3/4" AND 1" WATER SERVICE

1. OBSTRUCTIONS: METERS SHALL BE PLACED 3-FT MIN. FROM ANY OBSTRUCTION (SIGNS, FENCES, MAILBOX, ETC.). METERS SHALL BE INSTALLED 10-FT MIN. FROM TREES (5-FT MIN. FROM SHRUBS). SEE W-18 FOR ADDITIONAL DETAILS.

2. WATER-SEWER SEPARATION: WATER-SEWER (OR WATER-RECYCLED WATER) SEPARATION SHALL COMPLY WITH ALL CALIFORNIA DEPARTMENT OF HEALTH SERVICES REQUIREMENTS. WATER SERVICES SHALL BE 10-FT MIN. (PARALLEL) AND 1-FT MIN. ABOVE (PERPENDICULAR) ALL SEWER (OR RECYCLED WATER) UTILITIES.

3. HOT-TAP: HOT-TAPS TO ACTIVE WATER MAINS SHALL BE MADE BY CITY FORCES AT APPLICANT'S EXPENSE. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 24" MIN. FROM ANY TAP, BELL, FITTING, WATER SERVICE, ETC.

4. METALLIC PIPE AND FITTINGS: BURIED SECTIONS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K" SOFT BLUE IN COLOR). INSULATED COUPLING SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT MIN. TO EACH SIDE OF THE INSULATION POINT.

5. METER BOX AND SERVICE LINE INSTALLATION: INSTALL 3-FT MIN. OUTSIDE ANY VEHICULAR ACCESS WAY.

6. CURB ADJACENT SIDEWALK: INSTALL THE METER AT BACK OF CURB AS SHOWN. INSTALL BACKFLOW DEVICE BEHIND SIDEWALK.

7. BACKFLOW PREVENTION DEVICES: APPROVED DEVICES SHALL BE INSTALLED AND TESTED PRIOR TO THE INSTALLATION OF METERS. USE OF JUMPERS, HOSE BIBS, ETC. IS PROHIBITED.

8. TWO OR MORE SERVICES: INSTALLATION OF TWO OR MORE SERVICES REQUIRE CONNECTION OF PERMANENT ADDRESS TAGS FOR EACH METER WHICH SHALL BE DURABLY FIXED TO THE METER PRIOR TO WATER SERVICE ACTIVATION.

9. WATER SERVICE SIZE: ALL WATER SERVICES SHALL BE APPROPRIATELY SIZED FOR THE INTENDED USE. THE WATER DIVISION RESERVES THE RIGHT TO REQUIRE A WATER SERVICE ANALYSIS TO EVALUATE DEMANDS AND THE APPROPRIATENESS OF THE SERVICE SIZE(S). UNDERSIZED WATER SERVICES ARE PROHIBITED.
1 1/2" WATER SERVICE

**NOTES**

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL FROM MAIN TO METER SHALL BE 2-INCH TYPE "K" SOFT COPPER PIPE. WATER SERVICE SHALL BE REDUCED TO 1.5-INCHES AT THE METER (SEE METER INSTALLATION DETAIL).

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K" SOFT, BLUE IN COLOR). BURIED INSULATING GASKET SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINT.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, G5 BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.

6. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

7. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

8. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.

**APPROVED FITTINGS**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MUELLER</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSULATED CORP. STOP (MIP x COMP)</td>
<td>N-35028-1 S50N</td>
</tr>
<tr>
<td>2&quot; BRASS SQ. WRENCH NUT ADAPTER</td>
<td>B-20299</td>
</tr>
<tr>
<td>COUPLING (COMP x COMP)</td>
<td>H-15403</td>
</tr>
<tr>
<td>90° BEND (COMP x COMP)</td>
<td>H-15526</td>
</tr>
<tr>
<td>ANGLE STOP (COMP x METER FLANGE)</td>
<td>B-24276</td>
</tr>
</tbody>
</table>

**SHALL BE INSULATED FITTINGS BY MUELLER OR JONES**

**FLANGEYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.**
1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL FROM MAIN TO METER SHALL BE 2-INCH TYPE "K" SOFT COPPER PIPE.

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K" SOFT, BLUE IN COLOR). BURIED INSULATING GASKET SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINT.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER’S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, G5 BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.

6. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

7. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

8. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.

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**SHALL BE INSULATED FITTINGS BY MUELLER OR JONES**

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NOTES

**ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE**

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**FLANGEYTÉ GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.**

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### ACCOUNTING

**APPROVED FITTINGS**

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<td>ANGLE STOP (COMP x METER FLANGE)</td>
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**2" METER INSTALLATION**

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**2" WATER SERVICE**

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CITY OF NAPA

PUBLIC WORKS DEPARTMENT
ALL JOINTS SHALL BE RESTRAINED. FITTINGS: MEGALUG RESTRAINTS, OR EQUAL. PIPE BELLS: FIELD LOC KAGETS, OR EQUAL.

** REQUIRED FOR ALL METALLIC PIPE INSTALLATIONS.

** 32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE (SEE W-24A FOR INSTALLATION DETAILS).

** DRIVABLE ANODE (SEE W-24E FOR ANODE INSTALLATION DETAILS).

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS.

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS.

2" 90° BEND (COMP x COMP)

APPROVED FITTINGS

<table>
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<tbody>
<tr>
<td>INSULATED CORP. STOP [MIP x COMP]</td>
<td>N-35028</td>
</tr>
<tr>
<td>CURB STOP [COMP x COMP]</td>
<td>B-25209</td>
</tr>
<tr>
<td>90° BEND [COMP x COMP]</td>
<td>H-15526</td>
</tr>
</tbody>
</table>

** SHALL BE INSULATED FITTINGS BY MUELLER OR JONES.

3/4" CLEAN CRUSHED GRAVEL:
- 6" (MIN) ON ALL SIDES
- 6" (MIN) ON BOTTOM
- INSIDE METER BOX TO 4" BELOW WATER METER

12" OF TOPSOIL

3' MIN

FLANGE TYPE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE 4-INCH C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP, WITH THE EXCEPTION OF COPPER PIPE AND BRASS FITTINGS WHICH SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K", BLUE IN COLOR). ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER’S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND 4-INCH GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS 4-INCHES IN DIAMETER, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. 3-INCH WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN 4-INCHES IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
ALL JOINTS SHALL BE RESTRAINED.
FITTINGS: MEGALUG RESTRAINTS, OR EQUAL
PIPE BELLS: FIELD LOK GASKETS, OR EQUAL

4" WATER SERVICE

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

4" FLGxPE SPOOL
(MIN. 24" REG'D FOR ACCURATE METER OPERATION)

PLAN

** DRIVABLE ANODE (SEE W-24E FOR ANODE INSTALLATION DETAILS)

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS

** 32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE (SEE W-24A FOR INSTALLATION DETAILS)

PROFILE

DEBRIS CAP
18" (MIN)

DETAIL
METER BOX INSTALLATION

KNOCK OUT SECTIONS FOR PIPE, MORTAR ALL OPENINGS

THREE CHRISTY B48X10 EXTENSIONS STACKED WITH ALL JOINTS MORTARED

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE 4-INCH C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVE AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP, WITH THE EXCEPTION OF COPPER PIPE AND BRASS FITTINGS WHICH SHALL BE WRAPPED 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K", BLUE IN COLOR). ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER’S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, GAS BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND 4-INCH GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS 4-INCHES IN DIAMETER, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. 4-INCH WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN 4-INCHES IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
ALL JOINTS SHALL BE RESTRAINED.
FITTINGS: MEGALUG RESTRANTS, OR EQUAL
PIPE BELLS: FIELD LOK GASKETS, OR EQUAL

** REQUIRED FOR ALL METALLIC PIPE INSTALLATIONS

CHRISTY B48 BOX (OR APPROVED EQUAL) WITH B48X10 EXTENSIONS
STEEL CHECKER PLATE Lid WITH TWO 10" ROUND READING LIDS

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS

** 32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE (SEE W-24A For INSTALLATION DETAILS)

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS

ARTHOR MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE 6-INCH C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, STRAINER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVES AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP. ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND 6-INCH GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS 6-INCHES IN DIAMETER, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. 6-INCH WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN 6-INCHES IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE INSTALLED PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
NOTES

1. CITY INSTALLATION ENDS AT ANGLE STOP (BEHIND CURB). CONTRACTOR SHALL BE RESPONSIBLE FOR SERVICE INSTALLATION FROM ANGLE STOP TO BACKFLOW DEVICE. ENCROACHMENT PERMIT REQUIRED.

2. FIRE SERVICES SUPPLYING WATER TO PRIVATE FIRE HYDRANTS OR FIRE STORAGE TANKS SHALL BE INSTALLED WITH A DETECTION METER AT THE BACK OF CURB (SEE W-4E). METER BOX AND SERVICE LATERAL SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

3. SERVICE LATERAL FROM MAIN TO ANGLE STOP SHALL BE 2-INCH COMPOSITE CPVC OR TYPE "K" SOFT COPPER PIPE.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K" SOFT, BLUE IN COLOR). BURIED INSULATING GASKET AND COUPLING SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 5-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, G5 BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.

6. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS (IF APPLICABLE) SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

7. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

8. ONLY PRIVATE FIRE PROTECTION SYSTEMS (INCLUDING BUT NOT LIMITED TO FIRE SPRINKLERS AND FIRE HYDRANTS) SHALL BE CONNECTED TO FIRE SERVICES. OTHER USES MUST BE SERVED FROM STANDARD METERED WATER SERVICES. FIRE SERVICES WITH DETECTION METERS DO NOT QUALIFY AS STANDARD METERED WATER SERVICES.


CITY OF NAPA

PUBLIC WORKS DEPARTMENT

2" FIRE SERVICE

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-4A
CITY OF NAPA
PUBLIC WORKS DEPARTMENT

4" AND LARGER FIRE SERVICE
- NO PRIVATE HYDRANTS

ALL JOINTS SHALL BE RESTRAINED. FITTINGS: MEGALUG RESTRANTS, OR EQUAL PIPE BELLS: FIELD LOK GASKETS, OR EQUAL

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.

NOTES

1. CITY INSTALLATION ENDS AT INSULATING FITTING (AT BACK OF CURB). CONTRACTOR SHALL BE RESPONSIBLE FOR SERVICE INSTALLATION FROM INSULATING FITTING TO BACKFLOW DEVICE. ENCROACHMENT PERMIT REQUIRED.

2. FIRE SERVICES SUPPLYING WATER TO PRIVATE FIRE HYDRANTS OR FIRE STORAGE TANKS SHALL BE INSTALLED WITH A DETECTION METER AT THE BACK OF CURB (SEE W-4E). METER BOX AND SERVICE LATERAL SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

3. SERVICE LATERAL FROM MAIN TO METER SHALL BE C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP. ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE VALVE, GS BOX, PVC RISER, AND MISC. FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE INSTALLED 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER WATER SERVICE.

6. A TEE AND GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS EQUAL TO THE DIAMETER OF THE NEW WATER SERVICE, OR WHEN THE WATER SERVICES IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS WITH A SMALLER DIAMETER THAN THE WATER SERVICE.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS (IF APPLICABLE) SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. ONLY PRIVATE FIRE PROTECTION SYSTEMS (INCLUDING BUT NOT LIMITED TO FIRE SPRINKLERS AND FIRE HYDRANTS) SHALL BE CONNECTED TO FIRE SERVICES. OTHER USES MUST BE SERVED FROM STANDARD METERED WATER SERVICES. FIRE SERVICES WITH DETECTION METERS DO NOT QUALIFY AS STANDARD METERED WATER SERVICES.

10. FIRE SERVICE LATERAL SIZE SHALL NOT EXCEED THE SIZE OF THE PUBLIC WATER MAIN THAT SERVES THE FIRE SERVICE. THE FIRE SERVICE SHALL BE SIZED SUCH THAT FIRE FLOW DEMANDS DO NOT EXCEED A 10-FT/SEC FLOW RATE THROUGH THE FIRE SERVICE LATERAL.

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.
ALL JOINTS SHALL BE RESTRAINED.
FITTINGS: MEGALUG RESTRAINTS, OR EQUAL
PIPE BELLS; FIELD LOK GASKETS, OR EQUAL

** REQUIRED FOR ALL METALLIC PIPE INSTALLATIONS

CHRISTY B48 BOX (OR APPROVED EQUAL) WITH B48X10 EXTENSIONS STACKED WITH ALL JOINTS MORTARED

METERED FIRE SERVICE
- WITH PRIVATE HYDRANTS

NO INSULATING GASKET, BOLT SLEEVES, AND WASHERS

** INSULATING GASKET, BOLT SLEEVES, AND WASHERS

DUCTILE IRON OR CAST IRON PIPE

TAPPING SADDLE OR TEE W/ FLANGED BRANCH OUTLET

** 32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE (SEE W-24A FOR INSTALLATION DETAILS)

** REQUIRED FOR ALL METALLIC PIPE INSTALLATIONS

CHRISTY B48 BOX (OR APPROVED EQUAL) WITH B48X10 GALVANIZED STEEL CHECKER PLATE LID WITH TWO 10" ROUND READING LIDS

18" (MIN)

45° MJ BENDS AS REQUIRED FOR VERTICAL OFFSET

GATE VALVE (FLG)

MORTAR ALL PIPE OPENINGS

FLANGE TYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANDED FITTINGS. INSULATING GASKETS SHALL BE TYPE E 1/8" THICK FULL-FACED NEOPRENE PHENOLIC GASKETS INSTALLED WITH GRADE G-10 FIBERGLASS EPOXY INSULATING BOLT SLEEVES AND WASHERS.

