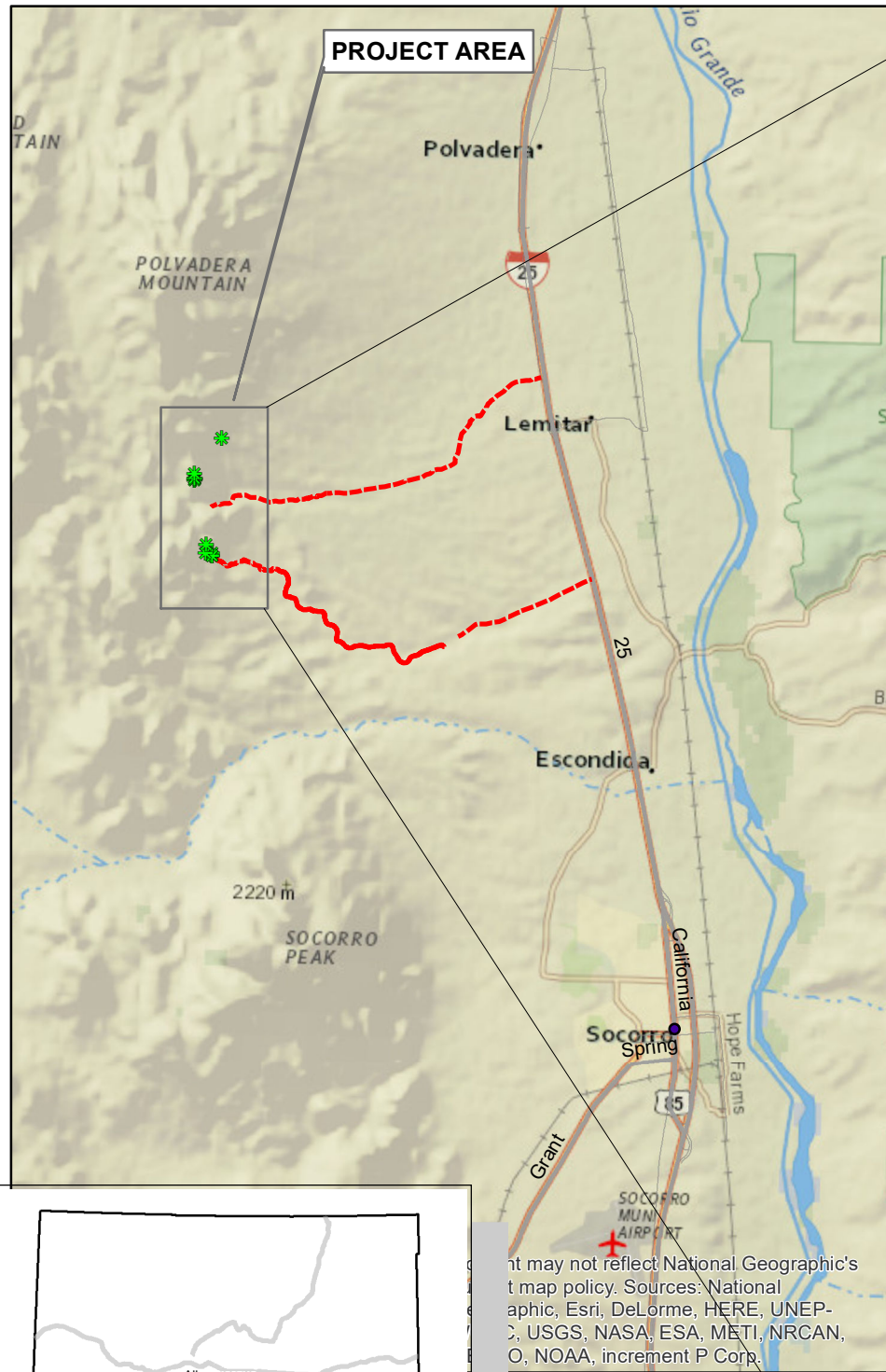
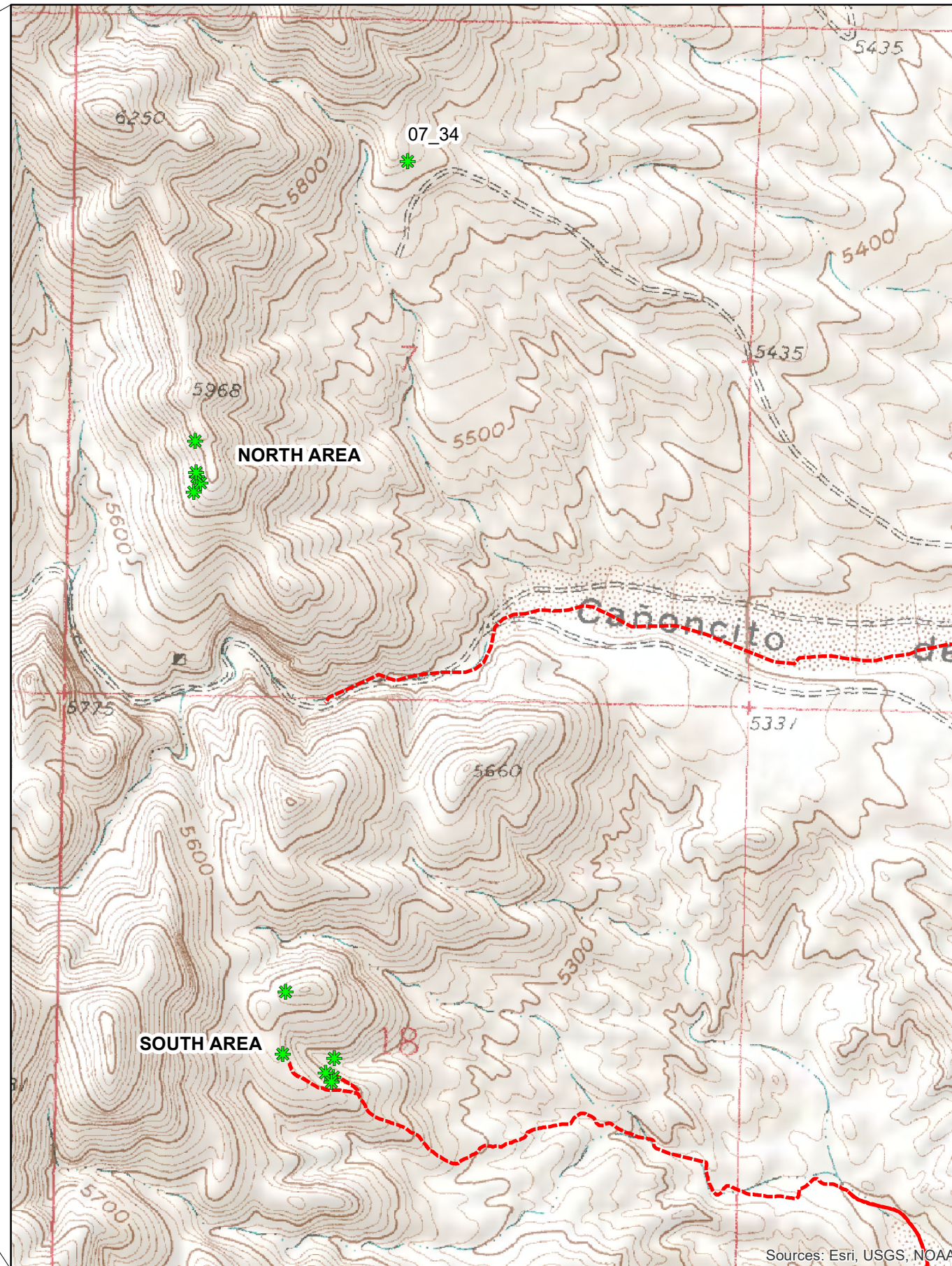


