

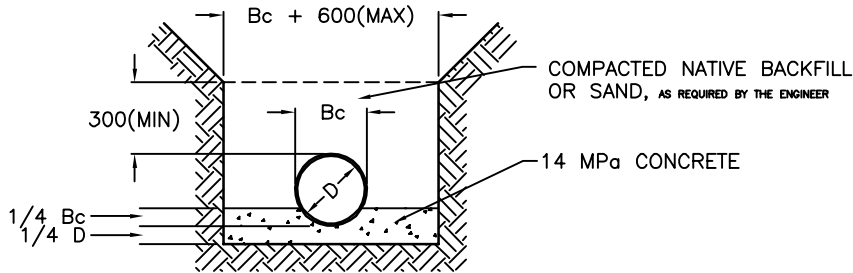


# *City of Estevan*

Standard Details

**CLASS A (CONCRETE CRADLE)**

LOAD FACTOR 2.8



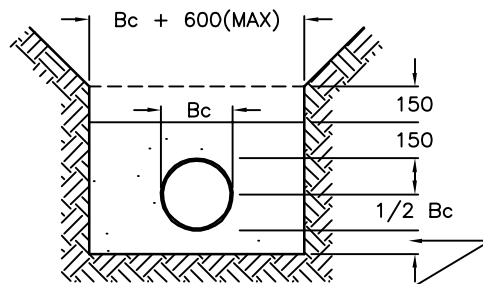
BEDDING MATERIAL BELOW PIPE FOR CONCRETE PIPE ONLY	
D	d
675mm & SMALLER	80mm
750mm TO 1500mm	100mm
1650mm & LARGER	150mm

**LEGEND**

- Bc - OUTSIDE DIAMETER
- d - DEPTH OF BEDDING BELOW PIPE
- D - INSIDE DIAMETER

**CLASS B (GRANULAR FOUNDATION)**

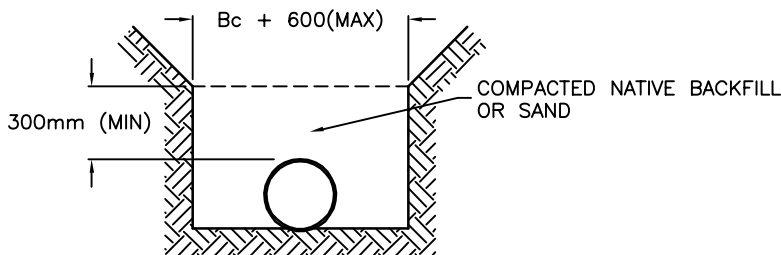
LOAD FACTOR 1.9



PVC PIPE = 100mm (MIN)  
 CONCRETE PIPE = d  
 (SEE ABOVE TABLE FOR VALUES)

**CLASS C (SHAPED SUBGRADE)**

LOAD FACTOR 1.5



**NOTES:**

ALL CONCRETE TO BE MADE WITH C.S.A. TYPE 50, SULPHATE RESISTANT CEMENT

NATIVE BACKFILL TO BE FREE OF LUMPS AND STONES

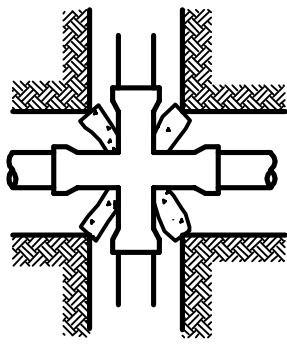
			Drawn By : T.M.V.
			Checked By : G.J.W.
			Date : October 26, 1993
			Scale : N.T.S.
			Approved By:
No.	Date	Revision	App'd City Engineer

