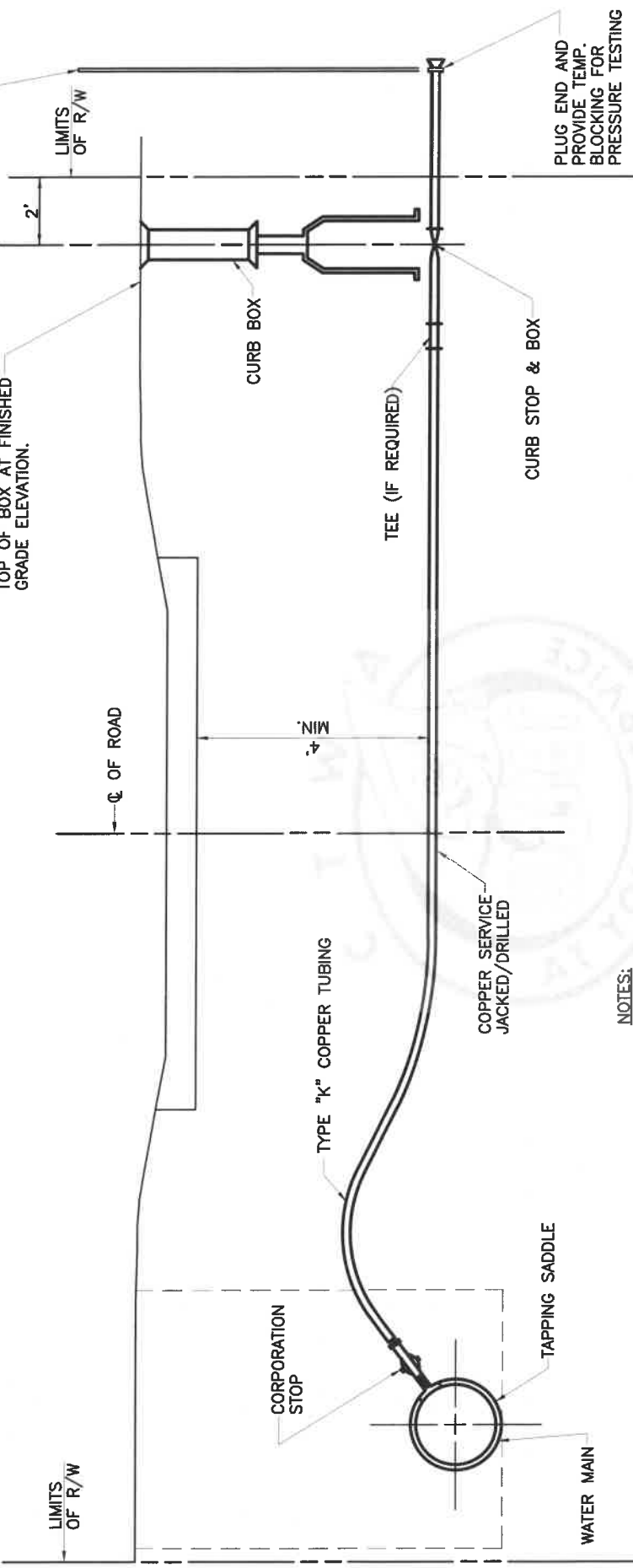


NOTES:

- (1) IF TRENCH IS WITHIN PAVED AREA SEE PAVEMENT REPLACEMENT DETAILS.
- (2) PAVED AREAS ARE DEFINED AS GRAVEL (AGGREGATE), CONCRETE, OR BITUMINOUS ROADWAYS EXCLUDING DRIVEWAYS, SIDEWALKS, AND PARKING LOTS.
- (3) BEDDING MATERIAL FOR DIP SHALL BE PENNDOT 2A COARSE AGGREGATE IN THE AREAS WHERE THE TRENCH SLOPE WILL EXCEED APPROXIMATELY 20%, OTHERWISE BEDDING MATERIAL FOR DIP SHALL BE AASHTO NO. 57 COARSE AGGREGATE.

TYPICAL TRENCH DETAIL
WATERLINES AND SERVICE CONNECTIONS

N.T.S.



FIELD LOCATE W/2x4 STAKE AND MARK SERVICE SIZE AND FIRE OR POTABLE WATER SYSTEM

TOP OF BOX AT FINISHED GRADE ELEVATION.

LIMITS OF R/W

C. OF ROAD

LIMITS OF R/W

CURB BOX

TYPE "K" COPPER TUBING

CORPORATION STOP

TEE (IF REQUIRED)

COPPER SERVICE JACKED/DRILLED

TAPPING SADDLE

WATER MAIN

CURB STOP & BOX

PLUG END AND PROVIDE TEMP. BLOCKING FOR PRESSURE TESTING

NOTES:

1. DETAIL TYPICAL FOR 1" THRU 2" CONNECTIONS. THE CORPORATION STOP, TYPE "K" COPPER TUBING AND CURB STOPS SHALL BE SIZED ACCORDINGLY BY APPLICANTS/PROPERTY OWNERS SPRINKLER SYSTEM DESIGNER OR ARCHITECT.
2. SEE RESIDENTIAL SERVICE DETAIL (PLAN VIEW).

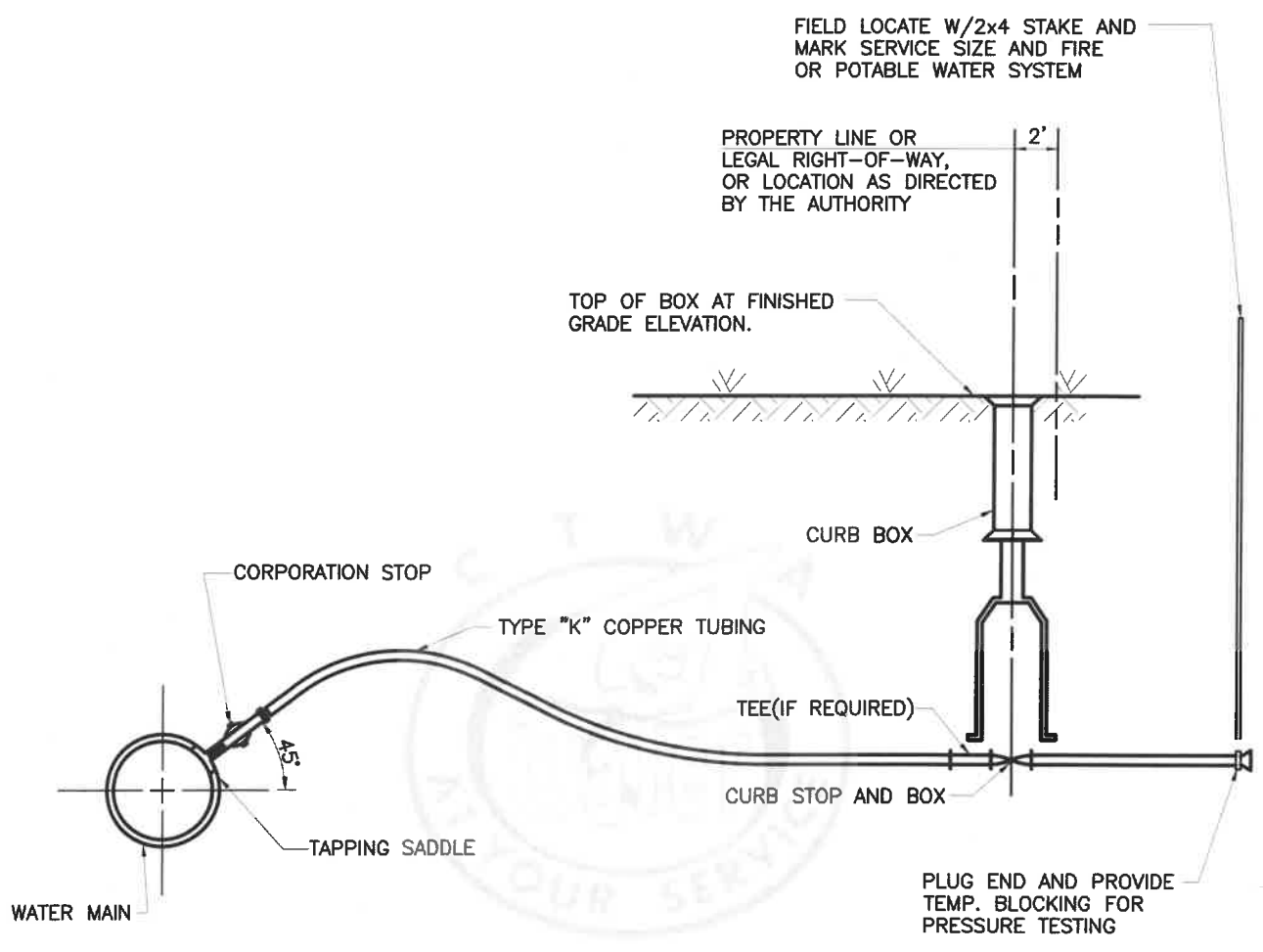
LONG RESIDENTIAL SERVICE CONNECTION DETAIL

N. T. S.

Drawn By	Scale:	N.T.S.
Checked By	Filename:	WATER LONG SERVICE.dwg
Approved By	Date:	8/09/13

Long Residential Service Connection Detail
Center Township Water Authority

N:\PROJ\2013 UPDATES\Standard Details\WATER SHORT SERVICE.dwg layout 1 User:msm aubroy Nov 26, 2013 12:12pm

