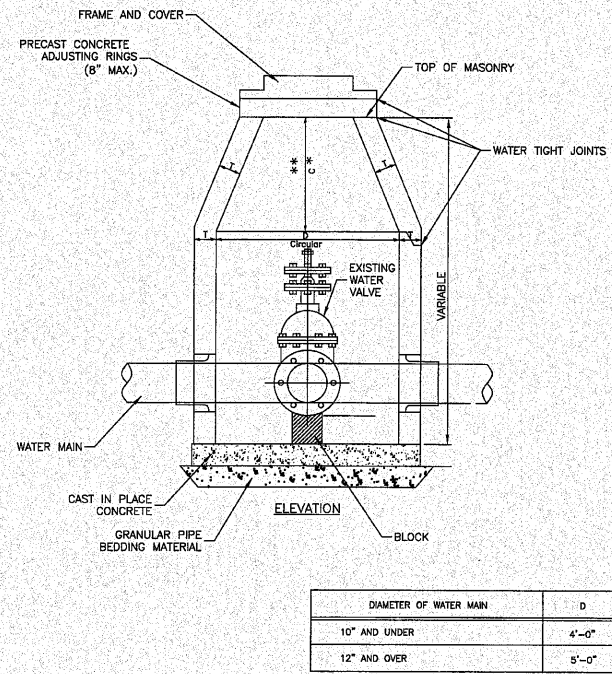
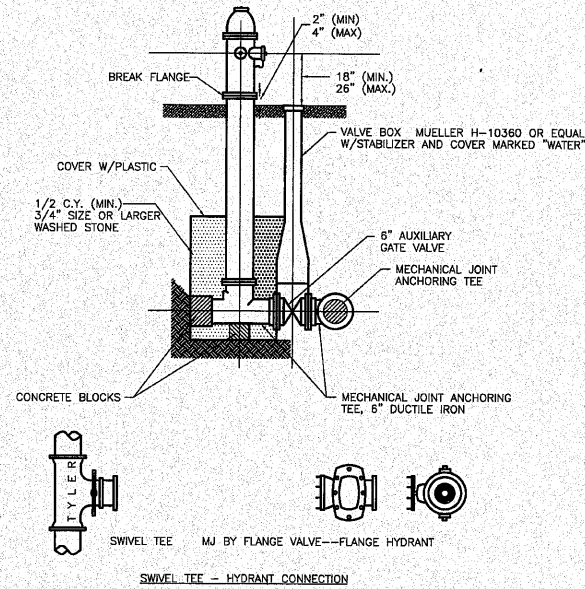


F.A.E. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-353	(2&3)WRS-4	WILL	608	229
STA.	TO STA.			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



