



ORO VALLEY WATER UTILITY
STANDARD DETAILS – DISTRIBUTION
2022 EDITION
PREFACE

The Oro Valley Water Utility Standard Design Details can be found online at:
<https://www.orovalleyaz.gov/Government/Departments/Water-Utility>

Tucson Water Standards Specifications and Details can be found online at:
www.tucsonaz.gov/water/spec-book.

Pima County Association of Governments (PAG) Standard Specifications and Details for Public Improvements can be found online at: <http://apps.pagnet.org/standardspecifications/>

All or any part of the book may be downloaded in adobe file format. Oro Valley maintains a current Engineering Directives link at the webpage with updates, changes, and additions to the current specifications.

Users of these documents are requested to send any noted errors or omissions, as well as comments and suggestions, for clarification or amendment of the Standard Specifications and Details to the following address:

WaterStandards@OroValleyaz.gov
Oro Valley Water Utility
Engineering Division
11000 N. La Canada Drive
Oro Valley, Arizona 85737
520-229-5023

RECOMMEND

Elizardo “Lee” Jacobs, P.E.
Engineering Manager

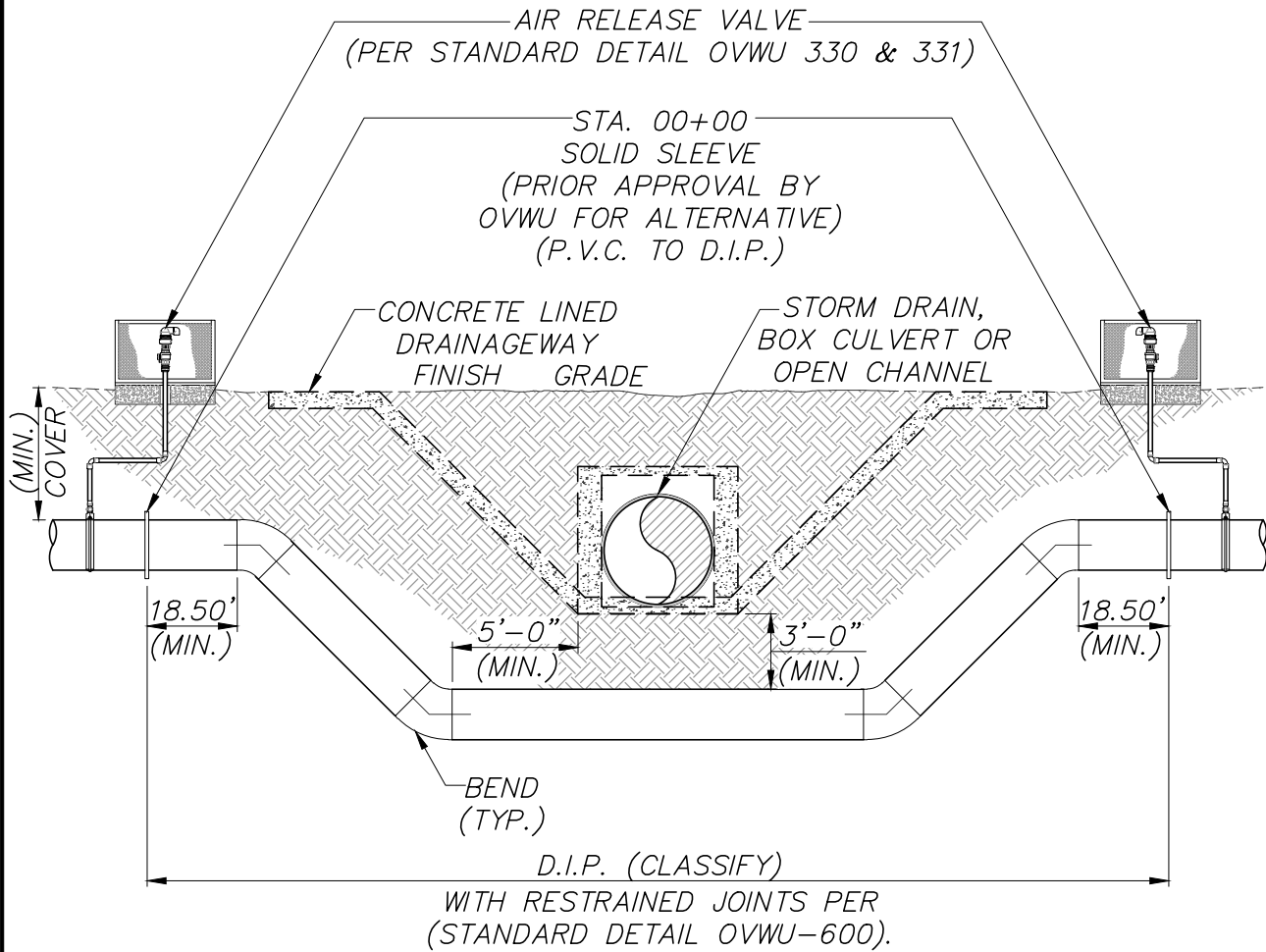
CONCUR

Peter A. Abraham, P.E.
Director of Oro Valley Water

DISTRIBUTION STANDARD DETAILS

OVWU 103	DRAINAGE STRUCTURE CROSSING DETAIL
OVWU 106	WATER/ SEWER & UTILITY CROSSING DETAILS
OVWU 108	PIPE SADDLE SUPPORT DETAIL
OVWU 109	TURNING RADII FOR WATER EASEMENTS
OVWU 110	RIGHT ANGLE TURN AROUND FOR WATER EASEMENTS
OVWU 111	LANDSCAPE GUIDELINES AND PLANTING LIMITS
OVWU 112	PLANTING LIMITS ALONG WATER LINE ALIGNMENT
OVWU 115	PIPE BEDDING AND TRENCH BACKFILL
OVWU 116	TRACER WIRE DETAILS
OVWU 119	CORROSION AND CONTINUITY TEST DETAIL
OVWU 126	WATER QUALITY SAMPLING STATION
OVWU 300	VAVLE BOX INSTALLATION
OVWU 309	WATER SERVICE CONNECTION AND NOTES
OVWU 310	AMI PLACEMENT STANDARD STEEL METER BOX COVERS
OVWU 311	STANDARD CONCRETE METER BOX
OVWU 312	METER BOX IN CONCRETE
OVWU 313	STANDARD CONCRETE METER BOX
OVWU 314	STANDARD CAST IRON METER BOX
OVWU 315	ABOVE GROUND METERING STATION WITH BACKFLOW
OVWU 316	ABOVE GROUND STACKED PRV INSTALLATION AND CAGE
OVWU 331	ABOVE GROUND AIR RELEASE VALVE 2 INCH & SMALLER
OVWU 332	STANDARD ARV ENCLOSURE FOR 1 INCH & LARGER INSTALL
OVWU 400	DRAIN VALVE ASSEMBLY
OVWU 500	FIRE HYDRANT INSTALLATION
OVWU 600	RETRAINED JOINTS & NOTES
OVWU 610	CONCRETE THRUST BLOCKING
OVWU 1615	FENCE INSTALLATION
OVWU 1800	BACKFLOW PREVENTION AIR GAP SEPARATION INSTALL
OVWU 1801	BACKFLOW PREVENTION POTABLE WATER FIRE HYDRANT
OVWU 1802	BACKFLOW PREVENTION REDUCED PRESSURE ASSEMBLY (RPA)
OVWU 1803	PRESSURE VACUUM BREAKER ASSEMBLY (PVB)
OVWU 1805	DOUBLE CHECK VALVE ASSEMBLY (DCVA)
OVWU 1807	BACKFLOW SPILL RESISTENT PRESSURE VACUUM ASSEMBLY (SVB)
OVWU 1809	BACKFLOW WATER MAIN TEMPORARY CONNECTION TESTING

*UPDATED 012/28/2022



NOTES:

1. DRAINAGE WAYS WITHOUT CONCRETE LINING WILL BE EVALUATED INDIVIDUALLY BY DESIGN ENGINEER.
2. UPPER BEND RESTRAINTS PER (STANDARD DETAIL OVWU-600).

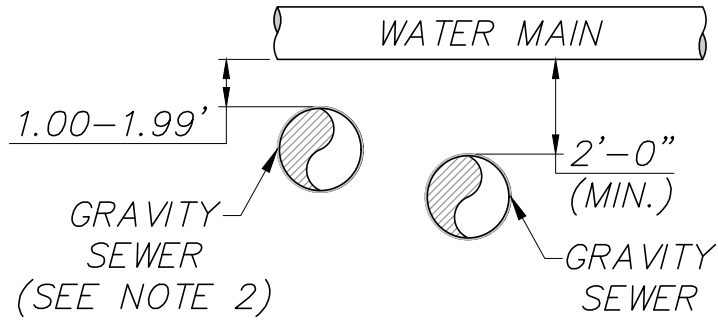
	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		OVWU-103
	REVISED:	DRAINAGE STRUCTURE CROSSING DETAILS	SHEET 1 OF 1
	08/22		

NOTES:

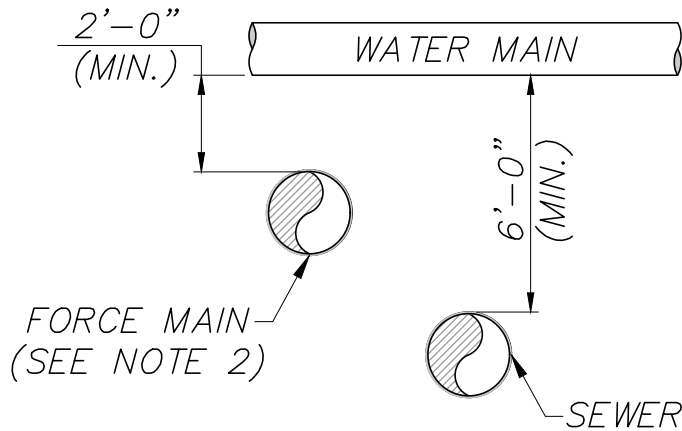
1. WHERE A WATER MAIN CROSSES ABOVE A GRAVITY SEWER WITH A 2' OR GREATER VERTICAL CLEARANCE (OUTSIDE SURFACE TO OUTSIDE SURFACE), NO EXTRA PROTECTION IS REQUIRED. WHERE A WATER MAIN CROSSES ABOVE A PRESSURE SEWER WITH 6' OR GREATER VERTICAL CLEARANCE, NO EXTRA PROTECTION IS REQUIRED.
2. WHERE A WATER MAIN MUST CROSS ABOVE A GRAVITY SEWER WITH LESS THAN 2' OF CLEARANCE, CONSTRUCT OR REPLACE THE SEWER LINE WITH DUCTILE IRON PIPE (D.I.P.) OR APPROVED EQUAL. THE D.I.P. MUST HAVE A "PUSH-ON" JOINT OR APPROVED EQUAL IF THE SEWER JOINTS ARE LOCATED 6' OR MORE BEYOND THE OUTSIDE SURFACE OF THE WATER MAIN. IF A JOINT IS LOCATED LESS THAN 6' FROM THE OUTSIDE SURFACE OF THE WATER MAIN, THEN A RESTRAINED JOINT OR APPROVED EQUAL SHALL BE USED. SEE THE PLAN VIEWS ON SHEET 3 FOR REFERENCE. IN NO CASE SHALL THE WATER MAIN BE LESS THAN 1' ABOVE A GRAVITY SEWER OR 2' ABOVE A PRESSURE SEWER.
3. WHERE A WATER MAIN CROSSES BELOW EITHER A GRAVITY SEWER OR A PRESSURE SEWER, CONSTRUCT OR REPLACE THE SEWER LINE WITH D.I.P. OR APPROVED EQUAL FOLLOWING THE GUIDELINES GIVEN IN NOTE NO. 2. IN NO CASE SHALL THE WATER MAIN BE LESS THAN 2' BELOW EITHER A GRAVITY OR PRESSURE SEWER LINE.
4. THE MINIMUM HORIZONTAL CLEARANCE WITHOUT EXTRA PROTECTION BETWEEN A WATER MAIN AND A PRESSURE OR GRAVITY SEWER LINE SHALL BE 6' OUTSIDE SURFACE TO OUTSIDE SURFACE.
5. THE MINIMUM HORIZONTAL CLEARANCE BETWEEN A WATER MAIN AND A SEWER MANHOLE SHALL BE 6' FROM THE OUTSIDE SURFACE OF THE WATER MAIN TO THE CENTERLINE OF THE MANHOLE.
6. WHERE A 6' HORIZONTAL CLEARANCE CANNOT BE MAINTAINED WITH A GRAVITY SEWER, CONSTRUCT OR REPLACE THE SEWER LINE WITH D.I.P. OR APPROVED EQUAL FOLLOWING THE GUIDELINES GIVEN IN NOTE NO. 2. IN NO CASE SHALL A GRAVITY SEWER LINE BE LOCATED LESS THAN 2' HORIZONTALLY FROM A WATER MAIN.
7. IN NO CASE SHALL A PRESSURE SEWER LINE BE LOCATED LESS THAN 6' HORIZONTALLY FROM A WATER MAIN.
8. THE AMERICAN NATIONAL STANDARD FOR THE THICKNESS DESIGN OF DUCTILE IRON PIPE (ANSI/AWWA C150/A21.50) SHALL BE USED TO DETERMINE THE REQUIRED CLASS OF D.I.P. EXCEPT THAT FOR D.I.P. WITH A DIAMETER OF 3" THROUGH 24", A MINIMUM OF CLASS 350 IS REQUIRED AND FOR D.I.P. WITH A DIAMETER GREATER THAN 24", A MINIMUM OF CLASS 200 IS REQUIRED.
9. WHERE THE SEWER LINE IS A GRAVITY SEWER, THE D.I.P. INSTALLATION OF REPLACEMENT PIPE SHALL EXTEND A MINIMUM OF 6' BEYOND EACH SIDE OF THE WATER MAIN, MEASURED HORIZONTALLY FROM AND PERPENDICULAR TO THE WATER MAIN.
10. WHERE THE SEWER LINE IS A PRESSURE SEWER, THE D.I.P. INSTALLATION OF REPLACEMENT PIPE SHALL EXTEND A MINIMUM OF 10' BEYOND EACH SIDE OF THE WATER MAIN, MEASURED HORIZONTALLY FROM AND PERPENDICULAR TO THE WATER MAIN.
11. IN GENERAL, WHEN UNUSUAL CONDITIONS SUCH AS, BUT NOT LIMITED TO, HIGHWAY OR BRIDGE CROSSINGS PREVENT THE WATER AND SEWER LINE SEPARATIONS REQUIRED BY THIS DETAIL FROM BEING MET, THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT WILL REVIEW AND MAY APPROVE (SUBJECT TO ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY'S APPROVAL), REQUESTS FOR AUTHORIZATION TO USE ALTERNATE CONSTRUCTION TECHNIQUES AND JOINTS ON A CASE-BY-CASE BASIS.
12. ALL DUCTILE IRON PIPE SHALL BE INTERNALLY LINED TO MEET THE MOST RECENT PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT SPECIFICATIONS.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	07/22		
	REVISED:	SEWER/WATER CROSSING DETAILS	OVWU-106
	08/22		SHEET 1 OF 6

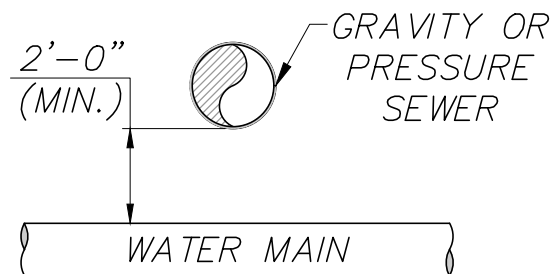
VERTICAL SEPARATION



GRAVITY SEWER CROSSING
(SEWER UNDER WATER MAIN)



PRESSURE SEWER CROSSING
(SEWER UNDER WATER MAIN)



GRAVITY OR PRESSURE SEWER CROSSING
(SEWER UNDER WATER MAIN)



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STANDARD DETAIL

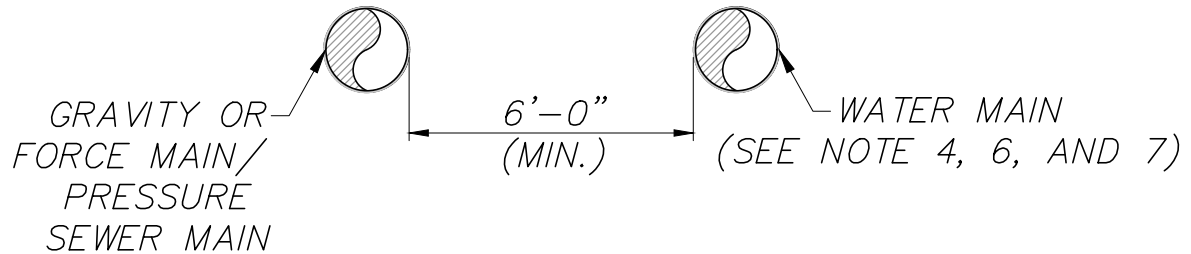
SHEET INDEX

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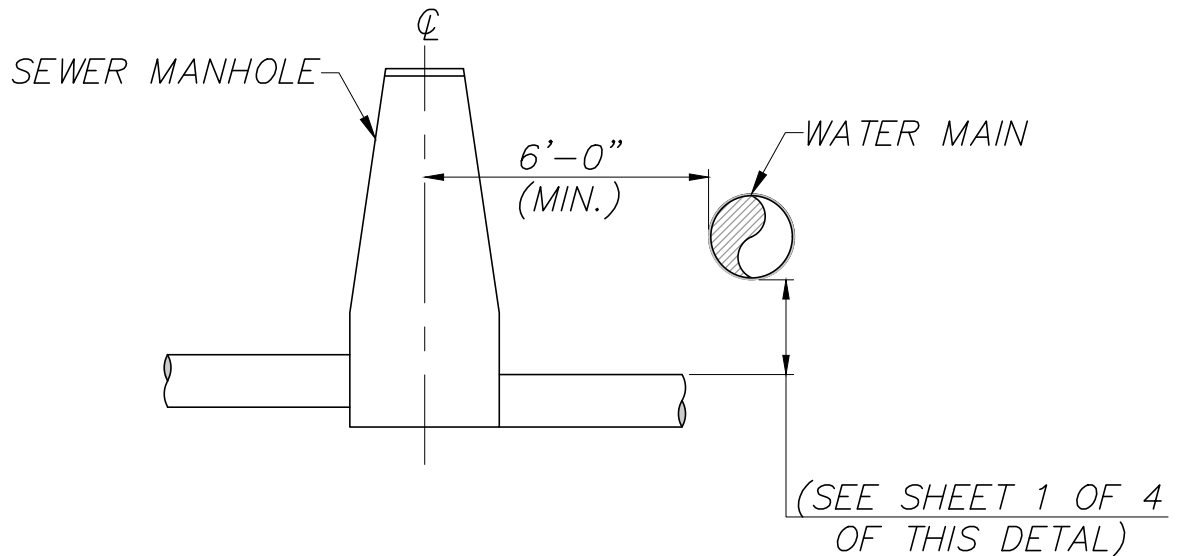
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SHEET 2 OF 6

HORIZONTAL SEPARATION



SEWER/WATER SEPARATION *(PARALLEL ALIGNMENTS)*



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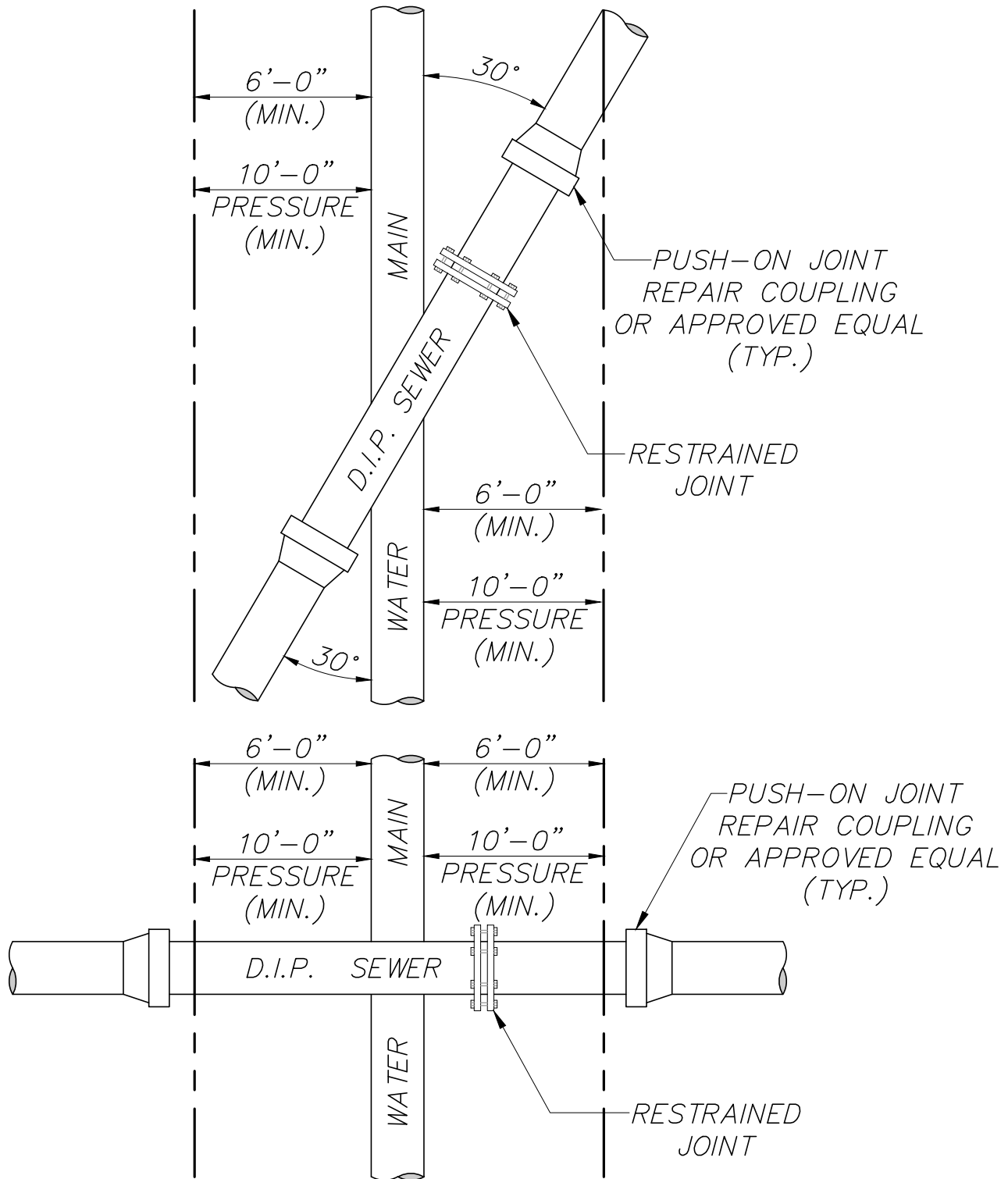
**SEWER/WATER
CROSSING DETAIL**

DETAIL NO.

OVWU-106

SHEET 3 OF 6

PLAN VIEWS



NOTES:

1. FOR ALL CONSTRUCTION OF SEWER REPLACEMENT WITH LESS THAN 30° ANGLE (PER DETAIL) SURVEY (PER STANDARD SPECIFICATION SECTION 0215) SHALL BE PERFORMED FOR THE NEW SEWER MAIN.



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**SEWER/WATER
CROSSING DETAIL**

DETAIL NO.

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SHEET 4 OF 6

HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS

TO MINIMIZE THE POTENTIAL FOR CROSS CONTAMINATION, WATER AND SEWER MAINS SHALL MAINTAIN A MINIMUM HORIZONTAL AND VERTICAL SEPARATION. HORIZONTAL SEPARATIONS ARE SUMMARIZED IN TABLE 1, WATER / SEWER HORIZONTAL SEPARATION REQUIREMENTS, AND VERTICAL SEPARATIONS ARE SUMMARIZED IN TABLE 2, WATER / SEWER VERTICAL SEPARATION REQUIREMENTS.

TABLE 1. WATER / SEWER HORIZONTAL SEPARATION REQUIREMENTS.

TYPE OF PARALLEL UTILITY									
TYPE OF WATER / SEWER UTILITY	WATER/SEWER HORIZONTAL SEPARATION REQUIREMENT TABLE	WATER SERVICE CONNECTION	DISTRIBUTION WATER MAIN	TRANSMISSION WATER MAIN	SEWER MAIN / RECLAIMED MAIN	SEWER SERVICE CONNECTION	DRY UTILITIES ¹	PRIVATE FIRELINE SERVICE	STORM DRAINS / CULVERTS & IRRIGATION ¹
	DISTRIBUTION WATER MAIN	3-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)
	TRANSMISSION WATER MAIN	3-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)
	WATER SERVICE CONNECTION	3-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)
	PRIVATE FIRELINE SERVICE	3-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)
	SEWER MAIN / RECLAIMED MAIN	6-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)
	SEWER SERVICE CONNECTION	6-0' (MINIMUM)	6-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)	3-0' (MINIMUM)	6-0' (MINIMUM)	3-0' (MINIMUM)

¹ MINIMUM SEPARATION REQUIRED BY OVWU. UTILITY OWNER MAY REQUIRE A GREATER SEPARATION.

NOTE: THIS TABLE APPLIES TO ALL ABOVE GROUND OR UNDERGROUND UTILITIES/STRUCTURES.



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STANDARD DETAIL

**WATER
CROSSING DETAILS**

DETAIL NO.

OVWU-106

SHEET 5 OF 6

TABLE 2. WATER / SEWER VERTICAL SEPARATION REQUIREMENTS.

		TYPE OF PARALLEL UTILITY							
WATER/SEWER VERTICAL SEPARATION REQUIREMENT TABLE		WATER SERVICE CONNECTION	DISTRIBUTION WATER MAIN	TRANSMISSION WATER MAIN	SEWER MAIN / RECLAIMED MAIN	SEWER SERVICE CONNECTION	DRY UTILITIES ³	PRIVATE FIRELINE SERVICE	STORM DRAINS / CULVERTS & IRRIGATION ³
TYPE OF WATER / SEWER UTILITY	DISTRIBUTION WATER MAIN ABOVE UTILITY ²	6" (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)	6" (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)
	DISTRIBUTION WATER MAIN BELOW UTILITY	6" (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)
	TRANSMISSION WATER MAIN ABOVE UTILITY	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)
	TRANSMISSION WATER MAIN BELOW UTILITY	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)
	PRIVATE FIRELINE SERVICE ABOVE UTILITY	6" (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)	6" (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)
	PRIVATE FIRELINE SERVICE BELOW UTILITY	6" (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)
	WATER SERVICE CONNECTION ABOVE OR BELOW UTILITY	6" (MINIMUM)	6" (MINIMUM)	2-0' (MINIMUM)	6" (MINIMUM)	6-0' (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	1-0' (MINIMUM)
	SEWER MAIN / RECLAIMED MAIN ABOVE UTILITY	6" (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)	6-0' (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)
	SEWER MAIN / RECLAIMED MAIN BELOW UTILITY	6" (MINIMUM)	1-0' (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)	6" (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)	1-0' (MINIMUM)
	SEWER SERVICE CONNECTION ABOVE	6" (MINIMUM)	2-0' (MINIMUM)	2-0' (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	2-0' (MINIMUM)	1-0' (MINIMUM)
	SEWER SERVICE CONNECTION BELOW UTILITY	6" (MINIMUM)	6" (MINIMUM)	2-0' (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	1-0' (MINIMUM)

¹ EXTRA PROTECTION IS REQUIRED FOR WATER MAINS AND PRIVATE FIRE LINE SERVICES THAT ARE BETWEEN 1 AND 2 FEET ABOVE SEWER MAIN, STORM DRAIN OR IRRIGATION LINE. REFER TO NOTE BELOW.

² WHERE A TRENCHING OPERATION CROSSES UNDER EXISTING 12 INCH OR SMALL CA WATERLINES, SECTION 601.2.8 OF THE ORO VALLEY WATER UTILITY SUPPLEMENTS TO PAG MUST BE FOLLOWED.

³ MINIMUM SEPARATION REQUIRED BY ORO VALLEY WATER UTILITY OWNER MAY REQUIRE A GREATER SEPARATION.

NOTE: CLEARANCES ARE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE. MINIMUM SEPARATION AND EXTRA PROTECTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN ARIZONA ADMINISTRATIVE CODE AAC R18-5-502.



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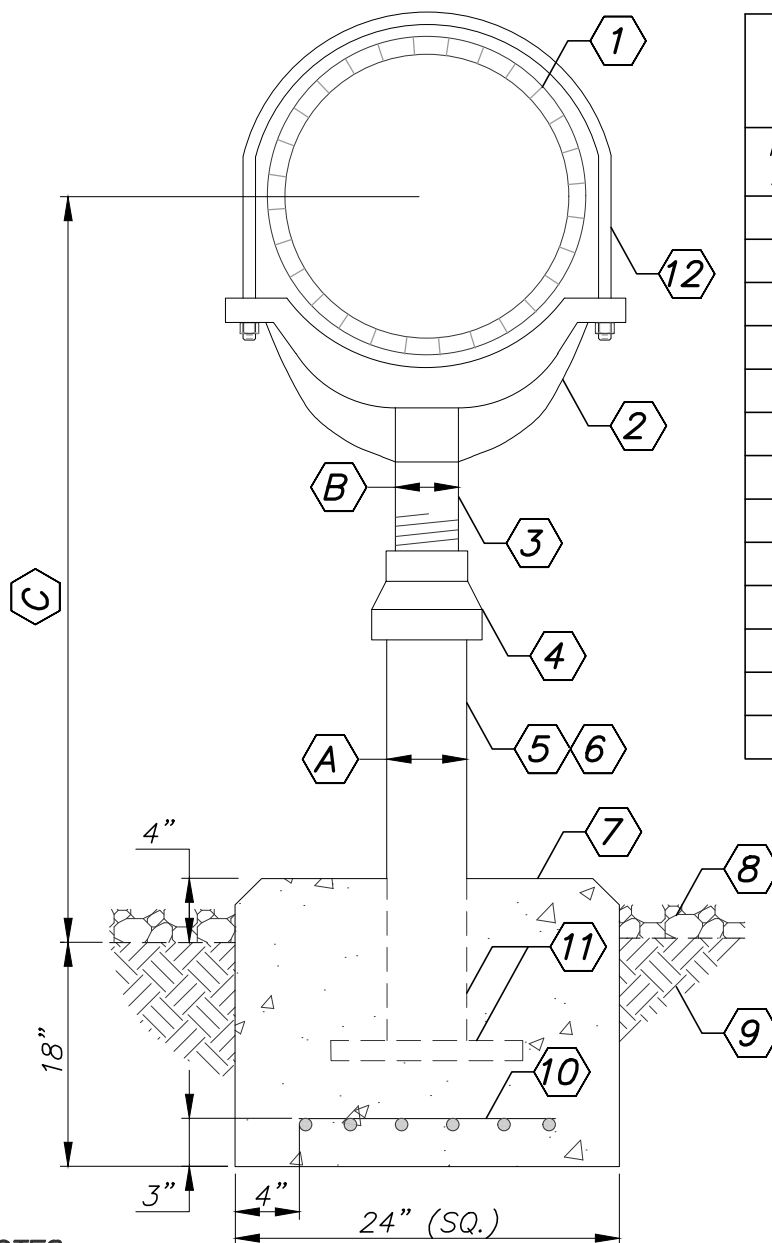
STANDARD DETAIL

**WATER
CROSSING DETAILS**

DETAIL NO.

OVWU-106

SHEET 6 OF 6



**ADJUSTABLE PIPE SADDLE
SUPPORT SCHEDULE
(Dimensions in Inches)**

PIPE SIZE	A	B	C	
			MIN	MAX
4	4	3	9.5	14
6	4	3	10.75	15.25
8	4	3	12.25	16.75
10	4	3	13.75	18.25
12	4	3	14.62	19.12
14	4	3	15.81	20.31
16	4	3	16.81	21.31
18	6	3.5	19.12	23.62
20	6	3.5	20.12	24.62
24	6	4	23.31	27.81
30	6	4	26.43	30.93
32	6	4	27.43	31.93
36	6	4	29.73	33.93

KEYNOTES:

- | | |
|--|--|
| <p>① STANDARD STEEL PIPE.</p> <p>② CAST IRON SADDLE.</p> <p>③ STAKED LOCKNUT NIPPLE.</p> <p>④ SPECIAL REDUCER.</p> <p>⑤ 4" DIA. RISER PIPE (THREAD NPT).</p> <p>⑥ PIPE SUPPORT SPECIFICATIONS FOR STEEL PER (TUCSON WATER SECTION 0501).</p> <p>⑦ 2500 (MIN.) PSI CONCRETE</p> | <p>⑧ 2" LAYER OF GRAVEL (EXIST./NEW).</p> <p>⑨ UNDISTURBED SOIL OR 95% MINIMUM COMPACTION.</p> <p>⑩ 4 x 4-W2.9/W2.9 WWF OR 5-#3 RE-BARS @ 4" O.C., BOTH WAYS.</p> <p>⑪ IMBED 4" DIA. RISER PIPE WITH 1' x 1' WIDE STEEL PLATE WELDED TO PIPE.</p> <p>⑫ STEEL YOKE WITH STEEL NUTS.</p> |
|--|--|

NOTES:

- "ANVIL" ADJUSTABLE PIPE STANCHION SADDLE, FIG. 259 OR EQUAL, W/ LOCKNUT NIPPLE FOR VERTICAL ADJUSTMENT.
- HORIZONTAL CONCRETE SURFACES SHALL BE FORMED WITH 3/4" CHAMFER.



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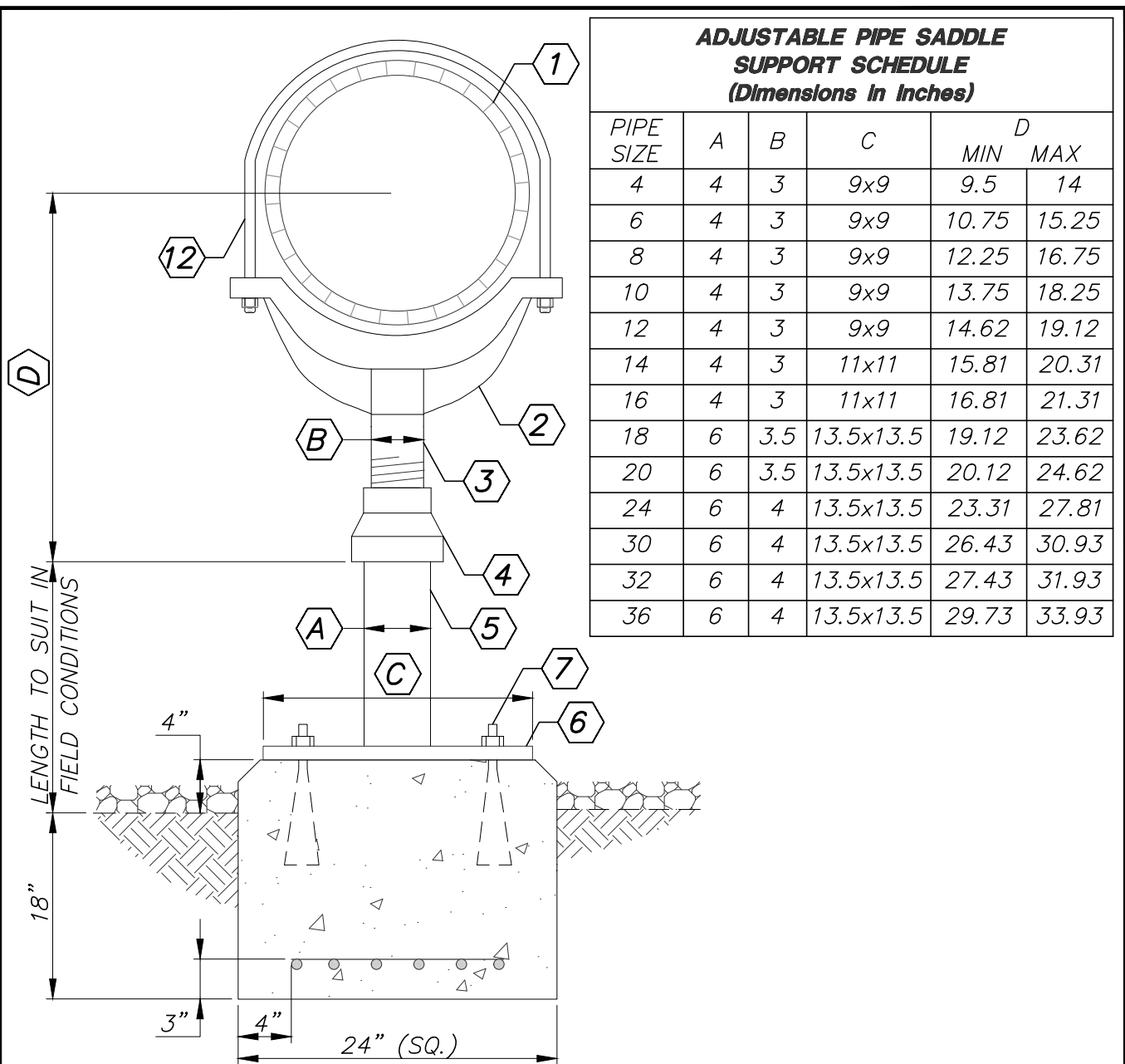
STANDARD DETAIL

PIPE SADDLE SUPPORT DETAIL

DETAIL NO.

OVWU-108

SHEET 1 OF 2



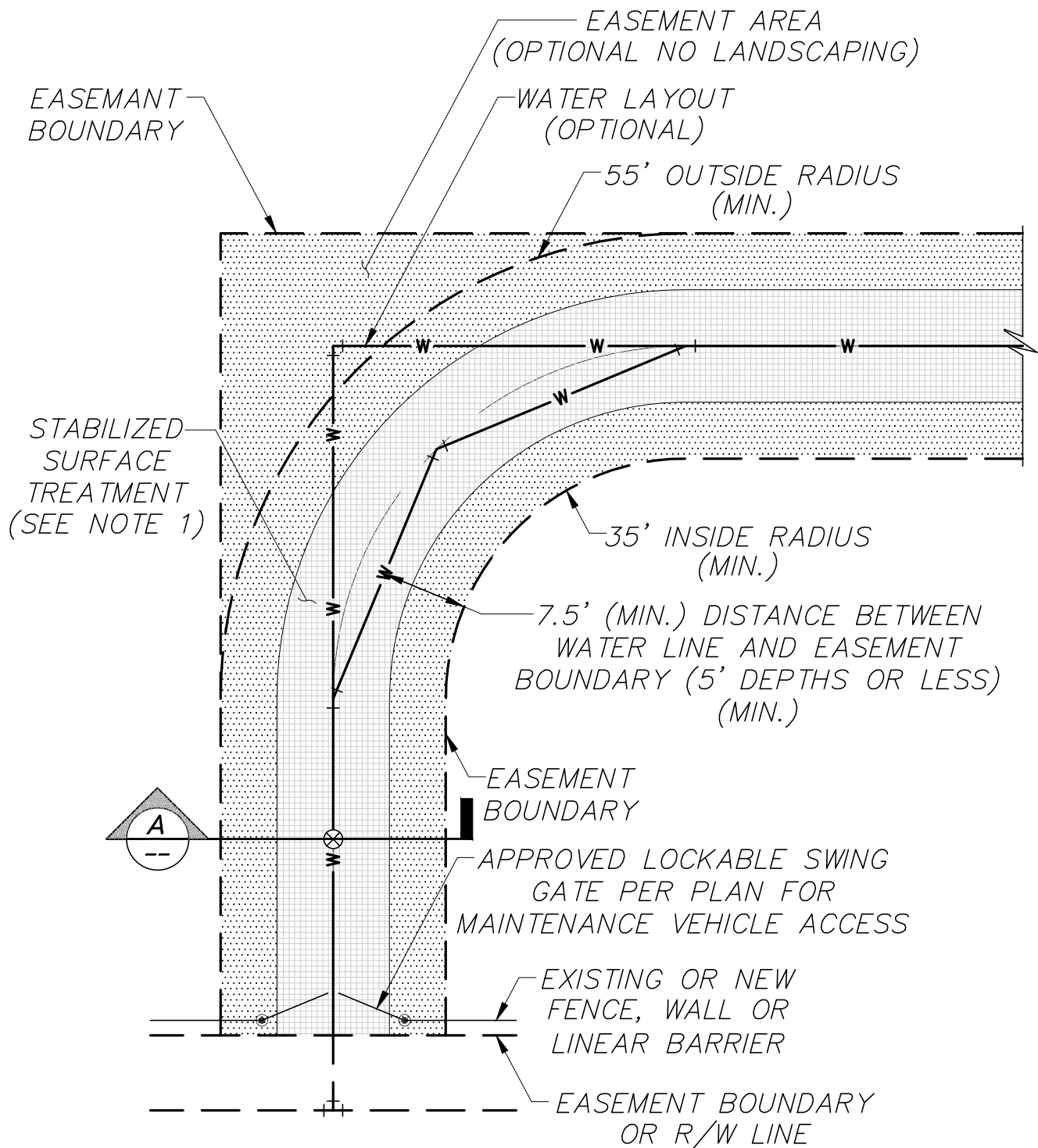
KEYNOTES:

- | | |
|---|---|
| ① STANDARD STEEL PIPE | ⑦ 4-CHEMICAL ANCHORS WITH NUTS AND WASHERS SIZE SHALL BE 1/2"Ø x 4-1/2"L WITH 3" EMBED FOR PIPE SIZES 4"-16" AND 5/8"Ø x 6"L WITH EMBED FOR PIPE SIZES 18"-36". |
| ② CAST IRON SADDLE | |
| ③ STAKED LOCKNUT NIPPLE | |
| ④ SPECIAL REDUCER | |
| ⑤ 4" DIA. RISER PIPE (THREAD NPT). | |
| ⑥ 1/2" STEEL PLATE (LENGTH AND WIDTH AS SHOWN IN PIPE SUPPORT SCHEDULE) | ⑫ STEEL YOKE WITH STEEL NUTS |

NOTES:

1. "ANVIL" ADJUSTABLE PIPE STANCHION SADDLE, FIG. 259 OR EQUAL, W/ LOCKNUT NIPPLE FOR VERTICAL ADJUSTMENT.
2. HORIZONTAL CONCRETE SURFACES SHALL BE FORMED WITH 3/4" CHAMFER.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
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NOTES:

1. SEE STANDARD DETAIL OVWU 111
2. SEE THE DESIGN STANDARDS, SUBSECTION 0.0
(FOR MORE INFORMATION).



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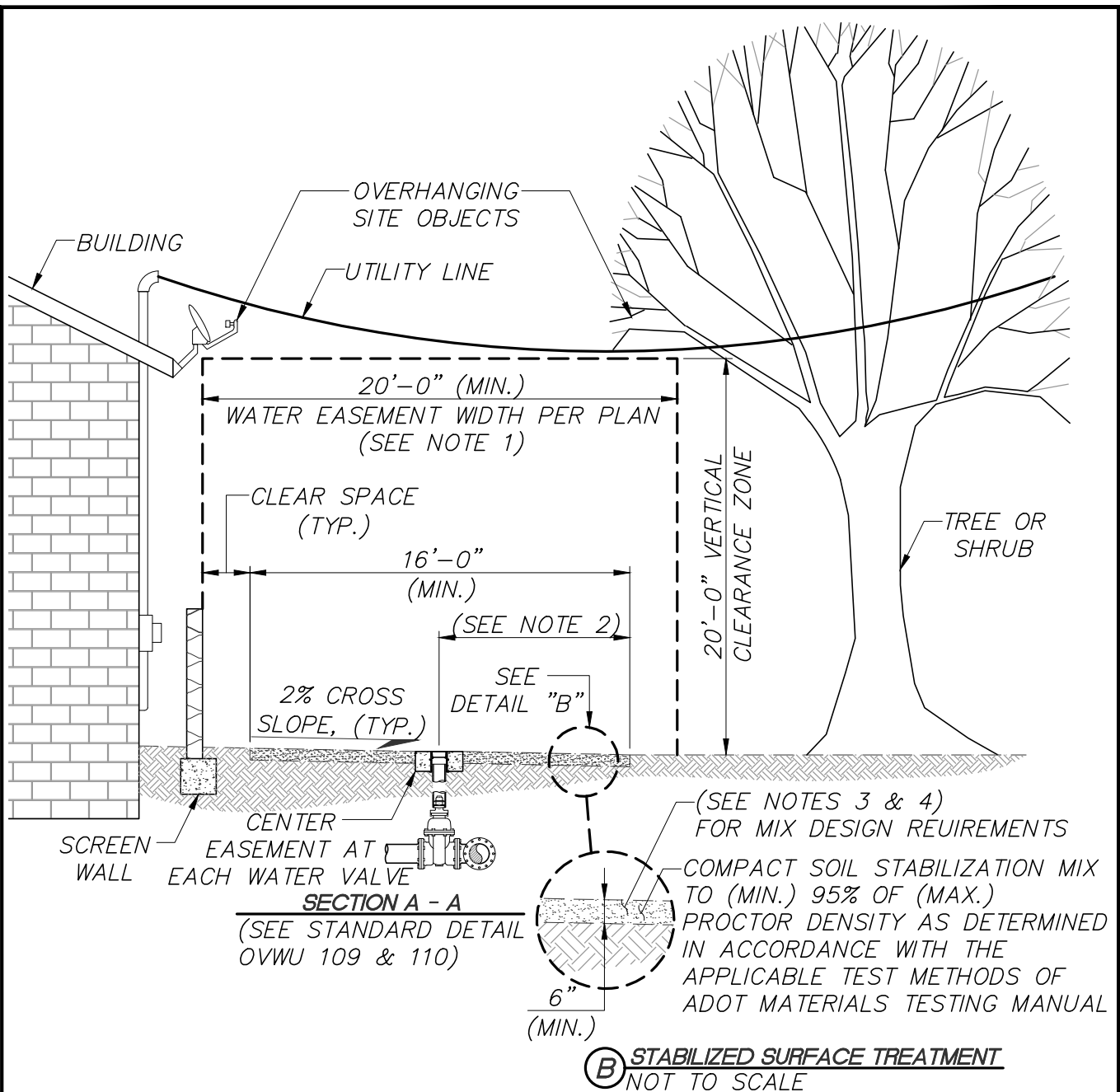
STANDARD DETAIL

**TURNING RADII FOR
WATER EASEMENTS**

DETAIL NO.

OVWU-109

SHEET 1 OF 1



NOTES:

1. FOR MINIMUM WATER EASEMENT WIDTHS AND OTHER REQUIREMENTS (SEE THE DESIGN STANDARDS, SUBSECTION 0.0).
2. THE EDGE OF THE STABILIZED SURFACE SHALL BE 6' (MIN.) FROM THE CENTER OF EACH WATER VALVE BOX.
3. MIX DESIGN FOR STABILIZED SURFACE TREATMENTS SHALL BE SUBMITTED BY THE THE CONTRACTOR FOR APPROVAL BY THE FIELD ENGINEER UNLESS PROVIDED ON THE PLANS.
4. MIX DESIGN SHALL BE CERTIFIED BY AN ARIZONA REGISTERED GEOTECHNICAL ENGINEER AND SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
BASED ON SITE-SPECIFIC SOILS, USE ONE OF THE FOLLOWING APPROVED
 - STABILIZING AGENTS:
HYDRATED LIME SLURRY (HLS), HLS AND FLY ASH, OR PORTLAND CEMENT;
 - PASS 100% THROUGH THE 3 INCH SIEVE;
 - SHALL NOT CONTAIN DELETERIOUS MATERIALS; AND
 - MINIMUM COMPRESSIVE STRENGTH OF 600-800 PSI.
 SUBMIT ALL TESTING TO THE FIELD ENGINEER. (COMPACTION AND STRESS TEST).



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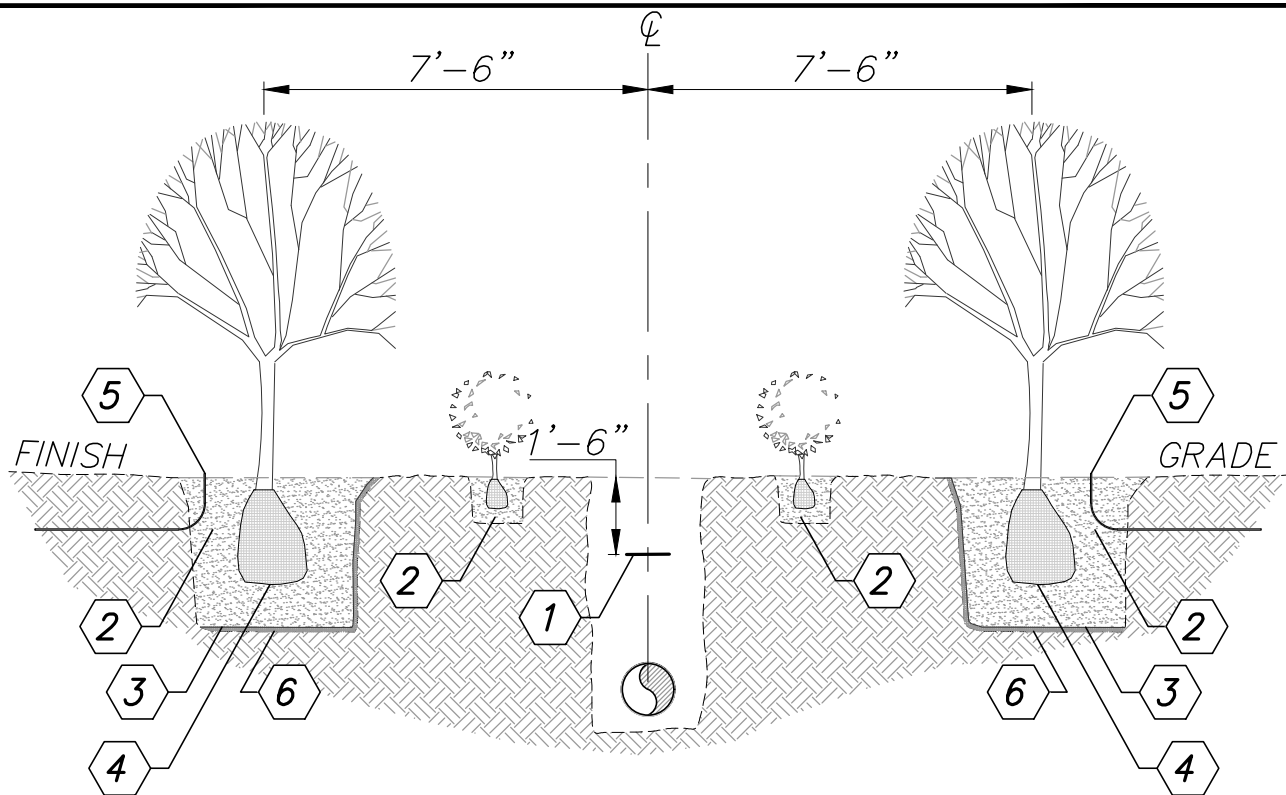
STANDARD DETAIL

WATER EASEMENT
TYPICAL SECTION

DETAIL NO.

