

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1503	08-00260-01-PV	KANE	176	113
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

Minimum Restraint Length (ft) on both sides of the Fitting

Fitting Type/Nominal Size	6"	8"	12"	16"
1 1/4" Bend	2	3	4	6
2 1/2" Bend	5	6	9	11
45° Bend	10	13	18	23
90° Bend	23	30	43	56
Dead End	31	40	57	74
Top Side of a Vertical Offset ¹	19	25	35	46
Tee Run x Branch ² 6" BY	24			
Tee Run x Branch ² 8" BY	22	34		
Tee Run x Branch ² 12" BY	18	31	51	
Tee Run x Branch ² 16" BY	14	28	48	67
Reducer ³ 8" BY	17			
Reducer ³ 12" BY	42	30		
Reducer ³ 16" BY	62	54	31	

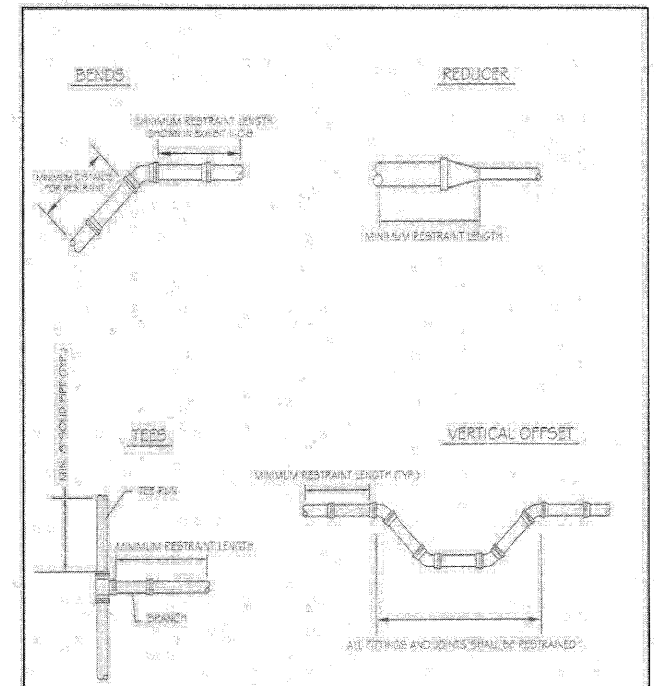
¹ All joints within the lowered section of the watermain shall be restrained or shall be solid pipe. The above distances reflect the required restraint distance on the normally elevated watermain either side of the 45° fitting of the vertical offset (or lowering).

² Minimum of 8 ft of solid pipe is required on both sides of the fitting on the run side. Distance indicates the length of restraint on the branch side or the side perpendicular to the tee run watermain.

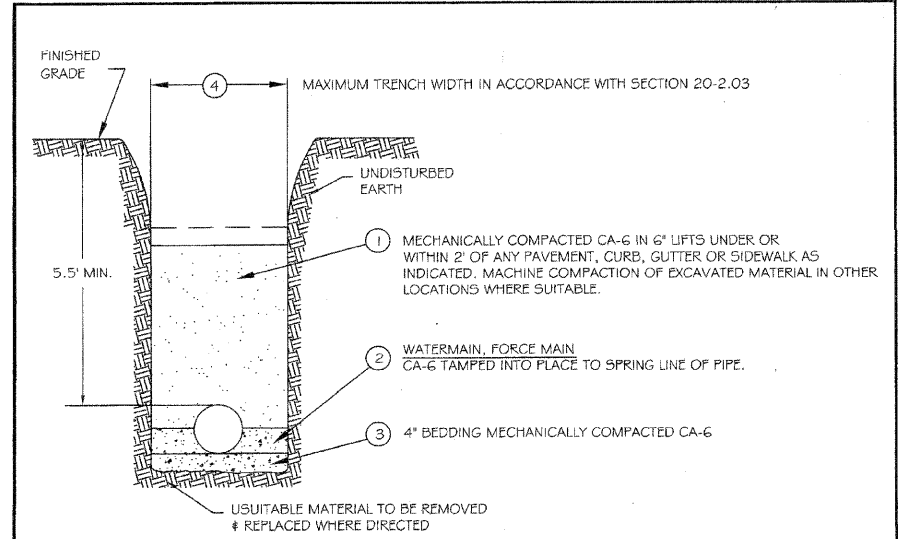
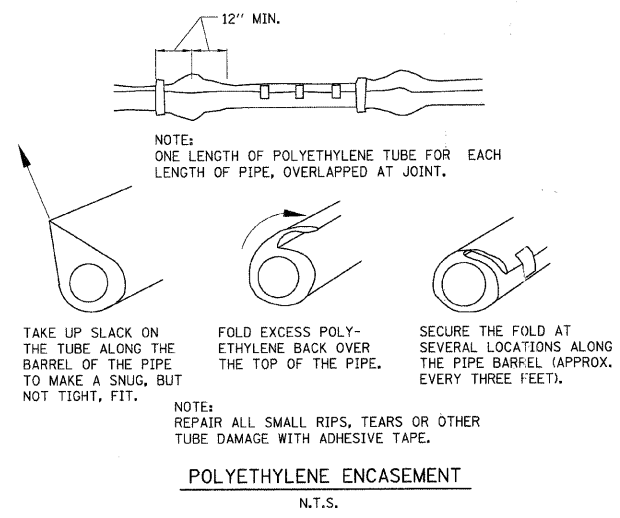
³ Indicates the distance from the larger end of the reducer.

