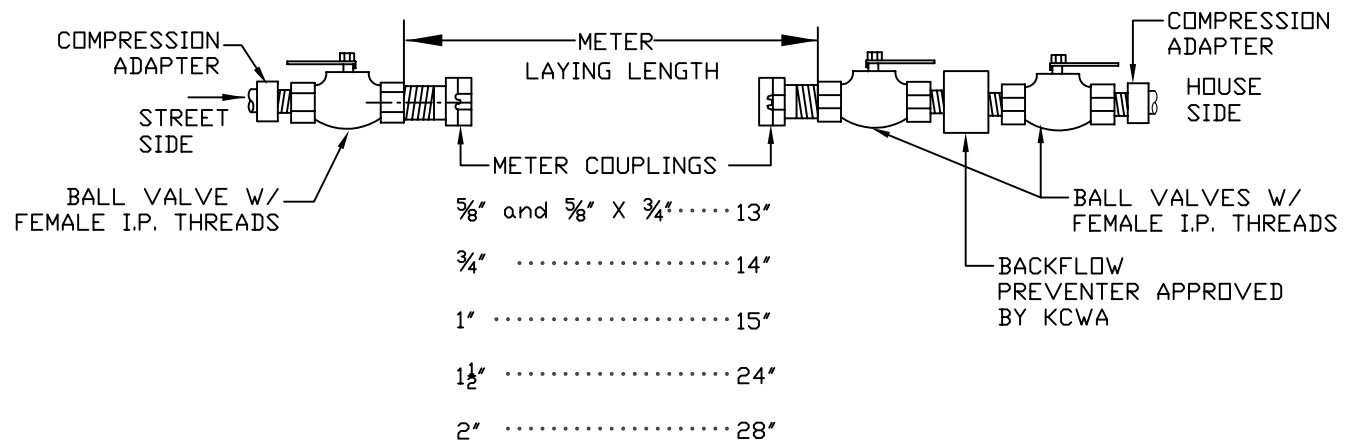


**RESIDENTIAL WATER METER INSTALLATION**



**WATER METER SETTINGS WITH FITTINGS**

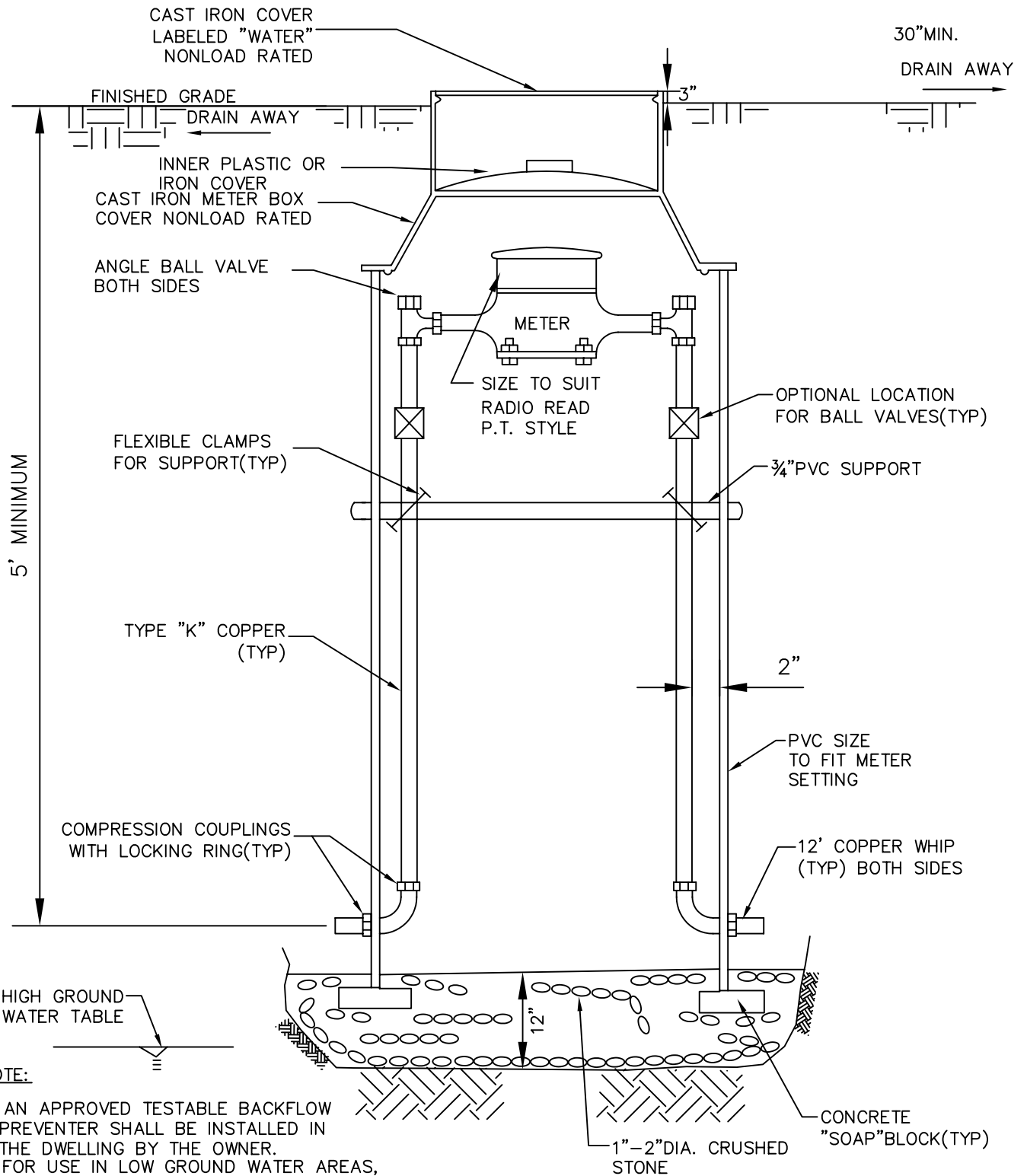
KENT COUNTY WATER AUTHORITY

**KCWA**  
"proudly serving"

**RESIDENTIAL WATER METER**

NOT TO SCALE

DATE: 09/2006



**NOTE:**

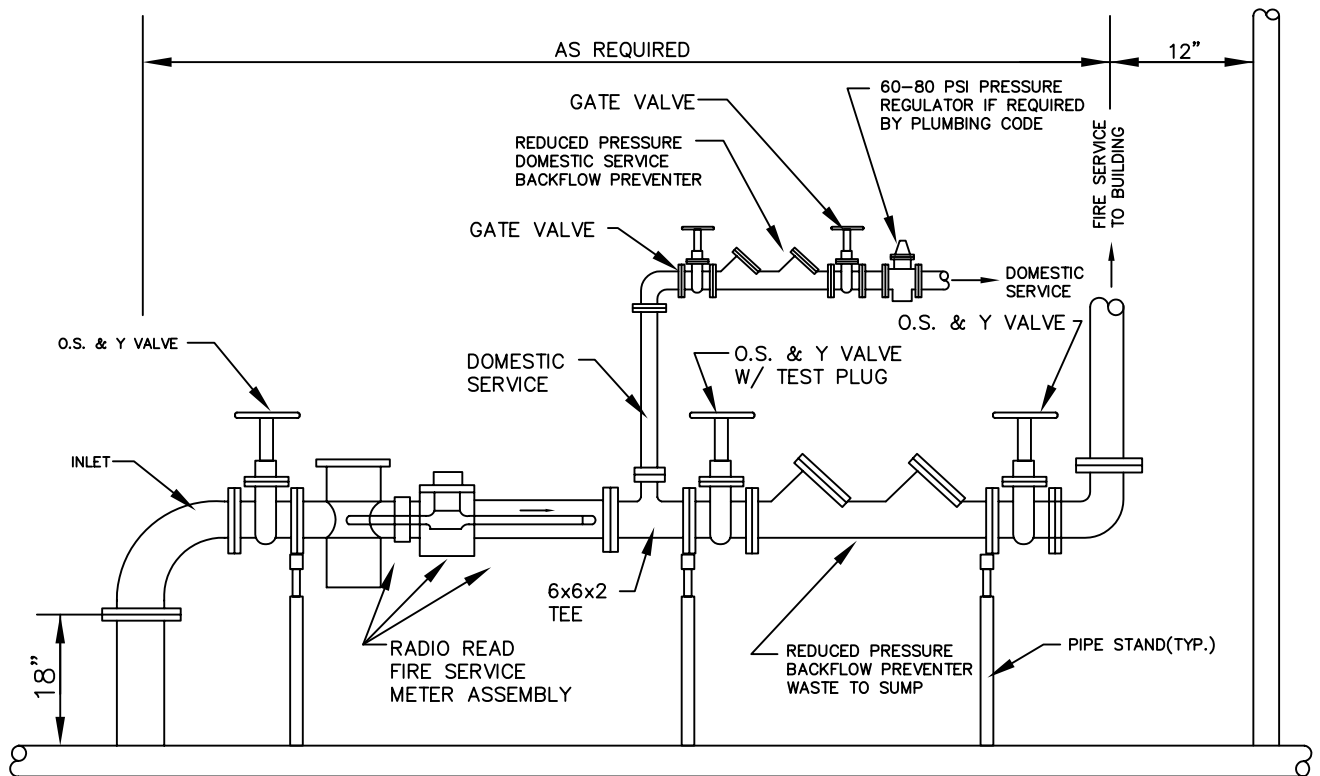
1. AN APPROVED TESTABLE BACKFLOW PREVENTER SHALL BE INSTALLED IN THE DWELLING BY THE OWNER.
2. FOR USE IN LOW GROUND WATER AREAS, CHAMBER MAY NOT BE SUBJECT TO FLOODING.

