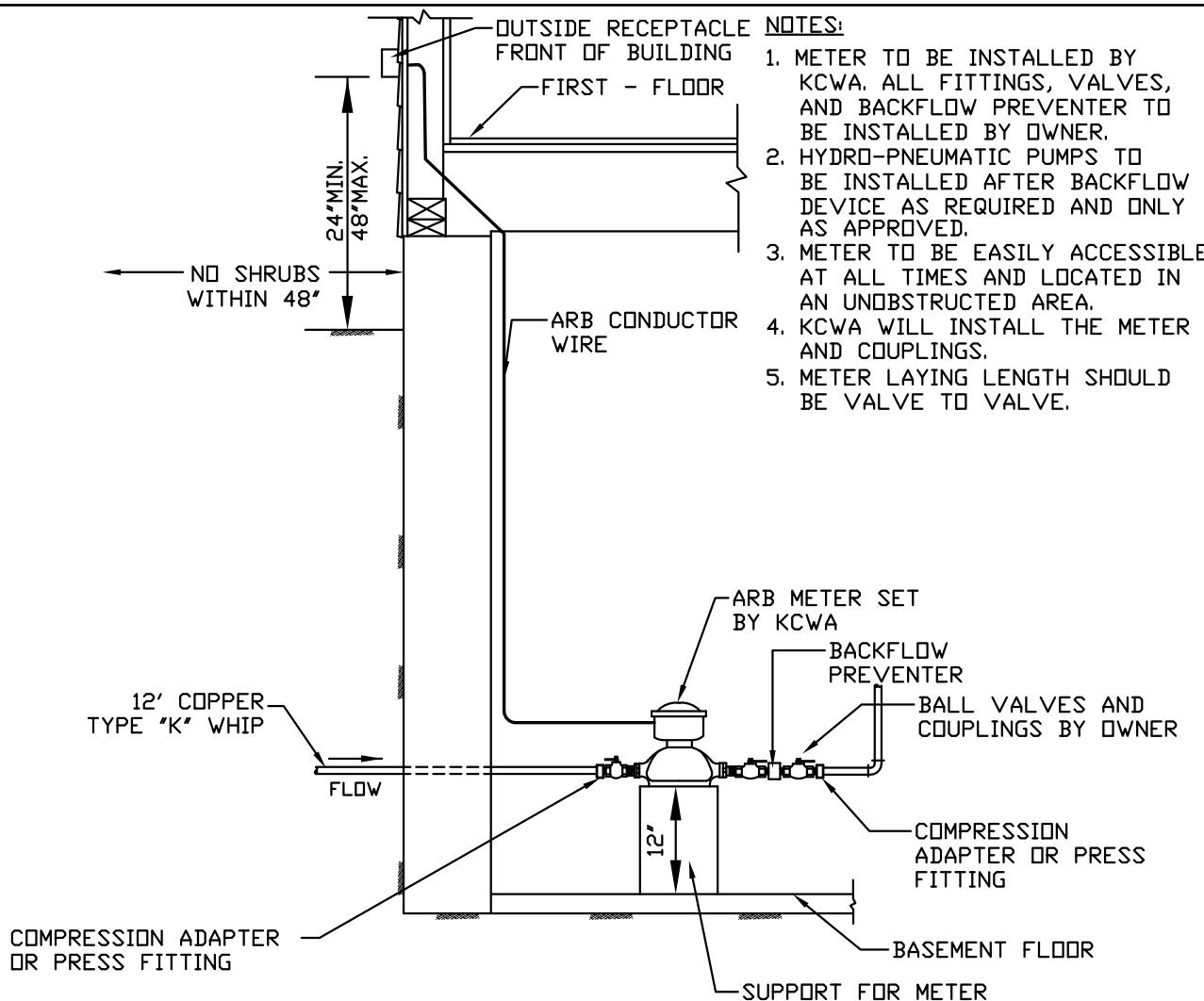
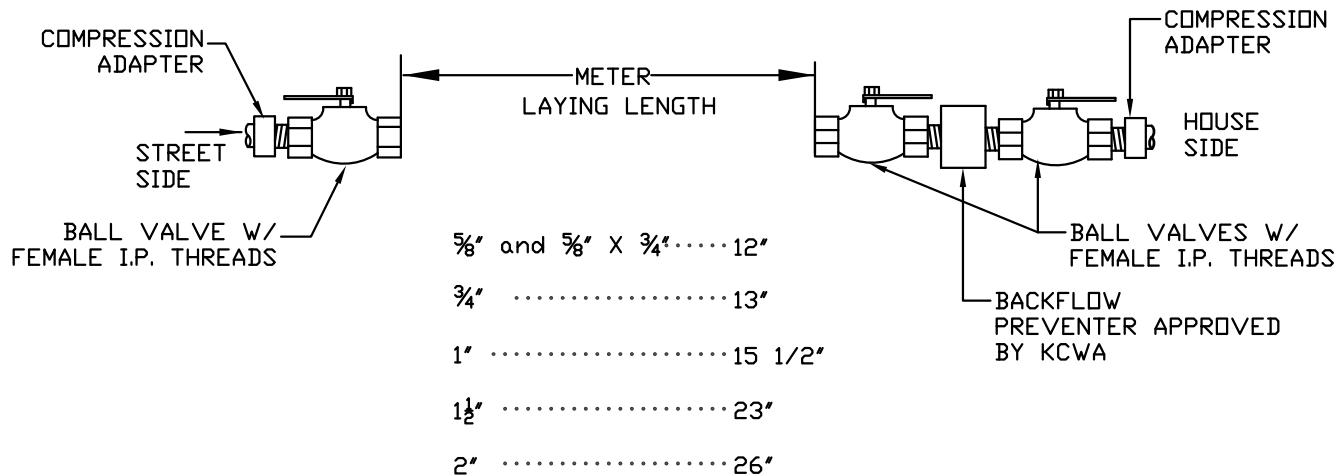


## **APPENDIX B**

## **STANDARD DETAILS**



### RESIDENTIAL WATER METER INSTALLATION



### WATER METER SETTINGS WITH FITTINGS

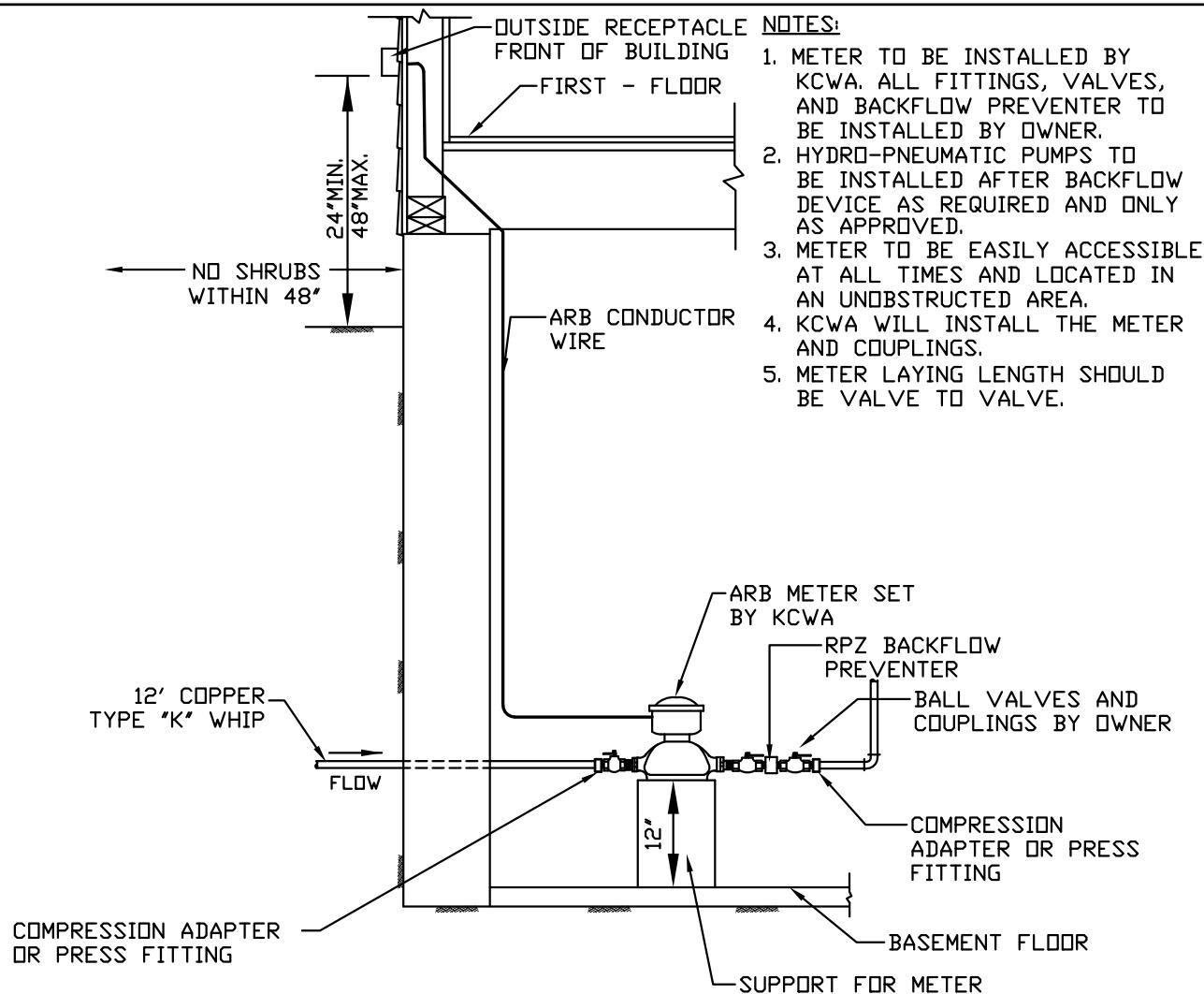
KENT COUNTY WATER AUTHORITY

### RESIDENTIAL WATER METER

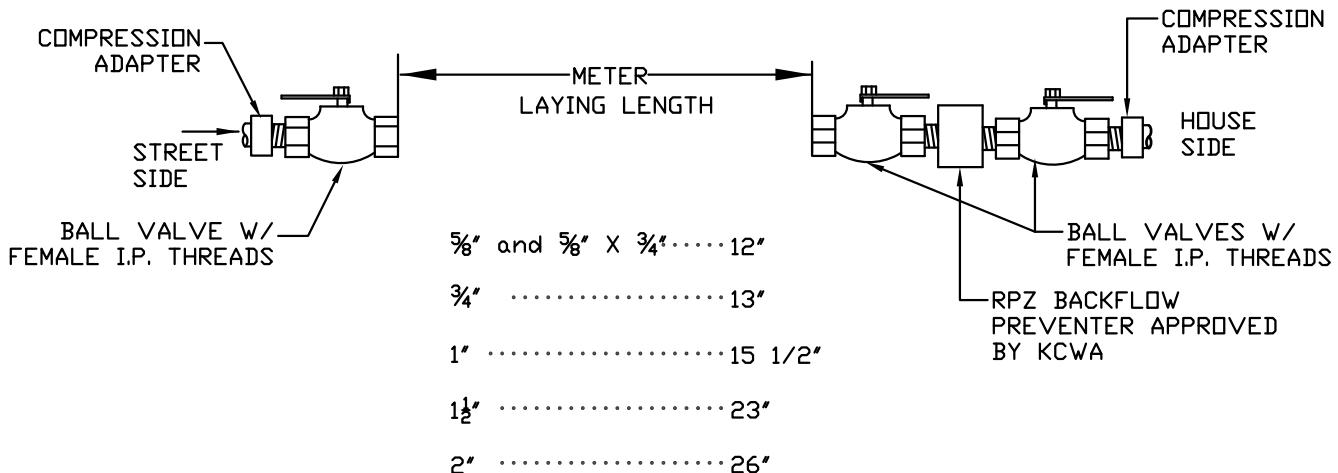
**KCWA**  
"proudly serving"

