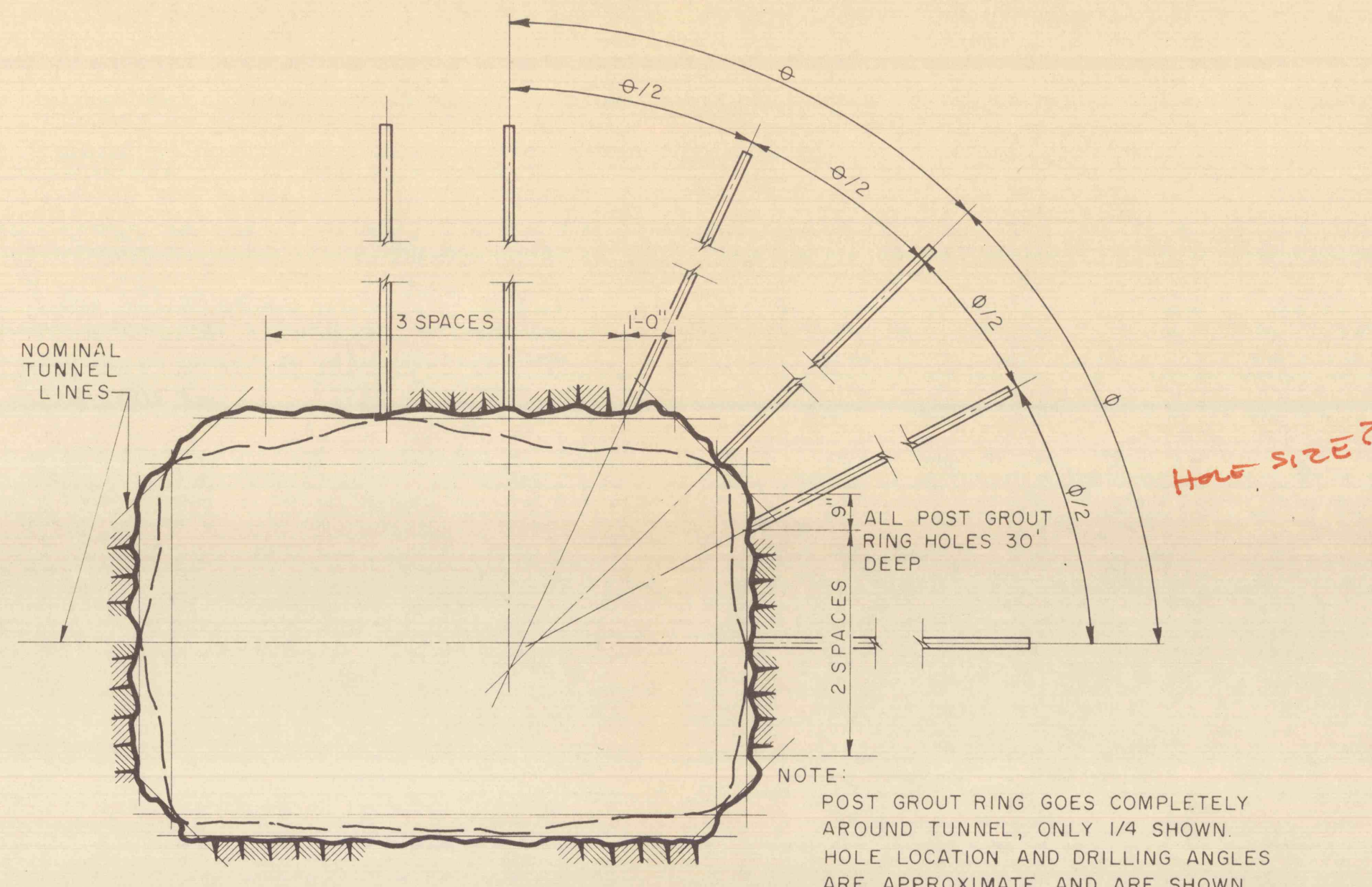
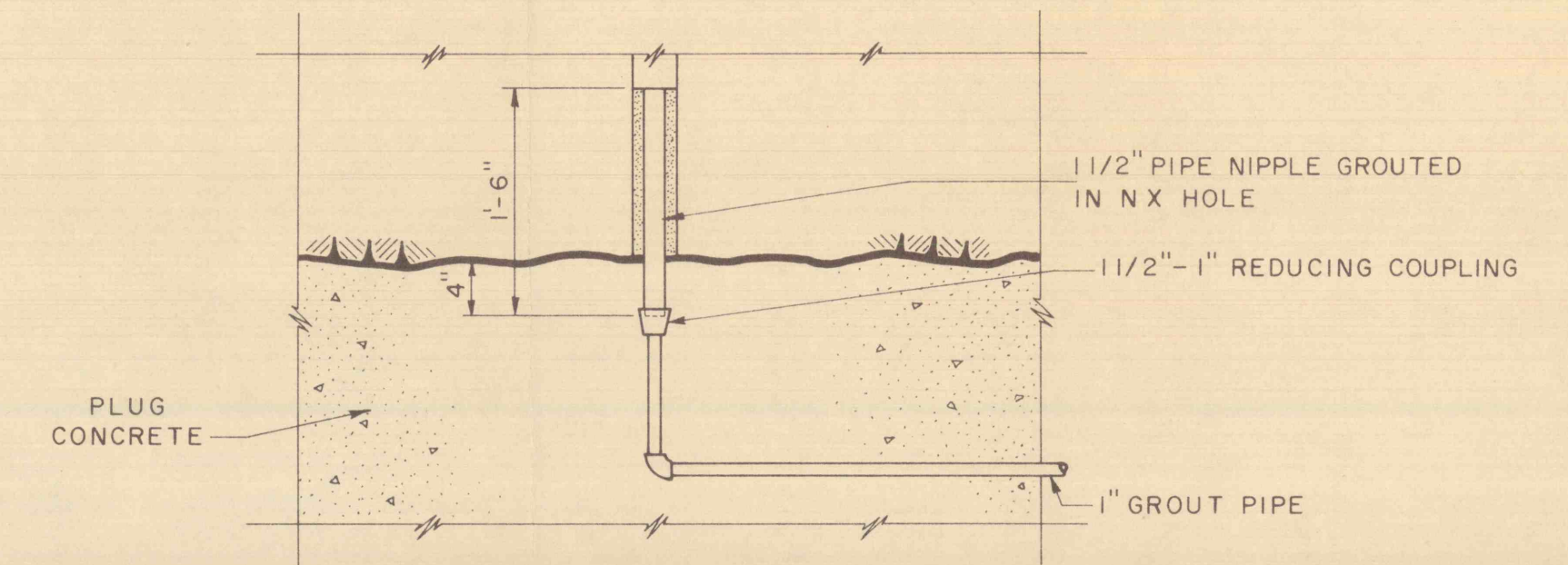


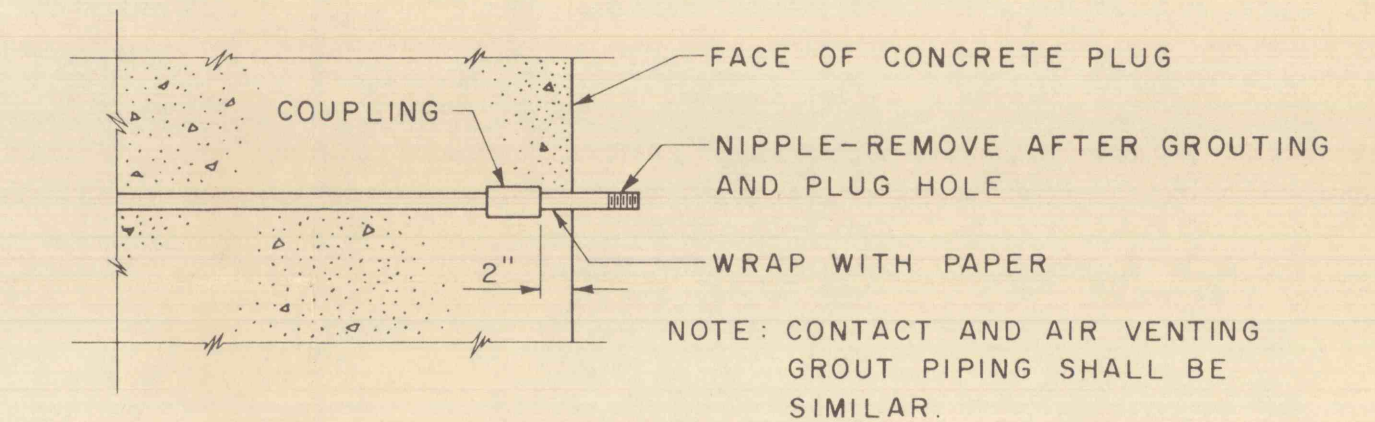
**TWO RINGS REQUIRED  
PRE GROUT RING LAYOUT**



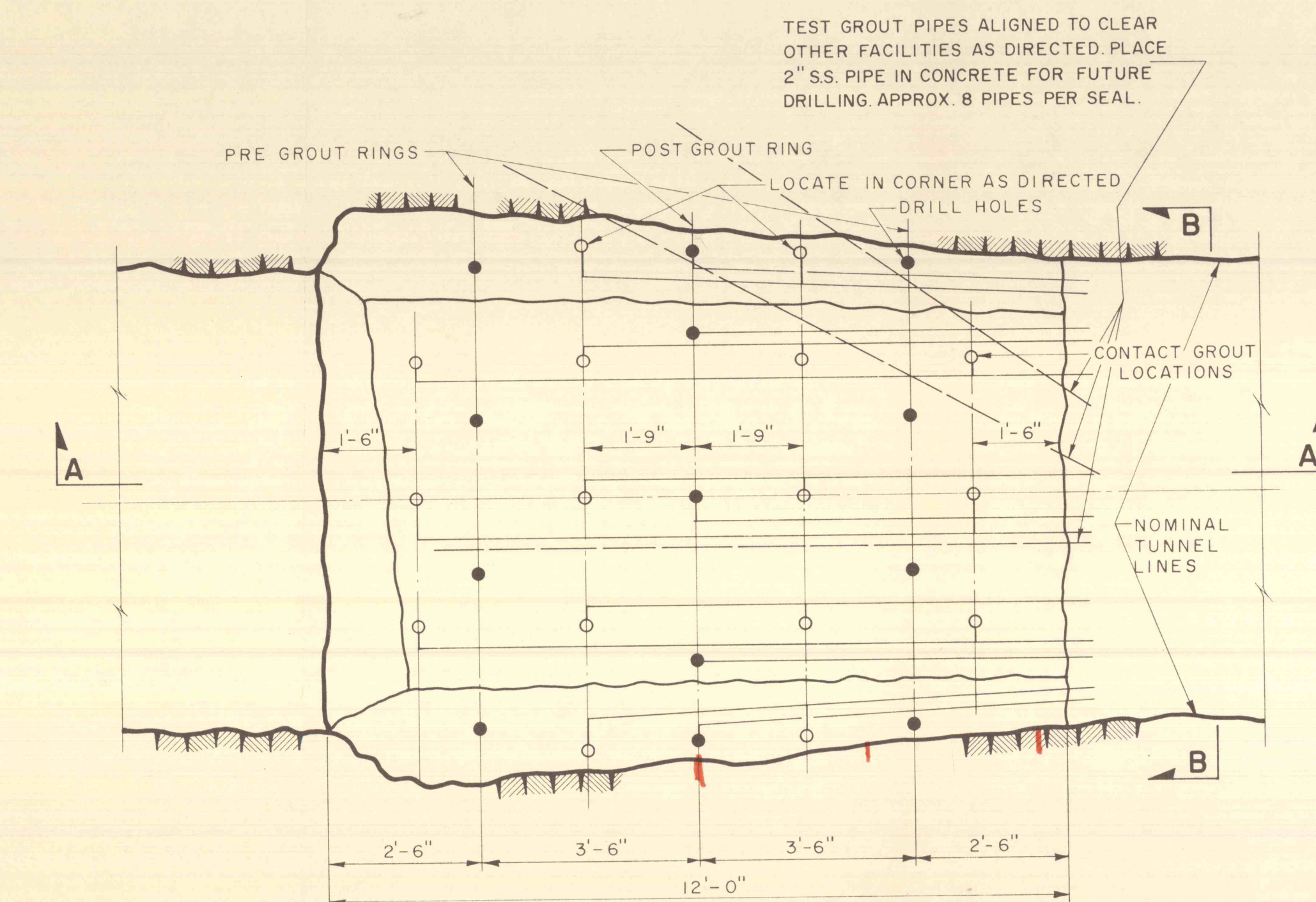
