

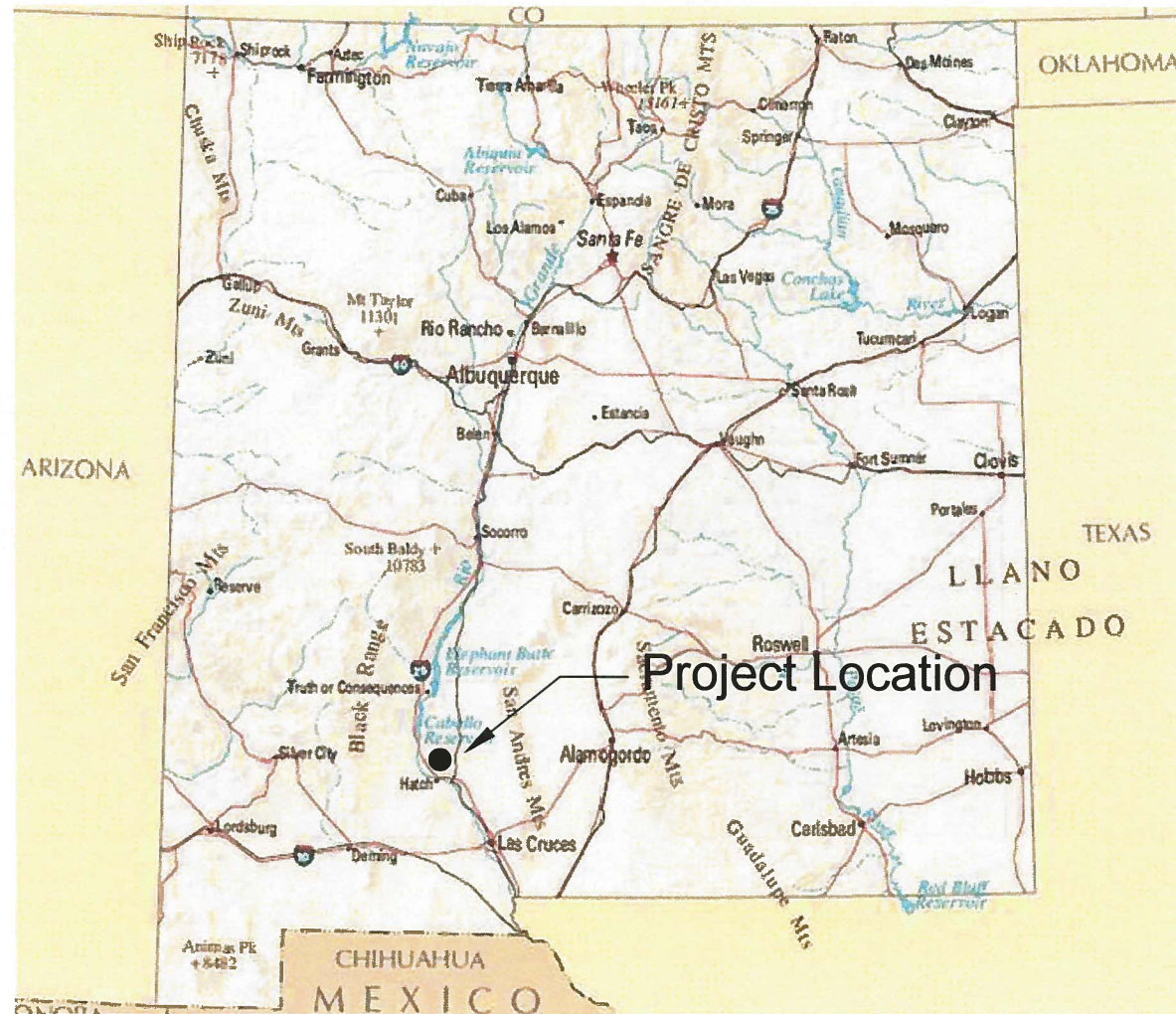


RED HILL MINE SAFEGUARD PROJECT PHASE I GARFIELD, NEW MEXICO PROJECT NO. EMNRD-MMD-2024-03



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Meghan J. McDonald, P.E.

I, MEGHAN MCDONALD HEREBY STATE TO THE BEST OF MY KNOWLEDGE AND UNDERSTANDING THAT THIS DESIGN AND ACCOMPANYING DRAWINGS HAVE BEEN PREPARED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH STANDARD AND GENERALLY ACCEPTED ENGINEERING PRACTICES AND PROCEDURES IN EFFECT AT THE TIME.

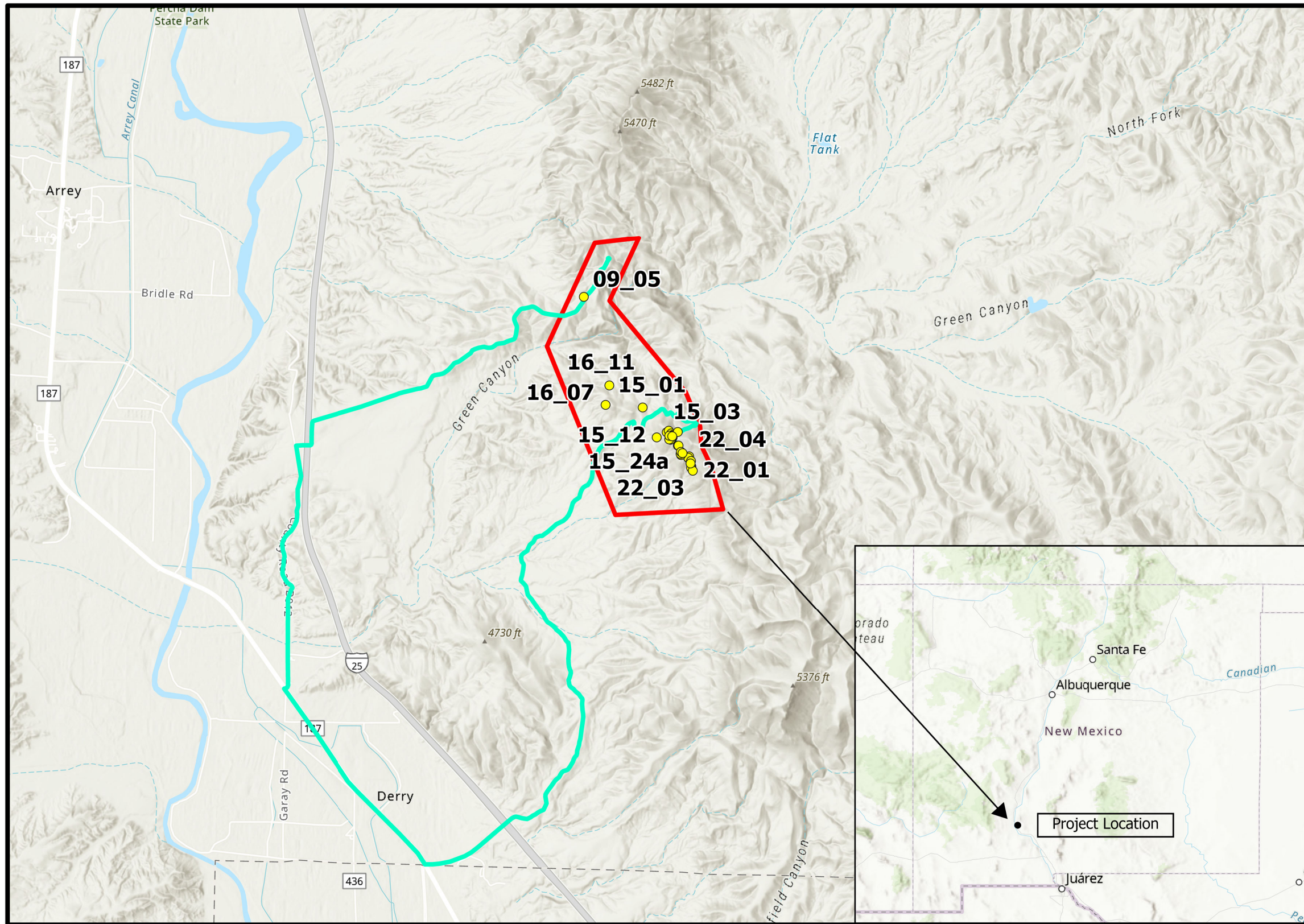
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPS, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

PROJECT CONTACT

MEGHAN J. MCDONALD, P.E.
 PRINCIPAL ENGINEER
 NEW MEXICO ABANDONED MINE LAND PROGRAM
 NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
 PHONE: (505) 629-9872

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	Project Cover Sheet	DRAWN BY: MJM	
DATE: 05/13/2024		REVISED BY: LDV	
EMNRD-MMD-2024-03			
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 1	

Figure 2 - Project Area Map



Map Legend

Area of Potential Effects (APE)



Access Routes



Red Hill Safeguarding Locations

Red Hill Mine Safeguarding Project Phase I

Map Credit: MF Peralta

Spatial Reference

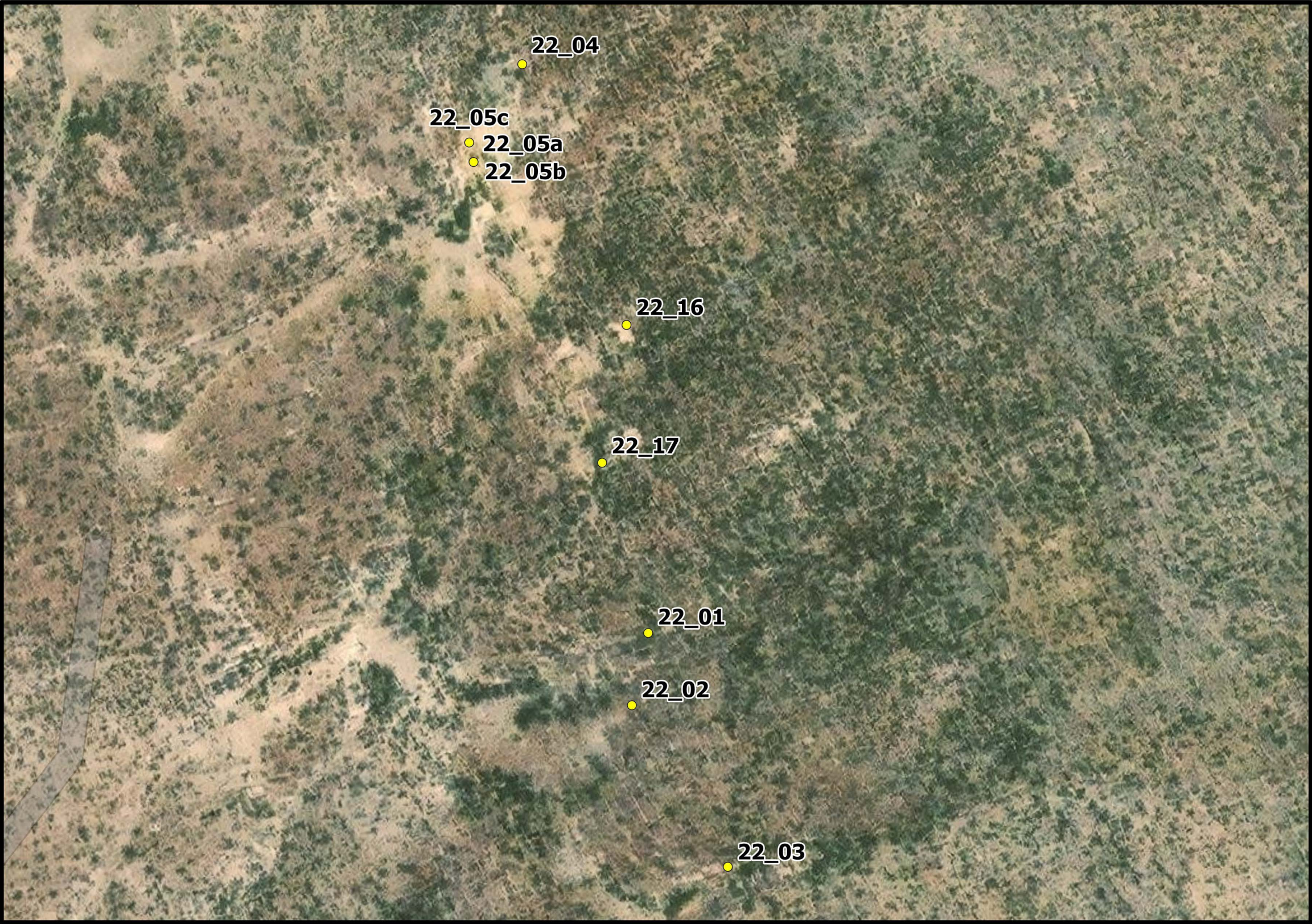
Name: NAD 1983 UTM Zone 13N






Scale: 1:49,129



Figure 2a - Project Area Map



Map Legend

- Area of Potential Effects (APE) 
- Access Routes 
- Red Hill Safeguarding Locations 

Red Hill Mine Safeguarding Project Phase I

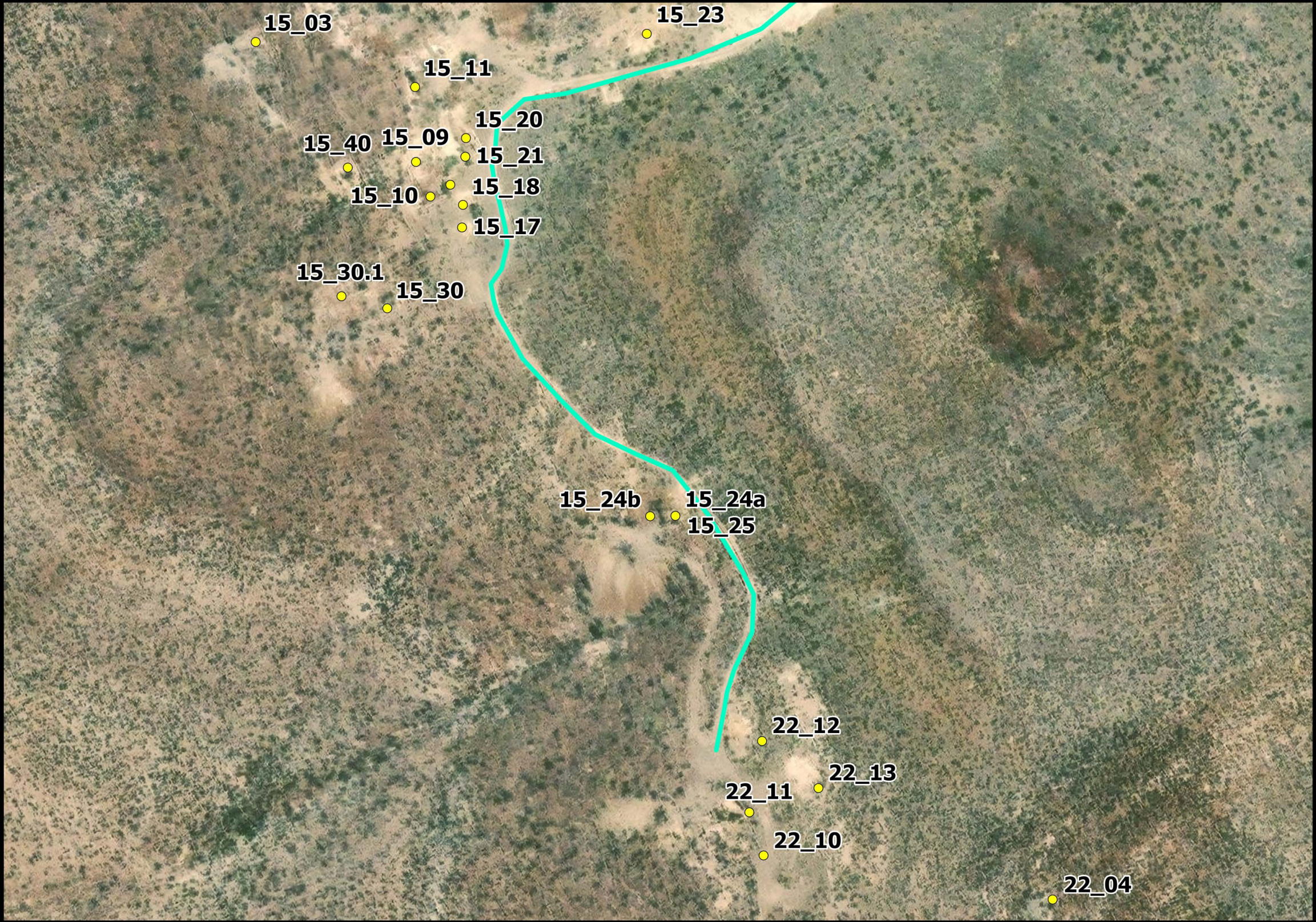
Map Credit: MF Peralta
Spatial Reference
Name: NAD 1983 UTM Zone 13N



Scale: 1:885



Figure 2b - Project Area Map



Map Legend

- Area of Potential Effects (APE)
- Access Routes
- Red Hill Safeguarding Locations

Red Hill Mine Safeguarding Project Phase I

Map Credit: MF Peralta
 Spatial Reference
 Name: NAD 1983 UTM Zone 13N



Scale: 1:1,383



Figure 2c - Project Area Map



Map Legend

Area of Potential Effects (APE)



Access Routes

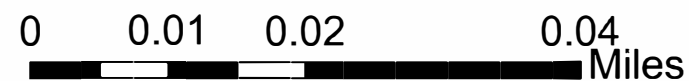
Red Hill Safeguarding Locations

Red Hill Mine Safeguarding Project
Phase I

Map Credit: MF Peralta

Spatial Reference

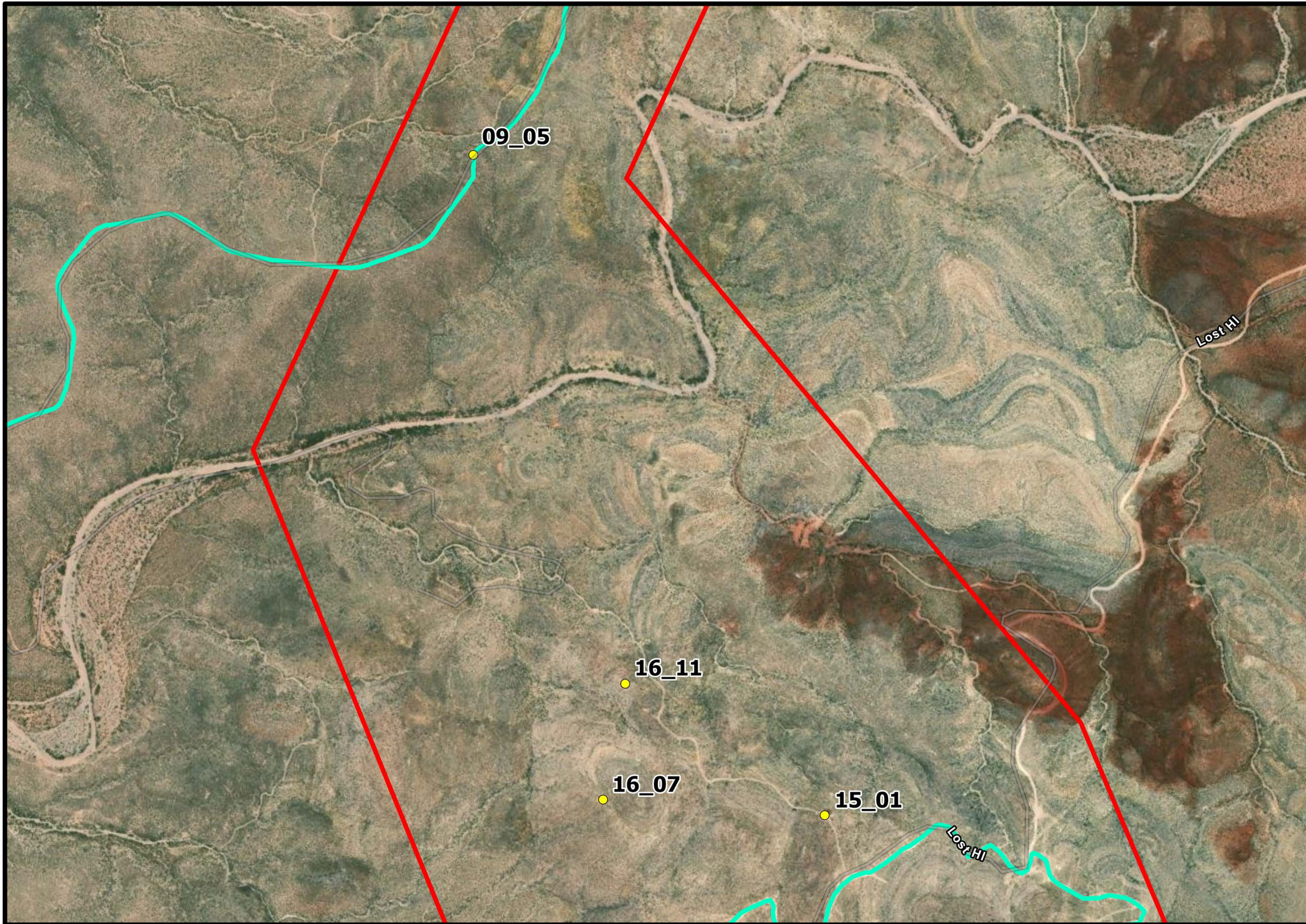
Name: NAD 1983 UTM Zone 13N



Scale: 1:885



Figure 2d - Project Area Map



Map Legend

Area of Potential Effects (APE)



Access Routes



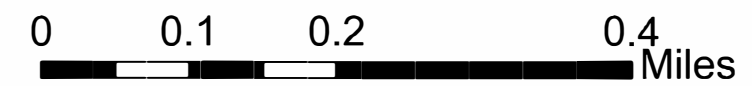
Red Hill Safeguarding Locations

Red Hill Mine Safeguarding Project Phase I

Map Credit: MF Peralta

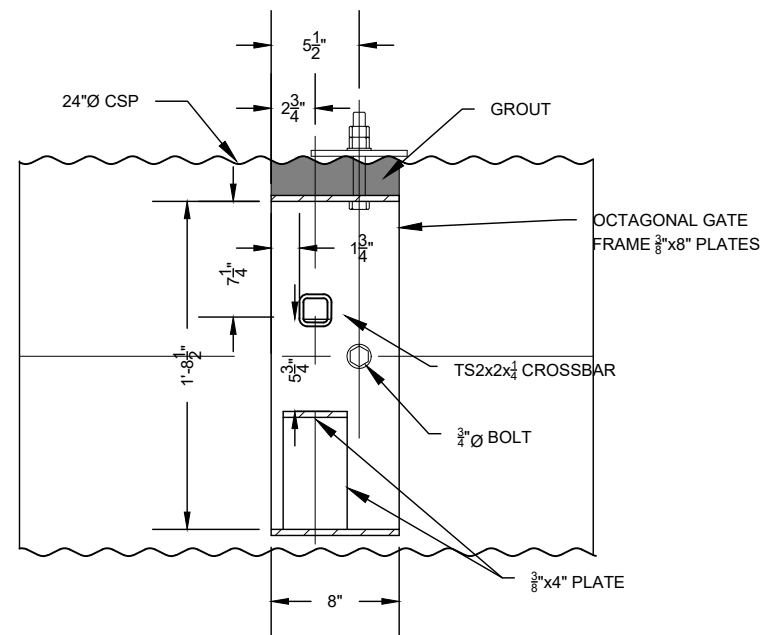
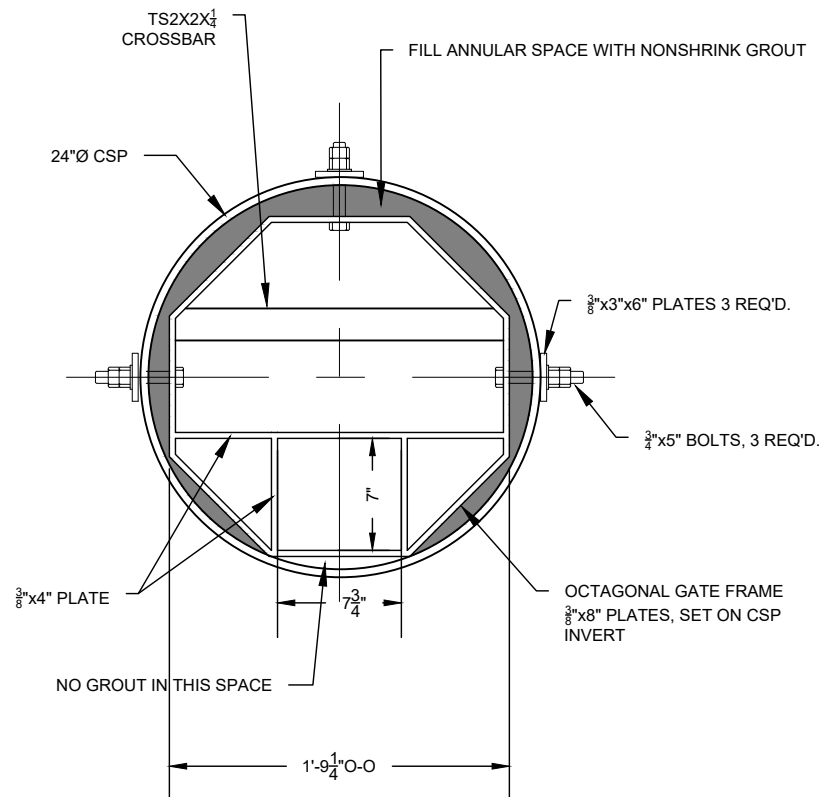
Spatial Reference

Name: NAD 1983 UTM Zone 13N

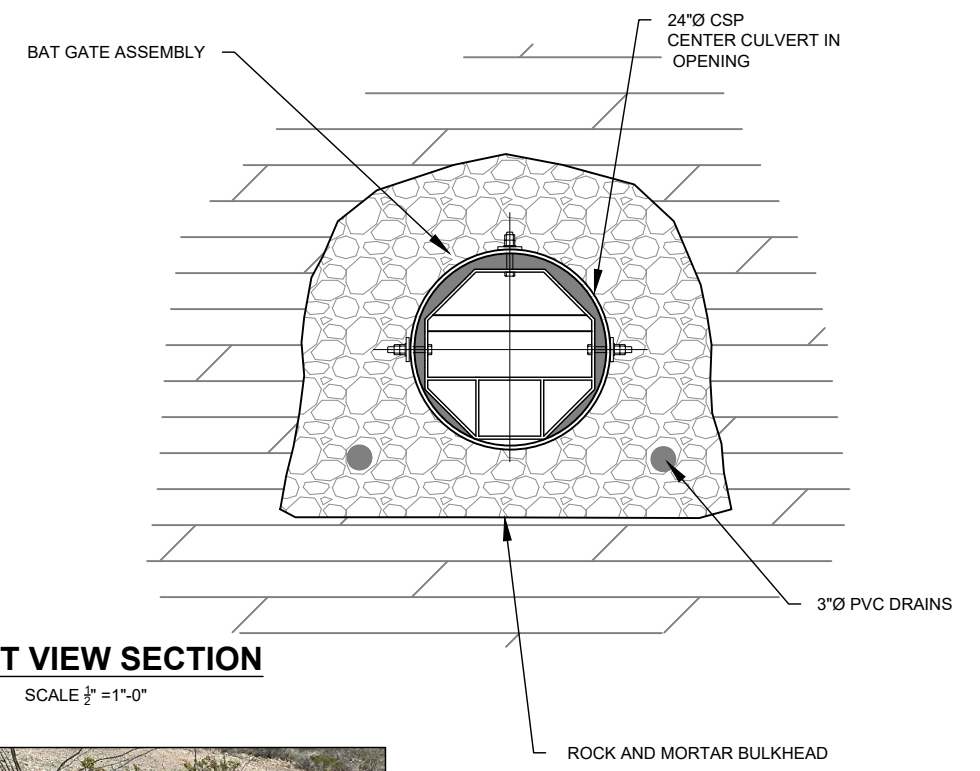


Scale: 1:8,242





BAT GATE ASSEMBLY
SCALE 1"=1'-0"



