SURVE PLOTT TEMPL AREAS AREAS

FOX RIVER WATER RECLAMATION DISTRICT MINIMUM PROJECT SPECIFICATION REQUIREMENTS

- THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO THE ORDINANCE AND REQUIREMENTS OF THE "STATE STANDARD SPECIFICATION FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" CURRENT EDITION, AND THE FOX RIVER WATER RECLAMATION DISTRICT.
- THE CONTRACTOR SHALL NOTIFY THE FOX RIVER WATER RECLAMATION DISTRICT 48 HOURS PRIOR TO START OF THE CONSTRUCTION TO ARRANGE FOR APPROPRIATE CONSTRUCTION
- 3. THE FOX RIVER WATER RECLAMATION DISTRICT SHALL HAVE THE AUTHORITY TO INSPECT, APPROVE, AND REJECT THE CONSTRUCTION IMPROVEMENTS.
- THE CONTRACTOR(S) SHALL INDEMNIFY THE FOX RIVER WATER RECLAMATION DISTRICT, THEIR AGENTS ETC., FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION AND TESTING OF THIS WORK ON THIS PROJECT.
- THE PROPOSED IMPROVEMENTS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE ENGINEERING PLANS AS APPROVED BY THE
- SANITARY MANHOLE FRAMES SHALL BE NEENAH R-1772 WITH TYPE B SELF-SEALING RUBBER GASKET COVER WITH CONCEALED PICK HOLES OR EQUAL WITH THE WORD "SANITARY" CAST IN THE COVER.
- 7. THE EXTERIOR OF THE PROPOSED MANHOLES SHALL BE WATERPROOFED WITH A BITUMASTIC MATERIAL AS PER FRWRD ORDINANCE NO. 323, ARTICLE 4, SECTION 16.
- 8. ALL JOINTS BETWEEN PRE-CAST ELEMENTS, ADJUSTING RINGS AND MANHOLE FRAMES ON ALL UNDERGROUND STRUCTURES, SHALL BE SET IN PLACE WITH ONE OF THE FOLLOWING BUTYL RUBBER JOINT

SEALANTS:
CONCRETE PROJECTS SUPPLY CO. - EZ STIKS
HAMILTON-KENT GASKET CO. - KENT SEAL
OR EQUAL, AS APPROVED BY THE DISTRICT ENGINEER, AND ALL
JOINTS TO BE TUCKPOINTED WITH HYDRAULIC CEMENT OR MORTAR
WITH A BRUSH FINISH. ALL JOINTS BETWEEN ADJUSTING RINGS
AND MANHOLE FRAMES TUCKPOINTED WITH HYDRAULIC CEMENT OR
MORTAR WILL NOT BE ACCEPTED BY FRWRD.