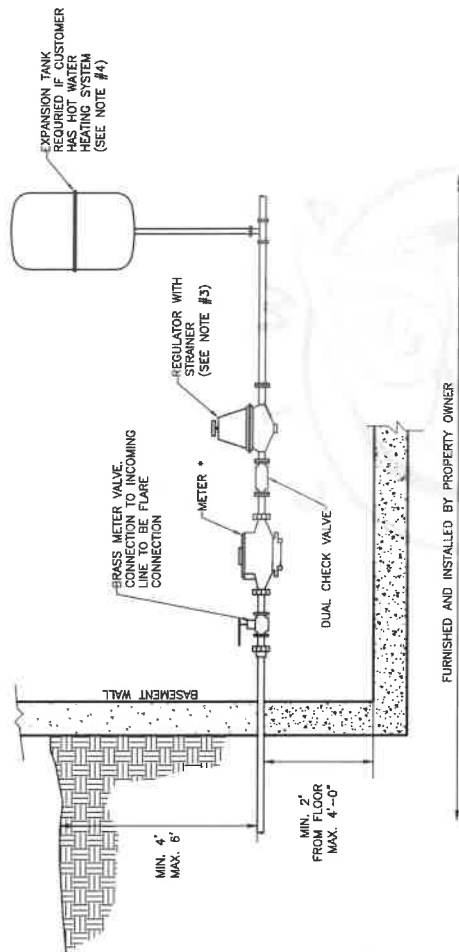


- NOTES:**
1. DETAIL TYPICAL FOR 1" THRU 2" CONNECTIONS. THE CORPORATION STOP, TYPE "K" COPPER TUBING AND CURB STOPS SHALL BE SIZED BY APPLICANTS/PROPERTY OWNERS SPRINKLER SYSTEM DESIGNER OR ARCHITECT.
 2. SEE RESIDENTIAL SERVICE DETAIL (PLAN VIEW).

SHORT RESIDENTIAL SERVICE CONNECTION DETAIL
N. T. S.

DATE:	8/09/13
FILE NAME:	Water Short Service
SCALE:	N.T.S.

Short Residential Service Connection Detail
Center Township Water Authority



INSTALLATION NOTES:

1. OUTSIDE METER SETTINGS MAY BE REQUIRED AS DESCRIBED IN C.T.W.A. RULES.
2. SHUT OFF VALVE INSTALLED BEFORE METER.
3. PRESSURE REGULATOR IS RECOMMENDED.
4. A CLOSED SYSTEM IS CREATED WITH A BACKFLOW PREVENTER IN PLACE. PROVISIONS MUST BE MADE FOR THERMAL EXPANSION.
5. WATER LINE SHALL NOT BE PLACED BELOW DRIVEWAYS, PATIOS, OR OTHER PAVED AREAS.
6. ACCESS TO METER AREAS MUST BE UNRESTRICTED AT ALL TIMES.
7. SEE ATTACHMENT "B", AND THE CAPITAL FEES POLICY FOR ADDITIONAL DETAILS.
8. THIS DETAIL APPLIES TO 3/4" AND 1" RESIDENTIAL NON-SPRINKLER METER SETTINGS ONLY. METER SETTINGS ABOVE THOSE WILL BE DETAILED ON AN INDIVIDUAL BASIS.

MATERIALS:

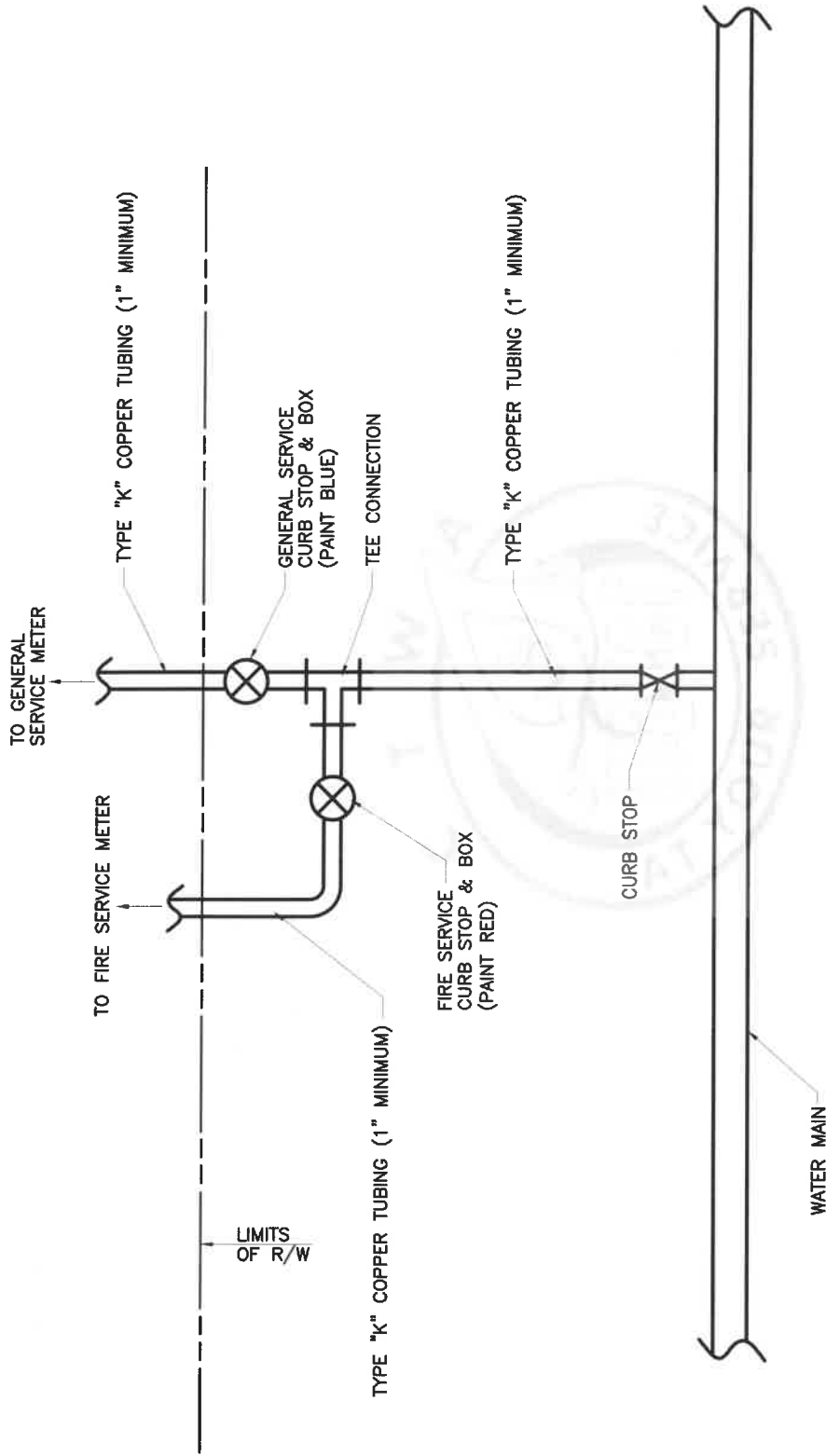
UNDERGROUND SERVICE LINE: (ALL UNDERGROUND FITTINGS TO BE FORD COMPRESSION WITH PACK JOINT.
 FOR 1" USE TYPE K SOFT COPPER TUBING w/COMPRESSION FITTINGS.
 FOR 1-1/2" AND LARGER USE TYPE K SOFT COPPER TUBING w/ COMPRESSION

CONNECTIONS:

- BRASS VALVE- BRASS VALVE w/ FLARE BY 3/4" OR 1" THREAD CONNECTION.
- BACKFLOW PREVENTER- DUAL CHECK VALVE PROVIDED BY C.T.W.A.
- REGULATOR- BRONZE BODY PRESSURE REGULATOR w/STRAINER.
- EXPANSION TANK- HOT WATER HEATING SYSTEM EXPANSION TANK.
- METER- RESIDENTIAL METER UP TO 3/4" AND TOUCH READ FURNISHED BY THE C.T.W.A.. SIZES ABOVE 3/4" METER WILL BE FURNISHED BY THE AUTHORITY AND PAID FOR BY THE APPLICANT/PROPERTY OWNER.

