

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

EARL RAY TOMBLIN, GOVERNOR

RANDY C. HUFFMAN, CABINET SECRETARY

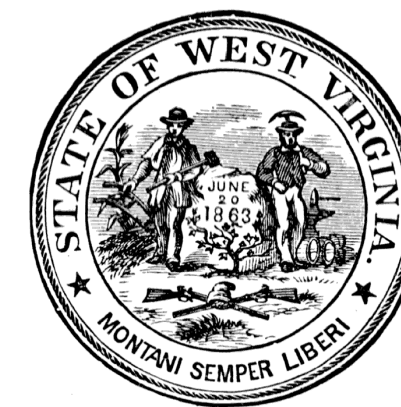
OFFICE OF ABANDONED MINE LANDS & RECLAMATION CONSTRUCTION DRAWINGS

FOR

EBENEZER RUN HIGHWALL #9

BROOKE COUNTY, WEST VIRGINIA

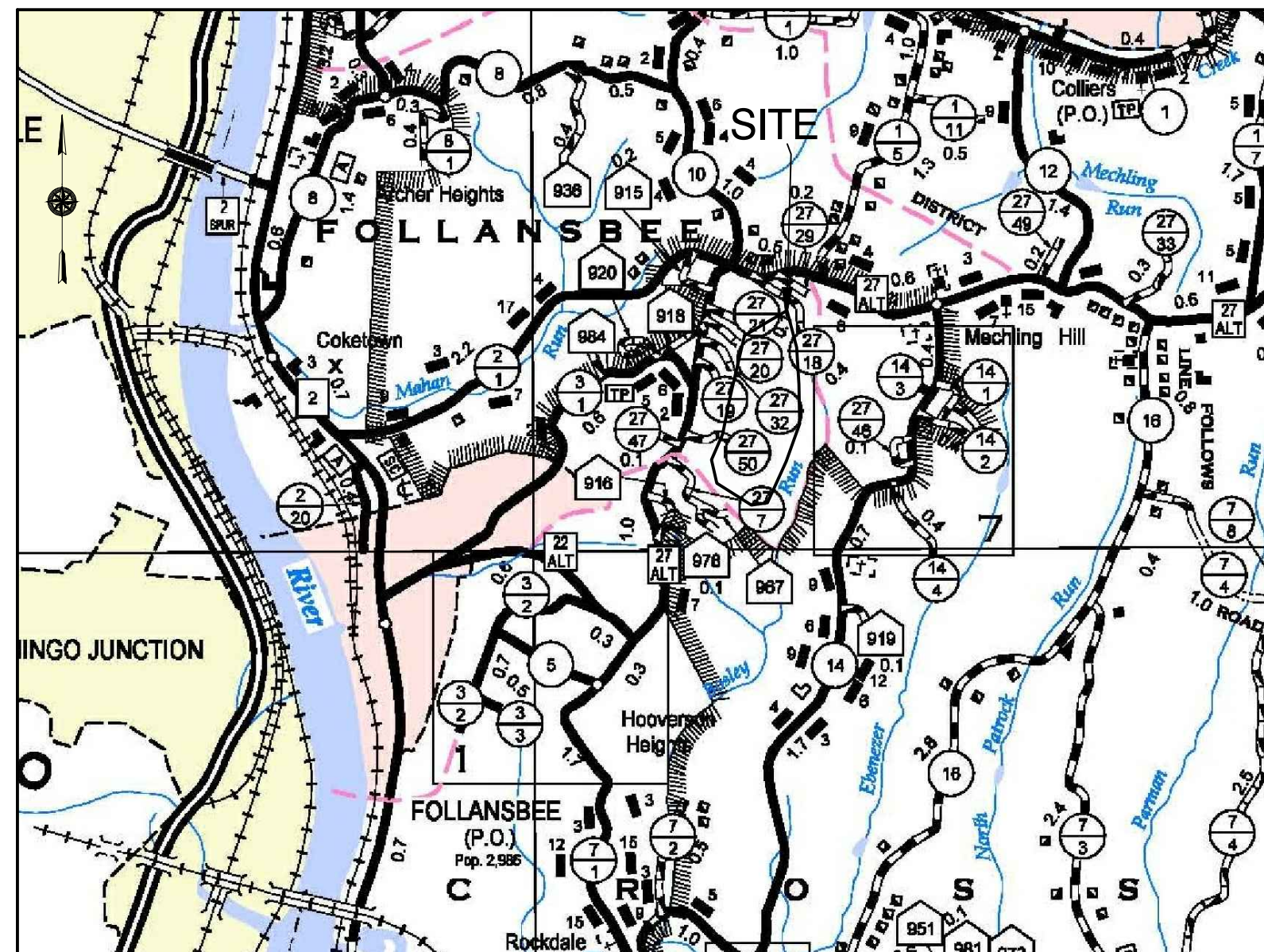
JULY 2014



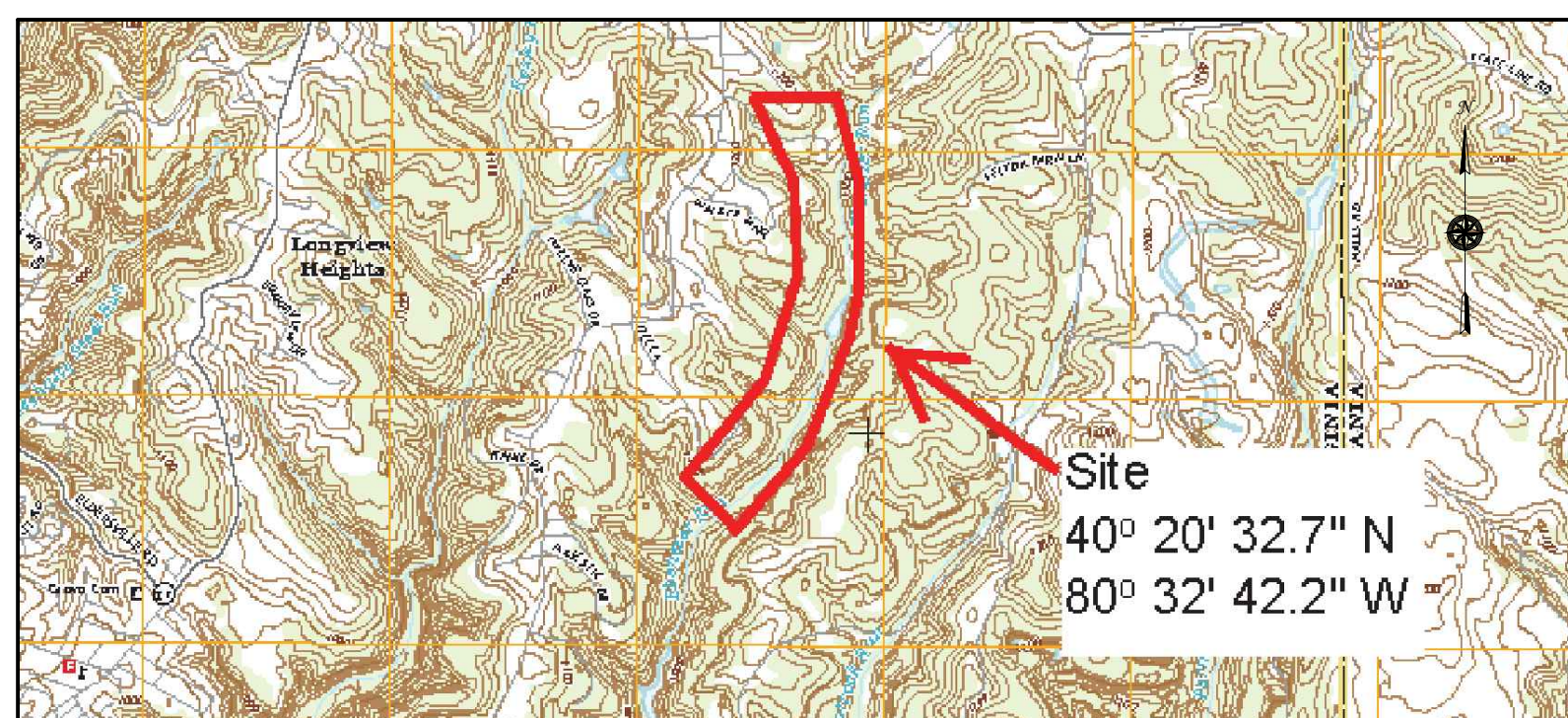
Baker

Michael Baker Jr., Inc.

4301 Dutch Ridge Road
Beaver, Pennsylvania 15009
(724) 495-7711



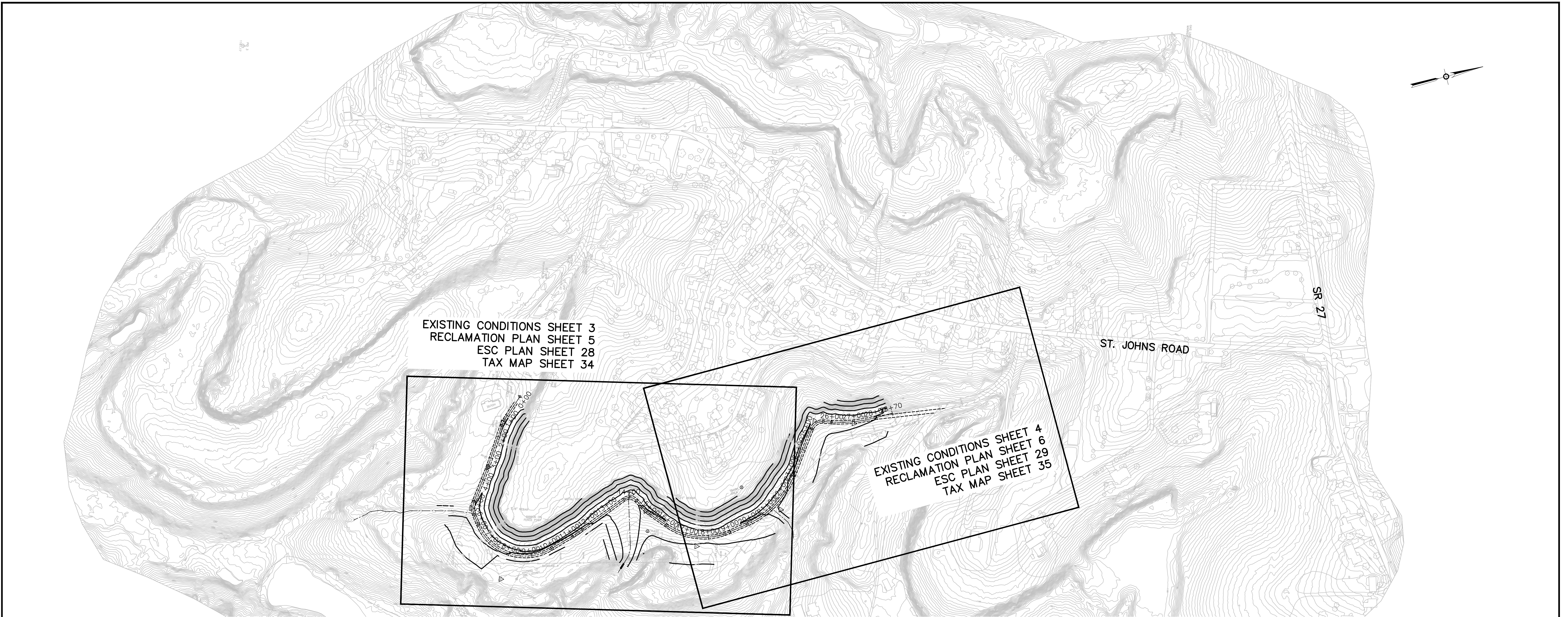
LOCATION MAP
N.T.S.



VICINITY MAP
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INDEX OF SHEETS	
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BID SCHEDULE				
ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1.0	1 L.S.	MOBILIZATION AND DEMOBILIZATION (NOT TO EXCEED 10% OF TOTAL AMOUNT BID)		\$
2.0	1 L.S.	CONSTRUCTION LAYOUT STAKES (NOT TO EXCEED 5% OF TOTAL AMOUNT BID)		\$
3.0	1 L.S.	QUALITY CONTROL (NOT TO EXCEED 3% OF TOTAL AMOUNT BID)		\$
4.1	1 L.S.	SITE PREPARATION (NOT TO EXCEED 10% OF TOTAL AMOUNT BID)		\$
4.2	240 L.F.	TEMPORARY ACCESS ROAD		\$
5.1	160 L.F.	SILT FENCE		\$
5.2	230 L.F.	SUPER SILT FENCE		\$
5.3	1 EA.	STABILIZED CONSTRUCTION ENTRANCE		\$
5.4	11,178 L.F.	STRAW WATTLES		\$
5.5	7 EA.	SEDIMENT TUBE TRAPS		\$
5.6	3 EA.	SEDIMENT TRAP		\$
5.7	270 L.F.	SEDIMENT BAFFLE		\$
6.0	12.1 Acre	REVEGETATION		\$
7.1	2,758 L.F.	2 FT. BOTTOM TRAPEZOIDAL CHANNEL (2H:1V)		\$
7.2	710 L.F.	3 FT. BOTTOM TRAPEZOIDAL CHANNEL (3H:1V)		\$
7.3	3 EA.	OUTLET PROTECTION		\$
7.4	3 EA.	LOW WATER CROSSING		\$
8.0	74,400 C.Y.	UNCLASSIFIED EXCAVATION (CUT MATERIAL UNADJUSTED)		\$
TOTAL				\$



GENERAL NOTES:

1) THE CONTRACTOR MUST CONTACT WEST VIRGINIA ONE CALL AT LEAST TWO WORKING DAYS BEFORE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND CONTACT ALL AFFECTED UTILITIES AND AGENCIES PRIOR TO CONSTRUCTION. NOTIFY WVDOH PRIOR TO WORK AFFECTING ANY STATE RIGHT OF WAY. CONTACT INFORMATION FOR UTILITIES AND OTHER AGENCIES IS PROVIDED BELOW.

WEST VIRGINIA ONE CALL 1-800-245-4848 OR 811
 WEST VIRGINIA DEPARTMENT OF HIGHWAYS
 RICK KENNEDY, DISTRICT 6 PERMIT SUPERVISOR
 (304) 843-4020

2) EXISTING OR IMPROVED ROADS USED FOR CONSTRUCTION ACCESS MUST BE MAINTAINED DURING CONSTRUCTION AND RESTORED TO ORIGINAL OR BETTER CONDITION AT COMPLETION OF THE WORK. EXISTING DRAINAGE MUST ALSO BE MAINTAINED IN WORKING ORDER AND RESTORED IF DAMAGED.

3) ALTHOUGH NONE ANTICIPATED, UNDERGROUND MINE WORKINGS CONTAINING UNKNOWN VOLUMES OF IMPOUNDED WATER ARE THE SOURCE OF ACID MINE DRAINAGE AT EACH OF THE PROJECT SITES. PRIOR TO FULLY EXPOSING COVERED MINE OPENINGS, THE CONTRACTOR SHALL CAREFULLY DRAIN ANY PONDED PIT WATER AND IMPOUNDED MINE POOL WATER SAFELY WITH MINIMUM EXCAVATION EITHER BY PUMPING OR BY OTHER MEANS DETERMINED BY THE CONTRACTOR AND APPROVED BY THE WVDEP. MINE ENTRY EXCAVATION SHALL GENERALLY BEGIN ABOVE THE MINE LEVEL AND PROCEEDING DOWNWARD TO ALLOW A GRADUAL RELEASE OF ANY IMPOUNDED WATER. LOCATIONS, ELEVATIONS, AND TYPES OF PROPOSED MINE SEALS ARE SUBJECT TO REVISION BASED ON FIELD CONDITIONS ENCOUNTERED.

4) ALTHOUGH NONE ANTICIPATED, TEMPORARY TREATMENT OF MINE WATER RELEASED DURING MINE DEWATERING MAY BE REQUIRED BASED ON WATER QUALITY AND QUANTITY, AS DETERMINED OR DIRECTED BY THE WVDEP. GENERALLY, TREATMENT SHALL BE REQUIRED IF IN THE OPINION OF THE WVDEP, A RELEASE OF AMD MAY CAUSE EROSION OR ADVERSELY IMPACT DOWNSTREAM PROPERTY, SAFETY, OR WATER QUALITY. TREATMENT SHALL BE ACCOMPLISHED BY FIELD APPLICATION OF QUICKLIME THROUGH A MECHANICAL "DOSER" PLACED ALONG THE AMD EFFLUENT STREAM AND DISCHARGING NEUTRALIZED WATER TO AN EXISTING DRAINAGE WAY IN A NON EROSION MANNER.

5) ALL BOREHOLES SHOWN ON THE PLANS SHALL BE REMOVED AND ABANDONED BY AS PERSON CERTIFIED BY THE STATE OF WEST VIRGINIA IN ACCORDANCE WITH 47CSR59 MONITORING WELL REGULATIONS. BOREHOLE LOGS AND WATER SAMPLE TEST RESULTS ARE CONTAINED WITH THESE PLAN DRAWINGS. WATER LEVEL MAY BE MEASURED PRIOR TO CONSTRUCTION THROUGH A BOREHOLE PIEZOMETER AT THE SITE, HOWEVER THIS BOREHOLE IS NOT BELIEVED TO HAVE PENETRATED THE MINE WORKINGS. THE CONTRACTOR IS ADVISED TO PROCEED WITH CAUTION REGARDLESS OF WATER LEVELS IN THE BOREHOLE.

6) MINIMIZE ALL GRADING DISTURBANCES AND PRESERVE TREES, PROPERTY CORNERS, NATIVE TOPSOIL, AND NATURAL VEGETATION TO THE MAXIMUM EXTENT PRACTICABLE. PROPERTY CORNERS MUST BE REESTABLISHED AND RESET IF DISTURBED. LIMIT LAND DISTURBANCE TO THAT WHICH IS REQUIRED FOR PROPOSED CONSTRUCTION, DEMOLITION, AND GRADING ACTIVITIES AS INDICATED BY THE LIMITS OF GRADING. DISTURBED AREAS SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS OF REACHING FINISHED GRADE. ALL EXPOSED BLACK MATERIAL (COAL REFUSE/SHALE SPOIL) IS TO BE GRADED TO DRAIN AND COVERED WITH ONE FOOT OF TOPSOIL OBTAINED FROM WITHIN THE GRADING LIMITS OR THE NEAREST CLOSEST AVAILABLE SOURCE PRIOR TO RE-VEGETATION.

GENERAL NOTES CONTINUED:

7) SCATTERED TRASH, DEBRIS, ORGANIC DEBRIS, TIRES ETC. SHALL BE TAKEN TO AN APPROVED LANDFILL OR RECYCLING CENTER AS APPROPRIATE FOR DISPOSAL. BURNING OF SUCH MATERIALS IS NOT PERMITTED. BURNING OF GRUBBED VEGETATION IS ALLOWABLE IF LOCAL PERMITS ARE OBTAINED BY THE CONTRACTOR, EXCEPT BURNING OF THE COMBUSTIBLE MATERIAL WILL NOT BE PERMITTED ON OR NEAR REFUSE, MINE PORTALS, OR WITHIN CLOSE PROXIMITY TO COAL SEAMS OR GAS PIPELINES AND UTILITIES.

8) DEMOLISHED CONCRETE, CINDER BLOCKS AND FOUNDATION RUINS TO BE INCORPORATED INTO THE FILL SHALL BE OF SIZE LESS THAN 2 FEET IN ANY DIMENSION AND SHALL BE BURIED AT LEAST ONE FOOT BELOW FINISHED GRADE.

9) ALL TIMBER EIGHT (8) INCHES IN DIAMETER AND LARGER AT STUMP HEIGHT SHALL BE SAW CUT, TOPPED WITH THE BRANCHES REMOVED, AND STACKED AND STOCKPILED IN AN APPROPRIATE MANNER IN AN ACCESSIBLE LOCATION APPROVED BY THE WVDEP ON THE PROPERTY FROM WHICH IT WAS CUT.

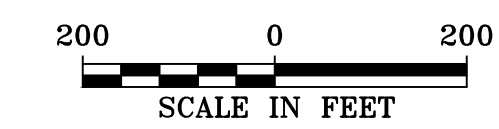
10) NO PROVISIONS HAVE BEEN MADE TO OBTAIN ROCK OR SOIL BORROW ON OR OFF SITE. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AN AGREEMENT, IF REQUIRED, FOR ANY OUTSIDE BORROW. IT IS INTENDED THE CONTRACTOR WILL OBTAIN BORROW SOIL FROM WITHIN THE PROPOSED LIMITS OF DISTURBANCE AS IDENTIFIED WITHIN THE PROJECT LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN MATERIALS FROM OFF SITE ONLY AS A LAST RESORT.

11) EXCAVATE EXISTING IRREGULAR SPOIL PILES AND USE SUCH MATERIALS AS HIGHWALL BACKFILL AND MINE SEAL COVER. WHERE APPROPRIATE, BACKFILL MAY ALSO INCLUDE EXCAVATED MATERIALS FROM CHANNELS, LININGS, PIPES, CULVERTS, MINE ENTRIES, APPROVED DEMOLITION MATERIALS, AND REFUSE. EROSION AND SEDIMENT CONTROL STRUCTURES ARE TO BE INSTALLED PRIOR TO COMMENCEMENT OF EARTH MOVING. INSURE DISTURBED AREAS DISCHARGE TO THE SEDIMENT STRUCTURES AS SHOWN ON THE PLANS. DO NOT DISTURB ADDITIONAL AREAS WITHOUT PRIOR PERMISSION AND INSTALLATION OF ADDITIONAL EROSION CONTROL MEASURES, IF NECESSARY. A MINIMUM OF TWO FEET OF COVER OVER THE CLAY SEALS IS REQUIRED.

12) DISTURBANCE OUTSIDE LIMITS OF CONSTRUCTION IS NOT PERMITTED. DISTURBED AREA SHALL BE MINIMIZED AND LIMITED TO THOSE AREAS AS SHOWN ON THE PLANS.

LEGEND

	MAPPING CONTOURS		CONTROL POINT
	SURVEYED CONTOURS		TRAVERSE POINT
	EDGE OF PAVED ROAD		MONUMENT FOUND
	EDGE OF UNPAVED ROAD		UTILITY POLE
	LIMITS OF REFUSE		MINE PORTAL
	STREAM		GAS METER
	FENCE		GAS VALVE
	TREE LINE		WATER METER
	SURVEYED POND OR WET AREA		WATER VALVE
	EXISTING CULVERT		FIRE HYDRANT
	GAS LINE		DROP INLET
	WATER LINE		GAS WELL
	SANITARY LINE		TREE / SHRUB
			SPOT ELEVATION
			SANITARY MANHOLE



REVISIONS	
No. 1	NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 2	MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 3	JULY 2014 SITE 2 REMOVAL PER WVDEP

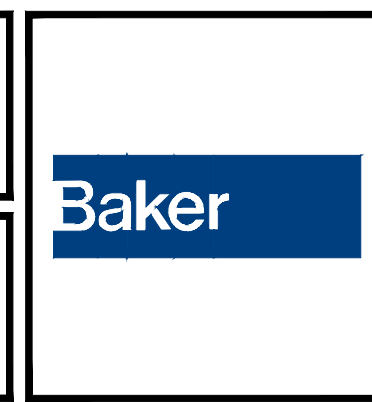
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REVIEWED	WDN
S.O.	135555

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 ABANDONED MINE LANDS & RECLAMATION SECTION

MICHAEL BAKER JR., INC.
 A UNIT OF MICHAEL BAKER CORPORATION

CONSULTING ENGINEERS (724) 495-7711

4301 DUTCH RIDGE ROAD
 BEAVER, PENNSYLVANIA 15009



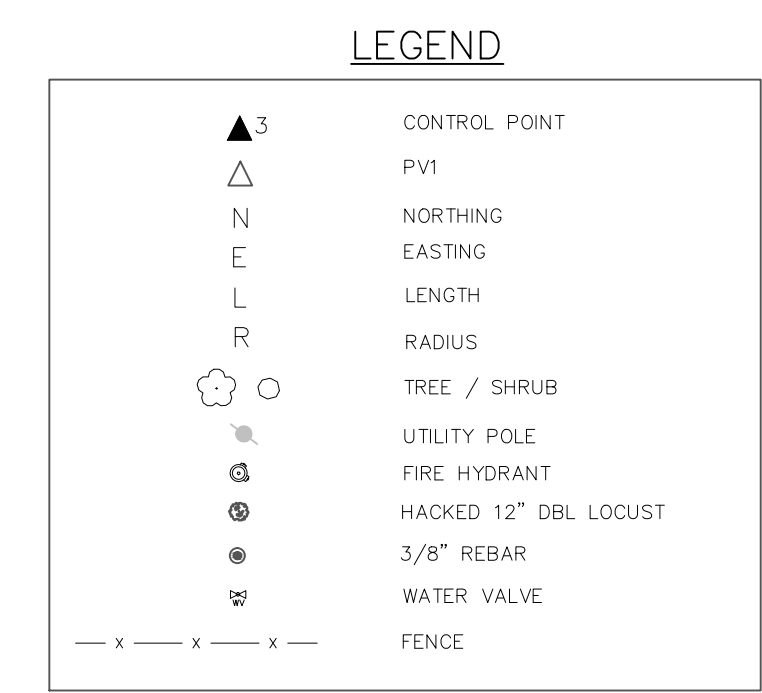
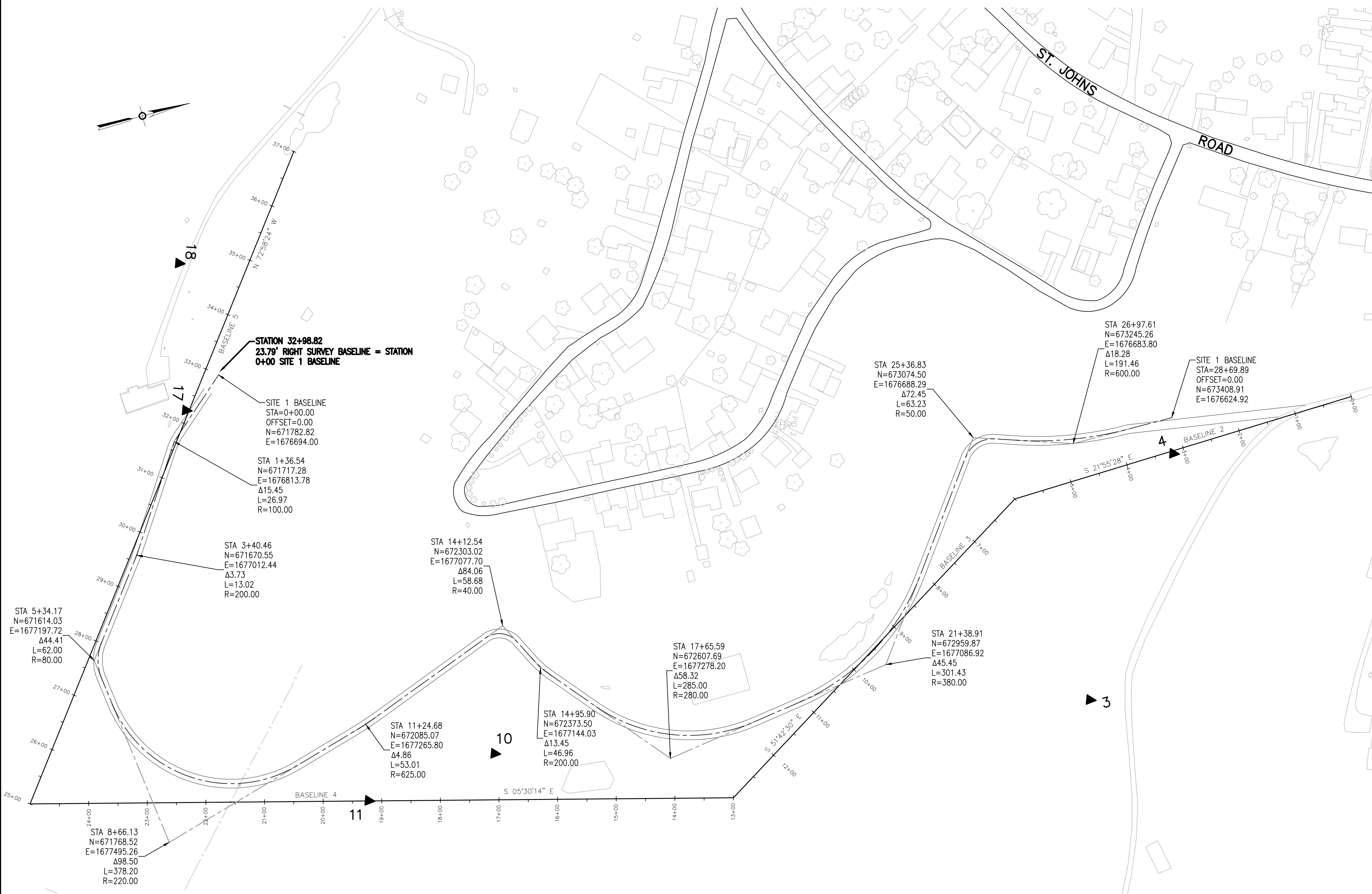
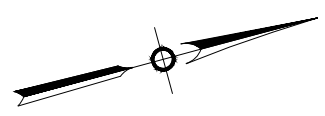
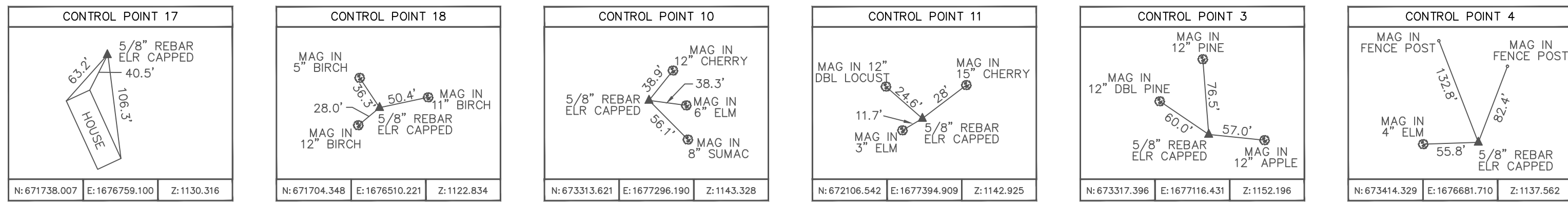
EBENEZER RUN HIGHWALL #9

GENERAL NOTES AND OVERALL PLAN

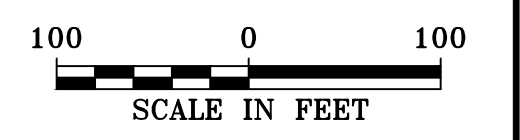
SCALE: 1" = 200'

DATE: JULY 2014

SHEET NO.	1
OF	35



NOTE:
 HORIZONTAL DATUM: WEST VIRGINIA STATE PLANE GRID COORDINATES NAD 83 NORTH ZONE.
 VERTICAL DATUM: NAVD 88, GEOID 09 (CONUS)
 COORDINATE UNITS: US SURVEY FOOT
 DISTANCE UNITS: US SURVEY FOOT
 HEIGHT UNITS: US SURVEY FOOT
 A PROPERTY SURVEY WAS NOT PERFORMED TO ESTABLISH BOUNDARY LINES.



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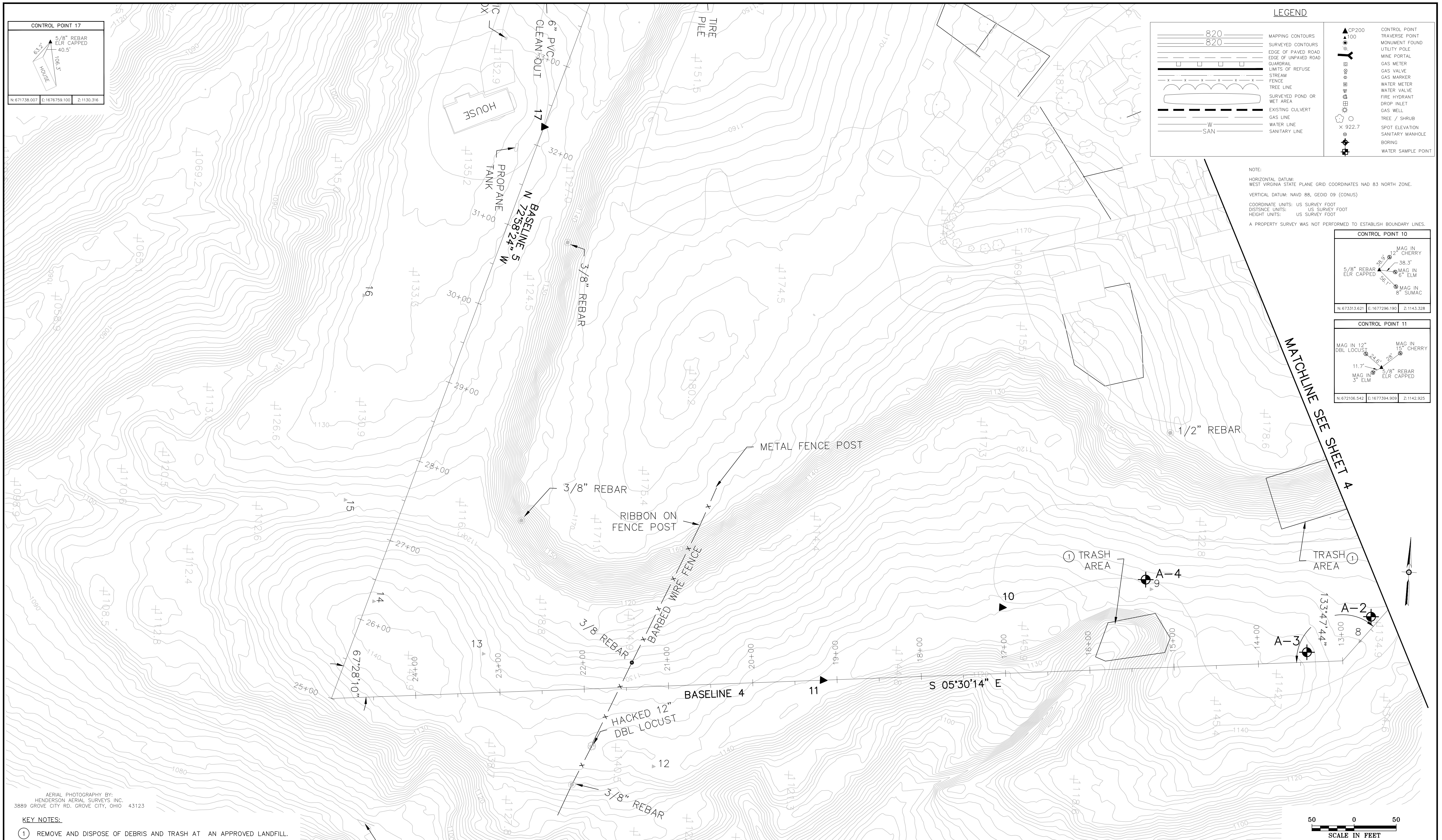
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EBENEZER RUN HIGHWALL #9
 GEOMETRIC CONTROL PLAN

SCALE: 1" = 100' DATE: JULY 2014

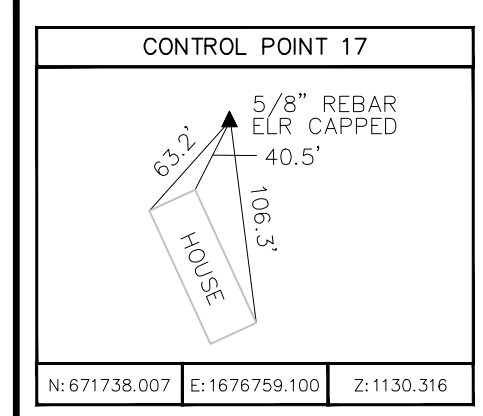
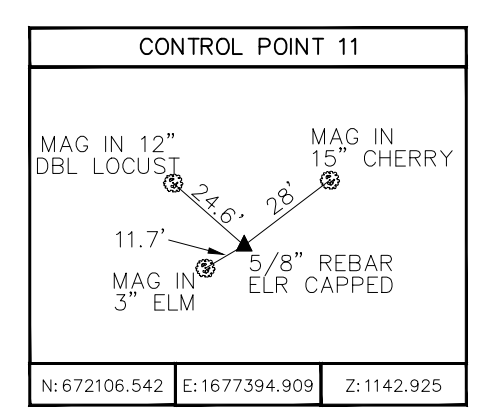
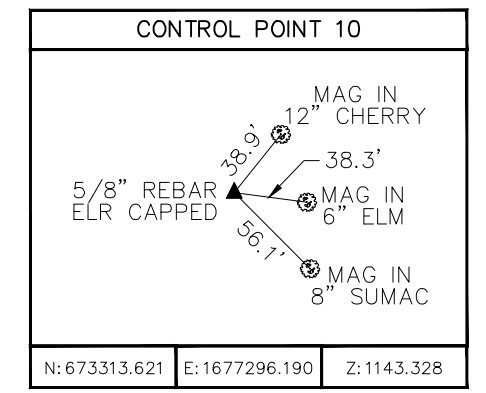
SHEET NO.
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 OF 35



LEGEND

	MAPPING CONTOURS		CONTROL POINT
	SURVEYED CONTOURS		TRAVERSE POINT
	EDGE OF PAVED ROAD		MONUMENT FOUND
	GUARDRAIL		UTILITY POLE
	LIMITS OF REFUSE		MINE PORTAL
	STREAM		GAS METER
	FENCE		GAS VALVE
	TREE LINE		GAS MARKER
	SURVEYED POND OR WET AREA		WATER METER
	EXISTING CULVERT		WATER VALVE
	GAS LINE		FIRE HYDRANT
	WATER LINE		DROP INLET
	SANITARY LINE		GAS WELL
			TREE / SHRUB
			SPOT ELEVATION
			SANITARY MANHOLE
			BORING
			WATER SAMPLE POINT

NOTE:
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 VERTICAL DATUM: NAVD 88, GEOID 09 (CONUS)
 COORDINATE UNITS: US SURVEY FOOT
 DISTANCE UNITS: US SURVEY FOOT
 HEIGHT UNITS: US SURVEY FOOT
 A PROPERTY SURVEY WAS NOT PERFORMED TO ESTABLISH BOUNDARY LINES.



AERIAL PHOTOGRAPHY BY:
 HENDERSON AERIAL SURVEYS INC.
 3889 GROVE CITY RD. GROVE CITY, OHIO 43123

KEY NOTES:
 ① REMOVE AND DISPOSE OF DEBRIS AND TRASH AT AN APPROVED LANDFILL.

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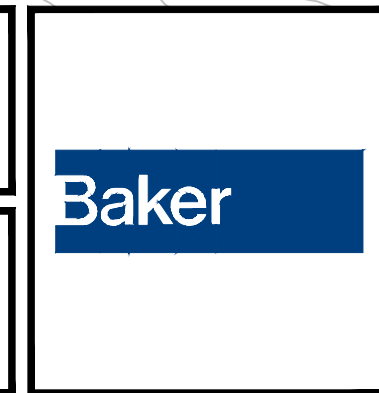
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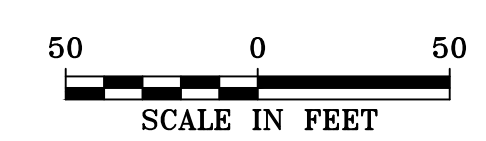


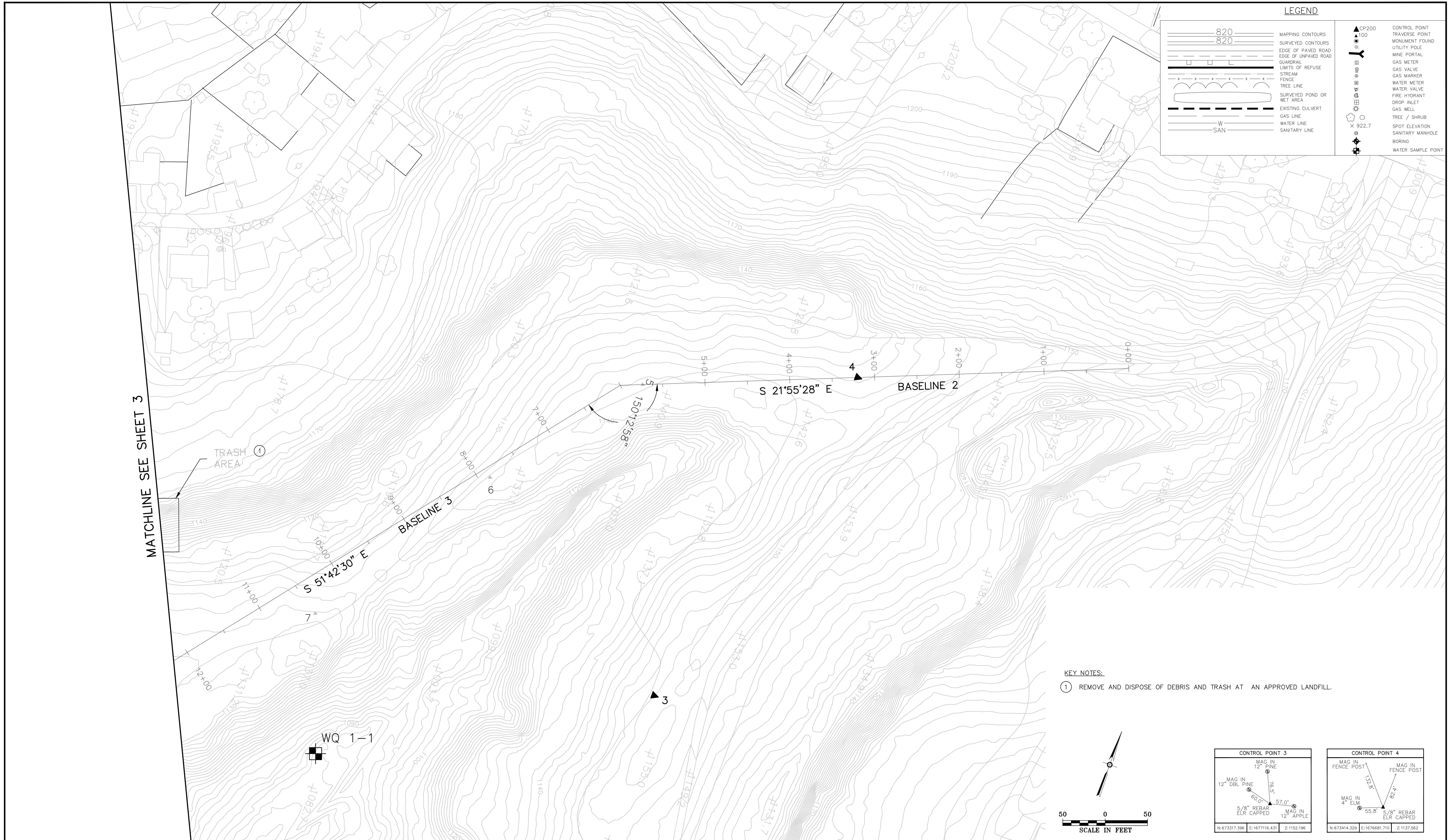
EBENEZER RUN HIGHWALL #9
 EXISTING CONDITIONS

SCALE: 1" = 50'

DATE: JULY 2014

SHEET NO.
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 OF 35

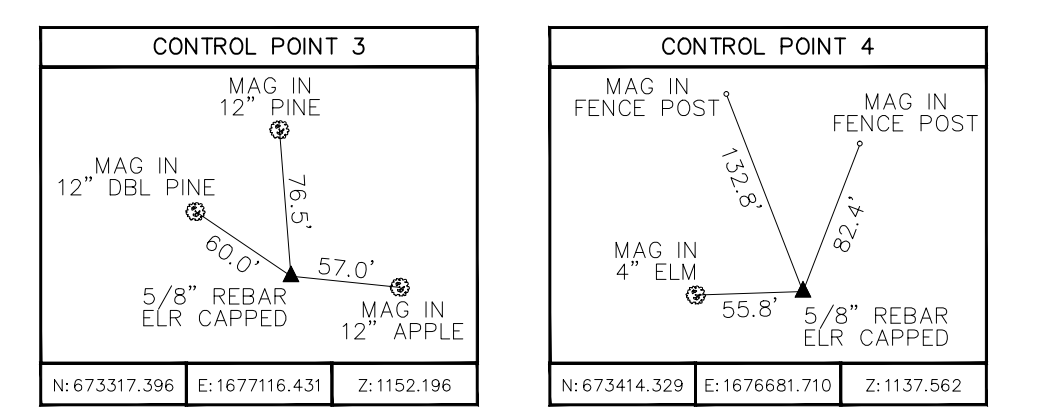
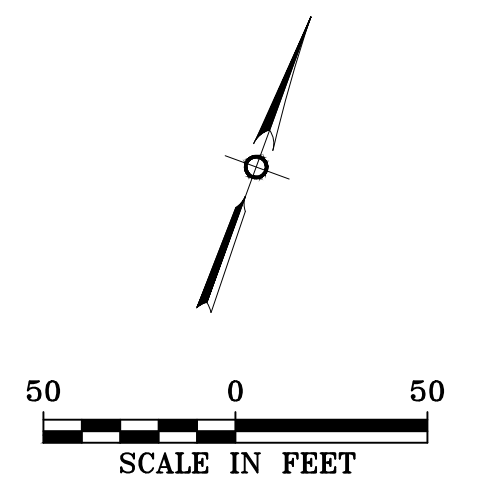




LEGEND

	MAPPING CONTOURS		CONTROL POINT
	SURVEYED CONTOURS		TRAVERSE FOUND
	EDGE OF PAVED ROAD		UTILITY POLE
	EDGE OF UNPAVED ROAD		MINE PORTAL
	GUARDRAIL		GAS VALVE
	LIMITS OF REFUSE		GAS METER
	STREAM		GAS MARKER
	FENCE		WATER METER
	TREE LINE		WATER VALVE
	SURVEYED POND OR WET AREA		FIRE HYDRANT
	EXISTING CULVERT		DROP INLET
	GAS LINE		GAS WELL
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	SANITARY LINE		SPOT ELEVATION
			SANITARY MANHOLE
			BORING
			WATER SAMPLE POINT

KEY NOTES:
 ① REMOVE AND DISPOSE OF DEBRIS AND TRASH AT AN APPROVED LANDFILL.



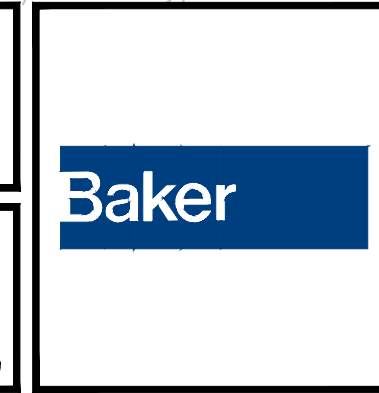
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 A UNIT OF MICHAEL BAKER CORPORATION

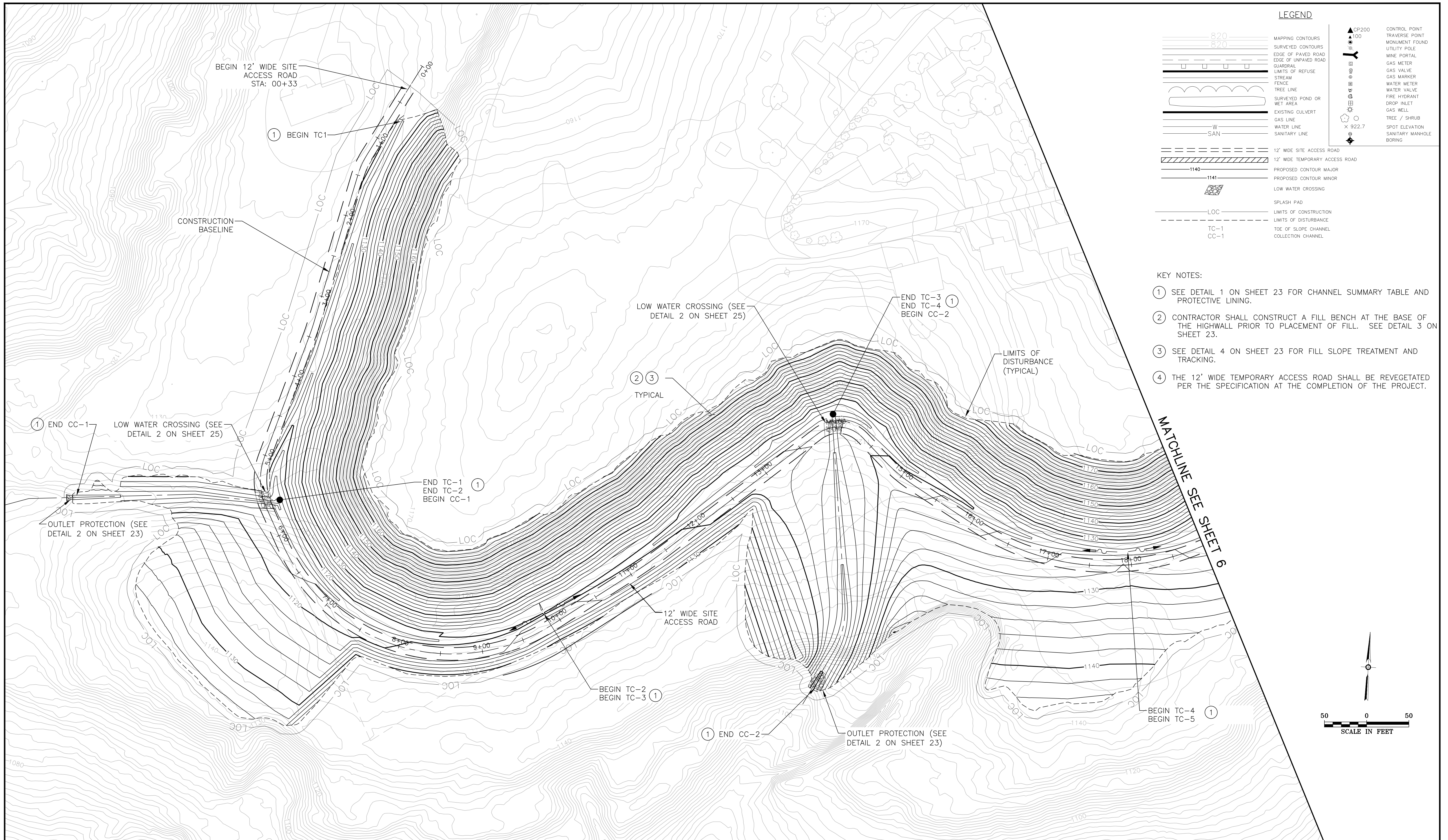
CONSULTING ENGINEERS (724) 495-7711 4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
 EXISTING CONDITIONS

SCALE: 1" = 50'
 DATE: JULY 2014

SHEET NO.
 4
 OF 35



LEGEND

	MAPPING CONTOURS		CONTROL POINT
	SURVEYED CONTOURS		TRAVERSE POINT
	EDGE OF PAVED ROAD		MONUMENT FOUND
	EDGE OF UNPAVED ROAD		UTILITY POLE
	QUARRY		MINE PORTAL
	LIMITS OF REFUSE		GAS METER
	STREAM		GAS VALVE
	FENCE		GAS MARKER
	TREE LINE		WATER METER
	SURVEYED POND OR WET AREA		FIRE HYDRANT
	EXISTING CULVERT		DROP INLET
	GAS LINE		GAS WELL
	WATER LINE		TREE / SHRUB
	SANITARY LINE		SPOT ELEVATION
	12' WIDE SITE ACCESS ROAD		SANITARY MANHOLE BORING
	12' WIDE TEMPORARY ACCESS ROAD		
	PROPOSED CONTOUR MAJOR		
	PROPOSED CONTOUR MINOR		
	LOW WATER CROSSING		
	SPLASH PAD		
	LIMITS OF CONSTRUCTION		
	LIMITS OF DISTURBANCE		
	TOE OF SLOPE CHANNEL		
	TC-1		
	CC-1		

- KEY NOTES:**
- SEE DETAIL 1 ON SHEET 23 FOR CHANNEL SUMMARY TABLE AND PROTECTIVE LINING.
 - CONTRACTOR SHALL CONSTRUCT A FILL BENCH AT THE BASE OF THE HIGHWALL PRIOR TO PLACEMENT OF FILL. SEE DETAIL 3 ON SHEET 23.
 - SEE DETAIL 4 ON SHEET 23 FOR FILL SLOPE TREATMENT AND TRACKING.
 - THE 12' WIDE TEMPORARY ACCESS ROAD SHALL BE REVEGETATED PER THE SPECIFICATION AT THE COMPLETION OF THE PROJECT.

