



STANDARD DETAILS for

UTILITY CONSTRUCTION

Pinal County:

- Global Water - Santa Cruz Water Company, Inc.
- Global Water - Palo Verde Utilities Company, Inc.
- Global Water - Red Rock Water Company, Inc.

Pima County:

- Global Water - Mirabell Water Company, Inc.
- Global Water - Lyn Lee Water Company, Inc.
- Global Water - Rincon Water Company, Inc.
- Global Water - Tortolita Water Company, Inc.
- Global Water - Francesca Water Company, Inc.
- Global Water - Las Quintas Serenas Water Company, Inc.
- Global Water - Farmers Water Company, Inc.

Maricopa County:

- Global Water - Belmont Water Company, Inc.
- Global Water - Hassayampa Utilities Company, Inc.
- Global Water - Turner Ranches Irrigation, Inc.

January 2024

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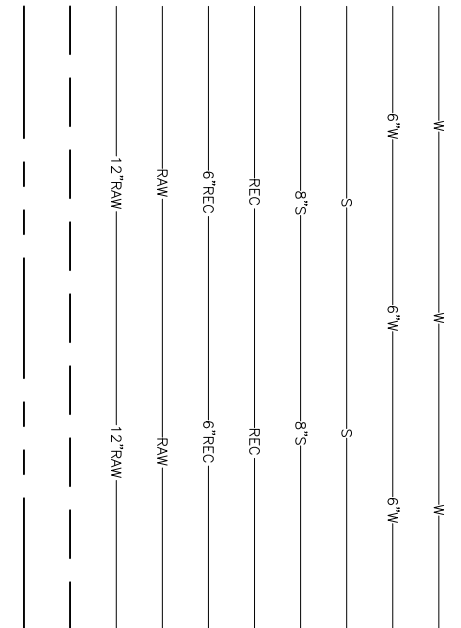
DETAIL NO.

100-1

FIRE HYDRANT
 WATER METER
 WATER PUMP
 WELL
 VALVE
 AIR RELEASE VALVE
 REDUCER
 CAP
 SEWER CLEANOUT
 SEWER MANHOLE



WATER LINE
 WATER LINE w/SIZE
 SEWER LINE
 SEWER LINE w/SIZE
 RECLAIMED WATER LINE
 RECLAIMED WATER LINE w/SIZE
 RAW WATER LINE
 RAW WATER LINE w/SIZE
 PUE LINE
 ROW LINE

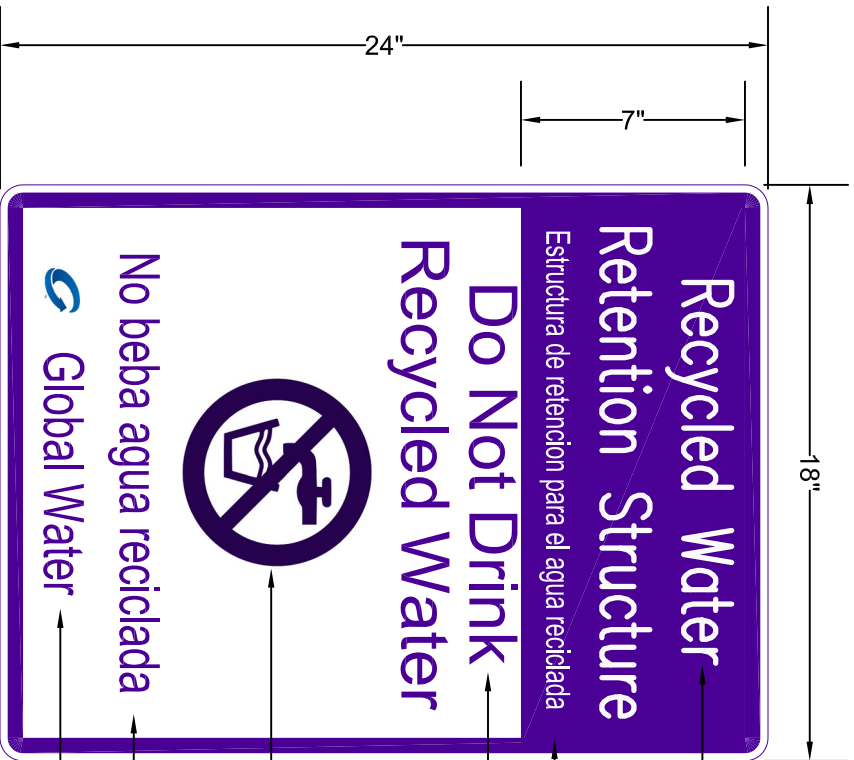


Plan Symbols

DETAIL NO.

110

01/2024



GENERAL NOTE:

CONSTRUCT 18"(W) X 24"(H) SINGLE-SIDED WHITE SIGN FROM 0.080" ALUMINUM (REFLECTIVE SHEETING) WITH PURPLE 3M VINYL LETTERING/GRAPHICS, OR APPROVED EQUAL.

USE ISO 7010-P005 IN ALL PURPLE FOR SYMBOL.

- 1.5" LETTERING
- 0.75" LETTERING
- 1.5" LETTERING
- Ø6.5"
- 1.25" LETTERING
- 1.5"X7" LOGO

Recycled Water Signage



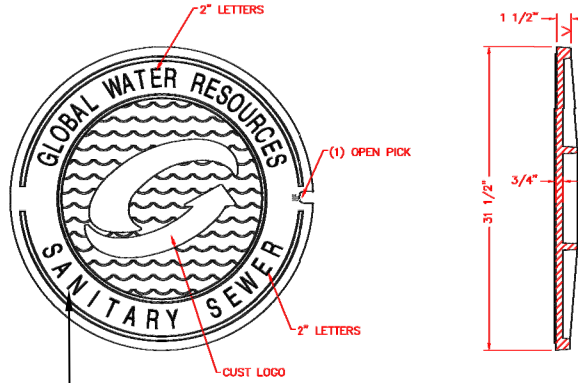
DETAIL NO.

132

01/2024



DRAWING CONTROL: CONTROLLED DRAWINGS ON INFCO SERVER. ALL OTHER COPIES, ELECTRONIC OR PRINTED ARE FOR REFERENCE ONLY.



CHANGE SERVICE WORDING AS NEEDED.

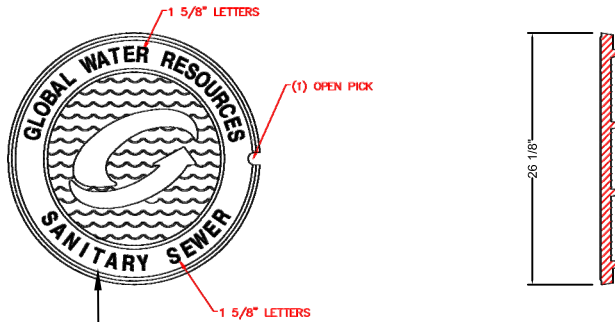
- NOTES:
- ALL DIMENSIONS SHOWN ARE IN ENGLISH
 - EQUIPMENT NOS.: D55350093 K55550094
 - MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
 - FINISH: NO PAINT
 - WEIGHT: ≈210#

DR. HG	SCALE 1/8"=1"	TITLE DF-1296 LID
CL. RON		
APP. SPT	NEENAH FOUNDRY NEENAH, NEBRASKA 68556 PHONE 800-368-0076 LINCOLN, NEBRASKA 68529 PHONE 800-234-7489	
DATE 01-23-2019		
NF-1296-T64		

CAD DWG. REF: 1296-T64.DWG- 1

Manhole Cover Identification

DRAWING CONTROL: CONTROLLED DRAWINGS ON INFCO SERVER. ALL OTHER COPIES, ELECTRONIC OR PRINTED ARE FOR REFERENCE ONLY.



CHANGE SERVICE WORDING AS NEEDED.

- NOTES:
- ALL DIMENSIONS SHOWN ARE IN ENGLISH
 - EQUIPMENT NOS.: D55350062 K55550064
 - MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
 - FINISH: NO PAINT
 - WEIGHT: ≈178#

DR. HG	SCALE 1/8"=1"	TITLE DF-1295 LID
CL. RON		
APP. SPT	NEENAH FOUNDRY NEENAH, NEBRASKA 68556 PHONE 800-368-0076 LINCOLN, NEBRASKA 68529 PHONE 800-234-7489	
DATE 01-23-2019		
NF-1295-T33		

CAD DWG. REF: 1295-T33.DWG- 1

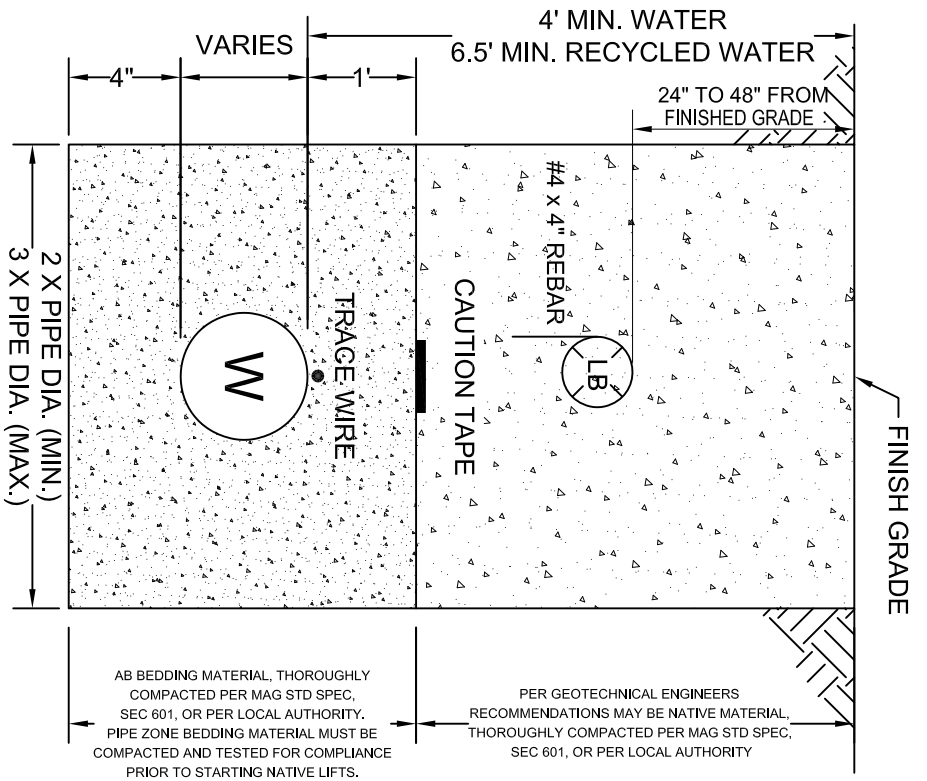
NOTE:

COVERS ARE AVAILABLE FROM NEENAH FOUNDRY. SPECIFY GLOBAL WATER RESOURCES COVERS. COVERS TO MEET MAG STANDARD DESIGN USING GLOBAL WATER PATTERN.

199

DETAIL NO.

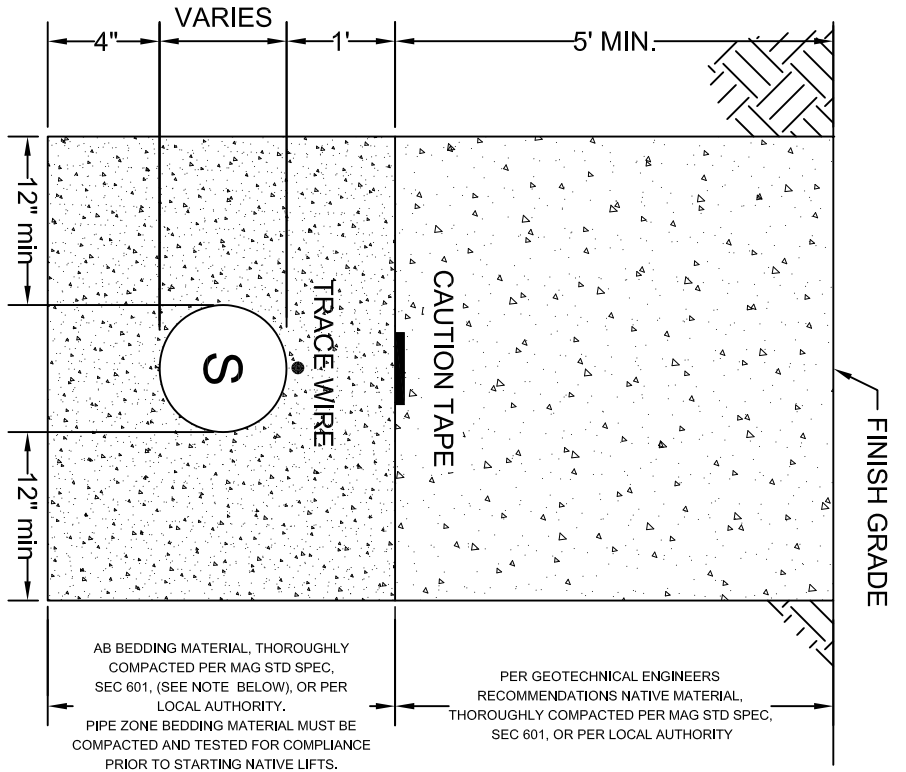
01/2024



NOTE:
LOCATOR BALL (LB) REQUIRED ON ALL 45°, 90° AND REALIGNMENTS.

TYPICAL POTABLE WATER AND RECYCLED WATER TRENCH

N.T.S.



TYPICAL SEWER TRENCH

N.T.S.

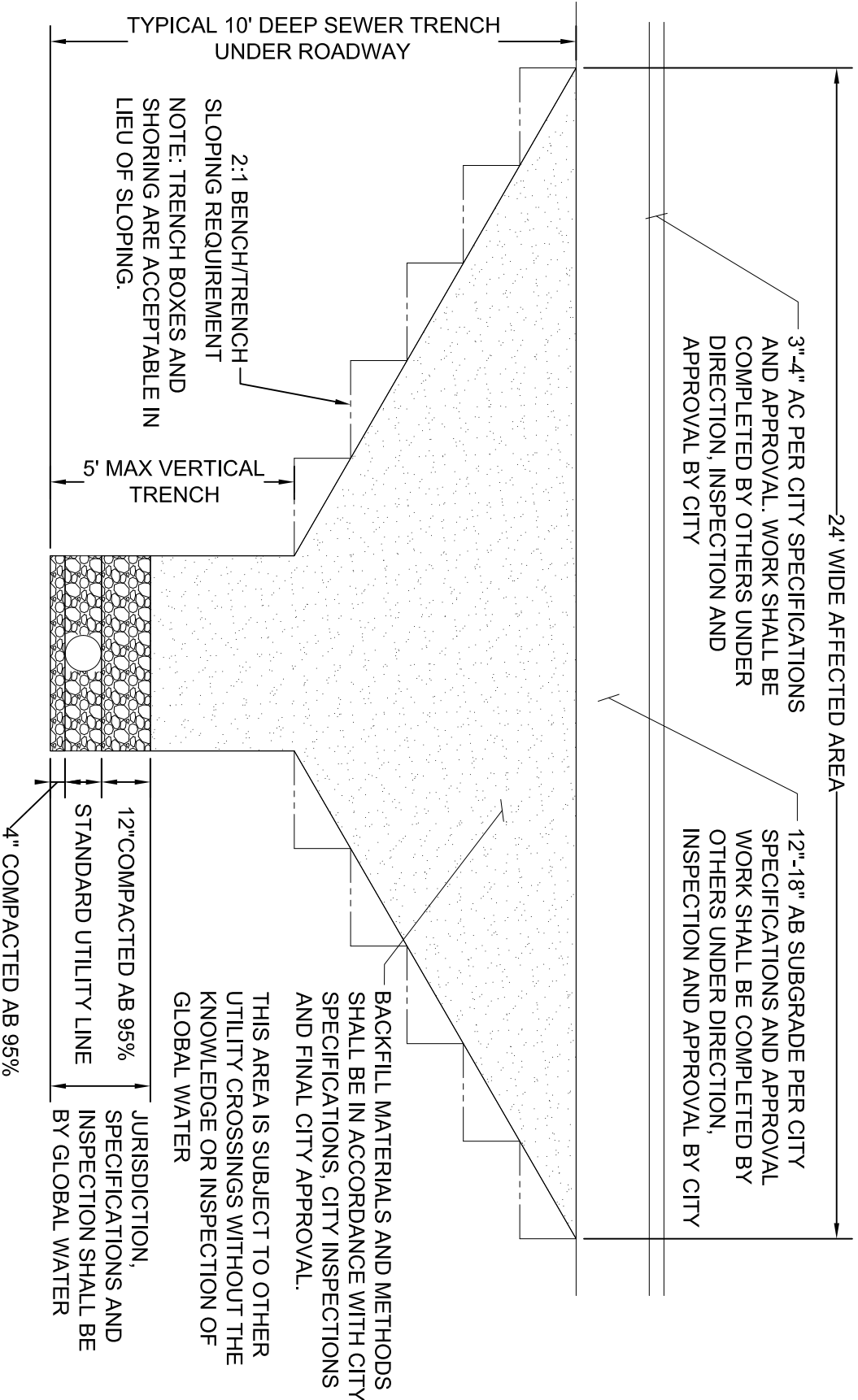


Water, Sewer & Recycled Water Trench

DETAIL NO.

200

01/2024



TYPICAL SEWER TRENCH IN SUBDIVISION

N.T.S.

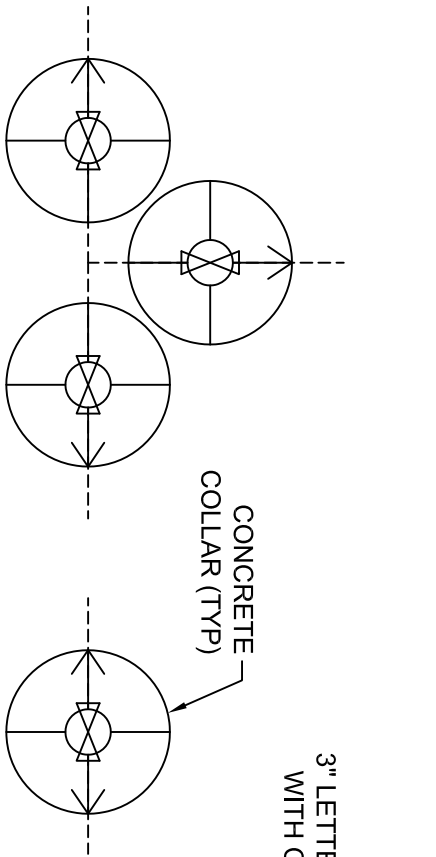
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Utility Trench Detail

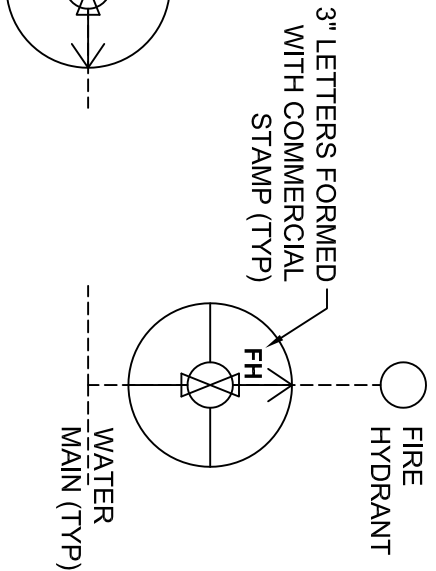
DETAIL NO.

201

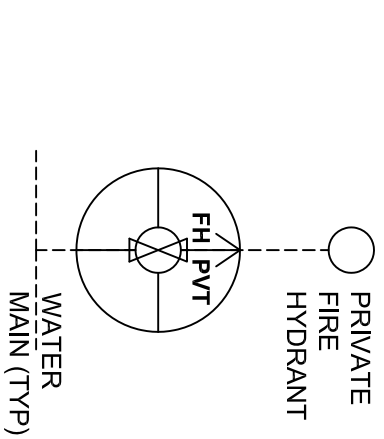


TEE

INLINE VALVE



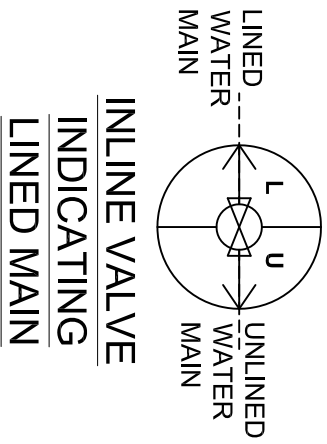
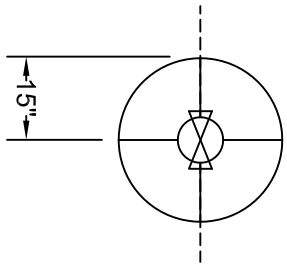
FIRE HYDRANT ISOLATION VALVE



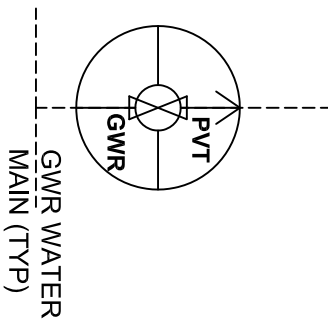
PRIVATE FIRE HYDRANT ISOLATION VALVE

NOTES:

1. ARROWS FORMED USING A HAND JOINT/GROOVE TROWEL AT 45 DEGREES FROM RADIAL JOINTS. LENGTH OF ARROW TO BE 6-8".
2. REFERENCE MAG 391-1.
3. CIRCUMFERENCE OF CONCRETE VALVE COLLAR IS TO BE 15 INCHES FROM CENTERLINE OF LID.



INLINE VALVE INDICATING LINED MAIN



GWR TO PRIVATE ISOLATION VALVE

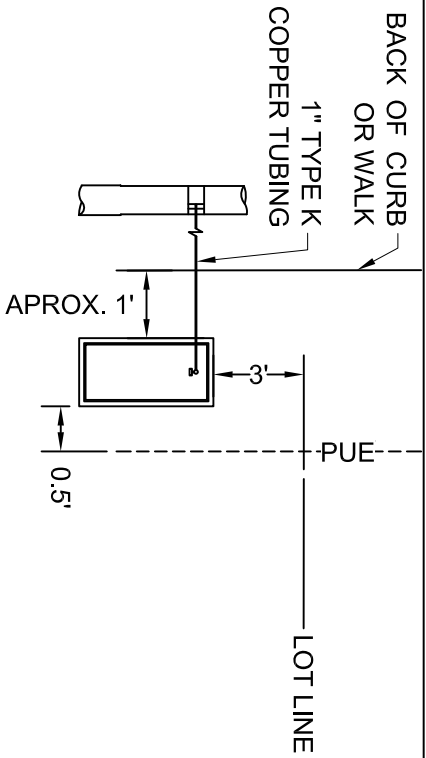
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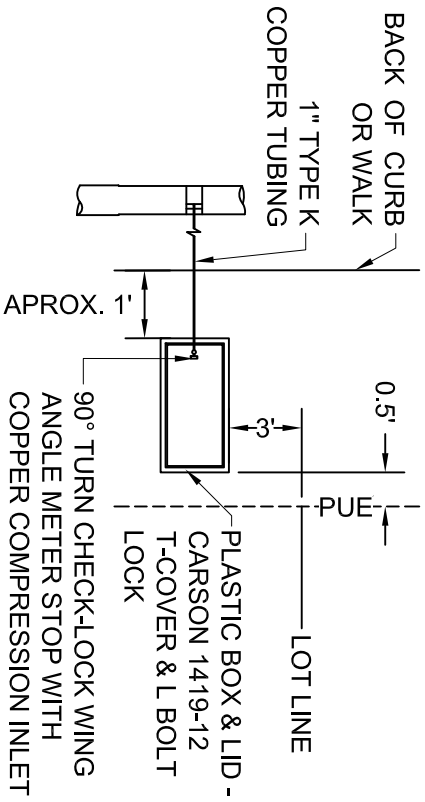


Valve Collar Markings

270-1

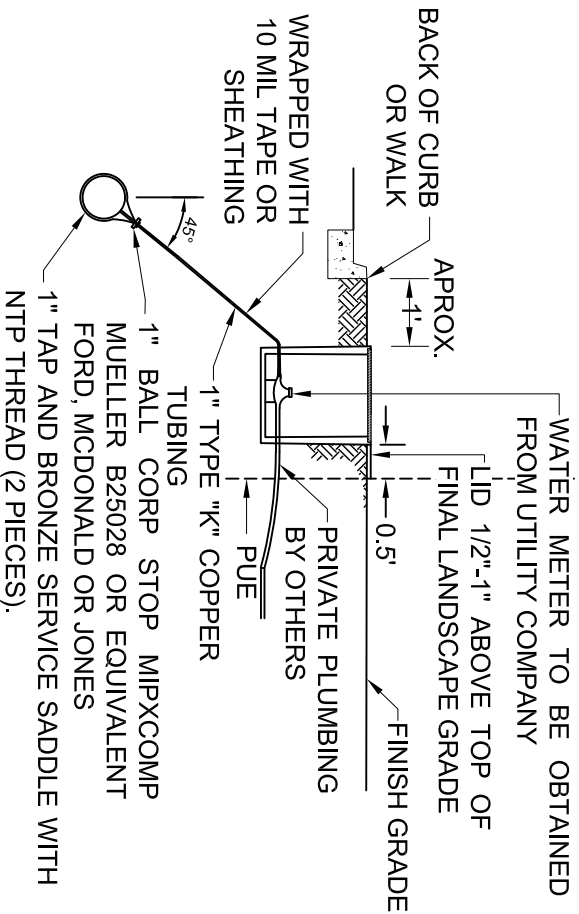


ALTERNATE SERVICE ORIENTATION



SINGLE WATER SERVICE

DOUBLE STRAP SADDLES FOR DUCTILE IRON PIPE. WIDE STRAP OR DOUBLE BAND SADDLES FOR EXISTING C-900 PIPE. MUELLER, FORD, MCDONALD OR JONES SADDLES ARE APPROVED BY GLOBAL WATER. SADDLES MAY CONSIST OF BRONZE OR STAINLESS STEEL DEPENDING ON THE APPLICATION AND LOCATION. TYPES OF SADDLES MUST BE ACCEPTED BY GLOBAL WATER BEFORE INSTALLATION FOR ANY APPLICATION.



