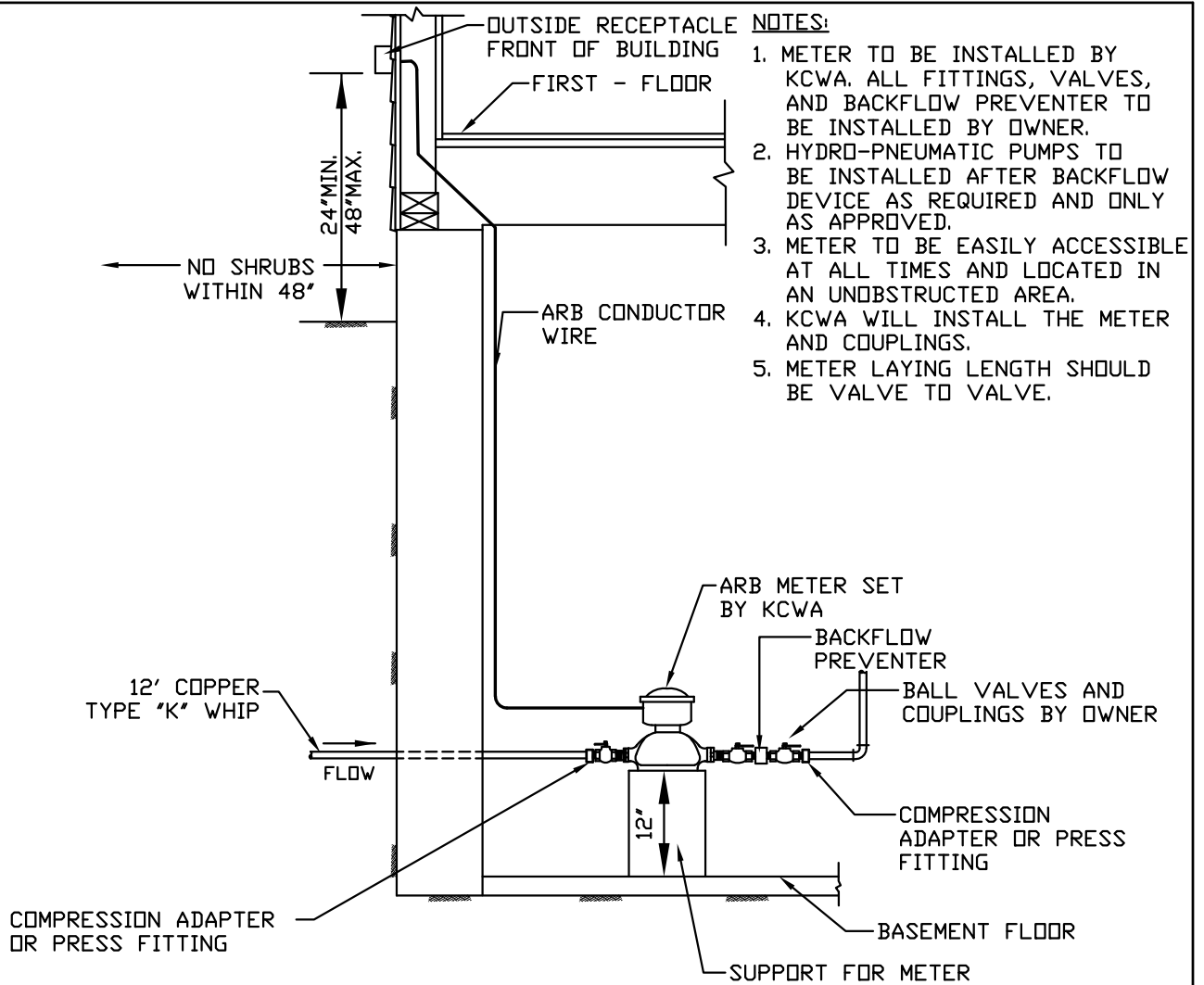


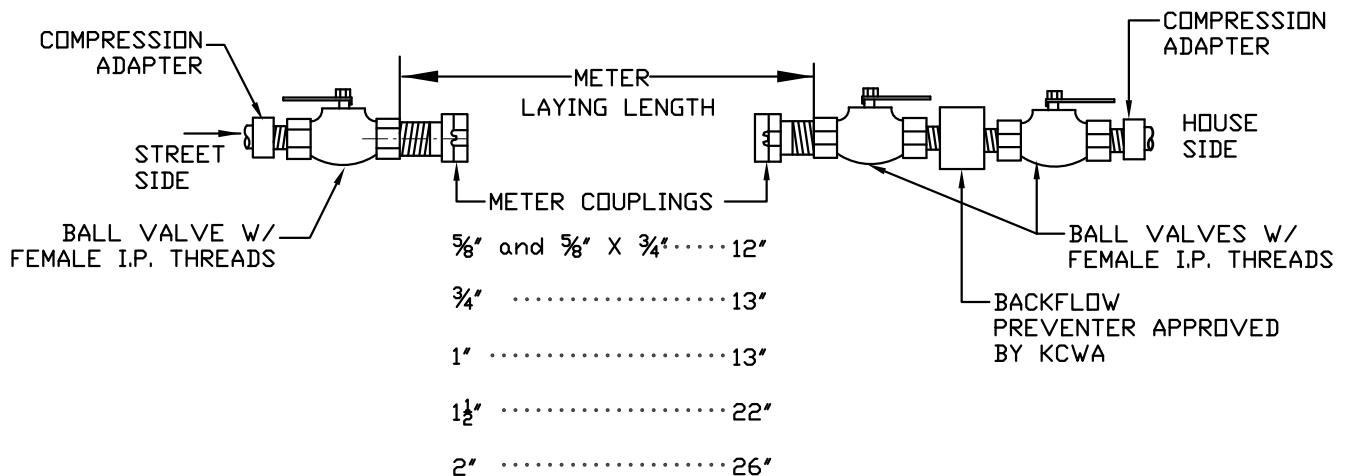
APPENDIX B

STANDARD DETAILS



- NOTES:**
1. METER TO BE INSTALLED BY KCWA. ALL FITTINGS, VALVES, AND BACKFLOW PREVENTER TO BE INSTALLED BY OWNER.
 2. HYDRO-PNEUMATIC PUMPS TO BE INSTALLED AFTER BACKFLOW DEVICE AS REQUIRED AND ONLY AS APPROVED.
 3. METER TO BE EASILY ACCESSIBLE AT ALL TIMES AND LOCATED IN AN UNOBSTRUCTED AREA.
 4. KCWA WILL INSTALL THE METER AND COUPLINGS.
 5. METER LAYING LENGTH SHOULD BE VALVE TO VALVE.

RESIDENTIAL WATER METER INSTALLATION



WATER METER SETTINGS WITH FITTINGS

KCWA

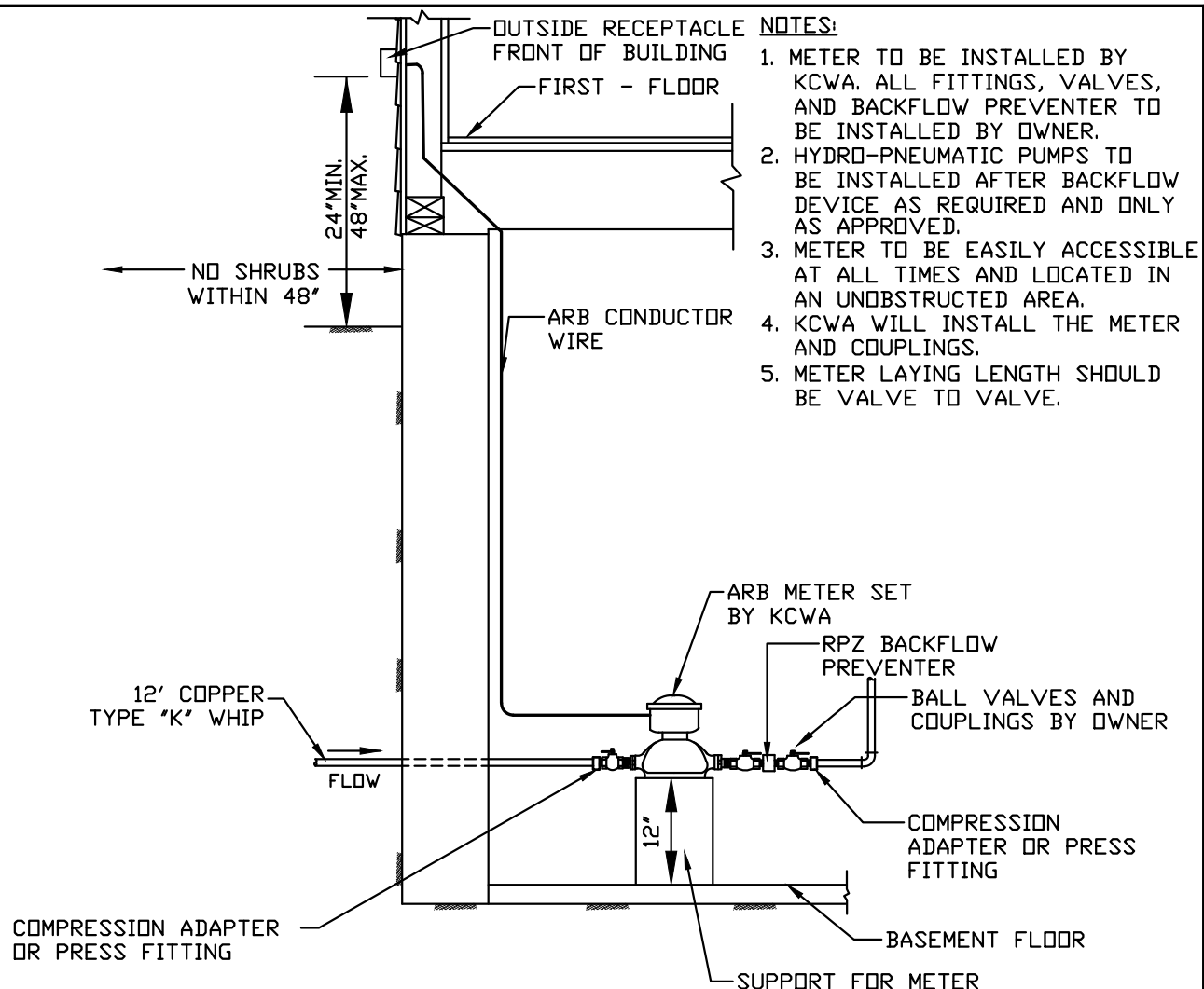
"proudly serving"

