

1. GENERAL CONSTRUCTION

- A. ALL WORK SHALL BE IN ACCORDANCE WITH THE VILLAGE OF GURNEE MUNICIPAL CODE.
- B. PRIOR TO WORK BEGINNING, THE CONTRACTOR SHALL NOTIFY THE VILLAGE OF GURNEE ENGINEERING DIVISION 48 HOURS IN ADVANCE.
- C. THE CONTRACTOR SHALL AT ALL TIMES KEEP PUBLIC WAYS OPEN AND CLEAN OF DIRT AND DEBRIS.
- D. THE DEVELOPER IS RESPONSIBLE FOR FURNISHING ALL STAKING AND LAYOUT OF THE GRADING, UNDERGROUND, AND PAVING IMPROVEMENTS.
- E. ALL PAVEMENT, CURB AND GUTTER, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND OTHER FEATURES SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION.
- F. NO MORE THAN 8" OF ADJUSTING RINGS ARE PERMITTED TO BE INSTALLED ON ALL MANHOLE STRUCTURES. IF ADDITIONAL ADJUSTMENT IS REQUIRED, FULL DIAMETER BARREL SECTIONS OF THE MANHOLES MUST BE INSTALLED.
- G. PRIOR TO APPROVAL OF THE PROJECT BY THE VILLAGE OF GURNEE, AN AS-BUILT PLAN OF UNDERGROUND IMPROVEMENTS AND SURFACE FEATURES SHALL BE SUBMITTED TO THE VILLAGE OF GURNEE FOR APPROVAL. THIS PLAN SHALL BE SUBMITTED IN DIGITAL FORMAT AS WELL AS ON PAPER IN TRIPPLICATE.
- H. ALL EXCAVATION WITHIN 3' OF PAVEMENT SHALL BE BACKFILLED WITH GRANULAR MATERIAL AND COMPACTED TO PREVENT FUTURE SETTLEMENT.
- I. 4" OF TOPSOIL IS REQUIRED OVER ALL DISTURBED AREAS PRIOR TO LANDSCAPING RESTORATION.

2. PUBLIC ROADWAY CONSTRUCTION

- A. ANY OPEN CUTTING OF ROADWAY PAVEMENT SHALL BE RESTORED USING CONTROLLED LOW STRENGTH MATERIAL COMMONLY KNOWN AS FLOWABLE FILL. FLOWABLE FILL SHALL BE PLACED TO WITHIN ONE VERTICAL FOOT OF THE EXISTING PAVEMENT SECTION, TOPPED WITH GRADE 9 AGGREGATE, AND THE PAVEMENT SECTION SHALL BE RESTORED AS SHOWN ON THE PLANS.
- B. TESTING OF ROADWAY IS REQUIRED THROUGHOUT THE CONSTRUCTION PROCESS. ANY FAILURES OR PROBLEMS IDENTIFIED REQUIRE CORRECTION BY THE DEVELOPER
 - I. THE SUBGRADE SHALL BE PROOF ROLLED USING A LOADED 6 WHEEL DUMP TRUCK. ANY AREAS FOUND TO BE UNSTABLE SHALL BE CORRECTED USING A MINIMUM 1' UNDERCUT AND AGGREGATE EMBANKMENT UNDERLAIN WITH GEOTECHNICAL FABRIC..
 - II. DURING PAVING OPERATIONS, THE DEVELOPER IS REQUIRED TO HAVE A TESTING COMPANY ON SITE VERIFYING DENSITY OF THE ASPHALT MAT.
 - III. UPON COMPLETION OF PAVING, PAVEMENT CORES SHALL BE PROVIDED TO VILLAGE OF GURNEE TO VERIFY CROSS SECTION OF THE PAVEMENT.

