Standard Details
SD0001 - New 1" Copper Service
SD0001R - New Recycled 1" Copper Service
SD0002 - Offset
SD0003 - Hydrant
SD0004 - Service Pole
SD0005 - 4" Service Manifold
SD0006 - New or Renewed 1-1/2" and 2" Copper Service WSP or PVC Main
SD0006R - New or Renewed 1-1/2" and 2" Copper Service WSP or PVC Main
SD0007 - 2" Blowoff
SD0007R - 2" Blowoff for Recycled Water
SD0008 - Pipeline Tracer Wire Installation
SD0009 - Test Station with Magnesium Anode
SD0010 - Test Station
SD0011 - Meter Insulation 1-1/2" & 2"
SD0012 - Pipeline Insulation and Bonding Jumper Details
SD0013 - Adjustable Pipe Support
SD0014 - Joint Harness
SD0015 - Survey Monument
SD0017 - Joint Blocking
SD0018 - Welded Outlet
SD0019 - Cased Crossing
SD0021 - Renewed 1" Copper Service
SD0022 - Transferring a 1" thru 2" “Long” Copper Service
SD0023 - Transferring a 1" “Short” Copper Service
SD0024 - Fireline Connection-DELETED
SD0025 - Mortar Lined & Tape Coated 4” to 36” Steel Pipe
SD0026 - Continuity Jumper Wire
SD0027 - ¾” & 1” Meter Insulation Detail
SD0028 - Wood Bulkhead Wall
SD0029 - Fireline, New and Renew
SD0030 - Level Transmitter Enclosure Mounting Plate Cover
SD0031 - Level Transmitter Enclosure
SD0032 - Level Transmitter Assembly Piping
SD0033 - Thermowell Assembly
SD0034 - Level Transmitter Assembly
SD0035 - Typical Conduit Stub Up
SD0036 - Steel Butt Strap
SD0037 - 2" Domestic Meter w/ Copper Pipe
SD0038 - Fireline, Insulation Retrofit
SD0039 - Erosion Control Board
SD0040 - Impressed Current Horizontal Ground Bed
SD0041 - Deep Well Ground Bed
SD0042 - Typical Air/Vacuum Release Valve
SD0044 - Typical Air/Vacuum Release Valve
SD0045 - Wharf Hydrant Drain
SD0046 - Shallow Well Ground Bed
SD0047 - Alternate Conduit Stub
SD0048 - Air / Vacuum Release Valve Assembly
SD0049 - 3" Turbo Meter
SD0050 - 3" Compound Meter with By-Pass
SD0051 - Bullhead
SD0052 - 24" Manhole / Drain
SD0053 - 24" Drain
SD0054 - 2" Bullhead
SD0055 - 4" Compound Meter w/ Bypass
SD0056 - 6" Fireline Water Meter
SD0057 - Emergency Pumping Connection w/ Curb & Gutter
SD0058 - Hydrant Off Improved Area
SD0059 - Emergency Pumping Connection w/out Curb & Gutter
SD0060 - Joint Restraint Assembly
SD0061 - Concrete Anchor Blocks 6" & 8" Connection
SD0062 - Concrete Anchor Blocks 12" & 14" Connection
SD0063 - Bollard
SD0064 - Rectifier Anode Junction Box Installation
SD0066 - Fire Flow Project Sign (8’x4’)
SD0067 - 4” Tide Flex Check Valve
SD0068 - Project Sign (4’ x 2’ No Board Member Names)
SD0069 - Temporary Diversion / Sediment Dams & Culverts
SD0070 - Temperature Transmitter
SD0071 - Air Relief Valve
SD0072 - Pressure Relief Valve
SD0073 - Water Sampling Station
SD0074 - Insulating Details (DELETED)
SD0075 - Pressure Transmitter Assembly
SD0076 - Pressure Transmitter
SD0077 - Concrete Blocking(DELETED)
SD0078 - 2” Irrigation Meter
SD0079 - Fireline Transfer Connection(DELETED)
SD0080 - Insulating Details w/ Harness
SD0081 - Typical Anode Trench & Type Splice Box Detail
SD0082 - Rectifier Installation
SD0083 - Fireflow Project Sign Detail (4’-2” x 2’-8”)
SD0084 - ID Tag Detail
SD0085 - Project Sign Detail (4’-2” x 2’-8”)
SD0087 - Rehab Project Sign (4’-2” x 2’-8”)
SD0088 - Meter Box with Magnesium Anode
SD0089 - Retrofit WSP Fireline Connection to Above Ground Backflow Prevention Device
SD0090 - Fireline, Inspection and Insulation Retrofit
SD0091 - 4” Turbine Meter
SD0092 - Backflow Assembly Standard Installation Diagram
SD0093 - Fireline, Inspection and Insulation Retrofit
SD0094 - 2” Fireline Connection
SD0095 - Aluminum Tubing Valve Cap Rise
SD0096 - Pothole Details of Anode Installation
NEW 1" COPPER SERVICE

NO SCALE       FILE NO. SD0001       APPROV. BY: EI       REV. DATE: JUL '19
STAINLESS STEEL GROUND CLAMP w/12" OF NO. 8TW WIRE PULLED TO TOP OF BOX

FINISH GRADE

HEIGHT OF SERVICE PIPING NOT TO EXCEED TOP OF MAIN

MAIN

SERVICE SADDLE

1" COPPER

1" BALL CORP VALVE (MIP x COMP)

TAP THROUGH A SADDLE FOR ALL MAINS OTHER THAN WSP MAINS (USE THRED-O-LET ON WSP MAINS) (PRIME & WRAP ALL METAL)

DOUBLE NUT NO. 8 PIGTAIL TO SADDLE BOLT

CONNECT PIGTAIL TO NO. 8TW TRACER WIRE W/ SBS SPLT BOLT & WRAP W/ ELECT TAP

REDUCE TO MATCH METER SIZE

METER BOX—17"x22" (INSIDE DIMENSION) (PAINT INT. w/ PURPLE ENAMEL)

SIDEWALK

CRIMP OVER

1" FIP x COMP CPLG w/ COPPER PIPE, WRAP w/ PURPLE "RECYCLED WATER" TAPE (REQ'D w/ SIDEWALK)

1" INSULATED METER COUPLING (MIP x METER SWIVEL NUT)

PLUGGED SPACER PIPE OR METER WRAP w/ PURPLE "RECYCLED WATER" TAPE

1" BALL ANGLE METER VALVE (FIP x METER SWIVEL NUT) (PAINT W/ PURPLE (PANTONE S12) ENAMEL, INSTALL DISTRICT LOCK) W/ 3"x5" I.D. TAG w/ NYLON WIRE TIE

1" INSULATED STRAIGHT SERVICE FITTING (MIP x COMP)

SET METER BOX ON 2x6 REDWOOD BLOCKS, TYP

SPIRAL WRAP ALL COPPER w/2" TAPE (PURPLE "RECYCLED WATER") (1" OVERLAP, NO PRIMER REQ'D)

ATTENTION
TO ACTIVATE
CONTACT MMWD RECYCLED WATER SECTION
PHONE # 945-1558
DO NOT REMOVE LOCK

I.D. TAG DETAIL
NIC, INSTALLED BY MMWD

NEW RECYCLED 1" COPPER SERVICE

NO SCALE FILE NO. SD0001R APPROV. BY: EI REV. DATE: JUL '19
NOTES:
1. AN OFFSET IS REQUIRED WHEN CROSSING A UTILITY WILL RESULT IN THE WATER LINE HAVING A COVER GREATER THAN 5’-0”.

2. PRIME AND WRAP ALL BARE METAL.

OFFSET

<table>
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<tr>
<th>NO SCALE</th>
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<th>APPROV. BY: JM</th>
<th>REV. DATE: MAY '08</th>
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</table>

EXIST OR FUTURE CONDUIT CONFLICT

TYP FOR WSP MAIN

12” MIN CLEARANCE

TYP EACH END FOR PVC MAIN CONNECTION ONLY

WELDED STEEL PIPE

MJ SLEEVE WITH TRANS. GASKET FOR USE ON CONNECTION TO PVC PIPE ONLY.

PVC
NOTES:

1. HYDRANT LOCATION IN RELATION TO THE CURB AND SIDEWALK MUST BE DETERMINED BY THE CONTROLLING FIRE MARSHAL.
2. PRIME AND WRAP HYDRANT BURY, RISER(S), FLANGES & ALL BARE METAL UP TO BOTTOM OF HYDRANT FLANGE.

HYDRANT

NO SCALE | FILE NO. SD0003 | APPROV. BY: KMcD | REV. DATE: 10–5–12
**NOTE:**
DIMENSION "A" VARIES WITH THE WIDTH OF THE METER BOX USED. THE CONVENTION IS THAT DIMENSION "A" IS EQUAL TO THE METER BOX WIDTH PLUS 1 INCH.

SEE NEW SERVICE DETAIL FOR WSP MAINS—SIZE AS APPLIES, TYP (IF MANIFOLD IS UNDER METER BOXES, 90° COMPxCOMP ELL MAY BE REQUIRED)

---

**4" SERVICE MANIFOLD**

<table>
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<th>APPROV. BY: KMcD</th>
<th>REV. DATE: 2–22–05</th>
</tr>
</thead>
</table>
NOTES:
1. INSTALL METER BOX ON 2”x6”REDWOOD BLOCKING.
2. IF 2”POTABLE SERVICES REQUIRES A BYPASS. SEE 2” BY-PASS STANDARD DETAIL SD000037 DRAWING.
3. SEE ALSO METER INSULATION STANDARD DETAIL SD000011.
4. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.

