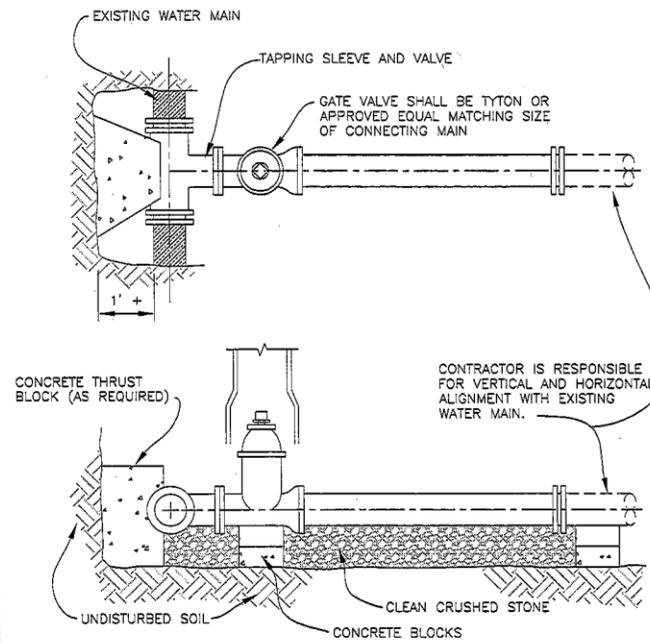
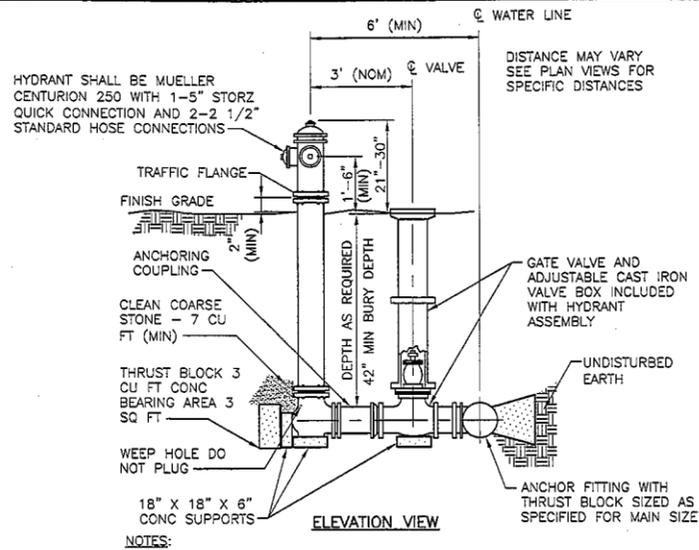