4" OF TOPSOIL

3½" CLEAN CRUSHED GRAVEL:
- 6" (MIN) ON ALL SIDES
- 6" (MIN) ON BOTTOM
- INSIDE METER BOX TO 4" BELOW WATER METER

KNOCK OUT SECTIONS FOR PIPE, MORTAR ALL OPENINGS

THREE CHRISTY B48X10 EXTENSIONS STACKED WITH ALL JOINTS MORTARED

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

12" OF TOPSOIL

14"

10"

10"

10"
NOTES

1. METER BOX AND SERVICE LINE SHALL BE INSTALLED 3-FT (MIN) OUTSIDE OF DRIVEWAY, DRIVEWAY APPROACHES, AND OTHER VEHICULAR ACCESS WAYS.

2. SERVICE LATERAL (FROM WATER MAIN TO TEE AT METER/BYPASS SPLIT) SHALL BE C900 PVC OR CLASS 350 DUCTILE IRON PIPE.

3. METER, ISOLATION GASKET (FOR METER ONLY), BOLT SLEEVE AND WASHERS ARE PROVIDED BY CITY OF NAPA AFTER PAYMENT OF METER SET FEE AND INSTALLED BY CONTRACTOR.

4. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL POLYETHYLENE WRAP. ALL BURIED INSULATED GASKETS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF THE INSULATION POINTS.

5. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. HOT-TAP INCLUDES SADDLE, VALVE, G5 BOX, PVC RISER, AND MISCELLANEOUS FITTINGS. SEE W-16 FOR HOT-TAP REQUIREMENTS. HOT TAPS SHALL BE 36-IN (MIN) FROM ANY TAP, BELL, FITTING, OR OTHER SERVICE.

6. A TEE AND GATE VALVE SHALL BE INSTALLED INSTEAD OF A HOT-TAP WHEN THE EXISTING WATER MAIN IS EQUAL IN DIAMETER TO THE SERVICE, OR WHEN IT IS INSTALLED AS PART OF A NEW WATER MAIN INSTALLATION. WATER SERVICES SHALL NOT BE INSTALLED ON WATER MAINS SMALLER THAN THE SERVICE IN DIAMETER.

7. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED, AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

8. METERS SHALL BE PLACED A MINIMUM OF 3-FT FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS, ETC.). NO TREES SHALL BE PLANTED WITHIN 10-FT OR LARGE SHRUBS WITHIN 5-FT OF THE METER BOX. SEE W-18 FOR ADDITIONAL REQUIREMENTS.

9. SERVICES SHALL BE SIZED APPROPRIATELY FOR THE INTENDED USE OF THE SERVICE. WATER DIVISION MAY REQUEST AN ENGINEERED WATER ANALYSIS OF THE SYSTEM (NEW OR EXISTING) TO EVALUATE THE APPROPRIATENESS OF THE WATER SERVICE SIZE. NO UNDERSIZED WATER SERVICES SHALL BE PERMITTED.
1. **CURB ADJACENT SIDEWALK**: INSTALL METER AT BACK OF CURB AS SHOWN. INSTALL BACKFLOW DEVICE AT BACK OF SIDEWALK.

2. **DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.**

3. **DOUBLE CHECK VALVE MUST BE INSTALLED WITHIN A PROTECTIVE BOX. STACKED BOXES SHALL BE USED AS NEEDED TO MAINTAIN CLEARANCE REQUIREMENTS.**

4. **NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY.**

5. **ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.**

6. **ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.**

7. **INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.**

8. **DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.**

9. **NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.**

10. **DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.**

11. **APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.**
FOR METER BOX AND WATER METER INSTALLATION, SEE CITY STD. W-2A, W-2B, W-2C, & W-2D

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR 1.5" AND 2" RESIDENTIAL WATER SERVICES

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-5B

NOTES
1. CURB ADJACENT SIDEWALK: INSTALL METER AT BACK OF CURB AS SHOWN. INSTALL BACKFLOW DEVICE AT BACK OF SIDEWALK.
2. DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.
3. DOUBLE CHECK VALVE MUST BE INSTALLED WITHIN A PROTECTIVE BOX. STACKED BOXES SHALL BE USED AS NEEDED TO MAINTAIN CLEARANCE REQUIREMENTS.
4. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY.
5. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.
6. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.
7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.
8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.
9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.
10. DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.
11. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.
EXTERIOR DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR
3" AND 8" RESIDENTIAL WATER SERVICES

NOTES

1. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


3. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE.

4. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

5. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

10. DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.

11. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

12. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
ALL JOINTS SHALL BE RESTRAINED.
BURIED FITTINGS: MEGALUG
RESTRAINTS, OR EQUAL
EXPOSED FITTINGS: "FLANGED,
MEGALUG, OR VICTAULIC JOINTS"

ALTERNATE MATERIALS MUST BE
APPROVED BY THE CITY OF NAPA
WATER DIVISION PRIOR TO USE

FLANGETYTE GASKETS BY U.S. PIPE SHALL
BE USED FOR ALL FLANGED FITTINGS.

PUMP (IF
REQUIRED) AND
PIPE PER
PLUMBING CODE

EXTERIOR WALL

12" (MIN)
24" (MAX)

FLANGE, MEGALUG, OR VICTAULIC FITTINGS

18" (MIN) - 24" (MAX) CLEARANCE

DUCTILE IRON FLANGE FITTING

12" (MIN)
24" (MAX)

FLANGE, MEGALUG, OR VICTAULIC FITTINGS

PIPE SLEEVE THROUGH SLAB
(4" AND LARGER PIPE
REQUIRES 2" (MIN)
CLEARANCE ON ALL SIDES)

AMESTEE SS IBR SERIES FITTING (FLANGE BY
CIPS COUPLER), OR
EQUIVALENT

FLEXIBLE COUPLING
(VICTAULIC OR SIMILAR)

NO FITTINGS
UNDER BUILDING FOUNDATION

WRAPPED WITH 8-MIL
POLYETHYLENE WRAP BETWEEN
WATER METER AND BACKFLOW
DEVICE, FOR METALLIC PIPE

FROM WATER METER TO
BACKFLOW DEVICE

FOR WATER METER
INSTALLATION, SEE W-3A,
W-3B, W-3C, W-3D, W-3E & W-3F

NO OTHER CONNECTIONS
PERMITTED ON THE SERVICE
BETWEEN THE BACKFLOW
DEVICE AND THE WATER METER

17-LB (MIN) PREPACKAGED HIGH
POTENTIAL MAGNESIUM ANODE,
FOR METALLIC PIPE (SEE W-24A FOR
INSTALLATION DETAILS)

12" (MIN)
24" (MAX)

FLANGE, MEGALUG,
OR VICTAULIC FITTINGS

12" (MIN)
24" (MAX)

FOUNDATION

ALL INTERIOR RERAINTS,
SUPPPORTS, SEISMIC
PROTECTION, AND DRAINAGE
FOR THE BACKFLOW DEVICE
SHALL MEET THE CURRENT
CALIFORNIA BUILDING AND
PLUMBING CODES

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

INTERIOR DOUBLE CHECK VALVE
BACKFLOW DEVICE INSTALLATION FOR
3" TO 8" RESIDENTIAL WATER SERVICES

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-SD.1
NOTES

1. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


3. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.

4. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE DOUBLE CHECK VALVE ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE.

5. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

7. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

8. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

9. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

10. INTERIOR INSTALLATION MAY BE INSTALLED IN THE HORIZONTAL POSITION. IF HORIZONTAL INSTALLATION IS DESIRED, AFTER THE INITIAL FLEXIBLE COUPLING, INSTALL A DUCTILE IRON 90-DEGREE BEND. CLEARANCES AROUND THE DEVICE SHALL BE PER W-5C AND W-5D.

11. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.

12. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.

13. DOUBLE CHECK BACKFLOW DEVICES MAY BE USED FOR IRRIGATION WATER SERVICES, EXCEPT IF AN IRRIGATION SERVES A PROPERTY USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.). IF ALTERNATE WATER SOURCES ARE USED, SEE W-6A FOR INSTALLATION REQUIREMENTS.

14. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

15. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IN NOT PLACED WITHIN A UTILITY CLOSET.
EXTERIOR REDUCED PRESSURE BACKFLOW DEVICE INSTALLATION FOR 3/4" TO 2" COMMERCIAL WATER SERVICES

NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.
2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).
3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.
5. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.
6. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS/connection SPECIALIST.
7. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.
8. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.
9. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.
10. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.
11. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.
12. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
INTERIOR REDUCED PRESSURE
BACKFLOW DEVICE INSTALLATION FOR
3/4" TO 2" COMMERCIAL WATER SERVICES

BRASS OR COPPER PIPE AND FITTINGS ONLY (NO SOLDERED JOINTS) FROM WATER METER TO BACKFLOW DEVICE

FOR WATER METER INSTALLATION, SEE CITY STD. W-1A, W-1B, W-2A, W-2B, W-2C & W-2D

NO OTHER CONNECTIONS PERMITTED ON THE SERVICE BETWEEN THE BACKFLOW DEVICE AND THE WATER METER

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

DRIVABLE ANODE, FOR METALLIC PIPE (SEE CITY STD. W-24E FOR INSTALLATION DETAILS)

NO FITTINGS UNDER BUILDING FOUNDATION

PIPE SLEEVE THROUGH SLAB (4" PIPE & LARGER REQUIRES 2" MIN CLEARANCE ON ALL SIDES)

FLEXIBLE COUPLING (VICTAULIC OR SIMILAR)

1" (MIN) CLEARANCE

36" (MIN) CLEARANCE

36" (MIN)

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

12" (MIN) 24" (MAX)

TO DRAIN

FOUNDATION

18" (MIN) - 24" (MAX)

6" (MIN)

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

ALL INTERIOR RESTRAINTS, SUPPORTS, SEISMIC PROTECTION, AND DRAINAGE FOR THE BACKFLOW DEVICE SHALL MEET THE CURRENT CALIFORNIA BUILDING AND PLUMBING CODES
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).

3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.

4. BACKFLOW DEVICE CAN BE INSTALLED WITHIN A BUILDING IN A DEDICATED UTILITY CLOSET IF THE BUILDING IS LOCATED WITHIN 20-FT OF THE PUBLIC RIGHT-OF-WAY. THE BACKFLOW DEVICE IS PLACED AT THE CORNER OF THE BUILDING CLOSEST TO THE PUBLIC RIGHT-OF-WAY WHERE THE CONNECTION IS MADE, AND WITH THE APPROVAL FROM THE WATER DIVISION CROSS CONNECTION SPECIALIST. THE BACKFLOW DEVICE MUST BE APPROVED BY AWWA FOR VERTICAL INSTALLATION.

5. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.

6. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.

7. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.

8. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

9. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

10. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

11. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.

12. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

13. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

14. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

15. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

16. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
ALL JOINTS SHALL BE RESTRAINED.
BURIED FITTINGS: MEGALUG
RESTRAINTS, OR EQUAL
EXPOSED FITTINGS: FLANGED,
MEGALUG, OR VICTALIC JOINTS

FOR METER BOX AND WATER
METER INSTALLATION, SEE
CITD STD. W-3A, W-3B, W-3C,
W-3D, W-3E, & W-3F

TO WATER MAIN

CURB

C900, DUCTILE IRON PIPE AND
FITTINGS ONLY FROM WATER
METER TO 90° FITTING

PROFILE

ALTERNATE MATERIALS MUST BE
APPROVED BY THE CITY OF NAPA
WATER DIVISION PRIOR TO USE

PLAN
CLEARANCE REQUIREMENTS

WRAPPED WITH 8-MIL
POLYETHYLENE WRAP BETWEEN
WATER METER AND BACKFLOW
DEVICE, FOR METALLIC PIPE

FLANGETYTE GASKETS BY U.S. PIPE SHALL
BE USED FOR ALL FLANGED FITTINGS.

EXTERIOR REDUCED PRESSURE
BACKFLOW DEVICE INSTALLATION FOR
3" TO 8" COMMERCIAL WATER SERVICES

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

DRAWN BY:  DCF
CHECKED BY:  MJH
DATE:  06/2018
APPROVED BY:  JRL
SCALE:  NONE
DRAWING NO.  W-6C.1
FIELD NOTES:
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).

3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


5. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.

6. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

7. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

8. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

9. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

10. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

11. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

12. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

13. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
INTERIOR REDUCED PRESSURE BACKFLOW DEVICE INSTALLATION FOR 3" TO 8" COMMERCIAL WATER SERVICES

DUCTILE IRON PIPE AND FITTINGS ONLY FROM WATER METER TO BACKFLOW DEVICE

FOR WATER METER INSTALLATION, SEE CITY STD. W-3A, W-3B, W-3C, W-3D, W-3E & W-3F

DUCTILE IRON FLANGE FITTING

FLEXIBLE COUPLING (VICTAULIC OR SIMILAR)

PIPE SLEEVE THROUGH SLAB (4" PIPE & LARGER REQUIRES 2" MIN CLEARANCE ON ALL SIDES) AMES STAINLESS STEEL IBR SERIES FITTING (FLANGE BY CIPS COUPLER), OR EQUIVALENT

NO FITTINGS UNDER BUILDING FOUNDATION

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

ALL JOINTS SHALL BE RESTRAINED. BURIED FITTINGS: MEGALUG RESTRAINTS, OR EQUAL EXPOSED FITTINGS: FLANGED, MEGALUG, OR VICTAULIC FITTINGS

32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE, FOR METALLIC PIPE (SEE W-24A FOR INSTALLATION DETAILS)

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

EXTERIOR ABOVE-GROUND PIPING PERMITTED ONLY IF BUILDING IS NOT AT PUBLIC RIGHT-OF-WAY

NO OTHER CONNECTIONS PERMITTED ON THE SERVICE BETWEEN THE BACKFLOW DEVICE AND THE WATER METER

INTERIOR RESTRAINTS, SUPPORTS, SEISMIC PROTECTION, AND DRAINAGE FOR THE BACKFLOW DEVICE SHALL MEET THE CURRENT CALIFORNIA BUILDING AND PLUMBING CODES

DUCTILE IRON FLANGE FITTING

EXTREME WALL

18" (MIN) 24" (MAX) CLEARANCE

PIECE

12" (MIN) 24" (MAX) CLEARANCE

36" (MIN)

6" (MIN)

TO DRAIN

FLOW

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

EXTERIOR WALL

36" (MIN) CLEARANCE

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

ALL JOINTS SHALL BE RESTRAINED. BURIED FITTINGS: MEGALUG RESTRAINTS, OR EQUAL EXPOSED FITTINGS: FLANGED, MEGALUG, OR VICTAULIC FITTINGS

32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE, FOR METALLIC PIPE (SEE W-24A FOR INSTALLATION DETAILS)

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

DUCTILE IRON FLANGE FITTING

EXTREME WALL

18" (MIN) 24" (MAX) CLEARANCE

PIECE

12" (MIN) 24" (MAX) CLEARANCE

36" (MIN)

6" (MIN)

TO DRAIN

FLOW

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

EXTERIOR WALL

36" (MIN) CLEARANCE

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

ALL JOINTS SHALL BE RESTRAINED. BURIED FITTINGS: MEGALUG RESTRAINTS, OR EQUAL EXPOSED FITTINGS: FLANGED, MEGALUG, OR VICTAULIC FITTINGS

32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE, FOR METALLIC PIPE (SEE W-24A FOR INSTALLATION DETAILS)

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

DUCTILE IRON FLANGE FITTING

EXTREME WALL

18" (MIN) 24" (MAX) CLEARANCE

PIECE

12" (MIN) 24" (MAX) CLEARANCE

36" (MIN)

6" (MIN)

TO DRAIN

FLOW

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

EXTERIOR WALL

36" (MIN) CLEARANCE

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

DUCTILE IRON FLANGE FITTING

EXTREME WALL

18" (MIN) 24" (MAX) CLEARANCE

PIECE

12" (MIN) 24" (MAX) CLEARANCE

36" (MIN)

6" (MIN)

TO DRAIN

FLOW

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

EXTERIOR WALL

36" (MIN) CLEARANCE

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

ALL JOINTS SHALL BE RESTRAINED. BURIED FITTINGS: MEGALUG RESTRAINTS, OR EQUAL EXPOSED FITTINGS: FLANGED, MEGALUG, OR VICTAULIC FITTINGS

32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE, FOR METALLIC PIPE (SEE W-24A FOR INSTALLATION DETAILS)

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.

DUCTILE IRON FLANGE FITTING

EXTREME WALL

18" (MIN) 24" (MAX) CLEARANCE

PIECE

12" (MIN) 24" (MAX) CLEARANCE

36" (MIN)

6" (MIN)

TO DRAIN

FLOW

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

EXTERIOR WALL

36" (MIN) CLEARANCE

PUMP (IF REQUIRED) AND PIPING PER PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

ALL JOINTS SHALL BE RESTRAINED. BURIED FITTINGS: MEGALUG RESTRAINTS, OR EQUAL EXPOSED FITTINGS: FLANGED, MEGALUG, OR VICTAULIC FITTINGS

32-LB (MIN) PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODE, FOR METALLIC PIPE (SEE W-24A FOR INSTALLATION DETAILS)

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

FLANGETYTE GASKETS BY U.S. PIPE SHALL BE USED FOR ALL FLANGED FITTINGS.
NOTES

1. ABOVE GROUND INSTALLATION IS MANDATORY FOR REDUCED PRESSURE BACKFLOW DEVICES.

2. REDUCED PRESSURE DEVICES ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND FOR IRRIGATION SERVICES TO PROPERTIES USING ALTERNATE WATER SOURCES (INCLUDING WELLS, RECLAIMED WATER, PONDS, ETC.).

3. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.


5. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.

6. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.

7. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY, OR DIRECTLY TO THE BACKFLOW DEVICE. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.

8. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

9. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

10. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS BETWEEN THE WATER METER AND THE BACKFLOW DEVICE SHALL BE WRAPPED WITH 8-MIL POLYETHYLENE WRAP. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.

11. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.

12. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

13. REDUCED PRESSURE BACKFLOW DEVICE MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

14. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

15. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED AND WATER METERS SHALL BE SET, PRIOR TO ANY USE OF WATER SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

16. THE VISUAL IMPACT OF BACKFLOW DEVICES SHOULD BE CONSIDERED IF NOT PLACED WITHIN A UTILITY CLOSET.
NOTES

1. DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.

2. DOUBLE CHECK VALVE MUST BE INSTALLED WITHIN A PROTECTIVE BOX. STACKED BOXES SHALL BE USED AS NEEDED TO MAINTAIN CLEARANCE REQUIREMENTS. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.

3. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER MAIN AND THE DOUBLE CHECK VALVE ASSEMBLY.

4. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

5. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.

6. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE BETWEEN THE WATER MAIN AND THE BACKFLOW DEVICE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K", BLUE IN COLOR). INSULATED COUPLING SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF INSULATION POINT. Wrapping metallic pipe and fittings beyond the backflow device is recommended, but not required.

7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.

8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.

10. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED PRIOR TO ACTIVATION OF SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.

11. THE FIRE DEPARTMENT CONNECTION AND RELATED APPURTENANCES SHALL MEET THE CITY OF NAPA FIRE DEPARTMENT SPECIFICATIONS AND REQUIREMENTS. LOCATION OF THE FIRE DEPARTMENT CONNECTION SHALL BE APPROVED BY THE NAPA FIRE DEPARTMENT.

INTERIOR DOUBLE CHECK VALVE BACKFLOW DEVICE INSTALLATION FOR 2" FIRE WATER SERVICES

EXTERIOR ABOVE-GROUND PIPING PERMITTED ONLY IF BUILDING IS NOT AT PUBLIC RIGHT-OF-WAY

BRASS OR COPPER PIPE AND FITTINGS ONLY NO SOLDERED JOINTS FROM WATER MAIN TO BACKFLOW DEVICE FOR CONNECTION REQUIREMENTS TO WATER MAIN, SEE CITY STD. W-4A & W-4B

BRASS OR COPPER AND FITTINGS ONLY (NO SOLDERED JOINTS) FROM WATER MAIN TO BACKFLOW DEVICE

18" (MIN) 24" (MAX) CLEARANCE

PIECE SLEEVE THROUGH SLAB (4" PIPE & LARGER REQUIRES 2" MIN CLEARANCE ON ALL SIDES)

THRUST BLOCK SEE CITY STD. W-14A

NO OTHER CONNECTIONS PERMITTED ON THE SERVICE BETWEEN THE BACKFLOW DEVICE AND THE CONNECTION TO THE WATER MAIN IN THE STREET

WRAPPED WITH 8-MIL POLYETHYLENE WRAP BETWEEN WATER METER AND BACKFLOW DEVICE, FOR METALLIC PIPE

NO FITTINGS UNDER BUILDING FOUNDATION

DRIVABLE ANODE, FOR METALLIC PIPE (SEE W-24E FOR INSTALLATION DETAILS)

FLEXIBLE COUPLING (VICTAULIC OR SIMILAR) 12" (MIN) 24" (MAX)

36" (MIN) CLEARANCE

PUMP (IF REQUIRED), FDC CONNECTION, AND PIPING PER FIRE DEPARTMENT REQUIREMENTS AND PLUMBING CODE

SUPPORTS FOR BACKFLOW DEVICE (TO BE ATTACHED TO FOUNDATION)

FOUNDATION

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

ALL INTERIOR RESTRAINTS, SUPPORTS, SEISMIC PROTECTION, AND DRAINAGE FOR THE BACKFLOW DEVICE SHALL MEET THE CURRENT CALIFORNIA BUILDING AND PLUMBING CODES

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

INTERIOR DOUBLE CHECK VALVE BACKFLOW DEVICE INSTALLATION FOR 2" FIRE WATER SERVICES

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-7B.1
FIELD NOTES:
NOTES

1. DOUBLE CHECK VALVE MUST BE INSTALLED IN A TRUE HORIZONTAL POSITION.
2. BACKFLOW DEVICE MUST BE INSTALLED BEHIND THE BACK OF SIDEWALK OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PROTECTED FROM TRAFFIC HAZARDS, EITHER BY LOCATION OR BARRIERS.
3. NO CONNECTIONS ARE ALLOWED BETWEEN THE WATER MAIN AND THE DOUBLE CHECK VALVE ASSEMBLY. A THERMAL EXPANSION RELIEF VALVE SHALL BE INSTALLED BETWEEN BACKFLOW DEVICE AND WATER HEATERS BEING SERVED.
4. ALL PARTS MUST BE EASILY ACCESSIBLE FOR INSPECTION BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.
5. ANY OTHER LOCATION OR METHOD OF INSTALLATION MUST BE APPROVED IN ADVANCE BY THE WATER DIVISION CROSS CONNECTION SPECIALIST.
6. ALL BURIED SECTIONS OF METALLIC PIPE AND FITTINGS SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE BETWEEN THE WATER MAIN AND THE BACKFLOW DEVICE. COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K", BLUE IN COLOR). INSULATED FITTINGS SHALL BE WRAPPED WITH 10-MIL HIGH TACK PIPE WRAP TAPE 3-FT (MIN) TO EACH SIDE OF INSULATION POINT. WRAPPING METALLIC PIPE AND FITTINGS BEYOND THE BACKFLOW DEVICE IS RECOMMENDED, BUT NOT REQUIRED.
7. INSTALLATION MUST BE APPROVED BY THE WATER DIVISION CROSS CONNECTION SPECIALIST AND THE DEVICE TESTED BY A CITY APPROVED AWWA CERTIFIED BACKFLOW TESTER BEFORE WATER IS TURNED ON.
8. DOUBLE CHECK ASSEMBLY MUST BE APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.
9. NO TREES SHALL BE PLANTED WITHIN 10-FT, OR LARGE SHRUBS WITHIN 5-FT, OF DOUBLE CHECK VALVE.
10. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED AND TESTED PRIOR TO ACTIVATION OF SERVICE. USE OF JUMPERS, HOSE BIBS, OR OTHER DEVICES SHALL NOT BE PERMITTED.
11. THE FIRE DEPARTMENT CONNECTION AND RELATED APPURTEANCES SHALL MEET THE CITY OF NAPA FIRE DEPARTMENT SPECIFICATIONS AND REQUIREMENTS. LOCATION OF THE FIRE DEPARTMENT CONNECTION SHALL BE APPROVED BY THE NAPA FIRE DEPARTMENT.
13. PIPE INSTALLATION TO THE BACKFLOW DEVICE SHALL MEET CITY STANDARD REQUIREMENTS FOR PUBLIC WATER MAINS (INCLUDING, BUT NOT LIMITED TO, CORROSION PROTECTION, SAND BEDDING, AND PRESSURE TESTING). CONTRACTOR IS RESPONSIBLE FOR CONTACTING WATER DIVISION INSPECTOR FOR INSPECTION OF PIPE INSTALLATION AND TESTING FROM THE CONNECTION AT THE WATER METER TO THE BACKFLOW DEVICE.
14. DRAINAGE SHALL BE PROVIDED IN THE UTILITY CLOSET (AS REQUIRED BY THE BUILDING DIVISION) TO DRAIN WATER THAT MAY BE RELEASED FROM THE TESTING OR DRAINAGE OF THE BACKFLOW DEVICE.
15. VERTICAL INSTALLATIONS SHALL HAVE A MINIMUM CLEARANCE OF 3-FT FROM THE FRONT OF THE DEVICE AND 18-IN TO EACH SIDE OF THE DEVICE FROM ANY STRUCTURE, UTILITY, OR OTHER FEATURE FOR ACCESSIBILITY.
1. The fire department connection and related appurtenances shall meet the City of Napa fire department specifications and requirements. Location of the fire department connection shall be approved by the Napa Fire Department.