OVWU-111

SHEET 1 OF 1



KEYNOTES:

- ① MAGNETIC LOCATOR TAPE ALL SIZE SERVICES
(SEE TUCSON WATER STANDARD SPECIFICATION 0210)
- ② WELLS AND PLANTING PITS FOR SHALLOW ROOTED PLANTS ONLY.
- ③ IF LESS THAN 7.5 FEET PLACE GEOTEXTILE MEMBRANE AT SIDE OF PLANTING PIT NEAREST WATER LINE AND ALONG BOTTOM OF PLANTING PIT. MAX REQUIRED DEPTH IS 48". PLACE ANY HERBICIDE POCKETS TOWARD ROOTS. INSPECTORS CAN EVALUATE ON CASE-BY-CASE BASIS AND APPROVE BASED ON PUBLIC WORKS AND LANDSCAPE DETAIL.
- ④ ROOT BALL
- ⑤ IRRIGATION PLACEMENT OPPOSITE SIDE OF WATER MAIN.
- ⑥ INSTALL GEOTEXTILE ROOT BARRIER AT BOTTOM OF ENTIRE PLANTING PIT CONNECTING TO LINEAR ROOT BARRIER. TO COMPENSATE AND MINIMIZE INTRUSION FROM DEEP ROOTED PLANTS.

NOTES:

1. THIS DETAIL MAYBE USED BY THE CONTRACTOR IF APPROVED IN THE PLANS OR IN WRITING BY THE ENGINEER REVIEWER.
2. ALL IRRIGATION INFRASTRUCTURE AND WIRE MUST BE A MINIMUM OF 5'-0" AWAY HORIZONTALLY FROM PUBLIC WATER MAINS.



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REVISED:

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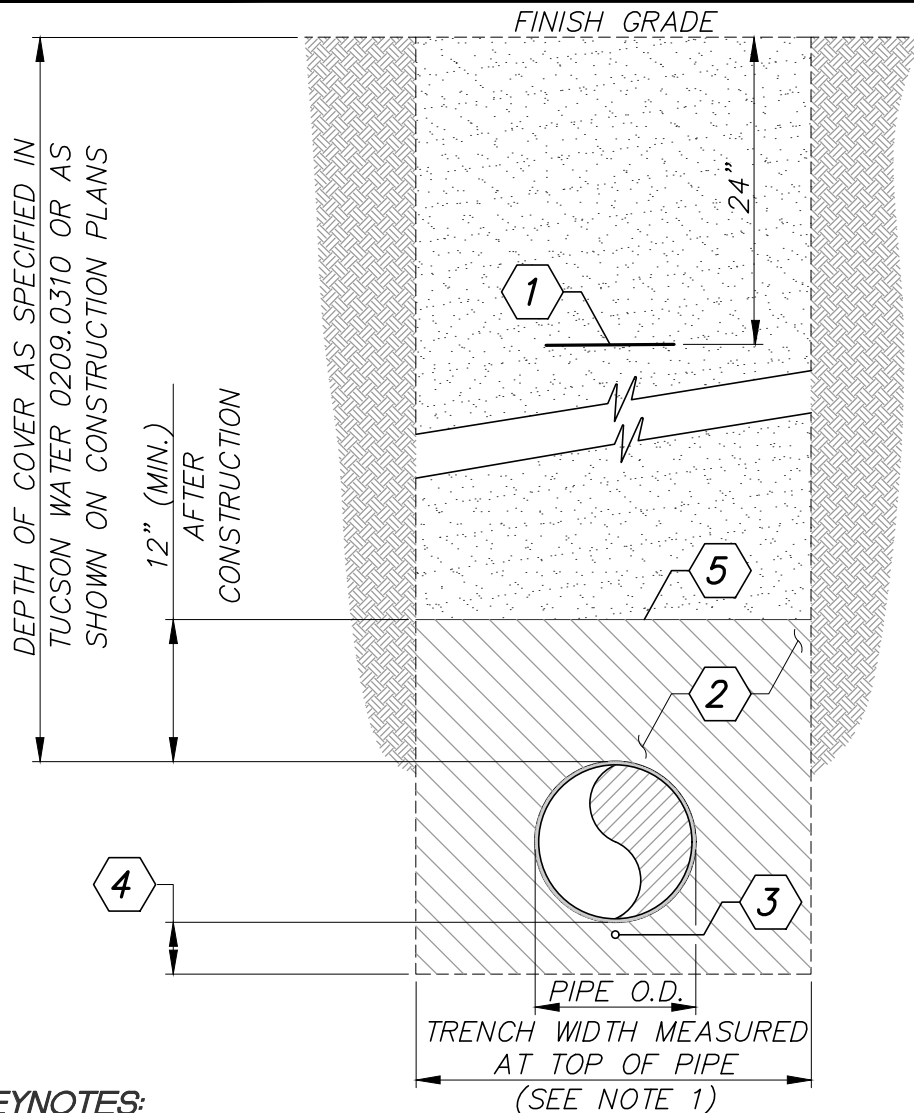
STANDARD DETAIL

LANDSCAPE GUIDELINES AND
PLANTING LIMITS ALONG WATER LINE
ALIGNMENT IN UNIMPROVED, COMMON
AND UNDEVELOPED AREAS

DETAIL NO.

OWU-112

SHEET 1 OF 1



KEYNOTES:

- ① METALLIC DETECTABLE TAPE (SEE TUCSON WATER STANDARD SPECIFICATIONS 0210)
- ② BEDDING AND SHADING MATERIAL SHALL COMPLY WITH TUCSON WATER STANDARD SPECIFICATION 0209. EXPECT WHERE NOTED IN OVWU GENERAL SYSTEM NOTES (MATERIALS STANDARD NOTE 14)
- ③ TRACER WIRE.
- ④ 4" (MIN.) FOR PIPES 12" OR SMALLER AND 6" (MIN.) FOR PIPES LARGER THAN 12"
- ⑤ PLATE TAMP SAND BEDDING 1'-0" ABOVE PIPE.

NOTES:

1. TRENCH WIDTH MEASURED AT THE TOP OF THE PIPE SHALL BE 18" FOR 4" AND 6" MAINS AND 24" FOR 8" MAINS. TRENCH WIDTH FOR 12" AND LARGER SHALL BE O.D. + 18" MIN., O.D. + 24" MAX.
2. BEDDING MATERIAL SHALL BE ACTUAL TRENCH WIDTH (BANK TO BANK)
3. PAVEMENT PATCHING SHALL CONFORM WITH THE REQUIREMENTS OF THE PIMA ASSOCIATION OF GOVERNMENTS AND TOWN OF ORO VALLEY PW REQUIREMENTS.
4. BACKFILL MATERIAL AND COMPACTION MUST MEET WITH THE REQUIREMENTS OF THE AUTHORITY THAT HAS JURISDICTION OVER THE RIGHT-OF-WAY. ALL BACKFILL MATERIAL SHALL BE SCREENED TO 6" MINUS. ON PROJECTS WHERE TWO OR MORE AUTHORITIES ARE INVOLVED, THE MORE RESTRICTIVE SPECIFICATION SHALL APPLY AND SHALL COMPLY WITH TUCSON WATER STANDARD SPECIFICATION 0209.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		
	REVISED:	PIPE BEDDING AND TRENCH BACKFILL	OVWU-115
	02/21		SHEET 1 OF 1

NOTES:

1. ALL NEW WATERLINES REQUIRE MAGNETIC LOCATOR TAPE, MARKER TAPE AND A TRACER WIRE. THE TAPE IS TO BE INSTALLED PER SD-115. THE TRACER WIRE SHALL BE 12 AWG SOLID COPPER WITH HDPE INSTALLATION AND RUN ALONG THE TOP OF THE PIPE, IN A CONTINUOUS LENGTH BETWEEN VALVES, AIR RELEASE VALVES, DRAIN VALVES, MODIFIED DRAIN VALVES, STUB OUTS, AND SERVICE LINES. THE TRACER WIRE SHALL BE SECURED TO THE PIPE IN INTERVALS OF 10' (MAXIMUM) WITH TAPE PER SD 0210.
2. FOR DIP WATERLINES, TRACER WIRE SHALL BE ATTACHED TO THE OUTSIDE OF THE POLYETHYLENE ENCASEMENT.
3. THE TRACER WIRE IS TO BE CERTIFIED BY A LICENSED PRIVATE UTILITY LOCATOR. LOCATOR SHOULD BE ABLE TO DEMONSTRATED ABILITY TO LOCATE ENTIRE LENGTH OF INSTALLED FACILITY AT A LOW FREQUENCY (8.19 kHz) OR BELOW). FINAL ACCEPTANCE WILL NOT BE GRANTED UNTIL CERTIFICATION IS RECEIVED BY TUCSON WATER.
4. TRACER WIRE ON POTABLE WATER LINES SHALL BE COLORED BLUE. TRACER WIRE ON RECLAIMED WATER LINES SHALL BE COLORED PURPLE.



ISSUED:

02/21

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02/21

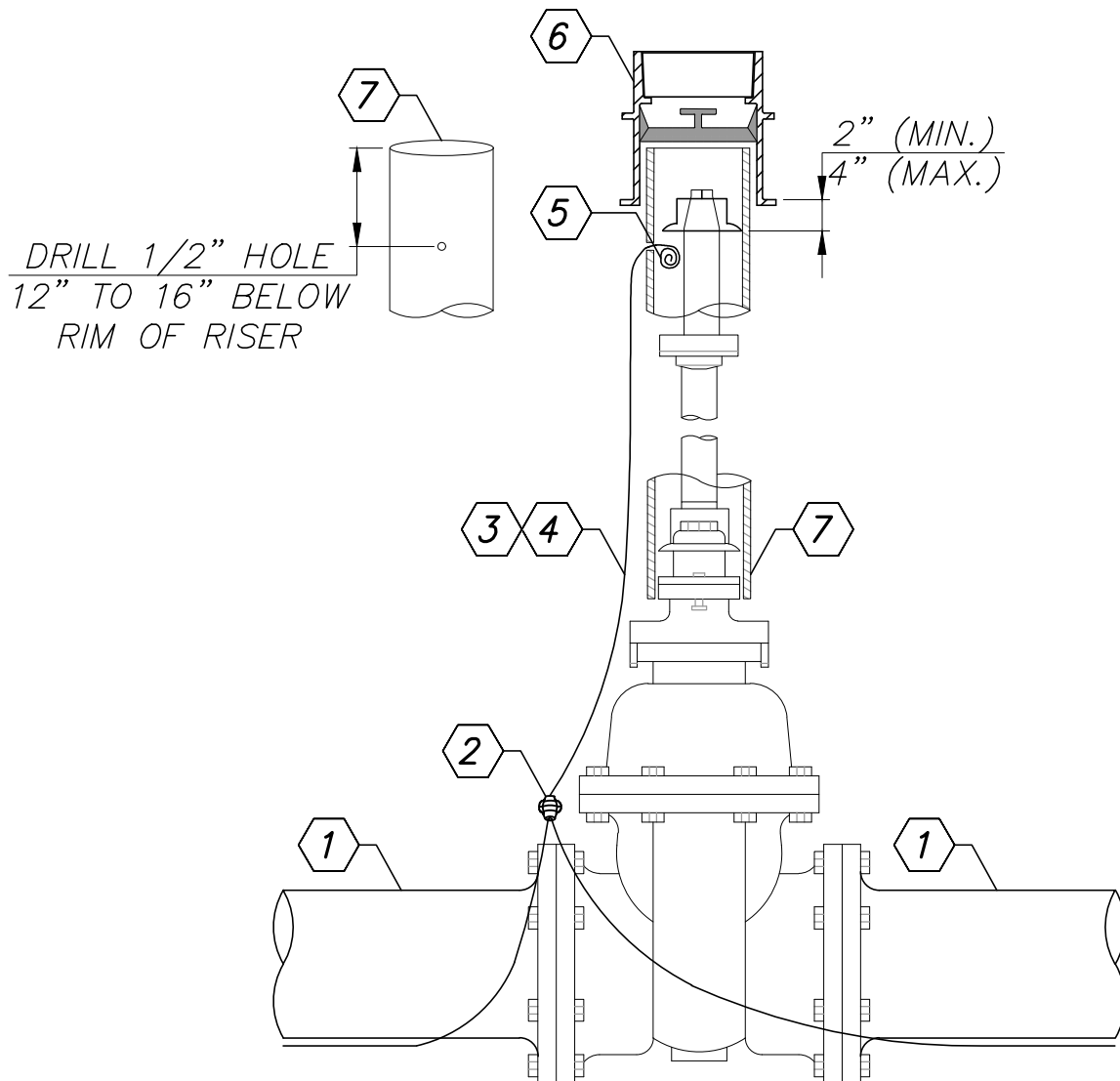
STANDARD DETAIL

TRACER WIRE

DETAIL NO.

OWWU-116

SHEET 1 OF 7



CONNECTION TO IN-LINE VALVES

KEYNOTES:

- ① MAIN
- ② 3 WAY CONNECTOR
- ③ TRACER WIRE IN ACCORDANCE WITH NOTES
- ④ SECURE WIRE TO RISER AT INTERVALS OF 1' WITH WIRE OR TAPE
- ⑤ 3' COIL WITH TWIST ON WIRE NUT
- ⑥ VALVE BOX COVER (SEE OVWU STANDARD DETAIL 300)
- ⑦ RISER (SEE OVWU STANDARD DETAIL 300)

NOTES:

1. TRACER WIRE SHALL BE SECURED TO THE RISER AT MAXIMUM INTERVALS OF 1'.
2. THREAD TRACER WIRE THROUGH 1#4" HOLE DRILLED IN THE RISER PIPE 2" TO 4" BELOW THE VALVE BOX. A KNOT SHALL BE TIED IN THE TRACER WIRE INSIDE THE RISER PIPE AND A 3' COIL OF WIRE LEFT NEATLY INSIDE THE RISER.
3. A TWIST ON WIRENUT SHALL BE INSTALLED ON END OF TRACER WIRE INSIDE OF RISER. (PART #SCB-01).



ISSUED:

02/21

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02/21

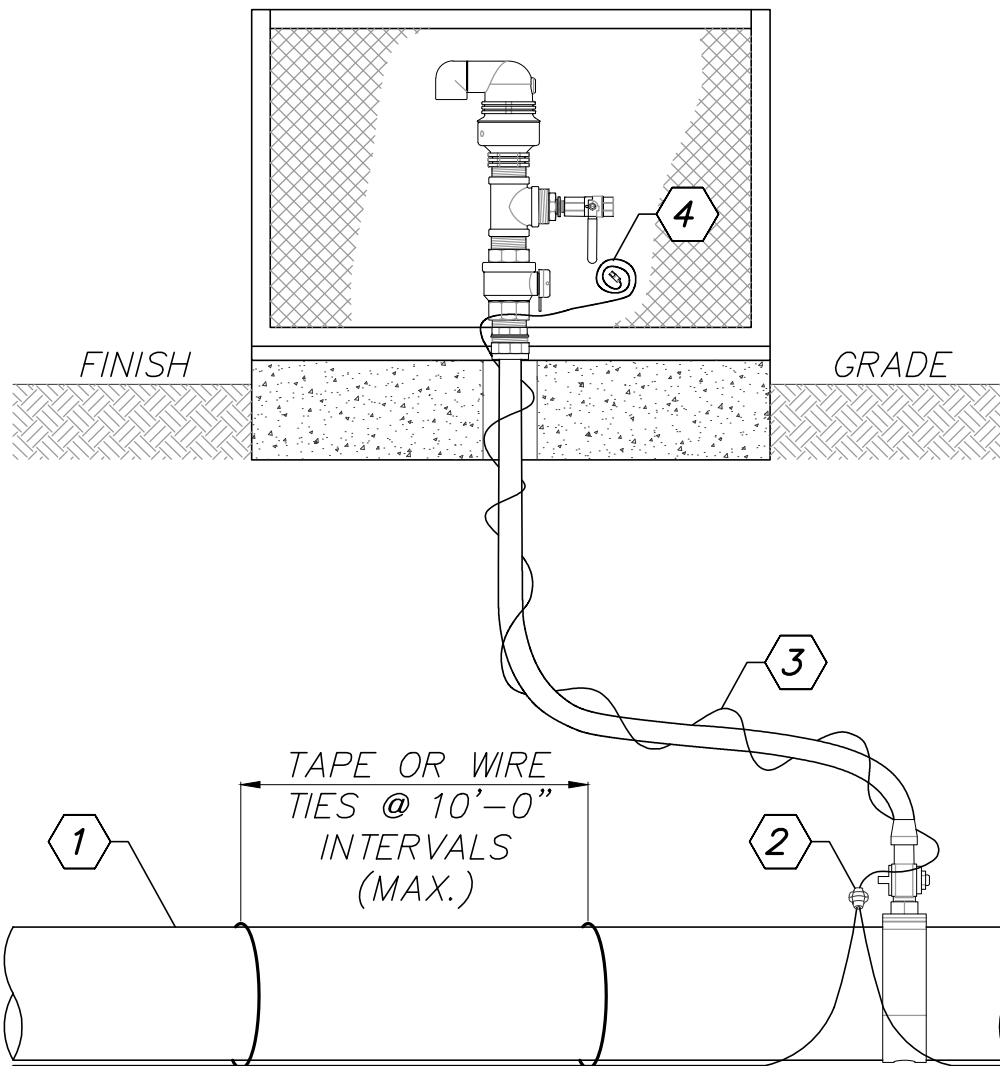
STANDARD DETAIL

TRACER WIRE

DETAIL NO.

OVWU-116

SHEET 2 OF 7



KEYNOTES:

- | | |
|-------------------|----------------------------|
| 1 MAIN | 3 TRACER WIRE |
| 2 3 WAY CONNECTOR | 4 3' COIL W/TWIST ON WIRE. |

NOTES:

1. THE TRACER WIRE SHALL BE ATTACHED TO THE AIR RELEASE LINE WITH TAPE AT 1' INTERVALS. A 3' COIL OF WIRE SHALL BE LEFT IN THE METER BOX.
2. THIS DETAIL APPLIES TO AIR RELEASE VALVES IN OVWU-330 AND OVWU-331.



ISSUED:

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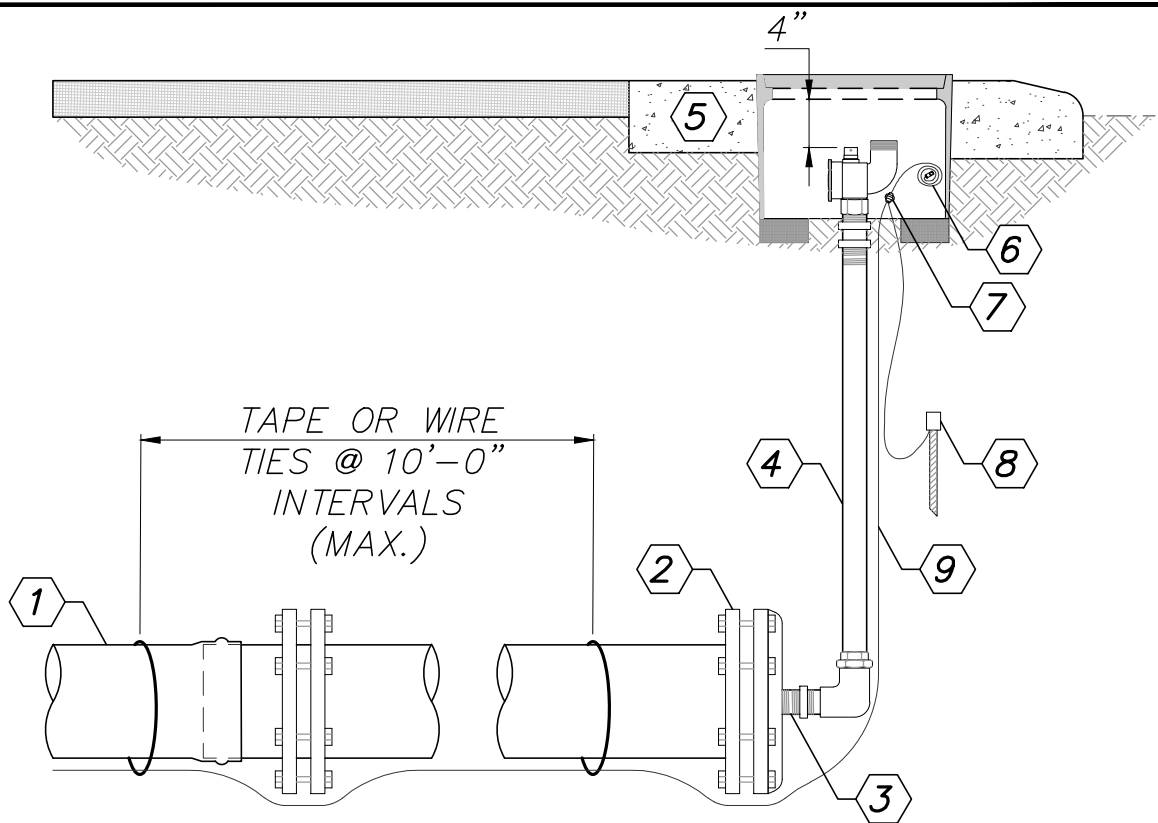
STANDARD DETAIL

TRACER WIRE

DETAIL NO.

OVWU-116

SHEET 3 OF 7



KEYNOTES:

- | | |
|---|--|
| <p>① MAIN</p> <p>② MJ x 2" FIP CAP WITH RESTRAINER</p> <p>③ 2"Ø x 6" BRASS NIPPLE IPT</p> <p>④ 2" TYPE "K" COPPER TUBE (RIGID)</p> <p>⑤ CONCRETE (SEE STANDARD DETAIL OVWU-300)</p> | <p>⑥ 3' WIRE COIL (WITH TWIST ON WIRE NUT)</p> <p>⑦ 3 WAY CONNECTOR</p> <p>⑧ MAGNESIUM ANODE</p> <p>⑨ TRACER WIRE IN ACCORDANCE WITH NOTES</p> |
|---|--|

NOTES:

1. TYPICAL TRACER WIRE INSTALLATION FOR DRAIN VALVE ASSEMBLY (SEE STANDARD DETAIL OVWU-400)
2. THE TRACER WIRE SHALL BE ATTACHED TO THE COPPER PIPE WITH TAPE AT 1' INTERVALS.



ISSUED:

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STANDARD DETAIL

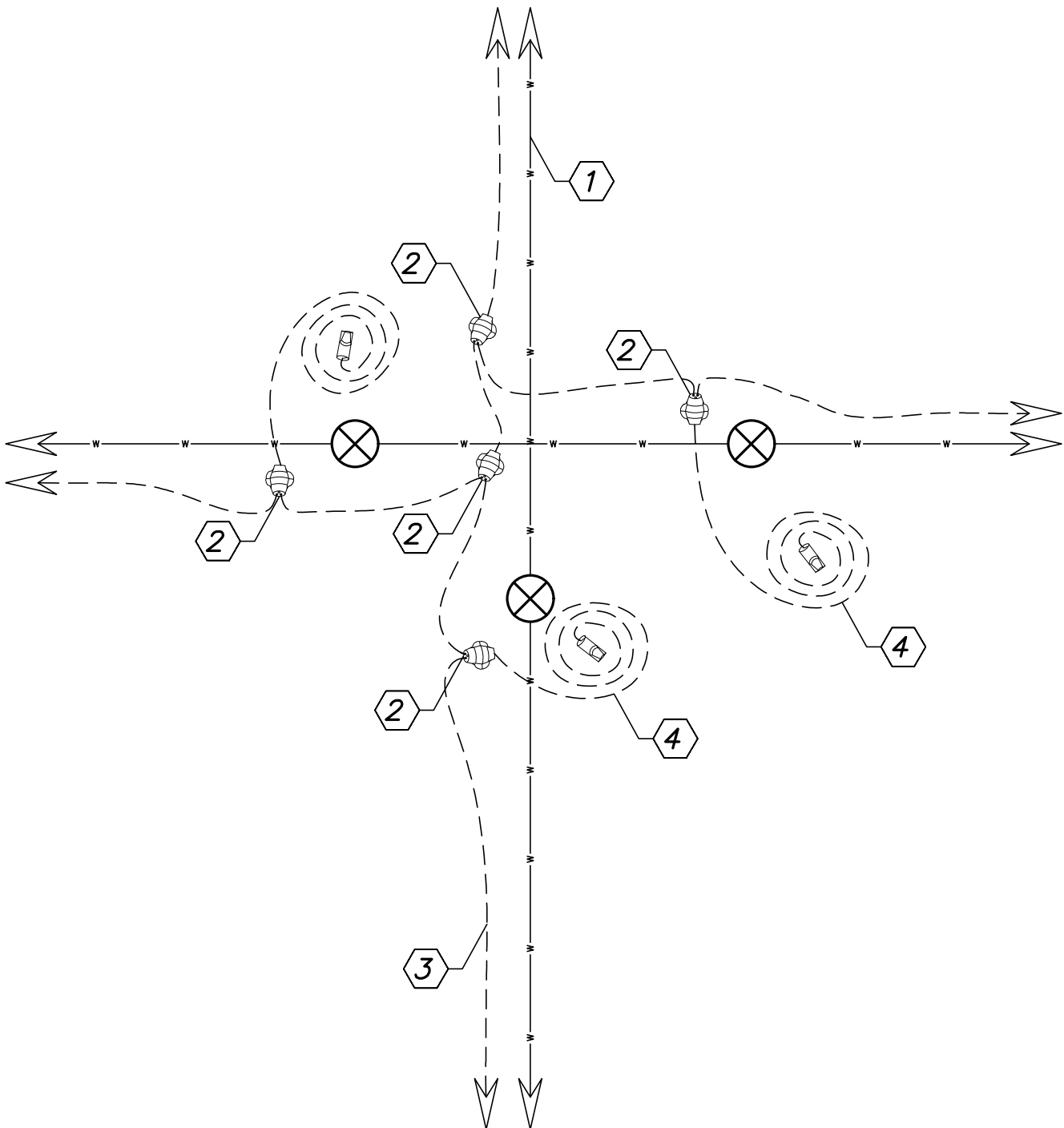
TRACER WIRE

DETAIL NO.

OVWU-116

SHEET 4 OF 7

EXAMPLE OF 4-WAY CROSS USING 3-WAY CONNECTORS



KEYNOTES:

1 MAIN

3 TRACER WIRE

2 3 WAY
CONNECTORS

4 TRACER TO COME UP
THROUGH VALVE RISER
(SEE STANDARD DETAIL OVWU-116 2 OF 7)



ISSUED:

02/21

REVISED:

02/21

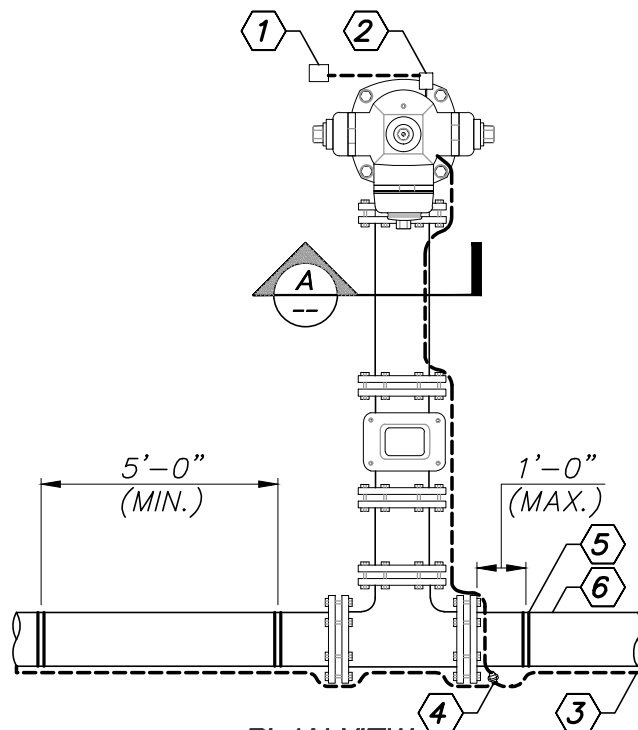
STANDARD DETAIL

TRACER WIRE

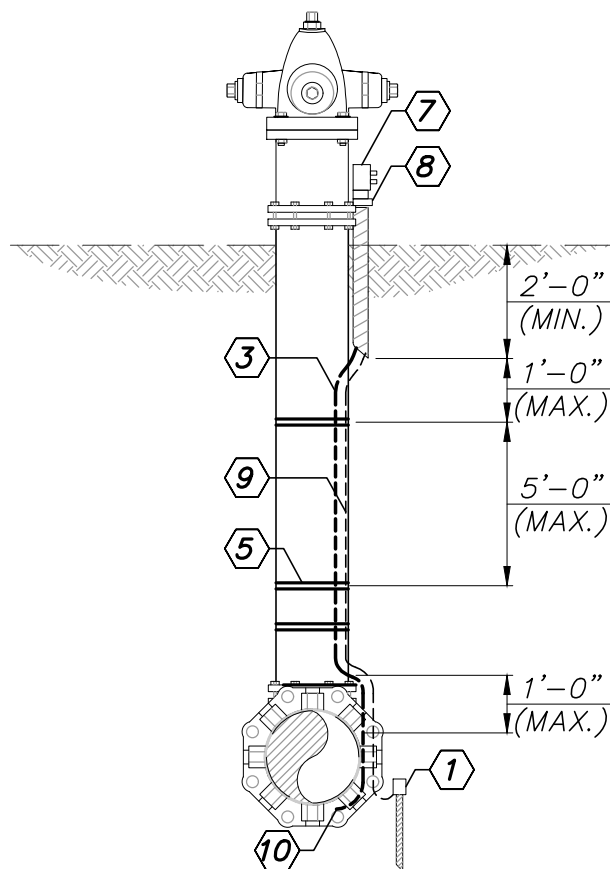
DETAIL NO.

OVWU-116

SHEET 5 OF 7



PLAN VIEW
NOT TO SCALE



DETAIL "A"
NOT TO SCALE

KEYNOTES:

- ① DRIVE-IN MAGNESIUM GROUND ANODE ROD
- ② ABOVE-GROUND TRACE WIRE ACCESS BOX PERMANENTLY MOUNT TO GRADE FLANGE BOLT (SEE FRONT VIEW)
- ③ #12 AWG COPPER-BLUE (TYP.)
- ④ 3-WAY CONNECTOR
- ⑤ TAPE OR PLASTIC TIE (TYP.)
- ⑥ WATER MAIN
- ⑦ ABOVE-GROUND TRACE WIRE ACCESS BOX (SEE NOTE 1)
- ⑧ BRACKET TO PERMANENTLY SECURE ACCESS BOX TO GRADE FLANGE WITH 3/4" CONDUIT
- ⑨ #14 AWG COPPER CLAD STEEL-RED, FACTORY CONNECTED TO GROUND ROD
- ⑩ WIRE CONTINUES UNDER HYDRANT LEAD AND CONNECTS TO MAIN LINE WIRE (SEE PLAN VIEW)

NOTES:

1. TRACER WIRE BOX SHALL NOT BE INSTALLED BELOW PUMPER NOZZLE OF HOSE NOZZLE, BOX SHALL BE INSTALLED AT THE BACKSIDE OF THE FIRE HYDRANT. ALL OUTLETS MUST HAVE SUFFICIENT CLEARANCE TO OPEN WITHOUT AFFECTING THE TRACER WIRE BOX. MINIMUM 2' OF 3/4" CONDUIT SHALL BE INSTALLED TO ACCESS BOX.



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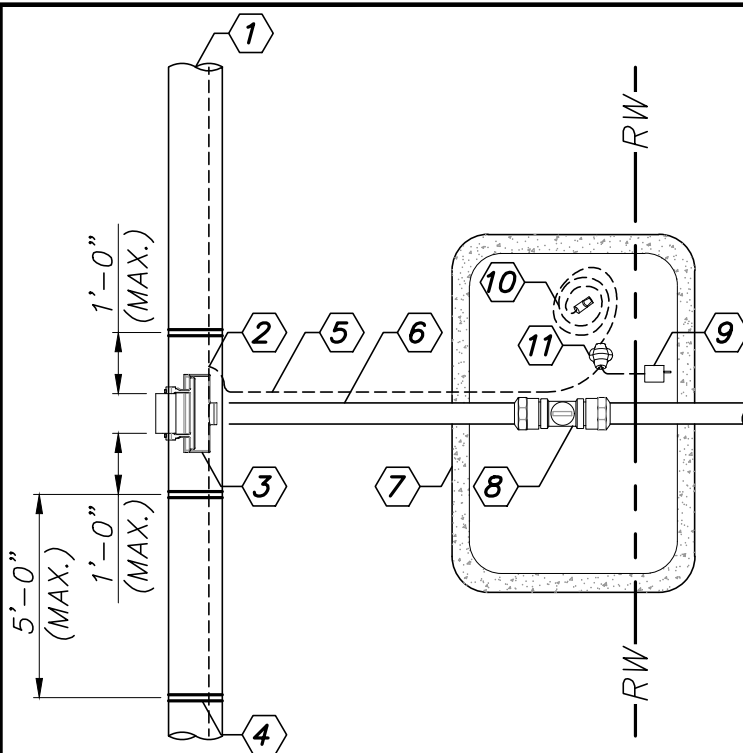
STANDARD DETAIL

TRACER WIRE

DETAIL NO.

OWU-116

SHEET 6 OF 7



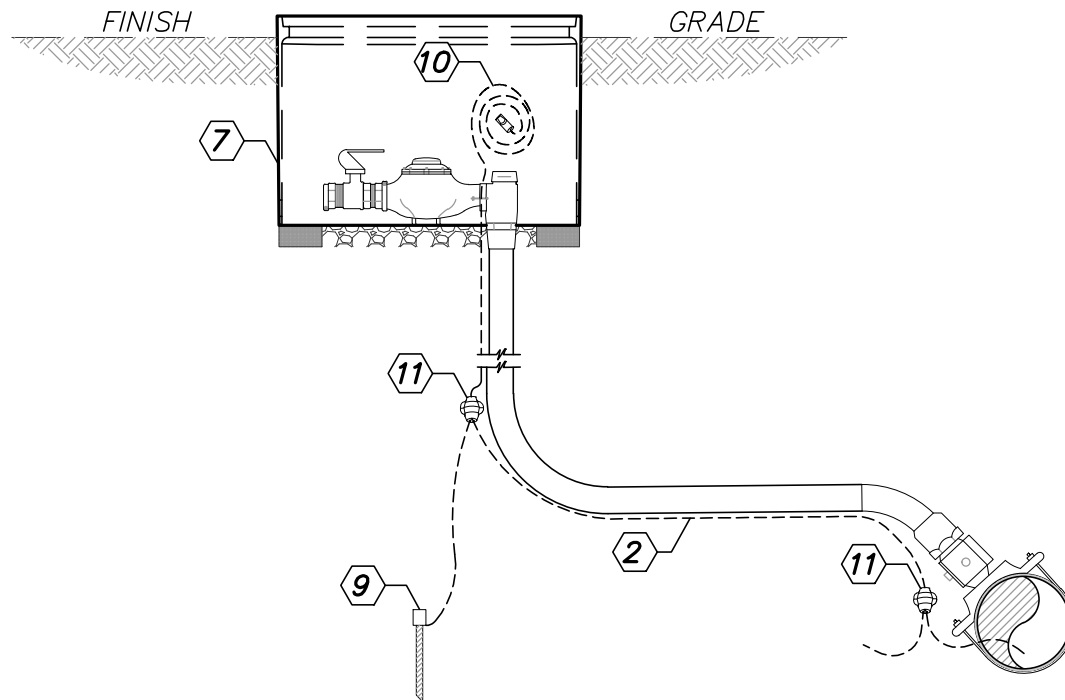
KEYNOTES:

- 1 WATER MAIN
- 2 MAIN LINE TO LATERAL LUG CONNECTOR
- 3 PIPE SADDLE
- 4 TAPE OR PLASTIC TIE (TYP.)
- 5 #12 AWG COPPER TRACER WIRE
- 6 WATER SERVICE
- 7 WATER METER BOX
- 8 CURB STOP FITTING
- 9 DRIVE-IN MAGNESIUM GROUNDING ANODE ROD
- 10 3' COIL SLACK/EXCESS TRACER WIRE WITH TWIST ON WIRE NUT

NOTES:

1. WATER SERVICE ANODES ARE NOT REQUIRED WHERE METERS ARE LOCATED WITHIN 150'-0" FROM EACH OTHER IN SUBDIVISIONS WITH MULTIPLE RESIDENTIAL LOTS.

11 TRACER WIRE SHALL BE ATTACHED TO COPPER PIPE WITH TAPE AT 1'-0" INTERVALS



ISSUED:

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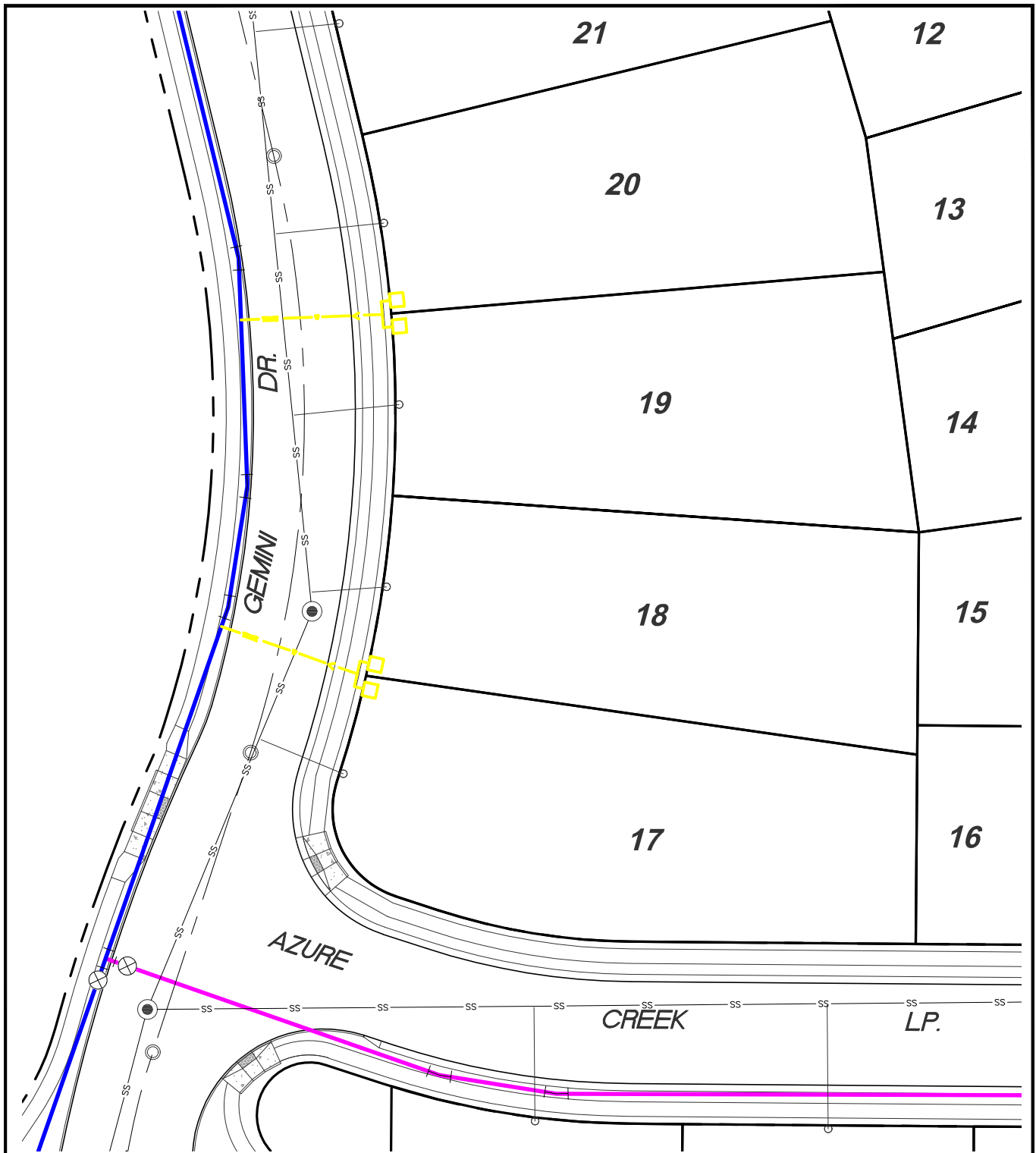
STANDARD DETAIL

**WATER SERVICE
TRACER WIRE
(ALL SERVICES)**

DETAIL NO.

OWWU-116

SHEET 7 OF 7



40 0 40 80
Scale: 1" = 40'

— PASS (BLUE)
— FAIL (PINK)
— TRACEABLE (YELLOW)

⊗ ARV

⊗ WATER VALVE

○ DVA

⊗ FIRE HYDRANT

□ SERVICE



ISSUED:

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REVISED:

02/21

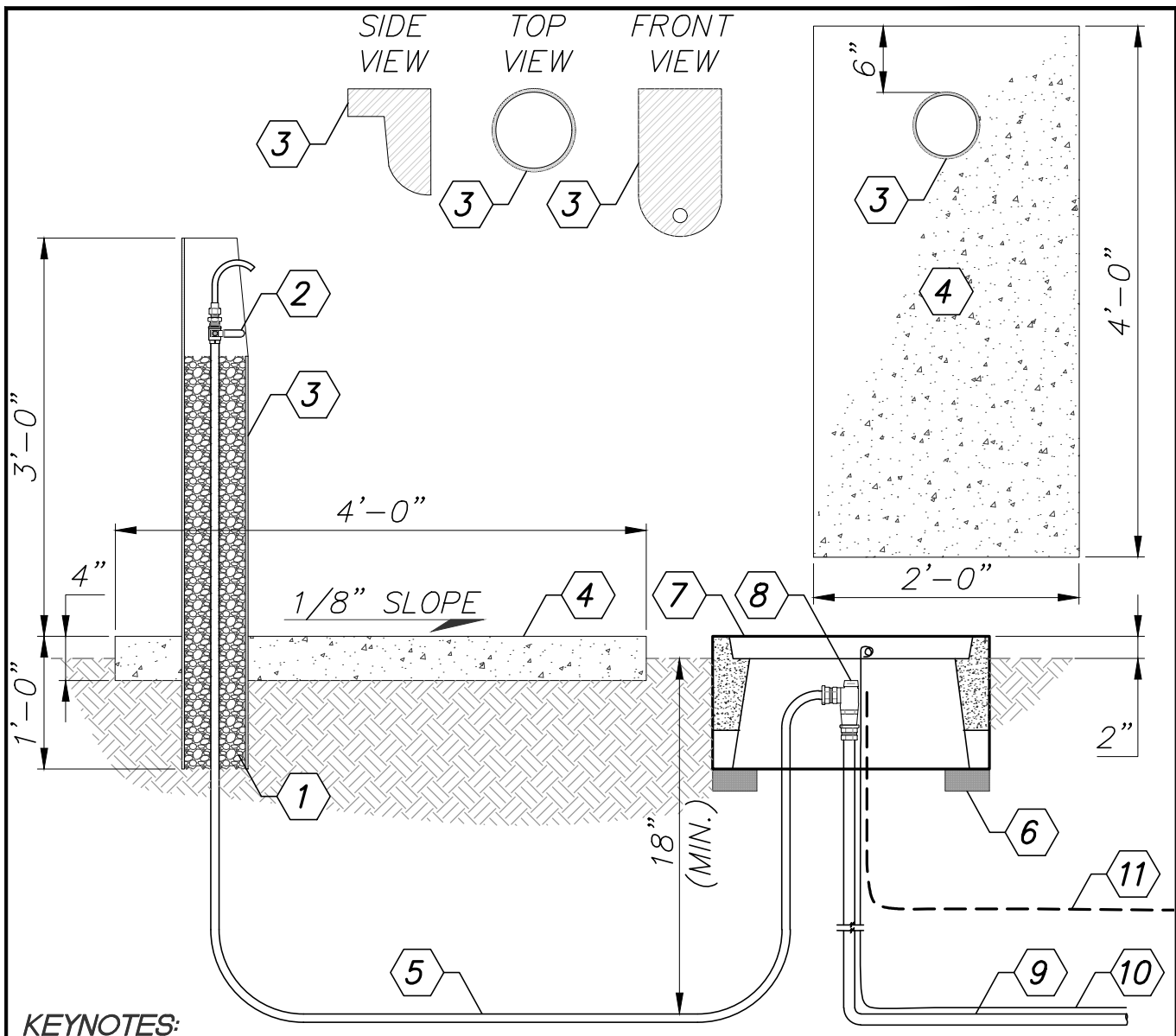
STANDARD DETAIL

CORROSION AND CONTINUITY
TEST DETAIL

DETAIL NO.

OWU-119

SHEET 1 OF 1



KEYNOTES:

- ① FILL HOUSING WITH PEA GRAVEL
- ② 1/2" x 3/8" (AP) S.S. BALL VALVE
- ③ USE ONLY KORALEEN WATER QUALITY SAMPLING STATION (STATION GUARD XLT) AS ONLY APPROVED STATION
- ④ 4" THICK CONCRETE SPLASH PAD WITH WELDED WIRE REINFORCED.
- ⑤ 3/4" TYPE K USA COPPER PER TUCSON WATER STANDARD 1416.0201 (B) BETWEEN ANGLE METER STOP, 1" x 3/4" MIP x COMPRESSION AND STAINLESS STEEL OUTLET (WATER SUPPLY LINE TO SAMPLING STATION)
- ⑥ 2" x 4" x 12" SOLID CONCRETE BLOCKS OR (ROMAN BRICK ENTIRE LENGTH AND WIDTH OF BOX)
- ⑦ METER BOX #2 (OVWU SEE STANDARD DETAIL 310)
- ⑧ 1" ANGLE METER STOP AS SHOWN, FOR CLARITY (INSTALL PER OVWU AND TUCSON WATER STANDARDS)
- ⑨ 1" WATER SERVICE FROM MAIN LINE
- ⑩ TRACER WIRE, IN ACCORDANCE WITH (TUCSON WATER STANDARD DETAIL 116)
- ⑪ MAGNETIC LOCATOR TAPE ALL SIZE SERVICES (SEE TUCSON WATER STANDARD SPECIFICATION 0210)



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REVISED:

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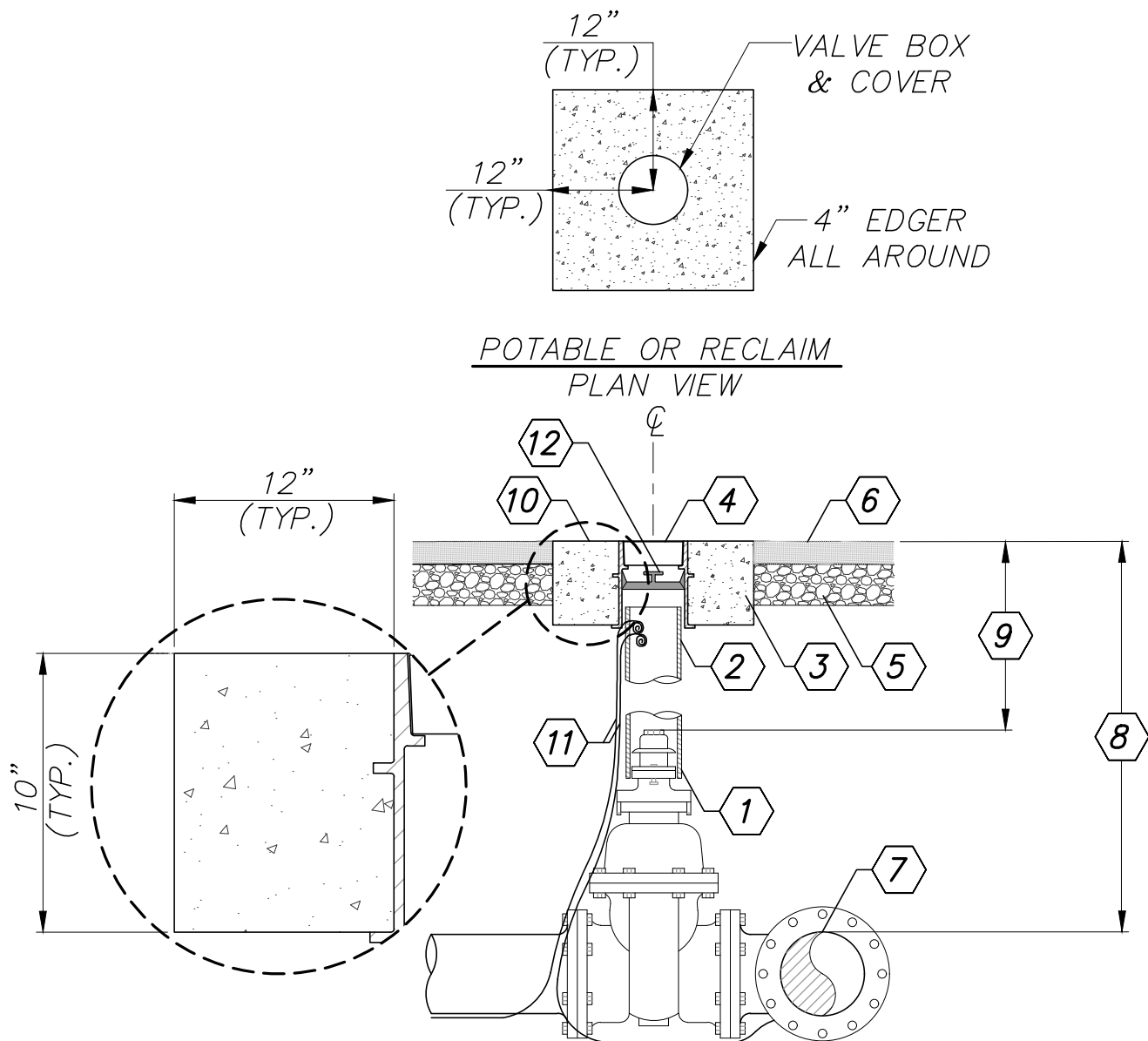
STANDARD DETAIL

**WATER QUALITY
SAMPLING STATION**

DETAIL NO.