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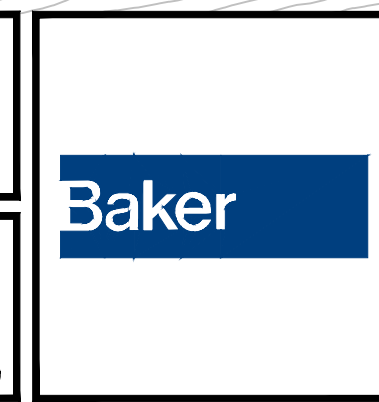
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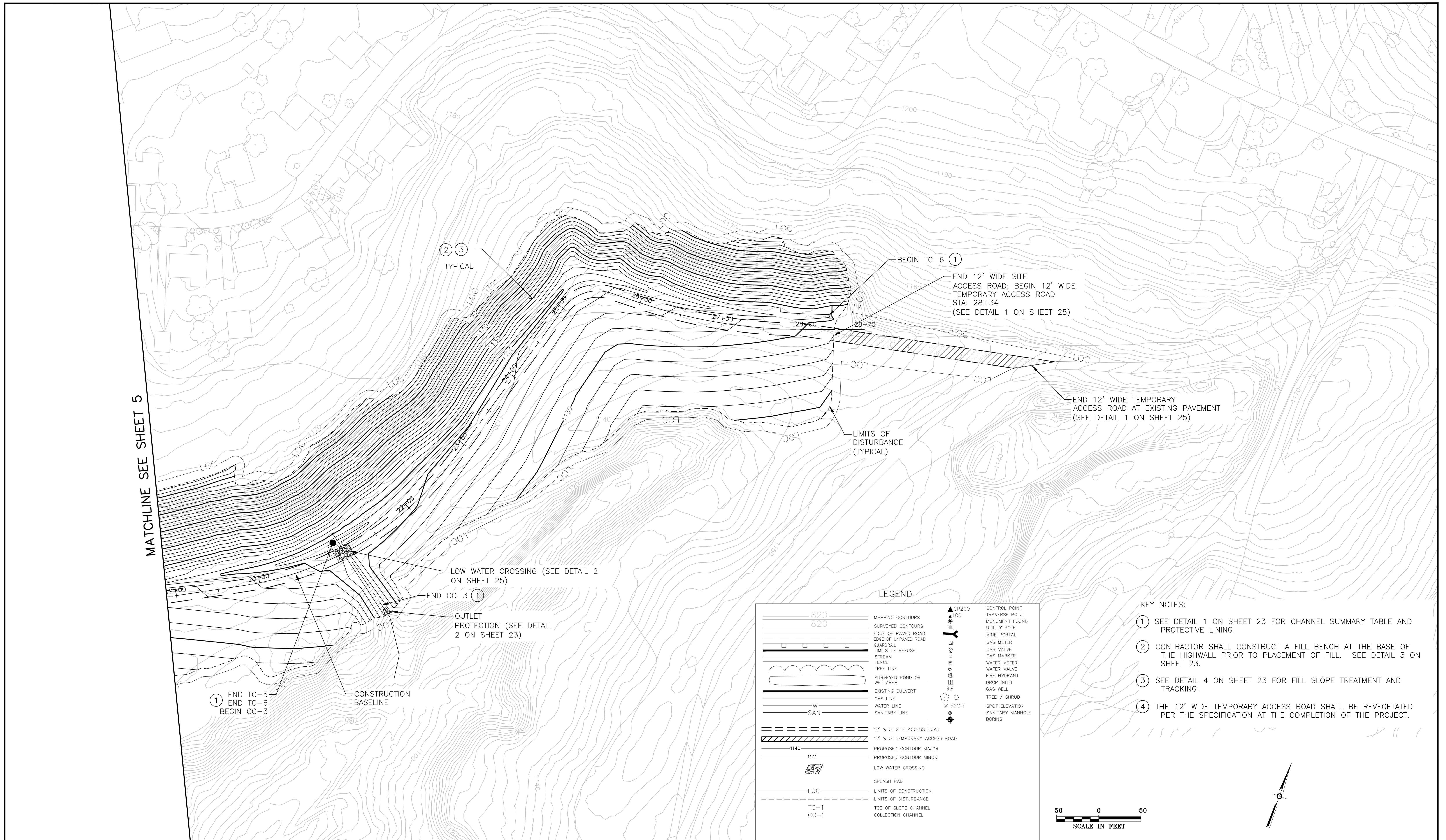


EBENEZER RUN HIGHWALL #9
 RECLAMATION PLANS

SCALE: 1" = 50'

DATE: JULY 2014

SHEET NO.
 5
 OF 35



KEY NOTES:

- ① SEE DETAIL 1 ON SHEET 23 FOR CHANNEL SUMMARY TABLE AND PROTECTIVE LINING.
- ② CONTRACTOR SHALL CONSTRUCT A FILL BENCH AT THE BASE OF THE HIGHWALL PRIOR TO PLACEMENT OF FILL. SEE DETAIL 3 ON SHEET 23.
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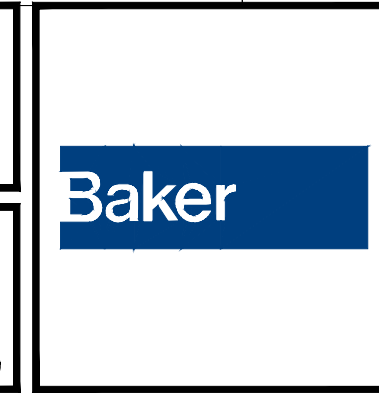
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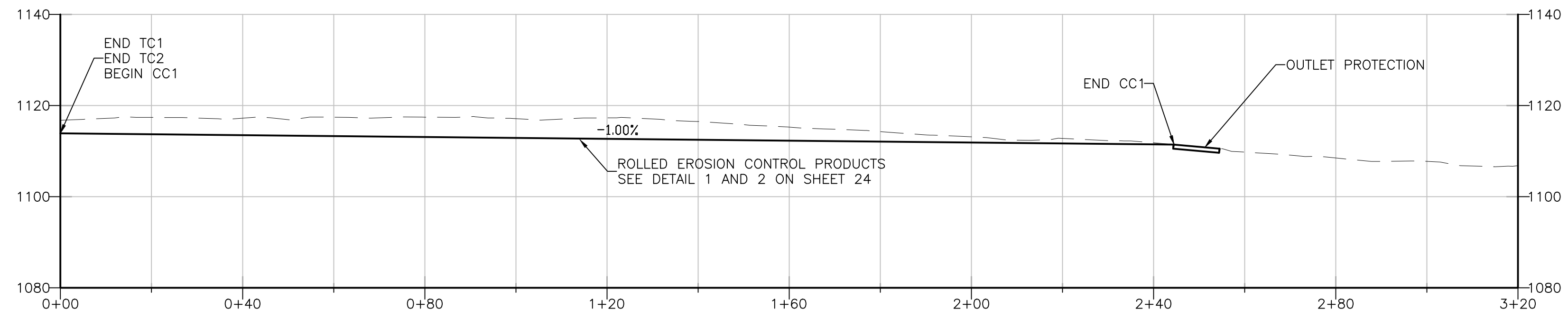


EBENEZER RUN HIGHWALL #9
RECLAMATION PLANS

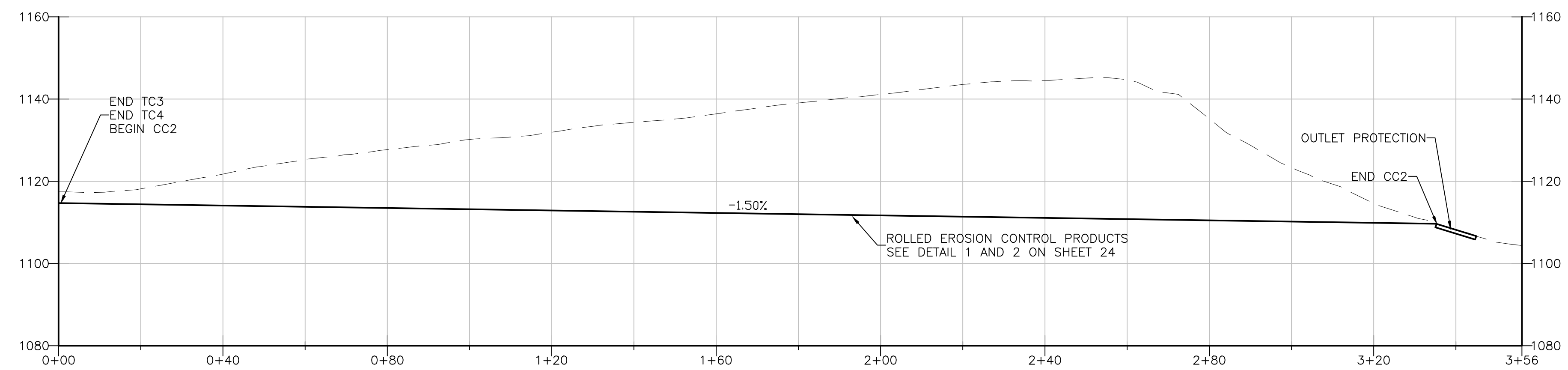
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DATE: JULY 2014

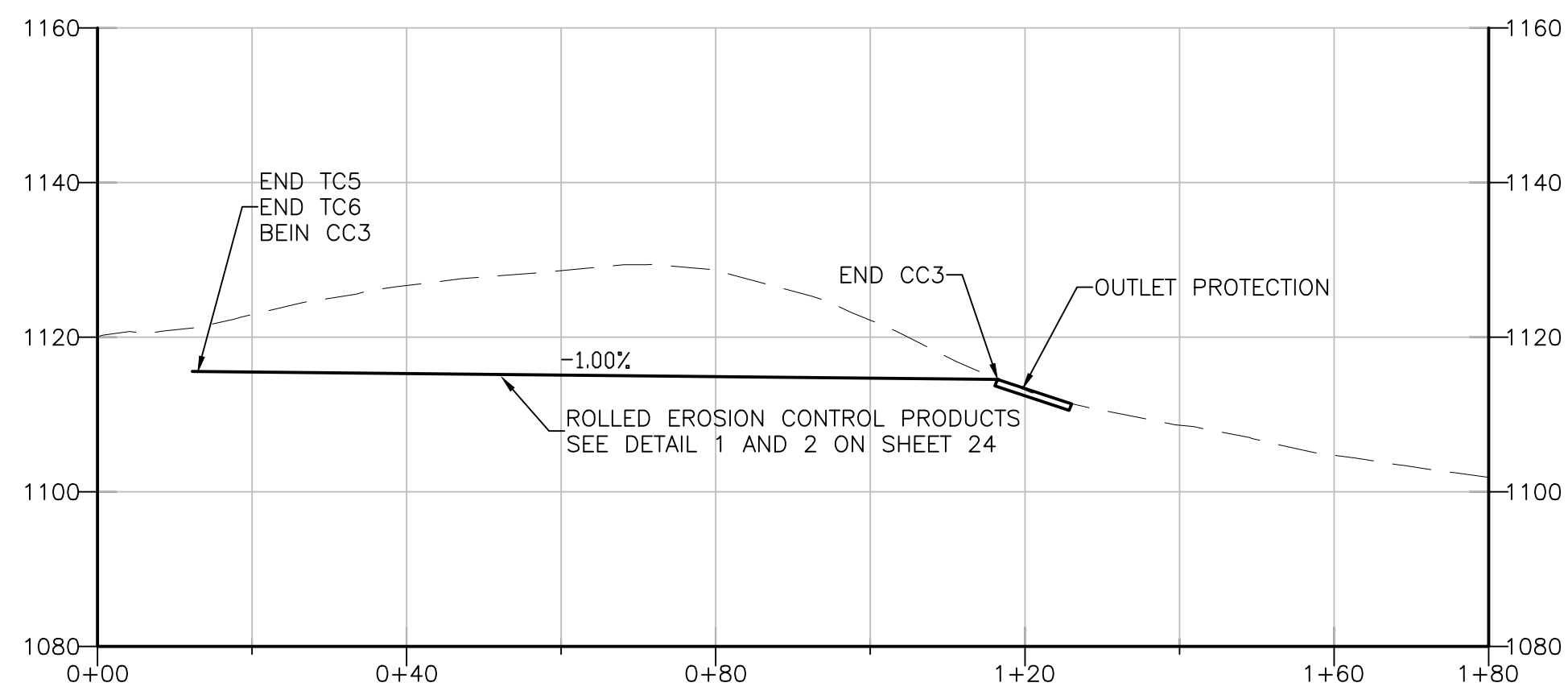
SHEET NO.
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OF 35



COLLECTION CHANNEL 1 PROFILE



COLLECTION CHANNEL 2 PROFILE



COLLECTION CHANNEL 3 PROFILE

REVISIONS

- No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW
- No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW
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DESIGNED JRG
 DRAWN JRG
 CHECKED WDN
 REVIEWED WDN
 S.O. 135555

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 ABANDONED MINE LANDS & RECLAMATION SECTION

MICHAEL BAKER JR., INC.
 A UNIT OF MICHAEL BAKER CORPORATION
 CONSULTING ENGINEERS (724) 495-7711 4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
 PROFILES

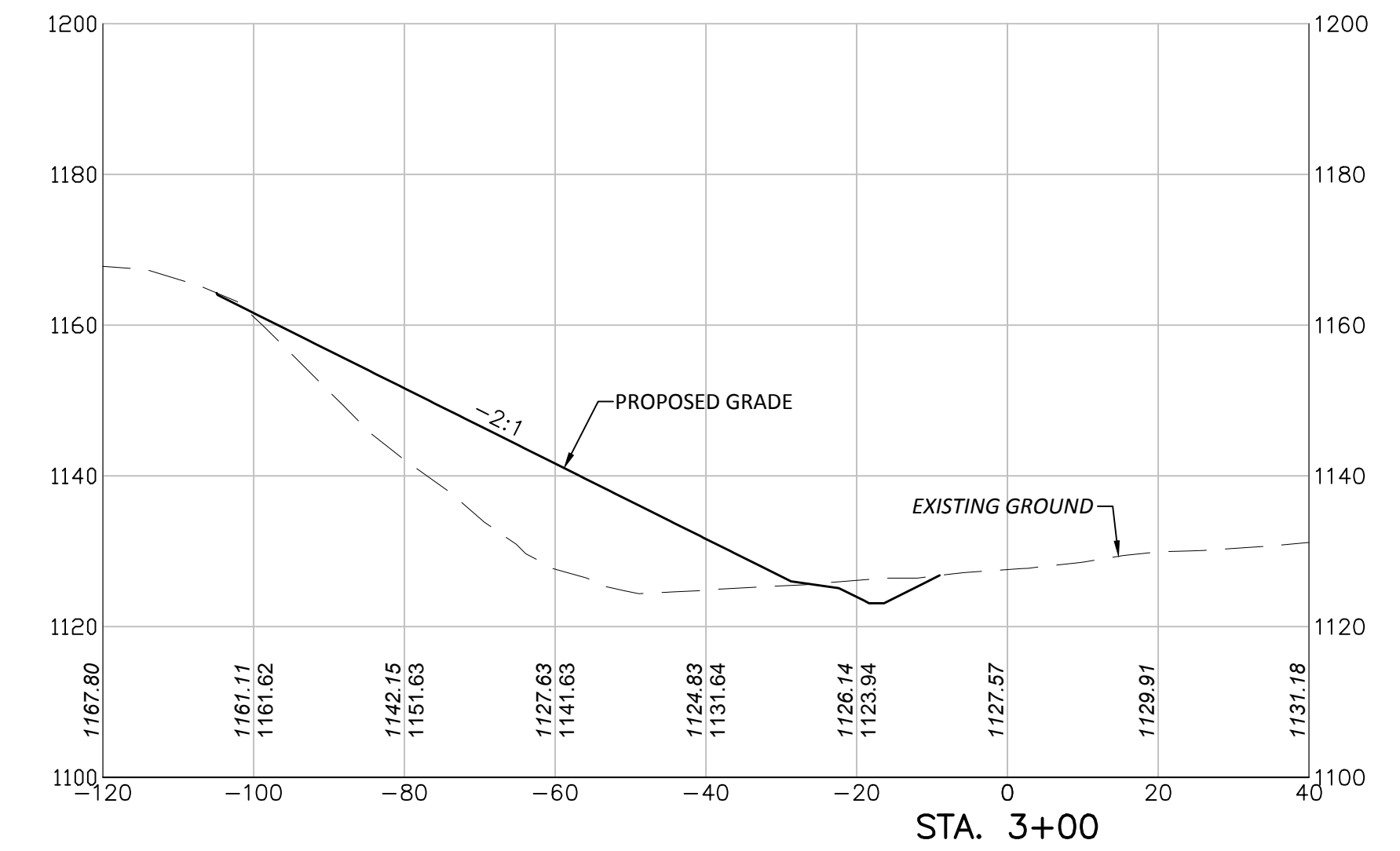
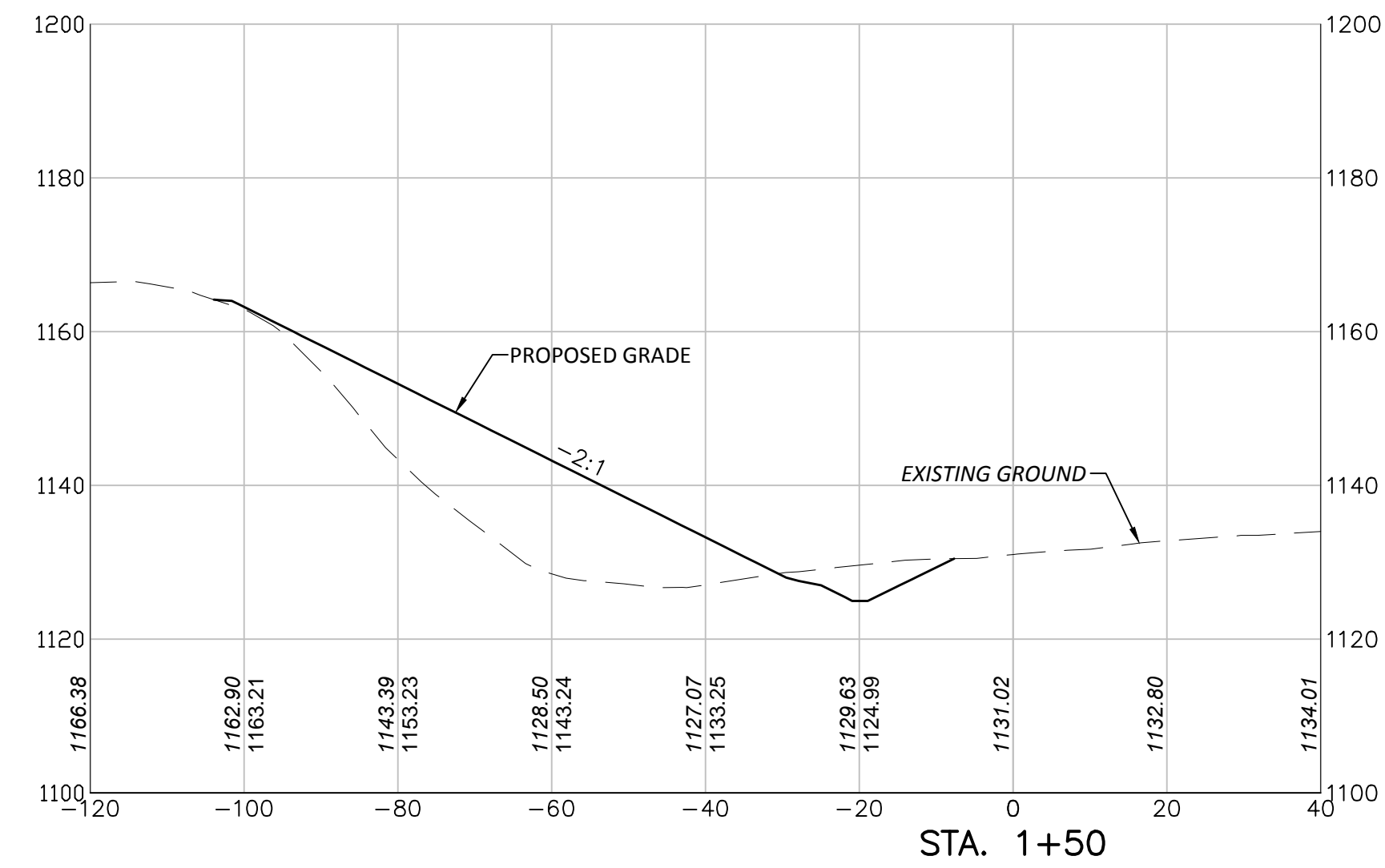
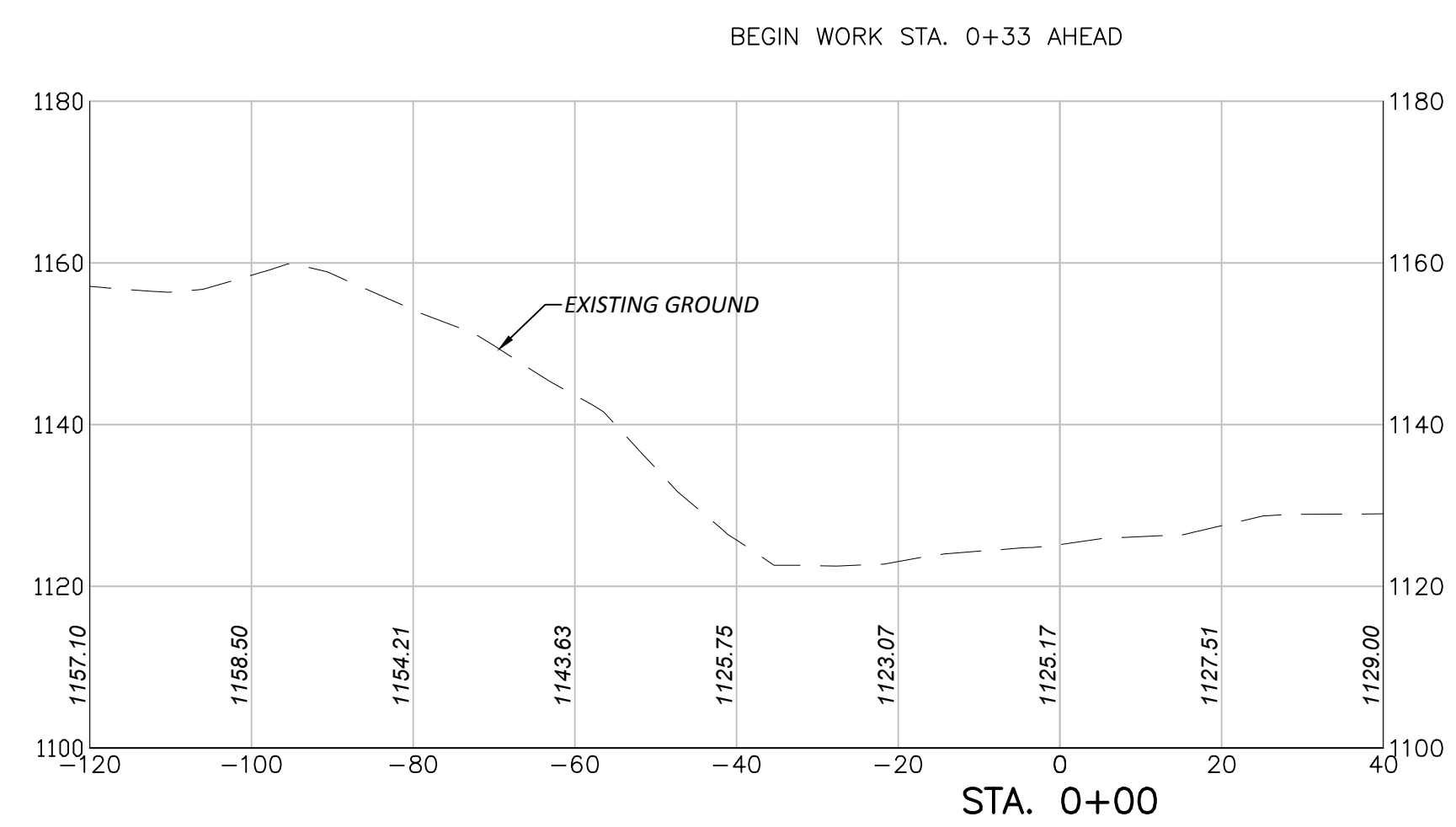
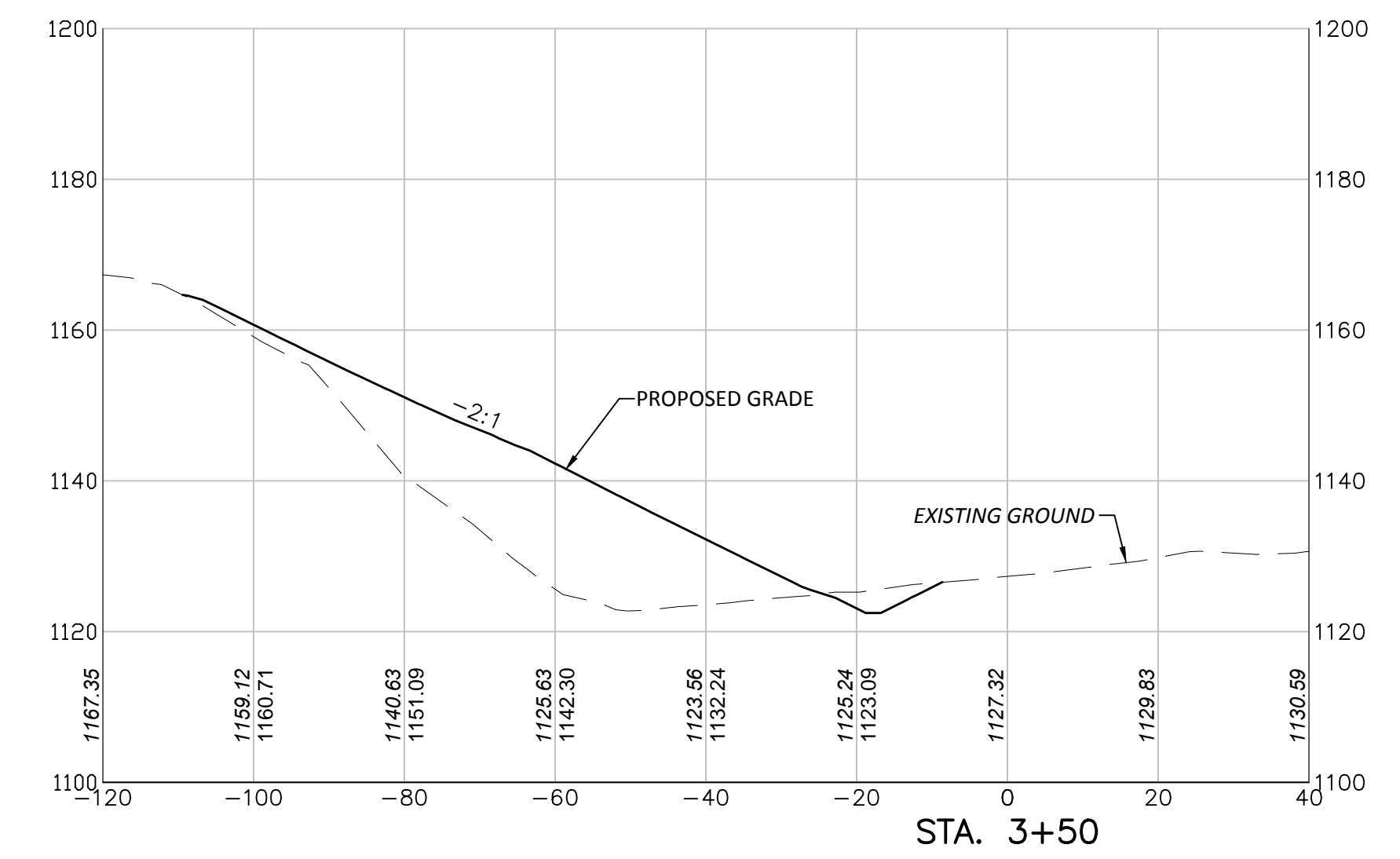
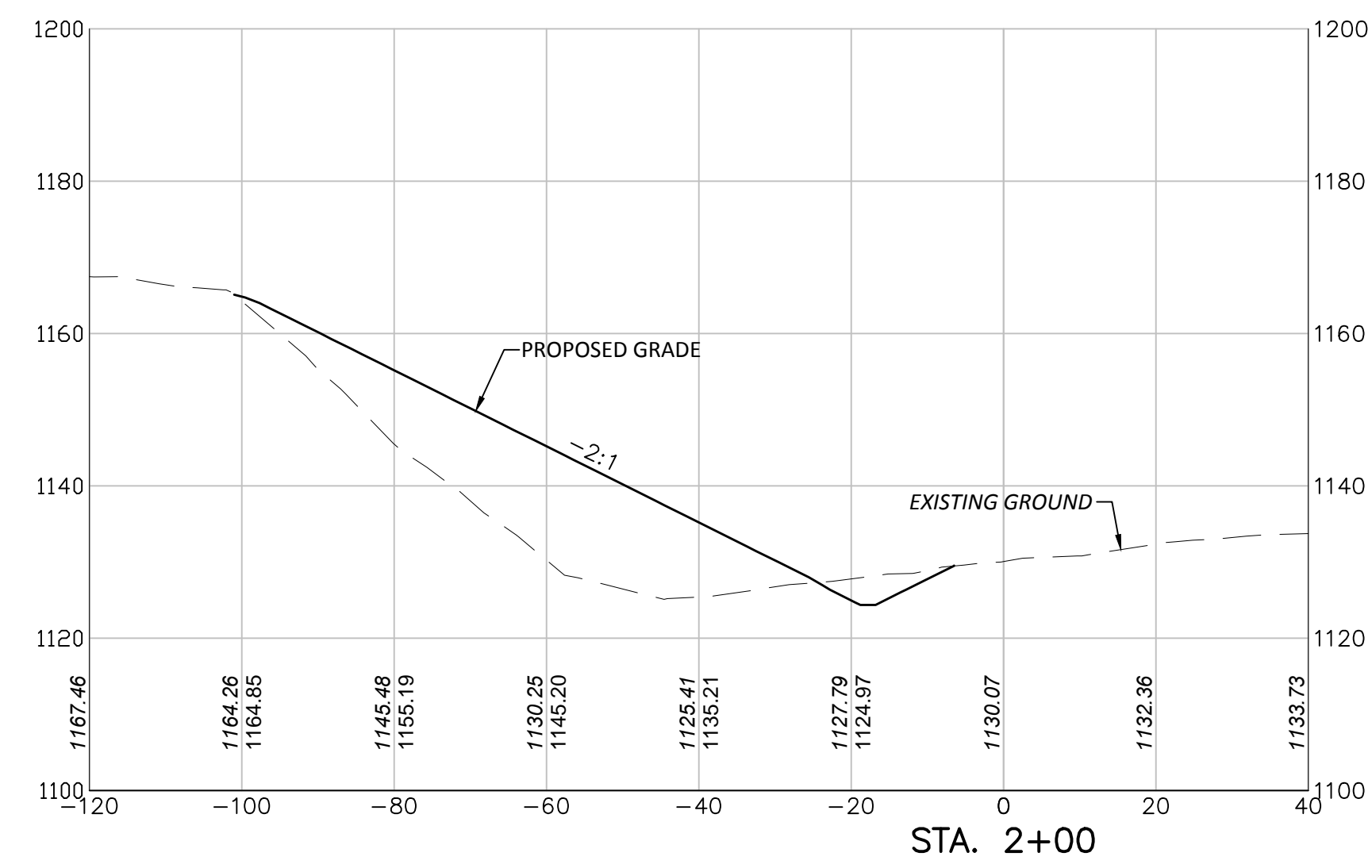
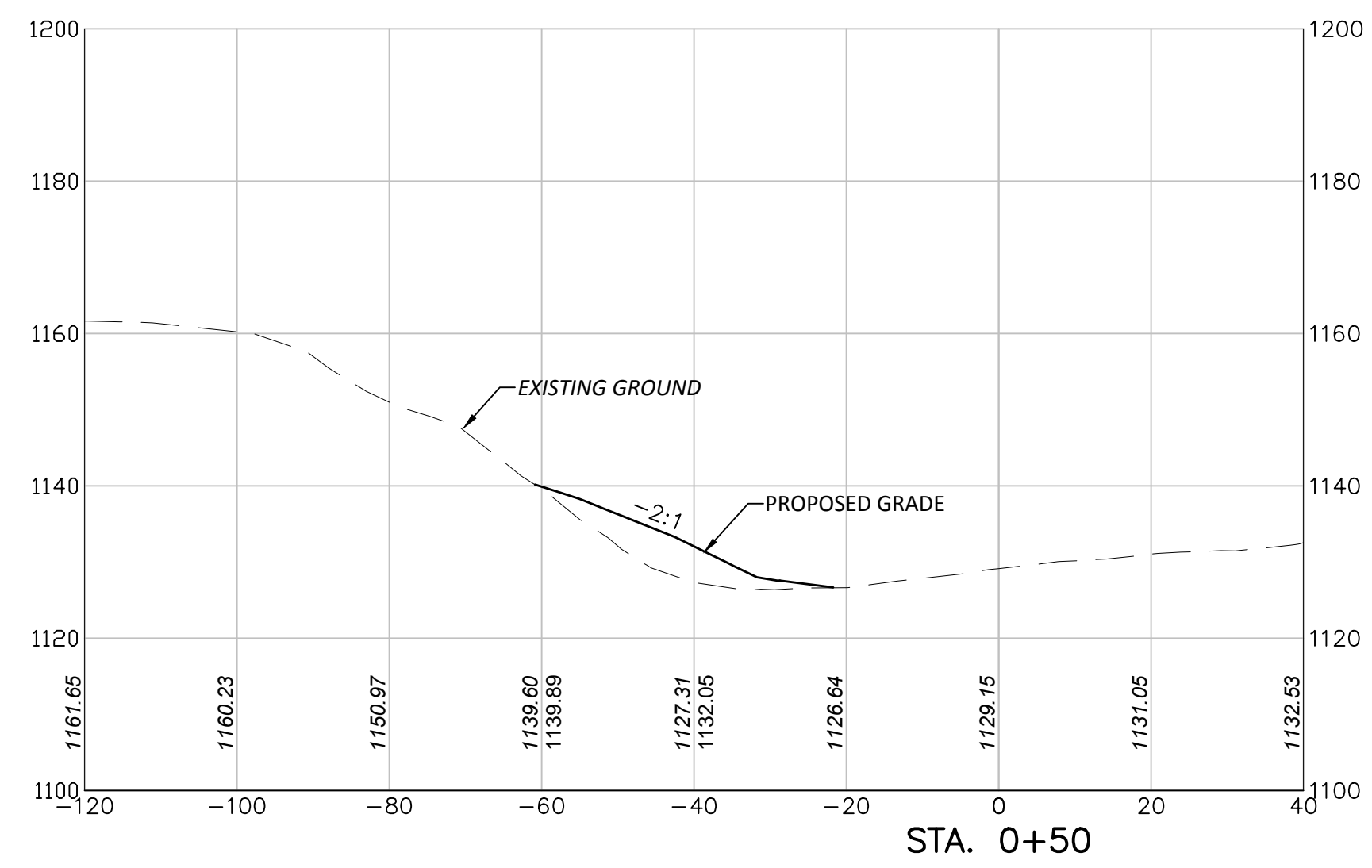
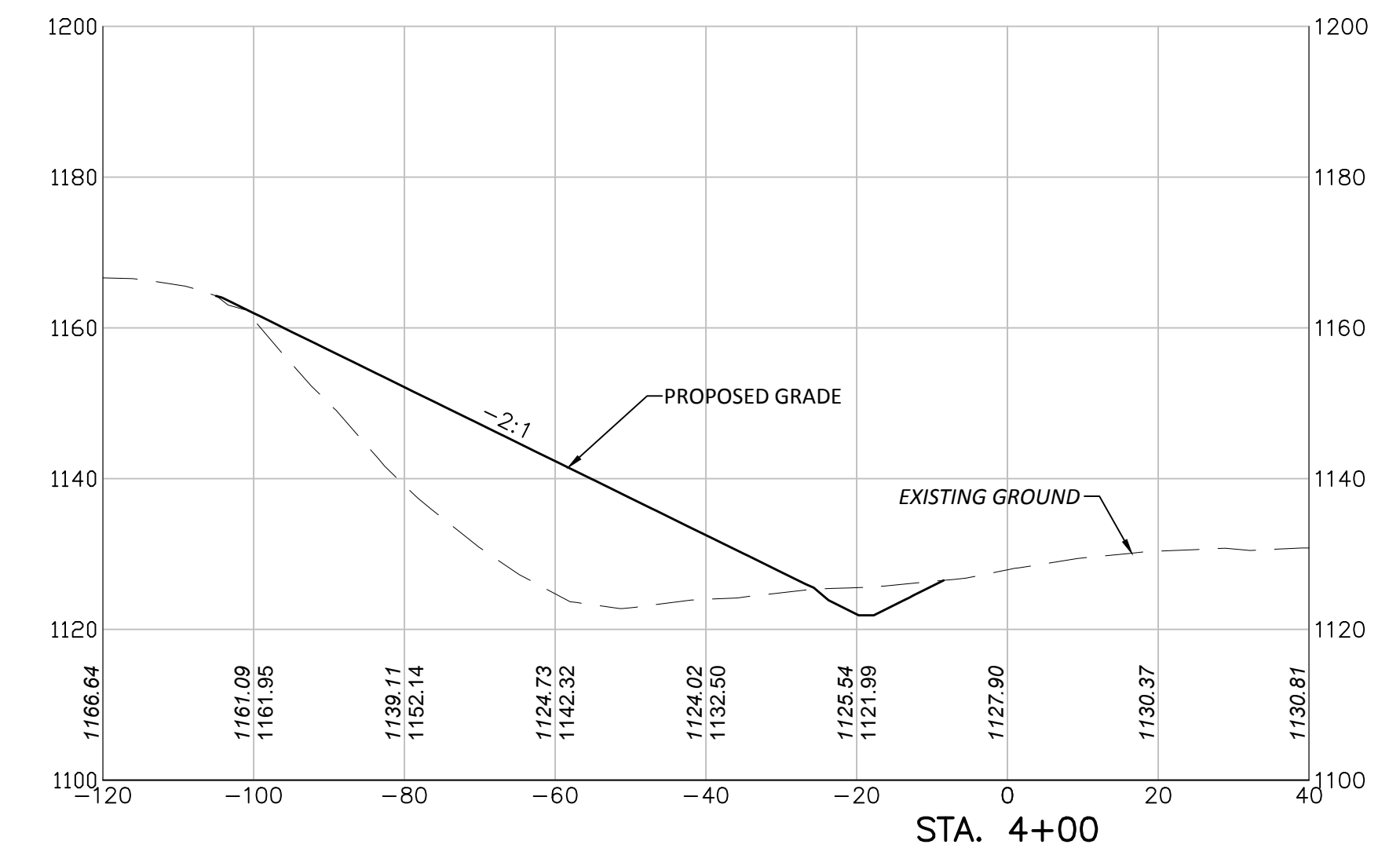
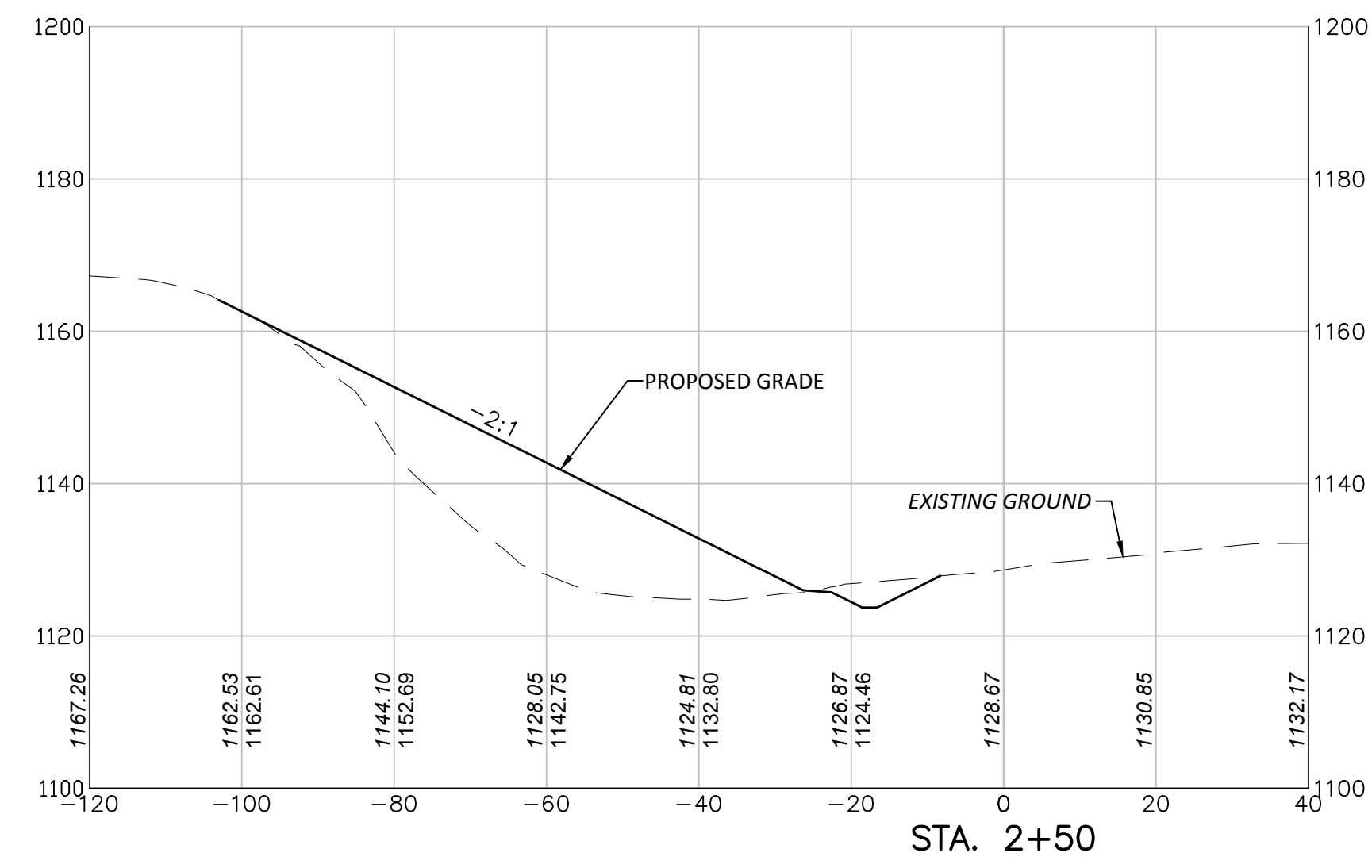
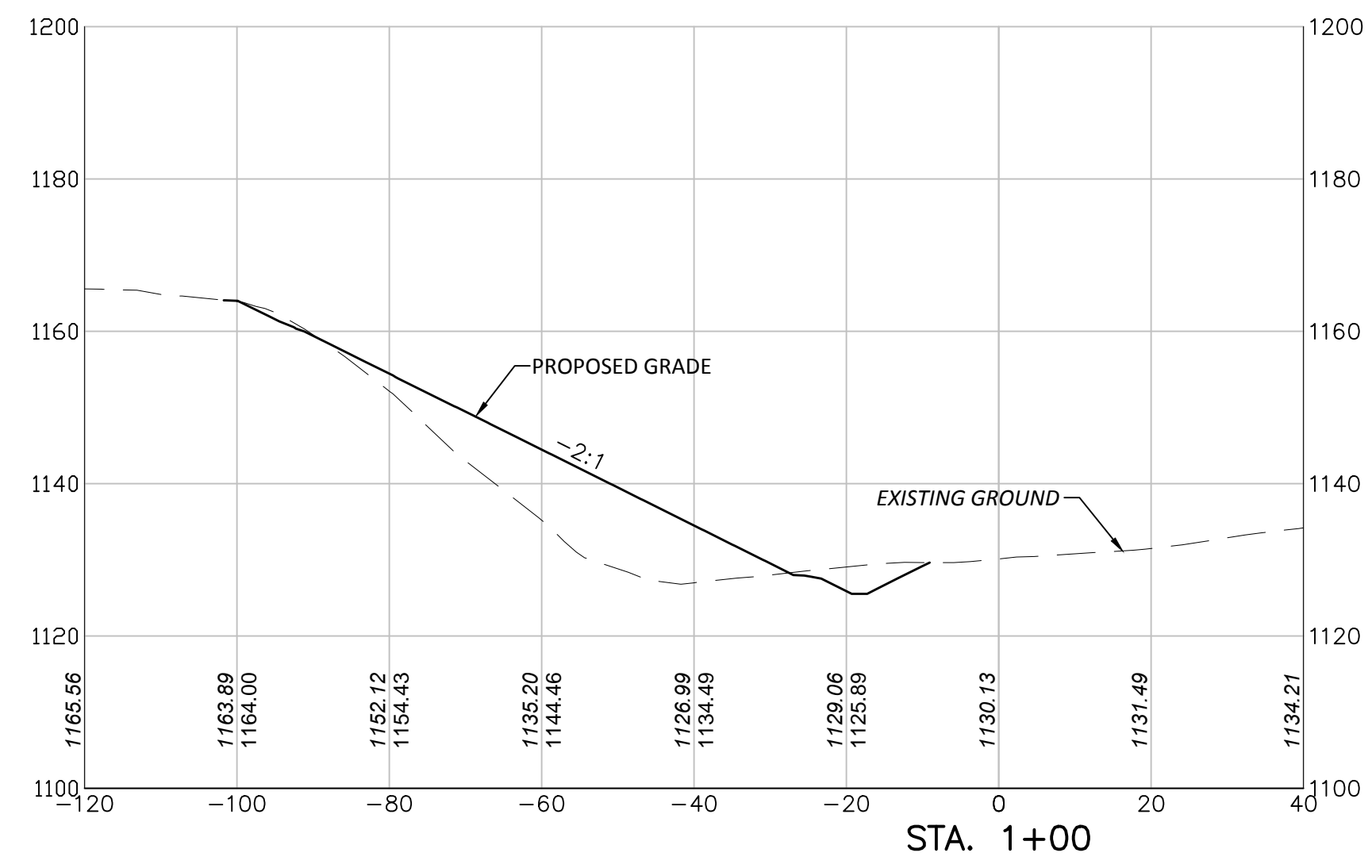
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DATE: JULY 2014

SHEET NO.

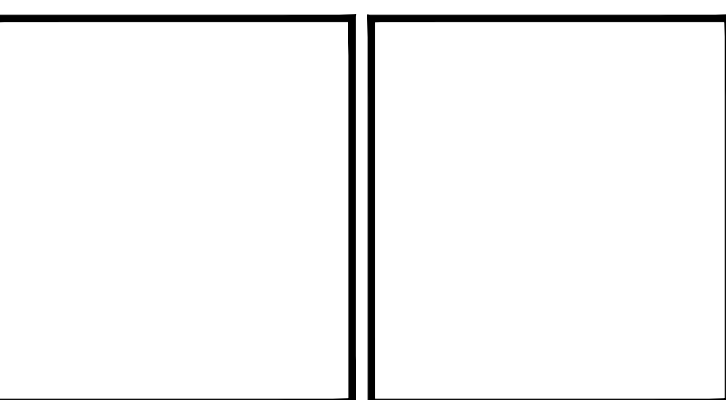
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REVISIONS	
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REVIEWED	WDN
S.O.	135555



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(724) 495-7711

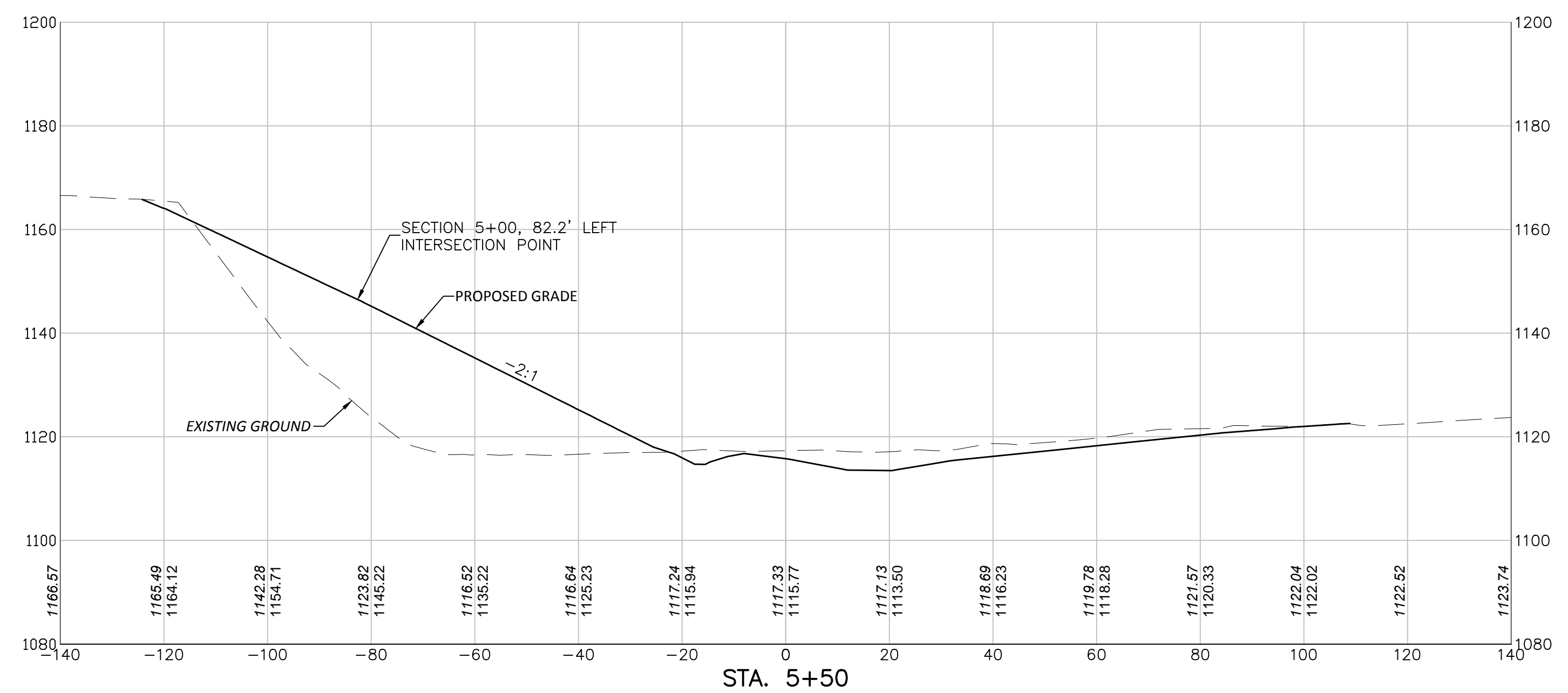
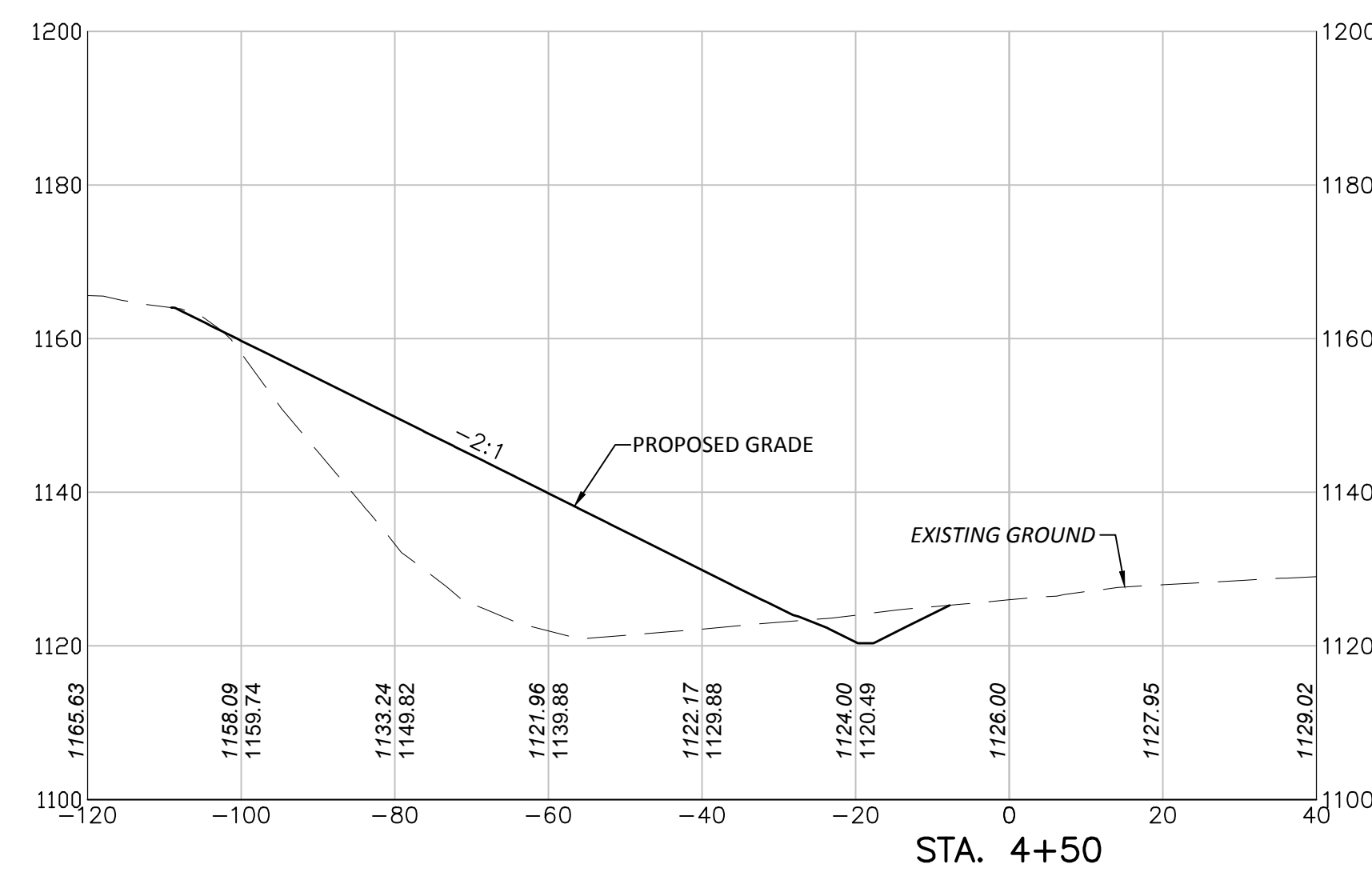
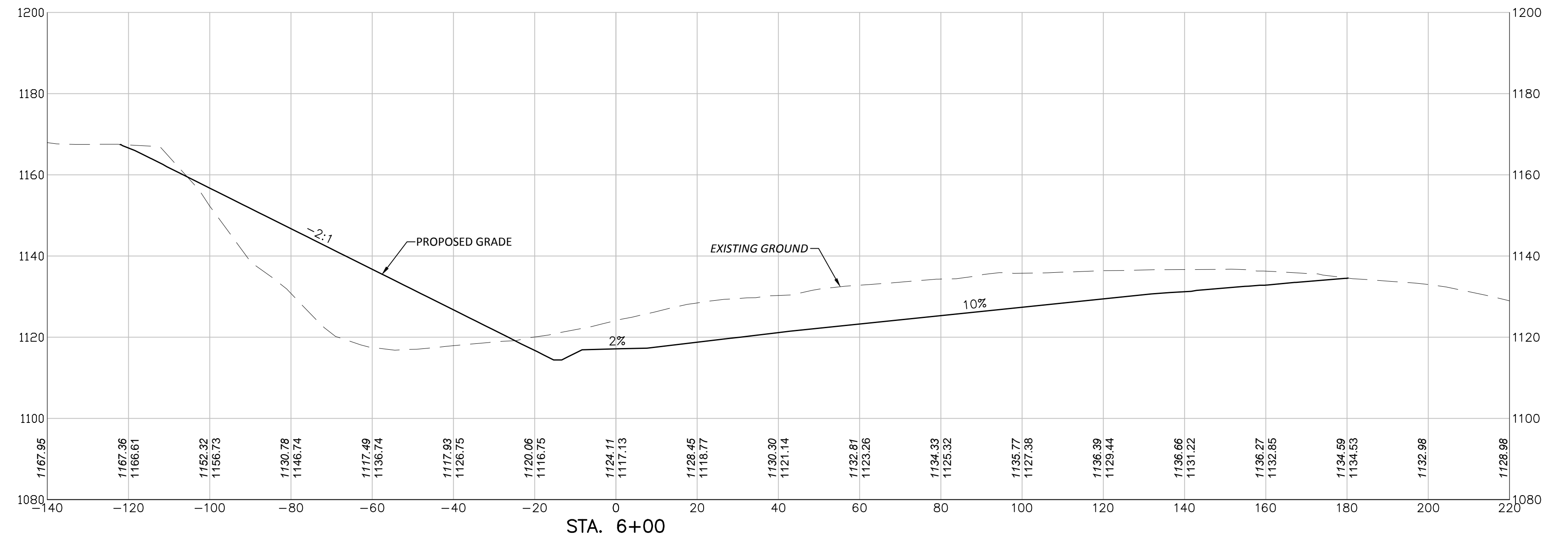
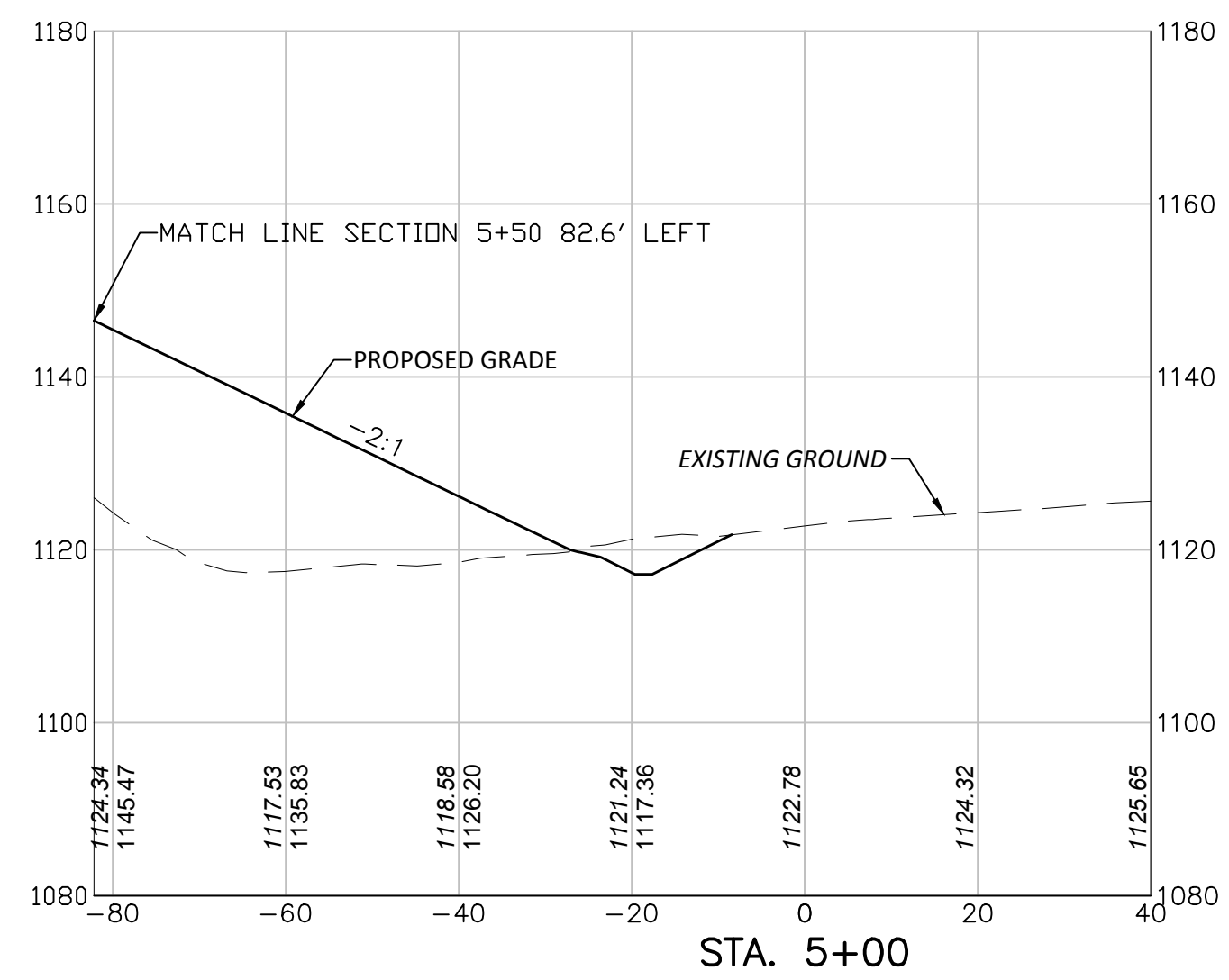
4301 DUTCH RIDGE ROAD
BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
CROSS SECTIONS

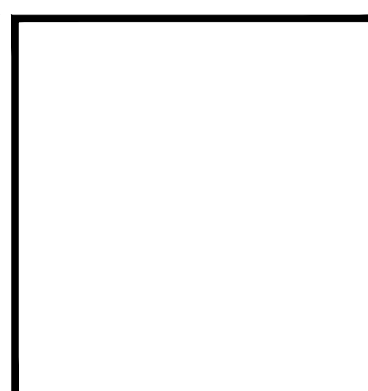
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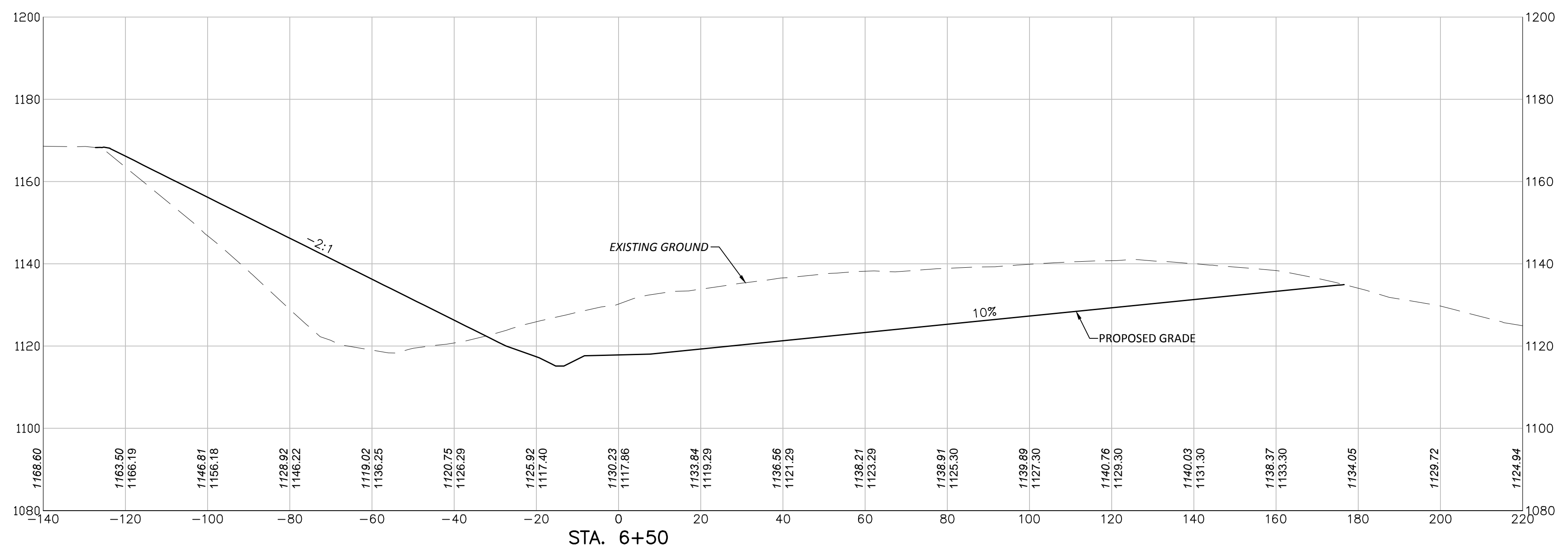
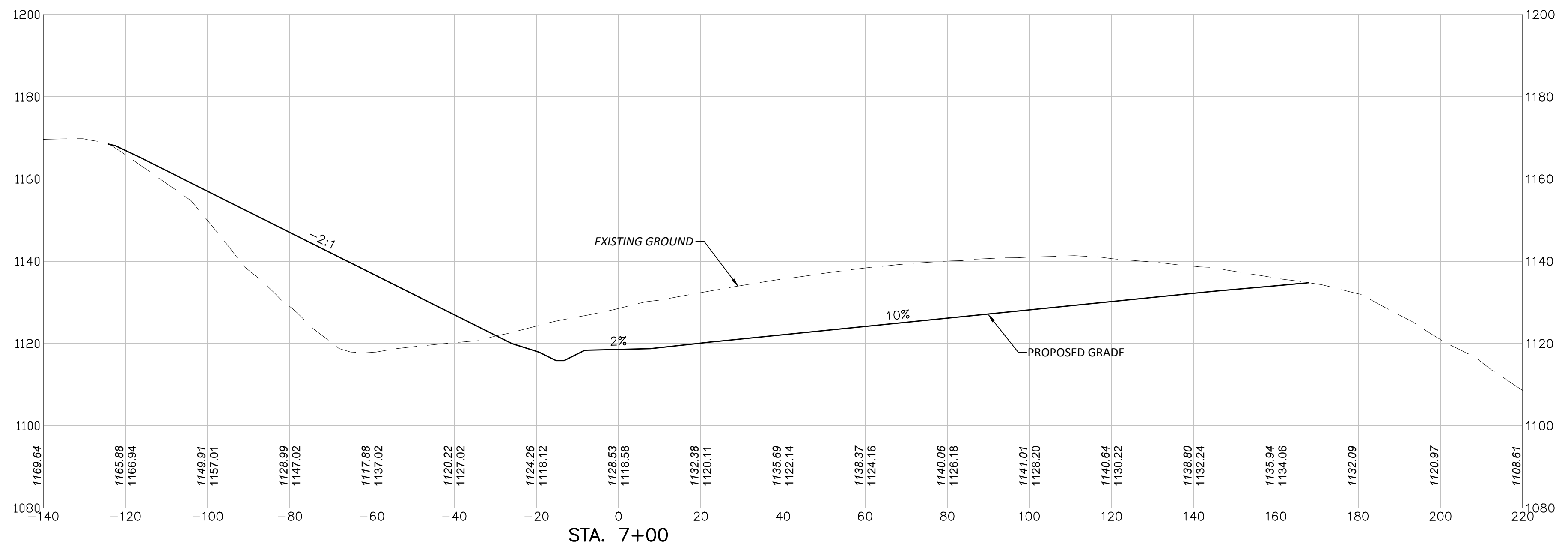


