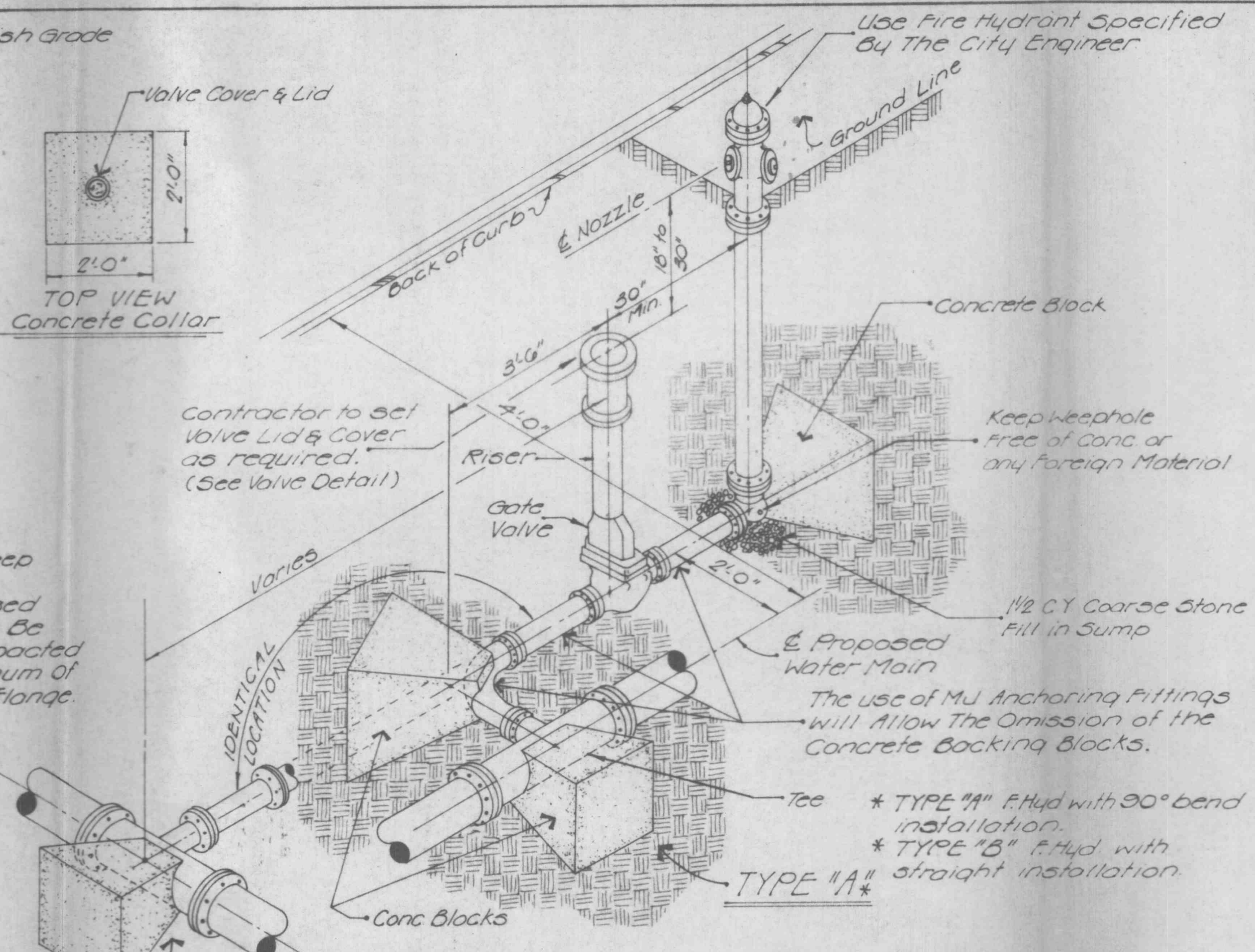
