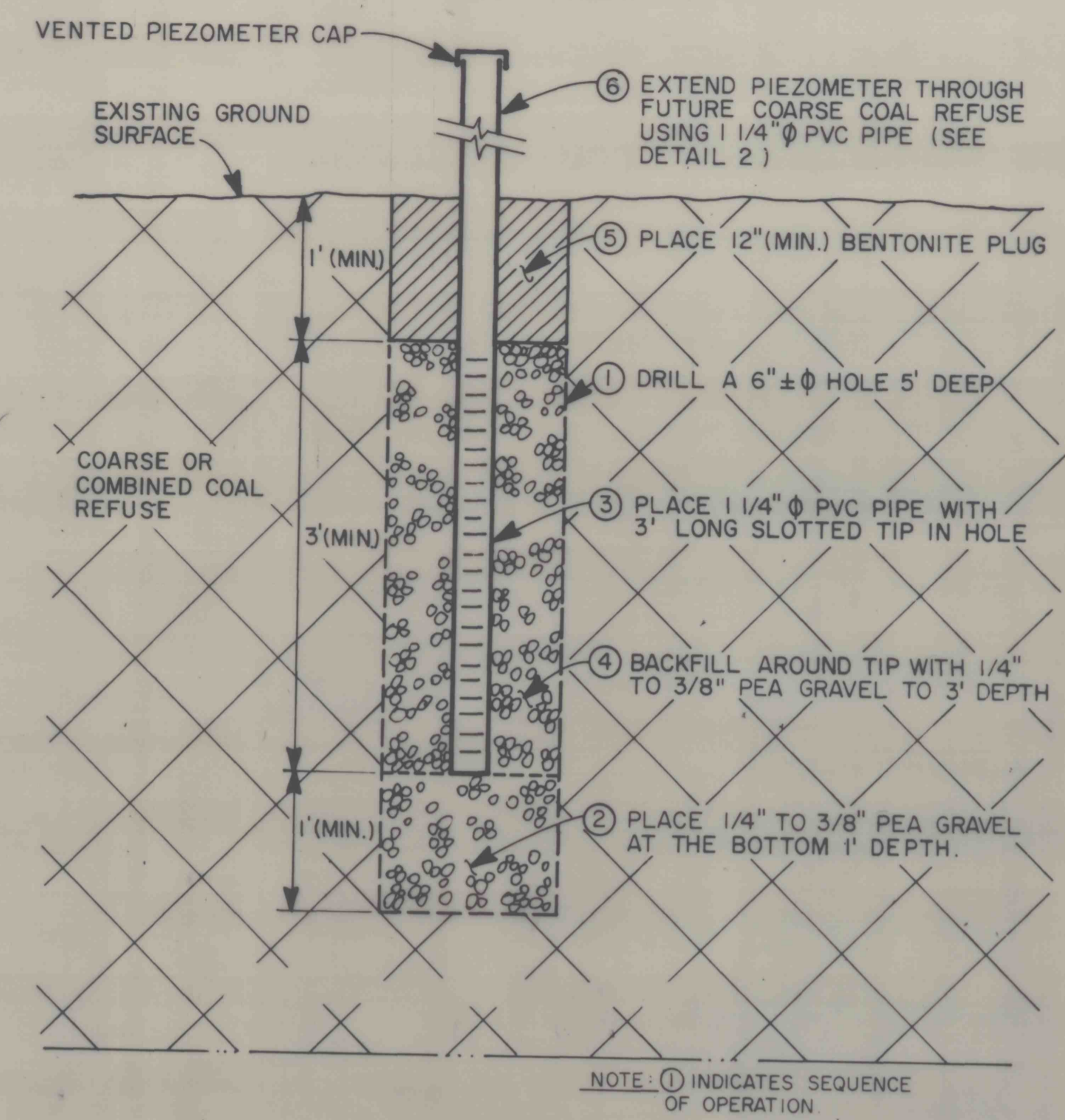
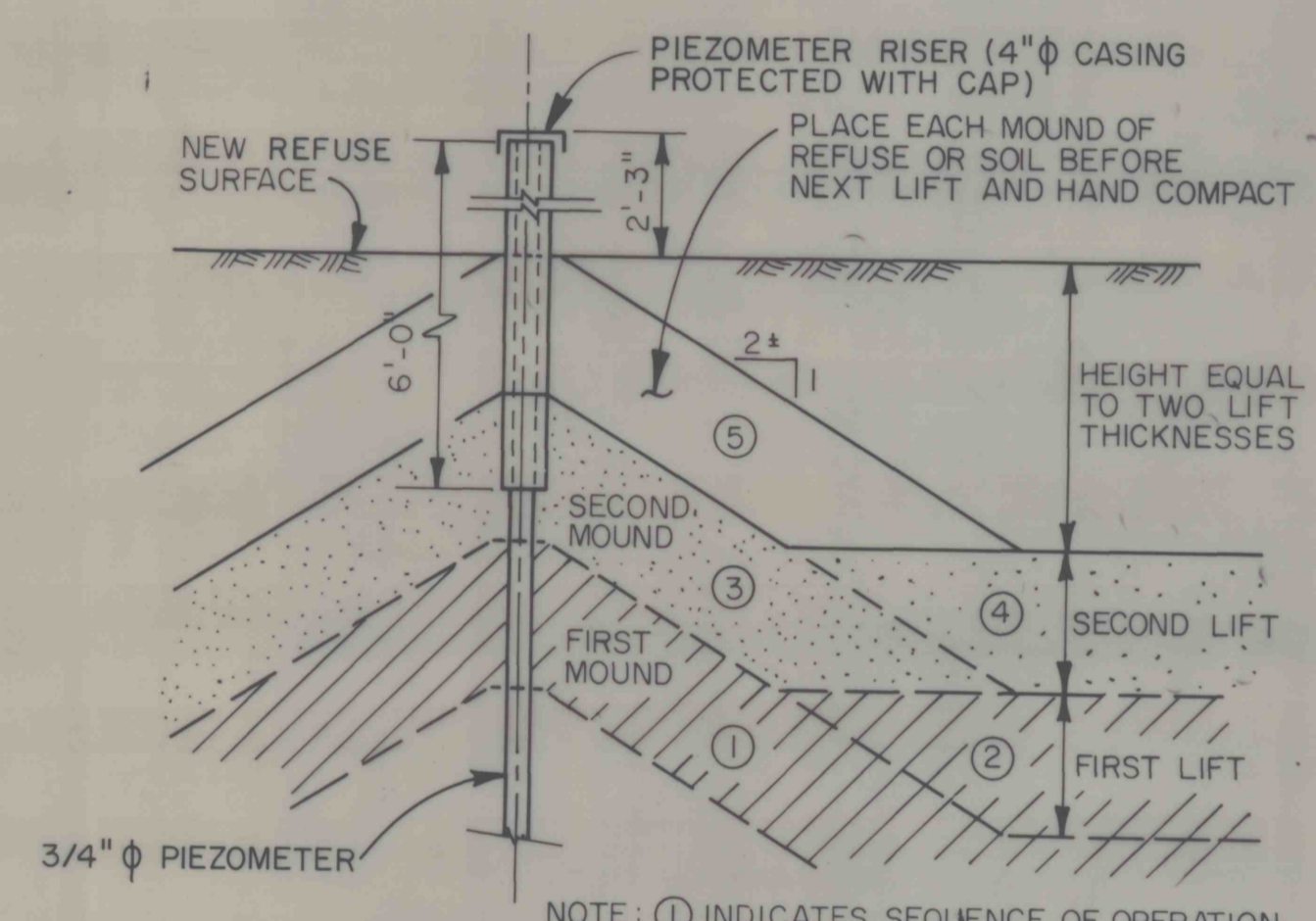