**CITY OF ESTEVAN**  
 ENGINEERING & PUBLIC WORKS DEPARTMENT

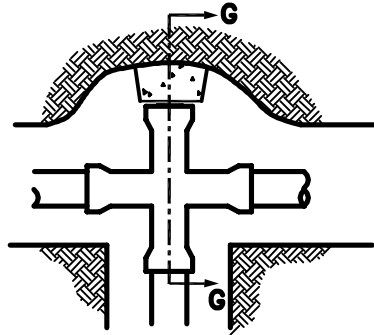
**STANDARD PIPE BEDDING**



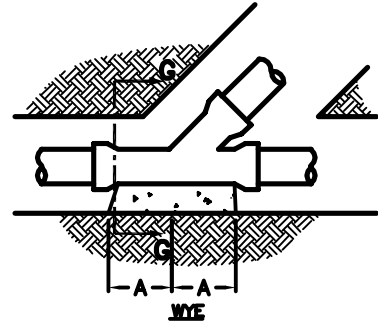
Detail Drawing No. **AT-1**



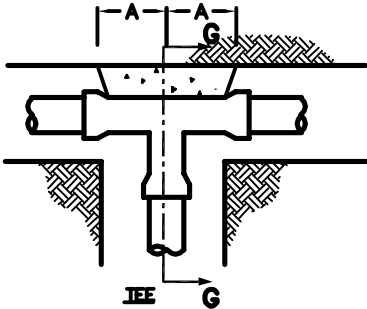
**CROSS**



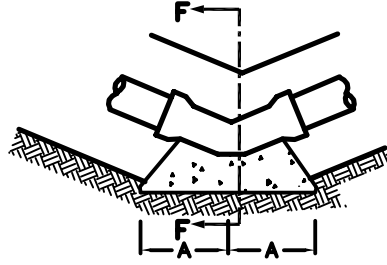
**CROSS  
END PLUGGED**



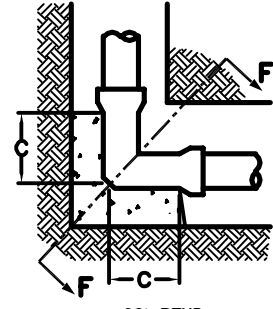
**WYE**



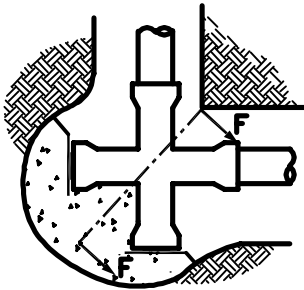
**TEE**



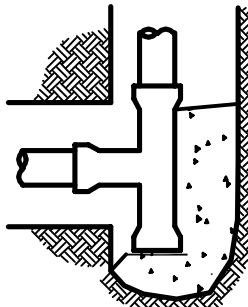
**BEND**



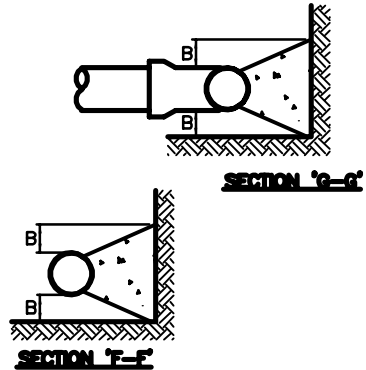
**90° BEND**



**CORNER CROSS  
ENDS PLUGGED**



**CORNER TEE  
ENDS PLUGGED**



**SECTION 'B-B'**

**SECTION 'F-F'**

TEXT DIAMETER (mm)	90° BEND				45° BEND				TEES, PLUGS, WYES				22.5° & 11.25° BENDS			
	A (mm)	B (mm)	C (mm)	AREA (sq.m)	A (mm)	B (mm)	C (mm)	AREA (sq.m)	A (mm)	B (mm)	C (mm)	AREA (sq.m)	A (mm)	B (mm)	C (mm)	AREA (sq.m)
100	170	200	200	0.20	160	110		0.11	190	140		0.14	110	60		0.05
150	250	300	300	0.41	240	160		0.22	270	190		0.29	160	90		0.11
200	320	350	350	0.70	310	210		0.38	350	250		0.50	210	110		0.18
250	390	400	400	1.06	380	250		0.57	430	310		0.75	260	140		0.28
300	460	450	450	1.50	450	300		0.81	520	370		1.08	310	160		0.39
350	530	500	500	2.01	520	350		1.09	600	420		1.42	340	170		0.47
400	610	550	550	2.60	600	400		1.42	680	480		1.84	390	190		0.60
450	680	600	600	3.27	670	440		1.78	760	540		2.31	440	220		0.78
500	750	650	650	4.01	740	490		2.18	840	590		2.84	490	240		0.96
600	900	750	750	5.72	880	580		3.11	1010	710		4.05	590	290		1.39
750	1110	900	900	8.81	1090	720		4.77	1250	870		6.23	780	410		2.44
900	1330	1050	1050	12.61	1310	860		6.83	1490	1040		8.92	930	480		3.48

