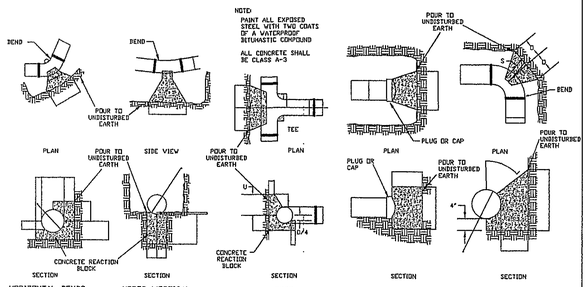
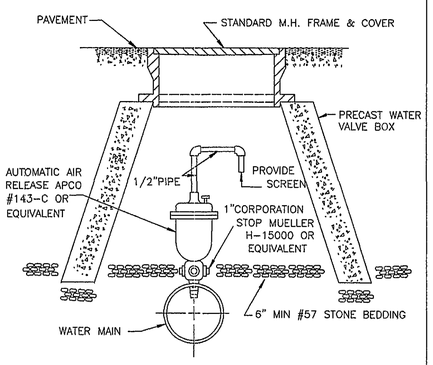
REACTION BLOCKING
WATER AND SANITARY SEWER FACILITIES



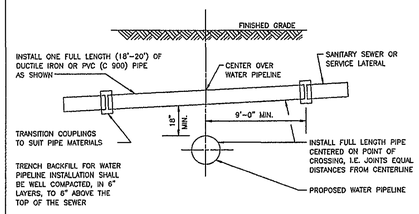
	HORIZONTAL BENDS									UPPER VERTICAL BENDS									PLUGS		HORIZ. BENDS 90°				TEE BRANCH		
DIA.	11 1/4°			22 1/2°			45°			11 1/4°			22 1/2°			45°											
	A	B	C	A	B	C	A	B	C	E	F	G	E	F	G	E	F	G	L	H	N	O	P	R	S	T	U	V	W
4"	.50	.50	.75	.75	.50	.75	1.25	.50	.75	.50	.50	.50	.75	.50	.50	1.25	.50	.50	.50	1.17	1.50	1.17	1.17	1.67	.42	.75	.67	.75	.50
6"	.50	.50	.75	.75	.50	.75	1.25	.50	.75	.50	.50	.50	.75	.50	.50	1.25	.50	.50	.50	1.17	1.50	1.17	1.17	1.67	.42	.75	.67	.75	.50
8"	.67	.67	.75	1.00	.67	.75	2.00	.67	.75	.67	.50	1.00	.67	.67	2.00	.75	.83	.67	1.50	1.50	2.25	1.58	1.50	1.75	.50	.75	.83	1.00	.67
10"	.83	.75	.75	1.50	.75	.83	2.50	.75	.92	.83	.75	.67	1.50	.83	.67	2.08	.75	.83	.67	2.00	2.50	1.67	2.08	1.75	.58	.83	1.00	1.25	.67
12"	1.00	.83	.75	1.75	.92	.92	2.92	.92	1.17	1.00	.83	.67	1.75	.83	.67	2.50	.92	.92	.83	2.33	3.25	2.00	2.50	1.92	.58	1.00	1.25	1.42	.67
16"	1.33	1.00	.75	2.33	1.00	1.17	3.67	1.25	1.42	1.33	1.00	.75	2.25	.83	.75	3.33	1.25	1.25	1.00	2.92	4.17	2.08	3.00	2.17	.83	1.17	1.67	1.83	.83
20"	1.67	1.17	1.00	3.17	1.17	1.33	4.75	1.50	1.83	1.67	1.17	.83	3.00	1.17	1.00	4.17	1.50	1.50	1.33	3.75	5.17	2.50	3.83	2.83	1.00	1.33	2.08	2.25	1.17
24"	2.00	1.33	1.00	4.00	1.33	1.50	6.08	1.67	1.92	2.00	1.33	1.00	3.50	1.33	1.00	5.00	1.75	1.75	1.67	4.33	6.25	4.67	4.00	3.00	1.00	1.50	2.58	2.67	1.33
30"	2.50	1.50	1.08	5.00	1.50	1.75	7.92	2.00	2.50	2.50	1.50	1.08	4.17	1.50	1.08	6.25	2.25	2.25	2.00	5.42	7.42	5.57	5.00	3.83	1.17	1.75	3.08	3.92	1.83
36"	3.00	1.92	1.17	5.75	2.00	2.00	8.92	2.50	3.25	3.00	1.50	1.17	5.33	2.00	1.17	7.50	2.50	2.67	2.00	6.50	9.00	6.83	6.00	4.83	1.17	2.00	3.75	3.92	1.83



NOTES:

1. STANDARD FRAME & COVER RICHARD FOUNDRY CO. DESIGN No. B-1444, DEWEY BROTHERS INC. MH-RCR-56 OR APPROVED EQUIVALENT.
2. CONCRETE SHALL BE 3000 PSI COMPRESSIVE AT 28 DAYS.
3. REINFORCEMENT SHALL BE .277 WIRE ON 6" C-C.
4. CONE SHALL NOT REST ON WATER PIPE.