**WATER MAIN STANDARD - GENERAL NOTES:**

- ALL CONSTRUCTION PROCEDURES AND MATERIALS USED SHALL CONFORM TO THE CITY OF JUNCTION CITY CURRENT STANDARDS AND SPECIFICATIONS.
- ALL HYDRANTS SHALL BE, MUELLER CENTURION 250 WITH A STORZ CONNECTION AND CHAIN. SELF-DRAINING HYDRANTS SHALL NOT BE USED. ONE TYPE OF HYDRANT SHALL BE USED THROUGHOUT A GIVEN DEVELOPMENT. HYDRANTS SHALL NOT BE MIXED.
- ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND AND BLACK BELOW, WITH A FINISH COAT OF GLAMORTEX 501 ENAMEL, COLOR 314 VERMILLION, OR APPROVED EQUAL.
- ALL VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN 5' BELOW GROUND SURFACE SHALL BE PROVIDED WITH AN EXTENSION STEM. THE LENGTH OF THE STEM SHALL BE SUCH THAT IT WILL BE WITHIN 5' OF THE GROUND SURFACE WHEN AN EXTENSION STEM IS USED. IT SHALL BE PLACED BY AN EXTENSION STEM GUIDE. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION STEM AND METHOD OF INSTALLATION SHALL BE APPROVED BY THE CITY PRIOR TO USE.
- FOR PIPE DIAMETERS LESS THAN 20" DUCTILE IRON PIPE SHALL BE CLASS 52 DOUBLE CEMENT LINED WITH TWO BRASS WEDGES PER JOINT, MINIMUM DEPTH OF COVER IS 42" BELOW FINISHED GRADE.
- ALL PRECAST CONCRETE GATEWELL SECTIONS SHALL BE MANUFACTURED TO CONFORM WITH A.S.T.M. C478. STANDARD SPECIFICATION FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, EXCEPT, WALL THICKNESS SHALL BE SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATEWELL SECTIONS SHALL BE "MODIFIED GROOVED TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C443. STANDARD SPECIFICATIONS FOR JOINT CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
- THE CONTRACTOR SHALL OBTAIN A WATER MAIN CONSTRUCTION PERMIT AND WATER USE PERMIT PRIOR TO THE START OF CONSTRUCTION FROM THE CITY OF JUNCTION CITY.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF JUNCTION CITY (785) 238-3103 FOR WATER MAIN. PRESSURE TEST WITNESS, BACTERIOLOGICAL SAMPLING, AND FOR FINAL INSPECTION (MINIMUM 48 HOURS PRIOR NOTICE IS REQUIRED).
- FOR NON CITY ADMINISTERED PROJECTS ALL WATER SERVICE CONNECTIONS ARE MADE BY THE CITY OF JUNCTION CITY, DEPARTMENT OF PUBLIC WORKS PERSONNEL AFTER WATER MAIN ACCEPTANCE AND APPLICABLE PERMITS ARE OBTAINED.
- ALL NECESSARY EASEMENTS SHALL BE PROVIDED IN THE NAME OF THE CITY OF JUNCTION CITY FOR WATER INSTALLATION, OPERATION, AND MAINTENANCE OF THE PROVIDED WATER MAINS BEFORE ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM.
- THE DESIGN ENGINEER SHALL FURNISH THE CITY OF JUNCTION CITY WITH "AS BUILT" WATER MAIN PLANS PER THE CITY STANDARDS. UPON JOB COMPLETION, PLANS SHALL LOCATE ALL WATER MAINS, HYDRANTS AND GATE VALVES AND WELLS PER CITY OF JUNCTION CITY "AS BUILT" STANDARDS.
- AS REQUIRED CROSS CONNECTION AND CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY THE CITY OF JUNCTION CITY AND IN ACCORDANCE WITH THE STANDARDS OF THE CITY.
- TAPPING SLEEVES SHALL BE MECHANICAL JOINT.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF JUNCTION CITY, DEPARTMENTS OF PUBLIC WORKS AND ENGINEERING 48 HOURS PRIOR TO THE START OF THE CONSTRUCTION AND REQUEST INSPECTION.
- ALL TRENCHES UNDER THE 45 DEGREE LINE OF INFLUENCE OF EXISTING OR PROPOSED PAVEMENTS, SIDEWALKS, & DRIVE APPROACHES SHALL BE BACKED FILLED WITH CLEAN COMPACTED GRANULAR MATERIAL COMPACTED TO 95% OF MAXIMUM UNIT WEIGHT.
- ALL WATER MAIN JOINTS REQUIRING RESTRAINT SHALL USE MEGA-LUG FITTINGS OR FIELD-LOK GASKETS, FOLLOWING MANUFACTURE GUIDELINES. THE USE FOR CONCRETE THRUST BLOCKS WILL NOT BE ALLOWED.
- TRACER WIRE IS REQUIRED ON ALL HDPE LEADS (SDRS, AWWA C-901, ASTM D2737). IT SHALL BE A MINIMUM OF 12 GAUGE COPPER, COLORED BLACK OR WHITE, AND RUN THE ENTIRE LENGTH OF THE PIPE WITH THE ENDS ACCESSIBLE FOR LINE LOCATION PURPOSE.