SECTION VIEW

NOTES:

1. NO METAL LIDS WILL BE ACCEPTED.
2. NO MODIFICATIONS TO BOX ALLOWED. VALVE INSTALLED TO ALLOW METER TO BE ACCESSIBLE AND VALVE OPERATED WITH SERVICE VALVE KEY.
3. FOR RECYCLED APPLICATIONS USE PURPLE LID LABELED "RECYCLED WATER - DO NOT DRINK"
4. CONTRACTOR/DEVELOPER TO PROVIDE FITTINGS FOR METERS LESS THAN 1 INCH.

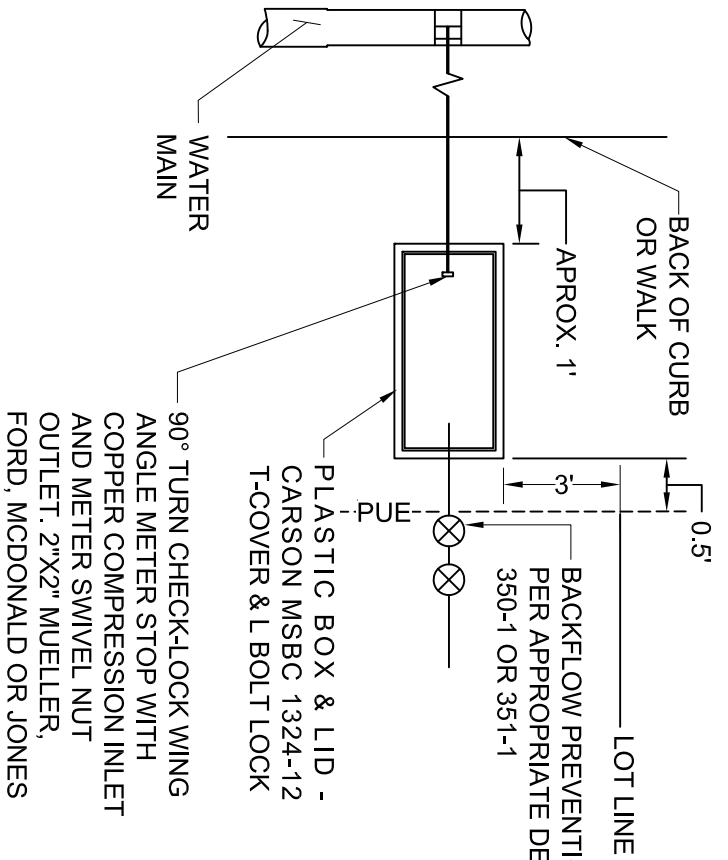
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3/4" Residential Single Water Service Installation

DETAIL NO.

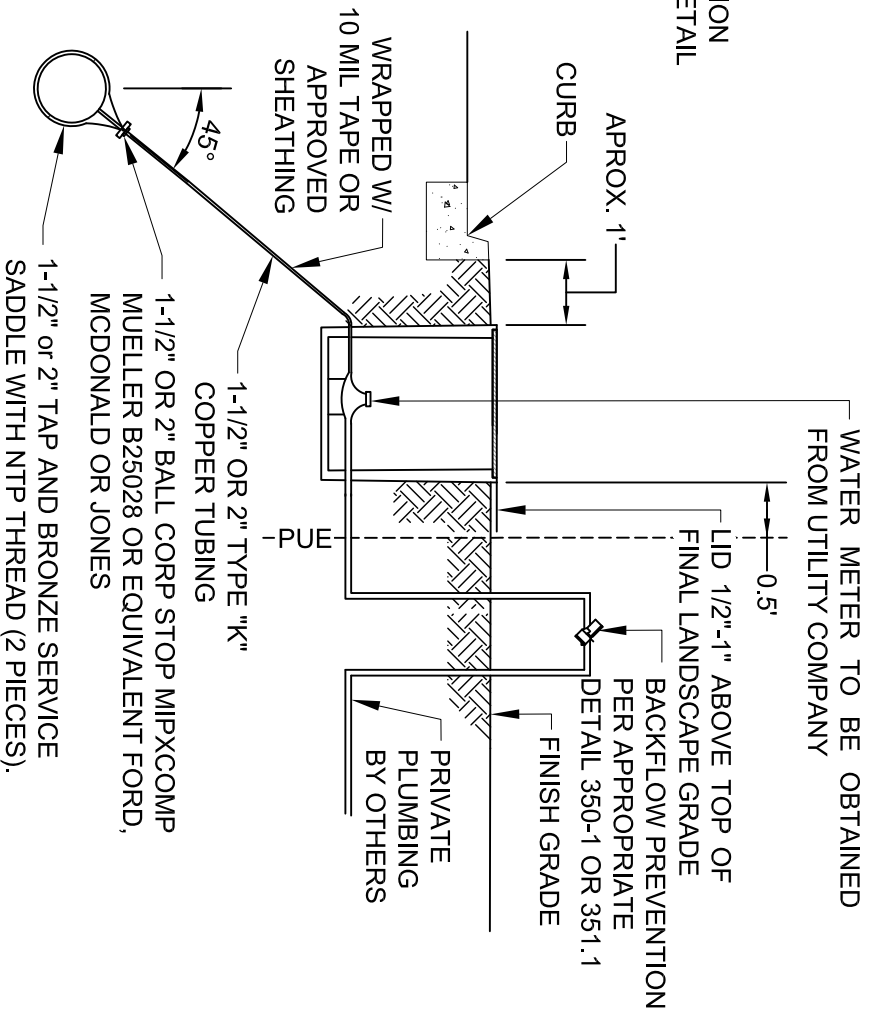
310-1



WATER SERVICE

NOTES:

1. METER BOXES IN TRAFFIC AREAS SHALL BE RATED FOR TRAFFIC.
2. NO MODIFICATIONS TO BOX ALLOWED. VALVE INSTALLED TO ALLOW METER TO BE ACCESSIBLE AND VALVE OPERATED WITH SERVICE VALVE KEY
3. DOUBLE STRAP SADDLES FOR DUCTILE IRON PIPE. WIDE STRAP OR DOUBLE BAND SADDLES FOR EXISTING C-900 PIPE. MUELLER, FORD, MCDONALD OR JONES SADDLES ARE ACCEPTED BY GLOBAL WATER RESOURCES.



SECTION VIEW

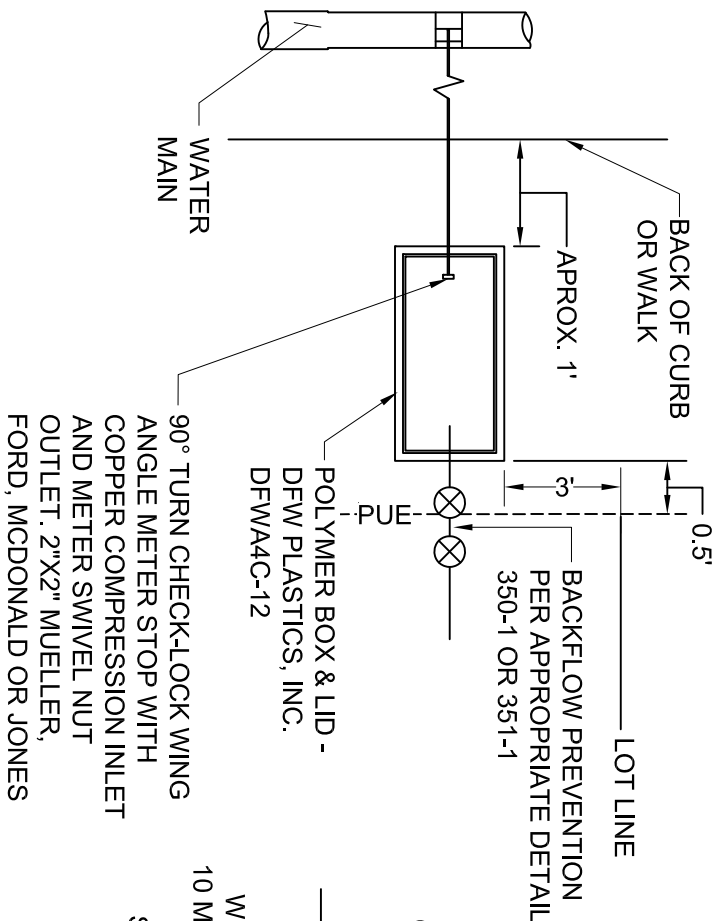


1" Commercial / Irrigation Water Service

DETAIL NO.

310-2

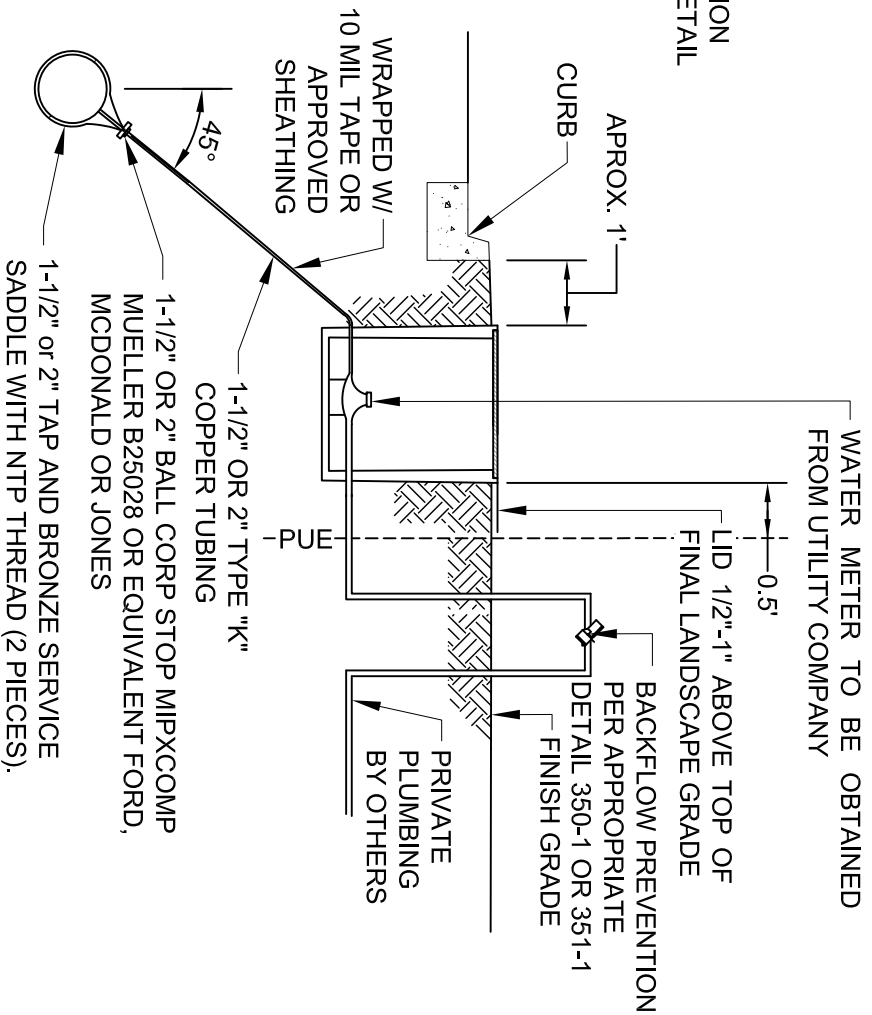
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WATER SERVICE

NOTES:

1. METER BOXES IN TRAFFIC AREAS SHALL BE RATED FOR TRAFFIC.
2. NO MODIFICATIONS TO BOX ALLOWED. VALVE INSTALLED TO ALLOW METER TO BE ACCESSIBLE AND VALVE OPERATED WITH SERVICE VALVE KEY
3. DOUBLE STRAP SADDLES FOR DUCTILE IRON PIPE. WIDE STRAP OR DOUBLE BAND SADDLES FOR C-900 PIPE. MUELLER, FORD, MCDONALD OR JONES SADDLES ARE ACCEPTED BY GLOBAL WATER RESOURCES.



SECTION VIEW



1 1/2" TO 6" Commercial / Irrigation Water Service

DETAIL NO.

310-3

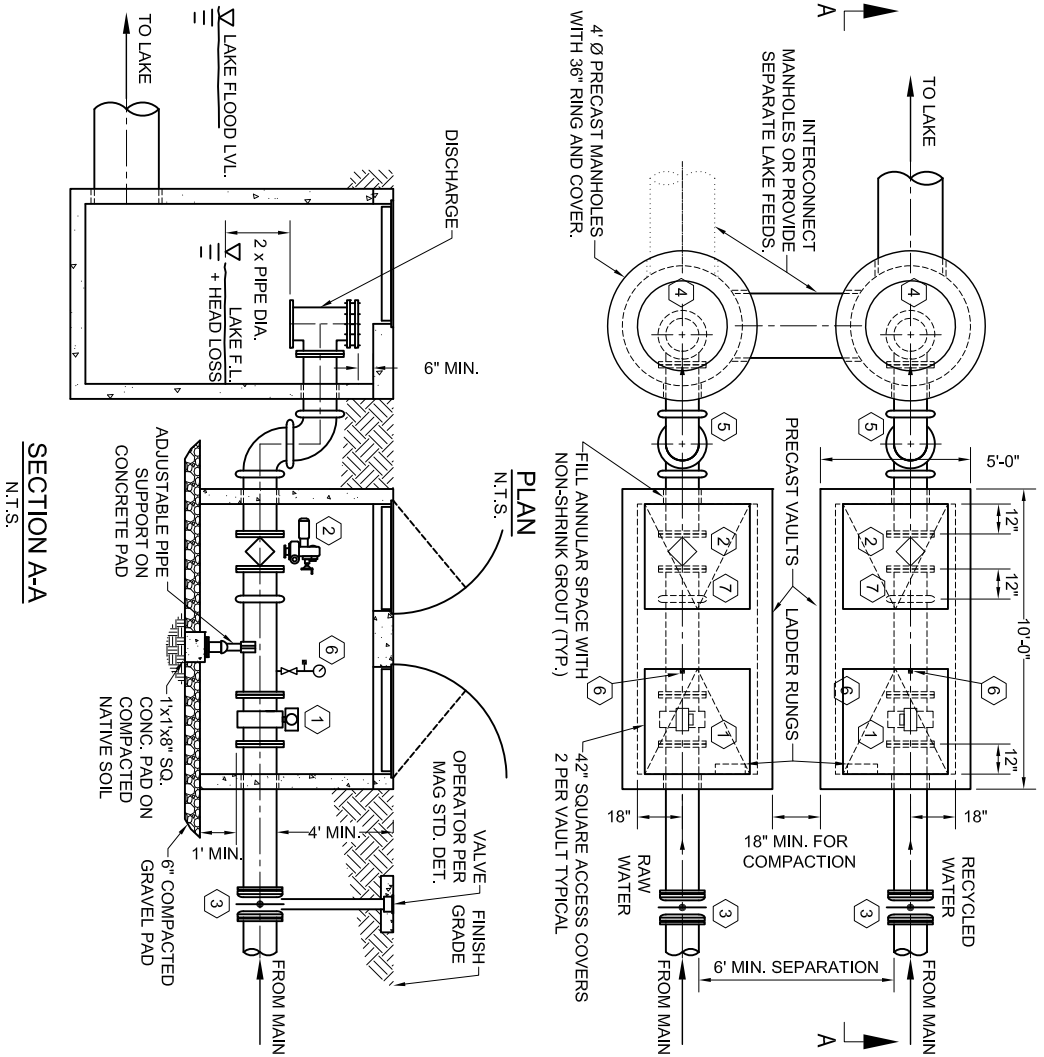
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Lake Inlet Control Vault

DETAIL NO.

321



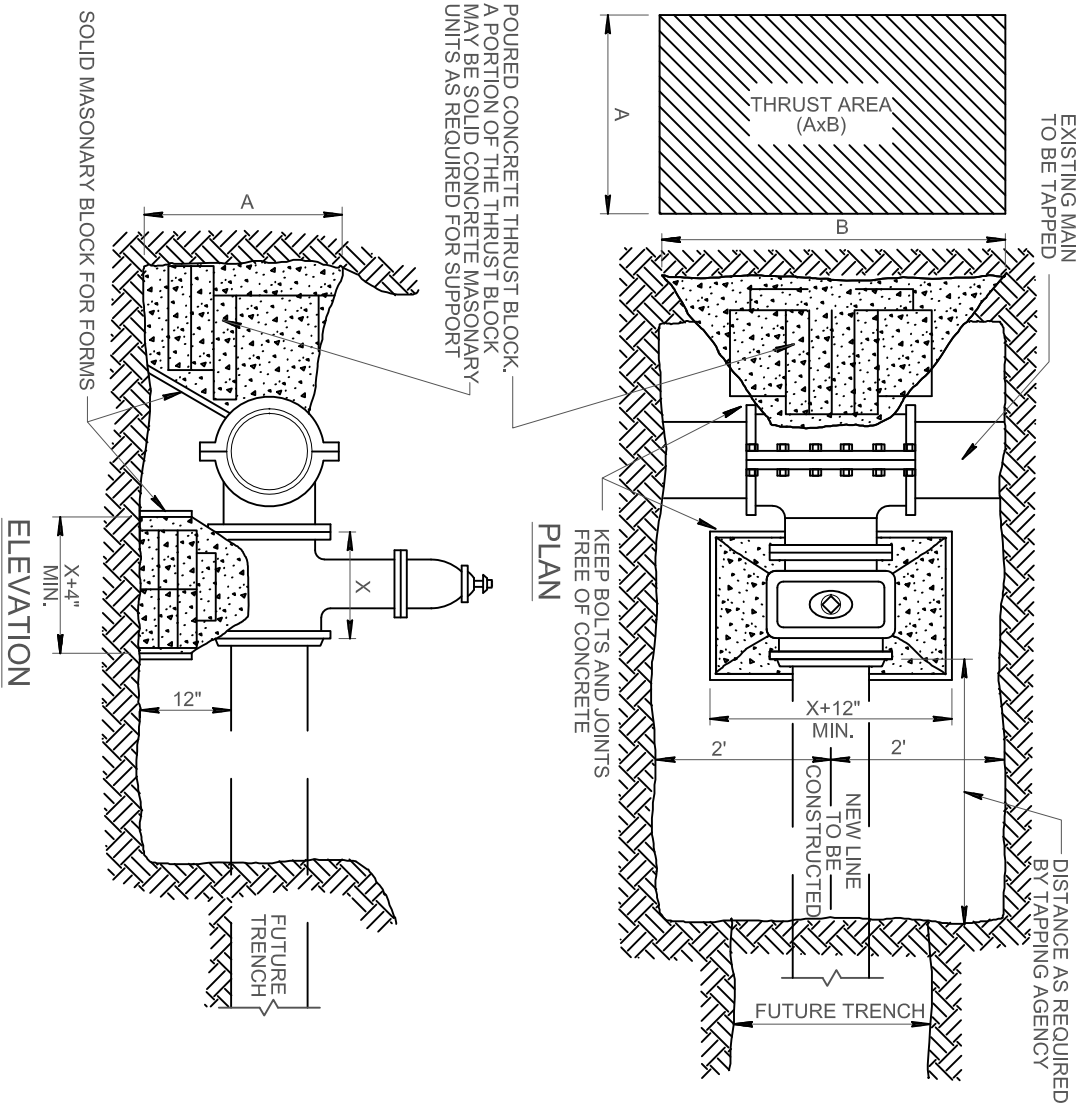
CONSTRUCTION NOTES:

- 1) INSTALL MAG FLOWMETER
- 2) INSTALL MOTORIZED PLUG VALVE WITH MODULATING CONTROL ACCEPTED BY GLOBAL WATER.
- 3) INSTALL M J X M J GATE VALVE PER MAG STD. DETAIL AND GLOBAL WATER SPECIFICATIONS.
- 4) INSTALL DISCHARGE TEE PER DETAIL 1.
- 5) INSTALL (2) 90° BENDS.
- 6) INSTALL ONE PRESSURE GAUGE AND ONE 4-20MA PRESSURE TRANSDUCER WITH ISOLATION. (0-60 PSIG)
- 7) INSTALL REPAIR SLEEVE

GENERAL NOTES:

- 1. THIS DETAIL IS FOR HIDDEN INSTALLATION. INSTALLATION CAN BE ABOVE GROUND IN AN SECURE ENCLOSED AREA WITH KEY ACCESS FOR GWR. INSTALLATION CAN BE WITHOUT ENCLOSURE WITH EQUIPMENT AND CONTROLS REQUIRING TAMPER LOCKING COVERS OR FEATURES. INSTALLATION AND EQUIPMENT REQUIREMENTS REMAIN UNCHANGED.
- 2. PIPE DIAMETER TO BE SPECIFIED BY IRRIGATION CONSULTANT AND ACCEPTED BY GLOBAL WATER.
- 3. ALL PIPING TO BE RESTRAINED JOINT DIP. BURIED PIPING TO BE POLY-WRAPPED PER THE FOLLOWING COLOR SCHEME:
A. RECLAIMED = PURPLE
B. RAW = BLACK
C. POTABLE = BLUE
- 4. PROVIDE BILCO TYPE ALUMINUM ACCESS COVER: DIAMOND PLATE, OPEN ASSIST, HOLD OPEN LOCK, SLAM LOCK, 90° OPENING, RECESSING DOOR HANDLES, BITUMINOUS COATING.
- 5. PROVIDE 4-20MA SUBMERSIBLE PRESSURE TRANSDUCER FOR LAKE LEVEL. SENSOR TO BE INSTALLED IN LAKE.
- 6. SET COVER OF VALVE OPERATOR BOX AND CONCRETE PAD 1/4" BELOW GRADE IN PAVING OR SHOULDER AND FLUSH WITH FINISH GRADE ELSEWHERE.
- 7. INSTALL SIGNAGE PER RECLAIMED WATER SIGNAGE GLOBAL WATER DETAIL 132.
- 8. PAINT VALVE AND EXPOSED PIPING IN VAULT PER THE FOLLOWING COLOR SCHEMES:
A. RECYCLED = PURPLE
B. RAW = BLACK
C. POTABLE = BLUE
- 9. VAULT ORIENTATIONS MAY BE ADJUSTED AS NEEDED FOR SITE CONDITIONS. PIPING SEPARATION MUST BE MAINTAINED.