AUTOMATIC AIR RELEASE ASSEMBLY



WATER PIPELINE CROSSING
SANITARY SEWER

VAULT & WATER STANDARDS FOR CONSTRUCTION

1. *VAULTS, MANHOLE BASES, RISERS, TAPERS AND GRADE RINGS SHALL BE PRECAST* REINFORCED CONCRETE MANUFACTURED IN ACCORDANCE TO VIRGINIA DEPARTMENT OF TRANSPORTATION, ROAD AND BRIDGE SPECIFICATIONS, SECTION 503.

2. MANHOLE BASE AND RISER SECTIONS CONSTRUCTION SHALL BE VERTICAL WITH MAXIMUM 1" IN 4" TILT.

3. A MAXIMUM OF 2 CONSTRUCTION GRADE RINGS OR MAXIMUM OF 1' OF GRADE RINGS AND FRAME AND COVER ADJUSTMENT ARE ALLOWABLE.

4. FINAL ADJUSTMENT OF FRAME AND COVER SHALL BE IN ACCORDANCE TO FRAME AND COVER ADJUSTMENT DETAIL USING NON-SHRINK CONCRETE WITH MAXIMUM OF 4

   AT FINISH GRADE OR 1/4" ABOVE FINISH GRADE IN PAVEMENT AND YARD AREAS AND MINIMUM 6" ABOVE FINISH GRADE IN OTHER AREAS. MANHOLE FRAMES AND COVERS ARE NOT TO BE SET IN DRAINAGE SWALE, VALLEY GUTTER, ETC.
   BRICKS OR CONCRETE BLOCKS FOR GRADE CONTROL. FRAME AND COVER ARE TO BE SET
5. JOINTS AND OPENINGS IN MANHOLE UNITS SHALL BE MADE WATERTIGHT BY USING BUTYL SEALANTS, "O".RING GASKETS OR MASTIC. THE CONCRETE SURFACE SHALL BE CLEANED PRIOR TO USE OF SEALANT.

6. FRAME AND COVERS
   A: DEWEY BROTHERS INC. MH-RCR-56.
   B: APPROVED EQUAL.

7. ALL LIFT HOLES, OPENINGS AROUND PIPE, ETC. SHALL BE FILLED FROM INSIDE AND OUTSIDE TO THICKNESS OF STRUCTURE.

8. ALL UNITS USED IN MANHOLE AND VAULT CONSTRUCTION SHALL BE SECURELY CONNECTED BY INTERLOCKING BETWEEN UNITS, CONCRETE COLLARS OR OTHER APPROVED METHODS.

9. AREA AROUND METER BOX AT A RADIUS OF 4' TO BE ON FINISH GRADE AND UNOBSTRUCTED EXCEPT FOR ROAD CONSTRUCTION.

APPROVED MATERIALS

1. METER BOXES
   A: FORD IRONCRETE METER BOX WITH NO. 2 IRONCRETE OR APPROVED EQUAL.
   B: SOUTHEASTER DISTRIBUTOR MODEL MB-5 PLASTIC BOX WITH FORD OR CHARLOTTE MODEL C-32 CAST IRON BASE & COVER (NOT APPROVED FOR ROADWAY AREA).
   C: APPROVED EQUAL.

2. METER SETTER (INCLUDING INLET RISER VALVE AND DOUBLE CHECK VALVE ON OUTLET)
   A: FORD VBHH 72-15-WD.
   B: APPROVED EQUAL.

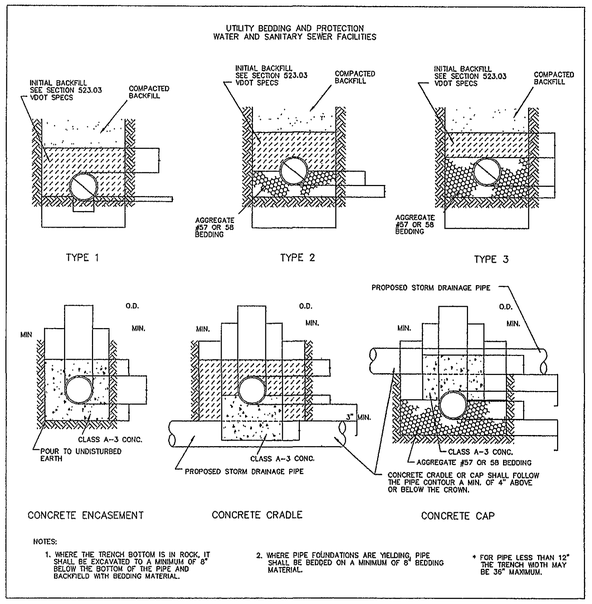
3. METER SETTER EXTENDER OR RISER
   A: NOT ALLOWED UNLESS APPROVED BY THE UTILITY DIRECTOR.

