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3S-7E-9: Includes Bee Tree Eldorado Mine
Pinal Co

233B F-0

Germania Group
233C F-0

Carter
233A Y-0

22 January 1969

Excavation Requirements for Mine in Gold Digger No. 16 Claim in Goldmine Mountain, Section 9, Township 3S, Range 7E, Gila and Salt River Meridian, Pinal County, State of Arizona

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These excavation requirements define the intent of the work to be accomplished but because of variations in the structure of the rock, and the type of work, and the instrumentation requirements, cannot define all the details. Geotech will have a resident supervisor who will work with the mining contractor to provide him with answers to any questions which arise. The mining contractor will not be involved in the installation of the instrumentation which is referred to herein only to provide an understanding of our requirements. The objective of this installation is to install a three component (vertical, northeast-southwest horizontal, and northwest-southeast horizontal) strain seismograph in the mine. The strain seismograph will consist of a tube anchored to the rock at one end, supported every five ft along its 131 ft length, and attached to an electromagnetic transducer anchored to the rock at the other end. In this manner, differential motion (strain) between the two anchor points is sensed. The motion to be sensed is about 1/10 the diameter of an atom.

Geotech photograph 13197 of a prototype rod suspension illustrates the type of support that is to be used each 5 ft along the rod. These rods will be mounted on the northwest (NW) wall of the existing (and extended) crosscut drift, on the floor of perpendicular drift to be excavated, and on the NW wall of the vertical shaft to be excavated. Smoothed pads are to be provided every 5 ft along the rod at locations designated by Geotech and holes are to be drilled for mounting the support frames. Smoothed pads and mounting holes are also to be provided for the anchors. The smoothed pads must be aligned with the proper direction, either plumb or horizontal, and parallel to each other within 2 inches. Any rock projections which would interfer with the rod are to be removed (approximately 4 in. clearance from rod to bottom of support).

Cracks and joints degrade the performance of the instruments. It is recognized that there are existing joint sets and faults in the mine and that a mining operation necessarily must fracture the rock by explosives. However, no abnormally large charges are to be used in the blasting and extreme caution is required in the vicinity of the anchor mount locations and the two pillars.

Sketch WHB690122 illustrates the existing mine and the excavation to be accomplished. All rock or material that is removed from the mine will be deposited on the surface of the ground at a convenient location designated by Geotech on or near the existing tailings. No rock or material is to be removed from the site. In all locations a minimum nominal 3 ft by 4 ft excavation is required and a maximum nominal 6 ft by 8 ft excavation is permissible. A walkway between the vertical shaft and pillar is permissible. A brief description of the major tasks is given below.

1. Extend the NE-SW drift to a total length of 135+ ft (approximately 8 ft of digging required).

2. Smooth the pads and straighten the NW wall of the NE-SW drift to facilitate mounting the rod and the rod supports (includes extension).

3. Dig a drift 135+ ft long, beginning at the NW face of and perpendicular to the NE-SW drift and extending NW, leaving an unfractured 3 ft wide pillar between the new and existing drifts. The floor of this drift should be smoothed for mounting pads.

4. Dig a vertical shaft between the new and existing NW drifts. The NW wall of the shaft is to be smoothed for mounting pads and rod clearance and vertically plumb within 4 in. A pillar is to be left in place with the wall of the pillar facing the chamber a minimum of 4 ft wide.

5. Remove the projection from the existing drift located approximately 250 ft from the adit.

6. Dig a room 5 ft from the adit, the room should be a 4 ft wide by 12 ft long by 7 ft high addition to the main drift.

7. Cut notches in the main drift at approximately 60 ft, 180 ft, and 330 ft from the adit. These notches are for the placement of sealed doors, to insure an air seal between the bulkhead and the walls of the drift.

8. Drill about 230 holes as directed and in the general locations listed below:

8.1 Two holes in the smoothed pads on the wall of the NE-SW drift every 5 ft for mounting supports (1/2 in. dia) (52 holes total).