2. Backflow device must be protected from hazards either by location or barriers.

3. No connections are allowed between water main and the backflow device or directly to the device.

4. All parts must be easily accessible for inspection by the water division cross connection specialist.

5. Installation must be approved by the water division cross connection specialist and the device tested by a City approved AWWA certified backflow tester before water is turned on. Any other location or method of installation must be approved in advance by the water division cross connection specialist.

6. Backflow device can be installed within a building in a dedicated utility closet if the building is located within 20 feet of the public right-of-way, the backflow device is placed at the corner of the building closest to the public right-of-way where the connection is made, and with the approval from the water division cross connection specialist (see W-7D for interior installation).

7. Vertical installations shall have a minimum clearance of 3-feet from the front of the device and 18-inches to each side of the device from any structure, feature utility, etc. for accessibility.

8. Pipe installation to the backflow device shall meet the city standard requirements for public water mains (including but not limited to, corrosion protection, sand bedding, and pressure testing). Contractor is responsible for contacting the water division inspector for inspection of pipe installation and testing from the connection at the water main to the backflow device.

9. No trees shall be planted within 10', or large shrubs within 5', of double check valve and water lateral.

10. Backflow device must be approved by the California Department of Health Services. Device must be specifically approved for vertical installation to install vertically.

11. Backflow devices that serve on-site private fire hydrants shall be equipped with a fire service meter.

12. The visual impact of backflow devices should be considered if not placed within boxes, vaults, or utility closets. Backflow device shall be painted in a color approved by the Community Development Department.
1. Backflow devices that serve on-site private fire hydrants shall be equipped with a fire service meter.

2. The fire department connection and related appurtenances shall meet the City of Napa fire department specifications and requirements. Location of the fire department connection shall be approved by the Napa fire department.

3. Backflow device may be installed within a building in a dedicated utility closet with approval from the water division.

4. Backflow device must be protected from hazards either by location or barriers.

5. Interior installations may be installed in the horizontal position. If horizontal installation is desired, after the initial flexible coupling, install a ductile iron 90-degree bend. Clearances around the device shall be per City Std. W-7C and W-7D.

6. All parts must be easily accessible for inspection by the water division cross connection specialist.

7. Installation must be approved by the water division cross connection specialist and the device tested by a City approved AWWA certified backflow tester before water is turned on. Any other location or method of installation must be approved in advance by the water division cross connection specialist.

8. Backflow device must be approved by the California department of health services. Device must be specifically approved for vertical installation to install vertically.

9. Vertical installations shall have a minimum clearance of 3-feet from the front of the device and 18-inches to each side of the device from any structure, feature, utility, etc. for accessibility.

10. Drainage shall be provided in the utility closet (as required by the building division) to drain water that may be released from the testing or drainage of the backflow device.

11. No trees shall be planted within 10', or large shrubs within 5', of water lateral.

12. Pipe installation to the backflow device shall meet City Standard requirements for public water mains (including, but not limited to corrosion protection, sand bedding, and pressure testing). Contractor is responsible for contacting water division inspector for inspection of pipe installation and testing from the connection at the public main to the backflow device.

Notes:

C900, DIP and fittings only from water main to 90° fitting. No other connections permitted on the service between the backflow device and the water main or directly to the device.

32-lb magnesium anode bag, for metallic pipe (see Water Main to 90° Fitting Details)

All interior restraints, supports, seismic protection, and drainage for the backflow device shall meet the current California building and plumbing codes.

All joints to be restrained. Buried fittings: megalug (or equivalent) restraints. Exposed fittings: flanged, megalug, or Victaulic joints.

Pump (if required), FDC connection, and piping per fire department requirements.

Alternate materials must be approved by the City of Napa Water Division prior to use.
Notes:

1. **Approved Hydrants:** Mueller “Super Centurion”, Kennedy “Guardian”, and American-Darling “B-62-B”. **No substitutes will be accepted.**

2. Hydrants shall conform to AWWA Standard C 502-85. Hydrants shall have one 4-1/2” outlet and two 2-1/2” outlets with chained caps. Main valve size shall be 5-1/4”. Hydrants installed on 12” diameter or larger water mains shall be 8-in in diameter.

3. **Operation:** AWWA Standard Pentagon Nut, open left with a maximum 60 ft-lb operating torque.

4. **Bury Depth:** 36” typical.

5. **Public Fire Hydrants** shall be powder coated silver color finish. Fire hydrants on a private fire system shall be painted with a prime coat plus “OSHA Yellow” color finish.

6. **Drains:** Hydrants shall be furnished with drains **plugged**.

7. Where sidewalk is adjacent to curb, extend sidewalk and right-of-way to provide a minimum 4 feet clearance behind fire hydrant per ADA requirements.

8. A 6” vertical curb is required for a minimum of 10’ on each side of hydrant.

9. **Install 8 mil Polyethylene Wrap on Lateral, Joints, and Vertical Rise.**

10. **Vertical offsets between main and hydrant** shall be achieved with 45° bends w/ restrained joints.

11. **Install Pavement Marker(s)** in public street for all new and relocated fire hydrants (see W-21).

12. Fire hydrants that are not in service shall be completely covered.

13. **Public fire hydrants that are in service** shall be operated by Water Division or Fire Department Staff only.

14. Water use through any fire hydrant shall be limited to water system maintenance and fire prevention uses only. Fire hydrants may be used for construction water purposes with the use of a hydrant meter obtained from the City and if the location is approved by the City of Napa Water Division.

15. No trees shall be planted within 10’, or large shrubs within 5’, of fire hydrants.
NOTES

1. BUTTERFLY VALVES SHALL BE INSTALLED FOR 12" AND LARGER PIPES. VALVE NUTS SHALL BE PLACED ON THE SIDE OF THE MAIN CLOSEST TO THE NEAREST CURB.

2. VALVE RING SHALL BE SET TO GRADE PRIOR TO PLACING FINISHED PAVEMENT.

3. THE TWO (2) INCH SQUARE OPERATING NUT ON ALL VALVES SHALL BE INSTALLED AT A MAXIMUM OF 5-FEET IN DEPTH MEASURED FROM THE TOP OF THE OPERATING NUT TO FINISHED GRADE. ALL OPERATING NUTS INSTALLED AT A DEPTH GREATER THAN 5- FEET SHALL INCLUDE A VALVE EXTENSION TO RAISE THE OPERATING NUT TO 24-INCHES FROM FINISHED GRADE.

4. VALVE EXTENSIONS (IF REQUIRED) SHALL BE ROUND OR SQUARE 1.5-INCH DIAMETER STEEL ROD, WELDED CONSTRUCTION, AND COATED WITH TOP CENTERING RING AND AWWA 2" OPERATING NUTS TOP AND BOTTOM (PIPELINE PRODUCTS SX-900 OR SIMILAR). SOCKET END SHALL BE DRILLED AND TAPPED WITH TWO (2) 1/4" SET SCREWS INSTALLED ON OPPOSITE SIDES. OPERATING NUT SHALL BE DRILLED WITH RECESSES TO ACCEPT THE TWO (2) 1/4" SET SCREws. SET SCREws SHALL BE SECURELY FASTENED TO THE OPERATING NUT.

5. WATER VALVES SHALL BE OPERATED BY WATER DIVISION PERSONNEL ONLY.
NOTES


2. ALL JOINTS WITHIN MINIMUM RESTRAINED LENGTH "L" SHALL BE RESTRAINED. FULL LENGTH PIPE SECTIONS SHALL BE USED. WHEN LENGTH "L" OCCURS WITHIN THE MID SECTION OF A PIPE, THE NEXT JOINT OUT SHALL BE RESTRAINED.

3. RESTRAINED JOINTS REQUIRE INSPECTION BY THE CITY OF NAPA. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTION IN ADVANCE AND LEAVING JOINTS EXPOSED FOR THE CITY INSPECTOR.

4. MINIMUM RESTRAINED LENGTH SHALL BE CLEARLY SHOWN ON THE PROFILE OF ALL WATERLINE PLANS.

5. MINIMUM RESTRAINED LENGTH SHALL BE RECALCULATED TO ACCOUNT FOR OTHER FITTINGS (VALVES, TEES, BENDS) WITHIN LENGTH "L".

6. RESTRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

7. SEE CITY STD. W-14B FOR LENGTH "L" SPECIFICATIONS AND ADDITIONAL RESTRAINED JOINT DETAILS.
**EXCEPT FOR INSULATED FITTINGS, FORD OR JONES EQUIVALENT ALSO APPROVED**
8" X 4" FLANGED REDUCER (TYP)

8" FLANGED GATE VALVE (TYP)

8" FLANGED BYPASS VALVE

12" - 18"

36" BUTTERFLY VALVE

36" X 8" FLANGED TEE (TYP)

8" FLANGED TEE (TYP)

4" AIR RELEASE VALVE (TYP)

(F) 36" TRANSMISSION MAIN

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE

* VALVE TO BE ACTIVATED ONLY WITH APPROVAL FROM DISTRIBUTION SUPERINTENDENT
ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

WATER SAMPLING STATION

CHRISTY B16 METER BOX W/ FIBRELYTE FL16D LID MARKED "WATER"

BALL VALVE (COMP x COMP)

2x2" (MIN) CONCRETE PAD

SIDEWALK

1" THREADED BRASS PIPE W/ BRASS COUPLINGS (AS NECESSARY) TO OBTAIN LENGTH AS REQUIRED

PROFILE

1" COPPER PIPE (TYPE "K" SOFT)

90° (COMP x COMP)

2'x2'

CONCRETE PAD

CONCRETE SLAB

BACK OF METER BOX

2'x2'

CONCRETE PAD

1" COMPOSITE CPVC PIPE W/ 6" MIN. SAND BEDDING ON ALL SIDES

NO SPlicing ALLOWED

90° (COMP x FIPt)

1" COPPER PIPE

1" COMPOSITE CPVC PIPE W/ 6" MIN. SAND BEDDING ON ALL SIDES

NO SPliching ALLOWED

1" THREADED BRASS PIPE W/ BRASS COUPLINGS (AS NECESSARY) TO OBTAIN LENGTH AS REQUIRED

90° (COMP x COMP)

FIBRELYTE FL16D LID MARKED "WATER"

DRAWN BY: DCF
CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO.: W-10D

NOTES

1. WATER SAMPLING STATIONS SHALL BE INSTALLED DURING THE CONSTRUCTION OF NEW WATER MAINS AS DIRECTED BY THE CITY WATER QUALITY MANAGER, AND AT OTHER SPECIFIED LOCATIONS AS REQUIRED.

2. ALL BURIED SECTIONS OF COPPER AND BRASS PIPE SHALL BE WRAPPED WITH AN 8-MIL PLASTIC SLEEVE (BLUE IN COLOR). COPPER PIPE NOT WRAPPED IN A PLASTIC SLEEVE SHALL BE NSF 61 APPROVED PLASTIC COATED COPPER TUBING (TYPE "K" SOFT, BLUE IN COLOR).

3. METER BOX AND SERVICE LINE SHALL BE INSTALLED 5-FT (MIN) FROM DRIVEWAY APPROACHES AND OTHER VEHICULAR ACCESS WAYS.

4. EXISTING WATER MAINS SHALL BE HOT-TAPPED BY CITY FORCES AT DEVELOPER'S EXPENSE. SEE CITY STD. W-16 FOR HOT-TAP REQUIREMENTS. HOT-TAP SHALL BE 24" (MIN) FROM ANY OTHER TAP, BELL, FITTING, OR OTHER SERVICE.

5. WATER SAMPLING STATIONS SHALL NOT BE INSTALLED OFF EXISTING SERVICE LATERALS UNLESS OTHERWISE APPROVED BY THE CITY WATER QUALITY MANAGER.

6. METER BOXES SHALL BE PLACED A MINIMUM OF 3' FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCES, WALLS ETC.). NO TREES SHALL BE PLANTED WITHIN 10' OR LARGER SHRUBS WITHIN 5' OF THE METER BOX. SEE CITY STD. W-18 FOR ADDITIONAL REQUIREMENTS.
TYPICAL MOTORIZED TRANSMISSION VALVE

- 8" x 4" flanged reducer (typ)
- 8" flanged gate valve (typ)
- 8" flanged tee (typ)
- 8" flanged bevel gear gate valve installed and left in open position - with valve can lock (operator in line with main and to the outside of the bypass assembly)*
- (E) 36" transmission main
- 36" butterfly valve
- 36" x 8" flanged tee (typ)

* VALVE TO BE ACTIVATED ONLY WITH APPROVAL FROM DISTRIBUTION SUPERINTENDENT

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE
**EXCEPT FOR INSULATED FITTINGS, FORD OR JONES EQUIVALENT ALSO APPROVED**

NOTES

1. CURB AND ADJACENT SIDEWALK: INSTALL AIR-VAC ASSEMBLY BEHIND SIDEWALK.

2. AIR-VAC SHALL BE PLACED A MINIMUM OF 3' FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCE, ETC.). NO TREES SHALL BE PlANTED WITHIN 10' OR LARGE SHRUBS WITHIN 5' OF THE AIR-VAC. SEE CITY STD. W-18 FOR ADDITIONAL REQUIREMENTS.

**ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE**
2" AIR RELEASE AND VACUUM VALVE ASSEMBLY
(FOR 12" AND LARGER WATER MAINS)

NOTES

1. CURB AND ADJACENT SIDEWALK: INSTALL AIR-VAC ASSEMBLY BEHIND SIDEWALK.

2. AIR-VAC SHALL BE PLACED A MINIMUM OF 3' FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCE, ETC.). NO TREES SHALL BE PLANTED WITHIN 10' OR LARGE SHRUBS WITHIN 5' OF THE AIR-VAC. SEE CITY STD. W-18 FOR ADDITIONAL REQUIREMENTS.

** EXCEPT FOR INSULATED FITTINGS, FORD OR JONES EQUIVALENT ALSO APPROVED

ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE
1. **CONSTRUCTION DETAILS:** REFER TO CITY OF NAPA STANDARD SPECIFICATIONS AND PLANS.

2. **WATER-SEWER SEPARATION:** WATER-SEWER (OR WATER-RECYCLED WATER) SEPARATION SHALL COMPLY WITH ALL CALIFORNIA DEPARTMENT OF HEALTH SERVICES REQUIREMENTS. PARALLEL CONSTRUCTION: 10' OF HORIZONTAL SEPARATION. PERPENDICULAR CONSTRUCTION: WATER MAINS AT LEAST 1' ABOVE SEWER AND RECYCLED WATER LINES.

3. **EXISTING WATER FACILITIES:** CONTRACTOR SHALL LOCATE BY EXCAVATION ALL EXISTING WATER FACILITIES PRIOR TO ANY CONSTRUCTION ACTIVITIES. IF CONFLICTS ARISE, AN ALTERNATE DESIGN MUST BE SUBMITTED TO THE CITY FOR APPROVAL.

4. **OBSTRUCTIONS:** TREES, FOUNDATIONS, OR OTHER PERMANENT STRUCTURES SHALL NOT BE INSTALLED WITHIN 10' OF ANY WATER FACILITY. NO OBSTRUCTIONS (SIGN POST, MAIL BOX, WALL, FENCE, ETC.) SHALL BE INSTALLED WITHIN 3' OF ANY WATER FACILITY. SEE STANDARD PLAN W-18 FOR ADDITIONAL REQUIREMENTS.

5. **CONSTRUCTION WATER:** WATER SUPPLIED FROM THE CITY OF NAPA SYSTEM SHALL BE TAKEN THROUGH A METERED SERVICE OR FIRE HYDRANT METER. FIRE HYDRANT METERS SHALL BE OBTAINED BY APPLYING AT THE REVENUE/COLLECTIONS DIVISION IN CITY HALL AT 955 SCHOOL STREET, NAPA (707.257.9508).

6. **INSPECTION:** PUBLIC WATER FACILITIES UP TO AND INCLUDING THE WATER METER SHALL BE INSPECTED BY THE WATER DIVISION INSPECTOR (CONTACT 707-257-9521 TO SCHEDULE INSPECTION). ALL WATER FACILITIES BETWEEN THE WATER METER UP TO AND INCLUDING THE BACKFLOW DEVICE SHALL BE INSPECTED BY THE WATER DIVISION BACKFLOW PREVENTION SPECIALIST (CONTACT 707-257-9544 TO SCHEDULE INSPECTION). ALL NEW WATER FACILITIES SHALL BE TESTED AND INSPECTED PRIOR TO ACTIVATION.

7. **WATER SERVICE INTERRUPTION:** CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AFFECTED WATER CUSTOMERS A MINIMUM OF 48 HOURS (2 BUSINESS DAYS) IN ADVANCE. ALL VALVES SHALL BE OPERATED BY CITY PERSONNEL. CONTRACTOR SHALL SCHEDULE ALL WATER SERVICE INTERRUPTIONS BY CALLING 707-257-9544.

8. **JOINT DEFLECTION:** MAXIMUM DEFLECTION AT PIPE JOINTS SHALL NOT EXCEED 3° WITH A MAXIMUM OFFSET OF 10" PER 18' LENGTH (MINIMUM RADIUS = 345") OR AS SET FORTH BY MANUFACTURER SPECIFICATIONS OR INSTALLATION PROCEDURES.

9. **CORROSION PROTECTION:** DUCTILE IRON PIPE SHALL BE CATHODICALLY PROTECTED IN ACCORDANCE WITH THE CITY OF NAPA STANDARD SPECIFICATIONS, PLANS AND SPECIAL PROVISIONS. ALL BOLTS, STUDS WASHERS, NUTS, ETC. SHALL BE STAINLESS STEEL MINIMUM GRADE 304SS WITH TEFLO COATED NUTS OR CITY APPROVED EQUAL.

10. **VALVES:** VALVES SHALL BE INSTALLED AS SHOWN IN THE APPROVED PLANS AND COMPLY WITH CITY OF NAPA STANDARD PLAN W-9. ALL WATER SERVICE VALVES SHALL BE PLACED IMMEDIATELY AFTER THE TEE OR HOT TAP.

11. **FIRE HYDRANTS:** FIRE HYDRANT INSTALLATIONS SHALL COMPLY WITH CITY OF NAPA STANDARD PLAN W-8. FIRE HYDRANT(S) NOT IN SERVICE SHALL BE COMPLETELY COVERED.

12. **SERVICES:** WATER SERVICE INSTALLATIONS SHALL COMPLY WITH APPLICABLE CITY OF NAPA STANDARD PLANS. FIRE SERVICE METERS SHALL BE INSTALLED ON ALL FIRE SERVICES WITH PRIVATE FIRE HYDRANTS. ALL HOT-TAPS TO EXISTING MAINS SHALL BE CONDUCTED BY THE CITY AT THE CONTRACTOR'S EXPENSE. A WATER SYSTEM SHUTDOWN SHALL BE REQUIRED IN ALL CASES WHERE THE PROPOSED WATER SERVICE IS THE SAME SIZE AS THE EXISTING PIPELINE SUPPLYING THE PROPOSED WATER SERVICE(S).

13. **BACKFLOW DEVICES:** BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON ALL NEW SERVICES AND COMPLY WITH CITY OF NAPA STANDARD PLANS W-5 (A, B, C & D), W-6 (A, B, C & D), AND W-7 (A, B, C & D). METER INSTALLATIONS SHALL NOT OCCUR UNTIL ALL BACKFLOW(S) HAVE BEEN CERTIFIED AND TESTED.

14. **BACKFILL:** WATER MAIN TRENCH BACKFILL SHALL COMPLY WITH CITY OF NAPA STANDARD PLAN W-13A.

15. **TIE-INS:** NEW TIE-INS TO EXISTING CITY WATER MAINS SHALL BE CONDUCTED UNDER CITY INSPECTION ONLY AFTER PRESSURE TESTING, CHLORINATION, AND BACTERIOLOGICAL TESTING IS COMPLETE. ALL HOT-TAPS TO EXISTING MAINS SHALL BE CONDUCTED BY THE CITY AT THE CONTRACTOR'S EXPENSE. A WATER SYSTEM SHUTDOWN SHALL BE REQUIRED IN ALL CASES WHERE NEW PIPELINE TIE-INS ARE THE SAME SIZE OR GREATER (I.E. SIZE-ON-SIZE).

16. **METER INSTALLATION(S) AND SERVICE ACTIVATION:** METER INSTALLATION(S) SHALL OCCUR UPON RECEIPT OF PAYMENT, PARCEL ADDRESS(ES) AND RESPONSIBLE BILLING PARTY. ALL PRESSURIZED SERVICES SHALL BE CONSIDERED ACTIVE AND BILLABLE.

17. **PRESSURE:** CONTRACTOR SHALL INSTALL PRESSURE REGULATORS ON ALL WATER SERVICE CONNECTIONS (PROPERTY OWNER'S SIDE) WHERE PRESSURES EXCEED 80 POUNDS PER SQUARE INCH (PSI).

18. **DOCUMENTATION AND RECORD DRAWING:** ALL NEW WATER SYSTEM INSTALLATIONS SHALL BE GPS SURVEYED WITHIN 5 BUSINESS DAYS OF INSTALLATION. CONTRACTOR SHALL SCHEDULE ALL SURVEYS BY CALLING 707.257.9521. RECORD DRAWINGS SHALL BE SUBMITTED WITHIN 20 BUSINESS DAYS AFTER WATER SYSTEM ACTIVATION.

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**CITY OF NAPA**

**PUBLIC WORKS DEPARTMENT**

**GENERAL WATER NOTES**

**DRAWN BY:** DCF

**CHECKED BY:** MJH

**DATE:** 06/2018

**APPROVED BY:** JRL

**SCALE:** NONE

**DRAWING NO.:** W-12

**FIELD NOTES:**
NOTES

1. TRENCHES MADE WITHIN 5' PARALLEL TO AN EXISTING GUTTER OR EDGE OF ROAD WILL REQUIRE REMOVAL AND REPLACEMENT OF EXISTING AC PAVING TO EDGE.

2. IF UTILITY CONFLICTS REQUIRE OFFSET OF NEW OR EXISTING WATER MAINS OR WATER SERVICES, WATER FACILITIES SHALL NOT BE INSTALLED WITH LESS THAN 2- FEET COVER.

3. POTHOLES SHALL BE BACKFILLED WITH CONTROLLED DENSITY FILL INSTEAD OF CLASS II AGGREGATE BASE. SAND BEDDING SHALL STILL BE REPLACED BACK OVER WATER MAIN AS SHOWN.
CALTRANS RIGHT-OF-WAY

5' MIN

12" CARRIER PIPE (MIN)

16" HOST PIPE (MIN)

PROFILE

16' C905 HOST PIPE (MIN)

CALPICO M-6-SS CASING INSULATORS

12' C900 CARRIER PIPE (MIN)

SECTION

DOT WATER MAIN CASING

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO.: W-13B
FIELD NOTES:
NOTES

1. DETAILS ON THIS SHEET ARE FOR WATER MAINS 8" IN DIAMETER AND SMALLER. SEE CITY STD. W-14B FOR RERAINT REQUIREMENTS FOR 12" AND LARGER WATER MAINS.

2. "MINOR CONCRETE" PER SECTION 90 OF THE CALTRANS STANDARDS, WITH 3/4" AGGREGATE, SHALL BE USED FOR THRUST BLOCKS AND WINGWALLS. CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL AND BARE PIPE.

3. FOR ADDITIONAL RESTRAINT DETAILS, SEE CITY STD. W-14B. FOR WATER MAIN OFFSET AND JOINT DEFLECTION DESIGN REQUIREMENTS, SEE CITY STD. W-15.

4. FIELD LOK GASKETS SHALL BE USED, INSTEAD OF THRUST BLOCKS, FOR RESTRAINING WATER MAINS WITH LESS THAN STANDARD COVER (PER W-12), AND WATER MAINS WITHIN STEEL CASINGS.

5. CONCRETE RESTRAINTS SHALL BE CURED FOR A MINIMUM OF 7 DAYS (OR REACH A MINIMUM 75% OF THE FINAL CURE STRENGTH) PRIOR TO INSTALLATION OF OFFSET ON EXISTING WATER FACILITIES, OR ACTIVATION OF NEW WATER FACILITIES.
NOTES

RESTRAINING REQUIREMENT FOR 4", 6" AND 8" WATER MAINS:

1. BEARING AREAS SHOWN ARE BASED ON 150 PSI SERVICE PRESSURE, 1500 PSF SOIL BEARING CAPACITY, AND SAFETY FACTOR OF 1.25. BLOCKING AREAS NEED TO BE MODIFIED WHERE FIELD CONDITIONS DIFFER.

2. "MINOR CONCRETE" PER SECTION 90 OF THE CALTRANS STANDARDS, WITH 3/4" AGGREGATE, SHALL BE USED FOR THRUST BLOCKS AND WINGWALLS. CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL AND BARE PIPE.

3. FOR ADDITIONAL WATER MAIN OFFSET AND JOINT DEFLECTION DESIGN REQUIREMENTS, SEE CITY STD. W-15, FOR ADDITIONAL THRUST BLOCK AND WINGWALL DESIGN REQUIREMENTS, SEE CITY STD. W-14A.

4. FIELD LOK GASKETS SHALL BE USED, INSTEAD OF THRUST BLOCKS, FOR RESTRRAINING WATER MAINS WITH LESS THAN STANDARD COVER (PER W-12), AND WATER MAINS WITHIN STEEL CASINGS.

5. CONCRETE RESTRAINTS SHALL BE CURED FOR A MINIMUM OF 7 DAYS (OR REACH A MINIMUM 75% OF THE FINAL CURE STRENGTH) PRIOR TO INSTALLATION OF OFFSET ON EXISTING WATER FACILITIES, OR ACTIVATION OF NEW WATER FACILITIES.