# LEMITAR MINE SAFEGUARD PROJECT - PHASE II

## LEMITAR, NEW MEXICO PROJECT LOCATION OVERVIEW



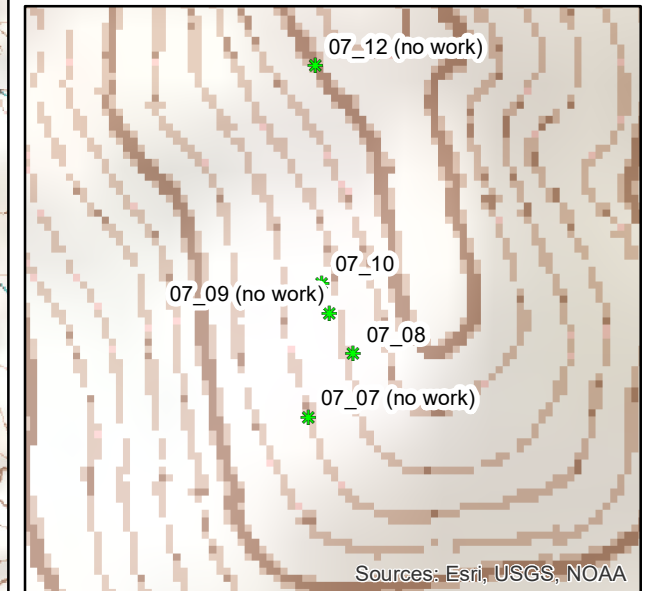
Map may not reflect National Geographic's standard map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-UNEP, USGS, NASA, ESA, METI, NRCAN, IGN, O, NOAA, increment P Corp.



Sources: Esri, USGS, NOAA

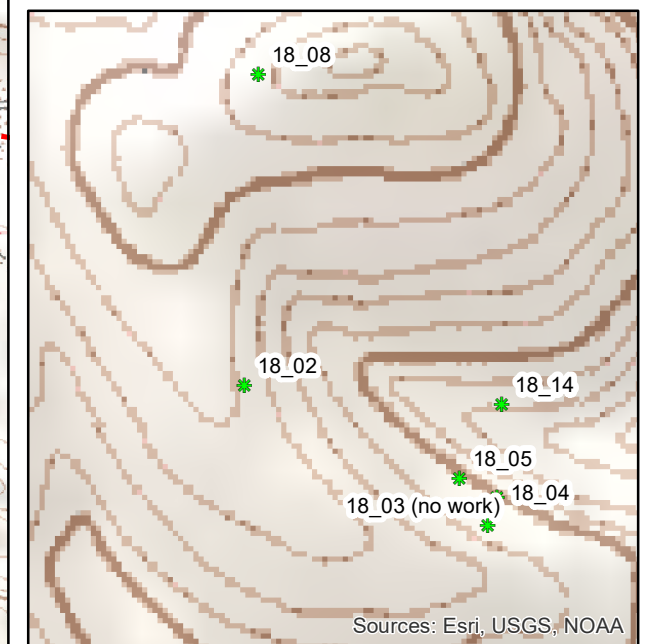
### INDEX OF FIGURES:

1. TITLE SHEET & LOCATION MAP
2. AML 18\_14 - CULVERT WITH BAT GATE
3. HORIZONTAL BAT GATE (SHEET 1)
4. HORIZONTAL BAT GATE (SHEET 2)
5. HORIZONTAL BAT GATE (SHEET 3)
6. TYPICAL BACKFILL DESIGN



