west virginia department of environmental protection

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

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

Monday, January 5, 2026
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for TWAIN UNIT 1H
47-103-03792-00-00

Adding an AST to the pad

ANTERO RESOURCES CORPORATION

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

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

H. Jason Harmon
Acting Chief

Operator's Well Number: TWAIN UNIT 1H
Farm Name: WILLIAM WADE FLETCHER
U.S. WELL NUMBER: 47-103-03792-00-00
Horizontal 6A New Drill
Date Modification Issued: 1/5/2026

01/09/2026

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
FINAL SITE PLANS

WETZEL COUNTY, WEST VIRGINIA
LITTLE MUSKINGUM - MIDDLE ISLAND CREEK WATERSHED

HARBOUR WELL PAD LOCATION COORDINATES				
SITE LOCATIONS	NAD83 (NORTH ZONE)		UTM83-17	
	LATITUDE	LONGITUDE	NORTHING	EASTING
MAIN ACCESS ROAD ENTRANCE	39.606222°	-80.702014°	4384107.5661	525569.1360
CENTROID OF WELL PAD	39.609299°	-80.700242°	4384437.6611	525732.5466
HARBOUR 5V WELL	39.609340°	-80.700265°	4384442.1135	525730.4899
CENTROID OF AST 22K/26K	39.608951°	-80.701048°	4384398.7689	525663.4520

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GENERAL DESCRIPTION:

THE ACCESS ROAD AND WELL PAD ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

FLOODPLAIN NOTES:

THE PROPOSED SITE LOCATION IS NOT WITHIN ANY IDENTIFIED FLOOD ZONES. PER FEMA MAP NUMBER 54103C0180C EFFECTIVE 9/25/2009.

MISS UTILITY STATEMENT:

ANTERO RESOURCES CORPORATION WILL NOTIFY MISS UTILITY OF WEST VIRGINIA FOR THE LOCATION OF UTILITIES PRIOR TO THIS PROJECT DESIGN; TICKET #1703854181. IN ADDITION, MISS UTILITY WILL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.

ENTRANCE PERMIT:

ANTERO RESOURCES CORPORATION WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES:

STREAM AND WETLAND DELINEATIONS WERE PERFORMED BY GAI CONSULTANTS AND PROVIDED TO CIVIL & ENVIRONMENTAL CONSULTANTS, INC (CEC) ON APRIL 25, 2024 TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE STREAM AND WETLAND DELINEATION MAP WAS PREPARED BY CEC AND SUMMARIZES THE RESULTS OF THE FIELD DELINEATIONS. THE MAP DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP. ANTERO RESOURCES CORPORATION SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTES:

THE PROPOSED 2:1 SLOPES AND 1.5:1 SLOPES SHALL BE FIELD VERIFIED BY A CERTIFIED GEOTECHNICAL ENGINEER TO ENSURE THE PROPOSED SLOPES ARE ADEQUATE PRIOR TO CONSTRUCTION. ACCESS ROAD CONSTRUCTION SHALL BE MONITORED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER OR PROJECT DESIGN ENGINEER DURING CONSTRUCTION.

PROJECT CONTACTS:

OPERATOR
ANTERO RESOURCES CORPORATION
535 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE: (304) 842-4100
FAX: (304) 842-4102

ELI WAGONER - ENVIRONMENTAL & REGULATORY MANAGER
OFFICE: (304) 842-4191 CELL: (304) 627-7405

AARON KUNZLER - CONSTRUCTION MANAGER
OFFICE: (304) 842-4401 CELL: (304) 641-8242

ROBERT WIRKS - DESIGN MANAGER
OFFICE: (304) 842-4401 CELL: (304) 627-7405

SCOTT HOFFER - UTILITY SUPERVISOR
OFFICE: (304) 842-4401 CELL: (304) 615-8699

DIANA HOFF - SVP OPERATIONS
OFFICE (303) 357-6904

SURVEYOR:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
120 GENESIS BLVD.
BRIDGEPORT, WV 26330
PHONE: (304) 933-3119

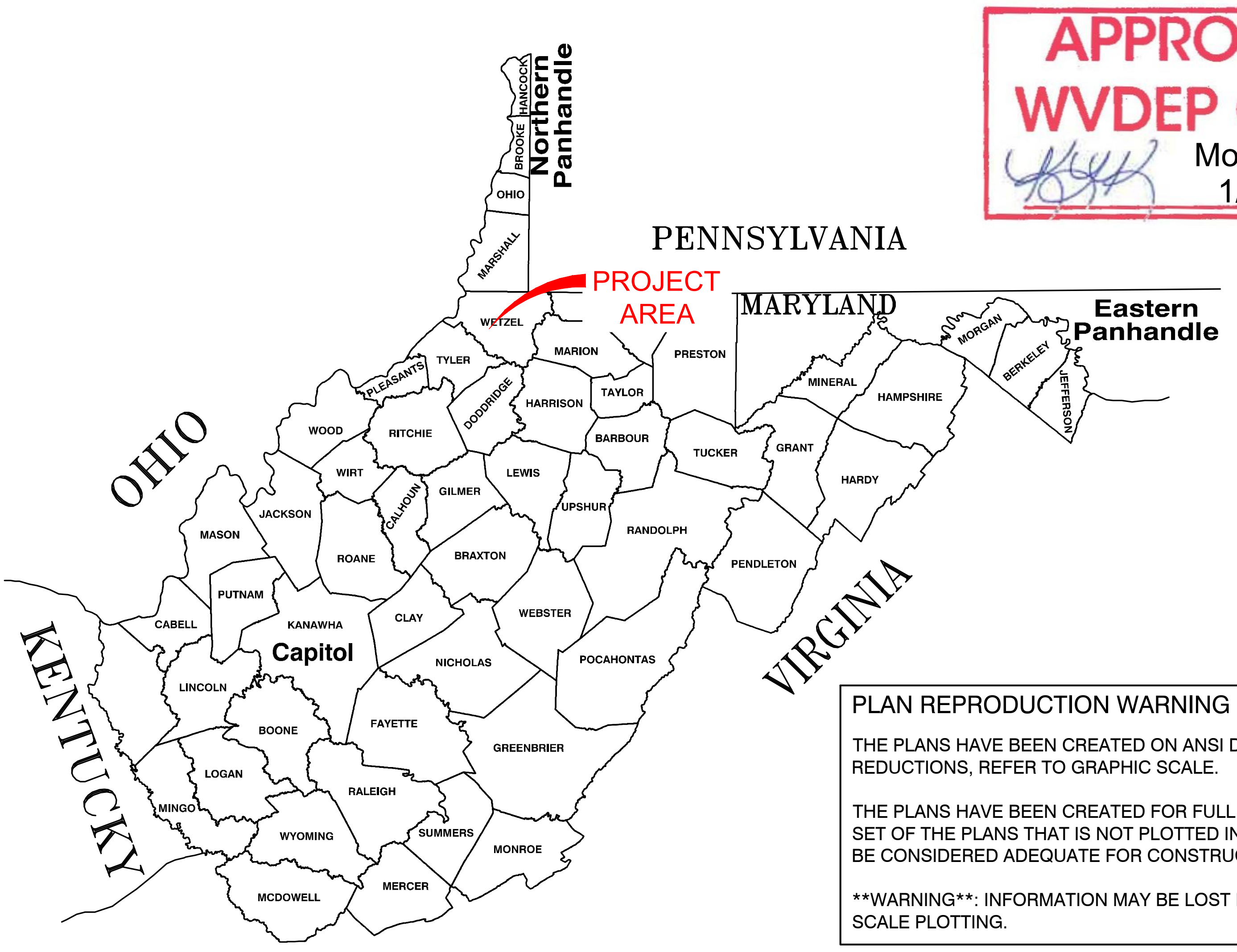
ENVIRONMENTAL:
GAI CONSULTANTS
500 LEE STREET EAST, SUITE 700
CHARLESTON, WV 25301
PHONE: (304) 926-8100

CIVIL:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
120 GENESIS BLVD.
BRIDGEPORT, WV 26330
PHONE: (304) 933-3119

GEOTECHNICAL:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
120 GENESIS BLVD.
BRIDGEPORT, WV 26330
PHONE: (304) 933-3119

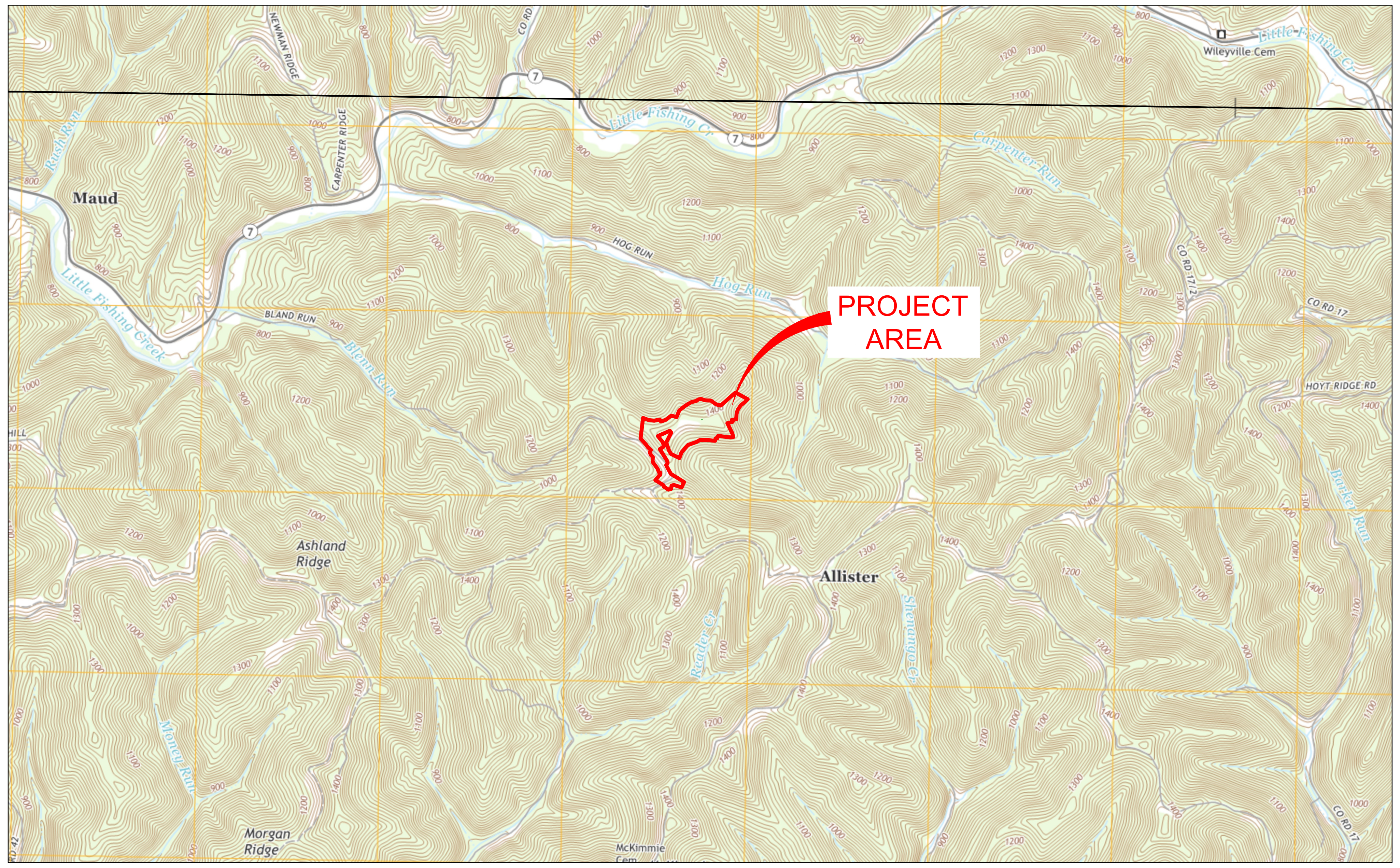
RESTRICTION NOTES:

1. THERE ARE NO LAKES, RESERVOIRS, OR PERENNIAL STREAM WITHIN 100 FEET OF THE WELL PAD.
2. THERE ARE WETLANDS THAT WILL BE IMPACTED WITHIN 100 FEET, AND INSIDE OF THE WELL PAD LOD AND WILL NEED TO BE PERMITTED THROUGH THE APPROPRIATE AGENCIES.
3. THERE ARE EPHEMERAL, INTERMITTENT, OR PERENNIAL STREAM IMPACTS WITHIN THE LOD THAT WILL NEED TO BE PERMITTED.
4. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEET OF THE WELL PAD AND LOD.
5. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1,000 FEET OF THE WELL PAD AND LOD.
6. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL(S) TO BE DRILLED.
7. THERE ARE NO OCCUPIED DWELLINGS OR AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.



APPROVED
WVDEP OOG
Modification
1/5/2026

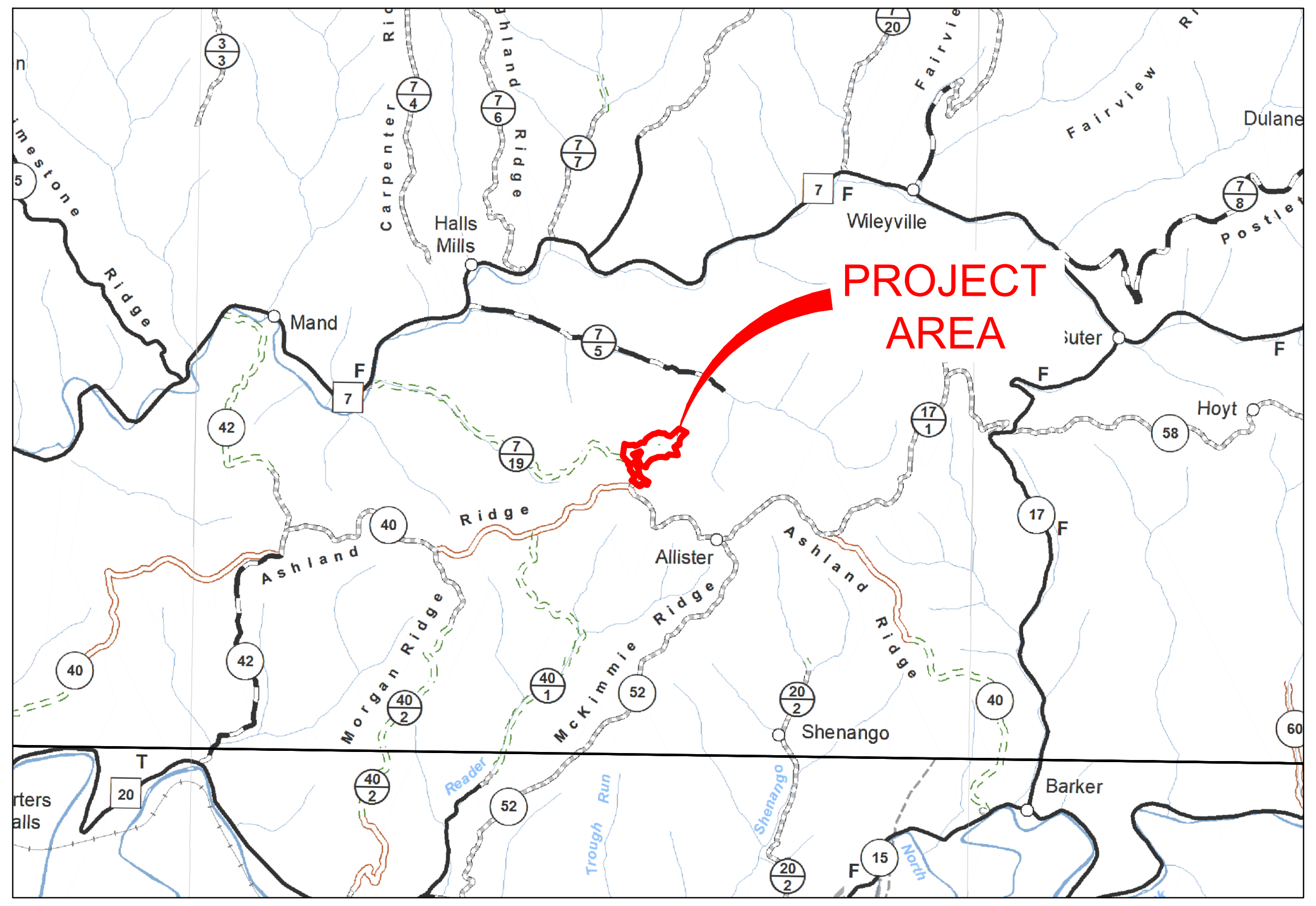
01/09/2026



LOCATION MAP

PINE GROVE QUADRANGLE 7.5' QUAD
SCALE IN FEET
0 2000 4000
1 INCH = 2000 FEET

NORTH



VICINITY MAP

WETZEL COUNTY ROAD MAP
SCALE IN FEET
0 1 MILES 2 MILES
1 INCH = 1 MILE

NORTH

PLAN REPRODUCTION WARNING

THE PLANS HAVE BEEN CREATED ON ANSI D (22" X 34") SHEETS. FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

THE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.

WARNING: INFORMATION MAY BE LOST IN COPYING AND/OR GRAY SCALE PLOTTING.

DESIGN CERTIFICATION:

THE DRAWINGS, CONSTRUCTION NOTES, AND REFERENCE DIAGRAMS ATTACHED HERETO HAVE BEEN PREPARED IN ACCORDANCE WITH THE WEST VIRGINIA CODE OF STATE RULES, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS CRS 35-8.

WEST VIRGINIA 811
CALL BEFORE YOU DIG!

WEST VIRGINIA STATE LAW REQUIRES THAT YOU CALL TWO BUSINESS DAYS BEFORE YOU DIG IN THE STATE OF WEST VIRGINIA. IT'S THE LAW!

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

SHEET INDEX

C000 - COVER SHEET
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C003 - MASTER LEGEND
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C614 - PROFILES AND SECTIONS
C615 - PROFILES AND SECTIONS
C616 - PROFILES AND SECTIONS
C617 - CULVERT PROFILES
C800 - DETAILS
C801 - DETAILS
C802 - DETAILS
C803 - DETAILS
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C805 - DETAILS
C806 - DETAILS
C807 - DETAILS
C900 - OVERALL RECLAMATION PLAN
C901 - RECLAMATION PLAN
C902 - RECLAMATION PLAN

LIMITS OF DISTURBANCE PARCEL BREAK UPS - HARBOUR WELL PAD				
WETZEL COUNTY, WEST VIRGINIA				
OWNER	TM-PARCEL	DEED-PAGE	TYPE OF DISTURBANCE	ACERAGE
FLETCHER WILLIAM WADE	4-49	355-286	PARCEL INFORMATION	
			Access Road	0.32
			Well Pad	0.65
			Staging Area 1	0.38
			Stockpile/Stripping Pile 1	0.52
			Stockpile/Stripping Pile 4	0.49
			Stockpile/Stripping Pile 5	0.87
			PARCEL TOTAL	**3.23**
FLETCHER WILLIAM WADE	4-38	355-286	PARCEL INFORMATION	
			Access Road	6.00
			Well Pad	12.56
			Staging Area 2	1.36
			Stockpile/Stripping Pile 1	1.97
			Stockpile/Stripping Pile 2	0.66
			Stockpile/Stripping Pile 3	2.32
			PARCEL TOTAL	**24.87**
FLETCHER WILLIAM WADE	4-39	355-286	PARCEL INFORMATION	
			Stockpile/Stripping Pile 4	0.14
			PARCEL TOTAL	**0.14**
FLETCHER WILLIAM WADE	4-50	355-286	PARCEL INFORMATION	
			Stockpile/Stripping Pile 4	0.19
			PARCEL TOTAL	**0.19**
FLETCHER WILLIAM WADE	4-40	355-286	PARCEL INFORMATION	
			Stockpile/Stripping Pile 4	0.02
			PARCEL TOTAL	**0.02**
			TOTAL	**28.45**

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HARBOUR WELL PAD BANK GRADING VOLUMES			
DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)
ACCESS ROAD	7,324	16,431	-9,107
STAGING AREA 1	1,398	30	1,368
STAGING AREA 2	604	4,862	-4,258
WELL PAD	112,932	96,625	16,307
TOTAL	**122,258**	**117,948**	**4,310**

HARBOUR WELL PAD STOCKPILE CAPACITY		
DESCRIPTION	NEEDED (CY)	PROVIDED (CY)
EXCESS SPOIL	4,310	17,183
TOPSOIL/STRIPPING	12,998	12,998
NOTES:		
TOPSOIL/STRIPPING CAPACITY NEEDED INCLUDES 20% SWELL FACTOR		
6" OF TOPSOIL/STRIPPING MATERIAL REMOVED		
ALL STOCKPILES WITH A SLOPE STEEPER THAN 3:1 REQUIRE A 1:1 BLEND RATIO		

L.O.D. AREAS	
DESCRIPTION	**ACRES**
Access Road	6.32
Well Pad	13.21
Staging Area 1	0.38
Staging Area 2	1.36
Stockpile/Stripping Pile 1	2.49
Stockpile/Stripping Pile 2	0.66
Stockpile/Stripping Pile 3	2.32
Stockpile/Stripping Pile 4	0.84
Stockpile/Stripping Pile 5	0.87
TOTAL	**28.45**
WOODED	**15.86**

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HARBOUR WELL LEGEND							
WELL HEAD LETTER	WELL NAME	ELEVATION	WV NORTH NAD 27	WV NORTH NAD 83	NAD83 UTM-17M	NAD 83	NAD 27
Z	HARBOUR 5V	1409.87	N: 406275.9688	N: 406312.3303	N: 4384442.1113	39° 36' 33.62"	39° 36' 33.33"
			E: 1661790.9682	E: 1630351.7041	E: 525730.4899	-80° 42' 00.96"	-80° 42' 01.61"
A	TWAIN UNIT 2H	1410.05	N: 406239.0938	N: 406275.4602	N: 4384431.9014	39° 36' 33.28"	39° 36' 33.00"
			E: 1661992.0189	E: 1630552.7577	E: 525791.9299	-80° 41' 58.38"	-80° 41' 59.04"
B	TWAIN UNIT 1H	1410.05	N: 406236.9754	N: 406273.3413	N: 4384431.1803	39° 36' 33.26"	39° 36' 32.97"
			E: 1661977.1672	E: 1630537.9057	E: 525787.4158	-80° 41' 58.57"	-80° 41' 59.23"
C	LODGE UNIT 2H	1410.05	N: 406234.8669	N: 406271.2325	N: 4384430.4623	39° 36' 33.24"	39° 36' 32.95"
			E: 1661962.3235	E: 1630523.0615	E: 525782.9042	-80° 41' 58.76"	-80° 41' 59.42"
D	LODGE UNIT 1H	1410.05	N: 406232.7586	N: 406269.1238	N: 4384429.7443	39° 36' 33.22"	39° 36' 32.93"
			E: 1661947.4719	E: 1630508.2095	E: 525778.3902	-80° 41' 58.95"	-80° 41' 59.61"
K	TWAIN 3H	1410.05	N: 406241.2028	N: 406277.5696	N: 4384432.6196	39° 36' 33.31"	39° 36' 33.02"
			E: 1662006.8706	E: 1630567.6099	E: 525796.4439	-80° 41' 58.19"	-80° 41' 58.85"

HARBOUR WELL PAD AQUATIC IMPACTS				
IDENTIFIER	TYPE OF STREAM/WETLAND	TYPE OF IMPACT	DISTURBANCE WITHIN LIMITS OF DISTURBANCE	
			LF	AC
RTW_STREAM_03	EPHEMERAL	TOPSOIL STOCKPILE LOD	96	N/A
RTW_WETLAND 01	PEM	TOPSOIL STOCKPILE GRADING	N/A	0.005
RTW_WETLAND 02	PEM	WELL PAD LOD	N/A	0.016
RTW_WETLAND 03	PEM	WELL PAD GRADING	N/A	0.007
RTW_WETLAND 04	PEM	WELL PAD GRADING	N/A	0.005
RTW_WETLAND 05	PEM	WELL PAD LOD	N/A	0.015
RTW_WETLAND 06	PEM	WELL PAD LOD	N/A	0.008
RTW_WETLAND 12	PEM	WELL PAD GRADING	N/A	0.003
TOTAL AQUATIC IMPACTS			96	0.059

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

Civil & Environmental Consultants, Inc.
120 Genesis Boulevard
Bridgeport, WV 26330
Ph: 304.933.3119
www.cecinc.com

ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

COVER SHEET

DATE:	FEBRUARY 2025
DRAWN BY:	JES
DWG SCALE:	AS NOTED
CHECKED BY:	ER
PROJECT NO:	336-328
APPROVED BY:	JDR

DRAWING NO.:
C000
SHEET 1 OF 38

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

CONSTRUCTION NOTES:

1. THE CONTRACTOR IS TO VERIFY FIELD CONDITIONS PRIOR TO AND DURING CONSTRUCTION AND WILL NOTIFY CIVIL ENVIRONMENTAL CONSULTANTS, INC IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLAN. ANY WORK PERFORMED BY THE CONTRACTOR AFTER THE FINDING OF SUCH DISCREPANCIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
2. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS HERREIN SHALL CONFORM TO THE CURRENT COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS AND/OR CURRENT WV DEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL STANDARDS AND SPECIFICATIONS. SHOULD A CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS, AND PLANS OCCUR THE MOST STRINGENT REQUIREMENT WILL APPLY. THE APPROVAL OF THESE PLANS IN NO WAY RELIEVES THE DEVELOPER OR HIS AGENT OF THE RESPONSIBILITIES CONTAINED IN THE WV DEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.
3. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE. ALSO, A REPRESENTATIVE OF THE CONTRACTOR MUST BE AVAILABLE AT ALL TIMES.
4. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS, ALLAY DUST , AND TO TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT THE STREETS ARE MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES. ADHERE TO TRAFFIC CONTROL SPECIFICATIONS AS INDICATED IN THE WV DOH MM109.
5. THE LOCATION OF EXISTING UTILITIES SHOWN IN THESE PLANS ARE FROM FIELD LOCATIONS AND/OR GIS DATA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES AS NEEDED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ENGINEER OF ANY CONFLICTS ARISING FROM HIS EXISTING UTILITY VERIFICATION AND THE PROPOSED CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE NOTIFICATION TO THE APPROPRIATE UTILITY COMPANY PRIOR TO CONSTRUCTION OF WATER AND/OR GAS PIPELINES. INFORMATION SHOULD ALSO BE OBTAINED FROM THE APPROPRIATE AUTHORITY CONCERNING PERMITS, CUT SHEETS, AND CONNECTIONS TO EXISTING LINES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGES TO THE EXISTING STREETS AND UTILITIES WHICH OCCURS AS A RESULT OF THIS CONSTRUCTION PROJECT WITHIN OR CONTIGUOUS WITH THE EXISTING RIGHT-OF-WAY.
8. WHEN GRADING IS PROPOSED WITHIN EASEMENTS OF UTILITIES, LETTERS OF PERMISSION FROM ALL INVOLVED COMPANIES MUST BE OBTAINED PRIOR TO GRADING AND/OR SITE DEVELOPMENT.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE RELOCATION OF ANY UTILITIES NOT IDENTIFIED ON THE CONSTRUCTION DOCUMENTS, AS A RESULT OF THIS PROJECT. AS NOTED ON THE DRAWINGS OTHER UTILITIES HAVE OR WILL BE RELOCATED BY OTHERS. CONTRACTOR IS TO CONFIRM THE STATUS OF UTILITIES WITH AN ANTERO CONSTRUCTION REPRESENTATIVE PRIOR TO STARTING THE PROJECT. UNIDENTIFIED UTILITIES THAT ARE ENCOUNTERED IN THE FIELD MUST BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ANTERO REPRESENTATIVE.
10. THESE PLANS IDENTIFY THE LOCATION OF ALL KNOWN GRAVESITES. GRAVESITES SHOWN ON THIS PLAN WILL BE PROTECTED IN ACCORDANCE WITH STATE LAW. IN THE EVENT GRAVESITES ARE DISCOVERED DURING CONSTRUCTION, THE OWNER AND ENGINEER MUST BE NOTIFIED IMMEDIATELY.
11. THE CONTRACTOR(S) SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATING OR BLASTING AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.
12. CONTRACTOR TO CONTACT OPERATOR AND ENGINEER IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR 2 DAYS PRIOR TO THE START OF CONSTRUCTION.
14. THE CONTRACTOR IS RESPONSIBLE FOR ALL FILL MATERIAL PLACEMENT REQUIRED DURING THE CONSTRUCTION OF THIS PROJECT. ALL MATERIAL TESTS SHALL BE CONDUCTED BY THE ON-SITE INSPECTOR. ALL TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER CERTIFYING THE CONSTRUCTED FACILITY. FAILURE TO CONDUCT THE DENSITY TESTS AND/OR NECESSARY REPAIRS TO DEFICIENT AREAS AS A RESULT OF THE DENSITY TESTING SHALL BE CAUSE FOR NON-ACCEPTANCE OF THE CONSTRUCTED FACILITY.
15. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SITE IN ACCORDANCE WITH THE DESIGN PLANS, CONSTRUCTION DOCUMENTS AND THE SCOPE OF WORK SHALL CONFORM WITH THE GRADES, BERMS, DEPTHS, DIMENSIONS, ETC. SHOWN HERRON.
16. SUPER SILT FENCE OR SMARTFENCE HD CAN BE USED IN PLACE OF ANY COMPOST FILTER SOCK. TRIPLE STACK 42" COMPOST FILTER SOCK CAN BE USED IN PLACE OF SUPER SILT FENCE OR SMARTFENCE HD.
17. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, INCLUDING THE 1970 OSHA ACT. PRECAUTION FOR THE PROTECTION OF PERSONS, INCLUDING EMPLOYEES AND PROPERTY, SHALL ALWAYS BE EXERCISED BY THE CONTRACTOR, INITIATION, MAINTENANCE, AND SUPERVISION OF ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK, INCLUDING ALL REQUIREMENTS PER CFR 1910.146, SHALL ALSO BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. CONSTRUCTION ACTIVITIES SHALL BE RESTRICTED TO THE AREA SHOWN ON THE PLANS WITHIN THE LIMITS OF DISTURBANCE. UNLESS OTHERWISE AUTHORIZED BY ANTERO RESOURCES CORPORATION. MODIFICATION PLAN MUST BE SUBMITTED TO THE DEP FOR ANY ACTIVITIES PERFORMED OUTSIDE OF THE LIMITS OF DISTURBANCE.
19. PRESERVATION OF BENCHMARKS, PROPERTY CORNERS, REFERENCE POINTS, STAKES AND OTHER SURVEY REFERENCE MONUMENTS OR MARKERS IS THE RESPONSIBILITY OF THE CONTRACTOR. IN CASES OF WILLFUL OR CARELESS DESTRUCTION THE CONTRACTOR SHALL BE REQUIRED TO REPLACE OR RESTORE SAID MONUMENT OR MARKER. RESETTING OF MARKERS SHALL BE PERFORMED BY A PROFESSIONAL SURVEYOR AS APPROVED BY ANTERO RESOURCES CORPORATION.
20. THE CONTRACTOR SHALL MAINTAIN ADEQUATE CLEARANCE FROM ALL ELECTRIC LINES, IF ANY, IN ACCORDANCE WITH NATIONAL ELECTRICAL SAFETY CODE.
21. THE CONTRACTOR SHALL MINIMIZE ALL CLEARING AND DISTURBANCE TO THE ENVIRONMENT TO THE MAXIMUM EXTENT POSSIBLE CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE.
22. ANY DIGITAL FILES PROVIDED TO THE CONTRACTOR BY CIVIL ENVIRONMENTAL CONSULTANTS, INC ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONSTRUCTION OF THE SITE SHALL MEET ALL DESIGN PARAMETERS OF THE WVDEP APPROVED X______________________________ DESIGN PLANS. CIVIL ENVIRONMENTAL CONSULTANTS, INC WILL NOT BE HELD LIABLE FOR THE CONTRACTOR USING THE DIGITAL FILES TO WAIVER FROM THE APPROVED DESIGN PLANS.
23. ANY CONSTRUCTION ISSUES OR QUESTIONS SHALL BE BROUGHT TO THE ENGINEER IMMEDIATELY. THE CONSTRUCTION INSPECTOR SHALL BE CONTACTED AND MUST RELAY THESE ISSUES OR QUESTIONS TO THE ENGINEER FOR RESOLUTION. TEMPORARY STABILIZATION SHALL BE APPLIED AS NECESSARY.
24. ALL EXISTING AND DESIGNED CULVERTS AND CULVERT SUMPS SHALL BE CLEANED AND CLEARED OF DEBRIS DURING THE COURSE OF CONSTRUCTION. ANY EXCESS EROSION DUE TO THE PLUGGING OF A CULVERT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
25. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ACQUIRE ANY REQUIRED PERMITS FOR DEMOLITON OF EXISTING STRUCTURES.
26. CONTRACTOR SHALL INSTALL AND MAINTAIN HOLIDAY POLES UNDER ALL OVERHEAD UTILITIES. SEE HOLIDAY POLE DETAIL.

CONSTRUCTION SEQUENCE:

THE DEVELOPMENT OF THE SITE SHALL BE CONSISTENT WITH THE FOLLOWING GENERAL SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL IMPLEMENT, MAINTAIN, AND OPERATE ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES TO EFFECTIVELY MITIGATE THE HAZARD OF ACCELERATED EROSION AND SEDIMENTATION TO ACCEPTABLE LEVELS. MINOR DEVIATIONS FROM THIS SEQUENCE SHALL BE EXECUTED BY THE PROJECTS SUPERINTENDENT AS NEEDED TO ELIMINATE ANY POTENTIAL EROSIVE CONDITION THAT MAY ARISE FROM THE DURATION OF THE PROJECT. THE WV DEP OFFICE OF OIL AND GAS SHALL BE NOTIFIED OF ANY AND ALL SUCH DEVIATIONS FROM THE APPROVED PLANS.

1. A PRE-CONSTRUCTION CONFERENCE WITH THE CONTRACTOR AND THE APPROPRIATE EROSION AND SEDIMENT CONTROL INSPECTOR 48 HOURS PRIOR TO BEGINNING WORK TO REVIEW THE CONSTRUCTION DRAWINGS AND PROVIDE ANY REQUESTED GUIDANCE.
2. STAKE THE LIMITS OF CONSTRUCTION AND MARK/FLAG ALL IDENTIFIED WETLANDS, STREAMS, UTILITIES, AND OTHER AREAS OF CONCERN FOR CONSTRUCTION ACTIVITIES, INSTALL SIGNS TO DESIGNATE THE AREAS AND ORANGE SAFETY FENCE TO IDENTIFY IMPORTANT PROJECT ATTRIBUTES SUCH AS APPROVED ACCESS ROADS, NO REFUELING ZONES, WETLANDS/STREAM BOUNDS, ETC.
3. CONSTRUCT THE ROCK CONSTRUCTION ENTRANCE. ALL VEHICLES ENTERING AND EXITING THE SITE SHALL DO SO VIA THE ROCK CONSTRUCTION ENTRANCE.
4. CONSTRUCT ALL BMP'S AS SOON AS CLEARING AND GRUBBING OPERATIONS ALLOW. DIVERSIONS AND SEDIMENT TRAP(S)/BASIN(S) SHALL BE SEEDED AND MULCHED IMMEDIATELY.
5. IF APPLICABLE, CONVEY UPSLOPE DRAINAGE AROUND THE ACCESS ROAD, WELL PAD, AND WATER CONTAINMENT PAD AREAS BY CONSTRUCTING ALL DIVERSION BERM(S) AND/OR COMPOST FILTER SOCK DIVERSION(S) AS SHOWN ON THE PLANS
6. CLEAR AND GRUB THE SITE. ALL WOODY MATERIAL, BRUSH, TREES, STUMPS, LARGE ROOTS, BOULDERS, AND DEBRIS SHALL BE CLEARED FROM THE SITE AREA AND KEPT TO THE MINIMUM NECESSARY FOR PROPER CONSTRUCTION, INCLUDING THE INSTALLATION OF NECESSARY SEDIMENT CONTROLS. TREES SIX INCHES IN DIAMETER AND LARGER SHALL BE CUT AND LOGS STACKED. SMALLER TREES, BRUSH, AND STUMPS SHALL BE CUT AND/OR GRUBBED AND WINDROWED IN APPROPRIATE AREAS FOR USE AS SEDIMENT BARRIERS AT WATER DRAINAGE OUTLETS (AS SHOWN ON THE PLANS), WINDROWED BELOW THE WELL SITE, USED FOR WILDLIFE HABITAT, BURNED (AS PER WV FOREST FIRE LAWS), REMOVE FROM SITE, OR DISPOSED OF BY OTHER METHODS APPROVED BY WV DEP.
7. IF APPLICABLE, INSTALL ALL WETLAND OR STREAM CROSSING AS SHOWN ON THE PLANS.
8. STRIP THE TOPSOIL FROM THE ACCESS ROAD. PRIOR TO PLACING ANY FILL, THE EXPOSED SUBGRADE SHALL BE COMPACTED AND PROOF ROLLED USING A FULLY LOADED TRIAXLE OR OFF ROAD DUMP TRUCK TO PRODUCE A STABLE AND UNYIELDING SITE. ALL STRIPPED TOPSOIL SHALL BE STOCKPILED IN AREAS SHOWN IN THE PLANS, OR RE-SPREAD AT AN APPROXIMATE DEPTH OF 2-4 INCHES ON ALL PROPOSED 2:1 OR FLATTER SLOPES, AND IMMEDIATELY STABILIZED. ADDITIONAL BMP MEASURES SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES, IF NECESSARY.
9. CONSTRUCT THE ACCESS ROAD, ALL FILL AREAS INCLUDING EXCESS MATERIAL STOCKPILES SHALL BE “KEYED” IN AND COMPACTED IN HORIZONTAL LIFTS WITH A MAXIMUM LOOSE LIFT THICKNESS OF 12” AND MAXIMUM PARTICLE SIZE AS OUT LINED IN THE GEOTECHNICAL REPORT. ALL FILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT AS PER STANDARD PROCTOR TEST (ASTM-D698) RESULTS. IT IS ALSO RECOMMENDED THAT EACH LIFT BE PROOF ROLLED WITH A LOADED HAUL TRUCK WHERE APPLICABLE. DITCH RELIEF CULVERTS SHALL BE INSTALLED AT A GRADE OF 1-8% TO MINIMIZE OUTLET VELOCITIES TO THE EXTENT POSSIBLE. INSTALL OUTLET PROTECTION ONCE DITCH RELIEF CULVERTS ARE INSTALLED, AS SHOWN ON PLANS. STABILIZE THE ROAD WITH GEOTEXTILE FABRIC & STONE AND SIDE SLOPES AS SPECIFIED WITH PERMANENT SEEDING. EXCESS MATERIAL SHALL BE STOCKPILED (IF NECESSARY) IN AREAS SHOWN IN THE PLANS AND IMMEDIATELY STABILIZED. TOPSOIL SHALL BE STRIPPED FROM ALL STOCKPILE AREAS PRIOR TO CONSTRUCTION OF STOCKPILES. AFTER STOCKPILES ARE CONSTRUCTED, TOPSOIL IS TO BE REAPPLIED AT A DEPTH OF 2”-4”. SLOPES SHALL BE TRACKED BY RUNNING TRACKED MACHINERY UP AND DOWN THE SLOPE, LEAVING TREAD MARKS PARALLEL TO THE CONTOUR. ALL DITCH LINES SHALL BE CLEANED PRIOR TO INSTALLATION OF LINED PROTECTION.
10. STRIP THE TOPSOIL FROM THE WELL PAD AND WATER CONTAINMENT PAD. PRIOR TO PLACING ANY FILL, THE EXPOSED SUBGRADE SHALL BE COMPACTED AND PROOF ROLLED TO PRODUCE A STABLE AND UNYIELDING SITE. ALL STRIPPED TOPSOIL SHALL BE STOCKPILED IN AREAS SHOWN IN THE PLANS, OR RE-SPREAD AT AN APPROXIMATE DEPTH OF 2-4 INCHES ON ALL PROPOSED 2:1 OR FLATTER SLOPES, AND IMMEDIATELY STABILIZED. ADDITIONAL BMP MEASURES SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES, IF NECESSARY.
11. GRADE THE WELL PAD AND WATER CONTAINMENT PAD AREAS AS SHOWN ON THE PLANS. INSTALL PAD SUMPS (WITH 4” PVC DRAIN PIPE AND OUTLET PROTECTION) AND CONTAINMENT BERM LINER SYSTEM. IMMEDIATELY STABILIZE THE OUTER AREAS OF THE WELL PAD AND WATER CONTAINMENT PAD. THE WELL PAD AND WATER CONTAINMENT PAD AREAS SHALL BE STABILIZED WITH GEOTEXTILE FABRIC & STONE AND THE SIDE SLOPES WITH SEED AND MULCH. APPLY SEED AND MULCH TO ALL DISTURBED AREAS. THIS SHALL INCLUDE ALL AREAS THAT WILL NOT BE SUBJECT TO REGULAR TRAFFIC ACTIVITY (TO BE STABILIZED WITH STONE), OR ANY DISTURBED AREA THAT WILL NOT BE RE-DISTURBED BEFORE SITE RECLAMATION BEGINS.
12. COMMENCE WELL DRILLING ACTIVITY.
13. ALL BMP'S MUST REMAIN IN PLACE AND FUNCTIONAL UNTIL ALL AREAS WITHIN THE LIMIT OF DISTURBANCE ARE COMPLETE AND PERMANENTLY STABILIZED. MAINTENANCE MUST INCLUDE INSPECTION OF ALL EROSION AND SEDIMENT CONTROLS AFTER EACH RUNOFF EVENT IN EXCESS OF 0.5” AND ON A BI WEEKLY BASIS.
14. THE CONSTRUCTION SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE AFTER COMPLETION. ESTABLISHMENT OF FINAL STABILIZATION MUST BE INITIATED NO LATER THAN 7 DAYS AFTER REACHING FINAL GRADE. FINAL STABILIZATION MEANS THAT ALL SOIL-DISTURBING ACTIVITIES ARE COMPLETED, AND THAT EITHER A PERMANENT VEGETATIVE COVER WITH A DENSITY OF 70%OR GREATER HAS BEEN ESTABLISHED OR THAT THE SURFACE HAS BEEN STABILIZED BY HARD COVER SUCH AS PAYMENT OR BUILDINGS. IT SHOULD BE NOTED THAT THE 70% REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT JUST A PERCENT OF THE SITE.
15. ALL PERMANENT SEDIMENT CONTROL MEASURES CAN BE REMOVED AFTER THE SITE IS PERMANENTLY STABILIZED AND APPROVAL IS RECEIVED FROM THE WVDEP.
16. ANY AREAS DISTURBED BY REMOVAL OF CONTROLS SHALL BE REPAIRED, STABILIZED, AND PERMANENTLY SEEDED.

REFERENCE

1. EXISTING TOPOGRAPHY PROVIDED BY BLUE MOUNTAIN INC ON 1/18/2017.
2. PROPOSED GRADING BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
3. ECOLOGICAL DELINEATIONS PROVIDED TO CIVIL & ENVIRONMENTAL CONSULTANTS BY GAI CONSULTANTS ON 4/25/2024.
4. PROPERTY LINE VERIFICATION PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS IN 01/2017.

CONSTRUCTION STANDARDS:

THE DESIGN, CONSTRUCTION, AND REMOVAL OF FILL FOR OIL AND GAS SITES MUST BE ACCOMPLISHED IN SUCH A MANNER AS TO PROTECT THE HEALTH AND SAFETY OF THE PUBLIC, THE NATURAL RESOURCES, AND ENVIRONMENT OF THE STATE. THE SITE SHALL BE DESIGNED, CONSTRUCTED, AND MAINTAINED TO BE STRUCTURALLY SOUND AND REASONABLY PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.

1. ALL FILL AREAS SHALL BE CLEARED OF TREES, STUMPS, ANY VEGETATION AND STRIPPED OF TOPSOIL/ORGANIC SOILS PRIOR TO THE START OF FILL PLACEMENT.
2. ANY GROUNDWATER ENCOUNTERED DURING CONSTRUCTION SHALL BE DRAINED TO THE OUTSIDE/DOWNSTREAM TOE OF THE SLOPE. THE CONSTRUCTED DRAIN SECTION SHALL BE AN EXCAVATED 2' x 2' TRENCH AND BACK FILLED WITH #57 STONE, COMPACTED BY HAND TAMPER. GEOTEXTILE FABRIC SHALL BE USED TO LINE TRENCH.
3. SATISFACTORY MATERIALS FOR USE AS FILL FOR PAD AREAS INCLUDE MATERIALS CLASSIFIED IN ASTM D-2487 AS GW, GP, GM, GC, SW, SP, SM, SC, MI, AND CL GROUPS.
4. GENERALLY, UNSATISFACTORY MATERIALS INCLUDE MATERIALS CLASSIFIED IN ASTM D-2487 AS PT, CH, MH, OI, OH, AND ANY SOIL TOO WET TO FACILITATE COMPACTION. CH AND MH SOILS MAY BE USED SUBJECT TO APPROVAL OF THE ENGINEER.
5. ALL FILL AREAS SHALL BE “KEYED IN” AND COMPACTED IN HORIZONTAL LIFTS WITH A MAXIMUM LOOSE LIFT THICKNESS OF 12” AND MAXIMUM PARTICLE SIZE AS OUTLINED IN THE GEOTECHNICAL REPORT. ALL FILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT AS PER STANDARD PROCTOR TEST (ASTM-D698) RESULTS.
6. ROCK LIFTS ARE NOT PROPOSED FOR THE CONSTRUCTION OF THIS SITE. HOWEVER, LARGER ROCK PARTICLES OR BOULDERS THAT ARE ENCOUNTERED DURING CONSTRUCTION NEED TO BE BROKEN DOWN TO A MANAGEABLE SIZE (MAXIMUM 3'x3'x1' THICK) TO BE PLACED AS FILL DURING PLACEMENT OF FILL CONTAINING LARGE SIZE ROCK PARTICLES. IT IS CRITICAL THAT NO VOID SPACES BE LEFT BETWEEN THE ROCKS. SMALLER ROCK FRAGMENTS AND SOIL MUST BE WORKED INTO ANY OPENINGS BETWEEN THE BOULDERS AFTER THEY ARE PUT IN PLACE. ADDITIONAL GUIDANCE REGARDING ENCOUNTERED ROCK CAN BE FOUND IN THE GEOTECHICAL REPORT.
7. THE PLACEMENT OF ALL FILL MATERIAL SHALL BE FREE OF WOOD, STUMPS AND ROOTS, LARGE ROCKS AND BOULDERS, AND ANY OTHER NONCOMPACTABLE SOIL MATERIAL NO FILL SHALL CONTAIN OR BE PLACED ON FROZEN MATERIAL. THE FILL SHALL BE COMPACTED TO A MINIMUM OF VISIBLE NON-MOVEMENT. HOWEVER, THE COMPACTION EFFORT SHALL NOT EXCEED OPTIMUM MOISTURE LIMITS.
8. ALL EXPOSED AREAS, NOT COVERED BY COMPACTED GRAVEL, OR RIP-RAP SHALL BE LIMED, FERTILIZED, SEEDED AND MULCHED. PERMANENT VEGETATIVE GROUND COVER IN COMPLIANCE WITH THE WV DEP EROSION AND SEDIMENT CONTROL FIELD MANUAL MUST BE ESTABLISHED UPON THE COMPLETION OF CONSTRUCTION. SLOPES SHALL BE MAINTAINED WITH A GRASSY VEGETATIVE COVER AND FREE OF BRUSH AND/OR TREES.
9. IF STANDING WATER IS PRESENT ON SITE, CONTRACTOR TO CORRECT DRAINAGE ISSUE BY DIRECTING WATER TO PROPER E&S CONTROLS OR OUTLET WITH POSITIVE DRAINAGE IF NECESSARY, CONTACT ENGINEER FOR GUIDANCE IN CORRECTING DRAINAGE ISSUES.
10. ALL DRAINAGE DITCHES, DIVERSIONS, AND CULVERTS SHALL HAVE POSITIVE DRAINAGE AND OUTFALL INTO THE PROPER OUTLET PROTECTION OR LEVEL SPREADING DEVICE. SUPER SILT FENCE, OR APPROVED ALTERNATIVE, SHALL BE INSTALLED WITHIN 5 FEET OF THE OUTLET PROTECTION OR LEVEL SPREADING DEVICE TO PREVENT EROSION DOWNSTREAM. IF EROSION IS PRESENT DOWNSTREAM OF AN EROSION CONTROL DEVICE, CONTRACTOR TO INSTALL ADDITIONAL EROSION CONTROLS AND STABILIZATION TO PREVENT FURTHER EROSION.
11. ALL DRAINAGE DITCHES AND DIVERSIONS THAT ARE ROCK LINED SHALL BE INSTALLED PER THE DETAILS ON THIS PLAN INCLUDING THE NECESSARY INSTALLATION OF ANY GEOTEXTILE FABRIC UNDERNEATH THE ROCK LINING.
12. IF THE EROSION CONTROL DEVICES SHOW EVIDENCE OF BEING INADEQUATE DUE TO CONSTRUCTION MEANS AND METHODS. THE CONTRACTOR IS TO INSTALL ADDITIONAL DRAINAGE DEVICES OR EROSION CONTROLS TO PREVENT FURTHER EROSION FROM OCCURRING.
13. CONTRACTOR IS TO EXTEND ALL KEYWAY AND BONDING BENCH OUTLET DRAINS A MINIMUM OF ONE FOOT PAST THE FINISHED GRADE OF THE SLOPE AND INSTALL THE PROPER OUTLET PROTECTION PER THE DETAILS ON THESE PLANS. ALL OUTLET DRAINS ARE TO BE CLEARLY VISIBLE AND MARKED.
14. ALL SLOPES SHALL BE TRACKED IN PER THE DETAILS ON THESE PLANS. CONTRACTORS SHALL REPEAT THIS METHOD ANY TIME AN AREA HAS BEEN DISTURBED PRIOR TO THAT AREA BEING STABILIZED.
15. ALL MAINTENANCE OF EROSION AND SEDIMENT CONTROLS MUST BE PERFORMED IMMEDIATELY ONCE THE CONTRACTOR IS NOTIFIED OF THE DISCREPANCY. CONTRACTOR TO PERFORM MAINTENANCE OR IMMEDIATELY NOTIFY THE SUB-CONTRACTOR PERFORMING THE E&S TASKS. ANY EROSION CONTROL MAINTENANCE THAT IS DEEMED TO BE AN EMERGENCY SHALL BE PERFORMED IMMEDIATELY UPON THE CLIENT, ENGINEER, OR STATE'S REQUEST.
16. ALL LANDOWNER ACCESS ROADS AND EXISTING WELL ROADS THAT ARE BEING MAINTAINED SHALL BE KEPT OPEN DURING THE ENTIRE COURSE OF CONSTRUCTION TO PROVIDE CONTINUOUS ACCESS. IF CLOSURE IS NECESSARY, THE CONTRACTOR SHALL PROVIDE AN EQUIVALENT DETOUR ROUTE TO THE SATISFACTION OF THE LANDOWNER OR WELL OWNER.
17. ANY WATER INFILTRATING AROUND THE WELL PAD DEWATERING SYSTEM SHALL BE CORRECTED IMMEDIATELY TO PREVENT THE FAILURE OF THE SOILS AND DESIGN ASPECTS OF THE DEWATERING SYSTEMS. ANY EXCESS EROSION OR SLOPE FAILURES DUE TO THE WATER INFILTRATION IN THE SUMP AREA SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL DITCH RELIEF AND STREAM CROSSING CULVERTS SHALL MEET ALL MANUFACTURER SPECIFICATIONS INCLUDING THE MINIMUM AND MAXIMUM COVER. IF MANUFACTURER SPECIFICATIONS CANNOT BE MET. CONTRACTOR SHALL CONSULT THE ENGINEER OR MANUFACTURER FOR ALTERNATIVES.

SITE CLEANUP & RECYCLE PROGRAM:

1. GARBAGE, FUELS OR ANY SUBSTANCE HARMFUL TO HUMAN, AQUATIC OR FISH LIFE SHALL BE PREVENTED FROM ENTERING SPRINGS, STREAMS, PONDS, LAKES, WETLANDS OR ANY WATER COURSE OR WATER BODY.
2. OILS, FUELS, LUBRICANTS AND COOLANTS WILL BE PLACED IN SUITABLE CONTAINERS AND DISPOSED PROPERLY.
3. ALL TRASH AND GARBAGE WILL BE COLLECTED AND DISPOSED PROPERLY.
4. ALL SEDIMENT REMOVED FROM SEDIMENT CAPTURING DEVICES SHALL BE PLACED ON THE TOPSOIL STOCKPILE, THEN SEEDED AND MULCHED, AS NECESSARY. ALTERNATIVELY, THE REMOVED SEDIMENT CAN BE TRANSPORTED TO A SITE WITH AN APPROVED PERMIT.
5. ALL POLLUTION AND EMERGENCY SPILLS SHALL BE IMMEDIATELY REPORTED TO ANTERO RESOURCES CORPORATION AND THE WV DEP OFFICE OF OIL AND GAS. (EMERGENCY #1-800-642-3074)

EROSION AND SEDIMENT CONTROL NARRATIVE:

PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS TO GRADE AND INSTALL EROSION AND SEDIMENT CONTROL MEASURES, IN PREPARATION FOR THE CONSTRUCTION OF A WELL PAD, ACCESS ROADS AND STAGING AREAS NEAR COUNTY ROUTE 7/19, IN WETZEL COUNTY, WEST VIRGINIA. THE CONSTRUCTION INCLUDES ACCESS ROADS, EROSION AND SEDIMENT CONTROLS, AND INCIDENTAL WORK. THE TOTAL APPROXIMATE LAND DISTURBANCE ASSOCIATED WITH THIS PROJECT IS 28.45 ACRES.

EXISTING SITE CONDITIONS: THE EXISTING SITE BEGINS ACCESS FROM COUNTY ROUTE 7/19. THE ACCESS ROAD STARTS WITH A CONSTRUCTED ACCESS ROAD FOR THE WELL PAD, AND STAGING AREA. NO EROSION IS NOTICED ON THIS SITE, OR NATURAL DRAINAGE WAYS

ADJACENT PROPERTY: THE SITE IS BORDERED BY FORESTED LANDS ON ALL SIDES.

CRITICAL AREAS: THE AREA(S) SHOWN ALONG THE FIELD DELINEATED STREAMS, WETLANDS, AND PONDS, AS SHOWN ON THE PLANS, ARE DESIGNATED AS CRITICAL AREA(S), IF PRESENT. ALL 3:1 SLOPES AND STEEPER, DITCHES, AND OTHER CONTROLS SHALL BE CONSIDERED CRITICAL EROSION AREAS. THESE AREAS SHALL BE MONITORED AND MAINTAINED DAILY DURING CONSTRUCTION AND AFTER EACH RAINFALL OF 0.5 INCHES OR GREATER. COMPOST FILTER SOCKS ARE TO BE USED TO PROTECT THESE FIELD DELINEATED AREA(S) FROM SEDIMENT LEAVING THE SITE. ADDITIONALLY, ORANGE SAFETY FENCE IS RECOMMENDED TO BE INSTALLED ABOVE/AROUND THESE AREA(S). TO SERVE AS A PHYSICAL BARRIER, ENSURING THE AREA(S) ARE NOT DISTURBED. THE LOCAL GOVERNING AUTHORITY WILL HAVE THE AUTHORITY TO RECOMMEND THE PLACEMENT OF ADDITIONAL EROSION CONTROL MEASURES IN THESE AREAS IF IT BECOMES EVIDENT DURING CONSTRUCTION THAT THE ONES IN PLACE ARE NOT FUNCTIONING SUFFICIENTLY.

SOILS: A SUBSURFACE INVESTIGATION OF THE PROPOSED SITE WAS PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS ON ?. THE REPORT PREPARED BY CIVIL & ENVIRONMENTAL CONSULTANTS DATED 09-2021, REFLECTS THE RESULTS OF THE SUBSURFACE INVESTIGATION. THE INFORMATION AND RECOMMENDATIONS CONTAINED IN THIS REPORT WERE USED IN THE PREPARATION OF THESE PLANS. PLEASE REFER TO THE SUBSURFACE INVESTIGATION REPORT BY CIVIL & ENVIRONMENTAL CONSULTANTS FOR ADDITIONAL INFORMATION, AS NEEDED.

OFF SITE AREAS: THERE ARE NO BORROW AREA(S) OR EXPORT STOCKPILE AREA(S) OUTSIDE OF THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT.

EROSION ANS SEDIMENT CONTROL MEASURES: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE CURRENT WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.

STRUCTURAL PRACTICES:

1. INSTALL 404 CONTROLS TO ENSURE NO DISTURBANCE TO THE UNPERMITTED DELINEATED AREA(S).
2. INSTALL TEMPORARY CONSTRUCTION ENTRANCE.
3. INSTALL COMPOST FILTER SOCKS AS SHOWN ON THE PLANS TO REMOVE SEDIMENT FROM RUNOFF. SELECTIVELY REMOVE TREES REQUIRED TO INSTALL COMPOST FILTER SOCK IN WOODED AREAS. CLEARING AND GRUBBING SHALL BE KEPT AT A MINIMUM TO INSTALL E&S CONTROLS.
4. FILL SLOPE SURFACE SHALL BE LEFT IN A ROUGHENED CONDITION TO REDUCE EROSION. CONTRACTOR SHALL REDIRECT RUNOFF AWAY FROM THE FILL SLOPE BY INSTALLING EARTHEN DIVERSION BERMS AND DIVERTING THE RUN OFF TO SEDIMENT TRAPPING DEVICES.
5. INSTALL V-DITCHES, DITCH RELIEF CULVERTS, AND OUTLET PROTECTION (RIP-RAP APRONS) AS SHOWN ON THE PLANS.

DEVICES LISTED ABOVE ARE CONSIDERED MINIMUM EROSION AND SEDIMENT CONTROLS. ADDITIONAL CONTROL MEASURES MAY BE NECESSARY DUE TO CONTRACTOR PHASING OR OTHER UNFORESEEN CONDITIONS. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BMP'S TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION. ALL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE CURRENT WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL ALL RUNOFF FROM DISTURBED AREAS SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE LOCATED BELOW THE DISTURBED AREA. AT NO TIME WILL UNFILTERED SEDIMENT LADEN RUNOFF BE ALLOWED TO LEAVE THE SITE AND ENTER STATE WATERS.

PERMANENT STABILIZATION: ALL AREAS LEFT UNCOVERED BY EITHER BUILDINGS OR PAVEMENT SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING AND WITHIN SEVEN (7) DAYS. AT NO TIME SHALL LAND LAY DORMANT LONGER THAN TWENTY-ONE (21) DAYS.

MAINTENANCE PROGRAM: DURING CONSTRUCTION ACTIVITIES ALL CONTROL MEASURES SHALL BE INSPECTED DAILY BY THE SITE SUPERINTENDENT OR HIS REPRESENTATIVE AND WITHIN TWENTY-FOUR (24) HOURS AFTER ANY SIGNIFICANT RAIN EVENT. WHICH SHALL BE DEFINED AS RAINFALL OF TWO (2) INCHES OR MORE IN A SIX (6) HOUR PERIOD. ONCE CONSTRUCTION ACTIVITIES HAVE CONCLUDED. THE SITE SHALL BE INSPECTED EVERY SEVEN (7) DAYS FOR THE LIFE OF THE FACILITY AND WITHIN TWENTY-FOUR (24) HOURS OF A SIGNIFICANT RAIN EVENT AS DEFINED ABOVE. ANY DAMAGED STRUCTURAL MEASURES ARE TO BE REPAIRED, BY THE END OF THE DAY, OR AT THE EARLIEST TIME IN WHICH IT IS SAFE TO DO SO. SEEDED AREAS SHALL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND OF GRASS IS MAINTAINED. ALL AREAS SHALL BE FERTILIZED AND RESEEDED AS NEEDED UNTIL GRASS IS ESTABLISHED.

TRAPPED SEDIMENT IS TO BE REMOVED AS REQUIRED TO MAINTAIN 50% TRAP AND/OR SOCK EFFICIENCY AND DISPOSED OF AS ENGINEERED FILL ON THE STOCKPILES.

INLETS AND OUTLETS OF DITCH RELIEF CULVERTS SHALL BE CHECKED REGULARLY FOR SEDIMENT BUILD-UP. IF THE INLET AND/OR OUTLET IS CLOGGED BY 50% OR GREATER, IT SHALL BE REMOVED AND CLEANED OR REPLACED IMMEDIATELY.

SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED OR SWEPT INTO ANY ROADSIDE DITCH, CULVERT OR SURFACE WATER.

ANY DISTURBED AREAS ALONG THE ACCESS ROAD SHALL BE STABILIZED AS CONSTRUCTION PROCEEDS, PRIOR TO CONTINUING FURTHER ACCESS ROAD CONSTRUCTION STABILIZATION SHALL BE PROVIDED WITH EITHER ROCK STABILIZATION OR SEEDING AND MULCHING METHODS.

SOILS:THE WV DEP RETAINS THE RIGHT TO ADD AND/OR MODIFY THESE EROSION AND SEDIMENT CONTROL MEASURES DURING THE CONSTRUCTION PROCESS, WITHIN REASON, TO ENSURE ADEQUATE PROTECTION TO THE PUBLIC AND THE ENVIRONMENT.

SEEDING (SOIL STABILIZATION):

1. CONTRACTOR SHALL APPLY SEED AND STABILIZATION IN ACCORDANCE WITH THE WV DEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE (BMP) MANUAL, BASED UPON SITE SPECIFIC SOIL CHARACTERISTICS.
2. WHEREVER SEEDING IS TO BE APPLIED TO STEEP SLOPES (3H:1V), SEED MIXTURES SHOULD BE SELECTED THAT ARE APPROPRIATE FOR STEEP SLOPES.

01/09/2026

DUST CONTROL:

1. TEMPORARY SEEDING SHALL BE APPLIED TO ALL DISTURBED AREAS SUBJECT TO LITTLE OR NO CONSTRUCTION TRAFFIC.
2. ALL HAUL ROADS AND OTHER HEAVY TRAFFIC ROUTES SHALL BE SPRINKLED WITH WATER UNTIL THE SURFACE IS WET AND REPEATED AS NEEDED TO CONTROL DUST.

APPROVED
WVDEP OOG
Modification
1/5/2026

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

Civil & Environmental Consultants, Inc.
120 Genesis Boulevard
Bridgeport, WV 26330
Ph: 304.933.3119
www.cecinc.com

ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

GENERAL NOTES

DATE:	FEBRUARY 2025
DRAWN BY:	JES
DWG SCALE:	N/A
CHECKED BY:	ER
PROJECT NO:	336-328
APPROVED BY:	JDR

DRAWING NO.:
C001
SHEET 2 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C001.dwg{C001} LS:(9/11/2025 - jspriggs) - LP: 11/11/2025 10:18 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

Ditch Flow												Ditch Feature								Liner Quantity			Outlet/Riprap Apron
Ditch ID	Woods/Meadow Area (acres)	Runoff Coefficient, C	Impervious Area (acres)	Runoff Coefficient, C	Earthen Area (acres)	Runoff Coefficient, C	Composite C	Time of Concentration (min)	Rainfall Intensity (in/hr)	Total Area (acres)	Peak Flow (cfs)	Average Slope (ft/ft)	Left Side Slope	Right Side Slope	Bottom Width (ft)	Length (ft)	Normal Depth (ft)	Minimum Depth (ft)	Liner/D50 Rock	Size (in)	Quantity	Unit	
Roadside Ditch 1A	0.36	0.35	0.03	0.95	0.00	0.70	0.40	5.00	6.50	0.39	1.01	0.083	2.0	2.0	1.00	145.0	0.25	1.00	S75BN	0	88.2	SY	Culvert 1
Roadside Ditch 1B	0.75	0.35	0.05	0.95	0.00	0.70	0.39	5.00	6.50	1.19	3.02	0.095	2.0	2.0	1.00	196.0	0.34	1.00	6" Riprap	6	89.4	TN	Culvert 1
Roadside Ditch 2	0.72	0.35	0.06	0.95	0.00	0.70	0.40	5.00	6.50	0.78	2.03	0.070	2.0	2.0	1.00	227.0	0.36	1.00	S75BN	0	138.0	SY	Culvert 2
Roadside Ditch 3	0.10	0.35	0.01	0.95	0.00	0.70	0.40	5.00	6.50	0.11	0.29	0.190	2.0	2.0	1.00	60.0	0.10	1.00	S75BN	0	36.5	SY	Culvert 3
Roadside Ditch 4	0.58	0.35	0.05	0.95	0.00	0.70	0.40	5.00	6.50	0.63	1.64	0.034	2.0	2.0	1.00	230.0	0.32	1.00	6" Riprap	6	104.9	TN	Culvert 4
Roadside Ditch 5	0.64	0.35	0.07	0.95	0.00	0.70	0.41	5.00	6.50	0.71	1.89	0.060	2.0	2.0	1.00	299.0	0.37	1.00	S75BN	0	181.8	SY	Culvert 5

Ditch Flow												Ditch Feature								Liner Quantity			Outlet/Riprap Apron
Ditch ID	Woods/Meadow Area (acres)	Runoff Coefficient, C	Impervious Area (acres)	Runoff Coefficient, C	Earthen Area (acres)	Runoff Coefficient, C	Composite C	Time of Concentration (min)	Rainfall Intensity (in/hr)	Total Area (acres)	Peak Flow (cfs)	Average Slope (ft/ft)	Left Side Slope	Right Side Slope	Bottom Width (ft)	Length (ft)	Normal Depth (ft)	Minimum Depth (ft)	Liner/D50 Rock	Size (in)	Quantity	Unit	
Diversion Swale 1	0.00	0.35	0.54	0.95	0.00	0.70	0.80	5.00	6.50	0.54	2.81	0.026	2.0	2.0	1.00	136.0	0.45	1.00	6" Riprap	6	62.0	TN	Sump 1
Diversion Swale 2	0.00	0.35	0.54	0.95	0.00	0.70	0.80	5.00	6.50	0.54	2.81	0.020	2.0	2.0	1.00	156.0	0.48	1.00	6" Riprap	6	71.1	TN	Sump 1
Diversion Swale 3	0.00	0.35	0.64	0.95	0.00	0.70	0.80	5.00	6.50	0.64	3.33	0.020	2.0	2.0	1.00	156.0	0.54	1.10	6" Riprap	6	77.0	TN	Sump 2
Diversion Swale 4	0.00	0.35	0.97	0.95	0.00	0.70	0.80	5.00	6.50	0.97	5.04	0.021	2.0	2.0	1.00	154.0	0.72	1.30	6" Riprap	6	87.4	TN	Sump 2
Diversion Swale 5	0.00	0.35	0.35	0.95	0.00	0.70	0.80	5.00	6.50	0.35	1.82	0.023	2.0	2.0	1.00	158.0	0.38	1.00	6" Riprap	6	72.0	TN	Sump 3
Diversion Swale 6	0.00	0.35	0.28	0.95	0.00	0.70	0.80	5.00	6.50	0.28	1.46	0.020	2.0	2.0	1.00	156.0	0.35	1.00	6" Riprap	6	71.1	TN	Sump 3
Diversion Swale 7	0.00	0.35	0.16	0.95	0.00	0.70	0.80	5.00	6.50	0.16	0.83	0.026	2.0	2.0	1.00	151.0	0.24	1.00	6" Riprap	6	68.9	TN	Sump 4
Diversion Swale 8	0.00	0.35	0.50	0.95	0.00	0.70	0.80	5.00	6.50	0.50	2.60	0.020	2.0	2.0	1.00	158.0	0.47	1.00	6" Riprap	6	72.0	TN	Sump 4
Diversion Swale 9	0.00	0.35	0.52	0.95	0.00	0.70	0.80	5.00	6.50	0.52	2.70	0.021	2.0	2.0	1.00	156.0	0.47	1.00	6" Riprap	6	71.1	TN	Sump 5
Diversion Swale 10	0.00	0.35	0.63	0.95	0.00	0.70	0.80	5.00	6.50	0.63	3.28	0.020	2.0	2.0	1.00	167.0	0.53	1.10	6" Riprap	6	82.4	TN	Sump 5
Diversion Swale 11	0.00	0.35	0.42	0.95	0.00	0.70	0.80	5.00	6.50	0.42	2.18	0.020	2.0	2.0	1.00	163.0	0.43	1.00	6" Riprap	6	74.3	TN	Sump 6
OMITTED	0.00	0.35	0.47	0.95	0.00	0.70	0.80	5.00	6.50	0.47	2.44	0.024	2.0	2.0	1.00	148.0	0.43	1.00	6" Riprap	6	67.5	TN	Sump 6
Diversion Swale 13	0.62	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.62	3.22	0.040	2.0	2.0	1.00	196.0	0.55	1.10	S75BN	0	128.9	SY	Let Down Channel 9
Diversion Swale 14	0.33	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.33	1.72	0.026	2.0	2.0	0.00	181.0	0.69	1.20	S75BN	0	107.9	SY	Let Down Channel 6
Diversion Swale 15	0.36	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.36	1.87	0.028	2.0	2.0	0.00	192.0	0.70	1.20	S75BN	0	114.5	SY	Let Down Channel 7
Diversion Swale 16	0.46	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.46	2.39	0.030	2.0	2.0	0.00	264.0	0.74	1.30	S75BN	0	170.5	SY	Let Down Channel 8
Diversion Swale 17	0.45	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.45	2.34	0.028	2.0	2.0	0.00	265.0	0.75	1.30	S75BN	0	171.2	SY	Let Down Channel 9
Diversion Swale 18	0.70	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.70	3.64	0.140	2.0	2.0	0.00	208.0	0.34	1.00	6" Riprap	6	77.5	TN	Riprap Apron 14
Diversion Swale 19	0.73	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.73	3.80	0.090	2.0	2.0	0.00	169.0	0.39	1.00	6" Riprap	6	63.0	TN	Riprap Apron 15
Diversion Swale 20	0.52	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.52	2.70	0.024	2.0	2.0	1.00	152.0	0.61	1.10	S75BN	0	100.0	SY	Let Down Channel 9
Diversion Swale 21	0.48	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.48	2.50	0.016	2.0	2.0	1.00	204.0	0.69	1.20	S75BN	0	144.3	SY	Riprap Apron 17
Diversion Swale 22	0.00	0.35	0.16	0.95	0.00	0.70	0.80	5.00	6.50	0.16	0.83	0.050	2.0	2.0	1.00	57.0	0.28	1.00	S75BN	0	34.7	SY	Sump 1
Diversion Swale 23	0.09	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.09	0.47	0.020	2.0	2.0	1.00	90.0	0.49	1.00	S75BN	0	54.7	SY	Ex Culvert
Diversion Swale 24	0.07	0.35	0.00	0.95	0.00	0.70	0.80	5.00	6.50	0.07	0.36	0.020	2.0	2.0	1.00	78.0	0.45	1.00	S75BN	0	47.4	SY	Ex Culvert

Ditch Flow												Ditch Feature								Liner Quantity			Outlet/Riprap Apron
Ditch ID	Woods/Meadow Area (acres)	Runoff Coefficient, C	Impervious Area (acres)	Runoff Coefficient, C	Earthen Area (acres)	Runoff Coefficient, C	Composite C	Time of Concentration (min)	Rainfall Intensity (in/hr)	Total Area (acres)	Peak Flow (cfs)	Average Slope (ft/ft)	Left Side Slope	Right Side Slope	Bottom Width (ft)	Length (ft)	Normal Depth (ft)	Minimum Depth (ft)	Liner/D50 Rock	Size (in)	Quantity	Unit	
Letdown Channel 1	1.58	0.35	0.08	0.95	0.00	0.70	0.38	5.00	6.50	1.66	4.10	0.620	2.0	2.0	1.00	112.0	0.26	1.00	6" Riprap	6	51.1	TN	Riprap Apron 1
Letdown Channel 2	0.73	0.35	0.05	0.95	0.00	0.70	0.39	5.00	6.50	0.78	1.98	0.430	2.0	2.0	2.00	60.0	0.13	1.00	6" Riprap	6	32.4	TN	Riprap Apron 2
Letdown Channel 3	0.69	0.35	0.08	0.95	0.00	0.70	0.41	5.00	6.50	0.77	2.05	0.400	2.0	2.0	2.00	112.0	0.13	1.00	6" Riprap	6	60.4	TN	Riprap Apron 3
Letdown Channel 4	0.60	0.35	0.07	0.95	0.00	0.70	0.41	5.00	6.50	0.67	1.79	0.500	2.0	2.0	1.00	75.0	0.16	1.00	6" Riprap	6	34.2	TN	Riprap Apron 4
Letdown Channel 5	0.65	0.35	0.07	0.95	0.00	0.70	0.41	5.00	6.50	0.72	1.92	0.420	2.0	2.0	1.00	78.0	0.18	1.00	6" Riprap	6	35.6	TN	Riprap Apron 5
Letdown Channel 6	0.47	0.35	1.08	0.95	0.00	0.70	0.77	5.00	6.50	1.55	7.76	0.450	2.0	2.0	1.00	140.0	0.27	1.00	9" Riprap	9	95.8	TN	Riprap Apron 6
Letdown Channel 7	0.50	0.35	0.00	0.95	0.00	0.70	0.35	5.00	6.50	0.50	1.14	0.330	2.0	2.0	1.00	101.0	0.14	1.00	6" Riprap	6	46.1	TN	Riprap Apron 8
Letdown Channel 8	0.50	0.35	0.00	0.95	0.00	0.70	0.35	5.00	6.50	0.50	1.14	0.340	2.0	2.0	2.00	90.0	0.14	1.00	6" Riprap	6	48.5	TN	Riprap Apron 11
Letdown Channel 9	1.08	0.35	0.89	0.95	0.00	0.70	0.62	5.00	6.50	1.97	7.94	0.360	2.0	2.0	2.00	267.0	0.29	1.00	6" Riprap	6	144.0	TN	Riprap Apron 13
Letdown Channel 10	1.28	0.35	0.02	0.95	0.00	0.70	0.36	5.00	6.50	1.30	3.04	0.330	2.0	2.0	2.00	114.0	0.17	1.00	6" Riprap	6	61.5	TN	Riprap Apron 16

Culvert ID	Woods/Meadow Area (acres)	Runoff Coefficient, C	Impervious Area (acres)	Runoff Coefficient, C	Earthen Area (acres)	Runoff Coefficient, C	Composite C	Time of Concentration (min)	Rainfall Intensity (in/hr)	Total Area (acres)	Peak Flow (cfs)	Culvert Size (in)	Inlet Elevation (ft)	Outlet Elevation (ft)	Length (ft)	Slope (%)	Material	
Culvert 1	1.11	0.35	0.08	0.95	0.00	0.70	0.39	5.00	6.50	1.19	3.02	18	1339.62	1338.96	33.0	2.00	HDPE	
Culvert 2	0.72	0.35	0.06	0.95	0.00	0.70	0.40	5.00	6.50	0.78	2.03	18	1368.00	1367.34	33.0	2.00	HDPE	Letdown Channel 2
Culvert 3	0.65	0.35	0.07	0.95	0.00	0.70	0.41	5.00	6.50	0.72	1.92	18	1383.93	1383.33	30.0	2.00	HDPE	Letdown Channel 3
Culvert 4	0.58	0.35	0.06	0.95	0.00	0.70	0.41	5.00	6.50	0.64	1.71	18	1389.53	1388.85	34.0	2.00	HDPE	Letdown Channel 4
Culvert 5	0.64	0.35	0.07	0.95	0.00	0.70	0.41	5.00	6.50	0.71	1.89	18	1391.58	1390.92	33.0	2.00	HDPE	Letdown Channel 5
Slotted Drain 1	0.00	0.35	0.009	0.95	0.00	0.70	0.95	5.00	6.50	0.009	0.06	12	1348.65	1345.97	43.0	5.70	CMP	Roadside Ditch 1
Slotted Drain 2	0.00	0.35	0.007	0.95	0.00	0.70	0.95	5.00	6.50	0.007	0.04	12	1348.65	1347.68	30.0	3.30	CMP	Riprap Apron 1A

01/09/2026

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Modification
1/5/2026

Riprap Apron Outlet Protection

Riprap Apron ID	D50 (ft)	T (ft)	La (ft)	W1 (ft)	W2 (ft)	Outlet Protection Tonnage
Riprap Apron 1	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 1A	0.5	1.13	6.0	6.0	8.0	2.99
Riprap Apron 2	0.5	1.13	8.0	4.0	10.0	3.98
Riprap Apron 3	0.5	1.13	8.0	4.0	10.0	3.98
Riprap Apron 4	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 5	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 6	0.5	1.13	10.0	4.0	12.0	5.69
Riprap Apron 7	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 8	0.5	1.13	8.0	3.0	9.0	3.42

Riprap Apron Outlet Protection

Riprap Apron ID	D50 (ft)	T (ft)	La (ft)	W1 (ft)	W2 (ft)	Outlet Protection Tonnage
Riprap Apron 9	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 10	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 11	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 12	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 13	0.5	1.13	10.0	4.0	12.0	5.69
Riprap Apron 14	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 15	0.5	1.13	8.0	3.0	9.0	3.42
Riprap Apron 16	0.5	1.13	8.0	4.0	12.0	4.55
Riprap Apron 17	0.5	1.13	8.0	3.0	9.0	3.42

SMART FENCE SCHEDULE

ITEM NO.	TYPE	LENGTH(LF)
1	HD	57
2	HD	117
3	HD	460
4	HD	114
5	HD	340
6	HD	59
7	HD	194
8	HD	207
9	HD	84
10	HD	123
11	HD	53

SMART FENCE SCHEDULE

ITEM NO.	TYPE	LENGTH(LF)
12	HD	439
13	HD	149
14	HD	91
15	HD	53
16	HD	30
17	HD	69
18	HD	82
19	HD	229
20	HD	195
21	HD	246
22	HD	310

SMART FENCE SCHEDULE

ITEM NO.	TYPE	LENGTH(LF)
23	HD	327
24	HD	105
25	HD	28
26	HD	28
27	HD	255
28	HD	64
29	HD	104
30	HD	54
31	OCF	647

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

Civil & Environmental Consultants, Inc.