MAIN
SERVICE SADDLE

BALL CORP VALVE (MIP x COMP)

TAP THROUGH A SADDLE FOR ALL MAINS OTHER THAN WSP MAINS (USE THRED-O-LET ON WSP) (PRIME AND WRAP ALL METAL)
DOUBLE NUT NO. 8 PIGTAIL TO SADDLE BOLT
CONNECT PIGTAIL TO NO. 8TW TRACER WIRE W/S8S SPLT BOLT & WRAP W/ELECT TAPE

AGGREGATE BASE
FINISH GRADE GUTTER

HEIGHT OF SERVICE PIPING NOT TO EXCEED TOP OF MAIN

CRIMP COPPER
FIP x COMP CPLG W/COPPER PIPE (REQ’D W/SIDEWALK)

GASKET
PLUGGED SPACER PIPE @ NEW METER OR EX METER @ RENEWED METER (SEE TABLE FOR PLUGGED SPACER LENGTH)
METER FLG, (2) ½”øx3” SS BOLTS, BOLT INSULATORS, WASHERS, NUTS, & 1 INSULATING GASKET
BALL ANGLE METER VALVE (COMP x METER FLG)
SPIRAL WRAP ALL COPPER w/2”TAPE (1” OVERLAP, NO PRIMER REQ’D)

SEE TABLE FOR DIMENSIONS
METER BOX—SEE TABLE

1 METER FLG W/ (2) ½”øx 3” SS BOLTS, NUTS & 4”BRASS NIPPLE

SEWAGE
SIDEWALK
8”
12”
10’10”

NEW OR RENEWED
1 ½” AND 2” COPPER SERVICES

<table>
<thead>
<tr>
<th>METER SIZE</th>
<th>METER BOX (INSIDE DIMENSION)</th>
<th>DIMENSION “Y” (TOP OF BOX TO TOP OF VALVE)</th>
<th>SPACER LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ½”</td>
<td>13”x 24”</td>
<td>7”</td>
<td>13”</td>
</tr>
<tr>
<td>2”</td>
<td>17”x 30”</td>
<td>7”</td>
<td>17”</td>
</tr>
<tr>
<td>2” W/ BYPASS</td>
<td>20”x 42” W/ EXTENSION</td>
<td>13”</td>
<td>15 1/4”</td>
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</table>

NO SCALE FILE NO. SD0006 APPROV. BY: EI REV. DATE: JUL ’19
NEW OR RENEWED RECYCLED 1 ½" AND 2" COPPER SERVICES

METER SIZE | METER BOX (INSIDE DIMENSION) | DIMENSION "Y" | SPACER LENGTH
-------------|-----------------------------|---------------|---------------
1 ½"         | 13" x 24"                   | 7"            | 13"           
2"           | 17" x 30"                   | 7"            | 17"           
2" W/ BYPASS | 20" x 42" W/ EXTENSION      | 13"           | 15 ¼"         

ATTENTION
TO ACTIVATE
CONTACT MMWD RECYCLED WATER SECTION
PHONE # 945-1558
DO NOT REMOVE LOCK

I.D. TAG DETAIL
NIC, INSTALLED BY MMWD

NOTES:
1. INSTALL METER BOX ON 2"x6" REDWOOD BLOCKING.
2. IF 2" POTABLE SERVICES Requires A BYPASS. SEE 2" BY-PASS STANDARD DETAIL SD0037 DRAWING.
3. SEE ALSO METER INSULATION STANDARD DETAIL SD0011.
4. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.

See Table for Dimensions

See Table for Dimensions

3" x 5" Yellow Card
**NOTES:**

1. REDWOOD & CONCRETE BLOCKING NOT REQUIRED ON WELDED STEEL MAINS.
2. D=DIAMETER OF PIPE
3. PRIME & WRAP ALL BLOWOFF PIPING & FITTINGS.
4. CONNECT TRACER WIRE TO SLEEVE
5. ON MAINS 10" AND GREATER A 4" BLOWOFF MAY BE REQUIRED

**PLAN**

- MJ SLEEVE & PLUG OR BLIND FLG W/2" TAP
- WATER MAIN
- LIP OF GUTTER
- CURB
- 2" GALVANIZED THREADED PIPE
- END OF PAVEMENT
- 10"X17" I.D. METER BOX TO BE SET TO TOP OF CURB, GRADE AT BACK OF CURB OR SIDEWALK

- LEAVE 12" MIN SLACK IN WIRE

**ELEVATION**

- 2"X12"X12" REDWOOD
- 4"X6" REDWOOD BLOCKS
- 2" THREADED GV W/ THREADED BRASS PLUG
- 2"X " REDWOOD BLOCKS
- 32 LB ANODE
- 2-2" THREADED 90° ELBOW W/ 2"X4" NIPPLE (SWING JOINT)
- 2-2" THREADED 90° ELBOW W/ 2"X4" NIPPLE (SWING JOINT)

**2" BLOWOFF**

| NO SCALE | FILE NO. SD0007 | APPROV. BY: RKT | REV. DATE: NOV '02 |
2" BLOWOFF FOR RECYCLED WATER

NO SCALE  FILE NO. SD0007R  APPROV. BY: KF  REV. DATE: 1/06/04
NOTES:
1. RUN NO. 8 COPPER TRACER WIRE BENEATH PIPE CONTINUOUSLY. AT EACH METALLIC FITTING, STRIP THE INSULATION OFF THE CONTINUOUS WIRE AND CONNECT NO. 8 "PIGTAILE AS SHOWN.
2. WRAP ALL BARE WIRE WITH 6 MIL 3/4" PVC TAPE.
3. USE S-421 COPPER SLEEVE WHEN CADWELDING NO. 8 WIRE.
4. PRIME & WRAP ALL BARE PIPE, SERVICES AND FITTINGS.
5. ALL WIRE CONNECTIONS SHALL BE INSPECTED BEFORE WRAPPING.

---

**LEGEND**

- CADWELD
- SPLIT BOLT FOR NO. 8 TW COPPER WIRE

---

**TERMINATE NO. 8 TRACER WIRE IN CTS AS REQUIRED**

---

**CRITERIA FOR TRACER WIRE TERMINATION AT CONNECTIONS TO EXISTING PIPE**

**TYPE OF EXISTING OR ADJACENT NEW PIPE:**

- **CAST IRON:** TERMINATE TRACER IN CTS. DO NOT CONNECT TRACER WIRE TO EXISTING PIPE FITTINGS OR NEW FITTINGS IN CONTACT WITH EXISTING PIPE.
- **NON-METALLIC:** TERMINATE TRACER WIRE IN CTS WITH EXISTING WIRE.
- **STEEL:** TERMINATE TRACER WIRE IN CTS WITH TEST LEAD FROM EXISTING PIPE, OR CADWELD TO WSP IF NO CTS IS REQUIRED.

---

**PIPELINE TRACER WIRE INSTALLATION**

<table>
<thead>
<tr>
<th>NO SCALE</th>
<th>FILE NO. SD0008</th>
<th>APPROV. BY: RKT</th>
<th>REV. DATE: 5-1-97</th>
</tr>
</thead>
</table>

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TYPE “C” TEST STATION
LEAVE 12” SLACK IN WIRES

NO. 8 WIRE CADWELD TO PIPE

5” ALUMINUM TUBE MAX 12”
LONG SMOOTH FLARE BOTTOM
END 1/2” (TAPE WRAP TUBE)

NOTE:
ANODE MAY BE INSTALLED VERTICALLY IN AN AUGERED HOLE
WITH BACKFILL TO BE TAMPED CAREFULLY TO AVOID GOOD SOIL CONTACT

PLACE NATIVE BACKFILL AROUND ANODE

32# PACKAGED MAGNESIUM ANODE

TEST STATION WITH MAGNESIUM ANODE
**NOTES:**

1. **LEAVE SLACK IN TEST LEADS ADJACENT TO PIPE TO PREVENT DAMAGE BY BACKFILLING.** LEAVE 12" OF SLACK IN TEST LEADS AT TEST STATIONS FOR TEST PURPOSES. HORIZ. RUNS ARE TO HAVE 30" MIN. COVER TO TEST STATION. TEST LEADS MAY BE RUN IN PIPE DITCH.

2. **COLOR CODE TEST LEADS AT TEST STATION, WHEN INDICATED.**

3. **AFTER ELECTRICAL TEST OF INSULATING ADAPTORS, ALL PARTS OF VALVES, FLANGED INSULATING ASSEMBLIES, BONDS AND TEST LEADS, AND ALL OTHER BARE METAL & PIPE, SHALL BE PRIMED AND WRAPPED.**

4. **ITEM “B”, DRILL HOLE IN BACK WALL AND MOUNT WITH STEEL ROUND”. HEAD WOOD SCREW, NO. 10x1**

5. **WIRE TERMINATION TO BE MADE BY MMWD CORROSION DEPT.**

---

**TEST STATION**

<table>
<thead>
<tr>
<th>MATERIAL LIST</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>4&quot;X4&quot; MARKER POST</td>
</tr>
<tr>
<td>B</td>
<td>1 1/4” CONDUIT, TYPE E, W/BLANK COVER</td>
</tr>
<tr>
<td>C</td>
<td>1 1/4” CONDUIT, RIGID IRON GALV. W/BUSHING</td>
</tr>
<tr>
<td>D</td>
<td>1 1/4” CONDUIT STRAP</td>
</tr>
<tr>
<td>E</td>
<td>BUSHING</td>
</tr>
<tr>
<td>F</td>
<td>TW STRANDED WIRE—NO. 8 OR NO. 12</td>
</tr>
<tr>
<td>G</td>
<td>COVER (8” OR 5” CTS)</td>
</tr>
<tr>
<td>H</td>
<td>ALUMINUM TUBING 5” DIA.</td>
</tr>
<tr>
<td>I</td>
<td>3/4” METER BOX W/Cover</td>
</tr>
<tr>
<td>J</td>
<td>LUG, 50A</td>
</tr>
<tr>
<td>K</td>
<td>NO 12X3/4” R.H BRASS MACH. SCR. W/ NUT</td>
</tr>
<tr>
<td>L</td>
<td>1 5/8” SQ PHENOLIC TUBING</td>
</tr>
</tbody>
</table>

---

Back to page 1
CUT WASHER IF NECESSARY TO PREVENT CONTACT WITH METER BODY

FLOW

METER

THREADED BRASS NIPPLE

THREADED BRASS FLANGE
(REPLACE WITH BRASS FLANGE IF EXISTING FLANGE IS STEEL OR CI)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>1 1/2&quot; METER</th>
<th>2&quot; METER</th>
<th>NO. REQ'D</th>
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<tbody>
<tr>
<td>1 MACHINE BOLT</td>
<td>1/2&quot;X3&quot;</td>
<td>5/8&quot;X3&quot;</td>
<td>2</td>
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<tr>
<td>2 STEEL WASHER</td>
<td>1/2&quot;X1 1/8&quot;</td>
<td>5/8&quot;X1 1/4&quot;</td>
<td>4</td>
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<tr>
<td>3 INSULATING SLEEVE</td>
<td>1/2&quot;</td>
<td>5/8&quot;</td>
<td>2</td>
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<tr>
<td>4 HEX. HEAD NUT</td>
<td>1/2&quot;</td>
<td>5/8&quot;</td>
<td>2</td>
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<tr>
<td>5 INSULATING GASKET</td>
<td>1 1/2&quot;</td>
<td>2&quot;</td>
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**METER INSULATION 1 1/2" & 2"**

NO SCALE    FILE NO. SD0011    APPROV. BY: RKT    REV. DATE: 5–12–95
FLANGED COUPLING ADAPTER

UNINSULATED BOLTED FLEX CPLG

STEEL PIPE TO NONMETALLIC PIPE

NONMETALLIC PIPE INSULATOR

FLANGE INSULATOR

NOTES:
1. WRAP C.I. PIPE AND FITTINGS MIN. 4’ AWAY FROM INSULATING JOINT ON C.I. SIDE
2. TAPE ALL BARE WIRING AND CONNECTORS WITH 7 MIL PVC TAPE BEFORE WRAPPING PIPE AND FITTINGS.