OVWU-126

SHEET 1 OF 1



KEYNOTES:

- ① CONTINUOUS LENGTH OF RISER PIPE. RISER PIPE SHALL BE PVC MEETING THE REQUIREMENTS OF AWWA C900 FOR D14 CL 305 JOINTS IN RISER PIPE IF REQUIRED, SHALL BE SECURED BY USING A FERNCO FLEXIBLE COUPLING FOR SEWER PIPE OF APPROVED EQUAL RISER PIPE FOR RECLAIMED WATER VALVES SHALL BE PURPLE (SEYMOUR SAFETY PURPLE) IN COLOR. PAINTING INSIDE OF RISER PIPE IS ACCEPTABLE.
- ② RISER PIPE MUST FIT LOOSE INSIDE VALVE BOX
- ③ CONCRETE COLLAR (2FT. SQ.) (PAVED AREAS) 2,500 PSI
- ④ VALVE BOX & COVER (PER OVWU STANDARD DETAIL 300)
- ⑤ A.B.C. 100% COMPACTION
- ⑥ FINISHED GRADE (PAVED)
- ⑦ WATER MAIN PIPE
- ⑧ PIPE DEPTH PER PLANS - 44" MIN. (60" MIN. IN ANY RIGHT-OF-WAY INCLUDING PIMA COUNTY, ORO VALLEY, MARANA AND ADOT NOT AT FINISH GRADE)
- ⑨ REFER TO (TUCSON WATER STANDARD DETAIL 305)
- ⑩ CLASS 2 FINISH (HARD TROWEL LIGHT BROOM)
- ⑪ TRACER WIRE WITH 3 WAY CONNECTOR, IN ACCORDANCE WITH (PER OVWU STANDARD DETAIL 115)
- ⑫ DEBRIS CAP (SW SERVICES MODEL: DC456)

NOTES:

1. CONCRETE COLLAR TO EXTEND TO FINISHED GRADE WHEN INSTALLED IN CONCRETE PAVEMENT.



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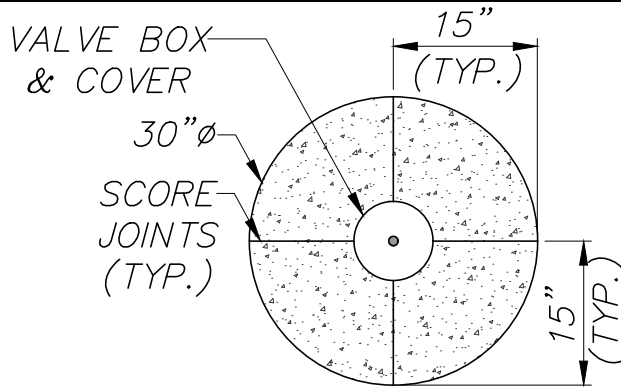
STANDARD DETAIL

VALVE BOX INSTALLATION IN PAVEMENT

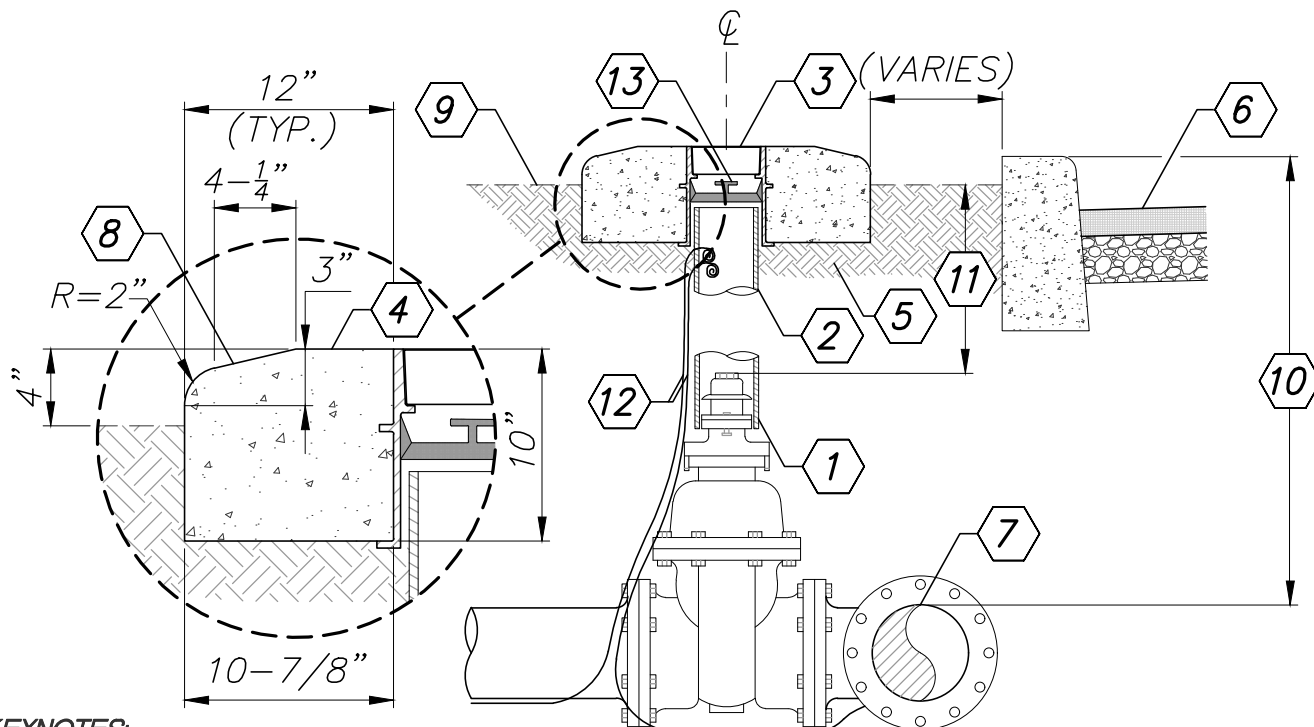
DETAIL NO.

OVWU-300

SHEET 1 OF 5



POTABLE OR RECLAIM CONCRETE COLLAR
PLAN VIEW



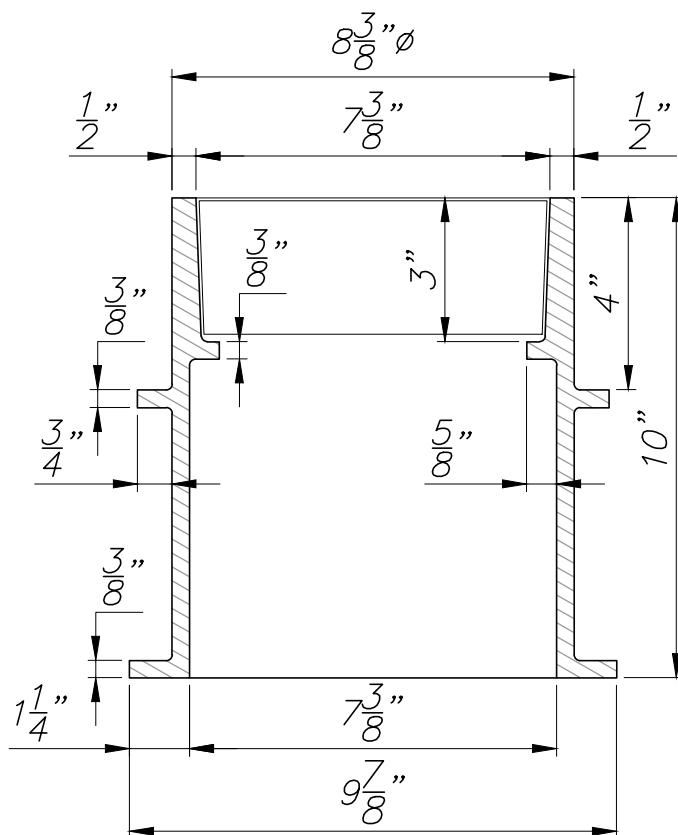
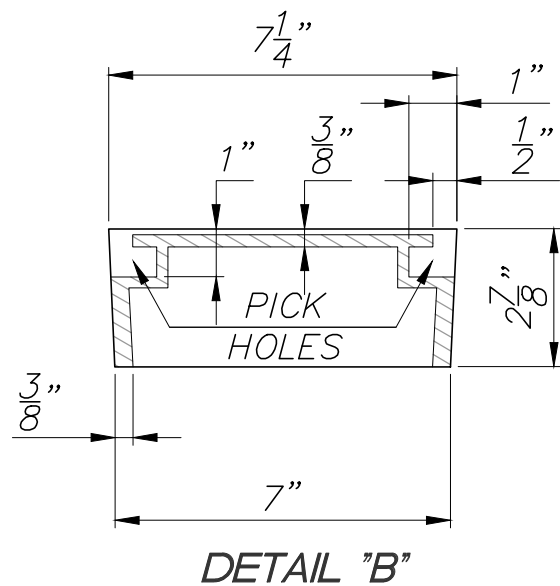
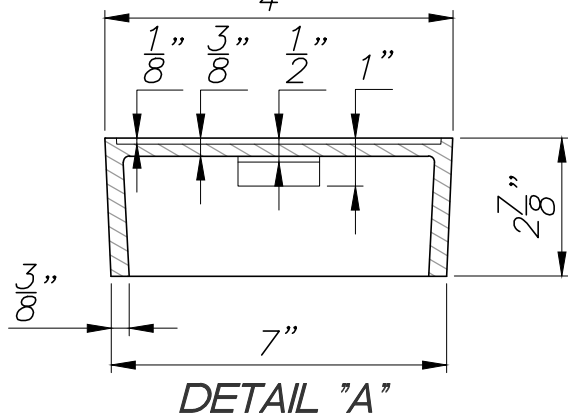
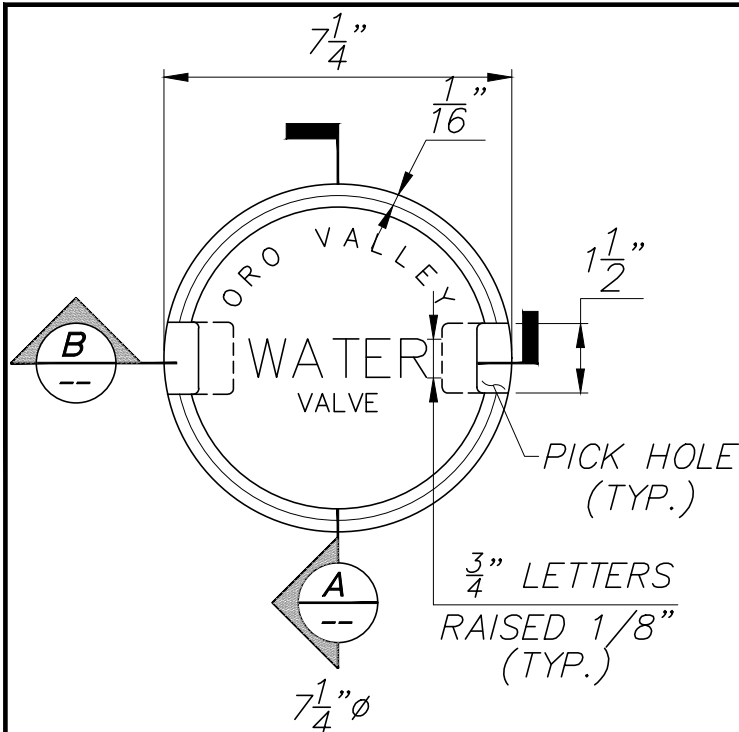
KEYNOTES:

- ① CONTINUOUS LENGTH OF RISER PIPE. RISER PIPE SHALL BE PVC MEETING THE REQUIREMENTS OF AWWA C900 FOR D14 CL 305 JOINTS IN RISER PIPE IF REQUIRED, SHALL BE SECURED BY USING A FERNCO FLEXIBLE COUPLING FOR SEWER PIPE OF APPROVED EQUAL RISER PIPE FOR RECLAIMED WATER VALVES SHALL BE PURPLE (SEYMOUR SAFETY PURPLE) IN COLOR. PAINTING INSIDE OF RISER PIPE IS ACCEPTABLE.
- ② RISER PIPE MUST FIT LOOSE INSIDE VALVE BOX
- ③ VALVE BOX & COVER (PER OVWU STANDARD DETAIL 300)
- ④ TOP OF CONCRETE COLLAR (16 INCH RADIUS) UNPAVED 3000 PSI
- ⑤ A.B.C. 100% COMPACTION
- ⑥ FINISHED GRADE (PAVED)
- ⑦ WATER MAIN PIPE
- ⑧ CONCRETE COLLAR TO BE BEVELED WHEN VALVE BOX IS LOCATED WITHIN UNPAVED AREA
- ⑨ FINISHED GRADE (UNPAVED)
- ⑩ PIPE DEPTH PER PLANS - 44" MIN. (60" MIN. IN ANY RIGHT-OF-WAY INCLUDING PIMA COUNTY, ORO VALLEY, MARANA AND ADOT NOT AT FINISH GRADE)
(REFER TO SHEET OVWU 300, 1 OF 4 FOR ADDITIONAL INFORMATION)
- ⑪ REFER TO TUCSON WATER STANDARD DETAIL-305
- ⑫ TRACER WIRE WITH 3 WAY CONNECTOR, IN ACCORDANCE WITH (PER OVWU STANDARD DETAIL 115)
- ⑬ DEBRIS CAP (SW SERVICES MODEL: DC456)

NOTES:

1. OUTSIDE OF PAVEMENT, BOXES ARE ADJUSTED TO 6 INCH ABOVE GRADE.

	ISSUED:	STANDARD DETAIL VALVE BOX INSTALLATION OUTSIDE PAVEMENT	DETAIL NO.
	01/18		OVWU-300
	REVISED:		SHEET 2 OF 5
	10/20		



NOTES:

1. ALL MATERIAL SHALL BE CAST IRON PER ASTM. A-48, CLASS 30 B.
2. THE SURFACES OF THE COVER AND BOX WHICH COME IN CONTACT WITH EACH OTHER MUST BE SMOOTH AND FREE OF ALL CASTING RIDGES AND BURRS TO PROVIDE A SNUG FIT.
3. THE COVER AND BOX SHALL WEIGH 50 POUNDS \pm 5 POUNDS.
4. THE VALVE BOX COVER SHALL ROTATE 360° IN THE BOX CASTING WITHOUT BINDING.
5. LETTERING SHALL BE RESTRICTED TO THAT SHOWN ON THE VALVE BOX COVER.
6. CASTING TO BE GLOSS BLACK ASPHALTIC COATED.



ISSUED:

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STANDARD DETAIL

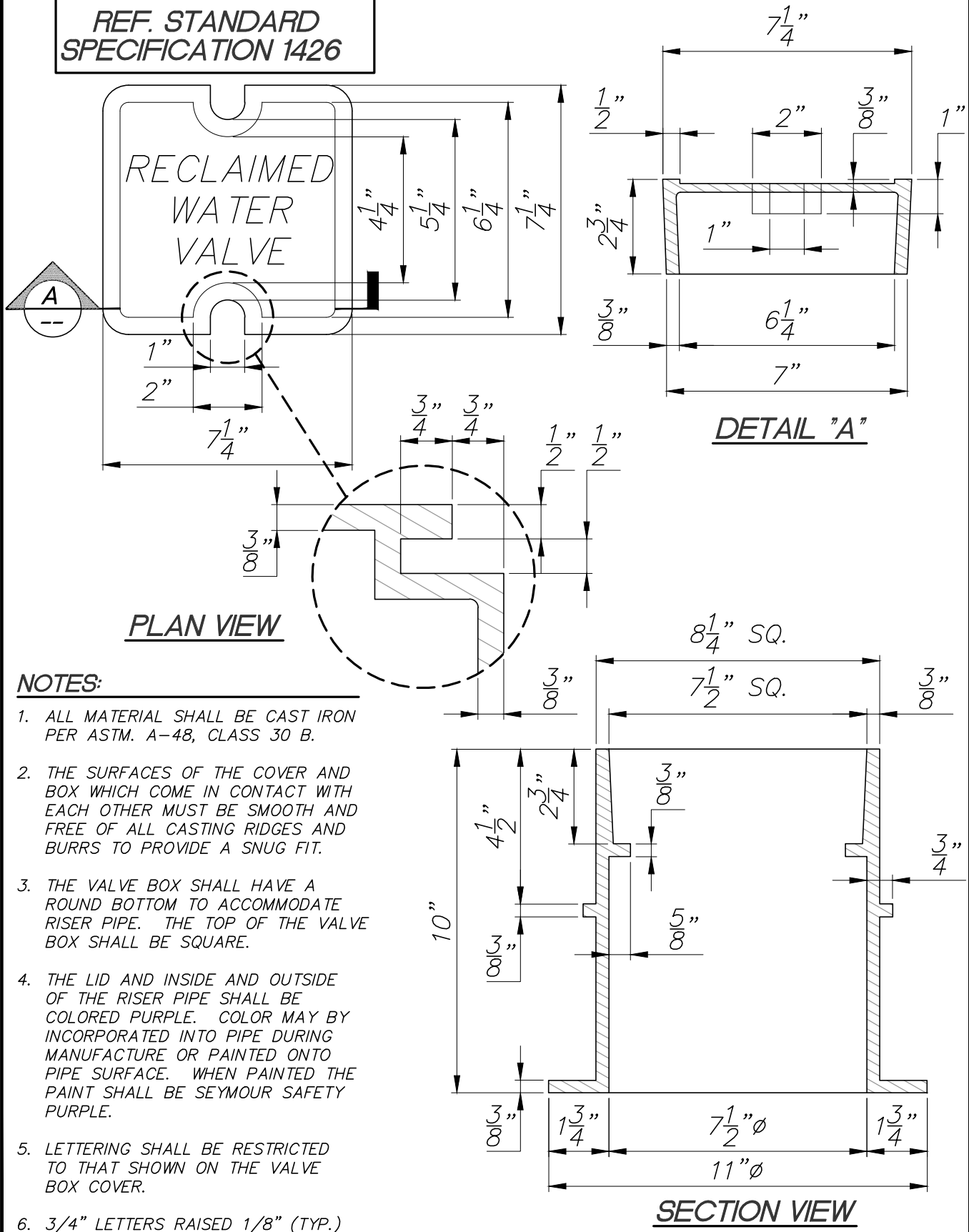
**WATER VALVE BOX
AND COVER**

DETAIL NO.

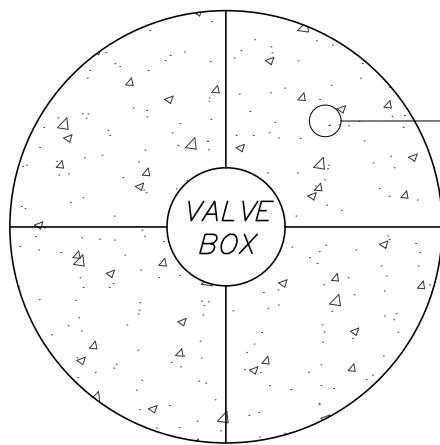
OVWU-300

SHEET 3 OF 5

**REF. STANDARD
SPECIFICATION 1426**



	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		
	REVISED:	RECLAIMED WATER VALVE BOX AND COVER	OVWU-300
	09/18		SHEET 4 OF 5

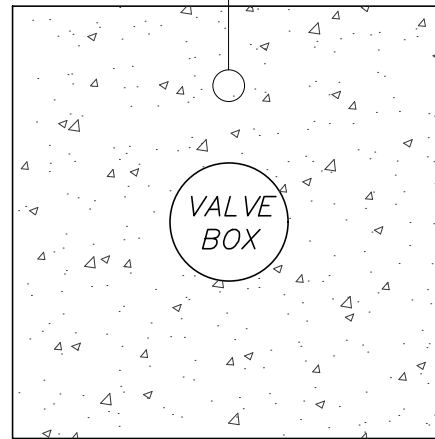
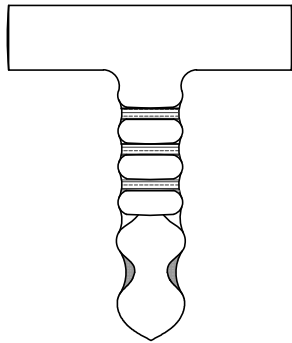


BRASS MONUMENT

SIZE
TURN
COUNT
TYPE

GV= GATE VALVE

BF= BUTTERFLY VALVE



NOTES:

1. A 2" FLAT BRASS SURVEY MONUMENT SHALL BE INSTALLED ON 12" VALVES AND LARGER. BRASS MONUMENT SHALL HAVE SERRATED OR A STEM DESIGNED FOR CONCRETE APPLICATIONS.
2. BRASS MONUMENT SHALL BE PRE-STAMPED BY 5/16" PUNCHED LETTERING INDICATING SIZE, TURN COUNT, AND VALVE TYPE.
3. INSTALLATION OF BRASS MONUMENT SHALL BE CENTERED BETWEEN THE EDGE OF THE CONCRETE. BRASS MONUMENT SHALL BE CLEAN AND LEGIBLE AFTER CONCRETE INSTALLATION.



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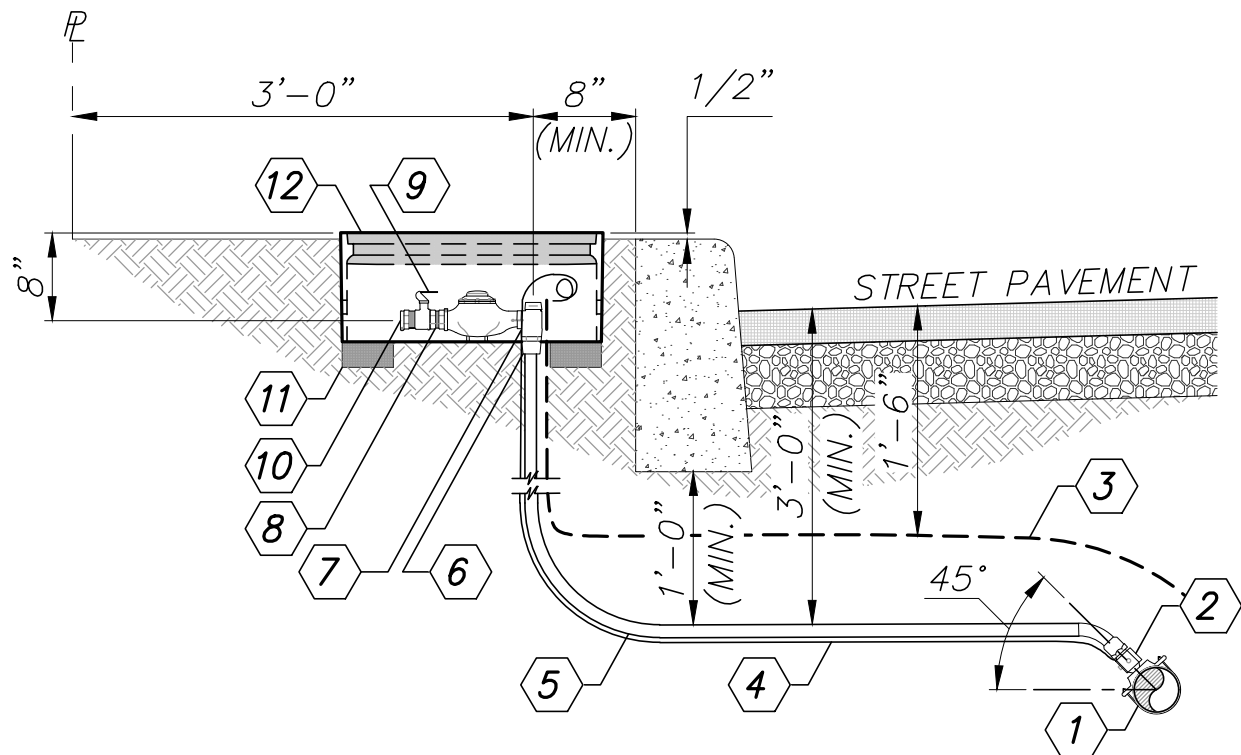
STANDARD DETAIL

WATER VALVE BOX AND COVER

DETAIL NO.

OVWU-300

SHEET 5 OF 5



KEYNOTES:

- ① SERVICE SADDLE
- ② CORPORATION STOP
- ③ MAGNETIC LOCATOR TAPE ALL SIZE SERVICES
(SEE TUCSON WATER STANDARD SPECIFICATION 0210)
- ④ TRACER WIRE, IN ACCORDANCE WITH (OVWU STANDARD DETAIL 116)
- ⑤ COPPER PIPE (TYPE "K") (TUCSON WATER STANDARD SPECIFICATION 1416)
- ⑥ 1" SERVICE REQUIRE THE 1" TO 3/4" WATERWORKS ADAPTOR
- ⑦ ANGLE METER STOP TO BE PLACED 1" FROM INSIDE EDGE OF METER BOX
(FORD AMS MODEL: BA43-444W-G-NL OR APPROVED EQUAL)
(1" SERVICES REQUIRE THE 1" TO 3/4" WATERWORKS ADAPTER)
- ⑧ METER COUPLING (FORD B13-342-HT-34-NL, B13-332-HT-34-NL)
OR APPROVED EQUAL.
- ⑨ BALL VALVE WITH HANDLE (FORD HBS/B13-322W-NL) OR APPROVED EQUAL
- ⑩ BEGIN PRIVATE PLUMBING (SEE STANDARD SPECIFICATION 1445)
- ⑪ (2) 2" x 4" x 12" SOLID CONCRETE BLOCKS
(ROMAN BRICK ENTIRE LENGTH AND WIDTH OF BOX)
- ⑫ METER BOX (SEE OVWU STANDARD DETAILS 311 AND 314)

NOTES:

1. PRIVATE PLUMBING MUST BE ADJUSTED TO MATCH NEW METER ELEVATION.
2. CUSTOMER SIDE SHALL INSTALL MUELLER METER COUPLING W/THREADED CONNECTION OR APPROVED EQUAL BEFORE PRIVATE PLUMBING.
3. WHEN SINGLE SERVICES ARE INSTALLED AT A COMMON LOT LINE THE TAPS MUST BE 30 INCHES APART A SINGLE TRENCH MAY BE USED WITH 24" OF SEPARATION BETWEEN SERVICE LINES. TAPS NOT ON SAME PLANE.



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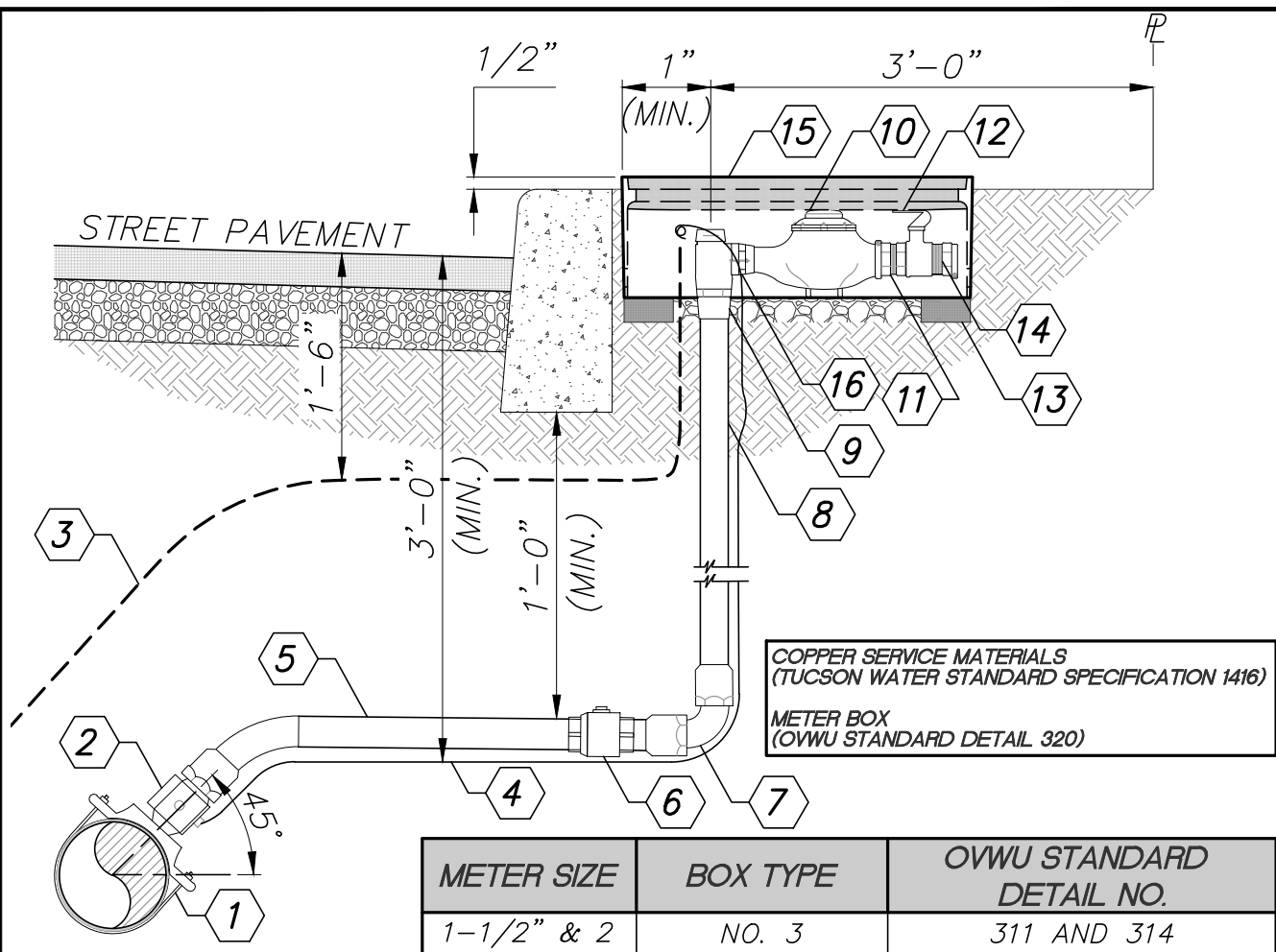
STANDARD DETAIL

**WATER SERVICE CONNECTIONS
BETWEEN CURB AND SIDEWALK
3/4" AND 1"**

DETAIL NO.

OVWU-309

SHEET 1 OF 6



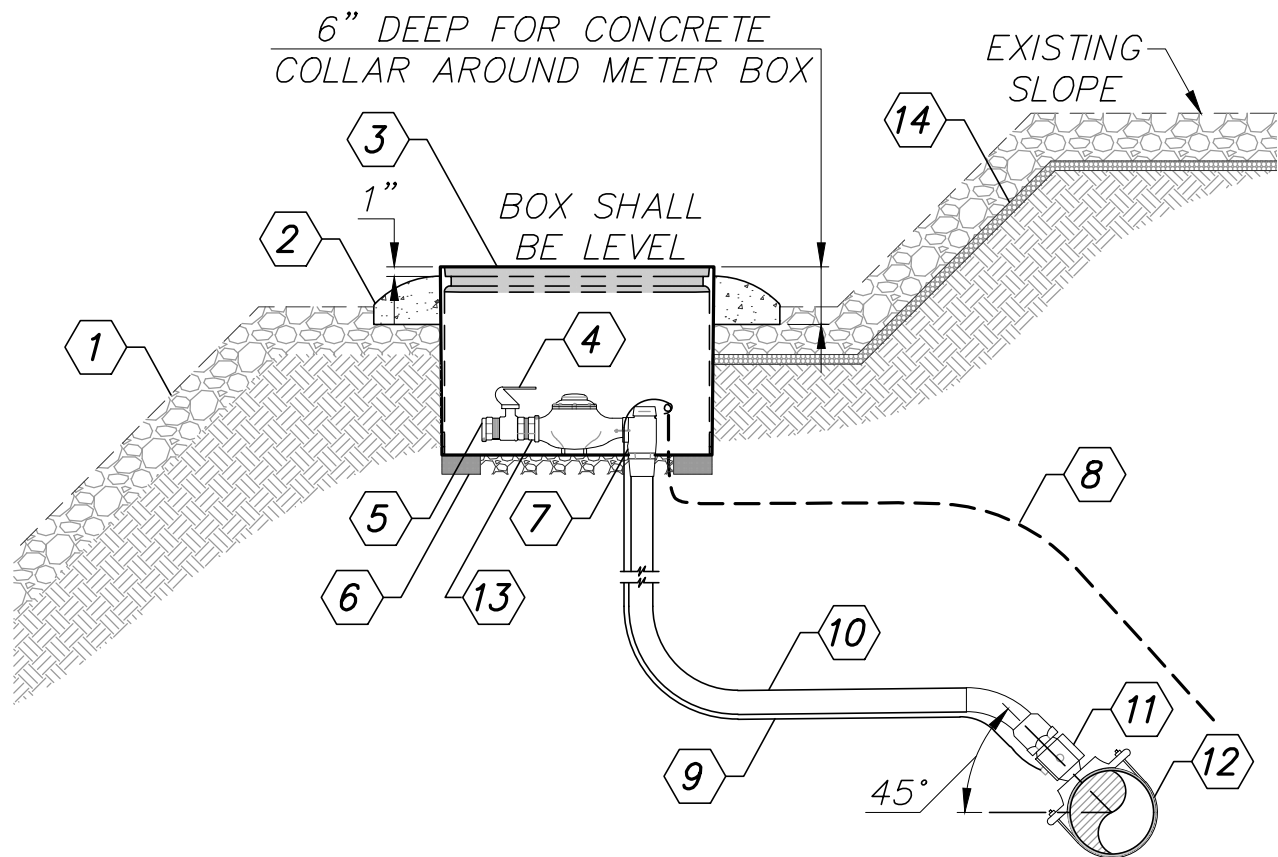
KEYNOTES:

- ① SERVICE SADDLE
- ② CORPORATION STOP
- ③ MAGNETIC LOCATOR TAPE ALL SIZE SERVICES
(SEE TUCSON WATER STANDARD SPECIFICATION 0210)
- ④ TRACER WIRE, IN ACCORDANCE WITH (OVWU STANDARD DETAIL 116)
- ⑤ 2" COPPER PIPE (TYPE "K") SOFT COPPER
(SEE TUCSON WATER STANDARD SPECIFICATION 1416)
- ⑥ 2" x 2" BALL VALVE CTS x IP
- ⑦ 2" 90° DEGREE ELBOW BRASS FIP x FIP
- ⑧ 2" (TYPE "K") RIDGID CAN BE USED
- ⑨ ANGLE METER STOP CTS COMPRESSION x METER FLANGE TO BE PLACED WITHIN 1" FROM INSIDE EDGE OF METER BOX
- ⑩ OMNI C2 METER 1-1/2" THRU 2" ARE FLANGE x FLANGE
- ⑪ METER COUPLING (MUELLER H-10896) OR APPROVED EQUAL
- ⑫ BALL VALVE WITH HANDLE (FORD HBS/B13-332W-NL) OR APPROVED EQUAL
- ⑬ 2" x 4" x 12" SOLID CONCRETE BLOCKS
(ROMAN BRICK ENTIRE LENGTH OR WIDTH OF BOX)
- ⑭ BEGIN PRIVATE PLUMBING (SEE STANDARD SPECIFICATION 1445)
- ⑮ METER BOX (SEE METER BOX PER OVWU STANDARD DETAILS 311 AND 314)
- ⑯ 1" TO 3/4" REDUCER BUSHING

NOTES:

1. PRIVATE PLUMBING MUST BE ADJUSTED TO MATCH NEW METER ELEVATION.

	ISSUED:	STANDARD DETAIL WATER SERVICE CONNECTIONS BETWEEN CURB AND SIDEWALK 1-1/2" TO 2" SINGLE	DETAIL NO.
	01/18		OVWU-309
	REVISED:		
	02/21		SHEET 2 OF 6



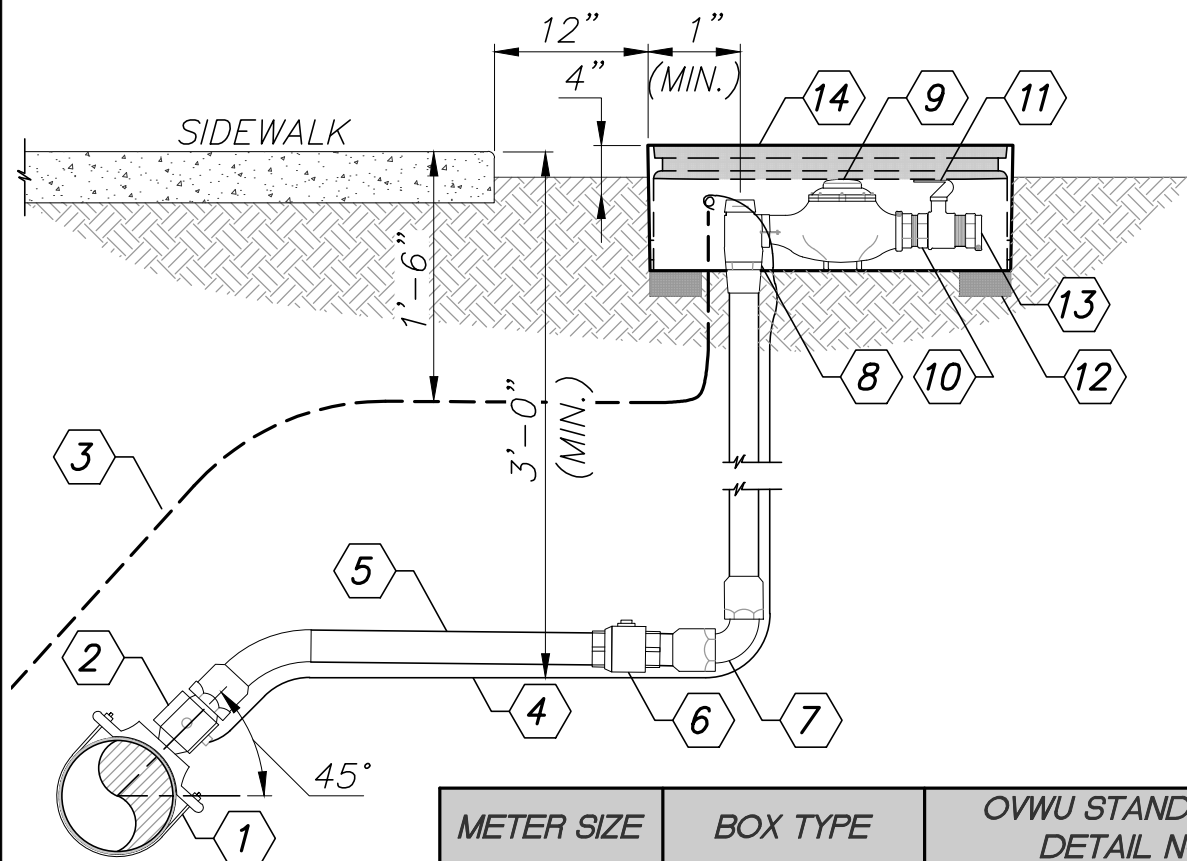
KEYNOTES:

- ① EROSION PROTECTION PER TOWN OF ORO VALLEY GRADING ORDINANCE
- ② CONCRETE COLLAR
- ③ CAST IRON METER BOX
(2 STACKED & WELDED IF APPLICABLE PER OVWU STANDARD DETAILS 311 AND 314)
- ④ BALL VALVE WITH HANDLE (FORD HBS/B13-332W-NL) OR APPROVED EQUAL
- ⑤ BEGIN PRIVATE PLUMBING (SEE TUCSON WATER STANDARD SPECIFICATION 1445)
- ⑥ 2" x 4" x 12" (ROMAN BRICK ENTIRE LENGTH OR WIDTH OF BOX)
- ⑦ ANGLE METER STOP TO BE PLACED WITHIN METER BOX
(SEE NOTE OVWU STANDARD DETAIL 309)
- ⑧ MAGNETIC LOCATOR TAPE ALL SIZE SERVICES (SEE STANDARD SPECIFICATION 0210)
- ⑨ TRACER WIRE, IN ACCORDANCE WITH
(SEE OVWU STANDARD DETAIL 116)
- ⑩ COPPER PIPE (TYPE "K") (TUCSON WATER STANDARD SPECIFICATION 1416)
- ⑪ CORPORATION STOP
- ⑫ SERVICE SADDLE
- ⑬ MUELLER H-10896 SWIVEL NUT BETWEEN METER AND BRASS BALL VALVE
(CUSTOMER SIDE)
- ⑭ FILTER FABRIC GEOTEXTILE
- ⑮ ALL SERVICE LINES 1", 1-1/2" & 2" (SEE OVWU DETAIL 309 SHEETS 1 & 2 OF 4).

NOTES:

1. METER BOX SHALL BE SUPPORTED BY 2" x 4" x 12" SOLID CONCRETE BLOCKS OR ROMAN BRICK ENTIRE LENGTH AND WIDTH OF BOX
2. MAIN MAY BE DOWN SLOPE WITH HOME UP SLOPE AS AN ALTERNATE TO WHAT IS SHOWN.
3. POSITIVE DRAINAGE TO BE AWAY FROM METER BOX.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		
	REVISED:	METER BOX IN SLOPE DETAIL BY OVWU APPROVAL ONLY	OVWU-309
	02/21		SHEET 3 OF 6



METER SIZE	BOX TYPE	OVWU STANDARD DETAIL NO.
1-1/2" & 2"	NO. 3	311 AND 314

KEYNOTES:

- ① SERVICE SADDLE
- ② CORPORATION STOP
- ③ MAGNETIC LOCATOR TAPE ALL SIZE SERVICES
(SEE TUCSON WATER STANDARD SPECIFICATION 0210)
- ④ TRACER WIRE, IN ACCORDANCE WITH (SEE OVWU STANDARD DETAIL 116)
- ⑤ 2" COPPER PIPE (TYPE "K") (SEE TUCSON WATER STANDARD SPECIFICATION 1416)
- ⑥ 2" x 2" BALL VALVE CTS x IP
- ⑦ 2" 90° DEGREE ELBOW BRASS FIP x FIP
- ⑧ ANGLE METER STOP CTS COMPRESSION x METER FLANGE TO BE PLACED WITHIN 1" FROM INSIDE EDGE OF METER BOX
- ⑨ OMNI C2 METER 1-1/2" THRU 6" ARE FLANGE x FLANGE
- ⑩ METER COUPLING (MUELLER H-10896) OR APPROVED EQUAL
- ⑪ BALL VALVE WITH HANDLE (FORD HBS/B13-332W-NL) OR APPROVED EQUAL
- ⑫ 2" x 4" x 12" SOLID CONCRETE BLOCKS
(ROMAN BRICK ENTIRE LENGTH OR WIDTH OF BOX)
- ⑬ BEGIN PRIVATE PLUMBING (SEE STANDARD SPECIFICATION 1445)
- ⑭ METER BOX (SEE METER BOX PER OVWU STANDARD DETAILS 311 AND 314)

NOTES:

1. PRIVATE PLUMBING MUST BE ADJUSTED TO MATCH NEW METER ELEVATION.



ISSUED:

01/18

REVISED:

02/21

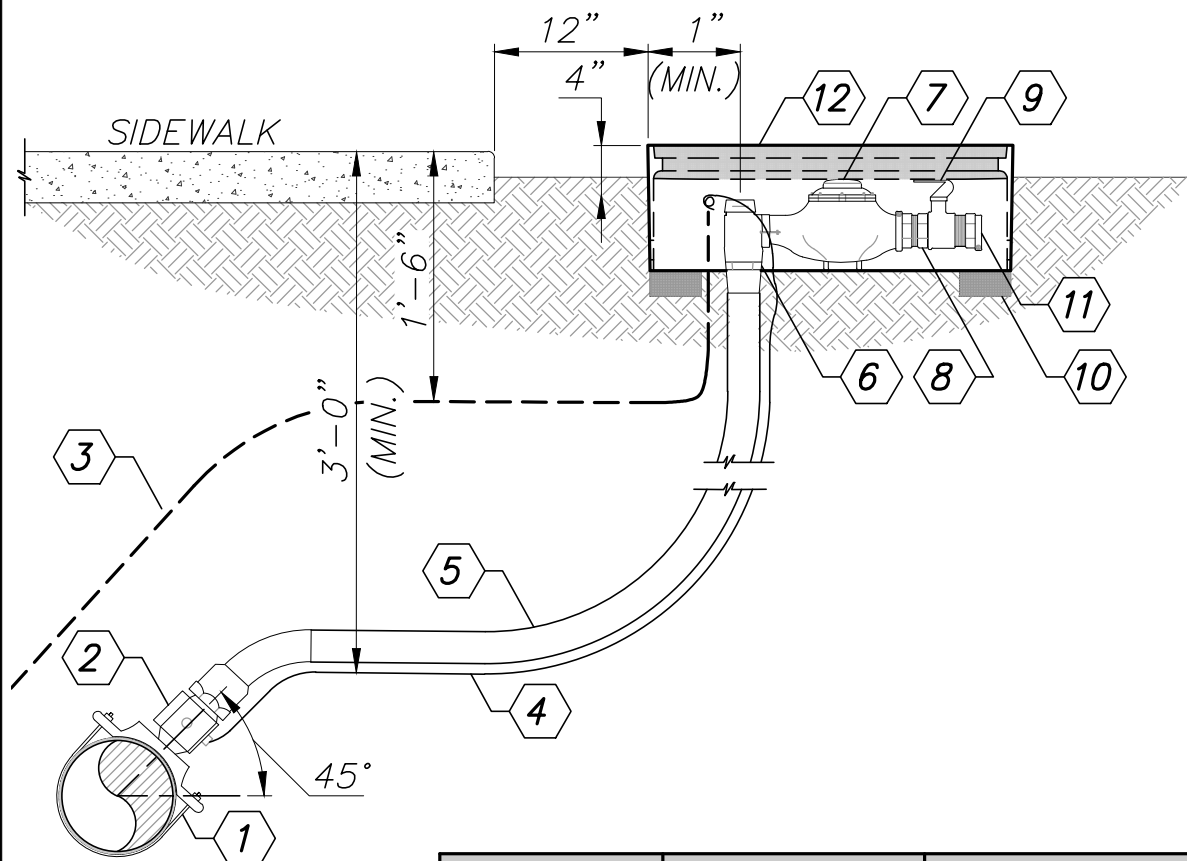
STANDARD DETAIL

WATER SERVICE CONNECTIONS
BEHIND SIDEWALK
1-1/2" TO 2" SINGLE

DETAIL NO.

OVWU-309

SHEET 4 OF 6



METER SIZE	BOX TYPE	OVWU STANDARD DETAIL NO.
3/4" & 1"	NO. 3	311 AND 314

KEYNOTES:

- ① SERVICE SADDLE
- ② CORPORATION STOP
- ③ MAGNETIC LOCATOR TAPE ALL SIZE SERVICES
(SEE TUCSON WATER STANDARD SPECIFICATION 0210)
- ④ TRACER WIRE, IN ACCORDANCE WITH (SEE OVWU STANDARD DETAIL 116)
- ⑤ 1" COPPER PIPE (TYPE "K") (SEE TUCSON WATER STANDARD SPECIFICATION 1416)
- ⑥ ANGLE METER STOP CTS COMPRESSION x METER FLANGE TO BE PLACED WITHIN
1" FROM INSIDE EDGE OF METER BOX
- ⑦ OMNI C2 METER 1-1/2" THRU 6" ARE FLANGE x FLANGE
- ⑧ METER COUPLING (MUELLER H-10896) OR APPROVED EQUAL
- ⑨ BALL VALVE WITH HANDLE (FORD HBS/B13-332W-NL) OR APPROVED EQUAL
- ⑩ 2" x 4" x 12" SOLID CONCRETE BLOCKS
(ROMAN BRICK ENTIRE LENGTH OR WIDTH OF BOX)
- ⑪ BEGIN PRIVATE PLUMBING (SEE STANDARD SPECIFICATION 1445)
- ⑫ METER BOX (SEE METER BOX PER OVWU STANDARD DETAILS 311 AND 314)

NOTES:

1. PRIVATE PLUMBING MUST BE ADJUSTED TO MATCH NEW METER ELEVATION.



ISSUED:

01/18

REVISED:

02/21

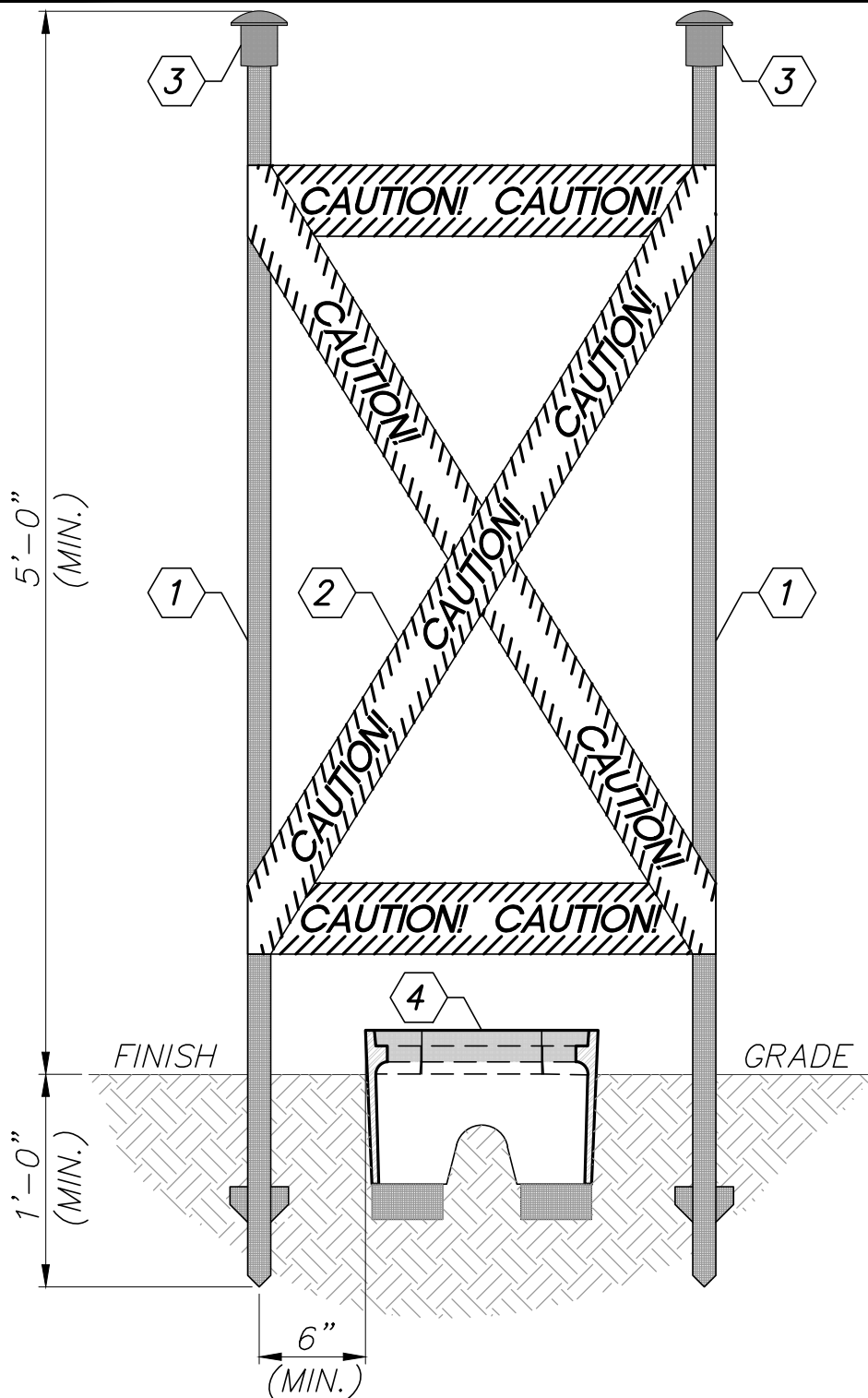
STANDARD DETAIL

WATER SERVICE CONNECTIONS
BEHIND SIDEWALK
3/4" TO 1" SINGLE

DETAIL NO.

