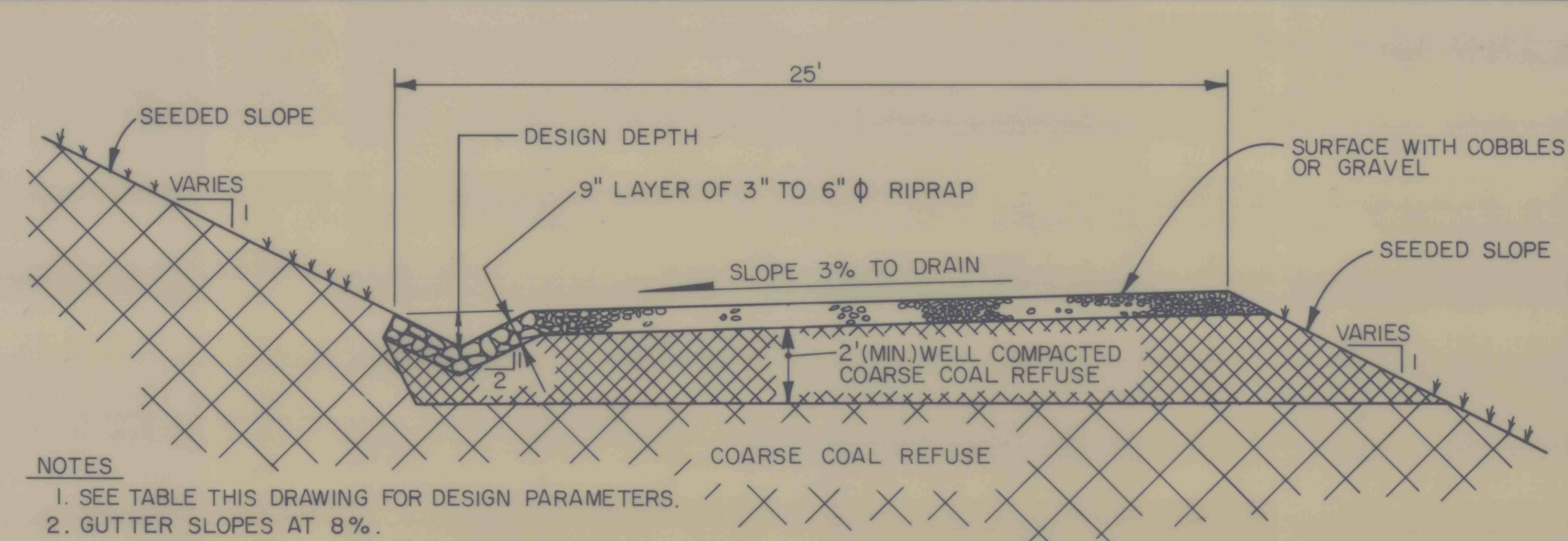
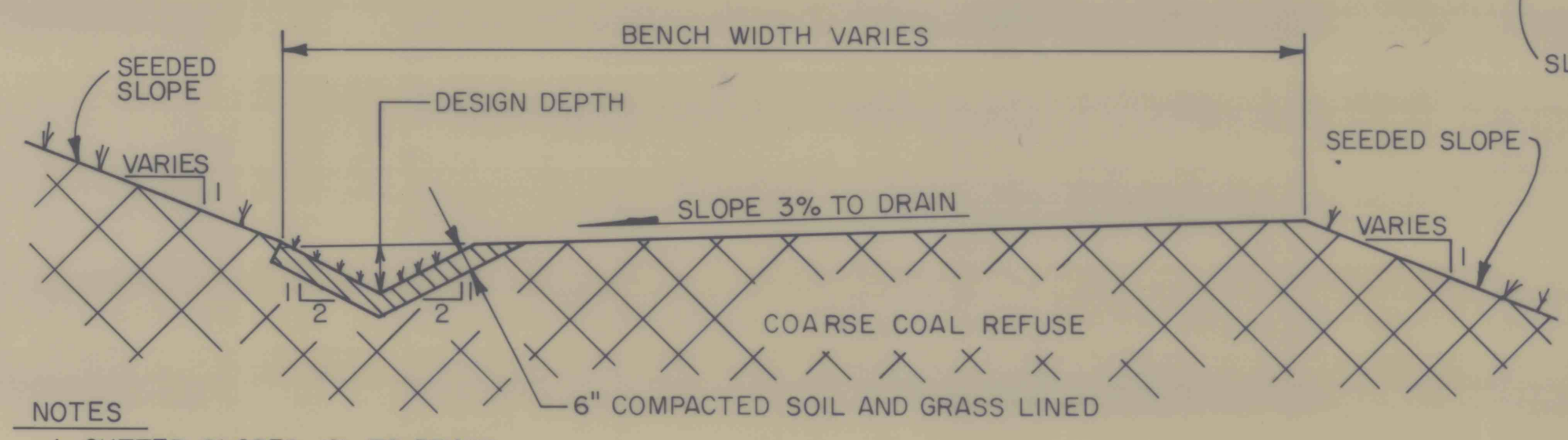