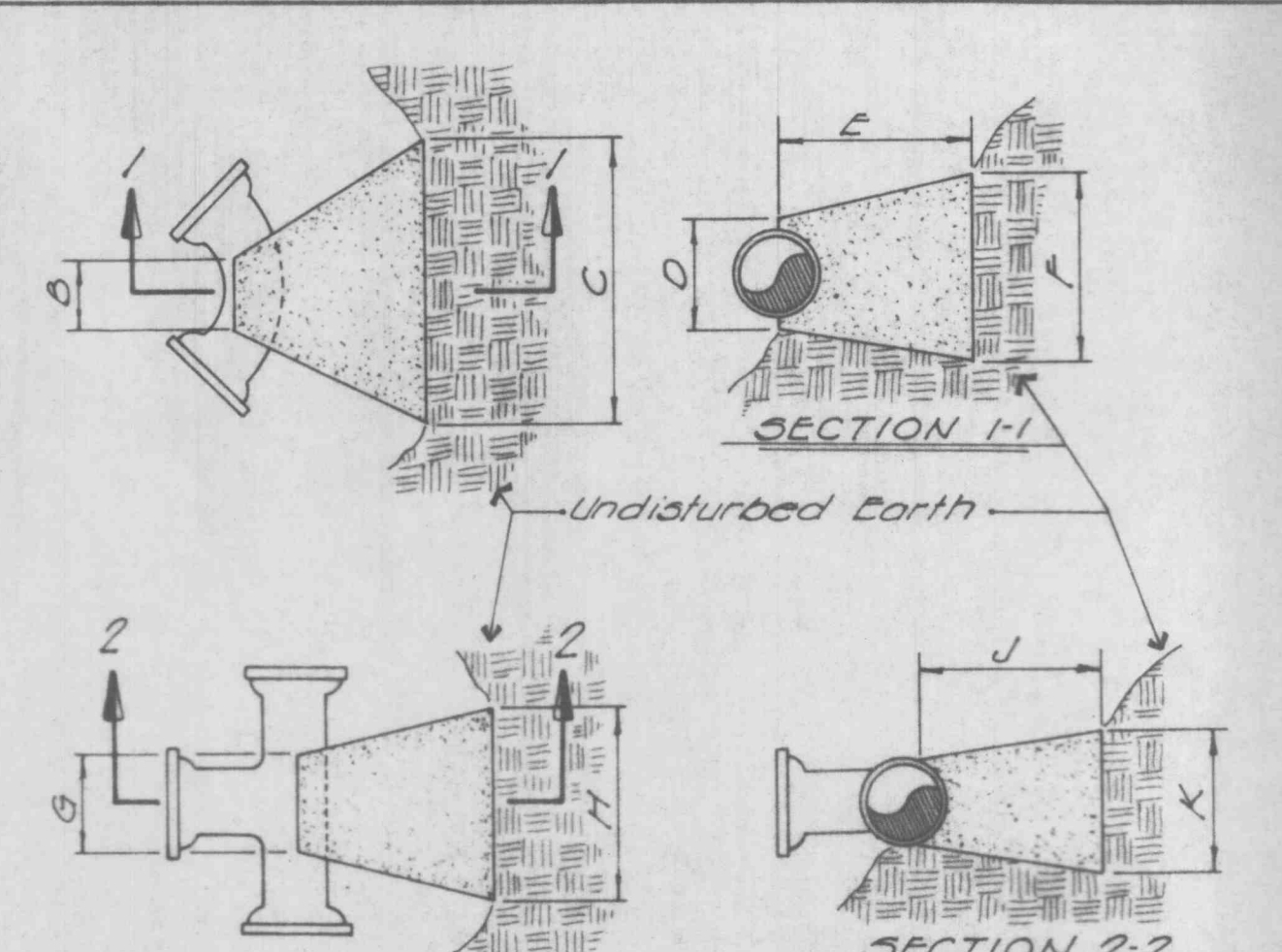