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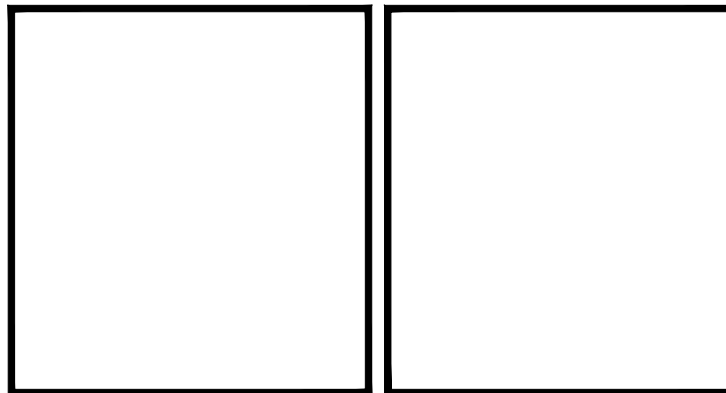
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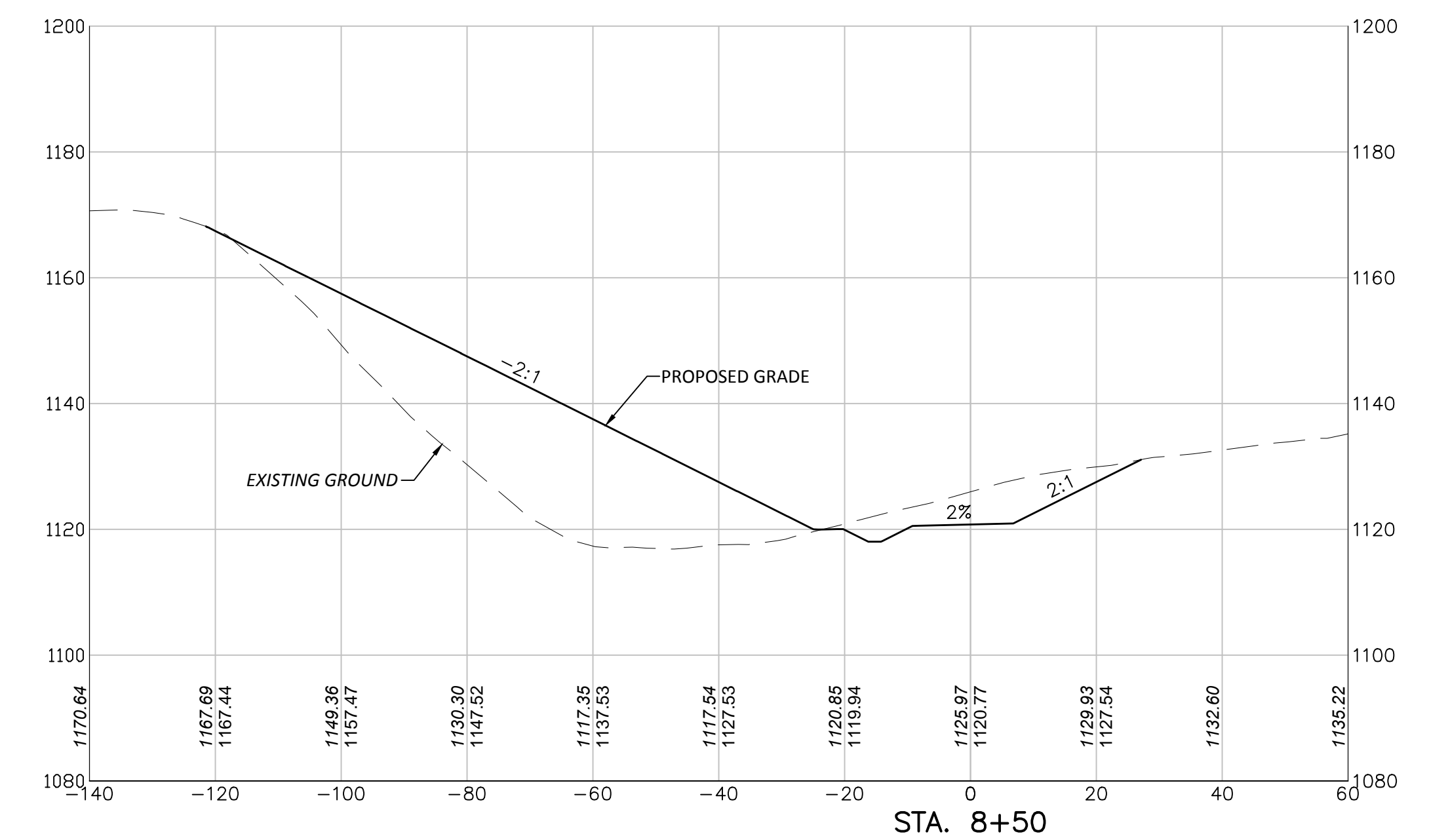
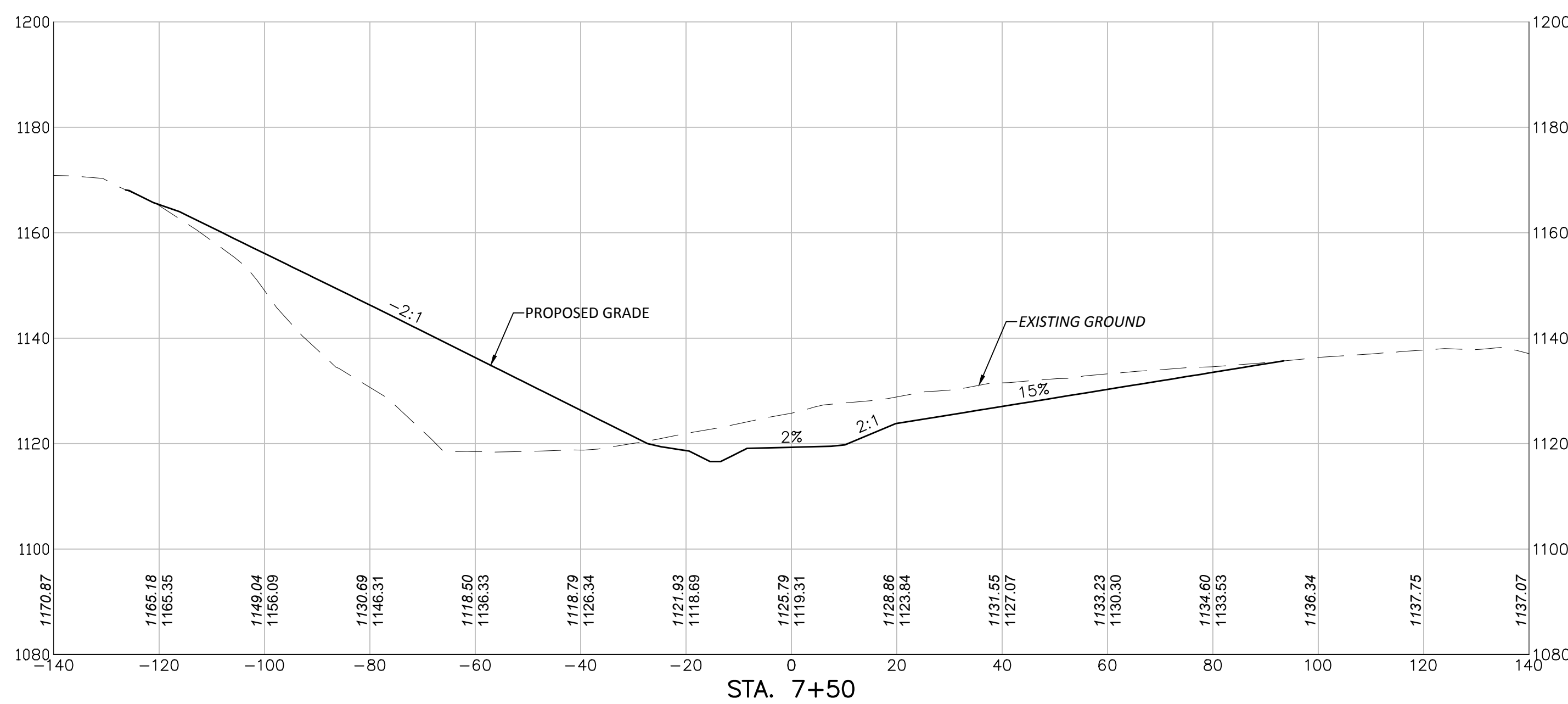
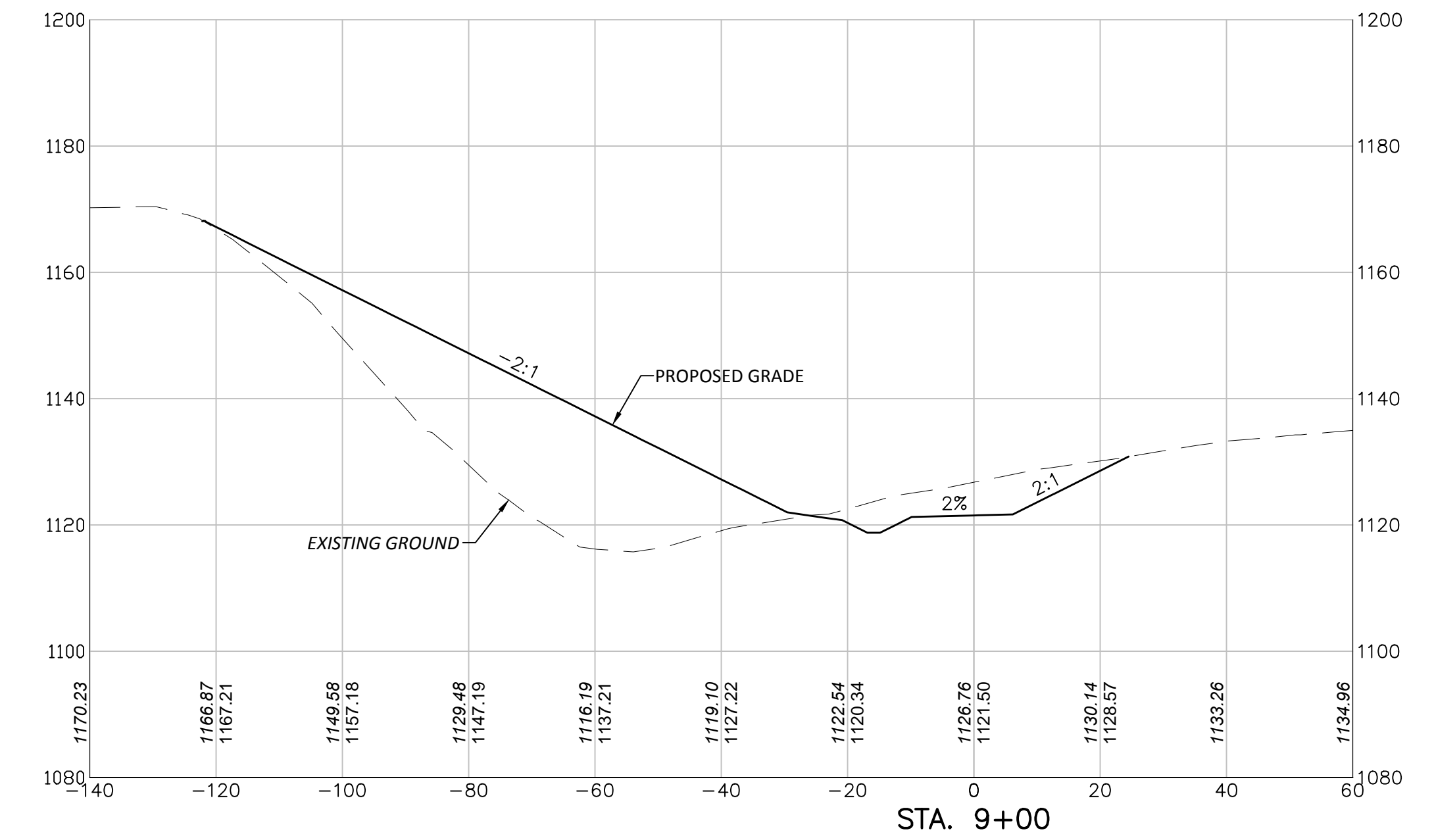
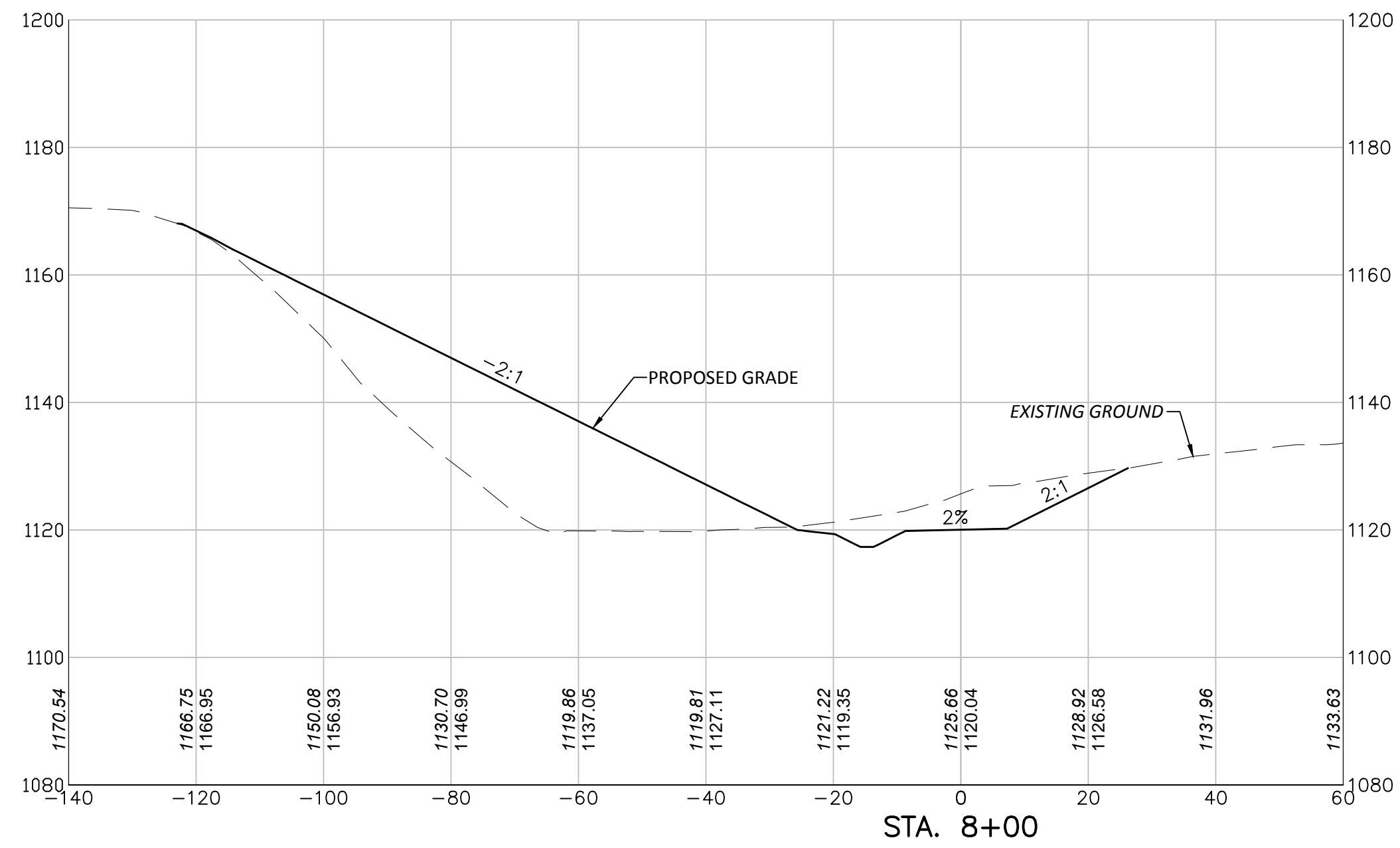


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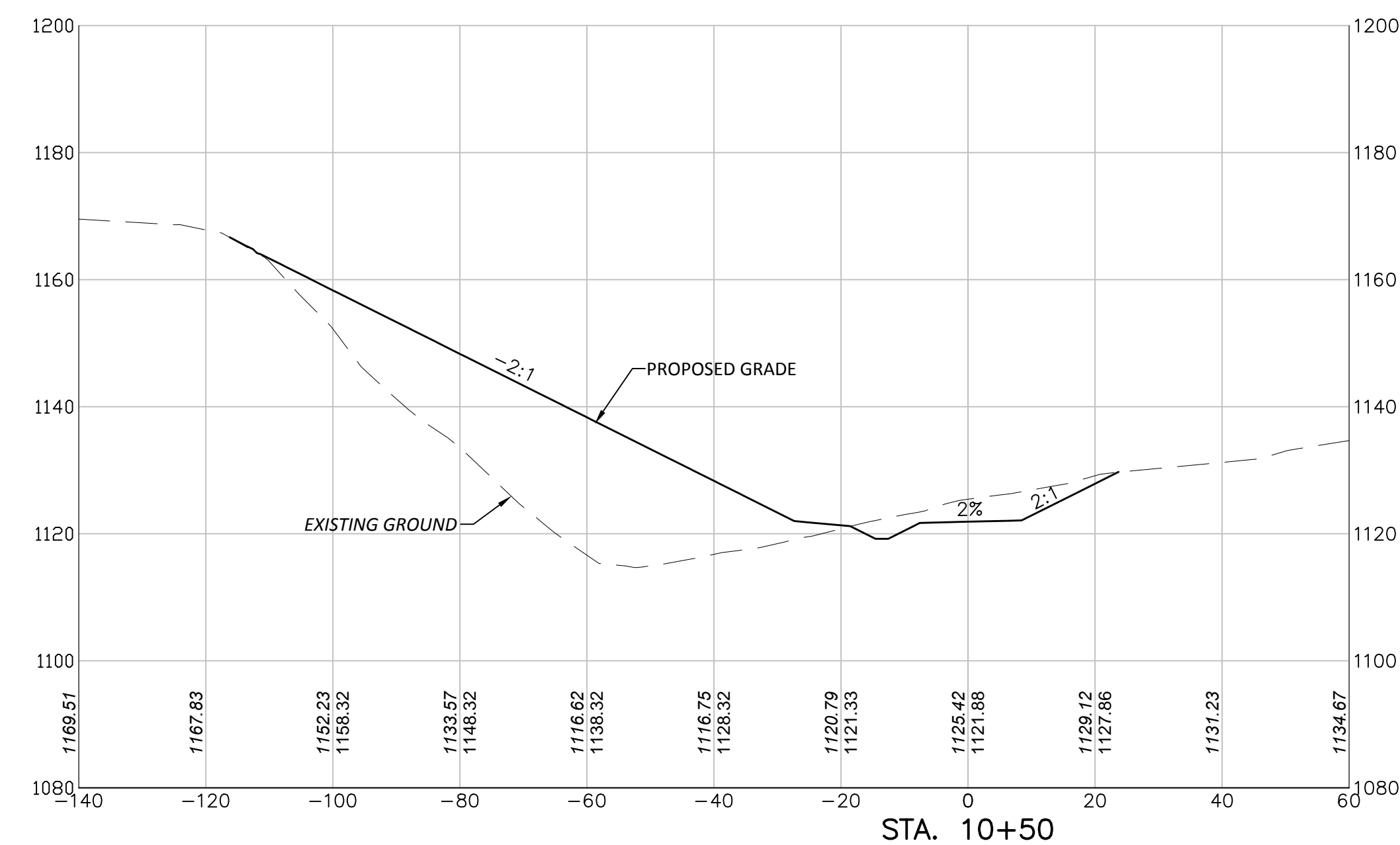
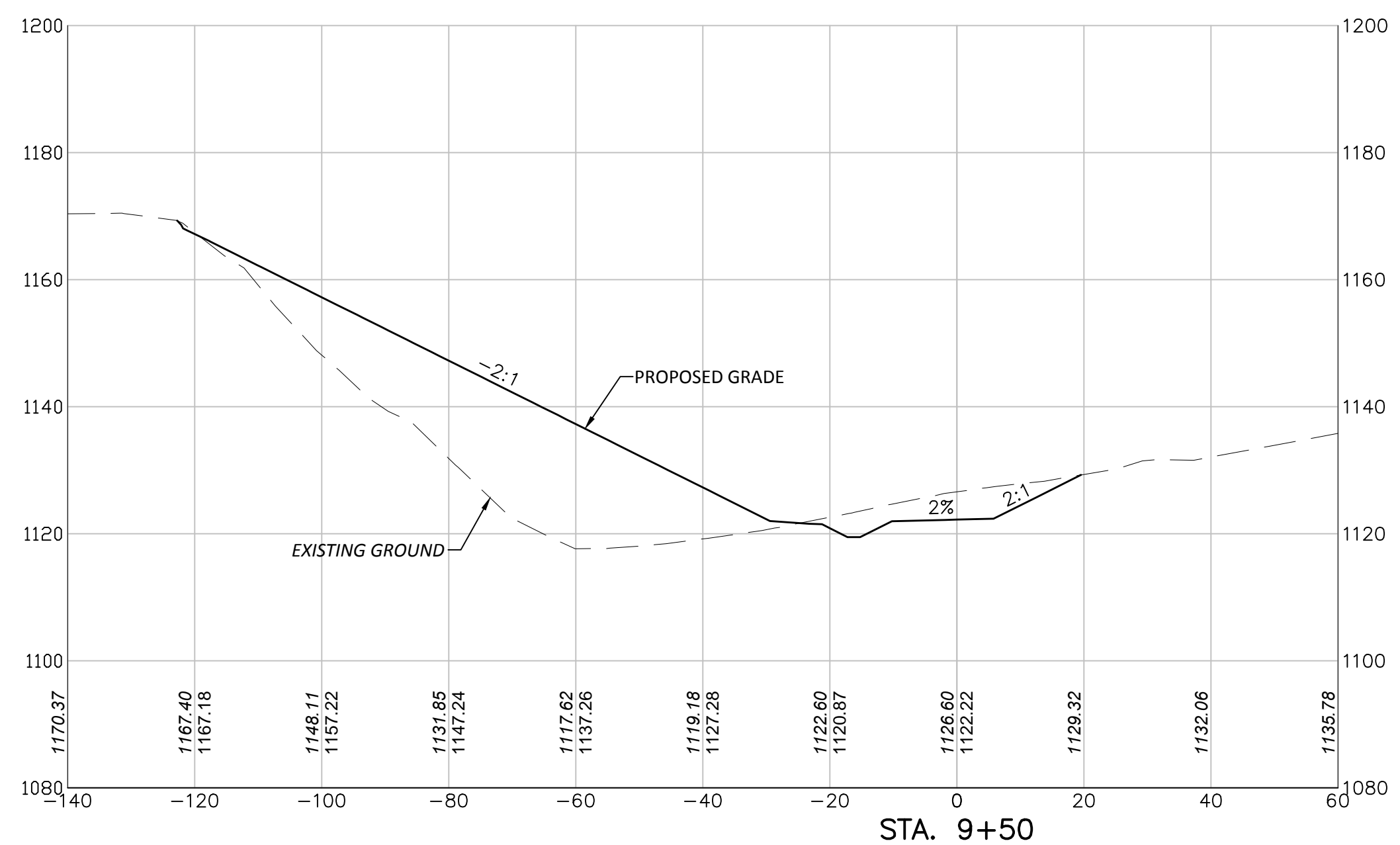
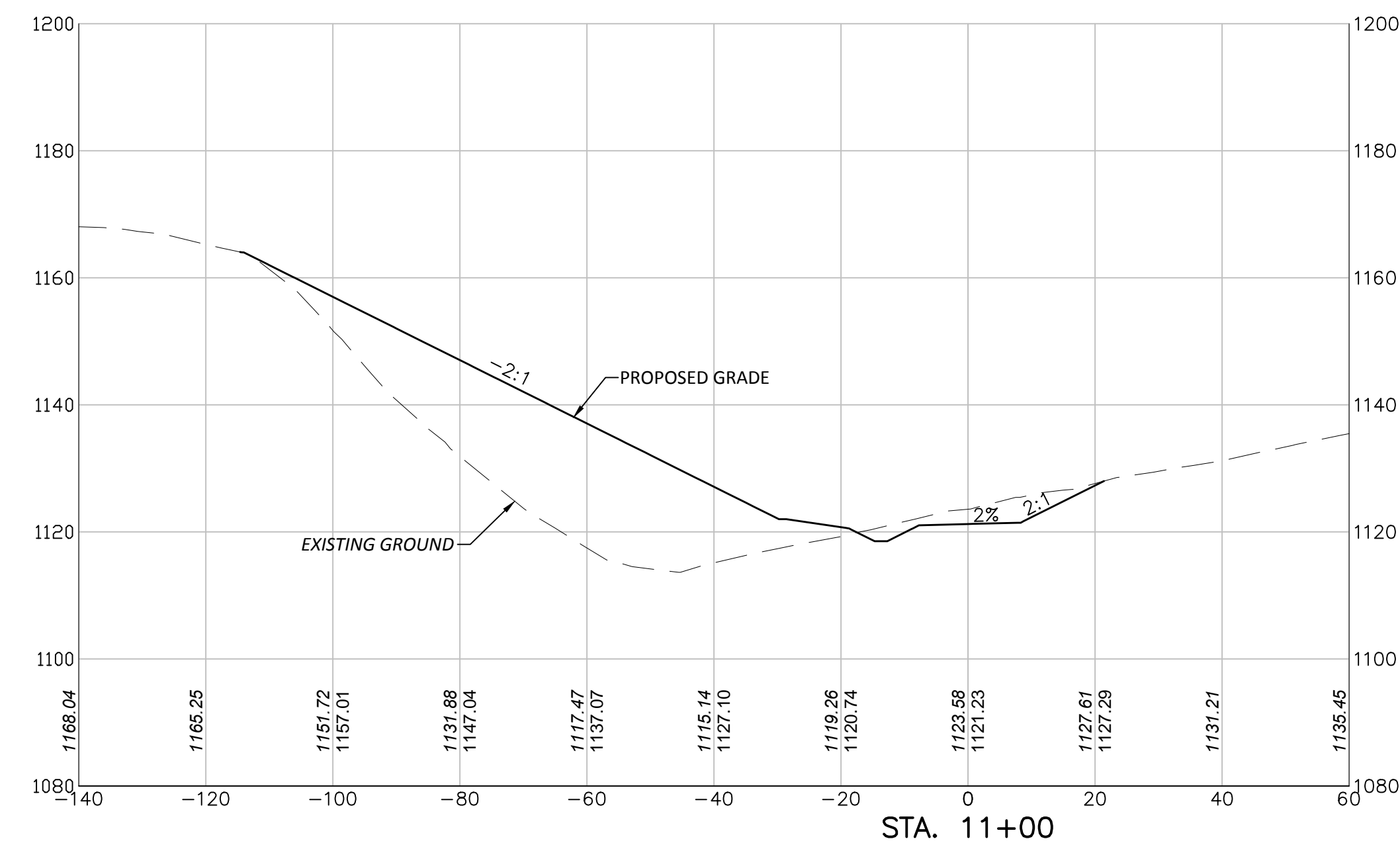
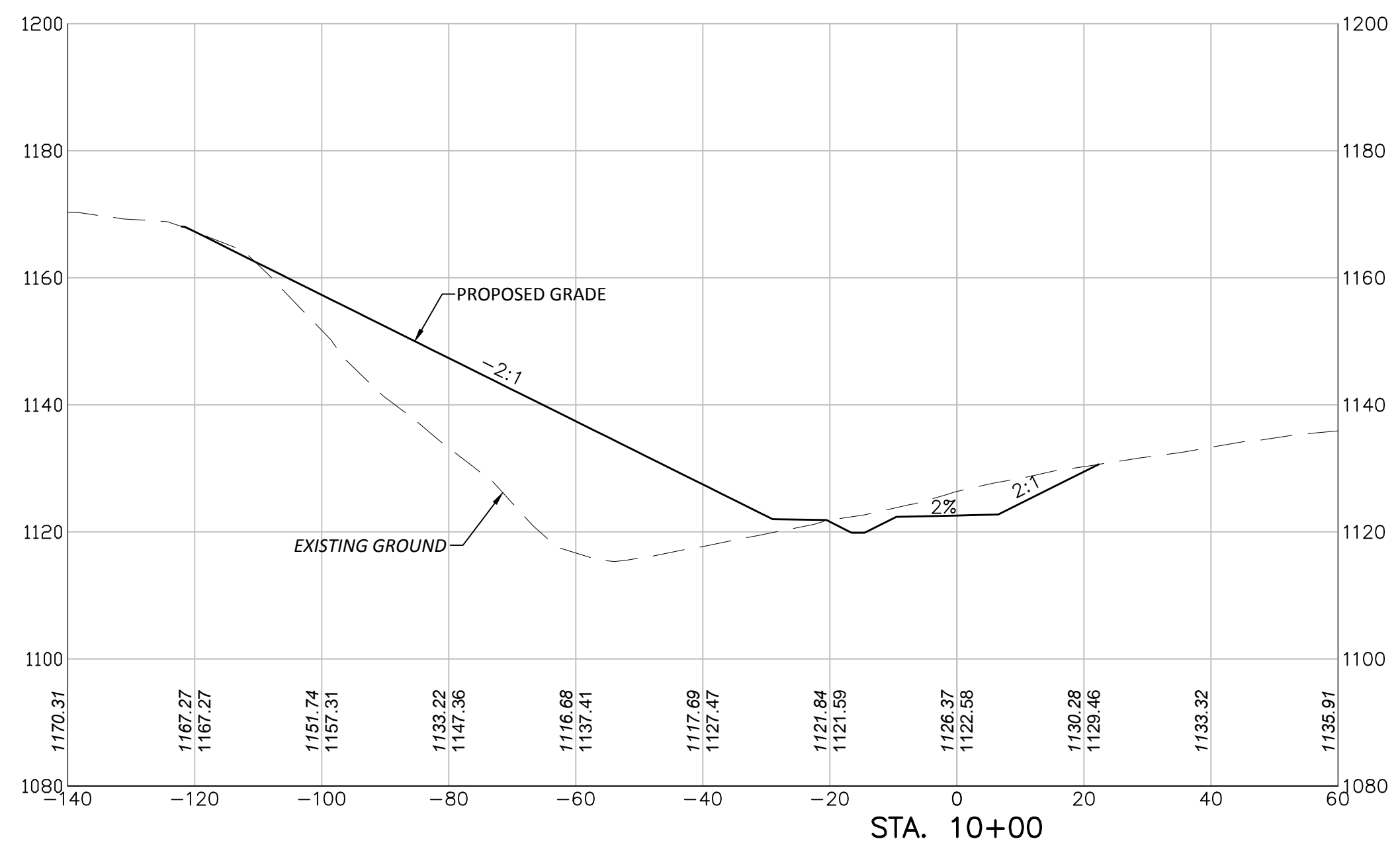
4301 DUTCH RIDGE ROAD
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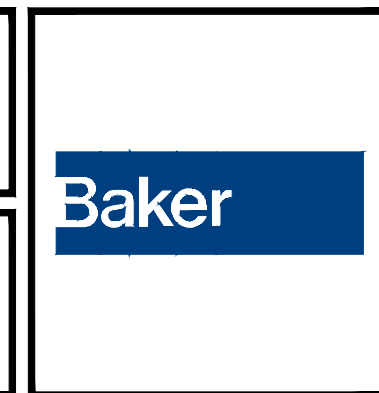
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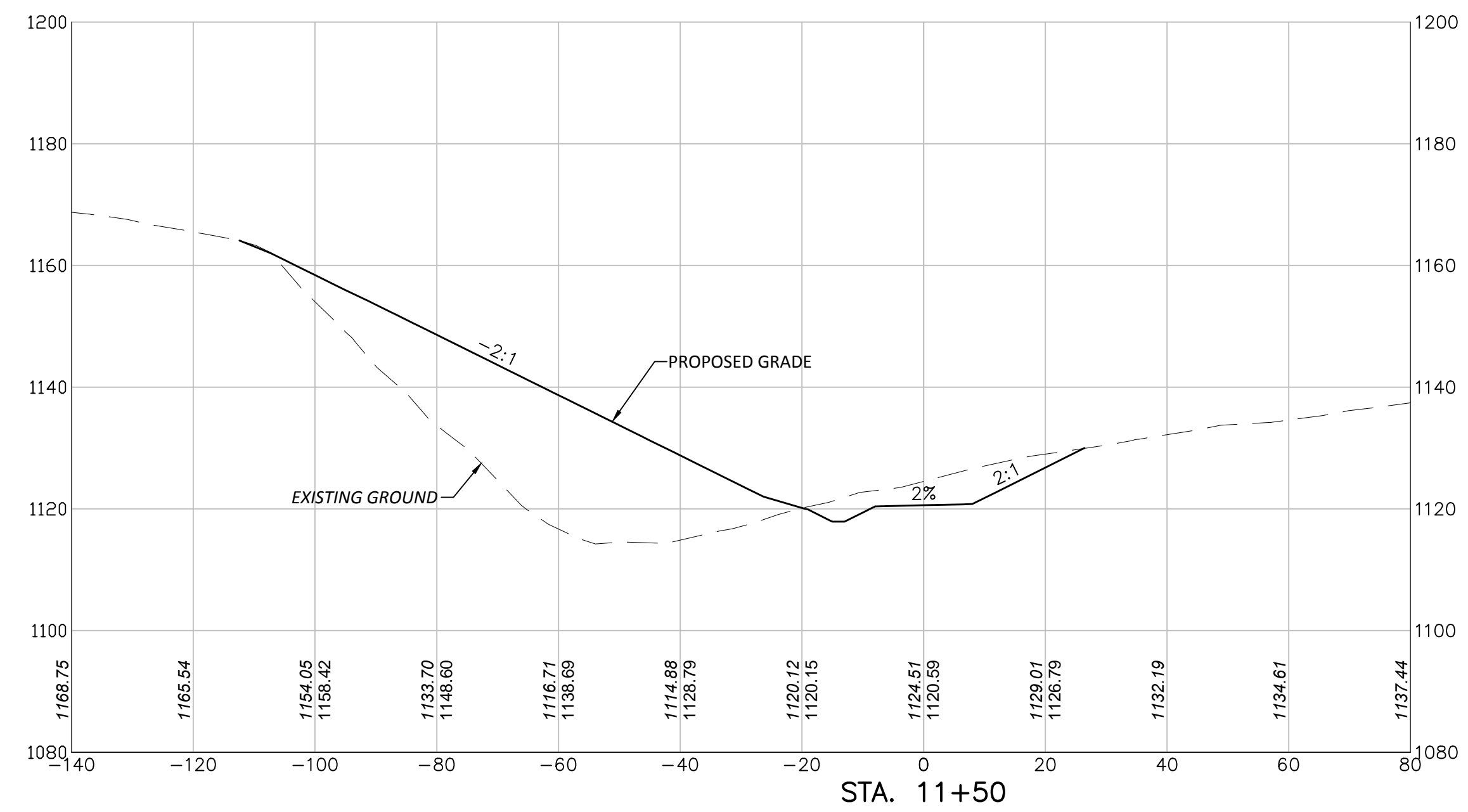
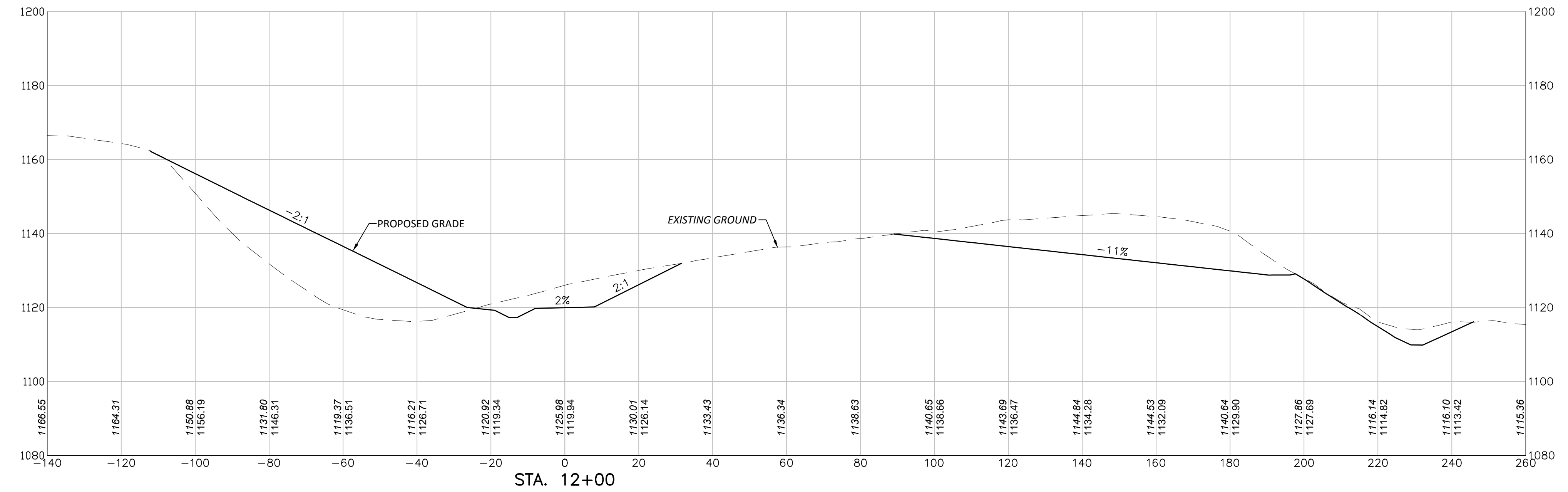
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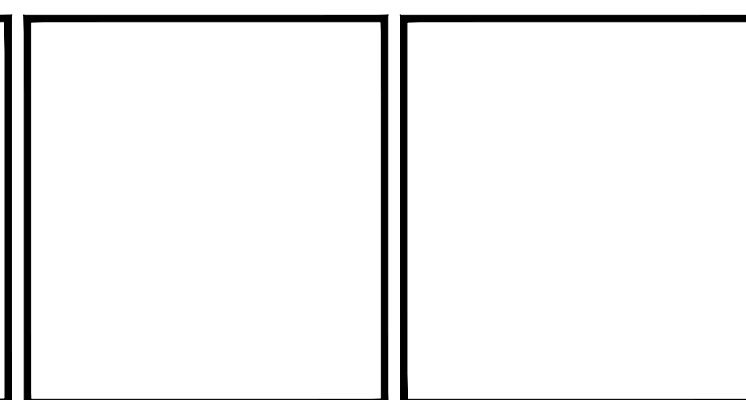
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 12
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REVISIONS	
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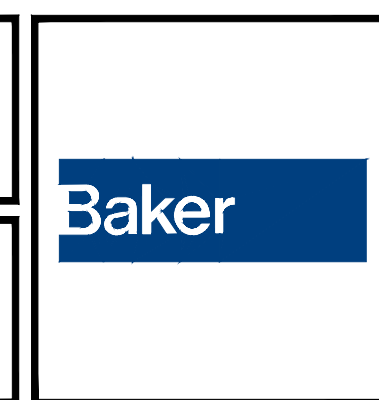


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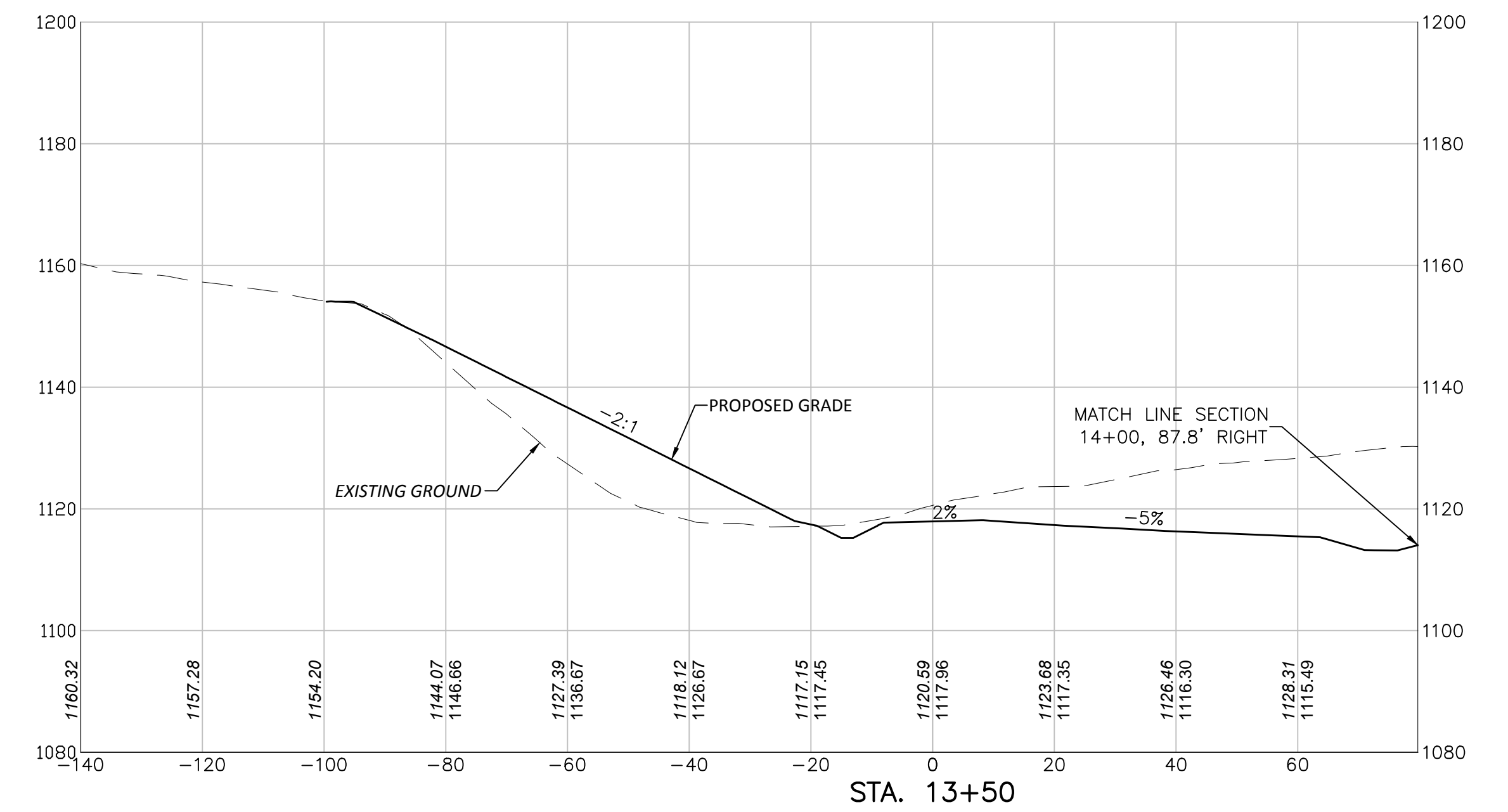
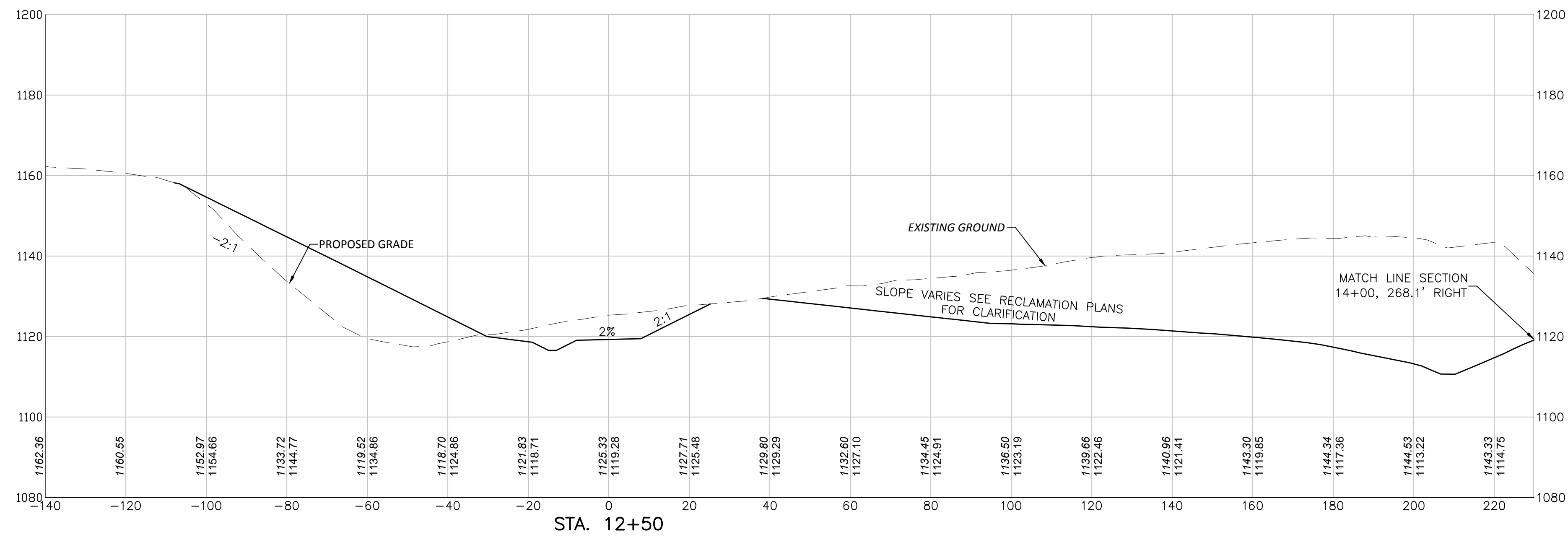
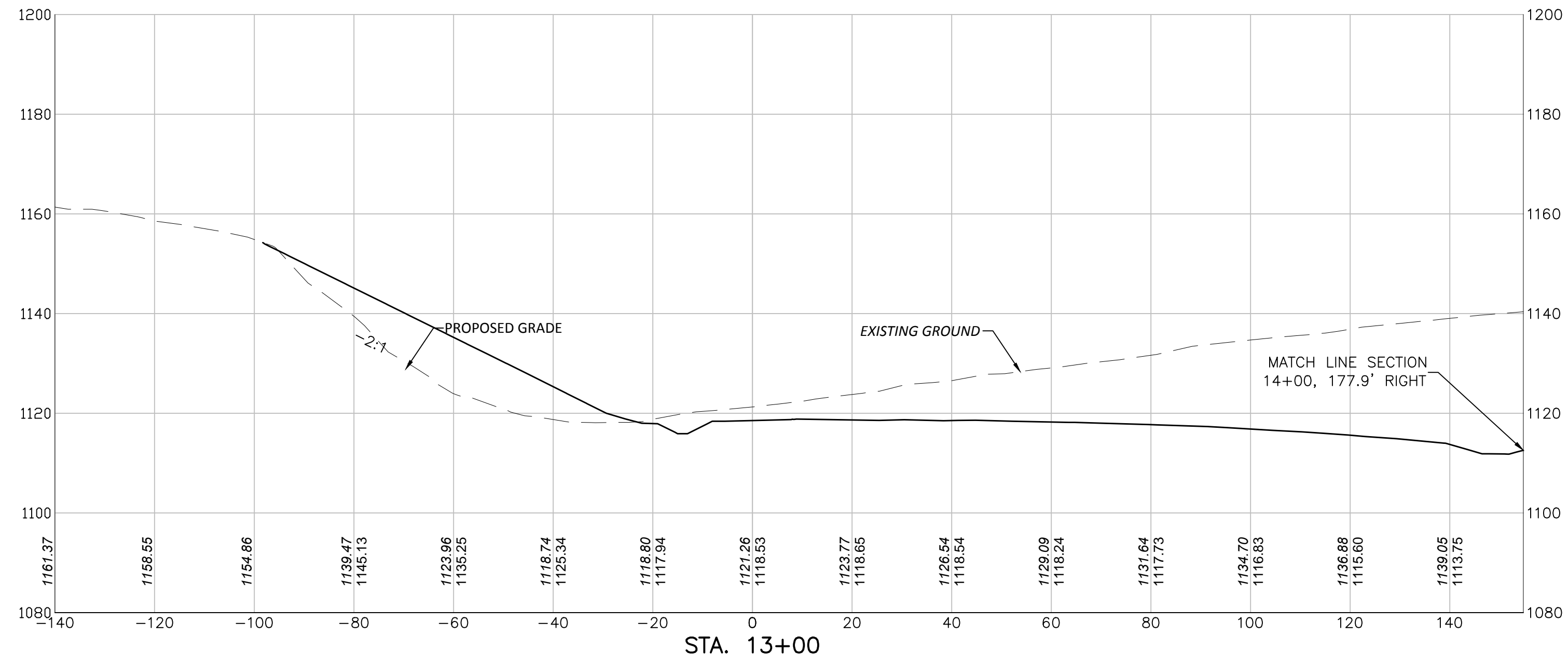


