PWSD #2 WATER LINE NOTES

Connection of Water Services and Sewer Inspection Information

PART I - General Rules and Regulations

A) All water and/or sewer connection fees must be paid at least 48 hours prior to the scheduling of a typical residential water and/or sewer connection and/or inspections. A minimum of 24 hours in advance is required for the scheduling of water and/or sewer inspections and connections and will be scheduled on a first come, first serve basis and depending on personnel and/or material availability.

B) All ¾" and 1" water service connections within the Public Water Supply District No. 2 (Water District) service area shall be performed by Water District personnel. Under no circumstances shall a builder, contractor, plumber, or owner make a ¾" or 1" connection to a Water District main. All 1-1/2" and larger water service connections shall be performed by the contractor, builder, plumber, or owner with the Water District's inspection and approval and must meet all applicable Water District rules, regulations, and specifications.

C) All connections made to privately owned water mains or fire loops fed from the Water District's distribution system shall made by the builder, contractor, plumber, or owner and must be inspected and approved by the Water District. All materials used to make a service connection to a private line shall meet all applicable Water District rules, regulations, and specifications. No water service shall be connected nor the water meter installed until the private main or fire loop has been successfully pressure and bacteriologically tested in accordance with Water District requirements and procedures.

D) The following are the responsibility of the contractor, builder, plumber, or owner who is requesting to establish water and/or sewer service within the Water District service area. The Water District reserves the right to refuse service if any of these do not meet its requirements.

D-1) Proper sizing of the water and/or sewer service/lateral
D-2) Proper excavation of water tap holes as shown in Tap Hole Dimensions Detail "A"
D-3) Proper shoring or sloping of the banks of the tapping hole in accordance with all applicable OSHA and Water District safety rules and regulations
D-4) Proper barricading of water tap and/or sewer inspection holes and trenches
D-5) Proper installation of all components associated with the connection of new water and/or sewer customers to the Water District's distribution and/or collection systems
D-6) Proper backfilling, compaction, grade, and landscape restoration of tap holes and/or service line trenches

E) No connection shall be made nor will an inspection be approved, unless all materials are installed as required in the following rules, regulations and specifications. One return trip to an unsatisfactory installation and/or inspection will be allowed. For the second return trip and all trips thereafter; the contractor, builder, plumber, or owner shall be charged a minimum of a $25 (twenty five dollar) service charge, which shall be paid prior to the re-scheduling of an installation and/or inspection. All penalties charged will be as allowed under the latest revision of the Water District's Rules and Regulations.

F) The contractor, builder, plumber, and/or owner shall be responsible for all materials and maintenance issues associated with the water service connection dedicated to the Water District for a one year period, which shall begin from the date the water meter is installed and the initial water service is started by Water District personnel. The Water District shall assume responsibility for all ¾" through 2" service lines connected to Water District owned mains from the connection to the water main to the exit point of the service from the meter tile/pit one year after the meter installation and the start of water service. Water District responsibility for any maintenance issues associated with installation of dual meter settings shall begin one year after the second meter is set and the second water service is started.

G) Under no circumstance shall a meter setting be by-passed by use of a meter idler, bypass valve, or any device which prevents the proper billing of water consumption by the Water District. Water and/or sewer service shall be disconnected and no future water and/or sewer service initiated before being deemed acceptable by the Water District. The Water District mandates that it is a crime to tamper with or operate any appurtenance of the Water District's water distribution system without the prior written approval of the Water District. Anyone found to have tampered with the public drinking water system or the public sewer system may also be prosecuted under federal, state and/or local laws.

H) The Water District prohibits the installation of any domestic water meters and/or detector check valve meters within the interior of a building or structure.

I) Any change to the grade or ground level that necessitates the raising or lowering of the meter tile/pit will require prior written Water District approval and will be made solely at the customer's and/or home owner's expense.

J) The Water District reserves the right to update and/or revise the rules, regulations, and specifications contained within its policies that it deems in its best interest at any time.