120 Genesis Boulevard
Bridgeport, WV 26330
Ph: 304.933.3119
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ANTERO RESOURCES
CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

MATERIAL QUANTITIES

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	N/A	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:			JDR

DRAWING NO.:
C002
SHEET 3 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C001.dwg{C002} LS:(9/11/2025 - jspriggs) - LP: 11/11/2025 10:18 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

LEGEND

EXISTING INDEX CONTOURS & CONTOUR LABELS	— — 850 — —	PROPOSED INDEX CONTOURS & CONTOUR LABELS	——850——
EXISTING INTERMEDIATE CONTOURS	- - - - -	PROPOSED INTERMEDIATE CONTOURS	————
EXISTING TAX PARCEL PROPERTY LINE	—— – – —— – – ——	DELINEATION STUDY AREA (AOI)	- - - - - -
EXISTING RIGHT OF WAY LINE	—— – – – ——	PROPOSED LIMITS OF DISTURBANCE	—·—·—·—
EXISTING ROADS (UNPAVED)	═ ═ ═ ═	PROPOSED OVERHEAD WIRE	—OH–W——OH–W—
EXISTING ROADS (PAVED)	═══════	PROPOSED UTILITY POLE	⌀
EXISTING ROADS CENTERLINE	—— – —— – ——	PROPOSED HYDRO–SEEDED AREA	🟩
EXISTING LOGGING ROADS (UNPAVED)	═ ═ ═ ═	PROPOSED GRAVEL SURFACE AREA	⬜
EXISTING GUARDRAIL	∘—∘—∘—∘—∘	PROPOSED PAVED SURFACE AREA	⬜
EXISTING FENCE LINE	—x—x—x—x—x—	PROPOSED ROAD AREA	🟩
EXISTING TREE LINE	︶︶︶︶︶︶	PROPOSED WELL PAD AREA	⬜
EXISTING OVERHEAD ELECTRIC LINE	—OH–E——OH–E—	PROPOSED WELL PAD BERM AREA	🟫
EXISTING OVERHEAD WIRE	—OH–W—OH–W—OH–W—	PROPOSED STOCKPILE AREA	⬜
EXISTING UTILITY POLE	⌀	PROPOSED HD SMARTFENCE	—HD—HD—HD—
EXISTING GAS PIPELINE	—G——G—	PROPOSED DIVERSION DITCH	→··→··→··→
EXISTING OVERHEAD TELEPHONE LINE	—T——T—	PROPOSED ROADSIDE DITCH	→··→··→··→
EXISTING UNDERGROUND ELECTRIC LINE	—UG–E——UG–E—	PROPOSED SWING GATE	⌐o
EXISTING UNDERGROUND WATER LINE	—W——W—	PROPOSED ORANGE CONSTRUCTION FENCE	—OCF—OCF—OCF—
EXISTING WETLAND	▨	PROPOSED FILL FOUNDATION KEY	▬ ▬ ▬ ▬
EXISTING STREAM	———	PROPOSED SOIL KEY	▬ ▬ ▬ ▬
FEMA FLOODPLAIN BOUNDARY	▨	PROPOSED CULVERT	—ST——ST—
EXISTING GAS WELL	☼	PROPOSED TRENCH DRAIN	- - - - - -
EXISTING SANITARY SEWER MANHOLE	Ⓢ	PROPOSED APPROXIMATE SOIL OVEREXCAVATION	🟨
EXISTING INLET	⊠	PROPOSED RIPRAP	▷
CROSS SECTION LOCATION	A C601 — A C601	PROPOSED ROCK CHECK DAM	⬢
		PROPOSED CUT LINE	———
POTENTIAL ROUST TREE	■	PROPOSED FILL LINE	———
TOPSOIL DEPTH	▲TP–1	PROPOSED COMPOST FILTER SOCK NUMBER	#
BORE HOLE LOCATION	⊗	PROPOSED FINAL GRADE SLOPE LABEL	←0.00%

01/09/2026

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WVDEP OOG
Modification
1/5/2026

JOSEPH D. ROBINSON
REGISTERED
19756
11-11-2025
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

Joseph D. Robinson

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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CEC
Civil & Environmental
Consultants, Inc.

**ANTERO RESOURCES
CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA**

MASTER LEGEND

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: N/A
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.:
C003
SHEET 4 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C001.dwg{C003} LS:(9/11/2025 - jspriggs) - LP: 11/11/2025 10:18 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

01/09/2026

APPROVED
WVDEP OOG
Modification
1/5/2026

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

EXISTING CONDITIONS

DATE: FEBRUARY 2025	DRAWN BY: JES
DWG SCALE: 1"=100'	CHECKED BY: ER
PROJECT NO: 336-328	
APPROVED BY: JDR	

JOSEPH D. ROBINSON 19756

DRAWING NO.: C100
SHEET 5 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C100.dwg{C100} LS:(2/11/2025 - jspriggs) - LP: 11/11/2025 10:19 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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01/09/2026

ELEVATIONS TABLE		
MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR
−26.5	−18.0	🟥
−18.0	−12.0	🟧
−12.0	−6.0	🟨
−6.0	0.0	🟩
0.0	6.0	🟦
6.0	12.0	🟦
12.0	18.0	🟦
18.0	24.0	🟪
24.0	30.0	🟪
30.0	36.2	🟪

APPROVED
WVDEP OOG
Modification
1/5/2026

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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Ph: 304.933.3119
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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

ISOPACH PLAN

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=100'	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

DRAWING NO.: C200
SHEET 6 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C200.dwg{C200} LS:(6/11/2025 - jspriggs) - LP: 11/11/2025 10:19 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

01/09/2026

APPROVED
WVDEP OOG
Modification
1/5/2026

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
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REVISION RECORD

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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY WEST VIRGINIA

OVERALL SITE PLAN

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=100'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

DRAWING NO.: C300
SHEET 7 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C300.dwg{C300} LS:(11/11/2025 - jwilkins) - LP: 11/11/2025 10:19 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

APPROVED
WVDEP OOG
Modification
1/5/2026

REVISION RECORD

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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

SITE PLAN

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=50'	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

JOSEPH D. ROBINSON
19756

DRAWING NO.: C301
SHEET 8 OF 38

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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APPROVED
WVDEP OOG
Modification
1/5/2026

REVISION RECORD

NO	DATE	DESCRIPTION
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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

SITE PLAN

DATE:	FEBRUARY 2025
DRAWN BY:	JES
DWG SCALE:	1"=50'
CHECKED BY:	ER
PROJECT NO:	336-328
APPROVED BY:	JDR

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

DRAWING NO.: C302
SHEET 9 OF 38

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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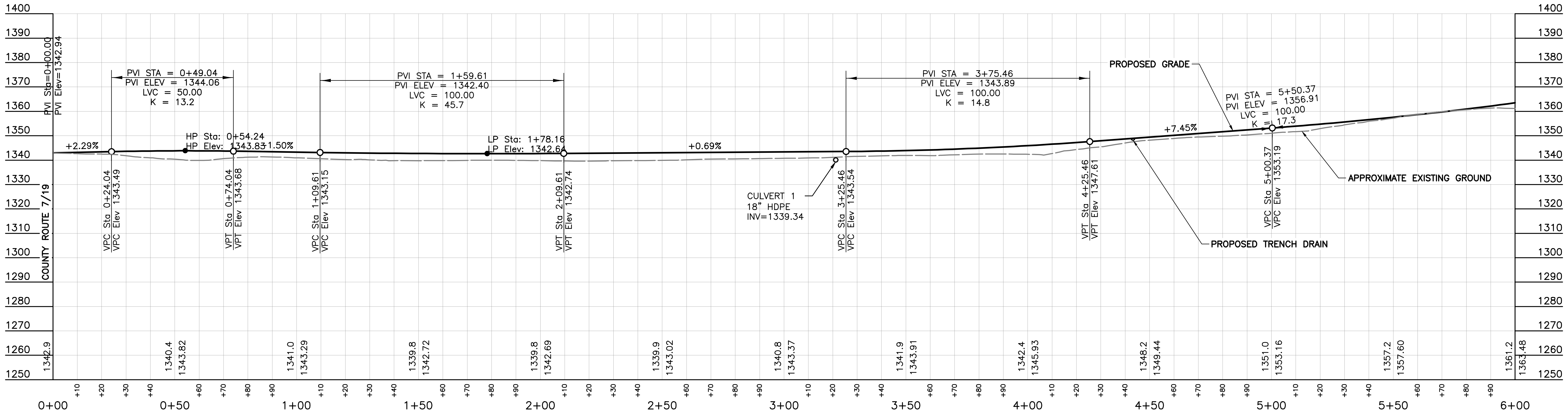

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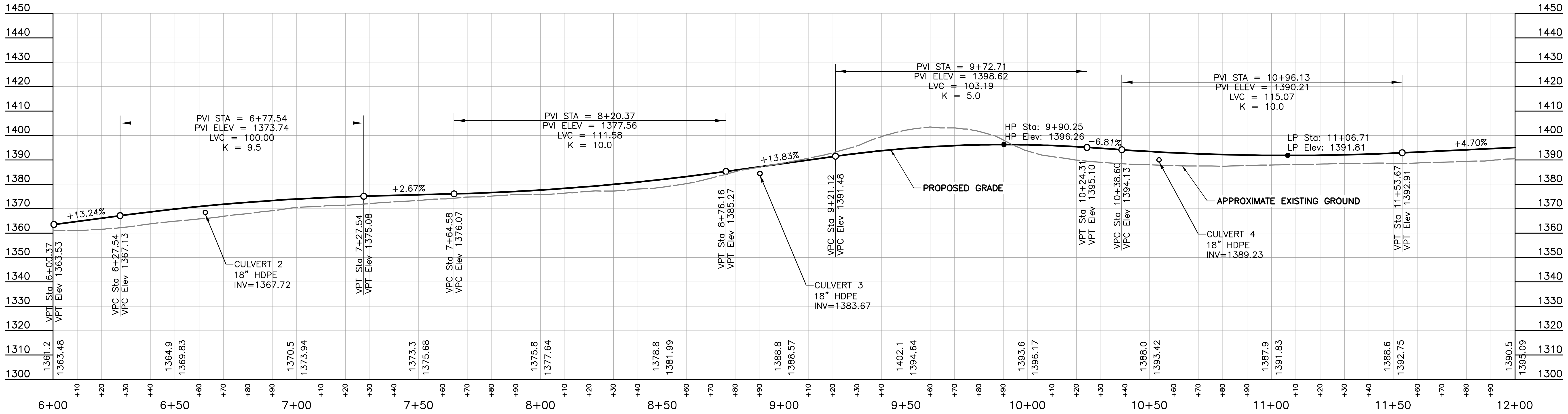
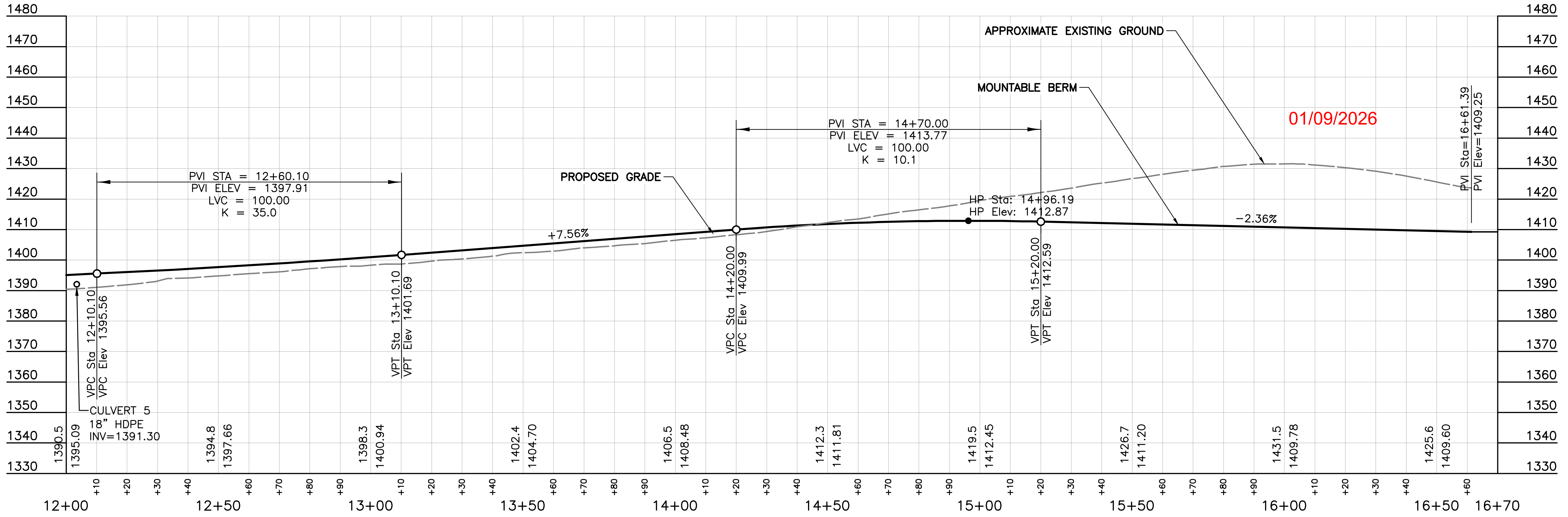


MAIN ACCESS ROAD



01/09/2026

MAIN ACCESS ROAD

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

REVISION RECORD

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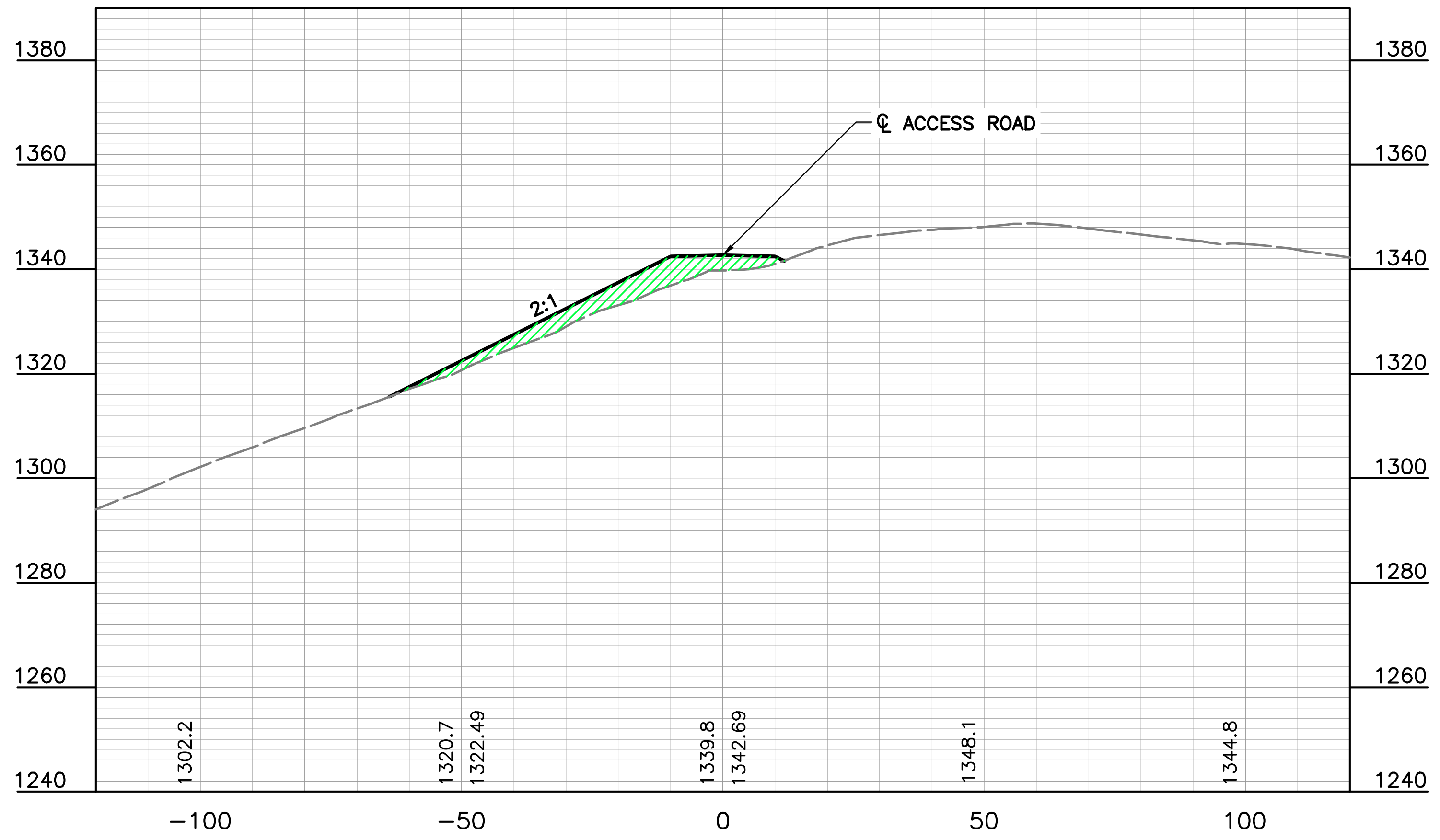
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

PROFILES AND SECTIONS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.:
C600
SHEET 10 OF 38

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



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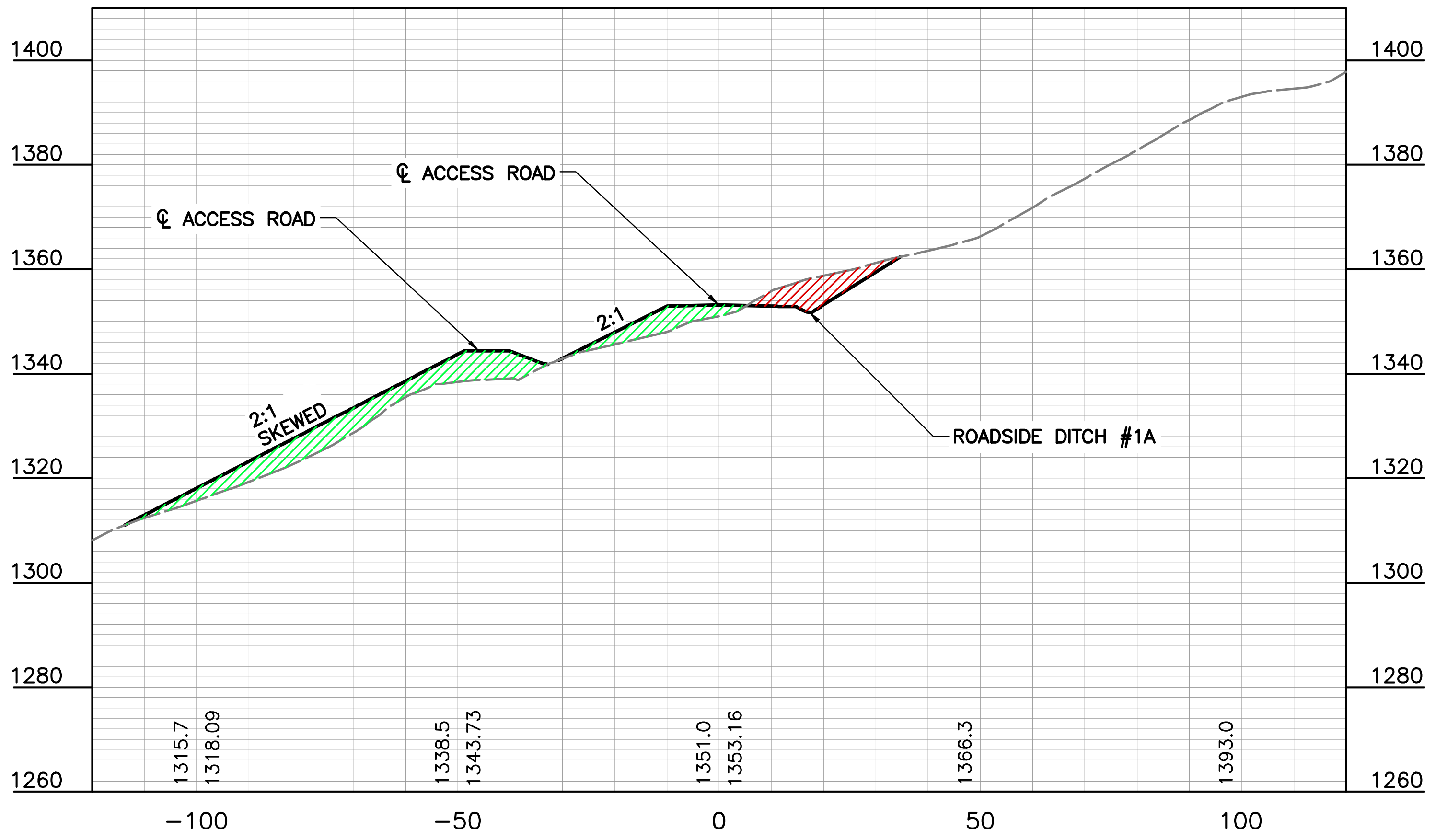

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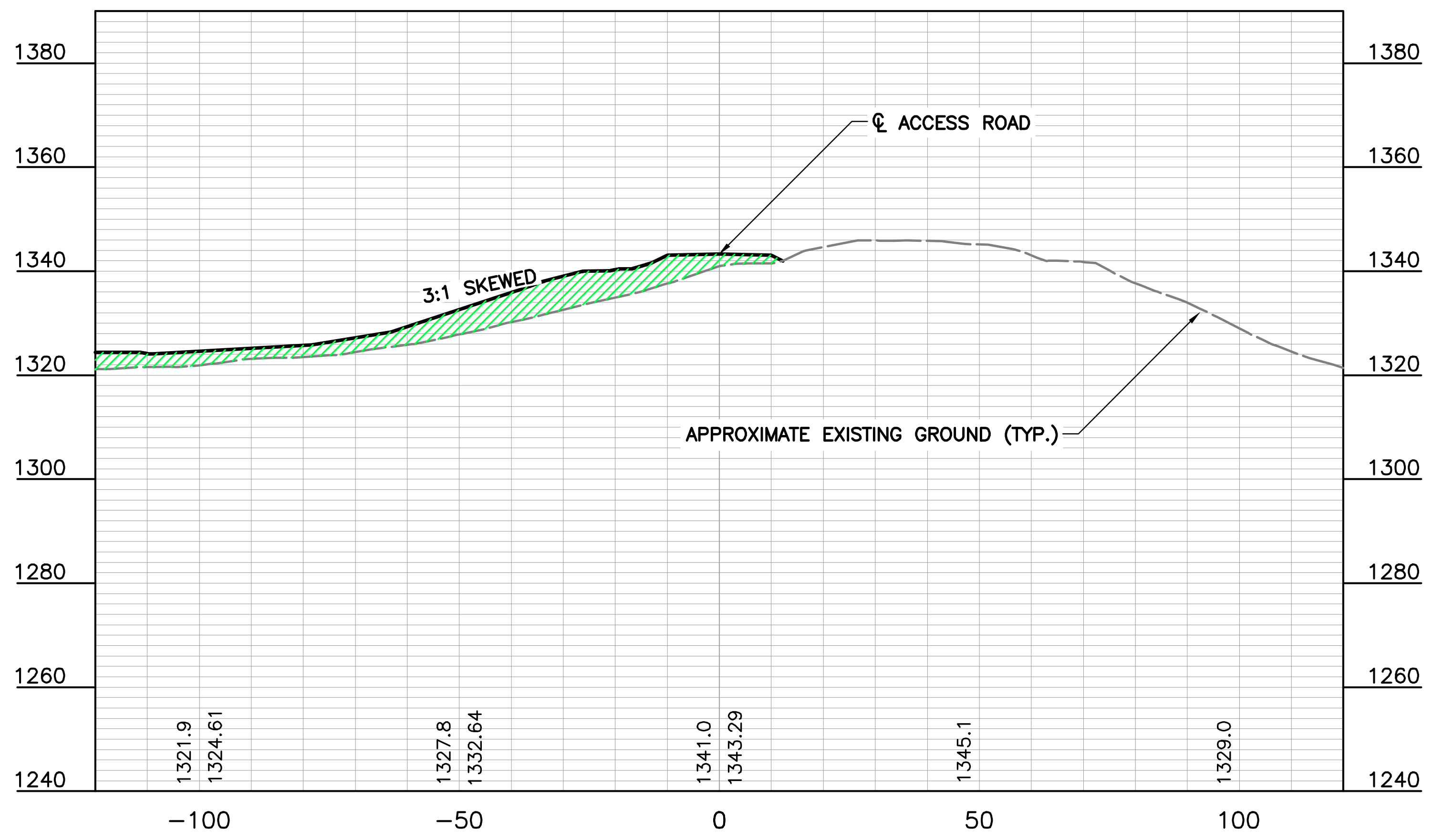

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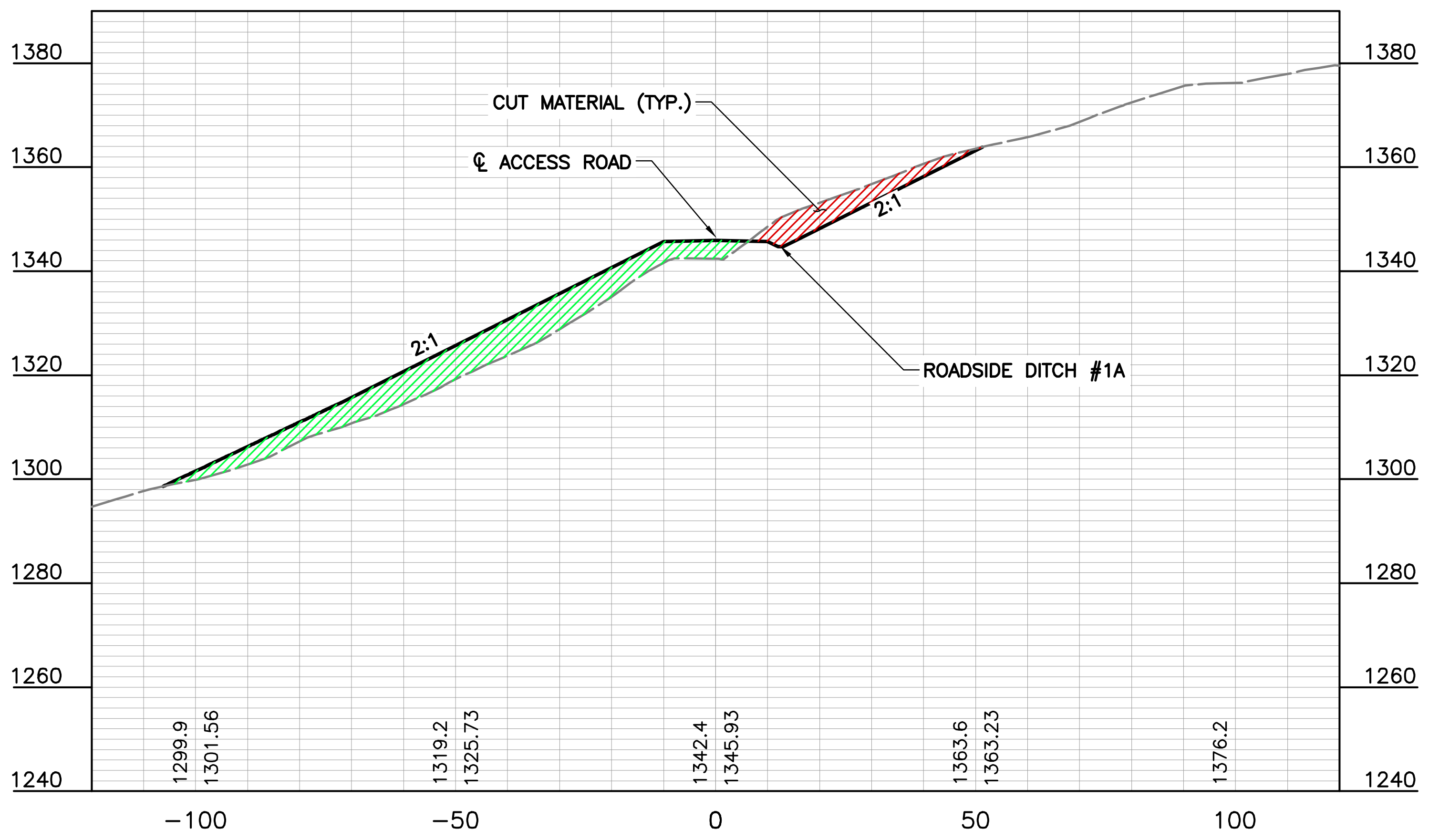

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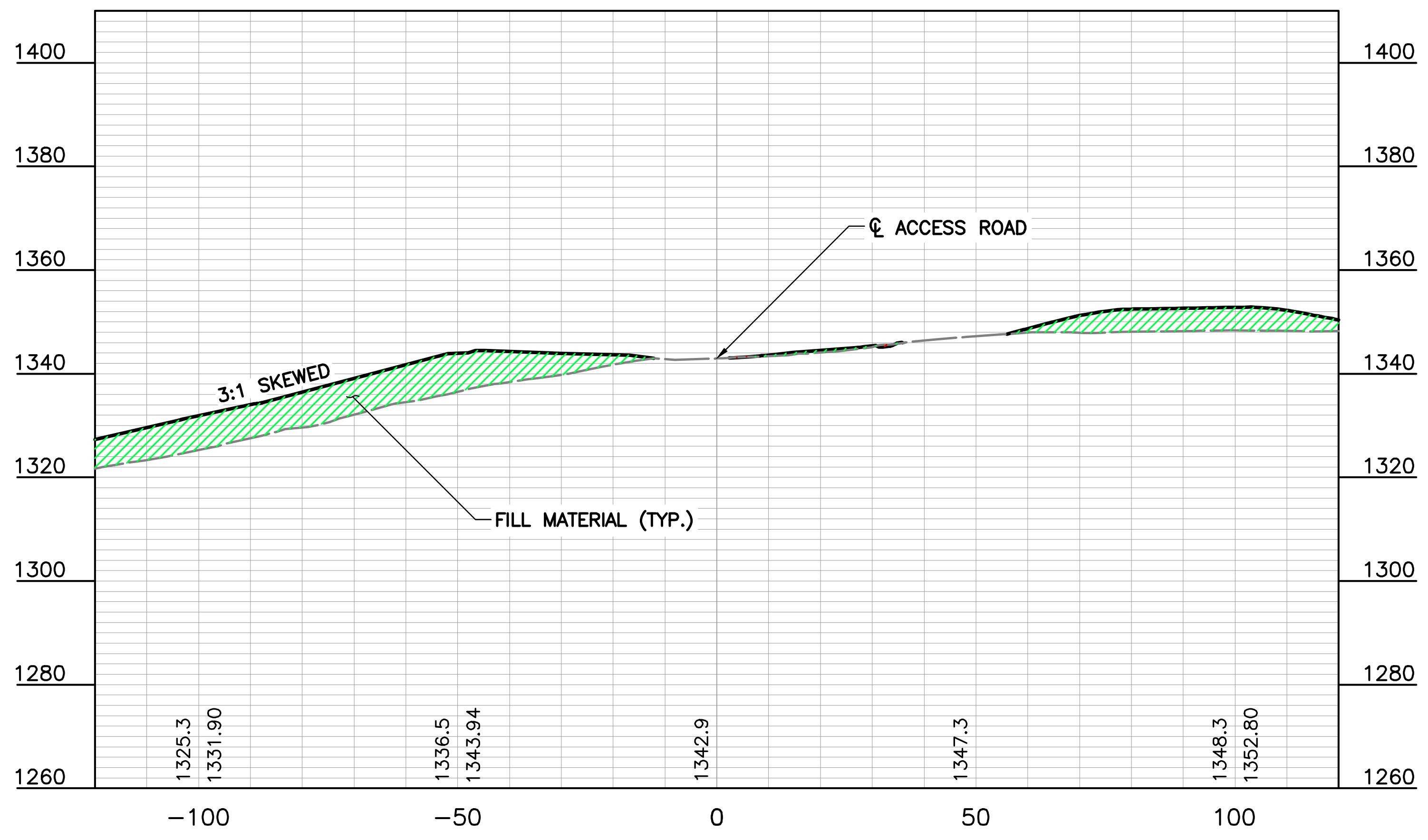

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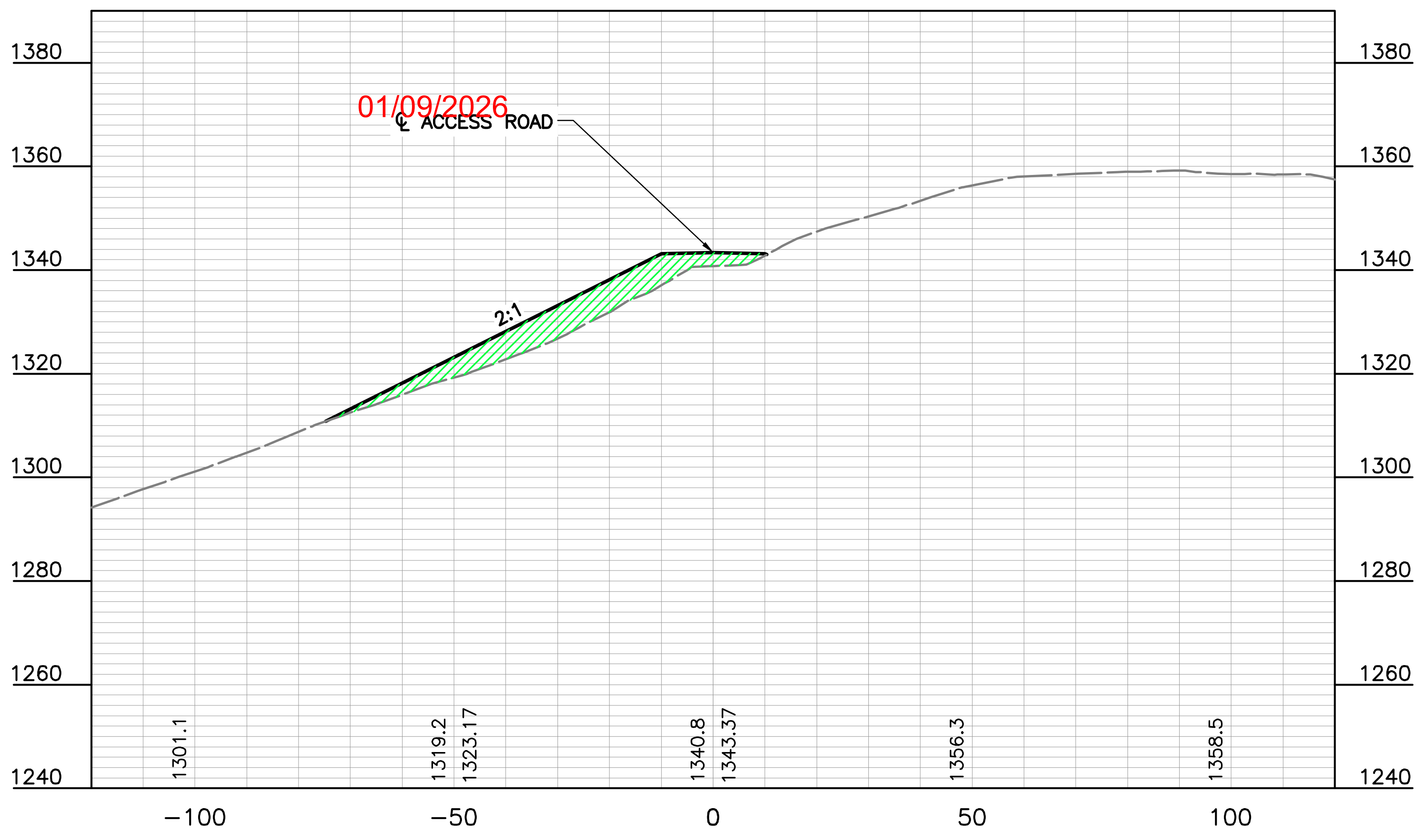
01/09/2026



STA 3+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756

REVISION RECORD

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ANTERO RESOURCES
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HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

PROFILES AND SECTIONS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.: C601
SHEET 11 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C601} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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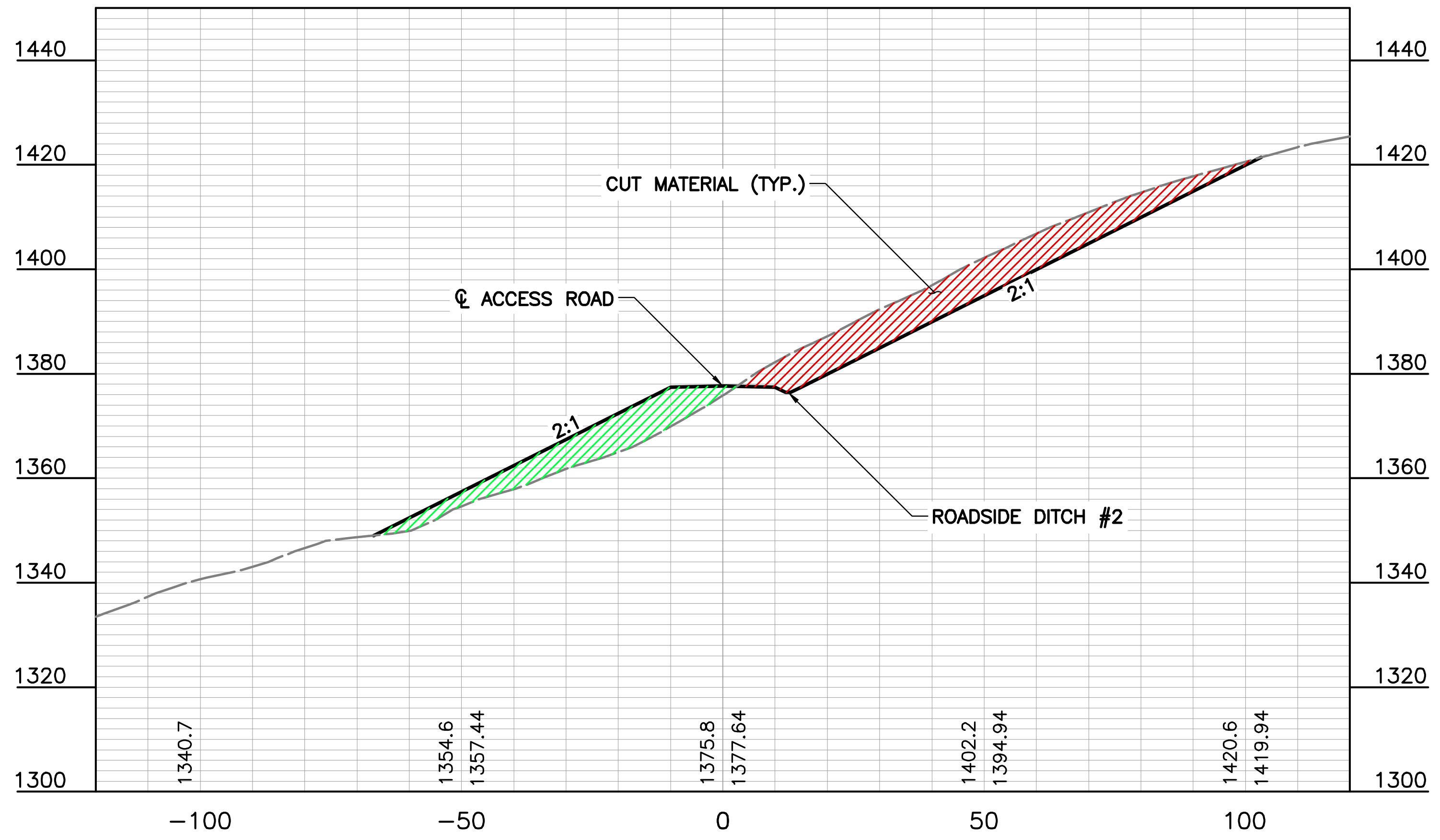
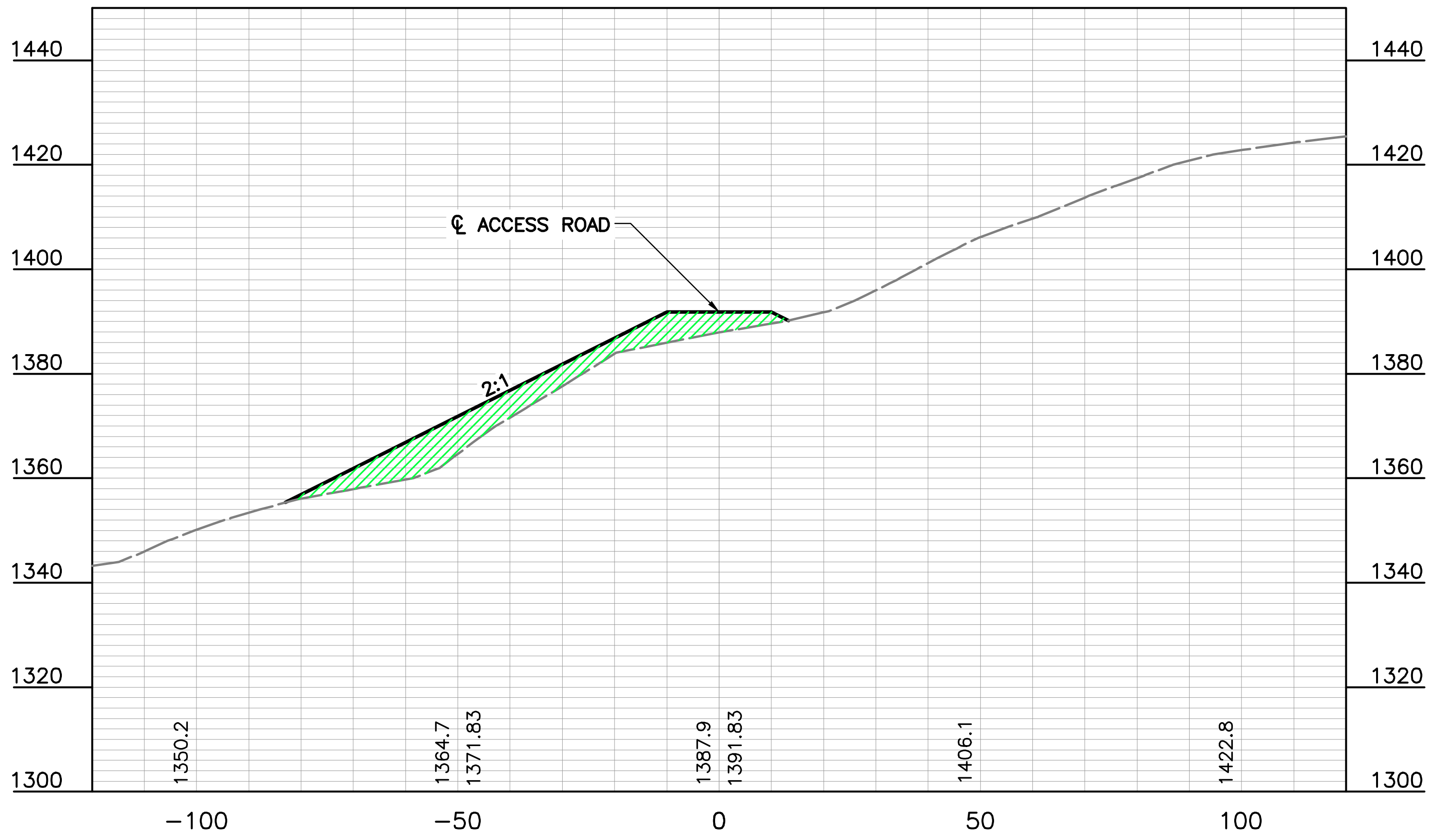
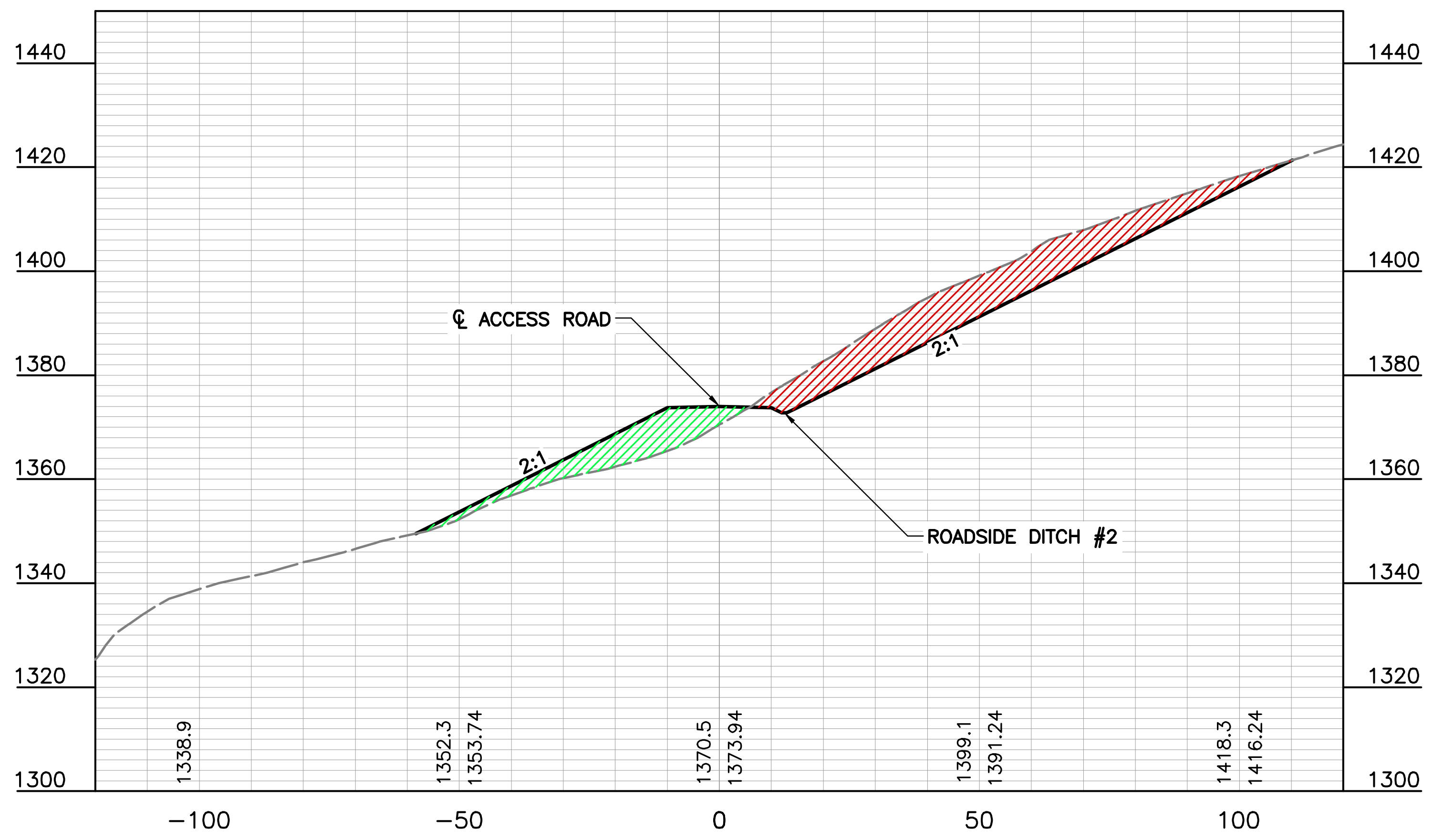


STA 8+00



STA 11+00



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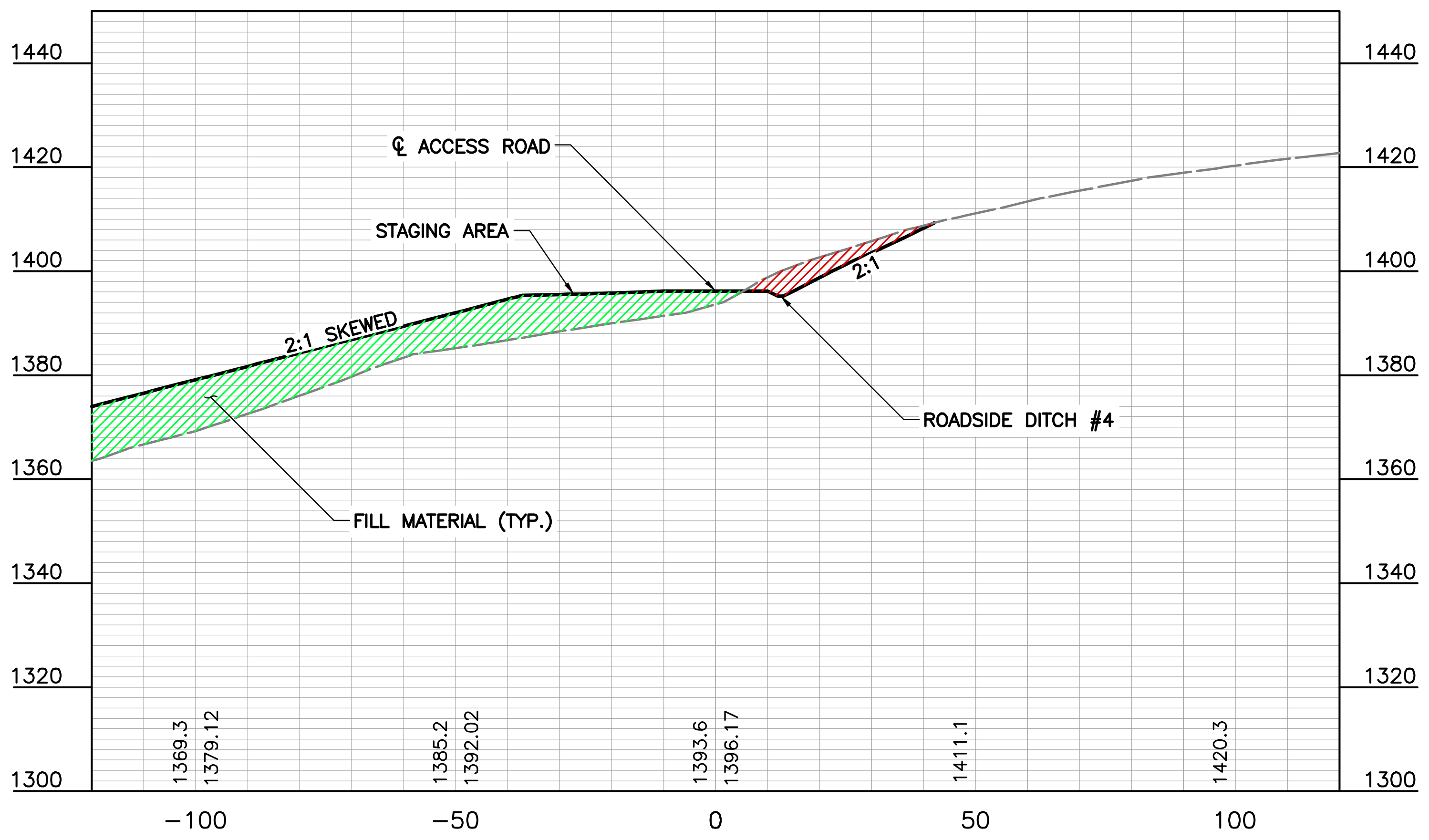
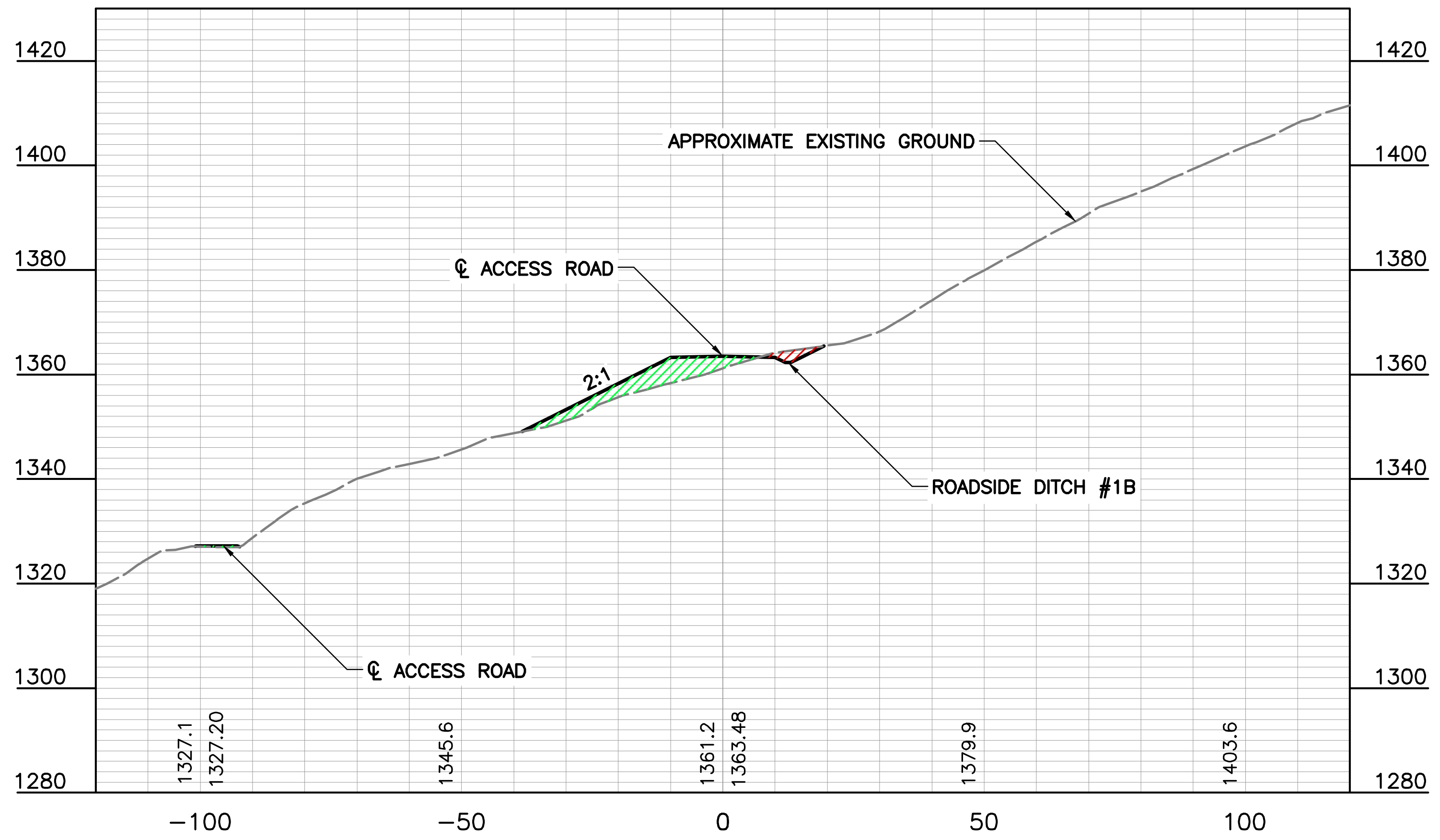
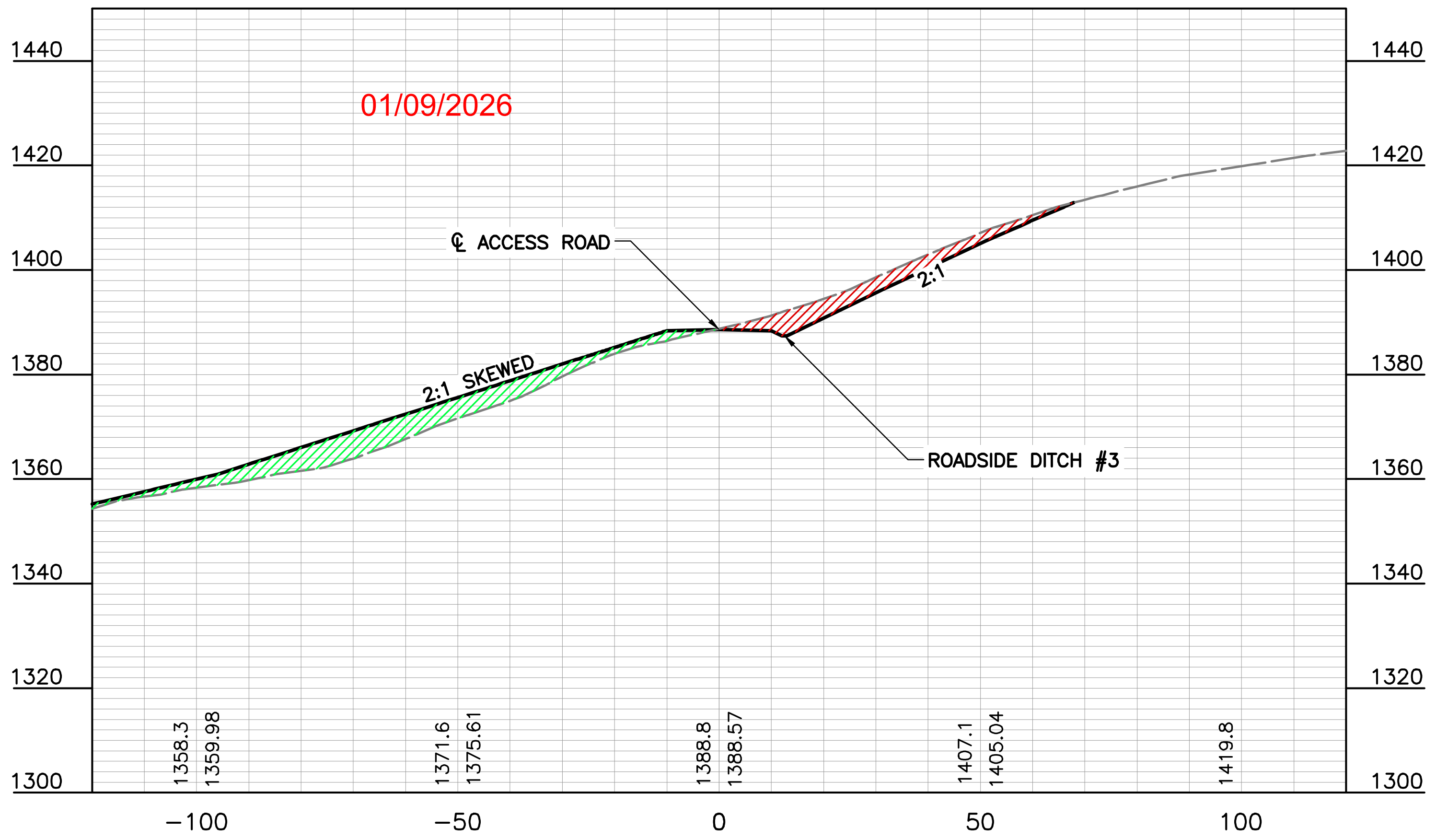


STA 10+00



STA 6+00



01/09/2026

STA 9+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60
SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
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WETZEL COUNTY
WEST VIRGINIA

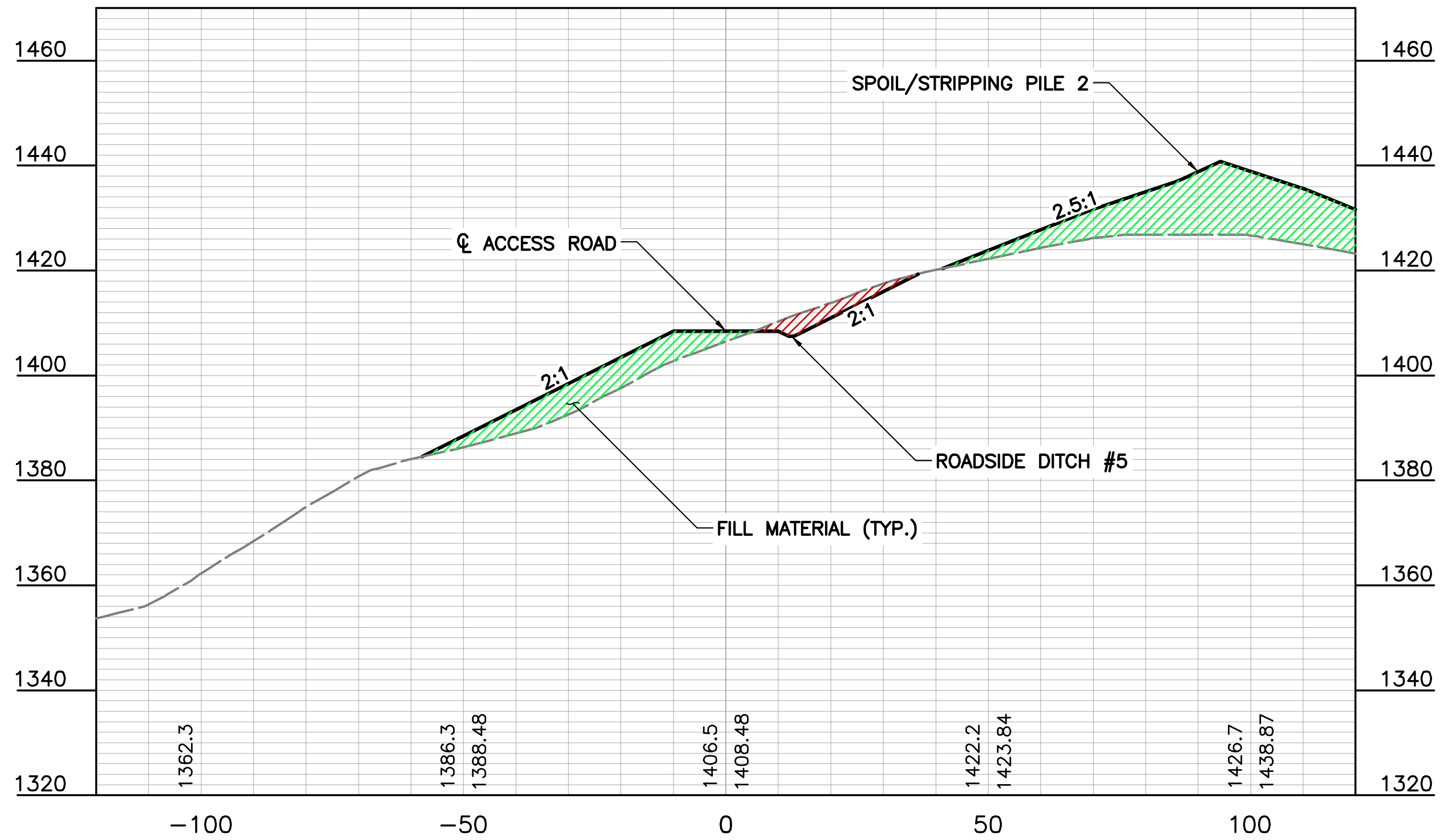
PROFILES AND SECTIONS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=30'	CHECKED BY:	ER
PROJECT NO:			336-328
APPROVED BY:			JDR