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CROSS SECTIONS

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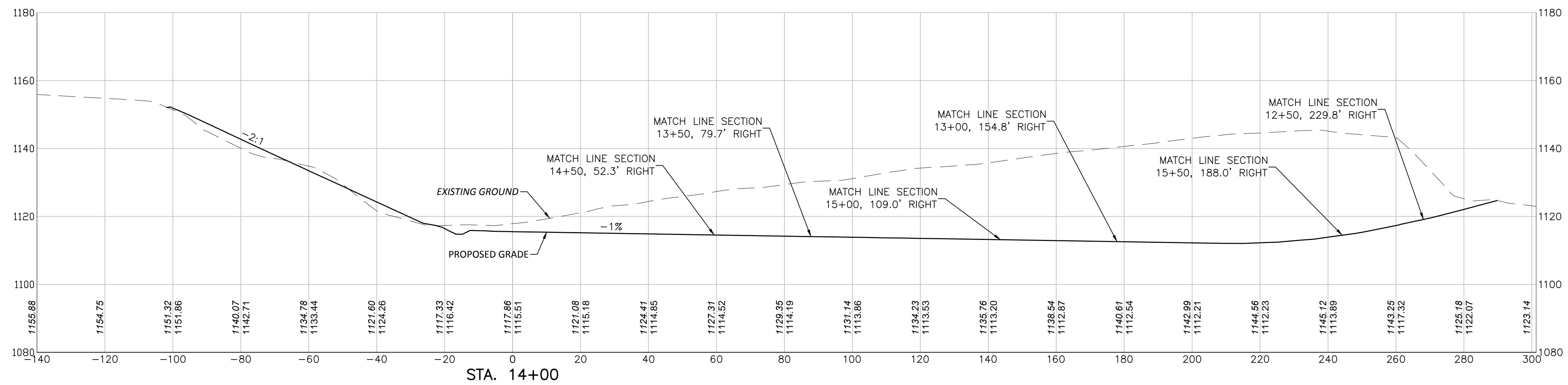
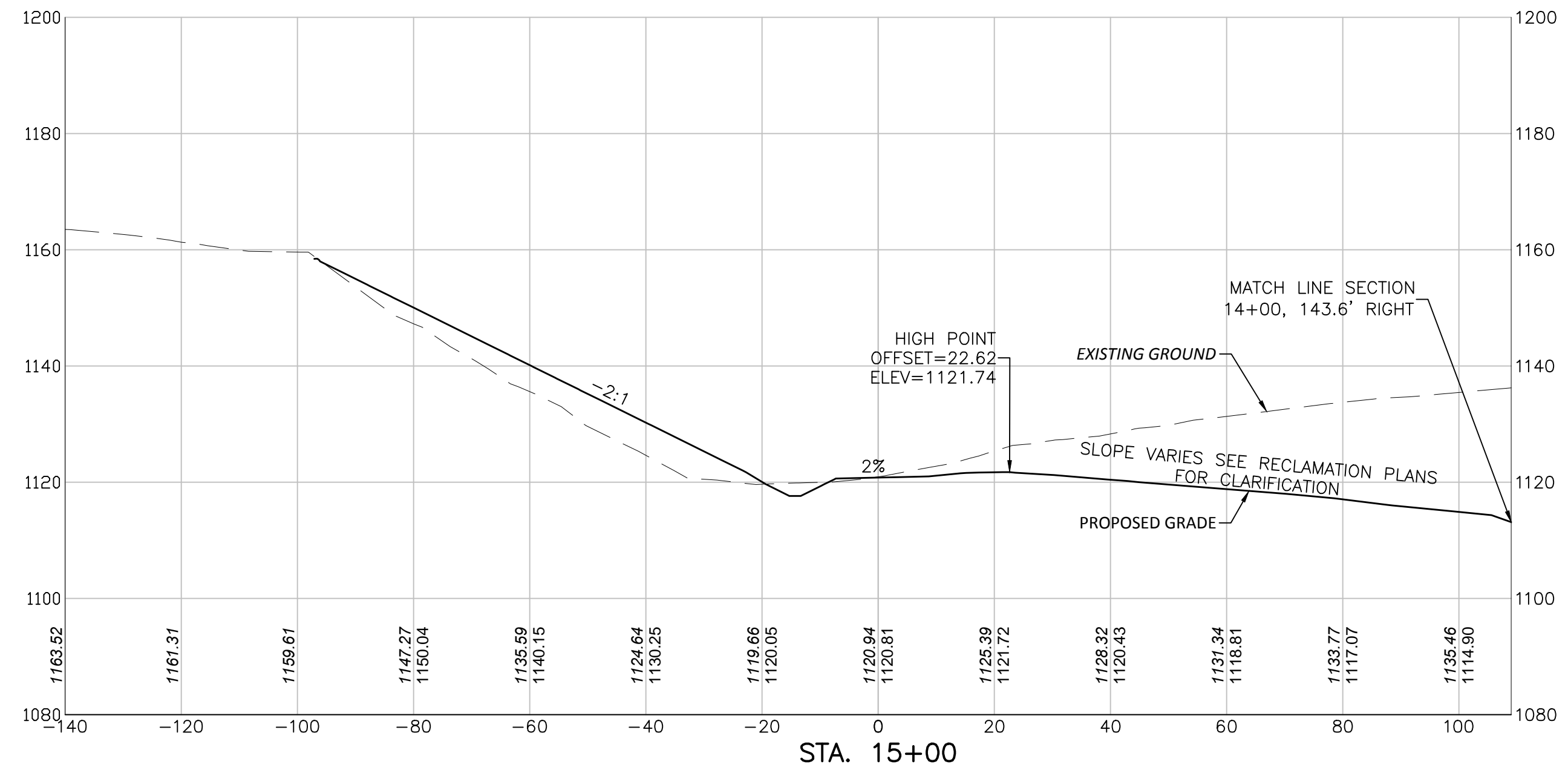
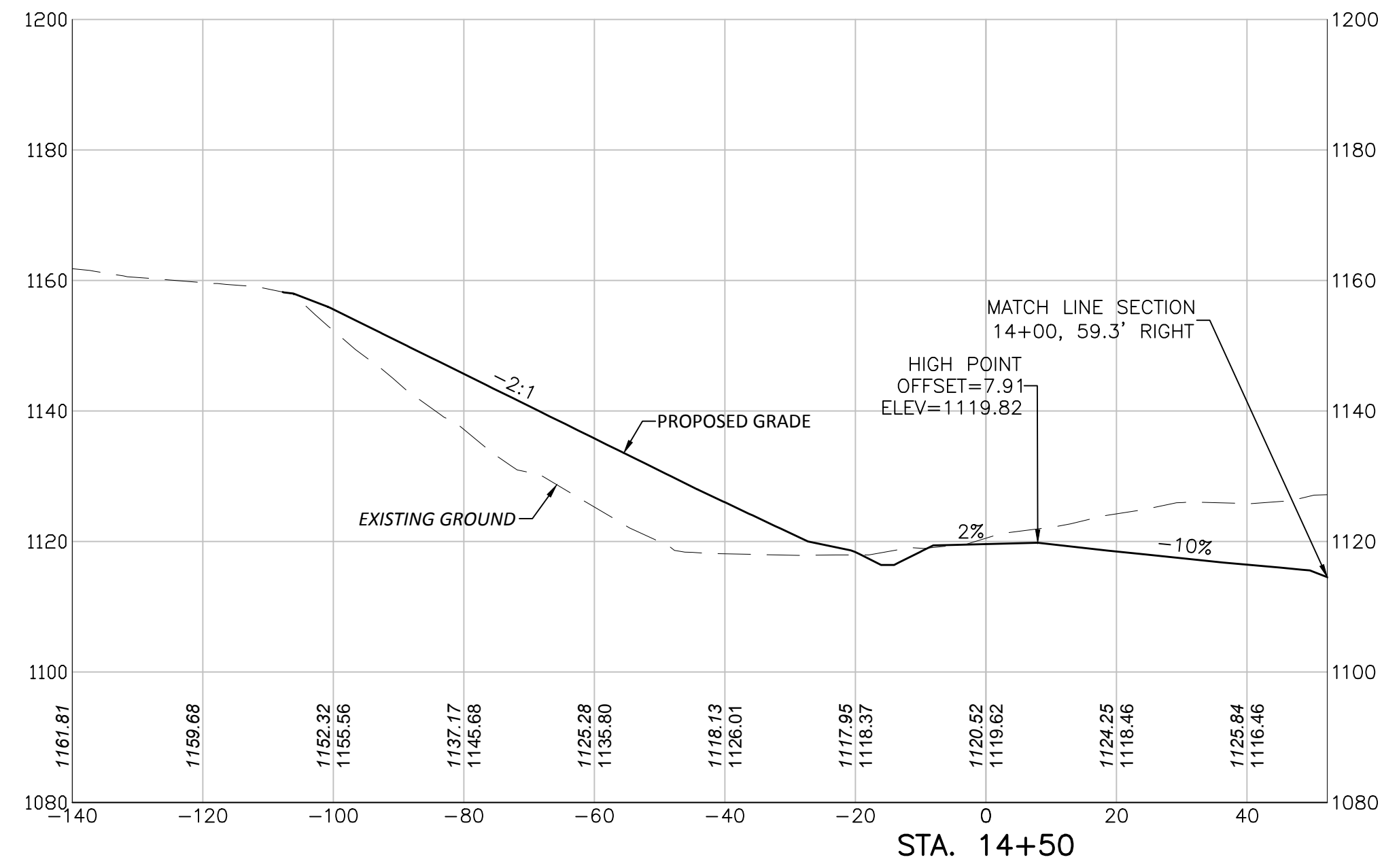
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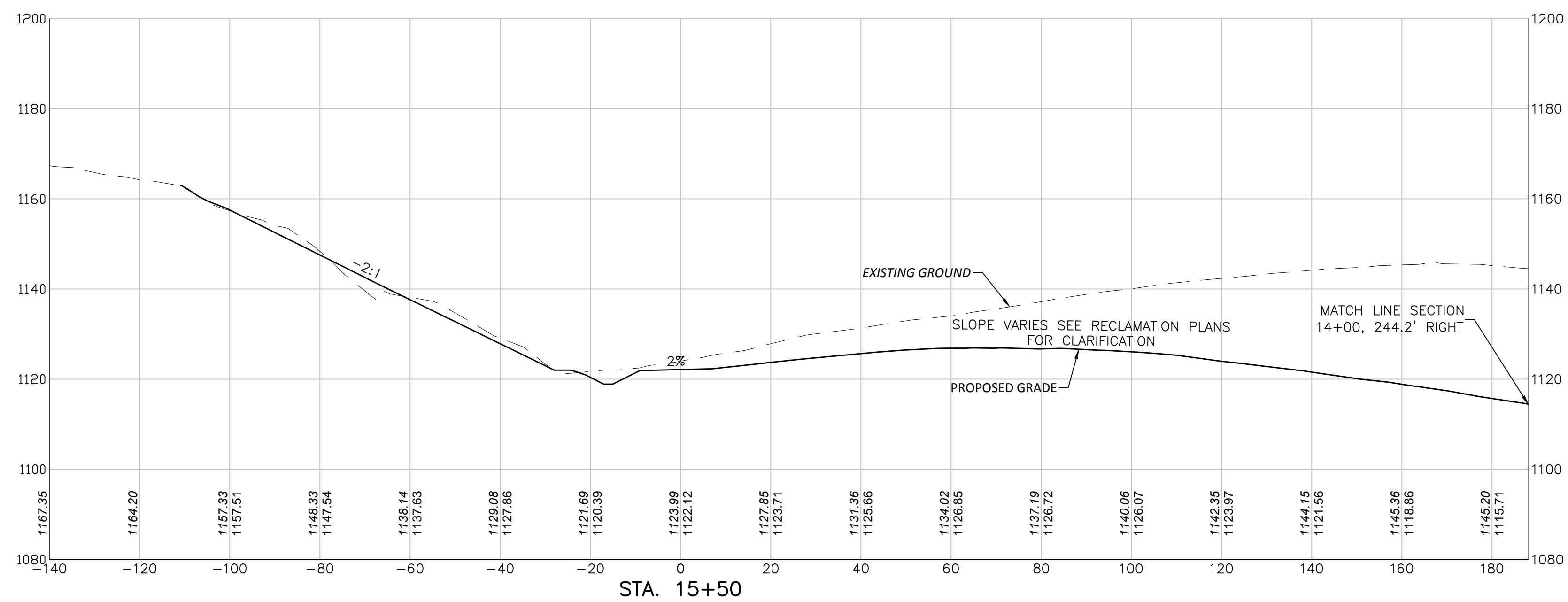
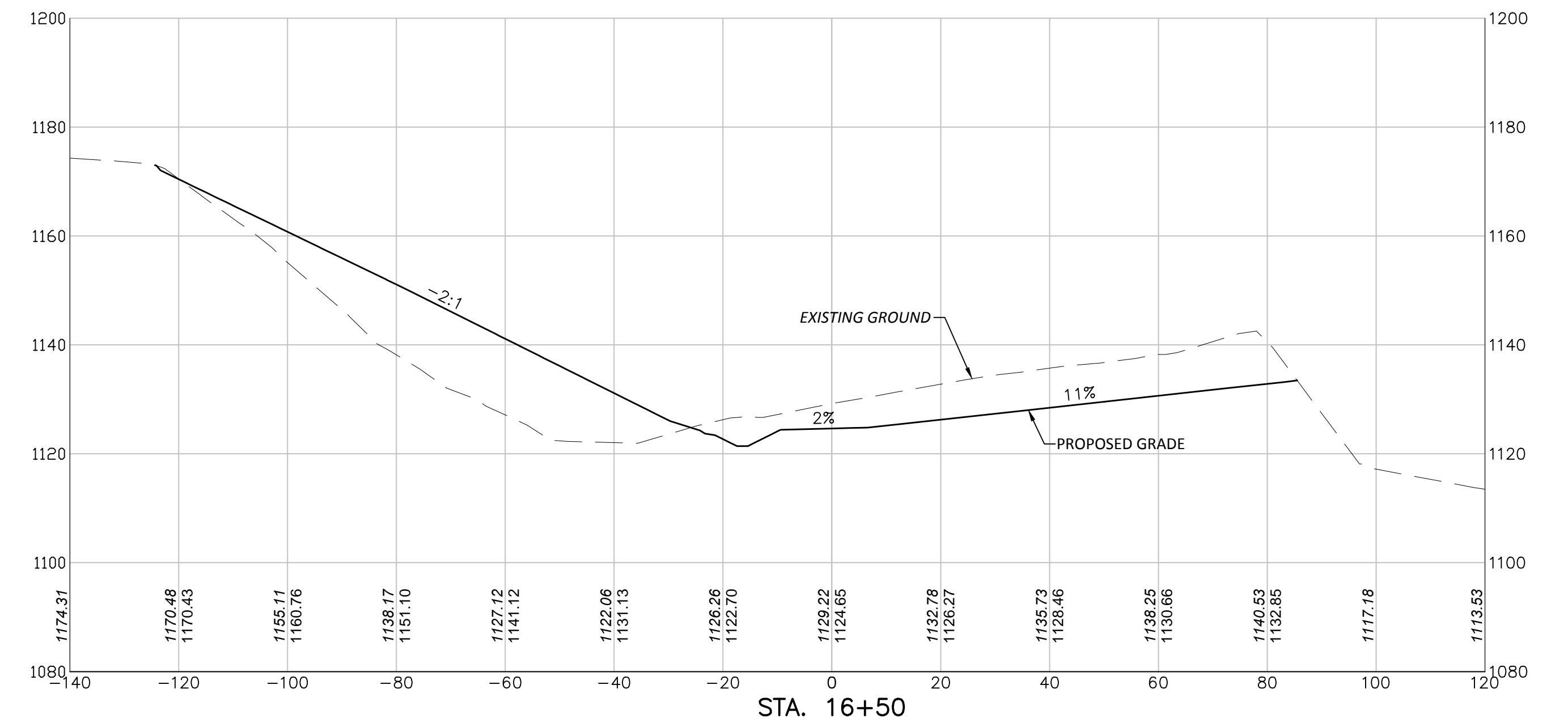
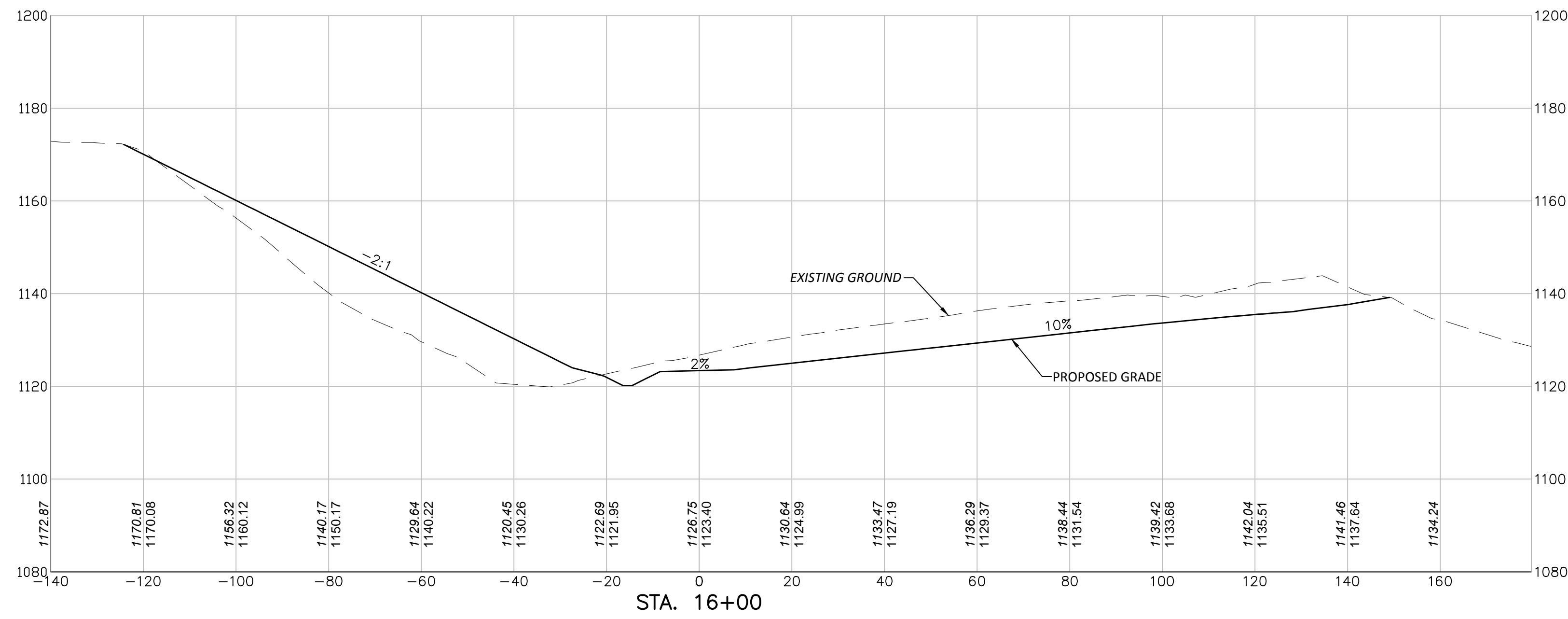
CONSULTING ENGINEERS (724) 495-7711 4301 DUTCH RIDGE ROAD
BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
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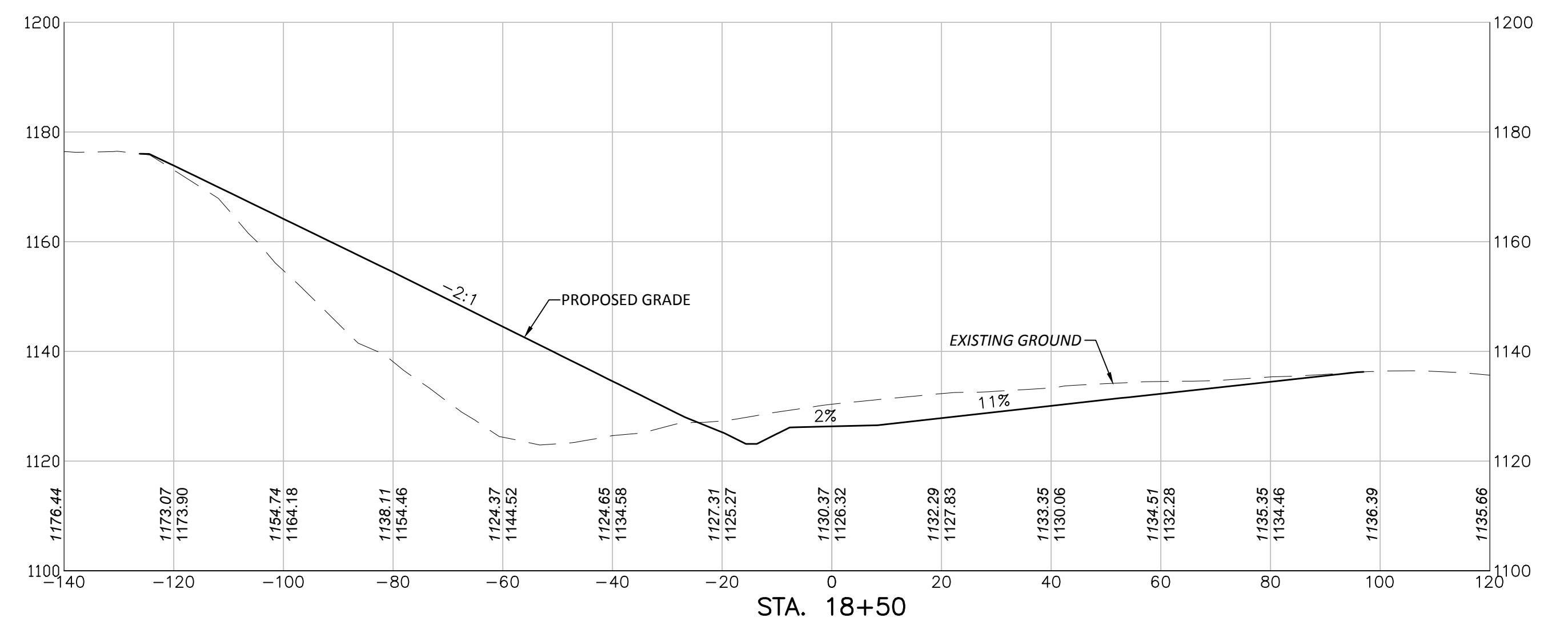
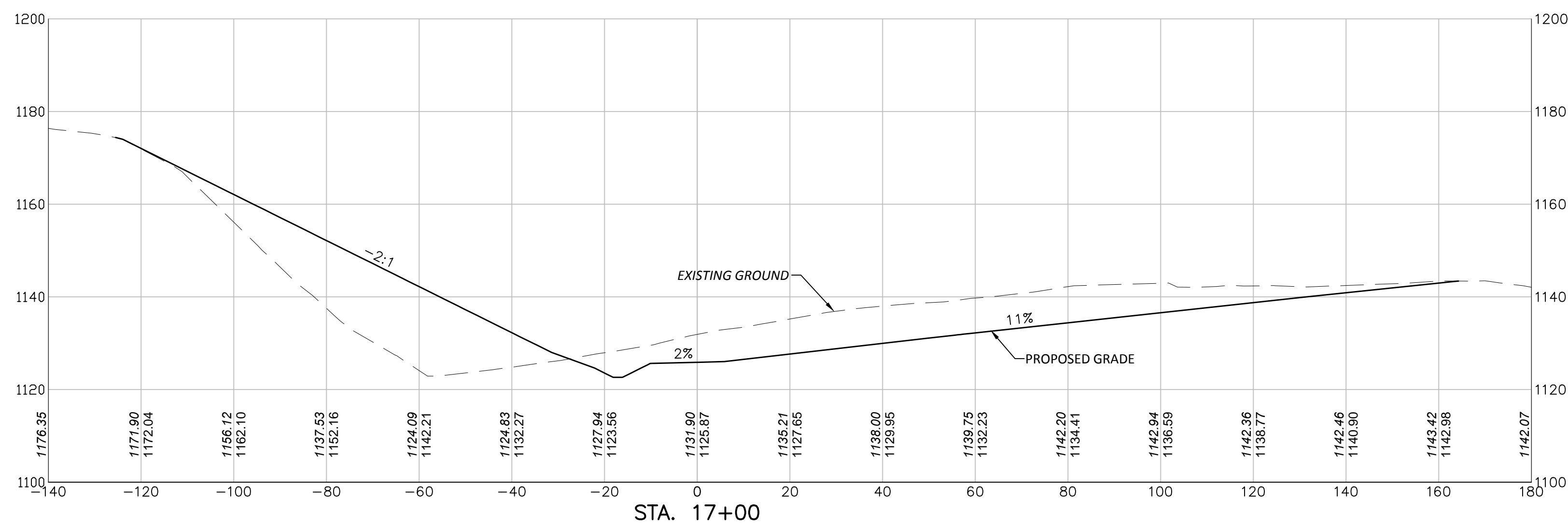
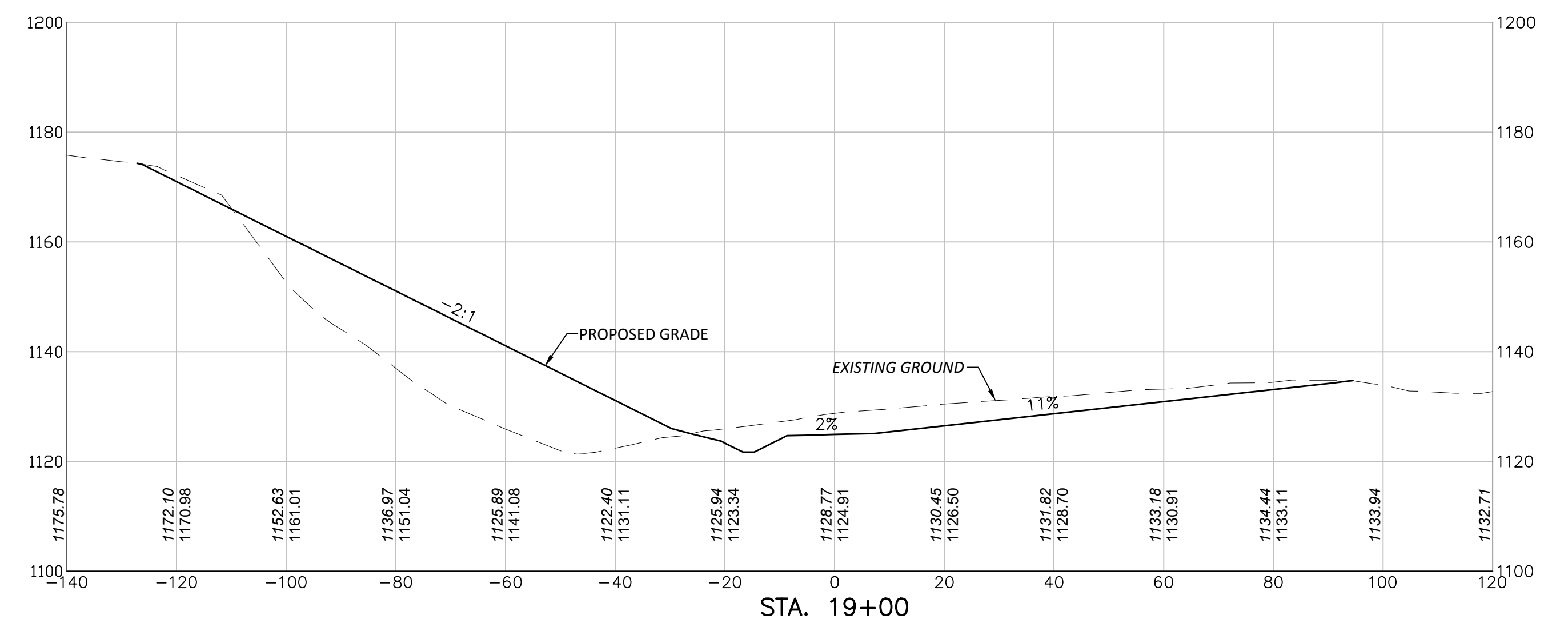
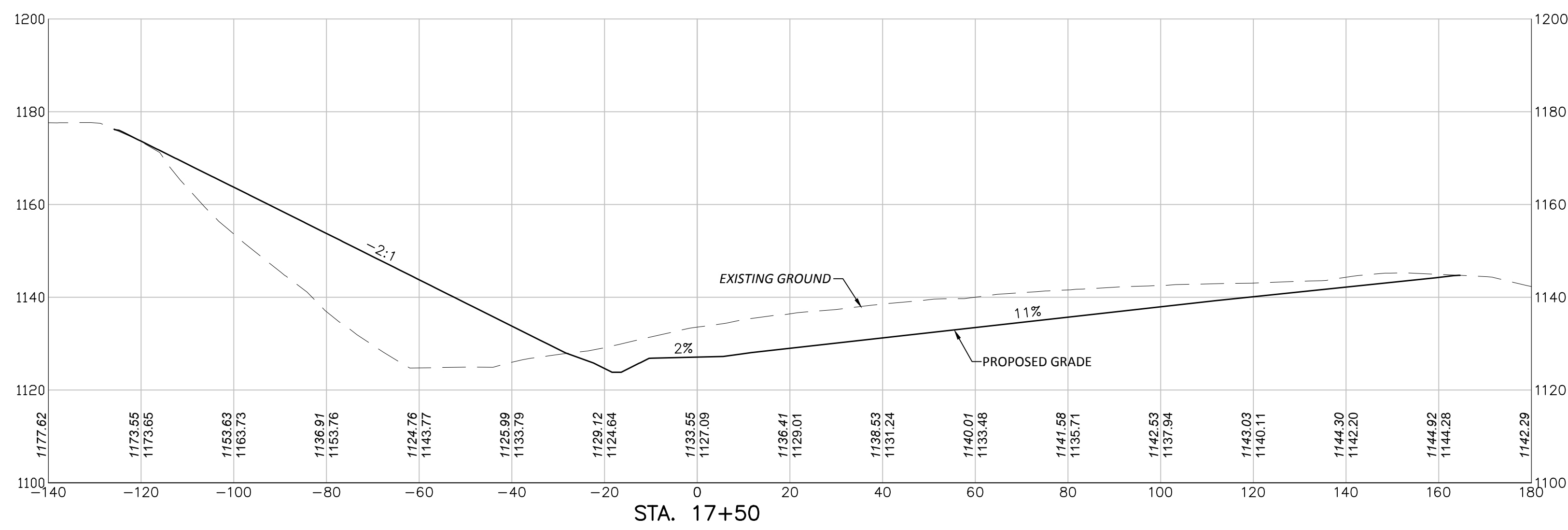
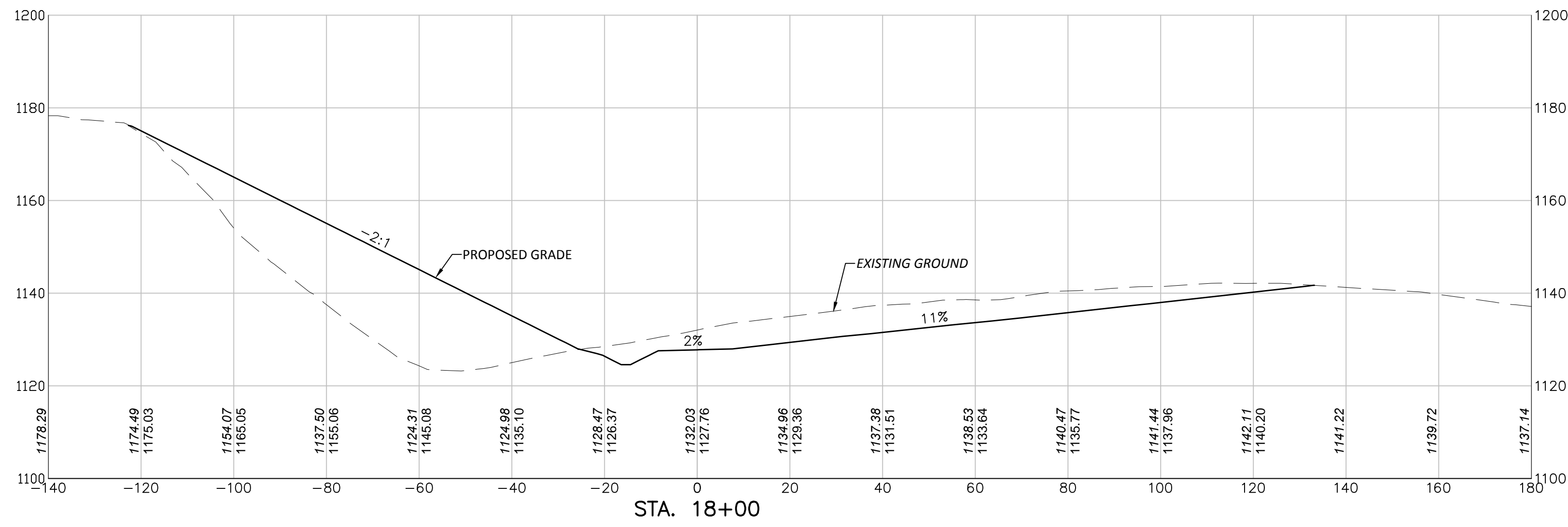
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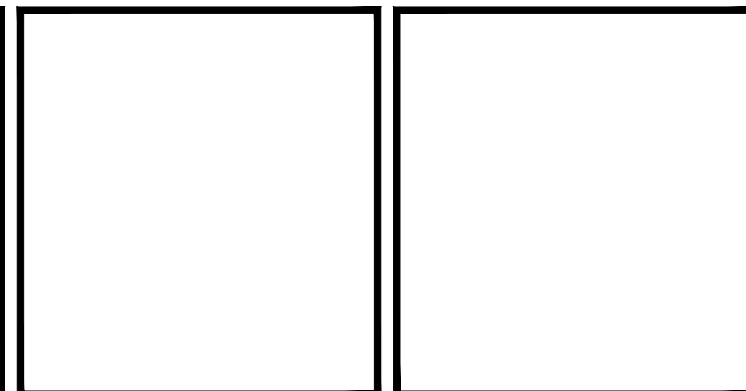
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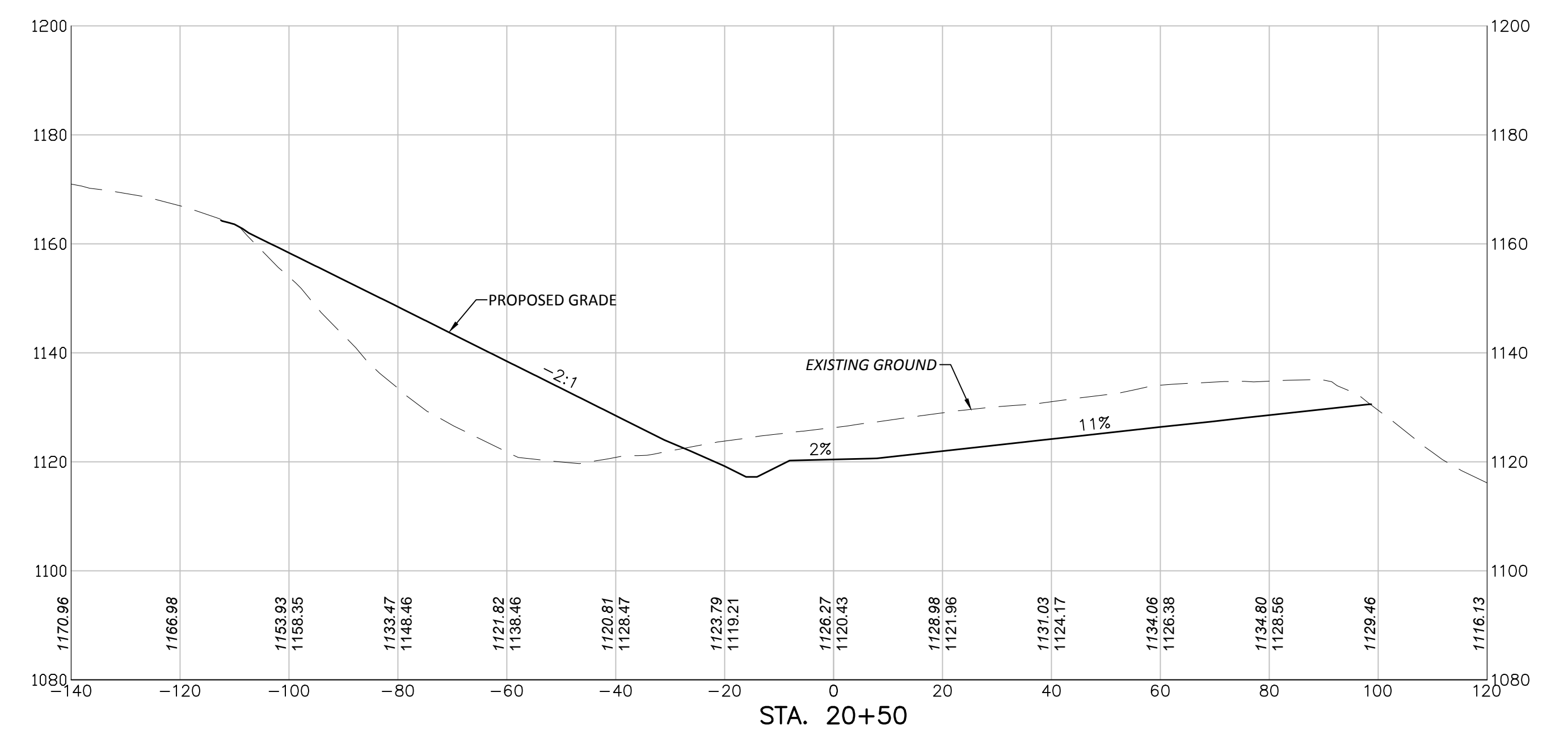
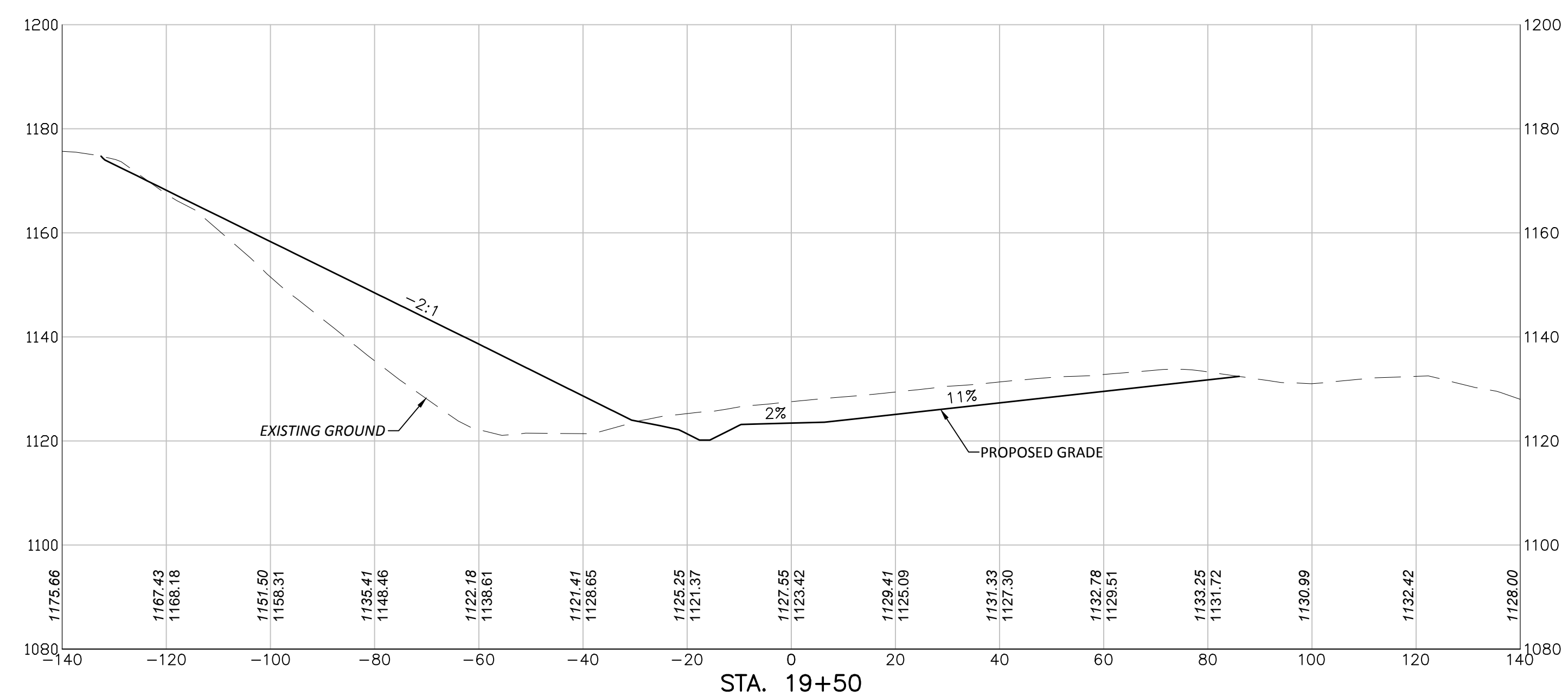
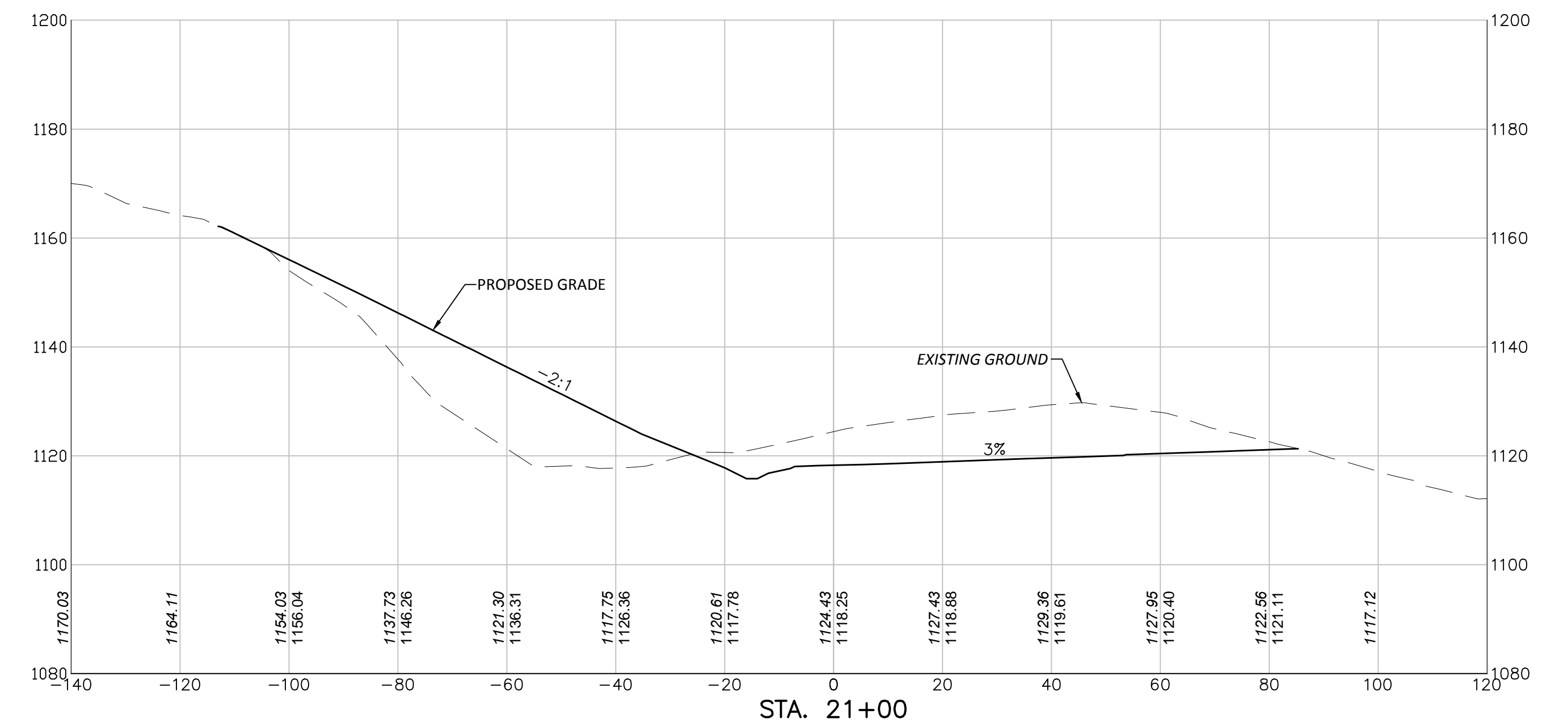
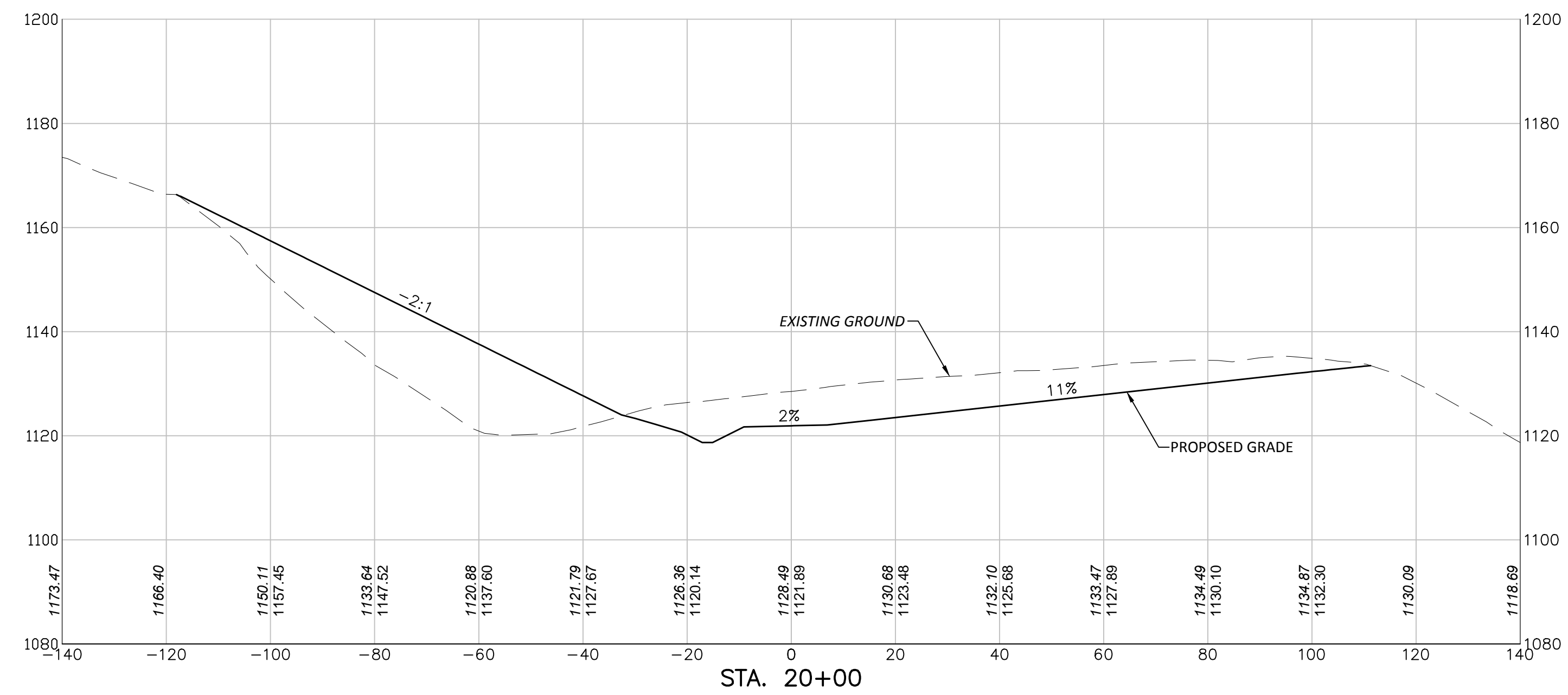


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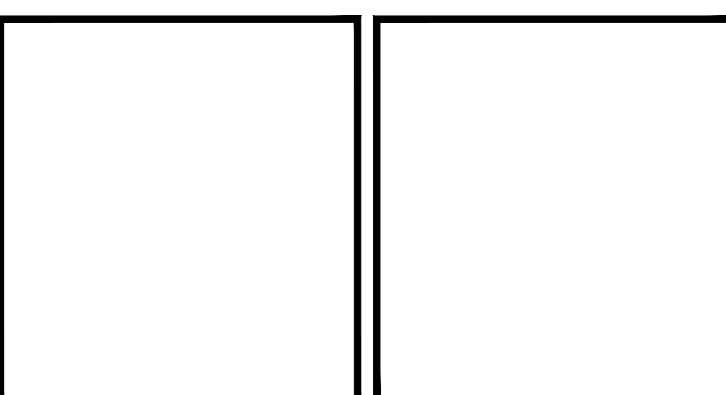
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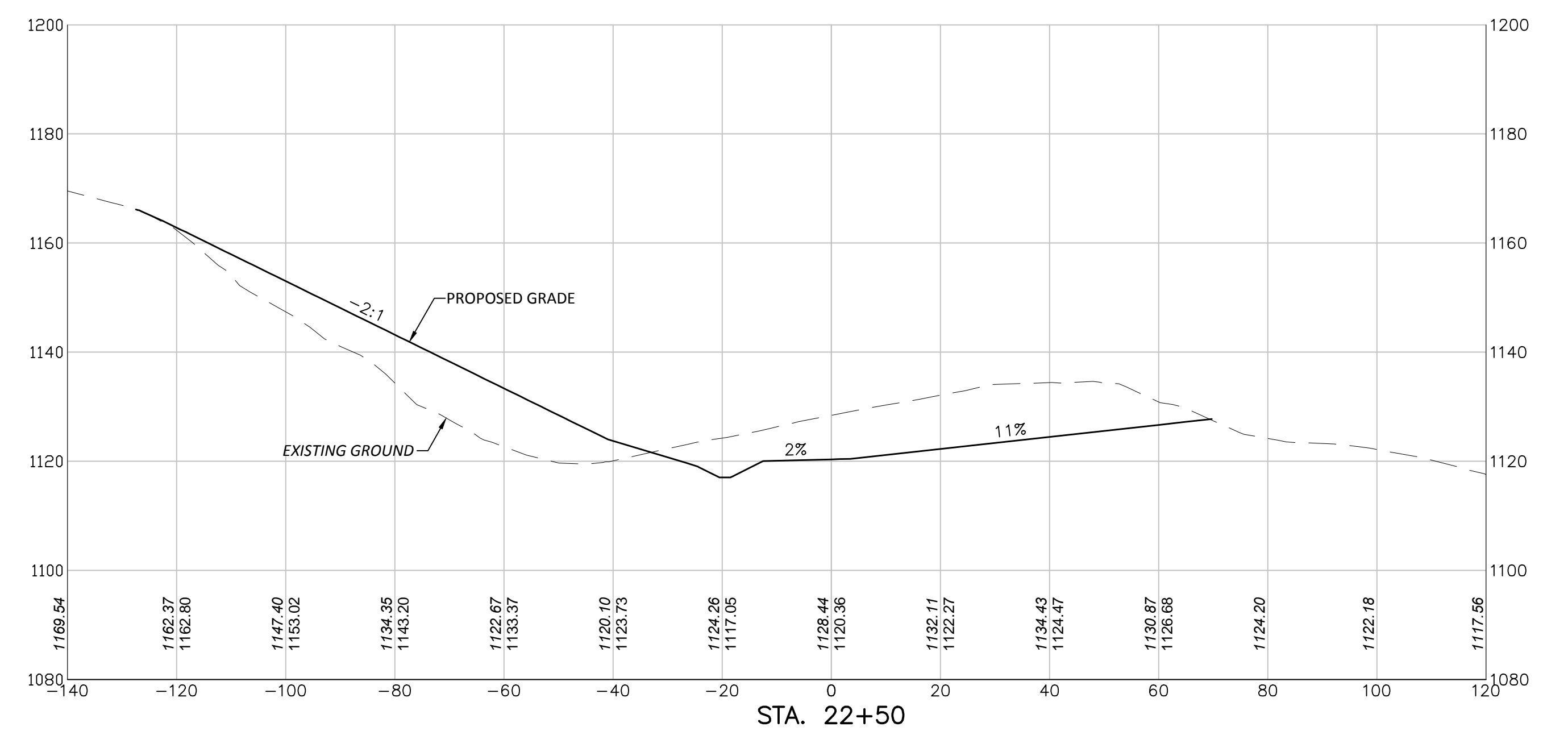
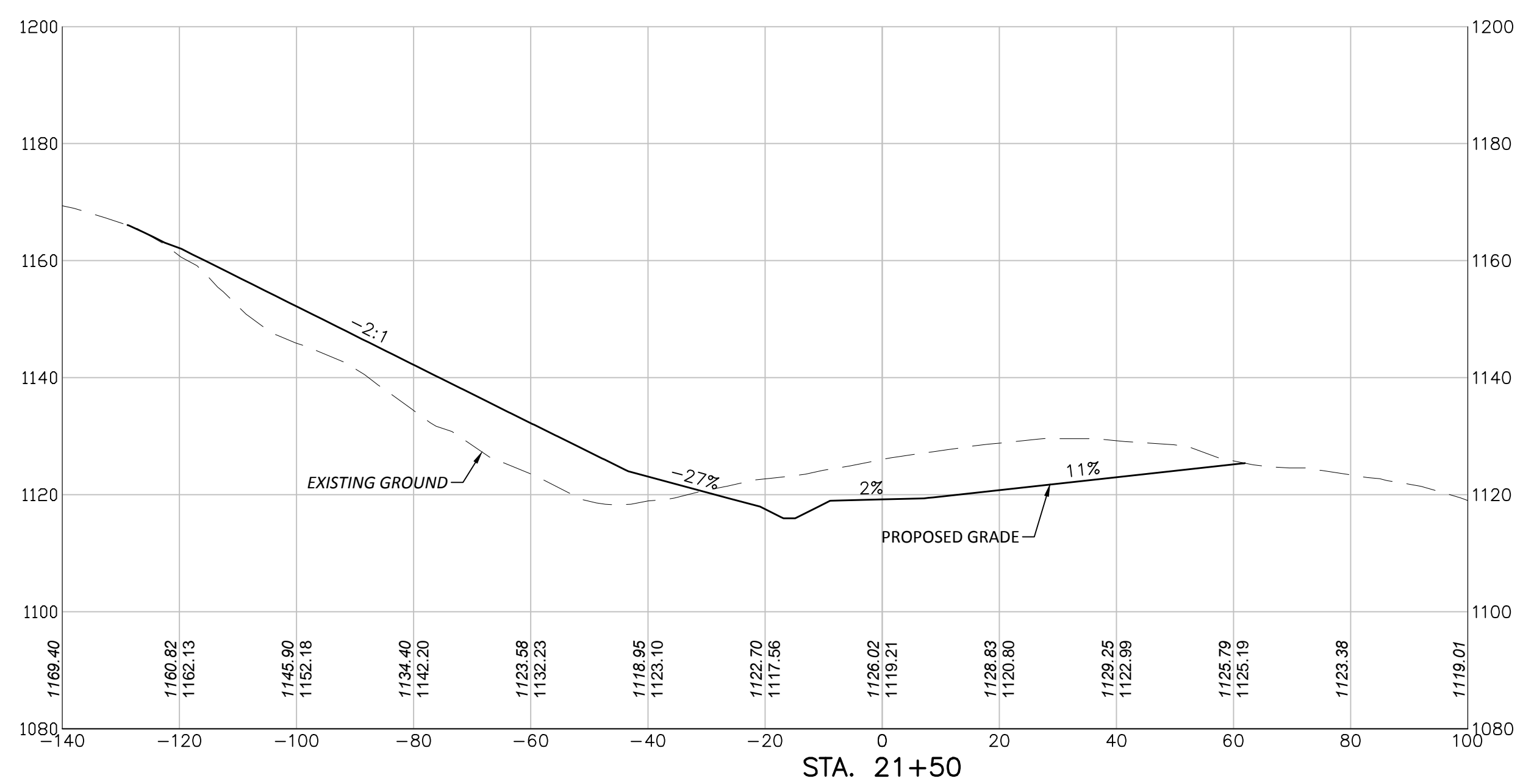
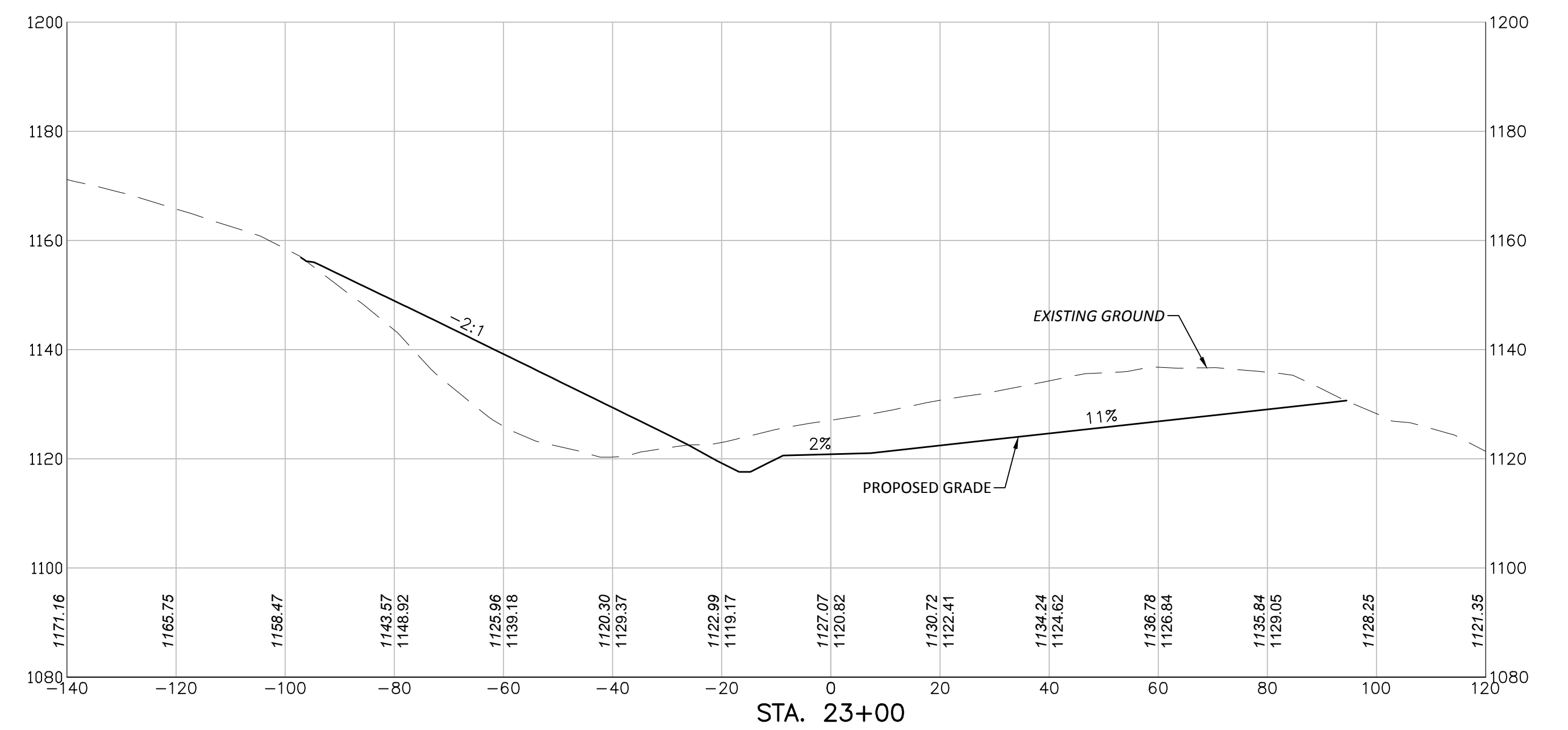
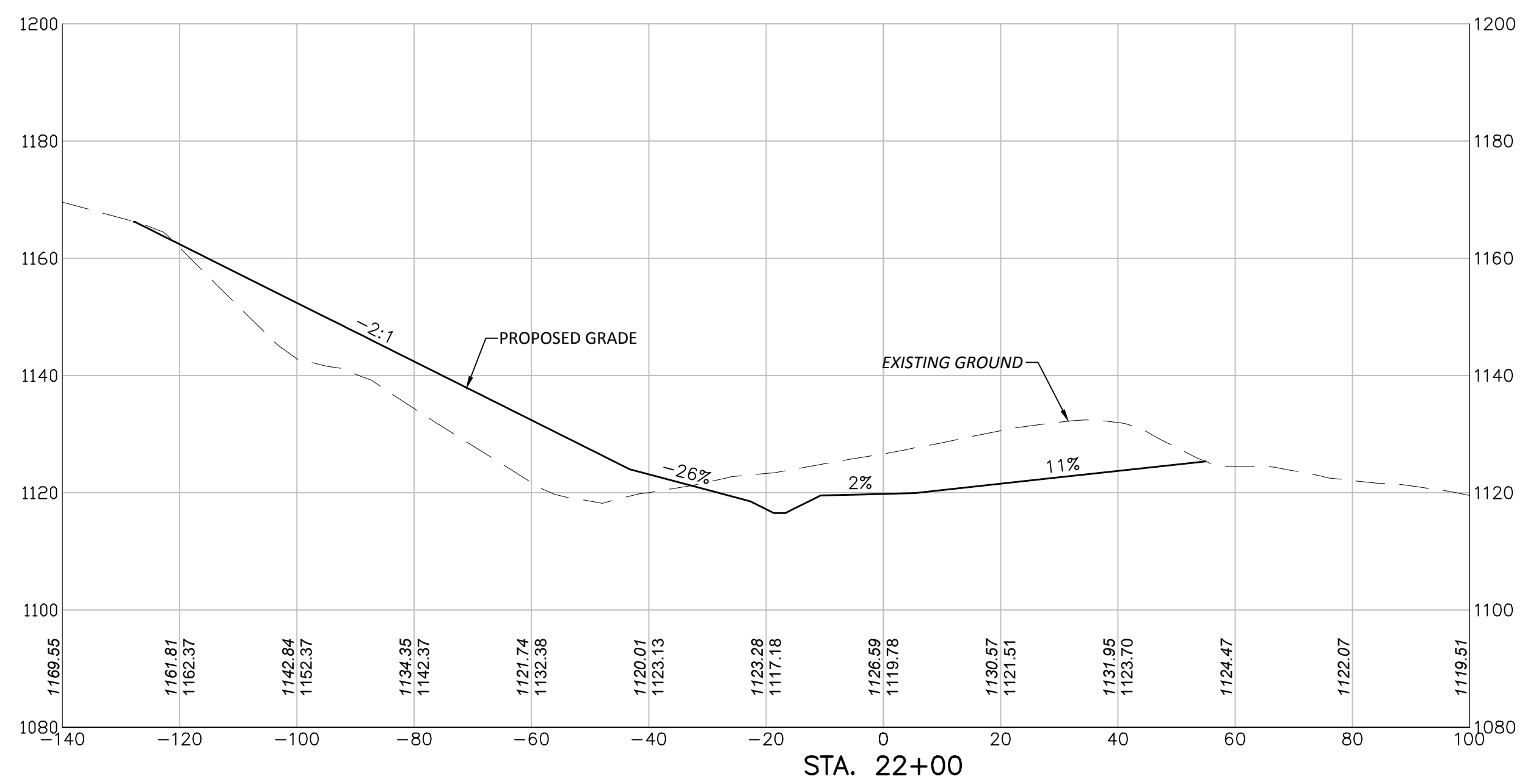
4301 DUTCH RIDGE ROAD
 BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
 CROSS SECTIONS

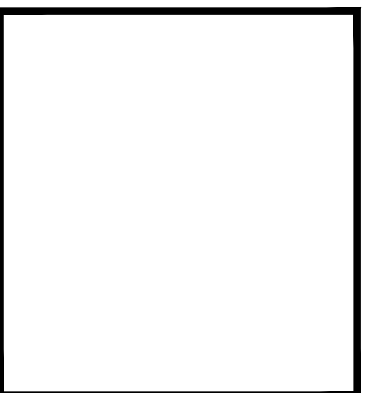
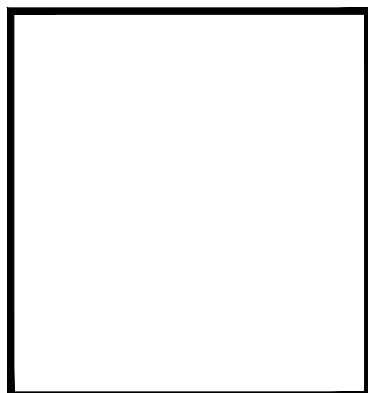
SCALE: 1" = 20'
 DATE: JULY 2014

SHEET NO.
 18
 OF 35



REVISIONS	
No. 1	NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 2	MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 3	JULY 2014 SITE 2 REMOVAL PER WVDEP