PART II - Small Water Service (3/4" through 2") Information, Specifications, and Requirements

A) Supplier of materials and labor for water service line connections.
A-1) The Water District shall be responsible for providing the saddle, the corporation stop, the meter, the meter gaskets, and the labor necessary to connect all ¾" and/or 1" services to Water District owned and/or maintained 2"- 12" PVC water mains.
A-2) On 1-1/2" and 2" water service connections the Water District will supply only the water meter, the gaskets, and the bolts and nuts needed to complete the service installation. The builder, contractor, plumber, or owner shall provide all other materials including the tapping saddle as well as the labor and installation.
A-3) On all ¾" through 2" connections on mains larger than 12" in diameter, the builder, contractor, plumber, or owner shall provide the labor and installation of the connection. The builder, contractor, plumber, or owner shall also provide all materials including the tapping saddle for mains larger than 12" in diameter. Specifications and requirements for all such connections shall be at the discretion and determination of the Water District.
A-4) All 1-1/2" and 2" service connections must be witnessed by the Water District with the coupon from the wet tap to be supplied to Water District personnel.

B) All other materials for ¾" through 2" services including the copper service line, the water meter setter, the meter tile/pit, the frame and cover, and any blocking materials deemed necessary shall be supplied and installed by the builder, contractor, plumber, or owner.

C) All 1-1/2" and larger water services designed to supply a commercial building or development shall submit two copies of a utility site plan for Water District review and approval no less than 8 weeks prior to scheduling of the water service connection and/or inspection. All other 1-1/2" and/or 2" water service connection requests shall be submitted for approval by the Water District no less than 48 hours prior to their installation by the builder, the contractor, the plumber, or the owner.

D) All ¾" through 2" water services shall be installed in accordance with the following specifications and material requirements as shown in the Typical Service Details "B", "C", "D", "E", and "F":

D-1) ¾" and 1" water services must be Type K copper from the water main to 3' beyond the discharge (downstream) side of the meter setter.

D-2) 1-1/2" and 2" water services must be Type K copper from the water main to 3' beyond the discharge side of the meter. On road crossings or services that exceed 20' in length between the water main and the meter tile/pit, 1-1/2" or 2" SDR 200 p.s.i. C.T.S. poly pipe ("poly") may be substituted with the Water District's written approval.

D-3) Poly service lines permitted to be installed between a Water District main and the meter tile/pit shall require 12 gauge, solid strand, and coated wire to be appropriately attached to the poly pipe with no less than 6' of wire stubbed up within the meter tile/pit.

PWSD #2 WATER LINE NOTES

D-4) 1-1/2" and 2" services to be installed under pavement must be encased within a 4" conduit to extend no less than 2' from both edges of the street or roadway. Encasement of ¾" and 1" services may be required at the discretion of the Water District

D-5) ¾" through 2" water services must be a continuous piece of pipe from the water main to the meter setter and contain no couplers, reducers, connections, bushings, or other coupling devices.

D-6) ¾" and 1" service connections performed by the Water District must have Type K copper extended not less than 2' beyond the water main to facilitate the connection.

D-7) ¾" and 1" services must be installed so that the service line can be connected to the corporation stop and service saddle at between the 10 o'clock and 11 o'clock position.

D-8) 1-1/2" and 2" service saddles must be installed so that the corporation stop is in the 9 o'clock position on the water main with the stem in the 12 o'clock position.
D-9) 1-1/2" and 2" services must have approved masonry blocking between the bottom of the corporation stop and firm soil. Blocking of the corporation stops for ¾" and 1" services may be required at the discretion of the Water District.

D-10) ¾" through 2"water services must be laid straight and perpendicular from the connection on the water main to the Type K copper exiting the meter tile/pit.

D-11) Back-tap connections (connections to the side of the water main opposite the meter) are prohibited.

D-12) Dual meter settings must be installed on the property line of the 2 residences or structures to be served.

D-13) Meter tiles/pits must be located no less than 12' and no more than 15' from the edge of the street or roadway.

D-14) Meter tiles/pits must not be installed under pavement of any kind including sidewalks, bike paths, driveways, parking lots, or behind fencing, under landscaping, in ditches, drainage areas, or in any setting that restricts the Water District from unobstructed access.

D-15) Meter tiles/pits for ¾" through 2" water meters must be the prefabricated high density polyethylene (plastic) type.