**ONE RING REQUIRED  
POST GROUT RING LAYOUT**



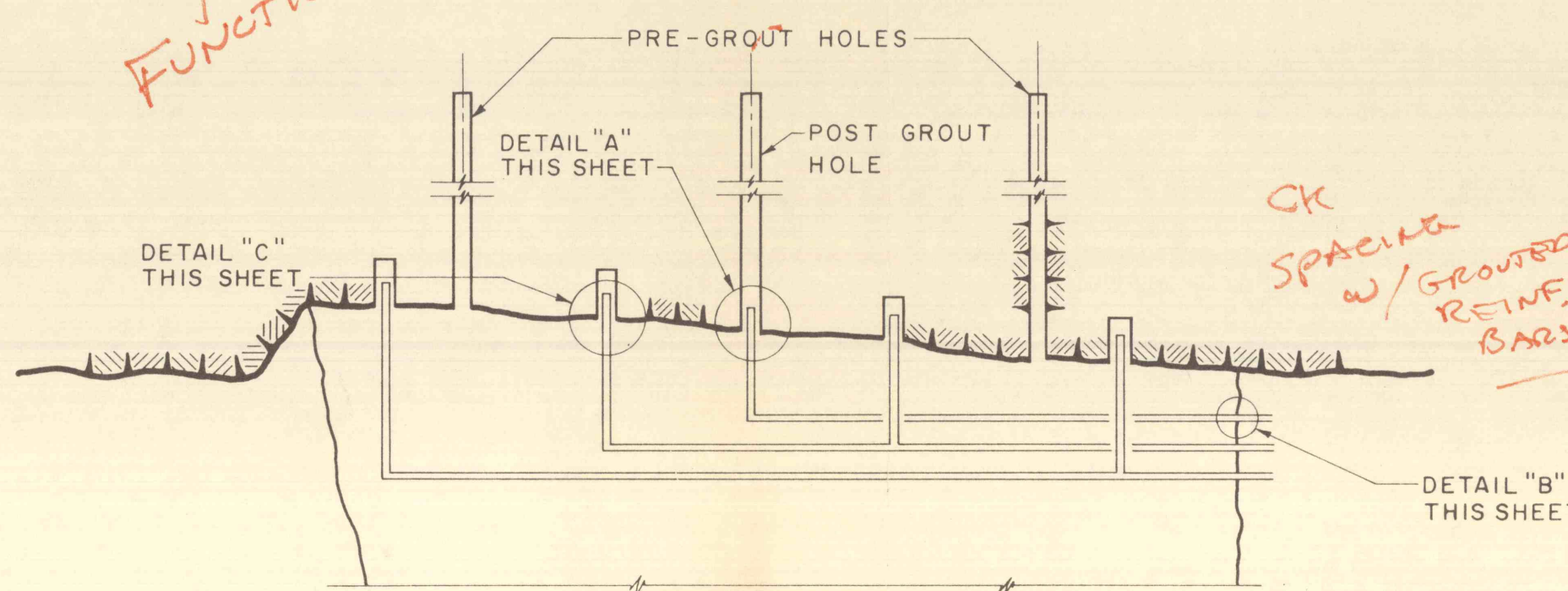
**DETAIL "A"**



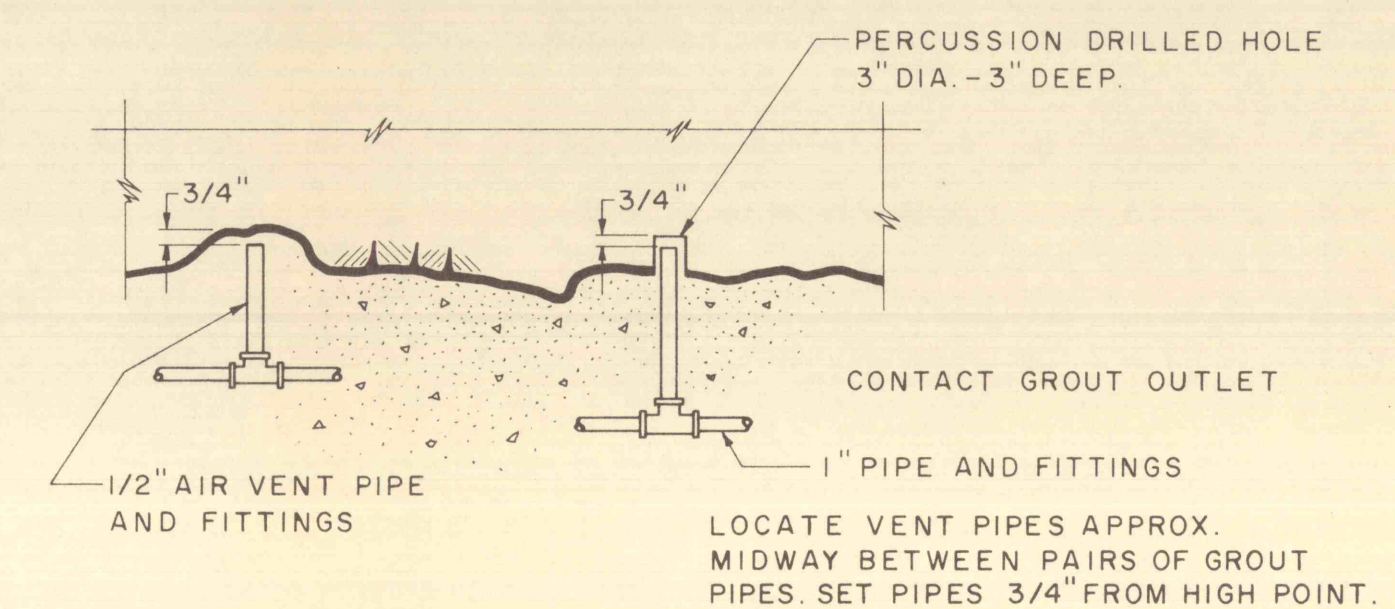
**DETAIL "B"**



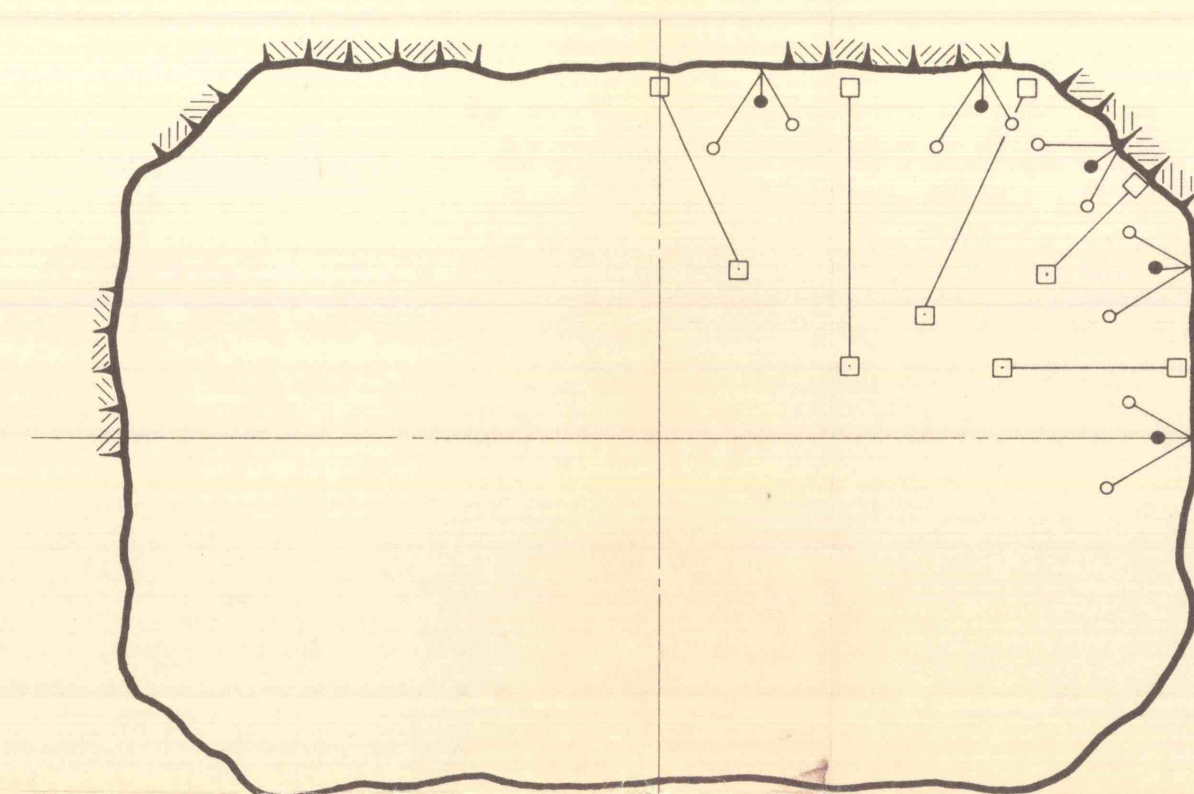