01/2024



GENERAL NOTES:

1. TAPPING SLEEVE TO BE PLACED A MINIMUM OF 18" FROM ANY BELL COUPLING, VALVE, FITTING OR OTHER OBSTRUCTION.
2. CONTRACTOR SHALL EXCAVATE AS SHOWN AND SHALL SET TAPPING SLEEVE AND VALVE AND TIGHTEN ALL BOLTS PRIOR TO THE PRESSURE TEST.
3. ALL TAPPING SLEEVES AND VALVES MUST BE PRESSURE TESTED PRIOR TO CONCRETE/BLOCKING OR TAPPING. THE TEST MUST BE WITNESSED AND ACCEPTED BY THE INSPECTOR.
4. CONCRETE/BLOCKING ARE TO EXTEND TO UNDISTURBED GROUND AND BE INSTALLED BEFORE THE TAP IS MADE. ALL FLANGE BOLTS SHALL BE FREE AND CLEAR OF CONCRETE.
5. CONCRETE THRUST BLOCKS SHALL BE MINIMUM CLASS 'B' PER SECT. 725, NORMALLY CURE TIME FOR CONCRETE IS 24 HOURS BEFORE BACKFILLING.
6. THIS DETAIL COVERS TAPPING SLEEVES 4" THROUGH 26" IN SIZE ON DUCTILE IRON, CAST IRON AND CEMENT PIPE. ANY OTHER SIZE OR TYPE OF PIPE WILL REQUIRE A SEPARATE SUBMITTAL AND ACCEPTANCE BY THE ENGINEER AND GLOBAL WATER COMPANY.

SIZE OF PIPE BEING CONNECTED	MINIMUM THRUST AREA REQUIRED (EQUALS (AxB) SQUARE FEET)
4" AND LESS	3
6"	4
8"	6
10"	9
12"	13
16"	23

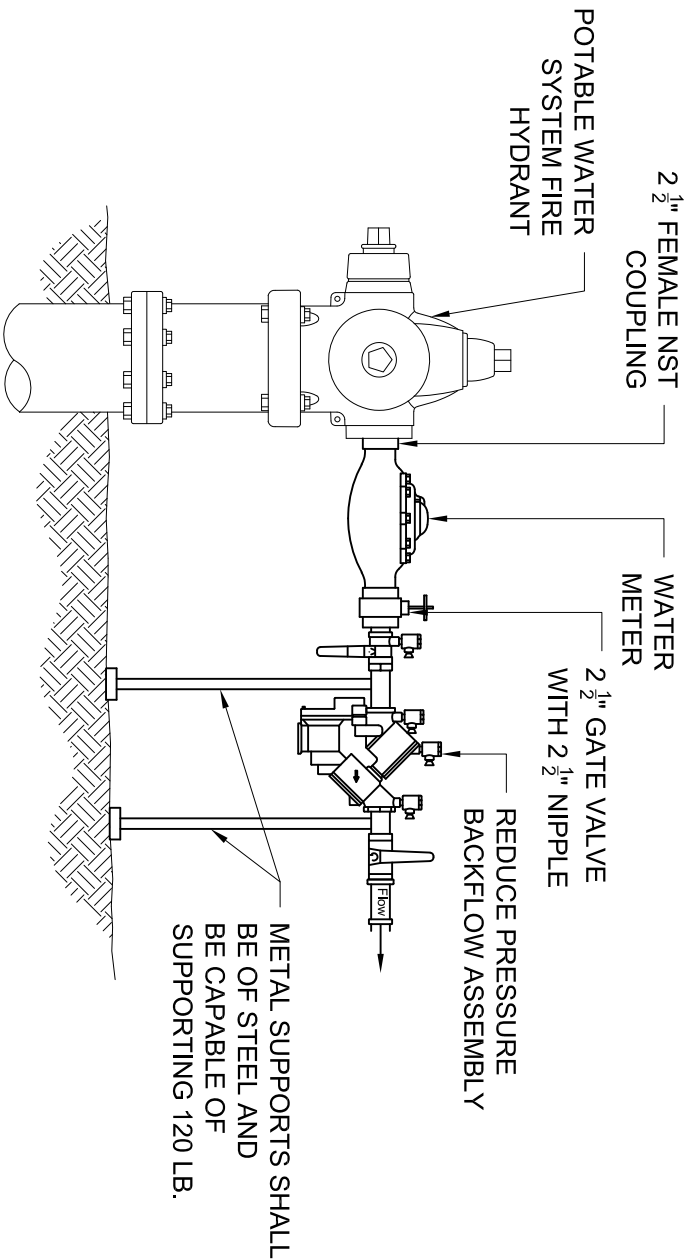


Installing Tapping Sleeves and Valves

DETAIL NO.

340

01/2024



GENERAL NOTES

1. BACKFLOW ASSEMBLY SHALL BE TESTED BY A CERTIFIED BACKFLOW ASSEMBLY TESTER BEFORE USING AND ALSO EACH TIME THE METER IS MOVED. ALL TEST RESULTS MUST BE SUBMITTED TO UTILITY COMPANY WITHIN 24 HOURS OF SETTING THE METER.
2. USER IS LIABLE FOR ANY DAMAGE TO THE HYDRANT AND ALL ATTACHMENTS TO THE HYDRANT.
3. USER MUST USE GATE VALVE TO CONTROL FLOW OF WATER, NOT THE HYDRANT VALVE ASSEMBLY.
4. TEMPORARY METER MAY BE CONNECTED TO A BLOW OFF CONNECTION WHEN ACCEPTED BY GLOBAL WATER.
5. CONTRACTOR CANNOT MOVE A TEMPORARY HYDRANT METER. METER IS TO BE MOVED BY A GWR TECHNICIAN ONLY. IF HYDRANT METER IS MOVED, A NEW BACKFLOW CERTIFICATION IS REQUIRED.

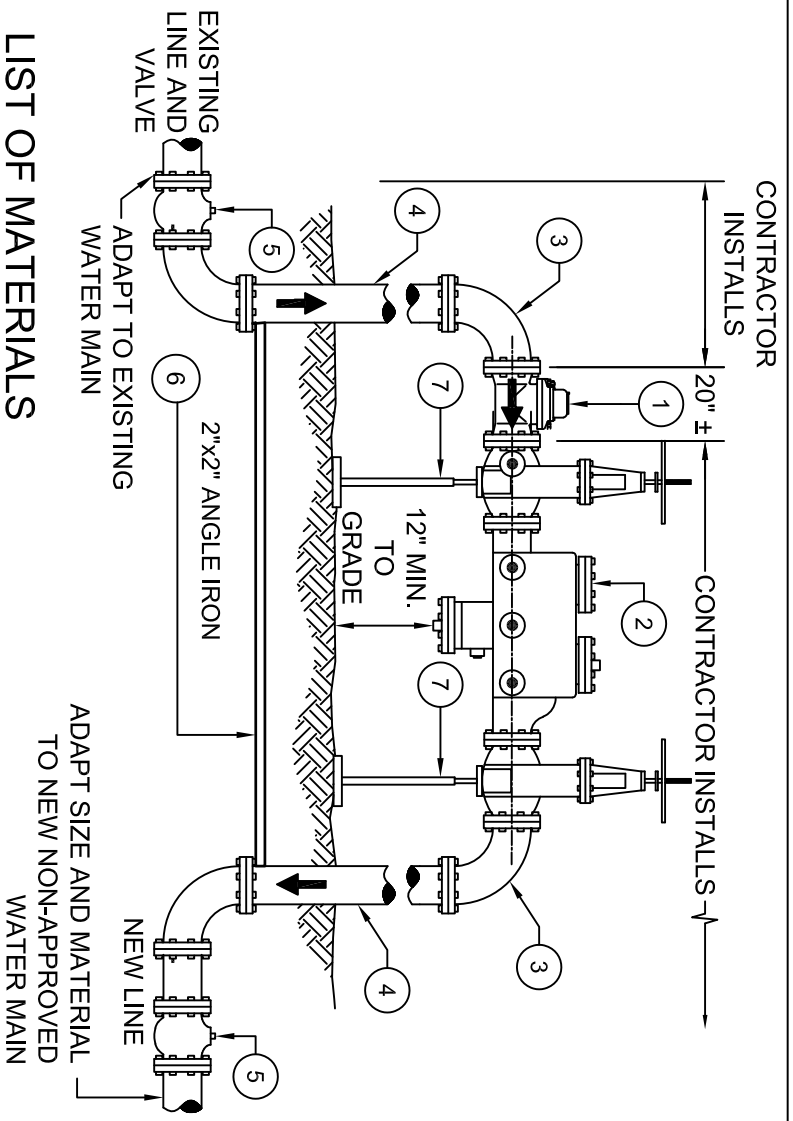
01/2024

DETAIL NO.

344-1





Temporary Hydrant Meter

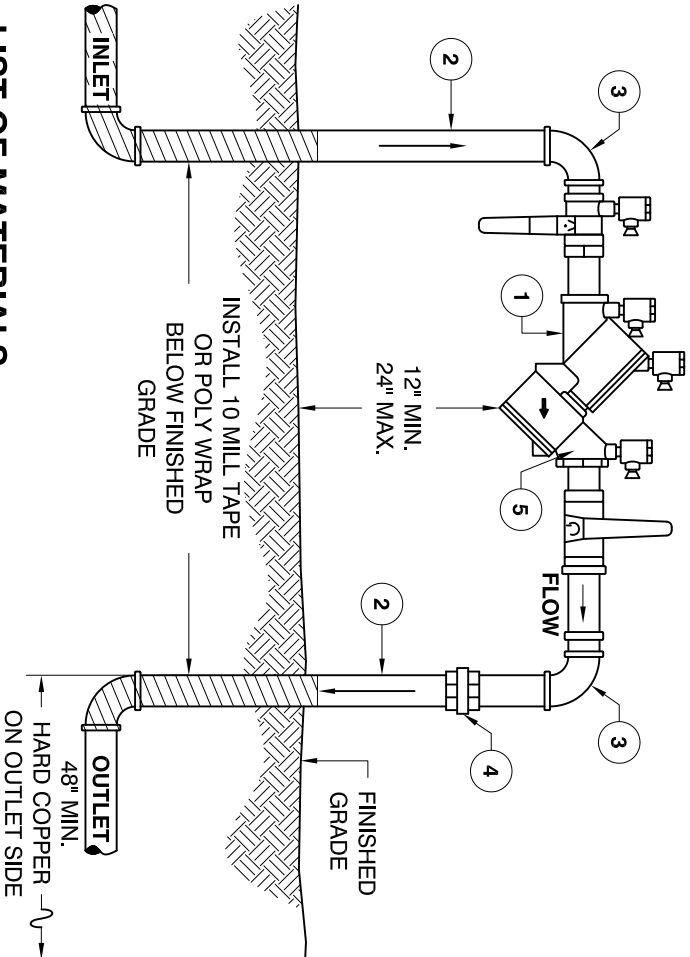


- GENERAL NOTES**
1. CONTRACTOR TO SUPPLY AND INSTALL ABOVE GROUND PIPING AND FITTINGS TO ACCOMMODATE METER, BACKFLOW PREVENTER AND 2 - 90° BENDS.
 2. CONTRACTOR TO REMOVE PIPING AND FITTINGS AFTER ACCEPTANCE OF NEW WATER MAIN AND COMPLETE CONNECTION AS PER MAG STANDARDS.
 3. BACKFLOW ASSEMBLIES MUST HAVE SEAL APPROVAL FROM THE U.S.C. & F.C.C.C.H.R. BACKFLOW ASSEMBLIES INSTALLED ON FIRE SUPPRESSION SYSTEMS MUST ALSO HAVE APPROVAL FROM UNDERWRITERS LABORATORIES AND/OR FACTORY MUTUAL RESEARCH CORPORATION TO BE ACCEPTED BY GLOBAL WATER.
 4. REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLIES MUST BE TESTED BY A CERTIFIED TESTER AFTER INSTALLATION THAT IS RECOGNIZED BY THE UTILITY COMPANY. ALL TEST RESULTS MUST BE SUBMITTED TO UTILITY COMPANY WITHIN 24 HOURS OF SETTING THE METER.

LIST OF MATERIALS

1. TURBINE CONSTRUCTION METER WITH 3" FLANGES, SUPPLIED BY UTILITY COMPANY.
2. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY, SUPPLIED BY UTILITY COMPANY.
3. FLANGED DUCTILE IRON 90° BEND, SUPPLIED BY CONTRACTOR.
4. DUCTILE IRON SPOOL.
5. LINE VALVES SHALL BE WITHIN A 20' MAXIMUM DISTANCE UPSTREAM AND DOWNSTREAM OF FLOW METER OR AS ACCEPTED BY THE UTILITY COMPANY, AND SHALL REMAIN IN-PLACE AFTER REMOVAL OF TEMPORARY METER.
6. 1 EACH 2"x 2"x 1/4" ANGLE IRON, COATING TYPE A.H.D. ASPHALTIC PRIMER 719(A) ON BACKSIDE.
7. ADJUSTABLE METAL PIPE SUPPORT (REQUIRED).
8. INQUIRE ABOUT AVAILABLE SIZES.

	<p>Temporary Construction Meter</p>
	<p>344-2</p>
<p>DETAIL NO.</p>	<p>01/2024</p>



LIST OF MATERIALS

- 1 APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY, BALL VALVES INCLUDED.
- 2 PIPE SPOOL, TYPE "L" HARD COPPER, 3/4" THRU 2".
- 3 90° BEND, COPPER, 3/4" THRU 2".
- 4 PIPE UNION, BRASS OR COPPER.
- 5 TEST COCKS WITH BRASS PLUGS OR ADAPTORS WITH CAPS INSTALLED. (4 REQUIRED)

GENERAL NOTES

- 1. BACKFLOW ASSEMBLIES MUST BE TESTED BY A CERTIFIED TESTER. ALL TEST RESULTS MUST BE SUBMITTED TO UTILITY COMPANY WITHIN 24 HOURS OF SETTING THE METER.
- 2. BACKFLOW PREVENTERS SHALL BE PROTECTED WITH TAN COLORED ENCLOSURES BY QUALITY ENCLOSURE OR ACCEPTED EQUAL
- 3. BACKFLOW PREVENTERS ENCLOSED BY SCREENING WALLS SHALL MAINTAIN A 24 INCH CLEARANCE AROUND THE ASSEMBLY.
- 4. BACKFLOW PREVENTERS SHALL BE INSTALLED OUTSIDE OF BUILDING. INTERNAL INSTALLATION REQUIRES PRIOR ACCEPTANCE BY GLOBAL WATER.
- 5. PIPE TO BE PAINTED TO IDENTIFY SERVICE USE. POTABLE - BLUE. RECYCLED - PURPLE. FIRE - RED AFTER BACKFLOW PREVENTER.
- 6. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
- 7. CALL FOR UNDERGROUND INSPECTION BEFORE BACKFILLING TRENCH.
- 8. BACKFLOW ASSEMBLIES MUST HAVE SEAL APPROVAL FROM THE U.S.C. & F.C.C.C.H.R BACKFLOW ASSEMBLIES INSTALLED ON FIRE SUPPRESSION SYSTEMS MUST ALSO HAVE APPROVAL FROM UNDERWRITERS LABORATORIES AND/OR FACTORY MUTUAL RESEARCH CORPORATION TO BE ACCEPTED BY GLOBAL WATER.
- 9. INLET SHALL BE APPROXIMATELY 6 INCHES AFTER THE WATER METER ON THE COPPER INLET SIDE.
- 10. INSPECTION REPORTS MUST BE SUBMITTED ONLINE AT WWW.GWRESOURCES.COM OR TO BACKFLOW@GWRESOURCES.COM

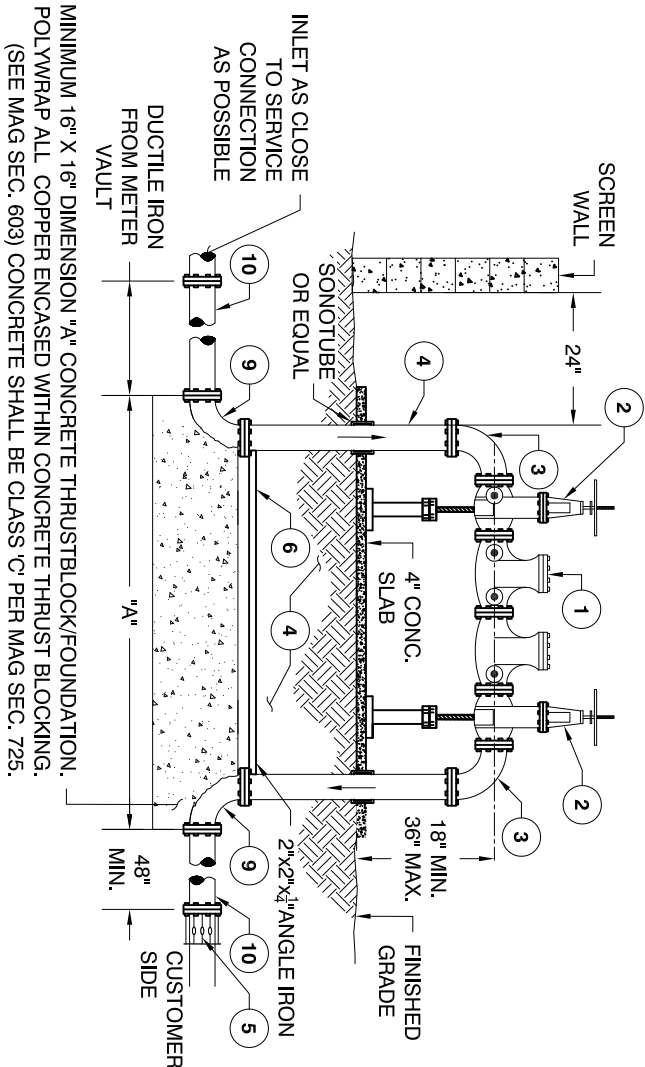


Double Check Backflow Preventer (3/4" - 2")

DETAIL NO.

350-1

01/2024



MINIMUM 16' X 16" DIMENSION 1/4" CONCRETE THRUSTBLOCK/FOUNDATION.
 POLYWRAP ALL COPPER ENCASED WITH IN CONCRETE THRUST BLOCKING.
 (SEE MAG SEC. 603) CONCRETE SHALL BE CLASS 'C' PER MAG SEC. 725.

LIST OF MATERIALS

- 1 APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY.
- 2 RESILIENT SEATED GATE VALVE, O.S. & Y. (FIRE LINE CONNECTION) N.R.S. (NON FIRE LINE)
- 3 90° BEND FLANGED D.I.P. 3" THRU 10" HORIZONTAL.
- 4 PIPE SPOOL, FLANGED D.I.P. 3" THRU 10" FLANGED ADAPTER (WHEN REQUIRED).
- 6 EACH 2"x2"x1/4" ANGLE IRON, COATING TYPE A.H.D. ASPHALTIC PRIMER 719(A). SECURED VIA FITTING BOLT ON BACKSIDE.
- 7 TEST COCKS WITH BRASS PLUGS OR ADAPTORS WITH CAPS INSTALLED. (4 REQUIRED).
- 8 ADJUSTABLE METAL PIPE SUPPORTS.
- 9 FLANGE BY MECHANICAL JOINT MAY BE USED.
- 10 MEGA LUG OR APPROVED EQUAL MAY BE USED ON UNDERGROUND JOINTS.

GENERAL NOTES

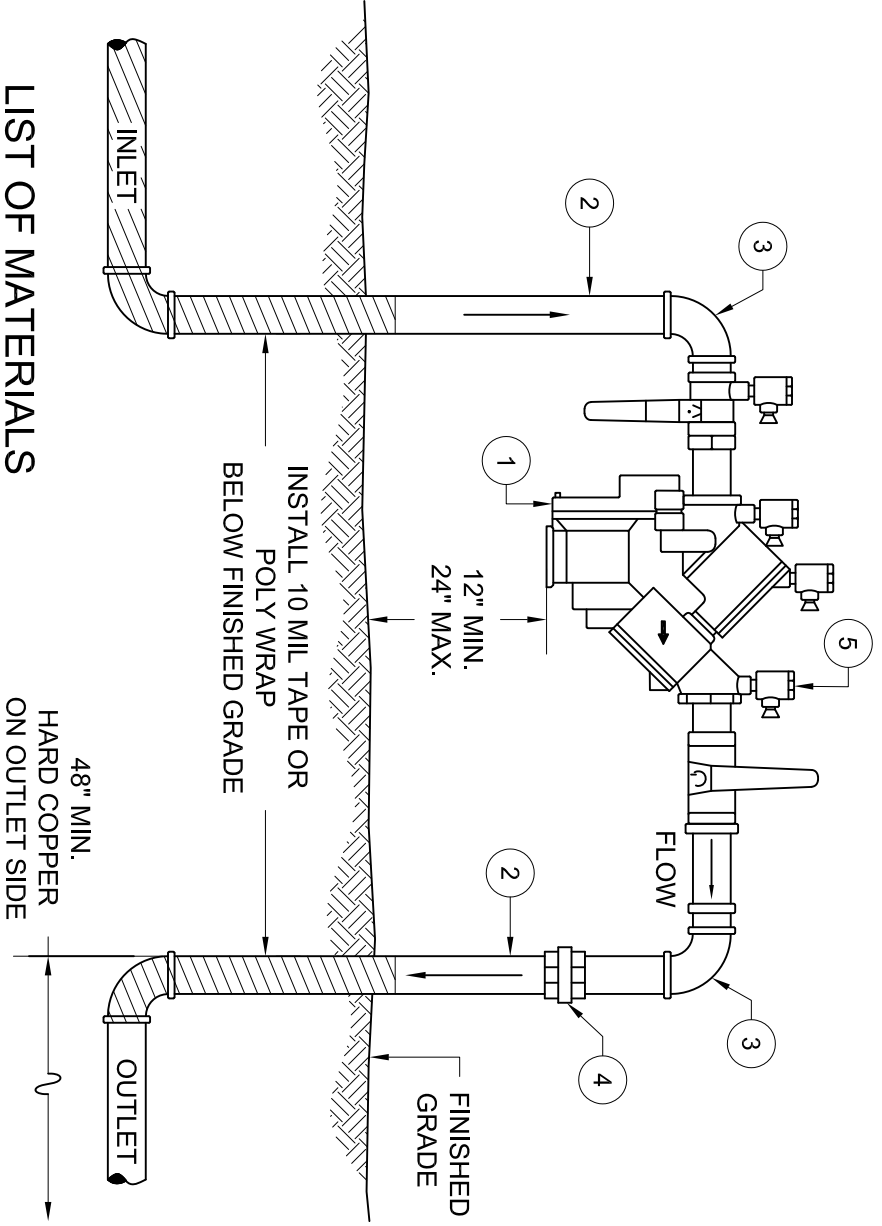
- 1. BACKFLOW ASSEMBLIES MUST BE TESTED BY A CERTIFIED TESTER. ALL TEST RESULTS MUST BE SUBMITTED TO UTILITY COMPANY WITHIN 24 HOURS OF SETTING THE METER.
- 2. BACKFLOW PREVENTERS SHALL BE PROTECTED WITH ASSEMBLY ENCLOSURE AS DIRECTED BY UTILITY COMPANY.
- 3. BACKFLOW PREVENTERS ENCLOSED BY SCREENING WALLS SHALL MAINTAIN A 24 INCH CLEARANCE AROUND THE ASSEMBLY.
- 4. PAINT PIPE TO IDENTIFY SERVICE. POTABLE - BLUE. RECYCLED - PURPLE. FIRE - RED AFTER BACKFLOW PREVENTER.
- 5. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
- 6. CALL FOR UNDERGROUND INSPECTION BEFORE BACKFILLING TRENCH.
- 7. BACKFLOW PREVENTERS SHALL BE INSTALLED OUTSIDE OF BUILDING. INTERNAL INSTALLATION REQUIRES PRIOR ACCEPTANCE BY GLOBAL WATER.
- 8. VERTICAL INSTALLATIONS OF ASSEMBLIES ON FIRE SPRINKLER SYSTEMS ARE ALLOWED USING ASSEMBLIES APPROVED FOR USE IN THE VERTICAL POSITION ON FIRE SYSTEMS.
- 9. BACKFLOW ASSEMBLIES MUST HAVE SEAL APPROVAL FROM THE U.S.C. & F.C.C.C.H.R BACKFLOW ASSEMBLIES INSTALLED ON FIRE SUPPRESSION SYSTEMS MUST ALSO HAVE APPROVAL FROM UNDERWRITERS LABORATORIES AND/OR FACTORY MUTUAL RESEARCH CORPORATION TO BE ACCEPTED BY GLOBAL WATER.
- 10. CONCRETE SLAB MUST BE MINIMUM 24" AROUND THE ASSEMBLY.
- 11. INLET SHALL BE APPROXIMATELY 6 INCHES AFTER THE WATER METER ON THE INLET SIDE.