RESTRAINING REQUIREMENTS FOR 12" AND LARGER WATER MAINS

1. RESTRRAINING FORCES SHOWN ARE BASED ON 150 PSI SERVICE PRESSURE, 1500 PSF SOIL BEARING CAPACITY, AND SAFETY FACTOR OF 1.5. RESTRRAINING FORCES NEED TO BE MODIFIED WHERE FIELD CONDITIONS DIFFER.

2. WINGWALL DESIGNS SHALL INCORPORATE RESTRRAINING FORCES, SOIL BEARING CAPACITIES, AND WATER MAIN DEPTH. WINGWALLS SHALL BE DESIGNED AND STAMPED BY A LICENSED CIVIL ENGINEER, AND SHALL BE REVIEWED AND APPROVED BY THE WATER DIVISION PRIOR TO INSTALLATION.

3. FOR ADDITIONAL WATER MAIN OFFSET AND JOINT DEFLECTION DESIGN REQUIREMENTS, SEE CITY STD. W-15.

4. "MINOR CONCRETE" PER SECTION 90 OF THE CALTRANS STANDARDS, WITH 3/4" AGGREGATE, SHALL BE USED FOR WINGWALLS AND SHALL BE INCORPORATED AS PART OF THE ENGINEERED DESIGN. CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL AND BARE PIPE.

5. FIELD LOK GASKETS SHALL BE USED, INSTEAD OF THRUST BLOCKS, FOR RESTRRAINING JOINTS OF 12" AND LARGER WATER MAINS. RESTRRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

6. CONCRETE RESTRAINTS SHALL BE CURED FOR A MINIMUM OF 7 DAYS (OR REACH A MINIMUM 75% OF THE FINAL CURE STRENGTH) PRIOR TO INSTALLATION OF OFFSET ON EXISTING WATER FACILITIES, OR ACTIVATION OF NEW WATER FACILITIES.

MINIMUM REQUIRED TOTAL BEARING AREAS (IN SQ. FT.) FOR THRUST BLOCKS AND WINGWALLS FOR 4", 6" AND 8" WATER MAINS

<table>
<thead>
<tr>
<th>TYPE OF FITTING</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
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<tr>
<td>11-1/4° ELL</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22-1/2° ELL</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>45° ELL</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>90° ELL</td>
<td>3</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>CROSS OR TEE</td>
<td>2</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>DEAD END</td>
<td>2</td>
<td>4</td>
<td>7</td>
</tr>
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MINIMUM RESTRAINED LENGTH "L" (IN FEET)

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
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<tbody>
<tr>
<td>11-1/4° ELL</td>
<td>7</td>
<td>10</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>22-1/2° ELL</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>41</td>
</tr>
<tr>
<td>45° ELL</td>
<td>28</td>
<td>43</td>
<td>57</td>
<td>85</td>
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<tr>
<td>90° ELL</td>
<td>36</td>
<td>54</td>
<td>72</td>
<td>108</td>
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<tr>
<td>DEAD END</td>
<td>36</td>
<td>54</td>
<td>72</td>
<td>108</td>
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MINIMUM REQUIRED RESTRAINING FORCE (IN 1,000 PSI INCREMENTS) FOR ENGINEERED WINGWALL DESIGN FOR 12" AND LARGER WATER MAINS

<table>
<thead>
<tr>
<th>TYPE OF FITTING</th>
<th>12&quot;</th>
<th>16&quot;</th>
<th>20&quot;</th>
<th>24&quot;</th>
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<tbody>
<tr>
<td>11-1/4° ELL</td>
<td>5</td>
<td>9</td>
<td>14</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>22-1/2° ELL</td>
<td>10</td>
<td>18</td>
<td>28</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>45° ELL</td>
<td>20</td>
<td>35</td>
<td>55</td>
<td>80</td>
<td>130</td>
</tr>
<tr>
<td>90° ELL</td>
<td>36</td>
<td>64</td>
<td>100</td>
<td>150</td>
<td>230</td>
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<tr>
<td>CROSS OR TEE</td>
<td>26</td>
<td>46</td>
<td>71</td>
<td>110</td>
<td>160</td>
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<tr>
<td>DEAD END</td>
<td>26</td>
<td>46</td>
<td>71</td>
<td>110</td>
<td>160</td>
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</tbody>
</table>

CITY OF NAPA PUBLIC WORKS DEPARTMENT

WATER MAIN RESTRAINT DETAILS

DRAWN BY: DCF CHECKED BY: MJH
DATE: 06/2018 APPROVED BY: JRL
SCALE: NONE DRAWING NO.: W-14B
NOTES

1. ALL JOINTS WITHIN MINIMUM RESTRAINED LENGTH "L" SHALL BE RESTRAINED. FULL LENGTH PIPE SECTIONS SHALL BE USED. WHEN LENGTH "L" OCCURS WITHIN THE MID SECTION OF A PIPE, THE NEXT JOINT OUT SHALL BE RESTRAINED. SEE CITY STD. W-14B FOR "L" LENGTH SPECIFICATIONS AND ADDITIONAL RESTRAINED JOINT DETAILS.

2. RESTRAINED JOINTS REQUIRE INSPECTION BY THE CITY OF NAPA. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTION IN ADVANCE AND LEAVING JOINTS EXPOSED FOR THE CITY INSPECTOR.

3. MINIMUM RESTRAINED LENGTH SHALL BE CLEARLY SHOWN ON THE PROFILE OF ALL WATERLINE PLANS.

4. VERTICAL OFFSETS SHALL BE AVOIDED WHENEVER POSSIBLE BY DEFLECTING JOINTS (ROPING) TO ACHIEVE OFFSET.

5. MINIMUM RESTRAINED LENGTH SHALL BE RE-CALCULATED TO ACCOUNT FOR OTHER FITTINGS (VALVES, TEES, BENDS) WITHIN LENGTH "L", OR IF WATER MAIN DEPTHS ARE SHALLOWER THAN STANDARD INSTALLATION DEPTH (SEE CITY STD. W-13A).

6. RESTRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

7. ALTERNATE MATERIALS MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

8. WATER MAINS SHALL BE ROPED OVER UTILITY CONFLICTS WHENEVER 2-FEET OF COVER AND 1-FOOT SEPARATION BETWEEN UTILITIES CAN BE MAINTAINED.
NOTES

1. HOT-TAPS REQUIRED WHEN NEW MAINS OR SERVICE LATERALS ARE CONNECTED TO EXISTING WATER MAINS. ALL HOT TAPS SHALL BE BY CITY FORCES AT THE CONTRACTOR’S EXPENSE.

2. CONTRACTOR SHALL PROVIDE SAWCUTTING, EXCAVATION, BACKFILL, COMPACTION, PLATING, PAVING, TRAFFIC CONTROL, AND ENCROACHMENT PERMIT.

3. CONTRACTOR SHALL PROVIDE AND INSTALL SHORING PER OSHA STANDARDS.

4. THE CONTRACTOR SHALL MODIFY SITE CONDITIONS TO THE SATISFACTION OF THE CITY REPRESENTATIVE.

5. HOT-TAP SHALL BE INSTALLED 24" MIN. FROM ANY TAP, BELL, FITTING, WATER SERVICE, ETC.

6. FOR 1" HOT-TAPS, 7' DIMENSION CAN BE REDUCED TO 5'.

7. FEES SHALL BE PAID AT THE WATER DIVISION OFFICE LOCATED AT 1340 CLAY ST. FOR QUESTIONS REGARDING FEES, CALL (707) 257-9521.

8. AFTER FEES HAVE BEEN PAID, ALLOW 7 TO 10 WORKING DAYS FOR SCHEDULING HOT-TAP INSTALLATION.

9. TO SCHEDULE A HOT-TAP AFTER FEES HAVE BEEN PAID, CALL (707) 257-9544.

10. IF EXISTING UTILITIES EXIST WITHIN THE HOT TAP EXCAVATION PIT AND INHIBIT CITY CREWS FROM COMPLETING HOT TAP, CONTRACTOR MAY BE REQUIRED TO MODIFY EXISTING WATER MAIN, TO CUT IN NEW TEE FOR WATER SERVICE, OR RELOCATE EXISTING UTILITIES. MODIFICATIONS TO WATER FACILITIES SHALL BE DETERMINED BY WATER DIVISION STAFF.
NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING WATER CUSTOMERS AFFECTED BY THE WATER SHUTOFF A MINIMUM OF 48 HOURS (2 WORKING DAYS) IN ADVANCE. CITY PERSONNEL SHALL OPERATE EXISTING VALVES ON THE WATER SYSTEM. CONTRACTOR TO PROVIDE A MINIMUM OF 48 HOUR (2 WORKING DAYS) NOTICE FOR EVERY CITY PERSONNEL BY CALLING 707-257-9544 TO SCHEDULE SHUTDOWN.
3/4" TO 2" SERVICES WITH CORPORATION STOPS

1. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING CUSTOMERS AFFECTED BY A WATER SHUTOFF A MINIMUM OF 48 HOURS (2 WORKING DAYS) IN ADVANCE. CITY PERSONNEL SHALL OPERATE EXISTING VALVES ON THE WATER SYSTEM. CONTRACTOR TO PROVIDE A MINIMUM OF 48 HOURS (2 WORKING DAYS) NOTICE FOR CITY PERSONNEL BY CALLING 707-257-9544 TO SCHEDULE SHUTDOWN.

2. WATER SERVICES LARGER THAN 2" REQUIRE REMOVAL OF THE TEE OR TAPPING SADDLE AT THE MAIN AS SHOWN ABOVE AND REMOVAL OF METER BOX. CONTACT WATER DIVISION TO CLOSE ACCOUNT AND PICK-UP METER.

3. WATER MAINS REQUIRE ABANDONMENT OF THE TEE OR TAPPING SADDLE AS SHOWN ABOVE. CONTRACTOR IS RESPONSIBLE FOR RELOCATING AND RECONNECTING EXISTING WATER SERVICES TO AN ACTIVE WATER MAIN AT THE DIRECTION OF WATER DIVISION STAFF.

4. WHEN WATER FACILITIES ARE REMOVED (INCLUDING BUT NOT LIMITED TO WATER METERS AND FIRE HYDRANTS), CONTRACTOR SHALL BACKFILL HOLE WITH CONCRETE (PER CITY STD. S-4) IF HOLE IS LOCATED WITHIN SIDEWALK SECTION, ASPHALT (PER CITY STD. W-13A) IF HOLE IS LOCATED WITHIN STREET SECTION, OR SOIL COMPACTED TO 90% IF HOLE IS LOCATED WITHIN A LANDSCAPE STRIP, AS DETERMINED BY THE WATER DIVISION.
DEFINITIONS

OBSTRUCTIONS - OBSTRUCTIONS are objects (permanent or temporary) that prevent water service crews from reading or maintaining public water facilities, including but not limited to water meters, fire hydrants, and air-vacuum release valves. Such items include, but are not limited to, posts, fences, vehicles, signs, trash, storage containers, debris, and plant growth.

CLEAR AREA - A CLEAR AREA allows service workers to read and maintain public water facilities without requiring additional, non-water based work, including but not limited to clearing bushes, moving signs, and removing debris.

WATER FACILITY - A WATER FACILITY is any device connected to the public water system, including but not limited to water meters, valves, blow-off valves, fire hydrants, air-vacuum release valves, water service laterals, and backflow devices.

PERMANENT STRUCTURE - PERMANENT STRUCTURES include any objects that are not intended to be removed or relocated, including but not limited to foundations, fences, retaining walls, pools, houses, trees, large bushes, and signs.

SEPARATION REQUIREMENTS

1. OBSTRUCTIONS SHALL BE KEPT A MINIMUM OF 3-FEET AWAY FROM WATER FACILITIES.

2. A CLEAR AREA SHALL BE MAINTAINED 1-FOOT AROUND AND 6-FEET ABOVE WATER FACILITIES BY THE CUSTOMER (EXCEPT A 3-FOOT CLEAR AREA SHALL BE MAINTAINED FOR FIRE HYDRANTS).

3. PERMANENT STRUCTURES SHALL BE KEPT A MINIMUM OF 10-FEET AWAY FROM WATER FACILITIES (LARGE SHRUBS CAN BE KEPT A MINIMUM OF 5- FEET AWAY).
NOTES

1. ALL WATER MAINS 6" OR LARGER STUBBED WITH THE INTENT OF BEING CONNECTED IN THE FUTURE SHALL BE INSTALLED PER THIS DETAIL, REGARDLESS OF THE LOCATION OF THE NEAREST HYDRANT. BLOW-OFFS SHALL ONLY BE INSTALLED ON WATER MAINS LESS THAN 6" IN DIAMETER, OR AT THE DISCRETION OF THE WATER DIVISION.

2. ALL JOINTS WITHIN MINIMUM RESTRAINED LENGTH "L" SHALL BE RESTRAINED. FULL LENGTH PIPE SECTIONS SHALL BE USED. WHEN LENGTH "L" OCCURS WITHIN THE MIDSECTION OF A PIPE, THE NEXT JOINT OUT SHALL BE RESTRAINED.