- 9. ALL SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED WITH FLEXIBLE MANHOLE COUPLING, AS MANUFACTURED BY INTERPACE CORPORATION LOCKUJOINT FLEXIBLE MANHOLE SLEEVE), PRESSSEAL GASKET CORPORATION (PRESS WEDGE II), OR EQUAL AS APPROVED BY THE DISTRICT ENGINEER, ALL MATERIALS AND INSTALLATION PROCEDURES SHALL COMPLY WITH THOSE SPECIFIED BY THE MANUFACTURER. BY THE MANUFACTURER.
- 10. A WATER-TIGHT PERMANENT MASONRY BULKHEAD SHALL BE INSTALLED IN THE DOWNSTREAM SEWER PIPE AT THE POINT OF SEWER CONNECTION PRIOR TO COMMENCING ANY SEWER CONSTRUCTION . THE BULKHEAD SHALL REMAIN IN PLACE UNTIL REMOVAL IS AUITHORIZED BY THE FOX RIVER WATER RECLAMATION DISTRICT AFTER THE SANITARY SEWERS HAVE BEEN TESTED AND ACCEPTED
- 11. THE CONTRACTOR SHALL TAKE MEASURES TO PREVENT ANY UNPOLLUTED WATER SUCH AS GROUND AND SURFACE WATER FROM ENTERING THE EXISTING SANITARY SEWERS.
- 12. THE CONTRACTOR SHALL BE PROHIBITED FROM DISCHARGING ANY UNPOLLUTED WATER INTO THE SANITARY SEWER SYSTEM FOR THE PURPOSE OF SEWER FLUSHING OR FLOATING LINES FOR THE DEFLECTION TEST WITHOUT PRIOR APPROVAL FROM THE FOX RIVER WATER RECLAMATION DISTRICT.
- 13. ALL SEWERS, INCLUDING TRUNK LINE SEWERS AND LATERAL SEWERS, THAT WILL DISCHARGE SEWAGE FOR TREATMENT BY THE FOX RIVER WATER RECLAMATION DISTRICT, SHALL BE INSTALLED UNDER THE SUPERVISION OF A FULL TIME RESIDENT ENGINEER. NO WORK SHALL BE DONE IN THE ABSENCE OF THE RESIDENT
- 14. THE DISTRICT SHALL HAVE THE RIGHT TO APPROVE THE SELECTION OF A RESIDENT ENGINEER. THE DISTRICT SHALL HAVE THE RIGHT TO REQUEST A SUBSTITUTE RESIDENT ENGINEER IN THE EVENT OF UNSATISFACTORY PERFORMANCE BY THE RESIDENT
- 15. THE RESIDENT ENGINEER ON ANY SEWER CONSTRUCTION PROJECT SHALL PROVIDE THE DISTRICT WITH DAILY REPORTS NO LESS THAN EVERY TWO (2) WEEKS.
- ALL NEW SANITARY SEWERS SHALL BE PRESSURE TESTED TO THE PROCEDURE OUTLINED IN THE "SPECIFICATIONS FOR LOW PRESSURE AIR TESTS OF THE SANITARY SEWERS" AVAILABLE AT THE FOX RIVER WATER RECLAMATION DISTRICT OFFICE. THE DISTRICT MAY REQUIRE SUCH OTHER TEST AS CONDITIONS MAY
- 17. THE COST OF PROVIDING RESIDENT ENGINEERING AND PRESSURE TESTING SHALL BE BORNE BY THE OWNER OR DEVELOPER.
- 18. THE FOX RIVER WATER RECLAMATION DISTRICT MUST BE FURNISHED A COMPLETE SET OF CONSTRUCTION RECORD DRAWINGS OF THE SANITARY SEWERS CONSTRUCTED FOR A PROJECT WITHIN 60 DAYS OF COMPLETION OF THE SEWERS.
- 19. SANITARY SEWER MANHOLES WITH INTERNAL DROPS TWO FEET OR LESS SHALL HAVE A PRECAST CONCRETE TROUGH BUILT IN THE STRUCTURE TO OBTAIN A SMOOTH FLOW TRANSITION FROM THE UPSTREAM PIPE INVERT TO THE DOWNSTREAM PIPE INVERT.
- 20. ALL MANHOLES AND STRUCTURES SHALL BE CLEANED OF ANY ACCUMULATION OF SILT, DEBRIS, OR FOREIGN MATTER OF ANY KIND, AND SHALL BE FREE FROM SUCH ACCUMULATIONS AT THE TIME OF FINAL INSPECTION, ALL MANHOLES AND STRUCTURES SHALL BE INSPECTED BY THE FRWRD PRIOR TO ACCEPTANCE.