Sources: Esri, USGS, NOAA

### NORTH AREA

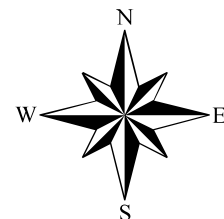


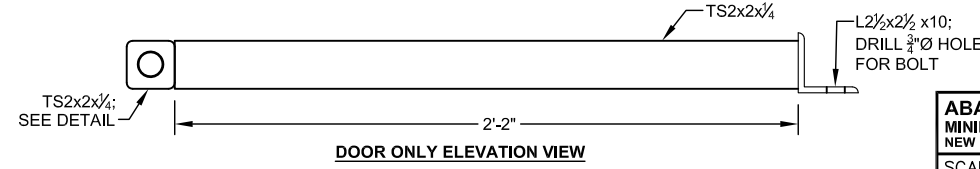
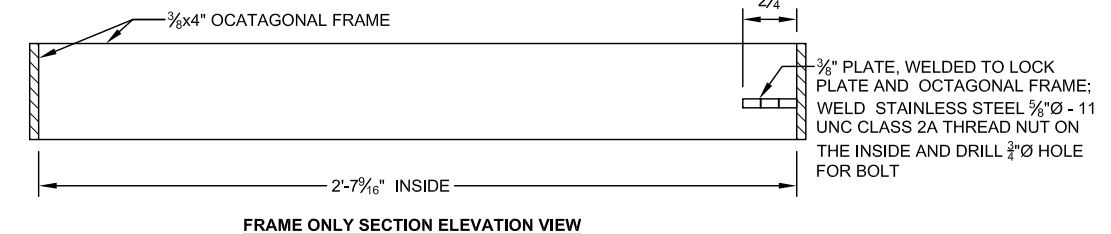
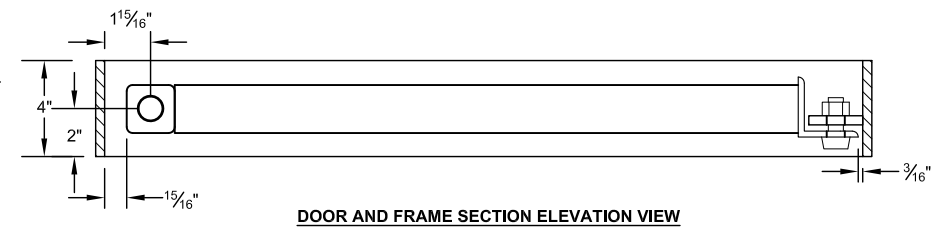
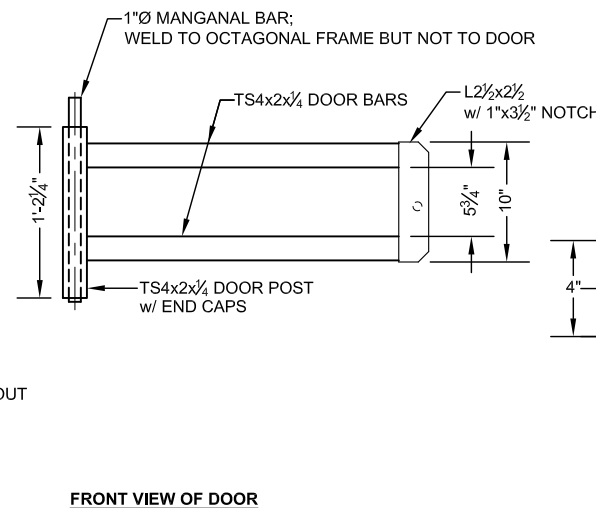
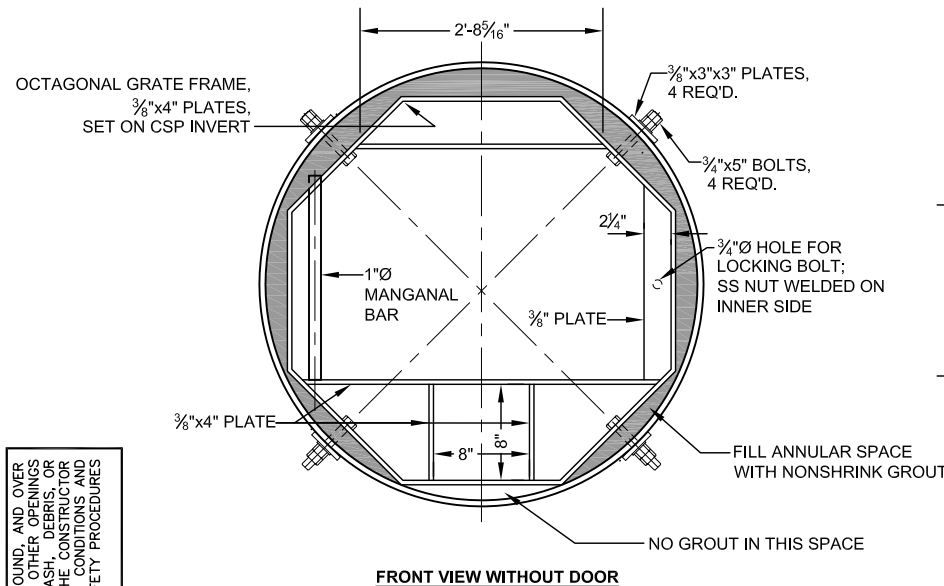
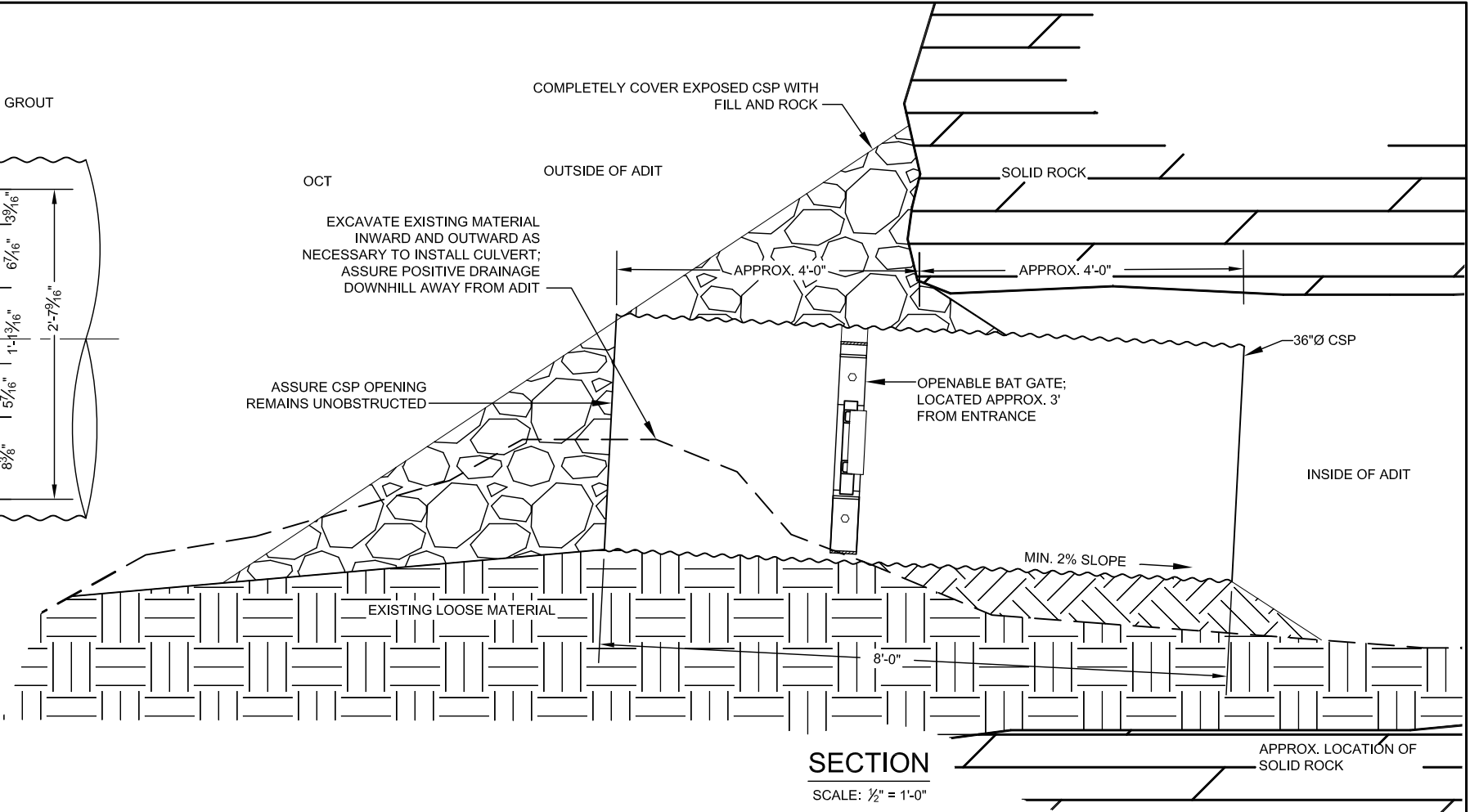
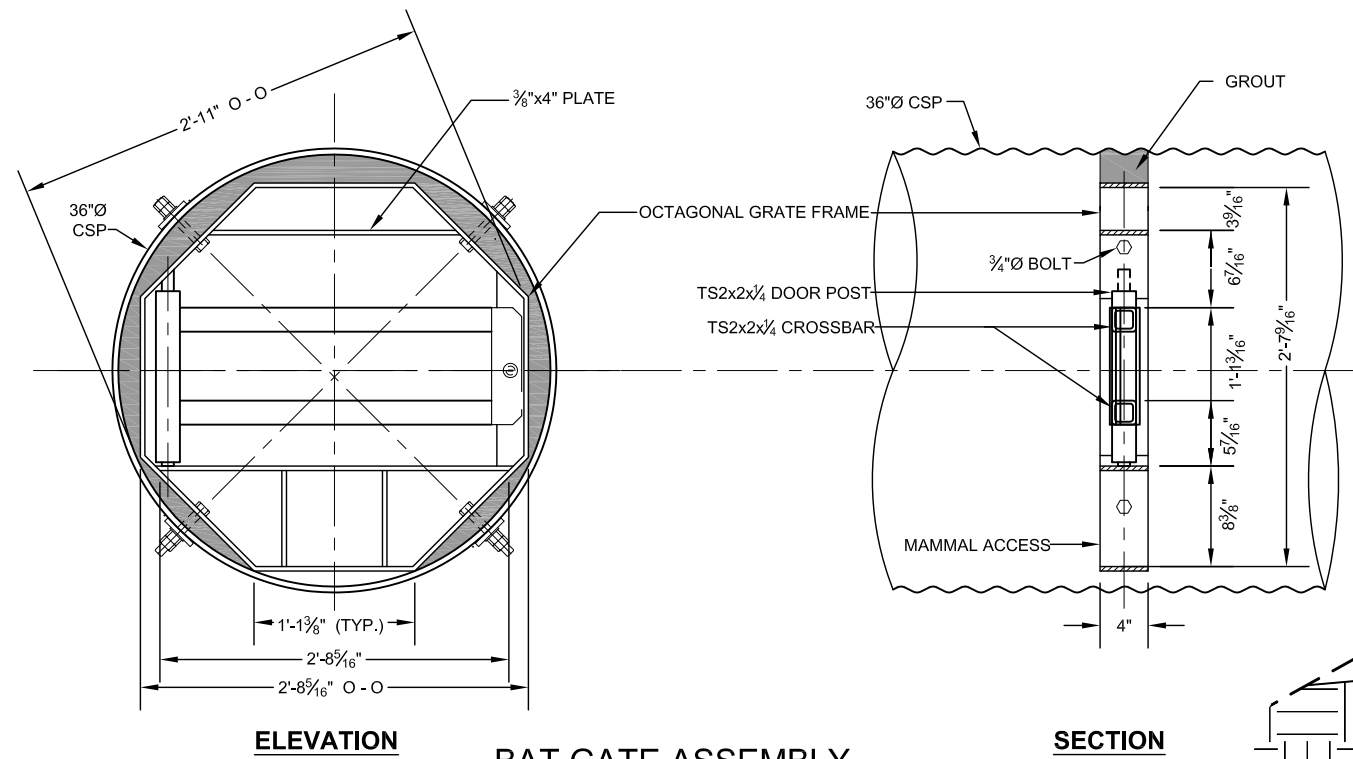
Sources: Esri, USGS, NOAA