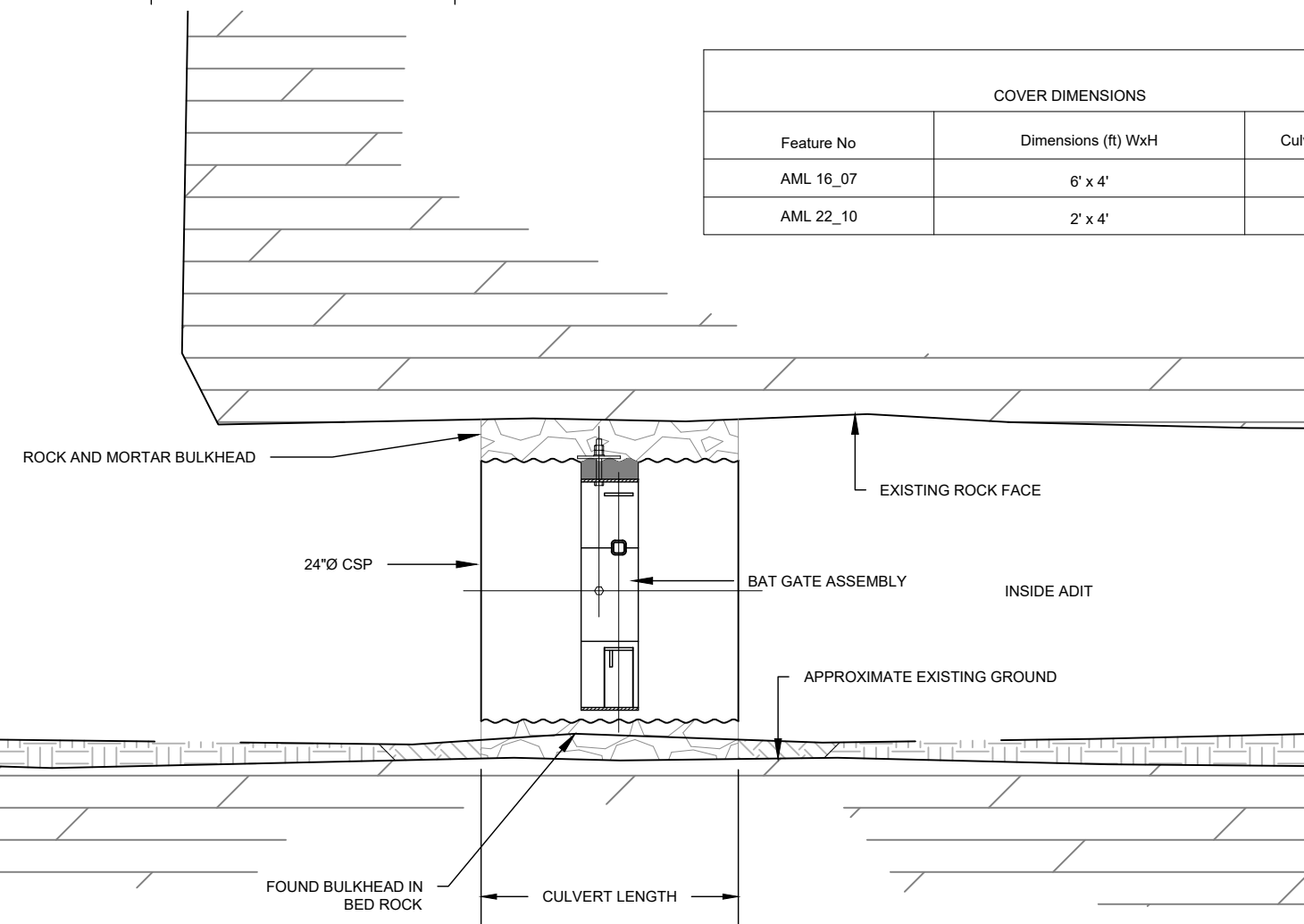
FRONT VIEW SECTION
SCALE 1/2"=1'-0"

COVER DIMENSIONS		
Feature No	Dimensions (ft) WxH	Culvert Length (ft)
AML 16_07	6' x 4'	2
AML 22_10	2' x 4'	3



- GENERAL NOTES:**
1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
 2. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE BAT GATE TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
 3. DOUBLE-NUT ALL BOLTS.
 4. THE CONTRACTOR HAS THE OPTION OF USING 8" STEEL PLATE WHERE 4" STEEL PLATE IS SHOWN IN THE DRAWINGS.
 5. VERIFY THAT THE OPENINGS OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
 6. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
 7. NATINA STAIN EXPOSED CULVERT AT DIRECTION OF PROJECT MANAGER.
 8. UP TO THREE PVC DRAINS TO BE INSTALLED AT LOCATION DETERMINED BY PROJECT MANAGER.
 9. WEATHERING STEEL SHALL BE USED FOR ALL STEEL TUBING AND PLATING.
 10. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY THE PROJECT MANAGER.

CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

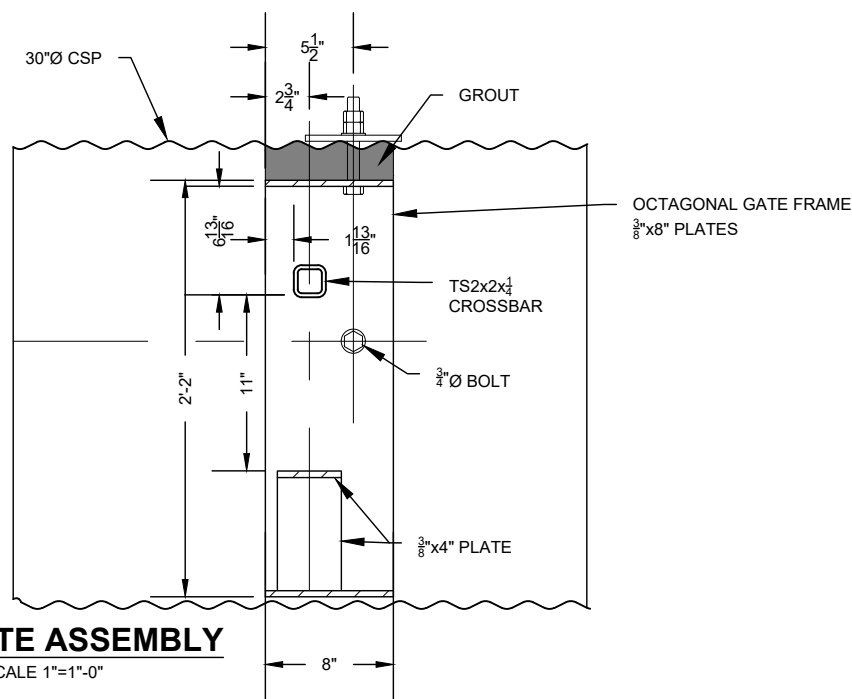
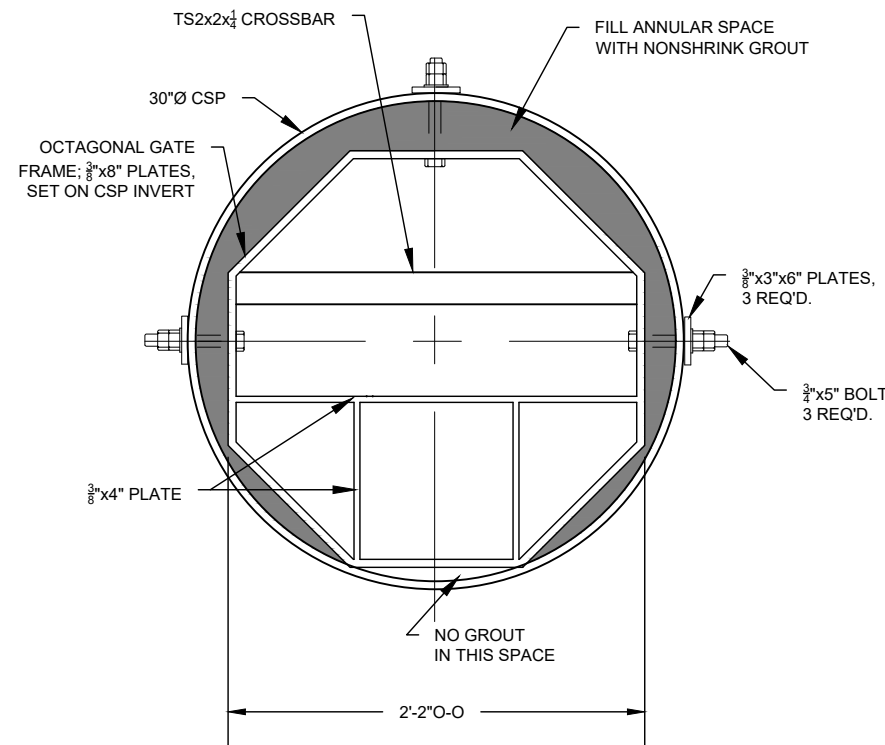


PROFILE VIEW
SCALE 1/2"=1'-0"



ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML22_10, 16_07	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
24"Ø BAT GATE IN ROCK BULKHEAD		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 3

AML 16_07

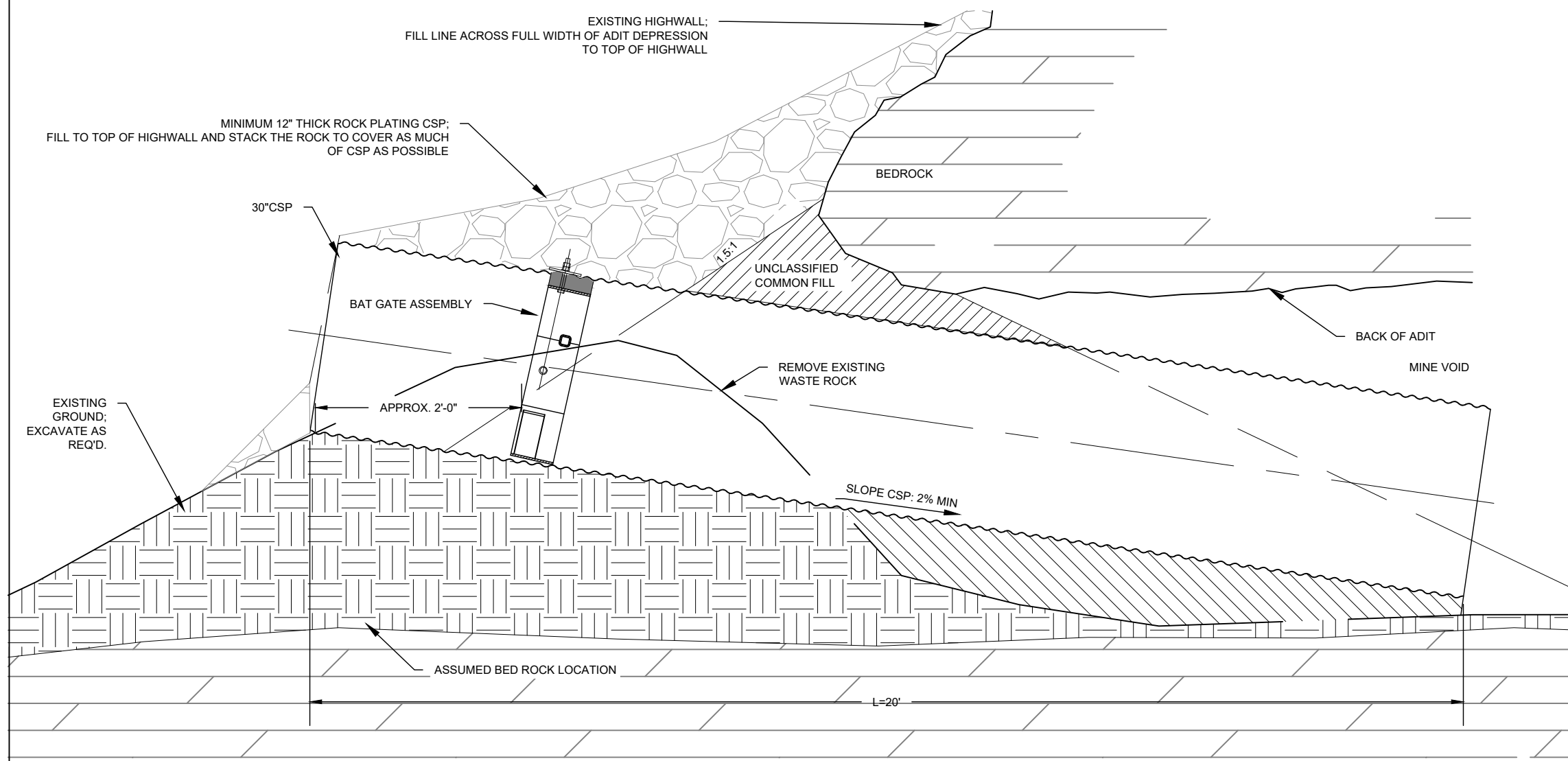


BAT GATE ASSEMBLY
SCALE 1"=1'-0"



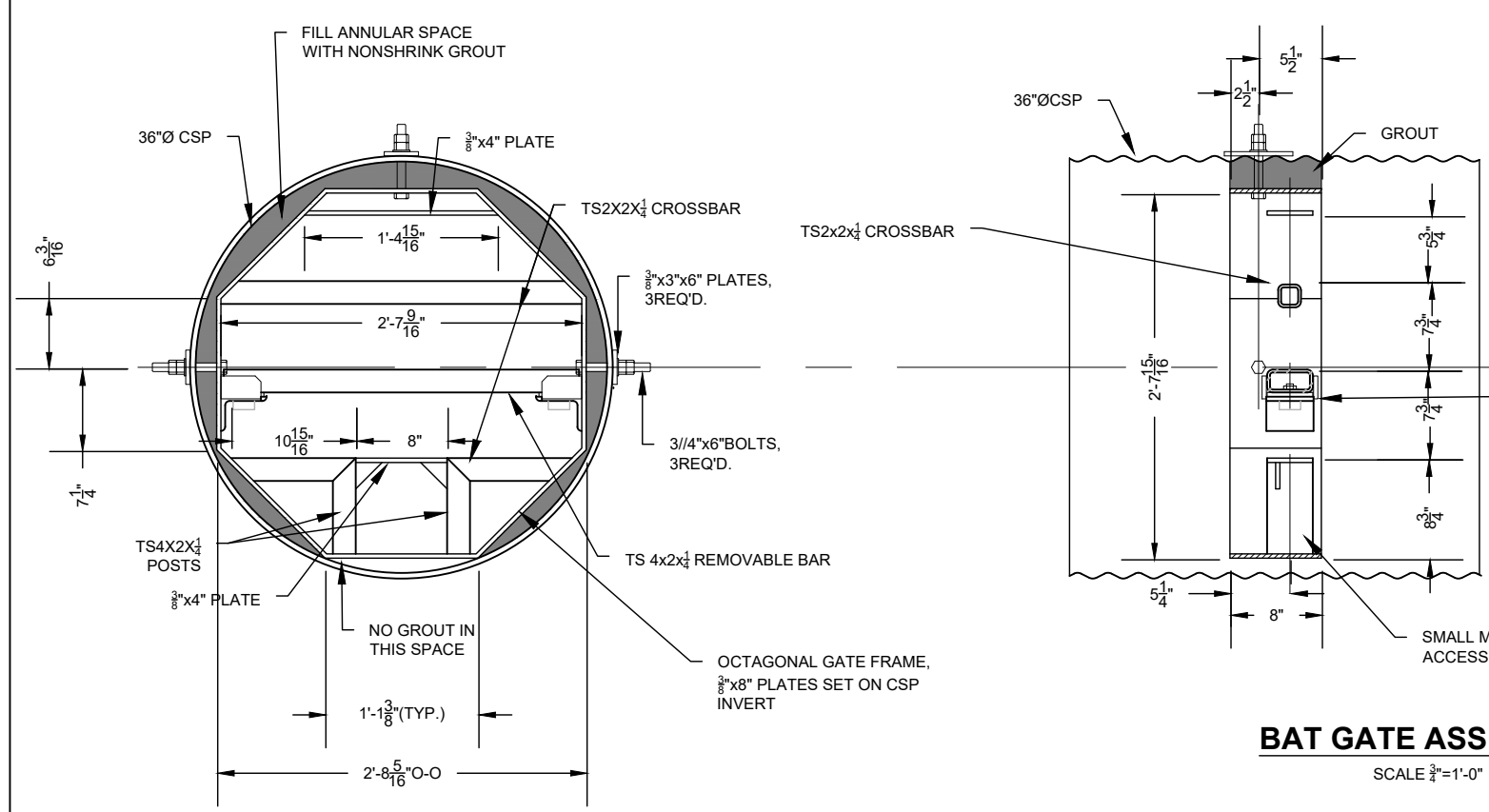
GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
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3. DOUBLE-NUT ALL BOLTS.
4. THE CONTRACTOR HAS THE OPTION OF USING 8" STEEL PLATE WHERE 4" STEEL PLATE IS SHOWN IN THE DRAWINGS.
5. VERIFY THAT THE OPENINGS OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
6. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
7. NATINA STAIN EXPOSED CULVERT AT DIRECTION OF PROJECT MANAGER.
8. ADD ROCK BERM AND FILL ON SLOPE ABOVE AML 22_05c TO DIRECT STORMWATER SOUTHWARDS AWAY FROM TOP OF THE FEATURE.
9. UP TO THREE PVC DRAINS TO BE INSTALLED AT LOCATION DETERMINED BY PROJECT MANAGER.
10. WEATHERING STEEL SHALL BE USED FOR ALL STEEL TUBING AND PLATING.
11. MINE OPENING DIMENSIONS 4'5" WIDE BY 5' HIGH AND 20' CULVERT LENGTH.
12. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY THE AML PROJECT MANAGER.

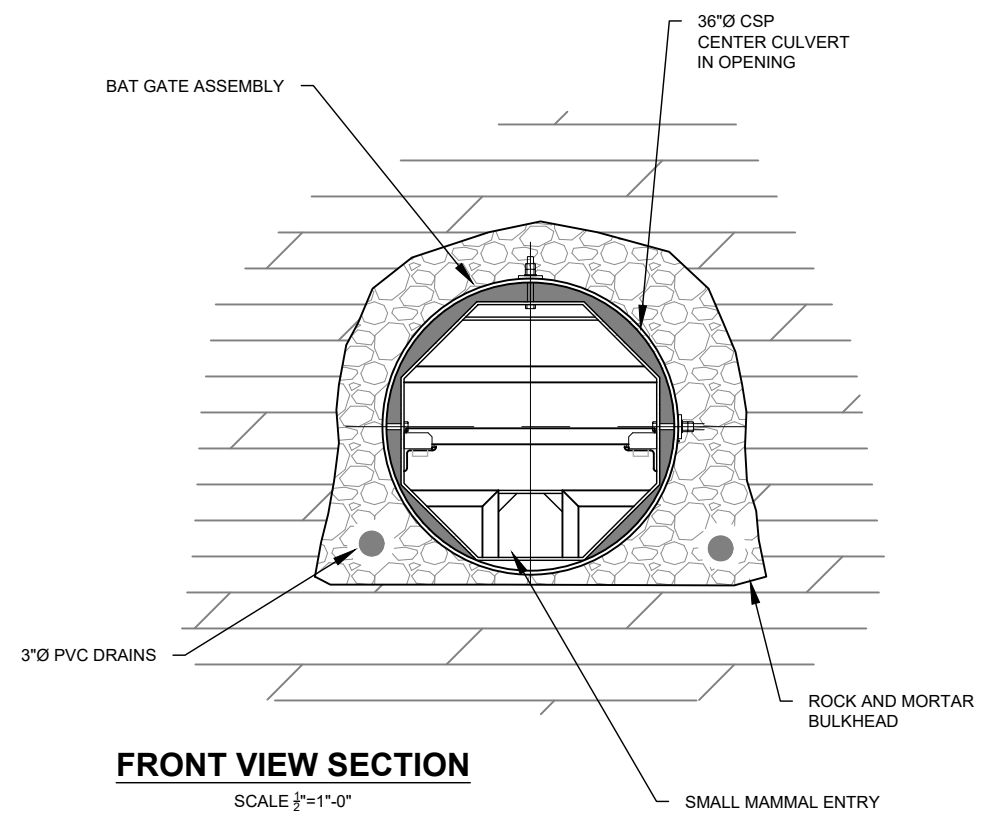


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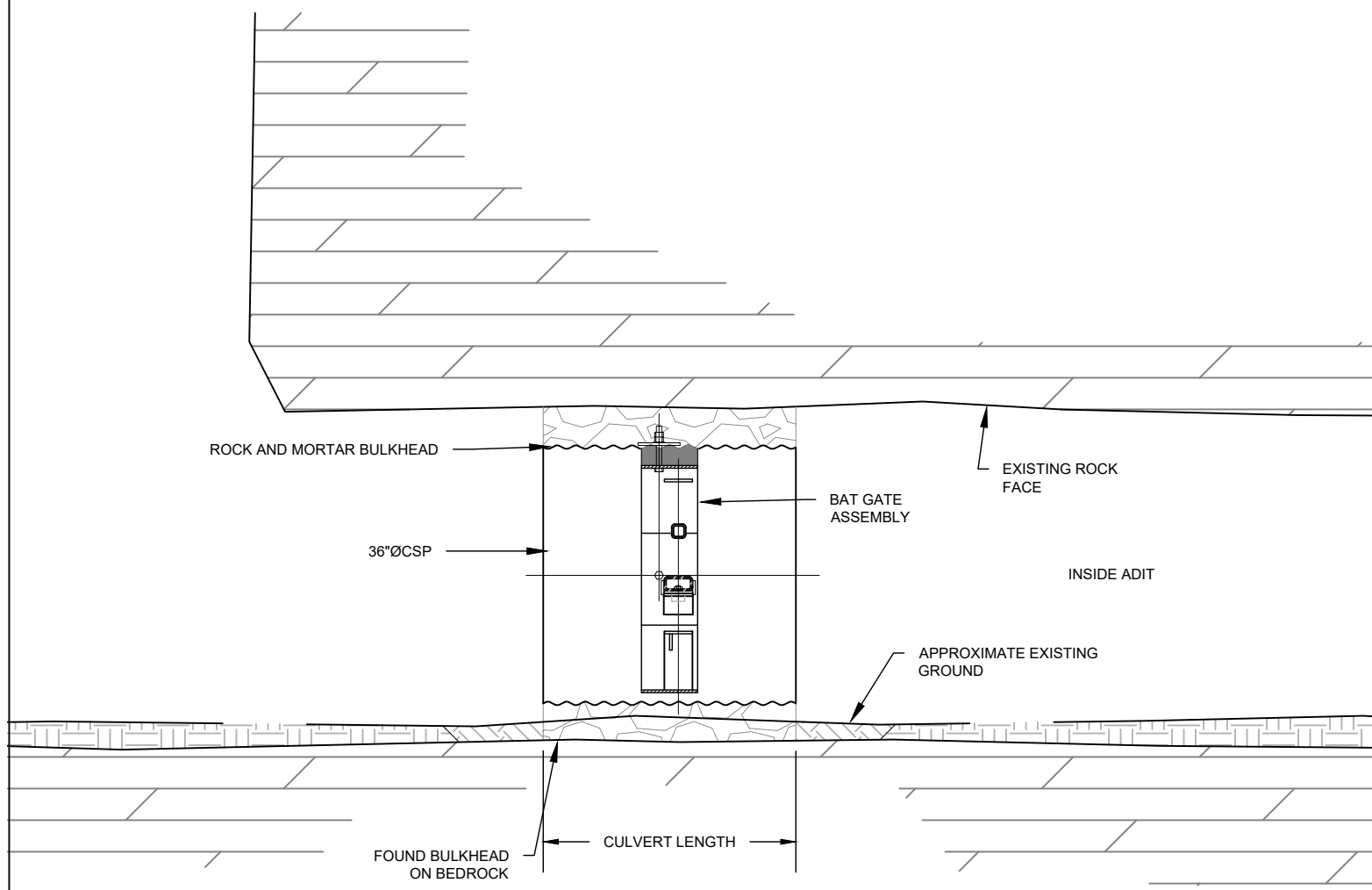
ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML22_05c	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
30"Ø BAT GATE IN ROCK FILL		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 4



BAT GATE ASSEMBLY
SCALE 3/4"=1'-0"



FRONT VIEW SECTION
SCALE 1/2"=1'-0"



PROFILE VIEW
SCALE 1/2"=1'-0"

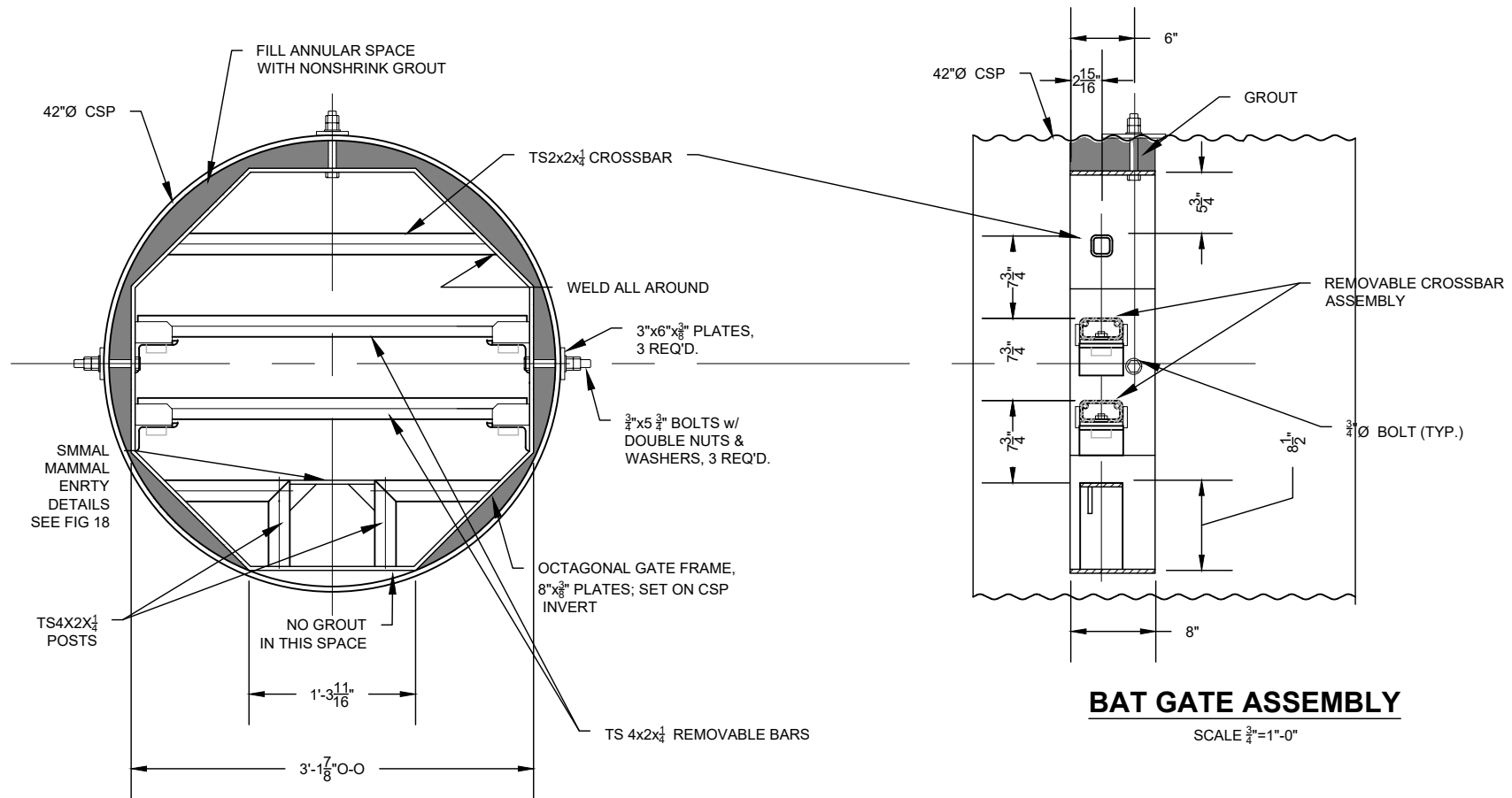
Feature No	COVER DIMENSIONS	
	Dimensions (ft) WxH	Culvert Length (ft)
AML 15_10	16 x 4	14
AML 15_30	8.5' x 3'	3
AML 22_05a	7'5" x 5'	20
AML 22_05b	5' x 3.5'	20
AML 22_11	10' x 5'	3

GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
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6. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
7. NATINA STAIN EXPOSED CULVERT AT DIRECTION OF PROJECT MANAGER.
8. UP TO THREE PVC DRAINS TO BE INSTALLED AT LOCATION DETERMINED BY PROJECT MANAGER.
9. WEATHERING STEEL SHALL BE USED FOR ALL STEEL TUBING AND PLATING.
10. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.