Drawn By	Scale:	N.T.S.
Checked By	Filename:	
Approved By	DATE:	August 16, 2013

STANDARD SINGLE FAMILY
 RESIDENTIAL WATER SERVICE DETAIL (NON-SPRINKLER)
 CENTER TOWNSHIP WATER AUTHORITY



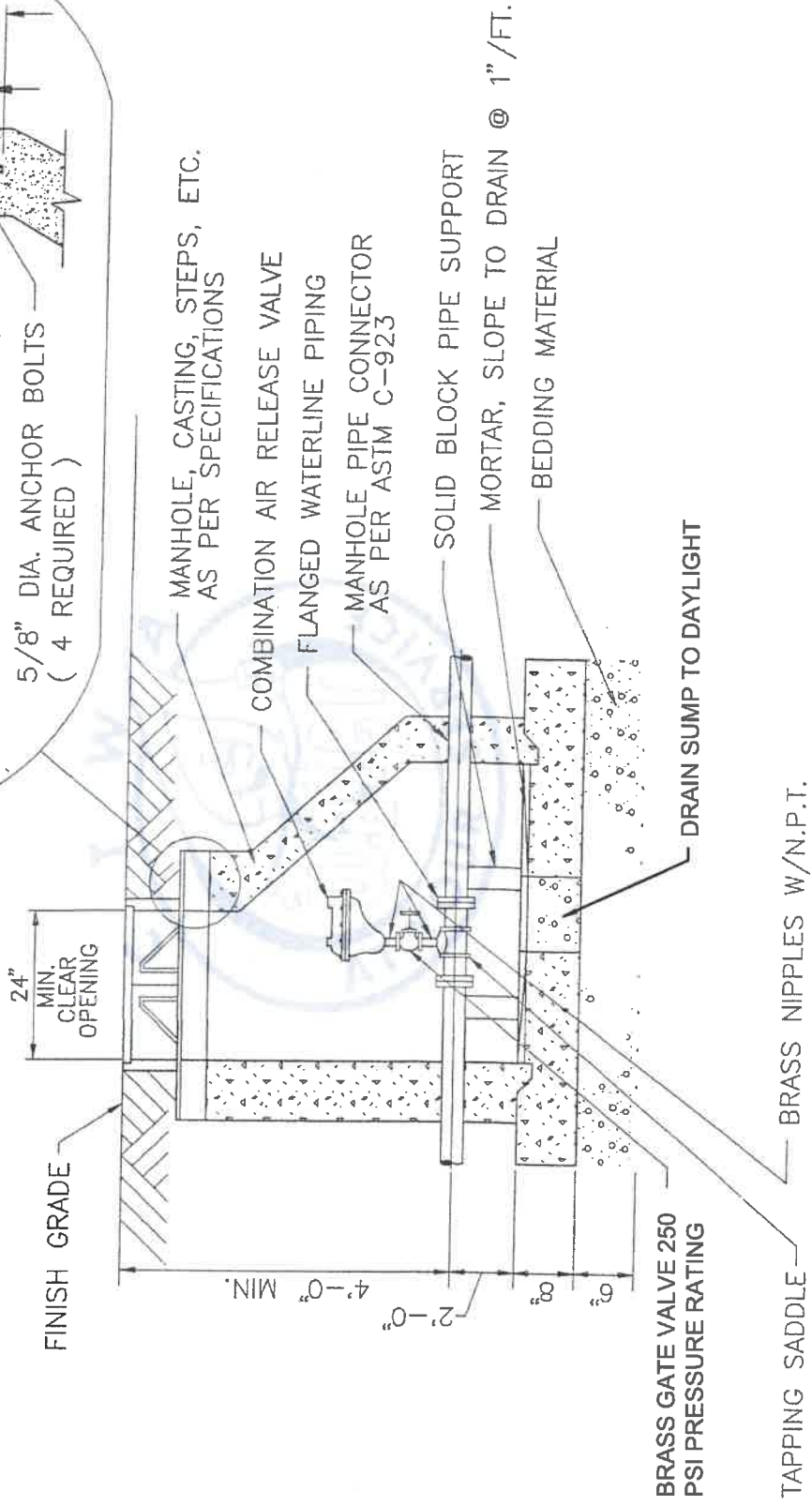
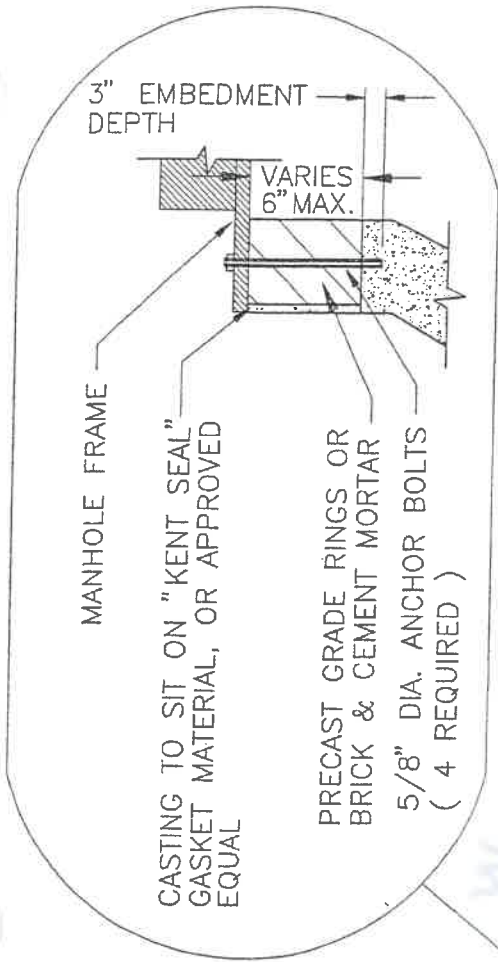
NOTE:
 1. SIZE OF ALL FACILITIES TO BE DETERMINED BY APPLICANT/PROPERTY OWNER SPRINKLER SYSTEM DESIGNER OR ARCHITECT.

RESIDENTIAL SERVICE DETAIL (PLAN VIEW)

N. T. S.

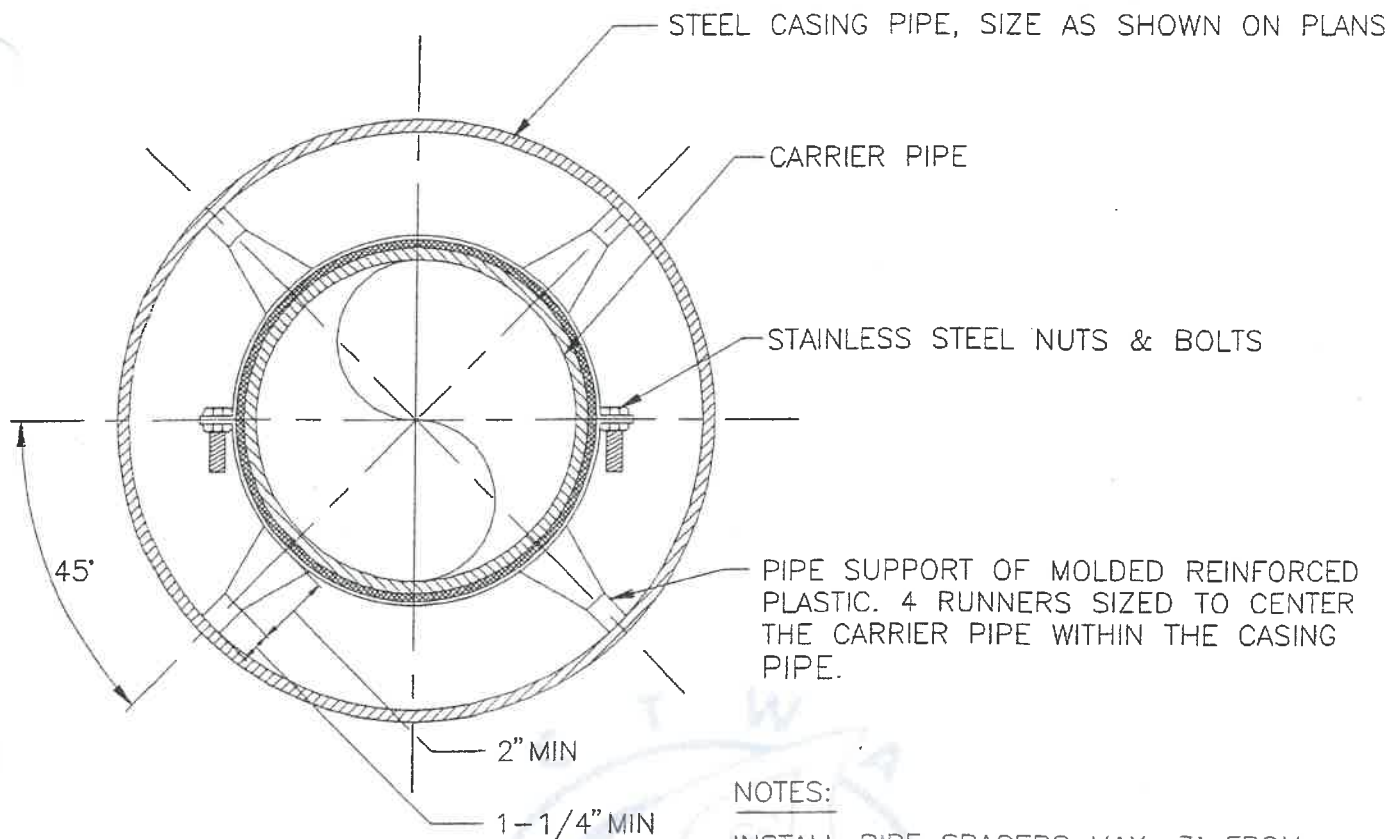
Drawn By	Scale:
Checked By	N.T.S.
Approved By	Filename: WATER LONG SERVICE.dwg
	Date: 8/09/13

Residential Service Detail (Plan View)
Center Township Water Authority



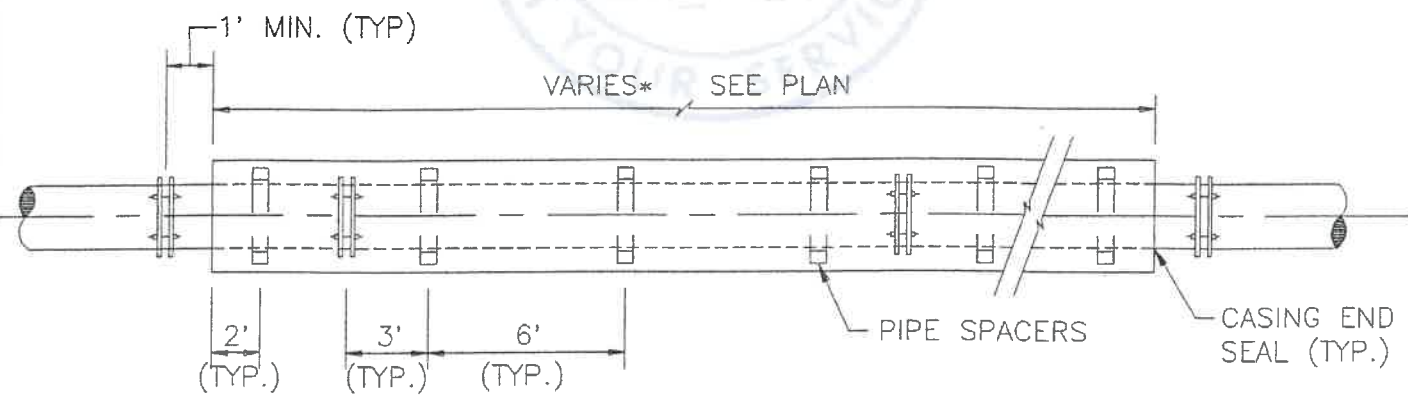
COMBINATION AIR RELEASE VALVE/MANHOLE DETAIL

N.T.S.