**KCWA**  
"proudly serving"

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

NOT TO SCALE

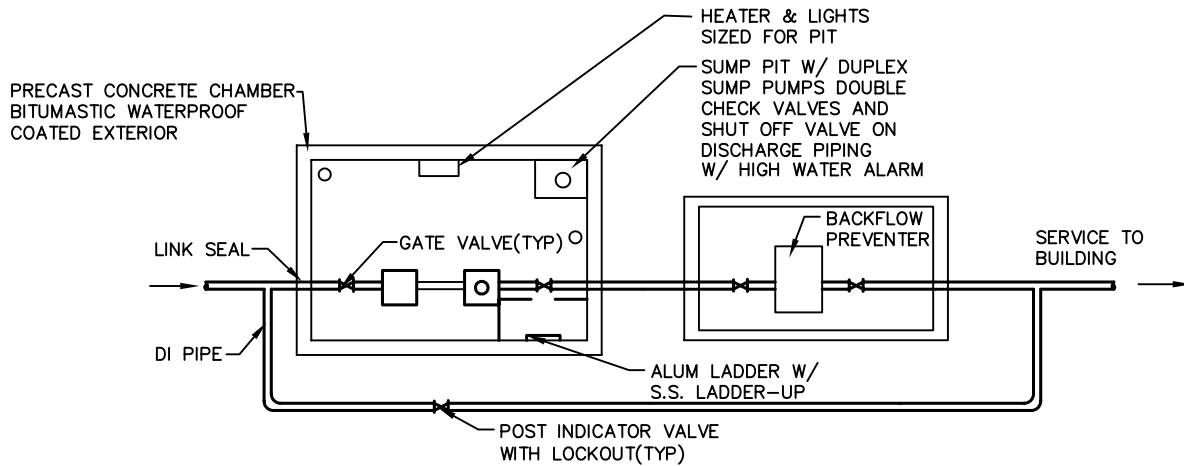
DATE: 09/2006



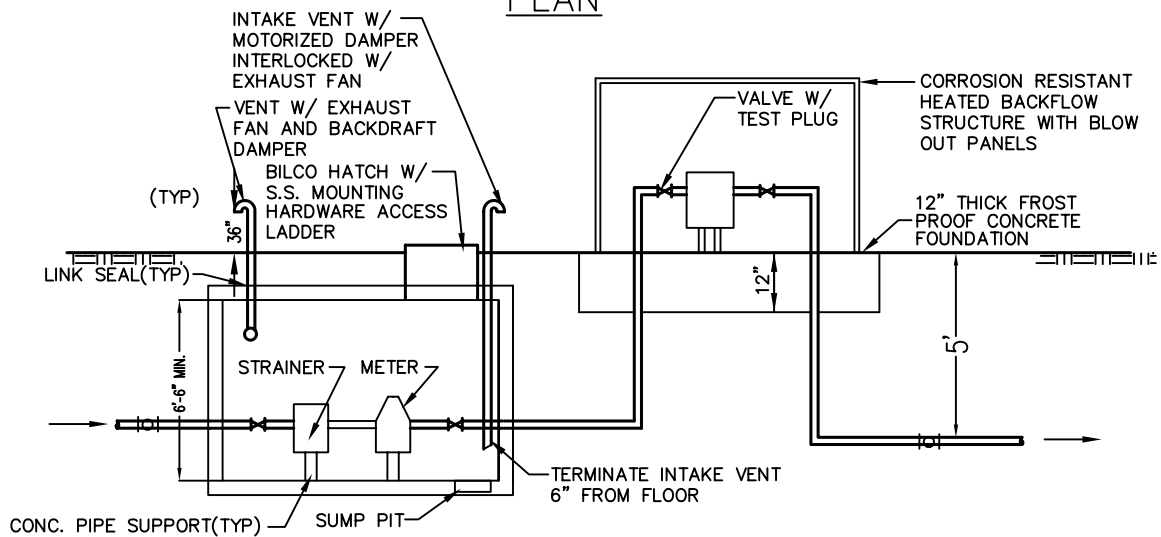
**KCWA**  
 "proudly serving"

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

DATE: 09/2006



PLAN



ELEVATION

**NOTES:**

- 1.) ALL EXTERIOR PIPING, VALVES AND FITTING JOINTS TO HAVE RESTRAINED JOINTS.
- 2.) SUMP PUMP DISCHARGE PIPING TO HAVE 2 CHECK VALVES AND SHUT OFF VALVE.
- 3.) PROVIDE LIGHTING, HEATER WITH THERMOSTAT AND POWER VENTILATION SYSTEM. SWITCH FOR LIGHTS AND VENTILATION TO BE MOUNTED AT OPENING.
- 4.) INTERIOR PIPING AND VALVE JOINTS TO BE FLANGED.
- 5.) PIT MUST HAVE POSITIVE DRAINAGE SUFFICIENT FOR RPZ FLOW OR RPZ MUST BE LOCATED IN AN ABOVE GROUND ENCLOSURE.
- 6.) SLOPE FLOOR TO SUMP PUMP PIT.
- 7.) METER AND BACKFLOW PREVENTERS TO BE PROPERLY SUPPORTED ABOVE FLOOR.
- 8.) GOOSENECK VENT PIPE AT EACH END OF CHAMBER. SIZE TO MEET OSHA REQUIREMENTS W/ S.S. NON REMOVABLE INSECT SCREEN AND VERMIN SCREEN.