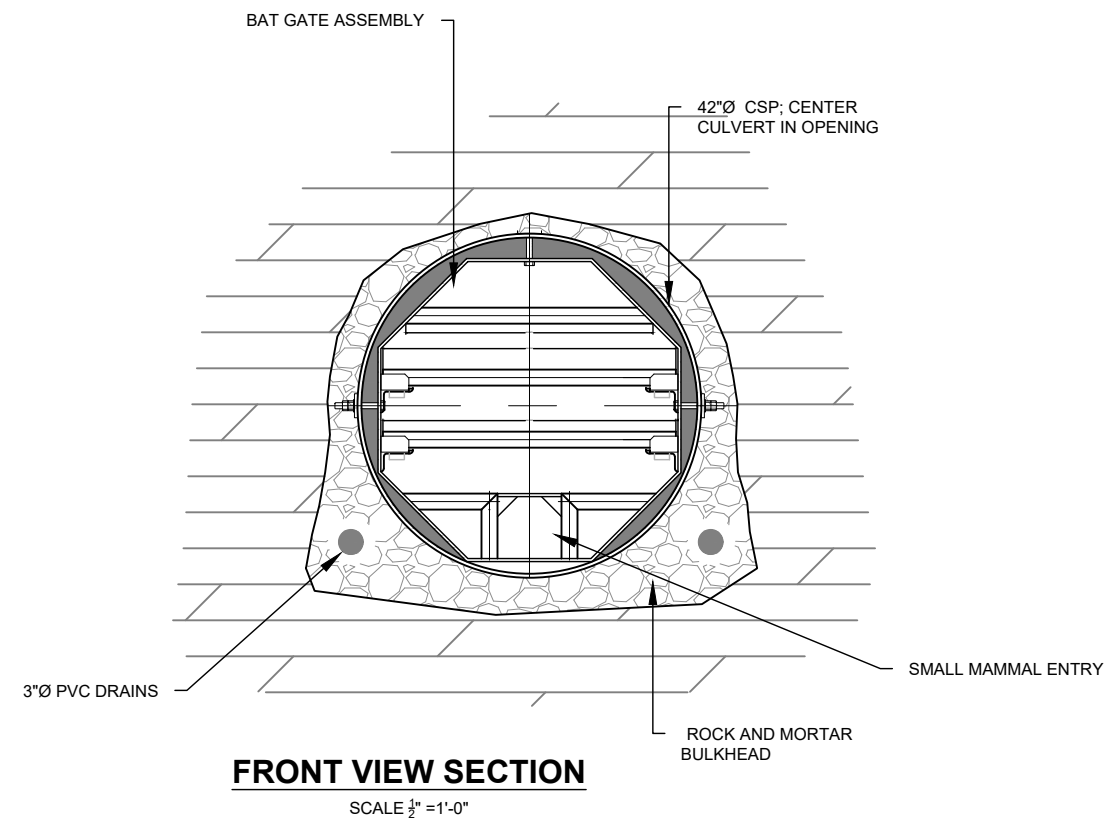
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ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	VARIOUS LOCATIONS	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
36" Ø BAT GATE IN ROCK BULKHEAD		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 5



BAT GATE ASSEMBLY

SCALE 3/8"=1'-0"



FRONT VIEW SECTION

SCALE 1/2"=1'-0"

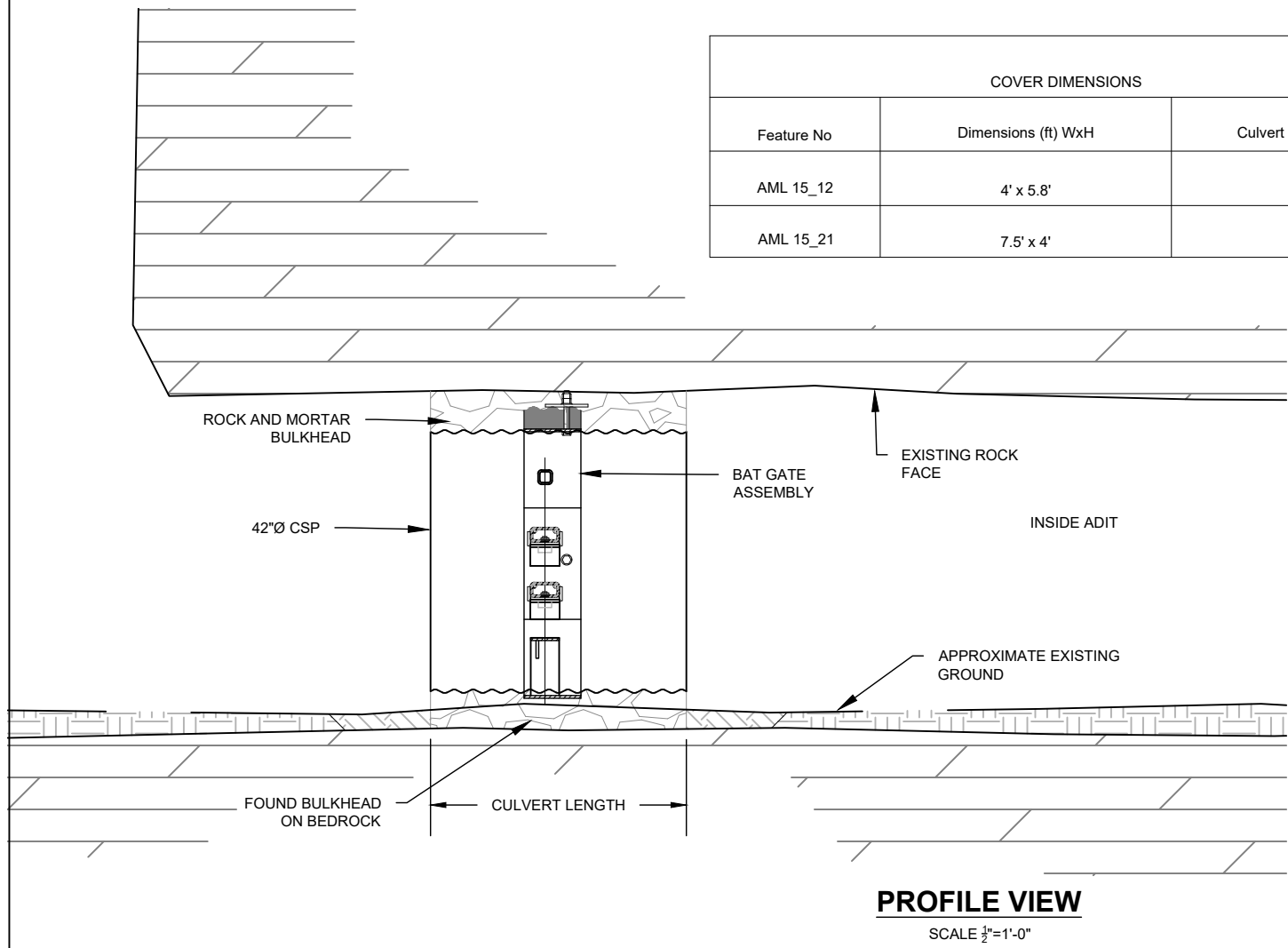
COVER DIMENSIONS		
Feature No	Dimensions (ft) WxH	Culvert Length (ft)
AML 15_12	4' x 5.8'	3
AML 15_21	7.5' x 4'	4



GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE BAT GATE TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
3. DOUBLE-NUT ALL BOLTS.
4. THE CONTRACTOR HAS THE OPTION OF USING 8" STEEL PLATE WHERE 4" STEEL PLATE IS SHOWN IN THE DRAWINGS.
5. VERIFY THAT THE OPENINGS OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
6. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
7. NATINA STAIN EXPOSED CULVERT AT DIRECTION OF PROJECT MANAGER.
8. UP TO THREE PVC DRAINS TO BE INSTALLED AT LOCATION DETERMINED BY PROJECT MANAGER.
9. WEATHERING STEEL SHALL BE USED FOR ALL STEEL TUBING AND PLATING.
10. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY THE PROJECT MANAGER.

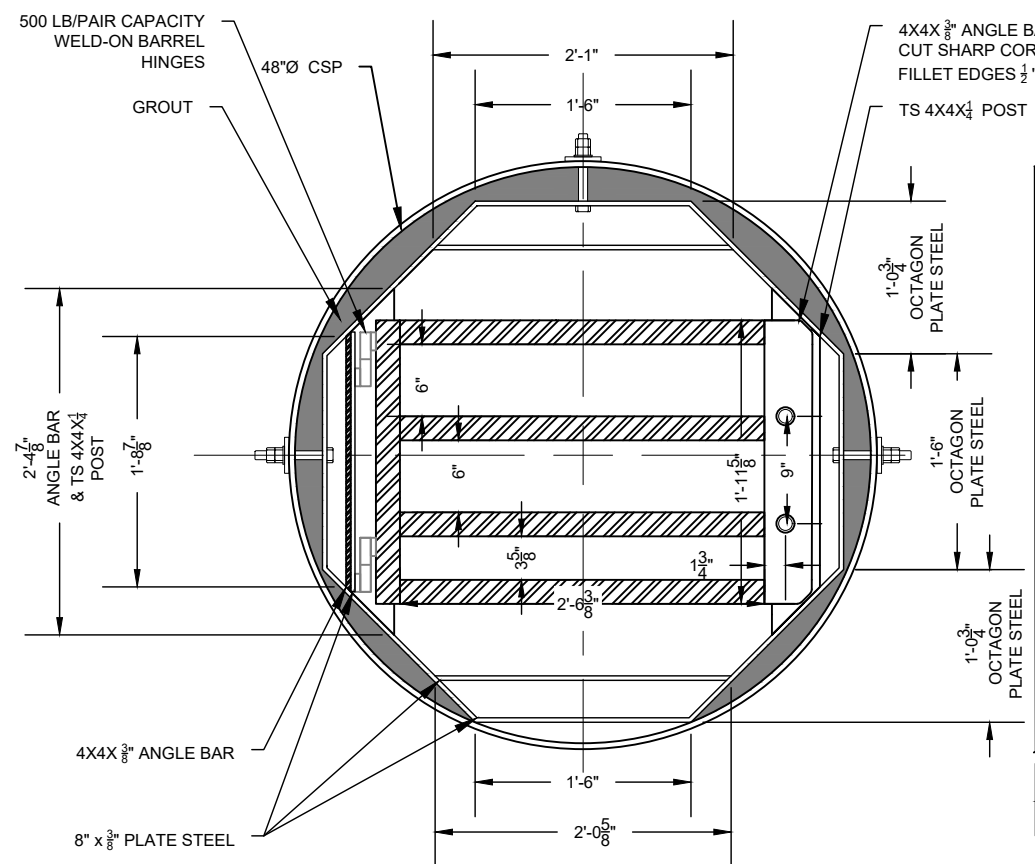
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PROFILE VIEW

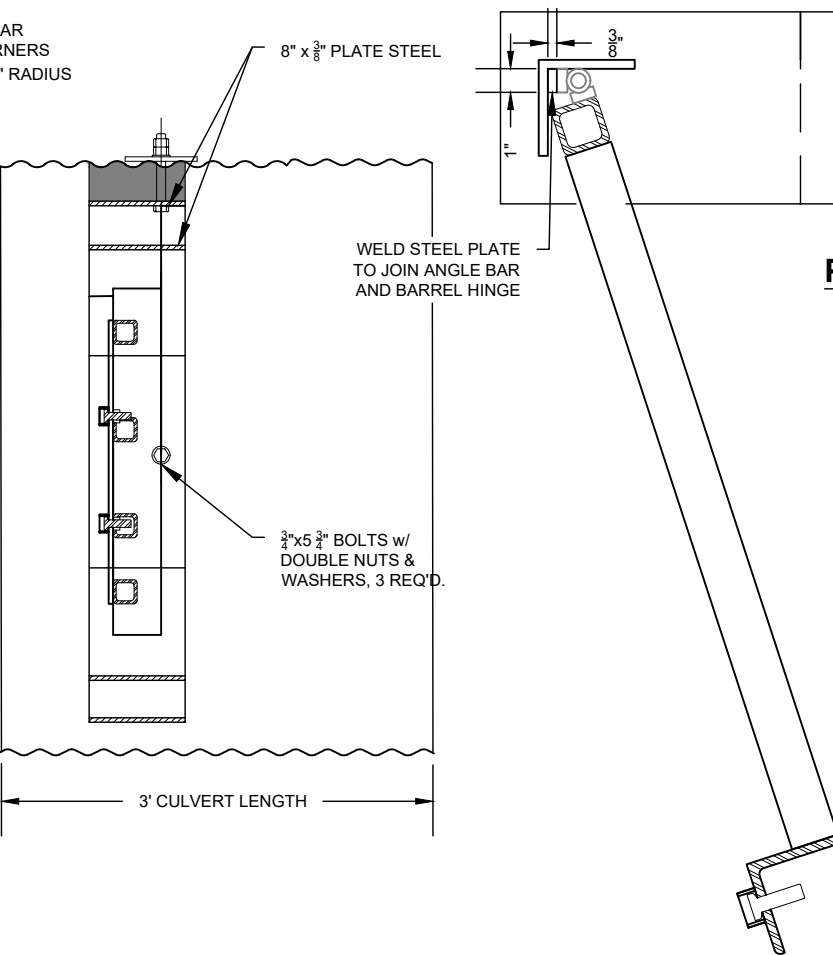
SCALE 3/8"=1'-0"

ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML15_12 ,15_21	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
42"Ø BAT GATE IN ROCK BULKHEAD		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 6



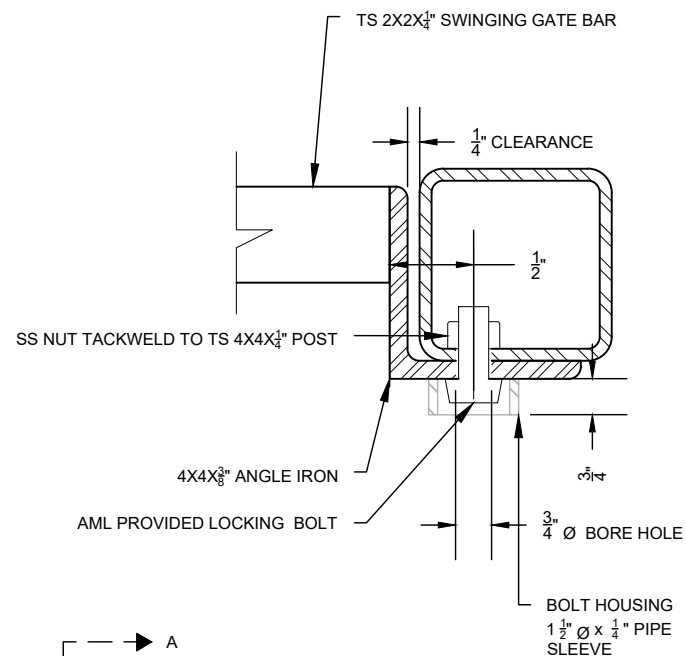
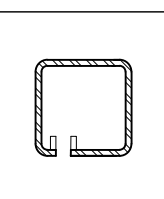
BAT GATE ASSEMBLY

SCALE 3/4"=1'-0"



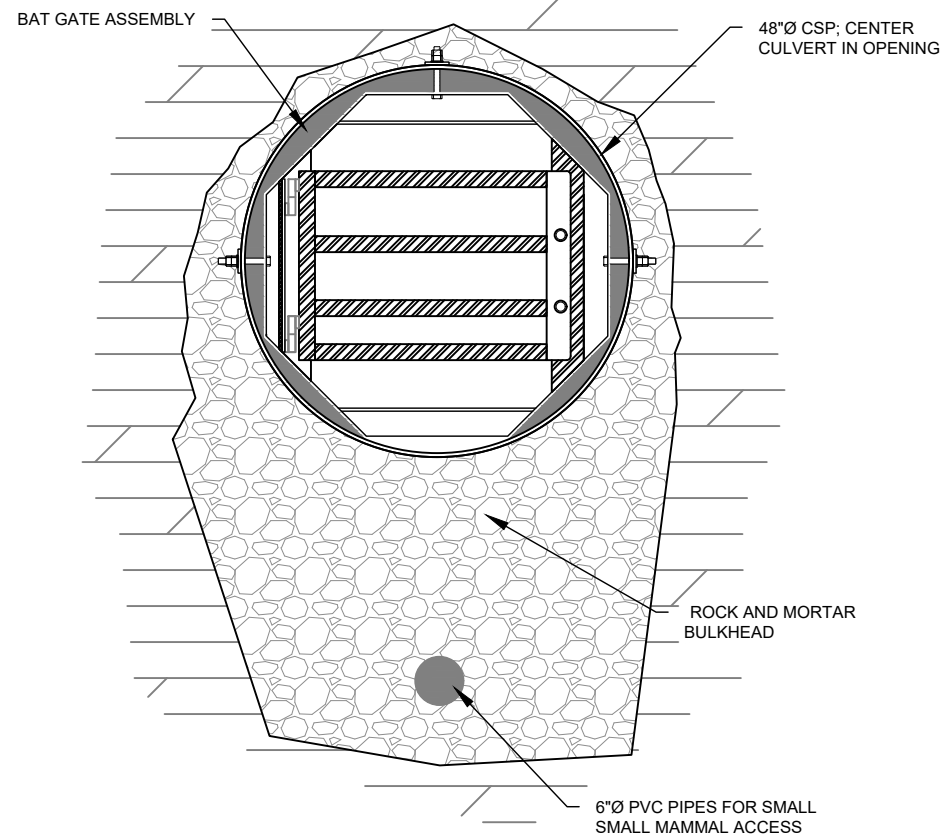
PLAN VIEW- GATE OPEN

SCALE 1 1/2"=1'-0"



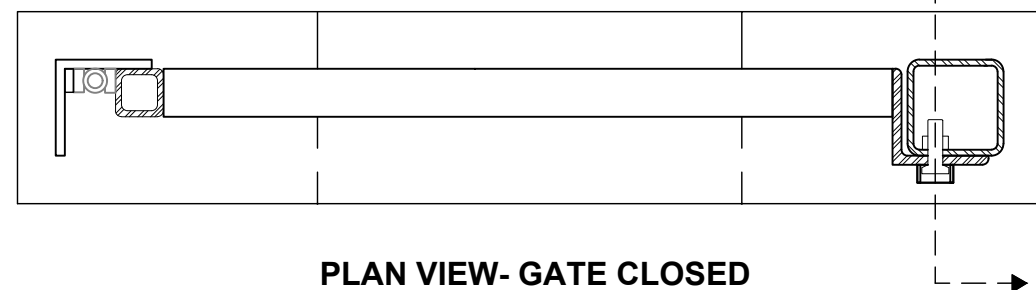
SECTION A-A

SCALE 3"=1'-0"



FRONT VIEW SECTION

SCALE 3/4"=1'-0"



PLAN VIEW- GATE CLOSED

SCALE 1 1/2"=1'-0"

GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE BAT GATE TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
3. DOUBLE-NUT ALL STEEL FRAME CULVERT BOLTS.
4. THE CONSTRUCTOR SHALL PROVIDE THE NUTS (5/8" Ø-11 UNC CLASS 2A THREAD.) THE PROJECT MANAGER WILL SUPPLY THE LOCKING BOLTS.
5. COAT THE THREADS OF THE LOCKING BOLTS WITH LPS1 LUBRICANT AND INSTALL FIRMLY WITH 50 TO 75 POUNDS OF TORQUE.
6. THE CONTRACTOR HAS THE OPTION OF USING 8" STEEL PLATE WHERE 4" STEEL PLATE IS SHOWN IN THE DRAWINGS.
7. VERIFY THAT THE OPENINGS OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
8. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
9. NATINA STAIN EXPOSED CULVERT AT DIRECTION OF PROJECT MANAGER.
10. PLACE CULVERT BEHIND HISTORIC TIMBER AT ELEVATION 3' ABOVE GROUND (AT LEVEL OF LARGER BOULDER).
11. UP TO THREE PVC DRAINS TO BE INSTALLED AT LOCATION DETERMINED BY PROJECT MANAGER.
12. WEATHERING STEEL SHALL BE USED FOR ALL THE STEEL TUBING AND PLATING.
13. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.
14. MINE OPENING DIMENSIONS 8' WIDE X 7'9" HIGH AND 3' CULVERT LENGTH.



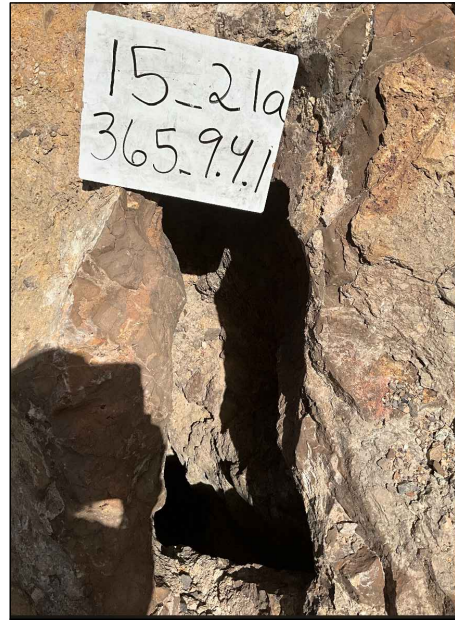
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND AND OVER
 UNSTABLE, UNREINFORCED, UNPROTECTED, UNPROTECTED, UNPROTECTED, UNPROTECTED,
 WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR
 THINK AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR
 SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND
 SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES
 TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML15_03	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
48" Ø BAT GATE IN ROCK BULKHEAD		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 7

GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE ADIT OPENING ARE APPROXIMATE.
2. FILL MATERIAL SHALL BE TAKEN FROM AN AREA AS DESIGNATED BY THE PROJECT MANAGER.
3. THE FINISH GRADE ON THE OUTSIDE SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE ADIT.
4. MATERIAL SHALL BE LAID AT ANGLE OF REPOSE.
5. PROTECT HISTORIC TIMBER STRUCTURE AT 15_24a AND INSTALL AT LEAST 2' OF ROCK COVER.
6. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.

PUF DIMENSIONS		
Feature No	Dimensions (ft)	Volume (yd3)
AML 15_21a	1'W x 3'L x 2'T	0.22
AML 15_24a	10'W x 30'L x 9'T	100
AML 22_16	4.5'W x 4'H x 3'T	2



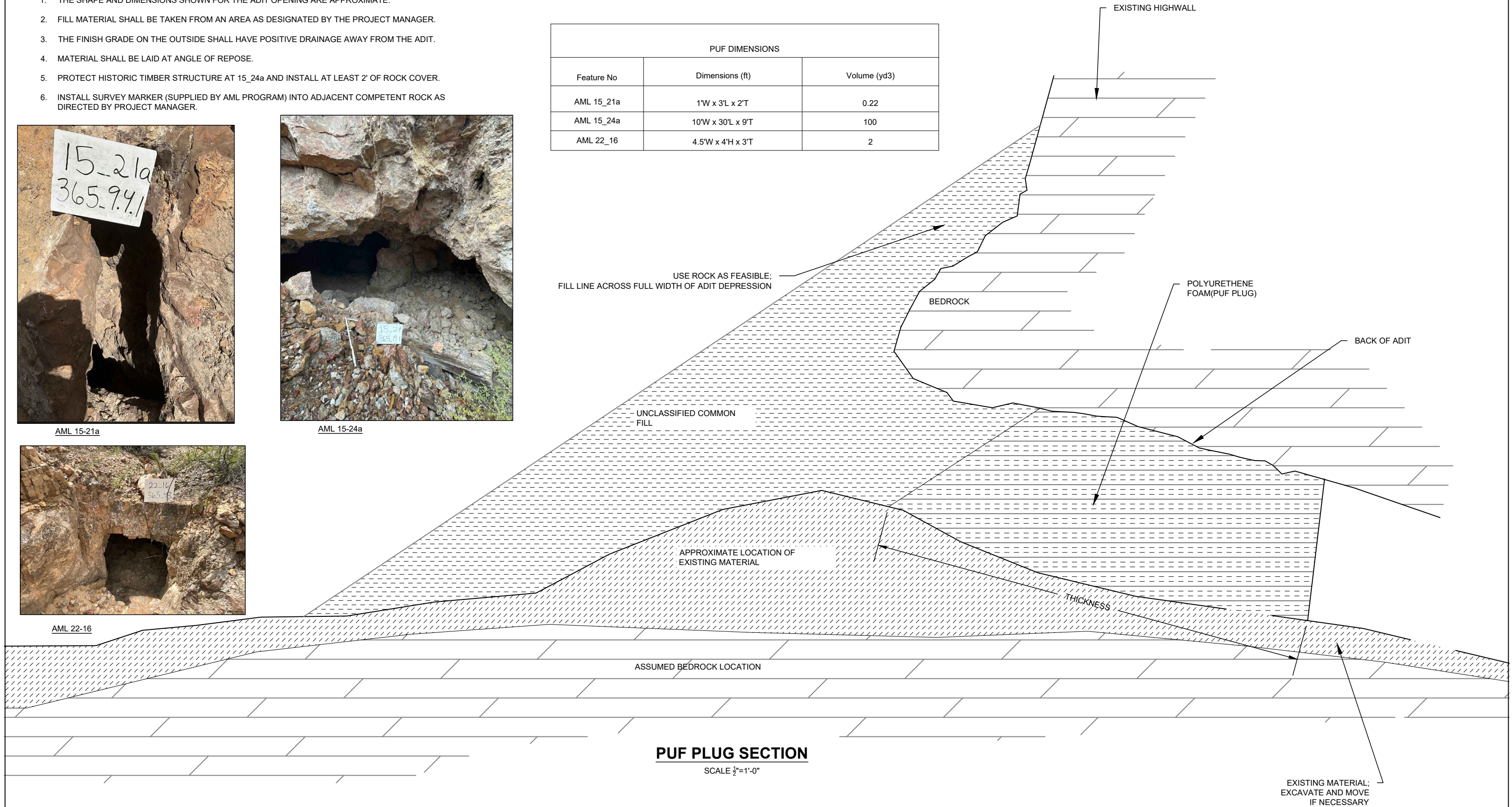
AML 15-21a



AML 15-24a



AML 22-16



PUF PLUG SECTION

SCALE 1/4"=1'-0"

CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM			
MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	AML 15_24a, 15_21a, 22_16	DRAWN BY: MWT	
DATE: 05/15/2024		REVISED BY: LDV	
PUF WITH WASTE ROCK COVER			
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 8	

GENERAL NOTES:

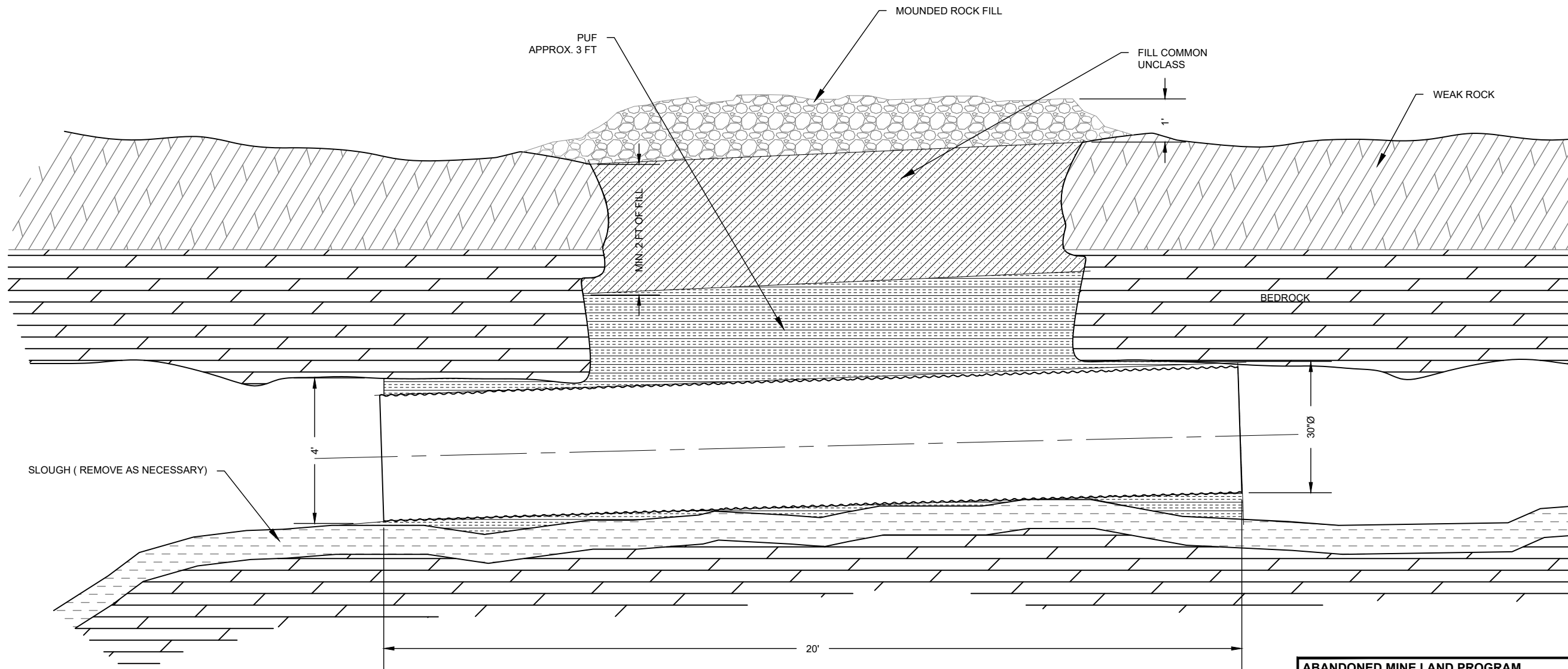
1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT IN SHAFT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. CULVERT MAY BE INSTALLED FROM ADIT NEAR MINE FEATURE.
3. SECTIONS OF CULVERT SHALL BE BANDED TOGETHER PER PROJECT SPECIFICATIONS.
4. VERIFY THAT THE OPENINGS OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
5. THE FINISH GRADE ON THE MOUNDED ROCK FILL SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
6. PLACE ROCK ON TOP OF COVER FILL.
7. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.



