR EROSION CONTROL MATTING.

AREAS THAT HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHOULD BE MULCHED IMMEDIATELY FOLLOWING SEEDING. MULCHES CONSERVE DESIRABLE SOIL PROPERTIES, REDUCE SOIL MOISTURE LOSS, PREVENT CRUSTING AND SEALING OF THE SOIL SURFACE AND PROVIDE A SUITABLE MICROCLIMATE FOR SEED GERMINATION.

AREAS THAT CANNOT BE SEEDED BECAUSE OF THE SEASON SHOULD BE MULCHED TO PROVIDE SOME PROTECTION TO THE SOIL SURFACE. AN ORGANIC MULCH, STRAW OR HAY, SHOULD BE USED AND THE AREA THEN SEEDED AS SOON AS WEATHER OR SEASONAL CONDITIONS PERMIT. DO NOT USE FIBER MULCH (CELLULOSE-HYDROSEED) ALONE FOR THIS PRACTICE; AT NORMAL APPLICATION RATES IT WILL NOT GIVE THE SOIL PROTECTION OF OTHER TYPES OF MULCH.

WOOD CELLULOSE FIBER MULCH, IS USED IN HYDROSEEDING APPLICATIONS AND APPLIED AS PART OF THE SLURRY. IT CREATES THE BEST SEED-SOIL CONTACT WHEN APPLIED OVER TOP OF (AS A SEPARATE OPERATION) NEWLY SEEDED AREAS. FIBER MULCH DOES NOT ALONG PROVIDE SUFFICIENT PROTECTION ON HIGHLY ERODIBLE SOILS, OR DURING LESS THAN FAVORABLE GROWING CONDITIONS. FIBER MULCH SHOULD NOT BE USED ALONE DURING THE DRY SUMMER MONTHS OR WHEN USED FOR LATE FALL MULCH COVER. USE STRAW MULCH DURING THESE PERIODS, AND FIBER MULCH MAY BE USED TO TACK (ANCHOR) THE STRAW MULCH. FIBER MULCH IS WELL SUITED FOR STEEP SLOPES, CRITICAL AREAS, AND AREAS SUSCEPTIBLE TO WIND.

A WIDE RANGE OF SYNTHETIC, SPRAY-ON MATERIALS IS MARKETED TO STABILIZE AND PROTECT THE SOIL SURFACE. THESE ARE MIXED WITH WATER AND SPRAYED OVER THE MULCH AND THE SOIL. THEY MAY BE USED ALONE IN SOME CASES AS TEMPORARY STABILIZERS, OR IN CONJUNCTION WITH FIBER MULCH, STRAW OR HAY.

FROM TABLE IV-6 SELECT THE TYPE OF MULCH AND THE RATE OF APPLICATION THAT WILL BEST SUIT THE CONDITIONS AT THE SITE

DEPENDING ON THE FIELD SITUATION, MULCH MAY NOT STAY IN PLACE BECAUSE OF WIND ACTION OR RAPID WATER RUNOFF. IN SUCH CASES, MULCH IS TO BE ANCHORED MECHANICALLY OR WITH MULCH NETTING.

PULL THE DISK STRAIGHT AND PULL ACROSS THE SLOPE. MULCH MATERIAL SHOULD BE TUCKED INTO THE SOIL ABOUT THREE INCHES.

FOLLOW MANUFACTURER'S RECOMMENDATIONS WHEN POSITIONING AND STAPLING THE MULCH NETTING IN THE SOIL.

pH of Soil	Lime in Tons per Acre	Fertilzier, Lbs Per Acre 10-20-20 or Equivalent
Above 6.0	2.00	500.00
5.0 to 6.0	3.00	500.00
Below 5.0	4.00	500.00

Material	Minimum Rates per Acre	Coverage	Remarks
Hay or Straw	2 to 3 Tons	Cover 75% to	Subject to Wind blowing
	100 to 150 Bales	90% of Surface	or washing unless tied down
Wood Fiber		Cover all	For Hydros seeding
Pulp Fiber	1,000 to 1,500 lbs	Disturbed Areas	03/14/2025
Wood-Cellulose			
Recirculated Paper			

Exhibit A: As-Built Modification

Species/Mixture	Seeding Rate (lbs/ac)	Soil Drainage Preference	pH Range
Crownvetch/	10 - 15	Well - Mod. Well	5.0 - 7.5
Tall Fescue	30		
Crownvetch/	10 - 15	Well - Mod. Well	5.0 - 7.5
Perennial Ryegrass	20		
Flatpea or Perennial Pea/	20	Well - Mod. Well	4.0 - 8.0
Tall Fescue	15		
Ladino Clover/	30	Well - Mod. Well	4.5 - 7.5
Serecia Lespedeza/	25		
Tall Fescue	2		
Tall Fescue/	40	Well - Mod. Well	5.0 - 7.5
Ladino Clover/	3		
Redtop	3		
Crownvetch/	10	Well - Mod. Well	5.0 - 7.5
Tall Fescue/	20		
Redtop	3		
Tall Fescue/	40	Well - Mod. Well	5.0 - 7.5
Birdsfoot Trefoil/	10		
Redtop	3		
Sericea Lespedeza/	25	Well - Mod. Well	4.5 - 7.5
Tall Fescue/	30		
Redtop	3		
Redtop/	30	Well - Mod. Well	5.0 - 7.5
Tall Fescue/	3		
Creeping Red	50		
Tall Fescue	50	Well - Poorly	4.5 - 7.5
Perennial Ryegrass/	10	Well - Poorly	5.0 - 8.0
Tall Fescue/	15		
Lathco Flatpea*	20		

Species/Mixture	Seeding Rate (lbs/ac)	Soil Drainage Preference	pH Range
KY Bluegrass/	20.00	Well - Mod. Well	5.5 - 7.5
Redtop/	3.00		
Ladino Clover or Birdsfoot Trefoil	2/10		
Timothy/	5	Well - Mod. Well	6.5 - 8.0
Alfalfa	12		
Timothy/	5	Well - Poorly	5.5 - 7.5
Birdsfoot Trefoil	8		
Orchardgrass/	10	<i>Well - Mod. Well</i>	5.5 - 7.5
Ladino Clover/	2		
Redtop	3		
Orchardgrass/	10	<i>Well - Mod. Well</i>	5.5 - 7.5
Ladino Clover	2		
Orchardgrass/	20	<i>Well - Mod. Well</i>	5.5 - 7.5
Perennial Ryegrass	10		
Creeping Red Fescue/	30	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass	10		
Orchardgrass or KY Bluegrass	20	Well - Mod. Well	6.0 - 7.5
Birdsfoot Trefoil/	10	Well - Mod. Well	5.5 - 7.5
Redtop/	5		
Orchardgrass	20		
Lathco Flat Pea/	30	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass	20		
Lathco Flat Pea/	30	Well - Mod	5.5 - 7.5
Orchardgrass	20		

Mixtures listed in bold are suitable for use in shaded woodland settings; those in italics are suitable for use in filter strips

*Lathco Flatpea is potentially poisonous to some livestock. All legumes should be planted with proper inoculants prior to seeding. For unprepared seedbeds or seeding outside the optimum timeframes, add 50% more seed to the specified rate



Kelly Surveying
P.O. Box 254
Dailey, WV 26259
(304) 338-6985

Greemans Creek District
Lewis County, WV

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Sheet N4 of N4



1221 Well Site Fink Creek Access
HG Energy LLC
Exhibit A: As-Built Modification



Revision
Design

Date
02-04-2025

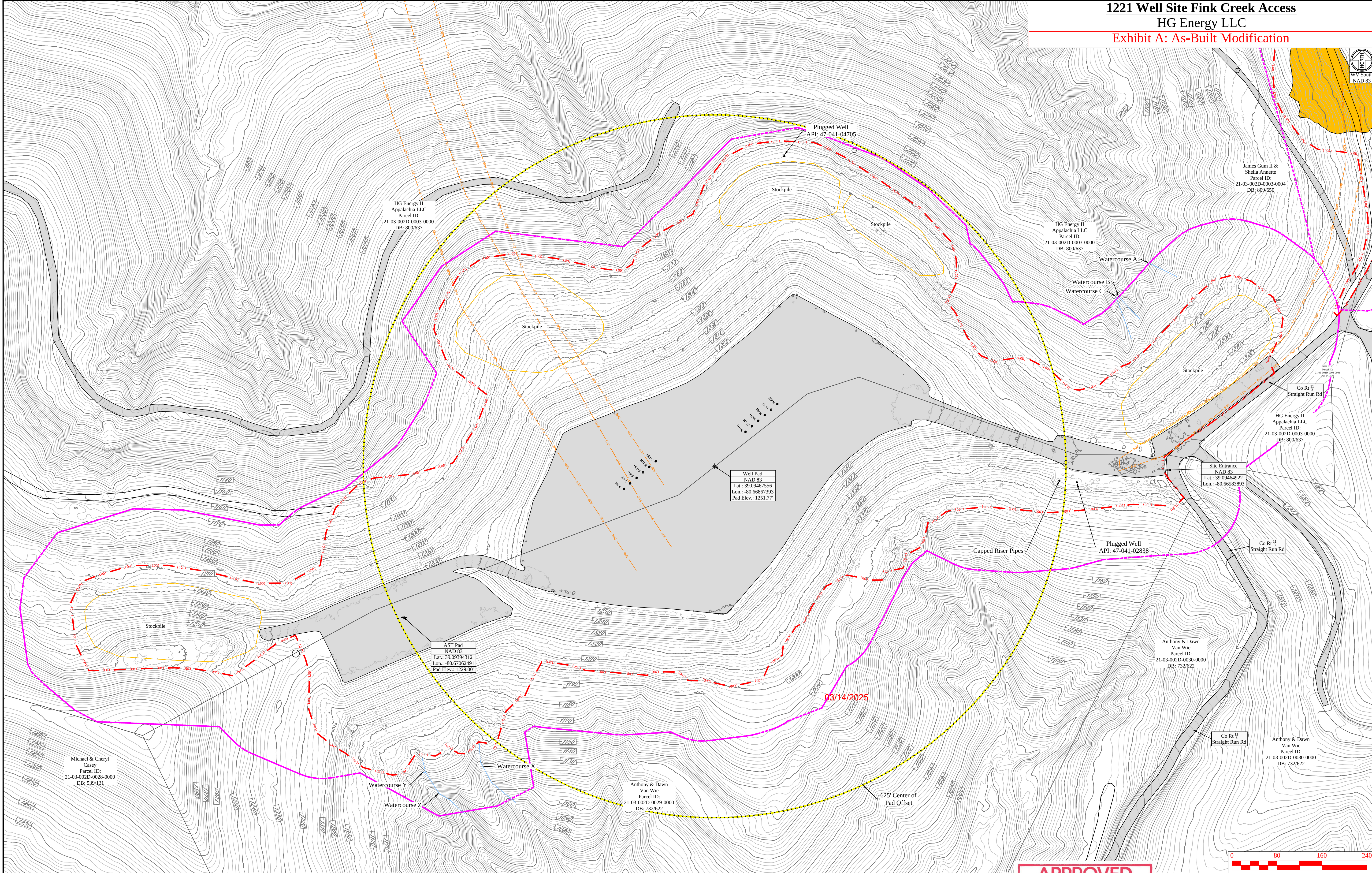


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Pre-Construction Site Conditions
1221 Well Site
Freemans Creek District
Lewis County, WV

Date: 02/04/2025
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Sheet 2 of 32



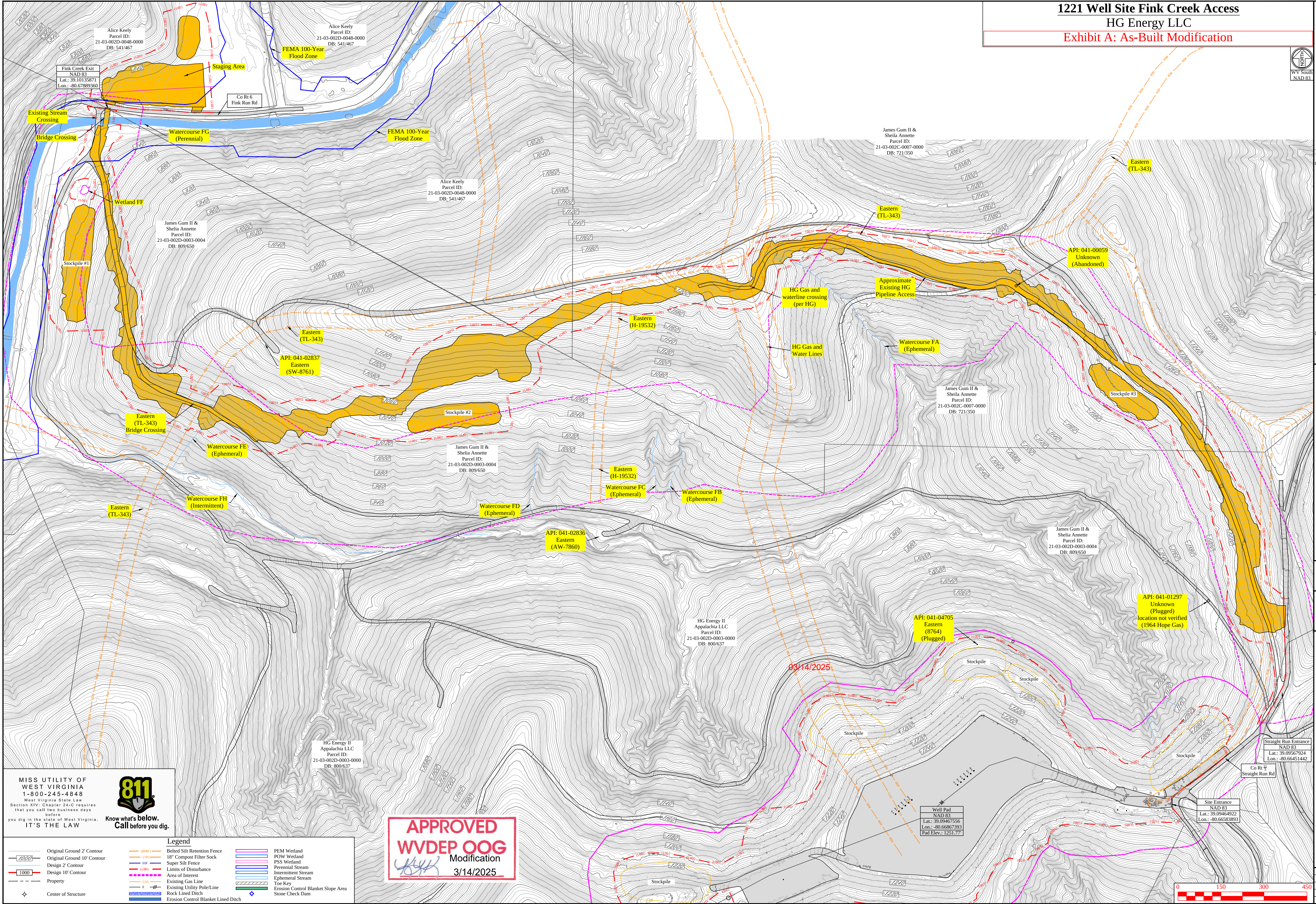
Legend

	Original Ground 2' Contour		Belted Silt Retention Fence		PEM Wetland
	Original Ground 10' Contour		18' Composite Filter Sock		PDW Wetland
	Design 2' Contour		Super Silt Fence		PSS Wetland
	Design 10' Contour		Limits of Disturbance		Perennial Stream
	Property		Area of Interest		Intermittent Stream
	Center of Structure		Existing Gas Line		Ephemeral Stream
			Existing Utility Pole/Line		Toe Key
			Rock Lined Ditch		Erosion Control Blanket Slope Area
			Erosion Control Blanket Lined Ditch		Stone Check Dam

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MISS UTILITY OF
WEST VIRGINIA
1-800-245-4848
West Virginia State Law
Section XIV, Chapter 24-C requires
that you call two business days
before
you dig in the state of West Virginia.
IT'S THE LAW





1221 Well Site Fink Creek Access
HG Energy LLC
Exhibit A: As-Built Modification



Revision	Design
Date	02-04-2025
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Kelly Surveying 18700 254 Beltway, WV 26039 304-538-0965	
Pre-Construction Site Conditions - Bypass Access Road	
1221 Well Site Freemans Creek District Lewis County, WV	
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1221 Well Site Fink Creek Access
HG Energy LLC
Exhibit A: As-Built Modification



Legend

- Center of Structure
- Property Line
- Limits of Disturbance
- Area of Interest

Soil Key

Cu	Chargin silt loam, 0 to 3 percent slopes, occasionally flooded
GuD	Gilpin-Upshur silt loams, 15 to 25 percent slopes
GuE	Gilpin-Upshur silt loams, 25 to 35 percent slopes
GwF3	Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded
Ha	Hackers silt loam, 0 to 3 percent slopes, rarely flooded
Su	Sensibough silt loam, 0 to 3 percent slopes, occasionally flooded
VaD	Vandalia silt loam, 15 to 25 percent slopes
VaE	Vandalia silt loam, 25 to 35 percent slopes

Watercourse

- PEM Wetland
- POW Wetland
- PSS Wetland
- Perennial Stream
- Intermittent Stream
- Ephemeral Stream

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Section XIV, Chapter 24-C requires
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Know what's below.
Call before you dig.

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Delmar, WV 26039
(304) 338-0965

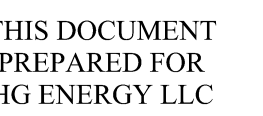
Site Soil Map
1221 Well Site
Freemans Creek District
Lewis County, WV

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Sheet 4 of 32

Exhibit A: As-Built Modification



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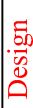


Freemalls Creek District
Lewis County, WV

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Exhibit A: As-Built Modification



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1221 Well Site
Freemans Creek District
Lewis County, WV

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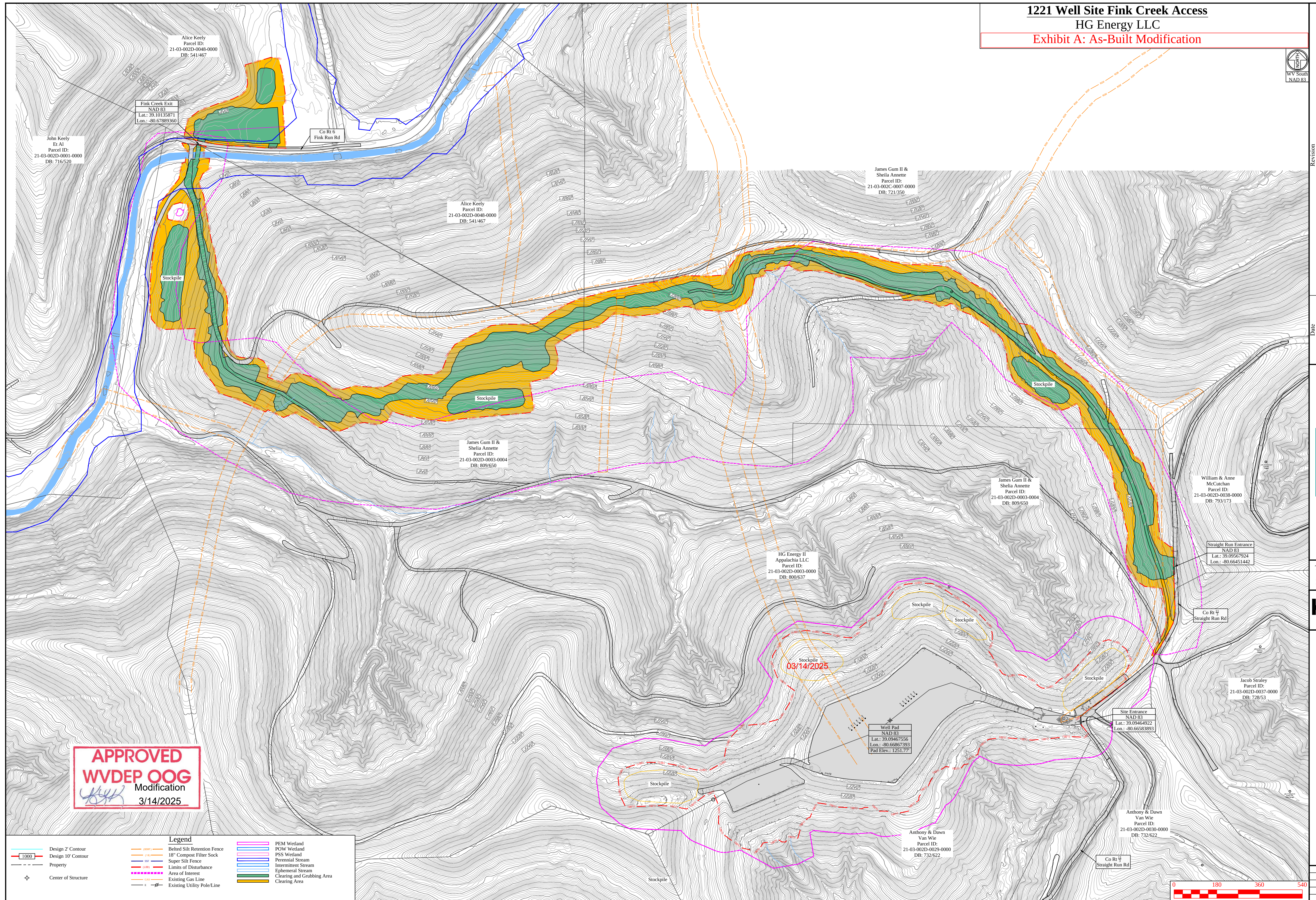


Exhibit A: As-Built Modification

The contractor shall not deviate from the above listed construction sequence without the written consent of the design engineer. The contractor must provide a written explanation and provide an updated construction sequence when requesting permission to deviate from the construction sequence.

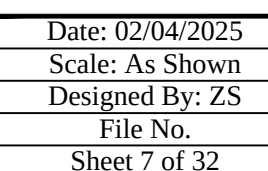


Exhibit A: As-Built Modification



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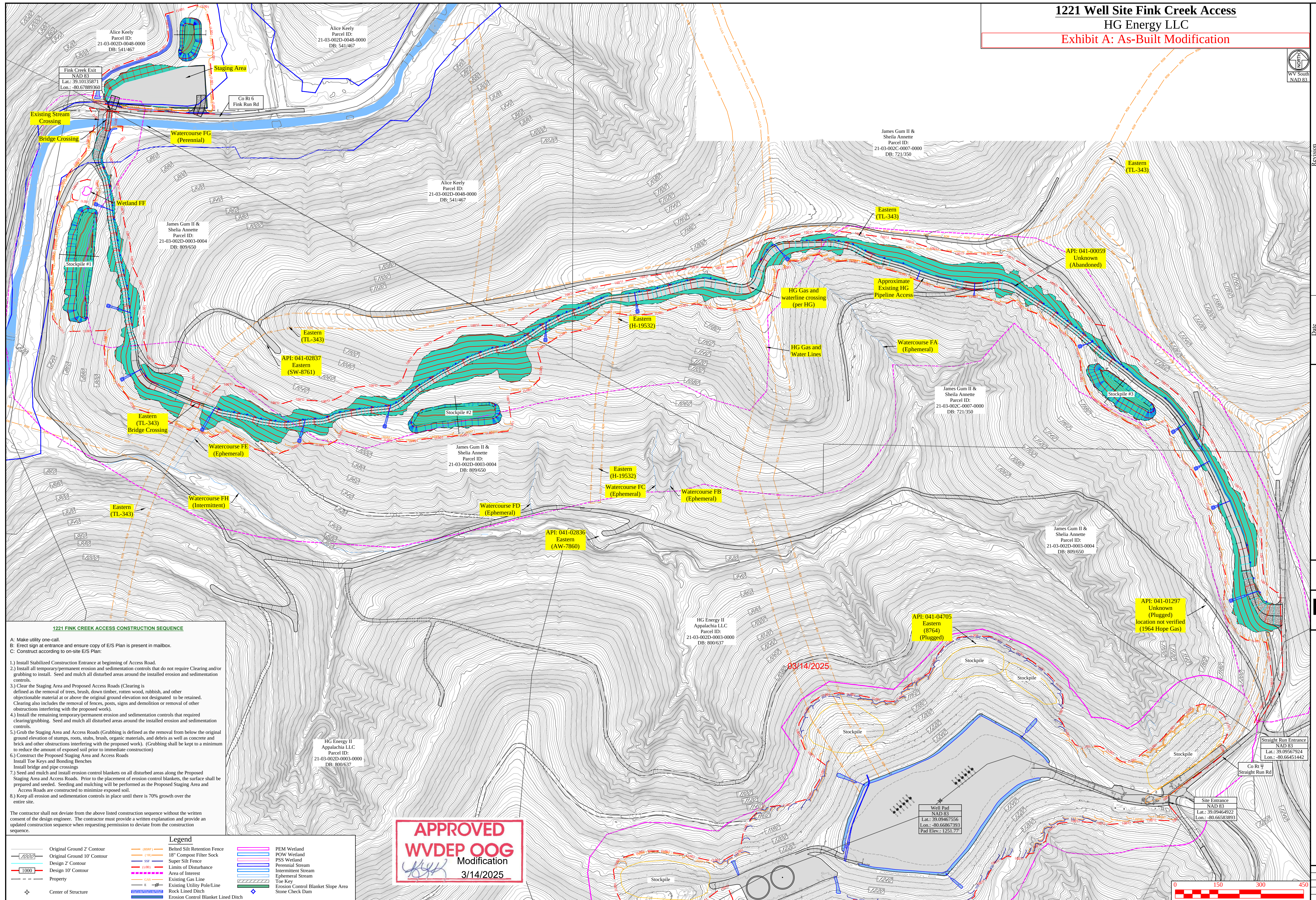
Kelly Surveying
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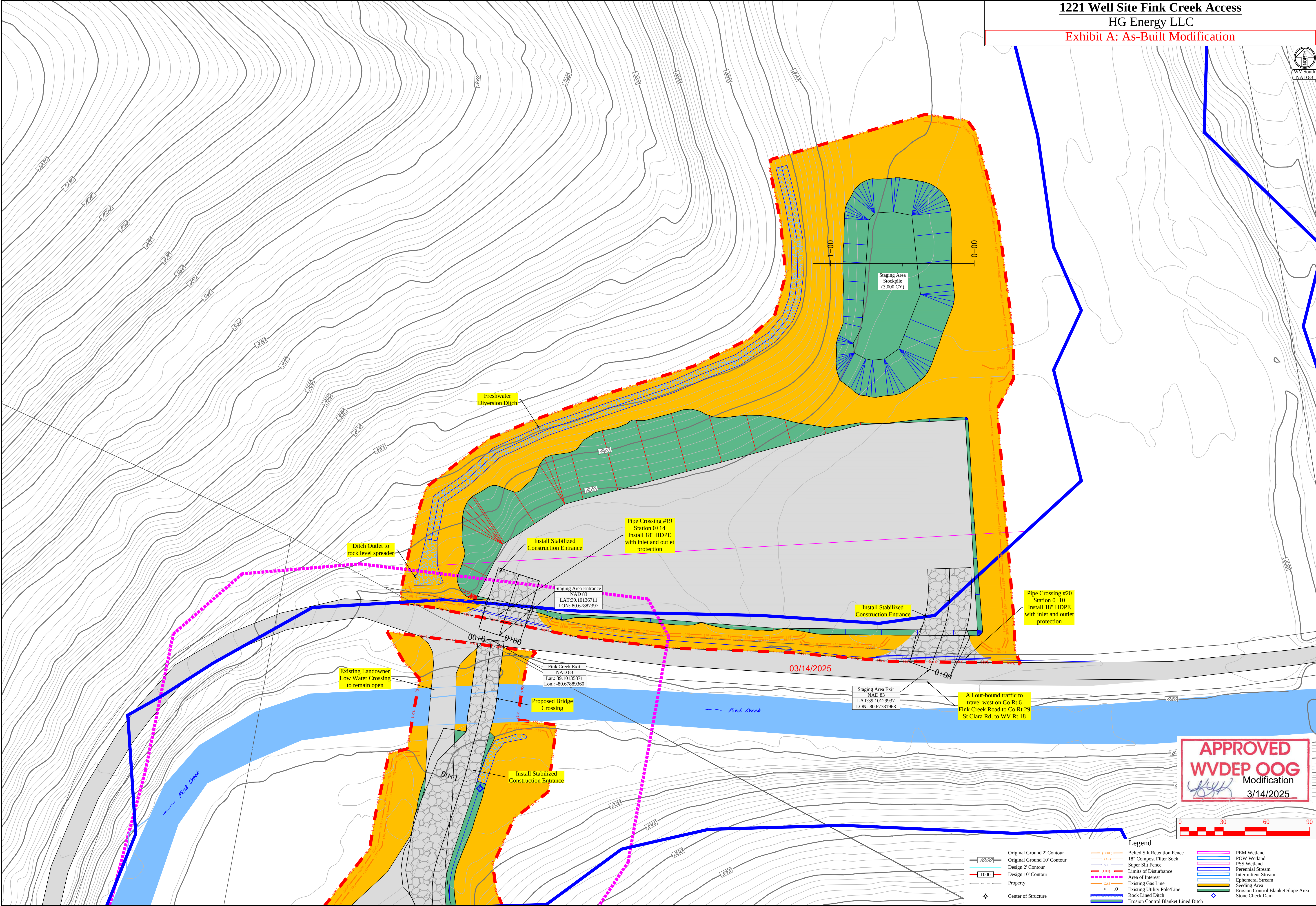
Overall Plan View - Bypass Access Road

1221 Well Site

Freemans Creek District
Lewis County, WV

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Sheet 8 of 32





1221 Well Site Fink Creek Access
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Exhibit A: As-Built Modification



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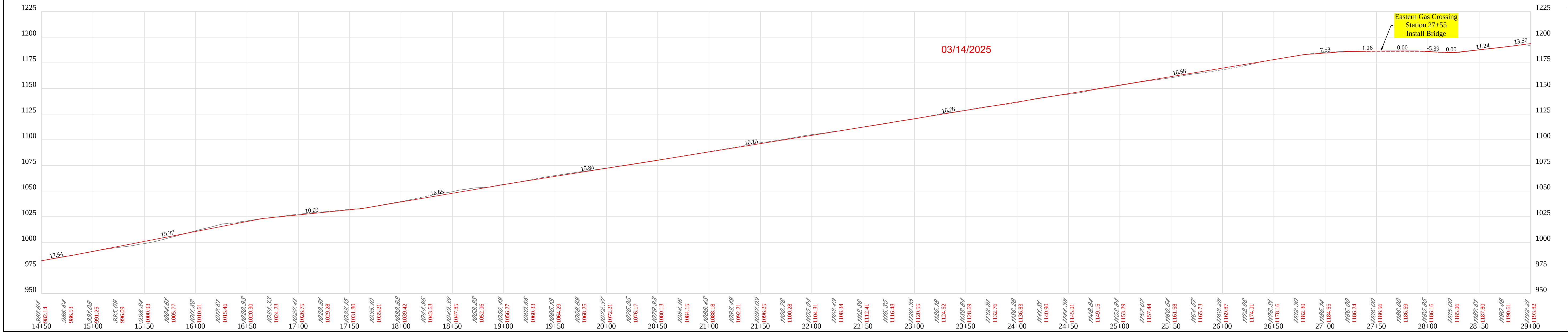
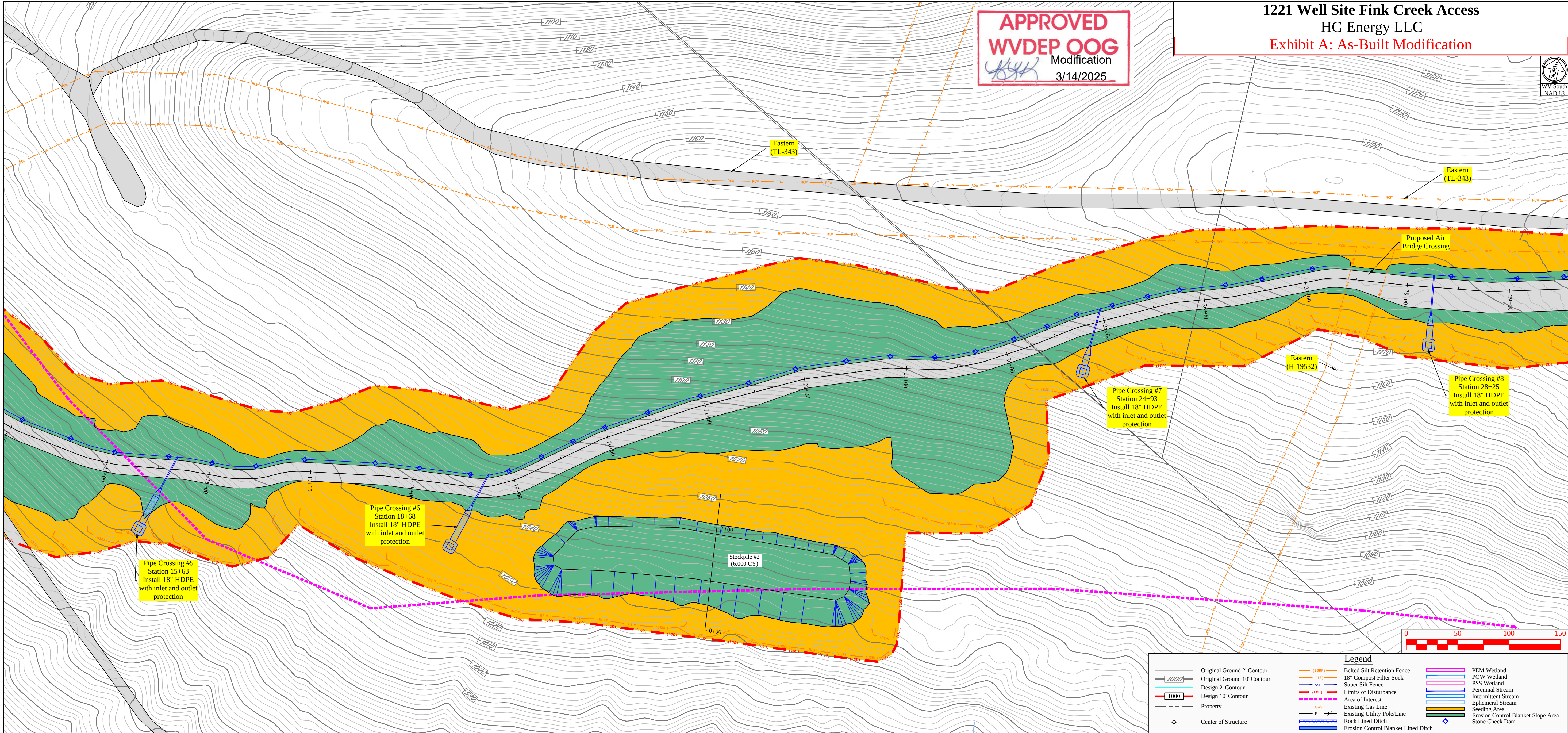
Erosion and Sediment Control Plan
1221 Fink Creek Access
Freemans Creek District
Lewis County, WV

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Legend		
		
		
		
		
		
		
		
		
		

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02-04-2025		

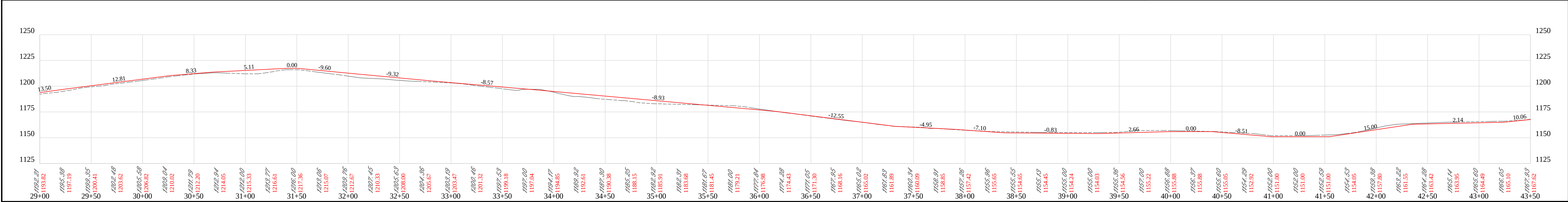
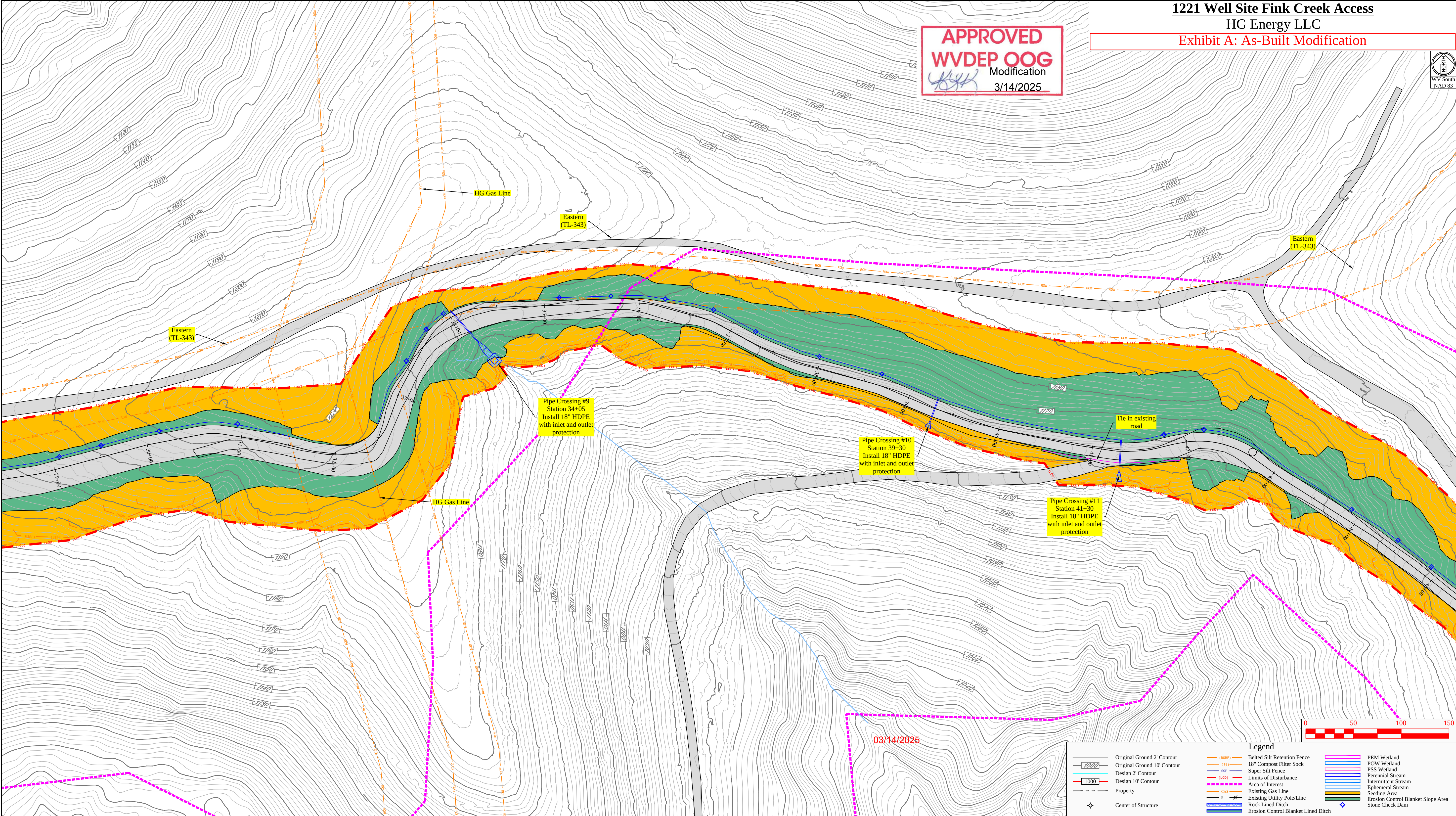
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Erosion and Sediment Control Plan
1221 Fink Creek Access
Freemans Creek District
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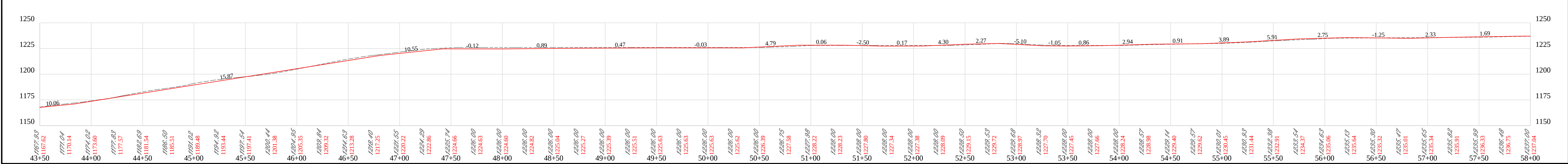
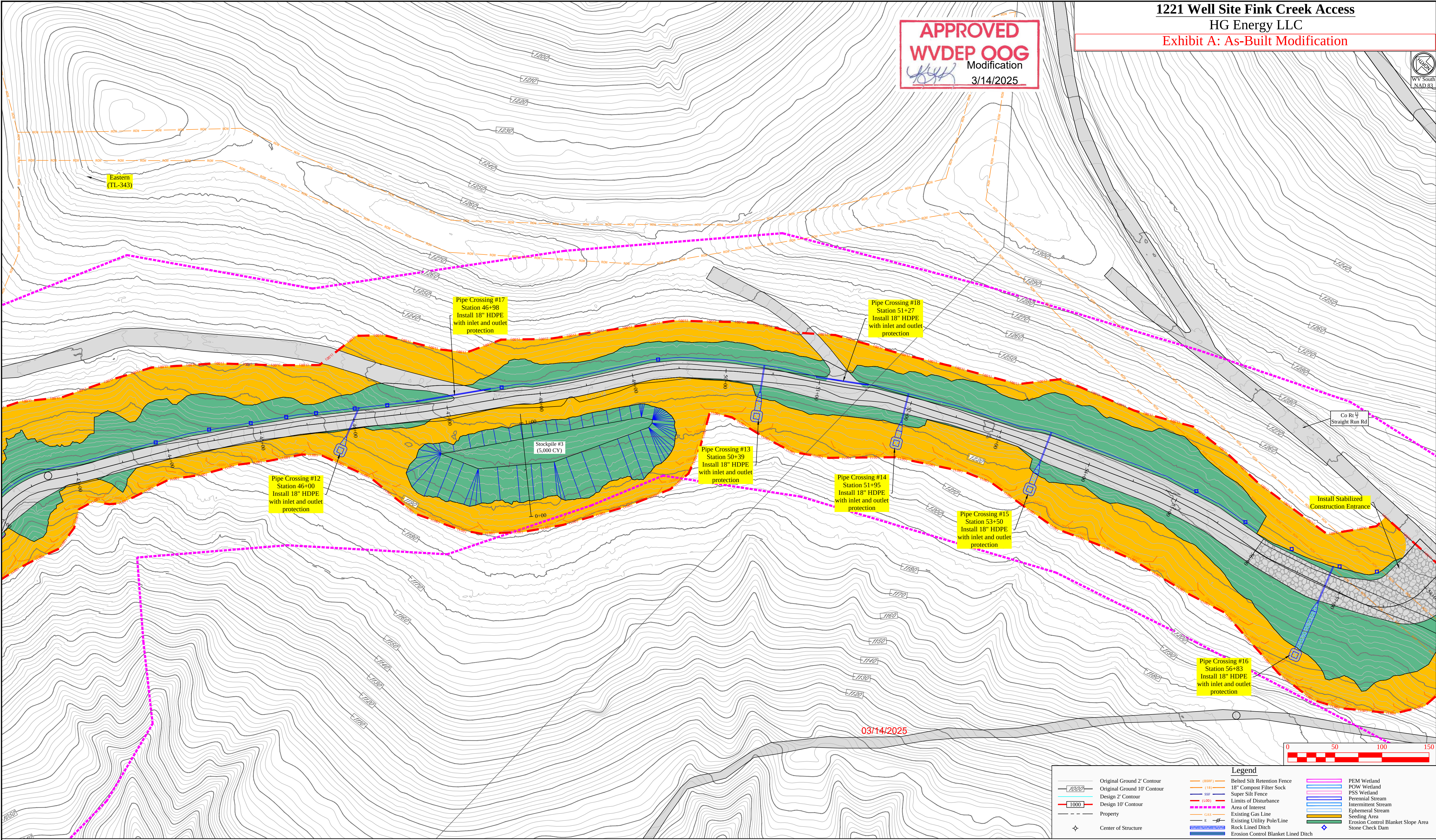


