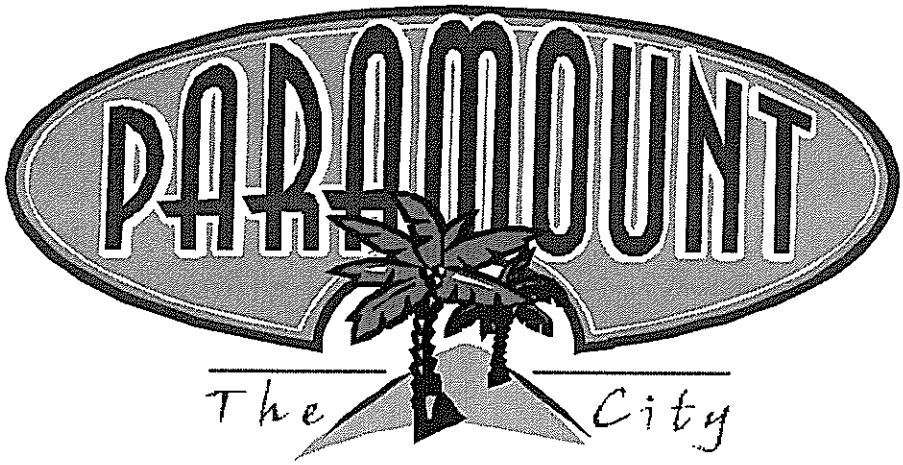


Standard Drawings and Specification for City of Paramount Water System

City of Paramount
Public Works Department
Water Division

August 2008

CITY OF PARAMOUNT WATER STANDARDS

Standard Drawings Table of Contents

W-27	Concrete Encasement
W-28	Water Quality Sampling Station

CITY OF PARAMOUNT
WATER MAIN CONSTRUCTION NOTES

SECTION 100

CITY INSPECTOR SHALL BE NOTIFIED OF ANY AND ALL WATER SYSTEM CONSTRUCTION 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AT (562) 220-2020.

100.1 Materials shall be handled and installed in a workmanlike manner by a contractor holding a valid Class A or C-34 Specialty License from the State of California.

100.2 Excess material shall be returned to the City Yard prior to final approval.

100.3 Normal working hours are 7:00 a.m. to 3:30 p.m. Monday thru Friday, excluding City-observed holidays. The City Inspector shall be notified 48 hours prior to any work.

100.4 Polyvinyl Chloride water mains shall be installed in accordance with A.W.W.A. Standard for "Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water", C-605 latest version and the "City of Paramount Standard Drawings for Municipal Water System".

100.5 Pipe and fittings: Water pipeline materials in the City of Paramount shall be polyvinyl chloride (PVC) pressure pipe with push-on type joint with a nominal laying length of eighteen (18) feet in accordance with AWWA Standard C-900. The fittings shall be push-on type or mechanical joint end connections.

100.6 Ductile Iron water mains and appurtenances shall be installed in accordance with A.W.W.A. Standard for "Installation of Ductile-Iron Water Mains and their Appurtenances", C-600 latest version and the "City of Paramount Water Standards".

100.7 Pipe and fittings: When required, water pipeline materials in the City of Paramount shall be ductile iron pipe with push-on type joint with a nominal laying length of eighteen (18) feet in accordance with AWWA Standard C-151. The fittings shall be push-on type joint, mechanical joint or flanged end connections.

100.8 Trench excavation. The pipeline, fittings, and appurtenances shall be installed at a minimum depth of three and one-half (3.5) feet of cover relative to finished grade unless otherwise indicated on construction plans. An excavation permit shall be required for any excavation within public right-of-way.

100.9 Backfill:

Pipe Zone: Backfill within the pipe zone, four (4) inches below to twelve (12) inches above the pipe, shall be imported sand with a sand equivalent of 30. Imported sand used in the pipe zone shall conform to SSPWC Section 200-1.5.1 and shall meet the following gradation: 100% passing 3/8-inch sieve and not more than 20% passing a 200-mesh. Certification that the sand meets this requirement shall be provided.

Trench Zone: The trench zone includes the portion of the trench from the top of the pipe zone to the bottom of the pavement structural section in paved areas or to the existing surface in unpaved areas. Native or imported earth backfill acceptable for use, shall be fine-grained material free form roots, debris and rocks with a maximum dimension not larger than 4-inches

Rocky or unsuitable bedding and backfill material shall be replaced with gravel or crushed stone. Crushed and/or naturally occurring rock shall conform to SSPWC Section 200-1.2 and shall have the gradation for 1-1/2-inch rock meeting the following gradation:

100 to 90% passing 1-1/2" sieve, 55 to 30% passing 1" sieve, 15 to 0% passing ¾" sieve and 05 to 0% passing a 3/8" sieve.

Compaction shall be completed to the satisfaction of the City Inspector, and no case shall be less than 90% to relative density for all backfill.

100.10 Main line taps: All main line taps 4-inches and greater in diameter to existing City mains shall be made by City crews and charged to the project. The project shall be responsible for excavation and backfill, maintaining temporary patch, compaction of backfill material, raising of valve box to finish grade, and permanent pavement surrounding the valve box.

100.11 Hydrant assembly: Hydrants shall be installed per Standard Drawings W-5 and W-6 where required.

100.12 Tie-ins: Connections to existing City water mains and/or tapping valves shall be made only after successful pressure test and disinfection has been completed.

100.13 Valve installation: Valves shall be installed per Standard Drawing W-2. Concrete valve supports shall be installed as shown on Standard Drawing W-1.

100.14 Thrust blocking: All changes in pipe direction or grade shall be adequately supported with concrete, per Standard Drawing W-20, or other approved means.

100.15 Polyethylene wrap: Polyethylene tubing shall be installed over all ductile iron pipe, copper tubing, valves, fittings, and appurtenances per A.W.W.A "Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems" C-105, latest edition.

100.16 Pressure test: The entire water system, including pipeline, connections, fittings, and appurtenant equipment shall be subject to a hydrostatic pressure test of not less than 225 pounds per square inch (psi) for a minimum of two hours. The water necessary to maintain this pressure shall be measured through a meter or other means satisfactory to the City Inspector. The amount of water entering the pipe during the test shall be considered as the leakage.

Leakage shall not exceed the rate of fifteen (15) gallons per inch of diameter per twenty-four (24) hours per mile of pipe tested. Any noticeable leak shall be stopped and any defective pipe shall be repaired or replaced with new sections and the test repeated. All water, temporary bulkheads, testing equipment or materials necessary for the test shall be furnished by the pipeline contractor.

100.17 Disinfection: Subsequent to the pressure test and prior to acceptance of the work, the entire water system, including pipeline, all fittings and other appurtenant equipment, shall be disinfected by the pipeline contractor in accordance with A.W.W.A. "Standard for Disinfecting Water Mains" C-651, latest version.

Treated water with 25 ppm of free chlorine shall be retained in the entire water system for at least twenty-four (24) hrs. and a free chlorine residual of not less than 10 PPM shall be produced in all parts of the system after the twenty-four hour period has elapsed.

After chlorination, the water shall be flushed from the entire water system, until replacement water test is equal chemically and bacteriologically to that of the permanent source of supply. It shall be the responsibility of the pipeline contractor to dispose of all chlorinated water in a safe, environmentally acceptable manner.

The City will perform all necessary bacteriological analyses.

100.18 Valve boxes: It shall be the responsibility of the developer and/or pipeline contractor to secure accurate locations of all valves affected by the project.

All on-site, off-site, and tapping valves shall be tied and raised to grade by contractor in accordance with Water Standard W-2. Water valve covers on all construction projects that are covered over before, during, and after construction operations shall be tied out with exact measurements by the contractor's surveyors. A copy of these survey measurements shall be given to the City's Inspector prior to covering over the water valves.

All water valve covers and cans shall be adjusted to grade within ten (10) working days after being paved over. Not withstanding, the Contractor shall raise all valves within the vicinity of and before placing traffic detector loops. The Contractor shall be responsible for cleaning all water valve can necks clear of debris before, during and after construction, and marking all ties clearly in the field for the City's use during construction operations.

The Contractor shall verify, in writing, to the City's Inspector prior to covering over water valves that:

1. Water valve can necks are cleaned, tied out and the ties are transmitted herewith.
2. Water valve ties are marked clearly in the field and the Contractor has field reviewed ties with the City Inspector.
3. The contractor shall provide the valve ties to the City Inspector for review and acceptance for all newly installed valves prior to completion of the project.

100.19 Final Inspection: Final inspection shall be made after complete installation of water system and appurtenances, disinfection, raising to grade of on-site, offsite, and tapping valves, meter boxes and installation of meter box and fire hydrant concrete collars.

100.20 All City dedicated fire hydrants shall be painted after installation with the following: One coat of clean metal primer Rust-oleum 7673 or equal; One intermediate coat of Rust-oleum 2764 flat white or equal; One finish coat of high gloss Safety Yellow Rust-oleum 7644 or equal.

100.21 The City shall provide final approval to tie new water main only after successful pressure test, disinfection and sampling has been completed. When water mains and services, or any portion of them, have been pressure tested, disinfected and otherwise completed to the extent they are operable, the City may, at its sole discretion assume operation of the pipeline facilities and place them into service to provide water for fire protection and other uses. This may occur prior to the final inspection and final acceptance of all work.

The City shall provide the developer with notification when it shall commence operation of new on site facilities. Following such notification, all water valves and other appurtenances shall be operated by the **CITY PERSONNEL ONLY.**

This action by the City shall not be interpreted to relieve the developer and/or his contractor of the full responsibility for completing the work in its entirety, for correcting defective work, and for protecting the work from damage.

CITY OF PARAMOUNT
WATER SERVICE CONSTRUCTION NOTES

SECTON 200

CITY INSPECTOR SHALL BE NOTIFIED OF ANY AND ALL WATER SYSTEM CONSTRUCTION 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AT (562) 220-2020

200.1 Materials shall be handled and installed in a workmanlike manner by a contractor holding a valid Class A or C-34 Specialty License from the State of California.

200.2 Excess material shall be returned to the Water Yard prior to final approval.

200.3 Normal working hours are 6:30 a.m. to 4:00 p.m. Monday thru Thursday, excluding City-observed holidays. The City Inspector shall be notified 48 hours prior to any work.

200.4 Water service laterals shall be installed in accordance with the "City of Paramount Standard Drawings for Municipal Water System".

200.5 Materials: Materials shall be provided by the contractor, except for water meters and water meter boxes for 1" and 2" services.

200.5.1 5/8" X 3/4" services shall be plumbed with 1" Polyethylene tubing. Connections shall be made with 1" corporation stop Jones J-3401 and 1" X 3/4" angle meter stop Jones J-4201 or equal.

200.5.2 1" services shall be plumbed with 1" Polyethylene tubing. Connections shall be made with 1" corporation stop Jones J-3401 and 1" angle meter stop Jones J-4201 or equal.

200.5.3 1 1/2" services shall be plumbed with 2" Polyethylene tubing. Connections shall be made with 2" corporation stop Ford FB-1000 and 2" angle meter valve FV43-777W or equal.

200.5.4 2" services shall be plumbed with 2" Polyethylene tubing. Connections shall be made with 2" corporation stop Ford FB-1000 and 2" angle meter valve FV43-777W or equal.

200.5.5 Type K copper tubing and fittings may be substituted for service laterals. Polyethylene tubing shall be installed over copper tubing per A.W.W.A "Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems" C-105, latest edition. All brazing of couplings, fittings and joints shall be silver soldered.

200.6 Trench Excavation: Service laterals shall be installed perpendicular to the alignment of the main line, and at a minimum depth of 24 inches cover relative to finished grade.

An encroachment permit shall be required for any excavation within public right-of-way. The permit shall be obtained from the City of Paramount Public Works Department at 15300 Downey Avenue, Paramount, California 90723.

200.7 Trench Backfill:

Pipe Zone: Backfill within the pipe zone, four (4) inches below to twelve (12) inches above the pipe, shall be imported sand with a sand equivalent of 30. Imported sand used in the pipe zone shall conform to SSPWC Section 200-1.5.1 and shall meet the following gradation: 100% passing 3/8-inch sieve and not more than 20% passing a 200-mesh. Certification that the sand meets this requirement shall be provided.

Trench Zone: The trench zone includes the portion of the trench from the top of the pipe zone to the bottom of the pavement structural section in paved areas or to the existing surface in unpaved areas. Native or imported earth backfill acceptable for use, shall be fine-grained material free form roots, debris and rocks with a maximum dimension not larger than 4-inches.

Rocky or unsuitable bedding and backfill material shall be replaced with gravel or crushed stone. Crushed and/or naturally occurring rock shall conform to SSPWC Section 200-1.2 and shall have the gradation for 1-1/2-inch rock meeting the following gradation: 100 to 90% passing 1-1/2" sieve, 55 to 30% passing 1" sieve, 15 to 0% passing ¾" sieve and 05 to 0% passing a 3/8" sieve.

200.8 Installation:

200.8.1 Service taps shall be at an angle of sixty degrees (60) relative to the vertical plane.

Service tapping of existing water mains shall conform to the following requirements:

1. Service saddles for PVC water mains shall be double strap for plastic pipe; Jones J-969 or approved equal.
2. Service saddles for cast iron or ductile iron water mains shall be double strap; Jones J-979 or approved equal.

200.8.2 All tapping saddles shall be all bronze and CS thread.

200.8.3 Angle meter stops shall be exposed and in proper alignment and location prior to setting of meters by the City.

200.8.4 No heating or splices will be allowed on a polyethylene tube service.

200.8.5 Contractor shall chip a 4-inch "+" in the curb face to identify the location of the curb stop.

200.9 Service laterals installed after the main line has been pressure tested shall be tapped into charged pipeline under normal system pressure. All corporation and angle meter stops shall be left exposed to facilitate proper inspection and detection of leaks.

Service laterals installed on dry main prior to the mainline pressure test shall be pressure tested with the mains. All corporation and angle meter stops shall be left exposed to facilitate proper inspection and detection of leaks.

200.10 Final Inspection: Final Inspection of water service shall be made with final inspection of the main line.

Materials

All water system materials furnished for installation by contractor shall be provided with clear manufacturer's markings and labeling indicating that the product furnished meets the materials standards requirements of the City of Paramount. All products shall be new, not previously used, and of current manufacture and supplied to the jobsite in unopened packaging. In addition to the labeling and packaging requirements, and upon the request of the City Inspector, all pipe, pipe fittings, valves, pipe appurtenances, and service materials shall be provided with a written manufacturer's statement indicating conformance with the specified materials and manufacturing requirements.

Hydrants, Burys, Extensions

Hydrants shall be wet-barrel type hydrants, manufactured to meet all applicable requirements of the latest revision of AWWA C-503.

Hydrants for commercial areas shall have two 2 ½" hose outlet and one 4" pumper outlet. Hydrants for residential areas shall have one 2 ½" hose outlet and one 4" pumper outlet. Outlet threads shall be American National Standard Hose Threads. Outlet caps shall be plastic and shall include chains and gaskets.

Valve stems shall be NDZ Bronze. All stems shall have pentagon operating nuts measuring 1 ½" from point to flat. Flange drilling shall be 6-hole. Bolts shall be the break-off type 5/8" x 3" plated hexagon-head machine bolts. Gaskets shall be full flange gaskets, made from 1/8" cloth-inserted rubber sheet.

Interior ferrous surfaces shall be coated with a fusion-bonded epoxy with a dry film thickness of not less than 8 Mils.

Exterior ferrous surfaces shall be painted after installation with the following: One coat of clean metal primer Rustoleum 7673 or equal; One intermediate coat of Rustoleum 2764 flat white or equal; One finish coat of high gloss Safety Yellow Rustoleum 7644 or equal

Hydrant bury shall be cast-iron with 6" MJ inlet connection. Interior surfaces shall be coated with a fusion-bonded epoxy with a dry film thickness of not less than 8 Mils.

Hydrant extensions shall be cast iron and fusion epoxy lined, 8 Mils.

The following hydrants are approved for use by the City of Paramount:

Residential: Jones J-3700 or approved equal
Commercial: Jones J-3765 or approved equal

Service Materials, 5/8" X 3/4" – 2"

The following manufacturers and types of service fittings are approved for use by the City of Paramount.

1" Angle Meter Stop, with compression connection and CS thread, Jones J-4201, Ford KV43-444W, or Mueller P-14258.

2" Angle Meter Valve, with compression connection and CS thread, Jones J-1975W, Ford FV43-777W, or Mueller P-14277

1" Corporation Stop, with compression connection and CS thread, Jones J-3401, Ford F1000, or Mueller B-25029

2" Corporation Stop, with compression connection and CS thread, Jones J-1935, Ford FB-1000, or Mueller B25029.

2" Blowoff

Eclipse No. 85 Blow-Off Hydrant

PE Tubing

All 1" and 2" service laterals shall be installed using polyethylene tubing, C.T.S., SDR 9.

Copper Tubing

Copper Pipe and fitting may be substituted for service laterals. All 5/8" X 3/4", 1", 1 ½", and 2" service laterals shall be installed using Type K soft copper. Polyethylene tubing shall be installed over copper tubing per A.W.W.A "Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems" C-105, latest edition.

Meter Box

Meter Size	Meter Box Size	Concrete Cover Size	Model
5/8"x3/4"	12"X18"X12"	12"X18"X1"	A6001425
1"	12"X18"X12"	12"X18"X1"	A6001425
1-1/2"	17"X30"X12"	17"X30"X2"	A6001640PCX12
2"	17"X30"X12"	17"X30"X2"	A6001640PCX12

Water Meter boxes and covers shall be reinforced polymer concrete (RPC) as manufactured by Armorcast Products Company or approved equal. The material shall be resistant to chemicals commonly found in soil or in the operating environment and shall be tested in accordance with ASTM D-543. The polymer concrete shall be resistant to sunlight and climatic conditions and shall be tested in accordance with ASTM D-756 Procedure E.

Gate Valves, 4" – 12"

Valves shall be cast or ductile iron bodied non-rising stem resilient-seated solid wedge gate valves, manufactured to meet all applicable requirements of the latest revision of AWWA C-509.

Valve body, bonnet, operating nut and gate shall be Cast Iron ASTM A-126, Class B or ductile iron ASTM A-536

Valve shall have a wedge type resilient seat fully encapsulated in peroxide cured EPDM.

Valve stems and stem nuts shall be of NDZ bronze.

Bonnet and seal plate bolts shall be T-316 stainless steel.

Inside and outside ferrous surfaces shall be coated with a fusion-bonded epoxy to a dry film thickness of not less than 8 Mils.

The following makes and models are approved for use by the City of Paramount:

Clow RW Valve
Kennedy Ken-Seal Valve
M & H Resilient Wedge Valve
Mueller A-2360 resilient Wedge Valve
U.S. pipe Metroseal Valve
American Flow Control Series 500 AFC Resilient Wedge Valve

Valve Boxes

Valve boxes shall have a concrete body, with an inside diameter of 10 ¼", and cast iron top with triangular cover marked "water", such as the Eisel Enterprises #4TT, Brooks #4-TT, or equivalent.

Valve box riser pipe shall be standard 8" diameter Sch. 40 PVC pipe.

Pipeline Materials

Polyvinyl Chloride Pipe

Pipe 4" – 12" shall be push-on type single-gasket joint ANSI/AWWA C-900 Class 150 Polyvinyl Chloride Pipe, with a nominal laying length of 20 feet. Pipe 14" and larger shall be push-on type single-gasket joint ANSI/AWWA C-905 Class 165 Polyvinyl Chloride Pipe.

Pipeline fittings shall be either compact, short-body ductile iron fittings manufactured in accordance with ANSI/AWWA C-153, or full-sized ductile or gray iron fittings manufactured in accordance with ANSI/AWWA C-110. All fittings shall be cement lined per ANSI/AWWA C104. Fittings are to be MJ x MJ or MJ x Flg as indicated on the plans. T-head bolts are to be Corten steel.

Locator Wire: Copper tracer wire shall be placed continuously centered just above the top center of the pipe for the purpose of providing a continuous signal path for electronic pipe locations used to determine the pipe alignment after installation. The wire shall be electrically continuous throughout the entire pipe system including adjacent service line assemblies. The copper wire shall be No. 12 cu. with HMWPE insulation. The wire shall be brought to the surface at valve locations and shall be accessible by removing the valve can cover. The wire shall be brought to the surface per the City's standard drawings. The wire shall also be tapped in place by means of a plastic adhesive tape, placed at 10 foot intervals. Any splices shall be wrapped with PVC tape. The Contractor shall provide the City with the results of an electrical continuity test.

Ductile Iron Pipe

Pipe 4" – 12" shall be push-on type single-gasket joint Class 350 Ductile Iron Pipe, with a nominal laying length of 18 feet. Pipe 16" and larger shall be push-on type single-gasket joint Class 250 Ductile Iron Pipe. All pipe shall be manufactured in accordance with ANSI/AWWA C-151. All pipe shall be cement lined per ANSI/AWWA C104.

Pipeline fittings shall be either compact, short-body ductile iron fittings manufactured in accordance with ANSI/AWWA C-153, or full-sized ductile or gray iron fittings manufactured in accordance with ANSI/AWWA C-110. All fittings shall be cement lined per ANSI/AWWA C104. Fittings are to be MJ x MJ or MJ x Flg as indicated on the plans. T-head bolts are to be Corten steel.

All pipe and pipeline fittings shall be wrapped with polyethylene in accordance with ANSI/AWWA C-105. Polyethylene material shall be clear 8 Mil polyethylene flat tubing with dimensions appropriate for the size of pipe installed.

CITY OF PARAMOUNT GENERAL WATER CONSTRUCTION NOTES

(GENERAL WATER CONSTRUCTION NOTES FOR PUBLIC WATER SYSTEM TO BE SHOWN ON CONSTRUCTION PLANS)

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFCATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION INCLUDING ALL SUPPLEMENTS AND CURRENT SUPPLEMENTS AS WRITTEN AND PRUMULGATED BY THE JOINT COOPERATIVE COMMITTEE OF THE SOUTHERN CALIFORNIA CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION AND THE SOUTHERN CALIFORNIA DISTRICT OF THE ASSOCIATED GENERAL CONTRACTORS OF CALIFORNIA, AND ALL AMENDMENTS THERETO, THE CITY OF PARAMOUNT STANDARD DRAWINGS FOR MUNICIPAL WATER SYSTEM, THE AMERICAN WATER WORKS ASSOCIATION STANDARDS LATEST EDITION AND TO THE SATISFACTION OF THE CITY DIRECTOR OF PUBLIC WORKS.

2. CITY INSPECTOR SHALL BE NOTIFIED OF ANY AND ALL WATER SYSTEM CONSTRUCTION 48 HOURS PRIOR TO BEGINNING CONSTRUCTION, (562) 220-2020. ALL WORK SHALL BE INSPECTED PRIOR TO ANY TRENCH BACKFILL.

3. POLYVINYL CHLORIDE WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH A.W.W.A. STANDARD FOR "UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS FOR WATER", C-605 LATEST VERSION AND THE "CITY OF PARAMOUNT WATER STANDARDS".

4. DUCTILE IRON WATER MAINS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH A.W.W.A. STANDARD FOR INSTALLATION OF DUCTILE-IRON WATER MAINS AND THEIR APPURTENANCES: C-600-2001, C-105/A21.5-93 OR MOST RECENT UPDATE AND CITY OF PARAMOUNT WATER STANDARDS.

5. CONNECTION TO EXISTING CITY WATER MAINS SHALL BE MADE ONLY AFTER SUCCESSFUL PRESSURE TEST AND DISINFECTION HAS BEEN COMPLETED.

6. A CITY OF PARAMOUNT ENCROACHMENT PERMIT SHALL BE REQUIRED FOR EXCAVATION WITHIN ANY PUBLIC RIGHT-OF-WAY. THE PERMIT SHALL BE OBTAINED FROM THE CITY OF PARAMOUNT, 15300 DOWNEY AVENUE, PARAMOUNT, CA 90723.

7. THE CONTRACTOR SHALL LOCATE, VIERFY DEPTH AND PROTECT ALL STRUCTURES, INCLUDING SUBSTRUCTURES, SHOWN ON THE PLAN. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF REPARIING OR REPLACING ANY OF SAID STRUCTURES DAMAGED

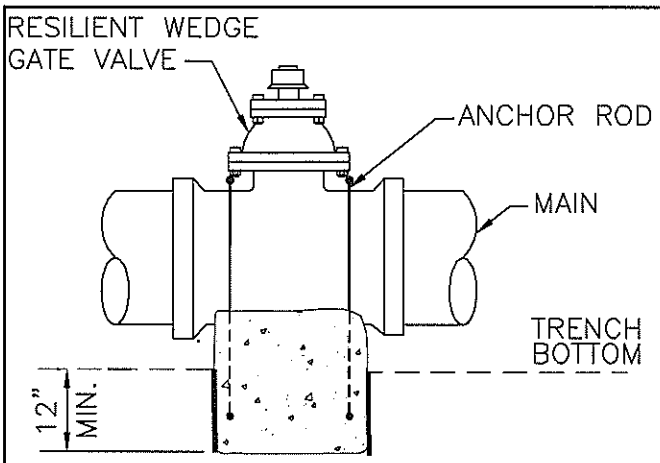
DURING THEIR PROCECUTION OF THE WORK. ALL REPAIRS AND REPLACMEENTS SHALL BE DONE IN THE PRESENCE OF THE INSPECTOR. ALL LOCATIONS SHOWN ON THE PLAN FOR UTILITY LINE SAHVE BEEN TAKEN FROM AVAIALBLE RECORDS AND THEIR COMPLETENESS AND CORRECTNESS AR EIN NO WAY GUARANTEED.

8. WATER MAINLINES, FITTINGS & APPURTENANCES SHALL BE INSTALLED THREE AND ONE-HALF (3.5) FEET BELOW FINISHED SURFACE TYPICALLY (NOT SUBGRADE) UNLESS INDICATED OTHERWISE ON PLANS.

9. PUBLIC WATER VALVES SHALL BE OPERATED BY CITY PERSONNEL ONLY.

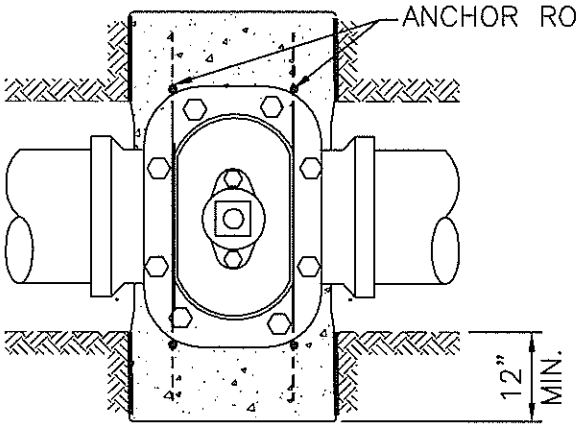
10. PIPE BEDDING SHALL CONFROM TO STANDARD DRAWING W-22

11. ALL FLANGE NUTS, BOLTS AND WASHERS SHALL BE 316 SS UNLESS OTHERWISE NOTED.

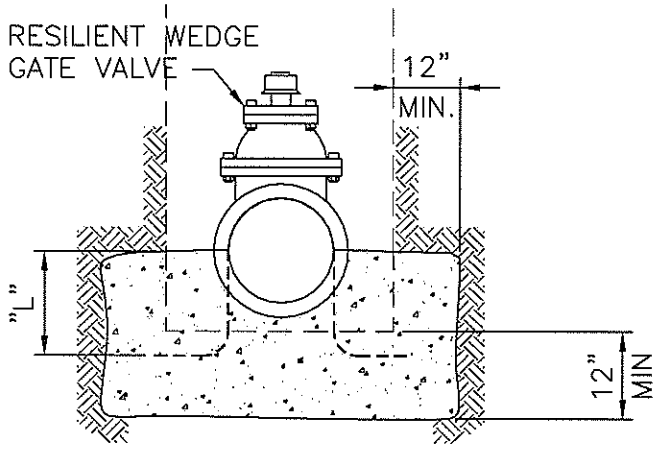


ELEVATION

VALVE SIZE	ANCHOR ROD		NET BEARING SURFACE
	DIA.	"L" (MIN.)	
4"	1/2"	12"	1.9 SQ. FT.
6"	5/8"	12"	4.2 SQ. FT.
8"	5/8"	18"	7.5 SQ. FT.
10"	5/8"	18"	11.8 SQ. FT.
12"	5/8"	24"	17 SQ. FT.
14"	3/4"	24"	23.1 SQ. FT.
16"	3/4"	24"	30.2 SQ. FT.