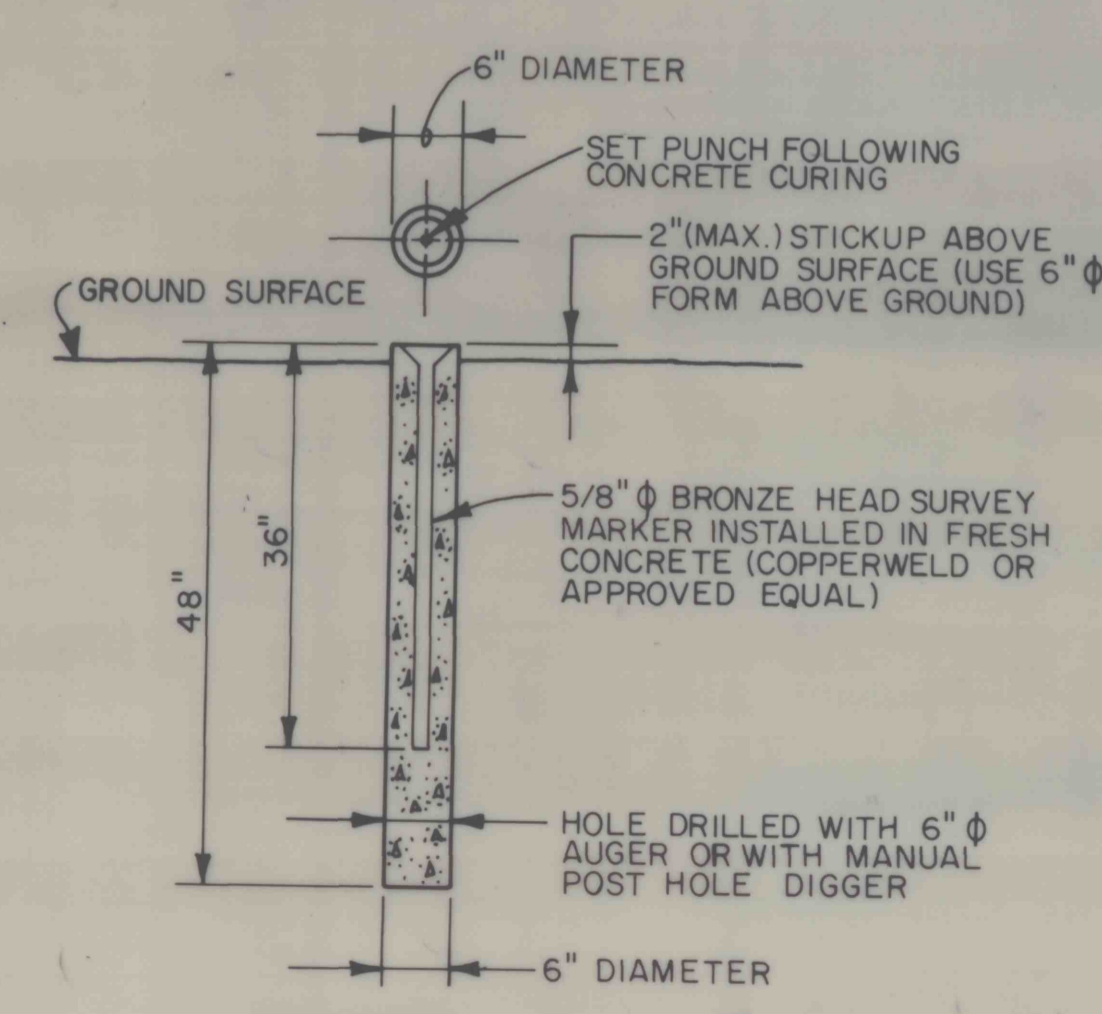
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CHECKED BY
APPROVED BY
RW
I-20-81
DRAWN BY