KENT COUNTY WATER AUTHORITY

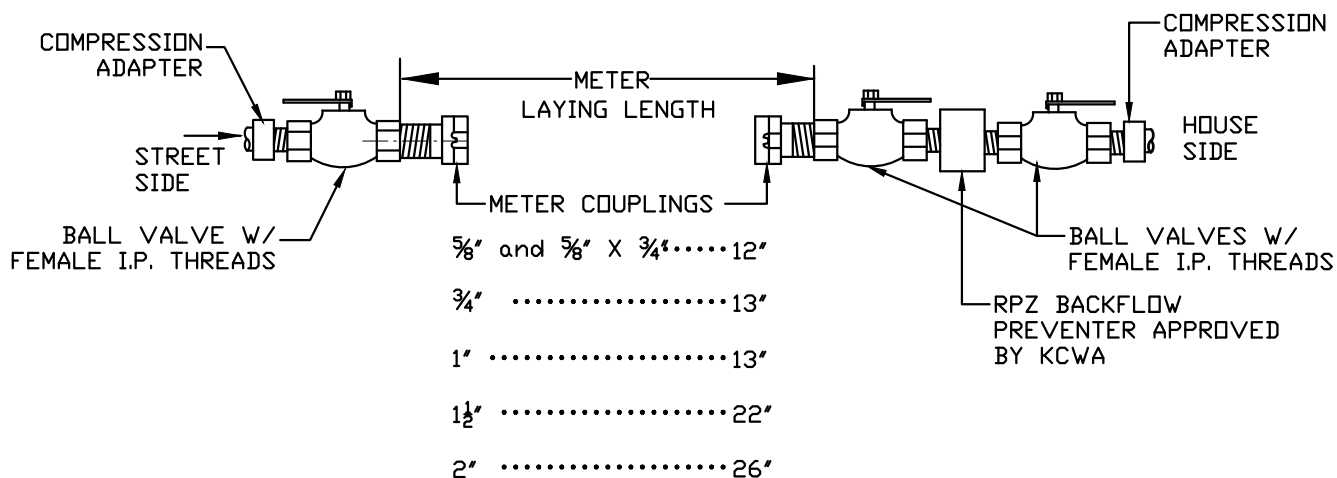
RESIDENTIAL WATER METER

NOT TO SCALE

DATE: 3/2024



COMMERCIAL WATER METER INSTALLATION



WATER METER SETTINGS WITH FITTINGS

KCWA

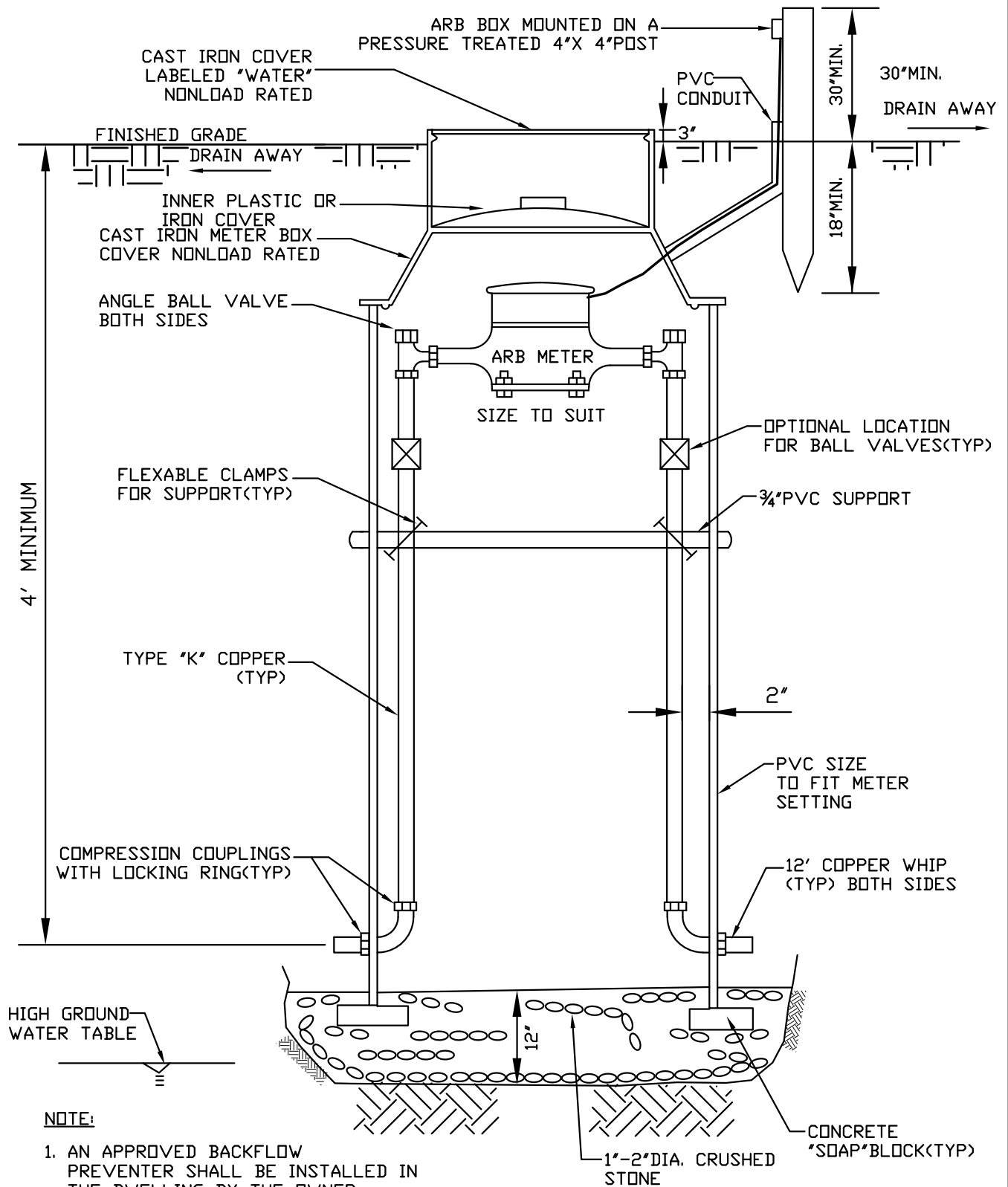
"proudly serving"

KENT COUNTY WATER AUTHORITY

COMMERCIAL WATER METER

NOT TO SCALE

DATE: 10/2025



NOTE:

1. AN APPROVED BACKFLOW PREVENTER SHALL BE INSTALLED IN THE DWELLING BY THE OWNER.
2. FOR USE IN LOW GROUND WATER AREAS, CHAMBER MAY NOT BE SUBJECT TO FLOODING.

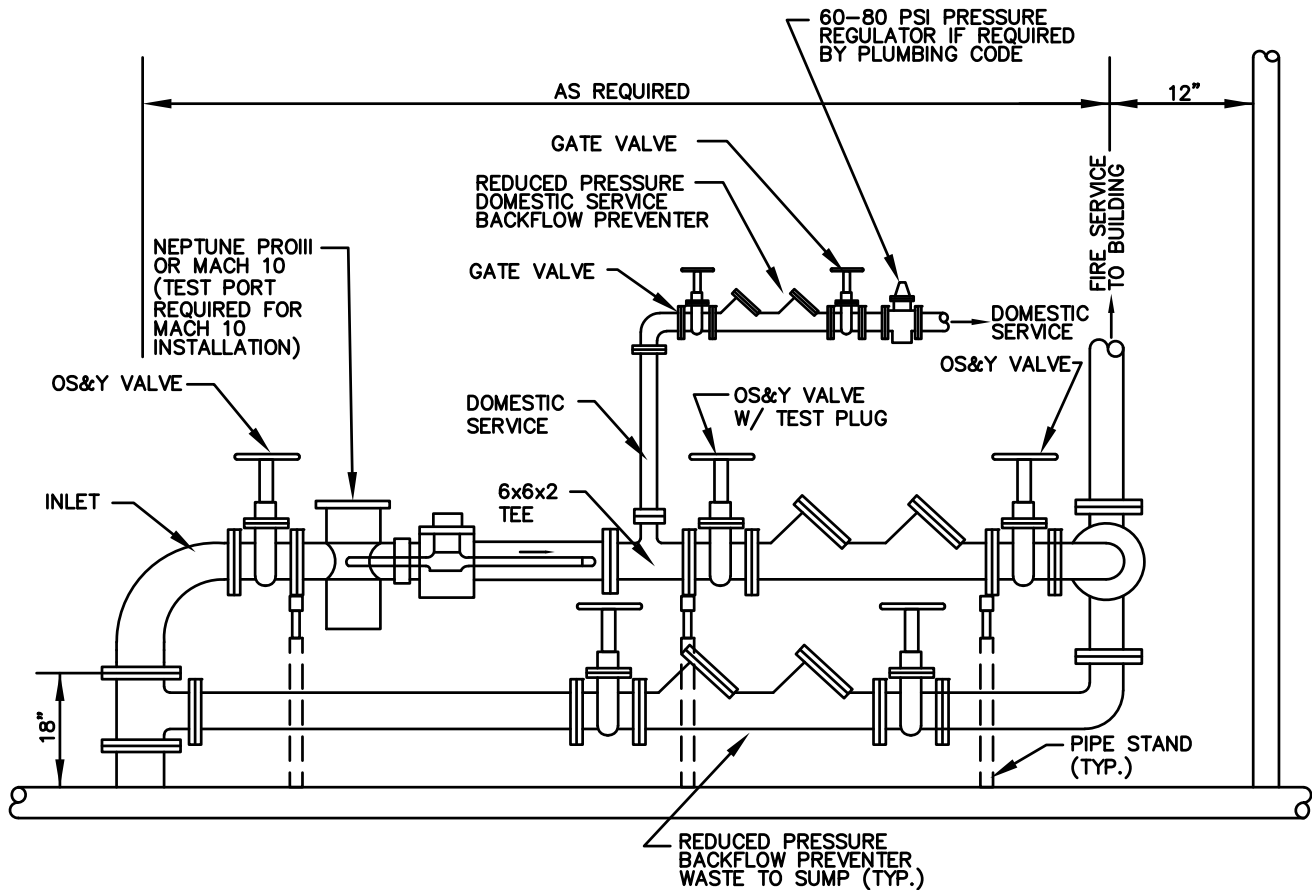
KCWA

"proudly serving"

**KENT COUNTY WATER AUTHORITY
OFF ROAD SINGLE SERVICE
METER PIT NONLOAD RATED**

NOT TO SCALE

DATE: 3/2024



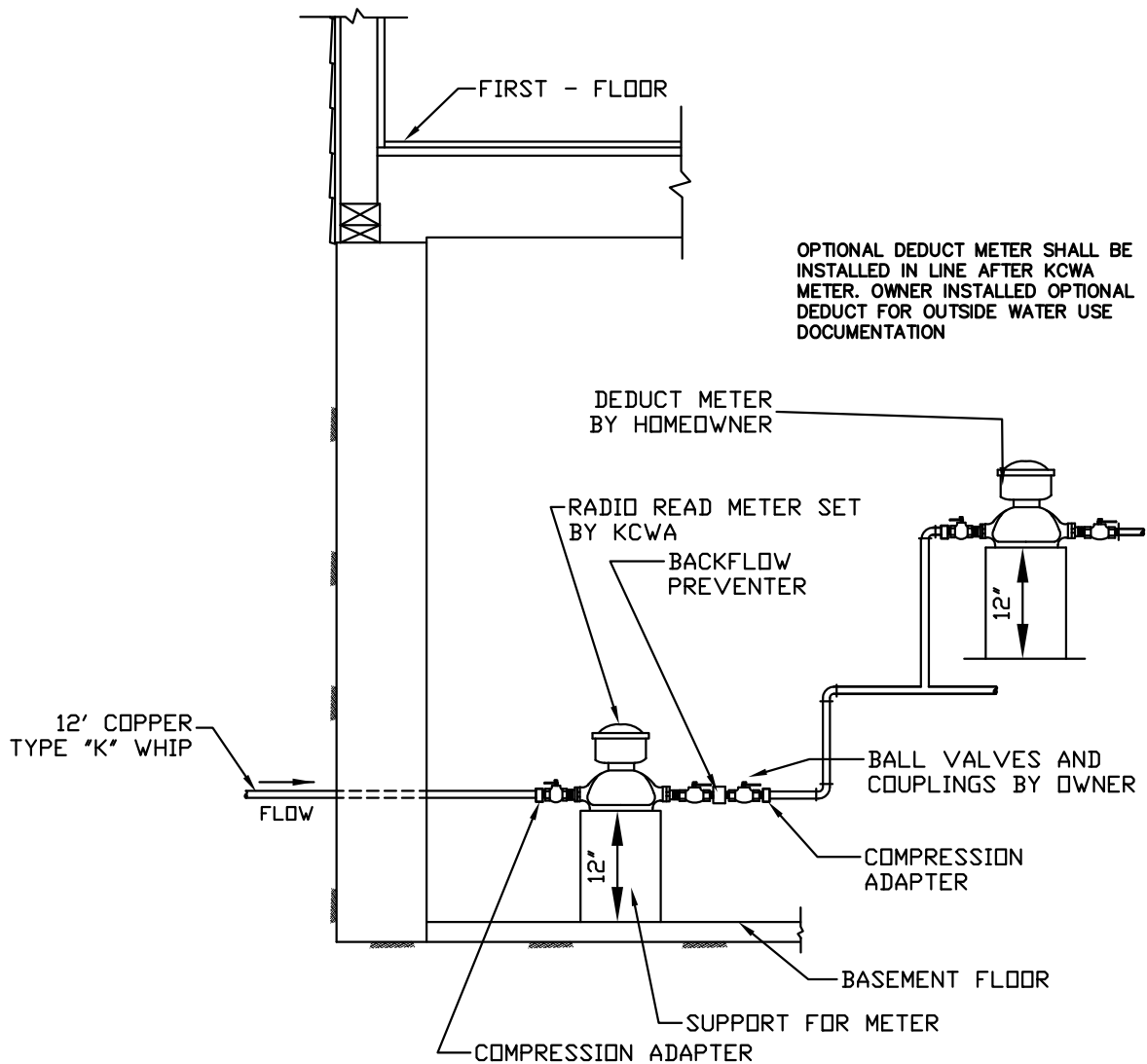
NOTES:

1. ALL PIPE, FITTINGS AND APPURTENANCES SHALL BE LINED WITH NSF APPROVED COATINGS OR NON LEAD BRASS OR STAINLESS STEEL.
2. METER AND BACKFLOW TO BE LOCATED IN A HEATED SPACE WITH UNOBSTRUCTED ACCESS FOR MAINTENANCE, REPAIR AND TESTING.
3. METER, BACKFLOW AND ALL APPURTENANCES TO BE PURCHASED AND INSTALLED BY PROPERTY OWNER.
4. ALL COMPONENTS MUST MEET KENT COUNTY WATER AUTHORITY MATERIAL REQUIREMENTS.
5. DOMESTIC BYPASS IS AT THE OPTION OF THE OWNER TO INSTALL.
6. TEST PORT SPOOL PIECE REQUIRED FOR MACH 10 METER INSTALLATION.
7. VICTAULIC CONNECTIONS MAY BE USED AFTER THE METER UPON APPROVAL BY KENT COUNTY WATER AUTHORITY. THE COATINGS MUST BE NSF APPROVED FOR DRINKING WATER.
8. BACKFLOW PREVENTERS FITTED WITH BUTTERFLY VALVES MAY BE USED IN LIEU OF OS&Y VALVES.

KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
**ABOVE GRADE FIRE &
DOMESTIC INSTALLATION**
NOT TO SCALE

DATE: 3/2024



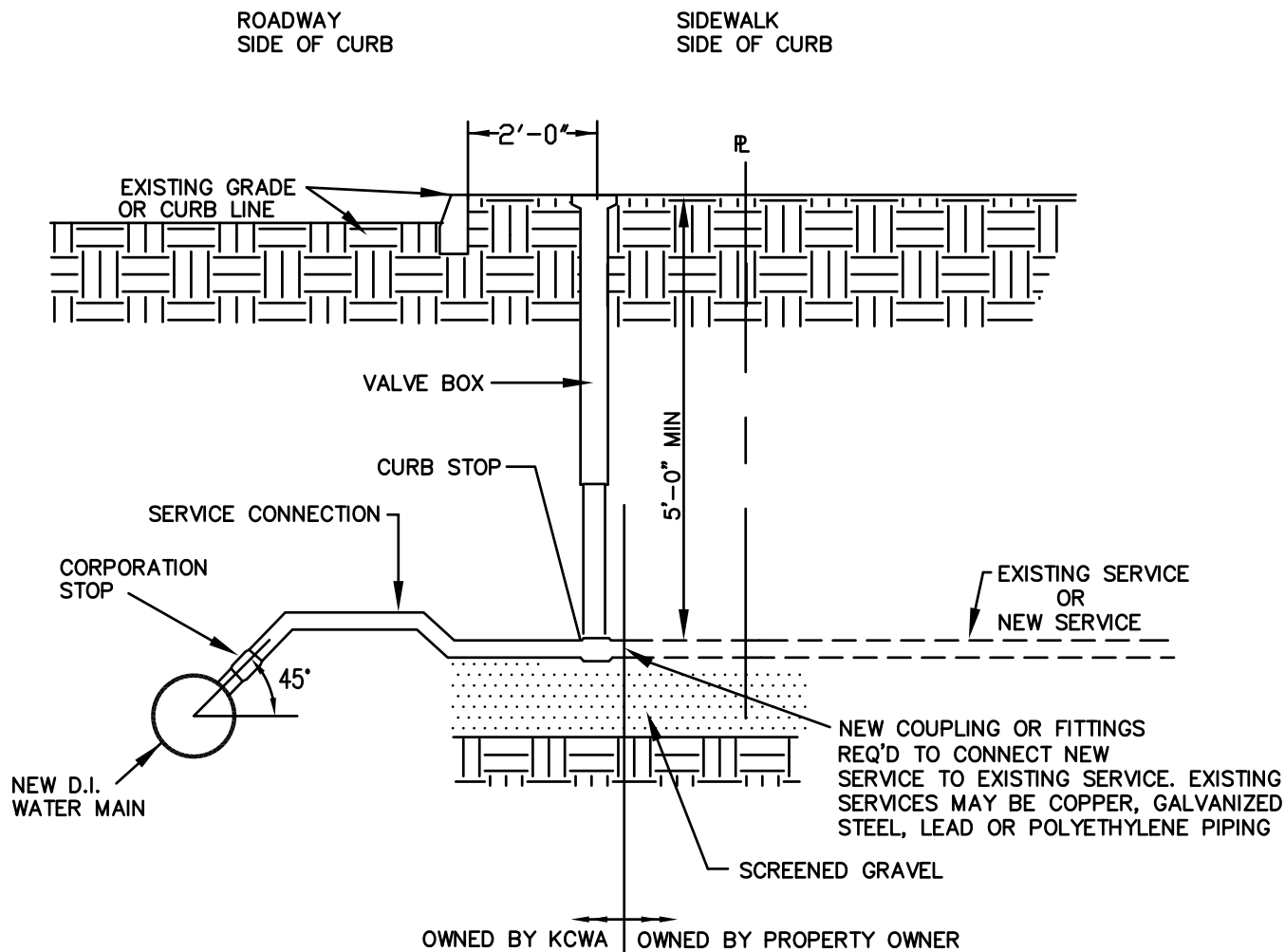
KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
DEDUCT METER INSTALLATION
HOMEOWNERS RESPONSIBILITY

NOT TO SCALE

DATE: 3/2024

DEDUCTMETER.DWG



NOTE:

- 1.) SERVICE MATERIALS PER KCWA SPECIFICATION UNLESS CITY OR TOWN CODES REQUIRE SPECIFIC MATERIALS THAT HAVE BEEN APPROVED BY KCWA.
- 2.) SERVICE LINE FROM CURB BOX TO BUILDING SHALL BE INSPECTED, TESTED AND APPROVED BY THE LOCAL PLUMBING INSPECTOR.

KCWA

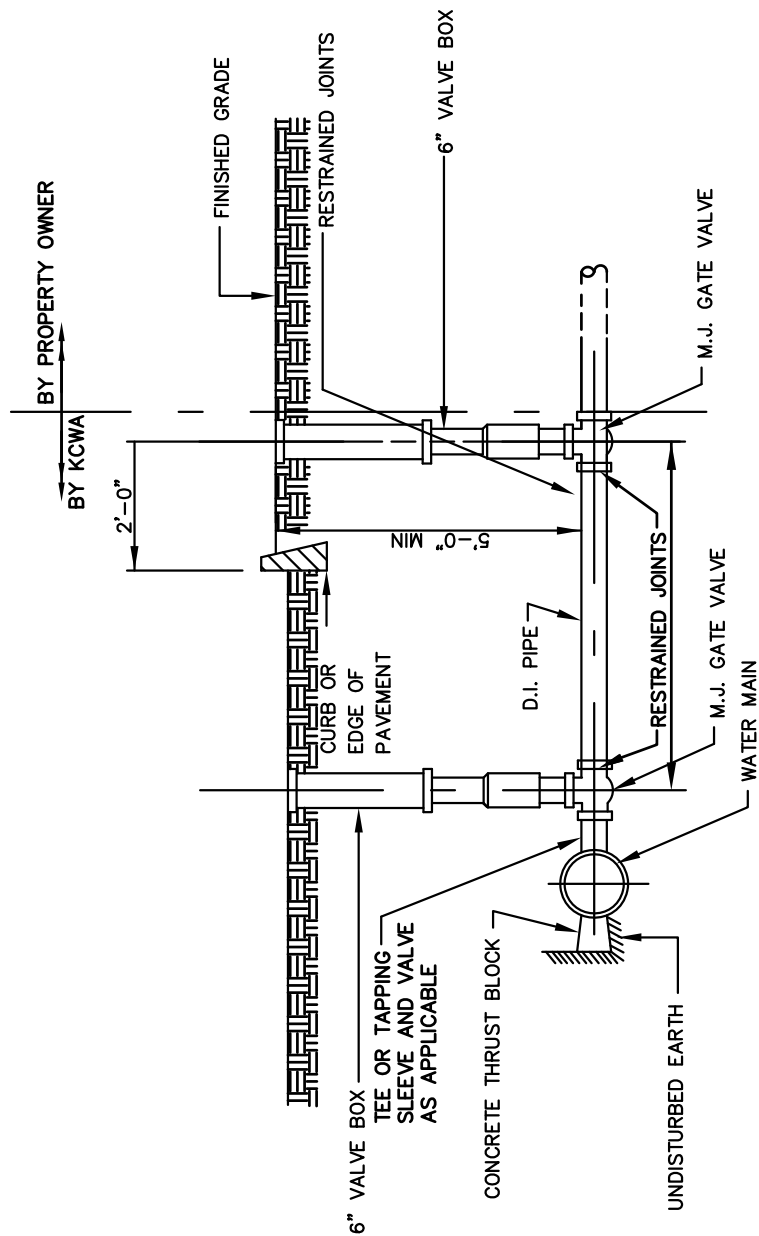
"proudly serving"

KENT COUNTY WATER AUTHORITY

SERVICE CONNECTION

NOT TO SCALE

DATE: 3/2024



NOTE:
1. MATERIALS PER KCWA REGULATIONS

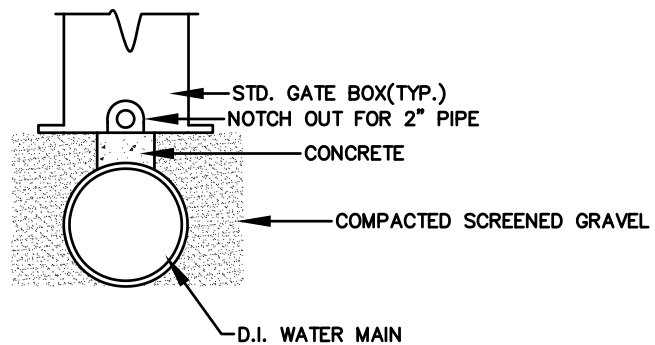
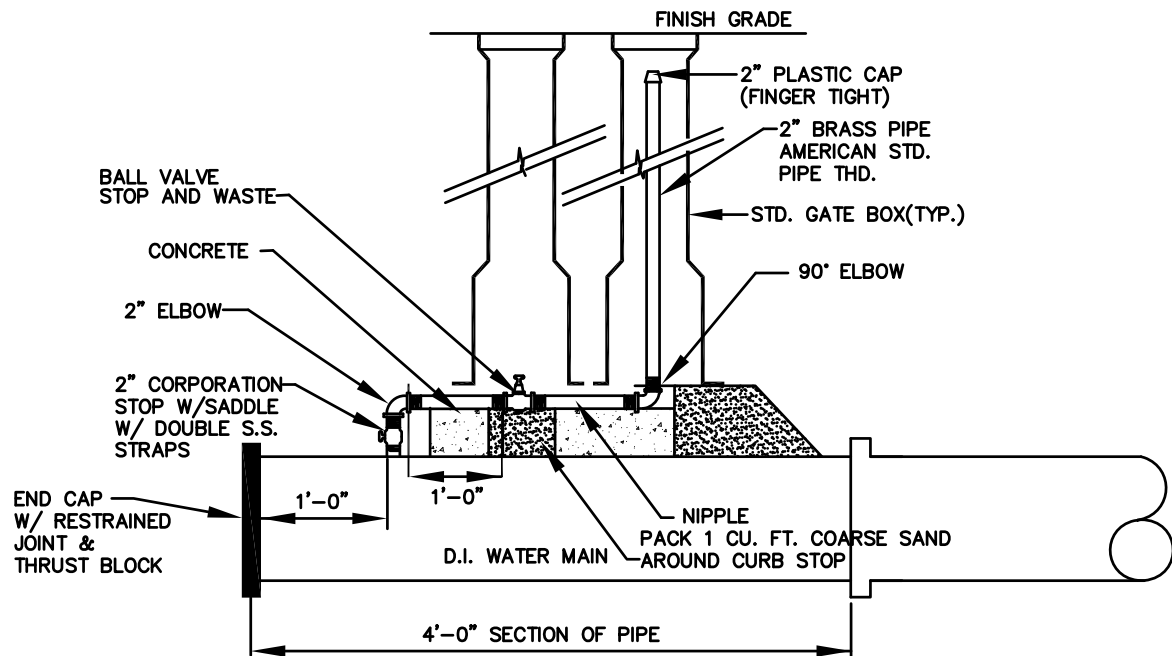
KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
SERVICE CONNECTION
GREATER THAN 4 INCHES

