

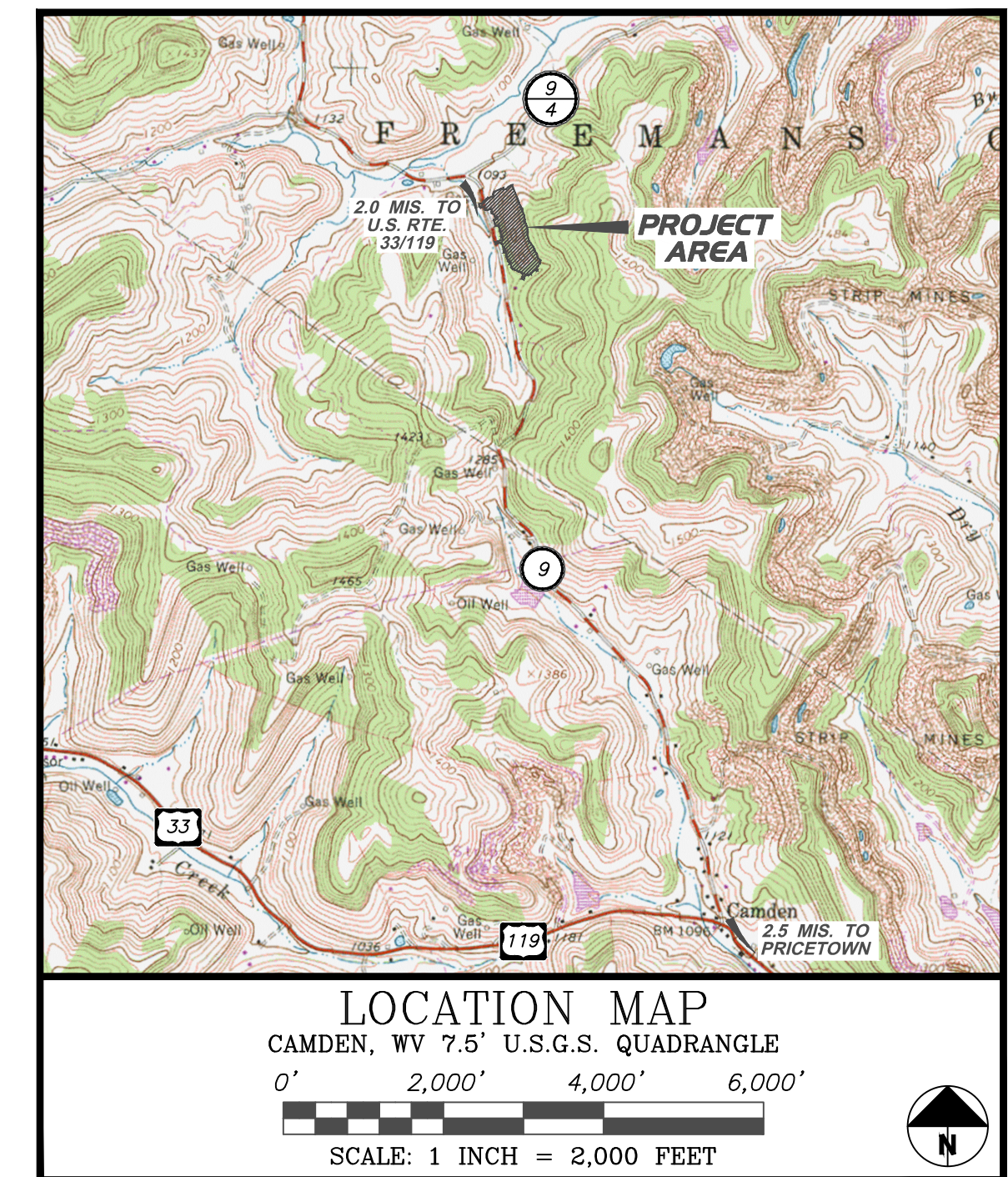
RANDY HUFFMAN
CABINET SECRETARY

EARL RAY TOMBLIN
GOVERNOR

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

OFFICE OF ABANDONED MINE LANDS

Camden (Hartley) Dangerous Landslide



NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

SCHEDULE OF ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY AND UNIT
1.0	MOBILIZATION AND DEMOBILIZATION (CANNOT BE MORE THAN 5% OF TOTAL AMOUNT BID)	LUMP SUM
2.0	CONSTRUCTION LAYOUT STAKES (CANNOT BE MORE THAN 3% OF TOTAL AMOUNT BID)	LUMP SUM
3.0	QUALITY CONTROL (CANNOT BE MORE THAN 2% OF TOTAL AMOUNT BID)	LUMP SUM
4.1	SITE PREPARATION (CANNOT BE MORE THAN 8% OF TOTAL AMOUNT BID)	LUMP SUM
4.2	ACCESS ROAD NUMBER ONE	550 LF
4.3	INCIDENTAL STONE	30 TN
4.4	CABLE GATE	1 EA
5.1	STONE CONSTRUCTION ENTRANCE	1 EA
5.2	SILT FENCE	2,250 LF
5.3	STRAW WATTLES	4,000 LF
6.0	REVEGETATION (PLAN VIEW)	10.0 AC
7.1	EROSION CONTROL BLANKET LINED DITCH	1,250 LF
7.2	2.0 FT. DEEP "VEE" SHAPED GROUTED RIPRAP DITCH	1,600 LF
7.3	SPLASH PAD	40 LF
7.4	18" Ø HDPE PIPE NUMBER ONE	58 LF
7.5	12" Ø HDPE PIPE NUMBER TWO	27 LF
7.6	15" Ø SDR35 PVC PIPE NUMBER THREE	125 LF
7.7	PIPE NUMBER THREE INLINE CLEANOUT	1 EA
7.8	DROP INLET AND GRATE	1 EA
8.0	UNCLASSIFIED EXCAVATION	65,000 CY
10.1	SUBSURFACE DRAIN	500 LF
10.2	12" Ø SOLID SDR-35 PVC CONVEYANCE PIPE	50 LF
10.3	12" INLINE CLEANOUTS	5 EA
11.2	PERMANENT GAS LINE RELOCATION	925 LF

DRAWING INDEX

DESCRIPTION	SHEET NO.
TITLE SHEET	1
EXISTING CONDITIONS	2
FINAL DESIGN	3
EROSION AND SEDIMENT CONTROL DRAWING	4
TAX MAP OVERLAY	5
CROSS SECTIONS - STATIONS 0+00 TO 11+15	6 - 16
DITCH NUMBERS ONE AND TWO PROFILES	17
BENCH DITCH NUMBERS THREE, FOUR AND FIVE PROFILES	18
DITCH NUMBER SIX AND GROIN DITCH NUMBER SEVEN PROFILES	19
MISCELLANEOUS DITCH AND SPLASH PAD DETAILS	20
GROUT KEY; PIPE NUMBERS ONE, TWO, AND THREE PROFILES; AND DI DETAILS	21
MISCELLANEOUS DETAILS SHEET ONE	22
MISCELLANEOUS DETAILS SHEET TWO	23
MISCELLANEOUS DETAILS SHEET THREE	24

ENGINEER:
REGISTERED PROFESSIONAL ENGINEER
P.E. No. 15629

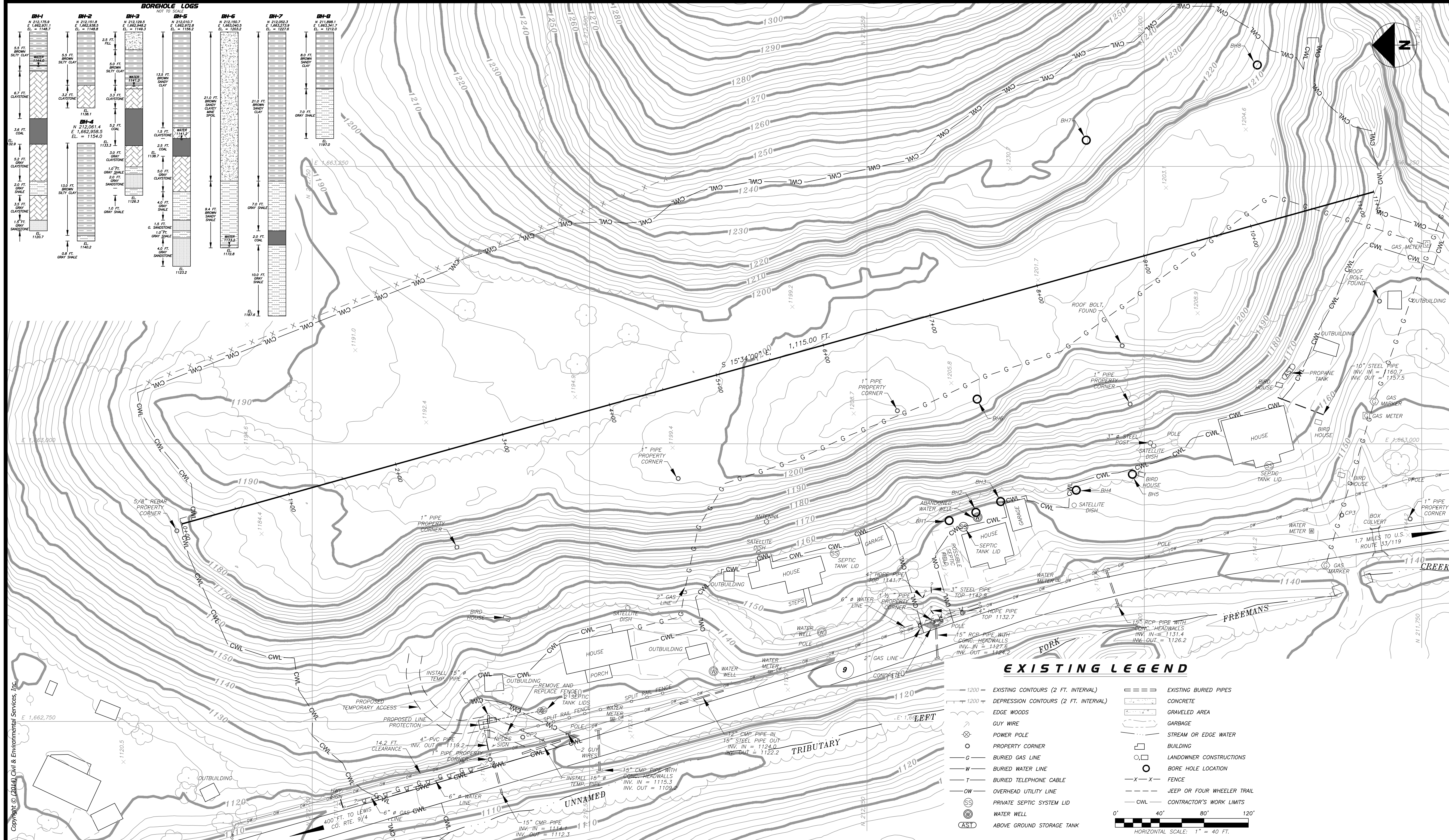
GREGORY S. LINDER



Date: DECEMBER 10, 2014

PROJECT: CAMDEN (HARTLEY) DANGEROUS LANDSLIDE

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PROJECT NO. 131-466

DESIGNED BY: RMC

DRAWN BY: NBG

CHECKED BY: RMC

APPROVED BY: GSL

west virginia
dep West Virginia Department of Environmental Protection
Office of Abandoned Mine Lands

REVISIONS

DATE:	BY:	(✓):
4/28/2014	rmc	GSL
8/11/2014	rmc	GSL

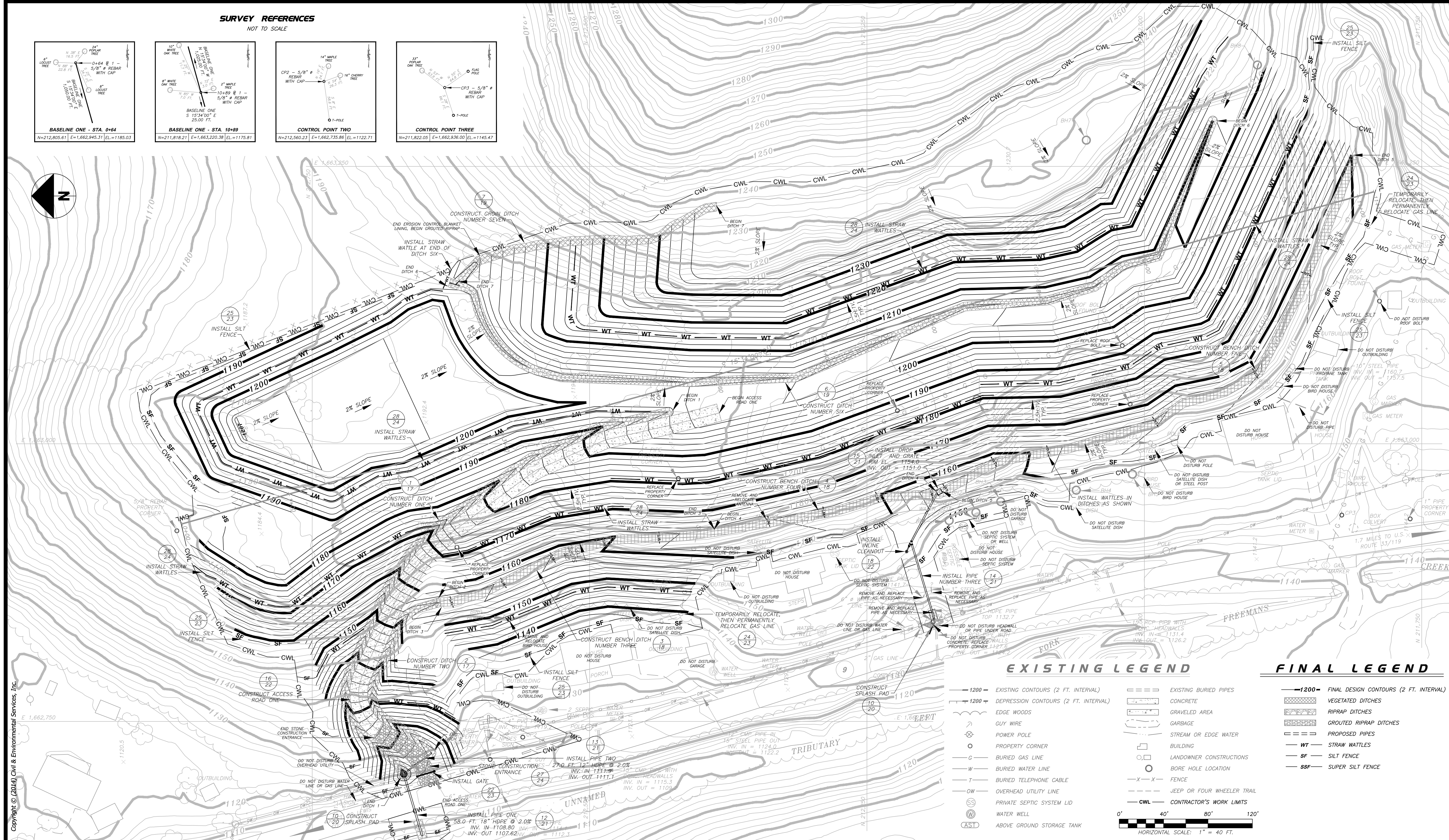
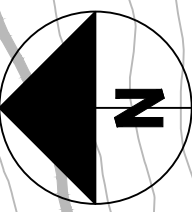
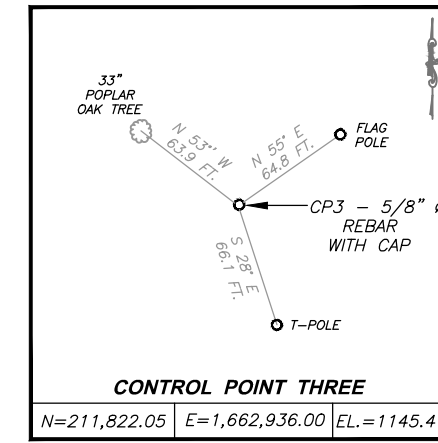
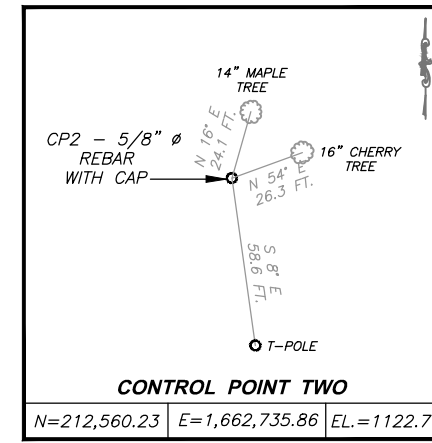
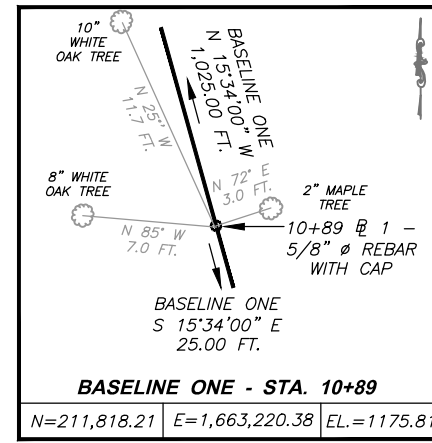
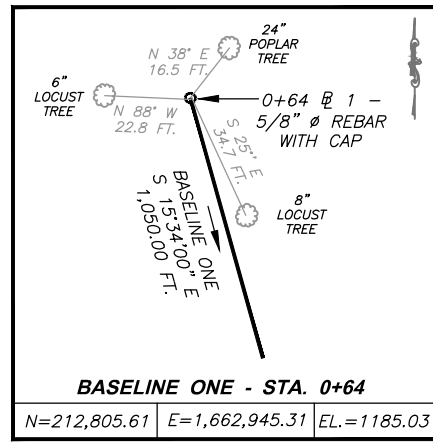
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

EXISTING CONDITIONS

SCALE: 1" = 40 FT.
CONTOUR INTERVAL = 2 FT.

DATE: OCTOBER 2013

SURVEY REFERENCES
NOT TO SCALE

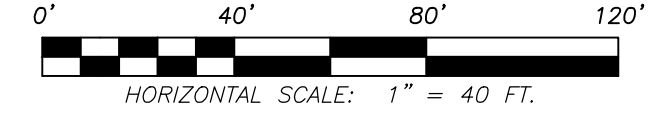


EXISTING LEGEND

- 1200 — EXISTING CONTOURS (2 FT. INTERVAL)
- - - 1200 - - - DEPRESSION CONTOURS (2 FT. INTERVAL)
- EDGE WOODS
- GUY WIRE
- POWER POLE
- PROPERTY CORNER
- BURIED GAS LINE
- BURIED WATER LINE
- BURIED TELEPHONE CABLE
- OW — OVERHEAD UTILITY LINE
- PRIVATE SEPTIC SYSTEM LID
- WATER WELL
- AST — ABOVE GROUND STORAGE TANK

FINAL LEGEND

- 1200 — FINAL DESIGN CONTOURS (2 FT. INTERVAL)
- VEGETATED DITCHES
- RIPRAP DITCHES
- GROUTED RIPRAP DITCHES
- PROPOSED PIPES
- WT — STRAW WATTLES
- SF — SILT FENCE
- SSF — SUPER SILT FENCE



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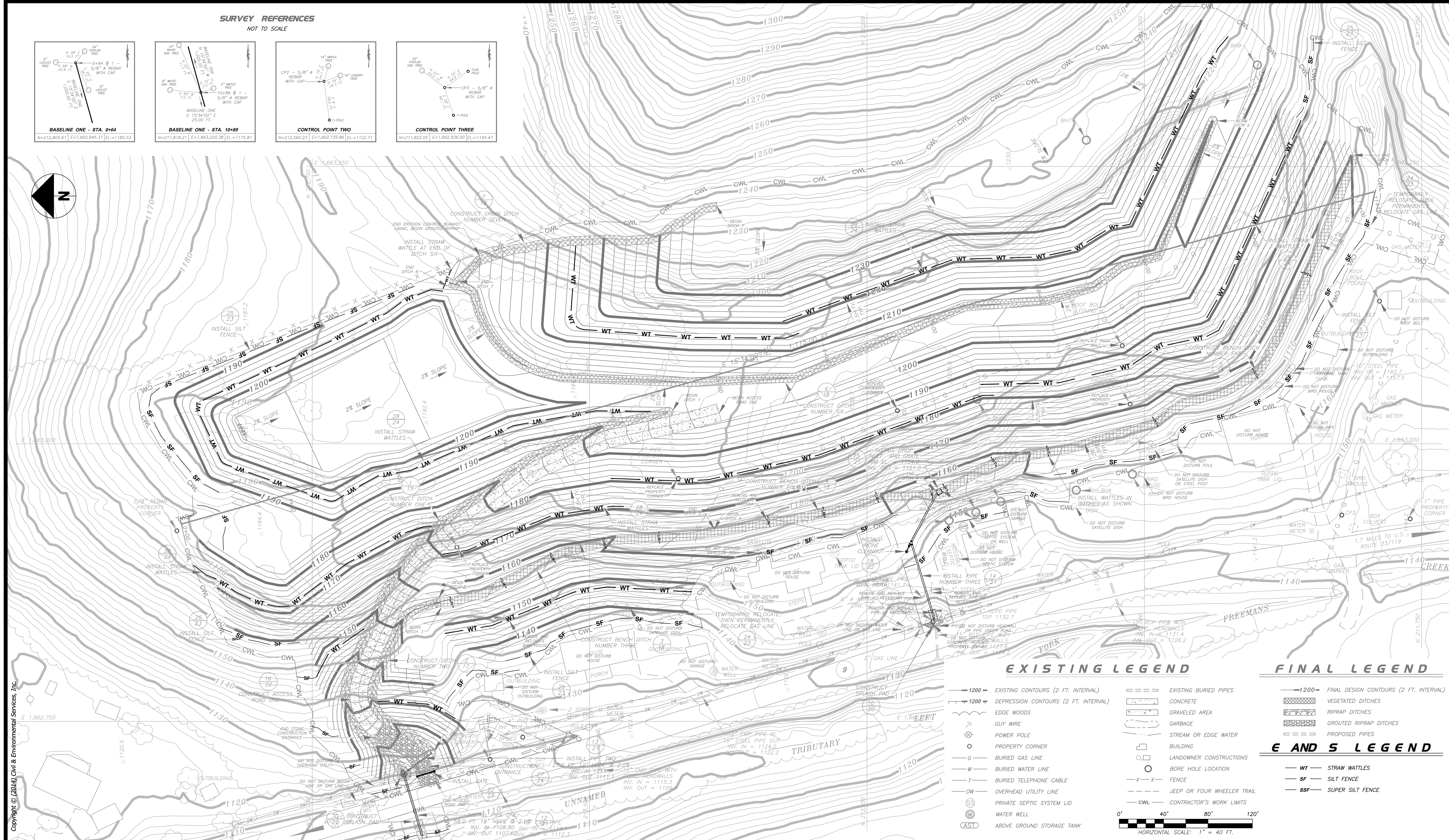
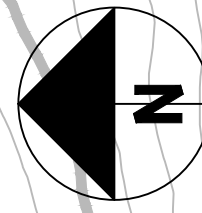
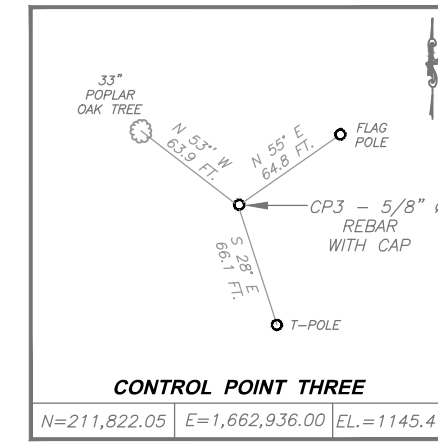
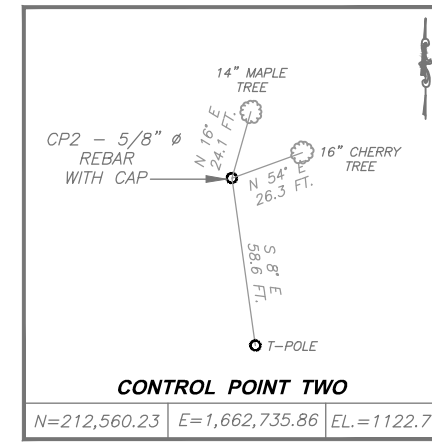
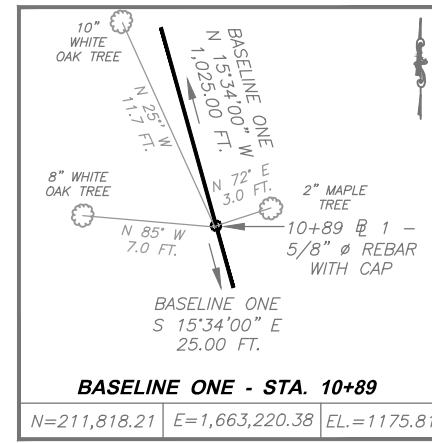
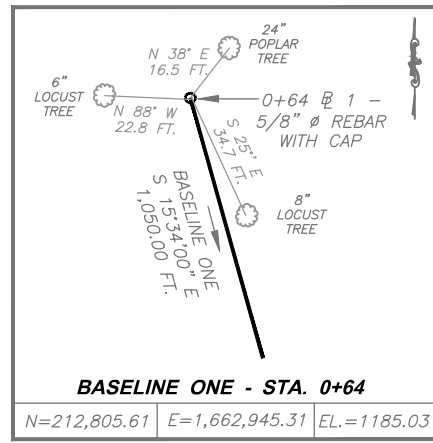
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dep West Virginia Department of Environmental Protection
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8/11/2014	rmc	GSL

CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

FINAL DESIGN
SCALE: 1" = 40 FT.
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DATE: OCTOBER 2013

SURVEY REFERENCES
NOT TO SCALE



EXISTING LEGEND

- 1200 — EXISTING CONTOURS (2 FT. INTERVAL)
- 1200 — DEPRESSION CONTOURS (2 FT. INTERVAL)
- EDGE WOODS
- GUY WIRE
- POWER POLE
- PROPERTY CORNER
- BURIED GAS LINE
- BURIED WATER LINE
- BURIED TELEPHONE CABLE
- OVERHEAD UTILITY LINE
- PRIVATE SEPTIC SYSTEM LID
- WATER WELL
- AST ABOVE GROUND STORAGE TANK

FINAL LEGEND

- 1200 — FINAL DESIGN CONTOURS (2 FT. INTERVAL)
 - VEGETATED DITCHES
 - RIPRAP DITCHES
 - GROUDED RIPRAP DITCHES
 - PROPOSED PIPES
- E AND S LEGEND**
- WT STRAW WATTLES
 - SF SILT FENCE
 - SSF SUPER SILT FENCE



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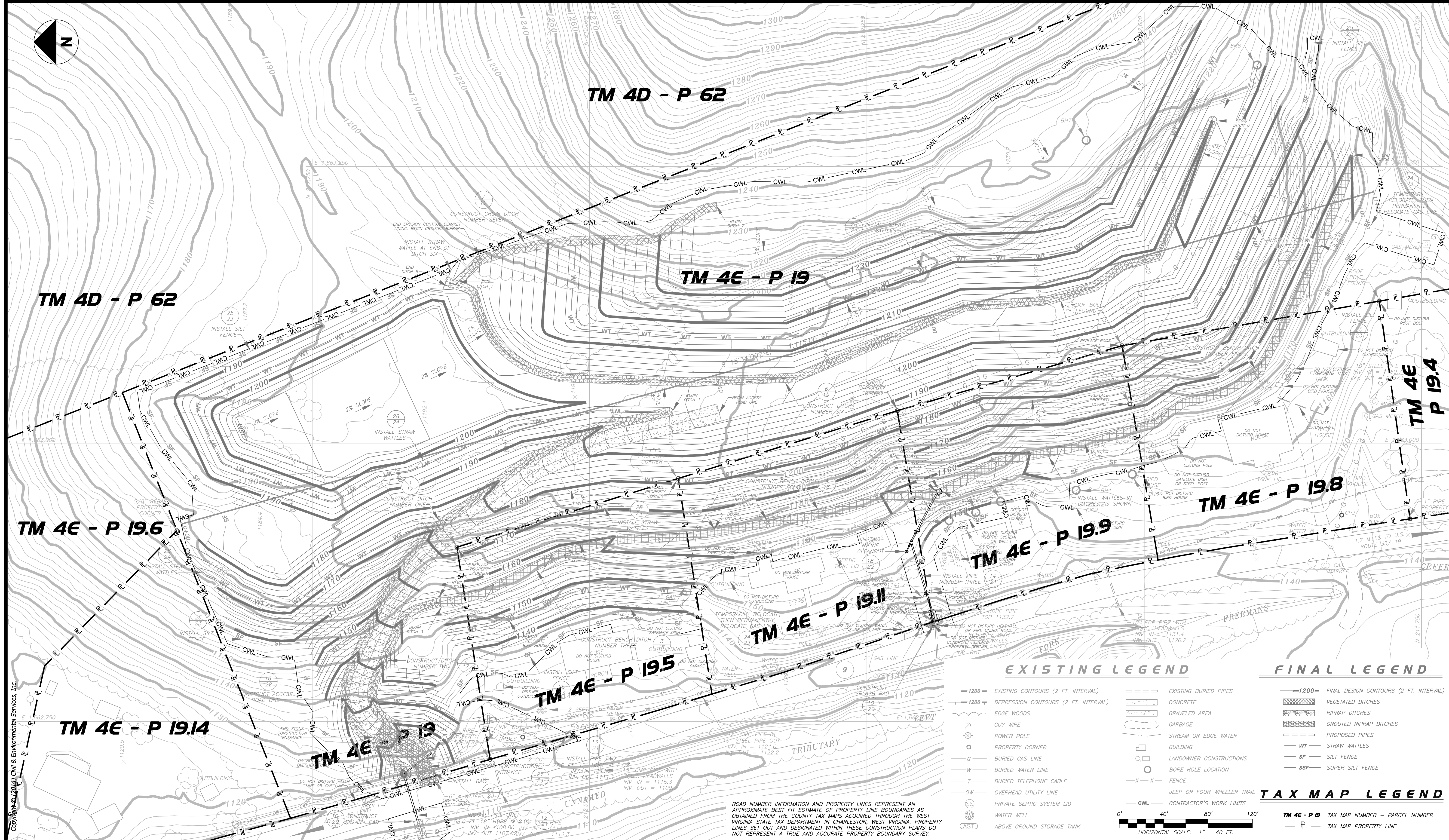
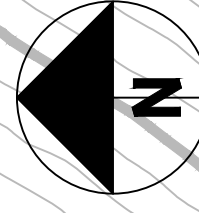
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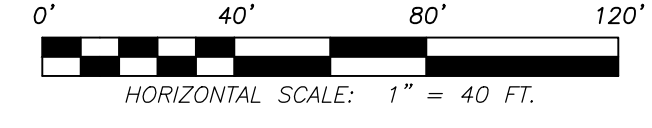
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

EROSION AND SEDIMENT CONTROL
DRAWING
SCALE: 1" = 40 FT.
CONTOUR INTERVAL = 2 FT.
DATE: OCTOBER 2013



EXISTING LEGEND		FINAL LEGEND	
	EXISTING CONTOURS (2 FT. INTERVAL)		FINAL DESIGN CONTOURS (2 FT. INTERVAL)
	DEPRESSION CONTOURS (2 FT. INTERVAL)		VEGETATED DITCHES
	EDGE WOODS		RIPRAP DITCHES
	GULLY WIRE		GRouted RIPRAP DITCHES
	POWER POLE		PROPOSED PIPES
	PROPERTY CORNER		STRAW WATTLES
	BURIED GAS LINE		BUILDING
	BURIED WATER LINE		LANDOWNER CONSTRUCTIONS
	BURIED TELEPHONE CABLE		BORE HOLE LOCATION
	OVERHEAD UTILITY LINE		FENCE
	PRIVATE SEPTIC SYSTEM LID		JEEP OR FOUR WHEELER TRAIL
	WATER WELL		CONTRACTOR'S WORK LIMITS
	ABOVE GROUND STORAGE TANK		

ROAD NUMBER INFORMATION AND PROPERTY LINES REPRESENT AN APPROXIMATE BEST FIT ESTIMATE OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM THE COUNTY TAX MAPS ACQUIRED THROUGH THE WEST VIRGINIA STATE TAX DEPARTMENT IN CHARLESTON, WEST VIRGINIA. PROPERTY LINES SET OUT AND DESIGNATED WITHIN THESE CONSTRUCTION PLANS DO NOT REPRESENT A TRUE AND ACCURATE PROPERTY BOUNDARY SURVEY.