D-16) Meter tiles/pits must be of the smooth interior and exterior wall design. Ribbed or corrugated meter tiles/pits are prohibited. The interior must be white.

D-17) Meter tiles/pits must not have risers and/or other means of raising or elevating the meter tile/pit to the finish grade or ground level. Meter tile/pit frames and covers must be the prefabricated cast iron type.

D-18) Meter covers/lids must be the small nut locking type, must be drilled to accommodate either touch or radio read meters, and must be installed flush with the finish grade of the ground or yard.

D-19) Meter tiles/pits, frames, and covers must be sized as follows:

D-19-a) Single 5/8"x3/4" meter sets require a 18"x30" meter tile/pit with an 18" frame and a locking small nut cover with one 1-7/8" diameter hole in the cover.

D-19-b) Dual or double 5/8"x3/4" meter sets require a 20"x30" meter tile/pit with a 20" frame and a locking small nut cover with two 1-7/8" diameter holes in the cover.

D-19-c) Single 1" meter sets require a 20"x30" meter tile/pit with a 20" frame and a locking small nut cover with one 1-7/8" diameter hole in the cover.
D-19-d) Single 1-1/2" and 2" meter sets must be installed in a 36"x36" meter tile/pit with a 36"x 20" cast iron adapter ring, a 20" frame, and a locking small nut cover with one 1-7/8" diameter hole drilled through the cover/lid..

D-20) Single meter setters must be of the prefabricated copper setter type with compression fittings on both the inlet and outlet sides of the setter.

D-21) Meter setters must be equipped with a ball angle valve and lock rings on the inlet side of the meter, and a single check valve on the discharge side of the meter.

D-22) Dual 5/8"x3/4" meter settings must be installed using a 1" compression inlet by dual ¾" outlet U-branch brass fitting and 2 tip and nut setters to split the services.

D-23) 1-1/2" and 2" meter setters must be equipped with a bypass line containing an angle ball valve with lock rings.

D-24) Meter setters must be a minimum of 15" below the ground or finish grade level, but no more than 20" from the ground or finish grade level.

D-25) Water services must have a minimum of 32" and a maximum of 42" of acceptable cover or backfill.

D-26) ¾" through 2" meter setters must be centered within the meter tile/pit and the inlet and outlet piping must be fully exposed within the meter tile/pit.

PART III - Small Water Meter (5/8"x3/4" through 2") Information, Specifications, and Requirements

A) All 5/8"x ¾" through 2" water meters shall be installed by Water District personnel. The Water District shall install the type, brand, and size meter it deems in its best interest to properly bill the contactor, builder, plumber, or owner for water consumption.

B) Water meters must be sized properly and shall coincide with the size of service line running from the water main to the meter setter.

C) The Water District shall supply all washers, gaskets, bolts, and nuts to properly set all 5/8"x3/4" through 2" water meters.

D) The Water District requires the following spacing between the flanges on all 5/8"x ¾" through 2"meter setters installed within the Water District:

D-1) 5/8"x3/4" meters require a minimum of 7-1/4" and a maximum of 7-1/2" between the flanges. 5/8"x3/4" meters have a 7" lay length

D-2) 1" meters require a minimum of 11" and a maximum of 11-1/4" between the flanges. 1" meters have a 10-3/4" lay length
D-3) 1-1/2" meters require a minimum of 13-1/4" and a maximum of 13-1/2" between the flanges. 1-1/2"meters have a 13" lay length

D-4) 2" meters require a minimum of 17-1/4" and a maximum of 17-1/2" between the flanges. 2" meters have a 17" lay length

E) Interior plumbing must be completed or an appropriate shut off valve installed on the customer maintained service line before the water meter is installed and water service is initiated.

F) Meter pits must be easily accessible, free of debris, and the meter pit cover exposed at finish grade level for the water meter setting to be facilitated.

G) Failure to meet Water District specifications, rules, and regulations concerning the proper installation of water meters by the builder, contractor, plumber, or owner will require one return trip by Water District personnel to facilitate a meter setting. A second return trip and all trips thereafter will result in a $25.00 trip charge being assessed, which shall be paid by the builder, contractor, plumber, or owner prior to the re-scheduling of a meter installation.