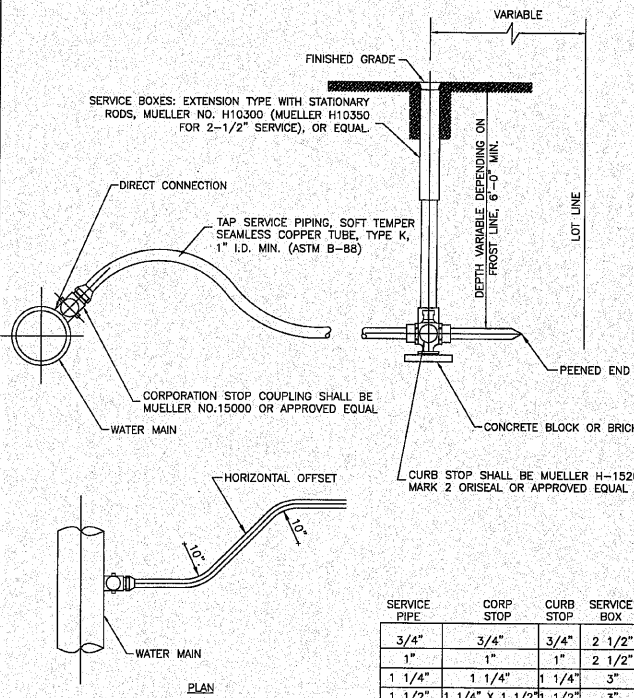
- NOTES:
1. CONCENTRIC CONE REQUIRED.
 2. USE 4"-Ø DIAMETER FOR WATER MAIN SIZES 4" THRU 10". 5'-0"Ø FOR SIZES 12" THRU 20". 6'-0"Ø FOR 20" OR GREATER.
 3. VALVE VAULT TO CONFORM TO ASTM C478.
 4. ALL VALVES SMALLER THAN 12" SHALL BE AWWA C509, CAST IRON BODY, BRONZE FITTED, MODIFIED WEDGE DISC, RESILIENT SEAT TYPE WITH NON-RISING STEM AND O-RING PACKING DESIGNED FOR 200 POUND WORKING PRESSURE, MUELLER A2360-20.
 5. ALL VALVES 12" AND LARGER SHALL BE BUTTERFLY VALVES MUELLER 3211-20. ALL VALVES SHALL OPEN COUNTER CLOCKWISE WITH NON-RISING STEM (EXCEPT HAND VALVES).
 6. ALL COVERS SHALL BE STAMPED "VILLAGE OF FRANKFORT" PER EXHIBIT 28.

VALVE VAULT DETAIL EXHIBIT 5D JUNE 2007



- NOTES:
1. ALL CASTINGS SHALL BE MADE IN THE U.S.A. WITH U.S.A. MATERIALS. FIRE HYDRANTS SHALL MEET AWWA C-502 AND SHALL BE MUELLER "CENTURION" A-423, EAST JORDAN WATER MASTER 5BR250, OR APPROVED EQUIV. WITH A 5-1/4" VALVE OPENING, TWO 2-1/2" HOSE NOZZLES AND ONE 4-1/2" PUMPER NOZZLE. THREADS SHALL CONFORM TO NATIONAL STANDARD SPECIFICATIONS.
 2. THE HYDRANTS SHALL BE PAINTED RED BY THE MANUFACTURER.

FIRE HYDRANT INSTALLATION EXHIBIT 5E JUNE 2007 REVISED JANUARY 2009



- NOTES:
1. SERVICE BOXES MAY NOT BE INSTALLED IN OR WITHIN 2' OF ANY PAVEMENT OR WALK.
 2. ALL SERVICE TAPS SHALL BE FULL STAINLESS STEEL OR WITH A MANUFACTURED TAP COUPLING.
 3. PROVIDE FULL SLEEVE STAINLESS STEEL SERVICE SADDLES FOR CONNECTIONS TO PVC PIPES, McDONALD SERIES NO. 3805 OR MUELLER SERIES NO. H16000, OR EQUAL.

TYPICAL WATER SERVICE INSTALLATION EXHIBIT 5F JUNE 2007

VAULTS AND BOXES SHALL NOT BE ALLOWED UNDER STREETS, SIDEWALKS OR DRIVEWAYS.

ALL CASTINGS SHALL BE MADE IN THE U.S.A. WITH U.S.A. MATERIALS.

DUCTILE IRON PIPE SHALL COMPLY WITH ANSI A21.51, CLASS 52, WITH JOINTS COMPLYING WITH ANSI A21.11. COMPLIING WITH ANSI A21.10 OR A21.53.

- EXTERNAL COATING SHALL BE STANDARD, AS SPECIFIED FOR GENERAL USE IN ANSI A21.51, OR ASPHALTIC COATING PER AWWA C-151.
- INTERNAL CEMENT LINING SHALL COMPLY WITH ANSI A21.4 OR AWWA C205, STANDARD THICKNESS.
- WATER MAIN SHALL BE ENCASED IN 8-MILLIMETER POLYWRAP.

POLYVINYL CHLORIDE PIPE SHALL COMPLY WITH AWWA C-900 FOR CLASS 150 PRESSURE PIPE (SDR 18).