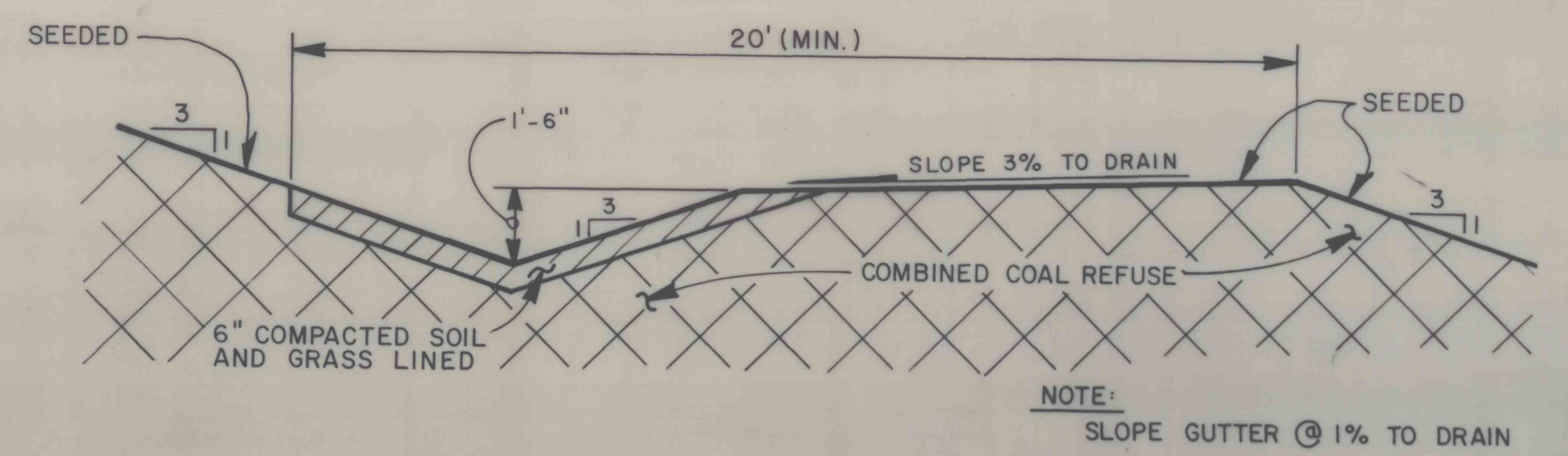
DETAIL 1
NEW PIEZOMETER INSTALLATION
N.T.S.