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Kelly S
Surveying
P.O. Box 254
Dunbar, WV 26029
304-338-0965

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Freemans Creek District
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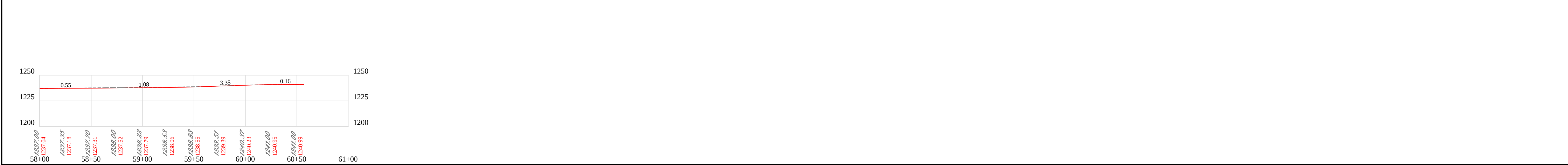
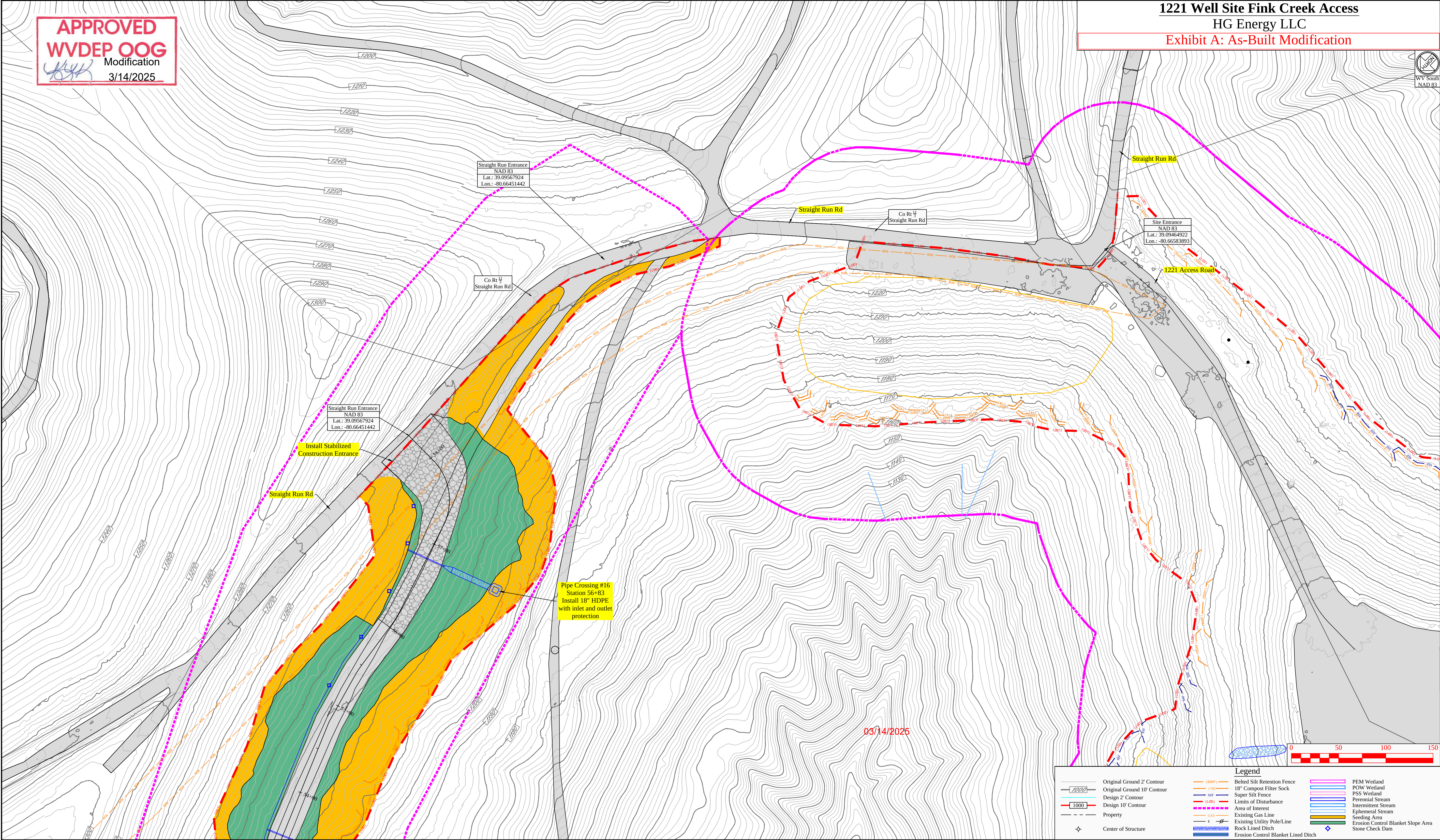
Kelly S Surveying
P.O. Box 254
Dolley, WV 26239
304-338-0965

Erosion and Sediment Control Plan

1221 Fink Creek Access

Freemans Creek District
Lewis County, WV

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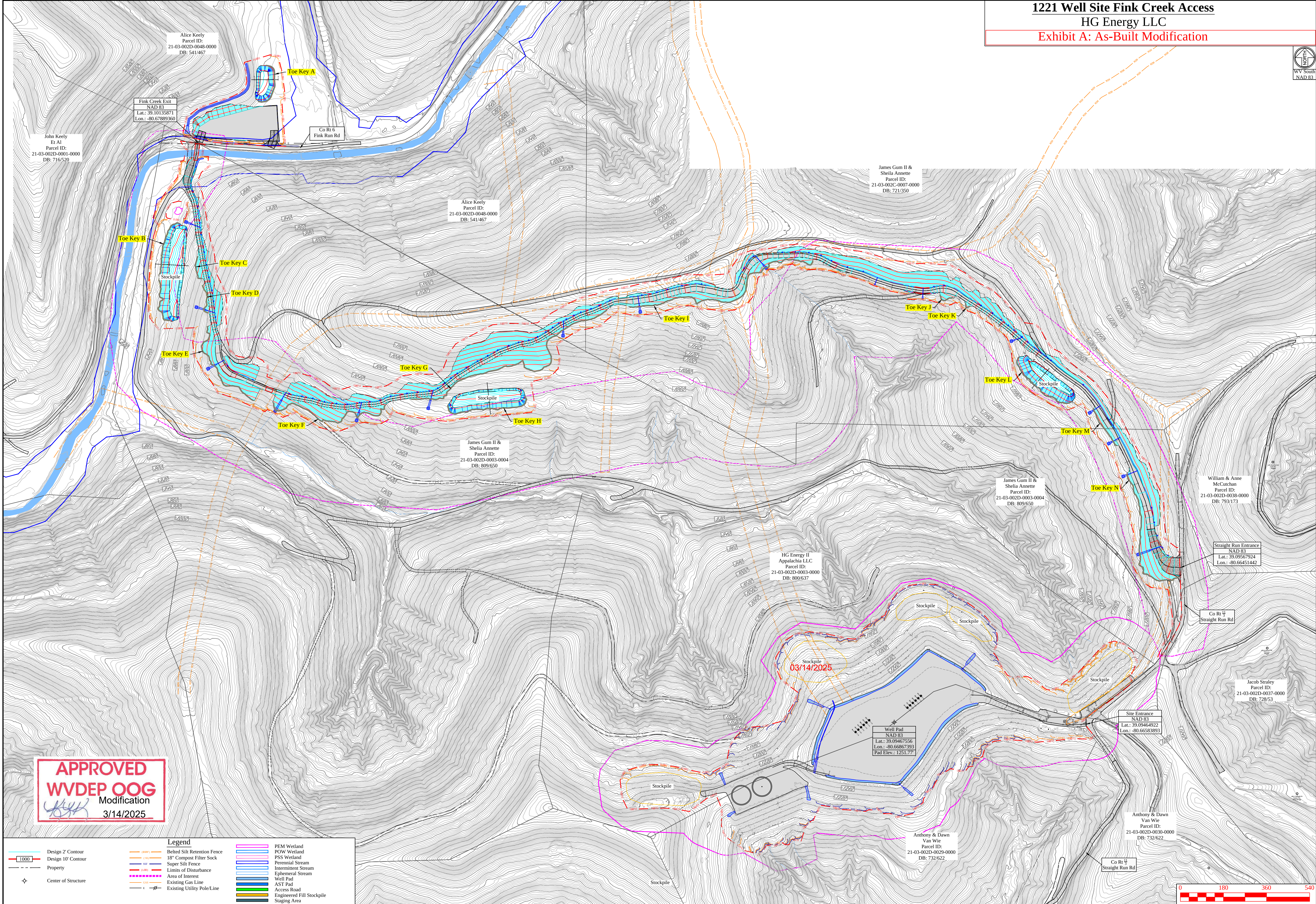
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1221 Well Site Fink Creek Access
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Exhibit A: As-Built Modification



Revision	Design
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Erosion and Sediment Control Plan 1221 Fink Creek Access Freemans Creek District Lewis County, WV	
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1221 Well Site Fink Creek Access
HG Energy LLC
Exhibit A: As-Built Modification



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3/14/2025

Legend

- | | | | |
|---------------------------|----------------------------|-----------------------|---------------------------|
| Design 2' Contour | Design 10' Contour | Property | Center of Structure |
| 18" Composite Filter Sock | Super Silt Fence | Limits of Disturbance | Area of Interest |
| Existing Gas Line | Existing Utility Pole/Line | PEM Wetland | POW Wetland |
| PSS Wetland | Perennial Stream | Intermittent Stream | Ephemeral Stream |
| Well Pad | AST Pad | Access Road | Engineered Fill Stockpile |
| Staging Area | | | |

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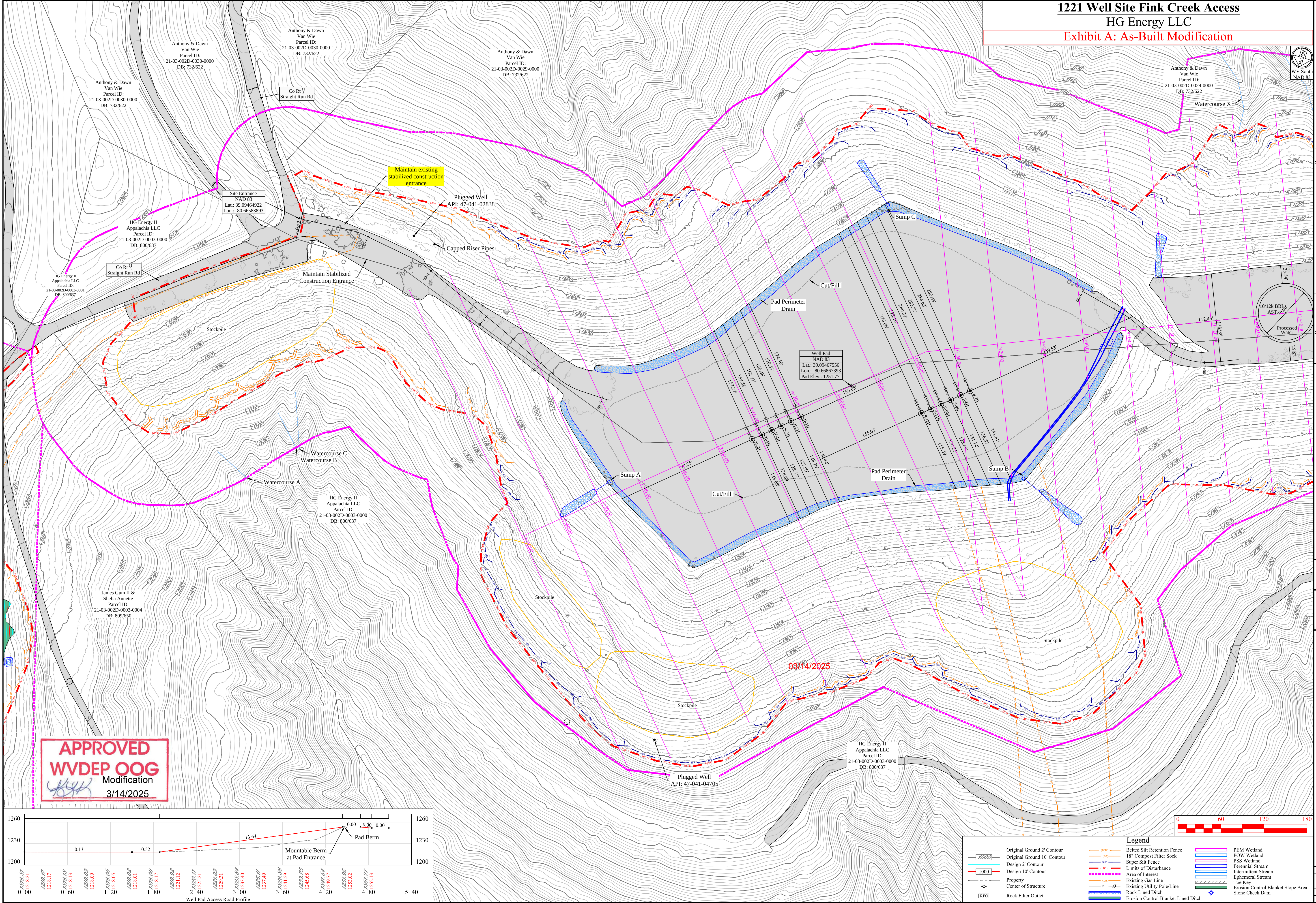
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1221 Well Site
Freemans Creek District
Lewis County, WV

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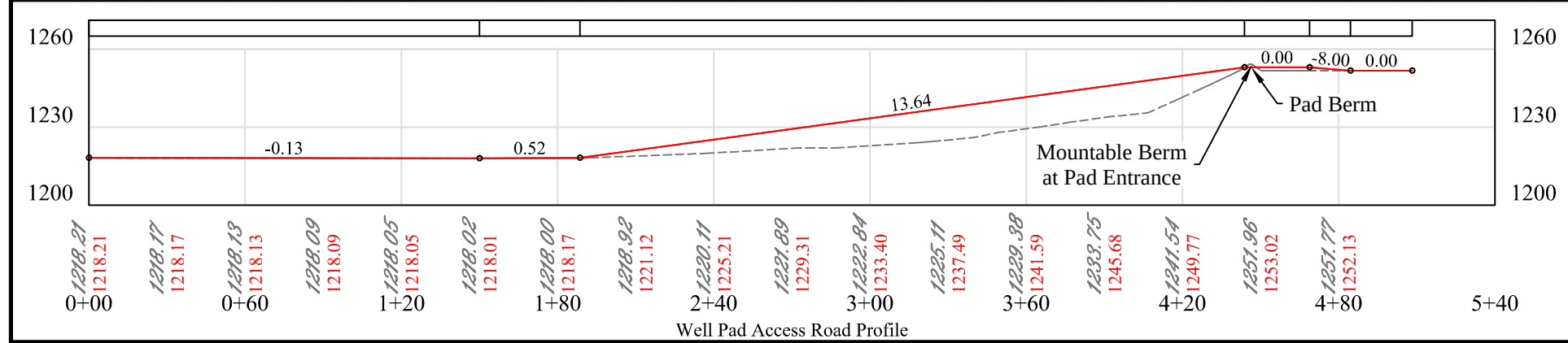
1221 Well Site Fink Creek Access

HG Energy LLC

Exhibit A: As-Built Modification



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Modification
3/14/2025



Legend			
	Original Ground 2' Contour		Design 2' Contour
	Design 10' Contour		Design 10' Contour
	Property		Center of Structure
	Rock Filter Outlet		Rock Lined Ditch
	Belted Silt Retention Fence		18" Compost Filter Sock
	Super Silt Fence		Limits of Disturbance
	Area of Interest		Existing Gas Line
	Existing Utility Pole/Line		Erosion Control Blanket Slope Area
	PEM Wetland		POW Wetland
	PSS Wetland		Perennial Stream
	Intermittent Stream		Ephemeral Stream
	Toe Key		Stone Check Dam

Revision
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02-04-2025

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1000 254
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Site Plan
1221 Well Site
Freemans Creek District
Lewis County, WV

Date: 02/04/2025
Scale: As Shown
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1221 Well Site Fink Creek Access
HG Energy LLC
Exhibit A: As-Built Modification



Revision
Design

Date
02-04-2025

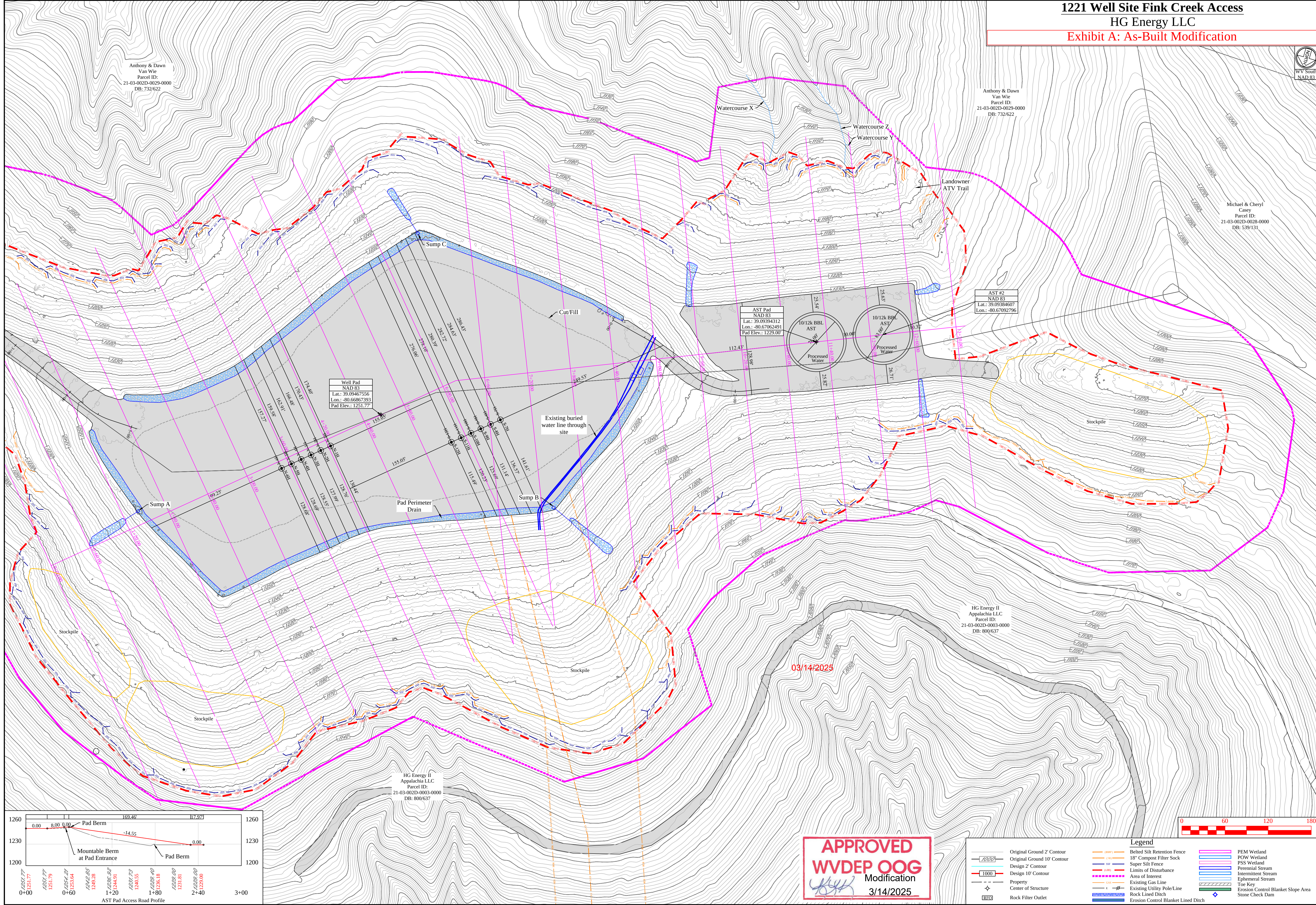


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Site Plan
1221 Well Site
Freemans Creek District
Lewis County, WV

Date: 02/04/2025
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File No.
Sheet 17 of 32

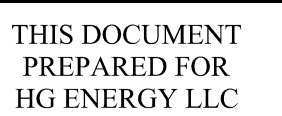


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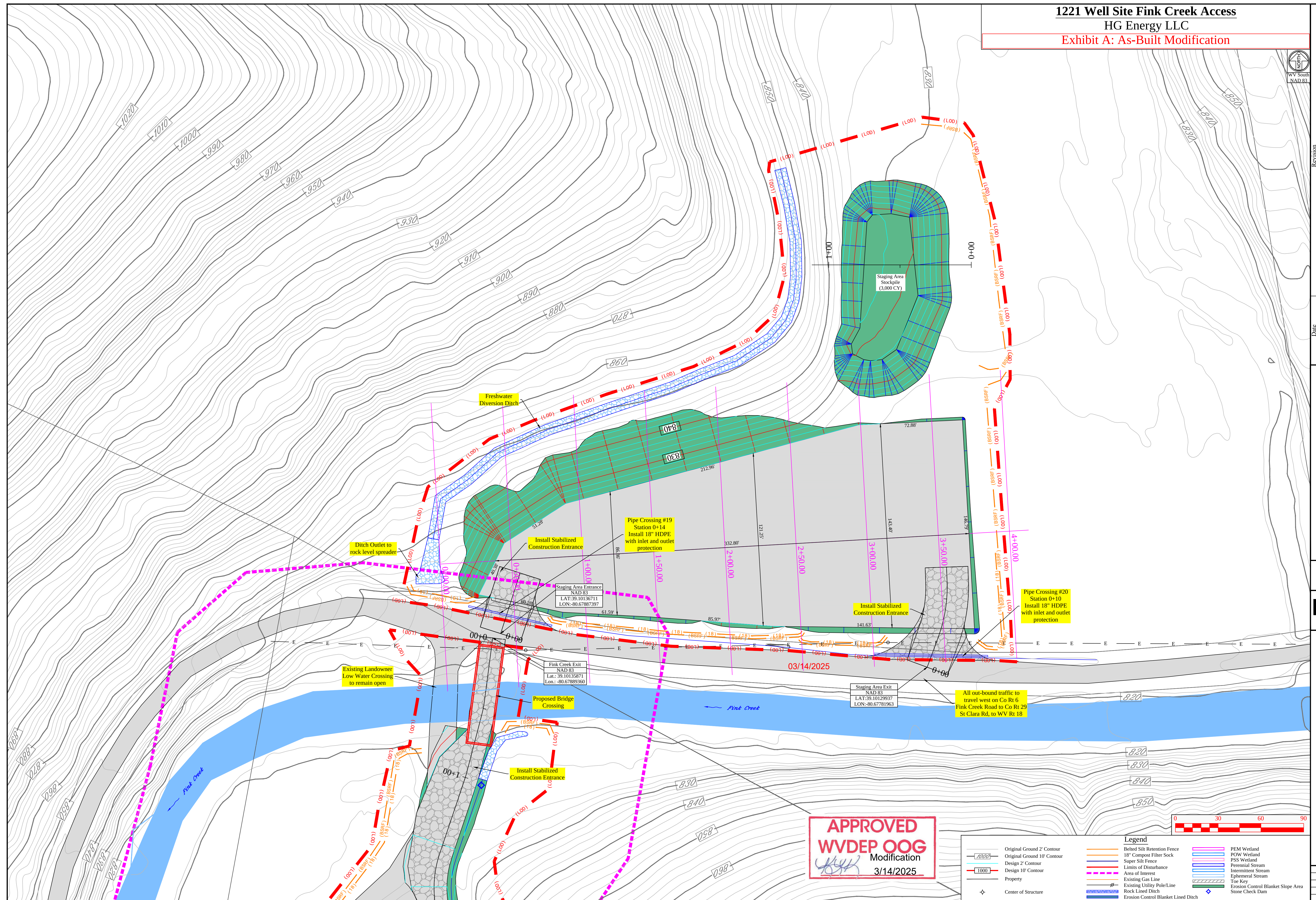


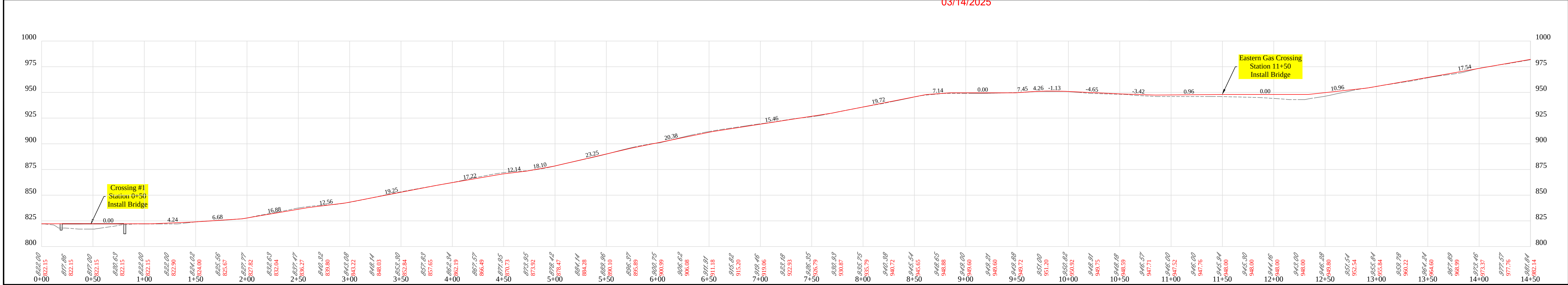
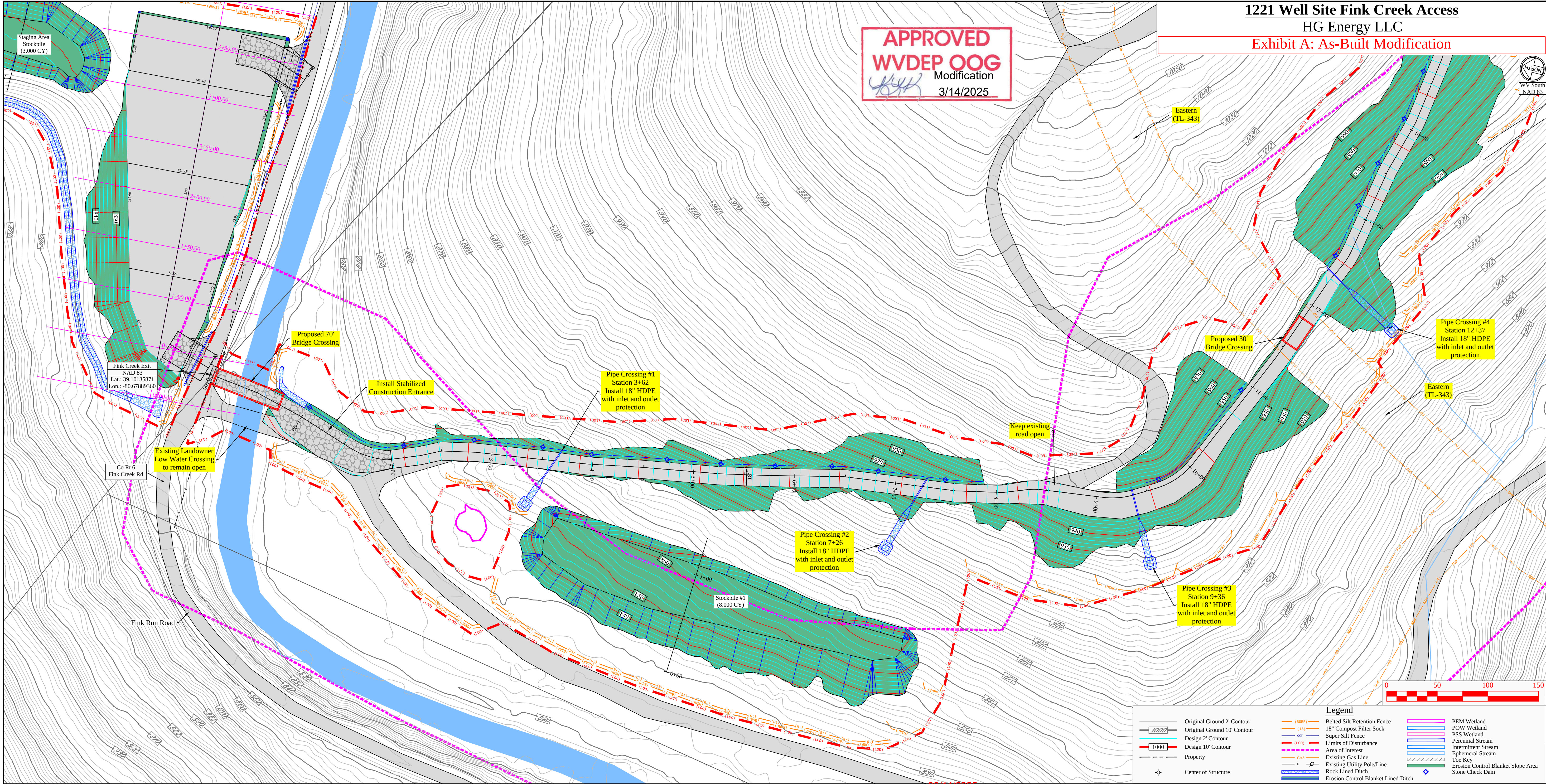
Site Plan - Fink Creek Existing Access

1221 Fink Creek Access

Freemans Creek District
Lewis County, WV

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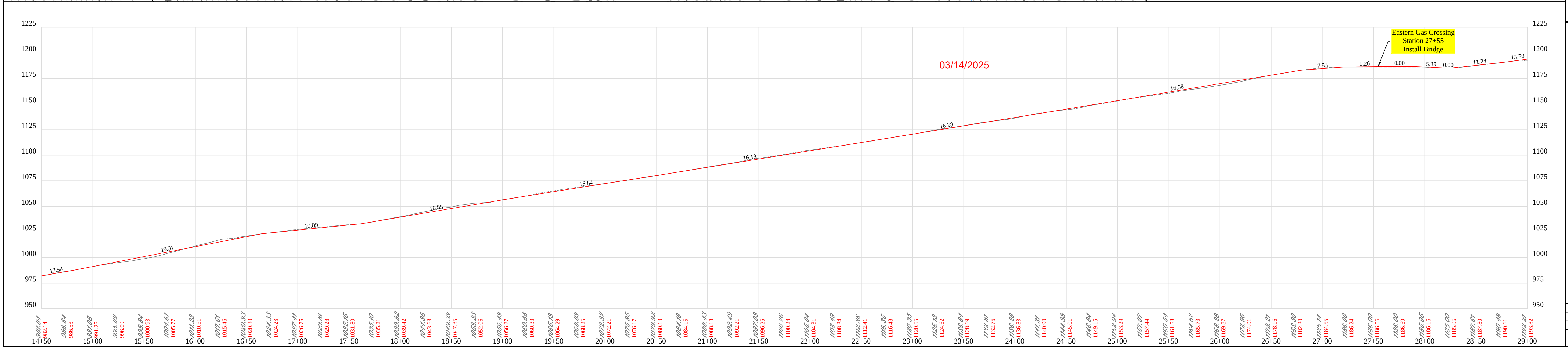
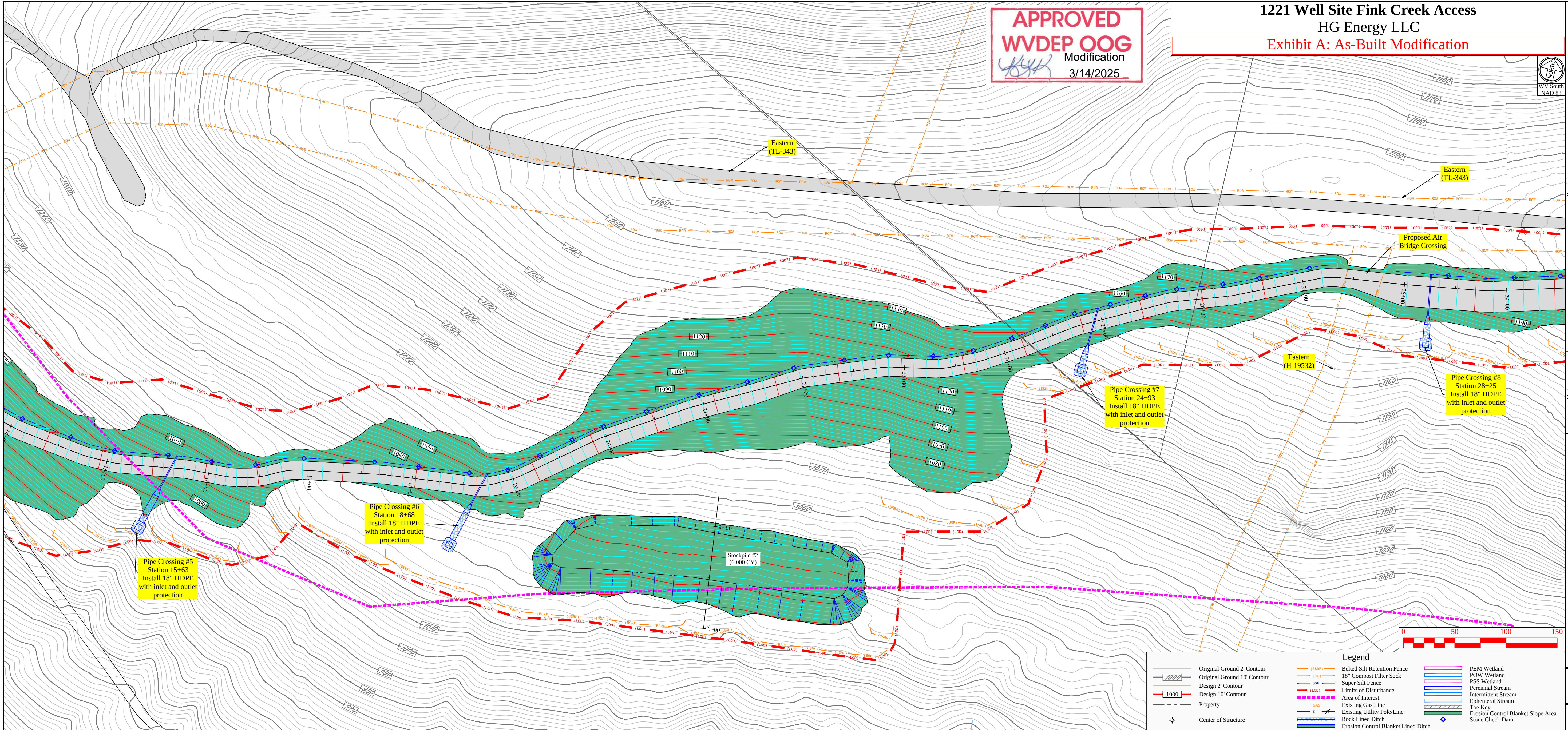
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150 West 25th
Martinsburg, WV 26159
(304) 338-0965

Site Plan - Fink Creek Access Road

1221 Well Site
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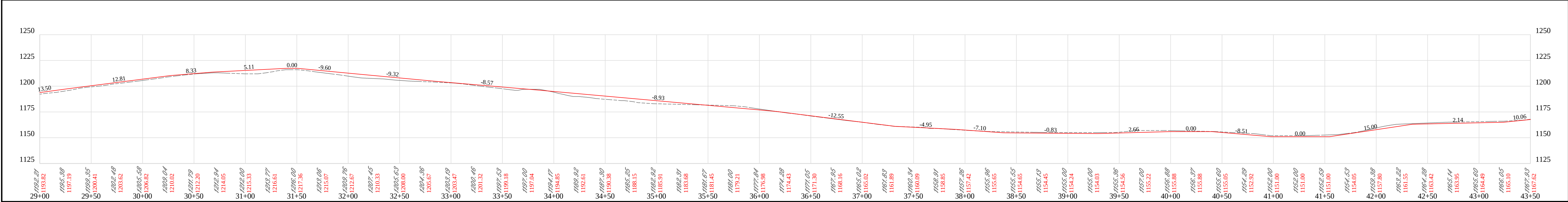
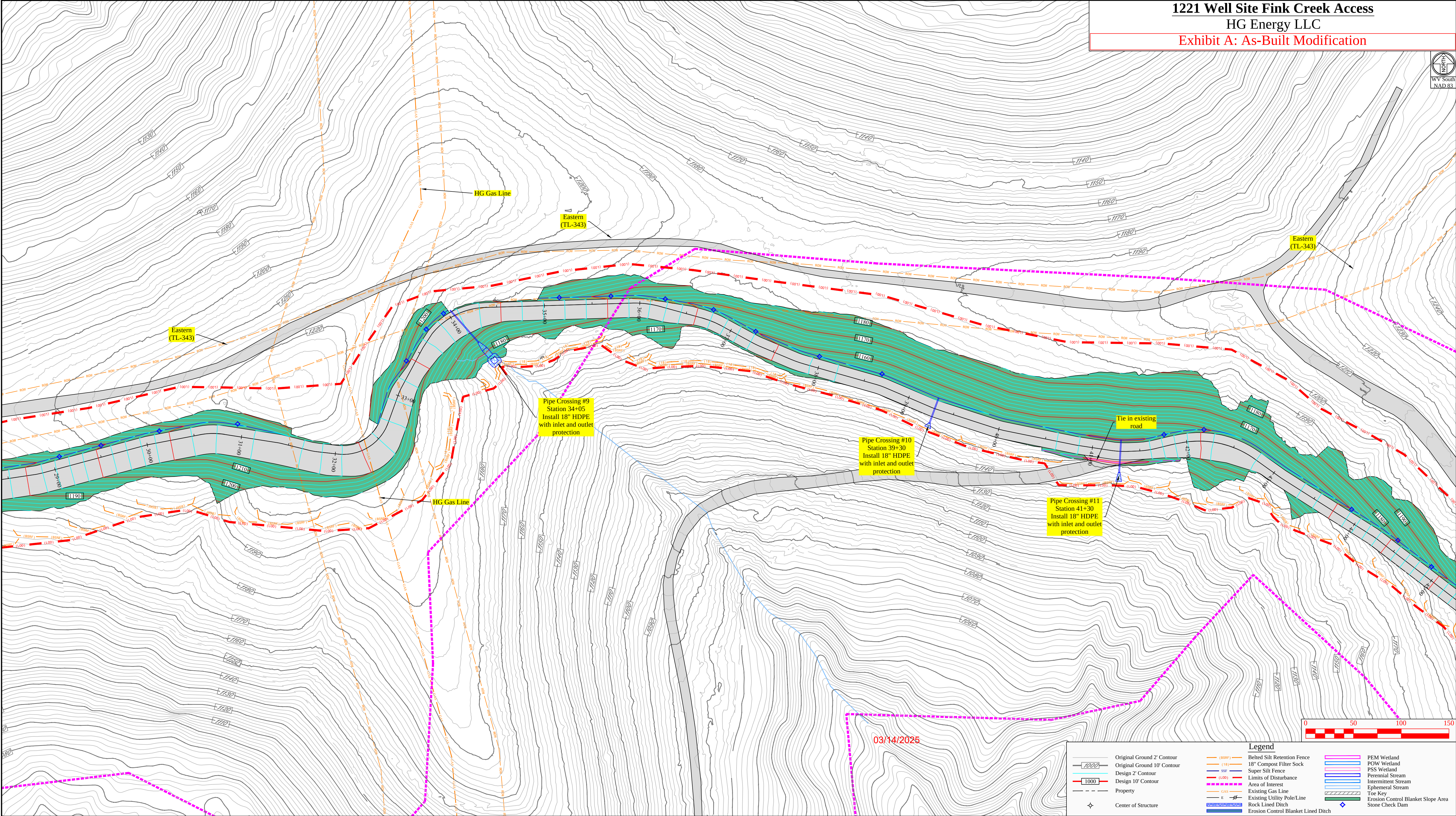
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Site Plan - Fink Creek Access Road

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1221 Well Site Fink Creek Access
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Exhibit A: As-Built Modification