OVWU-309

SHEET 5 OF 6



KEYNOTES:

- ① METAL HEAVY DUTY FENCE T-POST, U-POST, #4 REBAR OR APPROVED EQUAL
- ② BRIGHT YELLOW W/BOLD BLACK TEXT 3" WIDE CAUTION TAPE OR APPROVED EQUAL
- ③ OSHA REBAR SAFETY CAP
- ④ METER BOX (SEE METER BOX PER OVWU STANDARD DETAILS 311 AND 314)



ISSUED:

01/18

REVISED:

12/20

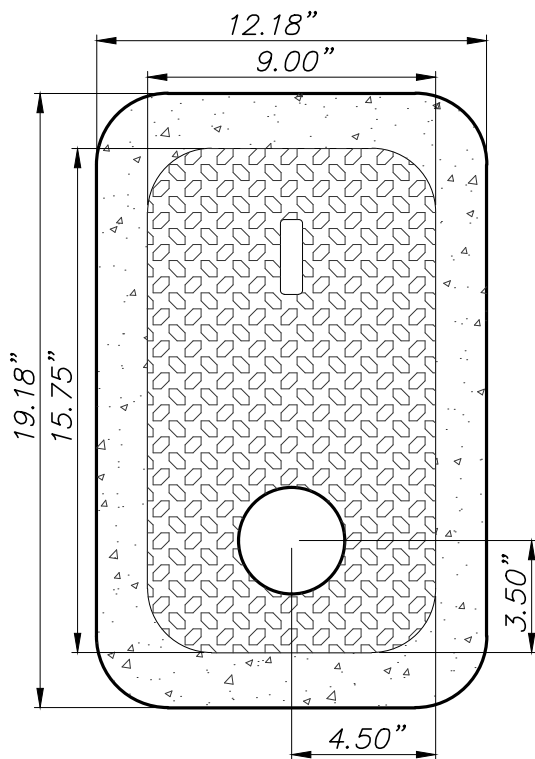
STANDARD DETAIL

METER BOX PROTECTION

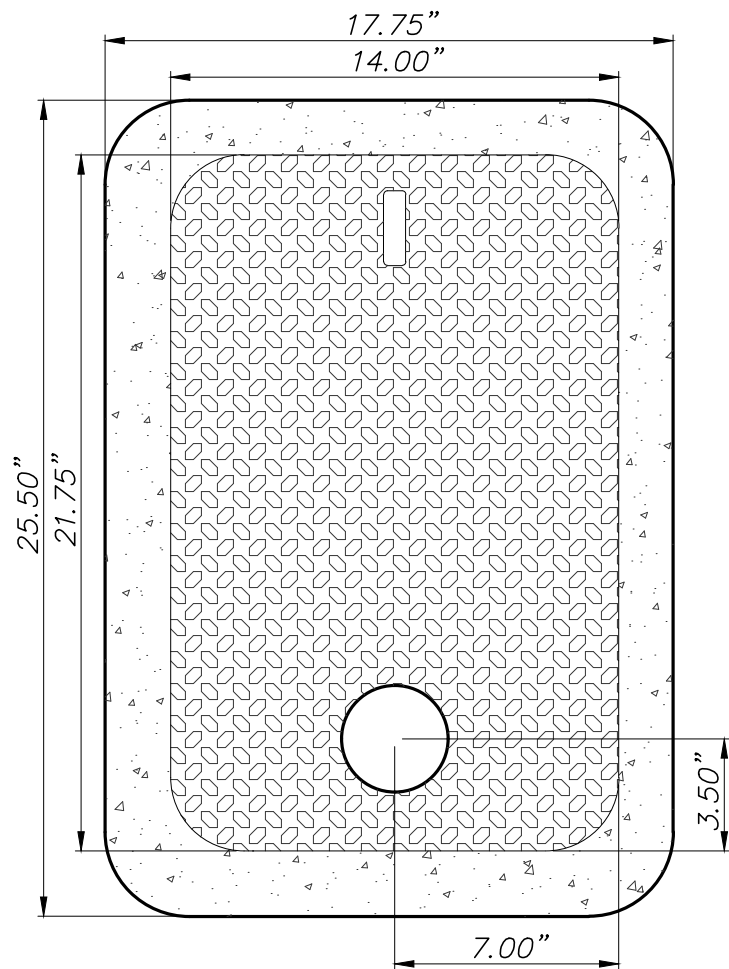
DETAIL NO.

OVWU-309

SHEET 6 OF 6



BOX #1



BOX #2

NOTE:

1. STEEL COVER MATERIAL TO BE PER ASTM A786.
2. POTABLE WATER COVER PAINTED BLACK AND RECLAIMED WATER COVER PAINTED 1029 ENDURATONE –COLOR PURPLE RAIN 14SF.
3. DIMENSIONS SHOWN SHALL NOT VARY MORE THAN A 1/16 OF AN INCH.
4. ALL COVERS MADE OUT OF DIAMOND CHECKER PLATE
5. STANDARD ADVANCED METERING INFRASTRUCTURE (AMI) HOLE 2" PER AGENCY OR STANDARD SPECIFICATION.
6. REFER TO OVWU STANDARD DETAILS 311 AND 314 FOR VERTICAL LOAD RATING.



ISSUED:

01/18

REVISED:

11/18

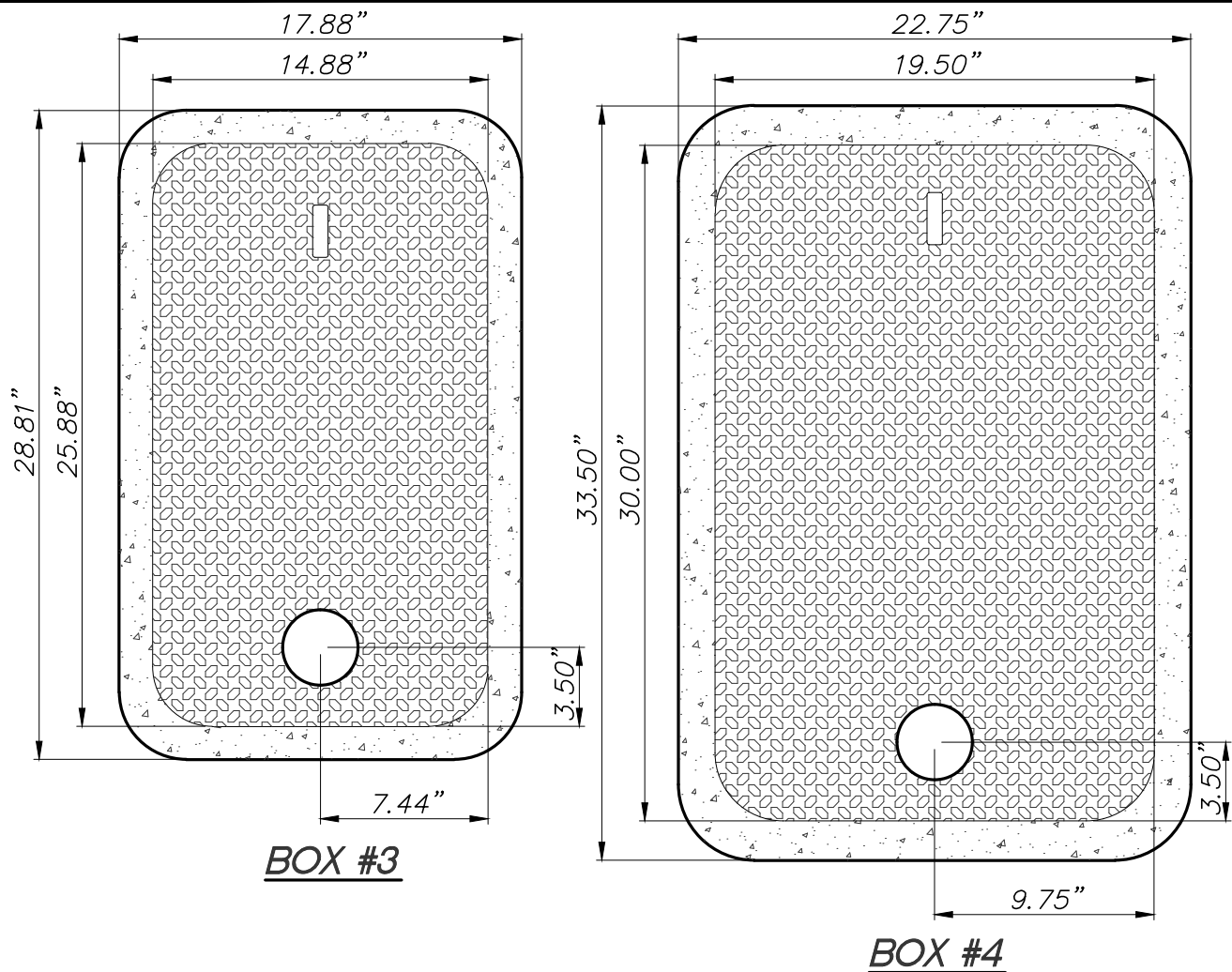
STANDARD DETAIL

**AMI PLACEMENT
STANDARD STEEL
METER BOX COVERS**

DETAIL NO.

OVWU-310

SHEET 1 OF 2



NOTE:

1. STEEL COVER MATERIAL TO BE PER ASTM A786.
2. POTABLE WATER COVER PAINTED BLACK AND RECLAIMED WATER COVER PAINTED 1029 ENDURATONE –COLOR PURPLE RAIN 14SF.
3. DIMENSIONS SHOWN SHALL NOT VARY MORE THAN A 1/16 OF AN INCH.
4. ALL COVERS MADE OUT OF DIAMOND CHECKER PLATE
5. STANDARD ADVANCED METERING INFRASTRUCTURE (AMI) HOLE 2" PER AGENCY OR STANDARD SPECIFICATION.
6. REFER TO OVWU STANDARD DETAILS 311 AND 314 FOR VERTICAL LOAD RATING.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		OVWU-310
	REVISED:	AMI PLACEMENT STANDARD STEEL METER BOX COVERS	SHEET 2 OF 2
	11/18		

METER BOX NOTES

TOWN OF ORO VALLEY UTILITY INTENDS TO AWARD AN ANNUAL REQUIREMENTS CONTRACT FOR **WATER METER BOXES AND LIDS**, TO BE DELIVERED TO THE ORO VALLEY WATER STORES, LOCATED AT **0000 S. 0000**, TUCSON, ARIZONA.

ALL WATER METER BOXES AND LIDS FURNISHED UNDER THIS SPECIFICATION FOR THE ORO VALLEY WATER UTILITY SHALL COMPLY WITH THE PROVISIONS OF THIS SPECIFICATION.

PLASTIC METER BOX:

THE METER BOX SHALL BE BLACK AND CONSTRUCTED OUT OF A POLYETHYLENE MATERIAL BLEND FOR MAXIMUM DURABILITY AND CORROSION RESISTANCE. THE POLYETHYLENE MATERIAL BLEND SHALL HAVE A TENSILE STRENGTH GREATER THAN 1700 PSI.

1. THE POTABLE WATER METER BOX SHALL BE BLACK IN COLOR (BLENDED AT THE TIME OF MANUFACTURE) FOR MAXIMUM UV PROTECTION.
2. THE RECLAIM METER BOX SHALL BE PURPLE (PANTONE 512 BLENDED AT THE TIME OF MANUFACTURE).
3. THE METER BOX SHALL HAVE CRUSH RESISTANT RIBBING ALONG THE OUTSIDE OF THE BOX.
4. THE METER BOX SHALL HAVE A FLANGE AROUND THE LID OPENING TO HELP PREVENT SETTLING AND AIDE IN ADJUSTMENT TO GRADE.

PIPE HOLES:

1. THE PIPE HOLES FOR THE STANDARD METER BOX SHALL MEASURE 2-3/4"X3-1/2".

PLASTIC LID:

THE METER BOX LIDS SHALL BE CONSTRUCTED OUT OF A POLYETHYLENE MATERIAL BLEND FOR MAXIMUM DURABILITY AND CORROSION RESISTANCE. THE POLYETHYLENE MATERIAL BLEND SHALL HAVE A TENSILE STRENGTH GREATER THAN 1700 PSI.

1. THE POTABLE METER BOX LID SHALL BE BLACK (BLENDED AT THE TIME OF MANUFACTURE) AND HAVE "ORO VALLEY" MOLDED INTO THE LID AS WELL AS THE MANUFACTURER'S NAME OR LOGO. FRONT SHALL BE STANDARD FADAL CNC FONT WITH 1" CHARACTERS X .150 DEEP.
2. THE RECLAIMED METER BOX LID SHALL BE PURPLE (PANTONE 512 BLENDED AT THE TIME OF MANUFACTURE) AND HAVE "ORO VALLEY RECLAIMED WATER" MOLDED INTO THE LID AS WELL AS THE MANUFACTURER'S NAME OR LOGO. FONT SHALL BE STANDARD FADAL CNC FONT WITH 1" CHARACTERS X .150 DEEP.
3. BOTH, POTABLE AND RECLAIMED METER BOX LIDS SHALL HAVE MOLDED TREAD-PATTERN FOR SKID RESISTANCE; TREAD SHALL BE .188 X .938 X .150 DEEP.
4. BOTH, POTABLE AND RECLAIMED METER BOX LIDS SHALL BE SOLID THROUGH.
5. BOTH LIDS SHALL SEAT SECURELY AND EVENLY INSIDE THE METER BOX AND SHALL NOT OVERLAP THE TOP EDGE OF THE METER BOX.



ISSUED:

07/22

REVISED:

07/22

STANDARD DETAIL

METER BOX NOTES

DETAIL NO.

OWWU-311

SHEET 1 OF 6

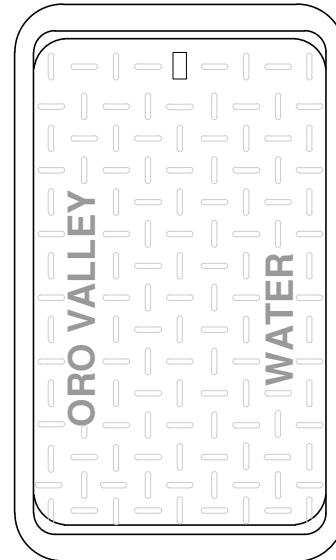
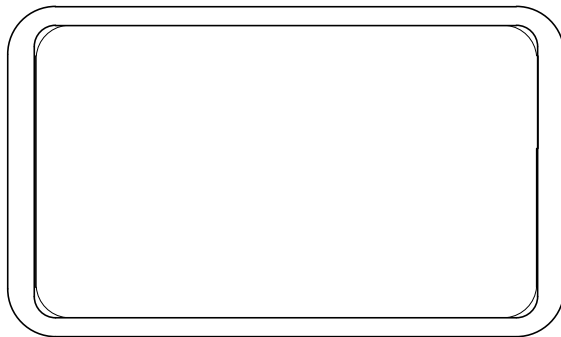
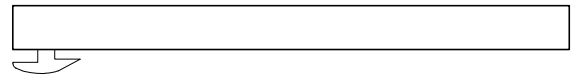
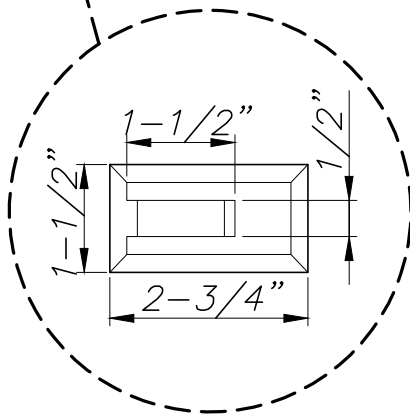
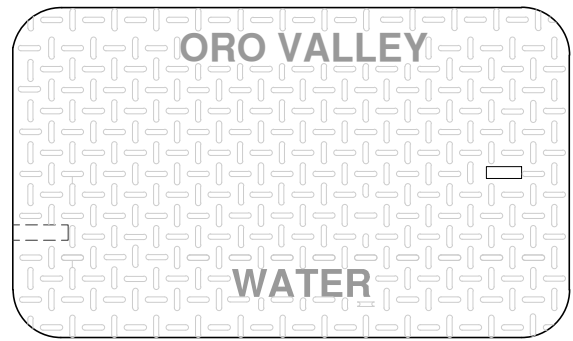
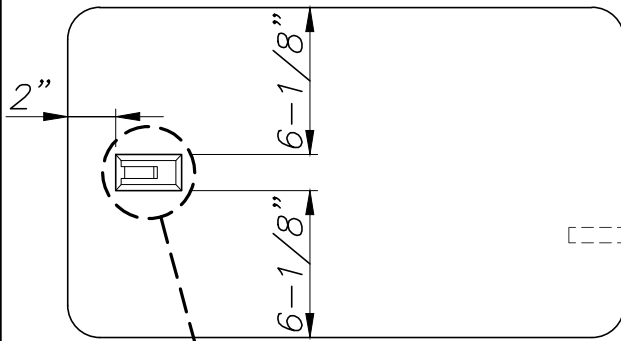
METER BOX NOTES CONT'D

6. BOTH POTABLE AND RECLAIMED METER BOX LIDS MUST HAVE A MOLDED LIFTING HOLE FOR USE BY METER READING TOOL. THE MOLDED LIFTING HOLE SHALL CONFORM TO TOWN OF ORO VALLEY UTILITY STANDARD DETAIL – 311

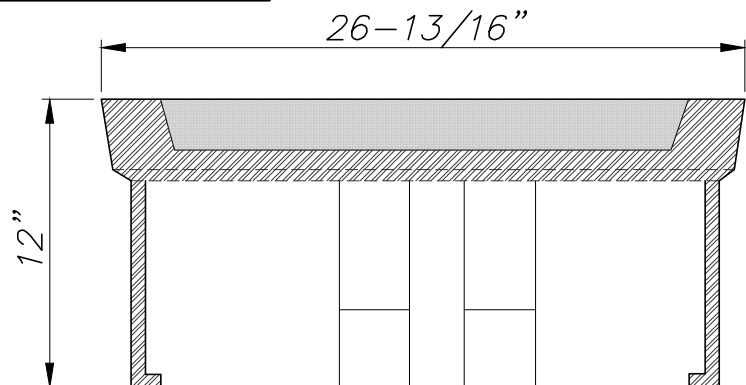
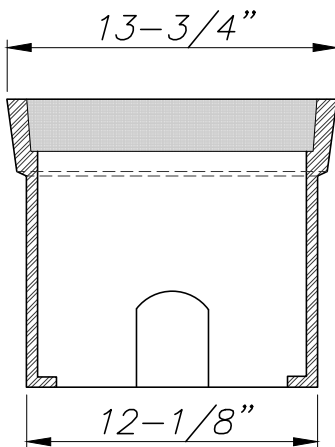
PLASTIC METER BOX LID FOR A #1 CEMENT BOX:
THE PLASTIC LID SHALL BE DESIGNED TO FIT A CONCRETE BOX IN RETROFIT INSTALLATIONS. THE PLASTIC METER BOX LID SHALL BE BLACK AND CONSTRUCTED OUT OF A POLYETHYLENE MATERIAL BLEND FOR MAXIMUM DURABILITY AND CORROSION RESISTANCE. THE POLYETHYLENE MATERIAL BLEND SHALL HAVE A TENSILE STRENGTH GREATER THAN 1700 PSI. THE PLASTIC LID SHALL CONFORM TO THE SPECIFICATIONS FOR THE PLASTIC RETROFIT LID FOR #1 CEMENT BOX

1. THE POTABLE METER BOX LID SHALL BE BLACK (BLENDED AT THE TIME OF MANUFACTURE) AND HAVE "ORO VALLEY" MOLDED INTO THE LID AS WELL AS THE MANUFACTURER'S NAME OR LOGO. FONT SHALL BE STANDARD FADAL CNC FONT WITH 1" CHARACTERS X .150 DEEP.
2. THE RECLAIMED METER BOX LID SHALL BE PURPLE (PANTONE 512 BLENDED AT THE TIME OF MANUFACTURE) AND HAVE "TUCSON RECLAIMED WATER" MOLDED INTO THE LID AS WELL AS THE MANUFACTURER'S NAME OR LOGO. FONT SHALL BE STANDARD FADAL CNC FONT WITH 1" CHARACTERS X .150 DEEP.
3. BOTH, POTABLE AND RECLAIMED METER BOX LIDS SHALL HAVE MOLDED TREAD-PATTERN FOR SKID RESISTANCE; TREAD SHALL BE .188 X .938 X .150 DEEP.
4. BOTH, POTABLE AND RECLAIMED METER BOX LIDS SHALL BE SOLID.
5. BOTH LIDS SHALL SEAT SECURELY AND EVENLY INSIDE THE METER BOX AND SHALL NOT OVERLAP THE TOP EDGE OF THE METER BOX.
6. BOTH, POTABLE AND RECLAIMED METER BOX LIDS MUST HAVE A MOLDED LIFTING HOLE FOR USE BY METER READING TOOL. THE MOLDED LIFTING HOLE SHALL CONFORM TO THE SPECIFICATIONS FOR PLASTIC RETROFIT LID FOR #1 CEMENT BOX (TOWN OF ORO VALLEY UTILITY STANDARD DETAIL 311)
7. PLEASE SEE SHEET __5__ AND SHEET __6__ (RETROFIT LID "A" & "B")

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	07/22		
	REVISED:	METER BOX NOTES	OWU-311
	07/22		SHEET 2 OF 6



BOX LID VIEW



BOX VIEW



ISSUED:

07/22

REVISED:

07/22

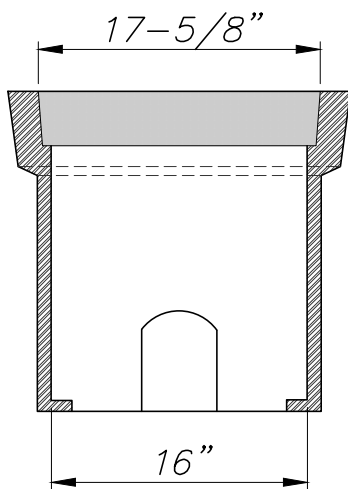
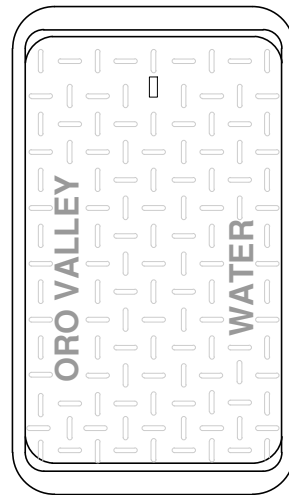
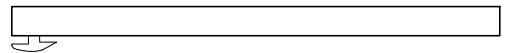
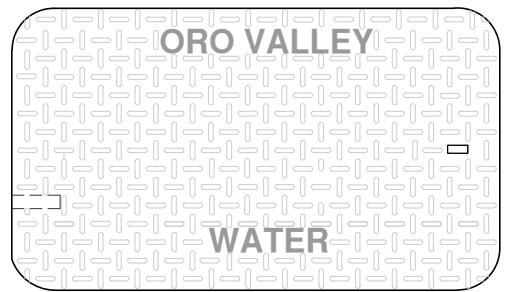
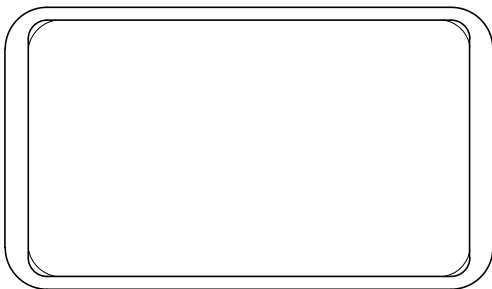
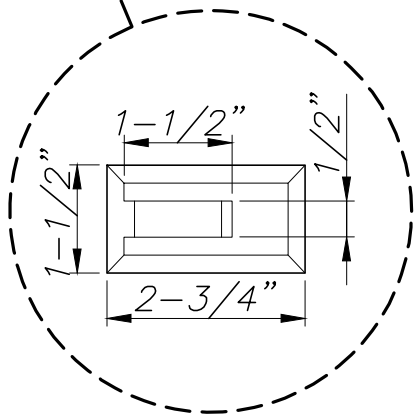
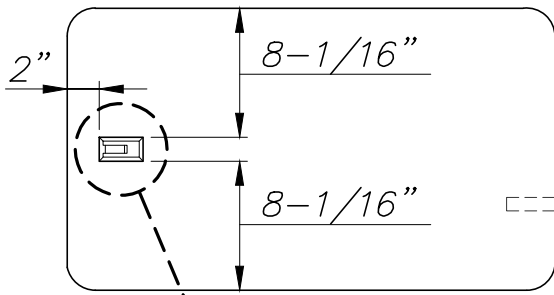
STANDARD DETAIL

**STANDARD METER BOX
3/4" OR 1" METER**

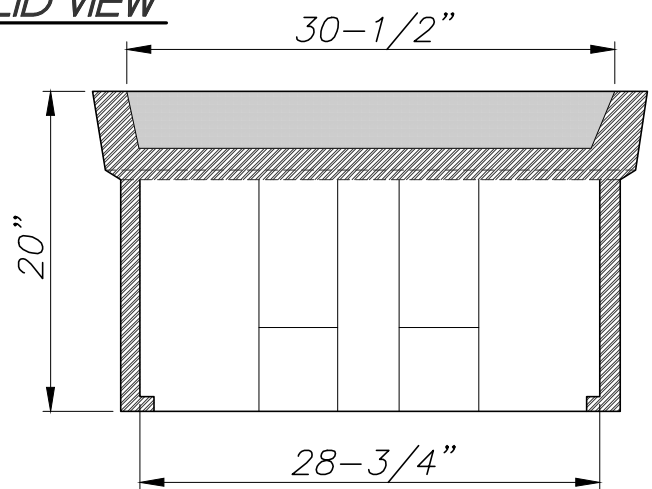
DETAIL NO.

OWU-311

SHEET 3 OF 6



BOX LID VIEW



BOX VIEW



ISSUED:

07/22

REVISED:

07/22

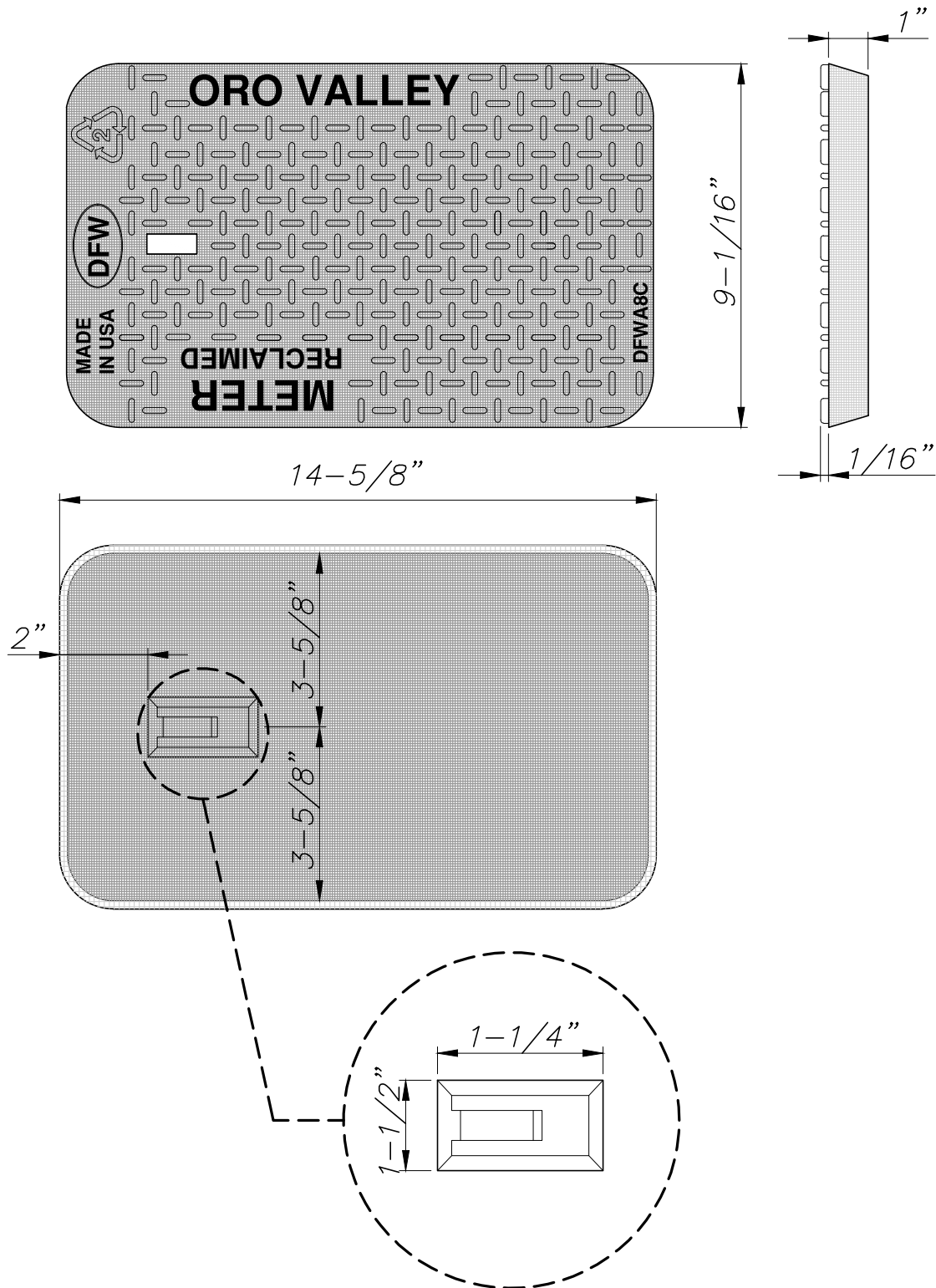
STANDARD DETAIL

**NUMBER 3 METER BOX
FOR 1-1/2" OR 2" METER**

DETAIL NO.

OWWU-311

SHEET 4 OF 6



ISSUED:

07/22

REVISED:

07/22

STANDARD DETAIL

**PLASTIC RETROFIT LID
FOR #1 CEMENT BOX
RECLAIM**

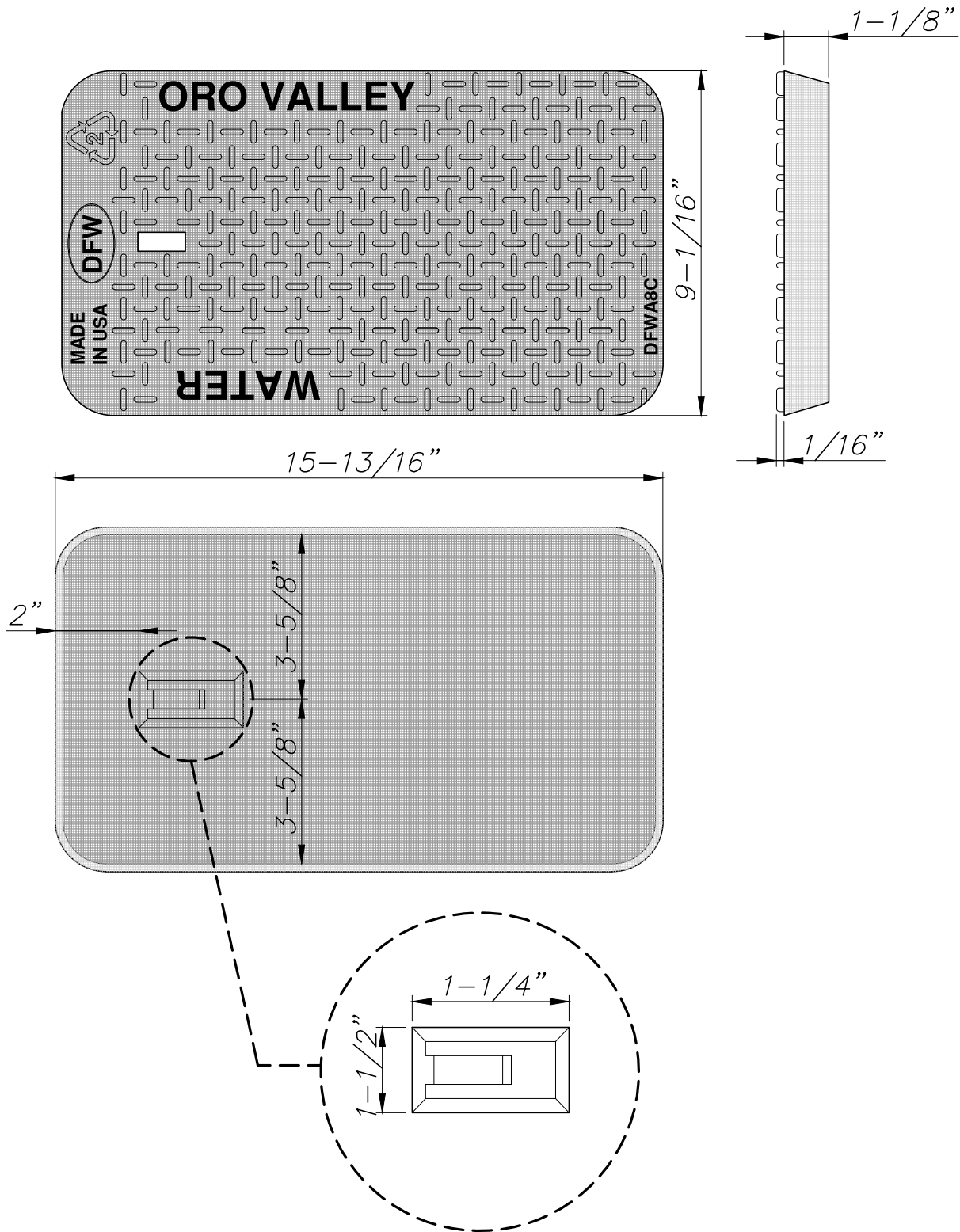
DETAIL NO.

OWU-311

SHEET 5 OF 6

NOTE:

1. RECLAIM LETTERING ONLY FOR RECLAIM, POTABLE WATER
SHALL NOT IDENTIFY RECLAIM.



ISSUED:

07/22

REVISED:

07/22

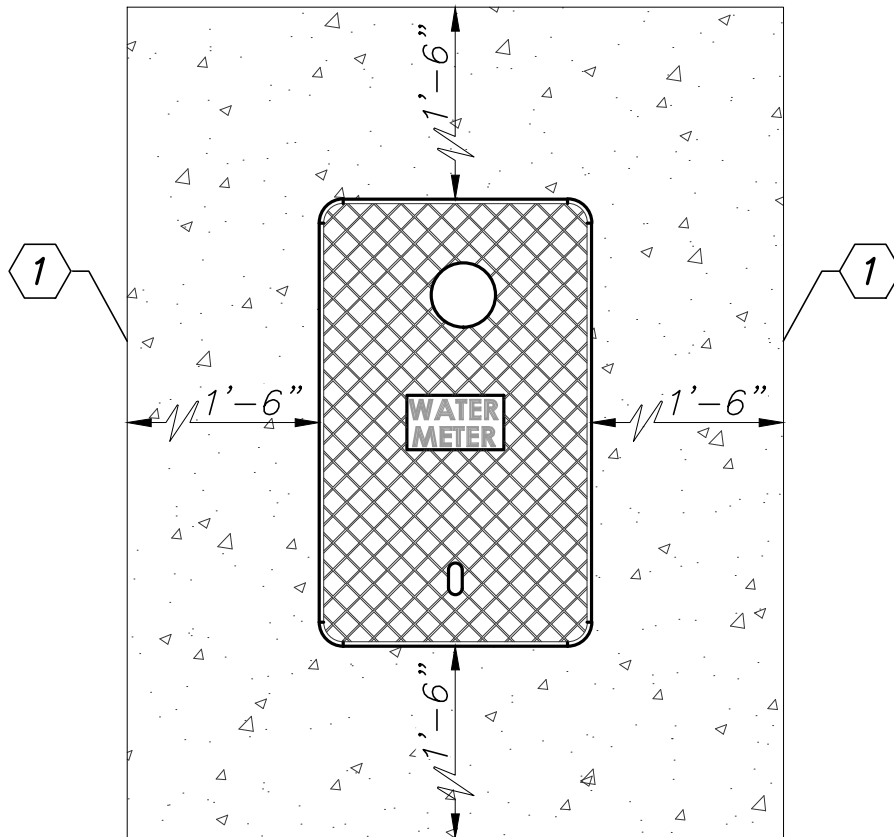
STANDARD DETAIL

**PLASTIC RETROFIT LID
FOR #1 CEMENT BOX
POTABLE**

DETAIL NO.

OWWU-311

SHEET 6 OF 6



PLAN VIEW
NOT TO SCALE

KEYNOTES:

① CONCRETE EXPANSION BOARD SHALL MATCH DEPTH OF CONCRETE THICKNESS.

NOTES:

1. REVIEWED BY INSPECTOR BEFORE BEING APPROVED.
2. ALL METER BOXES SHALL BE UPSIZED ONE SIZE IF PLACED IN CONCRETE OR DRIVEWAYS AND SHALL BE CAST IRON STREET RATED.



ISSUED:

01/18

REVISED:

09/20

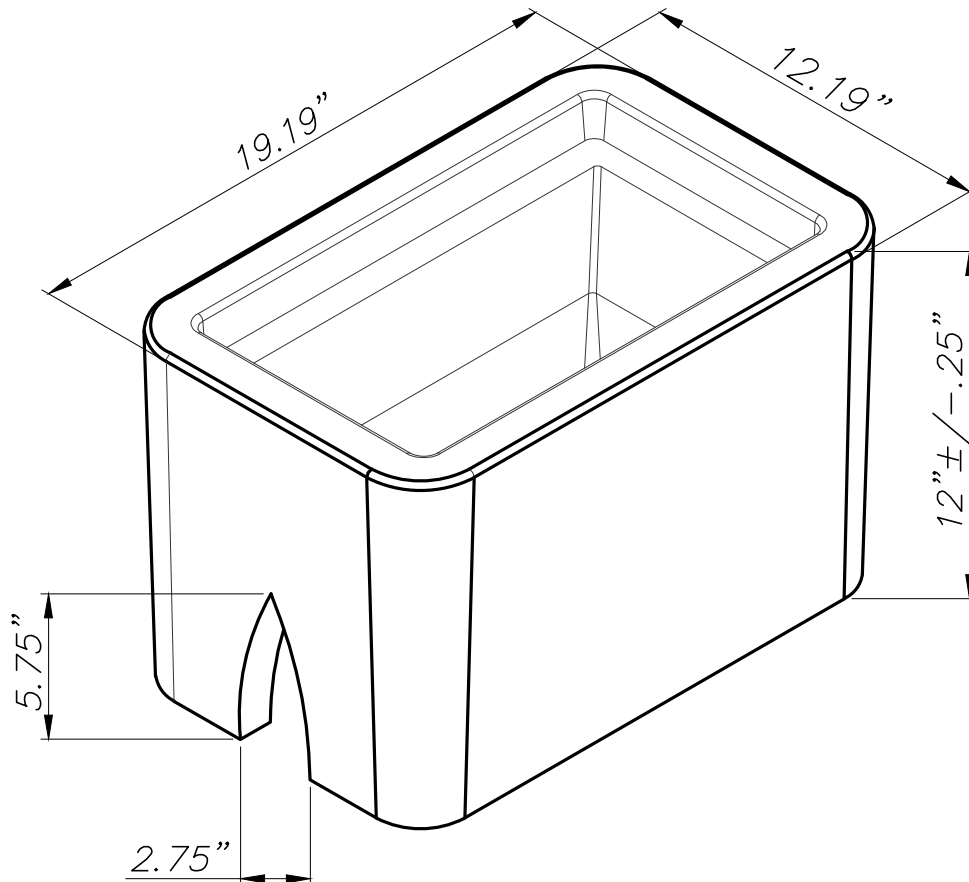
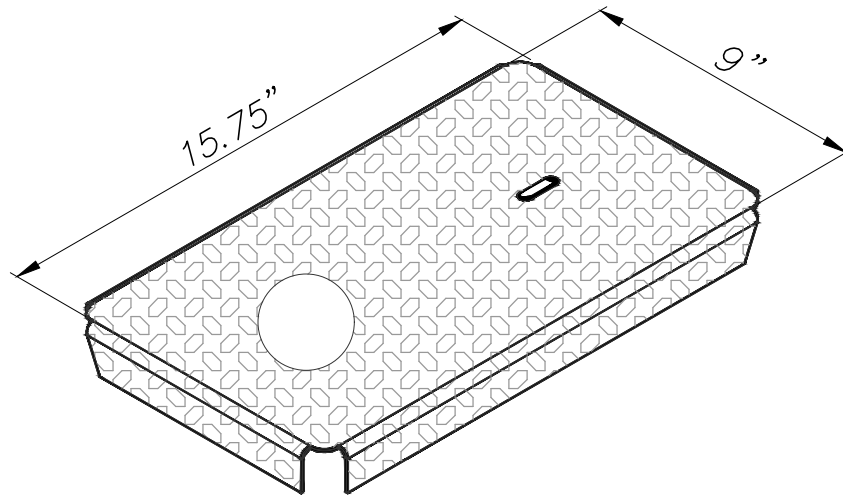
STANDARD DETAIL

METER BOX IN CONCRETE

DETAIL NO.

OVWU-312

SHEET 1 OF 1



ISSUED:

01/18

REVISED:

07/22

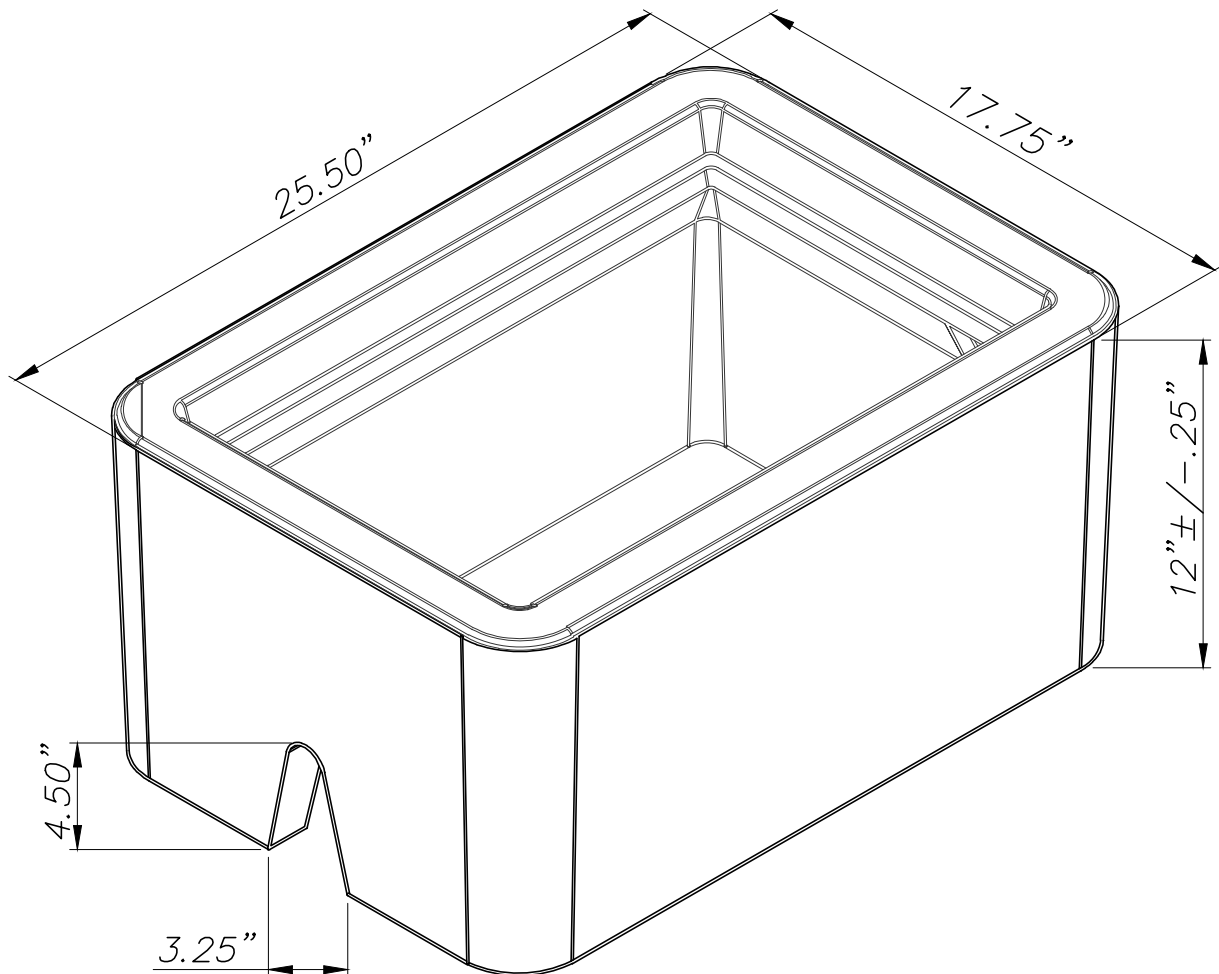
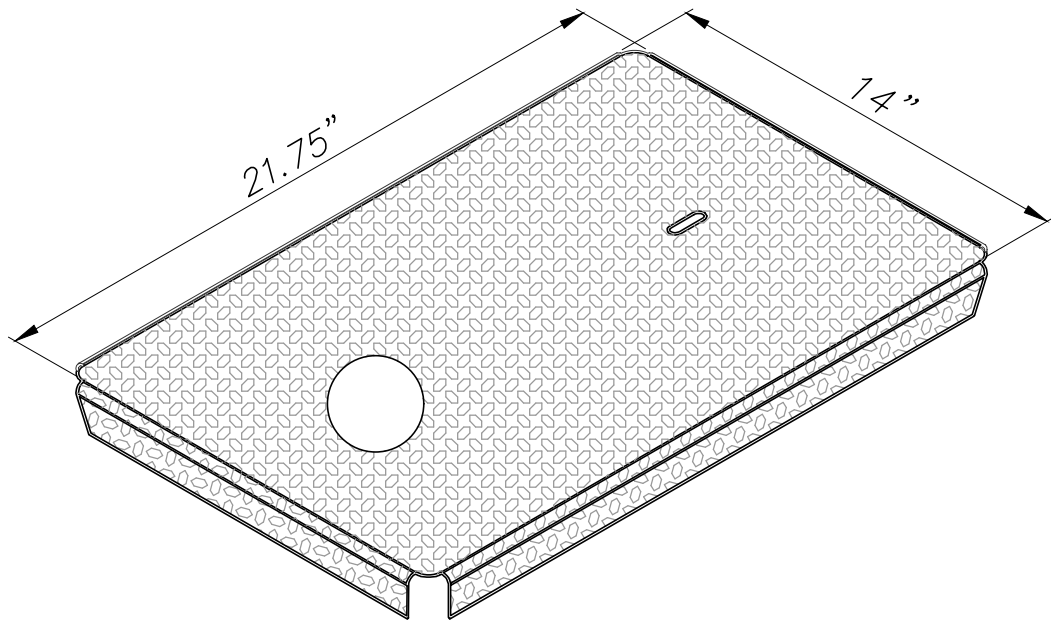
STANDARD DETAIL

**STANDARD CONCRETE
METER BOX #1**

DETAIL NO.