3. SANITARY SEWER CONSTRUCTION

- A. SANITARY SEWER FACILITIES SHALL CONFORM TO THE VILLAGE OF GURNEE STANDARD DETAILS.
- B. ALL SANITARY SEWER PIPE AND FITTINGS SHALL BE SDR 26 PVC PIPE UNLESS WATER MAIN EQUIVALENT PIPE IS REQUIRED. WHEN WATER MAIN EQUIVALENT PIPE IS REQUIRED, THE SEWER PIPE MUST EITHER BE IN A WATER MAIN EQUIVALENT CASING PIPE, OR THE SEWER PIPE ITSELF SHALL BE WATER MAIN EQUIVALENT PIPE.
- C. ALL SANITARY MANHOLES ARE REQUIRED TO HAVE EXTERNAL CHIMNEY SEALS INSTALLED OVER THE FRAME AND AROUND THE MANHOLE TO PREVENT INFILTRATION. WHEN SANITARY FRAMES ARE INSTALLED DIRECTLY ON TOP OF FLAT TOP MANHOLE STRUCTURES, IT IS PERMISSIBLE TO INSTALL AN INTERNAL CHIMNEY SEAL PER THE MANUFACTURER'S INSTRUCTIONS.
- D. "BAND SEAL" JOINTS WITH STAINLESS STEEL STRAPS AND BOLTS SHALL BE USED AT ALL CHANGES IN SEWER PIPE MATERIAL.
- E. ALL SANITARY SEWER SERVICES INSTALLED ON A NEW MAIN SHALL BE MADE USING A WYE CONNECTION AT THE MAIN.
- F. ALL SANITARY SEWER SERVICES SHALL BE INSTALLED AT A MINIMUM 1% PITCH.
- G. ENDS OF SANITARY STUBS SHALL BE MARKED WITH A 4"x4"x10" BOARD PAINTED RED.
- H. THE UNDERGROUND CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING THE LOCATION OF EACH SERVICE. A FINAL COMPILATION OF SERVICE LOCATIONS SHALL BE PROVIDED TO THE VILLAGE OF GURNEE UPON COMPLETION OF THE INSTALLATION.
- I. TESTING OF SANITARY SEWER PIPE PER THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS IS REQUIRED AFTER INSTALLATION. ANY FAILURES OR PROBLEMS IDENTIFIED REQUIRE CORRECTION BY THE DEVELOPER
 - I. THE VILLAGE OF GURNEE REQUIRES AIR PRESSURE INFILTRATION TESTING OF ALL SANITARY SEWER PIPE AFTER INSTALLATION.
 - II. THE VILLAGE OF GURNEE REQUIRES DEFLECTION TESTING OF ALL SANITARY SEWER PIPE AFTER INSTALLATION USING A RIGID MANDREL OR BALL WITH A DIAMETER OF 95% OF THE INSIDE PIPE DIAMETER.
 - III. SANITARY SEWER PIPE SHALL BE TELEVISED USING A CLOSED CIRCUIT CAMERA AND RECORDING DEVICE. A COPY OF A VHS OR DVD VIDEO OF THE TELEVISED LINE SHALL BE SUBMITTED TO THE

- VILLAGE OF GURNEE FOR APPROVAL. AN ADDITIONAL COPY OF THE VIDEO IS REQUIRED FOR THE NORTH SHORE SANITARY DISTRICT IF APPLICABLE.
- J. #12 SOLID STRAND INSULATED TRACER WIRE SHALL BE INSTALLED WITH THE SEWER MAIN AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- K. FORCEMAIN SEWER PIPE SHALL BE DUCTILE IRON PIPE SPECIFICALLY DESIGNED FOR SANITARY FORCEMAIN APPLICATIONS.