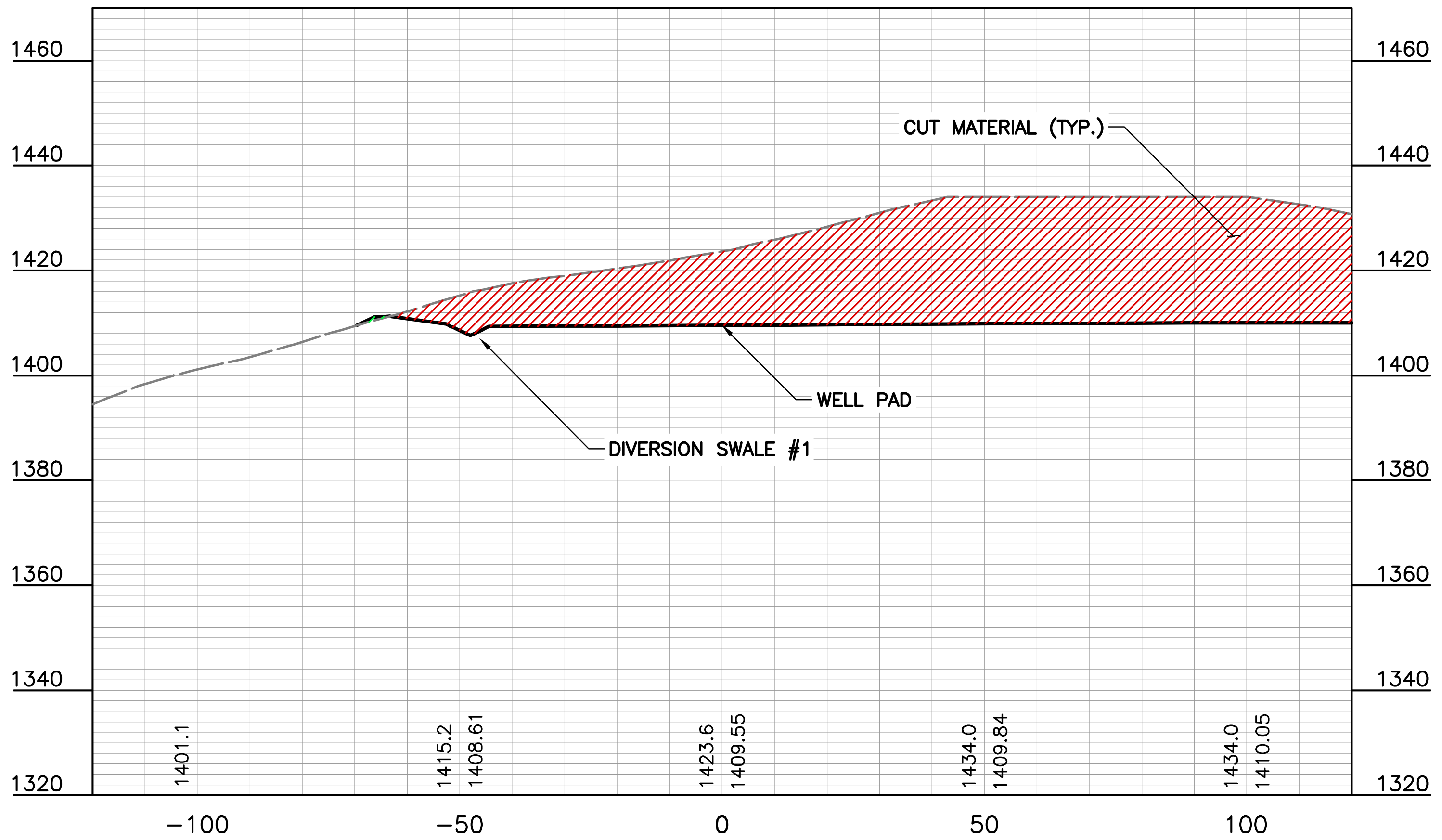
DRAWING NO.:
C602
SHEET 12 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C602} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

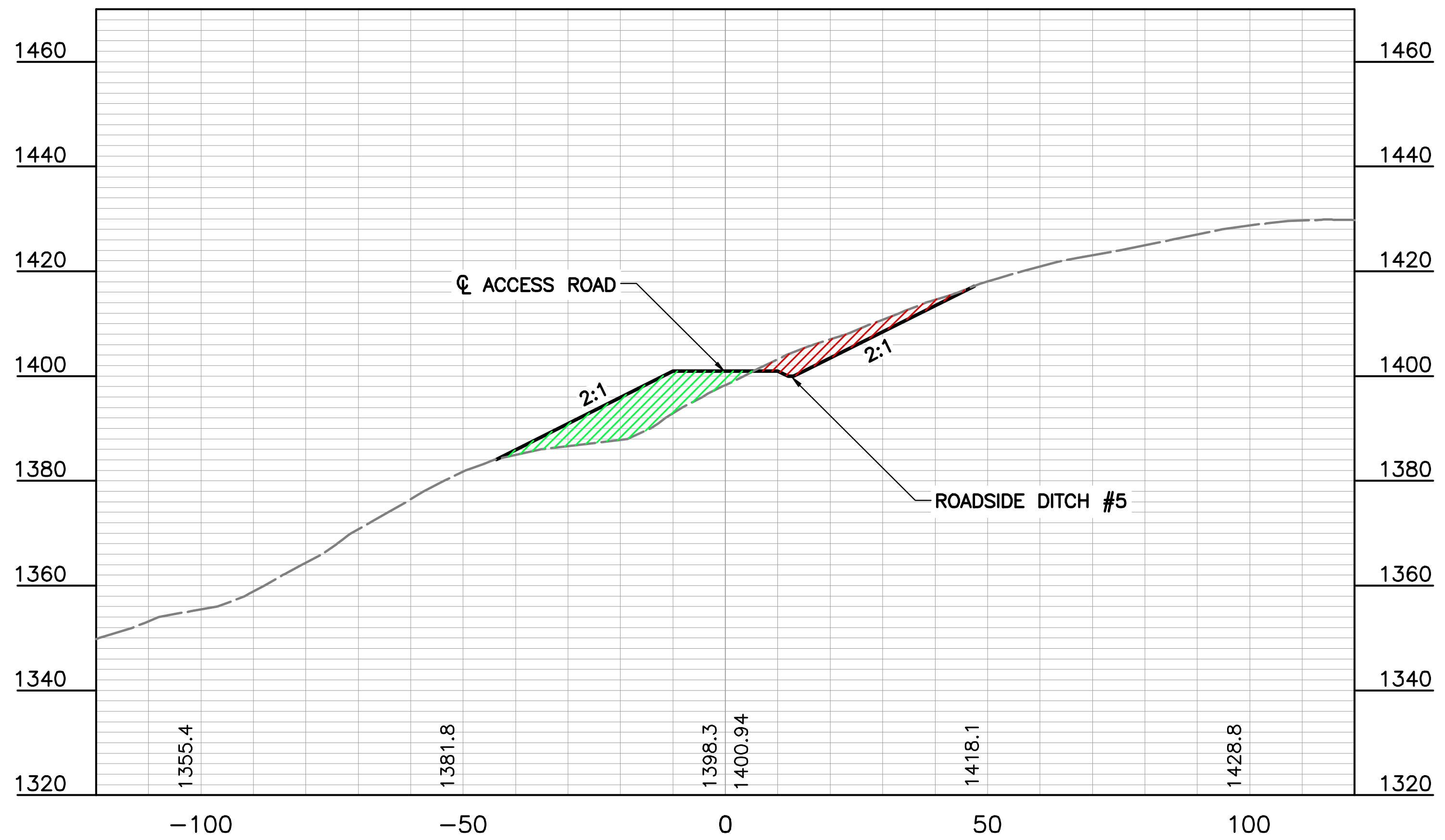
HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



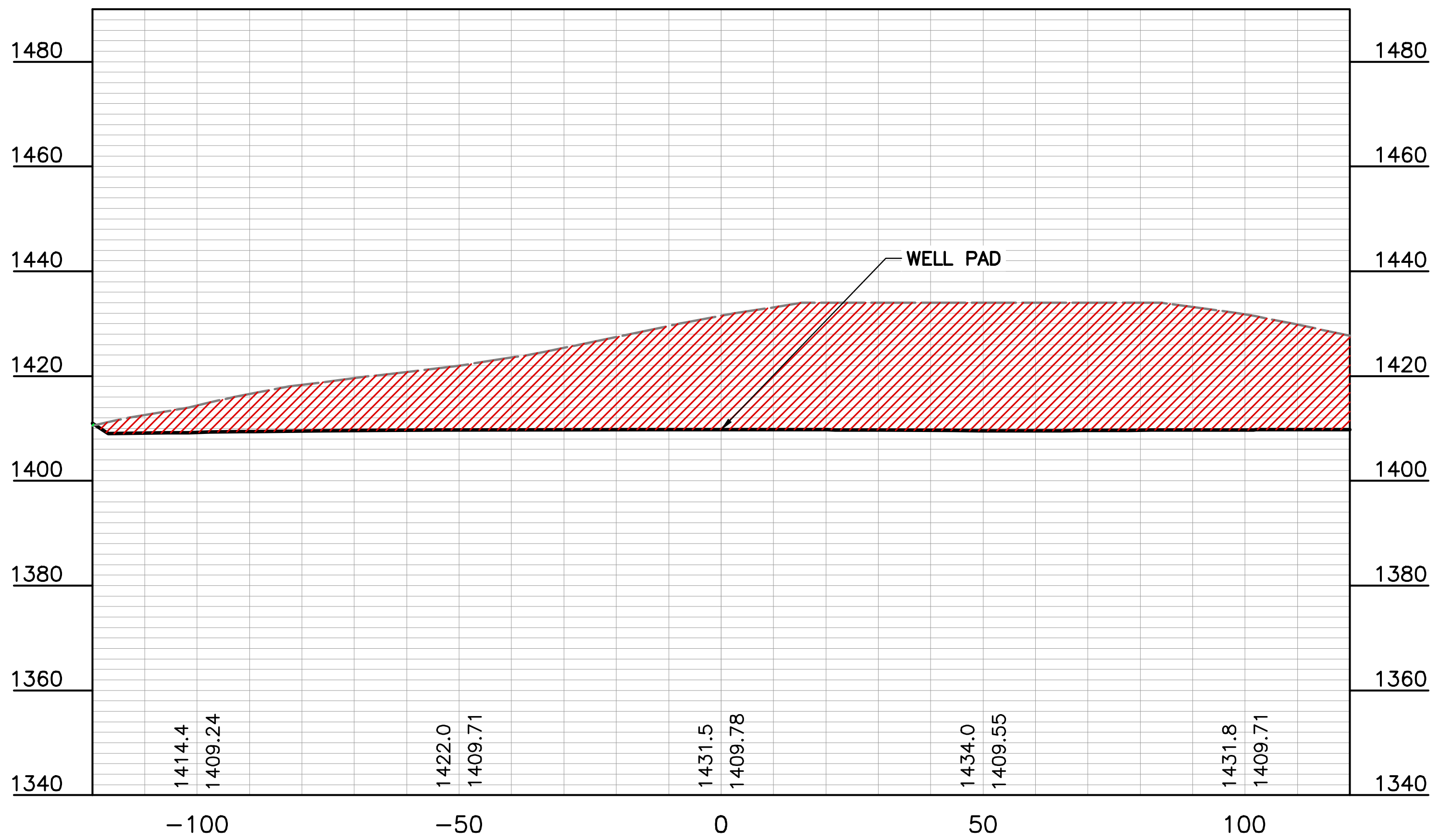
STA 14+00



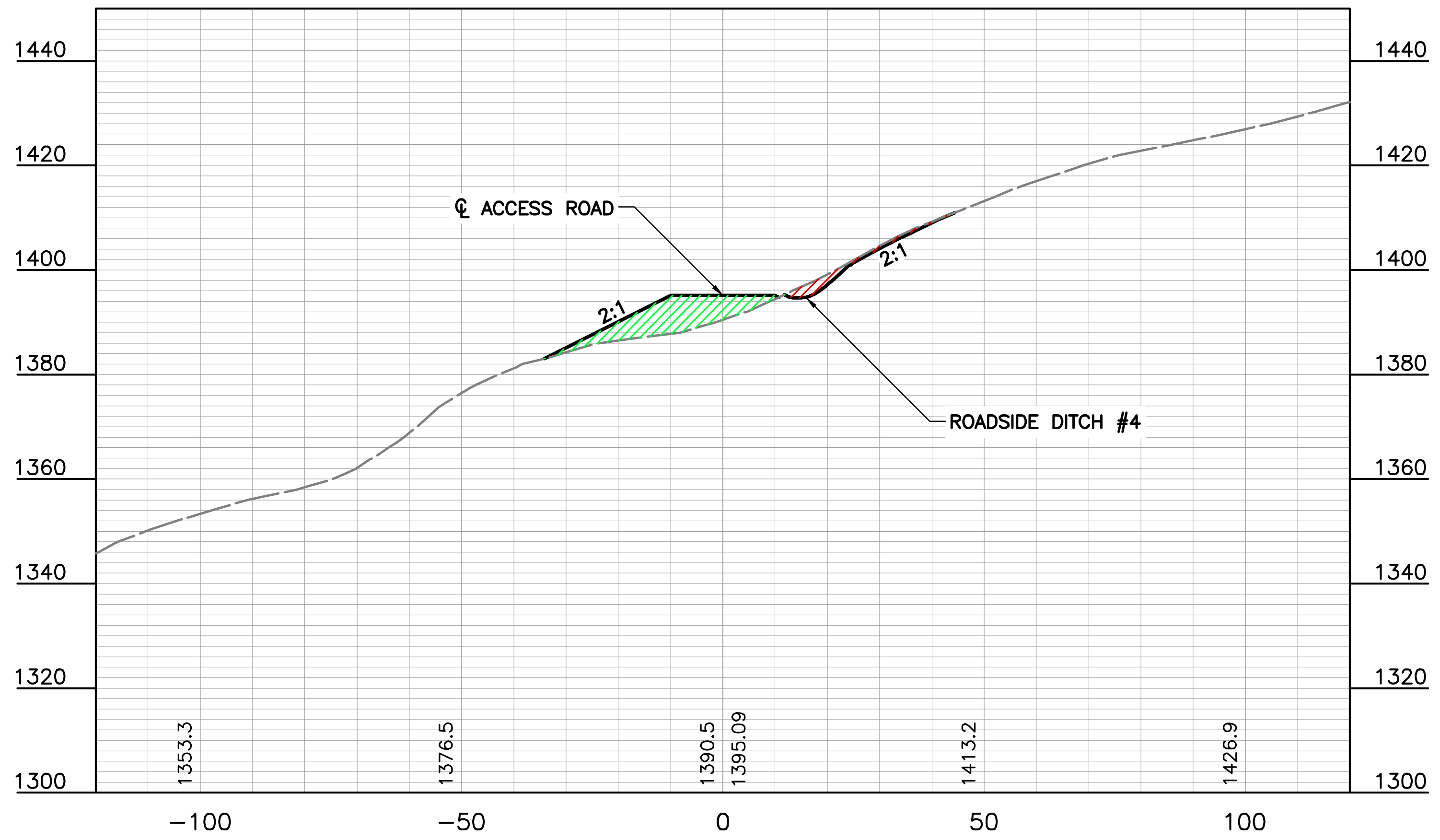
STA 16+61.39



STA 13+00

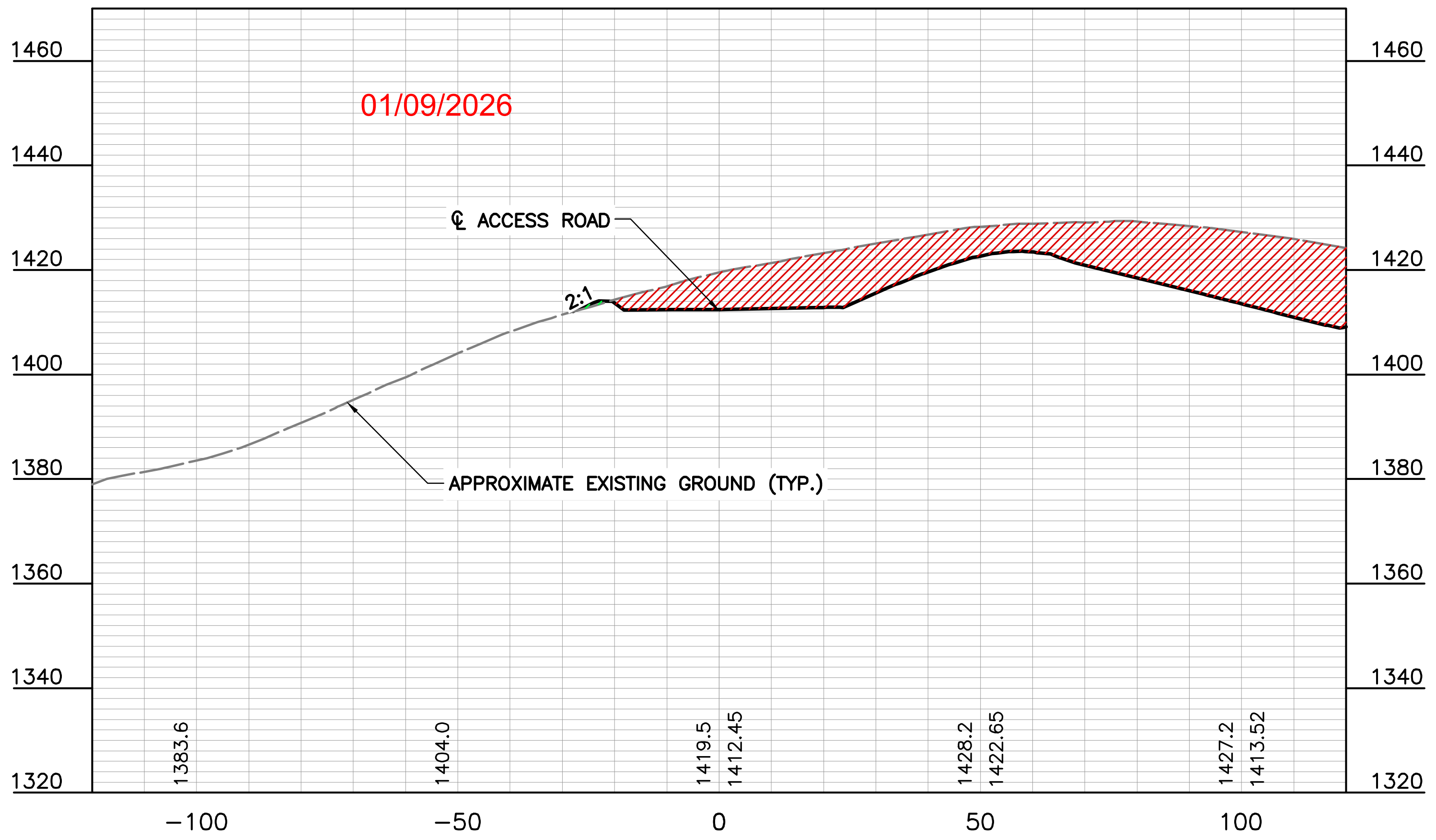


STA 16+00



STA 12+00

01/09/2026



STA 15+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

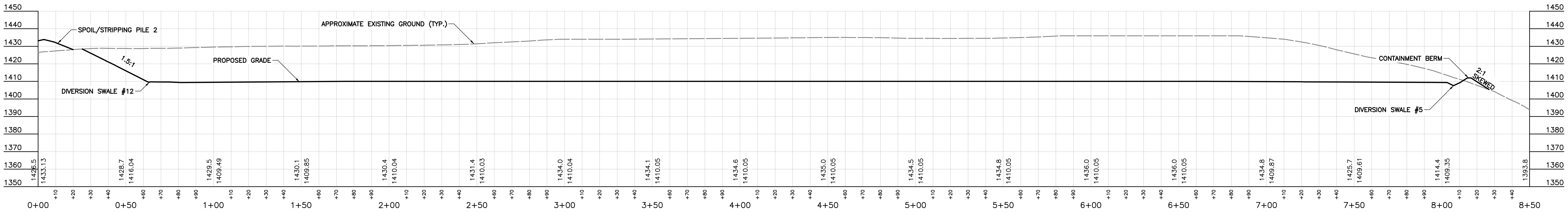
PROFILES AND SECTIONS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

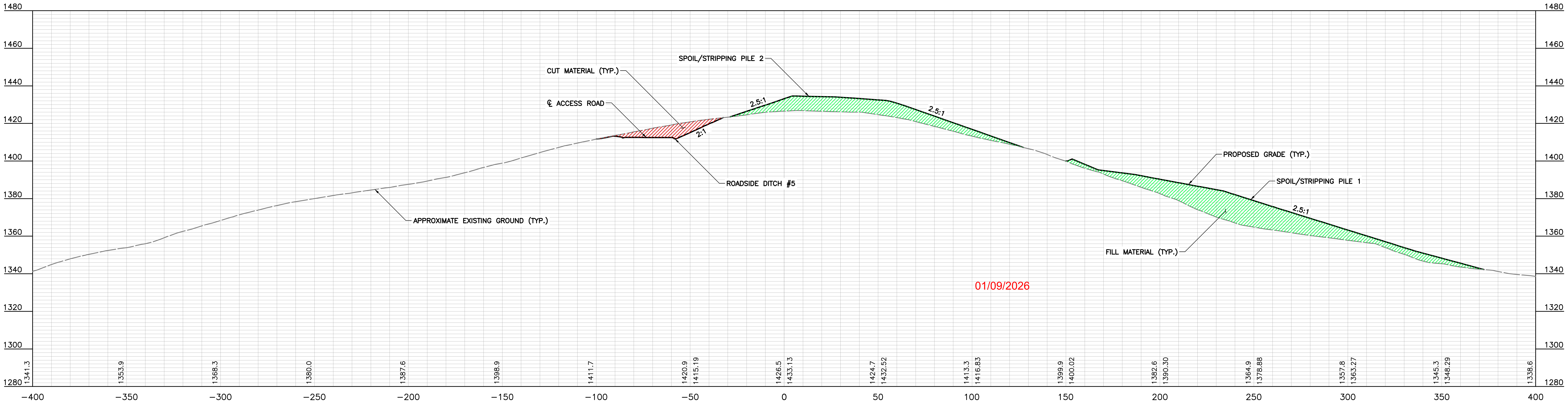
DRAWING NO.: C603
SHEET 13 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C603} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



HARBOUR WELL PAD - PROFILE A



STA 0+00

01/09/2026

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
1-11-2025

REVISION RECORD

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ANTERO RESOURCES
CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

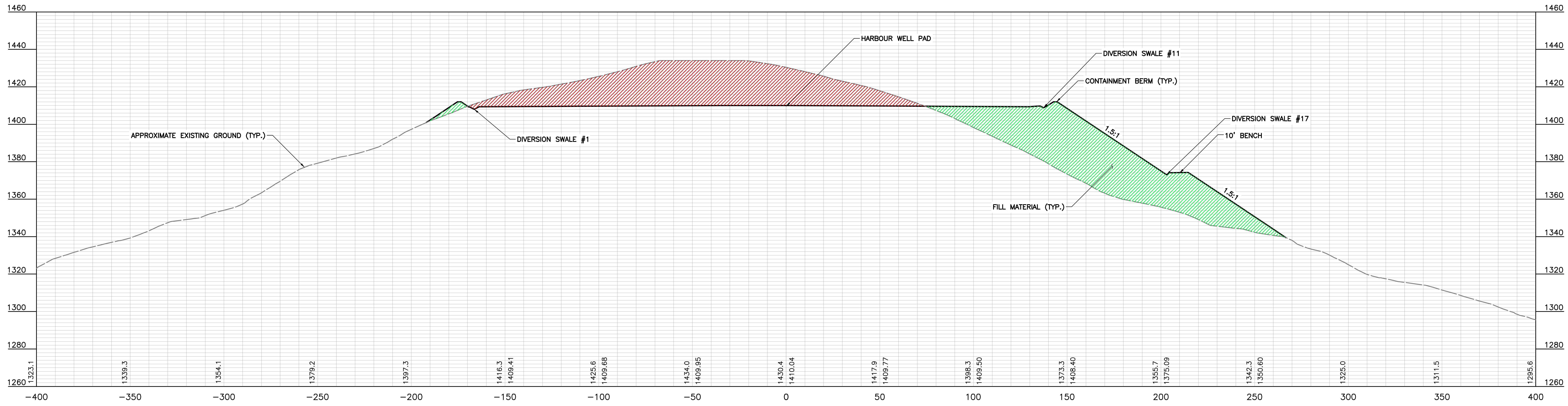
PROFILES AND SECTIONS

DATE: FEBRUARY 2025	DRAWN BY: JES
DWG SCALE: 1"=30'	CHECKED BY: ER
PROJECT NO: 336-328	
APPROVED BY: JDR	

DRAWING NO.:
C604
SHEET 14 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C604} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



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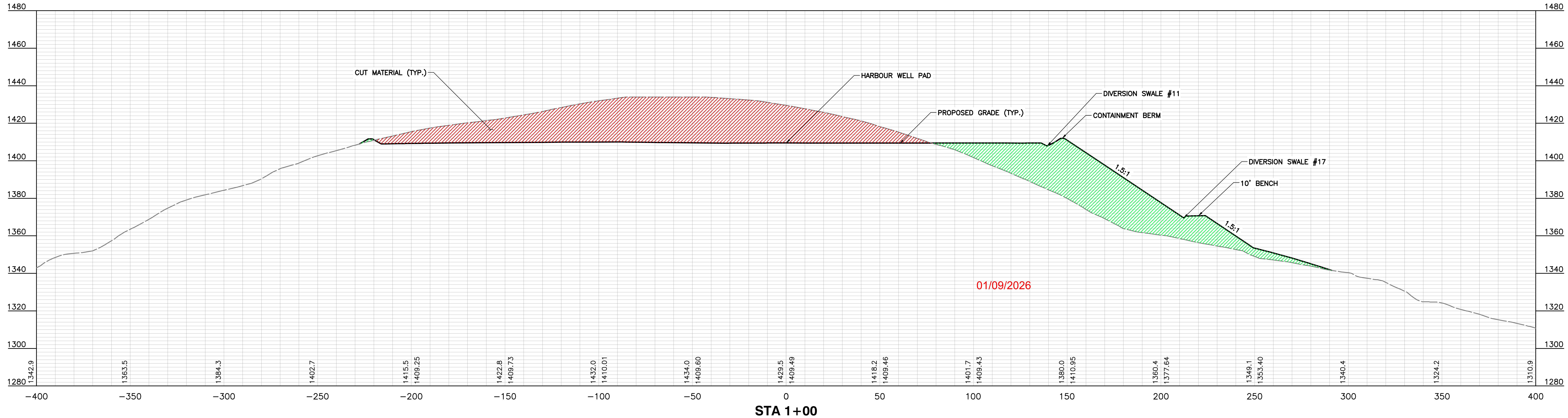

01/09/2026

STA 1+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
STATE OF WEST VIRGINIA

REVISION RECORD

NO	DATE	DESCRIPTION
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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

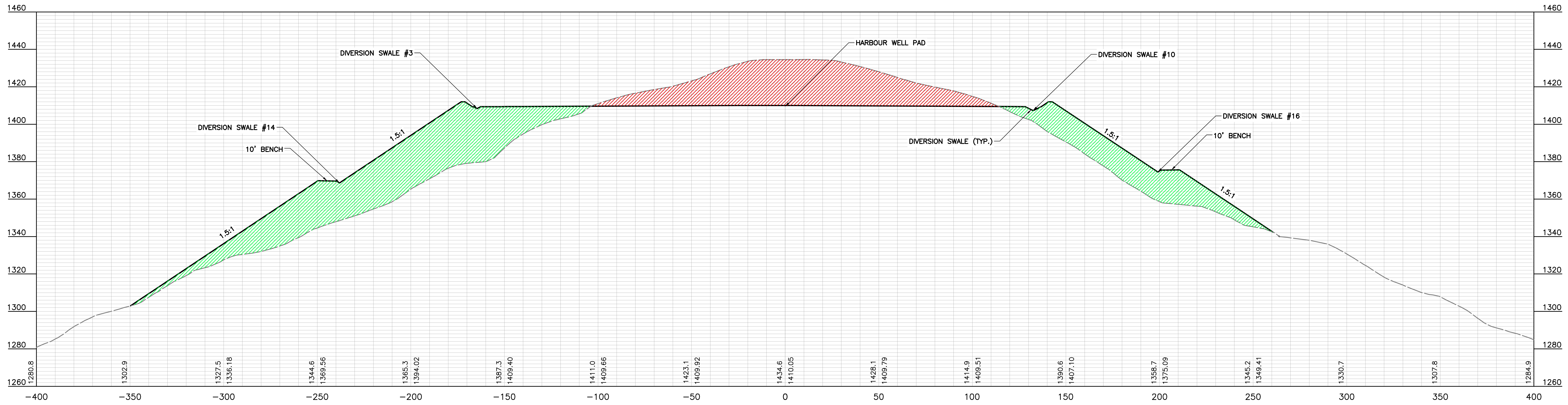
PROFILES AND SECTIONS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=30'	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

DRAWING NO.:
C605
SHEET 15 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C605} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



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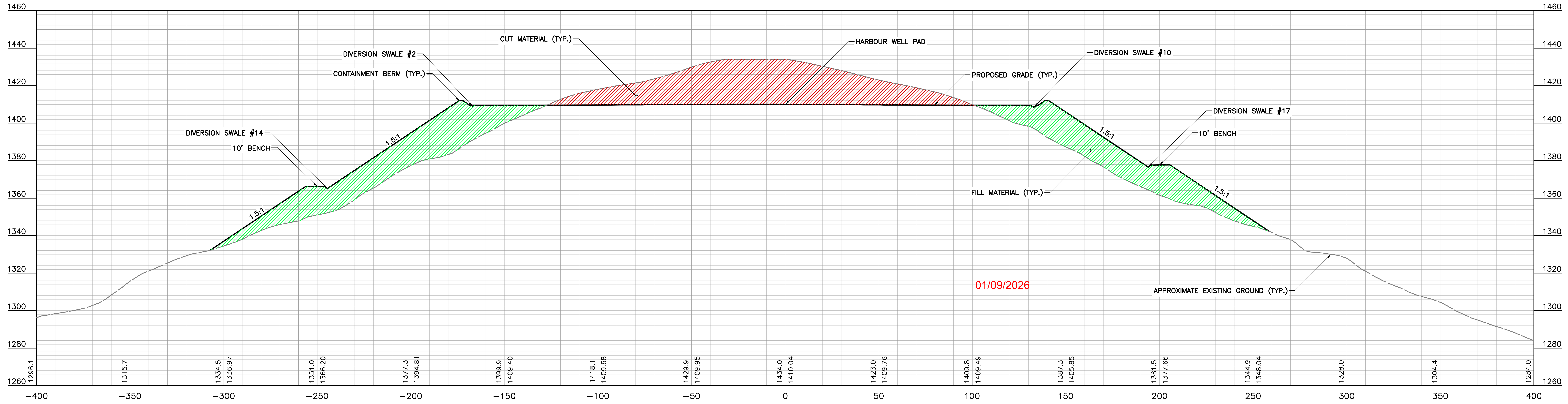

01/09/2026

STA 3+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60
SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
11-11-2025

REVISION RECORD

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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

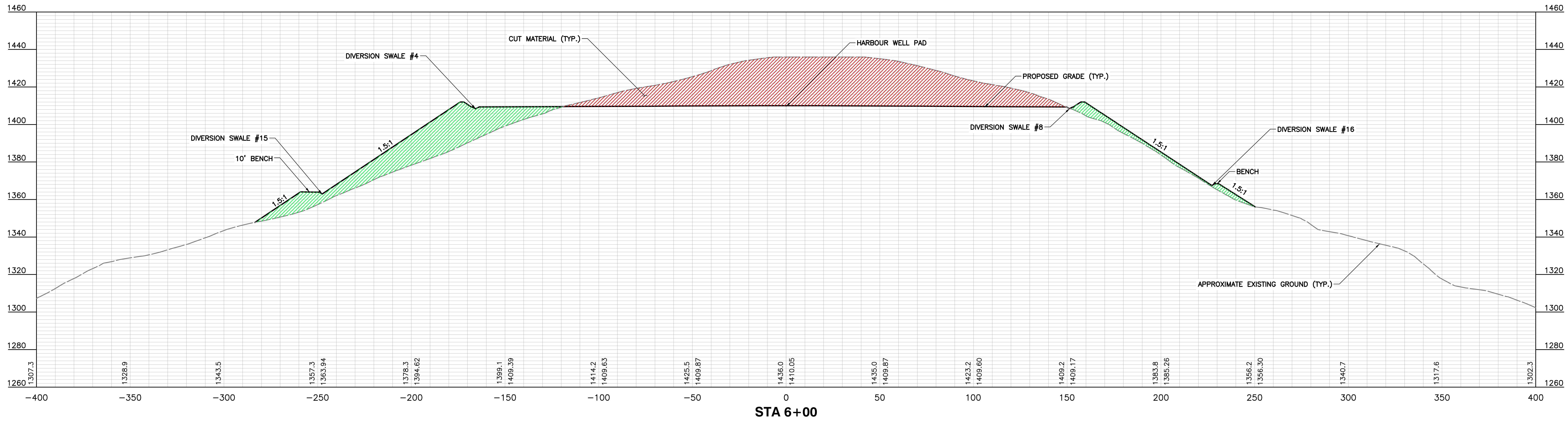
PROFILES AND SECTIONS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

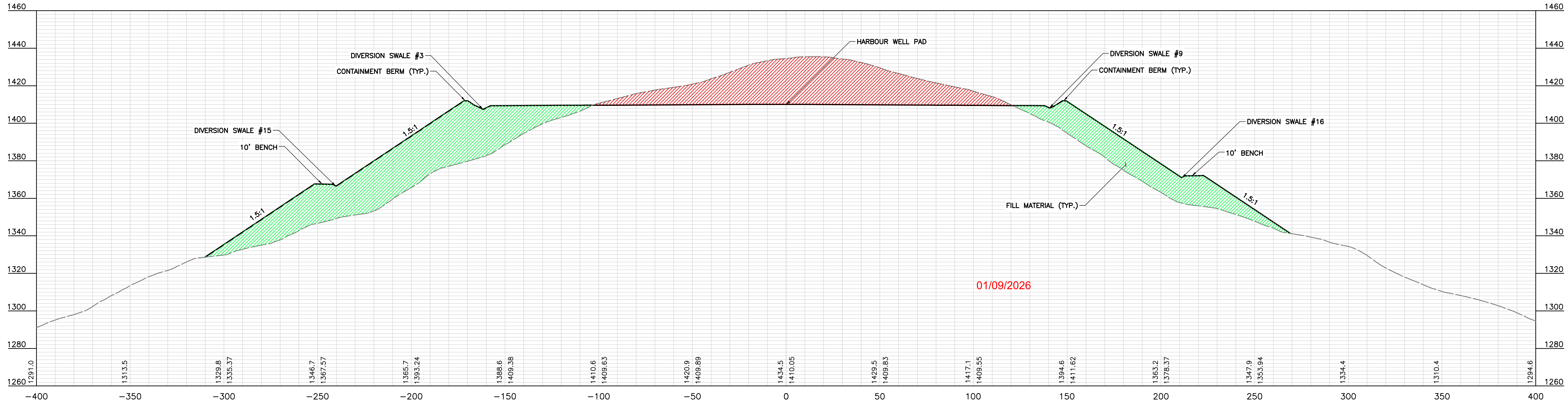
DRAWING NO.: **C606**
SHEET 16 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C606} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



STA 6+00



01/09/2026

STA 5+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
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WEST VIRGINIA

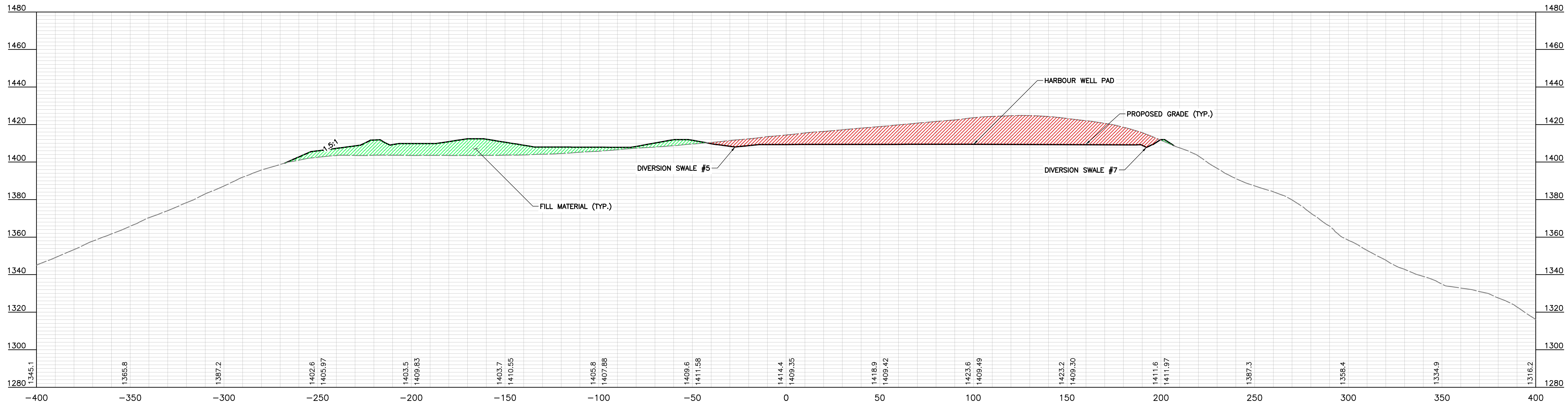
PROFILES AND SECTIONS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

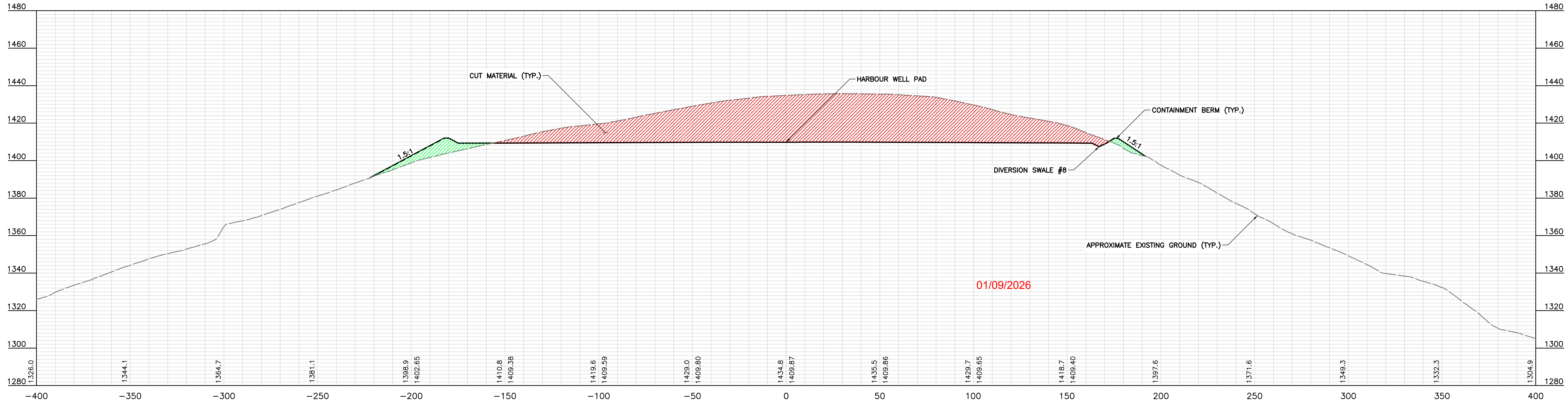
DRAWING NO.:
C607
SHEET 17 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C607} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



STA 8+00



STA 7+00

01/09/2026

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

Joseph D. Robinson
19756
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

120 Genesis Boulevard
Bridgeport, WV 26330
Ph: 304.933.3119
www.cecinc.com

Civil & Environmental
Consultants, Inc.

ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

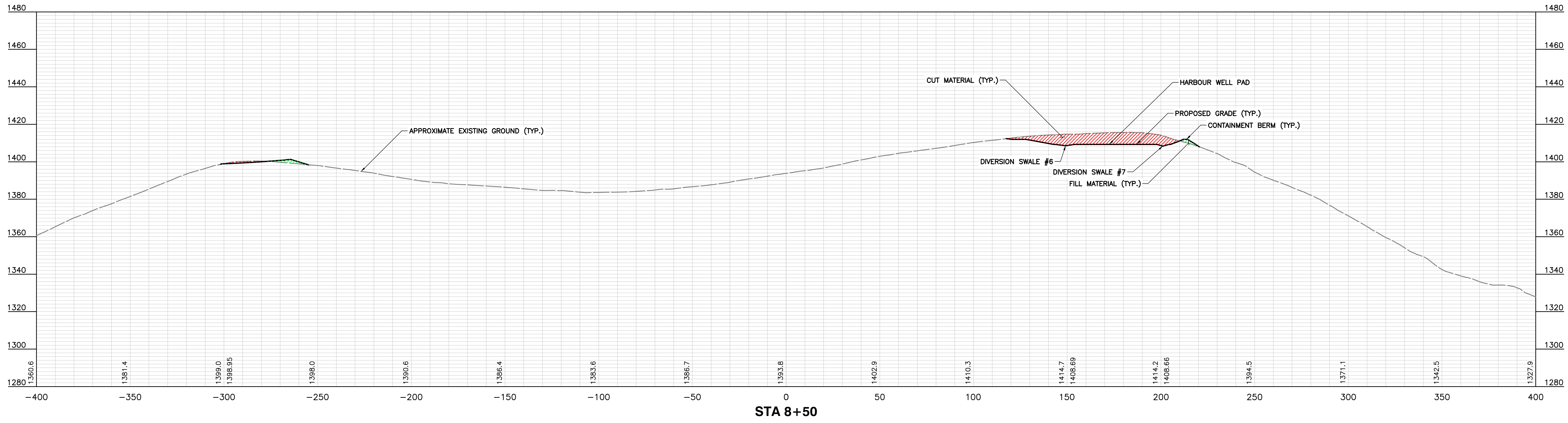
PROFILES AND SECTIONS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.: **C608**
SHEET 18 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C608} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



STA 8+50

01/09/2026

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60
SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
STATE OF WEST VIRGINIA

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

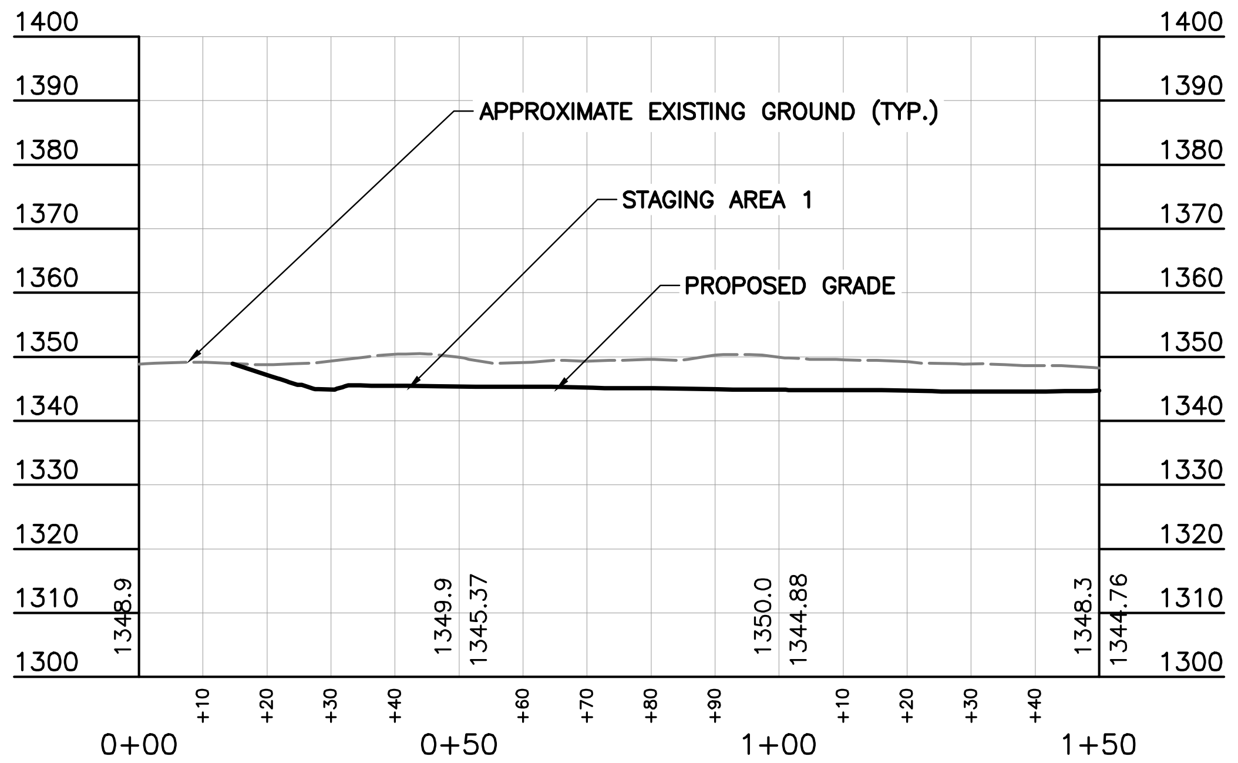
PROFILES AND SECTIONS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=30'	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

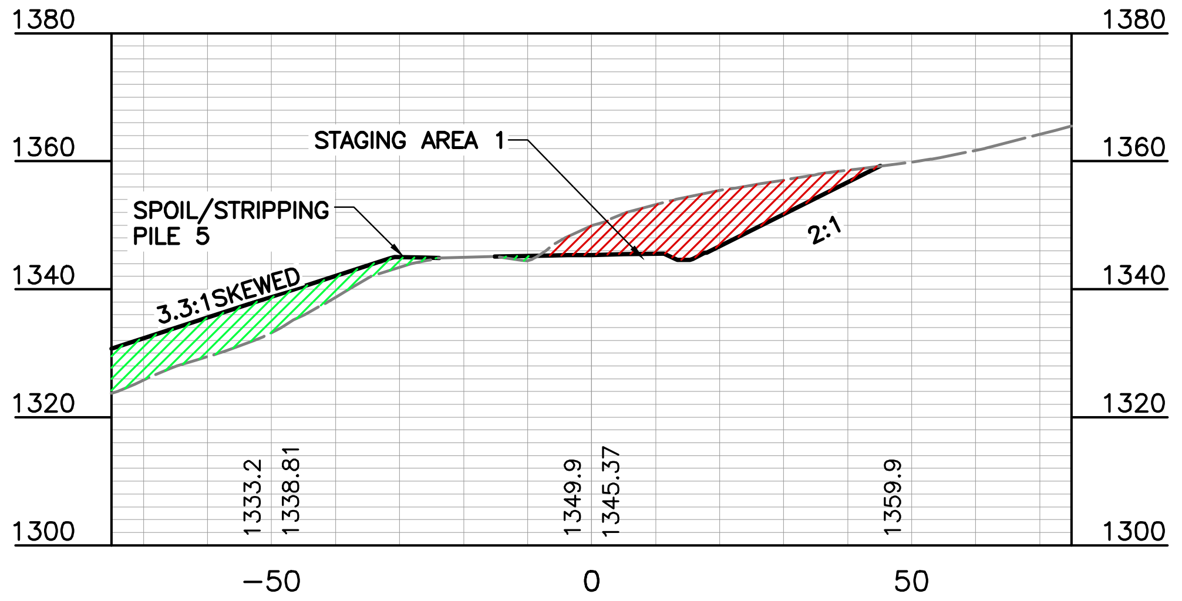
DRAWING NO.: **C609**
SHEET 19 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C609} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



STAGING AREA 1 - PROFILE B



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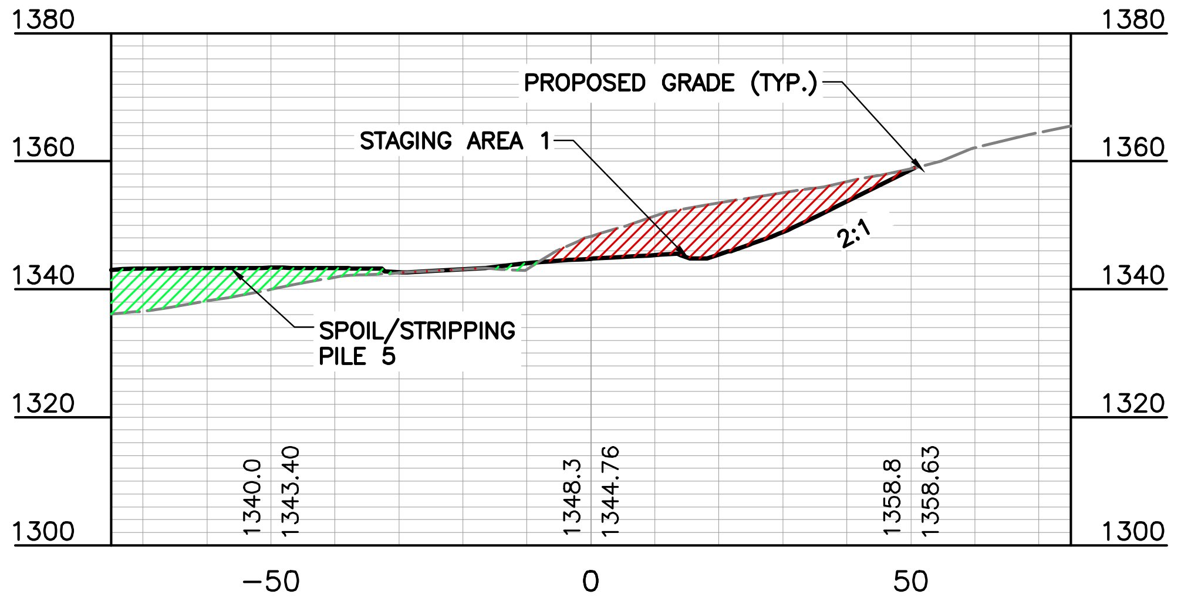

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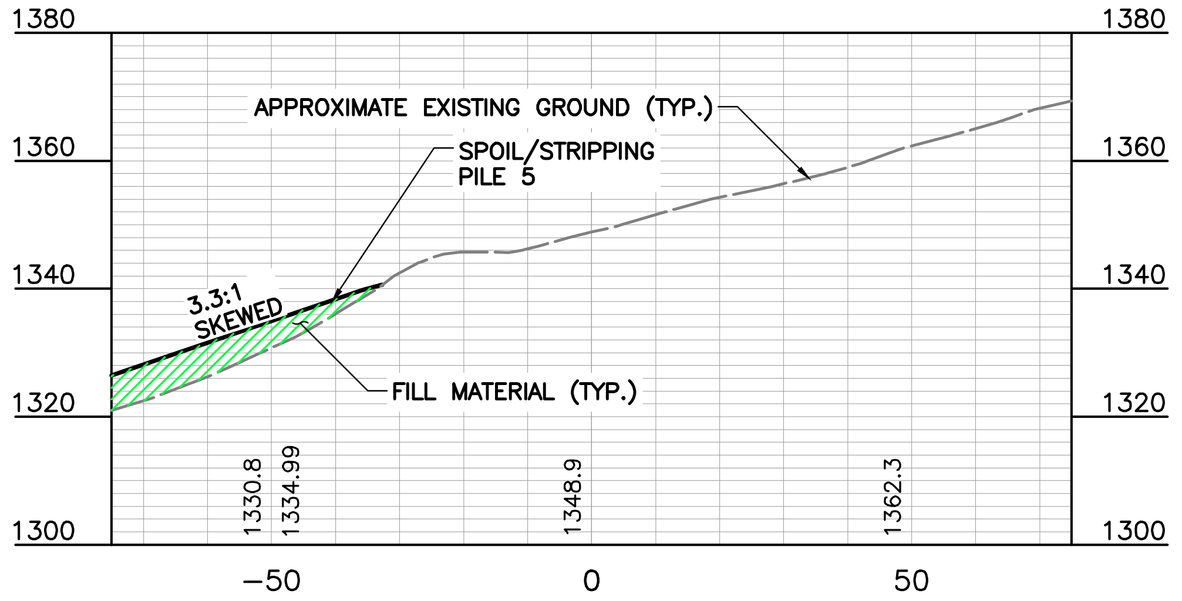

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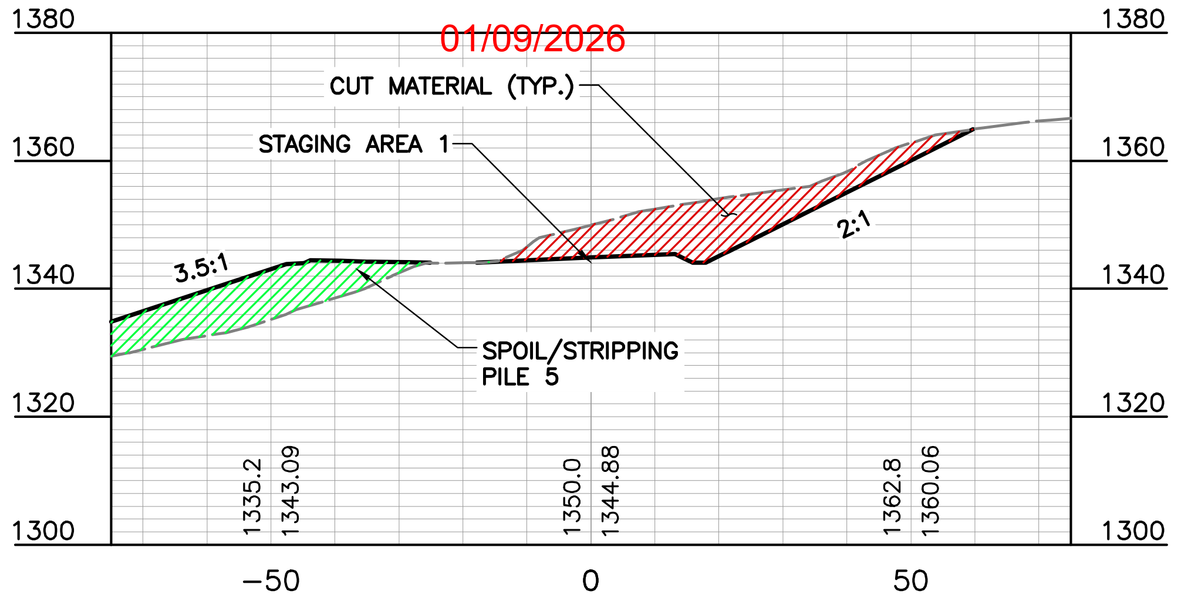
01/09/2026



STA 1+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60
SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
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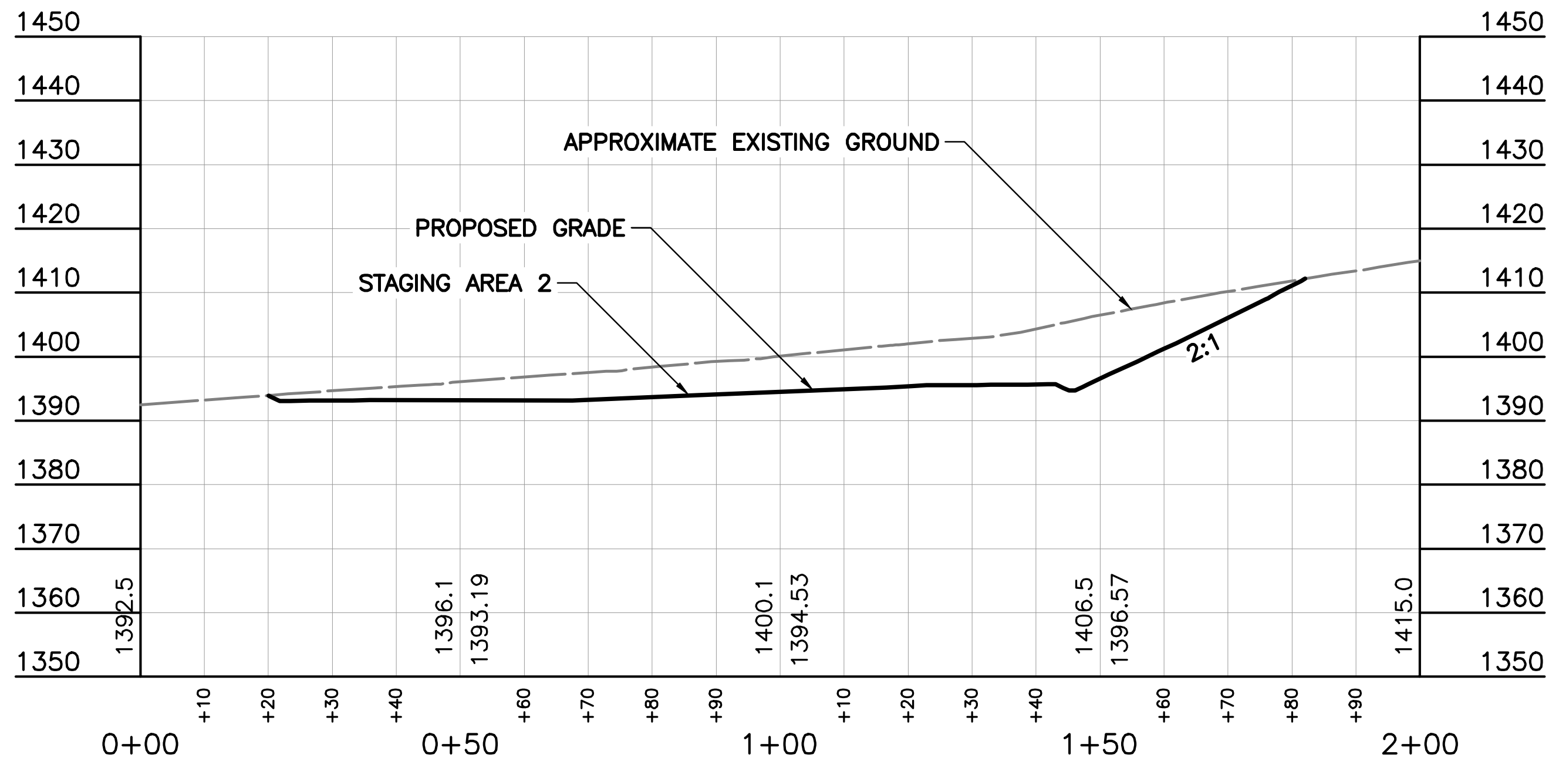
ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

PROFILES AND SECTIONS

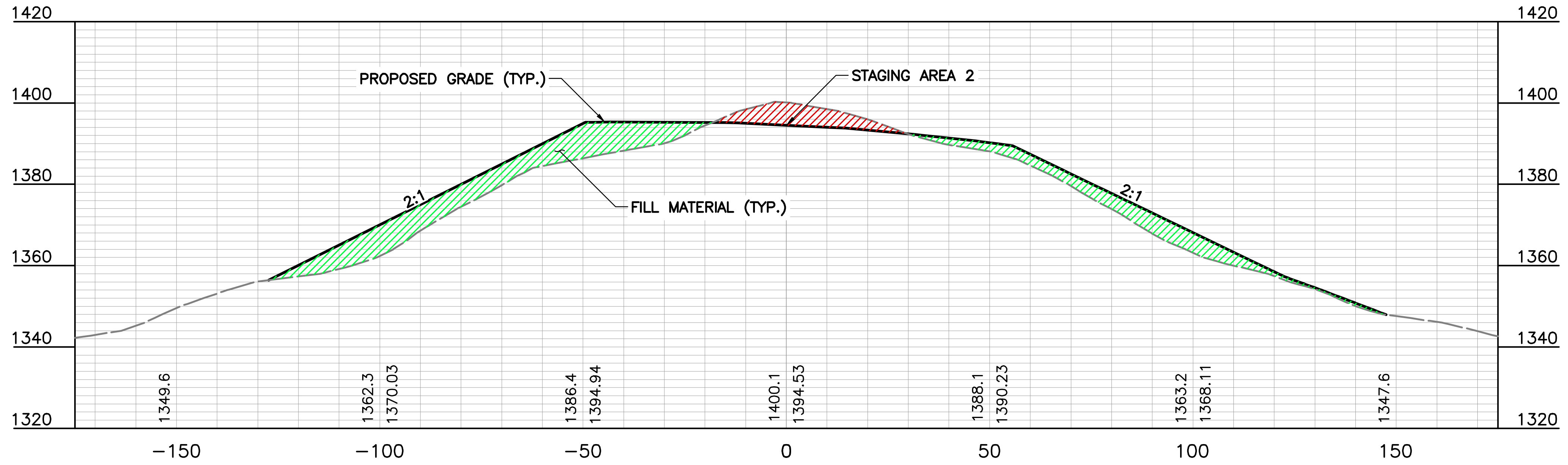
DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=30'	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

DRAWING NO.:
C610
SHEET 20 OF 38

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



STAGING AREA 2 - PROFILE C



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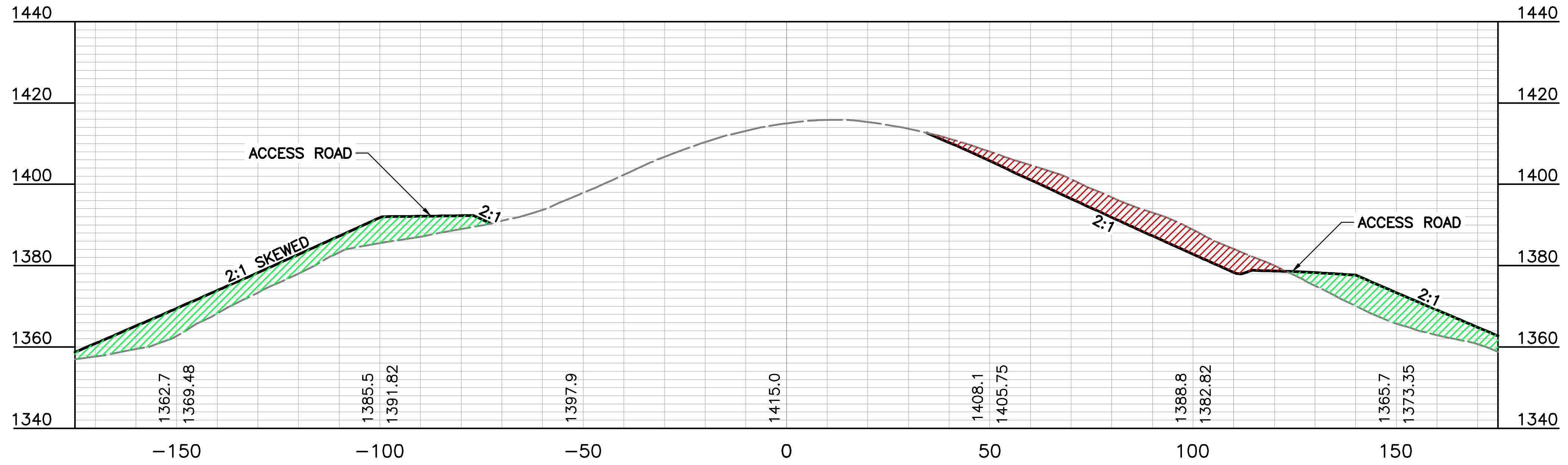

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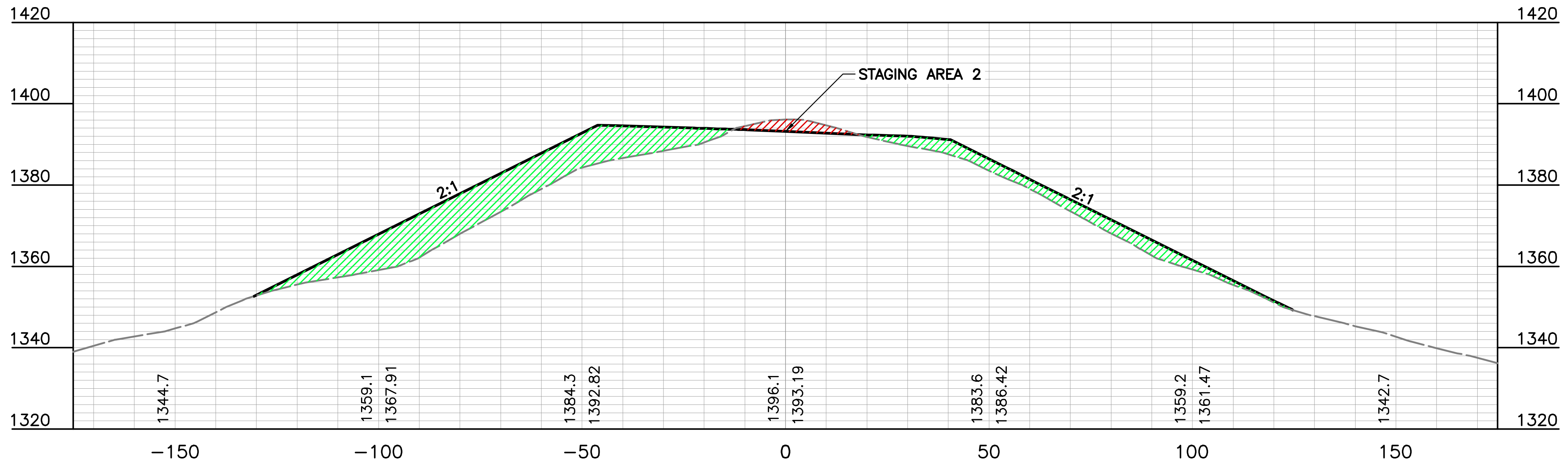

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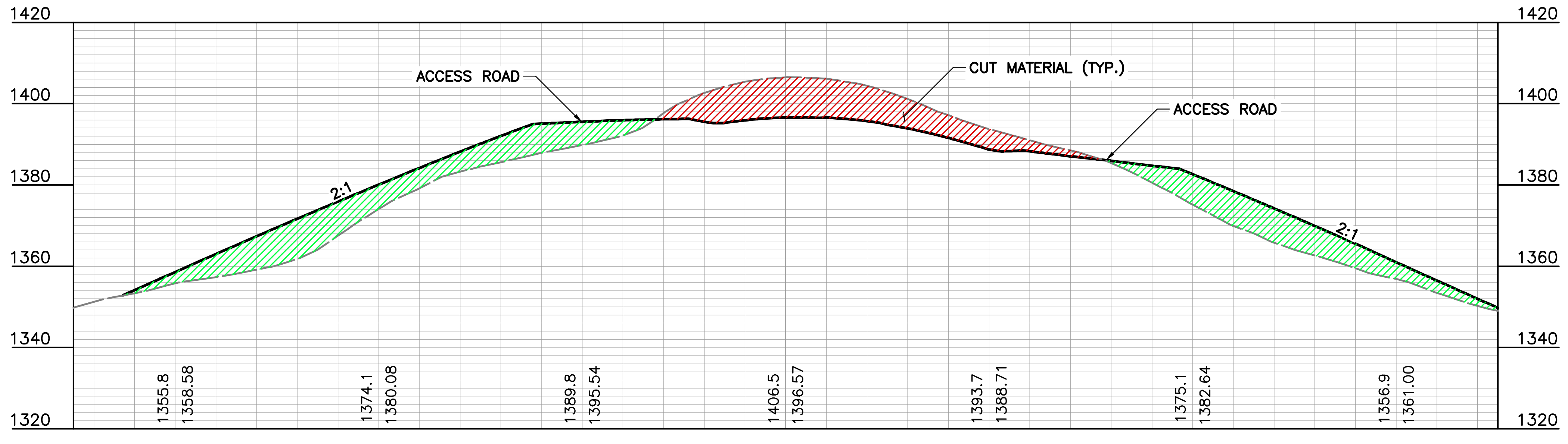
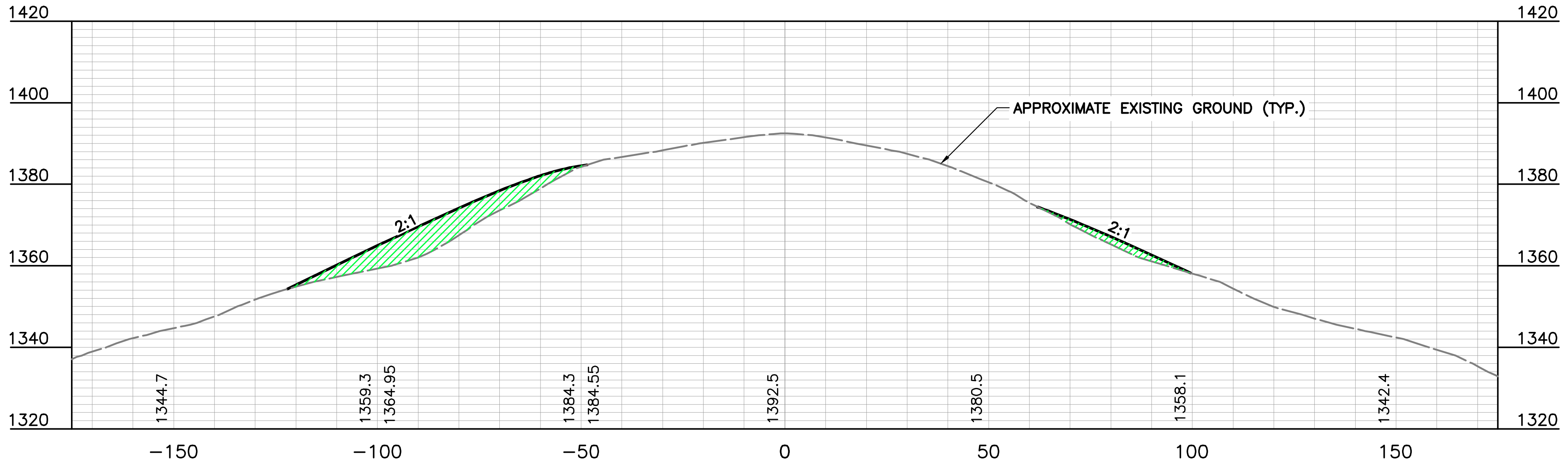


01/09/2026

STA 1+50



STA 0+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
REGISTERED
19756
11-11-2025
Joseph D. Robinson

REVISION RECORD

NO	DATE	DESCRIPTION
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WETZEL COUNTY
WEST VIRGINIA

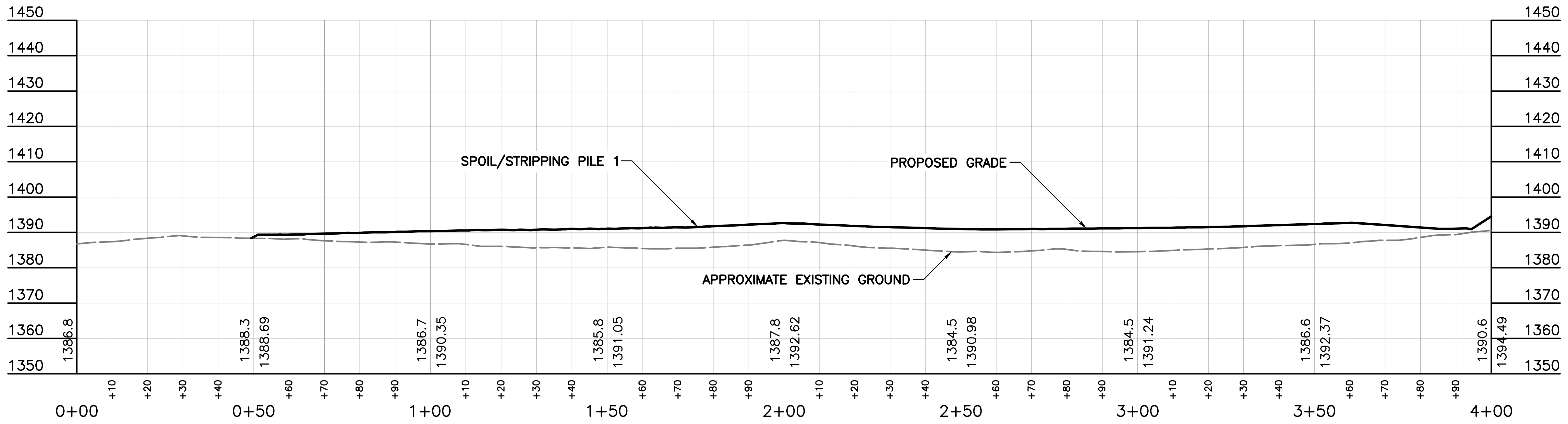
PROFILES AND SECTIONS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=30'	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