- PVC PIPES SHALL BE INSTALLED WITH MAGNETIC TRACER WIRE & WARNING TAPE 2' ABOVE PIPE.
- TRENCH BEDDING MATERIAL SHALL EXTEND 12' OVER THE TOP OF THE PIPE FOR ALL PVC PIPE.
- 14"-18" DIAMETER: USE 235 PSI PRESSURE RATED PIPE AND SDR 18.
- 20"-24" DIAMETER: USE 165 PSI PRESSURE RATED PIPE AND SDR 25.

THE DEPTH BETWEEN FINISHED GRADE AND TOP OF THE WATER MAIN BE BETWEEN 5' AND 7'.

ALL BENDS OF 22-1/2 DEGREES OR GREATER, AND ALL TEES AND PLUGS SHALL BE THRUST PROTECTED TO PREVENT MOVEMENT OF THE LINE UNDER PRESSURE. THRUST PROTECTION MAY ALSO BE ATTAINED BY THE USE OF A COMBINATION OR RETAINING GLANDS AND THREADED RODS.

CONNECTIONS TO VILLAGE WATER SYSTEM SHALL BE MADE UNDER FULL WATER SERVICE PRESSURE.

- TAPPING SLEEVES SHALL INCLUDE TWO-PIECE BOLTED SLEEVE TYPE WITH MECHANICAL JOINTS, MUELLER - H615, OR EQUAL, WITH JOINT ACCESSORIES.
- TAPPING VALVES SHALL INCLUDE FLY PORTED GATE VALVES COMPLYING WITH AWWA C500 AND MECHANICAL JOINTS TYPE, MUELLER H667, OR EQUAL. TAPPING VALVES SHALL BE PLACED IN PRECAST CONCRETE VAULTS.

HORIZONTAL AND VERTICAL SEPARATION SHALL MEET REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS". LOCATIONS REQUIRING ALTERNATIVE MATERIALS ARE NOTED ON THE PLANS.

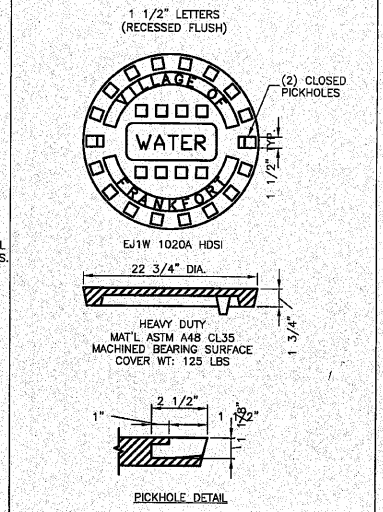
WATERMAIN SHALL BE PRESSURE TESTED AND DISINFECTED IN ACCORDANCE WITH REQUIREMENTS OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY AND THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS".

- THE CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCED NOTICE TO THE VILLAGE UTILITY OR ENGINEERING DEPARTMENT FOR ALL TESTING.
- REQUESTS FOR VALVE OPERATIONS ARE TO BE MADE THROUGH THE UTILITY DEPARTMENT AT LEAST 24 HOURS PRIOR TO ANY SCHEDULED OPERATIONS OR TESTS.