3. RESTRAINED JOINTS REQUIRE INSPECTION BY THE CITY OF NAPA. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTION IN ADVANCE AND LEAVING JOINTS EXPOSED FOR THE CITY INSPECTOR.

4. MINIMUM RESTRAINED LENGTH SHALL BE CLEARLY SHOWN ON THE PROFILE OF ALL WATERLINE PLANS.

5. MINIMUM RESTRAINED LENGTH SHALL BE RE-CALCULATED TO ACCOUNT FOR OTHER FITTINGS (VALVES, TEES, BENDS) WITHIN LENGTH "L".

6. RESTRAINED LENGTHS FOR PIPE SIZES LARGER THAN 12" SHALL BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY.

7. A BUTTERFLY VALVE SHALL BE USED INSTEAD OF A GATE VALVE (PER CITY STD. W-9) FOR WATER MAINS 12" OR LARGER.

8. SEE CITY STD. W-14B FOR "L" LENGTH SPECIFICATIONS AND ADDITIONAL RESTRAINED JOINT DETAILS.
NOTES

1. CURB ADJACENT SIDEWALK: METER INSTALLED AT CURB AS SHOWN. BACKFLOW DEVICE INSTALLED BEHIND SIDEWALK.

2. METER BOX AND SERVICE LINE SHALL BE INSTALLED OUTSIDE OF DRIVEWAYS AND DRIVEWAY APPROACHES.

3. METERS SHALL BE PLACED A MINIMUM OF 3' FROM ANY OBSTRUCTION (SIGN POST, MAIL BOX, FENCE, ETC.). NO TREES SHALL BE PLANTED WITHIN 10', OR LARGE SHRUBS WITHIN 5', OF THE METER BOX. SEE W-18 FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.

4. FOR AN OLDER WATER SERVICE INSTALLATION WHERE A METER SETTER WAS NOT INSTALLED, CUSTOMER'S RESPONSIBILITY STARTS IMMEDIATELY PAST THE WATER METER.
NOTES

1. SERVICE LINE SHALL BE INSTALLED OUTSIDE OF DRIVEWAYS AND DRIVEWAY APPROACHES.

2. NO TREES SHALL BE PLANTED WITHIN 10', OR LARGE SHRUBS WITHIN 5', OF THE SERVICE LATERAL. SEE CITY STD. W-18 FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.
NOTES

1. FIRE HYDRANTS LOCATED AT STREET INTERSECTIONS (INCLUDING "T"-INTERSECTIONS) SHALL HAVE MARKERS PLACED ON BOTH STREETS.
EXISTING OR PROPOSED WATER MAINS, 12" AND LARGER

(MEASURED FROM OUTER EDGE OF WATER MAIN TO OUTER EDGE OF OTHER UTILITY)

MIN. 5-FT HORIZONTAL SEPARATION FROM:
- STORM DRAINS
- GAS LINES 4" OR SMALLER
- ELECTRICAL CONDUIT 4" OR SMALLER
- PHONE/CABLE CONDUIT 4" OR SMALLER
- OTHER PUBLIC WATER MAINS

10 FEET MINIMUM

MIN. 10-FT HORIZONTAL SEPARATION FROM:
- SEWER AND RECLAIMED WATER FACILITIES
- GAS LINES LARGER THAN 4"
- ELECTRICAL CONDUIT LARGER THAN 4"
- PHONE/CABLE CONDUIT LARGER THAN 4"

EXISTING OR PROPOSED WATER MAINS, 8" AND SMALLER

(MEASURED FROM CENTERLINE OF WATER MAIN TO OUTER EDGE OF OTHER UTILITY)

MIN. 5-FT HORIZONTAL SEPARATION FROM:
- STORM DRAINS
- GAS LINES 4" OR SMALLER
- ELECTRICAL CONDUIT 4" OR SMALLER
- PHONE/CABLE CONDUIT 4" OR SMALLER
- OTHER PUBLIC WATER MAINS

10 FEET MINIMUM

MIN. 10-FT HORIZONTAL SEPARATION FROM:
- SEWER AND RECLAIMED WATER FACILITIES
- GAS LINES LARGER THAN 4"
- ELECTRICAL CONDUIT LARGER THAN 4"
- PHONE/CABLE CONDUIT LARGER THAN 4"

EXISTING OR PROPOSED WATER SERVICE AND FIRE HYDRANT LATERALS

(MEASURED FROM CENTERLINE OF WATER LATERAL TO OUTER EDGE OF OTHER UTILITY)

MIN. 5-FT HORIZONTAL SEPARATION FROM:
- STORM DRAINS
- GAS LINES 4" OR SMALLER
- ELECTRICAL CONDUIT 4" OR SMALLER
- PHONE/CABLE CONDUIT 4" OR SMALLER
- PUBLIC WATER MAINS (3-FT FOR WATER LATERALS)
- SEWER SERVICE LATERALS
- RECLAIMED WATER SERVICE LATERALS

10 FEET MINIMUM

MIN. 10-FT HORIZONTAL SEPARATION FROM:
- SEWER AND RECLAIMED WATER FACILITIES
- GAS LINES LARGER THAN 4"
- ELECTRICAL CONDUIT LARGER THAN 4"
- PHONE/CABLE CONDUIT LARGER THAN 4"

NOTES

1. WATER-SEWER (WATER-RECLAIMED WATER) SEPARATION SHALL BE PER THE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES.

2. IF EXISTING UTILITIES ARE REPLACED, THE NEW FACILITIES SHALL MEET THE CURRENT MINIMUM SEPARATION REQUIREMENTS.

3. IF THERE ARE DIFFERENT SEPARATION REQUIREMENTS BASED ON OTHER UTILITY REQUIREMENTS, OR LOCAL, STATE, OR FEDERAL REGULATIONS BASED ON OTHER UTILITY REQUIREMENTS, OR LOCAL, STATE OR FEDERAL REGULATIONS, THE STRICTER SEPARATION REQUIREMENTS SHALL PREVAIL.

4. FOR VERTICAL SEPARATION REQUIREMENTS, SEE CITY STD. W-22B.
NOTES

1. WATER-SEWER (WATER-RECLAIMED WATER) SEPARATION SHALL BE PER THE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES. WATER FACILITIES SHALL CROSS OVER SEWER FACILITIES WHenever POSSIBLE, OTHERWISE ADDITIONAL INSTALLATION REQUIREMENTS MAY BE REQUIRED.

2. IF EXISTING UTILITIES ARE REPLACED, THE NEW FACILITIES SHALL MEET THE CURRENT MINIMUM SEPARATION REQUIREMENTS.

3. IF THERE ARE DIFFERENT SEPARATION REQUIREMENTS BASED ON OTHER UTILITY, LOCAL, STATE, OR FEDERAL REGULATIONS OR REQUIREMENTS, THE STRICTER SEPARATION REQUIREMENTS SHALL PREVAIL.

4. WHEN UTILITIES CROSS OVER EXISTING WATER FACILITIES, BACKFILL OVER EXISTING WATER FACILITIES SHALL MEET THE WATER TRENCH DETAIL SPECIFICATIONS (SEE CITY STD. W-13A).

5. WHEN A MINIMUM 2-FOOT COVER (WITH 1-FOOT VERTICAL SEPARATION) CAN BE MAINTAINED OVER WATER FACILITIES, NEW WATER FACILITIES SHALL BE ROPED OVER OTHER UTILITIES.

6. VERTICAL SEPARATION REQUIREMENTS BETWEEN NEW AND EXISTING WATER FACILITIES (BOTH 8" OR LESS IN DIAMETER), CAN BE REDUCED TO A MINIMUM 6" OF SEPARATION.

7. FOR HORIZONTAL SEPARATION REQUIREMENTS, SEE CITY STD. W-22A.
NOTES

1. ALL CABLE CONNECTIONS TO STEEL PIPE AND FITTINGS SHALL BE ACCOMPLISHED UTILIZING AN EXOTHERMIC WELDING PROCESS SUCH AS "CALDWELL" BY ERICO PRODUCTS, INC. OR APPROVED EQUAL (SEE CITY STD. W-23B FOR EXOTHERMIC WELD DETAIL). ALL MATERIAL AND EQUIPMENT UTILIZED FOR WELDING SHALL BE FROM ONE MANUFACTURER.

2. BOND WIRE SHALL BE #8 AWG/HMWPE BOND CABLE. ALL JOINTS, EXCEPT FIELD WELDED JOINTS AND INSULATING JOINTS, SHALL BE CONTINUITY BONDED. BONDS SHALL BE WELDED TO STEEL PIPE AS WELL AS MAJOR PARTS OF ANY COUPLINGS USED. THE LENGTH OF THE BOND CABLES BETWEEN FITTINGS SHALL BE SUFFICIENT IN LENGTH TO ALLOW FOR SOIL CONTRACTION AND PIPE MOVEMENT.

3. NEW WATER MAINS SHALL BE CONTINUITY BONDED TO ALL EXISTING FERROUS WATER MAINS. IN LOCATIONS WHERE A NEW WATER MAIN IS TIED INTO EXISTING NON-FERROUS WATER MAIN WITH A BOND CABLE, THE NEW WATER MAIN SHALL BE CONTINUITY BONDED WITH THE EXISTING BOND CABLE ON EACH SIDE OF THE TIE-IN POINT.
EXOTHERMIC WELD

EXOTHERMIC WELD PROCEDURE

STEP 1. FILE STRUCTURE CONNECTION AREA TO BARE SHINY METAL AND CLEAN.

STEP 2. STRIP INSULATION FROM WIRE. ATTACH SLEEVE REQUIRED ON #6 AWG WIRE OR SMALLER.

STEP 3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE WITH FLINT GUN.

STEP 4. REMOVE SLAG FROM CONNECTION AND PEEN WELD FOR SOUNDNESS.

STEP 5. COMPLETELY COVER CONNECTION AND EXPOSED STRUCTURE SURFACE WITH EPOXY COATING COMPOUND.

NOTES

1. EXOTHERMIC WELD PROCEDURE SHOWN ABOVE IS TO BE USED AS A GENERAL GUIDE ONLY. CONSULT MANUFACTURER’S LITERATURE FOR SPECIFIC SIZE AND INSTALLATION INSTRUCTIONS.

2. PUTTY USED FOR THE CABLE TO PIPE CONNECTION SEAL DAM (THERMITE CONNECTIONS) SHALL BE "A+B" EPOXY AS MANUFACTURED BY BIGGS COMPANY, OR EQUAL. ALL BONDS SHALL BE INSPECTED BY WATER DIVISION PRIOR TO BACKFILLING TRENCH.
#8 AWG BOND CABLE

CAST IRON OR STEEL COUPLING EPOXY COATED

18" MINIMUM LENGTH
(SEE NOTES 1. & 2.)

CABLE-TO-PIPE CONNECTION
(TYP) (SEE CITY STD. W-27A)

FLANGED JOINT

18" MINIMUM LENGTH
(SEE NOTES 1. & 2.)

CABLE-TO-PIPE CONNECTION
(TYP) (SEE CITY STD. W-27A)

PUSH-ON JOINT

18" MINIMUM LENGTH
(SEE NOTES 1. & 2.)

CABLE-TO-PIPE CONNECTION
(TYP) (SEE CITY STD. W-27A)

MECHANICAL JOINT

24" MINIMUM LENGTH
(SEE NOTES 1. & 2.)