Double Check Backflow Preventer (3" - 10")

DETAIL NO.
350-2

01/2024



LIST OF MATERIALS

- 1 APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY, BALL VALVES INCLUDED.
- 2 PIPE SPOOL, TYPE "L" HARD COPPER, 3/4" THRU 2".
- 3 90° BEND, COPPER, 3/4" THRU 2".
- 4 PIPE UNION, BRASS OR COPPER.
- 5 TEST COCKS WITH BRASS PLUGS OR ADAPTORS WITH CAPS INSTALLED. (4 REQUIRED)

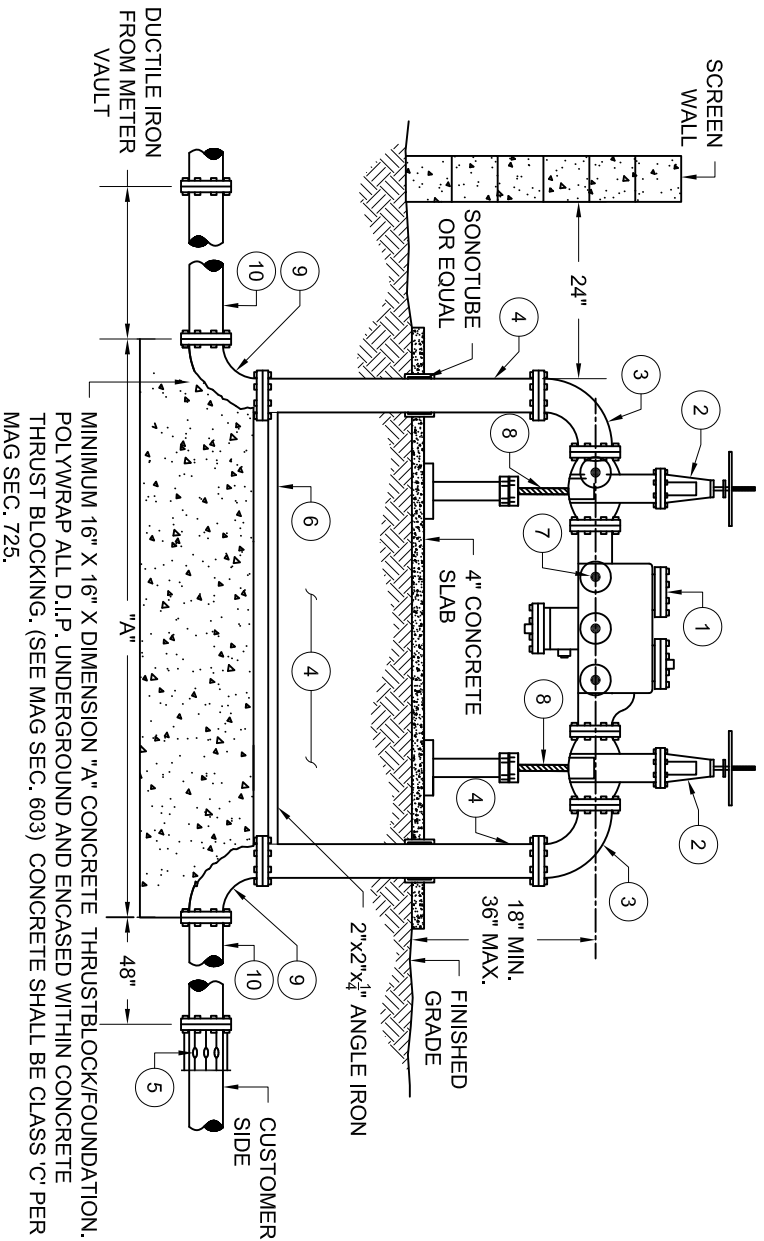
GENERAL NOTES

- 1. BACKFLOW ASSEMBLIES MUST BE TESTED BY A CERTIFIED TESTER. ALL TEST RESULTS MUST BE SUBMITTED TO UTILITY COMPANY WITHIN 24 HOURS OF SETTING THE METER.
- 2. BACKFLOW PREVENTERS SHALL BE PROTECTED WITH TAN QUALITY ENCLOSURES OR ACCEPTED EQUAL.
- 3. BACKFLOW PREVENTERS ENCLOSED BY SCREENING WALLS SHALL MAINTAIN A 24 INCH CLEARANCE AROUND THE ASSEMBLY.
- 4. BACKFLOW PREVENTERS SHALL BE INSTALLED OUTSIDE OF BUILDING. INTERNAL INSTALLATION REQUIRES PRIOR ACCEPTANCE BY GLOBAL WATER.
- 5. PAINT PIPE TO IDENTIFY SERVICE. POTABLE - BLUE; RECYCLED - PURPLE; FIRE - RED AFTER BACKFLOW PREVENTER.
- 6. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
- 7. CALL FOR UNDERGROUND INSPECTION BEFORE BACKFILLING TRENCH.
- 8. APPROVALS FOR BACKFLOW ASSEMBLIES MUST HAVE SEAL APPROVAL FROM THE U.S.C. & F.C.C.H.R TO BE ACCEPTED BY GLOBAL WATER.
- 9. INLET SHALL BE APPROXIMATELY 6 INCHES AFTER THE WATER METER ON THE COPPER INLET SIDE.
- 10. REPORTS MUST BE SUBMITTED ONLINE AT WWW.GWRESOURCES.COM OR TO BACKFLOW@GWRESOURCES.COM 01/2024



Reduced Pressure Backflow Preventer (3/4" - 2")

DETAIL NO.
351-1



LIST OF MATERIALS

- 1 APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY.
- 2 RESILIENT SEATED GATE VALVE, O.S. & Y. (FIRE LINE CONNECTION), N.R.S. (NON FIRE LINE)
- 3 90° BEND FLANGED D.I.P. 3" THRU 10" HORIZONTAL.
- 4 PIPE SPOOL, FLANGED D.I.P. 3" THRU 10".
- 5 FLANGED ADAPTER (WHEN REQUIRED).
- 6 1 EACH 2"x 2x 1/4" ANGLE IRON COATING TYPE A.H.D. ASPHALTIC PRIMER 719(A). SECURED VIA FITTING BOLT ON THE BACKSIDE.
- 7 TEST COCKS WITH BRASS PLUGS OR ADAPTORS WITH CAPS INSTALLED. (4 REQUIRED)
- 8 ADJUSTABLE METAL PIPE SUPPORTS.
- 9 FLANGE BY MECHANICAL JOINT MAY BE USED.
- 10 MEGA LUG OR APPROVED EQUAL MAY BE USED ON UNDERGROUND JOINTS.

GENERAL NOTES

1. BACKFLOW ASSEMBLIES MUST BE TESTED BY A CERTIFIED TESTER. ALL TEST RESULTS MUST BE SUBMITTED TO UTILITY COMPANY WITHIN 24 HOURS OF SETTING THE METER.
2. BACKFLOW PREVENTERS ENCLOSED BY SCREENING WALLS SHALL MAINTAIN A 24 INCH CLEARANCE AROUND THE ASSEMBLY.
3. BACKFLOW PREVENTERS SHALL BE INSTALLED OUTSIDE OF BUILDING. INTERNAL INSTALLATION REQUIRES PRIOR ACCEPTANCE BY GLOBAL WATER.
4. PAINT PIPE TO IDENTIFY SERVICE: POTABLE - BLUE; RECYCLED - PURPLE; FIRE - RED AFTER BACKFLOW PREVENTER.
5. FINISHED GRADE UNDERNEATH THE BACKFLOW PREVENTER SHALL BE AT 95% COMPACTION.
6. CALL FOR UNDERGROUND INSPECTION BEFORE BACKFILLING TRENCH.
7. APPROVALS FOR BACKFLOW ASSEMBLIES MUST HAVE SEAL APPROVAL FROM THE U.S.C. & F.C.C.H.R.
8. CONCRETE SLAB MUST BE MINIMUM 24" AROUND THE ASSEMBLY.
9. REPORTS MUST BE SUBMITTED ONLINE AT WWW.GWRESOURCES.COM OR TO BACKFLOW@GWRESOURCES.COM

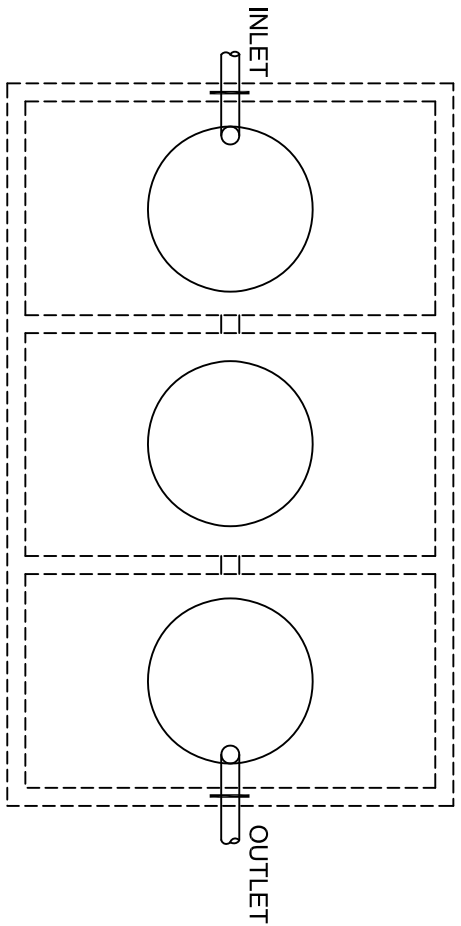


Reduced Pressure Backflow Preventer (3" - 10")

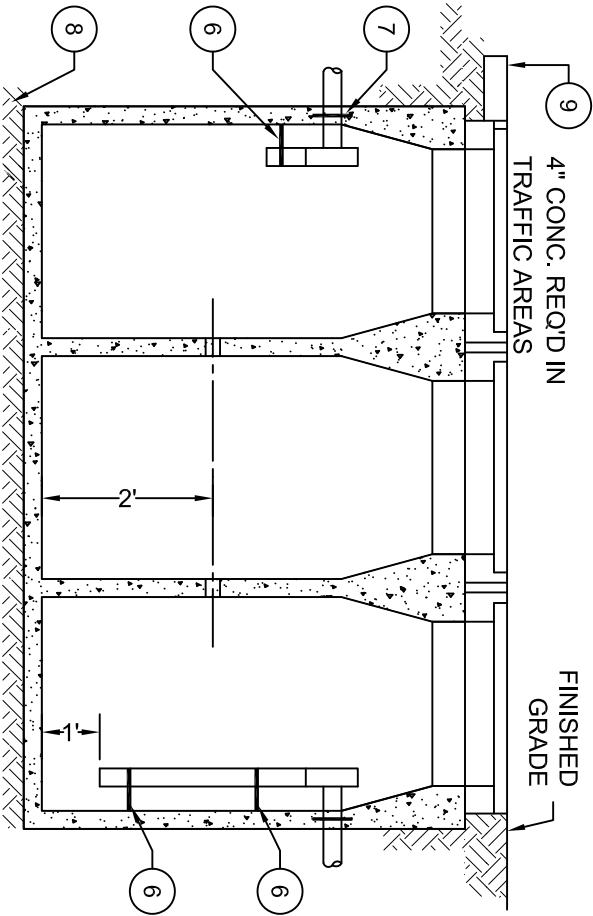
DETAIL NO.

351-2

01/2024



PLAN



SECTION

GENERAL NOTES:

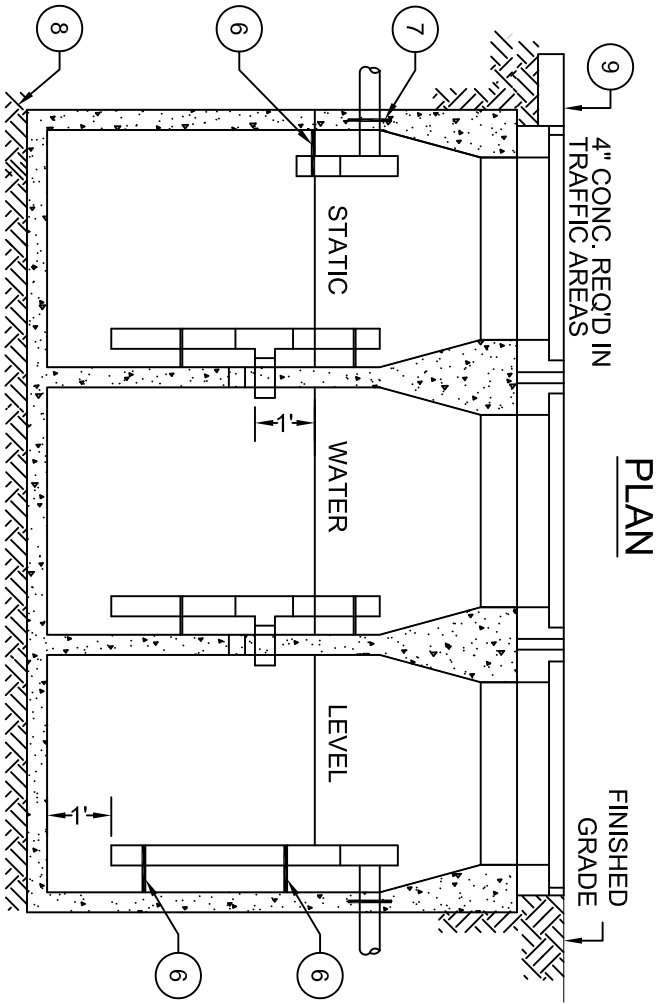
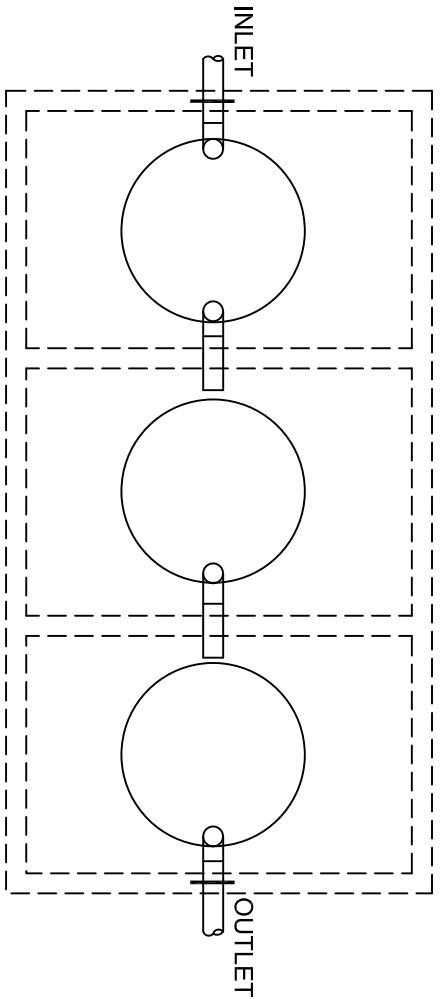
1. PRE-MANUFACTURED TANK AND MANHOLE FRAME AND COVER SHALL BE PER ENGINEER.
2. ALL INTERCEPTORS SHALL BE LOCATED ON PRIVATE PROPERTY.
3. LOCATE INTERCEPTORS OUTSIDE OF BUILDINGS IN A LOCATION ACCESSIBLE TO WASTE HAULER.
4. TANK CAPACITY TO BE DETERMINED AT THE TIME OF PERMIT APPLICATION. ENGINEER SHALL VERIFY SIZE OF INTERCEPTOR FOR PROPOSED AND FUTURE CONNECTIONS.
5. ALTERNATE DESIGN BY A REGISTERED ENGINEER MAY BE ACCEPTED BY GLOBAL WATER RESOURCES.
6. STAINLESS STEEL CLAMP AND BOLTS 3' ON-CENTER.
7. A WATER STOP CONSISTING OF A STANDARD MANHOLE ADAPTER GASKET SHALL BE GROUTED INTO THE INTERCEPTOR WALL NEAR THE CENTER OF THE INLET AND OUTLET WALLS.
8. PLACE 3" MINIMUM BEDDING MATERIAL PER MAG SECTION 601.
9. CONCRETE SLAB TO EXTEND 24" MINIMUM BEYOND ALL SIDES OF TANK.
10. INSTALL INTERCEPTOR PER MANUFACTURER'S SPECIFICATIONS.
11. PIPE FITTINGS TO BE 4" SCH-40 PVC.
12. ALL SURFACE WATER MUST DRAIN AWAY FROM MANHOLES.
13. ALL WASTE MUST ENTER THROUGH INLET FITTINGS ONLY.
14. PROTECTIVE COATING SHALL COVER ALL INTERNAL SURFACES AND MEET ASTM-309 CRITERIA.
15. ALL GREASE INTERCEPTORS REQUIRE SUBMITTAL AND ACCEPTANCE BY GLOBAL WATER. 01/2024



3 - Stage Grease Interceptor

DETAIL NO.

355-1



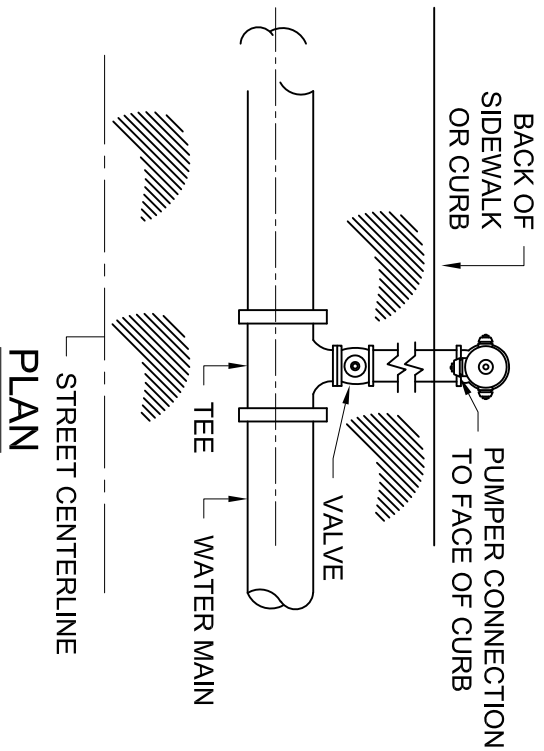
GENERAL NOTES:

1. PRE-MANUFACTURED TANK AND MANHOLE FRAME AND COVER SHALL BE PER ENGINEER.
2. ALL INTERCEPTORS SHALL BE LOCATED ON PRIVATE PROPERTY.
3. LOCATE INTERCEPTORS OUTSIDE OF BUILDINGS IN A LOCATION ACCESSIBLE TO WASTE HAULER.
4. TANK CAPACITY TO BE DETERMINED AT THE TIME OF PERMIT APPLICATION; ENGINEER SHALL VERIFY SIZE OF INTERCEPTOR FOR PROPOSED AND FUTURE CONNECTIONS.
5. ALTERNATE DESIGN BY A REGISTERED ENGINEER MAY BE ACCEPTED BY GLOBAL WATER RESOURCES.
6. STAINLESS STEEL CLAMP AND BOLTS 3" ON-CENTER.
7. A WATER STOP CONSISTING OF A STANDARD MANHOLE ADAPTER GASKET SHALL BE GROUTED INTO THE INTERCEPTOR WALL NEAR THE CENTER OF THE INLET AND OUTLET WALLS.
8. PLACE 3" MINIMUM BEDDING MATERIAL PER MAG SECTION 601.
9. CONCRETE SLAB TO EXTEND 24" MINIMUM BEYOND ALL SIDES OF TANK.
10. INSTALL INTERCEPTOR PER MANUFACTURER'S SPECIFICATIONS.
11. PIPE FITTINGS TO BE 4" SCH-40 PVC.
12. ALL SURFACE WATER MUST DRAIN AWAY FROM MANHOLES.
13. ALL WASTE MUST ENTER THROUGH INLET FITTINGS ONLY.
14. PROTECTIVE COATING SHALL COVER ALL INTERNAL SURFACES AND MEET ASTM-309 CRITERIA.
15. ALL GREASE INTERCEPTORS REQUIRE SUBMITTAL AND ACCEPTANCE BY GLOBAL WATER. 01/2024



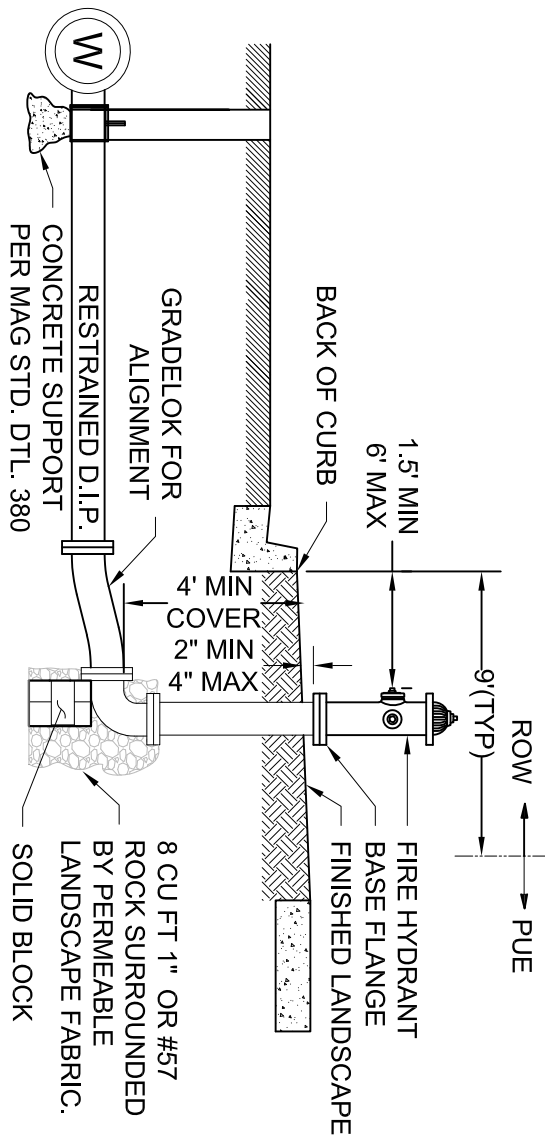
3 - Stage Sand & Grease Interceptor

DETAIL NO.
355-2

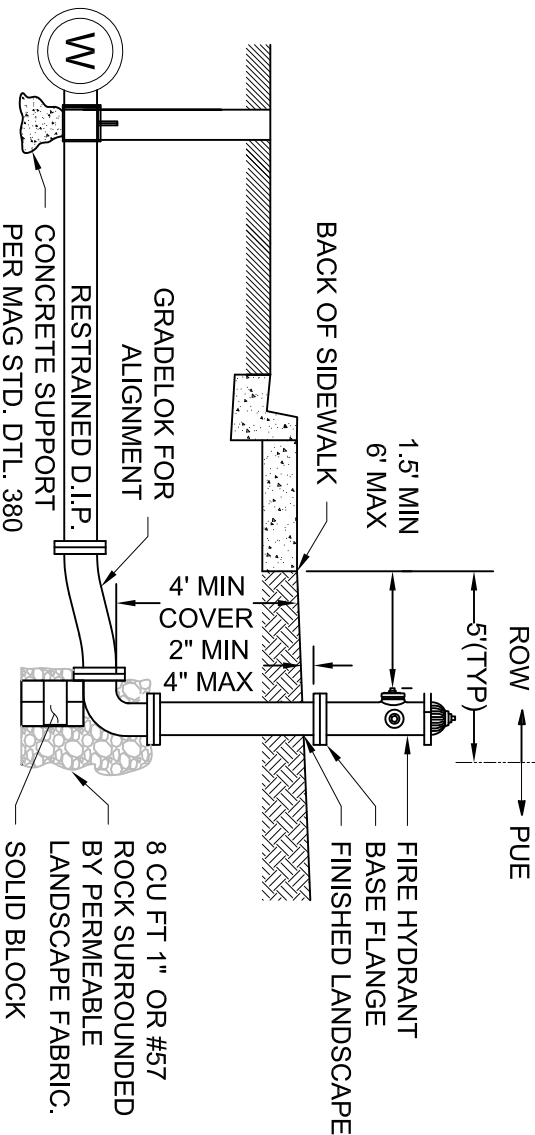


GENERAL NOTES:

1. ALL VALVE BOX COVERS SHALL BE LEVEL WITH THE ADJACENT TOP OF CURB OR BACK OF SIDEWALK. NO VALVES SHALL BE LOCATED IN SIDEWALKS.
2. ALL FIRE HYDRANTS SHALL BE CLOW MEDALLION OR MUELLER SUPER CENTURION IN SPECIFIED AREAS WITH ONE 5-1/4" MAIN VALVE OPENING, ONE 4-1/2" NST PUMPER CONNECTION, AND TWO 2-1/2" NST HOSE CONNECTIONS. NO SUBSTITUTIONS ALLOWED. HYDRANTS SHALL HAVE POLYURETHANE LINING ABOVE ELBOW.
3. INSTALL THRUST BLOCKING PER MAG.
4. INSTALL POLYWRAP FROM ABOVE WEEP HOLES TO ABOVE GROUND AS WELL AS ALL PIPING BELOW GROUND INCLUDING ELBOW.
5. RESTRAIN ALL JOINTS AND FITTINGS PER MAG 303.
6. ALL HYDRANTS MUST HAVE BREAK OFF RING.