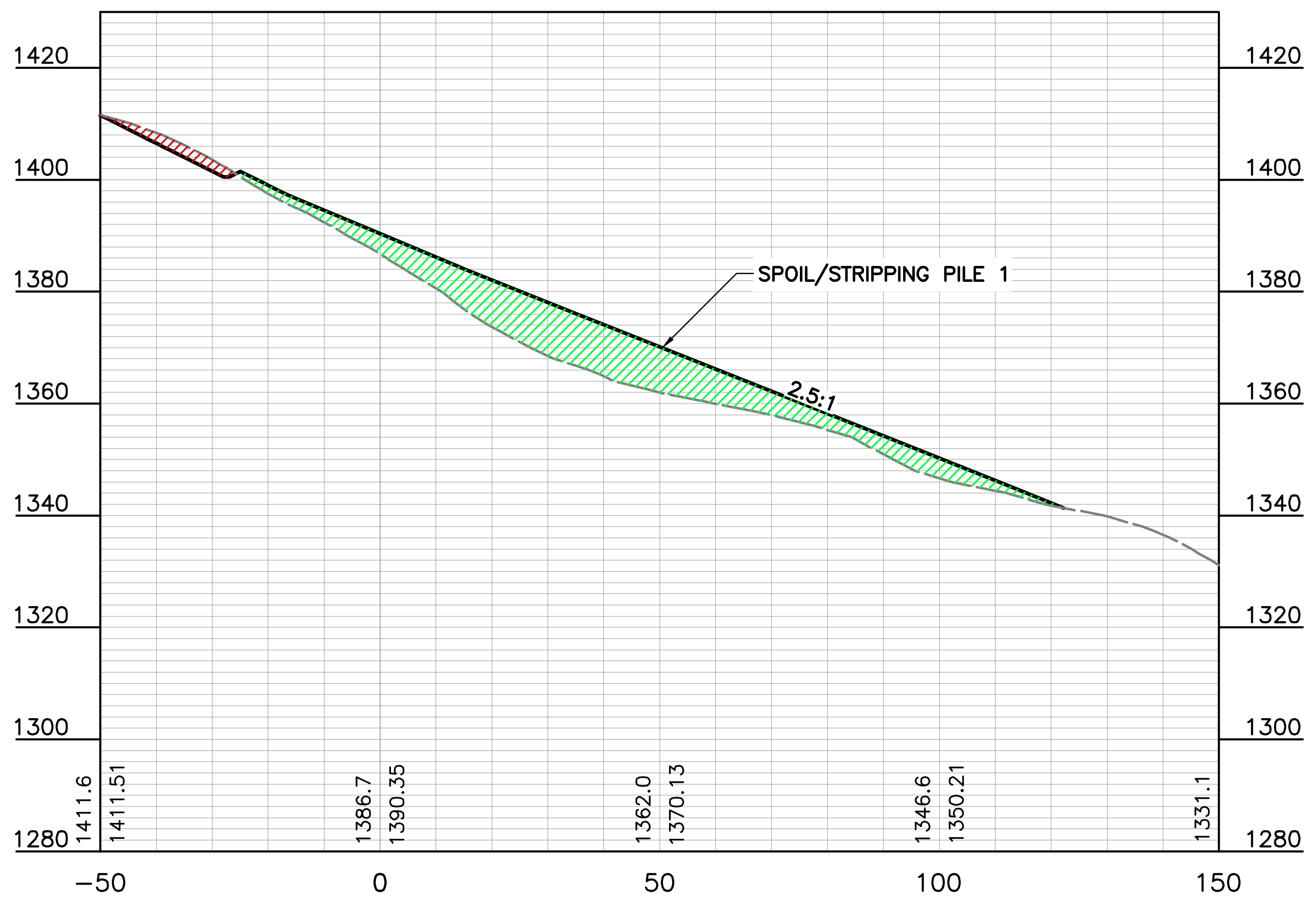
DRAWING NO.:
C611
SHEET 21 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C611} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



SPOIL/STRIPPING PILE 1 - PROFILE D



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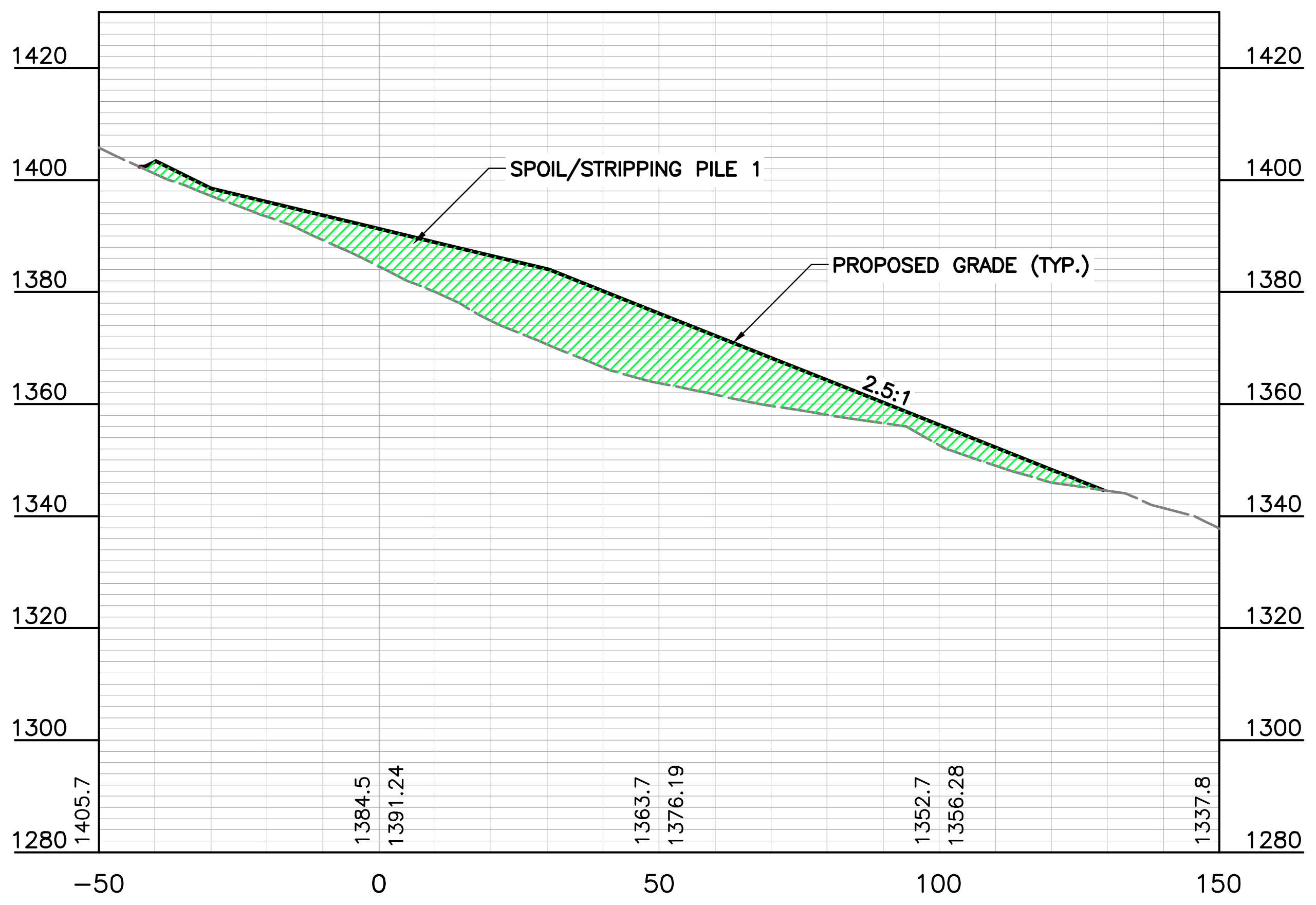

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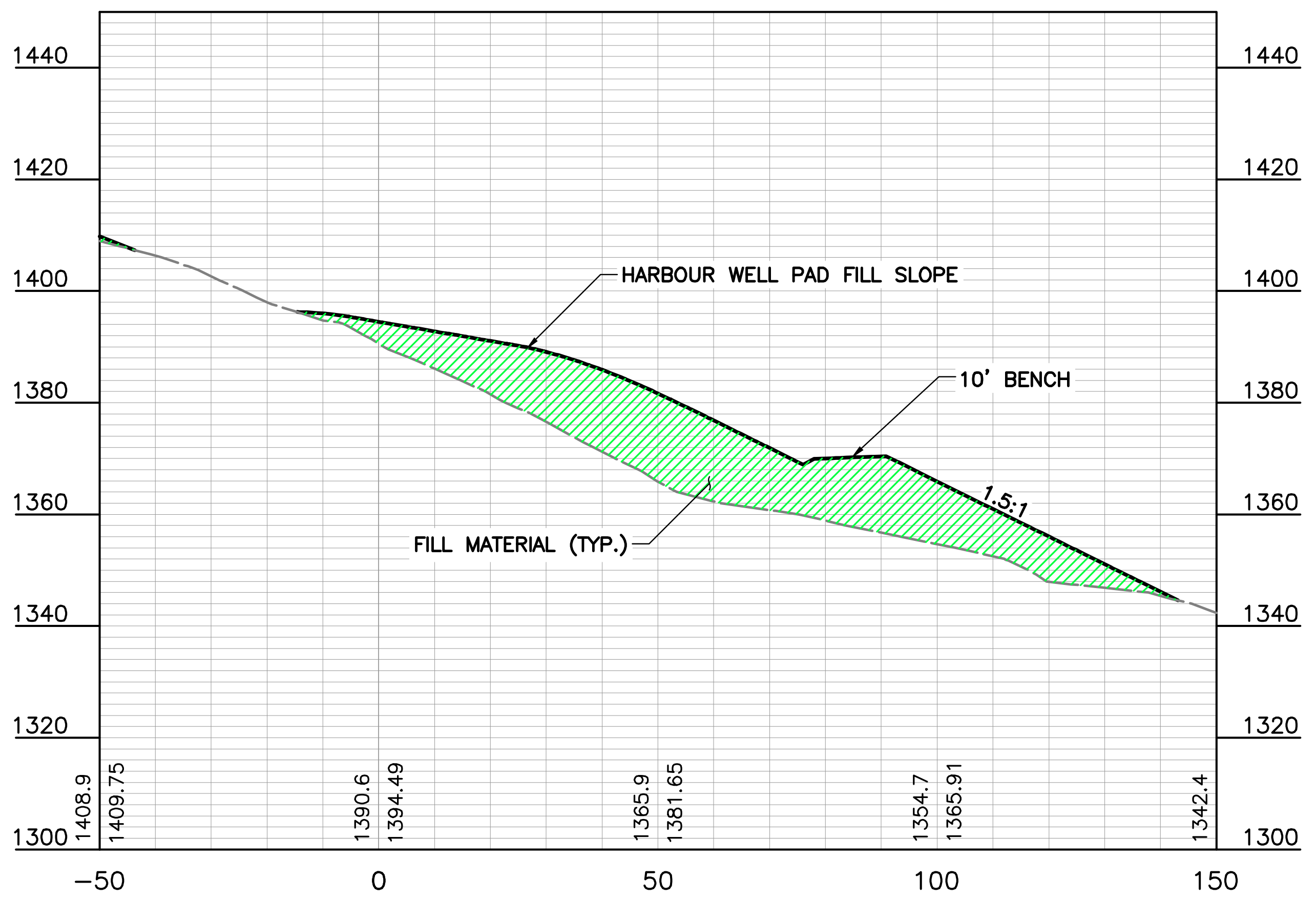

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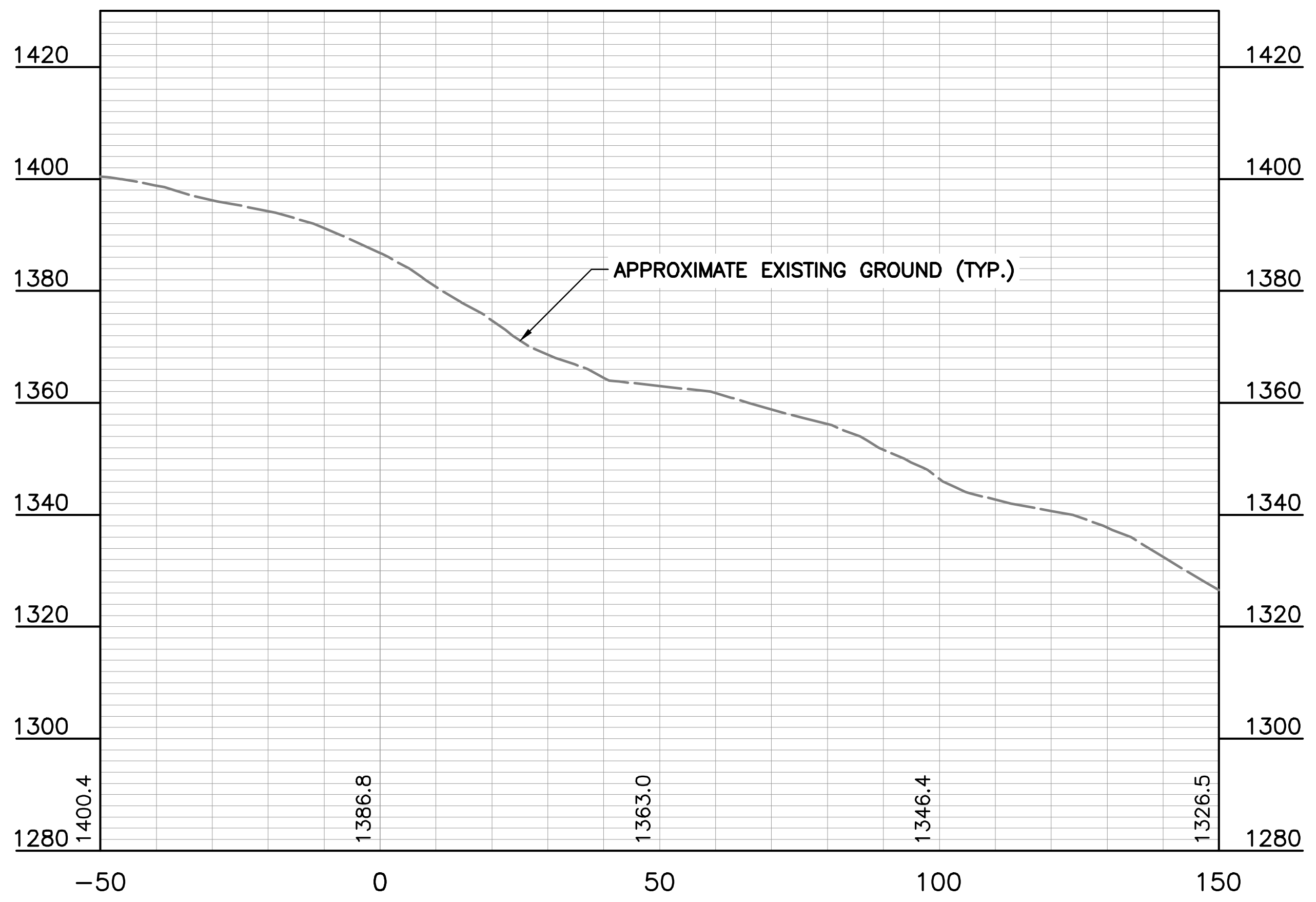

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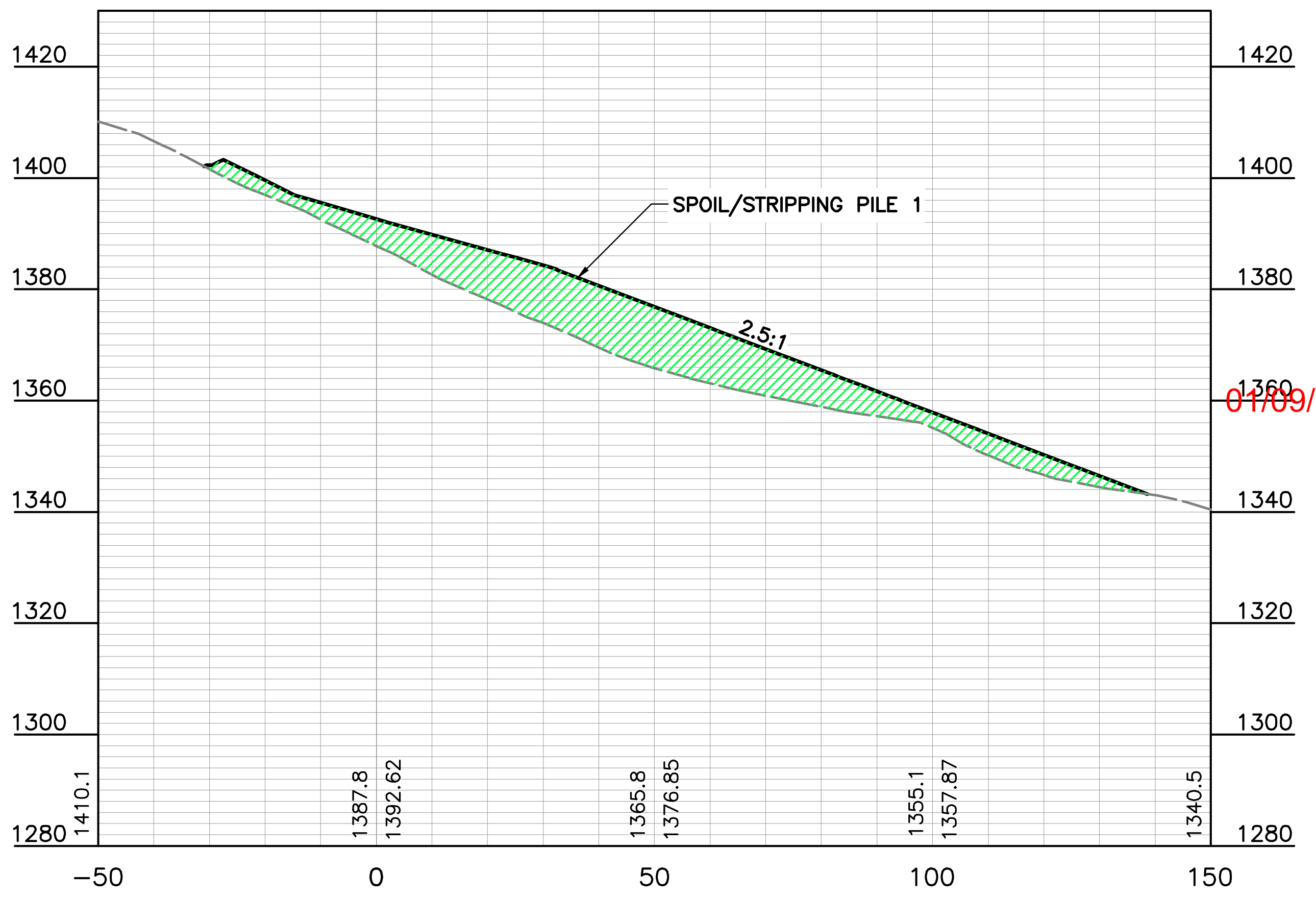

STA 2+00

01/09/2026

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60
SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

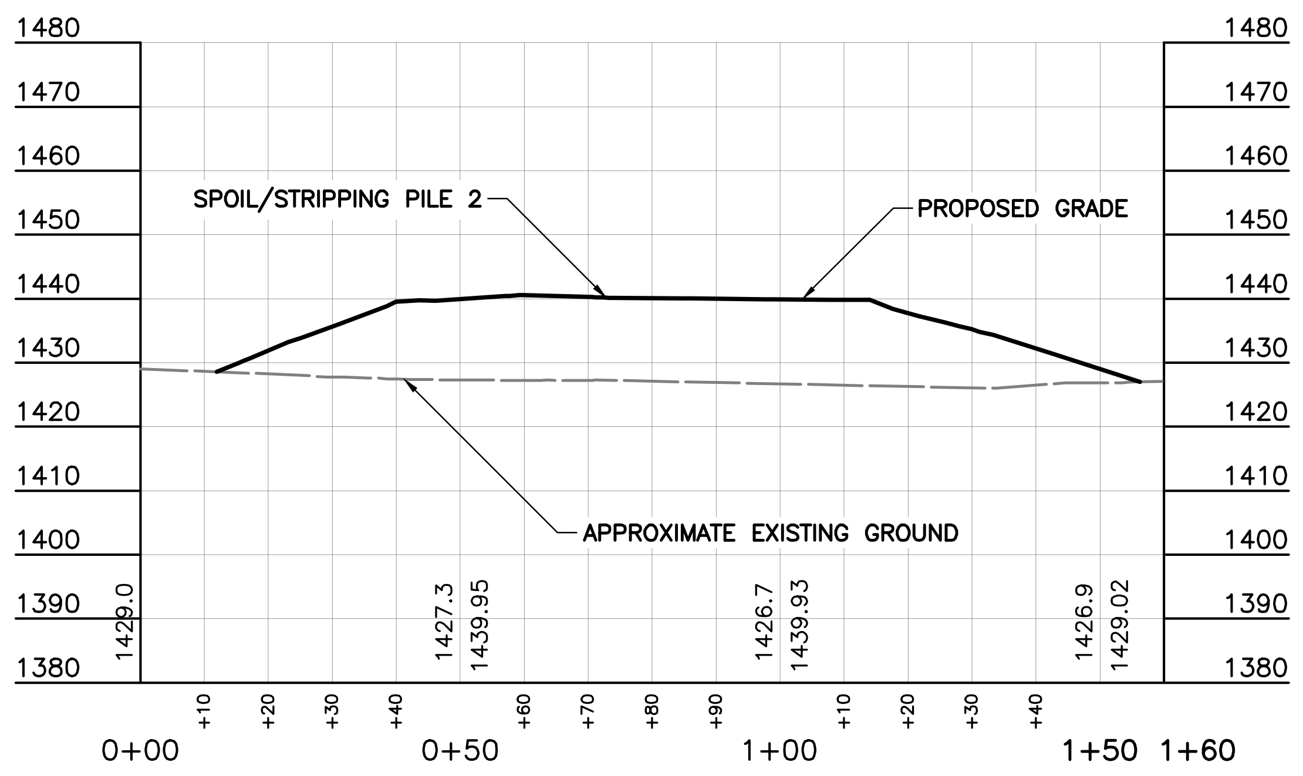
PROFILES AND SECTIONS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=30'	CHECKED BY:	ER
PROJECT NO:			336-328
APPROVED BY:			JDR

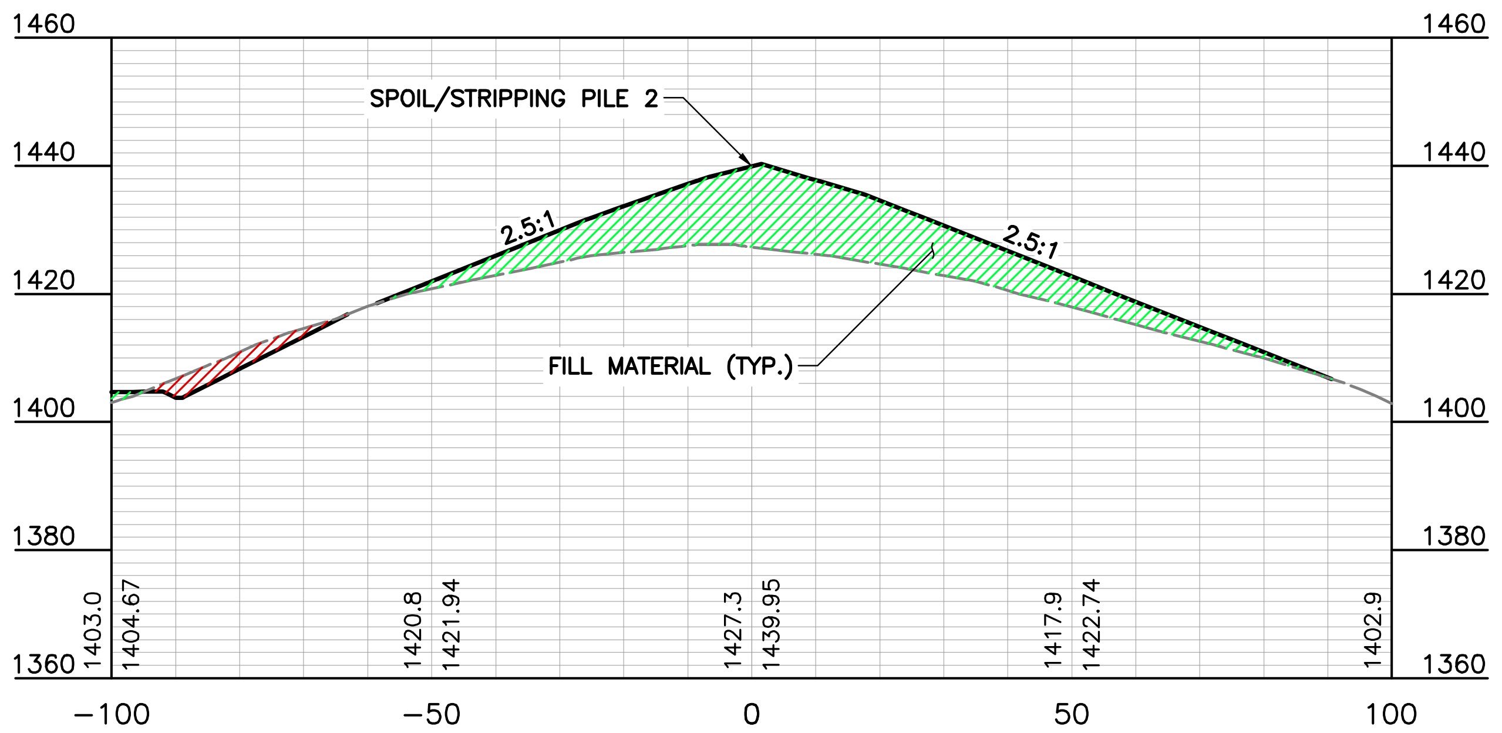
DRAWING NO.:
C612
SHEET 22 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C612} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



SPOIL/STRIPPING PILE 2 - PROFILE E



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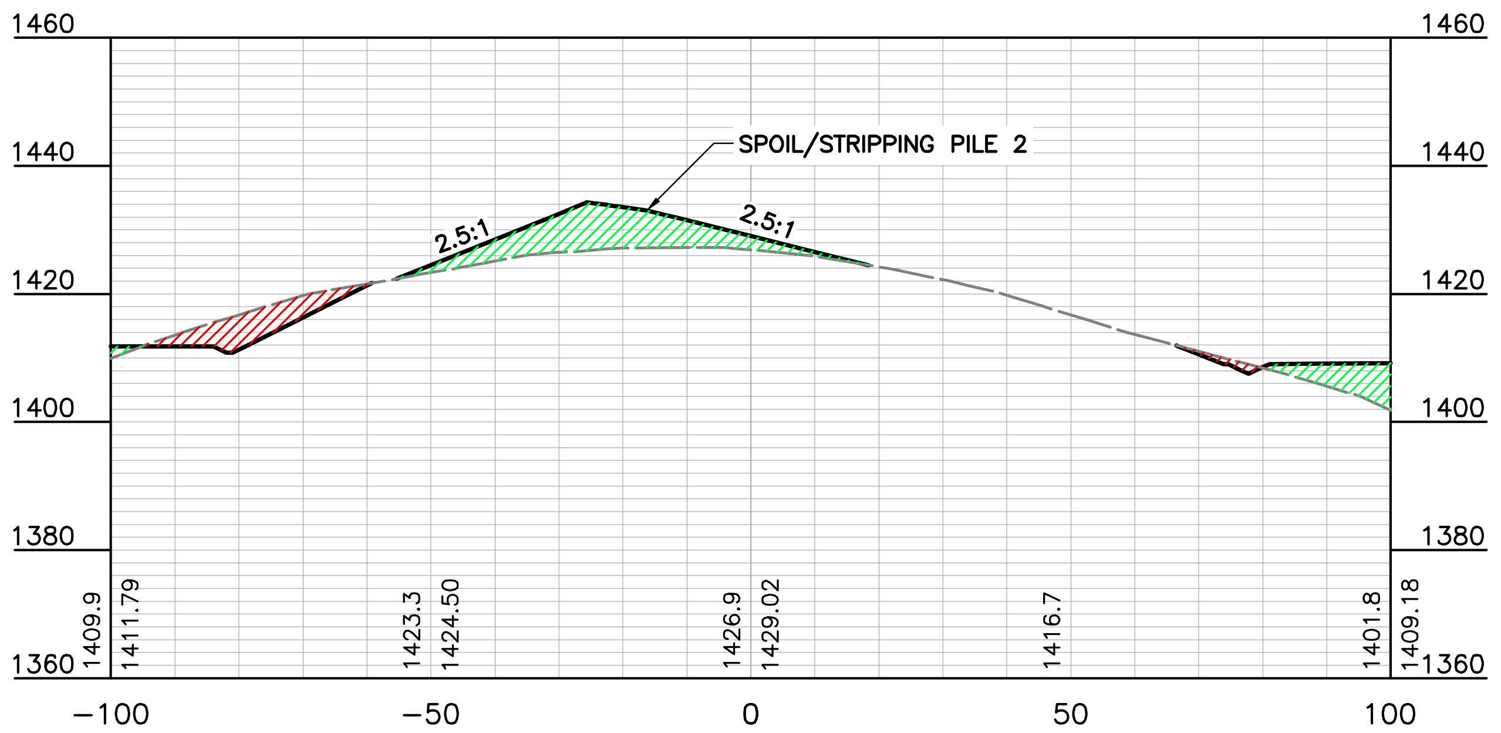

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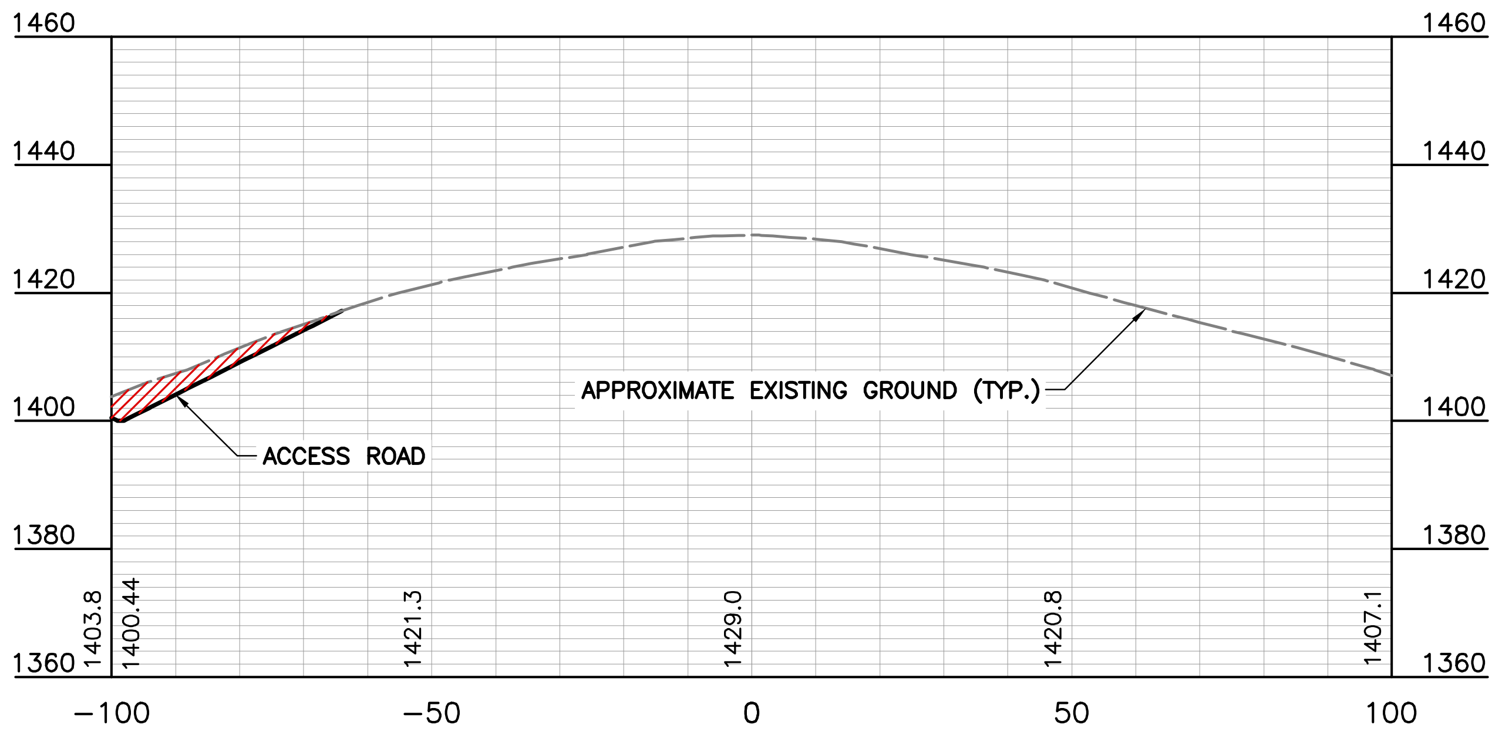

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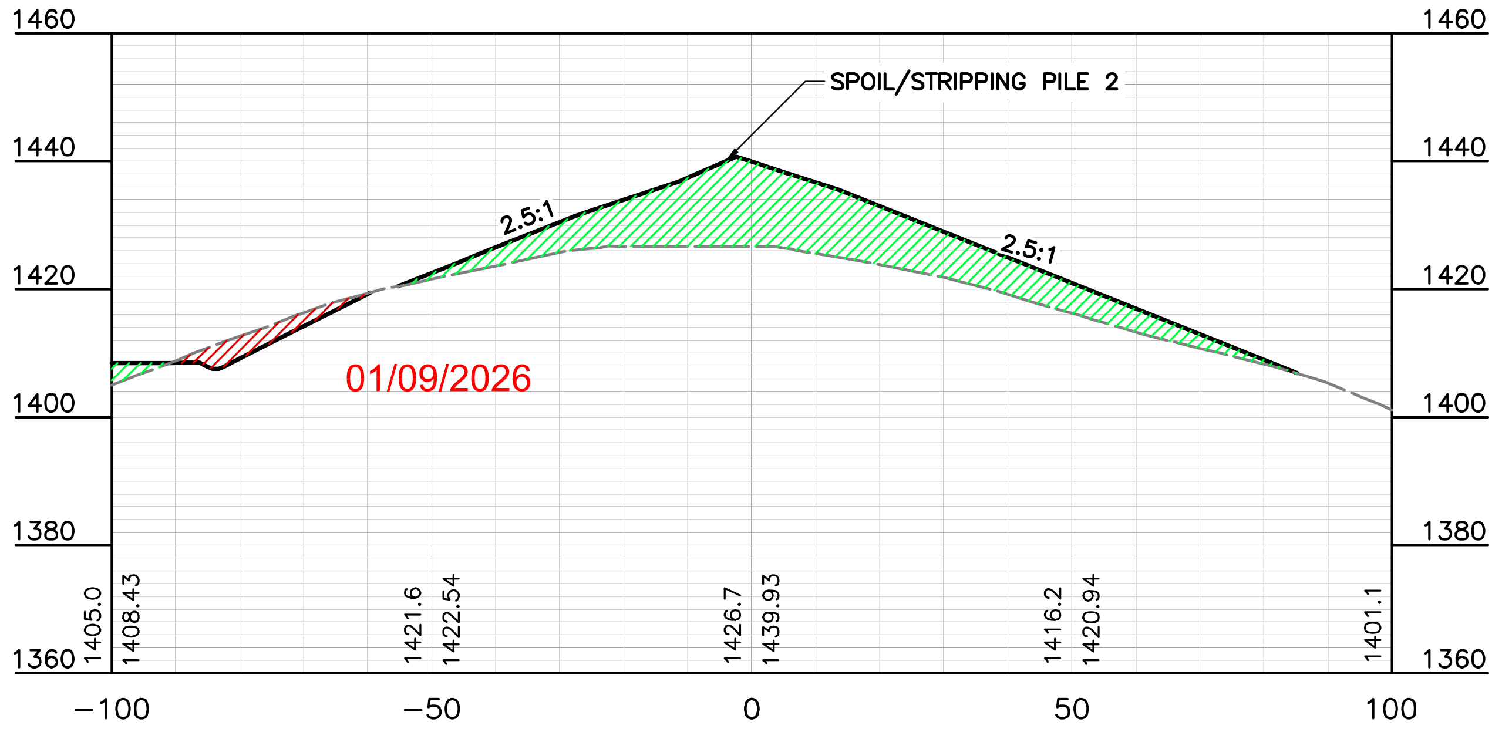
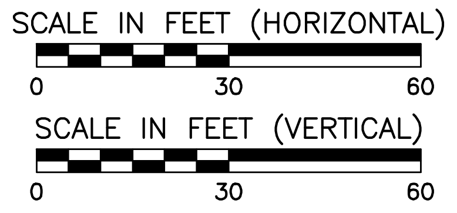


01/09/2026

STA 1+00

APPROVED
WVDEP OOG
Modification
1/5/2026



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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

PROFILES AND SECTIONS

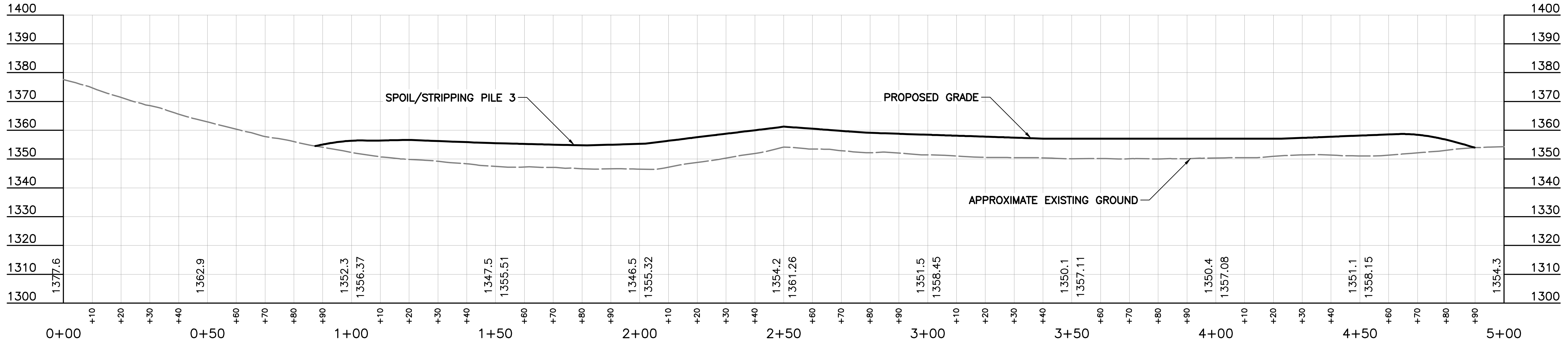
DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

JOSEPH D. ROBINSON
19756
11-11-2025
Joseph D. Robinson

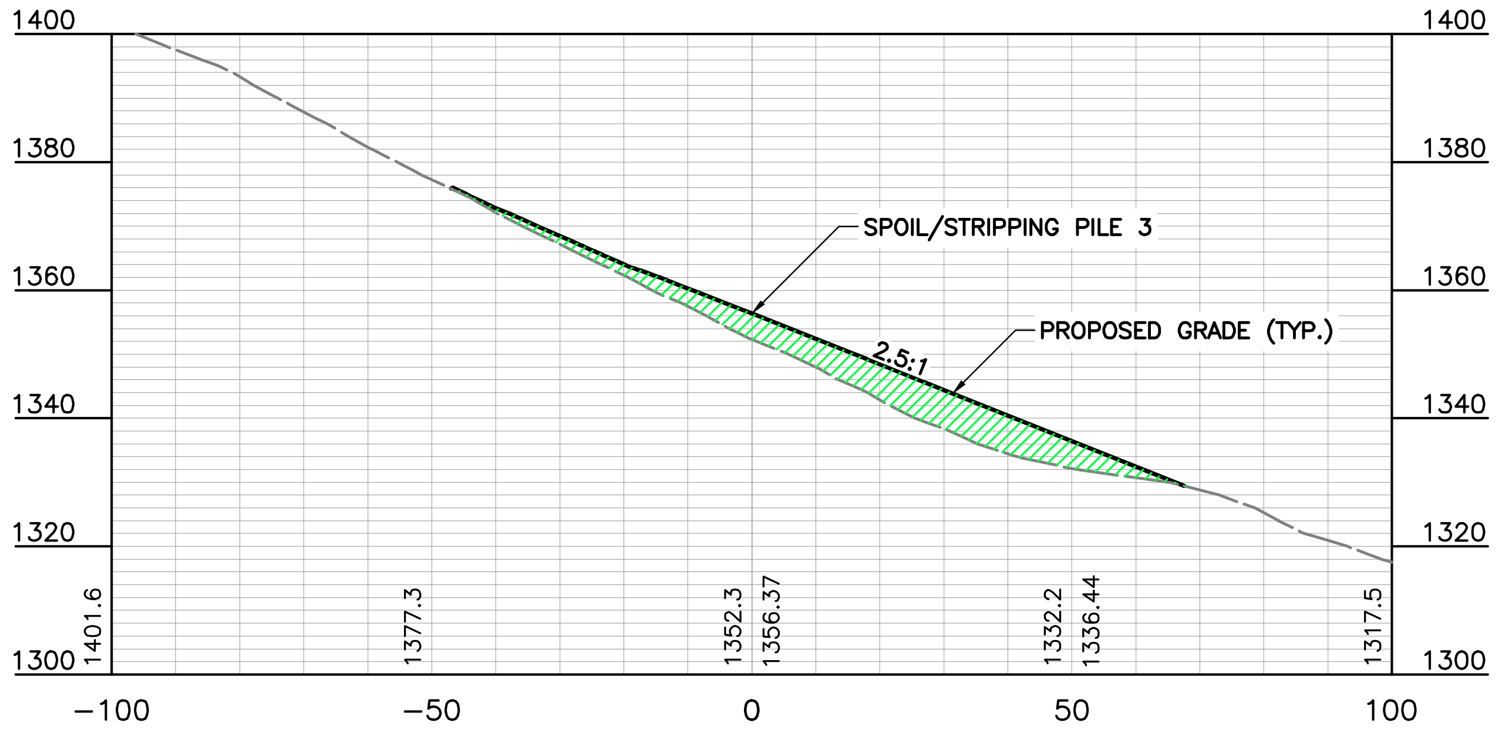
DRAWING NO.: **C613**
SHEET 23 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C613} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



SPOIL/STRIPPING PILE 3 - PROFILE F



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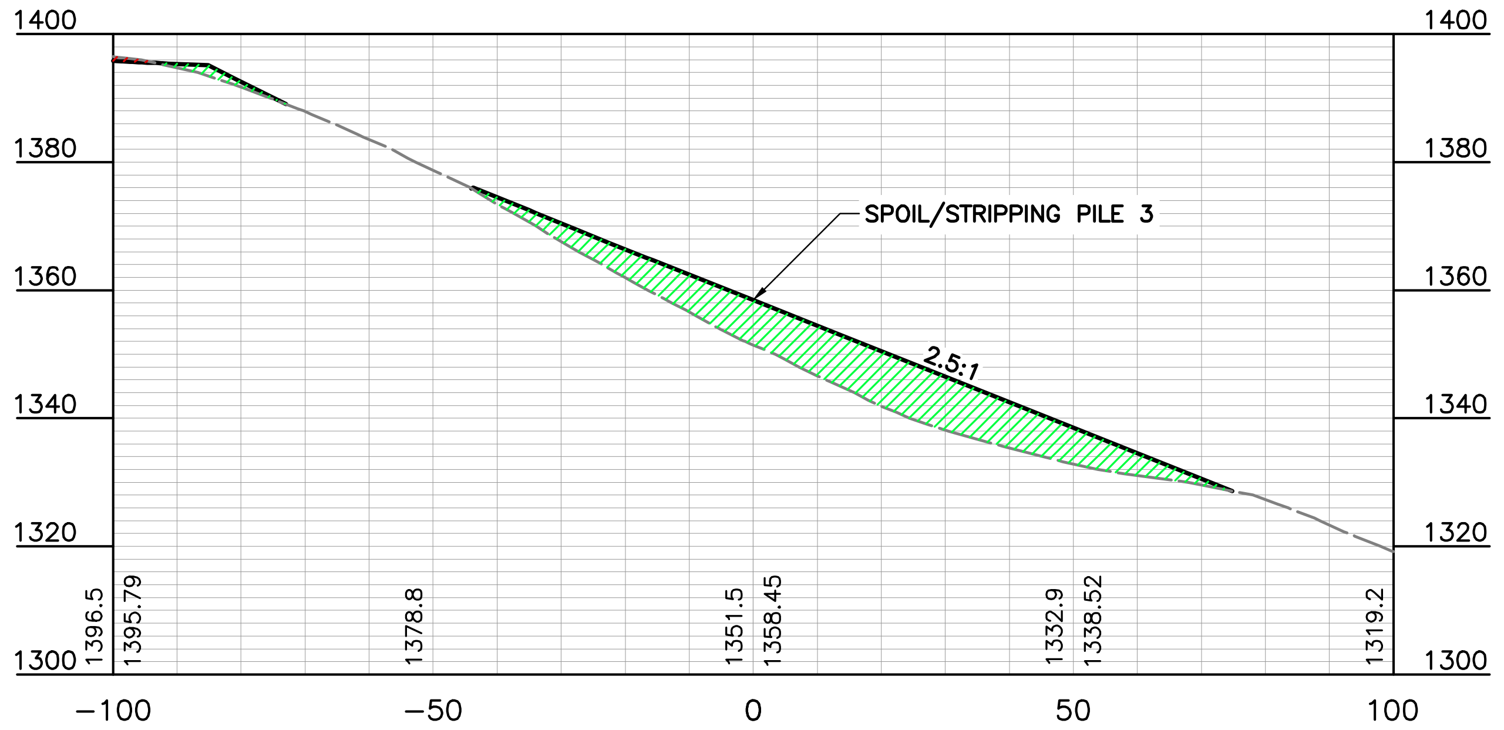

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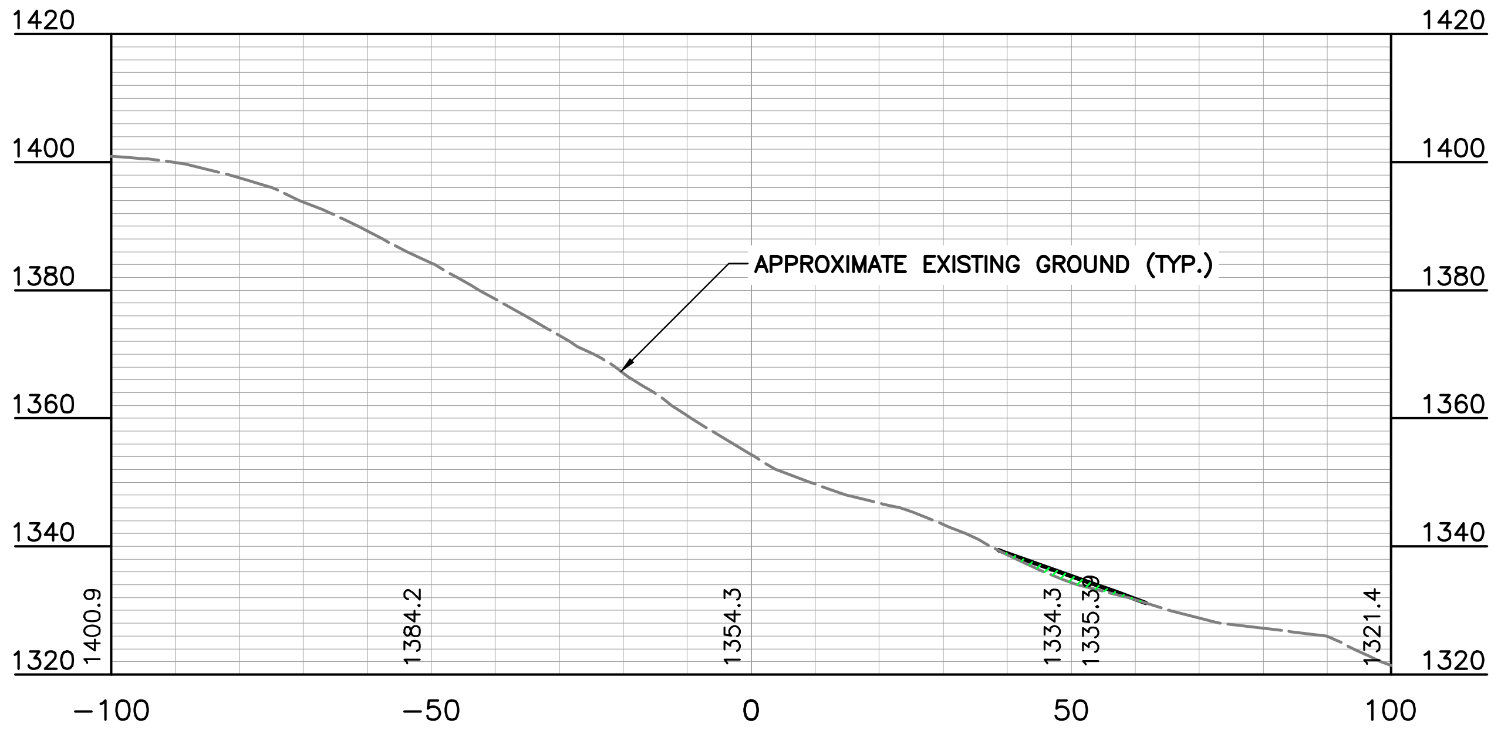

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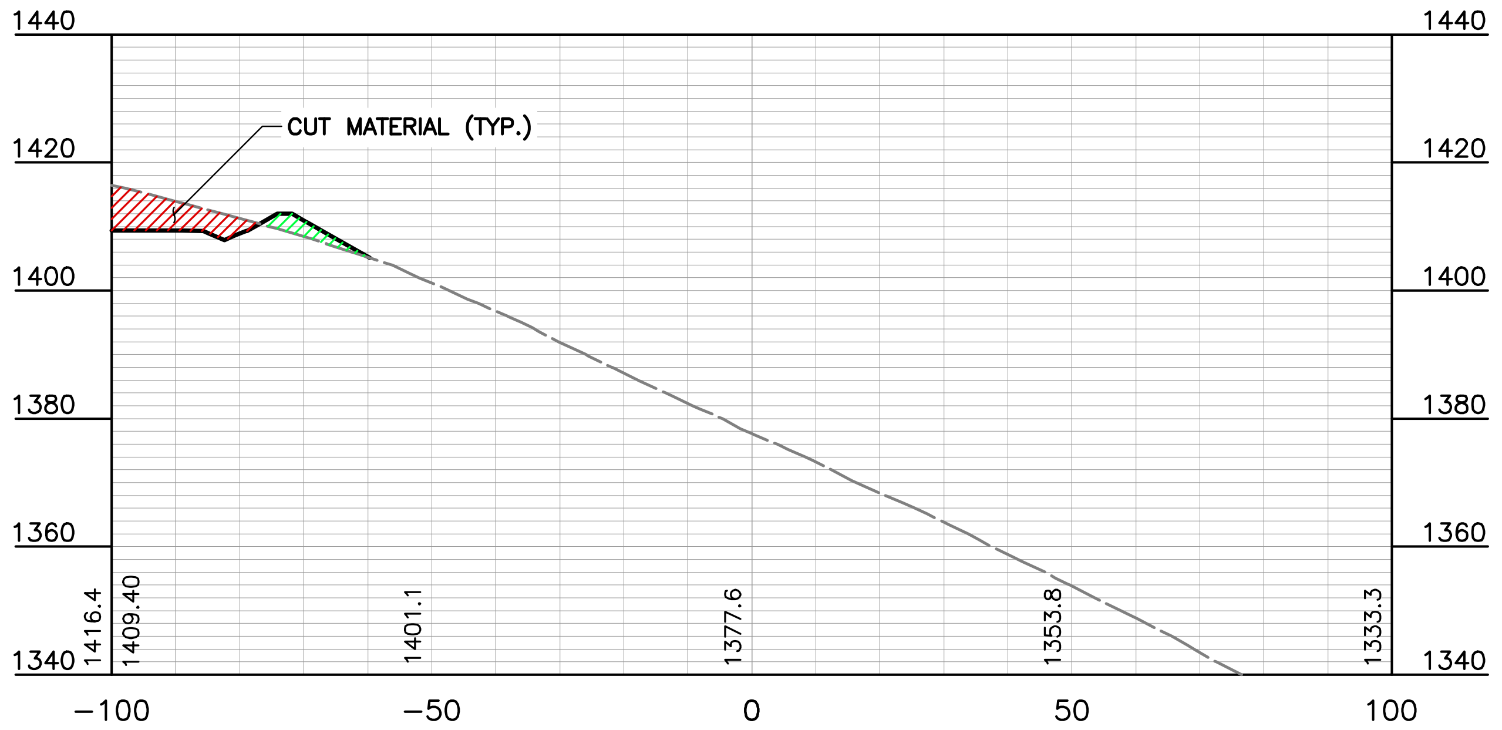

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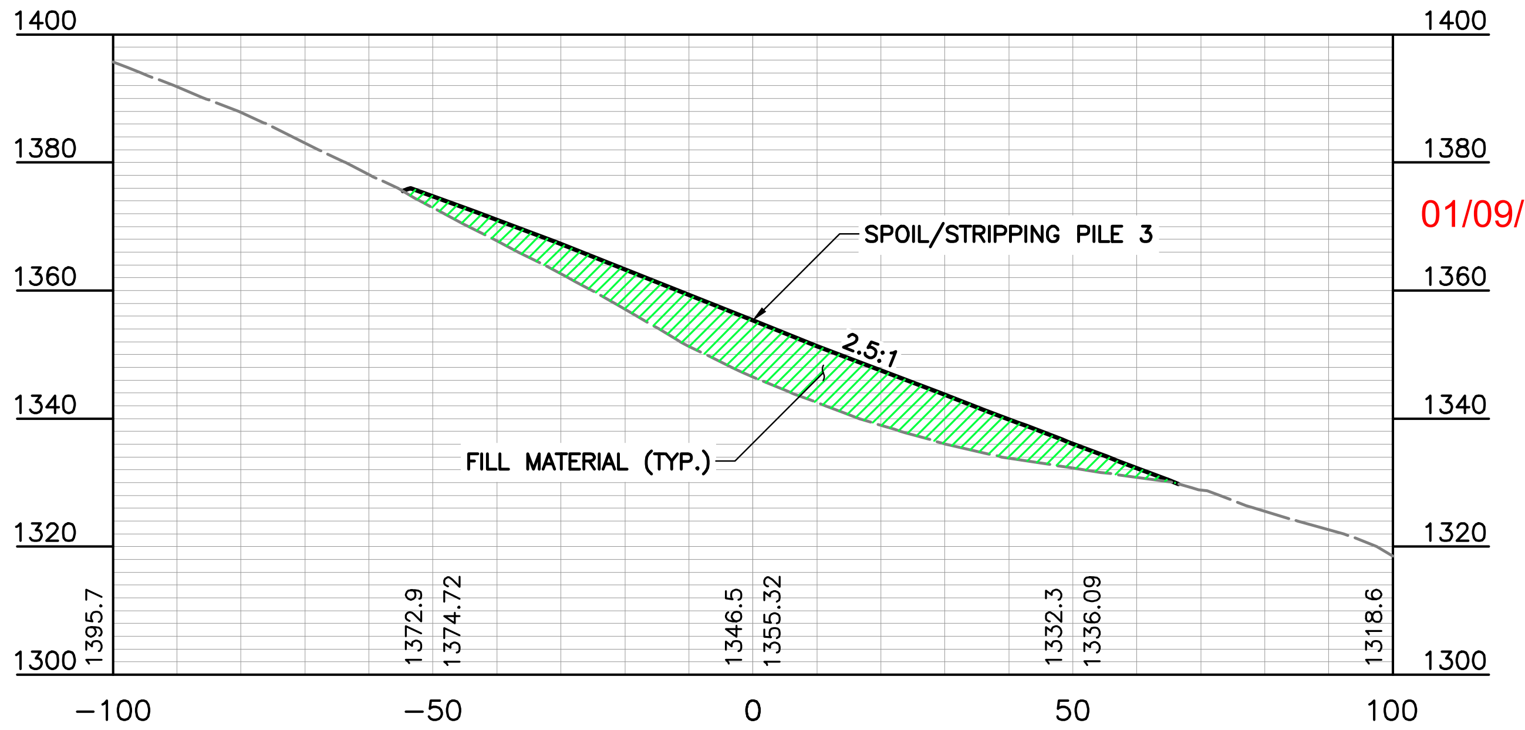

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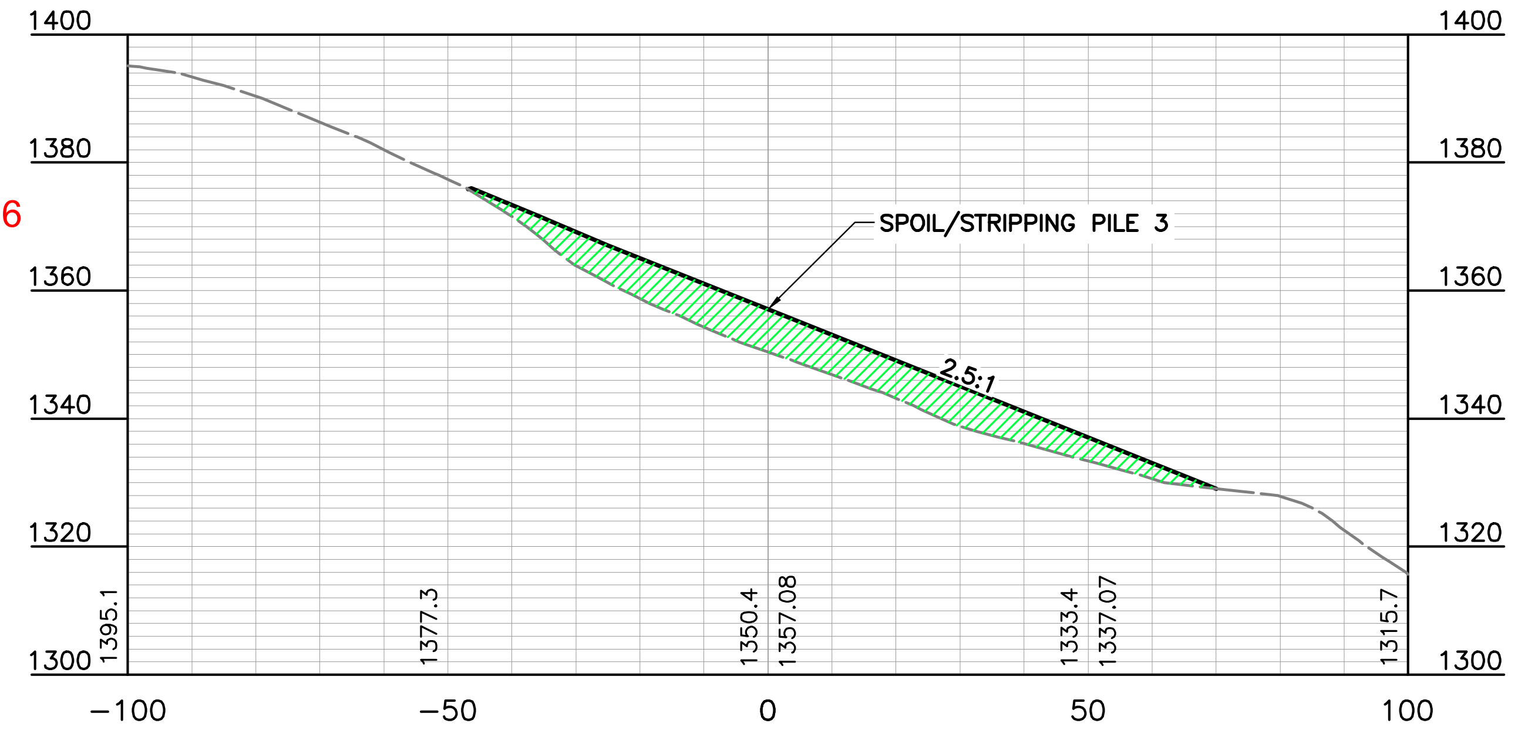
01/09/2026



STA 4+00

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
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WETZEL COUNTY
WEST VIRGINIA

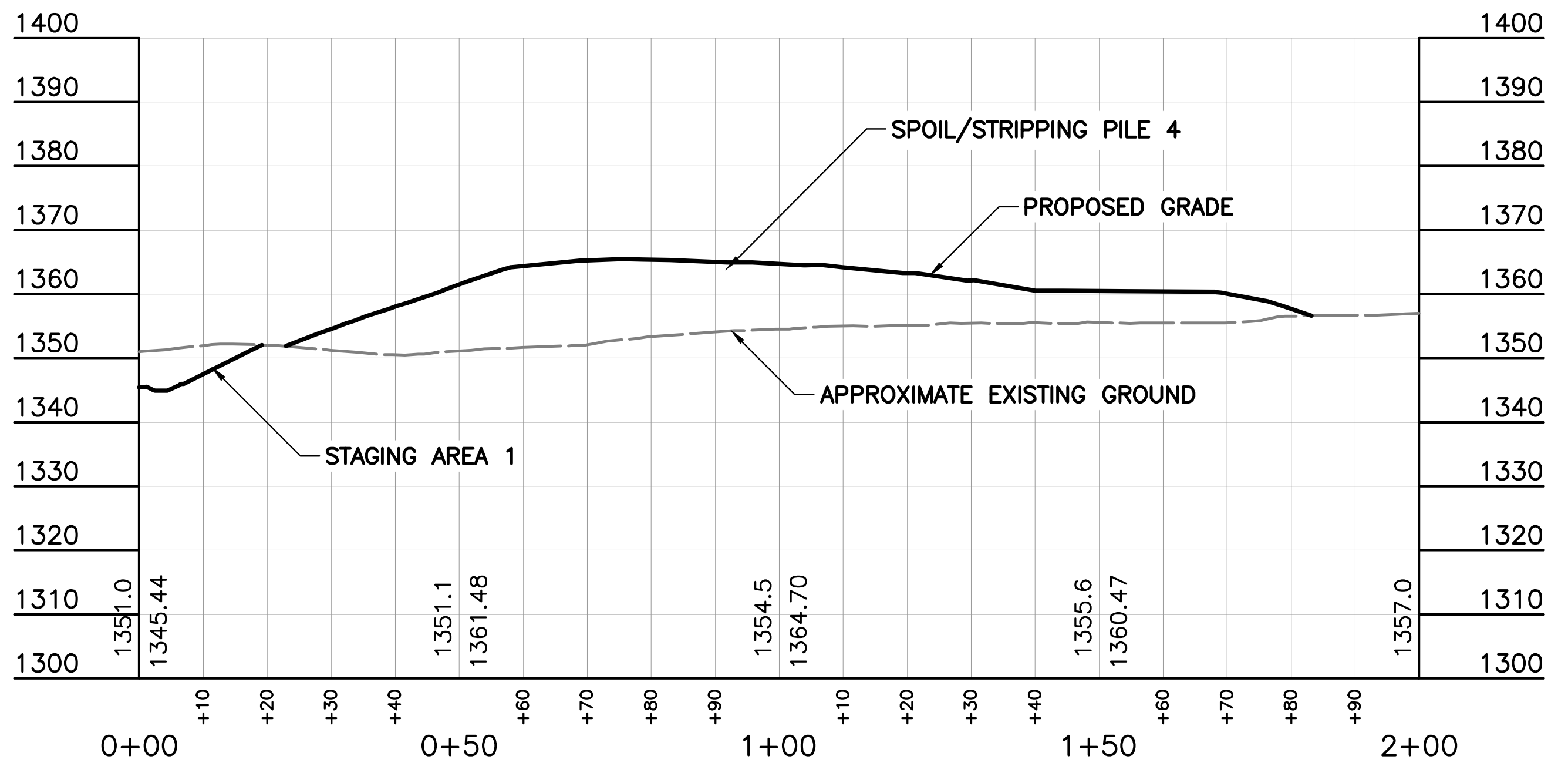
PROFILES AND SECTIONS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=30'	CHECKED BY:	ER
PROJECT NO:			336-328
APPROVED BY:			JDR

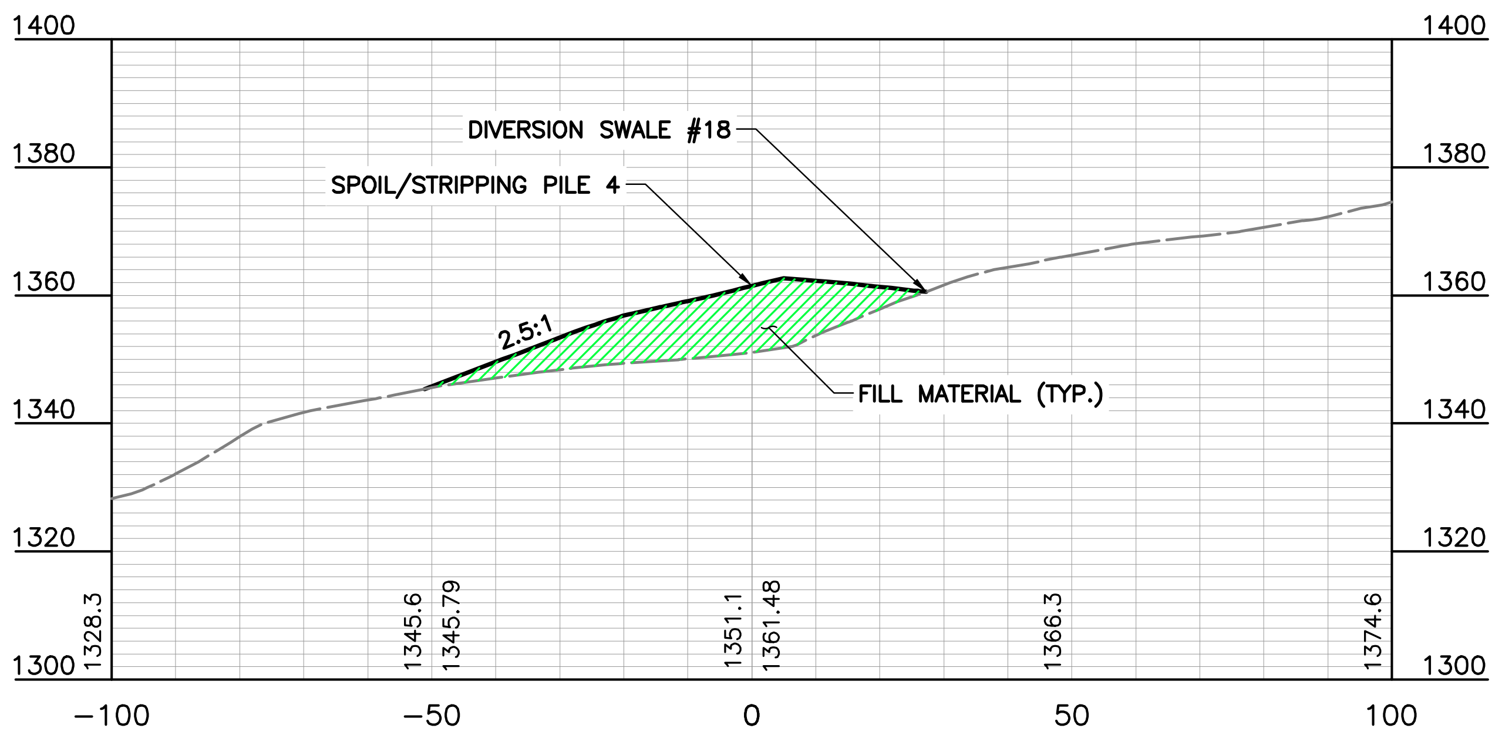
DRAWING NO.:
C614
SHEET 24 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C614} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



SPOIL/STRIPPING PILE 4 - PROFILE G



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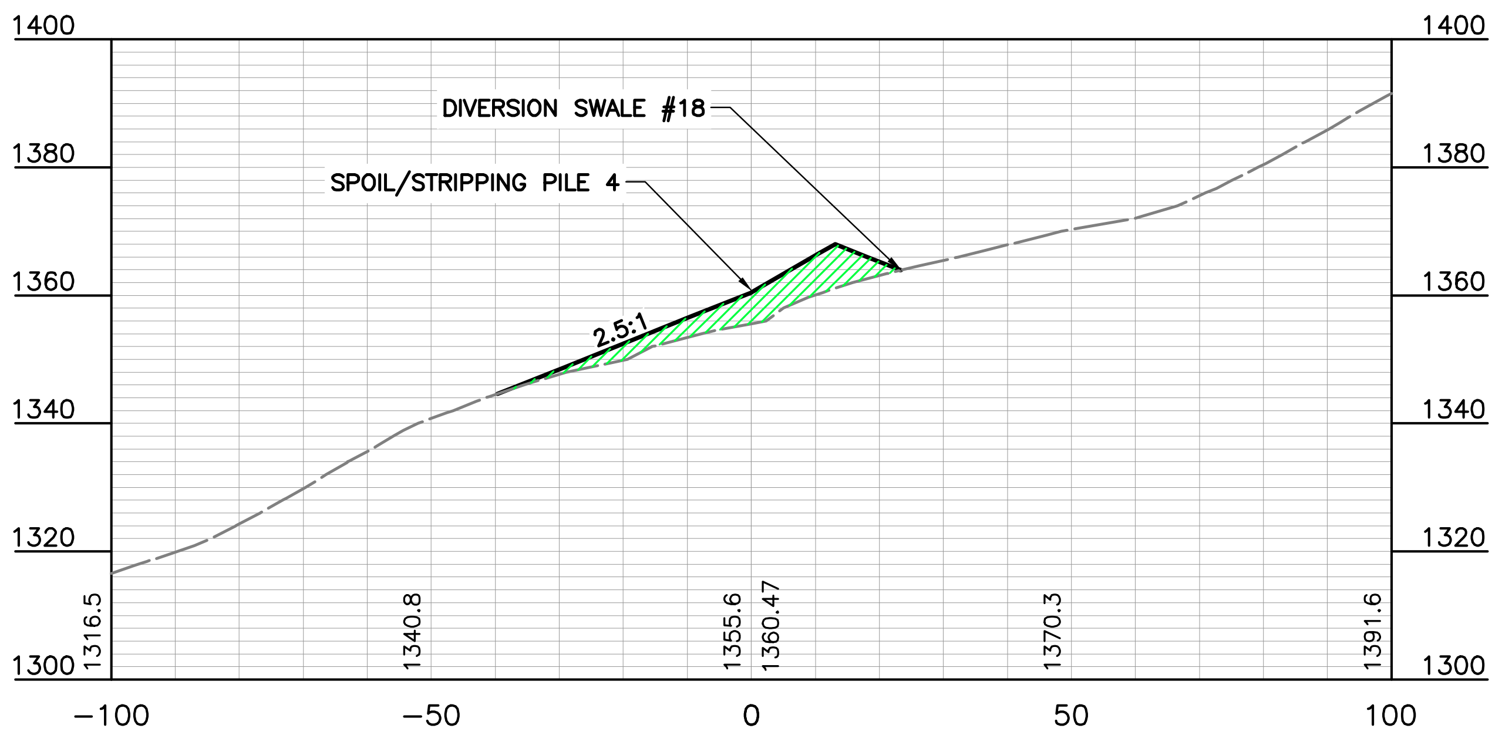