NOT TO SCALE

DATE: 1/2026



### COMMERCIAL WATER METER INSTALLATION



### WATER METER SETTINGS WITH FITTINGS

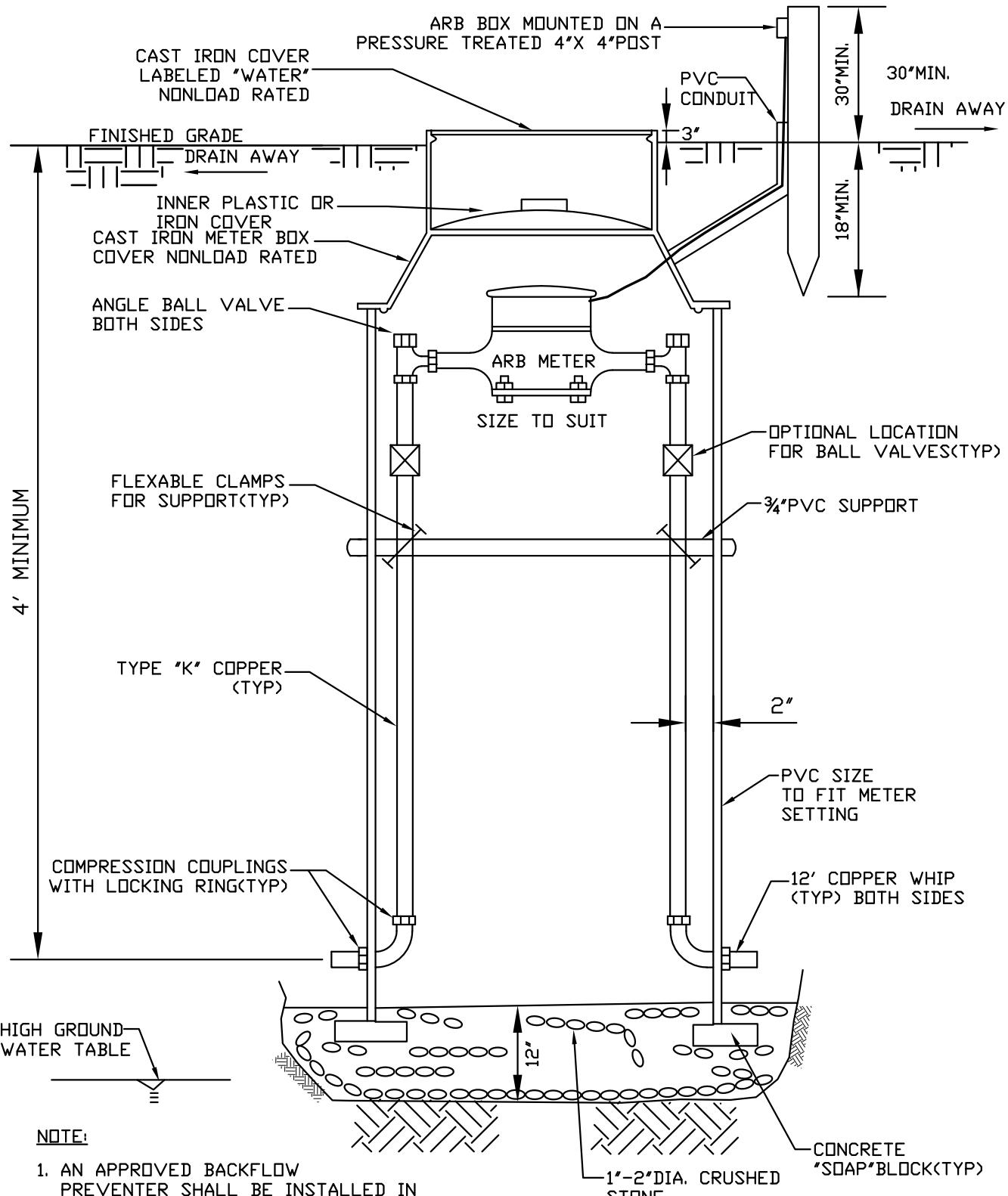
KENT COUNTY WATER AUTHORITY

### COMMERCIAL WATER METER

**KCWA**  
"proudly serving"

NOT TO SCALE

DATE: 1/2026



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

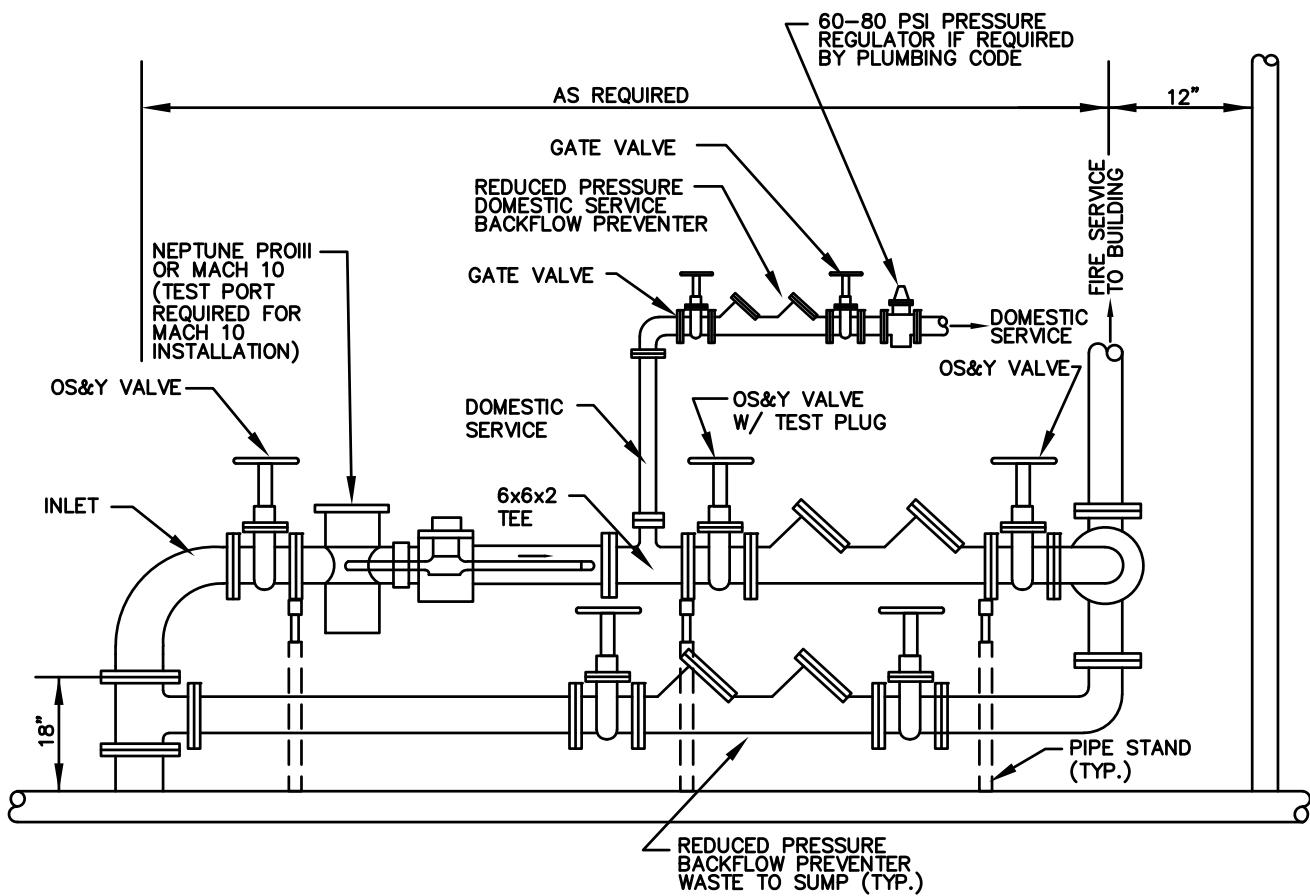
NOT TO SCALE

DATE: 3/2024

**KCWA**

"proudly serving"

SSMETERP.DWG



NOTES:

1. ALL PIPE, FITTINGS AND APPURTEANCES 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 APPURTEANCES 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.

