

**CITY OF WINTER PARK**

**WATER & WASTEWATER UTILITY DEPARTMENT**

REFERENCE THE "WATER & WASTEWATER UTILITY STANDARDS, SPECIFICATIONS & DETAILS MANUAL"

DATE: January 2, 2008

**RESTRAINED PIPE TABLE - FORCE MAIN**

SCALE: N.T.S

MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)										
TYPE	PIPE SIZE									
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
45° BEND	6	8	10	12	14	18	21	25	30	34
22-1/2° BEND	3	4	5	6	7	9	10	12	14	16
11-1/4° BEND	1	2	3	4	5	6	7	8	9	10
PLUG OR BRANCH OF TEE	30	40	52	63	72	93	111	130	155	178
VALVE	15	20	25	32	36	47	56	65	78	89

\* TO BE COMPLETED BY THE ENGINEER.

**NOTES:**

1. FITTINGS SHALL BE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE TOGETHER, USE FITTINGS WHICH YIELD GREATEST LENGTH OF RESTRAINED PIPE.
4. IN-LINE VALVES AND THROUGH RUN OF TEES OUTSIDE LIMITS OF THE RESTRAINED JOINTS FROM OTHER FITTINGS SHOULD BE RESTRAINED UNLESS OTHERWISE INDICATED.
5. LENGTHS SHOWN IN THE TABLE HAVE BEEN CALCULATED IN ACCORDANCE WITH THE PROCEDURE OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" AS PUBLISHED BY DIPRA, WITH THE FOLLOWING ASSUMPTIONS:

WORK PRESSURE: \_\_\_\_\_ PSI  
 SOIL DESIGNATION: \_\_\_\_\_  
 LAYING CONDITIONS: \_\_\_\_\_

6. FOR PIPE ENCASED IN POLYETHYLENE, INCREASE THE GIVEN VALUE BY A FACTOR OF 1.5.
7. CITY DOES NOT ALLOW 90 DEGREE BENDS, USE DOUBLE 45 DEGREE BENDS.