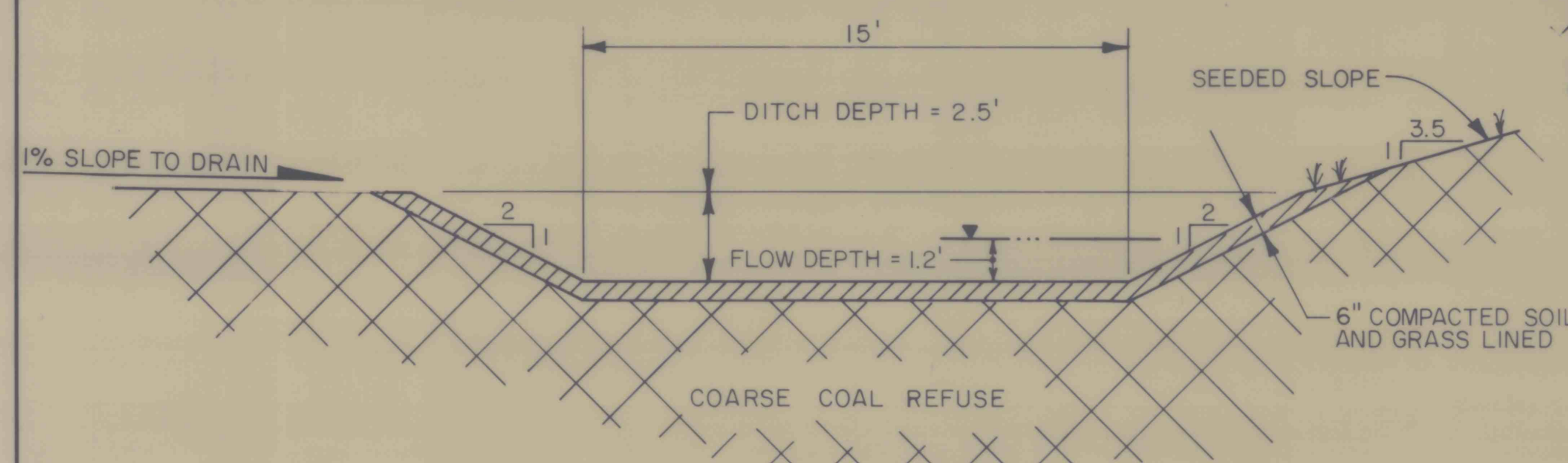
DRAWING 78-359-E16  
NUMBER  
5-24-79  
CHECKED BY  
APPROVED BY  
DRAWN BY



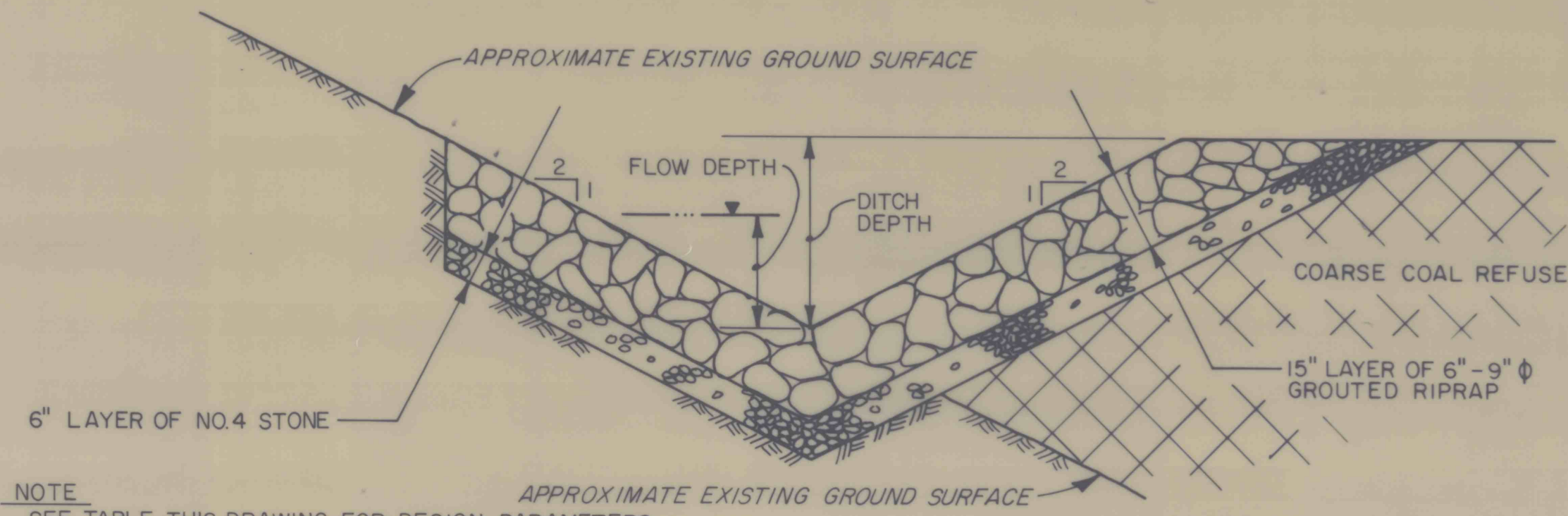
DETAIL 1  
HAUL ROAD AND GUTTER  
N.T.S.



DETAIL 2  
BENCH AND BENCH GUTTER  
N.T.S.