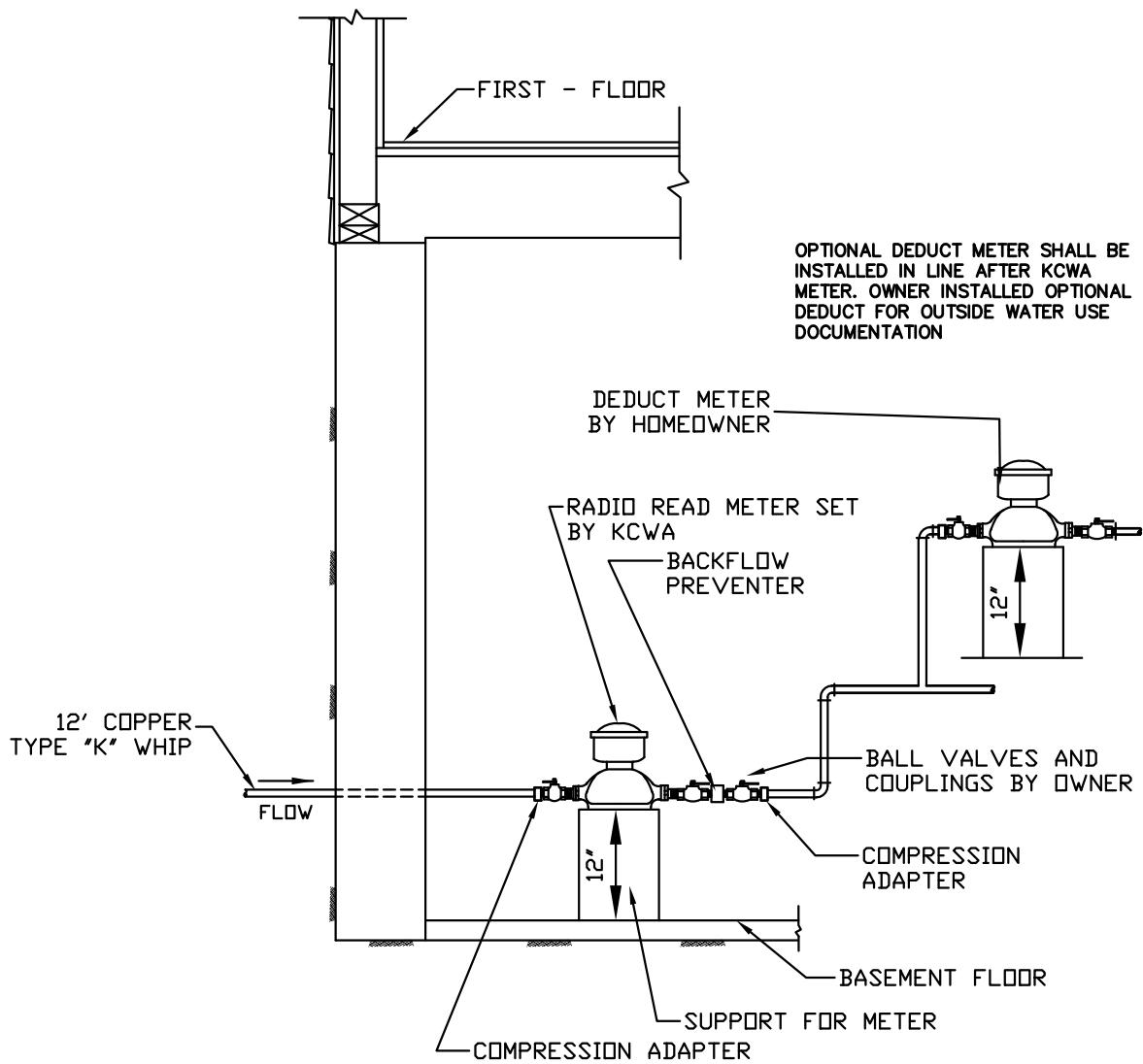
KENT COUNTY WATER AUTHORITY

**ABOVE GRADE FIRE &  
DOMESTIC INSTALLATION**

NOT TO SCALE

**KCWA**  
"proudly serving"

DATE: 3/2024



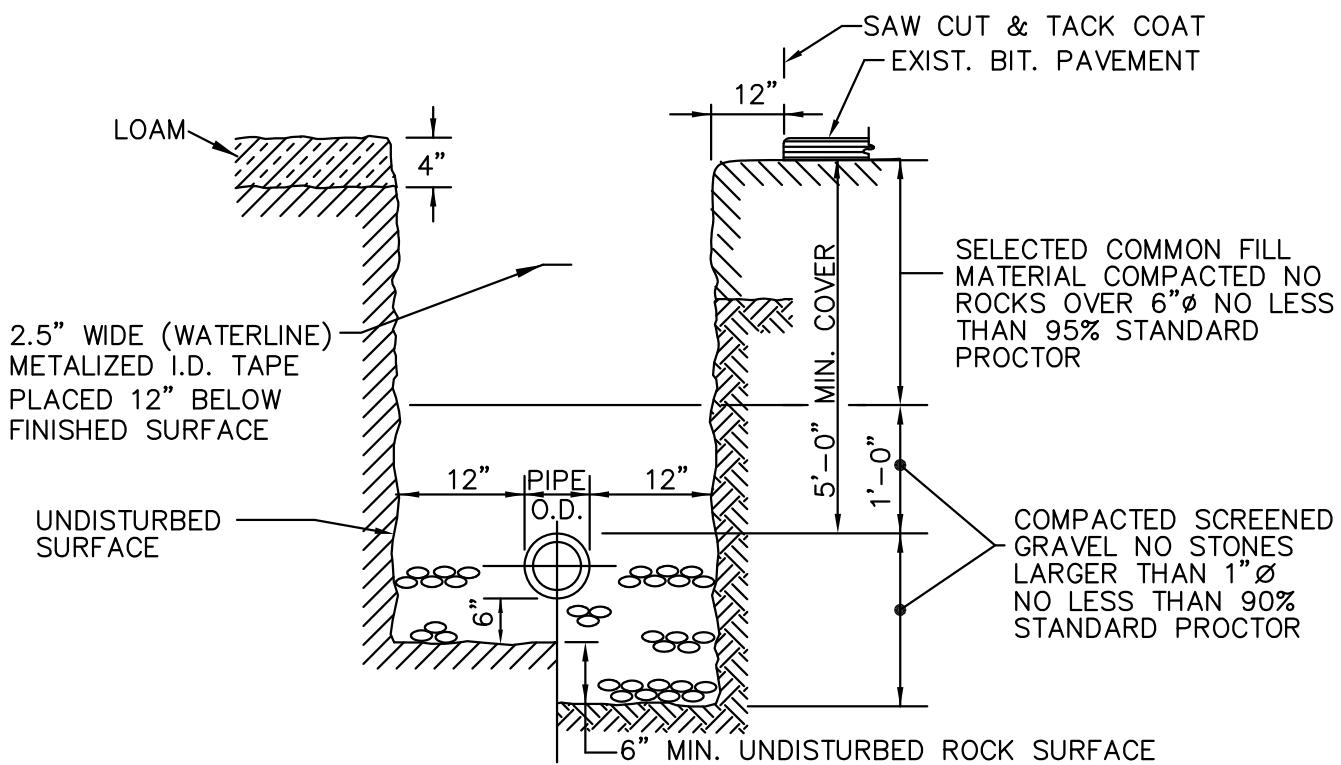
# KCWA

*"proudly serving"*

KENT COUNTY WATER AUTHORITY  
**DEDUCT METER INSTALLATION**  
**HOMEOWNERS RESPONSIBILITY**

NOT TO SCALE

DATE: 3/2024



NOTES:

1. ROADWAY RESTORATION IN ACCORDANCE WITH COMMUNITY OR RIDOT.

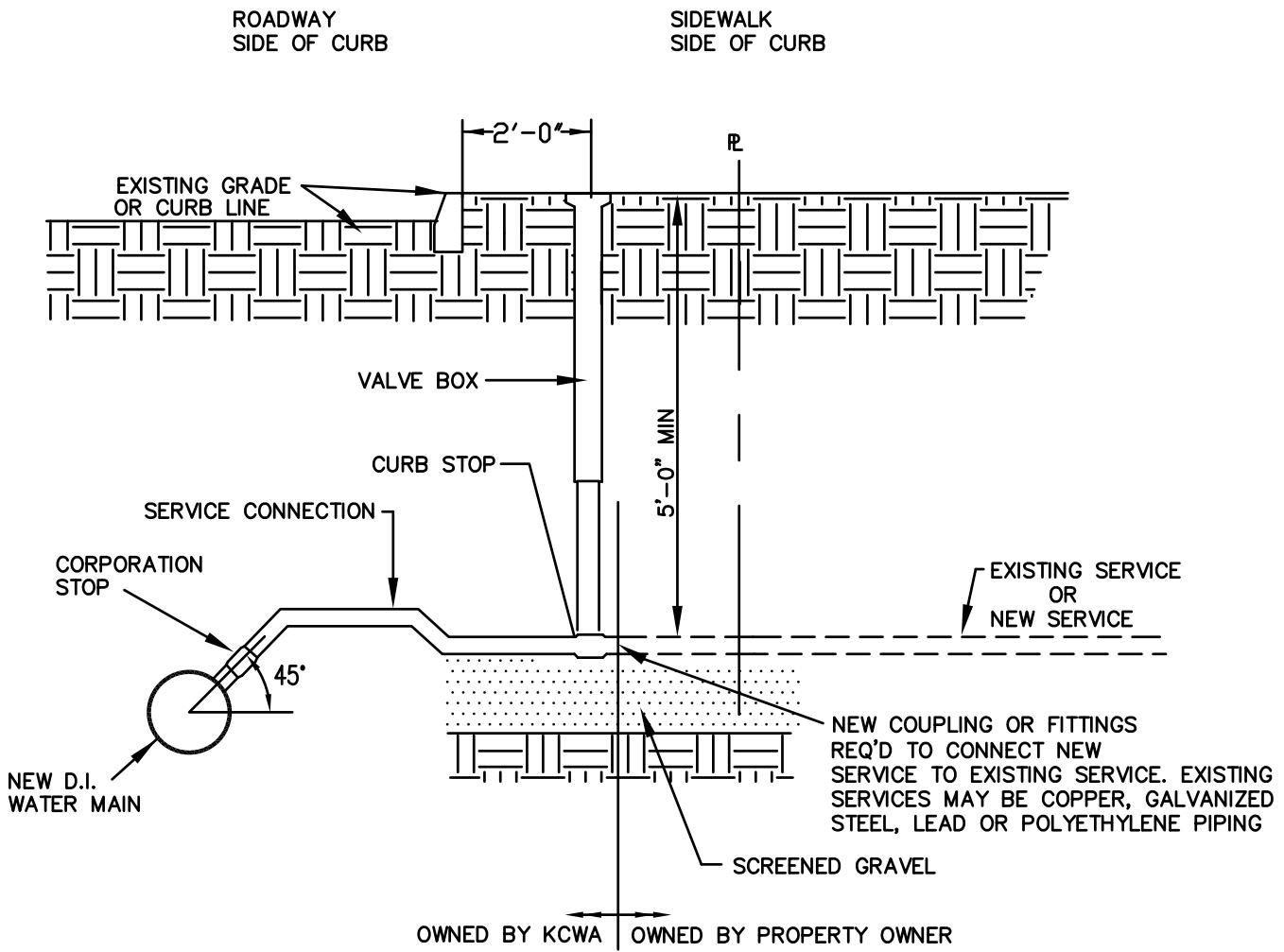
KENT COUNTY WATER AUTHORITY

**KCWA TRENCH INSTALLATION IN ROCK AND SOIL**

"proudly serving"

NOT TO SCALE

DATE: 3/2024



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.

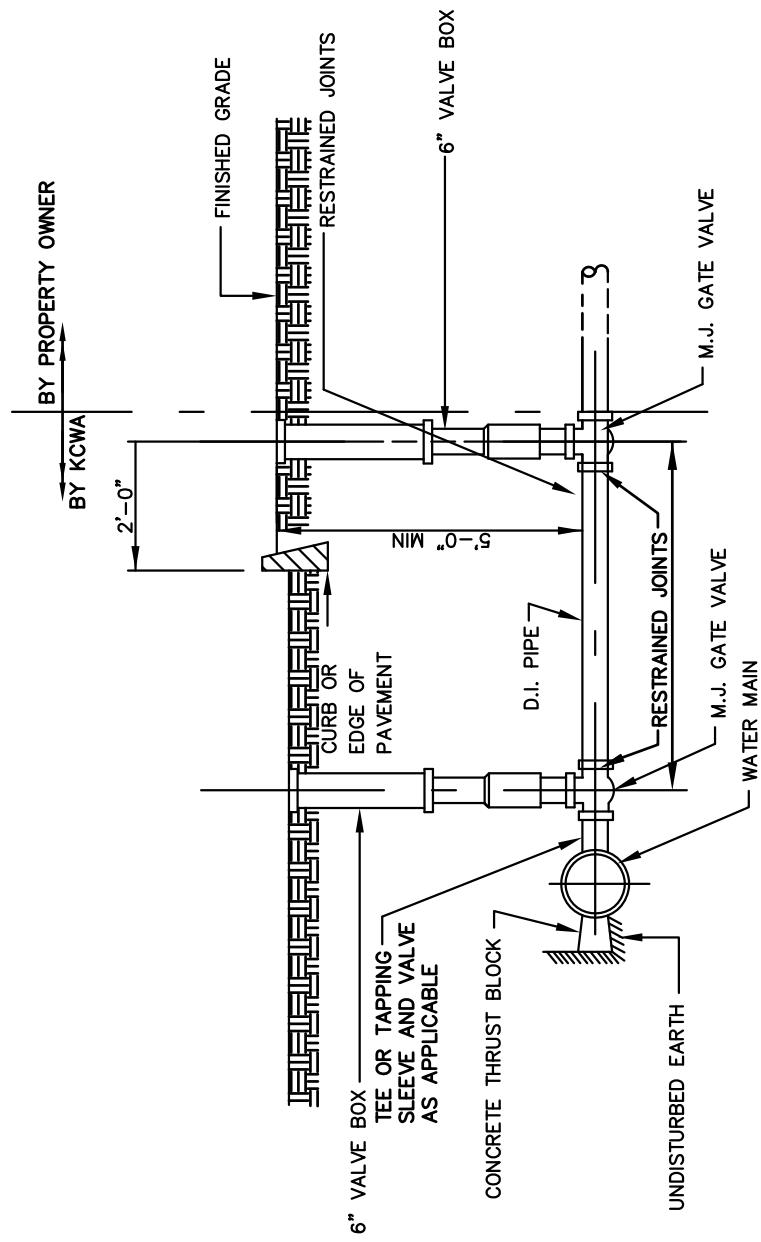
KENT COUNTY WATER AUTHORITY

**SERVICE CONNECTION**

**KCWA**  
"proudly serving"

NOT TO SCALE

DATE: 3/2024



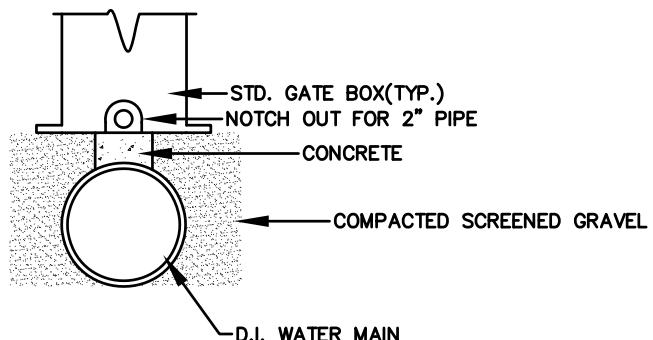
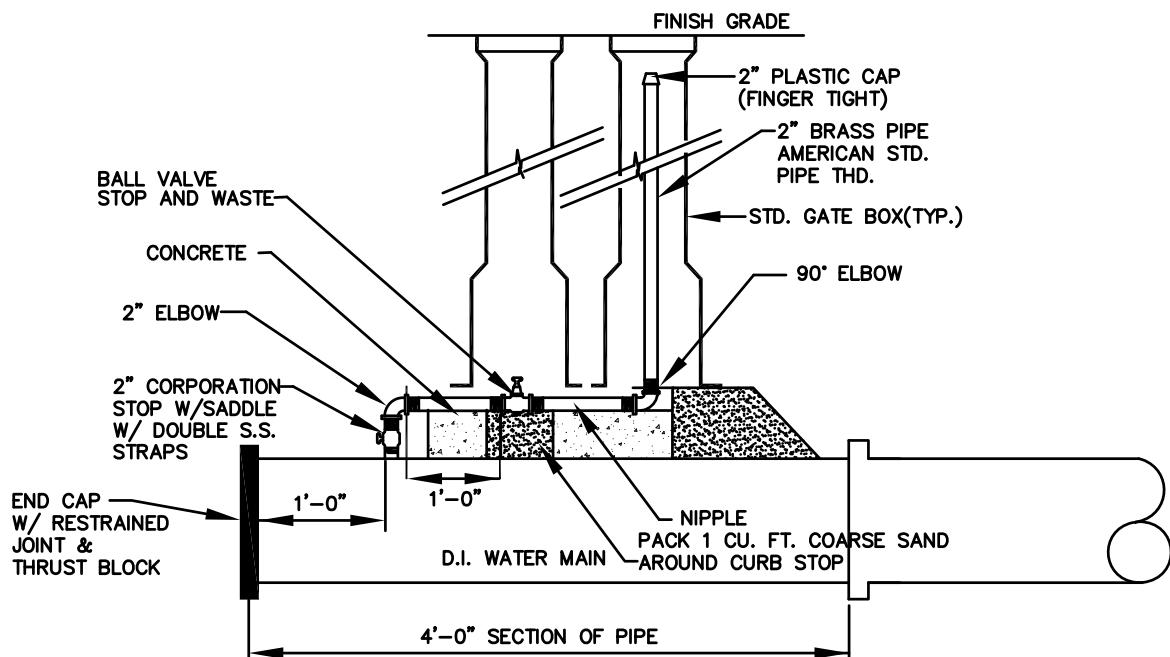
**NOTE:**  
1. MATERIALS PER KCWA REGULATIONS