NOTES:

- INSTALL PIPE SPACERS MAX. 3' FROM JOINT, MAX. OF 6' BETWEEN SUPPORTS, AND A MAX. OF 2' FROM CASING END.
- LOCATE PIPE JOINT 1' MIN. OUTSIDE CASING.



*EXACT LENGTH OF CASING PIPE TO BE DETERMINED IN THE FIELD

CASING PIPE ASSEMBLY DETAIL

N.T.S.

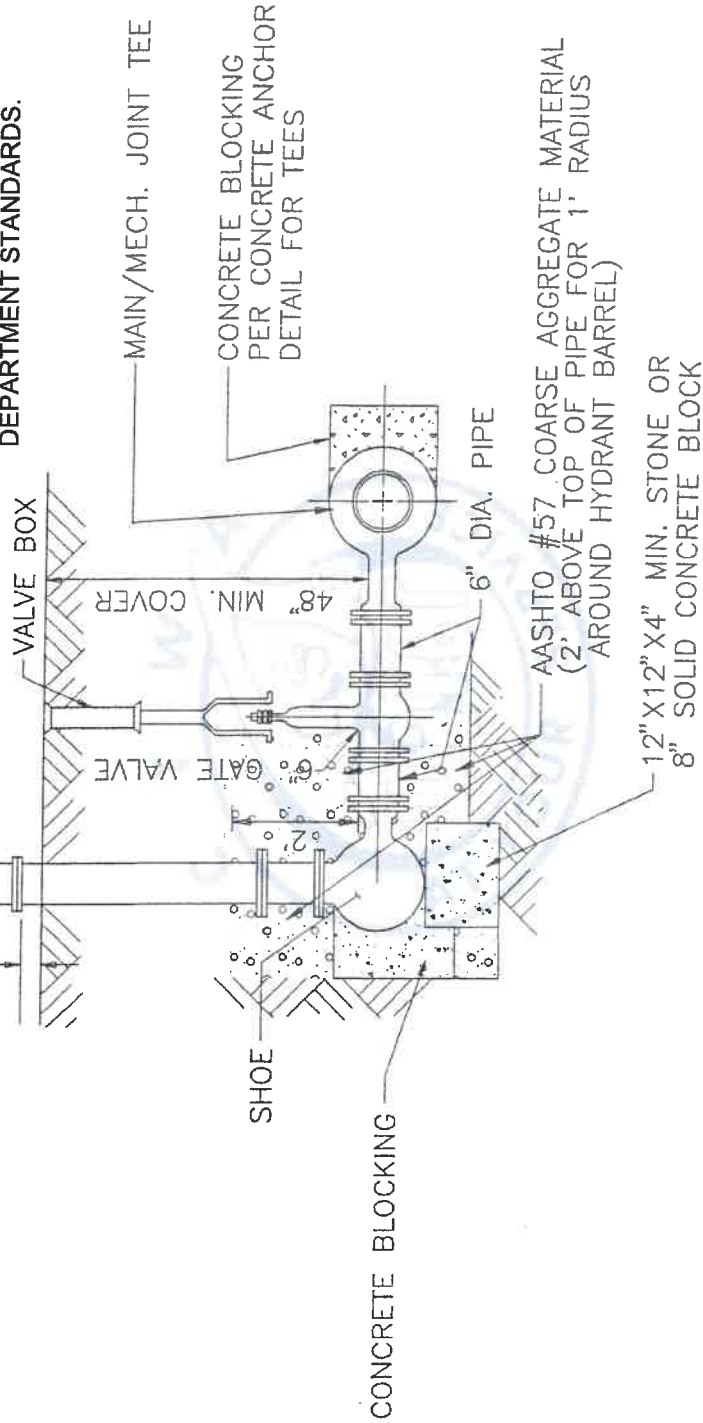
CENTER TOWNSHIP WATER AUTHORITY

HYDRANT TO BE MUELLER SUPER CENTURION

SAFETY FLANGE APPROXIMATELY 4" ABOVE FINISH GRADE

1) PUMPER NOZZLE (5-INCH) TO BE PROVIDED WITH STORTZ CONNECTION PER SPECIFICATIONS.

2) HOSE NOZZLES (2.5-INCH) TO BE PROVIDED WITH THREADS MEETING CENTER TOWNSHIP FIRE DEPARTMENT STANDARDS.

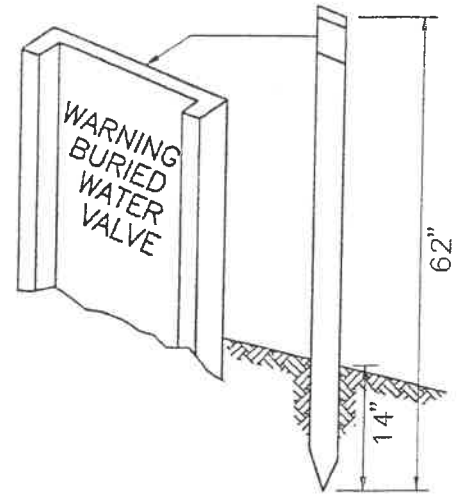
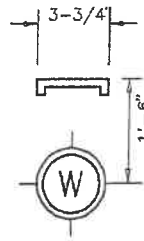


FIRE HYDRANT ASSEMBLY DETAIL

N.T.S.

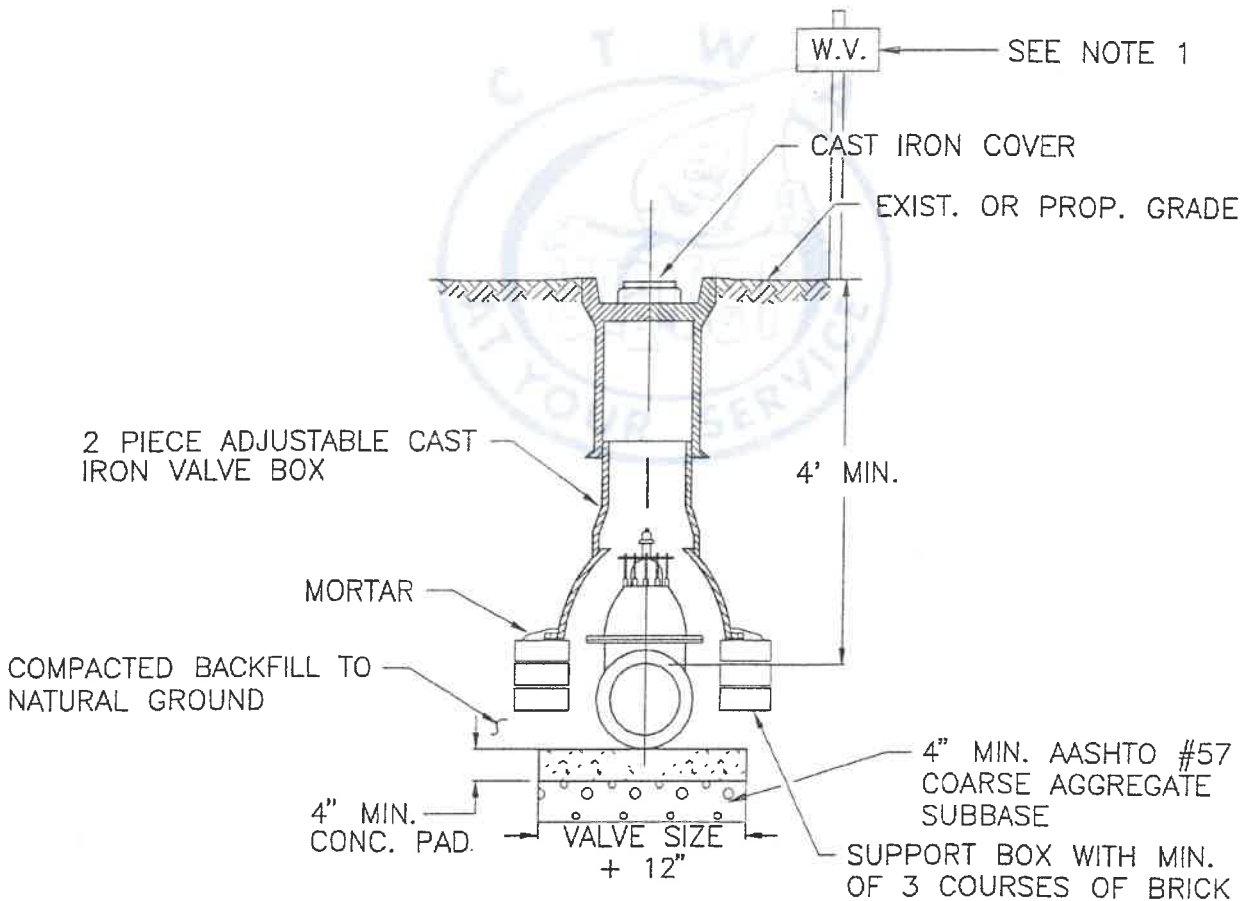
NOTE:

SUITABLE VALVE BOX MARKER POST MARKING LOCATION OF GATE VALVE & BOX TO BE PROVIDED IN UNOPENED STREET/WOODED AREAS PER DETAIL.



