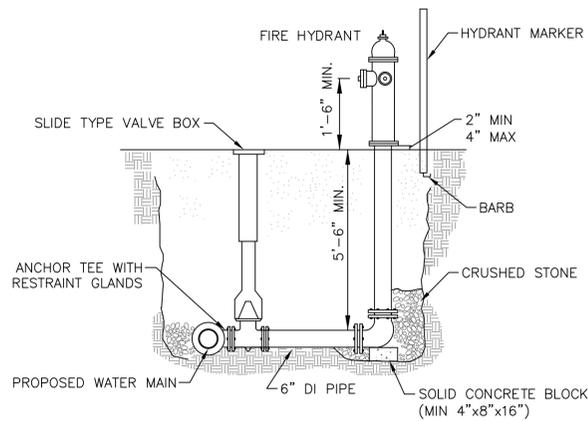
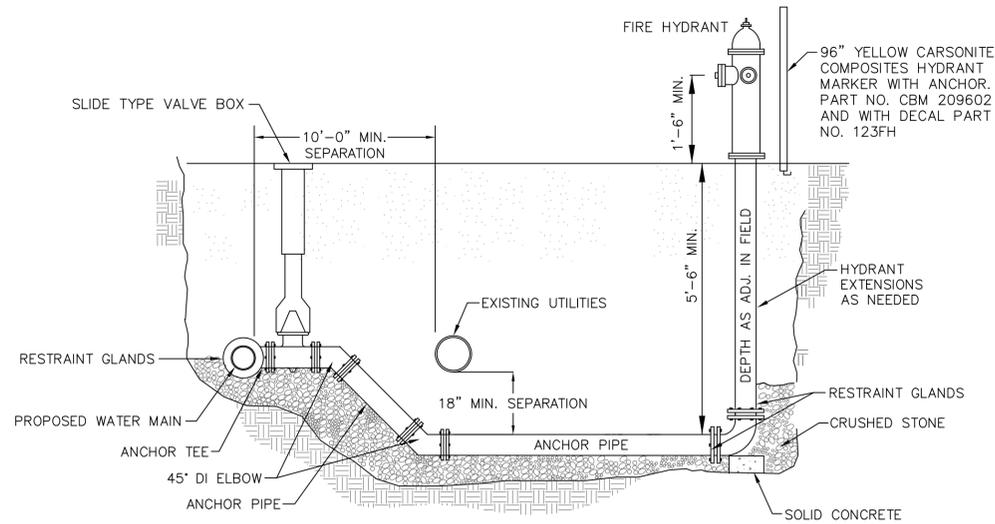


- NOTES:**
- DUCTILE IRON WATERMAIN PIPE SHALL CONFORM TO ANSI A21.51 OR AWWA C-151 CLASS 2 (52) THICKNESS DESIGNATION, CASTINGS, MARKINGS, TESTING AND INSTALLATION STANDARDS.
 - HYDRANT EXTENSIONS SHALL BE PROVIDED AS NECESSARY AT NO ADDITIONAL COST.
 - AT LOCATIONS OF HIGH GROUNDWATER, HYDRANT DRIP RODS SHALL BE PLUGGED.
 - FIBERGLASS MARKERS SHALL BE 4' WITH HEAVY COIL SPRING AND WITH "L" MOUNTING BRACKET