OVWU-313

SHEET 1 OF 4



ISSUED:

01/18

REVISED:

07/22

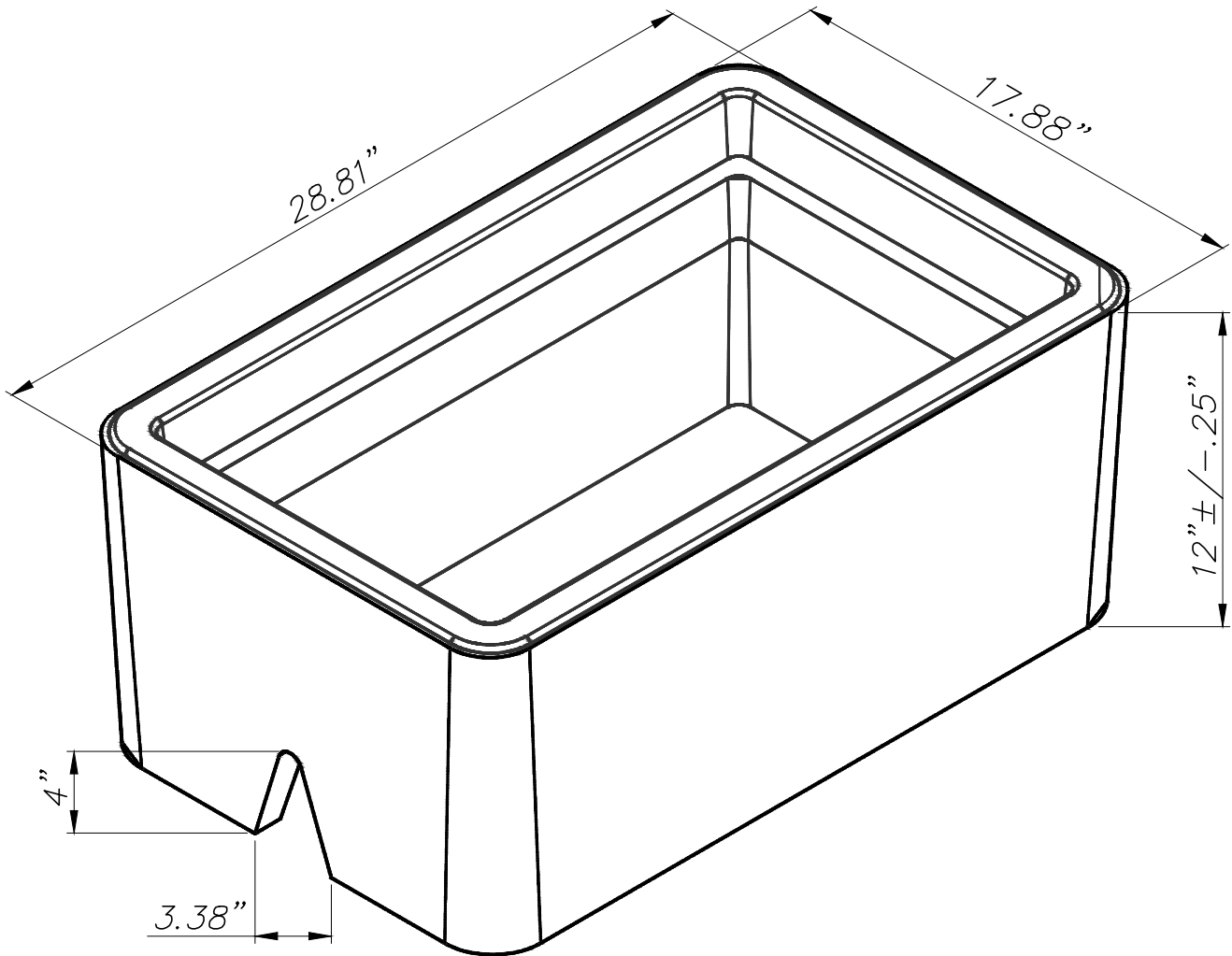
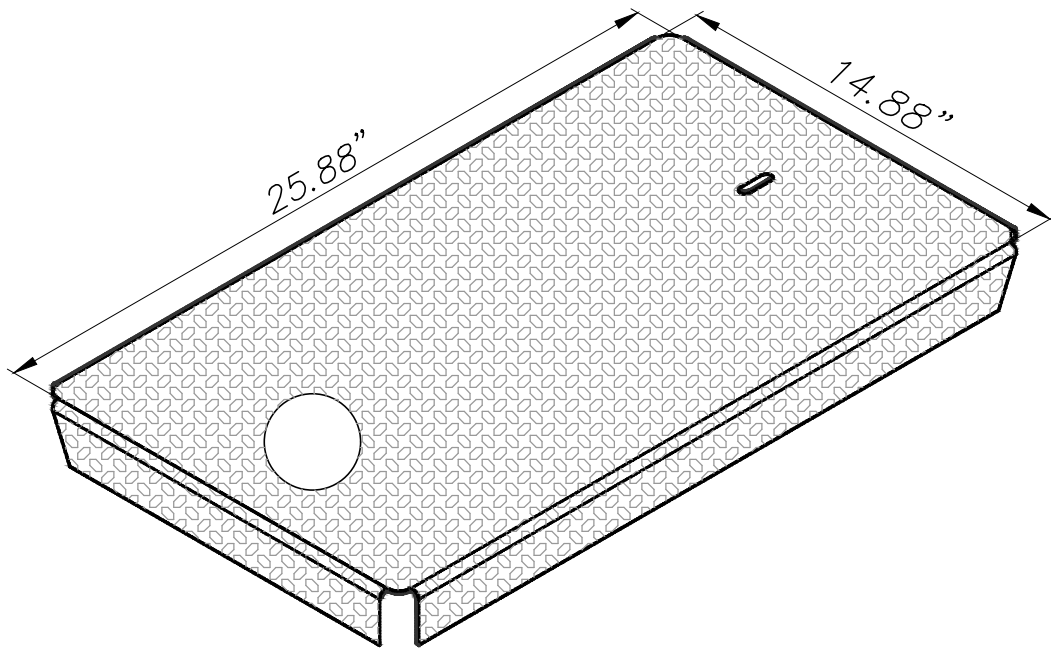
STANDARD DETAIL

**STANDARD CONCRETE
METER BOX #2**

DETAIL NO.

OVWU-313

SHEET 2 OF 4



ISSUED:

01/18

REVISED:

07/22

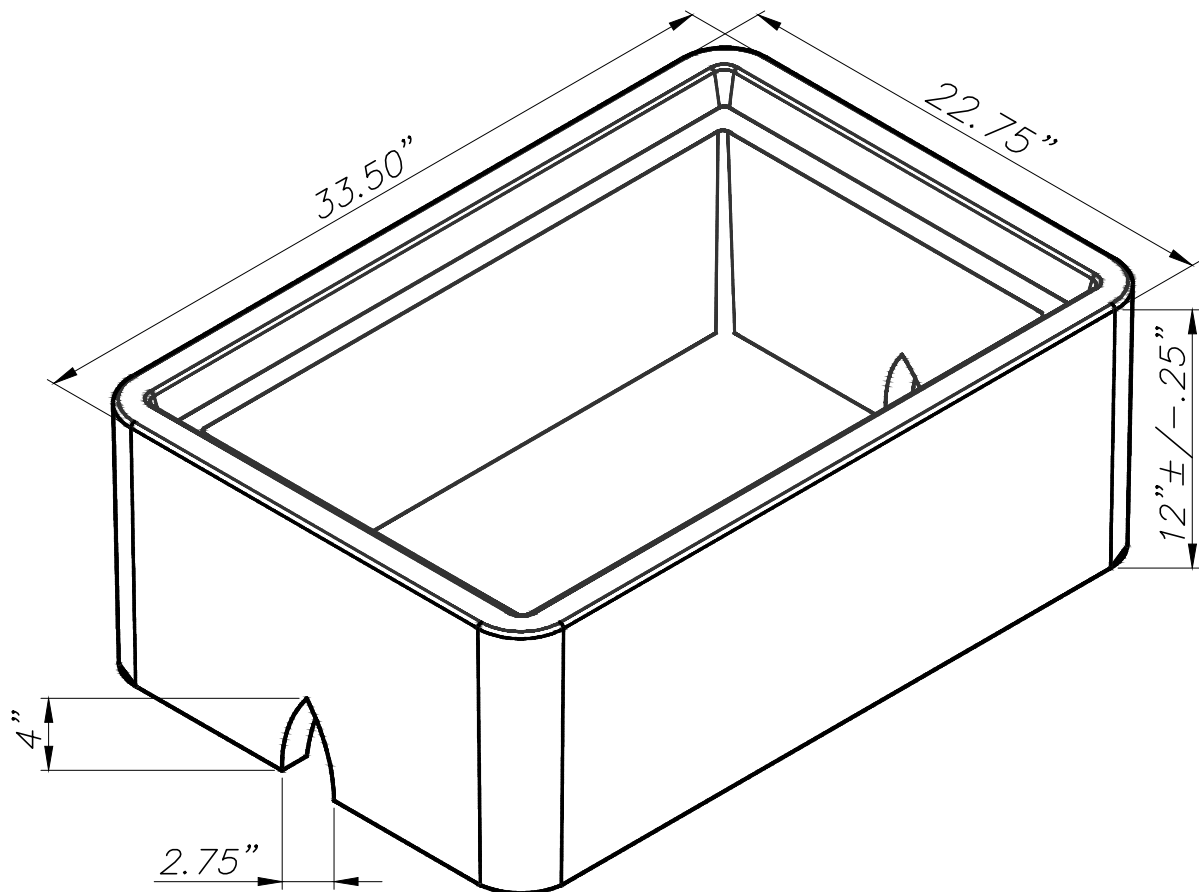
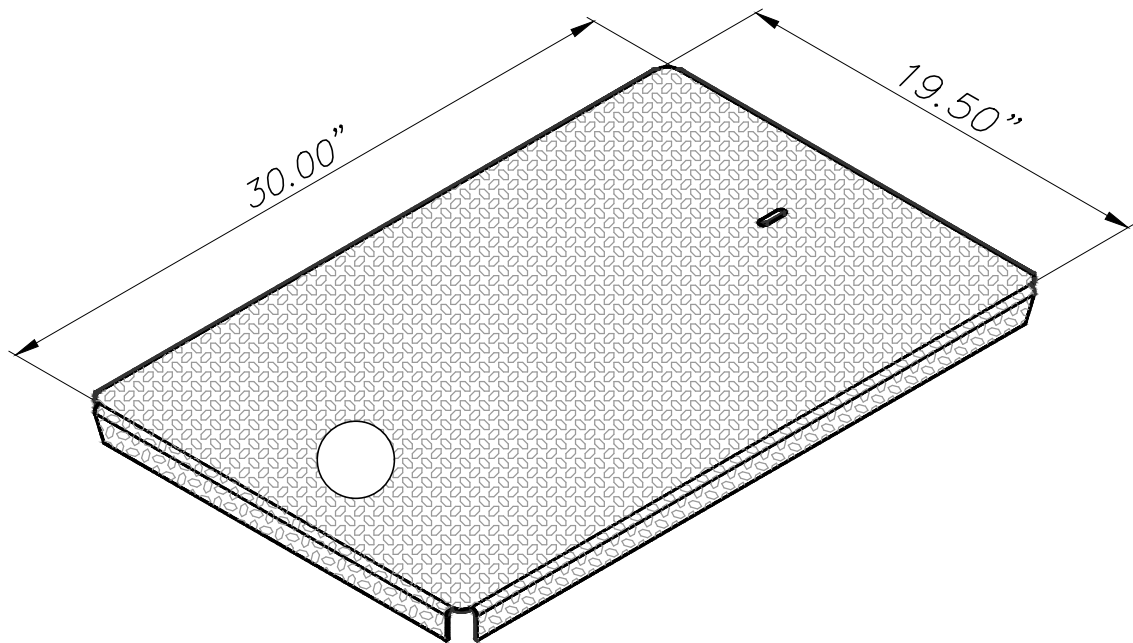
STANDARD DETAIL

**STANDARD CONCRETE
METER BOX #3**

DETAIL NO.

OVWU-313

SHEET 3 OF 4



ISSUED:

01/18

REVISED:

07/22

STANDARD DETAIL

**STANDARD CONCRETE
METER BOX #4**

DETAIL NO.

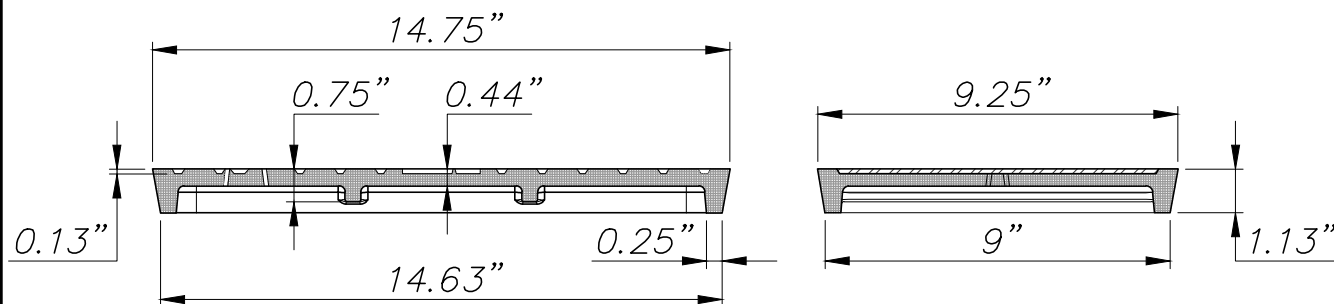
OVWU-313

SHEET 4 OF 4

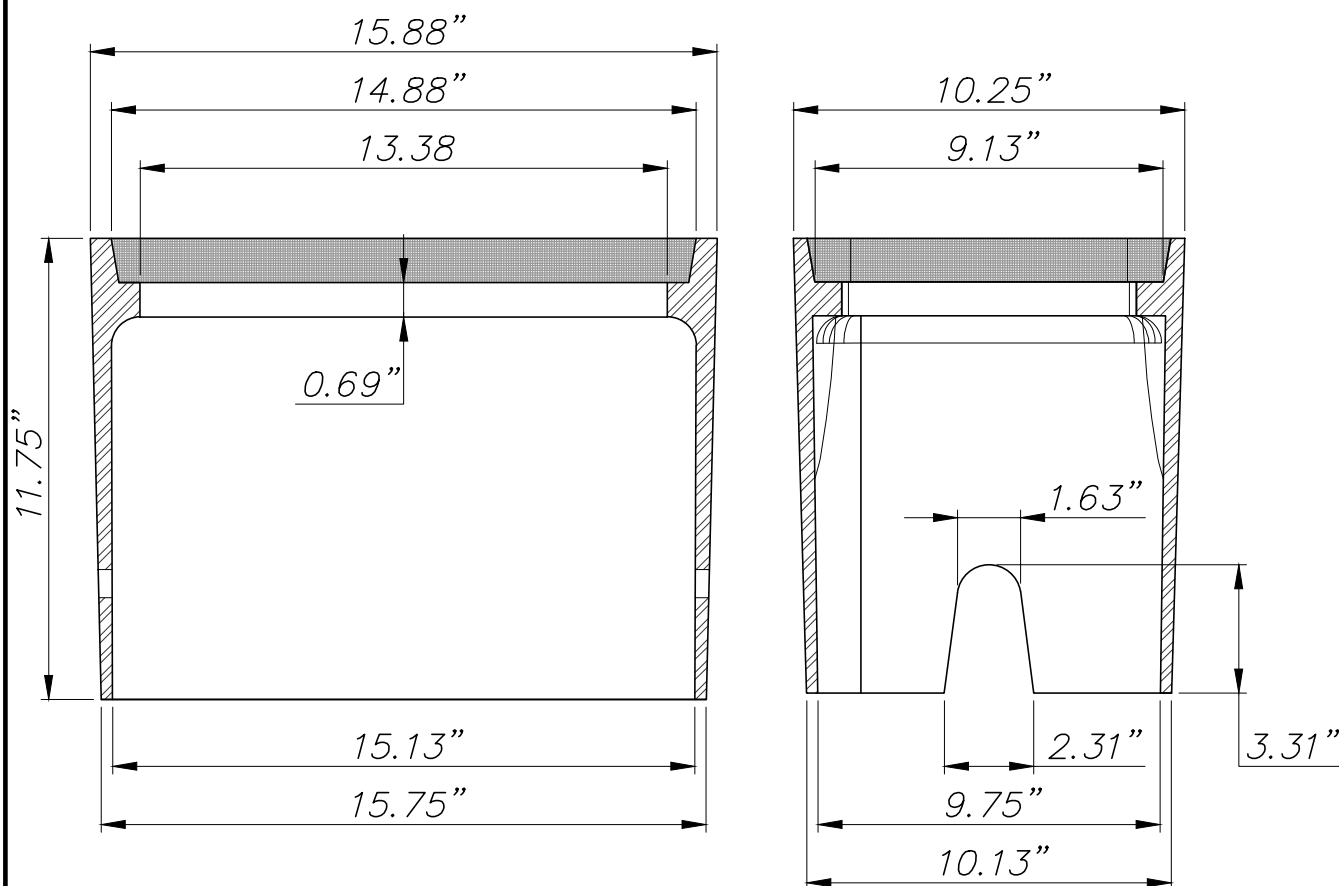
GENERAL NOTES:

1. METER BOXES INSTALL BEHIND SIDEWALK SHALL HAVE AND BE SET WITH REVEAL OR STICK-UP OF 2" ABOVE SIDEWALK TO ACCOMMODATE DECORATIVE ROCK OR LANDSCAPING MATERIALS (PER OVWU STANDARD DETAIL 309 4 OF 4). THE EXCEPTION IS IN CONCRETE SIDEWALKS, DRIVEWAYS, AND PAVED AREAS WHERE THE METER BOX SHALL BE SET FLUSH WITH SURROUNDING SURFACE.

	ISSUED:	<i>STANDARD DETAIL</i>	DETAIL NO.
	<i>01/18</i>		
	REVISED:	<i>STANDARD CAST IRON METER BOX</i>	<i>OVWU-314</i>
	<i>09/20</i>		<i>SHEET 1 OF 6</i>



BOX LID VIEW

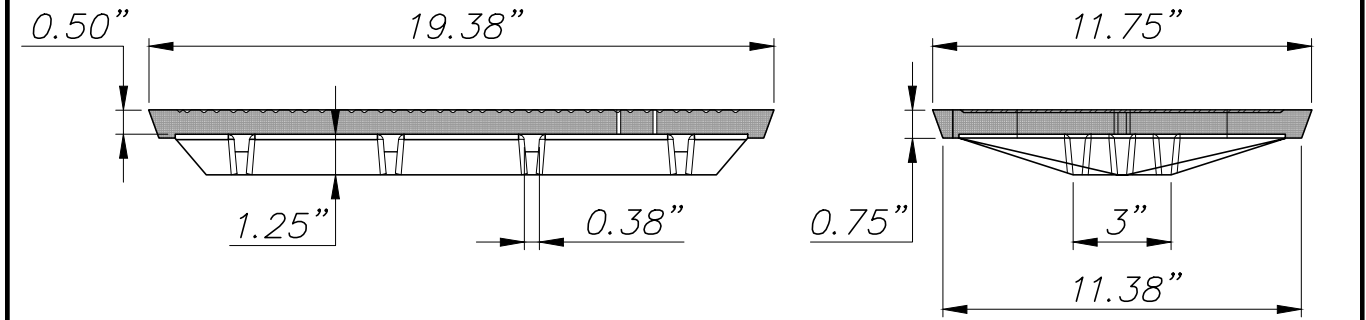


BOX VIEW

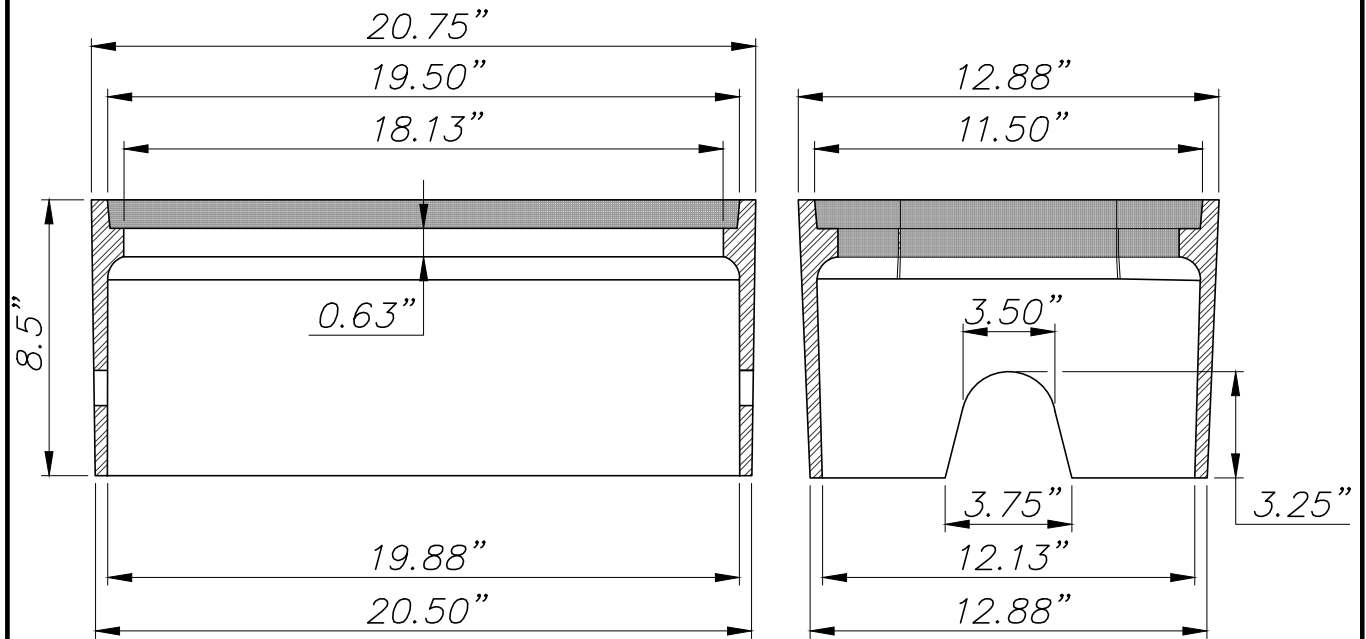
NOTE:

1. METER BOX INSTALLATION IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE AVOIDED. IF METER BOX INSTALLATION IN AN AREA SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE IS UNAVOIDABLE CAST IRON BOXES OF THE APPROPRIATE SIZE SHALL BE USED. REFER TO DETAIL ABOUT UP SIZING CAST IRON METER BOXES REQUIRE (2) 2" X 4" X 12" SOLID CONCRETE BLOCKS.
(ROMAN BRICK ENTIRE LENGTH AND WIDTH OF BOX)

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		OVWU-314
	REVISED:	STANDARD CAST IRON METER BOX AND COVER #1	SHEET 2 OF 6
	02/19		



BOX LID VIEW

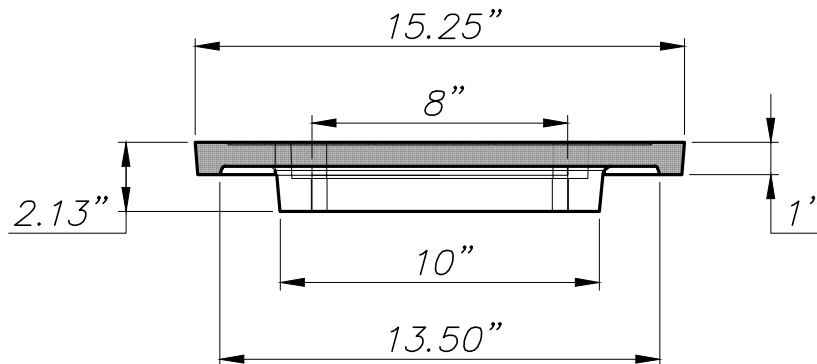
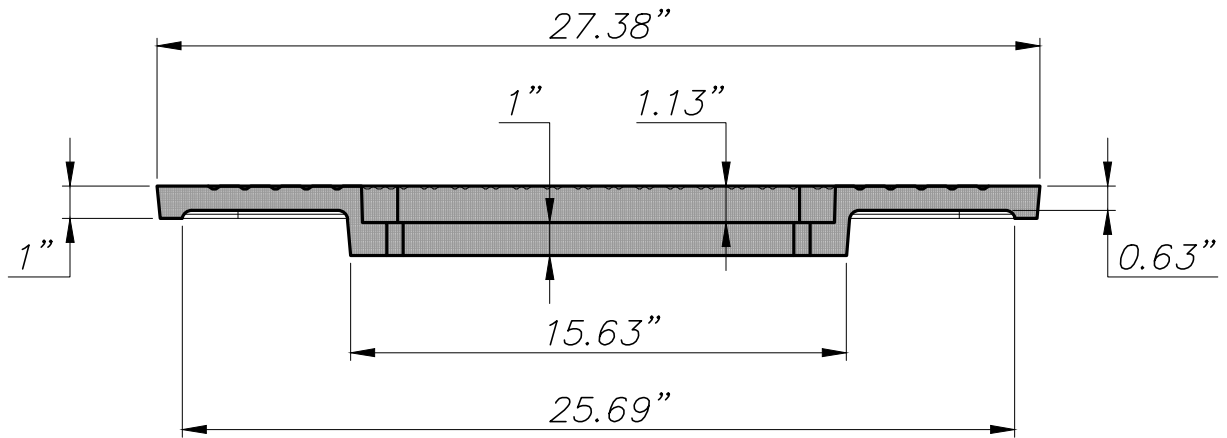
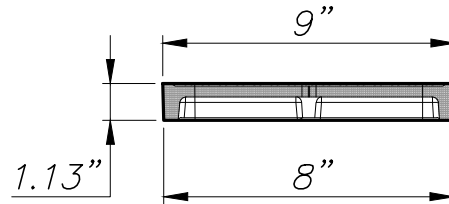
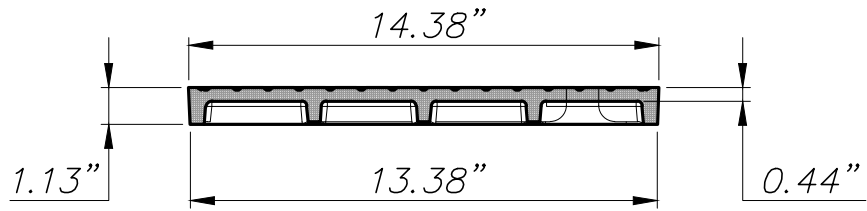


BOX VIEW

NOTE:

1. SEE NOTE #6, OVWU STANDARD DETAILS 311 AND 314

	ISSUED:	STANDARD DETAIL STANDARD CAST IRON METER BOX AND COVER #2	DETAIL NO.
	01/18		OVWU-314
	REVISED:		SHEET 3 OF 6
	11/18		



BOX LID VIEW



ISSUED:

01/18

REVISED:

11/18

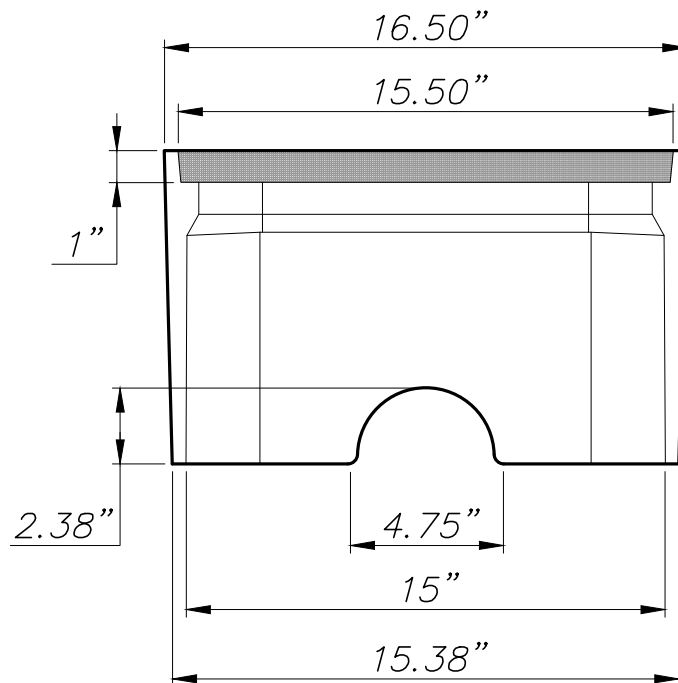
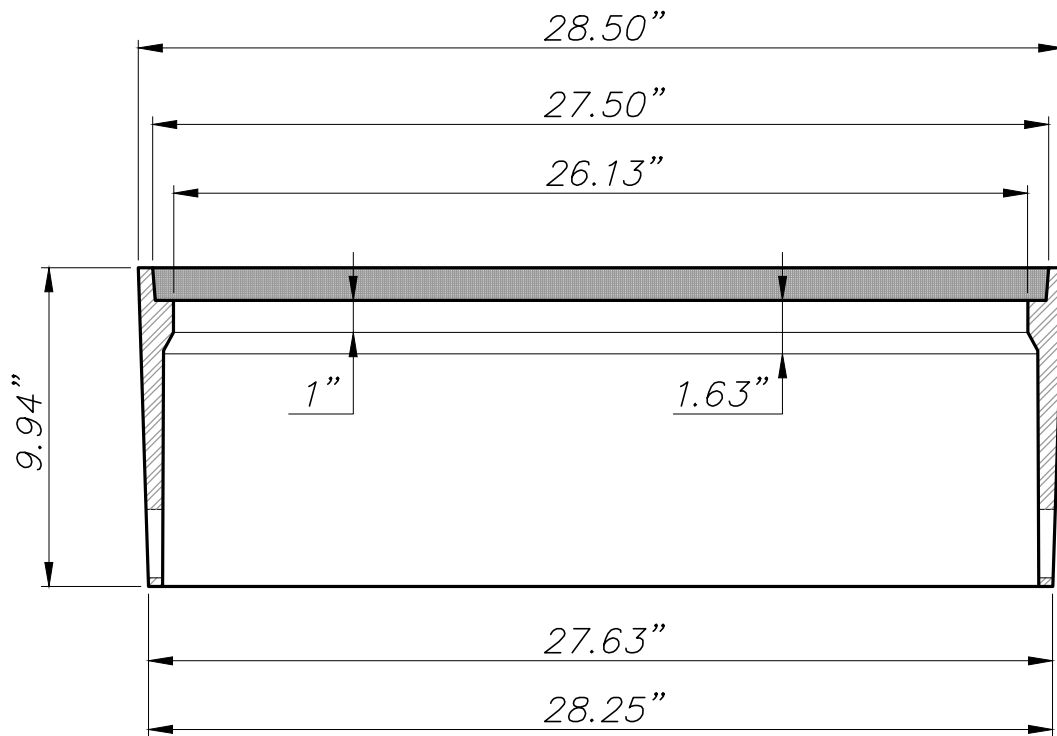
STANDARD DETAIL

**STANDARD CAST IRON
METER BOX COVER #3**

DETAIL NO.

OVWU-314

SHEET 4 OF 6



BOX VIEW



ISSUED:

01/18

REVISED:

11/18

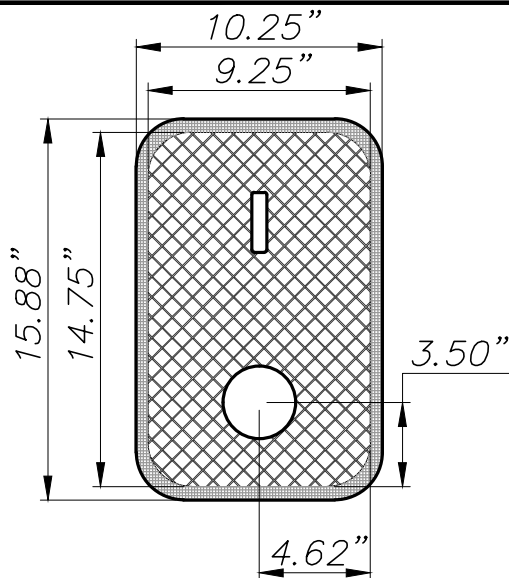
STANDARD DETAIL

**STANDARD CAST IRON
METER BOX #3**

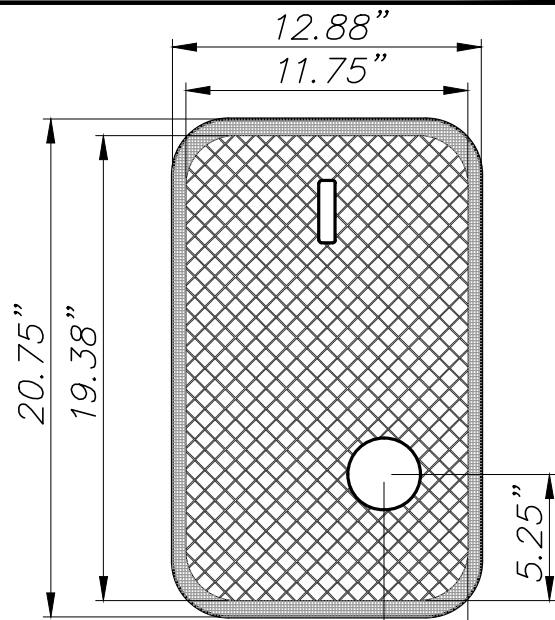
DETAIL NO.

OVWU-314

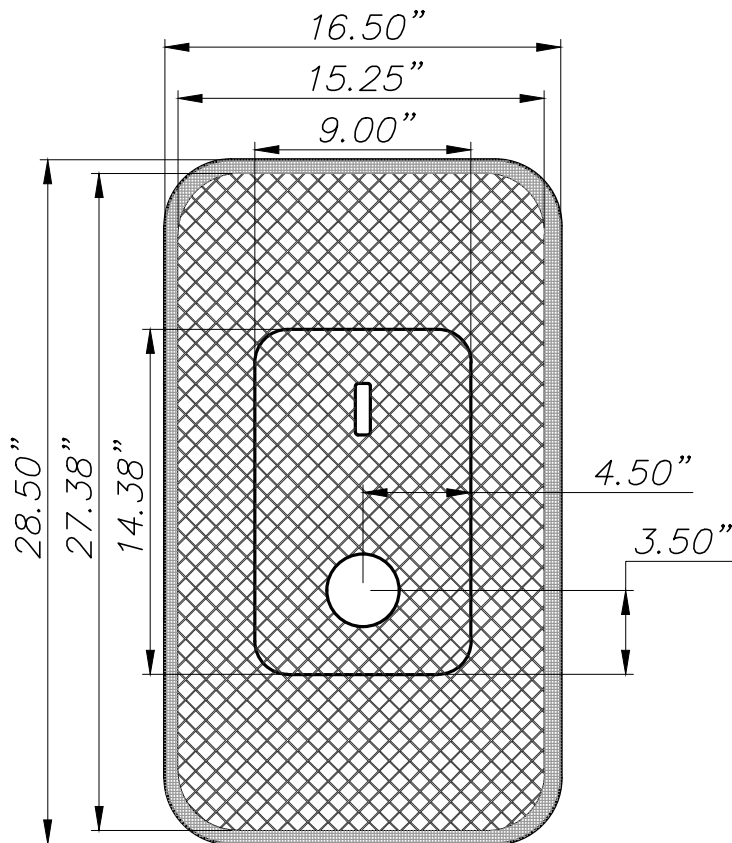
SHEET 5 OF 6



BOX #1



BOX #2



BOX #3

NOTE:

1. METER BOX INSTALLATION IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE AVOIDED. IF METER BOX INSTALLATION IN AN AREA SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE IS UNAVOIDABLE CAST IRON BOXES OF THE APPROPRIATE SIZE SHALL BE USED. REFER TO DETAIL ABOUT UP SIZING CAST IRON METER BOXES REQUIRE (2) 2" X 4" X 12" SOLID CONCRETE BLOCKS.
(ROMAN BRICK OR ENTIRE LENGTH AND WIDTH OF BOX)



ISSUED:

01/18

REVISED:

11/18

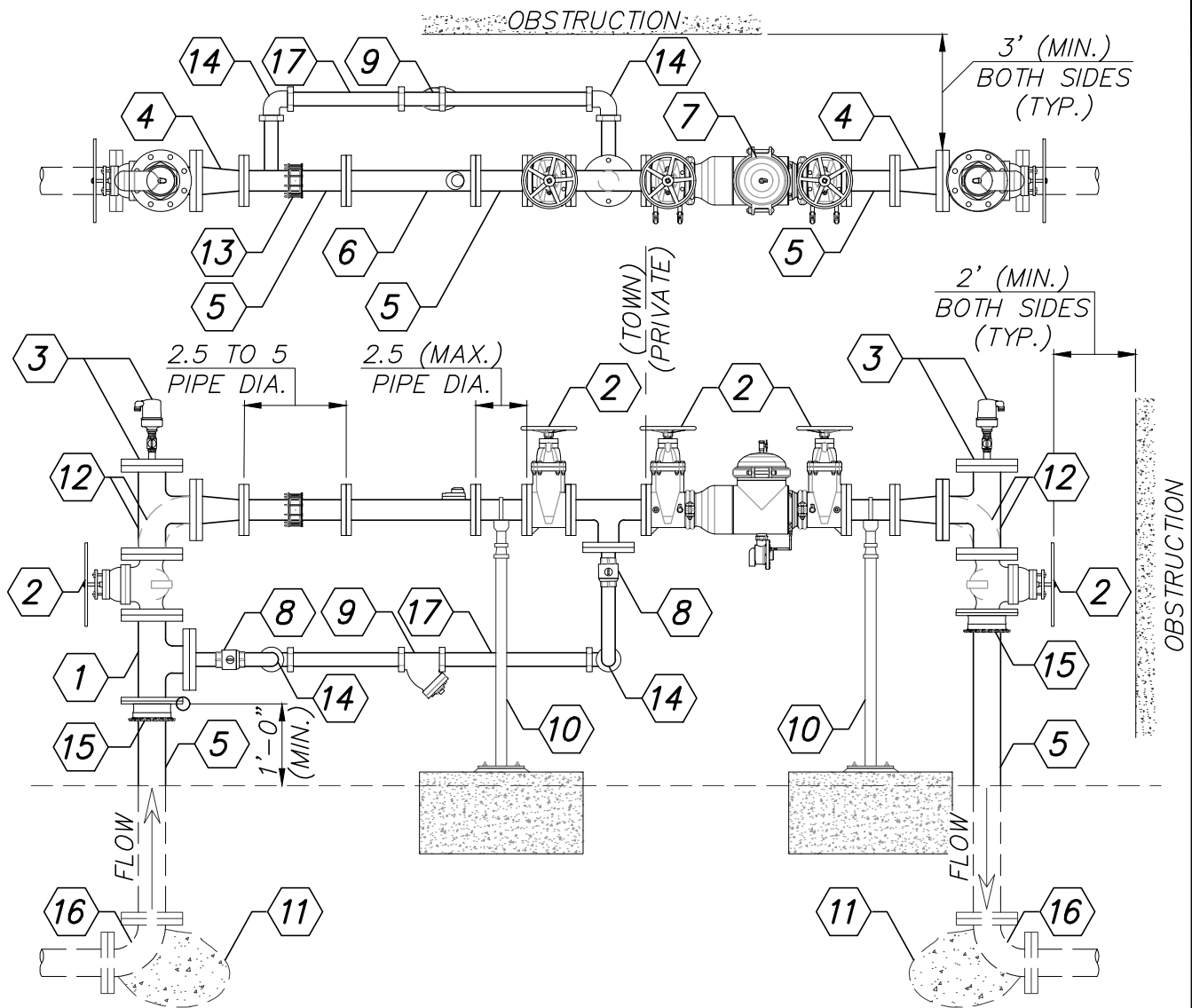
STANDARD DETAIL

**AMI PLACEMENT
STANDARD CAST IRON
METER BOX COVERS #1, #2 AND #3**

DETAIL NO.

OVWU-314

SHEET 6 OF 6



KEYNOTES:

- ① DUCTILE IRON PIPE (D.I.P.) TEE
- ② GATE VALVE AND VALVE HANDWHEEL
- ③ VERTICAL TEE, BLIND FLANGE, THRED-O-LET, BALL VALVE AND COMBINATION AIR RELEASE VALVE
- ④ CONCENTRIC REDUCER (AS REQUIRED OR NEED PER PLAN)
- ⑤ DUCTILE IRON PIPE (D.I.P.) (PIPE SADDLES OF APPROPRIATE SIZE WITH NO TAP)
- ⑥ SENSUS OMNI C2 OR T2 METER
- ⑦ REDUCED PRESSURE ASSEMBLY (RPA)
- ⑧ LOCKING CURB STOP
- ⑨ Y-STRAINER
- ⑩ PIPE SUPPORTS (LOCATION ALTERNATIVE PER PLAN OR OVWU INSPECTOR)
(SEE OVWU STANDARD DETAIL 108 SHEET 2 OF 2)
- ⑪ THRUST BLOCK (PER OVWU STANDARD DETAIL 610)
- ⑫ 90° ELBOW OR ALTERNATIVE VERTICAL TEE, BLIND FLANGE, THRED-O-LET, BALL VALVE AND COMBINATION AIR RELEASE VALVE
- ⑬ SOLID SLEEVE WITH MEGA-LUGS
- ⑭ 90° ELBOW
- ⑮ MJ x FL ADAPTER
- ⑯ MJ x MJ 90° BEND ELBOW
- ⑰ BY-PASS PIPING SHALL BE STAINLESS STEEL PIPING



ISSUED:

01/18

REVISED:

09/20

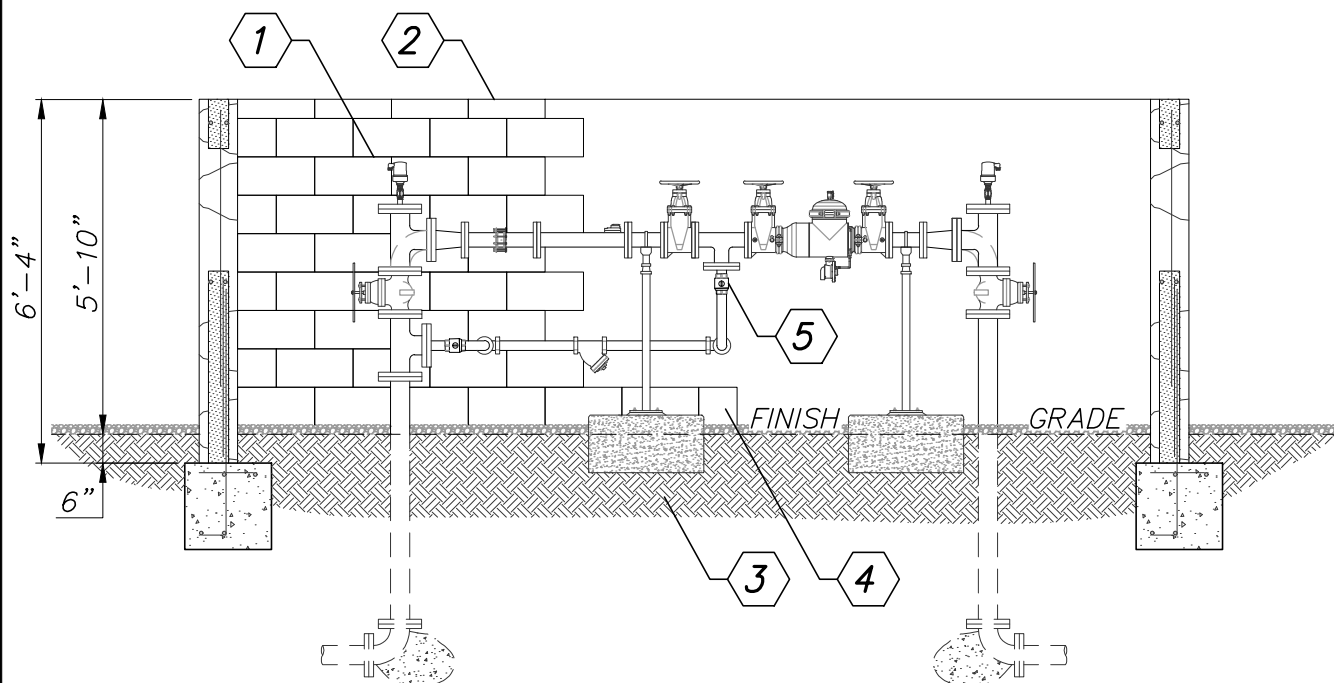
STANDARD DETAIL

**ABOVE GROUND
METERING STATION
WITH BACKFLOW (RPA)**

DETAIL NO.

OVWU-315

SHEET 1 OF 3



KEYNOTES:

- ① 8" x 8" x 16" SPLIT FACE MASONRY WALL
- ② 4" x 8" x 16" SOLID CAP BLOCK
- ③ 95% COMPACTED SUBGRADE
- ④ MASONRY WALL WEEP HOLES
(SHALL BE SPACED 4 FEET APART)
- ⑤ TEE AND NIBBLE FOR FLUSHING
(OVWU STANDARD DETAIL 315 SHEET 1 OF 2)

NOTES:

1. CONTRACTOR SHALL SUBMIT SAMPLES OF BLOCK TO ENGINEER FOR APPROVAL BEFORE CONSTRUCTION BEGINS.
2. DEVELOPER CAN SUBMIT ALTERNATIVE SECURITY MATERIALS TO OVWU SUCH AS, WROUGHT IRON, SLUMP BLOCK THAT IS CONSISTENT WITH CHARACTER OF DEVELOPMENT.
3. MINIMUM 3 FEET FROM WALL/FENCE OBSTRUCTION TO METERING STATION.
4. BYPASS SHALL BE SIZED BY DESIGN ENGINEER. ALLOWABLE SIZES 2, 4, AND 6 INCH.



ISSUED:

01/18

REVISED:

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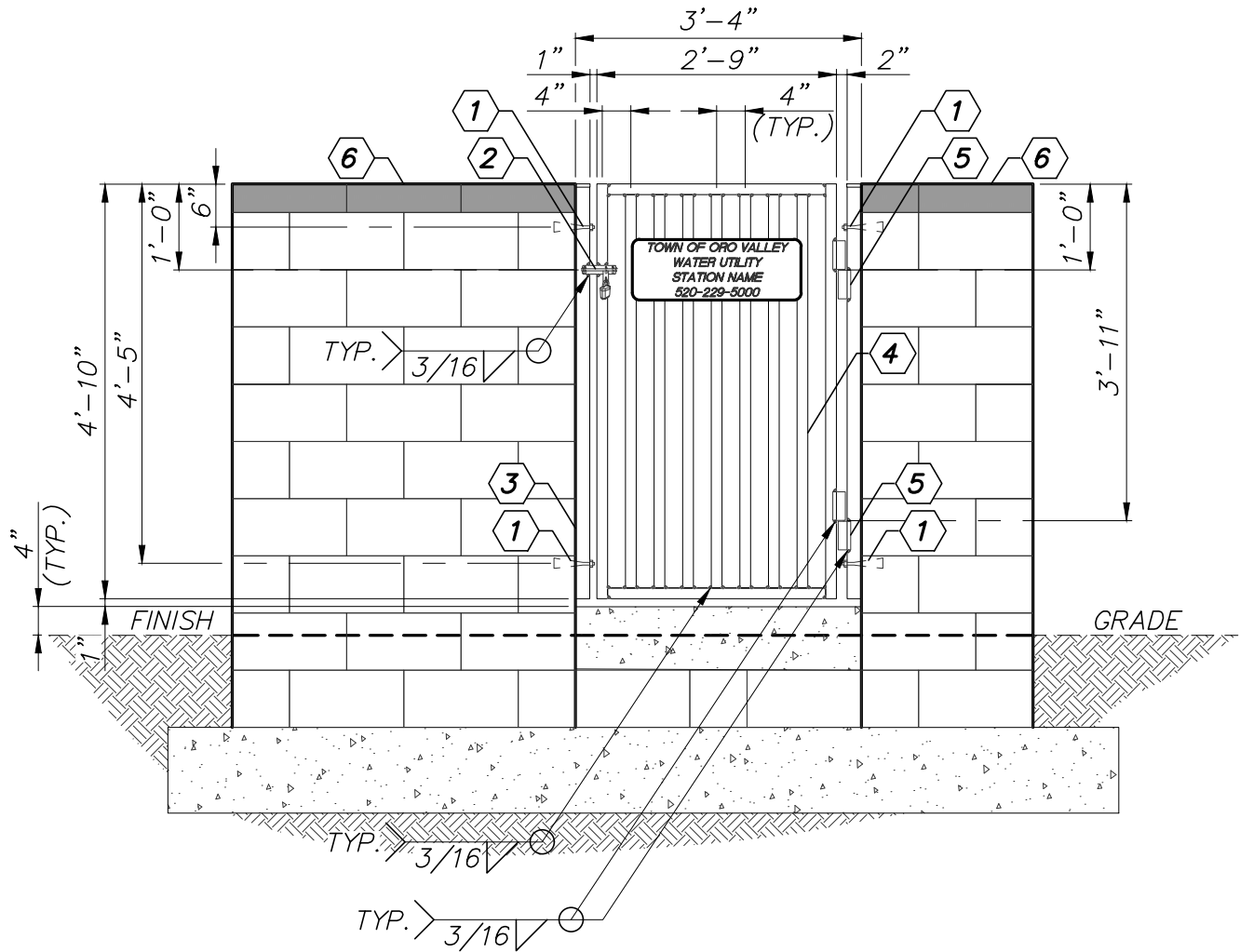
STANDARD DETAIL

**ABOVE GROUND
METERING STATION
SECURITY WALL ENCLOSURE**

DETAIL NO.

OVWU-315

SHEET 2 OF 3



PIPING AND EQUIPMENT

- 1 4-CHEMICAL ANCHORS WITH NUTS AND WASHERS SIZE SHALL BE 1/2"Ø x 6"L WITH 3" EMBED
- 2 GATE LOCK HASP WITH PADLOCK (SEE SPECIFICATION)
- 3 2" x 2" x 1/4" STEEL TUBING WITH 2" END CAPS
- 4 1-1/2" x 1-1/2" x 1/4" STEEL TUBING WELD 18 GA. WITH STAGGERED CENTER @ 40% McNICHOLS CO. OPEN PERFORATED METAL SHEET ITEM NO. 1618311841 STEEL MESH OR ENGINEER APPROVED EQUAL.
- 5 4" x 4" BOX HINGE TO BE WELD ONTO STEEL TUBING
- 6 4" x 8" x 16" SOLID CAP BLOCK

NOTES:

1. PERFORATED SHEET METAL SHALL BE PLACED ON INSIDE FACING PANEL OF DOOR TOWARD FACILITY.



ISSUED:

09/20

REVISED:

09/20

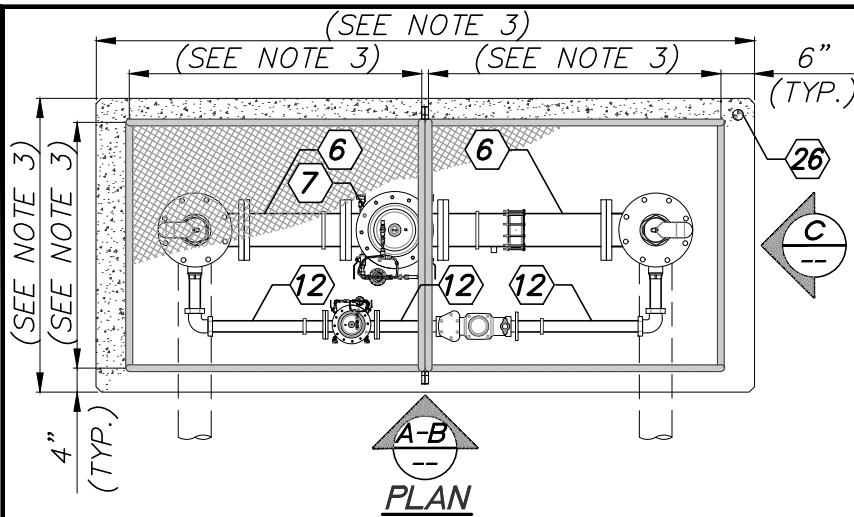
STANDARD DETAIL

ENTRY GATE AND SCREEN WALL

DETAIL NO.

