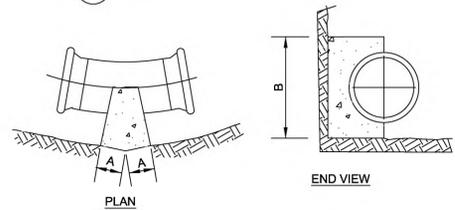


PIPE SIZE	A	B
6"-8"	6"	16"
10"-12"	10"	24"
14"-16"	16"	32"
18"-20"	18"	36"
24"	24"	42"

1 DETAIL OF 45° BEND ANCHOR
N.T.S.



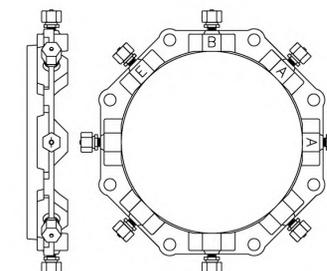
2 PIPE PENETRATION (PROPOSED SANITARY MANHOLE)
N.T.S.

Minimum Lengths of Pipe (ft.) to be Restrained			
Fitting Type			
	8	6	4
90° Horiz. Bend	15	12	8
45° Horiz. Bend	7	5	4
22.5° Horiz. Bend	3	3	2
11.25° Horiz. Bend	2	2	1
Tee (Branch Restraint)	8"x8" (20')	1	-
	8"x8" (15')	1	-
	8"x8" (7')	2	-
	8"x6" (20')	-	1
	8"x6" (15')	-	1
	8"x6" (7')	-	1
	8"x4" (20')	-	-
	8"x4" (15')	-	-
Reducer (Larger Pipe Restraint)	8"x6"	19	-

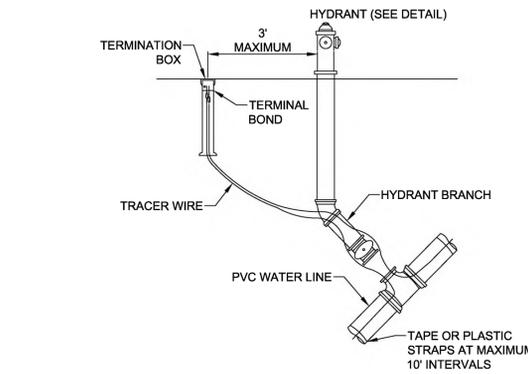
NOTES

- THE DATA IN THE WATER PIPE RESTRAINT JOINT TABLE IS BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
SOIL TYPE - SM (SILTY SANDS, SAND-SILT MIXTURES)
TEST PRESSURE - 150 PSI
DEPTH OF BURY - 5.0'
TRENCH TYPE - 5
SAFETY FACTOR - 1.5
- THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON PIPE AND PVC PIPE.
- ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
- RESTRAINED PIPE LENGTHS FOR VALVES APPLY TO PIPE ON BOTH SIDES OF VALVES.
- RESTRAINED JOINTS SHALL EXTEND ONE JOINT BEYOND MIN. LENGTH REQUIRED.

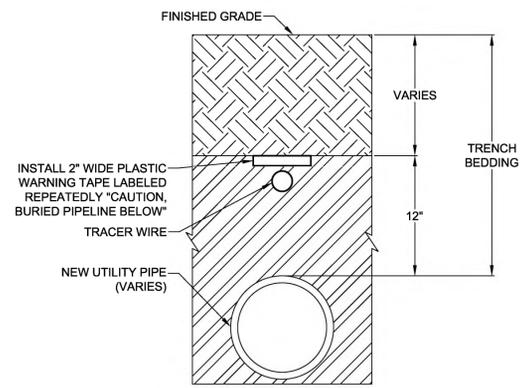
7 WATER PIPE RESTRAINT JOINT TABLE
N.T.S.



10 PVC MECHANICAL JOINT RESTRAINT
N.T.S.



9 TYPICAL HYDRANT SECTION
N.T.S.

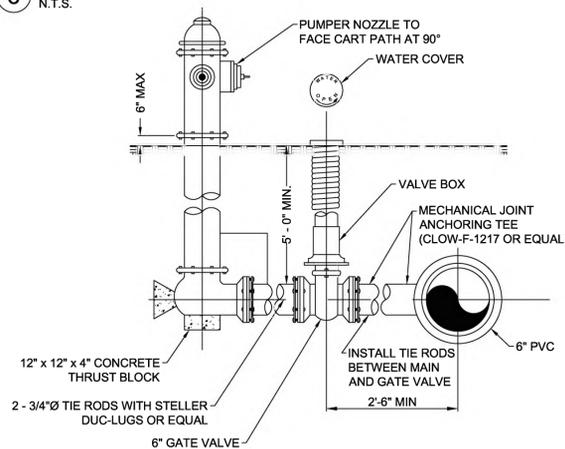


TAPE COLOR DESIGNATION TABLE	
COLOR	UTILITY
RED	ELECTRIC
YELLOW	GAS
ORANGE	TELECOMMUNICATIONS
BLUE	WATER LINES
GREEN	SANITARY SEWER LINES