TYPICAL HYDRANT DETAIL

NTS

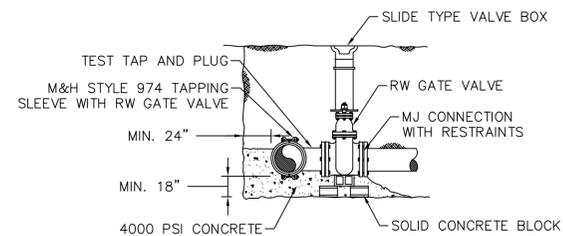


TYPICAL HYDRANT LEAD CROSSING UTILITIES DETAIL

NTS

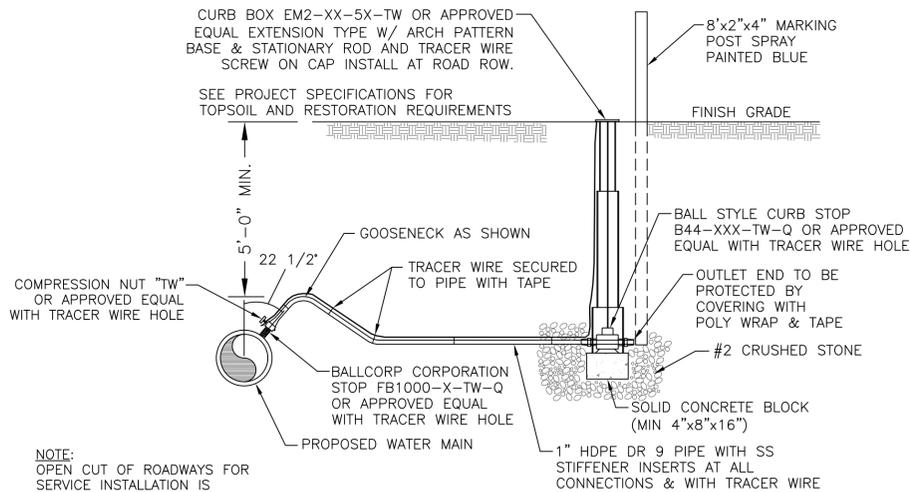
- NOTES:**
- DUCTILE IRON WATERMAIN PIPE SHALL CONFORM TO ANSI A21.51 OR AWWA C-151 CLASS 2 (52) THICKNESS DESIGNATION, CASTINGS, MARKINGS, TESTING AND INSTALLATION STANDARDS.
 - HYDRANT EXTENSIONS SHALL BE PROVIDED AS NECESSARY AT NO ADDITIONAL COST.
 - AT LOCATIONS OF HIGH GROUNDWATER, HYDRANT DRIP RODS SHALL BE PLUGGED.

- NOTES:**
- TEMPORARILY SUPPORT TAPPING SADDLE AND VALVE AND APPLY STANDARD HYDROSTATIC TEST.
 - IF NO LEAKS, POUR INDICATED PERMANENT CONCRETE BLOCK AND SUPPORT PAD.
 - MAKE TAP, LINE EXTENSION AND BACKFILL.
 - COVER GLANDS AND BOLTS WITH HEAVY POLYETHYLENE SHEETING TO KEEP CONCRETE FROM BONDING. TYPICAL WHENEVER BOLTS OR GLANDS MAY BE "WRAPPED-UP" IN CONCRETE.
 - COAT TAPPING SLEEVE AND BOLTS WITH AN APPROVED BITUMASTIC COATING BEFORE POURING CONCRETE. TYPICAL FOR ALL STEEL INCLUDING RODS, COUPLINGS, STRAPS, AND OTHER BURIED STEEL.



TAPPING SLEEVE AND VALVE DETAIL

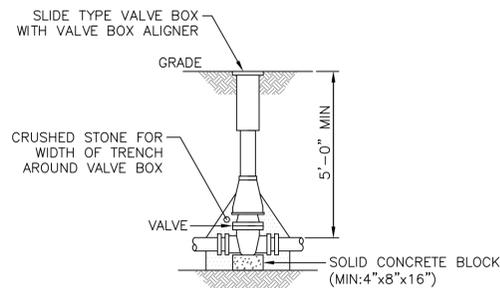
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TYPICAL SERVICE CONNECTION DETAIL

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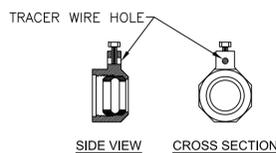
NOTE:
OPEN CUT OF ROADWAYS FOR SERVICE INSTALLATION IS STRICTLY PROHIBITED.



VALVE

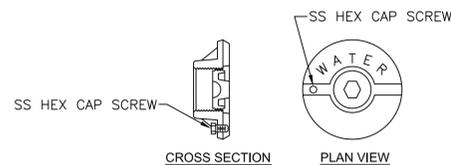
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- NOTES:**
- VALVE BOX SHALL BE CENTERED ON VALVE AND SET ON COMPACTED BACKFILL.
 - USE VALVE BOX ALIGNER.
 - ALL BOLTS AND NUTS SHALL BE 304 SS WITH ANTI-SIEZE PER SPECS



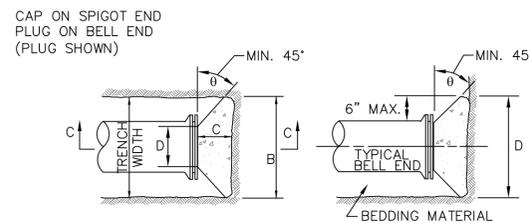
COMPRESSION NUT DETAIL

NTS



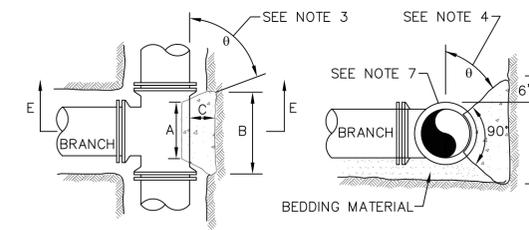
CURB BOX LID DETAIL

NTS



THRUST BLOCK DETAILS-DEAD END

NTS



THRUST BLOCK DETAILS-TEES

NTS

JOINT RESTRAINED SCHEDULE							
PIPE SIZE	90°	45°	22 1/2°	11 1/4°	TEES (ALONG BRANCH)	REDUCER (LARGER O.D.)	DEAD ENDS
6"	15'	10'	5'	5'	20'	-	60'
8"	20'	10'	5'	5'	55'	-	70'
10"	25'	10'	5'	5'	65'	-	85'
12"	30'	15'	10'	5'	80'	-	95'
8"x6"	-	-	-	-	35'	30'	-
10"x8"	-	-	-	-	50'	30'	-
12"x8"	-	-	-	-	45'	55'	-
12"x10"	-	-	-	-	65'	30'	-