KENT COUNTY WATER AUTHORITY  
**SERVICE CONNECTION**  
**GREATER THAN 4 INCHES**  
 NOT TO SCALE

DATE: 3/2024

**KCWA**  
 "proudly serving"

4SERVICE.DWG

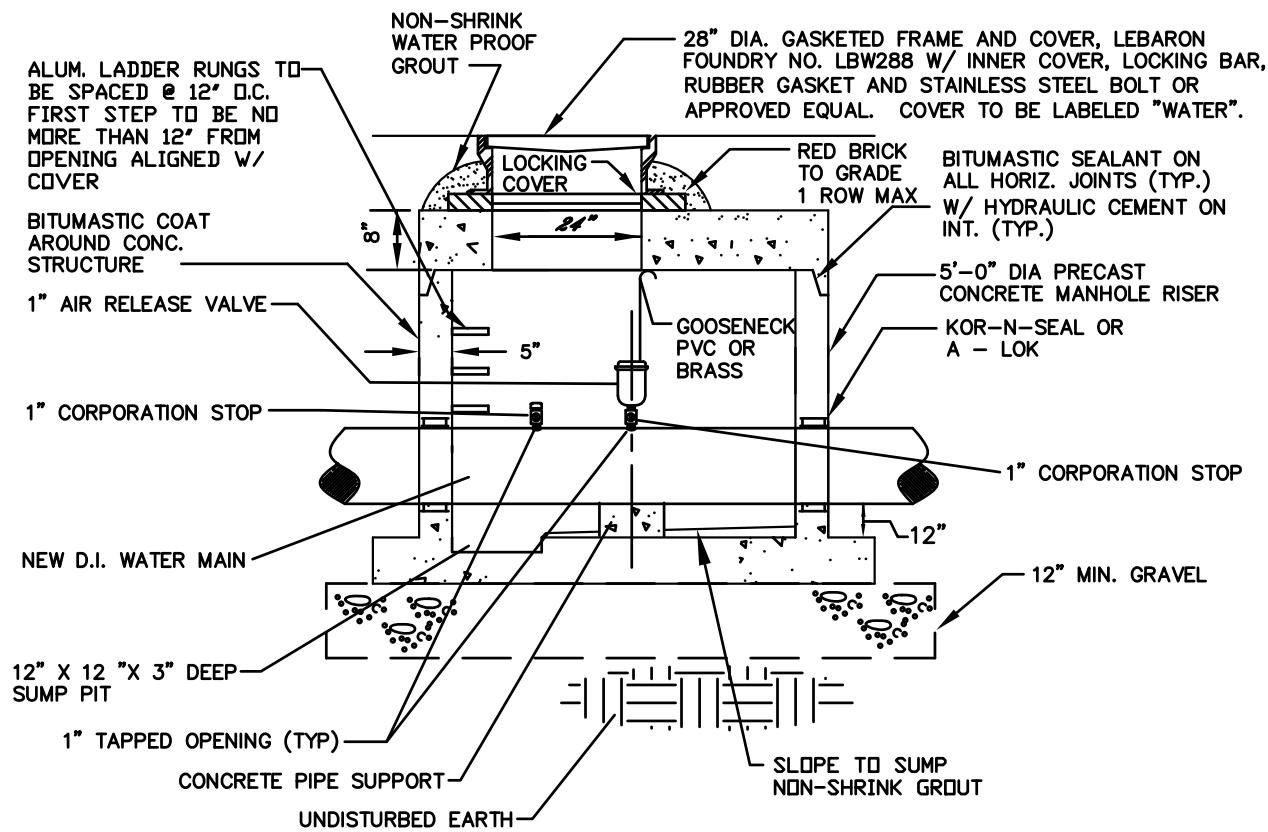


KENT COUNTY WATER AUTHORITY  
**PERMANENT BLOWOFF ASSEMBLY**

**KCWA**  
*"proudly serving"*

NOT TO SCALE

DATE: 3/2024



KENT COUNTY WATER AUTHORITY

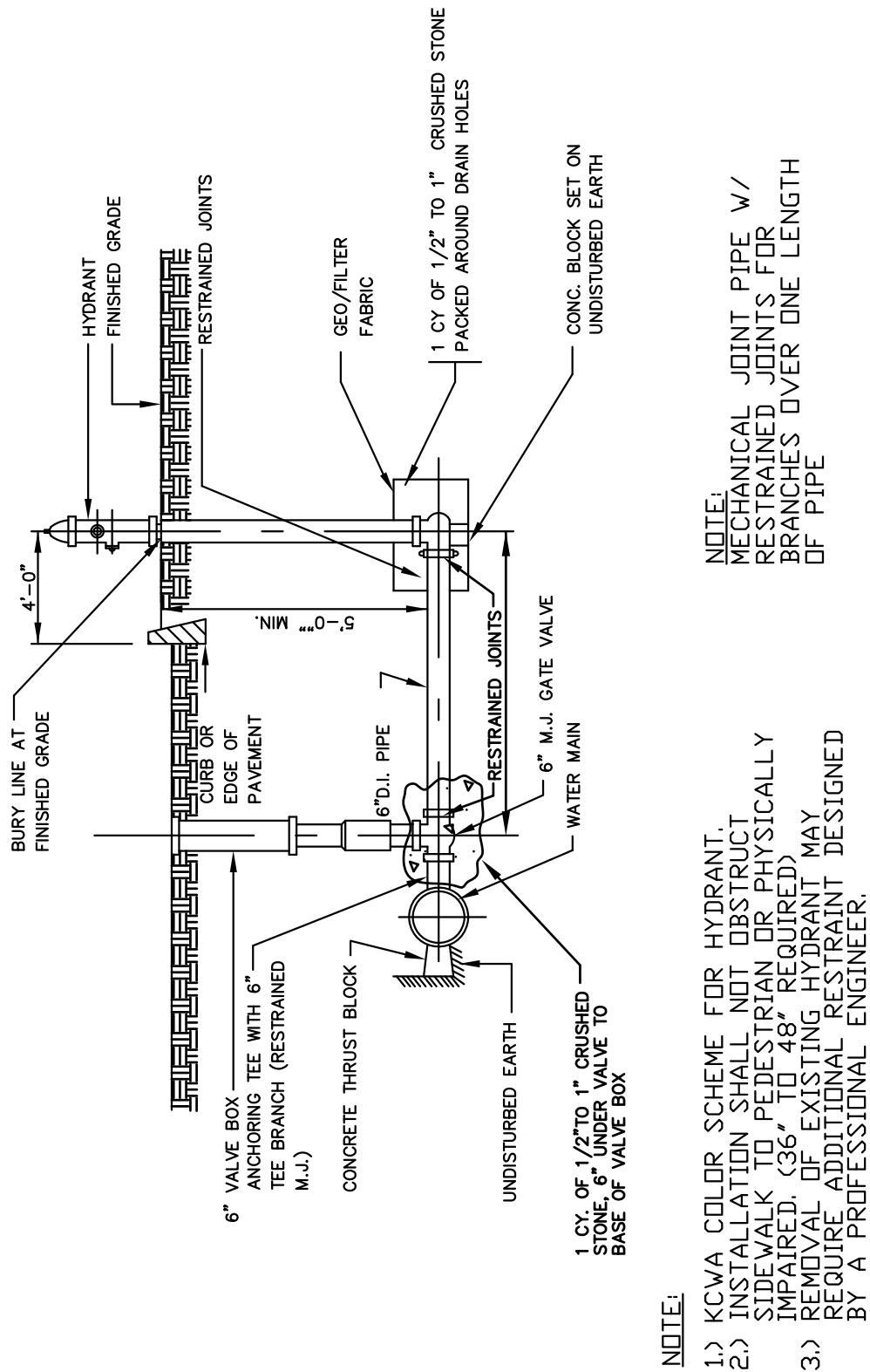
**KCWA**

"proudly serving"