TAX MAP LEGEND	
	TM 4E - P 19 TAX MAP NUMBER - PARCEL NUMBER
	TAX MAP PROPERTY LINE

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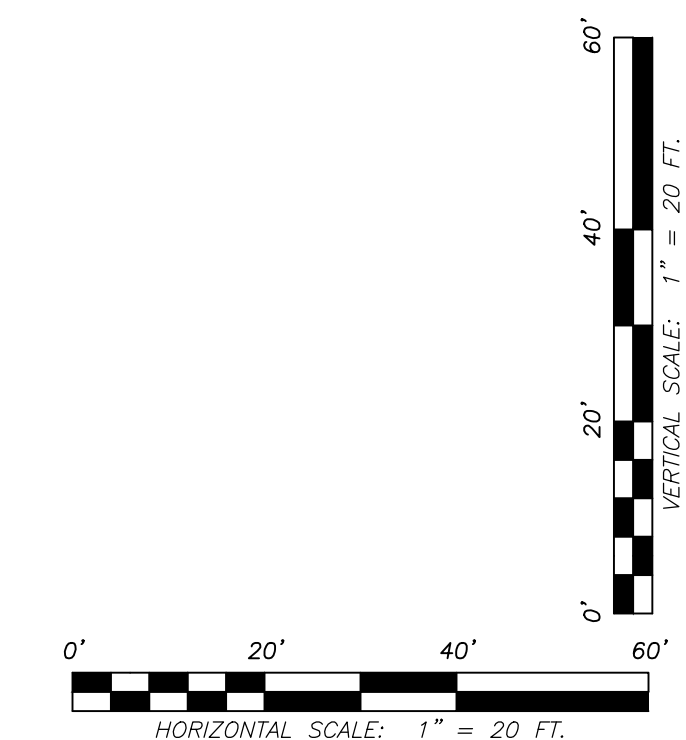
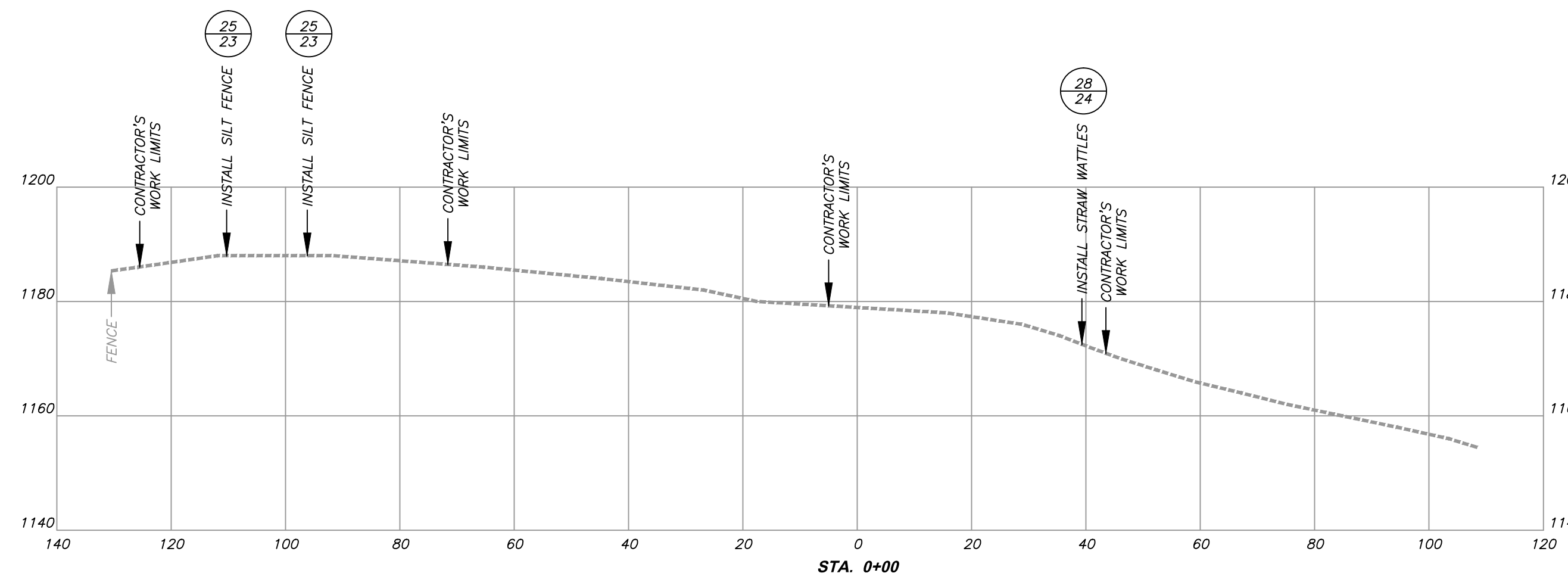
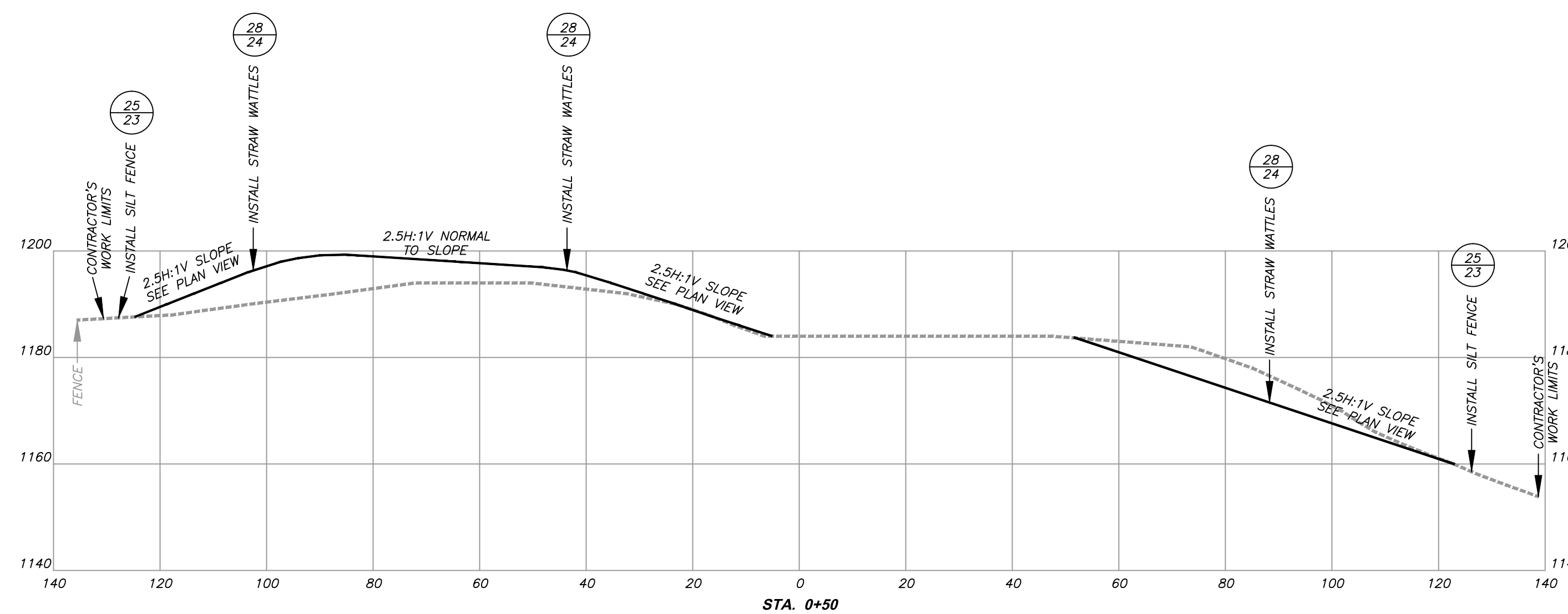
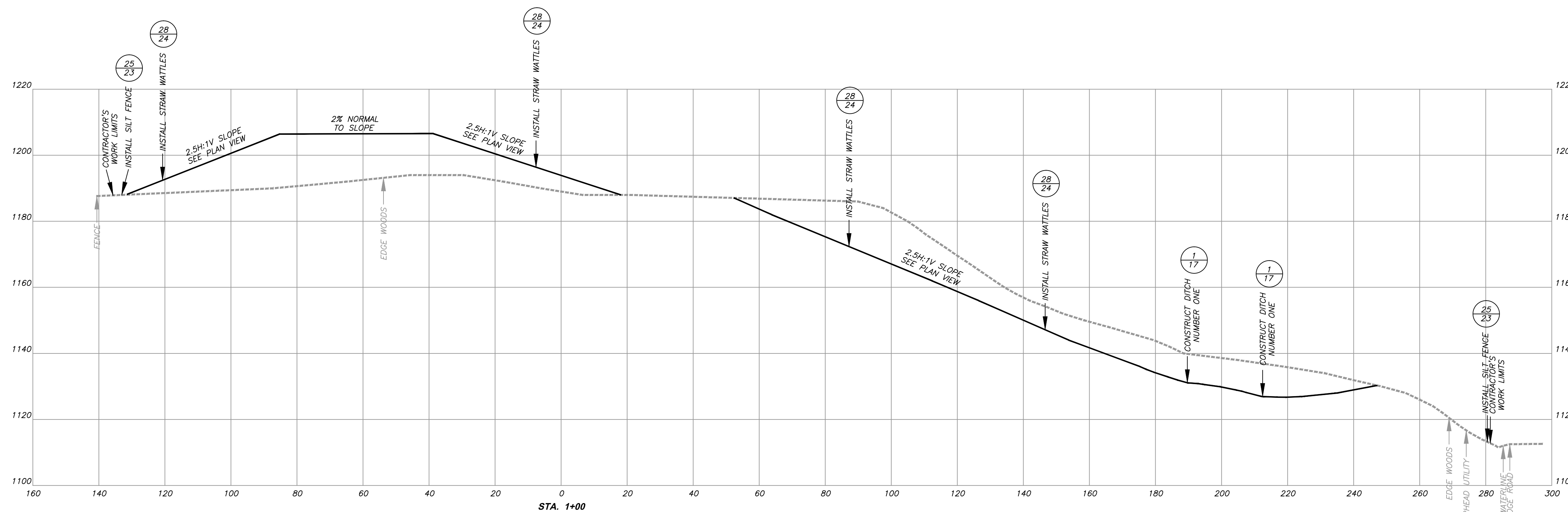
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

TAX MAP OVERLAY
 SCALE: 1" = 40 FT.
 CONTOUR INTERVAL = 2 FT.
 DATE: OCTOBER 2013

LEGEND

— EXISTING GROUND
 — FINAL GRADE

NOTE: SOME FEATURES MAY APPEAR DISTORTED DUE TO THE ANGLE AT WHICH SECTION LINES CROSS.



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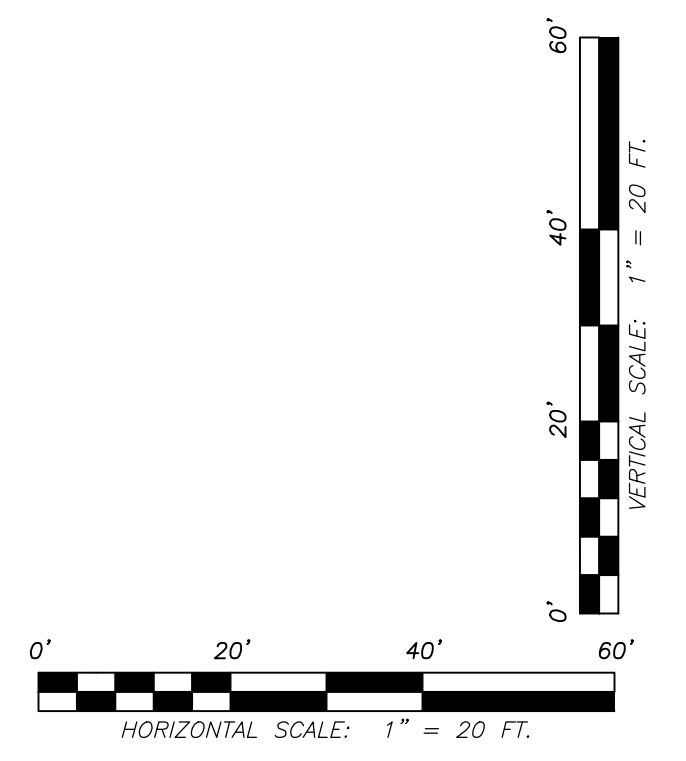
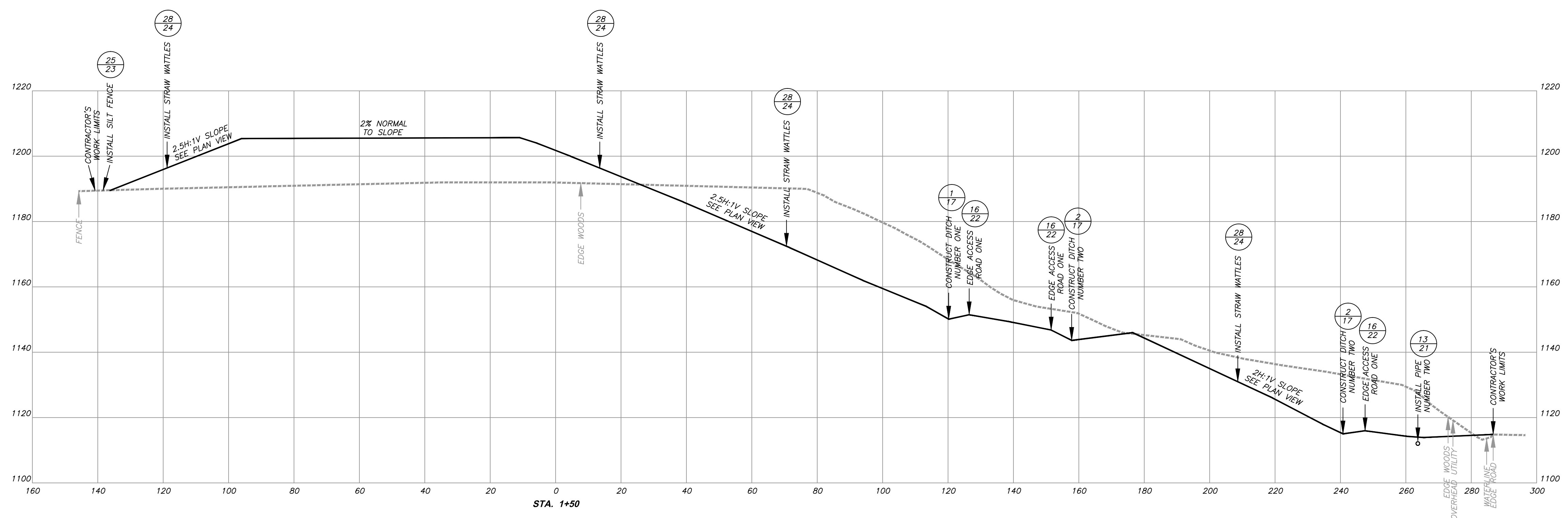
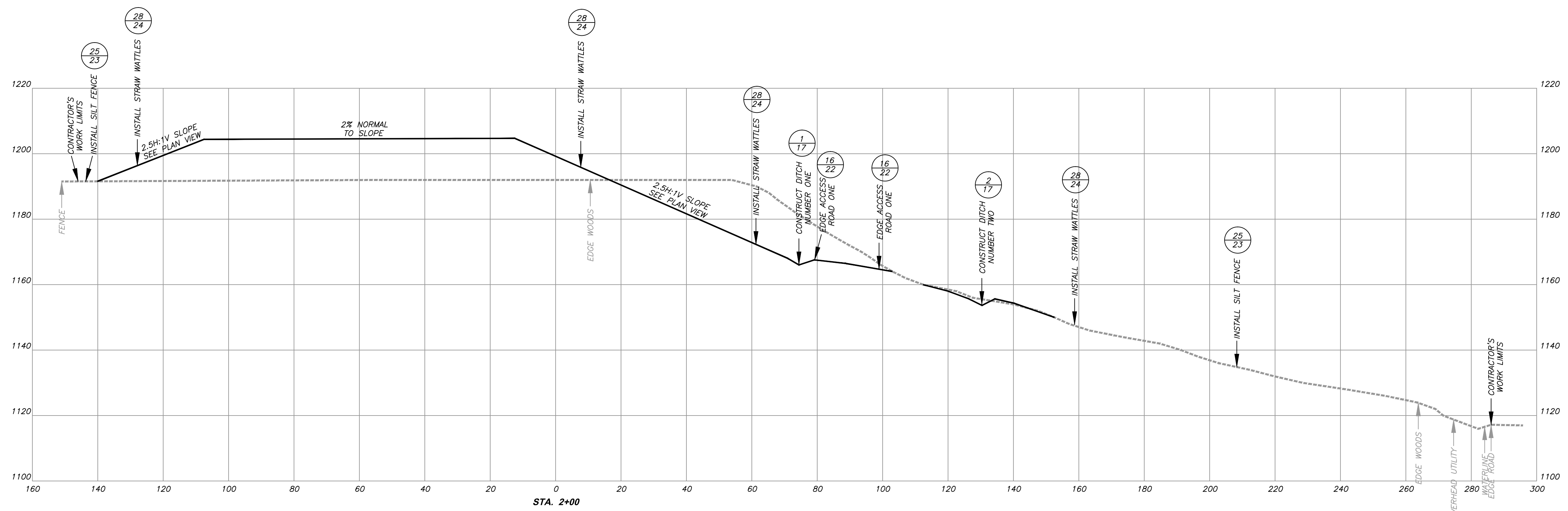
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 0+00 TO STA. 1+00
 SCALE: 1" = 20 FT. DATE: OCTOBER 2013

LEGEND

--- EXISTING GROUND
 ——— FINAL GRADE

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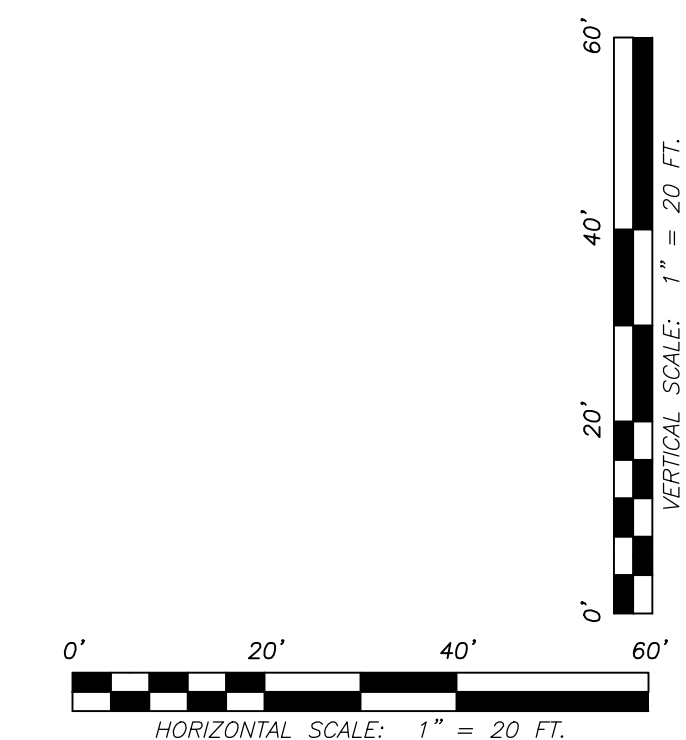
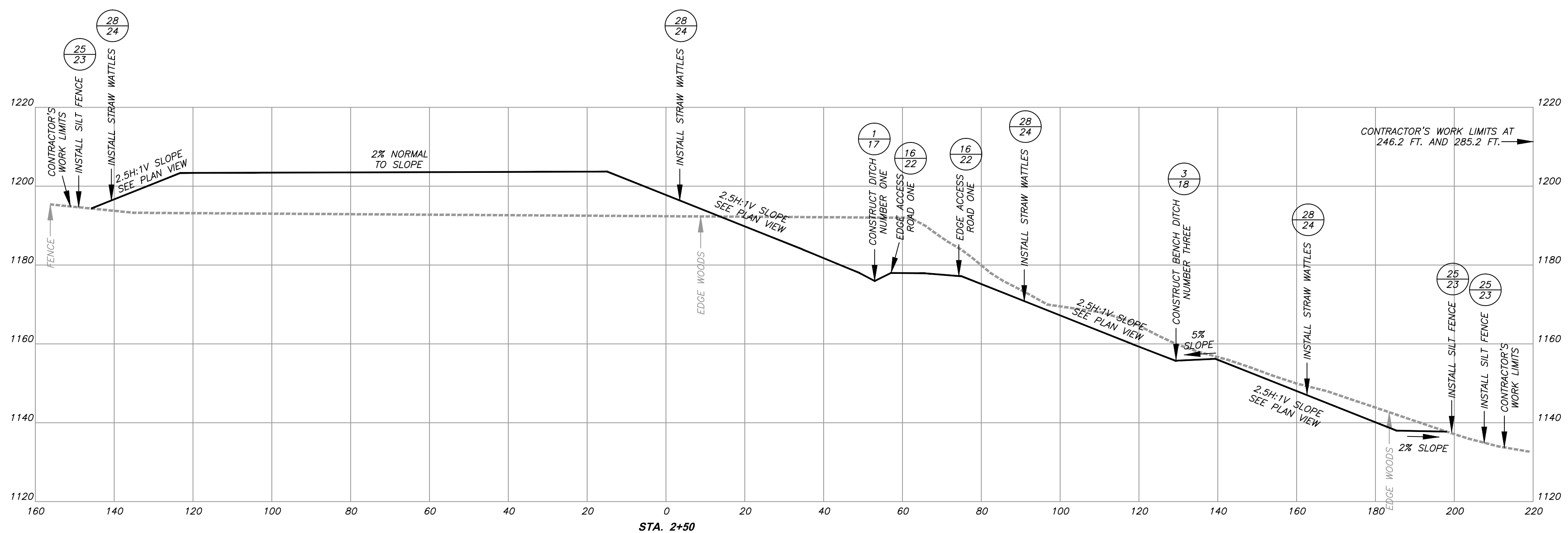
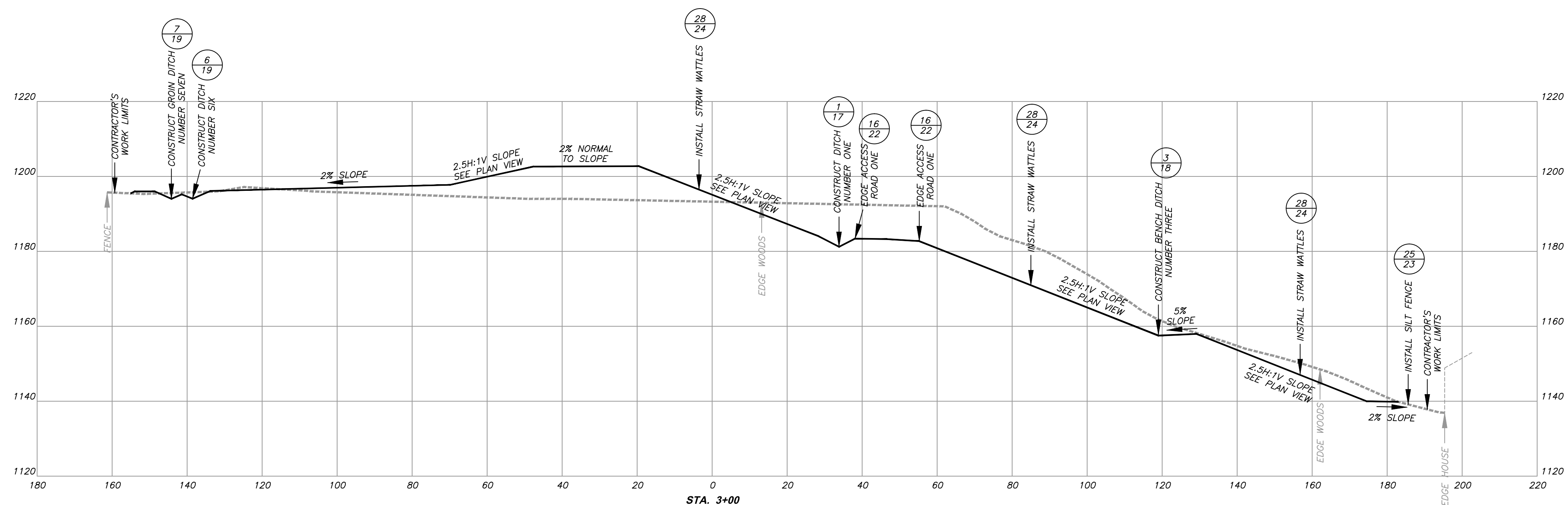
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 1+50 AND STA. 2+00
 SCALE: 1" = 20 FT. DATE: OCTOBER 2013

LEGEND

--- EXISTING GROUND
 ——— FINAL GRADE

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DANGEROUS LANDSLIDE
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 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 2+50 AND STA. 3+00

SCALE: 1" = 20 FT.

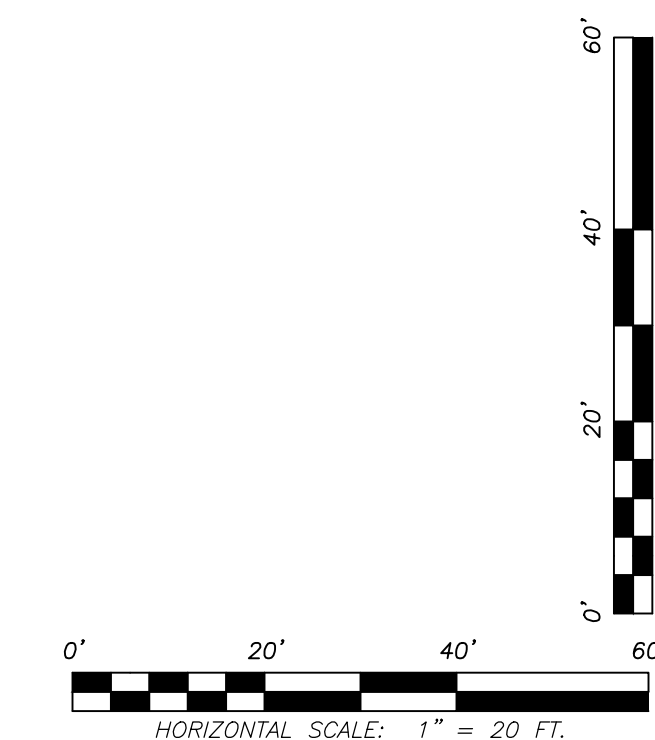
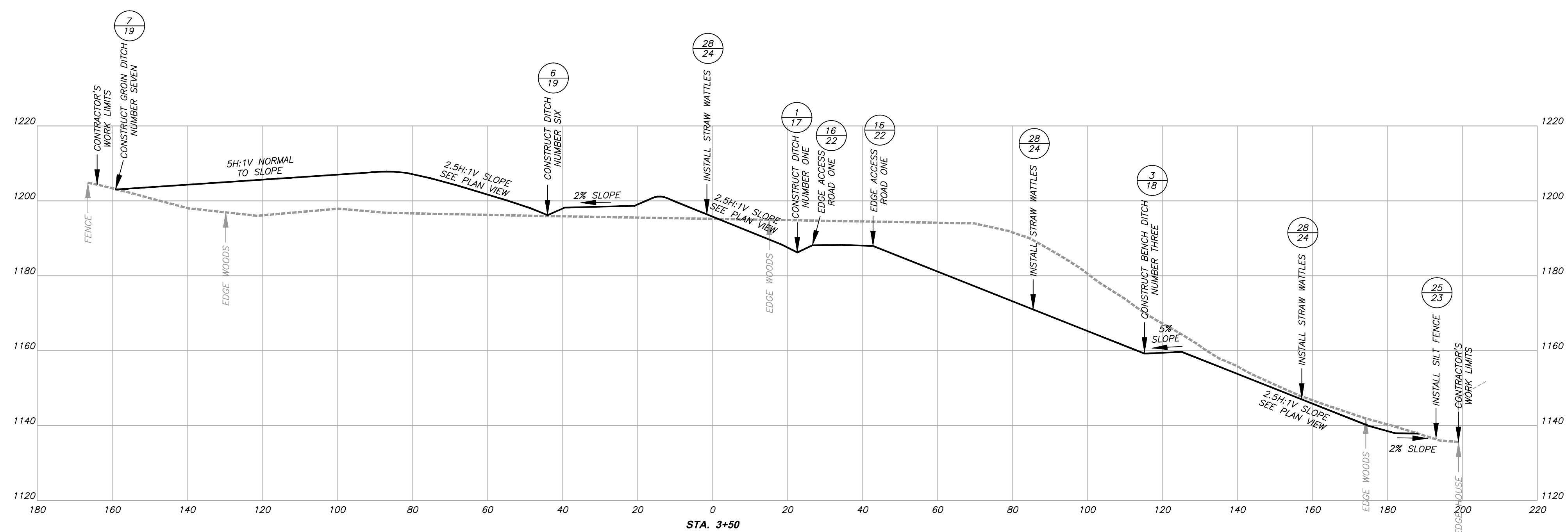
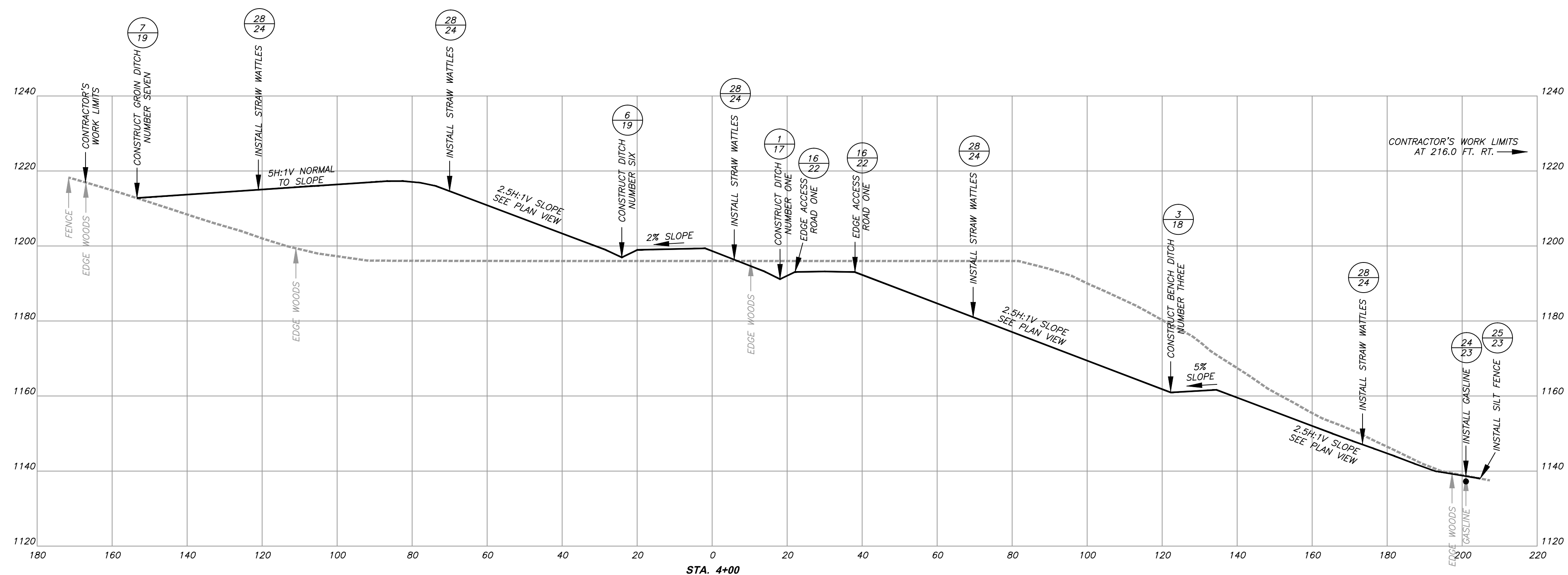
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8
 24

LEGEND

— EXISTING GROUND
 — FINAL GRADE

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CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 3+50 AND STA. 4+00

SCALE: 1" = 20 FT.

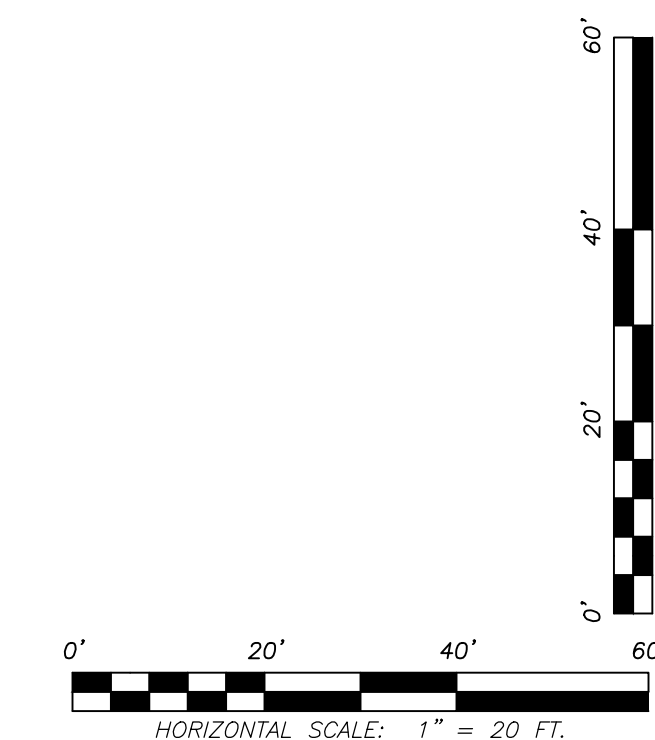
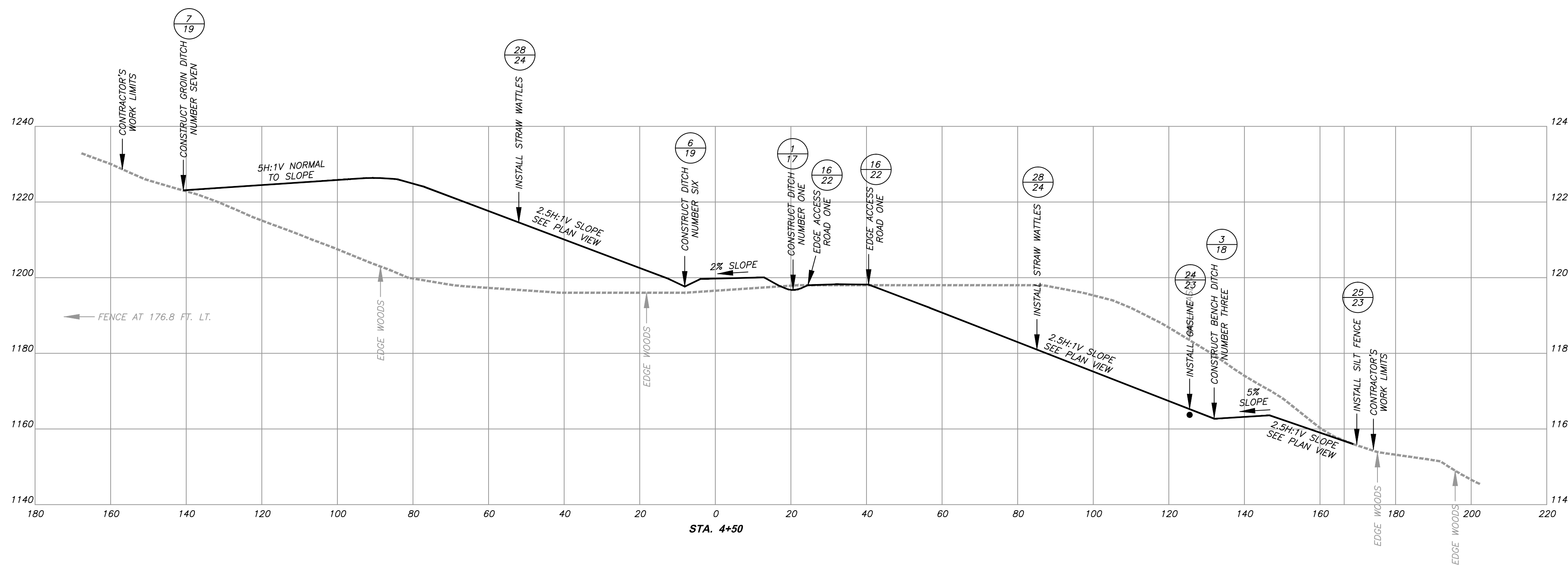
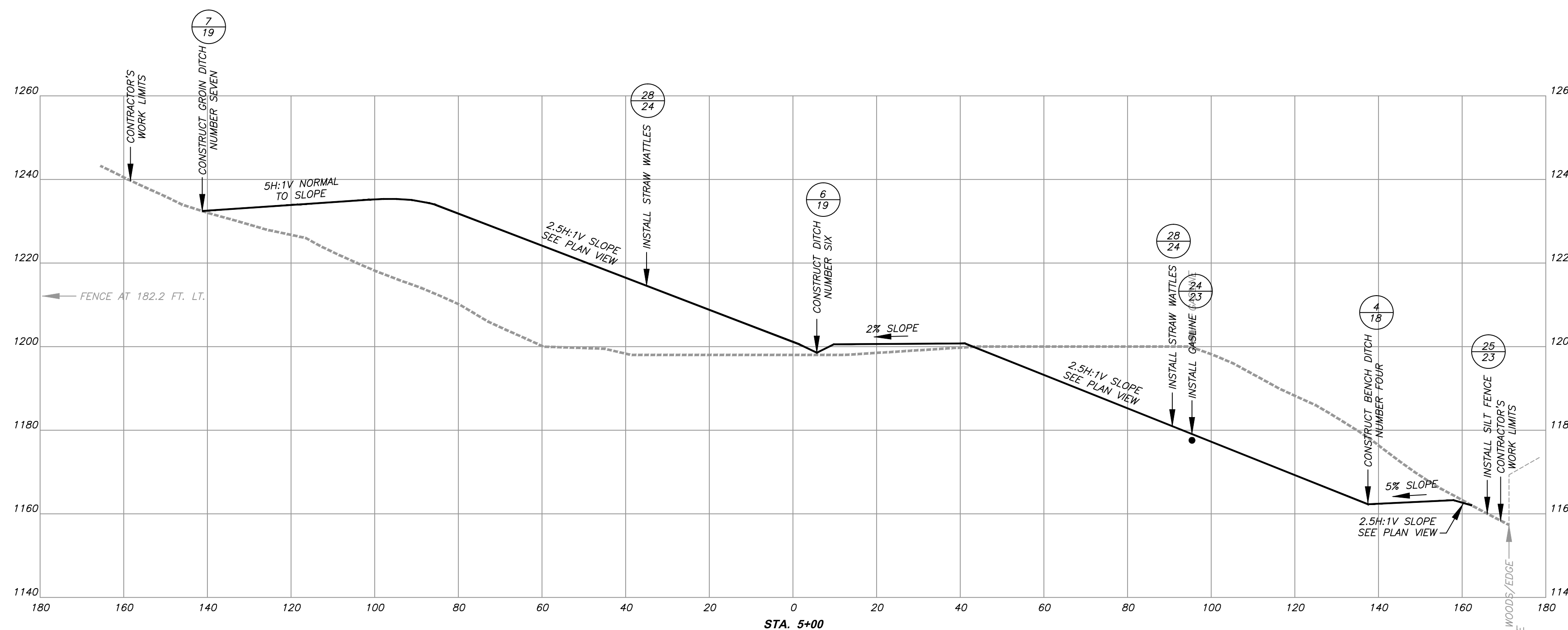
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9
 24

LEGEND

--- EXISTING GROUND
 ——— FINAL GRADE

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DANGEROUS LANDSLIDE
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CROSS-SECTIONS
STA. 4+50 AND STA. 5+00

SCALE: 1" = 20 FT.