NOT TO SCALE

DATE: 3/2024

4SERVICE.DWG



KCWA

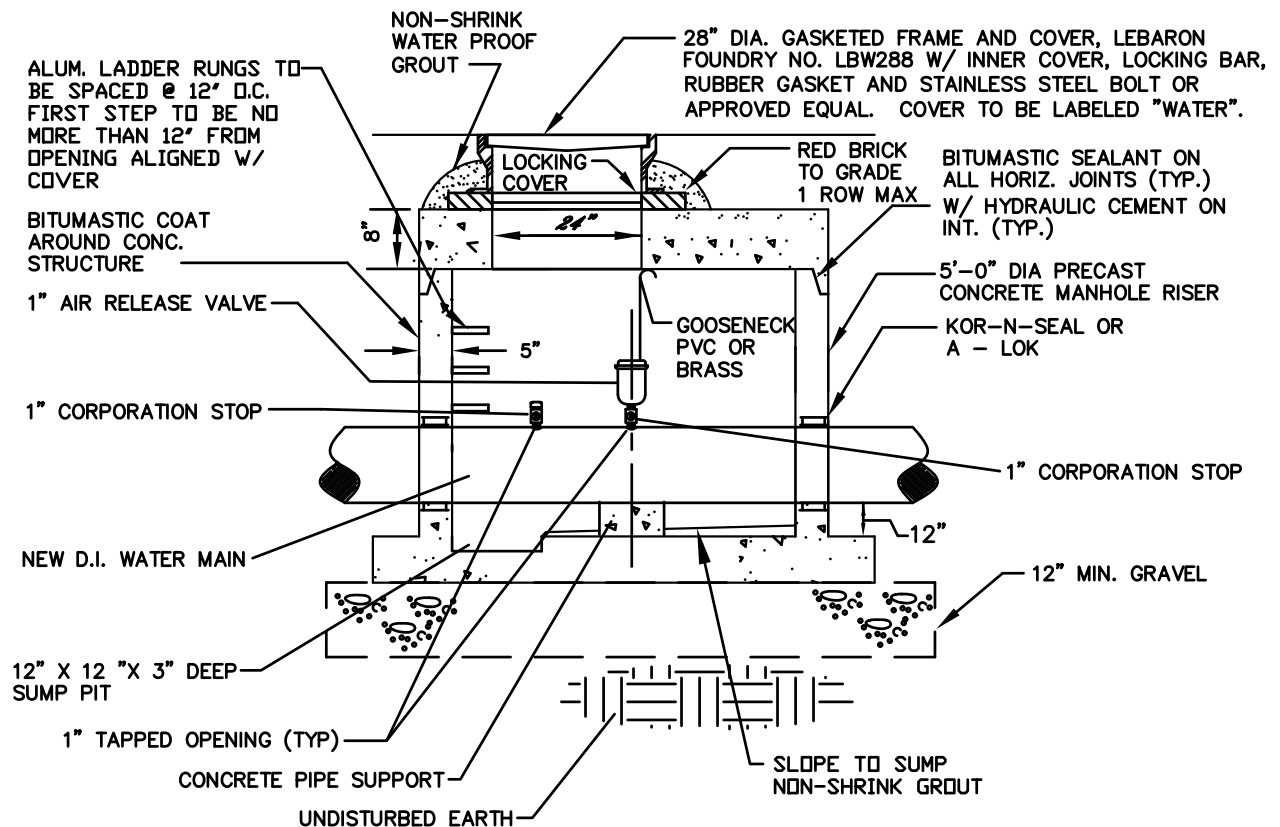
"proudly serving"

KENT COUNTY WATER AUTHORITY
PERMANENT BLOWOFF ASSEMBLY

NOT TO SCALE

DATE: 3/2024

PBLOWOFF.DWG



KCWA

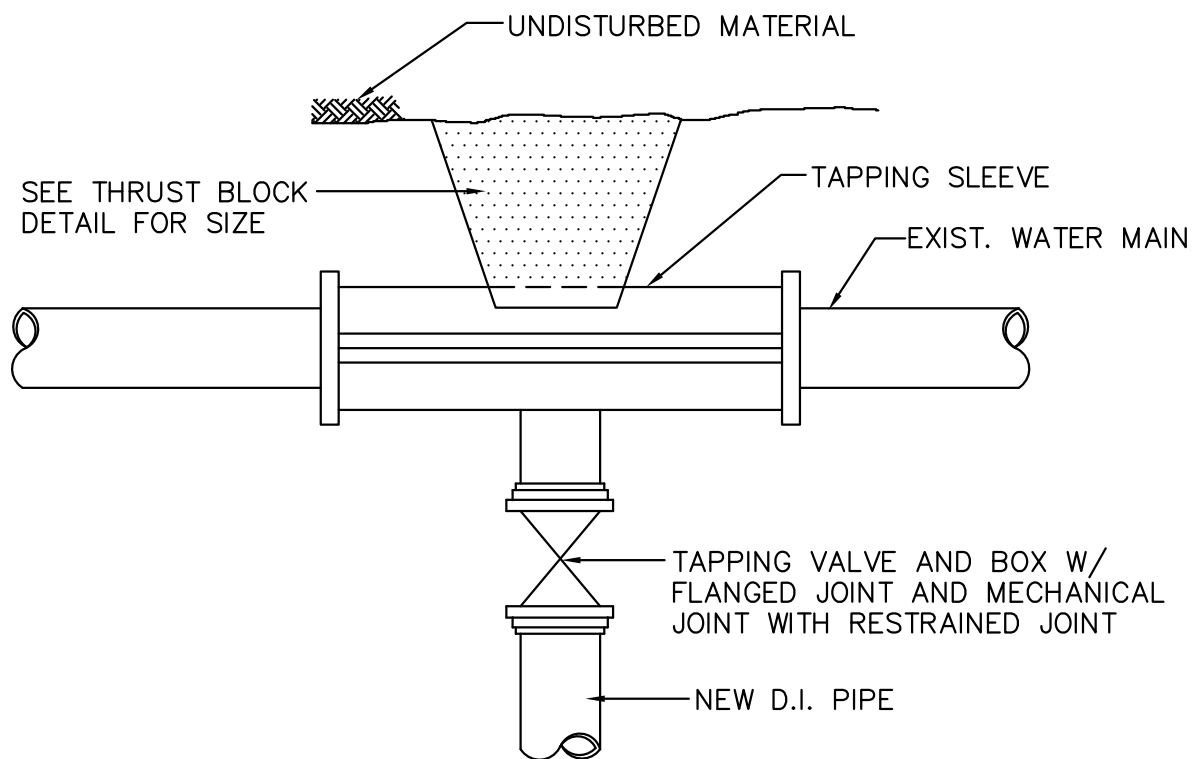
"proudly serving"

KENT COUNTY WATER AUTHORITY
AUTOMATIC AIR RELEASE MANHOLE

NOT TO SCALE

DATE: 3/2024

AUAIRRMH.DWG



NOTE:

- 1.) TAPPING SLEEVE AND VALVE TO BE
SWABBED WITH CHLORINE SOLUTION.

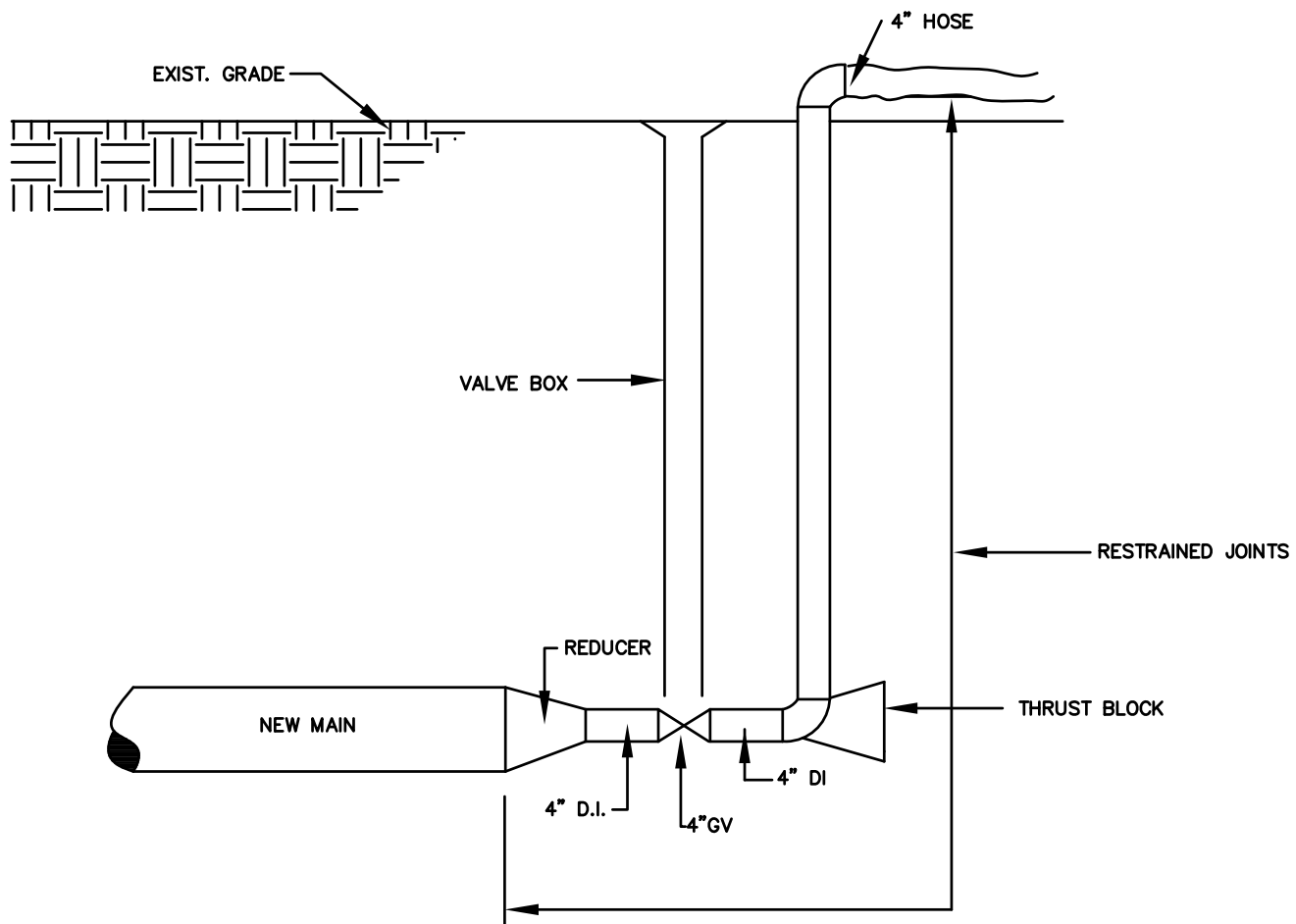
KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
TAPPING SLEEVE AND VALVE

NOT TO SCALE

DATE: 3/2024

TAPNGSLEVE.DWG



NOTE:

AFTER THE COMPLETION OF THE
FINAL FLUSHING THE CONTRACTOR
SHALL REMOVE THE TEMPORARY
FLUSHING CONNECTION AND CONNECT THE
NEW WATER TO THE EXIST. WATER MAIN
ALL PIPING AND FITTING SHALL BE DISINFECTED
TO THE SATISFACTION OF THE KCWA.