AUTOMATIC AIR RELEASE MANHOLE

NOT TO SCALE

DATE: 3/2024

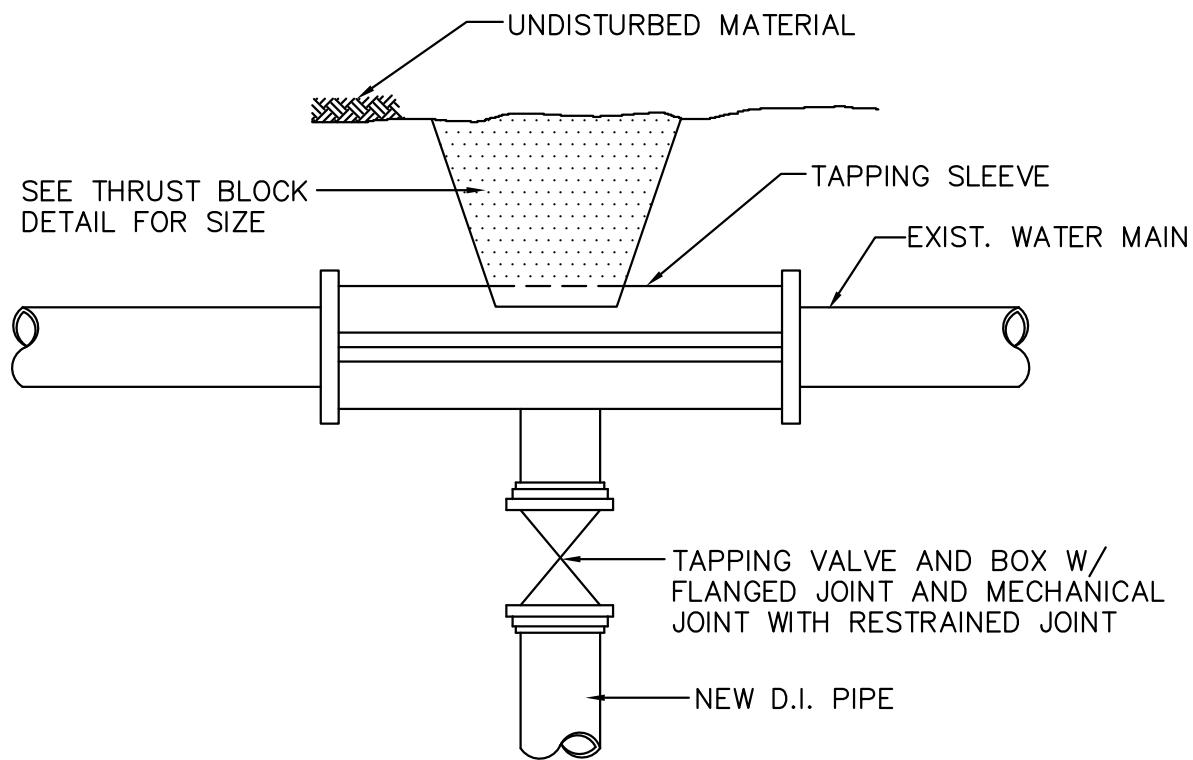


KENT COUNTY WATER AUTHORITY

**HYDRANT**

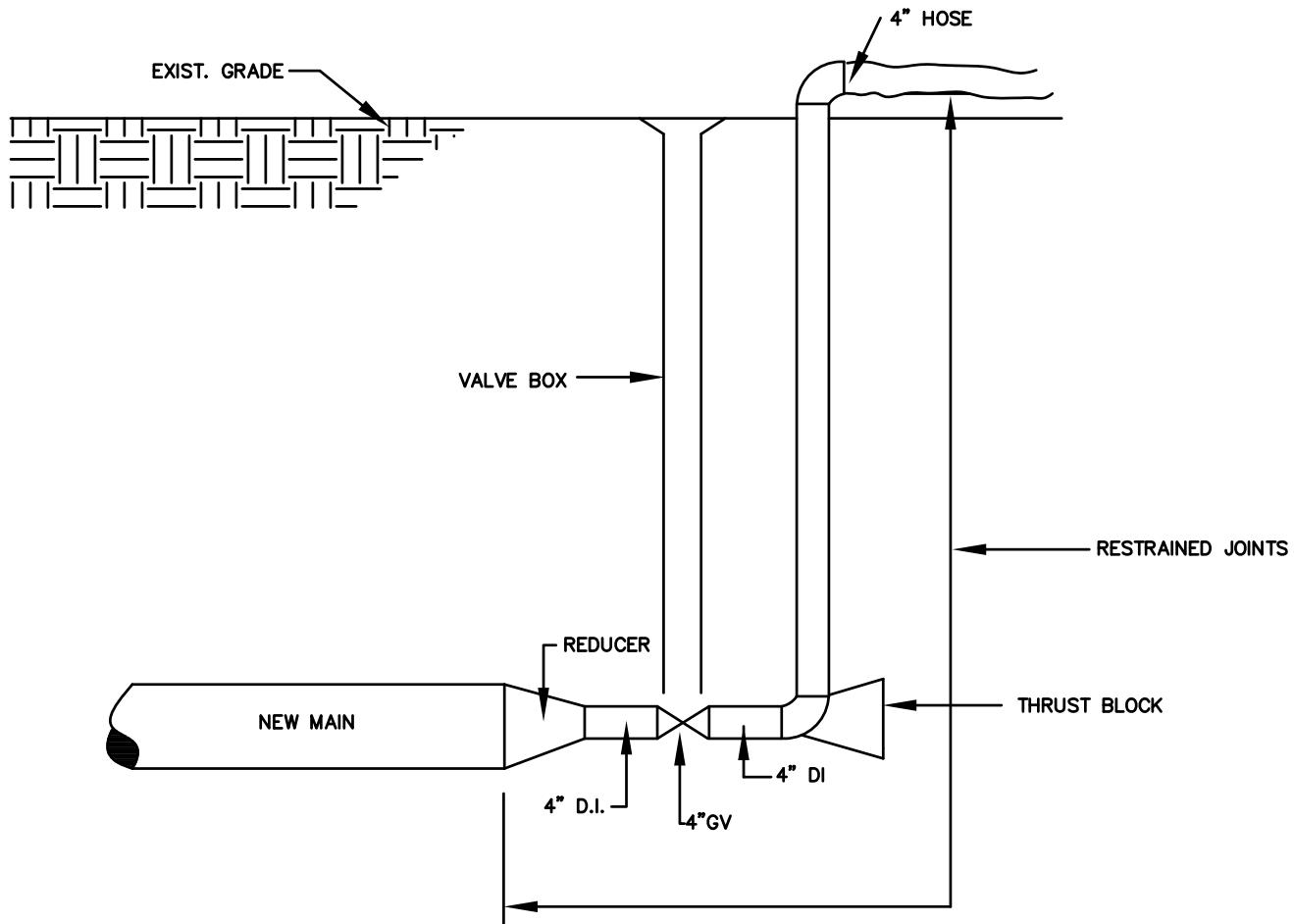
NOT TO SCALE

DATE: 3/2024



NOTE:

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



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.

KENT COUNTY WATER AUTHORITY

**KCWA**

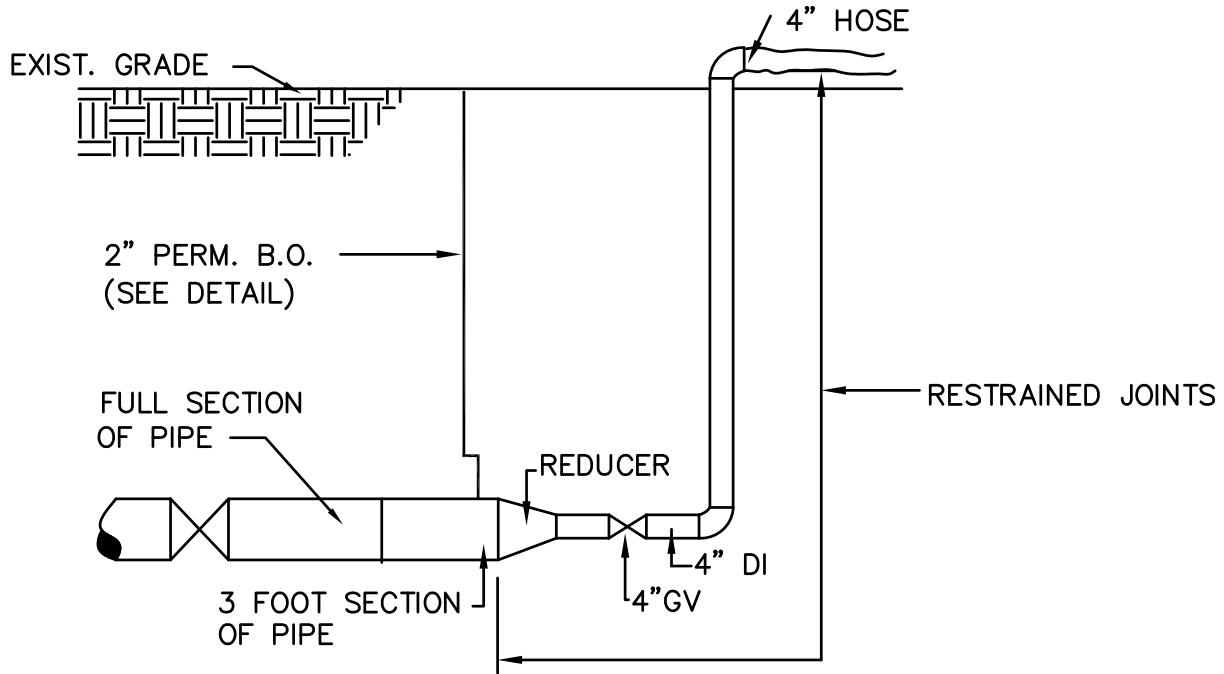
"proudly serving"

**TEMPORARY FLUSHING CONNECTION**

NOT TO SCALE

DATE: 3/2024

TFLUSHCO.DWG

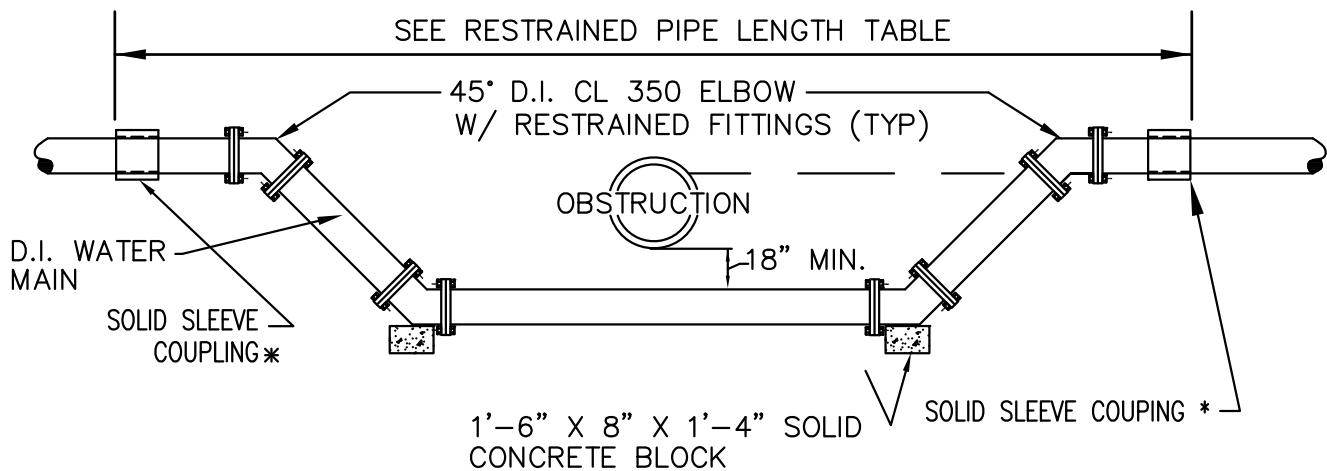
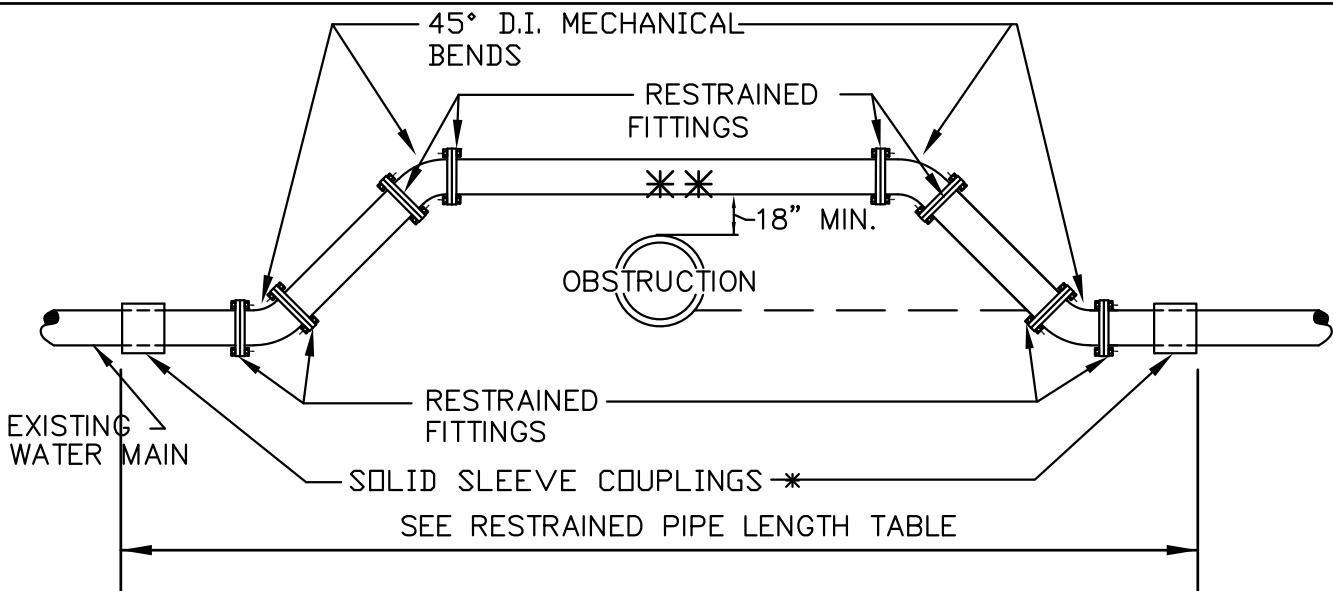


AFTER THE COMPLETION OF THE  
FINAL FLUSHING THE CONTRACTOR  
SHALL REMOVE THE TEMPORARY  
FLUSHING CONNECTION AND INSTALL  
A CAP WITH MEGALUGS AND A  
THRUST BLOCK

**KCWA**  
"proudly serving"

KENT COUNTY WATER AUTHORITY  
**TEMPORARY FLUSHING CONNECTION**  
**ON DEAD END WATER MAIN**  
NOT TO SCALE

DATE: 3/2024



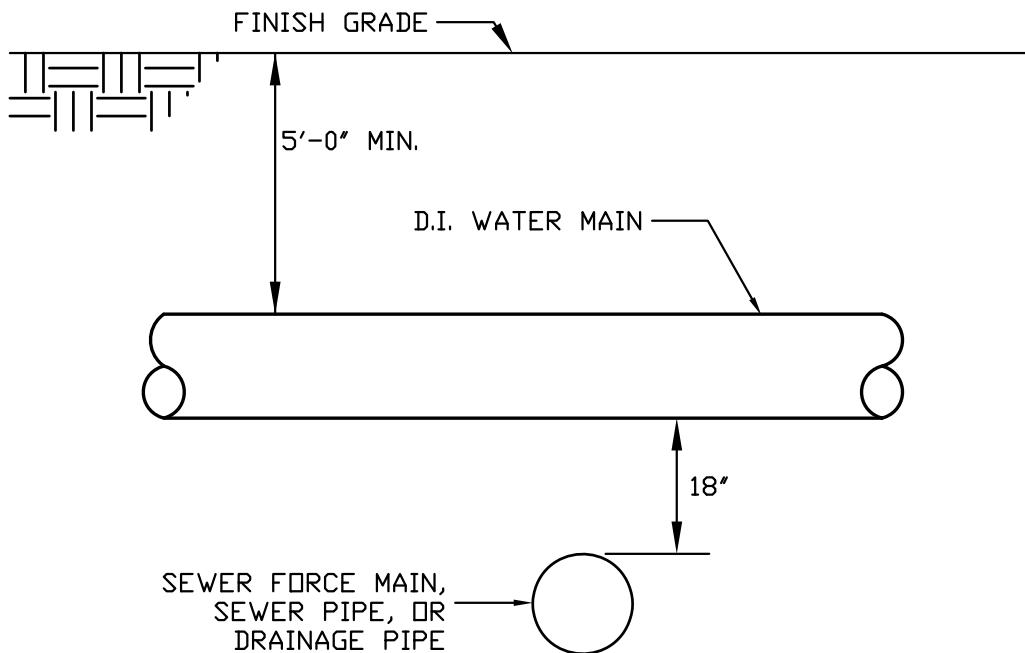
- \* TRANSITION COUPLING, DRESSER STYLE, TO BE USED ONLY WHEN EXISTING WATER MAIN IS OF DIFFERENT MATERIAL OTHER THAN DUCTILE IRON.
- \* SOLID SLEEVE TO BE RESTRAINED WITH APPROVED RESTRAINT FITTINGS
- \* ONLY TO BE USED WHEN CALCULATED FRICTION LOSS WILL NOT ADVERSELY EFFECT DISTRIBUTION PRESSURE AND 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