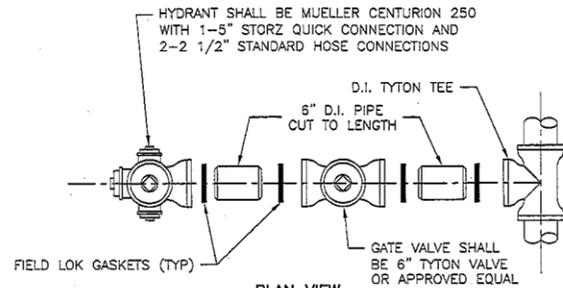


**TYPICAL TAPPING SLEEVE CONNECTION**  
N.T.S.

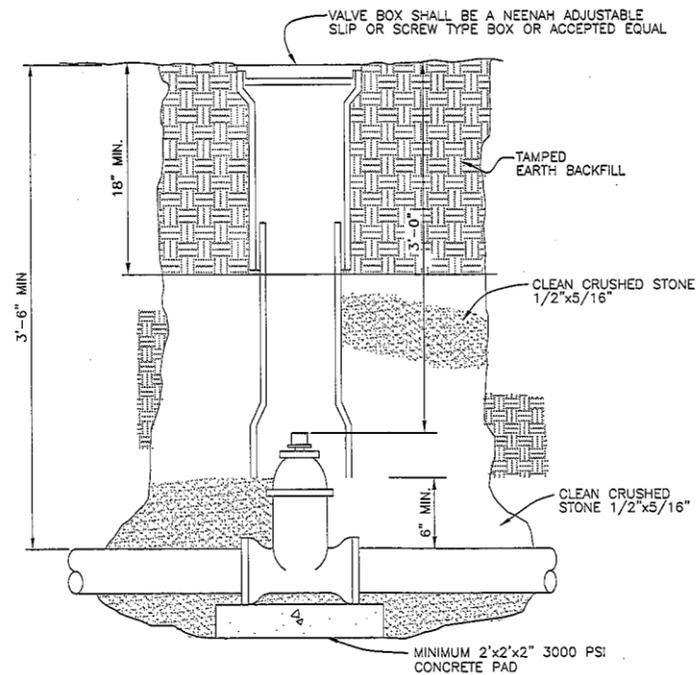


- NOTES:**
- RETAINER GLANDS REQUIRED ON ALL FITTINGS. RESTRAINED JOINTS SHALL BE REQUIRED WHERE INDICATED OR DICTATED BY AVAILABLE SPACE OR UNSUITABLE SOIL CONDITIONS.
  - HYDRANT BODY SHALL BE PAINTED RED.

**TYPICAL FIRE HYDRANT INSTALLATION**  
N.T.S.



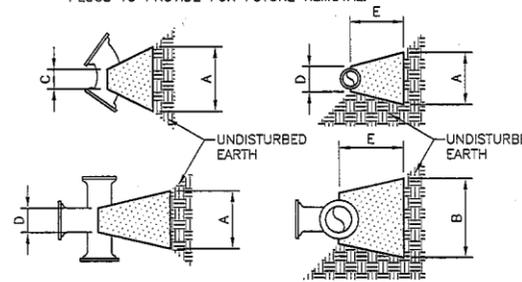
**TYPICAL HYDRANT PIPING LAYOUT**  
N.T.S.



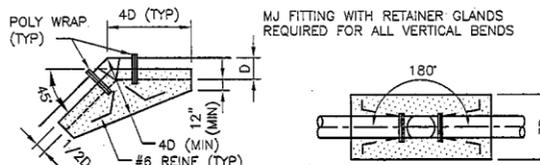
**TYPICAL VALVE INSTALLATION**  
N.T.S.

PIPE SIZE	FITTING	DISTANCE IN INCHES				
		A	B	C	D	E
4" AND SMALLER	11.25 & 22.5'	9	9	8	8	6
	45'	18	9	8	8	12
	90'	21	12	8	8	12
6"	TEE/PLUG	15	12	8	8	12
	11.25 & 22.5'	12	12	8	10	12
	45'	27	12	8	10	12
8"	90'	33	18	8	10	12
	TEE/PLUG	24	18	8	10	12
	11.25 & 22.5'	18	15	8	10	12
10" & 12"	45'	33	15	8	10	18
	90'	42	24	8	10	18
	TEE/PLUG	30	24	8	10	18
14" & 16"	11.25 & 22.5'	27	24	12	12	18
	45'	51	24	12	12	24
	90'	63	36	12	12	30
14" & 16"	TEE/PLUG	45	36	12	12	24
	11.25 & 22.5'	33	33	12	16	18
	45'	69	33	12	16	30
14" & 16"	90'	84	48	12	16	36
	TEE/PLUG	60	48	12	16	30

- NOTES:**
- THRUST BLOCKS ARE BASED ON A WORKING PRESSURE OF 100 PSI, PLUS 100% SURGE, AND 2000 PSF ALLOWABLE SOIL BEARING PRESSURE.
  - FOR PIPE SIZES NOT SHOWN USE DIMENSIONS FOR NEXT LARGER SIZE.
  - USE 3/8" PLYWOOD SEPARATOR BETWEEN BLOCKS AND PLUGS TO PROVIDE FOR FUTURE REMOVAL.