SIDEWALK BEHIND - DETAIL

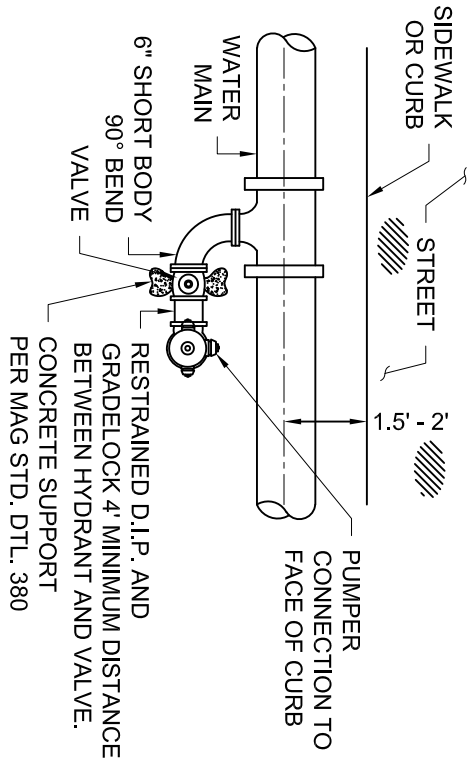


WITH SIDEWALK - DETAIL 01/2024

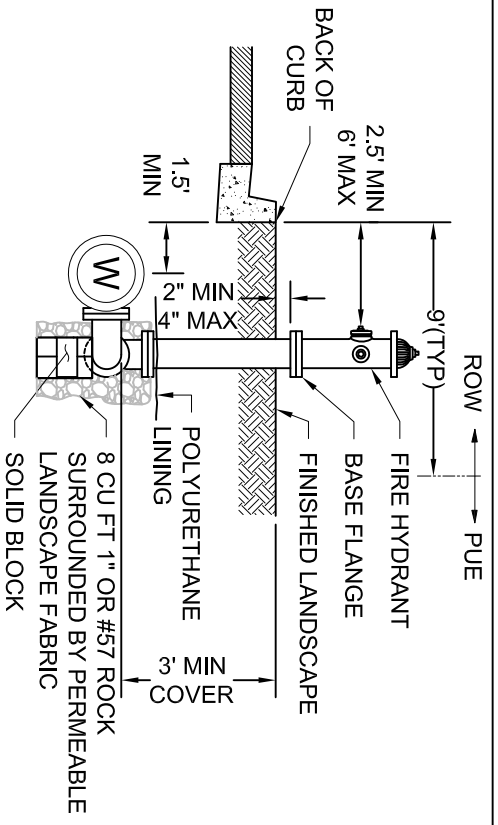


Fire Hydrant Assembly - Main in Roadway

DETAIL NO.
360-1



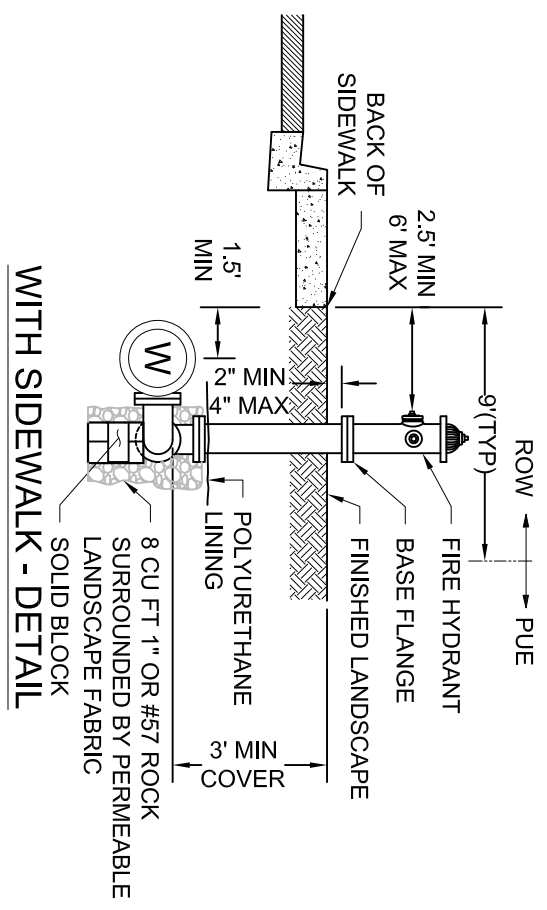
WATER MAIN BEHIND CURB/SIDEWALK - PLAN



WITHOUT SIDEWALK - PLAN

GENERAL NOTES:

1. SEE DETAIL 360-1 FOR HYDRANT AND INSTALLATION REQUIREMENTS. NOTES BELOW ARE ADDITIONAL REQUIREMENTS.
2. JOINTS BETWEEN THE VALVE AND THE MAIN SHALL BE FLANGED TYPE. JOINTS BETWEEN THE VALVE AND HYDRANT SHALL BE RESTRAINT OR MECHANICAL TYPE.
3. A FLANGE JOINT BY MECHANICAL JOINT VALVE SHALL BE USED AS THE TRANSITION BETWEEN THE JOINT TYPES.
4. ALL HYDRANTS MUST HAVE BREAK OFF RING.



WITH SIDEWALK - DETAIL

WITHOUT SIDEWALK - DETAIL



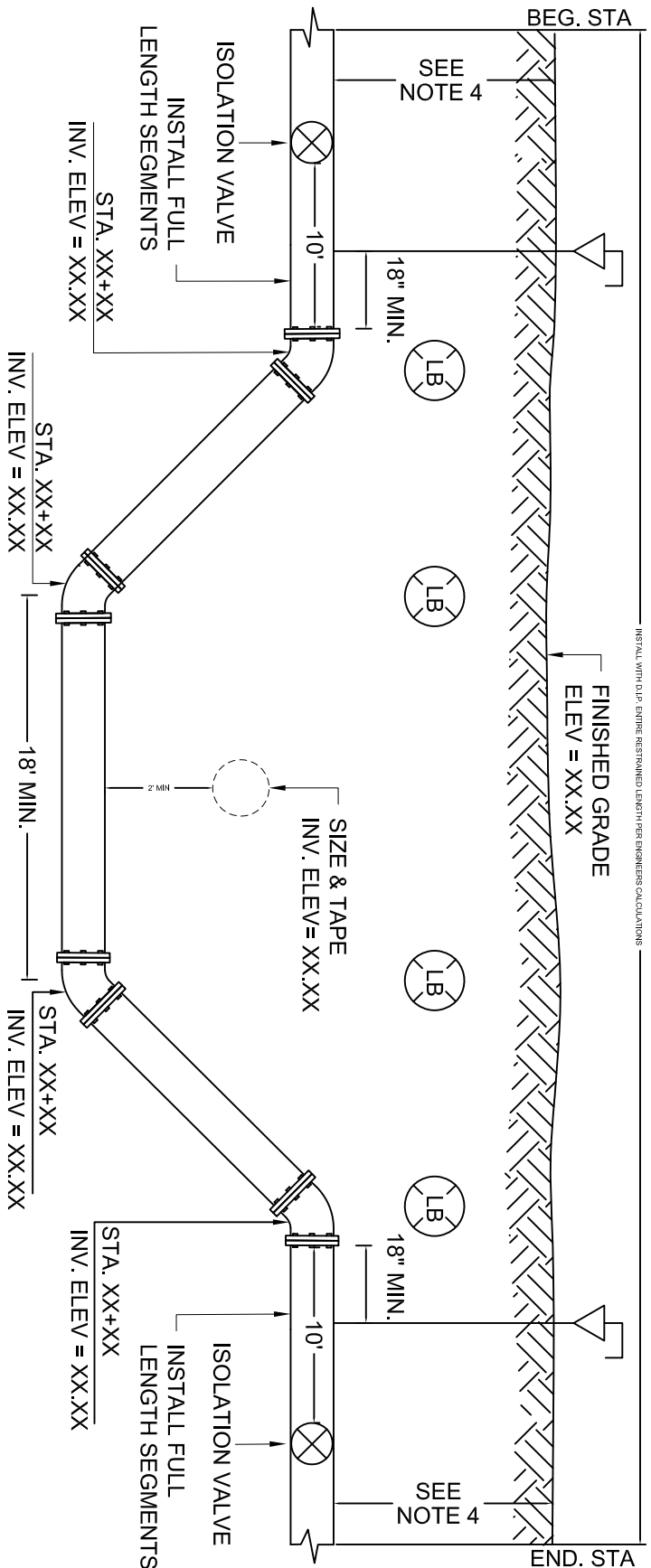
Fire Hydrant Assembly - Main Behind Curb

NOTE: EXISTING MAINS OR PRIOR APPROVED CIRCUMSTANCES ONLY.

DETAIL NO.

360-2

01/2024



GENERAL NOTES:

1. ALL BENDS WILL BE RESTRAINED PER MAG DTL'S. 303-1 & 303-2.
2. ALL VERTICAL REALIGNMENTS NO MATTER WHAT SIZE SHALL BE DETAILED IN PROFILE VIEW.
3. CONCRETE VERTICAL RESTRAINTS ARE NOT ALLOWED.
4. 4' MINIMUM COVER FOR WATER LINE. 6.5' MINIMUM COVER FOR RECYCLED WATER.
5. ALL VERTICAL PIPE REALIGNMENT SHALL BE CONSTRUCTED WITH D.I.P. THE ENTIRE D.I.P. ALIGNMENT SHALL BE RESTRAINED. EXTERNAL RESTRAINTS SHALL BE COATED PER MAG 302-2 AND SERVICE COLORED POLYETHYLENE WRAPPED.
6. INSTALL AN ARV PER GWR DETAIL 388-1 OR 388-2 ON BOTH SIDES OF THE REALIGNMENT. IF AN ARV COULD BE OMITTED DUE TO SYSTEM DESIGN (REDUNDANT), PIPE PITCH) THE REDUCTION SHALL BE SUBMITTED SEPARATELY TO GLOBAL WATER FOR THEIR SOLE APPROVAL.
7. DIMENSIONS SHALL BE SHOWN ON PLANS WHERE INDICATED WITH STA. XX+XX AND INV. ELEV = XX.XX.
8. LOCATOR BALLS REQUIRED ABOVE OFFSET FITTINGS PER GWR DETAIL 200.
9. ISOLATION VALVES ON EACH SIDE WITHIN 10 FEET OF DROP FITTING.
10. FOR ARV TYPE AND SIZE, REFER TO DETAILS 388-1 AND 388-2.



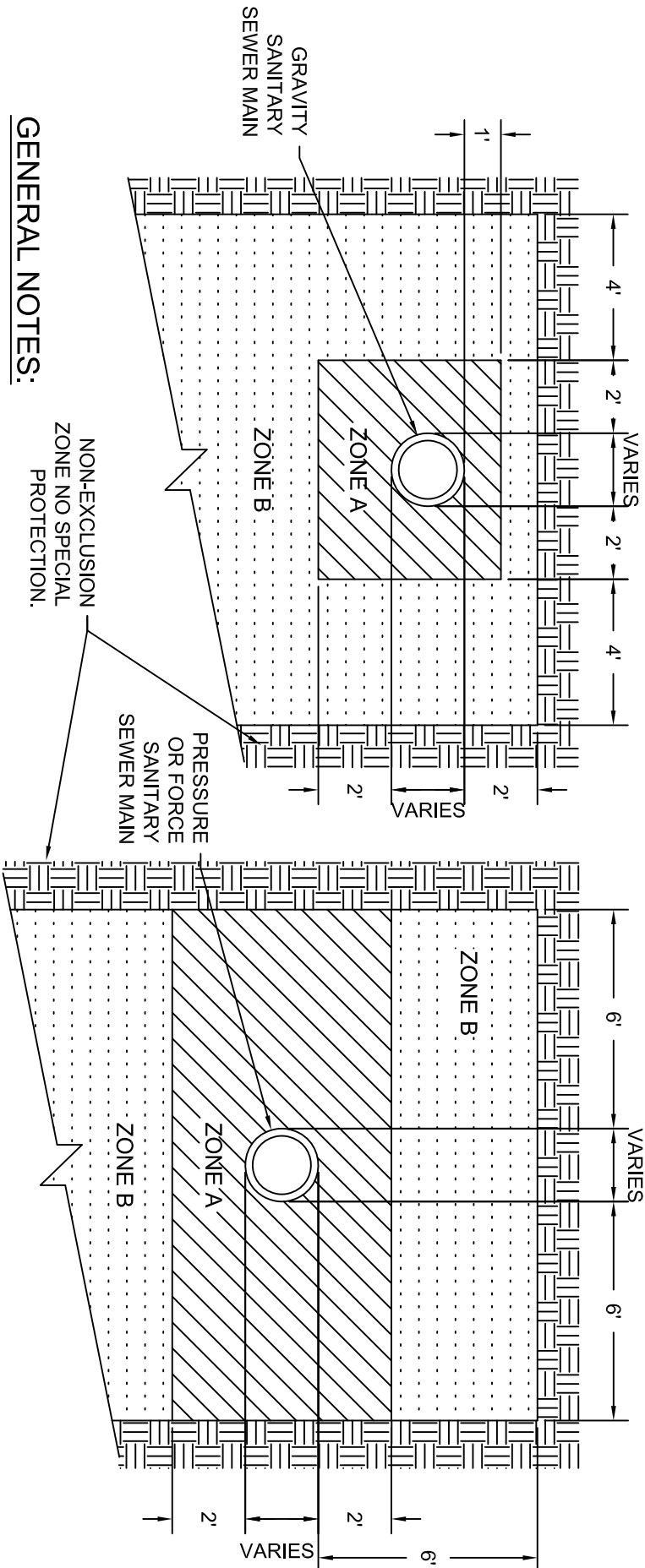
Vertical Pipe Realignment

DETAIL NO.

370

01/2024

WATER LINE EXCLUSION AND EXTRA PROTECTION ZONE *
GRAVITY - SANITARY SEWER, RECYCLED WATER OR >=2" IRRIGATION
PRESSURIZED - SANITARY SEWER, RECYCLED WATER, OR >=2" IRRIGATION



GENERAL NOTES:

1. ZONE A: NO WATER LINES ALLOWED/MINIMUM SEPARATION.
2. ZONE B: EXTRA PROTECTION REQUIRED FOR WATER LINES.
3. * REFER TO MAG STANDARD SPECIFICATION 610. WATER LINE CONSTRUCTION, SEPARATION AND EXCLUSION ZONES APPLY TO BOTH RAW AND DISTRIBUTION MAINS.
4. SEPARATION AND EXCLUSION ZONES APPLY TO BOTH RAW AND DISTRIBUTION MAINS.
5. RAW WATER SHALL BE SEPARATED FROM DISTRIBUTION WATER BASED ON THESE REQUIREMENTS.

01/2024

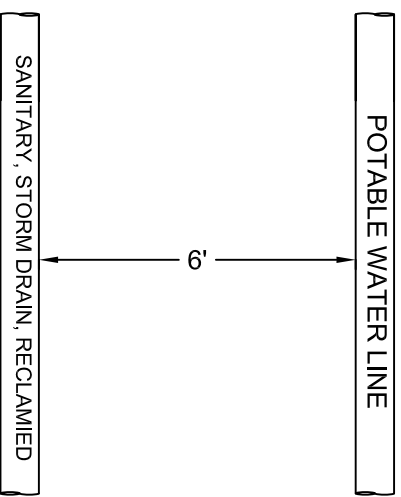
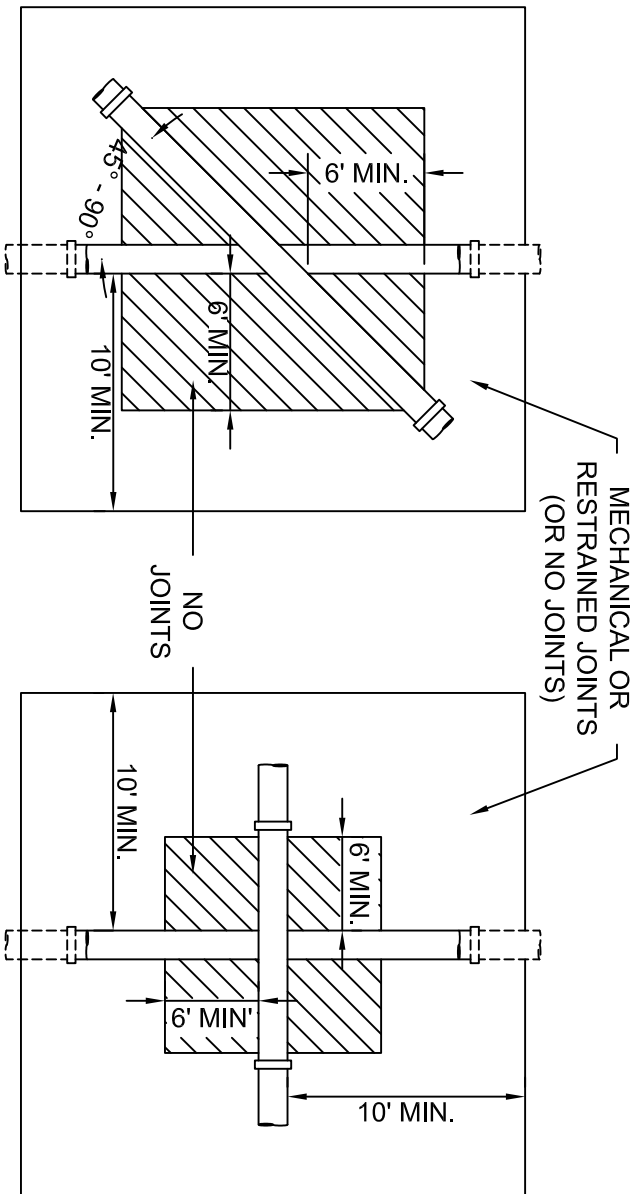
DETAIL NO.

370-1



Water Main Separation/Protection

WATER LINE EXTRA PROTECTION ZONE DUCTILE IRON PIPE WITH RESTRAINED OR MECHANICAL JOINTS



EXTRA PROTECTION DUCTILE IRON PIPE (GRAVITY OR PRESSURIZED) SEWER LINE

HORIZONTAL LINE SPACING

GENERAL NOTES:

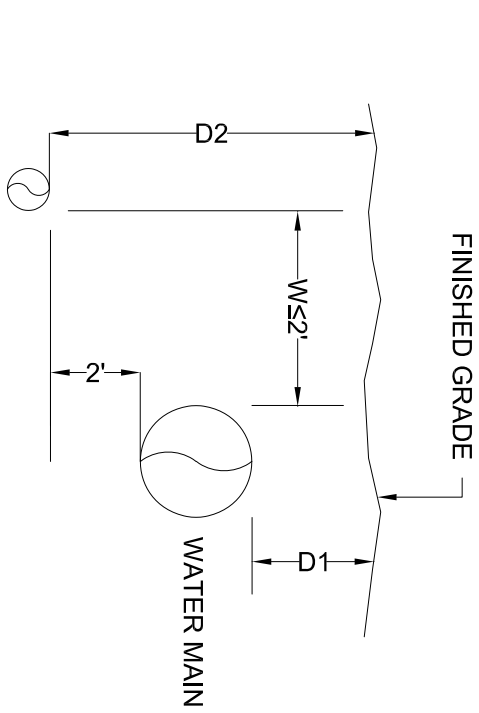
1. REFER TO MAG STANDARD SPECIFICATION 610.
2. MINIMUM VERTICAL SPACE BETWEEN PIPES SHALL BE 24 INCHES.
3. D.I.P. WITH JOINT SPACED GREATER THAN 6 FEET AND VERTICAL SEPARATION GREATER THAN 24 INCHES WILL NOT REQUIRE ADDITIONAL PROTECTION TO A POTABLE WATER LINE.
4. DISTRIBUTION MAINS SHALL BE SEPARATED FROM RAW AS ABOVE. POTABLE INCLUDES BOTH RAW AND DISTRIBUTION.

01/2024

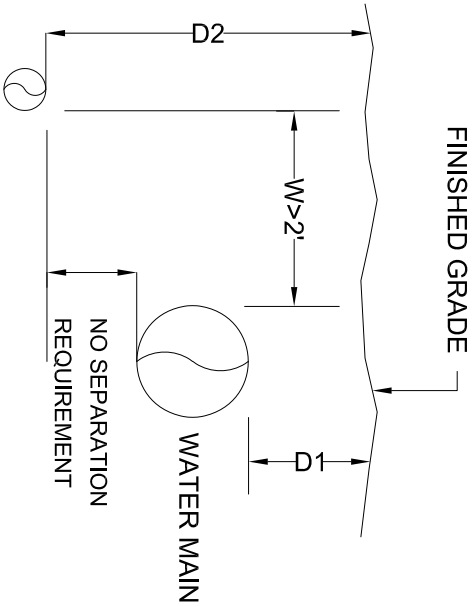


Water Main Separation/Protection

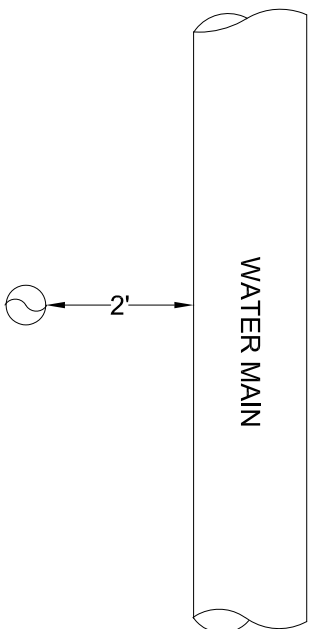
DETAIL NO.
370-2



ELECTRIC, GAS, FIBER OPTIC,
TELEPHONE, CATV, IRRIGATION < 2"



ELECTRIC, GAS, FIBER OPTIC,
TELEPHONE, CATV, IRRIGATION < 2"



ELECTRIC, GAS, FIBER OPTIC,
TELEPHONE, CATV, IRRIGATION < 2"

CROSSING

LEGEND:

- D1 = 4' MIN. FOR PIPE ≤ 12" DIA.
- D1 = 5' MIN. FOR PIPE > 12" DIA.
- D2 = MINIMUM COVER
- W = HORIZONTAL SEPARATION

GENERAL NOTES:

1. ELECTRIC SEPARATION REQUIREMENTS ARE FOR PRIMARY ELECTRIC CONDUCTORS ONLY. FOR SERVICE CONDUCTORS SEE PLANS.
2. PRIMARY ELECTRIC, GAS, TELEPHONE, CABLE TV OR FIBER OPTIC LINES SHALL NOT CROSS ABOVE A WATER LINE WITHOUT WRITTEN APPROVAL FROM GLOBAL WATER RESOURCES.