**WATERMAIN SIZES 150mm – 900mm**

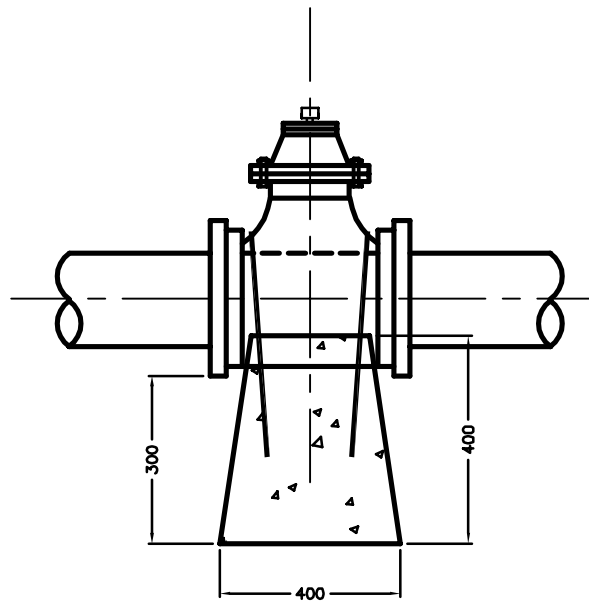
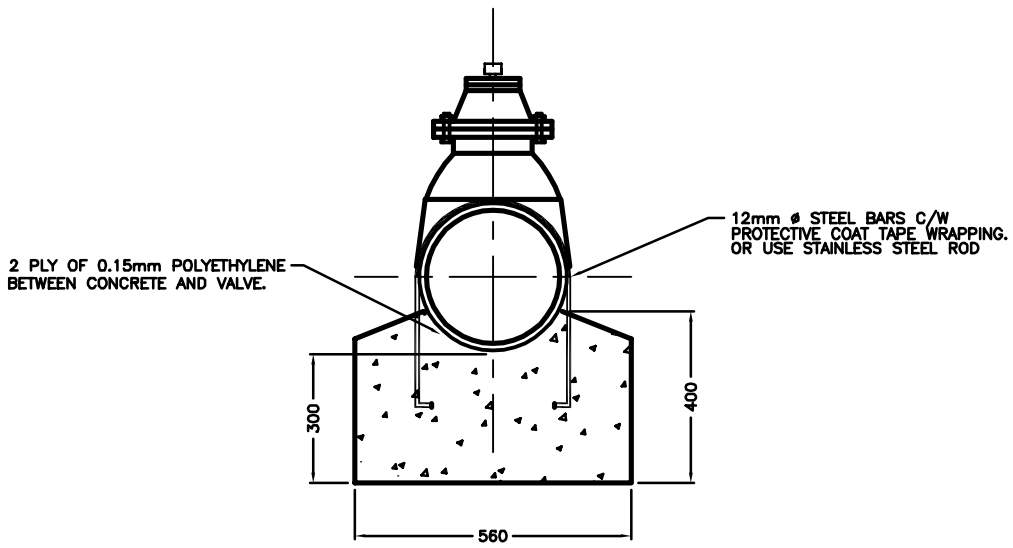
FITTING TYPE AND PRESSURE IN KPa / SQUARE METRES  
ARE BASED ON SOIL HAVING A SAFE BEARING CAPACITY OF 70 KPa.  
THRUST BLOCKS IN SOIL NOT MEETING THIS CAPACITY SHALL BE MODIFIED TO SUIT SOIL CONDITION.