### SOUTH AREA

	Project Features
	Access Road

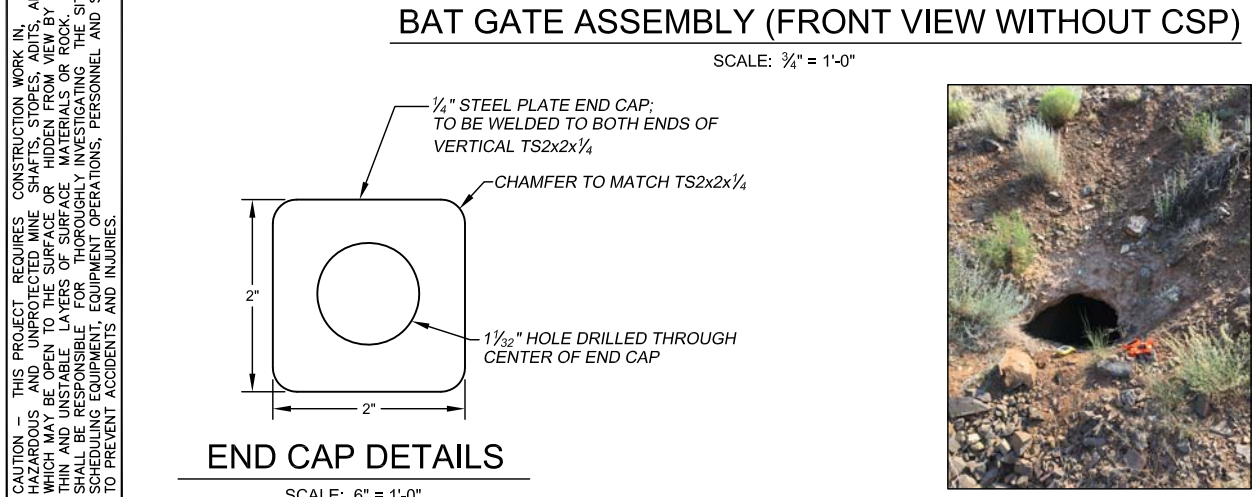
**NEW MEXICO**  
**ABANDONED MINE LAND PROGRAM**  
 MINING & MINERALS DIVISION  
 ENERGY, MINERALS AND NATURAL RESOURCES DEPT.  
 SANTA FE, NEW MEXICO  
**PROJECT NO. EMNRD-MMD-2017-01**