DESIGNED	JRG
DRAWN	JRG
CHECKED	WDN
REVIEWED	WDN
S.O.	135555



STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 ABANDONED MINE LANDS & RECLAMATION SECTION

MICHAEL BAKER JR., INC.
 A UNIT OF MICHAEL BAKER CORPORATION

CONSULTING ENGINEERS
 (724) 495-7711

4301 DUTCH RIDGE ROAD
 BEAVER, PENNSYLVANIA 15009

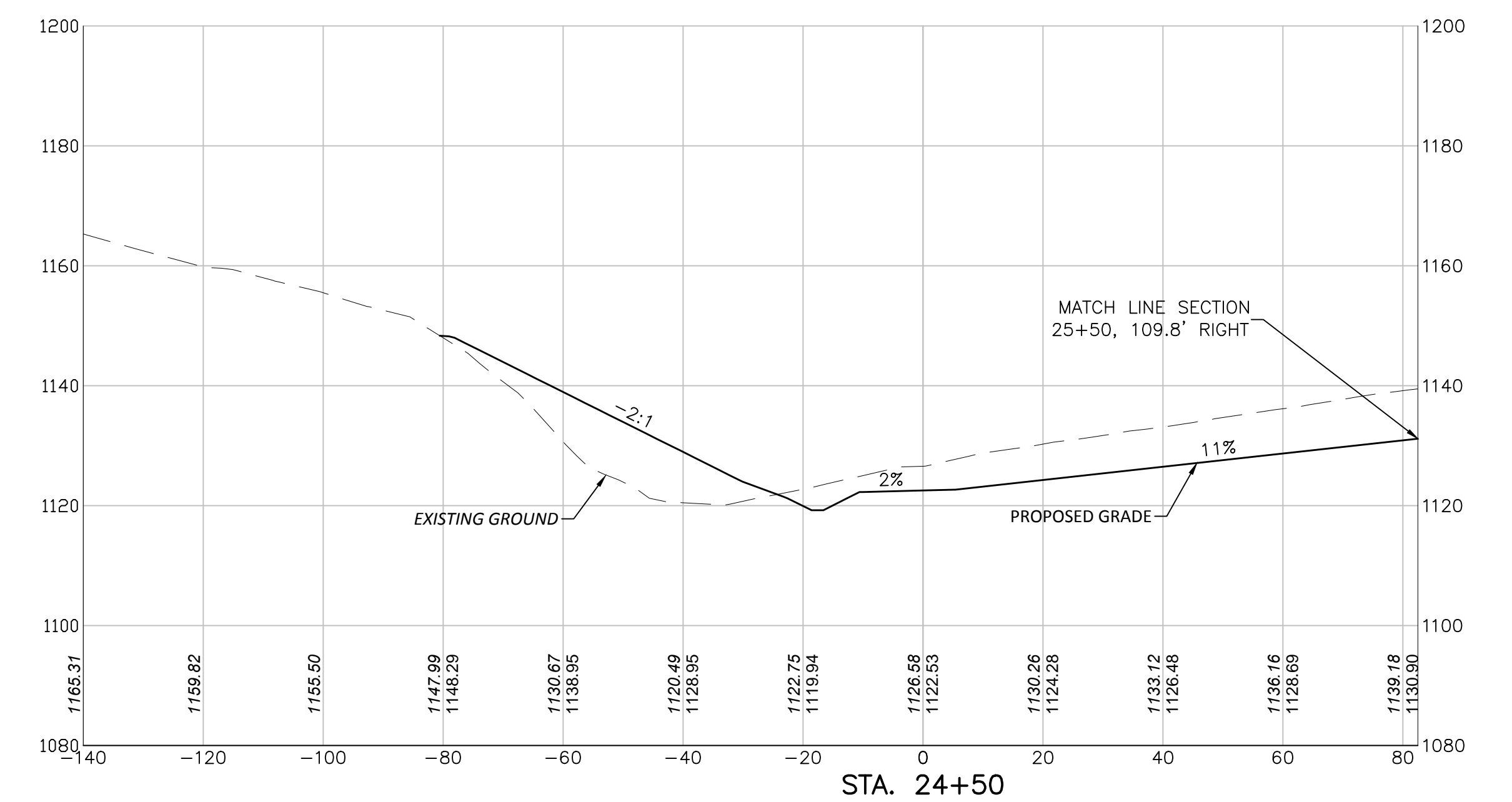
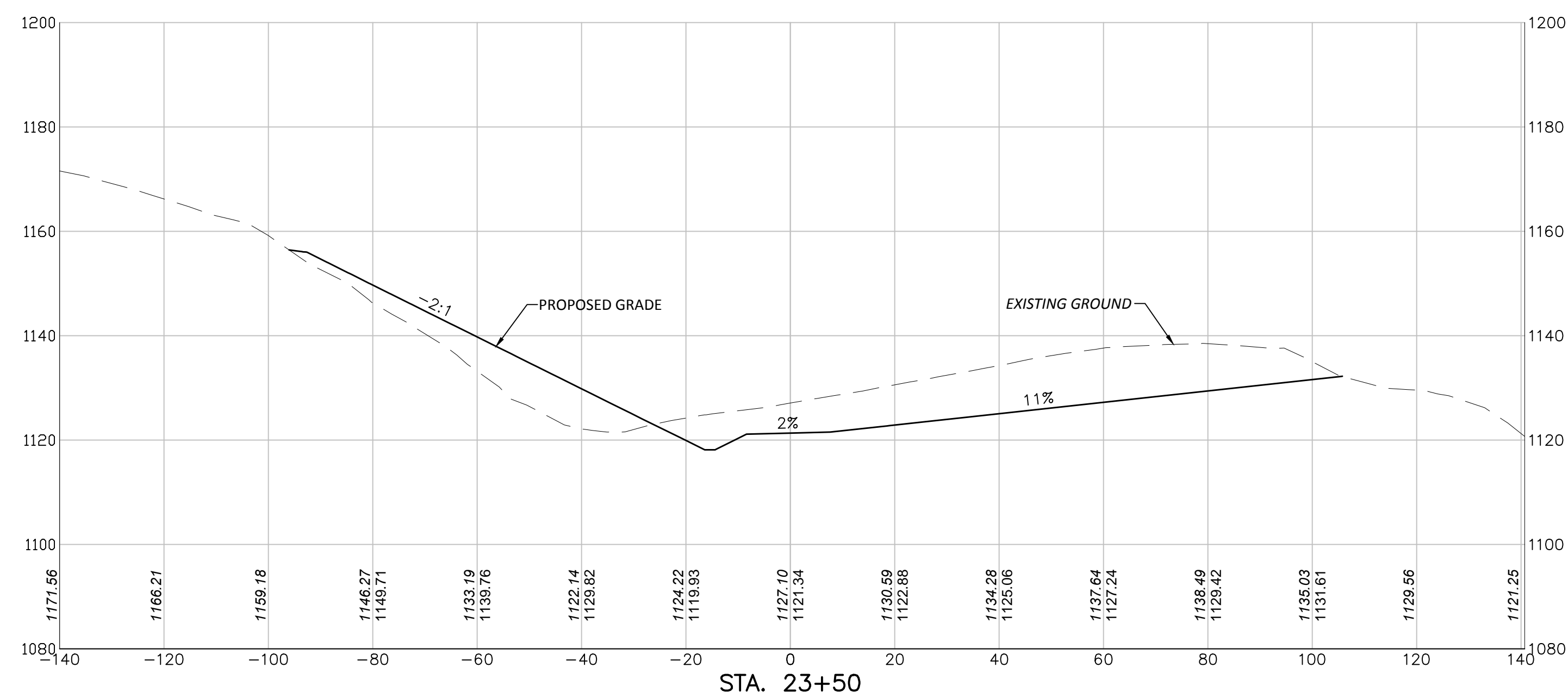
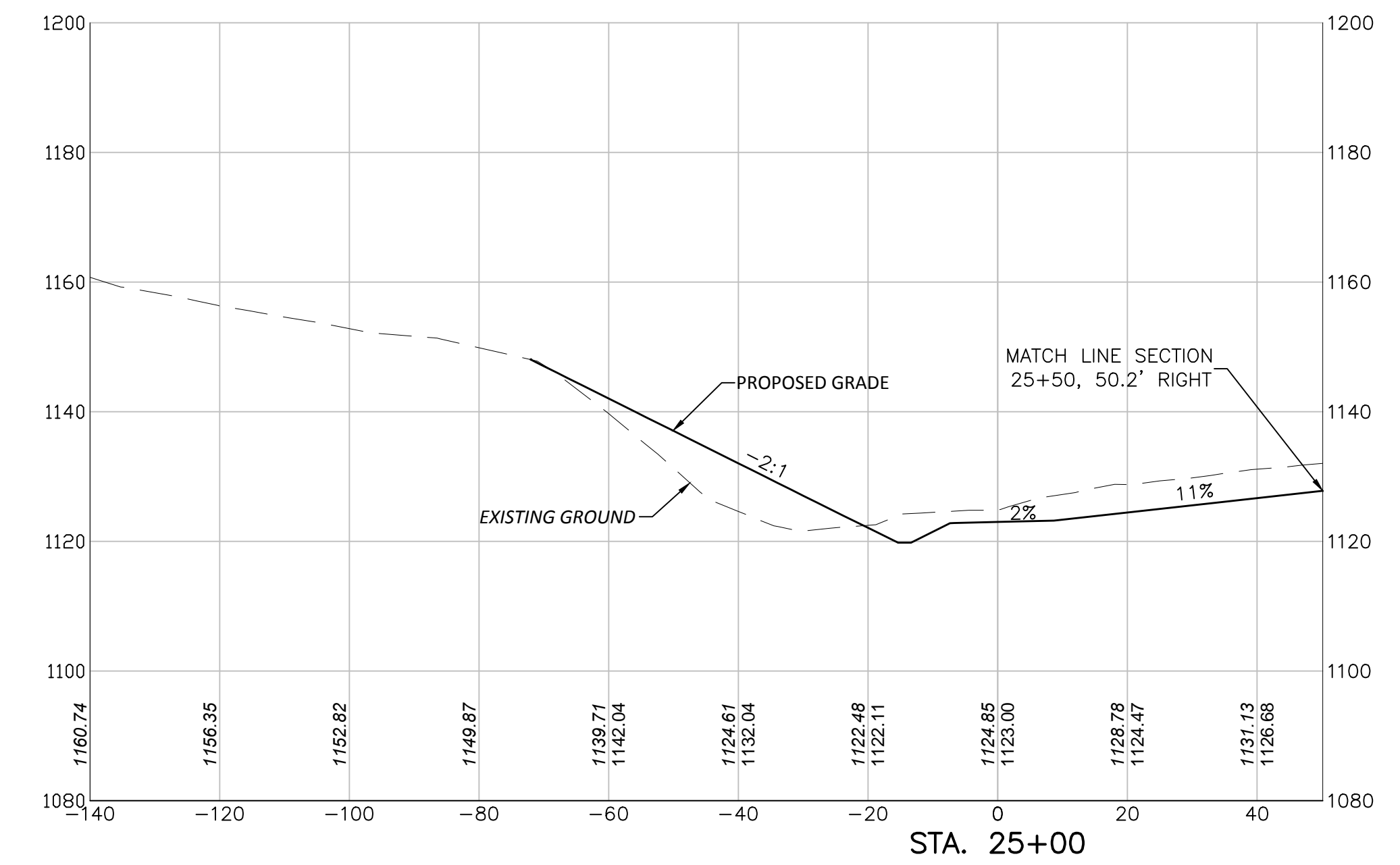
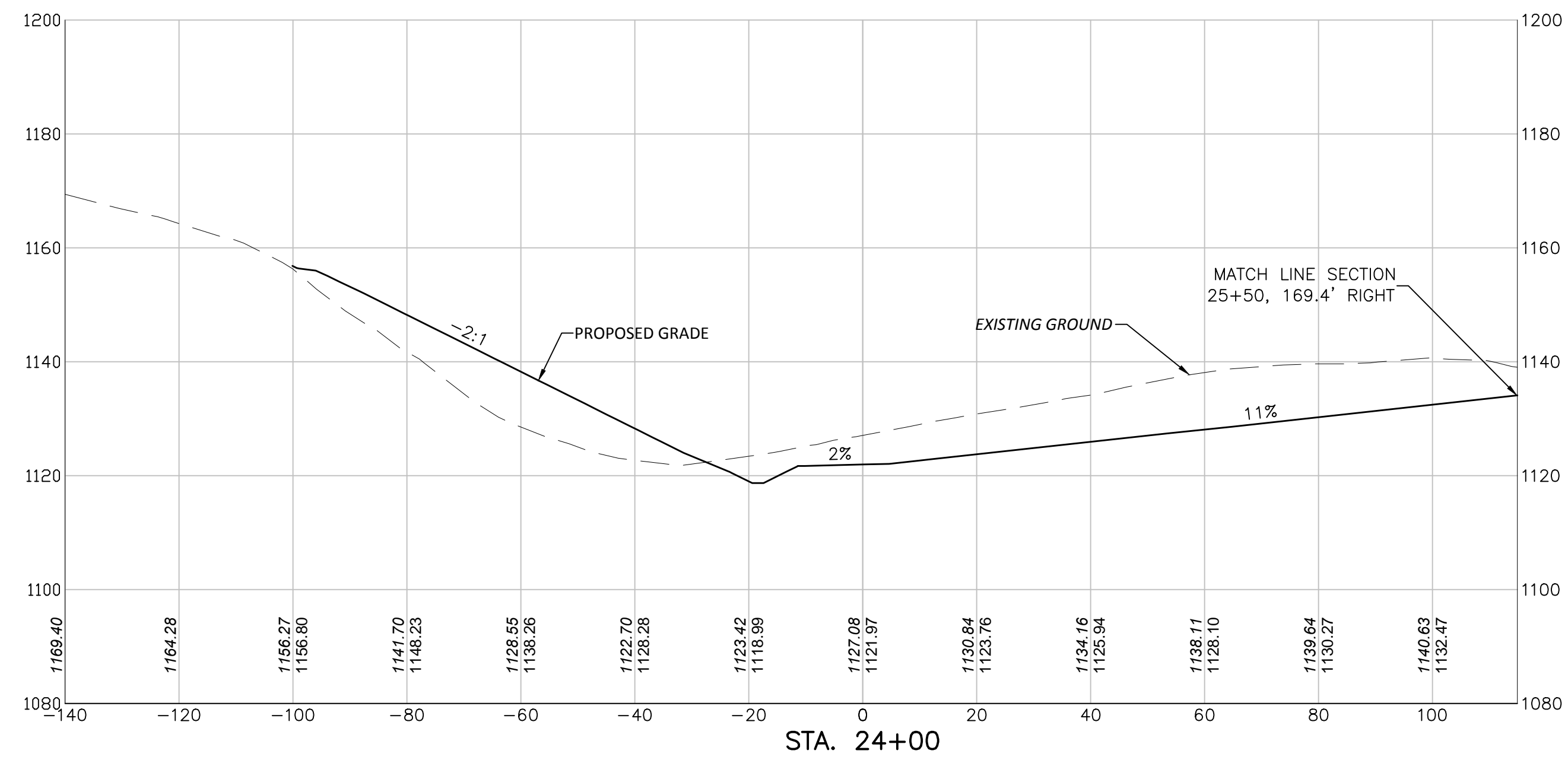


EBENEZER RUN HIGHWALL #9
 CROSS SECTIONS

SCALE: 1" = 20'

DATE: JULY 2014

SHEET NO.
 19
 OF 35



REVISIONS	
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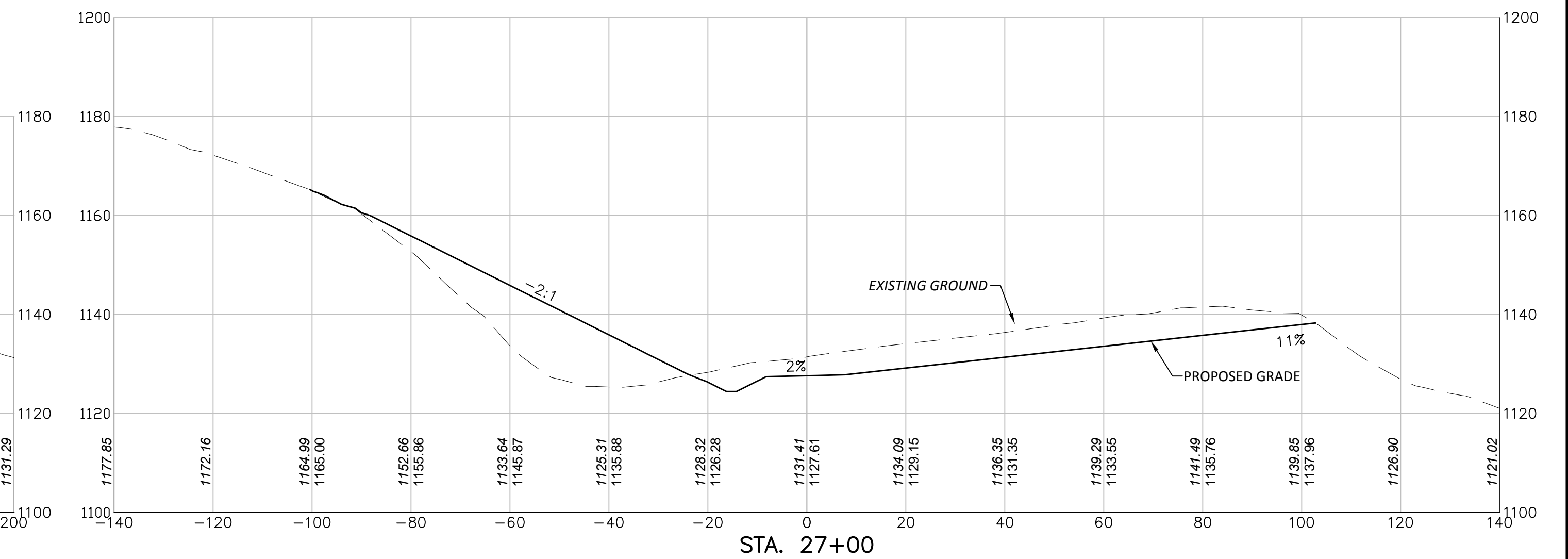
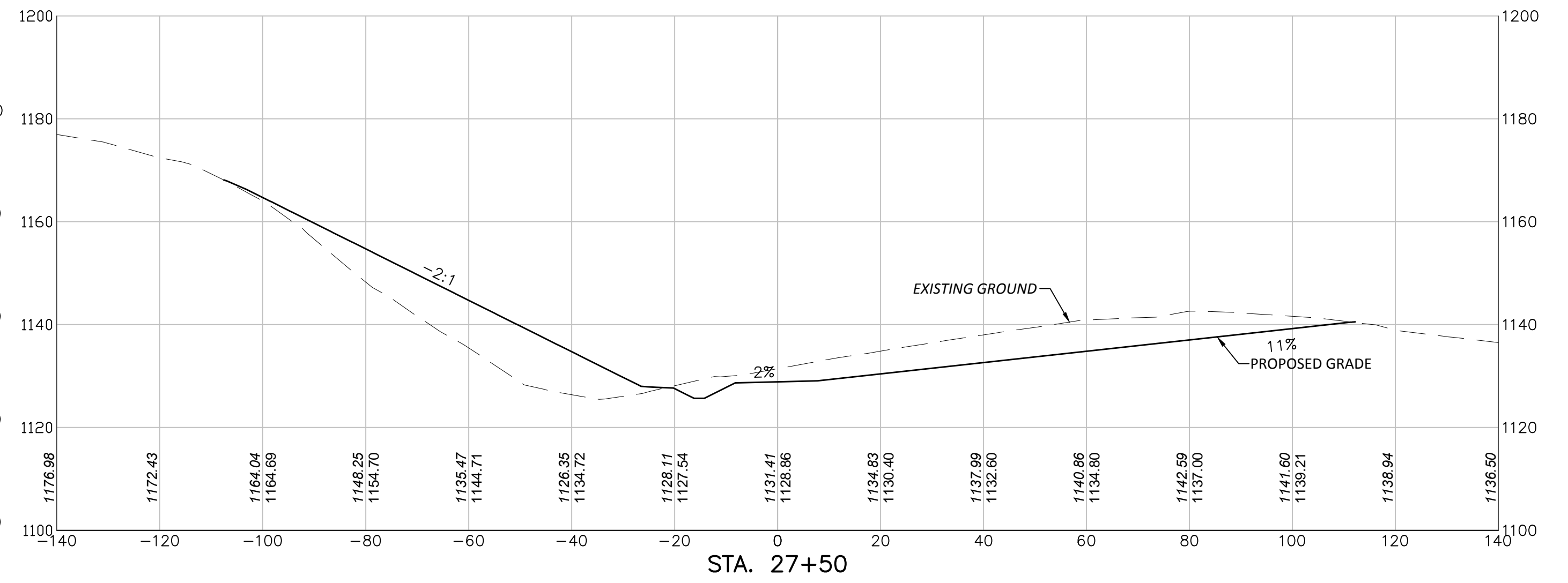
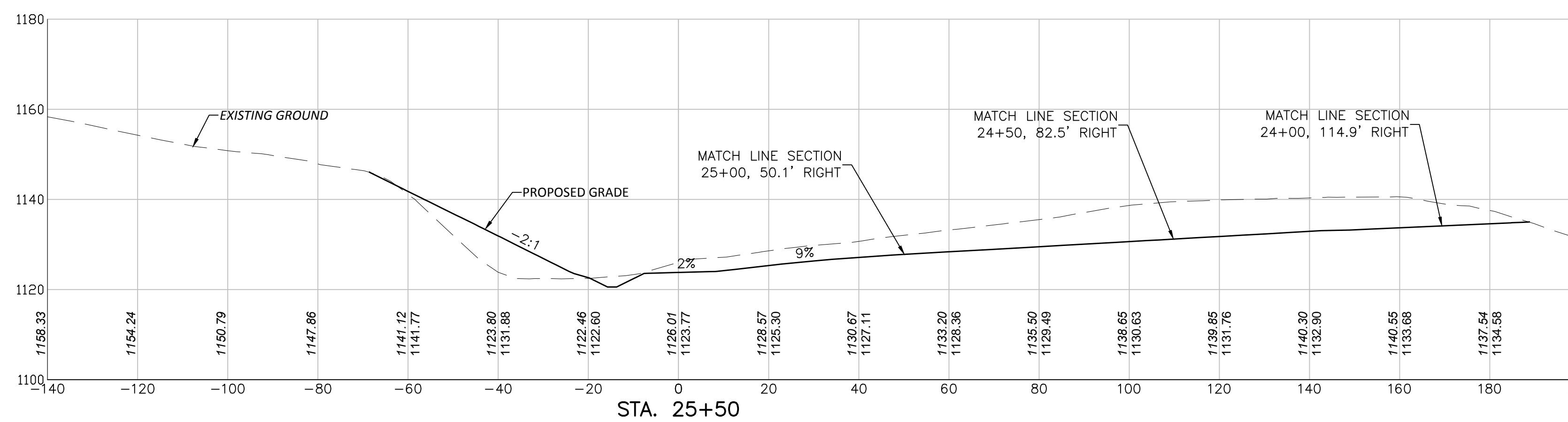
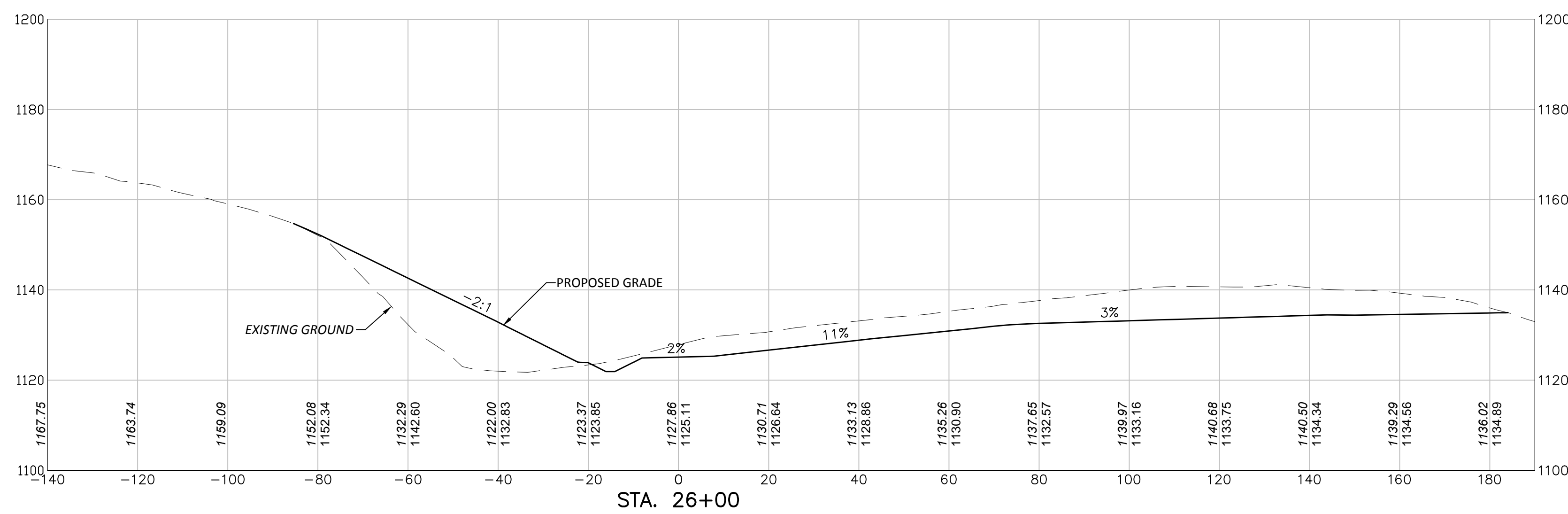
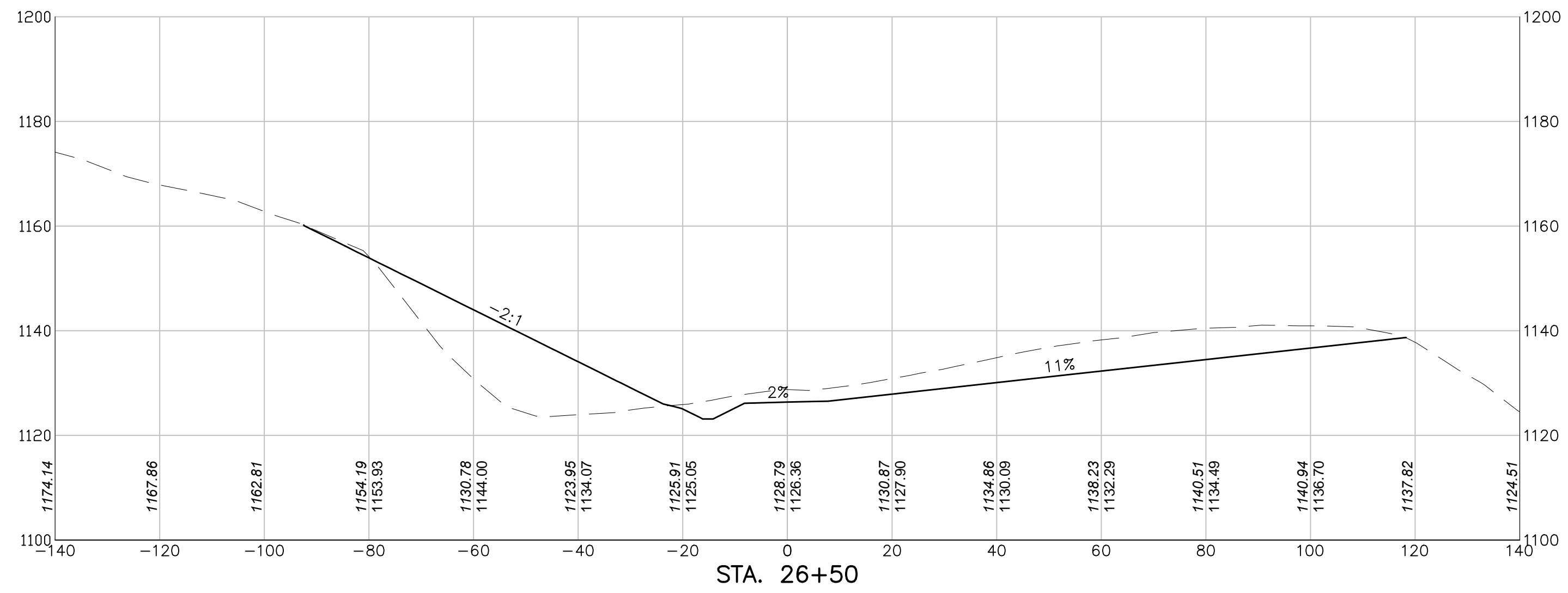
4301 DUTCH RIDGE ROAD
BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
CROSS SECTIONS

SCALE: 1" = 20'
DATE: JULY 2014

SHEET NO.
20
OF 35



REVISIONS	
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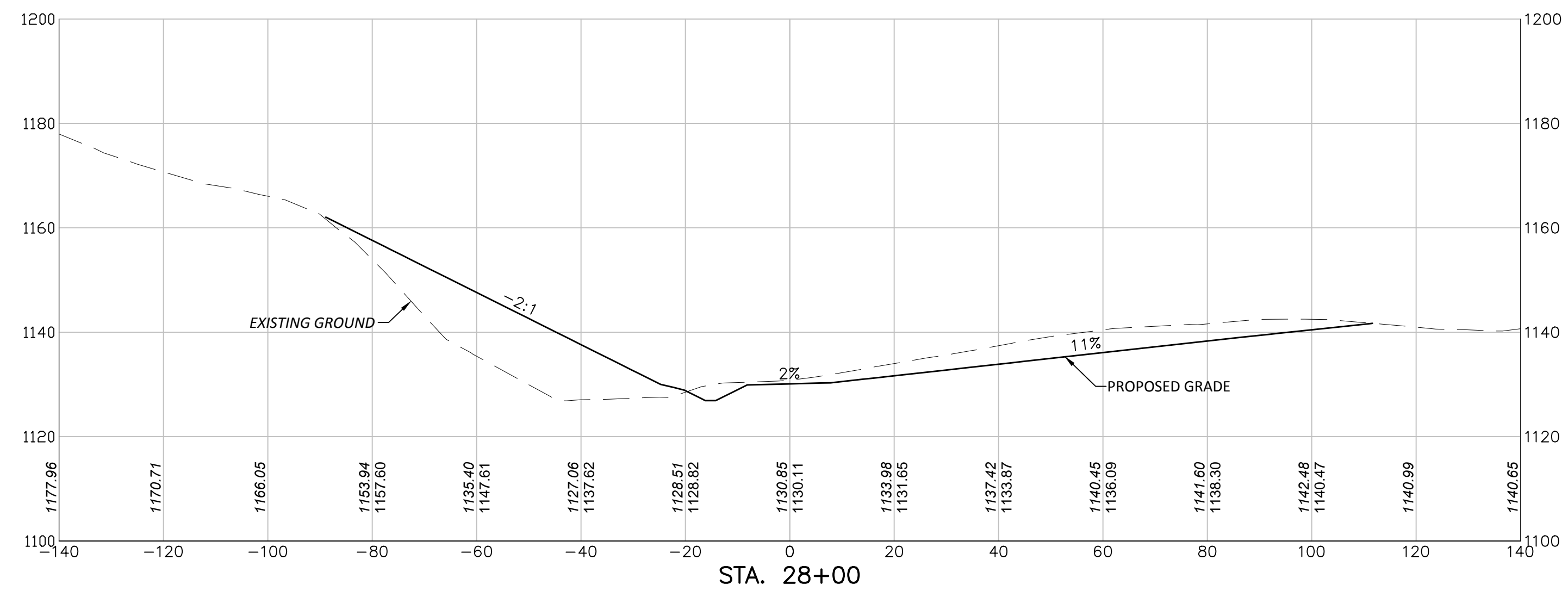
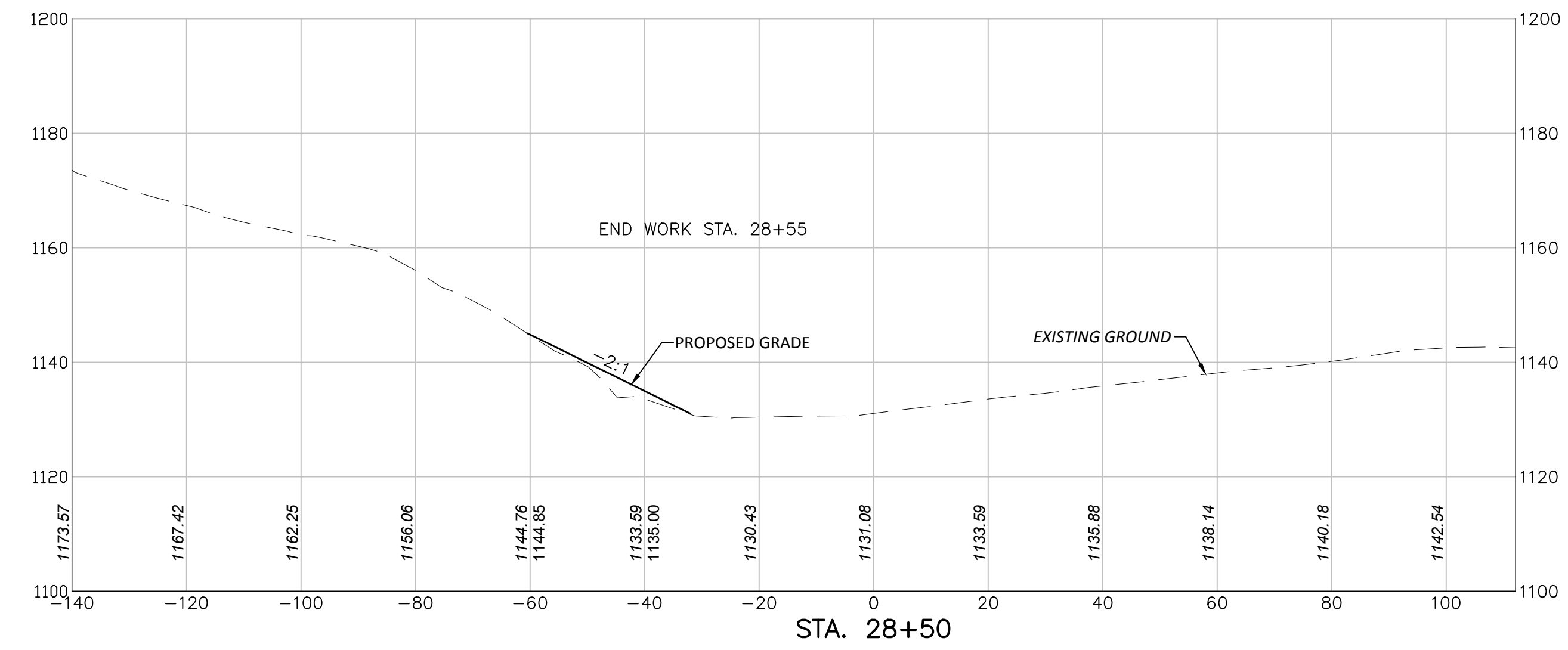


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 CROSS SECTIONS

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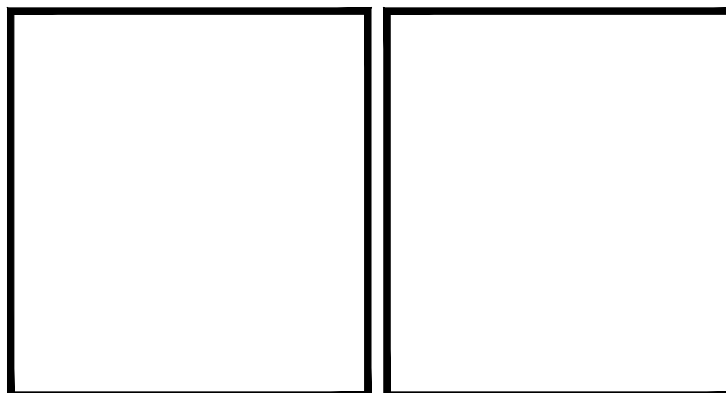
DATE: JULY 2014

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EBENEZER RUN HIGHWALL #9
 CROSS SECTIONS

SCALE: 1" = 20'

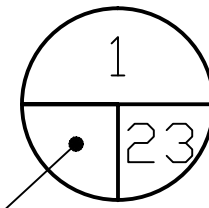
DATE: JULY 2014

SHEET NO.
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 OF 35

CHANNE L.N.O.	ITEM	LENGTH (FT.)	BOTTOM WIDTH (FT.)	DEPTH (FT.)	TOP WIDTH (FT.)	Z1 (FT.)	Z2 (FT.)	PROTECTIVE LINING
TC 1	2 FT. BOTTOM TRAPEZOIDAL CHANNEL (2H:1V)	482	2	1.5	8	2	2	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
TC 2	2 FT. BOTTOM TRAPEZOIDAL CHANNEL (2H:1V)	435	2	1.5	8	2	2	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
CC 1	3 FT. BOTTOM TRAPEZOIDAL CHANNEL (3H:1V)	245	3	1.5	12	3	3	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
TC 3	2 FT. BOTTOM TRAPEZOIDAL CHANNEL (2H:1V)	372	2	1.5	8	2	2	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
TC 4	2 FT. BOTTOM TRAPEZOIDAL CHANNEL (2H:1V)	400	2	1.5	8	2	2	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
CC 2	3 FT. BOTTOM TRAPEZOIDAL CHANNEL (3H:1V)	337	3	1.5	12	3	3	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
TC 5	2 FT. BOTTOM TRAPEZOIDAL CHANNEL (2H:1V)	291	2	1.5	8	2	2	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
TC 6	2 FT. BOTTOM TRAPEZOIDAL CHANNEL (2H:1V)	756	2	1.5	8	2	2	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)
CC 3	3 FT. BOTTOM TRAPEZOIDAL CHANNEL (3H:1V)	119	3	1.5	12	3	3	S-75 - ROLLED EROSION CONTROLLED PRODUCTS (RECPS)

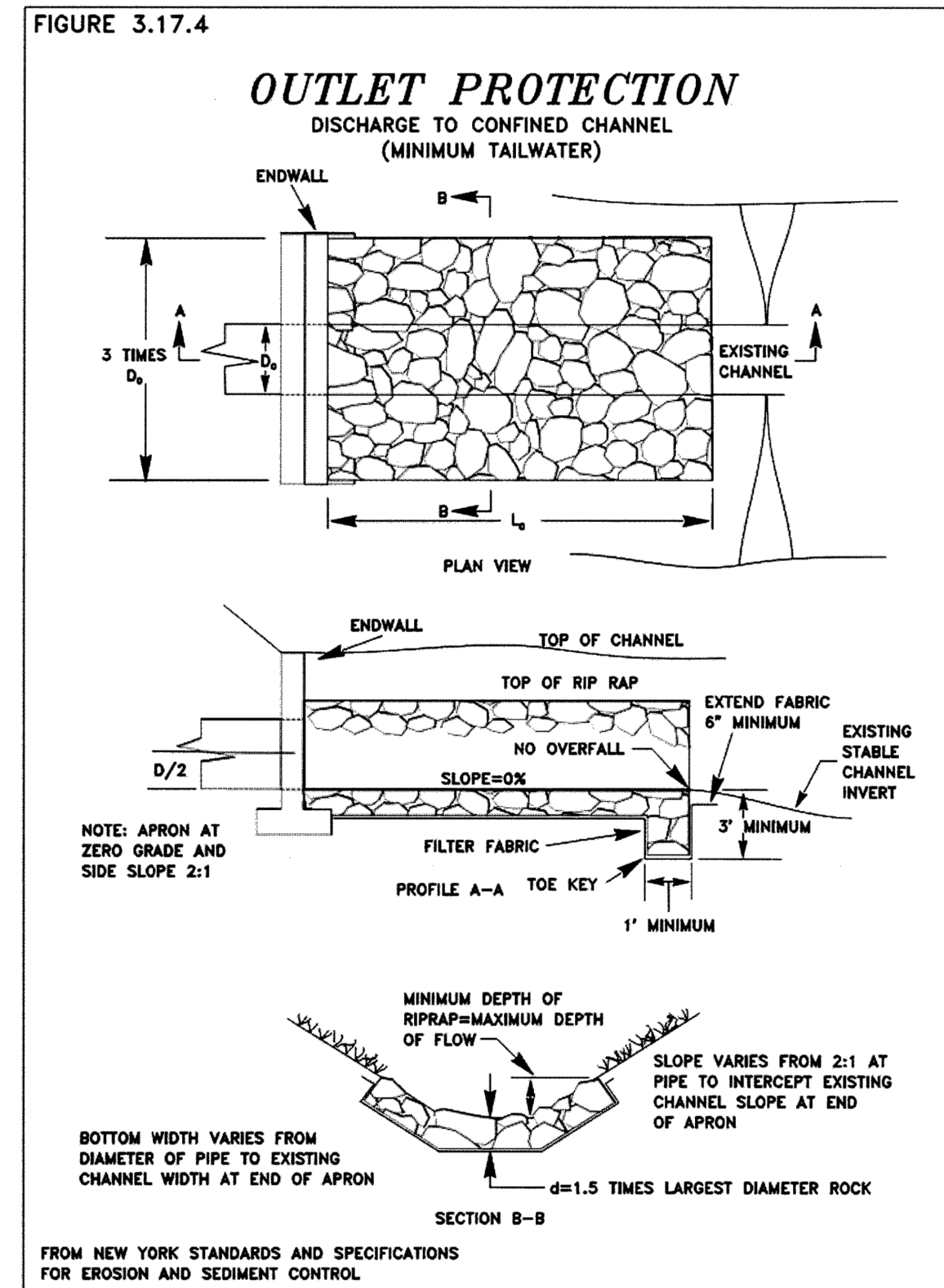
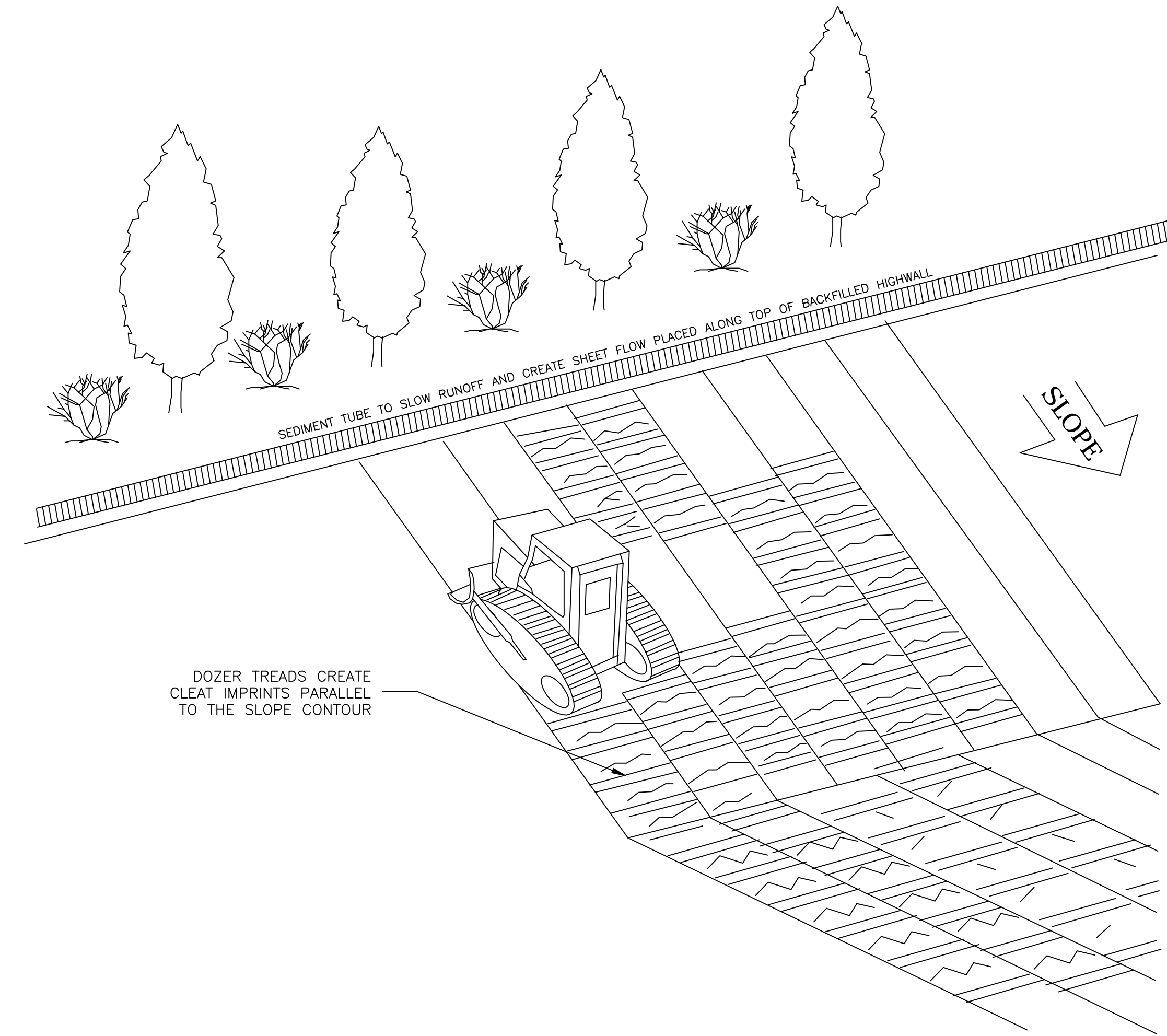
TC = TOE CHANNEL
 CC = COLLECTION CHANNEL
 Z1 = LEFT CHANNEL SIDE SLOPES (H:V)
 Z2 = RIGHT CHANNEL SIDE SLOPES (H:V)

(*) SEE DETAILS 1 AND 2 ON SHEET 30.



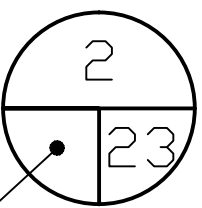
CHANNEL SUMMARY TABLE

5,6



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

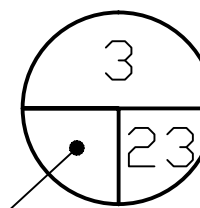
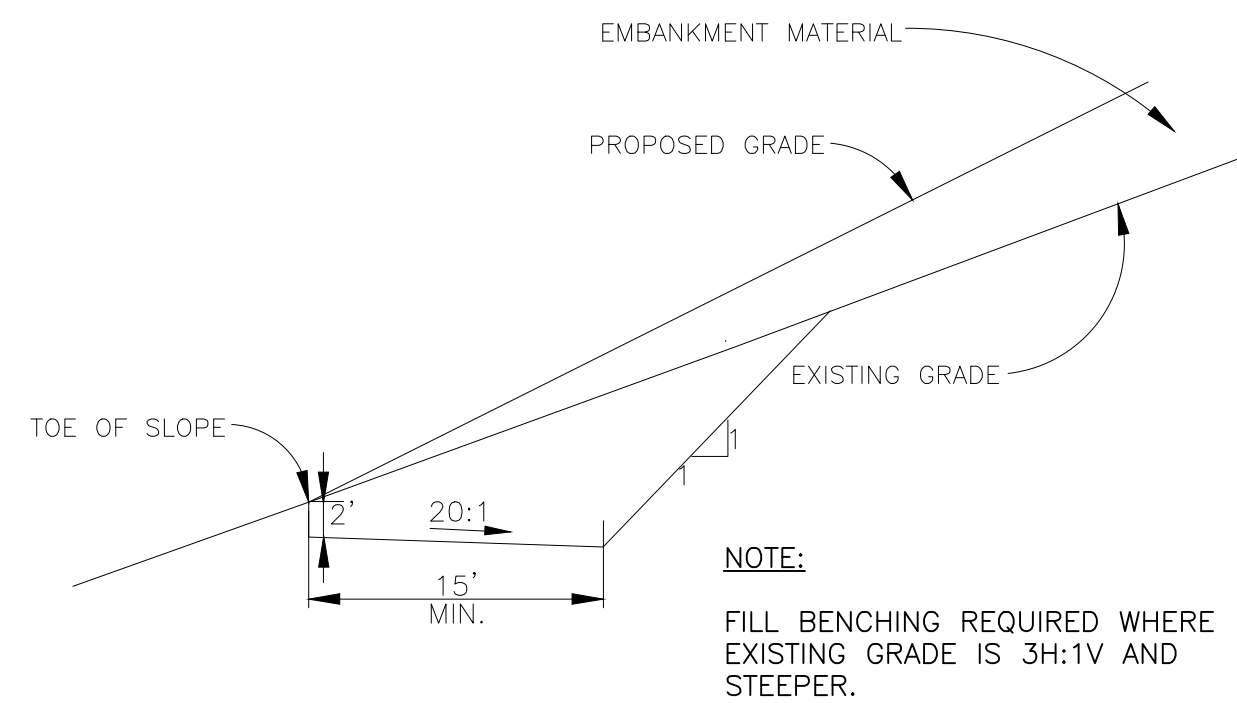
3.17-13



OUTLET PROTECTION DETAIL

N.T.S.

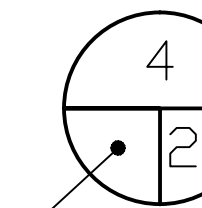
5,6



FILL BENCH KEY (TYPICAL)

N.T.S.

5,6



FILL SLOPE TREATMENT AND TRACKING

N.T.S.

5,6

NOTES:

TO INHIBIT EROSION ON SLOPES OF 3:1 OR GREATER, SURFACE ROUGHENING BY TRACKING SHALL BE PERFORMED AS SOON AS POSSIBLE AFTER FINAL GRADE HAS BEEN ACHIEVED, OR ON EXPOSED SLOPE AREAS IF NO FURTHER ACTIVITY IS PROPOSED FOR 14 DAYS OR MORE. TRACKING MAY BE USED WITH SEEDING, PLANTING AND TEMPORARY MULCHING TO STABILIZE AN AREA.

TRACKING SHOULD BE PERFORMED IMMEDIATELY AFTER GRADING ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) IN AN AREA.

INSTALLATION NOTES:

- AS EACH LIFT OF FILL IS COMPACTED THE OUTER FACE OF THE SLOPE MAY BE ALLOWED TO REMAIN LOOSE SO THAT ROCKS, CLODS, ETC REACH THE NATURAL ANGLE OF REPOSE
- AVOID EXCESSIVE COMPACTING OF THE SOIL SURFACE WHEN TRACKING BECAUSE SOIL COMPACTION INHIBITS VEGETATION GROWTH AND CAUSES HIGHER RUNOFF RATES. AS FEW PASSES AS POSSIBLE SHOULD BE MADE WITH THE MACHINERY IN ORDER TO MINIMIZE COMPACTION.
- SURFACE ROUGHENED AREAS BY THE MEANS OF TRACKING SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS.

INSPECTION AND MAINTENANCE:

INSPECTIONS SHOULD BE MADE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2-INCHES OR MORE OF PRECIPITATION.

IF RILLS (SMALL WATERCOURSES THAT HAVE STEEP SIDES AND ARE USUALLY ONLY A FEW INCHES DEEP) APPEAR, THEY SHOULD BE RE-GRADED AND RE-SEEDING IMMEDIATELY.

REVISIONS	
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No. 3	JULY 2014 SITE 2 REMOVAL PER WVDEP

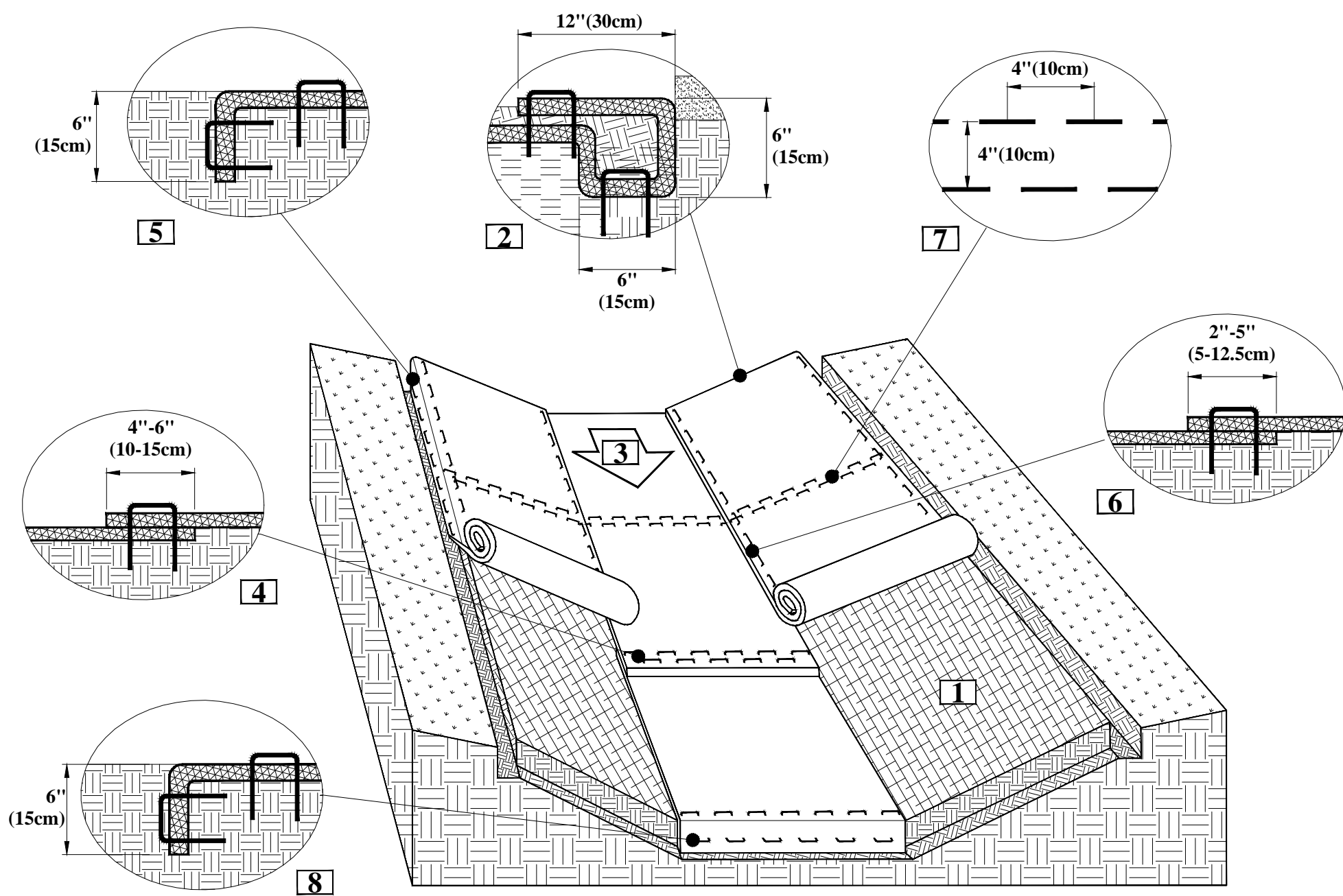
DESIGNED	SWM
DRAWN	SWM
CHECKED	WDN
REVIEWED	WDN
S.O.	135555

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION	
MICHAEL BAKER JR., INC. A UNIT OF MICHAEL BAKER CORPORATION	
CONSULTING ENGINEERS (724) 495-7711	4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009



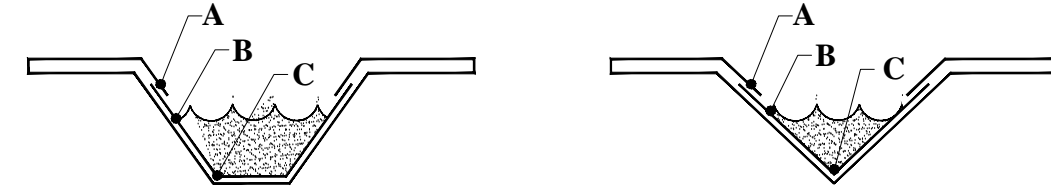
EBENEZER RUN HIGHWALL #9 CONSTRUCTION DETAILS	
SCALE: AS SHOWN	DATE: JULY 2014

SHEET NO. 23
OF 35



CRITICAL POINTS

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

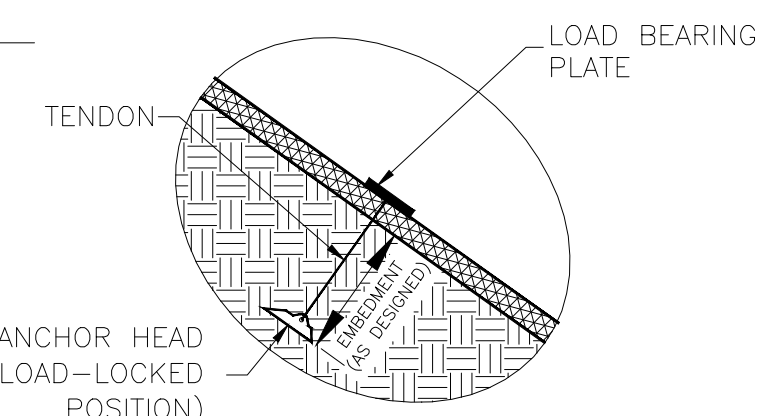
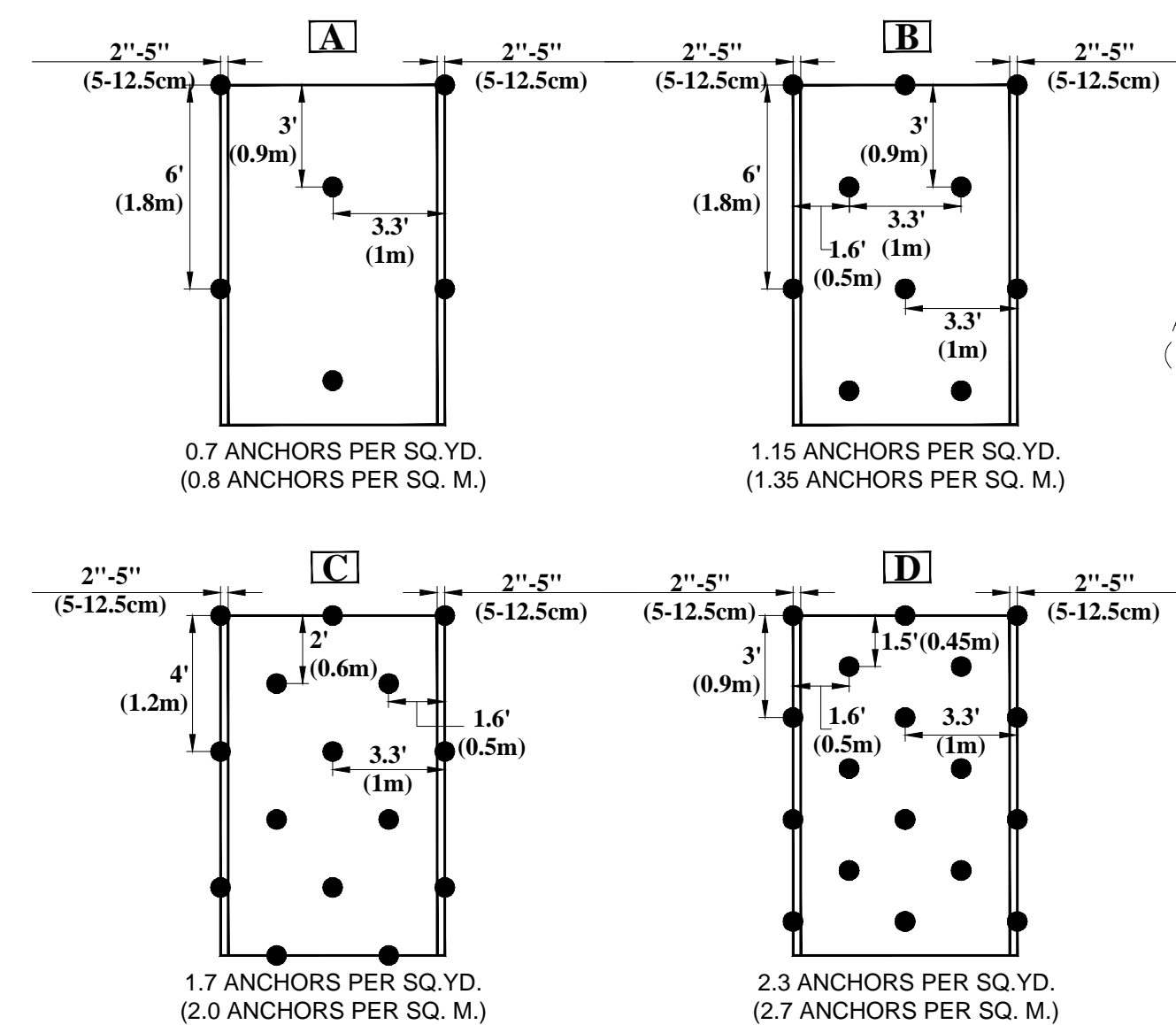


NOTES:

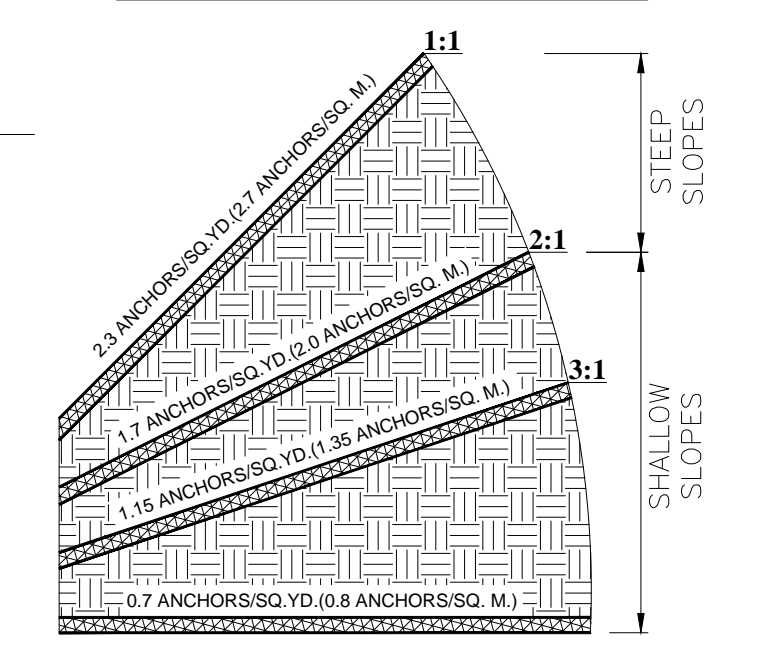
- * HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- ** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECPS'S.