8.2 Eight holes (4 each) in the smoothed pads at the NE and SW ends of the NE-SW drift for mounting anchors (1 in. dia).

8.3 Two holes in the smoothed pads on the floor of the NW drift every 5 ft for mounting supports (1/2 in. dia) (52 holes total).

8.4 Eight holes (4 each) in the smoothed pad at the SE and NW end of the NW drift for mounting anchors (1 in. dia).

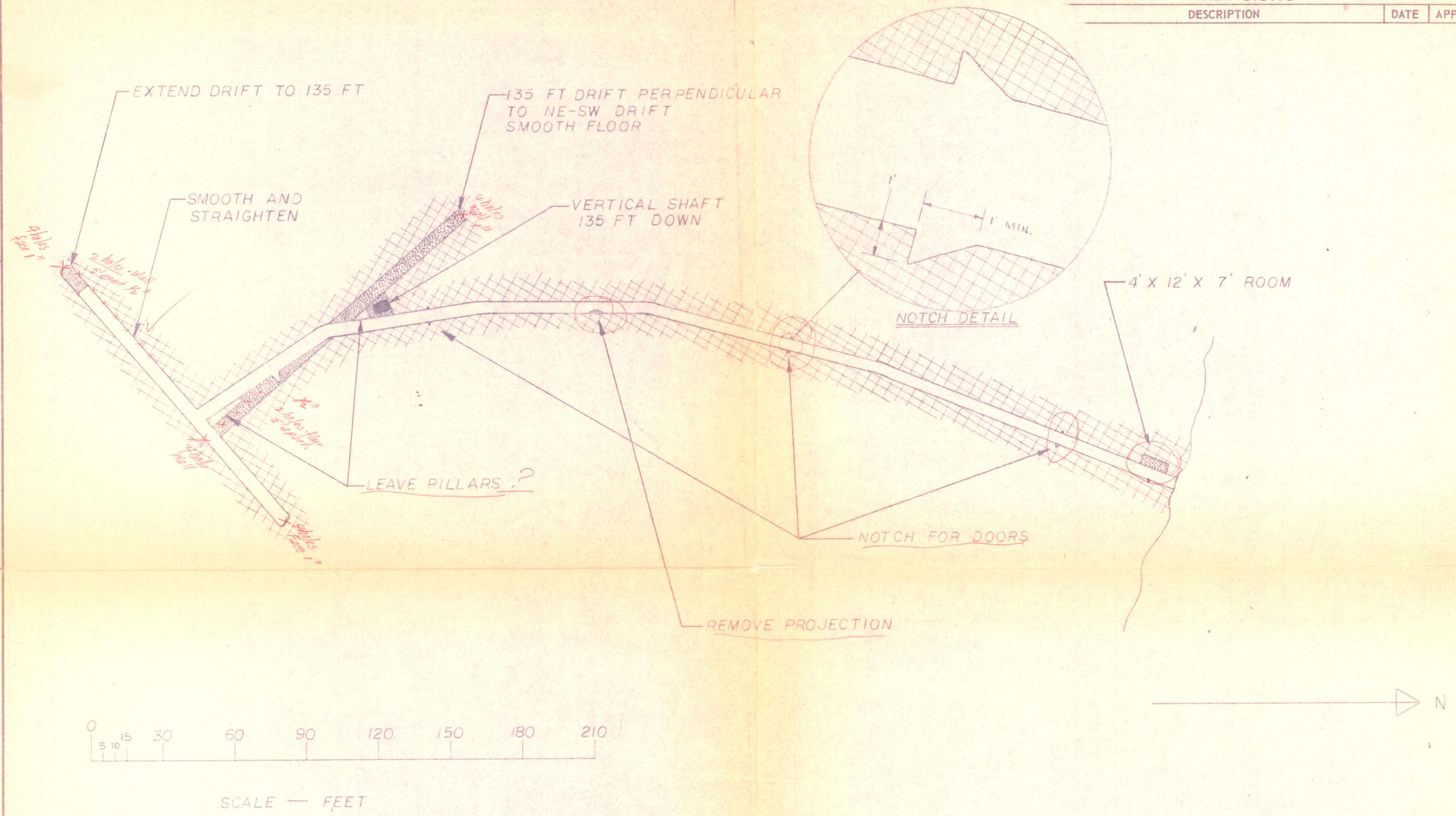
8.5 Two holes in the smoothed pads on the NW wall of the vertical shaft every 5 ft for mounting supports (1/2 in. dia) (52 holes total).