No.	Date	Revision	App'd
			City Engineer

**CITY OF ESTEVAN**  
ENGINEERING & PUBLIC WORKS DEPARTMENT

**THRUST BLOCK DETAILS**

Detail Drawing No. **AW-1**



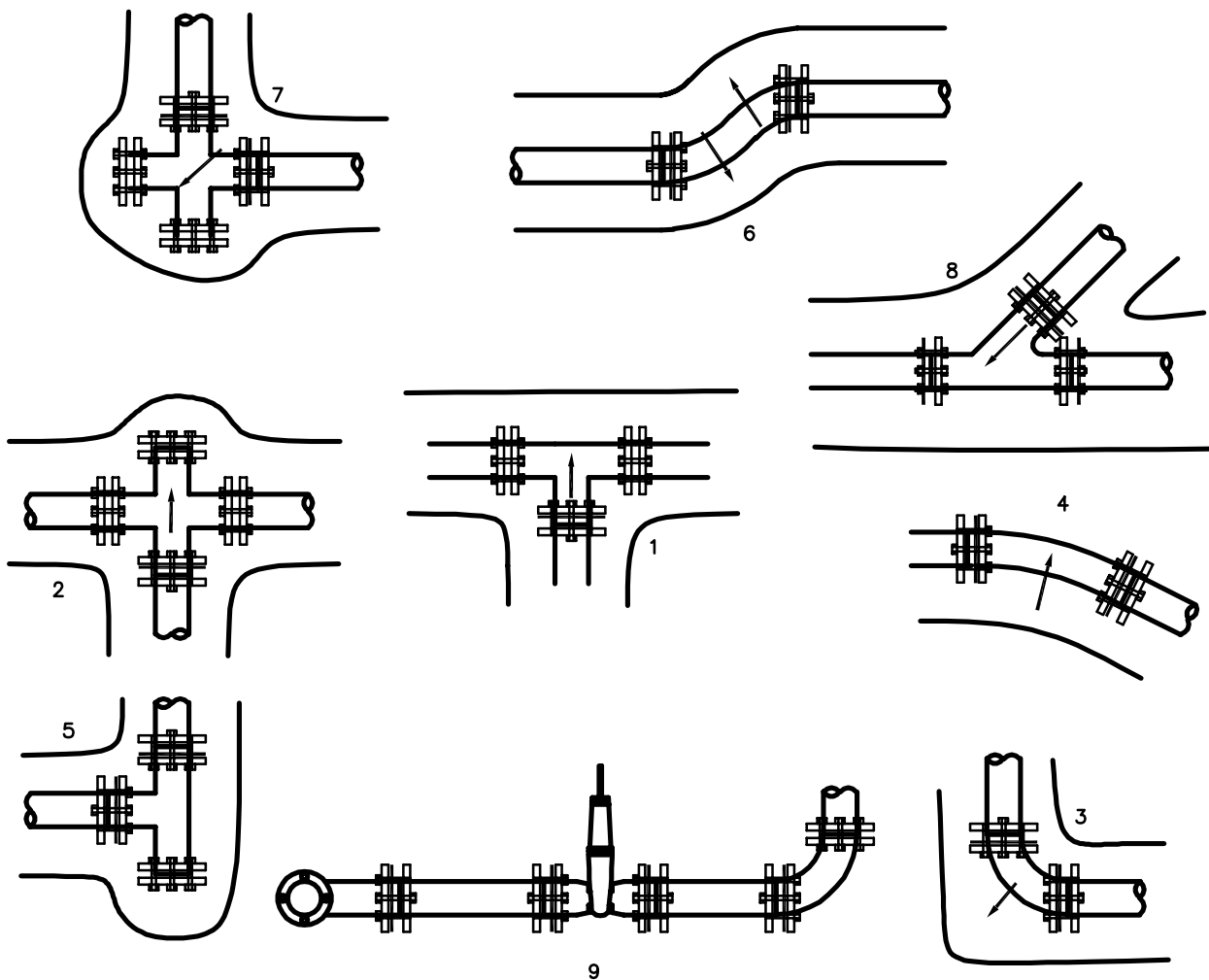
- NOTES**
- 1) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
  - 2) CONCRETE SHALL BE 25 MPa AT 28 DAYS, AND SULPHATE RESISTANT.