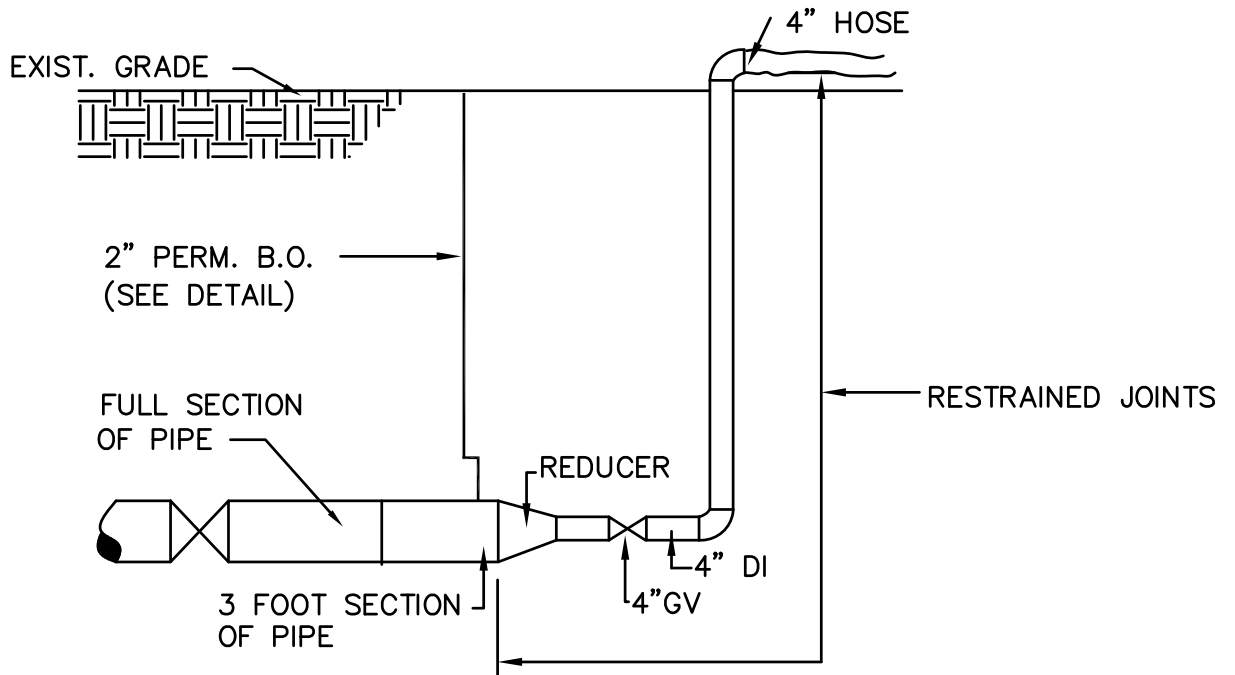
KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
TEMPORARY FLUSHING CONNECTION

NOT TO SCALE

DATE: 3/2024

TFLUSHCD.DWG



AFTER THE COMPLETION OF THE
FINAL FLUSHING THE CONTRACTOR
SHALL REMOVE THE TEMPORARY
FLUSHING CONNECTION AND INSTALL
A CAP WITH MEGALUGS AND A
THRUST BLOCK

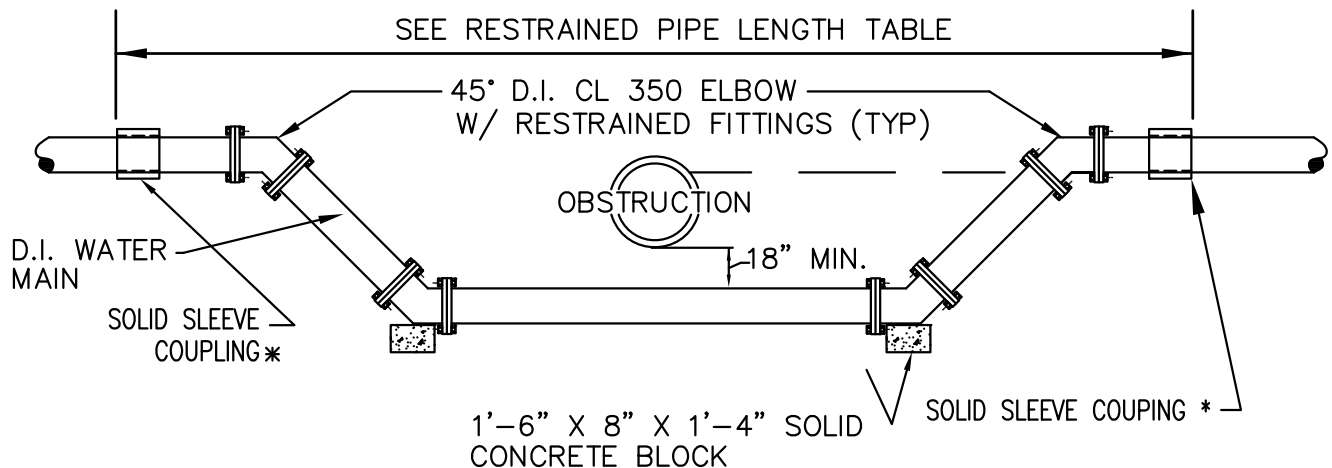
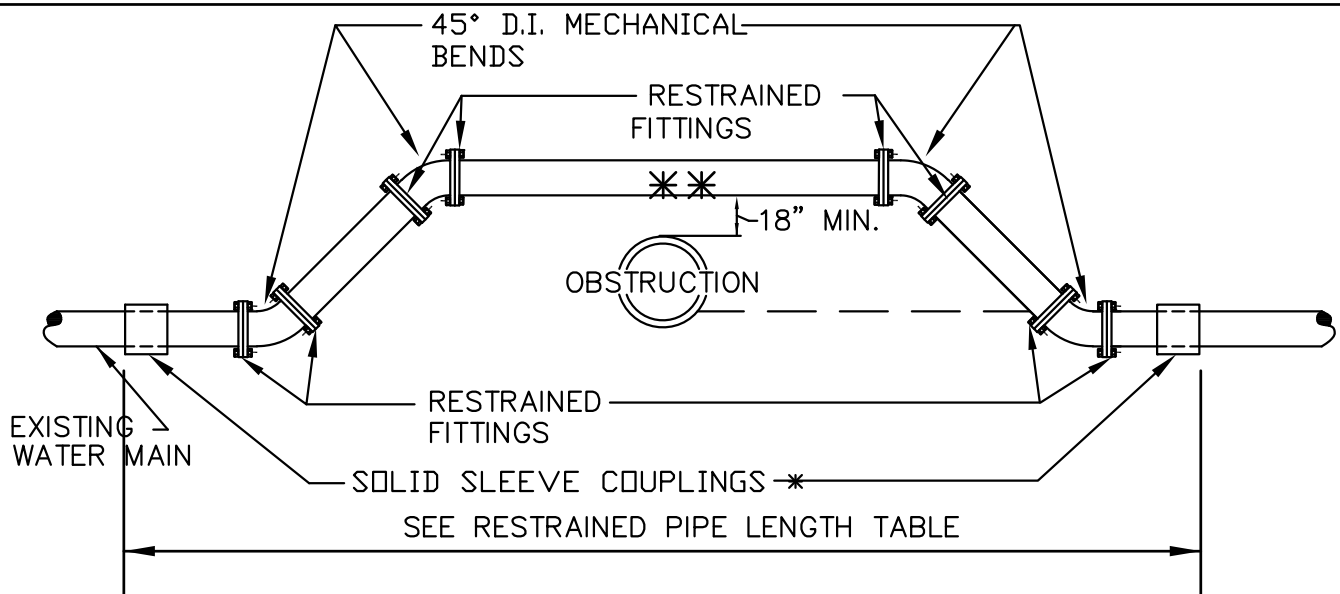
KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
TEMPORARY FLUSHING CONNECTION
ON DEAD END WATER MAIN

NOT TO SCALE

DATE: 3/2024

TFLUSH.DWG



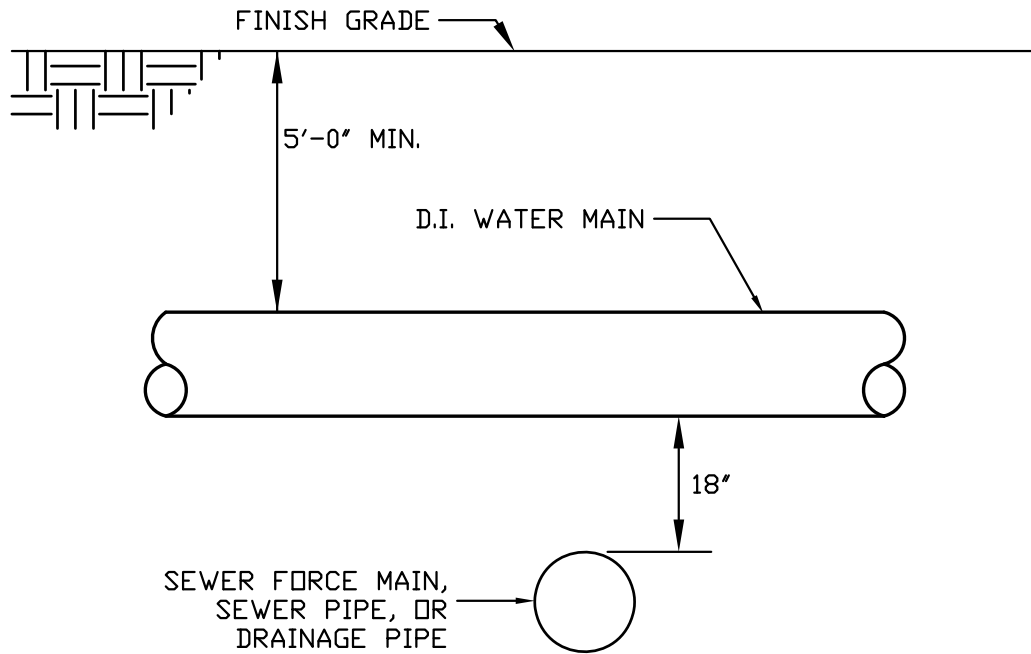
- * TRANSITION COUPLING, DRESSER STYLE, TO BE USED ONLY WHEN EXISTING WATER MAIN IS OF DIFFERENT MATERIAL OTHER THAN DUCTILE IRON.
- * SOLID SLEEVE TO BE RESTRAINED WITH APPROVED RESTRAINT FITTINGS
- * ONLY TO BE USED WHEN CALCULATED FRICTION LOSS WILL NOT ADVERSELY EFFECT DISTRIBUTION PRESSURE AND FLOW
- ** MINIMUM DEPTH OF COVER SHALL BE 2'-0". THE WATER PIPE SHALL BE CLASS 54 AND INSULATED WITH 2" FOAMGLASS INSULATION W/ PITT WRAP OR EQUAL WHERE THE WATER PIPE HAS LESS THAN 5' OF COVER

KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
WATER MAIN HORIZONTAL OR
VERTICAL RELOCATION

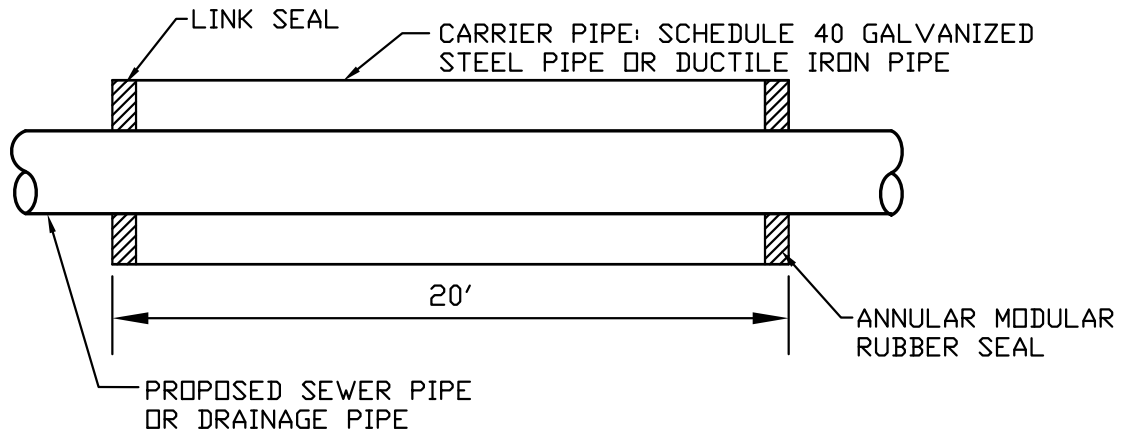
NOT TO SCALE

DATE: 3/2024



NOTES:

1. THE VERTICAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 18 INCHES.
2. THE HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 10 FEET.
3. IF 1 OR 2 CANNOT BE MAINTAINED THE PROPOSED UTILITY SHALL BE INSTALLED WITHIN A CARRIER PIPE UPON WRITTEN APPROVAL BY THE KCWA.
4. SEWER MAIN AND SERVICES ARE NOT ALLOWED TO CROSS OVER THE TOP OF WATER MAIN.
5. CONCRETE ENCASEMENT IS NOT ALLOWED.