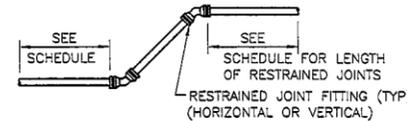


**CONCRETE THRUST BLOCK DETAIL**  
N.T.S.

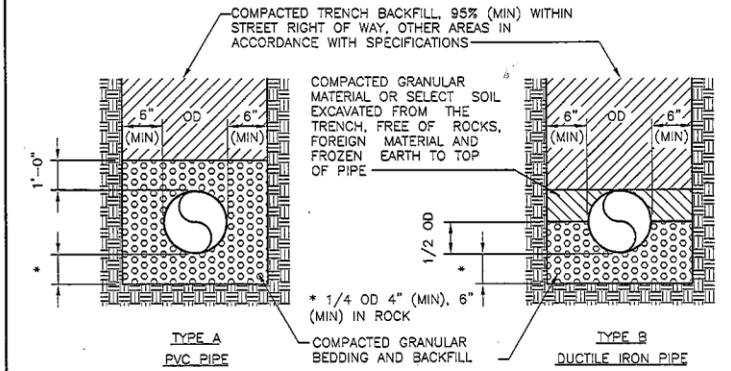


**VERTICAL BEND THRUST BLOCK DETAIL**  
N.T.S.

- SCHEDULE**
- 90° BEND - 86 LF EACH SIDE OF FITTING
  - 45° BEND - 36 LF EACH SIDE OF FITTING
  - 22.5° BEND - 18 LF EACH SIDE OF FITTING
  - 11.25° BEND - 8 LF EACH SIDE OF FITTING

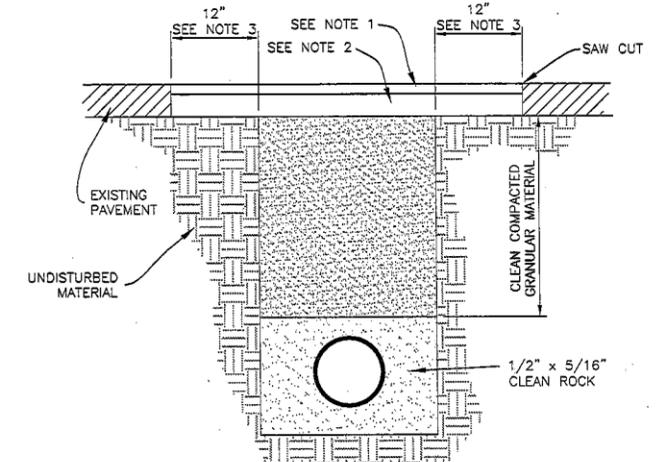


**TYPICAL RESTRAINED JOINT PIPE DETAIL/SCHEDULE**  
N.T.S.



- NOTES:**
- UNDERGROUND MARKING TAPE MARKED "CAUTION WATER LINE BURIED BELOW" BY TERRA TAPE OR APPROVED EQUAL. LOCATED 12" BELOW FINISHED GRADE.
  - TRACER WIRE FOR ALL WATER LINE PIPE SHALL BE HIGH MOLECULAR WEIGHT - POLYETHYLENE TRACER WIRE, 1-#12 AWG, BY PAIGE ELECTRIC OR APPROVED EQUAL. SPICING SHALL BE WITH 3M DBY/DBR DIRECT BURY SPLICE KITS. TRACER WIRE LEAD CONNECTIONS TO BE LOCATED IN GATE VALVE BOX AS SHOWN IN TYPICAL GATE VALVE INSTALLATION DETAIL.
  - PIPE SHALL BE INSTALLED WITH A MINIMUM 42" COVER.