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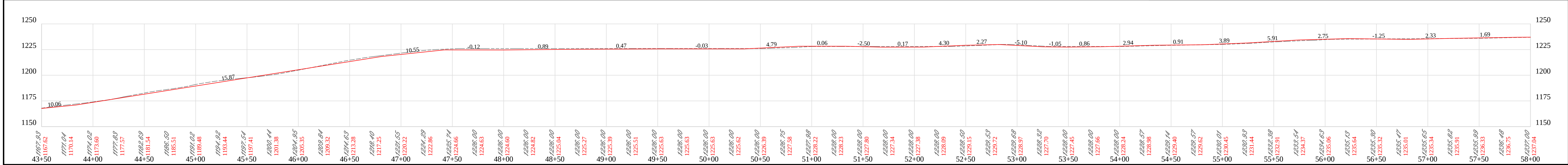
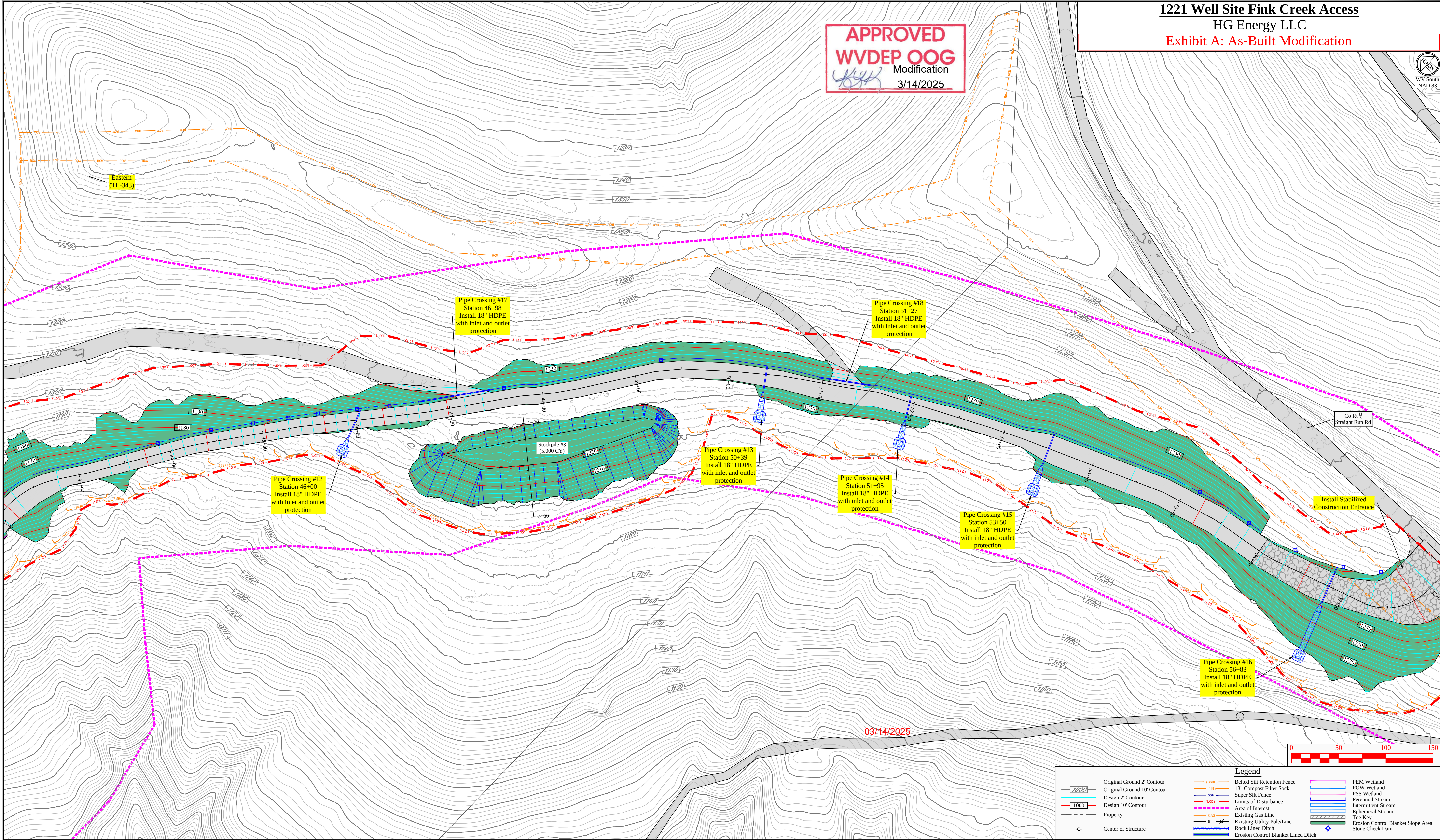
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Site Plan - Fink Creek Access Road

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WV South
NAD83

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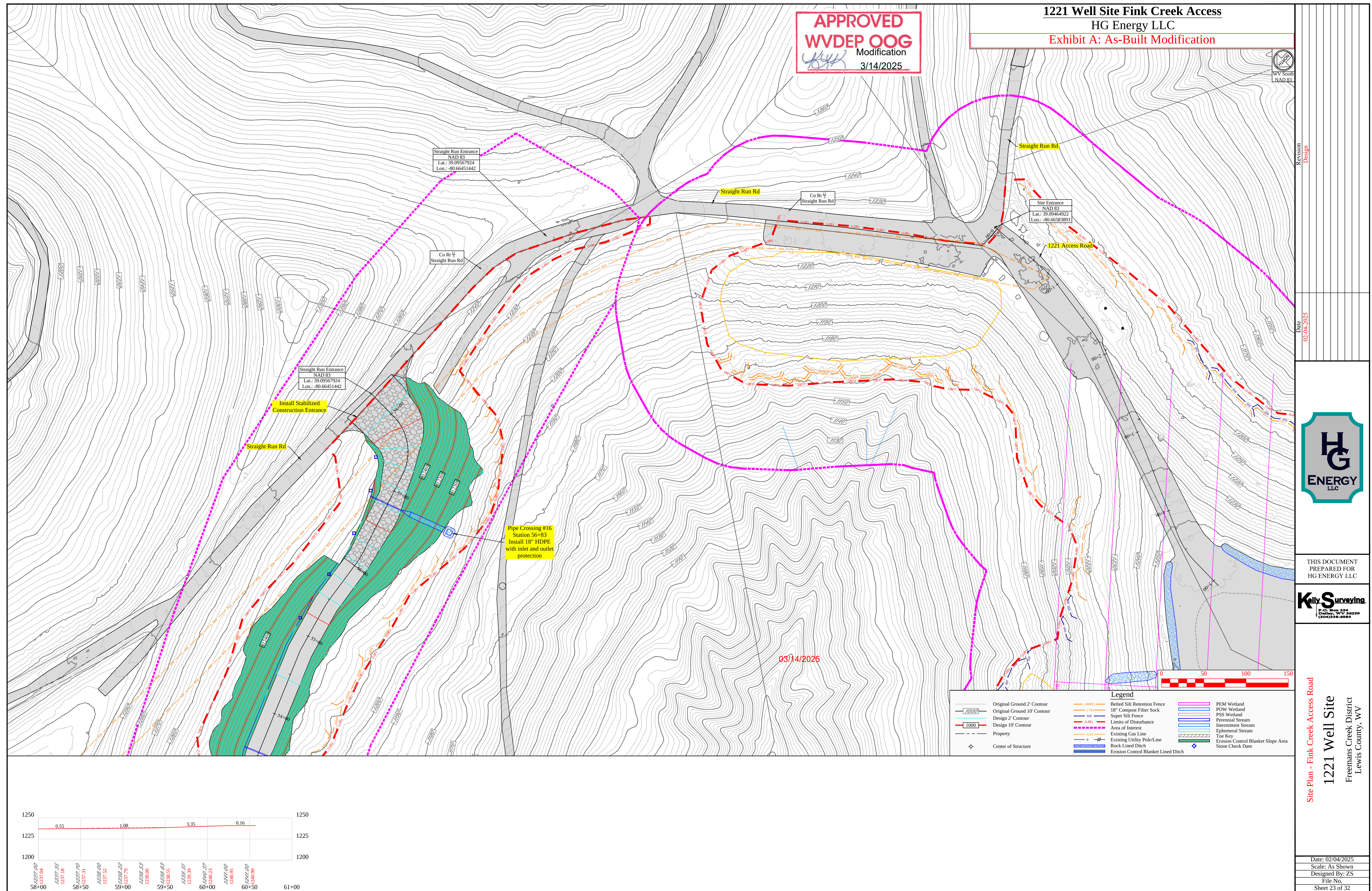
Kelly S
Surveying

1500 254
Dallan, WV 26039
304-338-0965

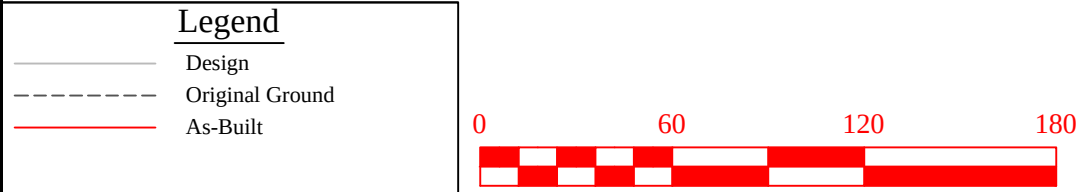
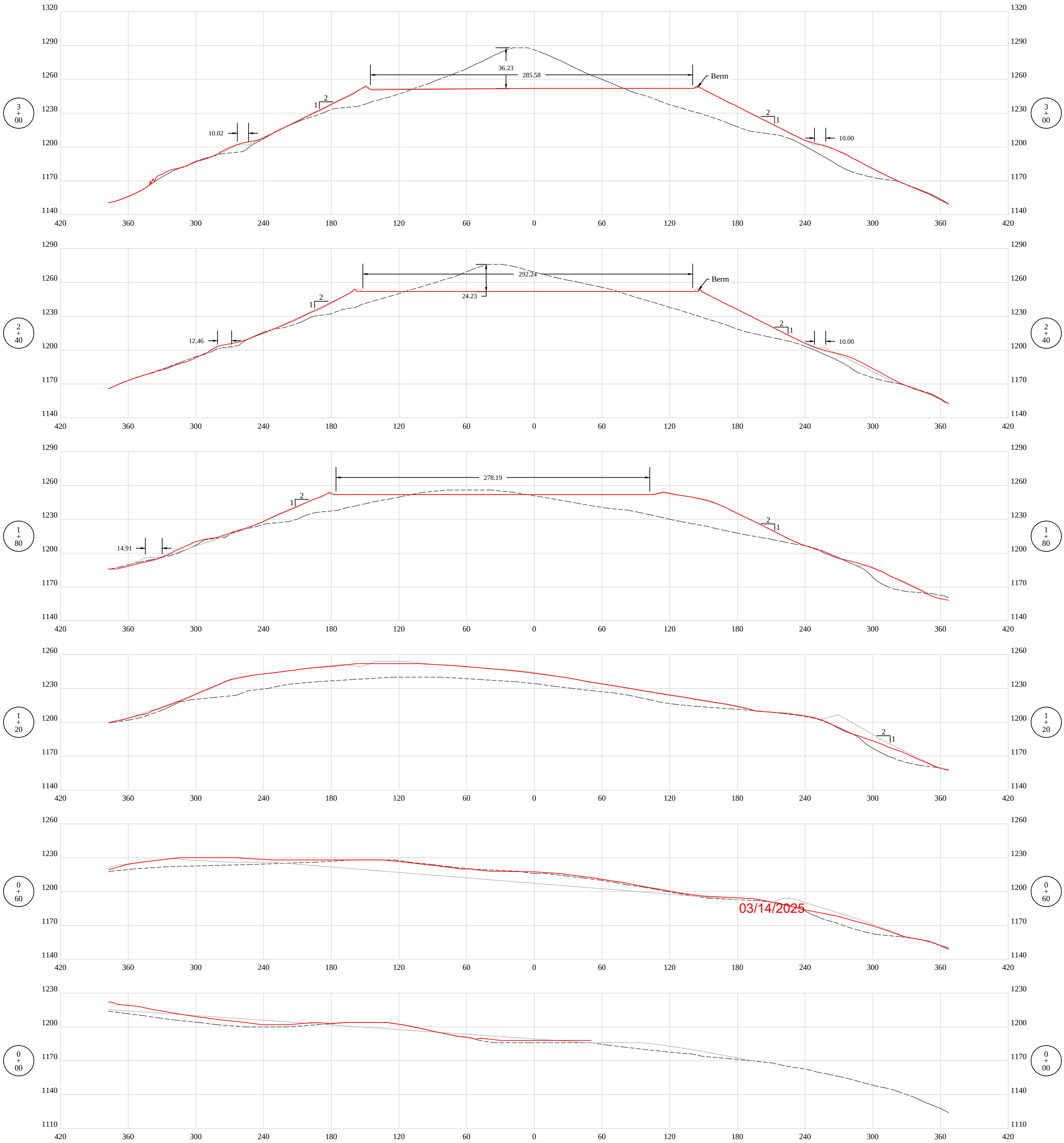
Site Plan - Fink Creek Access Road

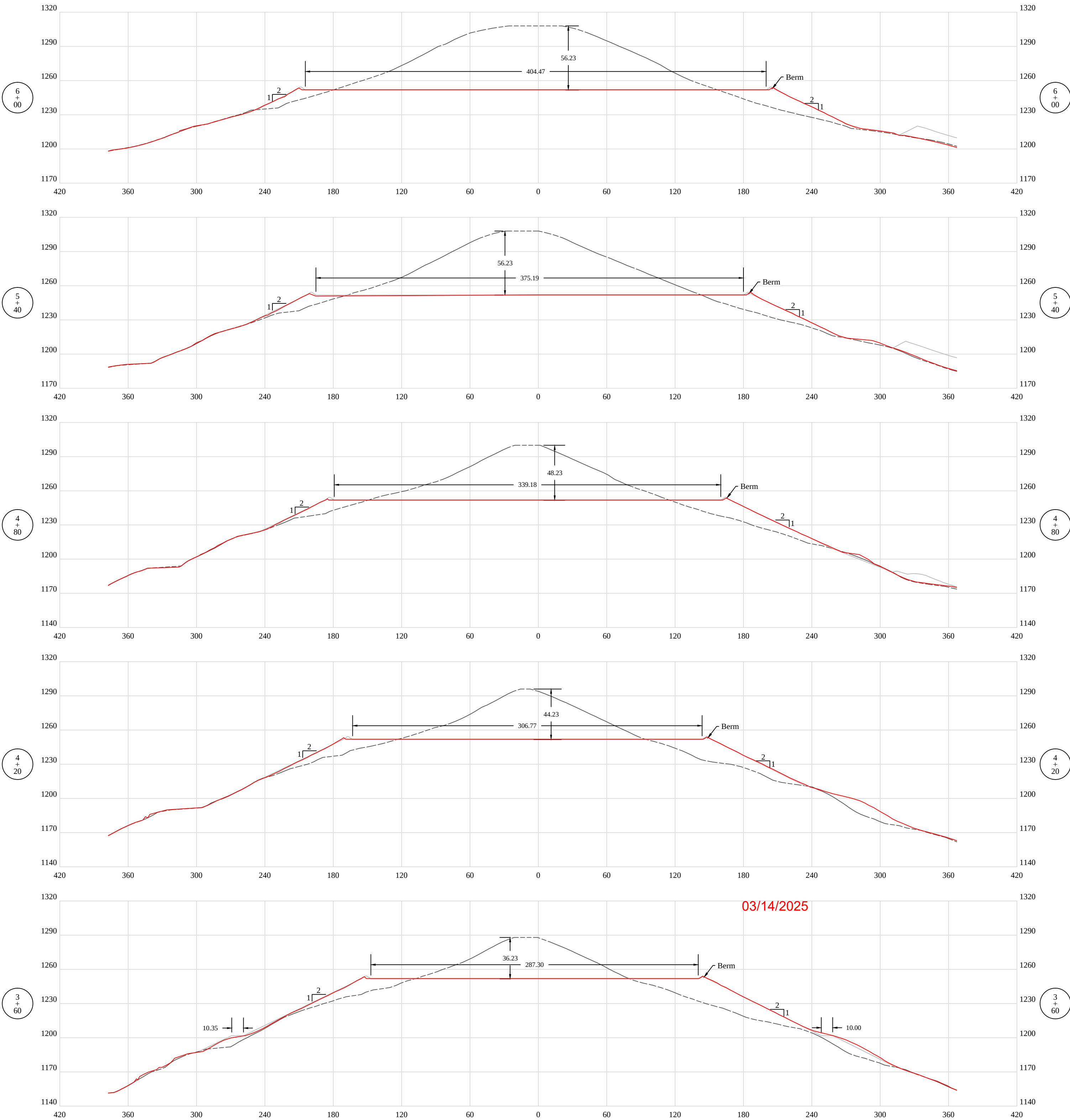
1221 Well Site
Freemans Creek District
Lewis County, WV

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Legend

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Cross Sections - Well Pad
1221 Well Site
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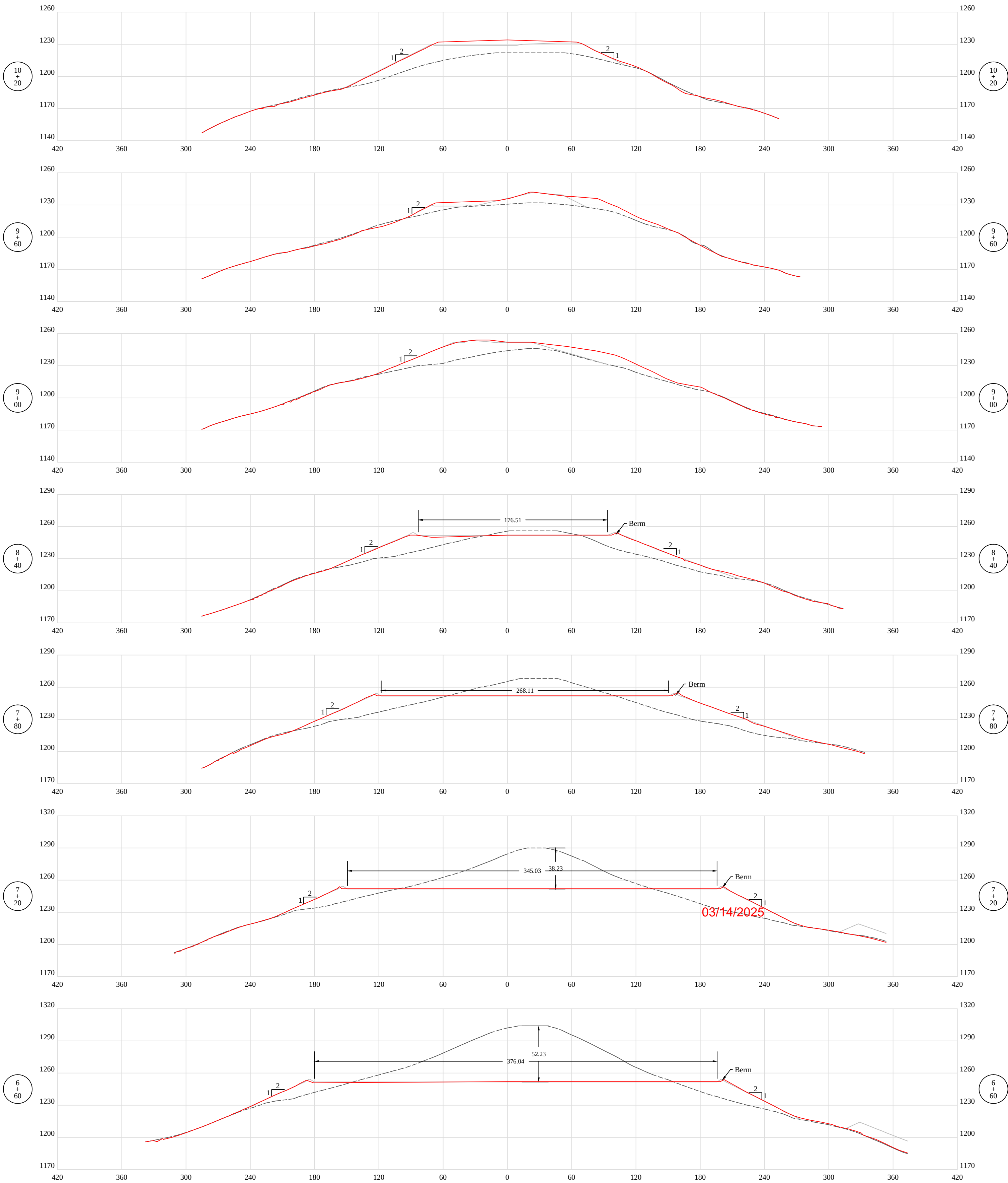
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1221 Well Site Fink Creek Access

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Exhibit A: As-Built Modification

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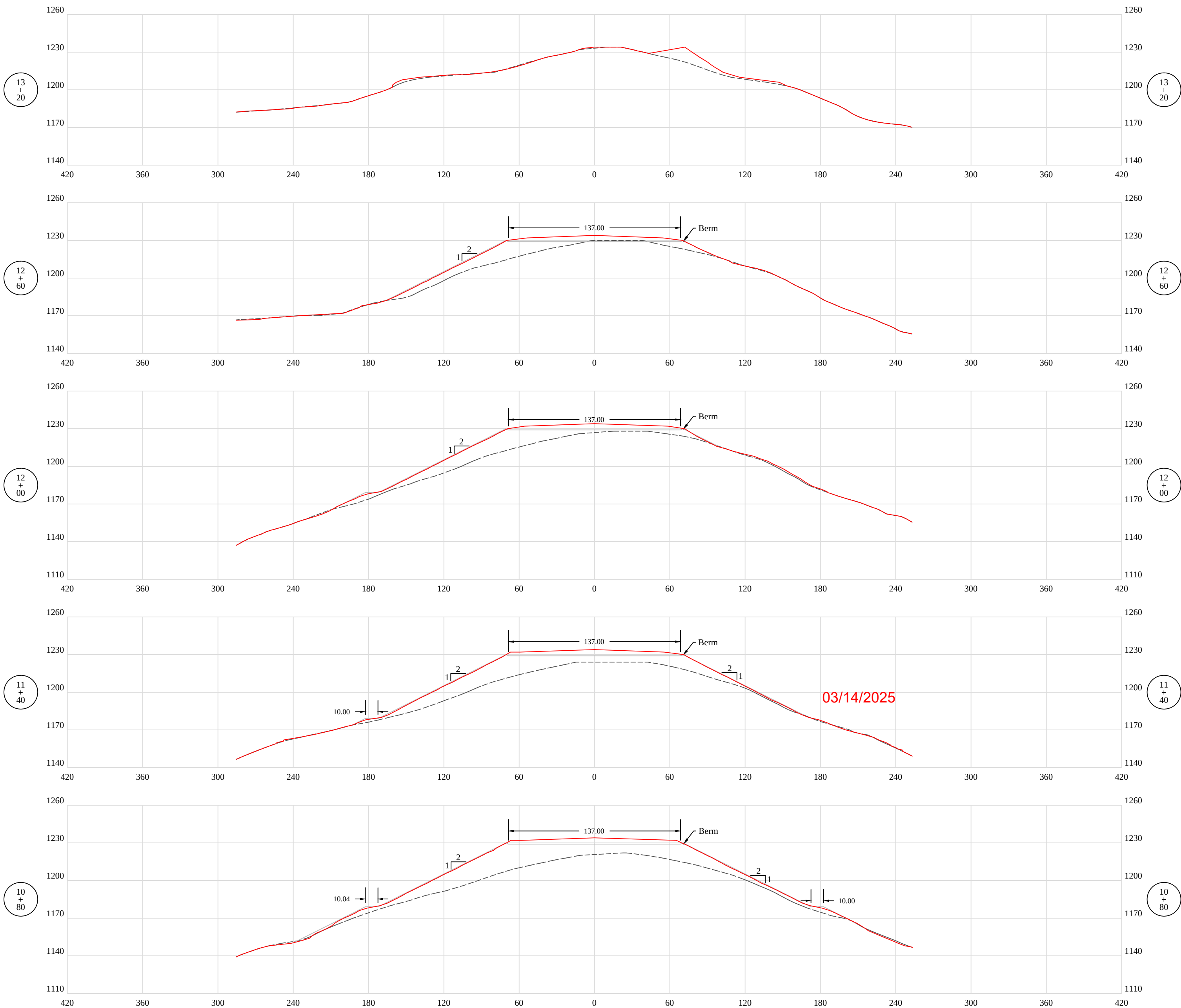
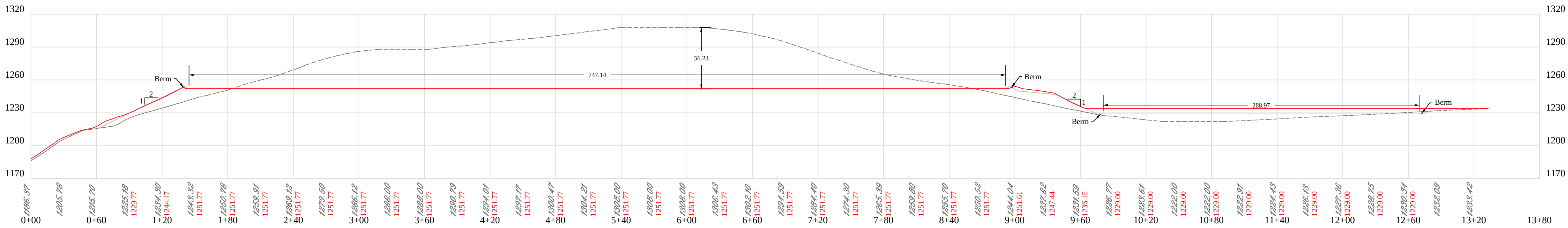
Cross Sections - Well Pad
1221 Well Site
Freemans Creek District
Lewis County, WV

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1221 Well Site Fink Creek Access

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Exhibit A: As-Built Modification



Legend

- Design
- Original Ground
- As-Built

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Design

Date
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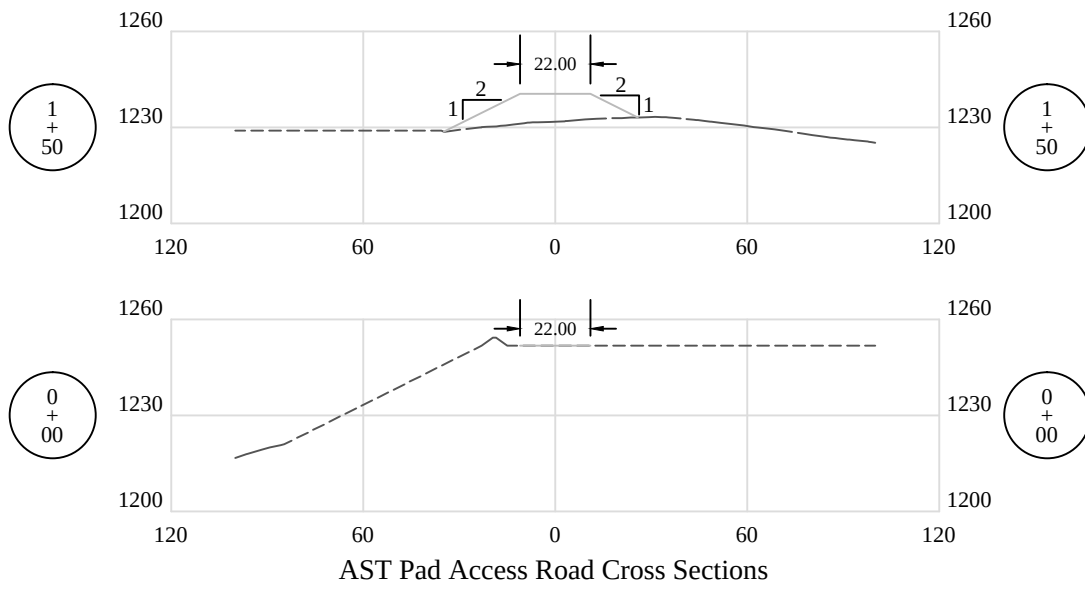
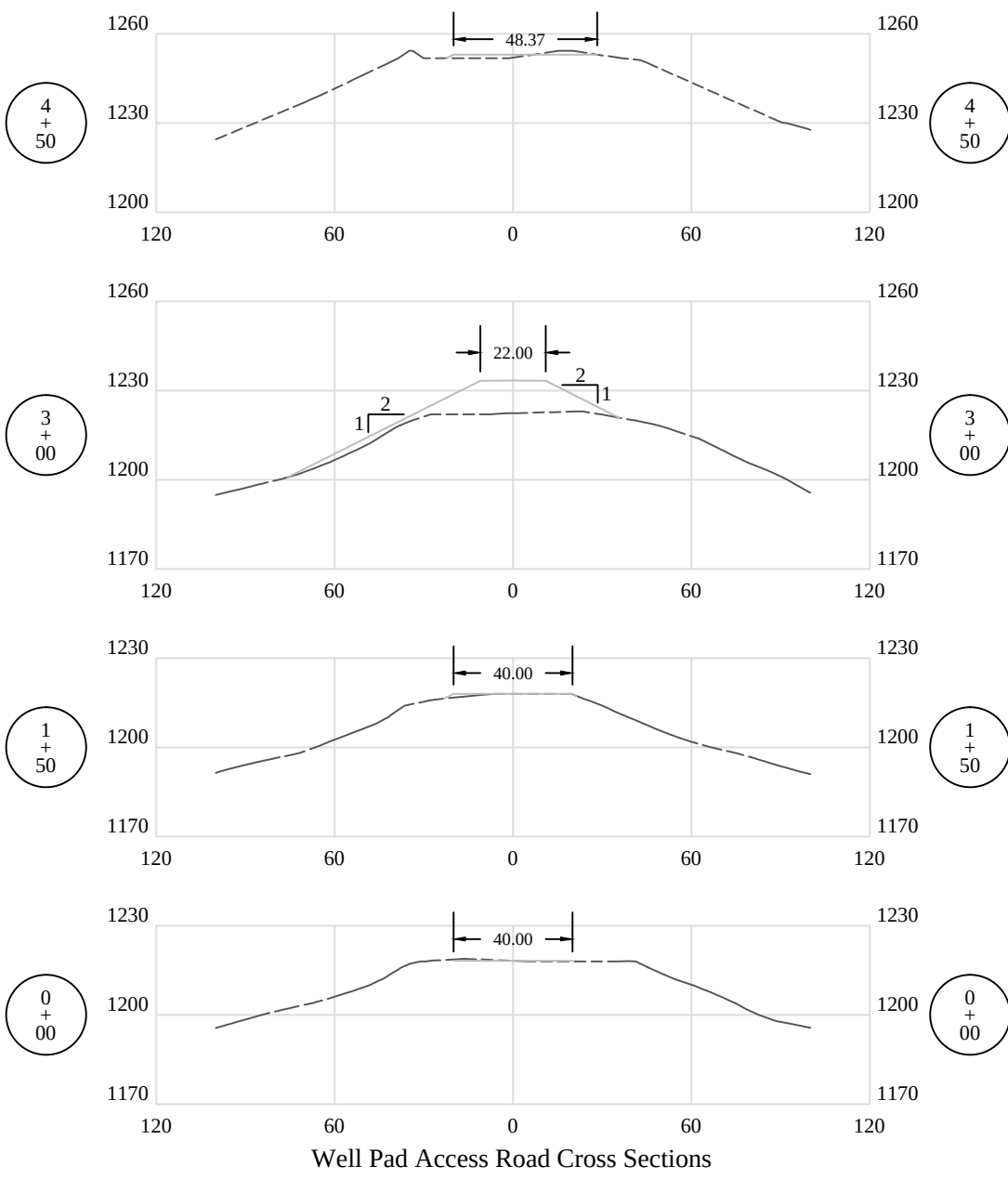
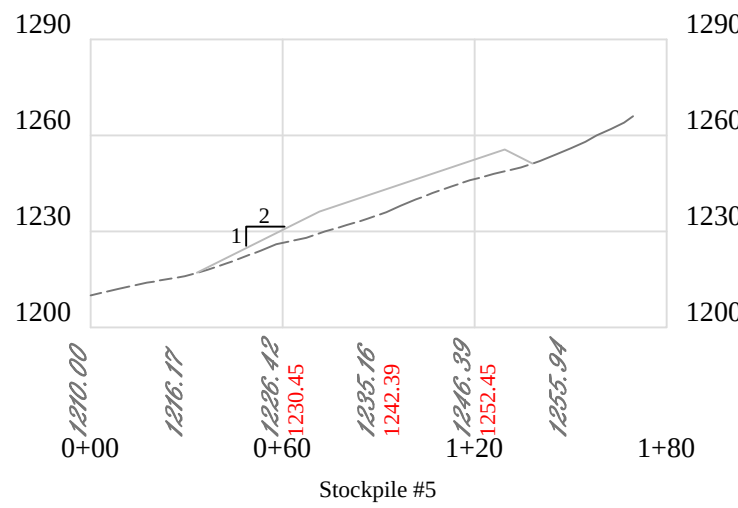
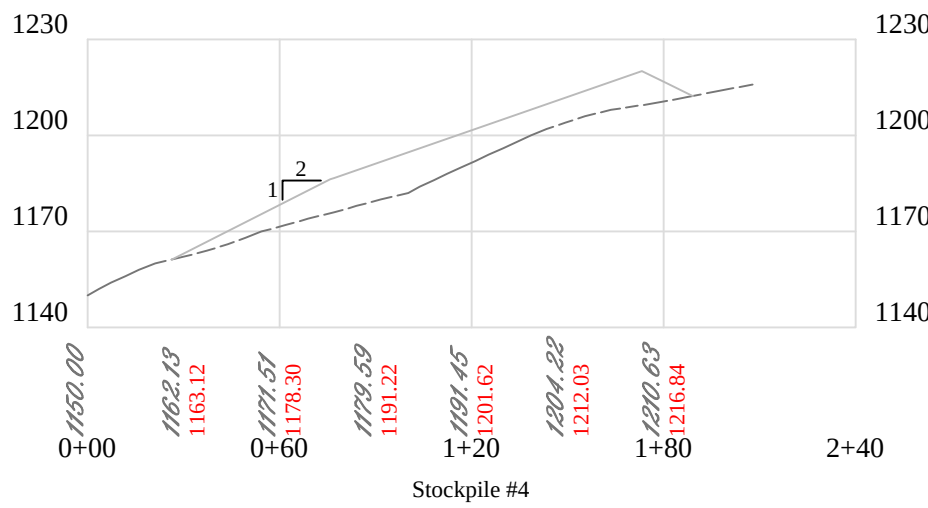
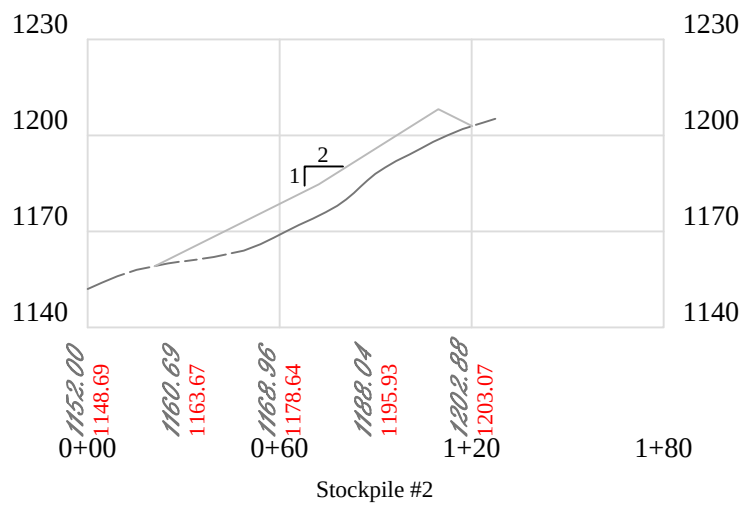
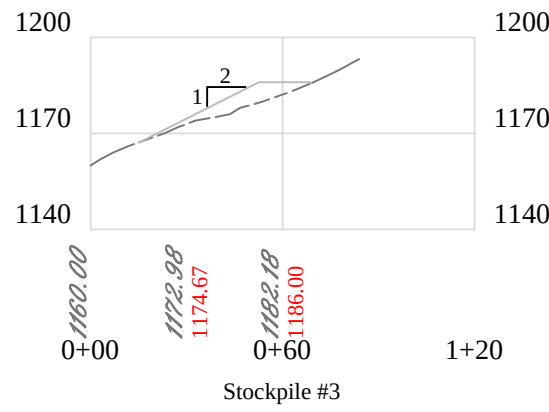
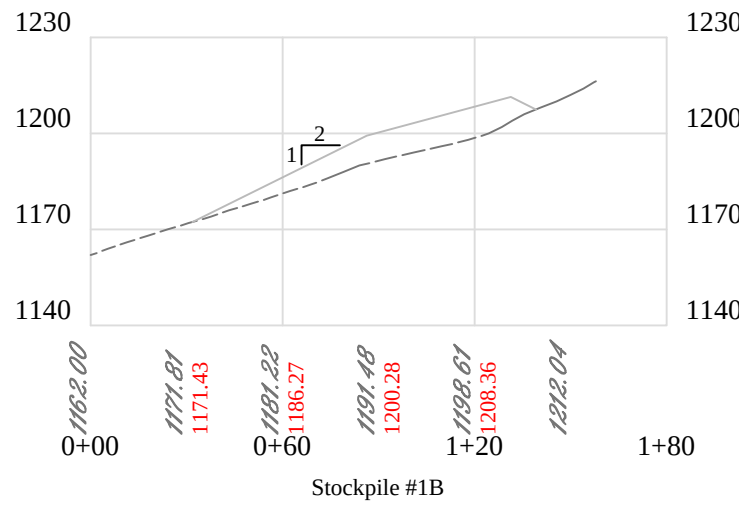
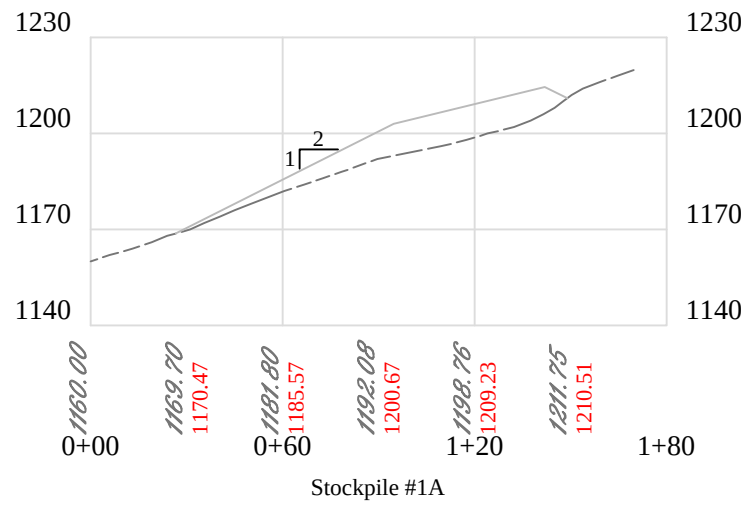
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Cross Sections - Well Pad
1221 Well Site
Freemans Creek District
Lewis County, WV