SANITARY SEWER, STORM SEWER, WATERMAIN

- ALL SANITARY SEWER AND WATERMAIN WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.
- 2. SANITARY SEWERS AND WATERMAIN SERVICES SHALL HAVE A MINIMUM OF 6.0 FEET OF COVER AND SHALL BE RUN IN STRAIGHT ALIGNMENT UNLESS SPECIFICALLY SHOWN ON THE DIAMS
- 3. ALL EXISTING UTILITIES OR IMPROVEMENTS, INCLUDING WALKS, CURBS, PAVEMENT AND PARKWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE PROMPTLY RESTORED TO THEIR RESPECTIVE ORIGINAL CONDITION.
- 4. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION TO VERIFY IN THE FIELD ALL EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE PROJECT AND BE RESPONSIBLE FOR PROTECTION OF SAME.
- 5. ALL STORM MANHOLE, CATCH BASIN, AND INLET FRAME ADJUSTMENTS SHALL BE MADE WITH PRECAST CONCRETE ADJUSTING RINGS SET IN A FULL BED OF BUTYL ROPE JOINT SEALANT, NO MORE THAN 8" OF ADJUSTING RINGS WILL BE
- 6. ALL DRAINAGE STRUCTURES TO HAVE POURED INVERTS CONFORMING TO THE SHAPE OF THE PIPE.
- 7. THE CONTRACTOR SHALL BE AWARE OF POTENTIAL CONFLICTS WITH EXISTING UTILITIES AS INDICATED ON THE PLANS. THE CONTRACTOR SHALL EXCAVATE AROUND UTILITIES TO DETERMINE ELEVATIONS BEFORE BEGINNING CONSTRUCTION.
- 8. STAINLESS STEEL "NON-SHEAR" OR SIMILAR COUPLINGS SHALL BE USED WHEN JOINING SEWER PIPES OF DISSIMILAR MATERIALS.
- 9. ALL NEW SANITARY SEWERS SHALL HAVE WYES FOR PROPOSED BUILDING SERVICES. ALL CONNECTIONS TO EXISTING SANITARY SEWERS NOT HAVING WYES SHALL BE MADE WITH AN INSERT A TEE TYPE TYPE FITTING OR APPROVED EQUAL.
- 10. ALL EXISTING FIELD DRAINAGE TILE ENCOUNTERED OR DAMAGED DURING CONSTRUCTION ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION, PROPERLY REROUTED AND/OR CONNECTED TO THE STORM SEWER SYSTEM. ALL LOCATIONS OF ENCOUNTERED FIELD DRAINAGE TILE SHALL BE PROPERLY EXPERIENCED AND ADDICATION TO THE STORM SHOULD BE STORMED THE STORMED AND ADDICATION TO THE STORMED AND ADDICATION THE STORMED AND ADDICATION TO THE STORMED AND ADDICATION TO THE STORMED AND ADDICATION TO THE STORMED AND ADDICATION THE STORMED AND ADDICATION TO THE STORMED AND ADDICATION THE STORMED ADDICATION THE STORMED AND ADDICATION THE STORMED ADDICATION THE STORMED AND ADDICATION THE STORMED REFERENCED AND DOCUMENTED FOR INCORPORATION INTO THE RECORD DRAWING.
- 11. ALL TRENCHES UNDER CURB OR PAVEMENT WITHIN 2 FEET OF AN EXISTING OR PROPOSED CURB OR PAVEMENT, ARE TO BE BACKFILLED WITH TRENCH BACKFILL.
- 12. AT THE COMPLETION OF THIS PROJECT, ONE SET OF PLANS WITH RECORD MEASUREMENTS IS TO BE SUBMITTED TO THE ENGINEER SHOWING THE LOCATION OF ALL OF THE SERVICES, PIPES, STRUCTURES, GRADING AND UTILITIES.
- 13. ANY EXISTING UTILITY STRUCTURES REQUIRING ADJUSTMENT ARE TO BE ADJUSTED (UP TO 8" TOTAL ADJUSTMENT) OR RECONSTRUCTED BY THE CONTRACTOR. ADJUSTMENTS OR RECONSTRUCTIONS NOT CALLED FOR ON THE PLANS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
- 14. CONNECTIONS TO EXISTING SANITARY, STORM AND WATER SYSTEMS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT, UNLESS SPECIFICALLY NOTED OTHERWISE.
- 15. ALL WATERMAINS SHALL BE CEMENT LINED DUCTILE IRON PIPE, CLASS 52 CONFORMING TO AWWA C-151 WITH PUSH-ON OR MECHANICAL JOINTS AND SHALL HAVE A MINIMUM OF 6,0 FEET OF COVER AND SHALL BE ENCASED IN POLYETHYLENE FILM IN ACCORDANCE WITH AWWA C-105-82. FITTINGS SHALL BE CEMENT LINED, TAR COATED CAST IRON WITH MECHANICAL JOINTS RATED 250 PSI PER AWWA C110/ANSI 21.20 (CLOW, AMERICAN, U.S. PIPE, OR EQUAL).
 - ALL MAIN LINE VALVES SHALL BE RESILIENT SEAT EPOXY COATED WEDGE GATE VALVE TYPE (MUELLER, KENNEDY, CLOW, OR APPROVED EQUAL), GATE VALVES SHALL BE INSTALLED IN EACH FIRE HYDRANT LEAD WITH "0" RING STUFFING BOX. (MUELLER, KENNEDY, OR EQUAL), CA-6 CRUSHED COMPACTED LIMESTONE SHALL BE UTILIZED TO BACKFILL AROUND ALL VALVES AND VALVE BOXES
- 16. WATER SERVICES SHALL INCLUDE THE NECESSARY LENGTH OF TYPE "K" COPPER WATER TUBE OF THE SIZE SHOWN ON THE PLANS, CORPORATION STOP, CURB STOP, AND SERVICE BOX, ALL AS REQUIRED BY THE MUNICIPALITY, AND ALL NECESSARY LABOR, TOOLS, EQUIPMENT, EXCAVATION AND BACKFILL, FOR A COMPLETE INSTALLATION AS SHOWN ON THE PLANS, TRENCH BACKFILL WILL BE PAID FOR SEPARATELY, WHEN REQUIRED, NO BACKFILL WILL BE PAID FOR SEPARATELT, MAEN SIDE YARD WATER SERVICES WILL BE ALLOWED.
- 17. SANITARY SEWER STRUCTURES SHALL BE ASSEMBLED AND ADJUSTED USING BUTYL ROPE JOINT SEALANT SHOWN ON THE PLANS AND MEETING THE APPROVAL OF THE MUNICIPALITY.
- 18. ALL FIRE HYDRANTS SHALL BE WATEROUS PACER MODEL WB-67. WITH DOUBLE 2 1/2" AND ONE 4 1/2" STEAMER CONNECTIONS WITH NATIONAL STANDARD THREADS. AUXILIARY VALVE TO BE RESILIENT SEAT EPOXY COATED RESILIENT SEAT WEDGE GATE VALVE, WITH VALVE LID EMBOSSED "WATER".
- 19. ALL WATERMAINS SHALL BE HIGH PRESSURE AND SYSTEM PRESSURE TESTED AND DISINFECTED IN ACCORDANCE WITH STANDARDS AND PROCEDURES MEETING THE APPROVAL OF THE MUNICIPALITY AS FOLLOWS:

TESTING AND INSPECTING WATERMAIN

A. HYDROSTATIC TESTS:

1. WHERE ANY SECTION OF A WATER LINE IS PROVIDED WITH CONCRETE THRUST BLOCKING FOR FITTINGS, DO NOT MAKE HYDROSTATIC TESTS UNTIL AT LEAST 5 DAYS AFTER INSTALLATION OF THE CONCRETE THRUST BLOCKING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

2. DEVISE A METHOD FOR DISPOSAL OF WASTE WATER FROM HYDROSTATIC TESTS, AND FOR DISINFECTING, AS APPROVED IN ADVANCE BY THE ENGINEER.

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B. PFESSURE TESTS:

1. SUBJECT THE NEW WATERMAINS AND SERVICE LINES, INCLUDING VALVES AND HYDRANTS, TO A HYDROSTATIC PRESSURE OF 150

- 2. H(LD THE TEST PRESSURE FOR A DURATION OF TWO HOURS WITH)UT PRESSURE LOSS OR FURTHER PRESSURE APPLICATION.
- 3. C/REFULLY EXAMINE EXPOSED PIPE, JOINTS, FITTINGS, AND VALVES.
- 4. REPLACE OR REMAKE JOINTS SHOWING VISIBLE LEAKAGE.
- 5. REMOVE CRACKED PIPE, DEFECTIVE PIPE, AND CRACKED OR DEFE TIVE JOINTS, FITTINGS, AND VALVES. REPLACE WITH SOUND MATERIAL AND REPEAT THE TEST UNTIL RESULTS ARE SATISFACTORY.
- 6. $\ensuremath{\mathsf{M}_{\text{N}}}\ensuremath{\mathsf{KE}}\xspace$ Repair and replacement without additional cost to owner.
- C. LEAKAGE TEST:
- 1. CCNDUCT A METERED LEAKAGE TEST AFTER THE PRESSURE TEST HAS BEEN SATISFACTORILY COMPLETED.
- 2. DURATION OF EACH LEAKAGE TEST: AT LEAST 24 HOURS.
- 3. DURING THE TEST, SUBJECT WATER LINES TO A NORMAL WATER PRESSURE OF THE OWNER'S WATER SYSTEM.
- 4. M.XIMUM ALLOWABLE LEAKAGE: ONE GALLON PER INCH OF PIPE DIAM:TER PER 1,000 FEET OF PIPE PER 24 HOURS AS RECORDED BY A METER APPROVED BY THE ENGINEER.
- 5. SHOULD ANY TEST OF PIPE DISCLOSE LEAKAGE GRATER THAN THE MAXIMUM ALLOWABLE AMOUNT, LOCATE AND REPAIR THE DEFE TIVE JOINT OR JOINTS AND THEN REPEAT THE 24-HOUR METERED LEAKAGE TEST UNTIL THE LEAKAGE IS WITHIN THE SPECIFIED ALLOWANCE AND AT NO ADDITIONAL COST TO THE OWNER.
- D. TIME FOR MAKING TEST:

1. EXCEPT FOR JOINT MATERIAL SETTING, OR WHERE CONCRETE REACTION BACKING NECESSITATES A 5 DAY DELAY, PIPELINES JOIN 'ED WITH RUBBER GASKETS, MECHANICAL, OR PUSH-ON JOIN'S, OR COUPLINGS MAY BE SUBJECTED TO HYDROSTATIC PRES