AML 15_18 VIEW 2



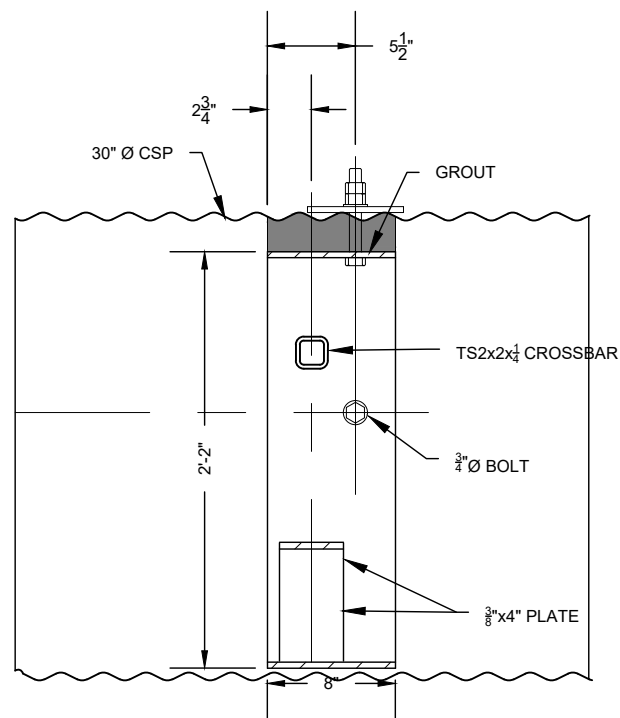
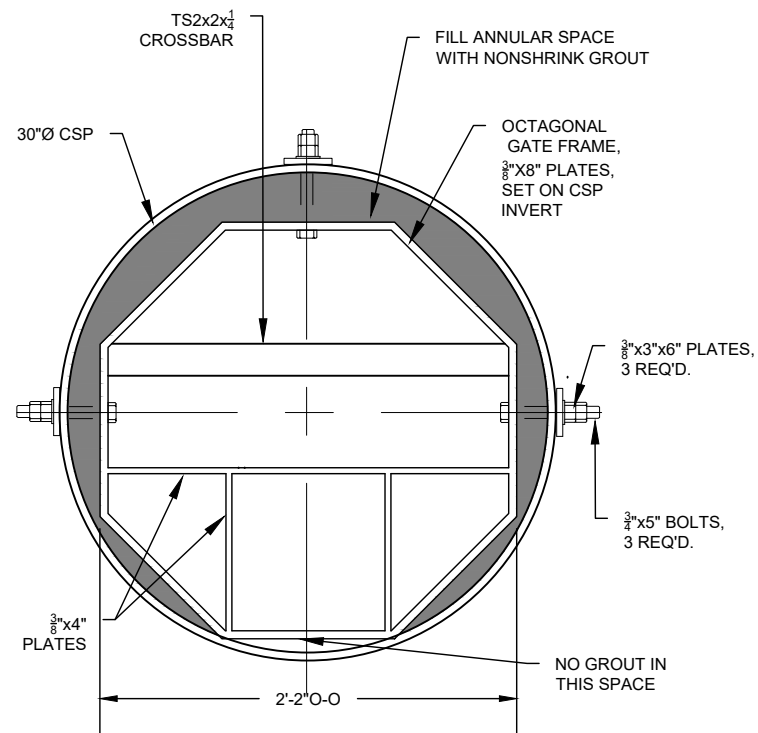
AML 15_18 VIEW 1



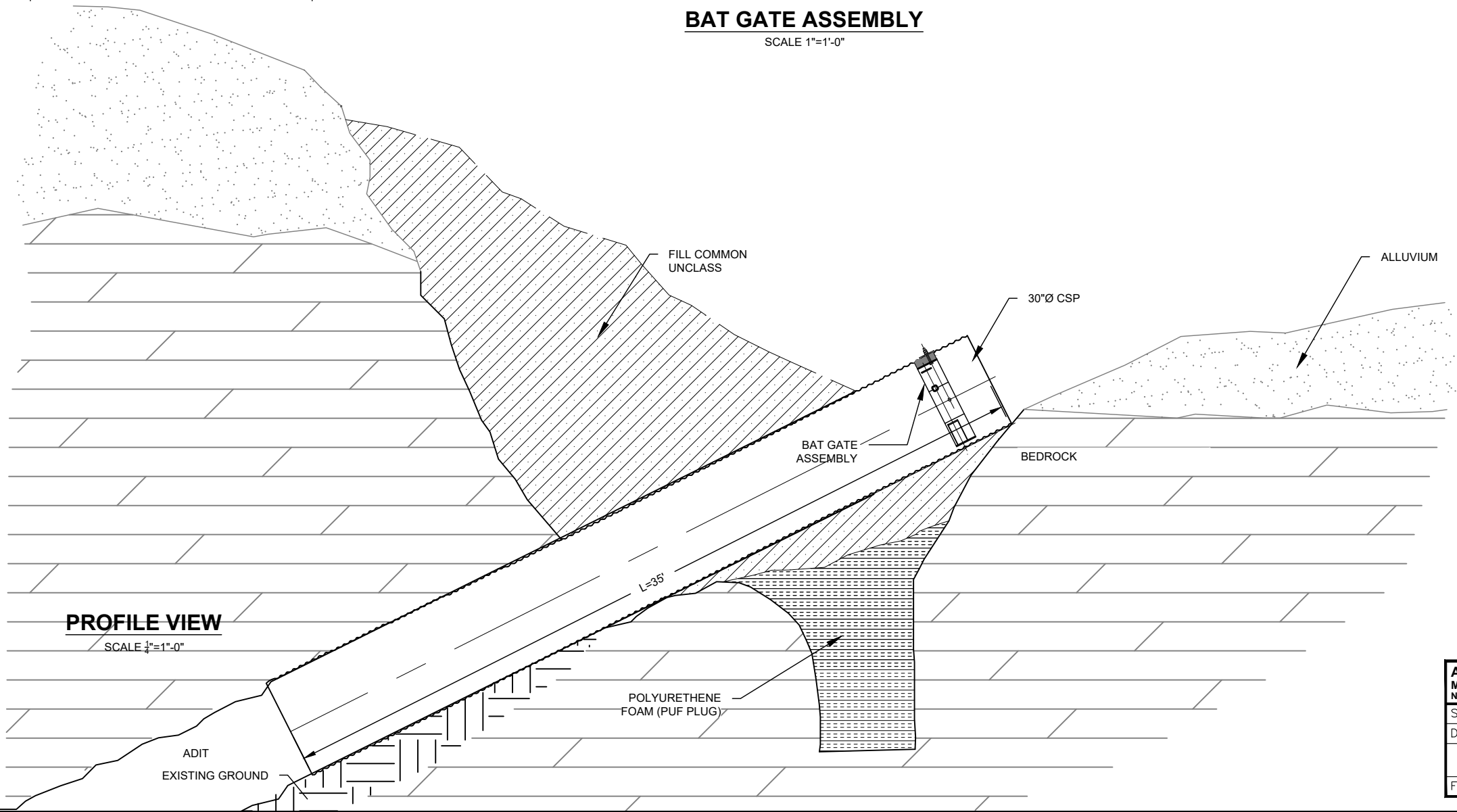
PROFILE VIEW
SCALE 3/8"=1'-0"

CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPS, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR OTHER MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE CONDITIONS AND SCHEDULING EQUIPMENT, OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML15_18	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
30"Ø CULVERT		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 9



BAT GATE ASSEMBLY
SCALE 1"=1'-0"



PROFILE VIEW
SCALE 1/4"=1'-0"

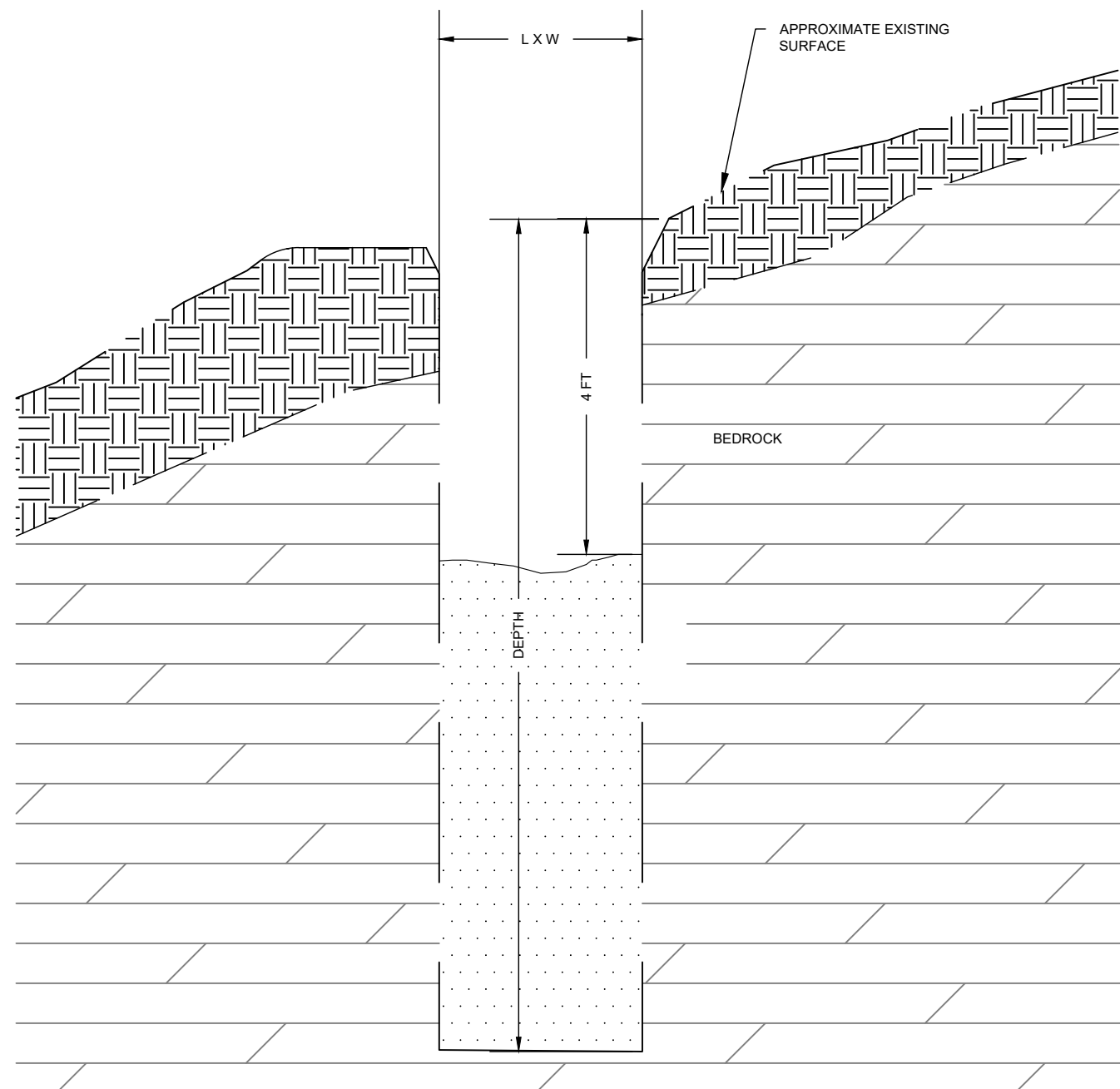
GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE BAT GATE TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
3. DOUBLE-NUT ALL BOLTS.
4. THE CONTRACTOR HAS THE OPTION OF USING 8" STEEL PLATE WHERE 4" STEEL PLATE IS SHOWN IN THE DRAWINGS.
5. VERIFY THAT THE OPENINGS OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
6. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
7. BAND CULVERT SECTIONS TOGETHER.
8. GRADE CONSTRUCT HALF-MOON-SHAPED COMMON FILL FEATURE TO DIRECT UPHILL WATER AWAY FROM MINE FEATURE.
9. WEATHERING STEEL SHALL BE USED FOR ALL STEEL TUBING AND PLATING.
10. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.



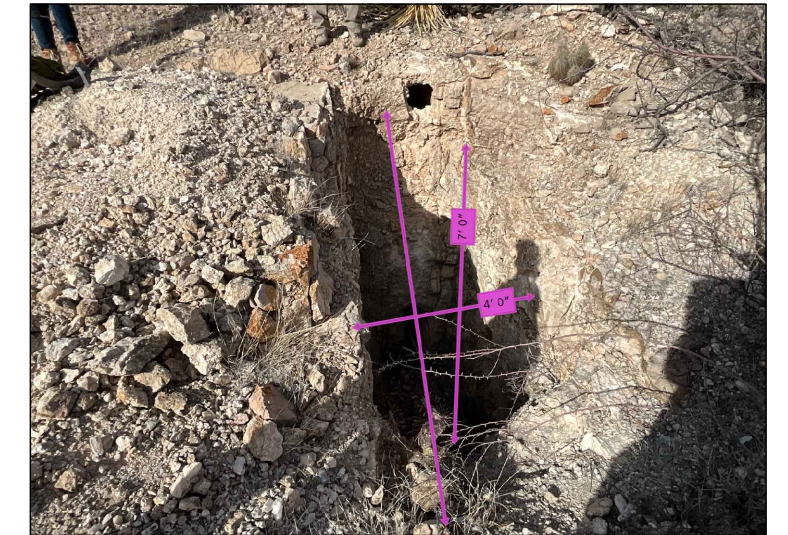
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML22_13	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
30"Ø DECLINE CULVERT WITH BAT GATE		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 10



SHAFT BACKFILL SECTION
SCALE 1"=0"=1"-0"

SHAFT DIMENSIONS	
Feature No	Dimensions (ft) W x L x D
AML 16_11	4' x 7' x 7'
AML 15_24a	6' x 7' x 7'



AML 16-11



AML 22-04

GENERAL NOTES:

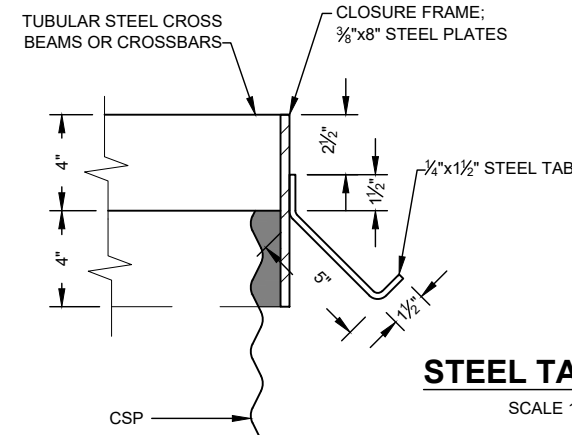
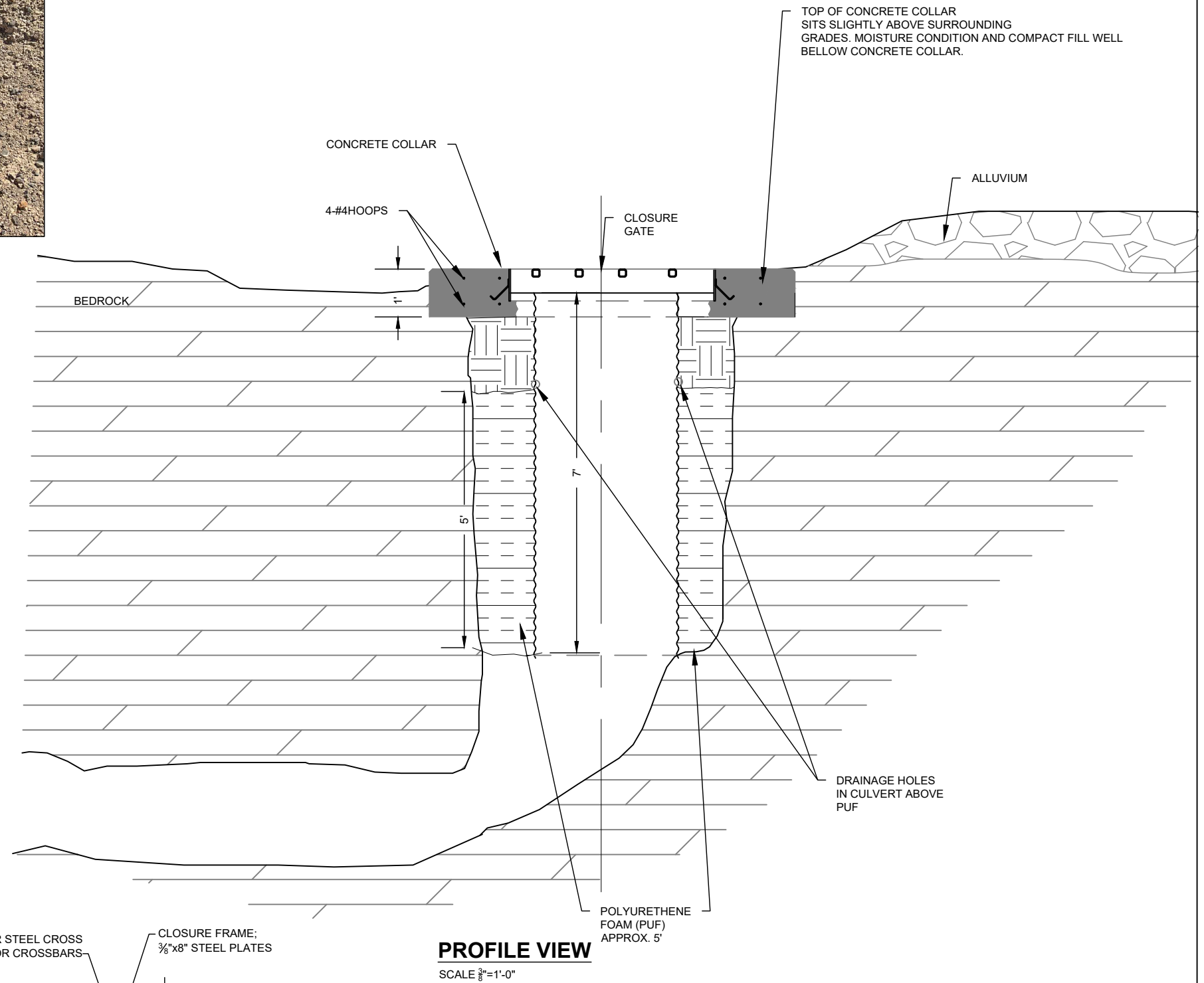
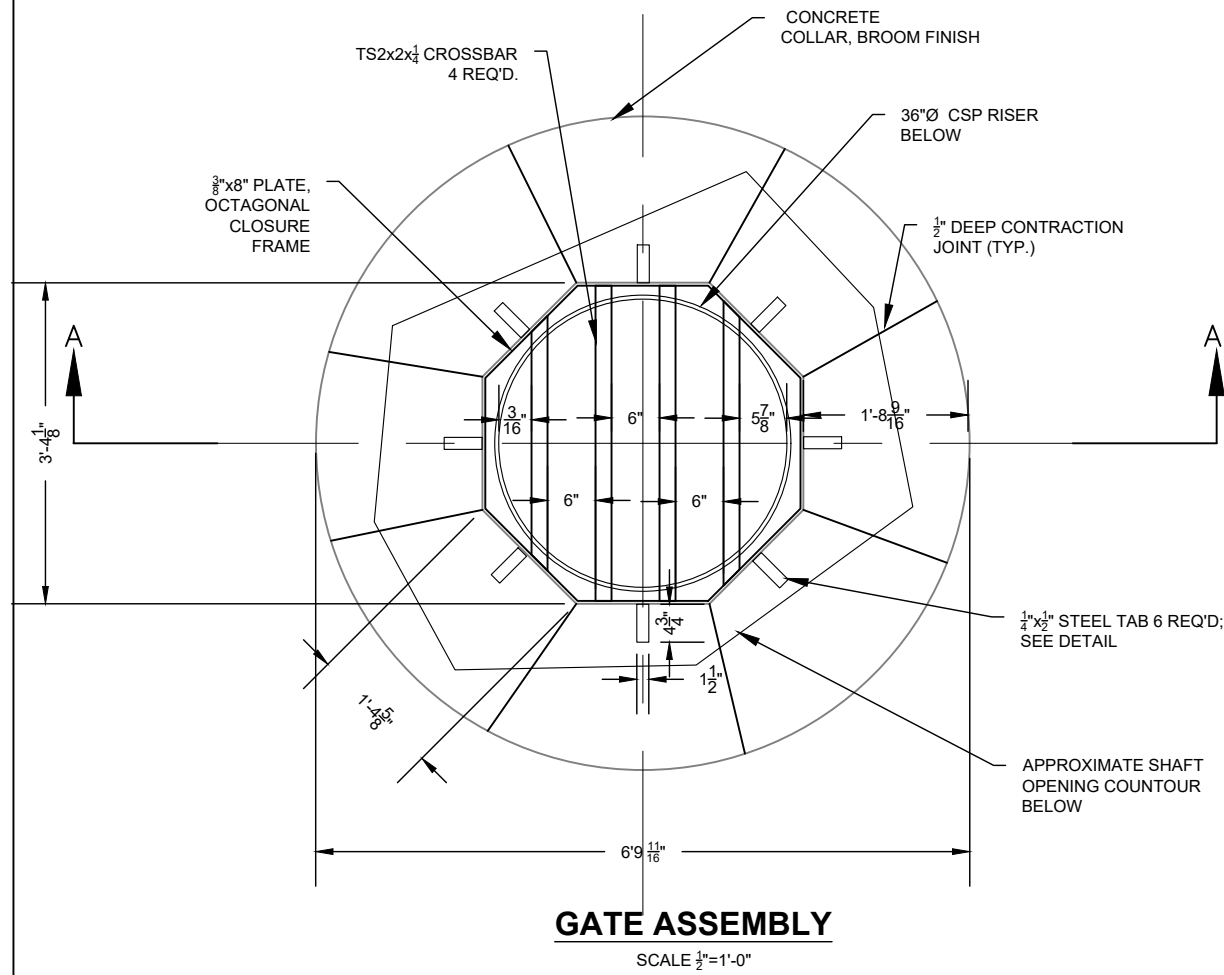
1. THE FILL AT AND ABOVE DRIFT LEVELS SHALL CONSIST OF THE COARSEST MATERIAL AVAILABLE. SMALLER MATERIAL MAY BE USED ELSEWHERE. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. AS PRACTICABLE, SHAPE THE REMAINING MINE WASTE MATERIAL TO RESEMBLE UNDISTURBED MINE WASTE PILES.
3. THE LENGTH AND WIDTH OF THE TOP OF THE MOUND SHALL BE EQUAL TO OR GREATER THAN THE INTERNAL SHAFT LENGTH AND WIDTH RESPECTIVELY.
4. FEATURE 22_04 ADD 3' OF HAND BACKFILL. PULL MATERIAL FROM WASTE PILE BELOW THE FEATURE.
5. FEATURE 16_11 HAND BACKFILL WITHIN 4FT OF COLLAR OF FEATURE.
6. LEAVE TIMBER IN PLACE AT FEATURE 22_04.
7. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.

CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM			
MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	AML16_11, 22_04	DRAWN BY: MWT	
DATE: 05/15/2024		REVISED BY: LDV	
SHAFT BACKFILL			
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 11	

GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE BAT GATE TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
3. VERIFY THAT THE OPENING OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
4. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
5. WEATHERING STEEL SHALL BE USED FOR ALL THE STEEL TUBING AND PLATING.
6. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.