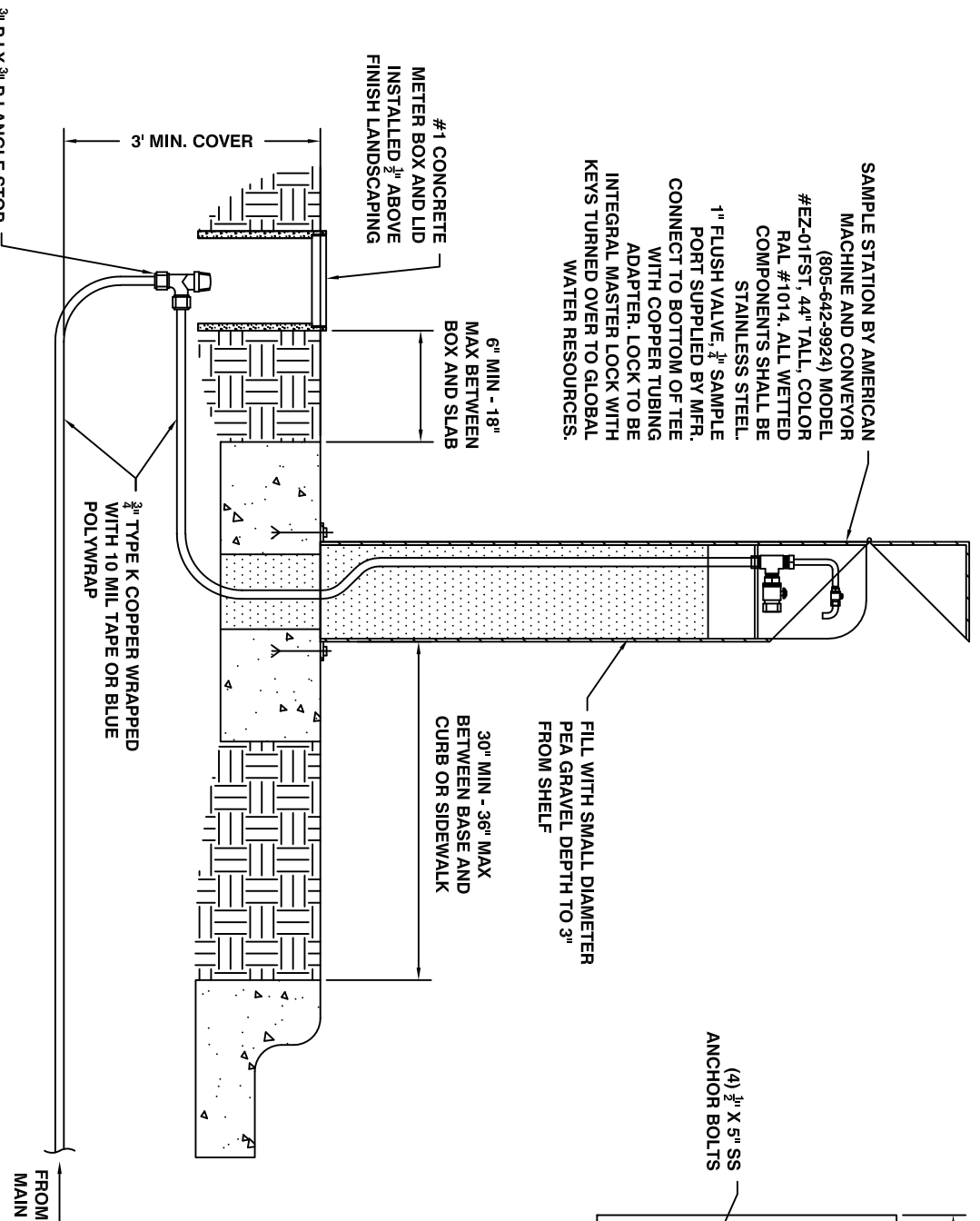


Minimum Utility Separation Requirements

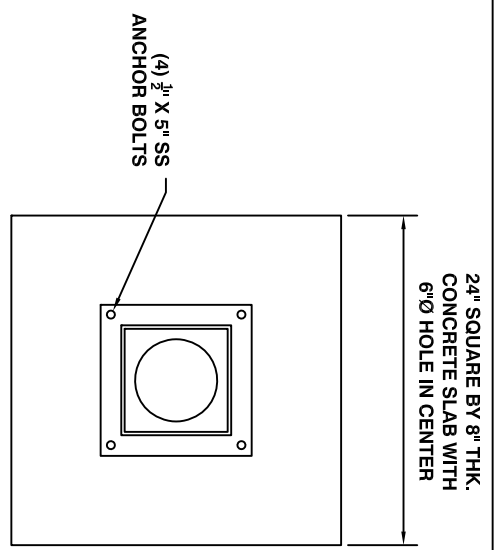
DETAIL NO.

372

01/2024



SAMPLE STATION BY AMERICAN MACHINE AND CONVEYOR (805-642-9924) MODEL #EZ-01FST, 44" TALL, COLOR RAL #1014. ALL WETTED COMPONENTS SHALL BE STAINLESS STEEL.



SAMPLE STATION W/FLUSH VALVE
NTS

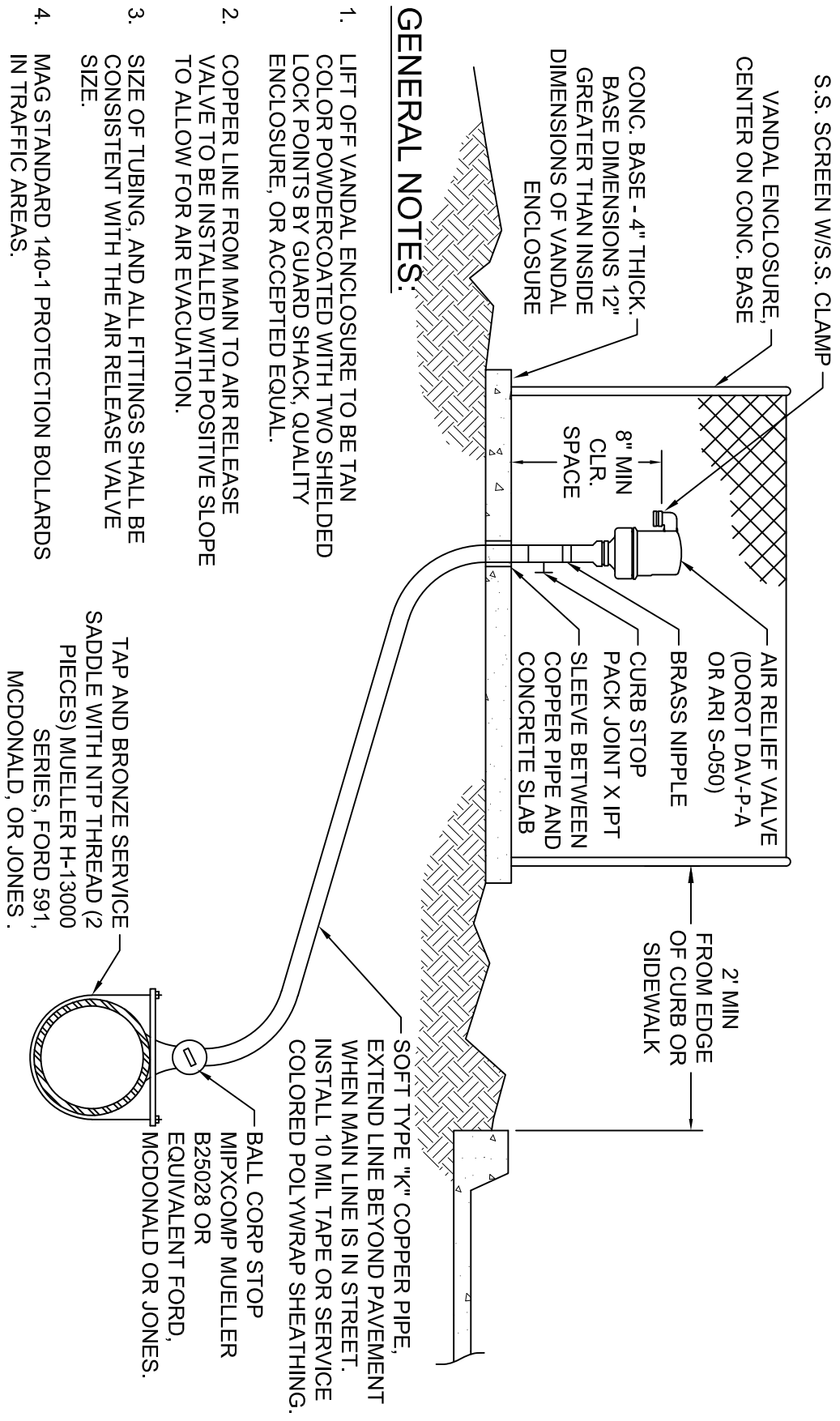
01/2024



Water Sampling Station

DETAIL NO.

387



GENERAL NOTES:

1. LIFT OFF VANDAL ENCLOSURE TO BE TAN COLOR POWDERCOATED WITH TWO SHIELDED LOCK POINTS BY GUARD SHACK, QUALITY ENCLOSURE, OR ACCEPTED EQUAL.
2. COPPER LINE FROM MAIN TO AIR RELEASE VALVE TO BE INSTALLED WITH POSITIVE SLOPE TO ALLOW FOR AIR EVACUATION.
3. SIZE OF TUBING, AND ALL FITTINGS SHALL BE CONSISTENT WITH THE AIR RELEASE VALVE SIZE.
4. MAG STANDARD 140-1 PROTECTION BOLLARDS IN TRAFFIC AREAS.
5. CONCRETE BASE AND AIR RELIEF SHALL NOT BE ABLE LOCATED IN AREAS SUBJECT TO STANDING WATER NOR SUBMERGENCE.

TAP AND BRONZE SERVICE SADDLE WITH NTP THREAD (2 PIECES) MUELLER H-13000 SERIES, FORD 591, MCDONALD, OR JONES.

SOFT TYPE "K" COPPER PIPE, EXTEND LINE BEYOND PAVEMENT WHEN MAIN LINE IS IN STREET. INSTALL 10 MIL TAPE OR SERVICE COLORED POLYWRAP SHEATHING.

BALL CORP STOP
MIPXCOMP MUELLER
B25028 OR
EQUIVALENT FORD,
MCDONALD OR JONES.

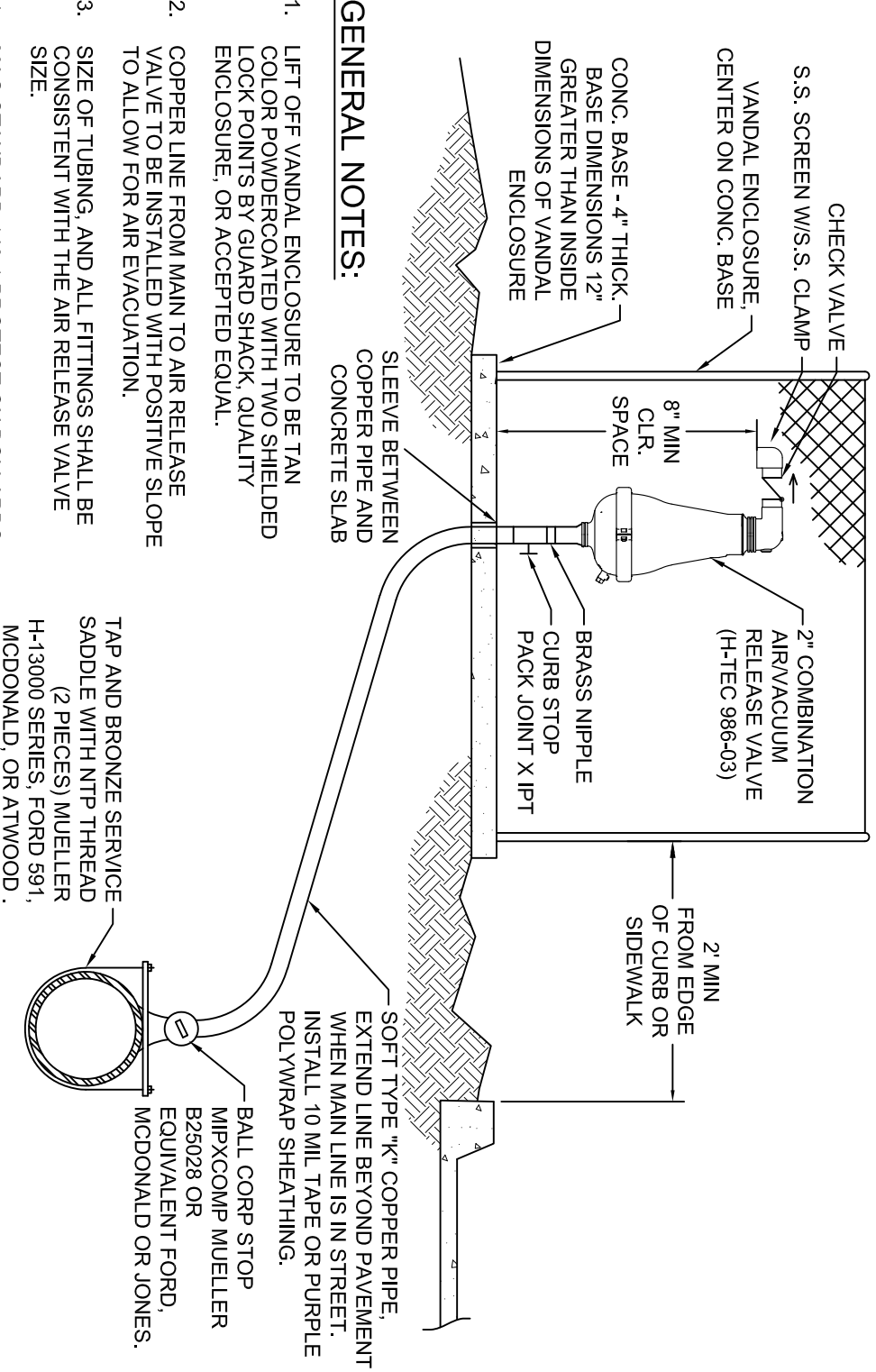


Potable Air Release Valve

DETAIL NO.

388-1

01/2024



GENERAL NOTES:

1. LIFT OFF VANDAL ENCLOSURE TO BE TAN COLOR POWDERCOATED WITH TWO SHIELDED LOCK POINTS BY GUARD SHACK, QUALITY ENCLOSURE, OR ACCEPTED EQUAL.
2. COPPER LINE FROM MAIN TO AIR RELEASE VALVE TO BE INSTALLED WITH POSITIVE SLOPE TO ALLOW FOR AIR EVACUATION.
3. SIZE OF TUBING, AND ALL FITTINGS SHALL BE CONSISTENT WITH THE AIR RELEASE VALVE SIZE.
4. MAG STANDARD 140-1 PROTECTION BOLLARDS IN TRAFFIC AREAS.
5. CONCRETE BASE AND AIR RELIEF SHALL NOT BE ABLE LOCATED IN AREAS SUBJECT TO STANDING WATER NOR SUBMERGENCE.

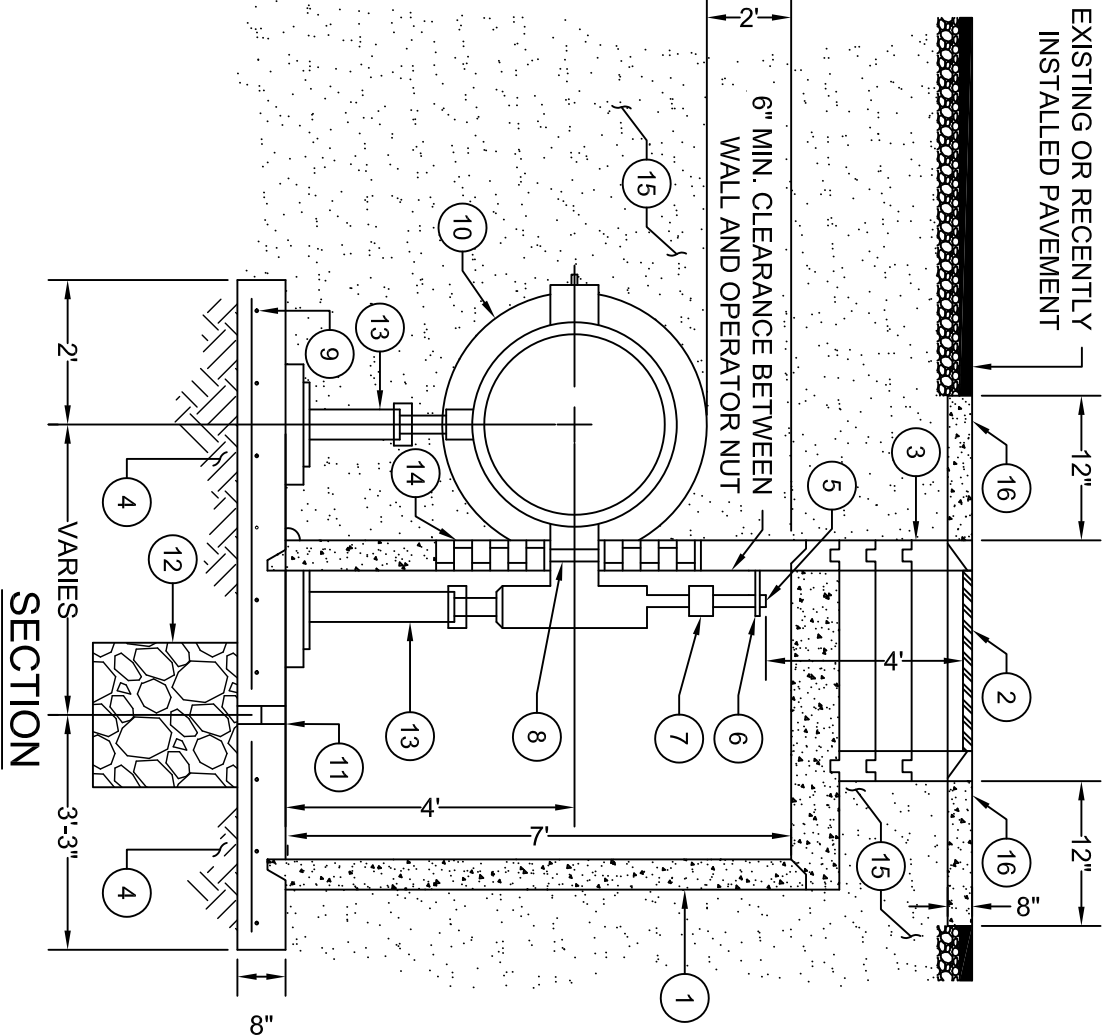


Reclaimed Air Release Valve

DETAIL NO.

388-2

01/2024



EXISTING OR RECENTLY
INSTALLED PAVEMENT

12"

12"

6" MIN. CLEARANCE BETWEEN
WALL AND OPERATOR NUT

SECTION

2'

VARIES

3'-3"

LIST OF MATERIALS

- 1 48" I.D. MANHOLE SHAFT PER MAG STD. DETAIL 420, TYPE "B" TOP.
- 2 30" MANHOLE FRAME & COVER PER GWR STD. DETAIL 422 AND MAG 424-2.
- 3 GROUTED ADJUSTING RINGS.
- 4 BEDDING MATERIAL THOROUGHLY COMPACTED PER MAG SEC. 601, OR PER LOCAL AUTHORITY.
- 5 OPERATOR NUT.
- 6 WALL BRACKET.
- 7 PACKING GLAND.
- 8 6" EXTENSION.
- 9 #4 REBAR 12" ON CENTER EACH WAY 2" CLEAR TYPICAL.
- 10 BUTTERFLY VALVE.
- 11 3" DIAMETER DRAIN.
- 12 8 CU. FT. GRAVEL SUMP.
- 13 ADJUSTABLE PIPE SADDLE SUPPORT.
- 14 RECTANGULAR CUT-OUT IN MANHOLE SHAFT, FILL SPACE BETWEEN SHAFT AND PIPE WITH 1" SHEET FOAM, BRICK AND NON SHRINK MORTAR.
- 15 NATIVE MATERIAL THOROUGHLY COMPACTED, PER MAG SEC. 601, OR PER LOCAL AUTHORITY.
- 16 CLASS 'AA' CONCRETE COLLAR ALL AROUND FRAME AS PER MAG SEC. 725, 505

01/2024



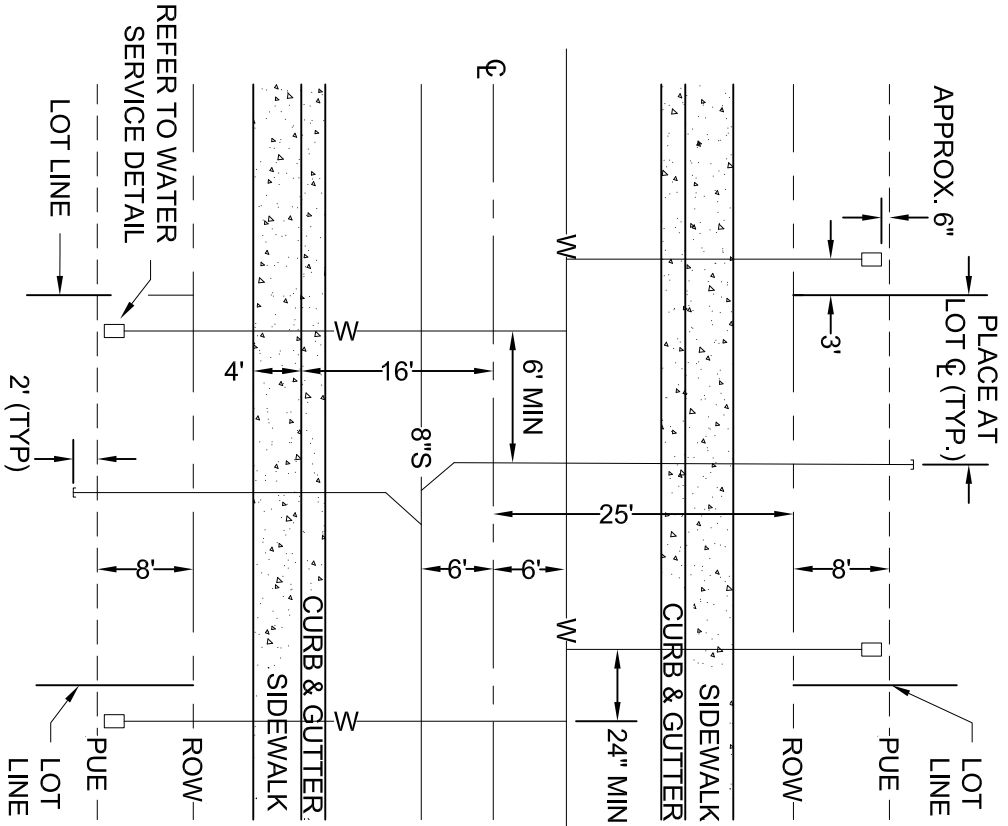
Butterfly Valve Operator Manhole

DETAIL NO.

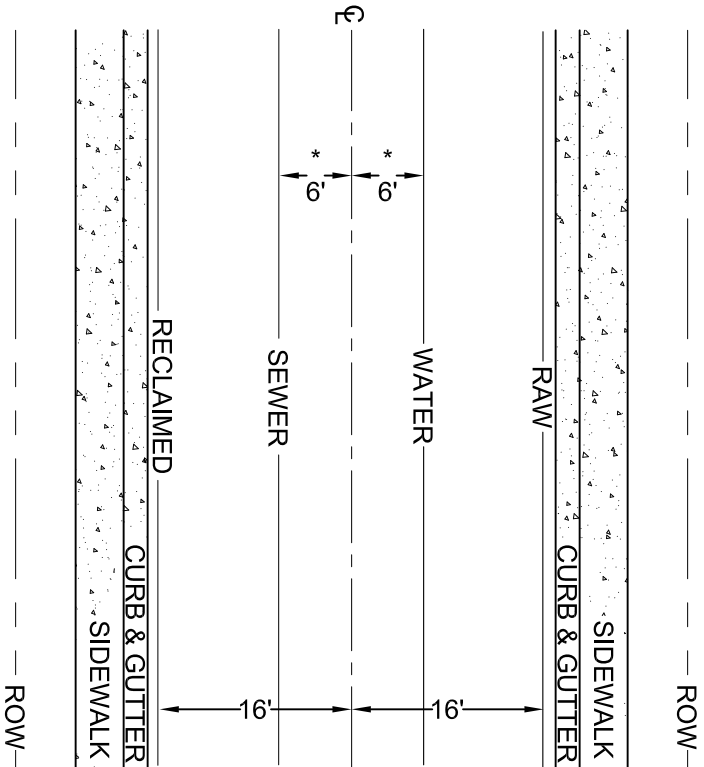
391

GENERAL NOTES:

1. LOCATE WATER MAINS ON THE NORTH & EAST SIDES OF THE STREET, 6 FT FROM THE CENTERLINE. LOCATE SEWERS ON THE SOUTH & WEST SIDES OF THE STREET, 6 FT FROM THE CENTERLINE.
2. METER BOXES SHALL NOT BE IN DRIVEWAYS.
3. SEWER LINES SHALL NOT BE IN DRIVEWAYS.