#8 AWG BOND CABLE

CABLE-TO-PIPE CONNECTION
(TYP) (SEE CITY STD. W-27A)

FLEXIBLE COUPLING

NOTES

1. USE #8 AWG/HMWPE BOND CABLES FOR BONDING METALLIC FITTINGS ON NON-METALLIC PIPING SYSTEMS.

2. USE #4 AWG/HMWPE BOND CABLES FOR BONDING PIPE JOINTS ON METALLIC PIPING SYSTEMS PER SPECIFICATIONS.
NOTES

1. COAT ENTIRE SPLICE CONNECTION WITH TWO COATS OF RUBBER COATING. SEE SPECIFICATIONS.
NOTES

1. INSTALL ANODES WITH 3-FT SEPARATION FROM THE PIPE/FITTING IN NATIVE SOIL.
2. ANODES MAY BE INSTALLED HORIZONTALLY OR VERTICALLY, UNLESS SPECIFICALLY DIRECTED BY THE WATER DIVISION.
3. A MINIMUM DISTANCE OF 10-FT SHALL BE MAINTAINED BETWEEN MULTIPLE ANODES.
4. ANODES SHALL BE INSTALLED A MINTIMUM OF 3-FEET FROM ALL SEWER AND STORM DRAIN FACILITIES, AND A MINIMUM OF 5- FEET FOR ALL OTHER UTILITIES (INCLUDING, BUT NOT LIMITED TO, GAS, ELECTRIC, CABLE, AND PHONE).
5. ALL CABLE CONNECTIONS TO STEEL PIPE AND FITTINGS SHALL BE ACCOMPLISHED UTILIZING AN EXOTHERMIC WELDING PROCESS SUCH AS "CALDWELL" BY ERICO PRODUCTS, INC. OR APPROVED EQUIVALENT (SEE CITY STD. W-23B FOR EXOTHERMIC WELD DETAIL). ALL MATERIAL AND EQUIPMENT UTILIZED FOR WELDING SHALL BE FROM ONE MANUFACTURER.
6. ANODE CABLES SHALL BE CONNECTED DIRECTLY TO FERROUS PIPE OR FITTINGS. LEAD WIRE FOR THE ANODES SHALL BE 30- FEET LONG. #10 AWG SOLID COPPER WIRE WITH BLACK RHW-USE INSULATION. LEAD WIRES SHALL BE SILVER SOLDERED TO ANODE CORE WITH THE CONNECTION ENCAPSULATED IN EPOXY RESIN.
7. ANODE INSTALLATION PROCEDURE SHOWN ABOVE IS TO BE USED AS A GENERAL GUIDE ONLY. CONSULT MANUFACTURER'S LITERATURE FOR SPECIFIC INSTALLATION INSTRUCTIONS.
8. A SOILS ANALYSIS IS REQUIRED FOR ALL NEW WATER MAIN INSTALLATIONS. A SOIL SAMPLE SHALL BE TAKEN EVERY 1000-FT OF NEW PIPE INSTALLATION AT A DEPTH OF 4- FEET. THE SOILS ANALYSIS SHALL INCLUDE CORROSIVITY TESTING. THE CORROSIVITY TESTS SHALL INCLUDE (AT A MINIMUM) CHLORIDES (ASTM D4327), pH (ASTM D4972), RESISTIVITY AT 100% SATURATION (ASTM G57), SULFATE (ASTM D4327), AND REDOX POTENTIAL (ASTM D1498).
9. QUANTITY, SIZE, AND TYPE OF ANODES REQUIRED FOR NEW WATER FACILITIES SHALL BE DETERMINED BY THE WATER DIVISION AFTER RESULTS OF SOILS ANALYSIS HAVE BEEN REVIEWED BY THE WATER DIVISION.
10. AREAS DETERMINED TO CONTAIN MODERATELY OR HIGHLY CORROSIVE SOILS SHALL REQUIRE INSTALLATION OF A CORROSION TESTING STATION AT 500- FEET TO 1000- FEET INTERVALS, AS APPROVED BY THE WATER DIVISION. TEST STATIONS SHALL BE LOCATED ABOVE THE POINT OF CONNECTION ON THE WATER MAIN AND KEPT WITHIN A G5 BOX LABELED "CP TEST" IN THE STREET PAVEMENT SECTION.
11. ANODE SHALL BE INSTALLED LEVEL WITH OR DEEPER THAN THE WATER MAIN IT IS CONNECTED TO, WITH A MINIMUM DEPTH OF 24- INCHES (2- FEET).

CITY OF NAPA

ANODE INSTALLATION

PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-24A
NOTES

1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. THIS DETAIL IS TYPICAL OF ELBOWS, REDUCERS & OTHER FITTINGS.

3. MULTIPLE FITTINGS MAY BE BONDED TOGETHER AND PROTECTED WITH ONE ANODE PER CITY STD. W-25C.

4. NO TEST STATION IS REQUIRED FOR THESE FITTINGS, HOWEVER A RECORD OF ALL INSTALLATIONS SHALL BE PROVIDED TO THE PROJECT ENGINEER.
NOTES

1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. THE ANODE SHALL BE INSTALLED VERTICALLY OR HORIZONTALLY WITH THE TOP OF THE ANODE 5 FT. BELOW GRADE AND 3 FEET BELOW PIPE.
NOTES

1. INSTALL ANODE A MINIMUM OF 2-FEET BELOW PIPE DEPTH IN NATIVE SOIL.

2. MAXIMUM HORIZONTAL DISTANCE FROM ANODE TO LEAK REPAIR CLAMP IS 5-FEET.
ANODE INSTALLATION
(DRIVABLE MAGNESIUM ANODES)

NOTES

1. DRIVABLE ANODE SHALL BE 2-LB (24" LONG, 1.3" DIAMETER) MAGNESIUM RODS WITH A 0.125-INCH DIAMETER STEEL CORE. LEAD WIRES FOR ANODES SHALL BE 3-FT LONG #10 AWG SOLID COPPER WIRES WITH BLACK RHWW-USE INSULATION. ANODES SHALL HAVE UHMW POLYETHYLENE DRIVE CAP AND THE DRIVE POINT SHALL BE CUT AT A 45-DEGREE ANGLE. GROUNDING CLAMPS SHALL BE BRASS WITH BRASS HEX BOLTS AND NUTS.

2. THE SURFACE OF THE COPPER RISER PIPE IN THE WATER METER BOX SHALL BE CLEANED PRIOR TO ATTACHMENT OF THE BRASS GROUNDING CLAMP IN ORDER TO ENSURE A GOOD ELECTRICAL CONNECTION BETWEEN THE CLAMP AND THE COPPER WATER LATERAL.

3. A PREDRILLED HOLE IS REQUIRED FOR ALL ANODE INSTALLATIONS. HOLE SHALL BE INSTALLED WITHIN THE METER BOX ADJACENT TO WATER METER. HOLE SHALL BE LARGE ENOUGH TO SUFFICIENTLY INSERT THE ANODE SUCH THAT A TIGHT FIT IS MAINTAINED BETWEEN THE ANODE AND THE SOIL, AND THAT A MINIMUM COVER OF 6-INCHES IS OBTAINED.

4. RUN WIRE IN CONTINUOUS LENGTH FROM THE ANODE TO THE GROUNDING CLAMP, FREE OF JOINTS OR SPLICES. CARE SHALL BE USED DURING INSTALLATION TO AVOID PUNCTURES, CUTS AND SIMILAR DAMAGE TO THE WIRE INSULATION.

5. CP MONITORING CABLES SHALL BE REQUIRED ON ALL COPPER LATERALS. CABLE SHALL BE #10 AWG/HMWPE BOND CABLE AND SHALL EXTEND A MINIMUM OF 9-INCHES ABOVE GROUND INTO THE WATER METER BOX FOR CP TESTING PURPOSES. CABLE SHALL BE CONNECTED TO THE BRASS CLAMP TO THE DRIVABLE MAGNESIUM ANODE. THE BRASS CLAMP (CONNECTED TO THE ANODE) SHALL BE CLAMPED TO BARE COPPER PRIOR TO WRAPPING WITH HIGH TACK TAPE, WAX TAPE, AND/OR POLYETHYLENE WRAP.

CITY OF NAPA
PUBLIC WORKS DEPARTMENT

DRAWN BY: DCF
DATE: 06/2018
SCALE: NONE
FIELD NOTES:

CHECKED BY: MJH
APPROVED BY: JRL
DRAWING NO. W-24E
INSULATING JOINT COATING

- Dip or Steel Pipe
- Insulating Gasket
- Insulating Joint Coating
- Insulating Washer (Typical of 2)
- Steel Washer (Typical)
- Steel Nut
- Flange
- Insulating Sleeve
- Steel Bolt

Build up with fill coat to cover all nuts and bolts to a minimum of 1/4" (see specs.)

Wrap Coat and Guard Coat (see specs.)

City of Napa
Public Works Department

DRAWN BY: DCF
CHECKED BY: MJH
DATE: 06/2018
APPROVED BY: JRL
SCALE: NONE
DRAWING NO. W-25B
FIELD NOTES:
NOTE

1. CONTRACTOR TO PROVIDE TERMINAL BOX (WITH SHUNT) FOR THE WATER DIVISION CORROSION SPECIALIST TO INSTALL AT TEST STATION LOCATIONS.

2. ALL TEST STATIONS SHALL BE INSTALLED BEHIND THE BACK OF CURB, OUTSIDE OF ALL DRIVEWAYS AND DRIVEWAY APPROACHES, UNLESS OTHERWISE PERMITTED BY THE WATER DIVISION CORROSION SPECIALIST.
NOTES

1. CONTRACTOR TO PROVIDE COTT "BIG FINK" TEST STATION AND ASSOCIATED FITTINGS AND BRING WIRES INTO NEW RISER BOX. CONTRACTOR TO ENSURE WIRES IN BOX DO NOT SHORT TO EACH OTHER UNTIL AFTER CITY PERSONNEL TEST WIRE CONNECTIVITY.

2. CITY PERSONNEL SHALL TEST WIRE CONNECTIVITY PRIOR TO INSTALLATION OF TERMINAL BOX.
CABLE IDENTIFICATION

ABBREVIATIONS

BAN - ANODE
BO - BLOW OFF
CA - CASING
DR - DRAIN CABLE
DW - DOMESTIC WATER
EL - ELBOW
FH - FIRE HYDRANT
FP - FOREIGN PIPELINE
RW - RECYCLED WATER
TT - TEST CABLE

PIPE DIA. (INCHES)

06/2018
CTS TERMINAL BOX

TERMINAL BOX (COVER NOT SHOWN FOR CLARITY)

(1) #8 AWG/THHN DRAIN CABLE (WHITE)

TERMINAL POST (TYP)
MACHINE SCREW, (2)
WASHERS & (2) HEX NUTS - NICKEL PLATED BRASS

(1) #10 AWG/THHN TEST CABLE (WHITE)

CTS TERMINAL BOX

TERMINAL BOX (COVER NOT SHOWN FOR CLARITY)

TEST STATION (SEE CITY STD. W-26A)

#10 AWG/THHN TEST CABLE (WHITE)

#8 AWG/THHN DRAIN CABLE (WHITE)

HMWPE BOND CABLE (TYP) (SEE NOTE 1.)

DUCTILE IRON PIPELINE

CABLE-TO-PIPE CONNECTION (TYP)

12" (TYP)

NOTES
1. BOND ALL BURIED, NON-WELDED, PIPE JOINTS PER CITY STD. W-26.
2. IDENTIFY CABLES PER CITY STD. W-26C.
NOTES

1. NUMBER AND SIZE OF ANODES SHALL BE DETERMINED BY THE PROJECT CORROSION ENGINEER.

2. IDENTIFY CABLES PER CITY STD. W-26C.

3. INSTALL THE REFERENCE CELL BETWEEN THE TWO PIPELINES.

4. PERMISSION MUST BE OBTAINED FROM THE FOREIGN PIPELINE OWNER PRIOR TO ATTACHMENT OF TEST WIRES.
NOTES
1. NUMBER AND SIZE OF ANODES SHALL BE DETERMINED BY THE PROJECT CORROSION ENGINEER.
2. THE ANODES SHALL BE INSTALLED A MINIMUM OF 3 FEET OFF THE WALL OF THE WATER PIPE.
4. IDENTIFY CABLES PER CITY STD. W-26C.
1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. IDENTIFY CABLES PER DRAWING W-26C.
1. The use of non-metallic pipe as an alternate material to ductile iron must be approved by the City of Napa Water Division prior to use.

2. Install anode a minimum of 3-feet from valve.

3. Identify cables per City Std. W-26C.
CROSS - ANODE TEST STATION

NOTES

1. THE USE OF NON-METALLIC PIPE AS AN ALTERNATE MATERIAL TO DUCTILE IRON MUST BE APPROVED BY THE CITY OF NAPA WATER DIVISION PRIOR TO USE.

2. INSTALL ANODE A MINIMUM OF 3 FEET FROM VALVE.

3. IDENTIFY CABLES PER DRAWING W-26C.
NOTES

1. NUMBER AND SIZE OF ANODES SHALL BE DETERMINED BY THE PROJECT CORROSION ENGINEER.

2. CARRIER PIPE & CASING ARE TO BE ELECTRICALLY ISOLATED VIA CASING INSULATORS.

3. IF CARRIER PIPE IS NON-METALLIC DELETE WHITE CABLES AND EXOTHERMIC WELDS.

3. IDENTIFY CABLES PER CITY STD. W-26C.
WHERE D = SAMPLE DEPTH.
VOLUME OF SOIL WITH RESISTANCE 'R' AND RESISTIVITY \( \rho \)

\[ \text{VOLUME OF SOIL WITH RESISTANCE 'r' AND RESISTIVITY } \rho \]

\[ \text{VOLUME OF SOIL WITH RESISTANCE 'r' AND RESISTIVITY } \rho \]

\[ \text{LAYER OF SOIL WITH RESISTIVITY} = \left( \frac{1}{\frac{1}{R} - \frac{1}{T}} \right) \times \text{(SPACING FACTOR)} \]
SOIL BOX RESISTIVITY TEST

STAINLESS STEEL END PLATES INSIDE BOX (TYP)

"MILLER" SOIL BOX

SOIL SAMPLE (COMPACTED & SCRAPED FLUSH)

BRASS PINS (TYP)

NON-CONDUCTING SIDES & BOTTOM

TEST LEADS

RESISTIVITY METER

STAINLESS STEEL END PLATES INSIDE BOX (TYP)

"MILLER" SOIL BOX

SOIL SAMPLE (COMPACTED & SCRAPED FLUSH)

BRASS PINS (TYP)

NON-CONDUCTING SIDES & BOTTOM

TEST LEADS

RESISTIVITY METER