WATER VALVE DETAIL



FIRE HYDRANT DETAIL



BENDS	B	C	D	E	F
6"-11 1/4"	8"	15"	12"	24"	10"
6"-22 1/2"	8"	19"	12"	24"	13"
6"-45"	8"	30"	12"	24"	14"
6"-90"	8"	30"	12"	24"	27"
8"-11 1/4"	8"	20"	12"	24"	10"
8"-22 1/2"	8"	28"	12"	24"	17"
8"-45"	8"	30"	12"	24"	24"
8"-90"	8"	38"	12"	24"	36"
12"-11 1/4"	8"	30"	12"	24"	15"
12"-22 1/2"	8"	35"	12"	24"	25"
12"-45"	8"	40"	12"	24"	40"
12"-90"	8"	60"	12"	24"	52"

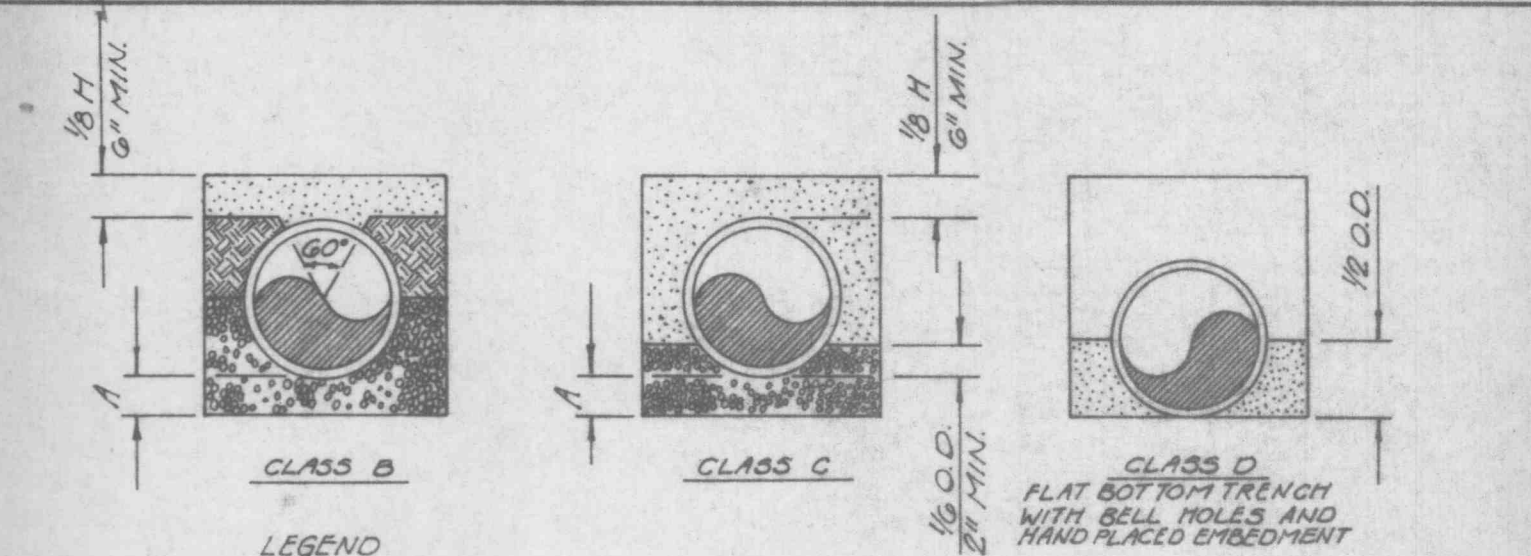
TEES	G	H	J	K
6"x6"x6"	12"	24"	24"	18"
8"x8"x8"	12"	24"	24"	18"
8"x8"x8"	12"	24"	24"	24"
12"x12"x8"	12"	24"	24"	18"
12"x12"x12"	12"	24"	24"	24"

CUBIC FEET OF CONCRETE REQUIRED	BEND	11 1/4"	22 1/2"	45"	90"
6"	1.7	2.4	3.5	5.5	
8"	2.1	3.1	5.0	8.5	
12"	3.7	5.3	3.7	17.5	

TEE x	6"	8"	12"	PLUG
6"	4.0	~	~	4.0
8"	4.0	5.0	~	5.0
12"	4.5	5.5	10.5	10.5

BACKING BLOCKS

GENERAL NOTES:
 1. 2" & 4" FITTINGS EQUIVALENT TO 6" FITTINGS.
 2. TAPPING SLEEVES TO HAVE BACKING BLOCKS SAME SIZE AS REQUIRED FOR TEES.