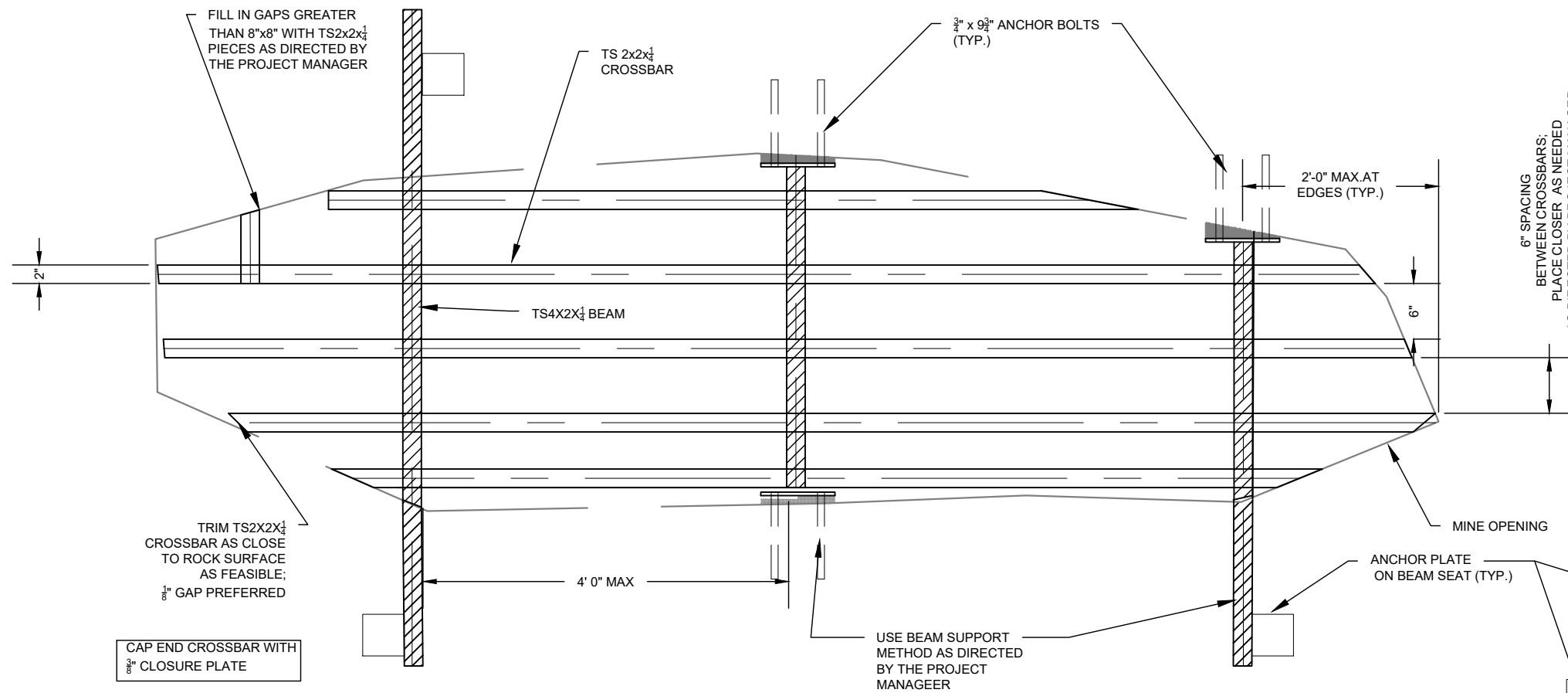
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN DATE: 05/15/2024	AML15_17	DRAWN BY: MWT REVISED BY: LDV	
AIRFLOW CLOSURE			
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 12	

CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

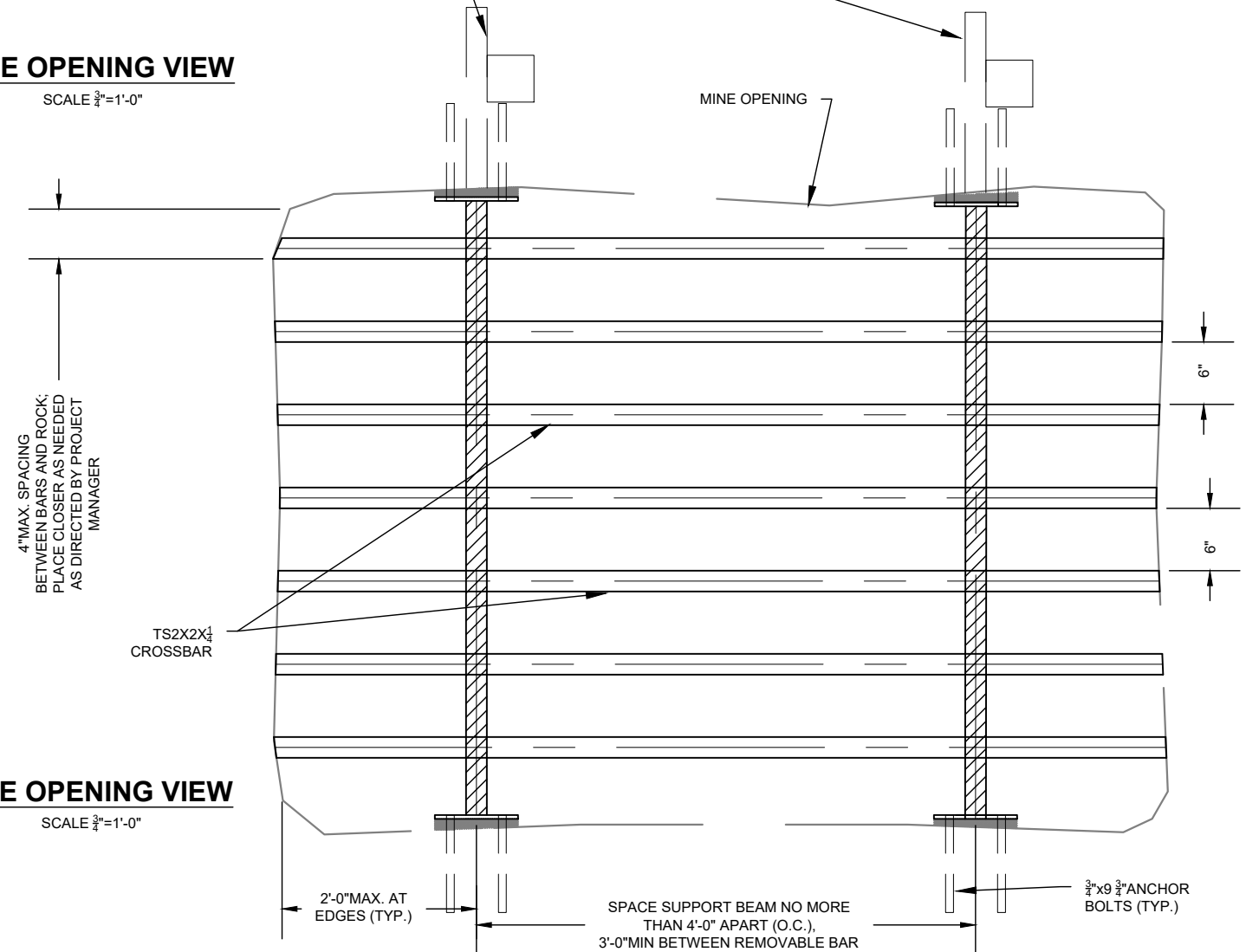
GENERAL NOTES:

1. THIS DRAWING SHOWS TWO EXAMPLE MINE OPENINGS AND THE CORRESPONDING LAYOUTS OF THE STEEL CLOSURE. THE DRAWING SHALL BE USED AS A GUIDE FOR FIELD LAYOUT. DETERMINE THE ACTUAL LAYOUTS AND DIMENSIONS OF THE CLOSURES IN THE FIELD PRIOR TO FABRICATION.
2. INSTALL HORIZONTAL BAT GATES AS CLOSE TO THE TOP OF THE SHAFT OPENINGS AS POSSIBLE, WHERE THE ROCK AT THE GATE LOCATIONS IS FULLY COMPETENT.
3. REMOVE LOOSE ROCK AT CLOSURES PRIOR TO FABRICATION AND FIELD ERECTION OF THE CLOSURES. MINIMIZE THE AMOUNT OF ROCK AND OTHER DEBRIS THAT FALL INTO THE MINE OPENINGS DURING CONSTRUCTION. PULL LOOSE MATERIAL UP AND AWAY FROM THE MINE AREA.
4. USE BEAM SUPPORTS OR BEAM SEATS, AT CONTRACTOR'S DIRECTION AND APPROVAL FROM THE PROJECT MANAGER, TO FASTEN BEAM ENDS TO COMPETENT ROCK.
5. UNLESS OTHERWISE ACCEPTED BY THE PROJECT ENGINEER, PLACE TS BEAMS ACROSS THE SPAN (WIDTH) OF THE SHAFT OPENING.
6. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO CONCRETE OR ADJACENT COMPETENT ROCK AS DIRECTED BY THE PROJECT MANAGER.
7. FOR AML 15_01 UTILIZE SONOTUBE FOOTERS ON NORTHERN SIDE OF FEATURE ADJACENT TO ACCESS ROAD.
8. WEATHERING STEEL SHALL BE USED FOR ALL STEEL TUBING AND PLATING.
9. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.



MINE OPENING VIEW

SCALE 3/4"=1'-0"



AML 15-01

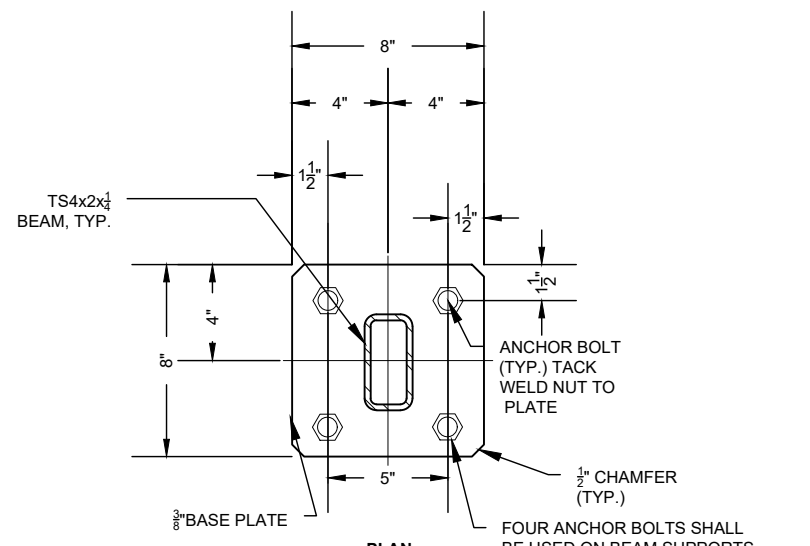


AML 15-04



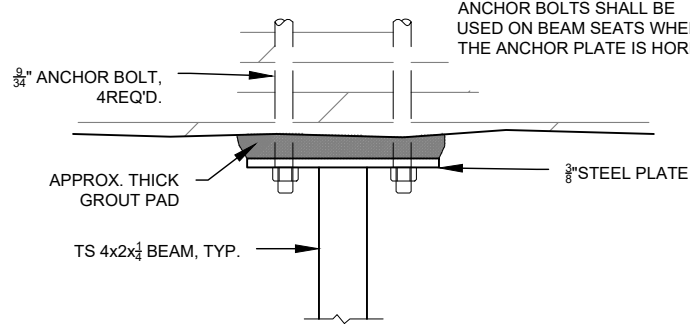
AML 15-20

ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML15_01, 15_04, 15_20	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
HORIZONTAL BAT GATE ON SHAFT		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 13

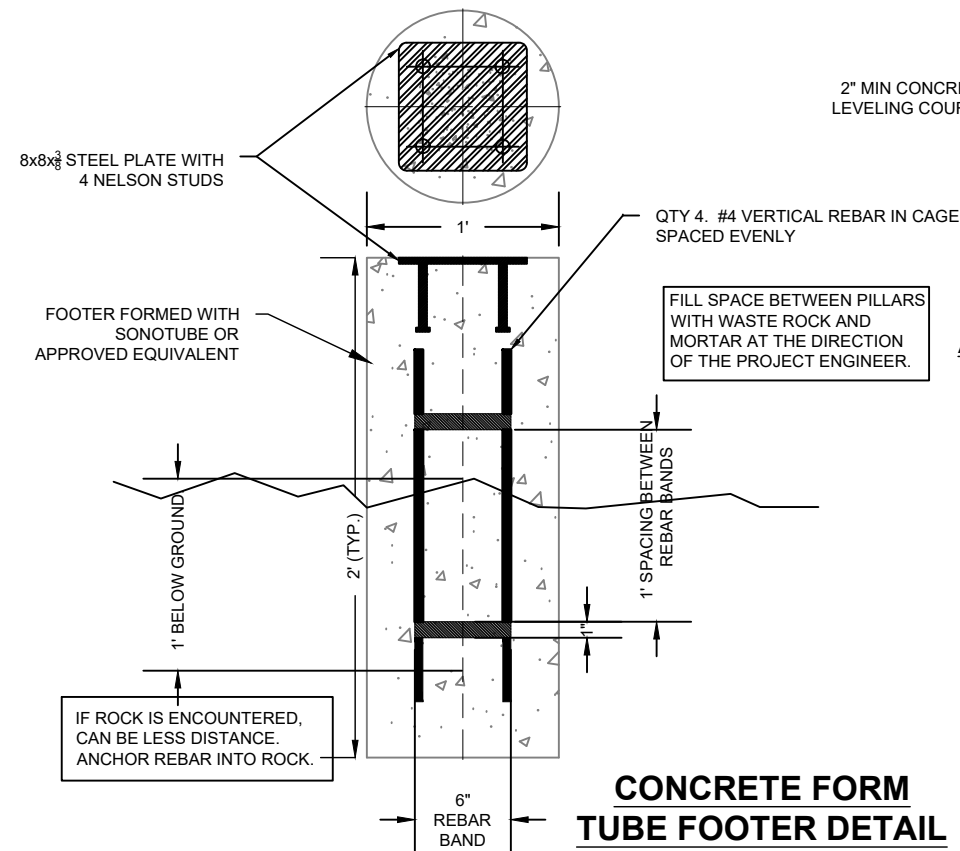


PLAN

FOUR ANCHOR BOLTS SHALL BE USED ON BEAM SUPPORTS WHEN ANCHOR PLATES ARE VERTICAL OR ANGLED. TWO ANCHOR BOLTS SHALL BE USED ON BEAM SEATS WHEN THE ANCHOR PLATE IS HORIZONTAL.



ELEVATION

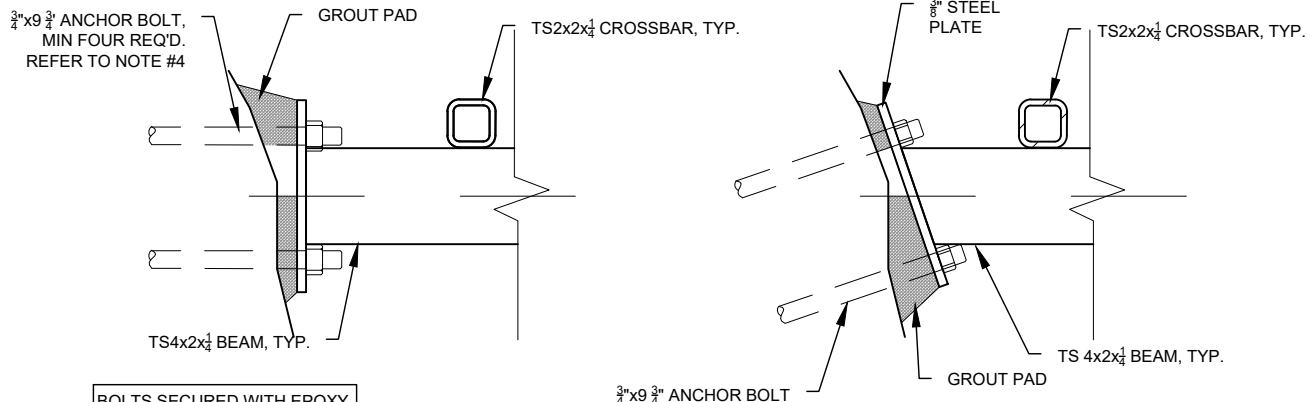


CONCRETE FORM TUBE FOOTER DETAIL

SCALE 1"=1'-0"

INSTALL HORIZONTAL ANCHOR NO CLOSER THAN 10" TO TOP EDGE OF ROCK.

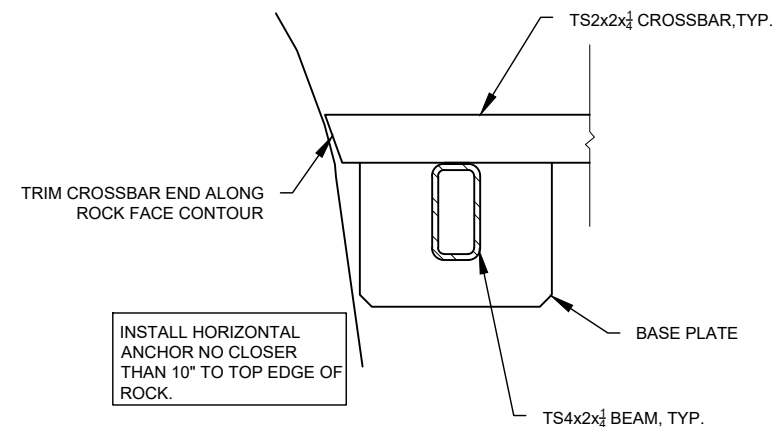
CONTRACTOR HAS THE OPTION OF ANGLING BEAM SUPPORT WITH THE ROCK FACE UPWARD OR VERTICALLY



BEAM SUPPORT SIDE SECTION

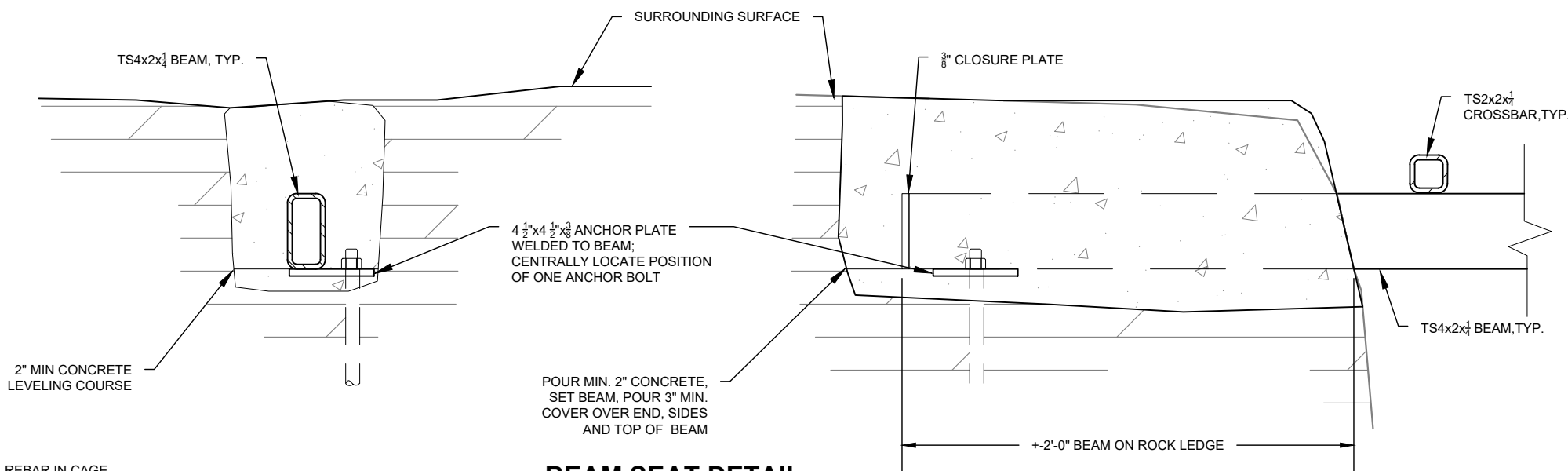
SCALE 1-1/2"=1'-0"

BOLTS SECURED WITH EPOXY PER PROJECT SPECIFICATION. (SEE ANCHOR INSTALLATION NOTES)



BEAM-CROSSBAR SECTION VIEW

SCALE 1-1/2"=1'-0"



BEAM SEAT DETAIL

SCALE 1-1/2"=1'-0"

ANCHOR INSTALLATION NOTES:

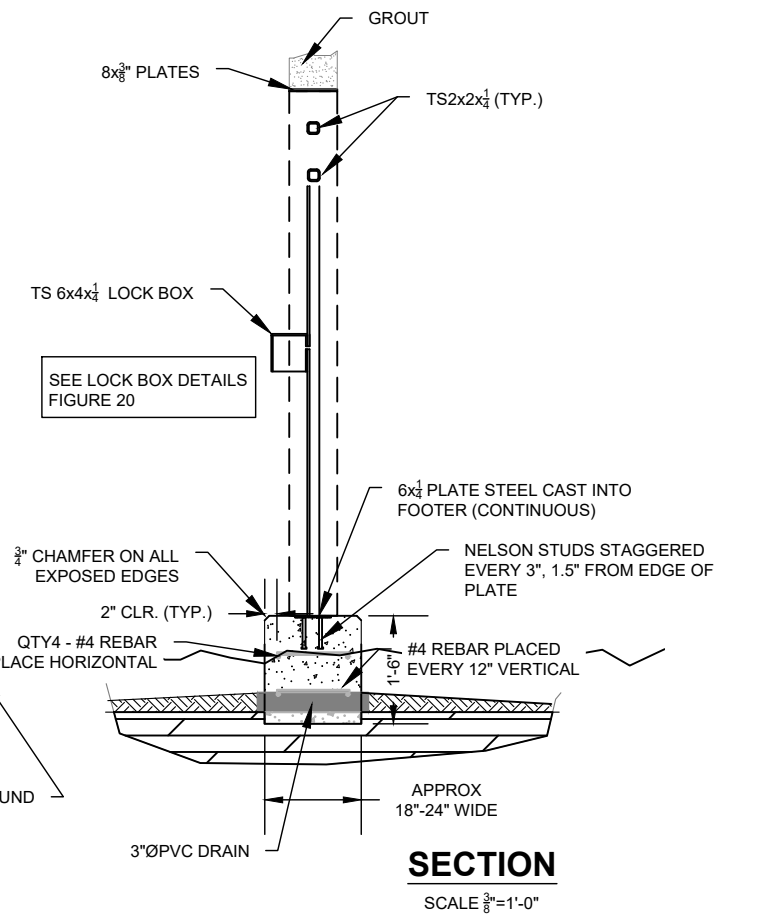
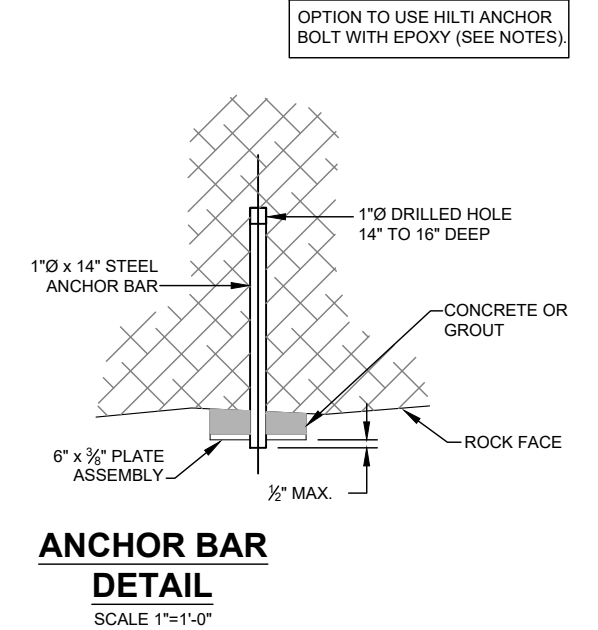
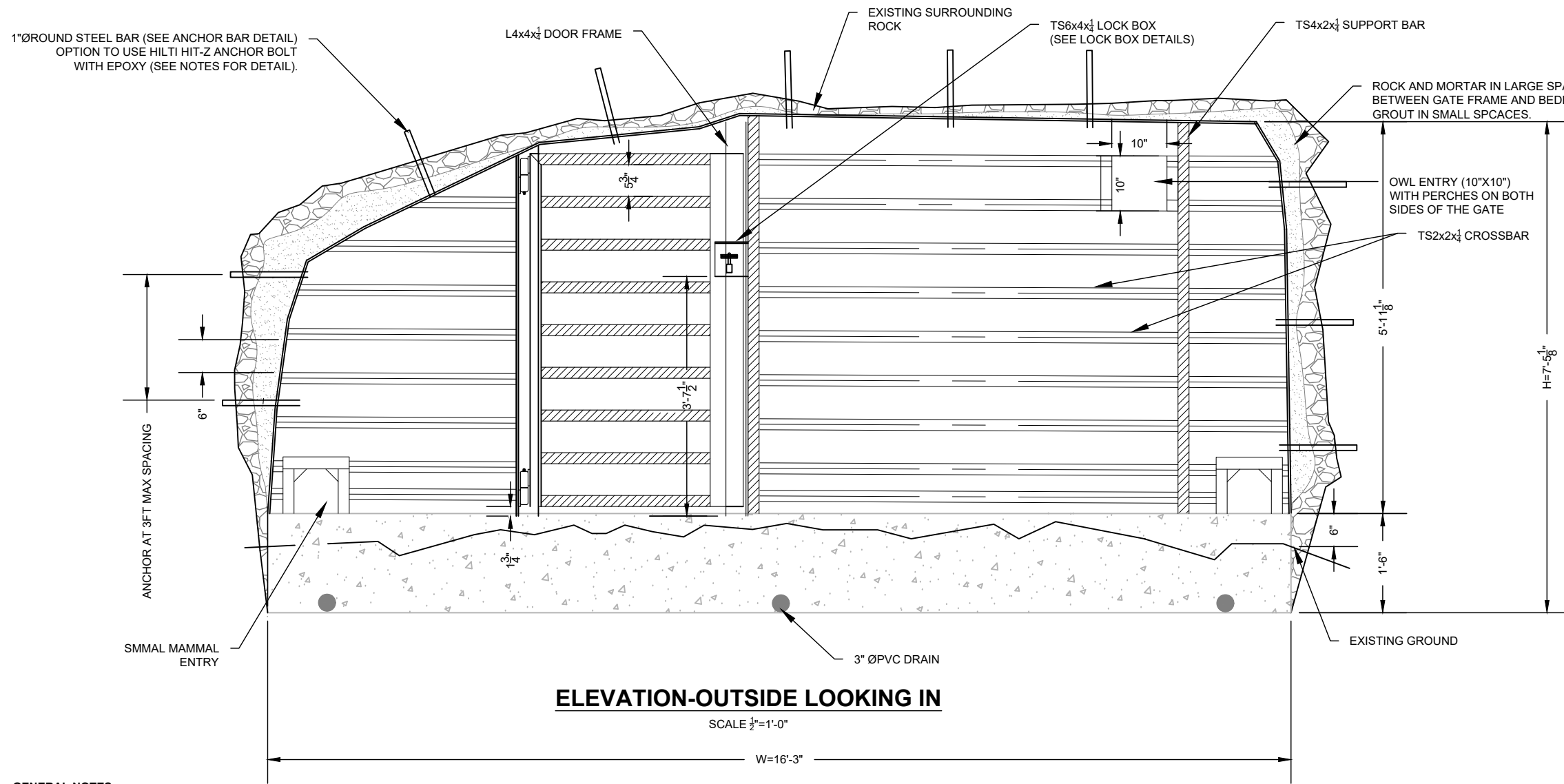
- SUPPORT BEAMS FOR HORIZONTAL BAT GATES SHALL BE ATTACHED TO THE SURROUNDING ROCK USING HILTI HIT-HY 200 ADHESIVE ANCHORING SYSTEM OR AN APPROVED EQUIVALENT.
- HILTI HIT-HY 200 ADHESIVE IS AVAILABLE IN TWO OPTIONS, HILTI HIT-HY 200-A, AND HILTI HIT-HY 200-R. BOTH OPTIONS UTILIZE THE SAME TECHNICAL DATA. HILTI HIT-HY 200-A WILL HAVE SHORTER WORKING TIMES AND CURING TIMES THAN HILTI HIT-HY 200-R. THE PACKING FOR EACH IS DIFFERENT WHICH HELPS THE USER DISTINGUISH BETWEEN THE TWO ADHESIVES.
- INJECTABLE ADHESIVE SHALL BE USED FOR INSTALLATION OF THREADED RODS (REBAR) (INSERTS) INTO EXISTING CONCRETE. ADHESIVE SHALL BE FURNISHED IN CONTAINERS WHICH KEEP COMPONENT A AND COMPONENT B SEPARATE. CONTAINERS SHALL BE DESIGNED TO ACCEPT STATIC MIXING NOZZLE WHICH THOROUGHLY BLENDS COMPONENT A AND COMPONENT B AND ALLOWS INJECTION OF THE MIXED ADHESIVE DIRECTLY INTO THE DRILLED HOLE.
- ONLY INJECTION TOOLS AND STATIC MIXING NOZZLES SUPPLIED BY THE MANUFACTURER MAY BE USED. INJECTION ADHESIVE SHALL BE FORMULATED TO INCLUDE THE RESIN AND HARDENER TO PROVIDE OPTIMAL CURING SPEED, HIGH STRENGTH AND STIFFNESS. INJECTION ADHESIVE ANCHOR SYSTEM SHALL BE HILTI HIT-HY 200 INSTALLED USING HILTI SAFE SET TECHNOLOGY. HIT-HY 200 SYSTEM SHALL BE SUPPLIED BY HILTI.
- THE ANCHORS SHALL BE HILTI HIT-Z-R ANCHORS ROD 3/4" DIAMETER X 9 3/4" LENGTH. DRILL HOLE LENGTH SHALL BE A 8 1/2" IN LENGTH AND THE DIAMETER SHALL BE 1 1/8".
- WHEN USING HILTI HIT-Z-R ANCHOR RODS, DRILLING DUST DOES NOT NEED TO BE REMOVED FOR OPTIMUM CAPACITY WHEN BASE MATERIAL TEMPERATURES ARE GREATER THAN 41°F (5°C) AND A HAMMER DRILL WITH A CARBIDE TIPPED DRILL BIT IS USED. HOWEVER, THE HOLE SHALL BE CLEANED IF ANY OTHER TYPE OF DRILLING METHOD IS USED.
- THE BOLT SHALL BE TORQUED TO 110FT-LB.
- INSTALLATION OF EACH BOLT SHALL UTILIZE TWO WASHERS AND AT LEAST ONE NUT. TAKE MEASURES TO MAKE ALL NUTS UNREMOVABLE SUCH AS DESTROYING THE THREADS OR TACK WELDED.