MATERIAL STANDARDS

PUBLIC MANHOLE LIDS

- EJIW #00102441 (VILLAGE OF GURNEE LOGO)
- NEENAH #10155581 (VILLAGE OF GURNEE LOGO)

PRIVATE MANHOLE LIDS

- HEAVY DUTY SELF SEALING LID WITH UTILITY TYPE

4. WATER MAIN CONSTRUCTION

- A. ALL WATER MAIN MATERIAL SHALL BE INSPECTED PRIOR TO INSTALLATION BY THE VILLAGE OF GURNEE PUBLIC WORKS DEPARTMENT.
- B. ALL WATER MAIN FIXTURES SHALL BE THE CURRENT MODEL YEAR.
- C. ALL WATER MAIN PIPE SHALL CONFORM TO AWWA C900-07 WITH AWWA F477 GASKETS.
- D. WATER MAIN COVER SHALL BE 5.5' FROM GRADE TO TOP OF PIPE. IN NO CASE SHALL COVER EXCEED 8'.
- E. ALL FITTINGS SHALL BE RESTRAINED USING "MEG-A-LUG" OR EQUIVALENT RESTRAINTS.
- F. ALL FITTING BOLTS SHALL HAVE SACRIFICIAL ZINC ANODE NUTS.
- G. THRUST BLOCKING IS REQUIRED AT ALL BENDS, TEES, CAPS, VALVES, AND HYDRANTS.
- H. MAIN CONNECTIONS TO EXISTING WATER MAINS SHALL BE DRY CONNECTIONS, NOT UNDER PRESSURE, UNLESS OTHERWISE APPROVED IN WRITING BY THE VILLAGE OF GURNEE.
- I. COPPER SERVICE TAPS SHALL BE MADE USING PRESSURE TAPPING METHODS WITH SADDLES.
- J. ALL VALVES SHALL BE INSTALLED IN VALVE VAULTS. UNLESS OTHERWISE APPROVED IN WRITING BY THE VILLAGE OF GURNEE, VALVE BOXES ARE ONLY PERMITTED FOR FIRE HYDRANT AUXILIARY VALVES.
- K. DETECTABLE TAPE SHALL BE INSTALLED ON ALL WATER MAIN PIPE AND SHALL BE BLUE IN COLOR AND PLACED 1' ABOVE THE TOP OF PIPE.
- L. #12 SOLID STRAND INSULATED TRACER WIRE SHALL BE INSTALLED WITH THE WATER MAIN AS SHOWN ON THE PLANS.
- M. VALVE VAULT FRAMES SHALL BE SET TO FINAL GRADE AND FASTENED TO THE VAULT WITH "KENT-SEAL" OR APPROVED EQUAL TO CREATE A WATER TIGHT SEAL.
- N. VALVE VAULT JOINTS SHALL HAVE "O" RING GASKETS OR SHALL BE BITUMINOUS GASKET PREFORMED INTO RINGS FOR EASE OF INSTALLATION.
- O. HYDRANTS SHALL BE INSTALLED PLUMB WITH NOZZLE POINTED TOWARD THE ROADWAY MAINTAINING 24" CLEARANCE BETWEEN THE FINISHED GRADE AND NOZZLE.
- P. 1.25 CUBIC YARDS OF 1" CLEAN WASH STONE SHALL BE PLACED AROUND HYDRANT WEEP HOLES FOR PROPER DRAINAGE.
- Q. REPAIR SLEEVES SHALL NOT BE PERMITTED DURING NEW CONSTRUCTION.
- R. ALL DEAD END WATER MAIN SHALL BE PROVIDED WITH A MEANS TO FLUSH PIPE BEFORE CHLORINATION WITH A 2" COPPER WHIP OR A TEMPORARY HYDRANT.
- S. TESTING OF WATER MAIN PIPE IS REQUIRED AFTER INSTALLATION. ANY FAILURES OR PROBLEMS IDENTIFIED REQUIRE CORRECTION BY THE DEVELOPER.
 - I. WATER MAIN SHALL BE PRESSURE TESTED TO 150 PSI FOR (1) ONE HOUR. SHOULD THE TEST PRESSURE DROP BELOW 140 PSI THE LINE SHALL BE PUMPED BACK UP TO 150 PSI AND THE AMOUNT OF WATER USED RECORDED. THIS PROCESS SHALL CONTINUE UNTIL THE TEST PERIOD ENDS. ALLOWABLE LEAKAGE SHALL BE PER THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS.
 - II. WATER MAIN SHALL BE FLUSHED OF ALL DEBRIS AND SUBSEQUENTLY CHLORINATED PER THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS AFTER 24 HOURS, THE MAIN SHALL BE FLUSHED AND WATER SAMPLES SHALL BE TAKEN BY THE VILLAGE OF GURNEE PUBLIC WORKS DEPARTMENT. WATER SAMPLES CAN ONLY BE TAKEN BETWEEN MONDAY AND THURSDAY, THEREFORE, CHLORINATING MAY ONLY OCCUR SUNDAY THROUGH WEDNESDAY.