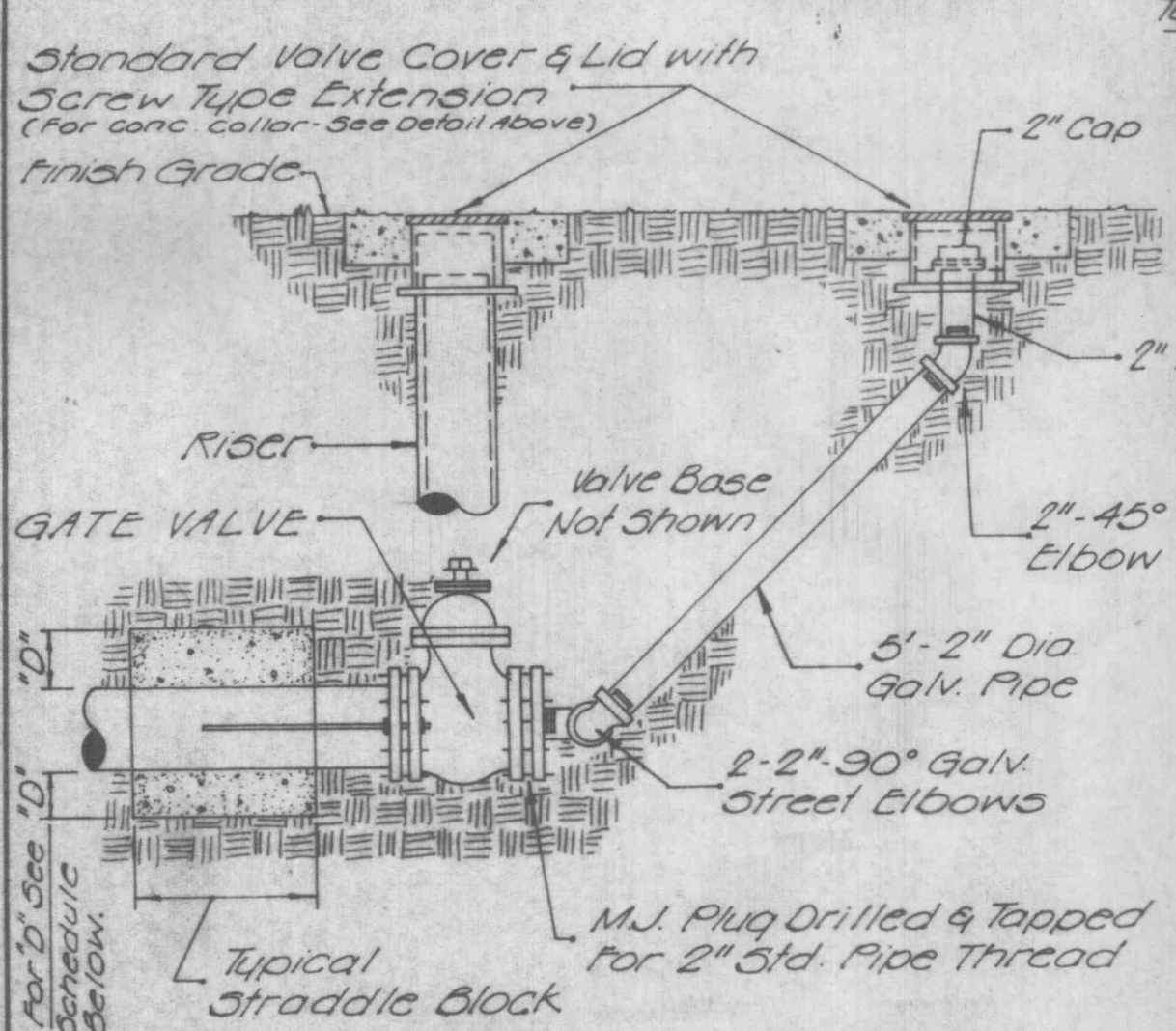


LEGEND
 I.O. - NOMINAL PIPE SIZE
 O.D. - OUTSIDE DIAMETER OF PIPE
 H - COVER ABOVE TOP OF PIPE
 A - EMBEDMENT BELOW PIPE (SEE TABLE)