KENT COUNTY WATER AUTHORITY

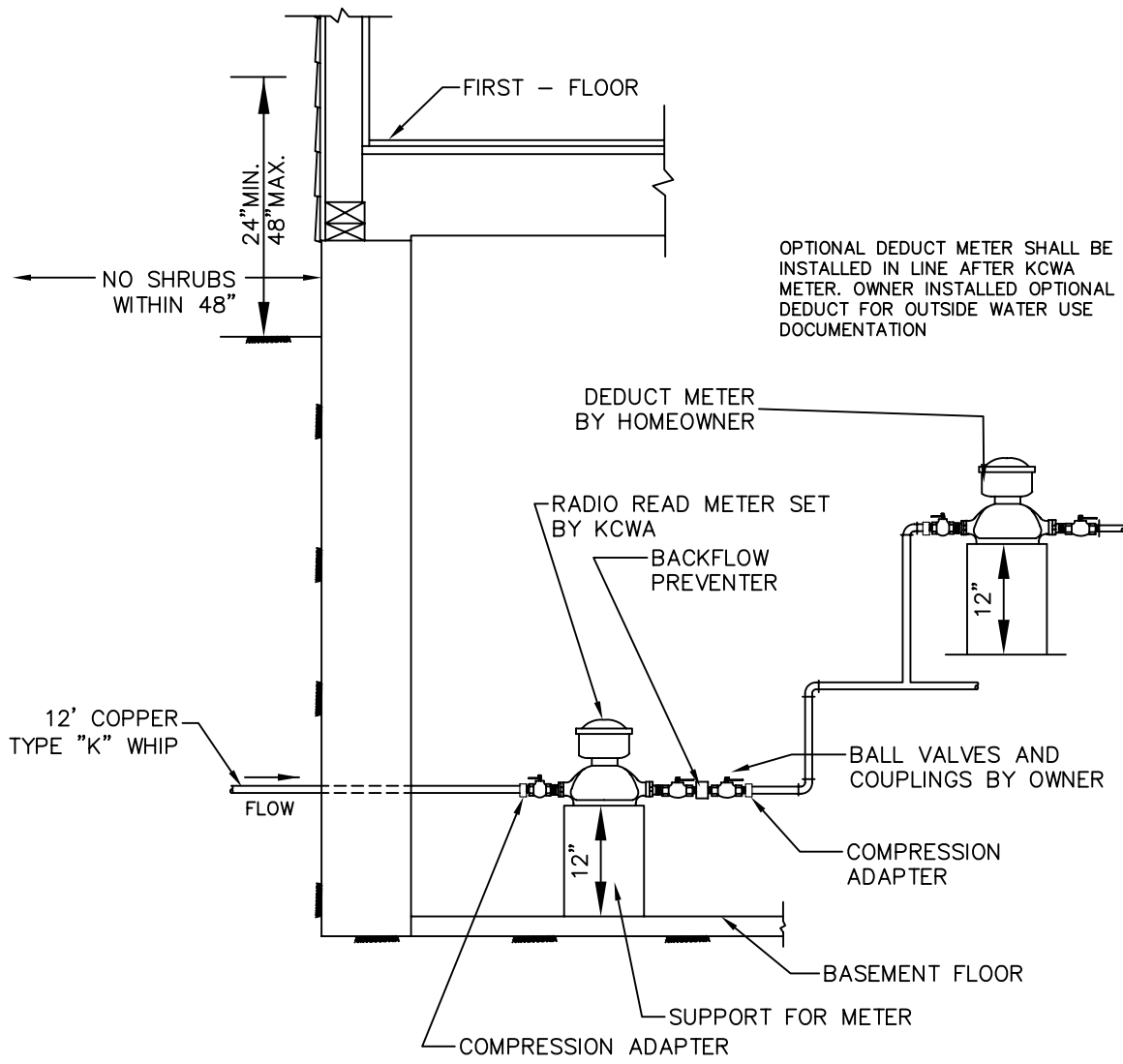
**KCWA**

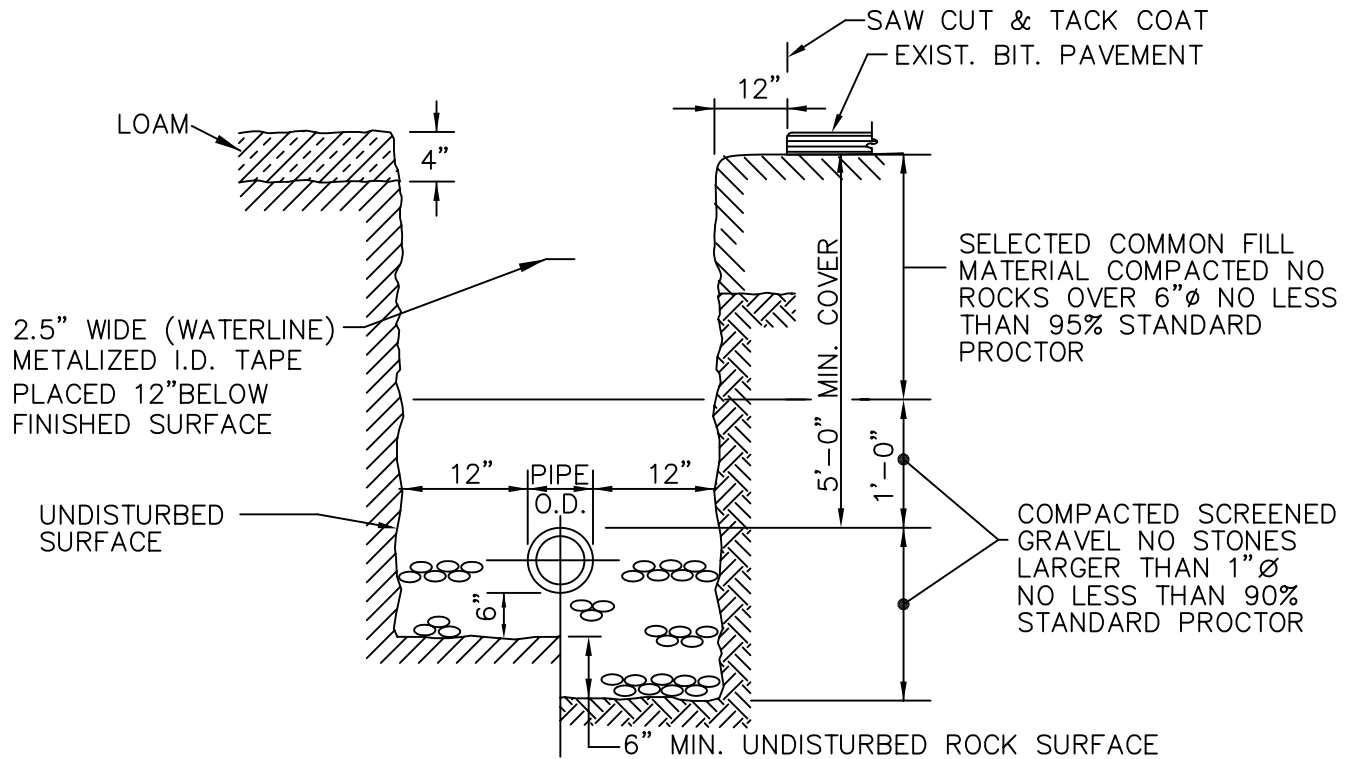
"proudly serving"

**ABOVE GROUND BACKFLOW CHAMBER**

NOT TO SCALE

DATE: 09/2006





NOTES:

1. ROADWAY RESTORATION IN ACCORDANCE WITH COMMUNITY OR RIDOT.

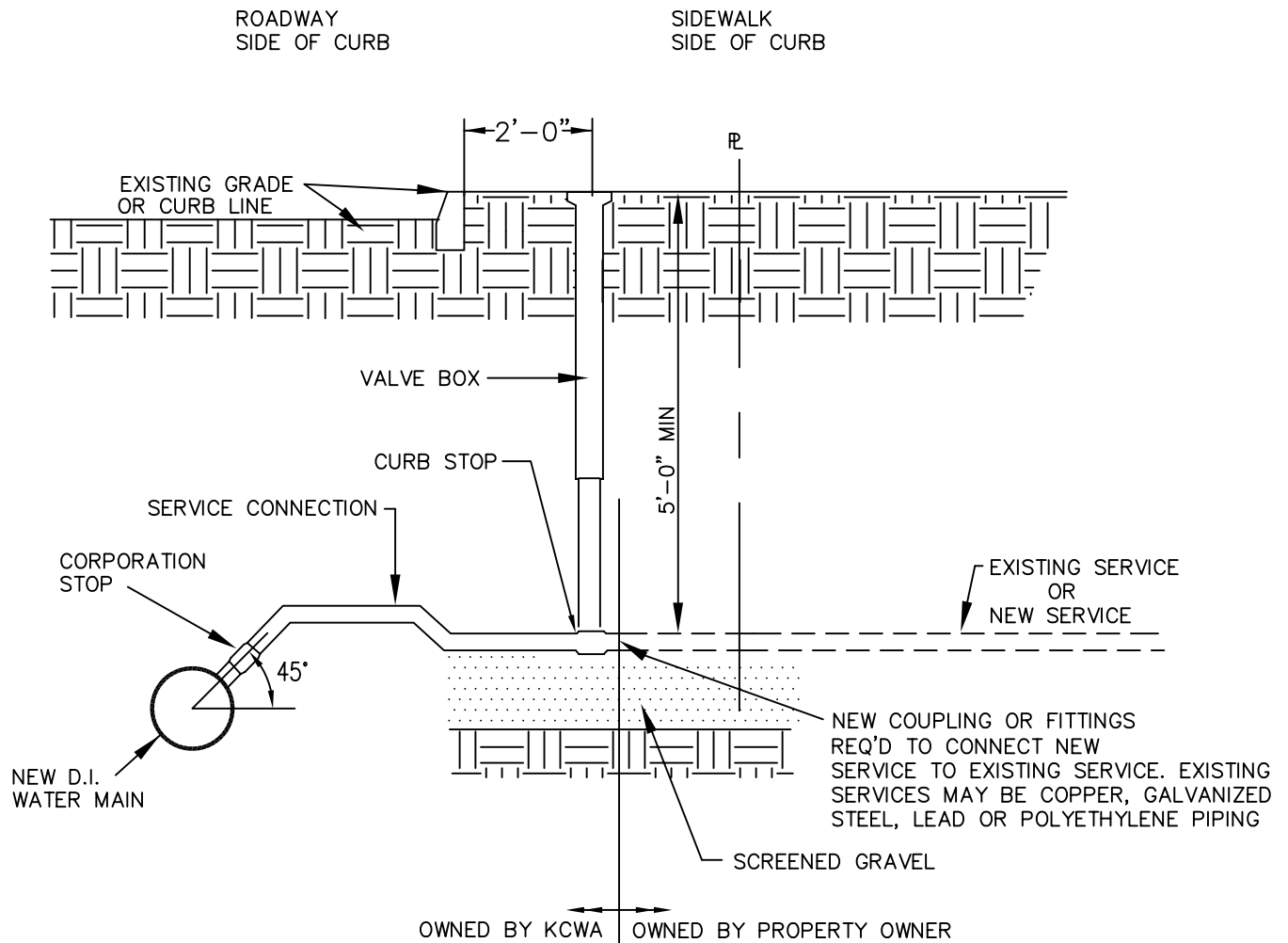
KENT COUNTY WATER AUTHORITY

**KCWA TRENCH INSTALLATION IN ROCK AND SOIL**

"proudly serving"

NOT TO SCALE

DATE: 09/2006



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

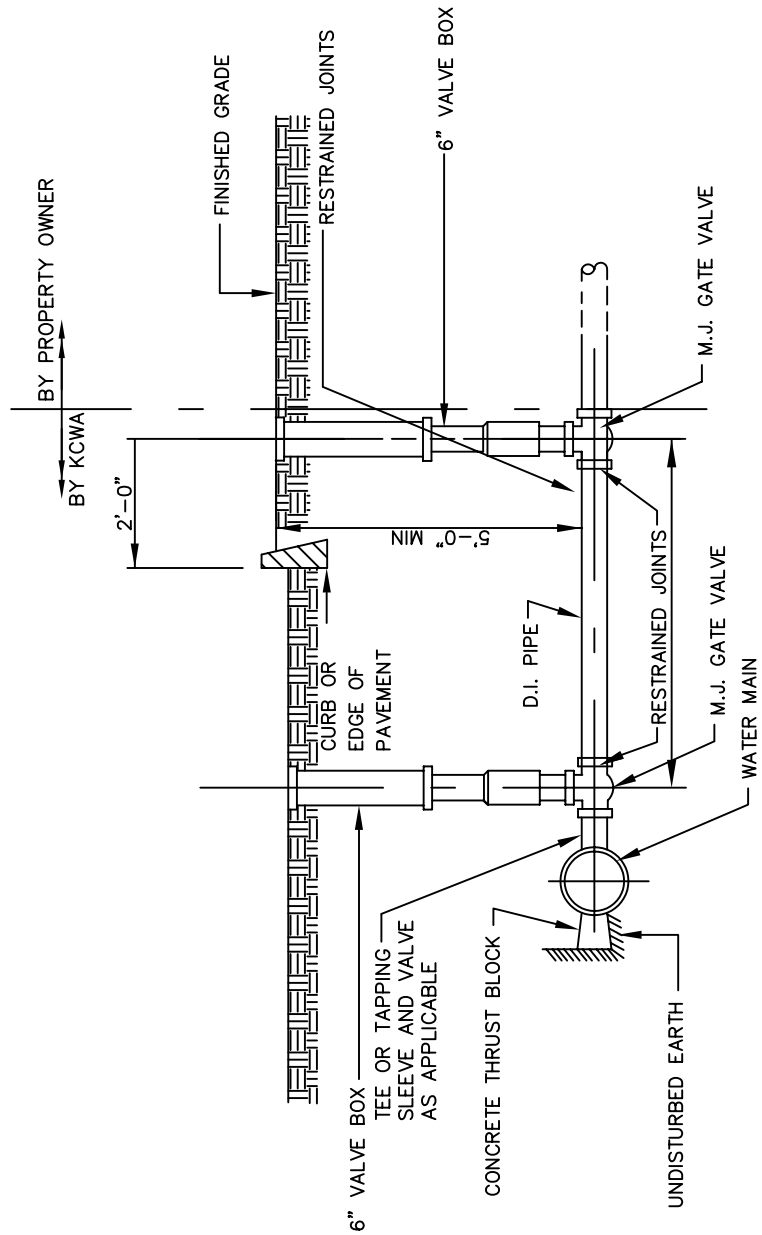
**KCWA**

"proudly serving"