**TYPICAL GROUTING LAYOUT-SIDE OF TUNNELS NO. 2 & 3**



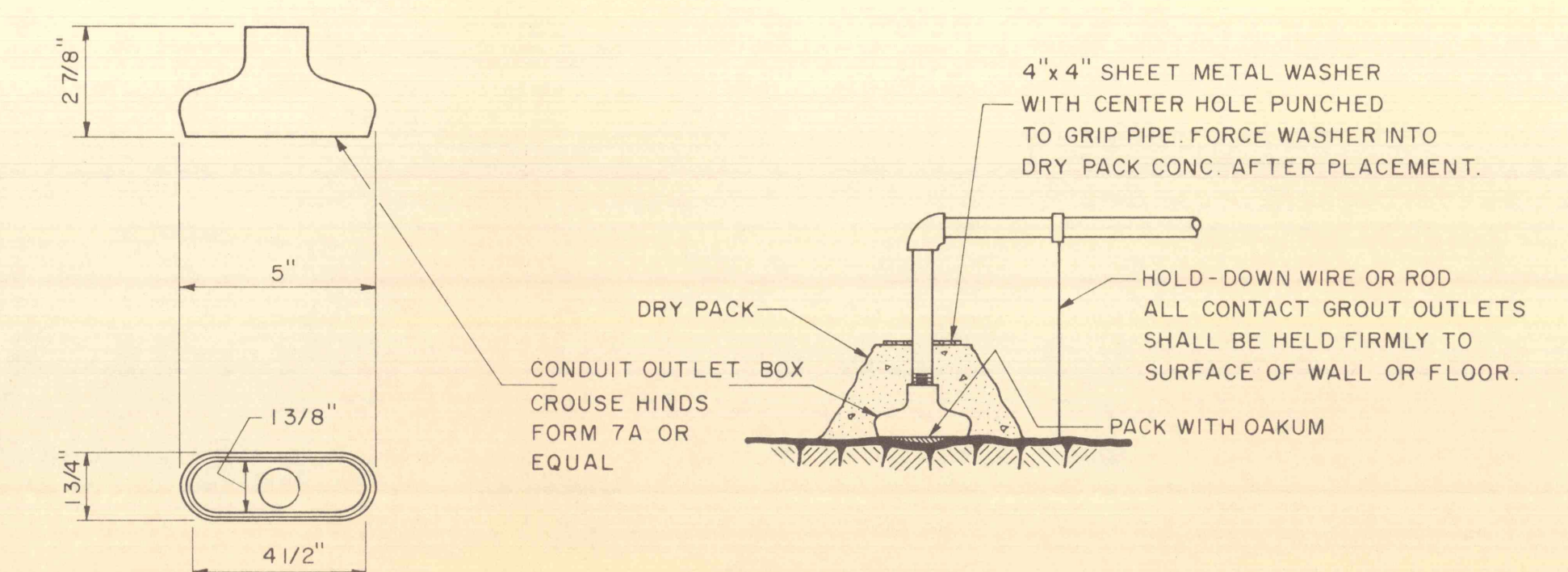
**SECTION A-A  
SCHEMATIC-TYPICAL GROUT PIPING LAYOUT**



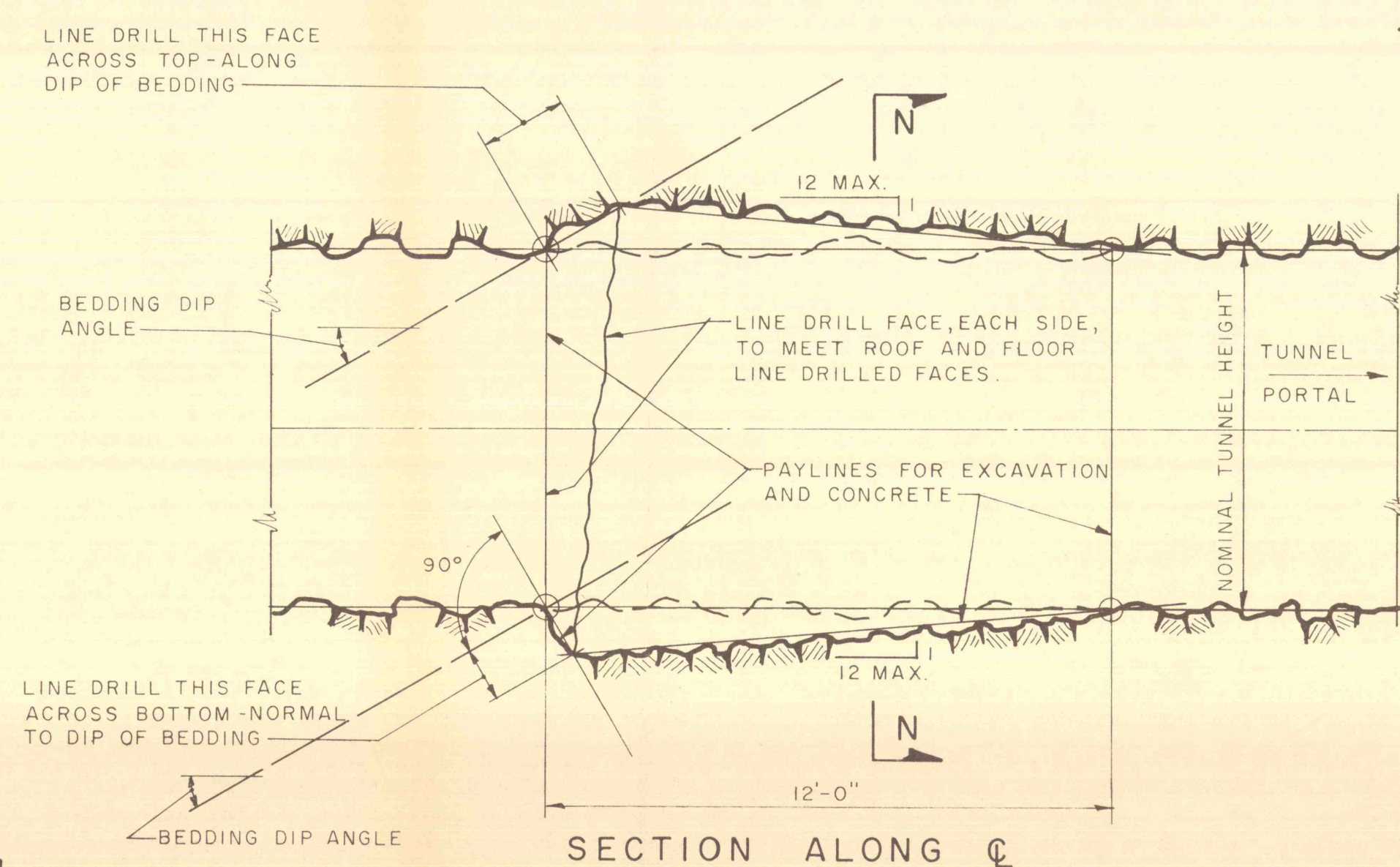
**ROOF DETAIL  
CONTACT GROUTING AND AIR VENT  