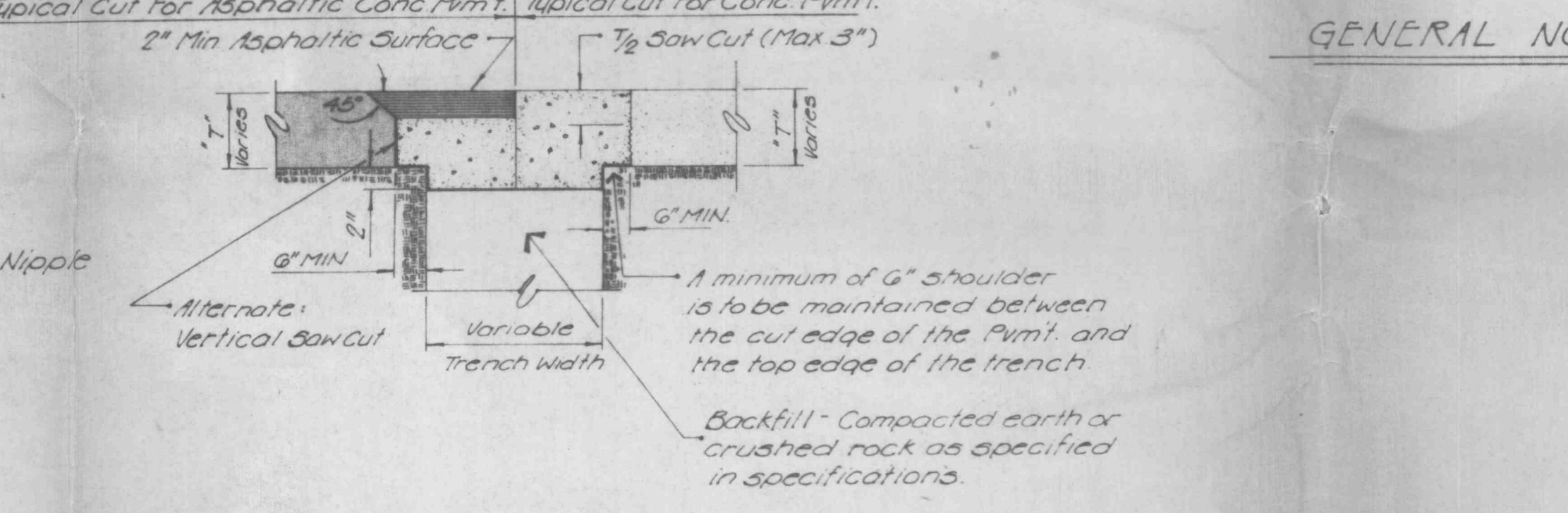
TABLE OF EMBEDMENT DEPTHS BELOW PIPE		
I.O.	A MIN. SOIL	A MIN. ROCK
8" & SMALLER	3"	6"

NOTES:
 Granular Bedding shall be crushed rock or pea gravel with not less than 95% passing 1/2" [95% passing 3/4" for 30" and larger pipe] and not less than 95% retained on a #4; to be placed in not more than 6" layers and compacted by slicing with a shovel or vibrating.
 Compacted Backfill shall be finely divided job excavated material free from debris, organic material and stones, placed in uniform layers not more than 6" thick, compacted to 95% maximum density as determined by A.S.T. D698, or graded aggregate. Granular backfill material may be substituted for all or part of compacted backfill.
 Tamped Backfill shall be finely divided job excavated material free from debris, organic material and stones, hand placed in uniform layers not more than 8" thick and tamped around conduit pipe. Granular backfill material may be substituted for all or part of tamped backfill.
 Trench Backfill shall be as required in the "Laying and Backfill" Section of the Detailed Specifications.
 Embedment: The type of embedment to be used shall be as specified in the plans and specifications.