KENT COUNTY WATER AUTHORITY  
**WATER MAIN HORIZONTAL OR**  
**VERTICAL RELOCATION**

**KCWA**  
 "proudly serving"

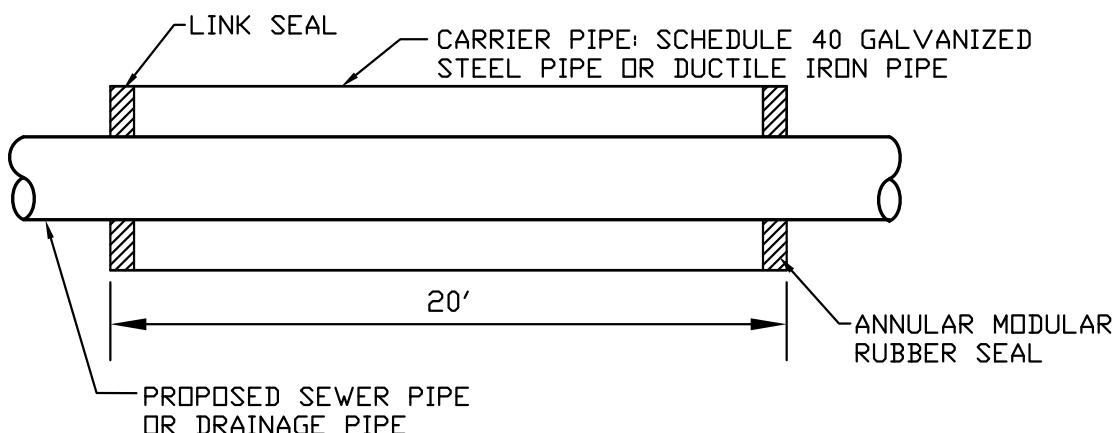
NOT TO SCALE

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

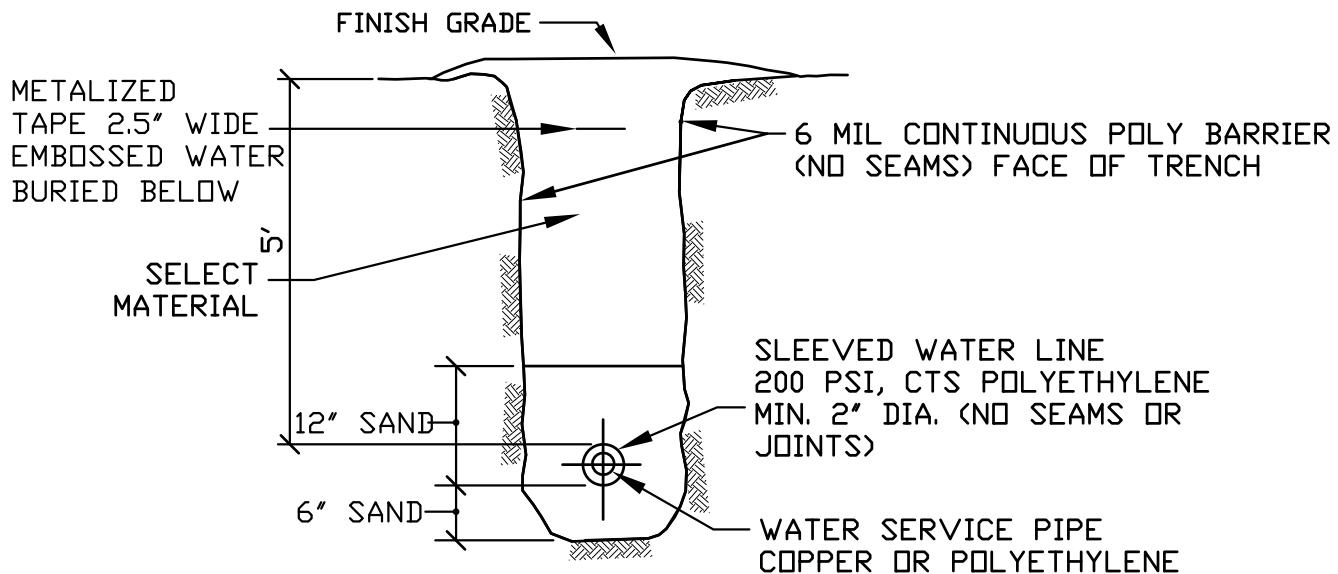
KENT COUNTY WATER AUTHORITY

UTILITY SEPARATION

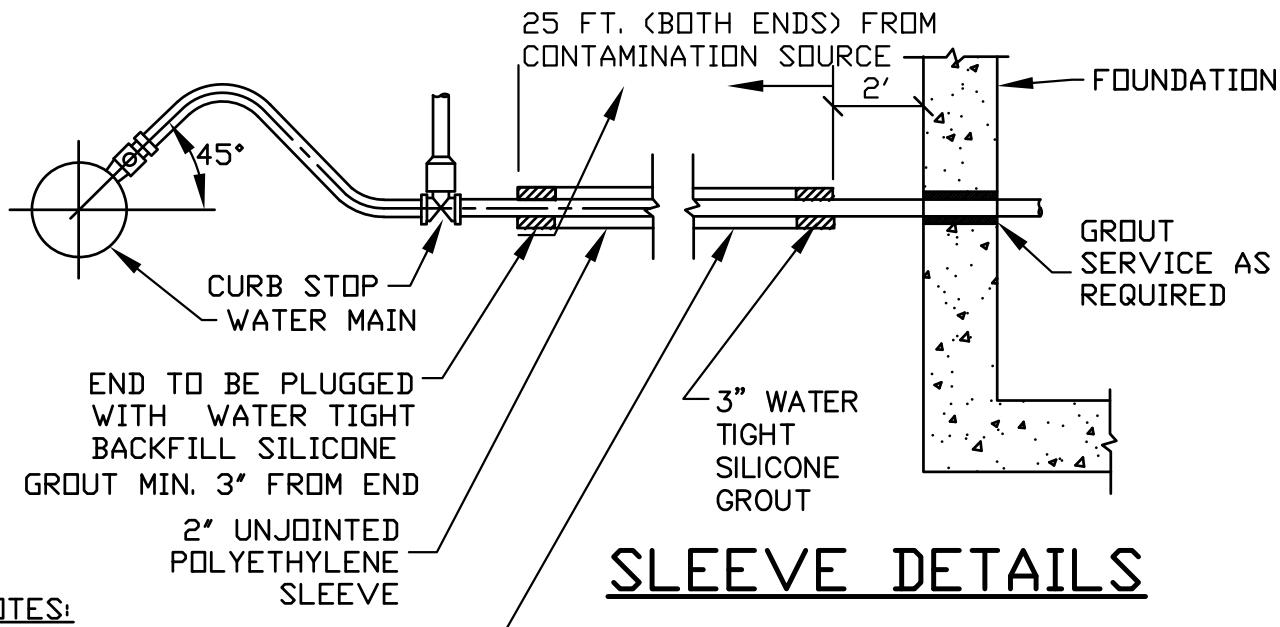
**KCWA**  
"proudly serving"

NOT TO SCALE

DATE: 3/2024



## TRENCH DETAIL



## SLEEVE DETAILS

### NOTES:

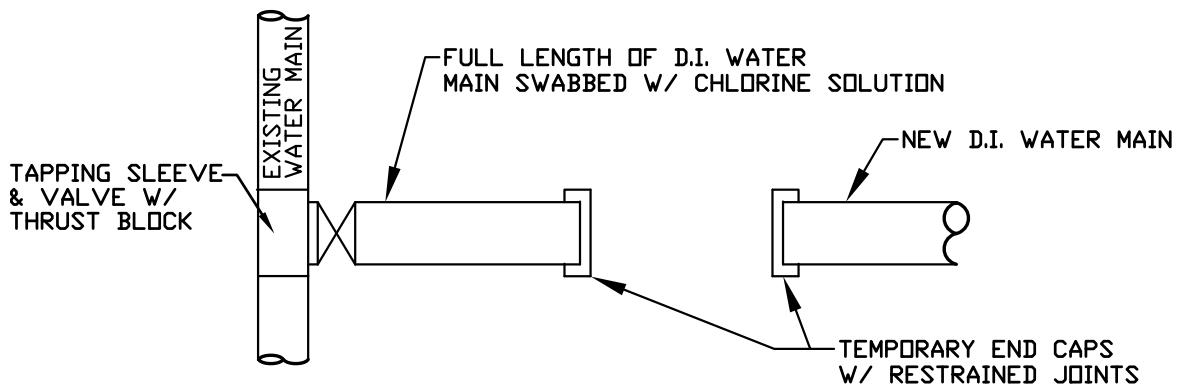
- 1.) 12' COPPER WHIP REQUIRED
- 2.) EXISTING SYSTEM ONLY. NOT TO BE USED FOR NEW CONST. MUST OBTAIN PRIOR APPROVAL FROM KCWA GENERAL MANAGER/ CHIEF ENGINEER.

