

WHEREVER A SEWER CROSSES ABOVE A WATER MAIN, THE WATER MAIN SHALL BE PROTECTED BY MEANS OF ONE OF THE FOLLOWING METHODS:

(A) CONSTRUCT THE SEWER OF PRESSURE PIPE MEETING WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET EACH SIDE OF (MEASURED PERPENDICULAR TO) THE WATER MAIN.

(B) INSTALL EITHER THE SEWER OR WATER MAIN WITHIN A WATER-TIGHT STEEL CASING PIPE FOR A DISTANCE OF 10 FEET EACH SIDE OF THE CROSSING (MEASURED PERPENDICULAR TO THE LINE NOT PROVIDED WITH THE CASING). SEAL BOTH ENDS OF THE CASING. THE METHOD TO BE USED AT EACH SPECIFIC LOCATION SHALL BE AS INDICATED ON THE PLANS. IN THE EVENT THAT A CLEARANCE PROBLEM IS NOT DISCOVERED UNTIL AFTER CONSTRUCTION IS UNDERWAY, THE ENGINEER SHALL DETERMINE WHICH METHOD TO USE.

CONSTRUCTION METHODS AND DETAILS (REGARDING VERTICAL SEPARATION, MATERIALS AND STRUCTURAL SUPPORT) AT SEWER-WATERMAIN CROSSINGS SHALL BE IN CONFORMANCE TO STANDARD DRAWINGS #19 THROUGH #23 OF THE STANDARD SPECIFICATIONS.

5. WHERE SO INDICATED ON THE PLANS, SEWER AND WATER MAINS UNDER AND ACROSS EXISTING ROADWAYS AND RAILROADS SHALL BE INSTALLED INSIDE A STEEL PIPE CASING WHICH SHALL BE AUGERED AND JACKED IN PLACE.

(A) JACKING AND RECEIVING PITS SHALL BE LOCATED SO AS TO AVOID CONFLICTS WITH EXISTING UTILITIES AND PIPELINES WITHIN THE ROAD RIGHT-OF-WAY AND ADJACENT EASEMENTS. THE LOCATION AND DEPTH OF THE CASING PIPE SHALL BE ADJUSTED IF NECESSARY AFTER EXISTING CONDITIONS HAVE BEEN DETERMINED BY FIELD INVESTIGATION.

(B) CASING PIPE SHALL BE INSTALLED USING EQUIPMENT THAT ENCASES THE HOLE AS THE EARTH IS REMOVED. BORING WITHOUT THE CONCURRENT INSTALLATION OF A CASING PIPE WILL NOT BE PERMITTED. ALL JOINTS IN CASING PIPE SHALL BE CONTINUOUSLY WELDED. CASING PIPE SHALL EXTEND THE ENTIRE LENGTH INDICATED ON THE PLANS AND BE INSTALLED IN A MANNER THAT WILL NOT DISRUPT TRAFFIC NOR DAMAGE ROADWAY GRADE AND SURFACE. THE INTRODUCTION OF WATER AS AN EXCAVATOR IS PROHIBITED.

(C) CASING PIPE SHALL BE WELDED STEEL PIPE SECTIONS (NEW MATERIAL) WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI. MINIMUM WALL THICKNESS SHALL BE .375".

(D) BOTH INSIDE AND OUTSIDE SURFACES OF CASING PIPE SHALL BE THOROUGHLY COATED WITH AN APPROVED RUST RESISTANT PAINT.

(E) ENDS OF CASING PIPE SHALL BE SECURELY SEALED WITH CEMENT GROUT.

6. GRANULAR BACKFILL IN CONFORMANCE TO SECTION 20-2.21C OF THE "STANDARD SPECIFICATIONS" SHALL BE USED TO BACKFILL ALL TRENCHES UNDER ALL EXISTING AND PROPOSED VEHICLE PAVEMENTS AND SIDEWALKS; ALL TRENCHES WHOSE EDGE IS CLOSER THAN 2 FEET FROM THE EDGE OF AN EXISTING OR PROPOSED VEHICLE PAVEMENT OR SIDEWALK AND WHERE SPECIFICALLY INDICATED ON THE PLANS.