**SERVICE CONNECTION**

NOT TO SCALE

DATE: 09/2006



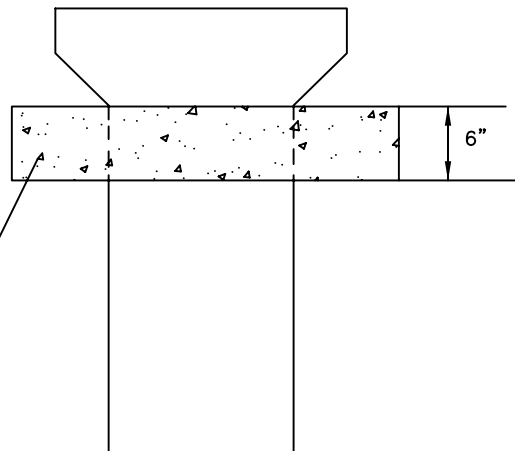
NOTE:  
 1. MATERIALS PER KCWA SPECIFICATIONS

**KCWA**  
 "proudly serving"

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

DATE: 09/2006





CONCRETE COLLAR  
12" DIA. FOR GATE  
BOXES AND 8" DIA.  
FOR CURB STOP BOXES

GATE BOXES AND CURB STOP BOXES

**KCWA**

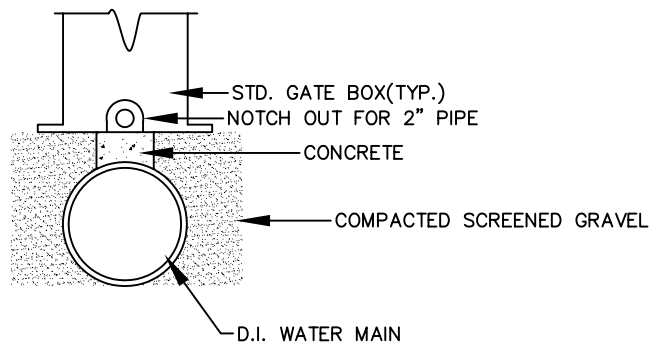
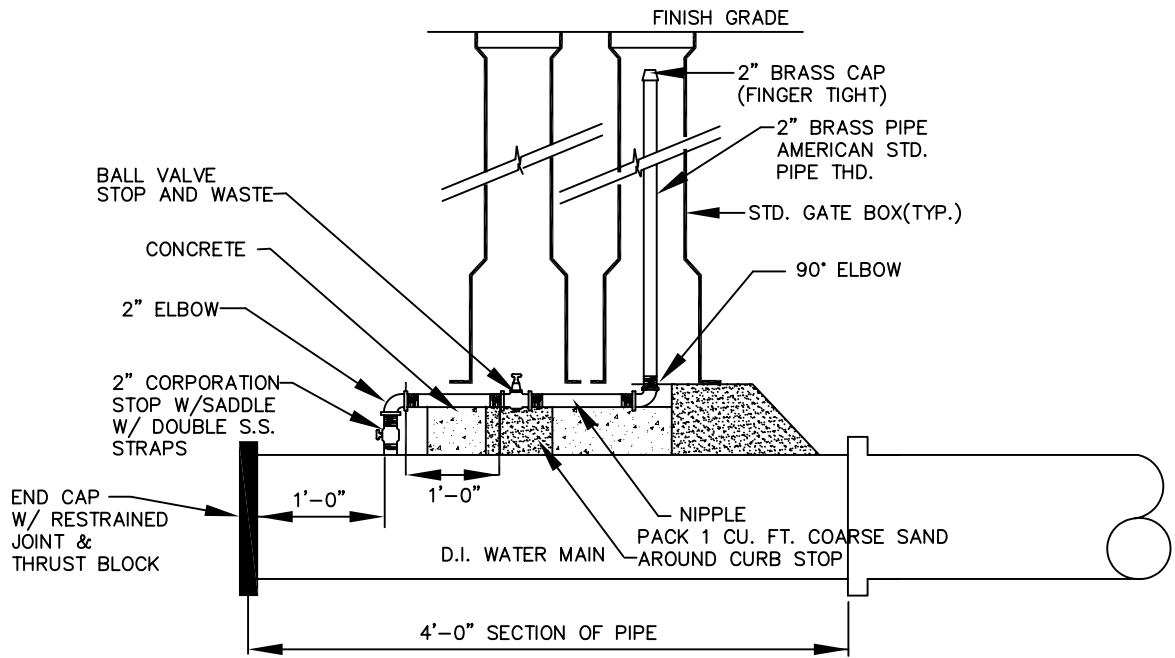
"proudly serving"

KENT COUNTY WATER AUTHORITY

**CONCRETE COLLAR**

NOT TO SCALE

DATE: 09/2006



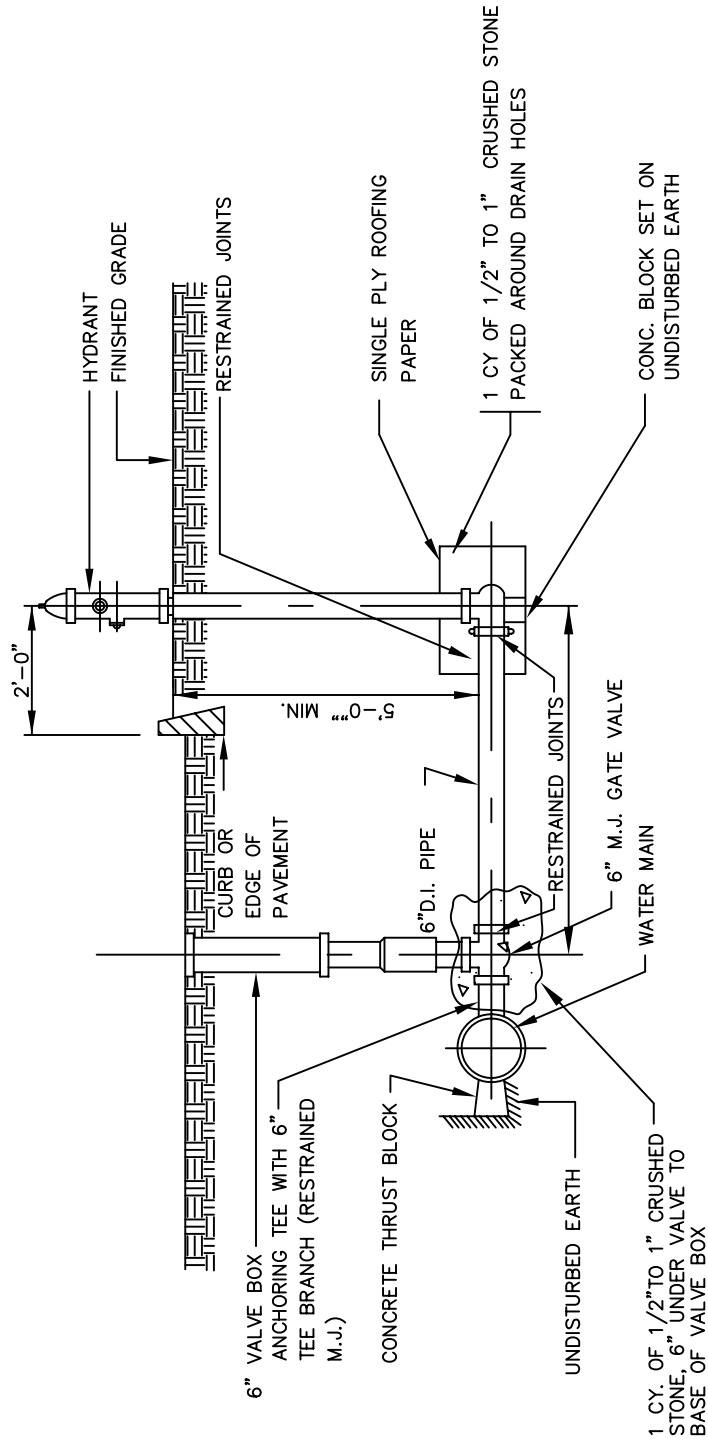
**KCWA**  
"proudly serving"

KENT COUNTY WATER AUTHORITY  
**PERMANENT BLOWOFF ASSEMBLY**

NOT TO SCALE

DATE: 09/2006





**NOTE:**

- 1.) KCWA COLOR SCHEME FOR HYDRANT.
- 2.) INSTALLATION SHALL NOT OBSTRUCT SIDEWALK TO PEDESTRIAN OR PHYSICALLY IMPAIRED.
- 3.) REMOVAL OF EXISTING HYDRANT MAY REQUIRE ADDITIONAL RESTRAINT DESIGNED BY A PROFESSIONAL ENGINEER.