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Legend

Design

Original Ground

As-Built

0

60

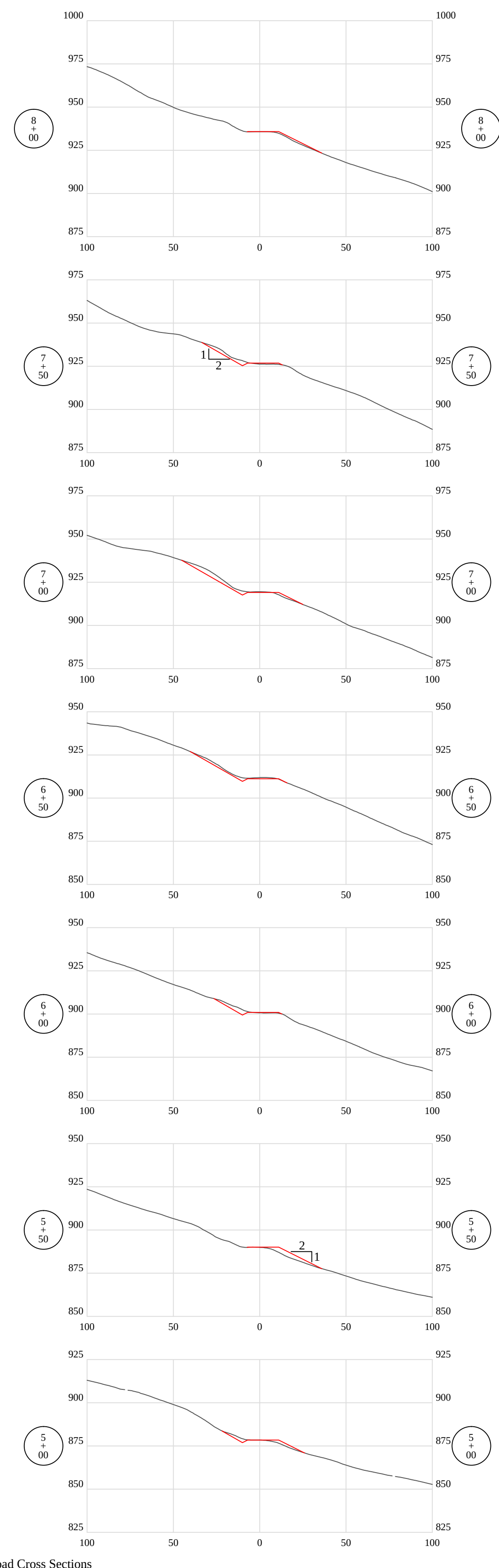
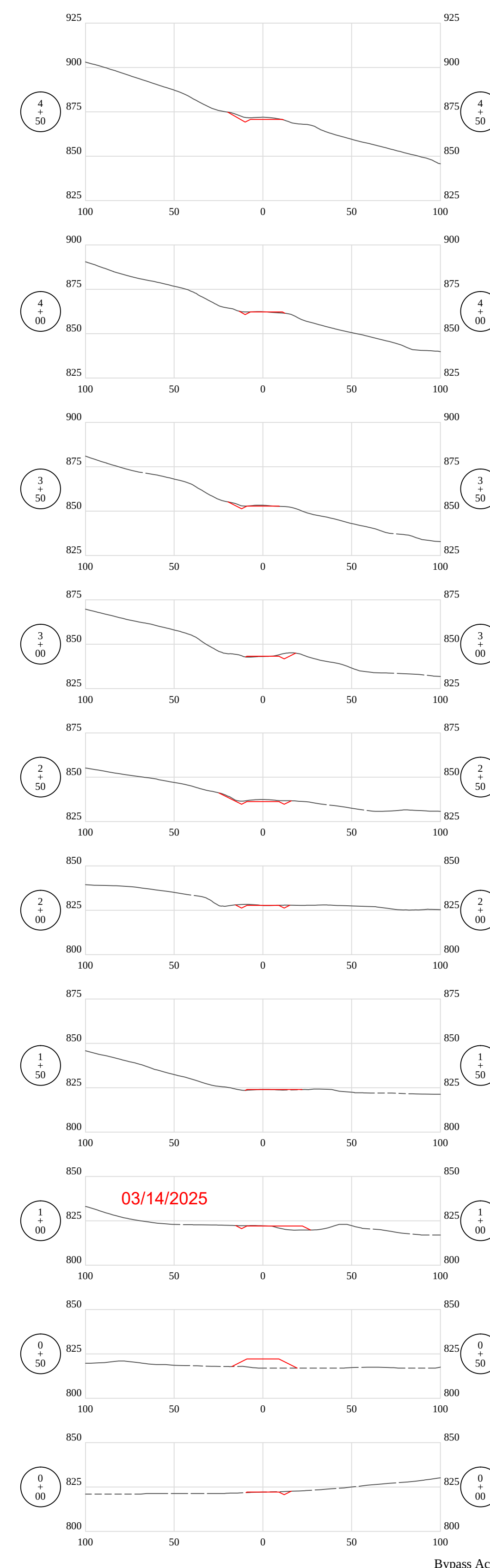
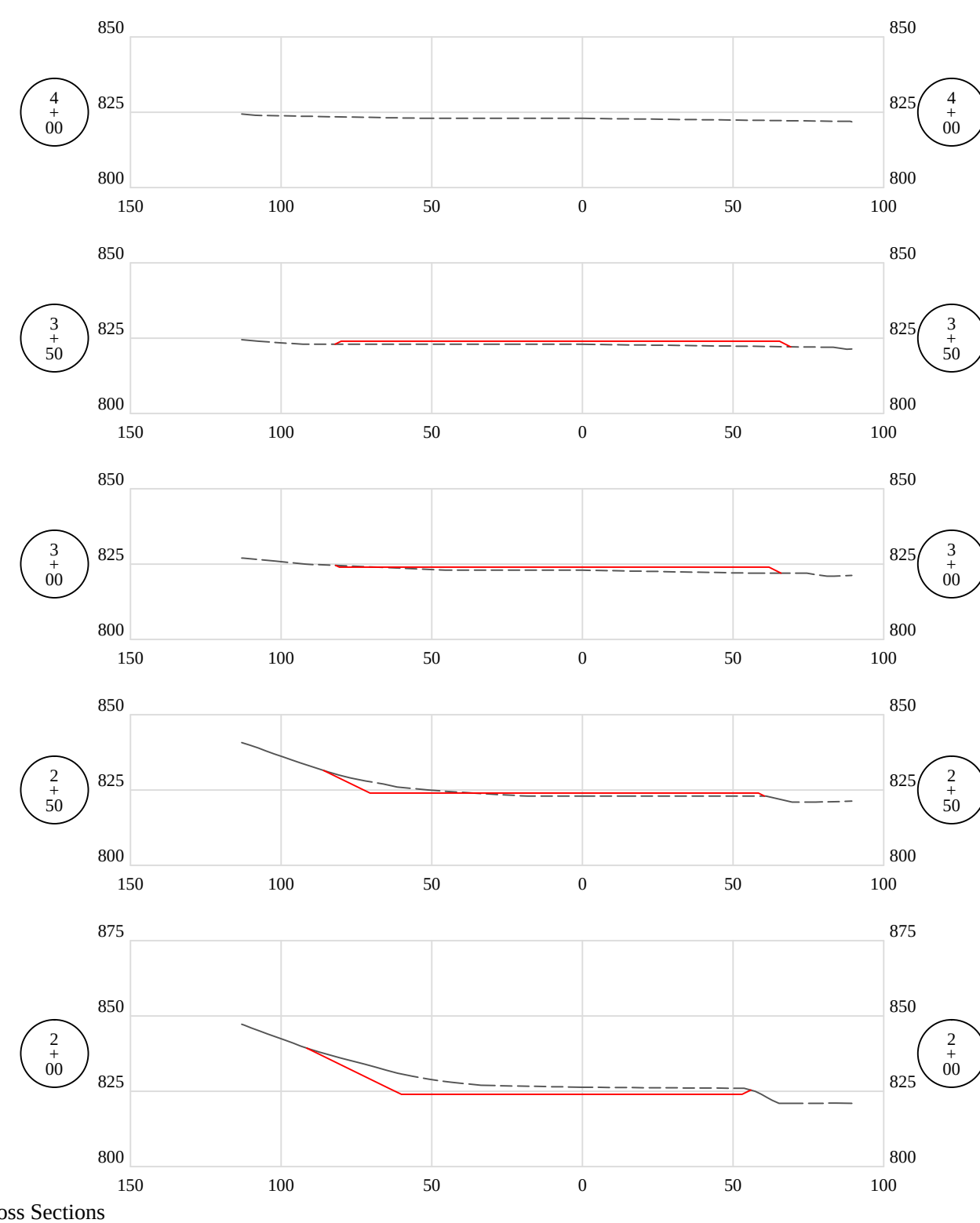
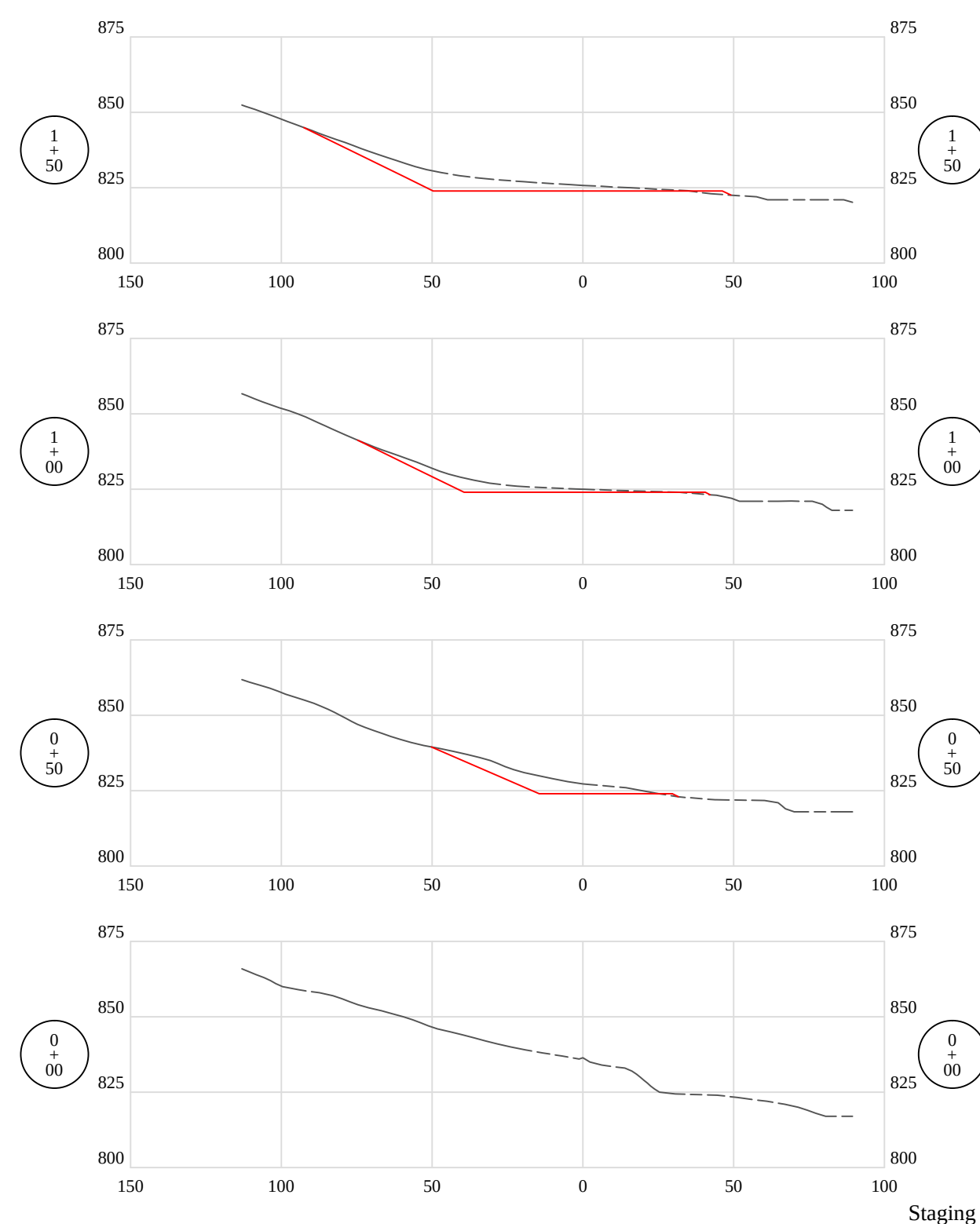
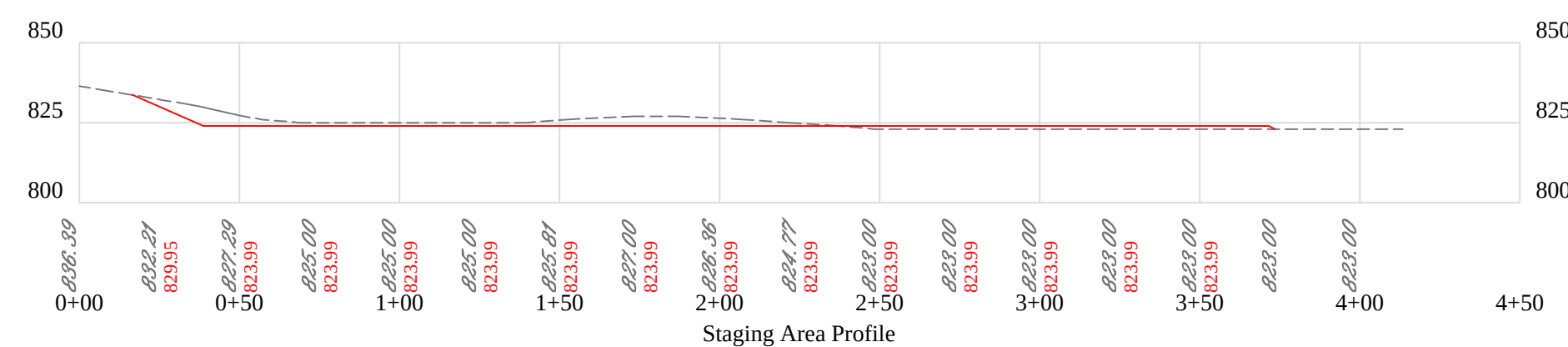
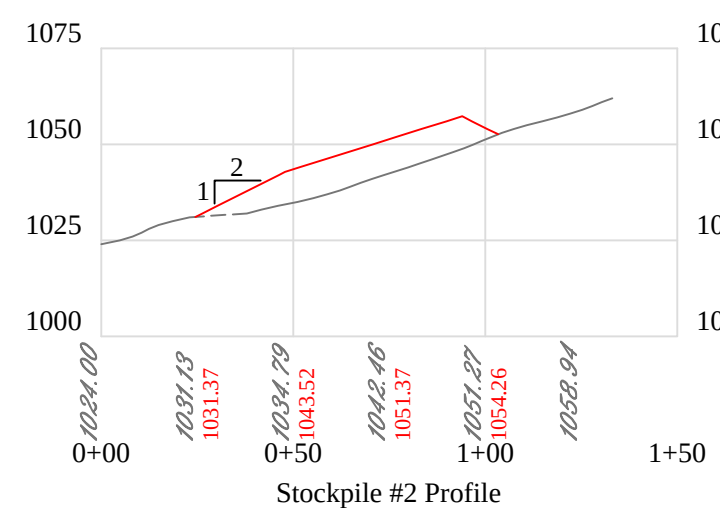
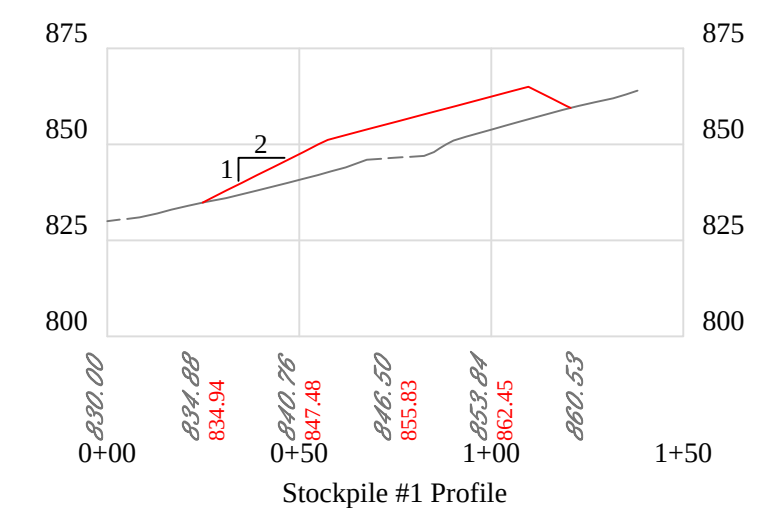
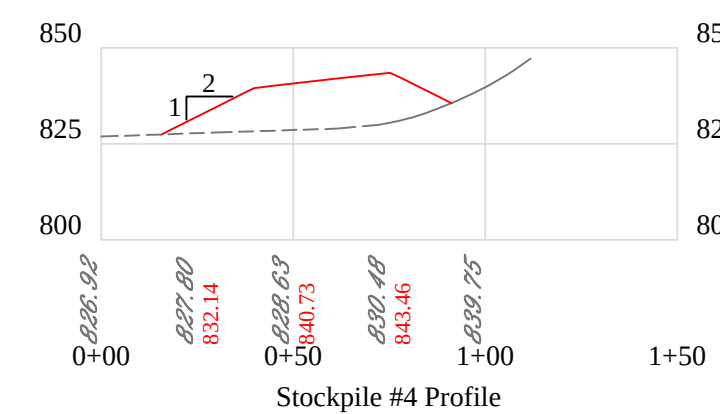
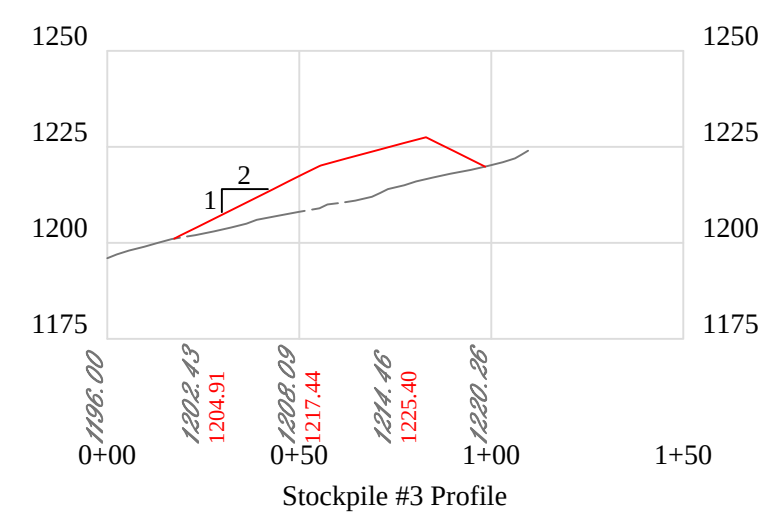
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Cross Sections - Access Road 1221 Well Site Freemans Creek District Lewis County, WV	
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1221 Well Site Fink Creek Access

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Exhibit A: As-Built Modification

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Cross Sections - Staging Area

1221 Well Site

Freemans Creek District
Lewis County, WV

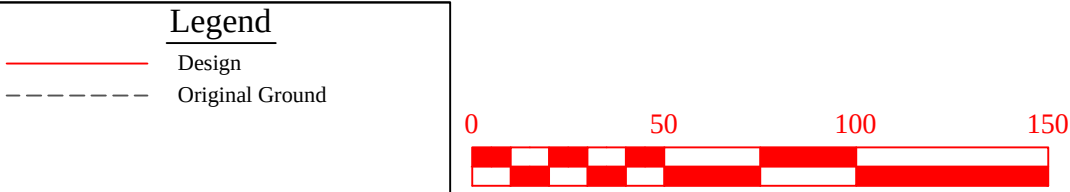
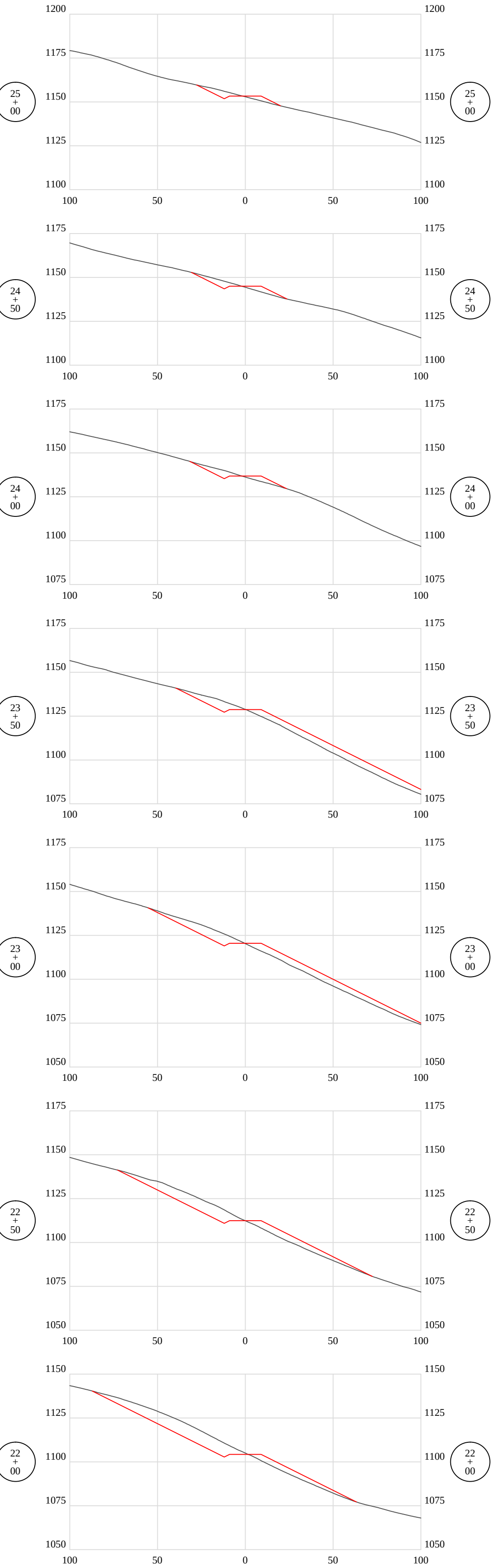
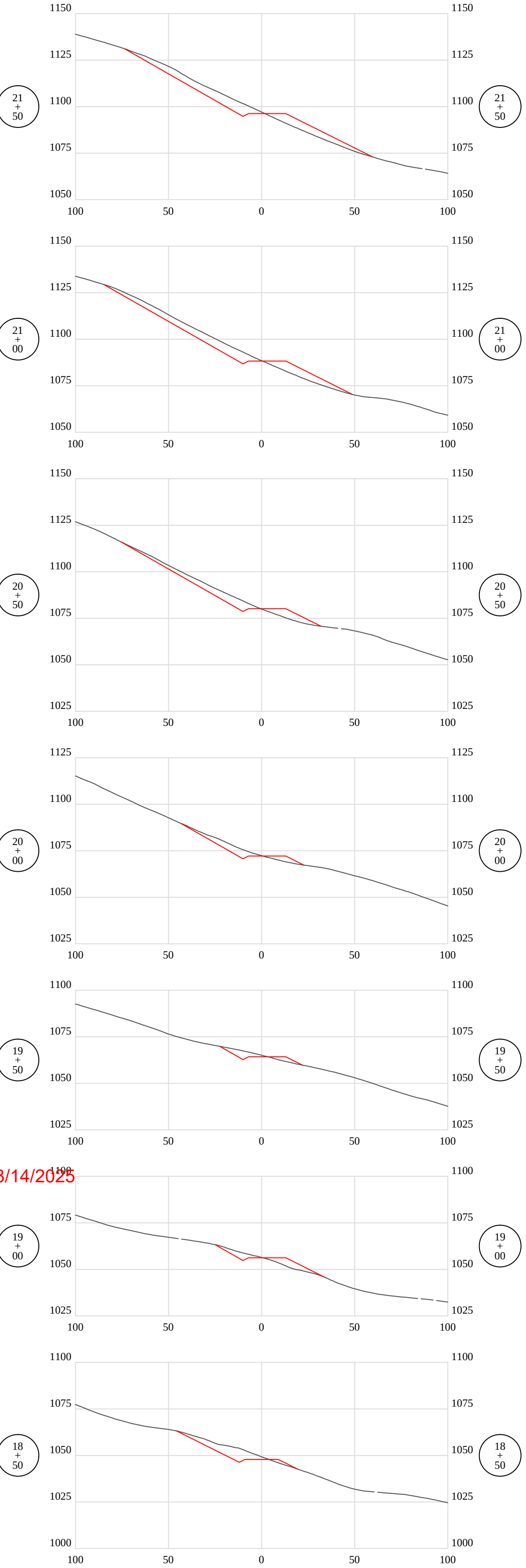
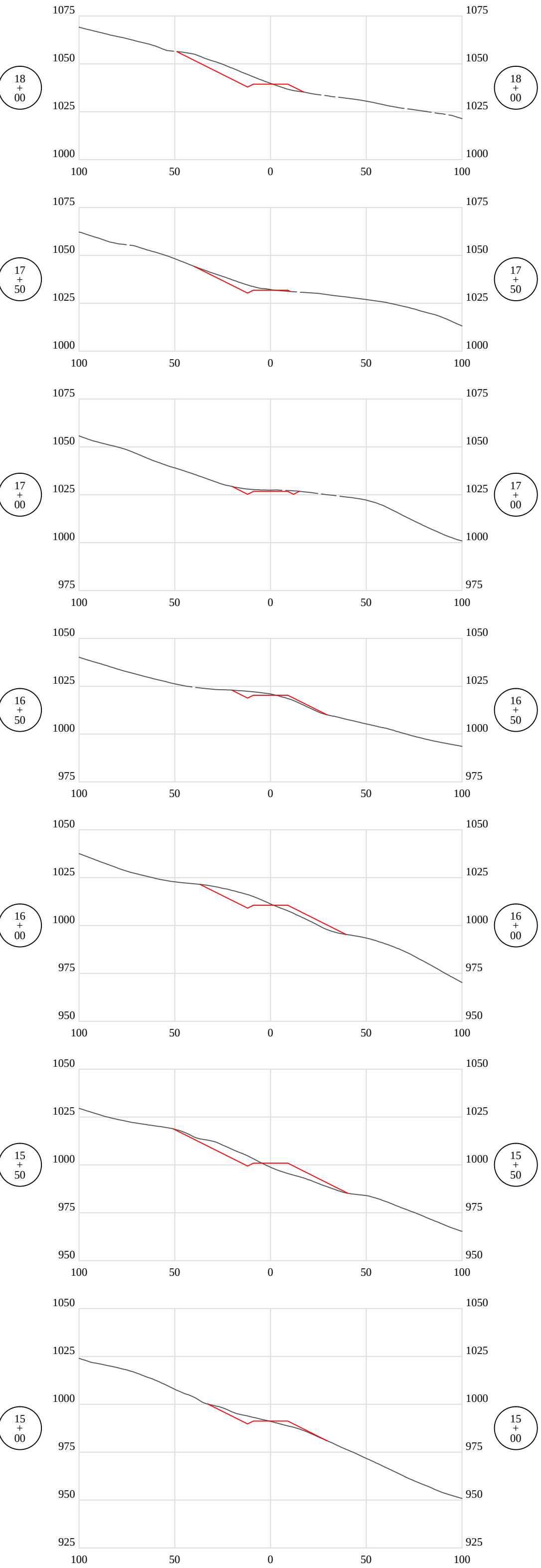
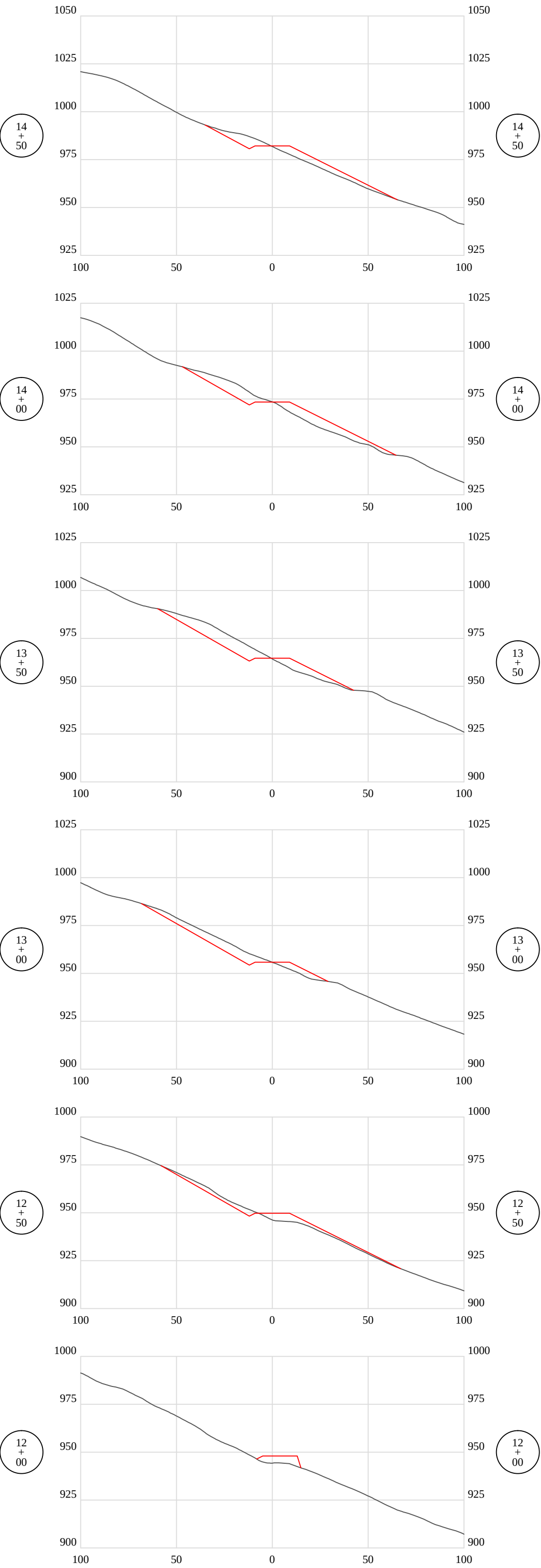
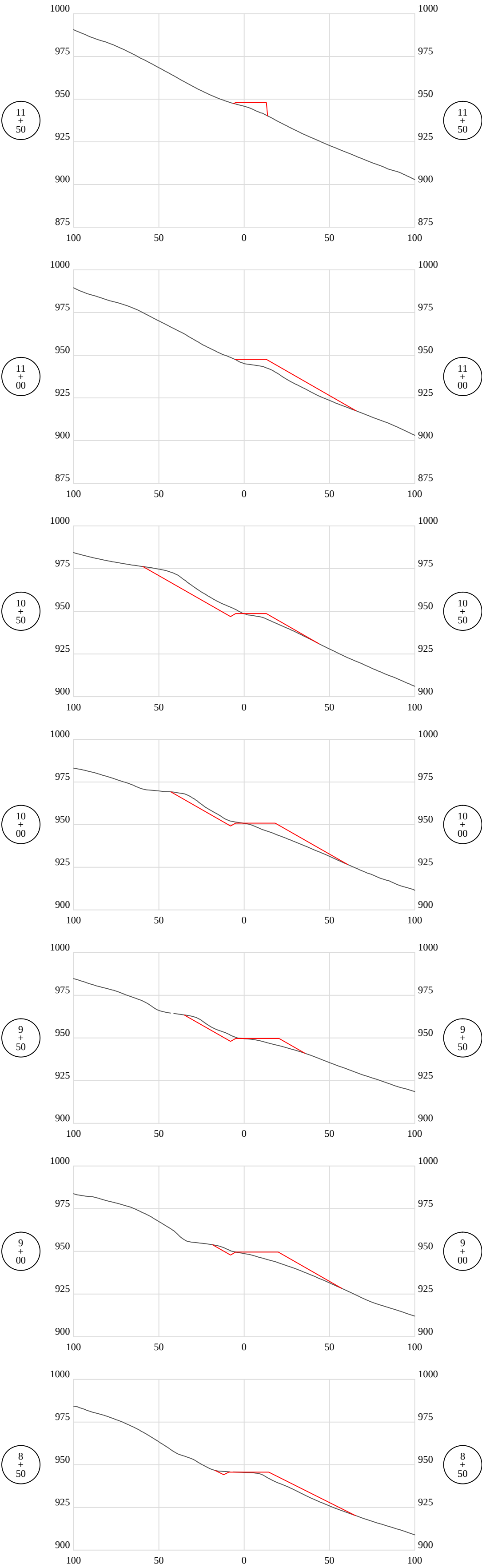
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1221 Well Site Fink Creek Access

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Cross Sections - Bypass Access Road
1221 Well Site
Freemans Creek District
Lewis County, WV

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3/14/2025

1221 Well Site Fink Creek Access

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Exhibit A: As-Built Modification

Revision
Design

Date
02-04-2025

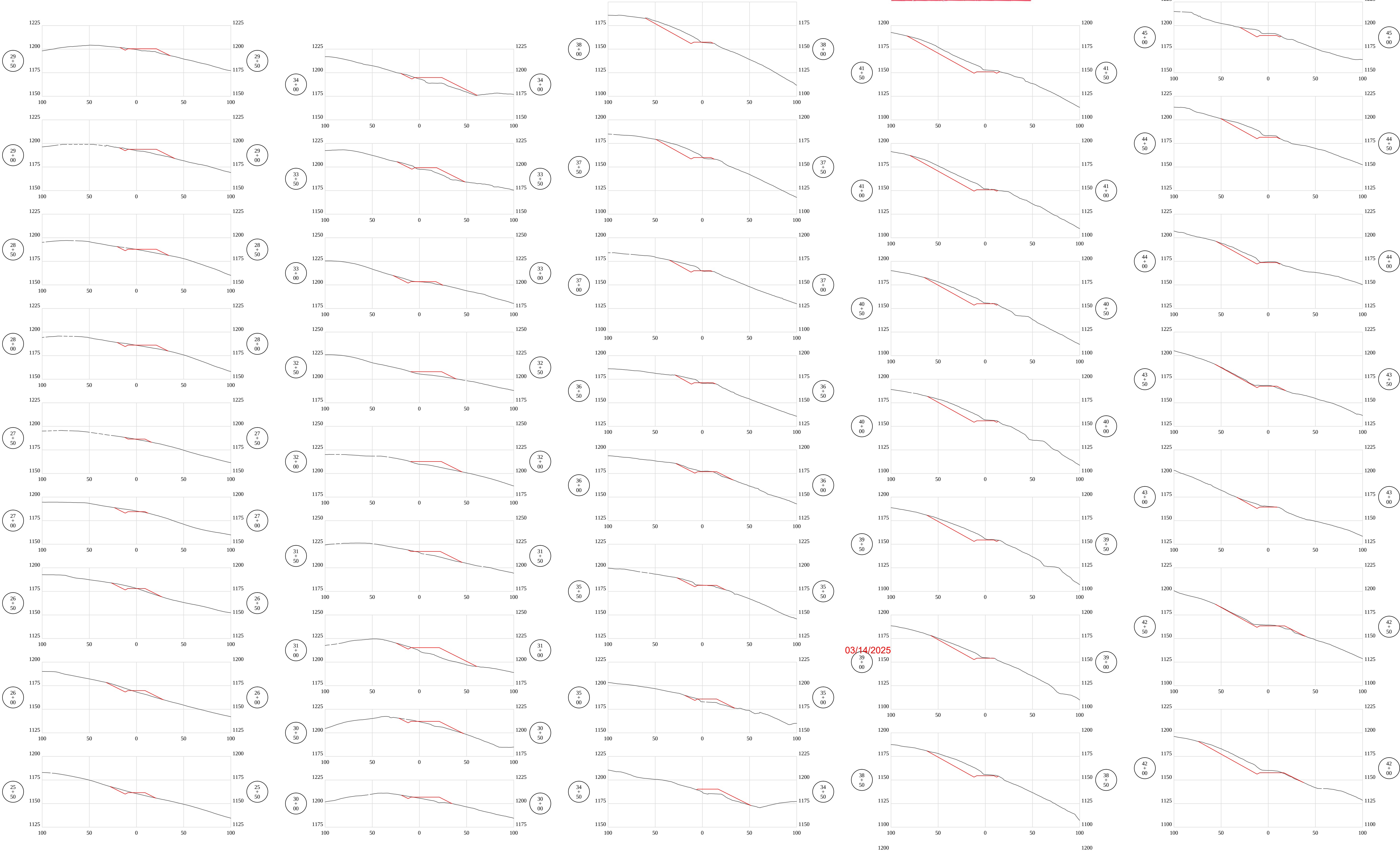


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Cross Sections - Bypass Access Road
1221 Well Site
Freemans Creek District
Lewis County, WV

Date: 02/04/2025
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Legend

Design
Original Ground

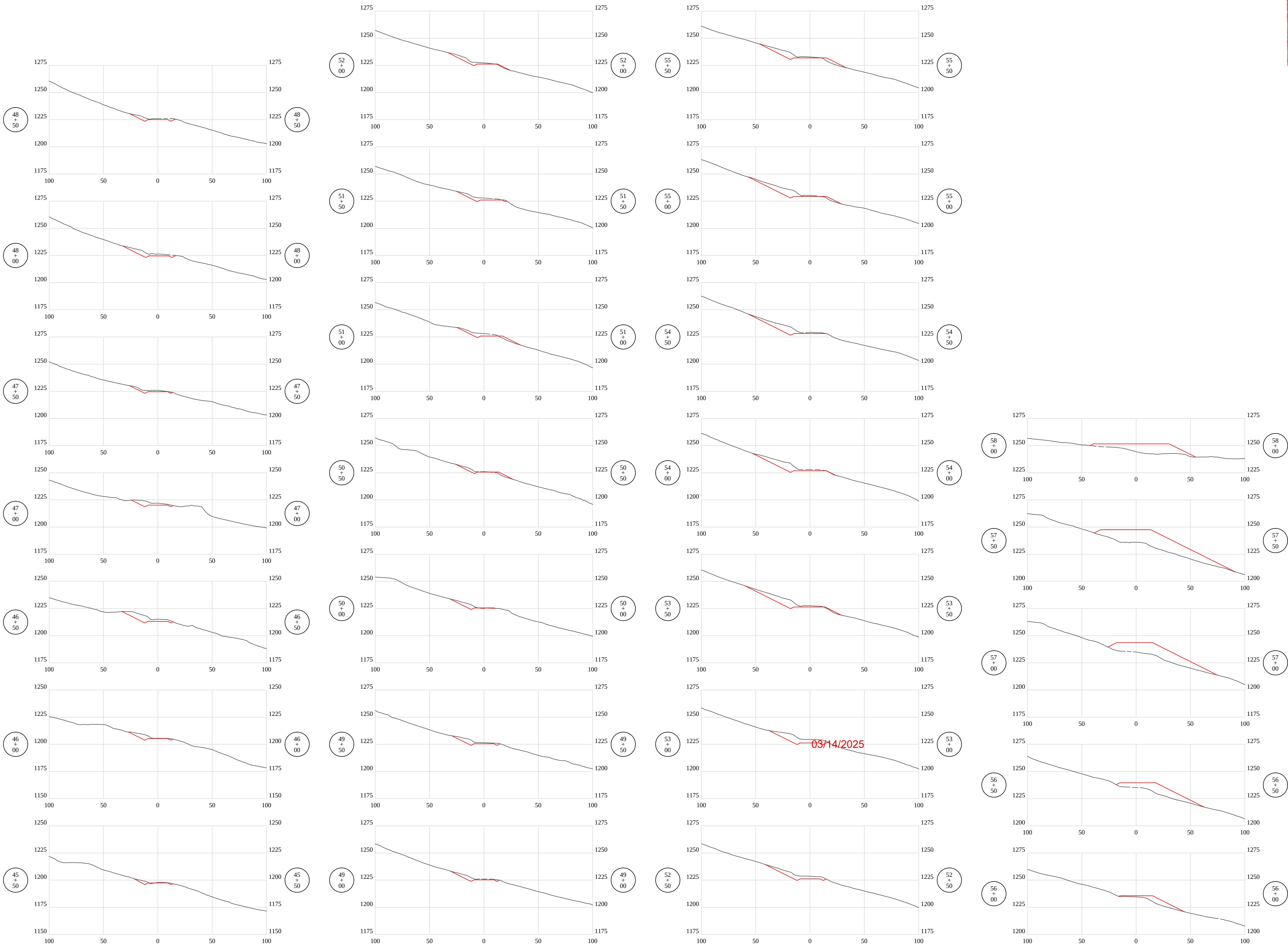


1221 Well Site Fink Creek Access

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Exhibit A: As-Built Modification

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Legend

Design
Original Ground



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Design

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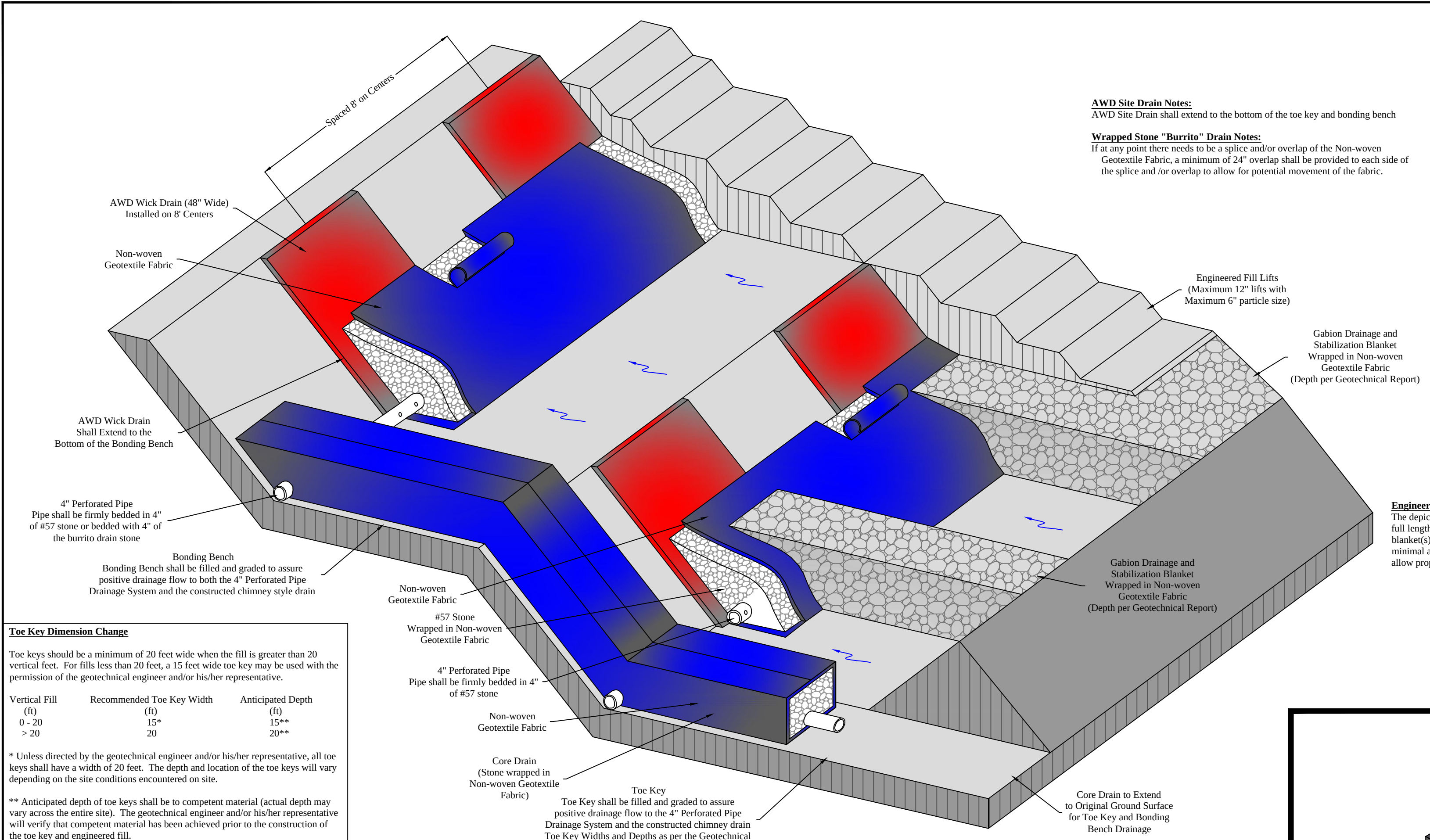


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Biller, WV 26209
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Lewis County, WV

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AWD Site Drain Notes:
AWD Site Drain shall extend to the bottom of the toe key and bonding bench

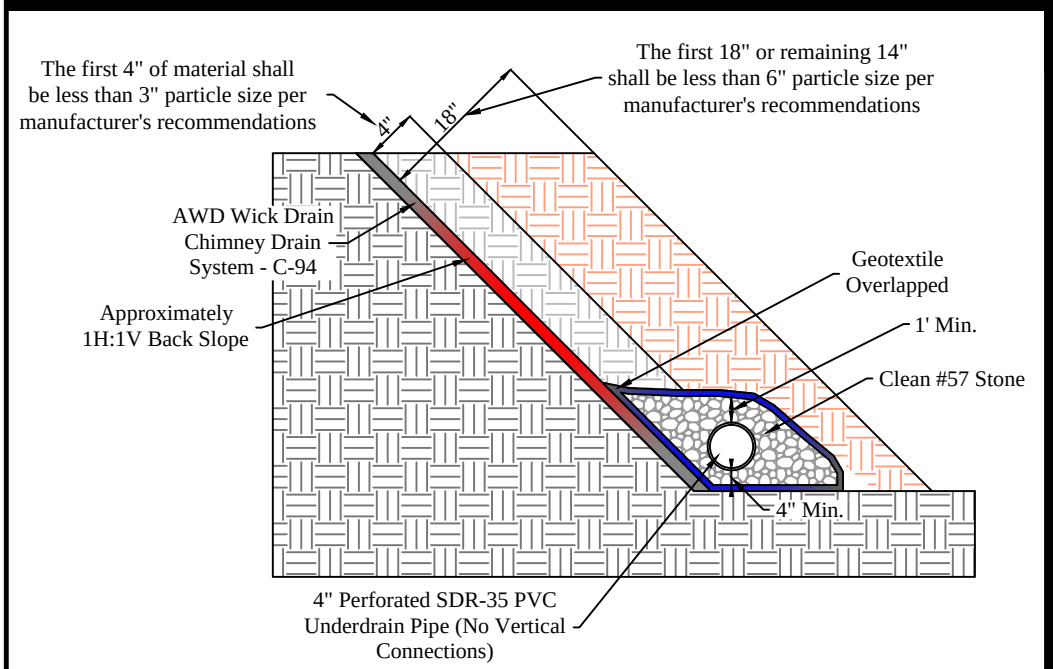
Wrapped Stone "Burrito" Drain Notes:
If at any point there needs to be a splice and/or overlap of the Non-woven Geotextile Fabric, a minimum of 24" overlap shall be provided to each side of the splice and /or overlap to allow for potential movement of the fabric.

Engineered Fill Note:
The depicted toe key, bonding bench, and drainage system shall be utilized for the full length of all fill areas exceeding four feet (4') in height. The drainage blanket(s) shall be graded to drain to a core drain. At the engineer's discretion, a minimal amount of fill may be installed prior to drainage blanket installation to allow proper drainage of the toe key and/or bonding bench.

Toe Key Dimension Change			
Vertical Fill (ft)	Recommended Toe Key Width (ft)	Anticipated Depth (ft)	
0 - 20	15*	15**	
> 20	20	20**	

* Unless directed by the geotechnical engineer and/or his/her representative, all toe keys shall have a width of 20 feet. The depth and location of the toe keys will vary depending on the site conditions encountered on site.

** Anticipated depth of toe keys shall be to competent material (actual depth may vary across the entire site). The geotechnical engineer and/or his/her representative will verify that competent material has been achieved prior to the construction of the toe key and engineered fill.