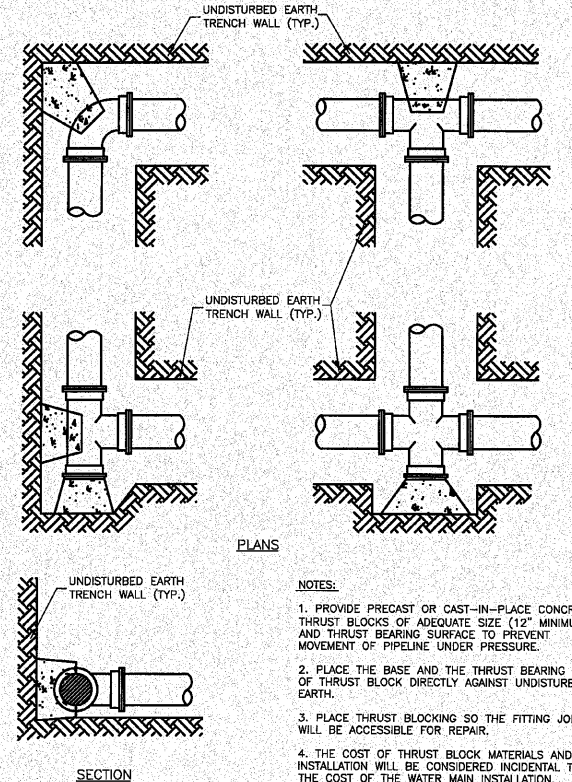
THE CONTRACTOR SHALL PRESSURE TEST ALL NEW WATER MAIN BEFORE WATER SERVICES HAVE BEEN INSTALLED. THE CONTRACTOR SHALL PERFORM A PRELIMINARY TEST TO INSURE THAT ALL SEGMENTS OF THE SYSTEM MEET THE LEAKAGE RATES AS SET FORTH HEREIN.

AFTER ALL MAINS HAVE BEEN PRESSURE TESTED, THE CONTRACTOR SHALL DISINFECT THE MAINS IN ACCORDANCE WITH AWWA STANDARD C-651. THE CONTRACTOR WILL SAMPLE THE CHLORINATED DISINFECTING SOLUTION. AFTER FINAL FLUSHING, AND AS WITNESSED BY THE VILLAGE UTILITY DEPARTMENT, THE CONTRACTOR SHALL OBTAIN TWO SAMPLES OF WATER FROM THE MAIN FOR BACTERIOLOGICAL TESTING. A SECOND SERIES OF SAMPLES SHALL BE COLLECTED NO LESS THAN 24 HOURS AFTER THE FIRST SET OF SAMPLES HAS BEEN COLLECTED. THE CONTRACTOR AND THE VILLAGE WILL BE FURNISHED WITH COPIES OF THE BACTERIOLOGICAL REPORT FOR THEIR RECORDS.

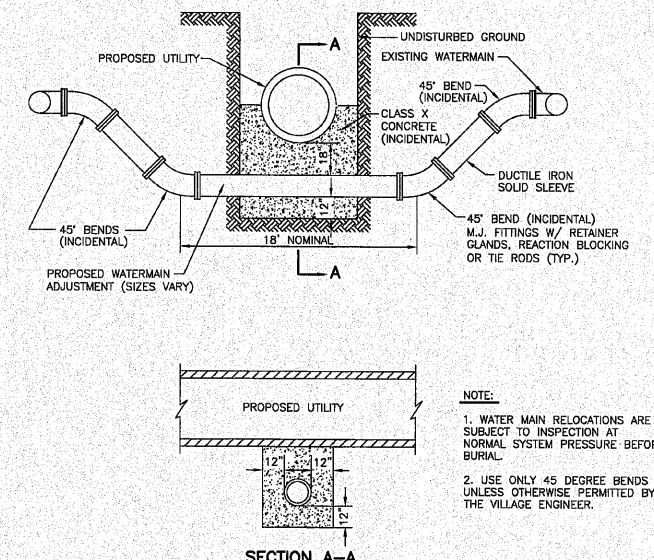
WATER MAIN SPECIFICATIONS EXHIBIT 5A JUNE 2007