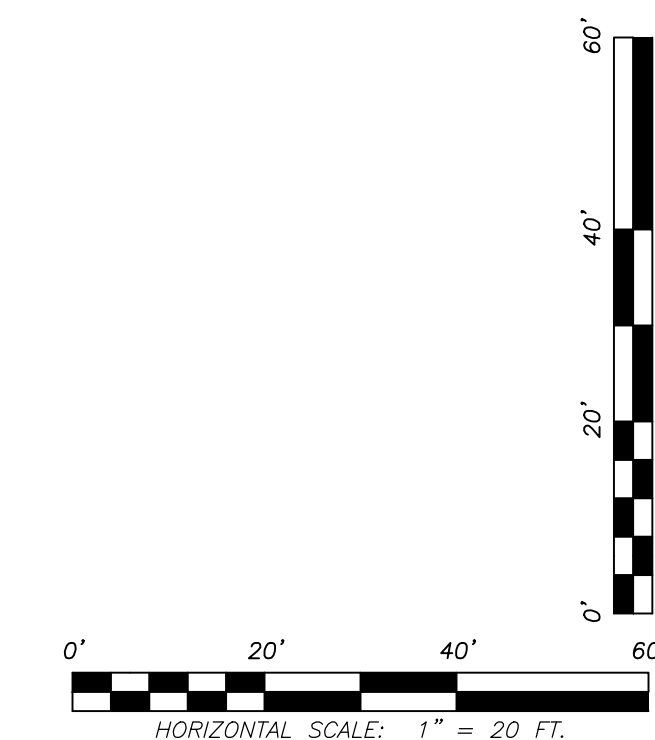
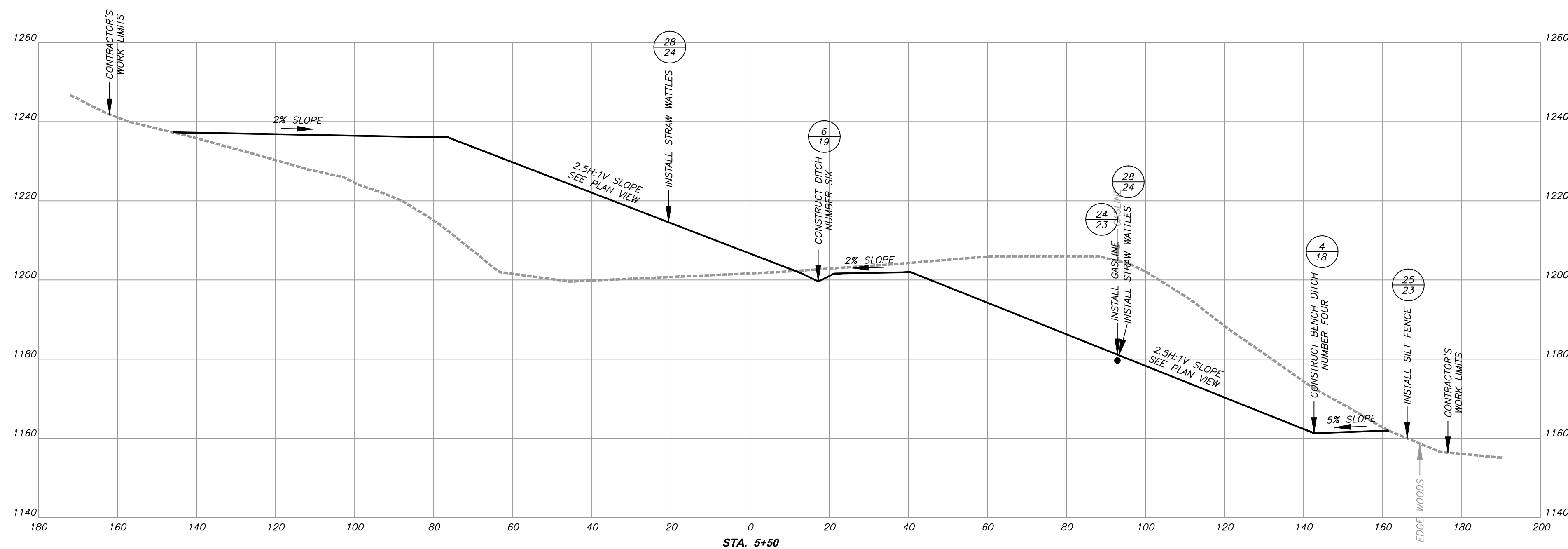
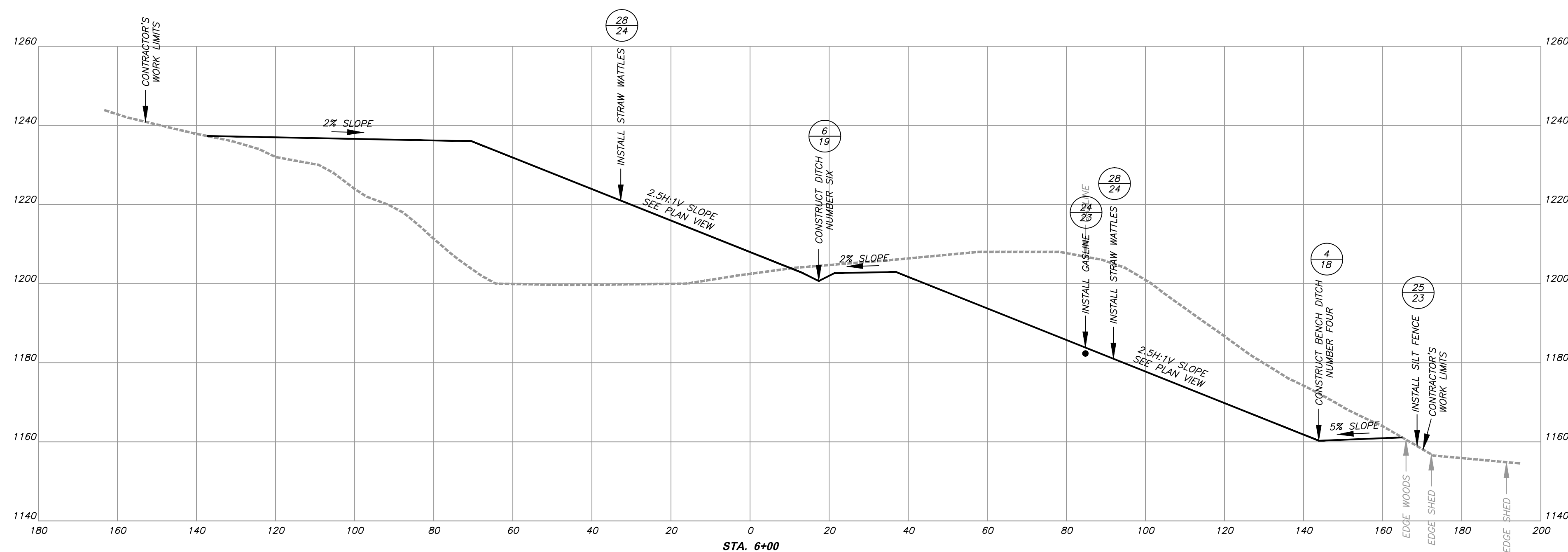
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10
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LEGEND

--- EXISTING GROUND
 ——— FINAL GRADE

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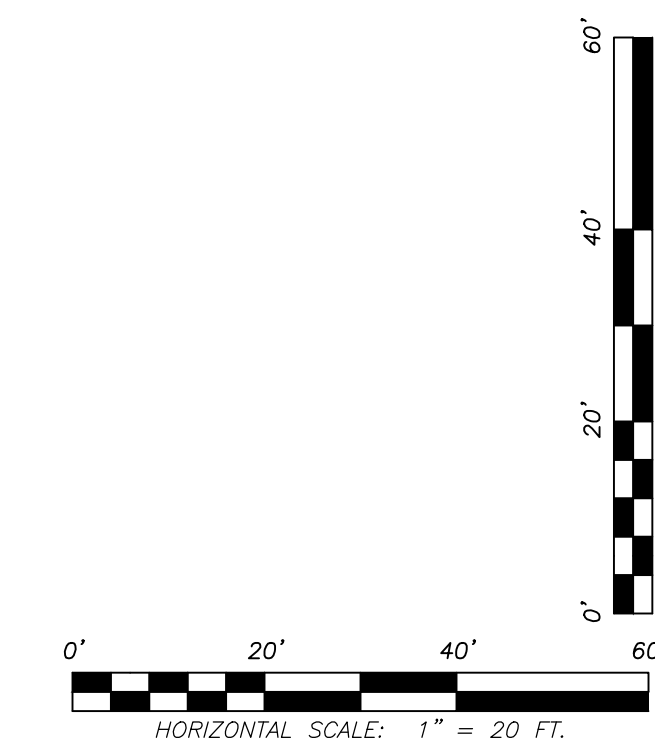
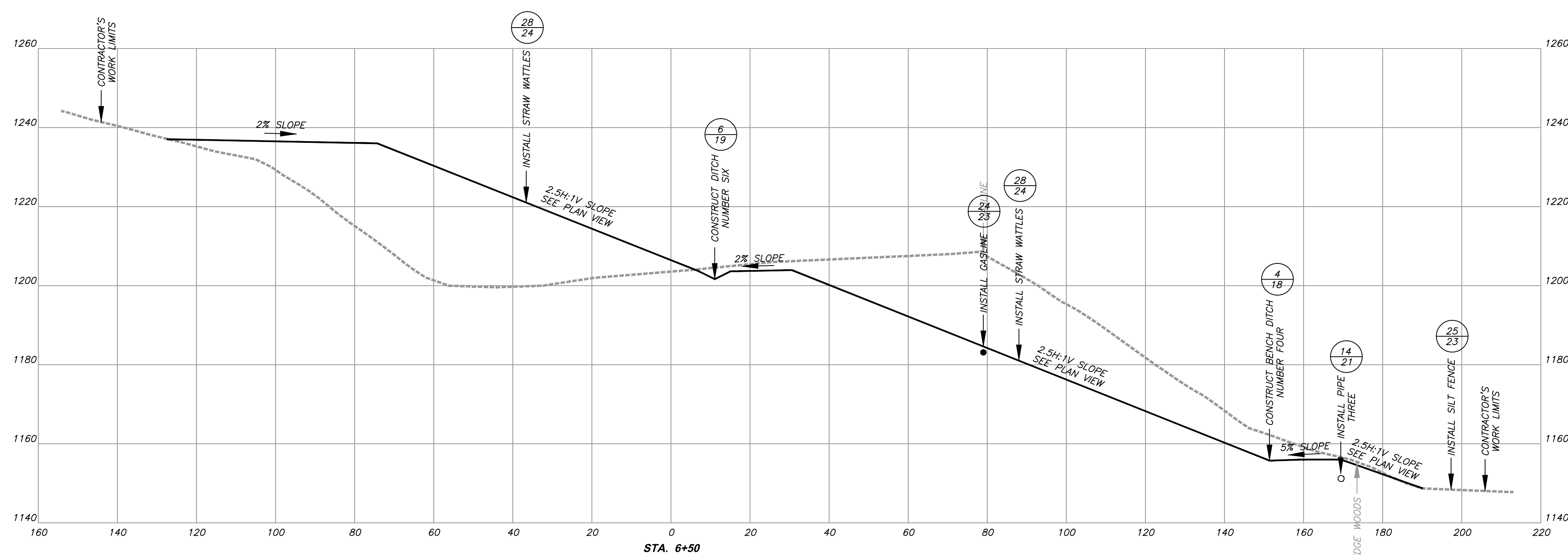
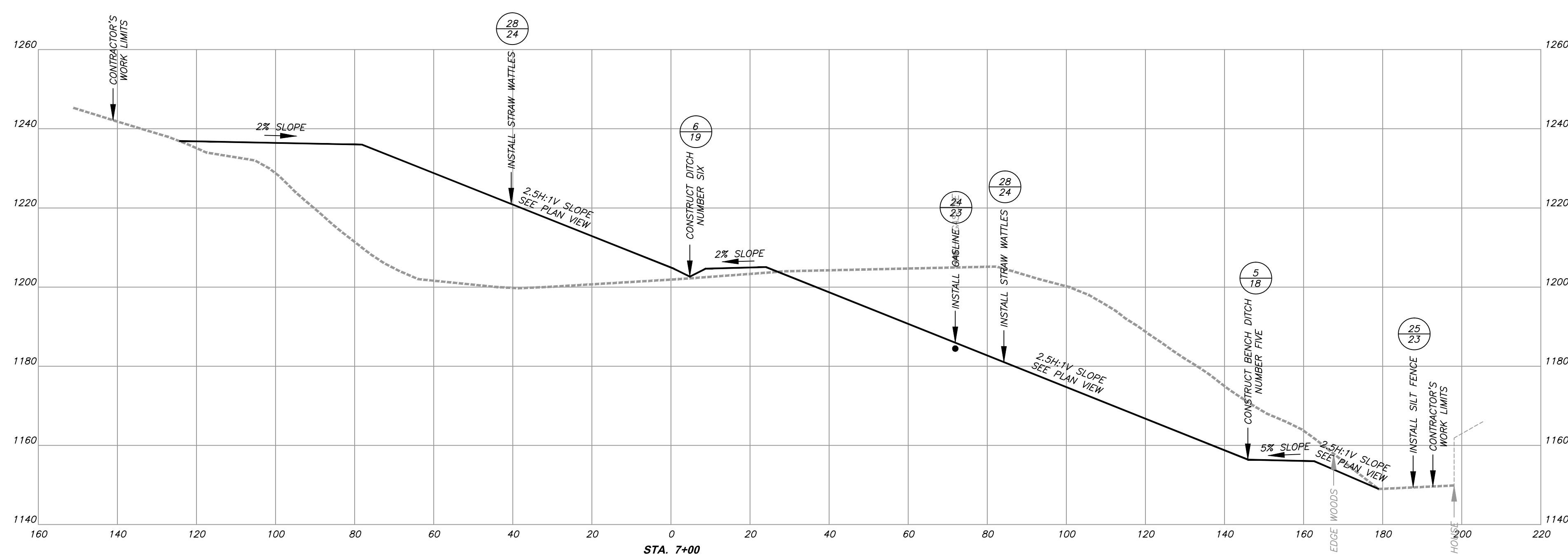
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 5+50 AND STA. 6+00
 SCALE: 1" = 20 FT. DATE: OCTOBER 2013

LEGEND

--- EXISTING GROUND
 ——— FINAL GRADE

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PROJECT NO. 131-466
 DESIGNED BY: RMC
 DRAWN BY: NBG
 CHECKED BY: RMC
 APPROVED BY: GSL

west virginia
dep West Virginia Department of Environmental Protection
 Office of Abandoned Mine Lands

REVISIONS		
DATE:	BY:	(✓):
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8/11/2014	rmc	GSL

CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 6+50 AND STA. 7+00

SCALE: 1" = 20 FT.

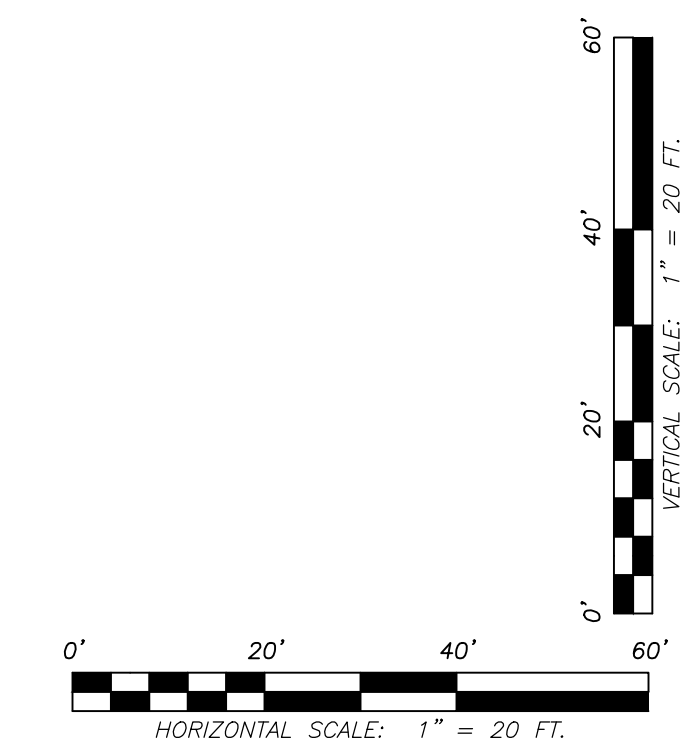
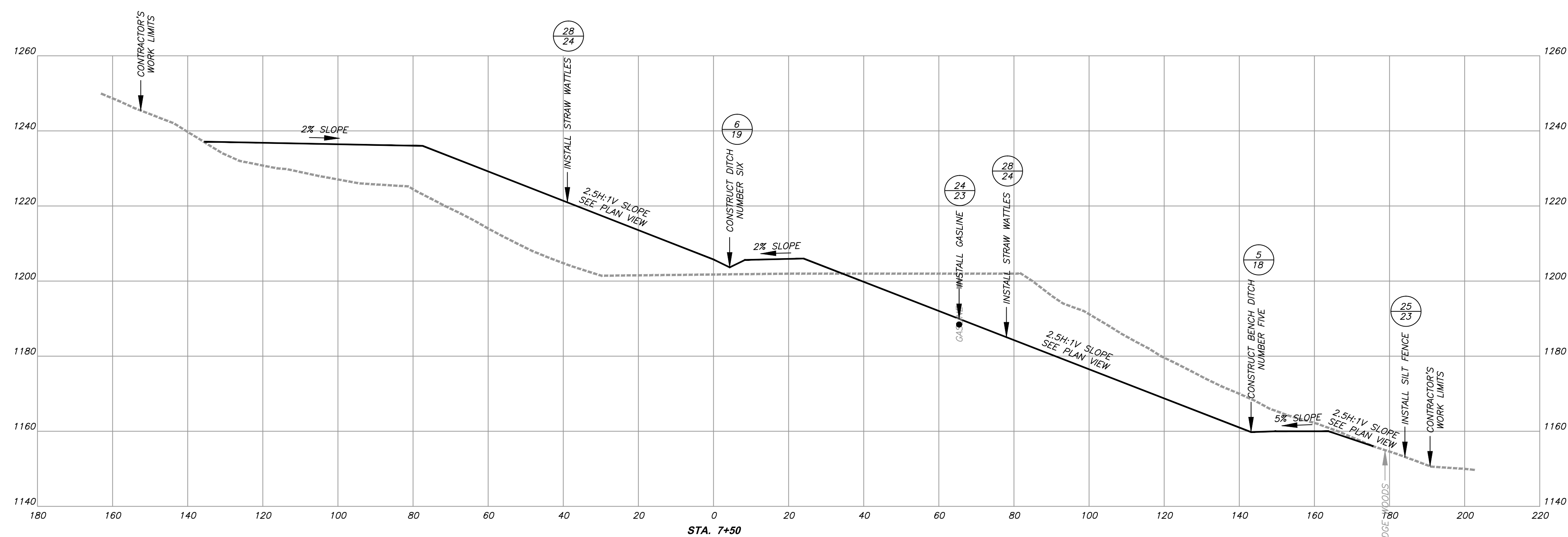
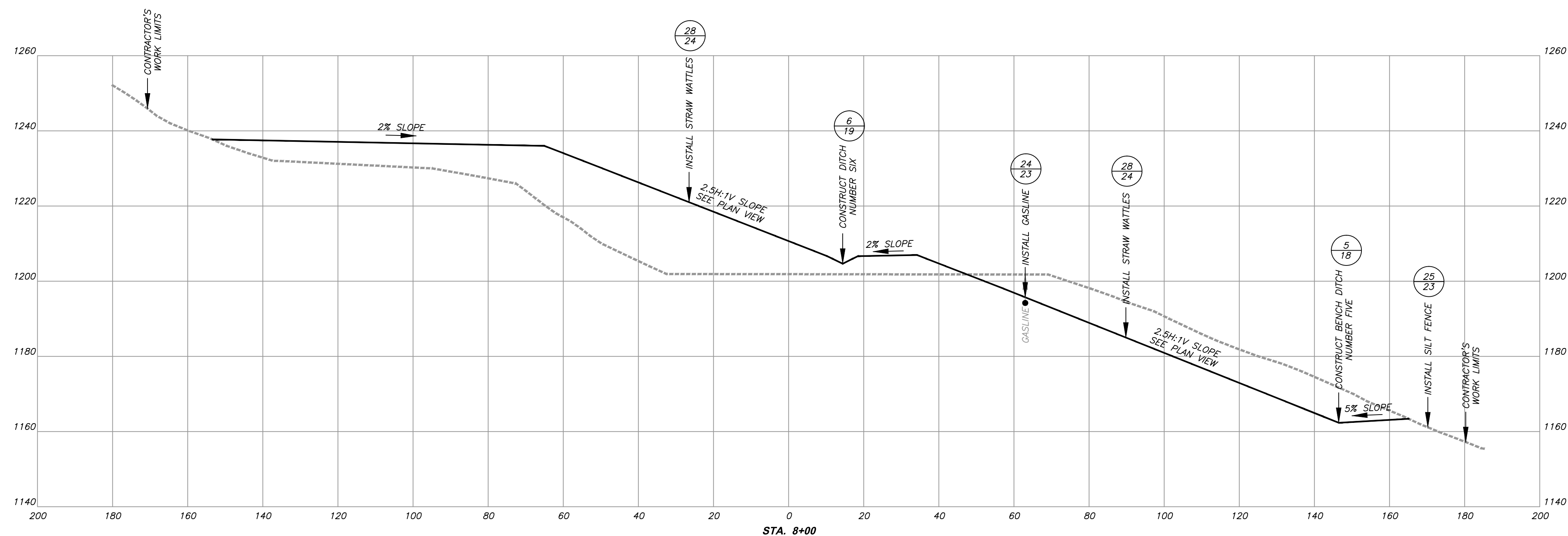
DATE: OCTOBER 2013

12
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LEGEND

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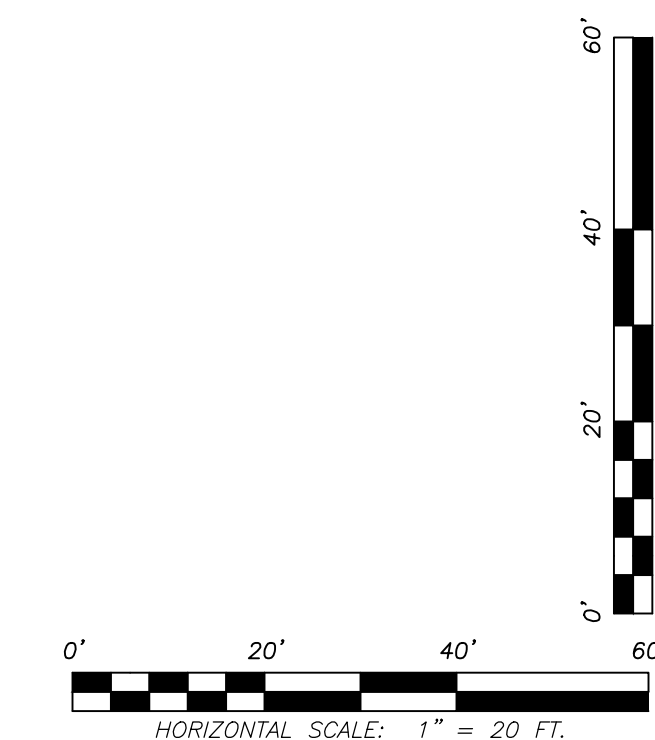
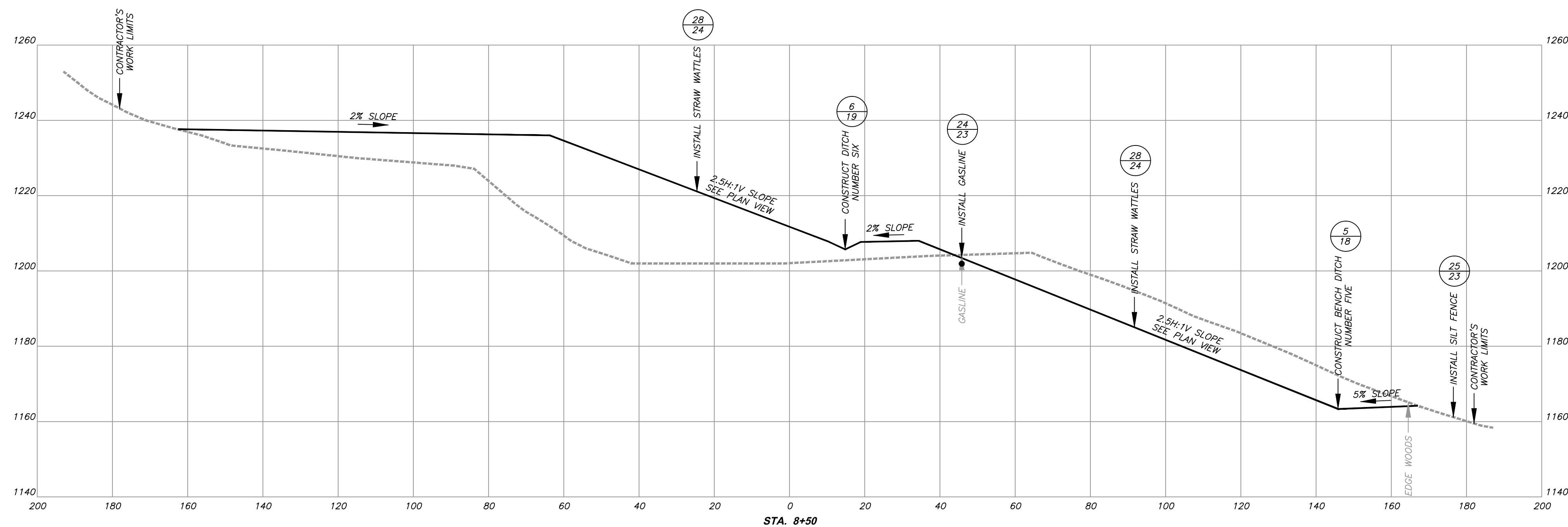
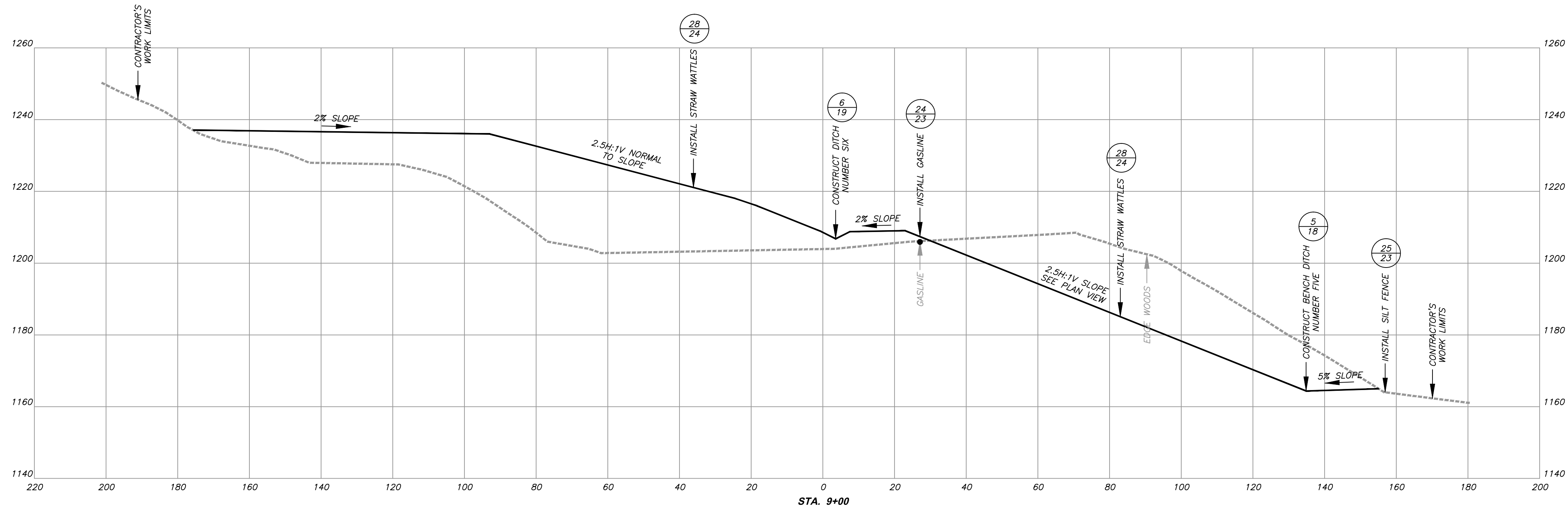
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 7+50 AND STA. 8+00
 SCALE: 1" = 20 FT. DATE: OCTOBER 2013

LEGEND

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CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 8+50 AND STA. 9+00

SCALE: 1" = 20 FT.