PIPELINE INSULATION AND BONDING JUMPER DETAILS

<table>
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<th>APPROV. BY: KMcD</th>
<th>REV. DATE: FEB. '11</th>
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</table>
PIPE SUPPORT ASSEMBLY TO BE SUPPLIED BY CONTRACTOR

1/2" ROLLED STEEL BAR

1 1/2" THREADED ROD

1 1/2" NUT

2" STEEL PIPE

1/2" STEEL BASE PLATE
INSULATE STEEL PLATE FROM CONCRETE WITH RUBBER PAD AND BOLT INSULATORS

TOTAL HEIGHT (H)

AS REQUIRED

1/2" ROLLED STEEL BAR

1/2" STEEL PLATE BASE

6"

6"

4"

6"

NOTE:
GRINNELL NO. 264 MAY BE USED IN LIEU OF THE ADJUSTABLE PIPE SUPPORT DETAIL

ELEVATION

ADJUSTABLE PIPE SUPPORT

NO SCALE  FILE NO. SD0013  APPROV. BY: RKT  REV. DATE: 5–12–95
NOTE:
The minimum weld thickness shall be 3/8 inch.

NOTES:
1. The sizes listed above are minimum sizes. For pipe of larger O.D., engineering will specify design.
2. Two rods required for each harness assembly.
3. Split butt straps to be installed with joint welds on top and/or bottom.

<table>
<thead>
<tr>
<th>PIPE O.D.</th>
<th>ROD SIZE</th>
<th>STRAP WIDTH</th>
<th>T</th>
<th>A</th>
<th>X</th>
<th>Y</th>
<th>W</th>
<th>HB</th>
<th>E</th>
<th>HF</th>
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<td>1/4</td>
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</table>

Specifications:
- Rods: ASTM A193, Grade B7
- Nuts: ASTM A194, Grade 2H
- Lug Material: ASTM A283, Grade C or ASTM A36
- Rods are to have UNC threads for sizes < 1 inch
- Rods are to have UNC threads/inch for sizes > 1
CI MONUMENT RING AND COVER, PHOENIX P-2001-E, OR ARTMARK APC-51, OR BROOKS 10 ¾" TRAFFIC BOX, OR AMERICAN BRASS AND IRON FOUNDRY MONUMENT COVER OR FORNI CORPORATION "IRONSIDE" TYPE "A" BOX & LID OR APPROVED EQUAL. THE WORD "MONUMENT" SHALL BE CLEARLY STAMPED ON ALL COVER.

SURVEY MARKER DISK (TO BE FURNISHED BY THE MMWD) SEE DETAIL

P.C. CONCRETE TO BE POURED IN PLACE NOTE 1

¾" ID GALV. PIPE FILLED WITH MORTAR

EXISTING GROUND

2" Dia

NO. ASSIGNED BY AGENCY ENGINEER

PUNCH MARK

L.S. OR C.E. NO.

LIETZ NO. 8134-03, SURVEYORS SERVICE CO. NO. 286, OR EQUAL

SURVEY MONUMENT

NO SCALE FILE NO. SD0015 APPROV. BY: RKT REV. DATE: 11-96

PIPE MONUMENT

STREET MONUMENT

NOTES:
1. ALL PORTLAND CEMENT CONCRETE SHALL BE CLASS "B" OR "MINOR" WITH 1" MAX AGGREGATE.
2. IF RING & COVER ARE SET AFTER PAVING, EXPOSED CONCRETE WILL NOT BE ALLOWED, EXCEPT AS PERMITTED BY AGENCY ENGINEER IN WRITING.
3. MONUMENTS SHALL BE SET AT THE LOCATIONS DESIGNATED ON THE PLANS AND ON THE FINAL MAP.
4. STREET MONUMENTS SHALL BE USED IN ALL PAVED AREAS AND OTHER LOCATIONS AS SHOWN ON THE PLANS. IRON PIPE MONUMENTS SHALL BE USED AT ALL OTHER LOCATIONS IN THE PUBLIC RIGHT OF WAY.
5. NO CONCRETE SHALL BE PLACED PRIOR TO EXCAVATION INSPECTION BY THE AGENCY ENGINEER.
6. MONUMENTS SET ON SUBDIVISION BOUNDARIES SHALL BE 3/4" DIAMETER GALVANIZED IRON PIPE 24" LONG FILLED WITH MORTAR.

DETAIL

PAVEMENT

BASE MATERIAL

P.C. CONCRETE

NOTE 1

BRICK ALL AROUND

1" CLEAR OPENING ALL AROUND

6" DIAMETER BY 12" MIN. NON-METALLIC FORM TUBE
(MAY BE LEFT IN PLACE)

P.C. CONCRETE TO BE POURED IN PLACE BELOW NON-METALLIC FORM TUBE.
NOTE 1
NOTES:

1. ALL CONCRETE BLOCKING TO BE SET AGAINST UNDISTURBED GROUND. "D" INDICATES NOMINAL PIPE DIA. BLOCK SIZE BASED ON 3000 LBS/SQ FT SOIL. IF BEARING VALUE OF SOIL IS LESS, THE "D" VALUE SHALL BE INCREASED ACCORDINGLY. MINIMUM BLOCK DIMENSION SHALL BE 1 FOOT SQUARE.

2. THIS DETAIL WILL APPLY TO ALL PUSH-ON, FLEXIBLE OR OTHERWISE UNRESTRAINED JOINTS. ALSO APPLIES TO WELDED STEEL WHEN USED IN CONNECTION WITH FLEXIBLE JOINTS.

3. FITTINGS SHALL BE PRIMED AND WRAPPED PRIOR TO INSTALLATION OF CONCRETE BLOCKS.

4. CONCRETE SHALL NOT BE PLACED ON, OR AROUND BELLS OR BOLTS.
WELD SADDLE

REINFORCING COLLAR

WELDED OUTLET

SCALE: NTS  FILE NO. SD0018  APPROV. BY: JM  REV. DATE: 4-02-09
### Casing Schedule

<table>
<thead>
<tr>
<th>Welded Steel Pipe O.D.</th>
<th>Min. Casing Dia. O.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.625&quot;</td>
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<tr>
<td>8.625&quot;</td>
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<td>30&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>34&quot;</td>
<td>40&quot;</td>
</tr>
</tbody>
</table>

### Elevation

- 3/4" Pressure Relief Valve
- 4"-40 PSI Rupture Disc Assembly & (2) 4" SO FLGS
- 3/4" Thread-O-Let
- 3/4" GTP
- 1 1/2" Threaded GV w/ 13"x24" Meter Box & Metal Lid
- 1 1/2" Threaded Pipe
- 1 1/2" Thread-O-Let
- WSP
- 4" Welded Outlet
- Casing End Seal (Typ of 2)
- Casing Boot Seal (Typ of 2)
- Polyethylene Casing Insulator
- Min 16 Mil Epoxy Coated Steel Casing
- 1'-0" Max
- 10'/Max Typ
- 1'-0" Max

### Note:

1. Contractor shall furnish all material for cased crossing except water line, meter boxes & corrosion test stations.

2. Set Pressure Relief Valve for 30 PSI max.
STAINLESS STEEL GROUND CLAMP w/1/2" OF NO. 8TW WIRE PULLED TO TOP OF BOX

SUB GRADE

HEIGHT OF SERVICE PIPING NOT TO EXCEED TOP OF MAIN

1" COPPER

1" BALL CORP VALVE (MIP x COMP)

TAP THROUGH A SADDLE FOR ALL MAINS OTHER THAN WSP MAINS (USE THRED-O-LET ON WSP MAINS) (PRIME & WRAP ALL METAL)

DOUBLE NUT NO. 8 PIGTAIL TO SADDLE BOLT

CONNECT PIGTAIL TO NO. 8TW TRACER WIRE w/SBS SPLIT BOLT & WRAP w/ELECT TAPE

WHERE EX METER RISER OCCURS, CUT & REMOVE DISTRICT'S END OF RISER YOKE TO ENSURE THAT NO PART OF THE REMAINING RISER IS IN CONTACT WITH THE NEW COPPER PIPING

1" BALL ANGLE METER VALVE–3/4" BUSHING WHERE NEEDED (FIP x METER SWIVEL NUT)

1" INSULATED STRAIGHT SERVICE FITTING (MIP x COMP)

SPIRAL WRAP ALL COPPER W/ 2" TAPE (1" OVERLAP, NO PRIMER REQ'D)

NOTES:
1. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.

RENEWED 1" COPPER SERVICE

NO SCALE     FILE NO. SD0021     APPROV. BY: EI     REV. DATE: JUL '19
TRANSFERRING A 1” THRU 2” "LONG” COPPER SERVICE

1. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.
TRANSFERRING A 1"
"SHORT" COPPER SERVICE

NOTES:
1. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.
**TYPICAL BELL END DETAIL**

**TYPICAL SPIGOT END DETAIL**

<table>
<thead>
<tr>
<th>NOMINAL PIPE SIZE</th>
<th>STEEL CYLINDER O.D.</th>
<th>MIN WALL THICKNESS (+0.015” TO -0.030”)</th>
<th>LINING THICKNESS (TOLERANCE=−1/16” TO +1/8”)</th>
<th>MIN PIPE I.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4”</td>
<td>4.500”</td>
<td>0.135”</td>
<td>1/4”</td>
<td>3.450”</td>
</tr>
<tr>
<td>6”</td>
<td>6.625”</td>
<td>0.135”</td>
<td>1/4”</td>
<td>5.575”</td>
</tr>
<tr>
<td>8”</td>
<td>8.625”</td>
<td>0.135”</td>
<td>1/4”</td>
<td>7.575”</td>
</tr>
<tr>
<td>12”</td>
<td>12.750”</td>
<td>0.135”</td>
<td>5/16”</td>
<td>11.572”</td>
</tr>
<tr>
<td>14”</td>
<td>14.000”</td>
<td>0.156”</td>
<td>5/16”</td>
<td>12.783”</td>
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<tr>
<td>16”</td>
<td>16.000”</td>
<td>0.179”</td>
<td>5/16”</td>
<td>14.737”</td>
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<tr>
<td>18”</td>
<td>18.000”</td>
<td>0.219”</td>
<td>5/16”</td>
<td>16.657”</td>
</tr>
<tr>
<td>20”</td>
<td>20.000”</td>
<td>0.219”</td>
<td>5/16”</td>
<td>18.657”</td>
</tr>
<tr>
<td>24”</td>
<td>24.000”</td>
<td>0.250”</td>
<td>3/8”</td>
<td>22.470”</td>
</tr>
<tr>
<td>30”</td>
<td>30.000”</td>
<td>0.250”</td>
<td>3/8”</td>
<td>28.470”</td>
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<tr>
<td>36”</td>
<td>36.000”</td>
<td>0.250”</td>
<td>3/8”</td>
<td>34.470”</td>
</tr>
</tbody>
</table>

**NOTES:**

1. PIPE CYLINDER, LINING, & COATING SHALL CONFORM TO THE REQUIREMENTS OF MMWD SPECIFICATIONS FOR MANUFACTURE OF MORTAR LINED STEEL PIPE.