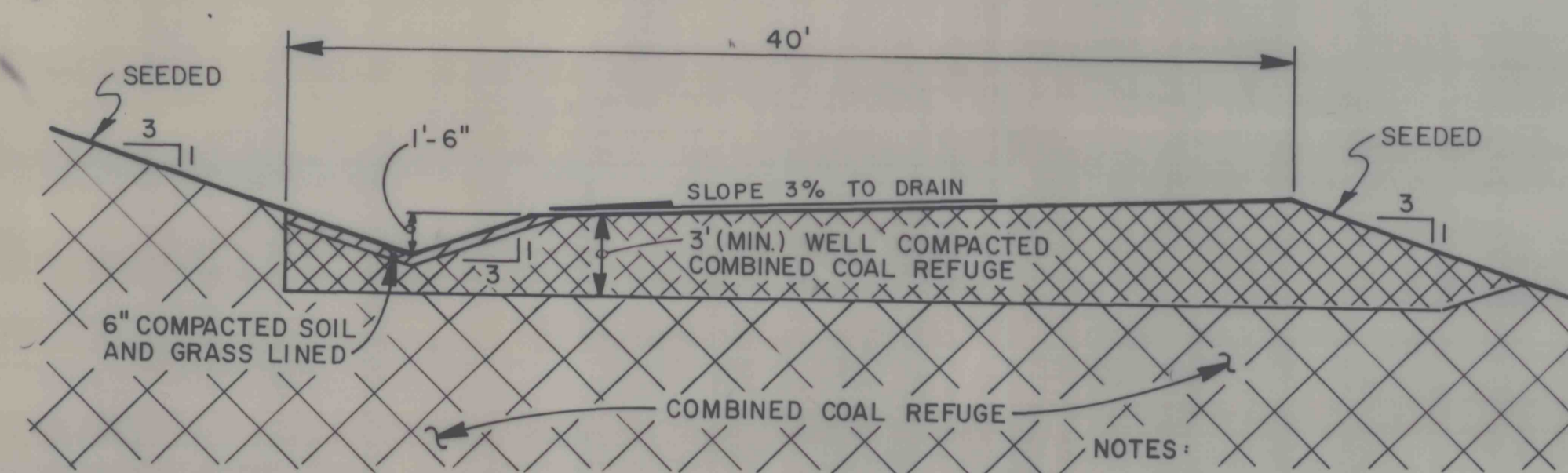
DETAIL 2
PIEZOMETER EXTENSION PROCEDURE
N.T.S.