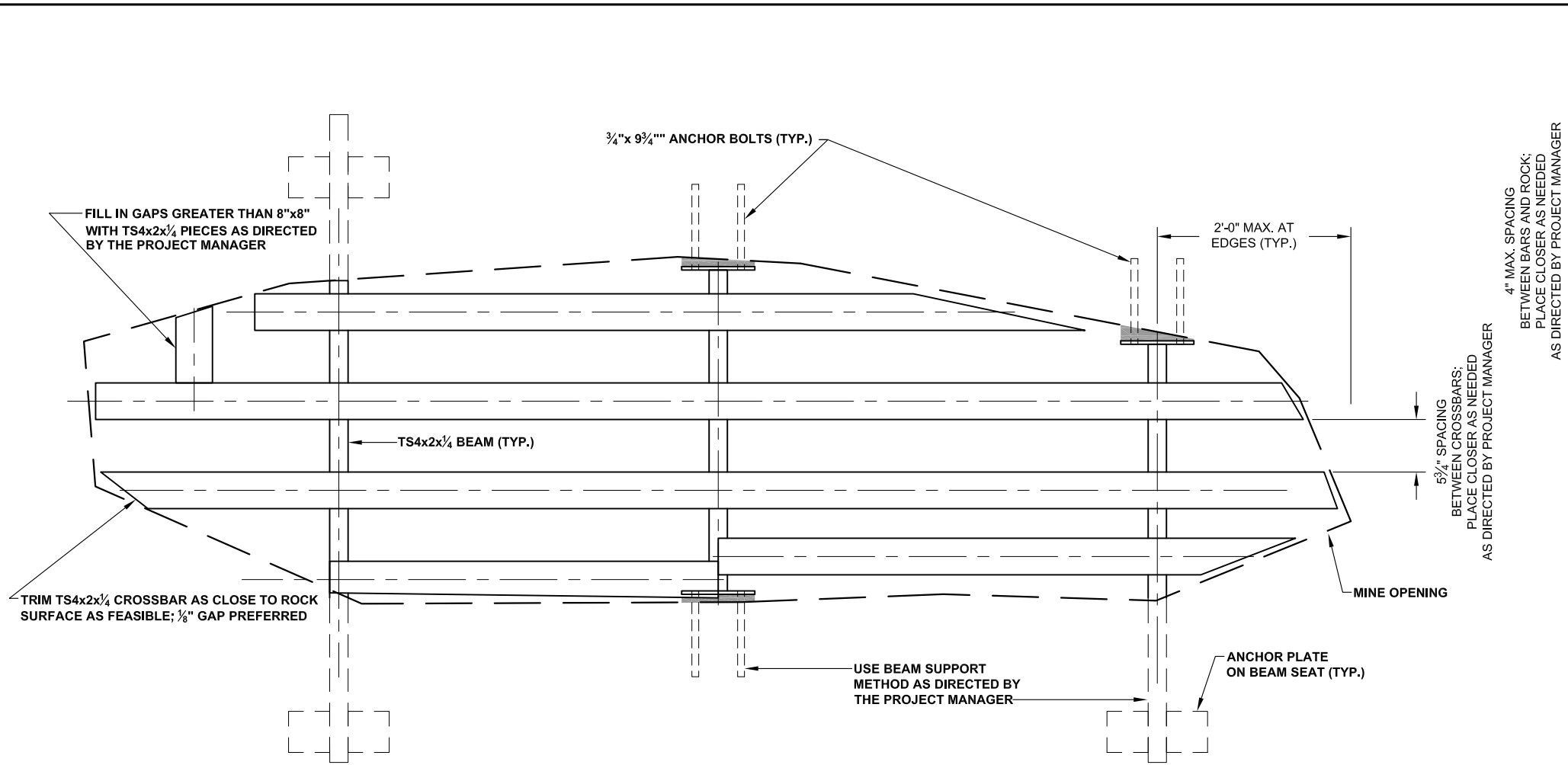
CAUTION - THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER EXISTING UTILITIES. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE. VERIFY ALL DIMENSIONS BEFORE FABRICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, PERSONNEL, AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

- GENERAL NOTES:**
1. THE SHAPE AND DIMENSIONS SHOWN AT THE EXISTING ADIT OPENING ARE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
  2. STEEL PLATES AND SHAPES FOR THE BAT GATE ASSEMBLY SHALL BE WEATHERING STEEL AS SPECIFIED. WELD ALL JOINTS. PLATES FOR BOLTS, BOLTS AND NUTS SHALL BE WEATHERING OR STAINLESS STEEL. DOUBLE-NUT ALL BOLTS. ROUND OR CHAMFER ALL EXPOSED EDGES AND CORNERS.
  3. COMMON FILL IS UNCLASSIFIED; MINE WASTE MATERIAL IS ACCEPTABLE. MATERIAL WITHIN ONE FOOT OF THE CORRUGATED STEEL PIPE SHALL BE SMALLER THAN THREE INCHES. THOROUGHLY COMPACT ALL FILL MATERIAL BELOW AND WITHIN TWO FEET OF THE SIDES OF THE CSP TO MINIMIZE SETTLEMENT.
  4. ROCK PLATING SHALL BE SOUND, DURABLE NATIVE ROCK AS LARGE AS PRACTICABLE AND NO SMALLER THAN 6" IN LEAST DIMENSION. PLACE ROCK PLATING AS SHOWN AND ACROSS FULL WIDTH OF ADIT OPENING. DO NOT BLOCK THE CSP OPENING.
  5. GROUT SHALL BE CONSTRUCTION GRADE.
  6. PAINT VISIBLE PORTIONS OF CSP (INSIDE AND OUTSIDE) WITH NATINA STEEL STAIN PROVIDED BY AML OR APPROVED EQUIVALENT FOR CAMOUFLAGE. COLOR SHOULD BLEND IN WITH THE ROCK BULKHEAD AS DIRECTED BY THE PROJECT MANAGER.
  7. LOCKING BOLT WILL BE PROVIDED BY THE PROJECT MANAGER.
  8. INSTALL SURVEY MARKER INTO GROUT OR ADJACENT COMPETENT ROCK AS DIRECTED BY THE PROJECT MANAGER.



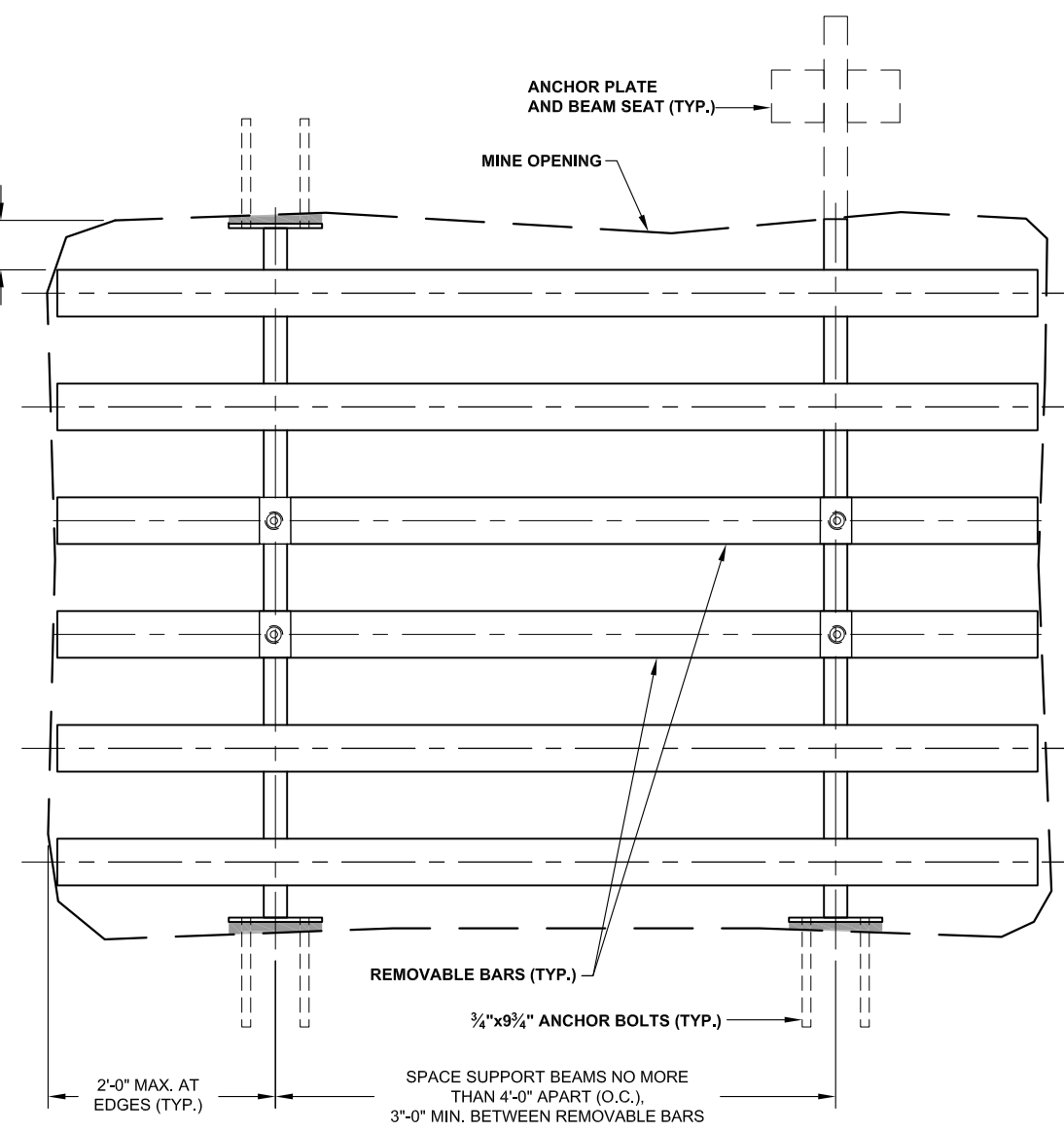
**ELEVATION VIEWS OF DOOR ASSEMBLY**  
 SCALE: 1/2" = 1'-0"