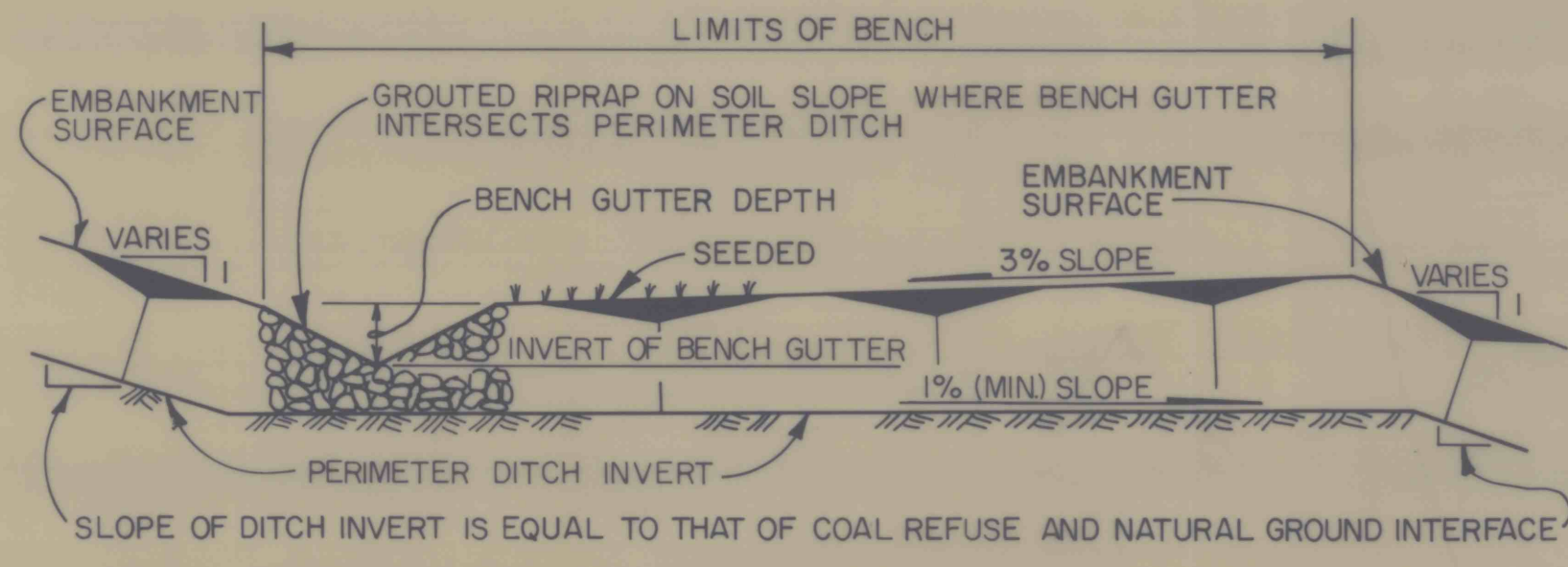
DETAIL 3  
PERIMETER DITCH D  
N.T.S.



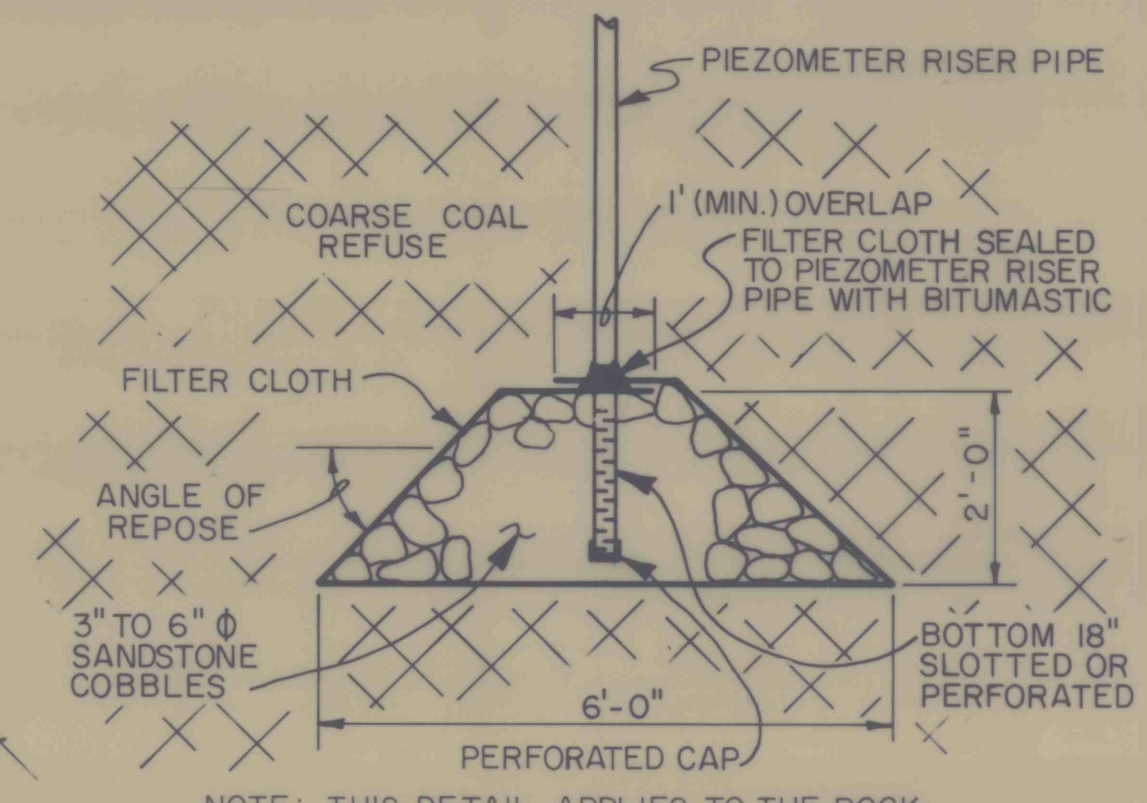
DETAIL 4  
PERIMETER DITCHES A, B AND C  
N.T.S.