**PIPE INSTALLATION DETAILS - OUT OF TRAFFIC AREAS**  
N.T.S.

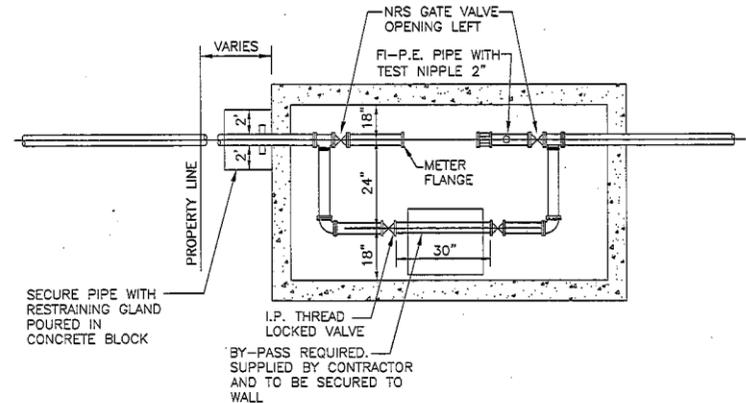
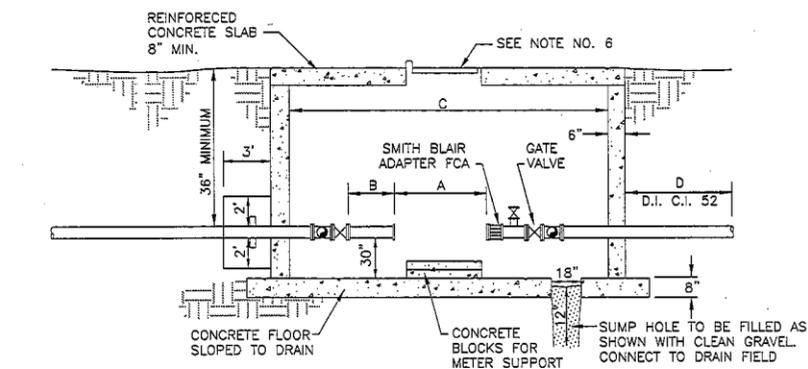


- NOTES:**
- TWO (2) INCH ASPHALTIC CONCRETE SURFACE.
  - EIGHT (8) INCH MINIMUM PORTLAND CEMENT CONCRETE BASE OR SIX (6) INCH MINIMUM ASPHALTIC CONCRETE BASE (FOR LARGE AREA PATCHING ONLY) IF APPROVED BY THE DIRECTOR OF PUBLIC WORKS. FOUR (4) INCH ASPHALTIC CONCRETE BASE WILL BE PERMITTED IN RESIDENTIAL ASPHALT DRIVEWAYS.
  - THE TWELVE (12) INCH OVERCUT WILL NOT BE REQUIRED FOR CUTS NOT EXCEEDING EIGHT (8) INCHES IN WIDTH.

**CITY STREET CUT REPLACEMENT**  
N.T.S.



CITY OF JUNCTION CITY, KANSAS	
<b>WATER MAIN INSTALLATION DETAILS</b>	
MUNICIPAL SERVICES DIRECTOR GREGORY S. McCAFFERY, P.E.	DATE: 10/08/2013
ENGINEERING DEPARTMENT 700 N JEFFERSON JUNCTION CITY, KS 66441 (785) 238-3103	DESIGN: - DRAWN: -
SHEET 1 OF 2	



