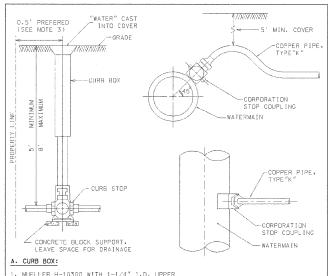


Fitting type/nominal size	4 "	6"	8"	10"	12"	16"	
90 Degree Bend	17	25	32	38	45	59	
45 Degree Bend	7	10	13	16	19	24	
22.5 Degree Bend	3	5	6	8	9	12	
11.25 Degree Bend	2	2	3	4	4	6	
Dead End	39	55	73	87	103	134	
Top Side Vertical Offset * (45 Degree)	16	23	30	36	43	55	
Bottom Side Vertical Offset * (45 Degree)	4	6	8	10	11	15	
Tee Run X Branch ** 6" by	1	17					
Tee Run X Branch *** 8" by	1	5	34				
Tee Run X Branch *** 10" by	1	1	24	49			
Tee Run X Branch *** 12" by	1	1	15	41	65		
Tee Run X Branch *** 16" by	1	1	1	26	52	95	
Reducer *** 6" by	28						
Reducer **** 8" by	52	30					
Reducer *** 10" by	71	54	29				
Reducer *** 12" by	90	75	55	51			
Reducer *** 16" by	123	113	97	94	54		

* Vertical offset with minimum 10' of solid pipe between upper and lower bend.
** Tee with MINIMUM 10' solid pipe on both sides of run. Number indicates length of branch to be restrained.

**** Length back from Large Eng of Reducer

WATER MAIN RESTRAINT



. MUELLER H-10300 WITH 1-1/4" I.D. UPPER SECTION AND 2" MINEAPOLIS TAPPED BASE. . A.Y. MCDONALD 5615 1-1/4" NOT

MUELLER B-25155 (1".11/2". 2") FORD B-44-444-0 1" B-44-666-0 11/2" B-64-777-0 2" Q SERIES BRASS

C. CORPORATION STOP: MUELLER 3-25008.

FORD F81000 -4-0 1"
F8 1000-6-0 1-1/2"
F8 1000-7-0 2"

A.Y. MACONALD 4701-BD 1". 1-1/2", 2"
0 SERIES BRASS. WITH 90 SWIVEL ELBOW

NUIES:

URB STOP:

LER B-25155 (1".1"2", 2")
B-44-4449-0 1"
B-44-666-0 1".1"2"
MODINALD 6104-0 1".1"2".2"
MODINALD 6104-0 1".2"
MODINALD 6

COPPER WATER SERVICE CONNECTION DETAILS

___EXISTING OR PROPOSED GRADE RESTRAINT W/
"COR-TEN"
BOLTS (TYP.) GRAVITY SEMENTO BE WATER
MAIN QUALITY PRESSURE PIPE
FOR A MINIMUM DISTANCE OF 10'
ON FITHER SIDE OF THE OUTSIDE
WALL OF THE WATER MAIN.
SEE NOTES 3.4 AND 5 BELOW. PROPOSED DIP WATERMAIN IDDT CA-6 COMPACTED TO 95% MODIFIED PROCTOR DENSITY (ASTM D-1557) NOTES:

HORIZONTAL AND VERTICAL SEPARATION BETWEEN WATERMAINS AND SEWERS SHALL COMPLY WITH APPLICABLE SECTIONS OF THE CITY OF ST. CHARLES ENGINEERING OUIDE OR IEPA REQUIREMENTS, WHICHEVER IS MORE STRINGEN.