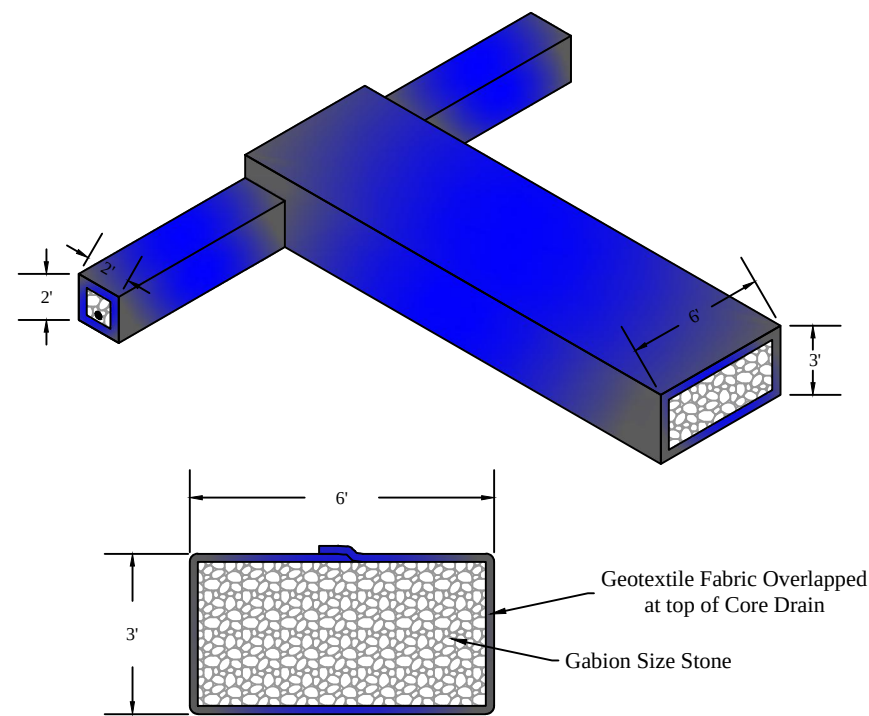


G2 Typical Face Drain Detail
Scale: NTS

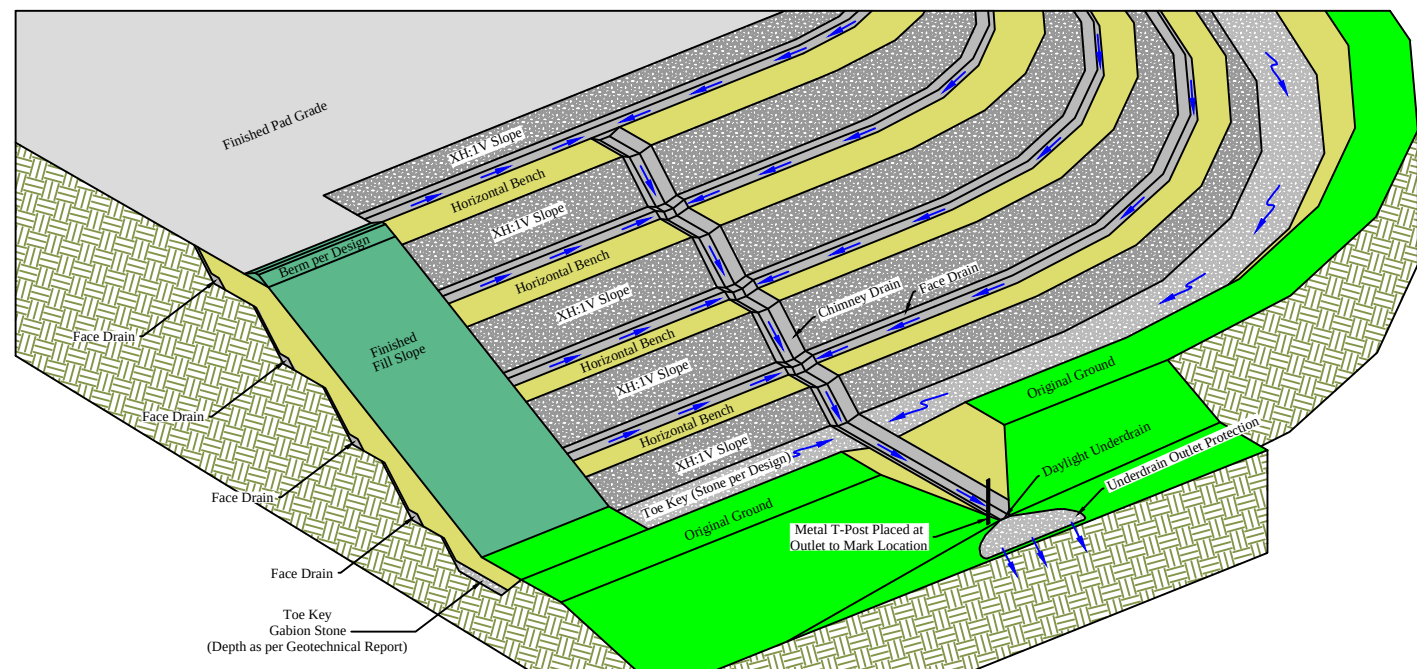
Wick Drain Drainage System Detail

Engineered Fill Note:
Engineering anticipates that the material management would be such that smaller material is placed on the bench, bladed to the wick drain/drainage system with a dozer or similar method, rolled, and compacted as per the manufacturer's recommendations.

G1 Typical Engineered Fill Detail
Scale: NTS

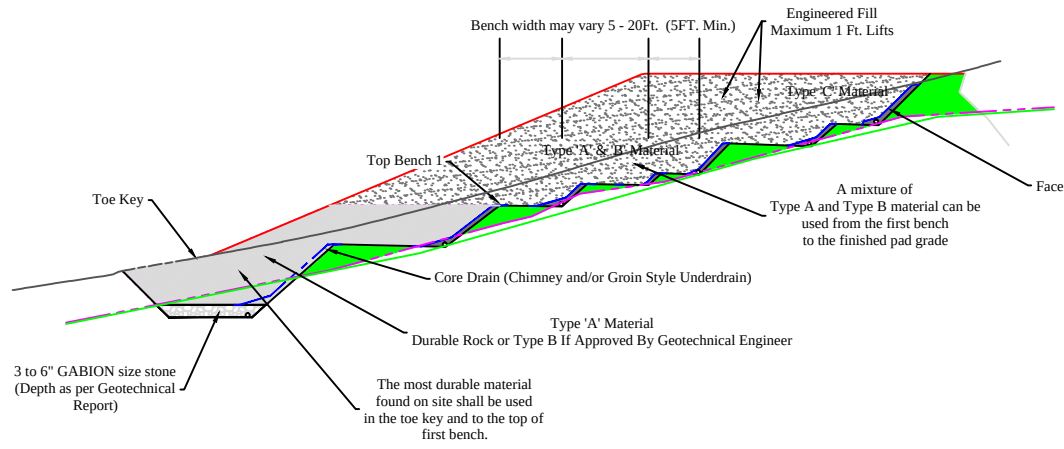


G3 Typical Core Drain Detail
Scale: NTS



Note:
Toe Key and Bonding Bench Slope Cut as per the Geotechnical Report (XH:1V)
Finished Fill Slope as per the design

G4 Typical Engineered Fill Detail
Scale: NTS



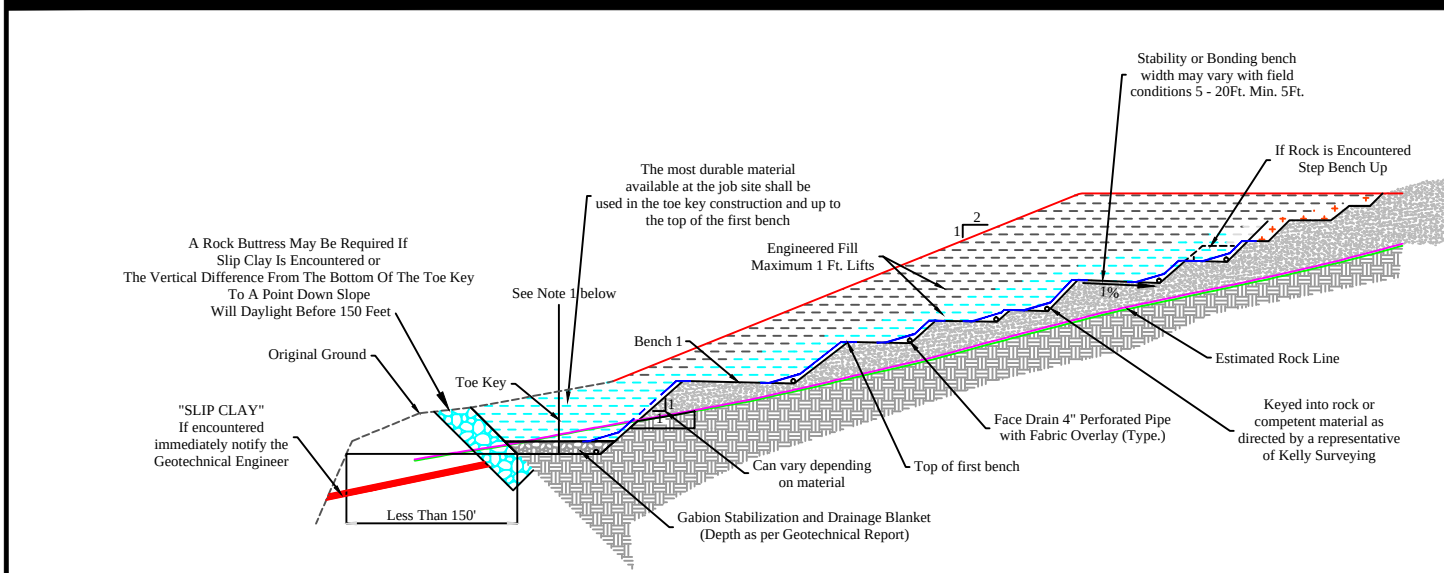
Material Management Detail
Scale = NTS

It is the contractors responsibility to review all available information; make a site visit and contact the design engineer prior to starting the project.

Material management will be strictly in accordance with the most durable material or rock available being used in the toe key construction and up to the first bench. The proctor used for testing in the toe key and up to the first bench will be for the material available on site classified as Type 'A' or a more durable Type 'B', the project may require an import material to meet the project specifications.

At no time shall the contractor excavate the toe key and replace with the same material unless it is durable rock or approved by the design engineer or geotechnical engineer.

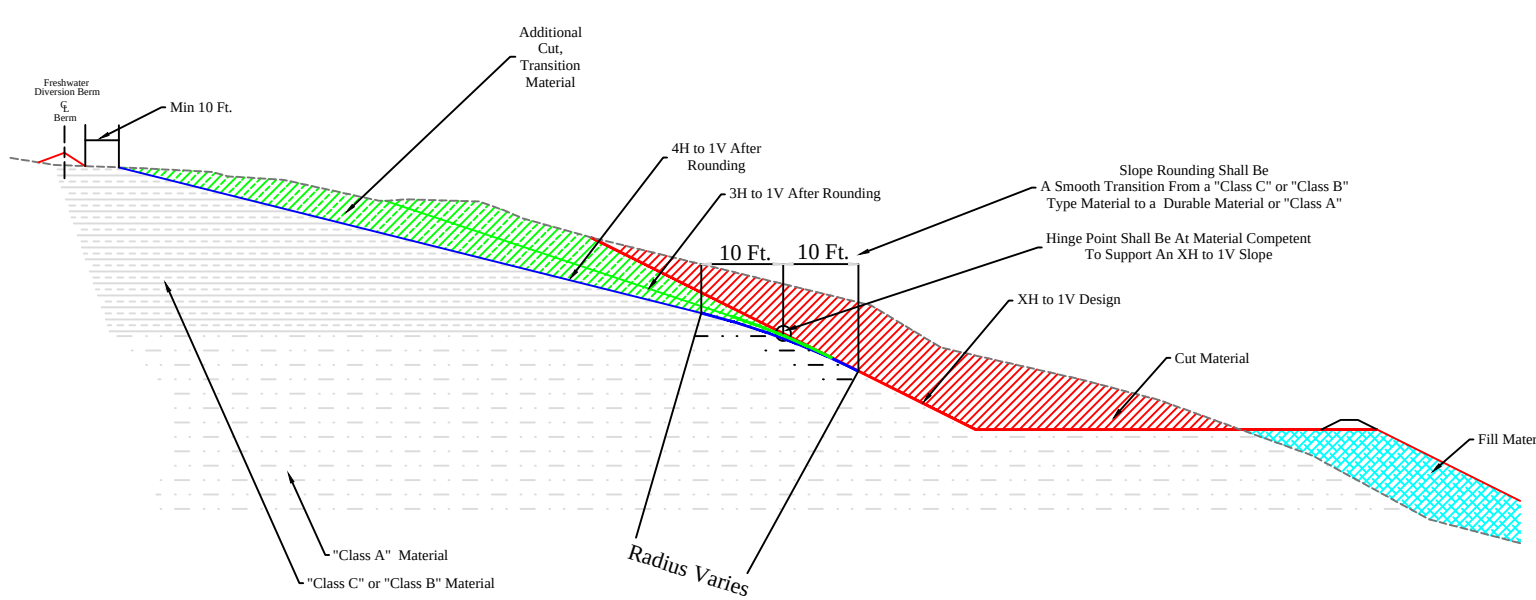
G5 Material Management Detail
Scale: NTS



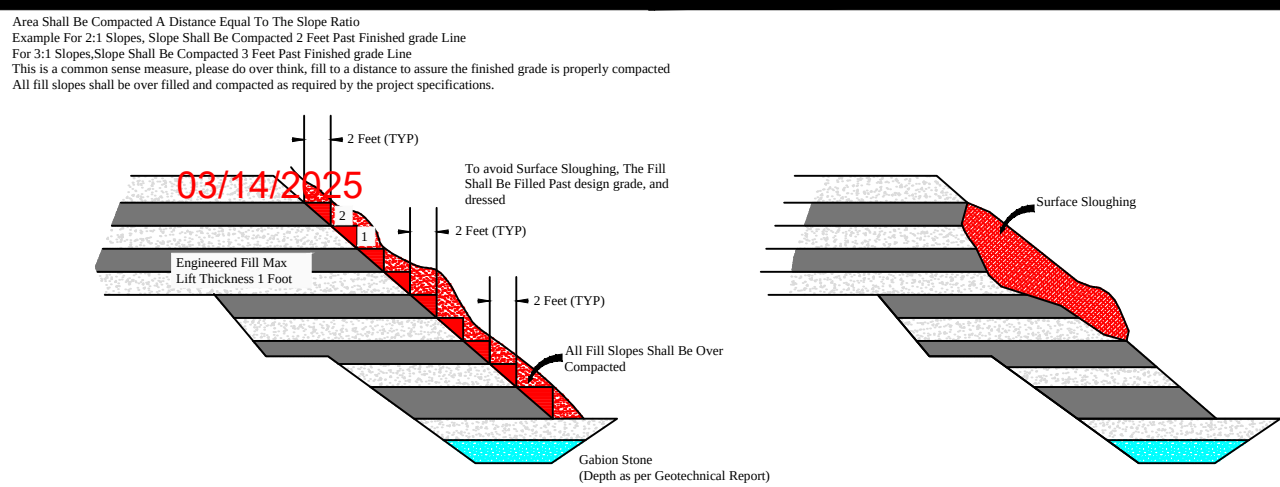
Typical Fill Section @ Maximum Fill Height
Scale = NTS

- Design slope intersection with ground line. The toe key width is centered about this point.
- Extend this point to the bottom of the toe key. This will be the contour of the toe key.
- Construct toe key drain(s) (see Toe Key Outlet Drain Detail)
- Approved fill materials (including rock) shall be placed in lifts of maximum loose depth of 12 inches. The material shall be compacted to at least 95% of the maximum dry density at a moisture content within +/-3% of the optimum moisture as determined by ASTM D698.
- Grade outer top of the toe key to allow for positive drainage and blend to original ground begin engineered fill.

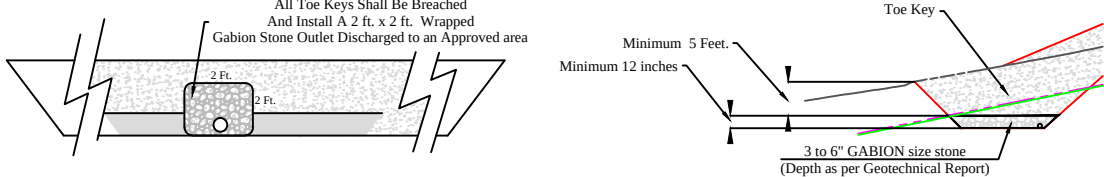
G6 Typical Fill Section at Maximum Fill Height
Scale: NTS



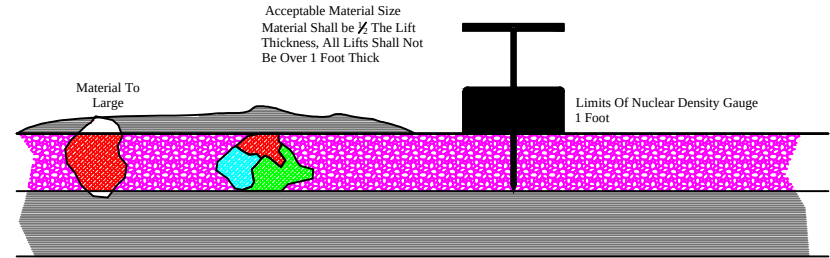
G7 Unstable Slope Management: Slope Rounding
Scale: NTS



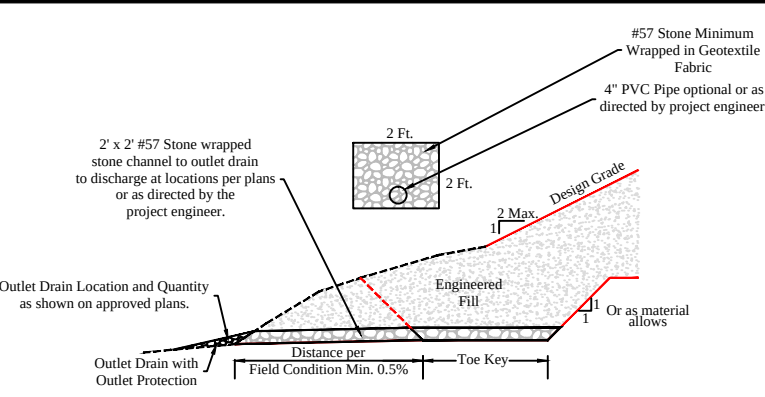
G8 Fill Slope Over-Compaction Detail
Scale: NTS



G10 Minimum Typical Toe Key Detail
Scale: NTS



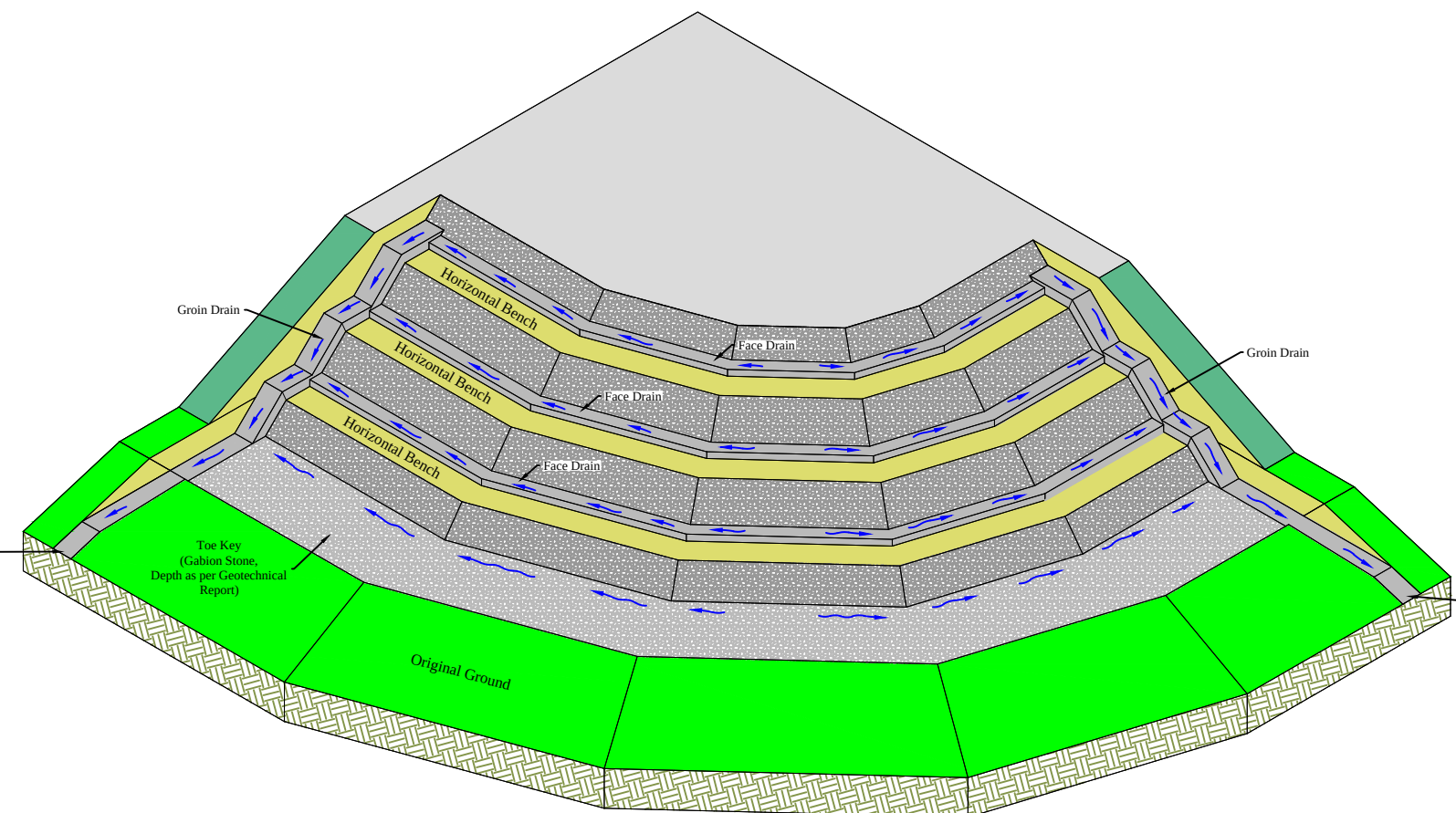
G9 Compaction Testing Detail
Scale: NTS



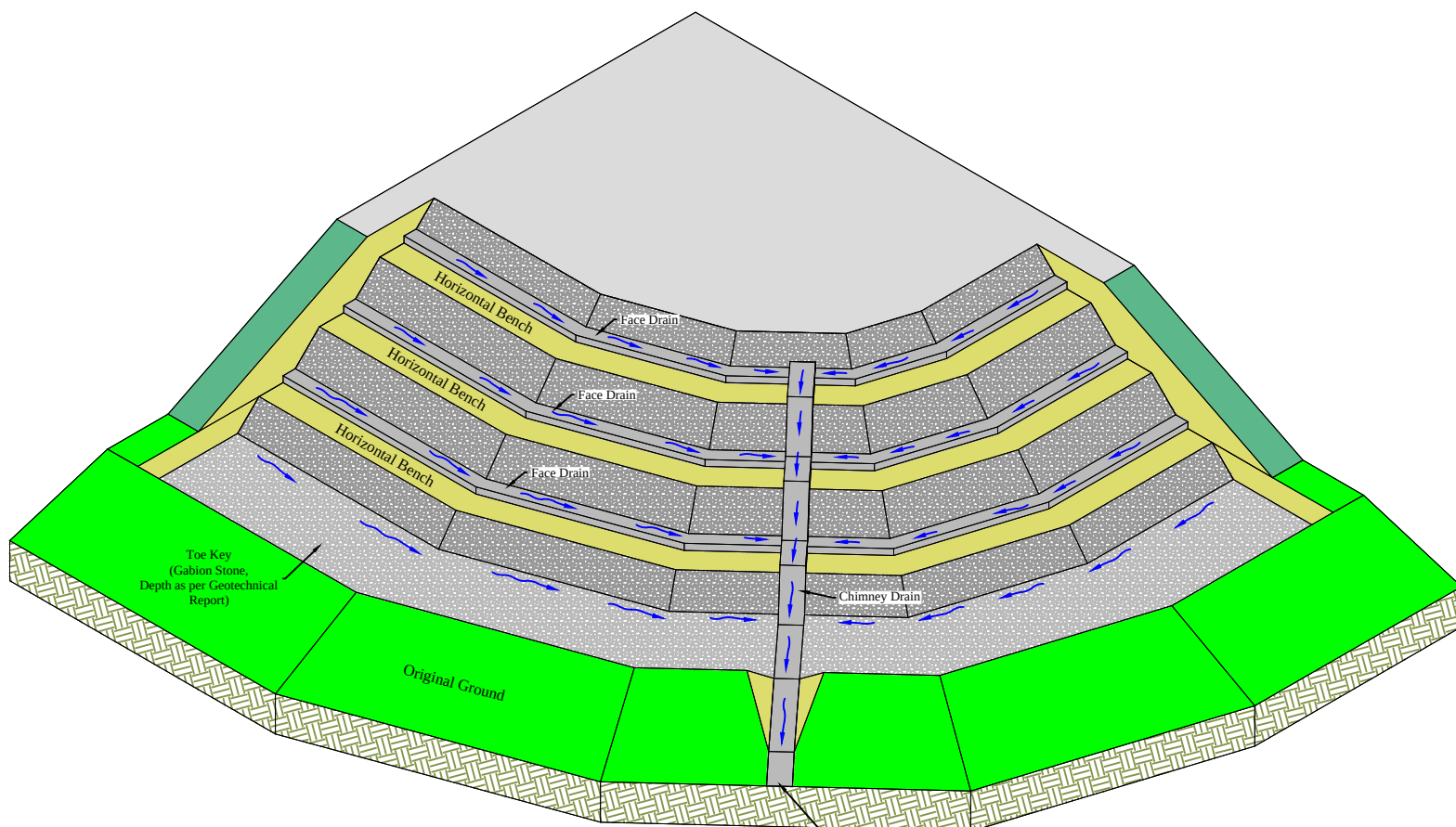
G11 Minimum Toe Key Outlet Drain Detail
Scale: NTS

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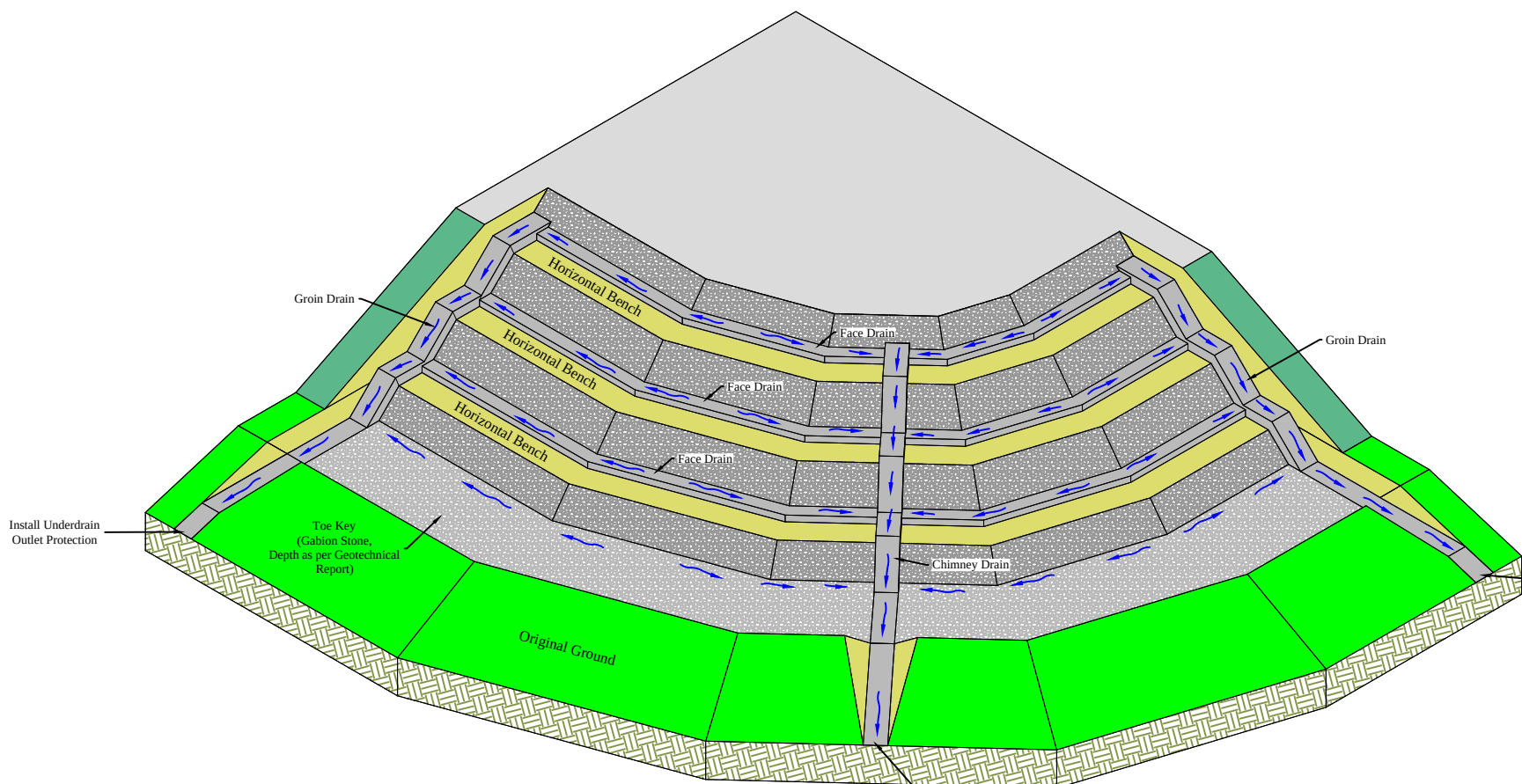
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Groin Drain Underdrain Isometric View



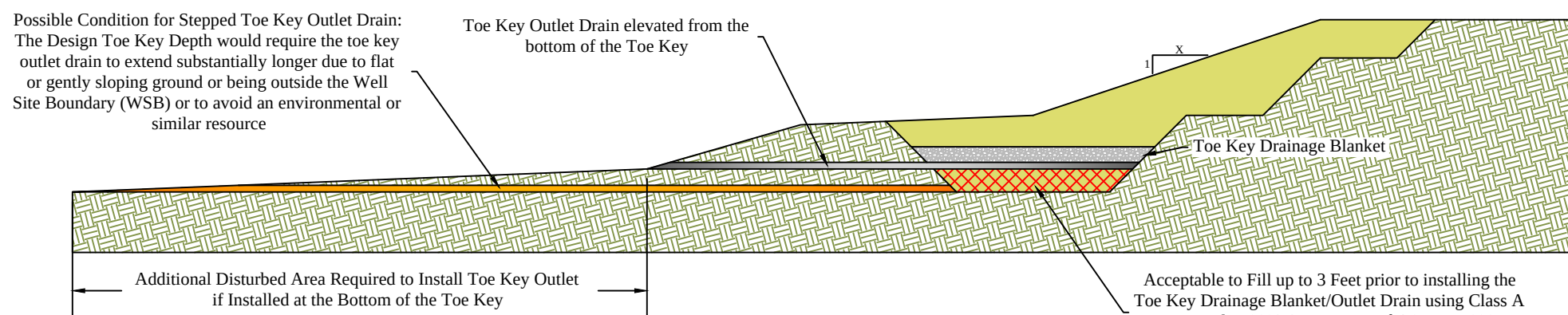
Chimney Drain Underdrain Isometric View



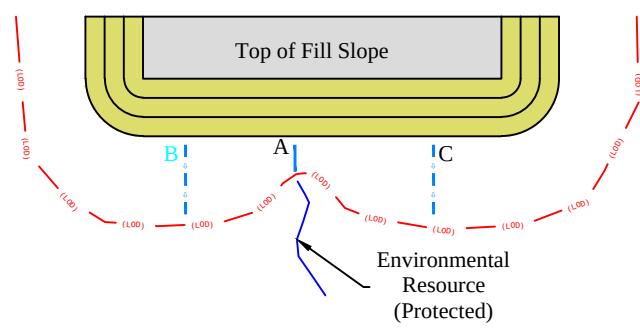
Groin Drain and Chimney Drain Underdrain Isometric View

G12 Chimney and Groin Underdrain Detail (Core Drain)

Scale: NTS



Applicable Case: Flat Slope at Toe Key Outlet



Toe Key Outlet Field Relocation

In the scenario above, Outlet Location A cannot provide positive drainage for the fill slope without impacting the Environmental Resource. Outlet Location A may be moved to Outlet Location B or Location C or, depending on subsurface conditions, Outlet Location A may be replaced with both Outlet Locations B & C to provide positive drainage from the fill slope without impacting the Environmental Resource or similar resource. Toe Key outlets shall be installed every 150' minimum or as field conditions allow.

Notes:

If a condition exists that will degrade the drainage system of the engineered fill, the Geotechnical Engineer and/or his/her representative shall elevate the toe key or bonding bench material before installing the drainage system to provide positive flow to an approved outlet. The toe key or bonding bench may be filled at maximum 15" loose lifts compacted to 12" using Class A Material Compacted to 98% ASTM D 698 for up to three feet or per the Geotechnical Engineer.

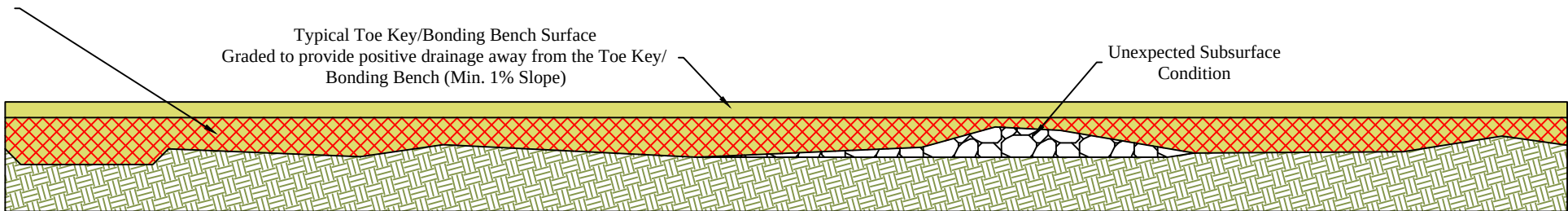
The Toe Key outlets can be field adjusted depending on the material horizon. The toe key outlet locations are conceptual as shown on the plan with the intent of providing a location that shall guarantee positive drainage away from the Toe Key without impacting environmental or similar resources.

G13 Stepped Toe Key/Bonding Bench

Scale: NTS

Acceptable to Fill up to 3 Feet prior to installing the Toe Key or Bonding Bench drainage structure to provide positive drainage away from the Toe Key/ Bonding Bench with the approval of the site Geotechnical Engineer

Fill to be Class A Material at 98% Compaction of ASTM D 698 or as approved by the site Geotechnical Engineer



Applicable Case: Excessively Rough/Uneven Surface at Toe Key/Bonding Bench



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Typical Geotechnical Details

1221 Well Site

Freemans Creek District
Lewis County, WV

APPROVED
WVDEP OOG
Modification
3/14/2025

Date: 02/04/2025
Scale: As Shown
Designed By: ZS
File No.
Sheet G2 of G2

03/14/2025

1221 Well Site Fink Creek Access

HG Energy LLC

Exhibit A: As-Built Modification



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WVDEP OOG
Modification
3/14/2025

Revision
Design

Date
02-04-2025

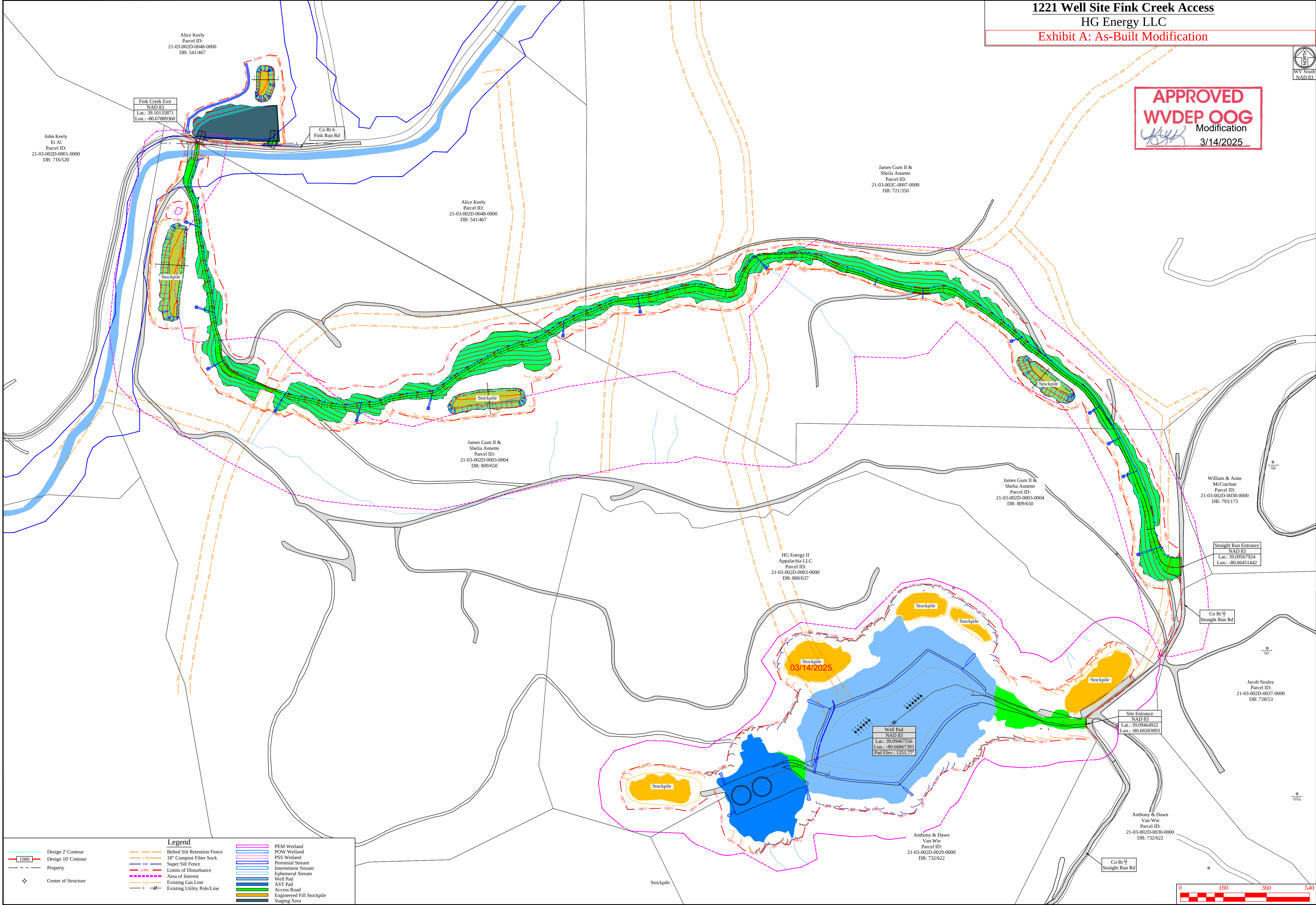
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HG ENERGY LLC

Kelly Surveying
P.O. Box 254
Delmar, WV 26299
(304) 338-0965

Landowner Exhibit

1221 Well Site
Freemans Creek District
Lewis County, WV

Date: 02/04/2025
Scale: As Shown
Designed By: ZS
File No.
Sheet L1 of L1



Legend

- Design 2' Contour
- Design 10' Contour
- Property
- Center of Structure
- Belts Silt Retention Fence
- 18" Compust Filter Sock
- Super Silt Fence
- Limits of Disturbance
- Area of Interest
- Existing Gas Line
- Existing Utility Pole/Line
- PEM Wetland
- PDW Wetland
- PSS Wetland
- Perennial Stream
- Intermittent Stream
- Ephemeral Stream
- Well Pad
- AST Pad
- Access Road
- Engineered Fill Stockpile
- Staging Area

Exhibit A: As-Built Modification

Modification
3/14/2025



Parcel ID:
21-03-002D-0003-0004
DB: 809/650

Parcel ID:
21-03-002D-0003-0000
DB: 800/637

Watercourse C ~

Straight Run Rd

Appalachia LLC
Parcel ID:

DB. 800/637

Lat.: 39.09464922
Lon.: -80.66583893

Straight Run Rd

Parcel ID:
21-03-002D-0030-00
DB: 732/622

Parcel ID:
21-03-002D-0030-0000
DB: 732/622

The Contractor shall re-spread

Maintenance Schedule:

All BMP's shall be inspe

affecting the proper function of the BMPs shall be removed so not to have an impact in the future. All vegetated areas of the BMPs and surrounding drainage area shall be reseeded and stabilized when weather is conducive if erosion or disturbance impacts the area.

1. The contractor shall re

- and slopes prior to seeding and mulching or erosion control blanket installation. During site reclamation, all fill areas shall be compacted in maximum 24" lifts and compacted to 90% compaction per ASTM D-698.
2. Seed and mulch or install erosion control blankets on all disturbed areas. Keep all erosion and sedimentation controls in place until there is 70% growth over the entire site.
3. All non-essential structures, tanks, etc. shall be removed from the site.

--	--	--	--

pH of Soil	Lime in Tons per Acre	Fertilizer, Lbs Per Acre 10-20-20 or Equivalent
Above 6.0	2.00	500.00
5.0 to 6.0	3.00	500.00
Below 5.0	4.00	500.00

laboratory. When 4 tons of lime per acre are applied it must be incorporated into the soil by disking, backblading, or tracking up and down the slope.