DITCH DESIGN PARAMETERS									
CHANNEL TYPE	CHANNEL DESIGNATION	CHANNEL WIDTH (ft)	PEAK DISCHARGE (cfs)	MAXIMUM FLOW VELOCITY (fps)	MAXIMUM FLOW DEPTH (ft)	DESIGN DEPTH (ft)	DESIGN VELOCITY (fps)	DESIGN PROTECTION	DESIGN PROTECTION
PERIMETER DITCH	A	0.025	22	50	0.9	2.0	2.0	15-INCH-THICK LAYER OF 6- TO 9-INCH GROUNDED RIPRAP	15-INCH-THICK LAYER OF 6- TO 9-INCH GROUNDED RIPRAP
PERIMETER DITCH	B	0.025	92	29	1.5	2.4	3.0	15-INCH-THICK LAYER OF 6- TO 9-INCH GROUNDED RIPRAP	15-INCH-THICK LAYER OF 6- TO 9-INCH GROUNDED RIPRAP
PERIMETER DITCH	C	0.025	174	50	1.9	3.4	3.5	15-INCH-THICK LAYER OF 6- TO 9-INCH GROUNDED RIPRAP	15-INCH-THICK LAYER OF 6- TO 9-INCH GROUNDED RIPRAP
PERIMETER DITCH	D	0.033	92	1	1.2	5	3.0	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING
DIVERSION DITCH	E	0.033	54	1	1.6	4	3.0	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING
HAUL ROAD GUTTER	F	0.035	6	8	0.7	6	1.0	9-INCH-THICK LAYER OF 3- TO 6-INCH RIPRAP	9-INCH-THICK LAYER OF 3- TO 6-INCH RIPRAP
HAUL ROAD GUTTER	G	0.035	30	8	1.1	8	1.25	9-INCH-THICK LAYER OF 3- TO 6-INCH RIPRAP	9-INCH-THICK LAYER OF 3- TO 6-INCH RIPRAP
BENCH GUTTER	H	0.033	8	1	1.2	3	1.25	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING
BENCH GUTTER	I	0.033	12	1	1.4	3	1.5	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING	6-INCH-THICK LAYER OF COMPACTED SOIL AND GRASS LINING

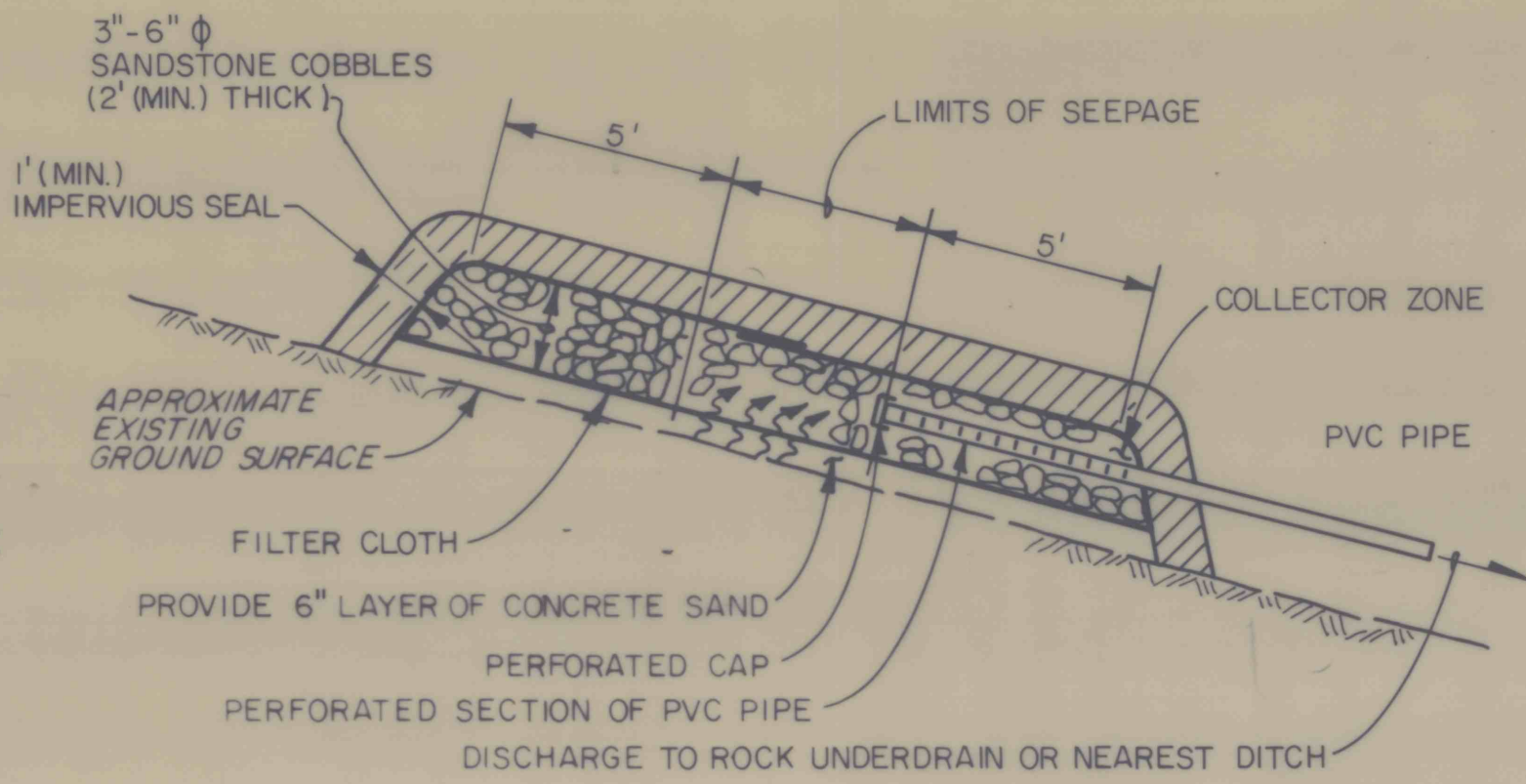
NOTE: ALL DITCHES ARE DESIGNED FOR 100-YEAR RECURRENT INTERVAL STORM.