Notes: 1) All nuts and bolts shall be stainless steel.
2) The entire restraint system from the fitting to the minimum restraint distance must be inspected by The City of Aurora or its representative prior to backfilling.

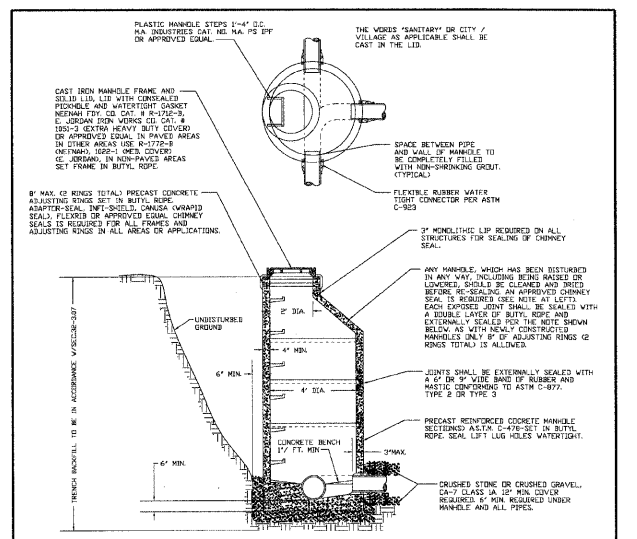
	Revisions		Watermain Restraint Length Table	
	Date:	By:	Scale:	Checked:
			None	PJH
			Date:	Drawn:
			2/04	DF
			EXHIBIT III-C-9	



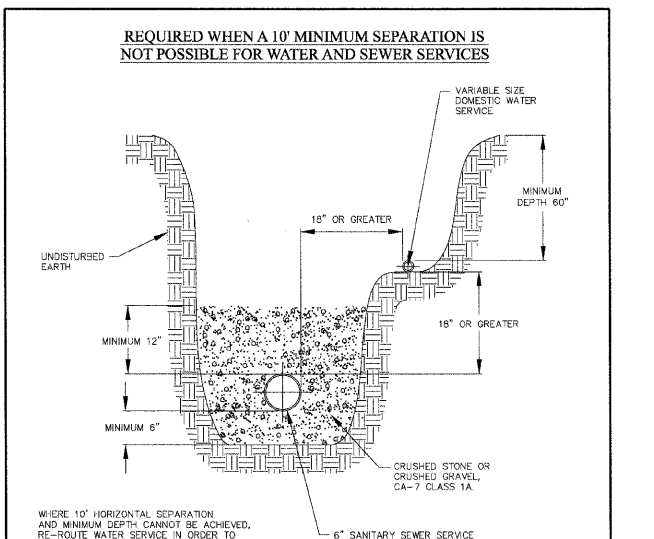
	Revisions		WATER MAIN RESTRAINT DETAIL	
	Date:	By:	Scale:	Checked:
			NOT TO SCALE	DF
			Date:	Drawn:
			1/04	NM
			EXHIBIT III-C-10	