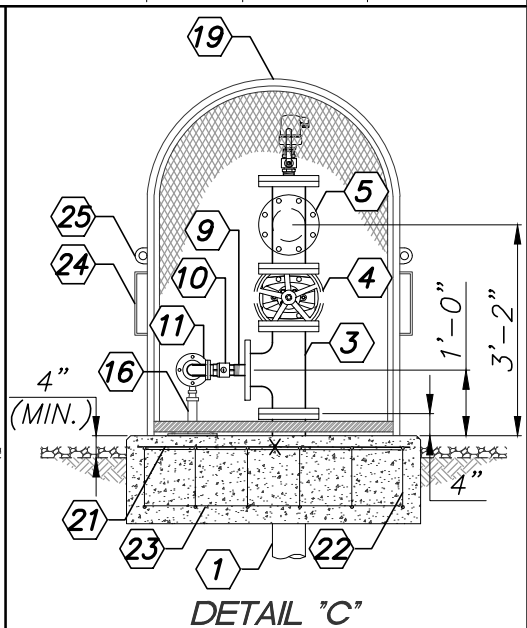
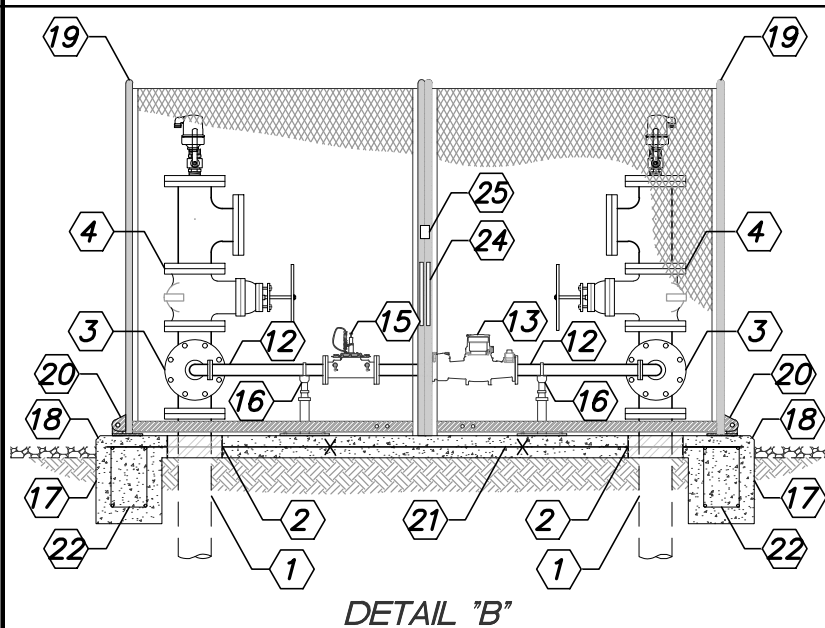
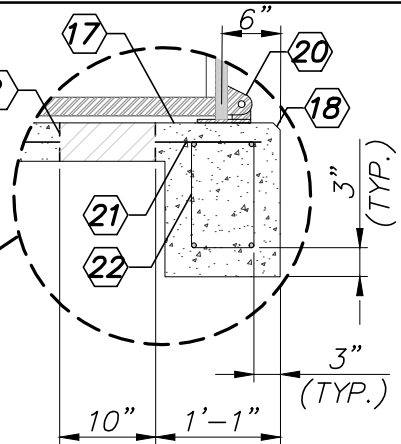
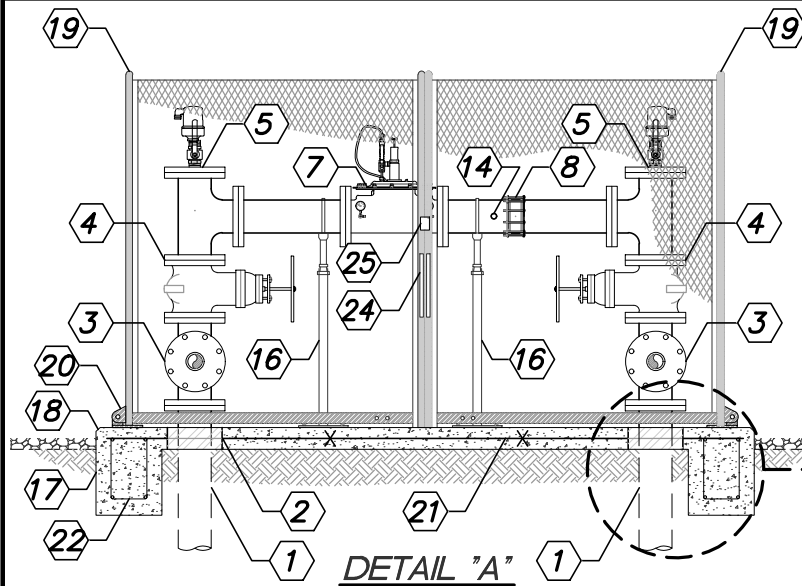
OVWU-315

SHEET 3 OF 3



NOTES:

1. ALL 2" PIPING SHALL BE THREADED STAINLESS STEEL FREEZING PROTECTION TYPE TO BE DETERMINED BY OVWU.
2. ALL ABOVE GROUND PIPING SHALL BE PAINTED AND COATED WITH TNEC PAINT PER AWWA STANDARDS.
3. CONTRACTOR TO SIZE ENCLOSURE/CAGE BASED ON PRV SIZE. THIS WILL VARY WITH PRV DIMENSIONS.
4. DEVELOPER CAN SUBMIT ALTERNATIVE SECURITY MATERIALS TO OVWU SUCH AS, WROUGHT IRON, SLUMP BLOCK THAT IS CONSISTENT WITH CHARACTER OF DEVELOPMENT.



	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		ABOVE GROUND STACKED PRV INSTALLATIONS AND CAGE
	REVISED:	SHEET 1 OF 2	
	02/21		

KEYNOTES:

- ① D.I.P. (DUCTILE IRON PIPE)
- ② STANDARD STEEL PIPE SLEEVE (SEE NOTE 3 STANDARD DETAIL OVWU 315 SHEET 1 OF 2)
- ③ TEE FL x FL D.I. (DUCTILE IRON) (VERT.)
6" FLANGED CAP, THRED-O-LET WITH 2 INCH FIP PORT TO RECEIVE
- ④ GATE VALVE (VERT.)
- ⑤ TEE FL x FL D.I. (DUCTILE IRON) (VERT.) ROTATE AS REQ'D FLANGED CAP, THRED-O-LET W/
2 INCH FIP PORT TO RECEIVE COMBINATION AIR RELEASE VALVE A.R.I. (MODEL: D-040 ARV)
AND INSECT BUG SCREEN.
- ⑥ NEW DUCTILE IRON SPOOL PIECE
- ⑦ 2" PRESSURE REDUCING VALVE WILL BE REDUCED PORTED WITH
PRESSURE GAUGES. VALVE SHALL BE A CLA-VAL (MODEL 690-01)
WITH STAINLESS STEEL TUBING AND FITTINGS IN PILOT SYSTEM.
VALVE SHALL BE PRESSURE CLASS 150, WITH FLANGE ENDS, EPOXY
LINING/COATING (NSF-61 APPROVED).
- ⑧ SOLID SLEEVE WITH MEGALUG
- ⑨ (304 STAINLESS STEEL) NIPPLE
- ⑩ LOCKING CORP. STOP
- ⑪ (304 STAINLESS STEEL) 90° ELBOW
- ⑫ (304 STAINLESS STEEL) THREADED PIPE
- ⑬ WATER METER OMNI (MODEL: C2 COMPOUND)
THIS IS DESIGNED TO PROVIDE LAY LENGTH THAT IS REQUIRED FOR FUTURE
METER THAT WILL RECORD CHLORINE RESIDUAL AND PRESSURE.
- ⑭ 1" THRED-O-LET WITH 304 STAINLESS STEEL PLUG TO RECEIVE FUTURE WATER METER WITH
ALARMS FOR PRESSURE AND CHLORINE RESIDUAL.
- ⑮ 2" FULLY PORTED PRESSURE REDUCING VALVE WITH PRESSURE GAUGES.
VALVE SHALL BE A CLA-VAL (MODEL 90-01Y) WITH STAINLESS
STEEL TUBING AND FITTINGS IN PILOT SYSTEM. VALVE SHALL
BE PRESSURE CLASS 150, WITH FLANGE ENDS, EPOXY
LINING/COATING (NSF-61 APPROVED).
- ⑯ PIPE SUPPORTS
- ⑰ CONCRETE PAD FOR CAGE (SEE NOTE 3 STANDARD DETAIL OVWU 316 SHEET 1 OF 2)
- ⑱ CONCRETE PAD IS FOR CAGES ONLY, SIZE DEPENDS ON CAGE SIZE ALL EDGES 3/4"
CHAMFER WITH 2,500 PSI CONCRETE.
- ⑲ HEAVY STEEL TUBING ROLLED INTO AN 180° ARC, ALL TUBING SHALL BE 1-1/4"
SCH. 40 ASTM A-53 GRADE A-ELECTRIC WELD PIPE. INTERMEDIATE SECTIONS AND
END PANELS MADE OF HEAVY EXPANDED METAL. EXPANDED METAL SHALL BE 1/2"
SPACING x 13 GA. FLATTENED DIAMOND PATTERN STEEL. CAGE SHALL BE LOCKABLE
AND IN TWO SECTIONS. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW AND
APPROVAL PRIOR TO FABRICATION.
- ⑳ HINGED
- ㉑ CONCRETE PAD WITH WELDED WIRE MESH
6" x 6"W 2.96 GA. AND 3/4" CHAMFER EDGES
(SEE NOTE 3 STANDARD DETAIL OVWU 316 SHEET 1 OF 2)
- ㉒ #4 CLOSED TIES REBAR
- ㉓ #4 REBAR EACH SIDE
- ㉔ HEAVY STEEL GRAB HANDLE
- ㉕ LOCKING MECHANISM
- ㉖ BRASS MONUMENT CAP WITH STAMPED ELEVATION



ISSUED:

01/18

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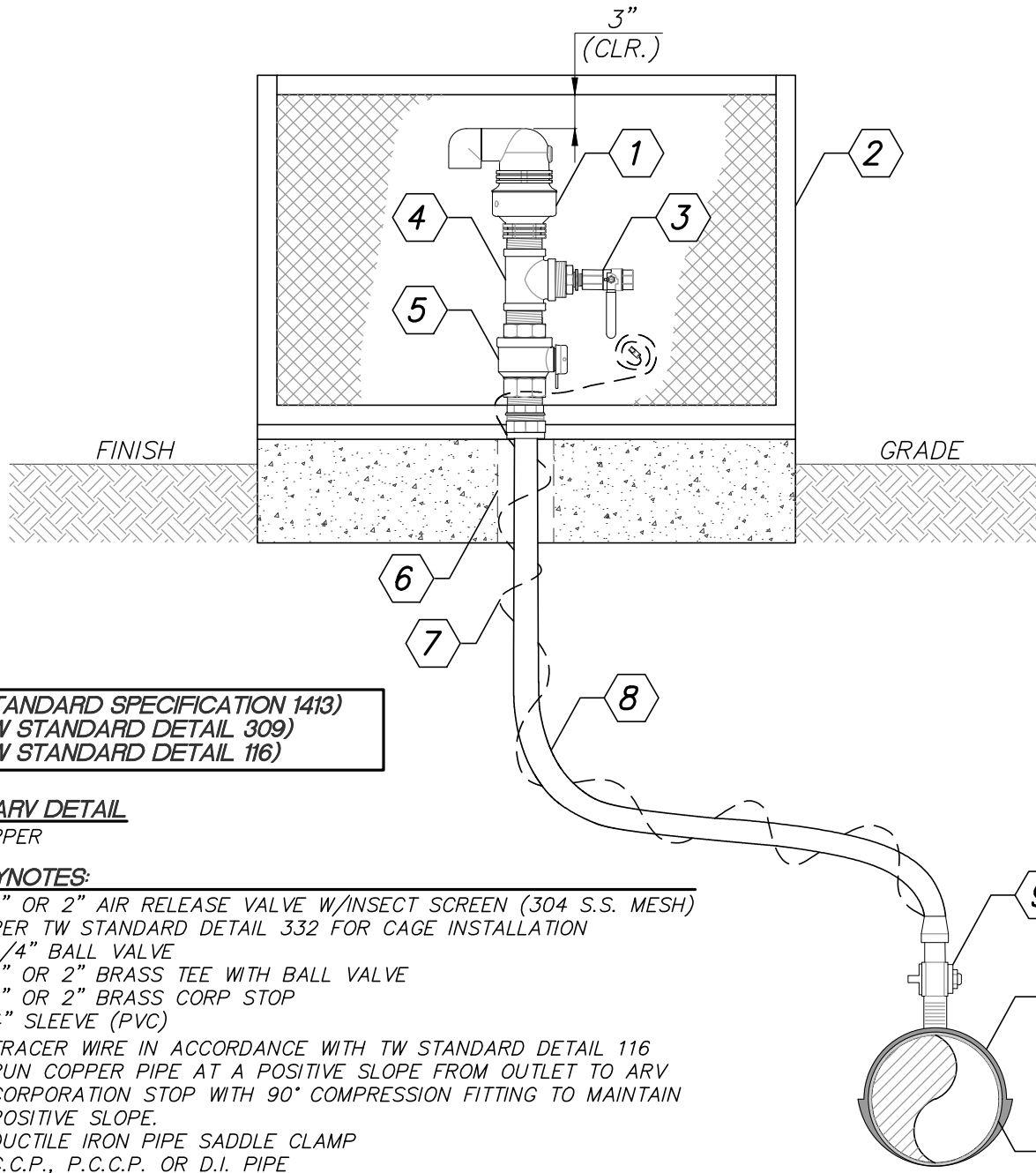
10/20

STANDARD DETAIL**ABOVE GROUND PRV
INSTALLATION AND CAGE**

DETAIL NO.

OVWU-316

SHEET 2 OF 2



ISSUED:

01/18

REVISED:

10/20

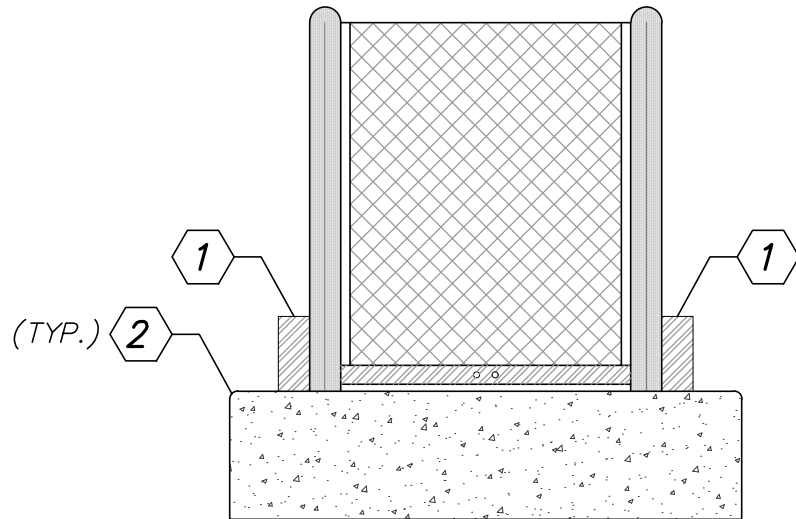
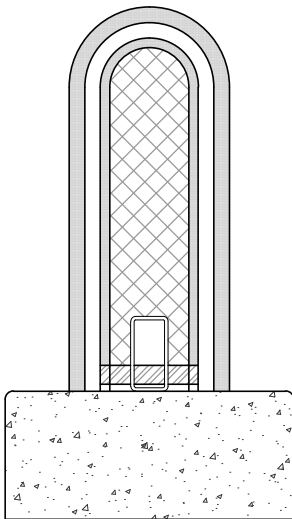
STANDARD DETAIL

ABOVE GROUND AIR RELEASE
VALVE 2 INCH AND SMALLER
INSTALLATION

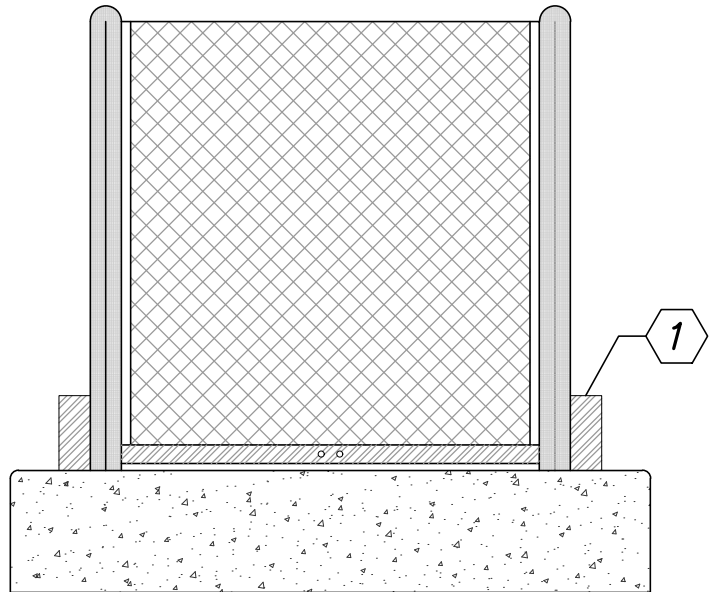
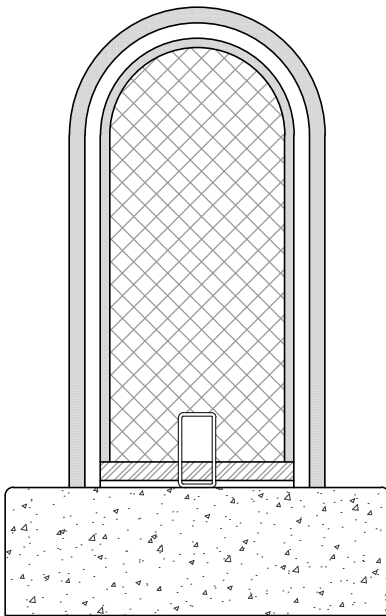
DETAIL NO.

OVWU-331

SHEET 1 OF 1



**GUARD SHACK #1
QUALITY ENCLOSURE #1
OR APPROVED EQUAL BY OVWU**



**GUARD SHACK MODEL: .5 LIFT OFF
QUALITY ENCLOSURE MODEL: .5 LIFT OFF
OR APPROVED EQUAL BY OVWU**

KEYNOTES:

- ① EYE BOLT WITH LOCK (SEE OVWU STANDARD DETAIL 332 SHEET 2)
② CONCRETE PERIMETER EDGE SHALL HAVE A 1/2" RADIUS CORNERS

NOTES:

1. PROTECTION POST MAY BE REQUIRED TO ACCOMMODATE SITE CONDITIONS
(PER TW STANDARD DETAIL 500 SHEET 3 OF 8)



ISSUED:

01/18

REVISED:

02/19

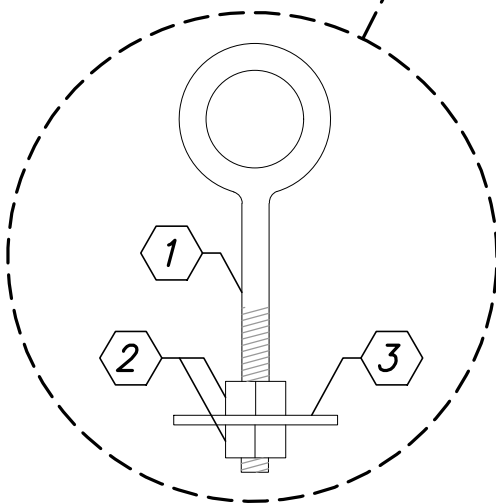
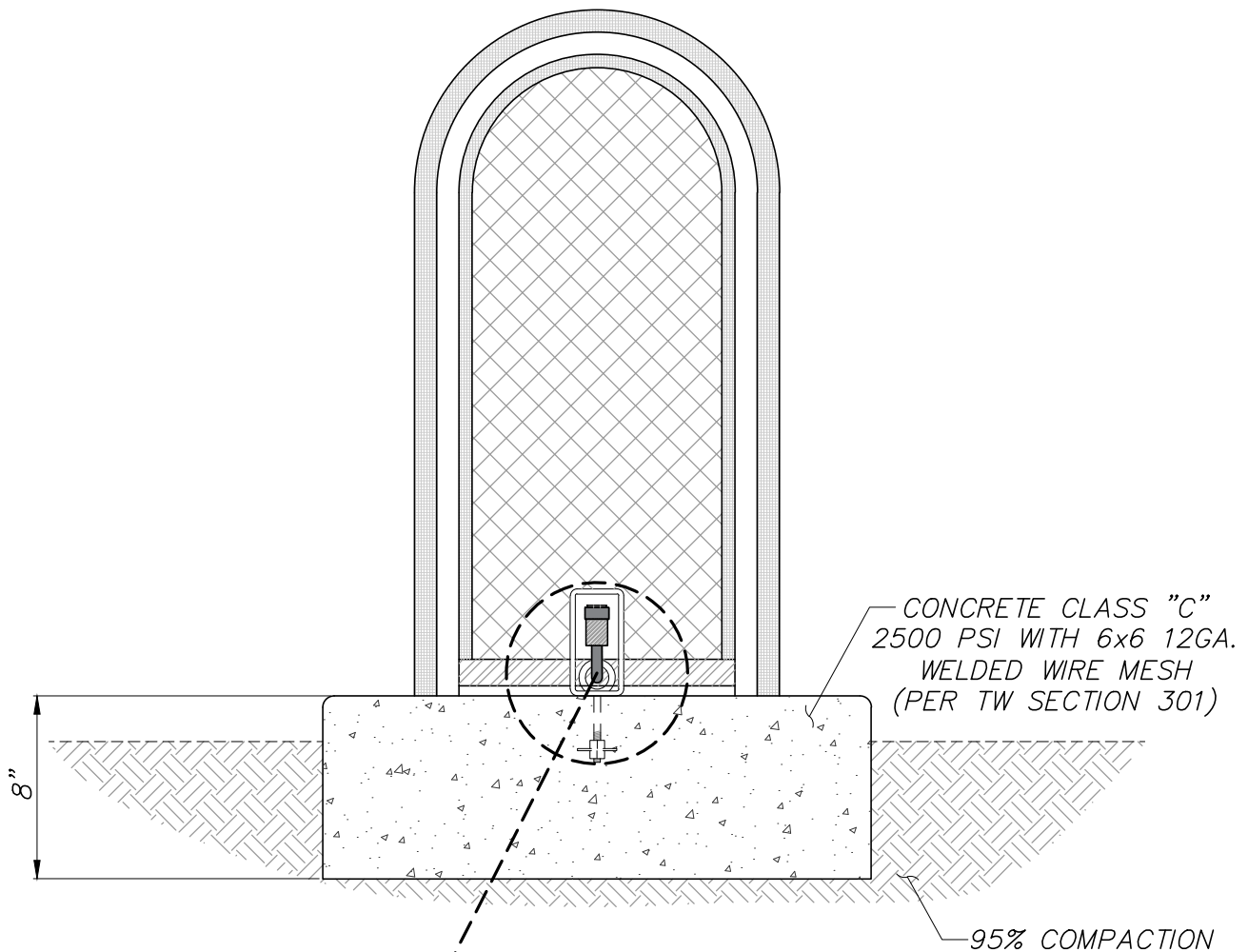
STANDARD DETAIL

**STANDARD ARV ENCLOSURE
FOR 1 INCH AND LARGER
INSTALLATION**

DETAIL NO.

OVWU-332

SHEET 1 OF 2



HARDWARE:

1. (2) 3/8"—16 x 2-1/2" FORGED EYEBOLT
2. (4) 3/8"—16 HEX NUT
3. (2) 3/8" x 1-1/2" FENDER WASHER
4. PER TUCSON WATER SECTION 501 (METALS)



ISSUED:

01/18

REVISED:

02/19

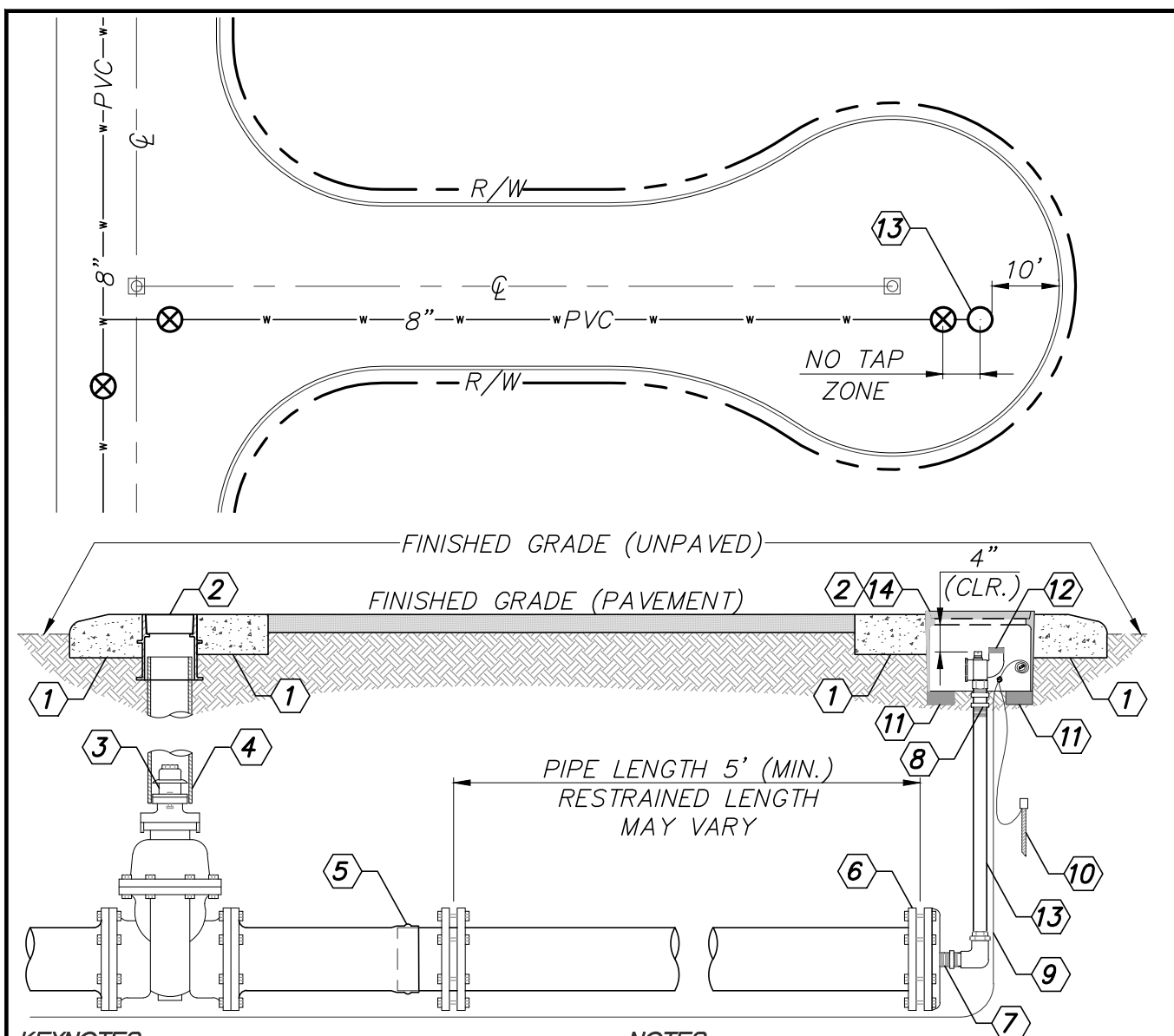
STANDARD DETAIL

**STANDARD ARV ENCLOSURE
FOR 1 INCH AND LARGER
INSTALLATION**

DETAIL NO.

OVWU-332

SHEET 2 OF 2



KEYNOTES:

- ① CONCRETE PER (OVWU STANDARD DETAIL 300).
- ② STANDARD VALVE BOX INSTALLATION PER (OVWU STANDARD DETAIL 300).
- ③ MAINLINE VALVE W/OPERATING NUT.
- ④ RISER (OVWU STANDARD DETAIL 300).
- ⑤ BELL AND SPIGOT
- ⑥ MJ x 2" FIP CAP WITH RESTRAINER
- ⑦ 2"Ø x 6" BRASS NIPPLE IPT
- ⑧ 2" CORP. STOP
- ⑨ TRACER WIRE IN ACCORDANCE WITH (OVWU STANDARD DETAIL 115).
- ⑩ MAGNESIUM ANODE (GROUND) [#ANO-100]
- ⑪ 2" x 4" x 12" SOLID CONCRETE BLOCKS OR ROMAN BRICK ENTIRE LENGTH AND WIDTH OF BOX
- ⑫ 2" BLOW OFF BALL VALVE AND BRASS PLUG
- ⑬ 2" TYPE "K" COPPER TUBE (RIGID)
- ⑭ CAST IRON METER BOX PER (OVWU STANDARD DETAIL 314).

NOTES:

1. CONCRETE THRUST BLOCKS MAY BE USED IF APPROVED BY THE ENGINEER.
2. NO SERVICE TAPS WILL BE ALLOWED BETWEEN THE LINE VALVE AND THE BLOW OFF ASSEMBLY. (ONLY MODIFIED DVA).
3. CONTINUOUS LENGTH OF RISER PIPE RISER PIPE SHALL BE PVC MEETING THE DEMAND OF AWWWA C900 FOR D14 CL 305.
4. DVA'S SHALL NOT BE PLACED IN ARTERIALS AND OR COLLECTOR ROADS. PLACEMENT IN RESIDENTIAL STREETS WILL BE CONSIDERED ON A CASE BY CASE BASIS AS DETERMINED BY OVWU.
5. MODIFIED DRAIN ASSEMBLY SHALL BE INSTALLED AT THE END OF MAINS THAT MAY BE EXTENDED IN THE FUTURE.
6. VALVE PIPE JOINTS, AND END CAP SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH STANDARD SPECIFICATION TUCSON WATER 1406.
7. DRAIN VALVE ASSEMBLY SHALL BE INSTALLED ON 6" STUBS MORE THAN 5' IN LENGTH AND ON ALL 8" STUBS MORE THAN 10' IN LENGTH.



ISSUED:

01/18

REVISED:

10/20

STANDARD DETAIL

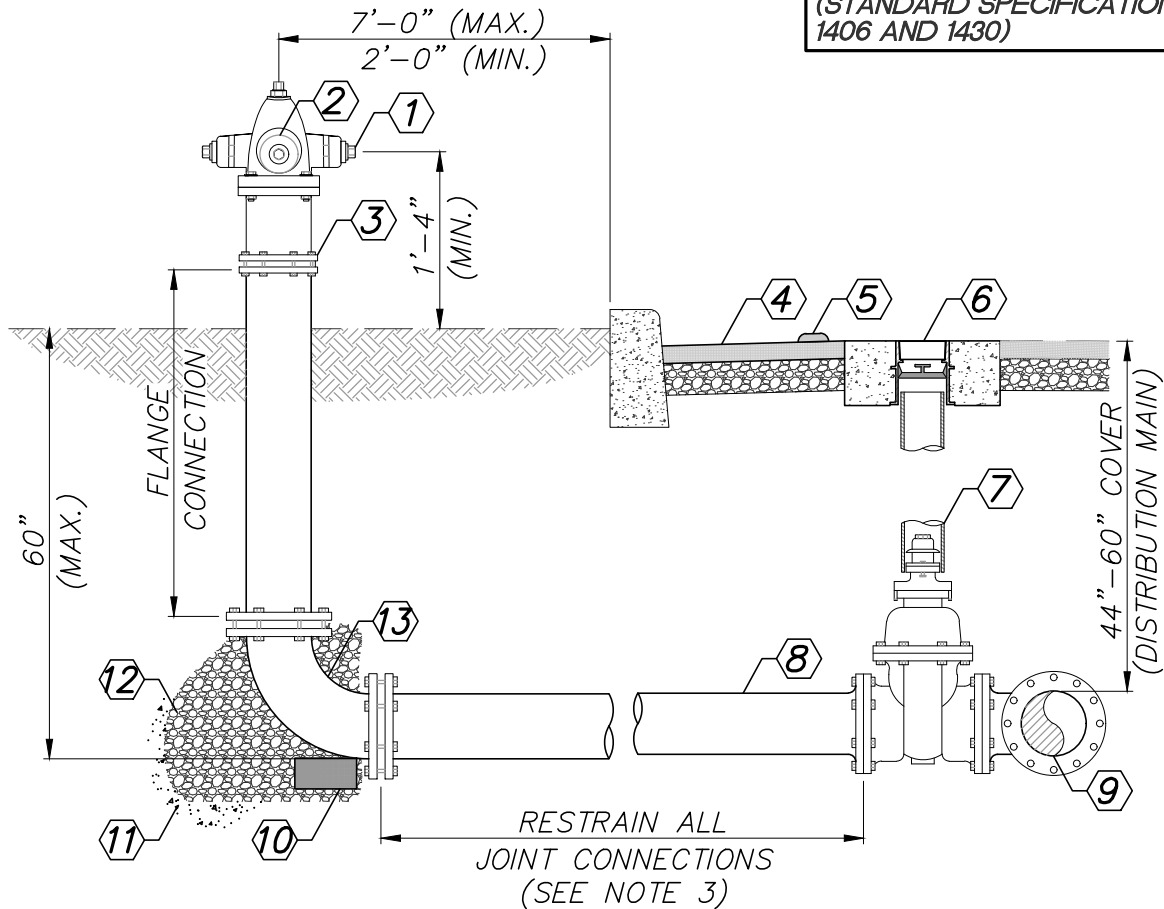
DRAIN VALVE ASSEMBLY

DETAIL NO.

OVWU-400

SHEET 1 OF 1

(STANDARD SPECIFICATION 1401,
1406 AND 1430)



NOTES:

- HYDRANT SHOE SHALL BE A MECHANICAL JOINT FITTING.
- FIRE HYDRANTS NOT IN SERVICE SHALL BE TAGGED BY THE CONTRACTOR WITH "OUT OF SERVICE" RINGS. RINGS SHALL BE PROVIDED BY ORO VALLEY WATER UTILITY. ALL HYDRANTS WILL REMAIN OUT OF SERVICE UNTIL THE PROJECT IS ACCEPTED BY ORO VALLEY WATER UTILITY.
- ALL MECHANICALLY RESTRAINED JOINT CONNECTIONS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION 1406 AND SHALL EXTEND FROM WATER MAIN TEE TO HYDRANT SHOE.
- CONCRETE THRUST BLOCK PER STANDARD DETAIL SD-610 SHALL ONLY BE USED FOR EXTENDING EXISTING PIPE, WHICH IS NOT MECHANICALLY RESTRAINED, BETWEEN THE SHOE AND THE MAIN TEE AND APPROVED BY ENGINEER.
- A MINIMUM OF 8 CU.FT. OF 3/4" GRAVEL SHALL BE PROVIDED FOR DRAIN SUMP. DRAIN SUMP SHALL BE A MINIMUM OF 3'-0" IN DIAMETER. COVER DRAIN HOLES WITH DRAIN SUMP MATERIAL.
- HYDRANT LATERALS GREATER THAN 40 FEET IN LENGTH SHALL REQUIRE A GATE VALVE AT THE TEE AND WITHIN 10 FEET OF THE HYDRANT AND THE PIPE FROM THE VALVE TO THE FIRE HYDRANT SHALL BE CLASS 350 DUCTILE IRON.
- FOR WATER MAINS AT DEPTHS GREATER THAN 60 INCHES, THE ELEVATION OF THE HYDRANT SHOE SHALL BE ADJUSTED TO A DEPTH NO GREATER THAN 48 INCHES BY THE INSTALLATION OF FITTINGS AFTER THE TEE AND GATE VALVE.
- REFER TO STANDARD DETAIL SD-500 PAGE 4 FOR STUB OUT TO BE USED FOR FUTURE FIRE HYDRANT INSTALLATION.
- ALL FIRE HYDRANT'S SHALL BE EQUIPPED WITH THE CUSTODIAN HYDRA SHIELD FIRE HYDRANT LOCKING DEVICE.

KEYNOTES:

- 4-1/2" PUMPER NOZZLE TO BE ORIENTED TO PROVIDE BEST ACCESSIBILITY FOR FIRE TRUCK.
- 2-1/2" HOSE NOZZLE (TYP.)
- BREAKAWAY UNIT
- TOP OF PAVEMENT
- RAISED BLUE MARKER
- RISER AND VALVE BOX PER STD. DTL OVWU-300
- RESILIENT SEATED GATE VALVE
- CLASS 350 DUCTILE IRON PIPE 10'-0" (MIN.)
- DISTRIBUTION MAIN
- 4" x 8" x 16" SOLID CONC. BLOCK
- CONCRETE THRUST BLOCK (SEE NOTE 4)
- DRAIN SUMP
- SHOE



ISSUED:

07/22

REVISED:

08/22

STANDARD DETAIL

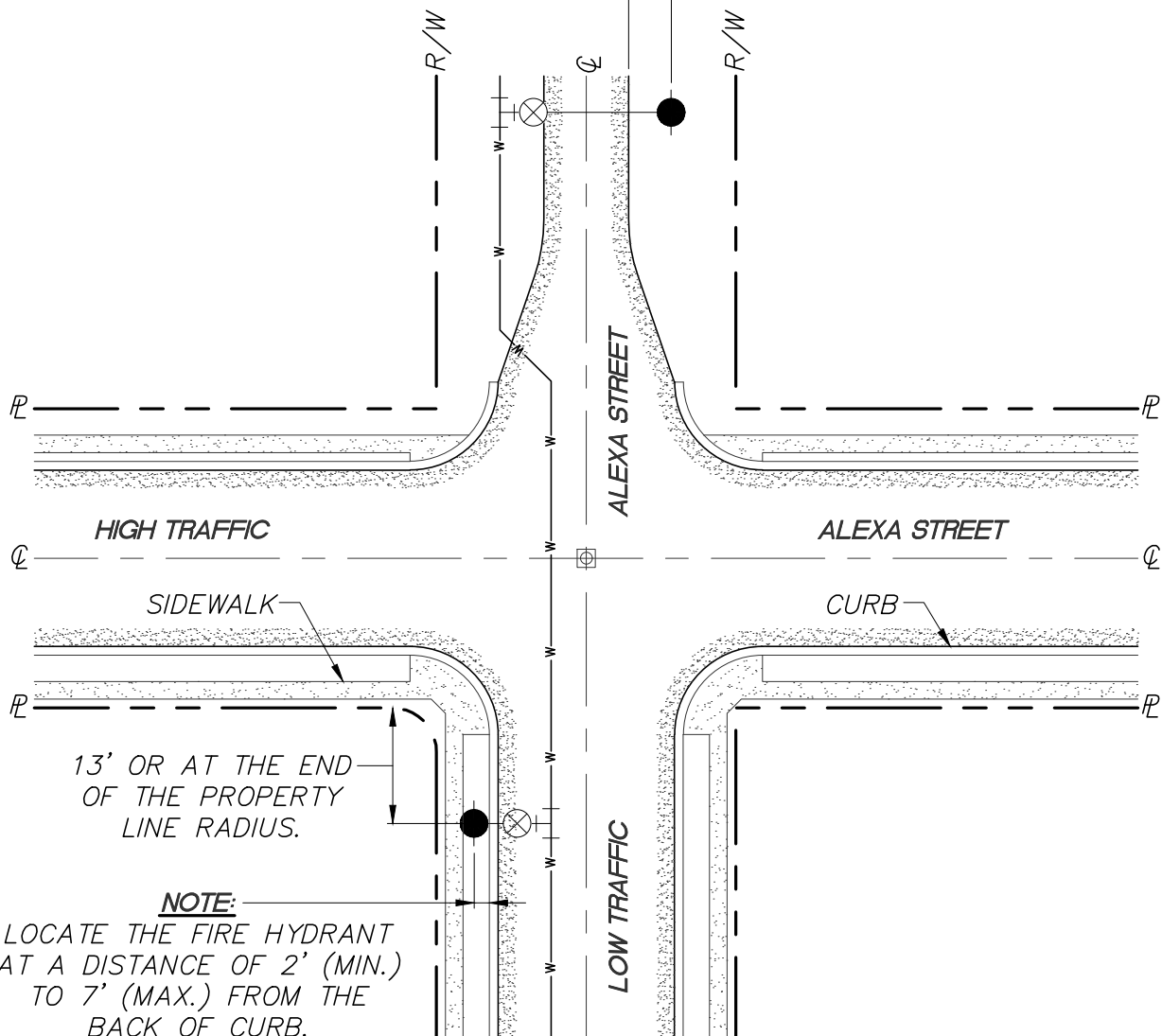
FIRE HYDRANT INSTALLATION

DETAIL NO.

OVWU-500

SHEET 1 OF 8

6' (MIN.) 10' (MAX.)
 FROM EDGE OF STRIP PAVEMENT.
 PROTECTION POLES MUST BE INSTALLED
 WHEN DISTANCE IS LESS THAN 10' IN
 ACCORDANCE WITH OVWU-500 SHEET 3.



NOTES:

1. BLUE, TWO-WAY RAISED PAVEMENT MARKER INSTALLED AT FIRE HYDRANT LOCATION IN ACCORDANCE WITH THE REQUIREMENT OF THE AGENCY HAVING JURISDICTION FOR THE ROADWAY.
2. SELECT THE BEST LOCATION IN THE FIELD OR LOCATE AS DIRECTED BY THE ENGINEER.
3. LOCATED THE FIRE HYDRANT ON LEVEL GROUND, 5' (MIN.) FROM ALL OBSTRUCTIONS AND SLOPES (I.E. UTILITY POLES, SIGNS, TREES, DRIVEWAY, ETC.)
4. FIRE HYDRANTS LOCATED BETWEEN INTERSECTIONS SHALL BE PLACED AS NEAR AS FEASIBLE TO SIDE LOT LINES TO MINIMIZE INTERFERENCE WITH EXISTING OR FUTURE IMPROVEMENTS.



ISSUED:

07/22

REVISED:

07/22

STANDARD DETAIL

FIRE HYDRANT INSTALLATION

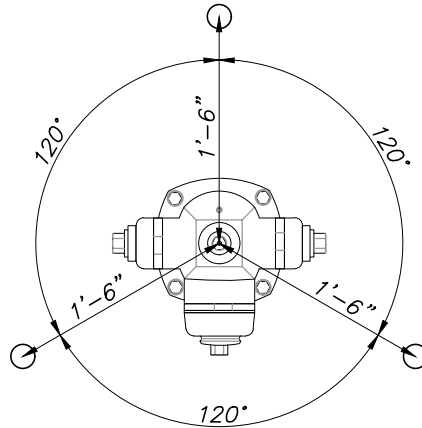
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OVWU-500

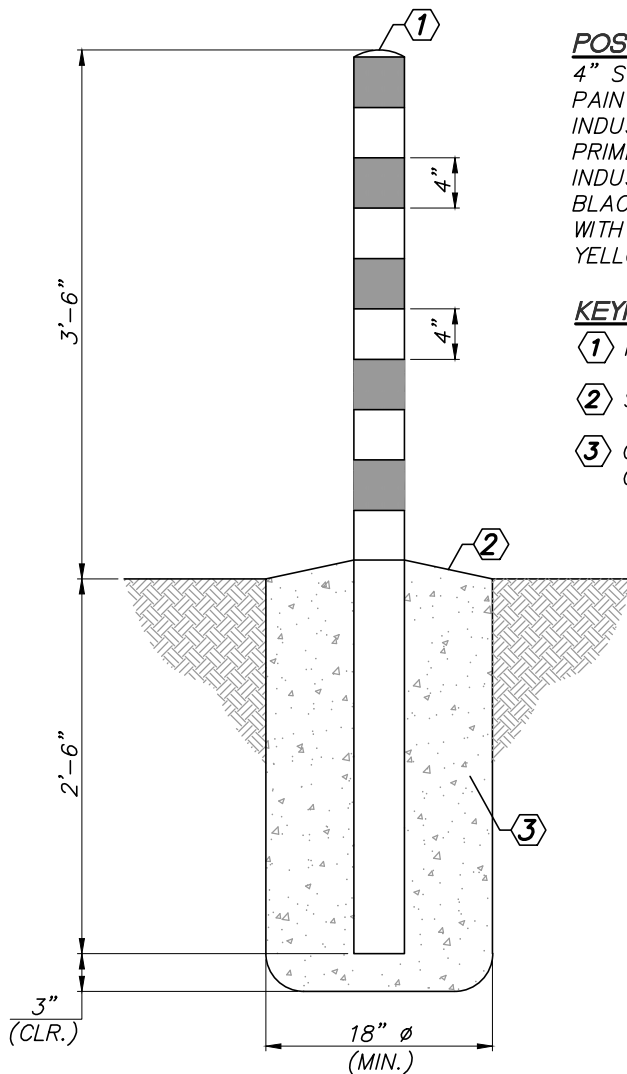
SHEET 2 OF 8

NOTES:

1. POSTS SHALL NOT BE PLACED IN FRONT OF NOZZLES.



POSTS MAY BE CHANGED IN NUMBER AND ARRANGEMENT IN ORDER TO ACCOMMODATE SITE CONDITIONS WHEN SHOWN ON THE APPROVED PLANS OR APPROVED BY THE ENGINEER.



POST BARRICADES

4" SCHEDULE 40 STEEL PIPE.
PAINT WITH ONE COAT INDUSTRIAL SYNTHETIC PRIMER AND ONE COAT INDUSTRIAL SYNTHETIC DULL BLACK ENAMEL. STRIPE WITH 4" BANDS OF YELLOW REFLECTORIZED TAPE.

KEYNOTES:

- ① FILL PIPE WITH CONCRETE AND MOUND AT TOP.
- ② SLOPE CONCRETE AWAY FROM POLE.
- ③ CONCRETE FOR FOUNDATION SHALL BE CLASS "B" (2500 P.S.I.).

FIRE HYDRANT PROTECTION POSTS



ISSUED:

07/22

REVISED:

07/22

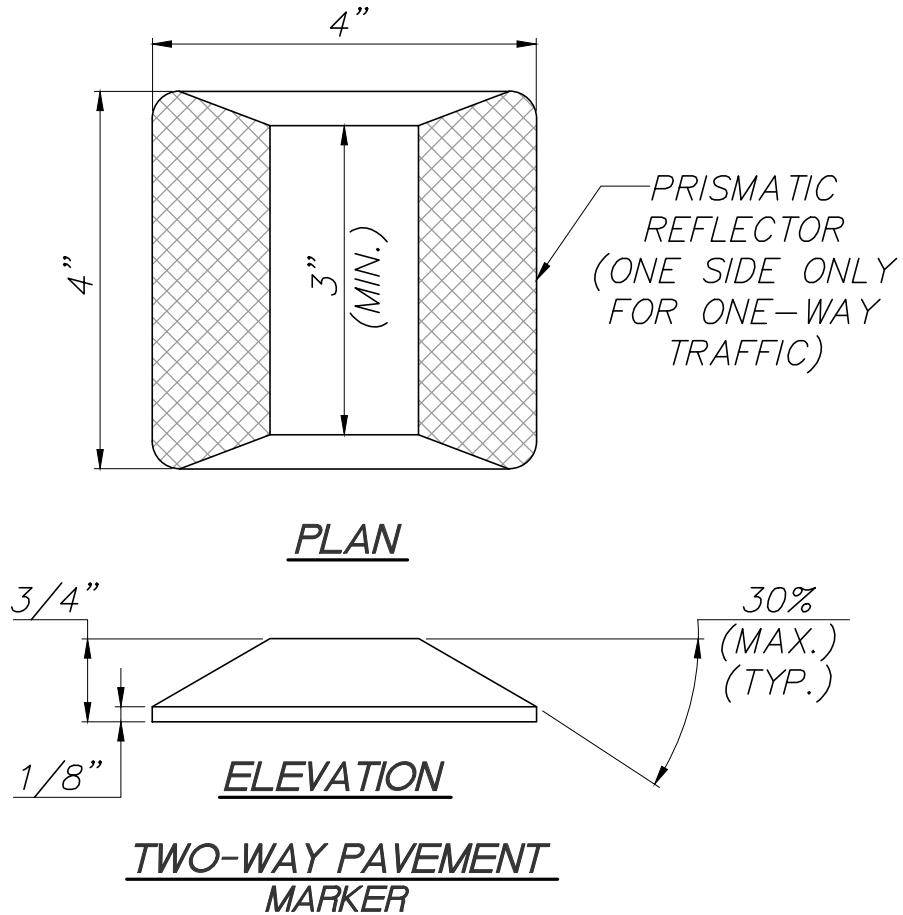
STANDARD DETAIL

FIRE HYDRANT INSTALLATION

DETAIL NO.

OVWU-500

SHEET 3 OF 8



NOTES:

EPOXY TO BE A PROVEN ADHERENT COMPATIBLE TO SUCH SURFACES AS ASPHALTIC CONCRETE, CONCRETE ETC., AND OR AS RECOMMENDED BY MARKER MANUFACTURER.

INSTALLATION

1. CLEAN SURFACE.
2. APPLY EPOXY TO SELECTED LOCATION, SPREADING EVENLY.
3. PLACE MARKER ON PREVIOUSLY DETERMINED POSITION, APPLYING SLIGHT PRESSURE TO FORCE SMALL EPOXY BEAD AROUND MARKER.

REFLECTOR COLORS

BLUE – FIRE HYDRANT MARKER, SEE SHT. 6, 7 & 8 OF STD. OVWU-500 FOR PLACEMENT LOCATION.

REFLECTIVE AREA IS 3.25 SQ. IN. PER REFLECTIVE FACE.