MATERIAL STANDARDS

- FIRE HYDRANTS (AUX. VALES SHOULD BE SAME MANUFACTURER)**
- MUELLER CENTURION, A-423-250

GATE VALVES UP TO 12"

- EJIW, FLOWMASTER
- MUELLER, A-2360, NON-RISING STEM, 2"NUT, M.J., OPEN LEFT

- VALVES OVER 12" MUST BE BUTTERFLY TYPE APPROVED BY THE VILLAGE ENGINEER**

VALVE BOXES

- EJIW 8550
- TYLER 6850-664S

CURB STOP

- MUELLER, H-15154
- MUELLER B-25154
- FORD, B22-XXX-M WHERE XXX (INLET, BODY, OUTLET)(333 IS 3/4X3/4) (444 IS 1"X 1')

CORPORATION COCKS

- MUELLER H15000
- FORD F-600 (3/4" AND 1")
- FORD FB-600 (3/4" - 2")

WATER SERVICE SADDLES

- SERVICE SADDLES SHALL BE DOUBLE STRAP, BRONZE, NYLON COATED, OR STAINLESS STEEL

BUFFALO BOX WITH 1.5" TOP SECTION

- FORD EM2-60-67
- MUELLER, H-10302
- MUELLER H-10304, 2" UPPER SECTION FOR 1.5"-2" H SERIES VALVE

PUBLIC MANHOLE LIDS

- EJIW #00102443 (VILLAGE OF GURNEE LOGO)
- NEENAH #10155582 (VILLAGE OF GURNEE LOGO)

PRIVATE MANHOLE LIDS

- HEAVY DUTY SELF SEALING LID WITH UTILITY TYPE

5. STORM SEWER CONSTRUCTION

- A. ALL PUBLIC STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE WITH O-RING GASKET JOINTS CONFORMING TO ASTM C443 AND ASTM C361. 12" PIPE SHALL BE CLASS IV, 15'-21" PIPE SHALL BE CLASS III, AND PIPE OVER 21" DIAMETER SHALL BE CLASS II.
- B. ALL CHANGES IN DIRECTION OR INTERSECTION OF STORM SEWER PIPE SHALL OCCUR IN A MANHOLE.
- C. STORM SEWER SUMP PUMP SERVICE LINES 6" AND SMALLER IN DIAMETER MAY BE CONNECTED DIRECTLY TO STORM SEWER PIPE USING A "KOR N TEE" OR APPROVED EQUIVALENT TAPPING METHOD.
- D. STORM SEWER SUMP PUMP SERVICE LINES 6" AND SMALLER IN DIAMETER SHALL BE SDR 26 PVC PIPE AND FITTINGS.
- E. TESTING OF PUBLIC STORM SEWER PIPE IS REQUIRED AFTER INSTALLATION. ANY FAILURES OR PROBLEMS IDENTIFIED REQUIRE CORRECTION BY THE DEVELOPER.
 - I. ALL STREET CROSSING AND 10% OF STORM SEWER PIPE SHALL BE TELEVISED USING A CLOSED CIRCUIT CAMERA AND RECORDING DEVICE. A COPY OF THE VIDEO OF THE TELEVISED LINE SHALL BE SUBMITTED TO THE VILLAGE OF GURNEE FOR APPROVAL.