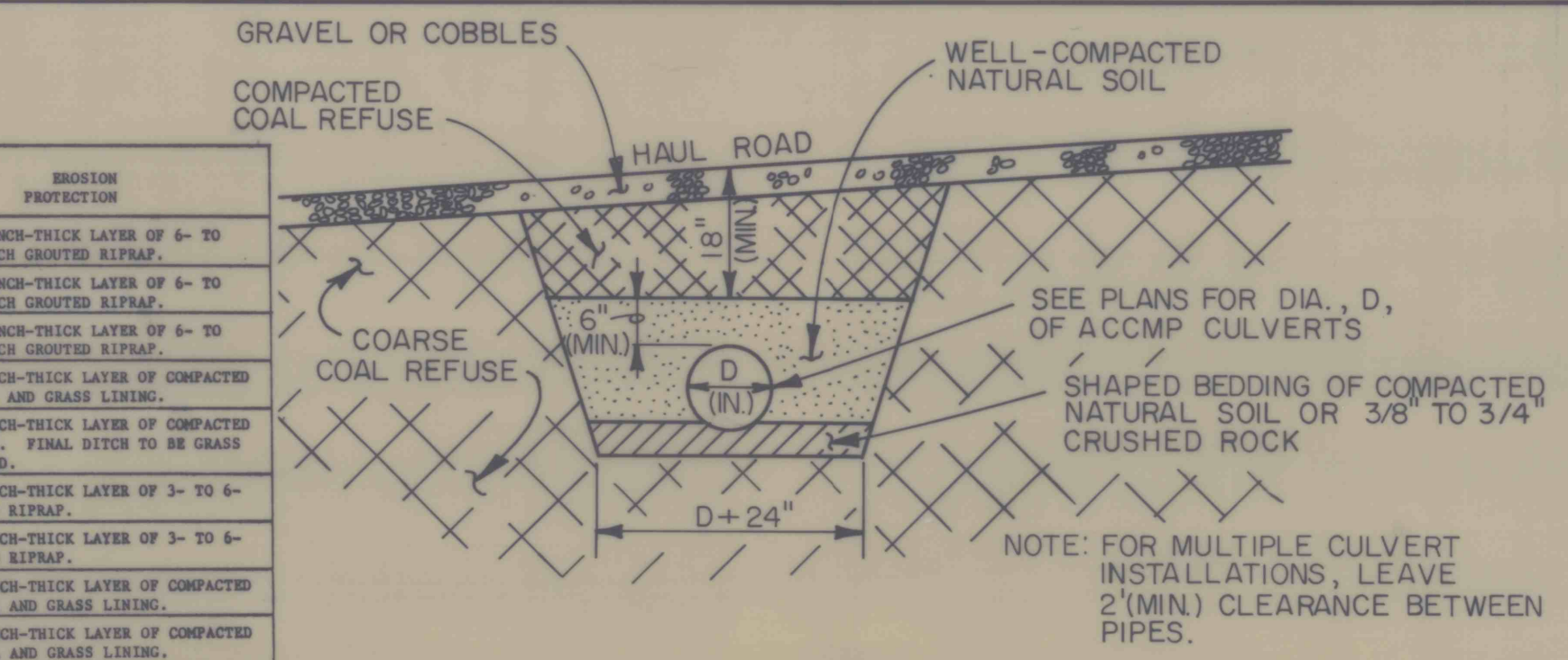
DETAIL 5  
TYPICAL PROFILE OF PERIMETER DITCH AND BENCH GUTTER INTERSECTION  
N.T.S.



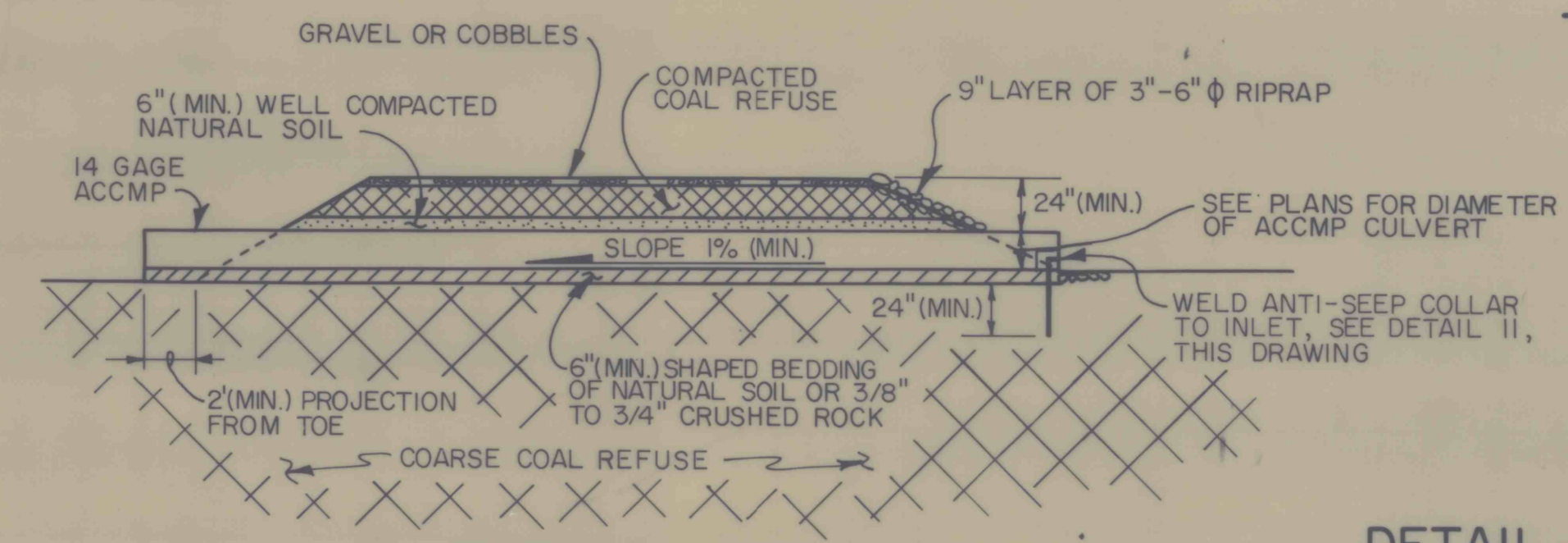
DETAIL 6  
SUBSURFACE DRAINS  
N.T.S.