SAID GRANULAR BACKFILL PLACED IN TRENCHES LOCATED UNDER EXISTING AND PROPOSED PAVEMENTS SHALL BE

MECHANICALLY COMPACTED IN CONFORMANCE TO SECTION 20-2.21B (CASE IV) OF THE STANDARD SPECIFICATIONS (12" MAXIMUM LIFT THICKNESS, COMPACTED TO NOT LESS THAN 80% OPTIMUM, MODIFIED PROCTOR). GRANULAR BACKFILL PLACED IN TRENCHES LOCATED ADJACENT TO PAVEMENTS SHALL BE JETTED AND WATERSOAKED EXCEPT WHERE MECHANICAL COMPACTION IS INDICATED ON THE PLANS.

7. WHEN INDICATED ON THE PLANS OR SPECIFIED BY THE ENGINEER, CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED TO BACKFILL TRENCHES OR EXCAVATIONS. CLSM SHALL CONSIST OF A MIXTURE OF PORTLAND CEMENT, FLY ASH, FINE AGGREGATE AND WATER PROPORTIONED TO PROVIDE A BACKFILL MATERIAL THAT IS SELF-COMPACTING AND CAPABLE OF BEING EXCAVATED WITH HAND TOOLS, IF NECESSARY, AT A LATER DATE. MATERIAL, PROPORTIONING, PLACEMENT AND OTHER REQUIREMENTS SHALL BE AS SPECIFIED IN IDOT INTERIM SPECIAL PROVISION 88-49.

8. ALL SANITARY SEWER, STORM SEWER AND WATER MAIN STRUCTURE CASTINGS SHALL BE ADJUSTED TO MEET FINAL "AS-BUILT" GRADES. SUCH ADJUSTMENTS SHALL BE MADE BY THE SEWER AND WATER MAIN CONTRACTOR AND SHALL BE INCIDENTAL TO THE COST OF SEWER AND WATER MAIN CONSTRUCTION.

9. ALL EXISTING PAVEMENTS REMOVED FOR EXCAVATION PURPOSES OR DAMAGED BY CONSTRUCTION OPERATIONS SHALL BE REMOVED AND REPLACED IN CONFORMANCE TO THE MATERIAL AND CONSTRUCTION REQUIREMENTS OF SECTION 619 OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", LATEST EDITION.

10. ALL OFF-SITE GRASS OR LANDSCAPED AREAS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL CONDITIONS. GRASS AREAS SHALL BE HYDROSEEDDED OR SODDED AS INDICATED ON THE PLANS.

11. SEWER AND WATER MAIN STRUCTURES, VALVE BOXES AND THE END LOCATION OF SEWER STUBS AND BUILDING SERVICES SHALL BE MARKED WITH A 4" x 4" x 8' WOOD POST. THREE FEET OF THE POST SHALL STAND ABOVE GROUND. THE TOP SIX INCHES OF THE POST SHALL BE PAINTED TO IDENTIFY THE TYPE OF UTILITY (SANITARY-ORANGE, STORM-YELLOW, WATER-BLUE). THE COST OF PROVIDING AND INSTALLING THESE MARKERS SHALL BE CONSIDERED AN INCIDENTAL EXPENSES AND NO ADDITIONAL PAYMENT WILL BE MADE.

12. THE CONTRACT SHALL BE RESPONSIBLE FOR CONTACTING ALL AGENCIES, UTILITY COMPANIES AND PIPELINE COMPANIES KNOWN OR SUSPECTED TO HAVE BURIED CABLE, DUCT, PIPES, ETC., WHICH MAY CONFLICT WITH THE INSTALLATION OF THE PROPOSED SEWERS, CULVERTS, AND WATER MAINS TO DETERMINE THE LOCATION AND DEPTH OF THESE FACILITIES. IF NECESSARY, THE LOCATION AND DEPTH OF THE PROPOSED IMPROVEMENTS SHALL BE ADJUSTED BY THE ENGINEER AFTER THE EXISTING CONDITIONS HAVE BEEN DETERMINED BY FIELD INVESTIGATIONS.

13. THE SEWER AND WATER MAIN CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL SURPLUS EXCAVATED MATERIAL FROM THE CONSTRUCTION SITE. THE COST OF REMOVAL AND DISPOSAL OF SURPLUS MATERIAL SHALL BE INCLUDED IN THE VARIOUS UNIT PRICES FOR SEWER AND WATER MAIN CONSTRUCTION AND NO ADDITIONAL PAYMENT WILL BE ALLOWED THEREFOR.