2. OUT-OF-ROUNDNESS OF STEEL CYLINDER SHALL NOT BE GREATER THAN 1/8” MEASURED AS THE DISTANCE BETWEEN MAJOR AND MINOR OUTSIDE DIAMETERS.

3. "CLEAN" AREAS SHALL BE FREE OF ALL COATING MATERIALS OR SHALL BE TAPED FOR EASY STRIPPING IN THE FIELD TO CLEAN BARE STEEL.

4. THE PIPE SHALL BE MARKED LONGITUIONALLY OR SPIRALLY, AS FOLLOWS: "PIPE SIZE" MMWater "CONTRACT NO." "LINING TYPE" "COATING TYPE" "COATING DATE" "WALL THICKNESS" "MINIMUM YIELD STRENGTH".

**EXAMPLE:** 8.625 MMWater 1189ML—TC50 AUG 1998 – t=0.135” – Y=36KSI

THE LETTERING SHALL BE OF A HEIGHT NOT LESS THAN 1/4” NOR GREATER THAN 2 INCHES REPEATED CONTINUOUSLY FOR THE LENGTH OF THE PIPE.

**MORTAR LINED & TAPE COATED 4” TO 36” STEEL PIPE**

<table>
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<th>APPROV. BY: KMcD</th>
<th>REV. DATE: 12–05–11</th>
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METER WITH ANGLE STOP

METER WITH STRAIGHT STOP

METER WITH RISER

3/4” & 1” METER INSULATION DETAIL

| NO SCALE | FILE NO. SD0027 | APPROV. BY: RKT | REV. DATE: 3/16/00 |
2x12 ON SLOPE (BEHIND 2x12's)
4-16d GAL FACE NAIL TO EA
2x12, TYP

NEW HYDRANT
SEE PIPING DETAILS

PROVIDE 1/2" GAP BETWEEN LAGGING
BOARDS, TYP

12" MIN WALL
BACKDRAIN TRENCH
LINE TRENCH
w/FILTER FABRIC
PERMEABLE CLASS II
BACKFILL

W6x15
PIER VERT, TYP

C6x8.2
PIER VERT, TYP

12" Ø
CONC PIER

16" Ø
CONC PIER

12" OECD CLAY
SOIL CAP

NOTES:

1. ALL WOOD SHALL BE PRESSURE PRESERVATIVE TREATED (0.6 LBS/FT. ACQ), NO. 1 DOUGLAS FIR.
2. EXPOSED STEEL PIER VERTICALS SHALL BE COATED W/SYSTEM 8 COATING AS FOLLOWS: PRIMER: DIRECT TO METAL CORROSION INHIBITING ACRYLIC PRIMER 3–4 MIL DRY FILM THICKNESS (DFT): SHERWIN WILLIAMS DTM ACRYLIC PRIMER/FINISH OR DISTRICT APPROVED EQUAL INTERMEDIATE AND FINISH COATS – ACRYLIC LATEX 2–3 MIL DFT EACH COAT: SHERWIN WILLIAMS DTM ACRYLIC PRIMER/FINISH OR DISTRICT APPROVED EQUAL. FINISH COLOR TO MATCH TNEMEC COLOR 112GN FOLIAGE. TOTAL SYSTEM THICKNESS 7–10 MIL DFT
3. f'c = 3000 psi

WOOD BULKHEAD WALL

SCALE: 1/2"=1'
FILE NO. SD0028
APPROV. BY: EI
REV. DATE: MAY '19
NOTES:

1. CONSUMER SHALL MARK LOCATION FOR PROPOSED ASSEMBLY FOR MMWD REVIEW & APPROVAL. ALL MMWD PIPING MUST BE IN THE PUBLIC EASEMENT. ASSEMBLY SHALL HAVE 12” CLEAR AROUND. METER SHALL BE IN ACCESSIBLE LOCATION.
2. CONSUMER FURNISHED APPROVED BACKFLOW ASSEMBLY MUST BE ON SITE FOR MMWD INSPECTION PRIOR TO ANY MMWD PIPING INSTALLATION.
3. WRAP ALL BARE METAL BELOW GROUND.
4. CHLORINATE & TEST PRIOR TO CONNECTION.
5. TEST CORROSION SYSTEM PRIOR TO CONNECTION.
6. HOT TAP OF EX MAIN TO BE COORDINATED WITH MMWD.
7. MMWD WILL NOT TURN ON FIRELINE UNTIL FINAL PAVING & SIDEWALKS ARE COMPLETE.

MMWD FURNISHED MATERIAL

1. HDPE SPOOL KIT. SEE TORQUE SPEC.
2. SLIP-ON FLANGE
3. WELDED STEEL PIPE
4. GATE VALVE
5. TAPPING SLEEVE, TEE OR WELDED OUTLET
6. FLANGE INSULATING KIT
7. 5” ALUMINUM TUBING
8. CI VALVE CAP
9. B9 METER BOX
10. #8 THWN STANDARD COPPER WIRE
11. #8S SPLIT BOLT CONNECTOR
12. 32# MAGNESIUM ANODE WITH PACKAGED BACKFILL W/ WIRE
13. 2 PIECE PHENOLIC TERMINAL BLOCK
14. OWNED AND MAINTAINED BY MMWD. ALL MATERIAL FURNISHED BY MMWD. RENEW, EXTENT OF WORK

OWNED BY CONSUMER
MATERIALS FURNISHED BY CONSUMER

FIRELINE, NEW & RENEW

NO SCALE  FILE NO. SD0029  APPROV. BY: EI  REV. DATE: FEB '18
3/4"ø CONDUIT OPENINGS

TOP VIEW

1/4"ø ENCLOSURE MOUNTING HOLES (TYP. OF 6).
1"ø AIR RELIEF OPENING
1"ø AIR SENSING LINE OPENING

NOTE:
BREAK & DEBURR
ALL SHARP EDGES.

LEVEL TRANSMITTER ENCLOSURE
MOUNTING PLATE COVER

SCALE: 3"=1'-0"  FILE NO. SD0030  APPROV. BY: RKT  REV. DATE: 5-12-95
LEVEL TRANSMITTER ENCLOSURE

NOTE:
ENCLOSURE COVER TO TUCK UNDER TOP PLATE & INSIDE BACK PLATE.

<table>
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<tr>
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<th>FILE NO. SD0031</th>
<th>APPROV. BY: RKT</th>
<th>REV. DATE: 8-4-04</th>
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</table>

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NOTES:
1. PIPES AND FITTINGS SHALL BE BRASS.
2. FITTINGS SHALL BE SELECTED AND ASSEMBLED TO MATCH HOLES IN TRANSMITTER ENCLOSURE.

LEVEL TRANSMITTER ASSEMBLY PIPING

| NO SCALE | FILE NO. SD0032 | APPROV. BY: RKT | REV. DATE: 8–9–04 |
**THERMOWELL ASSEMBLY**

- **Scale:** NTS
- **File No.:** SD0033
- **Approved By:** RKT
- **Rev. Date:** 7–20–95
LEVEL TRANSMITTER ASSEMBLY

SCALE: NTS  FILE NO. SD0034  APPROV. BY: RKT  REV. DATE: 7–20–95
PROVIDE 24" STUB EXTENSION. CHECK FOR PLUMB BEFORE CONCRETE POUR.

GROUNDING BUSHING FOR TERMINATION IN FLOOR MOUNTED ENCLOSURES OR CONDUIT COUPLING FOR EXTENSION TO EXPOSED CONDUIT SYSTEMS.

NOTE:
APPLICABLE IN ALL AREAS INCLUDING AREAS NOT PROTECTED BY A FLOOR MOUNTED ENCLOSURE.

CONDUIT STUB UP DETAIL

| NO SCALE | FILE NO. SD0035 | APPROV. BY: RKT | REV. DATE: 1–2–96 |
STEEL BUTT STRAP

PIPE SIZE | INSIDE DIAMETER
----------|-----------------
 4”       | 4.500”
 6”       | 6.625”
 8”       | 8.625”
10”       | 10.750”
12”       | 12.750”
**MATERIAL LIST**

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<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>NUMBER REQUIRED</th>
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<tbody>
<tr>
<td>1</td>
<td>2&quot; METER</td>
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<tr>
<td>2</td>
<td>2” BALL COCKS (FEMALE X FEMALE)</td>
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<tr>
<td>3</td>
<td>2&quot; CORPORATION COCK (H15023) NOT USED</td>
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<tr>
<td>4</td>
<td>1 1/2” STRAIGHT CURB COCK</td>
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<td>5</td>
<td>2” COPPER X MALE 90° BEND</td>
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<tr>
<td>6</td>
<td>2” X 1 1/2” THREADED BRASS TEE</td>
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<td>7</td>
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<td>8</td>
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<td>9</td>
<td>2” THREADED CAP</td>
<td>1</td>
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<tr>
<td>10</td>
<td>2” THREADED BRASS NIPPLE (3” LONG)</td>
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<tr>
<td>11</td>
<td>1 1/2” THREADED BRASS NIPPLE (6” LONG)</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>2” COPPER TUBING</td>
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<td>13</td>
<td>1 1/2” THREADED BRASS ELBOW</td>
<td>2</td>
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<tr>
<td>14</td>
<td>1 1/2” THREADED BRASS NIPPLE (8”LONG)</td>
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<tr>
<td>15</td>
<td>2” FLANGE INSULATING KIT</td>
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</tr>
<tr>
<td>16</td>
<td>METER BOX AND STEEL COVER</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>2” COMP X COMP 90° BEND</td>
<td>1</td>
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**NOTE:**

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.

**2" DOMESTIC METER W/ BYPASS**

| NO SCALE | FILE NO. SD0037 | APPROV. BY: JM | REV. DATE: MAY ‘08 |

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NOTES:

1. GENERALLY THE METER BOX IS TO BE LOCATED 2' TO SIDE OF THE DETECTOR CHECK VALVE; IF THIS IS NOT POSSIBLE OR DESIRABLE, HAVE MMWD APPROVE ALTERNATIVE LOCATION BEFORE PROCEEDING.

2. PRIME AND WRAP ALL BARE METAL TO DETECTOR CHECK; THIS INCLUDES ALL FITTINGS, VALVES, PIPE, TAPPING SLEEVE AND ALUM VALVE RISER.

OWNED & MAINTAINED BY CONSUMER EXCEPT FOR BYPASS
OWNED & MAINTAINED BY MMWD

FIRELINE, INSULATION RETROFIT

NO SCALE  FILE NO. SD0038  APPROV. BY: EI  REV. DATE: FEB '18
NOTE:
EROSION CONTROL BOARDS SHALL BE INSTALLED @ 10'-0" O.C. IN R/W.