PWSD #2 WATER LINE NOTES

PART V - Fire Protection Line and/or Detector Check Valve Information, Specifications, and Requirements

A) Fire protection lines and systems must meet the guidelines described in the Water District Rules and Regulations.

B) Additional information, requirements, and specifications concerning fire protection lines are as follows:

B-1) Detector check vaults and/or pyramid boxes must be located in "green-space" and made easily accessible by Water District personnel. Only the Water District will determine if the physical conditions at a specific location are considered accessible.

B-2) Detector check vaults and/or pyramid boxes must be constructed by Champion Precast Inc. or a Water District approved equal.

B-3) Detector check vaults and/or boxes must use an approved light square frame and circular cover with 1- 7/8" diameter hole to accommodate a touch or radio read meter.

B-4) Detector check valve vault and/or box lids must be installed flush with the ground level and the frame and cover is prohibited from being raised to grade by use of bricks, concrete blocks or any other method not deemed acceptable by the Water District

B-5) Detector check valve installations must include all piping that will facilitate the installation of a Water District meter. The Water District will supply only the meter and the gaskets and/or washers needed to set the meter.

B-6) Detector check valve assemblies must be installed using Water District owned meters which have lay lengths as described in this document.

B-7) Detector check valve piping that connects the Water District owned meter to the valve assembly is required to be no more than 42" below the frame and cover and/or the finish grade level.

B-8) Detector check valve piping that connects the Water District owned meter to the valve assembly is required to have ball valve on the inlet side of the meter and a single check valve and a ball valve on the discharge side of the meter.

B-9) Private fire protection mains and fire hydrants not required to be piped through a detector check valve assembly shall be allowed only at the Water District's discretion.

B-10) Private fire protection mains and hydrants must be piped and located on the exterior of all buildings and/or structures.

PWSD #2 WATER LINE NOTES

SECTION 1 - WATER DISTRIBUTION SYSTEM MATERIALS

1. GENERAL

Materials for use at any location in the water distribution system shall meet the requirements as set forth in the following Articles under this Section. Where references are made to standards such as AWWA, ANSI, ASTM, etc. it shall be understood that such references are to the latest edition of such standards. When requested by the District, Contractors shall furnish affidavits from their suppliers certifying that materials conform to stated standards before being incorporated into the work.

Where materials are specified by brand name and model, followed by the words "or approved equal", the information concerning an "approved equal" product must be submitted to the District and a written statement of approval by the District must be issued by the District before such material may be used. In all cases, approval of such alternate products shall be at the sole discretion of the District.

Failure to comply with these specifications shall result in rejection of the work by the District.

2. PIPE

All pipe for water mains shall be 6" (inch) in diameter or larger and shall be PVC or ductile iron. In general pipes 6", 8" and 12" in size shall be PVC and pipes larger than 12" shall be ductile iron. For certain projects, 12"' pipe may be required to be ductile iron. No 10", 14" or 18" pipe will be allowed except as required to connect to existing facilities.

PVC pipe shall be class 200, with a standard dimension ratio (SDR) of 21 or as otherwise directed by the District. Pipe for use under this heading shall be manufactured from clean, virgin, N.S.F. approved Type I, Grade I, 1120 P.V.C. conforming to A.S.T.M. specification D2241. The pipe shall be pressure rated for a hydrostatic working pressure of 200 PSI at 73.4 degrees F. and shall meet all applicable requirements as set forth under Commercial Standard (CS) 256-63. The pipe shall also conform to the following tests conducted at 73.4 degrees F.

a. Hydrostatic Integrity: The pipe shall withstand without failure, a pressure of 420 PSI. for at least 1,000 hours, in accordance with A.S.T.M. Specifications 1598-63T. The pipe shall withstand without failure, a pressure of 630 PSI. applied in 60 to 90 seconds in accordance with Specification 2599-62T.

b. Vice Flattening Test: A 2 inch wide section of pipe shall be flattened in less than one minute, to 100% without showing evidence of shattering or splitting at 73.4 degrees F.

c. Pipe Wall Thickness: Rigid plastic pipe shall be manufactured to provide a minimum pipe wall, and bell or coupling thickness in accordance with the following schedules:

I.D. Size (Inches)	Minimum Wall Thickness (Inches) Barrel	Bell
2	.113	.146
4	.214	.258
6	.316	.376
8	.410	.481
10	.511	.607
12	.606	.735

Concentricity: The outer diameter of the pipe shall be concentric within .003 of an inch.