14. THE SEWER AND WATER MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING AND MAINTAINING SEDIMENT BARRIERS AROUND DRAINAGE INLET STRUCTURES AS

NECESSARY TO PREVENT THE ENTRY OF SOIL SEDIMENT INTO THE STORM SEWER SYSTEM. PAYMENT FOR INLET SEDIMENT BARRIERS SHALL BE AT THE CONTRACT UNIT PRICE PER DRAINAGE STRUCTURE. SAID UNIT PRICE SHALL BE FULL COMPENSATION FOR INSTALLING THE BARRIERS AND MAINTAINING, REPLACING AND REMOVING THEM, AS NECESSARY, DURING THE PERIOD OF SITE CONSTRUCTION AND UNTIL SUCH TIME THAT SOIL EROSION CONDITIONS NO LONGER EXIST.

## B. STORM SEWER AND CULVERT CONSTRUCTION

1. STORM SEWERS AND CULVERTS SHALL BE CONSTRUCTED OF ONE OR MORE OF THE FOLLOWING MATERIALS AND SHALL MEET THE SPECIFICATIONS NOTED. THE TYPE OF PIPE TO BE USED SHALL BE AS INDICATED ON THE PLANS.

(A) REINFORCED CONCRETE PIPE (ASTM-C76) & REINFORCED CONCRETE ELLIPTICAL PIPE (ASTM C507). CLASSES OF PIPE SHALL CONFORM TO THOSE SHOWN IN IDOT STANDARD SPECIFICATIONS ARTICLE 511-TABLE AND FOR RESPECTIVE DIAMETERS AND EQUIVALENT ROUND SIZES OF PIPE AND FILL HEIGHTS OVER THE TOP OF THE PIPE.

PIPE JOINTS SHALL BE OF MASTIC MATERIAL EXCEPT WHERE THE FOLLOWING JOINT TYPES ARE INDICATED ON THE PLANS. CIRCULAR PIPE -- RUBBER GASKET (ASTM-C443) NON-CIRCULAR PIPE -- EXTERNAL SEALING BANDS (ASTM-C877).

(B) PVC RIBBED GRAVITY SEWER PIPE (ASTM-F794, SERIES 46) WITH MATCHING CONNECTION FITTINGS PROVIDED BY THE PIPE MANUFACTURER.

(C) PVC GRAVITY SEWER PIPE (4"-5" ASTM-D3034, SDR35). (18"-27" ASTM-F679, T-1) WITH RUBBER GASKET JOINTS (ASTM-D3212 & F477).

(D) PVC PRESSURE PIPE (ASTM-D2241, DR26) WITH PUSH-ON RUBBER GASKET JOINT (ASTM-D3139 & F477).

(E) CORRUGATED POLYETHYLENE PIPE AND TUBING (ASTM-F403 & F667) WITH MATCHING CONNECTION FITTINGS PROVIDED BY THE PIPE MANUFACTURER.

2. ALL CONNECTIONS OF SEWER PIPES OF DISSIMILAR MATERIALS SHALL BE MADE WITH ADAPTER COUPLINGS SPECIFICALLY DESIGNED FOR THE MATERIALS BEING CONNECTED OR WITH AN APPROVED NEOPRENE COUPLING SEALED WITH STAINLESS STEEL BANDS.

3. STORM MANHOLES, CATCH BASINS AND INLETS SHALL BE OF PRECAST CONCRETE UNIT CONSTRUCTION (ASTM-C478) WITH MASTIC JOINTS. ONLY CONCRETE ADJUSTMENT RINGS SHALL BE USED WHERE ADJUSTMENT IS NECESSARY. JOINTS BETWEEN CONCRETE SECTIONS, ADJUSTMENT RINGS AND CASTING SHALL BE SEALED WITH MASTIC MATERIAL. DETAILS AND DIMENSIONS SHALL BE AS INDICATED IN THE STANDARD DETAIL DRAWINGS INCLUDED IN THE PROJECT PLANS.