8.6 Eight holes (4 each) in the smoothed pads at the top and bottom of the vertical shaft for mounting anchors (1 in. dia).

8.7 One hole every 10 ft in the walls of the drifts for cable hangers (1/2 in. dia) (approximately 50 holes).

9. Other digging, drilling, and smoothing as directed.

REVISIONS		
DESCRIPTION	DATE	APPROVED



		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CONTRACT		GEOTECH A TELEDYNE COMPANY 3401 SHILOH ROAD GARLAND, TEXAS 75040
		TOLERANCES	DRAWN		TITLE
		FRACTIONS ± / DECIMALS ± / ANGLES ±	CHECKED		MINE MODIFICATION
		MATERIAL	PROTO.		
			1st PROD.		
			PROD.		
			PROGRAM MANAGER		SIZE C / CODE IDENT. NO. 99019 / DWG. NO. 90-WHB 690122
NEXT ASSY.	USED ON	FINISH	OTHER APPVL.		
APPLICATION					SCALE / SHEET OF

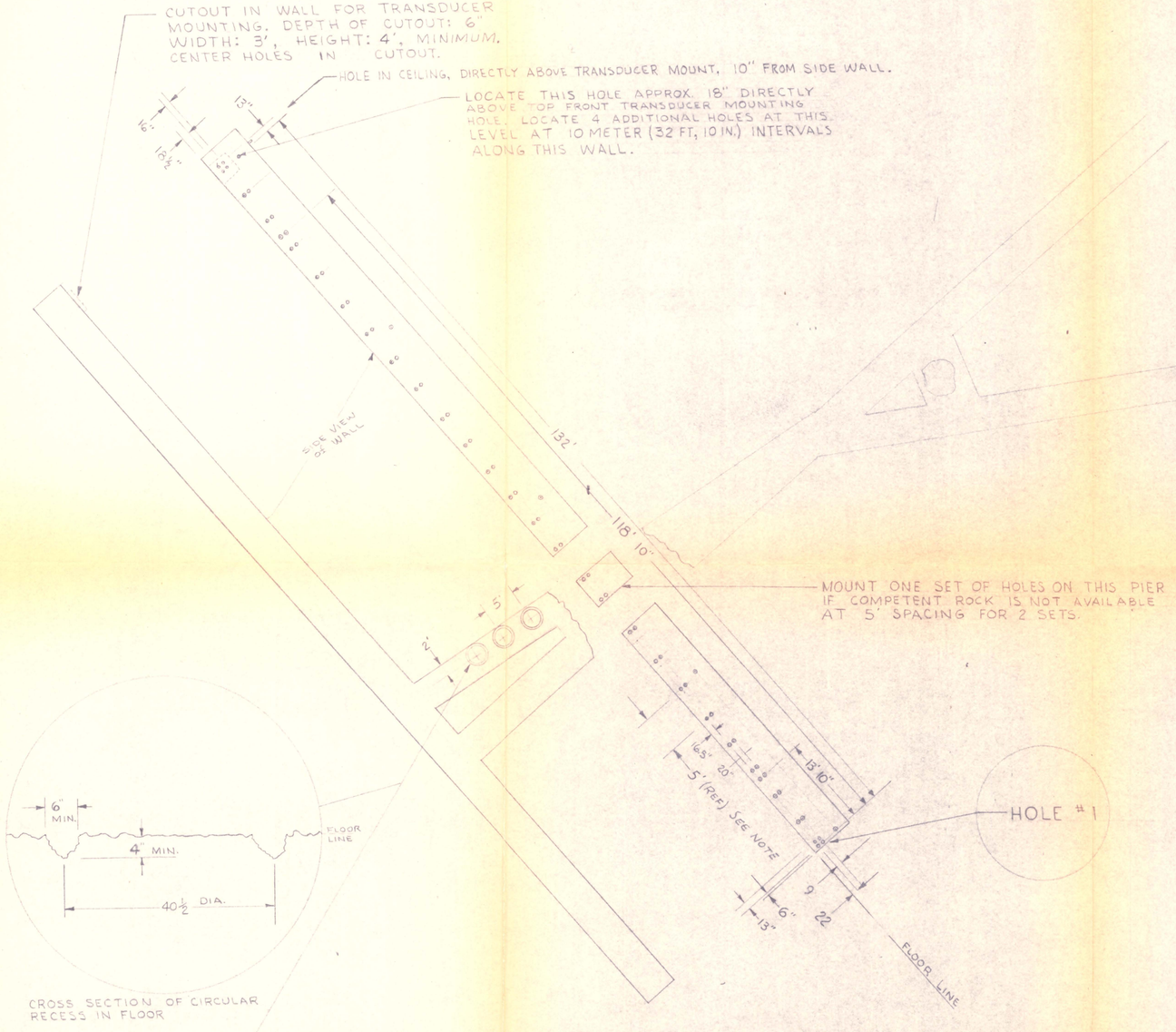
TOLERANCES

The basic specification is that all holes should be aligned about the centerline; e.g., the two holes for each rod support, the four holes for the transducer mount, and the holes for the rod end support should all be spaced equidistant from the centerline. Approximately 1-1/2 inch of lateral adjustment is built into each mounting, therefore, the lateral tolerance should be ±3/4 inch. The spacing of each set of 2 (or 4) holes is critical as there is only about ±1/8 inch available for adjustment. Templates will be supplied to provide the proper spacing between these holes. The 5 ft spacing between rod supports is not critical. The spacing between wall mounted supports in the drift should be adjusted to provide uniformly spaced holes in competent rock.

The tolerance on the squareness of these holes with the axial directions should be held to ±1/2 in. All of the above also covers the extra set of holes for calibrators 4 meters from each end. The holes spaced 10 meters (32 ft 10 in.) apart in the ceiling of the crosscut and the wall of the drift should be held to a spacing tolerance of ±1/2 inch.

Spacing and location of the cable hanger holes are not critical.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