VALVE BOX MARKER

N.T.S.



VALVE BOX INSTALLATION DETAIL

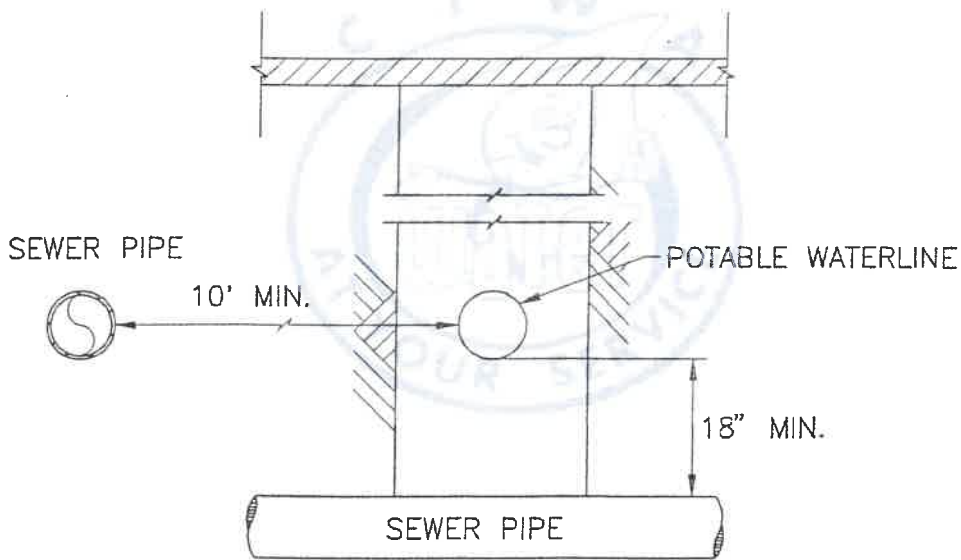
N.T.S.

HORIZONTAL SEPARATION

IF THE HORIZ. & VERT. DIMENSION CANNOT BE MET FOR A PARALLEL INSTALLATION, USE RESTRAINT JOINT PIPE FOR THE DISTANCE ALONG WHICH CLEARANCE IS NOT ATTAINED.

VERTICAL SEPARATION

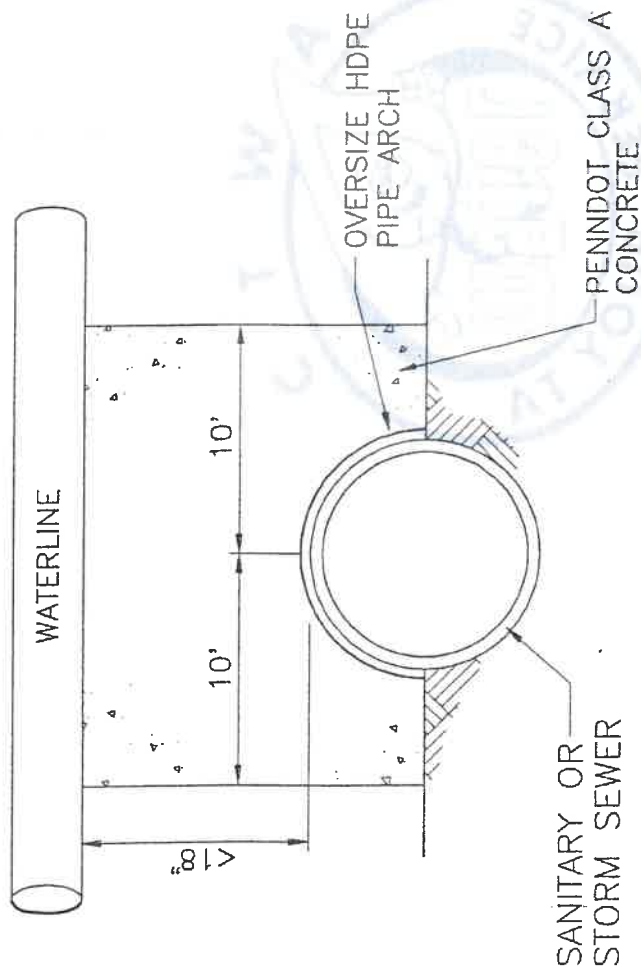
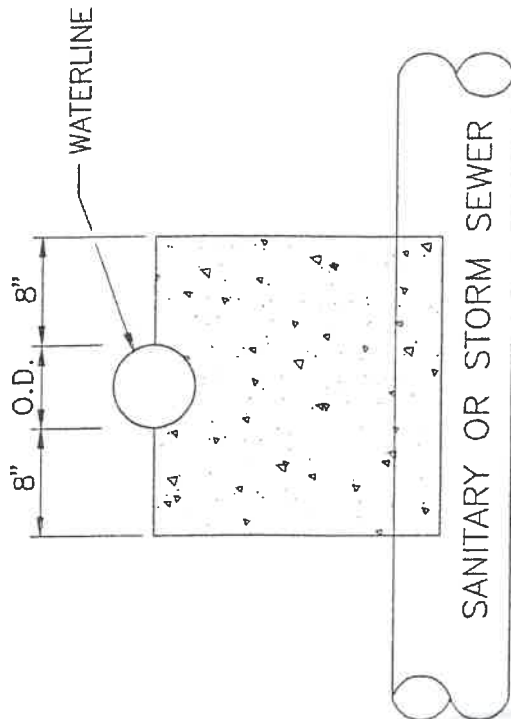
IF THE VERT. DIMENSION CANNOT BE MET FOR A CROSSING INSTALLATION, ENCASE THE WATERLINE IN CONCRETE PER ENCASEMENT DETAIL FOR A DISTANCE OF 10' ON EACH SIDE OF THE WATERLINE.



HORIZONTAL & VERTICAL SEPARATION (W.L. OVER SEWER) FOR POTABLE WATERLINES & SEWERS

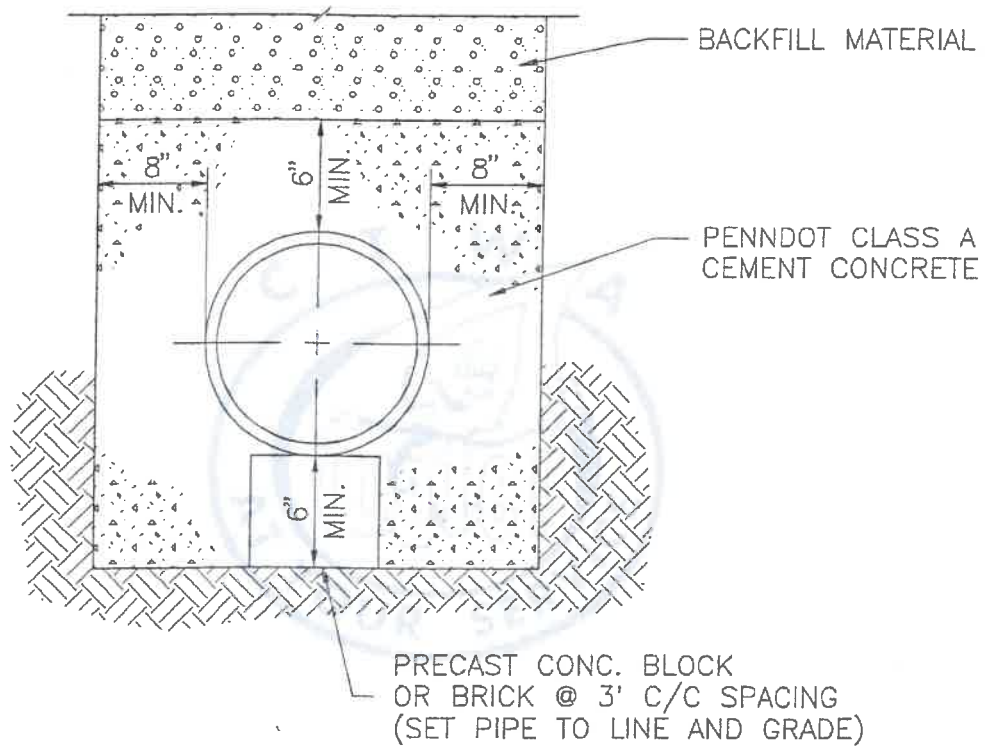
N.T.S.

CENTER TOWNSHIP WATER AUTHORITY



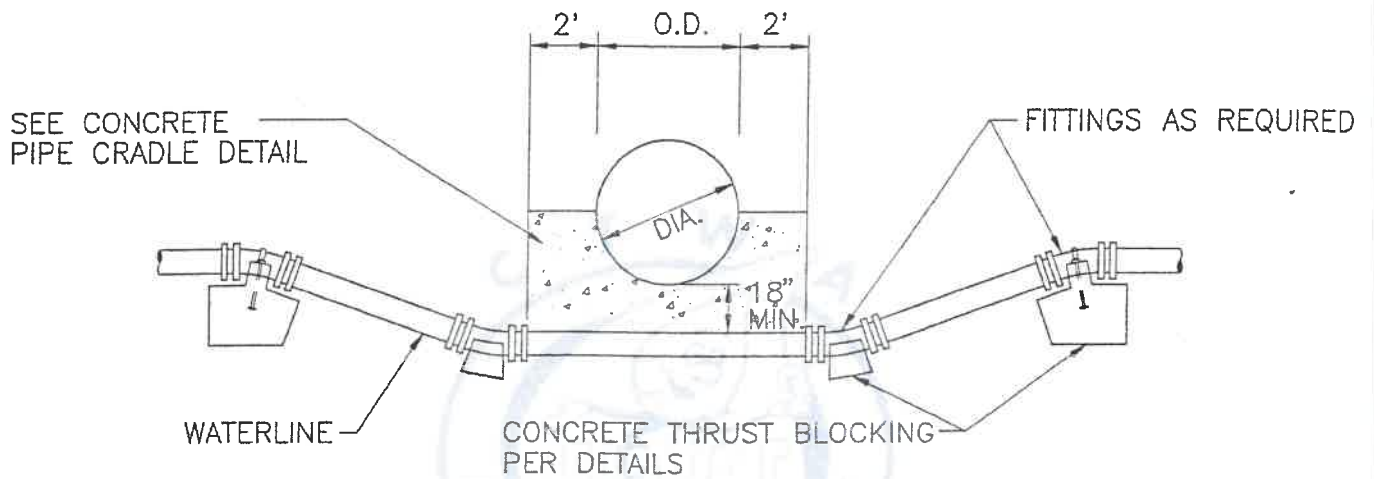
CONCRETE ENCASEMENT DETAIL
FOR WATERLINE OVER SEWER

N.T.S.