2. PERFORM THE PRESSURE AND LEAKAGE TESTS SATISFACTORILY PRIOR TO REQUESTING THE ENGINEER TO WITNESS THE OFFICIAL

3. NUTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO THE TIME OF THE REQUESTED OFFICIAL TESTS.

- 4. DIPENDING ON TRAFFIC CONDITIONS, PUBLIC HAZARD, OR OTHER REASINS, THE ENGINEER MAY DIRECT WHEN TO CONDUCT THE TESTS, AND MAY ORDER THE TESTS TO BE MADE IN RELATIVELY SHORT SECTIONS OF WATERMAINS.
- 20. GRANULAR TRENCH BACKFILL SHALL BE USED IN ALL LOCATIONS WHERE THE PROPOSED UNDERGROUND UTILITY IS TO BE CONSTRUCTED UNDER PERMANENT TYPE PAVEMENTS OR IN AIY UTILITY TRENCH OVER WHICH ANOTHER UTIL TY WILL PASS; OR AS DIRECTED BY THE ENGINEER. TRENCH BACKFILL SHALL BE EXTENDED TWO (2) FEET ON EACH SIDE OF THE PERMANENT TYPE SURFACE, AS MEASURED AT THE LOWEST POINT OF THE PAVEMENT, DRIVEWAY OR SIDEWALK.
- LOWEST POINT OF THE PAVEMENT, DRIVEWAY OR SIDEWALK.

 21. WHERE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, EXIS ING DRAINAGE STRUCTURES AND SYSTEMS SHALL BE CLEAVED OF DEBRIS AND PATCHED AS NECESSARY TO ASSURE INTERRITY OF THE STRUCTURE. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR STRUCTURES AND CONTRACT UNIT PRICE PER LINEAL FOOT FOR SYSTEMS WHICH SHALL BE PAYMENT IN FULL FOR CLEANING, PATCHING, REMCVAL AND DISPOSAL OF DEBRIS AND DIRT, DRAINAGE STRUCTURES AND SYSTEMS CONSTRUCTED AS PART OF THIS PROJECT SHALL BE MAINTAINED BY THE CONTRACTOR AT HIS EXPENSE, NO PAYMENT WILL BE MADE FOR CLEANING STRUCTURES OR SYSTEMS CONSTRUCTED AS PART OF THIS PROJECT.
- 22. WHEFE DUCTILE IRON PIPE IS INDICATED ON THE PLANS FOR WATERMAIN AND/OR SANITARY SEWER, IT SHALL BE ENCASED IN POLYETHYLENE FILM IN ACCORDANCE WITH AWWA C-105-82 (EXCIPT FOR PIPE EXPOSED TO THE ATMOSPHERE AT THE BRIDGE
- 23. TRENCH BACKFILL WILL BE PAID FOR IN ACCORDANCE WITH THE 2007 EDITION OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".
- 24. ALL PUBLIC SANITARY SEWERS WILL BE AIR TESTED BY THE CONTRACTOR, AT HIS EXPENSE, LNDER THE SUPERVISION OF THE VILLAGE ENGINEER, OR HIS AUTHORIZED REPRESENTATIVE. ONE COPY OF THE REPORT SHALL BE FORWARDED TO THE OTTER CREEK WATER RECLAMATION DISTRICT, ONE COPY TO THE FOX RIVER WATER RECLAMATION DISTRICT, AND ONE COPY TO THE VILLAGE ENGIHEER. AN INFILTRATION TEST WILL BE ALLOWED IF IT CAN BE SIOWN AT THE TIME OF THE TEST THAT THE WATER TABLE IS ABOVE THE TOP OF THE PIPE, ALL TESTING WILL BE DONE IN CONFORMANCE WITH THE VISTANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS' CURRENT EDITION.
- 25. CONNECTION TO EXISTING STORM SEWER STRUCTURES SHALL BE DONE BY CORING THE CONCRETE BARREL SECTION.
- 26. ALL EXISTING WELLS TO BE CAPPED AND ABANDONED IN ACCORDANCE WITH VILLAGE AND COUNTY HEALTH STANDARDS.
- 27. SANITARY MANHOLES ARE 4' DIAMETER UNLESS OTHERWISE NOTED

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PROTECTION OF WATERMAIN AND WATER SERVICE LINES

WATERMAINS AND WATER SERVICE LINES SHALL BE PROTECTED FROM SANITARY SEWERS, STORM SEWERS, COMBINED SEWERS, HOUSE SEWER SERVICE CONNECTIONS AND DRAINS AS FOLLOWS:

1.) HORIZONTAL SEPARATION:

- d) WATERMAINS SHALL BE LAID AT LEAST TEN FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED DRAIN, STORM SEWER, SANITARY SEWER, COMBINED SEWER OR SEWER SERVICE CONNECTION.
- b) WATERMAINS MAY BE LAID CLOSER THAN TEN FEET TO A SEWER LINE WHEN:
- $\ensuremath{\mathsf{D}}$ LOCAL CONDITIONS PREVENT A LATERAL SEPARATION OF TEN FEET;
- II) THE WATERMAIN INVERT IS AT LEAST 18 INCHES ABOVE THE CROWN OF THE SEWER; AND
- III) THE WATERMAIN IS EITHER IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON AN UNDISTURBED EARTH SHELF LOCATED TO ONE SIDE OF THE SEWER.
- C) BOTH THE WATERMAIN AND DRAIN OR SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT DUCTILE IRON PIPE, PRESTRESSED CONCRETE PIPE OR PVC PIPE MEETING THE REQUIREMENTS OF SECTION 653,111 WHEN IT IS IMPOSSIBLE TO MEET (A) OR (B) ABOVE. THE DRAIN OR SEWER SHALL BE PRESSURE TESTED TO THE MAXIMUM EXPECTED SURCHARGE HEAD BEFORE BACKFILLING.

2.) VERTICAL SEPARATION:

d) A WATERMAIN SHALL BE LAW SO THAT ITS INVERT IS 18 INCHES ABOVE THE CROWN OF THE DRAIN OR SEWER WHENEVER WATERMAINS CROSS STORM SEWERS, SANITARY SEWERS OR SEWER SERVICE CONNECTIONS, THE VERTICAL SEPARATION SHALL BE MAINTAINED FOR THAT PORTION OF THE WATERMAIN LOCATED WITHIN TEN FEET HORIZONTALLY OF ANY SEWER OR DRAIN CROSSED. A LENGTH OF WATERMAIN PIPE SHALL BE CENTERED OVER THE SEWER TO BE CROSSED WITH JOINTS EQUIDISTANT FROM THE SEWER OR DRAIN.

b) THE DRAIN OR SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT CAST OR DUCTILE IRON PIPE, PRESTRESSED CONCRETE PIPE, (STORM SEWER ONLY), OR PVC PIPE MEETING THE REQUIREMENTS OF SECTION 653.111, OR THE DRAIN OR SEWER SHALL BE SLEEVED WITH STEEL PIPE OR CONSTRUCTED OF REINFORCED CONCRETE PIPE CONFORMING TO ASTM C-76 WITH GASKETED JOINTS CONFORMING TO ASTM C-361 (STORM SEWERS ONLY), FOR A DISTANCE OF 10 FEET EITHER SIDE OF THE CONFILCT,

I) IT IS IMPOSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION AS DESCRIBED IN (A) ABOVE; OR

II) THE WATERMAIN PASSES UNDER A SEWER OR DRAIN.

c) A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE SEWER OR DRAIN AND THE CROWN OF THE WATERMAIN SHALL BE MAINTAINED WHERE A WATERMAIN CROSSES UNDER A SEWER, SUPPORT THE SEWER OR DRAIN LINES TO PREVENT SETTLING AND BREAKING THE WATERMAIN.

d) CONSTRUCTION SHALL EXTEND ON EACH SIDE OF THE CROSSING UNTIL THE NORMAL DISTANCE FROM THE WATERMAIN TO THE SEWER OR DRAIN LINE IS AT LEAST TEN FEET.

B) WATER SERVICE LINES:

1) THE HORIZONTAL AND VERTICAL SEPARATION BETWEEN WATER SERVICE LINES AND ALL STORM SEWERS, SANITARY SEWER'S COMBINED SEWERS OR ANY DRAIN OR SEWER SERVICE CONNECTION SHALL BE THE SAME AS WATER MAIN SEPARATION DESCRIBED IN (A) ABOVE.

2) WATER PIPE DESCRIBED IN (A) ABOVE SHALL BE USED FOR SEWER SERVICE LINES WHEN MINIMUM HORIZONTAL AND VERTICAL SEPARATION CANNOT BE MAINTAINED.