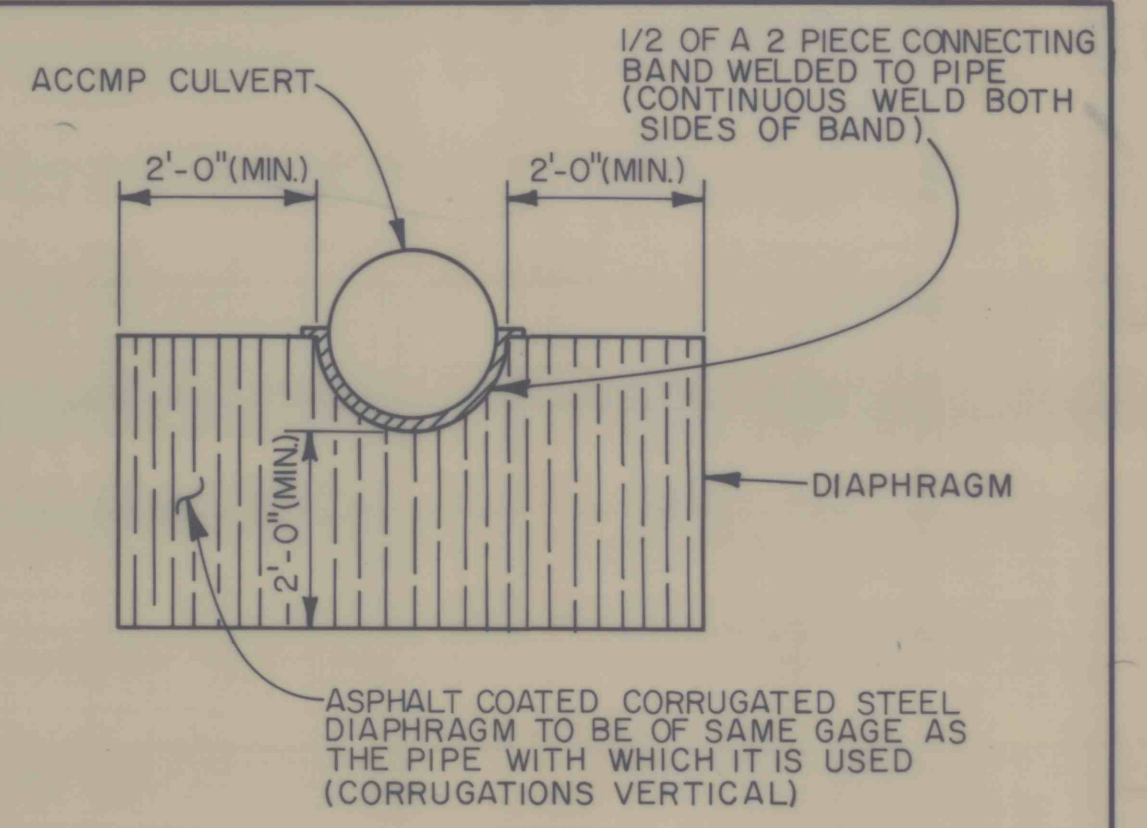
DETAIL 7  
SPRING COLLECTOR ZONE  
N.T.S.



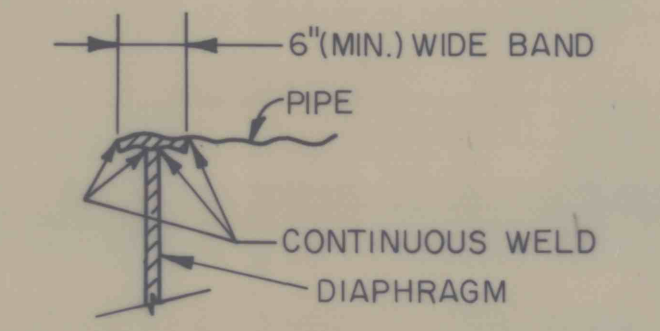
TYPICAL SECTION  
N.T.S.