			Drawn By : S.B.F.
			Checked By : F.N.K.
			Date : JUNE 26, 1998
			Scale : N.T.S.
			Approved By:
No.	Date	Revision	App'd City Engineer

**CITY OF ESTEVAN**  
ENGINEERING & PUBLIC WORKS DEPARTMENT

**VALVE ANCHORING DETAIL  
(FOR 250mm & LARGER VALVES)**

Detail Drawing No. **AW-1B**



- 1) THRU LINE CONNECTION - TEE
- 2) THRU LINE CONNECTION - CROSS
- 3) DIRECTION OF CHANGE - ELBOW
- 4) DIRECTION OF CHANGE - VERTICAL BEND
- 5) DIRECTION OF CHANGE - TEE USED AS ELBOW
- 6) DIRECTION OF CHANGE
- 7) DIRECTION OF CHANGE - CROSS USED AS ELBOW
- 8) THRU LINE CONNECTION - WYE
- 9) HYDRANT RUNOUT / VALVE

**HORIZONTAL RESTRAINTS**

NOMINAL PIPE SIZE					
TYPE	100	150	200	250	300
90° BEND	1.5m	2.1m	2.7m	3.4m	4.0m
45° BEND	0.6m	0.9m	1.2m	1.5m	1.8m
22.5° BEND	0.3m	0.6m	0.6m	0.6m	0.9m
11.25° BEND	0.3m	0.3m	0.3m	0.3m	0.6m
SIZE ON SIZE TEE	Br. only	Br. only	Br. only	Br. only	Br. only
PLUGS & VALVES	3.0m	4.3m	5.5m	6.7m	7.9m

**VERTICAL RESTRAINTS**

NOMINAL PIPE SIZE					
TYPE	100	150	200	250	300
45° VERTICAL OFFSET	1.2m/0.6m	1.8m/0.9m	2.4m/1.2m	2.7m/1.5m	3.4m/1.8m
22.5° VERTICAL OFFSET	0.6m/0.3m	0.9m/0.6m	1.2m/0.6m	1.5m/0.9m	1.5m/0.9m


**NOTES**

- 1) THE FIRST NUMBER IS THE RECOMMENDED RESTRAINED LENGTH ON EACH SIDE OF THE DOWN BENDS OF THE OFFSET.
- 2) THE SECOND NUMBER IS THE RECOMMENDED RESTRAINED LENGTH ON EACH SIDE OF THE UP BENDS.
- 3) IF THE LENGTHS OVERLAP BETWEEN THE BENDS, RESTRAIN ALL JOINTS.

