

6.1.10 Provide water supply with yard hydrant.

7. WATER MAINS

7.1 Comply with design standards contained in the SUDAS Design Manual and in RECOMMENDED STANDARDS FOR WATER WORKS (Ten States Standards) as adopted by the IDNR.

7.1.1 Minimum water main size: Residential R-1 and Residential R-2 zoning: 8". Water main size other than in residentially zoned areas subject to approval by City.

7.1.2 Size major water mains as directed by the City.

7.1.3 Maximum dead end water main length: 300'.

7.2 Isolating valve spacing:

7.2.1 Residential R-1 and Residential R-2 zoning: 800' maximum and at street intersections.

7.2.2 Other zoning: 400' maximum and at street intersections.

7.2.3 On all private lines at the connection with the City main.

7.3 Provide fire hydrant within 25 feet of each street intersection, measured from an end of a street paving return. Equally space hydrants between intersections, maximum hydrant spacing: 300', unless otherwise directed by City.

7.3.1 Provide hydrant at entrance and at end of culs-de-sac when approved by City; maximum spacing as specified hereinbefore.

7.4 Minimum water service size: 1".

7.4.1 Materials: use copper tubing for services 2" and smaller between main and curb stop box and optional for services 2" and smaller between curb stop box and building; use crosslinked polyethylene (PEXa) or polyethylene (PE) pipe for services larger than 2" and optional for all service sizes between curb stop box and building.

5. SERVICE CONNECTIONS

- 5.1 Services 2" and smaller between main and curb stop box and optional for services 2" and smaller between curb stop box and building:
  - 5.1.1 Service pipe: Type K seamless, soft annealed copper water tube, ASTM B88.
  - 5.1.2 Corporation stops: Mueller, AY McDonald and Ford ball valve style, or approved equal.
  - 5.1.3 Taps and tapping saddles: ductile iron body, single stainless steel strap, corrosion resistant nylon coating, design for use on pvc pipe, Rockwell Type 317, or approved equal.
    - 5.1.3.1 Use tapping saddles for all corporation stops.
    - 5.1.3.2 Use shell type cutting tool made especially for direct tapping heavy wall pvc.
  - 5.1.4 Curb stops: AY McDonald 76100, or equal.
  - 5.1.5 Curb stop box: AY McDonald 5601, or equal; provide lid and stainless steel stationary rod.
    - 5.1.5.1 Set lid at finish grade elevation as shown on Standard Drawing; terminate rod 1'-6" below finish grade; lid must be operable at time of final inspection.
    - 5.1.5.2 Provide cast iron curb box receptacle where curb stop located in pavement; A.Y. McDonald Mfg. No. 5639 or equal.
  - 5.1.6 Meter setting: arrange piping to allow installation of meter in horizontal run of pipe, above floor and as close to point at which service enters building as possible; provide 1' minimum clearance over meter; install 1" full port ball valve on both sides of meter; allow space for meter and connecting nipples.
    - 5.1.6.1 Ball valve: AY McDonald 72032-T, or equal.

## Water Mains and Appurtenances

- 5.1.7 Fittings: Compression or flared fittings are allowed for services less than 2". Compression fittings are required for services 2" and larger.
  
- 5.2 Services larger than 2" and optional for all service sizes between curb stop box and building:
  - 5.2.1 Service pipe: Crosslinked polyethylene (PEXa) pipe or approved equal.
    - 5.2.1.1 Pipe shall be approved by manufacturer for use with AWWA C800 fittings, using stainless steel inserts.
    - 5.2.1.2 Pipe shall be certified to AWWA C 904 "Cross-linked Polyethylene (PEX) Pressure Pipe, 1/2 in. (12 mm) Through 3 in. (76 mm), for Water Service" by approved testing agency. In addition, pipe shall be certified to standards ASTM F876, CSA B137.5, NSF 14, NSF 61 and PPI TR-4, by approved testing agencies, with a standard materials designation code of 3006, as certified by the PPI.
    - 5.2.1.3 Pipe shall be rated for not less than 160 psi @ 73.4°F (1379 KPa @ 23°C) based on a 0.63 design factor.
    - 5.2.1.4 Pipe shall have a co-extruded UV Shield made from UV-resistant high-density polyethylene, color Blue.
    - 5.2.1.5 Pipe shall have minimum recommended UV exposure time of one (1) year when tested in accordance with ASTM F2657, or as per manufacturer's recommendations.
    - 5.2.1.6 Pipe shall be compatible with cold-expansion compression-sleeve fittings certified to ASTM F2080 for installations as cold as -40°F (-40°C). Flared fittings are allowed for services less than 2".
    - 5.2.1.7 Manufacturer shall warrant the pipe to be free from defects in material and workmanship for a period of twenty-five (25) years.
    - 5.2.1.8 Pipe can be installed on native soil.
  - 5.2.2 Service pipe: Polyethylene (PE) pipe; Class 200; AWWA C901; DR9.