KENT COUNTY WATER AUTHORITY  
**WATER SERVICE WITHIN 25 FT.**  
**OF CONTAMINATION SOURCE**  
 NOT TO SCALE

**KCWA**  
 "proudly serving"

SLEEVEDET.DWG

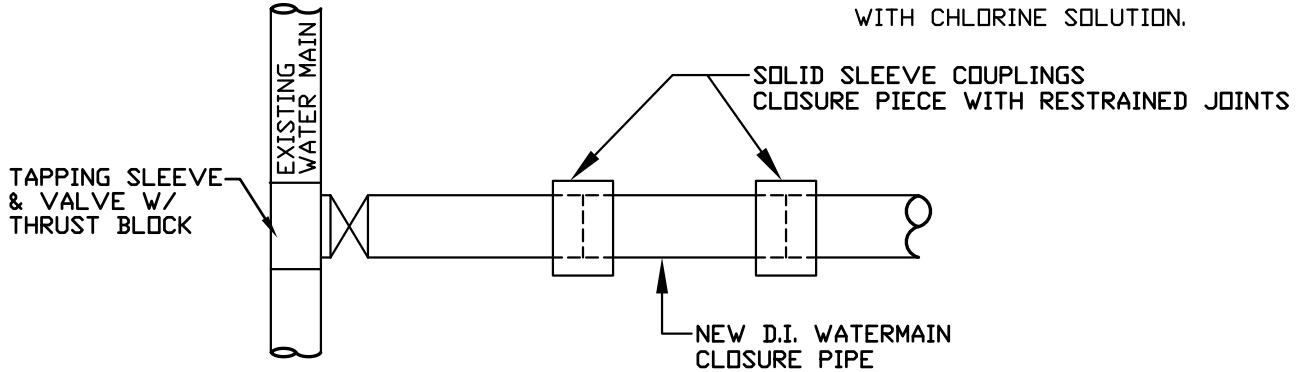
DATE: 3/2024



## 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.



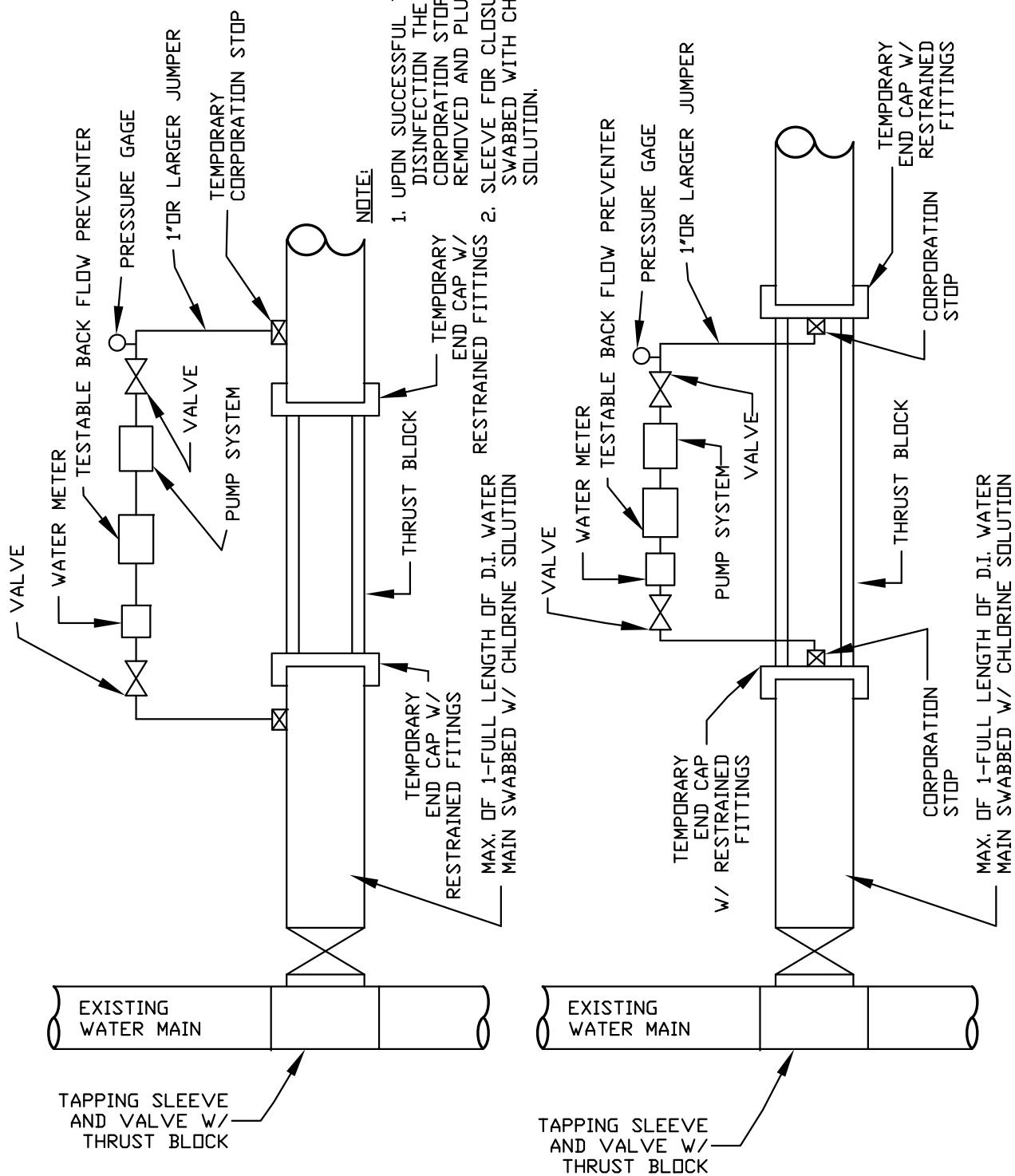
## CONNECTION

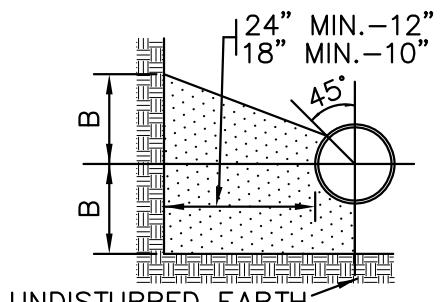
**KCWA**  
"proudly serving"

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

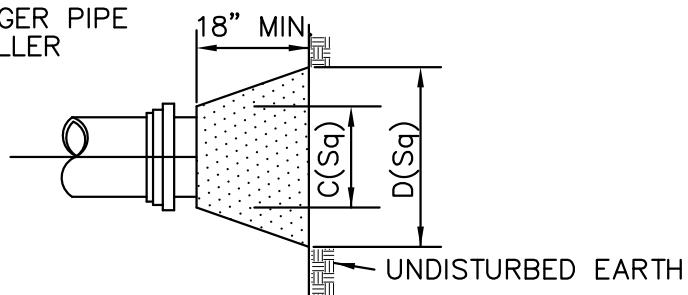
NOT TO SCALE

DATE: 3/2024

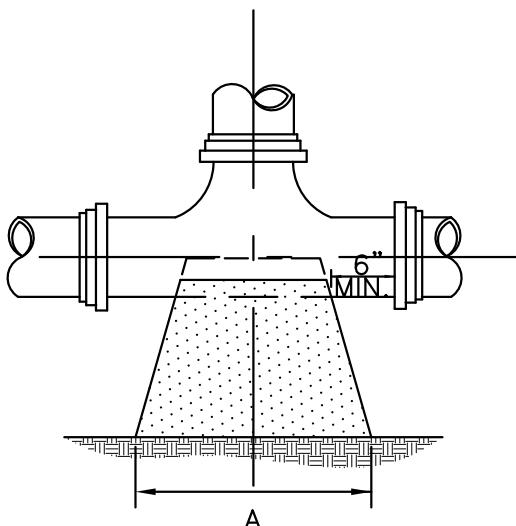
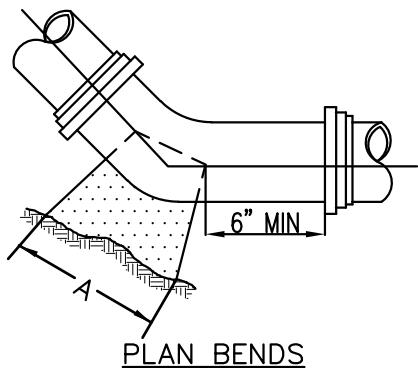




BENDS & TEES SECTION



PLAN & ELEVATION PLUGS



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.

PLAN TEES

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**

"proudly serving"

**THRUST BLOCK**

NOT TO SCALE

DATE: 3/2024

## 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.

KENT COUNTY WATER AUTHORITY

KCWA

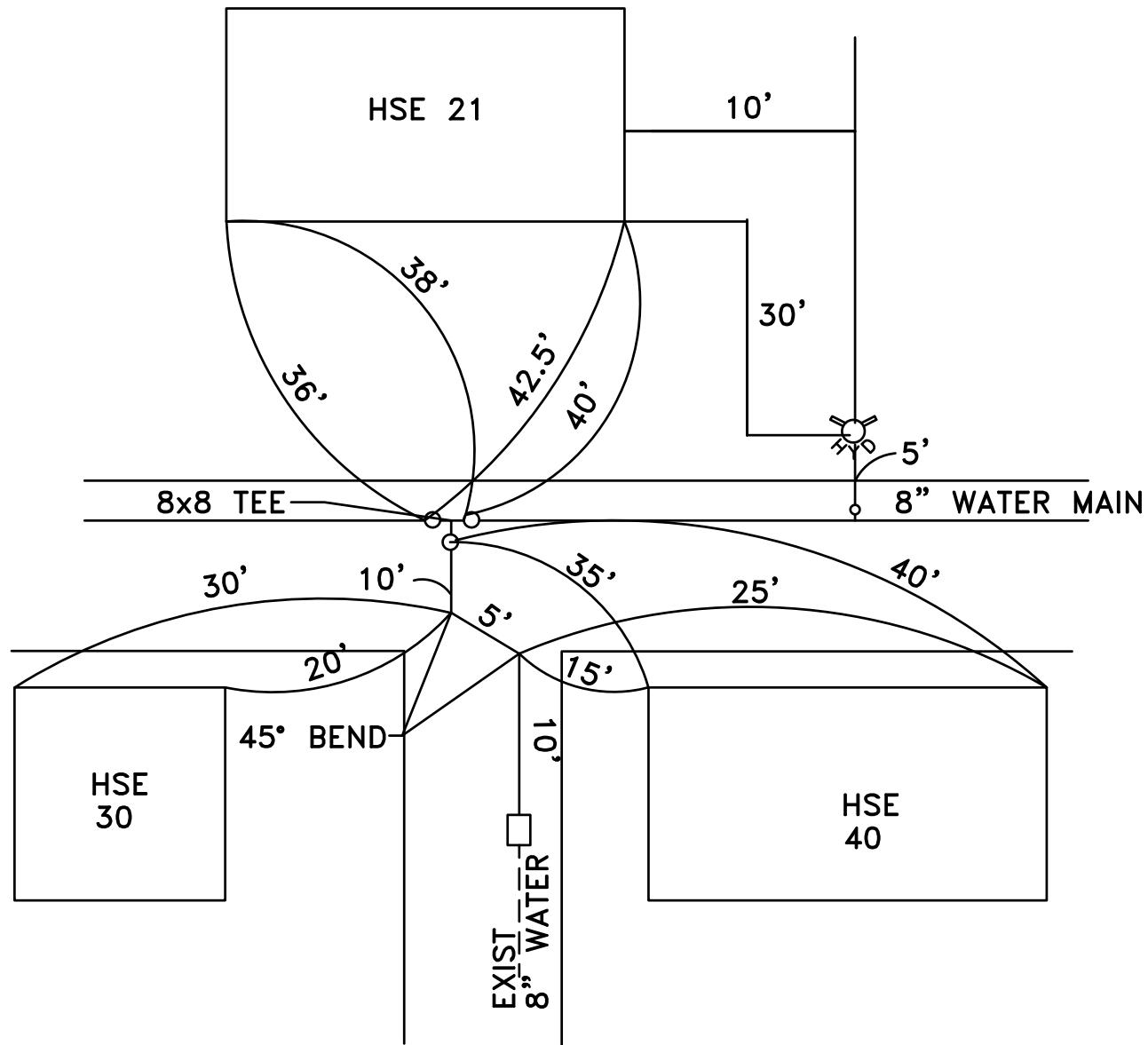
"proudly serving"

RESTRAINED PIPE LENGTHS

NOT TO SCALE

DATE: 03/2024

EXAMPLE OF LOCATION  
OF VALVES, FITTINGS AND  
HYDRANTS FOR AS-BUILT  
DRAWINGS



KENT COUNTY WATER AUTHORITY

**KCWA**

**AS-BUILT EXAMPLE FOR WATER MAINS**

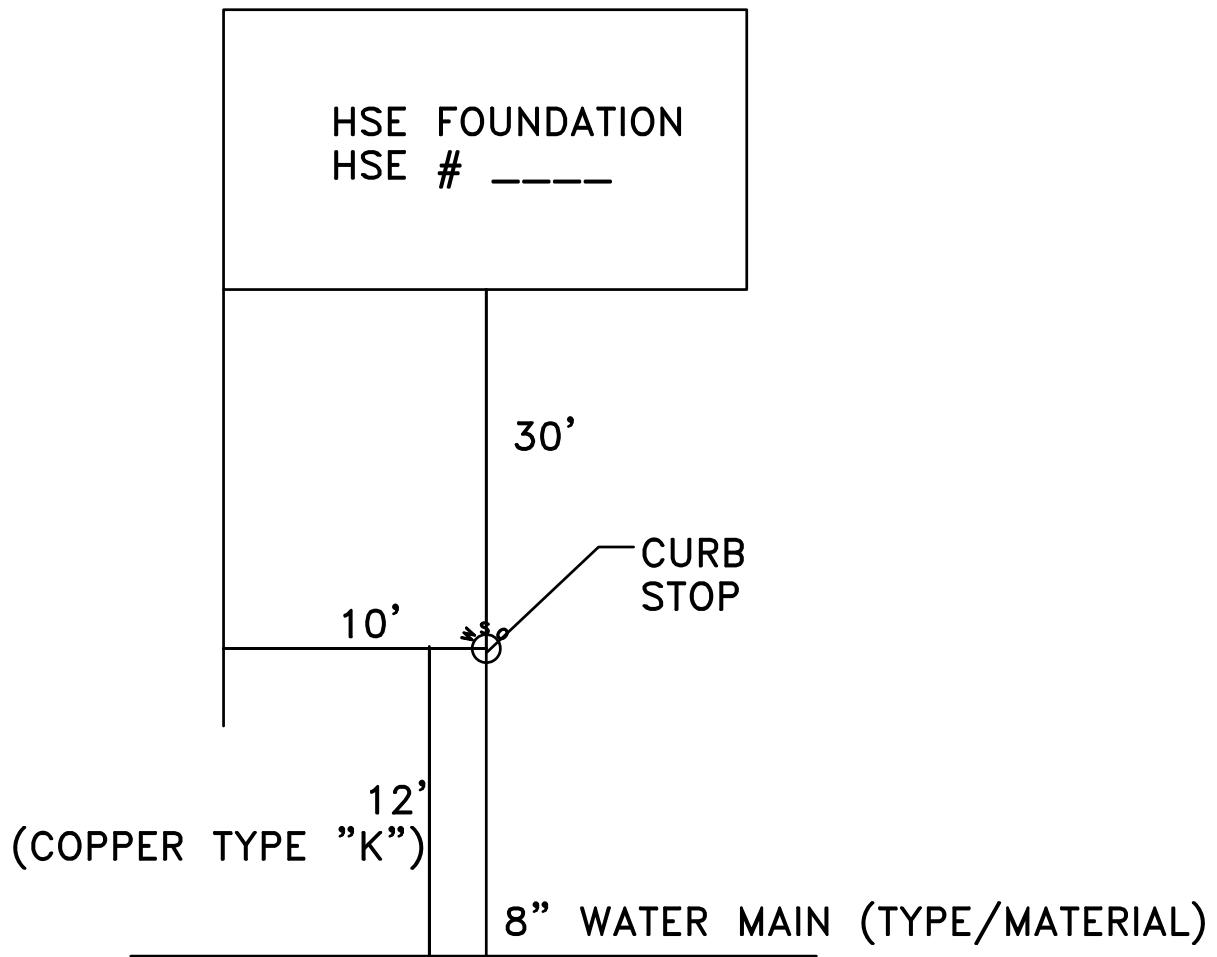
"proudly serving"