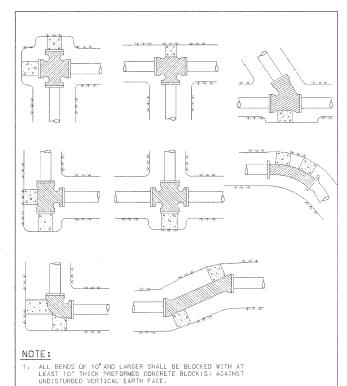
CONTRACTOR MAY BEND WATER MAIN PIFE UNIFORMLY UNDER SEWERS WITHOUT USING FITTINGS, PROVIDED THAT JOINT DEFLECTION DOES NOT EXCEED 5 DEGREES PER JOINT FOR PIPE 14" IN DIAMETER AND 3 DEGREES PER JOINT FOR PIPE 14" AND OVER IN DIAMETER. IF FITTINGS ARE USED, CONTINUOUS STRAPPING UNITS AND BOLTS BELOW NORMAL WATERMAIN DEPTH ARE REQUIRED, OR RETAINER GLANDS MAY BE USED IN LIEU OF STAPPING. RETAINER GLANDS MAY BE USED IN LIEU OF STAPPING. RETAINER GLANDS MAY BE USED IN LIEU OF STAPPING. RETAINER

ALL SANITARY SEWER (INCLUDING SERVICE) CROSSINGS WHERE THE WATER MAINS OR WATER SERVICES ARE LESS THAN 18" VERTICALLY ABOVE THE SEWER SHALL BE POLYVINYL CHLORIDE PRESSURE PIPE (SDR 26-160 PSI) AND SHALL CONFORM WITH THE LATEST REVISION OF ASTM D-2241. JOINTS SHALL CONFORM TO ASTM C-3139 AND ELASTOMERIC GASKETS SHALL CONFORM TO ASTM F-477. THE SAME PIPE AND JOINT MATERIALS SHALL BE USED WHENEVER WATER MAIN CROSSES BELOW THE SEWER.

. ALL STORM SEWER (INCLUDING SERVICE) CROSSINGS WHERE THE WATER MAINS ARE LESS THAN 18 VERTICALLY ABOVE THE SEWER SHALL BE RETHEOREED CONCRETE FIPE. ASTM C-345. C.LSS D-25. WITH BELL AND STIEDT JOINTS AND RUBBER CASKETS. OR PVC SDR 26 AS SPECIFIED IN NOTE 3 ABOVE. THE SAME PIPE AND JOINT MATERIAL SHALL BE USED WHENEVER WATER MAIN CROSSES

. FOR NEW SEWER INSTALLATIONS CROSSING OVER WATER MAINS.
THE ENTIRE RUN OF NEW SEWER SHALL BE WATER MAIN QUALITY
PIPE. EXTENDING FROM STRUCTURE TO STRUCTURE ON EACH
SIDE OF THE CROSSING.

WATER MAIN CROSSING DETAIL



NO.	REVISIONS	BY	DATE	PREPARED UNDER THE	SUPERVISION OF:		
1.	SHEET ADDED TO PLAN SET	BH.	10-6-10	JAMES J. BERNAHL			
2.	UPDATED THRUST BLOCK DETAIL	BH.	4-25-11				
				062-044/33	11/30/2011		
				P.E. NO.	DATE		
		l	1				



CITY OF ST. CHARLES ENGINEERING DEPARTMENT

PHEASANT RUN WATER MAIN REPLACEMENT KAUTZ ROAD TO PHEASANT RUN ENTRANCE

2. ALL CONCRETE TO BE MIN. 3.000 PSI.

3. IN ADDITION TO THE ABOVE THRUST BLOCKING:
ALL MECHANICAL JDINTS, BENDS DYER 10° AND
FIRE HYDRANTS SHALL HAVE A "MEGALUG" RESTRAINT,
OR AS APPROVED BY THE ENGINEERING DIVISION.
BOLTS SHALL BE "COR-TEN".

DATE: 3-2-1

JUNE 4, 2010 SANT RUN WM-SHEET 6. SHEET

198 of 6

THRUST BLOCK

INSTALLATION

DETAILS

2 EAST MAIN STREET, ST. CHARLES, ILLINOIS 60174 (630) 377-4486