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Date 02-04-20

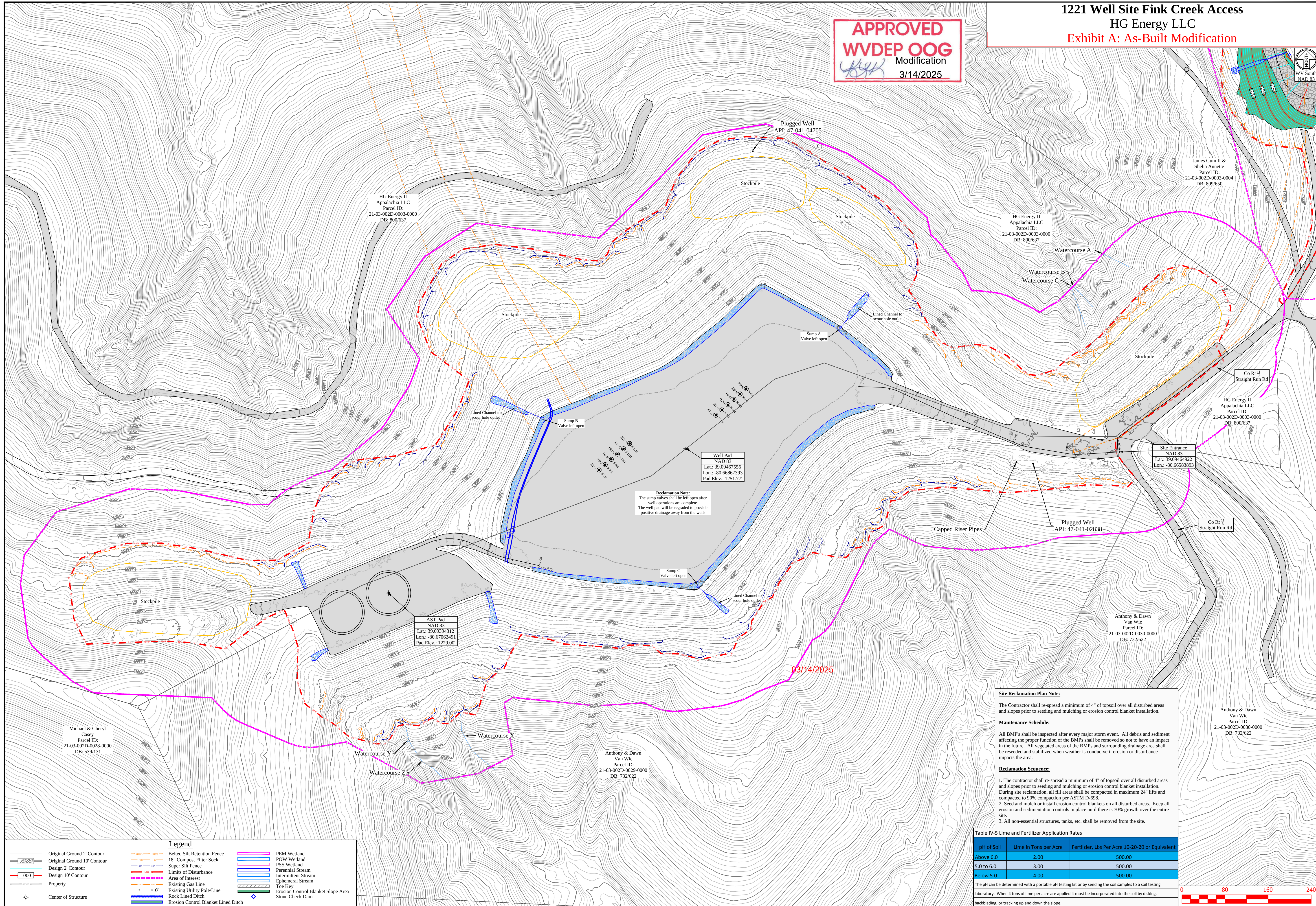


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Site Reclamation Plan
11221 Well Street
Freemans Creek District
Lewis County, WV

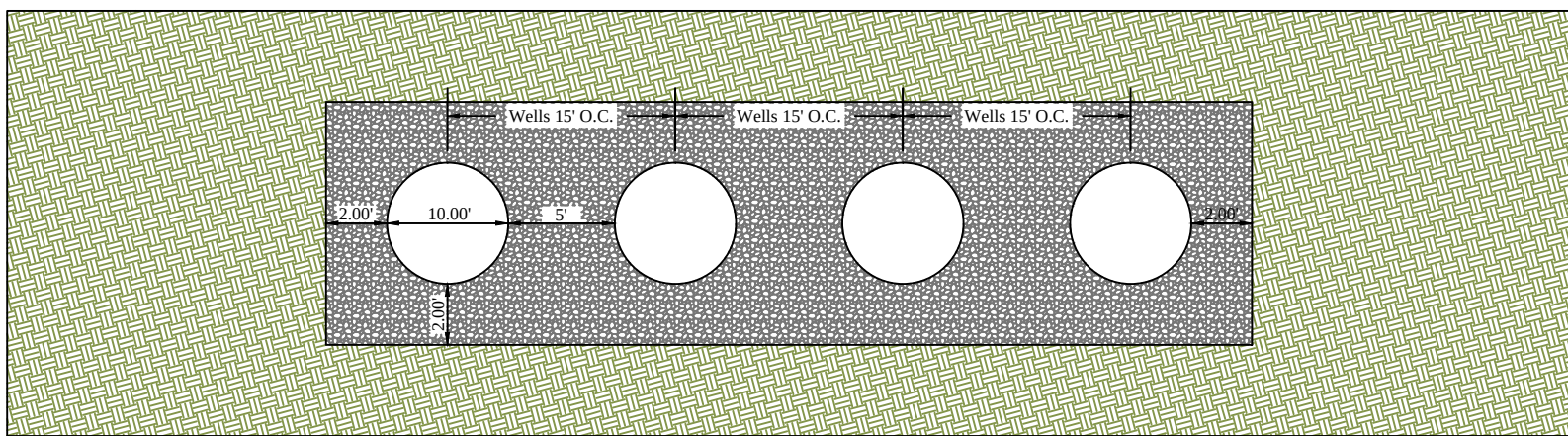
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Designed By: ZS
File No.
Sheet S1 of S1



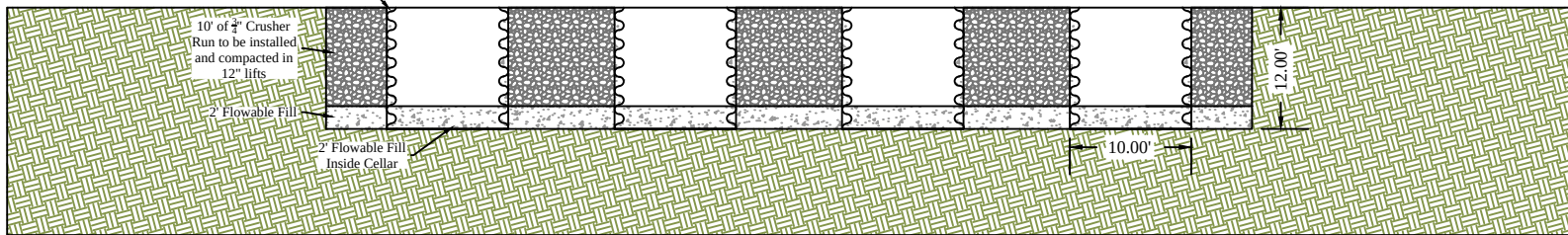
- Belted Silt

 18" Compost Filter Sock
 Super Silt Fence
 Limits of Disturbance
 Area of Interest
 Existing Gas Line
 Existing Utility Pole/Line
 Rock Lined Ditch
 Erosion Control Blanket Line

POW Wetland
PSS Wetland
Perennial Stream
Intermittent Stream
Ephemeral Stream
Toe Key
Erosion Control Blanket Slope Area
Stone Check Dam
Ditch



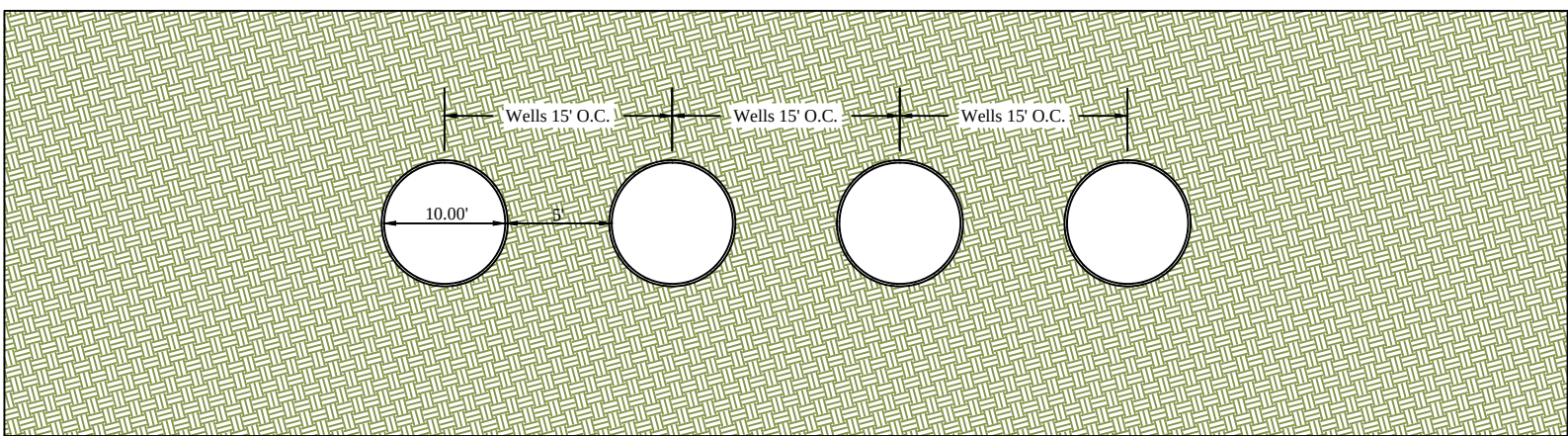
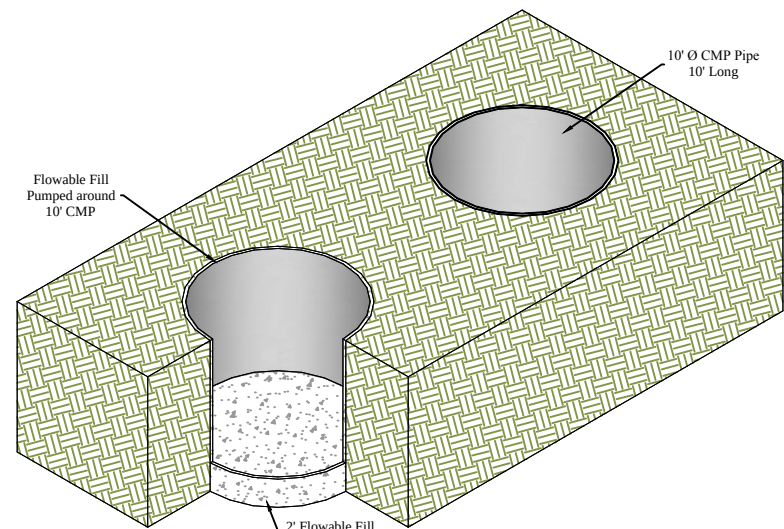
Trench Cellar Plan View



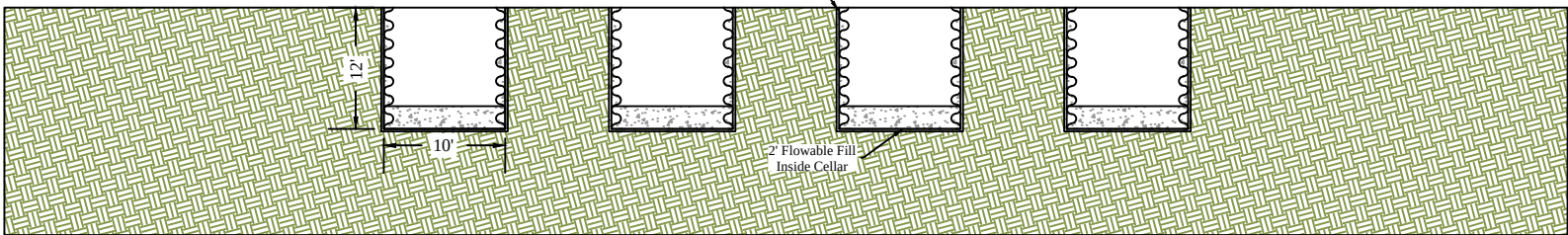
Trench Cellar Section View

M1 Typical Trenched Cellar Detail
Scale: NTS

Note:
All stone placed on the pad and around the cellars shall be compacted.



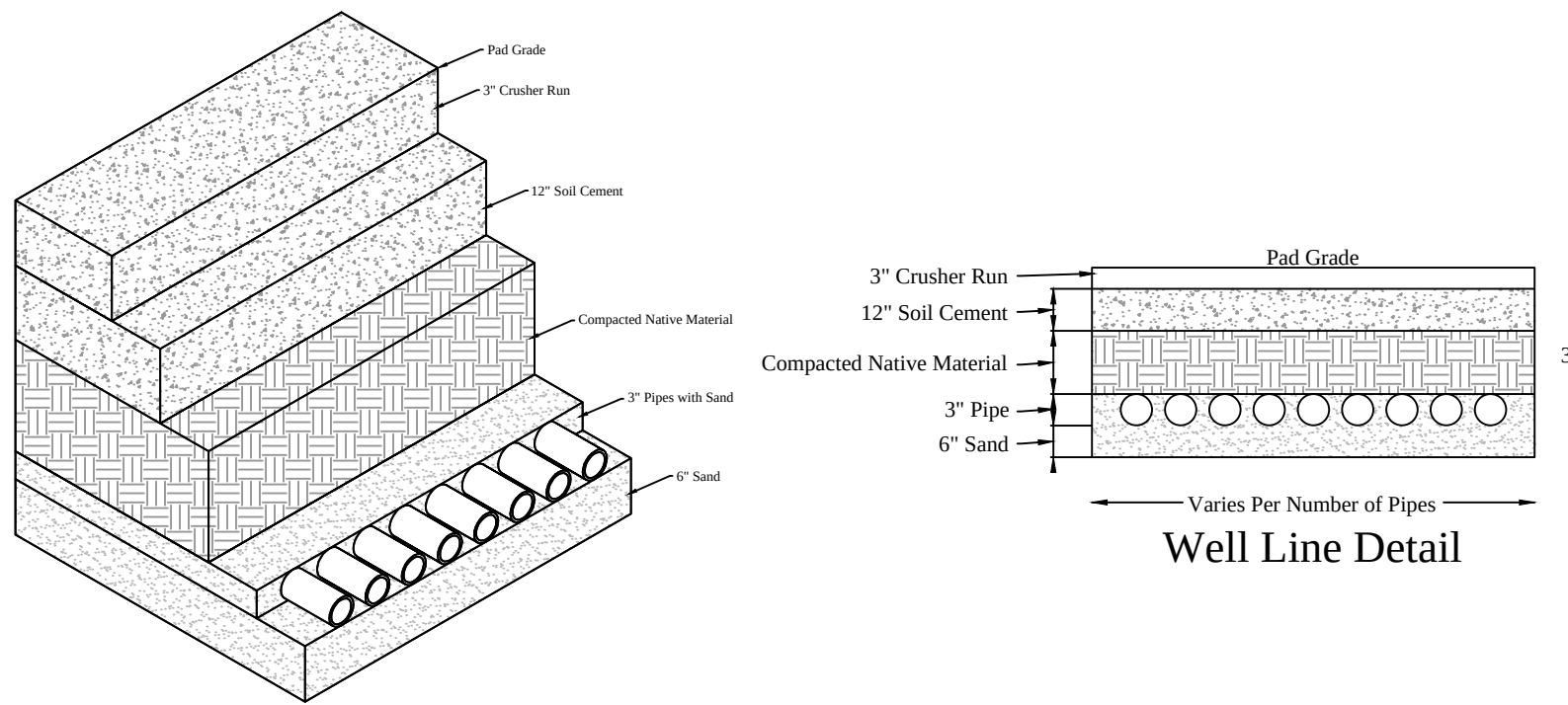
Auger Cellar Plan View



Auger Cellar Section View

M2 Typical Augered Cellar Detail
Scale: NTS

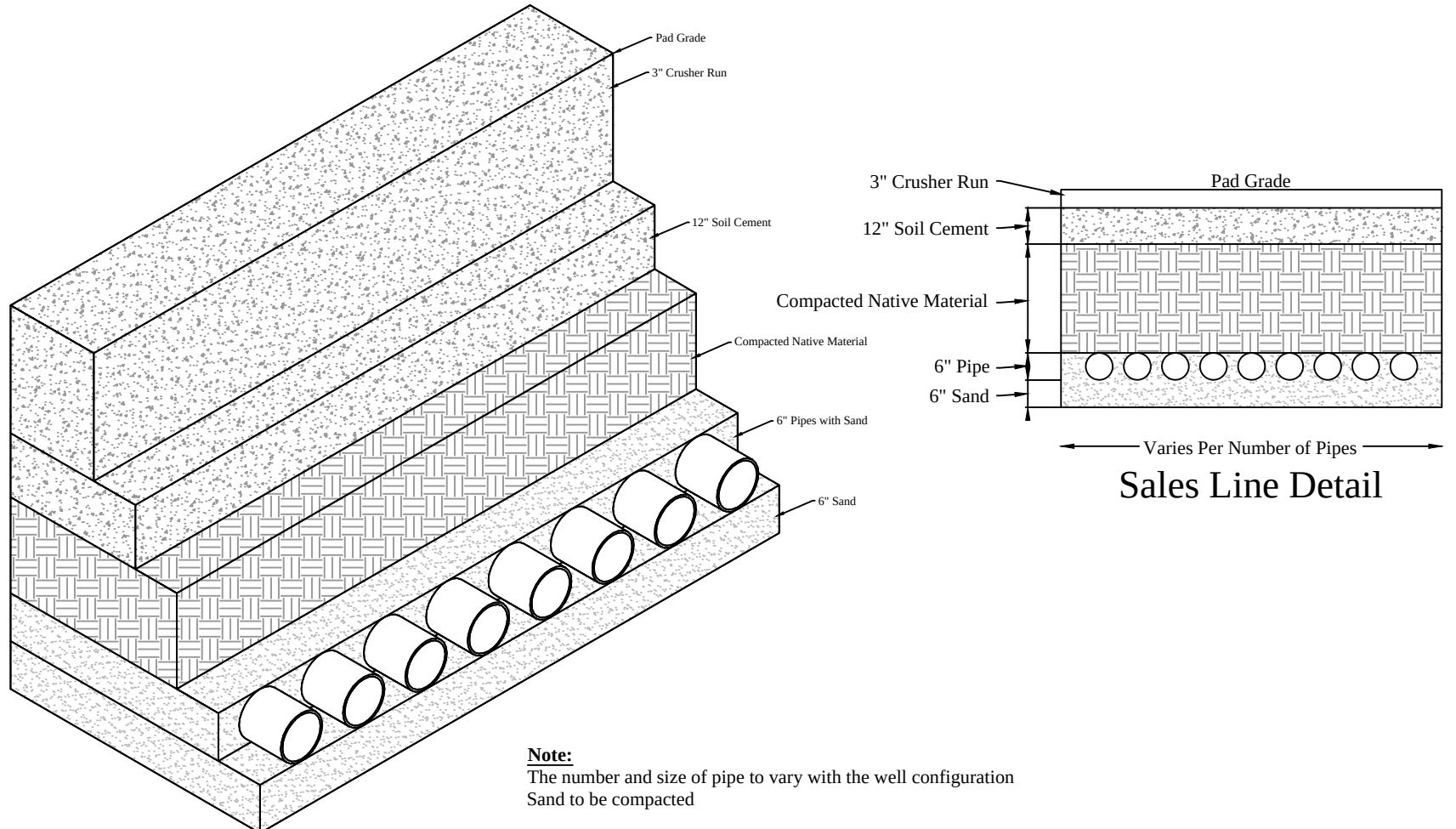
Note:
All stone placed on the pad and around the cellars shall be compacted.



Well Line Detail

Note:
The number and size of pipe to vary with the well configuration
Sand to be compacted

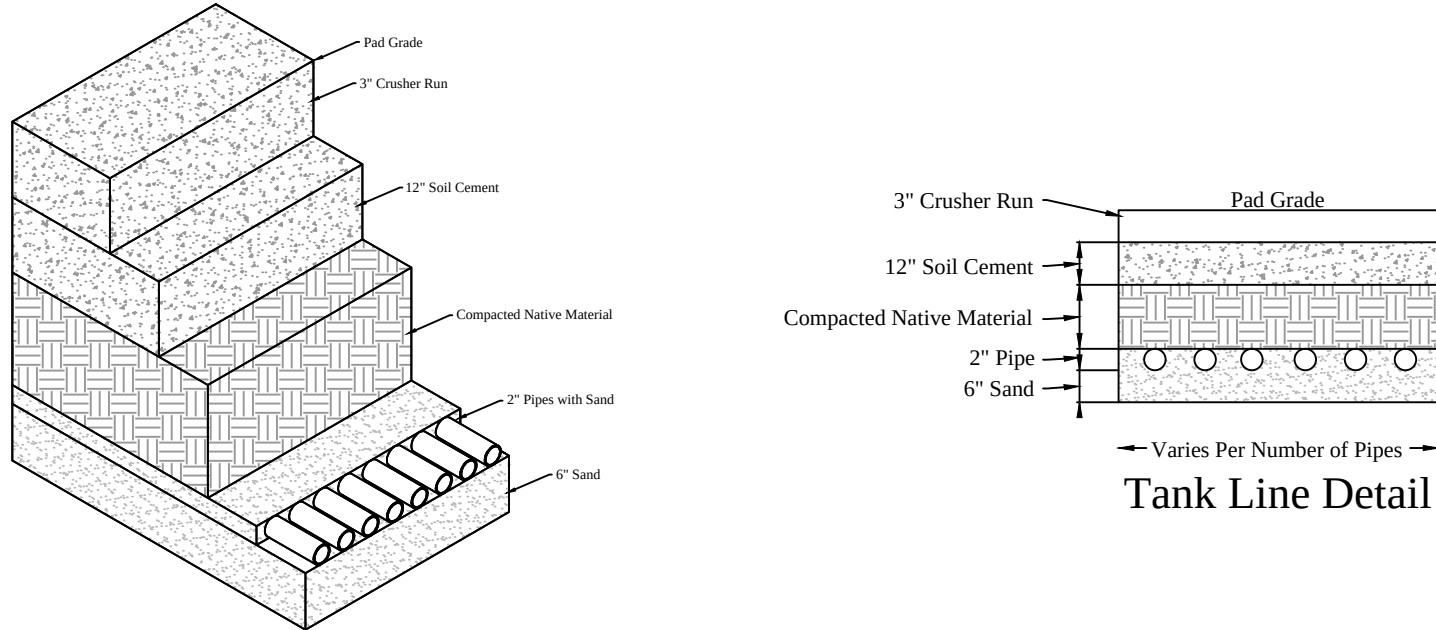
M3 Typical Well Line Detail
Scale: NTS



Sales Line Detail

Note:
The number and size of pipe to vary with the well configuration
Sand to be compacted

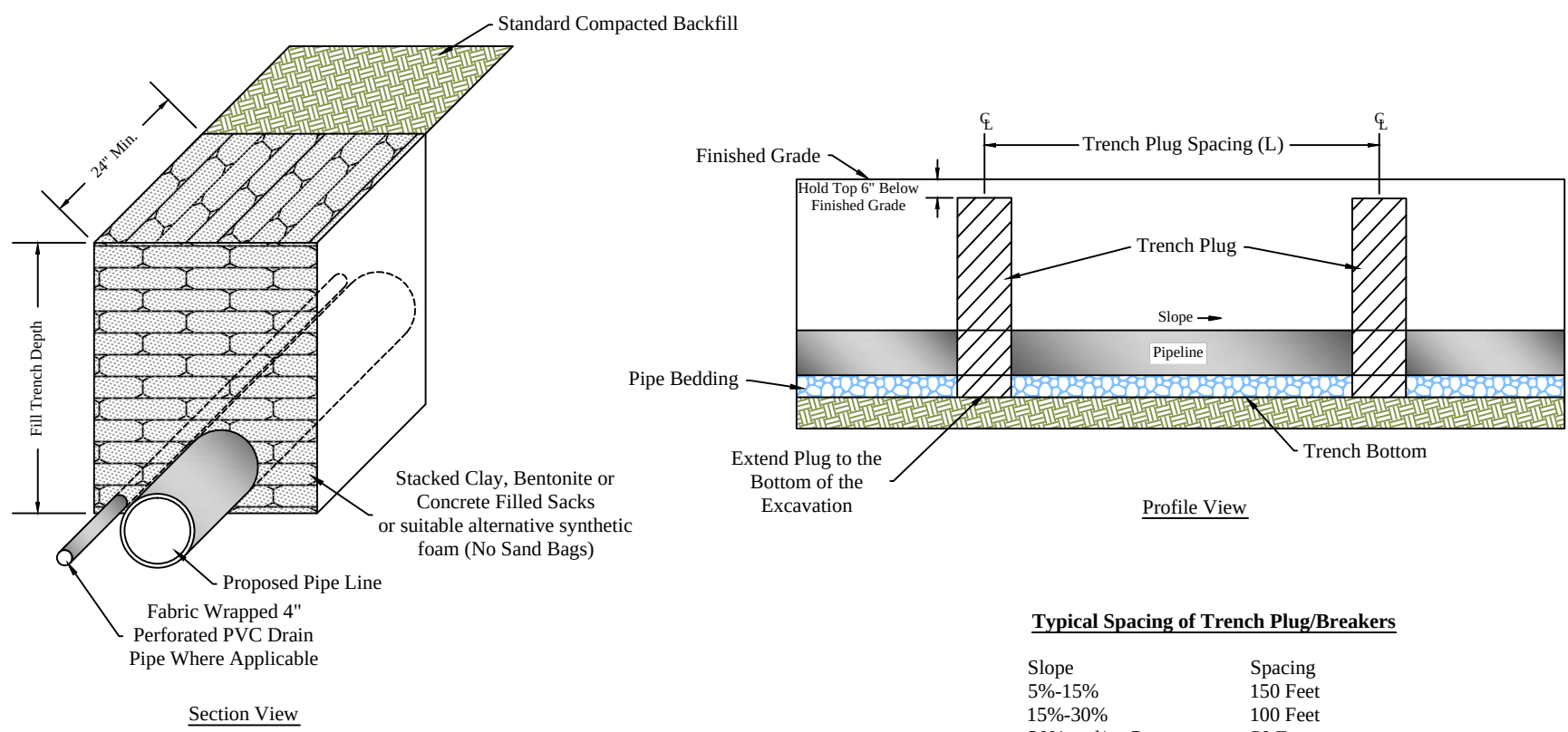
M4 Typical Sales Line Detail
Scale: NTS



Tank Line Detail

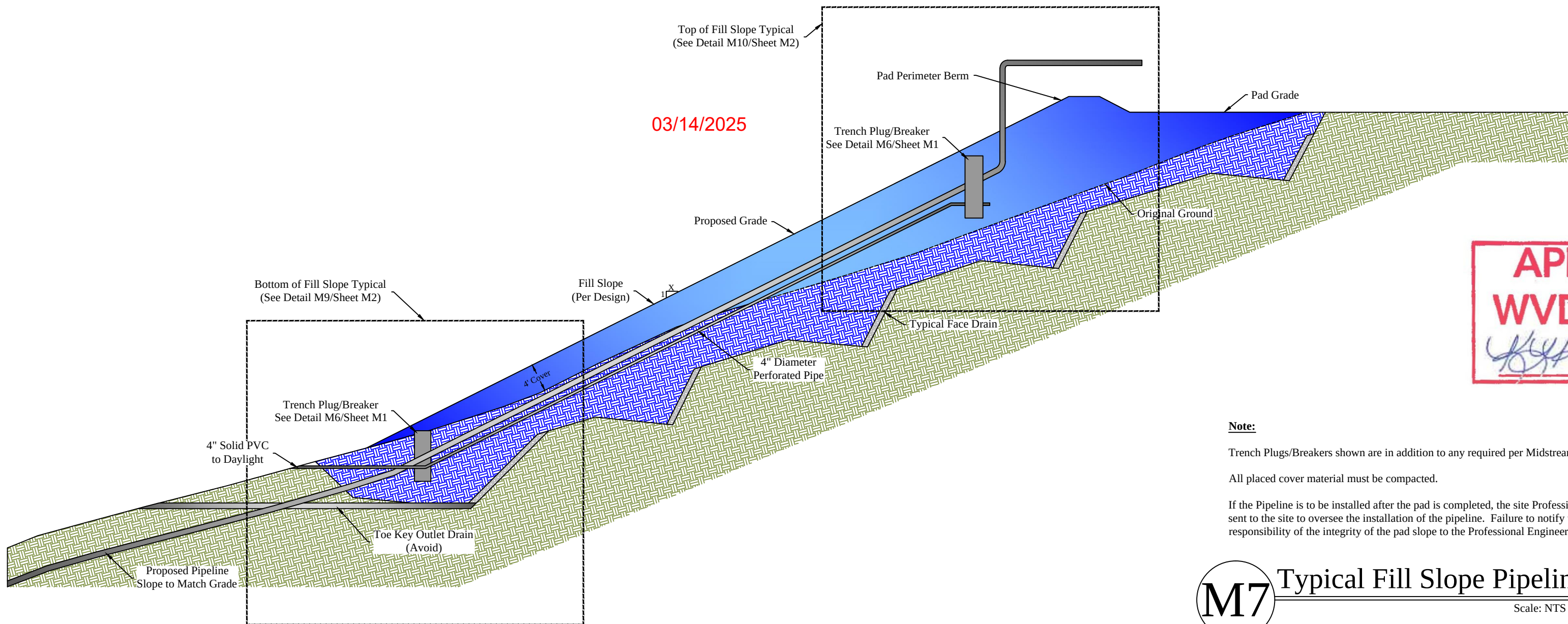
Note:
The number and size of pipe to vary with the well configuration
Sand to be compacted

M5 Typical Tank Line Detail
Scale: NTS



Typical Spacing of Trench Plug/Breakers	
Slope	Spacing
5%-15%	150 Feet
15%-30%	100 Feet
30% and/or Greater	50 Feet

M6 Typical Impervious Trench Plug/Breaker
Scale: NTS



Note:
Trench Plugs/Breakers shown are in addition to any required per Midstream Plans/Details for the Proposed Pipeline.
All placed cover material must be compacted.

If the Pipeline is to be installed after the pad is completed, the site Professional Engineer must be contacted and an inspector sent to the site to oversee the installation of the pipeline. Failure to notify the site Professional Engineer will transfer the responsibility of the integrity of the pad slope to the Professional Engineer who designed the pipeline.