PLAN



SECTION

NOTES:

1. NET BEARING SURFACES ARE DESIGNED AGAINST UNDISTURBED SOIL WITH A SAFE LATERAL BEARING OF 1500 LBS/S.F. AT A TEST PRESSURE OF 225 PSI. ADJUSTMENT SHALL BE MADE FOR OTHER SOILS.
2. ALL THRUST BLOCKS SHALL BE PORTLAND CEMENT CONCRETE BLOCK MIX 560-C-3250 AND PLACED AGAINST UNDISTURBED SOIL.
3. THRUST BLOCKS ON VALVES SHALL BE KEYED INTO THE TRENCH BOTTOM AS SHOWN.
4. CONCRETE SHALL NOT EXTEND ONTO FLANGE OR ADJOINING PIPE.
5. DO NOT COVER FITTING BOLTS WITH CONCRETE.
6. WHEN VALVES ARE FLANGED TO FITTINGS AVOID PLACING CONCRETE ON ANY PART OF THE VALVE BONNET OR VALVE OPERATOR.
7. COAT ANCHOR RODS PER PROJECT SPECIFICATIONS.
8. MINIMUM CONCRETE COVER OVER ANCHOR ROD SHALL BE 3".
9. NO CONCRETE SHALL BE POURED ON VALVE OR PIPE JOINT.
10. YIELD STRENGTH OF STEEL BARS IS ASSUMED TO BE 36 KSI.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

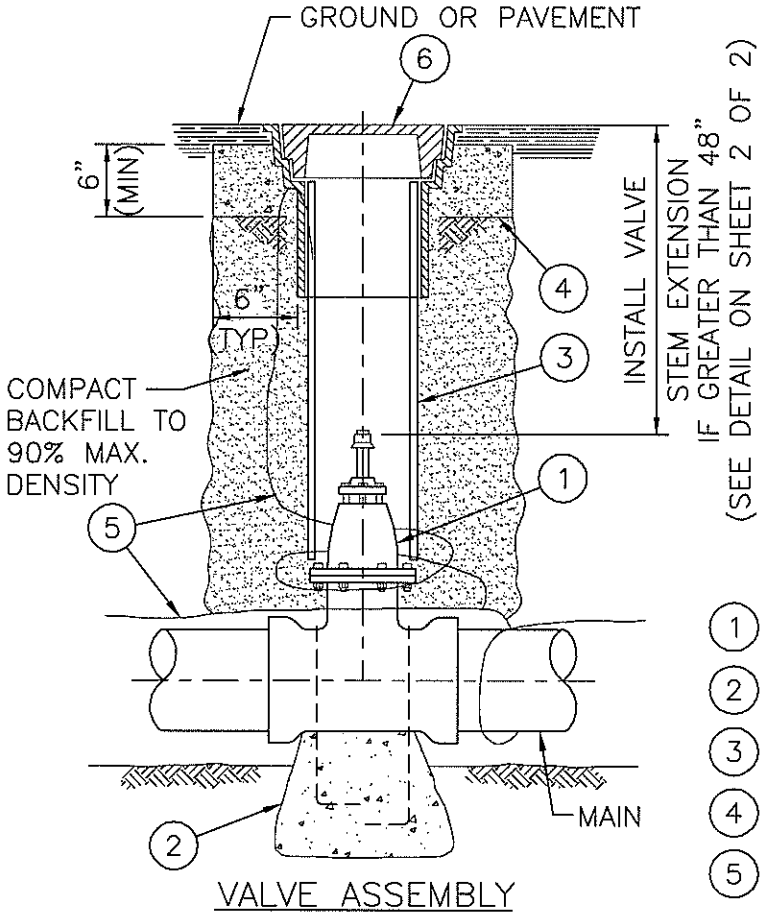
STANDARD

VALVE INSTALLATION

STANDARD DRAWING NUMBER

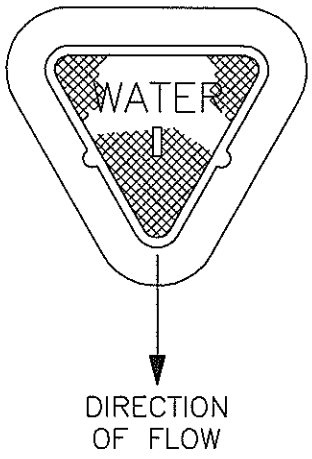
W-1

P:\09137\134-09137-08001\Cadd\W-1.dwg 05/30/2008 10:03



VALVE ASSEMBLY

*SEE NOTE 3 FOR ORIENTATION OF LID



VALVE COVER

1. RESILIENT WEDGE GATE VALVE
2. VALVE SUPPORT PER STD. DWG. W-1
3. 8" SCH. 40 PVC PIPE
4. 2' SQ. x 6" THK. CONCRETE PAD
5. NO. 10 GAGE LOCATING WIRE (PVC MAINS ONLY)
6. BROOKS 4-TT VALVE BOX W/ C.I. DROP LID MARKED "WATER"

NOTES:

1. FACE OF CURB SHALL BE MARKED WITH "V" TO DENOTE VALVE LOCATION.
2. PLACE VALVE BOX 1/8" – 1/4" ABOVE FINISHED PAVING.
3. SET TRIANGULAR COVERS SUCH THAT APEX OF TRIANGLE POINTS ALONG AXIS OF PIPE AND/OR AWAY FROM NEAREST FITTING.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

CITY OF PARAMOUNT

STANDARD

VALVE BOX INSTALLATION

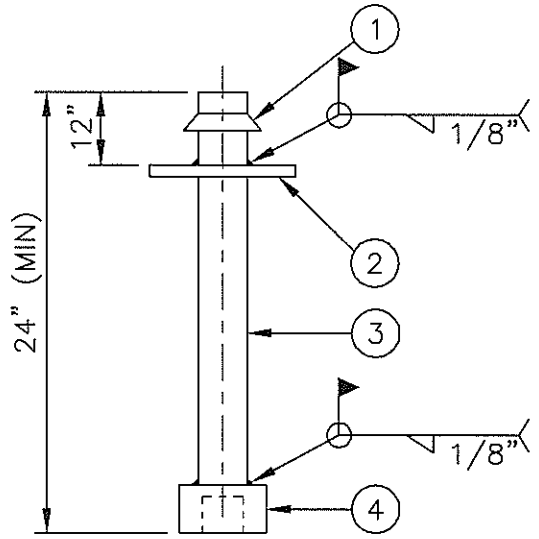
JUNE - 2008

STANDARD DRAWING NUMBER

W-2
(1 OF 2)

REFERENCE FILES:

P:\09137\134-09137-08001\Cadd\W-2.dwg 05/30/2008 10:03



VALVE STEM EXTENSION

1. A.W.W.A. 2" SQUARE OPERATING NUT
2. 5" DIA. x 3/16" SPACER PLATE 12" BELOW TOP OF OPERATING NUT
3. 1 1/4" ROUND OR SQUARE STOCK (PINNED COUPLERS ARE NOT ALLOWED)
4. SOCKET FOR 2" SQUARE OPERATING NUT

NOTES:

1. PROVIDE VALVE STEM EXTENSION WHEN DEPTH TO VALVE NUT EXCEEDS 48" INCHES (FABRICATE EXTENSION TO FIELD MEASUREMENT – SEE NOTE 2)
2. NO VALVE STEM EXTENSION SHALL BE LESS THAN 24" IN LENGTH. TERMINATE EXTENSION 24" TO 30" FROM FINISHED GRADE.
3. PROVIDE ADDITIONAL SPACER PLATE WHEN DISTANCE TO BOTTOM SOCKET EXCEEDS 5 FEET.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 6/11/08

REFERENCE FILES:

CITY OF PARAMOUNT

STANDARD

VALVE BOX INSTALLATION

JUNE - 2008

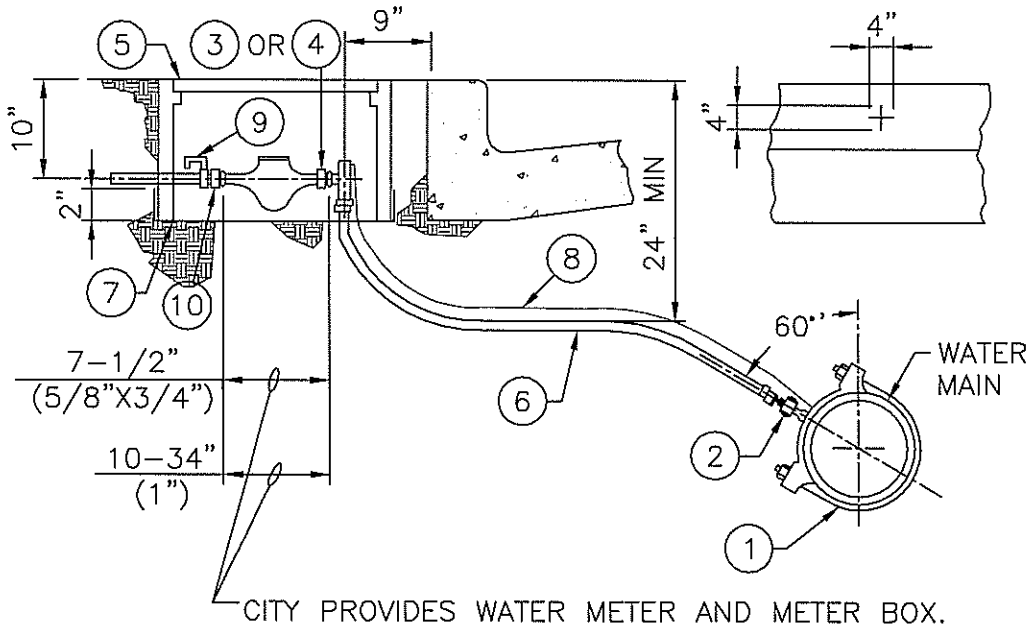
STANDARD DRAWING NUMBER

W-2
(2 OF 2)

P:\09137\134-09137-08001\Cadd\W-2A.dwg 05/30/2008 10:03

LIST OF MATERIALS

ITEM	DESCRIPTION
1	1" BRONZE SERVICE SADDLE W/ DOUBLE STAINLESS STEEL STRAPS, JONES J-969, OR APPROVED EQUAL
2	1" CORP. STOP, JONES J-3401, AWWA TAPER THREAD, OR APPROVED EQUAL
3	1" ANGLE METER VALVE, JONES J-4201, OR APPROVED EQUAL
4	3/4"x1" ANGLE METER VALVE, JONES J-4201, FOR 5/8"x3/4" ONLY, OR APP. EQUAL
5	12"x18"x12" METER BOX (R.P.M.), ARMORCAST PRODUCTS CO., OR APPROVED EQUAL
5a	12"x18"x12" TRAFFIC BOX (R.P.M.), ARMORCAST PRODUCTS CO., OR APPROVED EQUAL
6	1" POLYETHYLENE TUBING, C.T.S., P.E. 3306 (SDR-9)
7	1/4" SQ. GALVANIZED MESH, CUT TO FIT AROUND TUBING
8	NO. 10 GAGE LOCATING WIRE
9	3/4" CURB STOP (CUSTOMER VALVE) FORD B84-333
9a	1" CURB STOP (CUSTOMER VALVE) FORD B84-444
10	3/4" METER COUPLING JONES J-130
10a	1" METER COUPLING JONES J-130



NOTES:

1. POLYETHYLENE TUBE TO BE ONE PIECE. NO SPLICES OR HEATING OF PIPE PERMITTED.
2. TRAFFIC BOX TO BE USED BEHIND ROLLED CURB OR UNDER TRAFFIC LOADING.
3. SERVICE LATERALS SHALL BE AT LEAST 24" FROM ADJACENT LATERALS OR JOINTS.
4. CHIP 4"+ IN CURB FACE TO IDENTIFY CORP. STOP LOCATION.
5. COPPER PIPE AND FITTING MAY BE SUBSTITUTED FOR SERVICE LATERAL.
6. INSTALL FORD INSERT 52 OR APPROVED EQUAL AT ALL PACK JOINTS.

REVISION	DRAWN	APP'D	DATE

REFERENCE FILES:

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/11/08

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

5/8"x3/4" AND 1"
WATER SERVICE INSTALLATION

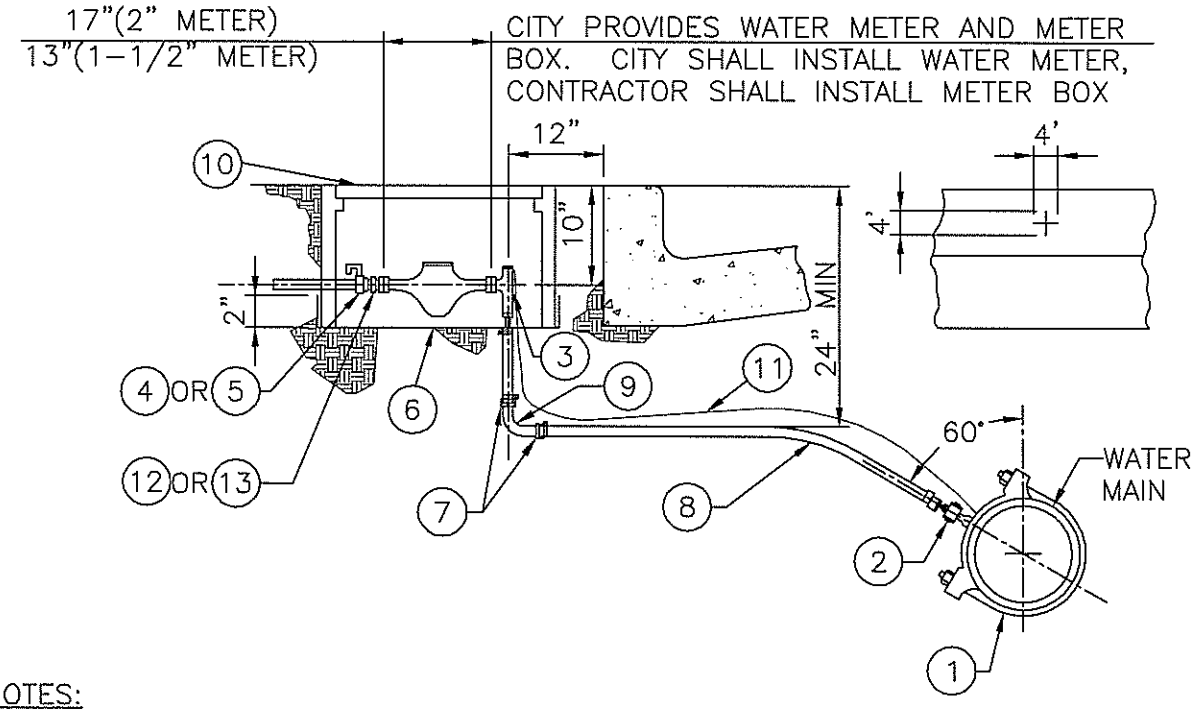
STANDARD DRAWING NUMBER

W-3

P:\09137\134-09137-08001\Cadd\W-3.dwg 05/30/2008 10:03

LIST OF MATERIALS

ITEM	DESCRIPTION
1	2" BRONZE SERVICE SADDLE W/ DOUBLE STAINLESS STEEL STRAPS, JONES J-969, OR APPROVED EQUAL.
2	2" CORP. STOP, FORD FB-1000 OR APPROVED EQUAL
3	2" ANGLE METER VALVE, FORD FV43-777W OR APPROVED EQUAL
4	2" METER VALVE, FORD BF43-777W OR APPROVED EQUAL
5	1-1/2" METER VALVE, FORD BF43-666W OR APPROVED EQUAL
6	1/4" SQ. GALVANIZED MESH, CUT TO FIT AROUND TUBING
7	2" COUPLING, FORD C84-77 OR APPROVED EQUAL
8	2" POLYETHYLENE TUBING, C.T.S., P.E. 3406 (SDR-9)
9	2" 90° BRASS ELBOW
10	17"x30"x12" METER BOX. (R.P.M.) ARMORCAST PRODUCTS CO. OR APPROVED EQUAL
11	NO. 10 GAGE LOCATING WIRE
12	2" METER COUPLING, JONES J-134
13	1 1/2" METER COUPLING, JONES J-134



NOTES:

1. DO NOT USE WHEN STATIC PRESSURE IS ABOVE 125 P.S.I.
2. NO SPLICES OR HEATING OF PIPE WILL BE ALLOWED.
3. USE DOUBLE STOP SADDLE ON ALL P.V.C. MAINS AND ON CAST IRON MAINS 8" AND SMALLER.
4. MUELLER CO. AND J. JONES CO. OR APPROVED EQUAL ACCEPTABLE.
5. INSTALL FORD INSERT 55 OR APPROVED EQUAL AT ALL PACK JOINTS.
6. COPPER PIPE AND FITTINGS MAY BE SUBSTITUTED FOR SERVICE LATERAL.
7. CHIP 4" + IN CURB FACE TO IDENTIFY CORP STOP LOACTION.

REVISION	DRAWN	APP'D	DATE

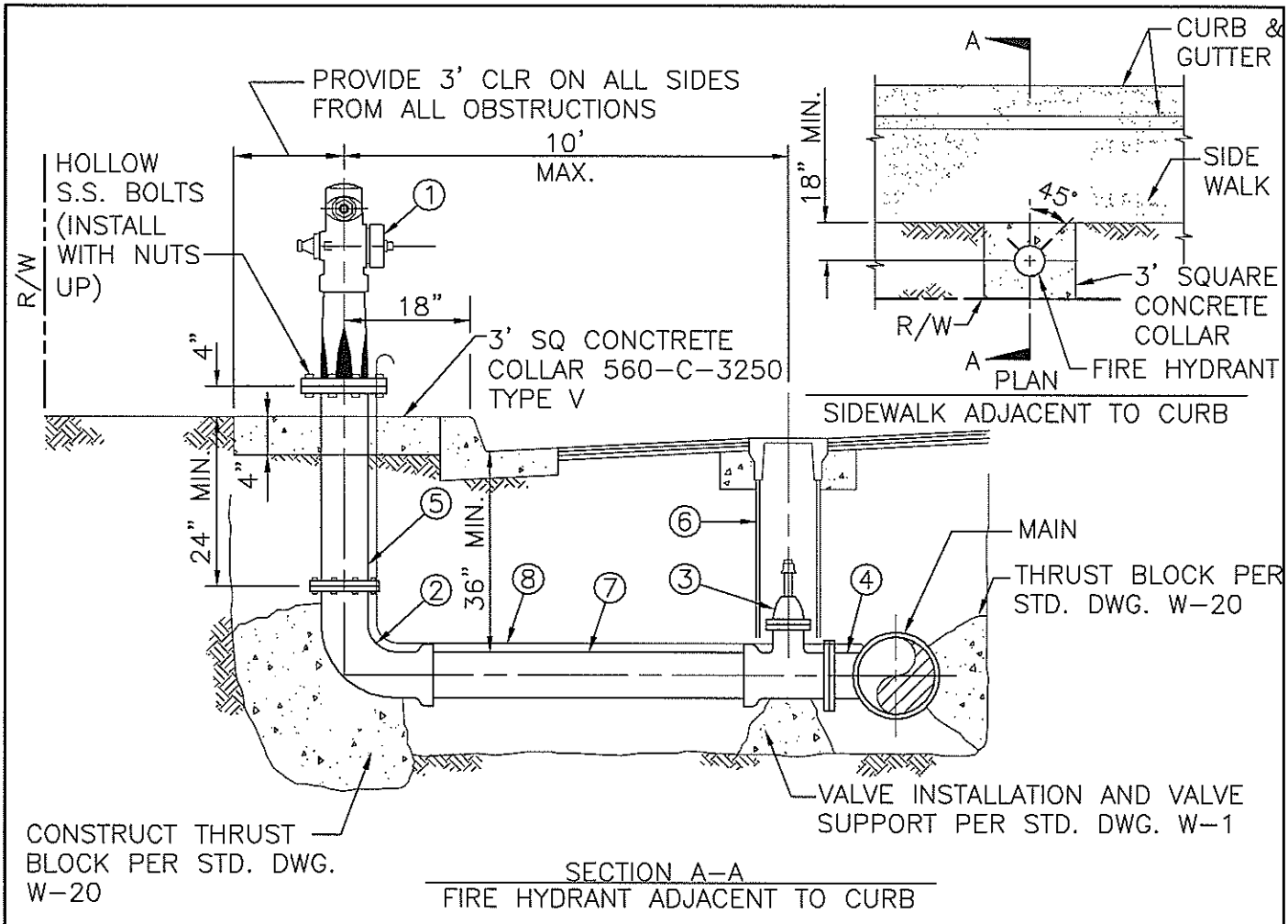
APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 4/21/08

CITY OF PARAMOUNT	JUNE - 2008
STANDARD	STANDARD DRAWING NUMBER
1-1/2" AND 2" WATER SERVICE INSTALLATION	W-4

REFERENCE FILES:

P:\09137\134-09137-08001\Cadd\W-4.dwg 05/30/2008 10:03



SECTION A-A
FIRE HYDRANT ADJACENT TO CURB

FIRE HYDRANT LOCATION

MATERIAL LIST

ITEM	DESCRIPTION	MANUFACTURER
①	RESIDENTIAL FIRE HYDRANT W/ CHAIN & PLASTIC CAP	J-3700 OR APPROVED EQUAL
	COMMERCIAL FIRE HYDRANT W/ CHAIN & PLASTIC CAP	J-3765 OR APPROVED EQUAL
②	6" LONG RADIUS CAST IRON BURY, MJ X FLG	MUELLER OR APPROVED EQUAL
③	6" FLG x MJ GATE VALVE	
④	MAIN SIZE x 6" MJ x FLG DI TEE	
⑤	6" DIP FLG x FLG BREAK AWAY SPOOL W/ MACHINE GROOVES (OUTSIDE)	
⑥	VALVE BOX AND RISER	SEE STD. DWG W-2
⑦	6" PVC C900 (PE x PE)	
⑧	NO. 10 GAGE LOCATING WIRE	

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

STANDARD 6" FIRE HYDRANT ASSEMBLY

STANDARD DRAWING NUMBER

W-5
(1 OF 2)

P:\09137\134-09137-08001\Cadd\W-5.dwg 05/30/2008 10:03

NOTES:

1. THE PUBLIC HYDRANT IS TO BE INSTALLED SO THAT THE CENTER LINE OF THE RISER IS 18 INCHES BEHIND THE CURB FACE. WHEN SIDEWALKS ARE ADJACENT TO THE CURB AND ARE 5 FEET WIDE OR LESS, THE FIRE HYDRANT SHALL BE PLACED IMMEDIATELY ADJACENT TO SIDEWALK AREA. IN NO CASE SHALL HYDRANT BE MORE THAN 6 FEET FROM CURB LINE.

2. PROVIDE 3 FOOT UNOBSTRUCTED CLEARANCE ON EACH SIDE AND TO THE REAR OF THE HYDRANT.

3. UPON COMPLETION OF THE INSTALLATION, ALL PARTS OF THE FACILITIES ABOVE THE GROUND, WITH THE EXCEPTION OF THE STEMS AND THREADS, SHALL BE PAINTED WITH ONE COAT OF CLEAN METAL PRIMER RUST-OLEUM 7673 OR EQUAL. ONE INTERMEDIATE COAT OF RUST-OLEUM 2764 FLAT WHITE OR EQUAL AND A FINISH COAT OF HIGH GLOSS SAFETY YELLOW RUST-OLEUM 7644 OR EQUAL.

