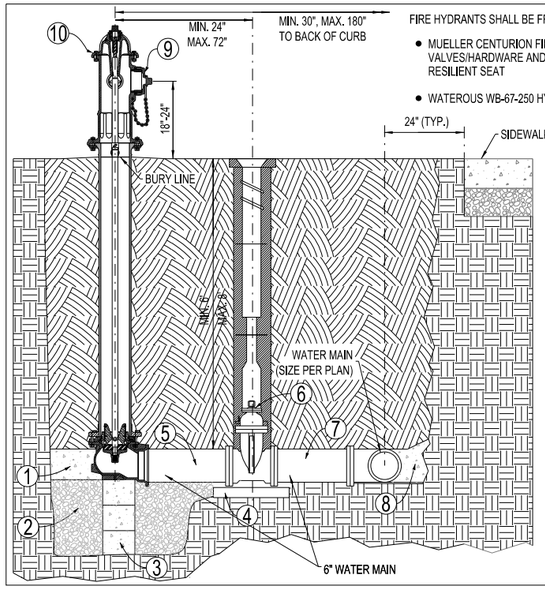
UW-06



FIRE HYDRANTS SHALL BE FROM THE FOLLOWING LIST, AS APPROVED BY THE CITY:

- MUELLER CENTURION FIRE HYDRANT, OPT-094 (5 ¼" BARREL) WITH MUELLER VALVES/HARDWARE AND AUXILIARY VALVE 6" GATE VALVE NO. 2360-23-9020 MODIFIED WEDGE RESILIENT SEAT
- WATEROUS WB-67-250 HYDRANT (5 ¼" PACER) WITH SERIES 2500-1 RESILIENT WEDGE GATE VALVE

1. PROVIDE CLASS SI CONCRETE BASE AND BLOCKING AGAINST UNDISTURBED EARTH
2. DRAIN SUMP TO BE ¾ CUBIC YARD OF ¾" WASHED STONE
3. CONCRETE SUPPORT
4. CONCRETE BLOCK OR BRICK SUPPORT
5. PIPE AS REQUIRED TO MAINTAIN 24" SEPARATION AS SHOWN (DIRECT MECHANICAL JOINT CONNECTION IF APPROVED BY CITY)
6. RUBBER VALVE BOX STABILIZER
7. USE "CORTEN" STEEL TIE RODS BETWEEN AUXILARY VALVE AND WATER MAIN (STAINLESS STEEL MAY BE REQUIRED BY THE CITY ENGINEER). ANY DISTANCE GREATER THAN 30" SHALL BE RODDED TO MEGA-LUG FLANGE. NO COUPLINGS ARE PERMITTED IN RODS.
8. CONCRETE BLOCKING CAST IN PLACE 3000 P.S.I.
9. 4 ½" PORT TO FACE PAVEMENT OR AS DIRECTED BY CITY ENGINEER
10. ALL NEWLY INSTALLED HYDRANTS MUST BE TOP COATED WITH RUST-OLEUM FIRE HYDRANT ENAMEL (COLOR = FIRE HYDRANT RED)
11. MIN. 48" BETWEEN HYDRANT AND ANY VERTICAL OBSTRUCTIONS.
12. MIN. 72" BETWEEN HYDRANT AND ANY LANDSCAPING WITH A MATURE HEIGHT GREATER THAN 12".
13. ALL VALVE AND HYDRANT HARDWARE MUST BE STAINLESS STEEL INCLUDING NUTS, BOLTS, AND WASHERS.

Approved: City Engineer	Drawing Name	Drawing Number	
	FIRE HYDRANT	MODIFIED UW-06	CRYSTAL LAKE ILLINOIS Engineering Division
		Date: 2/14/2012	
		Drawn / Checked	

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UW-08

CITY OF CRYSTAL LAKE WATER MAIN CHLORINATION SPECIFICATIONS:

1. DISINFECTION OF WATER MAINS SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION, CURRENT EDITION
2. THE CITY ENGINEERING DIVISION AND WATER DIVISION SHALL BE NOTIFIED 48 HOURS IN ADVANCE FOR SCHEDULING OF ANY TESTING CHLORINATING, FLUSHING, OR SAMPLING.
3. ONLY CITY WATER DIVISION PERSONNEL MAY OPERATE WATER VALVES ON LIVE MAINS.
4. A WATER VALVE JUMPER IS REQUIRED TO MAINTAIN PRESSURE ON THE CHLORINATED LINES DURING THE SAMPLING PROCEDURE FOR PROPER INSTALLATION AND REQUIREMENTS SEE THE STANDARD WATER VALVE JUMPER DETAIL.
5. WATER MAINS SHALL BE FLUSHED WITH A MINIMUM VELOCITY OF 2.5 FPS.
6. THE INITIAL CHLORINE CONCENTRATION SHALL BE 50 mg/L WITH A MINIMUM 24 HOUR RESIDUAL OF 25 mg/L.
7. THE METHOD OF CHLORINE APPLICATION SHALL BE APPROVED BY THE CITY:
   a. LIQUID CHLORINE W/CHLORINATING DEVICE WITH BACKFLOW PREVENTER.
   b. CHLORINE BEARING COMPOUNDS IN WATER.
   c. TABLET DISINFECTION.
8. ALL NEW VALVES AND HYDRANTS SHALL BE OPERATED WHILE LINE IS BEING CHLORINATED.
9. THE CITY ENGINEERING DIVISION SHALL DETERMINE LOCATION AND QUANTITY OF CORPORATION STOPS FOR FLUSHING AND CHLORINATING.
10. THE FINAL FLUSHING RESIDUAL IN THE NEW CHLORINATED LINES SHALL BE BETWEEN 0.2 AND 2.0 mg/L.
11. ALL WATER SAMPLES SHALL BE COLLECTED ON TWO (2) CONSECUTIVE DAYS AND PASS BACTERIOLOGICAL TEST RESULTS. IN THE EVENT THAT THE FIRST SET OF SAMPLES TAKEN TWO (2) CONSECUTIVE DAYS APART FAIL TO PASS, ANOTHER SET OF SAMPLES MAY BE TAKEN TWO (2) DAYS APART (PER STATE SPECS). IF THE SECOND SET FAILS TO PASS TESTING, THEN THE PROCEDURE MUST BE REPEATED WITH THE MAIN BEING RECHLORINATED, REFLUSHED, AND RESAMPLED.
12. STATE CERTIFIED LAB MUST BE USED FOR SAMPLES.

CHLORINE REQUIREMENTS TO PRODUCE 50 mg/L CONCENTRATION IN 100 FEET OF PIPE-BY DIAMETER

PIPE SIZE IN INCHES	100% CHLORINE, LB	1% CHLORINE SOLUTION, GALS.
4	0.027	0.33
6	0.061	0.73
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88

NUMBER OF 5-GRAIN HYPOCHLORITE TABLETS REQUIRED FOR A DOSAGE OF 50mg/L PER LENGTH OF PIPE SECTION

LENGTH OF PIPE SECTION IN FEET

PIPE SIZE IN INCHES	UP TO 13	18	20	30	40
2	1	1	1	1	1
4	1	1	2	2	2
6	2	2	3	3	4
8	2	3	5	5	6
10	3	5	7	7	9
12	5	6	10	10	14

Approved: City Engineer	Drawing Name	Drawing Number	
Victor C. Ramirez, P.E. Director of Engineering and Building	CHLORINATION SPECIFICATIONS	UW-08	CRYSTAL LAKE ILLINOIS Engineering Division
		Date: 4/15/2007	
		Drawn EM / Checked LZ	

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UW-09

PRESSURE TEST

PROJECT NAME: _____

CONTRACTOR: _____

WITNESS: _____

LINE PRESSURIZED DATE: _____ TIME: ____ am / pm

LINE TESTED DATE: _____ TIME: ____ am / pm

	2-HOUR	24-HOUR
TOTAL LENGTH OF MAIN (FEET)		
PIPE DIAMETER (INCHES)		
TEST PRESSURE (PSI)		
TOTAL ALLOWABLE LEAKAGE IN ONE HOUR (GALLONS)		
TOTAL ALLOWABLE LEAKAGE IN TIME FRAME (GALLONS)		

CALCULATION FOR ACTUAL WATER VOLUME LOSS

	2-HOUR	24-HOUR
SURFACE AREA OF SUPPLY VESSEL (FEET)		X
MAXIMUM ALLOWABLE DROP IN WATER LEVEL (FEET)		X
ACTUAL DROP IN WATER LEVEL (FEET)		X
GALLONS		X
INITIAL METER READING	X	
24TH HOUR METER READING	X	
TOTAL ALLOWABLE LEAKAGE (GALLONS)		
ACTUAL LEAKAGE (GALLONS)		
PASS OR FAIL		

LOCATION DIAGRAM:

INDICATE NORTH

NOTES:

Approved: City Engineer	Drawing Name	Drawing Number	
Victor C. Ramirez, P.E. Director of Engineering and Building	WATER MAIN TEST REPORT	UW-09	CRYSTAL LAKE ILLINOIS Engineering Division
		Date: 4/1/2007	
		Drawn EM / Checked LZ	

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FILE NAME = S:\1606\CADD Sheets\D162517-sht-water.dgn	USER NAME = _USERNAME_	DESIGNED - JWM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	WATER MAIN CONSTRUCTION DETAILS			
		DRAWN - JWM	REVISED -					
	PLOT SCALE = 100.0000 ' / in.	CHECKED - MGZ	REVISED -		SCALE: NONE	SHEET NO. 157 OF 431 SHEETS	STA.	TO STA.
	PLOT DATE = 6/5/2014	DATE - 10/15/2013	REVISED -					

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
305	27R-3	MCHENRY	431	157
		CONTRACT NO. 62517		
		ILLINOIS FED. AID PROJECT		