GENERAL NOTES:

- POSITION CLOSURE AT THE TOP OF THE SHAFT AT A STABLE LOCATION AS DIRECTED BY THE PROJECT MANAGER. IF THERE IS POTENTIAL FOR ROCK ACCUMULATION FROM ABOVE, STRUCTURE SHOULD BE ANGLED DOWNHILL IF POSSIBLE TO ALLOW THE ROCKS TO SLIDE OFF.
- MINIMIZE THE AMOUNT OF ROCK AND OTHER DEBRIS THAT FALL INTO THE MINE OPENINGS DURING CONSTRUCTION. PULL LOOSE MATERIAL UP AND AWAY FROM THE MINE AREA.
- USE BEAM SUPPORTS, BEAM SEATS OR CONCRETE FORM TUBE FOOTERS AT CONTRACTOR'S OPTION WITH CONCURRENCE FROM THE PROJECT MANAGER, TO FASTEN BEAM ENDS TO COMPETENT ROCK.
- USE 2 ANCHOR BOLTS WHEN SUPPORT BEAMS ARE FIXED ONTO GROUND OUTSIDE OF MINE FEATURE. USE 4 ANCHOR BOLTS WHEN SUPPORT BEAMS ARE FIXED WITHIN THE INTERIOR WALLS OF THE MINE FEATURE.
- STEEL SHAPES, PLATES AND BARS SHALL BE WEATHERING OR STAINLESS STEEL.
- PUT 1/2" CHAMFER ON ANY CONCRETE EDGES.
- ANCHOR BOLTS SHALL BE ZINC-PLATED HILTI HIT ADHESIVE ANCHORS OR APPROVED EQUIVALENT. FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING INSTALLATION.
- DO NOT FILL BEAMS WITH CONCRETE OR GROUT.
- CAP ENDS OF OPEN TUBULAR STEEL WITH 3/8" PLATE.
- INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY THE PROJECT MANAGER.

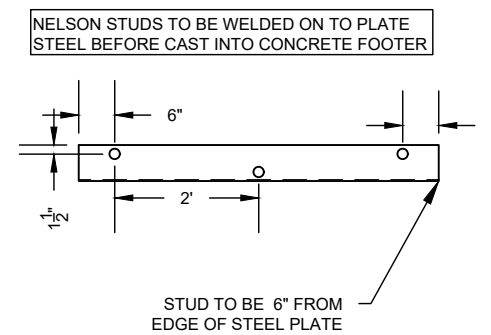
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND AND OVER UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML15_01, 15_04, 15_20	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
HORIZONTAL BAT GATE ON SHAFT DETAILS		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 14



GENERAL NOTES:

1. THIS DRAWING SHOWS THE GENERAL SHAPE AND APPROXIMATE PROFILE OF THE EGRESS ADIT AT THE INTENDED LOCATION OF THE CLOSURE. USE THE DRAWING AS A GUIDE FOR FIELD LAYOUT OF THE CLOSURE. FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION.
2. TUBULAR STEEL PLATES, AND SHAPES SHALL BE WEATHERING STEEL AS SPECIFIED. WELD ALL JOINTS. JOINTS SHALL BE TIGHT SO THAT MOISTURE CANNOT ENTER BETWEEN PILES OF MATERIAL. ROUND OR CHAMFER ALL SHARP EDGES AND CORNERS.
3. PRIOR TO CONSTRUCTING THE FOOTER, REMOVE RUBBLE AND LEVEL THE FLOOR IN THE AREA OF THE CLOSURE AS SHOWN IN THE DRAWING AND AS DIRECTED BY THE AML PROGRAM MANAGER. COMPACT THE FOOTER BASE TO THE SATISFACTION OF THE PROJECT MANAGER, PRIOR TO POURING CONCRETE FOOTER.
4. INSTALL HEAVY DUTY BARREL WELD-ON PIVOT HINGES (1,000lb/PAIR CAPACITY) AS SHOWN AND AS SPECIFIED. BOTH HINGES SHALL BE INSTALLED TO SUPPORT THE DOOR AND SHALL BE IN-LINE AND OPERATE SMOOTHLY WHEN THE DOOR IS HUNG.
5. CONSTRUCT AND INSTALL THE DOOR AND DOOR FRAME TRUE, SQUARE AND PLUMB. THE DOOR SHALL CLOSE SNUGGLY AGAINST THE FRONT FACE OF THE DOOR FRAME WITH NO MORE THAN A $\frac{3}{8}$ " GAP AT ANY POINT ALONG THE FRONT FACE OF BOTH SIDES OF THE DOOR AND FRAME WHEN THE DOOR IS CLOSED.
6. GROUT AND MORTAR SHALL BE CONSTRUCTION GRADE.
7. PLACE A $\frac{3}{8}$ " CHAMFER ON ALL EXPOSED EDGES OF CONCRETE FOOTER.
8. TOLERANCE ON THE CENTER-TO-CENTER DIMENSIONS BETWEEN POSTS SHALL BE $\pm \frac{1}{16}$ ".
9. PLACE A SURVEY MARKER, PROVIDED BY AML PROGRAM, INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.
10. ROCK AND MORTAR LARGE GAPS AROUND GATE FRAME.
11. REMOVE WASTE ROCK IN FRONT OF FEATURE.
12. INSTALL TS 2X2X $\frac{1}{4}$ " CLOSURE BARS ON GAPS BETWEEN ROCK AND PLATE STEEL.
13. WEATHERING STEEL SHALL BE USED FOR ALL THE STEEL TUBING AND PLATING.
14. GATES SHALL BE SECURED IN PLACE WITH 1" DIAMETER ROUND STEEL BAR DRIVEN INTO 1" DIAMETER HOLE (SEE ANCHOR BAR DETAIL). CONTRACTOR HAS OPTION TO USE $\frac{3}{4}$ " x $9 \frac{3}{4}$ " HILTI HIT-Z ANCHOR BOLT WITH EPOXY OR APPROVED EQUIVALENT IN PLACE OF ROUND STEEL BAR. FOR WEAK ROCK AND WITH APPROVAL OF PROJECT ENGINEER, CONTRACTOR HAS OPTION TO USE $\frac{1}{2}$ " x $7 \frac{3}{4}$ " HILTI HIT-Z ANCHOR BOLT WITH EPOXY OR APPROVED EQUIVALENT. DRILL HOLE FOR HILTI ANCHORS SHALL BE $\frac{1}{8}$ " INCH LARGER THAN ANCHOR DIAMETER.



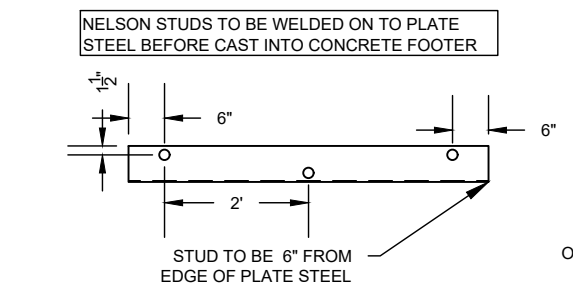
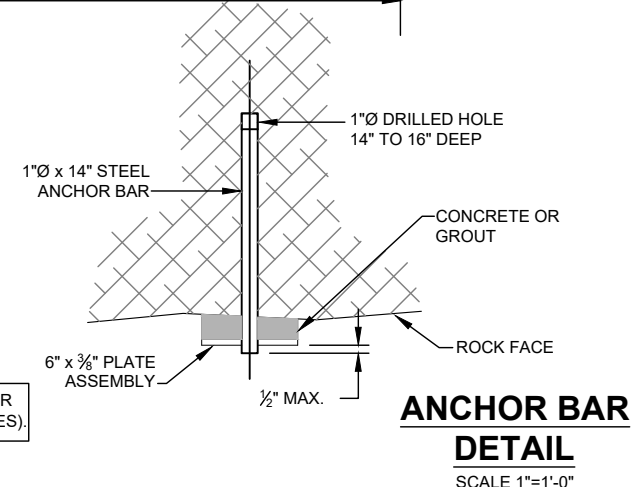
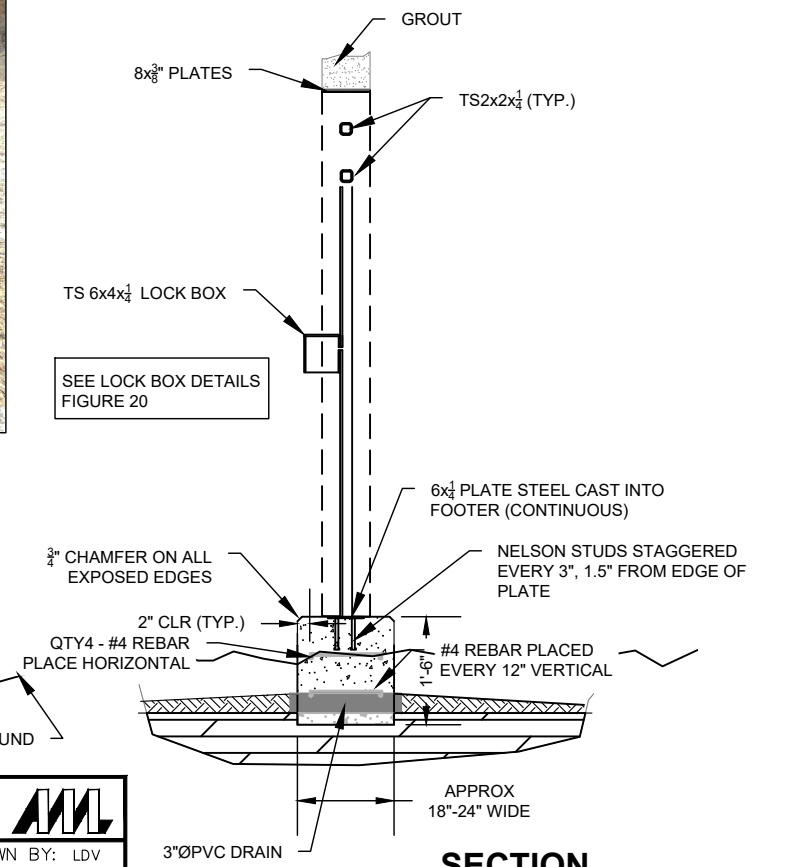
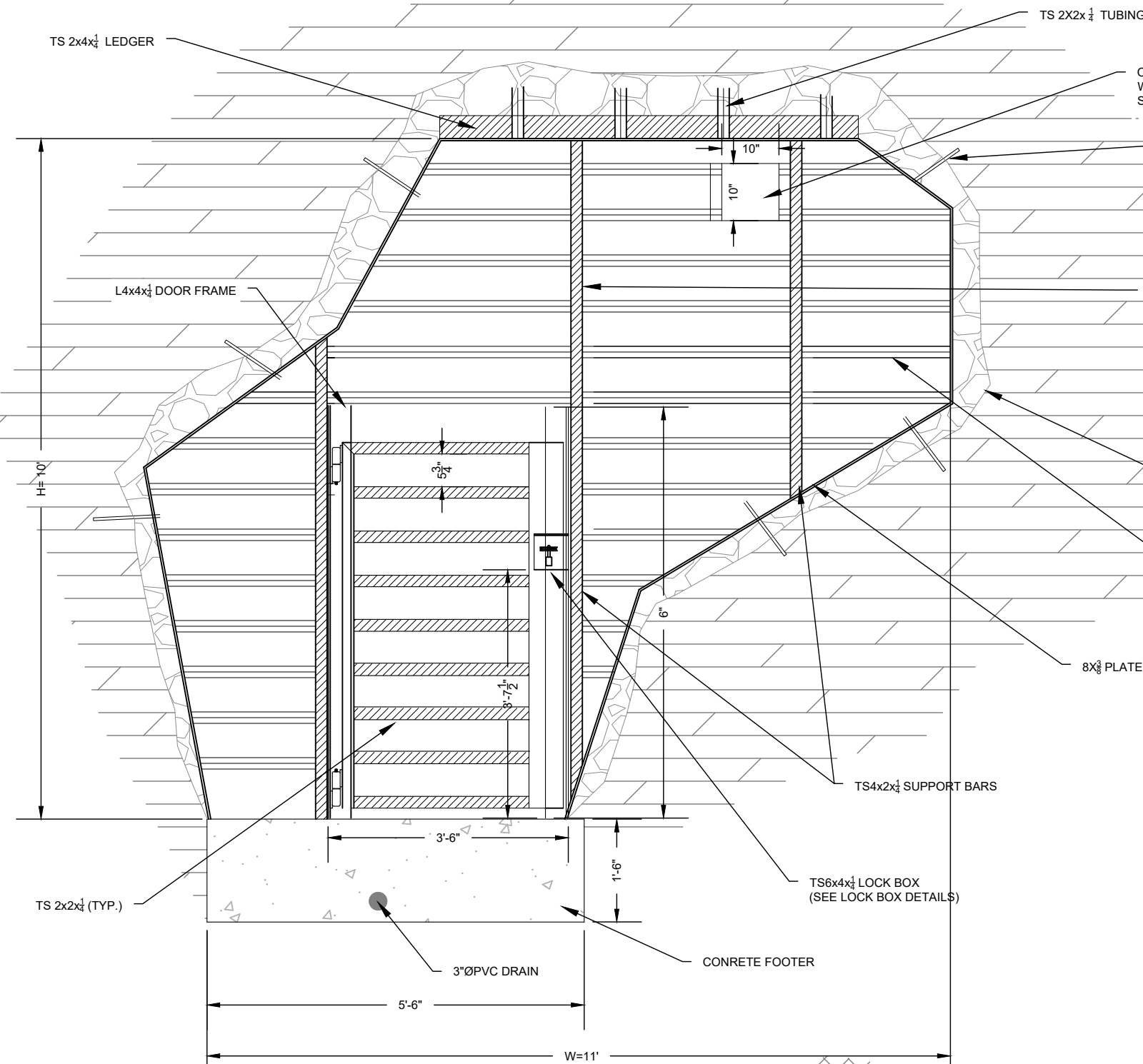
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML 15_23	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
VERTICAL EGRESS CLOSURE ON ADIT		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 15

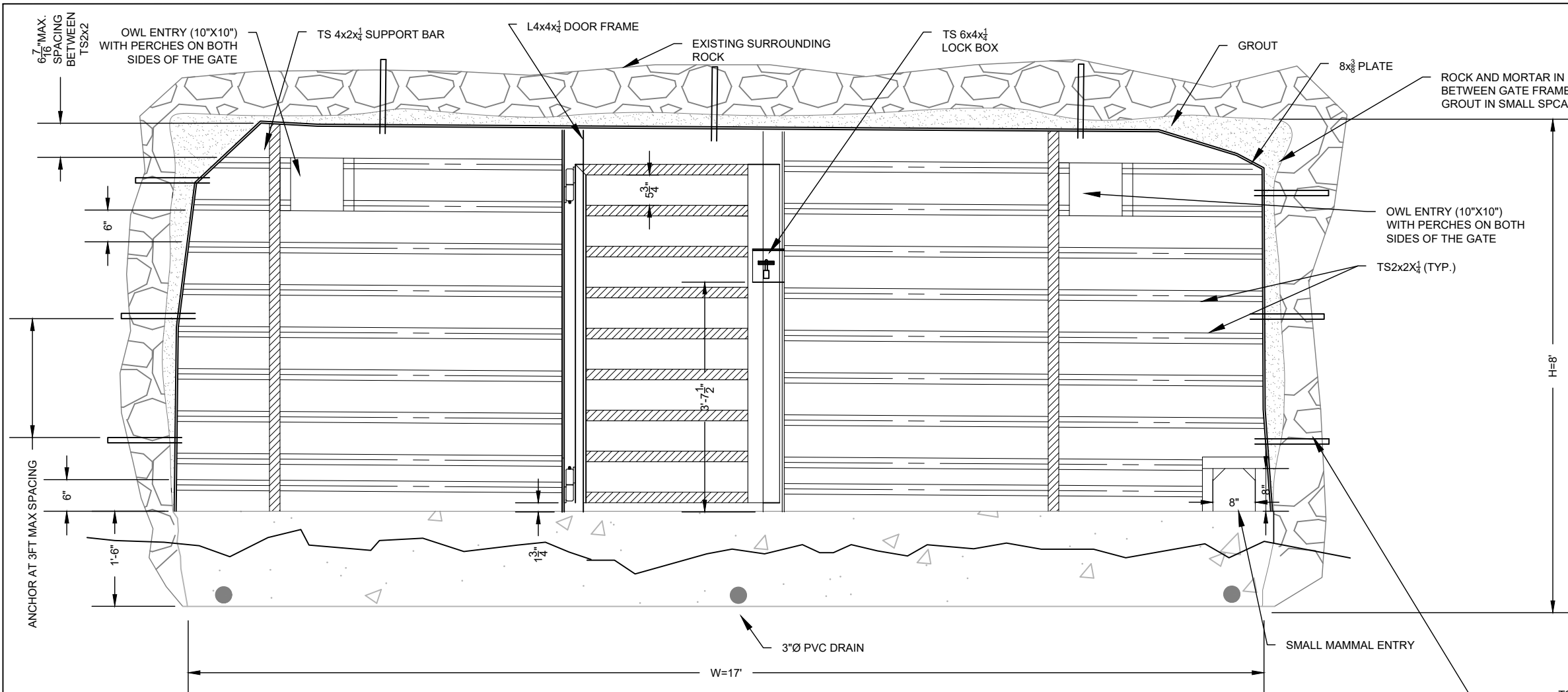
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPS, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

GENERAL NOTES:

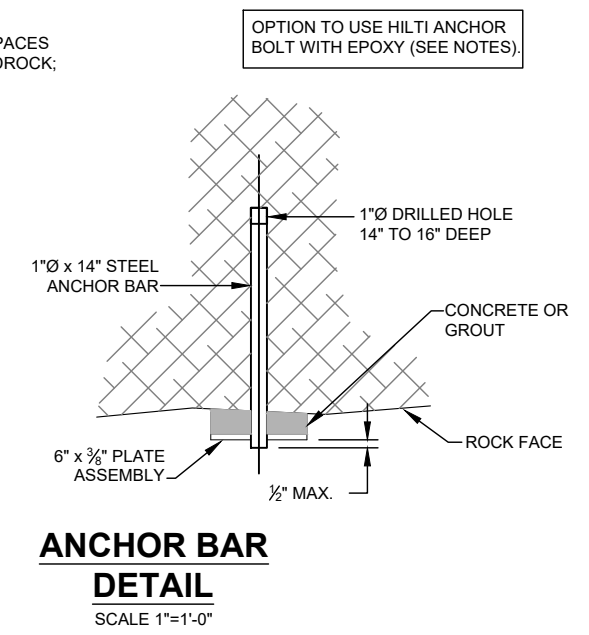
1. THIS DRAWING SHOWS THE GENERAL SHAPE AND APPROXIMATE PROFILE OF THE EGRESS ADIT AT THE INTENDED LOCATION OF THE CLOSURE. USE THE DRAWING AS A GUIDE FOR FIELD LAYOUT OF THE CLOSURE. FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION.
2. TUBULAR STEEL PLATES, AND SHAPES SHALL BE WEATHERING STEEL AS SPECIFIED. WELD ALL JOINTS. JOINTS SHALL BE TIGHT SO THAT MOISTURE CANNOT ENTER BETWEEN PILES OF MATERIAL. ROUND OR CHAMFER ALL SHARP EDGES AND CORNERS.
3. PRIOR TO CONSTRUCTING THE FOOTER, REMOVE RUBBLE AND LEVEL THE FLOOR IN THE AREA OF THE CLOSURE AS SHOWN IN THE DRAWING AND AS DIRECTED BY THE AML PROGRAM MANAGER. COMPACT THE FOOTER BASE TO THE SATISFACTION OF THE PROJECT MANAGER, PRIOR TO POURING CONCRETE FOOTER.
4. INSTALL HEAVY DUTY BARREL WELD-ON PIVOT HINGES (1,000lb/PAIR CAPACITY) AS SHOWN AND AS SPECIFIED. BOTH HINGES SHALL BE INSTALLED TO SUPPORT THE DOOR AND SHALL BE IN-LINE AND OPERATE SMOOTHLY WHEN THE DOOR IS HUNG.
5. CONSTRUCT AND INSTALL THE DOOR AND DOOR FRAME TRUE, SQUARE AND PLUMB. THE DOOR SHALL CLOSE SNUGGLY AGAINST THE FRONT FACE OF THE DOOR FRAME WITH NO MORE THAN A 3/8" GAP AT ANY POINT ALONG THE FRONT FACE OF BOTH SIDES OF THE DOOR AND FRAME WHEN THE DOOR IS CLOSED.
6. GROUT AND MORTAR SHALL BE CONSTRUCTION GRADE.
7. PLACE A 3/8" CHAMFER ON ALL EXPOSED EDGES OF CONCRETE FOOTER.
8. TOLERANCE ON THE CENTER-TO-CENTER DIMENSIONS BETWEEN POSTS SHALL BE +/- 1/16".
9. PLACE A SURVEY MARKER, PROVIDED BY AML PROGRAM, INTO THE ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.
10. ROCK AND MORTAR LARGE GAPS AROUND GATE FRAME.
11. INSTALL ANGLED SUPPORT 12-14'.
12. INSTALL TS 2X2X1/4 CLOSURE BARS ON GAPS BETWEEN ROCK AND STEEL PLATE.
13. WEATHERING STEEL SHALL BE USED FOR ALL THE STEEL TUBING AND PLATING.
14. GATES SHALL BE SECURED IN PLACE WITH 1" DIAMETER ROUND STEEL BAR DRIVEN INTO 1" DIAMETER HOLE (SEE ANCHOR BAR DETAIL). CONTRACTOR HAS OPTION TO USE 3/4" x 9 3/4" HILTI HIT-Z ANCHOR BOLT WITH EPOXY OR APPROVED EQUIVALENT IN PLACE OF ROUND STEEL BAR. FOR WEAK ROCK AND WITH APPROVAL OF PROJECT ENGINEER, CONTRACTOR HAS OPTION TO USE 3/4" x 7 3/4" HILTI HIT-Z ANCHOR BOLT WITH EPOXY OR APPROVED EQUIVALENT. DRILL HOLE FOR HILTI ANCHORS SHALL BE 1/8" INCH LARGER THAN ANCHOR DIAMETER.