All PVC pipe shall be joined by means of a rubber ring slip joint. Cement weld or glued joints will not be permitted. The slip joint shall be formed by a bell joint which shall be an integral and homogenous part of the pipe formed by extrusion, with a ring groove for seating the rubber ring gasket. "Ultra Blue" or other PVC with any thickness less than stated above will not be allowed. Also, -900 PVC pipe will not be allowed.

Ductile Iron pipe shall conform to AWWA C-151 and be cement lined and seal coated in accordance with AWWA C-104. The joints shall be push on type with rubber gaskets conforming to AWWA C-111. In general, ductile iron pipe shall be pressure Class 250 with Class 50 wall thickness. For all pipe placed in casing pipe under roads or highways, where used for creek or ditch crossings or at any location requiring vertical fittings with concrete encasement or thrust blocking, the pipe shall be ductile iron, pressure Class 350 with Class 52 wall thicknesses.

3. FITTINGS

All fittings shall be ductile iron, Class 350, conforming to AWWA C-153. The fittings shall have mechanical joints conforming to AWWA C-111 and be cement lined and seal coated in accordance with AWWA C-104. If restraints are being used in a ductile iron restraint system for pipe 16" and larger, slip joint fittings with TR FLEX, Flex Ring or Super Lock joints may be used. Slip joint fittings with Field Lok gaskets will not be allowed.

PWSD #2 WATER LINE NOTES

4. VALVES

Valves for 6", 8" and 12" pipe shall be gate valves. Valves for 16" pipe and larger shall be butterfly valves. All gate valves shall be ductile iron or cast iron, resilient wedge valves, with non rising stems, 2" operating nuts, mechanical joints and epoxy coated bodies and be manufactured in accordance with AWWA Standard C-509. The wall thickness for ductile iron valves shall meet or exceed AWWA Standard C-153. The valves shall be designed to withstand a working pressure of 250 PSI on either side of the valve. The valves shall be American Flow Control Model AFC-2500, U.S. Pipe Metroseal 250, Tyler Class 250, Mueller A-2360 or approved equal.

The valves shall open counterclockwise and have the maker's initials, pressure rating, and year in which manufactured cast on the body. Where valves are set at a depth that leaves the operating nut more than four (4) feet below the proposed grade, an extension stem shall be furnished to bring the operating nut to within two (2) feet of the proposed grade.

Butterfly valves shall conform to AWWA C-504 for Class 150B butterfly valves. All butterfly valves shall have a working pressure of 200 PSI. All valve components shall conform to Underwriters Laboratories classification in accordance with ANSI/NSF 21.11.

Butterfly valves shall have cast iron or ductile iron bodies, be designed for buried service, have mechanical joint ends and have side mounted 2" square operating nuts suitable for use in a standard valve box as stated herein for gate valves.

Discs shall be offset to provide an uninterrupted 360 seating edge and shall be ductile iron per ASTM A48, Class 40C. The disc seating edge shall be solid 316 stainless steel. Sprayed mating seating surfaces are not acceptable. The disc shall be securely attached to the valve shaft utilizing a field removable/replaceable 316 stainless steel torque screw on sizes 6" – 12" or a tangential pin locked in place with a set screw on sizes above 12".

The valves shafts shall be type 304 stainless steel. Valve seals shall be self-compensating V-type packing with a minimum of four sealing rings. One piece molded shaft seals and O-ring shaft seals will not be allowed.

The seats shall be of Buna-N for water and shall be molded in and vulcanized to the valve bodies. The seats shall contain integral shafts seals protecting the valve bearings and packing from any line debris. Seats vulcanized to cartridge inserts in the valve bodies and seats on the discs are not allowed. Valve shaft bearings shall be non-metallic and permanently lubricated.

The exterior and interior of metallic surfaces of each valve shall be shop painted per AWWA C504. The interior of the bodies shall have a full rubber lining vulcanized to the valve bodies.