EROSION CONTROL BOARD

<table>
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<th>APPROV. BY: RKT</th>
<th>REV. DATE: 5-12-95</th>
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IMPRESSED CURRENT HORIZONTAL GROUND BED

PLAN

SCALE: 3/8" = 1’

SCALE: AS SHOWN   FILE NO. SD0040   APPROV. BY: RKT   REV. DATE: 5–12–95
CONCRETE TRAFFIC BOX WITH COVER MARKED "ANODE"

GRADE

TO VENT
TO RECTIFIER

1 1/2" PVC CONDUIT

GROUT SEAL

COKE BREEZE

PERFORATED VENT PIPE

1 1/2" PERFORATED PIPE

DURICHLOR TA-3 HIGH SILICON CAST IRON TUBULAR ANODE

ANODE CENTRALIZER - 3 PER ANODE - SPACED 120° AROUND ANODE

COKE BREEZE BACKFILL

DEEP WELL GROUND BED

ELEVATION

IMPRESSED CURRENT DEEP WELL GROUND BED

DEEP WELL GROUND BED

NO SCALE FILE NO. SD0041 APPROV. BY: RKT REV. DATE: 3-27-98
**TYPICAL AIR/VACUUM RELEASE VALVE**

| NO SCALE | FILE NO. SD0042 | APPROV. BY: RKT | REV. DATE: 5–12–95 |

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**Diagram Details:**
- Strap 2" pipe to 4" pipe bollard or to a stationary post w/stainless steel hose clamp.
- B36 Christy meter boxes.
- 3/4" Corp cock.
- 3/4" GTP pipe.
- 2" Corp stop.
- 2" 90°GT ELL.
- 4" thick, 3/4" drain rock.
- 2" x 3/4" GT tee.
- 2" x 2" redwood blocks (typ).
- 2" GT pipe.
- 2" 90°GT ELL.
- 2" 90°GT ELL w/ 2" GT nipple.
- 2–32# Anodes.
- Vertical centerline.
- 12" PVC RW pipe.

**Additional Notes:**
- 2" GT pipe.
- 2" 90° GT ELL.
- 2" 90° GT ELL.
- 2" 90°GT ELL & 2" street ELL w/ 1/4" x 1/4" brass wire mesh & stainless steel hose clamp.
COMBINATION AIR/RELEASE VALVE

NO SCALE  FILE NO. SD0044  APPROV. BY: KMcd  REV. DATE: 3/11/10
CLOW–RICH NO.124 4"x2 1/2"x 2 1/2" WHARF HYD.

3/4" CORP. COCK

4" GT TEE

4" GTP

8"x4" THREADED REDUCING FLG

8" FE GV

8" SO FLG

8" WSP

REINFORCING COLLAR
SEE WELDED OUTLET
SHEET SD3.

EX 16" ID, CL, CTC, WSP
APPROX. 17 3/8" O.D.
(O.D. OF PIPE NEEDS TO
BE VERIFIED IN FIELD)

(1 REQ'D – REINFORCING COLLAR SUPPLIED BY CONTRACTOR
ALL OTHER MATERIAL IN THIS DETAIL SUPPLIED BY MMWD)

WHARF HYD DRAIN

NO SCALE       FILE NO. SD0045       APPROV. BY: RKT       REV. DATE: 5–12–95
CONCRETE TRAFFIC BOX WITH COVER MARKED "ANODE"

GRADE

36” MIN.

TO VENT
TO RECTIFIER

1 ½” PVC CONDUIT

GROUT SEAL

COKE BREEZE

PERFORATED VENT PIPE

SEE DETAIL

1

AWG NO.8 HMW/PE TYPE ANODE LEAD (TYP.)

DURICHLOR 51 TYPE TA-3 ANODE (TYP.)

10” DIA

DURICHLOR TA-3 HIGH SILICON CAST IRON TUBULAR ANODE

ANODE CENTRALIZER 3 PER ANODE - SPACED 120° AROUND ANODE

COKE BREEZE BACKFILL

IMPRESSED CURRENT SHALLOW GROUND BED

ELEVATION

SCALE: NTS

SHALLOW WELL GROUND BED

NO SCALE FILE NO. SD0046 APPROV. BY: RKT REV. DATE: 3-27-98
NOTE:
APPLICABLE IN ALL AREAS PROTECTED BY
A FLOOR MOUNTED ENCLOSURE ONLY.

**ALTERNATE CONDUIT STUB UP**

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MATERIAL LIST

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<th>DESCRIPTION</th>
<th>NUMBER REQUIRED</th>
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<td>1</td>
<td>3&quot; FLANGED TURBO METER</td>
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<td>2</td>
<td>4&quot; FLANGED GATE VALVE</td>
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<td>3&quot; THREADED BRASS GATE VALVE</td>
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<td>4</td>
<td>4&quot; 90° WELD ELL</td>
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<td>5</td>
<td>3&quot; METER FLANGE</td>
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<td>6</td>
<td>3&quot; FLANGE COUPLING ADAPTER</td>
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<td>7</td>
<td>3&quot; THREADED CAP</td>
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<tr>
<td>8</td>
<td>3&quot; THREADED BRASS NIPPLE (10 1/2&quot;, 16 1/2&quot; LONG)</td>
<td>1 EA</td>
</tr>
<tr>
<td>9</td>
<td>3&quot; THREADED BRASS NIPPLE (3&quot;, 6&quot;, 10&quot; LONG)</td>
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<td>4&quot; WELDED STEEL PIPE</td>
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<tr>
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<td>3&quot; FLANGE INSULATING KIT</td>
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<td>12</td>
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<td>CHRISTY B–52 METER BOX AND B52–62G STEEL COVER</td>
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<tr>
<td>14</td>
<td>TYPE &quot;C&quot; CTS</td>
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<td>15</td>
<td>32# PACKAGED ANODE</td>
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<tr>
<td>16</td>
<td>4&quot; SLIP–ON FLANGE</td>
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</tr>
<tr>
<td>17</td>
<td>4&quot; X 3&quot; THREADED REDUCING FLANGE</td>
<td>1</td>
</tr>
</tbody>
</table>

WHEN TAPPING PVC, AC OR CI PIPE, USE TEE OR TAPPING SLEEVE. CONNECT TRACER WIRE TO SADDLE WITH A LEAD.

NOTE:
1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 3" CAP.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. PROPER BACKFLOW PROTECTION MUST BE INSTALLED ON THE CONSUMER SIDE OF METER ASSEMBLY.

3" TURBO METER
### MATERIAL LIST

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<td>2&quot; THREADED BRASS GATE VALVE</td>
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<td>5</td>
<td>4&quot; 90° WELD ELL</td>
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<td>6</td>
<td>3&quot; x 2&quot; THREADED BRASS TEE</td>
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<td>7</td>
<td>3&quot; STD SCREW FLANGE</td>
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<td>3&quot; FLANGE COUPLING ADAPTER (SHORT BARREL)</td>
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<tr>
<td>10</td>
<td>3&quot; THREADED BRASS NIPPLE (6&quot;-2 EA, 10&quot;-1 EA, 16&quot;-1 EA)</td>
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<td>11</td>
<td>3&quot; CLOSE BRASS NIPPLE</td>
<td>2 EA</td>
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<tr>
<td>12</td>
<td>2&quot; THREADED BRASS ELBOW</td>
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<td>13</td>
<td>3&quot; FLANGE INSULATING KIT</td>
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<td>14</td>
<td>4&quot; FLANGE INSULATING KIT AFTER GATE VALVE</td>
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<td>30&quot; x 60&quot; METER BOX AND STEEL COVER</td>
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<td>2&quot; THREADED BRASS NIPPLE (8&quot;, 12&quot; LONG)</td>
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<td>17</td>
<td>TYPE &quot;B&quot; CTS IN METER BOX</td>
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<tr>
<td>18</td>
<td>32# PACKAGED ANODE</td>
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<td>19</td>
<td>4&quot; SLIP-ON FLANGE</td>
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<td>20</td>
<td>4&quot; x 3&quot; REDUCING STD SCREW FLANGE</td>
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<tr>
<td>21</td>
<td>4&quot; WELDED STEEL PIPE</td>
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</table>

**NOTE:**

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 3" CAP.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE, SEE STD DETAIL SD009.
4. SERVICES FOR SCHOOLS, HOSPITALS, LARGE BUILDINGS AND IRRIGATION, INSTALL PROPER BACKFLOWS PREVENTION ON CONSUMER SIDE OF BYPASS.

---

**3" DOMESTIC METER WITH BYPASS**

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<th>APPROV. BY: EI</th>
<th>REV. DATE: FEB '19</th>
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**BULLHEAD**

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<th>REV. DATE: 1–15–96</th>
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</table>
2" BULLHEAD

10"x17" I.D. METER BOX TO BE SET TO TOP OF CURB, GRADE AT BACK OF CURB OR SIDEWALK

2" GT PLUG

2" x 6" REDWOOD BLOCKS

2" BALL COCK W/ 2" COP X MALE ADAPTER

2" COP x COP 90° BEND

ALL SERVICES TO BE SPIRAL WRAPPED W/2" TAPE (NO PRIMER REQ'D)

NEW SER. CORP COCK NO. 15028 MUELLER OR EQUAL (MALE X COMP)

TAP THROUGH A SADDLE FOR ALL MAINS OTHER THAN WSP MAINS THRED-O-LET ON WSP (PRIME AND WRAP)

| NO SCALE | FILE NO. SD0054 | APPROV. BY: RKT | REV. DATE: 3-26-96 |
**MATERIAL LIST**

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<td>3</td>
<td>4&quot; 90' WELD ELL</td>
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<td>4</td>
<td>2&quot; THREADED BRASS GATE VALVE</td>
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</tr>
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<td>5</td>
<td>HARNES (2 RODS &amp; 2 EARS)</td>
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<tr>
<td>6</td>
<td>4&quot;x2&quot; THRED-O-LET</td>
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<td>7</td>
<td>4&quot; FLANGE COUPLING ADAPTER</td>
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<td>8</td>
<td>4&quot; BLIND FLG</td>
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<tr>
<td>9</td>
<td>4&quot; WELDED STEEL PIPE</td>
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<td>10</td>
<td>2&quot; THREADED BRASS ELBOW</td>
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<td>11</td>
<td>2&quot; THREADED BRASS NIPPLE (8&quot; LONG)</td>
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<td>12</td>
<td>2&quot; BRASS PIPING</td>
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<td>13</td>
<td>4&quot; FLANGE INSULATING KIT</td>
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<td>CHRISTY B-52 METER BOX AND B52-62G STEEL COVER</td>
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<td>15</td>
<td>TYPE &quot;B&quot; CTS IN METER BOX</td>
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<td>16</td>
<td>32# Packaged Anode</td>
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<td>17</td>
<td>4&quot; Slip-On Flange</td>
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<tr>
<td>18</td>
<td>4&quot; HDPE SPOOL KIT</td>
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**NOTES:**

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 4" BLIND FLG.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. SERVICES FOR SCHOOLS, HOSPITALS, LARGE BUILDINGS AND IRRIGATION, INSTALL PROPER BACKFLOW PREVENTION ON CONSUMER SIDE OF BYPASS.