4. ALL UNDERGROUND FERROUS SURFACE TO BE PROTECTED IN ACCORDANCE WITH THE SPECIFICATIONS.

5. DOUBLE OUTLET HYDRANTS SHALL BE INSTALLED WITH OUTLETS FACING THE CURB AND AT 45 DEGREE ANGLES TO THE CURB LINE.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/6/08

CITY OF PARAMOUNT

STANDARD

STANDARD 6"
FIRE HYDRANT ASSEMBLY

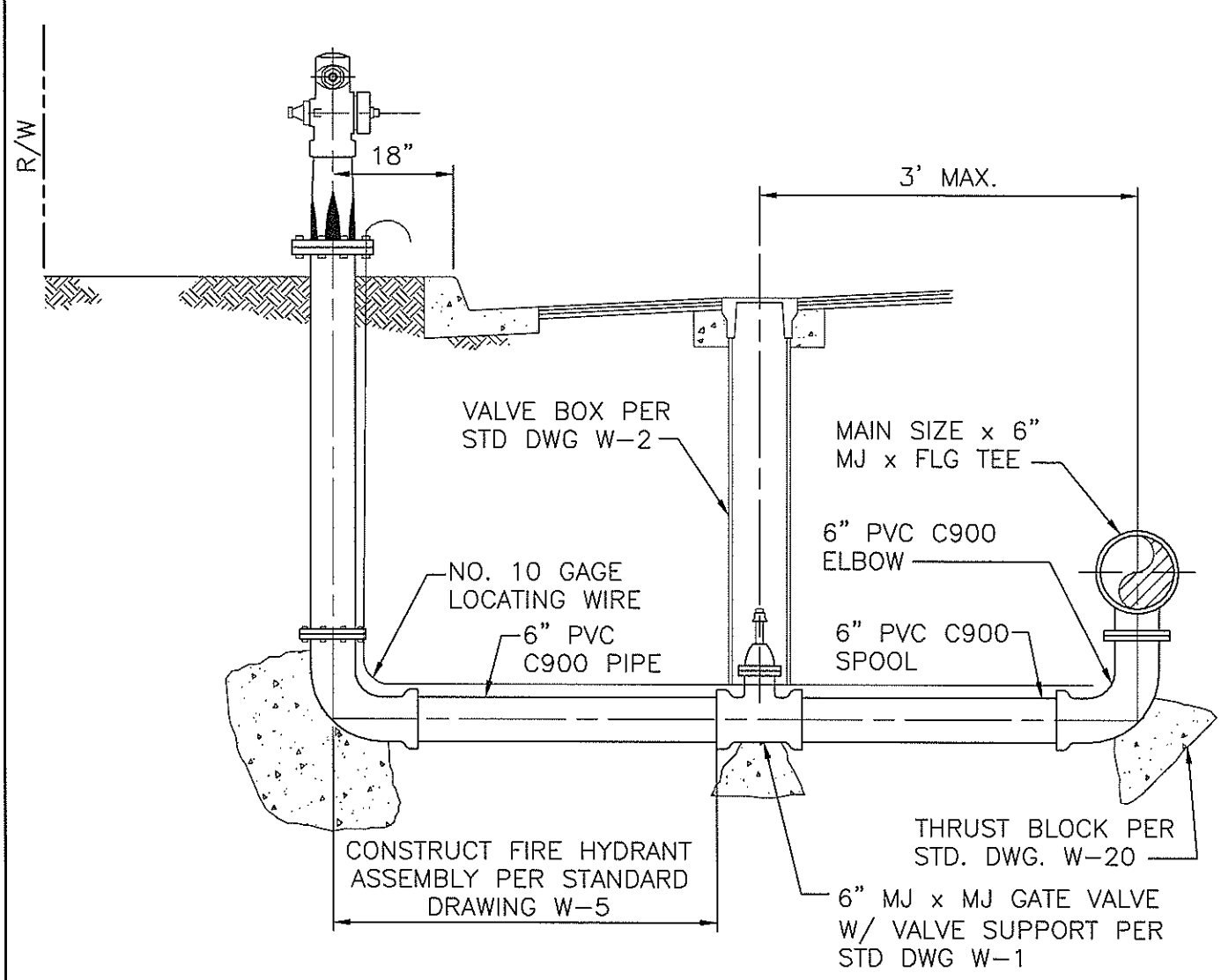
JUNE - 2008

STANDARD DRAWING NUMBER

W-5
(2 OF 2)

REFERENCE FILES:

P:\09137\134-09137-08001\Cadd\W-5A.dwg 05/30/2008 10:03



NOTES:

1. ALL UNDERGROUND FERROUS SURFACES TO BE PROTECTED IN ACCORDANCE WITH THE SPECIFICATIONS

REVISION	DRAWN	APP'D	DATE

APPROVED

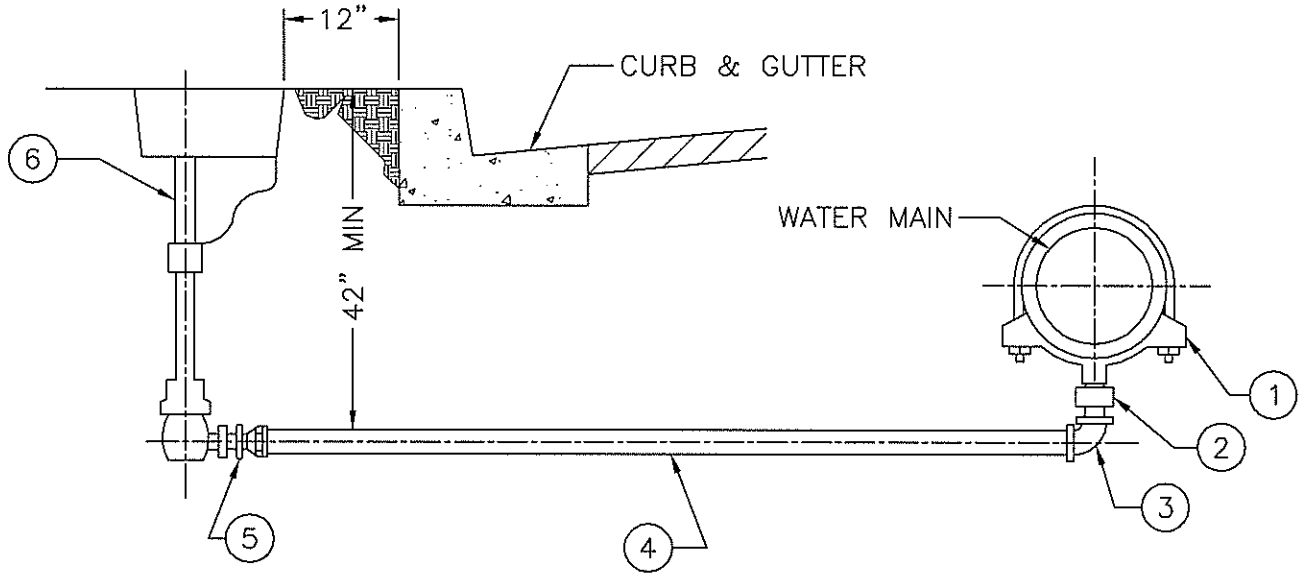
DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT	JUNE - 2008
STANDARD	STANDARD DRAWING NUMBER
COMBINATION 6" BLOW-OFF AND 6" FIRE HYDRANT ASSEMBLY	W-6

P:\09137\134-09137-08001\Cadd\W-6.dwg 05/30/2008 10:03

	LIST OF MATERIALS
ITEM	DESCRIPTION
1	2" BRONZE SERVICE SADDLE W/ DOUBLE STAINLESS STEEL STRAPS, JONES J-969, OR APPROVED EQUAL
2	2" CORP. STOP, FORD FB-800, OR APPROVED EQUAL
3	2" 90° ELBOW, FORD L04-77 (2 REQUIRED), OR APPROVED EQUAL
4	2" POLYETHYLENE TUBING C.T.S. PE 3406 CL-160
5	2" ADAPTER, FORD C84-77, OR APPROVED EQUAL
6	ECLIPSE NO. 85 BLOW-OFF HYDRANT, OR APPROVED EQUAL



NOTES:

1. WHEN THERE IS NO EXISTING CURB THE BLOW-OFF HYDRANT BOX SHALL BE SET 4' CLEAR OF PROPERTY LINE.

REVISION	DRAWN	APP'D	DATE

APPROVED

8/6/08

DIRECTOR OF PUBLIC WORKS — DATE

REFERENCE FILES:

CITY OF PARAMOUNT

STANDARD

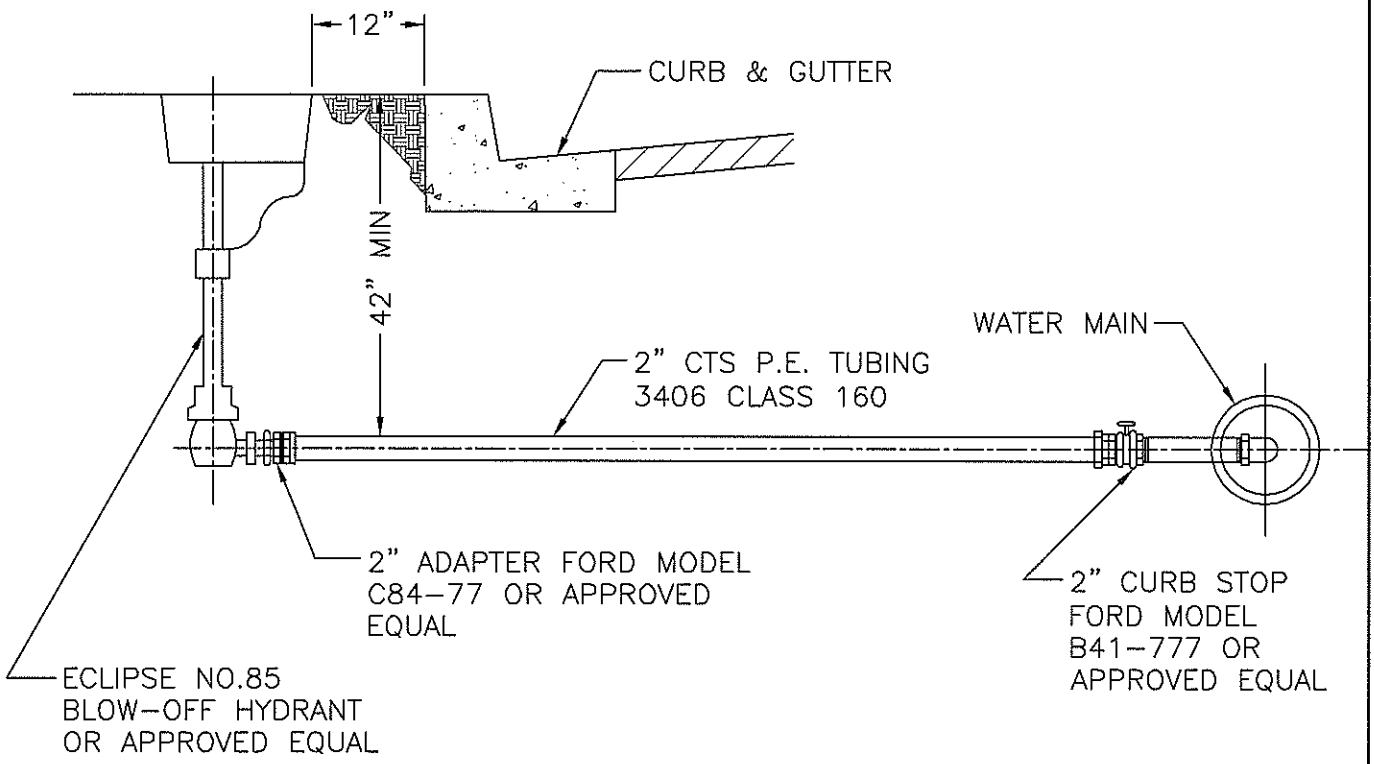
PERMANENT 2" BLOW-OFF ASSEMBLY

JUNE - 2008

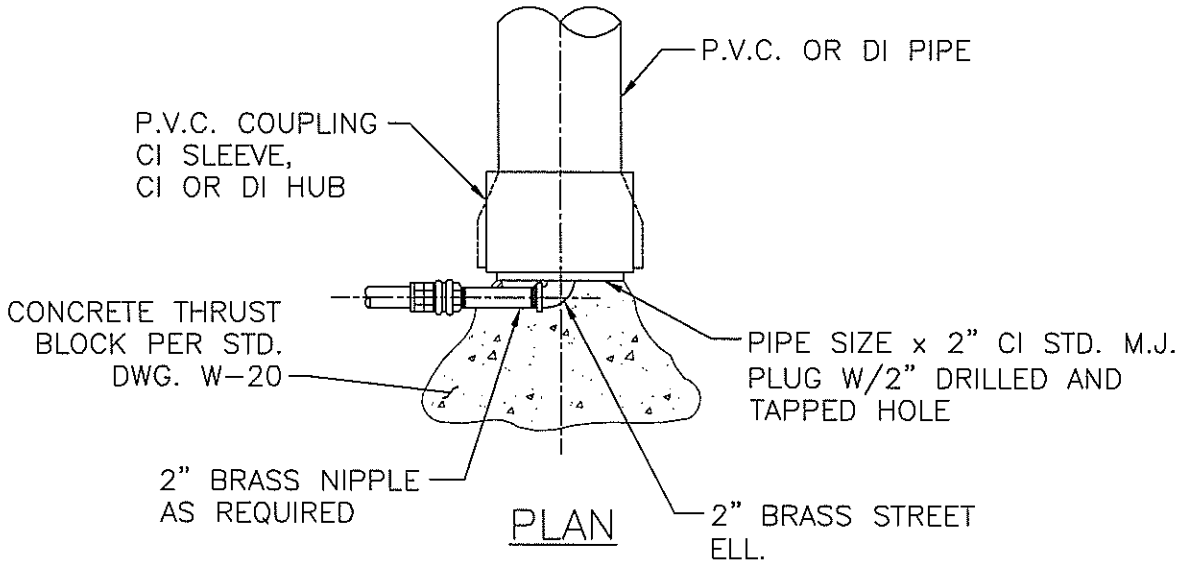
STANDARD DRAWING NUMBER

W-7

P:\09137\134-09137-08001\Cadd\W-7.dwg 05/30/2008 10:04



SECTION



PLAN

NOTES:

1. WHEN THERE IS NO EXISTING CURB THE BLOW-OFF HYDRANT BOX SHALL BE SET 4' CLEAR OF PROPERTY LINE.

REVISION	DRAWN	APP'D	DATE

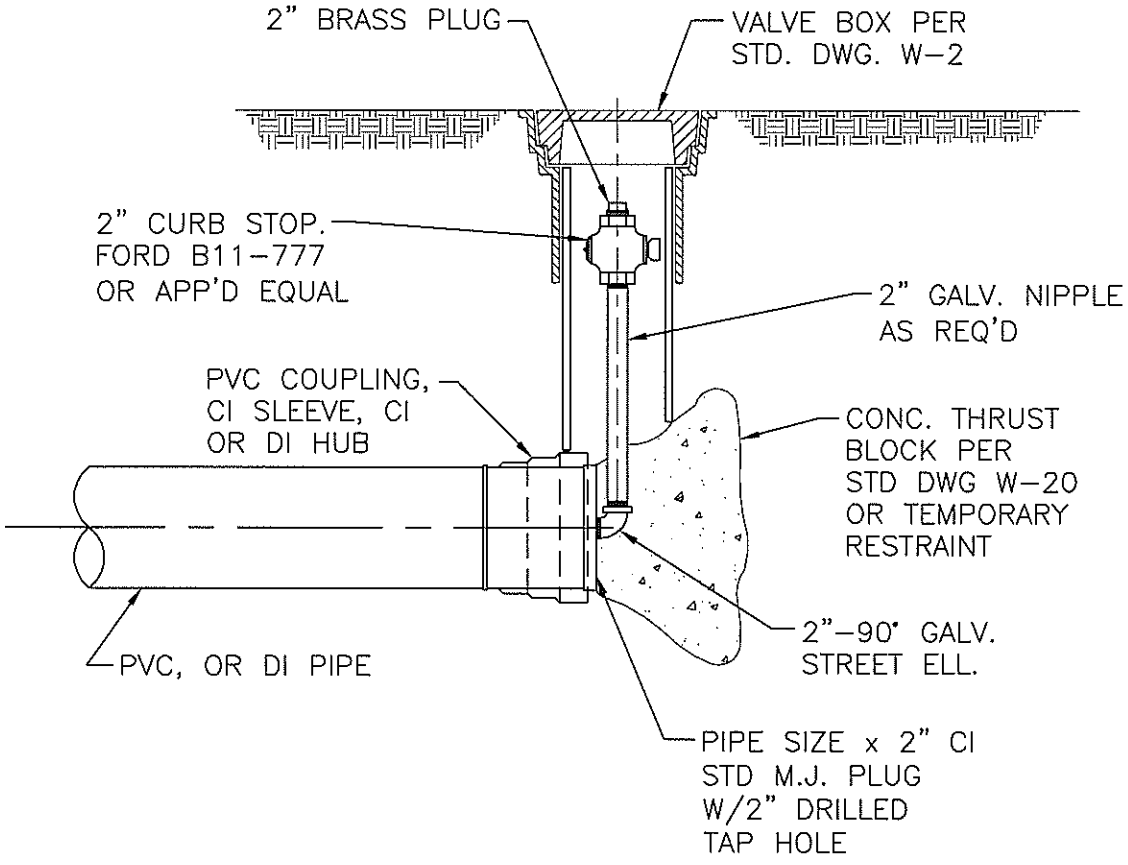
APPROVED

DIRECTOR OF PUBLIC WORKS — DATE: 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT	JUNE - 2008
STANDARD	STANDARD DRAWING NUMBER
PERMANENT 2" BLOW-OFF ASSEMBLY FOR DEAD END MAINS	W-8

P:\09137\134-09137-08001\Cadd\W-8.dwg 05/30/2008 10:04



REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

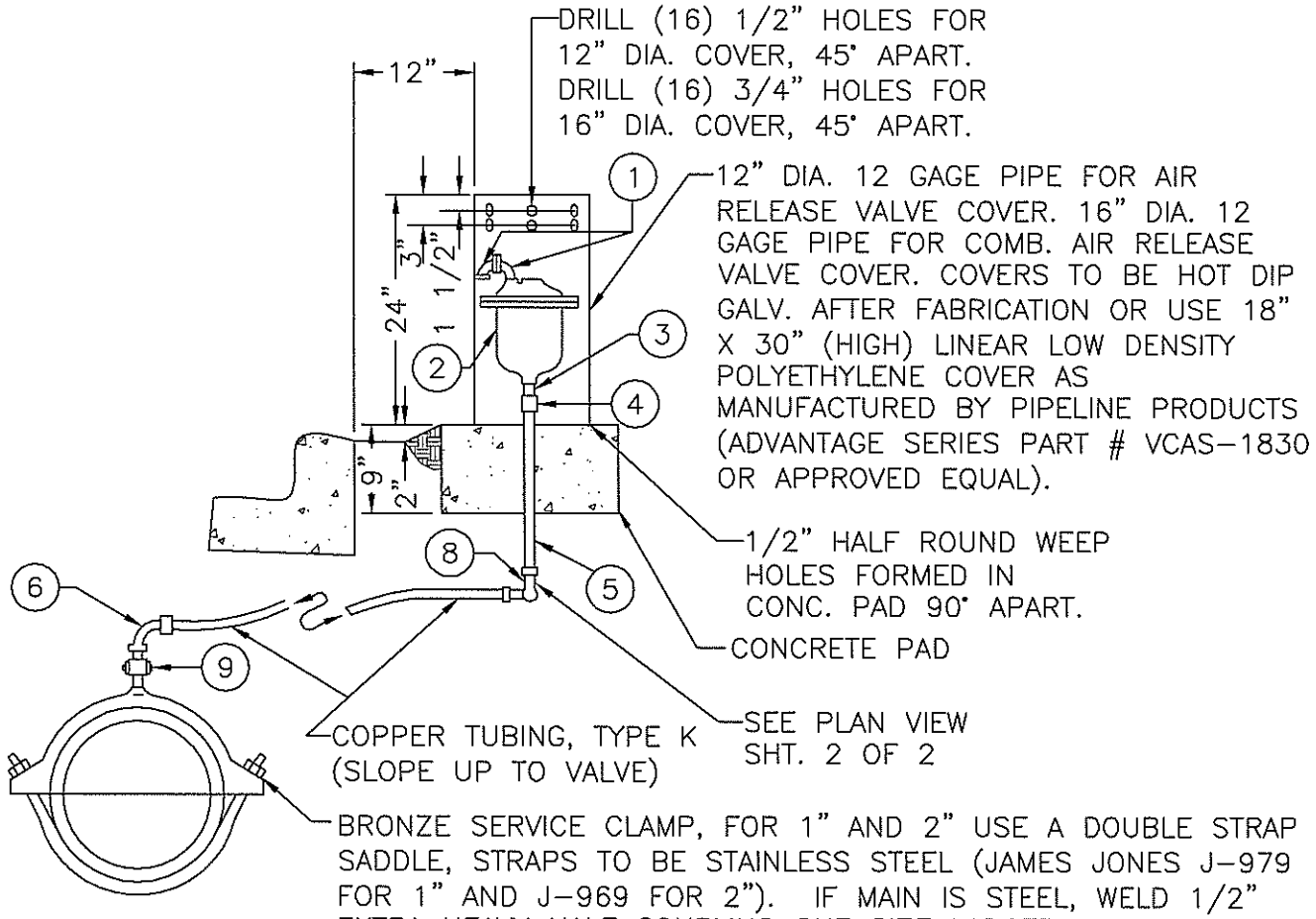
STANDARD DRAWING NUMBER

TEMPORARY 2" BLOW-OFF RISER FOR DEAD END MAINS

W-9

P:\09137\134-09137-08001\Cadd\W-9.dwg 05/30/2008 10:04

ITEM	QTY.	AIR RELEASE VALVE 1" SIZE	AIR RELEASE VALVE 2" SIZE	COMB. AIR RELEASE VALVE 1" SIZE	COMB. AIR RELEASE VALVE 2" SIZE	DESCRIPTION
1	2	1/2"	1"	1"	2"	90° STREET ELBOW W/SCREEN INSERT
2	1	#200A	#200	#143-C	#145-C	APCO VALVE OR APPROVED EQUAL
3	1	1"x3"	2"x3"	1"x3"	2"x3"	BRASS NIPPLE, T.B.E.
4	1	1"	2"	1"	2"	COUPLING
5	1	1"	2"	1"	2"	BRASS PIPE, T.B.E. (VARIABLE LENGTH)
6	1	1"	2"	1"	2"	90° ELBOW, COPPER x I.P.T.
7	1	1"	2"	1"	2"	BALL VALVE, I.P.T.
8	1	1"	2"	1"	2"	90° ELBOW, I.P.T.
9	1	1"	2"	1"	2"	CORP. STOP, FB-1000
10	1	–	–	–	–	BROOKS 4-TT VALVE BOX PER STD. DWG. W-2



SECTION

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

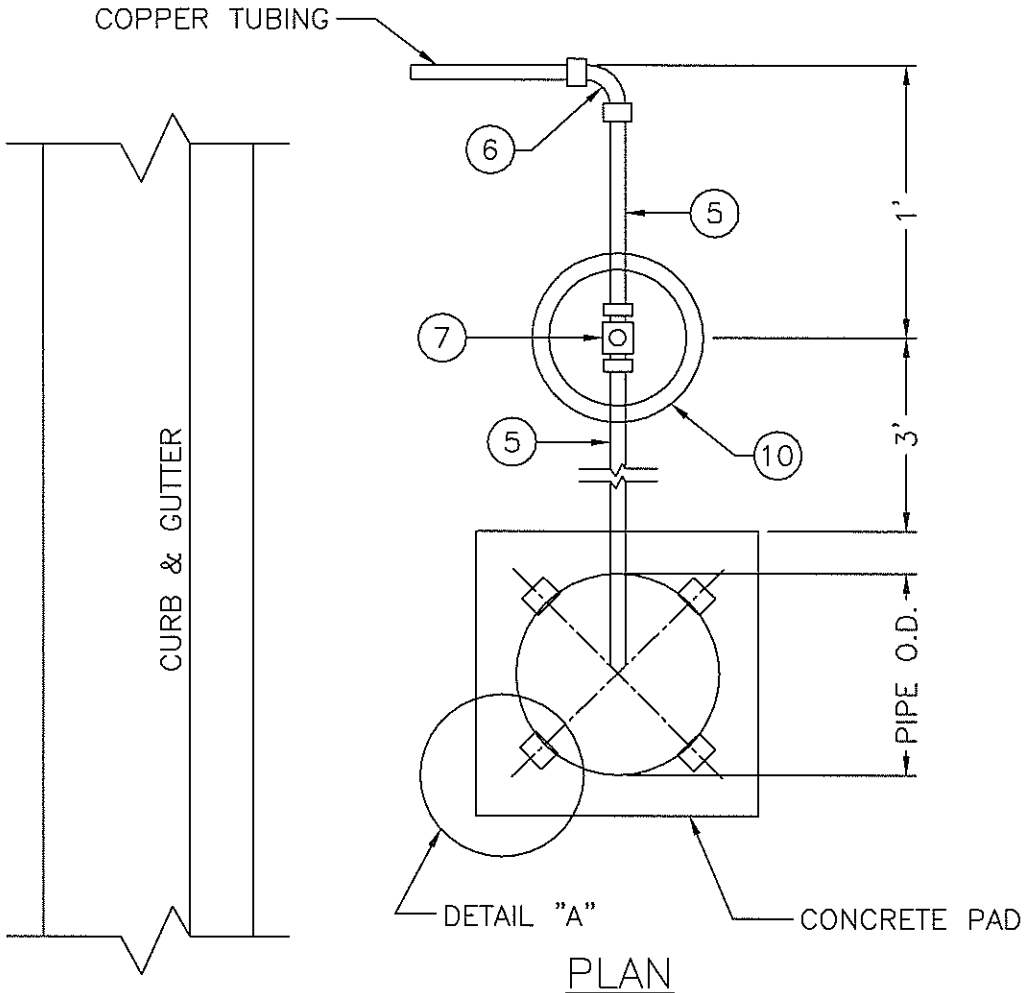
STANDARD

1" AND 2" AIR RELEASE VALVE OR COMBINATION AIR RELEASE VALVE

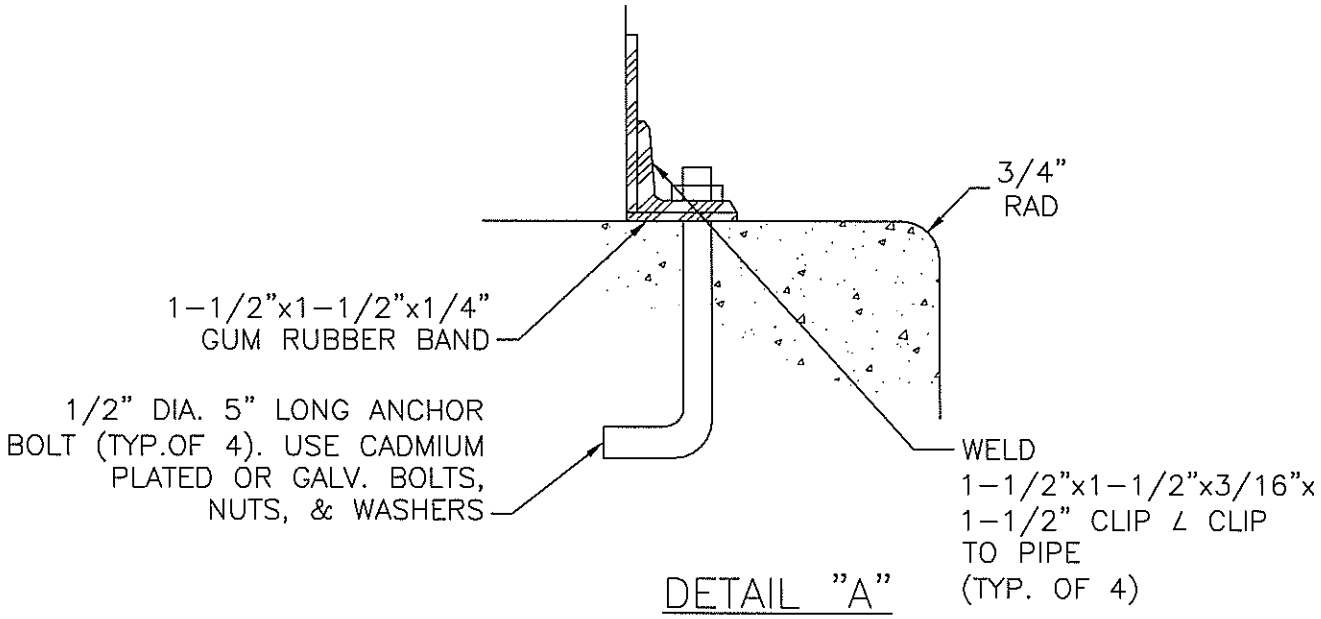
STANDARD DRAWING NUMBER

W-10
(1 OF 2)

P:\09137\134-09137-08001\Cadd\W-10.dwg 05/30/2008 10:04



PLAN



DETAIL "A"

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

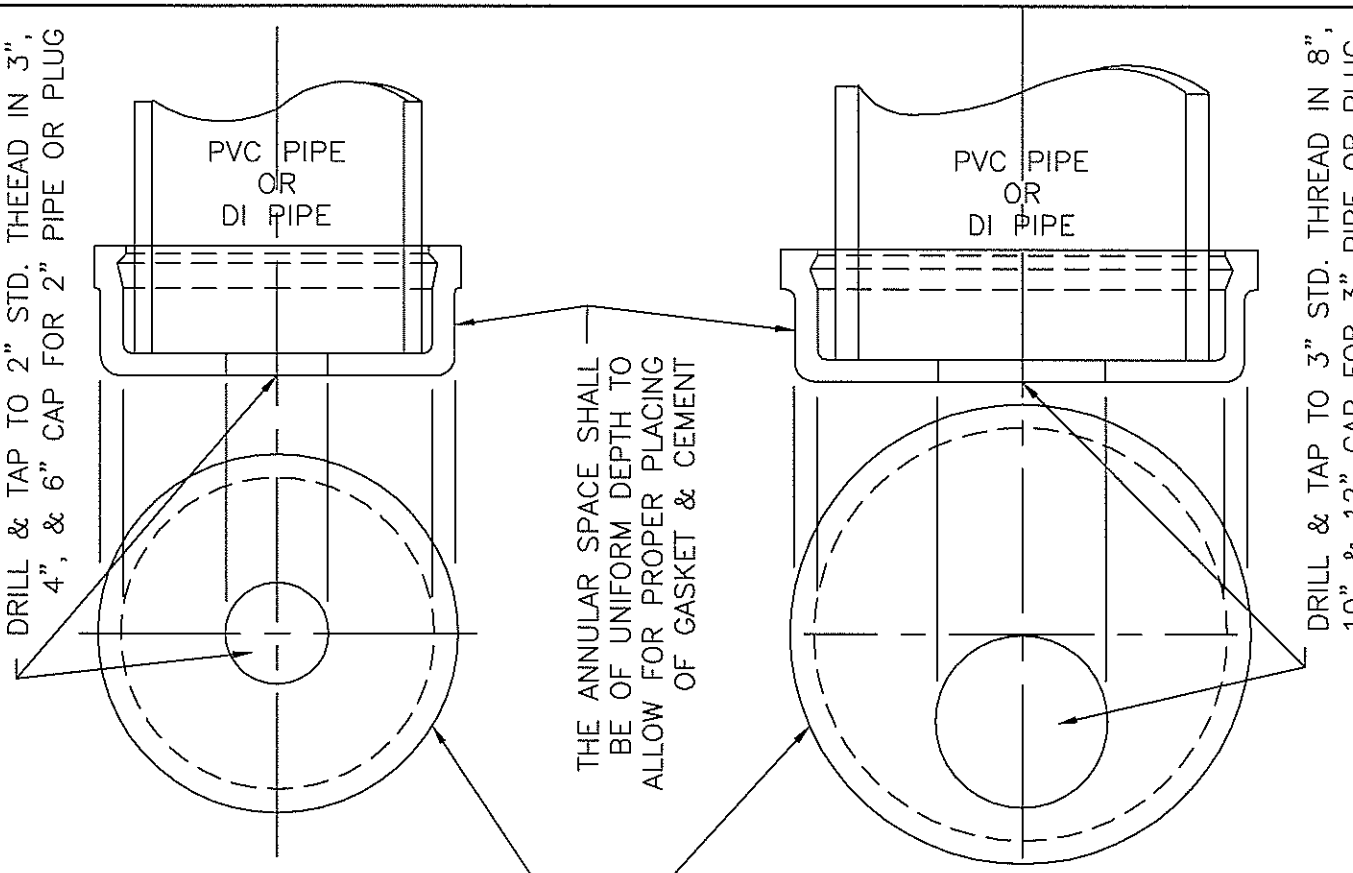
STANDARD

1" AND 2" AIR RELEASE VALVE OR COMBINATION AIR RELEASE VALVE

STANDARD DRAWING NUMBER

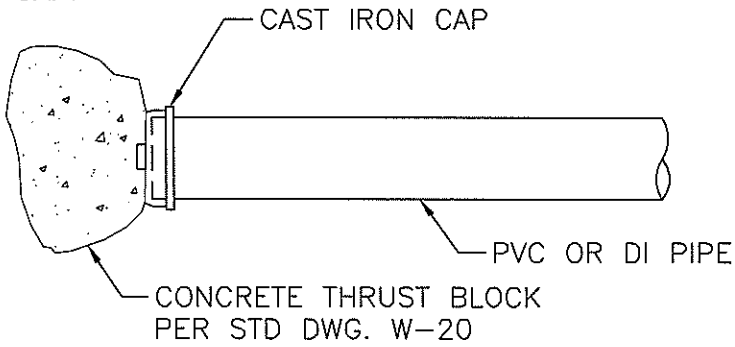
W-10
(2 OF 2)

P:\09137\134-09137-08001\Cadd\W-10A.dwg 05/30/2008 10:04



TAPPED CAPS			
SIZE INCHES	TAP INCHES	L INCHES	WEIGHT POUNDS
3	2	4.60	12
4	2	4.60	15
6	2	4.65	30
8	3	4.75	50
10	3	4.75	65
12	3	4.75	85

UNLESS OTHERWISE SHOWN ON THE PLANS, A 2" OR 3" CAST IRON PLUG SHALL BE FURNISHED WITH EACH TAPPED AND THREADED CAP.