<b>ABANDONED MINE LAND PROGRAM</b>		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	FEATURE 18_14	DRAWN BY:
DATE:		REVISED BY:
CULVERT WITH BAT GATE		
FILE:	LEMITAR MINE SAFEGUARD PROJECT-PH II	FIGURE: 2



**EXAMPLE MINE OPENING 1 - PLAN VIEW**

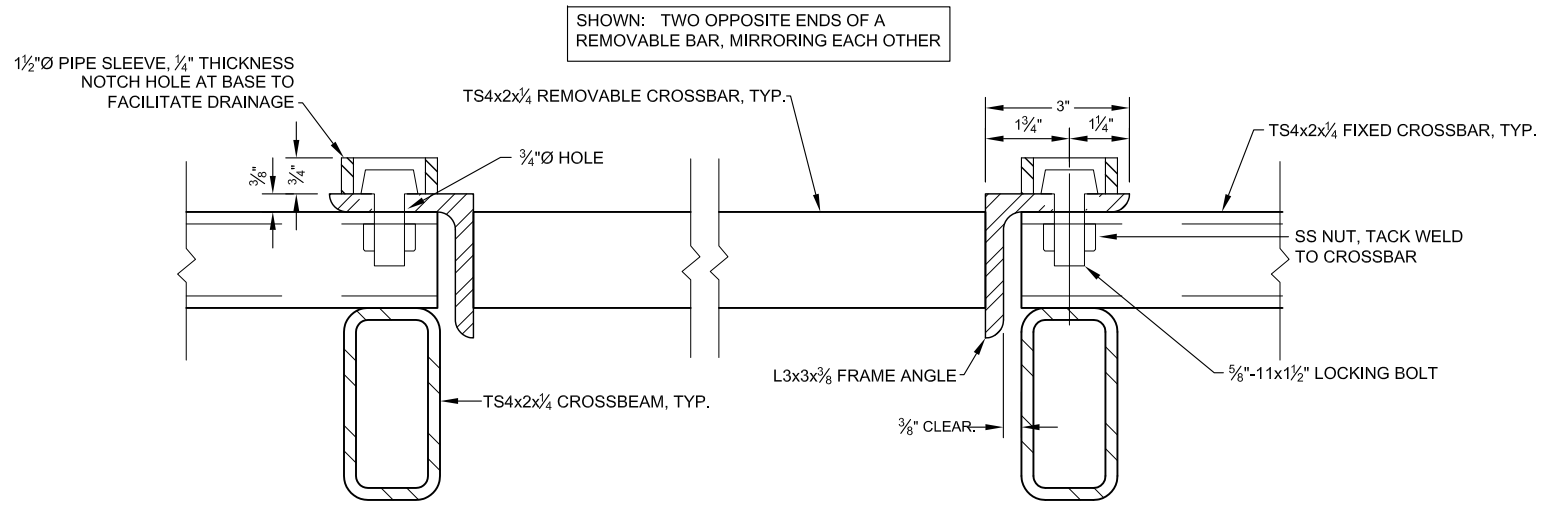
SCALE: 3/4" = 1'-0"



**EXAMPLE MINE OPENING 2 - PLAN VIEW**

SCALE: 3/4" = 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.**



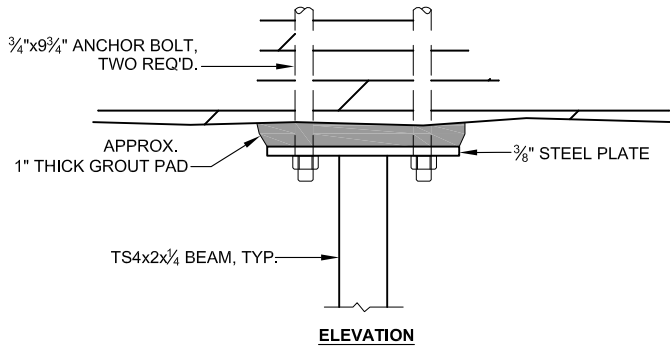
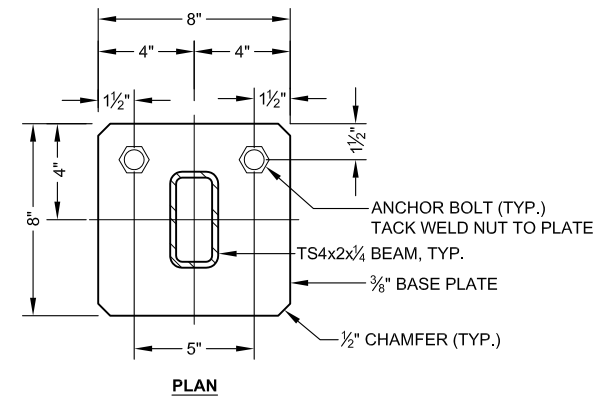
**SECTION - REMOVABLE BAR**

SCALE: 3" = 1'-0"