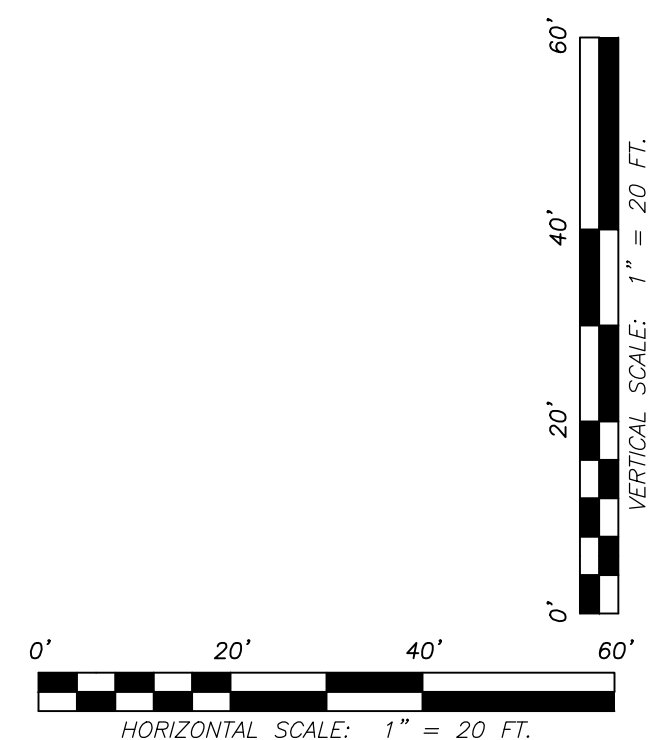
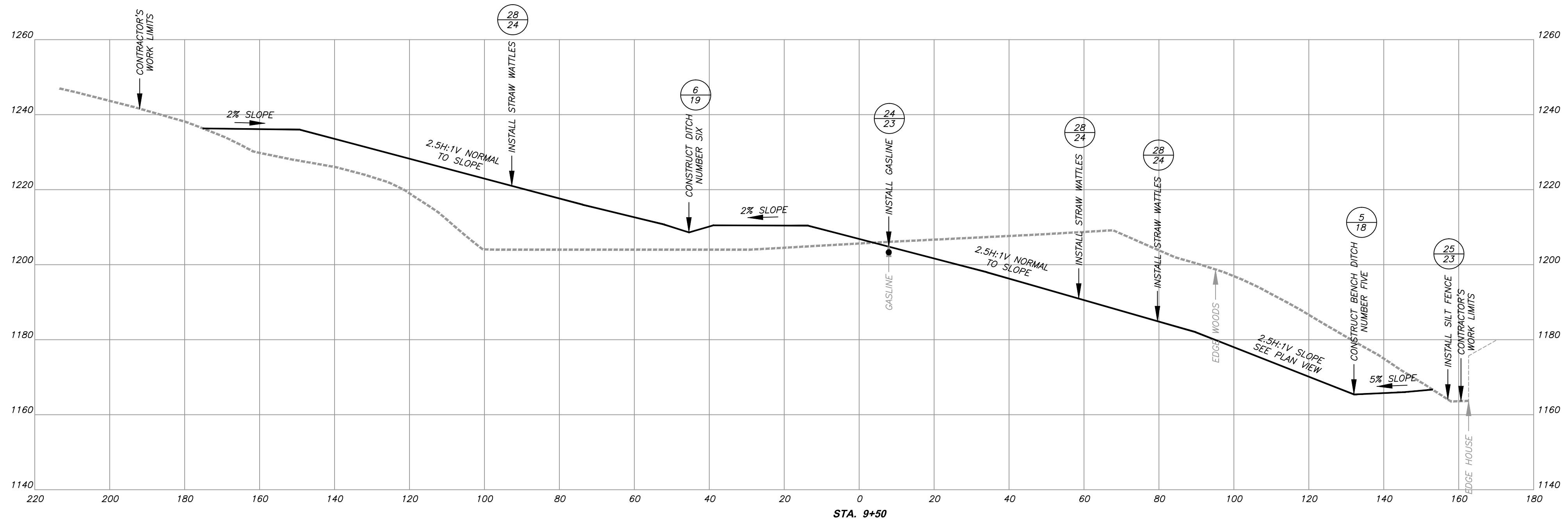
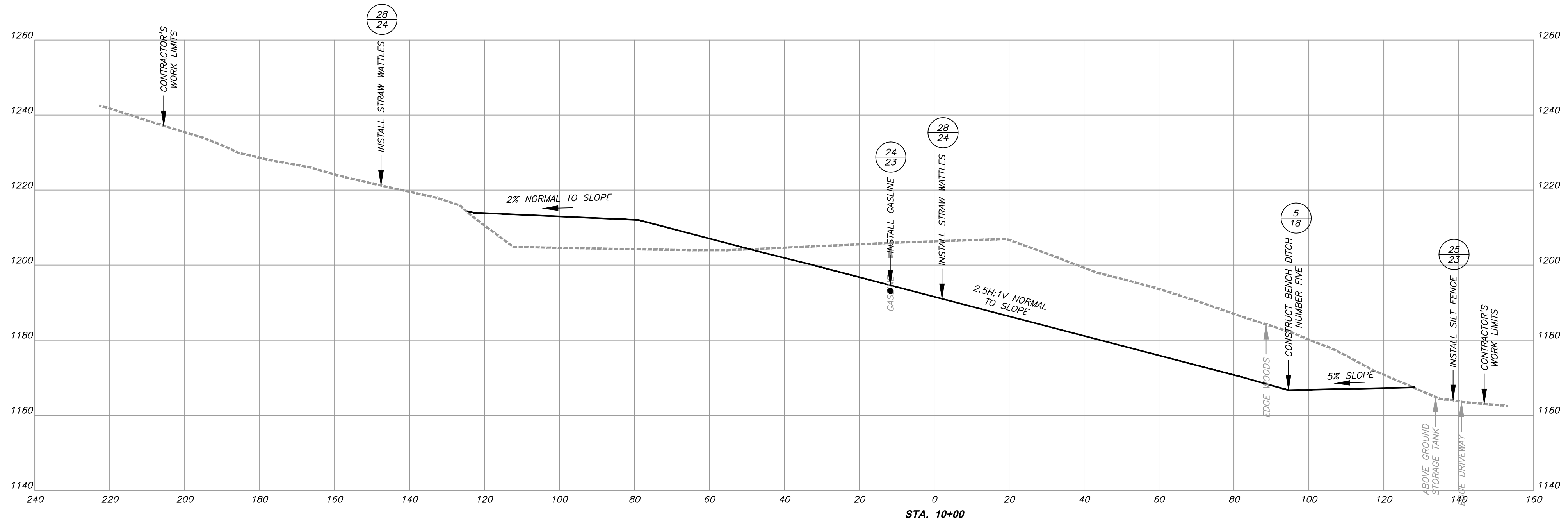
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14
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LEGEND

--- EXISTING GROUND
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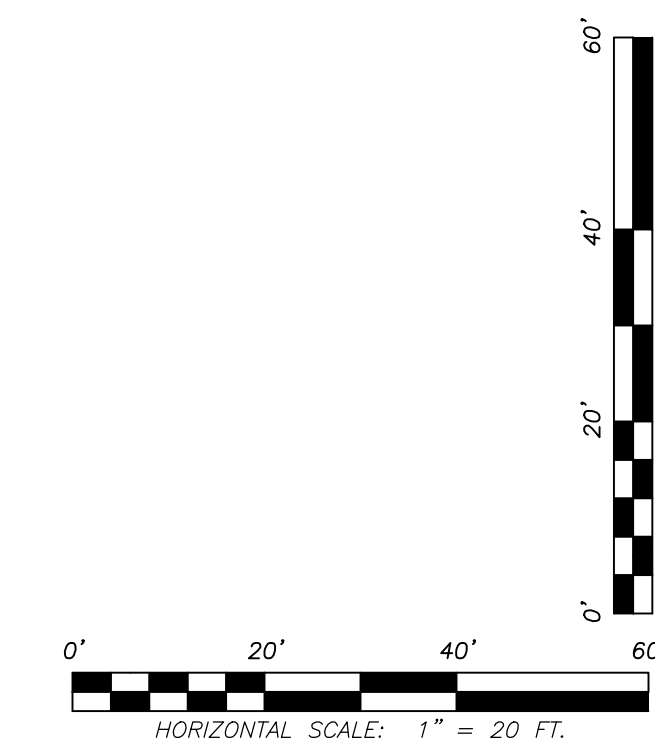
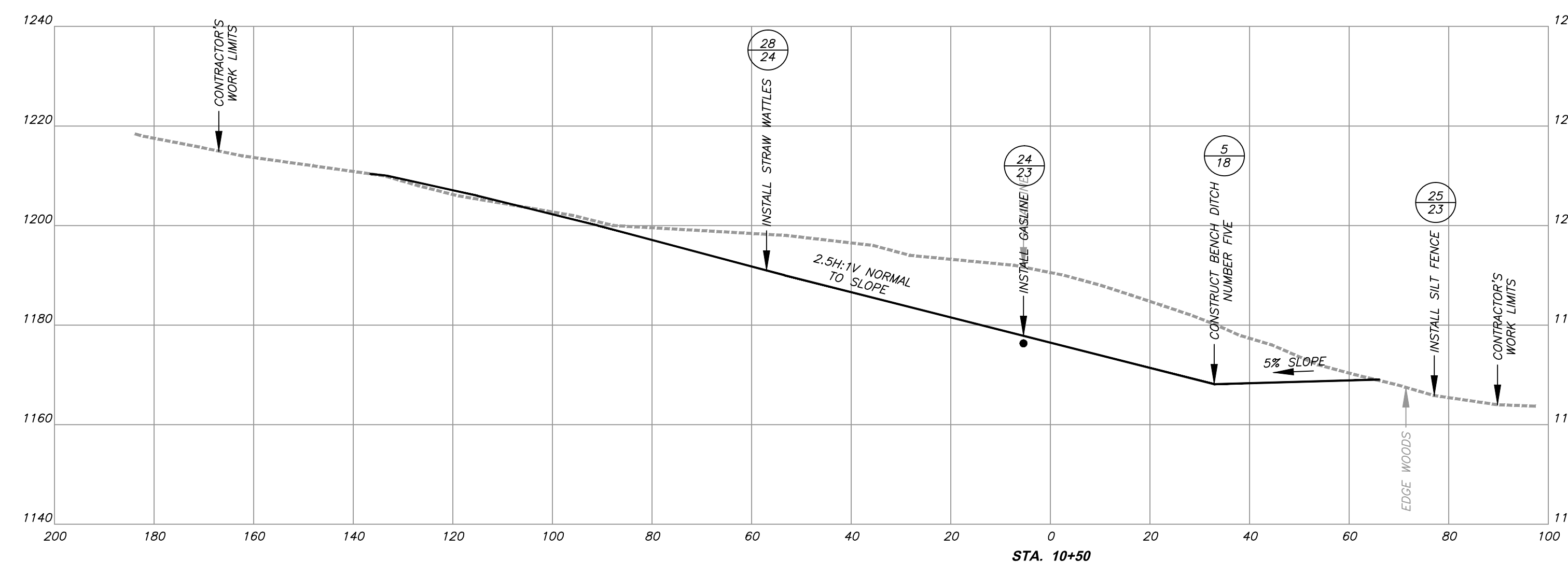
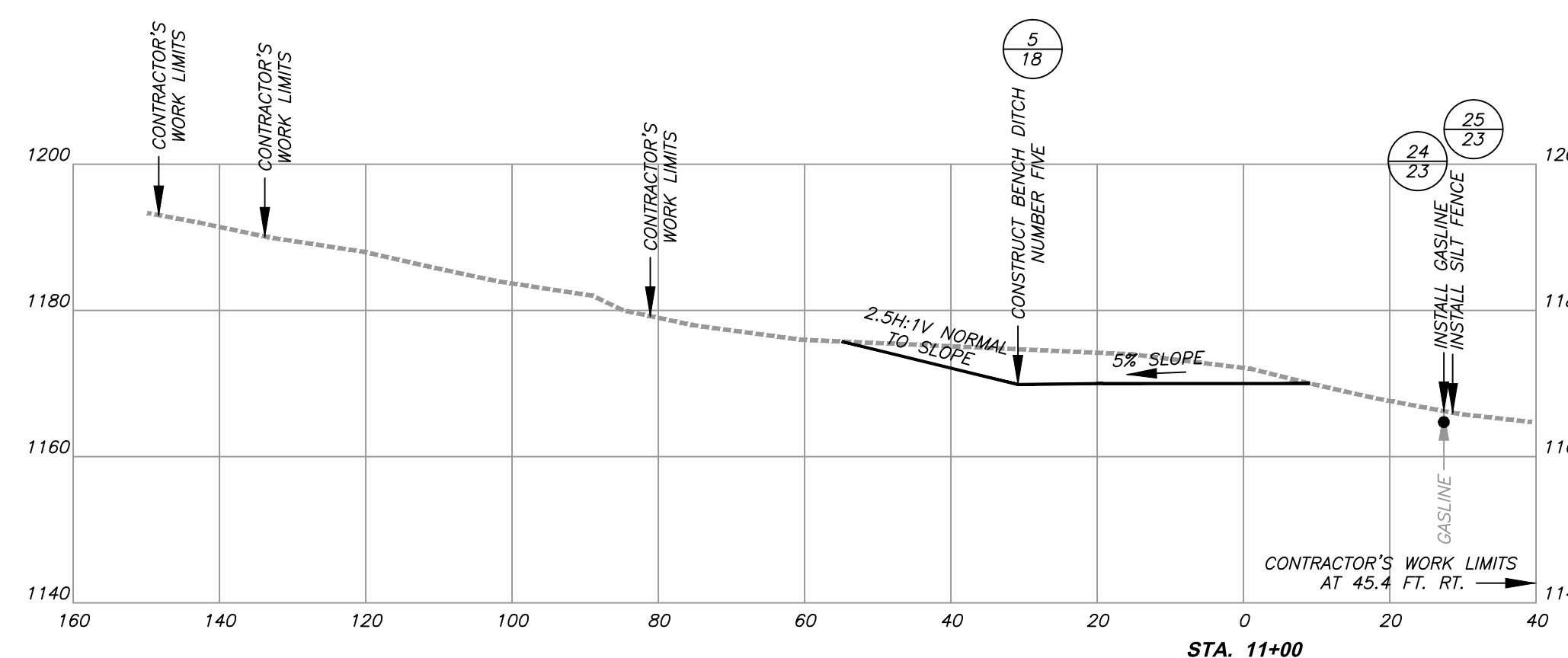
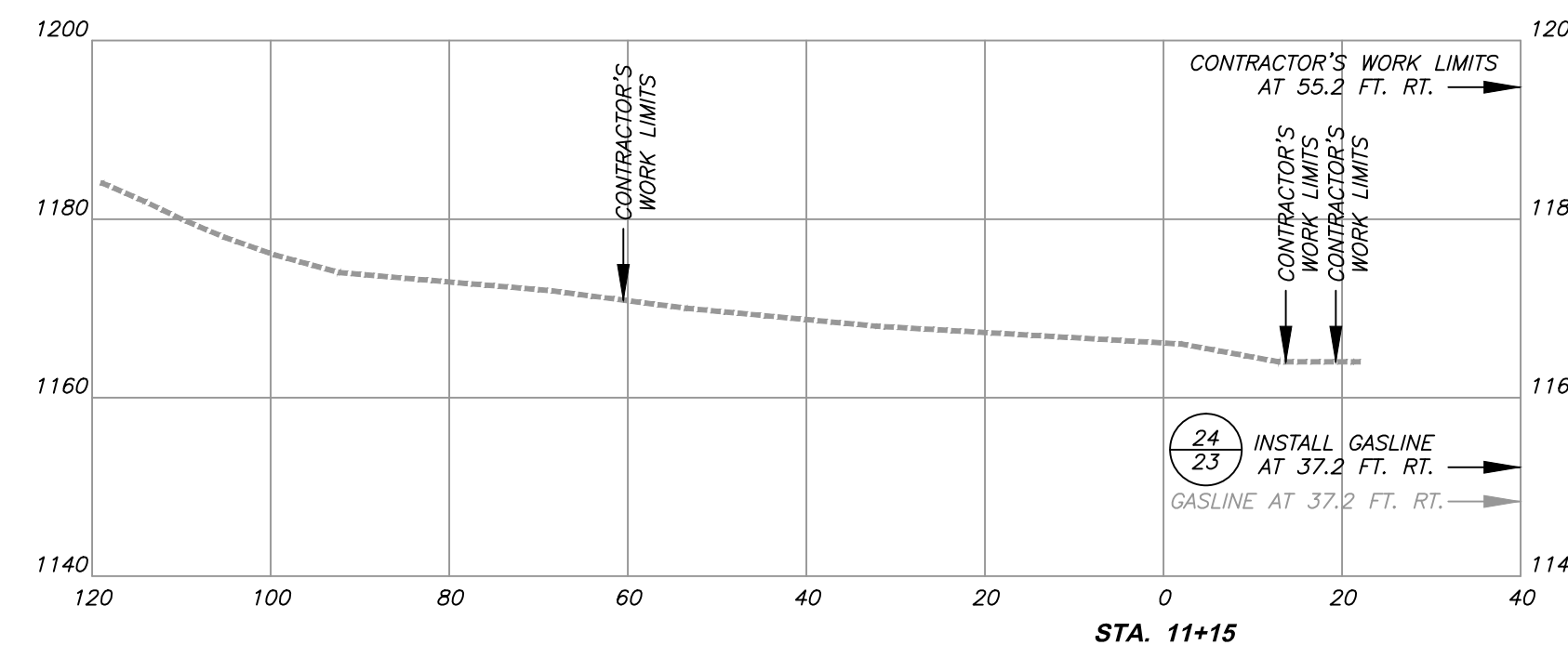
CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 9+50 AND STA. 10+00
 SCALE: 1" = 20 FT. DATE: OCTOBER 2013

LEGEND

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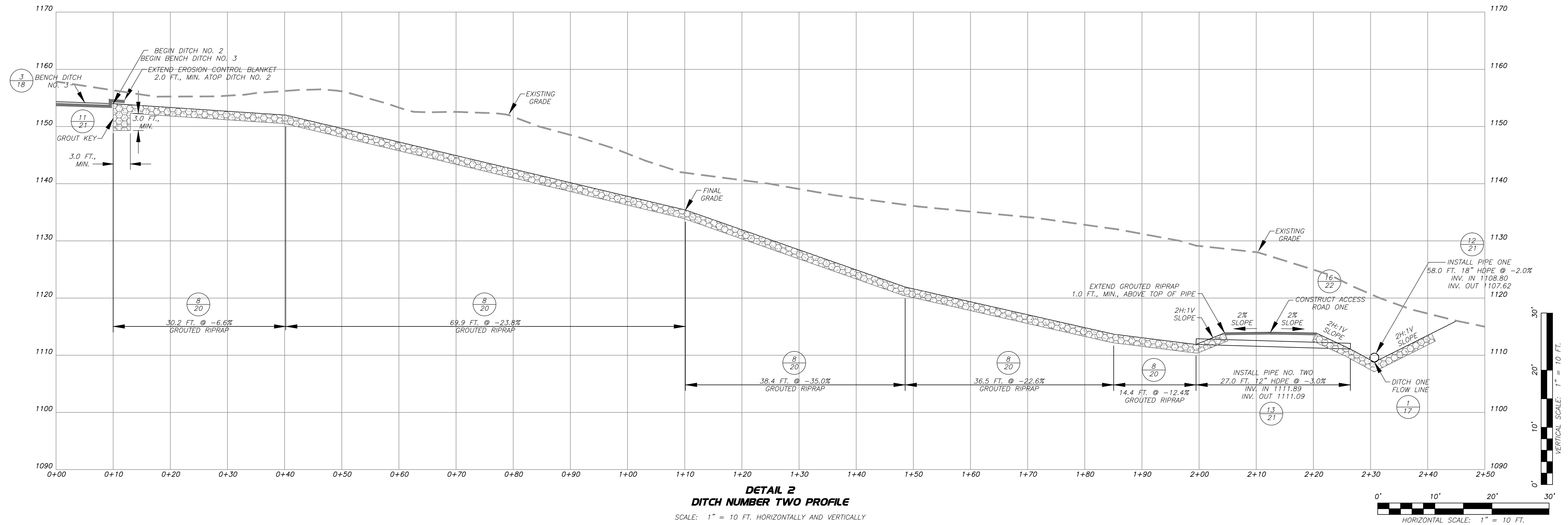
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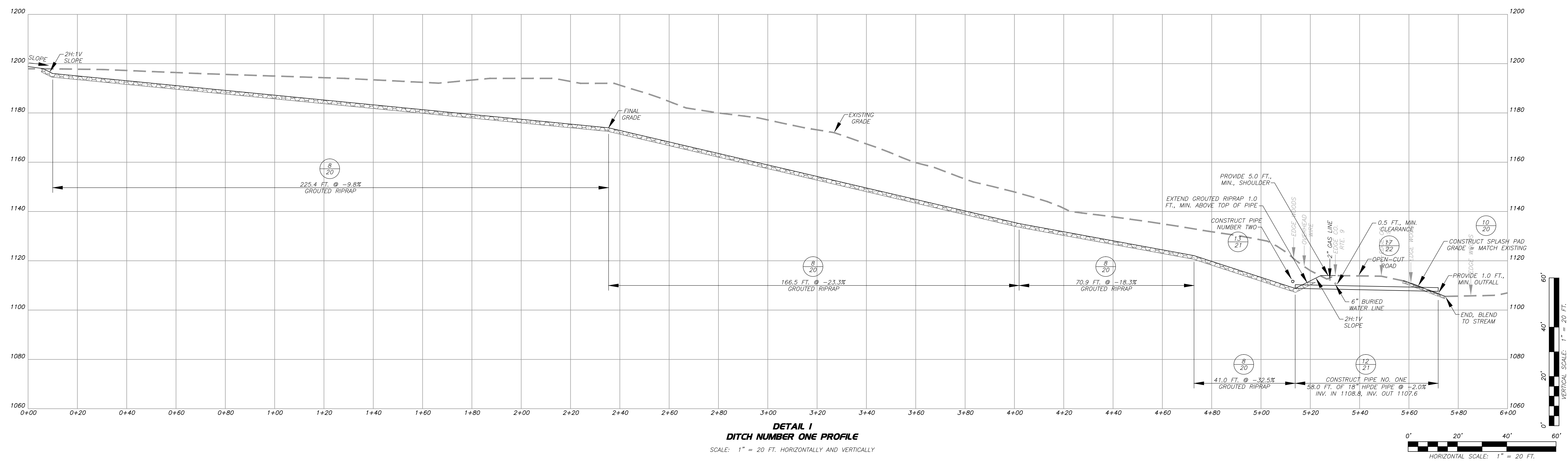
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CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
 NEAR CAMDEN, FREEMANS CREEK DISTRICT,
 LEWIS COUNTY, WEST VIRGINIA

CROSS-SECTIONS
STA. 10+50 TO STA. 11+15
 SCALE: 1" = 20 FT. DATE: OCTOBER 2013



**DETAIL 2
DITCH NUMBER TWO PROFILE**
SCALE: 1" = 10 FT. HORIZONTALLY AND VERTICALLY



**DETAIL 1
DITCH NUMBER ONE PROFILE**
SCALE: 1" = 20 FT. HORIZONTALLY AND VERTICALLY

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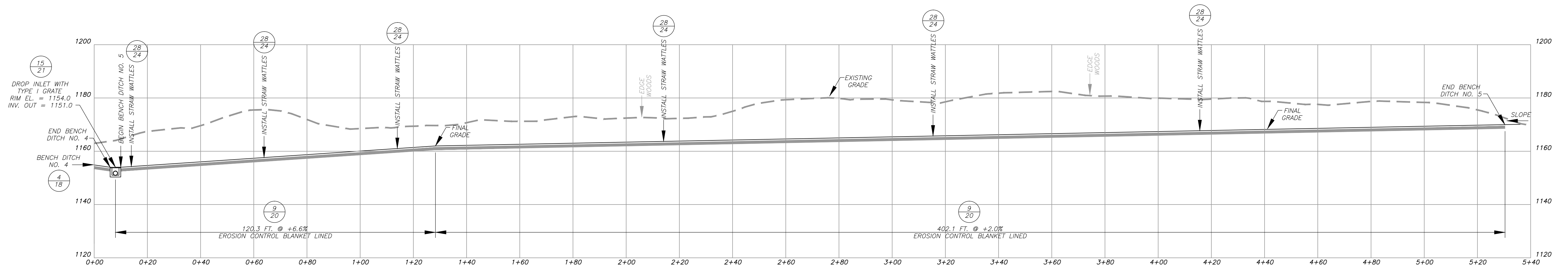
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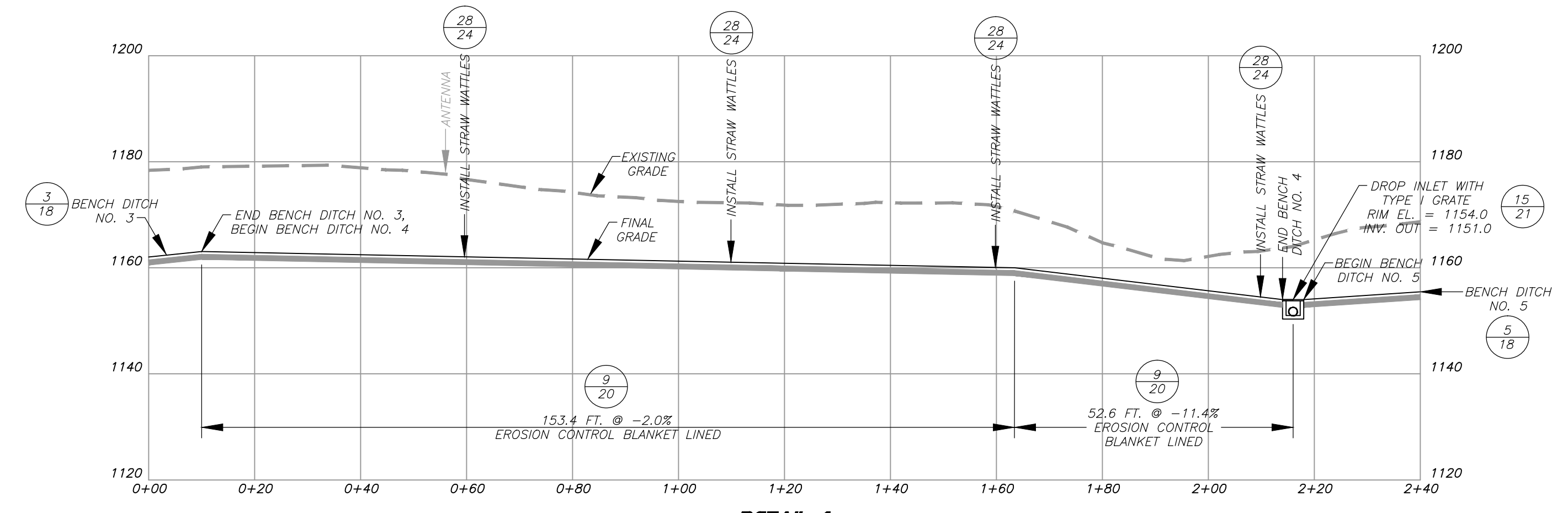
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**CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE**
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

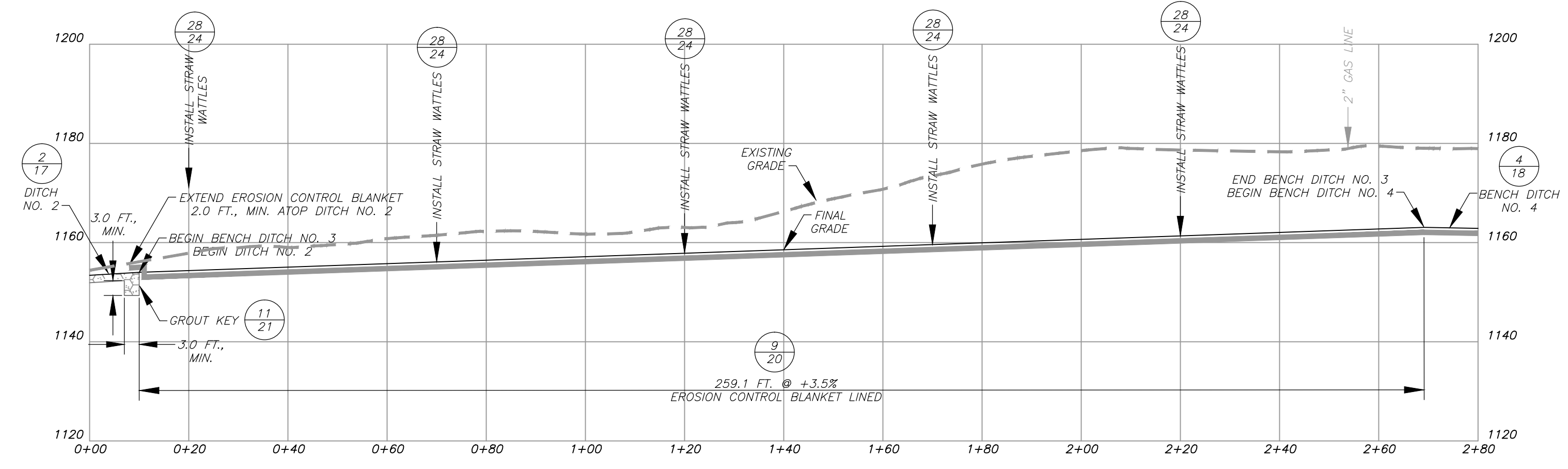
**DITCH NUMBERS ONE
AND TWO PROFILES**
SCALE: AS NOTED
DATE: OCTOBER 2013



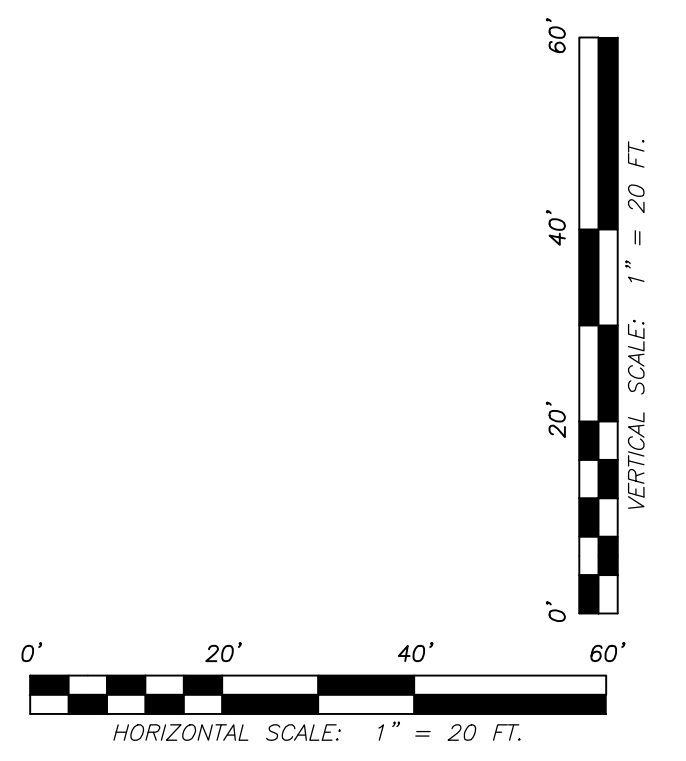
**DETAIL 5
BENCH DITCH NUMBER FIVE PROFILE**
SCALE: 1" = 20 FT. HORIZONTALLY AND VERTICALLY



**DETAIL 4
BENCH DITCH NUMBER FOUR PROFILE**
SCALE: 1" = 20 FT. HORIZONTALLY AND VERTICALLY



**DETAIL 3
BENCH DITCH NUMBER THREE PROFILE**
SCALE: 1" = 20 FT. HORIZONTALLY AND VERTICALLY



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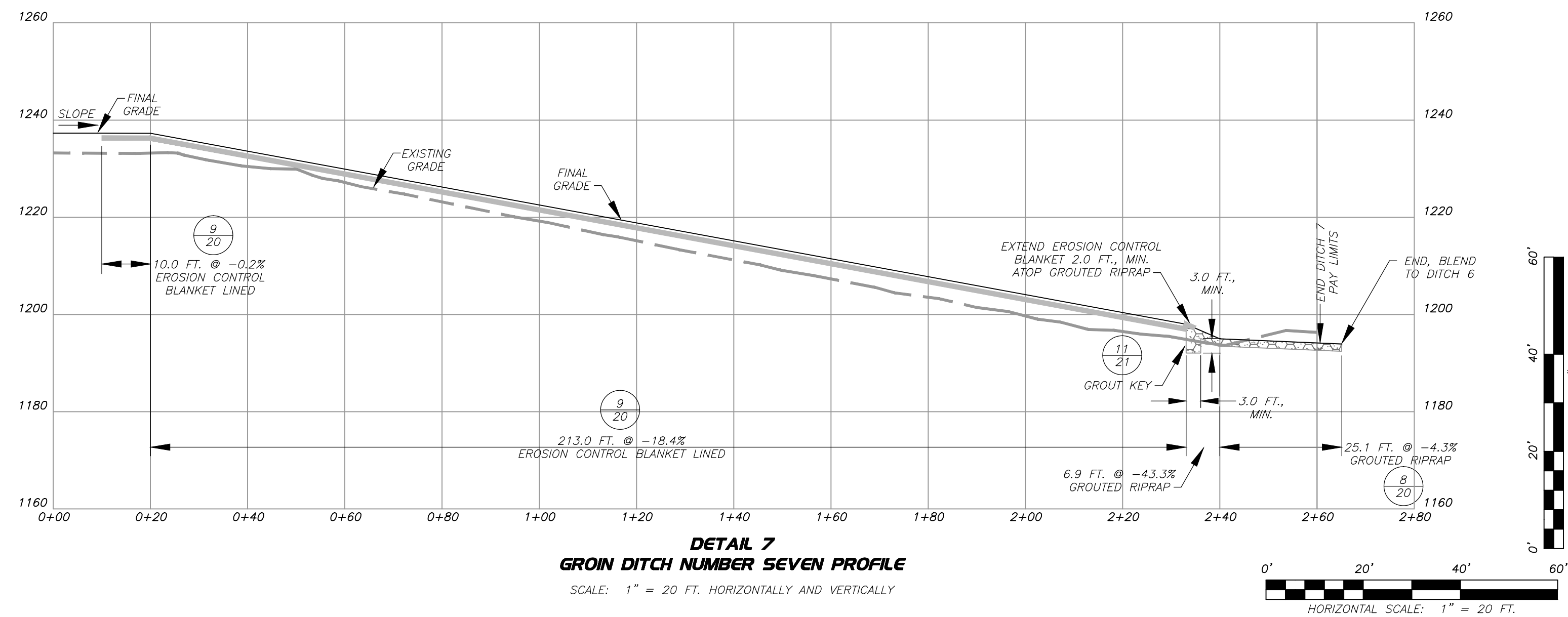
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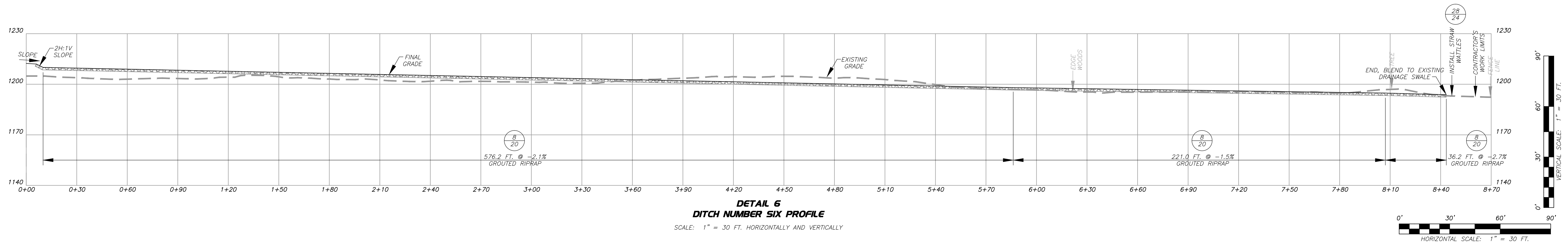
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**CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE**
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

**BENCH DITCH NUMBERS
THREE, FOUR, AND FIVE
PROFILES**
SCALE: AS NOTED DATE: OCTOBER 2013



**DETAIL 7
GROIN DITCH NUMBER SEVEN PROFILE**
SCALE: 1" = 20 FT. HORIZONTALLY AND VERTICALLY



**DETAIL 6
DITCH NUMBER SIX PROFILE**
SCALE: 1" = 30 FT. HORIZONTALLY AND VERTICALLY

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**CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE**
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