NOTES:

1. WHEN CAPPING PIPE USE A RESTRAINED TYPE CAST IRON CAP AND WHEN PLUGGING CAST IRON FITTINGS USE A RESTRAINED TYPE CAST IRON PLUG.
2. WHENEVER POSSIBLE, CAP PIPE NEAR FITTING AND USE SOCKET CLAMPS, TIE RODS AND ANCHOR STRAPS TO RESTRAIN CAST IRON CAP.

REVISION	DRAWN	APP'D	DATE

REFERENCE FILES:

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

CAST IRON CAPS FOR PVC AND D.I. PIPE

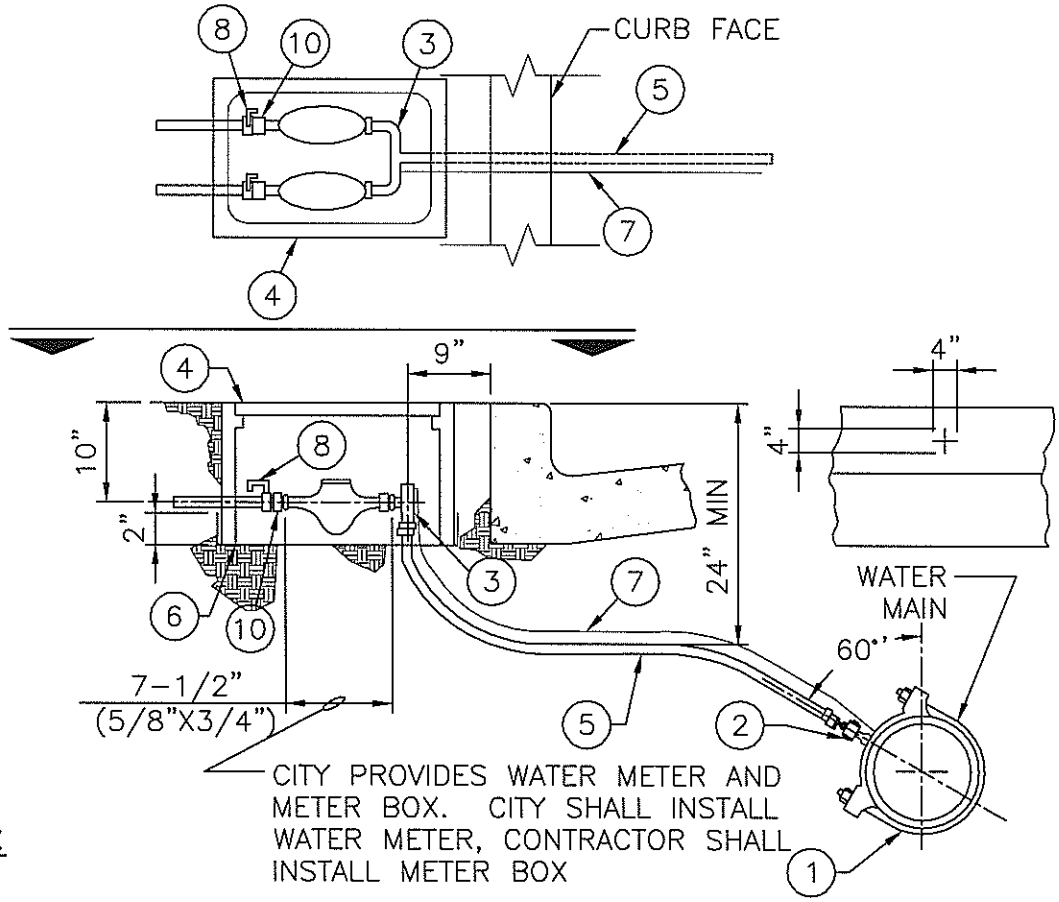
STANDARD DRAWING NUMBER

W-11

P:\09137\134-09137-08001\Cadd\W-11.dwg 05/30/2008 10:04

LIST OF MATERIALS

ITEM	DESCRIPTION
1	1" BRONZE SERVICE SADDLE W/ DOUBLE STAINLESS STEEL STRAPS, JONES J-969, OR APPROVED EQUAL
2	1" CORP. STOP, JONES J-3401, AWWA TAPER THREAD, OR APPROVED EQUAL
3	1"x3/4"x3/4" BRANCH VALVE ASSEMBLY, JONES J-2613 OR APPROVED EQUAL
4	18"x19"x12" METER BOX (R.P.M.), ARMORCAST PRODUCTS CO., OR APPROVED EQUAL
4a	18"x19"x12" TRAFFIC BOX (R.P.M.), ARMORCAST PRODUCTS CO., OR APPROVED EQUAL
5	1" POLYETHYLENE TUBING, C.T.S., P.E. 3306 (SDR-9)
6	1/4" SQ. GALVANIZED MESH, CUT TO FIT AROUND TUBING
7	NO. 10 GAGE LOCATING WIRE
8	3/4" CURB STOP (CUSTOMER VALVE) FORD B84-333
10	3/4" METER COUPLING JONES J-139



NOTES:

1. POLYETHYLENE TUBE TO BE ONE PIECE. NO SPLICES OR HEATING OF PIPE PERMITTED.
2. TRAFFIC BOX TO BE USED BEHIND ROLLED CURB OR UNDER TRAFFIC LOADING.
3. SERVICE LATERALS SHALL BE AT LEAST 24" FROM ADJACENT LATERALS OR JOINTS.
4. CHIP 4"+ IN CURB FACE TO IDENTIFY CORP. STOP LOCATION.
5. COPPER PIPE AND FITTING MAY BE SUBSTITUTED FOR SERVICE LATERAL.
6. INSTALL FORD INSERT 52 OR APPROVED EQUAL AT ALL PACK JOINTS.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

STANDARD DRAWING NUMBER

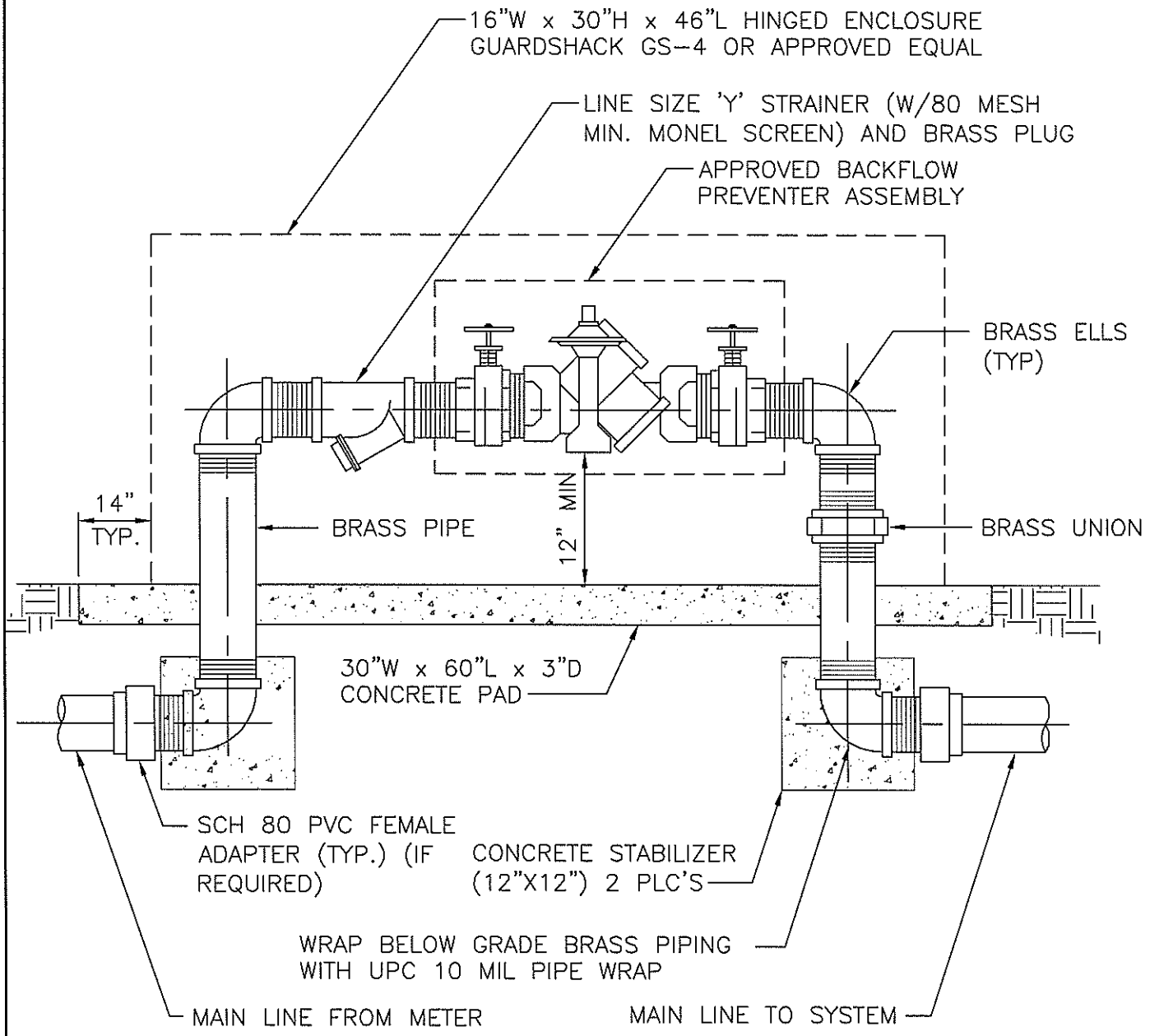
MANIFOLD SPLIT 5/8"x3/4" WATER SERVICE

W-12

P:\09137\134-09137-08001\Cadd\W-12.dwg 05/30/2008 10:04

NOTES

1. ATTACH BLUE POTABLE WATER IDENTIFICATION TAGS AS DIRECTED ON POTABLE SYSTEMS.
2. ATTACH GREEN POTABLE IRRIGATION IDENTIFICATION TAGS AS DIRECTED ON POTABLE IRRIGATION SYSTEMS.
3. ALL BACKFLOW PREVENTION DEVICES FOR METER PROTECTION SHALL BE INSTALLED DIRECTLY OUTSIDE OF THE WATER METER BOX.



REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/6/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

STANDARD DRAWING NUMBER

BACKFLOW PREVENTION DEVICE 2" AND SMALLER

W-13

P:\09137\134-09137-08001\Cadd\W-13.dwg 05/30/2008 10:04

Installation Instructions • Instrucciones de instalación • Instructions d'installation

Series 870V, 876V, LF870V, LF876V and 876VST

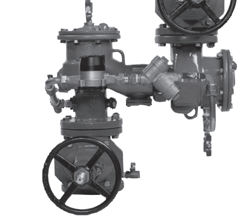
Double Check Valve Assemblies
Double Check Detector Assemblies

Montajes con válvula de retención doble
Montajes de detección de retención doble

Dispositifs à double clapet
Détecteur à double clapet

2½" - 10" (65-250mm)**

MASTER series®



Series 876V / Serie 876V / Série 876V

FEBCO®

** Metric Dimensions are nominal pipe diameter. This product is produced with ASME/ANSI flanged end connections.

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information: Watts.com/prop65

Limited Warranty: FEBCO (the "Company") warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. **SO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.**

FEBCO® *A Watts Water Technologies Company*

USA: Tel: (800) 767-1234 • Fax: (800) 788-4491 • FEBCOonline.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • FEBCOonline.ca
Latin America: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • FEBCOonline.com

** Las dimensiones métricas representan el diámetro nominal de la tubería. Este producto está fabricado con conexiones ASME/ANSI embridadas.

ADVERTENCIA: Este producto contiene sustancias químicas que en el Estado de California se conocen como causantes de cáncer y malformaciones u otros daños reproductivos.
Para más información: Watts.com/prop65

Garantía limitada: FEBCO (en adelante, "la Compañía") garantiza, por un período de un año a partir de la fecha de embarque original, que sus productos están libres de defectos en materiales y mano de obra bajo condiciones de uso normal. En caso de que se encuentren tales defectos dentro del período de garantía, la Compañía reemplazará o reacondicionará, a su elección, el producto sin costo alguno.

LA GARANTÍA AQUÍ ESTIPULADA SE OTORGA EN FORMA EXPRESA Y ES LA ÚNICA GARANTÍA OTORGADA POR LA COMPAÑÍA EN RELACIÓN CON EL PRODUCTO. LA COMPAÑÍA NO OTORGA NINGUNA OTRA GARANTÍA, YA SEA EXPRESA O IMPLÍCITA. LA COMPAÑÍA POR LA PRESENTE RENUNCIA ESPECÍFICAMENTE A TODAS LAS DEMÁS GARANTÍAS, EXPRESAS O IMPLÍCITAS, INCLUYENDO SIN LIMITACIÓN, LAS GARANTÍAS IMPLÍCITAS DE APTITUD PARA LA COMERCIALIZACIÓN E IDONEIDAD PARA UN PROPÓSITO EN PARTICULAR.

La solución descrita en el primer párrafo de esta garantía constituirá la única y exclusiva solución por incumplimiento de garantía, y la Compañía no se hará responsable por daños accidentales, especiales o indirectos, incluyendo sin limitación, la pérdida de ganancias o el costo de reparación o reemplazo de otra propiedad que resulte dañada por el mal funcionamiento de este producto, otros costos resultantes por mano de obra, retardos, vandalismo, negligencia, obstrucciones ocasionadas por materiales extraños, daños debidos a condiciones adversas del agua, químicos o cualquier otra circunstancia sobre la cual la Compañía no tenga control. Esta garantía no tendrá validez en cualquier caso de abuso, uso indebido, aplicación incorrecta, instalación inadecuada, o mantenimiento adecuado o alteración del producto.

Algunos Estados no permiten limitaciones en la duración de una garantía implícita y algunos Estados no permiten la exclusión o limitación de daños accidentales o indirectos. Por lo tanto, es posible que las limitaciones anteriores no sean aplicables en su caso. Esta garantía limitada le da derechos legales específicos; usted podría tener también otros derechos que varían según el Estado. Usted debe consultar las leyes estatales aplicables para determinar sus derechos. **EN LA MEDIDA EN QUE SEA CONGRUENTE CON LAS LEYES ESTATALES APLICABLES, CUALQUIER GARANTÍA IMPLÍCITA QUE NO SEA RECHAZADA, INCLUYENDO LAS GARANTÍAS IMPLÍCITAS DE APTITUD PARA LA COMERCIALIZACIÓN E IDONEIDAD PARA UN PROPÓSITO EN PARTICULAR, SE LIMITA EN SU DURACIÓN A UN AÑO A PARTIR DE LA FECHA DEL EMBARQUE ORIGINAL.**

FEBCO® *Una compañía de Watts Water Technologies*

USA: Tel: (800) 767-1234 • Fax: (800) 788-4491 • FEBCOonline.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • FEBCOonline.ca
Latin America: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • FEBCOonline.com

** Les dimensions métriques correspondent au diamètre nominal du tuyau. Ce produit est fabriqué avec des raccordements d'extrémité à brides ASME/ANSI.

AVERTISSEMENT : Ce produit contient des produits chimiques reconnus par l'État de Californie comme étant cancérigènes et pouvant provoquer des anomalies congénitales ou affecter la capacité de reproduction.
Pour plus d'informations : Watts.com/prop65

Garantie limitée: FEBCO (la « Société ») garantit que chacun de ses produits est exempt de vice de matériau et de fabrication dans des conditions normales d'utilisation pour une période d'un an à compter de la date d'expédition d'origine. Dans l'éventualité où de tels vices se manifesteraient pendant la période de garantie, la Société, à sa discrétion, remplacera ou reconditionnera le produit sans frais.

LA PRÉSENTE GARANTIE EST EXPRESSE ET REPRÉSENTE LA SEULE GARANTIE OFFERTE PAR LA SOCIÉTÉ POUR CE PRODUIT. LA SOCIÉTÉ N'OFFRE AUCUNE AUTRE GARANTIE, EXPRESSE OU TACITE. PAR LA PRÉSENTE, LA SOCIÉTÉ REJETTE SPÉCIFIQUEMENT TOUTE AUTRE GARANTIE, EXPRESSE OU TACITE, NOTAMMENT TOUTE GARANTIE TACITE DE QUALITÉ MARCHANDE OU D'ADAPTATION À UN BUT PARTICULIER.

Le recours décrit dans le premier paragraphe de cette garantie constitue le seul recours à toute violation de la présente garantie. La Société ne saurait être tenue responsable de tout dommage accessoire, spécial ou indirect, y compris, de façon non limitative : la perte de profits ou le coût afférent à la réparation ou au remplacement d'autres biens qui seraient endommagés par suite du fonctionnement incorrect dudit produit ; d'autres coûts résultant de frais de main-d'œuvre, de retards, de vandalisme, de négligence, d'une obstruction causée par des matériaux étrangers, de dommages causés par une eau impropre, des produits chimiques ou par tout autre événement échappant au contrôle de la Société. La présente garantie est déclarée nulle et non avenue en cas d'usage abusif ou incorrect, d'application, d'installation ou d'entretien incorrects ou de modification du produit.

Certains États n'autorisent pas les limitations de durée d'une garantie tacite ou l'exclusion ou la limitation des dommages accessoires ou indirects. Les limitations susmentionnées peuvent donc ne pas s'appliquer à vous. Cette garantie limitée vous donne des droits spécifiques et il se peut que vous ayez aussi d'autres droits qui varient d'un État à l'autre. Veuillez vous référer aux lois applicables de l'État pour déterminer vos droits en la matière. **DANS LA MESURE PERMISE PAR LA LOI APPLICABLE DE L'ÉTAT, TOUTES LES GARANTIES TACITES NE POUVANT PAS ÊTRE REJETÉES, Y COMPRIS LES GARANTIES TACITES DE QUALITÉ MARCHANDE ET D'ADAPTATION À UN BUT PARTICULIER, SONT LIMITÉES QUANT À LEUR DURÉE À UN AN À COMPTER DE LA DATE D'EXPÉDITION D'ORIGINE.**

FEBCO® *Une entreprise de Watts Water Technologies*

USA: Tel: (800) 767-1234 • Fax: (800) 788-4491 • FEBCOonline.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • FEBCOonline.ca
Latin America: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • FEBCOonline.com

ENGLISH INSTRUCTIONS

⚠ WARNING

THINK SAFETY FIRST

Read this Manual BEFORE using this equipment.
Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment.
Keep this Manual for future reference.

⚠ WARNING

You are required to consult the local building and plumbing codes prior to installation. If the information in this manual is not consistent with local building or plumbing codes, the local codes should be followed. Inquire with governing authorities for additional local requirements.

⚠ WARNING

Need for Periodic Inspection/Maintenance: This product must be tested periodically in compliance with local codes, but at least once per year or more as service conditions warrant. All products must be retested once maintenance has been performed. Corrosive water conditions and/or unauthorized adjustments or repair could render the product ineffective for the service intended. Regular checking and cleaning of the product's internal components helps assure maximum life and proper product function.

Installation Instructions

1. Consult local codes for specific installation requirements and restrictions applicable to your area. It is recommended that system supply pressure be at least 20psi (138 kPa).
2. These instructions apply to Series 870V/876V, and LF870V/LF876V/876VST sizes 2½" to 10" (65-250mm) only. The valves may be installed only in the orientation/flow direction as shown. All 870V/876V and LF870/LF876V/876VST assemblies are shipped in the horizontal installation orientation only. The gate valves may be rotated as permitted by the flange bolt pattern.
3. The valve assembly must be installed where it is accessible for periodic testing and maintenance. Clearances shown in the installation views apply to exterior, interior and pit/vault installations and are only recommendations. These minimums do not apply to removable protective enclosures. Refer to local codes for actual requirements in your area.
4. PRIOR TO INSTALLING THE VALVE INTO THE LINE, FLUSH THE SUPPLY LINE OF ALL FOREIGN MATERIAL. Failure to flush the supply line may cause the check valves to become fouled and require disassembly and cleaning.
5. Lift the assembly by connecting lift hooks to the lift rings cast into the valve body. DO NOT LIFT THE ASSEMBLY BY CONNECTING TO THE GATE VALVE HANDWHEELS OR STEMS. The use of the optional valve setters (horizontal units only) provides for a rigid connection to the supply line (with the correct centerline) without the need for concrete thrust blocks.
6. For vertical installation, loosen bolts on the groove coupling just enough to allow rotation of the outlet check. Rotate outlet check 180º. Ensure that the vertical support adapter is in place (valve is shipped with adapter banded in place) and install pipe support (pipe support to be furnished by the customer and shall fit same size pipe as the valve being installed, except 2½" (65mm) valves will use a 3" pipe support).

NOTICE

THE VALVE BODY AND PIPE SUPPORT ARE INTENDED TO SUPPORT THE WEIGHT OF THE SECOND CHECK VALVE AND OUTLET GATE VALVE ONLY. THE PIPING ABOVE THE OUTLET GATE VALVE MUST BE SUPPORTED INDEPENDENTLY. Retighten bolts of groove coupling. Rotate outlet gate valve as desired – required.

6a. For vertical installation of the DCDA, first remove formed tube from bypass piping, then follow instructions outlined in No. 6 above. When this has been completed, rotate the compression fitting elbow 180º and reinstall the tube, rotating the pipe tee now at the bottom of the outlet check to align with tube.

7. After installation SLOWLY fill the assembly with water and bleed air from the body using the # 3 and # 4 test cocks. Test the valve assembly to ensure correct operation.

NOTICE

All assemblies are tested at the factory for proper operation and leakage. If the valve does not pass the field test, it is most likely due to a fouled check valve. This is not covered by the factory warranty. The valve cover(s) must be removed and the check seats inspected and cleaned. Any damage or improper operation caused by pipeline debris or improper installation/start-up is not included in the factory warranty. In case of a possible warranty claim, contact your local supplier or FEBCO Representative. DO NOT REMOVE THE VALVE ASSEMBLY FROM THE PIPELINE.

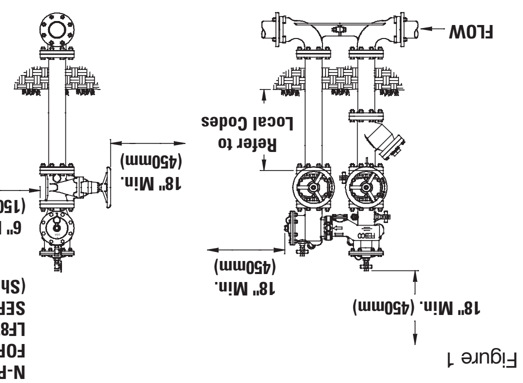
8. The assembly must be protected from freezing and excessive pressure increases. Thermal expansion or water hammer can cause pressure increases. These excessive pressure situations must be eliminated to protect the valve and system from possible damage.

NOTICE

The flange gasket bolts for the gate valves should be retightened during installation as the bolts may have loosened due to storage and shipping.

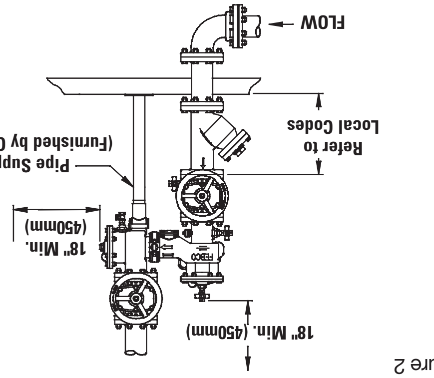
Typical Installation

Figure 1



N-PATTERN INSTALLATION FOR THE DC SERIES 870V/ LF870V & FOR THE DCDA SERIES 876V/ LF876V/ 876VST (Shown with Strainer)

Figure 2



VERTICAL INSTALLATION FOR THE DC SERIES 870V/LF870V & FOR THE DCDA SERIES 876V/ LF876V/ 876VST (Shown with Strainer)

Service and Maintenance

1. Detailed maintenance manuals are available from your local Febco representative.
2. Rinse all parts with clean water prior to reassembly.
3. DO NOT USE ANY PIPE DOPE, OIL, GREASE OR SOLVENT ON ANY PARTS unless instructed to do so.
4. Do not force parts. Parts should fit together freely. Excess force may cause damage and render the assembly inoperable.
5. Carefully inspect seals and seating surfaces for debris or damage.
6. After servicing, repressurize the assembly and test to ensure proper operation.

Check Valve Disassembly

1. Close the outlet shutoff valve, then close the inlet shutoff valve. Bleed residual pressure from the assembly by opening the #4, #3, and # 2 test cocks in this sequence.
2. Remove the cover bolts/nuts and lift the cover from the body. The springs are retained and the cover should be pushed away from the body approximately ¼ inch.
3. Inspect/clean debris from the disc and seat ring. Replace worn or damaged parts as required.
4. Replace the cover, ensure the spring assembly is positioned in the pivot socket. If necessary, apply FDA approved grease to the O-ring groove in the body to keep the O-ring in position while installing the cover.
5. Install the bolts and nuts and tighten.