4. CORPORATION STOP
   A: MUELLER MODEL H-1500.
   B: FORD MODEL F-600.
   C: APPROVED EQUAL.

5. U-BRANCH
   A: FORD MODEL H-1500.
   B: MUELLER MODEL H 15362.
   C: APPROVED EQUAL.

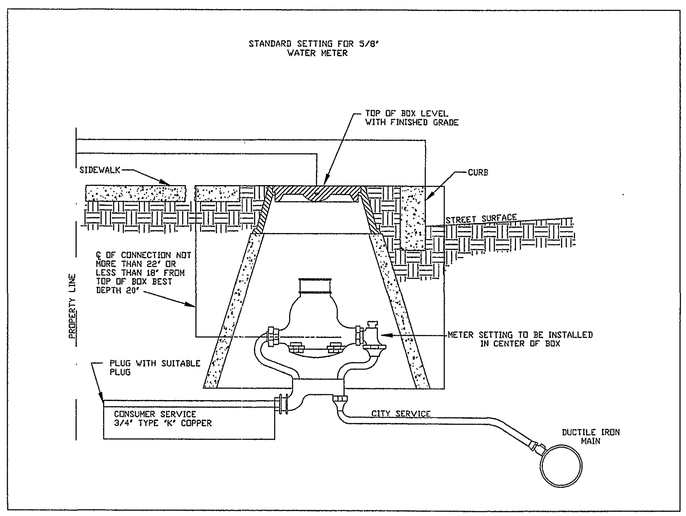
6. SERVICE SADDLES (FOR PVC PIPE)
   A: FORD MODEL FS 202 AND FC 202 WITH STAINLESS STEEL BAND AND BOLTS.
   B: APPROVED EQUAL.

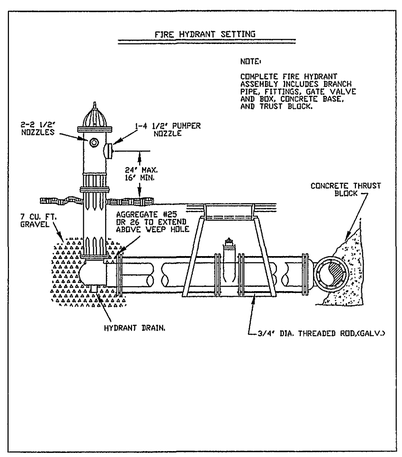
EACH LOT TO HAVE IT'S OWN RESIDENTIAL WATER METER

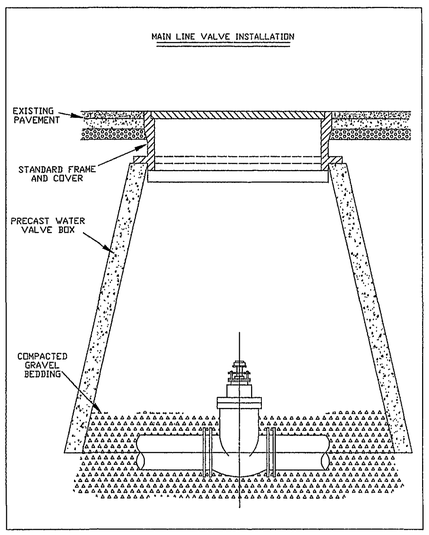


NOTES:

1. WHERE THE TRENCH BOTTOM IS IN ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 6" BELOW THE BOTTOM OF THE PIPE AND BACKFIELD WITH BEDDING MATERIAL.
2. WHERE PIPE FOUNDATIONS ARE YIELDING, PIPE SHALL BE BEDDED ON A MINIMUM OF 6" BEDDING MATERIAL.
* FOR PIPE LESS THAN 12" THE TRENCH WIDTH MAY BE 36" MAXIMUM.







Pierson Engineering and Surveying
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P.O. Box 311
1332 Roanoke Road, 220 North
Daleville, VA 24083

REV	DATE	DESCRIPTION	BY	APP
1	11/02/00	PER CITY COMMENTS		

WATER DETAILS
READ MOUNTAIN, NORTH
CITY OF ROANOKE

SCALE: NONE
COMM. NO. R9989
DATE: 06/2000
SHEET 14

ROACTWT