**4" COMPOUND METER WITH BYPASS**
NOT REQUIRED FOR AC OR PVC MAINS. FOR WSP, VERIFY WITH CORROSION DEPT.

WHEN TAPPING PVC, AC OR CI PIPE, USE TEE OR TAPPING SLEEVE.
INSTALL TEST LEAD & CONNECT TRACER WIRE WITH SPLIT BOLT WHEN TAPPING AC OR PVC PIPE

MATERIAL LIST

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<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
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<tr>
<td>1</td>
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<td>6” FLG CPLG ADAPTER W/ ANCHOR STUDS</td>
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<tr>
<td>3</td>
<td>6” SO FLG</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>6” WN FLG</td>
<td>4</td>
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<tr>
<td>5</td>
<td>6” x 4” WELD TEE</td>
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<td>6</td>
<td>6” 90” WELD ELL</td>
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</tr>
<tr>
<td>7</td>
<td>6” FE GV</td>
<td>3</td>
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<td>8</td>
<td>6” FLG INS KIT</td>
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<td>9</td>
<td>6” WELDED STEEL PIPE</td>
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<tr>
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<td>4” FE TURBO MTR</td>
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<td>11</td>
<td>4” FLG CPLG ADAPTER</td>
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<td>4” FE GV</td>
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<td>4” SO FLG</td>
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<td>6” BLIND FLG TAPPED 2” W/ 2” GIP PLUG</td>
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<td>6” HOPE SPOOL KIT</td>
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NOTES:
1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 6” BLIND FLG.
2. INSTALL VAULT 4” ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. SERVICES FOR SCHOOLS, HOSPITALS, LARGE BUILDINGS AND IRRIGATION, INSTALL PROPER BACKFLOW PREVENTION ON CONSUMER SIDE OF BYPASS.

6” FIRE LINE WATER METER ASSEMBLIES

NO SCALE FILE NO. SD0056 APPROV. BY: EI REV. DATE: FEB '19
NOTES:
1. FIRE DEPT. CONN LOCATION IN RELATION TO THE CURB AND SIDEWALK MUST BE DETERMINED BY THE CONTROLLING FIRE MARSHAL.
2. PRIME AND WRAP ALL BARE METAL TO BOTTOM OF HYDRANT FLANGE.

EMERGENCY PUMPING CONNECTION
W/ CURB & GUTTER

<table>
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<tr>
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<th>APPROV. BY: RKT</th>
<th>REV. DATE: 7–21–97</th>
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BACK OF CURB OR SIDEWALK
LIP OF GUTTER
5" Ø GATE CAP
2' SQ CONC PAD
5" Ø ALUM TUBING (TAPE WRAP TUBE)

FIRE DEPT. CONN. UNITED #91
90° ANGLE PATTERN
4" x 2 1/2" x 2 1/2"

4" CHECK VA
("KWIK-CHECK" 68G)
4" CTP
(BREAK-AWAY)
HYDRANT BOLTS
NUTS UNDER FLANGE EXCEPT FOR ONE WITH DOUBLE NUT.
6" x 4" THREADED RED FLG
6" SO FLG
6" WSP
6" 90° WELD ELL
CONC. SUPPORT BLOCK

FLANGE INSULATING KIT (NOT REQ'D FOR WSP OR NON METALLIC MAINS)
6" SO FLG
6" WSP
6" FLG GV
TAPPING SLEEVE, TEE OR WELDED OUTLET
32# ANODE
42" MIN
18" MIN
NOTES:

1. HYDRANT LOCATION IN RELATION TO THE CURB AND SIDEWALK MUST BE DETERMINED BY THE CONTROLLING FIRE MARSHAL.

2. PRIME AND WRAP ALL BARE METAL INCLUDING HYDRANT BURY & RISER UP TO BOTTOM OF HYDRANT FLANGE.

---

**HYDRANT OFF IMPROVED AREA**

| NO SCALE | FILE NO. SD0058 | APPROV. BY: RKT | REV. DATE: 7–19–96 |
1. WHARF HYD LOCATION IN RELATION TO THE CURB AND SIDEWALK MUST BE DETERMINED BY THE CONTROLLING FIRE MARSHAL.

2. PRIME AND WRAP ALL BARE METAL TO BOTTOM OF HYDRANT FLANGE.

**NOTES:**

**EMERGENCY PUMPING CONNECTION**

**W/O CURB & GUTTER**

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**DIAGRAM CONTENTS:**
- 5”Ø GATE CAP
- 2’ SQ CONC PAD
- 5”Ø ALUM TUBING (TAPE WRAP TUBE)
- TAPPING SLEEVE, TEE OR WELDED OUTLET
- FLANGE INSULATING KIT (NOT REQ’D FOR WSP OR NON METALLIC MAINS)
- 6” FE GV
- 6” WSP
- 6” 90° WELD ELL
- 6” 90° WELD ELL
- 6” 90° WELD ELL
- 6” SO FLG
- 6” SO FLG
- FIRE DEPT. CONN, UNITED#91
- 90° ANGLE PATTERN
- 4” x 2 1/2” x 2 1/2”
- 4” CHECK VA (“KWIK–CHECK” 68G)
- 4” GTP
- (BREAK–AWAY) HYDRANT BOLTS
- NUTS UNDER FLANGE EXCEPT FOR ONE WITH DOUBLE NUT.
- 6”x4” THREADED RED FLG & 6” SO FLG
- CONC. SUPPORT BLOCK

**Diagram Symbols:**
- 2’ SQ CONC PAD
- 5”Ø ALUM TUBING (TAPE WRAP TUBE)
- TAPPING SLEEVE, TEE OR WELDED OUTLET
- FLANGE INSULATING KIT (NOT REQ’D FOR WSP OR NON METALLIC MAINS)
- 6” FE GV
- 6” WSP
- 6” 90° WELD ELL
- 6” SO FLG
- FIRE DEPT. CONN, UNITED#91
- 90° ANGLE PATTERN
- 4” x 2 1/2” x 2 1/2”
- 4” CHECK VA (“KWIK–CHECK” 68G)
- 4” GTP
- (BREAK–AWAY) HYDRANT BOLTS
- NUTS UNDER FLANGE EXCEPT FOR ONE WITH DOUBLE NUT.
- 6”x4” THREADED RED FLG & 6” SO FLG
- CONC. SUPPORT BLOCK

**Diagram Orientation:**
- Diagram oriented with north at the top.
NOTES:
1. CONCRETE SHALL BE PLACED 7 DAYS PRIOR TO PIPE CONNECTION.
2. PRIME AND WRAP ALL BARE METAL INCLUDING RODS INSIDE CONCRETE BLOCKS.

PLAN
SCALE: NTS

SECTION
SCALE: NTS

JOINT RESTRAINT ASSEMBLY
NOTES:

1. CONCRETE SHALL BE PLACED 7 DAYS PRIOR TO PIPE CONNECTION.

2. PRIME AND WRAP ALL BARE METAL INCLUDING RODS INSIDE CONCRETE BLOCKS.

CONCRETE ANCHOR BLOCK 6'' & 8'' CONNECTIONS

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PLAN
SCALE: NTS

SECTION
SCALE: NTS
CONCRETE ANCHOR BLOCK 10”, 12” & 14” CONNECTIONS

NOTES:
1. CONCRETE SHALL BE PLACED 7 DAYS PRIOR TO PIPE CONNECTION.
2. PRIME AND WRAP ALL BARE METAL INCLUDING RODS INSIDE CONCRETE BLOCKS, AND INSIDE PVC SLEEVES.

PLAN
SCALE: NTS

SECTION
SCALE: NTS

STEEL EARS (SEE TYP. JOINT HARNESS DETAIL 150 PSI)
NEW 10”, 12” OR 14” WSP
PVC SCH 40 SLEEVE
EXIST CIP
CONC. BLOCK

STEEL BAR, THREADED ONE END (SEE TYP. JOINT HARNESS DETAIL 150 PSI)

EXIST 10”, 12” OR 14” CIP
#5 REBAR EA. WAY TIED
4” CLEAR (TYP)

2’-0” MIN. INTO UNDISTURBED SOIL
STEEL BAR (TYP)
TRENCH WIDTH

Back to page 1
NOTES:

PRIMER: 1. COAT ALKYD RUST INHIBITING PRIMER – SHERWIN WILLIAMS KEM–KROMIK UNIVERSAL METAL PRIMER OR APPROVED EQUAL.

PAINT: 2. COATS HIGH GLOSS EXTERIOR LATEX ENAMEL – SHERWIN WILLIAMS DTM ACRYLIC COATING OR APPROVED EQUAL. FINISH COLOR SHALL BE DETERMINED BY THE ENGINEER.

REFLECTIVE TAPE: APPLY TWO ROUNDS OF TWO INCH WIDE REFLECTIVE TAPE. THE FIRST ROUND SHALL BE PLACED TWO INCHES FROM TOP EDGE OF THE STEEL PIPE. SPACING BETWEEN ROUNDS SHALL BE TWO INCHES. REFLECTIVE TAPE SHALL BE RATED AS REFLECTIVITY 1 ACCORDING TO FEDERAL SPECIFICATION L–S–300C AND SHALL MEET OSHA SPECIFICATIONS [1910.144(A)].

**BOLLARD DETAIL**

RECTIFIER ANODE JUNCTION BOX INSTALLATION

NO SCALE  FILE NO. SDO064  APPROV. BY:  REV. DATE: 9–19–97
NOTES:
1. CENTER ALL TEXT WITHIN FIELD OF SIGN UNLESS OTHERWISE NOTED.
2. BACKGROUND AND ALL OTHER SIGN COMPONENTS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTED.
3. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE. KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.
4. THE CONTRACTOR SHALL PROVIDE & ERECT THE PROJECT SIGN CONFORMING TO THESE DETAILS, AND AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT FINAL SIGN LAYOUT TO THE ENGINEER PRIOR TO FABRICATION.

PROJECT SIGN

SCALE: NTS   FILE NO. SD0066   APPROV. BY: MB   REV. DATE: FEB. '13
NOTES

1. CENTER ALL TEXT WITHIN FIELD OF SIGN UNLESS OTHERWISE NOTED.
2. BACKGROUND AND ALL OTHER SIGN COMPONENTS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTED.
3. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE. KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.
4. THE CONTRACTOR SHALL PROVIDE & ERECT THE PROJECT SIGN CONFORMING TO THESE DETAILS & AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT FINAL SIGN LAYOUT TO THE ENGINEER PRIOR TO FABRICATION.