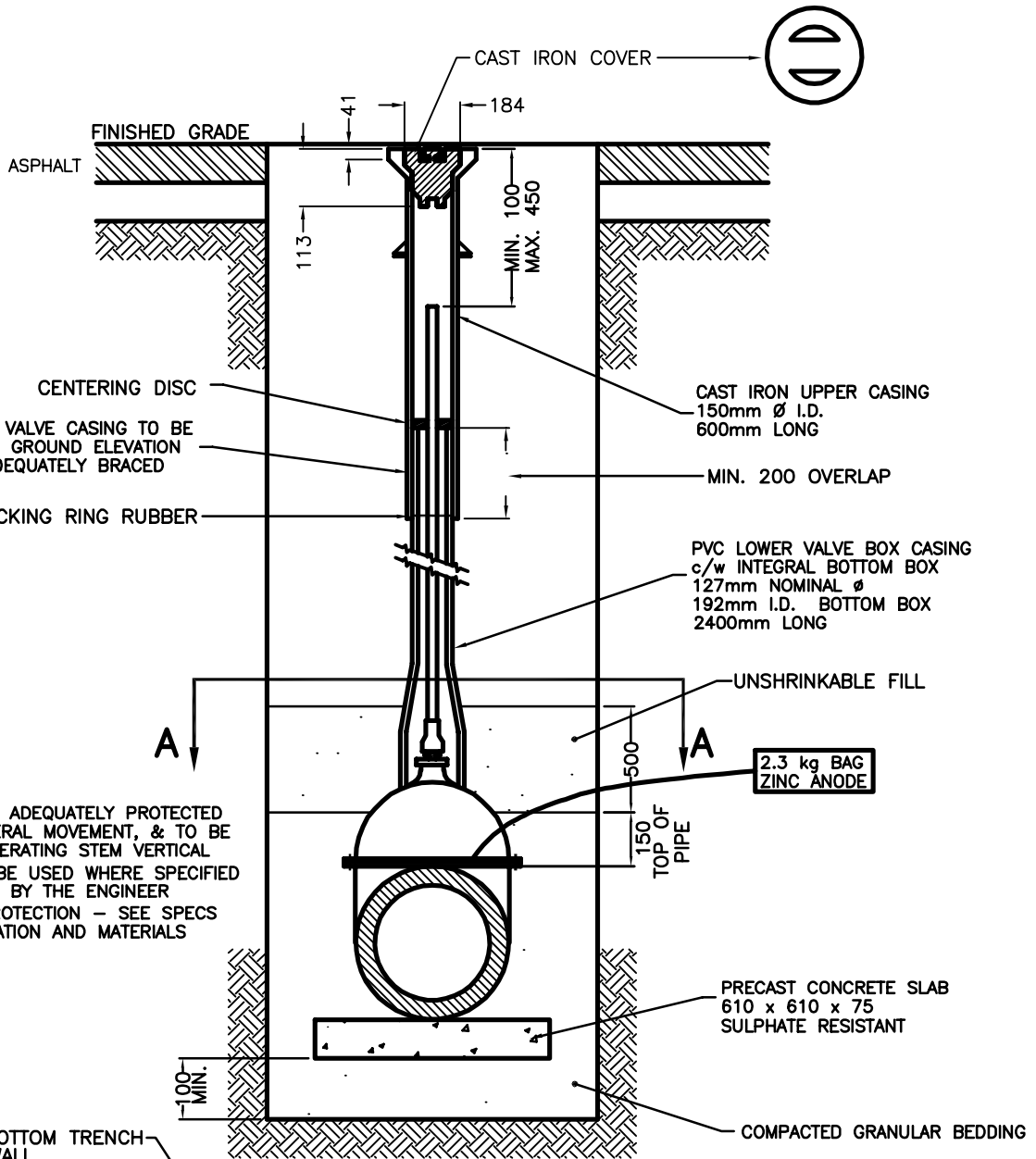
No.	Date	Revision	App'd City Engineer

**CITY OF ESTEVAN**  
ENGINEERING & PUBLIC WORKS DEPARTMENT

**THRUST RESTRAINT DETAILS**

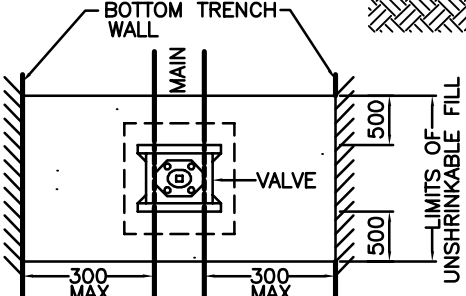


Detail Drawing No. **AW-1C**



**NOTES:**

- 1) VALVE TO BE ADEQUATELY PROTECTED AGAINST LATERAL MOVEMENT, & TO BE SET WITH OPERATING STEM VERTICAL
- 2) MARKER TO BE USED WHERE SPECIFIED OR DIRECTED BY THE ENGINEER
- 3) CATHODIC PROTECTION - SEE SPECS FOR INSTALLATION AND MATERIALS