Each valve operator shall be sized to operate the valve at the rated working conditions of the valve. Each valve shall be assembled, adjusted, and tested as a unit per AWWA C504, by the valve manufacturer. The test pressure for leakage tests shall be 225 PSI.

5. VALVE BOXES

All buried valves shall be provided with a Buffalo type valve box, Tyler 562-S or 564-S, or approved equal. The tops of the valve boxes shall be designed with grooves to accommodate a valve box adjusting tool as provided in the tops of the above referenced Tyler valve boxes. The valve boxes shall be furnished complete with extension pieces where necessary and the top of the box shall be flush with the finished grade or pavement surface. All valve boxes shall have a ½ " diameter hole field drilled 3" from the top to accommodate the water main locater wires.

6. CONCRETE FOR THRUST BLOCKING

Concrete for thrust blocking shall be ready mix concrete, composed of Portland cement, sand and gravel with not more than six (6) gallons of water per sack of cement. The concrete shall be a 5-1/2 sack mix with 28 day minimum compressive strength of 3,000 PSI.

7. BEDDING MATERIAL

Bedding material for all PVC pipe and where required for ductile iron pipe shall be crushed limestone and screenings, ¾" minus.

8. WATER MAIN TRACER TAPE

Water main tracer tape shall be installed with all water mains. The materials to be installed for this purpose shall consist of three (3) inch wide tape made of bonded layer plastic with a metallic foil core. Tape splices shall be knotted to prevent tensile pressure on the splice. The material to be used for this service shall be "Terra Tape D" as manufactured by the Griffolyn Company of Houston, Texas, or approved equal. The metallic tape shall be colored to contrast with the soil and shall bear an imprint identifying the line below, such as; "Caution, Water Main Buried Below".

9. WATER MAIN LOCATER WIRE

For all water mains, PVC and ductile iron pipe, a locater wire shall be provided as specified in Section II of these specifications. The locator wire shall be a single insulated No. 12 copper wire, THNN or THWN, gasoline and oil resistant. The insulated wire shall be furnished in rolls of not less that 500 feet, where splices are required, all splices shall be made with 3M splice kits. No other type of splicing will be allowed.

10. TAPPING SLEEVES AND VALVES

All tapping sleeves for 12" and smaller pipe shall be stainless steel with stainless steel flanges. The tapping sleeves shall be Power Seal No. 3490 AS, Smith Blair 665 or JCM 432, or approved equal, with class 125 ANSI B-16.1 flanges on the outlets. For 12" ductile iron pipes, Smith Blair 662 or other approved 4 bolt models may be used. For pipes larger than 12", the tapping sleeves shall be ductile iron, split mechanical joint type.

Tapping valves shall be designed for leak tight attachment to the tapping sleeve and tapping machine, shall have mechanical joint x flanged joint ends and shall otherwise conform to Section "I-4 Gate Valves" of these specifications. All tapping valves shall have a valve box conforming to "I-5 Valve Boxes" of these specifications.

11. CASING PIPES

Casing pipes for road and highway crossings shall be welded steel pipe with a minimum wall thickness of ¼", unpainted or coated, and shall have a minimum diameter as shown below and the ends of casing pipes shall be sealed with pre-formed seals or other material approved by the District. Casing pipes shall be sized and have wall thicknesses as shown in the table below.

DI Carrier Pipe	Welded Steel Casing Pipe	Casing Pipe Thickness
6"	16"	0.25"
8"	20"	0.25"
12"	24"	0.375"
16"	30"	0.375"
20"	30"	0.375"
24"	36"	0.375"
30"	42"	0.375"
36"	54"	0.5"
42"	60"	0.5"

PWSD #2 WATER LINE NOTES

12. PIPE SPACERS IN CASING PIPES

Wherever water mains are installed in casing pipes, the ductile iron pipe shall be supported with "RACI" type spacers at 6' intervals, or 3 spacers per 20' length of pipe. The spacers shall be carefully installed on the pipe before it is installed in the casing pipe.

