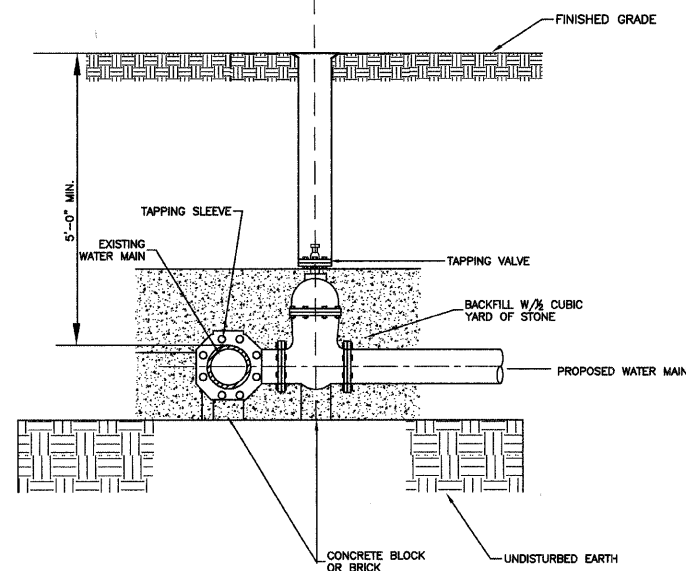
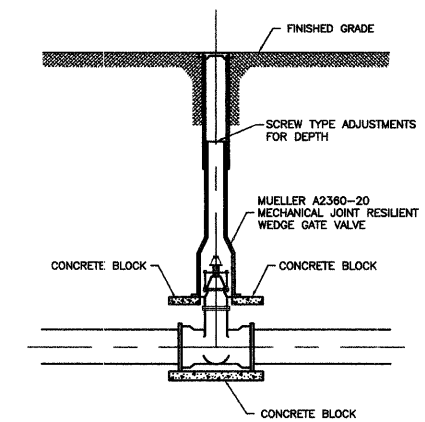


F. A. U. No.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4304	04-00045-00-FP	WILL	033	019
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACT #63108



TYPICAL PRESSURE CONNECTION



TYPICAL VALVE BOX INSTALLATION

JOINT RESTRAINT TABLE - Unless additional pipe restraint is shown on the Plans, the restrained length measured from the fitting joint to the end of the last restrained joint pipe for pipe fittings shall equal or exceed those tabulated below:

Pipe Size (Inches)	RESTRAINED LENGTH - FEET FITTINGS				
	Tee * Branch	90 Elbow	45 Elbow	22-1/2 Elbow	11-1/4 Elbow
4	9	10	5	2	1
6	17	14	6	3	2
8	24	18	8	4	2
10	30	22	10	5	3
12	36	26	11	6	3
14	42	29	12	6	3
16	48	33	14	7	4
18	53	37	16	8	4
20	58	40	17	8	4
24	70	48	20	10	5
30	84	58	24	12	6
36	99	68	28	14	7

Pipe Size (Inches)	90 Elbow	45 Elbow	22-1/2 Elbow	11-1/4 Elbow
36	84	46	24	12

THIS TABLE IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND IS BASED ON A FIELD TEST PRESSURE OF 120 PSI AND 5 FT. OF EARTH COVER.

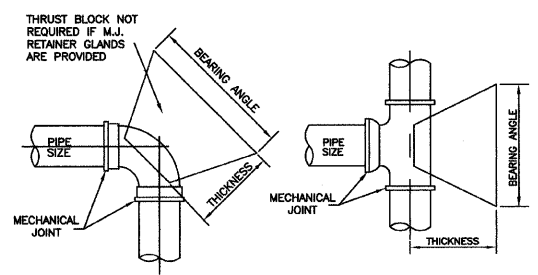
PRESTRESSED CONCRETE CYLINDER PIPE JOINT RESTRAINT TABLE

Test Pressure on sizes 20" and smaller based on 100 psi. Test Pressure on sizes 24" and larger based on 150 psi. Increase all lengths in Table by 75% for use on polyethylene wrapped pipe. \*One full length (18") of pipe on both sides of branch to be restrained.

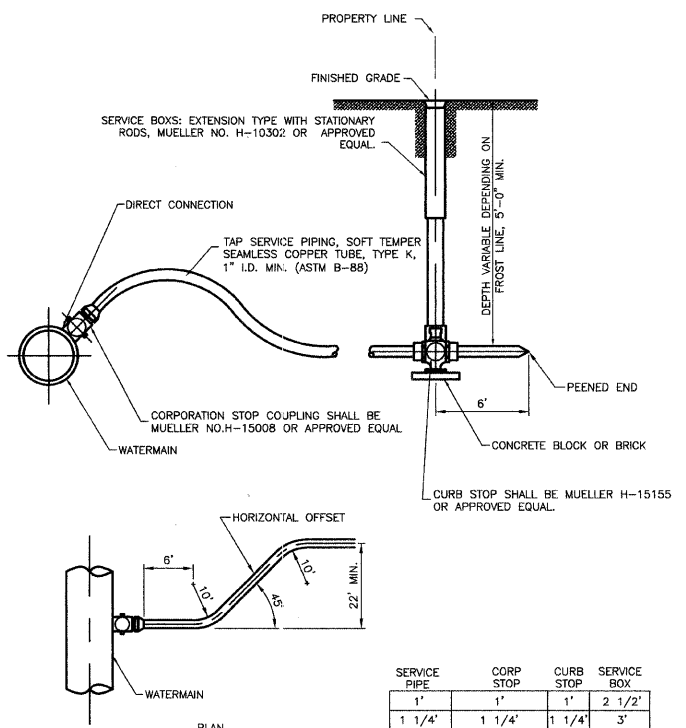
DUCTILE IRON JOINT RESTRAINT TABLE

MAIN PIPE SIZE	TEE	90° BEND	45° BEND	BLOCK THICKNESS
4				
6				
8				
10				
12				
14	18.0	23.5	13.75	18"
16	24.0	33.0	18.0	24"
18	31.0	44.25	24.0	24"
20	38.0	54.25	29.5	30"
24	55.0	75.0	42.25	30"