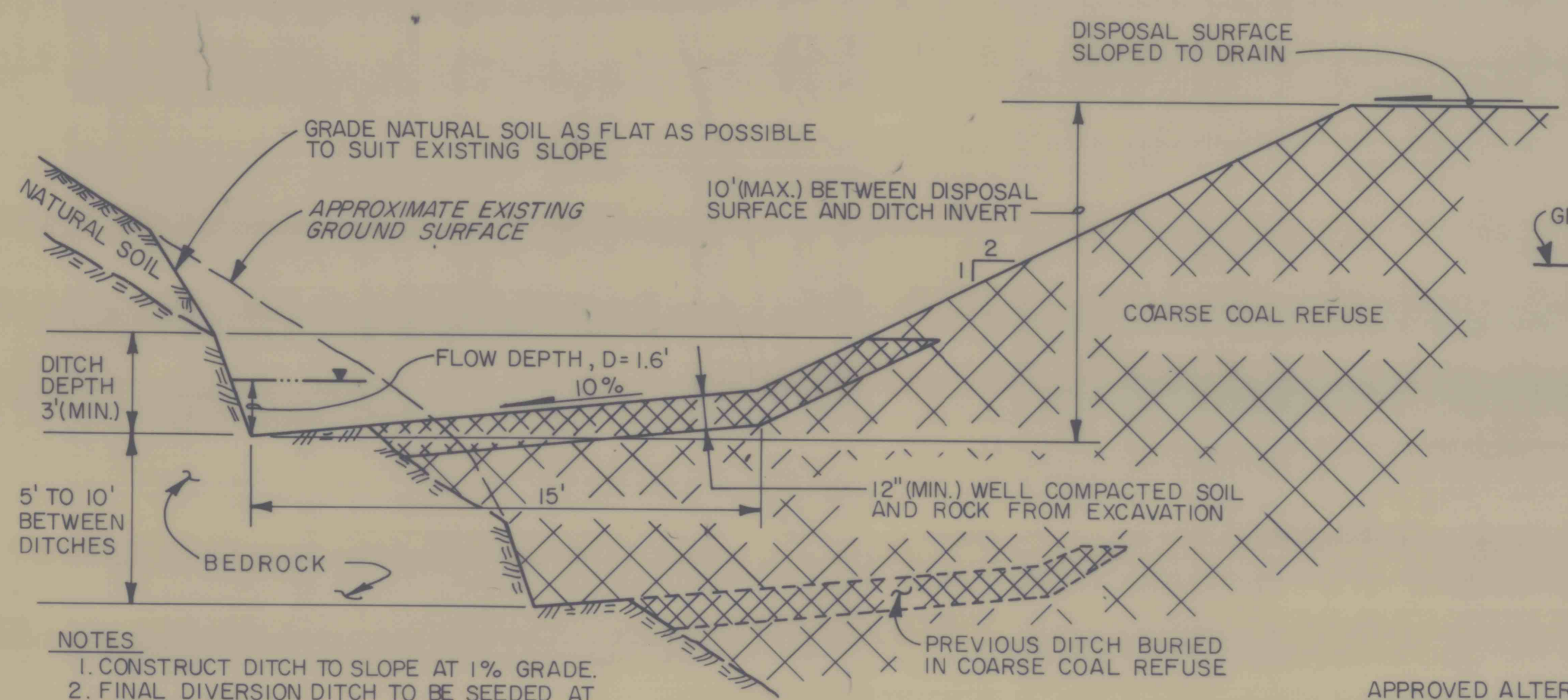
TYPICAL PROFILE  
DETAIL 8 - CULVERT INSTALLATION  
N.T.S.



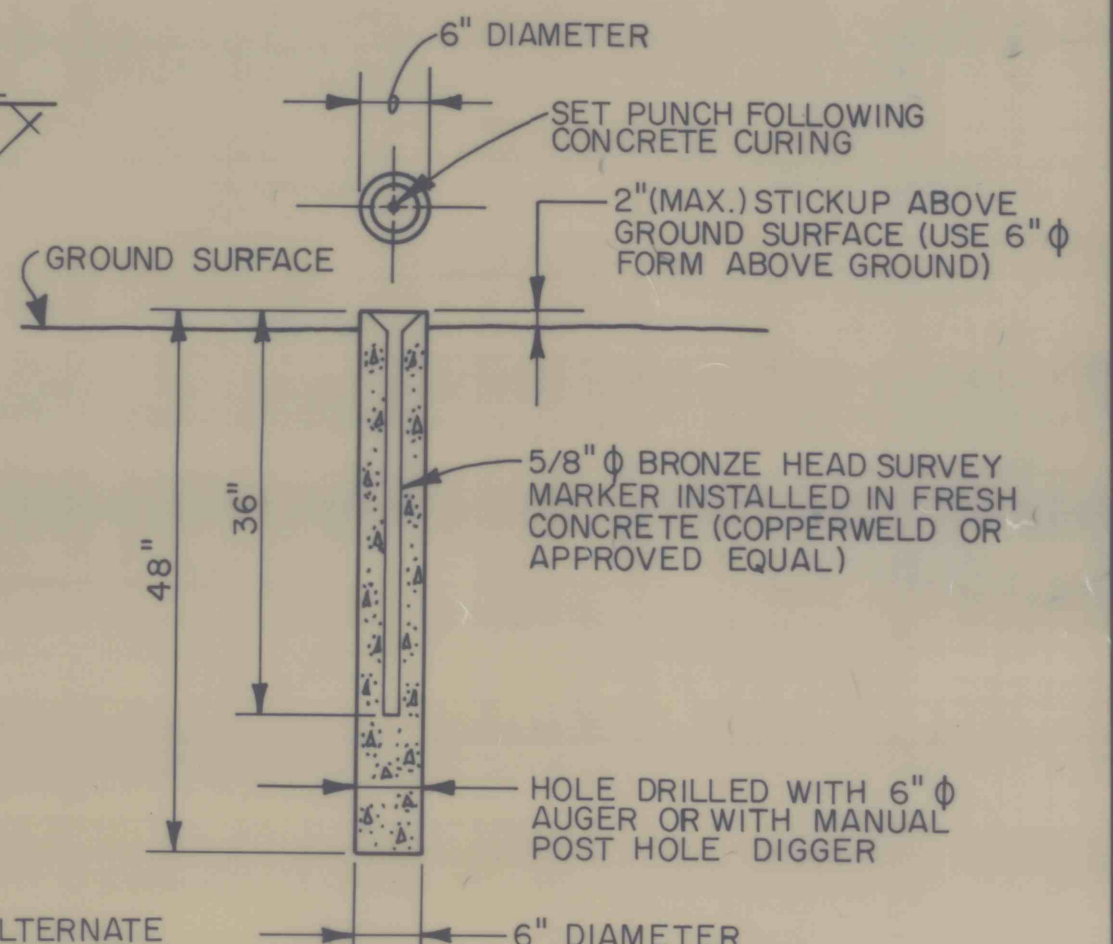
ELEVATION  
N.T.S.