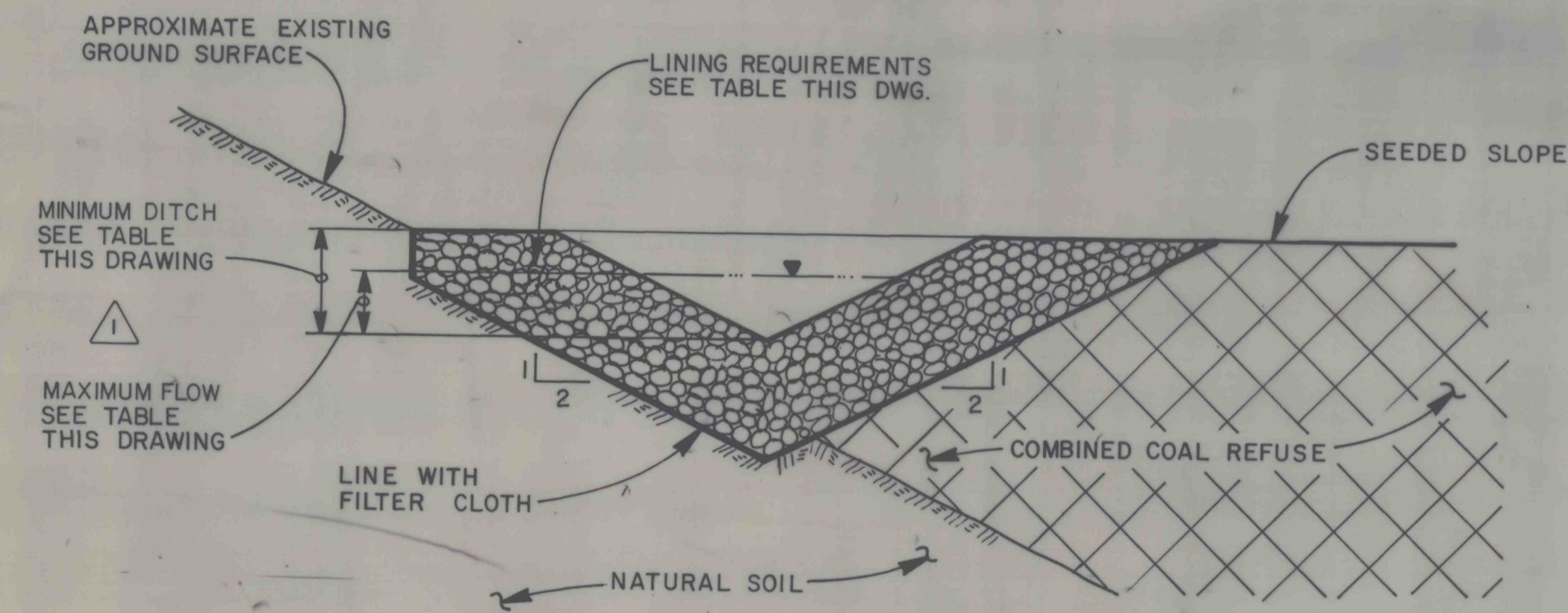
DETAIL 3
CAST-IN-PLACE SURVEY MONUMENT
N.T.S.