NOTE:  
 MECHANICAL JOINT PIPE W/  
 RESTRAINED JOINTS FOR  
 BRANCHES OVER ONE LENGTH  
 OF PIPE

KENT COUNTY WATER AUTHORITY

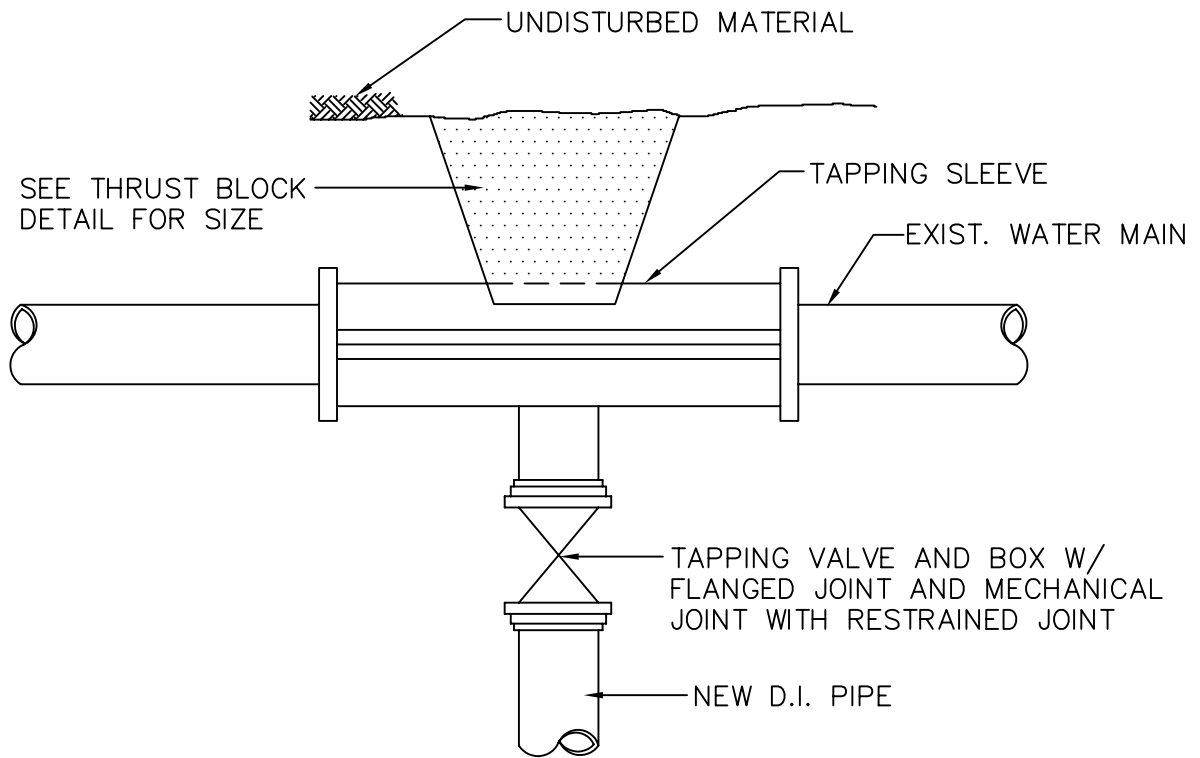
**HYDRANT**

NOT TO SCALE

DATE: 09/2006

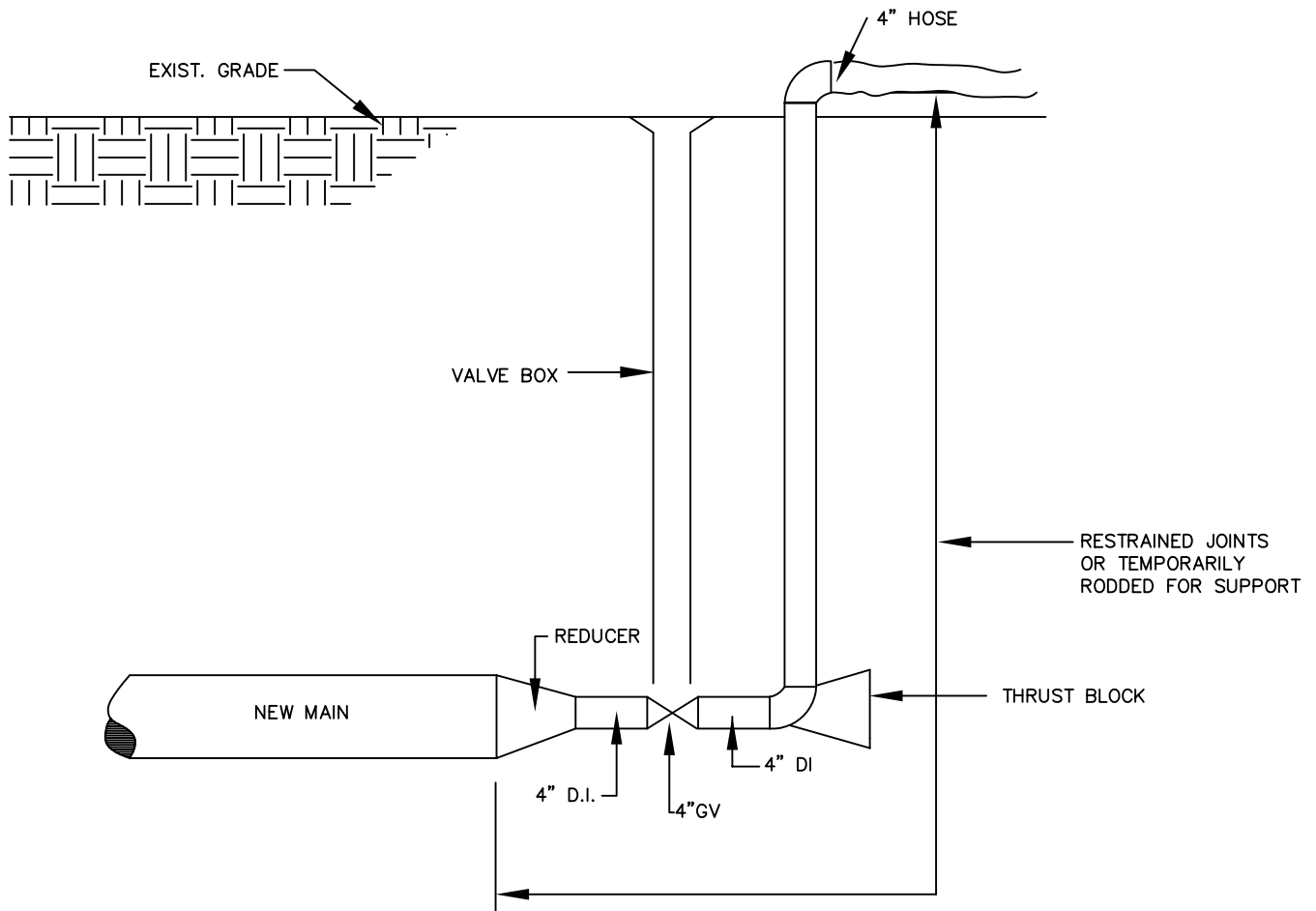
**KCWA**

"proudly serving"



NOTE:

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



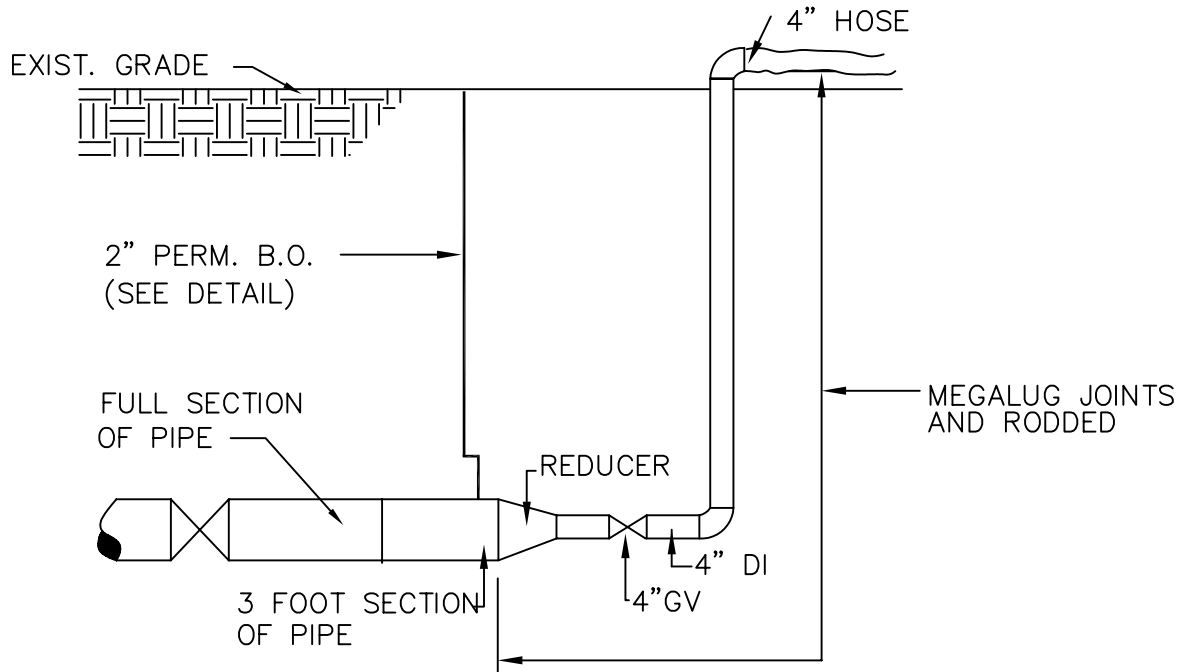
**NOTE:**  
 AFTER THE COMPLETION OF THE  
 FINAL FLUSHING THE CONTRACTOR  
 SHALL REMOVE THE TEMPORARY  
 FLUSHING CONNECTION AND CONNECT THE  
 NEW WATER TO THE EXIST. WATER MAIN  
 ALL PIPING AND FITTING SHALL BE DISINFECTED  
 TO THE SATISFACTION OF THE KCWA.