CONCRETE ENCASEMENT DETAIL

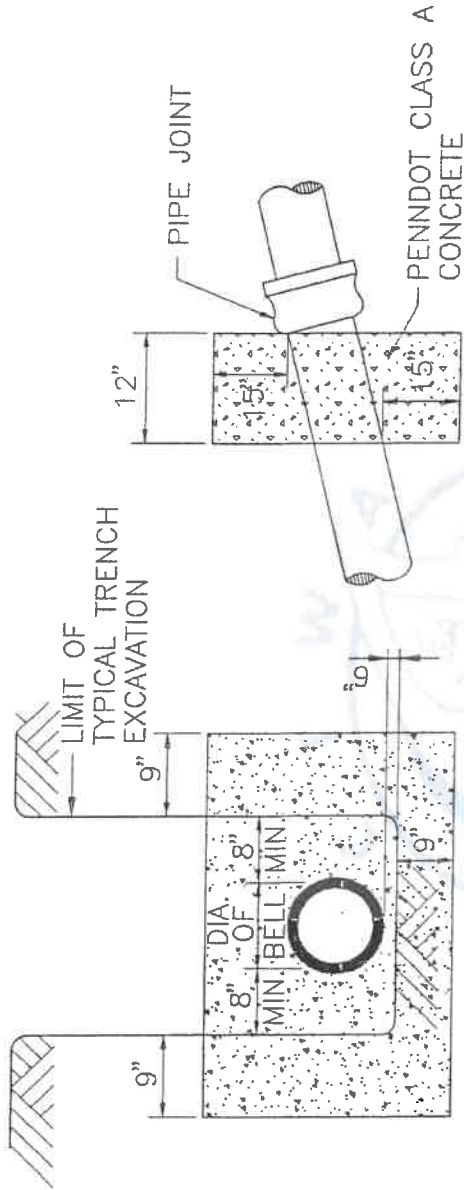
N.T.S.



NOTE: CONTRACTOR MAY ELIMINATE FITTINGS IF DEPTH CAN BE OBTAINED BY DEFLECTING PIPE JOINT WITHIN 80% OF THE ALLOWABLE LIMITS AS ESTABLISHED BY AWWA OR BY THE PIPE MANUFACTURER. THE LESSER DEFLECTION SHALL APPLY.

DETAIL FOR LAYING WATER LINE
UNDER OBSTRUCTIONS

N.T.S.

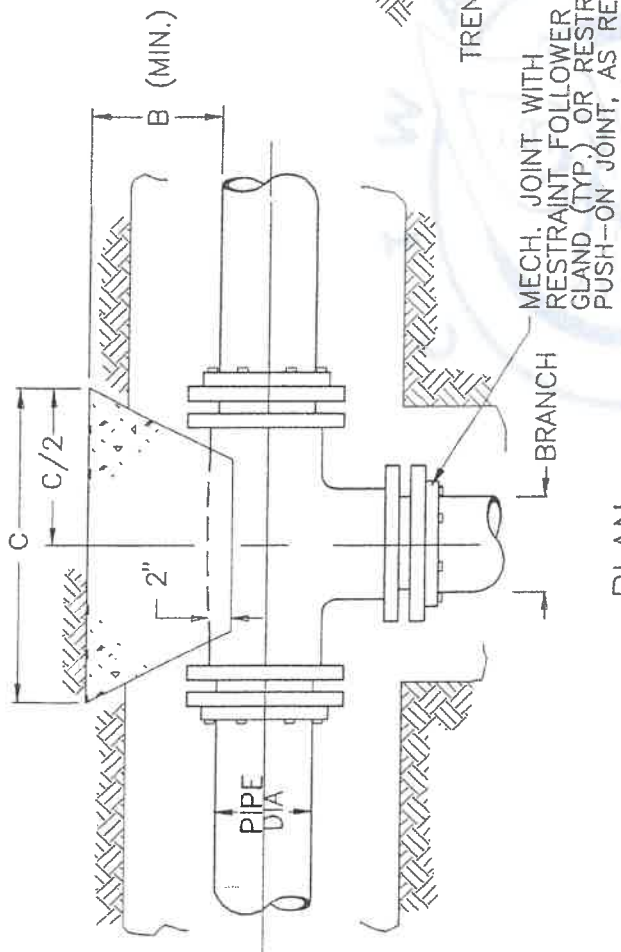
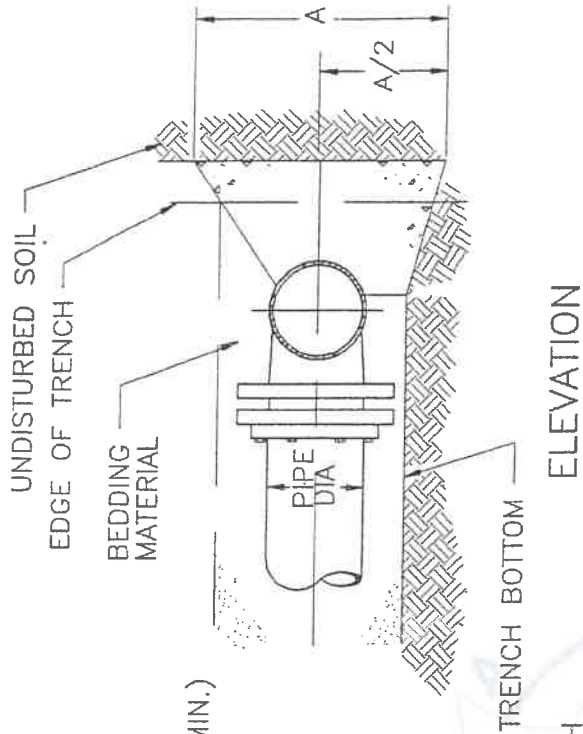


UNLESS OTHERWISE NOTED INSTALL CONCRETE ANCHORS AT PIPE JOINT IN ACCORDANCE WITH THE FOLLOWING TABLE:

PIPE SLOPE	APPROXIMATE MAXIMUM CONC. ANCHOR SPACING CENTER TO CENTER (SLOPE DIST.)
20% - 34%	36 FT.
35% +	18 FT.

CONCRETE PIPE ANCHOR DETAIL

N.T.S.



WRAP FITTING & JOINT WITH POLYETHYLENE ENCASMENT PRIOR TO POURING CONCRETE

D = APPROX. VOLUME OF CONC. IN C.Y.

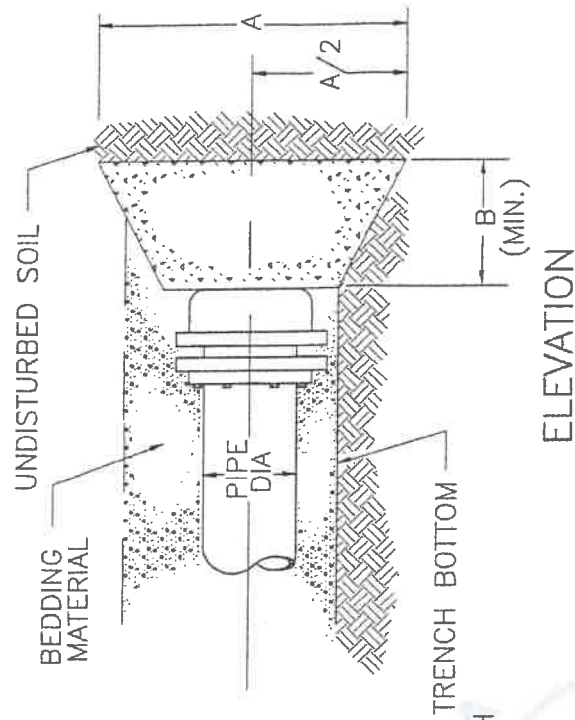
A JOINT RESTRAINT SYSTEM (I.E., MULTIPLE PIPE JNTS. RESTRAINED), AS APPROVED BY THE OWNER SHALL BE PROVIDED IN LIEU OF BLOCKING IF ADEQUATE BEARING SURFACE CANNOT BE OBTAINED AGAINST UNDISTURBED SOIL, OR PROVIDED WHEN INDICATED ON THE DRAWINGS.