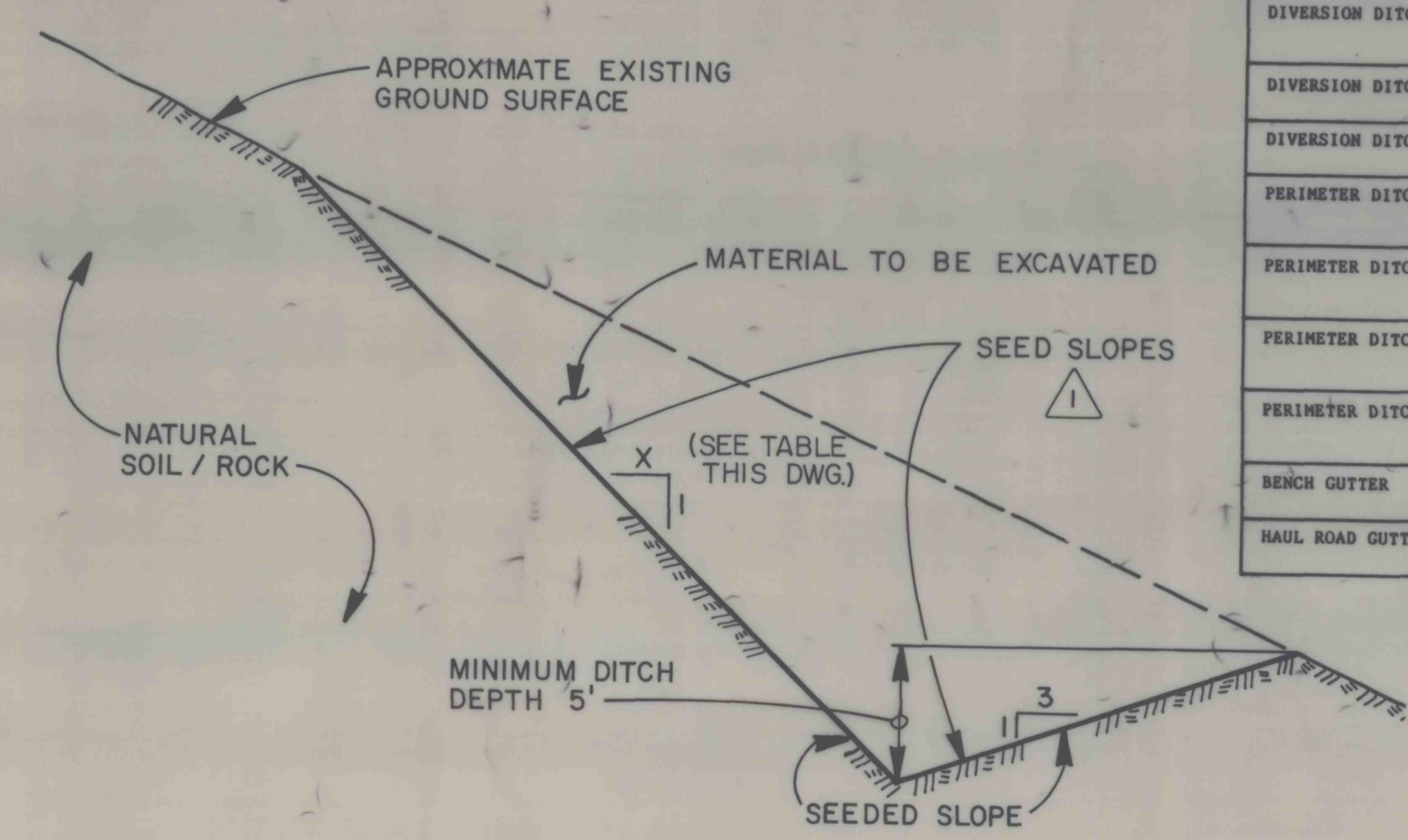
DETAIL 4
BENCH AND BENCH GUTTER
SCALE: 1" = 3'



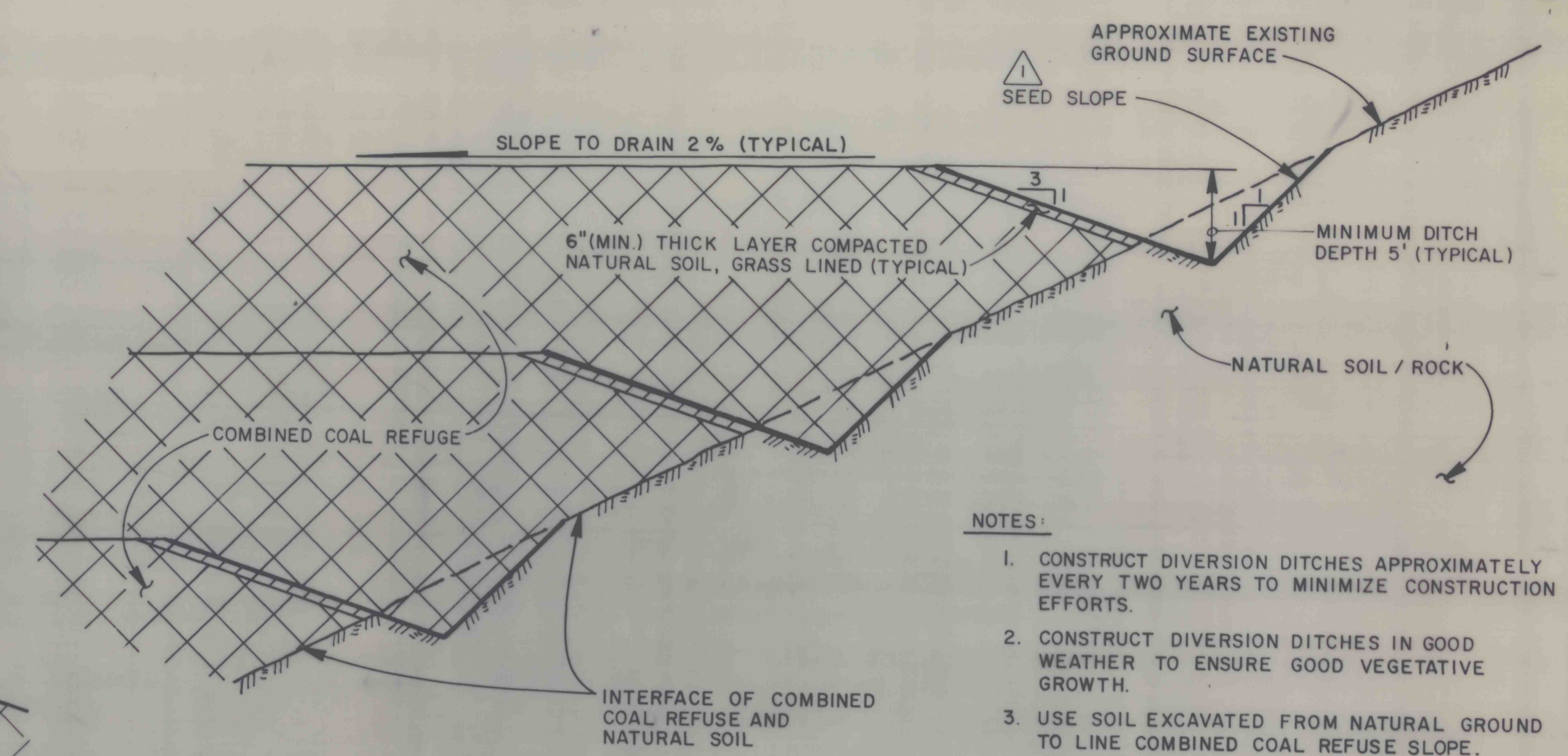
DETAIL 5
HAUL ROAD AND GUTTER
SCALE: 1" = 6'