PIPE DETAIL "C"**



**SECTION B-B  
SCHEMATIC PIPE LAYOUT**

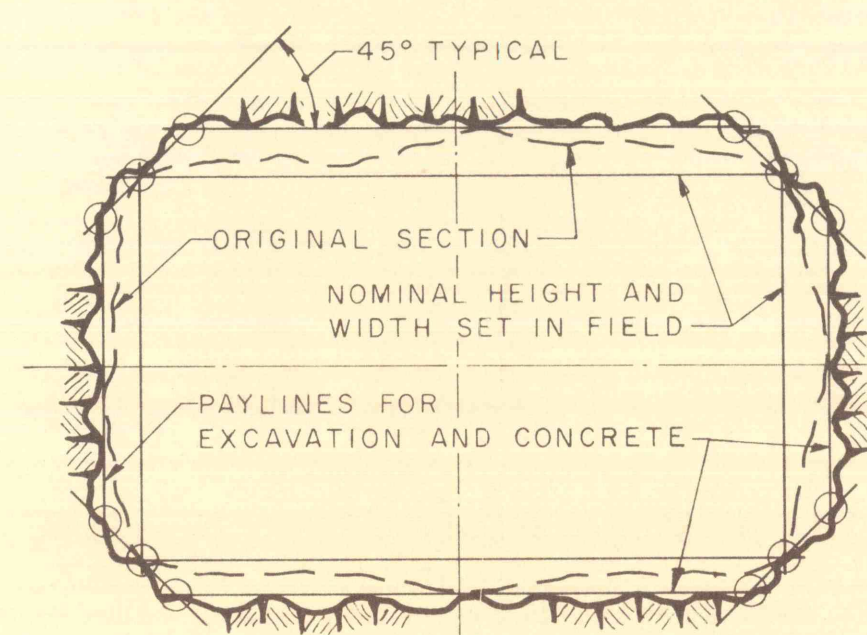


**SIDE WALL GROUT OUTLET DETAILS**



**EXCAVATION DETAILS**

SCALE: 1" = 3'



**SECTION N-N**

1. THE SEQUENCE OF