MATERIALS

ACRYLIC PLASTIC REFLECTOR FILLED WITH A TIGHTLY ADHERENT POTTING COMPOUND.



ISSUED:

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REVISED:

07/22

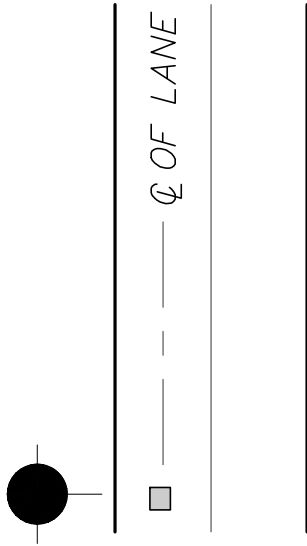
STANDARD DETAIL

**RAISED PAVEMENT
MARKER DETAIL**

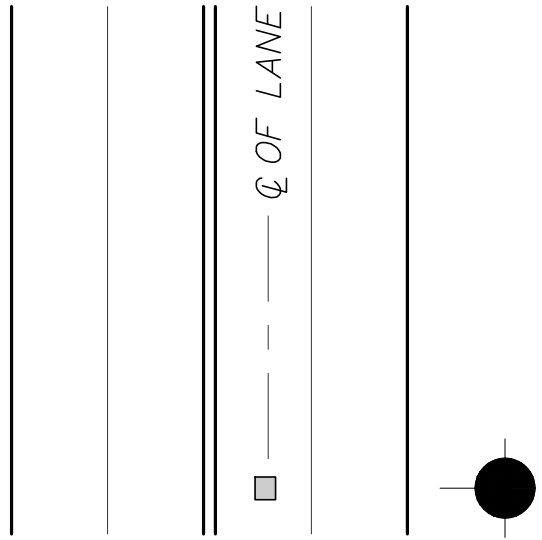
DETAIL NO.

OVWU-500

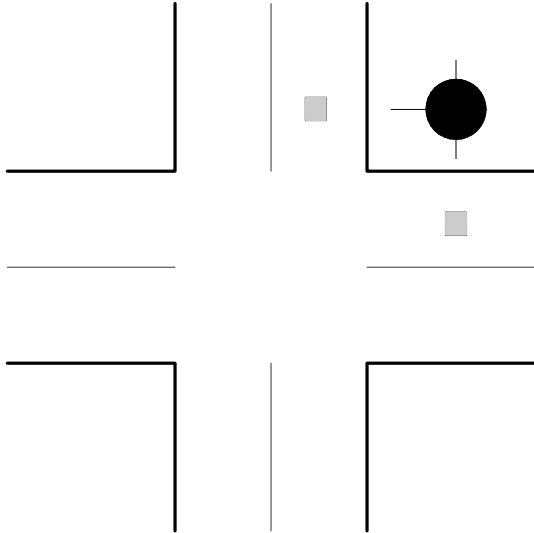
SHEET 5 OF 8



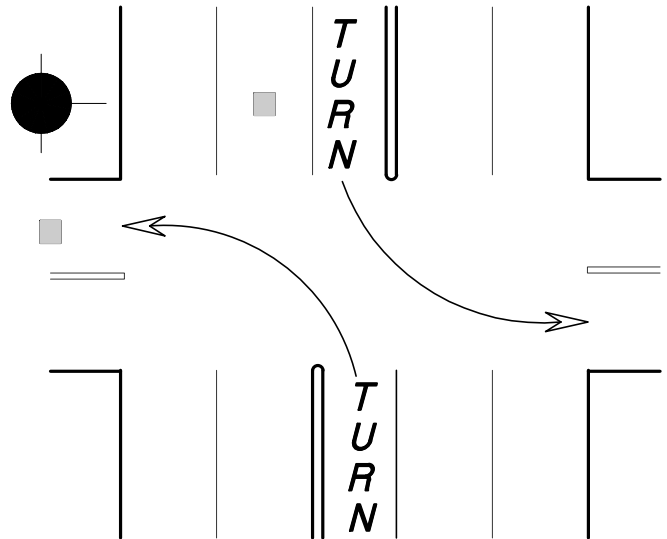
TWO LANE STREET



MULTI-LANE STREET



TWO LANE STREET



*FOUR LANE STREET WITH
TURN LANE AT INTERSECTION*



ISSUED:

07/22

REVISED:

07/22

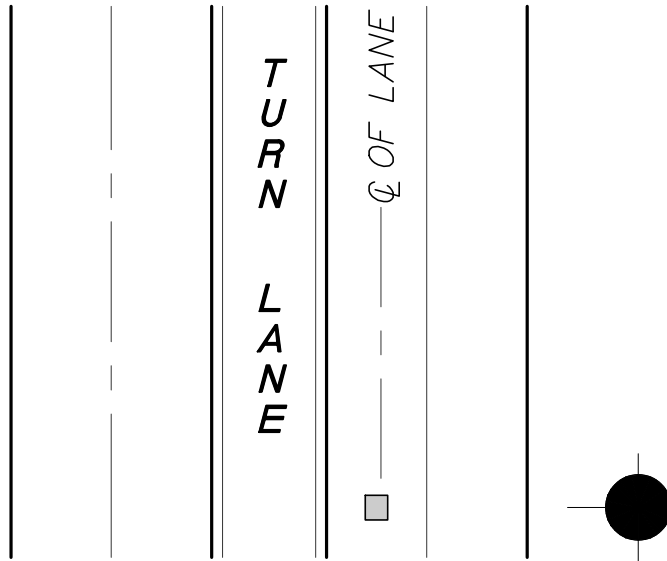
STANDARD DETAIL

**FIRE HYDRANT
MARKER LOCATION**

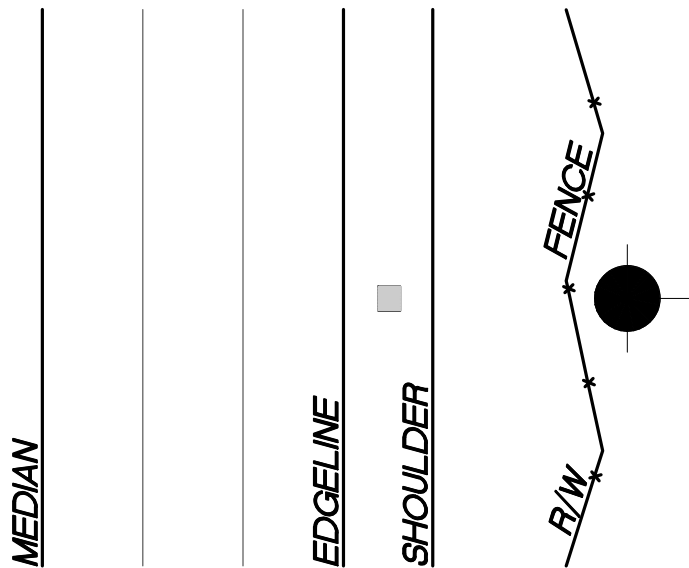
DETAIL NO.

OVWU-500

SHEET 6 OF 8



MULTI-LANE STREET WITH TURN LANE



FREEWAYS AND EXPRESSWAYS



ISSUED:

07/22

REVISED:

07/22

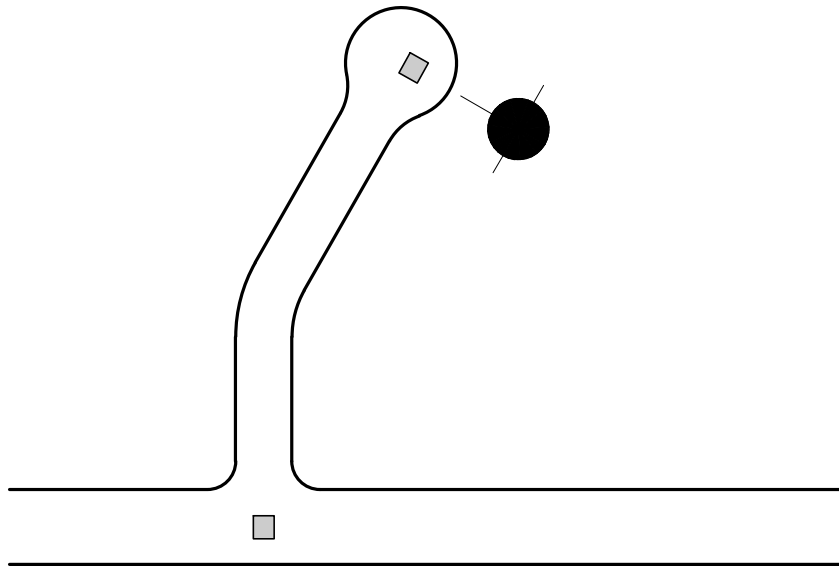
STANDARD DETAIL

FIRE HYDRANT
MARKER LOCATION

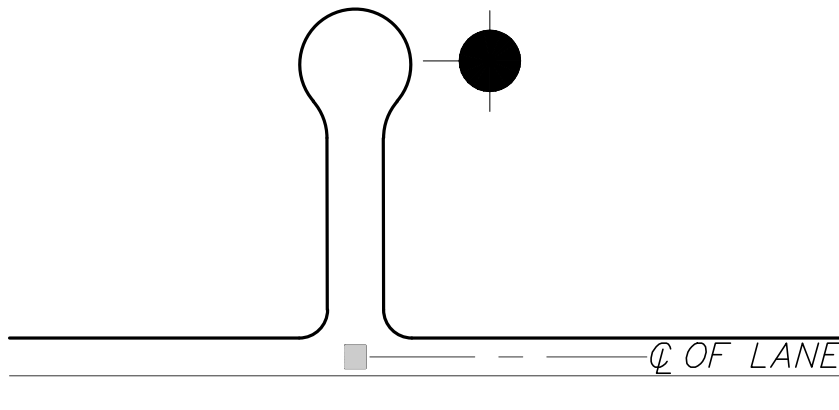
DETAIL NO.

OVWU-500

SHEET 7 OF 8



LONG CUL-DE-SAC INSTALLATION



SHORT CUL-DE-SAC INSTALLATION



ISSUED:

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STANDARD DETAIL

**FIRE HYDRANT
MARKER LOCATION**

DETAIL NO.

OVWU-500

SHEET 8 OF 8

RESTRAINED JOINTS

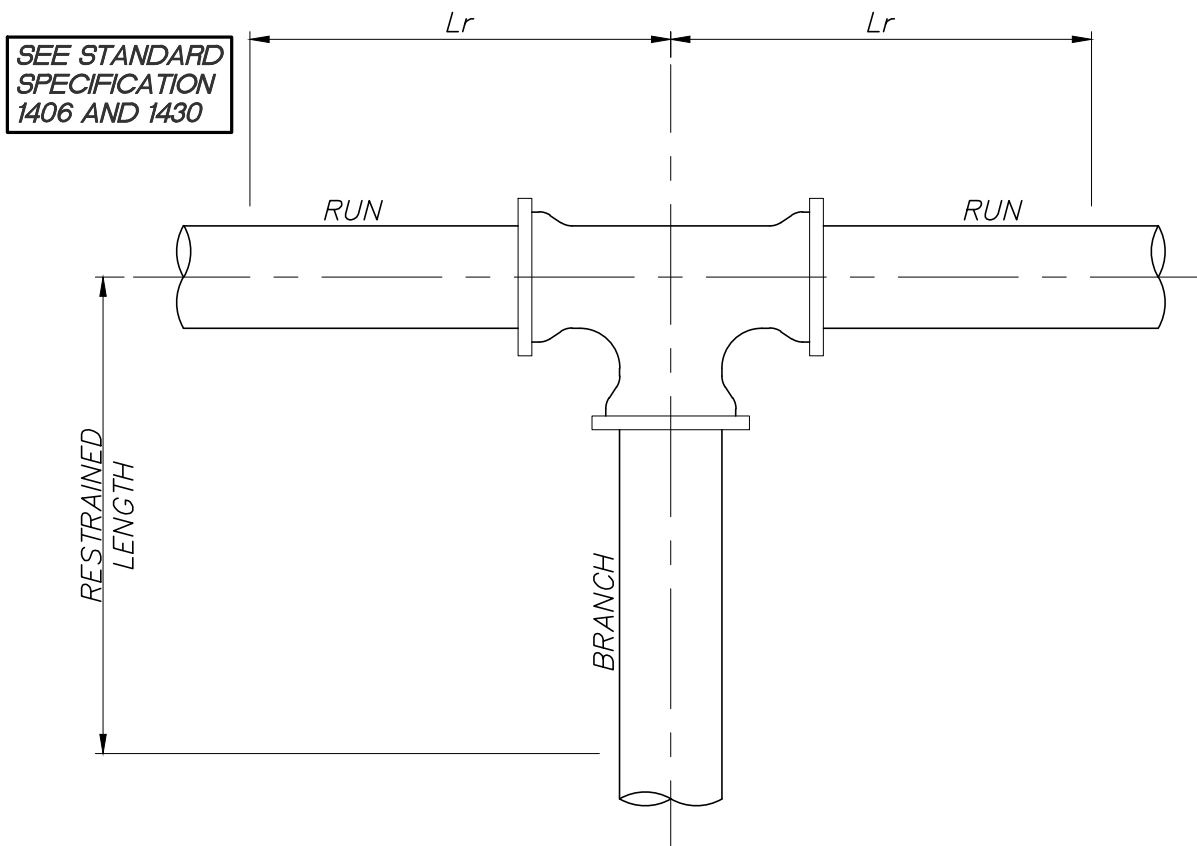
(STANDARD SPECIFICATION 1406)

NOTES:

1. THE LENGTHS OF RESTRAINED OR CONTINUOUS PIPE CALLED OUT IN THE FOLLOWING TABLES ARE FOR INSTALLATION OF MECHANICALLY RESTRAINED FITTINGS AND ARE CALCULATED BASED ON THE FOLLOWING PARAMETERS:
 - A. ALL DUCTILE IRON (DI) IS POLYETHYLENE ENCASED.
 - B. THE SOIL TYPE IS "GP" AS DEFINED BY THE UNIFIED SOIL CLASSIFICATIONS, ASTM STANDARD D2487.
 - C. THE TEST PRESSURE OF THE WATER SYSTEM IS TWO HUNDRED POUNDS PER SQUARE INCH (200 PSI).
 - D. THE TRENCH IS TYPE 5, AS PER ANSI/AWWA C150/A21.5, TRENCH CONDITIONS.
 - E. THE DEPTH OF COVER IS TWO FEET (2').
 - F. THE SAFETY FACTOR SHALL BE 1.5.
2. IF FIELD CONDITIONS VARYING SIGNIFICANTLY FROM THESE PARAMETERS ARE ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY ADVISE THE ORO VALLEY WATER UTILITY FIELD INSPECTOR. THE ORO VALLEY WATER UTILITY FIELD INSPECTOR WILL ADVISE THE CONTRACTOR OF THE REQUIRED LENGTH OF RESTRAINED PIPE NECESSARY TO MEET THE EXISTING CONDITIONS.
3. THE CONSULTANT OR DESIGN FIRM SHALL SPECIFY SOIL TYPE, TEST PRESSURE, TRENCH TYPE, AND DEPTH OF COVER IN THE WATER DISTRIBUTION PLANS. IF THE DEPARTMENT JUDGES THAT THE REQUIRED RESTRAINED LENGTH EXCEEDS THAT SPECIFIED IN THE TABLES, OR IF THE PIPE DIAMETER EXCEEDS 12", A PROFESSIONAL CIVIL ENGINEER REGISTERED IN ARIZONA SHALL PREPARE AND SUBMIT FOR APPROVAL APPROPRIATE RESTRAINED LENGTH CALCULATIONS.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		
	REVISED:	RESTRAINED JOINTS NOTES	OVWU-600
	09/22		SHEET 1 OF 4

ALL THRUST RESTRAINTS SHALL BE IN COMPLIANCE WITH SECTION 1406.



TEES

THE MINIMUM ATTACHED LENGTH OF PIPE (L_r) TO EXTEND IN EACH DIRECTION ALONG THE RUN OF THE TEE SHALL BE A SOLID PIPE WITHOUT JOINTS, FITTINGS, ETC. THE LENGTH OF THE RESTRAINED BRANCH SHALL BE DERIVED FROM THE FOLLOWING TABLE.

TEE SIZE AND PIPE MATERIAL		MINIMUM ATTACHED LENGTH OF PIPE (L_r)										
		0'	2'	4'	6'	8'	10'	12'	14'	16'	18'	20'
		LENGTH OF RESTRAINED BRANCH										
PVC PIPE	4x4	74'	64'	53'	42'	32'	21'	11'	1'	1'	1'	1'
	6x4	74'	58'	42'	26'	11'	1'	1'	1'	1'	1'	1'
	6x6	104'	93'	82'	71'	61'	50'	39'	28'	18'	7'	1'
	8x4	74'	53'	31'	10'	1'	1'	1'	1'	1'	1'	1'
	8x6	104'	89'	75'	60'	46'	31'	17'	3'	1'	1'	1'
	8x8	135'	124'	113'	102'	91'	80'	69'	59'	48'	37'	26'
	12x4	74'	41'	7'	1'	1'	1'	1'	1'	1'	1'	1'
	12x6	104'	81'	58'	35'	13'	1'	1'	1'	1'	1'	1'
	12x8	135'	118'	101'	83'	66'	49'	32'	15'	1'	1'	1'
	12x12	189'	177'	166'	155'	144'	132'	121'	110'	98'	87'	76'
DI POLY WRAP	4x4	112'	96'	80'	64'	48'	32'	17'	1'	1'	1'	1'
	6x4	112'	88'	64'	40'	16'	1'	1'	1'	1'	1'	1'
	6x6	157'	141'	124'	108'	92'	75'	59'	43'	27'	10'	1'
	8x4	112'	80'	48'	15'	1'	1'	1'	1'	1'	1'	1'
	8x6	157'	135'	113'	91'	70'	48'	26'	4'	1'	1'	1'
	8x8	204'	187'	171'	154'	138'	121'	105'	88'	72'	55'	39'
	12x4	112'	61'	11'	1'	1'	1'	1'	1'	1'	1'	1'
	12x6	157'	122'	88'	54'	19'	1'	1'	1'	1'	1'	1'
	12x8	204'	178'	152'	126'	100'	74'	48'	22'	1'	1'	1'
	12x12	284'	267'	250'	233'	216'	199'	182'	165'	148'	131'	114'



ISSUED:

01/18

REVISED:

01/21

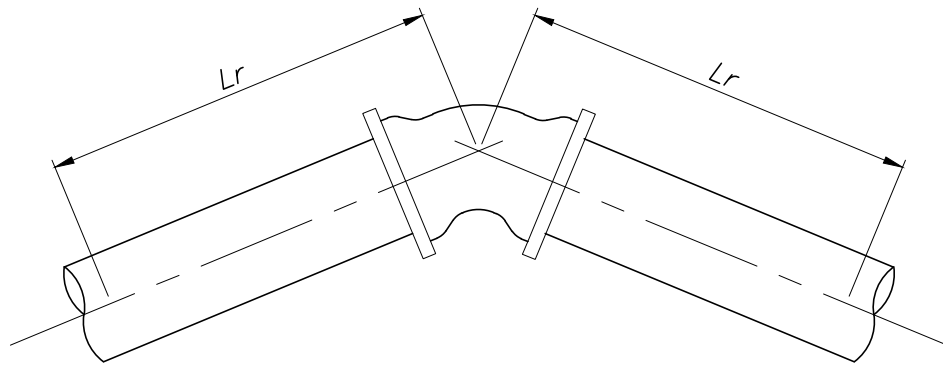
STANDARD DETAIL

RESTRAINED JOINTS

DETAIL NO.

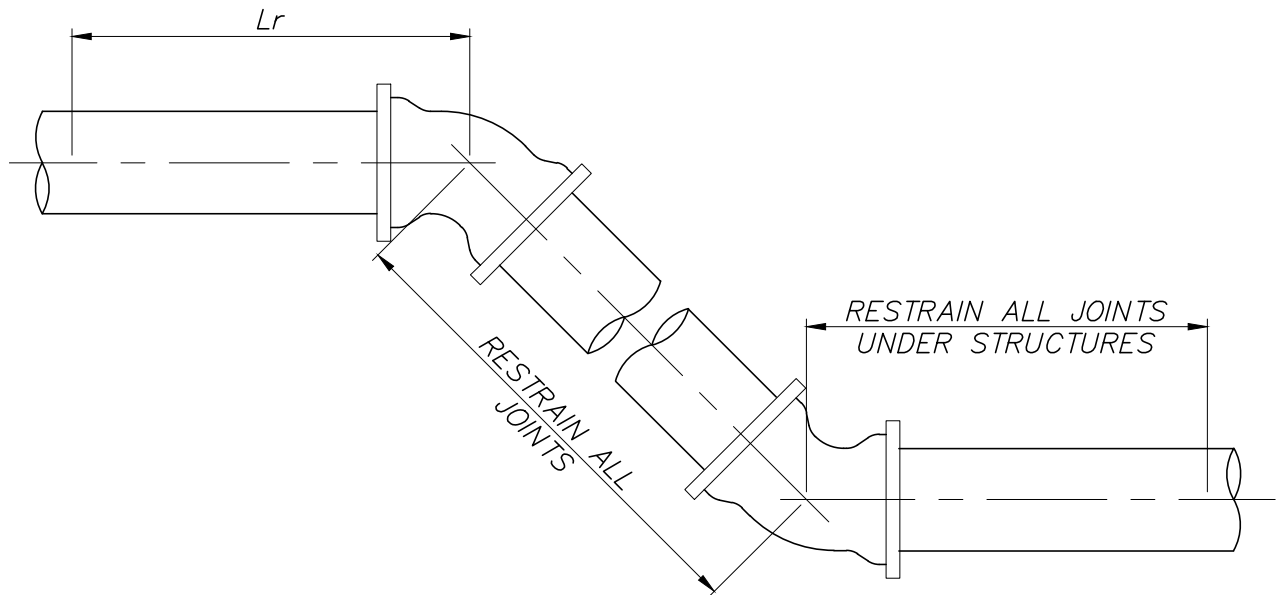
OVWU-600

SHEET 2 OF 4



HORIZONTAL BENDS

THE MINIMUM RESTRAINED LENGTH OF PIPE (LR) TO EXTEND IN BOTH DIRECTIONS FROM THE HORIZONTAL BEND SHALL BE DERIVED FROM THE FOLLOWING TABLE.



VERTICAL BENDS

THE MINIMUM RESTRAINED LENGTH OF PIPE (LR) TO BE RESTRAINED ON BOTH SIDES OF THE VERTICAL OFF SET SHALL BE DERIVED FROM THE FOLLOWING TABLE.

PIPE SIZE AND MATERIAL		HORIZONTAL BENDS				VERTICAL BENDS			
		11 1/4°	22 1/2°	45°	90°	11 1/4°	22 1/2°	45°	90°
PVC PIPE	4"	3'	5'	11'	27'	7'	15'	31'	*
	6"	4'	7'	15'	37'	10'	21'	43'	*
	8"	5'	10'	20'	48'	13'	27'	56'	*
	12"	6'	13'	27'	65'	19'	38'	78'	*
DI POLY WRAP	4"	3'	6'	13'	31'	11'	22'	46'	*
	6"	4'	8'	18'	42'	15'	31'	65'	*
	8"	5'	11'	23'	54'	20'	41'	84'	*
	12"	7'	15'	31'	74'	28'	57'	118'	*

*NOT RECOMMENDED



ISSUED:

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STANDARD DETAIL

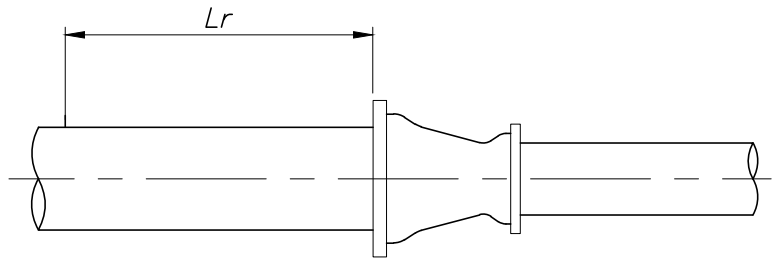
RESTRAINED JOINTS

DETAIL NO.

OVWU-600

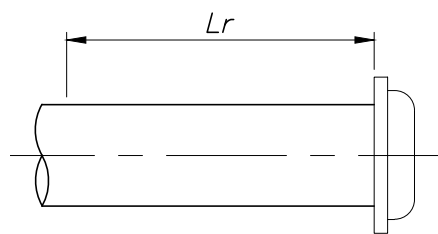
SHEET 3 OF 4

REDUCER SIZE AND PIPE MATERIAL		MINIMUM RESTRAINED LENGTH
PVC PIPE	6x4	53'
	8x4	97'
	8x6	56'
	12x4	164'
	12x6	137'
	12x8	100'
DI POLY WRAP	6x4	81'
	8x4	147'
	8x6	85'
	12x4	247'
	12x6	207'
	12x8	151'

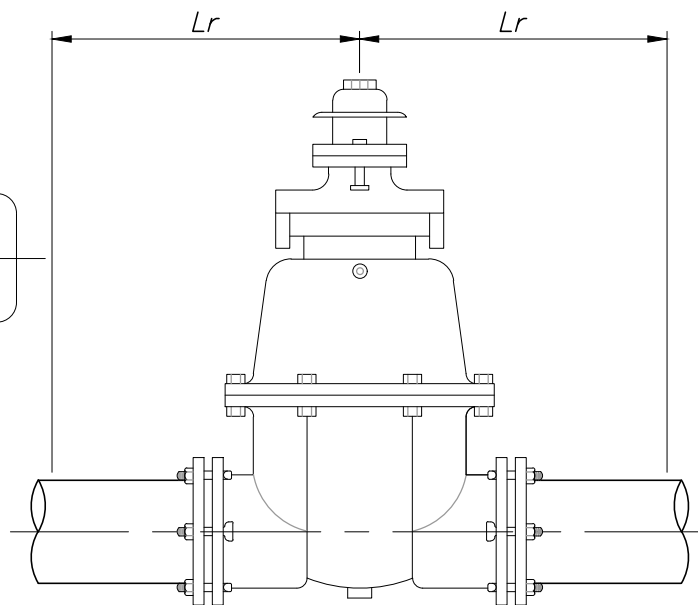


REDUCERS

THE MINIMUM LENGTH OF PIPE (LR) TO BE RESTRAINED ON THE LARGE SIDE OF THE REDUCER SHALL BE DERIVED FROM THE ABOVE TABLE



DEAD END SIZE AND PIPE MATERIAL		MINIMUM RESTRAINED LENGTH
PVC PIPE	4	74'
	6	104'
	8	135'
	12	189'
DI POLY WRAP	4	112'
	6	157'
	8	204'
	12	284'



DEAD ENDS AND VALVES

THE MINIMUM LENGTH OF PIPE (LR) TO BE RESTRAINED ON A DEAD END SHALL BE DERIVED FROM THE ABOVE TABLE. OR CONCRETE BLOCKS MAY BE USED WITH PERMISSION OF THE ENGINEER. ALL VALVES SHALL BE CONSIDERED DEAD ENDS IN BOTH DIRECTIONS.



ISSUED:

01/18

REVISED:

01/21

STANDARD DETAIL

RESTRAINED JOINTS

DETAIL NO.

OVWU-600

SHEET 4 OF 4

CONCRETE THRUST BLOCKING

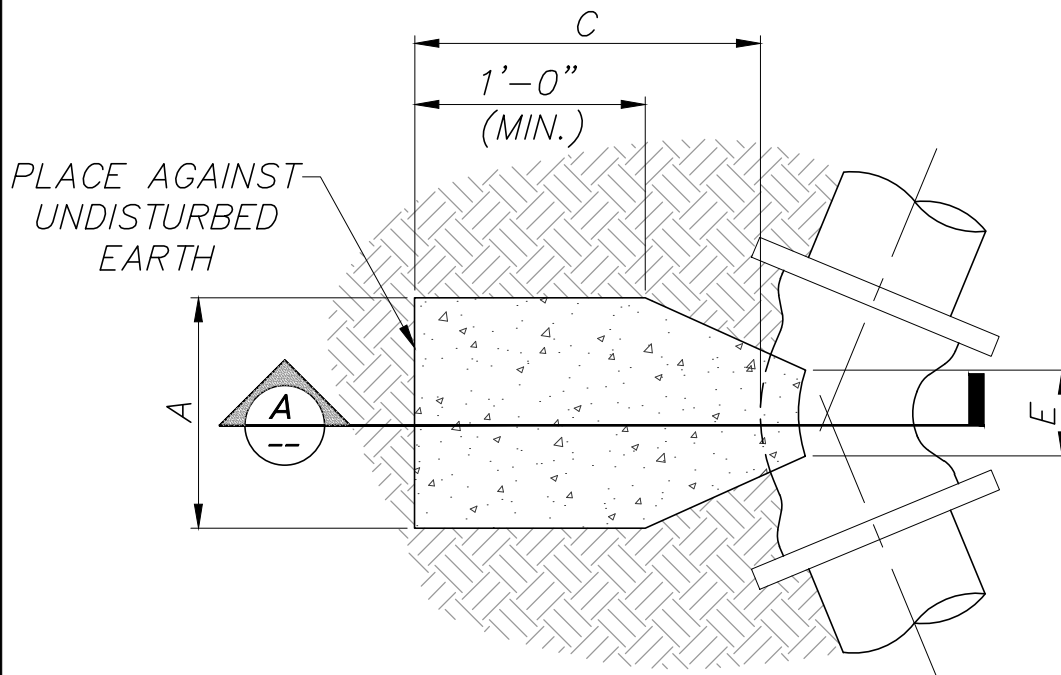
NOTES:

1. THE USE OF PORTLAND CEMENT CONCRETE THRUST BLOCKS IS NOT PERMISSIBLE EXCEPT AS SHOWN ON THE PLANS OR WITH THE APPROVAL OF THE ENGINEER.

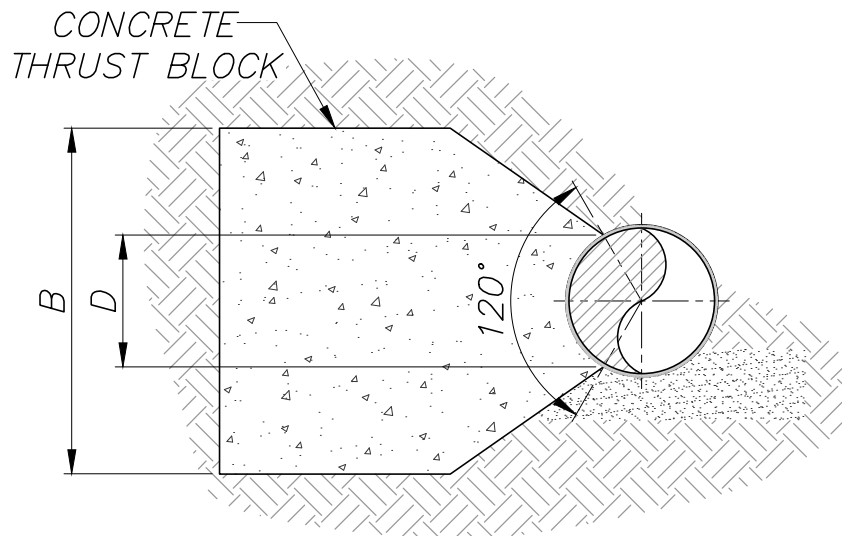
PORTLAND CEMENT CONCRETE THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED EARTH. WHERE IT IS NOT PRACTICAL TO PLACE THE CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH, THE FILL MATERIAL PLACED BETWEEN THE PIPE'S BEARING SURFACE AND THE UNDISTURBED SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF ARIZONA TEST METHODS 225, 226, 230 OR 231 AND 232.

2. THE TABLES FOUND ON SHEETS 2, 3, AND 4 OF 4 ARE BASED ON THE FOLLOWING:
 - A) 200 PSI INTERNAL PRESSURE.
 - B) 1500 PSF SOIL BEARING PRESSURE.
 - C) CLASS B, 2500 PORTLAND CEMENT CONCRETE PER SECTION 1006, STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS.
 - D) THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS B) IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THRUST ON THE VERTICAL BEND.
3. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUMES OF CONCRETE THRUST BLOCKING SHALL NOT BE LESS THAN SHOWN.
4. EARTH TRENCH CONDITIONS: THE "C" DIMENSION SHALL BE AS SHOWN. THE CONCRETE BLOCKING MUST BE POURED AGAINST FIRM SOIL.
5. UNSTABLE SOIL: THE ENGINEER SHALL DETERMINE IF ADDITIONAL THRUST BLOCKING IS REQUIRED. THE "C" DIMENSION SHALL BE INCREASED AS DIRECTED BY THE ENGINEER, BASED ON GEOTECHNICAL EVALUATIONS OF THE SITE SOILS.
6. IF WEDGING IS REQUIRED TO SECURE SYSTEM IN-PLACE, THEN ONLY NYLON / PLASTIC WEDGES SHALL BE PERMITTED.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		
	REVISED:	CONCRETE THRUST BLOCKING	OVWU-610
	01/21		SHEET 1 OF 5



PLAN VIEW



DETAIL "A"

NOMINAL PIPE SIZE	HORIZONTAL BENDS																			
	11 1/4°					22 1/2°					45°					90°				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
4"	1.0'	1.0'	1.5'	0.4'	0.4'	1.0'	1.5'	1.5'	0.4'	0.8'	2.0'	1.5'	1.5'	0.4'	0.4'	3.5'	1.5'	1.5'	0.4'	0.4'
6"	1.0'	1.5'	1.5'	0.6'	0.4'	1.5'	1.5'	1.5'	0.6'	0.8'	2.5'	1.5'	1.5'	0.6'	0.4'	5.0'	1.5'	1.5'	0.6'	0.4'
8"	1.0'	2.5'	1.5'	0.7'	0.4'	1.5'	2.5'	1.5'	0.7'	0.8'	3.0'	2.5'	1.5'	0.7'	0.4'	7.5'	1.5'	2.5'	0.7'	0.4'
12"	1.5'	2.5'	1.5'	1.0'	0.6'	3.0'	2.5'	1.5'	1.0'	1.1'	6.0'	2.5'	1.5'	1.0'	0.5'	10.5'	2.5'	2.5'	1.0'	0.5'



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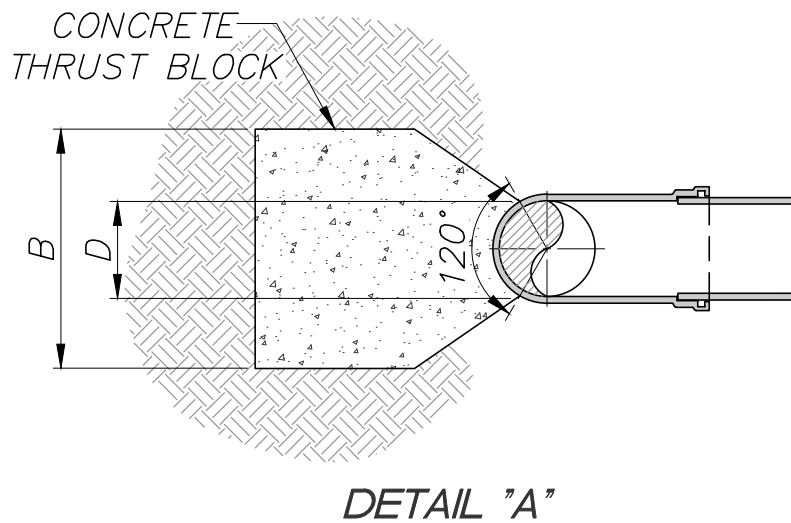
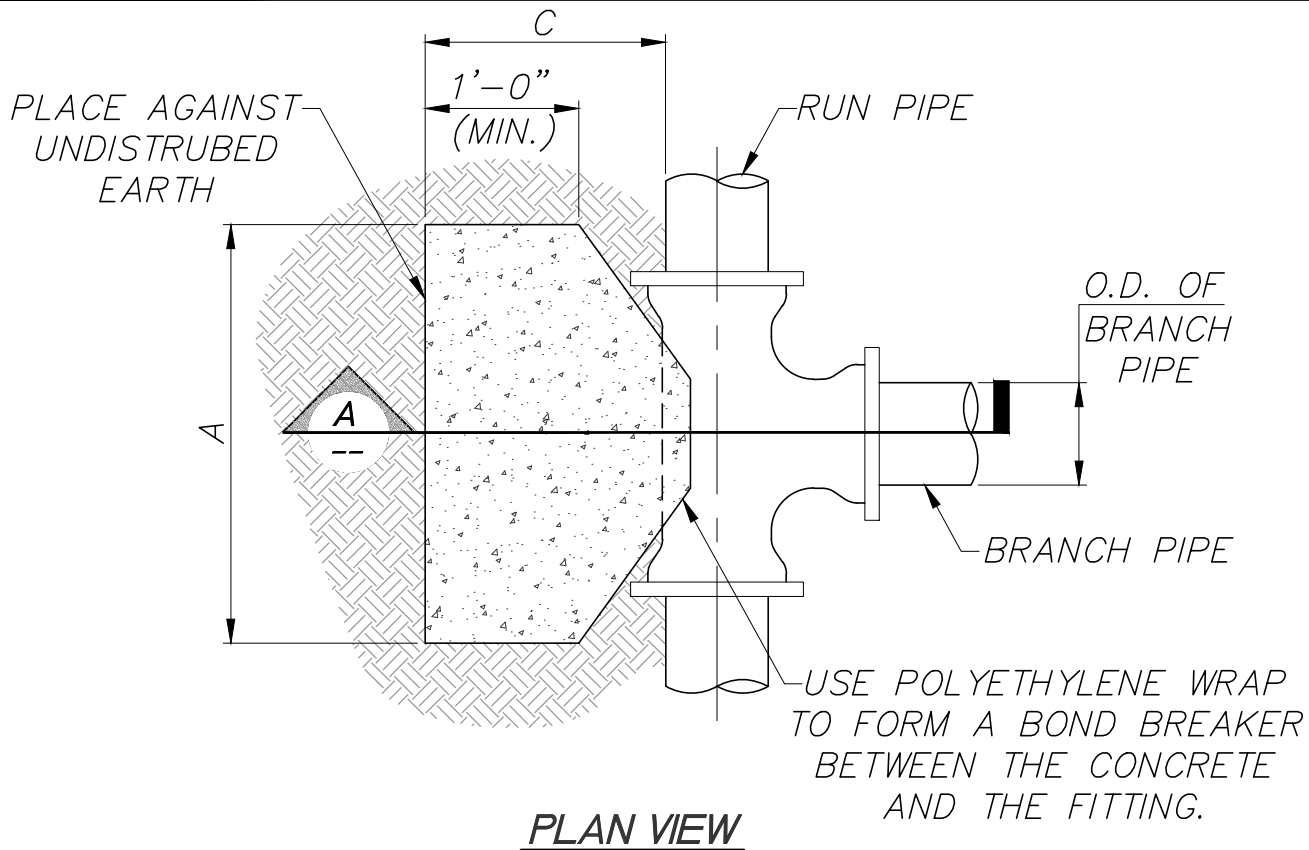
STANDARD DETAIL

**CONCRETE
THRUST BLOCKING**

DETAIL NO.

OVWU-610

SHEET 2 OF 5



NOTE:

1. FOR DEAD END FITTINGS USE THRUST BLOCK DIMENSIONS FOR SAME SIZE BRANCH PIPE

BRANCH PIPE SIZE*	A	B	C	D
4"	2.5'	1.5'	1.5'	0.4'
6"	3.5'	1.5'	1.5'	0.6'
8"	3.5'	2.5'	1.5'	0.7'
12"	7.5'	2.5'	1.5'	1.0'



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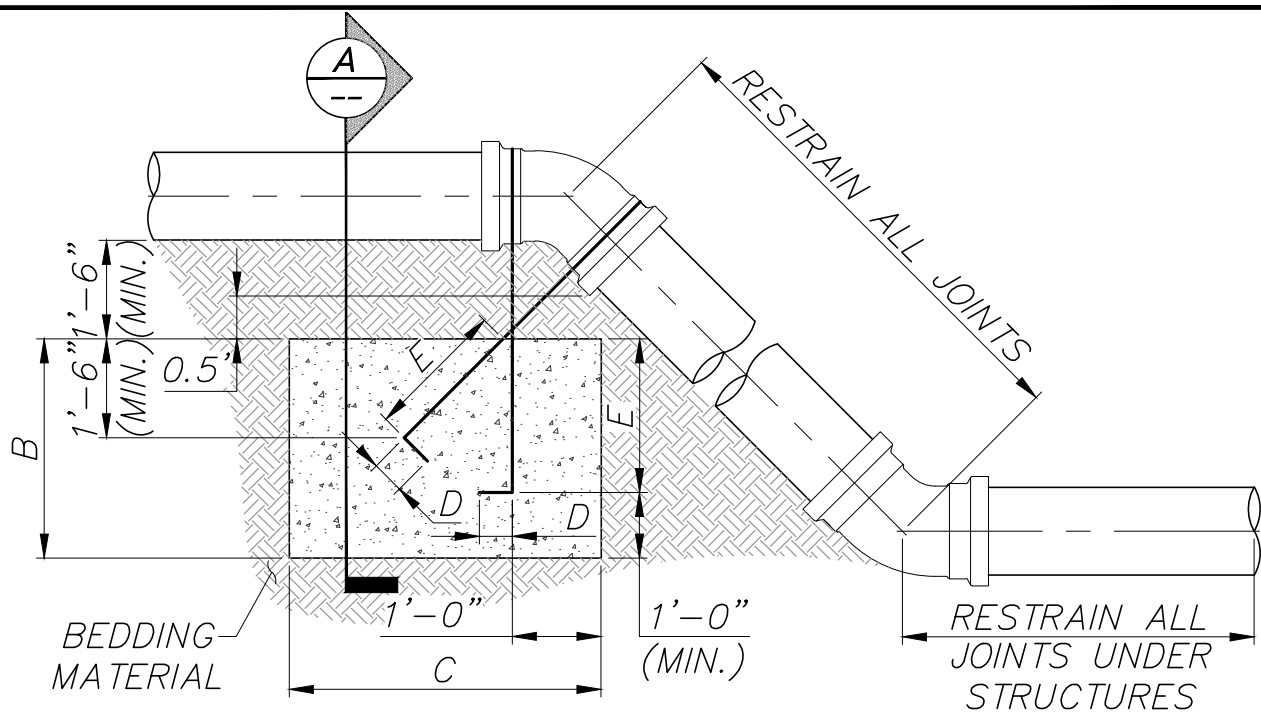
STANDARD DETAIL

**CONCRETE
THRUST BLOCKING**

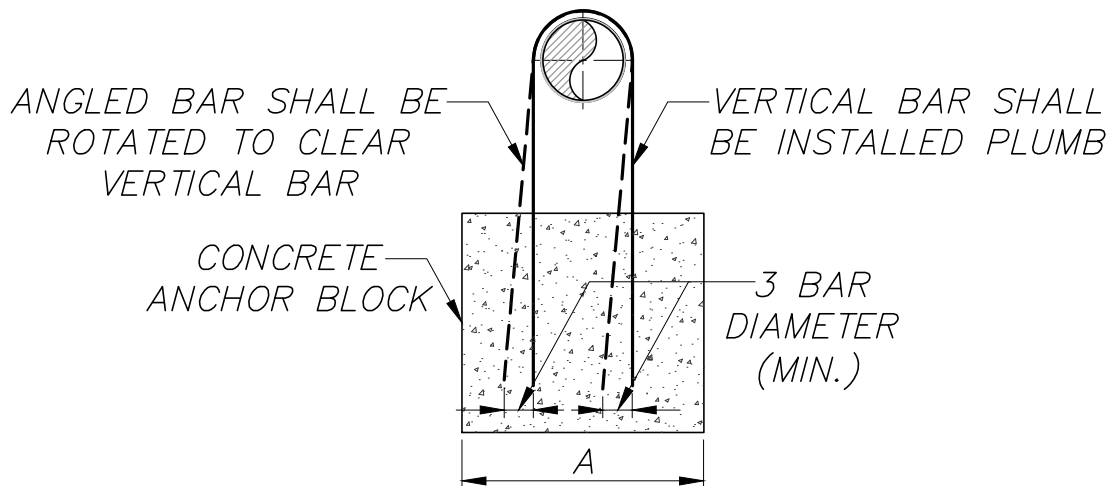
DETAIL NO.

OVWU-610

SHEET 3 OF 5



PROFILE VIEW



DETAIL "A"

NOTES:

1. 90° BENDS ARE NOT RECOMMENDED
2. 3" MINIMUM COVER OVER ALL BARS

NOMINAL PIPE SIZE	VERTICAL BENDS																	
	11 1/4°						22 1/2°						45°					
	A	B	C	BAR SIZE	D	E	A	B	C	BAR SIZE	D	E	A	B	C	BAR SIZE	D	E
4"	1.5'	2.0'	2.0'	#4	0.5'	1.0'	2.0'	2.5'	2.0'	#4	0.5'	1.0'	2.0'	2.5'	3.0'	#4	0.5'	1.0'
6"	2.0'	2.0'	3.0'	#4	0.5'	1.0'	2.0'	3.5'	3.0'	#4	0.5'	1.0'	3.0'	4.0'	3.0'	#5	0.7'	1.0'
8"	2.0'	3.0'	3.0'	#4	0.5'	1.2'	2.5'	4.5'	3.0'	#5	0.7'	1.2'	3.0'	5.5'	4.0'	#6	0.8'	1.2'
12"	3.0'	4.0'	3.0'	#5	0.7'	1.4'	3.0'	6.0'	4.0'	#6	0.8'	1.4'	4.0'	6.5'	5.0'	#7	1.0'	1.4'



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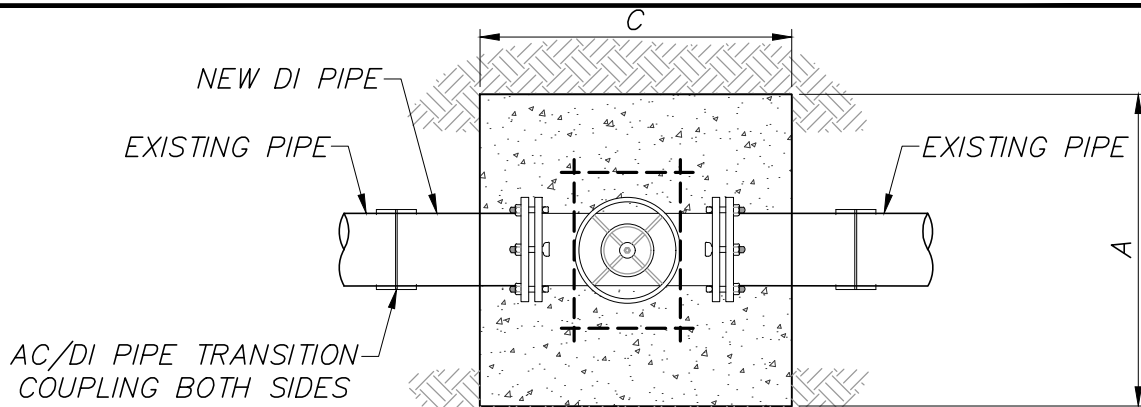
STANDARD DETAIL

**CONCRETE
THRUST BLOCKING**

DETAIL NO.

OVWU-610

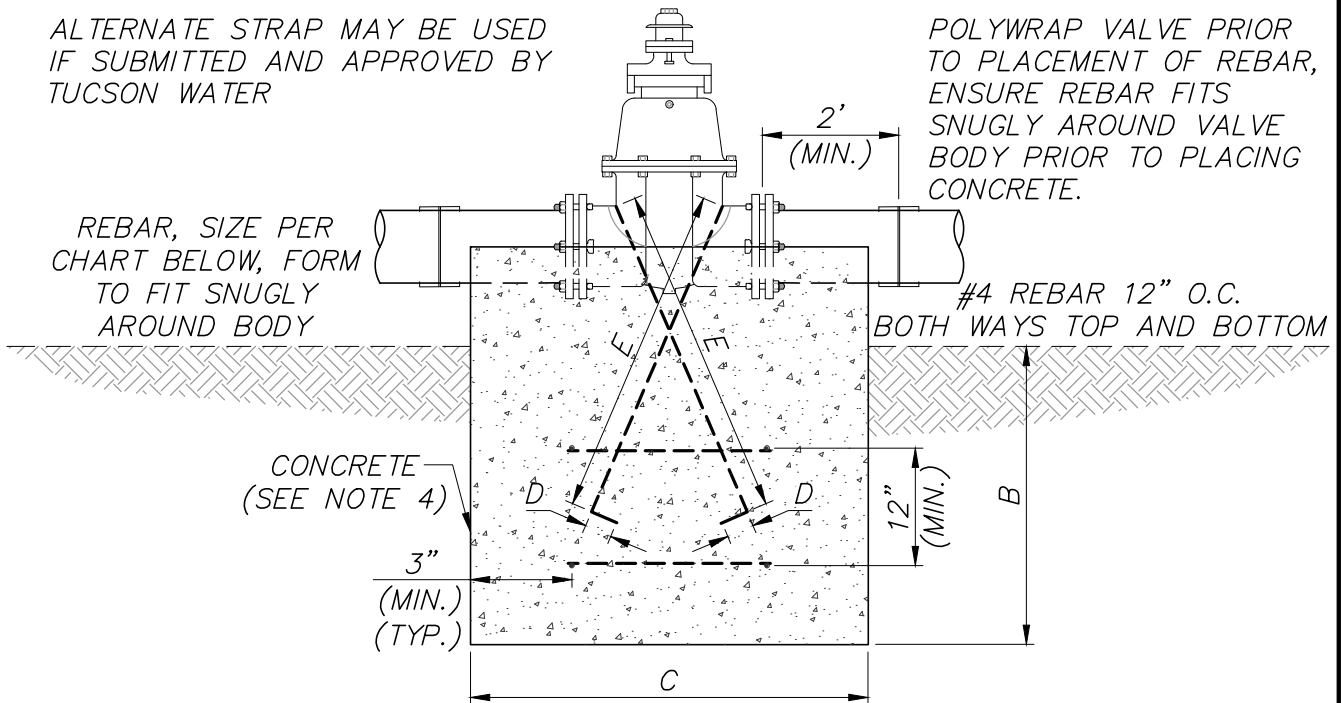
SHEET 4 OF 5



PLAN VIEW
NOT TO SCALE

ALTERNATE STRAP MAY BE USED
IF SUBMITTED AND APPROVED BY
TUCSON WATER

POLYWRAP VALVE PRIOR
TO PLACEMENT OF REBAR,
ENSURE REBAR FITS
SNUGLY AROUND VALVE
BODY PRIOR TO PLACING
CONCRETE.