Test Procedure for Double Check Valve Assemblies

FEBCO recommends the use of the appropriate annual test method presented in the ASSE Series 5000 manual that is consistent with your local codes.

Troubleshooting

PROBLEM	CAUSE	SOLUTION
1. Check valve leaking	a. Debris on seating surface b. Leaking shutoff valve	Disassemble and clean Disassemble and clean
2. Low flows passing through mainline valve (DCDA).	a. Mainline check fouled b. Bypass line plugged	Disassemble and clean Disassemble and clean

INSTRUCCIONES EN ESPAÑOL

⚠ ADVERTENCIA

PIENSE SEGURIDAD ANTE TODO

Lea este manual ANTES de utilizar este equipo.
El no leer y seguir todas las medidas de seguridad y usar la información puede causar la muerte, lesiones personales graves, daños materiales o daños en el equipo.
Guarde este manual para referencia futura.

⚠ ADVERTENCIA

Es obligatorio consultar los códigos locales de construcción y fontanería antes de comenzar la instalación. Si la información de este manual no se corresponde con los códigos locales de construcción y fontanería, deberán seguirse estos últimos. Pregunte a las autoridades gubernamentales sobre otros requisitos locales.

⚠ ADVERTENCIA

Requerimiento de inspección periódica/mantenimiento: Este producto debe ser evaluados periódicamente de acuerdo con los códigos locales, pero al menos una vez o más al año según las condiciones del servicio. Todos los productos deben volver a ser evaluados una vez se haya realizado el mantenimiento. Condiciones de agua corrosiva y/o ajustes o reparaciones no autorizados pueden provocar que el producto deje de funcionar para el servicio previsto. Una inspección y limpieza regulares de los componentes internos del producto garantizan la vida máxima y el adecuado funcionamiento del producto.

Instrucciones de instalación

1. Consulte los códigos locales para ver los requisitos y restricciones de instalación específicos correspondientes a su área. Se recomienda que la presión de suministro del sistema sea de al menos 138 kPa (20 psi).
2. Estas instrucciones corresponden únicamente a las Series 870V/876V y LF870V/LF876V/ 876VST que tienen 65 a 250 mm (2½ a 10 pulg.) de tamaño. Las válvulas pueden instalarse solamente en la orientación/dirección de flujo como se muestra. Todos los montajes 870V/876V, y LF870V/LF876V/ 876VST son enviados únicamente en la orientación de instalación horizontal. Las válvulas de paso pueden girarse según lo permita el patrón del perno con bridas.
3. El montaje de la válvula debe instalarse en un lugar accesible para la realización periódica de pruebas y mantenimiento. Los espacios de separación mostrados en las vistas de instalación corresponden a instalaciones exteriores, interiores y en pozos/sótanos y son solamente sugerencias. Estos valores mínimos no corresponden a cajas protectoras extraíbles. Consulte los códigos locales para ver los requisitos reales de su área.
4. ANTES DE INSTALAR LA VÁLVULA A LA LÍNEA, ENJUAGUE LA LÍNEA DE SUMINISTRO QUITANDO TODA MATERIA EXTRAÑA. No enjuagar la línea de suministro puede provocar el bloqueo de las válvulas de retención y requerir su desarmado y limpieza.
5. Levante el montaje conectando los ganchos de elevación a los anillos de elevación unidos al cuerpo de la válvula. NO LEVANTE EL MONTAJE CONECTÁNDOLO A LOS VOLANTES DE MANO O LOS VÁSTAGOS DE LA VÁLVULA DE PASO. El uso de reguladores de válvula opcionales (sólo para unidades horizontales) proporciona una conexión rígida a la línea de suministro (con la línea central correcta) sin la necesidad de usar pivotes de empuje de concreto.
6. Para la instalación vertical, afloje los pernos del acoplamiento de ranura lo suficiente para permitir que la válvula de paso de salida gire. Gire la válvula de paso de salida 180°. Asegúrese de que el adaptador de soporte vertical esté en su lugar (la válvula es enviada con el adaptador sujeto con bandas en su lugar) e instale el soporte para tuberías (el soporte para tuberías debe proporcionarlo el cliente y deberá encajar con el mismo tamaño de tubería que la válvula que se está instalando, excepto que las válvulas de 65 mm [21⁄2 pulg.] usarán un soporte para tuberías de 76 mm [3 pulg.]).

AVISO

EL CUERPO DE LA VÁLVULA Y EL SOPORTE PARA TUBERÍAS ESTÁN DISEÑADOS PARA SOPORTAR EL PESO DE LA SEGUNDA VÁLVULA DE RETENCIÓN Y DE LA VÁLVULA DE PASO DE SALIDA SOLAMENTE. LAS TUBERÍAS POR ENCIMA DE LA VÁLVULA DE PASO DE SALIDA DEBEN ESTAR SOPORTADAS DE FORMA INDEPENDIENTE. Vuelva a ajustar los pernos del acoplamiento de ranura. Gire la válvula de paso de salida según lo desee o según sea necesario.

6a. Para la instalación vertical del MDRD, primero retire la tubería formada de la tubería de derivación, luego siga las instrucciones descritas anteriormente en el paso N.° 6. Cuando haya terminado esto, gire el empalme de codo de compresión 180° y vuelva a instalar la tubería, girando el conector en "T" que ahora se encuentra en la parte inferior de la válvula de paso de salida para alinearlo con la tubería.

7. Después de la instalación LENTAMENTE llene el montaje con agua y purgue el aire del cuerpo usando los grifos de prueba N.° 3 y N.° 4. Pruebe la unión de la válvula para asegurar su correcto funcionamiento.

AVISO

Todas las uniones son probadas en la fábrica para evaluar su correcto funcionamiento y la ausencia de fugas. Si la válvula no pasa la prueba de campo, lo más probable es que se deba a una válvula de retención bloqueada. Esto no está cubierto por la garantía de fábrica. La(s) cubierta(s) de la válvula debe(n) extraerse y los asientos de retención deben revisarse y limpiarse. Todo daño o funcionamiento incorrecto provocado por residuos de la tubería o la instalación/arranque incorrectos no se incluye en la garantía de fábrica. En caso de un posible reclamo cubierto por la garantía, póngase en contacto con su proveedor o representante de FEBCO local. NO QUITE EL MONTAJE DE LA VÁLVULA DE LA TUBERÍA.

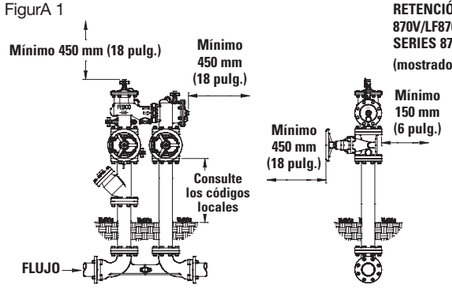
8. El montaje debe protegerse del congelamiento y de los aumentos de presión excesivos. La expansión térmica o los golpes de ariete pueden provocar aumentos de presión. Estas situaciones de presión excesiva deben ser eliminadas para proteger a la válvula y al sistema de posibles daños.

AVISO

Los pernos de unión embridados de las válvulas de compuerta deberán ser apretados de nuevo durante la instalación ya que pueden estar sueltos debido al almacenamiento o transporte.

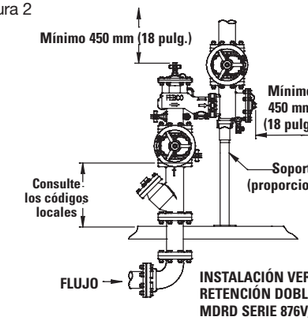
Instalación típica

FigurA 1



INSTALACIÓN EN PATRÓN DE "N" PARA EL MONTAJE DE RETENCIÓN DOBLE SERIES 870V/LF870V Y PARA EL MDRD SERIES 876V/LF876V/876VST (mostrado con filtro)

Figura 2



INSTALACIÓN VERTICAL PARA EL MONTAJE DE RETENCIÓN DOBLE SERIES 870V/LF870V Y PARA EL MDRD SERIE 876V/LF876V/876VST (mostrado con filtro)

Servicio y mantenimiento

1. Su representante local de Febco dispone de manuales de mantenimiento detallados.
2. Enjuague todas las piezas con agua limpia antes de reensamblarlas.
3. NO USE LACA PARA TUBERÍAS, ACEITE, GRASA O SOLVENTE SOBRE NINGUNA PIEZA a menos que se le indique hacerlo.
4. No fuerce las piezas. Las piezas deben calzar con facilidad. El exceso de fuerza puede provocar daños y dejar el montaje fuera de funcionamiento.
5. Inspeccione los sellos y superficies de unión en busca de residuos o daños.
6. Después de realizar el servicio, vuelva a presurizar el montaje y pruébelo para asegurar su correcto funcionamiento.

Desarmado de la válvula de retención

1. Cierre la válvula de retención de salida, luego cierre la válvula de retención de entrada. Purgue la presión residual del montaje abriendo los grifos de prueba N.° 4, N.° 3 y N.° 2, en este orden.
2. Quite los pernos/tuercas de la cubierta y levante la cubierta del cuerpo. Los resortes son retenidos y la cubierta debe alejarse del cuerpo aproximadamente 6 mm (1/4 pulg.).
3. Inspeccione/limpie residuos del disco y del anillo de asiento. Reemplace piezas gastadas o dañadas según sea necesario.
4. Vuelva a colocar la cubierta; asegúrese de que el montaje de resortes esté colocado en la entrada del pivote. Si es necesario, aplique grasa aprobada por la FDA a la ranura de la junta tórica en el cuerpo para mantener la junta tórica en posición mientras instala la cubierta.
5. Coloque los pernos y tuercas y ajústelos.

Procedimiento de prueba para montajes con válvula de retención doble

FEBCO recomienda el uso del método de prueba anual adecuado presentado en el manual del ASSE Serie 5000 que concuerda con sus códigos locales.

Resolución de problemas

PROBLEMA	CAUSA	SOLUCIÓN
1. Fuga en la válvula de retención	a. Residuos en la superficie de unión	Desarme y limpie
	b. Fugas en la válvula de cierre	Desarme y limpie
2. Bajo flujo a través de la válvula de la línea principal (MDRD).	a. Retención de la línea principal bloqueada	Desarme y limpie
	b. Línea de derivación obstruida	Desarme y limpie

INSTRUCTIONS EN FRANÇAIS

⚠ AVERTISSEMENT

PENSEZ SÉCURITÉ AVANT TOUT

Lisez attentivement ce manuel avant d'utiliser cet équipement.
Négliger de lire et de suivre toutes les consignes de sécurité et d'utilisation de l'information peut entraîner la mort, des blessures graves ou des dégâts matériels, ou endommager l'équipement.
Veuillez conserver ce manuel pour toute référence ultérieure.

⚠ AVERTISSEMENT

Vous êtes tenus de consulter les codes de la construction locale et de la plomberie avant l'installation. Dans la mesure où cette information n'est pas cohérente avec les codes locaux, les codes locaux doivent être suivis. Renseignez-vous auprès des autorités gouvernementales pour des exigences locales supplémentaires.

⚠ AVERTISSEMENT

Nécessité d'inspection périodique/maintenance: Ce produit doit être testé périodiquement en conformité avec les codes locaux, mais au moins une fois par an ou plus, comme les conditions de service le justifient. Tous les produits doivent être testés une fois que les opérations d'entretien ont été effectuées. Des conditions d'admission corrosives et/ou des réglages ou des réparations non autorisés peuvent rendre le produit inefficace pour le service prévu. Un contrôle régulier et le nettoyage des composants internes du produit permettent d'assurer la durée de vie et le bon fonctionnement du produit.

Instructions d'installation

1. Se documenter sur la réglementation locale en vigueur, concernant l'installation ainsi que ses exigences et restrictions particulières. La pression d'alimentation recommandée du circuit doit être d'au moins 138 kPa (20 psi).
2. Ces instructions s'appliquent uniquement aux dispositifs 870V/876V, et LF870V/LF876V/876VST de 65 mm à 250 mm (2,5 po à 10 po) de diamètre. L'orientation de la soupape par rapport à la direction du débit doit être exactement la même que sur l'illustration. Tous les dispositifs 870V/876V et LF870V/LF876V/876VST sont expédiés pour une installation horizontale uniquement. Les robinets-vannes peuvent être tournés dans la mesure où le motif de boulons de la bride le permet.
3. L'accès à l'ensemble de vannes doit faciliter leur révision et leur entretien périodiques. Les dégagements minimums sur les illustrations sont donnés à titre indicatif pour une installation intérieure, extérieure ou dans une fausse/voûte. Ils ne s'appliquent pas aux soupapes logées dans un boîtier protecteur amovible. Se conformer aux exigences de la réglementation locale en vigueur.
4. PURGER LA CONDUITE D'ALIMENTATION AVANT L'INSTALLATION. La conduite sera ainsi débarrassée de toute impureté risquant d'obstruer les clapets de non-retour, ce qui entraînerait un démontage et un nettoyage.
5. Soulever l'ensemble en accrochant les crochets de levage aux anneaux de levage moulés dans le corps de la vanne. NE PAS SOULEVER L'ENSEMBLE EN L'ACCROCHANT AUX DISQUES OU AUX TIGES DU ROBINET-VANNE. L'utilisation de supports de vanne en option (pour dispositifs horizontaux uniquement) permet d'obtenir un raccord rigide vers la conduite d'alimentation (avec la ligne médiane correcte) sans devoir ajouter de massif d'ancrage en béton.
6. Pour une installation verticale, desserrer légèrement les boulons du raccord rainuré afin de permettre la rotation du clapet de non-retour de sortie. Tourner le clapet de non-retour sur 180°. S'assurer que l'adaptateur de support vertical est en place (la vanne est expédiée avec l'adaptateur fixé en place) et installer le support de tuyau (le support de tuyau doit être fourni par le client et s'adapter au même diamètre de tuyau que la vanne qui est installée, sauf pour les vannes de 65 mm [2,5 po] qui nécessitent un support de tuyau de 76 mm [3 po]).

AVIS

LE CORPS DE LA VANNE ET LE SUPPORT DE TUYAU DOIVENT SUPPORTER UNIQUEMENT LE POIDS DU DEUXIÈME CLAPET DE NON-RETOUR ET LE ROBINET-VANNE DE SORTIE. LA TUYAUTERIE QUI SE TROUVE AU-DESSUS DU ROBINET-VANNE DE SORTIE DOIT ÊTRE SOUTENUE INDÉPENDAMMENT. Resserrer les boulons du raccord rainuré. Tourner le robinet-vanne de sortie comme souhaité ou requis.

6a. Pour une installation verticale du détecteur à double clapet, enlever d'abord le tube profilé du tuyau de dérivation, puis suivre les instructions fournies au no 6 ci-dessus. Lorsque cette étape est terminée, tourner le coude à compression de raccord de 180º et réinstaller le tube. Tourner ensuite le tuyau en T à la base du clapet de non-retour de la sortie afin de l'aligner avec le tube.

7. Après l'installation, remplir LENTEMENT le dispositif avec de l'eau et purger l'air du corps à l'aide des robinets de test no 3 et no 4. Vérifier ensuite son bon fonctionnement.

AVIS

L'étanchéité et le bon fonctionnement des soupapes ont été vérifiés en usine. En conséquence, le dysfonctionnement d'une soupape chez le client sera fort probablement dû à un clapet de non-retour obstrué par des impuretés. Cette anomalie n'est pas couverte par la garantie. Le couvercle des soupapes devra alors être enlevé et les sièges du clapet vérifiés et nettoyés. La garantie d'usine ne couvre pas les dysfonctionnements causés par des impuretés dans la conduite ou une mauvaise installation/mise en service. Par ailleurs, si la réclamation est couverte par la garantie, contacter son fournisseur local ou le représentant FEBCO. NE PAS DÉPOSER LA SOUPAPE DE LA CANALISATION.

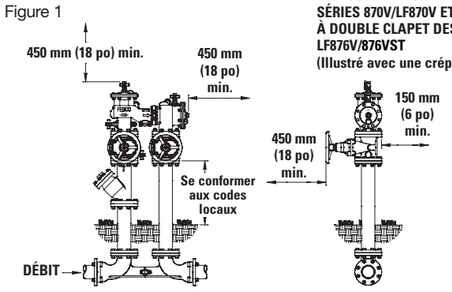
8. La soupape doit être protégée contre le gel et une montée de pression excessive. Une dilatation thermique ou un coup de bélier peuvent occasionner une pression excessive. Ces occurrences de surpression doivent être éliminées pour prévenir tout dommage à la soupape et au circuit.

AVIS

Les boulons de joint de bride pour les robinets-vannes doivent être resserrés au cours de l'installation, car les boulons peuvent avoir desserré en raison du stockage et de l'expédition.

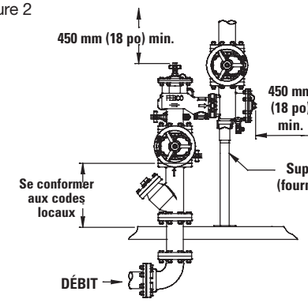
Type d'installation

Figure 1



INSTALLATION AVEC MOTIF EN N POUR DISPOSITIF À DOUBLE CLAPET DES SÉRIES 870V/LF870V ET POUR DÉTECTEUR À DOUBLE CLAPET DES SÉRIES 876V/LF876V/876VST (Illustré avec une crépine)

Figure 2



INSTALLATION VERTICALE POUR DISPOSITIF À DOUBLE CLAPET DES SÉRIES 870V/LF870V ET POUR DÉTECTEUR À DOUBLE CLAPET DES SÉRIES 876V/LF876V/876VST (Illustré avec une crépine)

Service et entretien

1. Contacter au besoin son représentant local Febco pour obtenir un manuel d'entretien.
2. Rincer toutes les pièces à l'eau propre avant de les remonter.
3. NE PAS APPLIQUER DE PÂTE À JOINT, D'HUILE, DE GRAISSE, NI DE SOLVANT SUR LES PIÈCES, sauf indication contraire.
4. Ne pas forcer sur les pièces : elles doivent s'assembler avec aisance. Une force excessive pourrait les endommager et entraîner la défaillance de la soupape.
5. Vérifier avec soin les surfaces de portée et les joints (dommages ou impuretés).
6. Après avoir terminé l'entretien, pressuriser puis contrôler à nouveau la soupape.

Démontage du clapet de non-retour

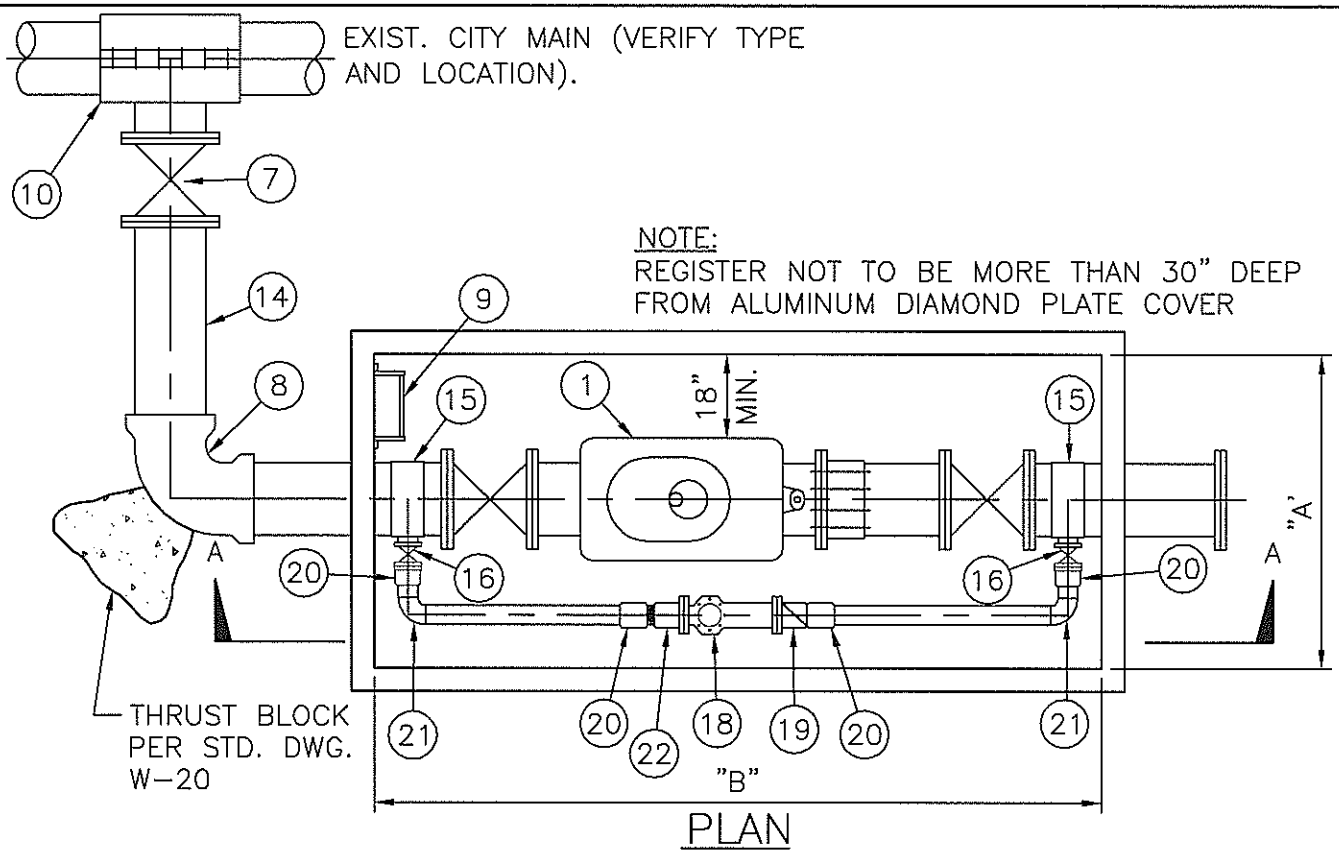
1. Fermer le robinet de sortie, puis le robinet d'arrivée d'eau. Ouvrir d'abord le robinet de contrôle no 4, puis le no 3 et le no 2, dans cet ordre, afin d'éliminer la pression résiduelle.
2. Déposer les boulons et les écrous du couvercle et soulever le couvercle du corps du dispositif. La charge des ressorts est conservée et le couvercle doit être éloigné du corps du dispositif d'environ 6 mm (0,25 po).
3. Inspecter et nettoyer les débris du disque et du siège de la bague. Remplacer les pièces usées ou endommagées au besoin.
4. Remettre en place le couvercle en s'assurant que le dispositif à ressorts est placé sur l'emboîtement du pivot. Appliquer au besoin de la graisse approuvée par la FDA dans la rainure du joint torique du corps afin de garder le joint torique en position pendant l'installation du couvercle.
5. Installer les boulons et les écrous et les resserrer.

Procédure d'essai pour les dispositifs à double clapet

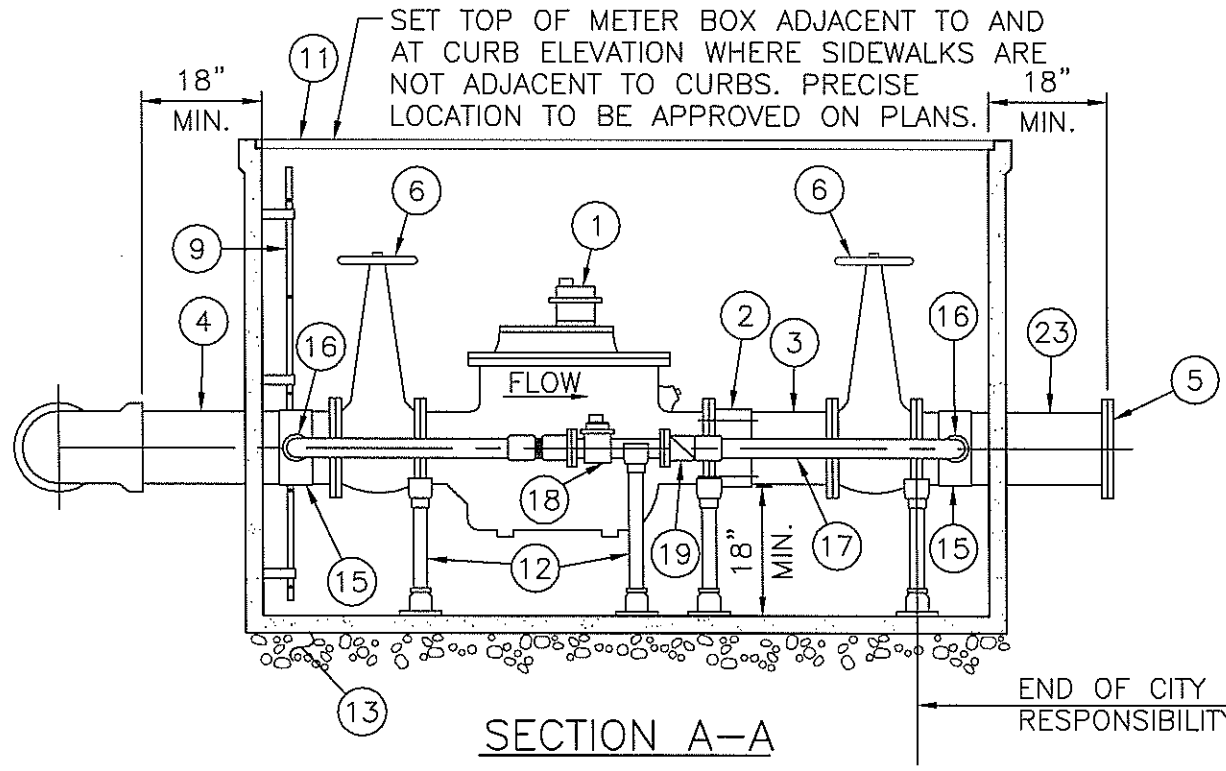
FEBCO recommande de choisir l'un des tests annuels présentés dans le manuel ASSE de série 5000, en fonction de sa conformité à la règlementation locale en vigueur.