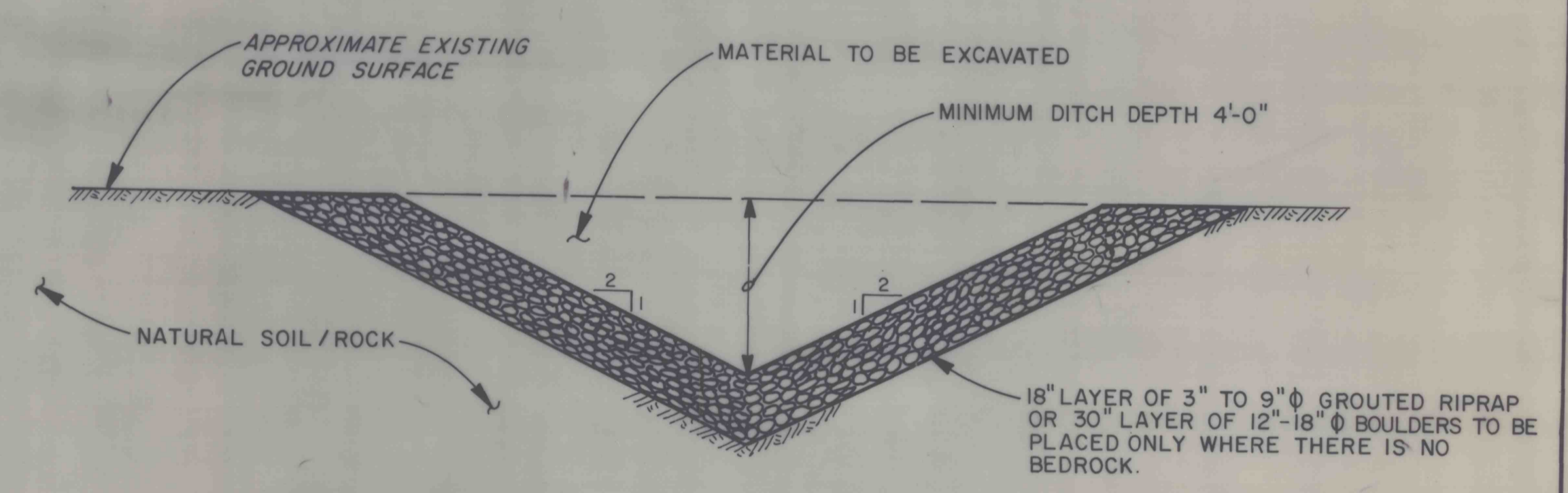
DETAIL 6
PERIMETER DITCH P1, P2, P3 AND P4
SCALE: 1" = 2'



DETAIL 7
DIVERSION DITCH D2
SCALE: 1" = 6'



DETAIL 8
TEMPORARY DIVERSION DITCH D3
SCALE: 1" = 6'



DETAIL 9
DIVERSION DITCH D1
SCALE: 1" = 3'

- NOTES:**
1. CONSTRUCT DIVERSION DITCHES APPROXIMATELY EVERY TWO YEARS TO MINIMIZE CONSTRUCTION EFFORTS.
 2. CONSTRUCT DIVERSION DITCHES IN GOOD WEATHER TO ENSURE GOOD VEGETATIVE GROWTH.
 3. USE SOIL EXCAVATED FROM NATURAL GROUND TO LINE COMBINED COAL REFUSE SLOPE.