**KCWA**  
 "proudly serving"

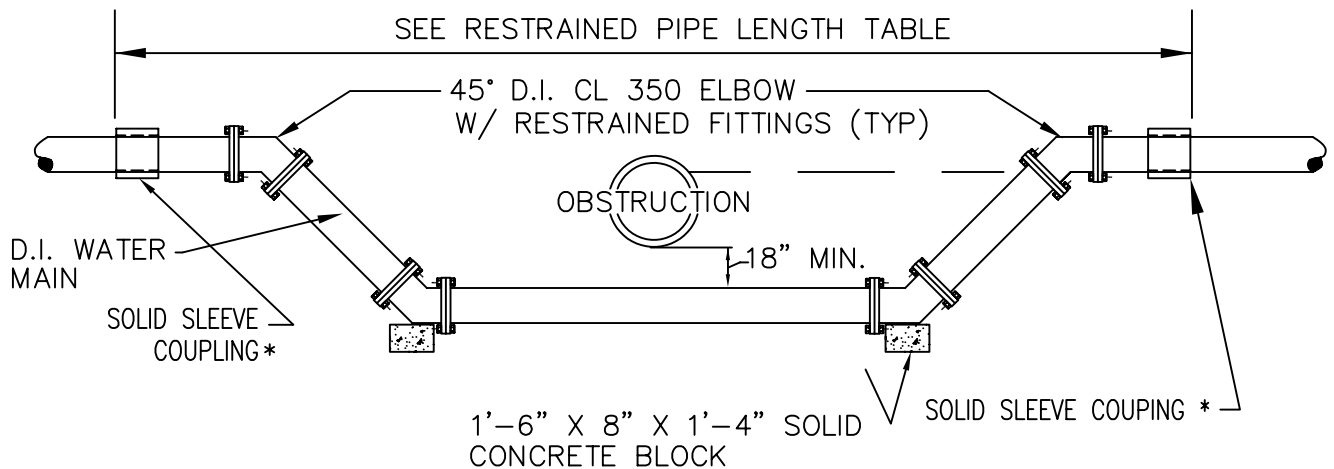
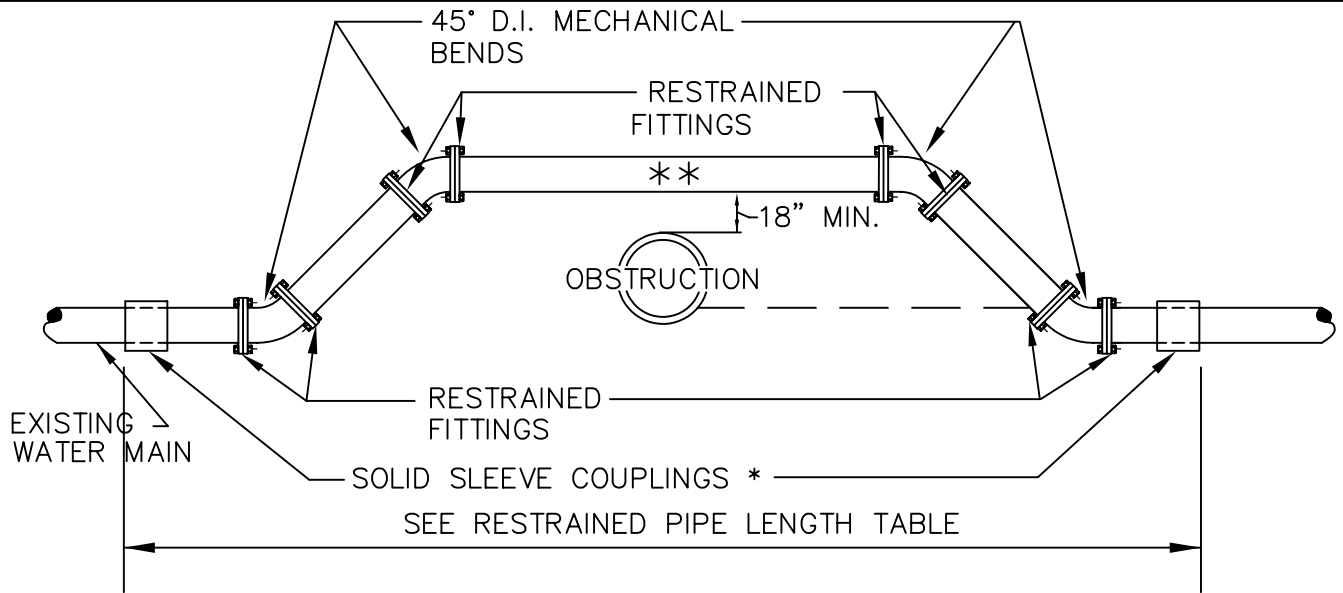
KENT COUNTY WATER AUTHORITY  
**TEMPORARY FLUSHING CONNECTION**

NOT TO SCALE

DATE: 09/2006



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



- \* 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

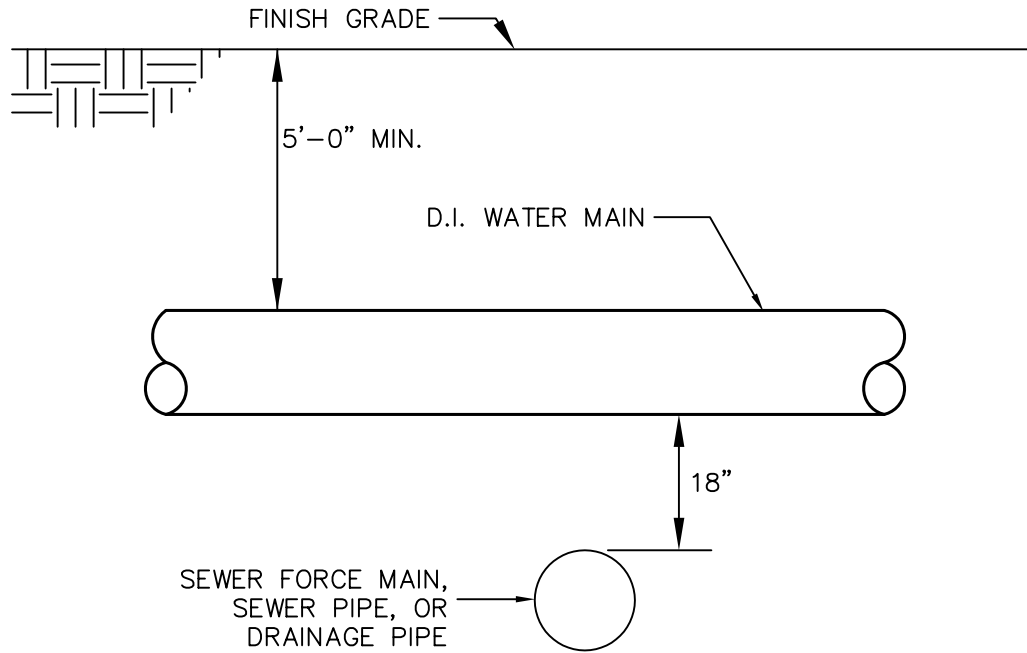
KENT COUNTY WATER AUTHORITY  
**WATER MAIN HORIZONTAL OR  
 VERTICAL RELOCATION**