PROJECT SIGN

SCALE: NTS  FILE NO. SD0068  APPROV. BY: MB  REV. DATE: FEB. ’13
SECTION A–A

TEMPORARY DIVERSION / SEDIMENT DAMS & CULVERTS

SCALE: NTS  FILE NO. SD0069  APPROV. BY: RKT  REV. DATE: 5–95
TEMPERATURE TRANSMITTER

1" SCH 40 1.049" I.D.
1.315" O.D.

TRANSMITTER

THERMOWELL

SPRING LOADED SENSOR

O-Z/GEDNEY CMSI-250P SEALING BUSHING

1" SS COUPLING

2.5" HOLE

1-5/8"

SCALE: NTS  FILE NO. SD0070  APPROV. BY: RKT  REV. DATE: 6/15/99
1" AIR RELIEF VALVE
(ANGLE THREADED)

1" CORP COCK

1" THRED-O-LET

1" MALE X SOCKET ADAPTER

1"-90° COPPER ELL

1"Ø CUHL TO DRAIN

AIR RELIEF VALVE

SCALE:NTS    FILE NO. SD0071    APPROV. BY: RKT    REV. DATE: 4-29-95
1 1/2" PRV (ANGLE THREADED)

1 1/2" CORP COCK

1 1/2" THRED-O-LET

1 1/2" MALE x SOCKET ADAPTER

1 1/2" 90° COPPER ELL

1 1/2" COPPER CUHL TO DRAIN

PRESSURE RELIEF VALVE

SCALE: NTS  FILE NO. SD0072  APPROV. BY: RKT  REV. DATE: 4-29-95
NOTES:
1. ALL FITTINGS SHALL BE BRASS.
2. MMWD SUPPLY SAMPLE STATION, HOUSING & FITTINGS.
3. CONTRACTOR MAY NEED TO EXTEND BURIED PIPING PRIOR TO SURFACING FOR BEST FIELD FIT.
4. BOLTS & GASKETS SHALL BE SUPPLIED BY CONTRACTOR.
5. INSTALLATION SHOWN IS "TYPICAL" ONLY - SOME ADJUSTMENTS MAYBE REQUIRED TO SUIT ACTUAL FIELD CONDITIONS.
PRESSURE TRANSMITTER

SCALE: NTS  FILE NO. SD0076  APPROV. BY: RKT  REV. DATE: 5-29-95
MATERIAL LIST

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<td>2&quot; COMP x FLG, ANGLE CURB COCK, MUELLER OR EQUAL</td>
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<td>3</td>
<td>2&quot; THREADED BRASS NIPPLE (10&quot; LONG)</td>
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<td>4</td>
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<td>5</td>
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<td>8</td>
<td>CHRISTY B–36 METER BOX WITH COVER</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>LUMBER BLOCKS (2x12 REDWOOD) (NOTE 5)</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>2&quot; FLANGE INSULATING KIT</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>2&quot; METER FLANGE</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTES:
1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 3" CAP
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. PROPER BACKFLOW PROTECTION MUST BE INSTALLED ON THE CONSUMER SIDE OF METER ASSEMBLY.
5. INSTALL REDWOOD BLOCKS UNDER METER BOX ALONG EACH EDGE, SIMILAR SERVICE METER BOX.

TAP THROUGH A SADDLE TAP FOR ALL MAINS OTHER THAN WSP MAINS (USE THRED–O–LET ON WSP MAINS) (PRIME & WRAP)

ADDITIONAL 5/8" NUT

WHEN TAPPING PVC OR AC PIPE THAT HAS A TRACER WIRE, CONNECT THE SADDLE WITH A LEAD TO THE EXISTING TRACER WIRE.

S8S SPLIT BOLT CONNECTION

TRACER WIRE

2" IRRIGATION METER

NO SCALE FILE NO. SD0078 APPROV. BY: JM REV. DATE: MAY '08
OBsolesT

NOTES:

1. PRIME AND WRAP ALL BARE METAL TO DETECTOR CHECK; THIS INCLUDES ALL FITTINGS, VALVES, PIPE, TAPPING SLEEVE AND ALUM. VALVE RISER.

2. BRAZE OR CADWELD #8 TEST LEADS TO STEEL AND CI PIPE; PROVIDE 12" MIN. SLACK IN TEST LEADS ABOVE PAVEMENT SURFACE AT FINAL GRADE.

3. TEST LEADS AND INSULATING FITTINGS SHALL BE INSPECTED AND TESTED PRIOR TO BACKFILLING THE TRENCH.

4. CONSUMER PIPING DEPTH PER CALIFORNIA PLUMBING & NFPA CODE REQUIREMENTS.

FIReLINE TRANSFER CONNECTION

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<th>NO SCALE</th>
<th>FILE NO. SD0079</th>
<th>APPROV. BY: EA</th>
<th>REV. DATE: APR ’16</th>
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**FLANGE INSULATING KIT INSTALLATION**

**RESTRAINING STRAP DETAILS**

*NOTE:*
WHEN CONNECTING TO CIP, DO NOT BOND MJ COUPLING TO #8 WIRE. WHEN CONNECTING TO WSP BOND MJ COUPLING TO #8 WIRE. WHEN CONNECTING TO ACP/PVC BOND MJ COUPLING TO TRACER WIRE.

**PVC INSULATOR INSTALLATION**

**INSULATING DETAILS WITH HARNESS**

<table>
<thead>
<tr>
<th>NO SCALE</th>
<th>FILE NO. SD0080</th>
<th>APPROV. BY: EI</th>
<th>REV. DATE: FEB. '19</th>
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TYP ANODE TRENCH

MINIMUM OF 12" OF ANODE CABLE INTO METER BOX

MINIMUM OF 12" OF HEADER WIRE LOOPED INTO BOX

TYP SPLICE BOX DETAIL
RECTIFIER INSTALLATION FOR PIPELINE
NOTES:
1. CENTER ALL TEXT WITHIN FIELD OF SIGN UNLESS OTHERWISE NOTED.

2. BACKGROUND AND ALL OTHER SIGN COMPONENTS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTED.

3. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE. KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.

4. THE CONTRACTOR SHALL PROVIDE & ERECT THE PROJECT SIGN CONFORMING TO THESE DETAILS & AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT FINAL SIGN LAYOUT TO THE ENGINEER PRIOR TO FABRICATION.

FIREFLOW IMPROVEMENT PROGRAM
PROJECT NAME
PROJECT NAME
PIPEDLINE REPLACEMENT PROJECT
Construction is scheduled Xxxxxx x, 201X through Xxxxxx x, 201X
Contractor: Name
Telephone: (XXX)XXX-XXXX

MARIN MUNICIPAL WATER DISTRICT
BOARD OF DIRECTORS
Jack Gison Armando Quintero Larry Bragman
Cynthia Kocher Larry Russell

BLUE LETTERING
BLACK LETTERING
RED HYDRANTS
2"  1 3/4"
1 3/4"
1 1/2"
1 5/16"
1 5/16"  1 1/2"
1 1/2"
1 1/2"
1 5/16"
1 5/16"  1 1/2"
1 1/2"
1 1/2"
1 5/16"
1 5/16"  1 1/2"
1 1/2"
1 1/2"
1 5/16"
1 5/16"

BLUE BANNER BORDER
MITER ALL CORNERS
2'-10"
6 1/2"
1 3/4"
1 1/2"
1 1/2"
1 5/16"
1 5/16"  1 1/2"
1 1/2"
1 1/2"
1 5/16"
1 5/16"  1 1/2"
1 1/2"
1 1/2"
1 5/16"
1 5/16"

6 1/2"  2 3/4"
1 3/4"
1 1/2"
1 1/2"
1 5/16"
1 5/16"  1 1/2"
1 1/2"
1 1/2"
1 5/16"
1 5/16"  1 1/2"
1 1/2"
1 1/2"
1 5/16"
1 5/16"

FIREFLOW PROJECT SIGN DETAIL
SCALE: NTS  FILE NO. SD0083  APPROV. BY: MB  REV. DATE: FEB '15
THE RECYCLED WATER SECTION.

THIS BLOWOFF IS CONNECTED TO THE PIPING. FOR INFORMATION CONTACT TO ANY POTABLE WATER RECYCLED WATER SYSTEM.

I.D. TAG DETAIL

<table>
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<tr>
<th>NO SCALE</th>
<th>FILE NO. SD0084</th>
<th>APPROV. BY: KF</th>
<th>REV. DATE: FEB '10</th>
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5" x 7" YELLOW CARD (LAMINATED)

THIS BLOWOFF IS CONNECTED TO THE RECYCLED WATER SYSTEM. DO NOT CONNECT TO ANY POTABLE WATER PIPING. FOR INFORMATION CONTACT THE RECYCLED WATER SECTION.

PRINT BOTH SIDES
Construction is scheduled from Xxxxxxx x, 201X through Xxxxxxx x, 201X.

Contractor: Name     Telephone: (XXX)XXX-XXXX

BOARD OF DIRECTORS

Marin Municipal Water District

Project Manager: Carl Gowan  (415) 945-1577

NOTES:
1. CENTER ALL TEXT WITHIN FIELD OF SIGN UNLESS OTHERWISE NOTED.
2. BACKGROUND AND ALL OTHER SIGN COMPONENTS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTED.
3. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE. KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.
4. THE CONTRACTOR SHALL PROVIDE & ERECT THE PROJECT SIGN CONFORMING TO THESE DETAILS & AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT FINAL SIGN LAYOUT TO THE ENGINEER PRIOR TO FABRICATION.

PROJECT SIGN DETAIL

SCALE: NTS  FILE NO. SD0085  APPROV. BY: MV  REV. DATE: FEB '13
CLAMP WIRE TO COPPER PIPING W/ STAINLESS STEEL HOSE CLAMP

LEAVE 12" SLACK IN WIRES INSIDE METER BOX

TO MAIN

PLACE NATIVE BACK FILL AROUND ANODE, TAMP CAREFULLY TO AFFORD GOOD SOIL CONTACT

32# PACKAGED MAGNESIUM ANODE

TO CONSUMER

METER BOX WITH MAGNESIUM ANODE

NO SCALE FILE NO. SD0088 APPROV. BY: RKT REV. DATE:
1. CONSUMER SHALL MARK LOCATION FOR PROPOSED ASSEMBLY FOR MMWD REVIEW & APPROVAL. ALL MMWD PIPING MUST BE IN THE PUBLIC EASEMENT. ASSEMBLY SHALL HAVE 12" CLEAR ALL AROUND. METER SHALL BE IN ACCESSIBLE LOCATION.
2. CONSUMER FURNISHED APPROVED BACKFLOW ASSEMBLY MUST BE ON SITE FOR MMWD INSPECTION PRIOR TO ANY MMWD PIPING INSTALLATION.
3. WRAP ALL BARE METAL BELOW GROUND.
4. CHLORINATE & TEST PRIOR TO CONNECTION.
5. TEST CORROSION SYSTEM PRIOR TO CONNECTION.
6. HOT TAP OF EX MAIN TO BE COORDINATED WITH MMWD.
7. MMWD WILL NOT TURN ON FIRELINE UNTIL FINAL PAVING & SIDEWALKS ARE COMPLETE.