CARRIER PIPE DETAIL

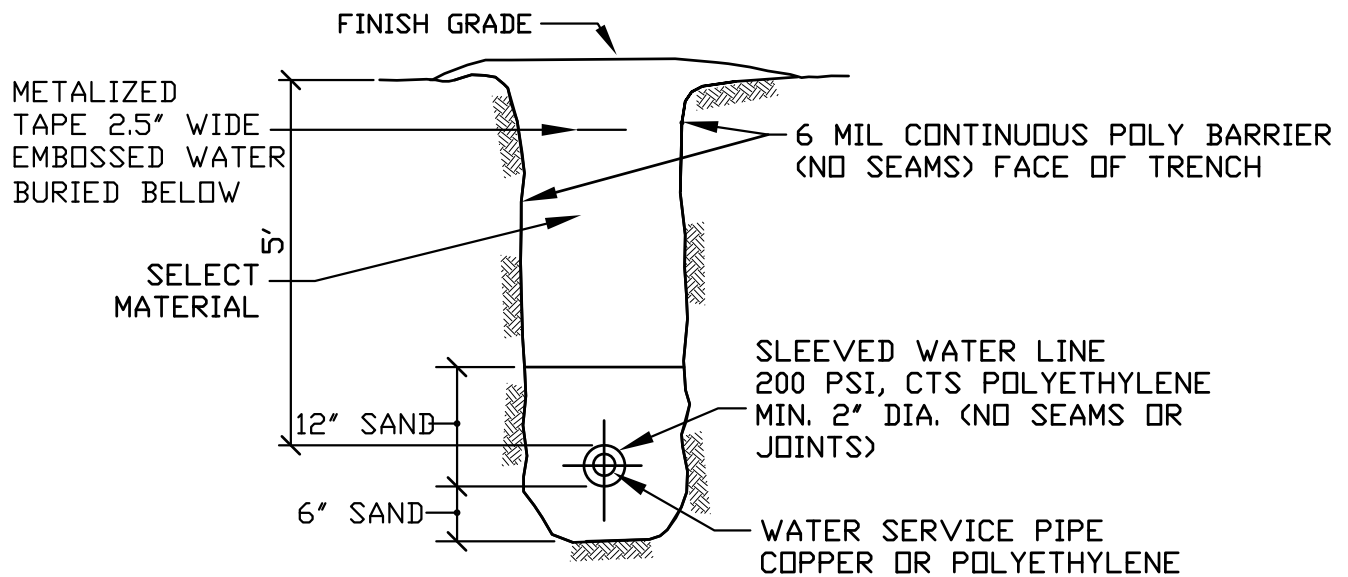
KCWA
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KENT COUNTY WATER AUTHORITY
UTILITY SEPERATION

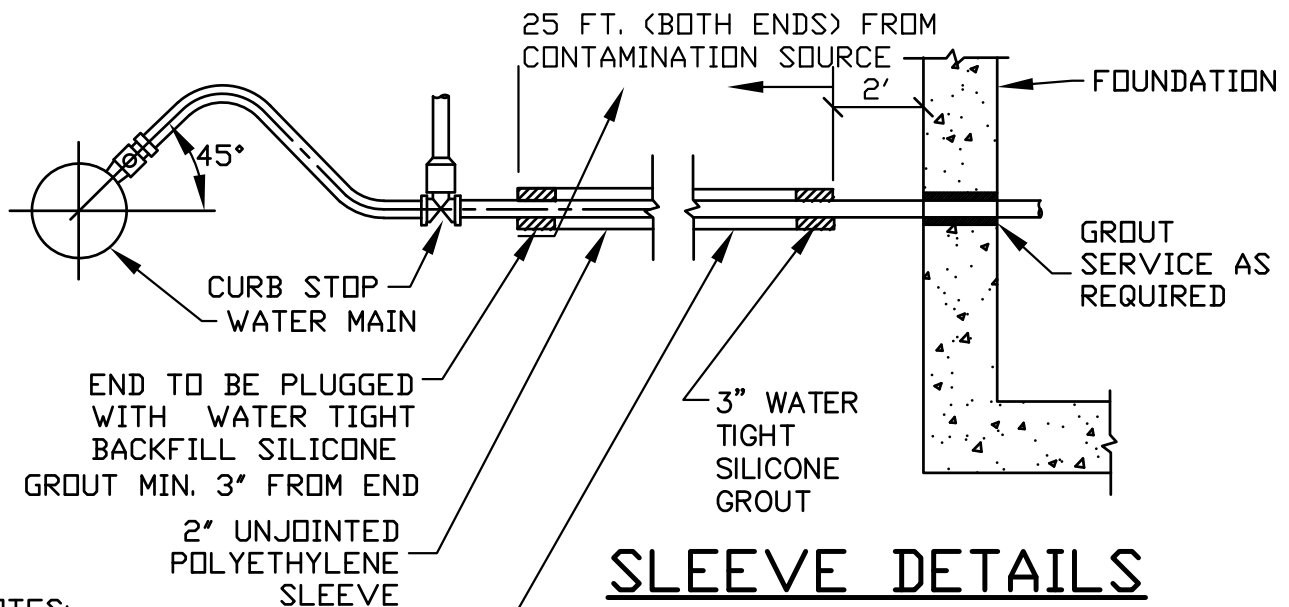
NOT TO SCALE

DATE: 3/2024

UTILSEPD.DWG



TRENCH DETAIL



SLEEVE DETAILS

NOTES:

- 1.) 12' COPPER WHIP REQUIRED
- 2.) EXISTING SYSTEM ONLY. NOT TO BE USED FOR NEW CONST. MUST OBTAIN PRIOR APPROVAL FROM KCWA GENERAL MANAGER/ CHIEF ENGINEER.

KCWA

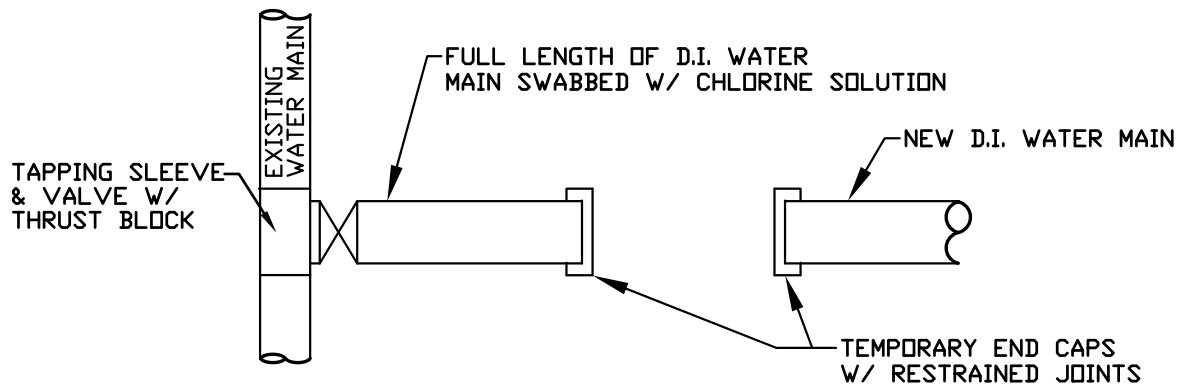
"proudly serving"

KENT COUNTY WATER AUTHORITY
**WATER SERVICE WITHIN 25 FT.
 OF CONTAMINATION SOURCE**

NOT TO SCALE

DATE: 3/2024

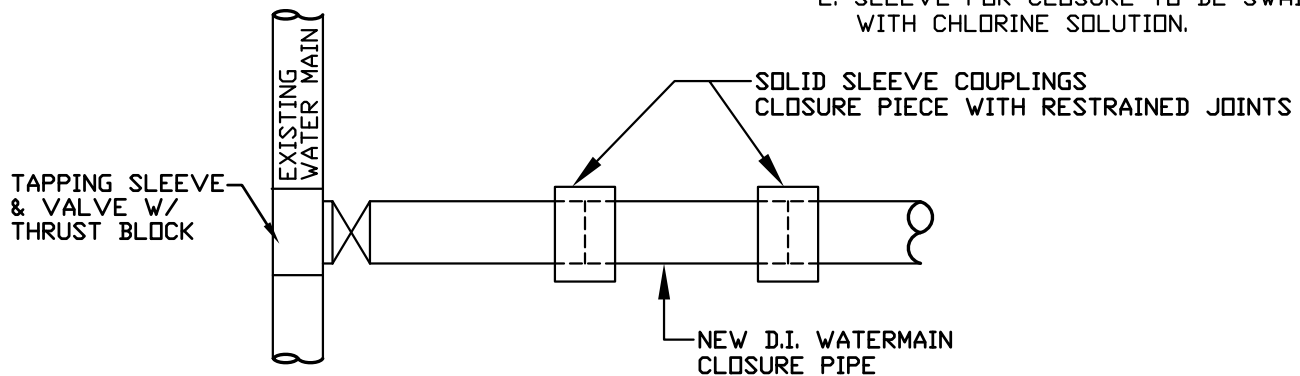
SLEEVEDET.DWG



PRIOR TO CONNECTION

NOTE:

1. PRIOR TO FINAL APPROVAL FOR PERMANENT CONNECTION FROM KCWA, CONTRACTOR SHALL PERFORM. PRESSURE TESTING AND CHLORINATION.
2. SLEEVE FOR CLOSURE TO BE SWABBED WITH CHLORINE SOLUTION.



CONNECTION

KCWA

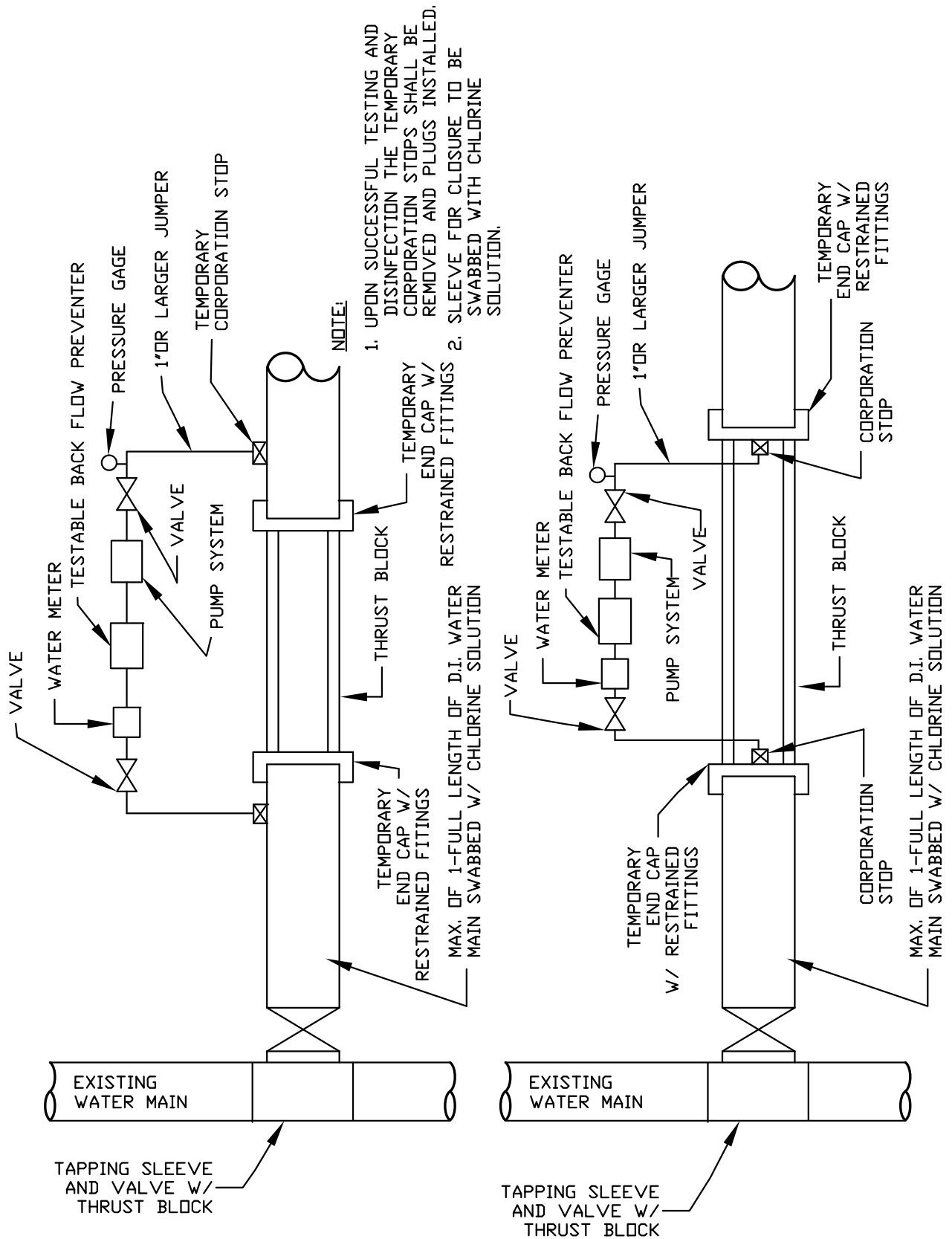
"proudly serving"