**DITCH NUMBER SIX AND
GROIN DITCH NUMBER
SEVEN PROFILES**

SCALE: AS NOTED

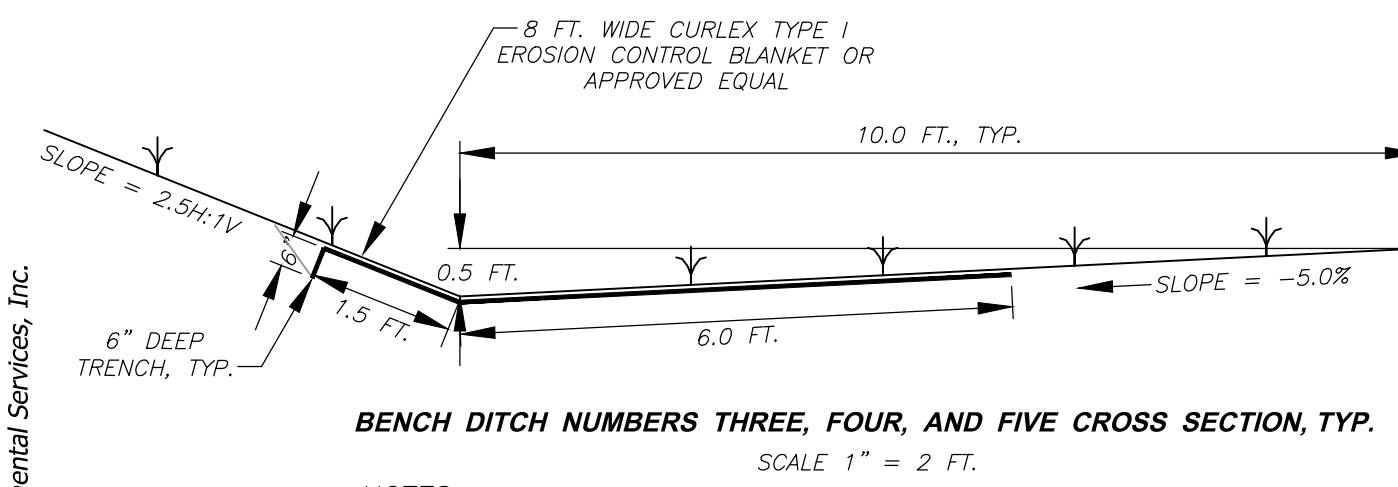
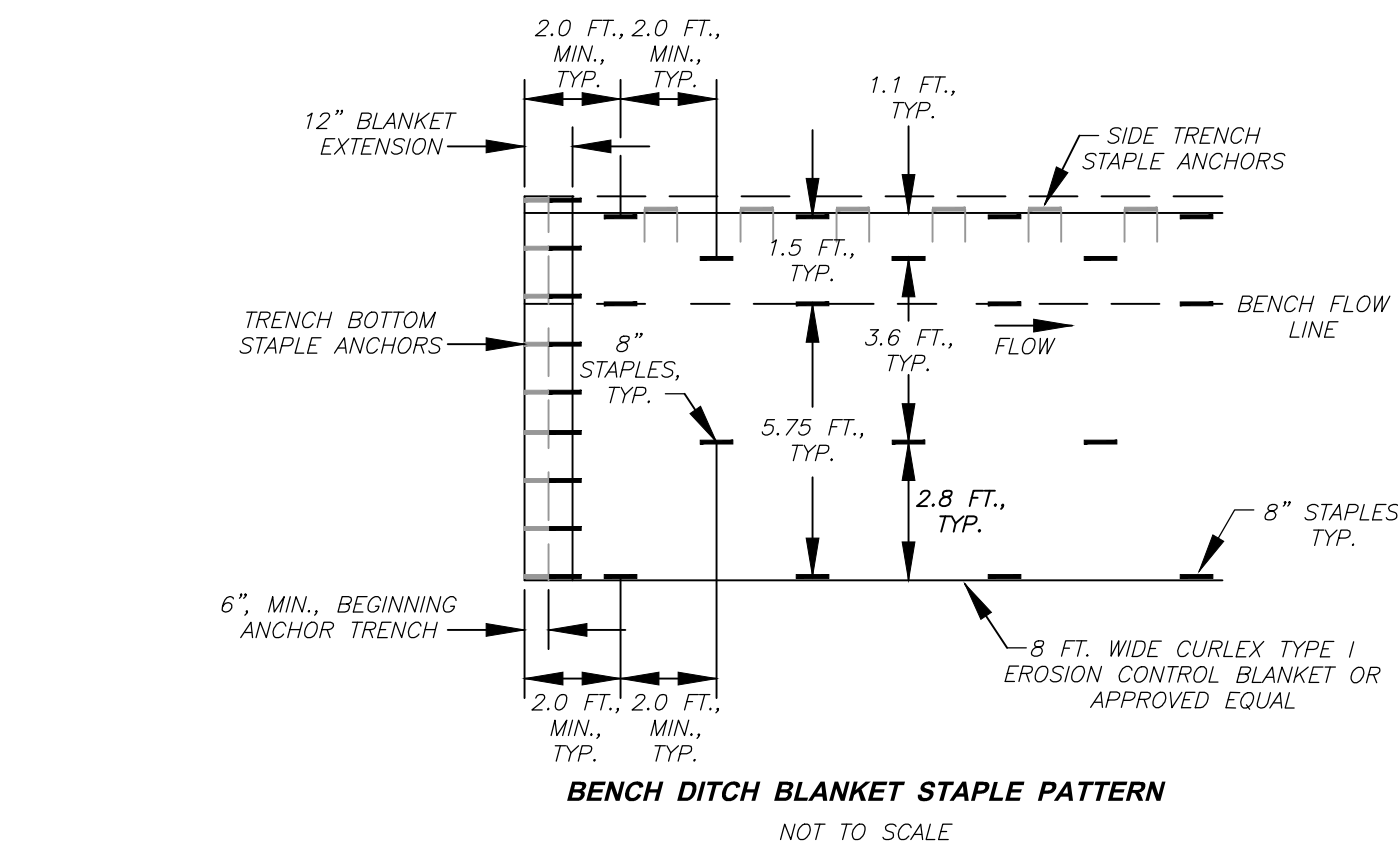
DATE: OCTOBER 2013

19
24

DITCH SUMMARY CHART										
DITCH NUMBER	REACH	HORIZONTAL DISTANCE (FT.)	SLOPE DISTANCE TO LEADING EDGE RECEIVING DITCH (FT.)	DEPTH, MIN. (FT.)	BOTTOM WIDTH MIN. (FT.)	SIDE SLOPES		AVERAGE FLOW SLOPE	DITCH LINING	DETAIL NUMBER
						LEFT	RIGHT			
DITCH NO. ONE	1	225.4		2.0	0.0	2H:1V	2H:1V	-9.8%	12" GROUTED RIPRAP	8/20
DITCH NO. ONE	2	166.5		2.0	0.0	2H:1V	2H:1V	-23.3%	12" GROUTED RIPRAP	8/20
DITCH NO. ONE	3	70.9		2.0	0.0	2H:1V	2H:1V	-18.3%	12" GROUTED RIPRAP	8/20
DITCH NO. ONE	4	41.0		2.0	0.0	2H:1V	2H:1V	-32.5%	12" GROUTED RIPRAP	8/20
PIPE NO. ONE	5	58.0		N/A	N/A	N/A	N/A	-2.0%	18" HDPE PIPE NO. ONE	1/22
TOTAL:			512.7*							
DITCH NO. TWO	1	30.2		2.0	0.0	2H:1V	2H:1V	-6.6%	12" GROUTED RIPRAP	8/20
DITCH NO. TWO	2	69.9		2.0	0.0	2H:1V	2H:1V	-23.8%	12" GROUTED RIPRAP	8/20
DITCH NO. TWO	3	38.4		2.0	0.0	2H:1V	2H:1V	-35.0%	12" GROUTED RIPRAP	8/20
DITCH NO. TWO	4	36.5		2.0	0.0	2H:1V	2H:1V	-22.6%	12" GROUTED RIPRAP	8/20
DITCH NO. TWO	5	14.4		2.0	0.0	2H:1V	2H:1V	-12.4%	12" GROUTED RIPRAP	8/20
PIPE NO. TWO	6	27.0		N/A	N/A	N/A	N/A	-3.0%	12" HDPE PIPE NO. TWO	1/22
TOTAL:			194.8*							
DITCH NO. THREE	1	259.1		0.5	0.0	5%	2.5H:1V	+3.5%	EROSION CONTROL BLANKET LINED	9/20
TOTAL:			259.3*							
DITCH NO. FOUR	1	153.4		0.5	0.0	5%	2.5H:1V	-2.0%	EROSION CONTROL BLANKET LINED	9/20
DITCH NO. FOUR	2	52.6		0.5	0.0	5%	2.5H:1V	-11.4%	EROSION CONTROL BLANKET LINED	9/20
TOTAL:			206.4*							
DITCH NO. FIVE	1	120.3		0.5	0.0	5%	2.5H:1V	+6.6%	EROSION CONTROL BLANKET LINED	9/20
DITCH NO. FIVE	2	402.1		0.5	0.0	5%	2.5H:1V	+2.0%	EROSION CONTROL BLANKET LINED	9/20
TOTAL:			522.7*							
DITCH NO. SIX	1	576.2		2.0	0.0	2H:1V	2H:1V	-2.1%	12" GROUTED RIPRAP	8/20
DITCH NO. SIX	2	221.0		2.0	0.0	2H:1V	2H:1V	-1.5%	12" GROUTED RIPRAP	8/20
DITCH NO. SIX	3	36.2		2.0	0.0	2H:1V	2H:1V	-2.7%	12" GROUTED RIPRAP	8/20
TOTAL:			833.5*							
DITCH NO. SEVEN	1	10.0		0.5	0.0	5%	2.5H:1V	-0.2%	EROSION CONTROL BLANKET LINED	9/20
DITCH NO. SEVEN	2	213.0		0.5	0.0	5%	2.5H:1V	-18.4%	EROSION CONTROL BLANKET LINED	9/20
DITCH NO. SEVEN	3	6.9		2.0	0.0	2H:1V	2H:1V	-43.3%	12" GROUTED RIPRAP	8/20
DITCH NO. SEVEN	4	25.1		2.0	0.0	2H:1V	2H:1V	-4.3%	12" GROUTED RIPRAP	8/20
TOTALS:			226.7 ECB LINED*							
			32.7 GRR LINED*							

NOTES:

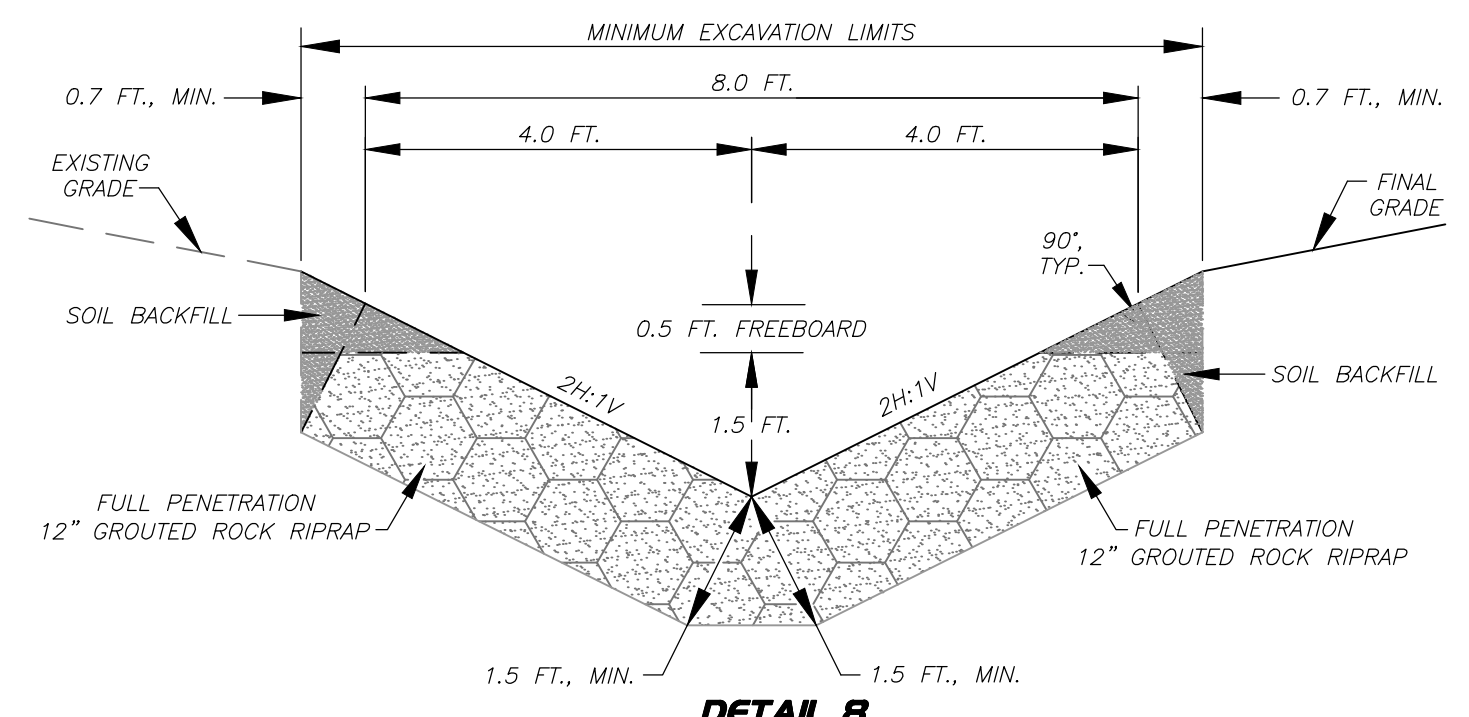
- * DITCH LENGTHS LISTED IN THE TABLE AND SHOWN ON THE PROFILE INCLUDE OVERLAPPED DIMENSIONS WHERE TWO DITCHES INTERSECT. TOTALS SHOWN IN THE TABLE DISCOUNT THE OVERLAP. DITCH TOTALS IN THE TABLE ARE SLOPE DISTANCES.
- GROUT KEYS SHALL BE PAID AT THE UNIT PRICE BID FOR THE DITCH IN WHICH THEY ARE LOCATED. FOR GROUT KEY LOCATIONS SEE DITCH PROFILES.



NOTES:

- THE BLANKET SHALL BE ROLLED OUT FLAT, EVEN, AND SMOOTH WITHOUT STRETCHING THE BLANKET, THEN ANCHORED TO GRADE.
- AT THE BEGINNING OF THE BENCH DITCH, ANCHOR THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED AND SOIL AMENDMENTS TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE BLANKET.
- PLACE CONSECUTIVE BLANKETS END TO END WITH A COMMON ROW OF STAPLES SPACED 12" CENTER TO CENTER.
- FULL LENGTH EDGE OF BLANKET AT TOP OF THE SLOPES (AS SHOWN) MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 24" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

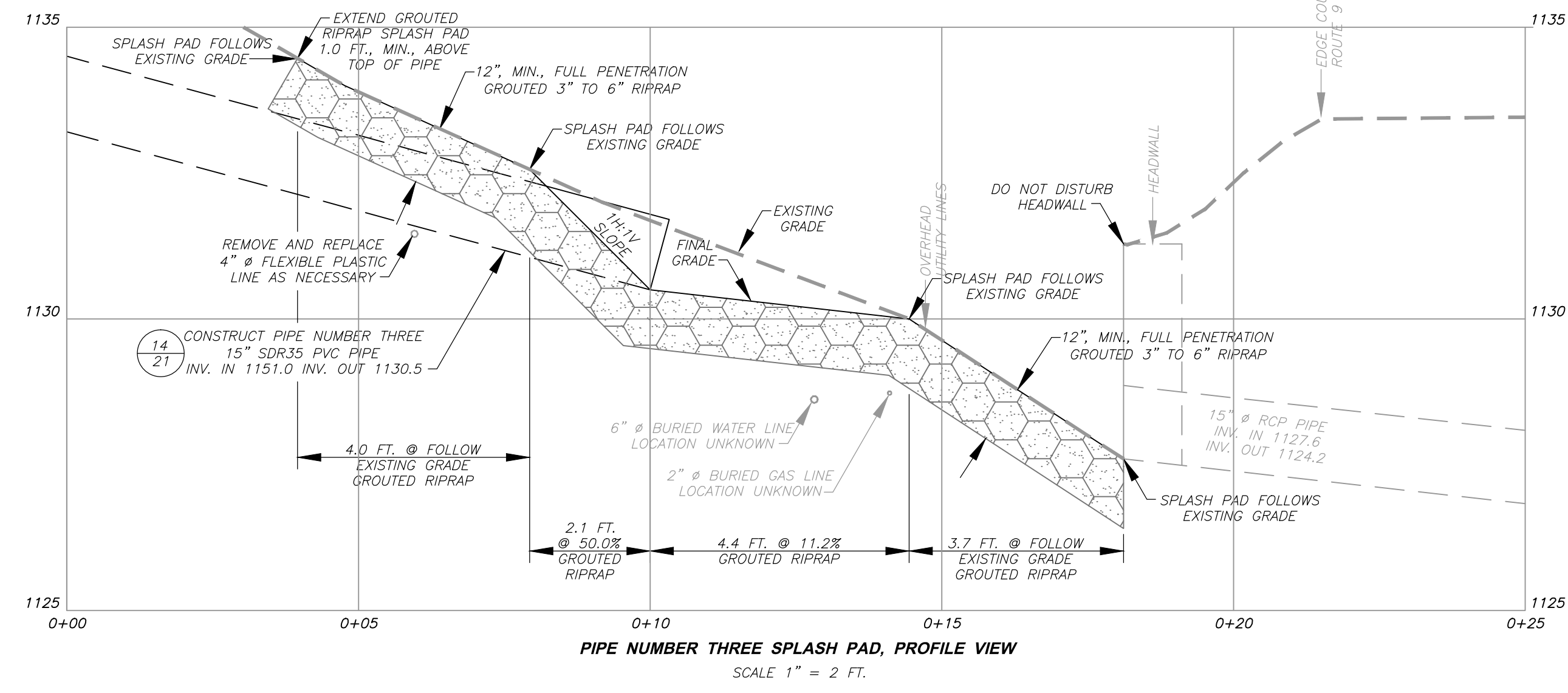
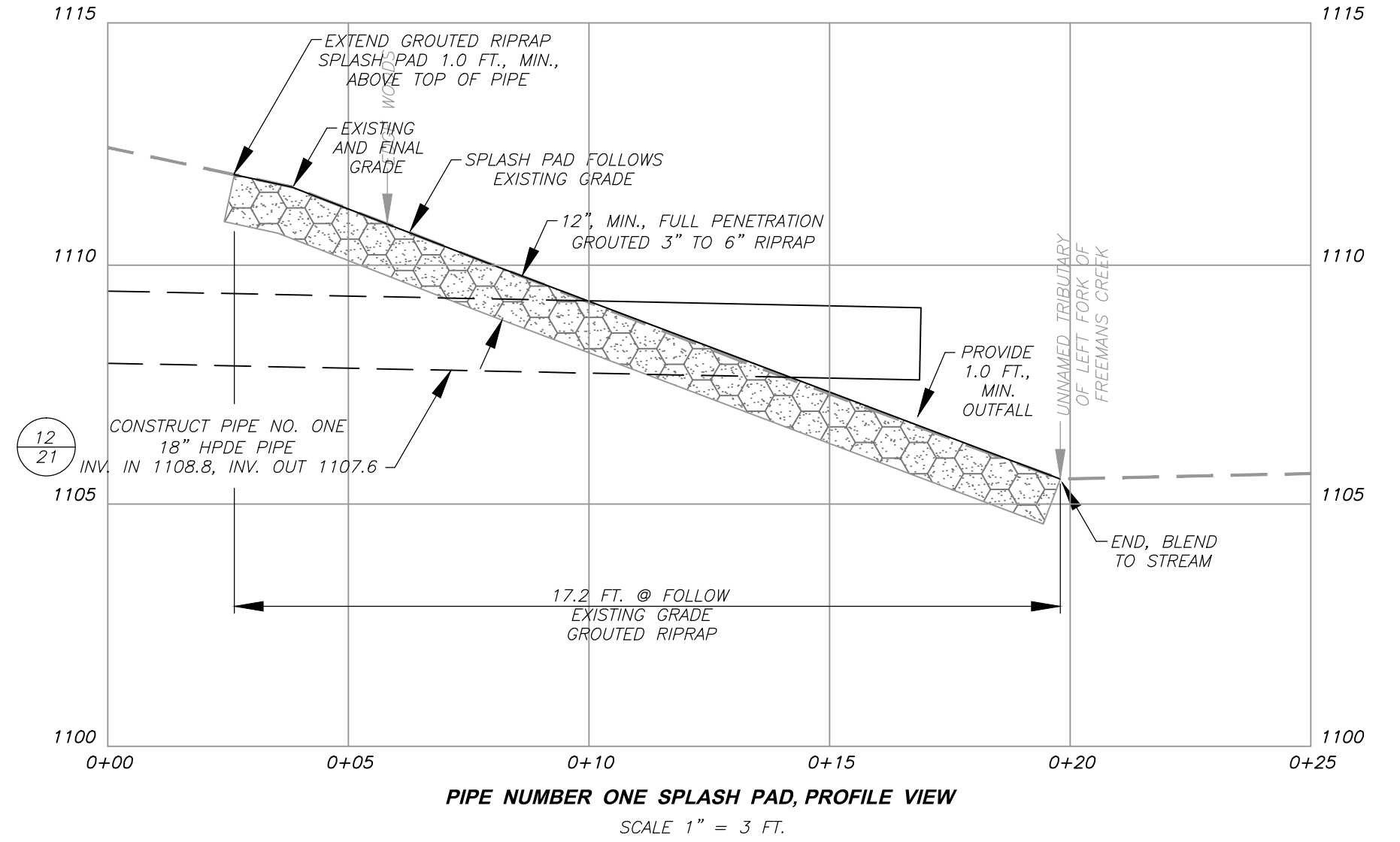
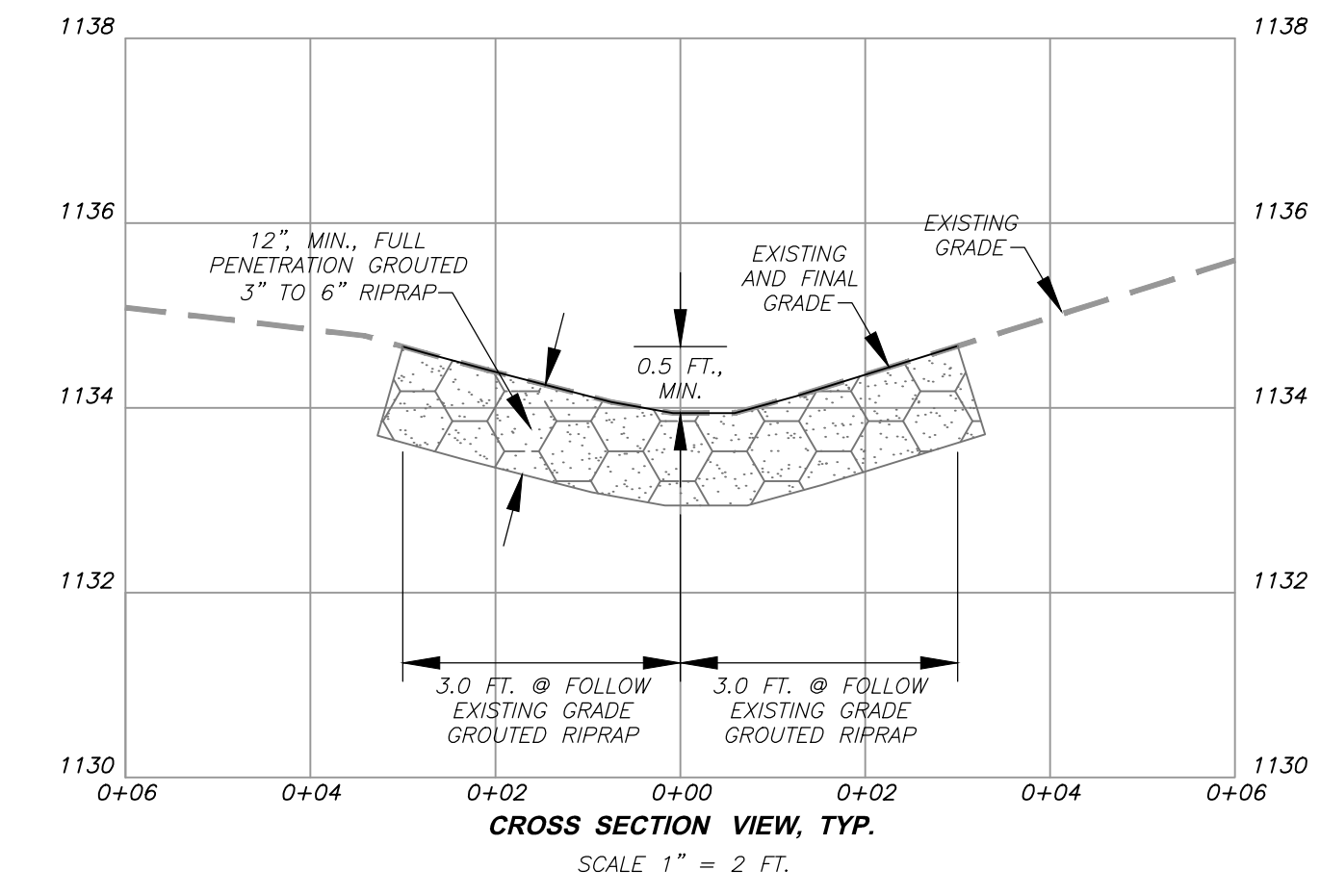
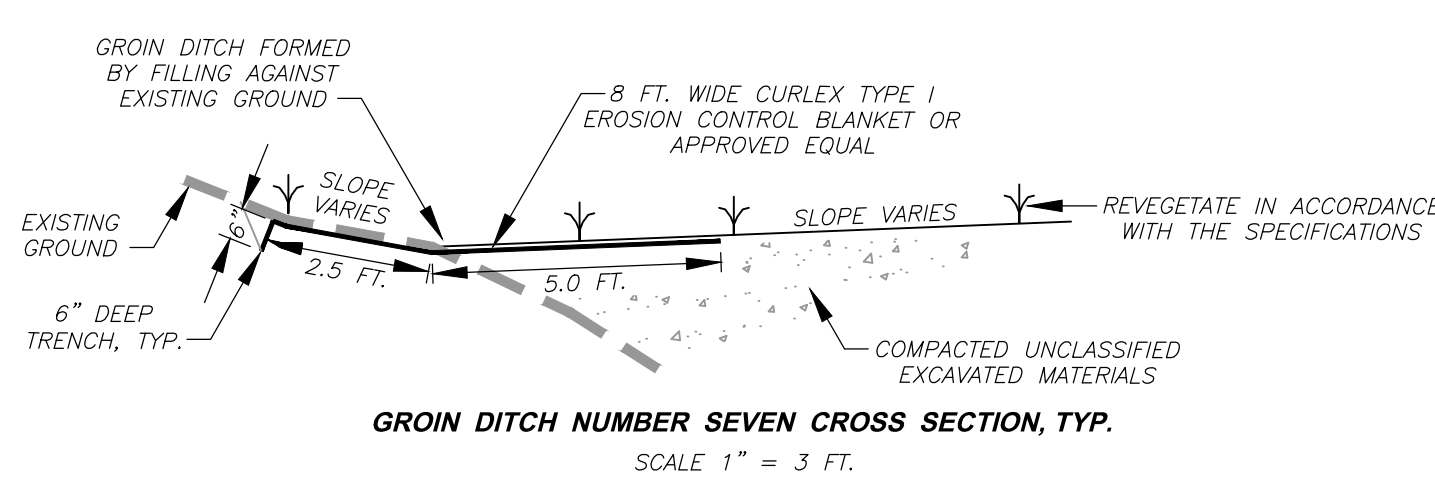
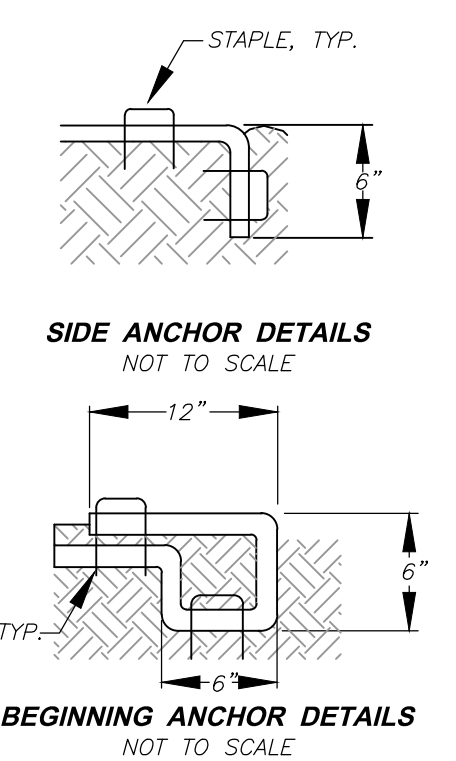
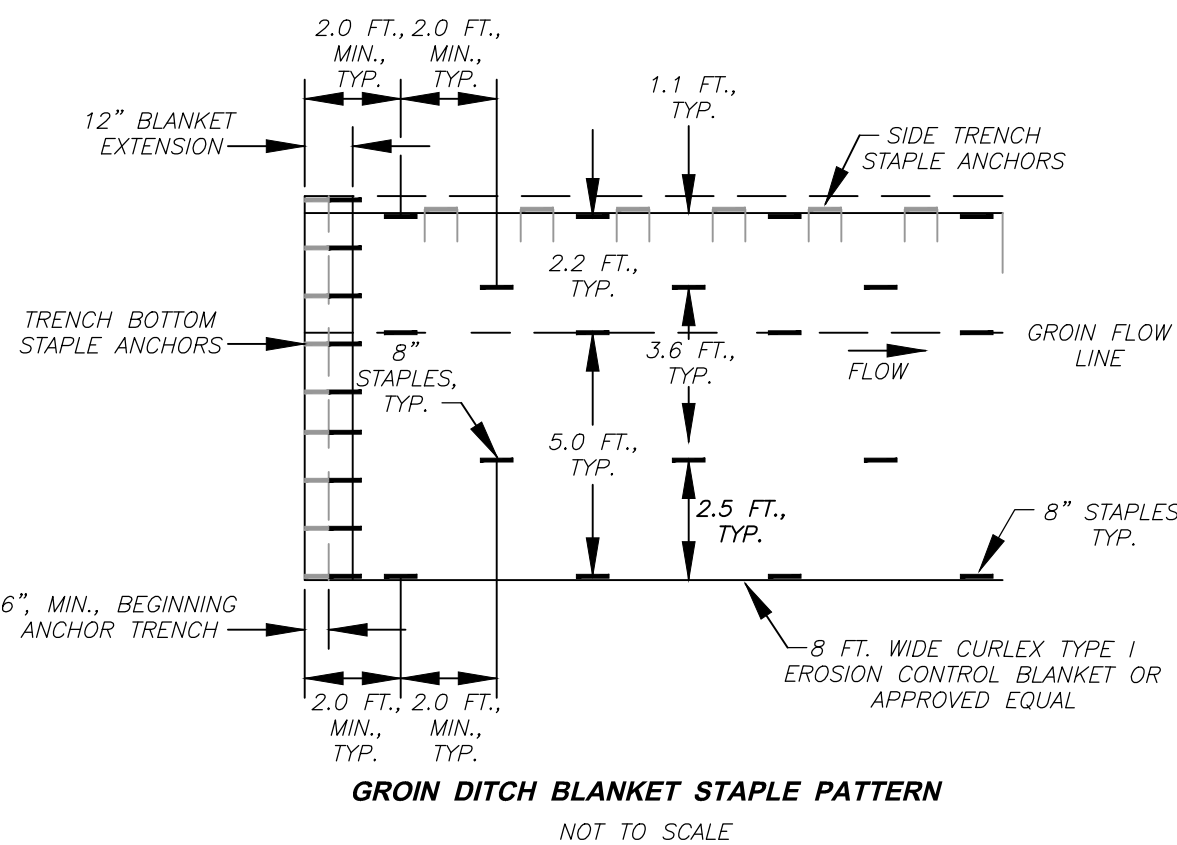
DETAIL 9
EROSION CONTROL BLANKET LINED DITCH
SCALE: AS NOTED



ROCK RIPRAP SIZING

GRADATION	D ₅₀ =12"
50%	12" - 18"
35%	6" - 12"
15%	3" - 6"

- NOTES:
- PROVIDE ROCK RIPRAP LINING OR GROUTED RIPRAP LINING. SEE TABLE AND PROFILES FOR DETAILS.
 - PLACE ROCK RIPRAP FULL WIDTH OF EXCAVATION LIMITS TO THE DESIGNED FLOW DEPTH.



DETAIL 10
SPLASH PAD DETAILS
SCALE: AS NOTED

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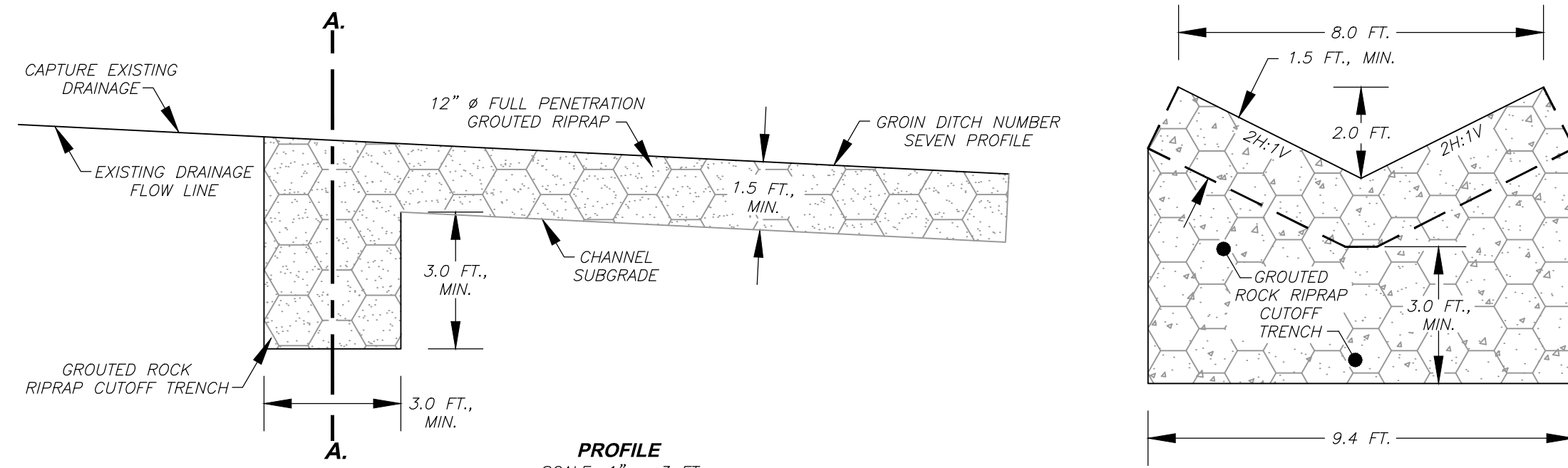
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CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

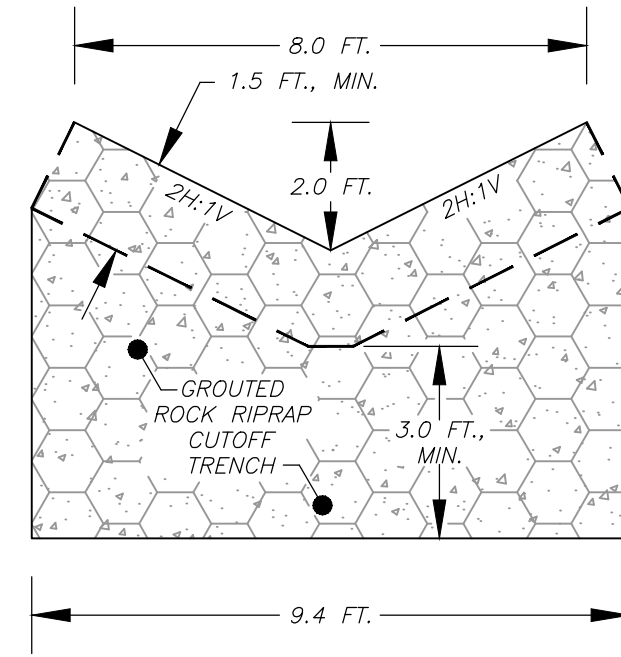
MISCELLANEOUS DITCH AND
SPLASH PAD DETAILS
SCALE: AS NOTED
DATE: OCTOBER 2013

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PROFILE
SCALE: 1" = 3 FT.