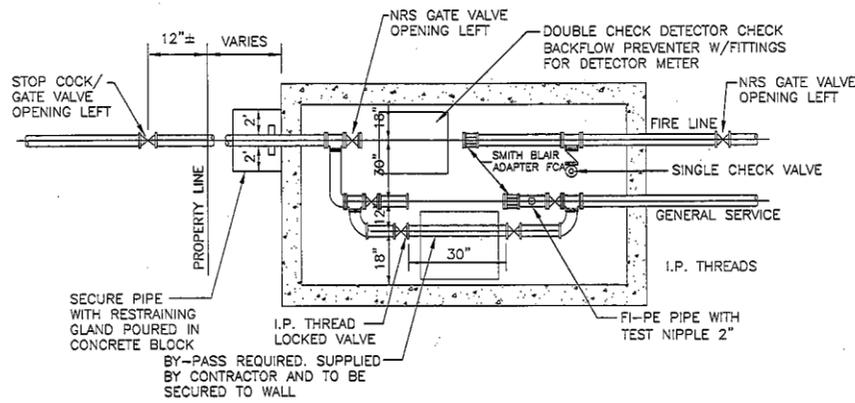
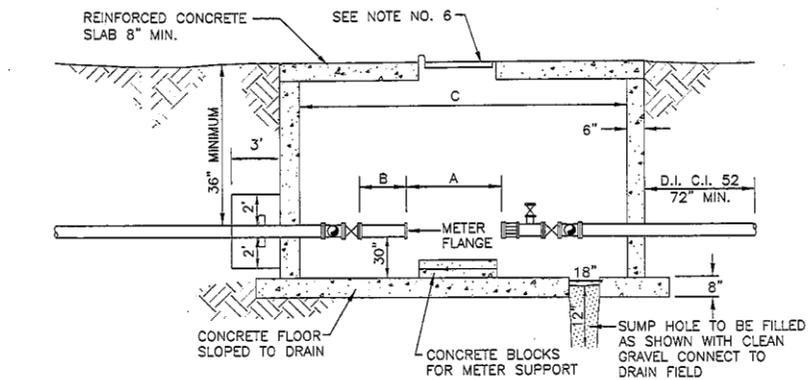
**GENERAL RULES:**

- METER VAULT WALLS TO BE POURED CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE.
- METER VAULT ROOF TO BE REINFORCED CONCRETE.
- METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT. VAULT MUST BE KEPT FREE OF WATER.
- DUCTILE IRON CLASS 52 OR C900 THROUGH VAULT.
- FLANGED VALVES ON EACH SIDE OF METER MUST BE ADEQUATELY SECURED TO WITHSTAND WATER THRUST WITH METER REMOVED.
- NON-TRAFFIC: BILCO "K-1" SINGLE LEAF ALUMINUM OR APPROVED EQUAL. IN TRAFFIC: EJIW 1040 TYPE F OR APPROVED EQUAL APPROVED BY THE CITY ENGINEER.
- CONCRETE FLOOR REQUIRED. SLOPE TO DRAIN.
- ALL FITTINGS ARE TO BE FLANGED (TEES, BENDS, ETC.) BEYOND VALVES.

METER SIZE	A	B	C	D	BY-PASS (*)
3"	18-3/4"	24"	140"	48"	1-1/2"
4"	22-1/4"	33"	157"	72"	2"
6"	27-3/4"	41"	191"	72"	3"

(\*) IF HIGH CONTINUOUS RATE OF FLOW IS REQUIRED, A LARGER BY-PASS MAY BE PERMITTED, BUT NOT LONGER THAN PRIMARY DOMESTIC SERVICE