Dépannage

ANOMALIE	CAUSE PROBABLE	CORRECTIF
1. Le clapet de non-retour fuit	a. Des débris se sont logés sur la surface du siège	Démonter et nettoyer
	b. Le robinet d'arrêt fuit	Démonter et nettoyer
2. Un débit trop faible passe par la vanne de la conduite principale (détecteurs à double clapet)	a. Mainline check fouled	Démonter et nettoyer
	b. La conduite de dérivation est obstruée	Démonter et nettoyer



PLAN



SECTION A–A

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

STANDARD DRAWING NUMBER

COMMERCIAL CONTINUOUS FLOW METER
3", 4", 6" AND 8"

W-15
(1 OF 2)

P:\09137\134-09137-08001\Cadd\W-15.dwg 05/30/2008 10:05

TABLE W-15			
METER SIZE	VAULT NO.	VAULT SIZE (MIN.)	
		"A"	"B"
3"	B4065B-M	4'	6.5'
4"	B4065B-M	4'	6.5'
6"	B6080B-M	6'	8'
8"	B60100B-M	6'	10'

1. CITY APPROVED METER
2. FLANGED COUPLING ADAPTER, SMITH-BLAIR 912 OR APPROVED EQUAL
3. DUCTILE IRON SPOOL FLG x P.E., 1'-0" LONG
4. DUCTILE IRON FLANGED x P.E. SPOOL
5. DUCTILE IRON BLIND FLANGE
6. RESILIENT WEDGE VALVE, FLANGED, NRS WITH HANDWHEEL
7. TAPPING VALVE (IF REQUIRED)
8. DUCTILE IRON PUSH-ON 90° BEND
9. GALVANIZED LADDER, ALHAMBRA A-3400 WITH LADDERUP
10. TAPPING SLEEVE, MUELLER (IF REQUIRED)
11. PRECAST CONCRETE VAULT EISEL WITH ALUMINUM DIAMOND PLATE COVER - SEE TABLE W-15
12. PIPE SUPPORTS, TOLCO 319 OR APPROVED EQUAL
13. PEA GRAVEL, 12" MINIMUM THICKNESS
14. DUCTILE IRON PIPE
15. I.P. SERVICE SADDLE, JONES J-979 OR EQUAL
16. 2" BALL CORPORATION STOP MIP X FIP VALVE
17. 2" COPPER (TYPE "K")
18. 2" CITY APPROVED METER
19. 2" CHECK VALVE, METER FLANGE X FIP
20. 2" MIP X SWEAT ADAPTER
21. 2"-90° ELL SWEAT FITTING
22. 2" METER FLANGE X 2" FIP
23. DUCTILE IRON FLG x FLG SPOOL

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

COMMERCIAL CONTINUOUS FLOW METER
3", 4", 6" AND 8"

STANDARD DRAWING NUMBER

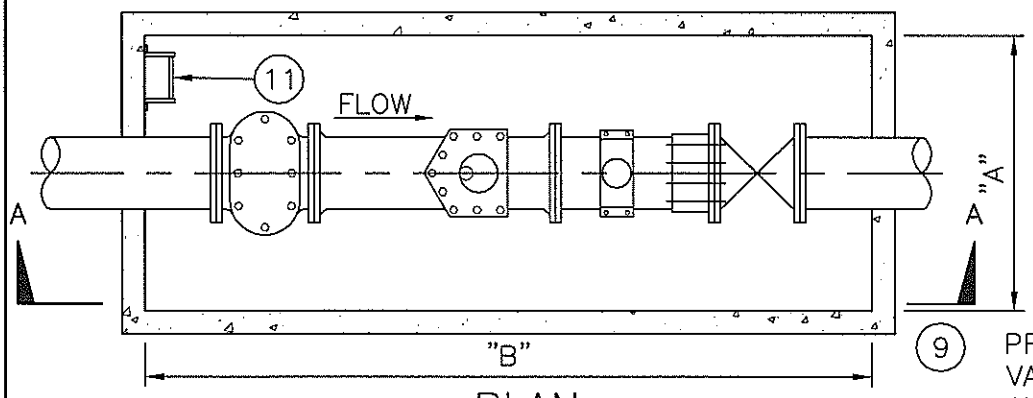
W-15
(2 OF 2)

P:\09137\134-09137-08001\Cadd\W-15a.dwg 05/30/2008 10:05

TABLE W-16			
METER SIZE	VAULT NO.	VAULT SIZE (MIN.) "A"	"B"
3"	B4065B-M	4'	6.5'
4"	B4065B-M	4'	6.5'
6"	B6080B-M	6'	8'
8"	B6080B-M	6'	8'

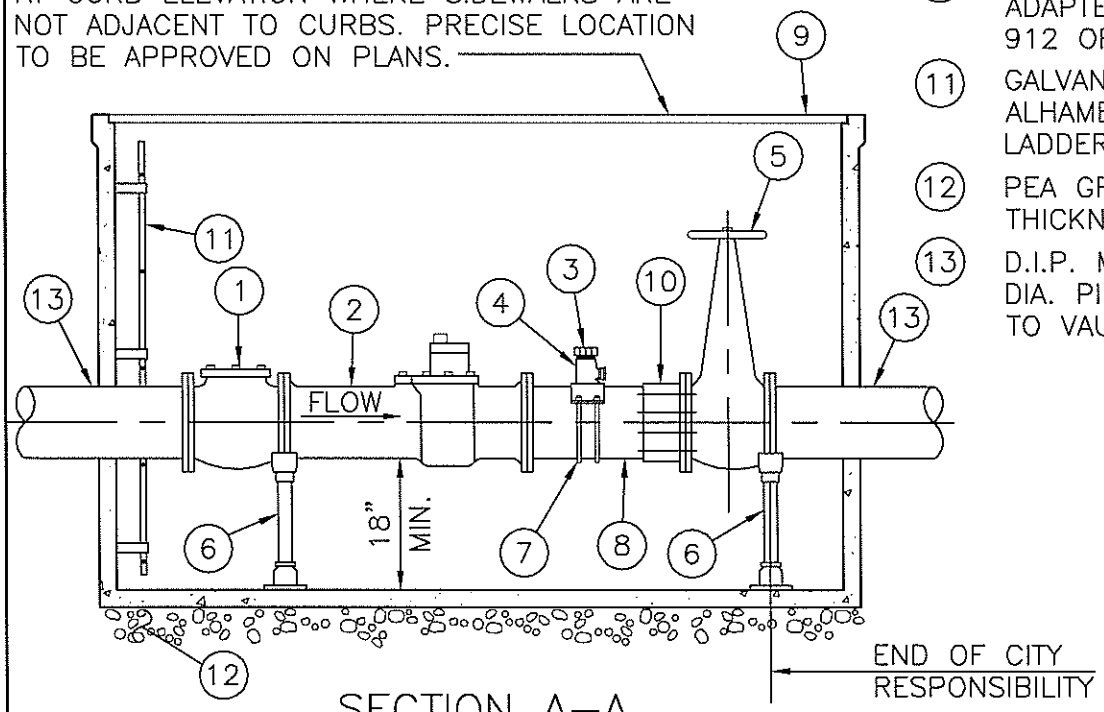
CONSTRUCTION ITEMS

1. STRAINER
2. CITY APPROVED METER
3. 2" BRASS PLUG
4. 2" BALL CORPORATION STOP MIP X FIP
5. RESILIENT WEDGE VALVE, FLANGED, NRS WITH HANDWHEEL
6. PIPE SUPPORTS, TOLCO 319 OR APPROVED EQUAL
7. J-979 WITH 2" TAP (INSTALLED MINIMUM 3 PIPE DIAMETERS FROM DOWNSTREAM SIDE OF METER)
8. FLG. x P.E. D.I.P. SPOOL
9. PRECAST CONCRETE VAULT, EISEL WITH ALUMINUM DIAMOND PLATE COVER, SEE TABLE W-15
10. FLANGED COUPLING ADAPTER, SMITH BLAIR 912 OR APPROVED EQUAL
11. GALVANIZED LADDER, ALHAMBRA A-3400 WITH LADDERUP
12. PEA GRAVEL, 12" MINIMUM THICKNESS
13. D.I.P. MAIN LINE, MIN. 6" DIA. PIPE FROM MAIN LINE TO VAULT



PLAN

SET TOP OF METER BOX ADJACENT TO AND AT CURB ELEVATION WHERE SIDEWALKS ARE NOT ADJACENT TO CURBS. PRECISE LOCATION TO BE APPROVED ON PLANS.



SECTION A-A

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

IRRIGATION METER
3", 4", 6" AND 8"

STANDARD DRAWING NUMBER

W-16

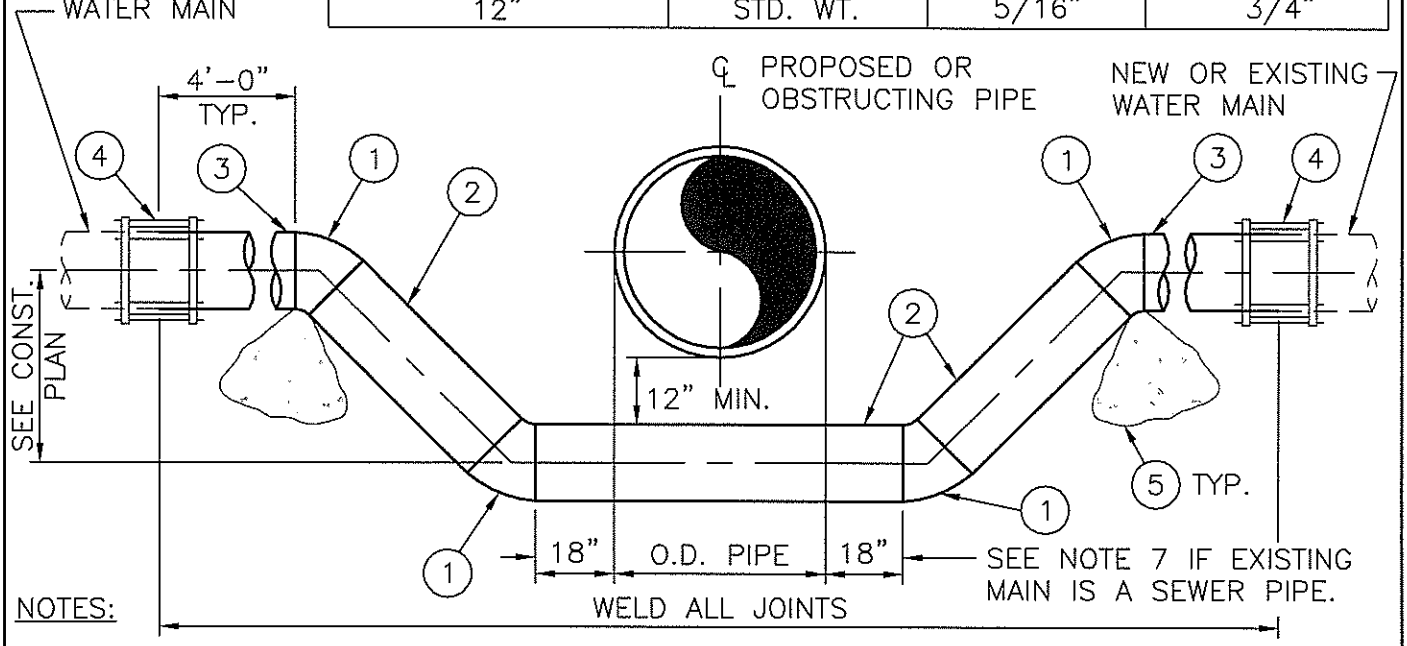
P:\09137\134-09137-08001\Cadd\W-16.dwg 05/30/2008 10:05

LIST OF MATERIALS

ITEM	QTY	DESCRIPTION
1	4	MAIN SIZE 45° BEND, CML & C STEEL PIPE
2	3	MAIN SIZE CML & C STEEL PIPE SPOOL, LENGTH AS REQUIRED
3	2	MAIN SIZE x 4'–0" CML & C STEEL PIPE SPOOL
4	2	MAIN SIZE TRANSITION OR REDUCING COUPLING
5	2	ANCHOR BLOCKS PER STD. DWG. W–20

MINIMUM PIPE SPECIFICATIONS:

NOMINAL PIPE SIZE	STL. CYL. THK.	LINING (MIN.)	COATING (MIN.)
6" THRU 10"	STD. WT.	1/4"	3/4"
12"	STD. WT.	5/16"	3/4"



NOTES:

1. STEEL PIPE SHALL BE ASTM A36, ASTM A 283 GRADE C OR D, ASTM A 570 GRADE 30 OR 33, HAVING A 0.25% MAXIMUM CARBON CONTENT.
2. STEEL FITTINGS 6" THROUGH 10" SHALL BE DESIGNED FOR 250 PSI AND CONFORM TO ANSI B16.9. FITTINGS 12" AND LARGER SHALL COMPLY WITH AWWA C208. MATERIAL FOR FITTINGS 6" THROUGH 10" SHALL COMPLY WITH ASTM A 234 GRADE WPB. MATERIAL FOR 10" THROUGH 14" SHALL BE THE SAME AS THE PIPE. MINIMUM WALL THICKNESS OF STEEL FITTING SHALL BE OF THE SAME SIZE PER ANSI B36.10.
3. CEMENT FOR CEMENT–MORTAR LINING AND COATING SHALL BE ASTM C150, TYPE V.
4. ALL JOINTS SHALL BE WELDED IN ACCORDANCE WITH AWWA C206.
5. ALL FERROUS SURFACES TO BE COATED WITH ONE COAT OF KOP–COAT BITUMASTIC NO. 300–M COAL TAR EPOXY PER MANUFACTURERS SPECIFICATIONS.
6. AIR RELEASE OR COMBINATION AIR RELEASE VALVE (AS DETERMINED BY CITY ENGINEER) IF A HIGH POINT IS CREATED.
7. IF WATER MAIN IS CROSSING UNDER EXISTING SEWER, NO JOINTS SHALL BE LOCATED WITHIN 10 FEET OF EITHER SIDE OF THE CROSSING WITH 12–INCH VERTICAL CLEARANCE.

REVISION	DRAWN	APP'D	DATE

REFERENCE FILES:

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 6/11/08

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

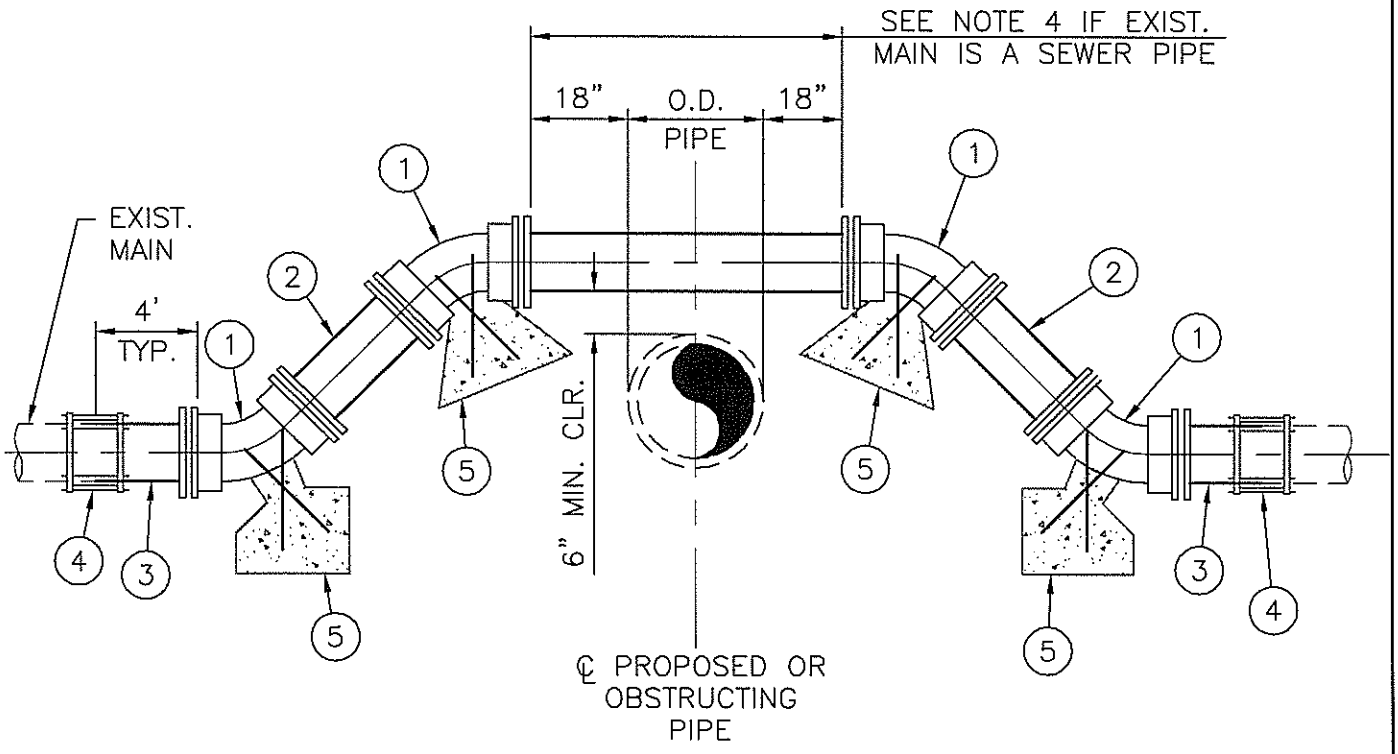
TYPICAL INVERTED UTILITY CROSSING (STEEL PIPE)

STANDARD DRAWING NUMBER

W-17

P:\09137\134–09137–08001\Cadd\W–17.dwg 05/30/2008 10:05

LIST OF MATERIALS		
ITEM	QTY	DESCRIPTION
1	4	MAIN SIZE 45° BEND, MJ W/ MEGALUG THRUST RESTRAINT
2	3	MAIN SIZE D.I. PIPE SPOOL, LENGTH AS REQUIRED
3	2	MAIN SIZE x 4'-0" D.I. PIPE SPOOL
4	2	MAIN SIZE TRANSITION OR REDUCING COUPLING
5	2	ANCHOR/THRUST BLOCKS PER STD. DWG. W-20



NOTES:

1. IF COVER OVER MAIN IS 24", CONCRETE ENCASE PIPE PER STD DWG. W-27. OTHERWISE BACKFILL OVER PIPE WITH 2-SACK SLURRY.
2. ALL FERROUS SURFACES TO BE COATED WITH ONE COAT OF KOP-COAT BITUMASTIC NO. 300-M COAL TAR EPOXY PER MANUFACTURERS SPECIFICATIONS.
3. AIR RELEASE OR COMBINATION AIR RELEASE VALVE (AS DETERMINED BY CITY ENGINEER) IF A HIGH POINT IS CREATED.
4. IF WATER MAIN IS CROSSING OVER AN EXISTING SEWER, NEW MAIN SHALL CROSS OVER THE SEWER WITH 12-INCH VERTICAL CLEARANCE (MIN.)

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

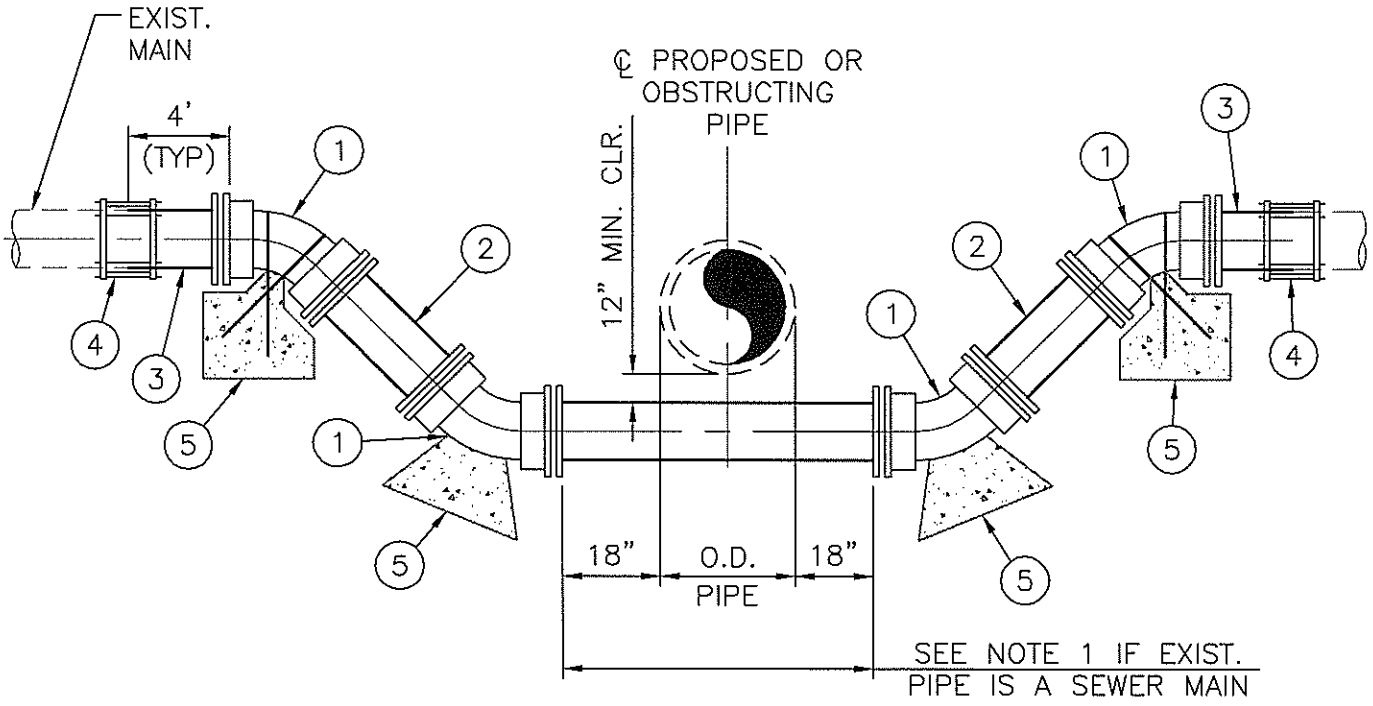
TYPICAL INVERTED UTILITY CROSSING (DIP)

STANDARD DRAWING NUMBER

W-18
(1 OF 2)

P:\09137\134-09137-08001\Cadd\W-18.dwg 05/30/2008 10:05

		LIST OF MATERIALS
ITEM	QTY	DESCRIPTION
1	4	MAIN SIZE 45° BEND, MJ W/ MEGALUG THRUST RESTRAINT
2	3	MAIN SIZE D.I. PIPE SPOOL, LENGTH AS REQUIRED
3	2	MAIN SIZE x 4'-0" D.I. PIPE SPOOL
4	2	MAIN SIZE TRANSITION OR REDUCING COUPLING
5	2	ANCHOR/THRUST BLOCKS PER STD. DWG. W-20



NOTES:

1. IF WATER MAIN IS CROSSING UNDER EXISTING SEWER, USE 18-FOOT PIPE LENGTH CENTERED UNDER SEWER WITH 12-INCH VERTICAL CLEARANCE (MIN.).

2. ALL FERROUS SURFACES TO BE COATED WITH ONE COAT OF KOP-COAT BITUMASTIC NO. 300-M COAL TAR EPOXY PER MANUFACTURERS SPECIFICATIONS.

3. AIR RELEASE OR COMBINATION AIR RELEASE VALVE (AS DETERMINED BY CITY ENGINEER) IF A HIGH POINT IS CREATED.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/11/08

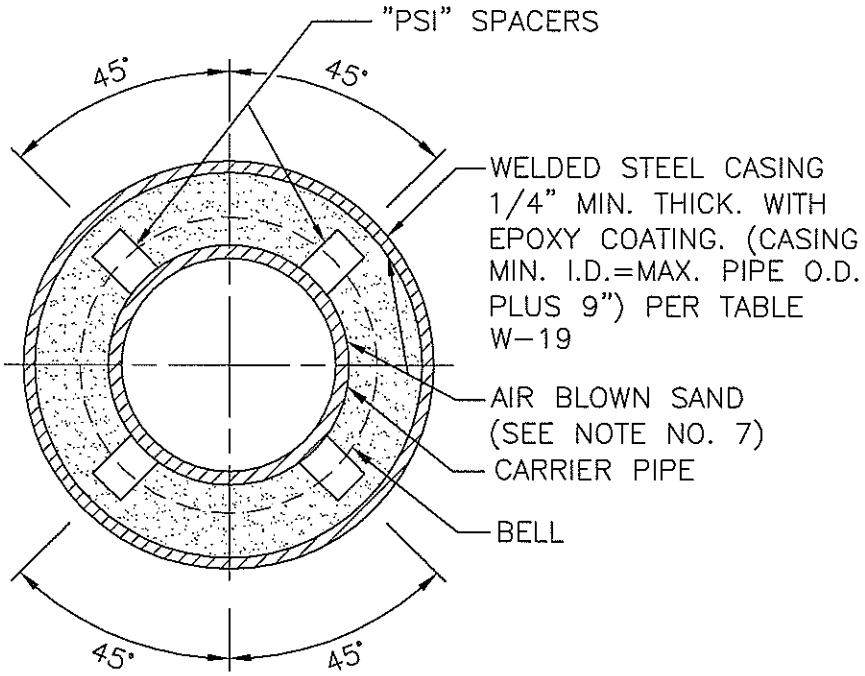
REFERENCE FILES:

CITY OF PARAMOUNT	JUNE - 2008
STANDARD	STANDARD DRAWING NUMBER
TYPICAL INVERTED UTILITY CROSSING (DIP)	W-18 (2 OF 2)

P:\09137\134-09137-08001\Cadd\W-18A.dwg 05/30/2008 10:06

TABLE W-19

PIPE SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS
6"	16" I.D.	1/4"
8"	18" I.D.	1/4"
10"	21" I.D.	5/16"
12"	24" O.D.	5/16"
16"	30" O.D.	3/8"



CROSS SECTION

NOTES:

1. CASING SHALL BE INSTALLED BY THE BORE, JACK AND/OR TUNNEL METHOD.
2. "PSI" SPACERS MODEL C8G-2 SHALL BE PROVIDED PER MANUFACTURER'S RECOMMENDATIONS.
3. MINIMUM SIZE AND MINIMUM THICKNESS OF CASING SHALL BE AS SHOWN IN TABLE W-19.
4. ALL CASING SECTIONS TO BE JOINED BY CONTINUOUS WELD.
5. EACH END OF CASING SHALL BE SEALED WITH "LINK SEAL" OR A "PSI" MODEL C END SEAL.
6. ALL PIPE JOINTS WITHIN THE CASING SHALL BE RESTRAINED WITH A EBAA IRON RESTRAINER SERIES 1500 OR APPROVED EQUAL.
7. UNLESS OTHERWISE NOTED ON THE PLANS, THE ANNULAR SPACE WITHIN THE CASING SHALL BE FILLED WITH AIR BLOWN SAND.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

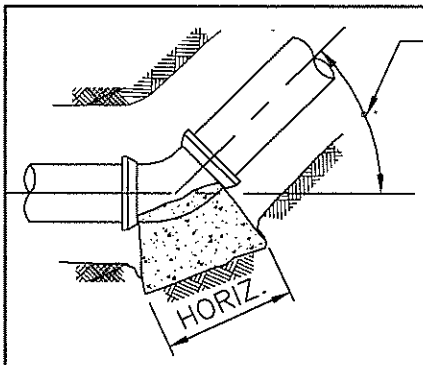
STANDARD

STEEL CASING

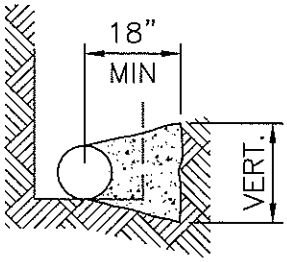
STANDARD DRAWING NUMBER

W-19

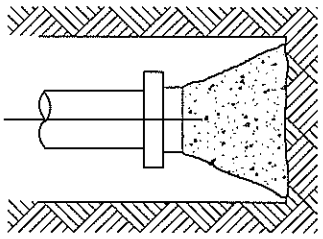
P:\09137\134-09137-08001\Cadd\W-19.dwg 05/30/2008 10:06