KENT COUNTY WATER AUTHORITY CONNECTION OF NEW WATER MAIN TO EXISTING WATER MAIN

NOT TO SCALE

DATE: 3/2024

CONVM.DWG



KCWA

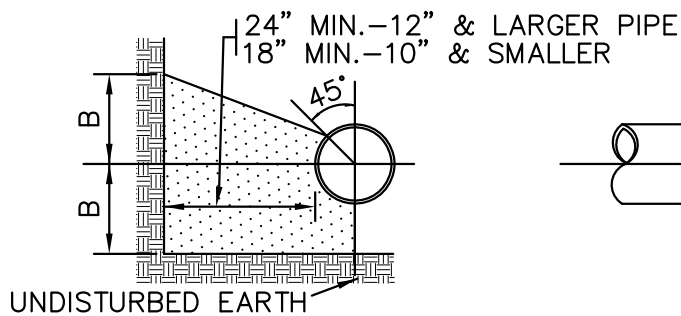
"proudly serving"

KENT COUNTY WATER AUTHORITY
TEMPORARY CONNECTION FOR PRESSURE
TESTING AND DISINFECTION

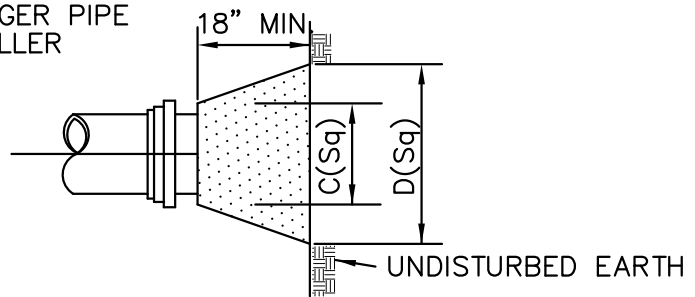
NOT TO SCALE

DATE: 3/2024

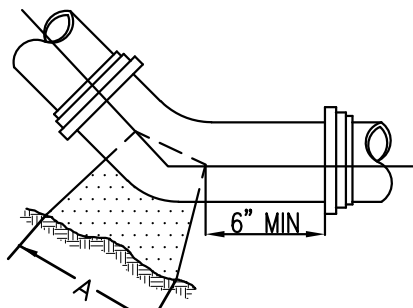
TEMPCONP.DWG



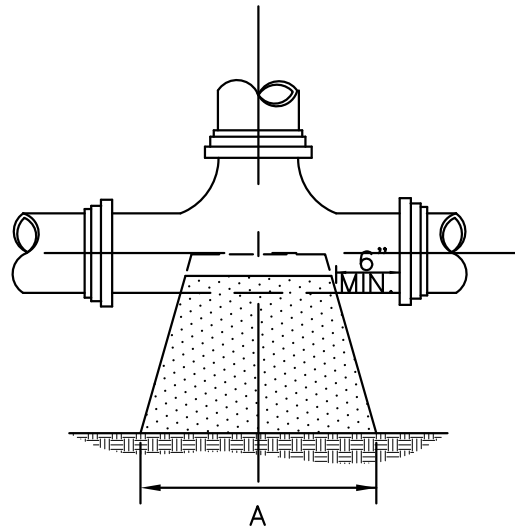
BENDS & TEES SECTION



PLAN & ELEVATION PLUGS



PLAN BENDS



PLAN TEES

NOTES:

- 1.) ALL CONCRETE SHALL BE 4000 P.S.I @ 28 DAYS.
- 2.) CONCRETE THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.
- 3.) FORMS TO BE USED AS NECESSARY.
- 4.) ALL BOLTS AND NUTS TO BE PROTECTED FROM CONCRETE AND EASILY ACCESSIBLE WHEN THRUST BLOCK INSTALLED.
- 5.) REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF R.I. SHALL VERIFY ALL CALCULATIONS DURING DESIGN TO MEET CONDITIONS OF PROJECT AND KCWA REQUIREMENTS.
- 6.) IN LIEU OF POURED IN-PLACE CONCRETE THRUST BLOCKS, PRECAST CONCRETE THRUST BLOCKS WILL BE ALLOWED, MINIMUM SIZE 2'x2'x2'.
- 7.) IN ADDITION TO THRUST BLOCKS ALL FITTINGS SHALL HAVE MECHANICAL RESTRAINED JOINTS.

SIZE	TEES		PLUGS		90° BEND		45° BEND		22½° BEND		11¼° BEND	
	A	B	C	D	A	B	A	B	A	B	A	B
6"	20"	10"	10"	21"	24"	12"	18"	9"	13"	7"	9"	5"
8"	26"	13"	12"	26"	32"	16"	24"	12"	17"	9"	12"	6"
10"	34"	17"	14"	34"	40"	20"	30"	15"	22"	11"	15"	8"
12"	41"	20"	16"	41"	48"	24"	35"	18"	25"	13"	18"	9"
16"	54"	27"	20"	54"	64"	32"	47"	23"	34"	17"	24"	12"

KENT COUNTY WATER AUTHORITY

KCWA

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THRUST BLOCK

NOT TO SCALE

DATE: 3/2024

TBLKDET.DWG

RESTRAINED PIPE LENGTHS FOR RESTRAINED FITTINGS

FITTING	RESTRAINED LENGTH
12" DEAD END	55'
12" x 12" TEE	44' (ON BRANCH)
12" x 10" TEE	34' (ON BRANCH)
12" x 8" TEE	23'
12" x 6" TEE	9'
12" 90°BEND	24'
12" 45°BEND	10'
12" 22-1/2°BEND	5'
12" 11-1/4°BEND	3'
12" x 8" REDUCER	29' (ON 12")
12" x 6" REDUCER	40' (ON 12")
12" x 4" REDUCER	48' (ON 12")
8" DEAD END	39'
8" x 8" TEE	28' (ON BRANCH)
8" x 6" TEE	16' (ON BRANCH)
8" 90°BEND	17'
8" 45°BEND	7'
8" 22-1/2°BEND	4'
8" 11-1/4°BEND	2' (ON 8")
8" x 6" REDUCER	17' (ON 8")
8" x 4" REDUCER	28'
6" DEAD END	39'
6" x 6" TEE	19' (ON BRANCH)
6" 90°BEND	13'
6" 45°BEND	6'
6" 22-1/2°BEND	3'
6" 11-1/4°BEND	2'
6" x 4" REDUCER	15' (ON 6")

NOTE:

1. ALL JOINTS, INCLUDING PIPE JOINTS, VALVE JOINTS, AND FITTING JOINTS, SHALL BE RESTRAINED WITHIN THE LIMITS OF RESTRAINED LENGTHS LISTED ON THIS TABLE. MECHANICAL JOINT PIPE AND MECHANICAL RESTRAINTS WILL BE IN ACCORDANCE WITH THE ABOVE TABLE.
2. THE TABLE SHOWS LENGTHS OF PIPES WHICH MUST BE RESTRAINED ON BOTH SIDES OF THE FITTING.
3. ALL DEAD END PIPE SHALL BE PROPERLY RESTRAINED PRIOR TO PRESSURE TESTING.
4. REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF R.I. SHALL VERIFY ALL RESTRAINING CALCULATIONS & LENGTHS DURING DESIGN, MEETING ALL REQUIREMENTS OF THE KCWA.
5. THE RESTRAINED LENGTH FOR TEE IS ALONG THE BRANCH.
6. LENGTH TO BE RESTRAINED IS ON THE LARGE SIDE OF THE REDUCER.
7. IF THE REQUIRED RESTRAINED LENGTH IS NOT AVAILABLE A THRUST BLOCK SHALL BE INSTALLED.
8. RESTRAINED LENGTH SHALL INCORPORATE 2 TIMES SAFETY FACTOR.

KCWA
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KENT COUNTY WATER AUTHORITY
RESTRAINED PIPE LENGTHS

NOT TO SCALE

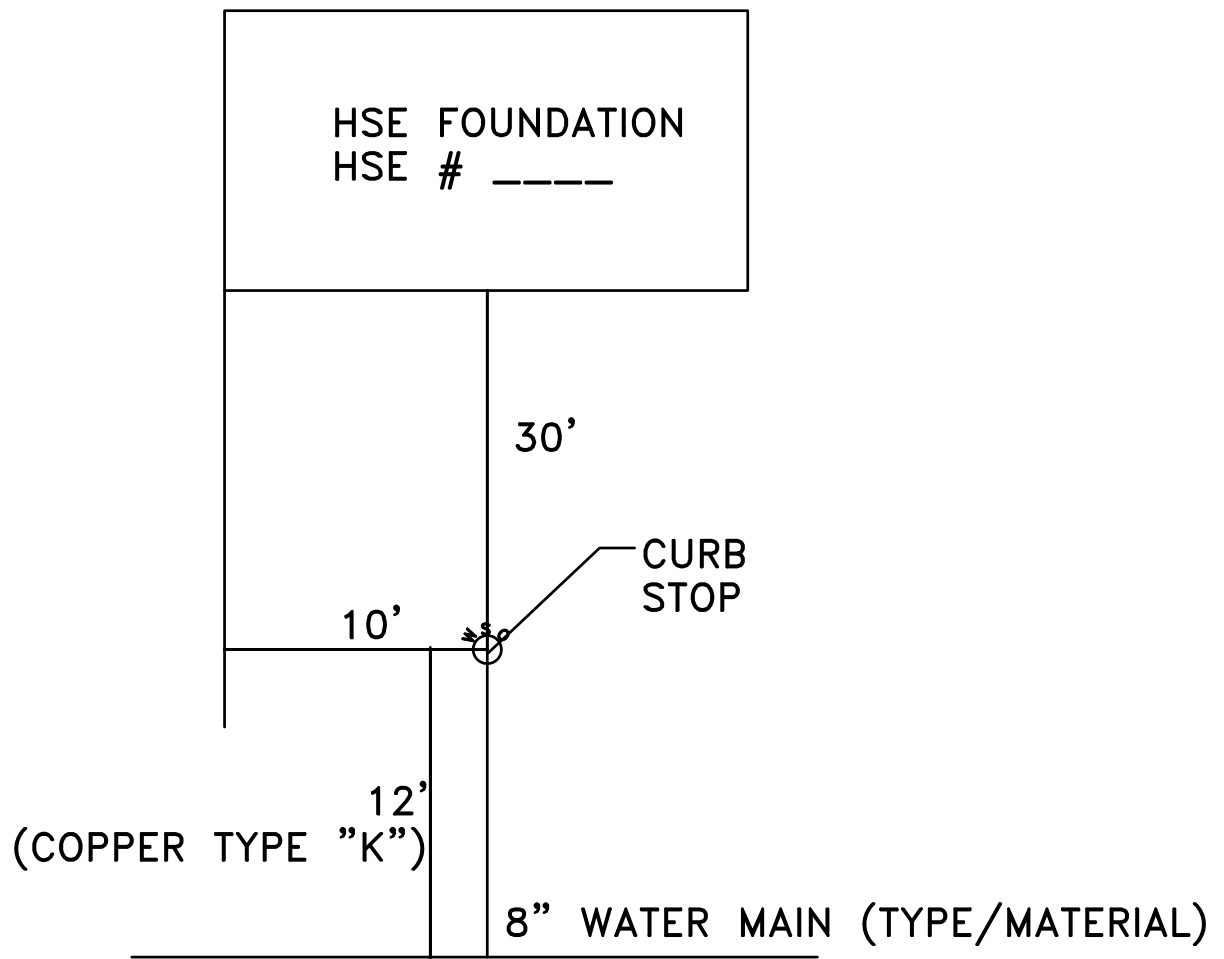
DATE: 03/2024

The diagram illustrates a water distribution system layout with the following components and dimensions:

- HSE 21:** A large rectangular structure at the top.
- HSE 30:** A rectangular structure at the bottom left.
- HSE 40:** A rectangular structure at the bottom right.
- 8x8 TEE:** A horizontal pipe segment connecting HSE 21 to the main system.
- 8" WATER MAIN:** A horizontal pipe segment running across the middle.
- EXIST 8" WATER:** A vertical pipe segment at the bottom, labeled "EXIST 8" WATER".
- 45° BEND:** A bend in the vertical pipe segment.
- Valves:** Two valves are shown, one on the 8" WATER MAIN and one on the vertical pipe segment.
- Dimensions:**
 - Horizontal distances: 10', 30', 5', 35', 25', 40', 15'.
 - Vertical distances: 10', 30', 5', 10'.
 - Curved dimensions: 36', 38', 42.5', 40', 30', 20', 15'.