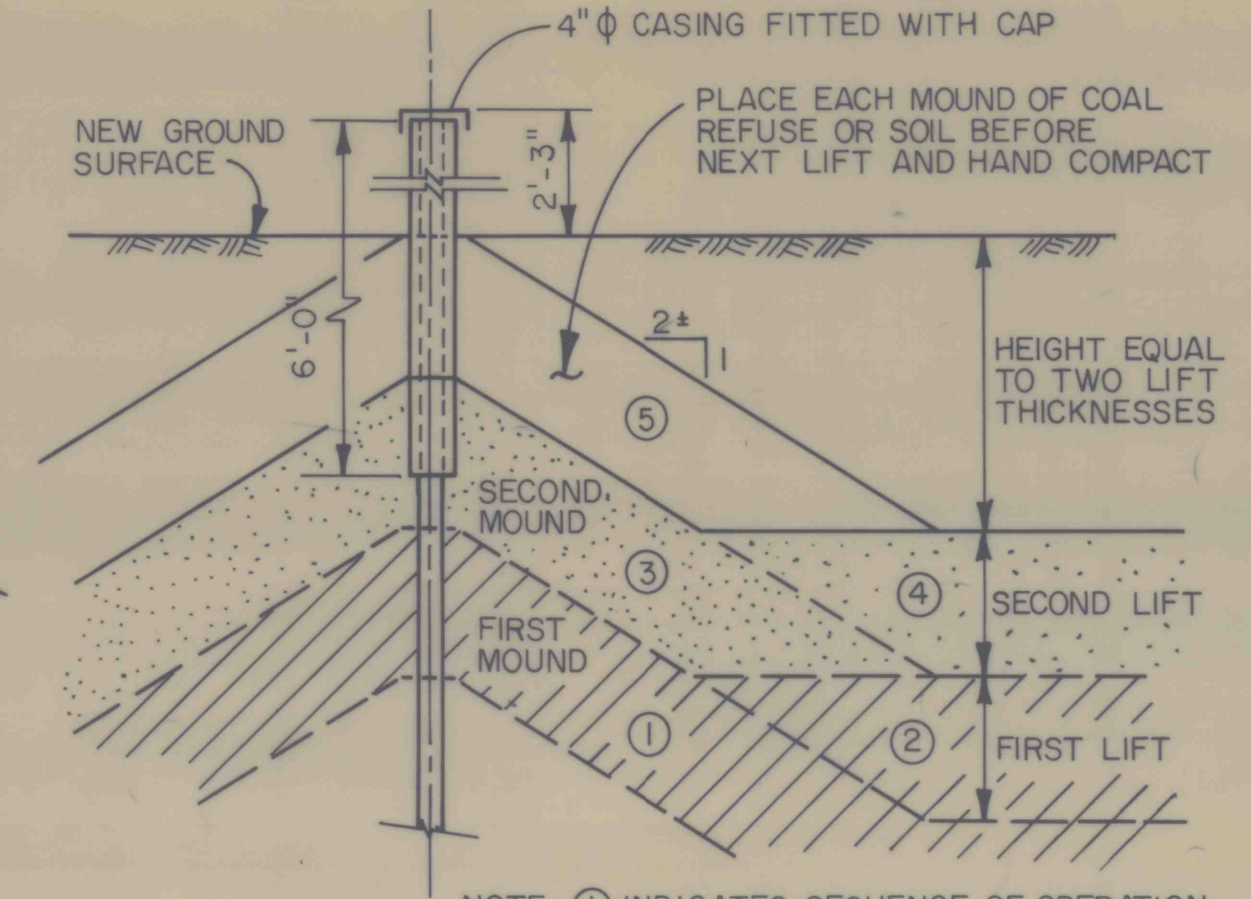
SECTION  
DETAIL II ANTI-SEEP COLLAR  
N.T.S.



DETAIL 9  
DIVERSION DITCH E  
N.T.S.



DETAIL 12  
CAST-IN-PLACE SURVEY MONUMENT  
N.T.S.



DETAIL 10  
PIEZOMETER EXTENSION PROCEDURE  
N.T.S.

DRAWING NO.	SHEET NO.	FIGURE NO.
78-359-E16		18

DETAILS - SHEET 1 OF 2  
BETHLEHEM MINE No. 101  
CENTURY, WEST VIRGINIA  
PREPARED FOR

BETHLEHEM MINES CORPORATION  
BRIDGEPORT, WEST VIRGINIA

D'APPOLONIA