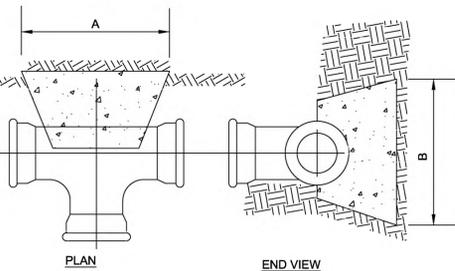
NOTES

- PRIOR TO BACKFILL, INSTALL TRACER WIRE ON TOP AND SECURE IN PLACE WITH 2-INCH WIDE PLASTIC ADHESIVE TAPE (SEE TAPE COLOR DESIGNATION TABLE).
- MAINTAIN TRACER WIRE ON PIPE CENTERLINE.
- USE AWG NO.8 STRANDED COPPER WIRE WITH HIGH MOLECULAR WEIGHT POLYETHYLENE (HMW/PE) INSTALLATION SPECIFICALLY DESIGNED FOR DIRECT BURIAL IN CORROSIVE SOIL OR WATER.
- PROTECT WIRE INSULATION FROM DAMAGE DURING INSTALLATION AND BACKFILL.
- ALL TRACER WIRE SHALL BE TESTED AND VERIFIED BY THE ENGINEER.
- TRACER WIRE IS TO BE CONNECTED TO TERMINATION BOX INSTALLED ADJACENT TO HYDRANT. EXTEND TRACER WIRE UP INSIDE OF TERMINATION BOX LEAVING MINIMUM OF 2 FEET OF TRACER WIRE COILED UP INSIDE TOP OF TERMINATION BOX. CONNECT END OF TRACER WIRE TO TERMINAL BOARD.
- TRENCH BEDDING MATERIAL SHALL CONFORM WITH TYPICAL UTILITY TRENCH DETAIL AND SPECIFICATION SECTION.

8 UTILITY TRACER WIRE
N.T.S.



6 UTILITY TRACER WIRE
N.T.S.



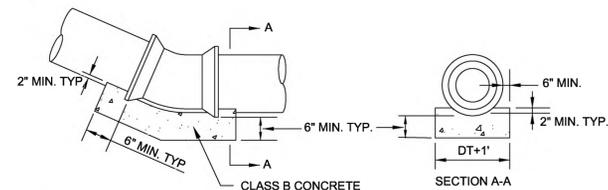
PIPE SIZE	A	B
6"-8"	14"	16"
10"-12"	18"	24"
14"-16"	48"	32"
18"-20"	60"	40"
24"	72"	48"

3 DETAIL OF 22.5° BEND ANCHOR
N.T.S.

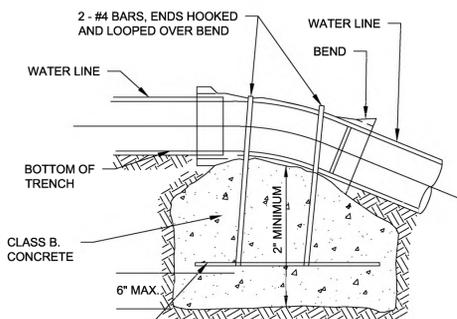
NOTES:

- MECHANICAL JOINT RESTRAINTS MUST BE USED IN CONJUNCTION WITH CONCRETE THRUST BLOCKS FOR HYDRANTS, VALVES ON TEES, AND WHEREVER REQUIRED BY ENGINEER.

4 DETAIL OF TEE ANCHOR
N.T.S.



4 DETAIL OF TEE ANCHOR
N.T.S.



- 2 - #4 BARS, ONE EACH SIDE, MIN. LENGTH TO BE
- THE LENGTH AND WIDTH OF THE CONCRETE BLOCK COMBINED WITH THE MINIMUM DEPTH OF 2" SHALL BE SUFFICIENT TO GIVE A MINIMUM VOLUME OF CONCRETE AS INDICATED ON THE PLAN.

5 DETAIL OF THRUST DISTRIBUTION BLOCK
N.T.S.

8 DETAIL OF CONCRETE ANCHOR
N.T.S.

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SITE/CIVIL ENGINEER



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SONNY KONG, P.E.

REVISIONS

No.	DATE	DESCRIPTION

PROJECT

MONSTER GOLF
MAINTENANCE BUILDING
FINAL DESIGN

DRAWN BY JWH	CHECKED BY SK
SCALE AS NOTED	DATE 06/28/2019

SHEET TITLE

DETAILS

SHEET NO.

C-908