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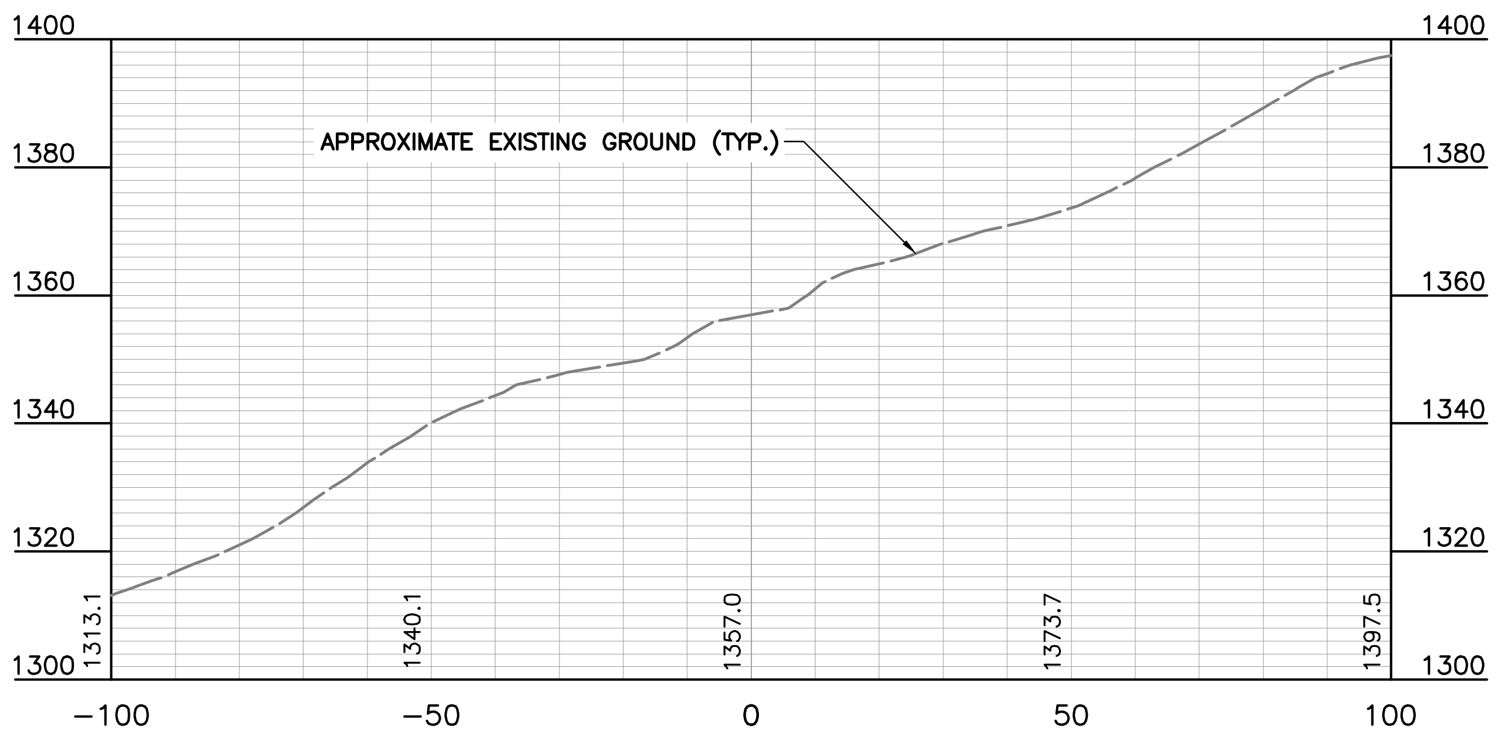

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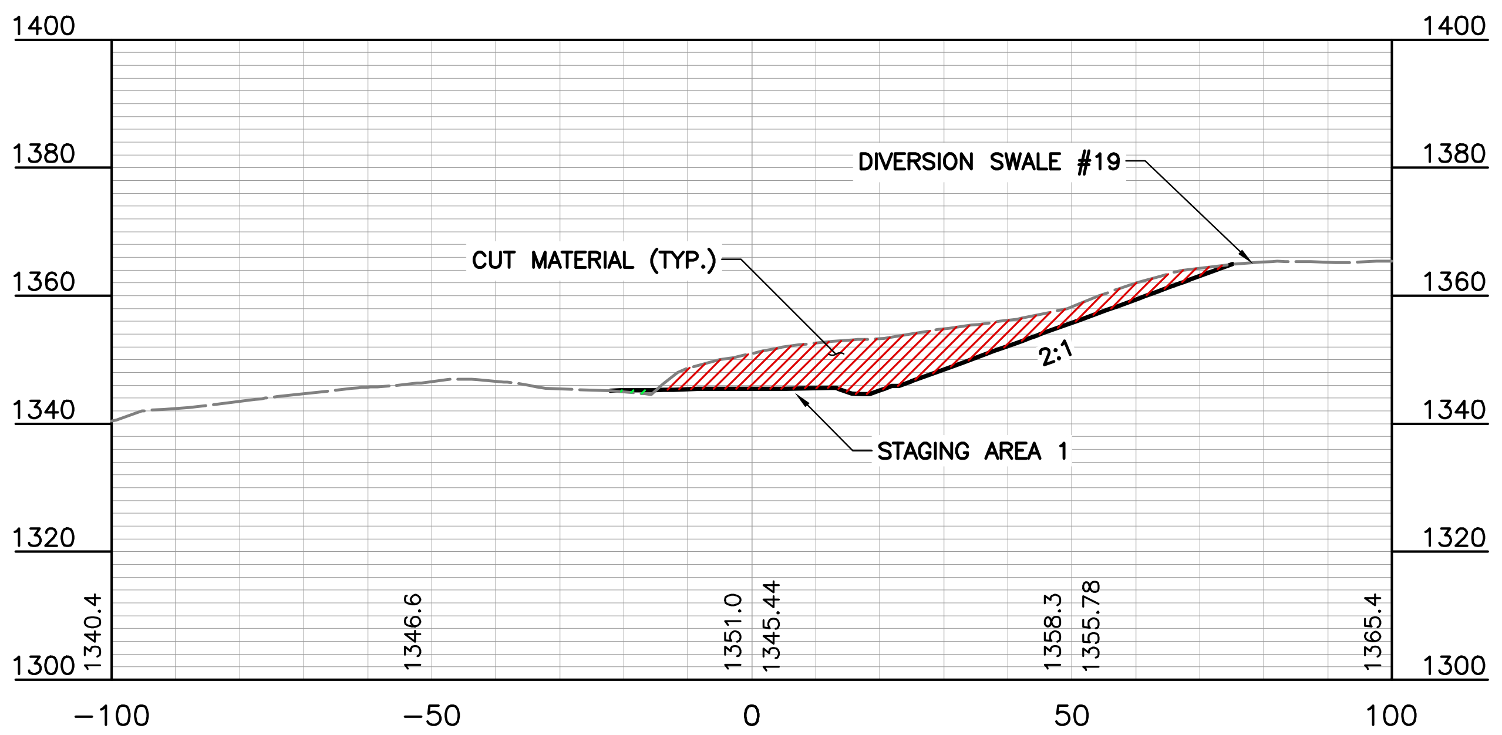

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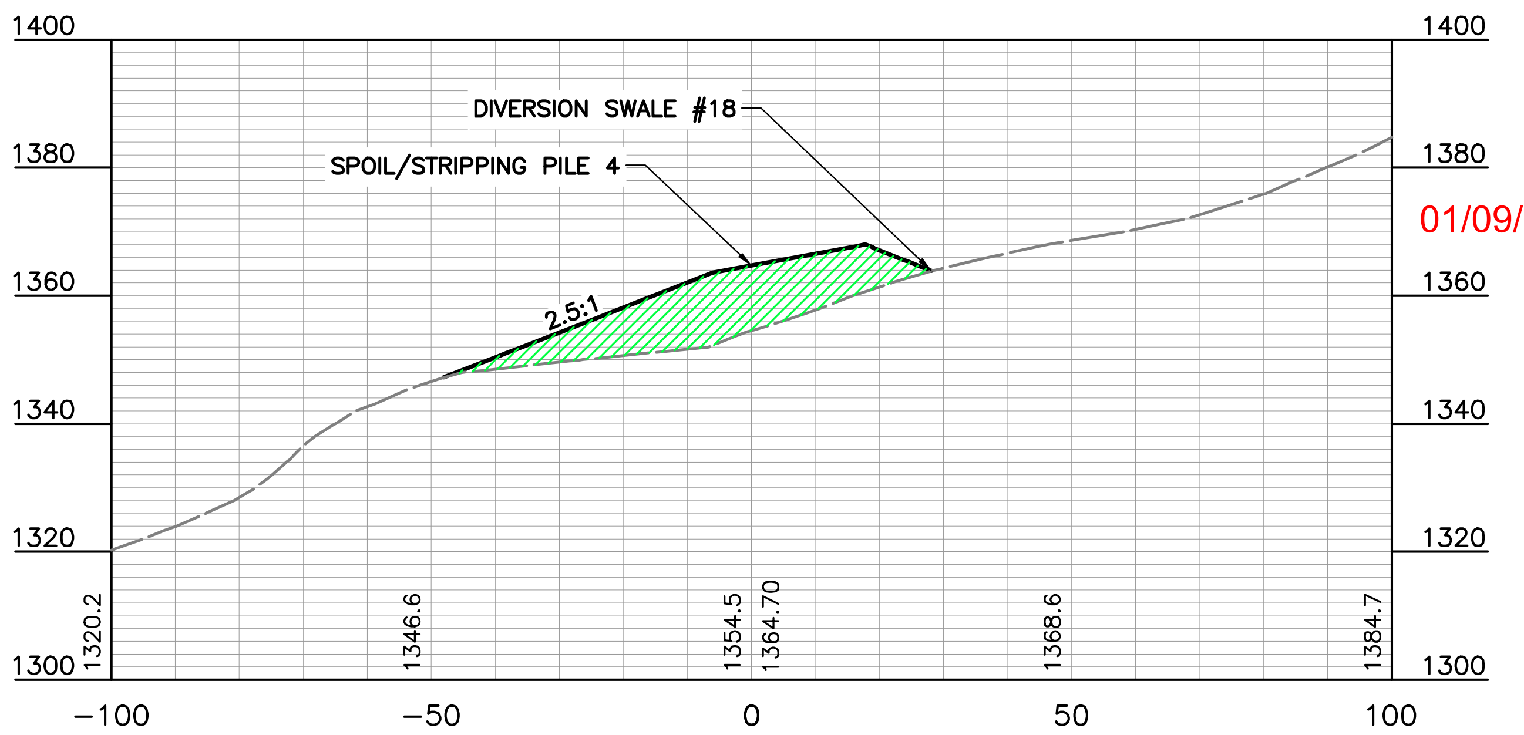

STA 1+00

01/09/2026

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
1-11-2025

REVISION RECORD

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WETZEL COUNTY
WEST VIRGINIA

PROFILES AND SECTIONS

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DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.:
C615
SHEET 25 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C615} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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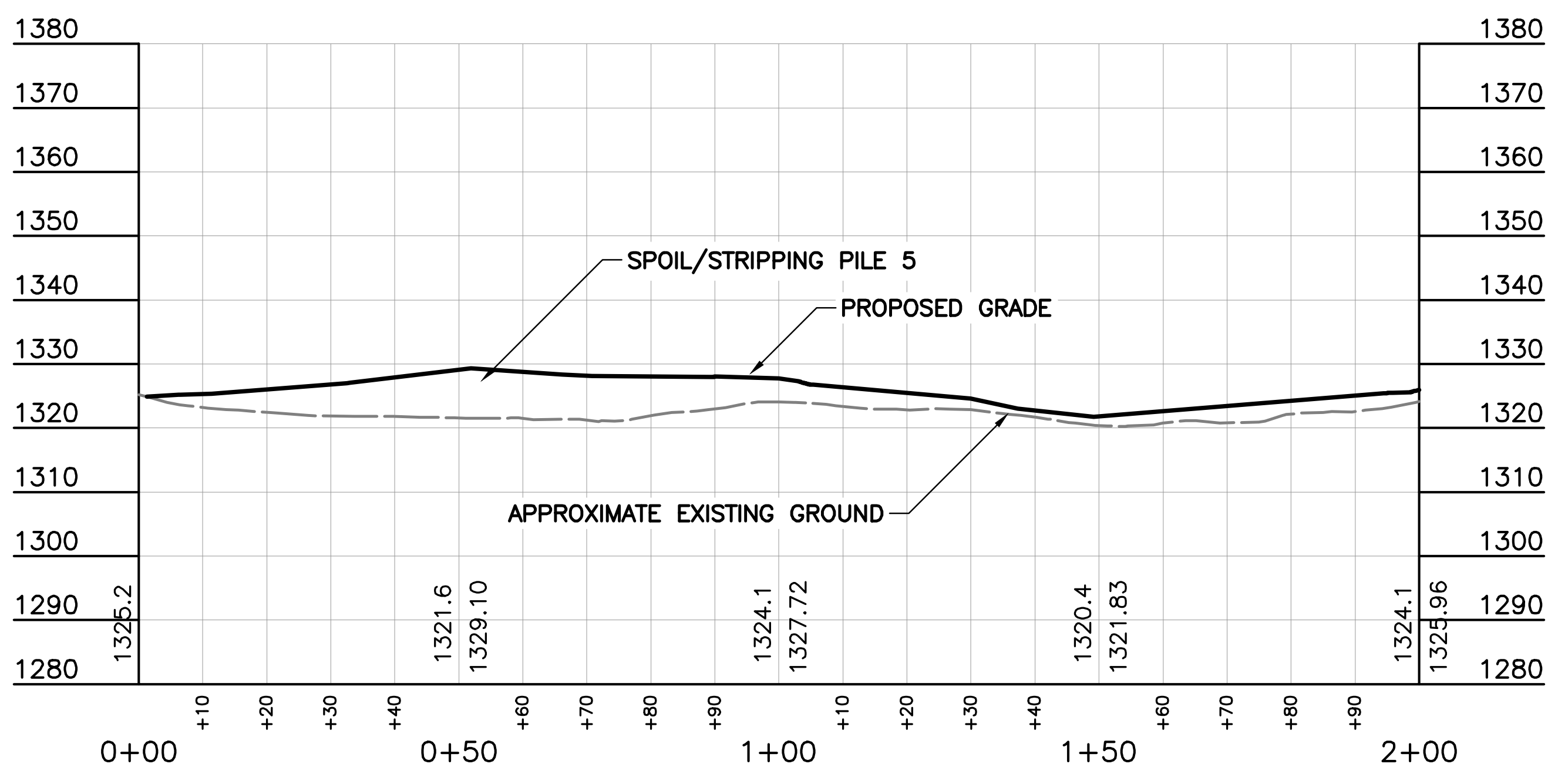
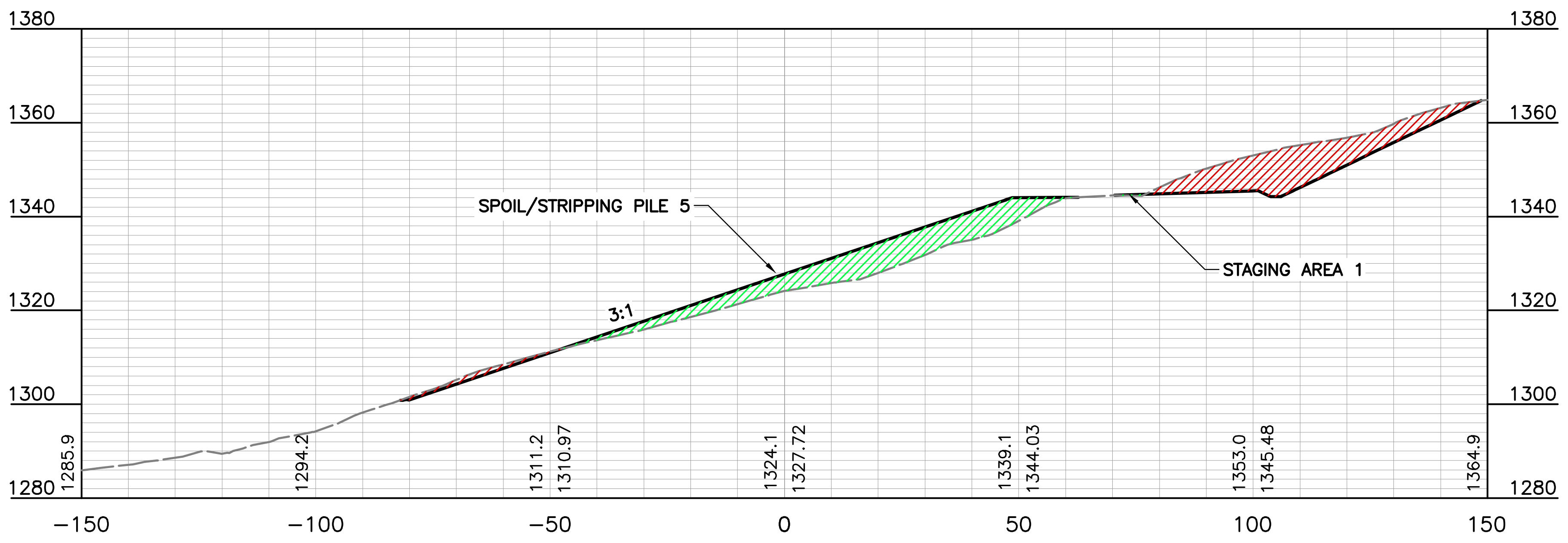


SOIL/STRIPPING PILE 5 - PROFILE H



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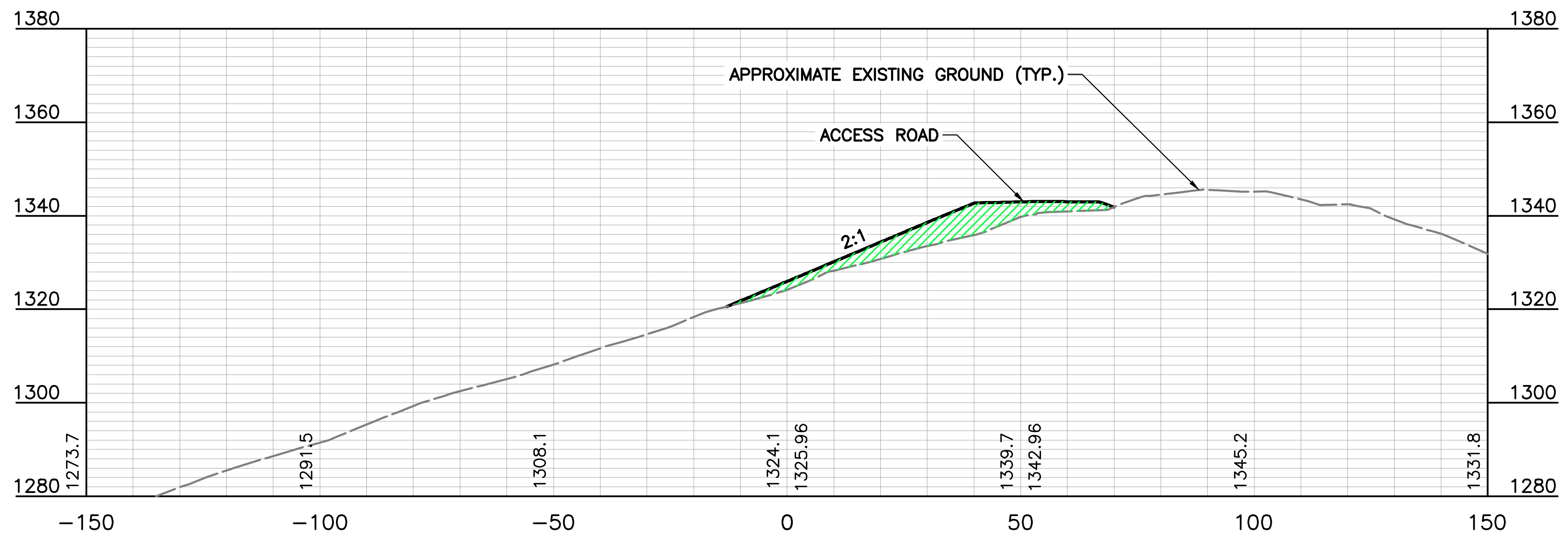

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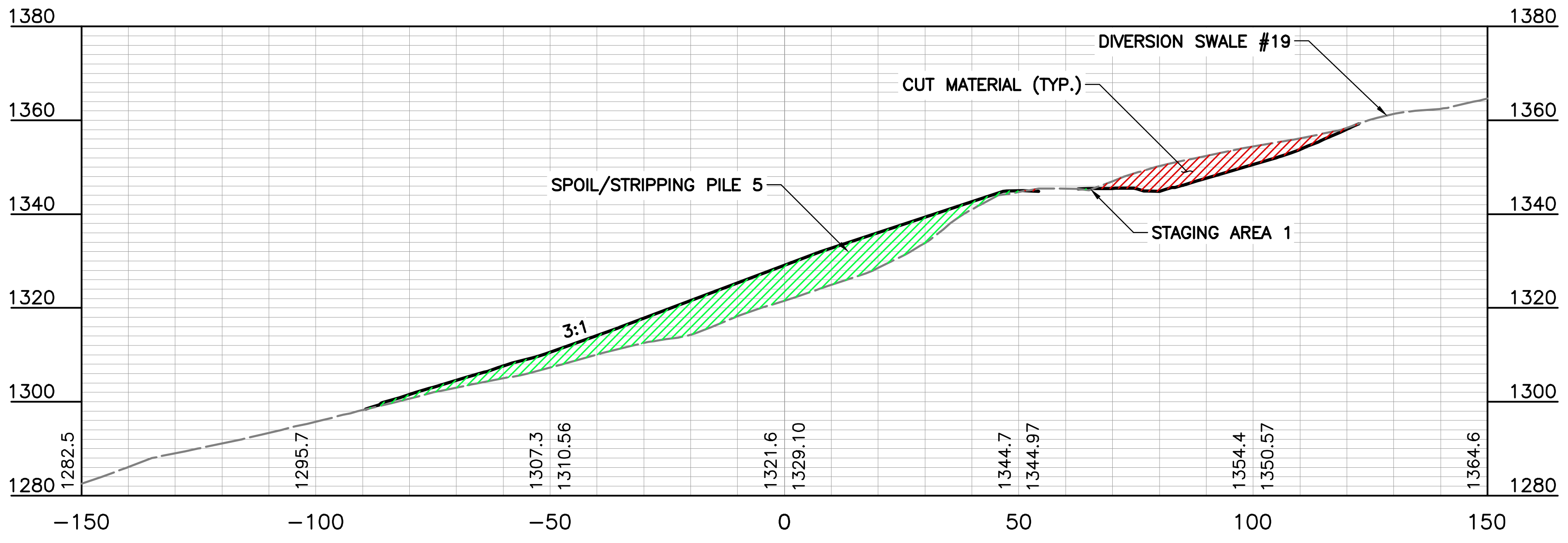

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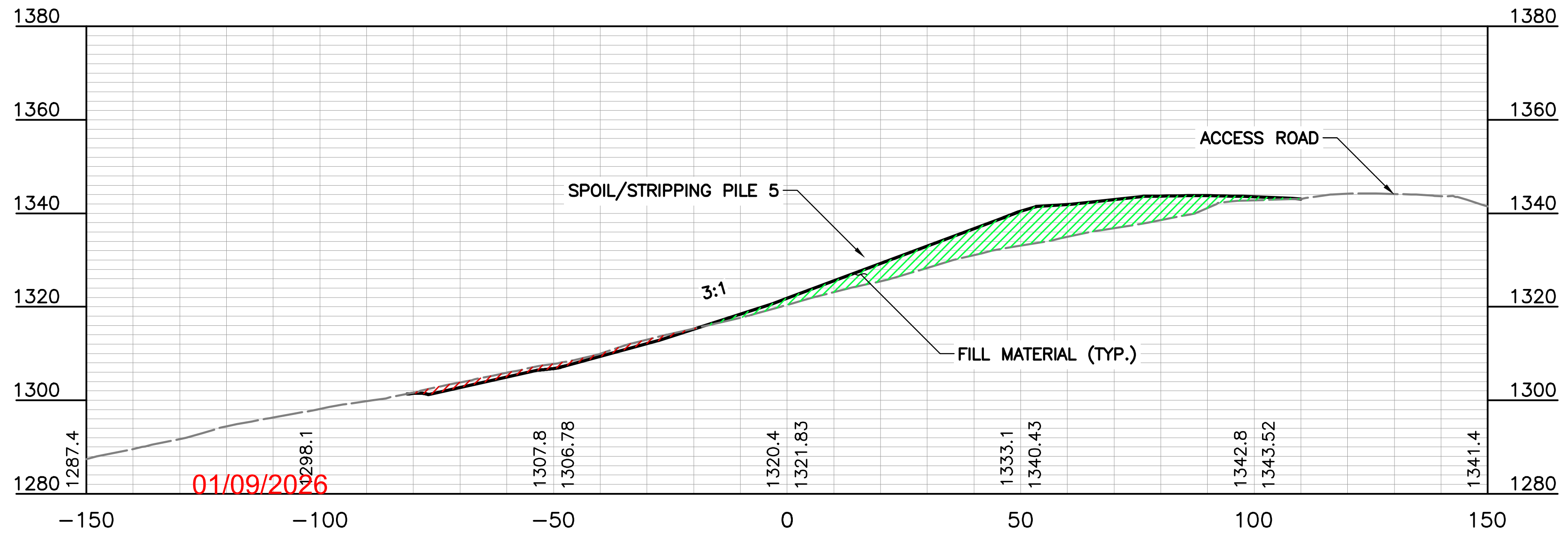

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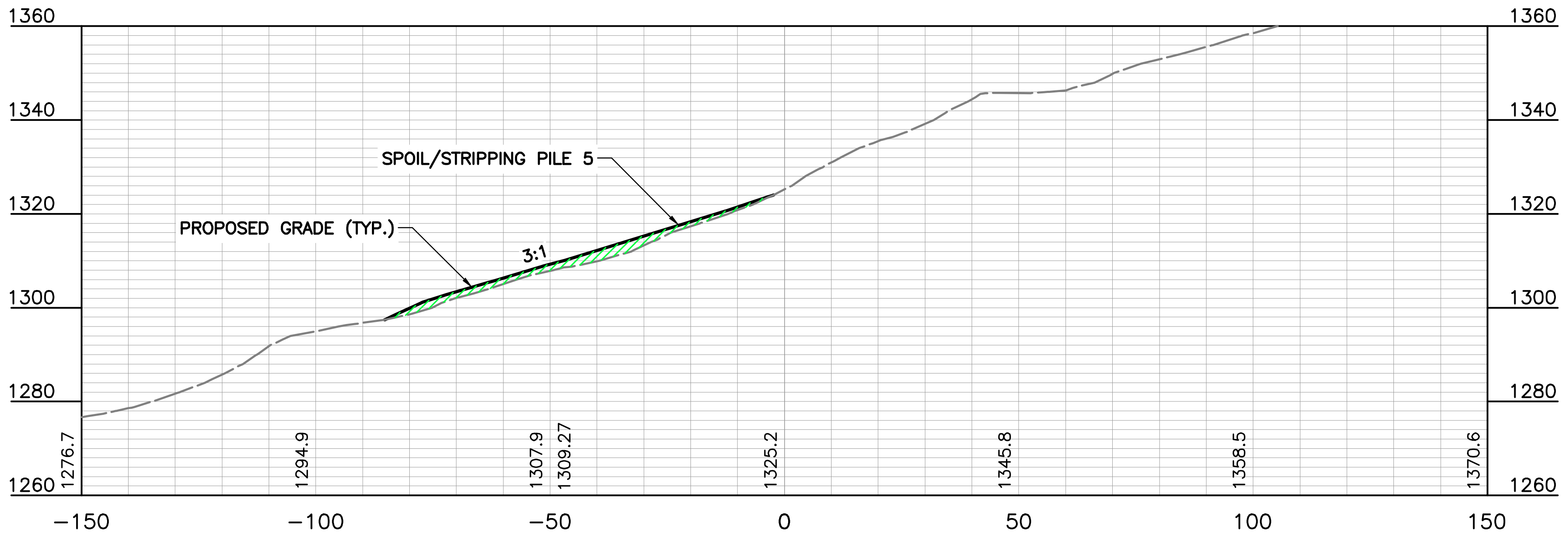

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APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 30 60

SCALE IN FEET (VERTICAL)
0 30 60

JOSEPH D. ROBINSON
19756
STATE OF WEST VIRGINIA

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

Civil & Environmental Consultants, Inc.
120 Genesis Boulevard
Bridgeport, WV 26330
Ph: 304.933.3119
www.cecinc.com

ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

PROFILES AND SECTIONS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.: C616
SHEET 26 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C616} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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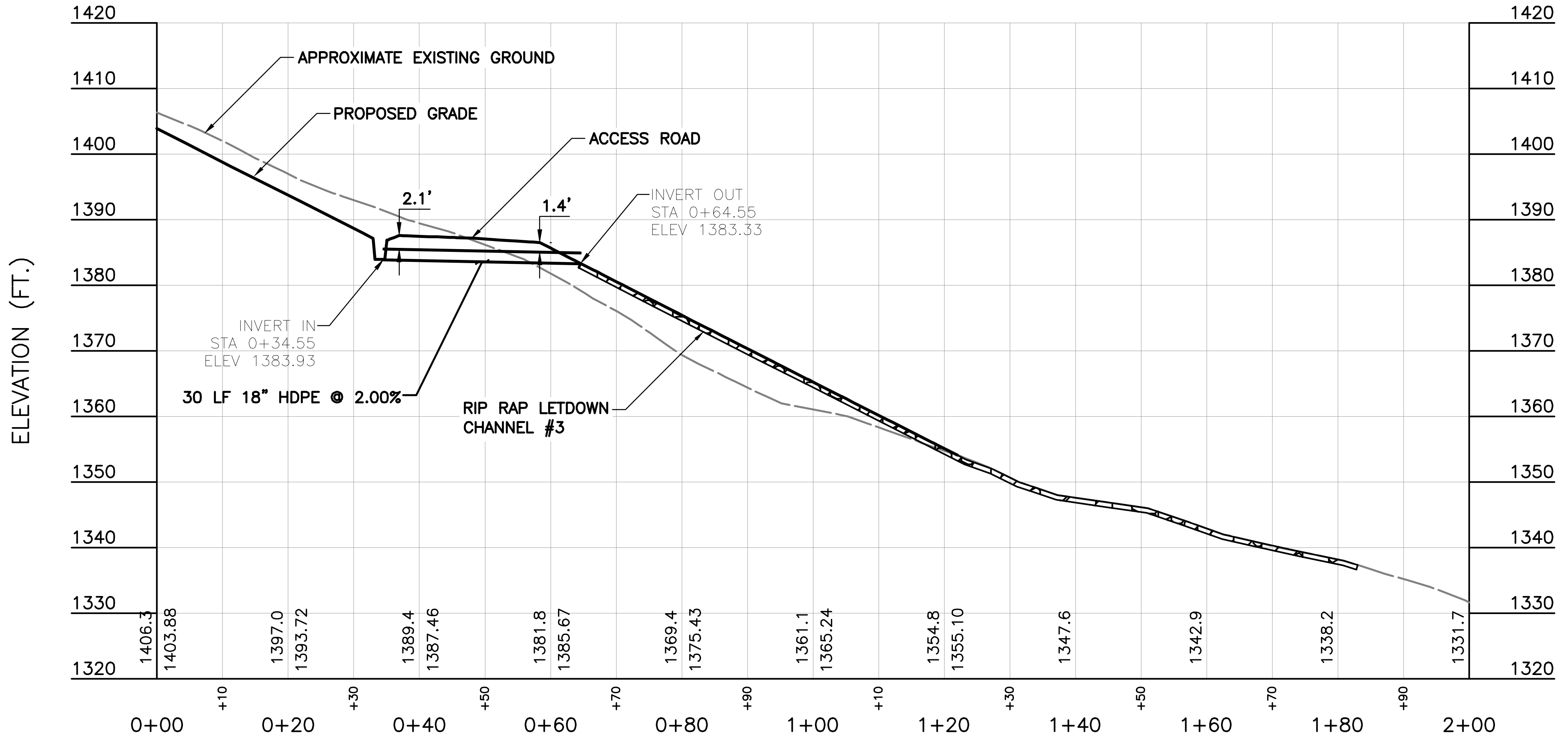

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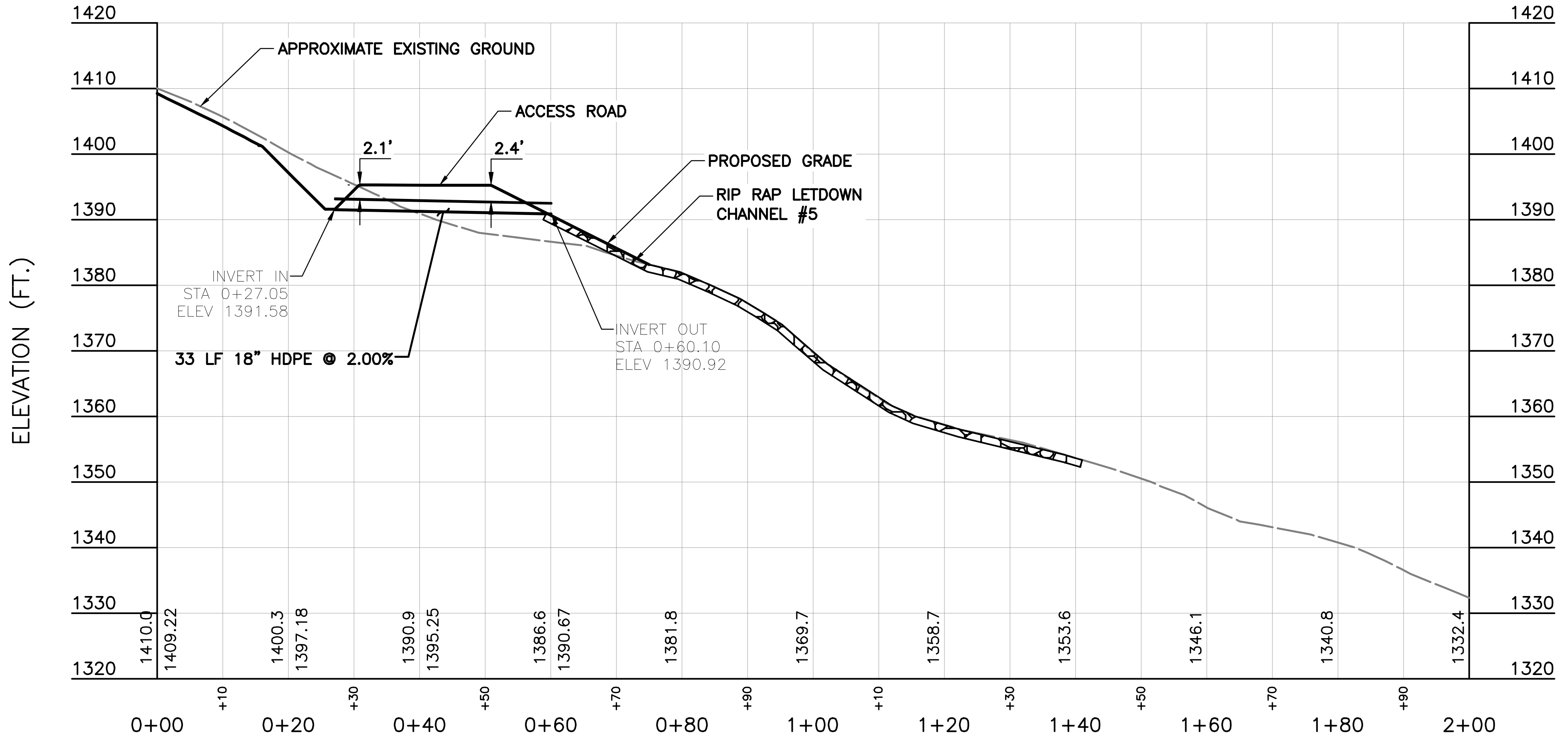

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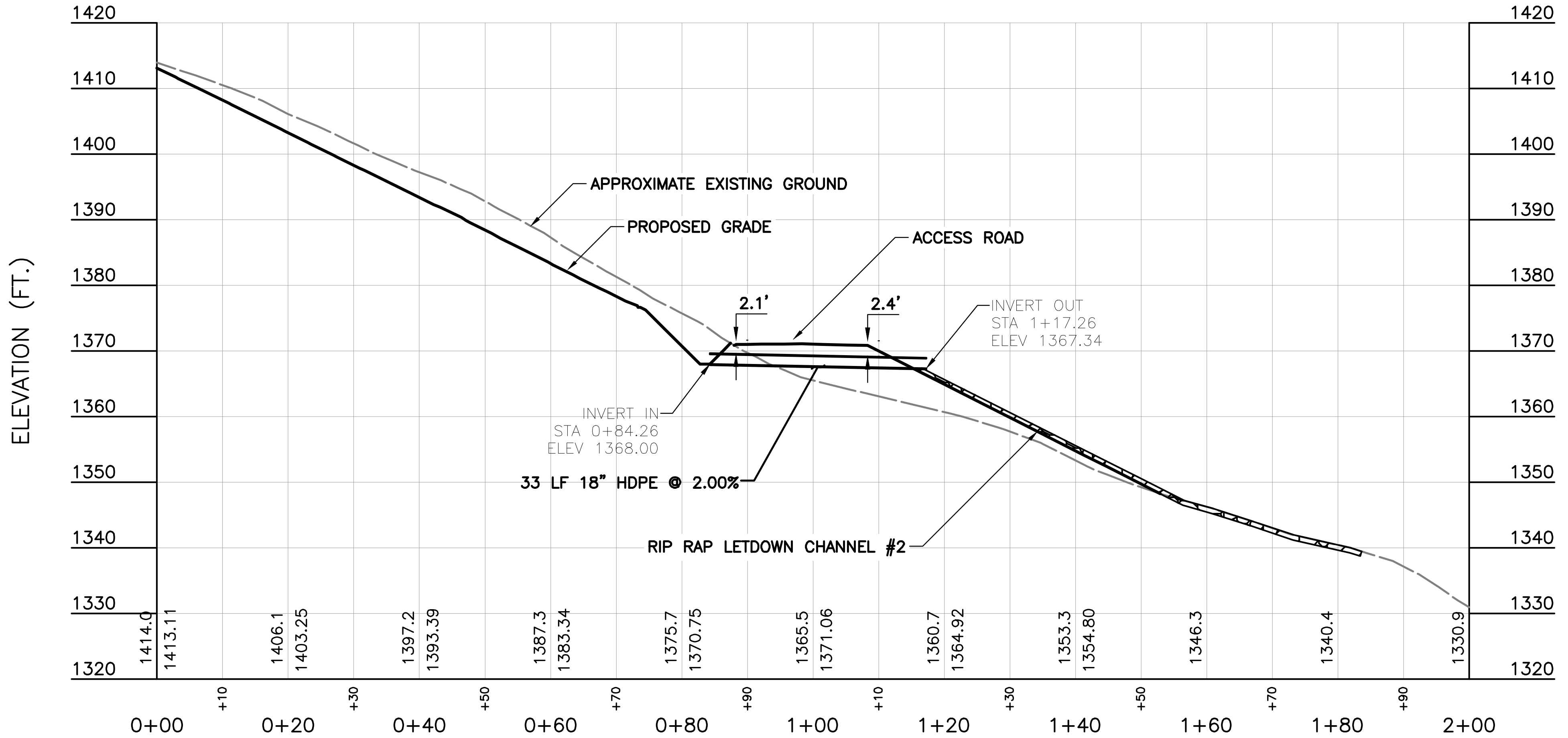

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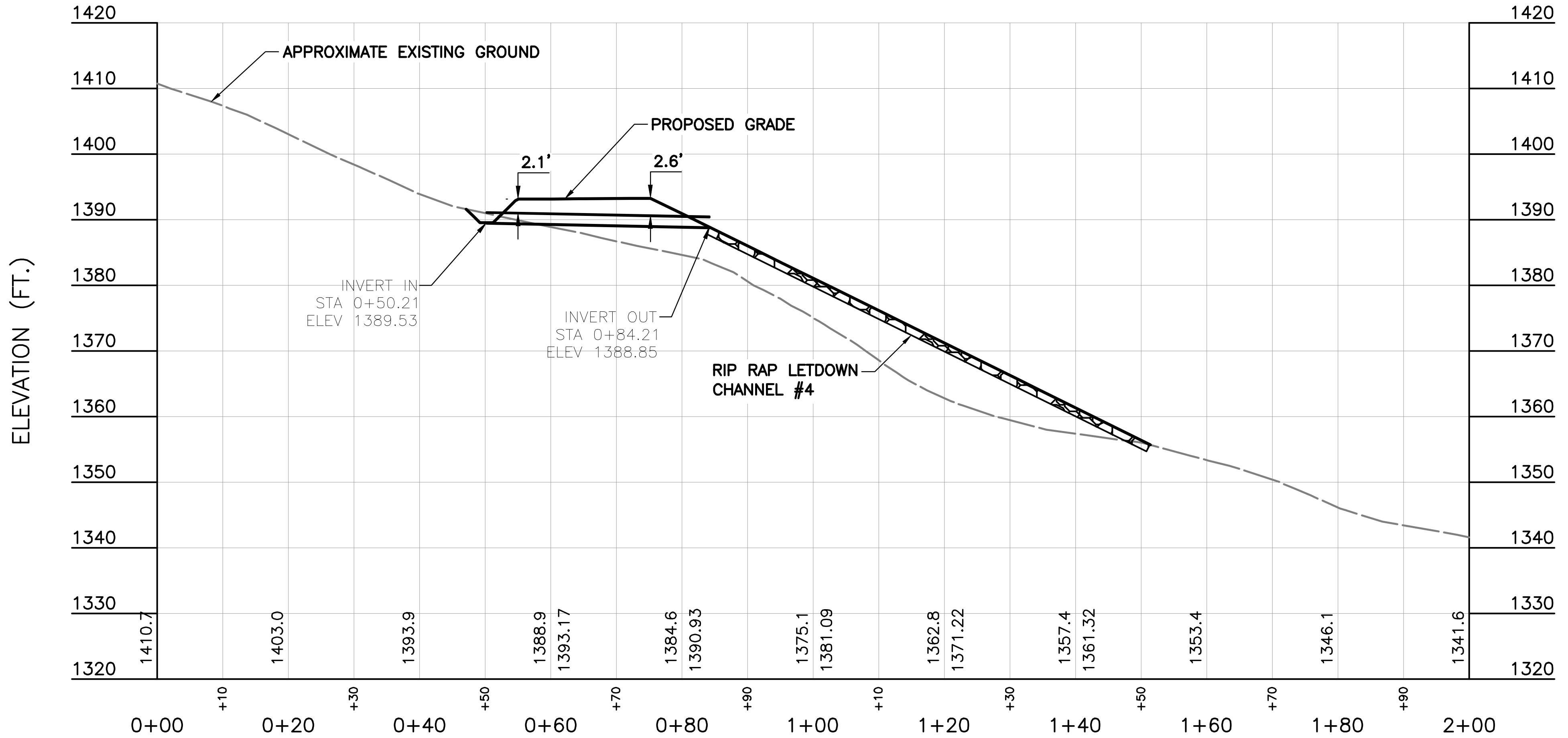

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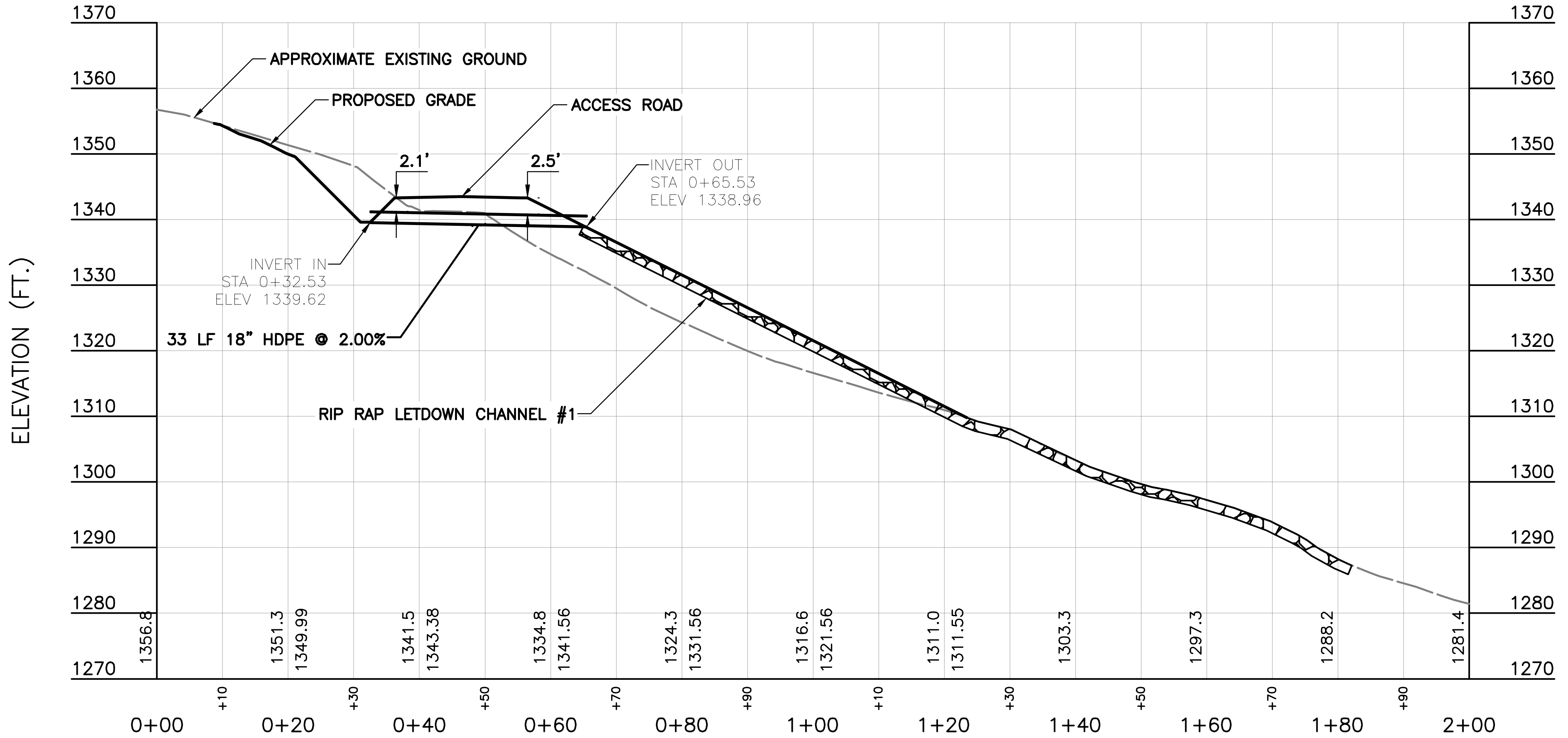

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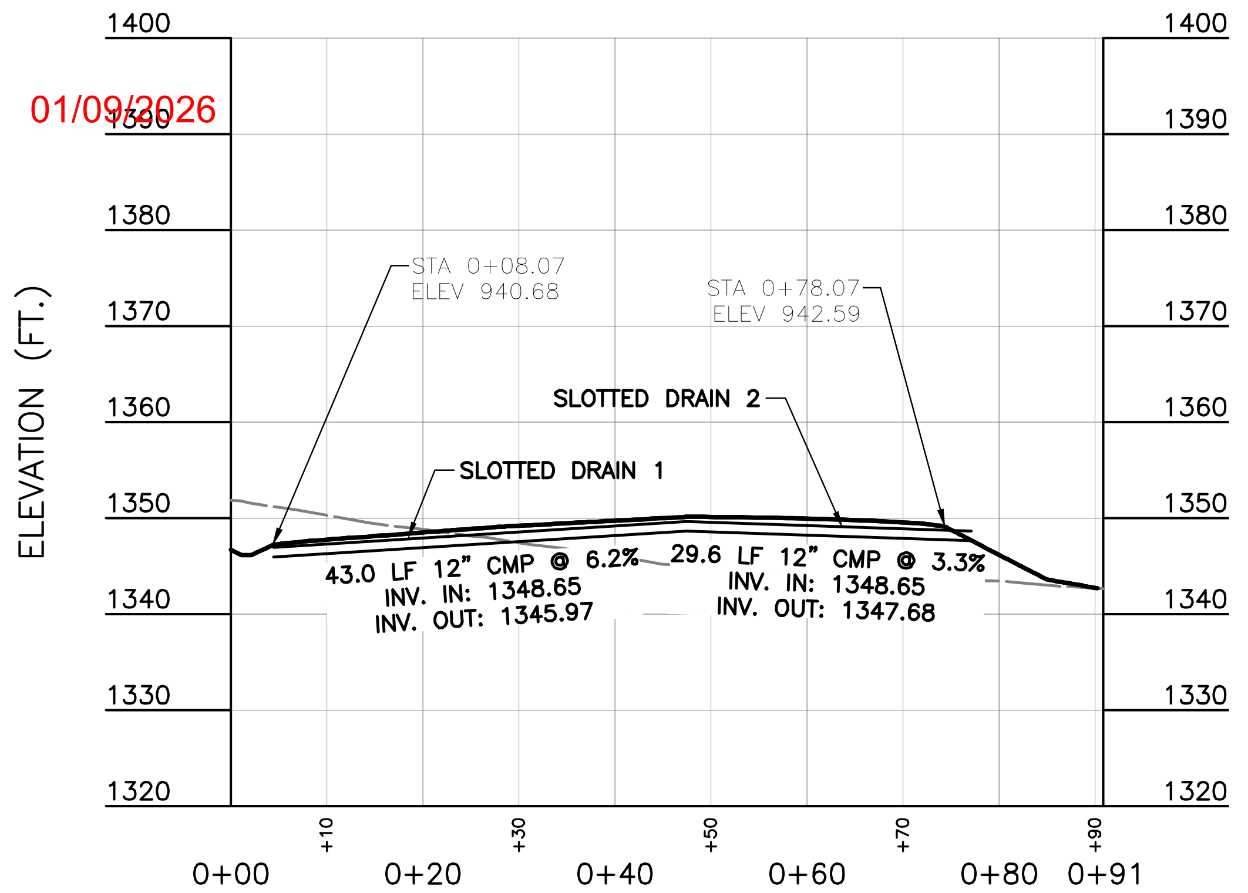

SLOTTED DRAIN

APPROVED
WVDEP OOG
Modification
1/5/2026

SCALE IN FEET (HORIZONTAL)
0 20 40

SCALE IN FEET (VERTICAL)
0 20 40

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
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Civil & Environmental
Consultants, Inc.

ANTERO RESOURCES
CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

CULVERT PROFILES

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: 1"=30'
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.: C617

SHEET 27 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C600.dwg{C617} LS:(9/3/2025 - jspriggs) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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TEMPORARY SEEDING:

A. GENERAL CONDITIONS WHERE PRACTICE APPLIES.
WHERE EXPOSED SOIL SURFACES ARE NOT TO BE FINE–GRADED OR WORKED FOR PERIODS LONGER THAN 21 DAYS. TEMPORARY VEGETATIVE COVER WITH SEDIMENT CONTROLS MUST BE ESTABLISHED WHERE RUNOFF WILL GO DIRECTLY INTO A STREAM. IMMEDIATELY UPON CONSTRUCTION OF THE SITE (SITE INCLUDES ROAD AND LOCATION), VEGETATION MUST BE ESTABLISHED ON ROAD BANK AND LOCATION SLOPES. A PERMANENT VEGETATIVE COVER SHALL BE APPLIED TO AREAS THAT WILL BE LEFT UN–WORKED FOR A PERIOD OF MORE THAN 6 MONTHS.

B. SEED MIXTURES AND PLANTING DATES
REFER TO TABLES IV–(2–4) FOR RECOMMENDED DATES TO ESTABLISH VEGETATIVE COVER AND THE APPROVED LISTS OF TEMPORARY AND PERMANENT PLANT SPECIES, AND PLANTING RATES. TABLE IV–3 GIVES RECOMMENDED TYPES OF TEMPORARY VEGETATION, RATES OF APPLICATION, AND OPTIMUM SEEDING DATES. IN SITUATIONS WHERE ANOTHER COVER IS DESIRED CONTACT THE LOCAL SOIL CONSERVATION DISTRICT FOR SEEDING RECOMMENDATIONS.

C. SEED APPLICATION
APPLY SEED BY BROADCASTING, DRILLING, OR BY HYDROSEEDING ACCORDING TO THE RATES INDICATED IN TABLE IV–3. PERFORM ALL PLANTING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. NECESSARY SITE PREPARATION, ROUGHENING OF THE SOIL SURFACE, SHOULD BE DONE JUST PRIOR TO SEEDING. SEEDBED PREPARATION MAY NOT BE REQUIRED ON NEWLY DISTURBED AREAS.

PERMANENT SEEDING:

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

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

WHEN HYDROSEEDING, SEEDBED PREPARATION MAY NOT BE NECESSARY IF ADEQUATE SITE PREPARATION WAS PERFORMED. INCORPORATE THE APPROPRIATE AMOUNT OF LIME AND/OR FERTILIZER IN THE SLURRY MIX WHEN HYDROSEEDING.

WHEN HYDROSEEDING, FIRST MIX THE LIME, FERTILIZER, AND HYDRO–MULCH IN THE RECOMMENDED AMOUNT OF WATER. MIX THE SEED AND INOCULANT TOGETHER WITHIN ONE HOUR PRIOR TO PLANTING, AND ADD TO THE SLURRY JUST BEFORE SEEDING. APPLY THE SLURRY UNIFORMLY OVER THE PREPARED SITE. ASSURE THAT AGITATION IS CONTINUOUS THROUGHOUT THE SEEDING OPERATION AND THAT THE MIX IS APPLIED WITHIN ONE HOUR OF INITIAL MIXING.

B. LIME AND FERTILIZER
LIME SHALL BE APPLIED TO ALL PERMANENT SEEDINGS. THE PH OF THE SOIL IS TO BE DETERMINED AND LIME APPLIED ACCORDINGLY. ONCE THE PH IS KNOWN, SELECT THE AMOUNT OF LIME TO BE APPLIED FROM TABLE IV–5.

FERTILIZER SHALL BE APPLIED IN ALL PERMANENT SEEDINGS. APPLY THE EQUIVALENT OF 500 LBS. MINIMUM 10–20–20 FERTILIZER PER ACRE OR USE THE AMOUNT OF FERTILIZER AND LIME RECOMMENDED BY A CERTIFIED SOIL TEST.

APPLICATION: FOR BEST RESULTS AND MAXIMUM BENEFITS THE LIME AND FERTILIZER ARE TO BE APPLIED AT THE TIME OF SEEDBED PREPARATION

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

NOTES:
ALL LEGUMES MUST BE PLANTED WITH THE PROPER INOCULANT PRIOR TO SEEDING.

'LATHCO' FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK.

ONLY ENDOPHYTE FREE VARIETIES OF TALL FESCUE SHOULD BE USED. TALL FESCUE AND CROWNVETCH ARE ALSO A VERY INVASIVE SPECIES NON–NATIVE TO WV.

FOR UNPREPARED SEEDBEDS OR SEEDING OUTSIDE THE OPTIMUM TIMEFRAME, ADD 50% MORE SEED TO THE SPECIFIED MIXTURES IN TABLE 4B ARE MORE WILDLIFE AND FARM–FRIENDLY; THOSE LISTED IN BOLD ARE SUITABLE FOR USE IN SHADED WOODLAND SETTINGS. MIXTURES IN ITALICS ARE SUITABLE FOR USE IN FILTER STRIPS.

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

MULCHING:

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

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

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

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

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

WHEN USED ALONE MOST CHEMICAL MULCHES DO NOT HAVE THE CAPABILITY TO INSULATE THE SOIL OR RETAIN SOIL MOISTURE THAT ORGANIC MULCHES HAVE.

C. SPECIFICATIONS:
FROM TABLE IV–6 SELECT THE TYPE OF MULCH AND RATE OF APPLICATION THAT WILL BEST SUIT THE CONDITIONS AT THE SITE.

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

MECHANICAL ANCHORING
APPLY MULCH AND PULL A MULCH ANCHORING TOOL OVER THE MULCH. WHEN A DISK IS USED, SET THE DISK STRAIGHT AND PULL ACROSS THE SLOPE. MULCH MATERIAL SHOULD BE TUCKED INTO THE SOIL ABOUT THREE INCHES.

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

TABLE IV–1 – RECOMMENDED SEEDING DATES FOR PERMANENT AND TEMPORARY COVER

PLANTING DATES	SUITABILTY
MARCH 1 – APRIL 15 AND AUGUST 1 – OCTOBER 1	BEST SEEDING PRERIODS
APRIL 15 – AUGUST 1	HIGH RISK – MOISTURE STRESS LIKELY
OCTOBER 1 – DECEMBER 1	HIGH RISK – FREEZE DAMAGE TO YOUNG SEEDLINGS
DECEMBER 1 – MARCH 1	GOOD SEEDING PERIOD. DORMANT SEEDING

TABLE IV–2 – ACCEPTABLE FERTILIZATION RECOMMENDATION IN ABSENCE OF A SOIIL TEST

SPECIES	N (LBS/AC)	P205 (LBS/AC)	K20 (LBS/AC)	EXAMPLE REC. (PER ACRE)
COOL SEASON GRASS	40	80	80	400 LBS. 10–20–20
CS GRASS & LEGUME	30	60	60	300 LBS. 10–20–20
TEMPORARY COVER	40	40	40	200 LBS. 19–19–19

TABLE IV-3 - TEMPORARY COVER SUITABLE FOR ESTABLISHMENT IN WEST VIRGINIA

SPECIES	SEEDING RATE (LBS/AC)	OPTIMUM SEEDING DATES	DRAINAGE	PH RANGE
ANNUAL RYEGRASS	40	3/1 – 6/15 OR 8/15 – 9/15	WELL – POORLY	5.5 – 7.5
FIELD BROMEGRASS	40	3/1 – 6/15 OR 8/15 – 9/15	WELL – MOD. WELL	6.0 – 7.0
SPRING OATS	96	3/1 – 6/15	WELL – POORLY	5.5 – 7.0
SUDANGRASS	40	5/15 – 8/15	WELL – POORLY	5.5 – 7.5
WINITER RYE	168	8/15 – 10/15	WELL – POORLY	5.5 – 7.5
WINTER WHEAT	180	8/15 – 11/15	WELL – MOD. WELL	5.5 – 7.0
JAPANESE MILLET	30	6/15 – 8/15	WELL	4.5 – 7.0
REDTOP	5	3/1 – 6/15	WELL	4.0 – 7.5
ANNUAL RYEGRASS	26	3/1 – 6/15	WELL – POORLY	5.5 – 7.5
SPRING OATS	64	3/1 – 6/15	WELL – POORLY	5.5 – 7.5

NOTE: THESE RATES SHOULD BE INCREASED BY 50% IF PLANTED APRIL 15 – AUGUST 1 AND OCTOBER 1 – MARCH 1

TABLE IV–4A – PERMANENT SEEDING MIXTURES SUITABLE FOR ESTABLISHMENT IN WEST VIRGINIA

SPECIES/MIXTURE	SEEDING RATE (LBS/AC)	SOIL DRAINAGE PREFERENCE	PH RANGE
CROWNVETCH/ TALL FESCUE	10 – 15 30	WELL – MOD. WELL	5.0 – 7.5
CROWNVETCH/ PERENNIAL RYEGRASS	10 – 15 20	WELL – MOD. WELL	5.0 – 7.5
FLATPEA OR PERENNIAL PEA/ TALL FESCUE	**20 15**	**WELL - MOD. WELL**	**4.0 - 8.0**
LADINO CLOVER/ SERECIA LESPEDEZA/ TALL FESCU	30 25 2	WELL – MOD. WELL	4.5 – 7.5
TALL FESCUE/ LADINO CLOVER/ REDTOP	*40 3 3*	*WELL – MOD. WELL*	*5.0 – 7.5*
CROWNVETCH/ TALL FESCUE/ REDTOP	10 20 3	WELL – MOD. WELL	5.0 – 7.5
TALL FESCUE/ BIRDSFOOT TREFOIL/ REDTOP	40 10 3	WELL – MOD. WELL	5.0 – 7.5
SERICEA LESPEDEZA/ TALL FESCUE/ REDTOP	25 30 3	WELL – MOD. WELL	4.5 – 7.5
REDTOP/ TALL FESCUE/ CREEPING RED	30 3 50	WELL – MOD. WELL	5.0 – 7.5
TALL FESCUE	*50*	*WELL – POORLY*	*4.5 – 7.5*
PERENNIAL RYEGRASS/ TALL FESCUE/ LATHCO FLATPEA *	**10 15 20**	**WELL - POORLY**	**5.0 - 8.0**
ANNUAL RYEGRASS/ ** CLIMAX TIMOTHY/ BESTFOR INTERMEDIATE RYEGRASS/ POTOMAC ORCHARDGRASS/ MEDIUM RED CLOVER (COATED)	30 25 20 15 10	WELL – MOD. WELL	6.0 – 7.0

NOTE: MIXTURES LISTED IN BOLD ARE SUITABLE FOR USE IN SHADED WOODLAND SETTINGS; THOSE IN ITALICS ARE SUITABLE FOR USE IN FILTER STRIPS.

NOTE: FOR UNPREPARED SEEDBEDS OR SEEDING OUTSIDE THE OPTIMUM TIMEFRAMES, ADD 50% MORE SEED TO THE SPECIFIED RATE

* LATHCO' FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK ALL LEGUMES SHOULD BE PLANTED WITH PROPER INOCULANTS PRIOR TO SEEDING.

** SWISHER MEADOW MIX

01/09/2026

TABLE IV–4B – MORE WILDLIFE AND FARM FRIENDLY MIXTURES

SPECIES/MIXTURE	SEEDING RATE (LBS/AC)	SOIL DRAINAGE PREFERENCE	PH RANGE
KY BLUEGRASS/ REDTOP/ LADINO CLOVER OR BIRDSFOOT TREFOIL	20 3 2/10	WELL – MOD. WELL	5.5 – 7.5
TIMOTHY/ ALFALFA	5 12	WELL – MOD. WELL	6.5 – 8.0
TIMOTHY/ BIRDSFOOT TREFOIL	5 8	WELL – POORLY	5.5 – 7.5/8
ORCHARDGRASS/ LADINO CLOVER/ REDTOP	*10 2 3*	*WELL – MOD. WELL*	*5.5 – 7.5*
ORCHARDGRASS/ LADINO CLOVER	*10 2*	*WELL – MOD. WELL*	*5.5 – 7.5*
ORCHARDGRASS/ PERENNIAL RYEGRASS	*20 10*	*WELL – MOD. WELL*	*5.5 – 7.5*
CREEPING RED FESCUE/ PERENNIAL RYEGRASS	**30 10**	**WELL - MOD. WELL**	**5.5 - 7.5**
ORCHARDGRASS OR KENTUCKY BLUEGRASS	20	WELL – MOD. WELL	6.0 – 7.5
BIRDSFOOT TREFOIL/ REDTOP/ ORCHARDGRASS	10 5 20	WELL – MOD. WELL	5.5 – 7.5
LATHCO FLAT PEA */ PERENNIAL RYEGRASS	**30 20**	**WELL - MOD. WELL**	**5.5 - 7.5**
LATHCO FLAT PEA */ ORCHARDGRASS	30 20	WELL – MOD. WELL	5.5 – 7.5

NOTE: MIXTURES LISTED IN BOLD ARE SUITABLE FOR USE IN SHADED WOODLAND SETTINGS; THOSE IN ITALICS ARE SUITABLE FOR USE IN FILTER STRIPS.

NOTE: * 'LATHCO' FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK ALL LEGUMES SHOULD BE PLANTED WITH PROPER INOCULANTS PRIOR TO SEEDING.

NOTE: FOR UNPREPARED SEEDBEDS OR SEEDING OUTSIDE THE OPTIMUM TIMEFRAMES, ADD 50% MORE SEED TO THE SPECIFIED RATE

TABLE IV–5 LIME AND FERTILIZER APPLICATION

PH OF SOIL	LIME IN TONS PER ACRE	FERTILIZER, LBS./ACRE 10–20–20 OR EQUIVALENT
ABOVE 6.0	2	500
5.0 TO 6.0	3	500
BELOW 5.0	4	500

NOTE: THE PH CAN BE DETERMINED WITH A PORTABLE PH TESTING KIT OR BY SENDING THE SOIL SAMPLES TO A TESTING LABORATORY. WHEN 4 TONS OF LIME PER ACRE ARE APPLIED IT MUST BE INCORPORATED INTO THE SOIL BY DISKING, BACKBLADING, OR TRACKING UP AND DOWN THE SLOPE.