**SECTION A-A**

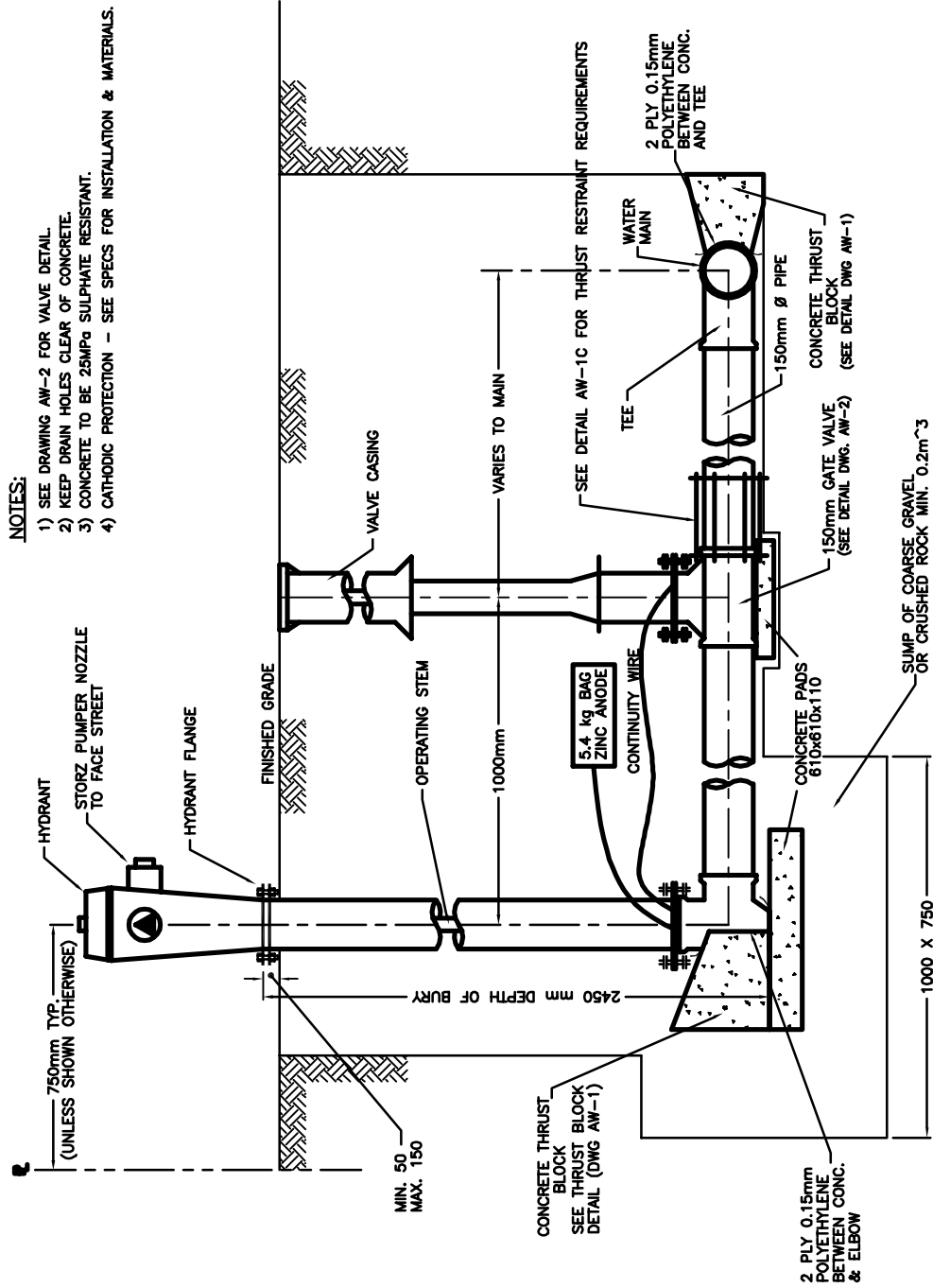
No.	Date	Revision	App'd	City Engineer

**CITY OF ESTEVAN**  
ENGINEERING & PUBLIC WORKS DEPARTMENT

STANDARD GATE VALVE INSTALLATION



Detail Drawing No. **AW-2**



**NOTES:**

- 1) SEE DRAWING AW-2 FOR VALVE DETAIL.
- 2) KEEP DRAIN HOLES CLEAR OF CONCRETE.
- 3) CONCRETE TO BE 25MPa SULPHATE RESISTANT.
- 4) CATHODIC PROTECTION - SEE SPECS FOR INSTALLATION & MATERIALS.

No.	Date	Revision	App'd
2	7/03	TEXT - VALVE RESTRAINT - MAIN SIDE	GJW
1	06/98	NOTES & TITLE	FNK

Drawn By : T.M.V.  
 Checked By : G.J.W.  
 Date : SEPT. 30, 1993  
 Scale : N.T.S.  
 Approved By:  
 City Engineer

**CITY OF ESTEVAN**  
 ENGINEERING & PUBLIC WORKS DEPARTMENT  
**STANDARD HYDRANT INSTALLATION**



Detail Drawing No. **AW-3**

# MINIMUM RESIDENTIAL WATER METER AND BACKFLOW PREVENTION INSTALLATION REQUIREMENTS

Effective March 2, 1992, the City of Estevan will require that an ANSI/A.S.S.E. Approved Dual Check type Backflow Preventer be installed on all new residential water service installations, as outlined in Section 6.1.12.(7) of the Saskatchewan Plumbing and Drainage Regulations (1978).