MATERIAL STANDARDS

PUBLIC MANHOLE LIDS

- EJIW #00102442 (VILLAGE OF GURNEE LOGO)
- NEENAH #10155583 (VILLAGE OF GURNEE LOGO)

PRIVATE MANHOLE LIDS

- MUST STATE UTILITY TYPE OPEN LIDS MUST BE LETTERED "DUMP NO WASTE"

6. PUBLIC STREET LIGHT CONSTRUCTION

- A. STREET LIGHT SYSTEM SHALL BE DESIGNED AS 240V/480V SYSTEMS. THIS VOLTAGE REQUIRES A SPECIAL TRANSFORMER FROM COMED.
- B. A STREET LIGHT SHALL BE LOCATED AT EACH INTERSECTION, EACH CUL-DE-SAC, AND EVERY 300' ON ALTERNATING SIDES ALONG A ROADWAY.
- C. UNLESS APPROVED IN WRITING BY THE VILLAGE OF GURNEE, STREET LIGHTS SHALL BE CONTROLLED IN GROUPS USING A CENTRALIZED CONTROLLER WITH NO MORE THAN 24 LIGHTS PER CIRCUIT.
- D. MAXIMUM WIRE RUN SHALL BE 2,000 FEET WITH #6 USE WIRE.
- E. ALL CONDUCTORS SHALL BE USE RATED.
- F. ALL CONDUCTORS SHALL HAVE DIFFERENT COLOR INSULATION TO IDENTIFY THEM. COLORED TAPE IS NOT ACCEPTABLE.
- G. ALL CONDUCTORS SHALL BE INSTALLED IN POLYETHYLENE UNIT DUCT CONDUIT LISTED BY A REPUTABLE TESTING AGENCY.
- H. UNIT DUCT SHALL BE INSTALLED 18"-24" DEEP.
- I. NO CONDUCTOR SHALL BE MORE THAN 240V TO GROUND.
- J. CABLE SPLICES, JUNCTIONS, OR TAPS SHALL BE IN HAND HOLES OR JUNCTION BOXES ONLY. BURIED SPLICES ARE NOT ACCEPTABLE.
- K. A 5/8" X 10' LONG COPPER CLAD GROUND ROD IS REQUIRED AT EACH CONTROLLER AND AT EACH LIGHT POLE.
- L. STREET LIGHT CONTROLLER SHALL HAVE THE FOLLOWING FEATURES:
 - I. CONTROLLER SHALL BE LOCATED NEAR A COMED TRANSFORMER
 - II. A COMED METER SOCKET SHALL BE INSTALLED ON THE SIDE OF THE CONTROLLER. COMED WILL INSTALL A JUMPER IN THE METER SOCKET UPON INSPECTION OF THE INSTALLATION BY THE VILLAGE OF GURNEE AND COMED.
 - III. THE CONTROLLER SHALL BE CONSTRUCTED OF SHEET ALUMINUM WITH A LOCKING DOOR MOUNTED 4'-5' ABOVE GRADE.
 - IV. THE CONTROLLER SHALL BE VENTED BUT WATER WEATHER TIGHT.