INSTALLATION NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECPS IN A 6" (15CM) DEEP X 6" (15CM) WIDE TRENCH WITH APPROXIMATELY 12" (30CM) OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. USE SHOREMAX MAT AT THE CHANNEL/CULVERT OUTLET AS SUPPLEMENTAL SCOUR PROTECTION AS NEEDED. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" (30CM) PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL CENTER RECPS IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. PLACE CONSECUTIVE RECPS END-OVER-END (SHINGLE STYLE) WITH A 4"-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECPS.
5. FULL LENGTH EDGE OF RECPS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN A 6" (15CM) DEEP X 6" (15CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECPS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5-12.5CM) (DEPENDING ON RECPS TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 - 12M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10CM) APART AND 4" (10CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECPS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN A 6" (15CM) DEEP X 6" (15CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



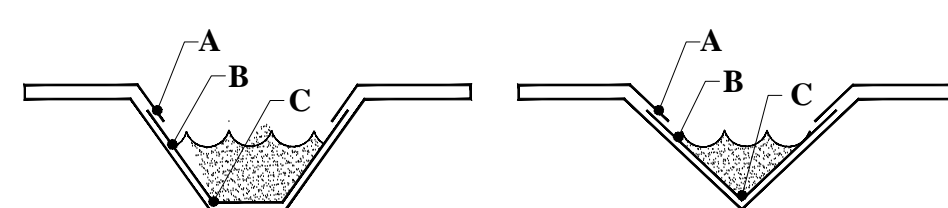
EARTH ANCHOR DETAIL



SLOPE GRADIENT DETAIL

CRITICAL POINTS

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

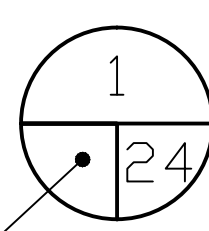
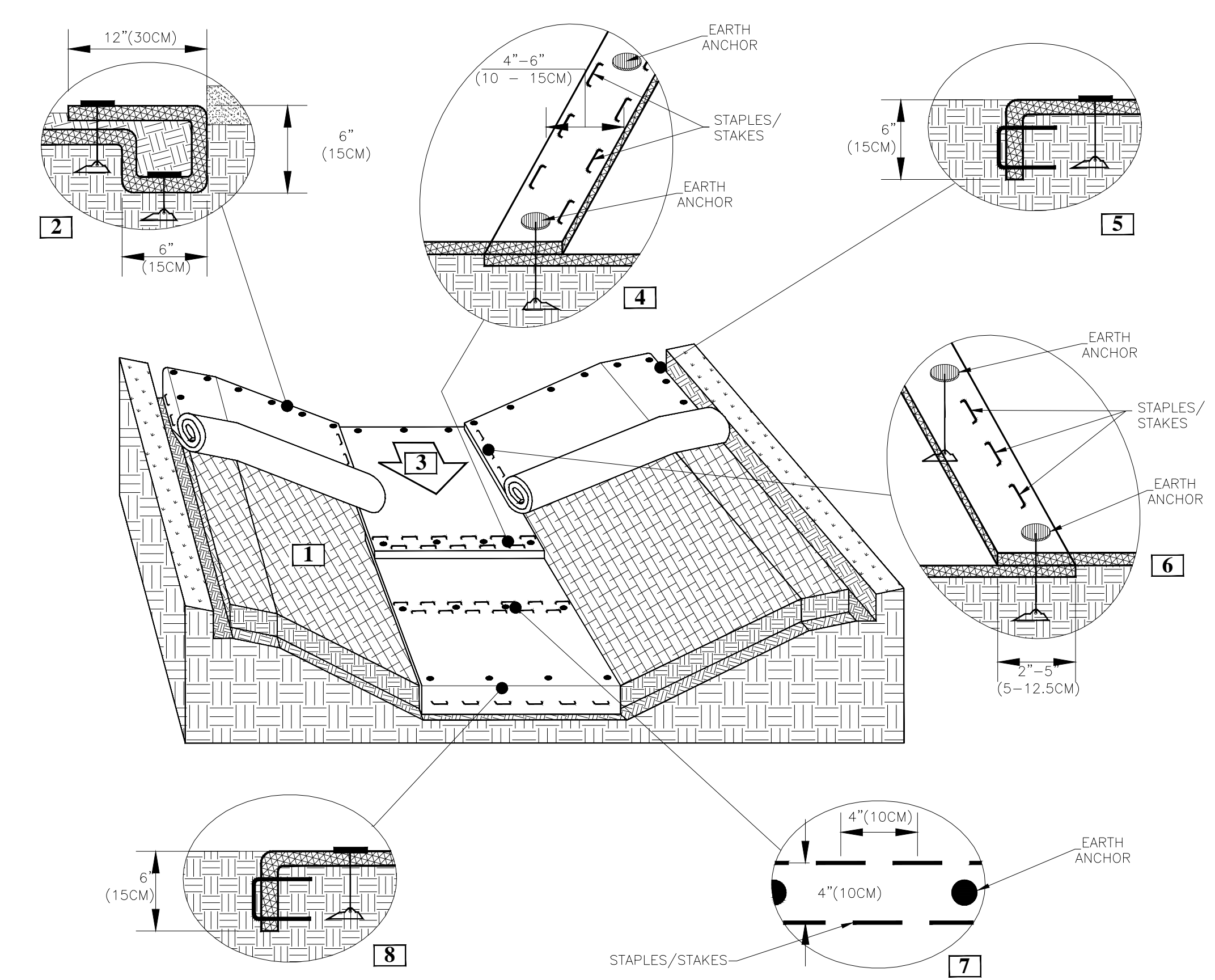


INSTALLATION NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE TRM IN A 6" (15 CM) DEEP X 6" (15CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF TRM EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. USE SHOREMAX MAT AT THE CHANNEL/CULVERT OUTLET AS SUPPLEMENTAL SCOUR PROTECTION AS NEEDED. ANCHOR THE TRM WITH A ROW OF STAPLES AND ANCHORS APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF TRM BACK OVER SEED AND COMPACTED SOIL. SECURE TRM OVER SOIL WITH A ROW OF STAPLES AND ANCHORS SPACED APPROXIMATELY 12 (30 CM) ACROSS THE WIDTH OF THE TRM.
3. ROLL CENTER TRM IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. TRM WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL TRM MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES AND ANCHORS IN APPROPRIATE LOCATIONS AS SHOWN IN THE FASTENER PATTERN GUIDE.
4. PLACE CONSECUTIVE TRM END-OVER-END (SHINGLE STYLE) WITH A 4" - 6" (10 CM - 15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) ON CENTER TO SECURE TRM.
5. FULL LENGTH EDGE OF TRM AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES AND ANCHORS APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT TRM MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) (DEPENDING ON TRM TYPE) AND FASTENED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE TRM MUST BE ANCHORED WITH A ROW OF STAPLES AND ANCHORS APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTES:

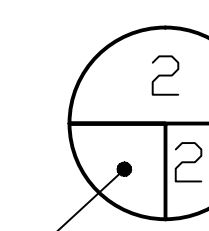
- * THE PERFORMANCE OF GROUND ANCHORING DEVICES IS HIGHLY DEPENDENT ON NUMEROUS SITE/PROJECT SPECIFIC VARIABLES. IT IS THE SOLE RESPONSIBILITY OF THE PROJECT ENGINEER AND/OR CONTRACTOR TO SELECT THE APPROPRIATE ANCHOR TYPE AND LENGTH. ANCHORING SHALL BE SELECTED TO HOLD THE MAT IN INTIMATE CONTACT WITH THE SOIL SUBGRADE AND RESIST PULLOUT IN ACCORDANCE WITH THE PROJECT'S DESIGN INTENT.
- ** ANCHOR PATTERN GUIDE CAN VARY BASED ON EARTH ANCHOR AND BLANKET SELECTION.
- *** IF DESIRED, THE SYSTEM CAN BE SOIL-FILLED AND SODDED AFTER TRM INSTALLATION. SOD SHOULD BE STAPLED/STAKED ACCORDING TO PLAN SPECIFICATIONS.



ROLLED EROSION CONTROLLED PRODUCTS (RECPS) DETAIL(TYPICAL)

N.T.S.

7,23

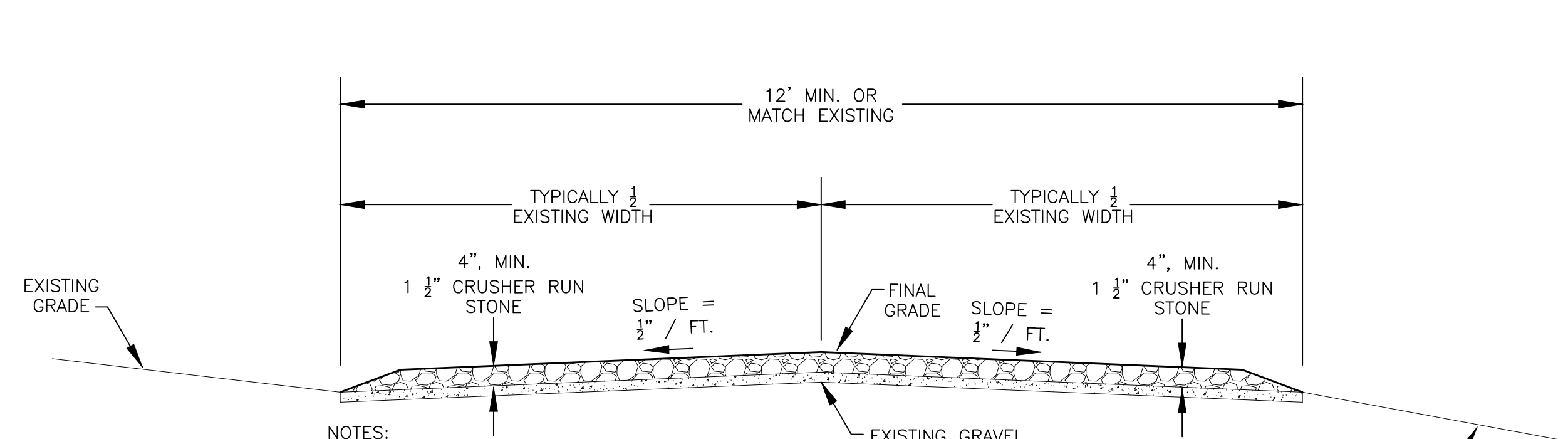


ROLLED EROSION CONTROLLED PRODUCTS (RECPS) INSTALLATION (TYPICAL)

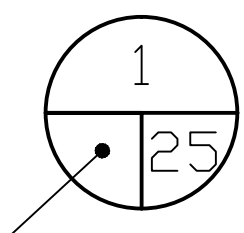
N.T.S.

7,23

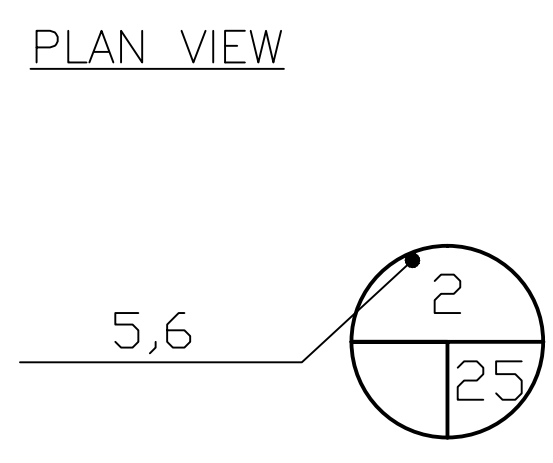
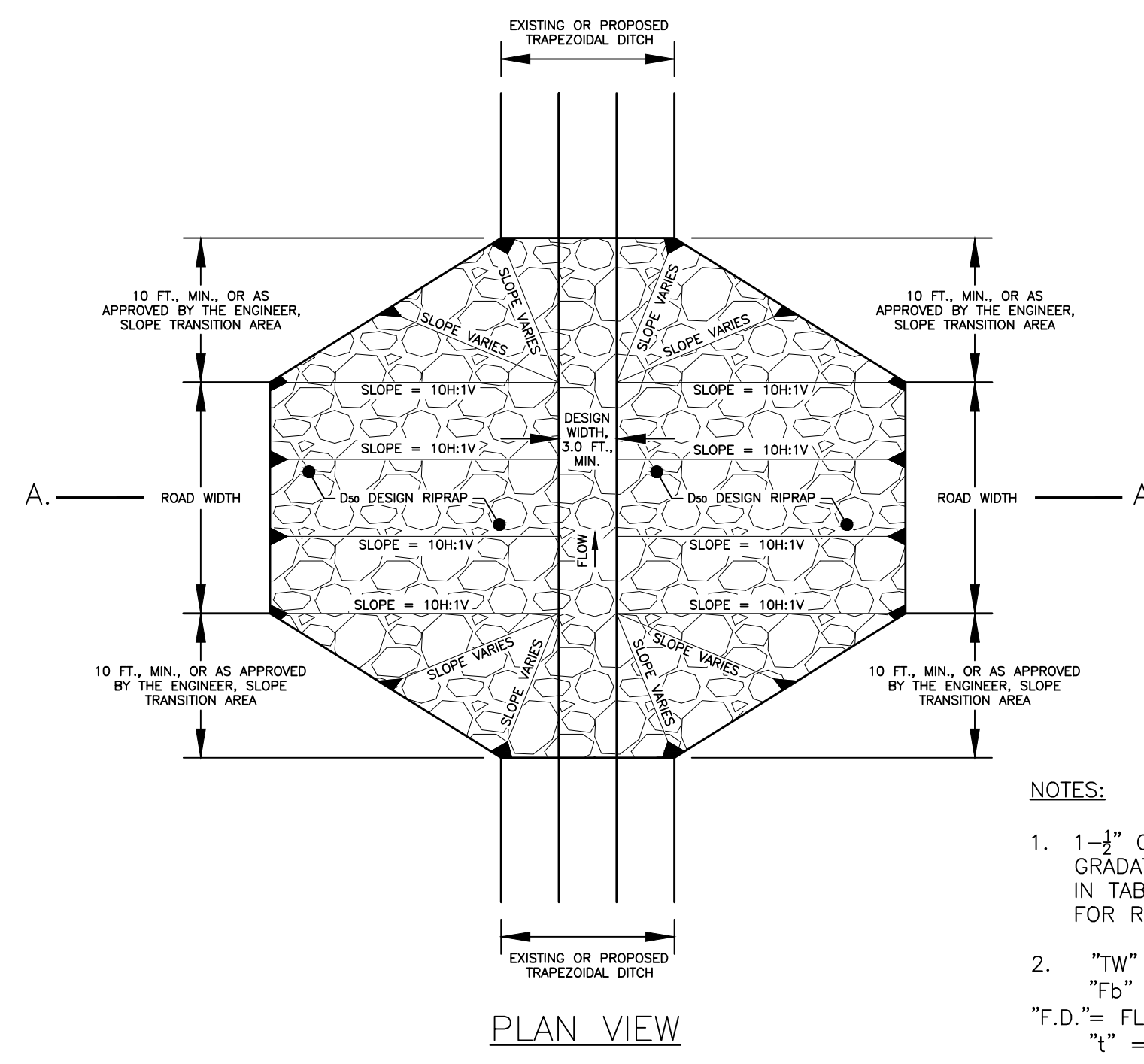
REVISIONS No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW No. 3 JULY 2014 SITE 2 REMOVAL PER WVDEP		DESIGNED SWM DRAWN SWM CHECKED WDN REVIEWED WDN S.O. 135555	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION MICHAEL BAKER JR., INC. A UNIT OF MICHAEL BAKER CORPORATION CONSULTING ENGINEERS (724) 495-7711		EBENEZER RUN HIGHWALL #9 CONSTRUCTION DETAILS	SHEET NO. 24 OF 35
			4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009		SCALE: NOT TO SCALE DATE: JULY 2014	



- NOTES:**
1. PRIOR TO STONE PLACEMENT, REGRADE EXISTING ROADWAY INTO "CROWNED" OR "SLOPE TO DITCH" CONFIGURATION AS DIRECTED BY THE ENGINEER. REMOVE, REFILL, AND COMPACT SOFT SPOTS AS DIRECTED BY THE ENGINEER. ALL CUT/FILL SLOPES SHALL BE 2H:1V.
 2. 1-1/2" CRUSHED RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WVDOH STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
 3. ACCESS ROAD REHABILITATION SHALL BE LIMITED TO AREAS APPROVED BY WVDEP AND AS DEEMED NECESSARY BY THE CONTRACTOR TO MAINTAIN ACCESS DURING CONSTRUCTION.
 4. AFTER COMPLETION OF THE PROJECT, THE ACCESS ROAD SHALL BE REMOVED AND REVEGETATED.

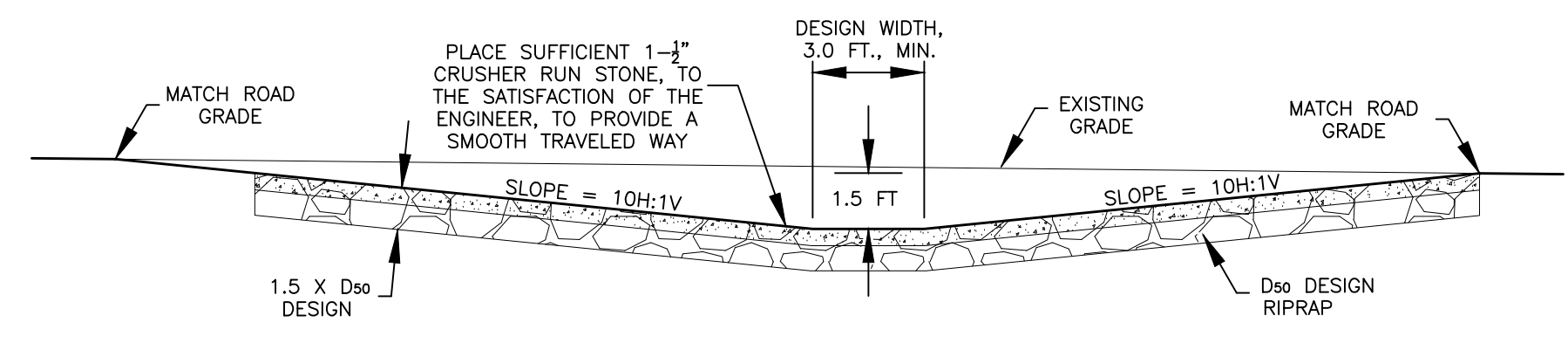


TEMPORARY ACCESS ROAD (TYPICAL)
N.T.S.



LOW WATER CROSSING
N.T.S.

- NOTES:**
1. 1-1/2" CRUSHED RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WVDOH STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
 2. "TW" = TOP WIDTH
"Fb" = FREEBOARD DEPTH
"F.D." = FLOW DEPTH
"t" = THICKNESS
 3. THE LOW WATER CROSSING FOR CC-4 WILL HAVE A 2-FT BOTTOM WIDTH IN LIEU OF THE 3-FT SHOWN IN THE DETAIL, BUT WILL STILL BE PAID FOR UNDER THE SAME BID ITEM.



CROSS SECTION A-A

GRADATION	ROCK RIPRAP SIZING			
	D ₆₀ =6"	D ₆₀ =12"	D ₆₀ =18"	D ₆₀ =24"
50%	6" - 9"	12" - 18"	18" - 27"	24" - 36"
35%	3" - 6"	6" - 12"	9" - 18"	12" - 24"
15%	<= 3"	3" - 6"	4.5" - 9"	6" - 12"

NOTE: RIPRAP SIZING FOR PROJECT IS D₆₀=12"

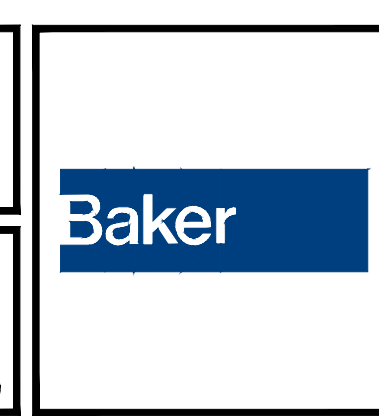
REVISIONS	
No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW	
No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW	
No. 3 JULY 2014 SITE 2 REMOVAL PER WVDEP	

DESIGNED	SWM
DRAWN	SWM
CHECKED	WDN
REVIEWED	WDN
S.O.	135555

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ABANDONED MINE LANDS & RECLAMATION SECTION

MICHAEL BAKER JR., INC.
A UNIT OF MICHAEL BAKER CORPORATION

CONSULTING ENGINEERS (724) 495-7711 4301 DUTCH RIDGE ROAD
BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
CONSTRUCTION DETAILS

SCALE: AS SHOWN DATE: JULY 2014

SHEET NO.
25
OF 35

SITE INFORMATION

ACRES DISTURBED: 11.70 ACRES

LATITUDE:
DEGREES: 40 MINUTES: 20 SECONDS: 32.7 SITE 1
DEGREES: 40 MINUTES: 20 SECONDS: 49.9 SITE 2
LONGITUDE:
DEGREES: 80 MINUTES: 32 SECONDS: 42.2 SITE 1
DEGREES: 80 MINUTES: 33 SECONDS: 06.8 SITE 2
GEOSPATIAL METHOD: DIGITAL/MANUAL INTERPOLATION FROM A MAP

DATUM: NAD83

FACILITY ADDRESS: NONE
NEAREST TOWN: FOLLANSBEE
COUNTY NAME: BROOKE
COUNTY ROUTE: WEST VIRGINIA SR-27
POSTAL CODE: 26037

NAME OF IMMEDIATE RECEIVING STREAM: EBENEZER RUN
TRIBUTARY TO CROSS CREEK
MAJOR BASIN: OHIO RIVER

DIRECTIONS TO SITE

DIRECTIONS TO SITE:
FROM WHEELING TRAVEL NORTH ALONG SR-2 TO SR-27 IN FOLLANSBEE. TURN RIGHT AND PROCEED ALONG SR-27 FOR APPROXIMATELY 4.4 MILES TO ST. JOHNS CHURCH ROAD CR-14 ON RIGHT. TO ACCESS THE NORTHERN END OF THE SITE, FOLLOW CR-14 FOR APPROXIMATELY ¼ MILE AND TURN LEFT ONTO GINGER LANE (SMALL GREEN SIGN IDENTIFIES ROAD). FOLLOW DRIVEWAY 500 FEET TO START OF HIGHWALL IN A FIELD ON RIGHT. TO ACCESS THE SOUTHERN END OF SITE 1, CONTINUE SOUTH ON CR-14 FOR AN ADDITIONAL 0.4 MILES AND TURN LEFT ONTO PLEASANT VALLEY LANE (SMALL GREEN SIGN IDENTIFIES ROAD). FOLLOW TO END OF DRIVEWAY.

PROJECT DESCRIPTION

THE EBENEZER RUN HIGHWALL #9 PROJECT CONSISTS OF A HIGHWALL SITE NEAR THE TOWN OF FOLLANSBEE IN BROOKE COUNTY, WEST VIRGINIA ON THE STEUBENVILLE EAST OHIO-WV-PA USGS QUADRANGLE. THE SITE IS LOCATED ALONG ST. JOHNS ROAD. THE SITE CAN BE ACCESSED OFF OF EITHER GINGER LANE (FOR THE NORTHERN END) OR PLEASANT VALLEY LANE (FOR THE SOUTHERN END). THE PROJECT SITE DRAINS TO EBENEZER RUN, A TRIBUTARY TO CROSS CREEK OF THE OHIO RIVER. EBENEZER RUN IS NOT ON THE EPA LIST OF IMPAIRED WATERS AND IS NOT A TIER 3 WATER AS DEFINED BY THE WVDEP AS OF THIS DATE.

THE AREA IS IN THE VICINITY OF AN ABANDONED SURFACE AND UNDERGROUND MINES PRE-1977. RECORDS INDICATE THIS IT AS THE LOCUST GROVE (NO. 1) UNDERGROUND MINE OPERATED BY THE WEST VIRGINIA - PITTSBURG COAL COMPANY. PRODUCTION RECORDS SHOW MINE OPERATIONS UNTIL 1944. SURFACE MINING MOST LIKELY OPERATED DURING THIS SAME TIME FRAME.

THE STRIP MINING ACTIVITY IN THESE AREAS PRODUCED DANGEROUS HIGHWALLS AND LARGE PILES OF REFUSE AND SPOIL THROUGHOUT THE SITE. THE SITE CONSISTS OF APPROXIMATELY 3,000 LINEAR FEET OF HIGHWALL RANGING IN HEIGHT FROM 30 TO 40 FEET. THE HIGHWALL IS ASSOCIATED WITH THE PITTSBURGH COAL SEAM, WHICH WAS SURFACE AND DEEP MINED THROUGHOUT THE PROJECT AREAS, AS EVIDENCED BY THE MINE BENCH AND LARGE SPOIL PILES. NO OPEN MINE PORTALS HAVE BEEN LOCATED ON THE PROJECT. PRE LAW MINING ACTIVITIES HAVE CREATED A HIGH POINT ON THE COAL BENCH WHERE COAL OVERBURDEN (SPOIL) WAS STACKED. FROM THIS AREA STORM RUNOFF GENERALLY FLOWS TOWARDS LOW AREAS AT THE BASE OF THE HIGHWALL OR OVER THE OUTER EDGE OF THE SPOIL ONTO EXISTING GRADES. ACID MINE DISCHARGE (AMD) RUNOFF FROM THE PROJECT AREA QUICKLY REACHES EBENEZER RUN. IN ORDER TO REMEDY THE DANGERS PRESENTED BY THE HIGHWALLS AND AMD, THE REFUSE AND SPOIL WILL BE USED TO STABILIZE AND PRODUCE SAFE SLOPES FROM THE HIGHWALLS BY PUSHING AND COMPACTING MATERIAL AGAINST THE WALLS. THIS WILL CREATE A DISTURBED AREA OF SOIL SUSCEPTIBLE TO EROSION AND SEDIMENT RELEASE. TO MITIGATE THESE PROBLEMS, TEMPORARY BEST MANAGEMENT PRACTICES WILL BE EMPLOYED NEAR THE TOP OF THE HIGHWALLS, ALONG DISTURBED SLOPES, AT LOCATIONS OF CONCENTRATED FLOW DISCHARGES, AND BELOW DISTURBED AREAS WHERE APPROPRIATE TO CONTAIN SEDIMENT ON THE SITE. PERMANENT WATER CHANNELS WILL BE PUT IN PLACE TO CONVEY SURFACE WATER THROUGH THE RECLAMATION AREA ALONG PATHS CONSISTENT WITH EXISTING SURFACE DRAINAGE PATTERNS.

ESTIMATED DATES:

ESTIMATED START AND COMPLETION DATES FOR THE PROJECT:
THIS WILL BE A 210 DAY PROJECT.

CUBIC YARDS OF EXCAVATION (CUT/FILL)

THERE ARE APPROXIMATELY 74,400 CUBIC YARDS OF MATERIAL WILL BE MOVED TO BACKFILL EXISTING HIGHWALLS, COVER ON-SITE SPOIL AND REFUSE, AND GRADE THE PROJECT AREA TO THE LINES AND ELEVATIONS DEPICTED ON THE PLANS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE SMOOTH, AESTHETICALLY PLEASING FINAL GRADE SLOPES AND PLACE 12" THICK TOPSOIL MATERIAL CAPABLE OF SUPPORTING VEGETATION ON ALL FINAL REGRADE SLOPES AND EXPOSED REFUSE AREA.

RELATIVE TIME LINE OF CONSTRUCTION ACTIVITIES:

ALL PROPOSED GRADING IS TO BE SUBSTANTIALLY COMPLETED WITHIN A PERIOD OF 6 MONTHS, WITH 12 MONTHS ALLOTTED FOR TOTAL CONSTRUCTION TO ACCOUNT FOR WORK STOPPAGES DUE TO WEATHER OR OTHER UNFORESEEN CONDITIONS, AND REVEGETATION OF ANY DEFICIENT AREAS. HIGHWALL BACKFILLING REQUIRES EXCAVATING SPOIL AND REFUSE MATERIALS AND BACKFILLING AGAINST ADJACENT HIGHWALL AREAS. THIS WORK SHALL THEREFORE GENERALLY PROCEED LINEARLY ALONG THE HIGHWALL WITH SPOIL BEING PUSHED AGAINST THE ADJACENT HIGHWALL. DISTURBED AREAS ARE TO BE REVEGETATED WITHIN 7 DAYS OF REACHING FINISHED GRADE. THUS A LIMITED AREA OF ACTIVE DISTURBANCE WILL PROGRESS ALONG THE HIGHWALL WITH THE RECENTLY RECLAIMED AND REVEGETATED HIGHWALL TO ONE SIDE AND THE YET TO BE RECLAIMED AREA ON THE OTHER SIDE. IN THIS WAY THE AREA OF DISTURBANCE AT ANY ONE TIME SHALL BE MINIMIZED. IF THE CONTRACTOR ELECTS TO PERFORM WORK IN MORE THAN ONE AREA, THE DISTURBANCES SHALL NOT BE UNDERTAKEN WITHIN AREAS DRAINING TO THE SAME BENCH DISCHARGE POINT SO AS TO NOT OVERWHELM THE SEDIMENT CONTROLS. INDIVIDUAL DISTURBANCES SHALL THUS BE CONTINUOUSLY REVEGETATED AS WORK PROGRESSES ALONG THE HIGHWALL.

IN ADDITION TO TIMELY REVEGETATION AS THE HIGHWALL AREAS REACH FINAL GRADES DEPICTED ON THE CONSTRUCTION PLANS, STRAW WATTLES SHALL BE PLACED ALONG THE CONTOURS IN LOCATIONS INDICATED ON THE EROSION CONTROL PLANS TO HELP PROVIDE ADDITIONAL SEDIMENT CONTROL.

ALL AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH THE EROSION CONTROL PLANS AND THE SPECIFICATIONS UPON REACHING FINAL GRADE. REFER TO THE EROSION CONTROL PLANS, DETAILS AND SPECIFICATIONS FOR INSTALLING SEDIMENT CONTROL DEVICES

NARRATIVE DESCRIPTION OF EROSION AND SEDIMENT CONTROLS:

ALL SEDIMENT LADEN WATER MUST PASS THROUGH AN APPROPRIATE SEDIMENT-TRAPPING DEVICE BEFORE EXITING THE SITE. EROSION AND SEDIMENT CONTROL (ESC) MEASURES TO BE UTILIZED DURING THIS PROJECT INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

- RE-VEGETATION ACTIVITIES SHALL BE PERFORMED IN AN AGGRESSIVE MANNER IN ORDER TO LIMIT THE AMOUNT OF TIME THE AREA IS IN A DISTURBED STATE. SEE VEGETATIVE CONTROL NOTE FOR MORE DETAIL.
- ACCESS ROAD REHABILITATION AND STABILIZED CONSTRUCTION ENTRANCES WILL BE CONSTRUCTED FOR SITE ACCESS, INCLUDING ONE OFF OF GINGER LANE AT THE NORTH END OF THE SITE. THESE ENTRANCES SHALL BE MAINTAINED DURING CONSTRUCTION TO THE SATISFACTION OF THE ENGINEER. IN ADDITION, THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT OR UPGRADE EXISTING GRAVEL/DIRT ROADS LEADING FROM THE PROPOSED STABILIZED CONSTRUCTION ENTRANCES. THIS SHALL INCLUDE PLACING STONE ON TOP OF EXISTING GRAVEL/DIRT ROADS, MINOR WIDENING AND STRAIGHTENING OF THE EXISTING GRAVEL/DIRT ROAD ALIGNMENTS AS REQUIRED, AND MAINTAINING AND REPAIRING THE REHABILITATED ACCESS ROADS WITHIN THE PROJECT SITE TO THE SATISFACTION OF THE ENGINEER. THE ROADS SHALL BE LEFT IN A CONDITION EQUAL TO OR BETTER THAN EXISTED UPON MOBILIZATION OPERATIONS. SEE CONSTRUCTION PLAN SHEETS AND DETAILS FOR THE STABILIZED CONSTRUCTION ENTRANCE, CONSTRUCTED ACCESS ROAD, AND ACCESS ROAD REHABILITATION DETAILS.
- THE EXISTING SPOIL PILE CONFIGURATION INCLUDES A HIGH POINT RIDGE THAT RUNS BELOW AND PARALLEL TO THE HIGHWALL. THIS CONFIGURATION ALLOWS PRECIPITATION RUNOFF BETWEEN THE HIGHWALL AND SPOIL PILE HIGH POINT TO FLOW TOWARDS THE HIGHWALL AND PITS. PRECIPITATION RUNOFF ON THE SPOIL PILE HIGH POINT OUT SLOPE FLOWS TOWARDS NATURAL DOWNHILL SLOPES AND RECEIVING STREAMS. DURING GRADING OPERATIONS AND AT ATTAINMENT OF FINAL GRADE THE RE-GRADED SPOIL ALONG THE MINE BENCH WILL MAINTAIN A HIGH POINT AT THE EDGE OF SPOIL GRADING DISTURBANCES SUCH THAT DISTURBED AREAS WILL SLOPE TOWARDS THE BASE OF THE HIGHWALL BACKFILL. THIS CONFIGURATION CREATES NO SURFACE RUNOFF FROM DISTURBED MINE BENCH AREAS TO THE OUTWARD FACING SLOPES AND RECEIVING STREAMS. THEREFORE, WHERE THIS CONFIGURATION IS MAINTAINED, NO SEDIMENT CONTROL WILL BE REQUIRED ALONG THE OUTWARD FACING SLOPES TO PROTECT THE RECEIVING STREAMS. SILT FENCE WILL ALSO BE PROVIDED BELOW SMALL AREAS OF OUTWARD DRAINING FILL SLOPES ON THE RE-GRADED SPOIL PILE, SUCH FILL SLOPES BEING REQUIRED TO FILL ERODED AREAS OR LOCALIZED IRREGULARITIES, PROVIDED THE SILT FENCE IS NOT IN AN AREA OF CONCENTRATED FLOW. SILT FENCE WILL BE USED ON APPROPRIATE SITES WHERE ADDITIONAL SEDIMENT CONTROL MEASURES CANNOT BE INSTALLED AND WHERE THE UPHILL SLOPES MEET OR ARE LESS THAN THE LENGTH LIMITATIONS SET FORTH IN THE EROSION AND SEDIMENT CONTROL BMP MANUAL. SILT FENCE SHALL ALSO BE PLACED AT LOCATIONS NECESSARY (AS CONSTRUCTION ACTIVITIES DICTATE) AS A TEMPORARY SEDIMENT CONTROL MEASURE. SEDIMENT IS TO BE REMOVED ONCE DEPOSITS REACH ONE-HALF OF THE FENCE HEIGHT. SILT FENCE SHALL REMAIN IN PLACE UNTIL VEGETATION IS WELL ESTABLISHED ON ALL AREAS CONTRIBUTING DRAINAGE TO THE FENCE.
- SUPER SILT FENCE SHALL BE INSTALLED AT THE LOCATIONS INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN SHEETS. SUPER SILT FENCE WILL BE INSTALLED AT THE DOWNSTREAM END OF PROPOSED CONSTRUCTED DITCHES, HIGHWALL BASE FLOW, OR EXISTING DRAINAGE CONVEYANCES RUNNING ALONG THE BOTTOM OF THE HIGHWALL WHERE THEY TURN AND FLOW TOWARDS PROJECT RECEIVING STREAMS. SUPER SILT FENCE MAY ALSO BE USED ON APPROPRIATE SITES WHERE ADDITIONAL SEDIMENT CONTROL MEASURES CANNOT BE INSTALLED AND WHERE THE UPHILL SLOPES EXCEED THE SLOPE LENGTH LIMITATIONS FOR SILT FENCE SET FORTH IN THE EROSION AND SEDIMENT CONTROL BMP MANUAL. SUPER SILT FENCE MAY ALSO BE PLACED AT LOCATIONS NECESSARY (AS CONSTRUCTION ACTIVITIES DICTATE) AS A MEANS OF A TEMPORARY SEDIMENT CONTROL MEASURE. SEDIMENT IS TO BE REMOVED ONCE DEPOSITS REACH ONE-HALF OF THE FENCE HEIGHT. SUPER SILT FENCE SHALL REMAIN IN PLACE UNTIL VEGETATION IS WELL ESTABLISHED ON ALL AREAS CONTRIBUTING DRAINAGE TO THE FENCE.
- THERE ARE POSSIBLE DEPRESSIONS OR PITS LOCATED ALONG THE BASE OF THE HIGHWALL THAT WILL COLLECT DRAINAGE AREA STORM RUNOFF FROM AREAS AFFECTED BY PAST MINING ACTIVITIES. THESE DEPRESSIONS WILL ENHANCE SEDIMENT CONTROL UNTIL ENCOUNTERED AND RECLAIMED. PITS FILLED WITH WATER SHALL BE DEWATERED, AS SPECIFIED IN THE SPECIFICATIONS, PRIOR TO COMMENCEMENT OF ADJACENT EARTHWORK ACTIVITIES.
- SEDIMENT CONTROL DEVICES SHALL BE PLACED AT LOCATIONS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS AND AS CONSTRUCTION ACTIVITIES DICTATE AS TEMPORARY SEDIMENT CONTROL MEASURES. THE CONTRACTOR WILL WORK DOWNSTREAM TO UPSTREAM BRINGING THE PROJECT TO THE LINES AND GRADES SHOWN ON THE PLANS. THE CONTRACTOR SHALL CONSTRUCT THE SUBGRADE (BOTTOM ELEVATION FOR CHANNEL LININGS) OF THE PROPOSED PROJECT CHANNELS DURING THIS PROCESS. SEDIMENT CONTROL DEVICES WILL BE PLACED ON THE CHANNEL SUBGRADE UNTIL CHANNEL LININGS ARE INSTALLED. WHEN CHANNEL LINING OPERATIONS ENCOUNTER INSTALLED SEDIMENT CONTROL DEVICES, THEY SHALL BE REMOVED AND RELOCATED ATOP THE CHANNEL LINING, WHILE MAINTAINING THE SPACING BETWEEN DEVICES DETAILED ON THE PLANS AND IN THE SPECIFICATIONS. SOME HAND PLACING OF RIPRAP AND GROUT MAY BE REQUIRED TO PROPERLY SEAT THE DEVICES TO PREVENT UNDER-PIPING AND FOR PLACEMENT OF METAL "TEE" FENCE SUPPORT POSTS. SEDIMENT IS TO BE REMOVED ONCE DEPOSITS REACH ONE-HALF OF THE HEIGHT OF THE DEVICE OR BEFORE. SEDIMENT CONTROL DEVICES WILL REMAIN IN PLACE UNTIL VEGETATION IS WELL ESTABLISHED ON ALL AREAS CONTRIBUTING DRAINAGE TO THE DEVICE. SEDIMENT CONTROL DEVICES CONSIST OF EROSION EELS(OR APPROVED EQUAL) BY ACF ENVIRONMENTAL (WWW.ACFENVIRONMENTAL.COM). THESE SEDIMENT CONTROL DEVICES HAVE BEEN SHOWN TO RETAIN 89% SOLIDS FROM A 33% BARREN SLOPE UNDER RUNOFF CONDITIONS GREATER THAN A 1,000 YEAR STORM EVENT.
- IF NECESSARY, A DUST PALLIATIVE SHALL BE USED TO REDUCE DUST PARTICLES PRODUCED ALONG ANY CONSTRUCTION ENTRANCE AND ACCESS ROADS DURING CONSTRUCTION ACTIVITIES.
- CHANNEL LININGS SHALL BE PLACED AS INDICATED IN THE CONSTRUCTION DETAILS.
- WATTLES ARE EROSION AND SEDIMENT CONTROL BARRIERS CONSISTING OF STRAW OR OTHER ORGANIC MATERIALS WRAPPED IN BIODEGRADABLE TUBULAR PLASTIC OR SIMILAR ENCASING MATERIAL. WATTLES MAY REDUCE THE VELOCITY AND THEORETICALLY SPREAD THE FLOW OF RILL AND SHEET RUNOFF, AND CAN CAPTURE AND RETAIN SEDIMENT. WATTLES ARE TYPICALLY 8 TO 20 INCHES IN DIAMETER AND 10 TO 30 FEET IN LENGTH. WATTLES REDUCE SLOPE LENGTH, AND ARE INTENDED TO CAPTURE AND KEEP SEDIMENT ON SLOPES. WATTLES ARE USEFUL TO TEMPORARILY STABILIZE SLOPES BY REDUCING SOIL CREEP, AND SHEET AND RILL EROSION UNTIL PERMANENT VEGETATION CAN BE ESTABLISHED. WATTLES CAN CATCH SOIL THAT IS MOVED DOWN THE SLOPE BY THE FREEZE/THAW PROCESSES. ORGANIC MATTER AND SEEDS ARE TRAPPED BEHIND THE ROLLS, WHICH PROVIDE A STABLE MEDIUM FOR GERMINATION. ROLLS TRAP TOPSOIL AND RETAIN MOISTURE FROM RAINFALL, WHICH AIDS IN GROWTH OF SEEDLINGS PLANTED UPSLOPE OF THE ROLLS. STRAW WATTLES SHALL BE INSTALLED ON FINAL GRADE SLOPES IN LOCATIONS AND SPACING SHOWN IN THE EROSION AND SEDIMENT CONTROL PLANS.
- SEDIMENT TRAPS SHALL BE INSTALLED IN LOCATIONS INDICATED IN THE EROSION AND SEDIMENT CONTROL PLANS. SEE THE EROSION CONTROL DETAILS FOR THE SEDIMENT TRAP CALCULATION TABLE.

EROSION AND SEDIMENT CONTROL MAINTENANCE AND INSPECTION:

ALL PERSONNEL INVOLVED IN THE INSTALLATION OF THE TEMPORARY CONTROL STRUCTURES SHALL BE PROPERLY INSTRUCTED ON THE CORRECT INSTALLATION PROCEDURES OF EACH MEASURE. ON-THE-JOB TRAINING SHALL BE CONDUCTED TO ENSURE THOSE PERSONNEL PERFORMING CONSTRUCTION ACTIVITIES ON THE PROJECT SITE ARE AWARE OF THE COMPONENTS, METHODS AND EXPECTED PERFORMANCE OF THE EROSION AND SEDIMENT CONTROL PLAN. MAINTENANCE AND INSPECTION SHALL BE AS FOLLOWS AND AS INDICATED IN THE EROSION AND SEDIMENT CONTROL DETAILS AND WVDEP MANUAL:

- ALL STRUCTURES SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF ANY STORM EVENT PRODUCING 0.5 INCHES (1/2") OR MORE RAINFALL IN A 24-HOUR TIME PERIOD.
- ONCE THE CAPACITY OF A STRUCTURE HAS BEEN REDUCED BY 50 PERCENT (50%), THE ACCUMULATED SEDIMENT IS TO BE REMOVED AND DISPOSED OF PROPERLY BY THE CONTRACTOR.
- ALL STRUCTURES ARE TO BE REPAIRED OR REPLACED IMMEDIATELY UPON THE FINDING OF ANY DEFICIENCY.
- STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEELS ON ALL VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. IF WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO APPROVED SEDIMENT TRAPPING DEVICE. IF THE STREET IS WASHED PRECAUTIONS MUST BE TAKEN TO PREVENT MUDDY WATER FROM RUNNING INTO WATERWAYS OR STORM SEWERS.
- REPAIR OR REPLACE SPLIT, TORN, RAVELING, OR SLUMPING WATTLES. REMOVE SEDIMENT ACCUMULATIONS WHEN EXCEEDING ½ THE HEIGHT BETWEEN THE TOP OF THE WATTLE AND THE GROUND SURFACE. ALSO, REPAIR ANY RILLS OR GULLIES PROMPTLY. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED. BASIC MONITORING OF TURF REINFORCED MATTING (TRM) SHOULD CONSIST OF VISUAL INSPECTIONS TO DETERMINE MAT INTEGRITY AND ATTACHMENT PERFORMANCE. RILL DEVELOPMENT BENEATH THE MAT OR EDGE LIFTING IS EVIDENCE OF INADEQUATE ATTACHMENT. UNTIL THE VEGETATION IS FULLY ESTABLISHED, THE GROUND SURFACE SHOULD BE INSPECTED FOR SIGNS OF RILL OR GULLY EROSION BELOW THE MATTING. ANY SIGNS OF EROSION, TEARING OF THE MATTING, OR AREAS WHERE THE MATTING IS NO LONGER ANCHORED FIRMLY TO THE GROUND SHOULD BE REPAIRED. REPAIR ANY DAMAGED AREAS IMMEDIATELY BY RESTORING SOIL TO FINISHED GRADE, RE-APPLYING SOIL AMENDMENTS AND SEED, AND REPLACING THE TRMS. ADDITIONAL STAKING AND TRENCHING CAN BE EMPLOYED TO CORRECT DEFECTS. RECENTLY PLACED MATS MAY BE REPLACED, BUT ONCE VEGETATION BECOMES ESTABLISHED, REPLACEMENT IS NOT A REASONABLE OPTION UNLESS LARGE FAILURES HAVE OCCURRED. IF THE TRMS ARE VEGETATED, THE VEGETATION SHOULD BE WATERED AS NEEDED. GETTING GRASS ESTABLISHED AS QUICKLY AS POSSIBLE IS VERY IMPORTANT.
- SEDIMENT TRAPS SHOULD HAVE SEDIMENT REMOVED FROM THE TRAP BEFORE THE TRAPS WET STORAGE VOLUME IS REDUCED BY ONE-HALF. SEDIMENT REMOVED FROM THE TRAP SHOULD BE STORED OR DISPOSED IN A MANNER IN WHICH WILL NOT CREATE AN EROSION OR SEDIMENT PROBLEM. ANY FILTER STONE SHOULD BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOCKED WITH SEDIMENT SHOULD BE REMOVED AND CLEANED OR REPLACED.
- SILT FENCE AND SUPER SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL OF 0.5 INCH OR GREATER AND AT LEAST DAILY DURING PROLONGED RAINFALL OR ONCE A WEEK. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE OR SUPER SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING. IF THE FENCE IS NOT INSTALLED ON THE CONTOUR (PERPENDICULAR TO THE FLOW OF THE WATER) BOTH OF THESE CAN OCCUR. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ½ THE HEIGHT OF THE BARRIER. IF ANY SECTION OF SILT FENCE OR SUPER SILT FENCE IS KNOCKED DOWN DURING A RAIN EVENT (BECAUSE IT WAS INSTALLED IN AN AREA OF CONCENTRATED FLOW) THEN OTHER MEASURES SUCH AS A SEDIMENT TRAP AND DIVERSION OR SUPER SILT FENCE MUST BE INSTALLED.
- ALL PERSONNEL MEETINGS AND MAINTENANCE INSPECTIONS SHALL BE DOCUMENTED IN WRITTEN FORMAT AND MAINTAINED ON SITE AS PART OF THE REQUIREMENTS OF THIS PERMIT.
- ALL VISUAL INSPECTIONS SHALL BE DOCUMENTED AND NOTE THE FOLLOWING:
 - PERSONNEL CONDUCTING THE INSPECTION.
 - WHEN THE INSPECTION TOOK PLACE
 - AREAS THAT WERE INSPECTED.
 - DEFICIENCIES DISCOVERED.
 - STEPS TAKEN TO REMEDIATE DEFICIENCIES.

A TRACKING SYSTEM SHALL BE IMPLEMENTED TO ENSURE ADEQUATE RESPONSE TO DEFICIENCIES AND THAT CORRECTIVE ACTIONS HAVE BEEN COMPLETED. RECORDS MUST BE KEPT ONSITE ALONG WITH THE EROSION AND SEDIMENT CONTROL PLANS FOR WVDEP REVIEW. THE WVDEP INSPECTION FORM SHALL BE USED AND CAN BE PROVIDED IF NEEDED.

REVISIONS		DESIGNED	SWM	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION	Baker	EBENEZER RUN HIGHWALL #9		SHEET NO. 26	
No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW		DRAWN	SWM			EROSION AND SEDIMENT CONTROL			OF 35
No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW		CHECKED	WDN			GENERAL NOTES			
No. 3 JULY 2014 SITE 2 REMOVAL PER WVDEP		REVIEWED	WDN			CONSULTING ENGINEERS	4301 DUTCH RIDGE ROAD	SCALE: NOT TO SCALE	DATE: JULY 2014
		S.O.	135555			(724) 495-7711	BEAVER, PENNSYLVANIA 15009		

VEGETATIVE CONTROL:

THIS WORK SHALL COVER ALL OPERATIONS INCIDENTAL TO THE ESTABLISHMENT OF VEGETATION WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THE DRAWINGS AND IN ANY OTHER AREAS AS DIRECTED AND APPROVED BY THE WVDEP. THIS WORK ALSO INCLUDES THE FURNISHING AND THE APPLICATION OF FERTILIZER, AGRICULTURAL LIMESTONE AND MULCH AND THE FURNISHING AND SOWING OF SEED, ALL IN ACCORDANCE WITH THESE SPECIFICATIONS AND AS DESIGNATED HEREIN.

NO AREAS OUTSIDE THE LIMITS OF CONSTRUCTION SHALL BE DISTURBED WITHOUT PRIOR APPROVAL FROM THE WVDEP IN ORDER TO ENSURE THAT RIGHT-OF-ENTRY HAS BEEN OBTAINED. CONTRACTOR SHALL MINIMIZE DISTURBANCES TO AREAS OUTSIDE LIMITS OF GRADING.

ANY AREAS OUTSIDE THE LIMITS OF CONSTRUCTION, DISTURBED BY THE CONTRACTOR, SHALL BE REVEGETATED BY THE CONTRACTOR AT NO EXPENSE TO THE WVDEP.

FERTILIZER:

THE COMMERCIAL FERTILIZER TO BE USED SHALL CONSIST OF 10-20-20 GRADE OR UNIFORM COMPOSITION AND FURNISHED IN STANDARD CONTAINERS. THESE CONTAINERS, IN ACCORDANCE WITH WEST VIRGINIA AND FEDERAL LAWS, MUST BE CLEAR MARKED WITH THE FOLLOWING INFORMATION:

- a. WEIGHT
- b. NAME OF PLANT NUTRIENTS
- c. GUARANTEED NUTRIENTS PERCENTAGES

FERTILIZER SHALL BE APPLIED AT A MINIMUM RATE OF 1,000 LBS/ACRE IN AREAS OF HERBACEOUS REVEGETATION. FERTILIZER SHALL BE APPLIED IMMEDIATELY TO ALL AREAS REACHING FINAL GRADE BY ONE OF THE TWO FOLLOWING METHODS:

- a. APPLY AND INCORPORATE FERTILIZER DURING SEEDBED PREPARATION.
- b. APPLY FERTILIZER IN HYDRO SEEDING MIXTURE FOLLOWING SEEDBED PREPARATION.

OTHER FERTILIZER MATERIALS AND RATES MAY BE USED ONLY IF THE ENGINEER FINDS THAT THE SUBSTITUTIONS ARE APPROPRIATE BASED ON SOIL TESTING PERFORMED BY STATE CERTIFIED LABORATORIES.

LIME:

THE LIME TO BE USED WILL BE AN AGRICULTURAL GRADE PULVERIZED LIMESTONE CONTAINING A MINIMUM OF 10% MGCO3 AND NOT LESS THAN 75% TOTAL CARBONATES. FINENESS WILL BE SUCH THAT NO LESS THAN 75% WILL PASS THROUGH A #100 SIEVE AND 100% WILL PASS THROUGH A #10 SIEVE.

THE APPLICATION RATE SHALL BE FORMULATED FROM SOIL TEST RESULTS, BUT IN THE ABSENCE OF TESTING, A RATE OF THREE (3) TONS PER ACRE SHALL SERVE AS THE PREFERRED MINIMUM. APPLICATION DIRECTLY TO EXPOSED AREAS OF REFUSE IS REQUIRED PRIOR TO THE PLACEMENT OF SOIL COVER MATERIAL OVER THE REFUSE. LIME SHALL BE APPLIED IMMEDIATELY TO ALL AREAS REQUIRING SEEDING REACHING FINAL GRADE BY ONE OF THE TWO METHODS LISTED IN THE "FERTILIZER" SECTION, IN THE AREAS OF HERBACEOUS REVEGETATION.

SEED MIXTURES:

THE VARIETY OF GRASS AND LEGUME SEED FURNISHED FOR THE PROJECT SHALL BEAR A TAG, IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL LAWS, WITH THE FOLLOWING INFORMATION LISTED:

- 1. LOT NUMBER
- 2. SEED PRODUCER'S NAME
- 3. PERCENT PURITY
- 4. PERCENT GERMINATION
- 5. DATE OF GERMINATION TESTING
- 6. WEED SEED CONTENT (SHOULD BE < 0.25% BY WEIGHT)

ALL LEGUMINOUS SEED SHALL BE INOCULATED WITH THE SPECIFIED STRAIN OF RHIZOBIA WHICH SHALL BE A PURE CULTURE OF BACTERIA SELECTED FOR MAXIMUM VITALITY. NO RHIZOBIA SHALL BE USED WHICH HAS PASSED THE EXPIRATION DATE ON EACH PACKAGE. THE INOCULANT SHALL BE APPLIED AT FIVE TIMES THE RECOMMENDED RATE EXCEPT WHEN USED IN A HYDRO-SEEDING MIXTURE WHEN THE RATE WILL BE TEN TIMES THE RECOMMENDED RATE.

TEMPORARY SEED MIXTURE

ALL STOCKPILES OR OTHER DISTURBED AREAS WHICH WILL REQUIRE FURTHER DISTURBANCE IN WHICH THE ADDITIONAL DISTURBANCE WILL BE DELAYED FOR A PERIOD OF THREE (3) WEEKS OR LONGER SHALL BE VEGETATED ACCORDING TO THE FOLLOWING GUIDELINES.

TEMPORARY SEED MIXTURE

Variety of Seed*	Spring	Summer	Fall	Winter
	3/15 - 5/15	5/15 - 8/15	8/15 - 10/15	10/15 - 11/15
	lbs./acre	lbs./acre	lbs./acre	lbs./acre
Annual Ryegrass (Lolium multiflorum)	40		40	
German Millet (Setaria italica)		40		
Cereal Rye (Secale cereale)				170
*Do not use Japanese Millet				

ALL AREAS TO BE TEMPORARILY SEEDED WHICH ARE TO BE RE-DISTURBED SHALL BE FERTILIZED WITH 500 LBS./ACRE OF 10_20_20. ALL AREAS REACHING FINAL GRADE TO BE TEMPORARILY SEEDED SHALL BE FERTILIZED. LIME SHALL BE APPLIED AS SPECIFIED IN THE LIME SECTION.

PERMANENT SEED MIXTURE:

PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL AREAS REACHING FINAL GRADE OR OTHER AREAS NOT LIKELY TO BE DESTROYED BY FURTHER CONSTRUCTION ACTIVITIES. ANY AREAS WHICH REACH FINAL GRADE OUTSIDE THE PERMANENT SEEDING SEASON DATES FOR PERMANENT VEGETATION (BETWEEN MAY 15 - AUGUST 15 OR OCTOBER 15 - MARCH 15) SHALL BE SEEDED WITH THE APPROPRIATE TEMPORARY SEED MIXTURE. THESE AREAS SHALL THEN BE RESEEDED WITH A PERMANENT SEED MIXTURE DURING THE NEXT DEFINED SEEDING PERIOD ACCORDING TO THIS SECTION. THE ACTUAL DATE OF PERMANENT SEEDING WILL REQUIRE THE ENGINEER'S APPROVAL. THE CONTRACTOR SHALL HAVE THE OPTION OF UTILIZING PERMANENT SEED MIX INSTEAD OF TEMPORARY SEED MIX WHEN SEEDING OUTSIDE OF THE DESIGNATED SEEDING SEASON DATES FOR PERMANENT VEGETATION FOR SEEDING OPERATIONS CONDUCTED ON AREAS THAT HAVE REACHED FINAL GRADE (AREAS THAT WILL NOT REQUIRE FURTHER DISTURBANCE) PROVIDED THAT THESE AREAS SHALL BE RESEEDED WITH PERMANENT SEED MIX AT NO ADDITIONAL COST TO THE WVDEP SHOULD ADEQUATE VEGETATION (AS DETERMINED BY THE WVDEP) FAIL TO BE ESTABLISHED FROM THE INITIAL SEEDING.