## Water Mains and Appurtenances

- 5.2.3 Connection to main: provide suitable tee if main and service are installed at same time; provide tapping valve and sleeve specified for water main for service connected to existing main; spacing of service connections: not less than 2' apart.
  - 5.2.4 Curb stop: use resilient wedge gate valve specified for water main; omit curb stop if tapping valve installed at main.
  - 5.2.5 Curb stop box: use valve box as specified for water main except use lock cover.
  - 5.2.6 Meter setting: as specified for services 2" and smaller, except use gate valves with end connections matching those on meter.
  - 5.2.7 Fittings: Compression or flared fittings are allowed for services less than 2". Compression fittings are required for services 2" and larger.
- 5.3 City will furnish and install water meter, remote reading device; upon request and payment of fee; all other materials and work for water services by subdivider.
- 5.3.1 Provide a raceway of 1" minimum diameter electrical non-metallic tubing (ENT) conduit the water meter(s) through joist/wall cavities to the building exterior within 3 feet of the gas meter(s) on commercial and residential buildings for device installation; wiring as per City Standards.
- 5.4 Notify City 48 hours prior to tapping main, any proposed water shutdown and at completion of installation of service; backfill after City has inspected installation. Only City allowed to operate valves.
- 5.5 Mark end location of service connection with steel post painted blue; extend top of post 3', minimum, above ground.
- 5.5.1 City will mark location of water service with the symbol "W" stamped in front face of fresh concrete during pavement construction.

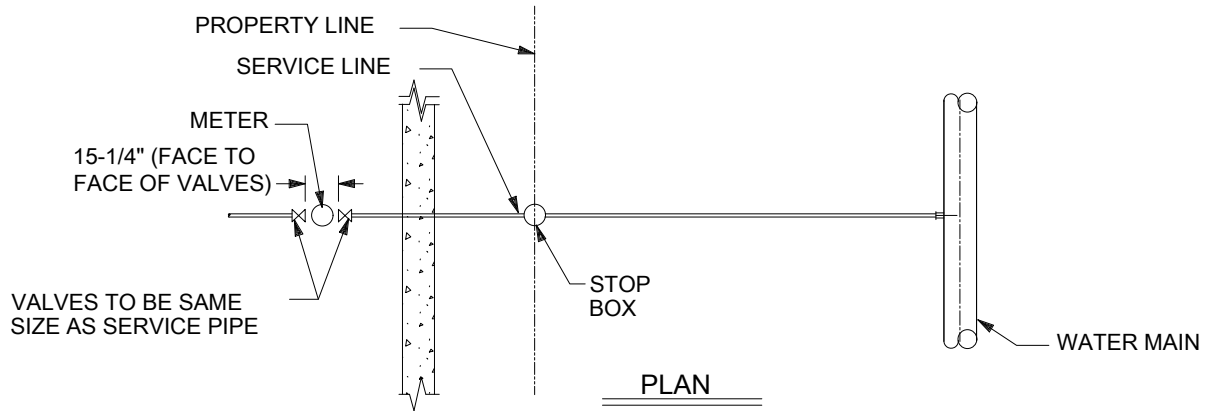
## 6. VALVE MANHOLES AND METER PITS

- 6.1 Use 60" dia. valve manholes or approved equal for water service greater than 1": install as shown on Standard Drawing; valve manholes not required except when directed by Water Utility.