DRILLING AND GROUTING HOLES IN BOTH THE PRE-GROUT AND POST-GROUT OPERATIONS SHALL BE AS DIRECTED BY THE ENGINEER. GENERALLY, WORK SHALL START ON THE HOLES LOCATED AT THE BOTTOM CENTER OF THE SEAL AND PROGRESS UP THE SIDES, ALTERNATING WORK FROM ONE SIDE TO THE OTHER, AND THEN ACROSS THE TOP, FINISHING WITH THE TOP CENTER HOLE.
2. CONTACT GROUTING SHALL BE AS ABOVE, EXCEPT THAT CONNECTIONS TO UPSTREAM AND DOWNSTREAM PIPES SHALL BE GROUTED PRIOR TO CONNECTIONS TO CENTRAL CONTACT PIPES.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DRAWN TRACED CHECKED APPROVED APPROVED	<b>GANNETT FLEMING CORDDRY &amp; CARPENTER, INC.</b>		JOB NO. 5081	COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES	SHEET NO. 2
	ENGINEERS		SCALE	CATAWISSA CREEK MINE DRAINAGE POLLUTION ABATEMENT PROJECT NO. SL-135	DRAWING NO.
	HARRISBURG, PENNSYLVANIA		DATE	GROUTING DETAILS	
				MISCELLANEOUS DETAILS	