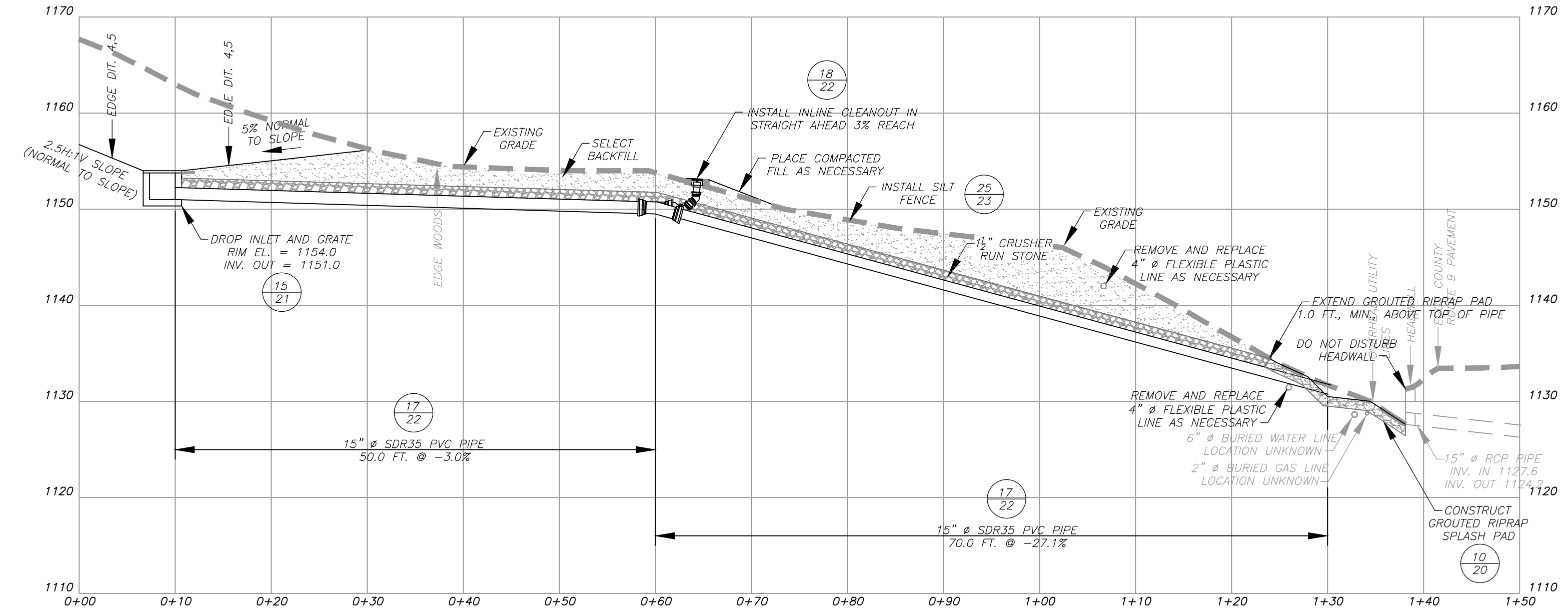
**DETAIL II
GROUT KEY**
SCALE: AS NOTED



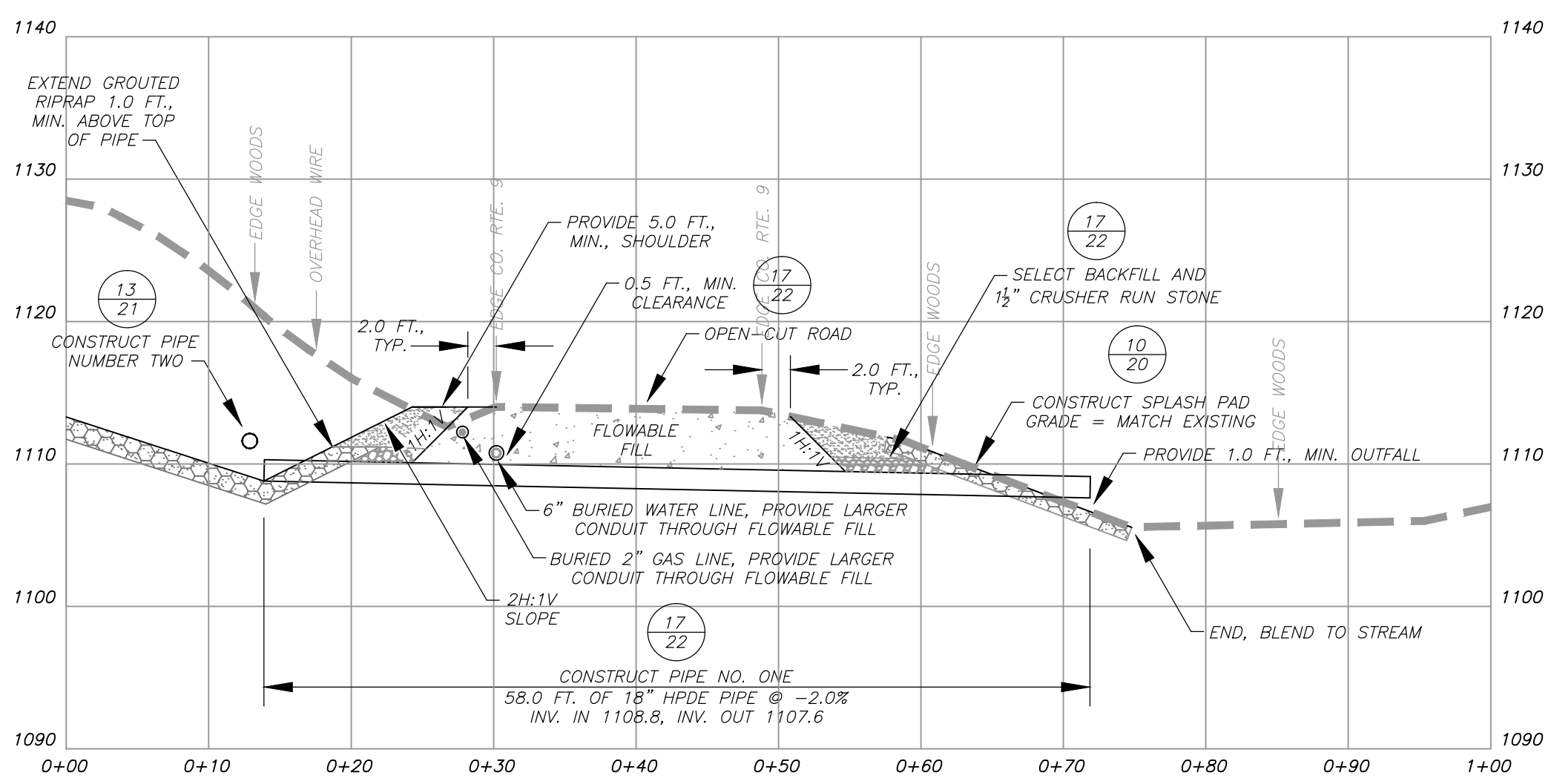
"V" DITCH CROSS SECTION A - A
SCALE: 1" = 3 FT.

- NOTES:**
1. EXTEND GROUT KEY Laterally THE FULL WIDTH OF THE CHANNEL AS SHOWN IN THE CROSS SECTION VIEWS.
 2. INSTALL GROUT KEYS AT LOCATIONS SHOWN ON THE PLANS AND AT THE JUNCTION OF ROCK RIPRAP CHANNEL WITH GROUTED ROCK RIPRAP CHANNEL AS SHOWN IN THE PROFILE VIEW.
 3. AFTER EXCAVATING THE GROUT KEY TO THE DIMENSIONS SHOWN, PLACE GROUT IN THE EXCAVATION TO THE CHANNEL SUB GRADE PRIOR TO PLACING THE RIPRAP.

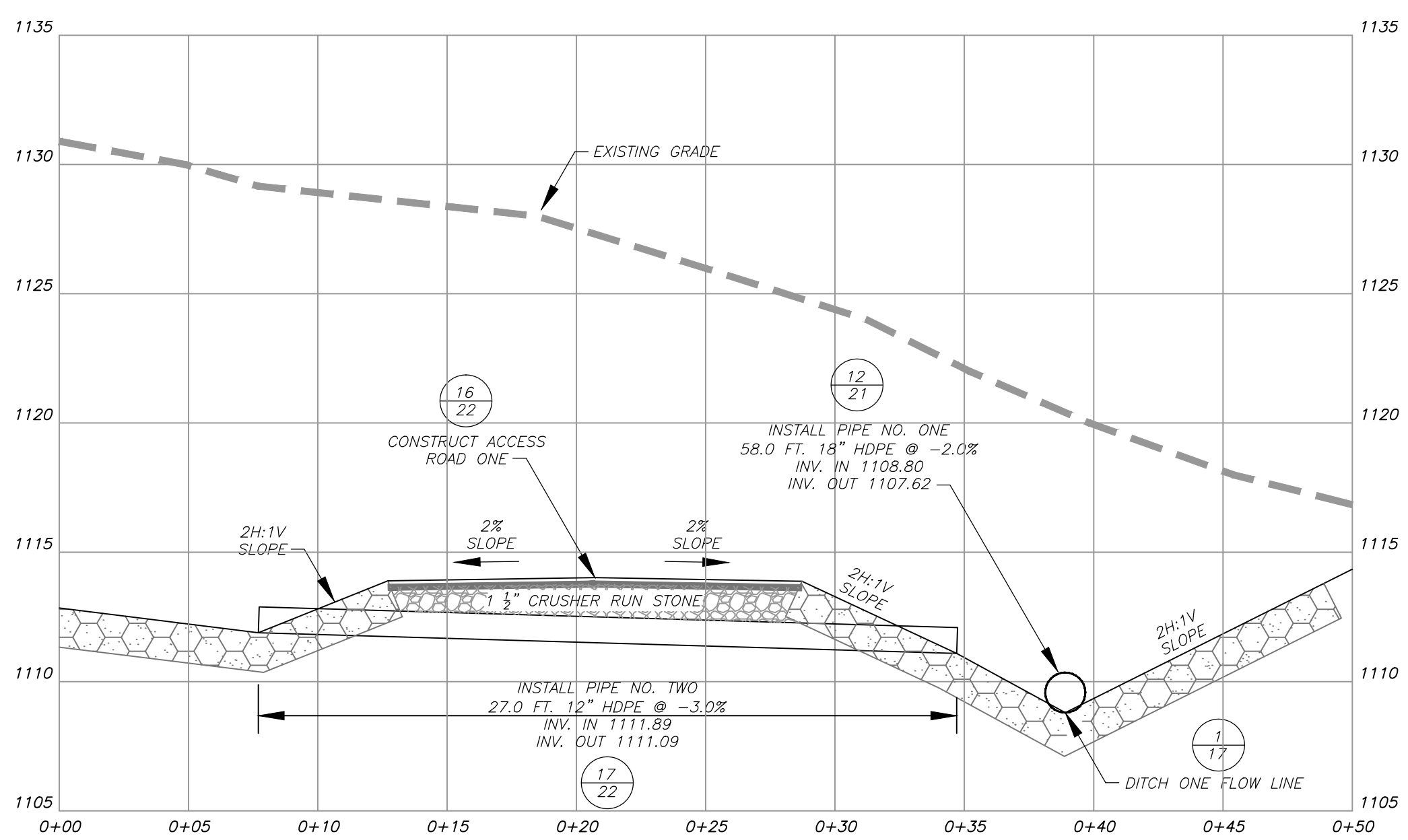
ROCK RIPRAP SIZING	
GRADATION	D ₅₀ = 12"
50%	12" - 18"
35%	6" - 12"
15%	3" - 6"



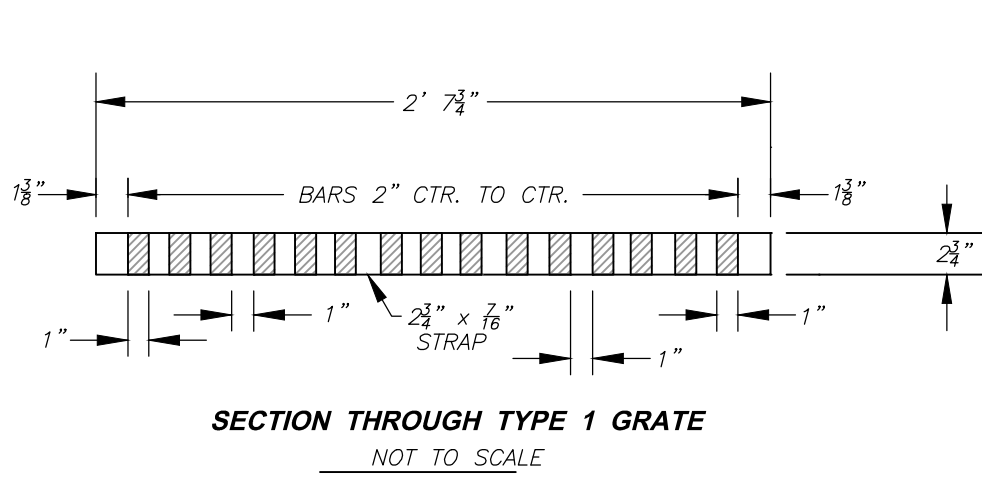
**DETAIL 14
PIPE NUMBER THREE PROFILE**
SCALE: 1" = 10 FT. HORIZONTALLY AND VERTICALLY



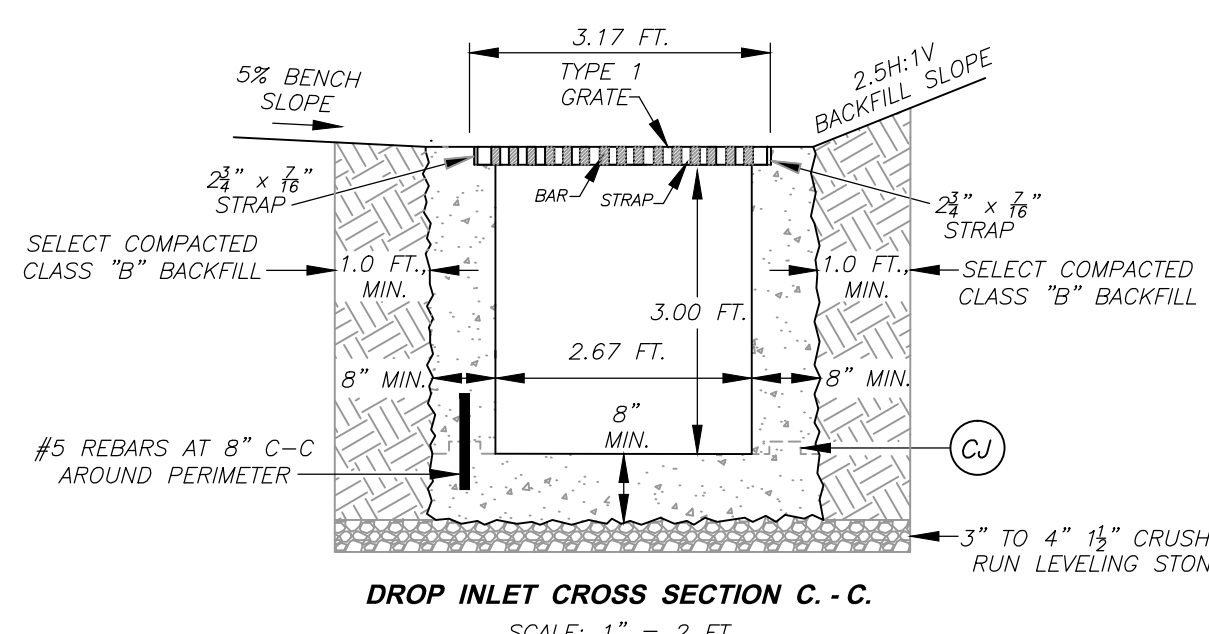
**DETAIL 12
PIPE NUMBER ONE PROFILE**
SCALE: 1" = 10 FT. HORIZONTALLY AND VERTICALLY



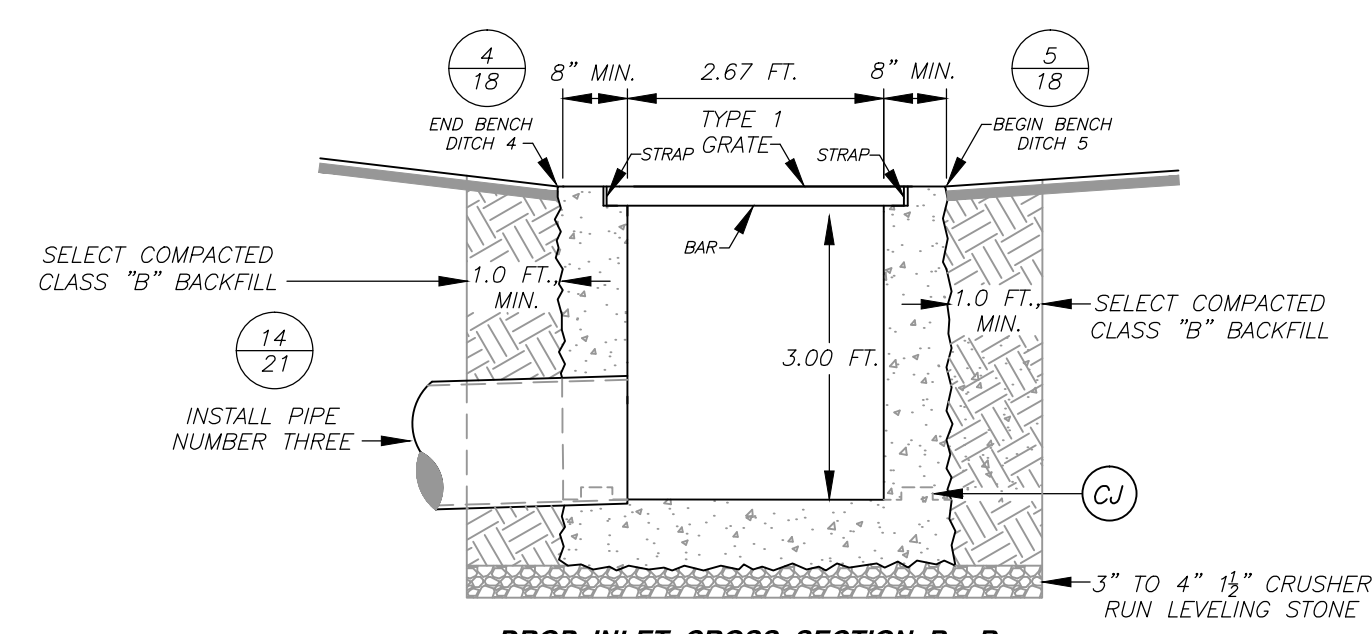
**DETAIL 13
PIPE NUMBER TWO PROFILE**
SCALE: 1" = 5 FT. HORIZONTALLY AND VERTICALLY



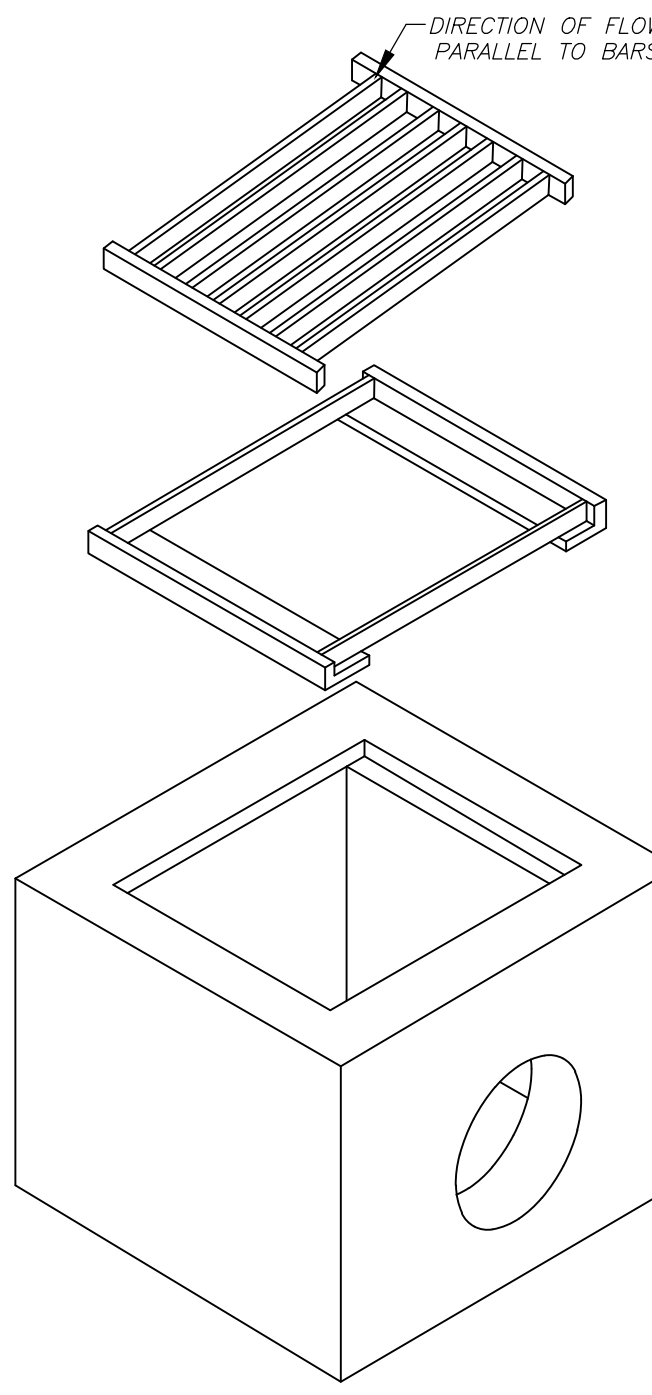
SECTION THROUGH TYPE 1 GRATE
NOT TO SCALE



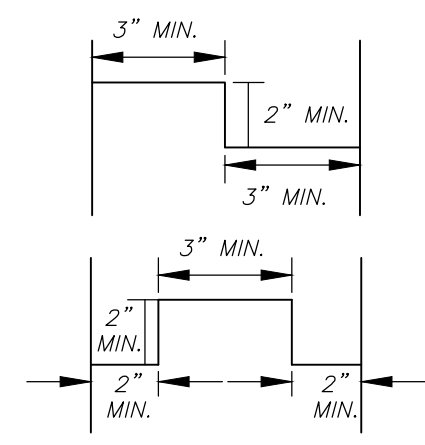
DROP INLET CROSS SECTION C - C
SCALE: 1" = 2 FT.



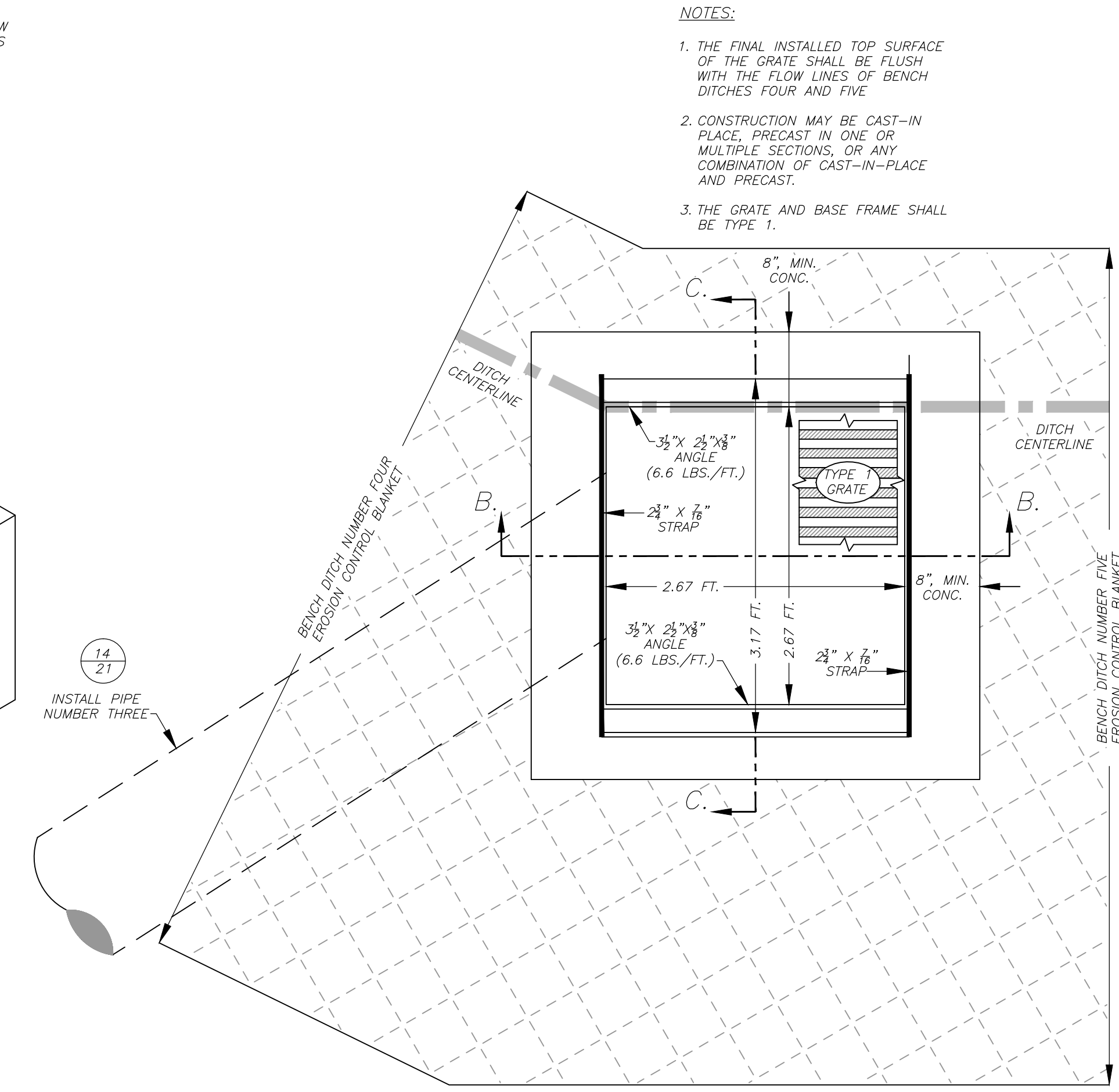
DROP INLET CROSS SECTION B - B
SCALE: 1" = 2 FT.



EXPLODED VIEW
NOT TO SCALE



CONSTRUCTION JOINT DETAILS
NOT TO SCALE



**DETAIL 15
DROP INLET DETAILS**
SCALE: AS NOTED

- NOTES:**
1. THE FINAL INSTALLED TOP SURFACE OF THE GRATE SHALL BE FLUSH WITH THE FLOW LINES OF BENCH DITCHES FOUR AND FIVE.
 2. CONSTRUCTION MAY BE CAST-IN-PLACE, PRECAST IN ONE OR MULTIPLE SECTIONS, OR ANY COMBINATION OF CAST-IN-PLACE AND PRECAST.
 3. THE GRATE AND BASE FRAME SHALL BE TYPE 1.

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Civil & Environmental Consultants, Inc.
99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 - 855.488.9539 - Fax: 304.933.3327
www.cecinc.com

PROJECT NO.	131-466
DESIGNED BY:	RMC
DRAWN BY:	NBG
CHECKED BY:	RMC
APPROVED BY:	GSL

west virginia
dep West Virginia Department of Environmental Protection
Office of Abandoned Mine Lands

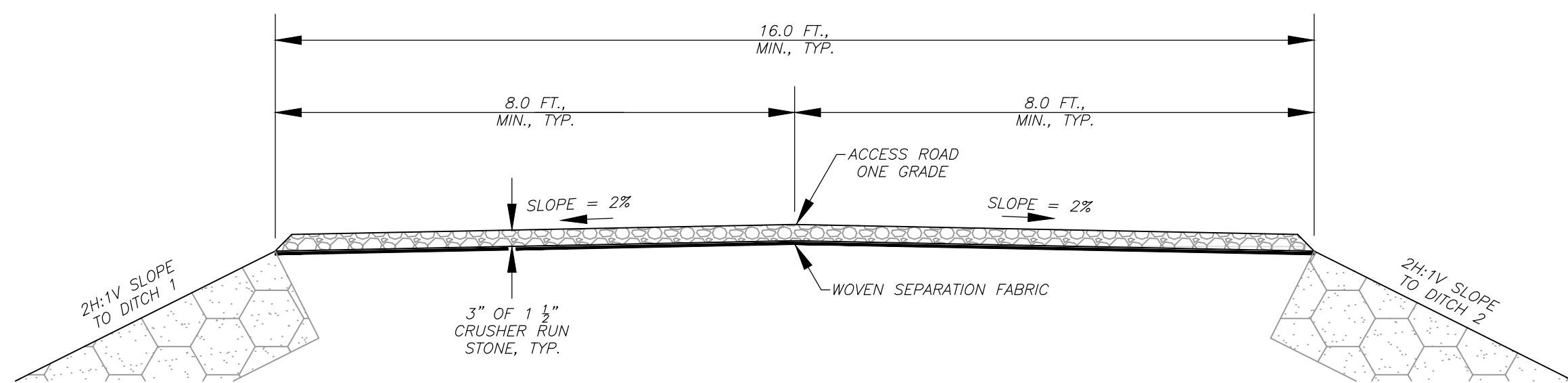
REVISIONS		
DATE:	BY:	(✓):
4/28/2014	rmc	GSL
8/11/2014	rmc	GSL

**CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE**
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

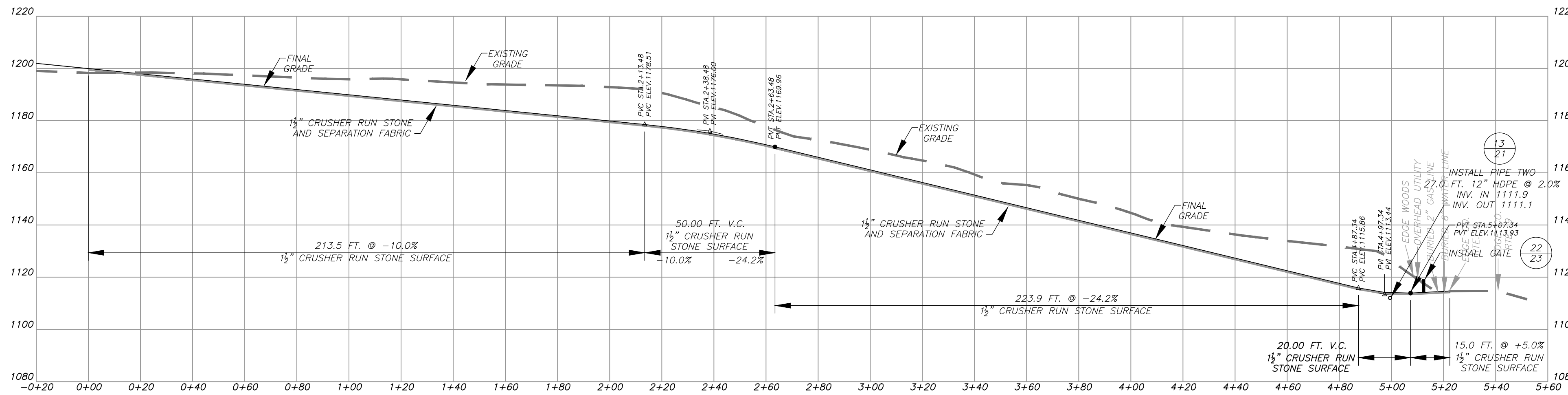
**GROUT KEY; PIPE NUMBERS
ONE, TWO, AND THREE
PROFILES AND DI DETAILS**
SCALE: AS NOTED DATE: OCTOBER 2013

NOTES:

- ACCESS ROADS SHALL BE CONSTRUCTED IN THE LOCATIONS DEPICTED ON THE FINAL DESIGN SHEETS.
- 1 1/2" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WVDH STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
- ACCESS ROADS SHALL BE CONSTRUCTED BY LAYING SEPARATION FABRIC THE WIDTH OF THE PROPOSED ROAD AND ALONG ITS ENTIRE LENGTH. 3" OF 1 1/2" CRUSHER RUN STONE SHALL THEN BE PLACED ATOP THE FABRIC TO CREATE A DRIVING SURFACE.
- CRUSHER RUN STONE SHALL BE ROLLER COMPACTED.