- V. SERVICE CONDUCTORS TO THE CONTROLLER SHALL BE MINIMUM #6 USE.
- VI. THE CONTROLLER SHALL HAVE A MANUAL OVERRIDE FEATURE.
- VII. THE CONTROLLER SHALL HAVE A MAIN CIRCUIT BREAKER.
- VIII. THE CONTROLLER SHALL HAVE THE NEUTRAL BUS CONNECTED TO THE GROUND ROD USING #6 BARE COPPER CONDUCTOR.
- IX. THE LIGHTING CONTROLLER SHALL BE CONTROLLED WITH A PHOTOCELL MOUNTED ON THE BOTTOM OF THE CONTROLLER CABINET.
- X. THE LIGHTING CONTROLLER SHALL ALSO HAVE A TIMER INSTALLED THAT CAN OPERATE INDEPENDENT OF THE PHOTOCELL. THE TIMER SHALL BE DISENGAGED.
- XI. THE PHOTOCELL SHALL CONTROL THE CONTACTOR.
- XII. CIRCUIT BREAKERS FOR EACH LIGHTING RUN SHALL BE LOCATED AFTER THE CONTACTOR TO PROTECT THE CONTACTOR FROM SHORT CIRCUITS.
- XIII. A DUPLEX RECEPTACLE IS REQUIRED IN THE CONTROLLER CABINET. THIS CIRCUIT SHALL NOT BE CONTROLLED BY THE CONTACTOR.
- XIV. A LIGHT SHALL BE INSTALLED IN THE CONTROLLER CABINET. THE LIGHT SHALL NOT BE CONTROLLED BY THE CONTACTOR.
- M. ONE LIGHT POLE AND ONE LUMINAIRE SHALL BE PROVIDED TO THE VILLAGE OF GURNEE FOR EVERY 10 NEW LIGHTS INSTALLED.
- N. LIGHT POLE FOUNDATIONS SHALL BE HELICAL ANCHOR TYPE DESIGN FOR THE SPECIFIC POLE AND LUMINAIRE INSTALLATION.
- O. UNIT DUCT SHALL TERMINATE NOT LESS THAN 3" ABOVE THE TOP OF THE POLE MOUNTING PLATE ON THE ANCHOR.
- P. LIGHT POLES SHALL BE AS SHOWN ON THE PLANS.
- Q. LUMINAIRES SHALL BE AS SHOWN ON THE PLANS.
- R. UNDERGROUND JUNCTION BOXES SHALL BE "QUAZITE" OR APPROVED EQUIVALENT.
- S. 2' OF CONDUCTOR SLACK SHALL BE PROVIDED IN EACH POLE'S HANDHOLE.
- T. 6' OF CONDUCTOR SLACK SHALL BE PROVIDED IN EACH JUNCTION BOX.
- U. ALL WRAPPING SHALL BE SCOTCH 33 TAPE OR HEAT SHRINK TUBING.
- V. CATALOG CUTS FOR ALL STREET LIGHT COMPONENTS ARE REQUIRED TO BE SUBMITTED TO THE VILLAGE OF GURNEE FOR APPROVAL.
- W. ANTI-SEIZE COMPOUND SHALL BE APPLIED TO ALL NUTS AND BOLTS EXPOSED TO WEATHER ON STREET LIGHTS, HAND HOLES, JUNCTIONS BOXES, AND CONTROLLER BOXES.
- X. POLES SHALL BE ERECTED WITH LUMINAIRES IN PLACE.
- Y. POLES SHALL BE ADJUSTED AND MAINTAINED TO WITHIN 1 DEGREE OF VERTICAL.
- Z. THE GROUNDING LUG ON THE POLE SHALL BE IMMEDIATELY CONNECTED TO THE GROUNDING ROD WITH #8 BARE COPPER WIRE.
- AA. EACH POLE SHALL BE FUSED IN THE HANDHOLE.
- BB. TESTING OF PUBLIC STREET LIGHT SYSTEM IS REQUIRED AFTER INSTALLATION. ANY FAILURES OR PROBLEMS IDENTIFIED REQUIRE CORRECTION BY THE DEVELOPER.
 - I. PRIOR TO TESTING, AS-BUILT PLAN OF THE STREET LIGHT FACILITIES SHALL BE SUBMITTED TO THE VILLAGE OF GURNEE FOR APPROVAL. THIS PLAN SHALL SHOW THE LOCATION OF ALL CONDUITS, LIGHTS, JUNCTION BOXES, AND CONTROLLERS.
 - II. EACH POLE AND THE CONTROLLER WILL BE VISUALLY INSPECTED TO VERIFY PROPER INSTALLATION.
 - III. THE LIGHTING SYSTEM WILL BE TURNED ON AT THE CONTROLLER AND RUN CONSTANTLY FOR 5 DAYS TO TEST THE SYSTEM.
 - IV. LUMINAIRES SHALL BE INSPECTED TO VERIFY PROPER LIGHT PATTERN.

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