TABLE IV–6 – MULCH MATERIALS RATES AND USES

MATERIAL	MINIMUM RATES PER ACRE	COVERAGE	REMARKS
HAY OR STRAW	2 TO 3 TONS 100 TO 150 BALES	COVER 75% TO 90% OF SURFACE	SUBJECT TO WIND BLOWING OR WASHING UNLESS TIED DOWN
WOOD FIBER PULP FIBER WOOD–CELLULOSE RECIRCULATED PAPER	1000 TO 1500 BALES	COVER ALL DISTURBED AREAS	FOR HYDROSEEDING

HALL'S #1 PASTURE MIXTURE

SPECIES/CONTAINS	PURE SEED	GERM	ORIGIN
BESTFOR INTERMEDIATE RYEGRASS	29.95%	90.00%	OR
CLIMAX TIMOTHY	24.96%	90.00%	CAN
ANNUAL RYEGRASS *	24.92%	90.00%	OR
MEDIUM RED CLOVER	9.99%	90.00%	OR
POTOMAC ORCHARDGRASS	9.46%	90.00%	OR
OTHER CROP SEEDS	0.01%		* VARIETY NOT STATED
INERT MATTER	0.69%		AMS: 5143
WEED SEEDS	0.02%		

APPROVED
WVDEP OOG
Modification
1/5/2026

JOSEPH D. ROBINSON
19756

REVISION RECORD

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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

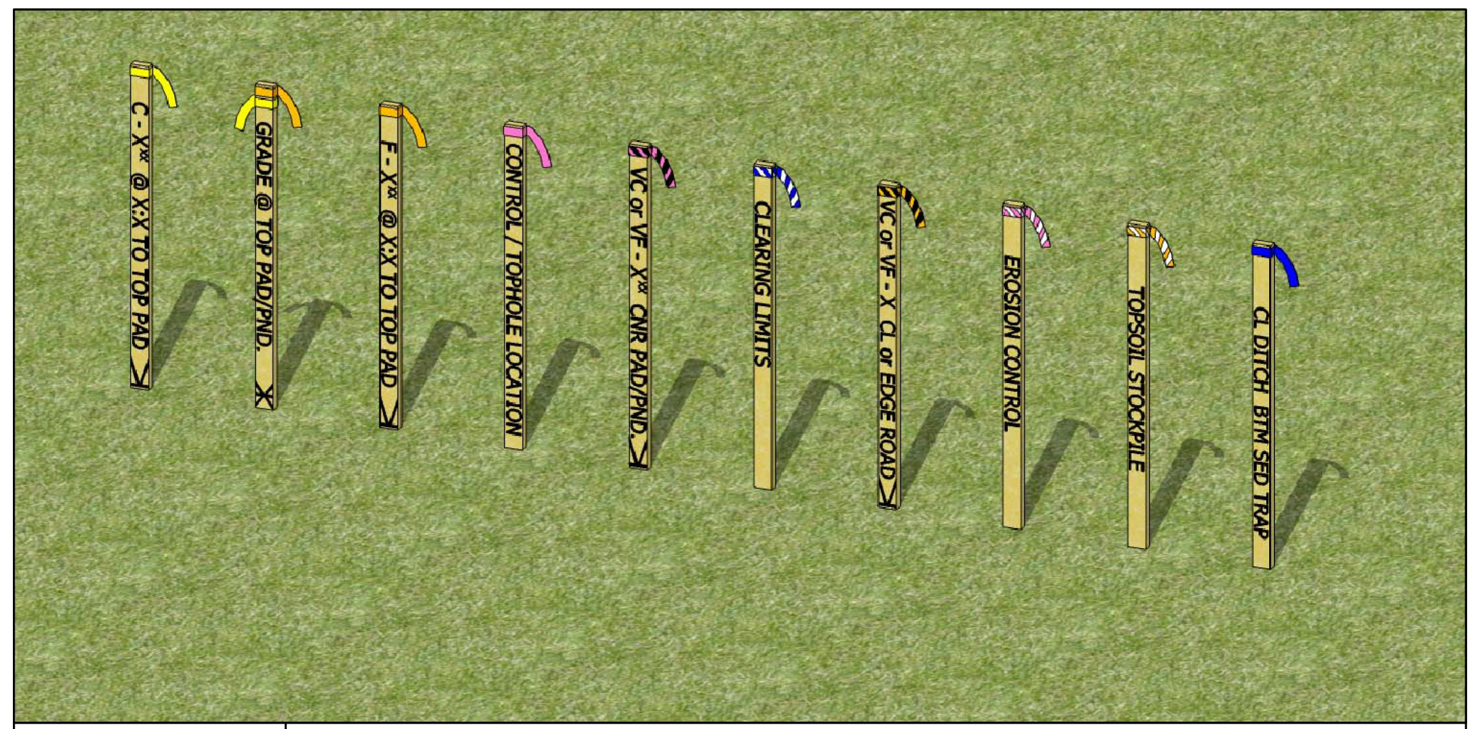
DETAILS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: N/A
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.: C800
SHEET 28 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C800.dwg{C800} LS:(10/22/2025 – jwilkins) – LP: 11/11/2025 10:20 AM

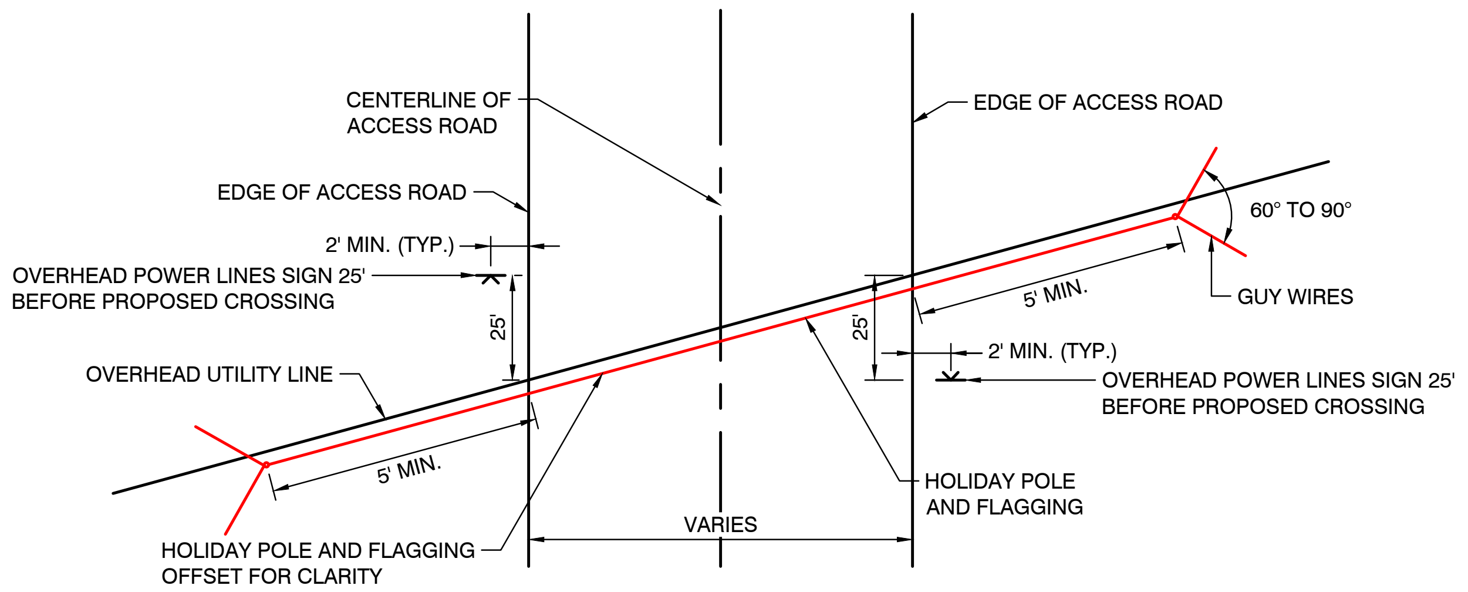
HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

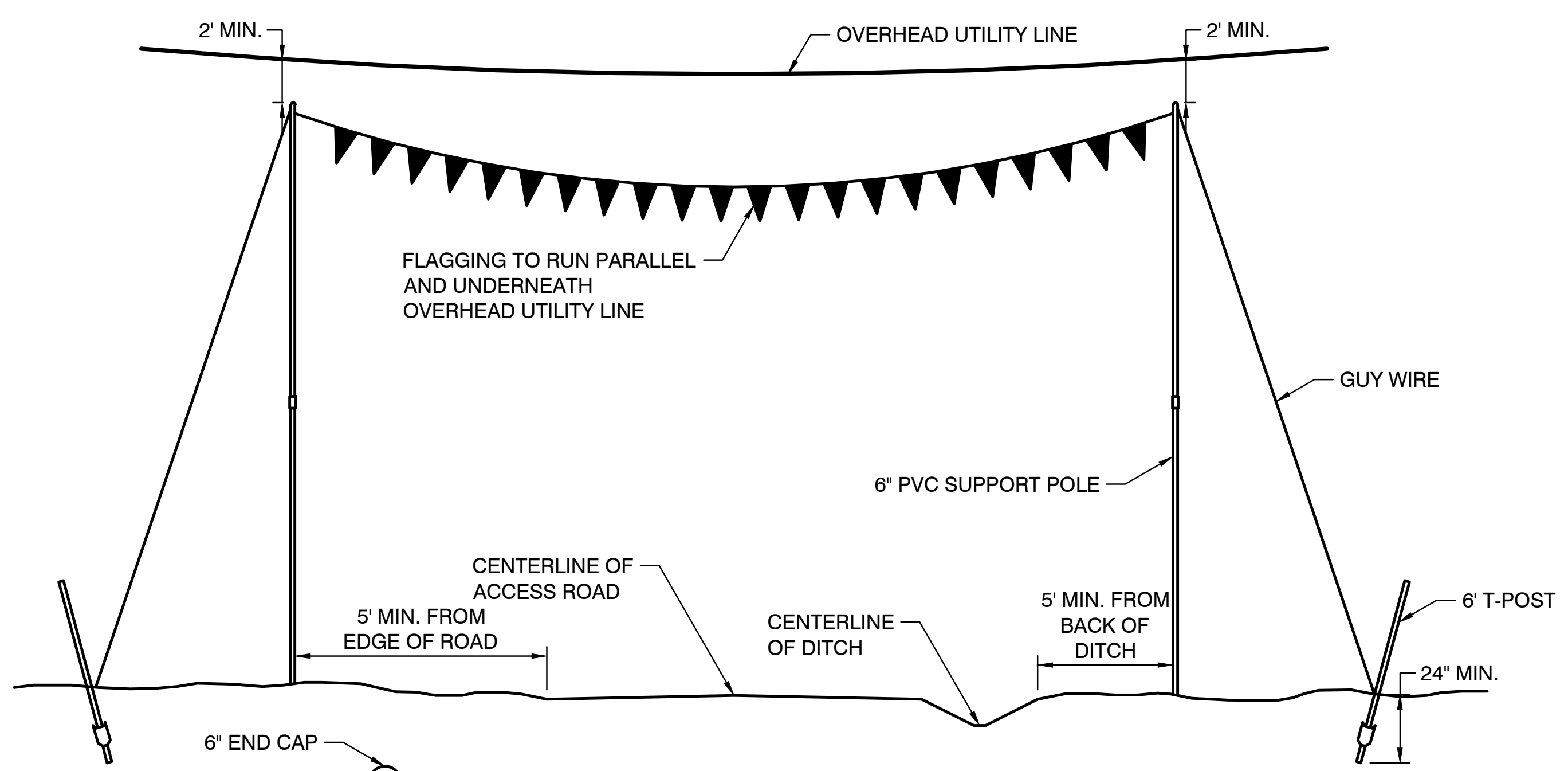


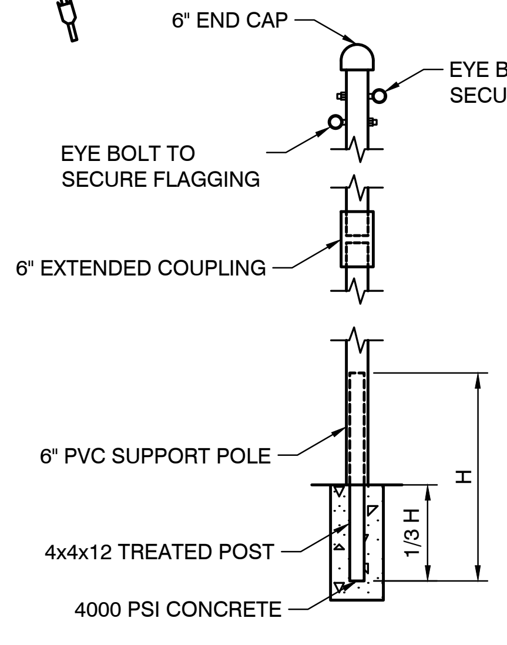
🟨	Yellow Ribbon: Yellow Ribbon used to indicate top of Cuts (C) Cut to be determined at time of stakeout Slope determined by site design
🟧 🟨	Yellow & Orange Ribbon: Yellow and Orange Ribbon used to indicate Grade at Top of Pad/Pond/Pit
🟧	Orange Ribbon: Orange Ribbon used to indicate toes of Fills (F)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

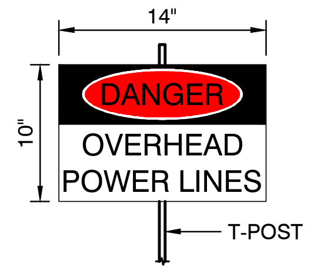
DETAIL 2
STANDARD STAKEOUT RIBBON COLOR SCHEME

NOT TO SCALE







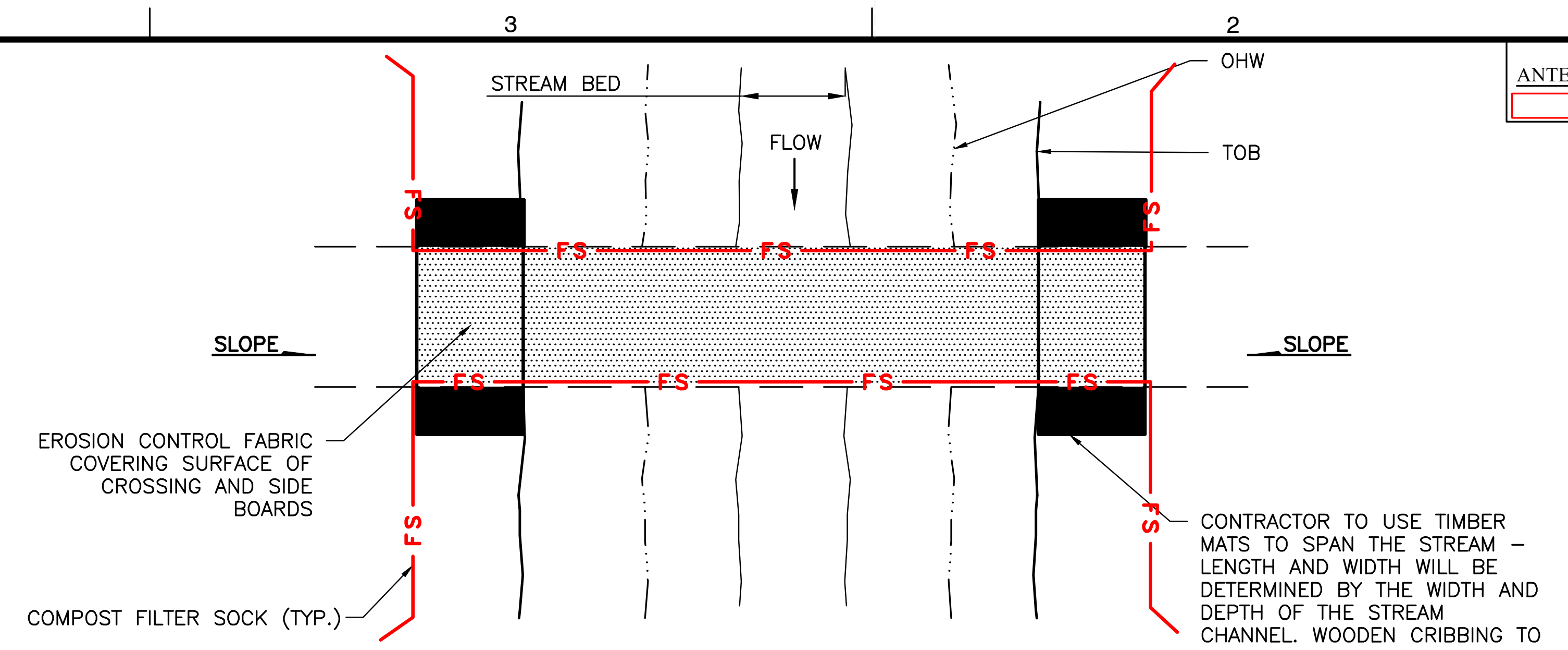


NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING AND MAINTAINING HOLIDAY POLES OR OVERHEAD WIRE NOTIFICATION DEVICES AT LOCATIONS WHERE CONSTRUCTION TRAFFIC SHALL CROSS UNDERNEATH ANY OVERHEAD UTILITY LOCATIONS. SEE UTILITY RELOCATION PLANS FOR ANTICIPATED UTILITY POLE AND OVERHEAD UTILITY LOCATIONS.
2. THE CONTRACTOR SHALL COORDINATE WITH ANTERO'S UTILITY COORDINATOR AND THE UTILITY CONTRACTOR PRIOR TO THE INSTALLATION OF UTILITY POLES AND OVERHEAD WIRES. UTILITY POLE INSTALLATIONS SHOULD BE LOCATED OUTSIDE OF PROPOSED TOE KEY AND FILL FOUNDATION KEY DRAIN LOCATIONS. SEE PLANS AND DETAILS FOR THE LOCATIONS AND COMPOSITION OF THE TOE KEY ELEMENTS.

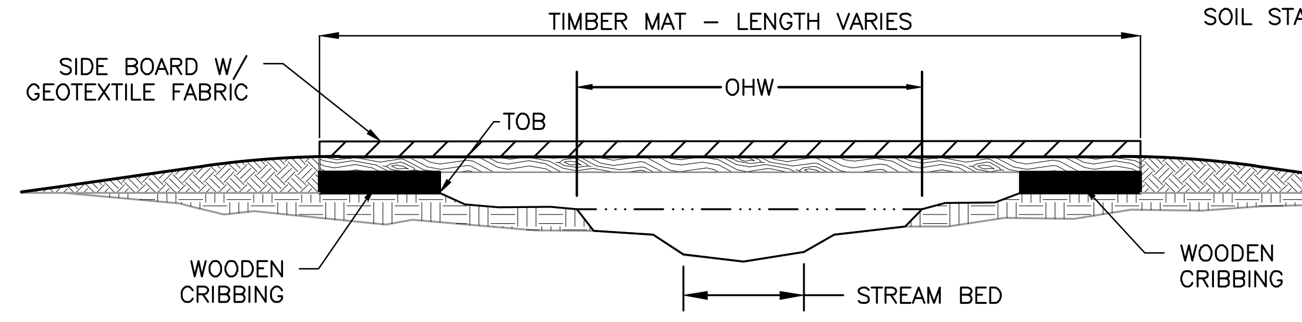
DETAIL 3
OVERHEAD UTILITY HOLIDAY POLE DETAIL

NOT TO SCALE



PLAN VIEW

NOT TO SCALE



PROFILE VIEW

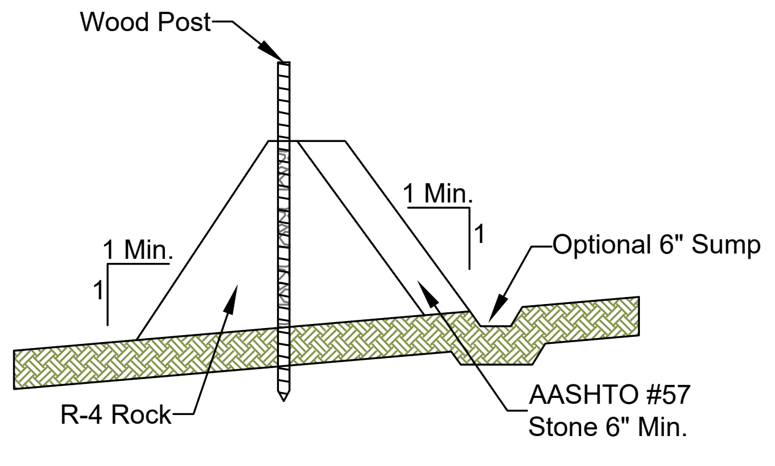
NOT TO SCALE

NOTES

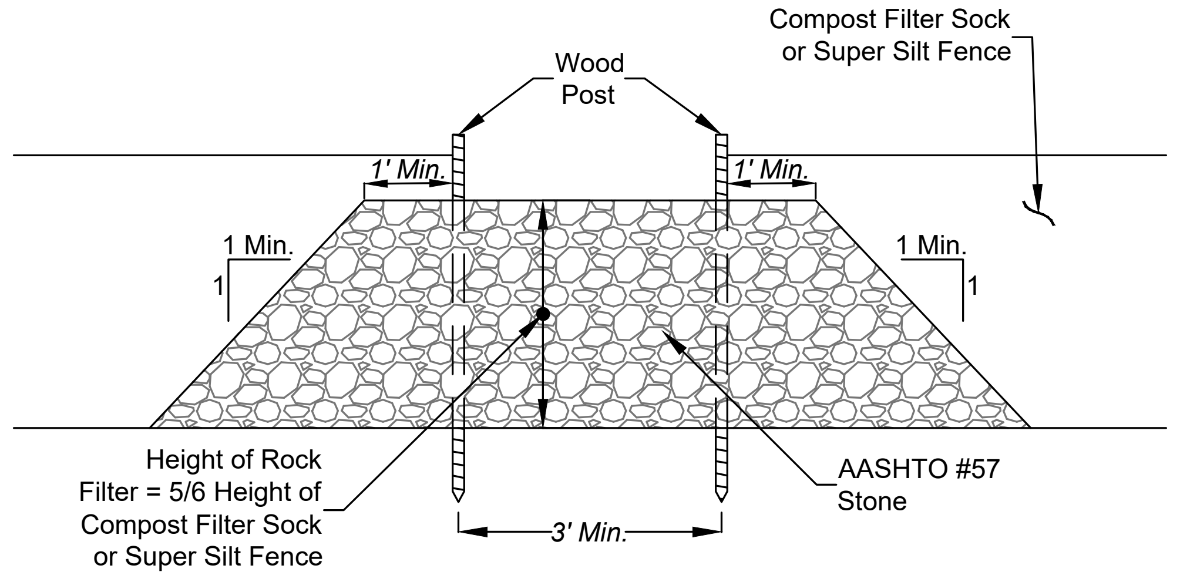
1. WOODEN CRIBBING SUPPORTS TO BE USED TO SUPPORT THE TEMPORARY TIMBER MATS. WOODEN CRIBBING AND TIMBER MATS TO BE AT AN ELEVATION ACROSS STREAM CHANNEL TO KEEP THE PROPOSED EQUIPMENT CROSSING OUT OF THE ORDINARY HIGH WATERMARK. WOODEN CRIBBING WILL BE A MINIMUM OF 8 IN x 8 IN CROSS SECTION WITH A LENGTH THAT EXTENDS AT LEAST ONE FOOT BEYOND THE WIDTH OF THE TIMBER MATS.
2. DETAIL SHOWS MINIMUM ENVIRONMENTAL REQUIREMENTS, CONTRACTOR NEEDS TO EVALUATE STRUCTURAL ELEMENTS OF BRIDGE DEPENDING UPON THE INTENDED USE.

DETAIL 4
TEMPORARY STREAM CROSSING

NOT TO SCALE



Outlet Cross Section



Upslope Face

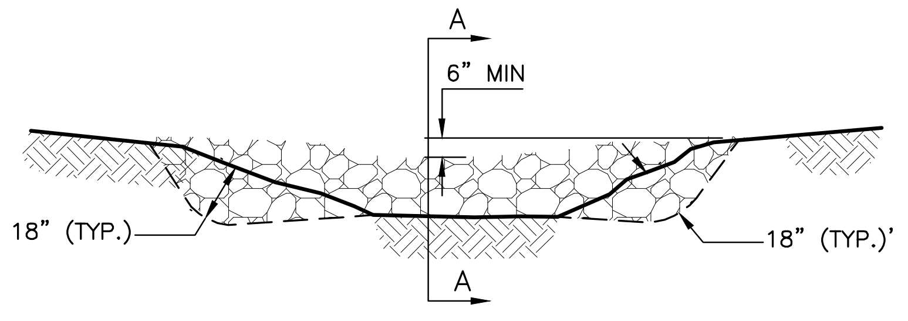
Notes:

1. A Rock Filter Outlet shall be installed where failure of Super Silt Fence or Compost Filter Sock has or may occur due to conentrated flow.
2. Sediment shall be removed when accumulations reach 1/3 the height of the outlet.

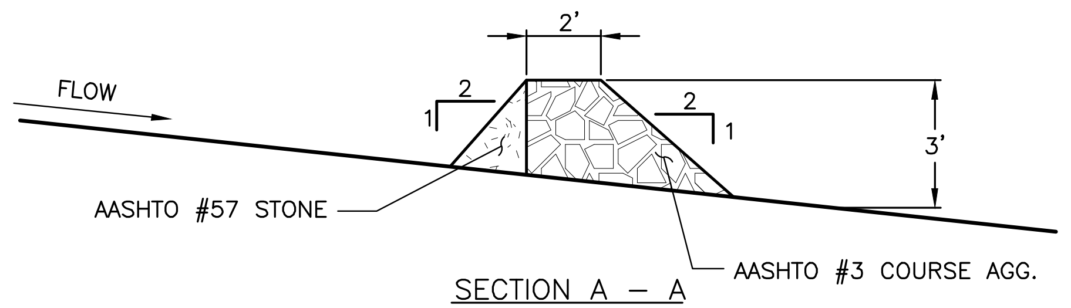
(Modified) Source: Pennsylvania Erosion and Sediment Pollution Control Manual.

DETAIL 5
ROCK FILTER OUTLET

NOT TO SCALE

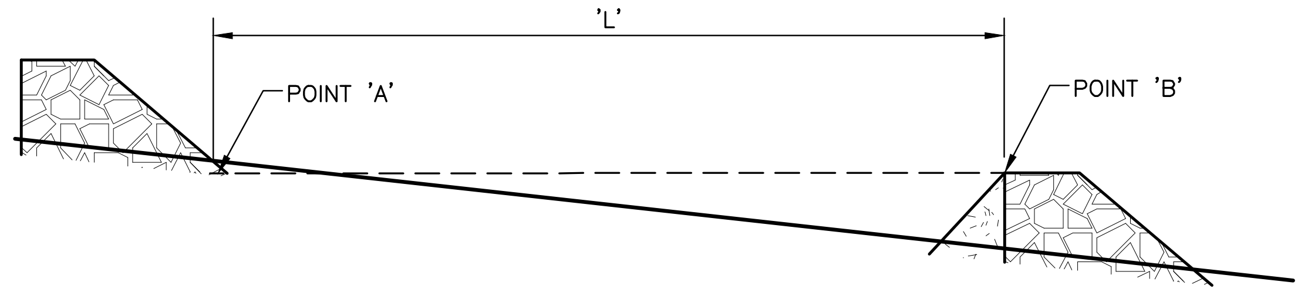


VIEW LOOKING UPSTREAM



SECTION A – A

'L' = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.



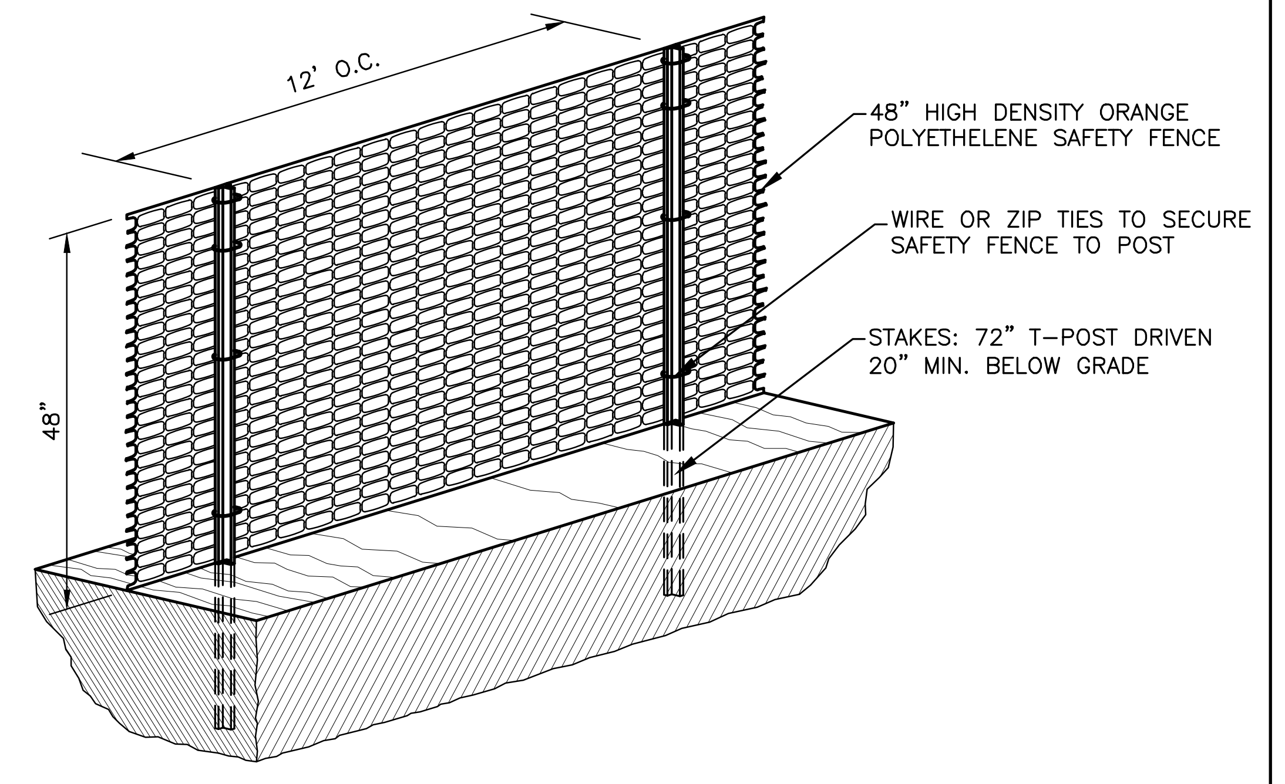
SPACING BETWEEN CHECK DAMS

NOTES:

1. KEY STONE INTO THE DITCH BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT OVER FLOW AROUND DAM.
2. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.
3. IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVAL ROCK FILTER, AND STABILIZE DISTURBED AREAS.
4. REFER TO WV DEP BEST MANAGEMENT PRACTICES FOR OIL AND GAS WELL SITE CONSTRUCTION MANUAL FOR MORE INFORMATION.

DETAIL 6
ROCK CHECK DAM

NOT TO SCALE



NOTES:

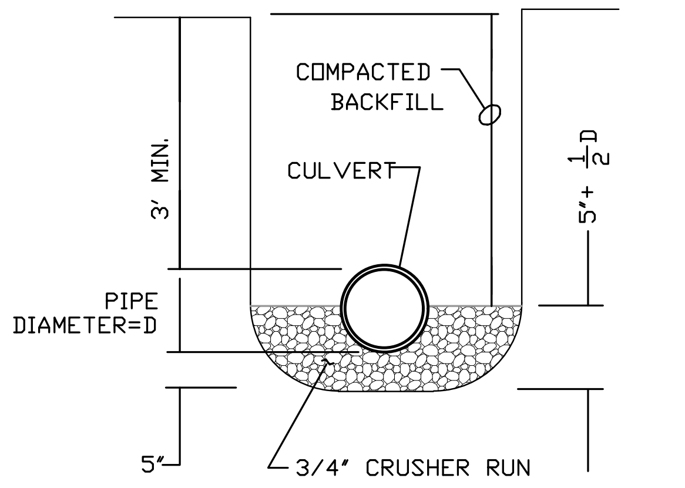
1. ALL SENSITIVE AREAS SHALL BE PROTECTED AS PER PLAN.
2. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE T-POSTS.
3. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED BY THE LAND OWNER.

01/09/2026

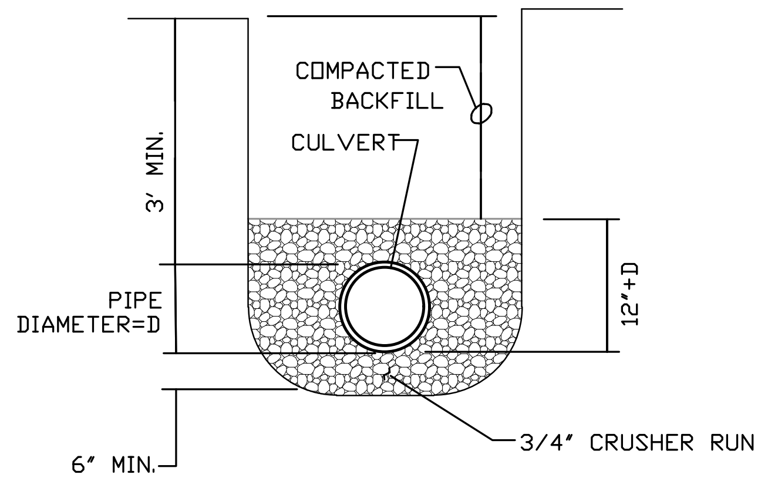
APPROVED
WVDEP OOG
Modification
1/5/2026

DETAIL 7
ORANGE CONSTRUCTION SAFETY FENCE

NOT TO SCALE



BEDDING FOR PIPE NOT IN ROCK



BEDDING FOR PIPE IN ROCK

DETAIL 8
TYPICAL CULVERT BEDDING DETAIL

NOT TO SCALE

BACKFILL AND COMPACTION NOTES:

1. ¾" CRUSHER RUN SHALL BE USED AROUND THE PIPE WITH VOIDS ELIMINATED BY KNIFING UNDER AND AROUND PIPE OR ANOTHER APPROVED METHOD
2. CLEAN FILL MATERIAL SHALL BE USED FOR FURTHER BACKFILL. THE BACKFILL MATERIAL SHOULD BE COMPACTED TO 90% STANDARD PROCTOR DENSITY.
3. INORGANIC SILTS AND CLAY MATERIALS ARE NOT SUITABLE FOR BACKFILL MATERIAL
4. BACKFILL LAYER HEIGHT SHOULD NOT EXCEED ½ THE PIPE DIAMETER
5. BACKFILL AND COMPACTION SPECIFICATIONS DETERMINED USING HANCOR CORRUGATED HDPE PIPE.

JOSEPH D. ROBINSON
19756
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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ANTERO RESOURCES
CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

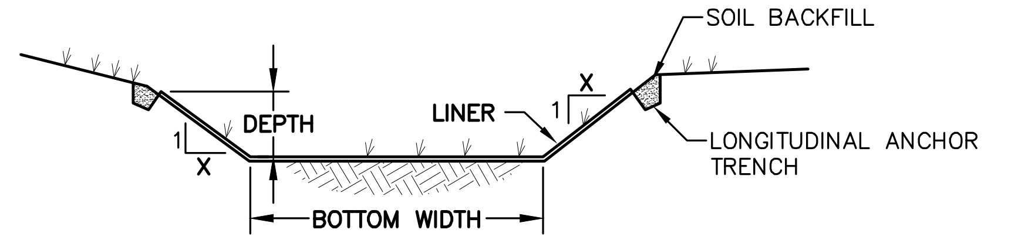
DETAILS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	N/A	CHECKED BY:	ER
PROJECT NO:			336-328
APPROVED BY:			JDR

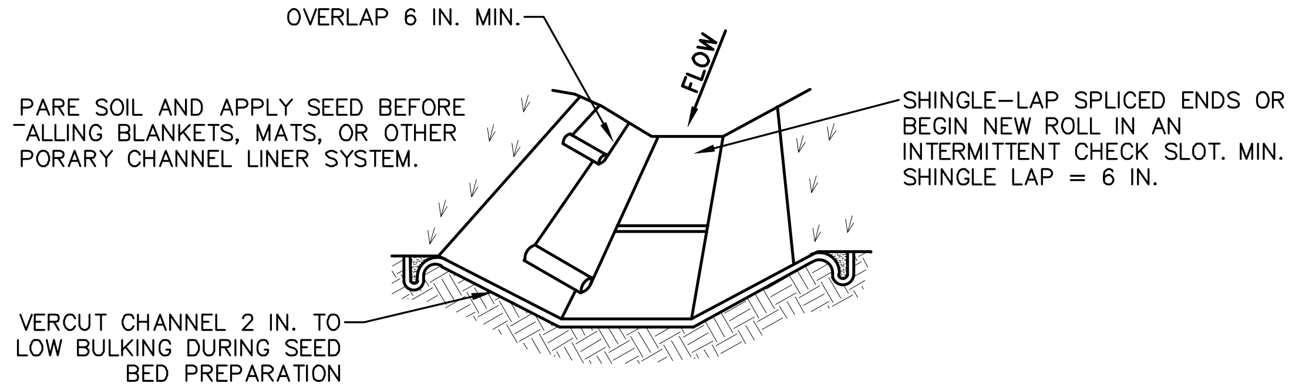
DRAWING NO.:
C801
SHEET 29 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C800.dwg{C801} LS:(10/22/2025 - jwilkins) - LP: 11/11/2025 10:20 AM

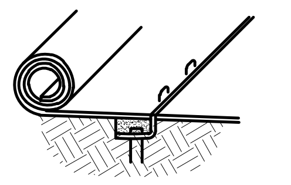
HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



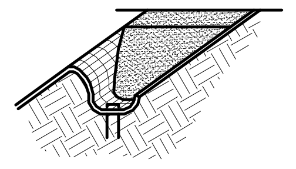
CHANNEL CROSS SECTION



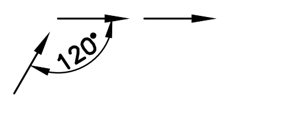
ISOMETRIC VIEW



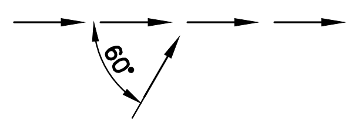
INTERMITTENT CHECK SLOT



LONGITUDINAL ANCHOR TRENCH



10.1 PLAN VIEW



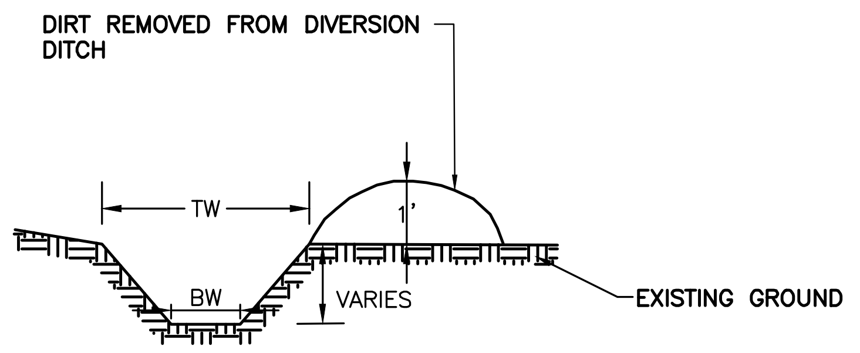
10.2 PLAN VIEW

NOTES:

1. REFER TO DITCH TABLES FOR BOTTOM WIDTH AND DEPTH DIMENSIONS, SIDE SLOPES, TYPE OF LINING, AND MINIMUM FLOW LINE SLOPE FOR EACH DITCH.
2. DITCHES LABELED WITH A "T" ARE TEMPORARY AND SHALL BE REMOVED BEFORE COMPLETION OF THE PROJECT. DITCHES LABELED WITH A "P" ARE PERMANENT AND ARE TO REMAIN UPON COMPLETION OF THE PROJECT.
3. WHEN BW = 0, DITCH IS TO TAKE VEE–DITCH SHAPE.
4. CONTRACTOR SHALL INSTALL DITCH LINING PER MANUFACTURERS SPECIFICATIONS, INCLUDING STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES, AND MULCHING INFORMATION.
5. ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.
6. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
7. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
8. NO MORE THAN ⅓ OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.
9. TEMPORARY CHANNELS INSTALLED AS PART OF PHASE 1 SHOULD BE INSTALLED IN EXISTING GROUND UNLESS OTHERWISE NOTED ON THE PLANS. CHANNELS SHALL BE INSTALLED TO MAINTAIN POSITIVE FLOW TOWARDS TRAPS AND BASINS.
10. ALL DITCHES SHALL HAVE SMOOTH TRANSITIONS AT JUNCTIONS WITH OTHER DITCHES. DITCHES SHOWN ON PLANS ARE SCHEMATIC AND MAY NEED FIELD ADJUSTED TO MEET THE BELOW CRITERIA.
    - 10.1. DITCHES SHALL NOT CHANGE DIRECTIONS AT LESS THAN A 120° ANGLE.
    - 10.2. DITCHES SHALL JOIN OTHER DITCHES AT NO MORE THAN A 60° ANGLE.

DETAIL 9
TYPICAL LINED / VEGETATED CHANNEL

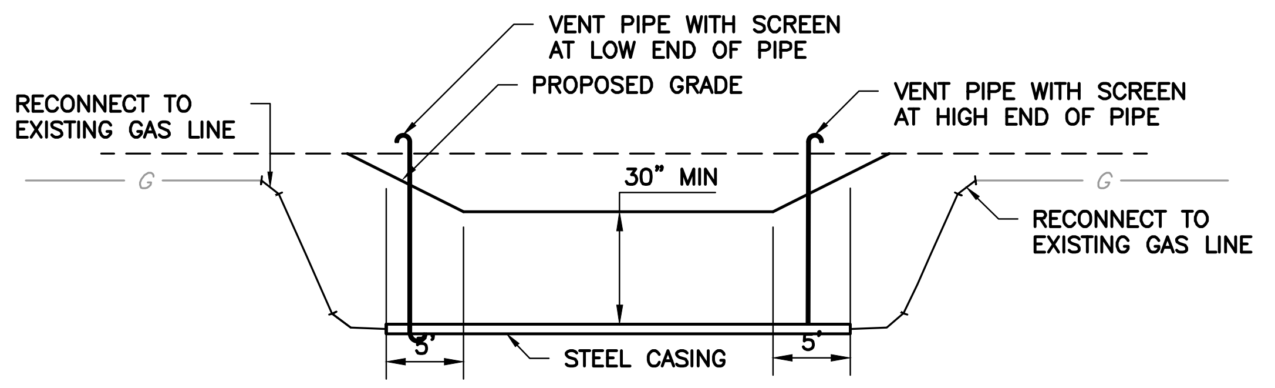
NOT TO SCALE



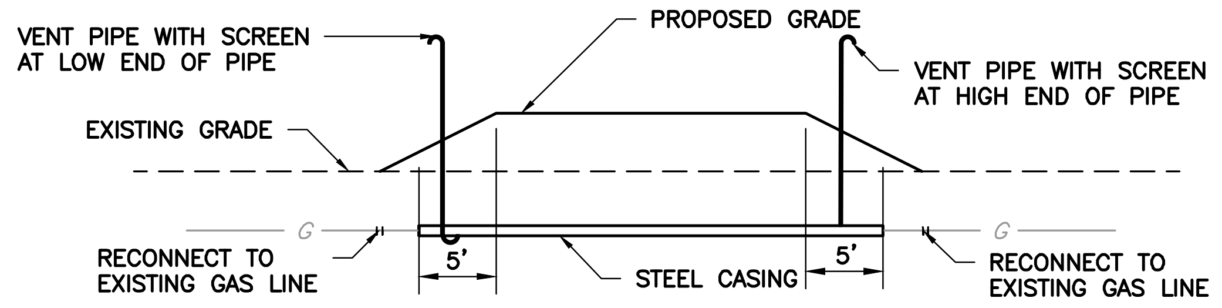
NOTE: DITCH TO HAVE MIN. 1% FLOW LINE GRADE. UNLESS OTHERWISE NOTED

DETAIL 10
TYPICAL DIVERSION DITCH

NOT TO SCALE



TYPICAL GAS LINE CROSSING OF PROPOSED CUT SECTION



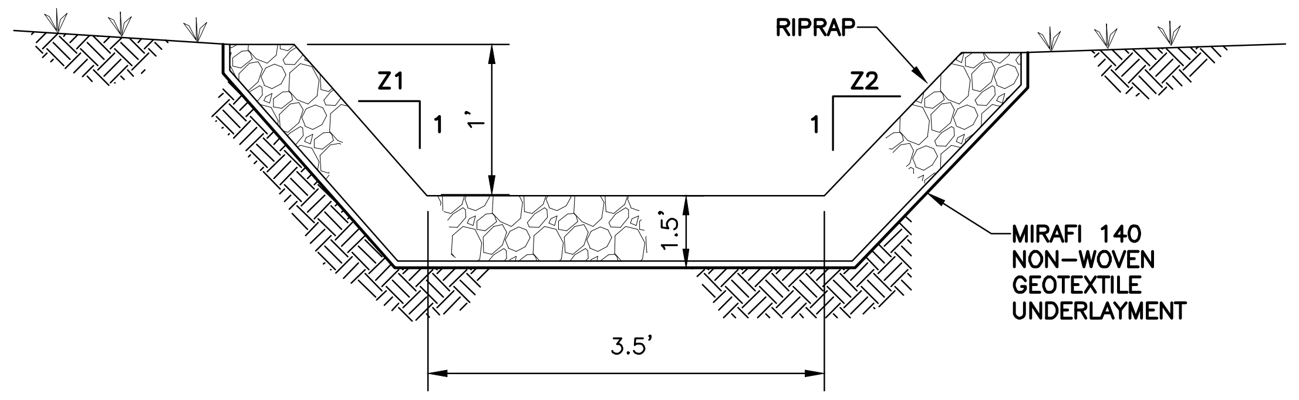
TYPICAL GAS LINE CROSSING OF PROPOSED FILL SECTION

NOTE:
CONTRACTOR TO VERIFY IN FIELD SIZE, DEPTH, AND MATERIAL OF EXISTING GAS LINE

NOTES:
1. STEEL CASING TO EXTEND 5' PAST EDGE OF PROPOSED ACCESS ROAD
2. VENT PIPES TO EXTEND 4' ABOVE FINAL GRADE
3. VENT PIPE WITH SCREEN AT HIGH END OF PIPE TO BE CONNECTED TO SIDE OR TOP OF STEEL CASING
4. VENT PIPE WITH SCREEN AT LOW END TO BE CONNECTED TO SIDE OR BOTTOM OF STEEL CASING

DETAIL 11
TYPICAL GAS LINE CROSSING

NOT TO SCALE



(LOOKING DOWNSTREAM)

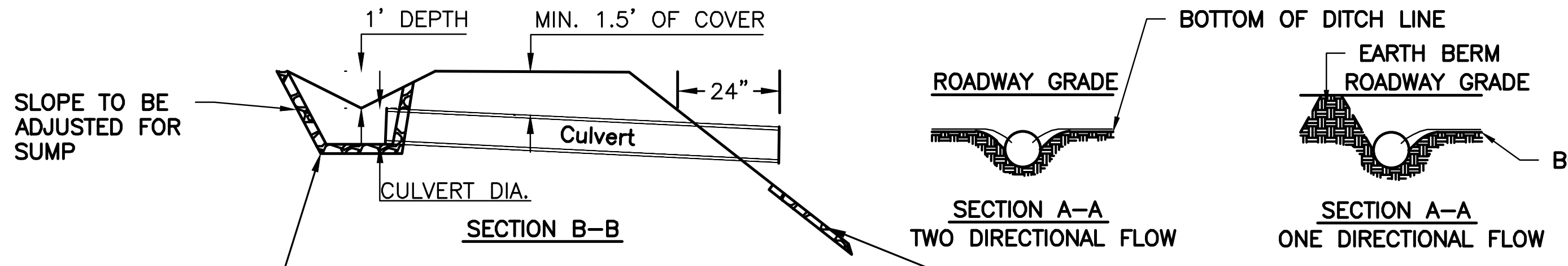
CHANNEL CROSS–SECTION

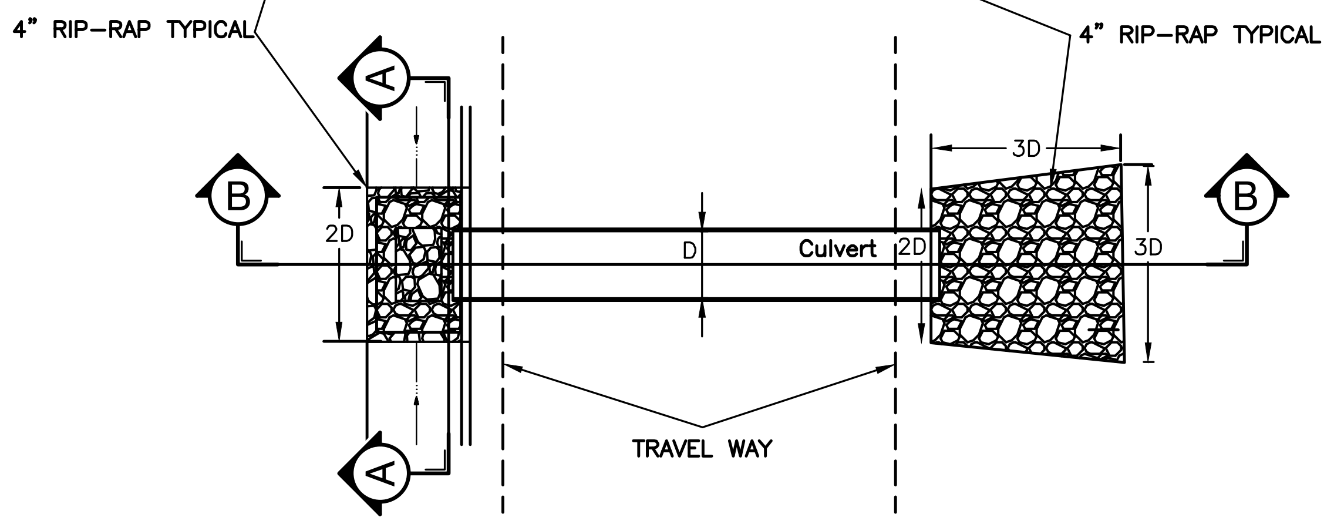
NOTES:

1. GEOTEXTILE UNDERLAYMENT FOR BED SLOPES ≥ 0.10 FT/FT (10 %) SHALL BE USED.
2. CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER–EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.
3. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.
4. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
5. THE MINIMUM ROCK DEPTH SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

DETAIL 12
TYPICAL RIPRAP CHANNEL DITCH

NOT TO SCALE

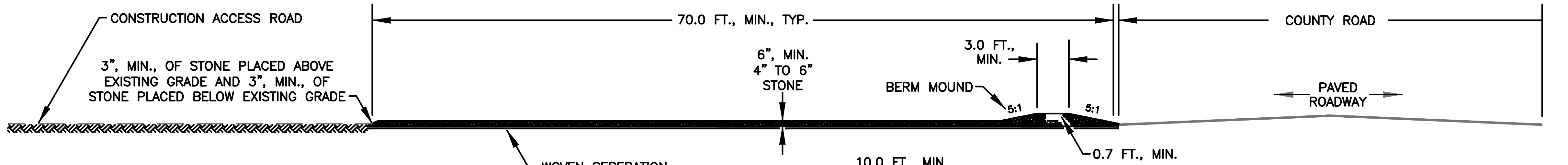




NOTES:
1. CONTRACTOR SHALL INSTALL A MOUNTABLE BERM ON ANY CULVERT NECESSARY TO ENSURE A MINIMUM COVER OF AT LEAST 1.5'.
2. CONTRACTOR TO FIELD ADJUST DITCH INVERTS TO ENSURE POSITIVE DRAINAGE AT CULVERT INLETS.
3. CONTRACTOR SHALL INSTALL PIPE PER MANUFACTURER SPECIFICATIONS.
4. R3 RIP RAP TO BE USED.
5. SEE CULVERT BEDDING AND OUTLET PROTECTION DETAILS

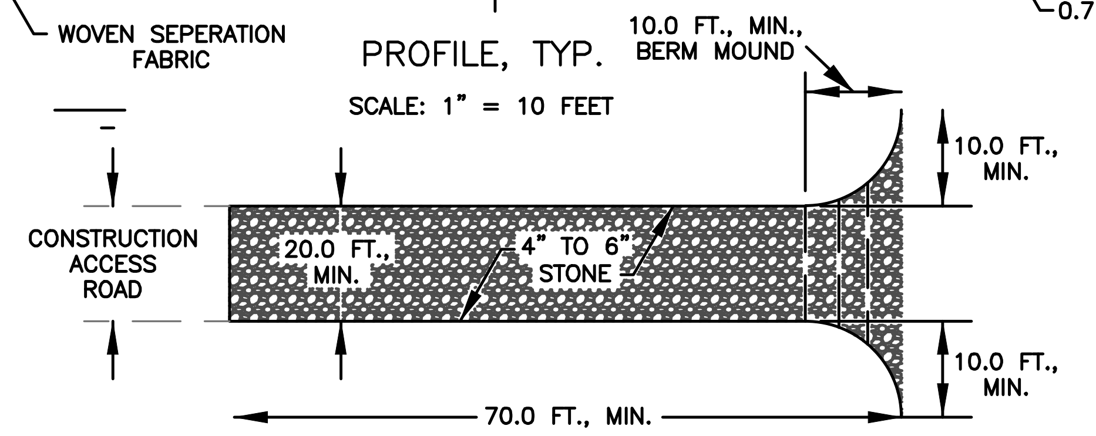
DETAIL 13
TYPICAL CULVERT & CULVERT PROTECTION FOR PAVED ACCESS ROADS

NOT TO SCALE



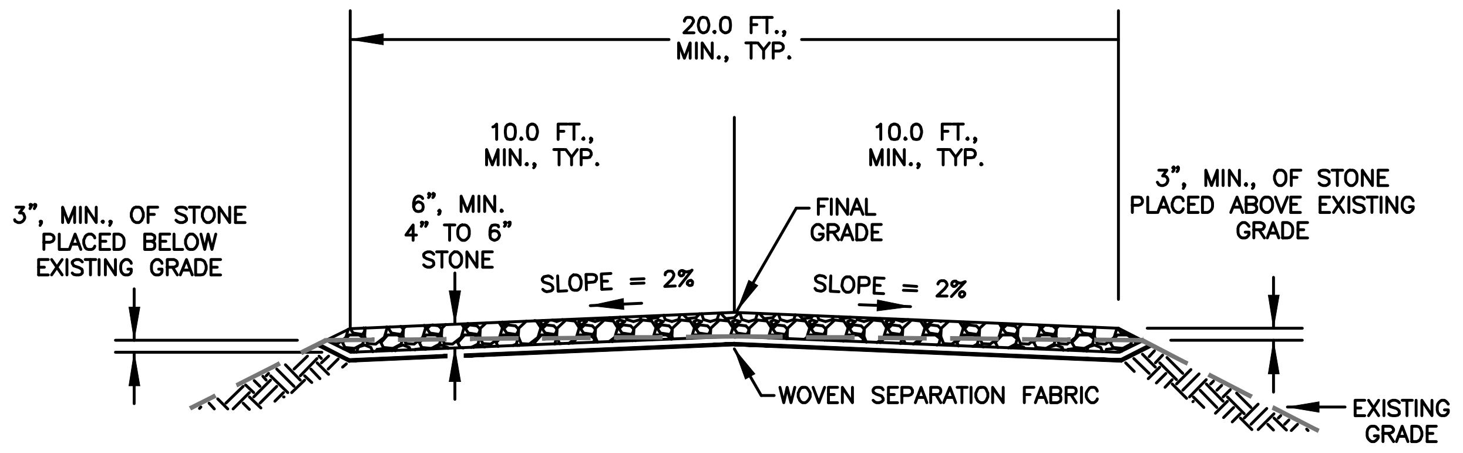
PROFILE, TYP.

SCALE: 1" = 10 FEET



PLAN VIEW, TYP.

SCALE: 1" = 20 FEET



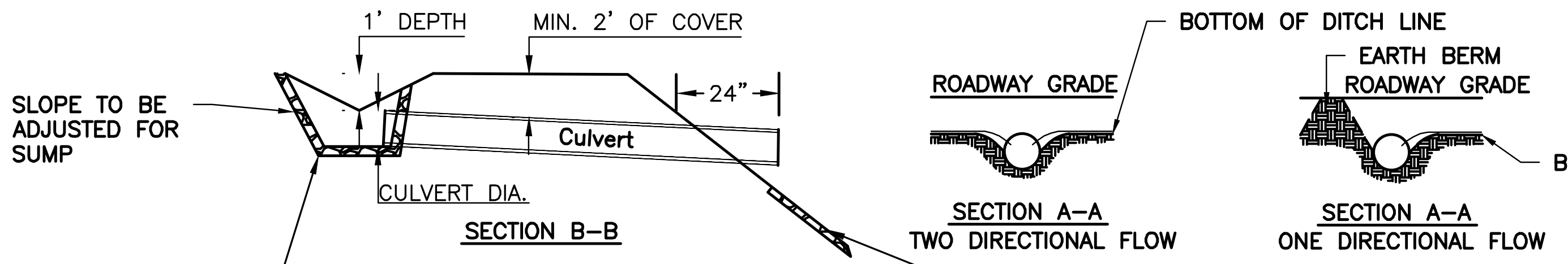
CROSS SECTION AT ROAD DITCH, TYP.

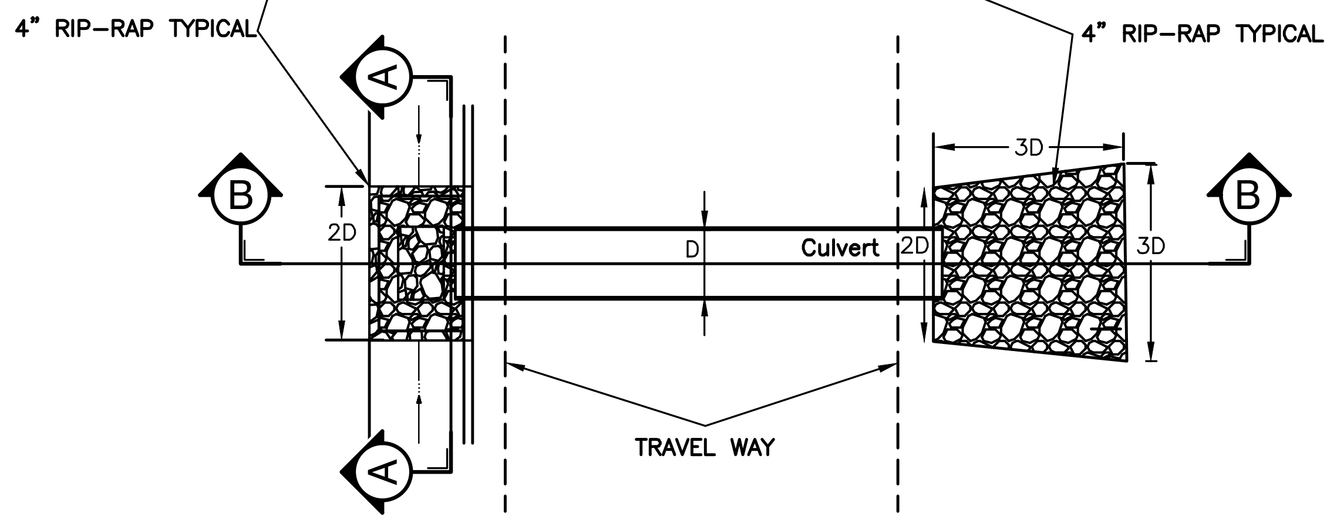
NOTES:
1. 4" TO 6" STONE SHALL EXTEND THE FULL WIDTH OF THE ACCESS ROAD.
2. 4" TO 6" STONE SHALL MEET THE GRADATION REQUIREMENTS FOR COARSE AGGREGATE PER THE BMP STANDARD SPECIFICATIONS.
3. A MOUNDED BERM MUST BE USED AT ALL STONE CONSTRUCTION ENTRANCES.
4. TURNOUTS ONTO PAVED ROADS FROM STONE CONSTRUCTION ENTRANCES SHALL BE A MINIMUM OF 10.0 FEET AS MEASURED ALONG THE PAVED ROAD, REGARDLESS OF THE ANGLE AT WHICH THE STONE CONSTRUCTION ENTRANCE ENCOUNTERS THE PAVED ROAD.

DETAIL 14
STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

APPROVED
WVDEP OOG
Modification
1/5/2026



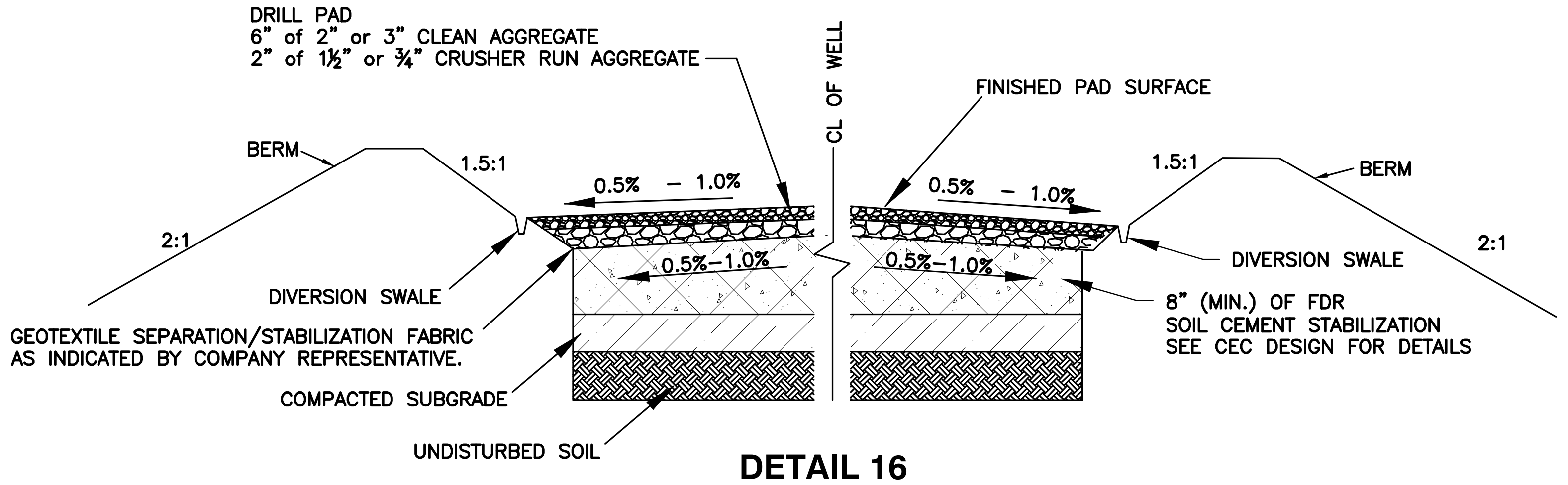


NOTES:
1. CONTRACTOR SHALL INSTALL A MOUNTABLE BERM ON ANY CULVERT NECESSARY TO ENSURE A MINIMUM COVER OF AT LEAST 2'.
2. CONTRACTOR TO FIELD ADJUST DITCH INVERTS TO ENSURE POSITIVE DRAINAGE AT CULVERT INLETS.
3. CONTRACTOR SHALL INSTALL PIPE PER MANUFACTURER SPECIFICATIONS.
4. R3 RIP RAP TO BE USED.
5. SEE CULVERT BEDDING AND OUTLET PROTECTION DETAILS

01/09/2026

DETAIL 15
TYPICAL CULVERT & CULVERT PROTECTION FOR GRAVEL ACCESS ROADS

NOT TO SCALE



DETAIL 16
TYPICAL PAD CROSS-SECTION

NOT TO SCALE

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

Civil & Environmental Consultants, Inc.
120 Genesis Boulevard
Bridgeport, WV 26330
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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

DETAILS

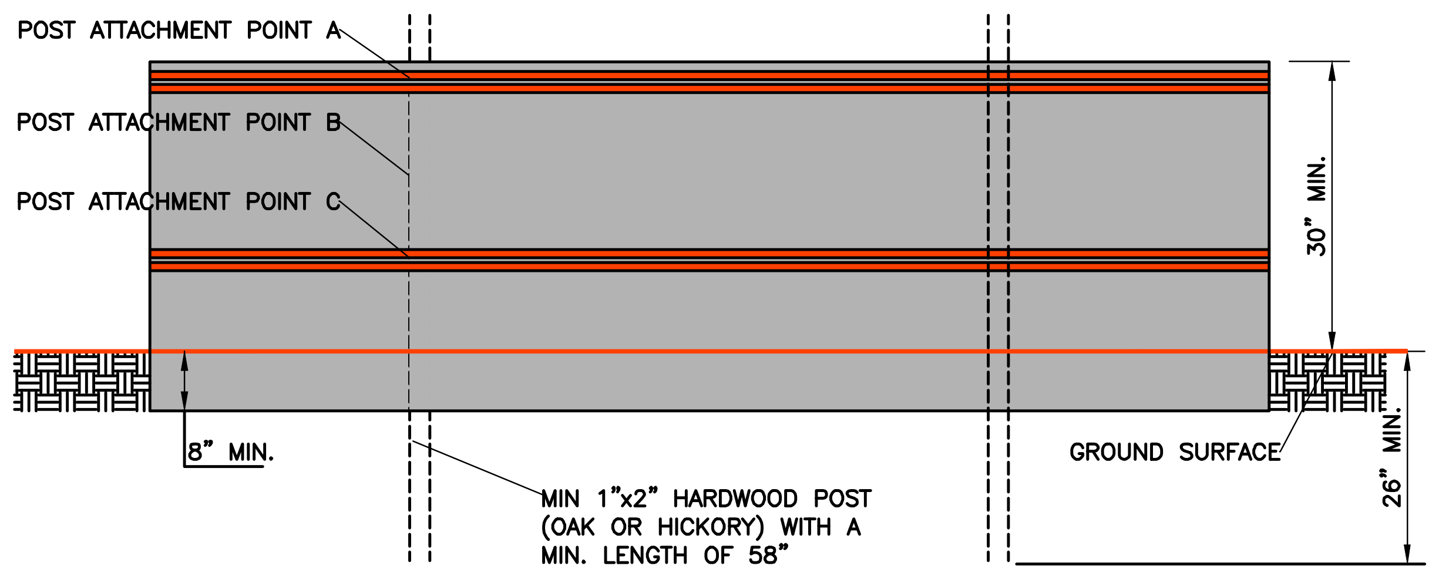
DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	N/A	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

DRAWING NO.: C802

SHEET 30 OF 38

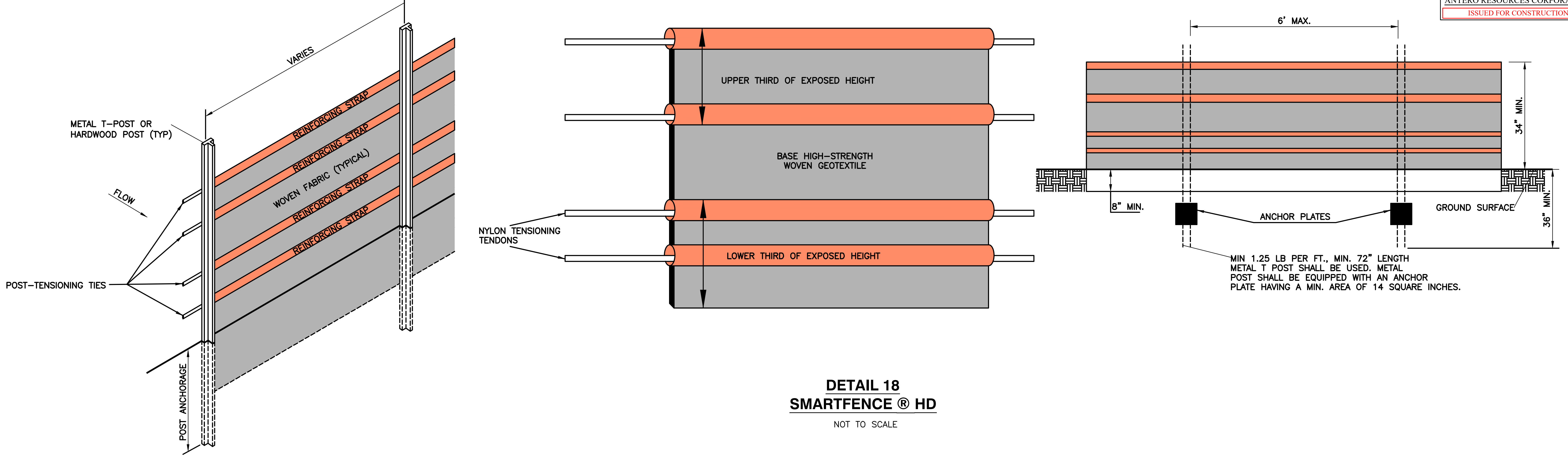
P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C800.dwg{C802} LS:(10/22/2025 - jwilkins) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



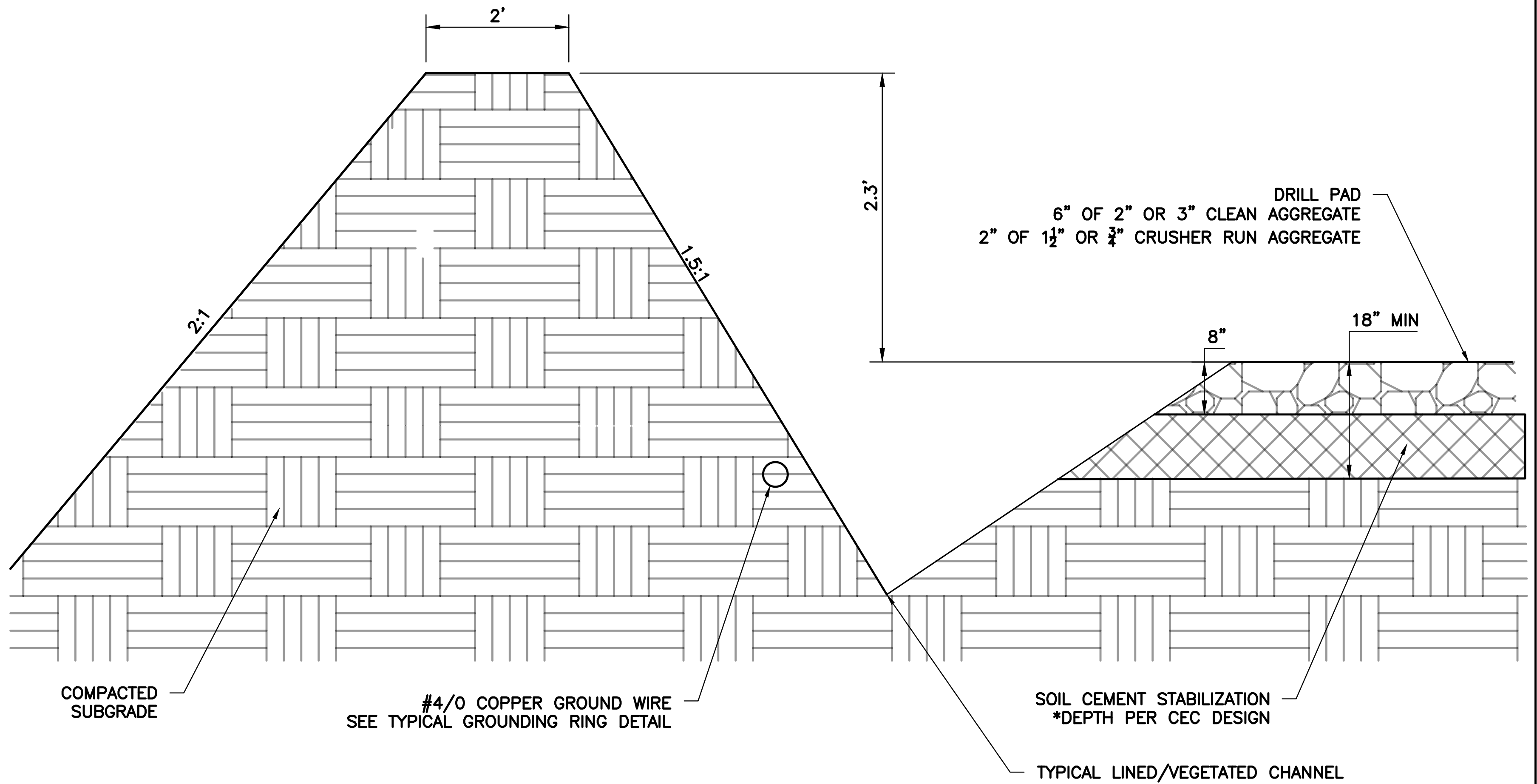
DETAIL 17
SMARTFENCE ® SD

NOT TO SCALE



DETAIL 18
SMARTFENCE ® HD

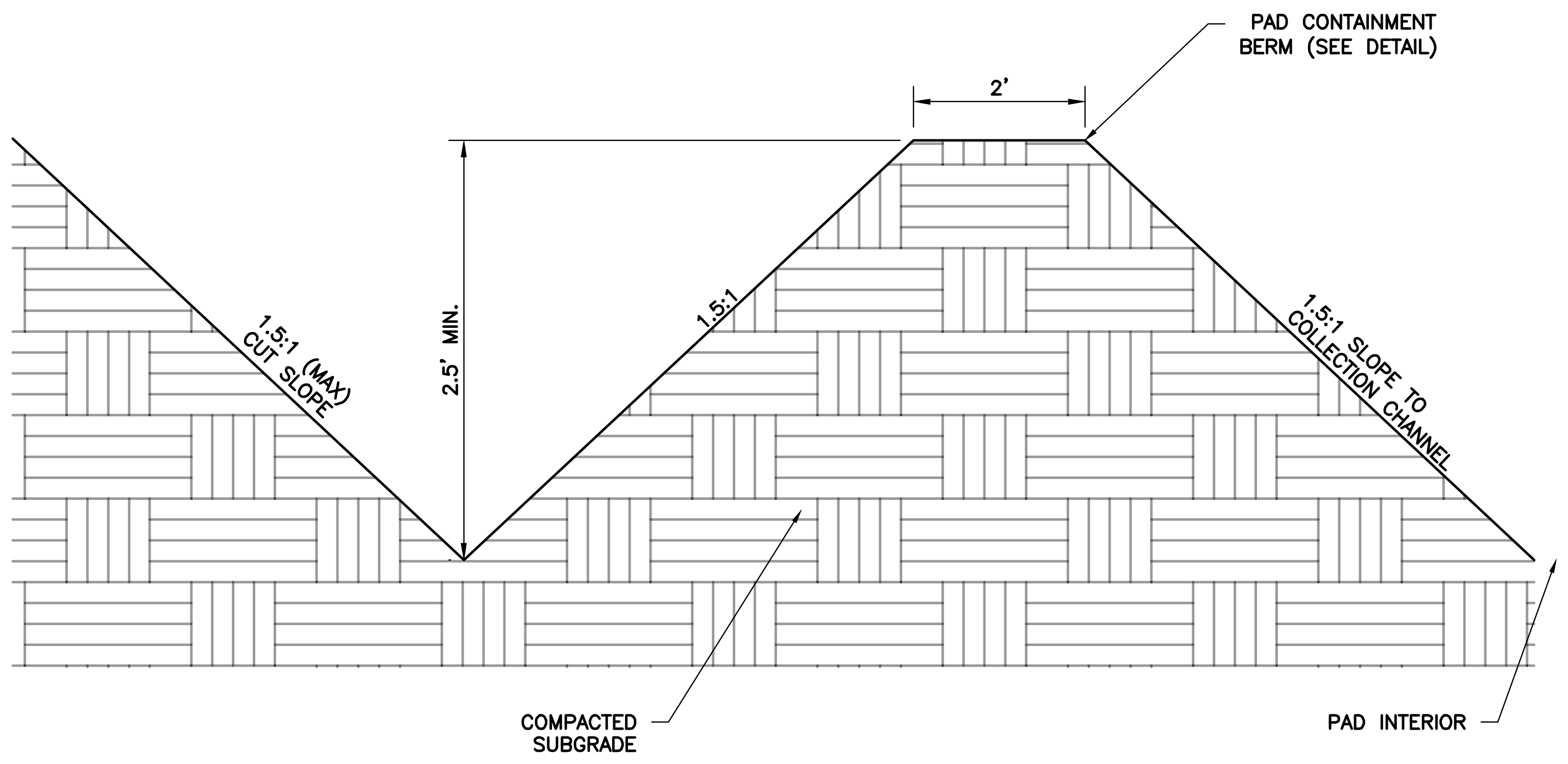
NOT TO SCALE



NOTES:
1. THE CONTAINMENT BERM SHALL BE CONSTRUCTED TO FULL BASE WIDTH AND COMPACTED TO 95% DENSITY.