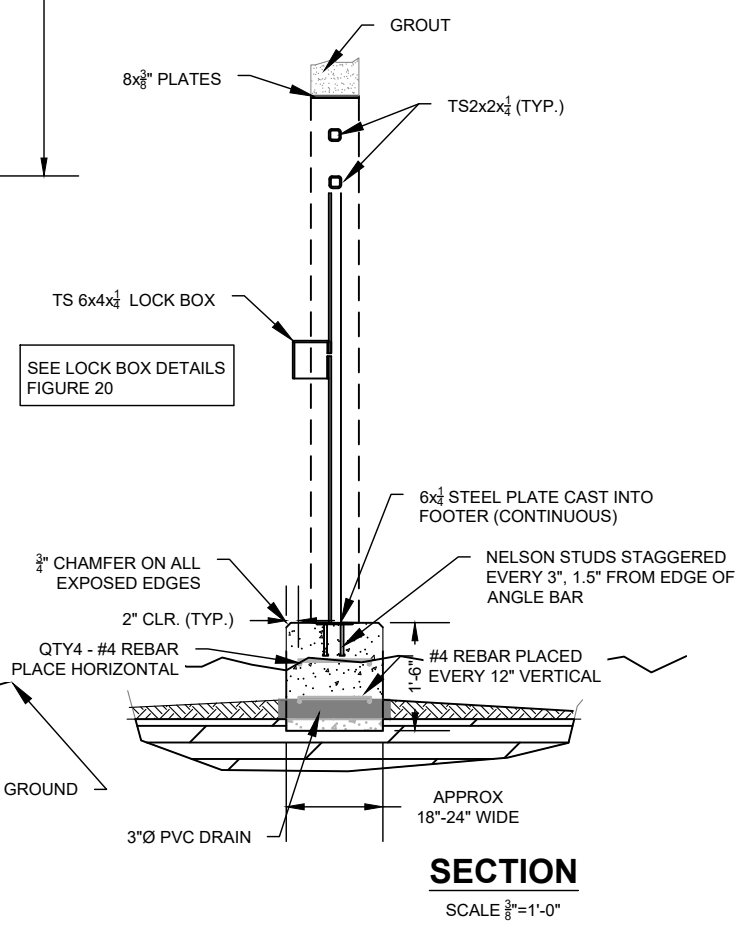
ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	AML 15_24b	DRAWN BY: LDV
DATE: 05/15/2024		REVISED BY:
VERTICAL EGRESS CLOSURE ON ADIT		
FILE: 15	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 16



ELEVATION-OUTSIDE LOOKING IN
SCALE 1/2"=1'-0"



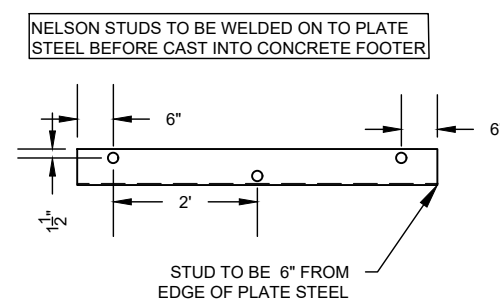
**ANCHOR BAR
DETAIL**
SCALE 1"=1'-0"



SECTION
SCALE 3/8"=1'-0"

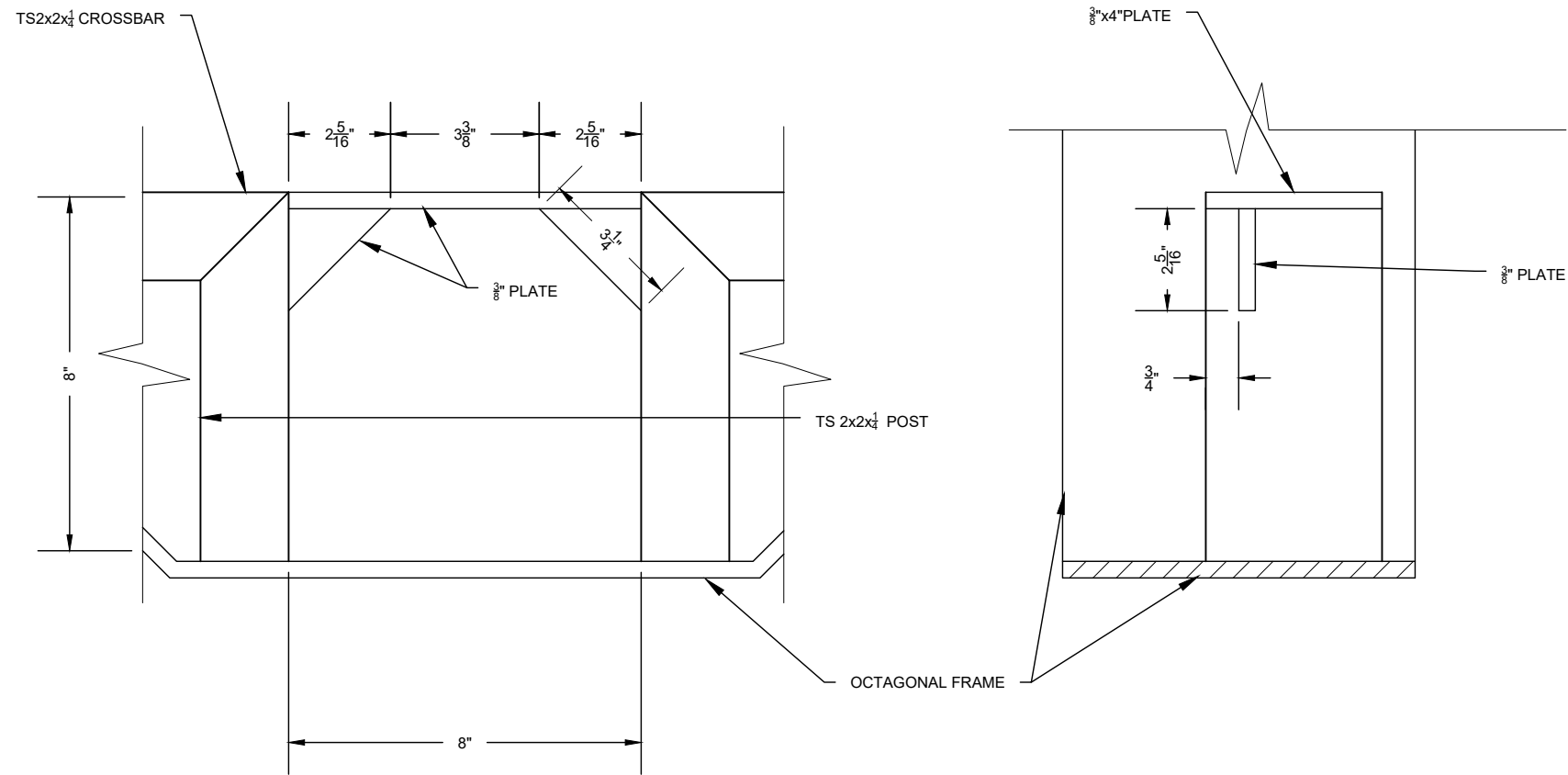
GENERAL NOTES:

1. THIS DRAWING SHOWS THE GENERAL SHAPE AND APPROXIMATE PROFILE OF THE EGRESS ADIT AT THE INTENDED LOCATION OF THE CLOSURE. USE THE DRAWING AS A GUIDE FOR FIELD LAYOUT OF THE CLOSURE. FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION.
2. TUBULAR STEEL PLATES, AND SHAPES SHALL BE WEATHERING STEEL AS SPECIFIED. WELD ALL JOINTS. JOINTS SHALL BE TIGHT SO THAT MOISTURE CANNOT ENTER BETWEEN PILES OF MATERIAL. ROUND OR CHAMFER ALL SHARP EDGES AND CORNERS.
3. PRIOR TO CONSTRUCTING THE FOOTER, REMOVE RUBBLE AND LEVEL THE FLOOR IN THE AREA OF THE CLOSURE AS SHOWN IN THE DRAWING AND AS DIRECTED BY THE AML PROGRAM MANAGER. COMPACT THE FOOTER BASE TO THE SATISFACTION OF THE PROJECT MANAGER, PRIOR TO POURING CONCRETE FOOTER.
4. INSTALL HEAVY DUTY BARREL WELD-ON PIVOT HINGES (1,000lb/PAIR CAPACITY) AS SHOWN AND AS SPECIFIED. BOTH HINGES SHALL BE INSTALLED TO SUPPORT THE DOOR AND SHALL BE IN-LINE AND OPERATE SMOOTHLY WHEN THE DOOR IS HUNG.
5. CONSTRUCT AND INSTALL THE DOOR AND DOOR FRAME TRUE, SQUARE AND PLUMB. THE DOOR SHALL CLOSE SNUGGLY AGAINST THE FRONT FACE OF THE DOOR FRAME WITH NO MORE THAN A 3/8" GAP AT ANY POINT ALONG THE FRONT FACE OF BOTH SIDES OF THE DOOR AND FRAME WHEN THE DOOR IS CLOSED.
6. GROUT AND MORTAR SHALL BE CONSTRUCTION GRADE.
7. PLACE A 3/8" CHAMFER ON ALL EXPOSED EDGES OF CONCRETE FOOTER.
8. TOLERANCE ON THE CENTER-TO-CENTER DIMENSIONS BETWEEN POSTS SHALL BE + 1/16".
9. PLACE A SURVEY MARKER, PROVIDED BY AML PROGRAM, INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.
10. ROCK AND MORTAR LARGE GAPS AROUND GATE FRAME
11. GATE RECESSED 20' INTO MINE ADIT PAST TIMBER STRUCTURE.
12. INSTALL TS2X2X1/4 CLOSURE BARS ON GAPS BETWEEN ROCK AND STEEL PLATE.
13. WEATHERING STEEL SHALL BE USED FOR ALL STEEL TUBING AND PLATING.
14. GATES SHALL BE SECURED IN PLACE WITH 1" DIAMETER ROUND STEEL BAR DRIVEN INTO 1" DIAMETER HOLE (SEE ANCHOR BAR DETAIL). CONTRACTOR HAS OPTION TO USE 3/4" x 9 3/4" HILTI HIT-Z ANCHOR BOLT WITH EPOXY OR APPROVED EQUIVALENT IN PLACE OF ROUND STEEL BAR. FOR WEAK ROCK AND WITH APPROVAL OF PROJECT ENGINEER, CONTRACTOR HAS OPTION TO USE 1/2" x 7 3/4" HILTI HIT-Z ANCHOR BOLT WITH EPOXY OR APPROVED EQUIVALENT. DRILL HOLE FOR HILTI ANCHORS SHALL BE 1/8" INCH LARGER THAN ANCHOR DIAMETER.



CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM			
MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	AML 15_25	DRAWN BY: MWT	
DATE: 05/15/2024		REVISED BY: LDV	
VERTICAL EGRESS CLOSURE ON ADIT			
FILE: 15	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 17	



SMALL MAMMAL ENTRY DETAILS

SCALE 3"=1'-0"

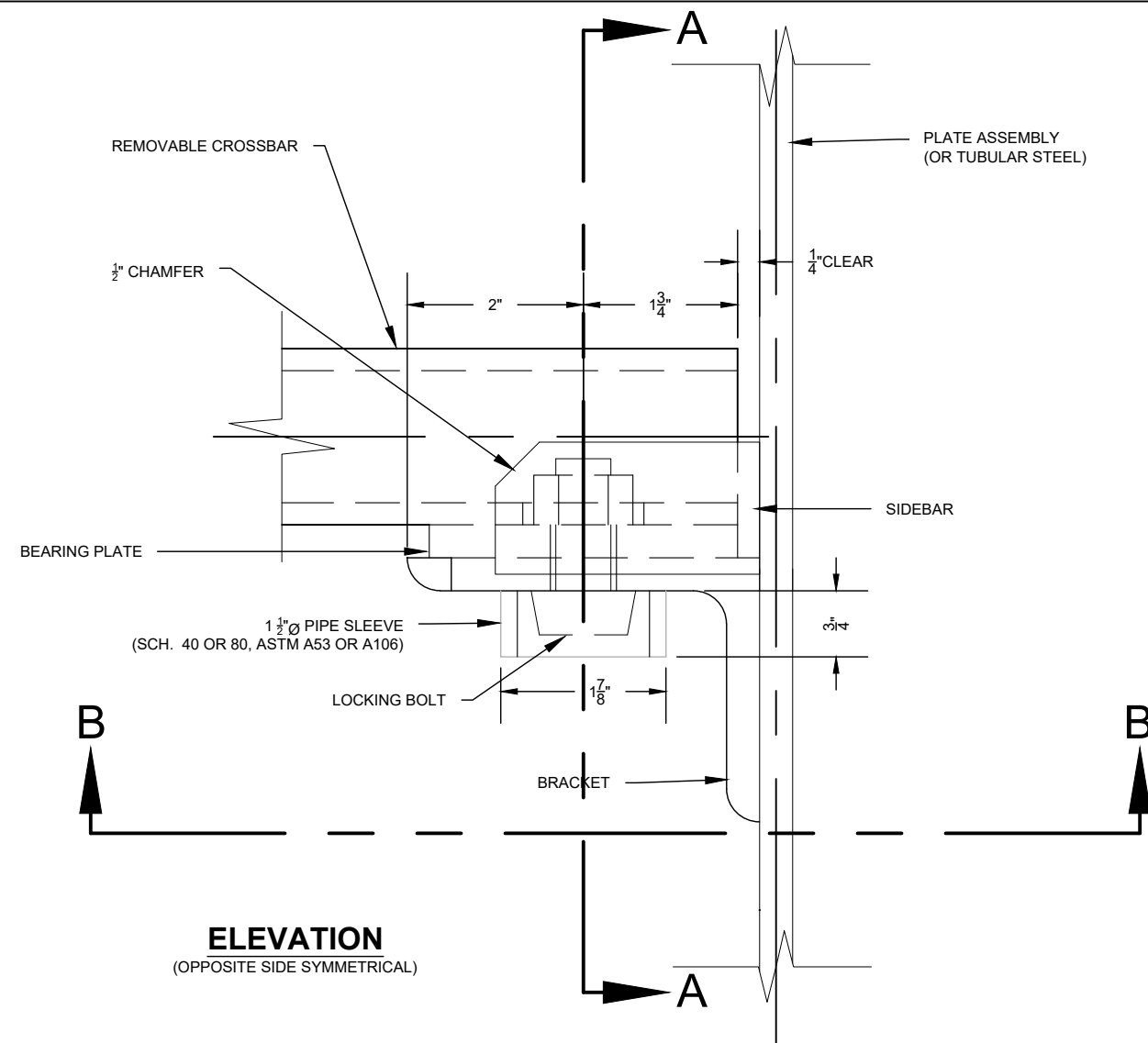
GENERAL NOTES:

1. THE SHAPE AND DIMENSIONS SHOWN FOR THE EXISTING ADIT OPENINGS ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE BAT GATE TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
3. DOUBLE-NUT ALL BOLTS.
4. THE CONTRACTOR HAS THE OPTION OF USING 8" STEEL PLATE WHERE 4" STEEL PLATE IS SHOWN IN THE DRAWINGS.
5. VERIFY THAT THE OPENINGS OF THE CSP ARE NOT OBSTRUCTED BY FILL OR ROCK.
6. THE FINISH GRADE ON THE OUTSIDE OF THE CULVERT SHALL HAVE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.
7. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.

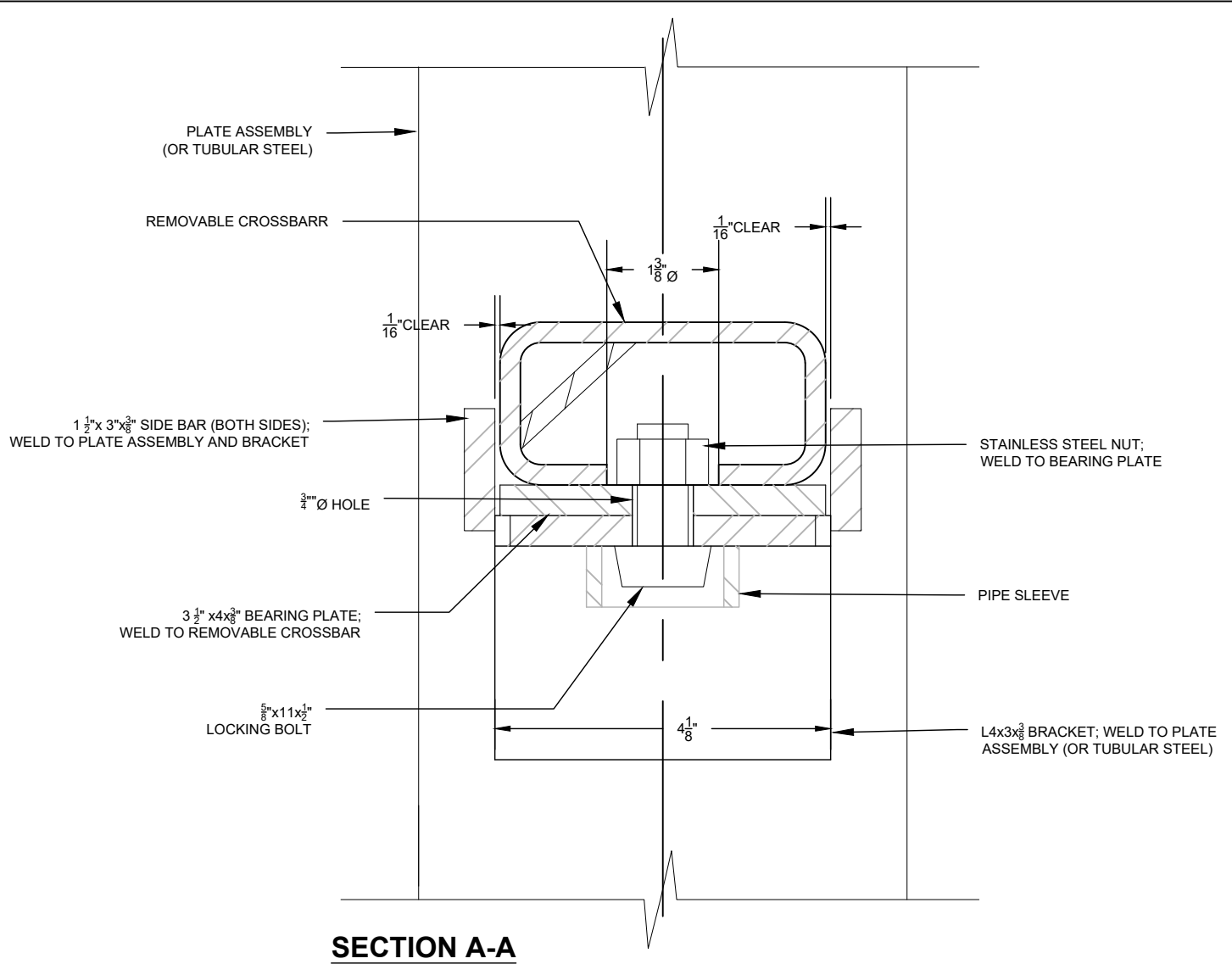
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	VARIOUS LOCATION	DRAWN BY: MWT
DATE: 05/15/2024		REVISED BY: LDV
SMALL MAMMAL ENTRY DETAILS		
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 18

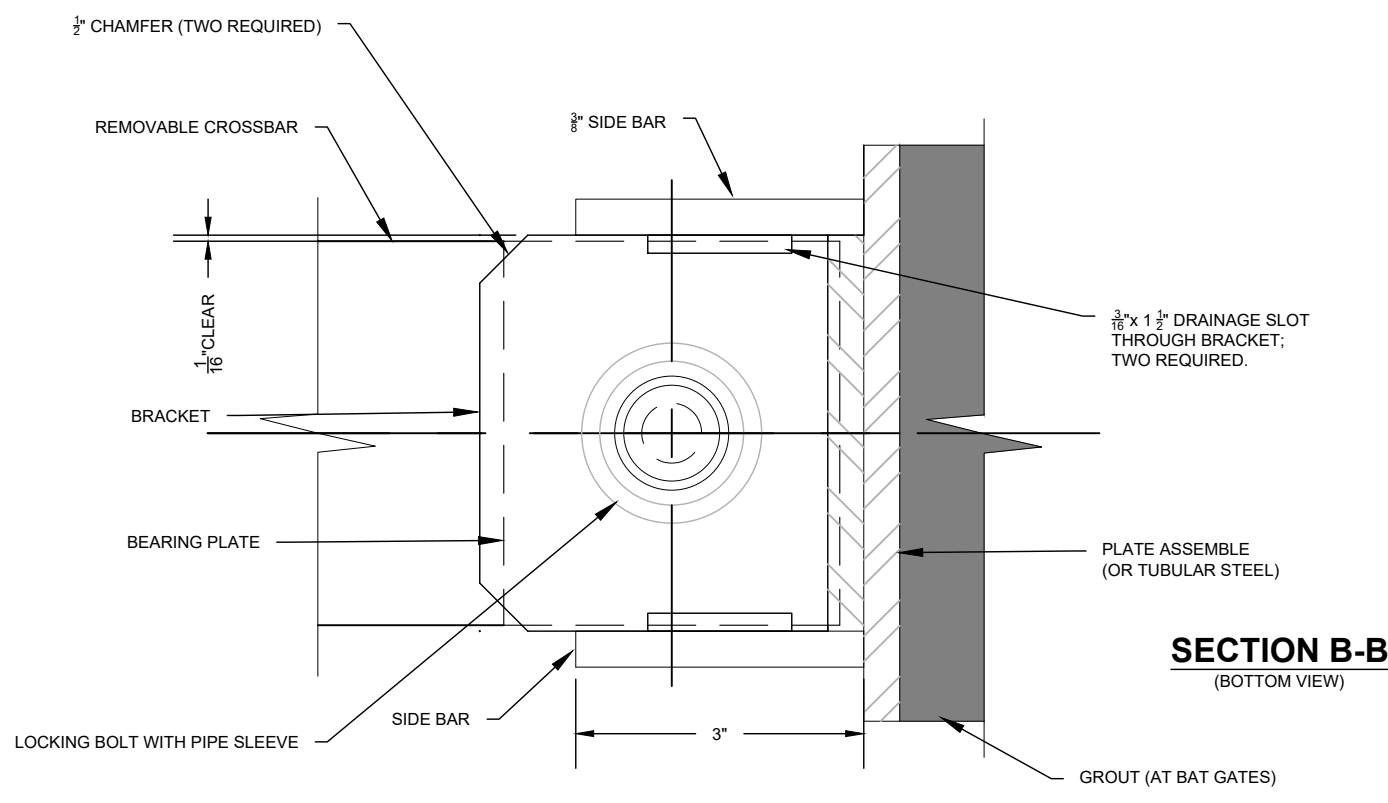




ELEVATION
(OPPOSITE SIDE SYMMETRICAL)




SECTION A-A

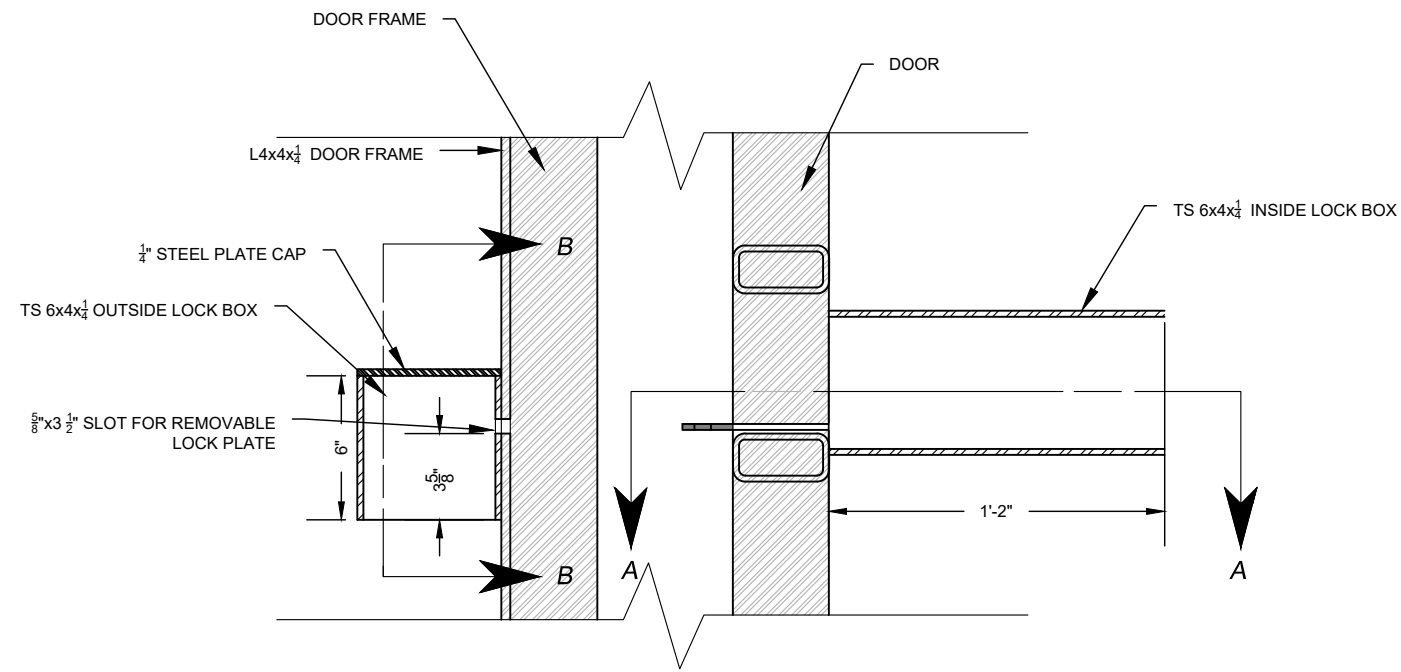


SECTION B-B
(BOTTOM VIEW)

- GENERAL NOTES:**
1. STEEL PLATE AND SHAPES SHALL BE WEATHERING STEEL, WELD ALL JOINTS, EXCEPT AS OTHERWISE INDICATED. CONSTRUCT THE LOCK TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. JOINTS SHALL BE TIGHT SO THAT MOISTURE CANNOT ENTER BETWEEN THE PLIES OF MATERIAL. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
 2. ALONG THE BOTTOM OF EACH REMOVABLE CROSSBAR, DRILL 1/2" DIAMETER HOLES AT 1'-0" O.C.
 3. THE CONTRACTOR SHALL PROVIDE THE NUTS (3/8" Ø -11 UNC CLASS 2A THREAD). THE PROJECT MANAGER WILL SUPPLY THE LOCKING BOLTS.
 4. COAT THE THREADS OF THE LOCKING BOLTS WITH LPS1 LUBRICANT AND INSTALL FIRMLY WITH 50 TO 75 POUNDS OF TORQUE.
 5. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY PROJECT MANAGER.

CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: 6"=1'-0" DATE: 05/15/2024	VARIOUS LOCATION	DRAWN BY: MWT REVISED BY: LDV	
REMOVABLE CROSSBAR LOCK DETAIL			
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 19	



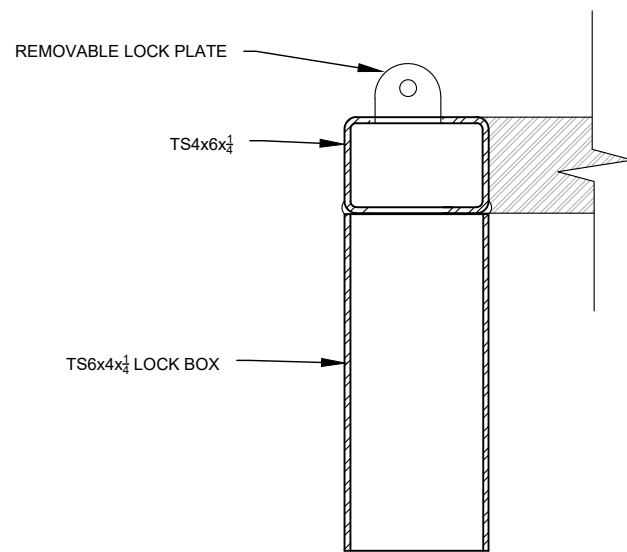
VERTICAL DOOR SECTION

(DOOR SLIGHTLY OPEN)

SCALE 1- $\frac{1}{2}$ "=1'-0"

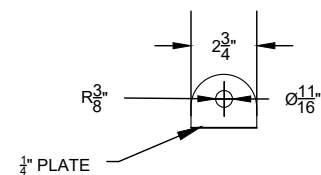
GENERAL NOTES LOCK BOX:

1. TUBULAR STEEL, STEEL PLATES, AND SHAPES SHALL BE WEATHERING STEEL AS SPECIFIED. WELD ALL JOINTS. JOINTS SHALL BE TIGHT SO THAT MOISTURE CANNOT ENTER BETWEEN PLIES OF MATERIAL. ROUND OR CHAMFER ALL SHARP EDGES AND CORNERS.
2. CONSTRUCT THE LOCKING MECHANISM SO THAT THE EXPOSED EDGES OF ALL PARTS ARE CHAMFERED AND OPERATE SMOOTHLY WITHOUT BINDING. WHEN CLOSING THE DOOR, THE REMOVABLE LOCK PLATE SHALL ENTER THE SLOT IN THE OUTSIDE LOCK BOX WITHOUT HITTING OR RUBBING THE EDGES OF THE SLOT.
3. LOCKS SHALL BE COMBINATION LOCKS. COMBINATION TO BE DETERMINED BY AML PROJECT MANAGER



SECTION A-A

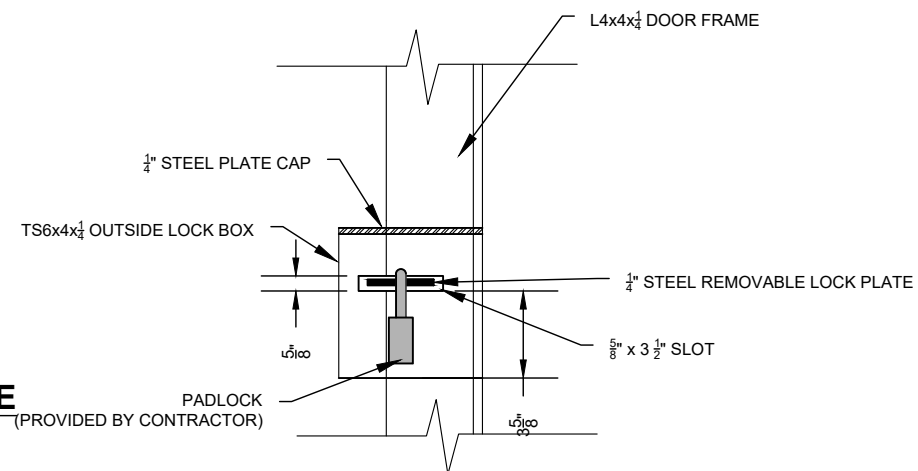
SCALE 1- $\frac{1}{2}$ "=1'-0"



REMOVABLE LOCK PLATE

($\frac{1}{4}$ " STEEL PLATE)

SCALE 1- $\frac{1}{2}$ "=1'-0"