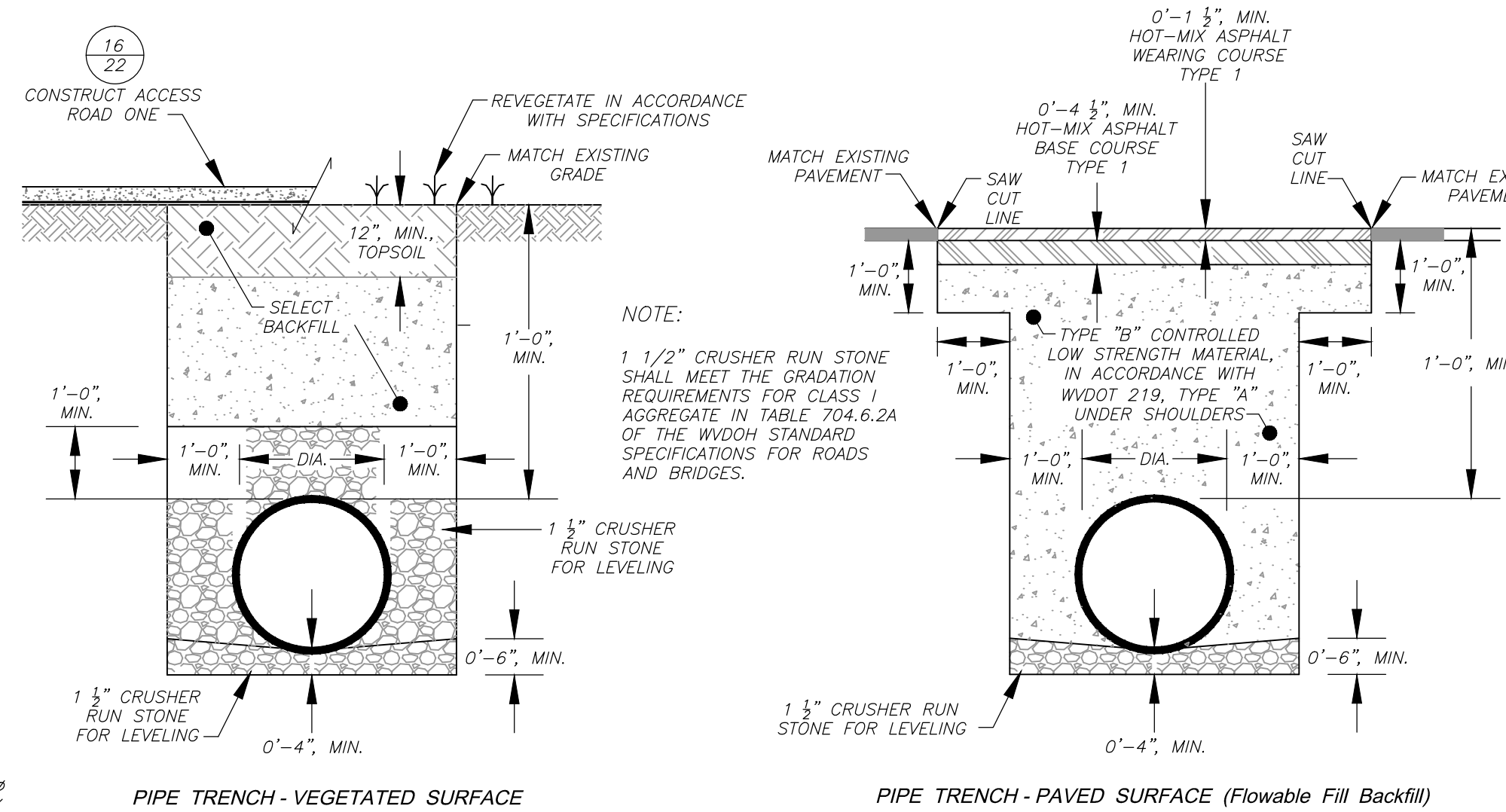
ACCESS ROAD ONE CROSS SECTION, TYP.
SCALE: 1" = 2 FT.



ACCESS ROAD ONE PROFILE
SCALE: 1" = 30 FT. HORIZONTALLY AND VERTICALLY

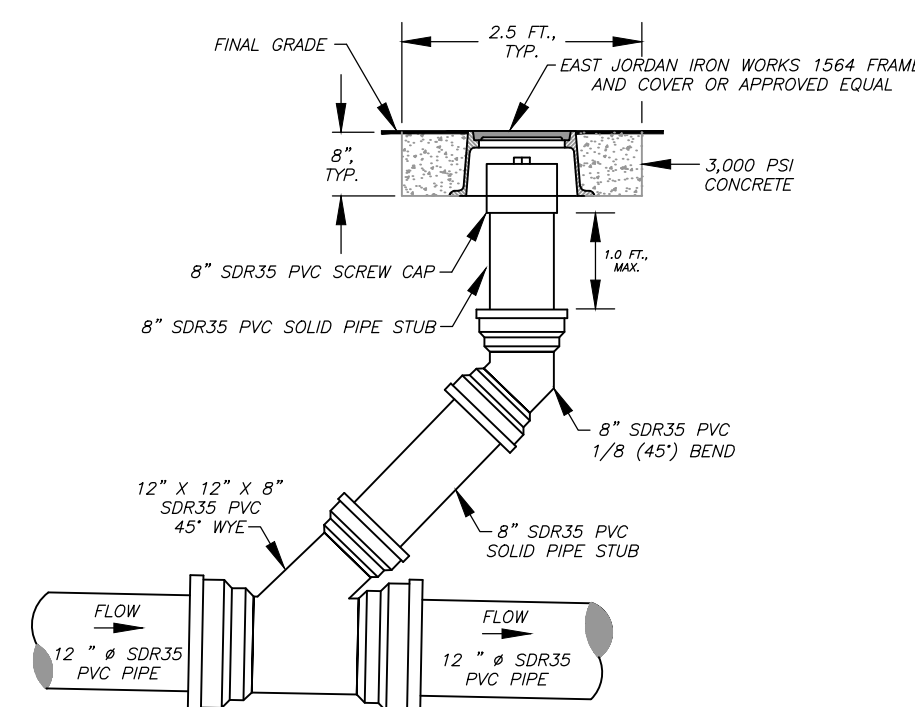
**DETAIL 16
ACCESS ROAD ONE DETAILS**

SCALE: AS NOTED



**DETAIL 17
PIPE TRENCH DETAILS**

SCALE: AS NOTED

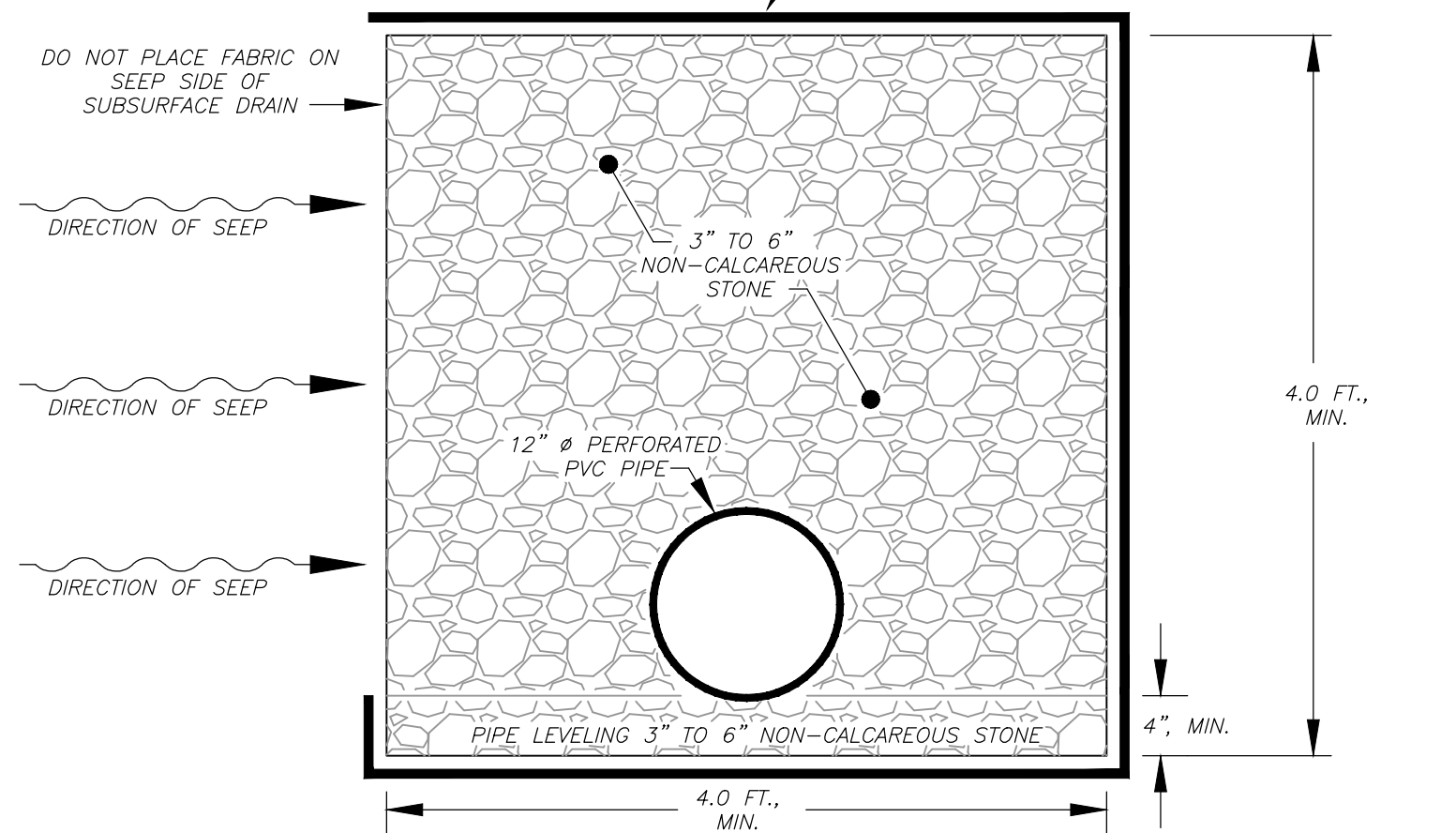


**DETAIL 20
12" INLINE CLEAN-OUT**

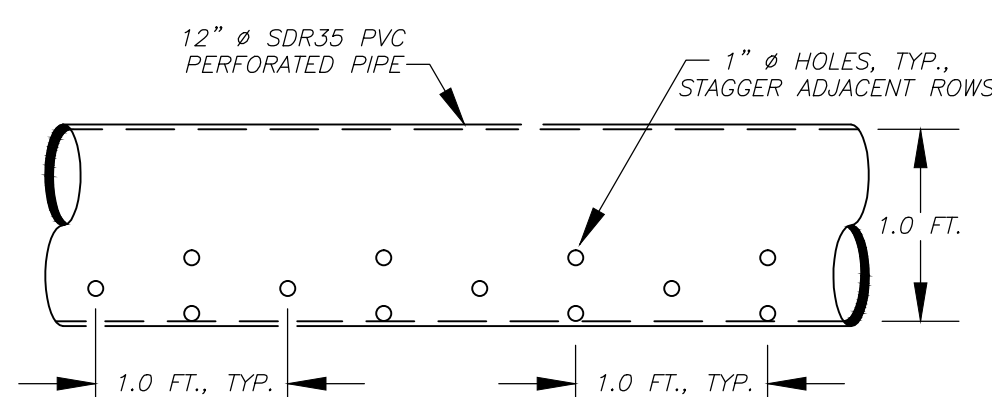
SCALE: 1" = 2 FT.

NOTES:

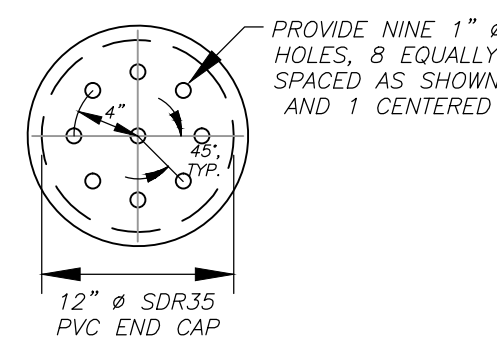
- THE FILTER FABRIC SHALL BE OVERLAPPED 1.0 FOOT, MINIMUM, AT ALL JOINTS.



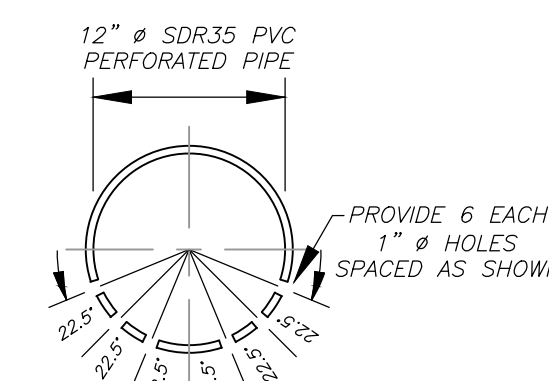
SUBSURFACE DRAIN CROSS SECTION, TYP.
SCALE: 1" = 1 FT.



SUBSURFACE DRAIN PIPE LONGITUDINAL VIEW, TYP.
SCALE: 1" = 1 FT.



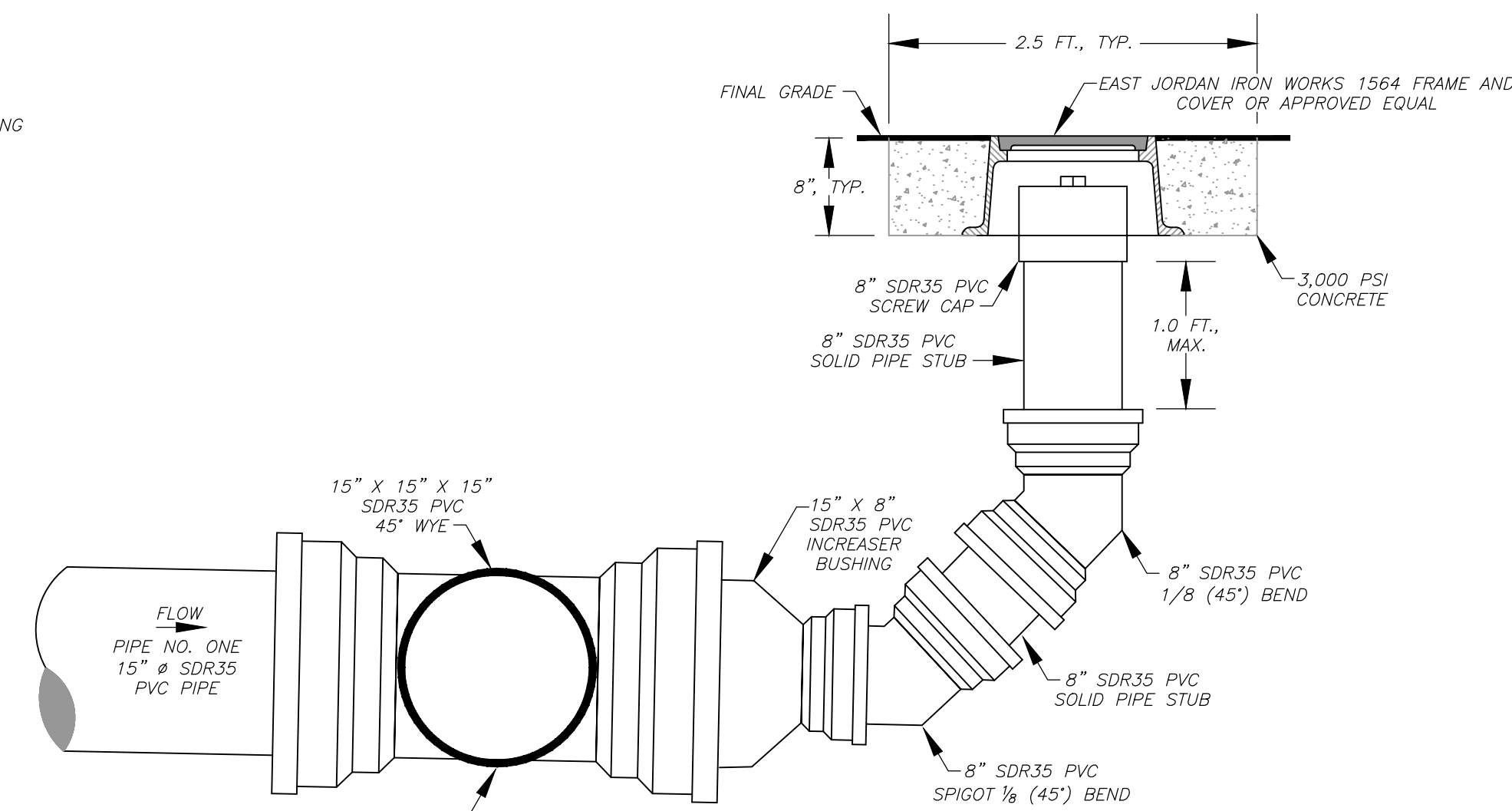
SUBSURFACE DRAIN PERFORATED END CAP
SCALE: 1" = 1 FT.



SUBSURFACE DRAIN PIPE CROSS SECTION, TYP.
SCALE: 1" = 1 FT.

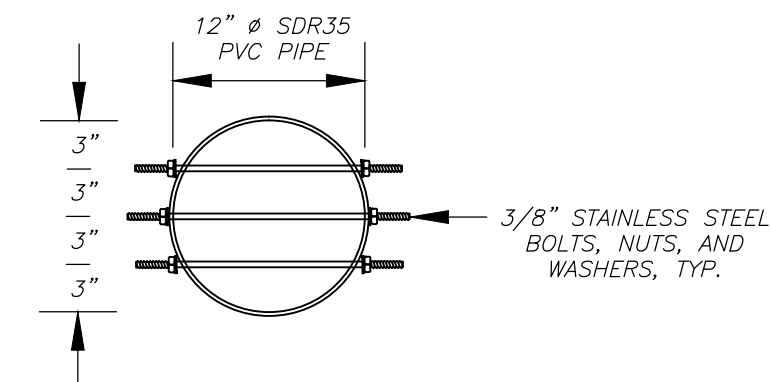
**DETAIL 19
SUBSURFACE DRAIN DETAILS, TYP.**

SCALE: AS NOTED



**DETAIL 18
PIPE NUMBER THREE INLINE CLEAN-OUT**

SCALE: 1" = 1 FT.



**DETAIL 21
ANIMAL GUARD**

SCALE: 1" = 1 FT.

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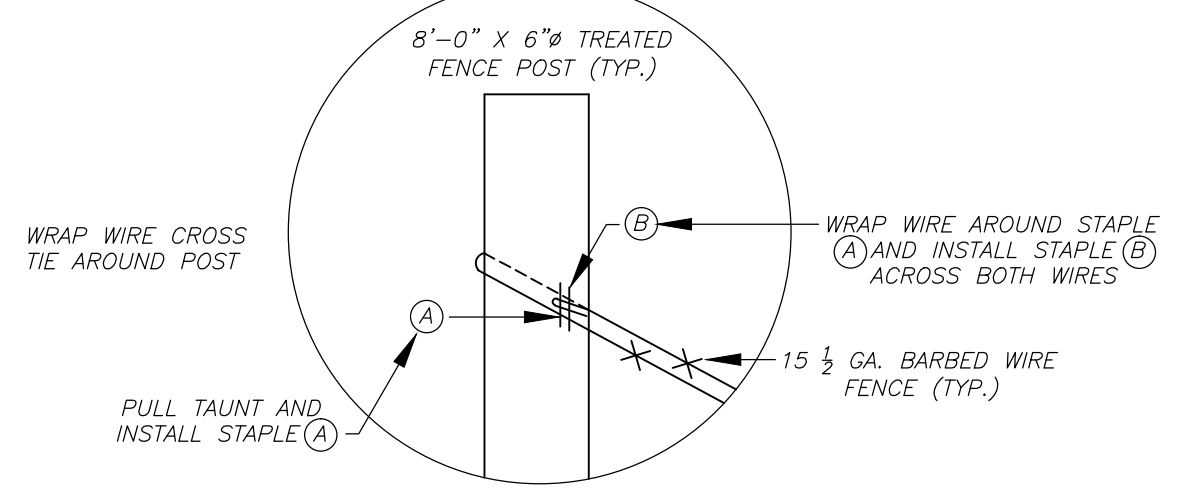
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DATE:	BY:	(✓):
4/28/2014	rmc	GSL
8/11/2014	rmc	GSL

**CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE**
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

**MISCELLANEOUS DETAILS
SHEET ONE**

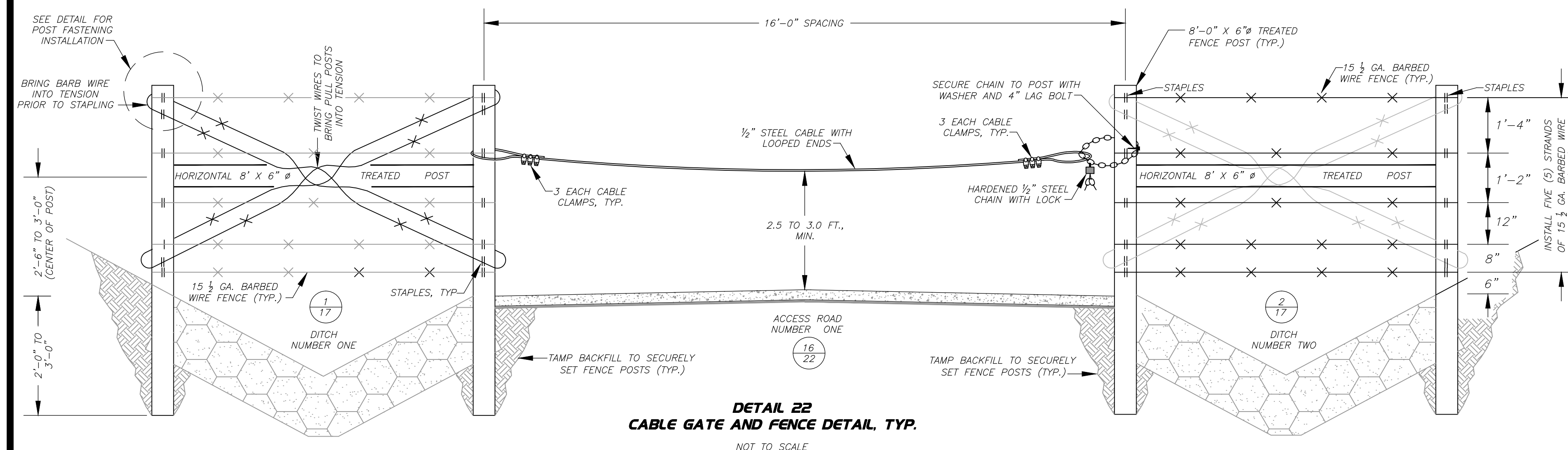
SCALE: AS NOTED

DATE: OCTOBER 2013



1. BARB WIRE FENCE CROSS TIES SHALL BE A CONTINUOUS STRAND OF WIRE WRAPPED AROUND AND STAPLED (THREE EACH REQUIRED) NEAR THE GROUND ON ONE OF THE PULL POSTS. THE FREE ENDS OF THE WIRE CROSS TIE SHALL BE ATTACHED TO THE UPPER END OF THE OTHER PULL POST AS SHOWN AND DETAILED.
2. WRAP AND PULL TAUNT THE FREE ENDS OF THE WIRE CROSS TIES AROUND THE UPPER END OF THE PULL POST AS SHOWN. EXTEND THE WIRE 360° PLUS AROUND THE POST AND STAPLE ONE LOSE END ON THE OPPOSITE SIDE OF THE POST AS SHOWN. INSTALL STAPLE (A). WRAP THE WIRE AROUND STAPLE (A) AND INSTALL STAPLE (B) SPANNING BOTH STRANDS OF WIRE.
3. REPEAT THE PROCESS FOR THE OTHER LOSE END OF THE WIRE CROSS TIE.
4. REPEAT THE PROCESS FOR THE SECOND BARB WIRE CROSS TIE. BRING PULL POSTS INTO TENSION BY TWISTING THE CROSS TIES TOGETHER AT THE FRONT AND BACK OF THE HORIZONTAL SUPPORT POST AND STAPLE THE CROSS TIE WIRES TO THAT POST TO PREVENT UNWINDING.

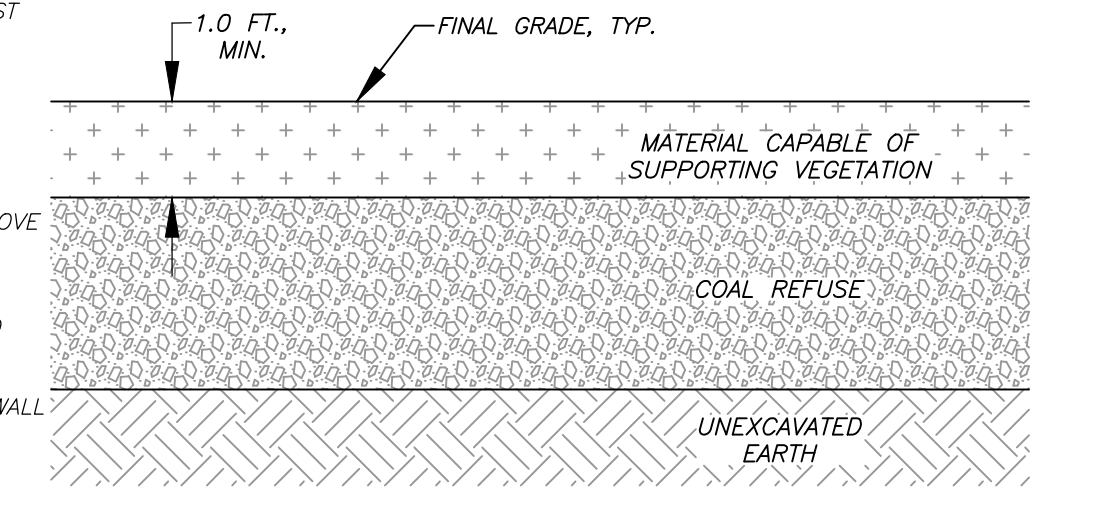
POST FASTENING DETAIL, TYP.
NOT TO SCALE



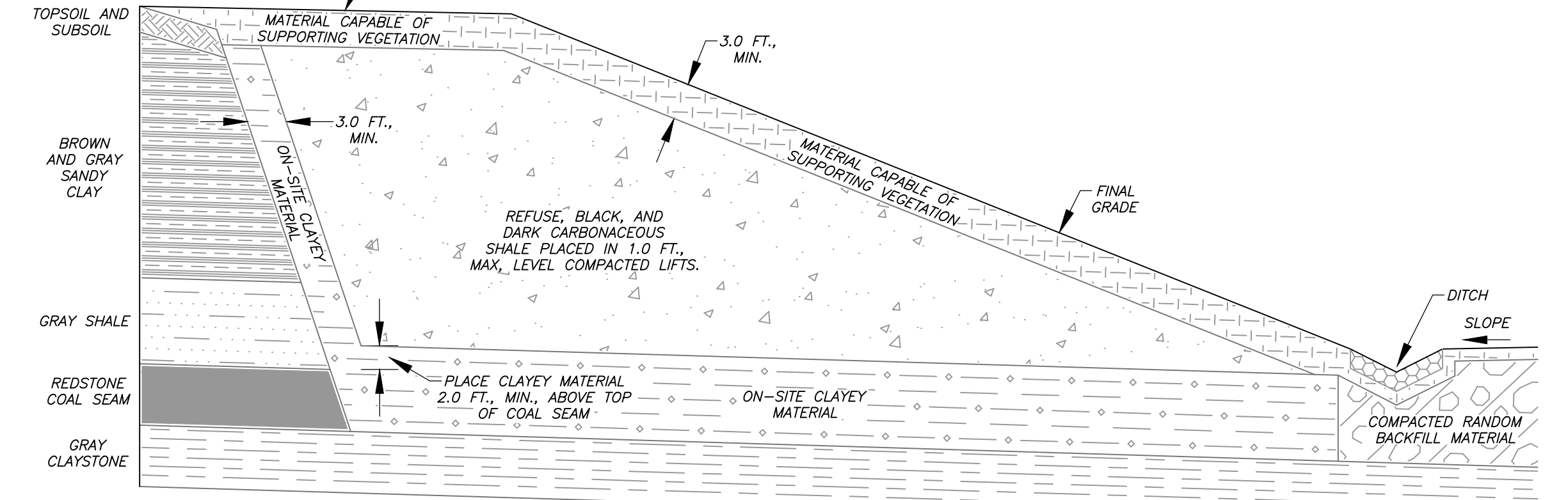
DETAIL 22
CABLE GATE AND FENCE DETAIL, TYP.
NOT TO SCALE

NOTES:

1. COAL REFUSE, BLACK AND DARK GRAY SHALE AND OTHER SIMILAR ON-SITE MATERIALS TO BE GRADED IN-PLACE SHALL CONFORM TO THE GRADES SHOWN ON THE PLANS LESS 12 INCHES, MINIMUM. THE FINAL 12 INCHES OF COVER MATERIAL ATOP THESE MATERIALS SHALL BE CAPABLE OF SUPPORTING VEGETATION AND APPROVED BY THE ENGINEER.
2. COAL REFUSE, BLACK AND DARK GRAY SHALE AND OTHER SIMILAR ON-SITE MATERIAL PLACED AGAINST HIGHWALL OR ABOVE THE COAL PAVEMENT SHALL BE ENTOMBED AS SHOWN.
3. FIRST, THE COAL PAVEMENT SHALL BE CLEANED OF ALL COAL REMNANTS, BLACK OR DARK GRAY MATERIAL PRIOR TO ANY BACKFILL PLACEMENT OPERATIONS. THIS CLEANED MATERIAL SHALL ALSO BE ENTOMBED WITH THE COAL REFUSE.
4. NEXT, SUFFICIENT ON-SITE CLAYEY MATERIALS (BEST AVAILABLE ON-SITE AS APPROVED BY THE ENGINEER) SHALL BE PLACED ATOP THE COAL PAVEMENT TO A DEPTH OF TWO FEET (2.0') MINIMUM, ABOVE THE TOP OF THE COAL SEAM AND AGAINST THE HIGHWALL AND COMPACTED ACCORDING TO THE SPECIFICATIONS.
5. PLACE THE COAL REFUSE, BLACK AND DARK GRAY MATERIALS IN ONE FOOT (1.0') LEVEL COMPACTED LIFTS, IN ACCORDANCE WITH THE SPECIFICATIONS.
6. MAINTAIN A THREE FOOT (3.0') COMPACTED CLAYEY BARRIER BETWEEN THE HIGHWALL AND THE HIGHWALL EDGE OF PLACED REFUSE AS THE REFUSE TOMB IS CONSTRUCTED.
7. PLACE THREE FEET (3.0') MINIMUM, OF COMPACTED ON-SITE SOILS CAPABLE OF SUPPORTING VEGETATION ATOP THE COAL REFUSE TOMB TO ACHIEVE FINAL GRADES SHOWN ON THE PLANS.
8. IN NO INSTANCE WILL REFUSE AND BLACK OR DARK GRAY SHALE OR OTHER SIMILAR MATERIALS BE ALLOWED BENEATH OR WITHIN 10.0 HORIZONTAL FEET OF DITCHES.



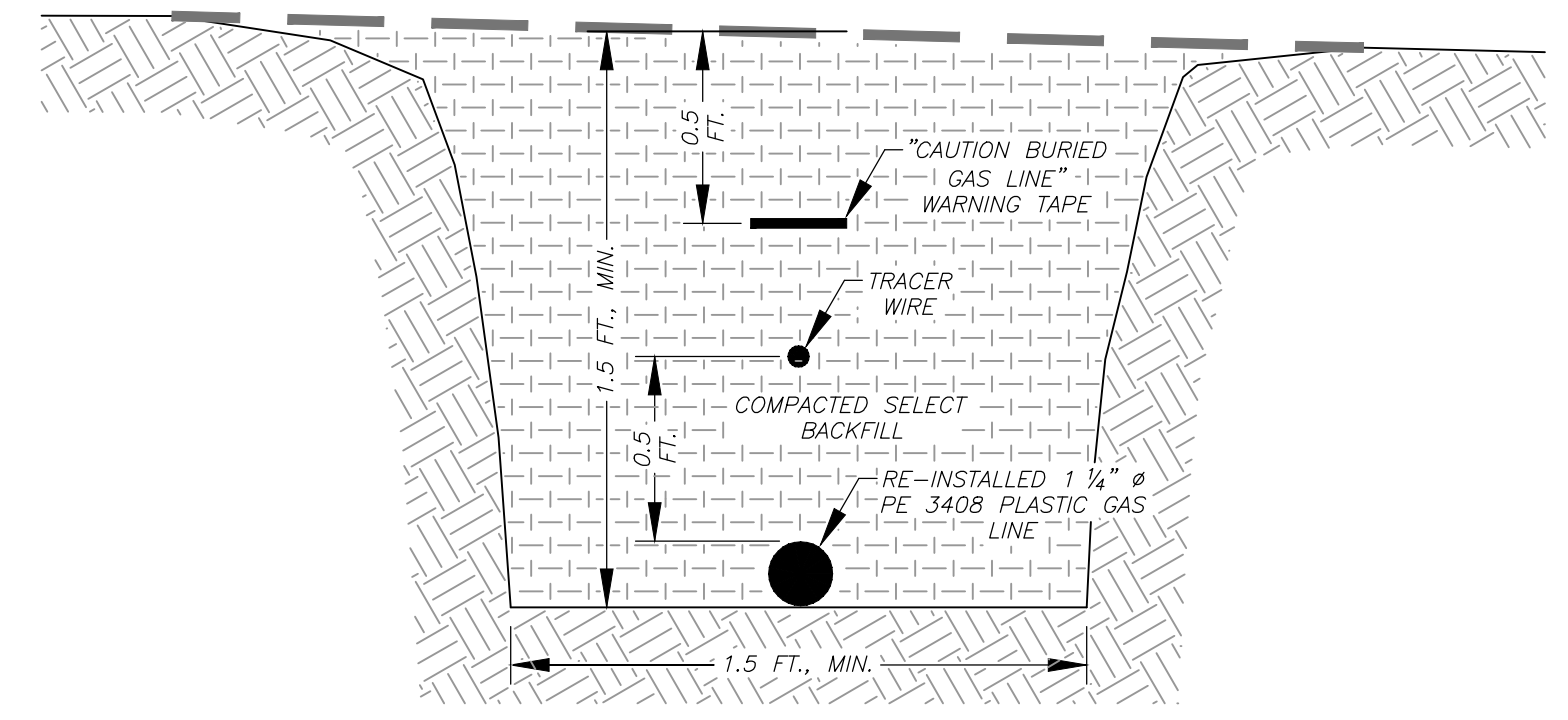
COAL OR COAL REFUSE BURIAL, TYP.
NO SCALE



DETAIL 23
REFUSE AND SPECIAL MATERIAL HANDLING
PLACEMENT DETAILS, TYP.
NOT TO SCALE

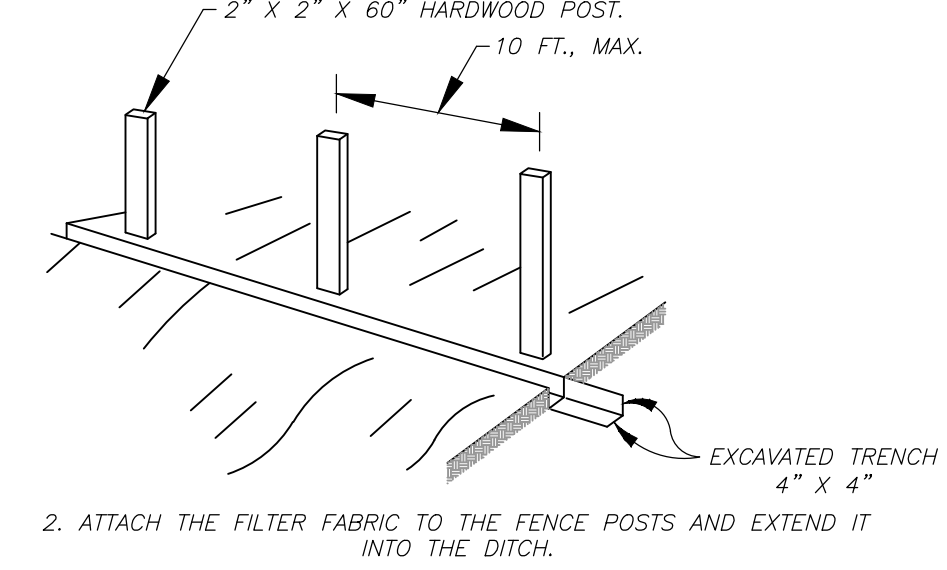
NOTES:

1. THE CONTRACTOR WILL BE REQUIRED TO INSTALL A TEMPORARY ABOVE GROUND FLEXIBLE PLASTIC GAS LINE ALONG THE DOWNHILL LIMITS OF THE CONTRACTOR'S WORK LIMITS TO PROVIDE GAS SERVICE TO THE AFFECTED HOUSE WHILE CONSTRUCTING THIS PROJECT. THE ABOVE GROUND GAS LINE AND ALIGNMENT WILL REQUIRE THE APPROVAL OF THE ENGINEER AND GAS COMPANY. ALL GAS LINE CONNECTIONS AND DISCONNECTIONS SHALL BE ACCOMPLISHED BY THE AFFECTED GAS COMPANY.
2. THE CONTRACTOR WILL BE REQUIRED TO FIELD SURVEY THE EXACT LOCATION OF THE EXISTING GAS LINE AS IT IS EXPOSED TO ENSURE THE RE-INSTALLED GAS LINE FOLLOWS THE SAME RIGHT-OF-WAY ALIGNMENT.
3. THE RELOCATED GAS LINE TRENCH MUST BE AT LEAST 1.5 FEET DEEP. THE BOTTOM OF THE DITCH SHALL BE SMOOTH AND WELL COMPACTED TO SUPPORT THE GAS LINE. THE DITCH SHALL REMAIN OPEN ALONG THE ENTIRE LENGTH UNTIL INSPECTED AND APPROVED BY THE ENGINEER AND GAS COMPANY REPRESENTATIVE.
4. APPROVED TRACER WIRE SHALL BE INSTALLED 6" DIRECTLY ABOVE THE TOP OF THE PIPE. THE TRACER WIRE SHALL BE EXPOSED AT THE SURFACE ON THE METER AND HOUSE END.
5. "CAUTION BURIED GAS LINE" WARNING TAPE SHALL BE INSTALLED DIRECTLY ABOVE THE RE-INSTALLED GAS LINE APPROXIMATELY 6" BELOW THE BACKFILLED SURFACE.
6. THE GAS LINE TRENCH SHALL BE BACKFILLED AND COMPACTED WITH SELECT ON SITE MATERIALS. SELECT BACKFILL MATERIAL SHALL BE FREE OF PARTICLES 4" IN DIAMETER IN ANY DIRECTION, READILY COMPACTABLE, AND FREE FROM COAL, COAL REFUSE, AND ORGANIC MATTER.

