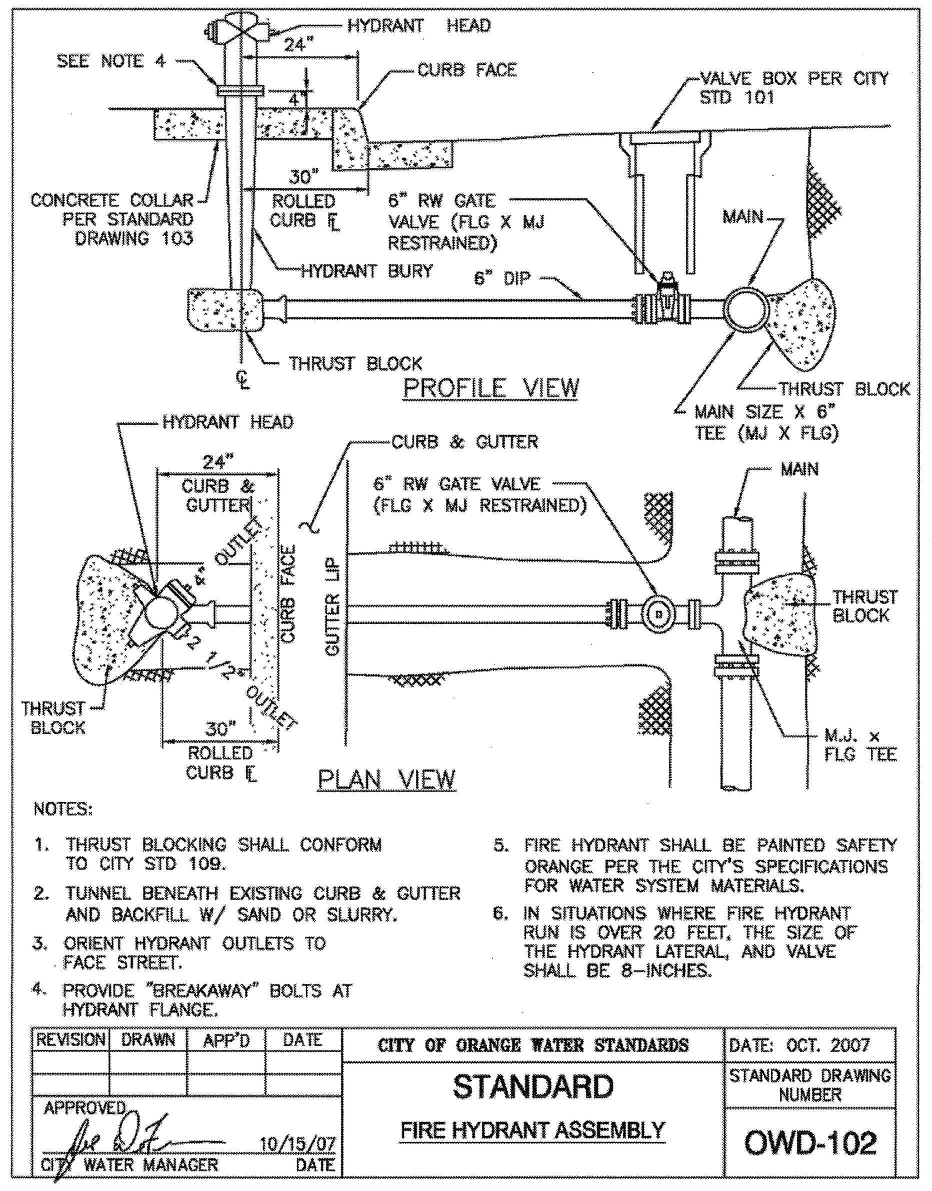

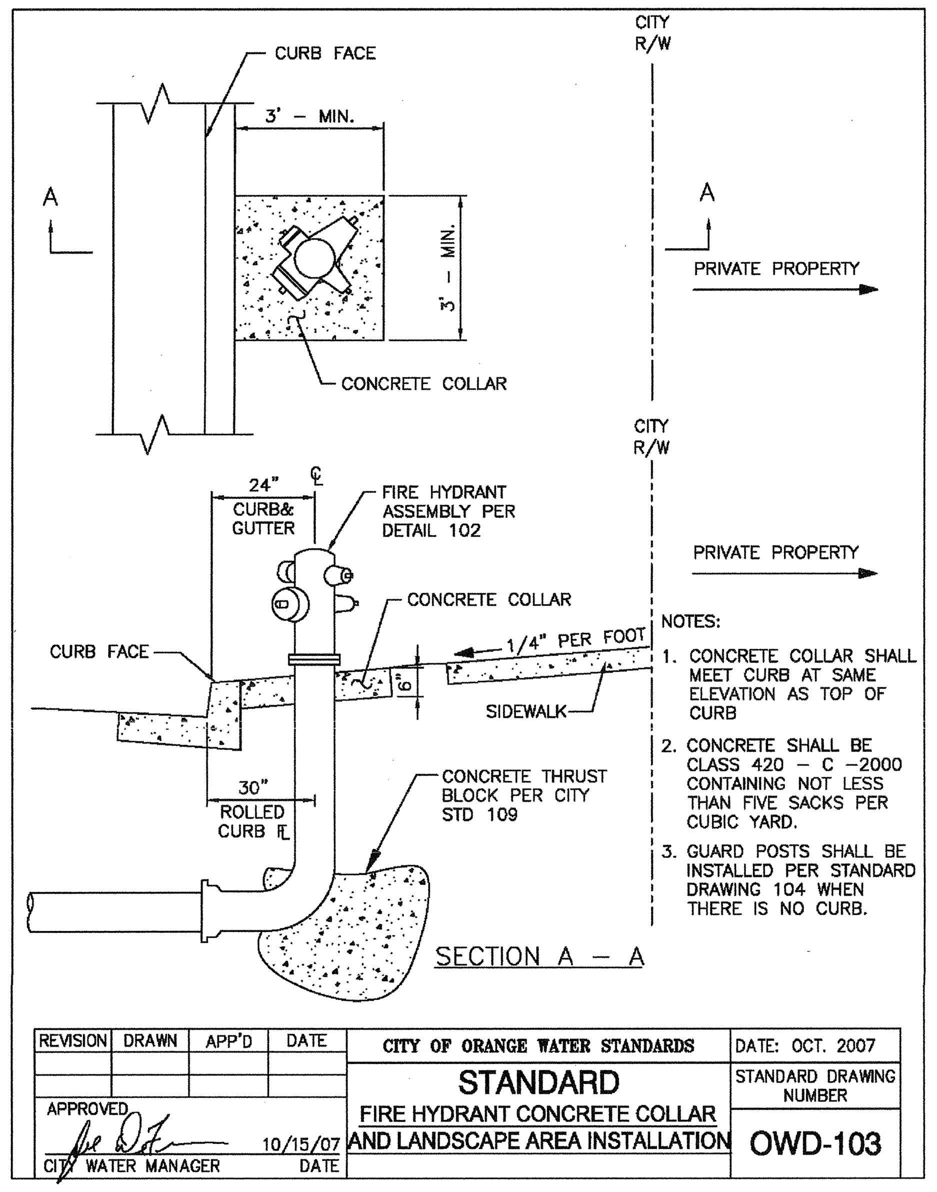

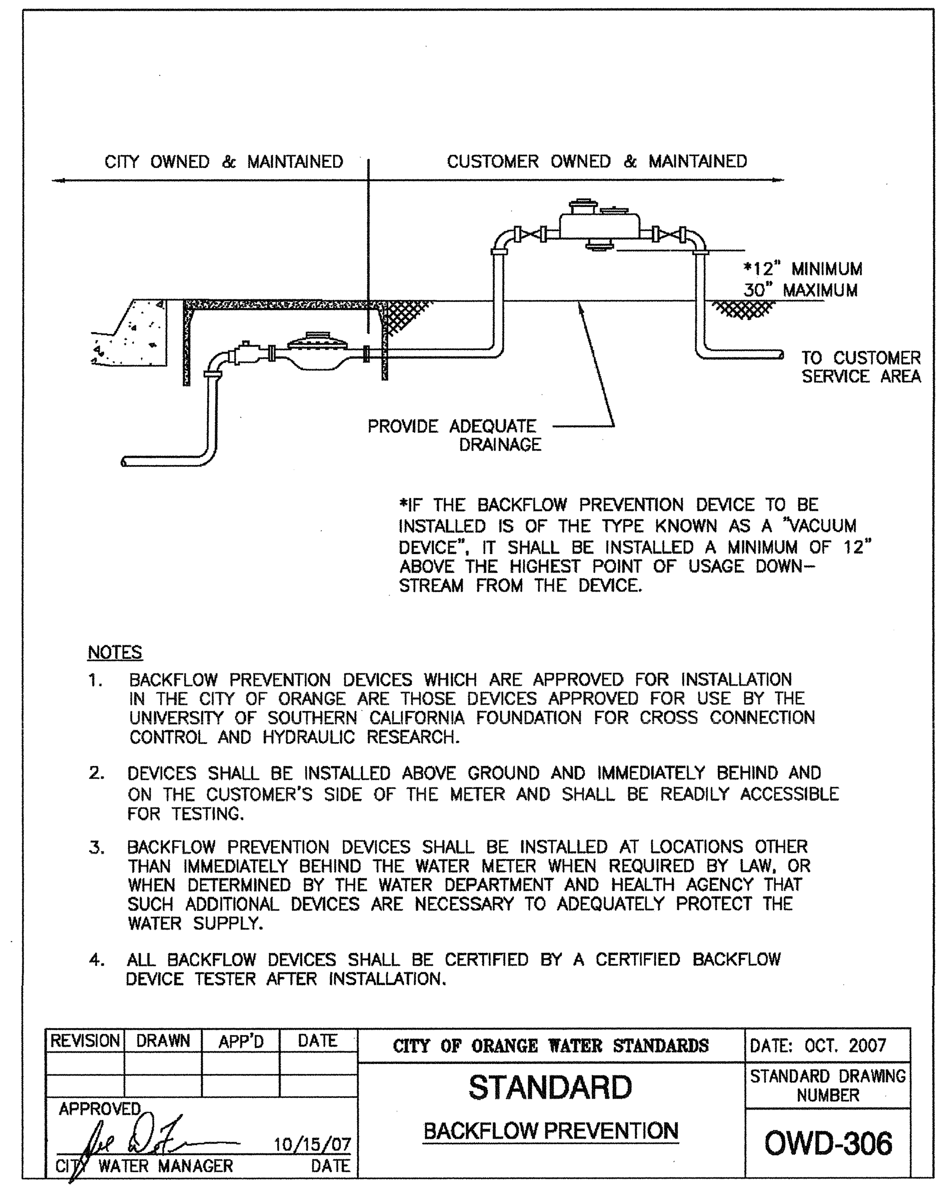

SPECIFICATIONS
FOR
WATER SYSTEM MATERIALS

CITY OF ORANGE WATER DIVISION
189 S. WATER STREET
ORANGE, CA 92866

October 2007

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 Orange. 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 California type wet-barrel East Bay series hydrants, manufactured to meet all applicable requirements of the latest revision of AWWA C-503.

Hydrants 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 cast iron 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 Safety Orange, using Iron Guard DTM Acrylic Enamel as manufactured by Krylon.

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 Orange:

Clow East Bay Model 5

Service Materials, ¾" – 2"

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

¾" Angle Meter Stop, with compression connection and CS thread, Jones J-4201-SG, Ford KV43-332WG, or Mueller H-14258.

1" Angle Meter Stop, with compression connection and CS thread, Jones J-4201-SG, Fored KV43-444WG, or Mueller H14258.