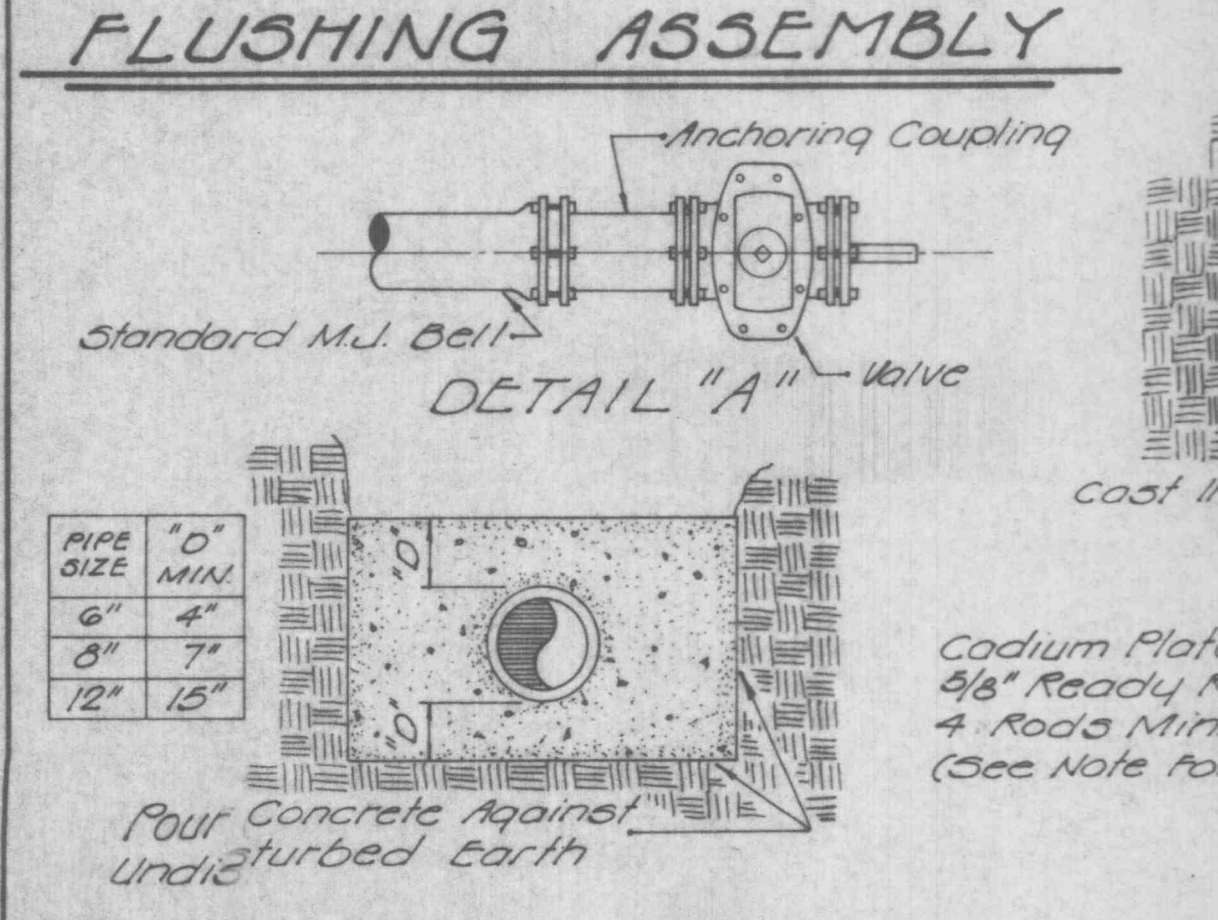
WATER MAIN EMBEDMENT



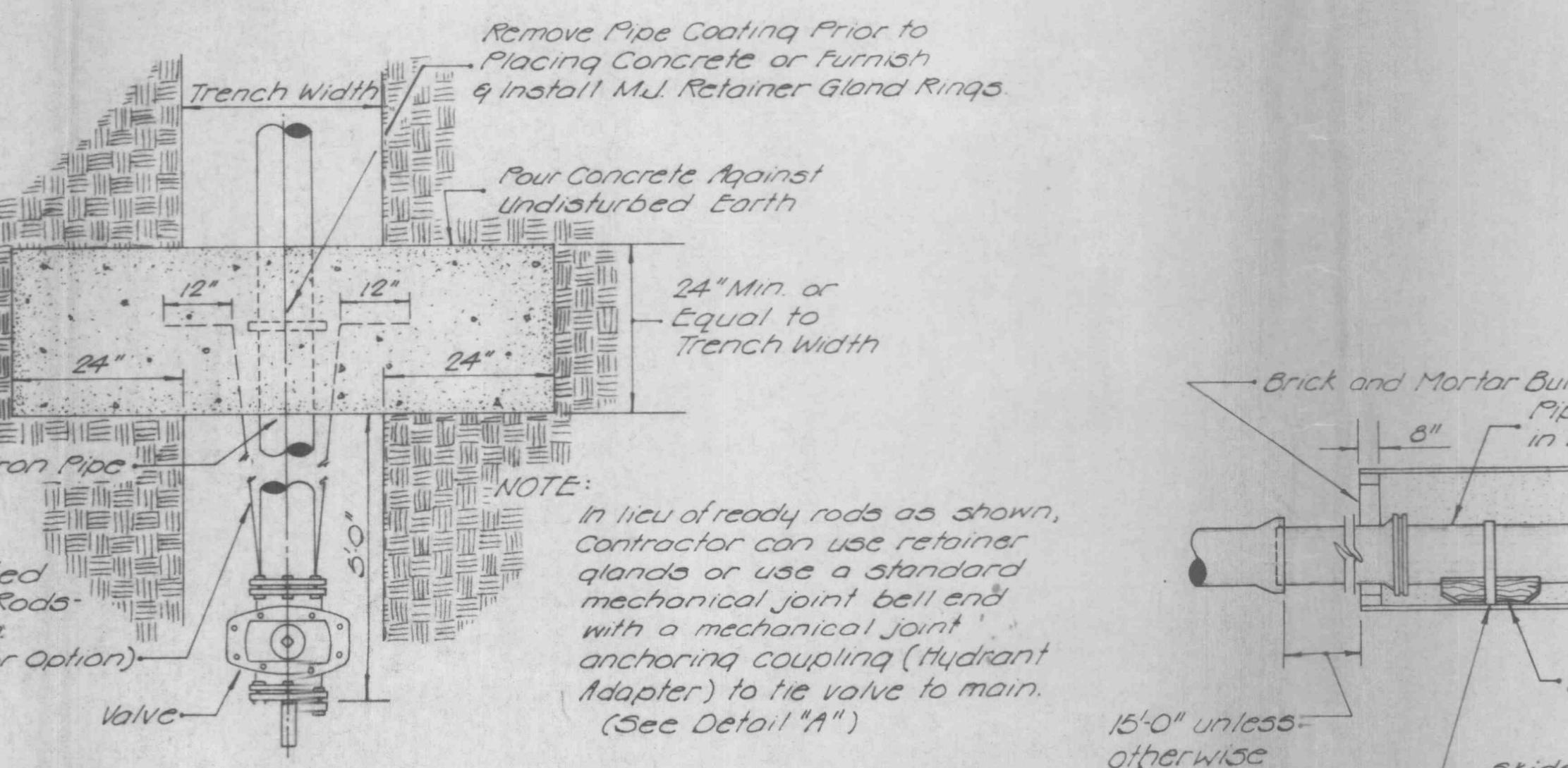
FLUSHING ASSEMBLY



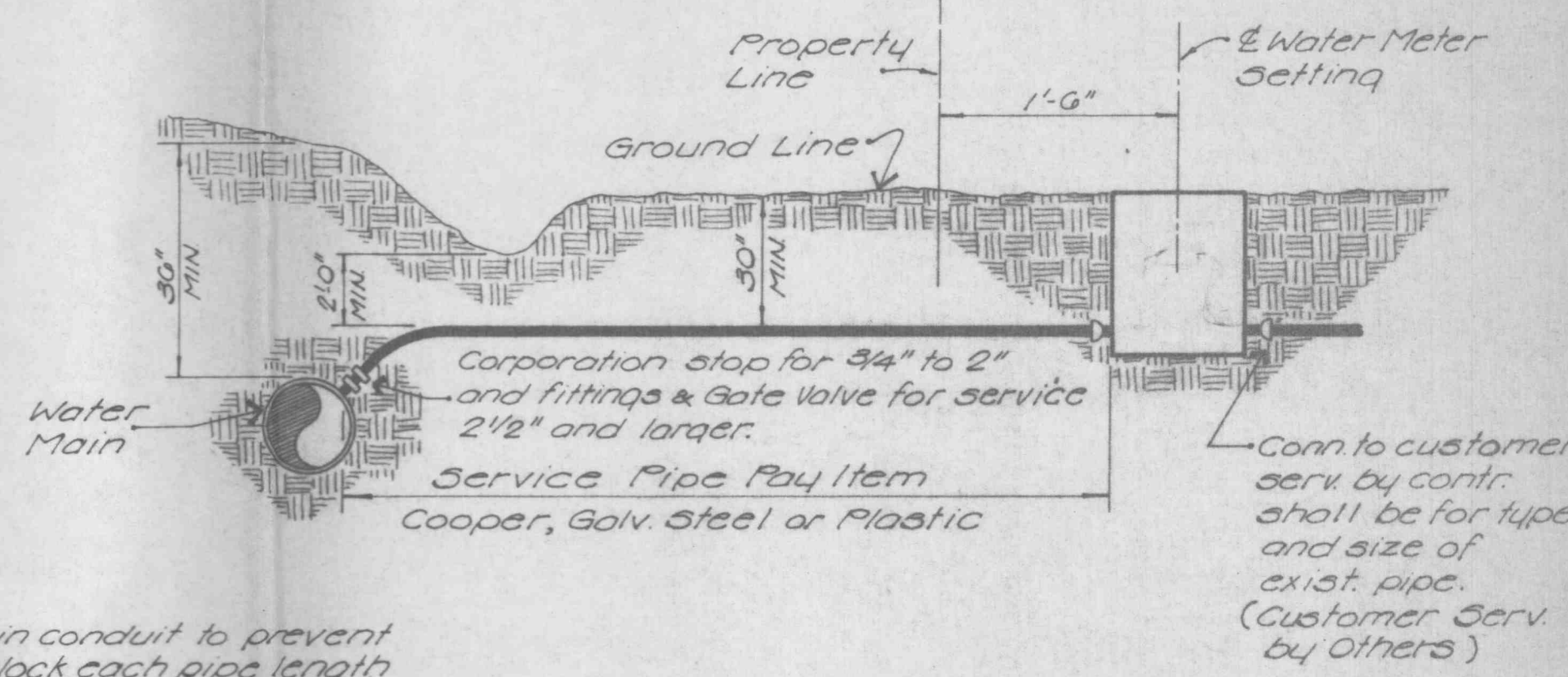
PAVEMENT REPAIR DETAIL



STRADDLE BLOCK DETAIL



TUNNEL LINER DETAIL



TYPICAL SERVICE ASSEMBLY

GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS / ARCHITECTS
 LANDSCAPE ARCHITECTS / PLANNERS

OFFICES:
 SUITE 205-A FAIRWAY OFFICE CENTER
 4210 JOHNSON DRIVE / SHAWNEE MISSION / KANSAS 66205
 1100 CITY CENTER SQUARE
 1100 MAIN / KANSAS CITY / MISSOURI 64105
 SUITE 134 LAKESIDE PLAZA II
 6700 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64120

PAUL L. LORTON
 REGISTERED PROFESSIONAL ENGINEER
 NUMBER 4619357

WATER MAIN DETAILS

JOB NO. 649
 DATE 3/19/92
 SCALE NOT TO SCALE

DESIGNED BY: DRAWN BY: T.R. YORD CHECKED BY: R.E.M.
G6 OF **6**