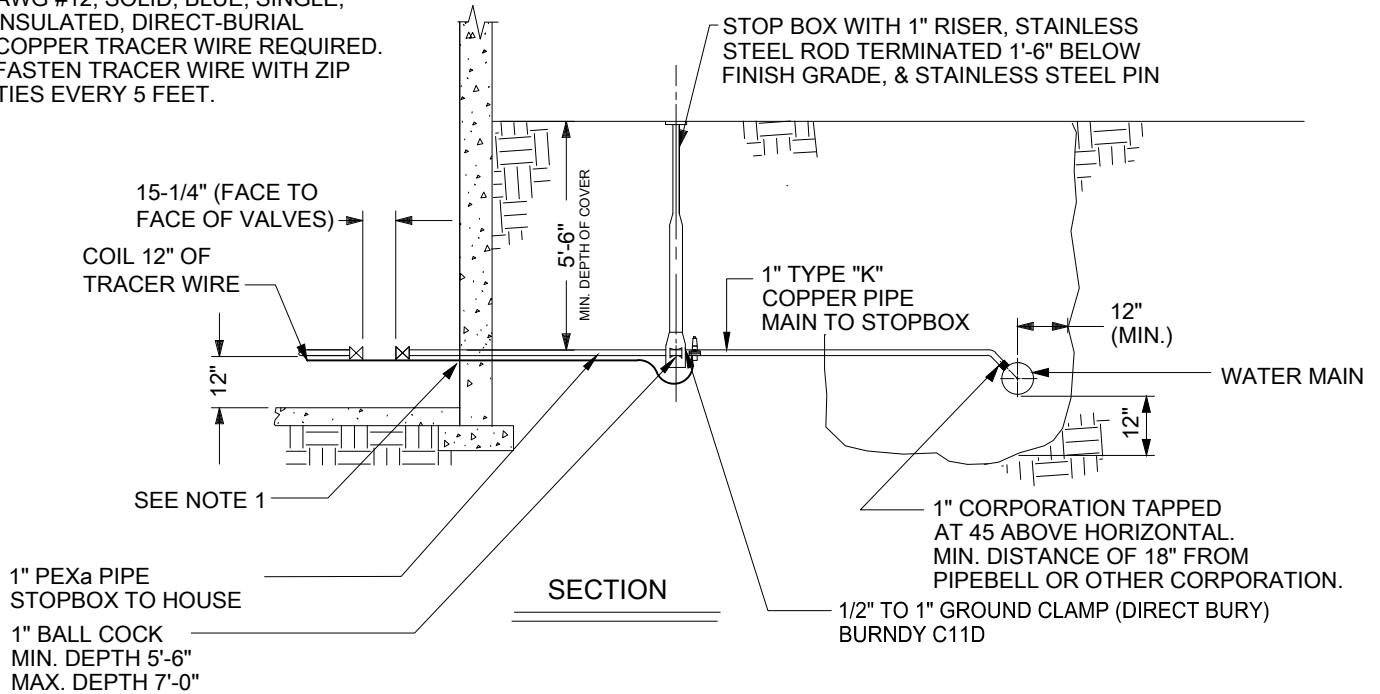
**New Requirement: March 2023**

Provide a raceway of 1" minimum diameter electrical non-metallic tubing (ENT) conduit the water meter(s) through joist/wall cavities to the building exterior within 3 feet of the gas meter(s) on commercial and residential buildings for device installation.

Tracer wire is no longer required.



AWG #12, SOLID, BLUE, SINGLE, INSULATED, DIRECT-BURIAL COPPER TRACER WIRE REQUIRED. FASTEN TRACER WIRE WITH ZIP TIES EVERY 5 FEET.



**NOTES:**

- PROTECT WIRE PASSING THROUGH WALL OR SLAB. SUPPORT PIPE PASSING THROUGH WALL OR SLAB BY ZIP TYING PIPE SECURELY TO ONE OF THE FOLLOWING:
  - 1/2" DIAMETER REBAR EMBEDDED THE FULL DEPTH OF THE CONCRETE FLOOR, OR
  - 1" SQUARE UNISTRUT PIPE ANCHORED TO THE FLOOR WITH A 1/4" THICK STEEL PLATE, OR
  - 1/2" DIAMETER ALL THREAD PIPE ANCHORED TO THE FLOOR WITH A 1/4" THICK STEEL PLATE

**CITY OF WAUKEE**

**1" WATER SERVICE  
COPPER TO STOP  
BOX/PEX TO HOUSE**