M7 Typical Fill Slope Pipeline Installation Section
Scale: NTS

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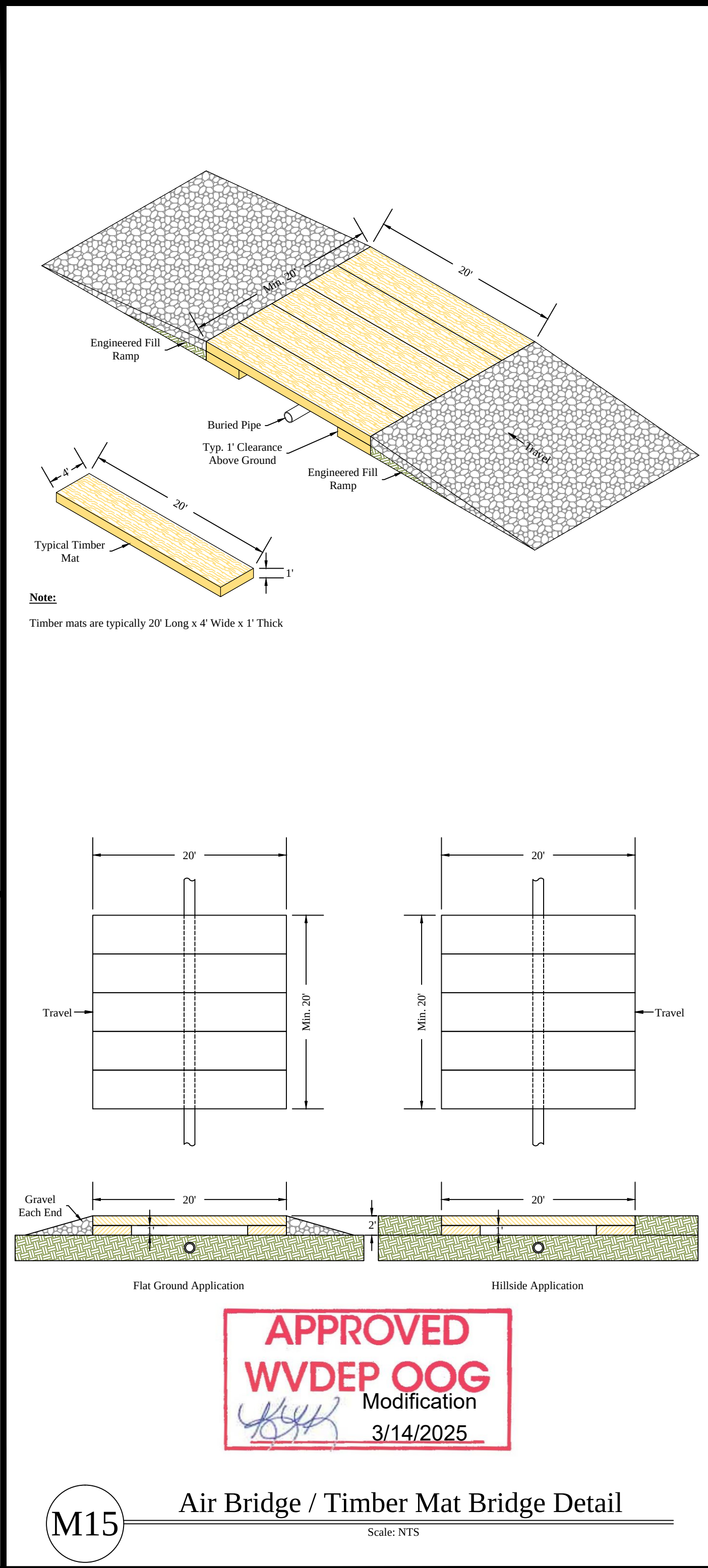
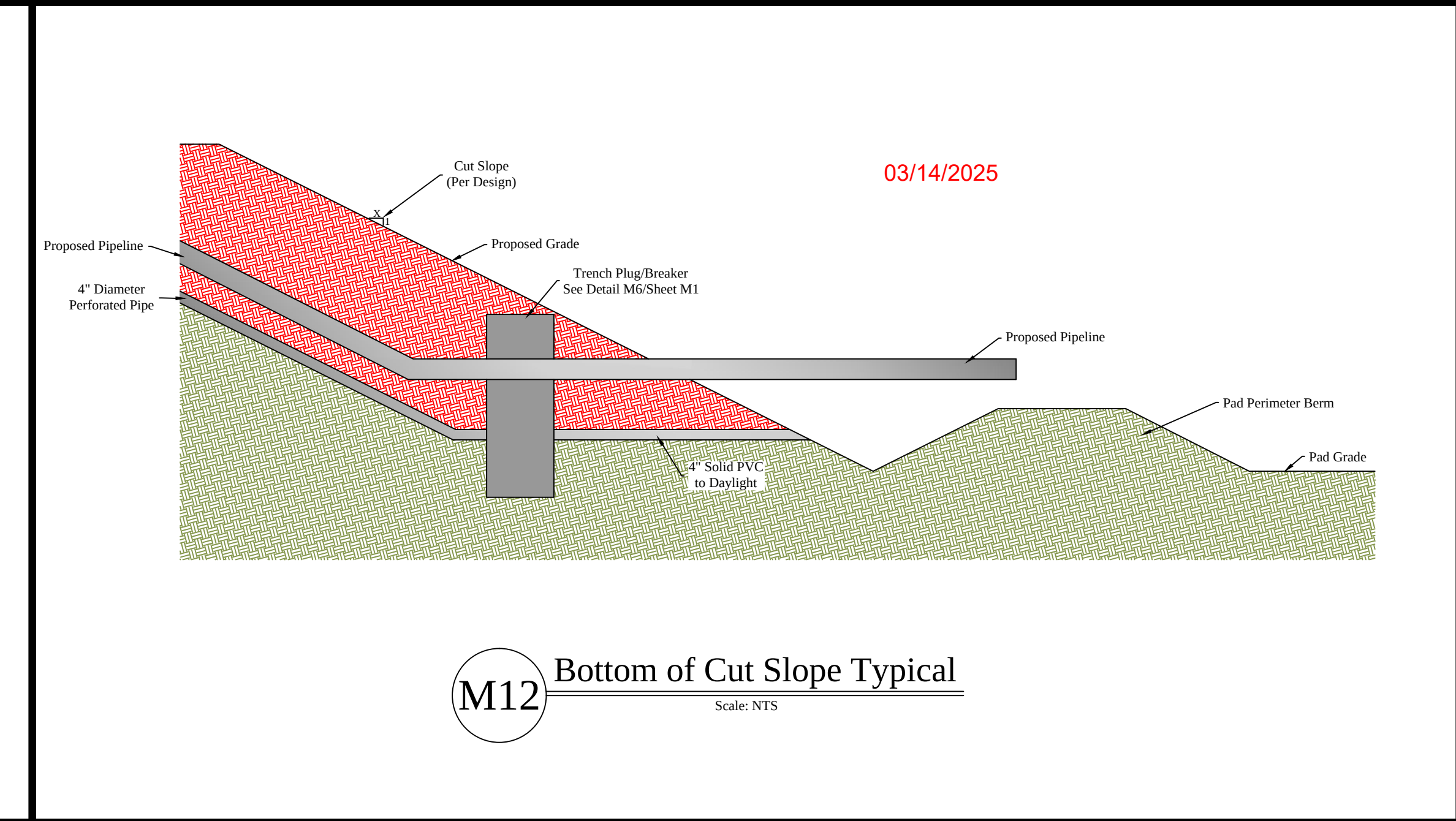
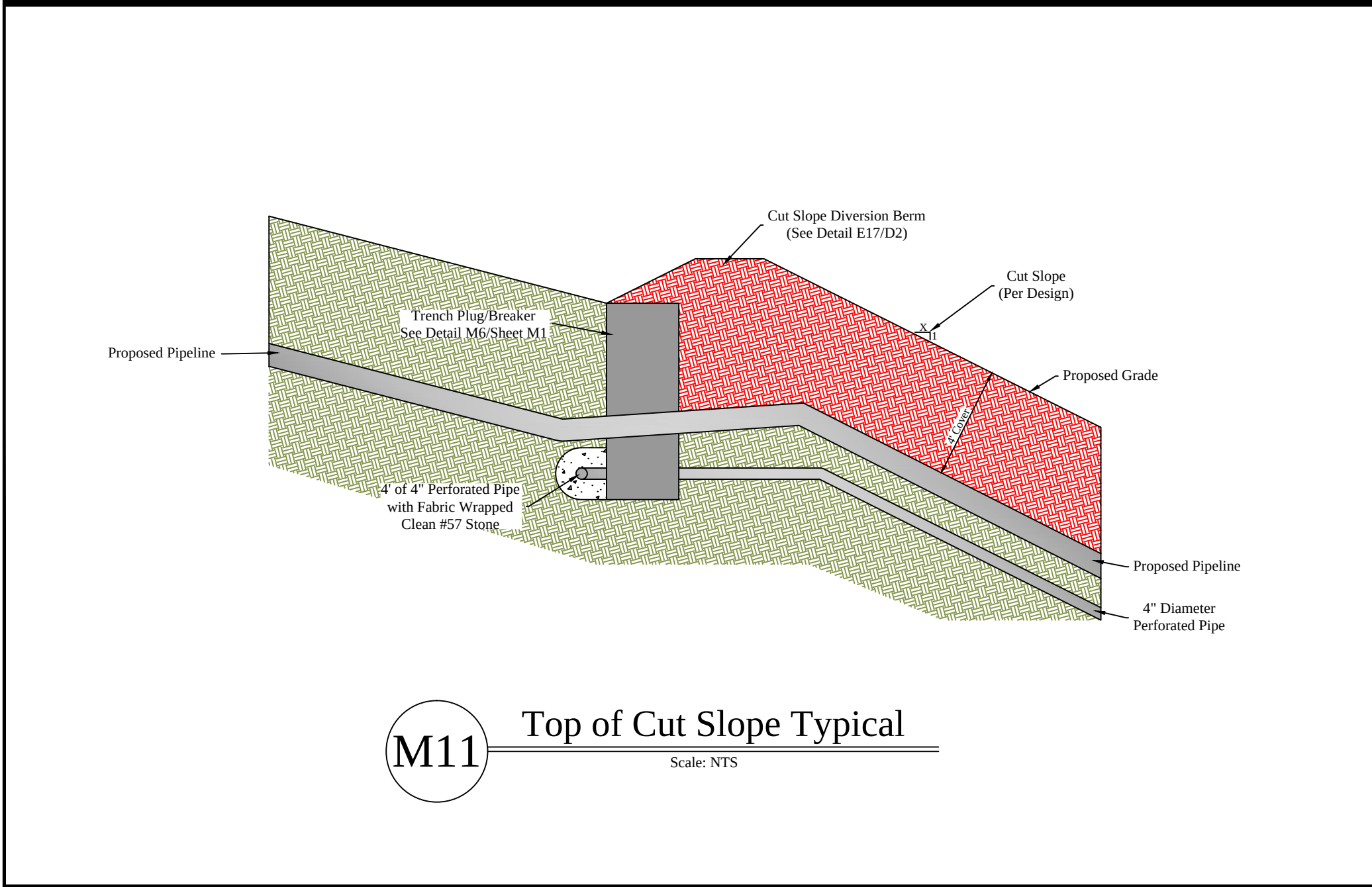
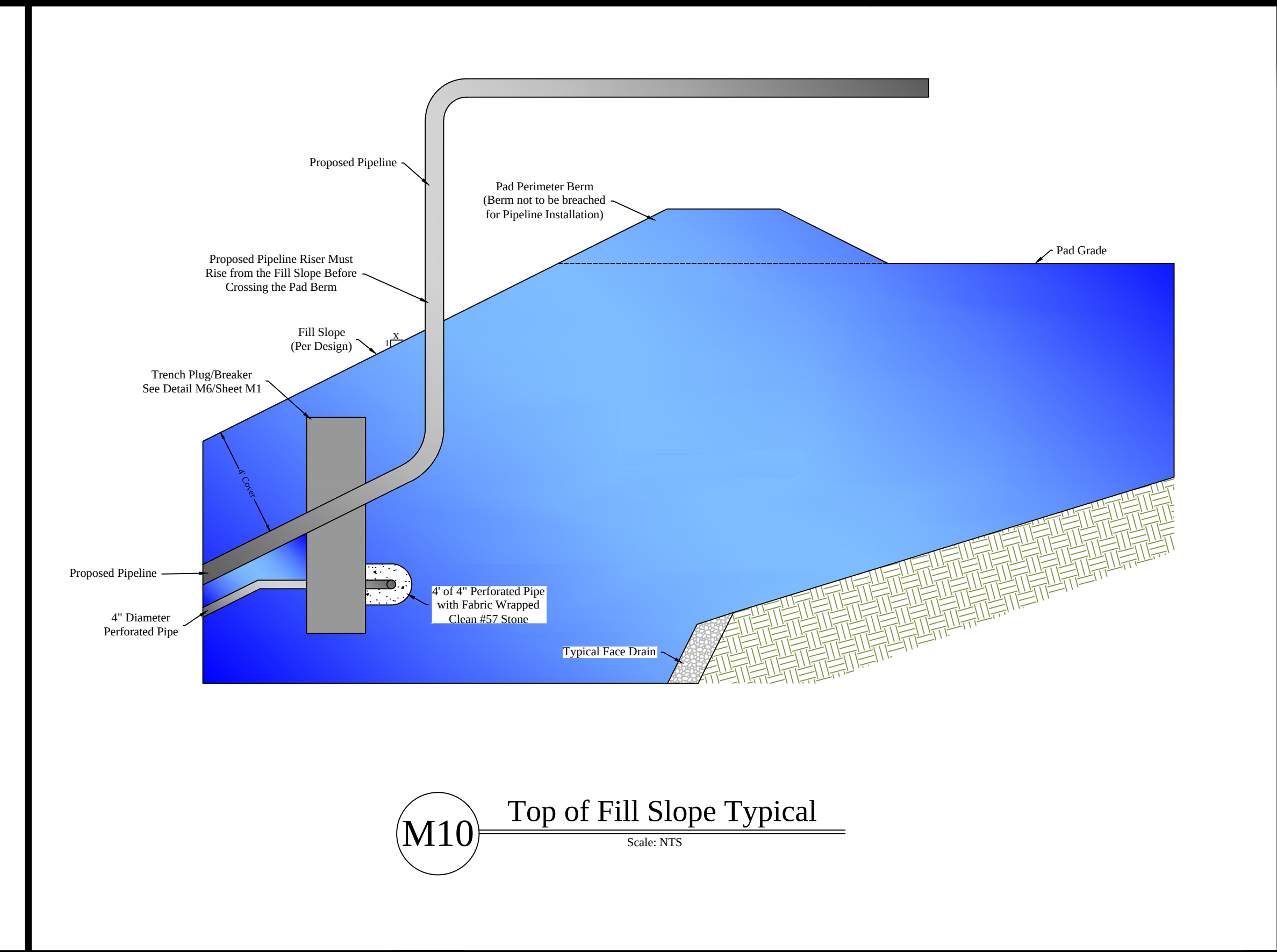
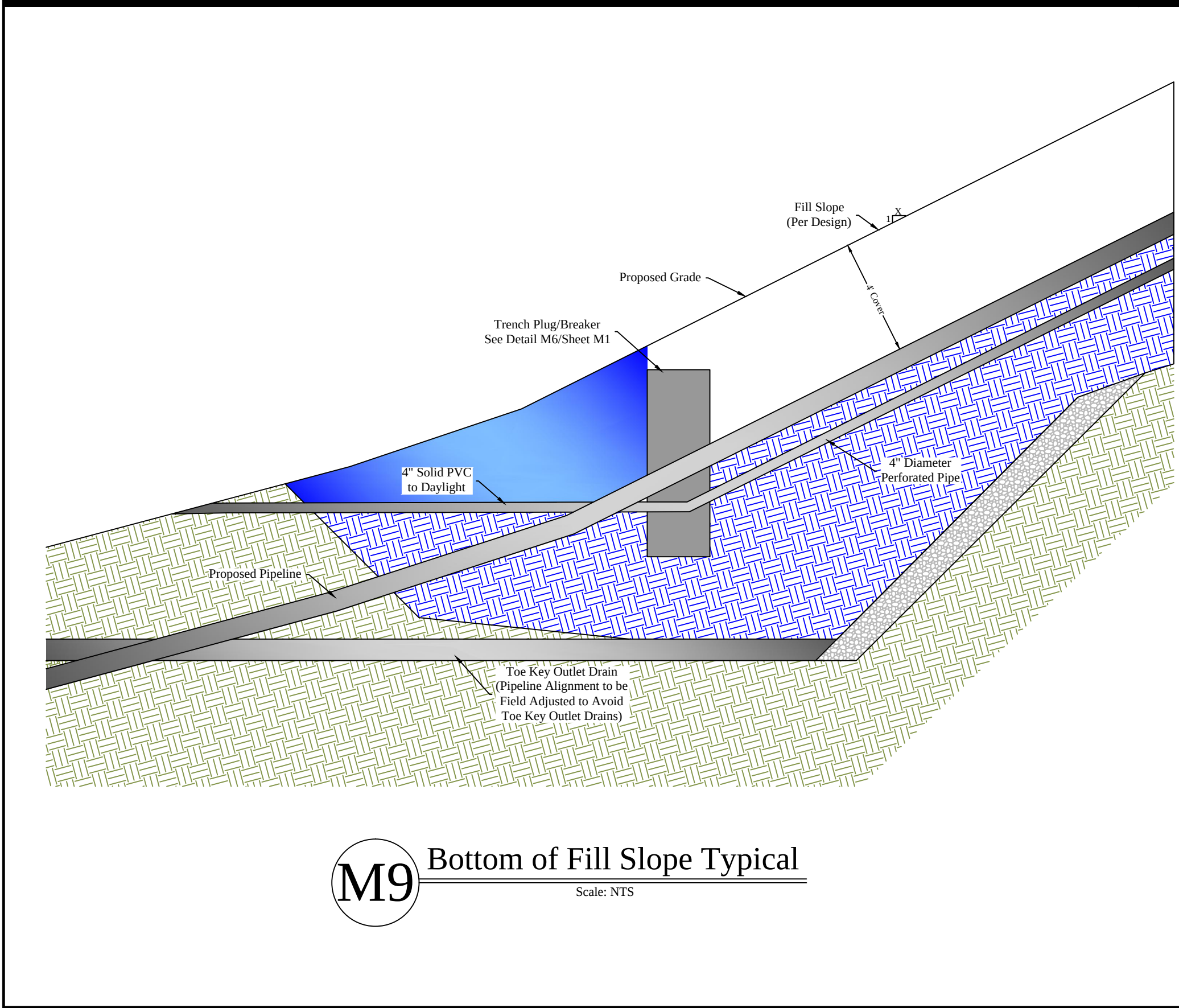
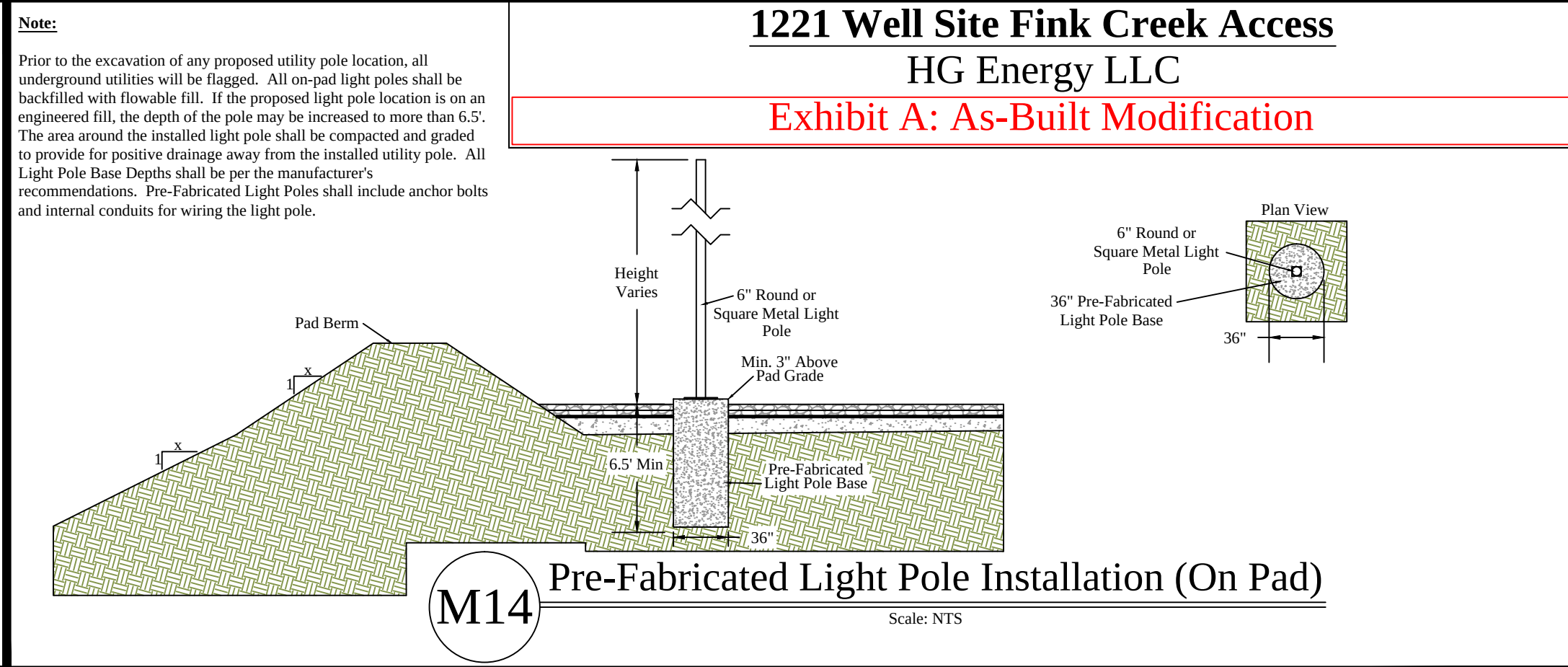
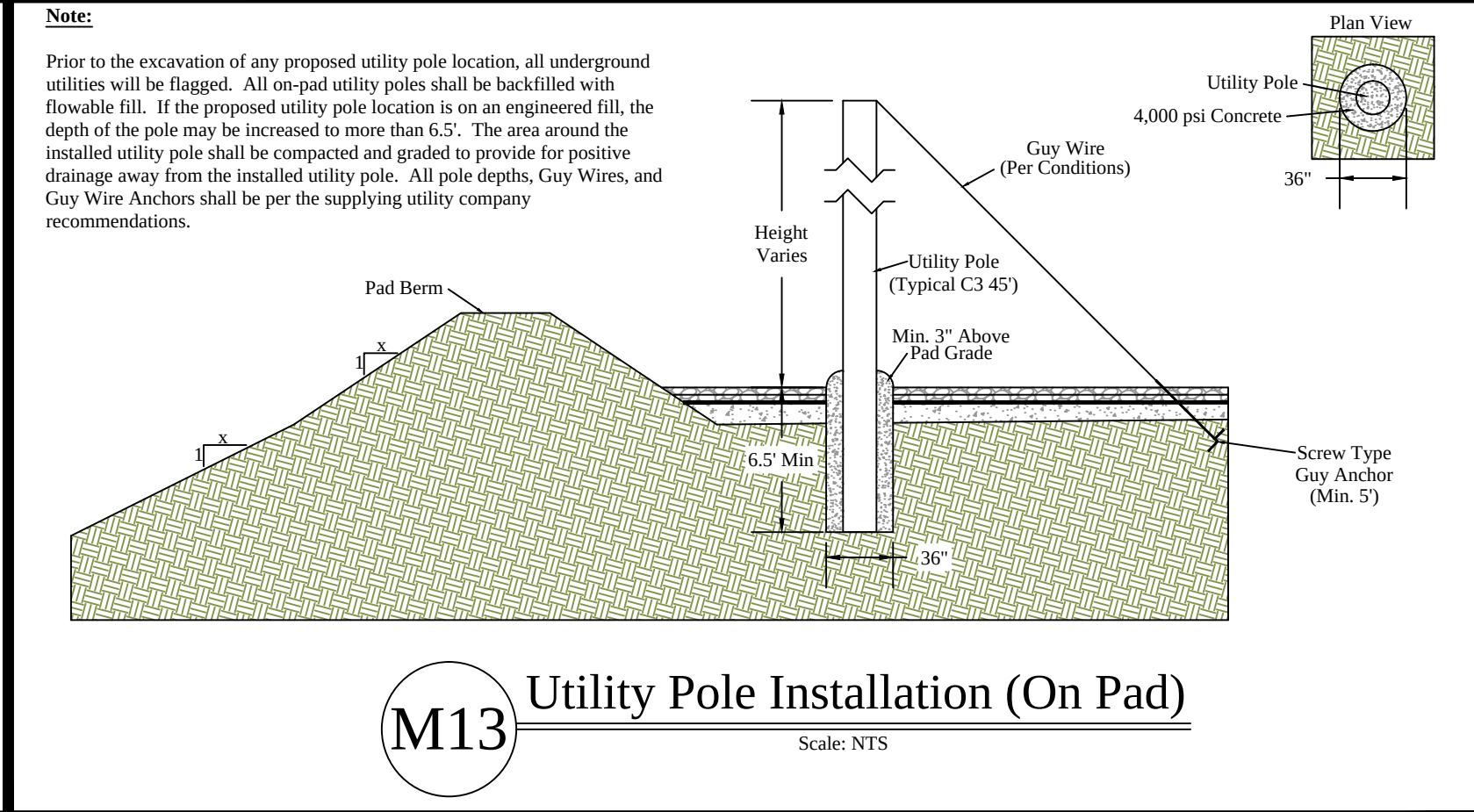
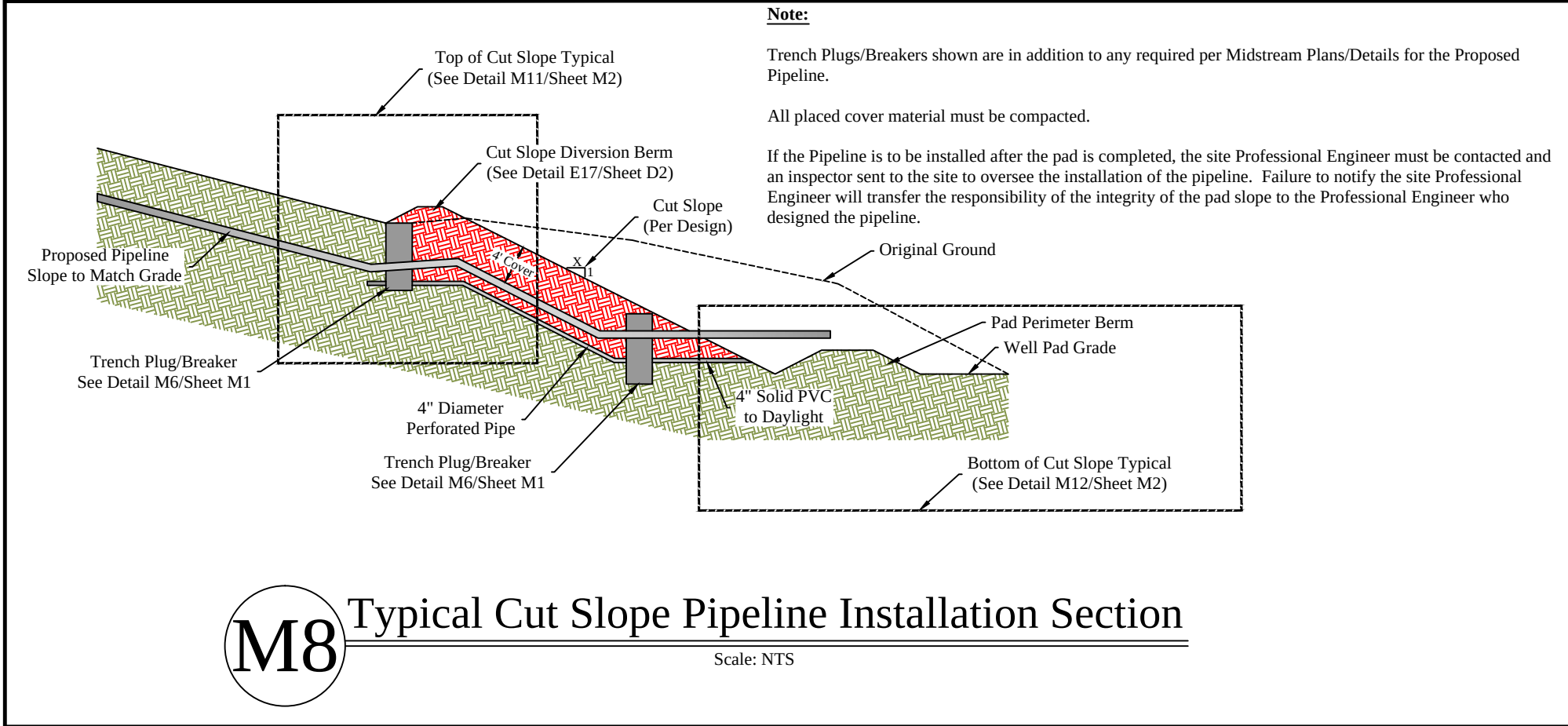


Typical Midstream Production Details

1221 Well Site

Freemans Creek District
Lewis County, WV

Date: 02/04/2025
Scale: As Shown
Designed By: ZS
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Dallman, WV 26029
(304) 338-0965

Typical Midstream Production Details

1221 Well Site

Freemans Creek District
Lewis County, WV

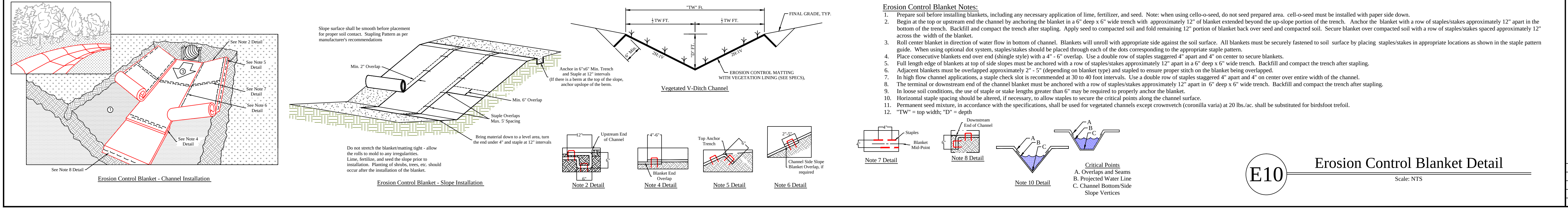
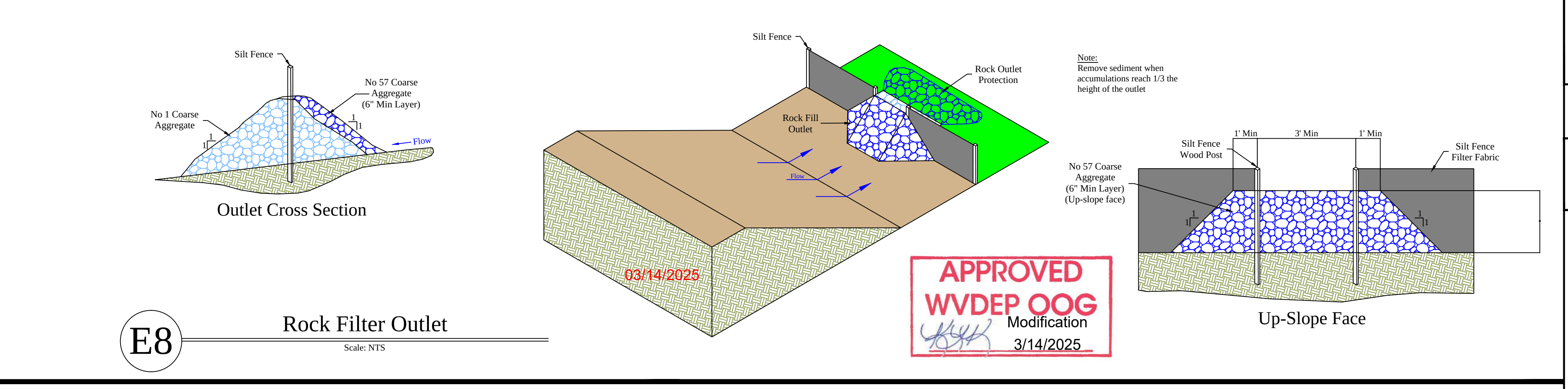
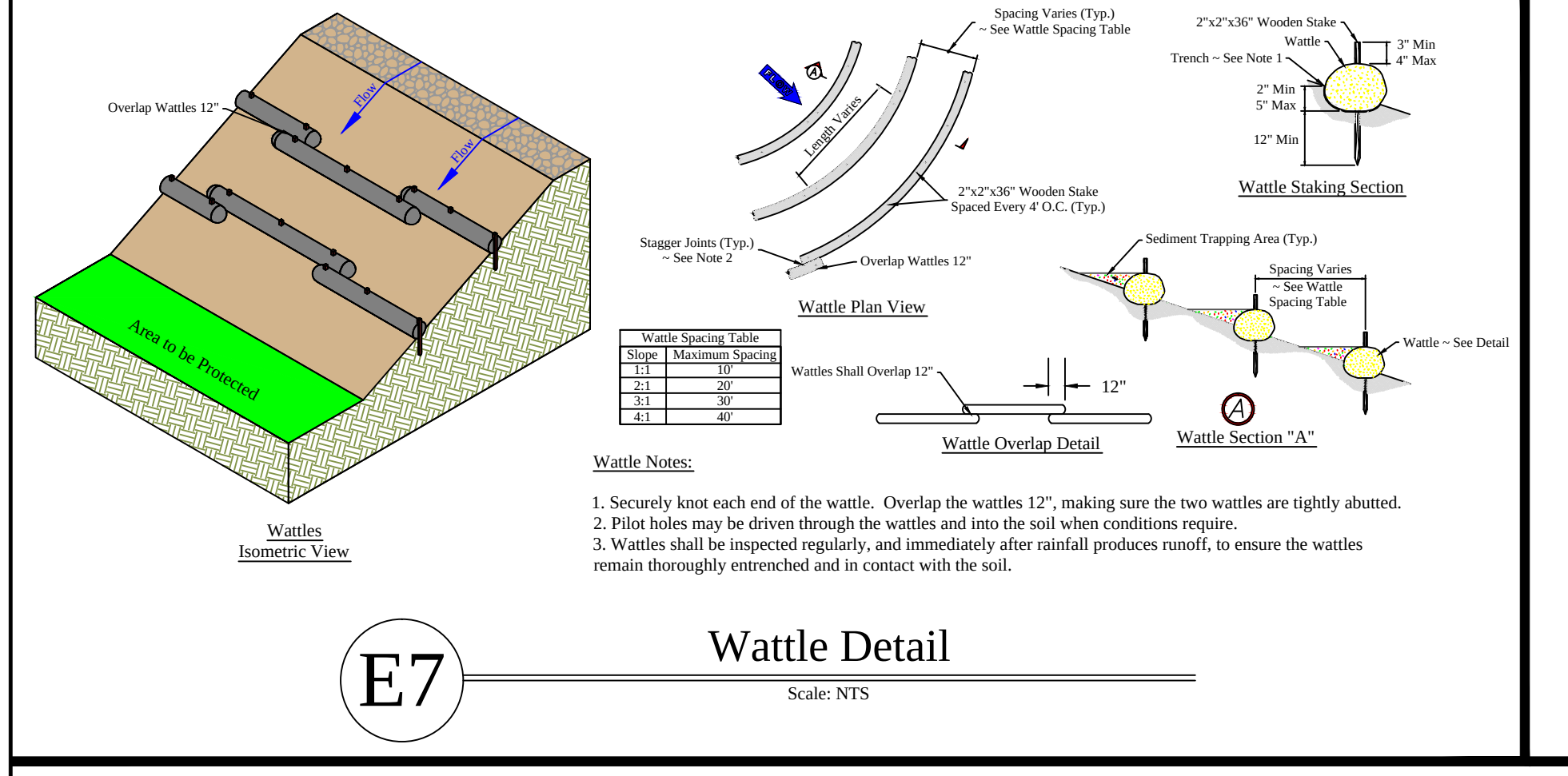
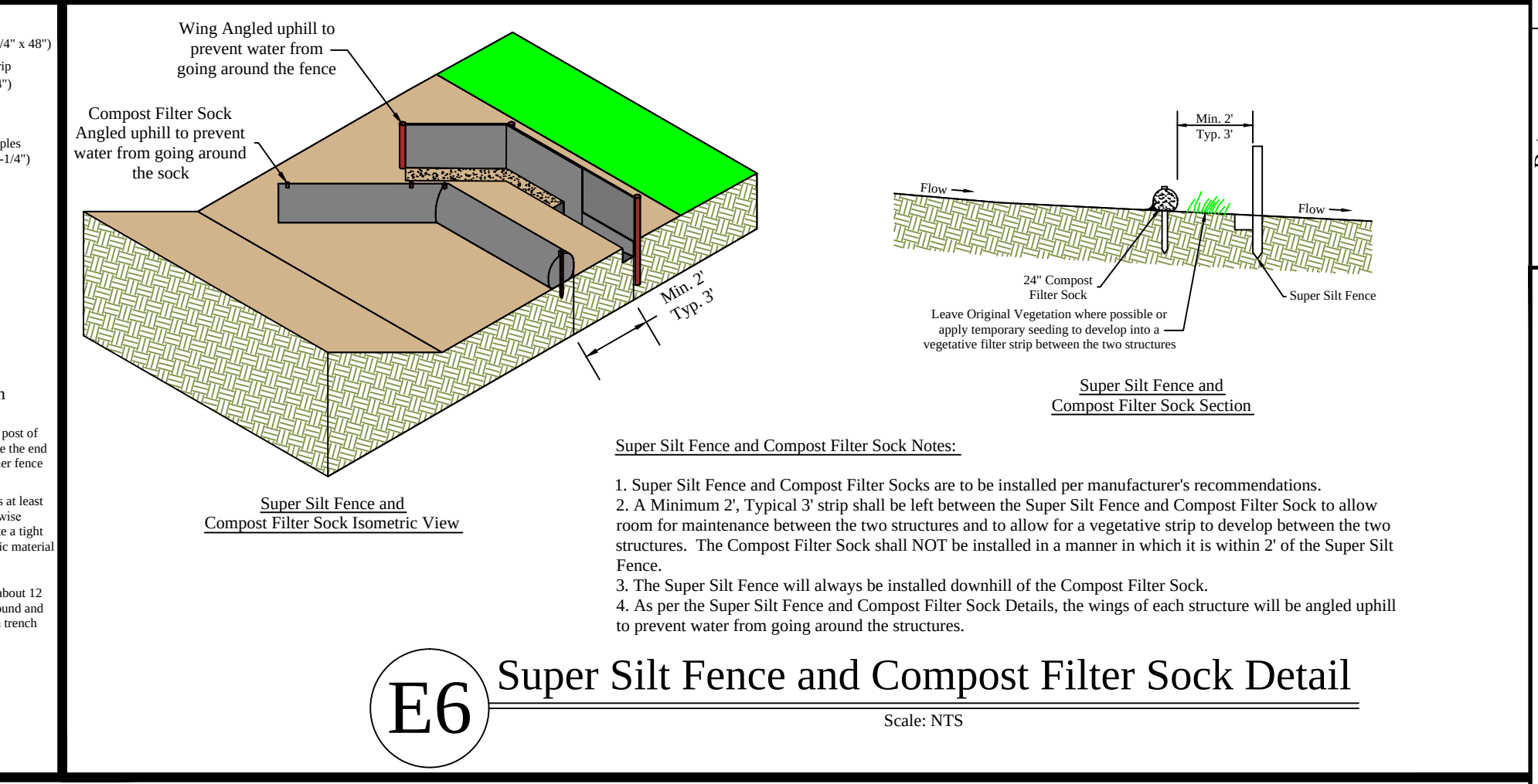
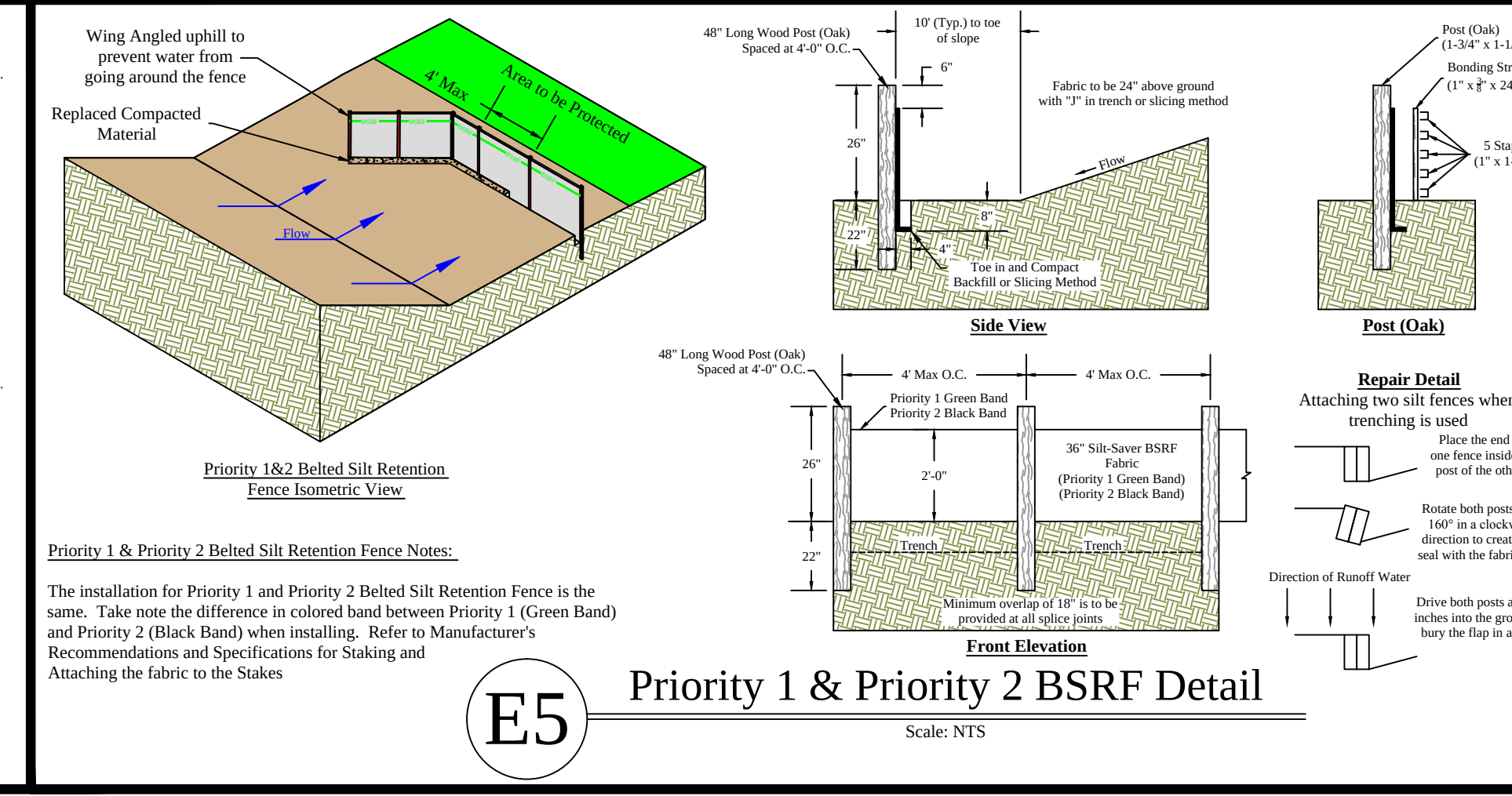
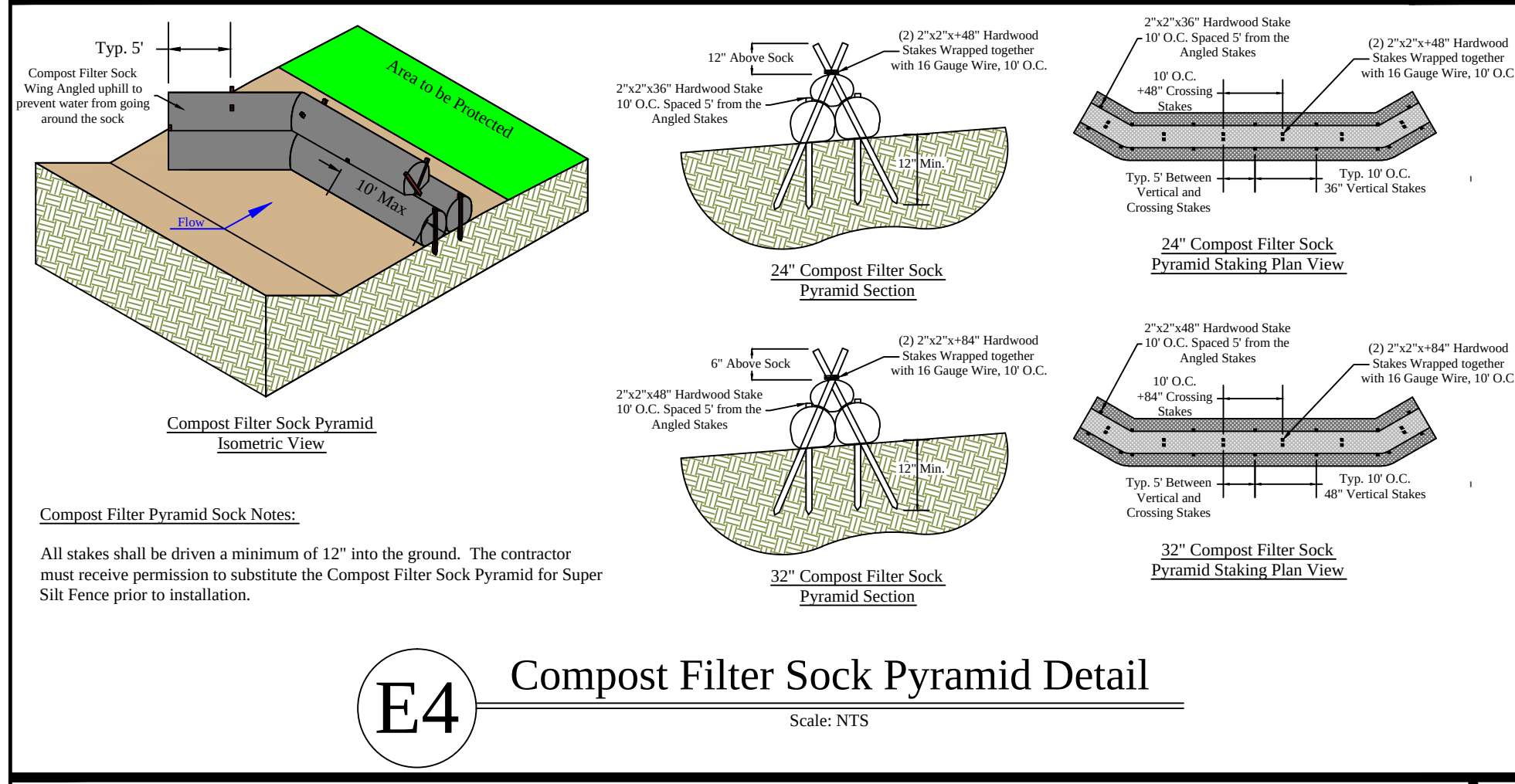
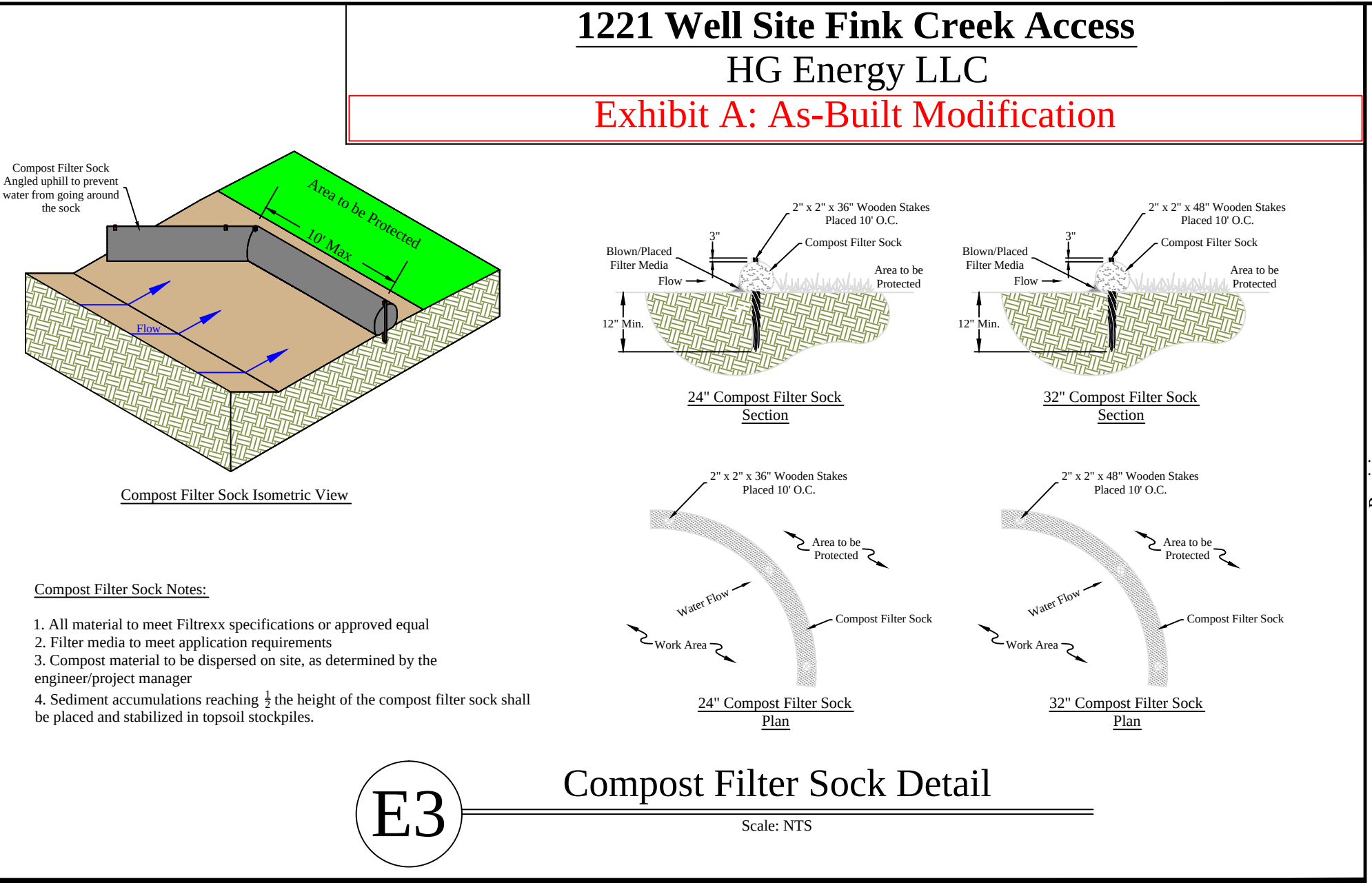
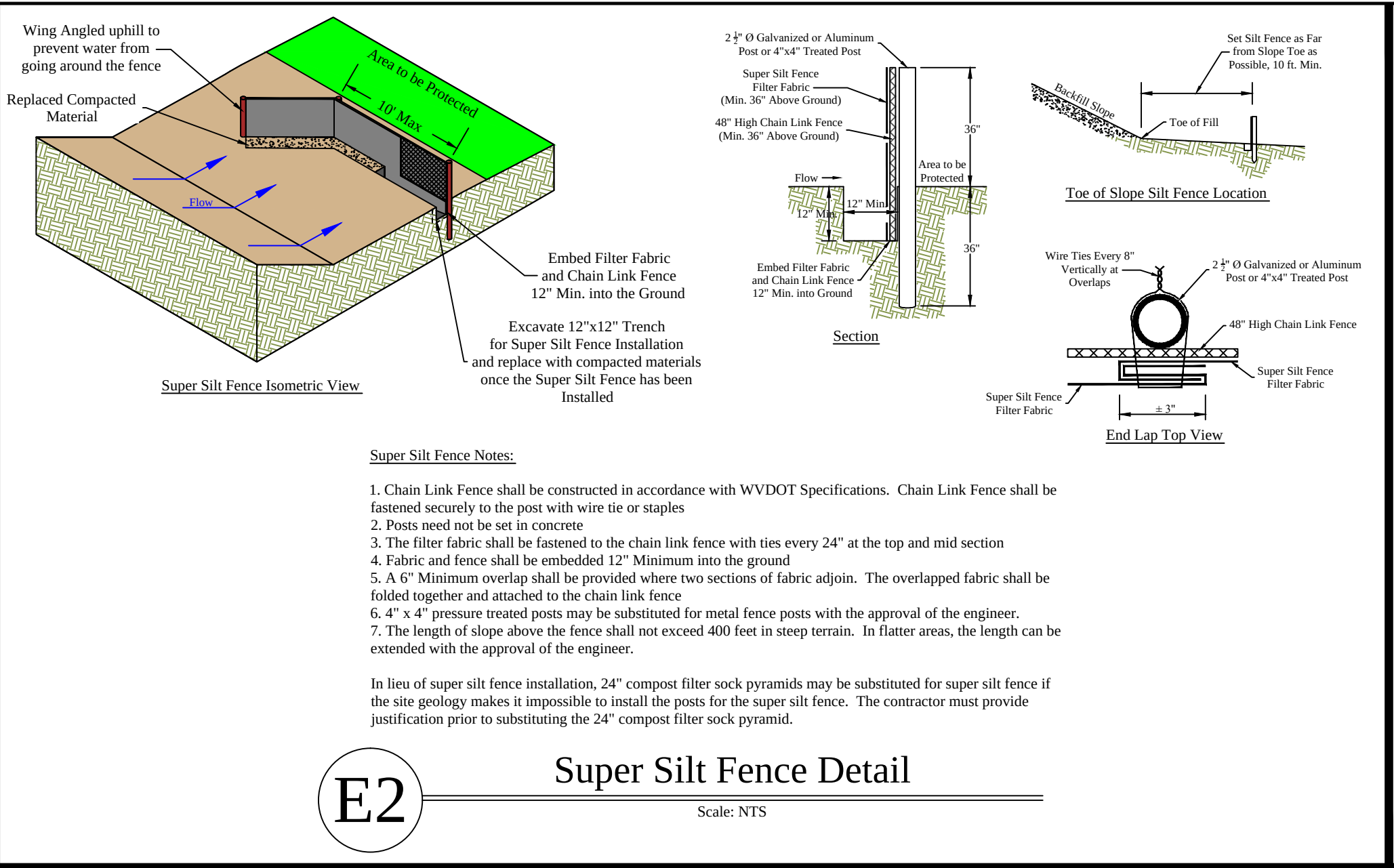
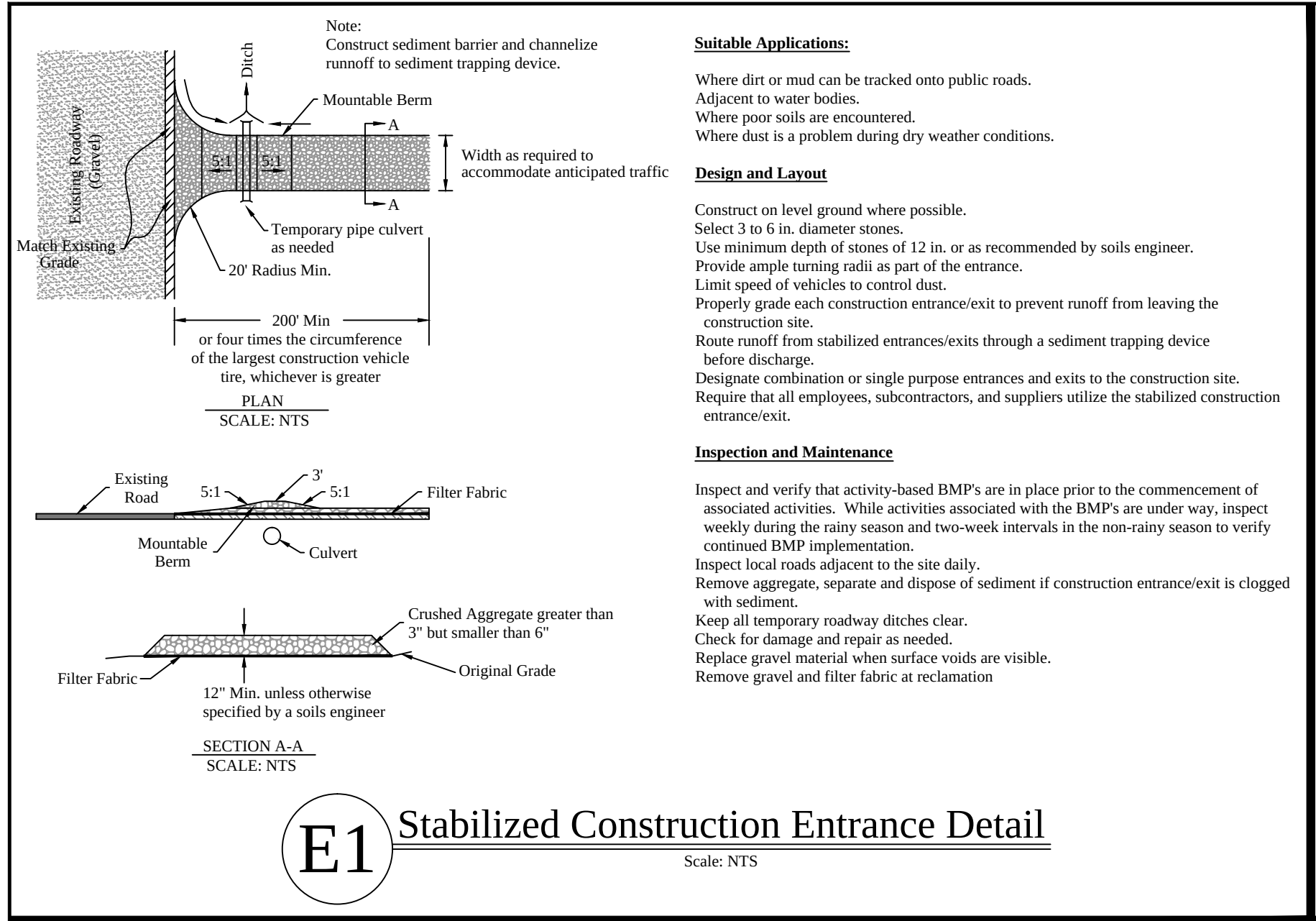
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P.O. Box 254
Delmar, WV 26039
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Erosion and Sediment Control Details