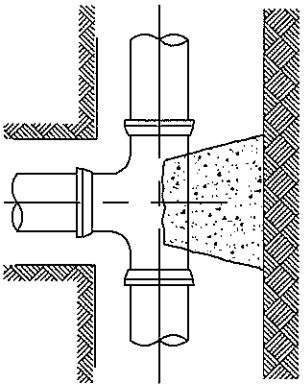
TYPICAL BEND



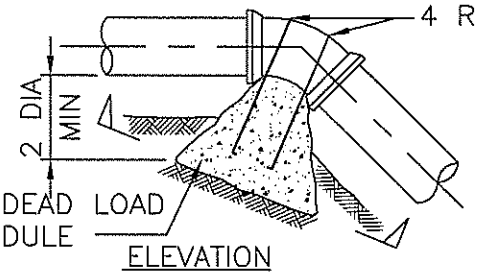
TYPICAL PROFILE



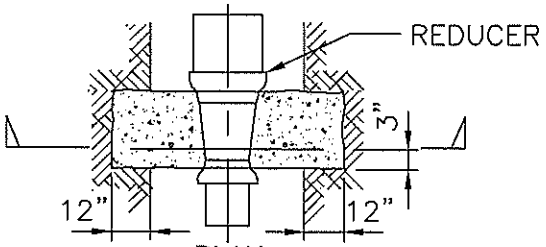
END CAP



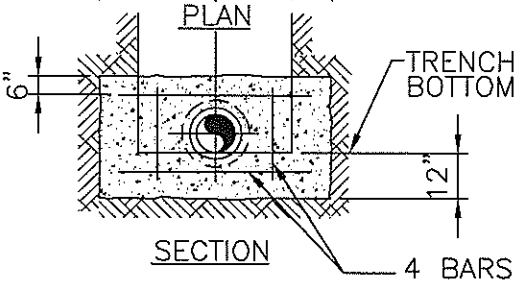
TEE OR VALVE



ELEVATION

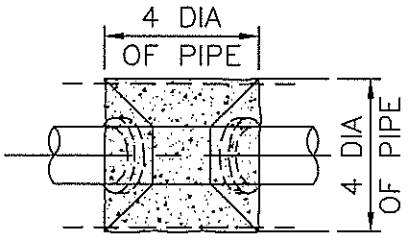


PLAN



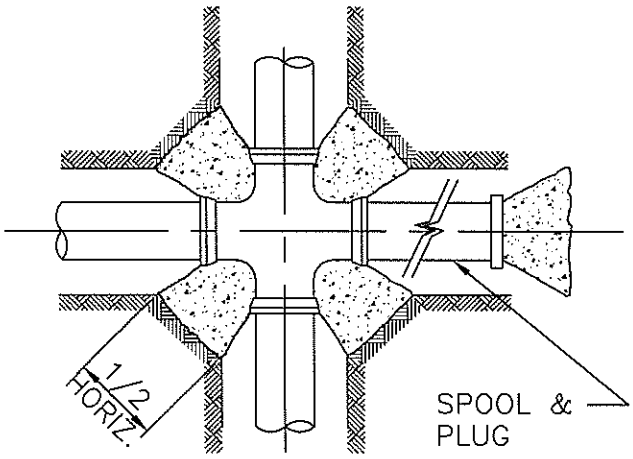
SECTION

REDUCER



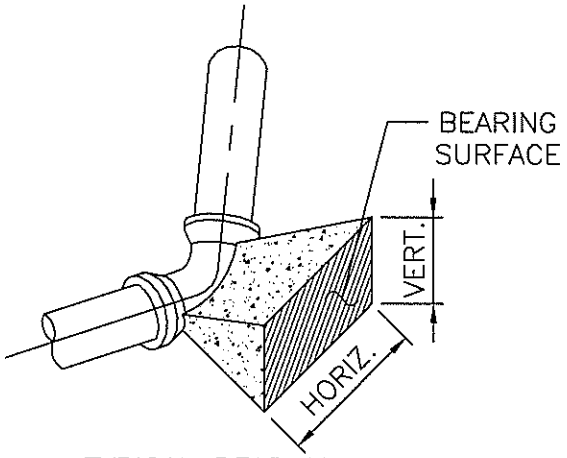
SECTION

VERTICAL BEND



CROSS

SEE NOTE 3



TYPICAL BEARING SURFACE

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

THRUST BLOCK DETAILS

STANDARD DRAWING NUMBER

W-20
(1 OF 3)

REFERENCE FILES:

P:\09137\134-09137-08001\Cadd\W-20.dwg 05/30/2008 10:06

MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE

VERTICAL ANCHOR AND THRUST BLOCK										
PIPE SIZE	90°		45°		22 1/2°		11 1/4°		TEE	CAP
	"A"	"V"	"A"	"V"	"A"	"V"	"A"	"V"	"A"	"A"
4"	3	1.5	1.5	1	1	0.5	0.5	0.5	2	2
6"	6.5	3.5	3.5	2	2	1	1	0.5	5	5
8"	12	6	6.5	3	3.5	1.5	2	1	8.5	8.5
10"	18.5	9.5	10	5	5	2.5	2.5	1.5	13.5	13.5
12"	27	13.5	14.5	7	7.5	3.5	3.5	2	19	19
14"	36.5	18	20	10	10	5	5	2.5	26	26
16"	48	23.5	26	13	13	6.5	6.5	3.5	34	34

"A" DENOTES AREA IN SQ FT OF HORIZONTAL THRUST BLOCK

"V" DENOTES VOLUME IN CUBIC YARDS OF VERTICAL ANCHOR BLOCK

NOTES:

1. ALL CONCRETE FOR THRUST BLOCKS TO BE CLASS 450-C-2000.
2. CONCRETE THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED SOIL.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A15 AND A305 INTERMEDIATE GRADE.
4. CONCRETE SHALL NOT EXTEND ONTO FLANGE OR ADJOINING PIPE. PIPE AND FITTING JOINTS SHALL BE ACCESSIBLE FOR REPAIR
5. BEARING AREAS ARE BASED ON A LINE TEST PRESSURE OF 225 PSI AND AN ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF. THE RATIO OF WIDTH TO HEIGHT CANNOT EXCEED 1-1/2 TO 1.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

THRUST BLOCK DETAILS

STANDARD DRAWING NUMBER

W-20
(2 OF 3)

P:\09137\134-09137-08001\Cadd\W-20A.dwg 05/30/2008 10:06

RESTRAINED JOINTS MAY BE USED IN LIEU OF CONCRETE THRUST BLOCKS FOR USE WITH DUCTILE IRON PIPE WITH PRIOR APPROVAL FROM THE CITY WATER DIVISION.

MINIMUM RESTRAINED JOINT LENGTH						
PIPE SIZE	90°	45°	22 1/2°	11 1/2°	TEE	CAP
	"L"	"L"	"L"	"L"	"L"	"L"
4"	30'	16'	8'	4'	42'	42'
6"	44'	24'	12'	6'	63'	63'
8"	59'	32'	16'	8'	83'	83'
10"	73'	39'	20'	10'	103'	103
12"	86'	47'	24'	12'	122'	122'
14"	100'	54'	28'	14'	141'	141'
16"	113'	61'	31'	16'	160'	160'

"L" DENOTES LENGTH IN FEET OF RESTRAINED JOINT PIPE

NOTES:

1. RESTRAINED JOINT LENGTH BASED ON A LINE TEST PRESSURE OF 225 PSI, AN AVERAGE DEPTH OF 48", AND A UNIT WEIGHT OF SOIL BACK FILL OF 120 PCF.

2. WHERE RESTRAINED JOINTS ARE CALLED FOR ON 8-INCHES IN DIAMETER AND SMALLER PIPE/FITTINGS, PUSH-ON JOINTS/FITTINGS SHALL BE RESTRAINED WITH LOCKING GASKET RATED FOR 250 PSI OPERATION PRESSURE. JOINT RESTRAINT SHALL BE PUSH-ON JOINT WITH "FIELD-LOK" GASKETS AS MANUFACTURED BY U.S. PIPE, PERMA-LOCK JOINT AS MANUFACTURED BY PACIFIC STATES CAST IRON PIPE COMPANY OR APPROVED EQUAL. "TR-FLEX" RESTRAINED JOINT PIPE AS MANUFACTURED BY U.S. PIPE OR APPROVED EQUAL IS ALSO AN ACCEPTABLE OPTION FOR RESTRAINT OF PUSH-ON JOINTS.

3. WHERE RESTRAINED JOINTS ARE CALLED FOR ON 10-INCHES IN DIAMETER AND LARGER PIPE, USE A "TR-FLEX" RESTRAINED JOINT PIPE AS MANUFACTURED BY U.S. PIPE OR APPROVED EQUAL. ANY RESTRAINED JOINT FITTING WHICH WILL REQUIRE A PIPE FIELD WELDMENT WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES. RESTRAINT OF FIELD CUT PIPE SHALL BE KEPT TO A MINIMUM.

4. FOR PIPE SIZES 10-INCHES IN DIAMETER AND LARGER, RESTRAINED JOINT FITTINGS SHALL EITHER BE "TR-FLEX" RESTRAINED JOINT FITTING AS MANUFACTURED BY U.S. PIPE OR APPROVED EQUAL, OR MECHANICAL JOINT DUCTILE IRON FITTINGS FITTED WITH JOINT RESTRAINTS. THE MECHANICAL JOINT RESTRAINT SHALL BE EBBA IRON, INC., MEGALUG, UNIFLANGE SERIES 1400, THE FORD METER BOX CO., INC. OR APPROVED EQUAL. ANY RESTRAINED JOINT FITTING WHICH WILL REQUIRE A PIPE FIELD WELDMENT WILL NOT BE PERMITTED.

REFERENCE FILES:

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/12/08

CITY OF PARAMOUNT

STANDARD

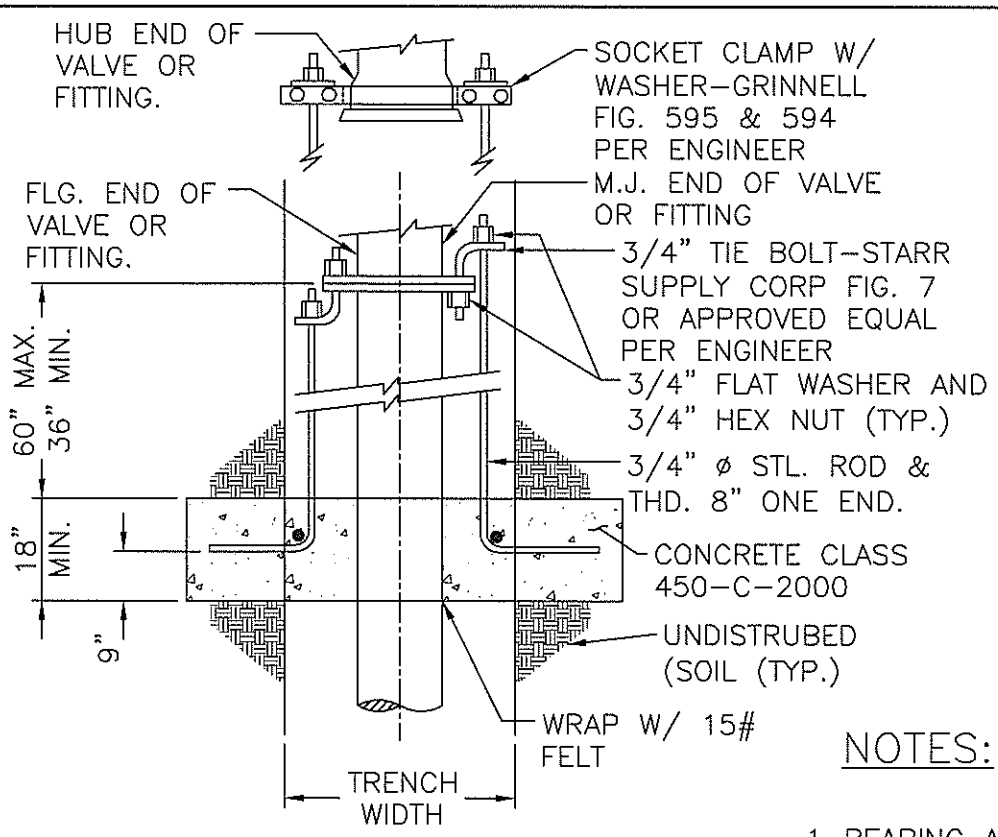
THRUST BLOCK DETAILS

JUNE - 2008

STANDARD DRAWING NUMBER

W-20
(3 OF 3)

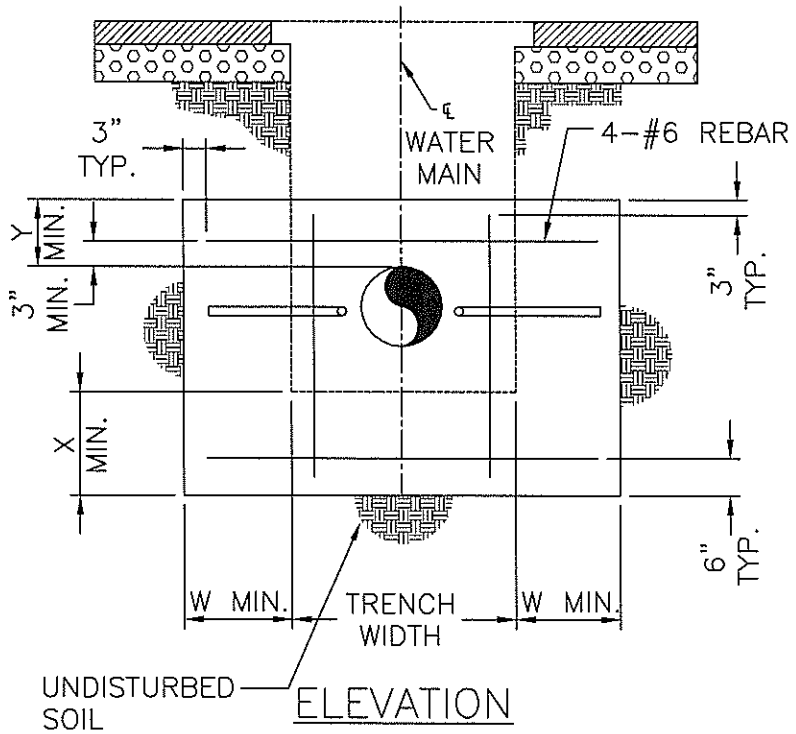
P:\09137\134-09137-08001\Cadd\W-20B.dwg 05/30/2008 10:06



PLAN

ANCHOR BLOCK DIMENSIONS		
6"	AREA	5
	W"	19
	X"	0
	Y"	6
8"	AREA	9
	W"	19
	X"	6
	Y"	6
10"	AREA	13
	W"	16
	X"	12
	Y"	12
12"	AREA	19
	W"	18
	X"	18
	Y"	12

AREA=S.F.



ELEVATION

NOTES:

1. BEARING AREAS AND DIMENSIONS ARE CALCULATED FOR TEES AND DEAD END MAINS. FOR USE W/ OTHER FITTINGS, SIZES CAN BE ADJUSTED ACCORDINGLY AS APPROVED BY THE ENGINEER.
2. ALL BEARING AREAS TO BE AGAINST UNDISTURBED SOIL.
3. BEARING AREAS AND DIMENSIONS ARE BASED ON A LINE TEST PRESSURE OF 225 PSI, ALL ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF AND 6000 LB. ROD TENSILE STRENGTH.
4. ALL STEEL ROD, BOLTS, ETC. IN CONTACT WITH SOIL SHALL BE COATED WITH COAL TAR PRIMER–PROTECTO–WRAP NO. 1170 AND BITUMINOUS TAPE–PROTECTO–WRAP NO. 200A OR AN APPROVED EQUAL.

REVISION	DRAWN	APP'D	DATE

REFERENCE FILES:

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/1/08

CITY OF PARAMOUNT

JUNE - 2008

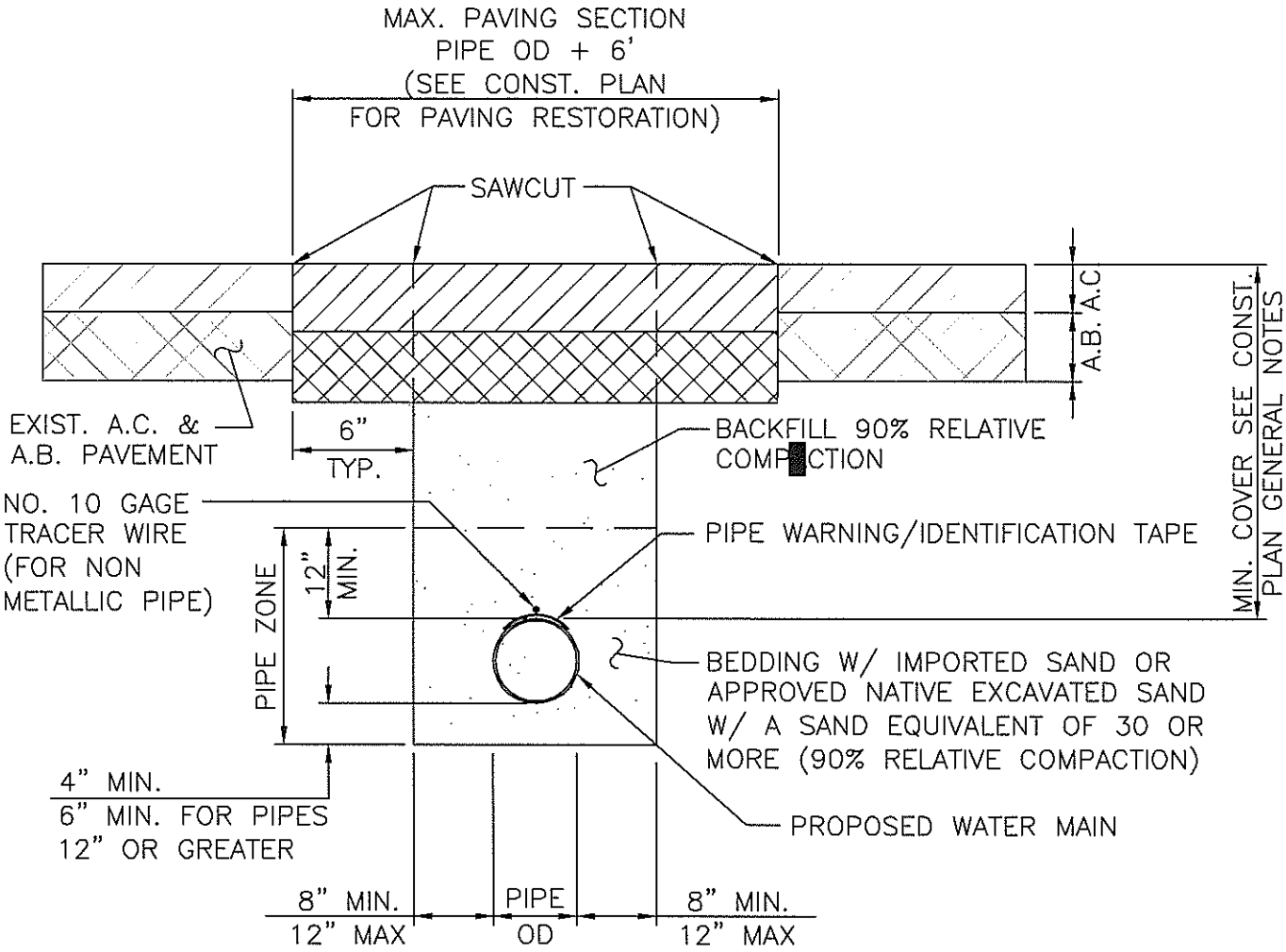
STANDARD

TYPICAL REVERSE RESTRAINED THRUST BLOCK

STANDARD DRAWING NUMBER

W-21

P:\09137\134–09137–08001\Cadd\W–21.dwg 05/30/2008 10:06



SECTION

(NOT TO SCALE)

REFERENCE FILES:

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE: 8/21/08

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

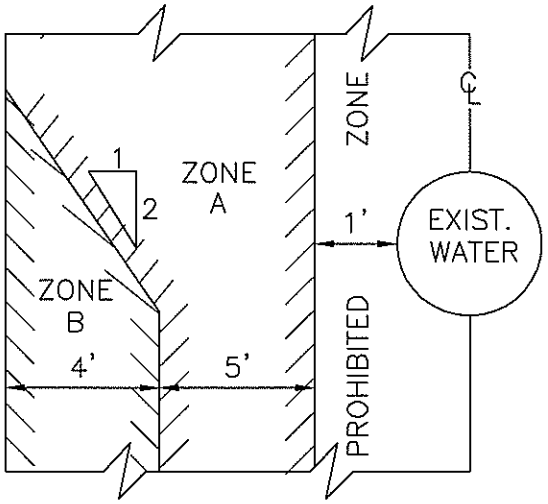
TYPICAL TRENCH SECTION

STANDARD DRAWING NUMBER

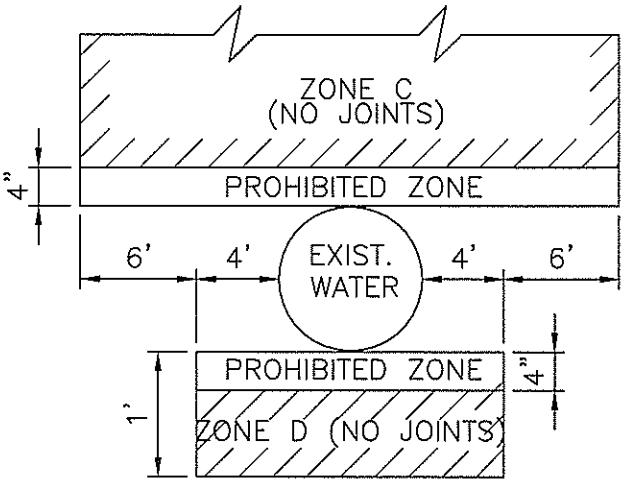
W-22

P:\09137\134-09137-08001\Cadd\W-22.dwg 05/30/2008 10:06

SITUATION:
LOCATION OF NEW SEWER LINE TO EXISTING DOMESTIC WATER LINE.



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

IF ANY SEWER OR RECYCLED WATER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE	SEWER
A	DO NOT LOCATE ANY PARALLEL SEWER OR RECYCLED WATER LINES IN THIS AREA WITHOUT APPROVAL FROM THE DEPARTMENT OF PUBLIC HEALTH AND THE WATER DIVISION.
B	USE V.C.P. WITH COMPRESSION JOINTS
C	USE D.I.P.
D	USE D.I.P.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/6/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

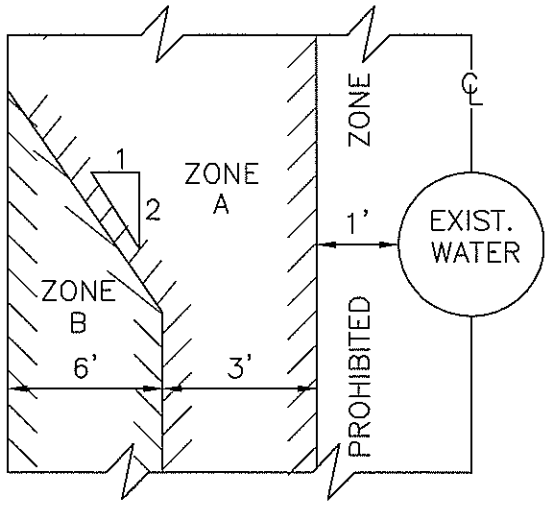
EXCEPTIONS TO BASIC SEPERATION STANDARDS FOR WATER MAINS AND SANITARY SEWERS

STANDARD DRAWING NUMBER

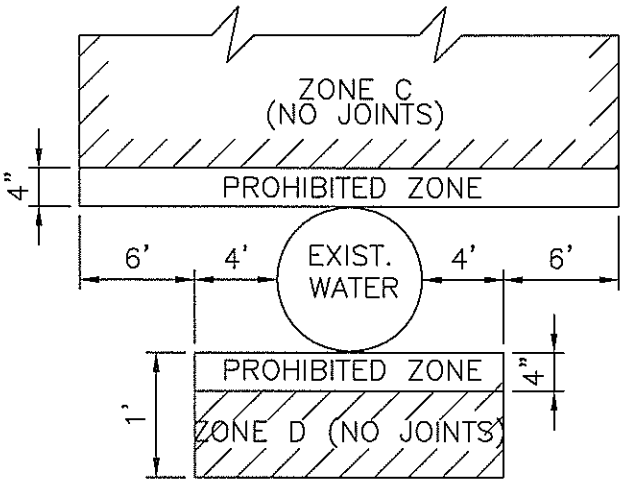
W-23
(1 OF 5)

P:\09137\134-09137-08001\Cadd\W-23a.dwg 05/30/2008 10:06

SITUATION:
LOCATION OF NEW RECYCLED WATER LINE TO EXISTING DOMESTIC WATER LINE.



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

IF ANY SEWER OR RECYCLED WATER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE	SEWER
A	DO NOT LOCATE ANY PARALLEL SEWER OR RECYCLED WATER LINES IN THIS AREA WITHOUT APPROVAL FROM THE DEPARTMENT OF PUBLIC HEALTH AND THE WATER DIVISION.
B	USE D.I.P
C	USE D.I.P.
D	USE D.I.P.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

JUNE - 2008

STANDARD

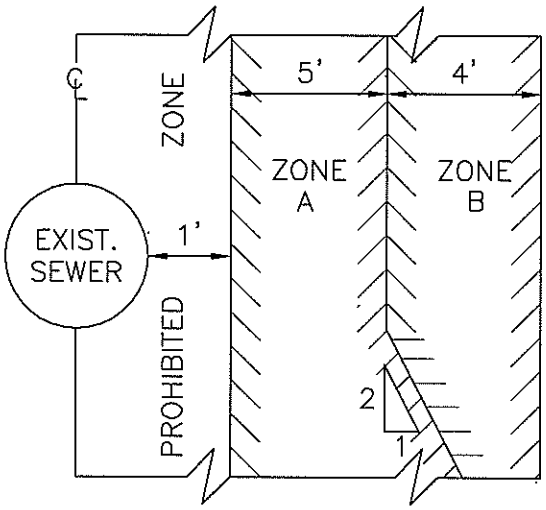
STANDARD DRAWING NUMBER

EXCEPTIONS TO BASIC SEPERATION STANDARDS FOR WATER MAINS AND SANITARY SEWERS

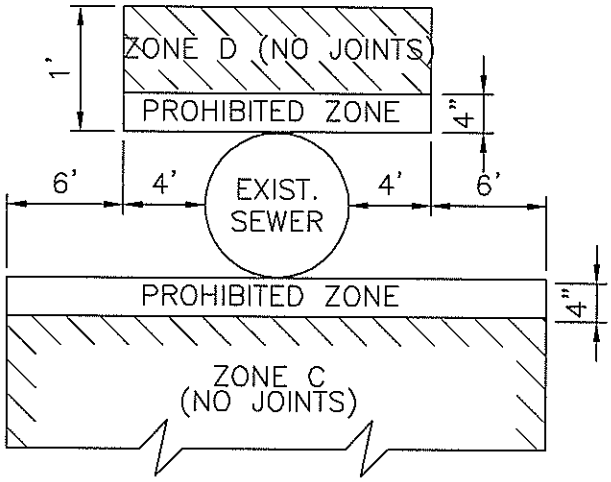
W-23
(2 OF 5)

P:\09137\134-09137-08001\Cadd\W-23b.dwg 05/30/2008 10:07

SITUATION:
LOCATION OF NEW DOMESTIC WATER LINE TO EXISTING SEWER LINE



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

IF ANY DOMESTIC WATER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE	DOMESTIC WATER
A	DO NOT LOCATE ANY PARALLEL DOMESTIC WATER MAIN IN THIS AREA WITHOUT APPROVAL FROM THE DEPARTMENT OF PUBLIC HEALTH AND THE WATER DIVISION
B	USE D.I.P. OR PVC, CL200
C	USE D.I.P.
D	USE D.I.P.