ASBUILTMAIN.DWG

EXAMPLE OF HOUSE SERVICE AS- BUILTS



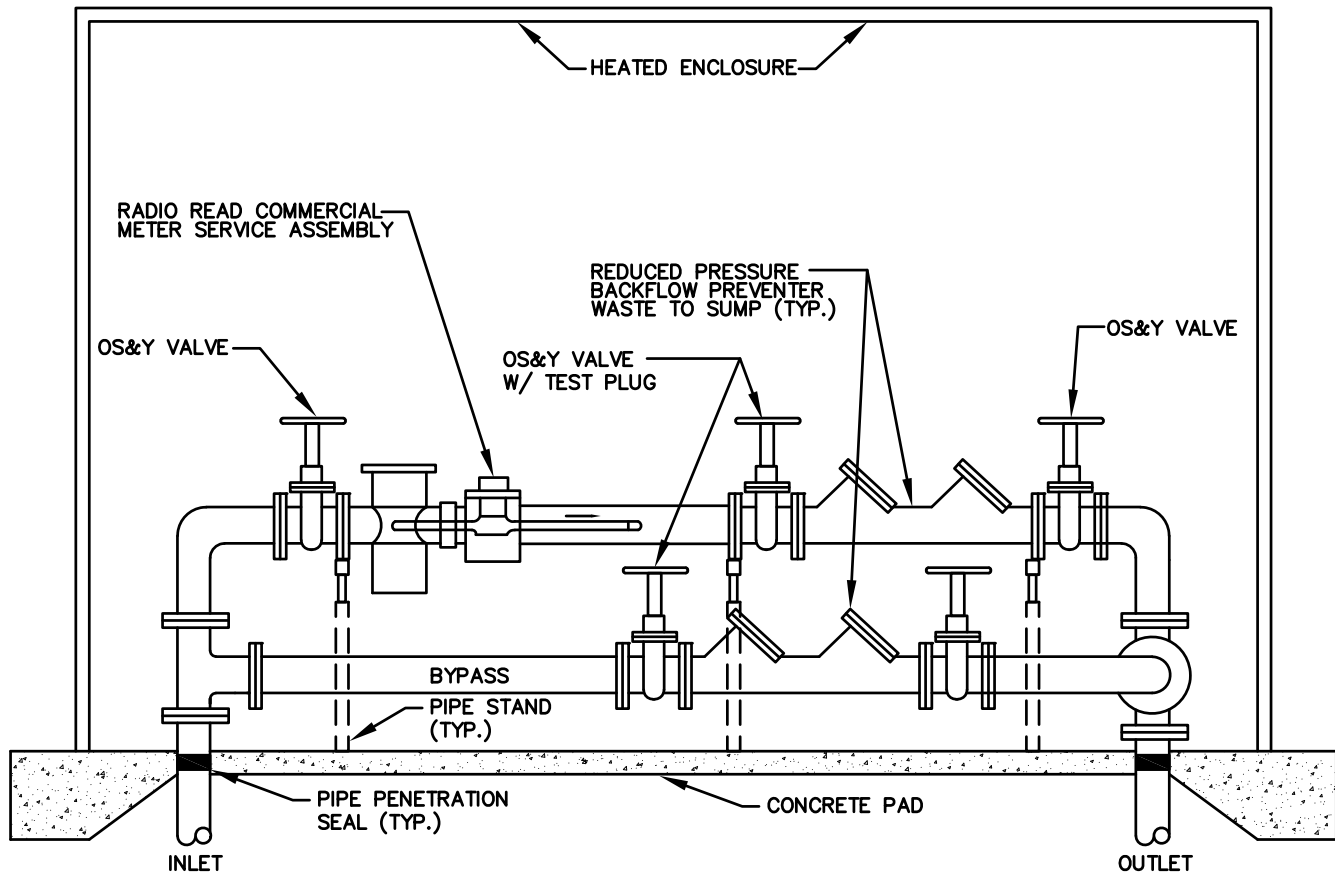
DEPTH OF MAIN = 5'
STANDARD SIZE OF SERVICE = 3/4"

KENT COUNTY WATER AUTHORITY

AS-BUILT EXAMPLE FOR WATER SERVICE

NOT TO SCALE

DATE: 3/2024



NOTES:

1. PROVIDE MAKE-UP OR SPOOL PIECES AS REQUIRED.
2. PROVIDE ACCESS AND BLOWOUT PANELS AS REQUIRED.
3. DESIGN FOR FROST AND FREEZING PROTECTION.
4. PROVIDE LIGHTING AND TEMPERATURE ALARM.
5. LOCATE ENCLOSURE AT SERVICE CONNECTION ENTRANCE.
6. LOCATE IN AN ELEVATED AREA NOT PRONE TO FLOODING.
7. PROVIDE LOCK AND CHAIN FOR VALVE ON BYPASS.

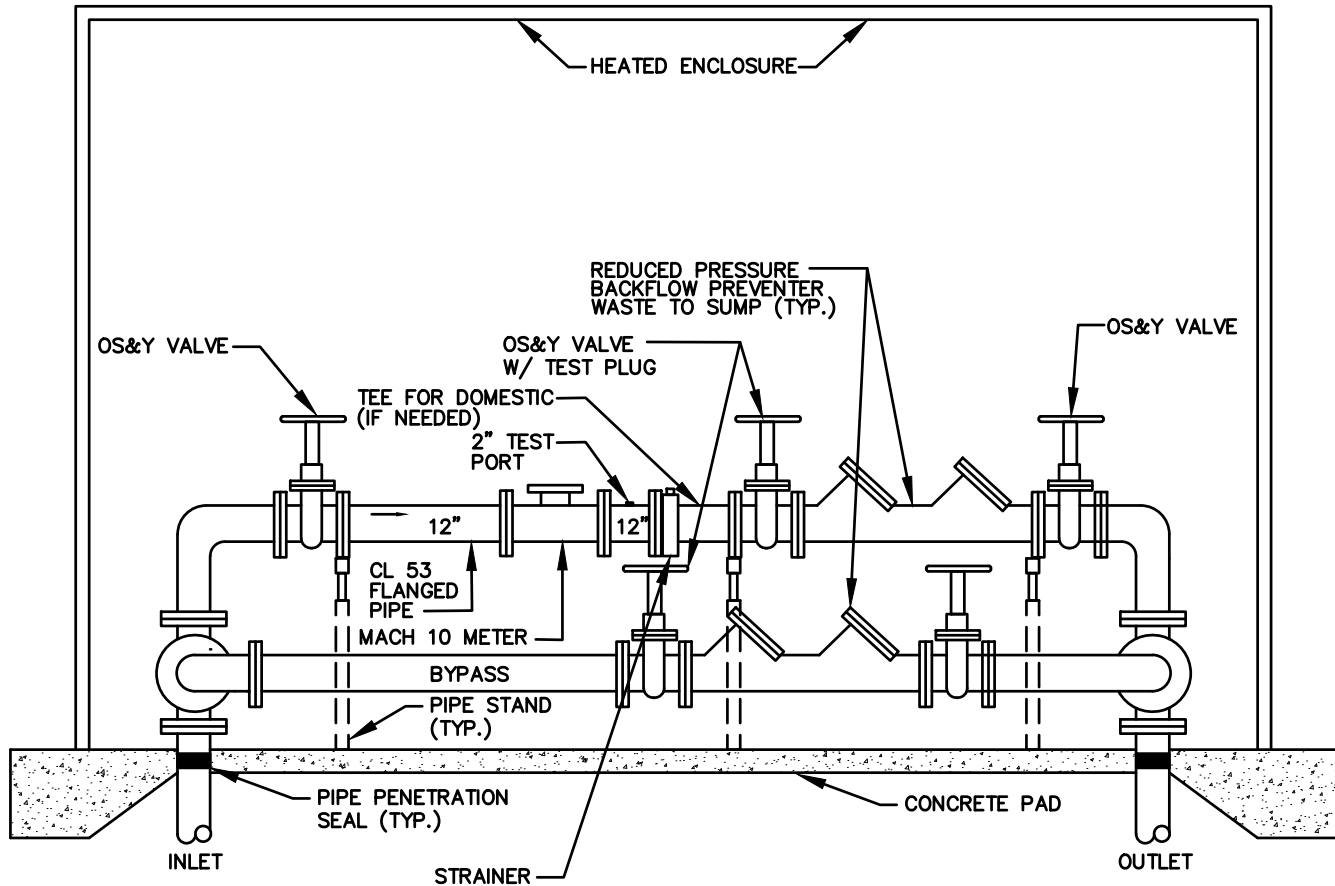
KCWA

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**KENT COUNTY WATER AUTHORITY
ABOVE GRADE MASTER METER
INSTALLATION**

NOT TO SCALE

DATE: 3/2024



NOTES:

1. PROVIDE MAKE-UP OR SPOOL PIECES AS REQUIRED.
2. PROVIDE ACCESS AND BLOWOUT PANELS AS REQUIRED.
3. DESIGN FOR FROST AND FREEZING PROTECTION.
4. PROVIDE LIGHTING AND TEMPERATURE ALARM.
5. LOCATE ENCLOSURE AT SERVICE CONNECTION ENTRANCE.
6. LOCATE IN AN ELEVATED AREA NOT PRONE TO FLOODING.
7. PROVIDE LOCK AND CHAIN FOR VALVE ON BYPASS.

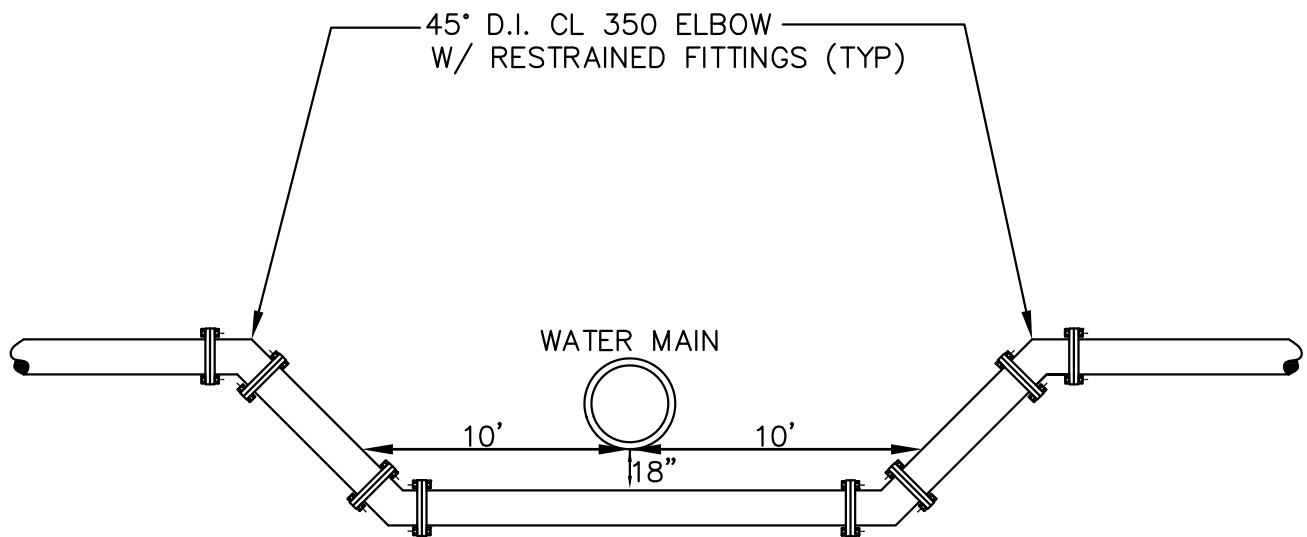
KCWA

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KENT COUNTY WATER AUTHORITY
ABOVE GRADE MACH 10 MASTER METER
INSTALLATION

NOT TO SCALE

DATE: 10/2025



KCWA
"proudly serving"

KENT COUNTY WATER AUTHORITY
FORCED SEWER MAIN
CROSSING

NOT TO SCALE

DATE: 3/2024

FMCROSS.DWG