13. FIRE HYDRANTS

Fire hydrants shall have a 5-1/4" valve opening, one 4-1/2" steamer nozzle and two 2-1/2" hose nozzles and a 6" mechanical joint shoe. The fire hydrants shall be Mueller Figure A-423, American Darling No. B-84-B, U.S Pipe or Kennedy K81D, delivered to the site coated with a black bituminous coating for the portions to be underground and a primer and yellow finish coat for the portions to be exposed. The types of paint and coating shall be as recommended by the fire hydrant manufacturer. All hydrants shall receive a final paint coat in the field. Exposed barrels and tops shall be chrome yellow. All hydrant cap threads shall be field-lubricated with an approved, food-grade grease. The hydrants shall have a minimum "bury" of four (4) feet unless the depth of the main requires a deeper "bury". Refer to Detail B of these specifications.

14. POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE

Polyethylene encasement shall be applied to underground installations of ductile iron pipe, fittings, valves and other appurtenances.

Polyethylene film shall be manufactured of virgin polyethylene material conforming to the following requirements of A.S.T.M. Standard Specification D-1248-78 for Polyethylene Plastics Molding and Extrusion Materials:

Raw material used to manufacture polyethylene film :
Type: I
Class: A (natural) or B (black)
Grade: E-I
Flow rate: 0.4 maximum
Dielectric strength: Volume resistivity, minimum ohm-cm(3)=10 (15)

Polyethylene film:
Tensile strength: 1200 psi (8.3 MPa) minimum
Elongation: 300 percent minimum
Dielectric strength: 800 V/mil. (31.5 um) thickness minimum

Thickness:
Polyethylene film shall have a minimum thickness of 0.008 in. (8 mil. or 200 um). The minus tolerance on thickness shall not exceed 10 percent of the nominal thickness.

Tube size or sheet width:
Tube size or sheet width for each pipe diameter shall be as listed below.

Nominal Pipe Diameter (in)	Minimum Polyethylene Width in. (cm) Flat Tube	Sheet
4	16 (41)	32 (82)
6	20 (51)	40 (102)
8	24 (61)	48 (122)
10	27 (69)	54 (137)
12	30 (76)	60 (152)
14	34 (86)	68 (172)
16	37 (94)	74 (188)
24	41 (104)	82 (208)

15. AIR RELEASE DEVICES

For high points in 12" and smaller mains, manual air release devices as shown on Detail E of these Specifications shall be provided. For high points in mains larger than 12", automatic air release valves shall be provided and such valves shall be Combination Air Valves for Waterworks Service in accordance with AWWA C512. The valves shall be in concrete vaults, 60" in diameter, with cover, air vent, isolation valve and pressure gauges all as designed by the Developer's Engineer and approved by the District.

PWSD#2 INSPECTION NOTE

FORTY EIGHT (48) HOURS PRIOR TO STARTING ANY CONSTRUCTION RELATED TO THE WATER SERVICE, THE DEVELOPER SHALL MAKE ARRANGEMENTS WITH PUBLIC WATER SUPPLY DISTRICT #2 TO SCHEDULE INSPECTION OF THE WORK TO ASSURE COMPLIANCE WITH THE PLANS AND SPECIFICATIONS AS APPROVED.

Kiddie Academy®

LOTS 2 & 3 OF LAKESIDE SHOPPES
4088 WINGHAVEN BLVD.
CITY OF O'FALLON
STATE OF MISSOURI

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GEORGE MICHAEL STOCK
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PROFESSIONAL ENGINEER
3/26/13

GEORGE M. STOCK E-25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

Developer / Owner (Under Contract)
Chesterfield Childcare Properties, LLC
23 Bopp Lane
St. Louis, Mo 63131

Facility Operator
Concord Properties, LLC
23 Bopp Lane
St. Louis, Mo 63131

SPECIFICATIONS SHEET

DRAWN BY: A.C.D.	CHECKED BY: G.M.S.
DATE: 01/15/13	JOB NO.: 212-5043

REVISIONS:

1	02/05/13 – CITY/WATER REVISIONS
2	03/12/13 – CITY REVISIONS
3	03/26/13 – CITY REQUIRED SETS

P+Z No. 9831.41.04
(APPROVED JANUARY 4, 2013)

City No.

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C2.1