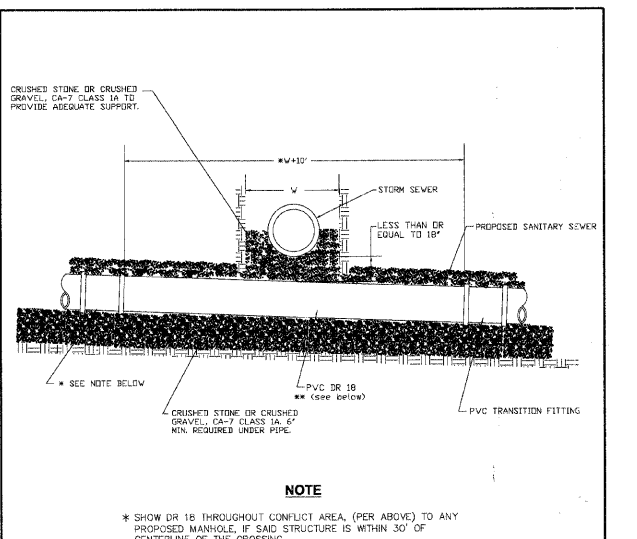
	Revisions		WATERMAIN TRENCH DETAIL	
	Date:	By:	Scale:	Checked:
			NOT TO SCALE	DF
			Date:	Drawn:
			1/04	NM
			EXHIBIT III-C-1	



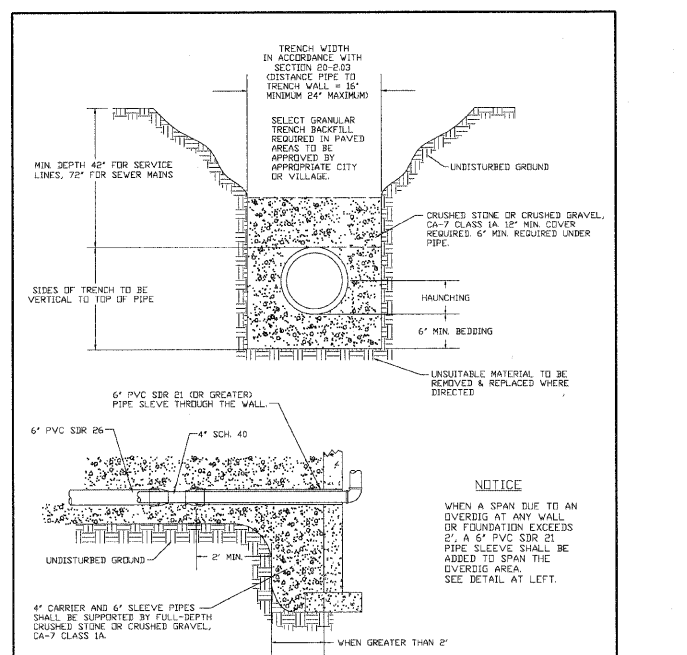
	DESIGNED F/M/R/D		REVISION		OB
	DATE 05-12-00	SCALE NTS	1	CAD DWG.	REVISION
					F



	DESIGNED F/M/R/D		REVISION		OB
	DATE 08-28-00	SCALE NTS	1	CAD DWG.	REVISION
					C



	DESIGNED F/M/R/D		REVISION		OB
	DATE 05-15-00	SCALE NTS	1	CAD DWG.	REVISION
					G



	DESIGNED F/M/R/D		REVISION		OB
	DATE 05-12-00	SCALE NTS	1	CAD DWG.	REVISION
					E

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION	
NAME	DATE	CONSTRUCTION DETAILS	

RHAA
Robert H. Anderson & Associates, Inc.
Consulting Engineers & Land Surveyors
License No. 064-005281
Phone No. 630-584-3530

SCALE: VERT. NONE
DATE: 1/7/09
DRAWN BY: TC/SBP
CHECKED BY:

PLOT DATE = 1/7/2009
 FILE NAME = H:\Aurora\120809_11\PHN\Civil\Sheet\Detail_SmWB2.dwg
 PLOT SCALE = NONE
 USER NAME = JUSER