**KCWA**  
 "proudly serving"

NOT TO SCALE

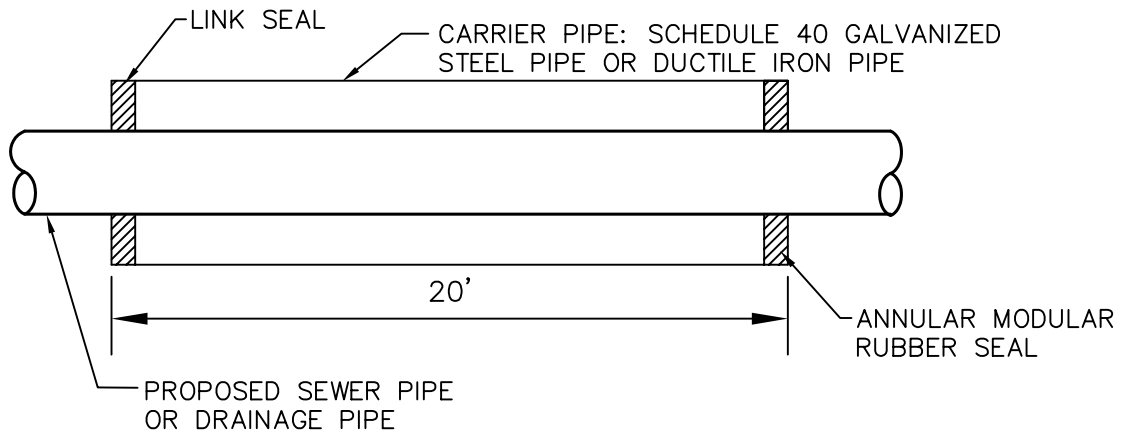
DATE: 09/2006





**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

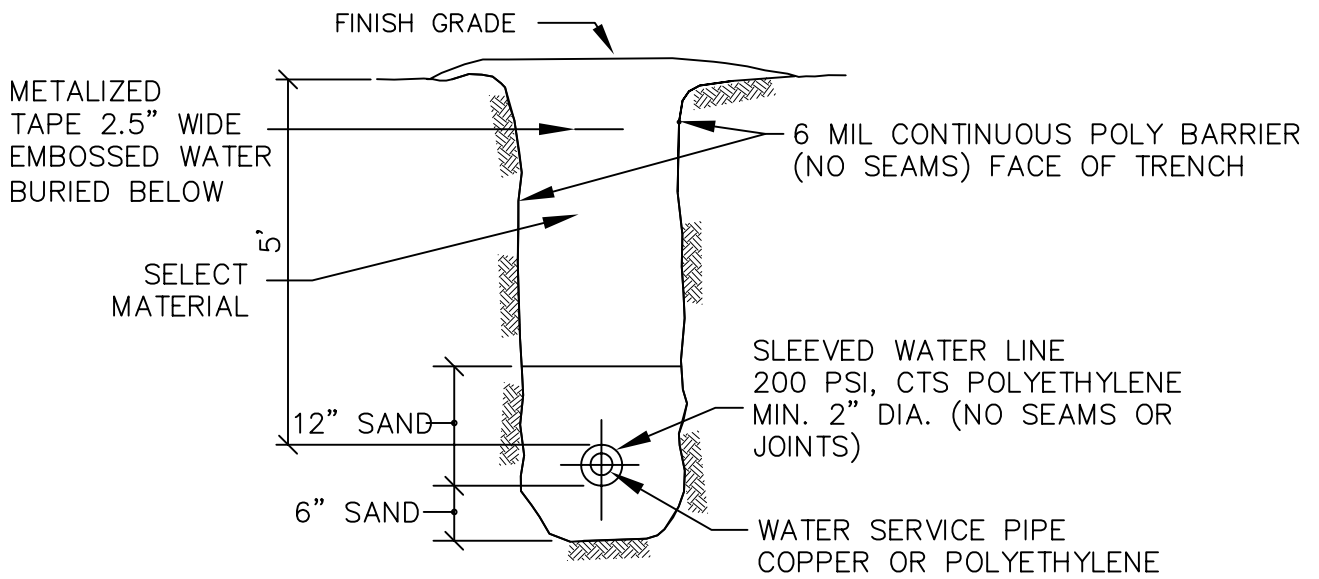
**UTILITY SEPERATION**

NOT TO SCALE

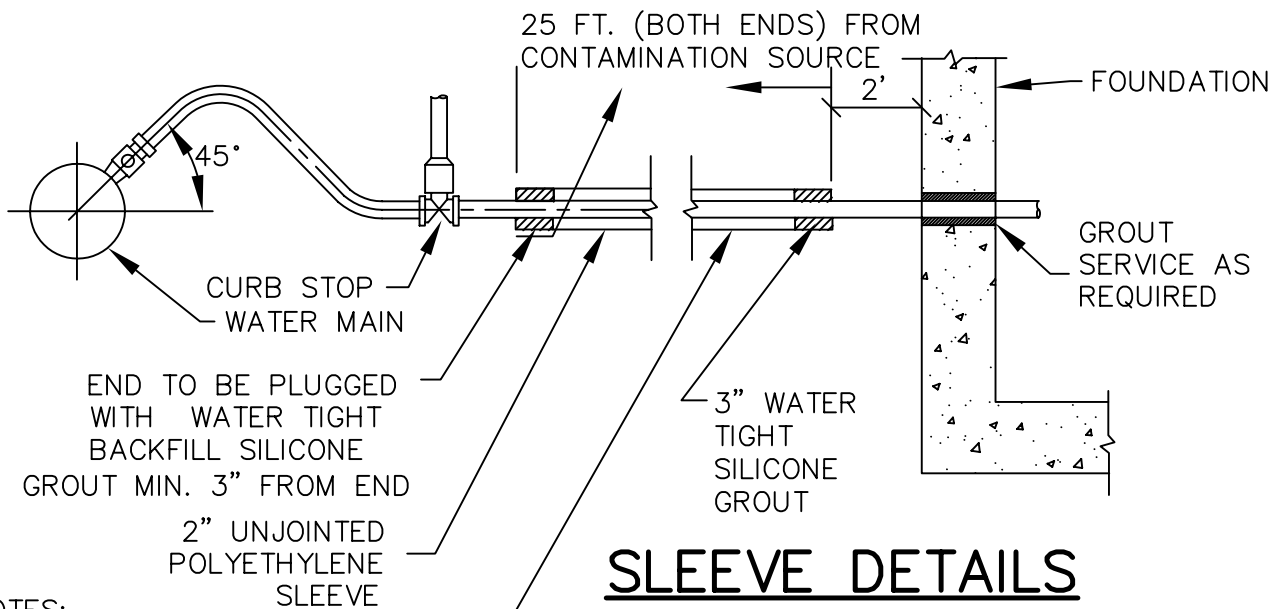
DATE: 09/2006

**KCWA**

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## TRENCH DETAIL



## SLEEVE DETAILS

**NOTES:**

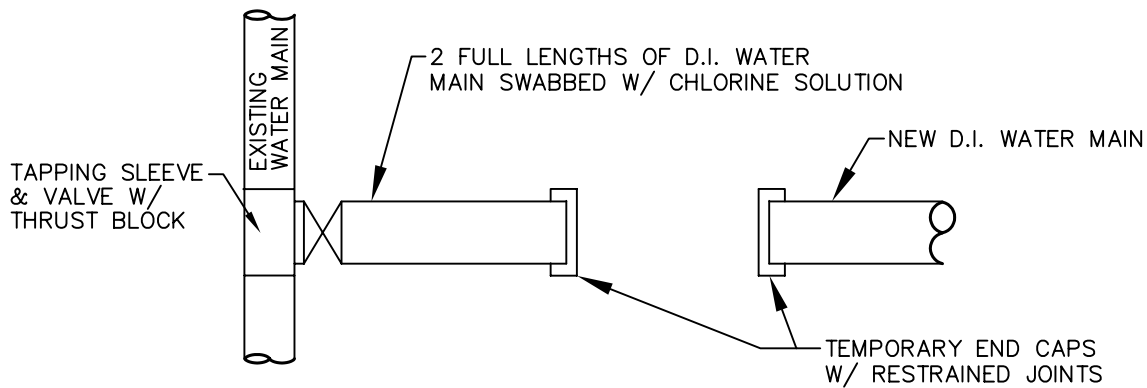
- 1.) 12' COPPER WHIP REQUIRED POLYETHYLENE MAY NOT BE SUITABLE.
- 2.) EXISTING SYSTEM ONLY. NOT TO BE USED FOR NEW CONST. MUST OBTAIN PRIOR APPROVAL FROM KCWA GENERAL MANAGER/ CHIEF ENGINEER.

**KCWA**  
"proudly serving"

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

NOT TO SCALE

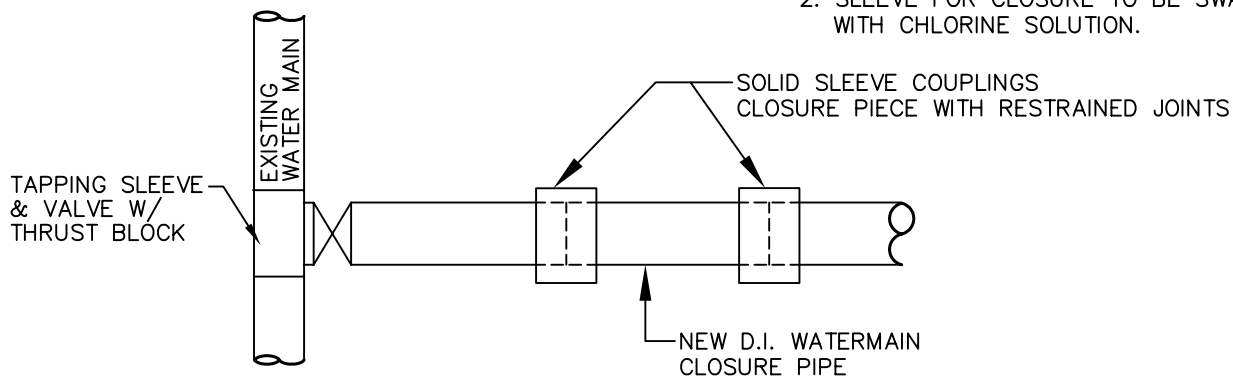
DATE: 09/2006



## 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.



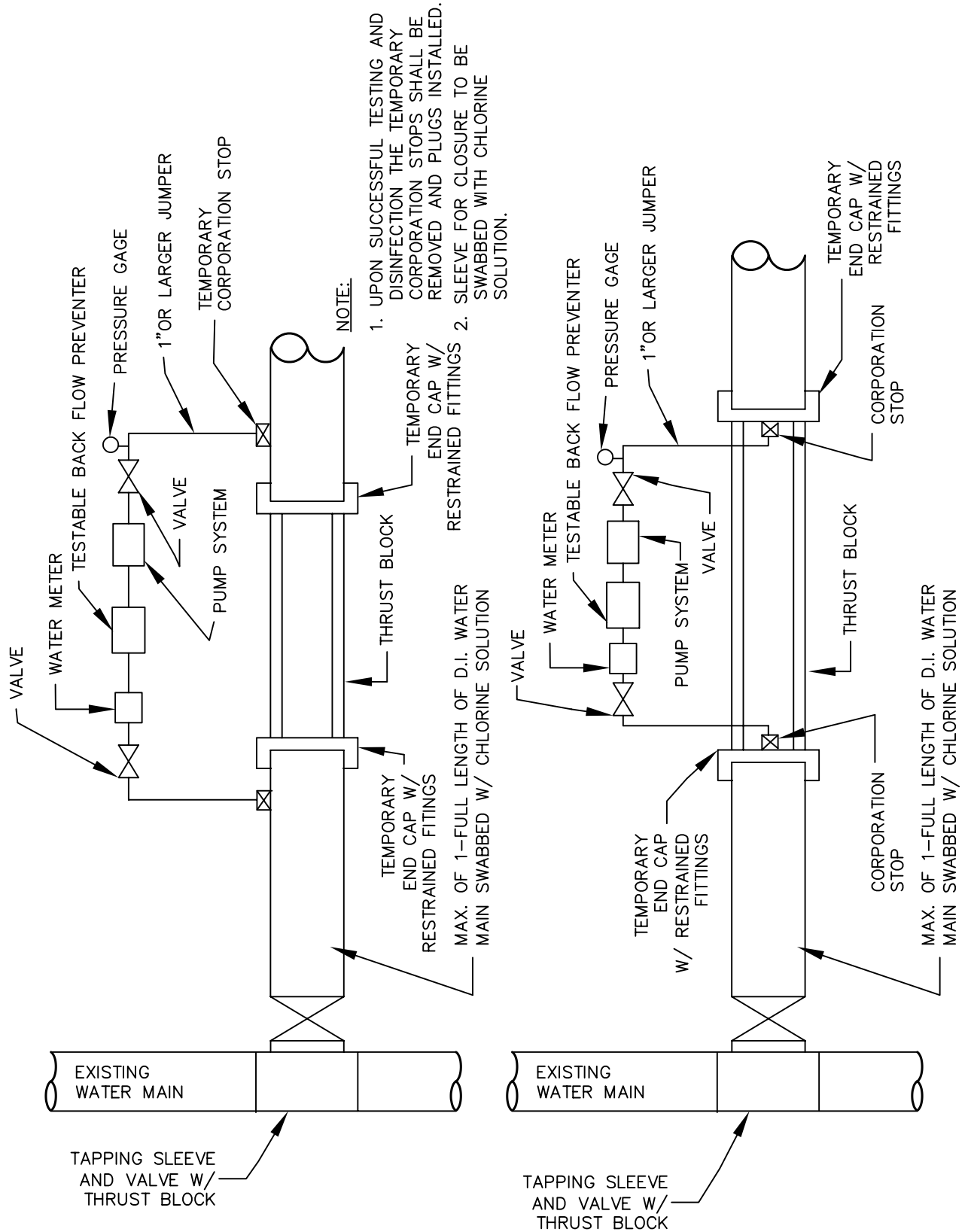
## CONNECTION

**KCWA**  
"proudly serving"

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

NOT TO SCALE

DATE: 09/2006



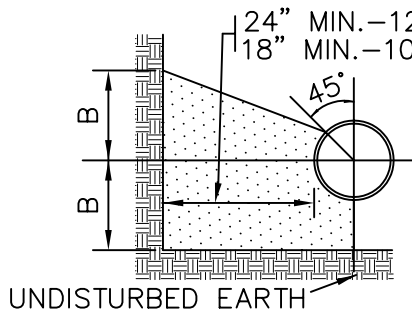
KCWA

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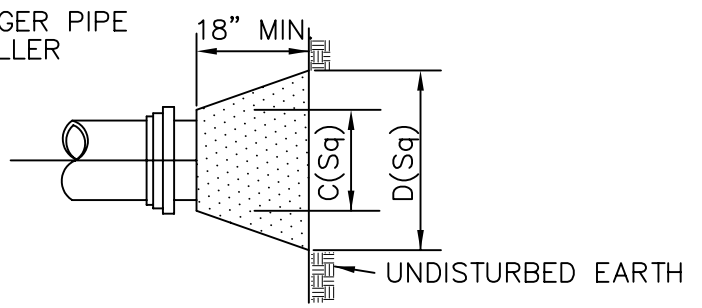
KENT COUNTY WATER AUTHORITY  
TEMPORARY CONNECTION FOR PRESSURE TESTING AND DISINFECTION