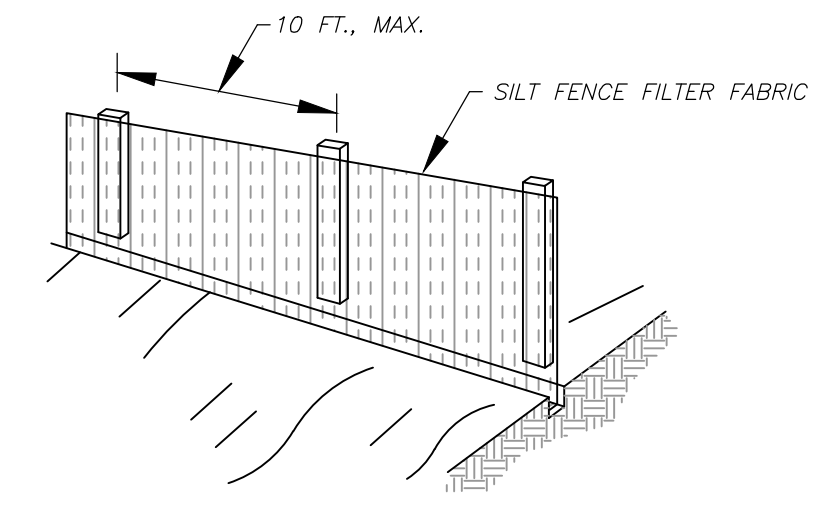


DETAIL 24
GAS LINE RELOCATION, TYP.
NOT TO SCALE

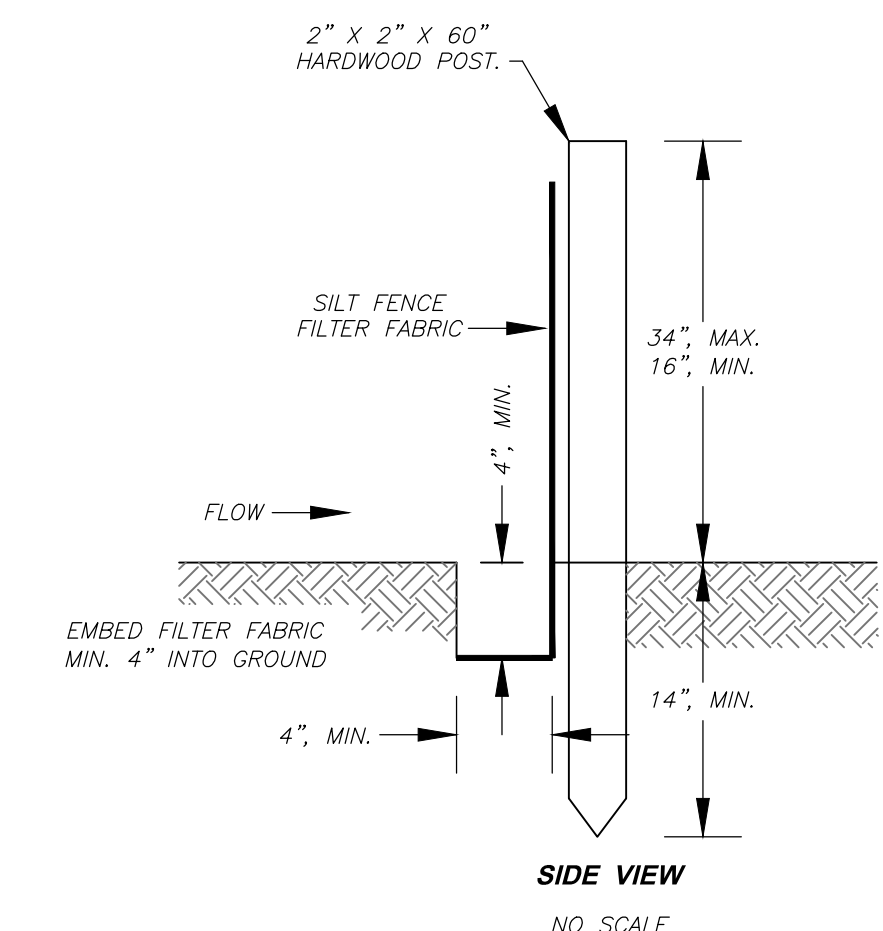
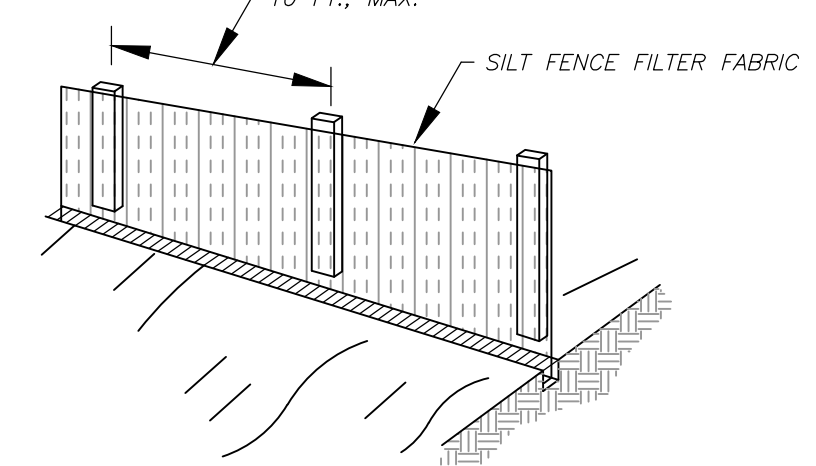
1. SET POSTS ALONG CONTOUR OF THE LAND AND EXCAVATE TRENCH UPSLOPE ALONG THE LINE OF POSTS.



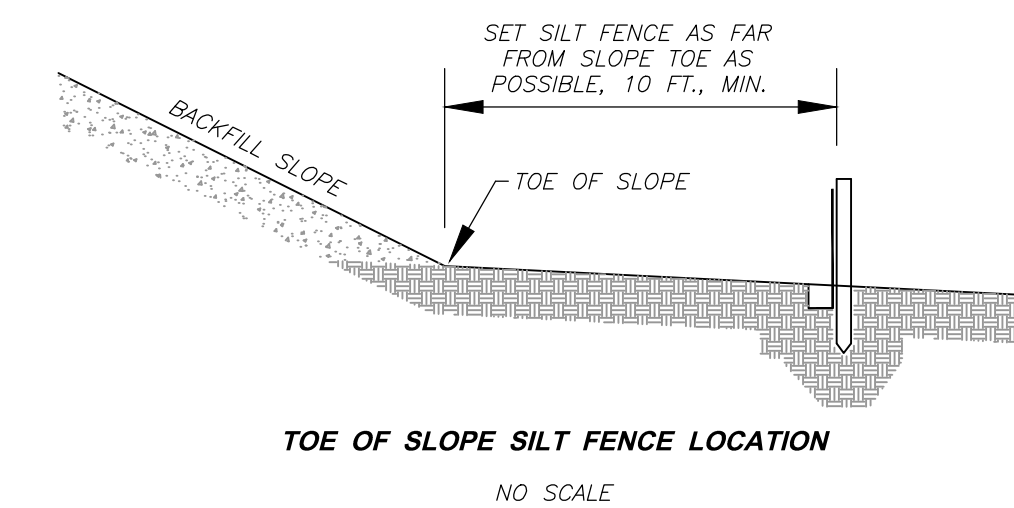
2. ATTACH THE FILTER FABRIC TO THE FENCE POSTS AND EXTEND IT INTO THE DITCH.



3. BACKFILL AND COMPACT THE TRENCH WITH EXCAVATED SOILS.



SIDE VIEW
NO SCALE

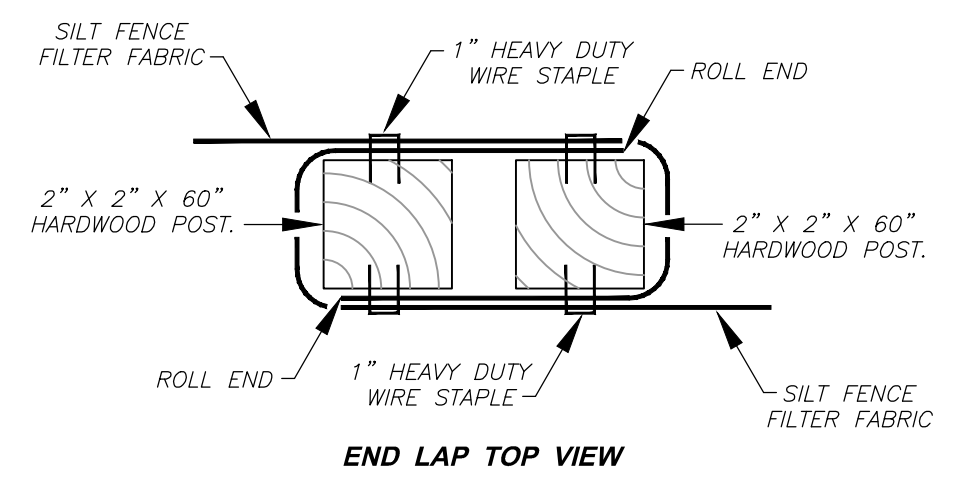


TOE OF SLOPE SILT FENCE LOCATION
NO SCALE

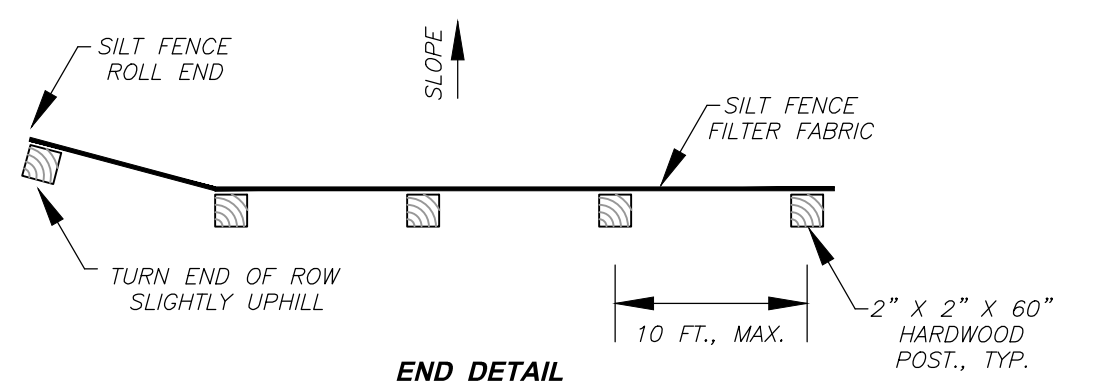
DETAIL 25
SILT FENCE
NOT TO SCALE

SILT FENCE NOTES:

1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO ALIGNMENT LENGTH TO AVOID JOINTS. WHERE JOINTS ARE UNAVOIDABLE, THE FABRIC SHALL BE SPLICED TOGETHER AT A SUPPORT POST BY TWISTING THE POST OF EACH RUN AROUND EACH OTHER.
2. FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE SUPPORT POSTS USING ONE INCH, MINIMUM, LONG HEAVY-DUTY WIRE STAPLES OR THE WIRES WITH EIGHT INCHES, MINIMUM, OF FABRIC EXTENDED INTO THE TRENCH. DO NOT STAPLE FABRIC TO TREES.
3. COMPACTED SOIL BACKFILL SHALL BE PLACED IN THE 4" BY 4" TRENCH ATOP THE EXTENDED FABRIC.
4. POSTS SHALL BE CONSTRUCTED OF 2" X 2" HARDWOOD OR 2" X 4" PINE BY 60" LONG.
5. FILTER FABRIC SHALL BE NON-WOVEN "MIRAFI 100X", "EXXON GTF 180" OR EQUAL.
6. APPROVED PREFABRICATED UNITS INCLUDE "GEOFAB", "ENVROFENCE", OR APPROVED EQUAL.
7. THE MAXIMUM RUN OF SLOPE ABOVE A ROW OF SILT FENCE IS 110 FEET.



END LAP TOP VIEW
NO SCALE



END DETAIL
NO SCALE

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Civil & Environmental Consultants, Inc.
99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 - 855.488.9539 - Fax: 304.933.3327
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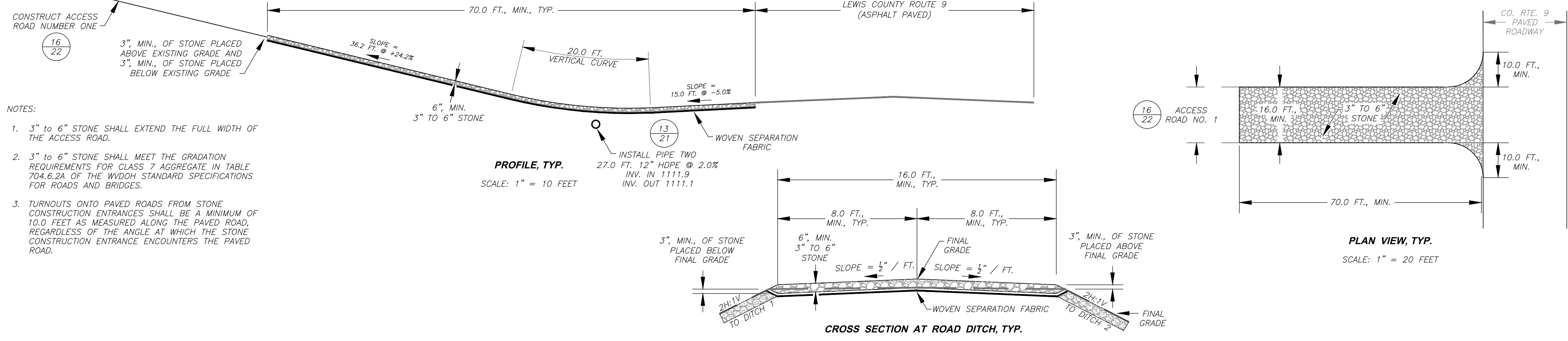
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dep
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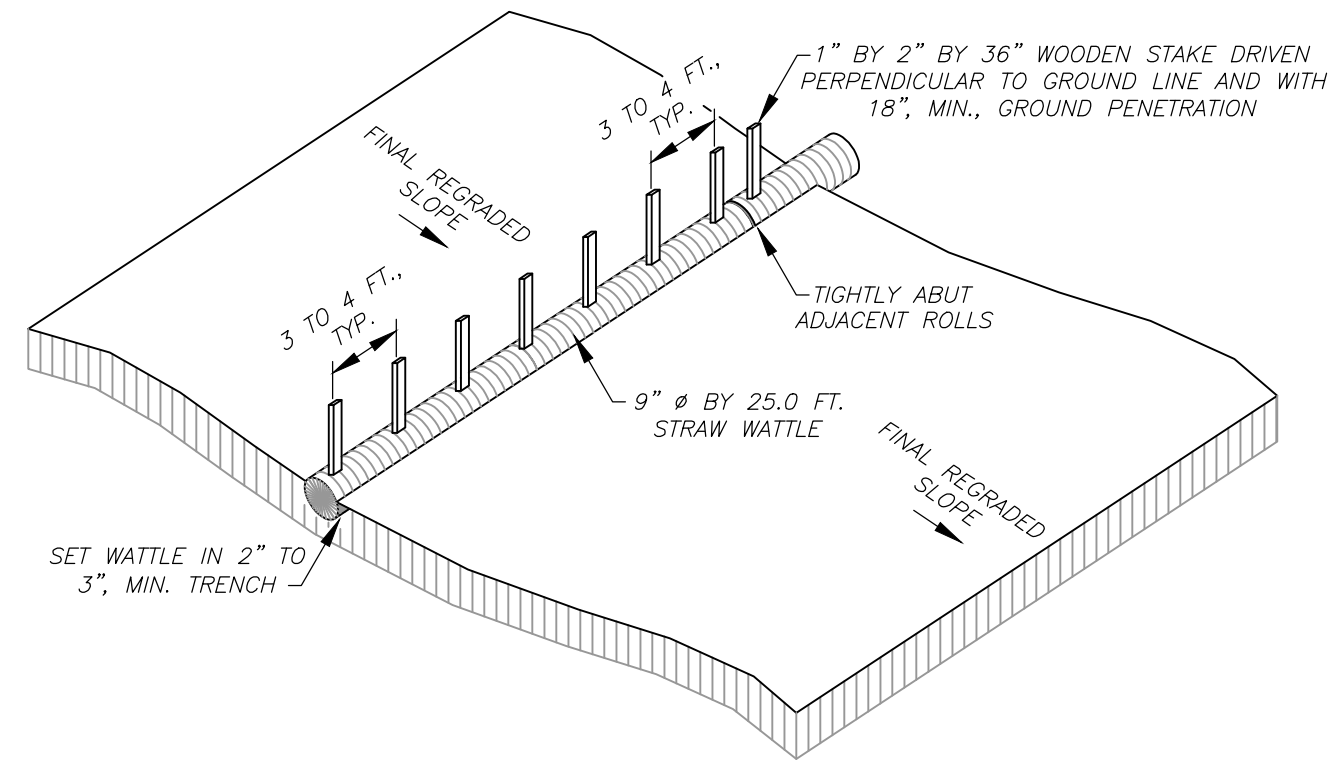
REVISIONS		
DATE:	BY:	(✓):
4/28/2014	rnc	GSL
8/11/2014	rnc	GSL

**CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE**
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

MISCELLANEOUS DETAILS
SHEET TWO
SCALE: AS NOTED
DATE: OCTOBER 2013

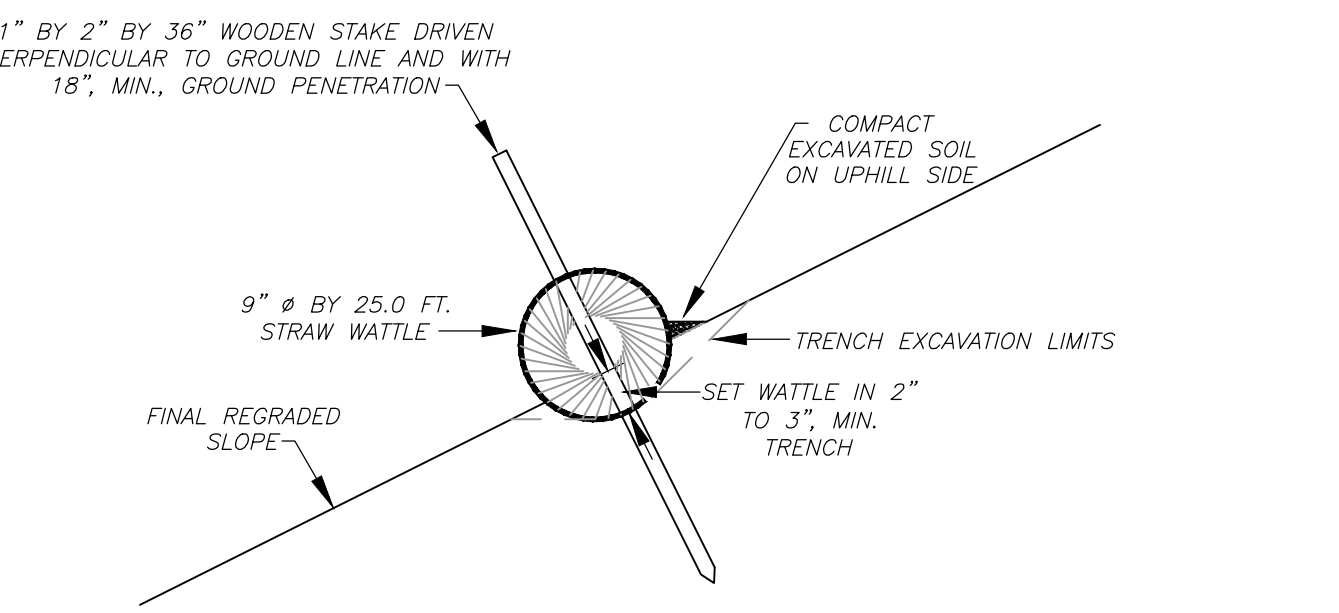


- NOTES:
- 3" to 6" STONE SHALL EXTEND THE FULL WIDTH OF THE ACCESS ROAD.
 - 3" to 6" STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 7 AGGREGATE IN TABLE 704.6.2A OF THE WVDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
 - TURNOUTS ONTO PAVED ROADS FROM STONE CONSTRUCTION ENTRANCES SHALL BE A MINIMUM OF 10.0 FEET AS MEASURED ALONG THE PAVED ROAD, REGARDLESS OF THE ANGLE AT WHICH THE STONE CONSTRUCTION ENTRANCE ENCOUNTERS THE PAVED ROAD.

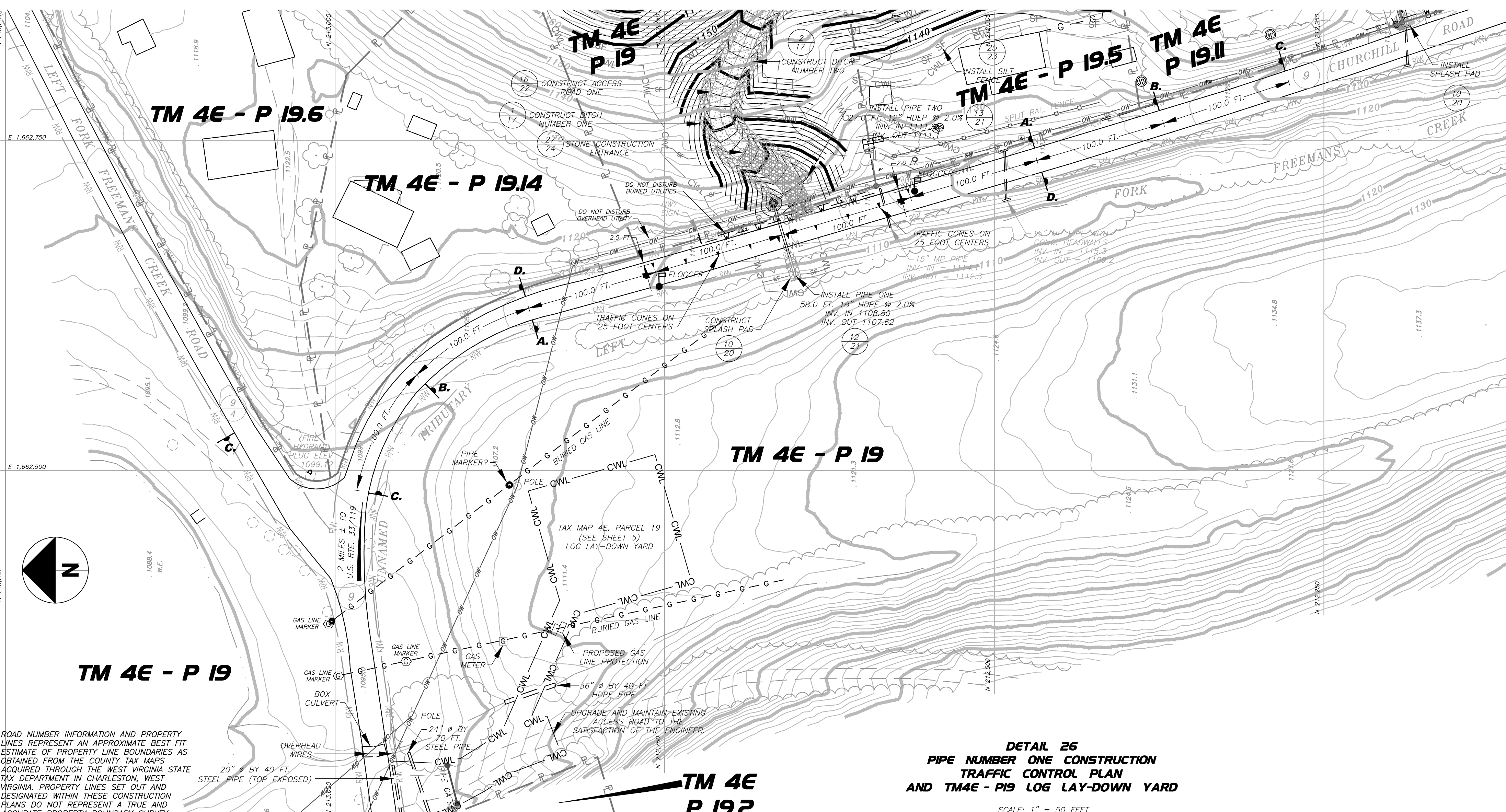


PERSPECTIVE VIEW, TYP.
NOT TO SCALE

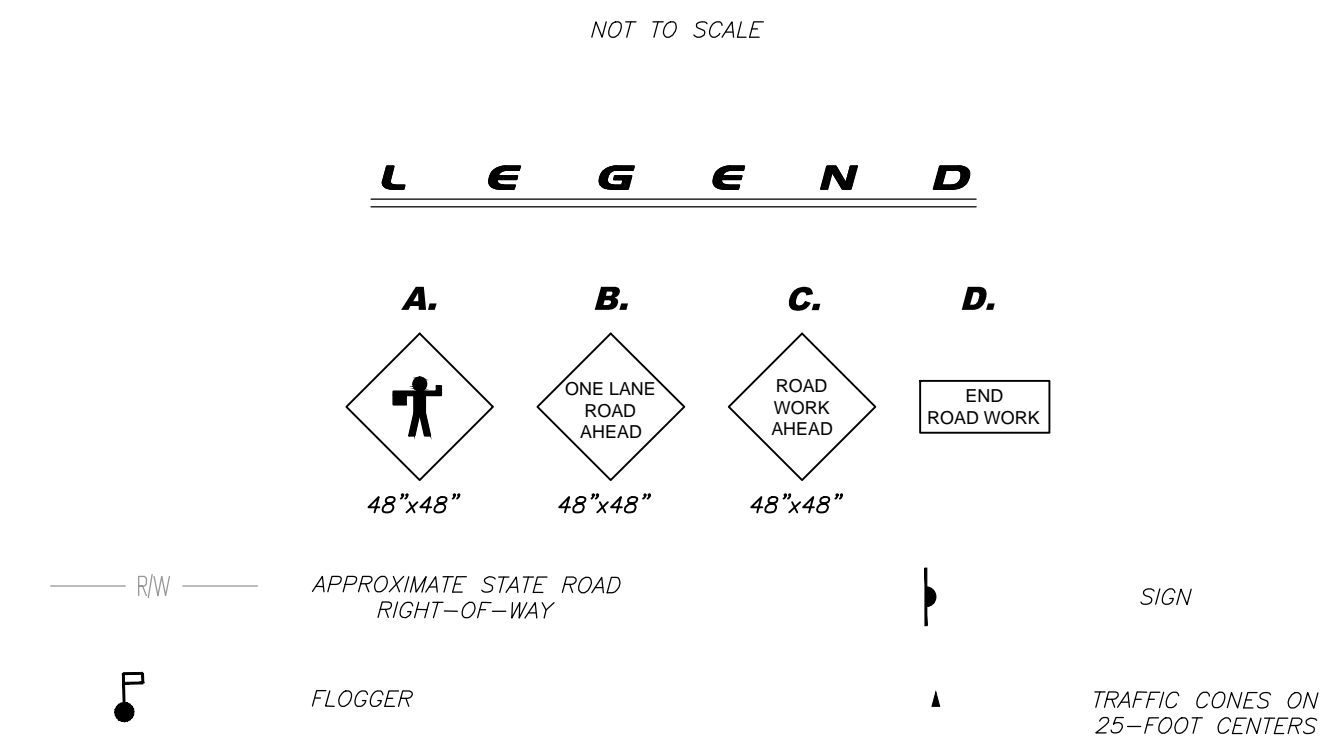
DETAIL 27
STONE CONSTRUCTION ENTRANCE
SCALE: AS NOTED



CROSS SECTION VIEW, TYP.
NOT TO SCALE



DETAIL 28
STRAW WATTLE INSTALLATION
NOT TO SCALE



- NOTES:
- TRAFFIC CONTROL AND TRAFFIC CONTROL DEVICES SHALL COMPLY WITH CASE A6 FOUND IN THE MANUAL ON TEMPORARY TRAFFIC CONTROL FOR STREETS AND HIGHWAYS, WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, MARCH 2007
 - CONSTRUCTION OF PIPE NUMBER ONE WILL REQUIRE OPEN-CUTTING OF LEWIS COUNTY ROUTE 9 (CHURCHILL ROAD).
 - NO PAVING OR EXCAVATING OPERATIONS SHALL BE PERFORMED AT NIGHT OR DURING LOW VISIBILITY TIME FRAMES, SEE SPECIFICATIONS. WHEN SIGNS ARE NO LONGER FUNCTIONAL, E.G. NIGHTTIME, SUCH SIGNS SHALL BE COVERED OR REMOVED.
 - ALL VEHICLES AND EQUIPMENT INCLUDING APPROPRIATE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE PAVEMENT AND THE EXCAVATION AREA CLOSED, TO THE SATISFACTION OF THE ENGINEER, AT THE END OF EACH DAY'S WORK.
 - CONSTRUCTION OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE, LEAVING THE OPPOSITE LANE OPEN TO TRAFFIC. ONE TRAFFIC LANE SHALL REMAIN OPEN FOR TRAFFIC AT ALL TIMES.
 - THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
 - FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ABOVE WARNING SIGNS.
 - PIPE NUMBER THREE GROUTED ROCK RIPRAP SPLASH PAD SHALL BE CONSTRUCTED FROM THE UPHILL SIDE AND NOT FROM WITHIN THE RIGHT-OF-WAY OF LEWIS COUNTY ROUTE 9.
 - THE CONTRACTOR WILL BE REQUIRED TO PLACE ALL TIMBER 6" IN DIAMETER OR GREATER RESULTING FROM CLEARING AND GRUBBING OPERATIONS FROM TAX MAP 4E, PARCEL 5 IN THE AREA SHOWN.
 - THE CONTRACTOR SHALL UPGRADE AND MAINTAIN THE EXISTING ACCESS ROAD OFF LEWIS COUNTY ROUTE 9 TO THE LOG LAY-DOWN YARD TO THE SATISFACTION OF THE ENGINEER. ROAD WORK SHALL BE LIMITED TO THE EXISTING ROADWAY WIDTH. AFTER ALL OPERATIONS ARE COMPLETE USING THIS ROAD, THE CONTRACTOR WILL BE REQUIRED TO TOP THE EXISTING ACCESS ROAD WITH A 3" LAYER OF 1 1/2" CRUSHER RUN STONE. PRIOR TO CRUSHED STONE PLACEMENT, THE ROADWAY SHALL BE REGRADED, SOFT SPOTS REMOVED AND RE-COMPACTED, AND SEPARATION FABRIC PLACED AS DIRECTED BY THE ENGINEER. FINAL GRADING AND CRUSHED STONE PLACEMENT SHALL REQUIRE THE APPROVAL OF THE ENGINEER.
 - ANY VEGETATED AREAS OUTSIDE THE LIMITS OF ROAD UPGRADE AND MAINTENANCE DISTURBED BY THE CONTRACTOR SHALL BE REGRADED TO APPROXIMATE ORIGINAL CONTOURS, REVEGETATED IN ACCORDANCE WITH THE SPECIFICATIONS, WITH ALL WORK APPROVED BY THE ENGINEER. COMPACTED AREAS SHALL BE SCARIFIED AND SMOOTHED PRIOR REVEGETATION.

DETAIL 26
PIPE NUMBER ONE CONSTRUCTION
TRAFFIC CONTROL PLAN
AND TM4E - P19 LOG LAY-DOWN YARD
SCALE: 1" = 50 FEET

C&E
Civil & Environmental Consultants, Inc.
99 Cambridge Place - Bridgeport, WV 26330
Ph: 304.933.3119 - 855.488.9539 - Fax: 304.933.3327
www.cecinc.com

PROJECT NO.	131-466
DESIGNED BY:	RMC
DRAWN BY:	NBG
CHECKED BY:	RMC
APPROVED BY:	GSL

west virginia
dep West Virginia Department of Environmental Protection
Office of Abandoned Mine Lands

REVISIONS		
DATE:	BY:	(✓):
4/28/2014	rmc	GSL
8/11/2014	rmc	GSL

**CAMDEN (HARTLEY)
DANGEROUS LANDSLIDE**
NEAR CAMDEN, FREEMANS CREEK DISTRICT,
LEWIS COUNTY, WEST VIRGINIA

MISCELLANEOUS DETAILS
SHEET THREE
SCALE: AS NOTED
DATE: OCTOBER 2013