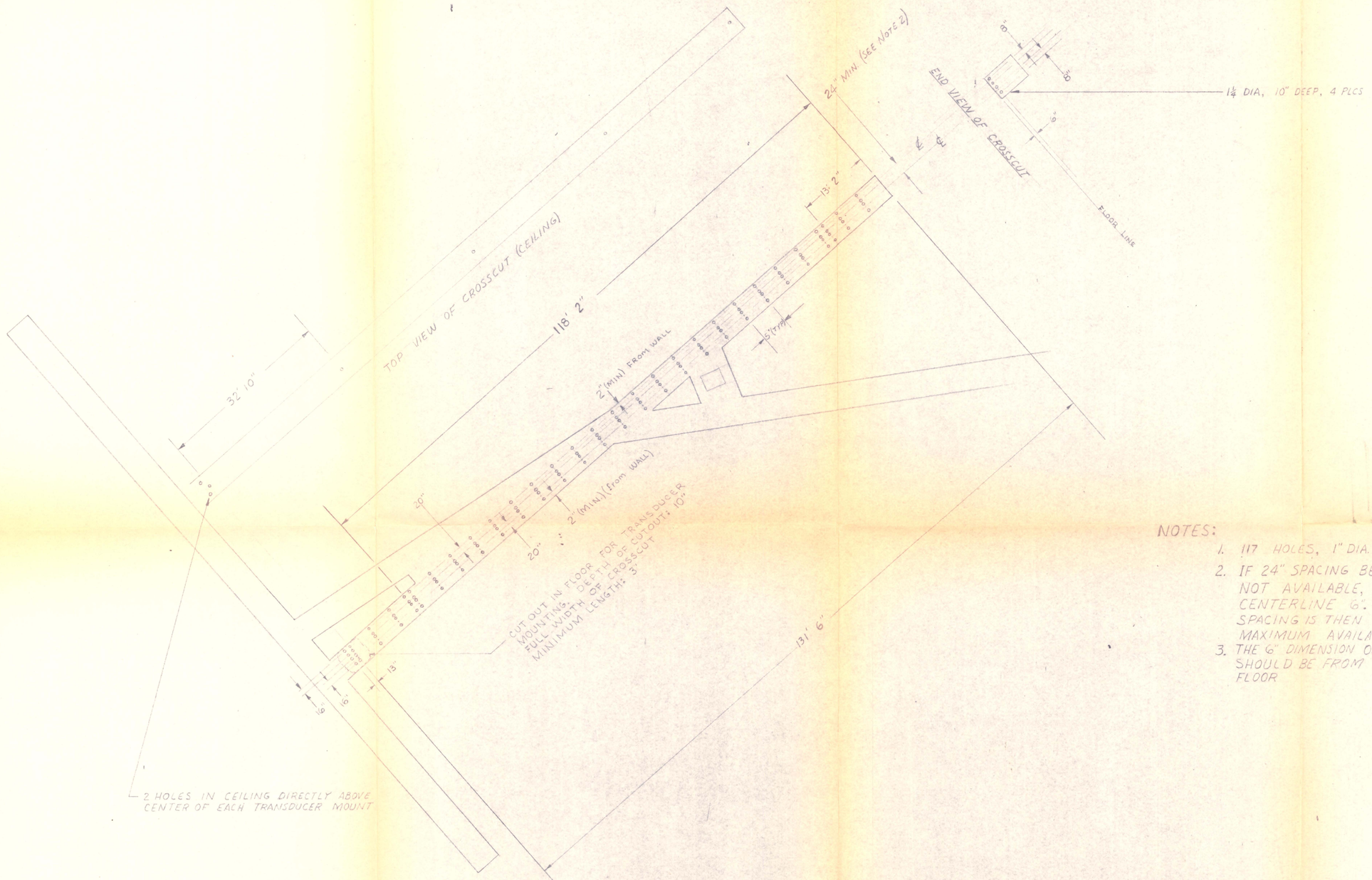


NOTE:

1. ADJUST HOLE SPACING ON WALL TO OBTAIN MINIMUM SPAN LENGTH ACROSS CROSSCUTS.
2. 75 HOLES, 1" DIA, 6" MINIMUM DEPTH.
3. THE HOLES AT 13' 10" & AT 118' 10" ARE IN ADDITION TO THE SET SPACED AT 5' INTERVALS.

NEXT ASSY.	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CONT.	GEOTECH A TELEDYNE COMPANY 3401 SHILOH ROAD GARLAND, TEXAS 75040
APPLICATION		TOLERANCES: FRACTIONS ± / DECIMALS ± / ANGLES ±	DRAWN	TITLE: HOLE PATTERN FOR ANCHOR BOLTS IN DRIFT NE-SW
		MATERIAL	CHECKED	
			PROTO.	
			1st PROD.	
			PROD.	
		FINISH	GEOTECH APPVL.	SIZE D / CODE IDENT. NO. 99019 / DWG. NO. 90- WB690314
			OTHER APPVL.	SCALE ~ / SHEET OF

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

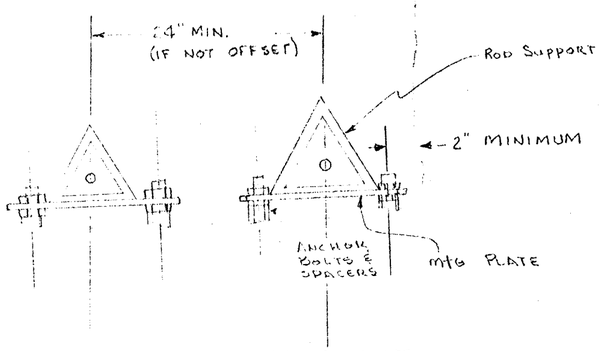


NOTES:

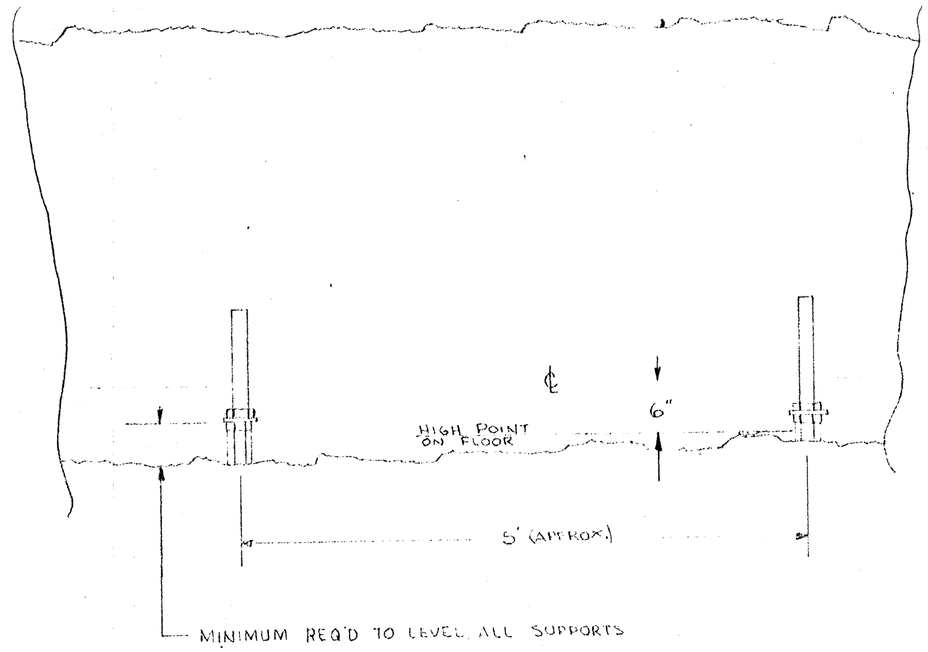
1. 117 HOLES, 1" DIA., 6" MINIMUM DEPTH; 4 HOLES, 1¼ DIA, 10" DEEP
2. IF 24" SPACING BETWEEN CENTER LINES IS NOT AVAILABLE, OFFSET HOLES ON ONE CENTERLINE 6". MINIMUM CENTERLINE SPACING IS THEN 10". HOLD SPACING TO MAXIMUM AVAILABLE.
3. THE 6" DIMENSION ON THE END OF THE CROSSCUT SHOULD BE FROM THE HIGH POINT ON THE FLOOR

NEXT ASSY.	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CONT.	GEOTECH A TELEDYNE COMPANY	3401 SHILOH ROAD GARLAND, TEXAS 75040
APPLICATION		TOLERANCES: FRACTIONS ± / DECIMALS ± / ANGLES ±	DRAWN	TITLE: HOLE PATTERN FOR ANCHOR BOLTS IN CROSSCUT NW-SE	
		MATERIAL	CHECKED		
		FINISH	PROTO.		
			1st PROD.		
			PROD.		
			GEOTECH APPVL.	SIZE D / CODE IDENT. NO. 99019 / DWG. NO. 90-WB 690317	
			OTHER APPVL.	SCALE ~	SHEET OF

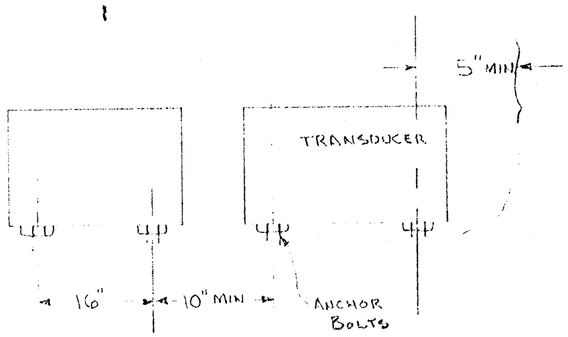
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