NOTES:

1. 32# MAGNESIUM ANODE WITH PACKAGED BACKFILL W/ WIRE (N).
2. SLIP-ON FLANGE (EX)
3. WELDED STEEL PIPE (EX)
4. HDPE SPOOL KIT (CONTRACTOR INSTALLED)

PLEASE NOTE & PLAN ACCORDINGLY: THE SPOOL KIT DOES NOT HAVE THE SAME LAY LENGTH AS THE CHECK VALVE.

5. "TYPE B" CTS, B-9 METER BOX
6. #8 THWN STANDARD COPPER WIRE (E)
7. CUSTOMER SIDE CUT & CONNECTION ONLY
8. 5/8" x 3/4" METER (SALVAGE TO MMWD)

OWNED & INSTALLED BY CONSUMER (NEW) MATERIALS FURNISHED BY CONSUMER
OWNED AND MAINTAINED BY MMWD ALL MATERIAL FURNISHED BY MMWD

FINERLINE RETROFIT WSP
BELOW TO ABOVE GROUND BACKFLOW

NO SCALE FILE NO. SD0089 APPROV. BY: DS REV. DATE: APR ’18
NOTES:

1. THE METER BOX IS TO BE LOCATED TO SIDE OF THE DETECTOR CHECK VALVE BOX. IF THIS IS NOT POSSIBLE OR DESIRABLE, HAVE MMWD APPROVE ALTERNATIVE LOCATION BEFORE PROCEEDING.

2. WRAP ALL BARE METAL. INSTALL NEW ANODE.

3. TEST LEADS AND INSULATING FITTINGS SHALL BE INSPECTED AND TESTED PRIOR TO COMPLETION.

4. THE HOSE BIB IS TO ALLOW TESTING OF METER & TESTING OF THE CHECK VALVES.
MATERIAL LIST

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>DESCRIPTION</th>
<th>NO. REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4&quot; FLANGED COMPOUND METER</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>4&quot; FLANGED GATE VALVE</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4&quot; 90° WELD ELL</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>HARNESS (2 RODS &amp; 2 EARS—SEE DETAIL SD0014)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4&quot; FLANGE COUPLING ADAPTER</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>4&quot; BLIND FLG</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>4&quot; WELDED STEEL PIPE</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>4&quot; FLANGE INSULATING KIT</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>CHRISTY B–52 METER BOX AND B52–62G STEEL COVER (SET ON REDWOOD BLOCK)</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>TYPE &quot;C&quot;CTS (SEE DETAIL SD009)</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>32# PACKAGED ANODE</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>4&quot; SLIP–ON FLANGE</td>
<td>5</td>
</tr>
<tr>
<td>13</td>
<td>HDPE SPOOL KIT</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTES:
1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 4" BLIND FLG.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.

WHEN TAPPING PVC, AC OR CI PIPE, USE TEE OR TAPPING SLEEVE. CONNECT TRACER WIRE TO SADDLE WITH A LEAD.

4" TURBINE METER

NO SCALE   FILE NO. SD0091   APPROV. BY: KMcd   REV. DATE: 7–5–11
NOTES:

1. Backflow prevention assemblies shall be only those approved by the District.
2. Any deviation from the methods described herein must receive approval prior to installation.
3. Backflow prevention assemblies shall be installed on the customer’s property, at the meter, in an orientation shown on the MMWD Approved Assembly List with 12 inches clearance completely around the assembly to allow for testing and maintenance.

No outlets, tees, taps, by-passes other connections, temporary or permanent shall be installed between the water meter and the backflow prevention assembly. Wye strainer with plugged tap (no method to flush allowed), pressure reducing valve and union may be installed before the backflow prevention assembly. All other appurtenances shall be installed downstream.

4. Alternate installation locations or arrangements shall be reviewed and approved by the District prior to installation.

SPECIAL NOTES:

1. Installation of a backflow prevention assemblies creates a closed water system. Thermal expansion protection is required by the California Plumbing Code.
2. Where necessary the backflow prevention assembly should be protected from vehicle or freeze damage.
3. Water services which cannot be turned off for short durations should have backflow prevention assemblies installed in parallel.
4. Please see the California Plumbing Code for other aspects of installation requirements.

BACKFLOW ASSEMBLY STANDARD INSTALLATION DIAGRAM
INSTALL B36 BOX, METER & CTS (MMWD OWNED)

EX FIRELINE

INSTALL HDPE SPOOL. ALL CUT & CONNECTION TO CUSTOMER SIDE.

BURY OR REPLACE EX BOX WITH FIRE DEPT. APPROVED VAULT (CONSUMER OWNED)

B-36 METER BOX W/LID

3/4" BRASS CHECK VALVE

3/4" STRAIGHT CURB COCK

3/4" BRONZE 90' (COPPER TO MALE I.P.T.)

3/4" COPPER PIPE (EXTEND & SET MTR IN B9 BOX, DOUBLE WRAP THRU WALL)

PLAN VIEW

ALL PIPING TO BE 3/4" BRASS NIPPLE CLOSE

3/4" BRASS TEE W/ 3/4" BRASS HOSE BIBB

3/4" BRASS METER CPLG

9/16" x 3/4" METER SPACER

3/4" BRASS ANGLE COCK

CTS TERMINAL BLOCK

#8 THWN STRANDED COPPER WIRE (EXTEND)

12" MIN WSP

CUT & CONNECTION ONLY
NEW DETECTOR CHECK VALVE
EX DETECTOR CHECK VALVE

32# ANODE (NEW)

OWNED & MAINTAINED BY CONSUMER EXCEPT FOR BYPASS

OWNED & MAINTAINED BY MMWD

NOTES:

1. THE METER BOX IS TO BE LOCATED TO SIDE OF THE DETECTOR CHECK VALVE BOX. IF THIS IS NOT POSSIBLE OR DESIRABLE, HAVE MMWD APPROVE ALTERNATIVE LOCATION BEFORE PROCEEDING.

2. WRAP ALL BARE METAL. INSTALL NEW ANODE.

3. TEST LEADS AND INSULATING FITTINGS SHALL BE INSPECTED AND TESTED PRIOR TO COMPLETION.

4. THE HOSE BIB IS TO ALLOW TESTING OF METER & TESTING OF THE CHECK VALVES.

FIRELINE, INSPECTION & INSULATION RETROFIT

NO SCALE  FILE NO. SD0093  APPROV. BY: EI  REV. DATE: FEB '18
NOTES:
1. CONSUMER SHALL MARK LOCATION FOR PROPOSED ASSEMBLY FOR MMWD REVIEW & APPROVAL. ALL MMWD PIPING MUST BE IN THE PUBLIC EASEMENT. ASSEMBLY SHALL HAVE 12" CLEAR ALL AROUND. METER SHALL BE IN ACCESSIBLE LOCATION.
2. CONSUMER FURNISHED APPROVED BACKFLOW ASSEMBLY MUST BE ON SITE FOR MMWD INSPECTION PRIOR TO ANY MMWD PIPING INSTALLATION. THRUST BLOCKS REQUIRED.
3. WRAP ALL BARE METAL BELOW GROUND.
4. CHLORINATE & TEST PRIOR TO CONNECTION.
5. TEST CORROSION SYSTEM PRIOR TO CONNECTION.
6. HOT TAP OF EX MAIN TO BE COORDINATED WITH MMWD.
7. MMWD WILL NOT TURN ON FIRELINE UNTIL FINAL PAVING & SIDEWALKS ARE COMPLETE.
8. CONSUMER PIPING DEPTH PER CALIFORNIA PLUMBING & NFPA CODE REQUIREMENTS.

MMWD FURNISHED MATERIAL

1. 2" HDPE SPOOL KIT. SEE TORQUE SPEC.
2. 2" COMPANION BRASS FLANGE
3. 2" x 4" BRASS NIPPLE
4. 2" BRASS ANGLE STOP
5. 2" COPPER PIPE
6. 2" CORP VALVE (MIP x COMP)
7. 2" TAPPING SLEEVE, TEE OR THRED-O-LET
8. 2-BOLT 2" METER BRASS FLANGES W/ SS BOLTS
9. B36 METER BOX
10. #8 TW STANDARD COPPER WIRE
11. #S8S SPLIT BOLT CONNECTOR
12. 32# MAGNESIUM ANODE WITH PACKAGED BACKFILL W/ WIRE
13. 2 PIECE PHENOLIC TERMINAL BLOCK
14. OWNED AND MAINTAINED BY MMWD. ALL MATERIAL FURNISHED BY MMWD. RENEW, EXTENT OF WORK

PRIVATE FIRELINE PIPING

CONC THRUST BLOCK
BOX EXTENSION W/ 2x6 BLOCKINGS

OWNED BY CONSUMER
MATERIALS FURNISHED BY CONSUMER

5'-0" MAX

2"

3'

PAVEMENT SURFACE

INSTALL TEST LEAD & CONNECT TRACER WIRE WITH SPLIT BOLT WHEN TAPPING AC OR PVC PIPE

2" FIRELINE, NEW & RENEW

NO SCALE FILE NO. SD0094 APPROV. BY: EA REV. DATE: MAR '16
MMWD FURNISHED MATERIAL

1. NEW 5”Ø ALUMINUM TUBING VALVE CAP RISER PLACEMENT
2. VALVE CAP
3. EXISTING 5”Ø ALUMINUM TUBING
4. GATE VALVE
5. EXISTING WATER PIPE

NEW 5”Ø ALUMINUM TUBING VALVE CAP RISER

NO SCALE | FILE NO. SD0095 | APPROV. BY: EI | REV. DATE: JAN '18
ONE ANODE POTHOLE DETAIL

12" CLASS II AGGREGATE BASE COMPACTED TO 95% OR CDF
PACKAGE ANODE WIRE
NATIVE BACKFILL COMPACTED TO 90%

24" x 12" x 4' DEEP

6" MIN AC PLUG OR PER ENCROACHMENT PERMIT

5" ALUMINUM TUBING 18" LONG WITH "E" CAP.
2 FT AC OR CONCRETE RING AROUND TUBING IN UNPAVED AREAS
RESTORE TO MATCH EXISTING CONDITIONS

TWO ANODE POTHOLE DETAIL

12" CLASS II AGGREGATE BASE COMPACTED TO 95% OR CDF
PACKAGE ANODE WIRE
NATIVE BACKFILL COMPACTED TO 90%

24" x 12" x 4' DEEP

ANODE POTHOLE DETAILS

NO SCALE   FILE NO. SD0096   APPROV. BY: GA   REV. DATE: MAY '18