ELEVATION VIEW
NOT TO SCALE

NOTES:

- 1) DIMENSION "B" IS MEASURE FROM BOTTOM OF TRENCH.
- 2) PLACE CONCRETE UP TO SPRING LINE OF PIPE.
- 3) PLACE CONCRETE IN ALL DIMENSIONS AGAINST UNDISTURBED SOIL.
- 4) USE HIGH EARLY STRENGTH CONCRETE RATED AT 2500 PSI IN 24 HR (MIN.)

DIMENSIONS

NORMAL PIPE SIZE	BAR SIZE	A	B	C	D	E
4"	#4	2.5'	1.5'	1.5'	0.5'	1.0'
6"	#5	3.5'	2.0'	2.0'	0.7'	1.5'
8"	#6	3.5'	2.5'	2.5'	0.8'	2.0'
12"	#7	5.5'	3.5'	3.5'	1.0'	3.0'



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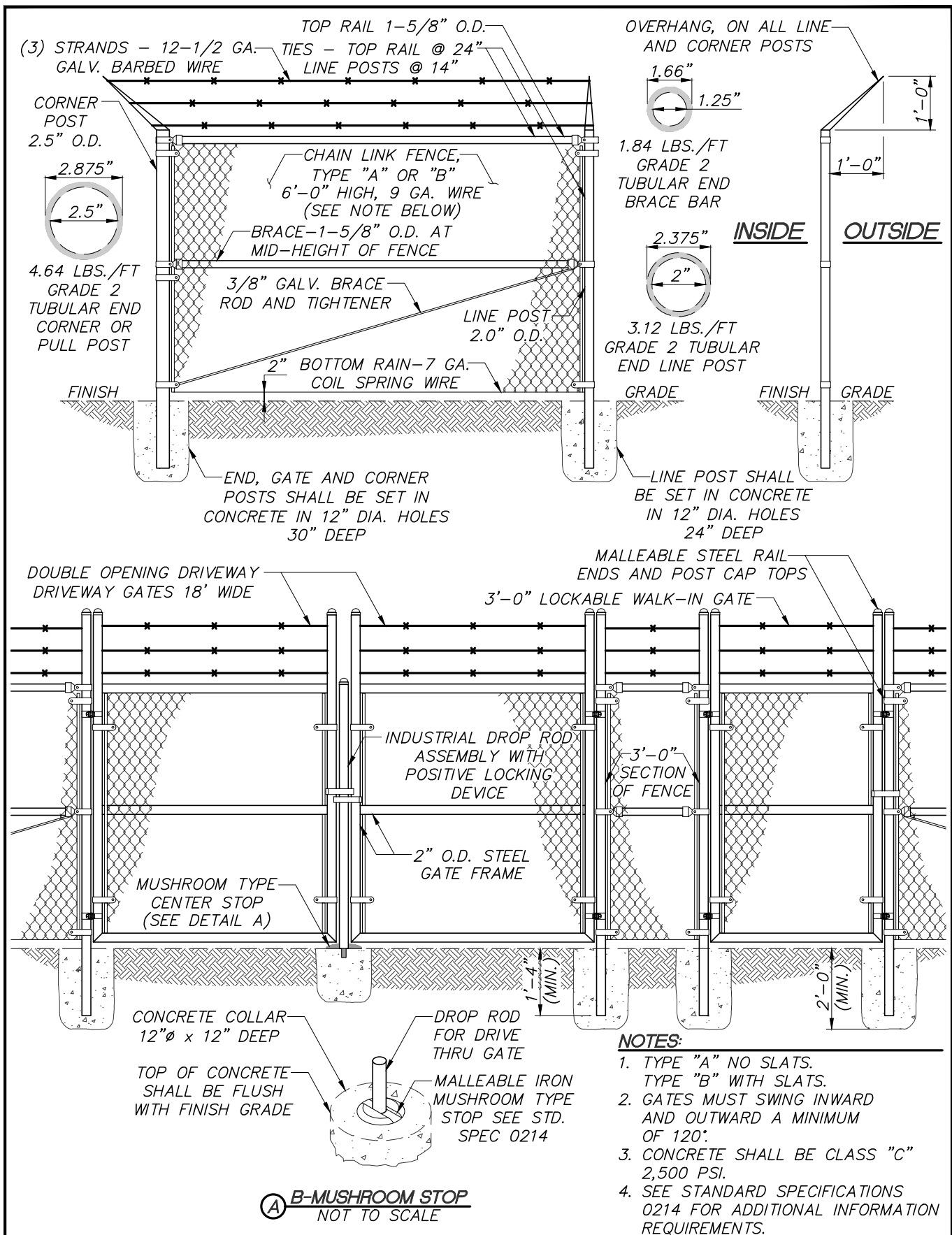
STANDARD DETAIL

**CONCRETE
THRUST BLOCKING**

DETAIL NO.

OVWU-610

SHEET 5 OF 5



ISSUED:

07/22

REVISED:

08/22

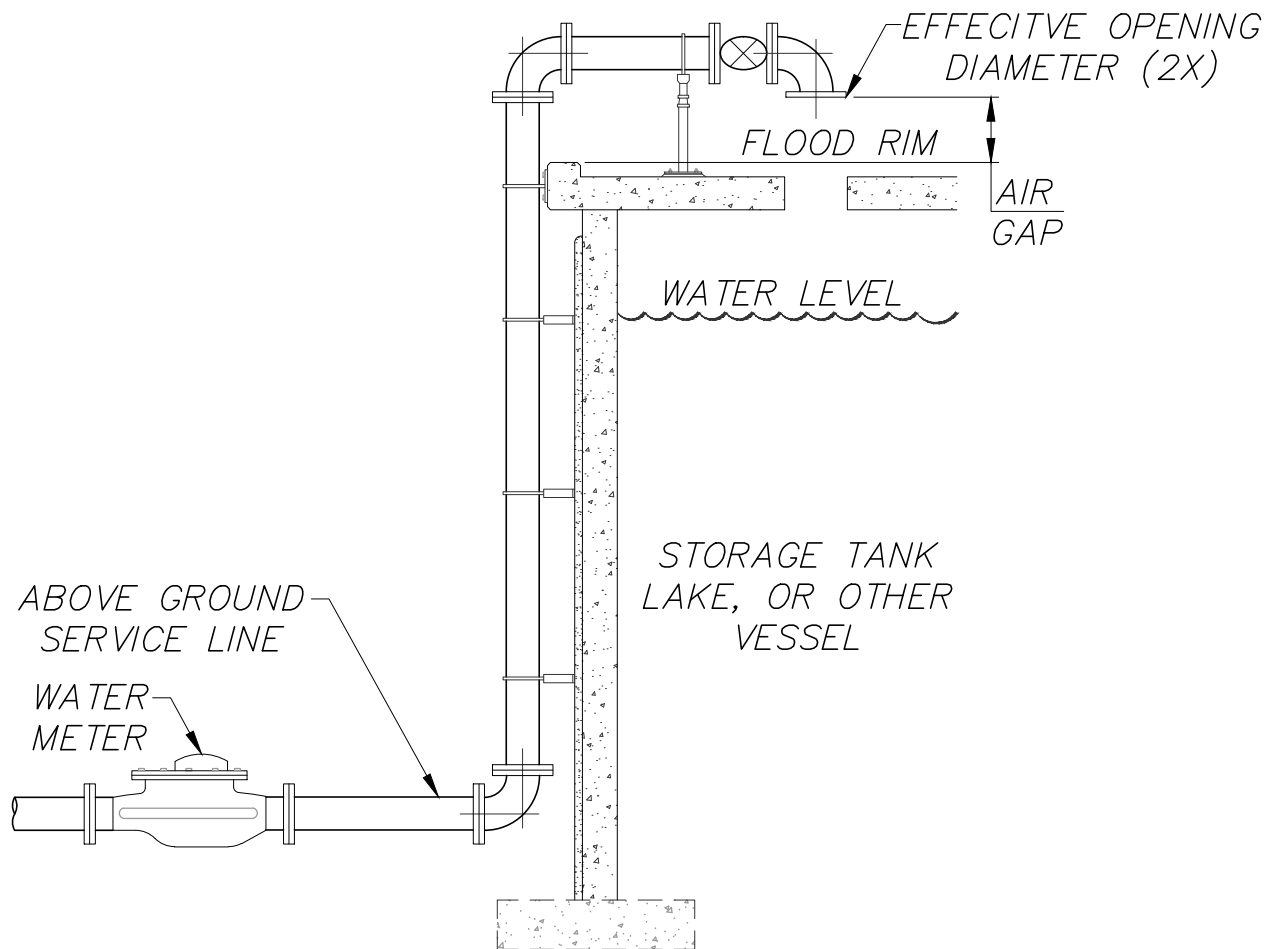
STANDARD DETAIL

FENCE INSTALLATION

DETAIL NO.

OVWU-1615

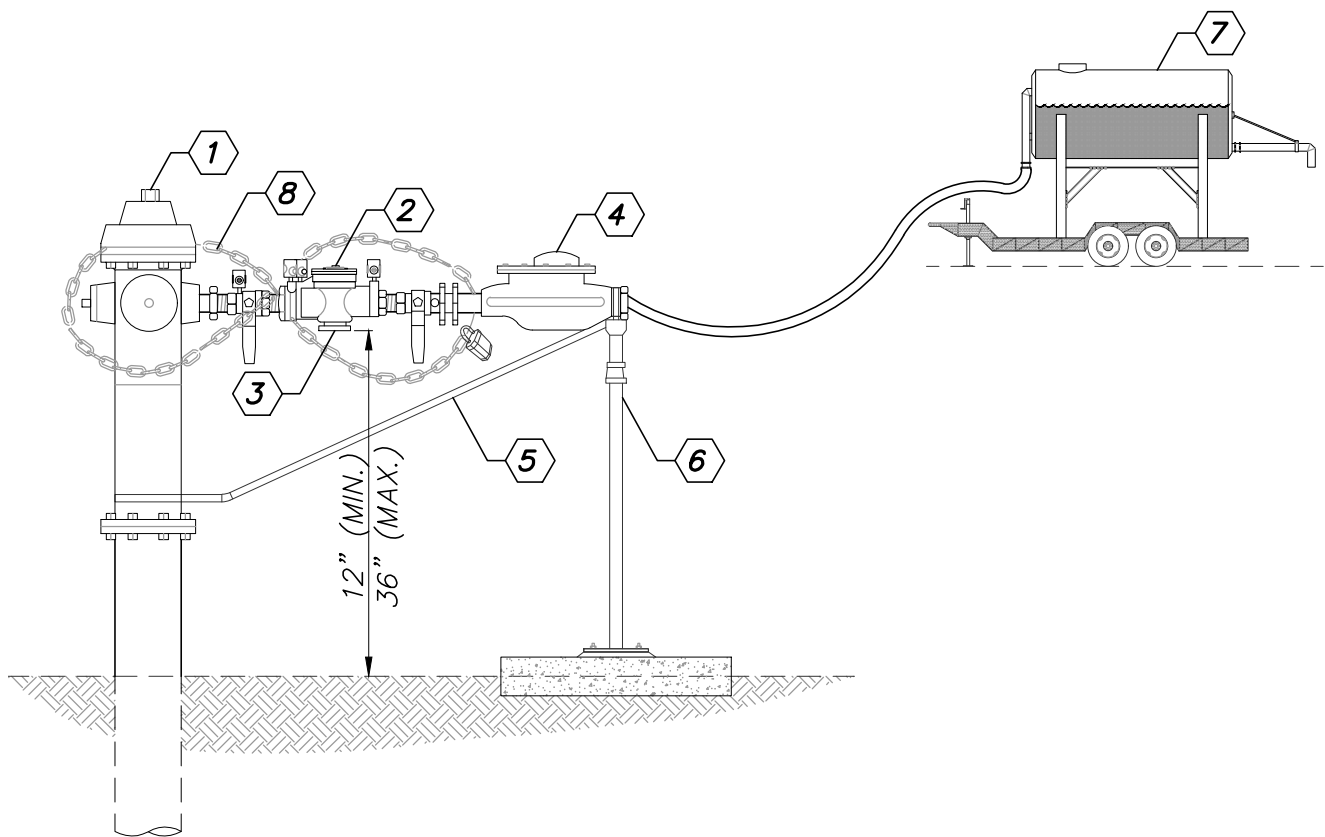
SHEET 1 OF 1



NOTES:

1. THE PREVENTION OF BACKFLOW IN A POTABLE WATER SUPPLY SYSTEM IS NECESSARY TO PREVENT CONTAMINATION OR POLLUTION OF THE WATER SUPPLY. PREVENTION IS ACCOMPLISHED BY THE USE OF AIR-GAP SEPARATIONS OR BY MECHANICAL BACKFLOW PREVENTION ASSEMBLIES. AIR-GAP SEPARATIONS AND BACKFLOW PREVENTION ASSEMBLIES SHALL BE INSTALLED ACCORDING TO CURRENT OVWU STANDARD DETAILS TO ASSURE PROTECTION OF THE PUBLIC WATER SUPPLY SYSTEM.
2. AN AIR GAP IS NOT GENERALLY UTILIZED FOR WATER SERVICE LINE PROTECTION SINCE ALL SUPPLY PRESSURE IS LOST. A WATER SERVICE LINE TO A LAKE, TANK OR OTHER VESSEL IS GENERALLY WHERE AN AIR GAP IS USED. HOWEVER, FOR SERVICE PROTECTION, ANOTHER DETERRENT IS THAT ALL PIPING TO THE AIR GAP MUST REMAIN EXPOSED.
3. THE MINIMUM REQUIRED AIR-GAP SEPARATION SHALL BE MEASURED VERTICALLY FROM THE LOWEST END OF THE POTABLE WATER OUTLET TO THE FLOOD RIM OF THE RECEPTACLE INTO WHICH THE POTABLE WATER DISCHARGES. THIS AIR-GAP DISTANCE SHALL BE A MINIMUM OF TWICE THE INSIDE DIAMETER OF THE POTABLE WATER OUTLET. IF THE WATER OUTLET IS LOCATED AT A DISTANCE LESS THAN THREE TIMES THE INSIDE DIAMETER AWAY FROM A WALL OR SIMILAR VERTICAL SURFACE, THE MINIMUM AIR-GAP SHALL BE THREE TIMES THE EFFECTIVE OPENING OF THE INSIDE DIAMETER OF THE OUTLET. IN NO CASE MAY THE MINIMUM REQUIRED AIR-GAP BE LESS THAN ONE INCH.
4. THERE SHALL NOT BE ANY PROVISIONS FOR EXTENDING THE FIXTURE BELOW THE FLOOD LEVEL RIM. IF THE END OF THE POTABLE WATER PIPE OR FIXTURE OUTLET IS THREADED OR ALLOWS FOR ANY TYPE OF EXTENSION BY ANY MEANS, A PROPERLY INSTALLED AND APPROVED BACKFLOW PREVENTED SHALL BE INSTALLED.
5. FOR ADDITIONAL INFORMATION CONSULT OVWU BACKFLOW PREVENTION ORDINANCE OR CONTACT (520) 229-5042.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		
	REVISED:	BACKFLOW PREVENTION AIR GAP SEPARATION INSTALLATION	OVWU-1800
	11/20		SHEET 1 OF 1



KEYNOTES:

- ① POTABLE WATER SYSTEM FIRE HYDRANT
- ② 2" REDUCED PRESSURE BACKFLOW ASSEMBLY
- ③ RELIEF VALVE POINTING DOWNWARD
- ④ WATER METER
- ⑤ OPTIONAL SUPPORT
- ⑥ PIPE SUPPORT
- ⑦ KLEIN TANK, WATER TRUCK, VESSEL OR OTHER USE
- ⑧ CHAIN AND PADLOCK (PROVIDED BY OVWU)

NOTES:

1. ALL BACKFLOW ASSEMBLIES SHALL BE INSTALLED, MAINTAINED AND TESTED (BY OVWU).
2. ONLY ONE CONNECTION PER HYDRANT IS ALLOWED.
3. FOR FURTHER INFORMATION CONTACT THE BACKFLOW PREVENTION SECTION AT (520) 229-5042.



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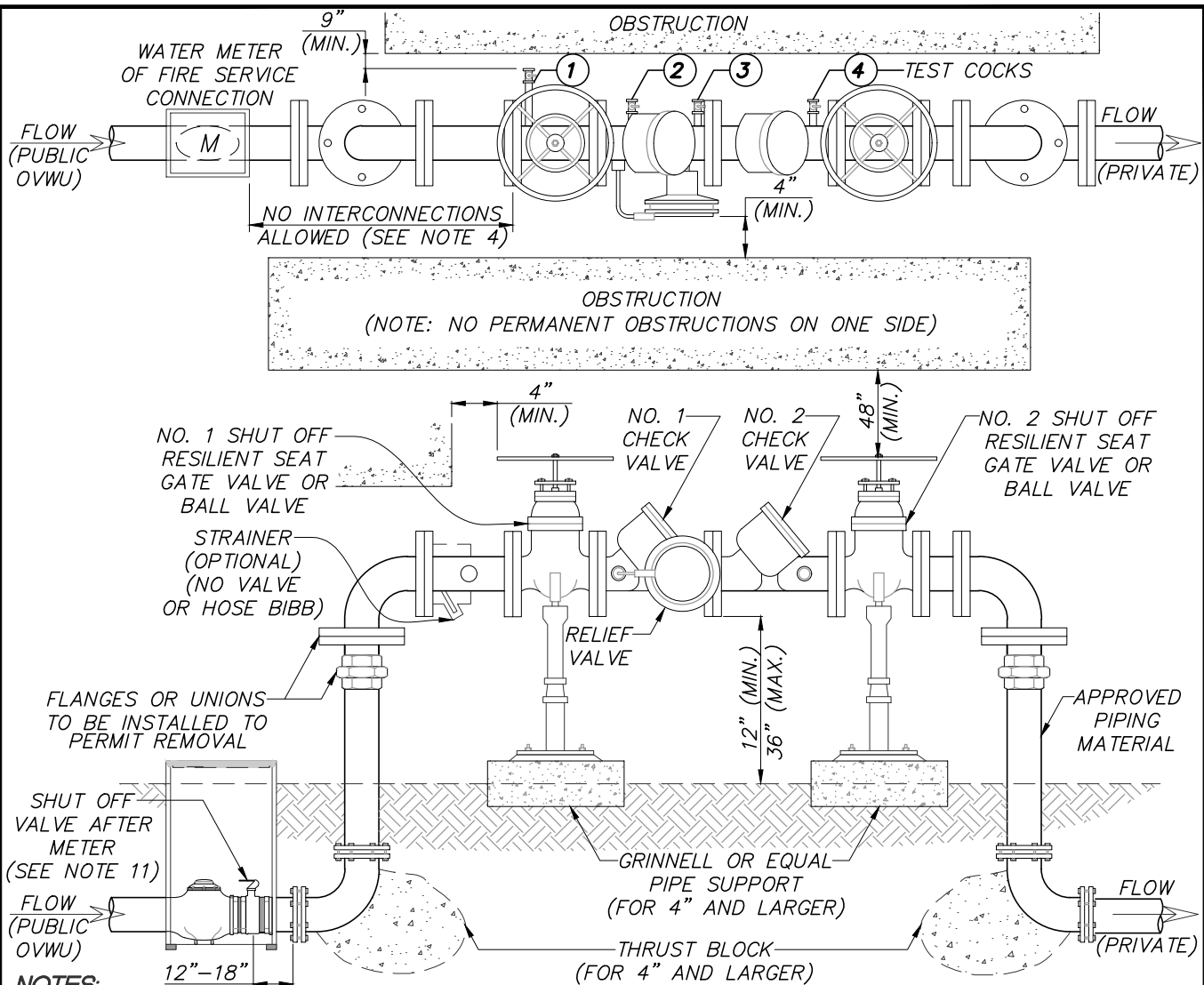
STANDARD DETAIL

**BACKFLOW PREVENTION
POTABLE WATER FIRE HYDRANT
OR STANDPIPE WATER SERVICE**

DETAIL NO.

OVWU-1801

SHEET 1 OF 1



NOTES:

1. A PERMIT IS REQUIRED BEFORE INSTALLING OR REPLACING A BACKFLOW ASSEMBLY. PERMITS SHALL BE OBTAINED BY CONTACTING WATER QUALITY-BACKFLOW DIVISION AT 520-229-5042.
2. A LIST OF APPROVED BACKFLOW ASSEMBLIES IS MAINTAINED AND AVAILABLE FROM OVWU.
3. THE PVB SHALL BE INSTALLED OUTSIDE, ABOVE GROUND, 12"-18" FROM THE WATER METER AND ON PRIVATE PROPERTY UNLESS OTHERWISE AUTHORIZED. (RIGHT-OF-WAYS ARE NOT PRIVATE PROPERTY).
4. THERE SHALL BE NO OTHER PIPING CONNECTED TO THE PIPING BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY EXCEPT FOR PARALLEL INSTALLATIONS.
5. INSTALLATIONS SHALL MEET CURRENT LOCAL PLUMBING CODES AND FIRE CODES AS APPLICABLE IN ADDITION TO OVWU'S STANDARD DETAILS. (SEE #12 APPROVED PIPING MATERIALS)
6. ALL CONNECTIONS SHALL BE LEFT EXPOSED UNTIL INSPECTED AND APPROVED BY OVWU.
7. PROTECTIVE CAGES ARE OPTIONAL, AND SHALL MEET CLEARANCE, ACCESS AND DRAINAGE REQUIREMENTS.
8. IT IS RECOMMENDED THAT BACKFLOW ASSEMBLIES BE PROTECTED FROM THE ELEMENTS. CARE SHALL BE TAKEN TO ENSURE THAT THE PROTECTION DOES NOT HINDER OPERATION OF THE ASSEMBLY. (ALLOW FOR PROPER DRAINAGE)
9. BEFORE INSTALLING A BACKFLOW ASSEMBLY ON ANY FIRE SYSTEM, CONSULT WITH THE FIRE AUTHORITY FOR ADDITIONAL REQUIREMENTS. (ie. OS AND Y SHUTOFFS, ALARMS ETC.)
10. THE INSTALLATION OF A BACKFLOW ASSEMBLY WILL CREATE A CLOSED SYSTEM. CONSULT LOCAL PLUMBING CODES FOR PRESSURE RELIEF VALVE AND THERMAL EXPANSION REQUIREMENTS.
11. DEVELOPER OR BUILDER IS REQUIRED TO INSTALL A CUSTOMER'S 1" SHUTOFF BALL VALVE W/SWIVEL NUT AND HANDLE. 1" AMS COMPRESSION (MUELLER H-108961). PRIVATE SIDE 1" BALL VALVE SWIVEL NUT x FIP (B-2435IN) OR APPROVED EQUAL.
12. APPROVED PIPING MATERIALS SHALL BE: COPPER TYPE L OR K, OR DUCTILE IRON.
13. FOR ADDITIONAL INFORMATION CONSULT OVWU BACKFLOW PREVENTION ORDINANCE OR CONTACT (520) 292-5042.
14. METER COUPLING 1" OR SMALLER SHALL BE EQUIPPED WITH (MUELLER H-10896) W/SWIVEL NUT AND HANDLE.



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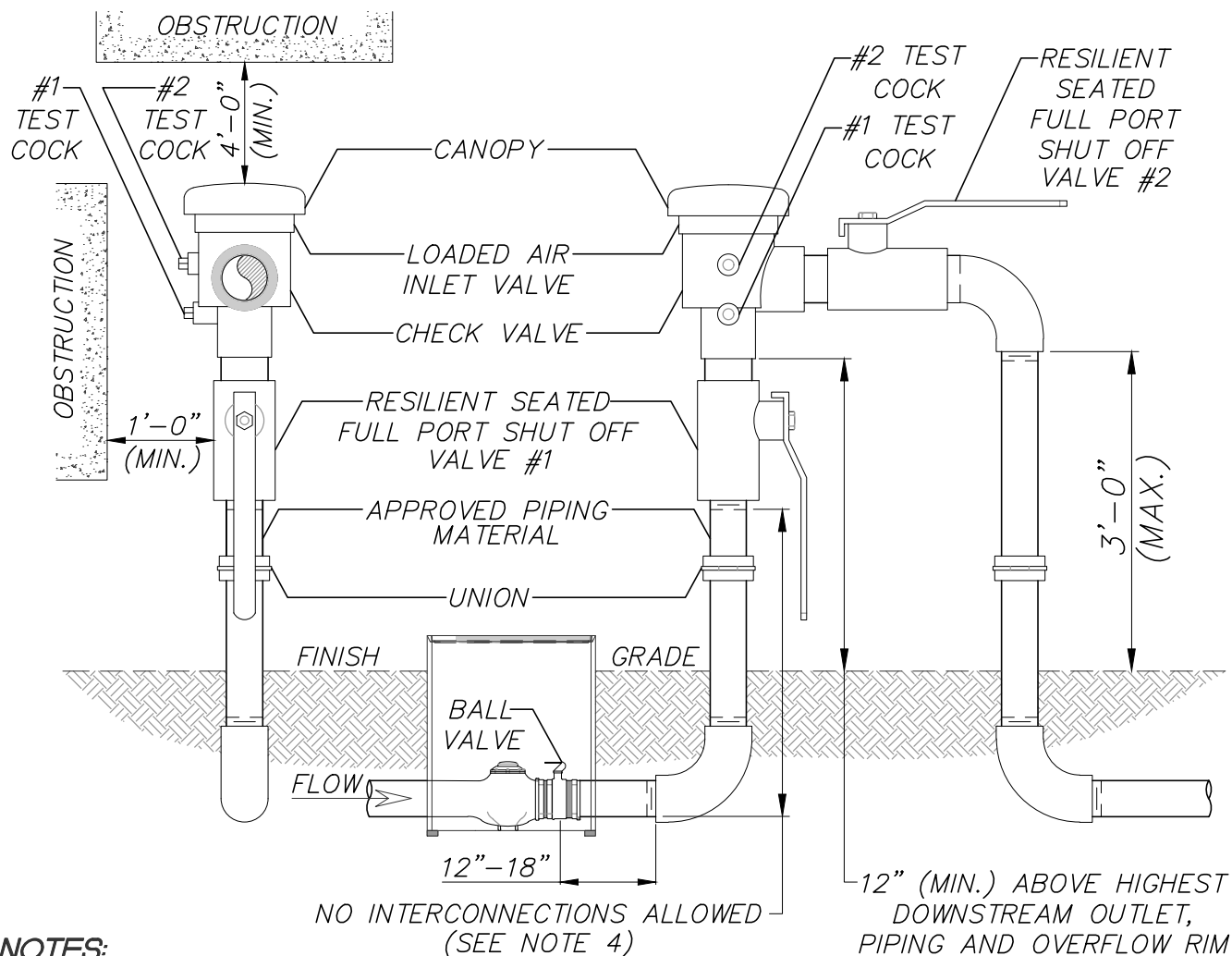
STANDARD DETAIL

BACKFLOW PREVENTION REDUCED PRESSURE ASSEMBLY (RPA) INSTALLATION

DETAIL NO.

OVWU-1802

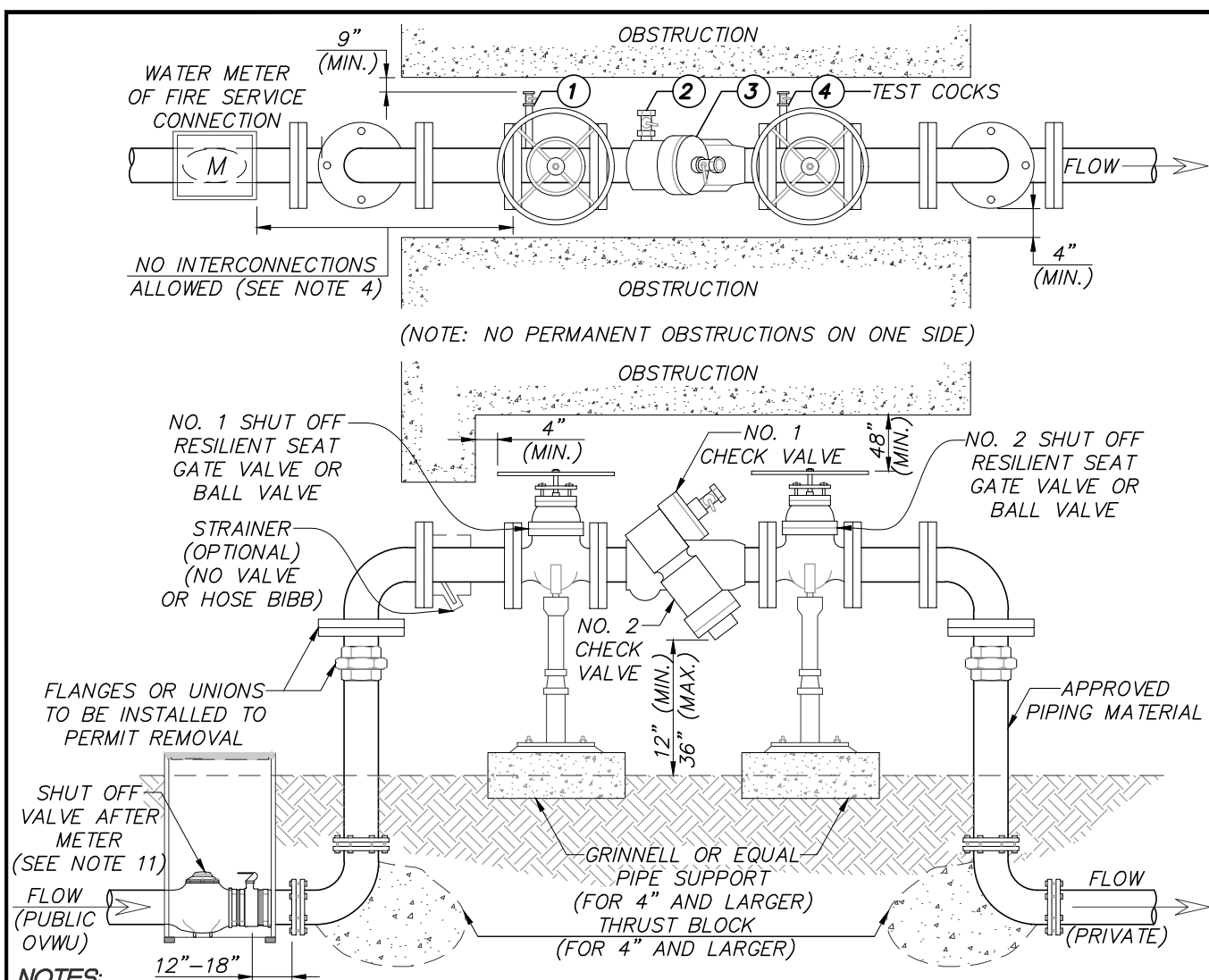
SHEET 1 OF 1



NOTES:

1. A PERMIT IS REQUIRED BEFORE INSTALLING OR REPLACING A BACKFLOW ASSEMBLY. PERMITS SHALL BE OBTAINED BY CONTACTING WATER QUALITY-BACKFLOW DIVISION AT 520-229-5042.
2. A LIST OF APPROVED BACKFLOW ASSEMBLIES IS MAINTAINED AND AVAILABLE FROM OVWU.
3. THE PVB SHALL BE INSTALLED OUTSIDE, ABOVE GROUND, 12"-18" FROM THE WATER METER AND ON PRIVATE PROPERTY UNLESS OTHERWISE AUTHORIZED. (RIGHT-OF-WAYS ARE NOT PRIVATE PROPERTY).
4. THERE SHALL BE NO OTHER PIPING CONNECTED TO THE PIPING BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY.
5. INSTALLATIONS SHALL MEET CURRENT LOCAL PLUMBING CODES AND FIRE CODES AS APPLICABLE IN ADDITION TO OVWU'S STANDARD DETAILS. (SEE #12 APPROVED PIPING MATERIALS)
6. ALL CONNECTIONS SHALL BE LEFT EXPOSED UNTIL INSPECTED AND APPROVED BY OVWU.
7. PROTECTIVE CAGES ARE OPTIONAL, AND SHALL MEET CLEARANCE, ACCESS AND DRAINAGE REQUIREMENTS.
8. IT IS RECOMMENDED THAT BACKFLOW ASSEMBLIES BE PROTECTED FROM THE ELEMENTS. CARE SHALL BE TAKEN TO ENSURE THAT THE PROTECTION DOES NOT HINDER OPERATION OF THE ASSEMBLY. (ALLOW FOR PROPER DRAINAGE).
9. PVB'S MAY BE MAINTAINED UNDER CONTINUOUS PRESSURE AND HAVE SHUT OFF VALVES DOWNSTREAM, BUT THERE SHALL BE NO MEANS OF IMPOSING BACK PRESSURE ON THE PVB FROM ANY OTHER SOURCE.
10. PVB'S SHALL ONLY BE APPROVED FOR IRRIGATION METER SERVICE PROTECTION WHERE THERE IS NO OTHER SOURCE OF WATER SUPPLY TO THE PREMISES, I.E. MEDIAN ISLANDS NO BACK PRESSURE.
11. DEVELOPER OR BUILDER IS REQUIRED TO INSTALL A CUSTOMER'S 1" SHUTOFF BALL VALVE W/SWIVEL NUT AND HANDLE. 1" AMS COMPRESSION (MUELLER H-108961). PRIVATE SIDE 1" BALL VALVE SWIVEL NUT x FIP (B-2435IN) OR APPROVED EQUAL.
12. APPROVED PIPING MATERIALS SHALL BE: COPPER TYPE L OR K, OR DUCTILE IRON.
13. TO BE INSTALLED IN AN OPEN AREA WITH NO OBSTRUCTION ON ONE SIDE.
14. PRESSURE VACUUM BREAKER ASSEMBLY (PVB) INSTALLATION THESE SPECIFICATIONS ARE TO BE FOLLOWED FOR ALL WATER SERVICE PROTECTION INSTALLATIONS UTILIZING PVB.
15. FOR ADDITIONAL INFORMATION CONSULT OVWU BACKFLOW PREVENTION ORDINANCE OR CONTACT (520) 292-5042.

	ISSUED:	STANDARD DETAIL	DETAIL NO.
	01/18		
	REVISED:	PRESSURE VACUUM BREAKER ASSEMBLY (PVB) INSTALLATION	OVWU-1803
	10/20		SHEET 1 OF 1



NOTES:

1. A PERMIT IS REQUIRED BEFORE INSTALLING OR REPLACING A BACKFLOW ASSEMBLY. PERMITS SHALL BE OBTAINED BY CONTACTING WATER QUALITY-BACKFLOW DIVISION AT 520-229-5042.
2. A LIST OF APPROVED BACKFLOW ASSEMBLIES IS MAINTAINED AND AVAILABLE FROM OVWU.
3. THE DCVA SHALL BE INSTALLED OUTSIDE, ABOVE GROUND, 12"-18" FROM THE WATER METER AND ON PRIVATE PROPERTY UNLESS OTHERWISE AUTHORIZED. (RIGHT-OF-WAYS ARE NOT PRIVATE PROPERTY).
4. THERE SHALL BE NO OTHER PIPING CONNECTED TO THE PIPING BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY EXCEPT FOR PARALLEL INSTALLATIONS.
5. INSTALLATIONS SHALL MEET CURRENT LOCAL PLUMBING CODES AND FIRE CODES AS APPLICABLE IN ADDITION TO OVWU'S STANDARD DETAILS. (SEE #12 APPROVED PIPING MATERIALS)
6. ALL CONNECTIONS SHALL BE LEFT EXPOSED UNTIL INSPECTED AND APPROVED BY OVWU.
7. PROTECTIVE CAGES ARE OPTIONAL, AND SHALL MEET CLEARANCE, ACCESS AND DRAINAGE REQUIREMENTS.
8. IT IS RECOMMENDED THAT BACKFLOW ASSEMBLIES BE PROTECTED FROM THE ELEMENTS. CARE SHALL BE TAKEN TO ENSURE THAT THE PROTECTION DOES NOT HINDER OPERATION OF THE ASSEMBLY.
9. BEFORE INSTALLING A BACKFLOW ASSEMBLY ON ANY FIRE SYSTEM, CONSULT WITH THE FIRE AUTHORITY FOR ADDITIONAL REQUIREMENTS. (ie. OS AND Y SHUTOFFS, ALARMS ETC.)
10. THE INSTALLATION OF A BACKFLOW ASSEMBLY WILL CREATE A CLOSED SYSTEM. CONSULT LOCAL PLUMBING CODES FOR PRESSURE RELIEF VALVE AND THERMAL EXPANSION REQUIREMENTS.
11. DEVELOPER OR BUILDER IS REQUIRED TO INSTALL A CUSTOMER'S 1" SHUTOFF BALL VALVE W/SWIVEL NUT AND HANDLE. 1" AMS COMPRESSION (MUELLER H-108961). PRIVATE SIDE 1" BALL VALVE SWIVEL NUT x FIP (B-2435IN) OR APPROVED EQUAL.
12. APPROVED PIPING MATERIALS SHALL BE: COPPER TYPE L OR K, OR DUCTILE IRON.
13. FOR ADDITIONAL INFORMATION CONSULT OVWU BACKFLOW PREVENTION ORDINANCE OR CONTACT (520) 292-5042.
14. DOUBLE CHECK VALVE ASSEMBLY (DCVA) INSTALLATION THESE SPECIFICATION ARE TO BE FOLLOWED FOR ALL WATER SERVICES PROTECTION INSTALLATION UTILIZING A DCVA.



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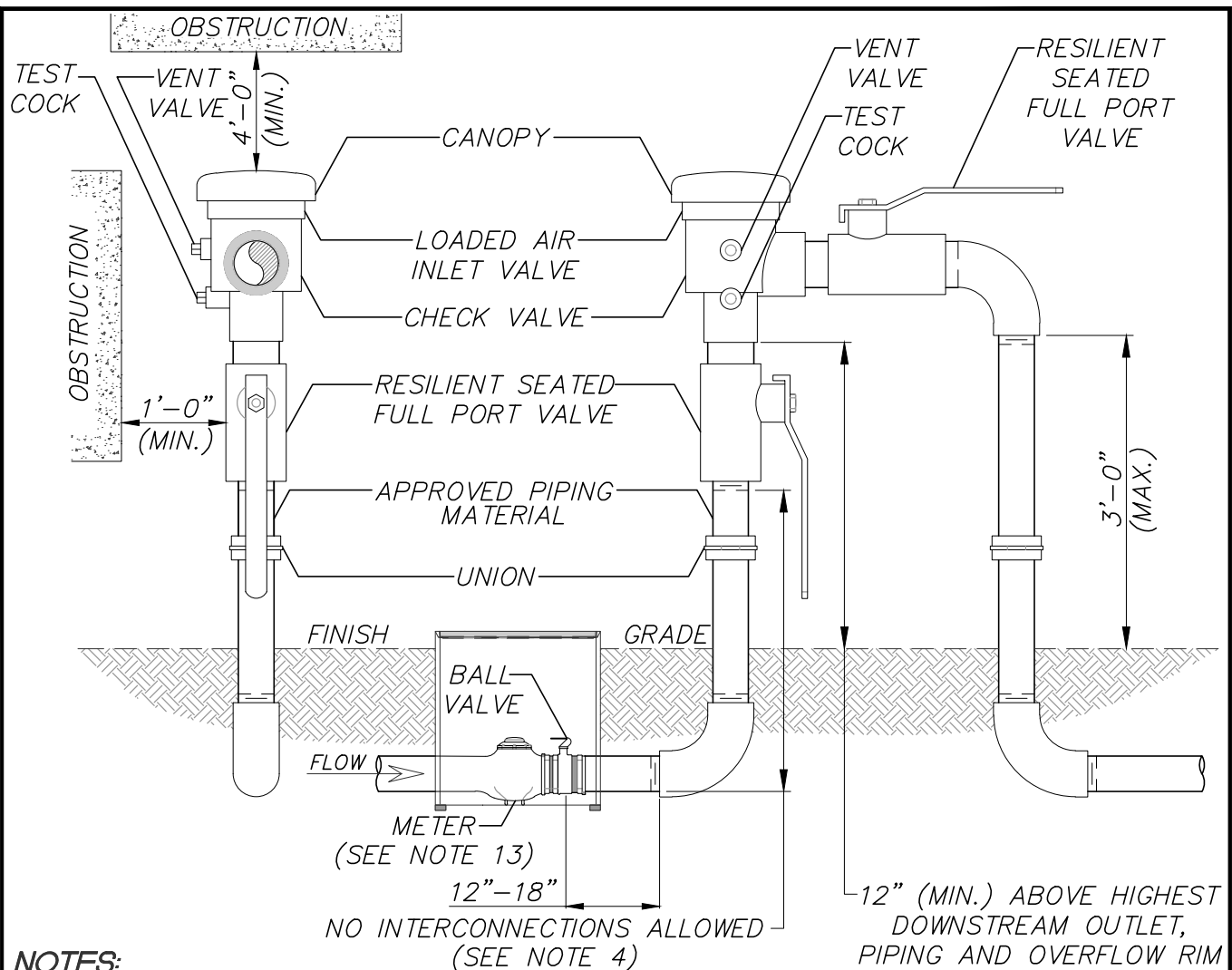
STANDARD DETAIL

DOUBLE CHECK VALVE ASSEMBLY (DCVA) INSTALLATION

DETAIL NO.

OVWU-1805

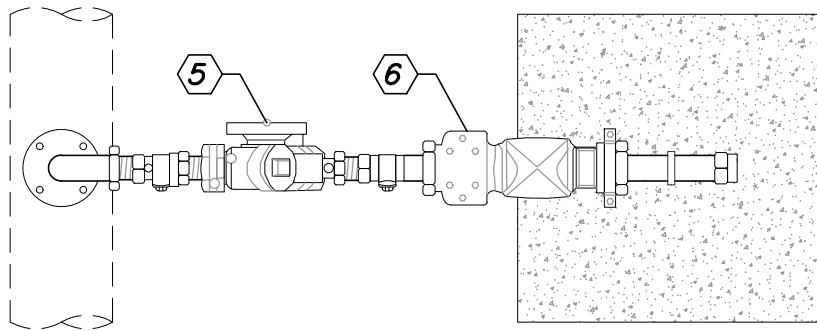
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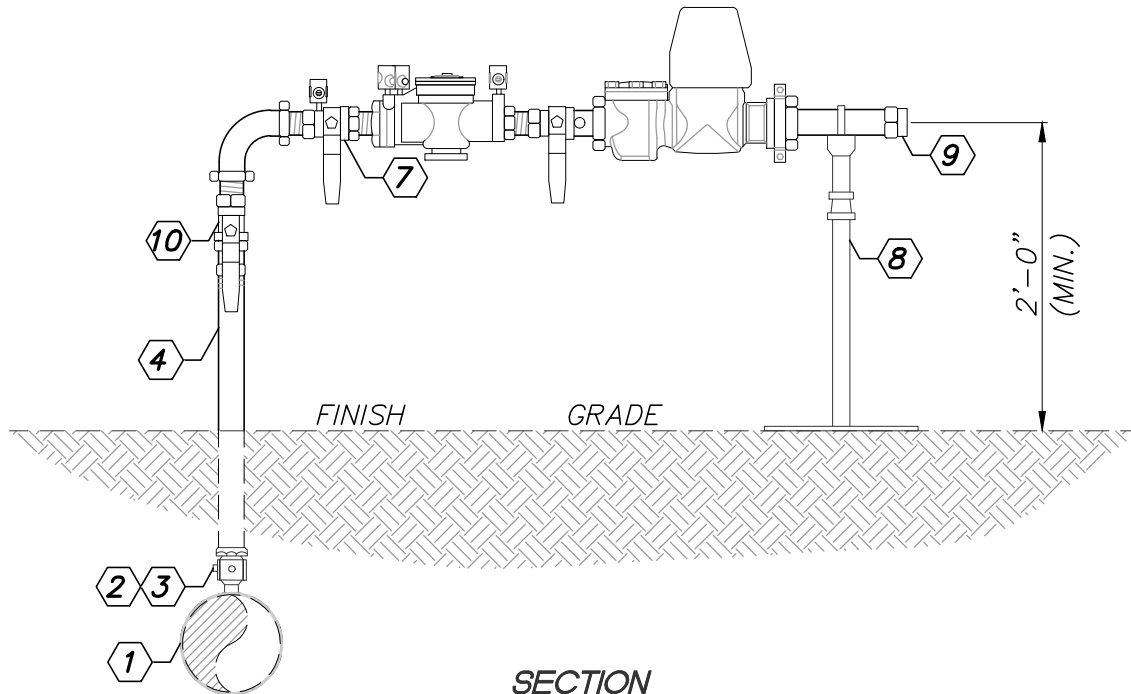
NOTES:

1. A PERMIT IS REQUIRED BEFORE INSTALLING OR REPLACING A BACKFLOW ASSEMBLY. PERMITS SHALL BE OBTAINED BY CONTACTING OVWU WATER QUALITY-BACKFLOW DIVISION AT 520-229-5042.
2. A LIST OF APPROVED BACKFLOW ASSEMBLIES IS MAINTAINED BY OVWU.
3. THE BACKFLOW LISTED IN THIS DETAIL OR SVB SHALL BE INSTALLED OUTSIDE, 12"-18" FROM THE WATER METER AND ON PRIVATE PROPERTY UNLESS OTHERWISE AUTHORIZED. (RIGHT-OF-WAYS ARE NOT PRIVATE PROPERTY)
4. THERE SHALL BE NO OTHER PIPING CONNECTED TO THE PIPING BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY.
5. ALL CONNECTIONS SHALL MEET CURRENT LOCAL PLUMBING CODES AND FIRE CODES AS APPLICABLE IN ADDITION TO OVWU'S STANDARD DETAILS. (SEE #12 OR #10 APPROVED PIPING MATERIALS)
6. ALL CONNECTIONS SHALL BE LEFT EXPOSED UNTIL INSPECTED AND APPROVED BY OVWU.
7. PROTECTIVE CAGES ARE OPTIONAL, AND SHALL MEET CLEARANCE, ACCESS AND DRAINAGE REQUIREMENTS.
8. IT IS RECOMMENDED THAT BACKFLOW ASSEMBLIES BE PROTECTED FROM THE ELEMENTS. CARE SHALL BE TAKEN TO ENSURE THAT THE PROTECTION DOES NOT HINDER OPERATION OF THE ASSEMBLY.
9. DEVELOPER OR BUILDER IS REQUIRED TO INSTALL A CUSTOMER'S 1" SHUTOFF BALL VALVE W/SWIVEL NUT AND HANDLE. 1" AMS COMPRESSION (MUELLER H-108961). PRIVATE SIDE 1" BALL VALVE SWIVEL NUT x FIP (B-2435IN) OR APPROVED EQUAL.
10. APPROVED PIPING MATERIALS SHALL BE: COPPER TYPE L OR K, OR DUCTILE IRON.
11. TO BE INSTALLED IN AN OPEN AREA WITH NO OBSTRUCTION ON ONE SIDE.
12. SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY (SVB) INSTALLATION. THESE SPECIFICATION ARE TO BE FOLLOWED FOR ALL WATER SERVICES PROTECTION INSTALLATION UTILIZING A SVB. ADD NOTE #11 FROM (RP 1802) TO (SPVB 1807).
13. METER SERVICE INSTALLATION FOR COUPLING ASSEMBLY. (PER OVWU STANDARD DETAIL 309)
14. FOR ADDITIONAL INFORMATION CONSULT OVWU BACKFLOW PREVENTION ORDINANCE OR CONTACT (520) 292-5042.

	ISSUED:	STANDARD DETAIL BACKFLOW PREVENTION SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY (SVB) INSTALLATION	DETAIL NO.
	01/18		OVWU-1807
	REVISED:		
	10/20		SHEET 1 OF 1



PLAN



SECTION

**TEMPORARY CONNECTION FOR
DVA AND WATER MAIN STUBS**

KEYNOTES:

- | | |
|---|--|
| ① EXISTING POTABLE WATER MAIN | ⑥ FIRE HYDRANT METER |
| ② 2" CORP. STOP PLUG WHEN FINISHED | ⑦ CUSTOMER SUPPLIED 2" GATE OR BALL VALVE & 2-1/2" BRASS MALE HYDRANT NIPPLE |
| ③ TEMPORARY CONNECTION FOR CONSTRUCTION WATER USE | ⑧ PIPE SUPPORT |
| ④ RIGID POTABLE WATER PIPE | ⑨ QUICK DISCONNECT (CAMLOCK) |
| ⑤ REDUCED PRESSURE (R.P.) BACKFLOW ASSEMBLY | ⑩ 2" GATE OR BALL VALVE |

NOTES:

1. BACKFLOW ASSEMBLY SHALL BE INSTALLED, MAINTAINED AND TESTED IN ACCORDANCE WITH STATE AND LOCAL CODES AND REGULATIONS.
2. TEMPORARY CONNECTION TO EXISTING POTABLE MAIN MUST BE APPROVED BY A ORO VALLEY WATER QUALITY/BACKFLOW SECTION, CONTACT ADAM 520-229-5042.
3. WATER TO BE USED FOR FILLING AND FLUSHING OF NEW WATER MAINS ONLY.
4. BACKFLOW ASSEMBLY AND METER SHALL BE TESTED BY ORO VALLEY WATER QUALITY/BACKFLOW SECTION WHEN INSTALLED, MOVED, OR REMOVED.
5. BACKFLOW ASSEMBLY IS REQUIRED TO BE TURNED OFF AT BOTH SHUT OFF VALVES AND REMAIN OFF WHEN CHLORINATING NEW MAIN.
6. DO NOT LEAVE BACKFLOW ASSEMBLY CONNECTED WITHOUT WATER METER. INSTALLATION MUST COMPLY WITH STANDARD DETAIL AT ALL TIMES.



ISSUED:

01/18

REVISED:

11/20

STANDARD DETAIL

**BACKFLOW PREVENTION POTABLE
WATER MAIN TEMPORARY CONNECTION
FOR TESTING AND FLUSHING OF
NEW WATER MAINS ONLY**

DETAIL NO.

OWWU-1809

SHEET 1 OF 1