REVISION	DRAWN	APP'D	DATE

APPROVED
DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT

STANDARD

EXCEPTIONS TO BASIC SEPERATION STANDARDS FOR WATER MAINS AND SANITARY SEWERS

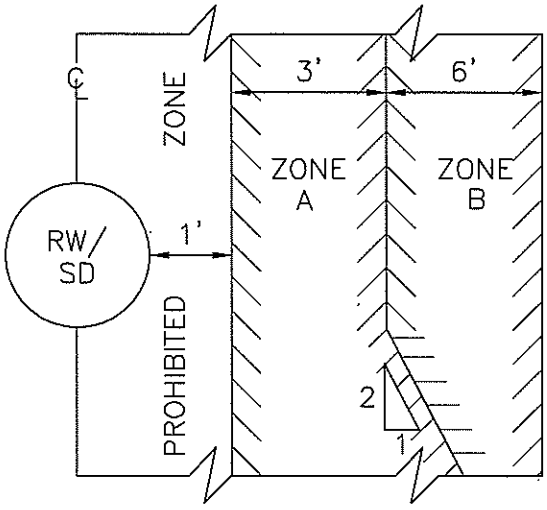
JUNE - 2008

STANDARD DRAWING NUMBER

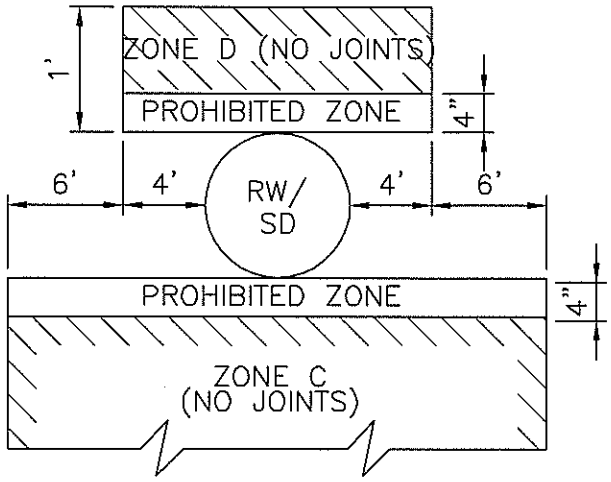
W-23
(3 OF 5)

P:\09137\134-09137-08001\Cadd\W-23c.dwg 05/30/2008 10:07

SITUATION:
LOCATION OF NEW DOMESTIC WATER LINE TO EXISTING STORM DRAIN OR RECYCLED WATER LINE



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

IF ANY DOMESTIC WATER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE	DOMESTIC WATER
A	DO NOT LOCATE ANY PARALLEL DOMESTIC WATER MAIN IN THIS AREA WITHOUT APPROVAL FROM THE DEPARTMENT OF PUBLIC HEALTH AND THE WATER DIVISION
B	USE D.I.P. OR PVC, CL200
C	USE D.I.P.
D	USE D.I.P.

REFERENCE FILES:

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

CITY OF PARAMOUNT

STANDARD

EXCEPTIONS TO BASIC SEPERATION STANDARDS FOR WATER MAINS AND SANITARY SEWERS

JUNE - 2008

STANDARD DRAWING NUMBER

W-23
(4 OF 5)

P:\09137\134-09137-08001\Cadd\W-23d.dwg 05/30/2008 10:07

BASIC SEPARATION STANDARDS

1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE DOMESTIC WATER MAINS AND SEWER LINES SHALL BE AT LEAST 10 FEET AND THE HORIZONTAL DISTANCE BETWEEN PRESSURE DOMESTIC WATER MAINS AND DISINFECTED TERTIARY RECYCLED WATER AND STORM DRAIN LINES SHALL BE AT LEAST 4 FEET.

2. PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST ONE FOOT ABOVE SANITARY SEWER LINES, RECYCLED WATER LINES, AND STORM DRAIN LINES WHERE THESE LINES MUST CROSS. NO CONNECTION JOINTS SHALL BE MADE WITHIN 8 HORIZONTAL FEET FROM THE CROSSING.

3. SPECIAL PROVISIONS: ALTERNATIVE CONSTRUCTION CRITERIA WHERE THE BASIC SEPARATION STANDARDS CANNOT BE ATTAINED ARE SHOWN WITHIN THIS DETAIL:

GENERAL NOTES

1. NO PIPE JOINTS SHALL BE PERMITTED WITHIN ZONES C AND D.

2. ALL D.I.P. MUST HAVE HOT DIP BITUMINOUS COATING.

3. SEWER FORCE MAINS SHALL NOT BE PERMITTED IN ZONES A THROUGH D.

4. THE CONSTRUCTION CRITERIA APPLY TO HOUSE LATERALS THAT CROSS ABOVE A PRESSURE WATER MAIN BUT NOT TO THOSE HOUSE LATERALS THAT CROSS BELOW A PRESSURE WATER MAIN.

5. WHEN A NEW SEWAGE FORCE MAIN CROSSES UNDER AN EXISTING WATER MAIN, AND A ONE FOOT VERTICAL SEPARATION CAN NOT BE PROVIDED ALL PORTIONS OF THE SEWAGE FORCE MAIN WITHIN 3–FEET (HORIZONTALLY) OF THE WATER MAIN O.D. SHALL BE ENCLOSED IN A STEEL CASING PER STD DWG. W–18. IN THESE CASES KEEP A MINIMUM VERTICAL SEPARATION OF 4" BETWEEN THE O.D. OF THE WATER MAIN AND THE TOP OF THE STEEL CASING.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/6/08

CITY OF PARAMOUNT

STANDARD

EXCEPTIONS TO BASIC SEPERATION STANDARDS FOR WATER MAINS AND SANITARY SEWERS

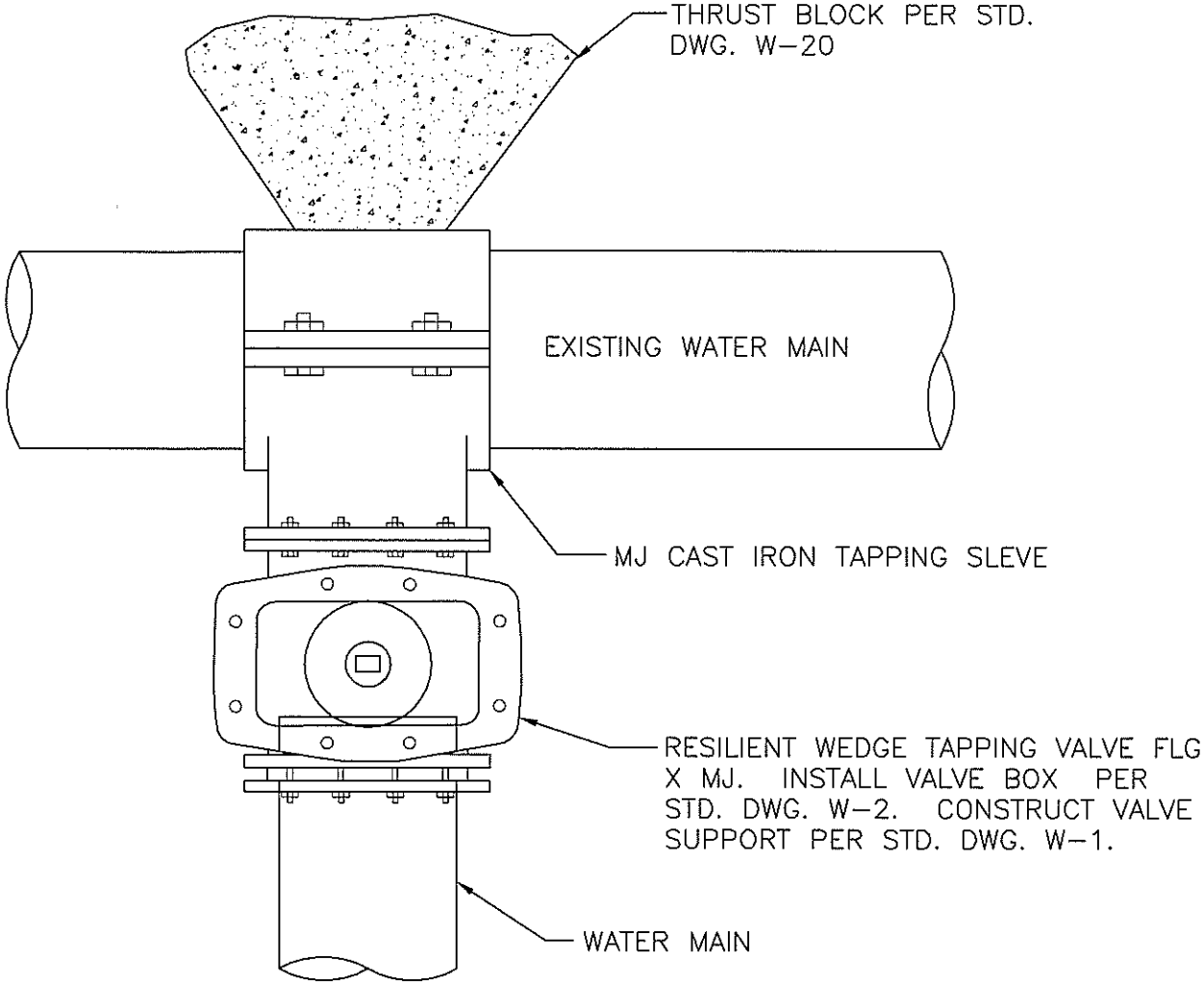
JUNE - 2008

STANDARD DRAWING NUMBER

W-23
(5 OF 5)

REFERENCE FILES:

P:\09137\134–09137–08001\Cadd\W–23e.dwg 05/30/2008 10:07



NOTES:

1. AIR TEST TAPPING SLEEVE PRIOR TO TAP.
2. ALL FERROUS SURFACES TO BE COATED WITH ONE COAT OF KOP-COAT BITUMASTIC NO. 300-M COAL TAR EPOXY PER MANUFACTURER'S SPECIFICATIONS.
3. ALL TAPPING SLEEVES SHALL BE 24" MIN. FROM THE NEAREST JOINT OR SERVICE

REVISION	DRAWN	APP'D	DATE

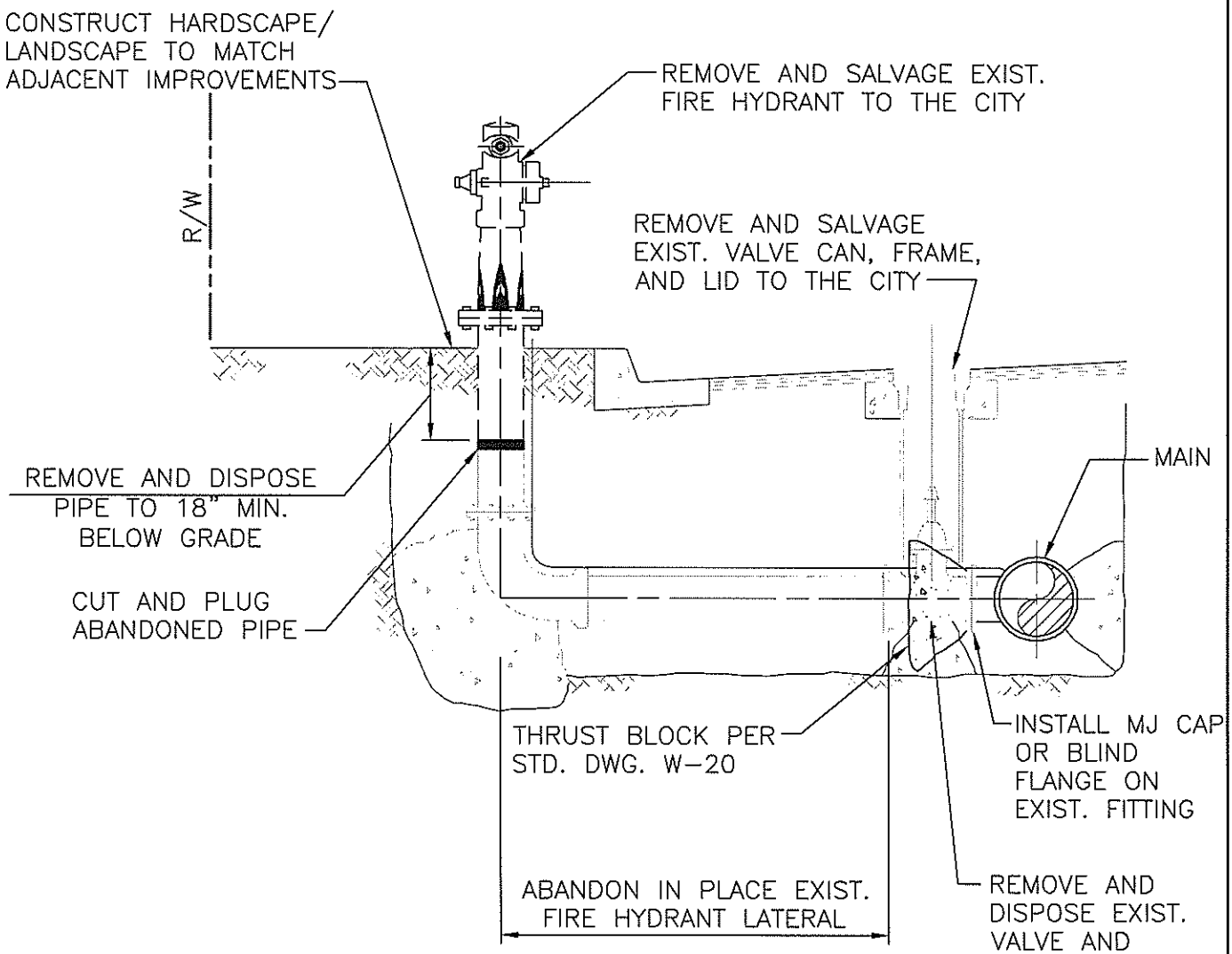
APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/20/08

REFERENCE FILES:

CITY OF PARAMOUNT	JUNE - 2008
STANDARD	STANDARD DRAWING NUMBER
HOT TAP AND SOLID SLEEVE INSTALLATION	W-24

P:\09137\134-09137-08001\Cadd\W-24.dwg 05/30/2008 10:07



REFERENCE FILES:

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/11/08

CITY OF PARAMOUNT

STANDARD

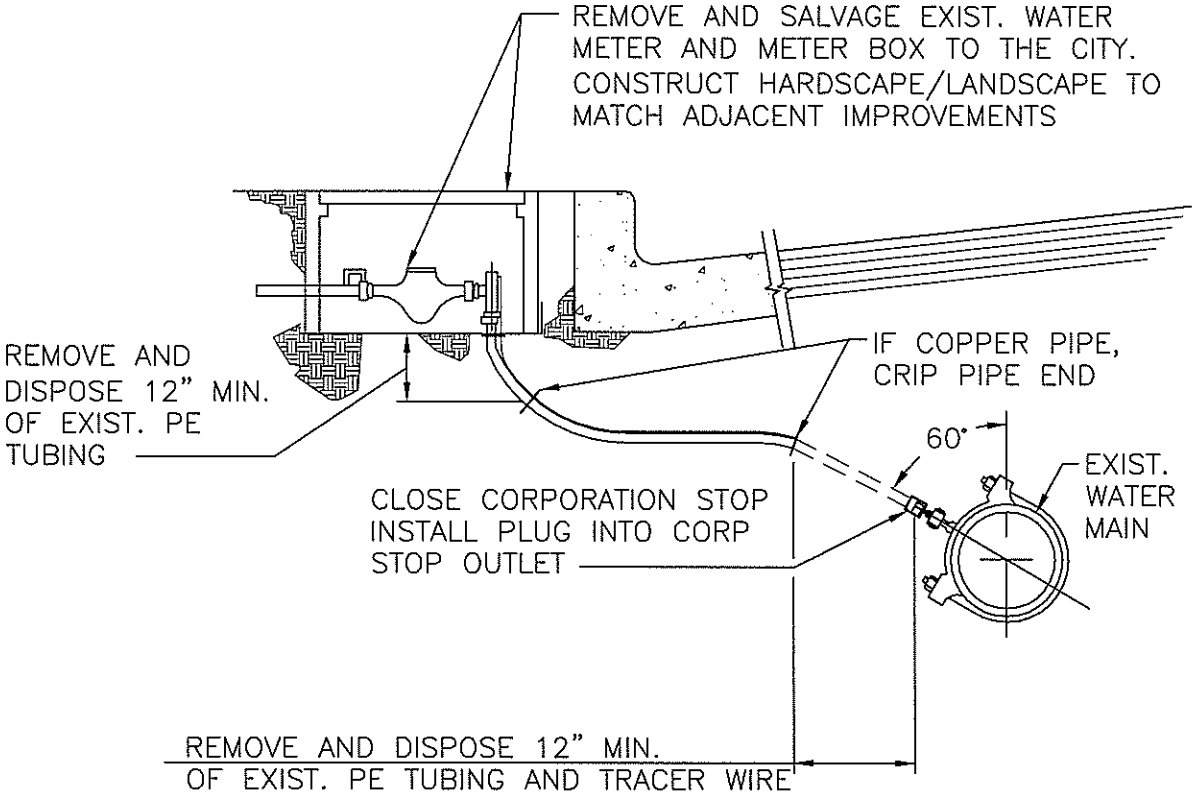
ABANDON FIRE HYDRANT LATERAL

JUNE - 2008

STANDARD DRAWING NUMBER

W-25

P:\09137\134-09137-08001\Cadd\W-25.dwg 05/30/2008 10:07



NOTE:

THE CONTRACTOR SHALL EXPOSE EXIST. WATER SERVICE. CITY FORCES SHALL CLOSE CORP STOP AT WATER MAIN. AFTER CORP STOP IS CLOSED BY CITY FORCES, CONTRACTOR SHALL COMPLETE ABANDONMENT.

REFERENCE FILES:

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/11/08

CITY OF PARAMOUNT

STANDARD

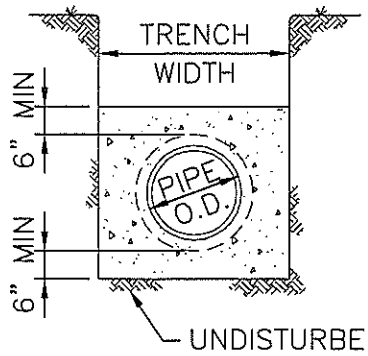
ABANDON WATER SERVICE

JUNE - 2008

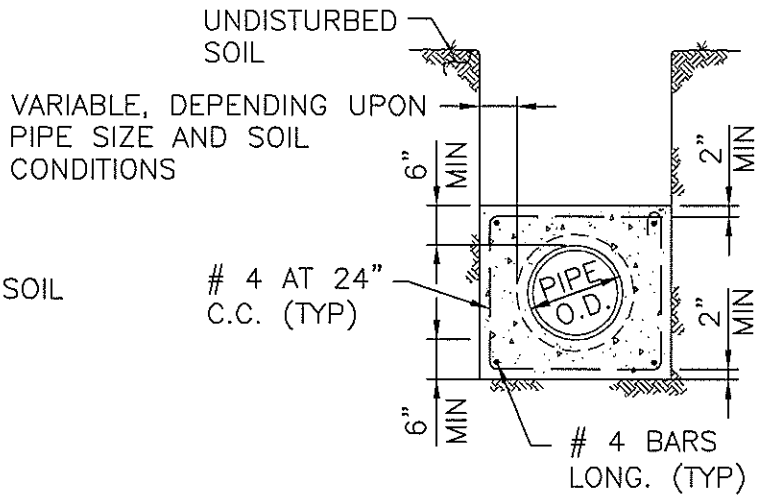
STANDARD DRAWING NUMBER

W-26

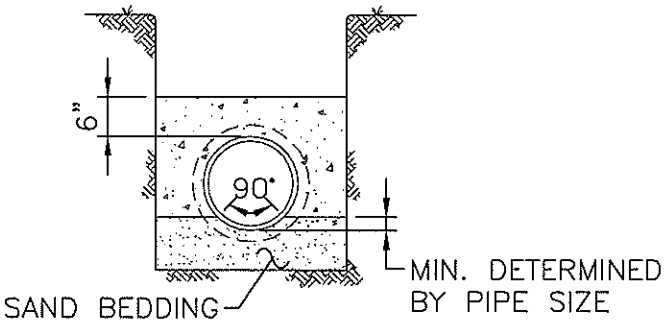
P:\09137\134-09137-08001\Cadd\W-26.dwg 05/30/2008 10:07



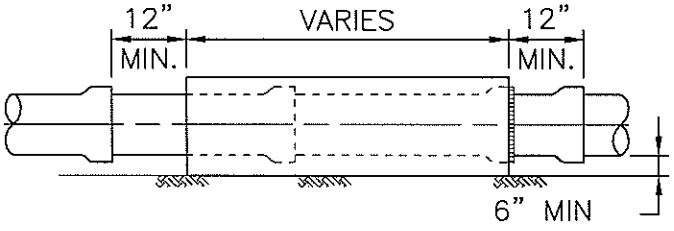
TYPE "A"



TYPE "B"



TYPE "C"



SECTION

NOTES:

1. ENCASEMENT TO BE PLACED AGAINST UNDISTURBED NATURAL GROUND OR FILL COMPACTED TO 90% RELATIVE COMPACTION.
2. NO. 4 STEEL REINFORCING BARS SHALL BE USED AS SPECIFIED.
3. TYPE OF CONCRETE ENCASEMENT TO BE USED WILL BE SHOWN ON PLANS OR AS SPECIFIED BY INSPECTOR TO MEET UNFORSEEN FIELD CONDITIONS.
4. WHERE SLOPE TRENCHES ARE USED, WALLS WILL NOT BEGIN TO SLOPE CLOSER THAN 12" FROM THE TOP OF THE PIPE.
5. ENCASEMENT CONCRETE TO BE CLASS 560-C-3250.

CONCRETE ENCASEMENT

REVISION	DRAWN	APP'D	DATE

APPROVED

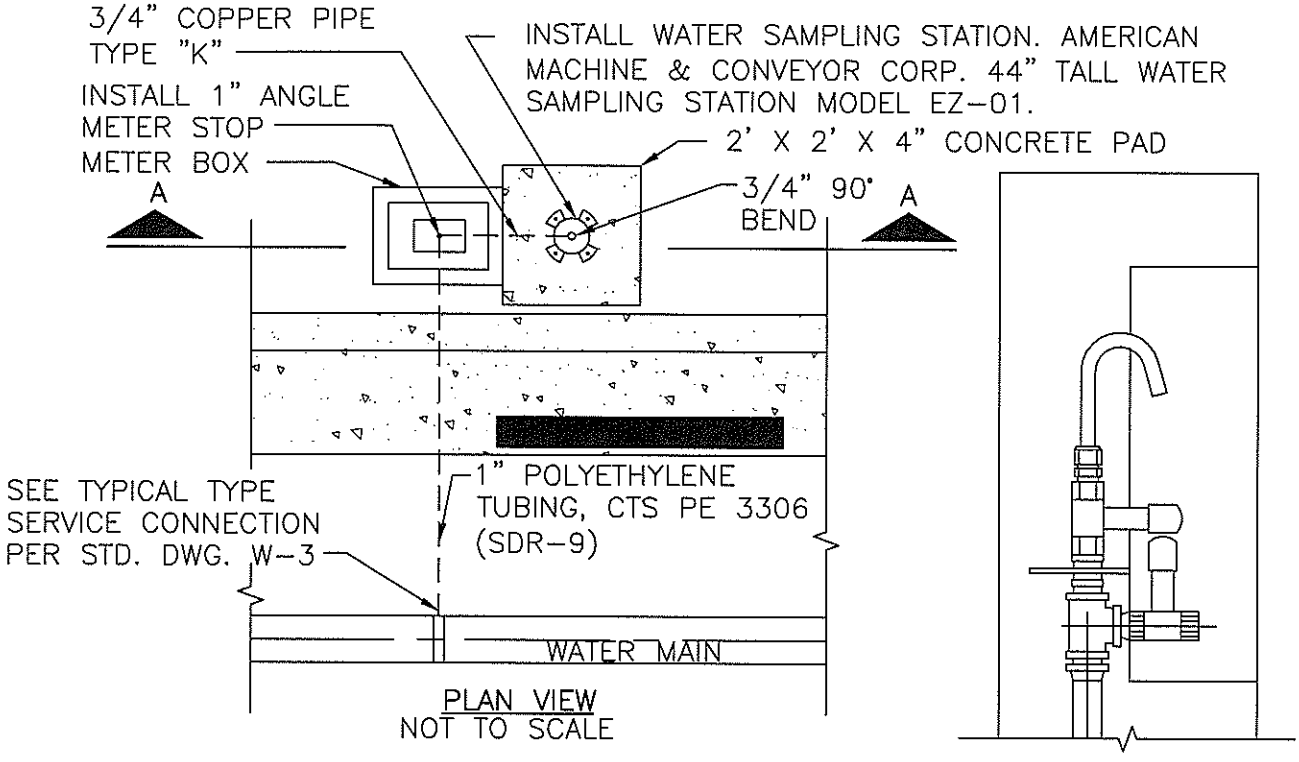
8/21/08

DIRECTOR OF PUBLIC WORKS — DATE

REFERENCE FILES:

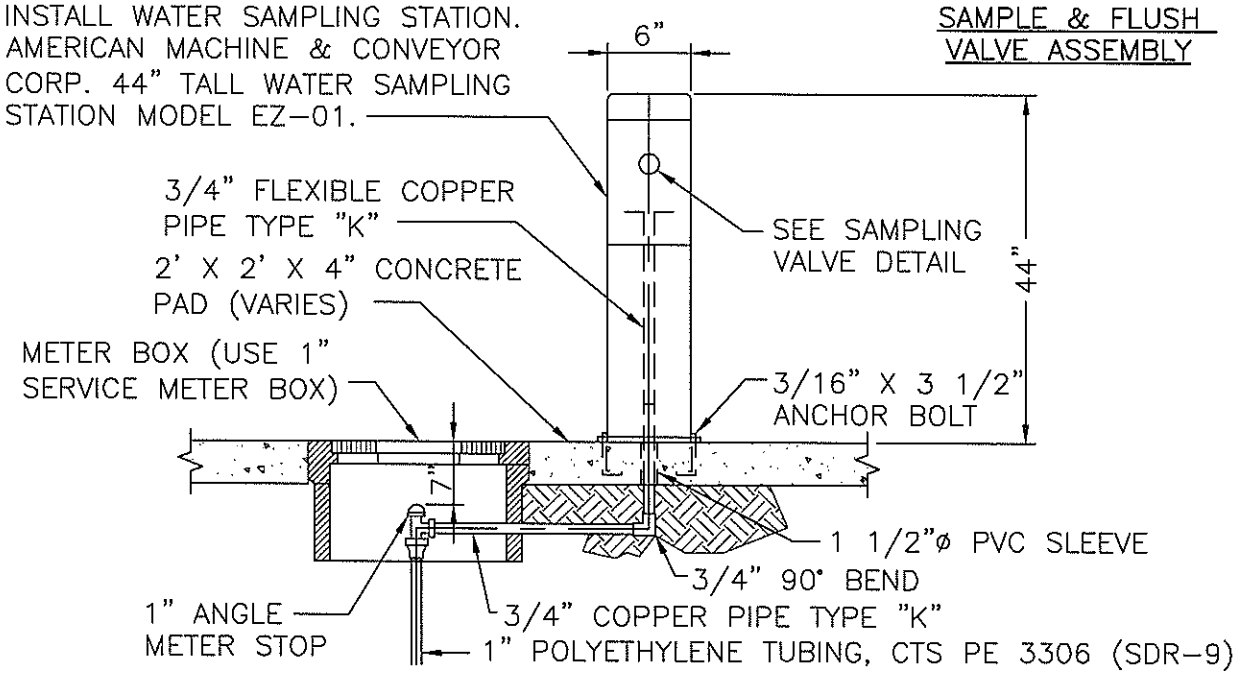
CITY OF PARAMOUNT	JUNE - 2008
STANDARD	STANDARD DRAWING NUMBER
CONCRETE ENCASEMENT	W-27

P:\09137\134-09137-08001\Cadd\W-27.dwg 05/30/2008 10:07



PLAN VIEW
NOT TO SCALE

SAMPLE & FLUSH VALVE ASSEMBLY



SECTION "A"
NOT TO SCALE

NOTE:
IF INSTALLATION IS WITHIN THE SIDEWALK, THE THICKNESS OF THE FOOTING WILL BE THE SAME AS THE SIDEWALK. IF NO CONCRETE SIDEWALK EXISTS, CONSTRUCT A 2' X 2' X 4" CONCRETE PAD.

REVISION	DRAWN	APP'D	DATE

APPROVED

DIRECTOR OF PUBLIC WORKS — DATE 8/21/08

REFERENCE FILES:

CITY OF PARAMOUNT	JUNE - 2008
STANDARD	STANDARD DRAWING NUMBER
WATER QUALITY SAMPLING STATION	W-28

P:\09137\134-09137-08001\Cadd\W-28.dwg 05/30/2008 10:08