**METER VAULT FOR 3", 4" AND 6" SERVICE LINES**  
N.T.S.



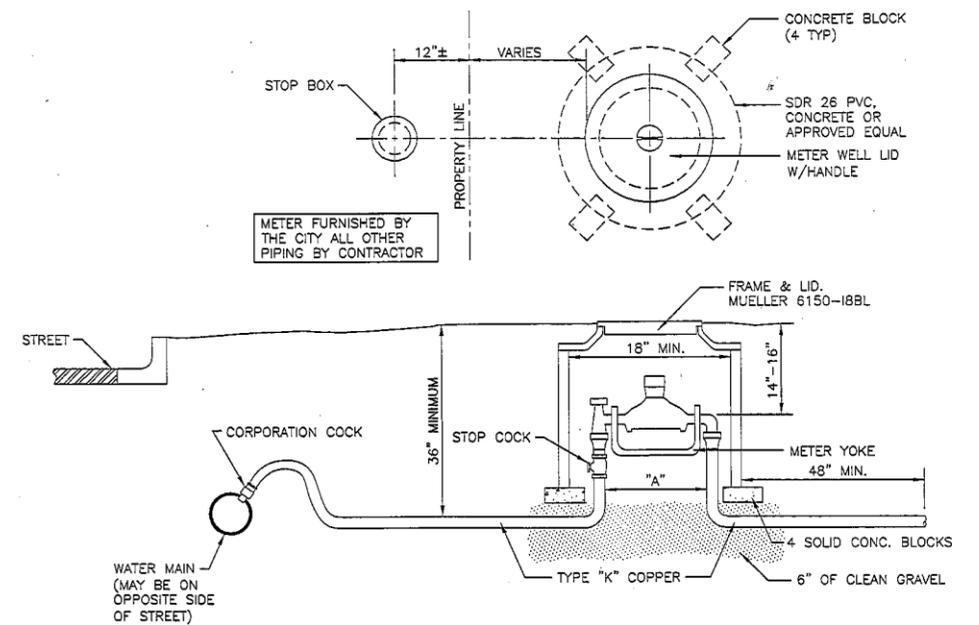
**GENERAL RULES:**

- METER VAULT WALLS TO BE POURED CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE.
- METER VAULT ROOF TO BE REINFORCED CONCRETE WITH OPENING CENTERED OVER GENERAL SERVICE METER ON FIRE LINE DETECTOR CHECK VALVE.
- METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT. VAULT MUST BE KEPT FREE OF WATER.
- DUCTILE IRON CLASS 52 OR TYPE "K" COPPER THROUGH VAULT.
- VALVES ON EACH SIDE OF GENERAL SERVICE METER FOR 1-1/2" OR 2" SERVICE TO HAVE SCREW ENDS, I.P. THREADS; FOR 3" AND ABOVE VALVES MUST HAVE FLANGED ENDS, BE IN ALIGNMENT AND BE ADEQUATELY SECURED TO WITHSTAND WATER THRUST WITH METER REMOVED.
- NON-TRAFFIC: BILCO "K-1" SINGLE LEAF ALUMINUM OR APPROVED EQUAL. IN TRAFFIC: EJIW 1040 TYPE F OR APPROVED EQUAL APPROVED BY THE CITY ENGINEER. NON-TRAFFIC METERS ARE PREFERRED.
- ALL FITTINGS ARE TO BE FLANGED (TEES, BENDS, ETC.) BEYOND VALVES.

GENERAL SERVICE		FIRELINE					
SIZE (***)	BY-PASS SIZE (*)	A	B	10"	8"	6"	4"
(**) 1-1/2"	NA	13"	12"	140"	130"	130"	130"
(**) 2"	NA	17"	16"	140"	130"	130"	130"
3"	1-1/2"	18-3/4"	24"	159"	157"	155"	155"
4"	2"	22-1/4"	32"	174"	172"	171"	170"
6"	3"	27-3/4"	48"	206"	204"	203"	202"

- (\*) IF HIGH CONTINUOUS RATE OF FLOW IS REQUIRED, A LARGER BY-PASS MAY BE PERMITTED, BUT NOT LONGER THAN PRIMARY DOMESTIC SERVICE
- (\*\*) FORD METER SETTER VB66 OR VB77 WITHOUT BY-PASS OR APPROVED EQUAL
- (\*\*\*) FOR 5/8", 3/4" AND 1" METERS USE FORD YOKE #501, 502 OR 503 OR APPROVED EQUAL. NO BY-PASS REQUIRED.

**METER VAULT FOR SPLIT SERVICE LINES**  
N.T.S.



**GENERAL RULES:**

- METER PIT TO BE LOCATED OUTSIDE TRAFFIC AREA WHERE SURFACE WATER WILL NOT DRAIN INTO IT.
- ALL FITTINGS TO BE BRASS OR COPPER.
- METER WELL TO BE SET ON 6" GRAVEL BEDDING.

METER SIZE	DIMENSION "A"	MUELLER
5/8"	18"	B-2410
3/4"	21"	B-2423
1"	21"	B-2423

**METER BOX FOR 3/4", 1", AND 1-1/2" SERVICE LINES**  
N.T.S.



CITY OF JUNCTION CITY, KANSAS

**WATER MAIN INSTALLATION DETAILS**

MUNICIPAL SERVICES DIRECTOR  
GREGORY S. McCAFFERY, P.E.

DATE:  
10/08/2013

ENGINEERING DEPARTMENT  
700 N JEFFERSON  
JUNCTION CITY, KS 66441  
(785) 238-3103

DESIGN: -  
DRAWN: -

SHEET 2 OF 2