1221 Well Site

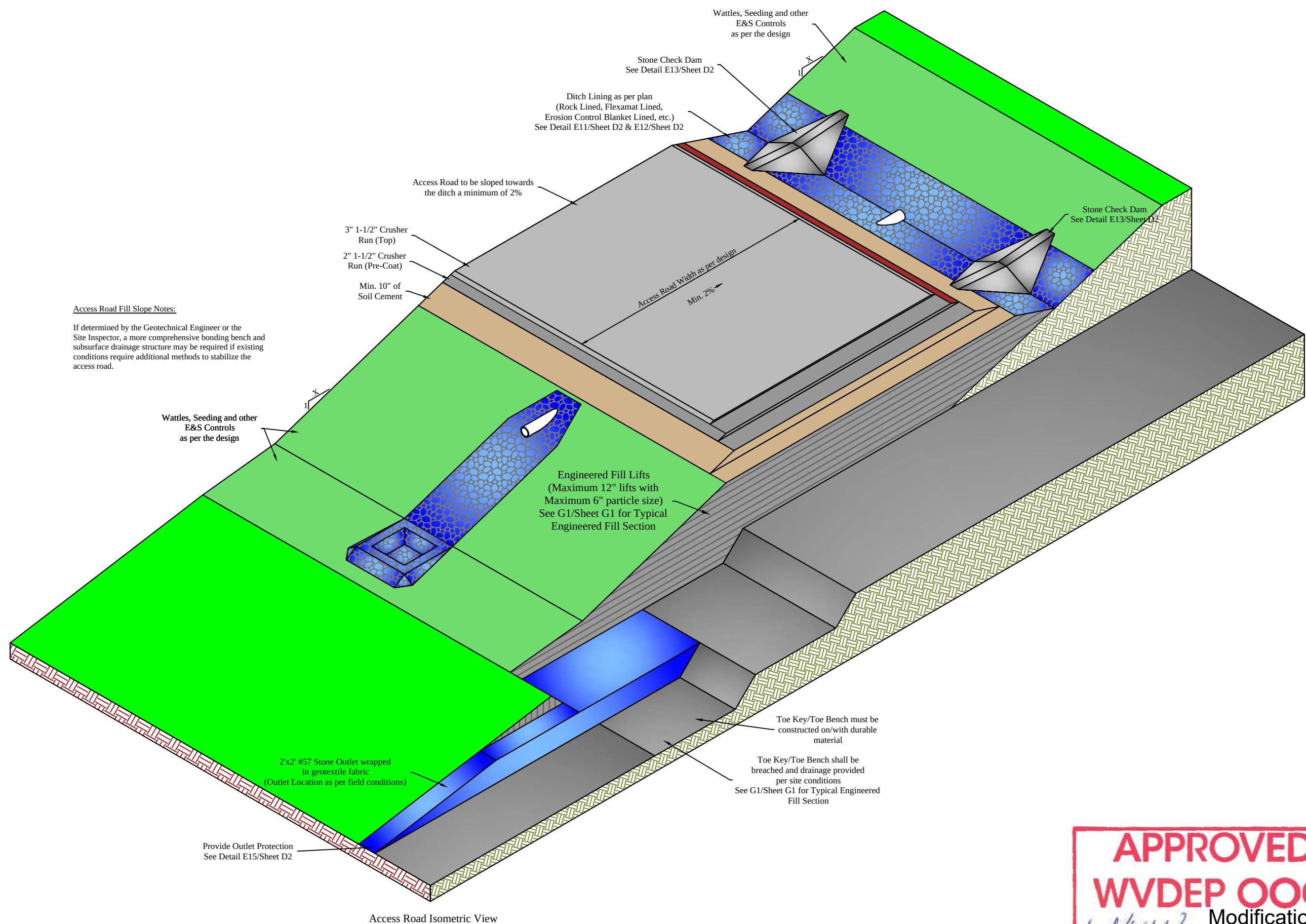
Freemans Creek District
Lewis County, WV

Date: 02/04/2025
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File No.
Sheet D1 of D2

1221 Well Site Fink Creek Access

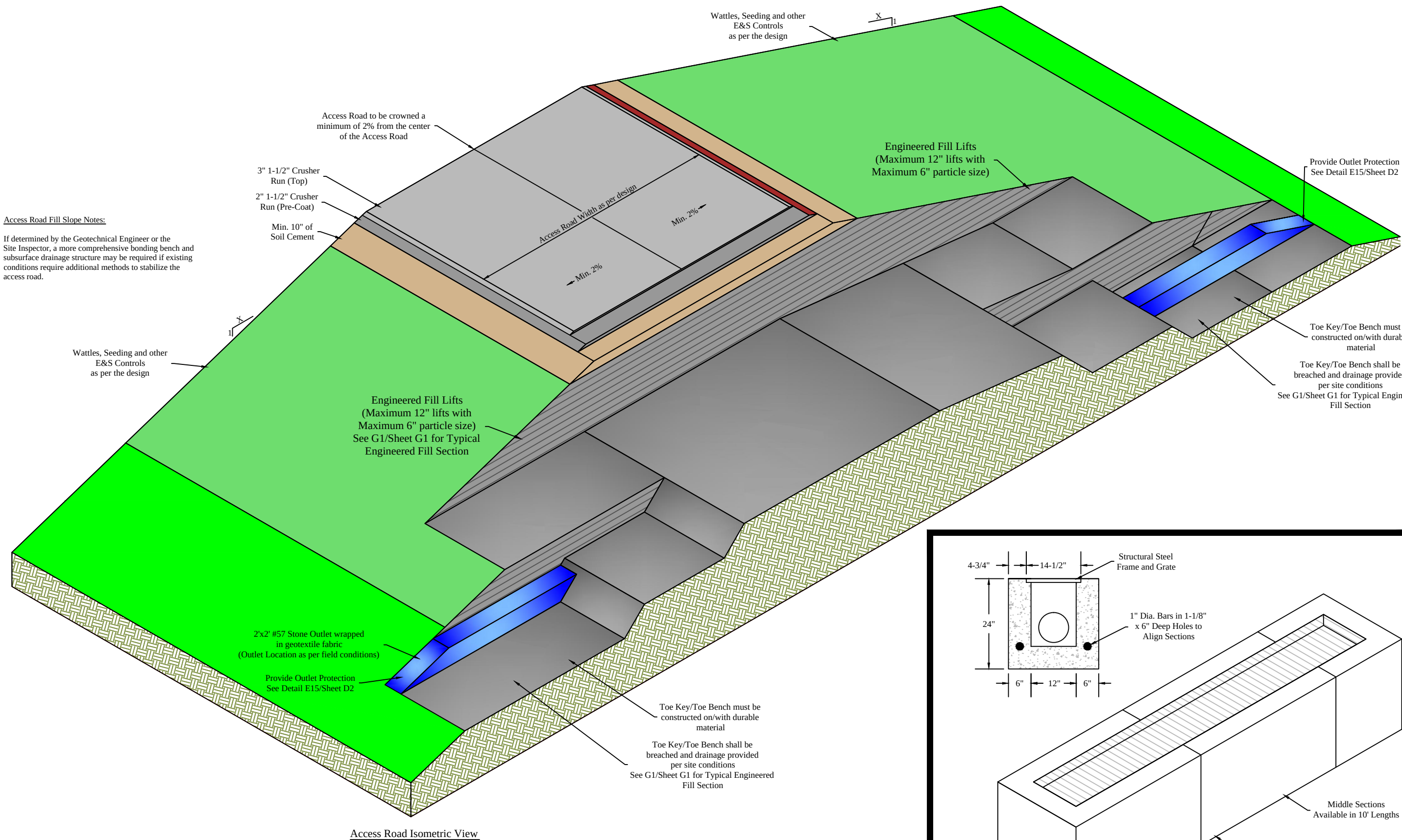
HG Energy LLC

Exhibit A: As-Built Modification



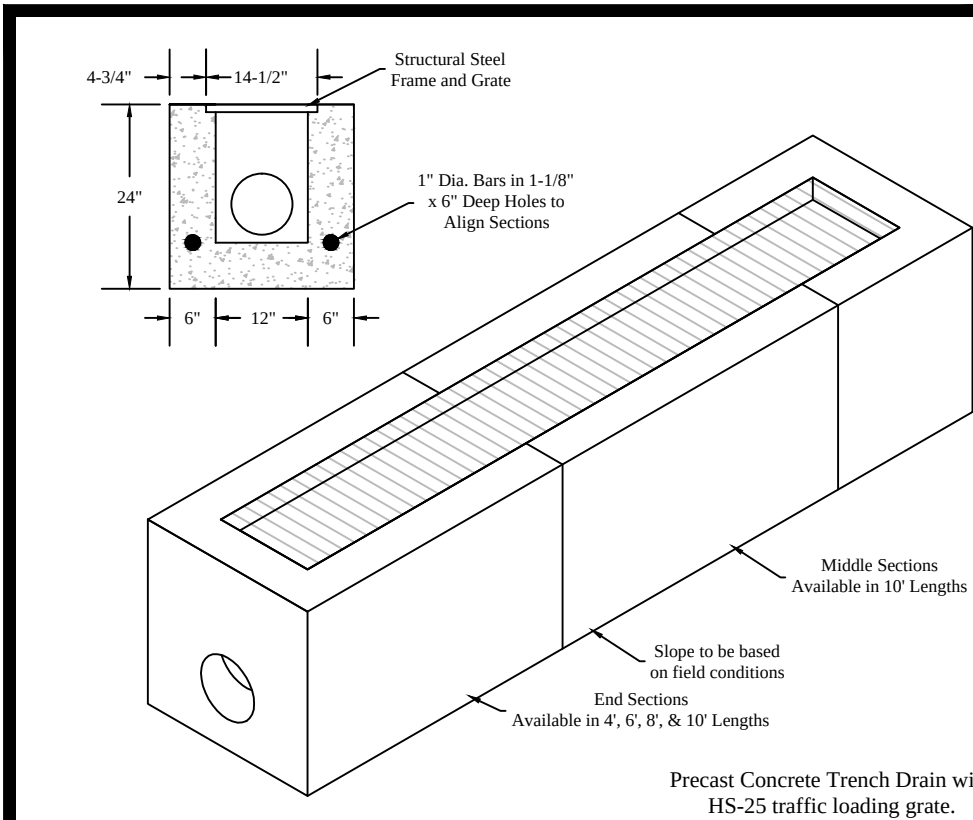
R1 Typical Access Road Cut Section Details

Scale: NTS



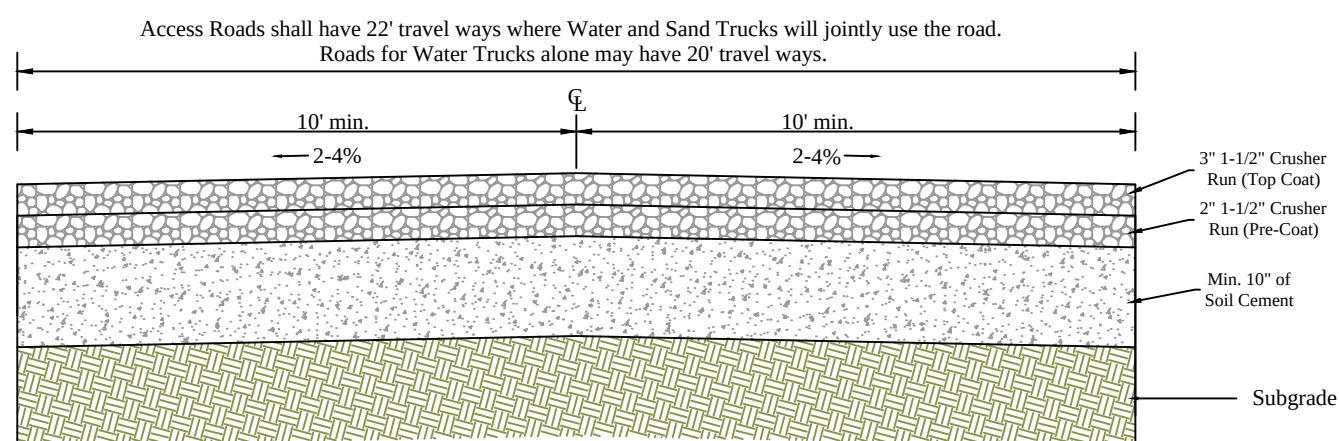
R2 Typical Access Road Fill Section Details

Scale: NTS



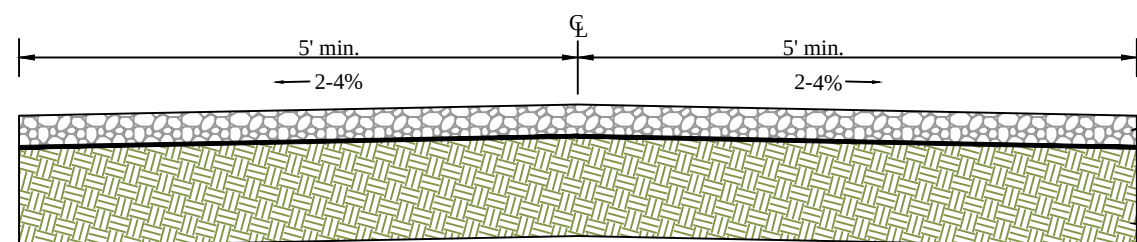
R8 Trench Grate Detail

Scale: NTS



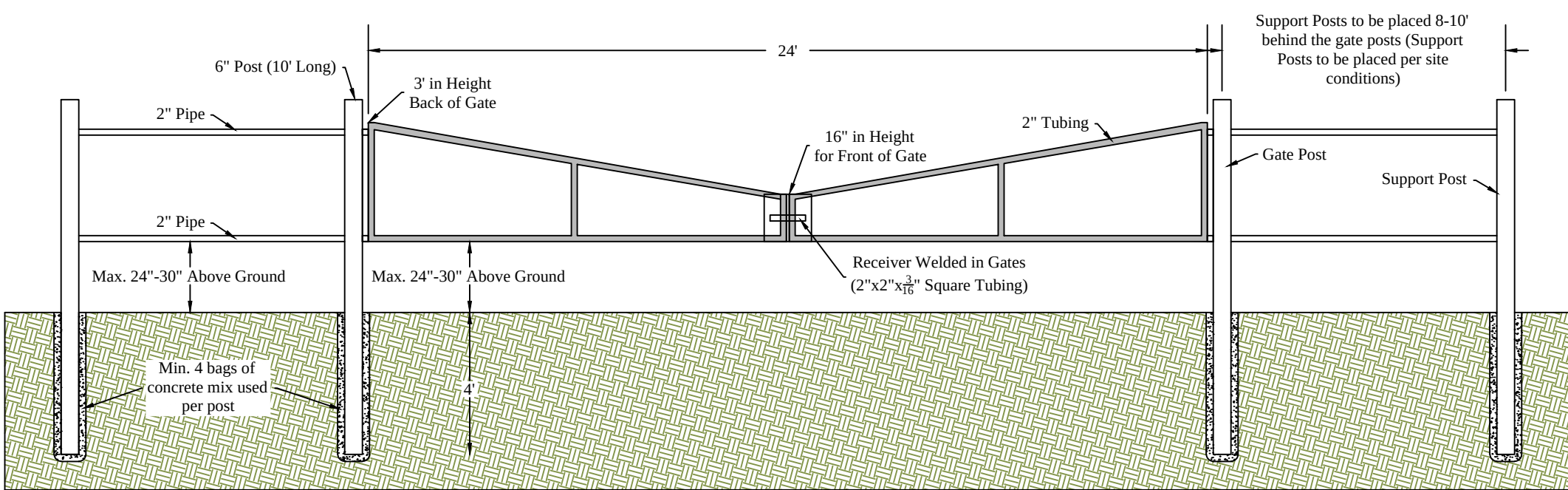
R3 Typical Access Road Surfacing Details

Scale: NTS



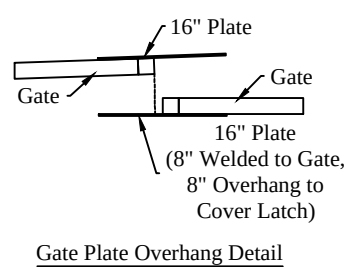
R4 Temporary/Adjacent Access Road Surfacing Details

Scale: NTS



R5 Access Road Gate Detail

Scale: NTS



Gate Specification and Installation

- Prior to any excavation or installation, a "One Call" must be performed
- Gates shall be constructed of Two Inch (2") square tubing
 - Gate posts shall be constructed of Six Inch (6") Steel Pipe, Ten Feet (10') in length
 - Gates are to be Twelve Feet (12') in length each with at least 1 upright brace between the front and rear uprights
 - Two (2) posts will be used to hang gates and an additional Two (2) posts shall be used as supports, approximately 8-10' behind the gate posts
 - Two Inch (2") pipe may be used as bracing between gate posts to secure posts and keep ATV's from going around the gate
 - Gate posts should be installed Four Feet (4') in the ground with a minimum of four (4) bags of concrete mix used per post
 - Gates will have a Sixteen Inch (16") steel plate welded at closure points to secure locks. The plate shall be mounted so that Eight Inches (8") of the plate is welded to the gate and Eight Inches (8") is left to overhang to overlap the other gate
 - The receiver for the latch on the gate needs to be constructed using 2"x2"x 1/8" tubing to allow space for the latch
 - The bottom of the gates shall be between 24"-30" max. above the road surface to prevent ATV's from driving under the gates
 - Gates shall be painted safety yellow and signs shall be provided to attach to the gates
 - A spacing of 1" between the gates needs to be maintained for the latch to fit and operate properly
 - Fabricators shall have freedom to design their hinges to allow adjustability as the gates require precise installation for the latch system to work properly. A typical design is available from HG Energy LLC
 - Proper function of the gates must be verified before leaving the site

CONSTRUCTION STAKING GUIDE & STANDARD RIBBON COLOR SCHEME

03/14/2025

	Yellow Ribbon: Yellow Ribbon used to indicate top of Cuts (C) Cut to be determined at time of stakeout Slope determined by site design		Blue & White Stripe Ribbon: Blue & White Stripe Ribbon used to indicate Limits of Disturbance (LOD) and Clearing Limits
	Yellow and Orange Ribbon: Yellow and Orange Ribbon used to indicate Grade at Top of Pad/Pond/Pit		Orange & Black Stripe Ribbon: Orange & Black Stripe Ribbon used to indicate Vertical Cut (VC) at Centerline or edge of access road Orange & Black Stripe Ribbon used to indicate Vertical Fill (VF) at centerline or edge of access road
	Orange Ribbon: Orange Ribbon used to indicate toes of Fills (F) Fill to be determined at time of stakeout Slope determined by site design		Pink & White Stripe Ribbon: Pink & White Stripe Ribbon used to indicate Erosion and Sediment Control Structures Silt Fence (SF) Reinforced Filter Fence (RFF) Super Silt Fence (SSF) Filter Sock (FS)
	Pink Ribbon: Pink Ribbon used to indicate Top Hole Location Pink Ribbon used to indicate Survey Control Location		Orange & White Stripe Ribbon: Orange & White Stripe Ribbon used to indicate Topsoil Stockpile Locations / Engineered Fill Stockpiles
	Pink & Black Stripe Ribbon: Pink & Black Stripe Ribbon used to indicate Vertical Cut (VC) at Pad/Pond/Pit corner or edge Pink & Black Stripe Ribbon used to indicate Vertical Fill (VF) at Pad/Pond/Pit corner or edge Vertical Cut/Vertical Fill to be determined at time of stakeout		Blue Ribbon: Blue Ribbon used to indicate Centerline (CL) Ditch Blue Ribbon used to indicate Bottom (BTM) Sediment Traps

R6 Construction Staking Guide

Scale: NTS

Revision
Design
Date
02-04-2025

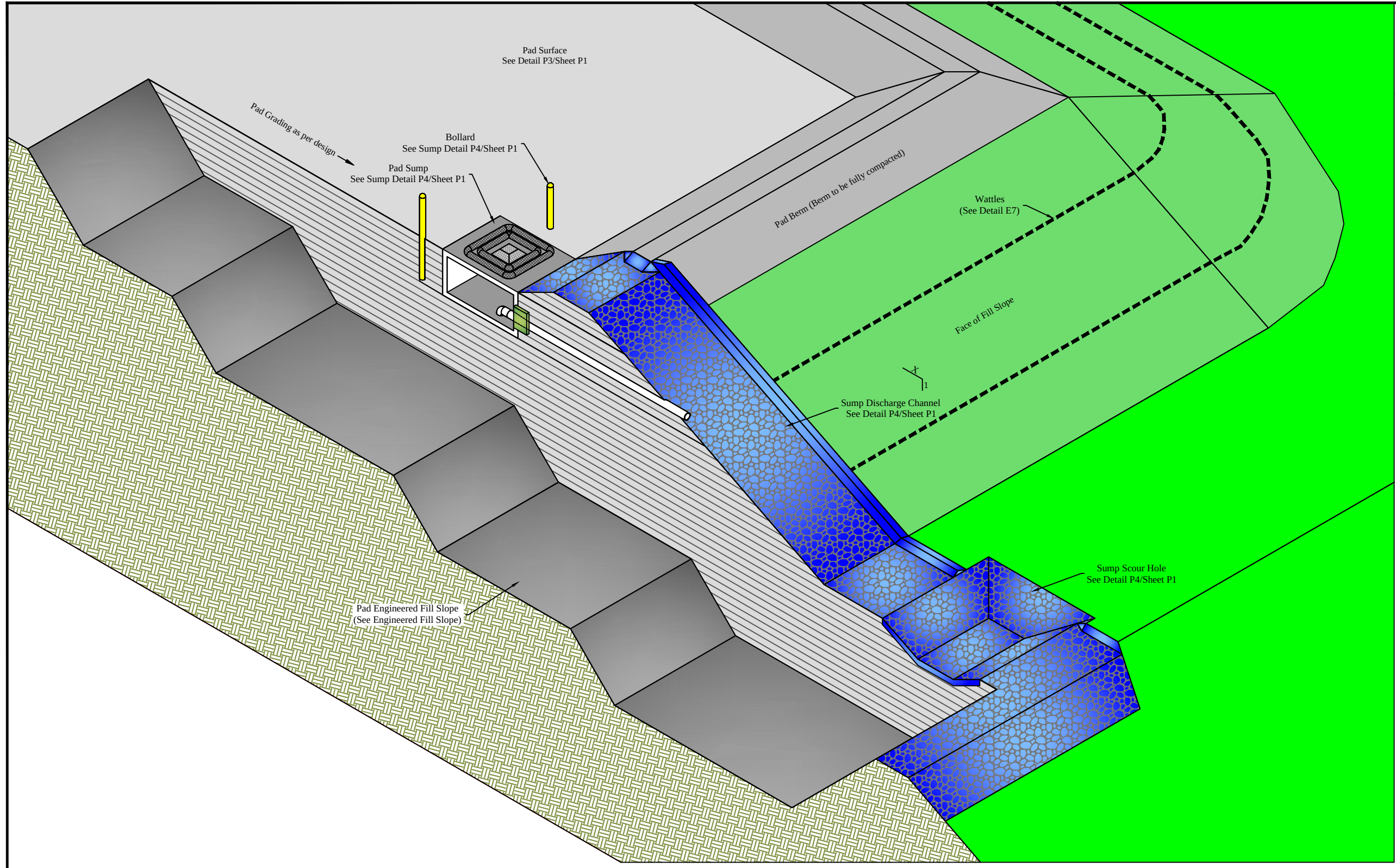


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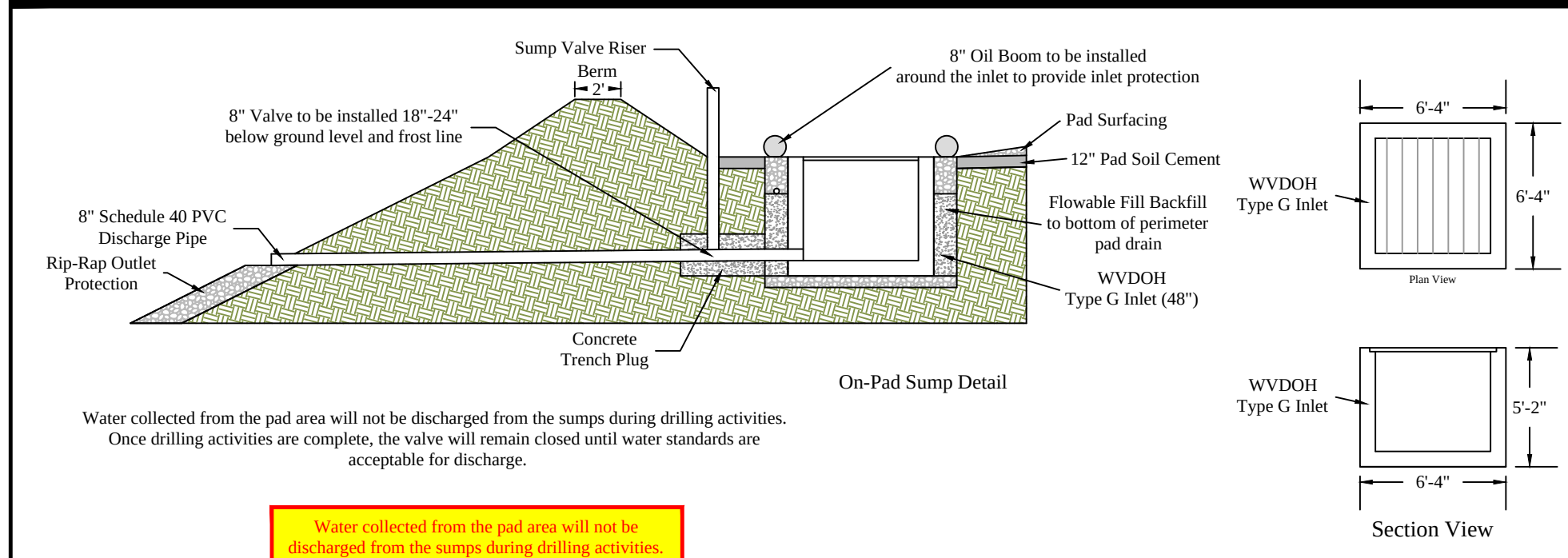


Typical Access Road Details
1221 Well Site
Freemans Creek District
Lewis County, WV

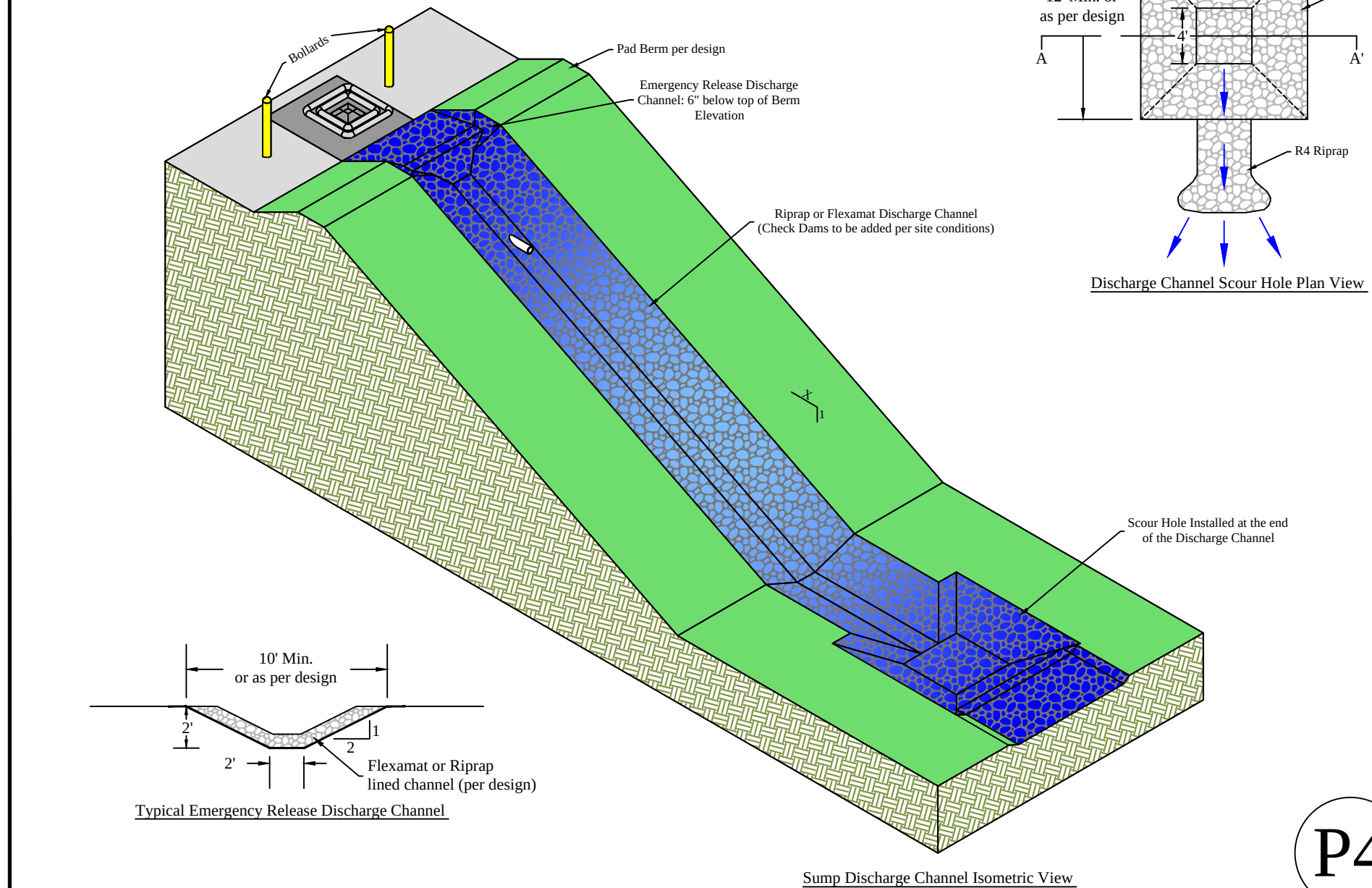
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Sheet R1 of R1



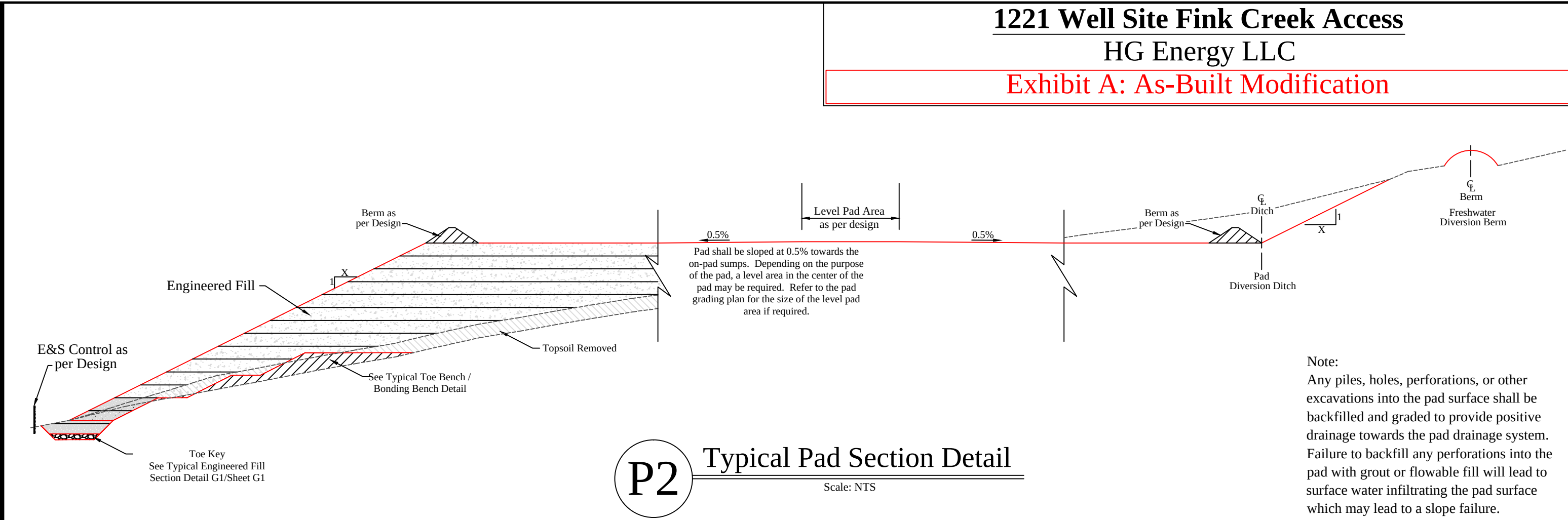
P1 Typical Pad Isometric View Detail
Scale: NTS



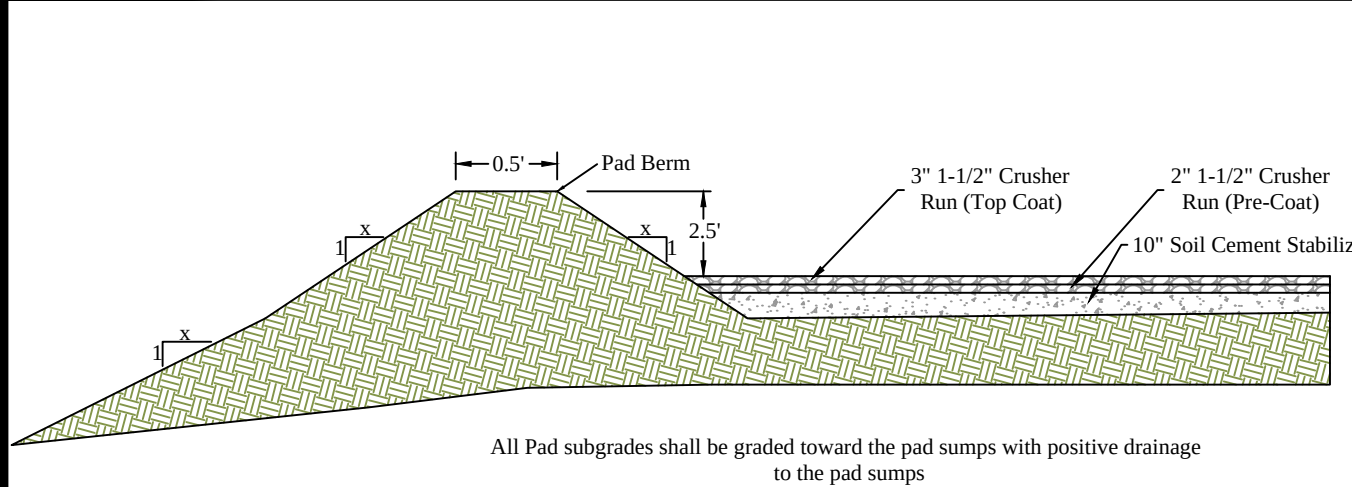
Water collected from the pad area will not be discharged from the sumps during drilling activities. Once drilling activities are complete, the valve will remain closed until water standards are acceptable for discharge.



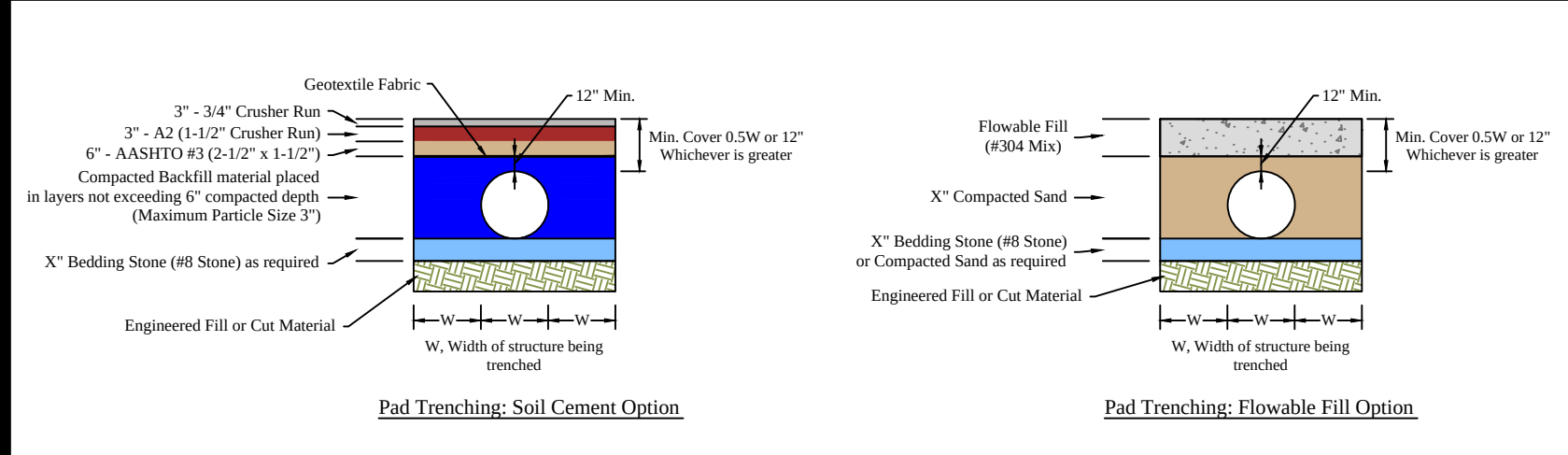
P4 On-Pad Sump Detail
Scale: NTS



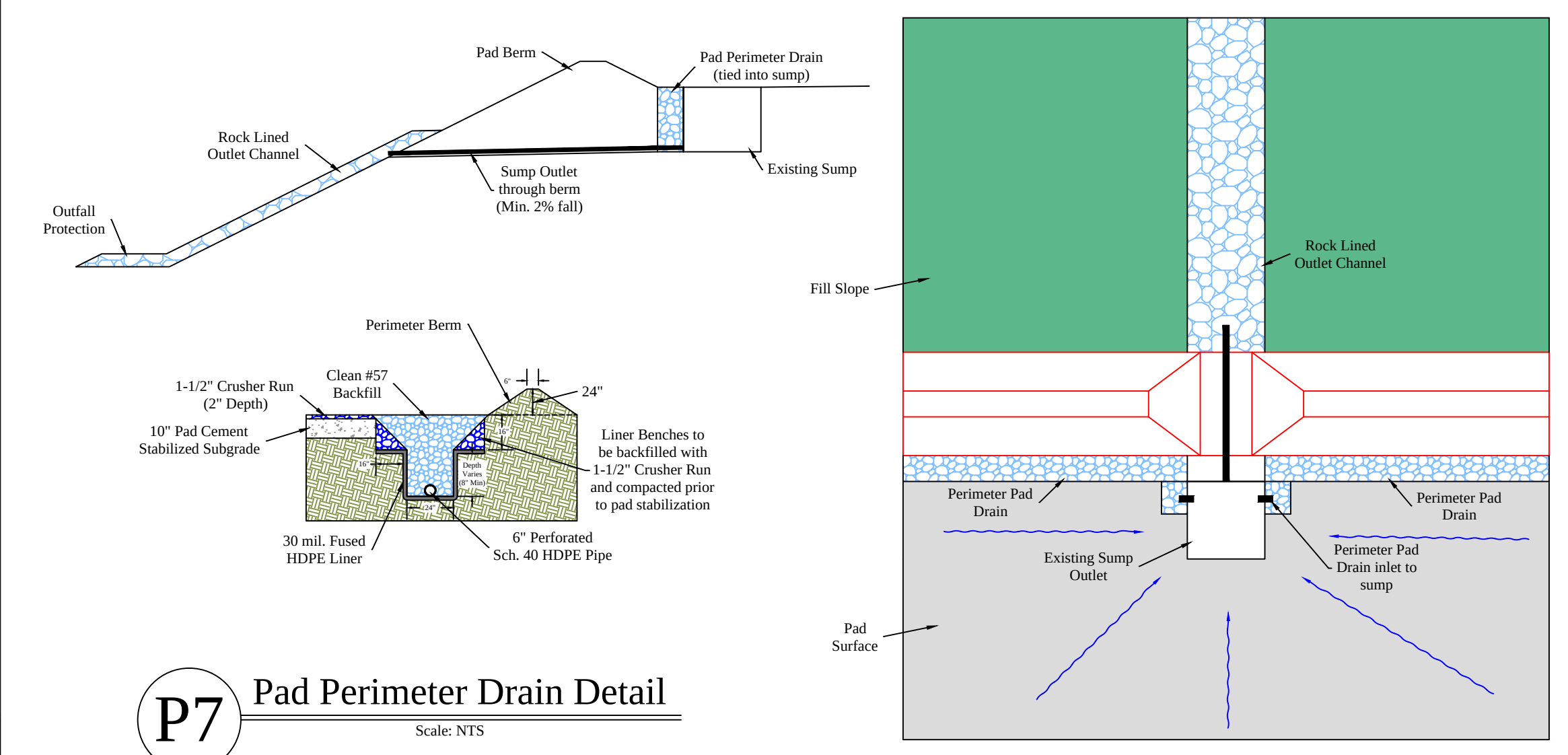
P2 Typical Pad Section Detail
Scale: NTS



P3 Pad Surfacing Detail
Scale: NTS



P6 Typical Pad Trenching Detail
Scale: NTS



P7 Pad Perimeter Drain Detail
Scale: NTS

03/14/2025

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3/14/2025

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02-04-2025	
HG ENERGY LLC	
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Kelly Surveying P.O. Box 254 Delmar, WV 26239 (304)338-0965	
Typical Pad Details	
1221 Well Site	
Freemans Creek District	
Lewis County, WV	
Date: 02/04/2025	
Scale: As Shown	
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