NOT TO SCALE

DATE: 3/2024

ASBUILTMMAIN.DWG

## EXAMPLE OF HOUSE SERVICE AS- BUILTS



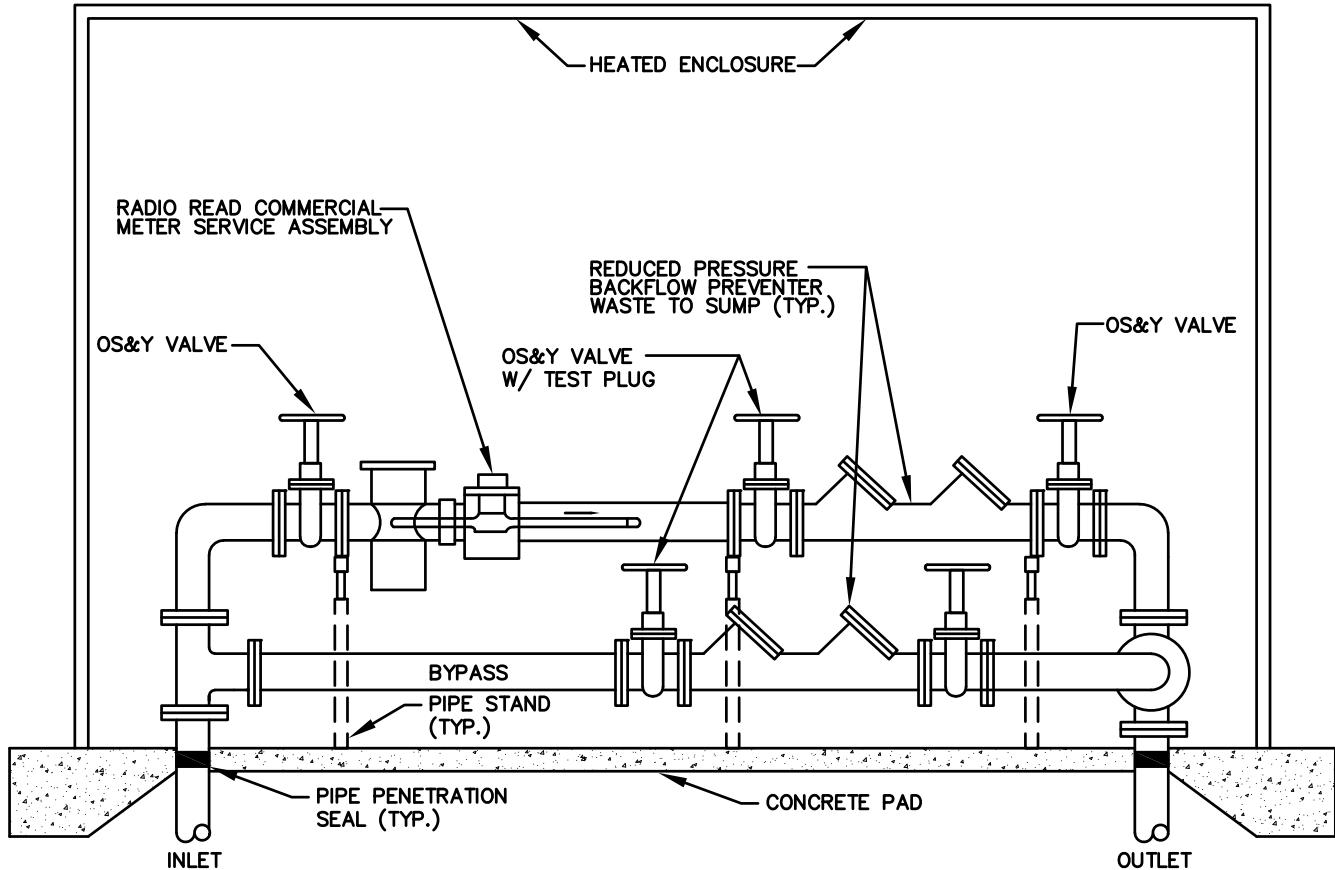
DEPTH OF MAIN = 5'  
STANDARD SIZE OF SERVICE = 3/4"

KENT COUNTY WATER AUTHORITY

**AS-BUILT EXAMPLE FOR WATER SERVICE**

NOT TO SCALE

DATE: 3/2024



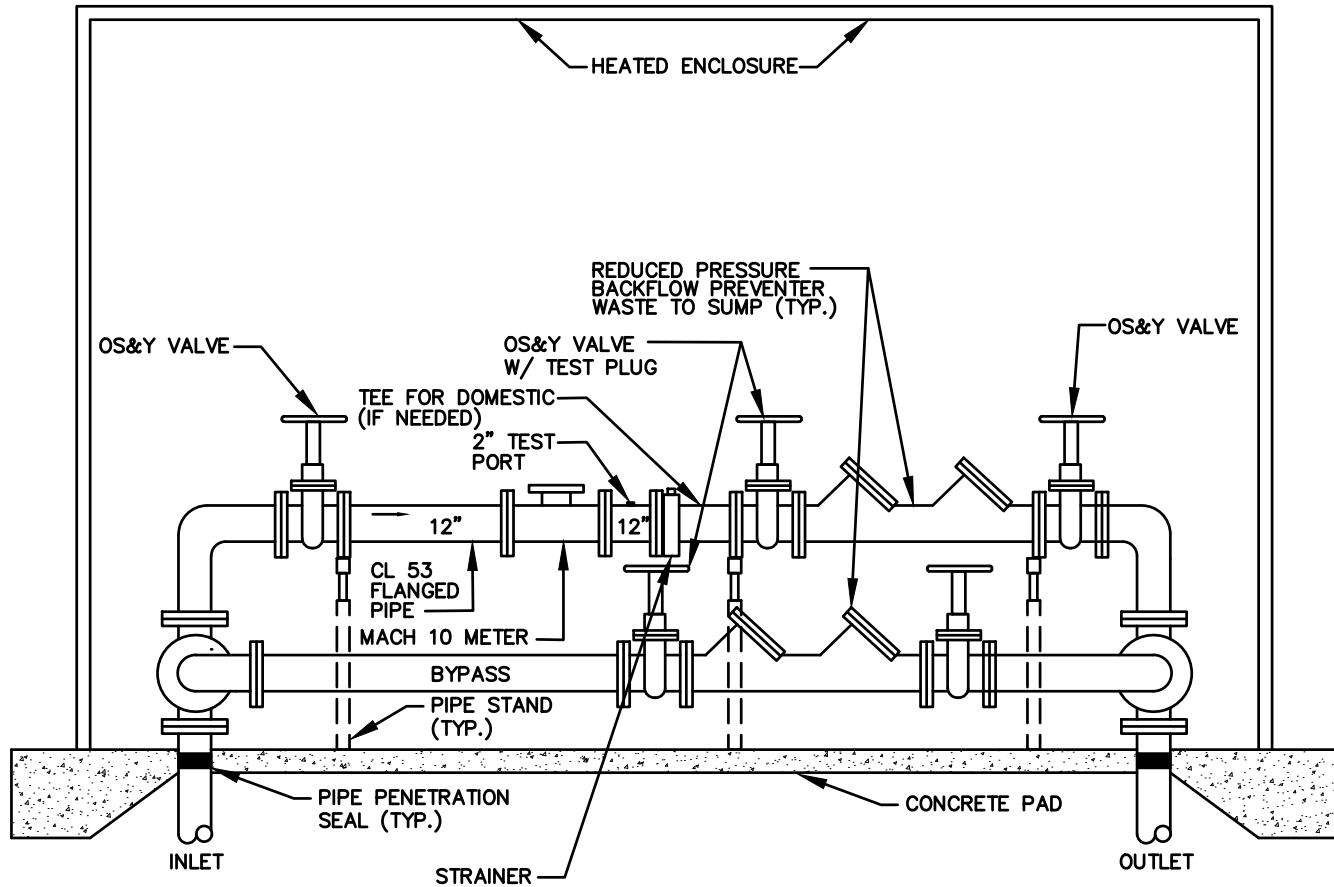
**NOTES:**

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.

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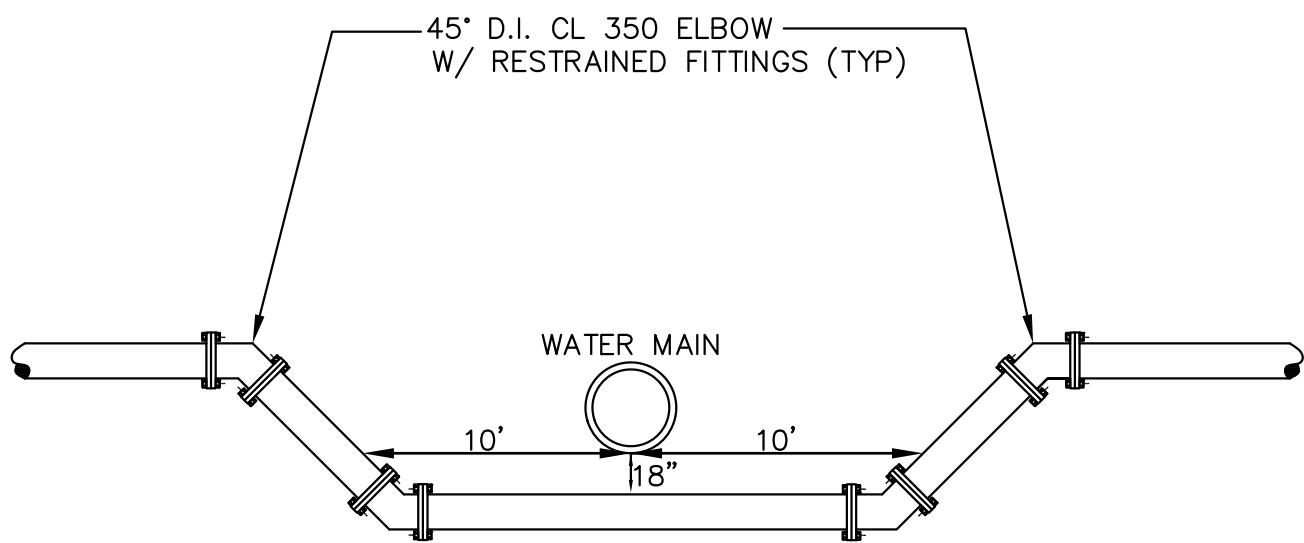
KENT COUNTY WATER AUTHORITY  
**ABOVE GRADE MASTER METER**  
**INSTALLATION**  
 NOT TO SCALE

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**  
"proudly serving"

KENT COUNTY WATER AUTHORITY  
**FORCED SEWER MAIN**  
**CROSSING**  
NOT TO SCALE

DATE: 3/2024

FMCROSS.DWG