FIGURES BASED ON 100 PSI WATER PRESSURE AND 10,000 PSI SOIL BEARING. PROVIDE "CLOW F-1058" MECHANICAL JOINT RETAINER GLANDS ON WATER MAIN FITTINGS 3" DIA. TO 12" DIA. ALL WATER MAIN FITTINGS TO BE MECHANICAL JOINTS.

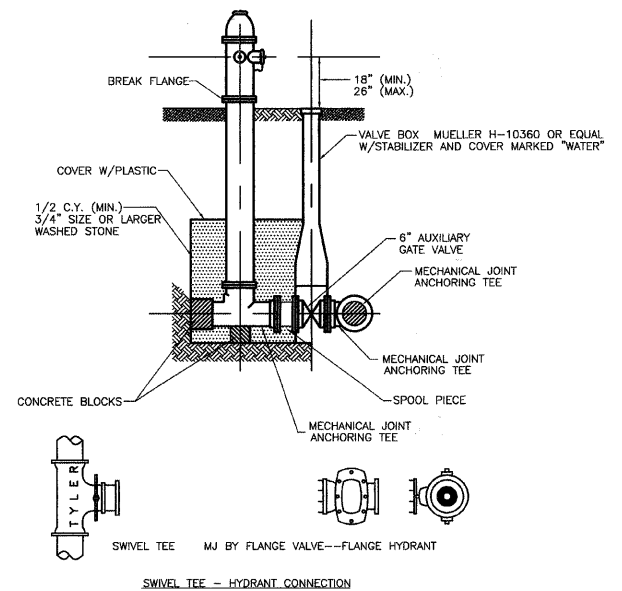


THRUST BLOCK PLAN



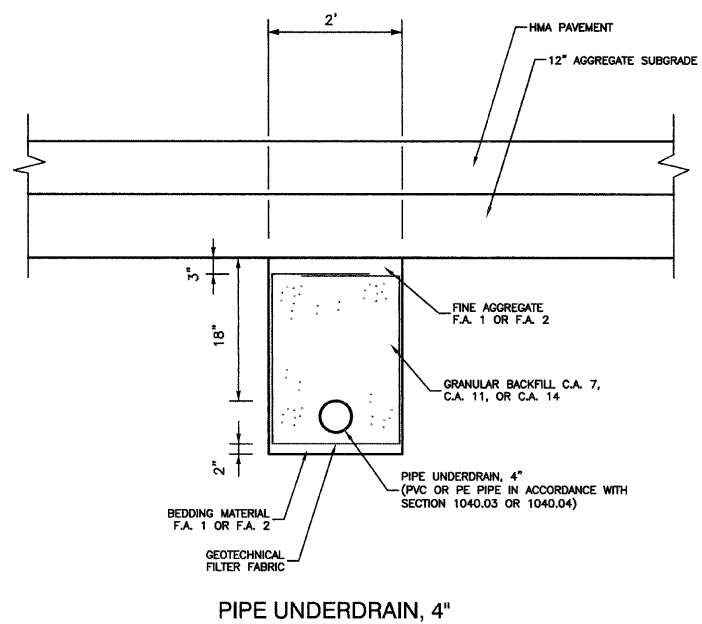
TYPICAL WATER SERVICE INSTALLATION

SERVICE PIPE	CORP STOP	CURB STOP	SERVICE BOX
1'	1'	1'	2 1/2'
1 1/4'	1 1/4'	1 1/4'	3'
1 1/2'	1 1/4' X 1 1/2'	1 1/2'	3'
2'	1 1/2' X 2'	2'	3'



NOTES:  
 1. ALL CASTINGS SHALL BE MADE IN THE U.S.A. WITH U.S.A. MATERIALS. FIRE HYDRANTS SHALL MEET AWWA C-502 AND SHALL BE MUELLER "CENTURION" A-423, OR APPROVED EQUAL WITH A 5-1/4" VALVE OPENING, TWO 2-1/2" HOUSE NOZZLES AND ONE PUMPER NOZZLE. THREADS SHALL CONFORM TO NATIONAL STANDARD SPECIFICATIONS.  
 2. HYDRANTS SHALL BE INSTALLED NO CLOSER THAN THREE FEET NOR FURTHER THAN 8 FEET FROM THE BACK OF CURB. NO HYDRANT SHALL BE INSTALLED WITHIN 48" OF ANY OBSTRUCTION NOR SHALL ANY OBSTRUCTION BE PLACED WITHIN 48" OF A HYDRANT. THE HYDRANTS SHALL BE PAINTED RED BY THE MANUFACTURER.  
 3. HYDRANTS SHALL BE EQUIPPED WITH AN INTEGRAL 4" "STORZ" QUICK DISCONNECT NOZZEL.

FIRE HYDRANT INSTALLATION



PIPE UNDERDRAIN, 4"

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

RATHJE ROAD RECONSTRUCTION CONSTRUCTION DETAILS

SCALE: VERT. NA  
 HORIZ. NA  
 DATE 09-18-09  
 DRAWN BY AG  
 CHECKED BY HLG