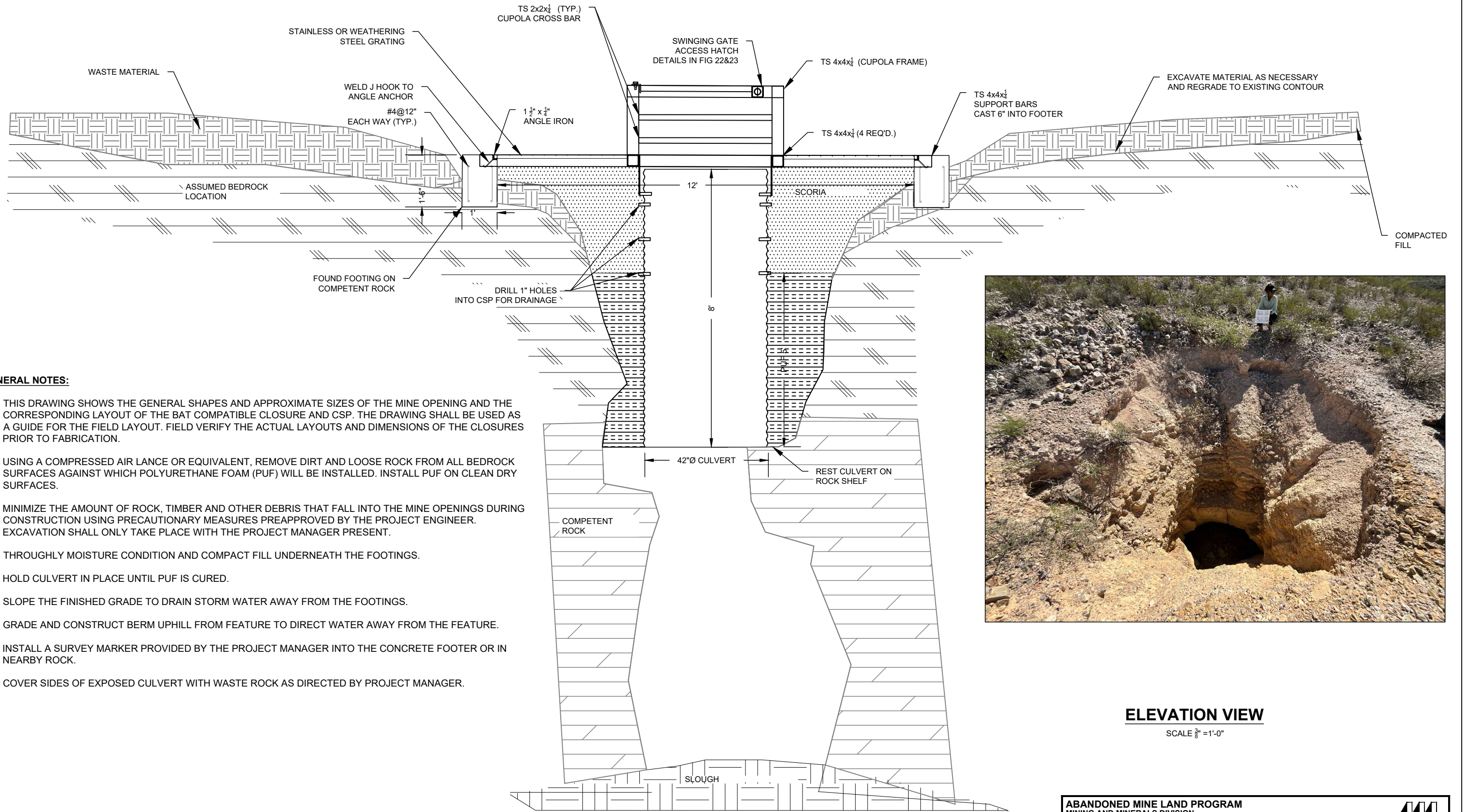
SECTION B-B

(WITH PADLOCK INSTALLED)

SCALE 1- $\frac{1}{2}$ "=1'-0"

CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	VARIOUS LOCATIONS	DRAWN BY: MWT	
DATE: 05/15/2024		REVISED BY: LDV	
LOCK BOX DETAILS			
FILE: 15	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 20	



GENERAL NOTES:

1. THIS DRAWING SHOWS THE GENERAL SHAPES AND APPROXIMATE SIZES OF THE MINE OPENING AND THE CORRESPONDING LAYOUT OF THE BAT COMPATIBLE CLOSURE AND CSP. THE DRAWING SHALL BE USED AS A GUIDE FOR THE FIELD LAYOUT. FIELD VERIFY THE ACTUAL LAYOUTS AND DIMENSIONS OF THE CLOSURES PRIOR TO FABRICATION.
2. USING A COMPRESSED AIR LANCE OR EQUIVALENT, REMOVE DIRT AND LOOSE ROCK FROM ALL BEDROCK SURFACES AGAINST WHICH POLYURETHANE FOAM (PUF) WILL BE INSTALLED. INSTALL PUF ON CLEAN DRY SURFACES.
3. MINIMIZE THE AMOUNT OF ROCK, TIMBER AND OTHER DEBRIS THAT FALL INTO THE MINE OPENINGS DURING CONSTRUCTION USING PRECAUTIONARY MEASURES PREAPPROVED BY THE PROJECT ENGINEER. EXCAVATION SHALL ONLY TAKE PLACE WITH THE PROJECT MANAGER PRESENT.
4. THOROUGHLY MOISTURE CONDITION AND COMPACT FILL UNDERNEATH THE FOOTINGS.
5. HOLD CULVERT IN PLACE UNTIL PUF IS CURED.
6. SLOPE THE FINISHED GRADE TO DRAIN STORM WATER AWAY FROM THE FOOTINGS.
7. GRADE AND CONSTRUCT BERM UPHILL FROM FEATURE TO DIRECT WATER AWAY FROM THE FEATURE.
8. INSTALL A SURVEY MARKER PROVIDED BY THE PROJECT MANAGER INTO THE CONCRETE FOOTER OR IN NEARBY ROCK.
9. COVER SIDES OF EXPOSED CULVERT WITH WASTE ROCK AS DIRECTED BY PROJECT MANAGER.

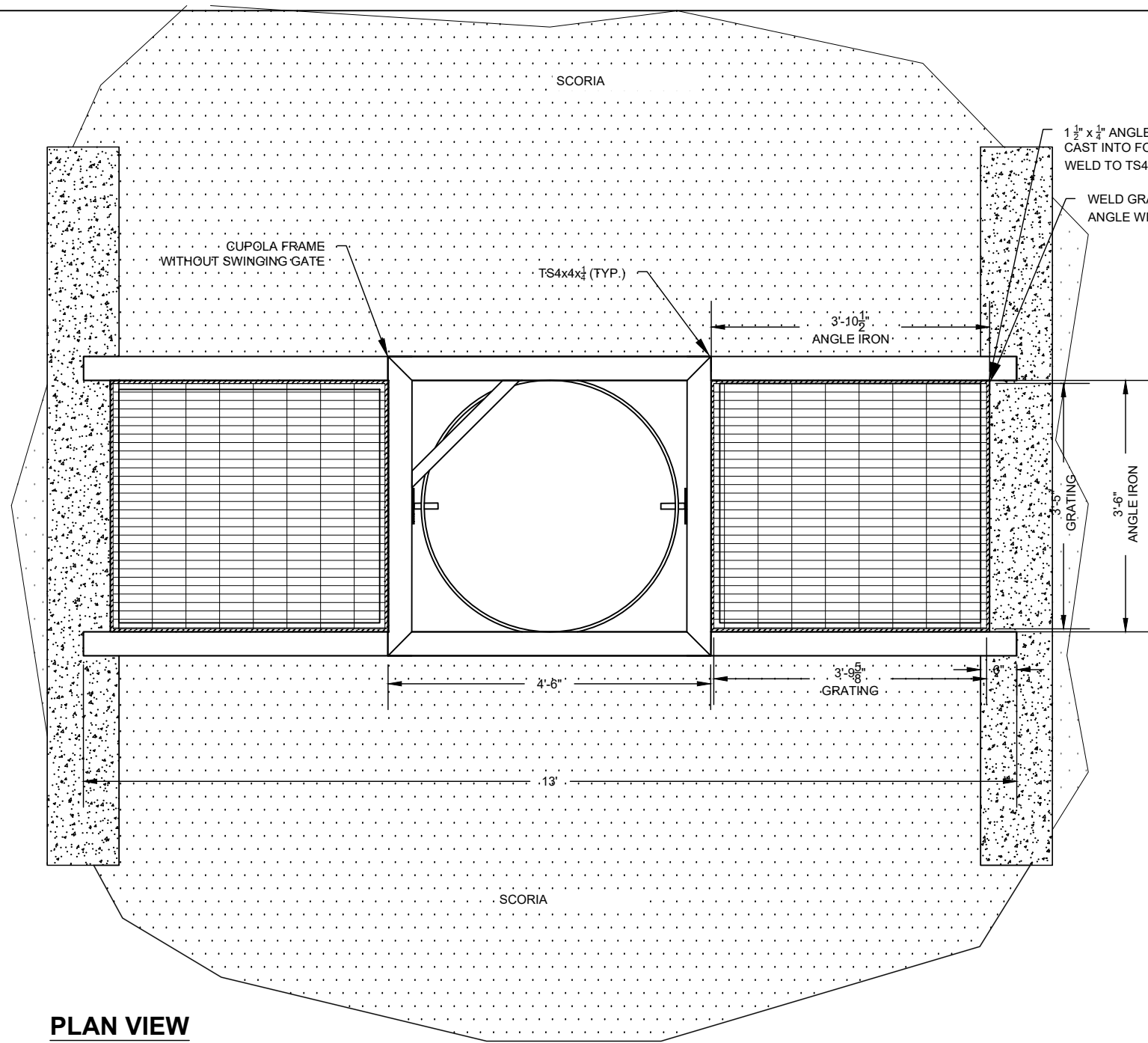
ELEVATION VIEW

SCALE: $\frac{3}{8}" = 1'-0"$

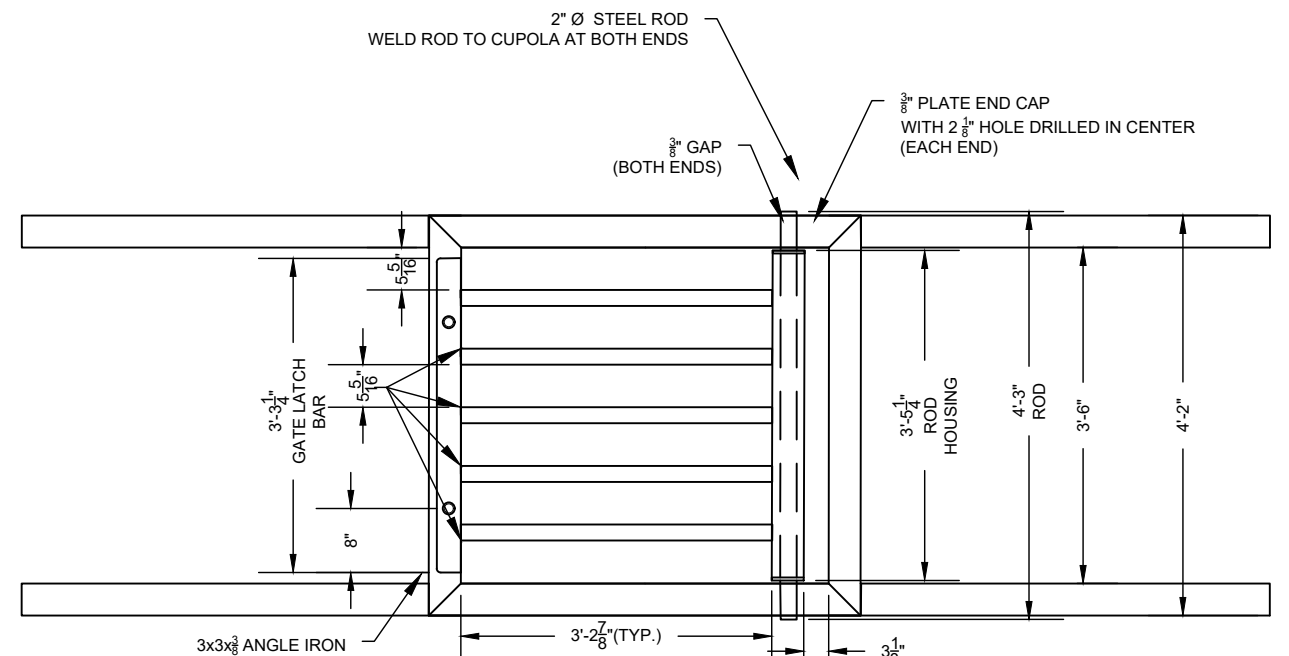
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPS, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN DATE: 08/21/2024	AML 22_12	DRAWN BY: DMC REVISED BY:	
BAT CUPOLA			
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 21	

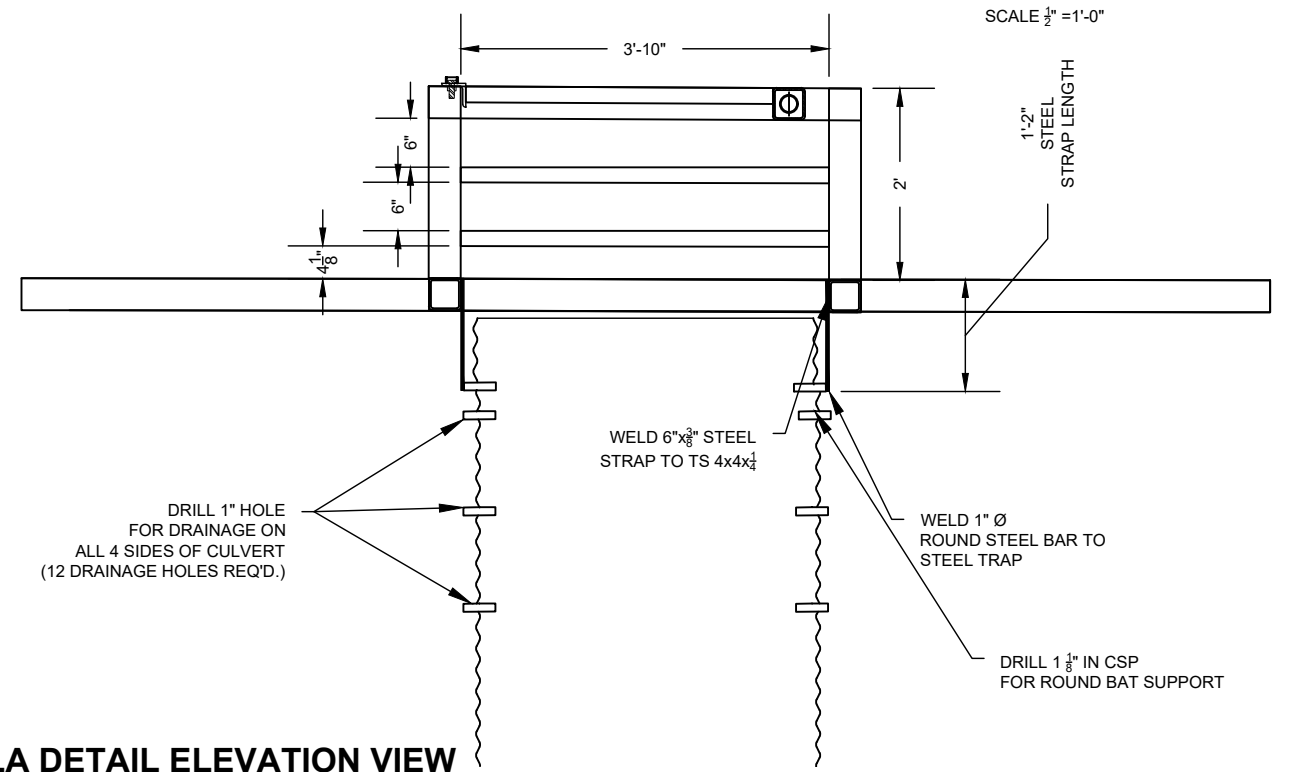
CUPOLA SWINGING GATE DETAILS



PLAN VIEW
SCALE 1/2" = 1'-0"



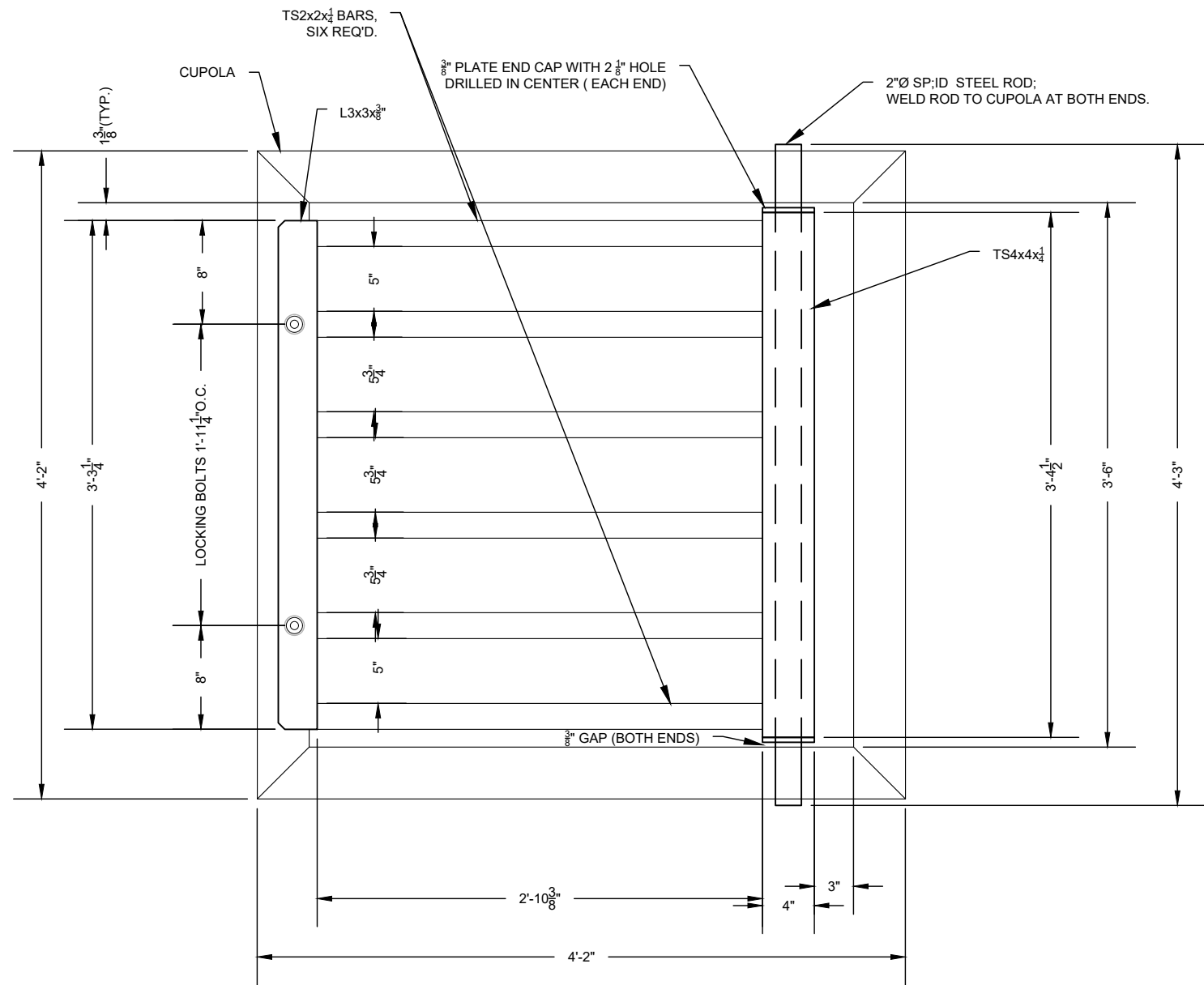
PLAN VIEW
SCALE 1/2" = 1'-0"



CUPOLA DETAIL ELEVATION VIEW
SCALE 1/2" = 1'-0"

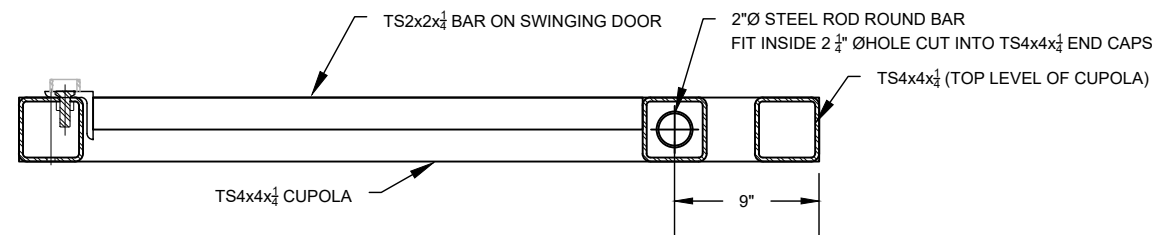
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN DATE: 08/21/2024	AML 22_12	DRAWN BY: DMC REVISED BY:	
BAT CUPOLA DETAILS			
FILE:	RED HILL MINE SAFEGUARD PROJECT PHASE I	FIGURE: 22	



PLAN-FRAME FOR OPENABLE HATCH

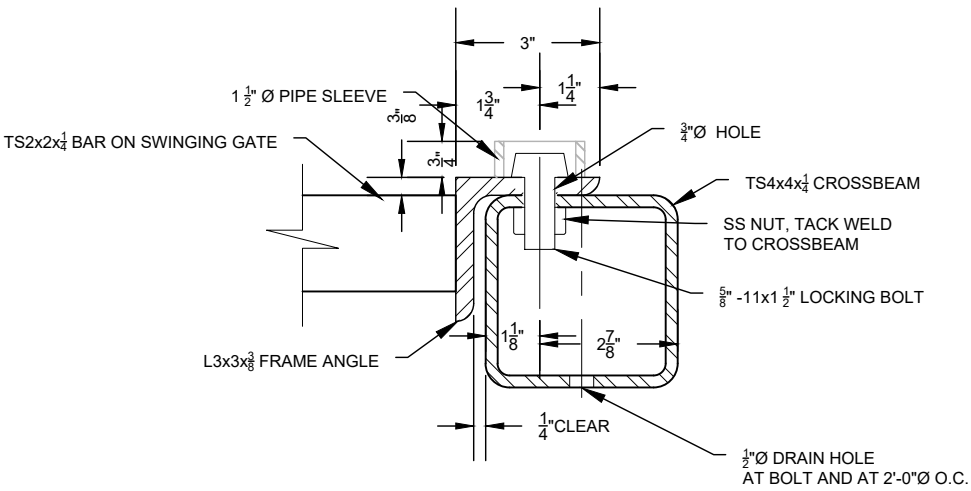
SCALE 1"=1'-0"



SECTION IN CLOSED POSITION

SCALE 1"=1'-0"

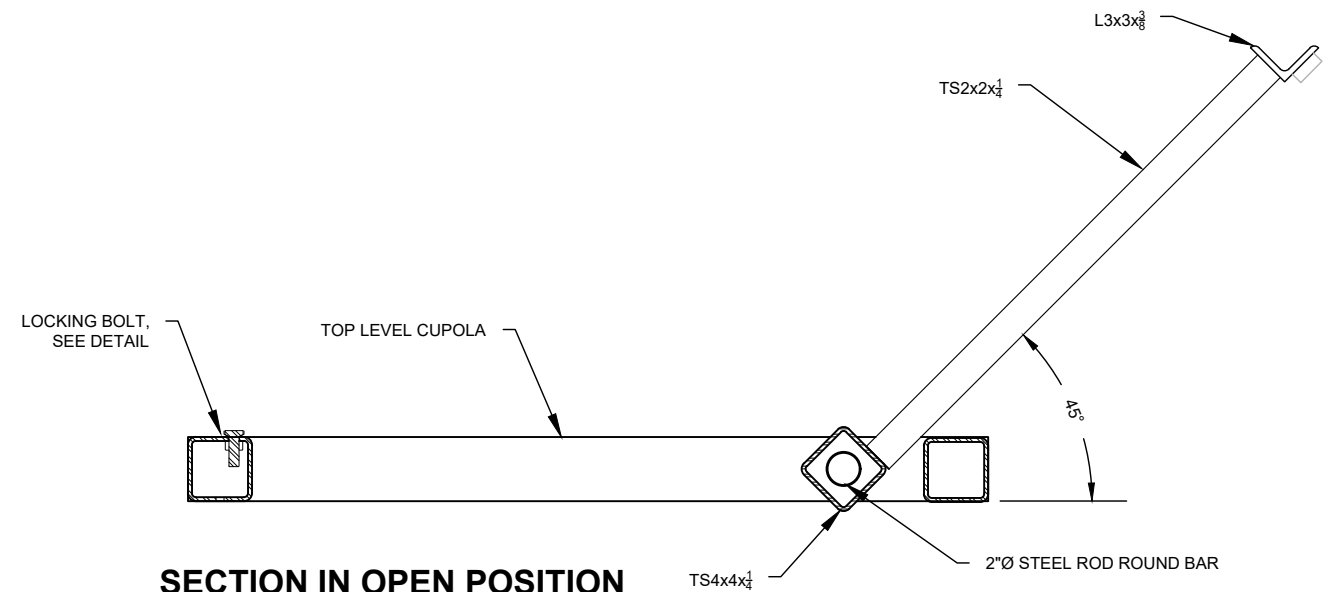
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TYPICAL SECTION - LOCKING BOLT

(ACCESS HOLE FOR NUT AND STEEL TAB NOT SHOWN)

SCALE 3"=1'-0"



SECTION IN OPEN POSITION

SCALE 1"=1'-0"

GENERAL NOTES:

1. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE CLOSURE FRAME AND SWINGING HATCH TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. PLIES OF MATERIAL SHALL BE TIGHT TO PREVENT THE INCURSION OF MOISTURE. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
2. AT EACH OF THE TWO REMOVABLE BOLT LOCATIONS, CUT A SMALL ACCESS HOLE THROUGH THE INSIDE FACE OF THE CROSSBEAM TO PLACE AND TACK WELD THE NUT. FOR DRAINAGE DRILL A $\frac{1}{2}$ " \varnothing HOLE THROUGH THE BOTTOM CENTER OF THE CROSSBEAM AT EACH ACCESS HOLE AND AT 2'-0" O.C. ALONG THE FULL LENGTH OF THE BEAM. THE PROJECT MANAGER WILL PROVIDE THE LOCKING BOLTS. THE CONTRACTOR SHALL PROVIDE THE NUTS ($\frac{3}{8}$ " \varnothing -11 UNC CLASS 2A THREAD). NUTS SHALL BE STAINLESS STEEL.

NOTES FOR LOCKING BOLTS:

1. FIRST DRILL AN $\frac{1}{16}$ " HOLE THROUGH THE FRAME ANGLE.
2. THEN USE A 1 $\frac{1}{4}$ " DRILL BIT TO MAKE A COUNTERBORE INTO THE TOP OF THE FRAME ANGLE THAT WILL FORM A BEARING SURFACE FOR THE BOLT HEAD. DRILL TO A DEPTH OF $\frac{3}{8}$ " SO THAT THE TOP BOLT WILL BE SLIGHTLY ABOVE THE TOP OF THE ANGLE.
3. WHILE DRILLING THE COUNTERBORE, THE BIT SHALL NOT GO COMPLETELY THROUGH THE FRAME ANGLE. THE BOLT SEATING AREA SHALL BE ON THE ANGLE WHEN INSTALLED.
4. GREASE THREADS OF BOLTS AND INSTALL FIRMLY WITH 50 TO 75 POUNDS OF TORQUE.
5. THE PROJECT MANAGER WILL PROVIDE THE LOCKING BOLTS.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	AML 22_12	DRAWN BY: MWT	
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SWINGING HINGED HATCH DETAILS			
FILE: 15	RED HILL SAFEGUARD PROJECT PHASE I	FIGURE: 23	