PERMANENT SEED MIXTURE

Variety of Seed*	Spring	Fall
	3/15 - 5/15	8/15 - 10/15
	lbs./acre	lbs./acre
Orchardgrass (Dactylis glomerata)	30	85
Birdsfoot Trefoil1 (Lotus corniculatus)	15	85
Red Clover (Trifolium pretense)	10	85
Annual Ryegrass2 (Lolium multiflorum)	25	85
Spring Oats	35	0
Winter Wheat	0	90

- 1 HERBACEOUS LEGUMES MUST BE TREATED WITH THE APPROPRIATE BACTERIUM BEFORE SEEDING. ON AREAS THAT ARE STEEPLY SLOPING (STEEPER THAN 1.7:1), SLIDE PRONE, SWALES, OR DRAINAGE CONVEYANCE STRUCTURES SUBSTITUTE CROWNVEITCH (CROONILLA VARIA) AT 20 LBS./ACRE FOR BIRDSFOOT TREFLOIL.
- 2 USE ANNUAL RYEGRASS ONLY IN MIXTURES SEEDED AFTER AUGUST 15 AND BEFORE MAY 15.

*USE ONLY CERTIFIED "BLUE TAG" SEED. SEED-RATE SUGGESTED IS FOR PURE LIVE SEED (PLS) IN LBS./ACRE.

MULCH MATERIAL

MULCHING PROCEDURES SHALL TAKE PLACE IMMEDIATELY FOLLOWING SEEDING. MULCH SHALL CONSIST OF BALED STRAW MULCH OR WOOD CELLULOSE FIBER. STRAW MULCH SHALL BE APPLIED AT A RATE OF 2 TONS/ACRE. THE STRAW MULCH SHALL BE ANCHORED WITH 100 GALS/ACRE ASPHALT EMULSION OR 750 LBS/ACRE WOOD CELLULOSE FIBER. WOOD CELLULOSE FIBER MULCH MAY ONLY BE USED ON SLOPES STEEPER THAN 2H:1V OR AREAS THAT ARE DIFFICULT TO ACCESS AT A RATE OF 1,500 LBS/ACRE, AND ONLY WITH THE APPROVAL OF THE WVDEP.

STRAW

STRAW MULCH SHALL INCLUDE BALED WHEAT OR OATS STRAW, OR BALED GRASS HAY. ALFALFA, CLOVER, AND SALT GRASS HAY ARE NOT ACCEPTABLE. STRAW MULCH SHALL BE DRY AND REASONABLY FREE OF WEED, SEEDS, STICKS, OR OTHER FOREIGN MATERIAL

WOOD CELLULOSE FIBER

WOOD CELLULOSE FIBER SHALL BE PROCESSED IN SUCH A MANNER THAT IT WILL CONTAIN NO GROWTH OR GERMINATION INHIBITING FACTORS AND SHALL BE DYED GREEN. IT SHALL BE MANUFACTURED IN SUCH A MANNER THAT (1) AFTER ADDITION AND AGITATION IN SLURRY TANKS WITH FERTILIZERS, LIME SEEDS, AND WATER, THE FIBERS IN THE MATERIAL WILL BECOME UNIFORMLY SUSPENDED TO FORM A HOMOGENEOUS SLURRY AND (2) THE MATERIAL, WHEN HYDRAULICALLY SPRAYED ON THE GROUND, WILL FORM A BLOTTER-LIKE GROUND COVER IMPREGNATED UNIFORMLY WITH SEED, WILL ALLOW RAINFALL TO PERCOLATE TO THE UNDERLYING SOIL. WOOD CELLULOSE SHALL ONLY BE USED ON AREAS THAT HAVE BEEN APPROVED BY WVDEP.

THE WOOD CELLULOSE FIBER SHALL BE SUPPLIED IN PACKAGES HAVING A GROSS WEIGHT NOT TO EXCEED 100 POUNDS. WEIGHT SPECIFICATIONS OF THIS MATERIAL FROM SUPPLIERS, AND FOR ALL APPLICATIONS, SHALL REFER ONLY TO AIR DRY WEIGHT OF THE FIBER MATERIAL. AIR DRY WEIGHT IS BASED ON THE NORMAL WEIGHT STANDARD OF THE TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY FOR WOOD CELLULOSE AND IS CONSIDERED EQUIVALENT TO 10 PERCENT MOISTURE. EACH PACKAGE OF THE CELLULOSE FIBER SHALL BE MARKED BY THE MANUFACTURER TO SHOW THE AIR DRY WEIGHT CONTENT.

WATER

WATER SHALL BE REASONABLY FREE OF INJURIOUS AND OTHER TOXIC SUBSTANCES HARMFUL TO PLANT LIFE. THE SOURCE OF WATER IS SUBJECT TO THE APPROVAL OF THE WVDEP.

SEQUENCE OF CONSTRUCTION:

1. WITHIN TWENTY-FOUR (24) HOURS OF FILING THE WVDEP STORMWATER PERMIT APPLICATION, THE PUBLIC NOTICE SIGN AS DETAILED IN THE PERMIT APPLICATION SHALL BE DISPLAYED AT THE ENTRANCE OF THE PROJECT SITE AND/OR AT LOCATIONS NEAR ACTIVE PARTS OF THE PROJECT THAT IS ACCESSIBLE BY THE PUBLIC. THE SIGN SHALL REMAIN FOR THE DURATION OF CONSTRUCTION ACTIVITIES.

2. THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT THE STABILIZED CONSTRUCTION ENTRANCES, TO THE SATISFACTION OF THE ENGINEER, AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS AND SPECIFIED TO PREVENT SEDIMENT FROM BEING TRANSPORTED BEYOND THE CONSTRUCTION LIMITS OR ONTO ADJACENT ROADS. THE STONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED DURING CONSTRUCTION TO THE SATISFACTION OF THE ENGINEER.

3. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN AND REPAIR EXISTING PRIVATE AND PUBLIC ACCESS ROADS LEADING TO THE CONSTRUCTION SITE TO THE SATISFACTION OF THE ENGINEER. THE ROADS SHALL BE LEFT IN A CONDITION EQUAL TO OR BETTER THAN EXISTED UPON MOBILIZATION OPERATIONS. ACCESS ROAD UPGRADES AND MAINTENANCE WILL NOT INVOLVE RE-GRADING; RATHER SEPARATION FABRIC AND/OR ADDITIONAL CRUSHED STONE SHALL BE PLACED ATOP EXISTING GRADES TO MAINTAIN THE INTEGRITY OF THE ROAD. IN ADDITION, THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT ACCESS ROADS TO THE PROJECT SITE ON FINAL GRADES BY PLACING SEPARATION FABRIC AND CRUSHED STONE TO THE LINES AND GRADES SHOWN ON THE PLANS.

4. THE CONTRACTOR WILL GENERALLY WORK FROM ONE END OF THE HIGHWALL TO THE OTHER, AND LIMITING DISTURBED WORK AREA AT ANY GIVEN TIME. THE PROJECT AREA MAY BE CONSIDERED AS 4 AREAS GENERALLY CORRESPONDING TO THE 4 PROPOSED COLLECTION CHANNELS IN EXISTING DRAINAGE HOLLOWES. THE CONTRACTOR SHALL INSURE THAT BACKFILL AND REVEGETATION ACTIVITIES WITHIN THE SITES ARE KEPT CURRENT WITH GRADING OPERATIONS IN CONFORMANCE WITH THE APPROVED STORMWATER PROTECTION PLAN, CONSTRUCTION PLANS, AND THE SPECIFICATIONS. THE CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS FOR EACH SITE:

a. INSTALL BEST MANAGEMENT PRACTICES INCLUDING SEDIMENT TRAPS AT PROPOSED FINAL MINE BENCH DISCHARGE POINTS AS APPLICABLE IN ORDER TO PROVIDE INITIAL STABILIZATION. DEPENDING ON THE CONTRACTOR'S EQUIPMENT SPREAD, ONE OR MORE AREAS MAY BE RECLAIMED AT THE SAME TIME. PERIMETER CONTROLS INCLUDE SILT FENCE, SUPER SILT FENCE, TEMPORARY DIVERSIONS, PIPE SLOPE DRAINS AND SEDIMENT TUBES. SEE EROSION AND SEDIMENT CONTROL PLAN SHEETS AND DETAILS FOR THE LOCATION AND TYPE OF PERIMETER CONTROLS REQUIRED.

b. ONCE THE PERIMETER AREA HAS BEEN STABILIZED, SITE PREPARATION MAY BE PERFORMED. THIS ACTIVITY INCLUDES CLEARING AND GRUBBING AT THE SITE; BURNING CLEARED AND GRUBBED MATERIAL TO ASH; REMOVING ALL AND ANY TYPE OF DEBRIS, TRASH, AND GARBAGE FROM WITHIN THE PROJECT LIMITS AND TRANSPORTING AND DISPOSING SAID MATERIALS AT AN APPROVED LANDFILL; UPGRADING AND MAINTAINING EXISTING ROADWAYS. IMPOUNDED WATER SHALL BE DRAINED GRADUALLY IN A NON-EROSIVE MANNER. WATER MAY BE PUMPED OR CONVEYED BY OTHER APPROVED TEMPORARY METHOD AND DISCHARGED INTO AN EXISTING DRAINAGE COURSE.

c. UPON COMPLETION OF SITE PREPARATION, SITE GRADING WILL BEGIN. COLLECTION CHANNEL CONSTRUCTION WILL BEGIN AT THE DOWNSTREAM END AND PROGRESS UPSTREAM. AS THE PROPOSED DRAINAGE AREA IS BROUGHT TO FINAL GRADES, SEDIMENT CONTROL DEVICES WILL BE INSTALLED INCLUDING WATTLES ALONG RE-GRADED SLOPES, COLLECTION CHANNELS, AND SEDIMENT TUBE TRAPS (ACF ENVIRONMENTAL EROSION EELS OR APPROVED EQUAL) ALONG THE CHANNELS TO FILTER SEDIMENT FROM STORM WATER RUNOFF. AS THE REQUIRED ENGINEERED LINING (REFER TO CHANNEL SUMMARY TABLE) IS PLACED ATOP THE CHANNEL TEMPLATE SUBGRADE, ENCOUNTERED SEDIMENT CONTROL DEVICES WILL BE MOVED AND PLACED ATOP THE ENGINEERED DITCH LINING. SEDIMENT CONTROL DEVICES WILL REMAIN IN PLACE UNTIL THE PROPOSED CHANNEL OR SWALE DRAINAGE AREA IS STABILIZED. SEDIMENT CONTROL DEVICES WILL ALSO BE INSTALLED IN OTHER CONCENTRATED FLOW AREAS AS NECESSARY TO CONTROL SEDIMENT LADEN DISCHARGES AND AS DIRECTED BY THE ENGINEER. ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE NEEDED AS CONSTRUCTION ACTIVITIES DICTATE (I.E. SILT FENCE, SUPER SILT FENCE, SEDIMENT CONTROL DEVICE, ETC.). IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADHERE TO ALL NPDES STANDARDS AND REGULATIONS SET FORTH BY THE WVDEP. THE CONTRACTOR WILL GENERALLY WORK DOWNSTREAM TO UPSTREAM FILLING EXISTING PITS AND DEPRESSIONS AT THE HIGHWALL BASE, AS ENCOUNTERED. THESE DEPRESSIONS WILL BE UTILIZED TO PROVIDE TEMPORARY SEDIMENT CONTROL UNTIL ENCOUNTERED AND RECLAIMED. PLEASE REFER TO THE EROSION AND SEDIMENT CONTROL PLANS FOR THE LOCATIONS AND DETAILS FOR INSTALLING SEDIMENT CONTROL DEVICES.

d. SEGREGATE TOPSOIL TO BE USED AS FINAL COVER FROM MATERIALS UNSUITABLE FOR SUCH USE, IF NECESSARY. MATERIALS ARE TO BE OBTAINED FROM WITHIN LIMITS OF DISTURBANCE, OR AS CLOSE AS POSSIBLE. DO NOT DISTURB AREAS BEYOND DESIGNATED LIMITS WITHOUT PRIOR APPROVAL. SEED AND MULCH DISTURBED AREAS WITHIN SEVEN DAYS OF REACHING FINISHED GRADE. AREAS SUCH AS TEMPORARY SOIL STOCKPILES THAT WILL NOT BE WORKED AGAIN FOR 14 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN 7 DAYS. SOIL STOCKPILES MUST BE PROVIDED WITH SEDIMENT BARRIERS.

e. MAINTAIN ALL E&S CONTROLS UNTIL DISTURBED AREAS ARE FULLY STABILIZED. AFTER VEGETATION IS FULLY ESTABLISHED AND WHEN DIRECT BY WVDEP, SEDIMENT CONTROLS BELOW PERMANENTLY STABILIZED AREAS MAY BE REMOVED.

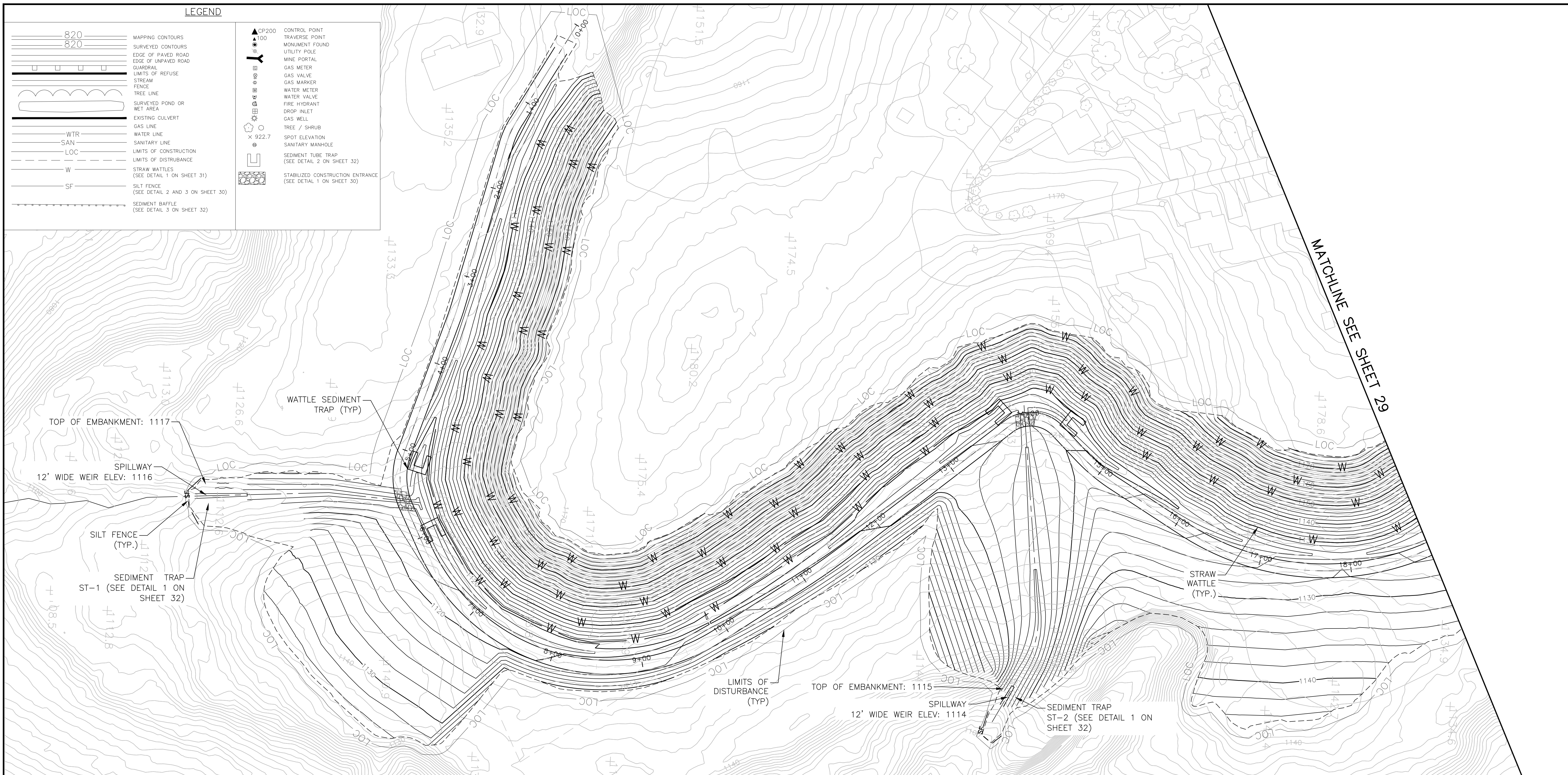
f. IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN WILL CONTINUE THROUGHOUT CONSTRUCTION ACTIVITIES IN EACH AREA DISTURBED BY HIGHWALL BACKFILLING AND RELATED CONSTRUCTION AND WILL BE MAINTAINED UNTIL THE ENTIRE PROJECT AREA IS STABILIZED. AREAS HAVING SEDIMENTATION PROBLEMS SHALL HAVE ADDITIONAL SEDIMENT CONTROLS PLACED (SILT FENCE, SUPER SILT FENCE, SEDIMENT CONTROL DEVICES, AND/OR STRAW WATTLES) TO THE SATISFACTION OF THE OWNER OR OWNER'S REPRESENTATIVE.

g. UPON COMPLETE PROJECT AREA STABILIZATION, THE APPLICANT MUST FILE A NOTICE OF TERMINATION (NOT) APPLICATION WITH THE WVDEP TO COMPLETE THE NPDES PERMIT PROCESS.

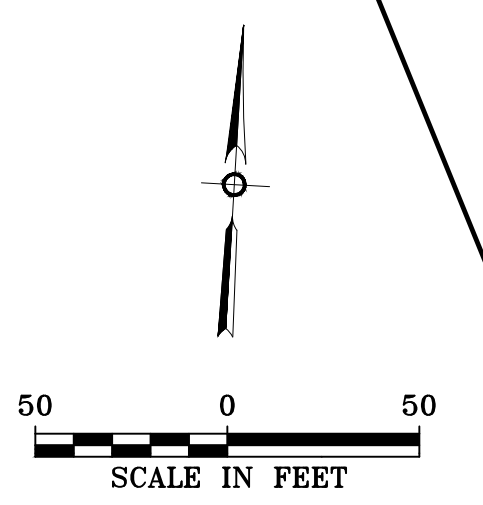
REVISIONS		DESIGNED SWM	DRAWN SWM	CHECKED WDN	REVIEWED WDN	S.O. 135555	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION	MICHAEL BAKER JR., INC. A UNIT OF MICHAEL BAKER CORPORATION	CONSULTING ENGINEERS (724) 495-7711	4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009		EBENEZER RUN HIGHWALL #9 EROSION AND SEDIMENT CONTROL GENERAL NOTES		SHEET NO. 27		
No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW												SCALE: NOT TO SCALE		DATE: JULY 2014		OF 35
No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW																
No. 3 JULY 2014 SITE 2 REMOVAL PER WVDEP																

LEGEND

	MAPPING CONTOURS		CONTROL POINT
	SURVEYED CONTOURS		TRAVERSE POINT
	EDGE OF PAVED ROAD		MONUMENT FOUND
	EDGE OF UNPAVED ROAD		UTILITY POLE
	GUARDRAIL		MINE PORTAL
	LIMITS OF REFUSE		GAS METER
	STREAM		GAS VALVE
	FENCE		GAS MARKER
	TREE LINE		WATER METER
	SURVEYED POND OR WET AREA		WATER VALVE
	EXISTING CULVERT		FIRE HYDRANT
	GAS LINE		DROP INLET
	WATER LINE		GAS WELL
	SANITARY LINE		TREE / SHRUB
	LIMITS OF CONSTRUCTION		SPOT ELEVATION
	LIMITS OF DISTURBANCE		SANITARY MANHOLE
	STRAW WATTLES (SEE DETAIL 1 ON SHEET 31)		SEDIMENT TUBE TRAP (SEE DETAIL 2 ON SHEET 32)
	SILT FENCE (SEE DETAIL 2 AND 3 ON SHEET 30)		STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL 1 ON SHEET 30)
	SEDIMENT BAFFLE (SEE DETAIL 3 ON SHEET 32)		



MATCHLINE SEE SHEET 29



REVISIONS	
No. 1	NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 2	MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 3	JULY 2014 SITE 2 REMOVAL PER WVDEP

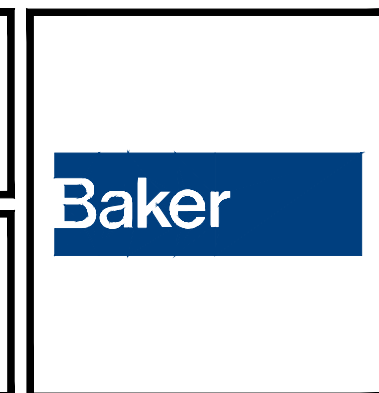
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REVIEWED	WDN
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STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 ABANDONED MINE LANDS & RECLAMATION SECTION

MICHAEL BAKER JR., INC.
 A UNIT OF MICHAEL BAKER CORPORATION

CONSULTING ENGINEERS
 (724) 495-7711

4301 DUTCH RIDGE ROAD
 BEAVER, PENNSYLVANIA 15009



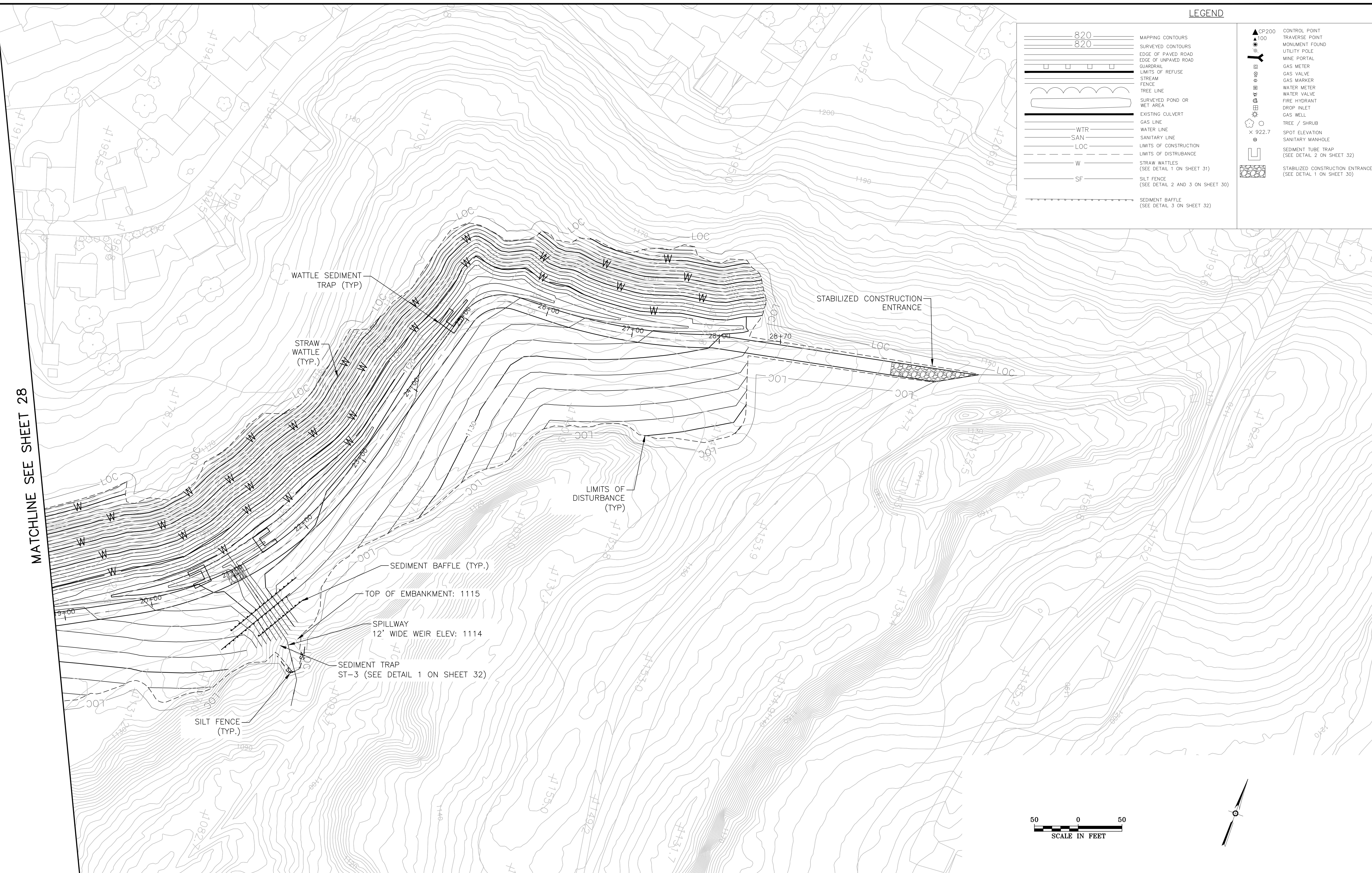
EBENEZER RUN HIGHWALL #9
 EROSION & SEDIMENT CONTROL PLAN

SCALE: 1" = 50'
 DATE: JULY 2014

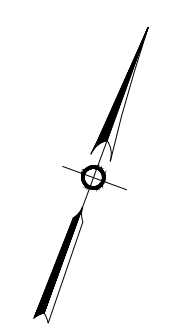
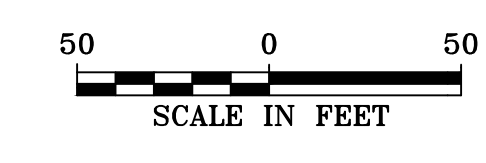
SHEET NO.
28
 OF 35

LEGEND

	MAPPING CONTOURS		CONTROL POINT
	SURVEYED CONTOURS		TRAVERSE POINT
	EDGE OF PAVED ROAD		MONUMENT FOUND
	GUARDRAIL		UTILITY POLE
	LIMITS OF REFUSE		MINE PORTAL
	STREAM		GAS METER
	FENCE		GAS VALVE
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	SURVEYED POND OR WET AREA		WATER METER
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	GAS LINE		FIRE HYDRANT
	WATER LINE		DROP INLET
	SANITARY LINE		GAS WELL
	LIMITS OF CONSTRUCTION		TREE / SHRUB
	STRAW WATTLES (SEE DETAIL 1 ON SHEET 31)		SPOT ELEVATION
	SILT FENCE (SEE DETAIL 2 AND 3 ON SHEET 30)		SANITARY MANHOLE
	SEDIMENT BAFFLE (SEE DETAIL 3 ON SHEET 32)		SEDIMENT TUBE TRAP (SEE DETAIL 2 ON SHEET 32)
			STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL 1 ON SHEET 30)



MATCHLINE SEE SHEET 28



REVISIONS	
No. 1	NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 2	MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 3	JULY 2014 SITE 2 REMOVAL PER WVDEP

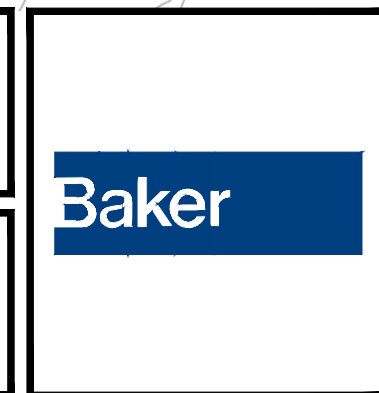
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REVIEWED	WDN
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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ABANDONED MINE LANDS & RECLAMATION SECTION

MICHAEL BAKER JR., INC.
A UNIT OF MICHAEL BAKER CORPORATION

CONSULTING ENGINEERS (724) 495-7711

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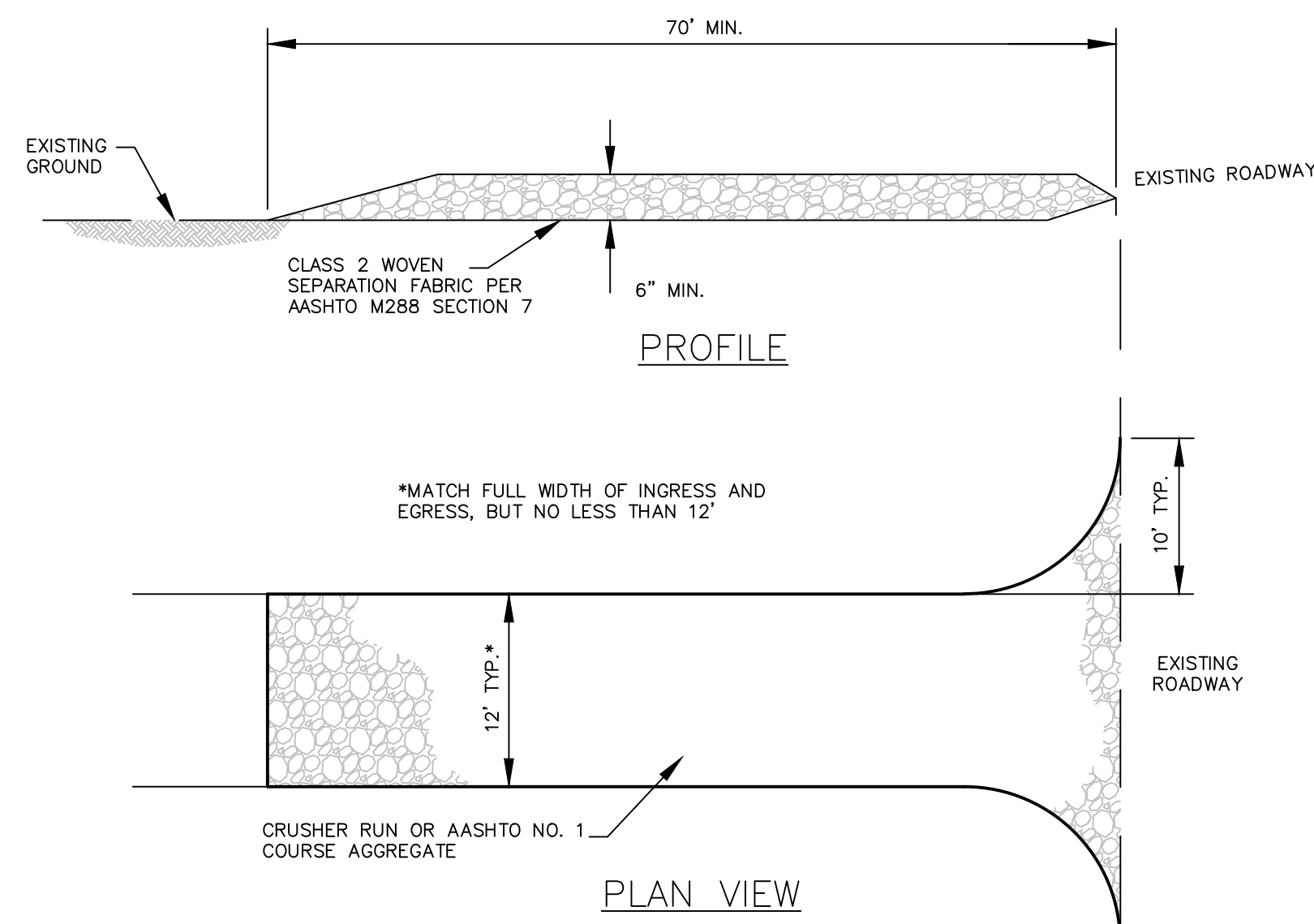


EBENEZER RUN HIGHWALL #9
EROSION & SEDIMENT CONTROL PLAN

SCALE: 1" = 50'

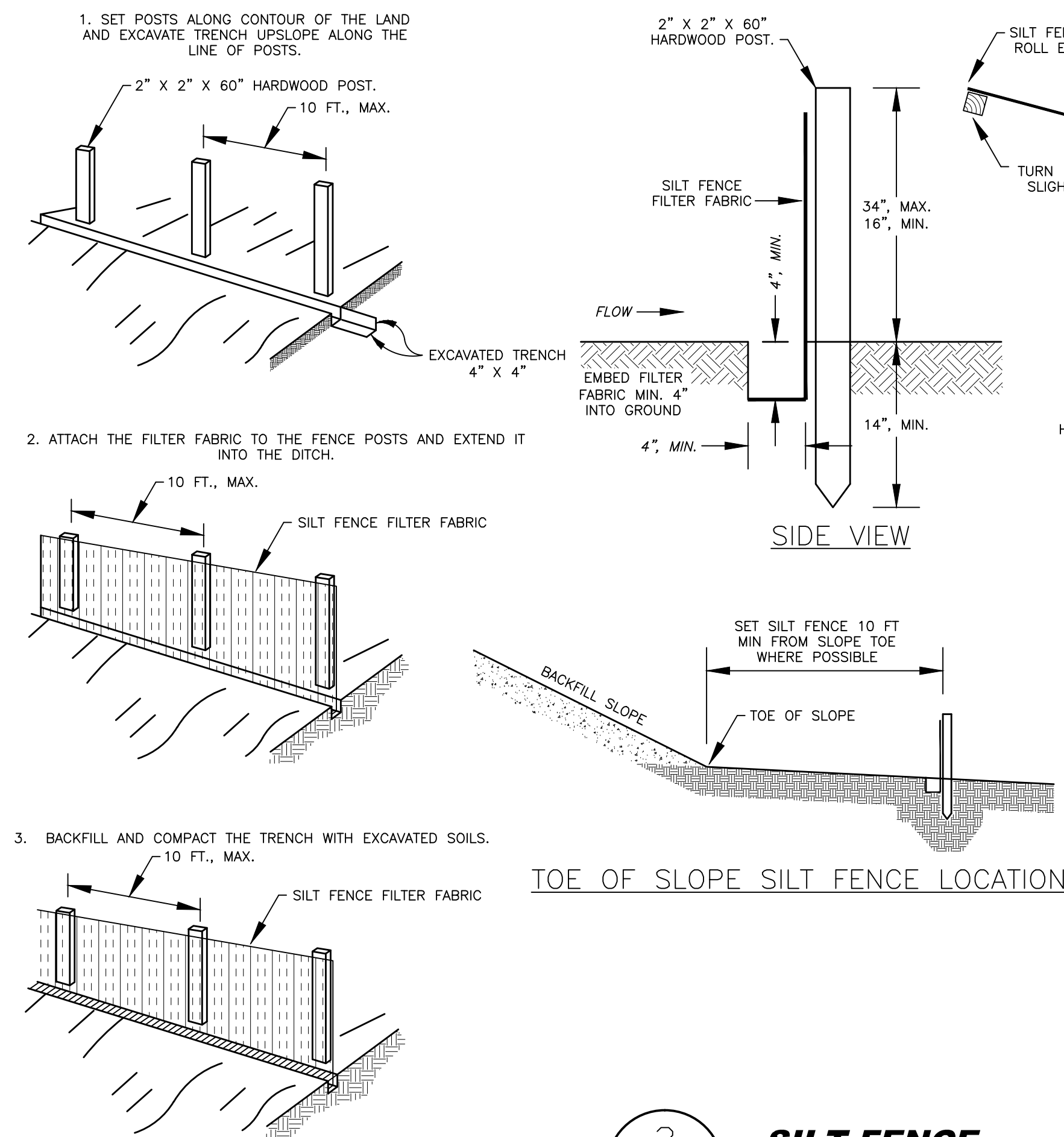
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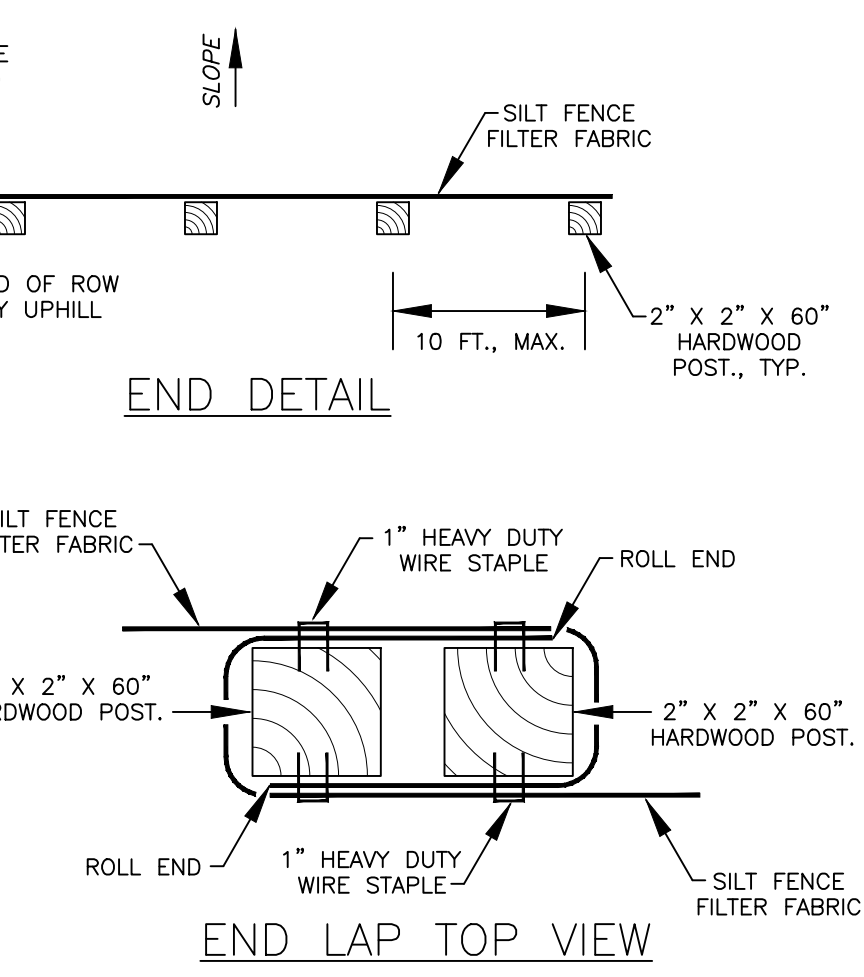
1
STABILIZED CONSTRUCTION ENTRANCE
N.T.S.

28,29



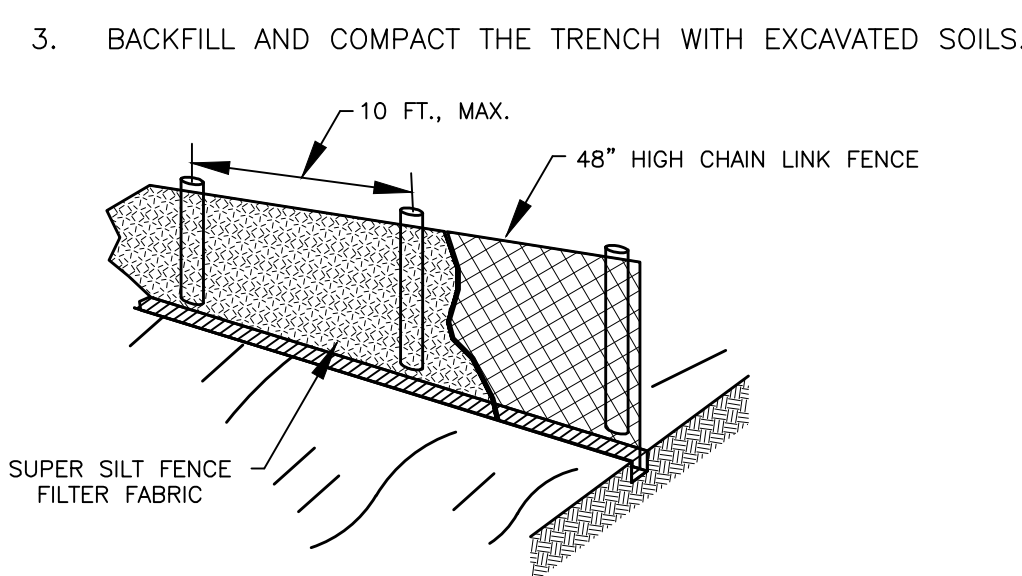
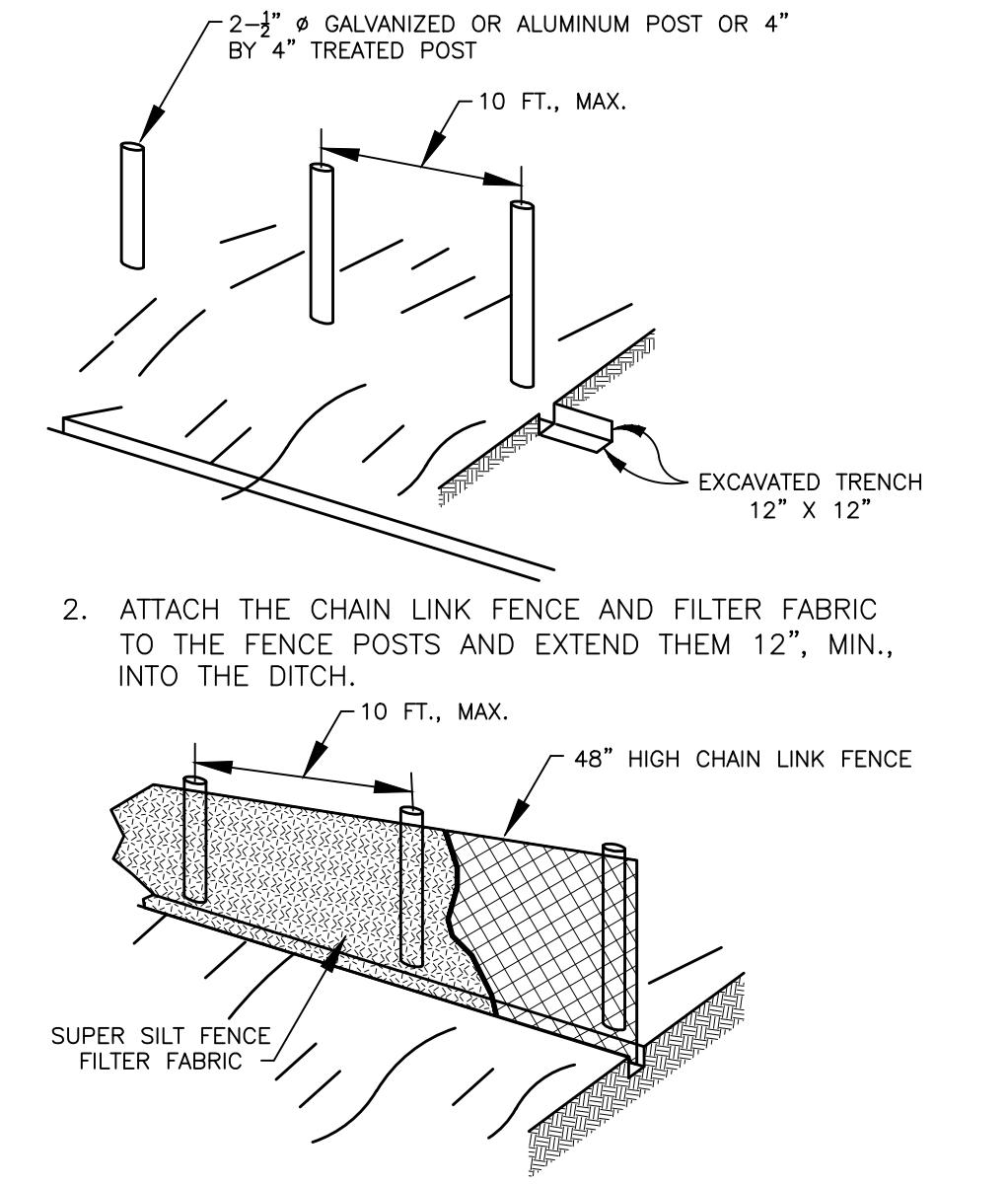
2
SILT FENCE
N.T.S.

28,29



- 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 TIE 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", "ENVIROFENCE", OR APPROVED EQUAL.
 7. THE MAXIMUM RUN OF SLOPE ABOVE A ROW OF SILT FENCE IS 110 FEET.
 8. SILT FENCE SHALL NOT BE INSTALLED ACROSS AREAS OF CONCENTRATED FLOW

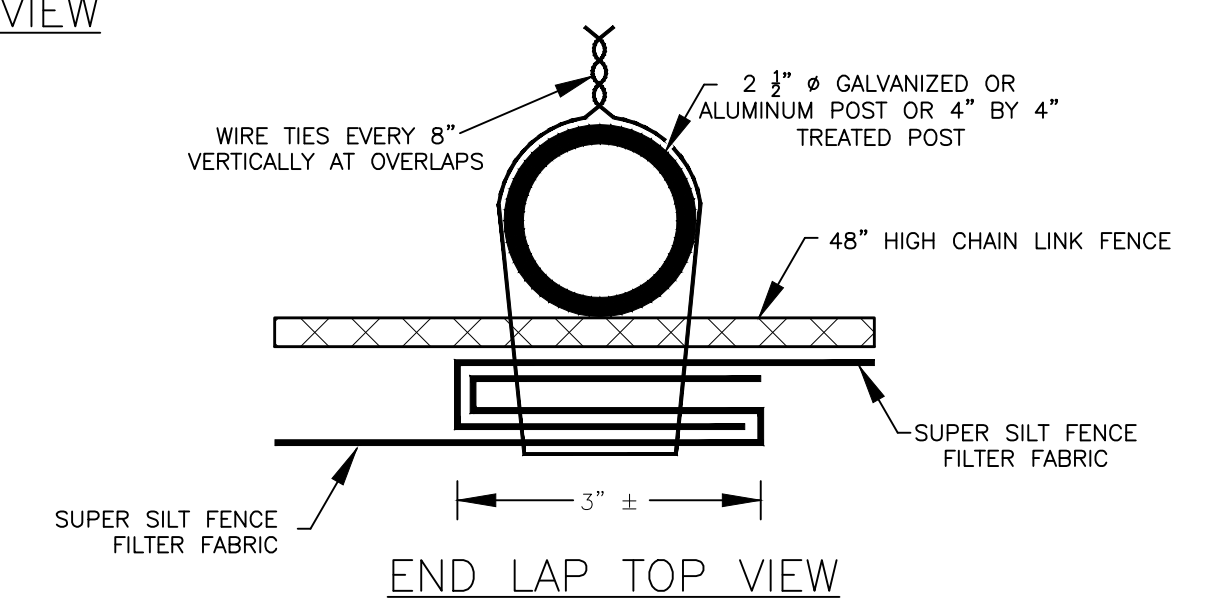
- INSTALLATION NOTES:**
1. SET POSTS ALONG CONTOUR OF THE LAND AND EXCAVATE TRENCH UPSLOPE ALONG THE LINE OF POSTS.



3
SUPER SILT FENCE
N.T.S.

28,29

- NOTES:**
1. CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 608 OF THE WVDOH SPECIFICATIONS. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE POSTS WITH WIRE TIES OR STAPLES.
 2. POSTS NEED NOT BE SET IN CONCRETE.
 3. THE FILTER FABRIC SHALL BE FASTENED TO THE CHAIN LINK FENCE WITH TIES EVERY 24" AT THE TOP AND MID SECTION.
 4. FABRIC AND FENCE SHALL BE EMBEDDED 12", MINIMUM, INTO THE GROUND.
 5. A 6", MINIMUM, OVERLAP SHALL BE PROVIDED WHERE TWO SECTIONS OF FABRIC ADJOIN. THE OVERLAPPED FABRIC SHALL BE FOLDED TOGETHER AND ATTACHED TO THE CHAIN LINK FENCE.
 6. 4" BY 4" PRESSURE TREATED POSTS MAY BE SUBSTITUTED FOR METAL FENCE POSTS WITH THE APPROVAL OF THE ENGINEER.
 7. THE LENGTH OF SLOPE ABOVE THE FENCE SHALL NOT EXCEED 400 FEET IN STEEP TERRAIN. IN FLATTER AREAS THE LENGTH CAN BE EXTENDED WITH THE APPROVAL OF THE ENGINEER.



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REVIEWED	WDN
S.O.	135555

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION	
MICHAEL BAKER JR., INC. A UNIT OF MICHAEL BAKER CORPORATION	
CONSULTING ENGINEERS (724) 495-7711	4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9 EROSION & SEDIMENT CONTROL DETAILS	
SCALE: NOT TO SCALE	DATE: JULY 2014

SHEET NO. 30 OF 35

GENERAL NOTES:

1. WATTLES SHALL BE STRAW WATTLES OR APPROVED EQUAL DEVICE AS RECOMMENDED BY THE MANUFACTURER FOR THIS APPLICATION.
2. STRAW WATTLES OR APPROVED EQUAL USED IN PERIMETER CONTROL APPLICATIONS SHALL HAVE A SPECIFICATION MIXTURE 1.1 OR 1.2.
3. MIXTURE SPECIFICATION 1.1. A FILTER MIXTURE COMPRISED OF 50% SHREDDED RUBBER AND 50% WOOD CHIP PARTICLES BY VOLUME. THE SHREDDED RUBBER SHALL BE WASHED AND PROCESSED TO REMOVE MOST, IF NOT ALL, METAL COMPONENTS. THE RUBBER SHALL BE DERIVED FROM RECYCLED TIRES AND SHALL BE SHREDDED TO PRODUCE A MAXIMUM PARTICLE SIZE OF +/- 3/4 INCH. THE WOOD CHIPS SHALL BE PRODUCED FROM HARDWOOD TREES AND SHALL CONFIRM TO AASHTO CERTIFICATION SPECIFICATION MP 9-03.
4. MIXTURE SPECIFICATION 1.2. A FILTER MIXTURE COMPRISED OF 1/3 SHREDDED RUBBER, 1/3 WOOD CHIPS, AND 1/3 RECYCLED SYNTHETIC FIBERS. THE SHREDDED RUBBER SHALL BE WASHED AND PROCESSED TO REMOVE MOST, IF NOT ALL, METAL COMPONENTS. THE RUBBER SHALL BE DERIVED FROM RECYCLED TIRES AND SHALL BE SHREDDED TO PRODUCE A MAXIMUM PARTICLE SIZE OF +/- 3/4 INCH. THE WOOD CHIPS SHALL BE PRODUCED FROM HARDWOOD TREES AND SHALL CONFIRM TO AASHTO CERTIFICATION SPECIFICATION MP 9-03. THE SYNTHETIC FIBERS SHALL BE PRODUCED FROM RECYCLED, MANUFACTURED MATERIALS, SUCH AS, BUT NOT LIMITED TO, PRE-CONSUMER SCRAP CARPET, TIRE CHORD, AND TIRE FIBER MATERIALS.
5. STRAW WATTLES SHALL BE MANUFACTURED FROM A WOVEN GEOTEXTILE COVERING WITH INTERIOR FILTER MATERIALS SUCH AS 100% SHREDDED RUBBER (MIXTURE SPECIFICATION 1.0, 50% SHREDDED RUBBER/50% AASHTO-CERTIFIED WOOD CHIPS (MIXTURE SPECIFICATION 1.1)).
6. LENGTHS OF STRAW WATTLES SHALL BE EITHER A NOMINAL +/-10 FT. OR +/- 4.5 FT. NOMINAL DIAMETER SHALL BE +/-9.5 INCHES.
7. STRAW WATTLES CAN BE PLACED AT THE TOP, ON THE FACE, OR AT THE TOE OF SLOPES TO INTERCEPT RUNOFF, REDUCE FLOW VELOCITY, RELEASE THE RUNOFF AS SHEET FLOW AND PROVIDE REMOVAL OF SEDIMENT FROM THE RUNOFF.
8. STRAW WATTLES SHALL BE INSTALLED ALONG THE GROUND CONTOUR, AT THE TOE OF SLOPES, AT AN ANGLE TO THE CONTOUR TO DIRECT FLOW AS A DIVERSION BERM, AROUND INLET STRUCTURES, IN A DITCH AS A CHECK DAM TO HELP REDUCE SUSPENDED SOLIDS LOADING AND RETAIN SEDIMENT, OR AS A GENERAL FILTER FOR ANY DISTURBED SOIL AREA.
9. NO TRENCHING IS REQUIRED FOR INSTALLATION OF STRAW WATTLES
10. PREPARE BED FOR STRAW WATTLE INSTALLATION BY REMOVING ANY LARGE DEBRIS INCLUDING ROCKS, SOIL CLODS, AND WOODY VEGETATION. STRAW WATTLES CAN ALSO BE PLACED OVER PAVED SURFACES INCLUDING CONCRETE AND ASPHALT WITH NO SURFACE PREPARATION REQUIRED.
11. RAKE BED AREA WITH A HAND RAKE OR BY DRAG HARROW.
12. DO NOT PLACE STRAW WATTLE DIRECTLY OVER RILL AND GULLIES UNTIL AREA HAS BEEN HAND-EXCAVATED AND RAKED TO PROVIDE A LEVEL BEDDING SURFACE. ALL SURFACES SHALL BE UNIFORMLY COMPACTED FOR MAXIMUM SEATING OF STRAW WATTLE IN PLACE.
13. FOR LOCATIONS WHERE STRAW WATTLES WILL BE PLACED IN CONCENTRATED FLOWS (SUCH AS CHECK DAMS, INLET PROTECTION) AND FOR PERIMETER CONTROLS AT PRIMARY DISCHARGE LOCATIONS, BED THE WATTLES IN A FLOCMAT CRADLE PER THE DETAILED DRAWINGS.
14. FOR DITCH APPLICATIONS, THE MAXIMUM DRAINAGE AREA SHALL BE 10 ACRES.
15. IF MORE THAN ONE STRAW WATTLE IS PLACED IN A ROW, THE WATTLES SHALL BE OVERLAPPED A MINIMUM OF 12 INCHES TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. COMPRESS THE TWO WATTLES OF THE OVERLAP TIGHTLY TOGETHER EITHER BY HAND OR MANUFACTURER-APPROVED MECHANIZED MEANS.
16. WHEN USED IN DITCHES AS A CHECK DAM, STRAW WATTLES SHALL BE INSTALLED PER MANUFACTURER'S DETAILS.
17. FOR CHECK DAM APPLICATIONS, STRAW WATTLES SHALL BE PLACED PERPENDICULAR TO THE FLOW OF THE WATER. STRAW WATTLES SHALL CONTINUE UP THE SIDES SLOPES A MINIMUM OF 3 FEET ABOVE THE DESIGN FLOW DEPTH.
18. STRAW WATTLES SHALL REMAIN IN PLACE UNTIL FULLY ESTABLISHED VEGETATION HAS COMPLETELY DEVELOPED OR UNTIL THE STORAGE CAPACITY/FUNCTIONAL LIFE OF THE WATTLE HAS BEEN EXHAUSTED (REQUIRING REPLACEMENT WITH NEW WATTLES).
19. ANCHORING POSTS FOR CHECK DAM APPLICATIONS SHALL HAVE A MINIMUM WEIGHT OF 1.25 LBS/FT STEEL T-POSTS (5 TO 7 FT. LENGTHS) ROLLED FROM HIGH CARBON STEEL. POSTS SHOULD BE HOT-DIP GALVANIZED OR COATED WITH A WEATHER-RESISTANT PAINT FOR STEEL APPLICATION. POSTS SHOULD BE EQUIPPED WITH A METAL ANCHOR PLATE. INSTALL PER DETAILS ON THIS SHEET.
20. PLACE T-POSTS THROUGH HANDLE OF BAGS. DO NOT DRIVE POSTS THROUGH EROSION EELS. T-POSTS ARE TO BE EMBEDDED A MINIMUM OF 2 FT INTO GROUND.

SPACING RECOMMENDATIONS FOR THE STRAW WATTLES FOR PERIMETER CONTROLS AND INTERCEPTING SHEET FLOW ON SLOPES

SLOPE(%)	SINGLE WATTLE SPACING(ft)	*STACKED DUAL WATTLES SPACING(ft)
0.5	300	N/A
1	200	N/A
2	160	N/A
3	80	N/A
4	50	N/A
5	40	N/A
6	35	N/A
8	30	N/A
10	25	N/A
15	+17	N/A
20	+12	+25
25	N/A	+15
33	N/A	+10
50	N/A	+6

* DUAL STACK REFERS TO TWO WATTLES STACKED ATOP ONE ANOTHER AND STABILIZED WITH T-POSTS. SEE DETAIL E2-E ON SHEET E-2.

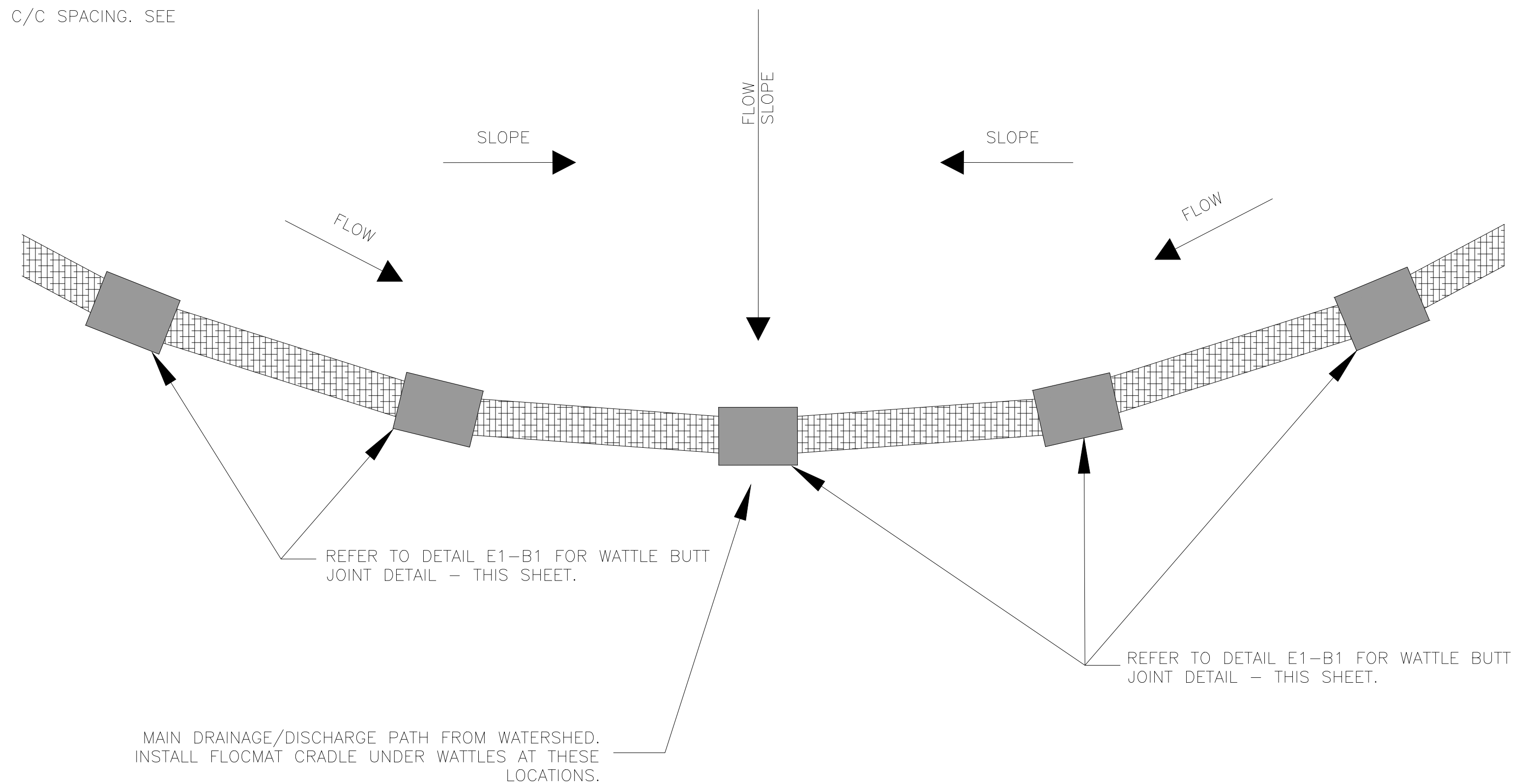
+ PLACE STAKES BEHIND WATTLES @ 24" C/C SPACING. SEE SHEET E-2 FOR STAKING DETAILS.