- C) SPECIAL CONDITIONS ALTERNATE SOLUTIONS SHALL BE PRESENTED TO THE AGENCY WHEN EXTREME TOPOGRAPHICAL, GEOLOGICAL OR EXISTING STRUCTURAL CONDITIONS MAKE STRICT COMPLIANCE WITH (A) AND (B) ABOVE TECHNICALLY AND ECONOMICALLY IMPRACTICAL ALTERNATE SOLUTIONS WILL BE APPROVED PROVIDED WATERTICHT CONSTRUCTION STRUCTURALLY EQUIVALENT TO APPROVED WATERMAIN MATERIAL IS PROPOSED.
- D) WATERMAINS SHALL BE SEPARATED FROM SEPTIC TANKS, DISPOSAL FIELDS AND SEEPAGE BEDS BY A MINIMUM OF 25 FEET.
- E) WATERMAINS AND WATER SERVICE LINES SHALL BE PROTECTED AGAINST ENTRANCE OF HYDROCARBONS THROUGH DIFFUSION THROUGH ANY MATERIAL USED IN CONSTRUCTION OF THE LINE.

"STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION AN ILLINOIS", LATEST EDITION: WHENEVER THE CONTRACTOR'S OPERATIONS ENCOUNTER WATER LINE AND/OR FORCE MAIN INSTALLATION, RELOCATION OR ADJUSTMENTS; OR, SERVICE CONNECTIONS, HIS WORK, IN ADDITION TO ALL OTHER REQUIREMENTS, SHALL ALSO BE GOVERNED BY THE APPLICABLE PORTIONS OF THE ABOVE SPECIFICATIONS.

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ALL WATER MAIN PIPE SHALL BE DUCTILE IRON, CLASS 56, CONFORMING TO THE REQUIREMENTS OF DIVISION IV, SECTION 40-2.02 OF THE "STANDARD SPECIFICATIONS", CENTRIFUGAL CAST WITH STANDARD THICKNESS CEMENT MORTAR LINING AND SEAL COATING (AWWA STD. C-104). PIPE SHALL HAVE AN EXTERIOR BITUMINOUS SEAL COAT MEETING THE REQUIREMENTS OF AWWA STANDARD C-104, MECHANICAL JOINTS WILL COMPLY WITH THE PROVISIONS OF DIVISION IV, SECTION 41-2.05B OF THE "STANDARD SPECIFICATIONS FOR

ALL FORCE MAIN PIPE SHALL BE DUCTILE IRON, CLASS 56, CONFORMING TO THE REQUIREMENTS OF DIVISION III, SECTION 30-3.01E OF THE "STANDARD SPECIFICATIONS", CENTRIFUGAL CAST WITH STANDARD THICKNESS CEMENT MORTAR LINING AND SEAL COATING (AWWA STD. C-104). PIPE SHALL HAVE AN EXTERIOR BITUMINOUS SEAL COAT MEETING THE REQUIREMENTS OF AWWA STANDARD C-104, MECHANICAL JOINTS WILL COMPLY WITH THE PROVISIONS OF DIVISION III, SECTION 30-3-03 OF THE "STANDARD SPECIFICATIONS FOR WSMCI".

FITTINGS FOR DUCTILE IRON WATER MAIN AND FORCE MAIN SHALL BE DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF AWWA STANDARD C-110, HAVE MECHANICAL RESTRAINED JOINTS CONFORMING TO AWWA STANDARD C-111, AND BE BITUMINOUS COATED AND CEMENT LINED IN ACCORDANCE WITH AWWA STANDARD C-104, PROVIDE AND INSTALL TYPE 304 STAINLESS STEEL TEE BOLTS, NUTS AND WASHERS ON ALL FITTINGS. THE THREADS OF ALL STAINLESS STEEL FASTENERS SHALL BE COATED WITH MARINE GRADE ANTI-SEIZE/LUBRICATING COMPOUND, EITHER SHOP APPLIED OR FIELD APPLIED.

TO INSURE ELECTRIC CONDUCTIVITY, BRASS WEDGES SHALL BE ISNTALLED PER SECTION 41-2.05C OF THE "STANDARD SPECIFICATIONS

IN ADDITION TO THE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR WSMCI" FLANGED WATER AND FORCE MAIN PIPE FOR THE BRIDGE CROSSING SHALL MEET THE REQUIREMENTS OF THE AWWA STANDARD C-115 AND SHALL BE RATED FOR 250 PSI WORKING PRESSURE. BOLTS AND GASKETS FOR FLANGED PIPE SHALL MEET THE DEGLIFICATION OF THE SHALL MEET THE REQUIREMENTS OF AWWA STANDARD C-110.