PIPE DIA.	2000 PSF SOIL* BEARING STRENGTH	
	4" & 6"	8" & 10"
A	2'-6"	3'-0"
B	18"	15"
C	2'-6"	3'-0"
D	.3	.4
		.5

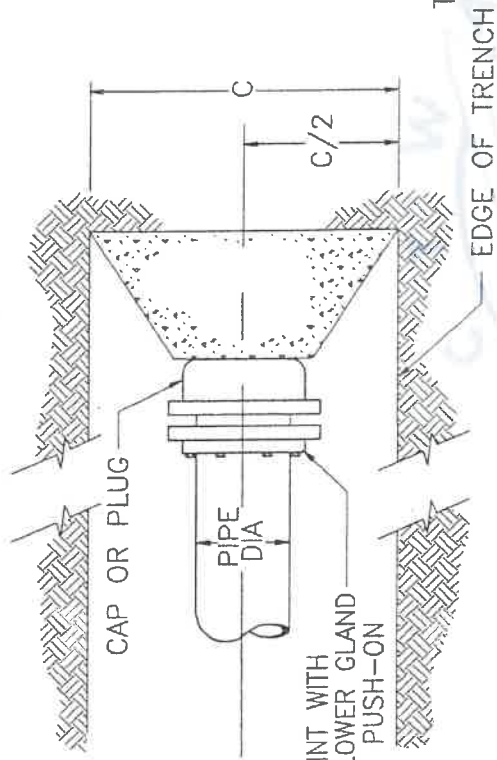
CONCRETE THRUST BLOCKING

FOR TEES

N.T.S.



ELEVATION



PLAN

MECHANICAL JOINT WITH RESTRAINT FOLLOWER GLAND OR RESTRAINED PUSH-ON JOINT, AS REQUIRED

WRAP FITTING & JOINT WITH POLYETHYLENE ENCASUREMENT PRIOR TO POURING CONCRETE

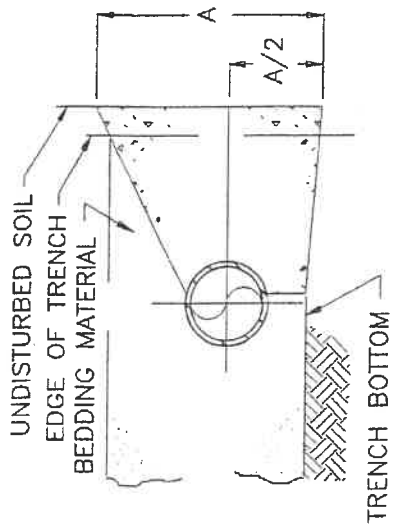
D = APPROX. VOLUME OF CONC. IN C.Y.

A JOINT RESTRAINT SYSTEM (I.E., MULTIPLE PIPE JNTS. RESTRAINED), AS APPROVED BY THE OWNER SHALL BE PROVIDED IN LIEU OF BLOCKING IF ADEQUATE BEARING SURFACE CANNOT BE OBTAINED AGAINST UNDISTURBED SOIL, OR PROVIDED WHEN INDICATED ON THE DRAWINGS.

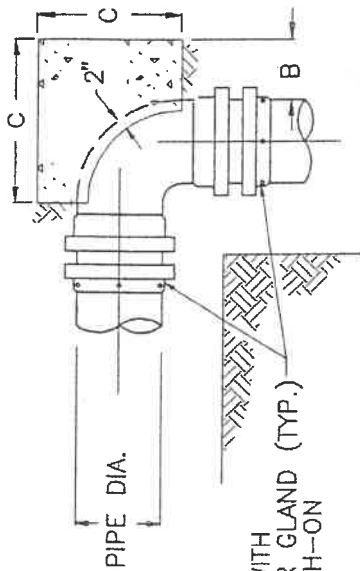
PIPE DIA.	2000 PSF SOIL* BEARING STRENGTH	
	4" & 6"	8" 10"
A	2'-6"	3'-0"
B	18"	15"
C	2'-6"	3'-0"
D	.3	.4
		.5

CONCRETE THRUST BLOCKING FOR CAPPED ENDS

N.T.S.



SECTION



PLAN

WRAP FITTING & JOINT WITH POLYETHYLENE ENCASUREMENT PRIOR TO POURING CONCRETE

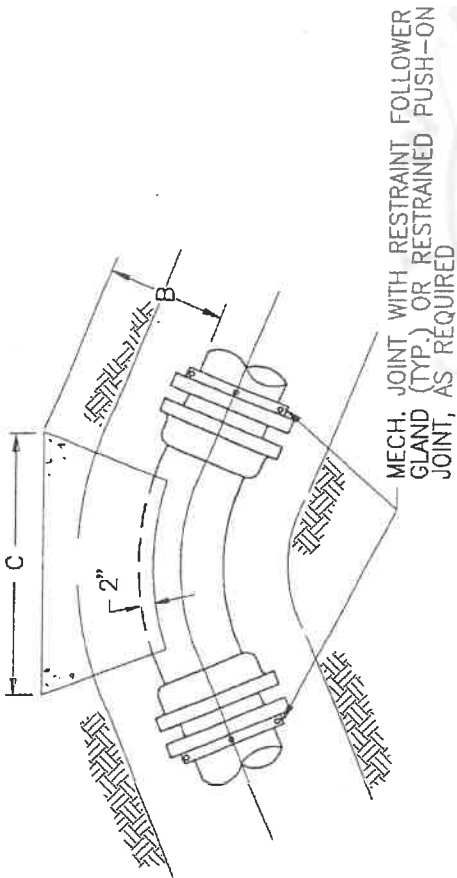
D = APPROX. VOLUME OF CONC. IN C.Y.

A JOINT RESTRAINT SYSTEM (I.E., MULTIPLE PIPE JNTS. RESTRAINED), AS APPROVED BY THE OWNER SHALL BE PROVIDED IN LIEU OF BLOCKING IF ADEQUATE BEARING SURFACE CANNOT BE OBTAINED AGAINST UNDISTURBED SOIL, OR PROVIDED WHEN INDICATED ON THE DRAWINGS.

PIPE DIA.	2000 PSF SOIL* BEARING STRENGTH	
	2" & 6"	8"
A	2'-6"	3'-6"
B	12"	12"
C	2'-6"	3'-6"
D	.2	.4
		.8

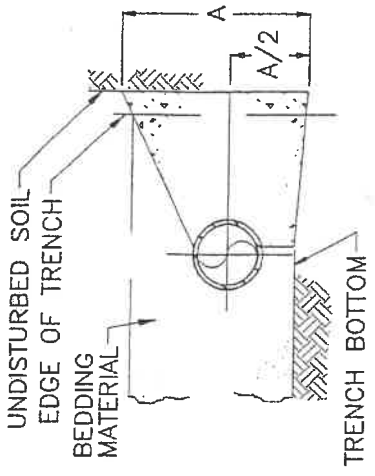
CONCRETE THRUST BLOCKING FOR HORIZONTAL 90° BENDS

N.T.S.



PLAN

PIPE DIA.	2000 PSF SOIL* BEARING STRENGTH		
	4" & 6"	8"	10"
A	2'-0"	3'-0"	3'-0"
B	12"	12"	12"
C	2'-0"	3'-0"	3'-0"
D	.1	.3	.3



SECTION

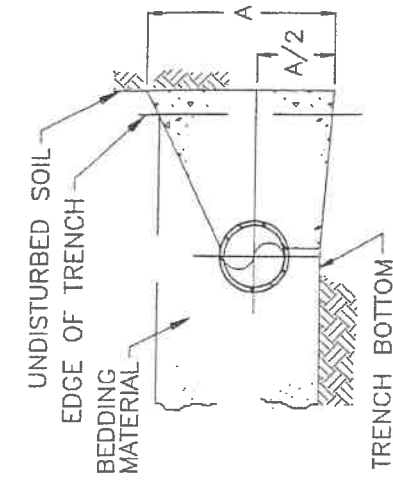
WRAP FITTING & JOINT WITH POLYETHYLENE ENCASEMENT PRIOR TO POURING CONCRETE

D = APPROX. VOLUME OF CONC. IN C.Y.

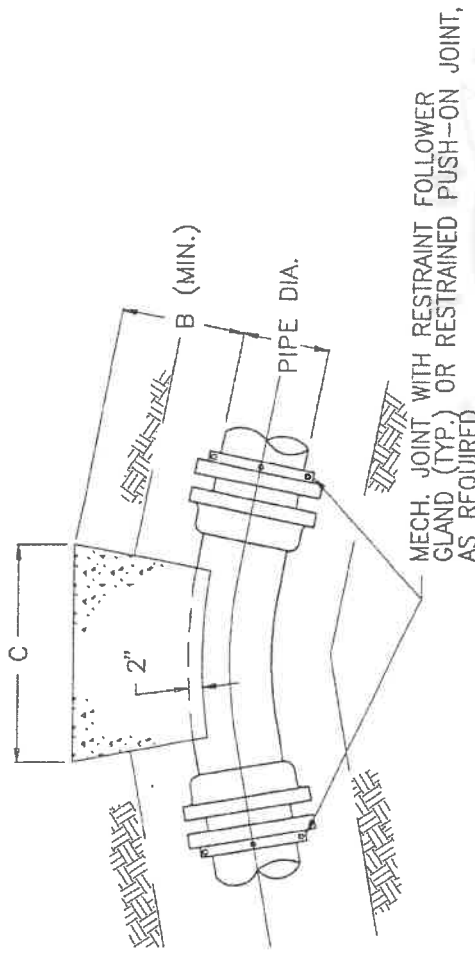
A JOINT RESTRAINT SYSTEM (I.E., MULTIPLE PIPE JNTS. RESTRAINED), AS APPROVED BY THE OWNER SHALL BE PROVIDED IN LIEU OF BLOCKING IF ADEQUATE BEARING SURFACE CANNOT BE OBTAINED AGAINST UNDISTURBED SOIL, OR PROVIDED WHEN INDICATED ON THE DRAWINGS.

CONCRETE THRUST BLOCKING FOR HORIZONTAL 45° BENDS

N.T.S.