### SAFETY WARNING

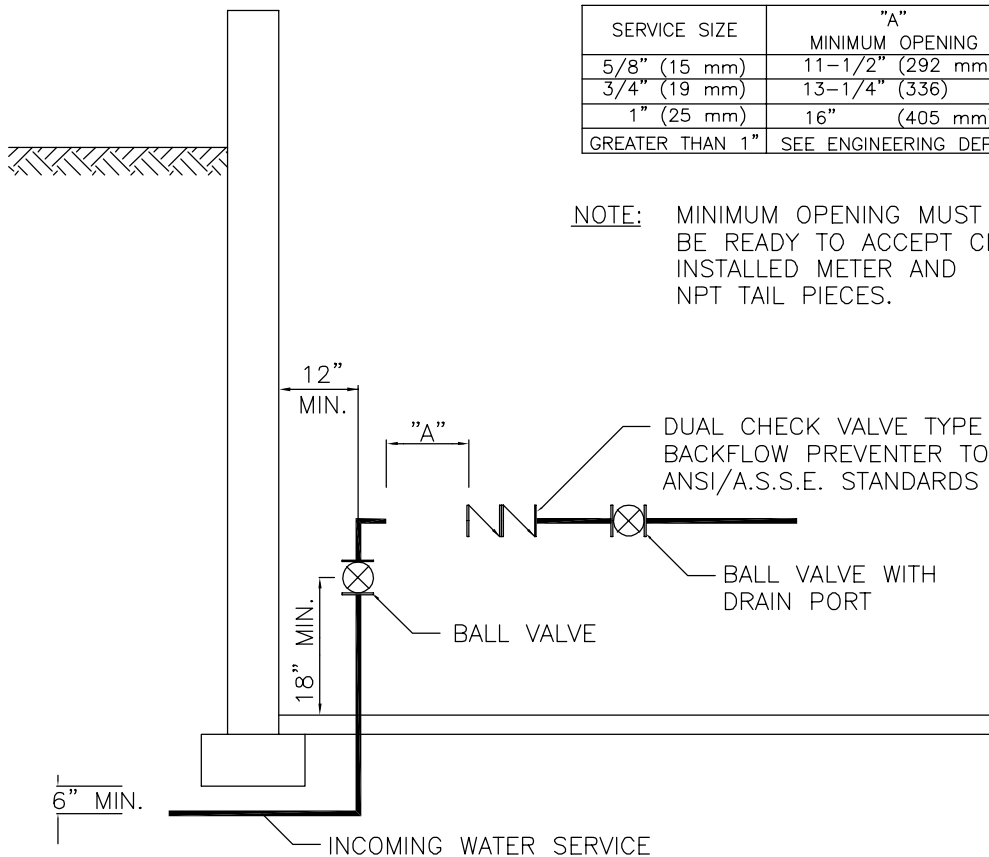
It is the property owner's responsibility to ensure that all hot water heating appliances (especially hot water tanks) are:

- either equipped with properly sized expansion tanks for maintenance free operation or
- that regular maintenance and replacement of pressure relief valves is performed

to ensure that damage doesn't occur to appliance components due to pressure surges, water hammer or hot water expansion.  
Please consult your plumber for advice.

SERVICE SIZE	"A" MINIMUM OPENING
5/8" (15 mm)	11-1/2" (292 mm)
3/4" (19 mm)	13-1/4" (336)
1" (25 mm)	16" (405 mm)
GREATER THAN 1"	SEE ENGINEERING DEPT.

NOTE: MINIMUM OPENING MUST BE READY TO ACCEPT CITY INSTALLED METER AND NPT TAIL PIECES.



			Drawn By : G.J.W.
			Checked By : F.N.K.
			Date : Nov. 18, 1992
			Scale : Not to Scale
2	11/18/92	groundline, dimension & last sentence	FNK
1	03/05/92	FOR ISSUE	FNK
No.	Date	Revision	App'd City Engineer

**THE CITY OF ESTEVAN**  
ENGINEERING & PUBLIC WORKS DEPARTMENT

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RESIDENTIAL WATER METER AND  
BACKFLOW PREVENTION REQUIREMENTS

Detail Drawing No. **BF-1**