DETAIL 19
PAD CONTAINMENT BERM

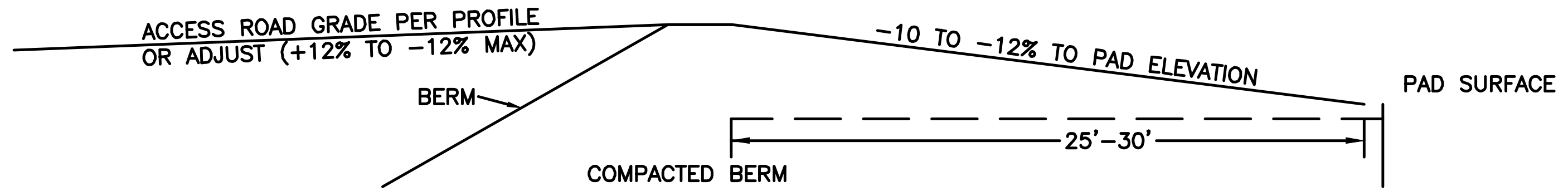
NOT TO SCALE



NOTES:
1. DITCH SHALL MAINTAIN A 1% MIN. GRADE TO THE OUTLET.
2. NO RUNOFF FROM THE CUT SLOPE SHALL ENTER THE INTERIOR OF THE PAD CONTAINMENT BERM.

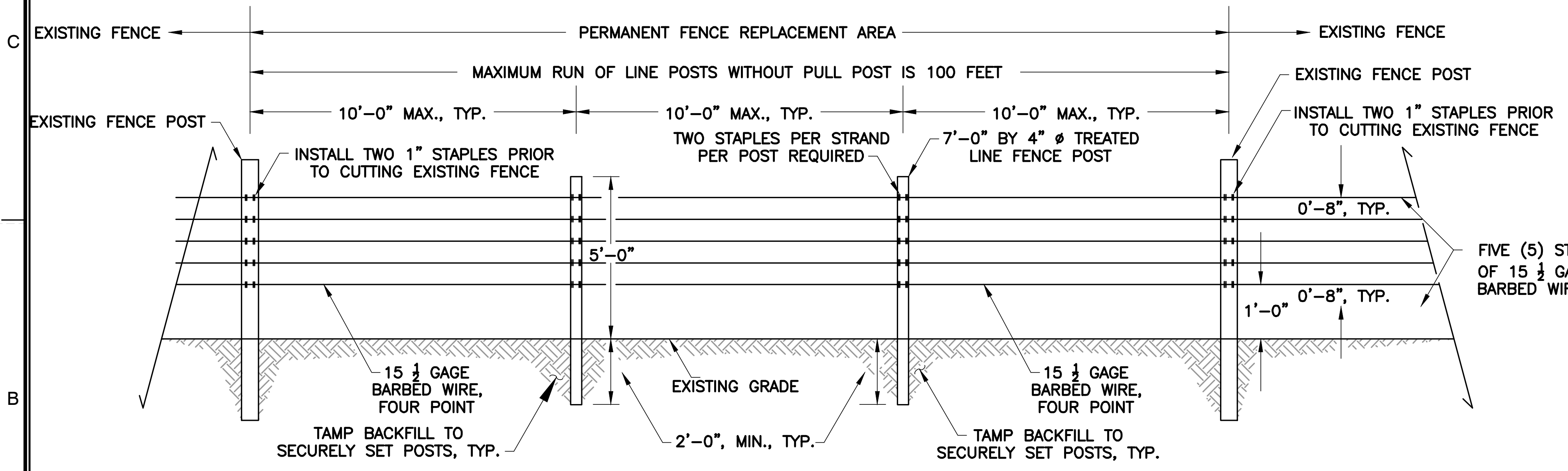
DETAIL 20
PAD CONTAINMENT BERM
DITCH ON CUT SLOPE SIDE

NOT TO SCALE

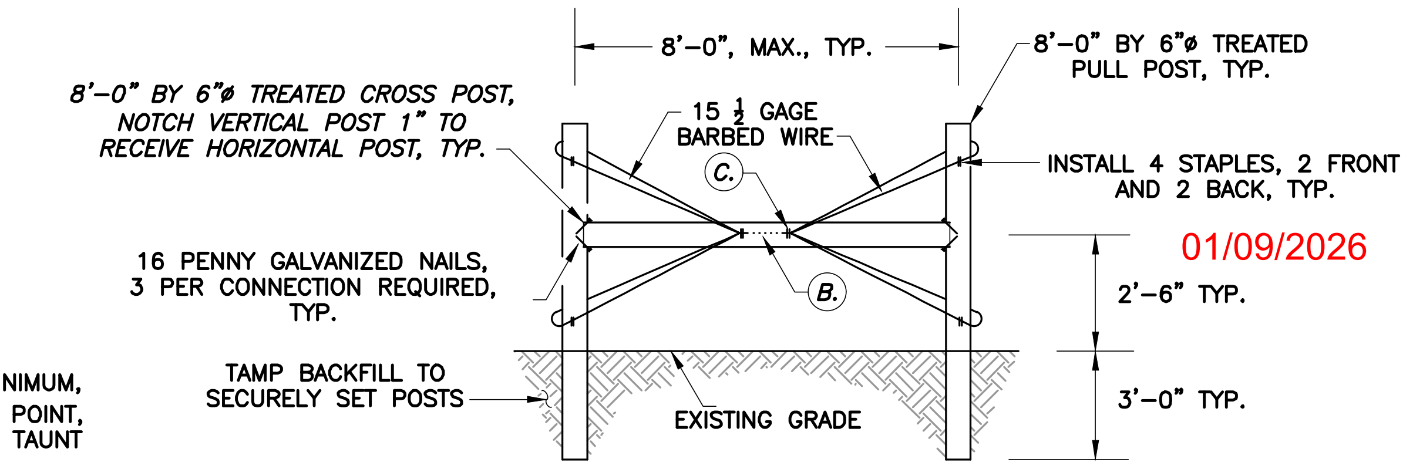


DETAIL 21
TYPICAL MOUNTABLE BERM

NOT TO SCALE

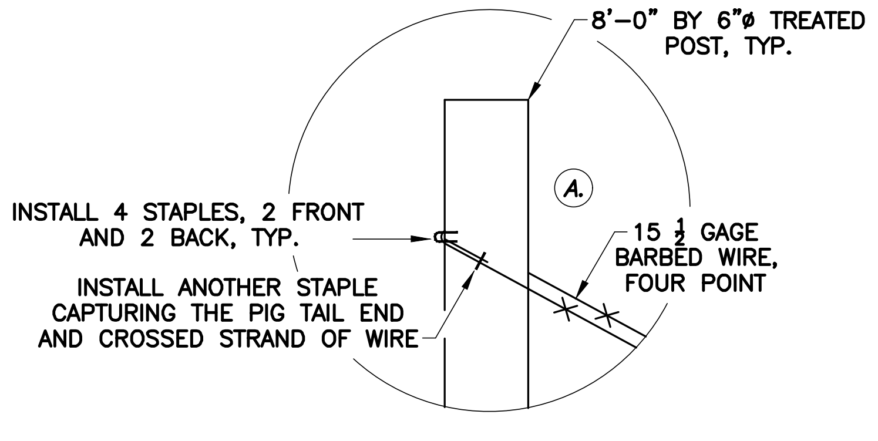


PERMANENT FENCE ELEVATION VIEW, TYP.



01/09/2026

CORNER AND PULL POST ELEVATION VIEW, TYP.



DETAIL "A"

NO SCALE

NOTES:

1. THE PERMANENT FENCE ALIGNMENT SHALL FOLLOW THE ALIGNMENT OF THE EXISTING FENCE BEING REPLACED UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. THE CONTRACTOR SHALL CUT THE EXISTING FENCE AT AN EXISTING FENCE POST WITH THE APPROVAL OF THE ENGINEER. PRIOR TO CUTTING THE FENCE, THE CONTRACTOR SHALL INSTALL TWO STAPLES IN EACH EXISTING HORIZONTAL FENCE STRAND CROSSING THE EXISTING POST. THE FENCE CUT SHALL BE MADE AT A SUFFICIENT DISTANCE FROM THE INSTALLED STAPLES TOWARDS THE AREA TO BE REMOVED TO ALLOW THE EXISTING FENCE STRANDS TO BE WOUND ONCE, MINIMUM, AROUND THE EXISTING POST. AFTER CUTTING THE CONTRACTOR SHALL WRAP THE PIG TAIL END OF THE FENCE AROUND THE POST, STRETCH THE FENCE, AND SECURE IT TO THE POST WITH ANOTHER STAPLE CAPTURING BOTH STRANDS OF FENCE.
3. LINE FENCE POSTS SHALL BE 7'-0" BY 4" DIAMETER TREATED POSTS, FENCE POSTS TO BE USED WILL REQUIRE THE APPROVAL OF THE ENGINEER. AT THE DIRECTION OF THE ENGINEER LONGER POSTS, EXTRA BRACING, AND ADDITIONAL BARBED WIRE MAY BE REQUIRED AT GROUND DEPRESSIONS AND STREAM CROSSINGS TO CONTAIN LIVESTOCK.
4. CORNER AND PULL POSTS SHALL BE 8'-0" BY 6" ø AND INSTALLED IN THE PERMANENT FENCE AT 100 FOOT INTERVALS, ANGLE POINTS, BENDS, CORNERS, AND HIGH OR LOW POINTS AS DESIGNATED BY THE ENGINEER.
5. SPACING BETWEEN POSTS SHALL BE MEASURED PARALLEL TO THE GROUND AND POSTS SHALL BE SET VERTICALLY. AFTER THE POST IS SET IN THE EXCAVATED HOLE, COMPACTED BACKFILL SHALL BE PLACED SECURELY SETTING THE POST TO THE SATISFACTION OF THE ENGINEER.
6. PERMANENT FENCE SHALL CONSIST OF FIVE (5) STRANDS OF 15 ½ GAGE, FOUR POINT, BARBED WIRE AND 1 ½" NUMBER 9 STAPLES.

Ⓐ *WRAP FENCE AROUND EACH PULL POST EXTENDING FROM 6" TO 8" FROM THE TOP AND 6" TO 8" FROM THE GROUND FORMING A LOOP OF WIRE AROUND BOTH POSTS. OVERLAP ENDS OF LOOPED WIRE 4" MINIMUM IN EACH DIRECTION. OVERLAP SHOULD BE PLACED ON OUTSIDE OF INSTALLED PULL POST INSTALLATION AND ATTACHED TO THE PULL POST BY TWO 1 ½" NUMBER 9 STAPLES. PLACE THE STAPLES AT THE INTERSECTION OF THE OVERLAP FENCE STRANDS CAPTURING BOTH STRANDS. BEND THE PIG TAIL OF FENCE BACK ALONG THE ALIGNMENT OF THE FENCE AND INSTALL ANOTHER STAPLE CAPTURING BOTH STRANDS. REPEAT FOR OTHER OVERLAPPED STRAND. CONTINUE THE PROCESS ON THE OPPOSITE POST FORMING AN "X" CONFIGURATION AS SHOWN.*

Ⓑ *PLACE A STEEL BAR AT THE "X" INTERSECTION ADJACENT TO THE HORIZONTAL SUPPORT POST. TWIST THE FENCE STRANDS TOGETHER TO BRING THE PULL POSTS INTO TENSION.*

Ⓒ *INSTALL TWO 1 ½" NUMBER 9 STAPLES INTO THE HORIZONTAL SUPPORT POST AT THE END OF THE TWISTED STRANDS AS SHOWN, FOUR STAPLES ARE REQUIRED PER INSTALLATION.*

AT ALL CORNERS OR BENDS, THREE (3) PULL POSTS WILL BE REQUIRED AND SHALL BE BRACED IN EACH DIRECTION.

DETAIL 22
TYPICAL PERMANENT FENCE

NOT TO SCALE

APPROVED
WVDEP OOG
Modification
1/5/2026

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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Civil & Environmental Consultants, Inc.

ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

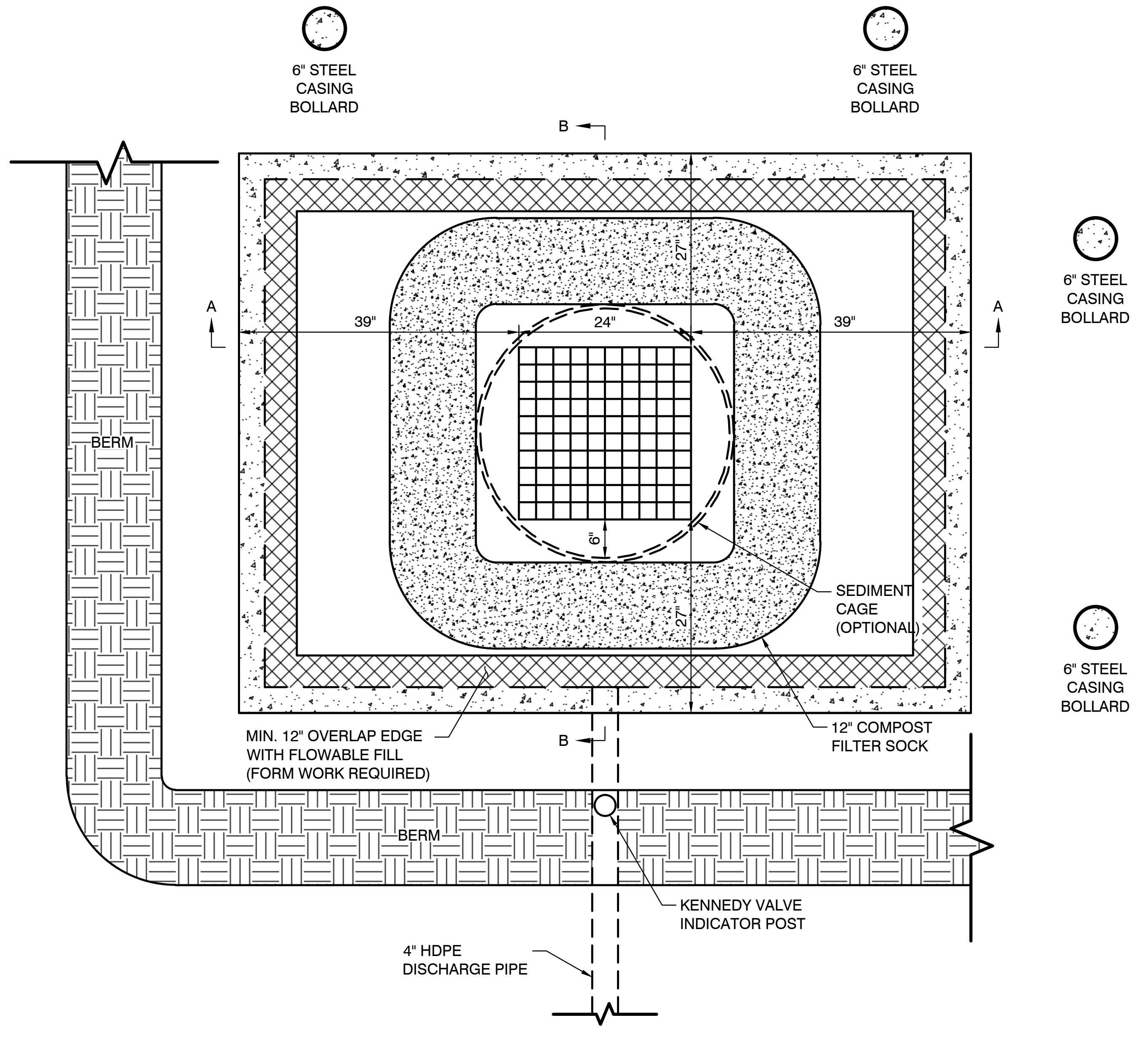
DETAILS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	N/A	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

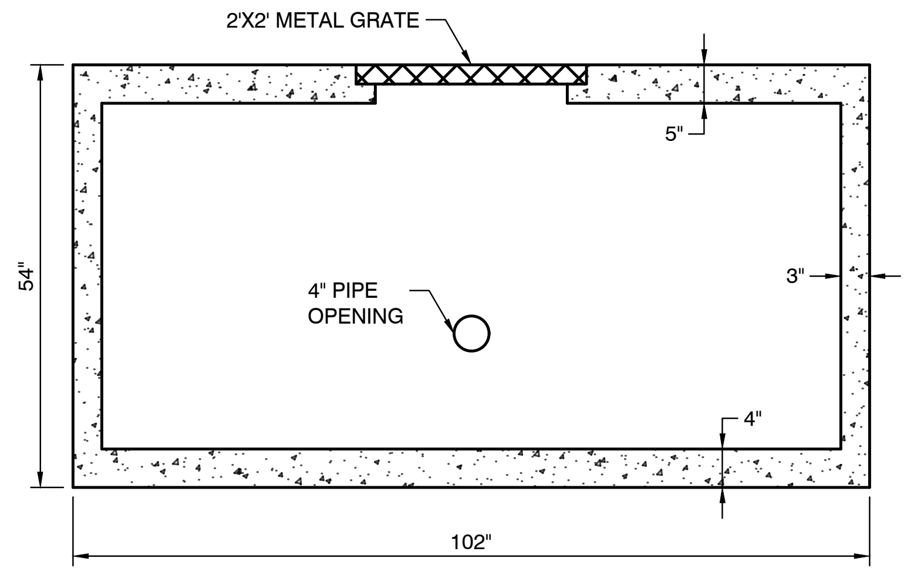
JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

DRAWING NO.: C803
SHEET 31 OF 38

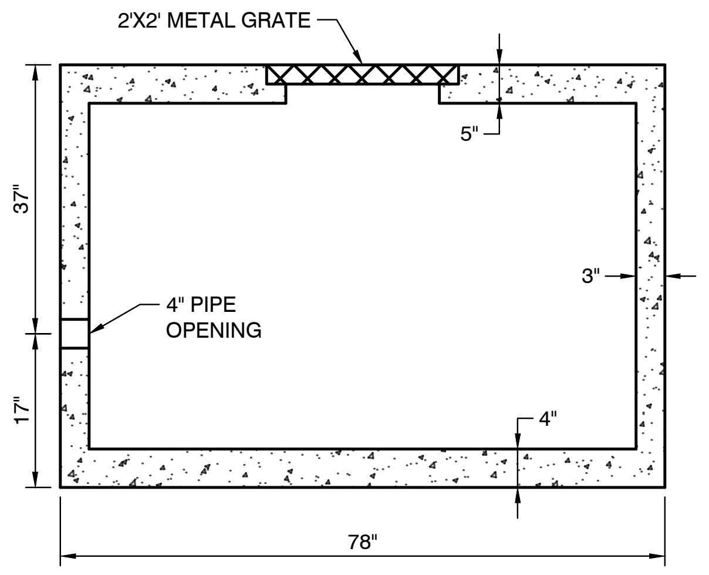
P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C800.dwg{C803} LS:(10/22/2025 - jwilkins) - LP: 11/11/2025 10:20 AM



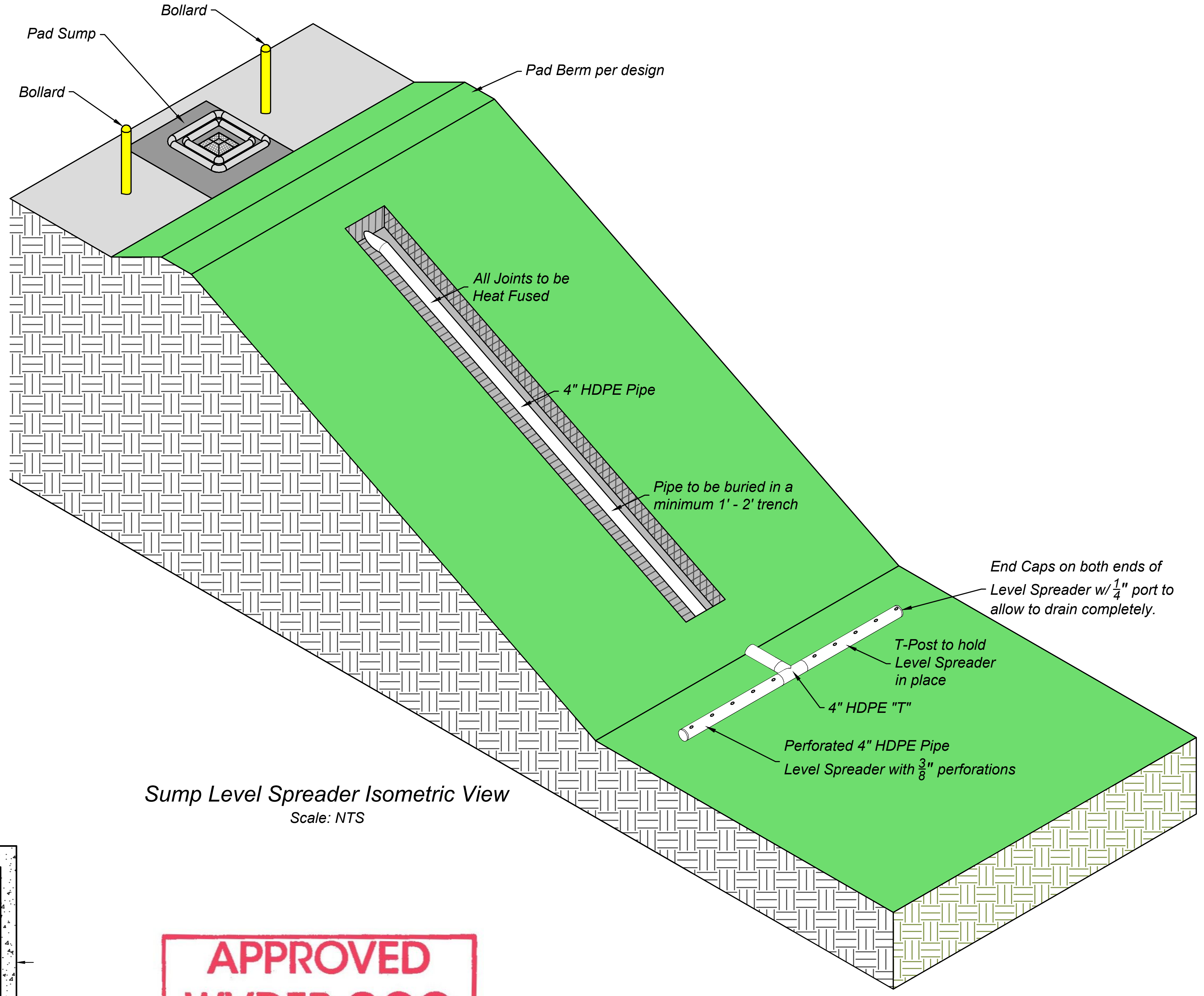
PLAN VIEW
LOW PROFILE TANK CATCH BASIN



SECTION A-A
LOW PROFILE TANK CATCH BASIN

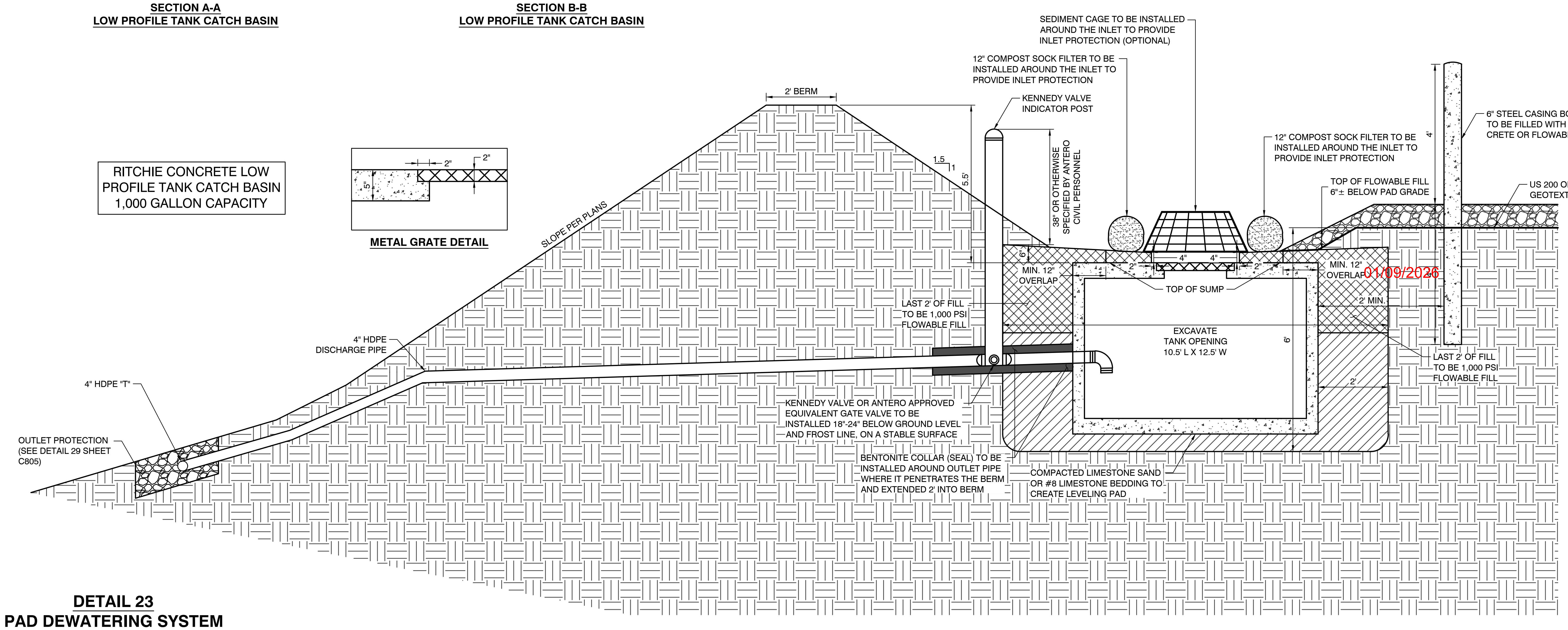


SECTION B-B
LOW PROFILE TANK CATCH BASIN



Sump Level Spreader Isometric View
Scale: NTS

APPROVED
WVDEP OOG
Modification
1/5/2026



01/09/2026

DETAIL 23
PAD DEWATERING SYSTEM

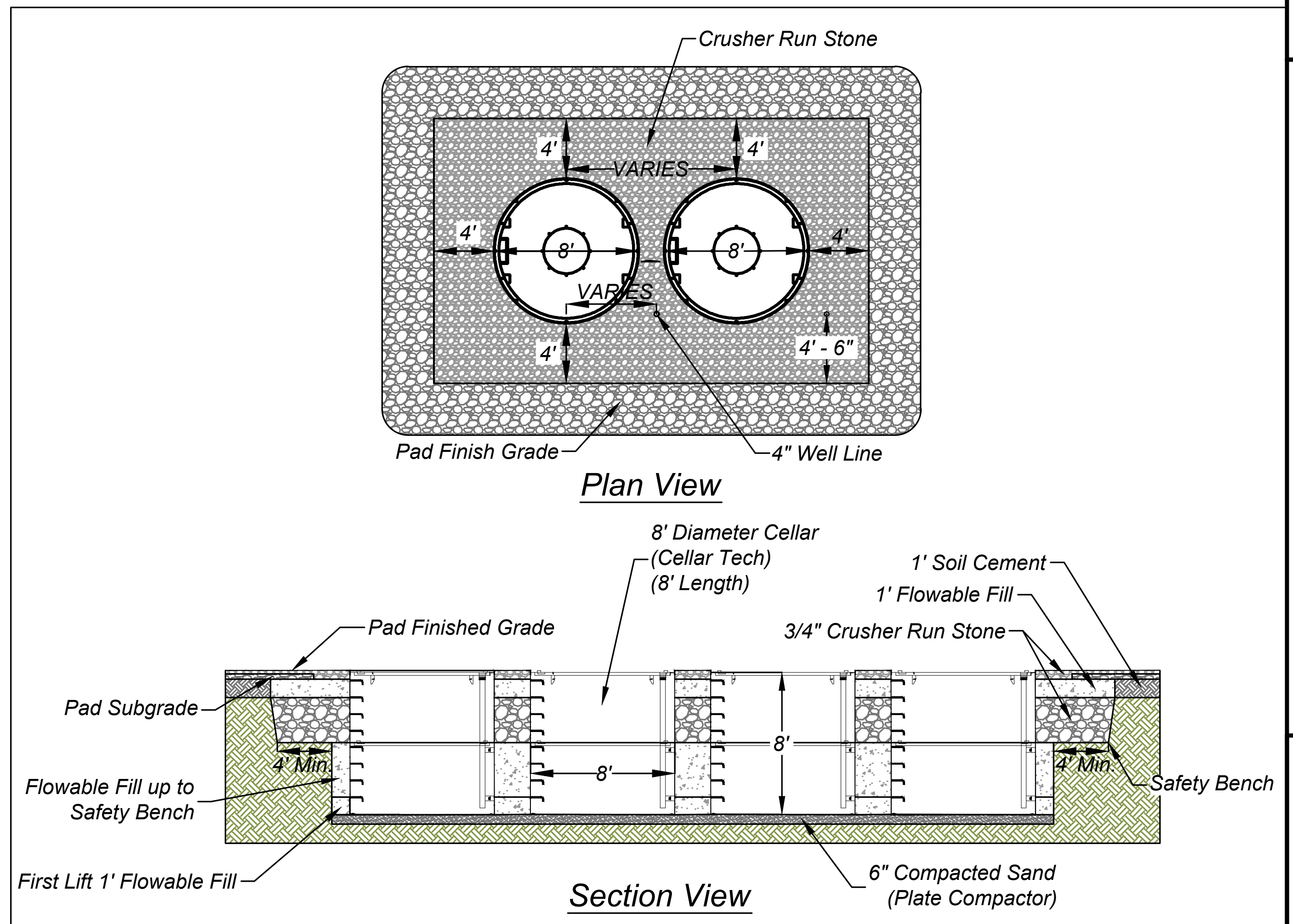
NOT TO SCALE
* PROVIDED BY ANTERO

Installation Sequence

1. *Construct pad to subgrade.*
2. *Excavate the Sump Hole 2' larger than the length and width of the tank and 1' larger than the height of tank.*
3. *Use compacted limestone sand or #8 limestone to prepare the bottom of the excavation. Make sure to level the tank from side to side.*
4. *Make certain the outlet on the tank lines up with the discharge ditch for installing the discharge pipe and valve.*
5. *Set the tank in the excavation and level.*
6. *Install pipe section (approximately 1'-2' piece) into the outlet fitting on the tank. Use hydraulic cement around the connection to ensure positive seal. Install bentonite collar (seal) around outlet pipe where it penetrates the berm.*
7. *Install 4" valve onto short section of the pipe with glue (make certain to clean and prime both valve and pipe before gluing connection).*
8. *Install sections of pipe onto the outlet side of the valve until the pipe extends through the berm and slope approximately 1'. Leave the end of the pipe exposed (make certain to clean and prime the pipe and joints before gluing the connections).*
9. *Make certain that the pipe and valve are adequately supported and maintain positive flow away from the valve. Use dense-graded aggregate from the discharge ditch to support the pipe and valve.*
10. *Install Kennedy valve or approved equivalent per manufacturers specifications. Adjust open/shut indicator plate upon installation.*
11. *A minimum 12 hour leak test shall be performed on the tank. Water shall be present in the tank during backfill, when possible, for verification purposes.*
12. *Fill around the valve with crusher run stone and 1' on the riser pipe to keep soil out.*
13. *Stabilize the riser pipe so that it remains perpendicular to the valve.*
14. *Begin backfilling the discharge ditch, use the fine-grained soil excavated from the tank hole to backfill the discharge ditch. Backfill around the tank with compacted limestone sand or #8 limestone to an elevation within 2' of the top of the sump. Finish backfilling the upper 2' around the tank and on top of the tank with 1000 psi flowable fill. Do not backfill with any large rocks against the tank and be certain not to over-compact around the tank. Improper backfilling and over-compaction around the tank will lead to the tank collapsing. It is recommended that finer soils are used to backfill around the discharge pipe to reduce voids and excessive settling.*
15. *Once backfilling is complete, the top of the flowable fill should be ±6" below the subgrade.*
16. *Cut the riser pipe off 2' above subgrade to allow for the riser pipe to extend 1' above the final grade and keep surface water from entering the pipe.*
17. *Repair the pad berm and fill slope.*
18. *Install a level spreader or rip-rap trapezoidal ditch from the discharge pipe outlet to the bottom of the slope. The level spreader or rip-rap trapezoidal ditch will discharge through outlet protection to erosion and sediment controls or discharge into an access road ditch.*
19. *With tank installation complete, the pad can then be stoned. When using geotextile fabric (US 200 or equal), be sure to lap the fabric over the edge of the flowable fill on the tank. This lap will help runoff to flow into the tank. Taper stone down from the pad to the tank (2:1 slope), so there is not a "lip" or trip hazard on the edge of stone.*
20. *Be sure not to run a smooth drum or sheeps-footed roller over the tank lid or vibrate too close to the sides of the the tank. Compacting or operating heavy equipment near the tank may cause the walls on the tank to fail. Keep traffic off of the tank. It is recommended that 6" steel casing bollards be installed to prevent traffic from driving over or parking on or near the tank.*

Operational Note:

1. *The dewatering valve will remain closed during drilling and completion operations. Any water captured during the drilling and completion operations will be pumped and disposed of in an approved manner. After drilling and completion operations are complete, the valve will be opened by a designated responsible person only.*



Notes:

1. *All Stone placed on the pad and around the Cellars shall be Compacted.*
2. *Top of Cellar shall match Finish Grade elevation.*
3. *Prior to Backfilling the Cellar(s), they shall be as-built and checked to confirm that they are within a 0.1' tolerance of designed location.*
4. *Substantial Bouyant Forces exist and it is possible to float the Cellar if not Backfilled properly. Flowable Fill with a Minimum Compressive Strength of 500 PSI around the base of the Cellars is Required.*
5. *Ladder to be positioned 45-degrees from centerline. Reference production drawings for exact alignment.*

DETAIL 24
CELLAR TRENCH - CELLAR TECH

NOT TO SCALE
* PROVIDED BY ANTERO

JOSEPH D. ROBINSON
19756
11-11-2025

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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ANTERO RESOURCES
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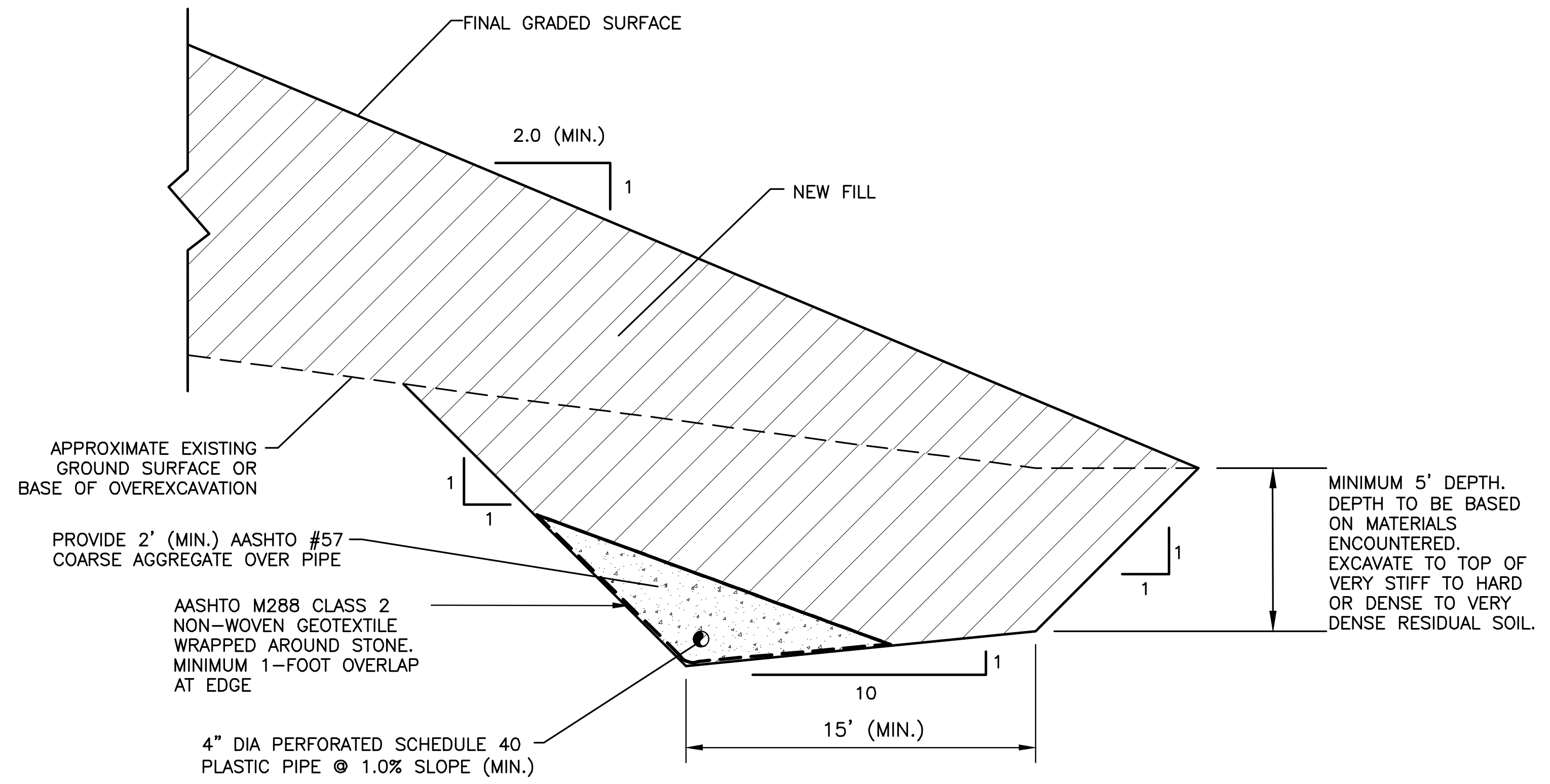
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

DETAILS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	N/A	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

DRAWING NO.:
C804
SHEET 32 OF 38

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

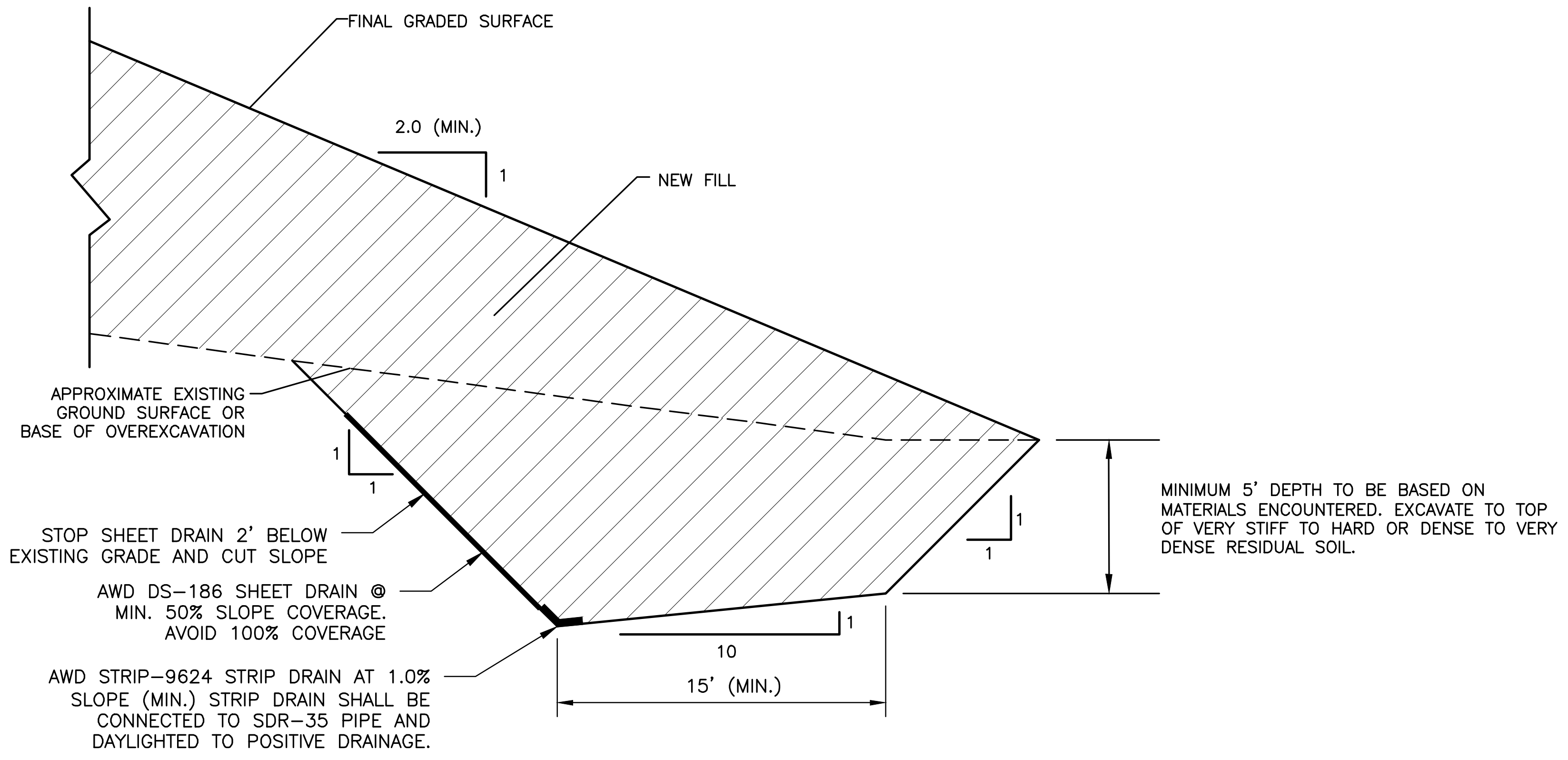


NOTES:

1. OUTLET FILL FOUNDATION KEY DRAIN BEYOND THE LIMITS OF NEW FILL USING OUTLET DRAINS (SEE DETAIL 31)

DETAIL 25
FILL FOUNDATION KEY

NOT TO SCALE

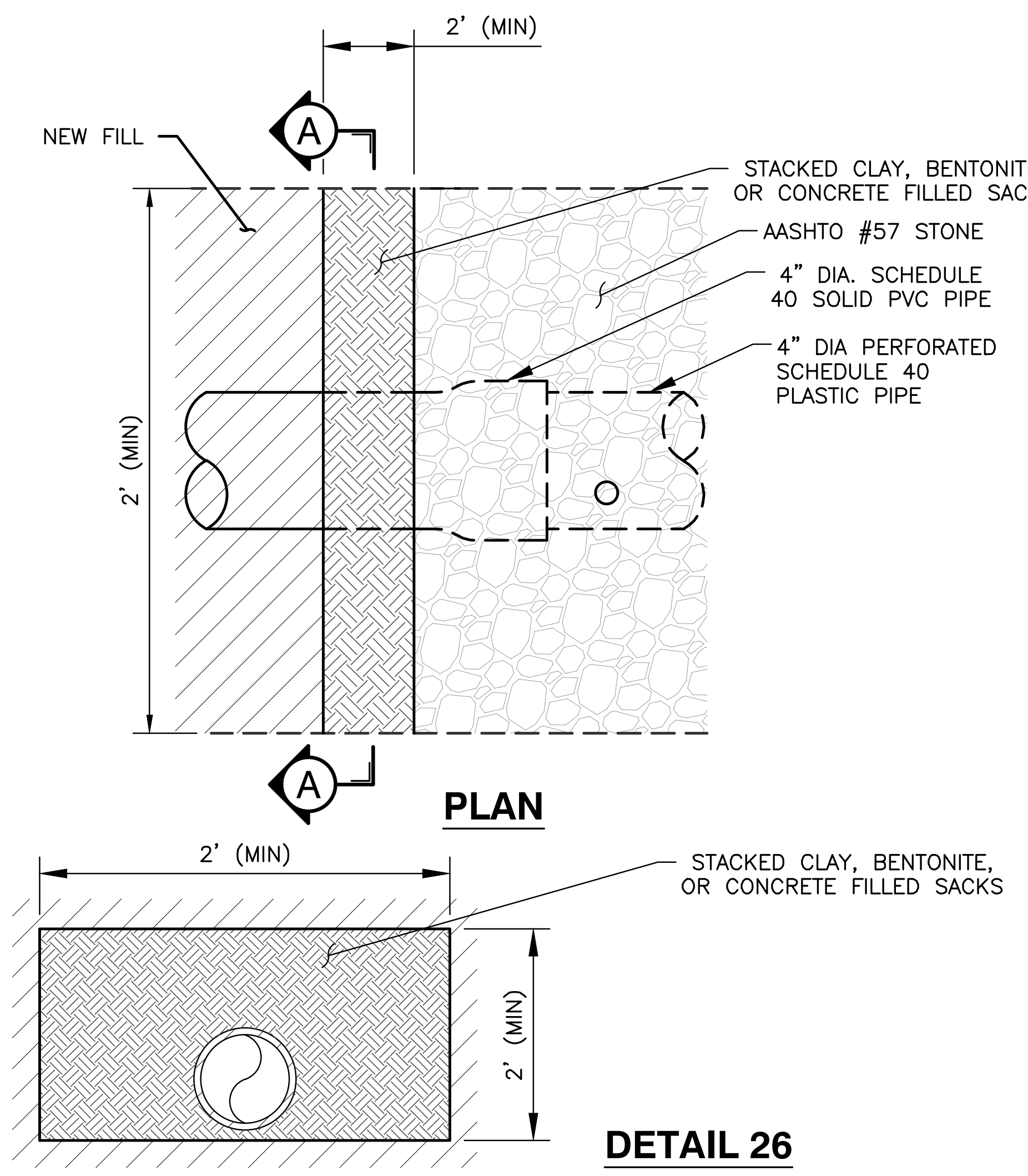


NOTES:

1. OUTLET FILL FOUNDATION KEY DRAIN BEYOND THE LIMITS OF NEW FILL USING OUTLET DRAINS (SEE DETAIL 31)

DETAIL 25A
FILL FOUNDATION KEY WITH AMERICAN WICK DRAIN

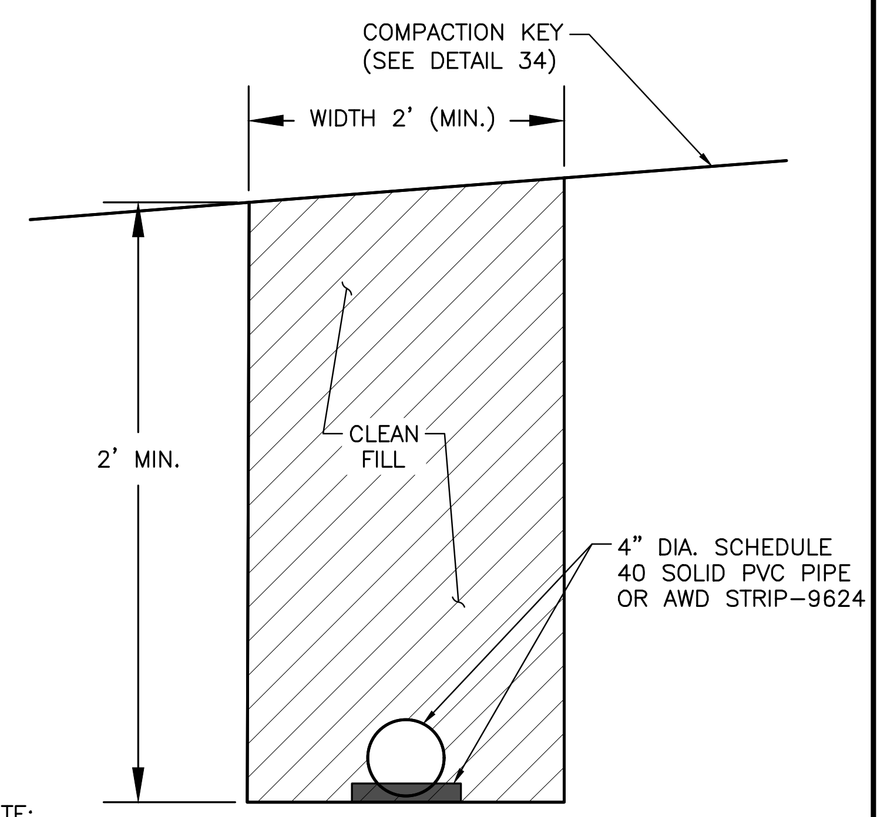
NOT TO SCALE



SECTION A-A

DETAIL 26
CLAY PLUG

NOT TO SCALE

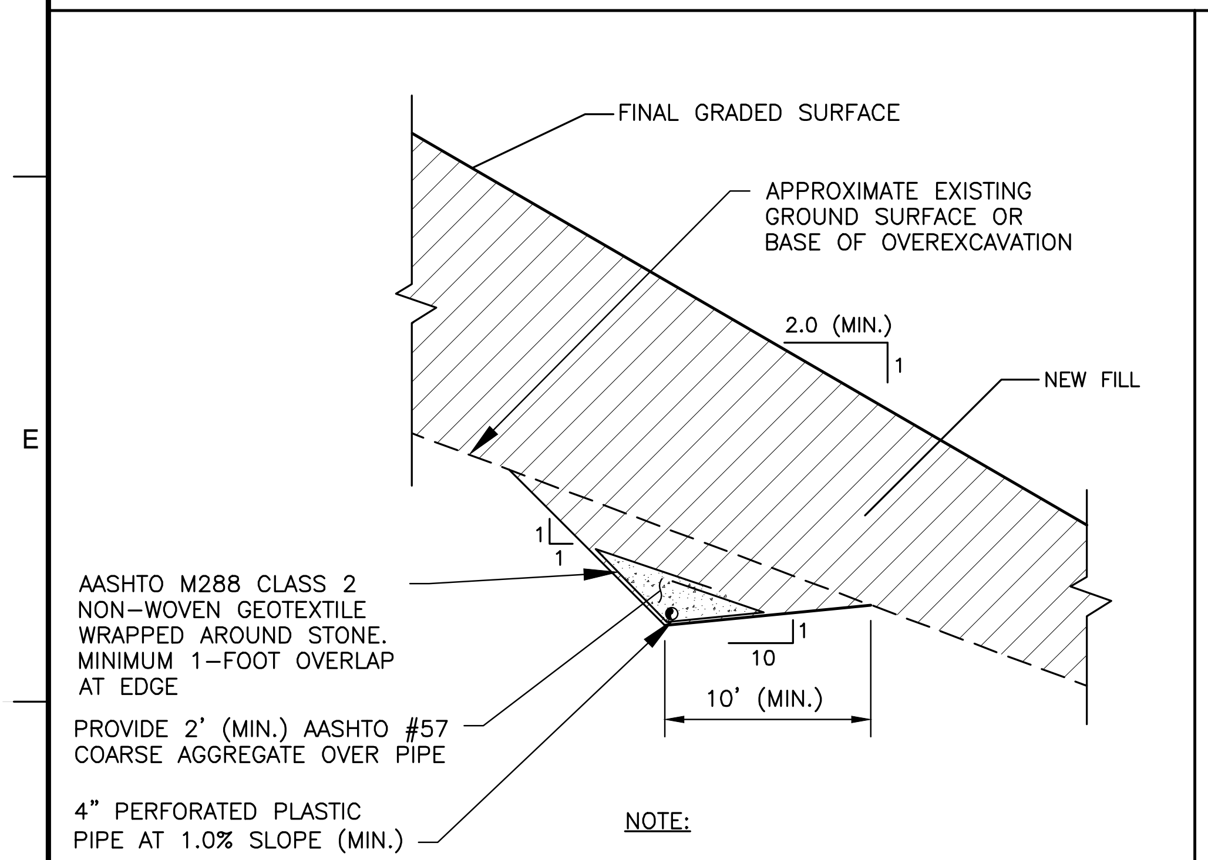


NOTE:

1. ON SLOPES STEEPER THAN 2:1 INSTALL AWD STRIP–9624 USING ANCHORING PINS (MINIMUM 4" LONG), PER MANUFACTURING SPECIFICATIONS, TO KEEP IN PLACE AS FILL IS BEING PLACED.
2. IT IS CONTRACTOR RESPONSIBILITY TO ENSURE THE STRIP DRAIN REMAINS FLAT AND WITHOUT SLACK DURING INSTALLATION AND FILL PLACEMENT OVER DRAIN.

DETAIL 27
GALLERY DRAIN

NOT TO SCALE

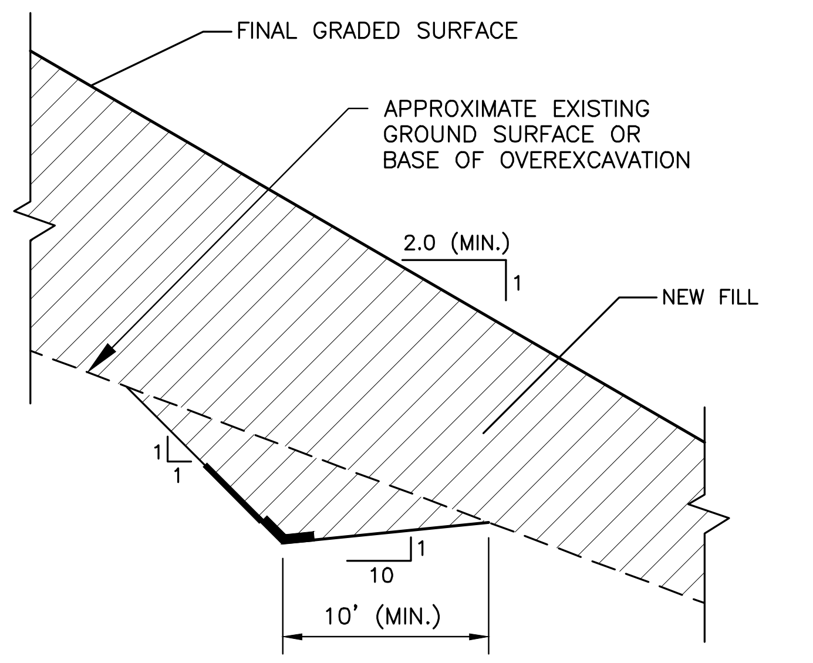


NOTE:

INTERMEDIATE FILL KEYS SHALL BE INSTALLED INTO PRE–EXISTING GROUND SURFACE OR SPECIFIED OVEREXCAVATION AT LOCATIONS SHOWN ON THE DRAWINGS AND AT LOCATIONS DEEMED NECESSARY BY THE CEC FIELD REPRESENTATIVE.

DETAIL 28
INTERMEDIATE FILL KEY

NOT TO SCALE

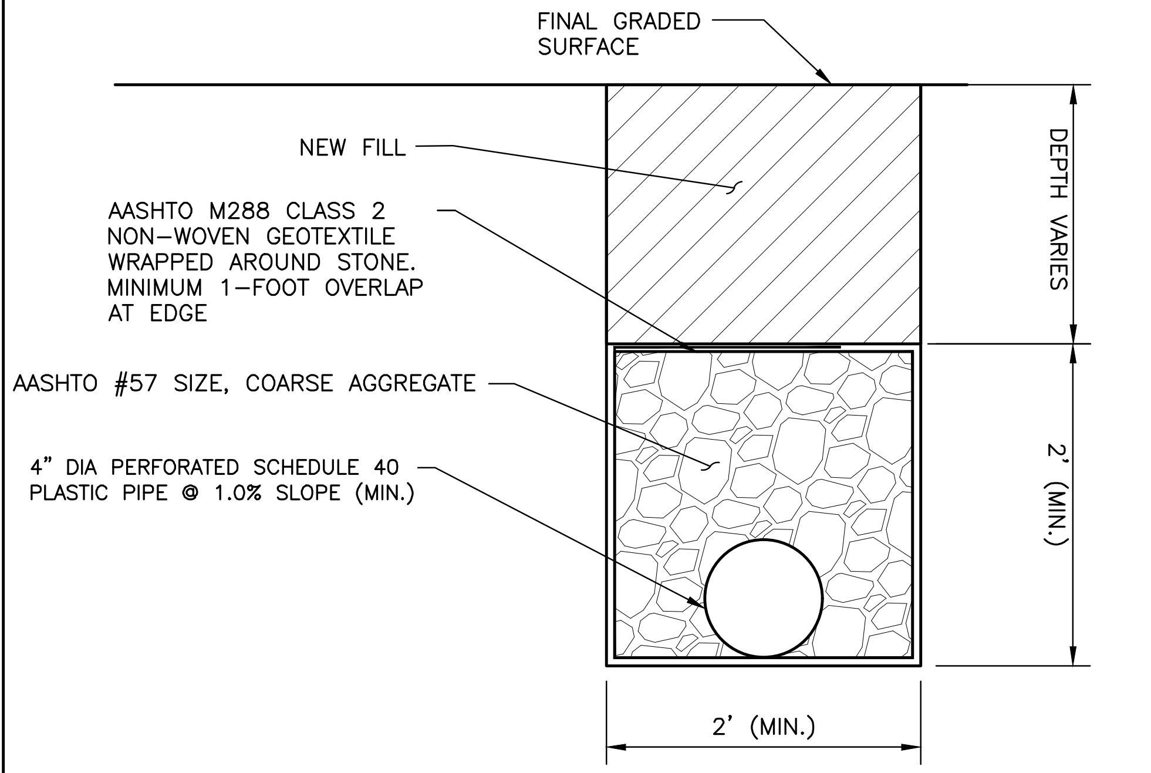


NOTE:

INTERMEDIATE FILL KEYS SHALL BE INSTALLED INTO PRE–EXISTING GROUND SURFACE OR SPECIFIED OVEREXCAVATION AT LOCATIONS SHOWN ON THE DRAWINGS AND AT LOCATIONS DEEMED NECESSARY BY THE CEC FIELD REPRESENTATIVE.

DETAIL 28A
INTERMEDIATE FILL KEY
WITH AMERICAN WICK DRAIN

NOT TO SCALE

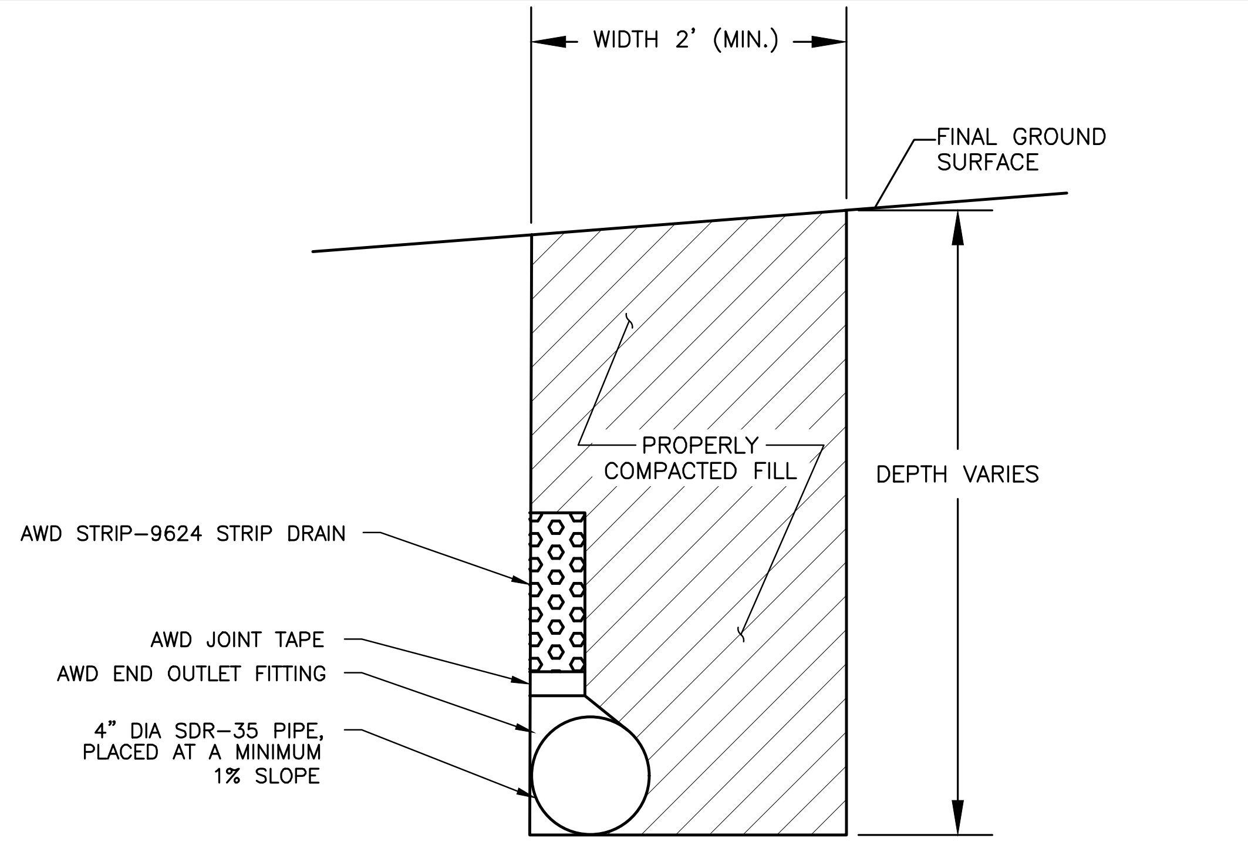


NOTES:

1. INSTALL SUBSURFACE DRAINS AS NECESSARY AT SPRING/SEEPAGE AREAS ENCOUNTERED DURING CONSTRUCTION. EXCAVATE INTO EXISTING GROUND SURFACE ONLY.
2. OUTLET ALL DRAINS BEYOND LIMITS OF NEW FILL.

DETAIL 29
SUBSURFACE DRAIN

NOT TO SCALE

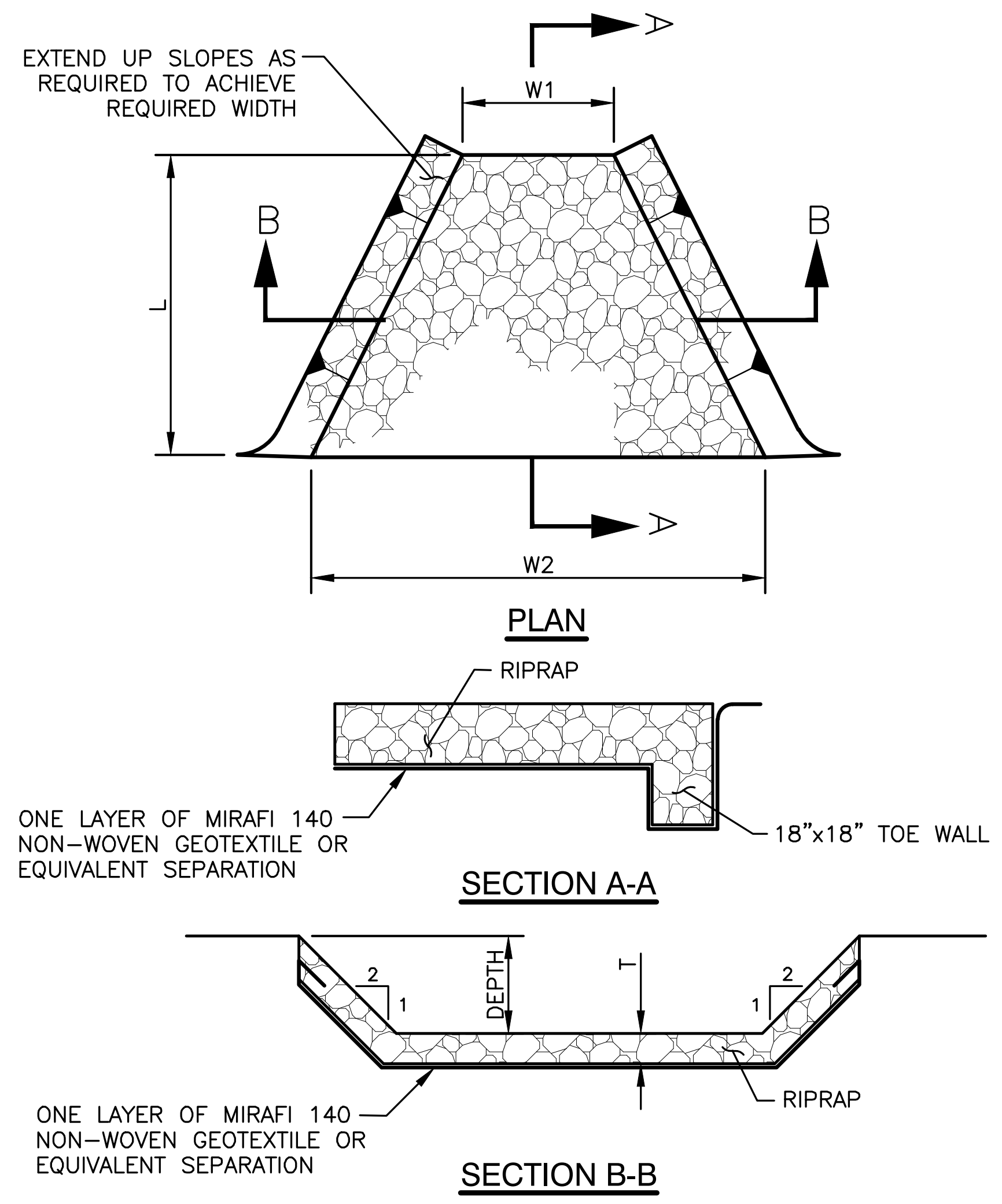


NOTES:

1. INSTALL SUBSURFACE DRAINS AS NECESSARY AT SPRING/SEEPAGE AREAS ENCOUNTERED DURING CONSTRUCTION. EXCAVATE INTO EXISTING GROUND SURFACE ONLY.
2. OUTLET ALL DRAINS BEYOND LIMITS OF NEW FILL.
3. TIE AWD CORRUGATED PIPE WITH FITTING INTO SCH. 40. ATTACH AWD FITTING WITH 3 STAINLESS STEEL TAP PIN SCREWS.
4. DURING OUTLET INSTALLATION, MOUND CLEAN STONE AGGREGATE AT THE FIRST PVC JOINT OF PIPE AND THE AWD OUTLET END TO SECURE CONNECTION.