INTERIOR STREETS



* WHERE CENTER MEDIANS ARE PRESENT, WATER AND SEWER MAINS SHALL BE LOCATED ON THE CENTERLINE OF THE INSIDE LANES.

ARTERIAL STREETS

01/2024



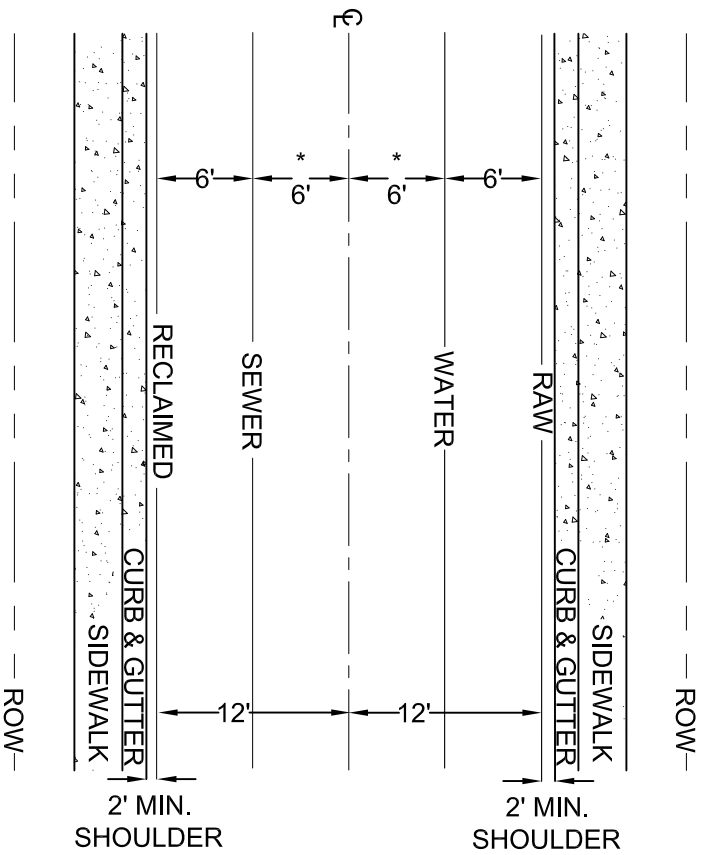
Utility Locations

DETAIL NO.

404

GENERAL NOTES:

1. LOCATE WATER MAINS ON THE NORTH & EAST SIDES OF THE STREET, 6 FT FROM THE CENTERLINE. LOCATE SEWERS ON THE SOUTH & WEST SIDES OF THE STREET, 6 FT FROM THE CENTERLINE.
2. METER BOXES SHALL NOT BE IN DRIVEWAYS.
3. SEWER LINES SHALL NOT BE IN DRIVEWAYS.



* WHERE CENTER MEDIANS ARE PRESENT; WATER AND SEWER MAINS SHALL BE LOCATED ON THE CENTERLINE OF THE INSIDE LANES.

RURAL STREETS

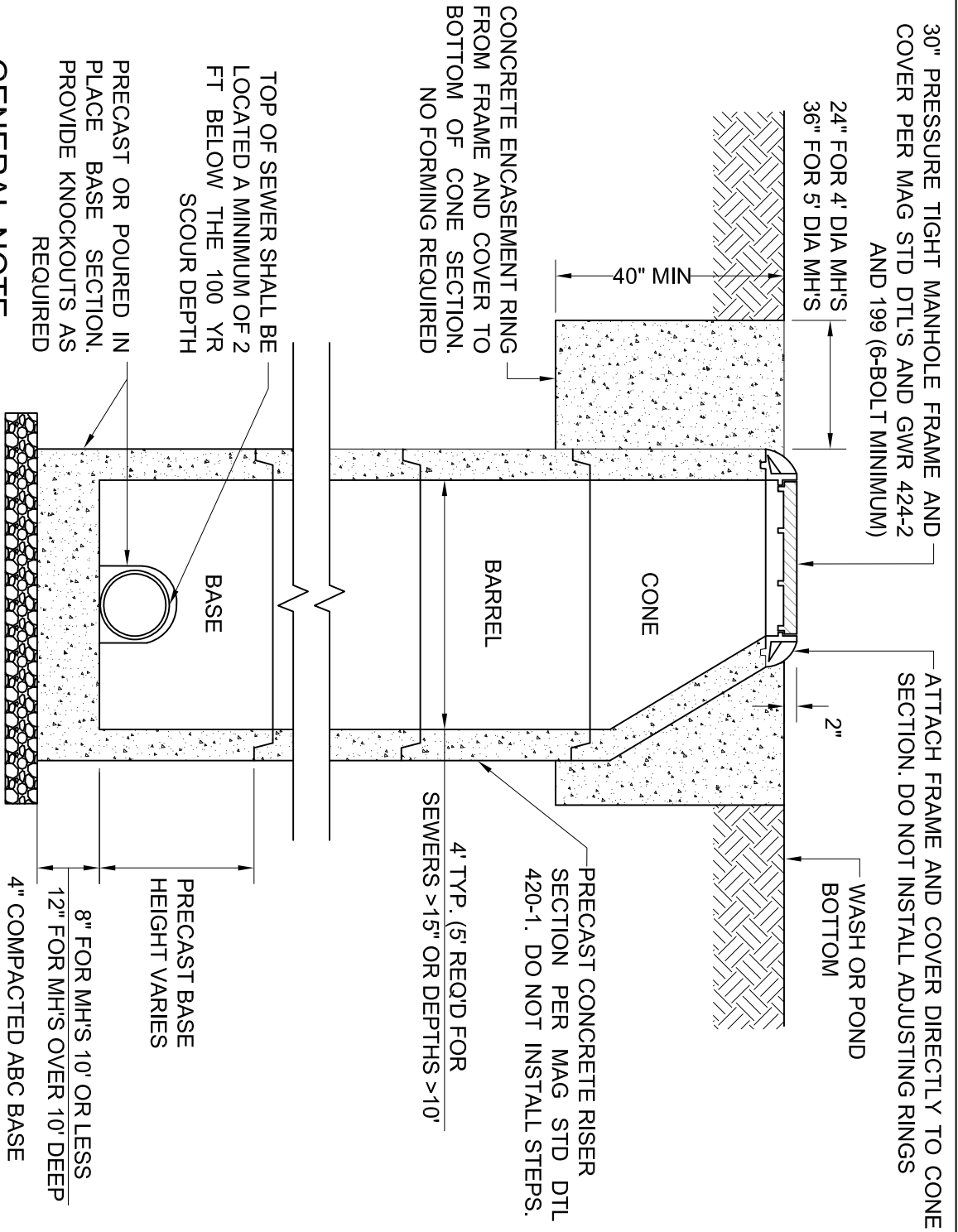
01/2024



Utility Locations

DETAIL NO.

405



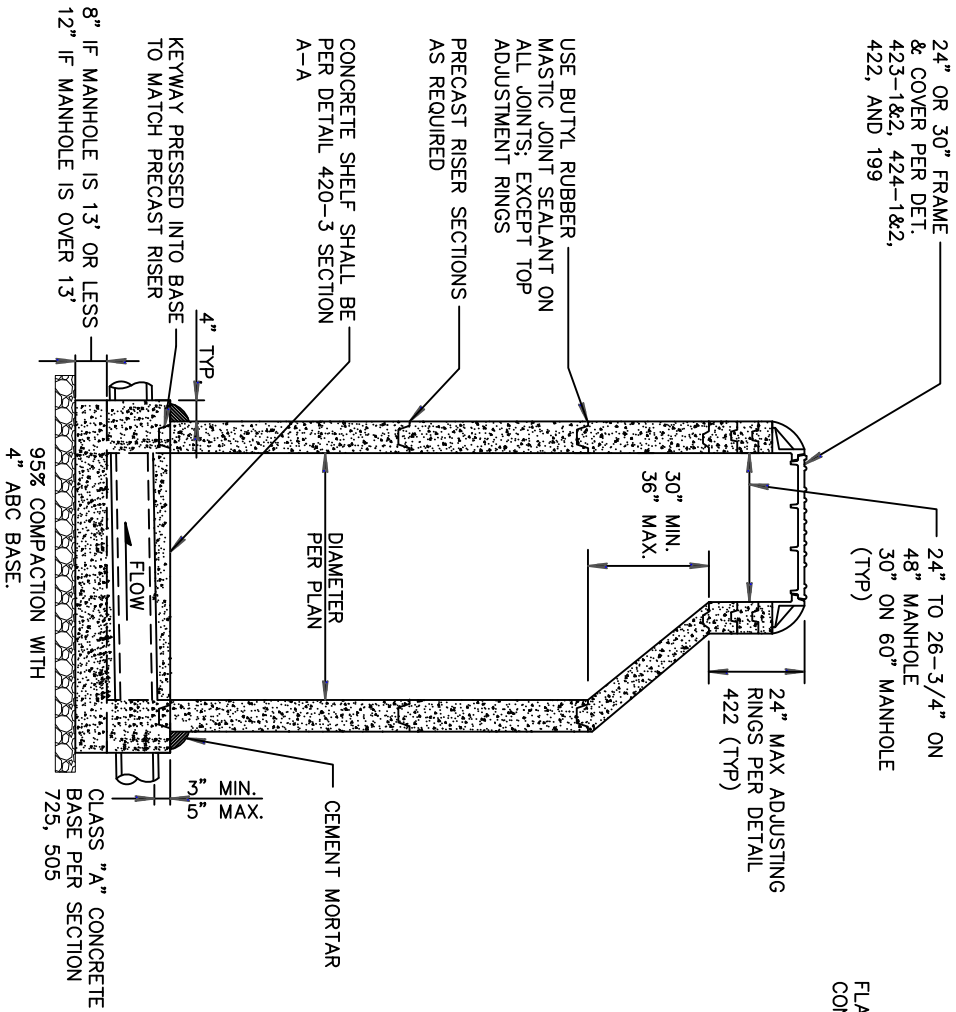
Water-Tight Manhole

DETAIL NO.

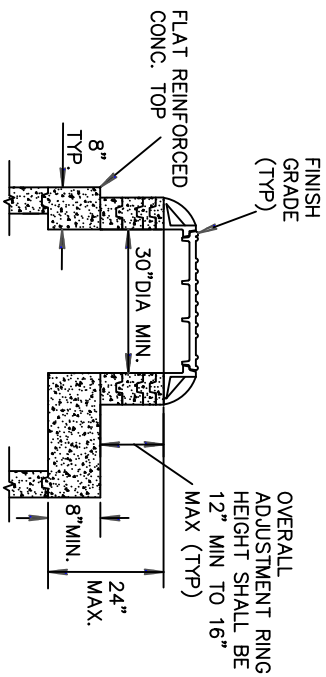
420

01/2024

TYPE 'A' TOP
(PRECAST ECCENTRIC CONICAL TOP MANHOLE)



(PRECAST FLAT TOP M.H.)



NOTES:

1. PRECAST STEEL REINFORCED MANHOLE SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C 478 EXCEPT AS MODIFIED HEREIN.
2. CAST-IN-PLACE MANHOLE BASE TO BE CONSTRUCTED IN ONE PLACEMENT.
3. CAST-IN-PLACE MANHOLE BASE SHELF AND CHANNEL TO RECEIVE SMOOTH TROWEL FINISH.
4. MANHOLE COATINGS PER AGENCY.
5. SEE MAG DETAIL 422 FOR FINAL ADJUSTMENT TO GRADE.
6. ANY MANHOLE OVER 20' SHALL REQUIRE ENGINEER (STRUCTURAL) CALCS.
7. THE MANHOLE ACCESS POINT SHALL BE ORIENTED IN SUCH A WAY THAT THE OPENING IS DIRECTLY ABOVE THE LOWEST INVERT, OR AS OTHERWISE DIRECTED BY THE PLANS OR ENG.
8. FOR PRECAST BASE SEE DETAIL 420-2.
9. FLAT TOPS SHALL ONLY BE USED WITH APPROVAL FROM THE ENGINEER.

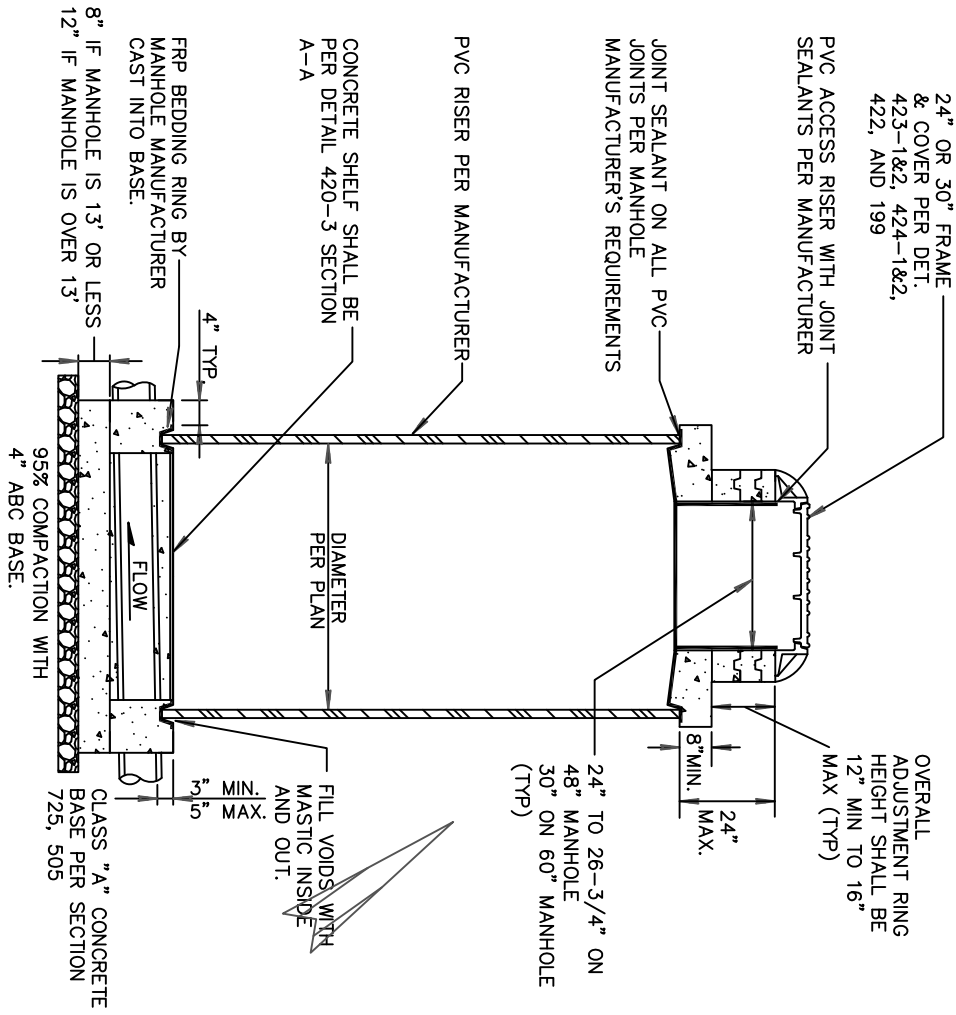


Pre-Cast Concrete Sewer Manhole

DETAIL NO.

421

01/2024



NOTES:

1. PVC MANHOLES SHALL MEET ALL APPROPRIATE STANDARDS.
2. CAST-IN-PLACE MANHOLE BASE TO BE CONSTRUCTED IN ONE PLACEMENT.
3. CAST-IN-PLACE MANHOLE BASE SHELF AND CHANNEL TO RECEIVE SMOOTH TROWEL FINISH.
4. EXPOSED CONCRETE BASE SHALL BE COATED PER SPECIFICATIONS.
5. ANY MANHOLE OVER 20' SHALL REQUIRE ENGINEER (STRUCTURAL) CALCS.
6. THE MANHOLE ACCESS POINT SHALL BE ORIENTED IN SUCH A WAY THAT THE OPENING IS DIRECTLY ABOVE THE LOWEST INVERT, OR AS OTHERWISE DIRECTED BY THE PLANS OR ENG.

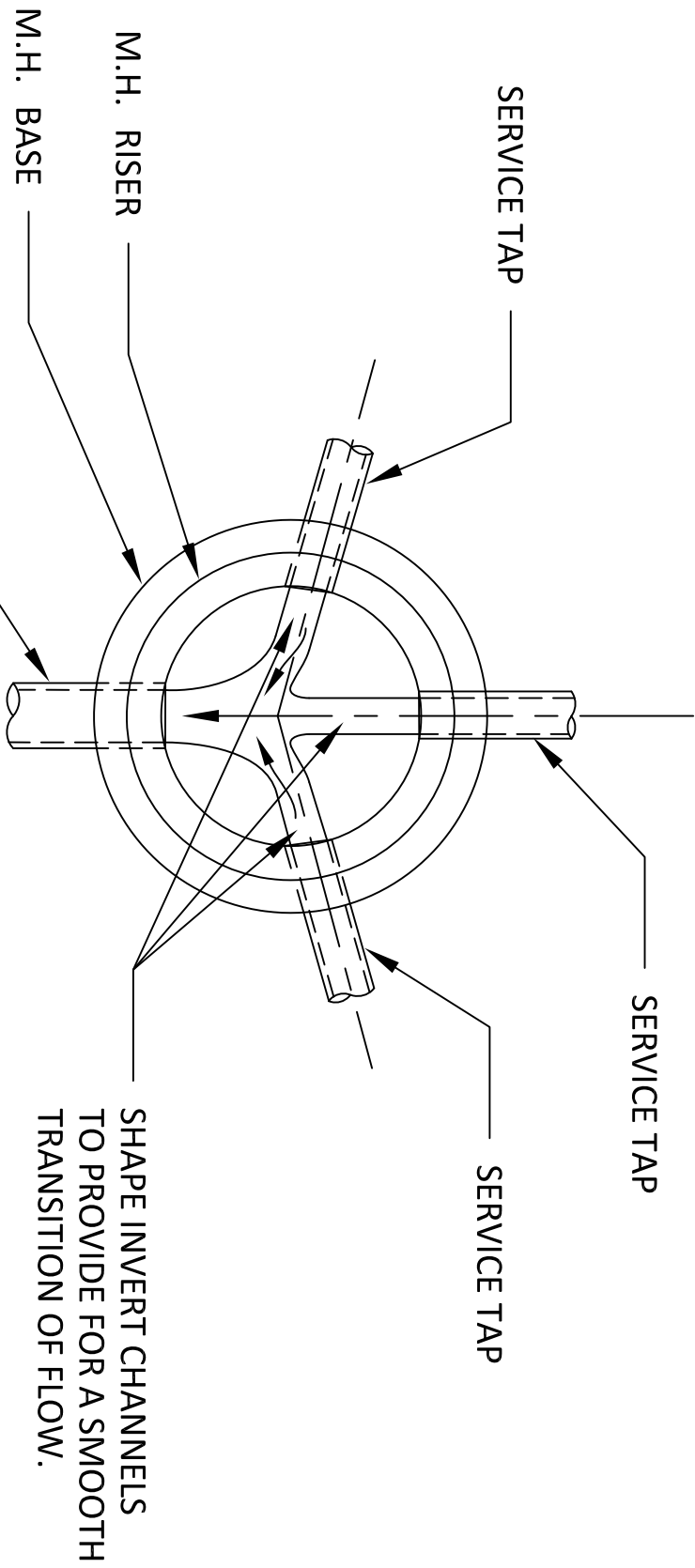


PVC Sewer Manhole

DETAIL NO.

421-1

01/2024



PLAN VIEW

NOTES:

1. INVERT OF 4" SERVICE TAP SHALL BE 6" ABOVE CROWN OF LETTING OUT PIPE.
2. MAXIMUM OF 3 SERVICE TAPS CAN BE INSTALLED TO ANY SINGLE MANHOLE. WITH AN INLET/OUTLET A MAXIMUM OF 2 SERVICE TAPS CAN BE INSTALLED TO EQUAL A TOTAL OF 4 PIPES TOTAL IN ONE MANHOLE.

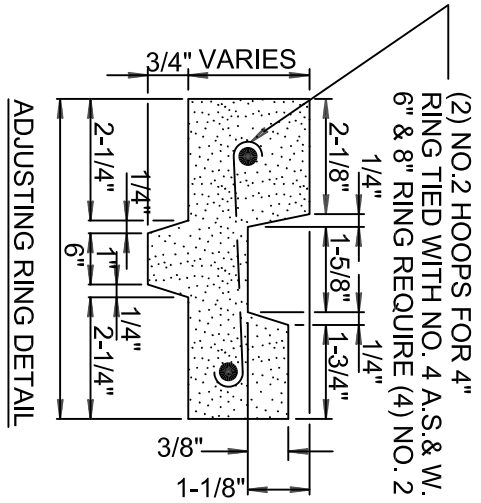
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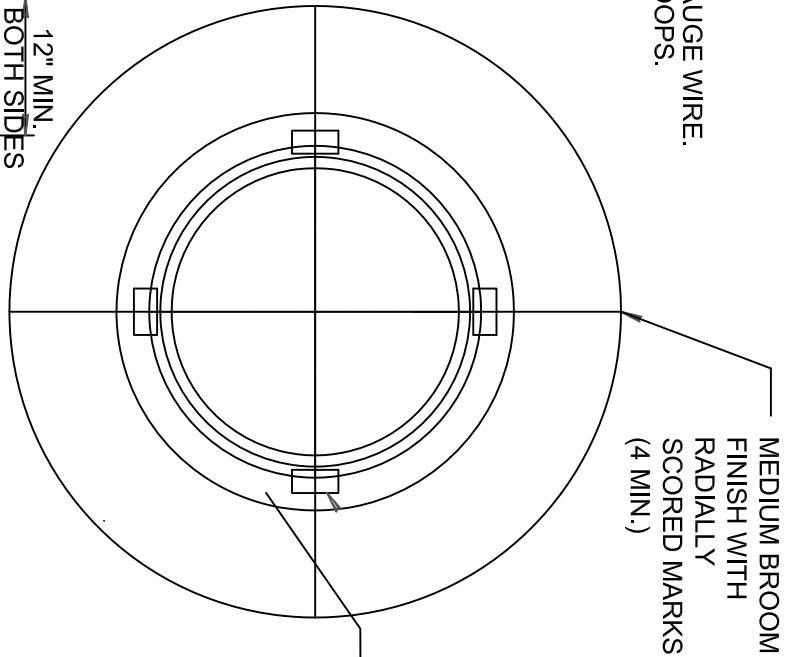
Service Taps Into Manholes

DETAIL NO.

421-2



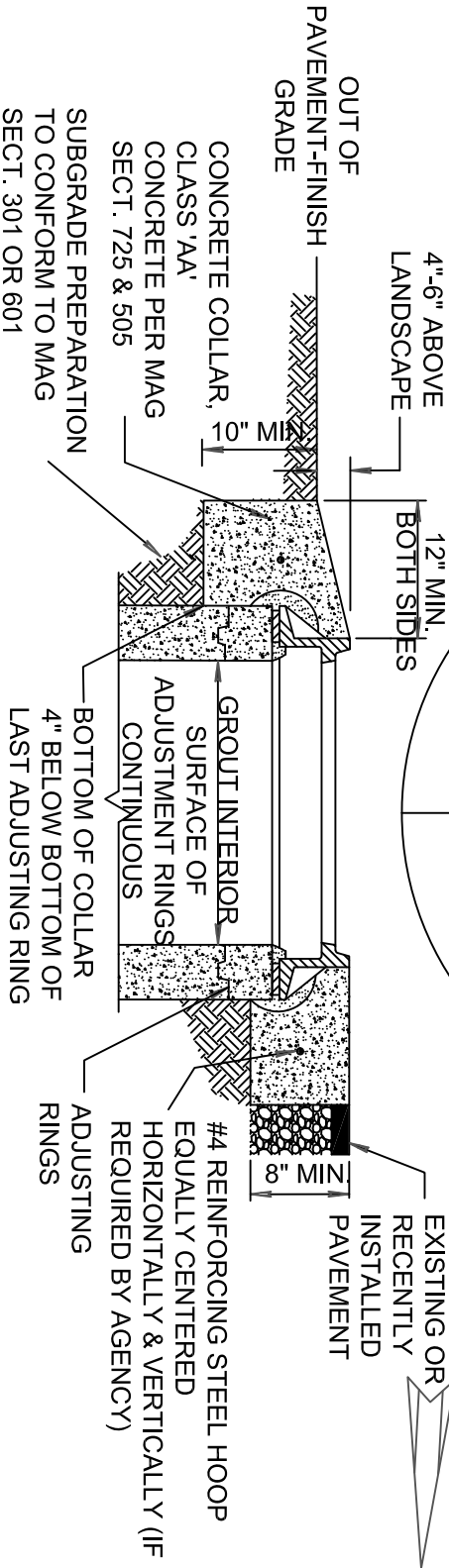
(2) NO. 2 HOOPS FOR 4" RING TIED WITH NO. 4 A.S. & W. GAUGE WIRE. 6" & 8" RING REQUIRE (4) NO. 2 HOOPS.