1 ½" Angle Meter Stop, with compression connection and CS thread, Jones J-1975WSG, Ford FV43-666WG, or Mueller H14277

2" Angle Meter Stop, with compression connection and CS thread, Jones J1975WSG, Ford FV43-777WG, or Mueller H14277

¾" Corporation Stop, with compression connection and CS thread, Jones J-3401-SG, Ford F1000G, or Mueller H15008

1" Corporation Stop, with compression connection and CS thread, Jones J-3401-SG, Ford F1000G, or Mueller B25008

2" Corporation Stop, with compression connection and CS thread, Jones J-1937-SG, Ford FB1000G, or Mueller B25008.

2" Blowoff

2" Curb Stop, Jones J-1900, ford B11-777, or Mueller B-20200

Copper Tubing

All ¾", 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"	14-3/4"x20"x12"	10"x15-1/4"x1-3/4"	36-S*
1"	15-3/4"x22-3/4"x12"	11-1/4"x18"x1-3/4"	37-S*
1-1/2"	18-1/4"x27-1/2"x12"	13-3/4"x23-1/4"x2"	38-S*
2"	22"x35"x12"	17-1/2"x30-1/2"x2"	66-S*

Water Meter boxes shall be manufactured by Brooks Products, J&R, Inc or approved equal.

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 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 Orange:

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 SDR 35 PVC pipe.

Pipeline Materials

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.

REGISTERED PROFESSIONAL ENGINEER ★ KENNETH C. TAYLOR NO. 56185 EXP. 12-31-10 CIVIL ENGINEER ★ STATE OF CALIFORNIA

PLANS PREPARED BY:
WILLDAN Engineering
2401 East Katella Avenue, Suite 450
Anaheim, CA 92806-6073
714/978-8200 fax 714/978-8299
R.C.E. NO. 56185 (EXPIRES 12-31-10) 03/05/10 DATE

REVISIONS			
NO.	DESCRIPTION	APPR.	DATE
⚠2	ADDENDUM NO. 3		4/5/10

CITY OF ORANGE WATER DIVISION
APPROVED
APPROVAL OF THIS PLAN DOES NOT AUTHORIZE OR APPROVE ANY OMISSION OR DEVIATION FROM APPLICABLE REGULATIONS. FINAL APPROVAL IS SUBJECTED TO FIELD INSPECTION.
REVIEWED BY: ______

CITY OF ORANGE
OFFSITE WATER IMPROVEMENT PLAN
FOR
401 S. TUSTIN STREET

Plan No.
Sheet
W-5

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⚠2

County of Orange
OC PUBLIC WORKS
Architecture & Engineering

0742	Revisions		
Sym.	Descrip.	Date	By
⚠2	ADDENDUM NO. 3	4/5/10	KT

Consultants
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2401 EAST KATELLA AVENUE, SUITE 450
ANAHEIM, CALIFORNIA 92806-6073
714/978-8200 FAX 714/978-8299
PREPARED UNDER THE SUPERVISION OF
KENNETH C. TAYLOR 56185 03/05/10
R.C.E. DATE
Drawn S.M. Chkd. K.T. Date 03/02/10

A-E Seal
REGISTERED PROFESSIONAL ENGINEER KENNETH C. TAYLOR NO. 56185 EXP. 12-31-10 CIVIL STATE OF CALIFORNIA

A-E ALEXANDER + HIBBS, AIA, INC.
ALEXANDER + HIBBS, AIA, INC.
Architecture and Planning
1200 N. JEFFERSON ST., SUITE A
ANAHEIM, CALIFORNIA 92807
(714) 630-3686
Design ______ Chkd. ______ Date March 2, 2010

Sht Title
Project COUNTY OF ORANGE HEALTH CARE AGENCY
401 SOUTH TUSTIN STREET
401 SOUTH TUSTIN STREET
ORANGE, CA 92866
PROJ. NO. 100-042-210-1900 H2407P20

Plan No. 52333-03608
Sheet
W-5