DETAIL 29A
SUBSURFACE DRAIN WITH AMERICAN WICK DRAIN

NOT TO SCALE

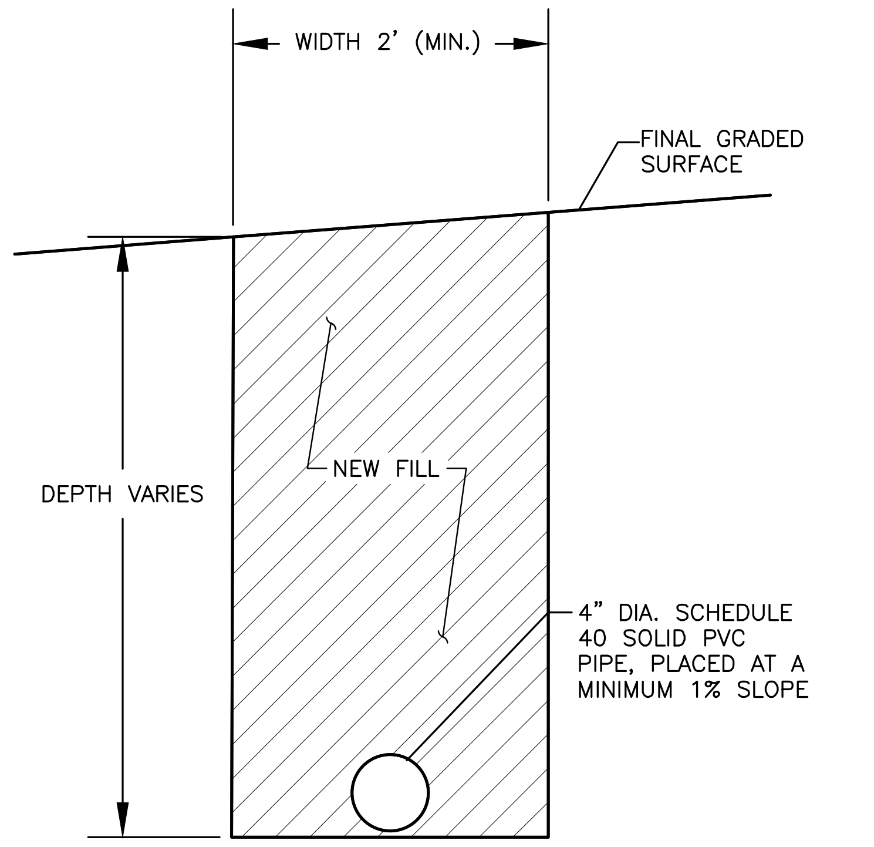


NOTES:

1. TOE KEY RIP–RAP APRONS SIZE IS L=4.0', W1 = 2.0', W2 = 3.5'.
2. SEE TABLE ON SHEET 3 FOR APRON SIZING.

DETAIL 30
RIP-RAP APRON

NOT TO SCALE



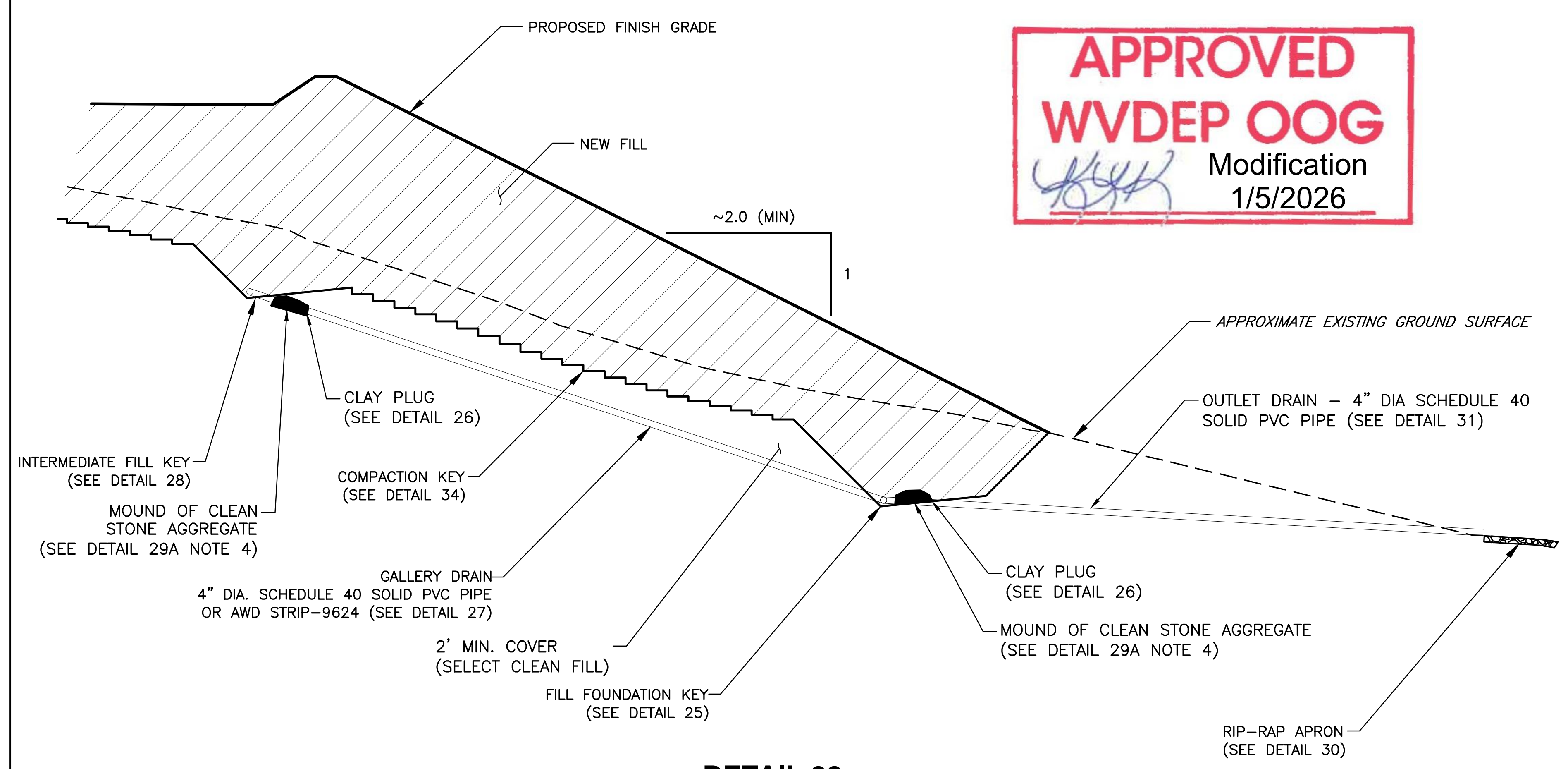
NOTES:

1. USE OUTLET DRAIN TO EXTEND FILL KEY DRAINS BEYOND AND BELOW LIMITS OF NEW FILL.

DETAIL 31
OUTLET DRAIN

NOT TO SCALE

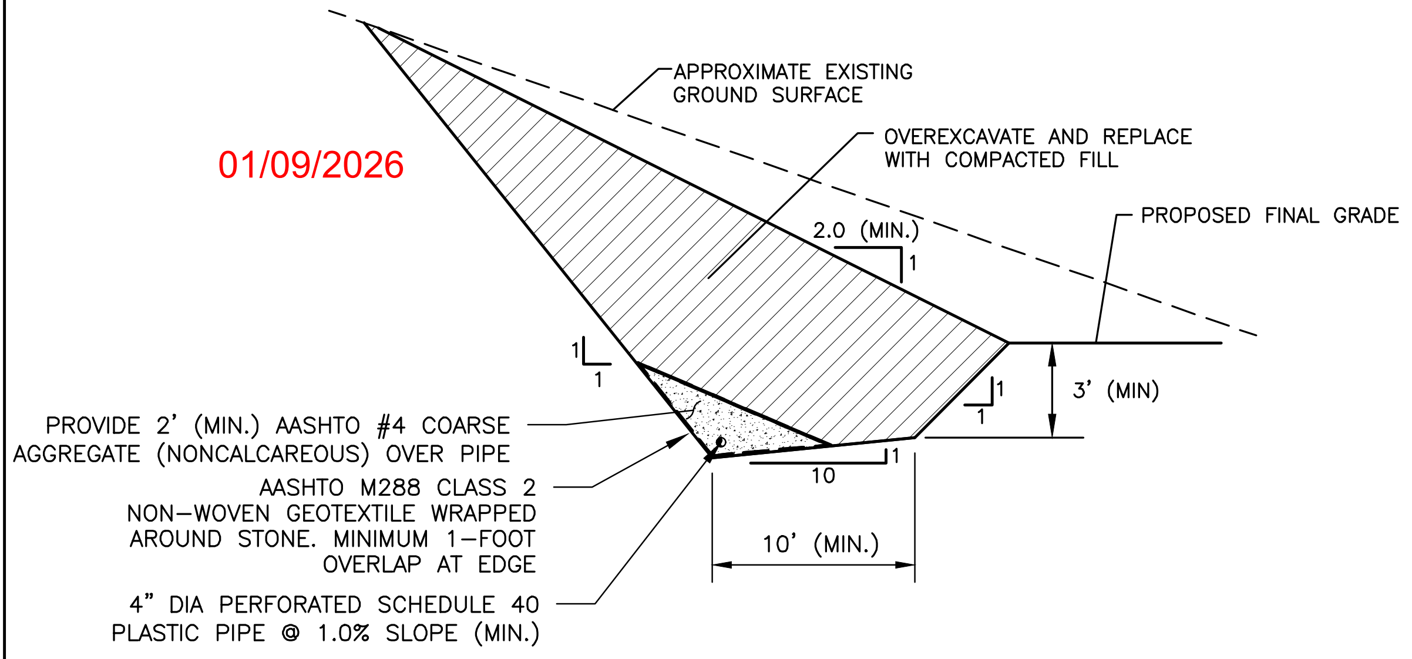
APPROVED
WVDEP OOG
Modification
1/5/2026



DETAIL 32
OUTLET DRAIN TIE-IN DETAIL

NOT TO SCALE

01/09/2026

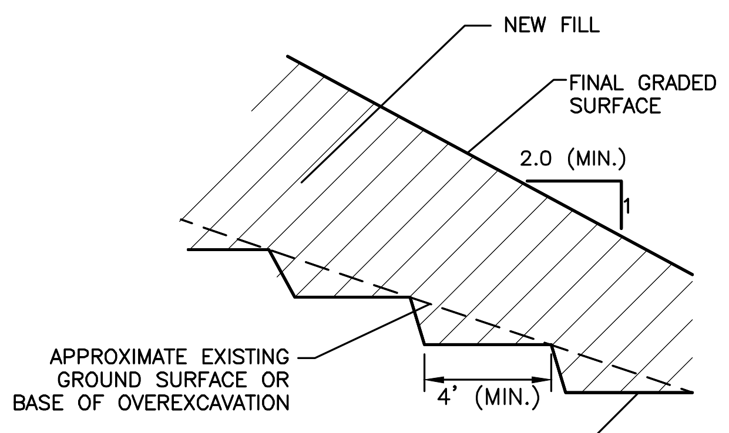


NOTES:

1. OVEREXCAVATE 2H:1V CUT SLOPES AS SHOWN ON THIS DETAIL.
2. COMPACT FILL TO AT LEAST 98% OF THE MAXIMUM DRY DENSITY AND WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT BASED ON THE STANDARD PROCTOR COMPACTION TEST (ASTM D698).

DETAIL 33
TYPICAL SECTION FOR CUT SLOPE
EXCAVATION & BACKFILL

NOT TO SCALE



EXCAVATE A NOTCH INTO SOIL AS FILL PLACEMENT PROGRESSES TO PROVIDE A COMPACTION KEY BETWEEN EXISTING SOIL AND NEW FILL MATERIALS. USE FOR ALL FILL PLACED AT THE SITE.

DETAIL 34
COMPACTION KEY

NOT TO SCALE

JOSEPH D. ROBINSON
19756
Joseph D. Robinson
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
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C805
SHEET 33 OF 38

P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C800.dwg{C805} LS:(10/22/2025 - jwilkins) - LP: 11/11/2025 10:20 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
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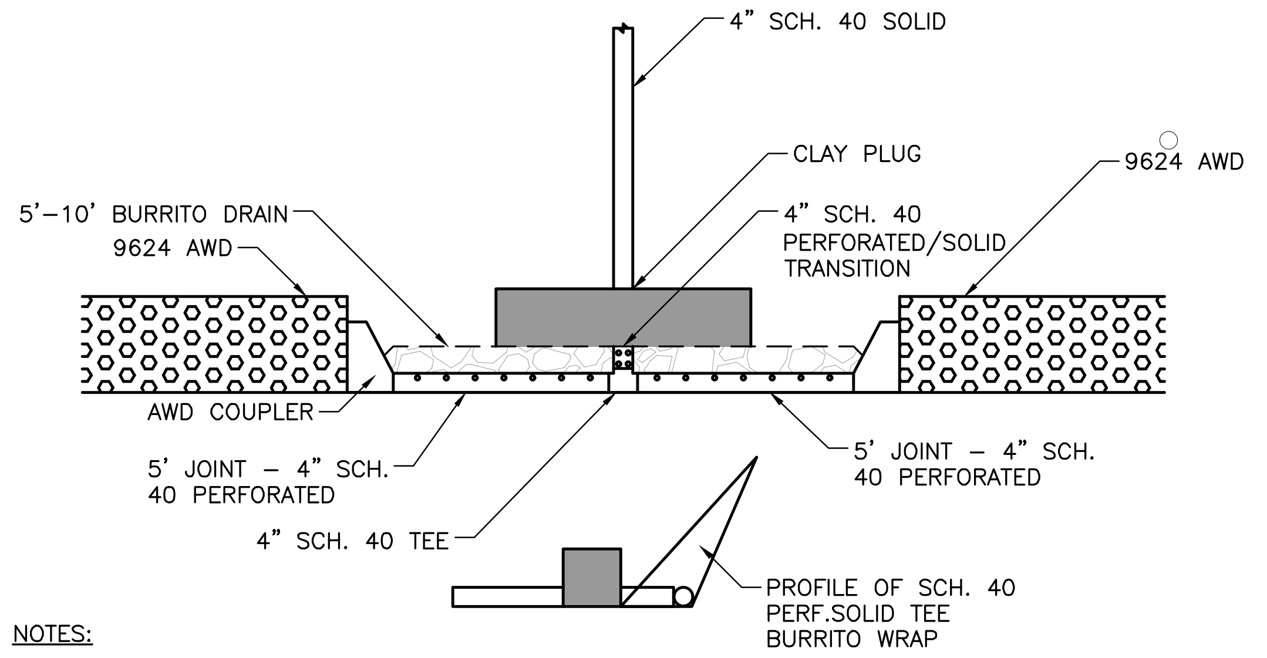
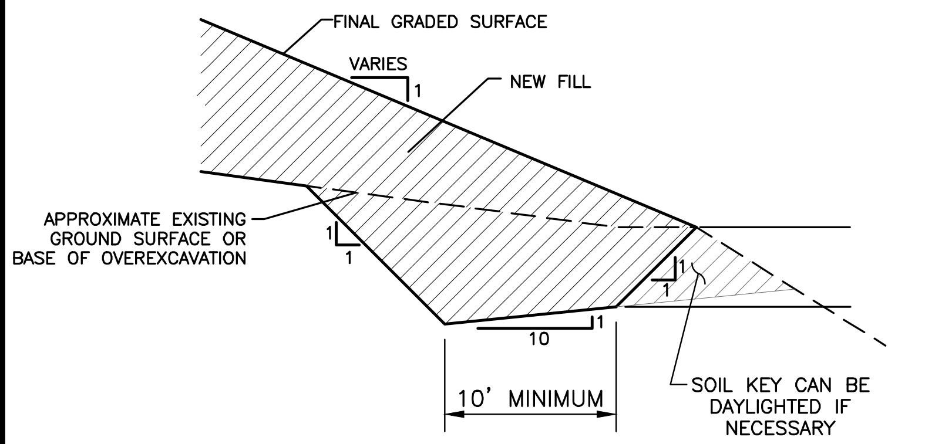


NOTES:

1. TIE AWD CORRUGATED PIPE WITH FITTING INTO SCH. 40. ATTACH AWD FITTING WITH 3 STAINLESS STEEL TAP PIN SCREWS.
2. DURING OUTLET INSTALLATION, MOUND CLEAN STONE AGGREGATE AT THE FIRST PVC JOINT OF PIPE AND THE AWD OUTLET END TO SECURE CONNECTION.

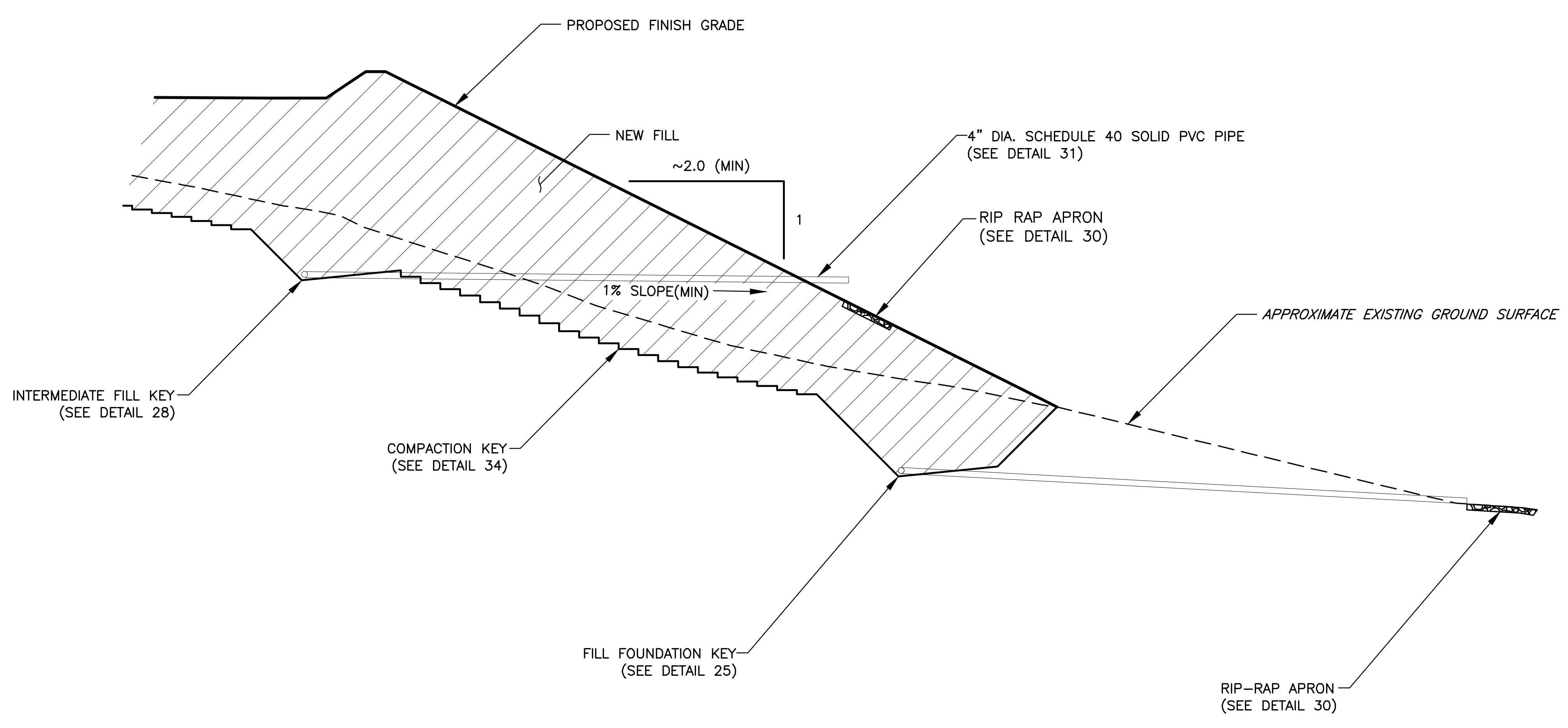
DETAIL 35
AWD / OUTLET CONNECTION

NOT TO SCALE



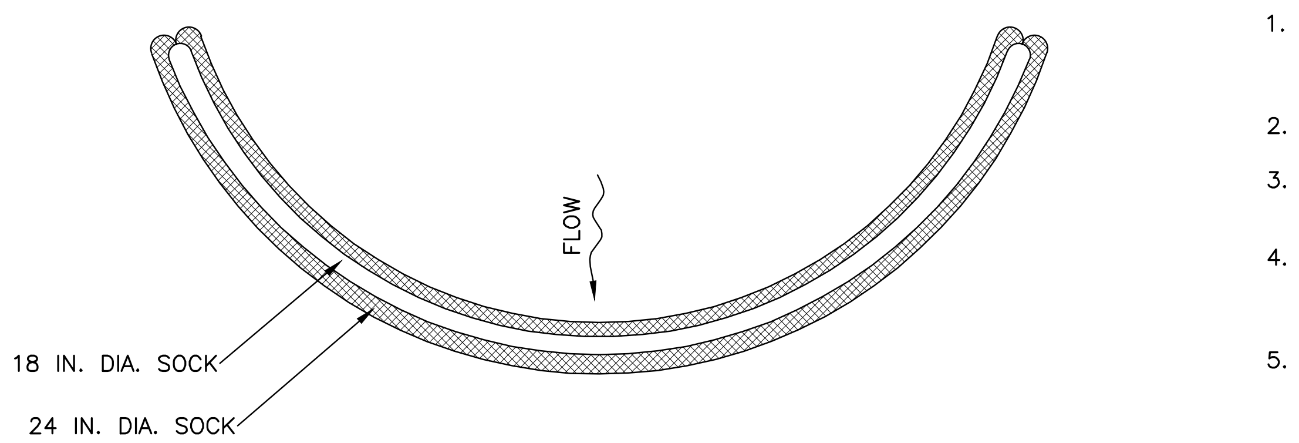
DETAIL 36
SOIL KEY

NOT TO SCALE

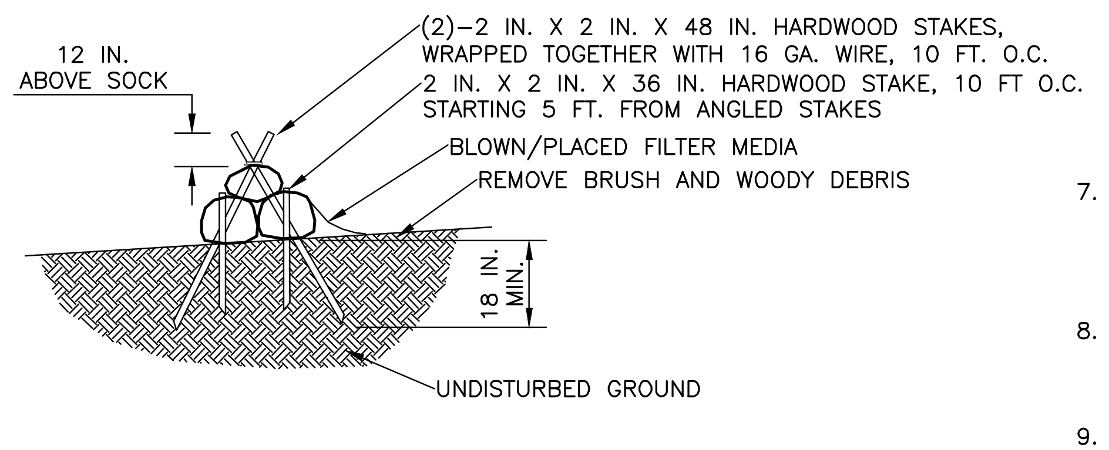


DETAIL 37
OUTLET DRAIN - OUTLET AT FACE OF SLOPE DETAIL

NOT TO SCALE



PLAN VIEW



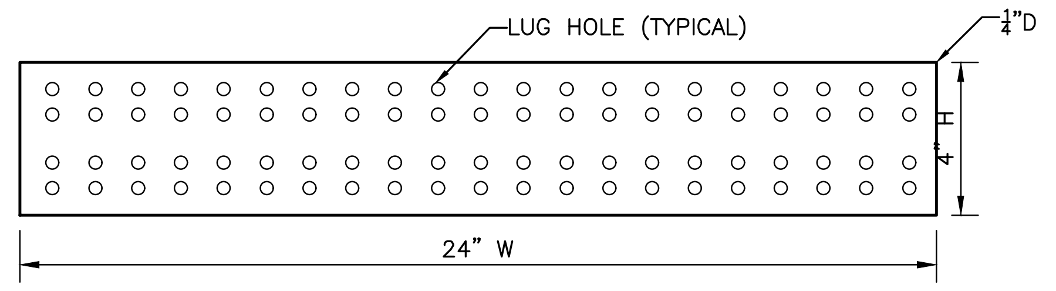
STAKING DETAIL

DESIGN NOTES:

1. COMPOST SOCK SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 3,600 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. SOCKS 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.
6. COMPOST SOCK 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.
7. COMPOST SOCK SEDIMENT TRAPS SHALL PROVIDE 3,600 CUBIC FEET STORAGE CAPACITY WITH 12" FREEBOARD FOR EACH TRIBUTARY DRAINAGE ACRE. (SEE MANUFACTURER FOR ANTICIPATED SETTLEMENT.)
8. THE MAXIMUM TRIBUTARY DRAINAGE AREA IS 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW–THROUGH," NO SPILLWAY IS REQUIRED.
9. COMPOST SOCK 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.
10. PHOTODEGRADABLE AND BIODEGRADABLE SOCKS SHALL NOT BE USED FOR MORE THAN 1 YEAR.

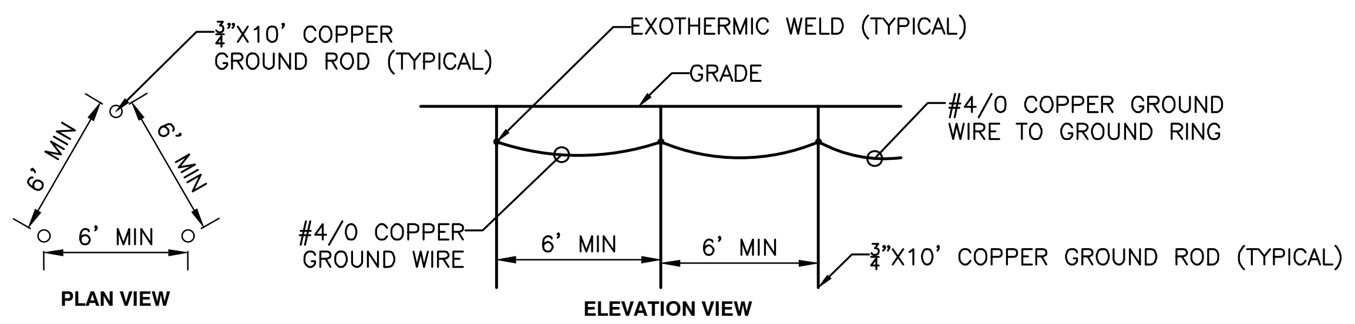
DETAIL 38
TYPICAL COMPOST SOCK SEDIMENT TRAP

NOT TO SCALE



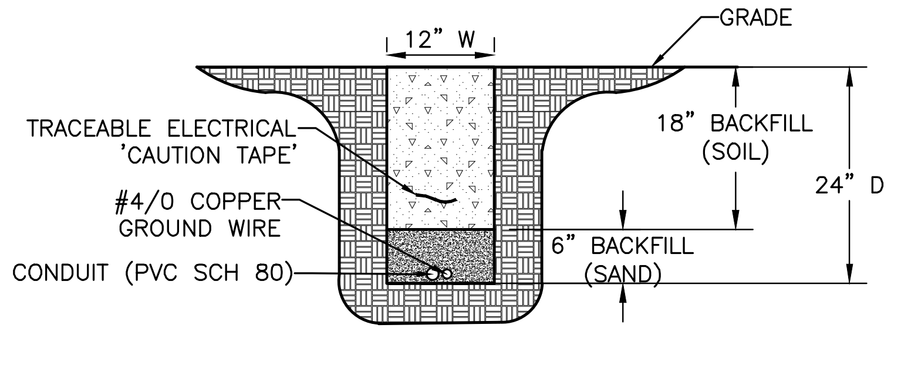
COPPER GROUND BAR DETAIL

NOT TO SCALE



GROUND ROD CONFIGURATION DETAIL

NOT TO SCALE

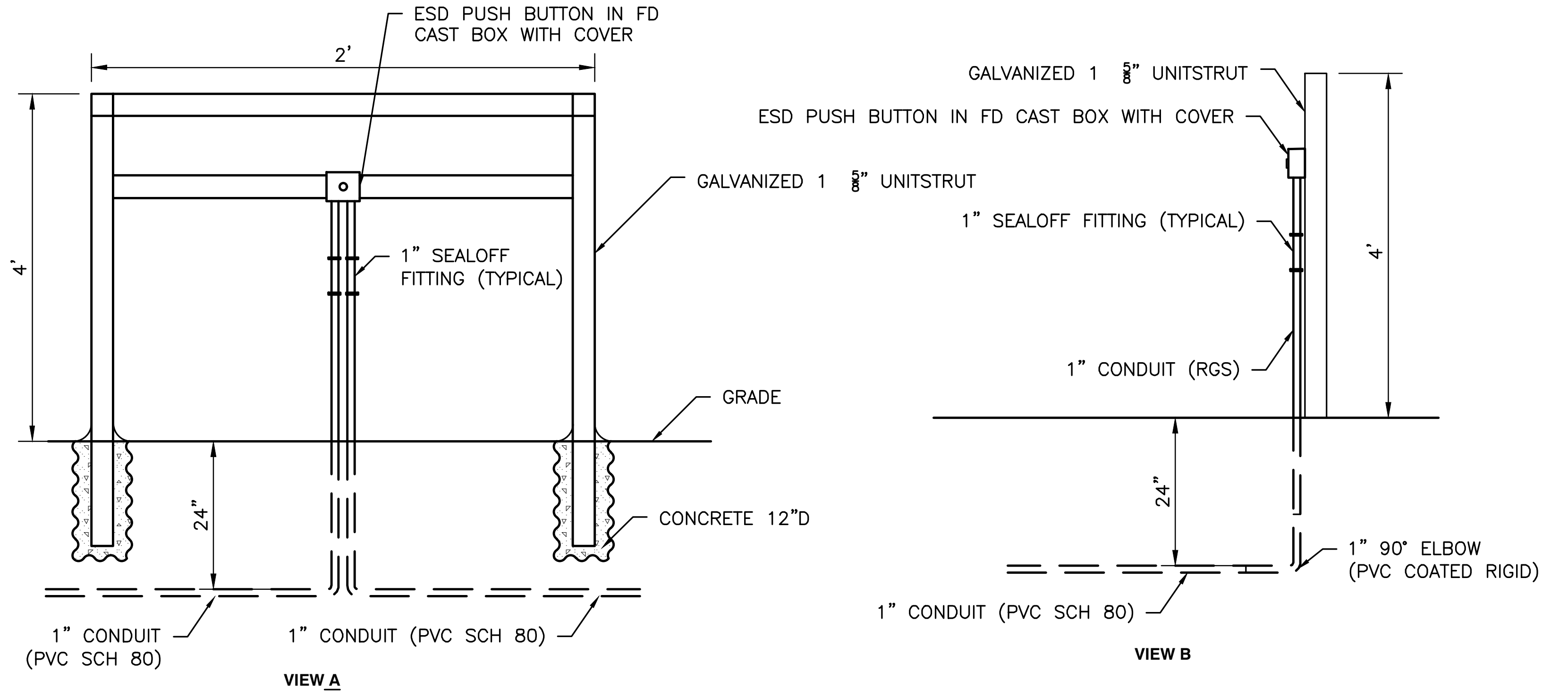


NOTES:

1. TRENCH SHALL BE 12"W X 24"D
2. INSTALL 1" CONDUIT (PVC SCHEDULE 80) & #4/0 (CU) GROUND WIRE AT BOTTOM OF TRENCH & BACKFILL WITH 6" SAND
3. INSTALL TRACEABLE ELECTRICAL CAUTION TAP & BACKFILL WITH 18" OF SOIL

TRENCH DETAIL SECTION 'A-A'

NOT TO SCALE

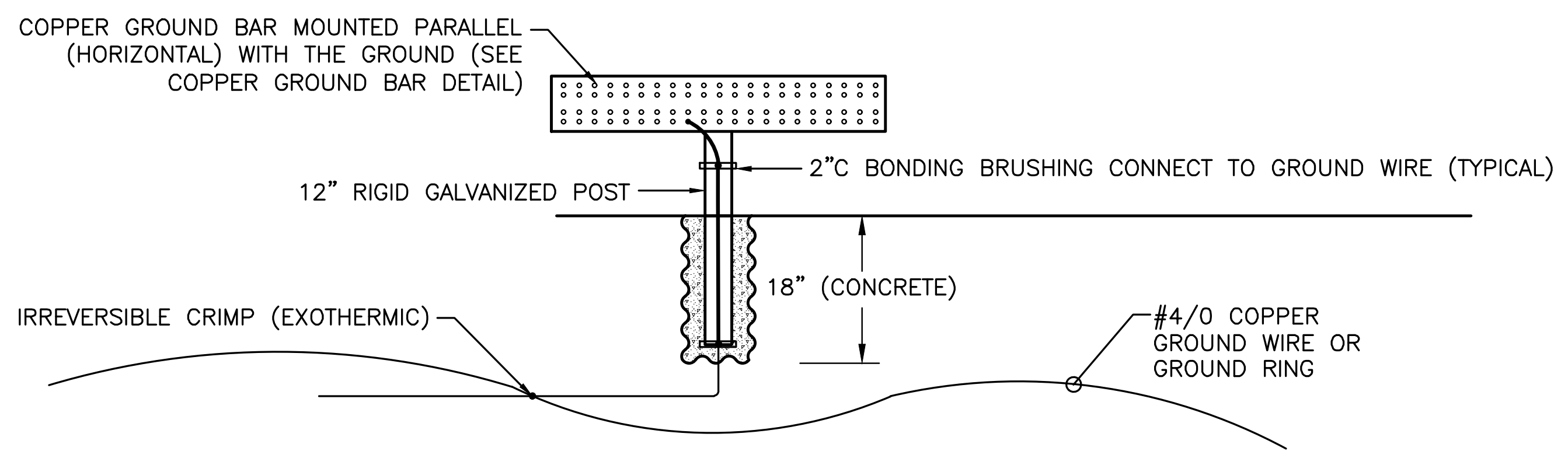


VIEW A

VIEW B

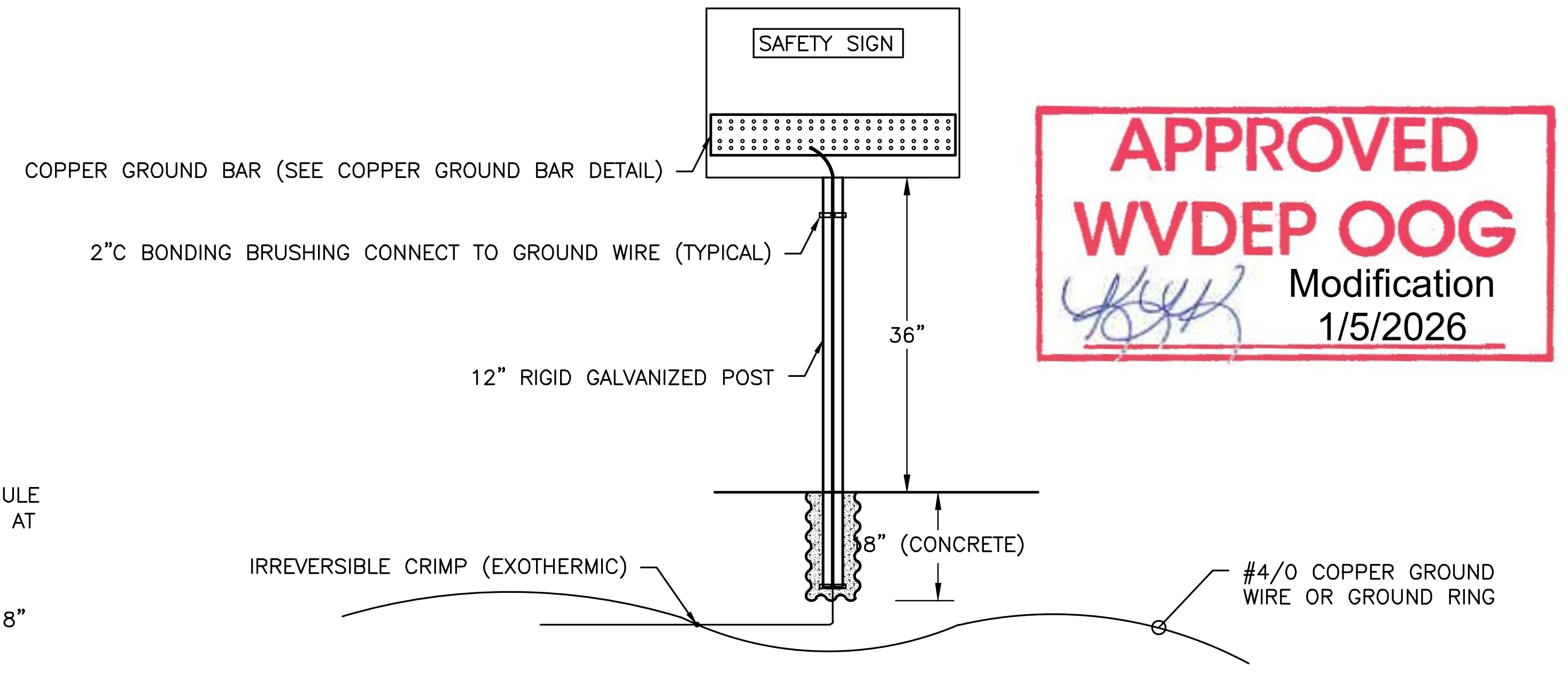
EMERGENCY SHUTDOWN STATION ('ESD') DETAIL

NOT TO SCALE



GROUND STATION AT WELLHEAD ('GS') H DETAIL

NOT TO SCALE



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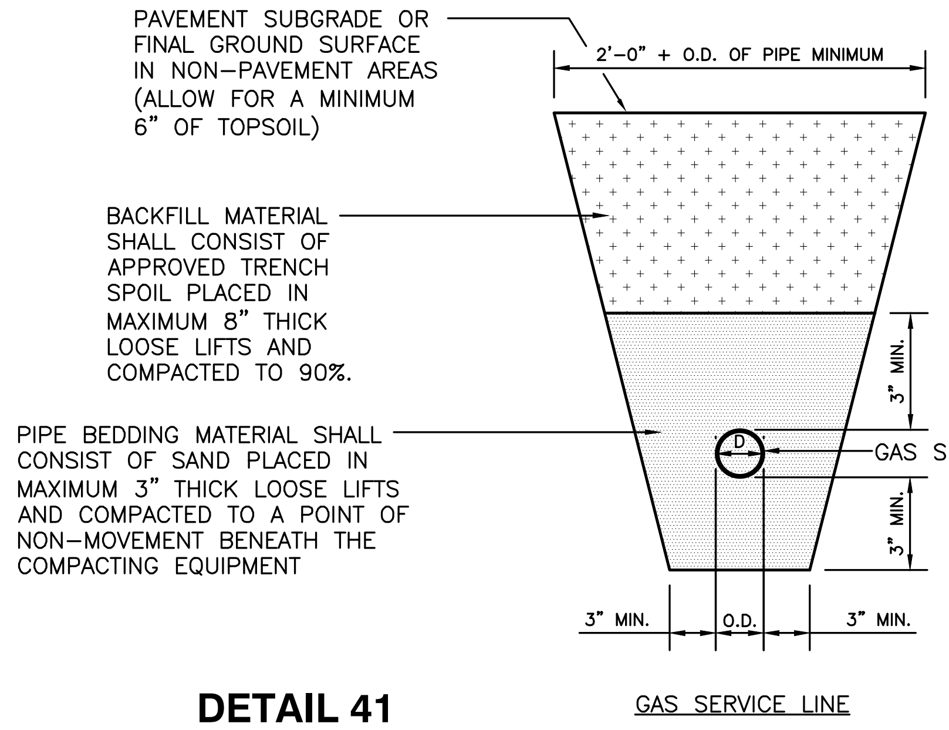
1/5/2026

GROUND STATION ('GS') DETAIL

NOT TO SCALE

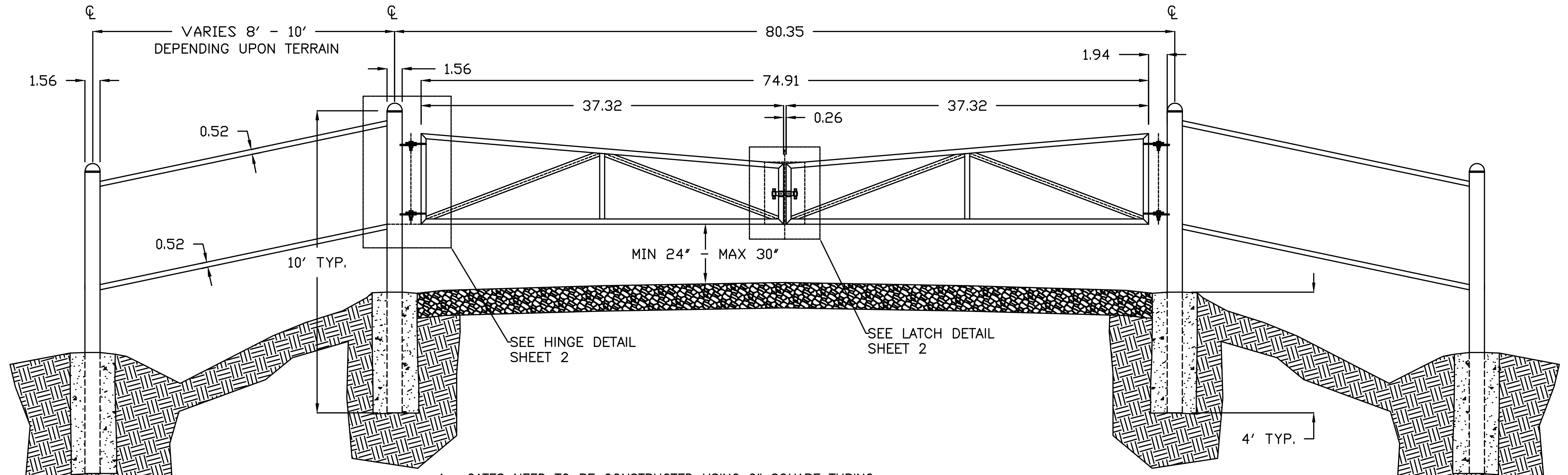
DETAIL 39
TYPICAL GROUNDING RING DETAIL

NOT TO SCALE



DETAIL 41
GAS UTILITY TRENCH

NOT TO SCALE

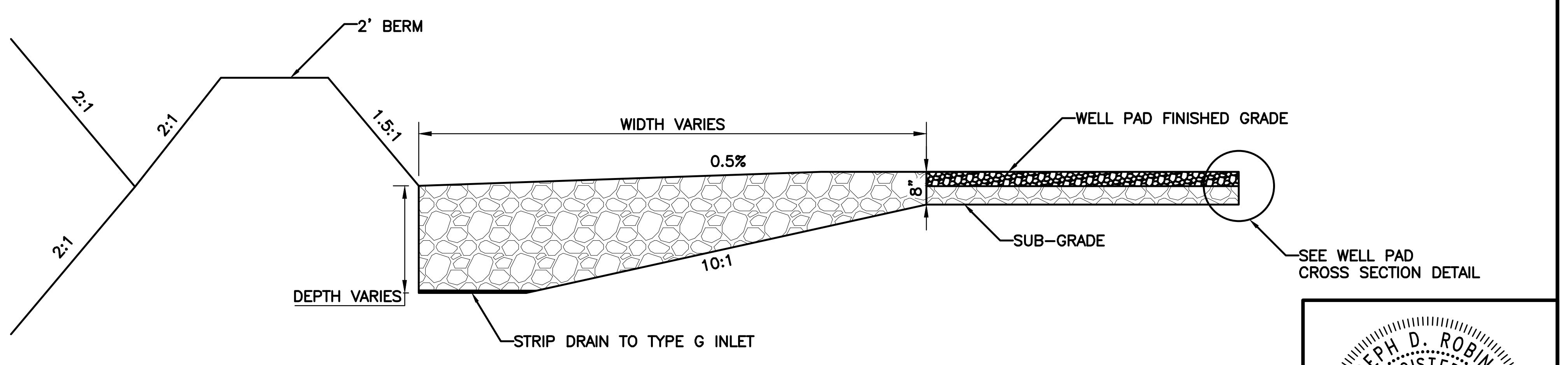


1. GATES NEED TO BE CONSTRUCTED USING 2" SQUARE TUBING.
2. GATE POSTS CONSTRUCTED USING 6" STEEL PIPE, 10' IN LENGTH.
3. GATES ARE TO BE 12' IN LENGTH EACH WITH AT LEAST 1 UPRIGHT BRACE BETWEEN FRONT AND REAR UPRIGHT.
4. 2 POSTS WILL BE USED TO HANG GATES AN ADDITIONAL 2 POSTS USED AS SUPPORT, APPROXIMATELY 8–10' BEHIND GATE POSTS.
5. 2" PIPE MAY BE USED AS BRACING BETWEEN GATE POSTS TO SECURE POSTS AND KEEP ATV'S FROM GOING AROUND GATES.
6. GATE POSTS SHOULD BE INSTALLED 4' IN THE GROUND WITH A MINIMUM 4 BAGS OF QUICKCRETE PER POST.
7. GATES WILL HAVE A 16" STEEL PLATE WELDED AT CLOSURE TO SECURE LOCKS, 8" WELDED ON GATE, 8" OVERHANG TO OVERLAP OTHER GATE.
8. THE RECEIVER FOR THE LATCH ON THE GATE NEEDS TO BE CONSTRUCTED USING 2"X2"X 3/16" TUBING TO ALLOW SPACE FOR LATCH.
9. BOTTOM OF GATES NEED TO BE BETWEEN 24" AND 30" ABOVE ROAD SURFACE, TO KEEP ATV'S FROM GOING UNDER.
10. GATES ARE TO PAINTED SAFETY YELLOW AND SIGNS WILL BE PROVIDED TO ATTACH TO GATES.
11. A SPACING OF 1" BETWEEN GATES NEEDS TO BE MAINTAINED FOR LATCH TO FIT PROPERLY.
12. FABRICATORS HAVE FREEDOM TO DESIGN THEIR HINGES TO ALLOW ADJUSTABILITY AS THESE GATES REQUIRE PRECISE INSTALLATION FOR LATCH SYSTEM TO WORK PROPERLY. I HAVE A DESIGN WITH PICS I WILL ATTACH AND YOU ARE FREE TO USE IT. PLEASE INSURE PROPER FUNCTION OF GATES BEFORE LEAVING SITE.
13. REMEMBER A "ONE CALL" WILL BE REQUIRED BEFORE INSTALLING GATES.
14. STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572 GRADE 50

DETAIL 40
ANTERO ENTRANCE GATE

NOT TO SCALE

01/09/2026



DETAIL 42
BLIND DITCH

NOT TO SCALE

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

JOSEPH D. ROBINSON
19756
11-11-2025

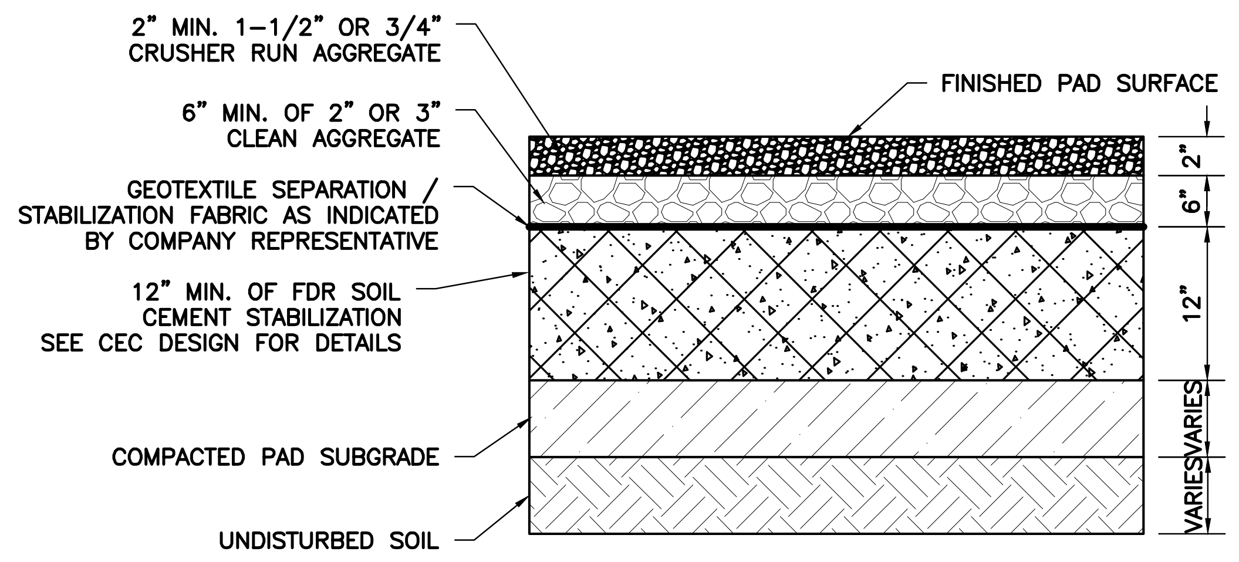
DETAILS

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	N/A	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:	JDR		

DRAWING NO.:
C806
SHEET 34 OF 38

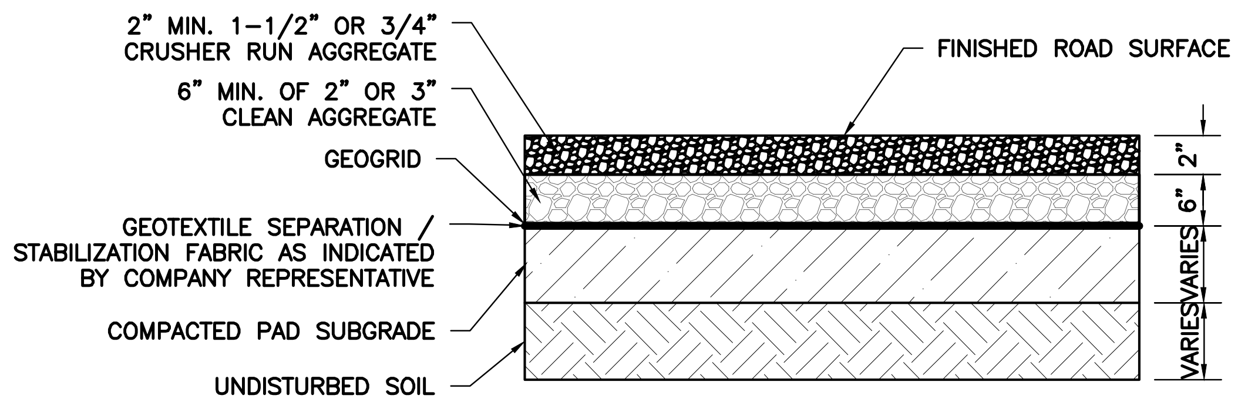
P:\330-000\336-328\-CADD\Dwg\CV01\336-328_C800.dwg{C806} LS:(10/22/2025 – jwilkins) – LP: 11/11/2025 10:21 AM

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION



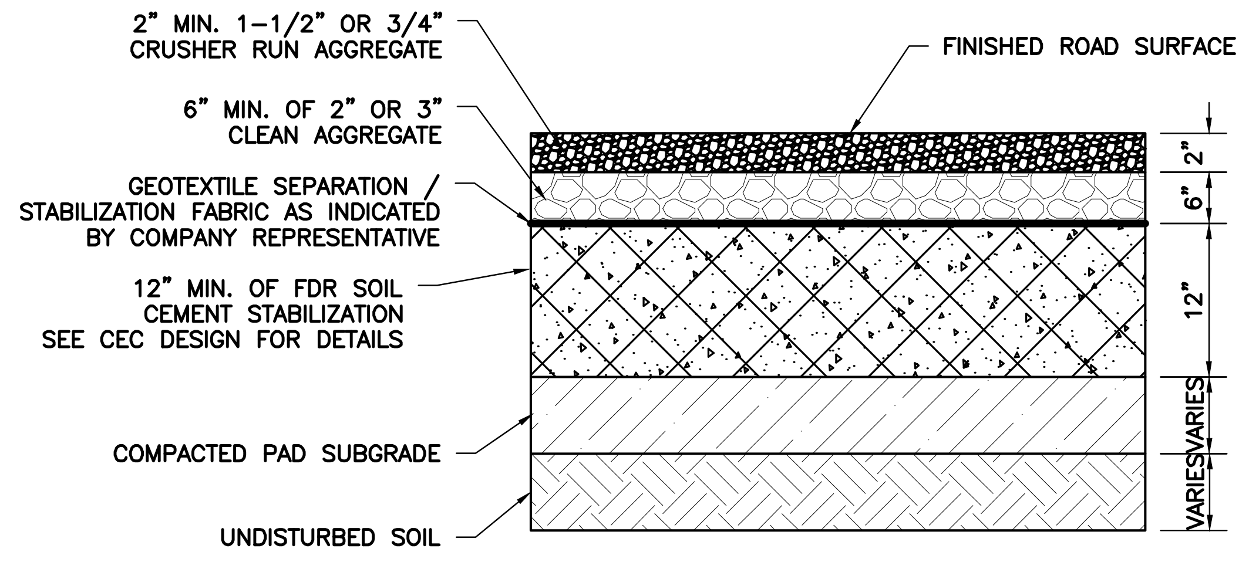
DETAIL 43
WELL PAD CROSS-SECTION

NOT TO SCALE



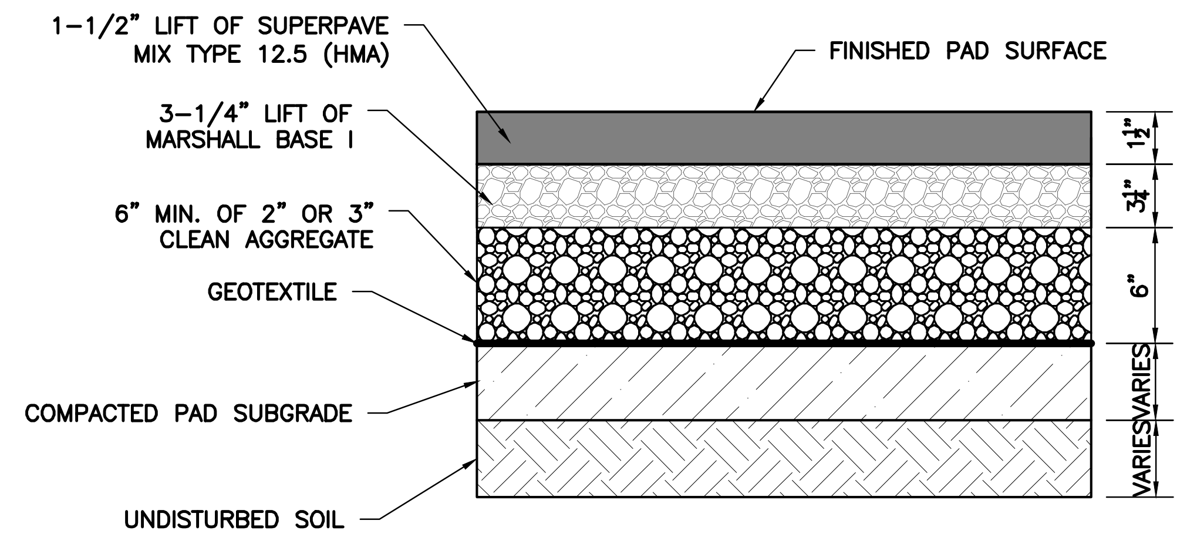
DETAIL 44
ACCESS ROAD STONE W/GEOGRID CROSS-SECTION

NOT TO SCALE



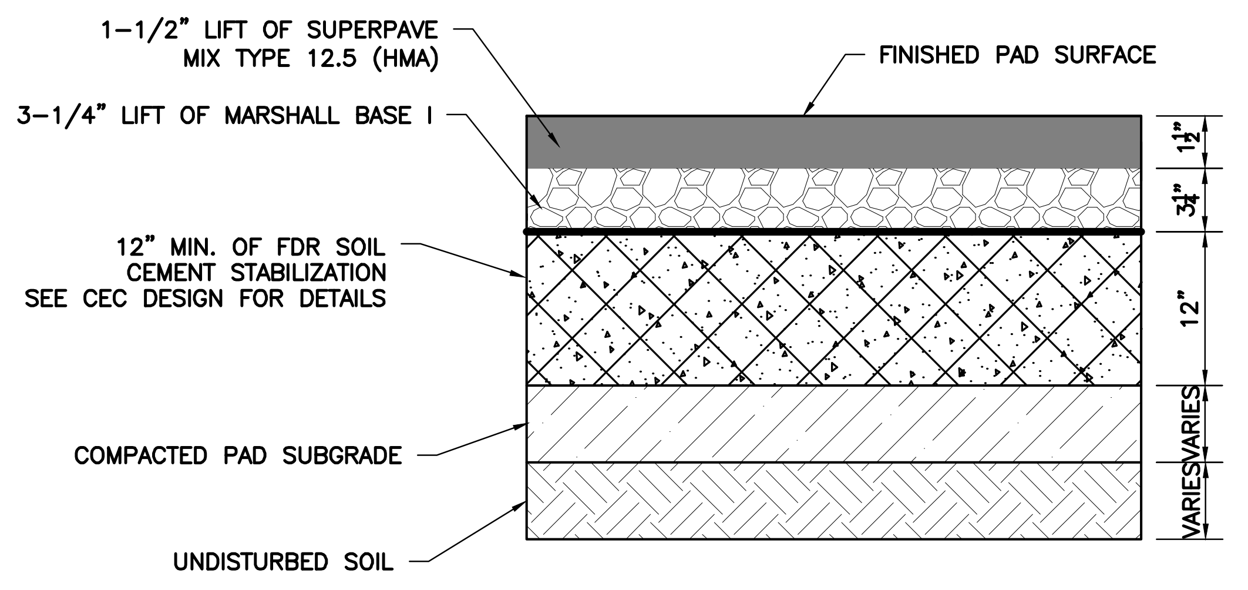
DETAIL 45
ACCESS ROAD CROSS-SECTION

NOT TO SCALE



DETAIL 46
ACCESS ROAD PAVED CROSS-SECTION

NOT TO SCALE



DETAIL 47
ACCESS ROAD PAVED ENTRANCE CROSS-SECTION

NOT TO SCALE

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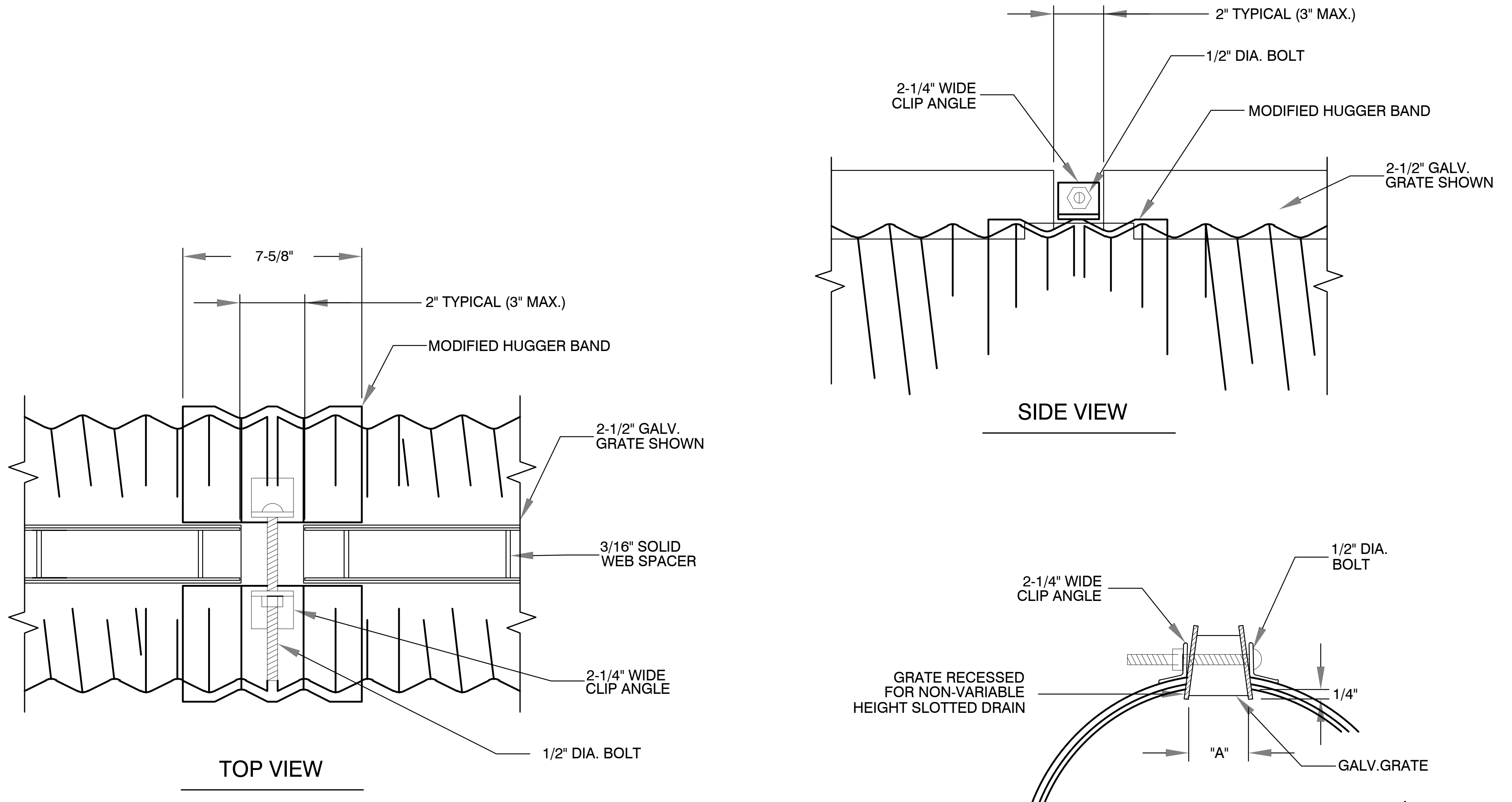
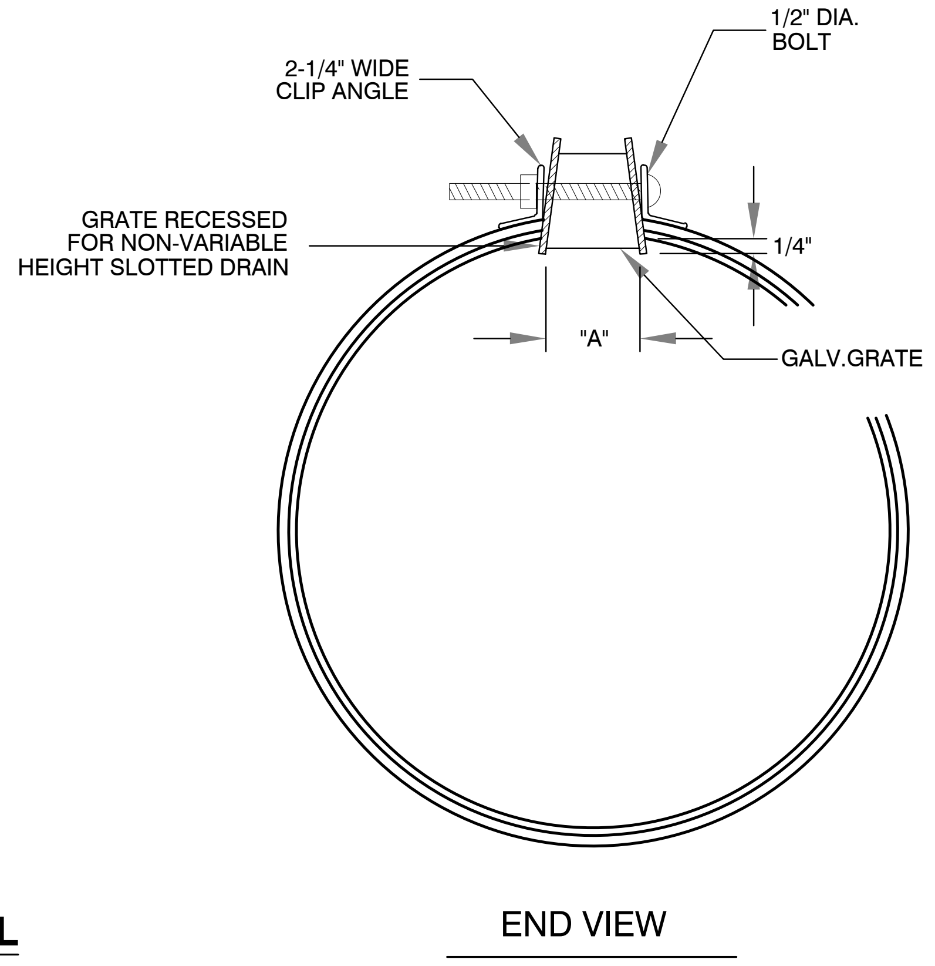
WVDEP OOG
Modification
1/5/2026



TOP VIEW

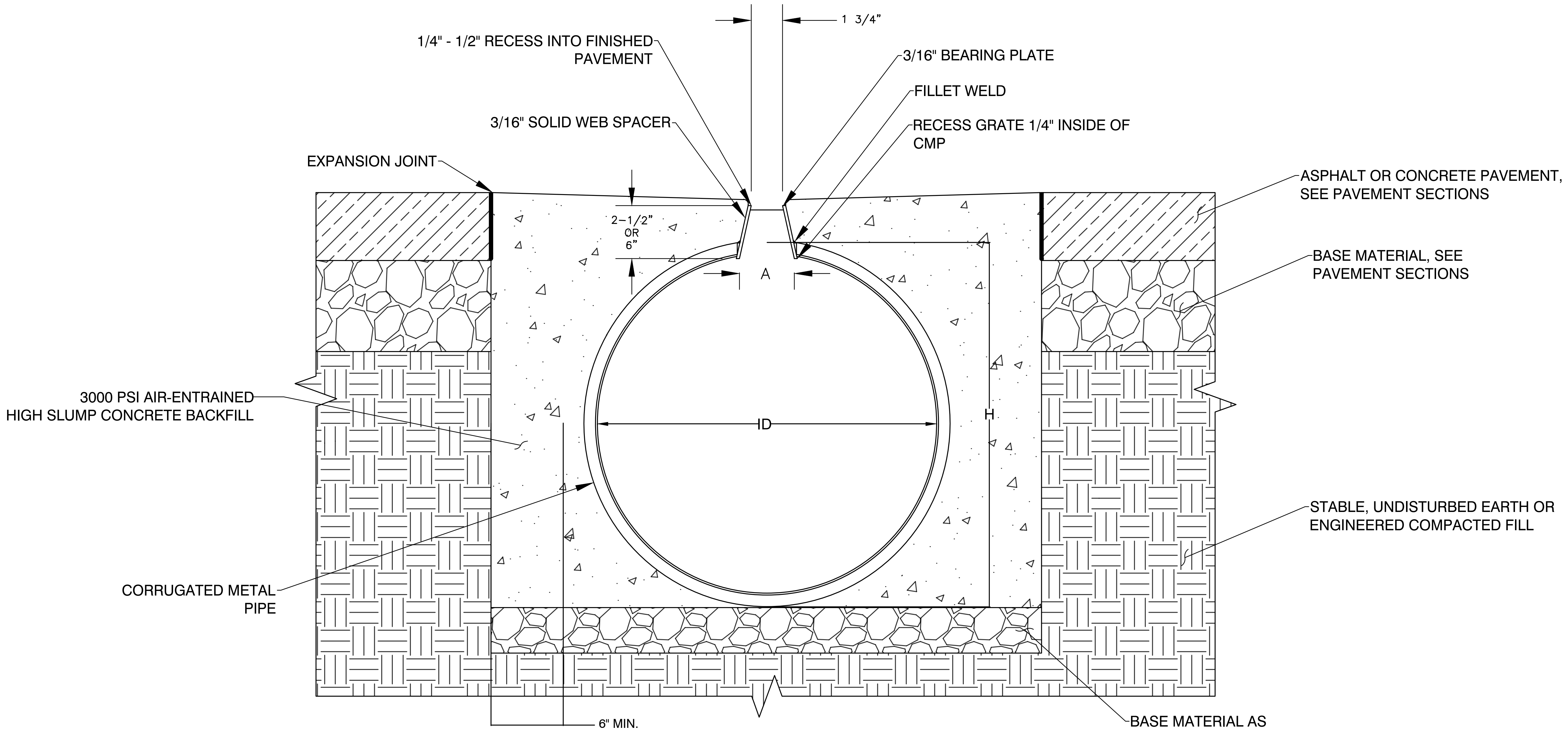
SIDE VIEW



END VIEW

DETAIL 48
HUGGER BAND DETAIL

NOT TO SCALE



01/09/2026

VERT. GRATE HEIGHT	"A"
2 1/2"	2-1/4"
6"	3"

NOTES:
1. BACKFILL DESIGN SHOULD BE USED FOR HS-20 LOADING APPLICATIONS.
2. REFER TO MANUFACTURE SPECIFICATIONS FOR INSTALLATION DETAILS.

DETAIL 49
SLOTTED DRAIN DETAIL

NOT TO SCALE

JOSEPH D. ROBINSON
19756

REVISION RECORD

NO	DATE	DESCRIPTION
1	2/27/25	REVISED MATERIAL QUANTITIES, REVISED FARM ROAD TIE IN, DETAILS 48/49 ADDED
2	6/5/2025	ADDITIONAL LOD, REMOVED BERM, RELOCATED SUMPS, REVISED GRADING
3	8/25/2025	ADDED WELL HEAD LOCATIONS AND AST

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ANTERO RESOURCES CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

DETAILS

DATE: FEBRUARY 2025
DRAWN BY: JES
DWG SCALE: N/A
CHECKED BY: ER
PROJECT NO: 336-328
APPROVED BY: JDR

DRAWING NO.: **C807**
SHEET 35 OF 38

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WVDEP OOG
Modification
1/5/2026

01/09/2026

SITE RECLAMATION NARRATIVE:

POST CONSTRUCTION - THE CONSTRUCTION SITE SHALL BE STABILIZED AS SOON AS POSSIBLE AFTER COMPLETION. THE ESTABLISHMENT OF FINAL COVER MUST BE INITIATED NO LATER THAN 7 DAYS AFTER REACHING FINAL GRADE. THE ACCESS ROADS, WATER CONTAINMENT PAD, AND WELL PAD ARE TO BE MAINTAINED THROUGHOUT THE LIFE OF THE FACILITY. ALL CULVERTS, ROADSIDE DITCHES, BROAD-BASED DIPS, DIVERSION DITCHES, ETC. MUST BE MAINTAINED IN PROPER WORKING ORDER. ANY SOIL THAT IS DISTURBED ALONG THE ACCESS ROAD, WATER CONTAINMENT PAD, OR WELL PAD MUST BE REVEGETATED ACCORDING TO THESE PLANS AND THE WVDEP OFFICE OF OIL AND GAS FIELD MANUAL. IF NECESSARY, ALL TEMPORARY BMP MEASURES CAN BE REMOVED AFTER THE SITE IS PERMANENTLY STABILIZED AND APPROVAL IS RECEIVED FROM THE WVDEP. ANY AREAS DISTURBED BY REMOVAL OF THE BMP'S SHALL BE REPAIRED, STABILIZED, AND PERMANENTLY SEEDED.

POST USE - WITHIN 6 MONTHS OF THE COMPLETION OF THE FINAL HORIZONTAL WELL OF THE PAD OR THE EXPIRATION OF THE FIVE-YEAR MAXIMUM AGGREGATE PARTIAL RECLAMATION PERIOD, WHICHEVER OCCURS FIRST, THE OPERATOR SHALL COMPLETE FINAL RECLAMATION OF THE WELL PAD & WATER CONTAINMENT PAD AS SET FORTH IN THESE PLANS. ALL EXISTING BMP'S SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. DRILL CUTTINGS, DRILLING MUD, AND LINERS FOR WELLS PERMITTED UNDER WV CODE €35-4-21, €22-6A, AND CRS 35-8, MUST BE REMOVED FROM SITE AND DISPOSED OF AT AN APPROVED SOLID WASTE FACILITY OR, IF THE SURFACE OWNER CONSENTS, THE DRILL CUTTING AND ASSOCIATED DRILLING MUD MAY BE MANAGED ON SITE IN A MANNER APPROVED BY THE SECRETARY. THE WATER CONTAINMENT SYSTEM AND ALL PIPING, WATER LINES, AND ASSOCIATED STRUCTURES SHALL BE REMOVED. THE SITE SHALL BE REGRADED AS INDICATED ON THE PLANS. STOCKPILED TOPSOIL SHOULD BE RE-SPREAD OVER DISTURBED AREA. TOPSOIL SHOULD NOT BE ADDED TO SLOPES STEEPER THAN 2:1 UNLESS GOOD BONDING TO THE SUB-SOIL CAN BE ACHIEVED. UPON COMPLETION OF THE GRADING. THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS. ESTABLISHMENT OF FINAL STABILIZATION MUST BE INITIATED NO LATER THAN 7 DAYS AFTER REACHING FINAL GRADE. FINAL STABILIZATION MEANS THAT ALL SOIL-DISTURBING ACTIVITIES ARE COMPLETED, AND THAT EITHER A PERMANENT VEGETATIVE COVER WITH A DENSITY OF 70% OR GREATER HAS BEEN ESTABLISHED OR THAT THE SURFACE HAS BEEN STABILIZED BY HARD COVER SUCH AS GRAVEL AND PAVEMENT ACCESS ROADS OR BUILDINGS. IT SHOULD BE NOTED THAT THE 70% REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT JUST A PERCENT OF THE SITE.

NOTES:

1. DURING SITE RECLAMATION ALL FILL AREAS SHALL BE COMPACTED IN 12" MAXIMUM LIFT THICKNESS WITH A VIBRATING SHEEPSFOOT ROLLER TO 95% COMPACTION PER STANDARD PROCTOR DENSITY, ASTM D-698. MOISTURE CONTENT WILL BE CONTROLLED IN ACCORDANCE WITH THE STANDARD PROCTOR TEST (ASTM-D698) RESULTS. DEWATERING SYSTEMS SHALL REMAIN IN PLACE WITH VALVES REMAINING OPEN. ALL DEWATERING SYSTEMS SHALL BE INSPECTED REGULARLY PER STANDARD OPERATING PROCEDURE.

JOSEPH D. ROBINSON
19756

REVISION RECORD

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ANTERO RESOURCES
CORPORATION
HARBOUR WELL PAD
WETZEL COUNTY
WEST VIRGINIA

OVERALL RECLAMATION PLAN

DATE: FEBRUARY 2025	DRAWN BY: JES
DWG SCALE: 1"=100'	CHECKED BY: ER
PROJECT NO: 336-328	
APPROVED BY: JDR	

DRAWING NO.:
C900

SHEET 36 OF 38

HARBOUR WELL PAD
ANTERO RESOURCES CORPORATION
ISSUED FOR CONSTRUCTION

APPROVED
WVDEP OOG
Modification
1/5/2026

Joseph D. Robinson
19756
11-11-2025

REVISION RECORD

NO	DATE	DESCRIPTION
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ANTERO RESOURCES CORPORATION HARBOUR WELL PAD WETZEL COUNTY WEST VIRGINIA

RECLAMATION PLAN

DATE:	FEBRUARY 2025	DRAWN BY:	JES
DWG SCALE:	1"=50'	CHECKED BY:	ER
PROJECT NO:	336-328		
APPROVED BY:			JDR

DRAWING NO.:
C901
SHEET 37 OF 38

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WVDEP OOG
Modification
1/5/2026

JOSEPH D. ROBINSON
REGISTERED
19756
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
Joseph D. Robinson
11-11-2025

REVISION RECORD

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WETZEL COUNTY
WEST VIRGINIA

RECLAMATION PLAN

DATE: FEBRUARY 2025	DRAWN BY: JES
DWG SCALE: 1"=50'	CHECKED BY: ER
PROJECT NO: 336-328	
APPROVED BY: JDR	

DRAWING NO.:
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SHEET 38 OF 38

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