4. THE TYPE OF CASTING TO BE PROVIDED ON EACH STORM STRUCTURE SHALL BE AS INDICATED ON THE SCHEDULE INCLUDED ON THE DETAIL DRAWINGS.

5. PRECAST CONCRETE FLARED END SECTIONS (INCLUDING END BLOCKS) PER IDOT STANDARD 2263 SHALL BE PROVIDED WHERE INDICATED ON THE PLANS.

6. THE FOLLOWING TYPES OF PAVEMENT SURFACE DRAINS SHALL BE PROVIDED WHERE INDICATED ON THE PLANS. THE INSTALLATION

OF THESE FACILITIES SHALL BE IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS AND WITH APPROVED SHOP DRAWINGS:

(A) SLOTTED DRAIN - CORRUGATED STEEL PIPE WITH CONTINUOUS 1-3/4" WIDE SURFACE GRATE (SLOTTED DRAIN - CONTECH, INC.).

(B) TRENCH DRAIN - PRECAST POLYMER CONCRETE CHANNEL DRAIN WITH CONTINUOUS 5" WIDE CAST IRON GRATE (POLYCAST PRESLOPE DRAIN SYSTEM - LONE STAR POLYMER CONCRETE CO.).

7. SWALE AND DETENTION BASIN UNDERDRAIN SEWER PIPES SHALL BE PERFORATED PIPE (3/16" HOLES OR 1/8" SLOTS WITH A MINIMUM OF 16 OPENINGS PER LINEAL FOOT OF PIPE) OF ONE OF THE FOLLOWING MATERIALS:

(A) CORRUGATED POLYETHYLENE TUBING AND FITTINGS (ASTM-F405 & F667).

(B) PVC GRAVITY SEWER PIPE (ASTM-D3034, SDR 35).

8. STONE RIPRAP EROSION PROTECTION SHALL BE PROVIDED WHERE SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE DETAILS. STONE RIPRAP SHALL MEET THE REQUIREMENTS OF THE IDOT STANDARD SPECIFICATIONS SECTION 705.

9. CAST-IN-PLACE CONCRETE CULVERT HEADWALLS SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS. THIS WORK SHALL BE DONE IN CONFORMANCE TO SECTION 503 OF THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. PAYMENT FOR SUCH HEADWALLS SHALL BE AT THE CONTRACT UNIT PRICE PER STRUCTURE.

## SOIL EROSION, SEDIMENTATION CONTROL AND RESTORATION

1. MEASURES TAKEN TO CONTROL EROSION AND SEDIMENTATION DUE TO SITE DEVELOPMENT ACTIVITIES SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THE PRINCIPLES AND PRACTICES DISCUSSED IN THE MANUAL "PROCEDURES AND STANDARDS FOR URBAN SOIL EROSION AND SEDIMENTATION CONTROL IN ILLINOIS", PREPARED BY THE ASSOCIATION OF ILLINOIS SOIL AND WATER CONSERVATION DISTRICTS.

2. CONSTRUCTION ACTIVITIES WITHIN SITE AREAS NOT INTENDED FOR IMMEDIATE OR NEAR TERM (WITHIN 6 MONTHS) DEVELOPMENT SHALL BE KEPT TO AN ABSOLUTE MINIMUM. EXISTING TREES, SHRUBS AND GROUND COVER SHALL NOT BE DISTURBED UNTIL A CONSTRUCTION PLAN AND SCHEDULE FOR THE SUBJECT AREA IS ESTABLISHED.

3. ALL EXCAVATED TOPSOIL MATERIAL, EXCEPT FOR THE AMOUNT NEEDED FOR FILL OR EMBANKMENTS OR REPLACEMENT IN LANDSCAPE AREAS, SHALL BE REMOVED FROM THE SITE UPON EXCAVATION.

4. STOCKPILES FOR TOPSOIL REPLACEMENT SHALL BE PLACED SO AS TO PREVENT SEDIMENT RUNOFF INTO WATERCOURSES OR ONTO ADJACENT ROADWAYS AND PROPERTIES. STOCKPILES SHALL BE SEEDDED WITH CEREAL RYE OR WHEAT (150

**NETTLE CREEK GOLF COURSE**  
**STOCKDALE RD. & SARATOGA RD.**  
**ERIENNA TOWNSHIP, ILLINOIS**

## GENERAL NOTES

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