**GENERAL NOTES:**

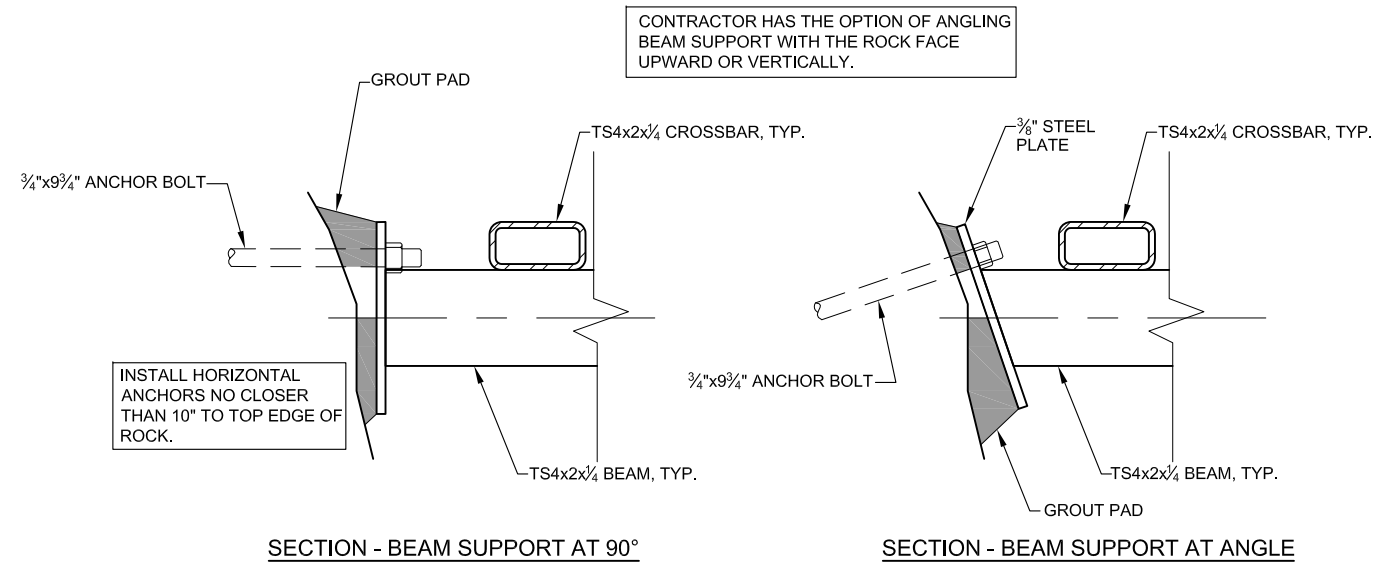
1. THIS DRAWING SHOWS TWO EXAMPLE MINE OPENINGS AND THE CORRESPONDING LAYOUTS OF THE STEEL CLOSURE. THE DRAWING SHALL BE USED AS A GUIDE FOR FIELD LAYOUT. DETERMINE THE ACTUAL LAYOUTS AND DIMENSIONS OF THE CLOSURES IN THE FIELD PRIOR TO FABRICATION.
2. INSTALL HORIZONTAL BAT GATES AS CLOSE TO THE TOP OF THE SHAFT OPENINGS AS POSSIBLE, WHERE THE ROCK AT THE GATE LOCATIONS IS FULLY COMPETENT AND THE ANCHORS ARE PLACED AT LEAST 10" BELOW THE TOP OF THE ROCK.
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 DISCRETION 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.

<b>ABANDONED MINE LAND PROGRAM</b>		
MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	VARIOUS LOCATIONS	DRAWN BY: MWT
DATE:		REVISED BY:
<b>HORIZONTAL BAT GATE CLOSURE</b>		
FILE:	LEMITAR MINE SAFEGUARD PROJECT - PH. II	FIGURE: 3



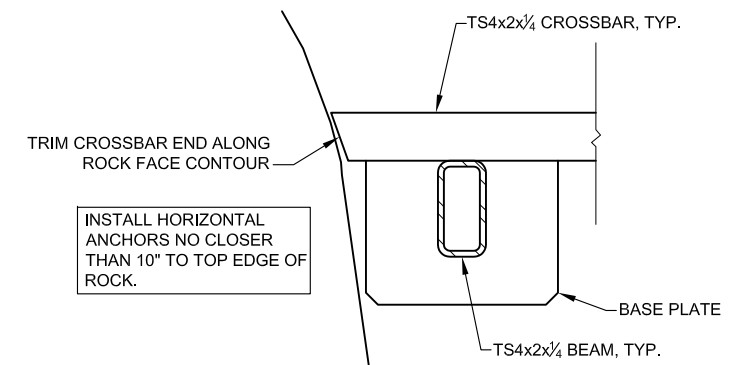
**BEAM SUPPORT DETAIL**

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



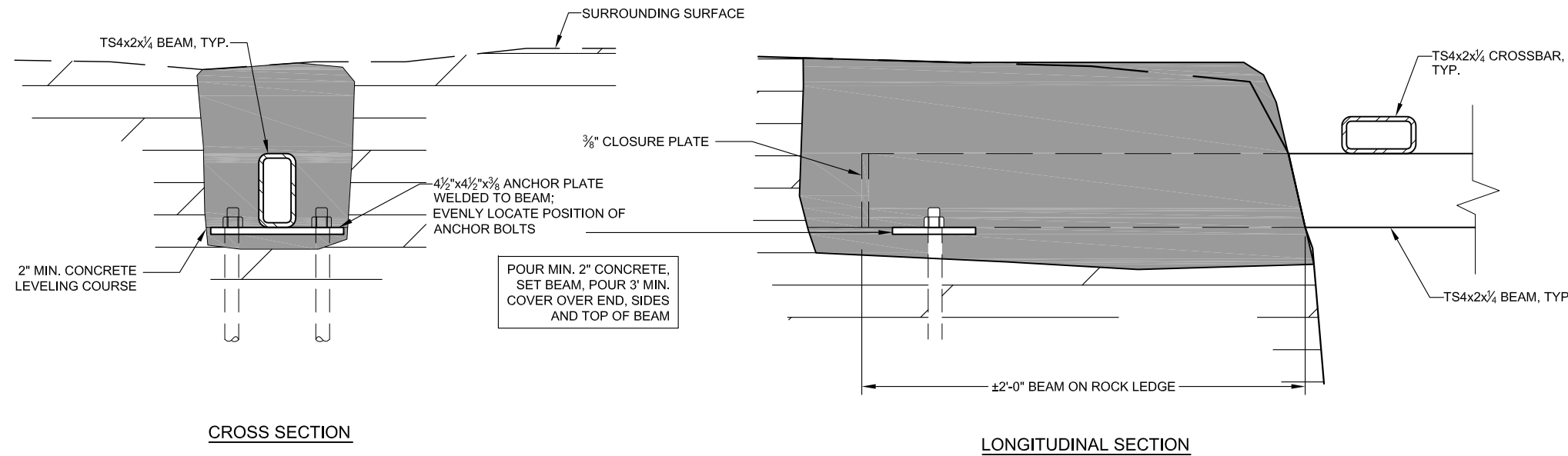
**BEAM SUPPORT SIDE SECTION**

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



**BEAM-CROSSBAR SECTION VIEW**

SCALE: 3/4" = 1'-0"



**BEAM SEAT DETAILS**

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

**GENERAL NOTES:**

1. 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.
2. 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.
3. USE BEAM SUPPORTS OR BEAM SEATS, AT CONTRACTOR'S OPTION WITH CONCURRENCE FROM THE PROJECT MANAGER, TO FASTEN BEAM ENDS TO COMPETENT ROCK.
4. STEEL SHAPES, PLATES AND BARS SHALL BE WEATHER OR STAINLESS STEEL.
5. PUT 3/8" CHAMFER ON ANY CONCRETE EDGES.
7. ANCHOR BOLTS SHALL BE ZINC-PLATED HILTI HIT ADHESIVE ANCHORS OR APPROVED EQUIVALENT. FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING INSTALLATION.
8. DO NOT FILL BEAMS WITH CONCRETE OR GROUT.
9. INSTALL SURVEY MARKER (SUPPLIED BY AML PROGRAM) INTO ADJACENT COMPETENT ROCK AS DIRECTED BY THE PROJECT MANAGER.