NOT TO SCALE

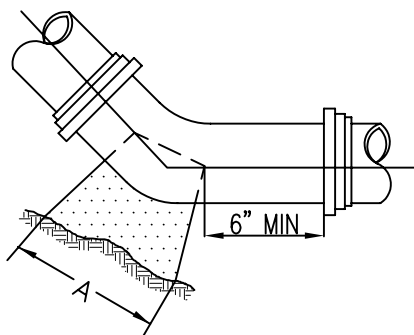
DATE: 09/2006



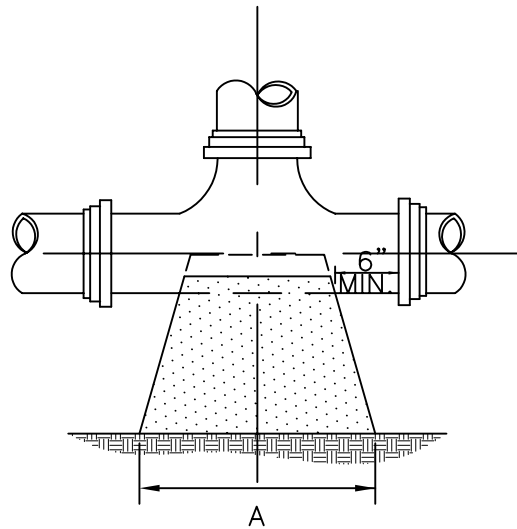
BENDS & TEES SECTION



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.

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

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**THRUST BLOCK**

NOT TO SCALE

DATE: 09/2006

**RESTRAINED PIPE LENGTHS FOR RESTRAINED FITTINGS**

FITTING	RESTRAINED LENGTH
12" PLUG	94'
12" TEE	44'
12" 90°	58'
12" 45°	44'
12" 22 1/2°	22'
12" 11 1/4°	22'
8" PLUG	58'
8" TEE	44'
8" 90°	44'
8" 45°	22'
8" 22 1/2°	22'
8" 11 1/4°	22'
8" X 6"	44'
6" PLUG	44'
6" TEE	22'
6" 90°	22'
6" 45°	22'
6" 22 1/2°	22'
6" 11 1/4°	22'

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.

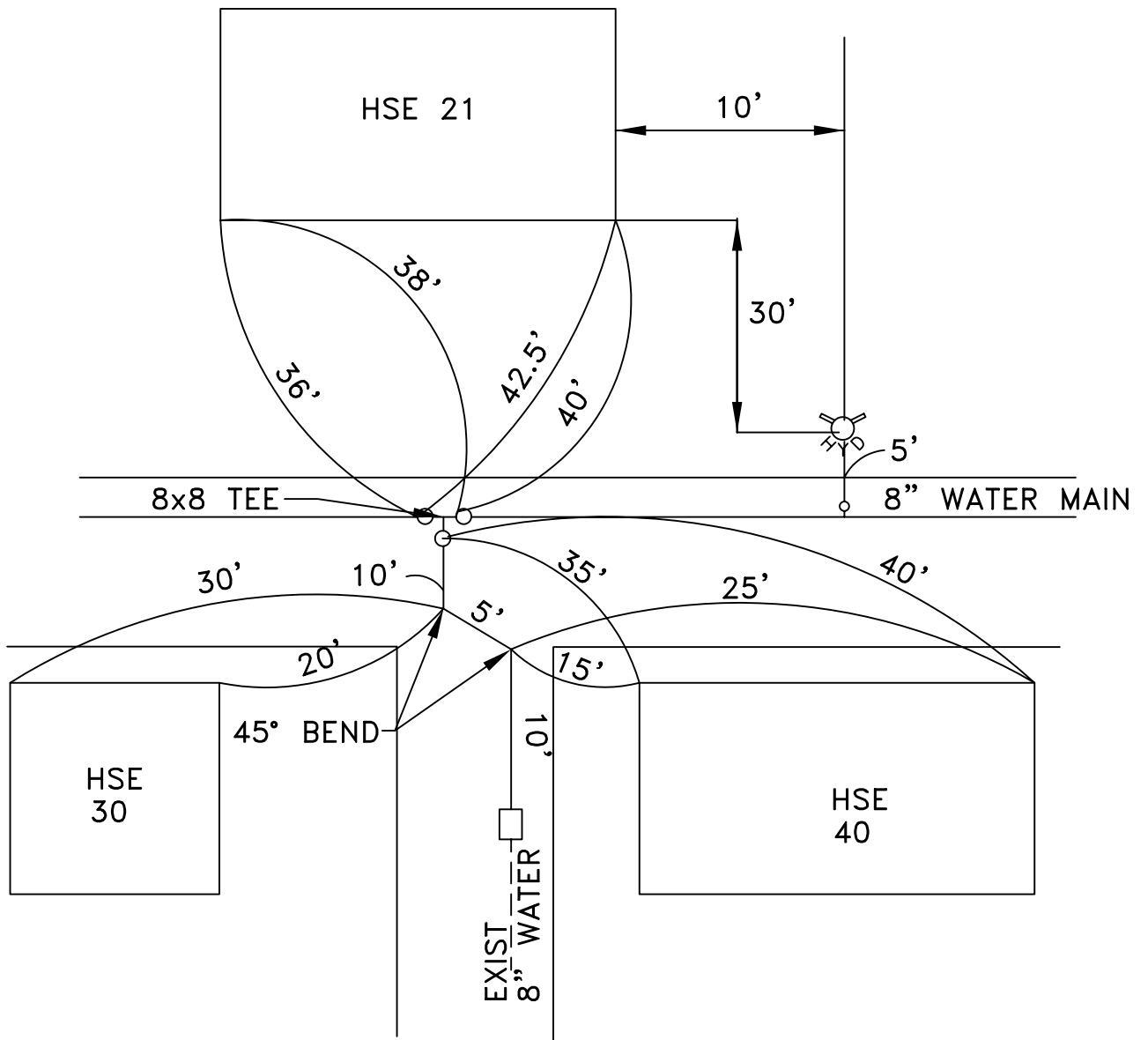
**KCWA**  
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KENT COUNTY WATER AUTHORITY  
**RESTRAINED PIPE LENGTHS**

NOT TO SCALE

DATE: 09/2006

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



KENT COUNTY WATER AUTHORITY

**AS-BUILT EXAMPLE FOR WATER MAINS**

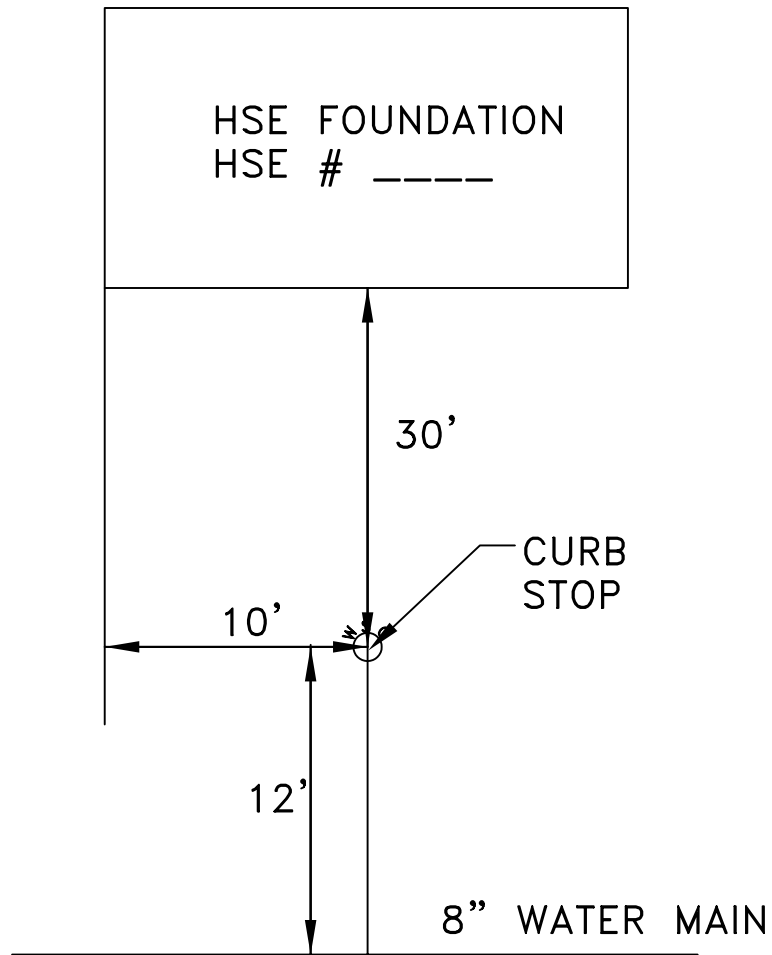
**KCWA**

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NOT TO SCALE

DATE: 09/2006

EXAMPLE OF HOUSE  
SERVICE AS- BUILTS



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