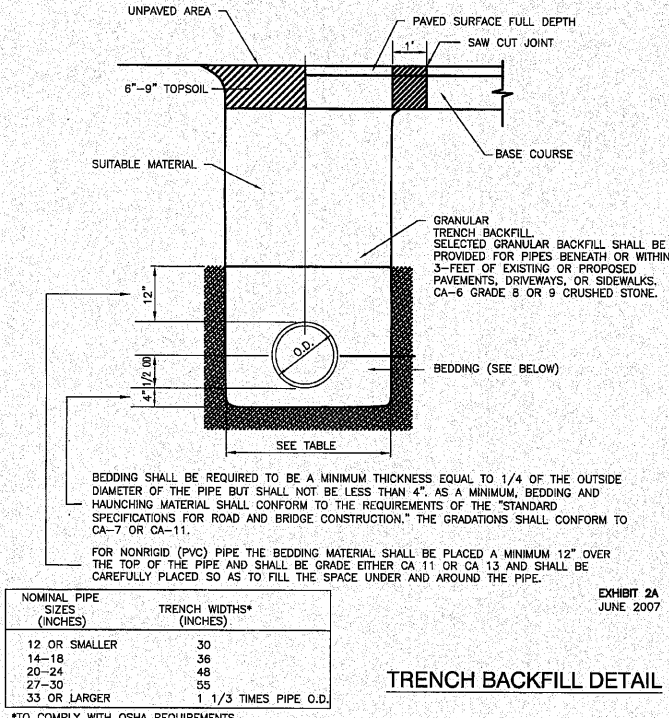
SPECIAL LETTERED MANHOLE COVER



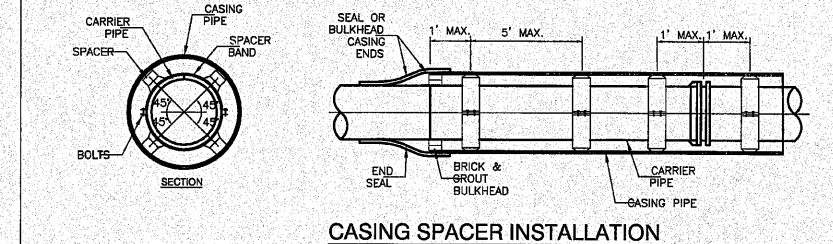
TYPICAL THRUST BLOCK INSTALLATIONS EXHIBIT 5C JUNE 2007



WATERMAIN ADJUSTMENT EXHIBIT 5B JUNE 2007



TRENCH BACKFILL DETAIL EXHIBIT 2A JUNE 2007



JOINT RESTRAINT TABLE - Unless additional pipe restraint is shown on the Plans, the restrained length measured from the fitting joint to the end of the last restrained joint pipe for pipe fittings shall equal or exceed those tabulated below:

Pipe Size (Inches)	Tee * Branch	RESTRAINED LENGTH - FEET FITTINGS			
		90 Elbow	45 Elbow	22-1/2 Elbow	11-1/4 Elbow
4	9	5	2	1	15
6	17	6	3	2	21
8	24	8	4	2	27
10	30	10	5	3	33
12	36	11	6	3	38
14	42	12	6	3	44
16	48	13	7	4	49
18	53	14	8	4	54
20	58	15	8	4	60
24	104	17	10	5	105
30	125	18	11	6	126
36	145	19	12	7	147

NOTE: FOR BIDDING PURPOSES ONLY CONTRACTOR TO SUBMIT DESIGN CALCULATIONS PRIOR TO CONSTRUCTION.

Test Pressure on sizes 20" and smaller based on 100 psi.
Test Pressure on sizes 24" and larger based on 150 psi.
Increase all lengths in Table by 75% for use on polyethylene wrapped pipe.
*One full length (18') of pipe on both sides of branch to be restrained.

DUCTILE IRON JOINT RESTRAINT TABLE

PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:

David L. Smith
6/1/07

62-48807 REGISTERED PROFESSIONAL ENGINEER
STATE OF ILLINOIS
LICENSE EXPIRES: 11/30/11

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
VILLAGE OF FRANKFORT
WATERMAIN INSTALLATION PLANS
CONSTRUCTION DETAILS
VARIOUS LOCATIONS

50 0 50
SCALE IN FEET
DATE 6/09/2010

DRAWN BY KWM
CHECKED BY GAK