MEDIUM BROOM FINISH WITH RADIALLY SCORED MARKS (4 MIN.)

- NOTES:
1. CONTRACTORS SHALL ADJUST ALL MANHOLE RINGS AND COVERS, INCLUDING MANHOLES OUTSIDE OF THE PAVEMENT.
 2. ADJUSTMENT SHALL BE CONSTRUCTED PER MAG SECTION 345.
 3. MANHOLE COATINGS PER AGENCY
 4. GROUT SHALL BE USED BETWEEN FRAME AND ADJUSTING RING TO ACHIEVE WATER TIGHTNESS.

SPACER TYPE	REQUIRED THICKNESS
BRICK	GREATER THAN 2"
4"X2" STEEL SPACER	1/2" TO 2"
GROUT	LESS THAN 1/2"



OUT OF PAVEMENT-FINISH GRADE
4"-6" ABOVE LANDSCAPE
12" MIN. BOTH SIDES
CONCRETE COLLAR, CLASS 'AA' CONCRETE PER MAG SECT. 725 & 505
SUBGRADE PREPARATION TO CONFORM TO MAG SECT. 301 OR 601

EXISTING OR RECENTLY INSTALLED PAVEMENT
#4 REINFORCING STEEL HOOP EQUALLY CENTERED HORIZONTALLY & VERTICALLY (IF REQUIRED BY AGENCY)
ADJUSTING RINGS
GROUT INTERIOR SURFACE OF ADJUSTMENT RINGS CONTINUOUS
BOTTOM OF COLLAR 4" BELOW BOTTOM OF LAST ADJUSTING RING

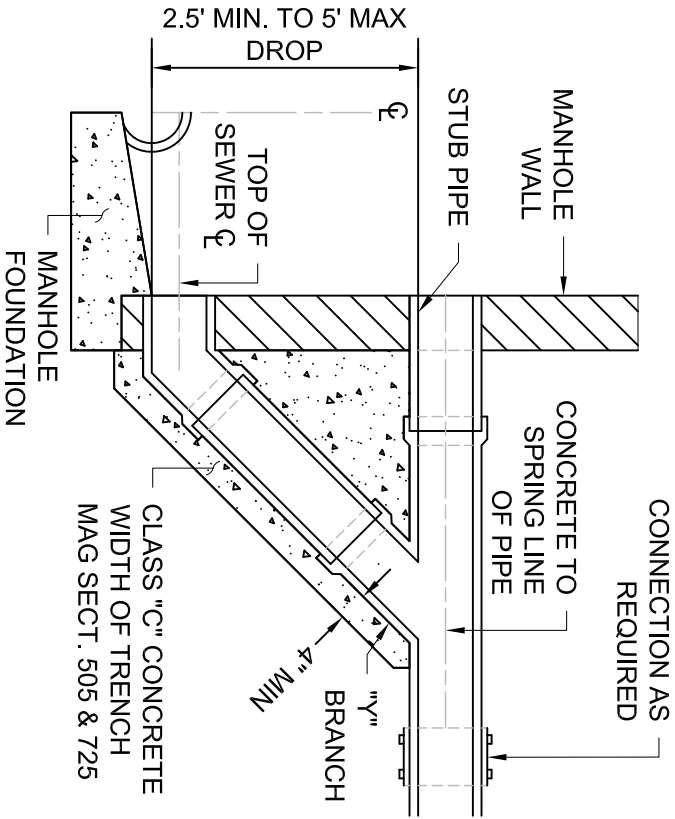
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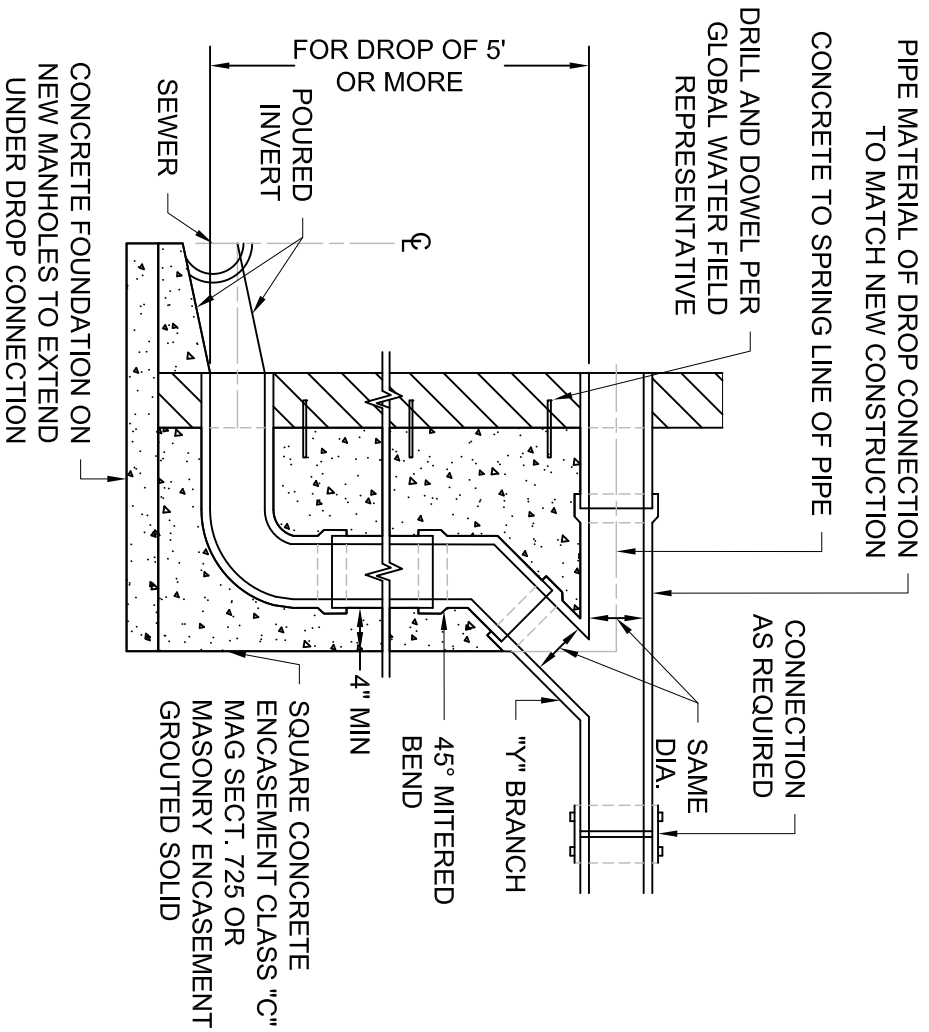


Manhole Frame and Cover Adjustment

422



TYPE A
2.5' TO 5' DROP



TYPE B
5' OR MORE

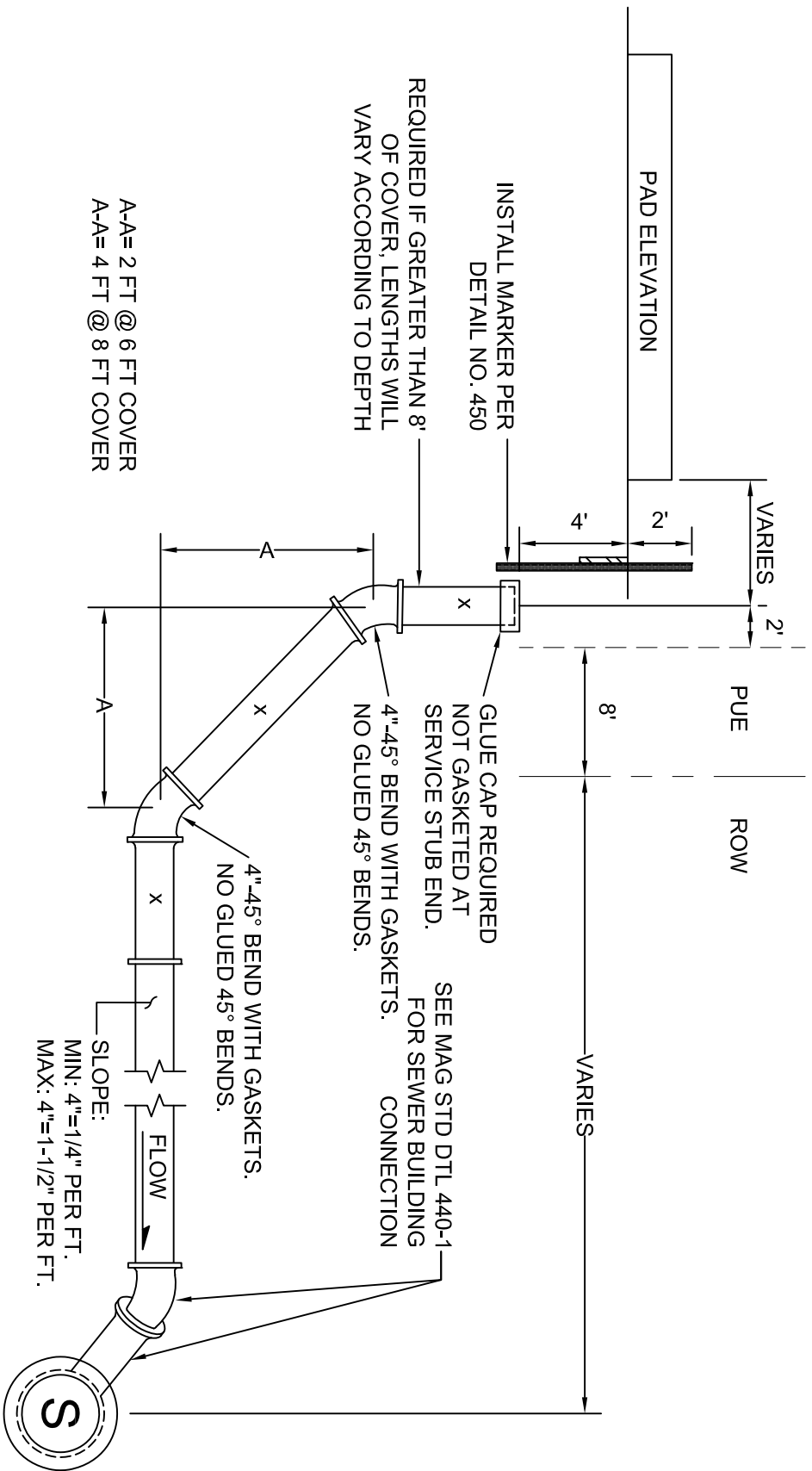


Drop Sewer Connections

DETAIL NO.

426

01/2024



GENERAL NOTES:

1. "x" PIPE LENGTHS VARY PER INDIVIDUAL LOT.
2. SEE GLOBAL WATER RESOURCES STANDARD DETAIL 450
MARKER POST FOR SEWER STUBS.
3. NO GLUED FITTING ON 45° BENDS.

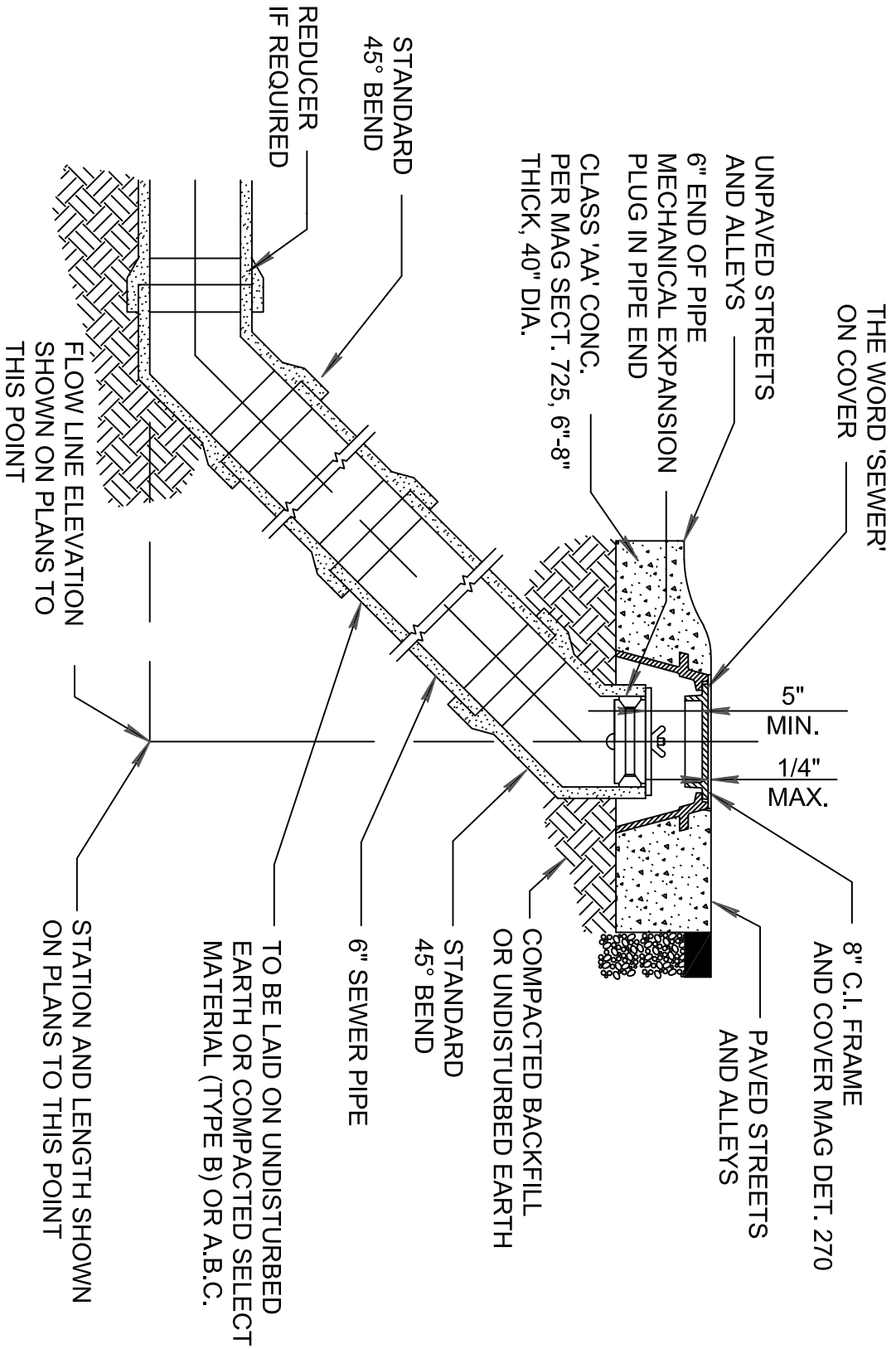
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Sewer Lateral Connection

DETAIL NO.

440

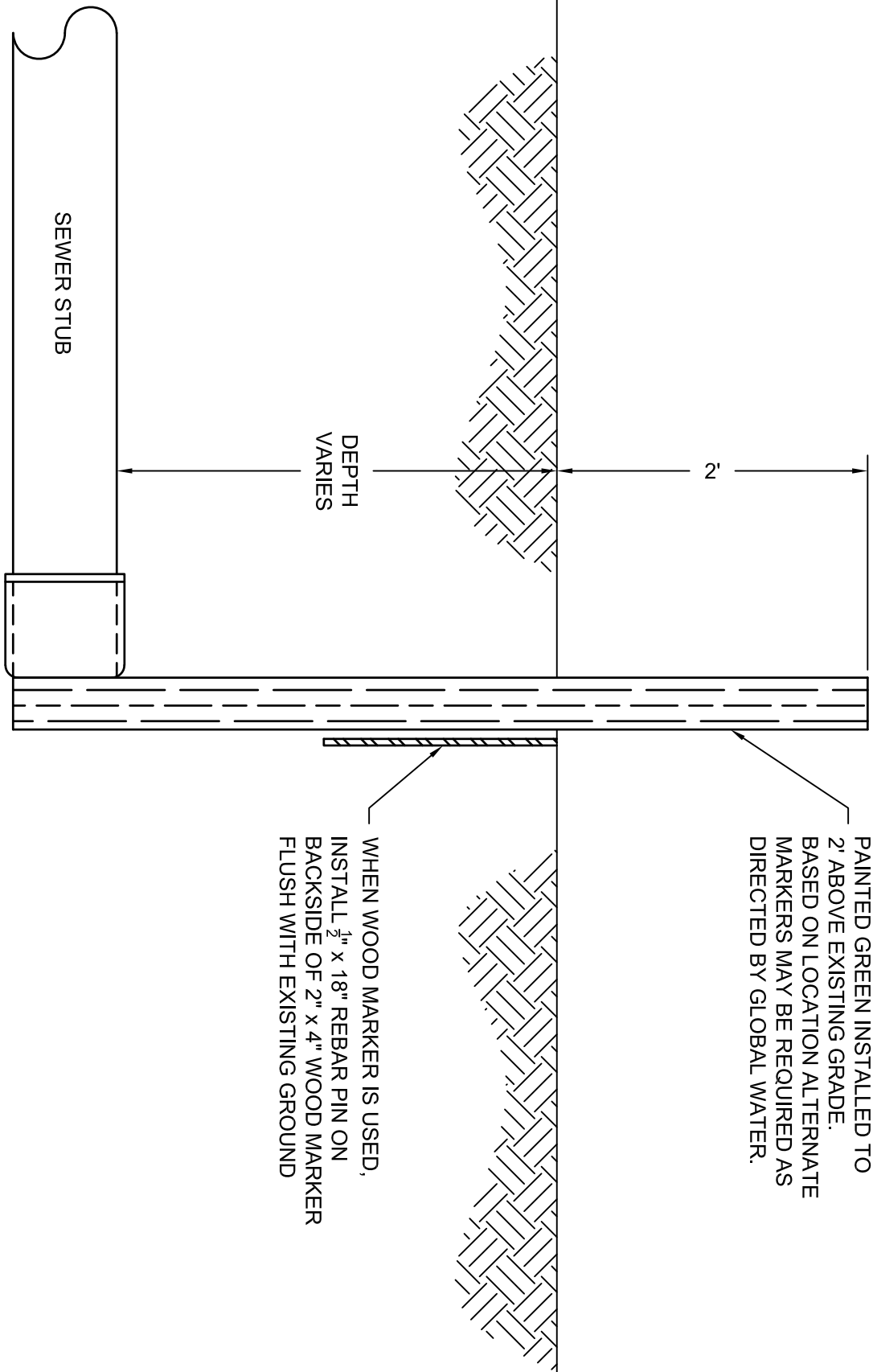


Sewer Cleanout

DETAIL NO.

441

01/2024



2"x4" WOOD OR METAL MARKER
PAINTED GREEN INSTALLED TO
2' ABOVE EXISTING GRADE.
BASED ON LOCATION ALTERNATE
MARKERS MAY BE REQUIRED AS
DIRECTED BY GLOBAL WATER.

WHEN WOOD MARKER IS USED,
INSTALL $\frac{1}{2}$ " x 18" REBAR PIN ON
BACKSIDE OF 2" x 4" WOOD MARKER
FLUSH WITH EXISTING GROUND

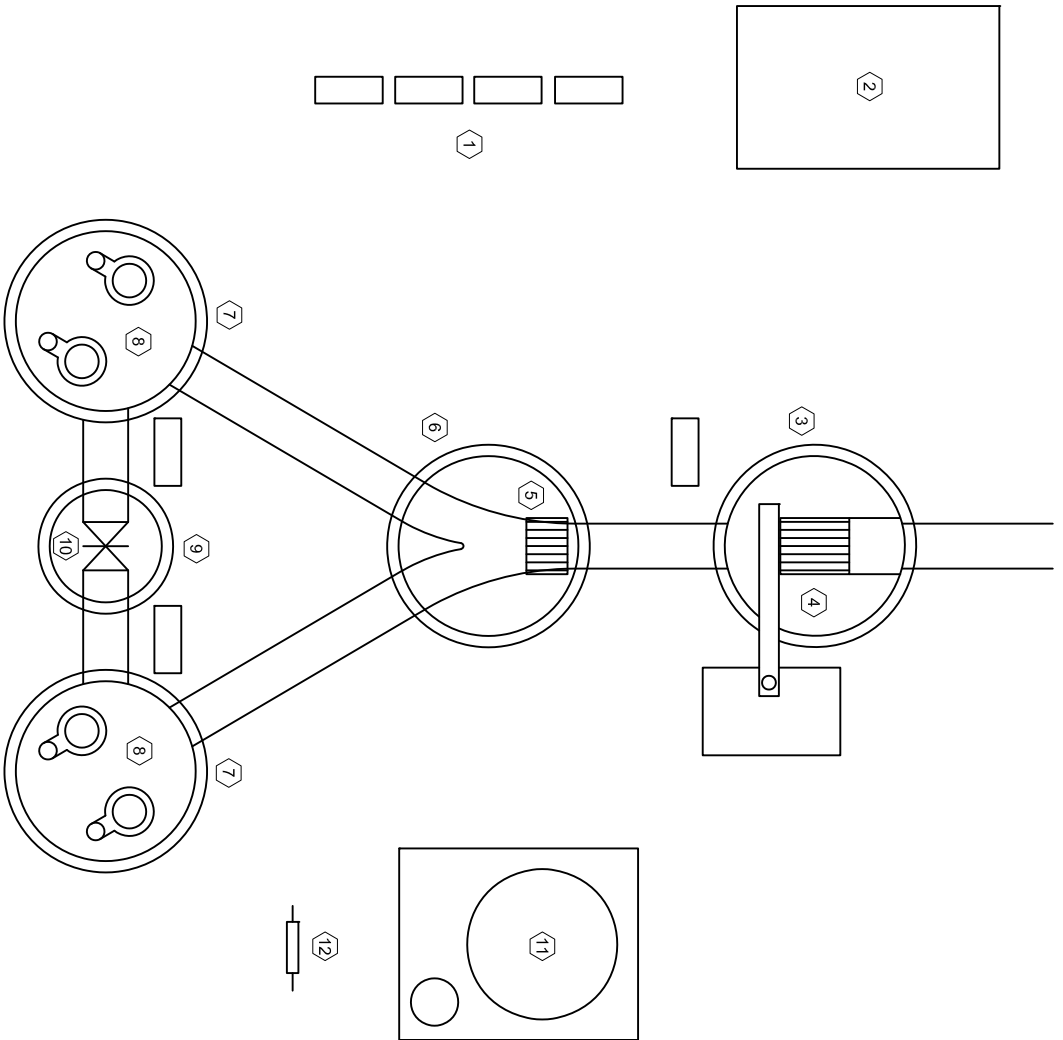


Marker Post for Sewer Stubs

DETAIL NO.

450

01/2024



CONSTRUCTION NOTES:

- ① ELECTRICAL SERVICE, ATS, DISTRIBUTION PANEL, AND MPC
- ② STANDBY GENERATOR
- ③ SCREENING MANHOLE
- ④ MECHANICAL SCREEN, WASHER/COMPACTOR, AND DUMPMSTER
- ⑤ MANUAL BASKET SCREEN
- ⑥ SPLITTER MANHOLE BENCHED TO DIVIDE FLOW EQUALLY
- ⑦ LIFT STATION MANHOLE(S), QUANTITY DEPENDANT ON ANTICIPATED TOTAL FLOW
- ⑧ LIFT PUMPS, PRESSURE TRANSDUCER FOR EACH PUMP, CONTROL PANEL FOR EACH STATION, LEVEL CONTROLS AND FLOW METER FOR EACH STATION
- ⑨ EQUALIZATION VALVE MANHOLE
- ⑩ SLUICE GATE VALVE
- ⑪ ODOR CONTROL SYSTEM
- ⑫ WATER SERVICE, BACKFLOW PREVENTER, PRESSURE TRANSDUCER



Lift Station Configuration

DETAIL NO.

460

01/2024