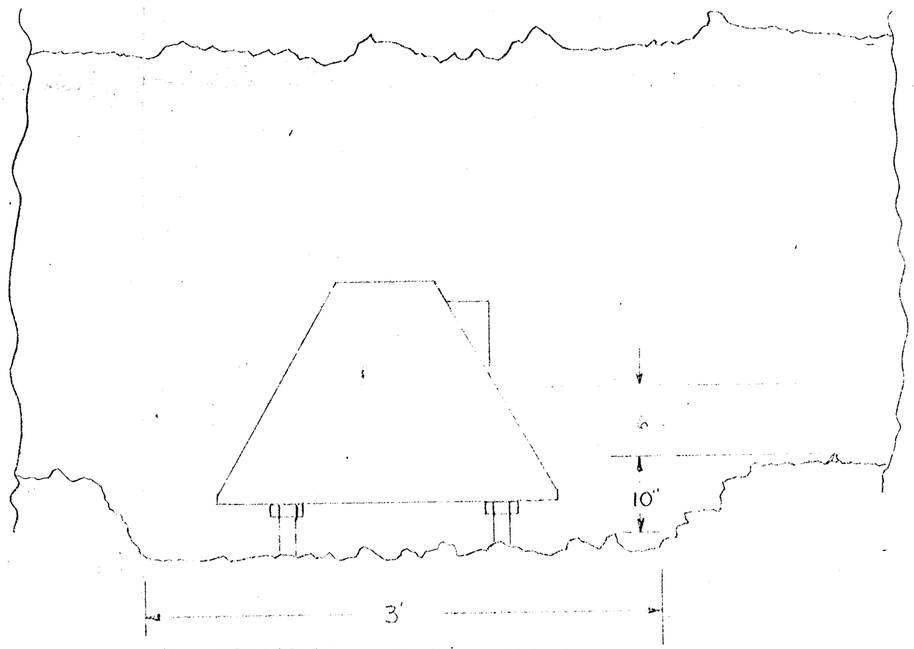
ROD SUPPORTS IN CROSSCUT



ROD SUPPORTS - SIDE VIEW



TRANSDUCERS IN CROSSCUT



TRANSDUCERS - SIDE VIEW

NEXT ASSY.	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCES

FRACTIONS	DECIMALS	ANGLES
±	±	±

MATERIAL

FINISH

CONTRACT		
DRAWN		
CHECKED		
PROTO.		
1st PROD.		
PROD.		
PROGRAM MANAGER		
OTHER APPVL.		

GEOTECH
A TELEDYNE COMPANY
3401 SHILOH ROAD
GARLAND, TEXAS 75040

TITLE
FLOOR MOUNT ROD & TRANSDUCER POSITIONING DETAIL

SIZE	CODE IDENT. NO.	DWG. NO.
C	99019	90- WB 670325

SCALE NONE SHEET OF

PROCEDURE FOR LAYOUT OF HOLES IN DRIFT PER SKETCH WB690314

1. Locate hole #1 at NE end of drift.

2. Use jig and level for other three holes for rod end mount.

3. Locate lines of holes 10 in. below and 10 in. above centerline at approximately 5 ft intervals.

3a. Locate holes at 13 ft 10 in. and 118 ft 10 in. from hole #1.