EXPANSION JOINT FOR BRIDGE CROSSING SHALL BE ROCKWELL MODEL 611, OR OPPROVED EQUAL, WITH SINGLE END FLANGED JOINT COMPATIBLE WITH THE DUCTILE IRON WATER PIPE. EXPANSION JOINT TO BE PROVIDED WITH SLIP PIPE; BUT, WITHOUT LIMIT RODS. EXPANSION JOINT TO BE INSTALLED IN COMPLIANCE WITH MANUFACTURER'S INSTRUCTION. INSULATION TO BE PLACED TO COVER THE EXPANSION JOINT, BUT TO ALLOW THE SLIP PIPE TO MOVE FREF! X.

INSULATION FOR THE FLANGED DUCTILE IRON WATER AND FORCE MAIN SHALL BE 3 INCH THICK POLYURETHANE FOAM INSULATION WITH A K FACTOR 0.13 DENSITY OF 3 POUNDS PER CUBIC FOOT MINIMUM CLOSED CELL CONTENT 90 - 95% IN CONFORMANCE WITH MIL-1-24172 COMPLETELY FILLING THE ANNULAR SPACE BETWEEN THE PIPE AND THE JACKETING. INSULATION SHALL BE FOAMED IN PLACE BY THE PREINSULATED PIPE COMPANY, SPRAY TYPE FOAM WILL NOT BE PERMITTED. THE INSULATED CLASS 56 WATER MAIN SHALL BE SUSPENDED USING PIPE HANGERS AS DETAILED ON THE PLANS.

THE OUTER JACKET SHALL BE ALUMINUM SPIRAL SEM WITH IMPACT AND CHEMICAL RESISTANCE EQUIVALENT TO H-14 TEMPER T-3003 IN ACCORDANCE WITH ASTM B313 SPECIFICATIONS. JACKET THICKNESS SHALL BE 18 GAGE. NO FRP OR PLASTIC OUTER JACKETS WILL BE CONSIDERED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND PRESSURE TESTING OF THE DUCTILE IRON, FLANGED JOINT, INSULATED WATER AND FORCE MAIN BETWEEN AND INCLUDING THE PROPOSED VALVES AND VAULTS, CATCH BASINS OR MANHOLES AT EACH END OF THE BRIDGE AS SHOWN ON THE PLANS.

PUSH-ON, RESTRAINED JOINT PIPE SHALL MEET THE REQUIREMENTS OF AWWA STANDARD C-151. THE JOINT SHALL COMPLY WITH ALL THE PUSH-ON JOINT REQUIREMENTS OF AWWA STANDARD C-111.

MECHANICAL JOINTS SHALL BE OF STANDARD MANUFACTURE WITH RUBBER GASKET. SERRATED BRASS CONDUCTIVITY WEDGES WILL BE REQUIRED AT EACH JOINT. NO BACKFILLING WILL BE PERMITTED UNTIL JOINT INSTALLATION HAS BEEN APPROVED BY THE CITY.

PRIOR TO CONSTRUCTION CONTRACTOR SHALL PROVIDE ENGINEER WITH SHOP DRAWINGS OF HEAT TRACING SYSTEM FOR APPROVAL.

DESCRIPTION: THIS WORK INCLUDES THE FABRICATION, AND INSTALLATION OF HANGERS TO SUPPORT THE PROPOSED WATER AND FORCE MAINS UNDER THE EXISTING STRUCTURE. THIS WORK SHALL BE PERFORMED AS SPECIFIED HEREIN AND AS DETAILED ON THE PLANS.

CONSTRUCTION REQUIREMENTS: ALL PLATE MATERIAL FOR THE HANGER ASSEMBLIES SHALL MEET THE REQUIREMENTS OF ASTM A36, ALL THREADED RODS AND BOLTS FOR THE HANGERS SHALL MEET THE REQUIREMENTS OF ASTM A325. EXPANSION ANCHORS SHALL HAVE A MINIMUM ULTIMATE PULLOUT AND SHEAR CAPACITY OF 3500 POUNDS. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

TESTING AND INSPECTING FOR THE SANITARY FORCEMAIN

A. HYDROSTATIC TEST:

1. WHERE ANY SECTION OF THE FORCE MAIN IS PROVIDED WITH CONCRETE THRUST BLOCKING, DO NOT MAKE HYDROSTATIC TESTS UNTIL AT LEAST 5 DAYS AFTER INSTALLATION OF THE CONCRETE THRUST BLOCKING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

2. DEVISE A METHOD FOR DISPOSAL OF WASTE WATER FROM HYDROSTATIC TESTS AS APPROVED IN ADVANCE BY THE ENGINEER.



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DATE

DESIGNED - PK REVISED REVISED CHECKED - RTM REVISED - 3/25/2011 REVISED

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION N.T.S.

DRAINAGE AND UTILITIES GENERAL NOTES AND DETAILS 361