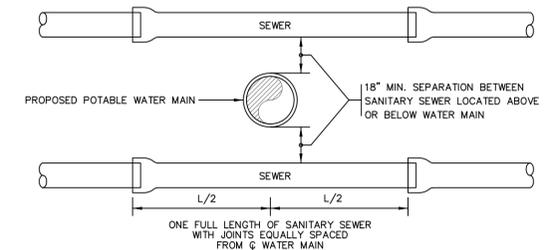
JOINT RESTRAINT SCHEDULE

NTS

WATER NOTES:

- THE CONTRACTOR SHALL REFER TO THE LATEST EDITION OF "A GUIDE FOR THE INSTALLATION OF DUCTILE IRON PIPE" PUBLISHED BY THE CAST IRON PIPE RESEARCH ASSOCIATION FOR DESIGN AND INSTALLATION OF RESTRAINT SYSTEM.
- THRUST BLOCKS SHALL BE USED AT DEAD ENDS AND TEES ONLY.
- ALL JOINTS SHALL BE MECHANICALLY RESTRAINED PER RESTRAINT SCHEDULE.
- ALL DUCTILE IRON PIPE SHALL BE ENCASED WITH POLYWRAP.

NOTE:
MAINTAIN A 10 FT. MIN. HORIZONTAL SEPARATION WHERE POTABLE WATER MAIN RUNS PARALLEL TO SANITARY SEWER



TYPICAL SANITARY SEWER & POTABLE WATER MAIN CROSSING WITH 18" MIN VERTICAL SEPARATION

NTS

- "A", "B" AND "D" DIMENSIONS SHALL BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH THE MECHANICAL JOINTS OR THE BOLTS.
- "C" DIMENSIONS SHALL BE LARGE ENOUGH TO MAKE ANGLE θ EQUAL TO OR LARGER THAN 45°

TABLE NO. 1 THRUST BLOCK AREA REQUIRED	
100-150 PSI TEST PRESSURE THRUST AREA REQ'D FT ²	
NOMINAL PIPE DIAMETER	DEAD END AND TEES
4	2.0
6	3.0
8	5.0
10	8.0
12	12.0

- MINIMUM LENGTH IN FEET TO BE RESTRAINED IN EACH DIRECTION.
- ACTUAL LENGTH SHALL BE BASED ON SOIL CONDITIONS.
- RESTRAINT BASED ON TYPICAL SOIL CONDITIONS, 150 PSI TEST PRESSURE AND BEDDING PER PROJECT TRENCH DETAIL. FOR VALVES USE LENGTHS AS INDICATED FOR 90° BEND.
- RESTRAINT BASED ON DUCTILE IRON PIPE WITH POLYETHYLENE ENCASEMENT
- APPROVED RESTRAINERS: APPROVED MEGA-LUG TYPE FOR MECHANICAL JOINTS AND FIELD LOC GASKETS FOR PUSH JOINTS
- ALL RESTRAINT BOLTS AND NUTS SHALL BE STEEL, ASTM A307, GRADE B, AND SHALL BE CADMIUM PLATED PER SPECS.
- THRUST BLOCKS SHALL ONLY BE USED ON DEAD ENDS PER CONTRACT PLANS.
- MIN 5' GROUND COVER REQUIRED.
- IF RESTRAINT LENGTH IS LESS THAN THE LENGTH OF PIPE, CONTRACTOR SHALL RESTRAIN THE NEXT JOINT.
- ALL RESTRAINTS FOR ELBOWS ARE FOR HORIZONTAL INSTALLATION. CONTRACTOR SHALL CONSULT ENGINEER FOR VERTICAL RESTRAINT SCHEDULE.

DATE: _____
DRAWN BY: JMF
SCALE: AS SHOWN
REVIEWED BY: _____
PROJECT NO.: _____
FILE: DETAILS REV6 BIDSET

DELAWARE ENGINEERING, P.C.
CIVIL AND ENVIRONMENTAL ENGINEERING
28 MADISON AVENUE EXTENSION, ALBANY, NY 12203 - 518.452.1290
8-12 DIETZ STREET, SUITE 303, ONEONTA, NY 13820 - 607.432.8073

REVISIONS	
NO.	DESCRIPTION

GENERAL NOTES AND TYPICAL DETAILS
TOWN OF GUILDERLAND, NY

WATER DETAILS

SHEET: **D1**

WARNING - IT IS A VIOLATION OF NEW YORK EDUCATION LAW SECTION 7209.2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION LAW, SECTION 7209.2.