RECOMMENDED CUT SLOPES	
MATERIAL	X
SOIL	1.5
SHALE	1.0
COMPETENT SANDSTONE	0.5

- NOTES:**
1. IF FILTER CLOTH IS NOT USED, 6" (MIN.) OF THE 18" LAYER SHOULD BE STONE HAVING A GRADATION BETWEEN No. 4 SIEVE AND 3/4" (ASTM D448 No. 68)
 2. RUBBER LINERS, "FABRI FORM", OR EQUIVALENT COULD BE USED IN PLACE OF THE GROUDED RIPRAP TO LINE THE PERIMETER OR DIVERSION DITCHES.

CHANNEL TYPE	CHANNEL DESIGNATION	MANNINGS "n"	PEAK DISCHARGE (CFS)	MAXIMUM FLOW DEPTH (FEET)	MAXIMUM FLOW VELOCITY (FPS)	DESIGN FLOW DEPTH (FEET)	EROSION PROTECTION
DIVERSION DITCH	D1	0.033	170	50	1.8	26.0	18-INCH-THICK LAYER OF 3- TO 9-INCH Ø GROUDED RIPRAP OR A 30-INCH LAYER OF 12- TO 18-INCH Ø RIPRAP
DIVERSION DITCH	D2	0.035	170	1	3.8	6.0	6-INCH-THICK LAYER COMPACTED NATURAL SOIL, GRASS LINED
DIVERSION DITCH	D3	0.035	170	1	3.8	6.0	6-INCH-THICK LAYER COMPACTED NATURAL SOIL, GRASS LINED
PERIMETER DITCH	P1	0.033	23	11	1.1	10.4	18-INCH-THICK LAYER OF 3- TO 9-INCH Ø GROUDED RIPRAP OR A 30-INCH LAYER OF 12- TO 18-INCH Ø RIPRAP
PERIMETER DITCH	P2	0.033	23	15	1.0	11.7	18-INCH-THICK LAYER OF 3- TO 9-INCH Ø GROUDED RIPRAP OR A 30-INCH LAYER OF 12- TO 18-INCH Ø RIPRAP
PERIMETER DITCH	P3	0.033	46	15	1.4	12.5	18-INCH-THICK LAYER OF 3- TO 9-INCH Ø GROUDED RIPRAP OR A 30-INCH LAYER OF 12- TO 18-INCH Ø RIPRAP
PERIMETER DITCH	P4	0.033	170	9	2.4	14.3	18-INCH-THICK LAYER OF 3- TO 9-INCH Ø GROUDED RIPRAP OR A 30-INCH LAYER OF 12- TO 18-INCH Ø RIPRAP
BENCH GUTTER	B	0.035	9	1	1.2	2.9	6-INCH-THICK LAYER COMPACTED NATURAL SOIL, GRASS LINED
HAUL ROAD GUTTER	HR	0.035	13.4	8	1.0	7.0	6-INCH-THICK LAYER COMPACTED NATURAL SOIL, GRASS LINED

HYDRAULIC DESIGN PARAMETERS TABLE

REVISION
 ▲ REVISED DETAIL 9 ADDED NOTES TO DETAILS 6, 7, 8, AND REVISED HYDRAULIC DESIGN PARAMETERS TABLE.

DRAWING NO. B77-801-E8
 SHEET NO. 7 of 12
 FIGURE NO. 11

DETAILS SHEET 1 OF 2
 COAL REFUSE DISPOSAL FACILITY
 MINE NO. 81
 BETHLEHEM MINES CORPORATION
 DRENNEN, WEST VIRGINIA
 PREPARED FOR
 BETHLEHEM MINES CORPORATION
 NICHOLAS DIVISION
 CHARLESTON, WEST VIRGINIA

D'APPOLONIA