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<b>ABANDONED MINE LAND PROGRAM</b>		
MINING AND MINERALS DIVISION		
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT		
SCALE: AS SHOWN	VARIOUS LOCATIONS	DRAWN BY: MWT
DATE:		REVISED BY:
HORIZONTAL BAT GATE CLOSURE DETAILS		
FILE:	LEMITAR MINE SAFEGUARD PROJECT - PH.II	FIGURE: 4



**HORIZONTAL BAT GATE LOCATIONS**

FEATURE NUMBER	APPROX. MINE OPENING (FT)	APPROX. TS4x2x¼ NEEDED (LINEAR FEET)	APPROX. NO. OF SUPPORT BEAM ENDS	NO. OF REMOVABLE BARS
07_10	8' x 8'	120	4	1
18_04	9' x 8'	200	4	1
18_05	9' x 8'	200	4	1
	<b>TOTAL</b>	<b>520</b>	<b>12</b>	<b>3</b>

**ANCHOR INSTALLATION NOTES:**

1. 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.
2. 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 PACKAGING FOR EACH IS DIFFERENT WHICH HELPS THE USER DISTINGUISH BETWEEN THE TWO ADHESIVES.
3. 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.
4. 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.
5. THE ANCHORS SHALL BE HILTI HIT-Z-R ANCHORS RODS ¾" DIAMETER X 9¾" LENGTH. DRILL HOLE LENGTH SHALL BE A 8½" IN LENGTH AND THE DIAMETER SHALL BE 7/8".
6. 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.
7. THE BOLT SHALL BE TORQUED TO 110 FT-LB.
8. 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 WELDING.



**FEATURE 07\_10**  
(PRE-CONSTRUCTION)



**FEATURE 18\_05**  
(PRE-CONSTRUCTION)

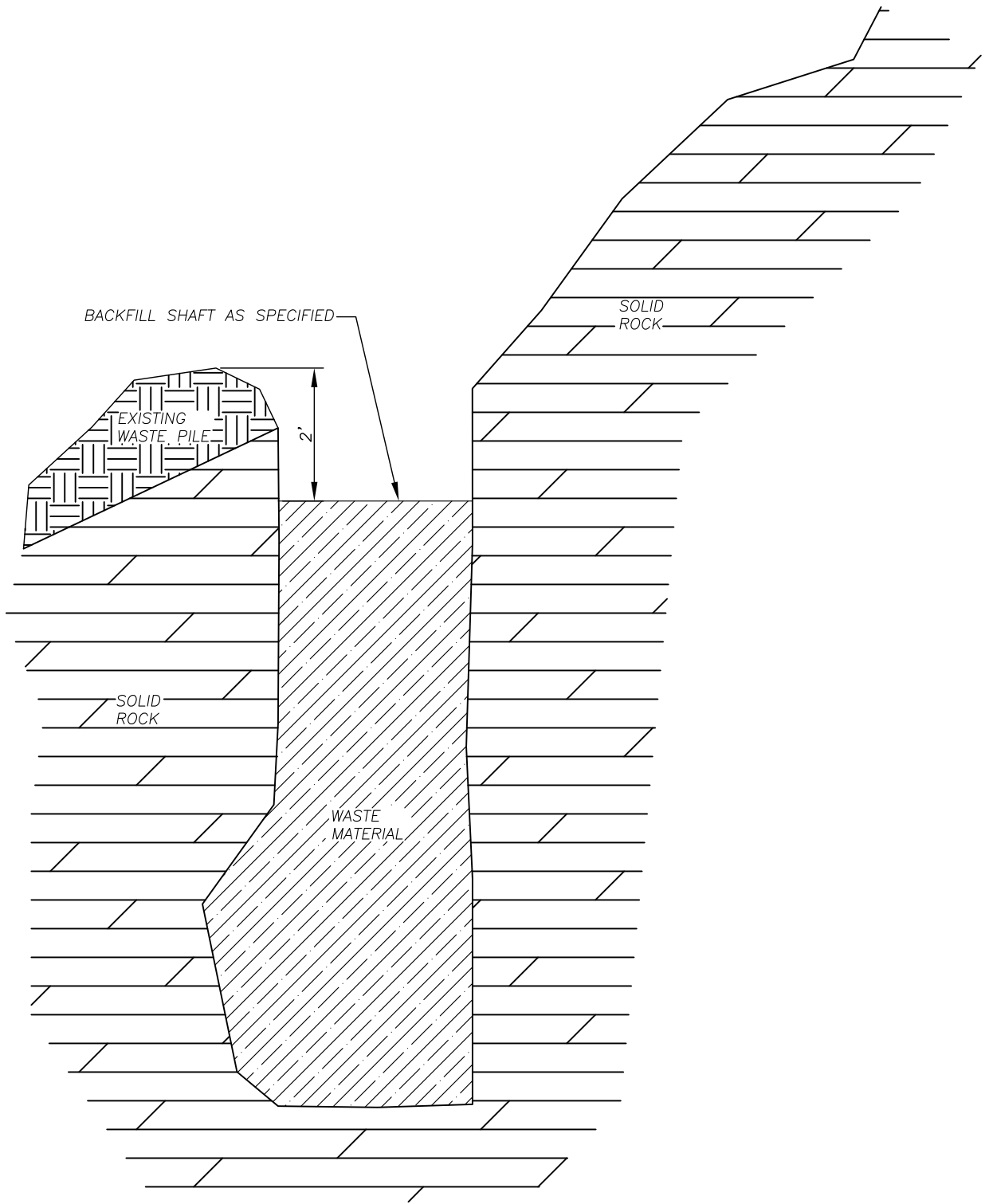


**EXAMPLE PHOTO OF COMPLETED  
HORIZONTAL BAT GATE**  
(GAGE MINE SAFEGUARD PROJECT)



**FEATURE 18\_04**  
(PRE-CONSTRUCTION)

<b>ABANDONED MINE LAND PROGRAM</b>			
MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	VARIOUS LOCATIONS	DRAWN BY: MWT	
DATE:		REVISED BY:	
<b>HORIZONTAL BAT GATE CLOSURE</b>			
FILE:	LEMITAR MINE SAFEGUARD PROJECT - PH.II	FIGURE: 5	



**DEPRESSED BACKFILL DESIGN  
(TYPICAL SECTION)**

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<b>ABANDONED MINE LAND PROGRAM</b> MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: NOT TO SCALE	VARIOUS LOCATIONS		DRAWN BY: MWT
DATE:			REVISED BY:
SHAFT BACKFILL ILLUSTRATION			
FILE:	LEMITAR MINE SAFEGUARD PROJECT - PH. II	FIGURE: 6	