SECTION



PLAN

PIPE DIA.	4" & 6"	8"	10"
A	2'-0"	2'-6"	2'-6"
B	9"	12"	12"
C	18"	2'-0"	2'-6"
D	.1	.1	.1

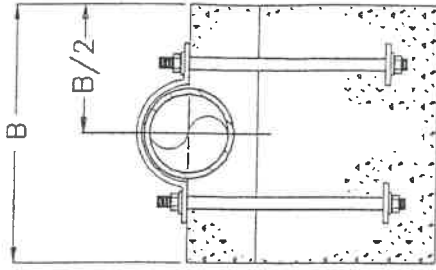
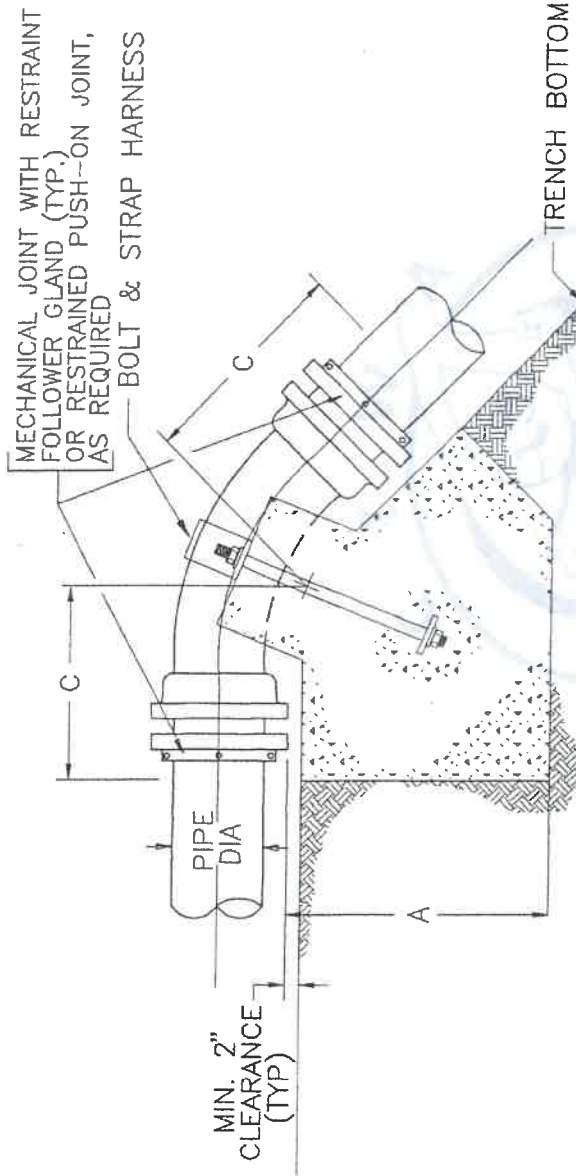
WRAP FITTING & JOINT WITH POLYETHYLENE ENCASMENT PRIOR TO POURING CONCRETE

D = APPROX. VOLUME OF CONC. IN C.Y.

A JOINT RESTRAINT SYSTEM (I.E., MULTIPLE PIPE JNTS. RESTRAINED), AS APPROVED BY THE OWNER SHALL BE PROVIDED IN LIEU OF BLOCKING IF ADEQUATE BEARING SURFACE CANNOT BE OBTAINED AGAINST UNDISTURBED SOIL, OR PROVIDED WHEN INDICATED ON THE DRAWINGS.

CONCRETE THRUST BLOCKING FOR HORIZONTAL 22-1/2° & 11-1/4° BENDS

N.T.S.

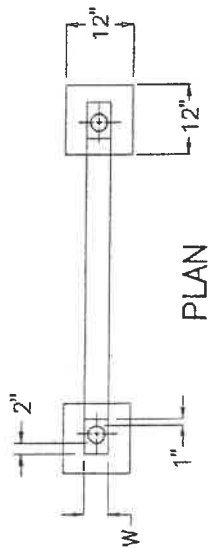


WRAP FITTING & JOINT WITH POLYETHYLENE ENCASMENT PRIOR TO POURING CONCRETE

A JOINT RESTRAINT SYSTEM (I.E., MULTIPLE PIPE JNTS. RESTRAINED), AS APPROVED BY THE OWNER SHALL BE PROVIDED IN LIEU OF BLOCKING IF ADEQUATE BEARING SURFACE CANNOT BE OBTAINED AGAINST UNDISTURBED SOIL, OR PROVIDED WHEN INDICATED ON THE DRAWINGS.

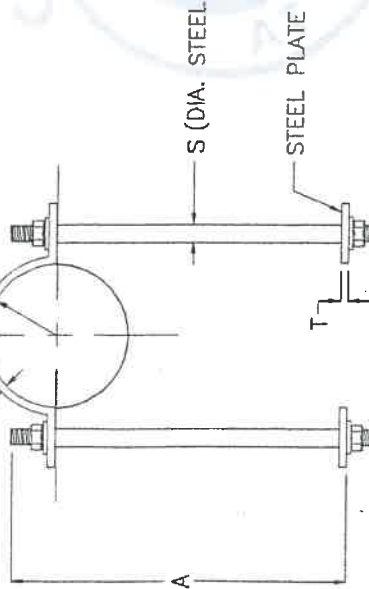
CONCRETE THRUST BLOCKING FOR VERTICAL BENDS - CREST (1 OF 2)

N.T.S.



BITUMINOUS COATING APPLIED AFTER INSTALLATION
STEEL STRAP (A-36 STEEL)

(PIPE O.D.)/2



** USE A-193, GRADE B BOLTS
USE A-194, GRADE 4 HEAVY HEXAGON NUTS

SECTION

PIPE DIA.	45° BEND						W	T	S	D	C	B	A
	A	B	C	D	S	T							
4" & 6"	2'-10"	2'-6"	2'-0"	.65	3/4"	1/2"	4"	60					
8"	4'-0"	2'-6"	3'-0"	1.47	3/4"	1/2"	4"	65					
10"	4'-5"	3'-0"	3'-6"	2.2	1"	1/2"	5"	80					

22-1/2° BEND													
PIPE DIA.	45° BEND						W	T	S	D	C	B	A
	A	B	C	D	S	T							
4" & 6"	2'-0"	2'-6"	2'-0"	.4	3/4"	1/2"	3"	55					
8"	2'-0"	2'-6"	2'-6"	.55	3/4"	1/2"	4"	59					
10"	3'-0"	2'-6"	2'-0"	1.03	3/4"	1/2"	4"	65					

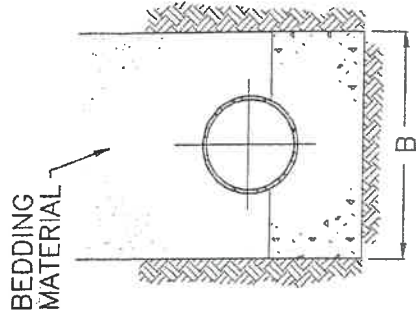
11-1/4° BEND													
PIPE DIA.	45° BEND						W	T	S	D	C	B	A
	A	B	C	D	S	T							
4" & 6"	18"	18"	18"	.2	3/4"	1/2"	3"	53					
8"	2'-0"	2'-0"	2'-0"	.4	3/4"	1/2"	3"	56					
10"	2'-6"	2'-6"	2'-6"	.75	3/4"	1/2"	4"	60					

D = APPROX. VOLUME OF CONC. IN C.Y.

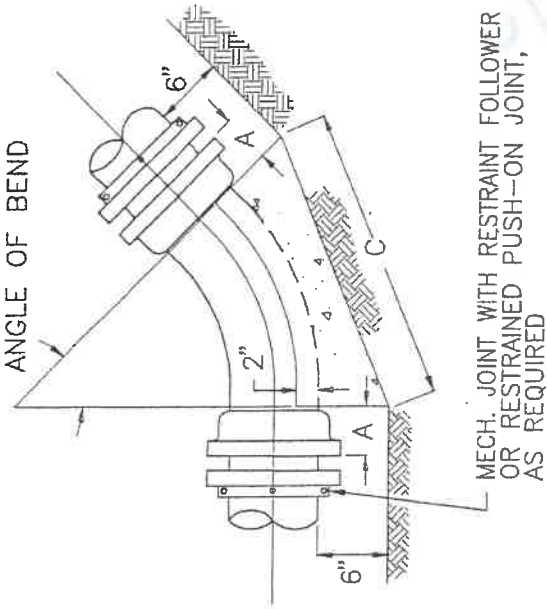
P = WEIGHT IN POUNDS OF STEEL STRAPS,
PLATES, AND BOLTS

BOLT & STRAP HARNESS DETAIL (2 OF 2)

N.T.S.



SECTION



ELEVATION

PIPE DIAMETER	
4" & 6"	8" 10"
2.5"	2.5" 2.5"
18"	24" 26"
12"	14" 16"
.02	.04 .05
18"	24" 26"
9"	11" 14"
.02	.04 .05
18"	24" 26"
7"	9" 11"
.02	.03 .04

WRAP FITTING & JOINT WITH POLYETHYLENE ENCASMENT PRIOR TO POURING CONCRETE
 D = APPROX. VOLUME OF CONC. IN C.Y.

A JOINT RESTRAINT SYSTEM (I.E., MULTIPLE PIPE JNTS. RESTRAINED), AS APPROVED BY THE OWNER SHALL BE PROVIDED IN LIEU OF BLOCKING IF ADEQUATE BEARING SURFACE CANNOT BE OBTAINED AGAINST UNDISTURBED SOIL, OR PROVIDED WHEN INDICATED ON THE DRAWINGS.

CONCRETE THRUST BLOCKING
FOR VERTICAL BENDS (SAG)

N.T.S.