PLACE WATTLE ON GROUND SURFACE THAT HAS BEEN PREPARED BY REMOVING LARGE DEBRIS AND RAKING (OR DRAG HARROWING) SURFACE PRIOR TO WATTLE PLACEMENT (SEE DETAIL E1-D).

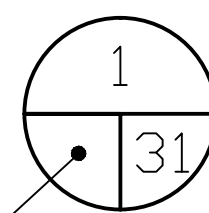
NOTE: STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-5" DEEP, DUG ON CONTOURS. RUNOFF MUST NOT BE ALLOWED TO FLOW UNDER OR AROUND THE ROLLS.

NOTE: FOR AREAS WITH HIGH CONSTRUCTION TRAFFIC/ACTIVITY, DRIVE METAL POSTS THROUGH WATTLE HANDLES BEHIND WATTLES EVERY 6 FOOT TO PREVENT VEHICLES FROM DRIVING OVER WATTLES.

INTERCEPTING SHEET FLOW PERPENDICULAR TO FLOW PATH SECTION VIEW



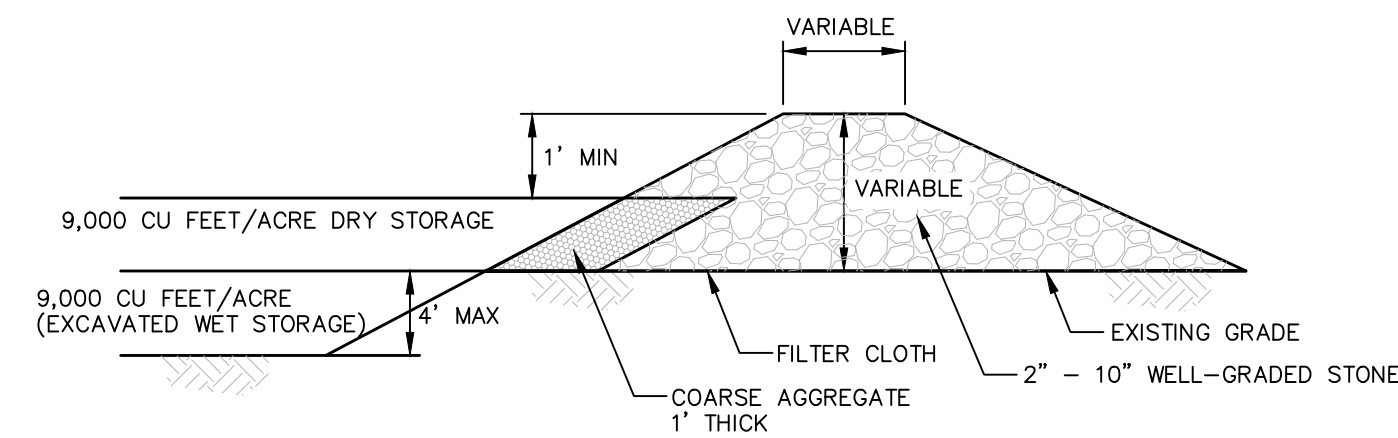
ARRANGEMENT OF WATTLES USED FOR PERIMETER CONTROL PLAN VIEW



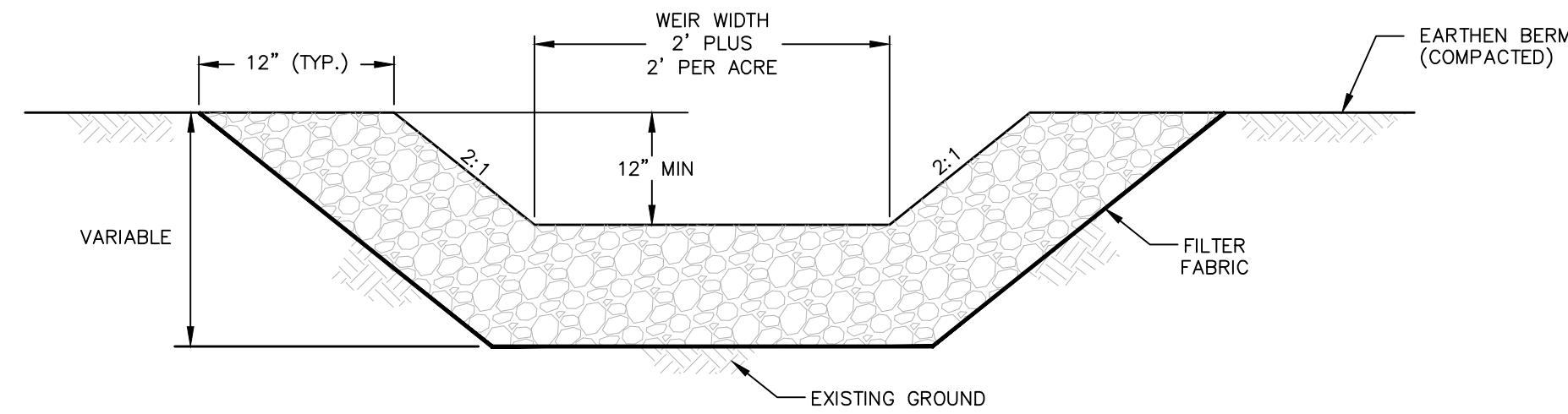
STRAW WATTLES TYPICAL
N.T.S.

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REVISIONS No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW No. 3 JULY 2014 SITE 2 REMOVAL PER WVDEP		DESIGNED SWM DRAWN SWM CHECKED WDN REVIEWED WDN S.O. 135555	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION MICHAEL BAKER JR., INC. A UNIT OF MICHAEL BAKER CORPORATION CONSULTING ENGINEERS (724) 495-7711	Baker	EBENEZER RUN HIGHWALL #9 EROSION & SEDIMENT CONTROL DETAILS	SHEET NO. 31 OF 35
			4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009	SCALE: NOT TO SCALE	DATE: JULY 2014	



CROSS SECTION



ELEVATION

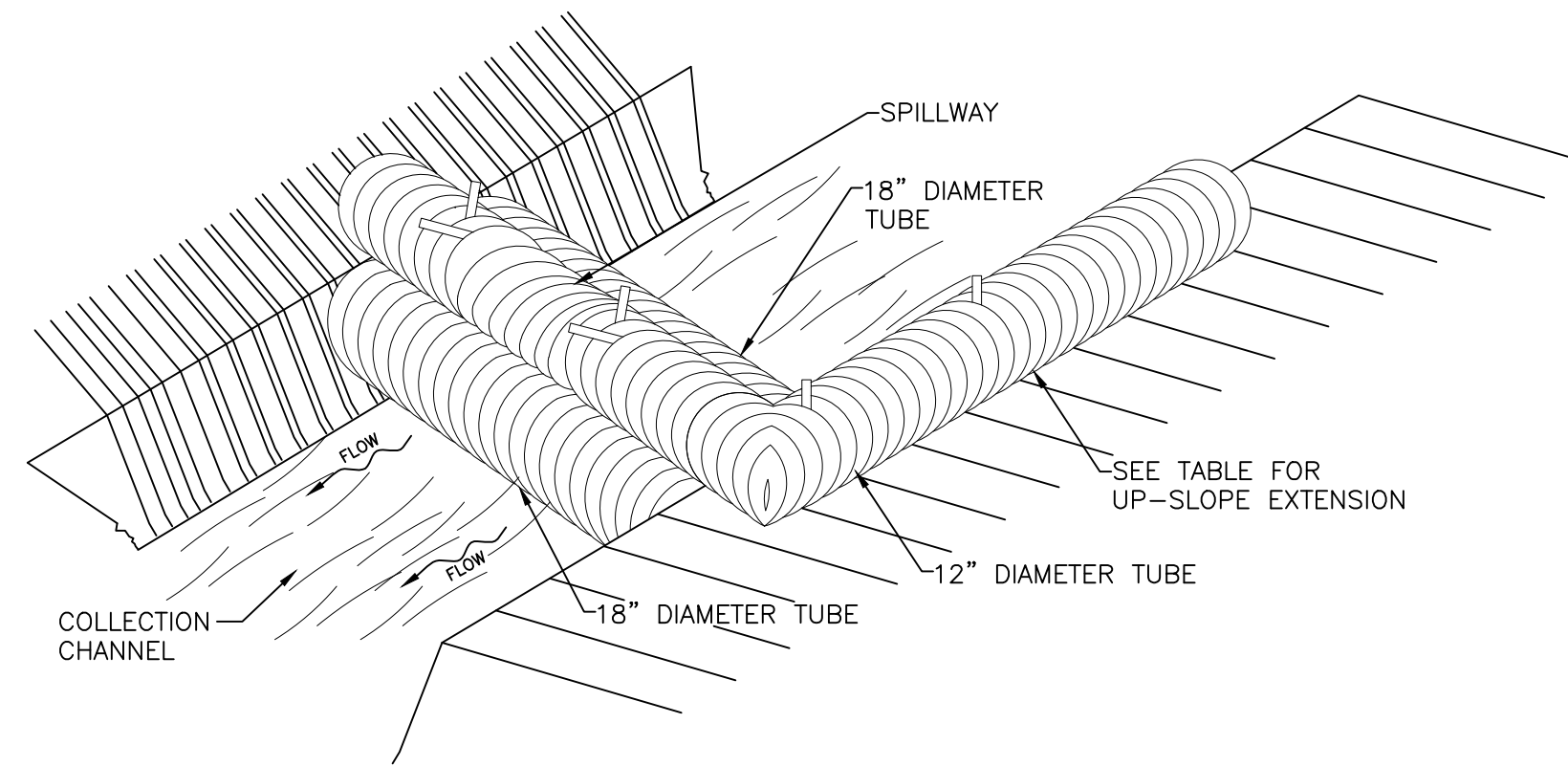
TRAP NO.	TRAP 1	TRAP 2	TRAP 3
TYPE	STONE WEIR	STONE WEIR	STONE WEIR
DRAINAGE AREA (AC)	5	5	5
WET STORAGE REQ (CF)	9000	9000	9000
WET STORAGE PROV (CF)	10358	9778	9374
DRY STORAGE REQ (CF)	9000	9000	9000
DRY STORAGE PROV. (CF)	10070	8670	9021
WEIR WIDTH (FT)	12	12	12
PIPE DIAMETER (FT)	N/A	N/A	N/A
WEIR/PIPE ELEV. (FT)	1116	1114	1114
STORAGE DEPTH (FT)	4	4	4
CLEANOUT ELEV. (FT)	1113.2	1111.3	1111.2
EMBANKMENT ELEV. (FT)	1117	1115	1115
TRAP BOTTOM ELEV. (FT)	1112	1110	1110

MAINTENANCE NOTES:

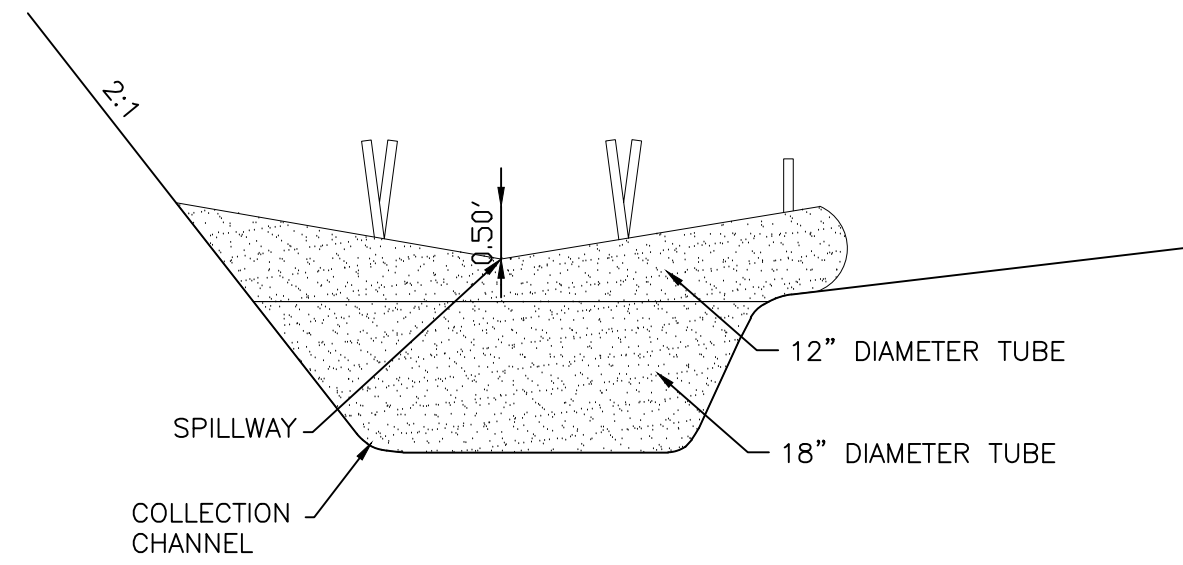
1. SEDIMENT SHOULD BE REMOVED FROM THE TRAP BEFORE THE TRAPS WET STORAGE VOLUME IS REDUCED BY ONE-HALF. SEDIMENT REMOVED FROM THE TRAP SHOULD BE STORED OR DISPOSED IN A MANNER WHICH WILL NOT CREATE AN EROSION OR SEDIMENT PROBLEM.
2. FILTER STONE SHOULD BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOKED WITH SEDIMENT SHOULD BE REMOVED AND CLEANED OR REPLACED.
3. THE STRUCTURE SHALL BE CHECKED EVERY 7 DAYS AND/OR AFTER 0.5 INCHES OF RAIN TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED.

NOTES:

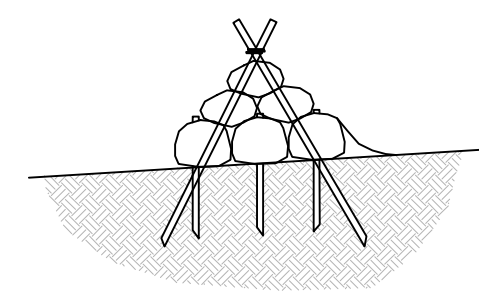
1. THE AREA UNDER THE EMBANKMENT SHOULD BE CLEARED, GRUBBED, AND STRIPPED OF ANY VEGETATION AND ROOT MAT.
2. FILL MATERIAL FOR THE EMBANKMENT SHOULD BE FREE OF ROOTS OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHOULD BE COMPARED IN 6-INCH LAYERS BY TRAVERSING WITH CONSTRUCTION EQUIPMENT.
3. THE EARTHEN EMBANKMENT SHOULD BE SEEDED AND MULCHED TO PROVIDE TEMPORARY OR PERMANENT VEGETATION IMMEDIATELY AFTER INSTALLATION.
4. CONSTRUCTION OPERATIONS SHOULD BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
5. SEDIMENT TRAPS SHOULD NOT BE REMOVED UNTIL THE CONTRIBUTING DISTURBED AREA HAS BEEN STABILIZED.
6. MATERIAL REMOVED FROM THE EXCAVATED SECTION OF THE SEDIMENT TRAP SHOULD BE PLACED IN AN AREA AND STORED IN A MANNER THAT WILL NOT CREATE EROSION PROBLEM.



PERSPECTIVE VIEW



CROSS SECTION



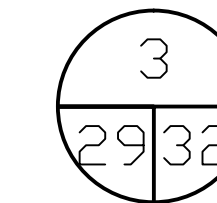
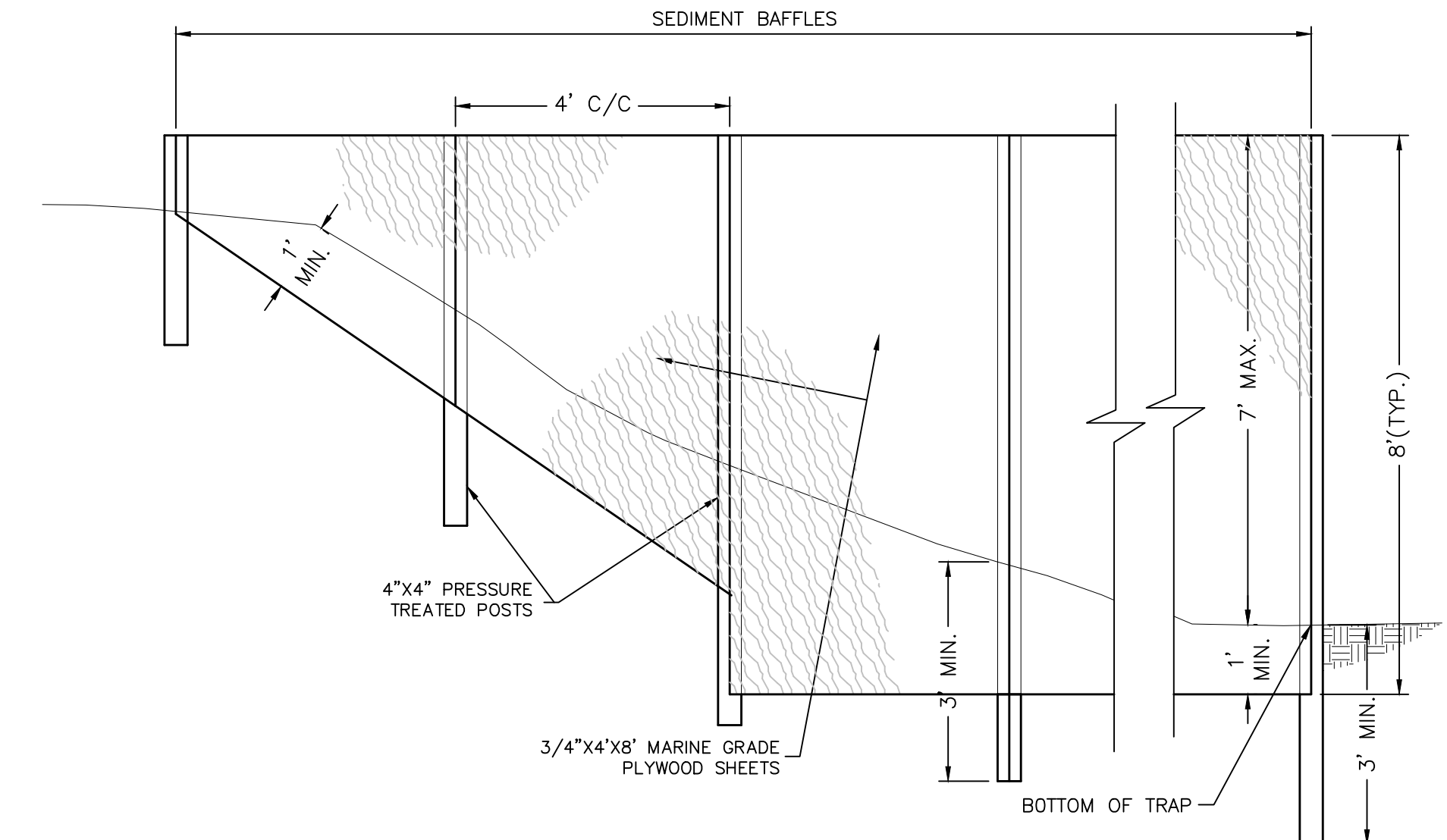
STAKE DETAIL

DESIGN NOTES:

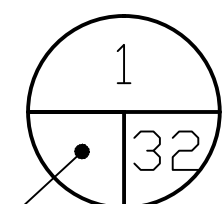
1. SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2000 CUBIC FEET OF STORAGE CAPACITY FOR EACH ACRE TRIBUTARY TO THE TRAP.
2. MINIMUM BASE WIDTH IS EQUAL TO THE HEIGHT.
3. SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE TRAP.
4. TUBES SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS AS SHOWN ON THE PLAN VIEW.
5. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.

NOTES:

SEDIMENT TUBES SHALL BE "STRAW WATTLES" BY ACF ENVIRONMENTAL OR APPROVED EQUAL.
 SEDIMENT TUBE STAKES SHALL BE METAL T-POST OR APPROVED EQUAL AS SPECIFIED BY THE MANUFACTURER.
 SEDIMENT TRAPS SHALL NOT EXCEED THREE SOCKS IN HEIGHT AND SHALL BE STACKED IN PYRAMIDAL FORM AS SHOWN ABOVE. MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER SOCK. ADDITIONAL STORAGE MAY BE PROVIDED BY MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE SOCKS ALONG THE LOWER SIDE OF THE TRAP.
 SEDIMENT TRAPS SHALL PROVIDE 2,000 CUBIC FEET STORAGE CAPACITY WITH 12" FREEBOARD FOR EACH TRIBUTARY DRAINAGE ACRE. (SEE MANUFACTURER FOR ANTICIPATED SETTLEMENT.)
 SEDIMENT TRAPS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE SOCKS.
 PHOTODEGRADABLE AND BIODEGRADABLE TUBES SHALL NOT BE USED FOR MORE THAN 1 YEAR.

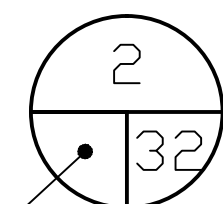


SEDIMENT BAFFLE
 N.T.S.



SEDIMENT TRAP
 N.T.S.

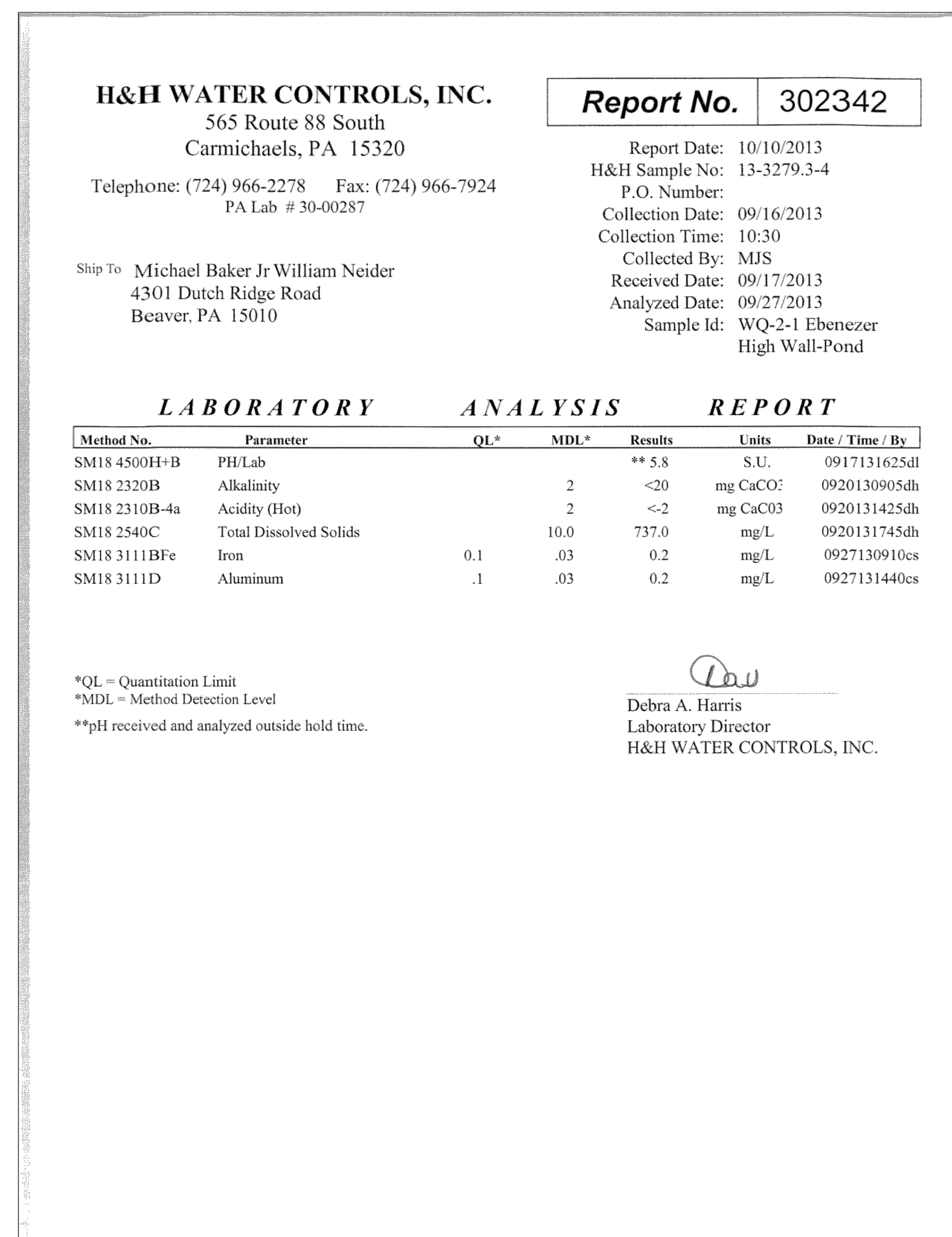
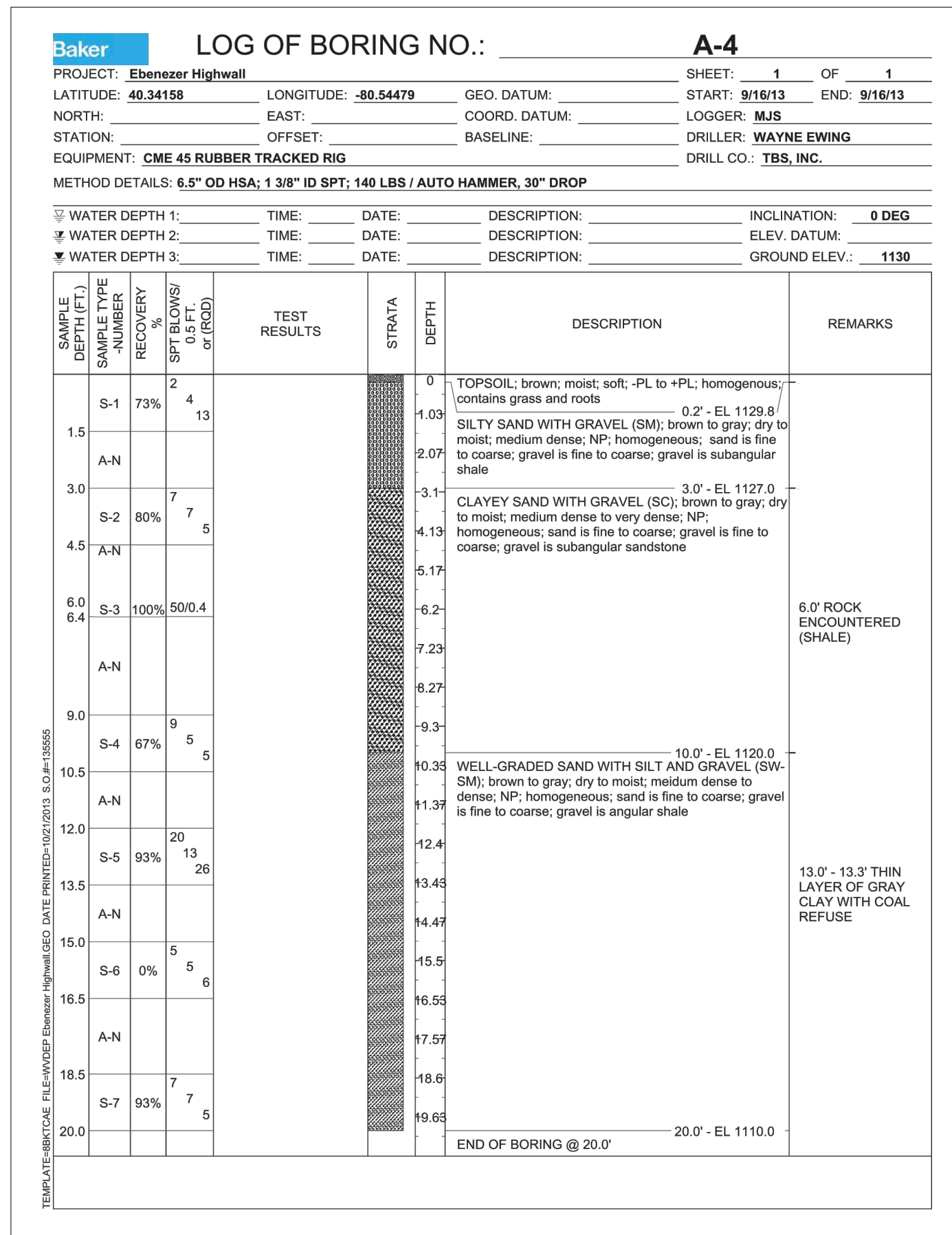
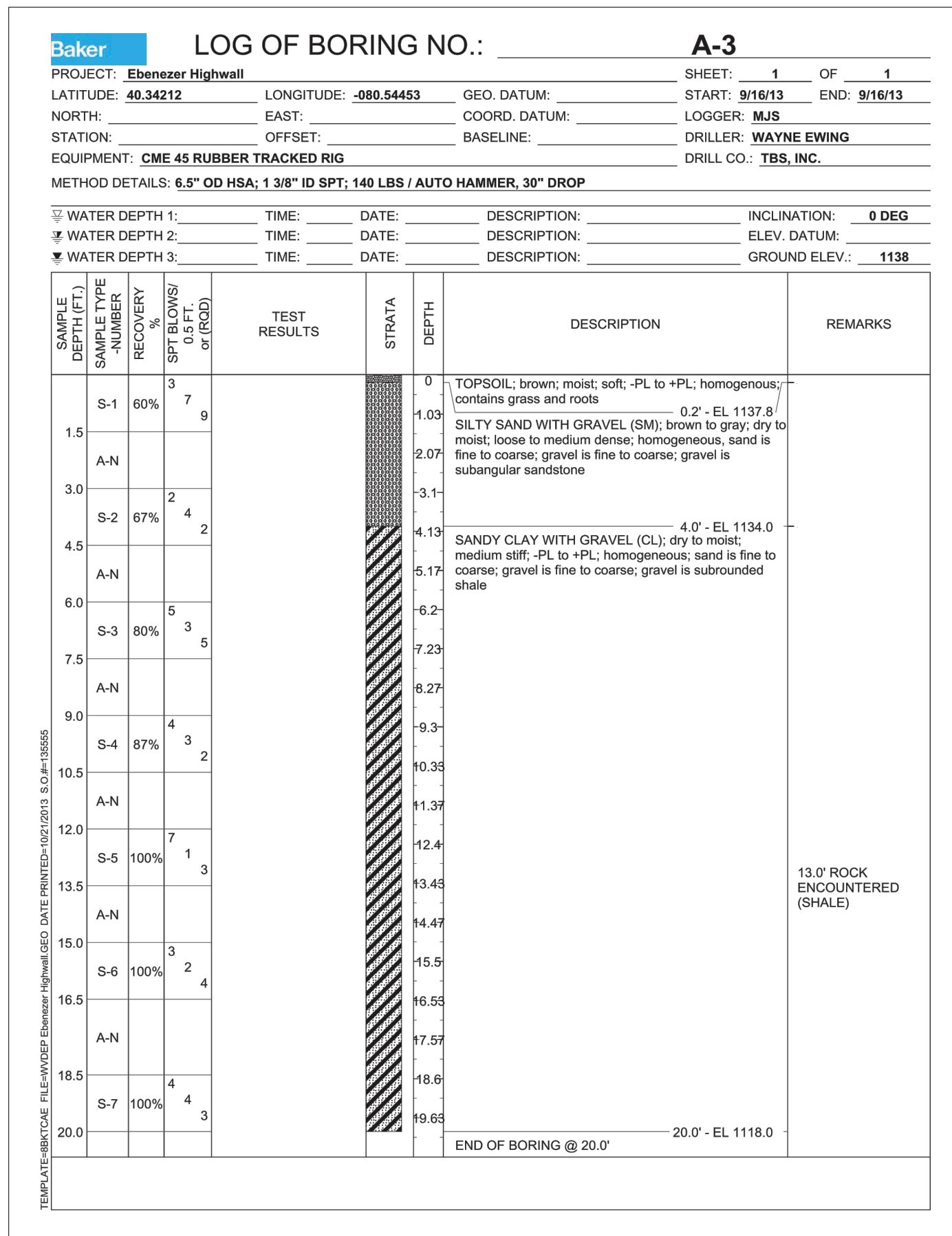
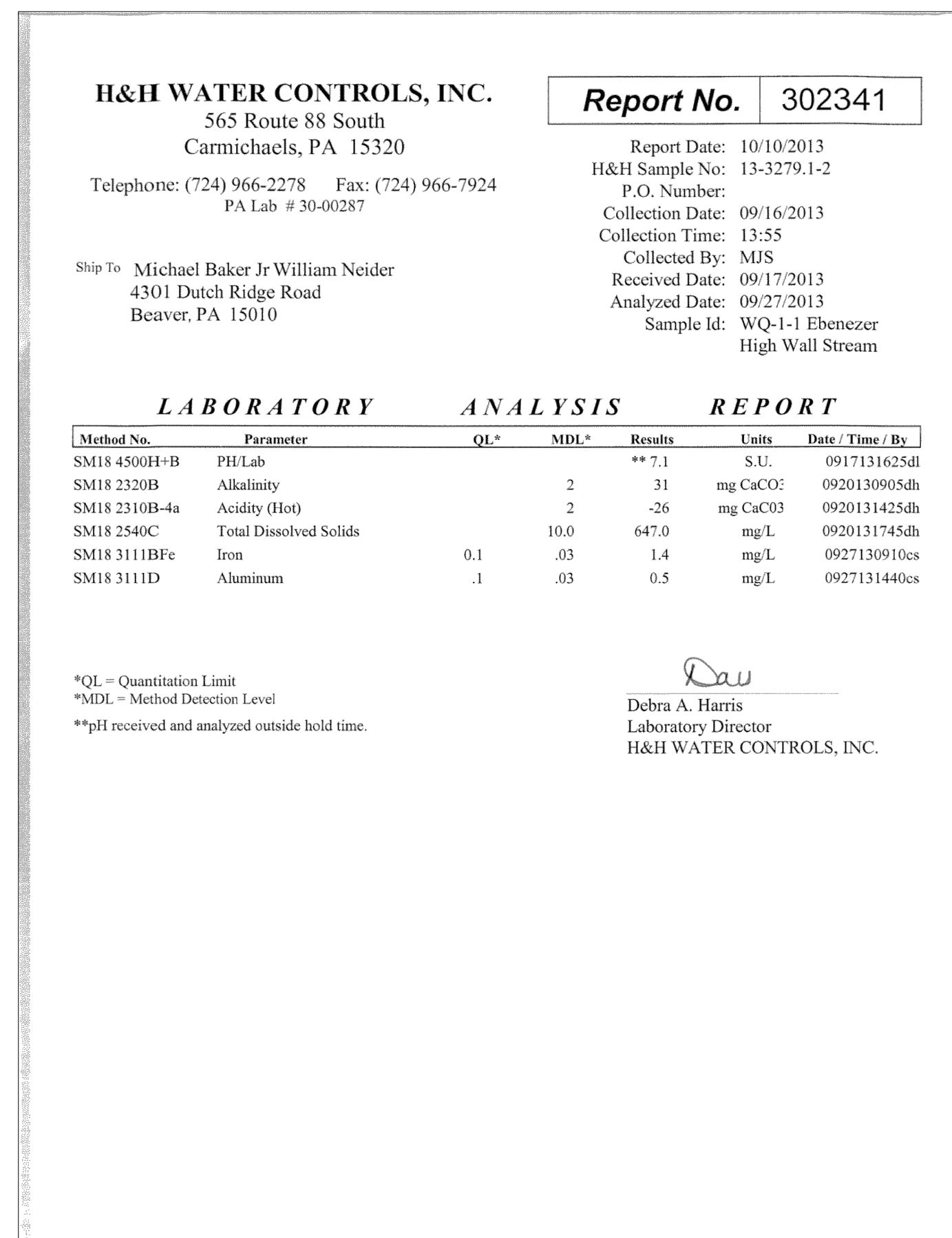
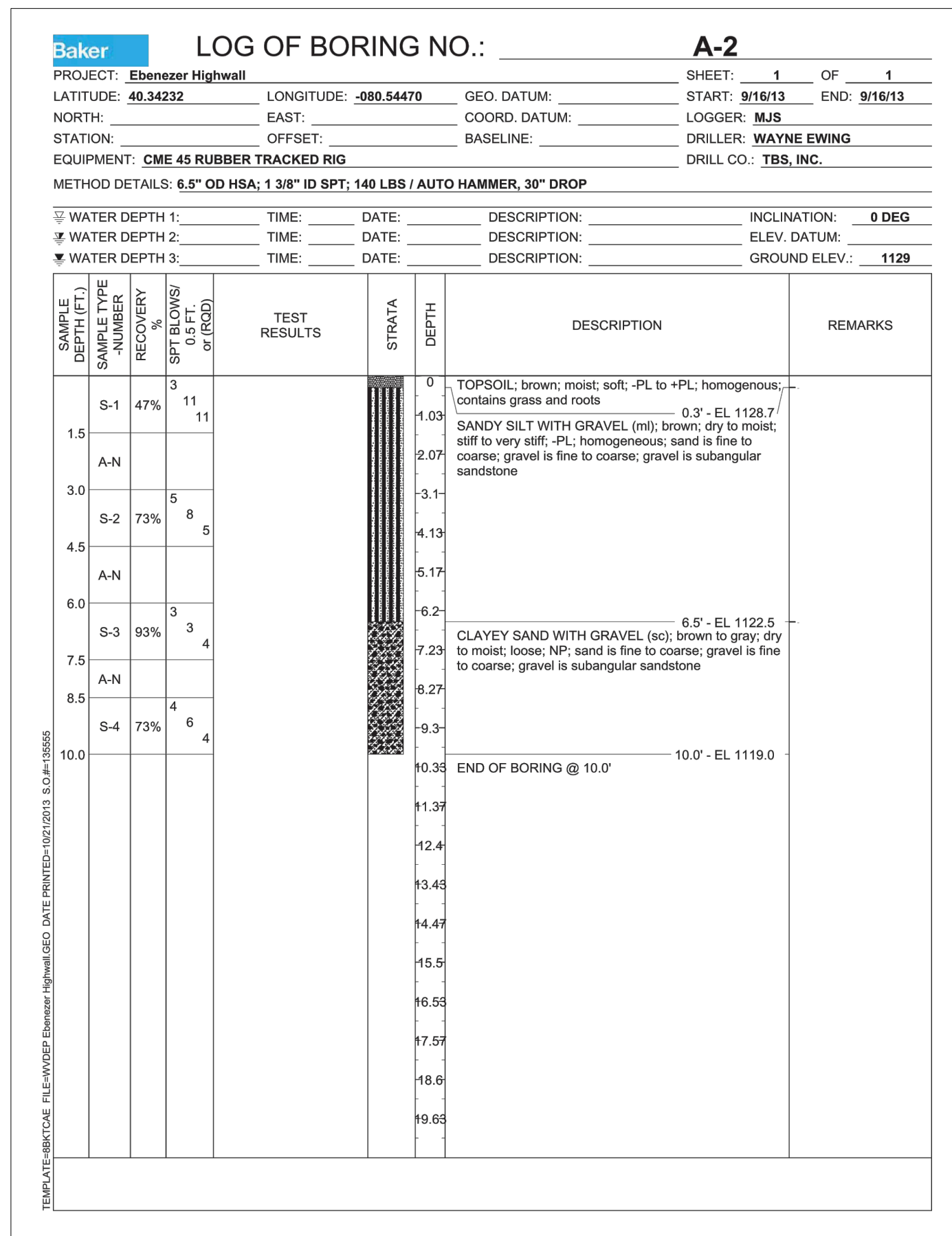
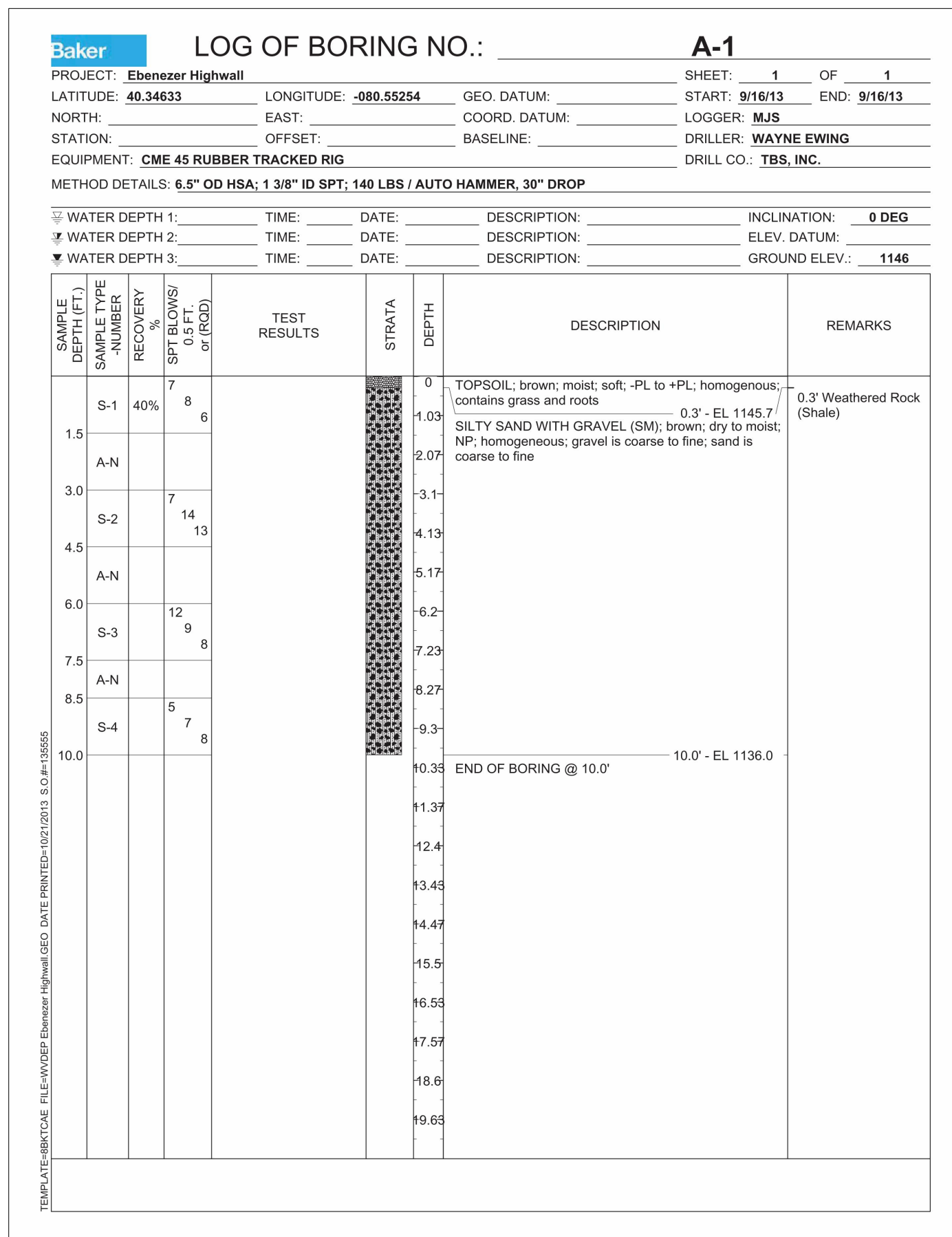
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SEDIMENT TUBE TRAP
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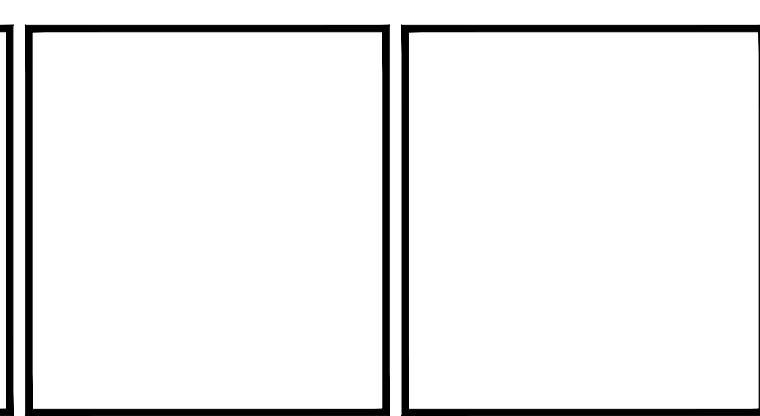
REVISIONS		DESIGNED	SWM	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION		Baker	EBENEZER RUN HIGHWALL #9 EROSION & SEDIMENT CONTROL DETAILS		SHEET NO.
No. 1	NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW	DRAWN	SWM	MICHAEL BAKER JR., INC. A UNIT OF MICHAEL BAKER CORPORATION			32	SCALE: NOT TO SCALE	
No. 2	MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW	CHECKED	WDN						
No. 3	JULY 2014 SITE 2 REMOVAL PER WVDEP	REVIEWED	WDN	CONSULTING ENGINEERS (724) 495-7711		4301 DUTCH RIDGE ROAD BEAVER, PENNSYLVANIA 15009		DATE:	JULY 2014
		S.O.	135555						



REVISIONS

No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 3 JULY 2014 SITE 2 REMOVAL PER WVDEP

DESIGNED	SWM
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REVIEWED	WDN
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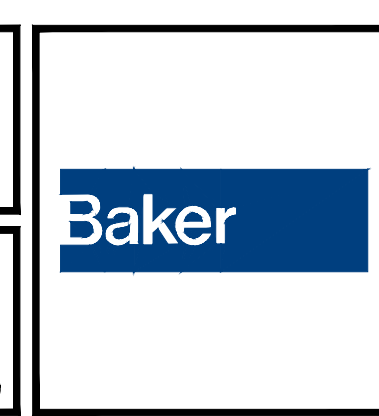
STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 ABANDONED MINE LANDS & RECLAMATION SECTION

Baker

MICHAEL BAKER JR., INC.
 A UNIT OF MICHAEL BAKER CORPORATION

CONSULTING ENGINEERS
 (724) 495-7711

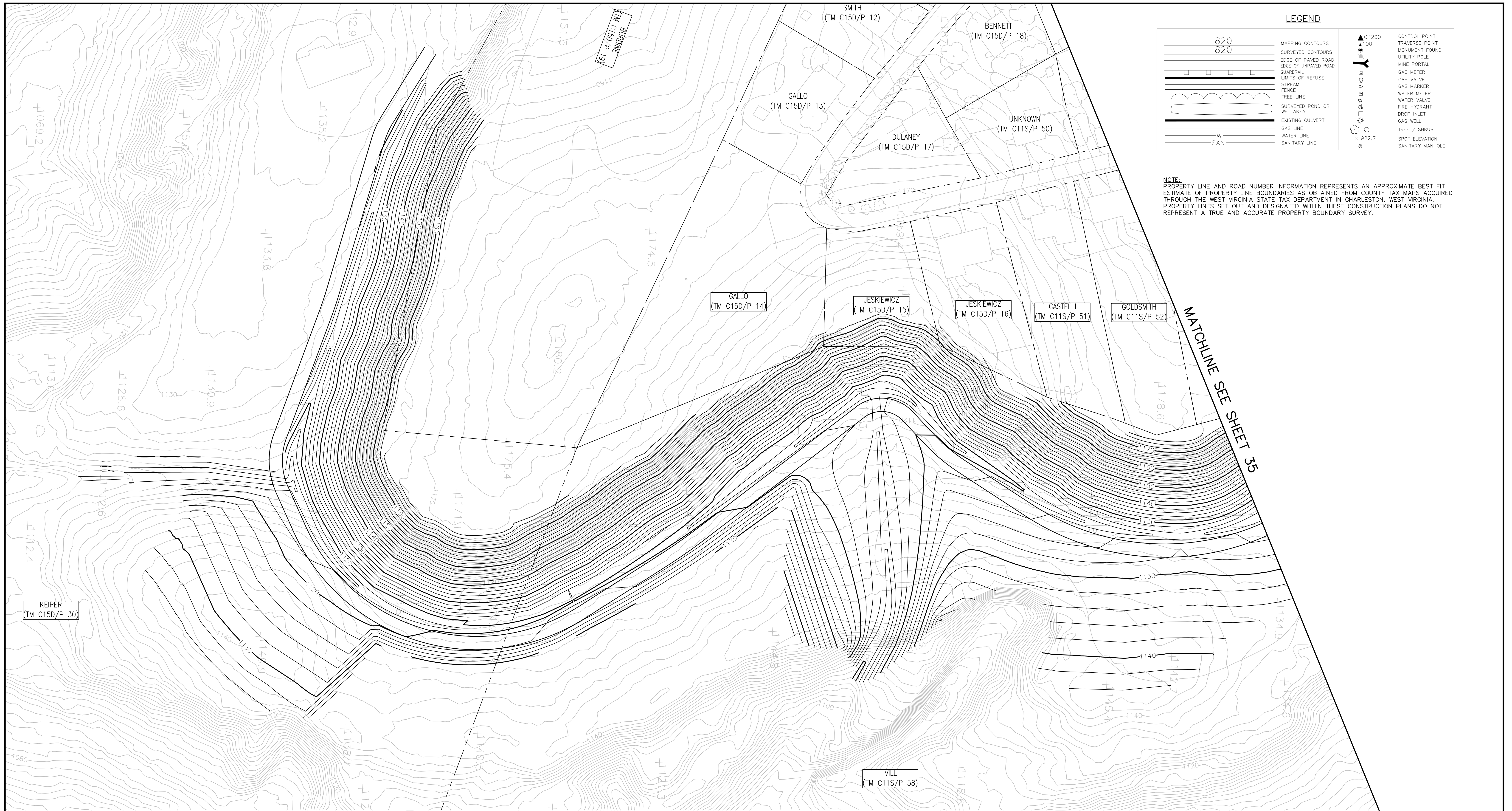
4301 DUTCH RIDGE ROAD
 BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
 BORING LOGS AND WATER
 QUALITY ANALYSIS

SCALE: NOT TO SCALE DATE: JULY 2014

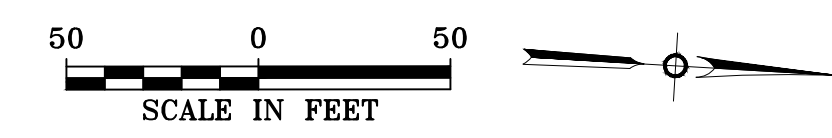
SHEET NO.
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 OF 35



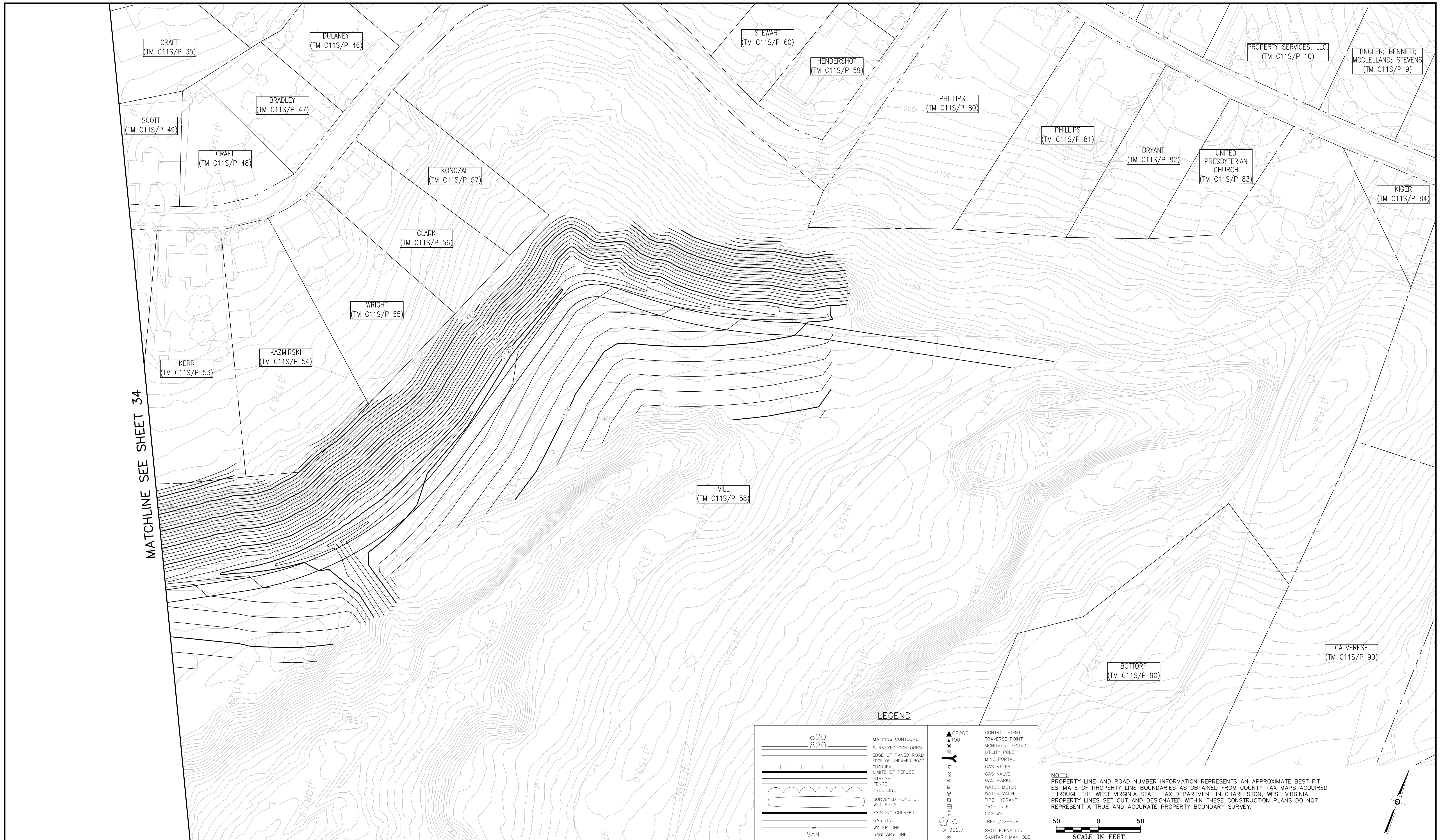
LEGEND

	MAPPING CONTOURS		CONTROL POINT
	SURVEYED CONTOURS		TRAVERSE POINT
	EDGE OF PAVED ROAD		MONUMENT FOUND
	EDGE OF UNPAVED ROAD		UTILITY POLE
	GUARDRAIL		MINE PORTAL
	LIMITS OF REFUSE		GAS METER
	STREAM		GAS VALVE
	FENCE		GAS MARKER
	TREE LINE		WATER METER
	SURVEYED POND OR WET AREA		WATER VALVE
	EXISTING CULVERT		FIRE HYDRANT
	GAS LINE		DROP INLET
	WATER LINE		GAS WELL
	SANITARY LINE		TREE / SHRUB
			SPOT ELEVATION
			SANITARY MANHOLE

NOTE:
 PROPERTY LINE AND ROAD NUMBER INFORMATION REPRESENTS AN APPROXIMATE BEST FIT ESTIMATE OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM 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.



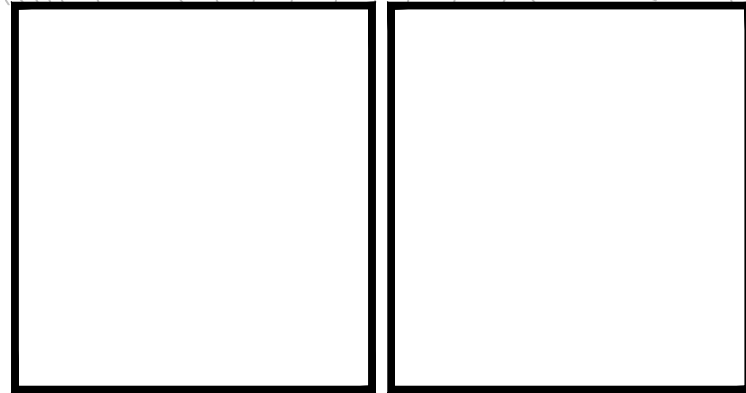
REVISIONS No. 1 NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW No. 2 MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW No. 3 JULY 2014 SITE 2 REMOVAL PER WVDEP		DESIGNED SWM DRAWN SWM CHECKED WDN REVIEWED WDN S.O. 135555	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ABANDONED MINE LANDS & RECLAMATION SECTION MICHAEL BAKER JR., INC. A UNIT OF MICHAEL BAKER CORPORATION CONSULTING ENGINEERS (724) 495-7711		EBENEZER RUN HIGHWALL #9 TAX MAP OVERLAY PLAN SCALE: 1" = 50' DATE: JULY 2014	SHEET NO. 34 OF 35
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MATCHLINE SEE SHEET 34

REVISIONS	
No. 1	NOVEMBER 2013 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 2	MARCH 2014 COMMENT REVISIONS PER WVDEP AML REVIEW
No. 3	JULY 2014 SITE 2 REMOVAL PER WVDEP

DESIGNED	SWM
DRAWN	SWM
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REVIEWED	WDN
S.O.	135555



STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ABANDONED MINE LANDS & RECLAMATION SECTION

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CONSULTING ENGINEERS (724) 495-7711

4301 DUTCH RIDGE ROAD
BEAVER, PENNSYLVANIA 15009



EBENEZER RUN HIGHWALL #9
TAX MAP OVERLAY PLAN

SCALE: 1" = 50'

DATE: JULY 2014

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