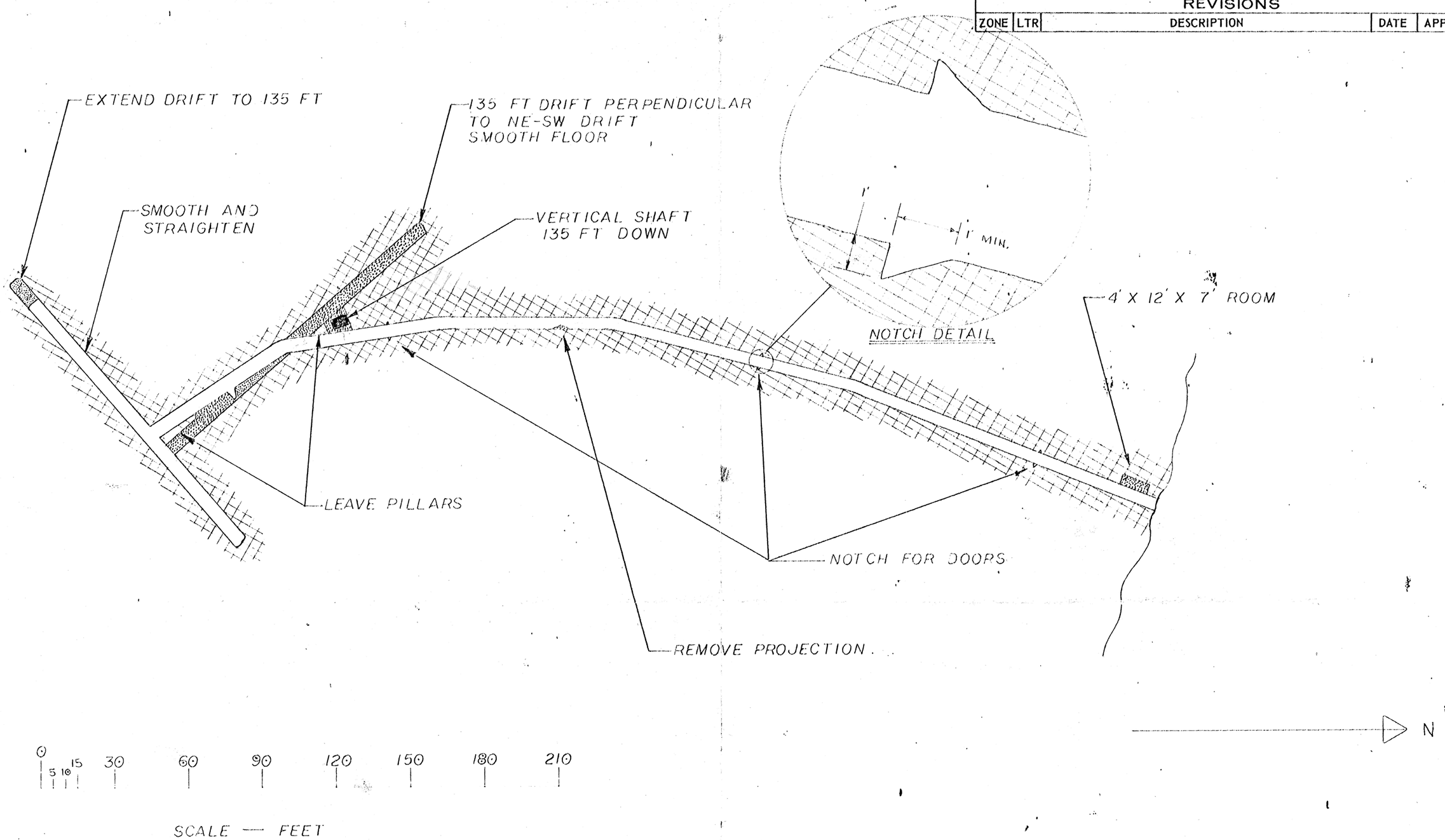
4. Locate transducer mtg holes in cutout at SW end of drift.

5. Locate hole above transducer mount and four holes at 10m intervals (32 ft 10 in.)

6. Locate cable hanger holes.

7. Locate vault recesses in crosscut.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



NEXT ASSY.	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CONTRACT		
APPLICATION		TOLERANCES	DRAWN		
		FRACTIONS ± / DECIMALS ± / ANGLES ±	CHECKED		
		MATERIAL	PROTO.		
			1st PROD.		
		FINISH	PROD.		
			PROGRAM MANAGER		
			OTHER APPVL.		

GEOTECH
A TELEDYNE COMPANY
3401 SHILOH ROAD
GARLAND, TEXAS 75040

TITLE
MINE MODIFICATION

SIZE	CODE IDENT. NO.	DWG. NO.
C	99019	90-WHB 690122
SCALE		SHEET OF