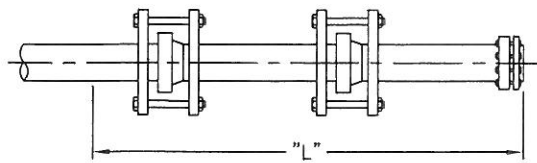


## DEAD ENDS & EACH SIDE OF VALVES

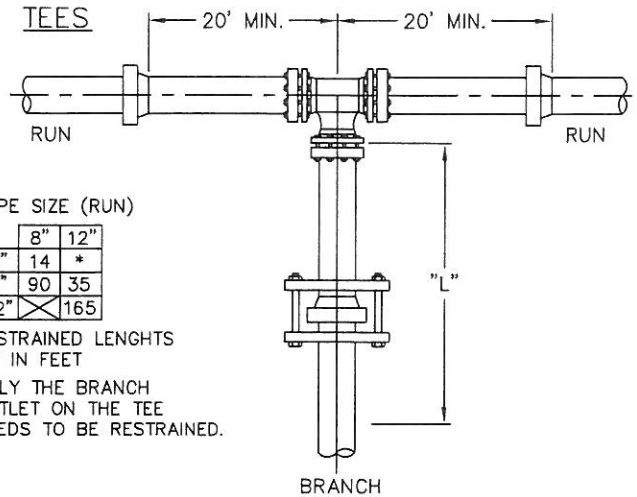


PIPE SIZE

6"	8"	12"
146	190	267

RESTRAINED LENGTHS "L" IN FEET

## TEES



PIPE SIZE (BRANCH)

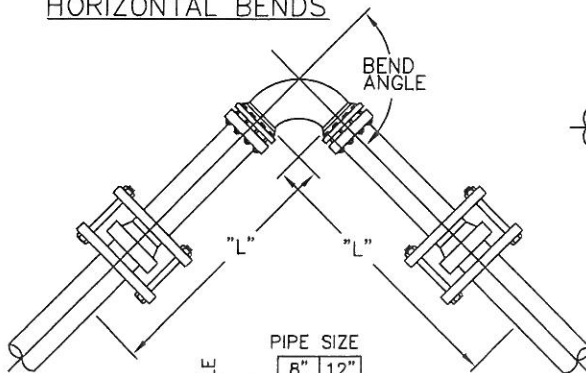
PIPE SIZE (RUN)

	8"	12"
6"	14	*
8"	90	35
12"	X	165

RESTRAINED LENGTHS  
"L" IN FEET

\* ONLY THE BRANCH  
OUTLET ON THE TEE  
NEEDS TO BE RESTRAINED.

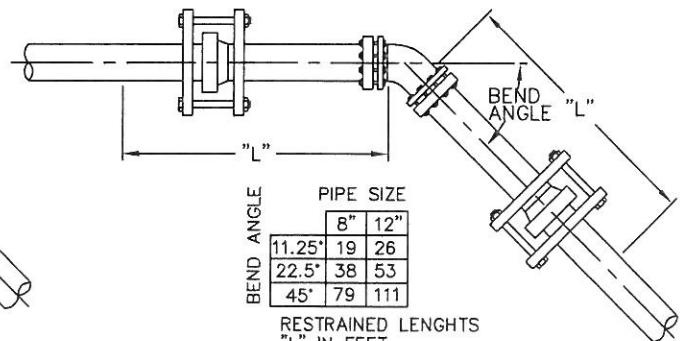
## HORIZONTAL BENDS



	6"	12"
11.25°	6	8
22.5°	12	17
45°	26	35
90°	62	85

RESTRAINED LENGTHS  
"L" IN FEET.

## VERTICAL BENDS



	6"	12"
11.25°	19	26
22.5°	38	53
45°	79	111

RESTRAINED LENGTHS  
"L" IN FEET.

## NOTES

1. ALL JOINTS WITHIN LENGTH 'L' MUST BE RESTRAINED.
2. FOR TEE RESTRAINT INSTALL A FULL LENGTH OF PIPE ON EACH SIDE OF BRANCH.
3. ASSUMES FORTY-TWO (42) INCHES MINIMUM DEPTH OF COVER.
4. ASSUMES A SAFETY FACTOR OF 1.5.
5. SOIL TYPE ML PER UNITED SOIL CLASSIFICATION ASTM D 2487.
6. PIPE BEDDING PER CITY STANDARDS.
7. TEST PRESSURE 225 PSI.
8. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, THE RESTRAINED LENGTH SHALL BE DETERMINED BY THE DESIGN ENGINEER AND APPROVED BY THE CITY.



APPROVED BY:				
<i>Louis Abi-Younes</i> 11-22-10				
LOUIS ABI-YOUNES, CITY ENGINEER 44485				
RECOMMENDED: <i>Scott Burton</i> 10/25/10				
SCOTT BURTON, UTILITIES ENG/OPERATIONS DIRECTOR 57875				
REV	DESCRIPTION	BY	APP'D	DATE

CITY OF ONTARIO

STANDARD RESTRAINT  
TEES, DEAD ENDS, &  
BENDS FOR PVC

STANDARD  
DRAWING  
NUMBER

**4010**