

EARTHWORK SPECIFICATIONS

1. SCOPE OF WORK
- 1.A. EXTENT: THE WORK REQUIRED UNDER THIS SECTION CONSISTS OF ALL EXCAVATING, FILLING, ROUGH GRADING AND RELATED ITEMS NECESSARY TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
- 1.A.1. IN GENERAL THE ITEMS OF WORK TO BE PERFORMED UNDER THIS SECTION SHALL INCLUDE CLEARING AND GRUBBING, REMOVAL OF TREES AND STUMPS (WHERE REQUIRED), PROTECTION OF TREES TO REMAIN, STRIPPING AND STORAGE OF TOPSOIL, FILL, COMPACTION AND ROUGH GRADING OF ENTIRE SITE AS INDICATED ON THE DRAWINGS.
- 1.A.2. EXCAVATED MATERIAL THAT IS SUITABLE MAY BE USED FOR FILLS. ALL UNSUITABLE MATERIALS AND ALL SURPLUS EXCAVATED MATERIAL NOT REQUIRED SHALL BE REMOVED FROM THE SITE. THE LOCATION OF DUMP AND LENGTH OF HAUL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- 1.A.3. PROVIDE AND PLACE ANY ADDITIONAL FILL MATERIAL FROM OFF THE SITE AS MAY BE NECESSARY TO PRODUCE THE GRADES REQUIRED. FILL OBTAINED FROM OFF SITE SHALL BE OF KIND AND QUALITY AS SPECIFIED TO FILLS HEREIN AND THE SOURCE APPROVED BY THE ENGINEER AND OWNER.
- 1.A.4. THE CONTRACTOR SHALL ACCEPT THE SITE AS HE FINDS IT AND SHALL REMOVE ALL TRASH, RUBBISH AND DEBRIS FROM THE SITE PRIOR TO STARTING EXCAVATION.
- 1.B. WORK INCLUDED: THE FOLLOWING ITEMS OF RELATED WORK ARE SPECIFIED AND INCLUDED IN OTHER SECTIONS OF THESE SPECIFICATIONS.
- 1.B.1. EXCAVATION, GRADING AND BACKFILLING FOR UTILITY LINES.
- 1.B.2. STORM DRAINAGE SYSTEMS.
- 1.B.3. SANITARY SEWER SYSTEMS.
- 1.B.4. WATER SUPPLY SYSTEMS.
- 1.B.5. DRIVES AND PAVING.
2. BENCHMARKS
- 2.A. MAINTAIN CAREFULLY ALL BENCHMARKS, MONUMENTS AND OTHER REFERENCE POINTS, IF DISTURBED OR DESTROYED REPLACE AS DIRECTED BY ENGINEER.
3. PROTECTION OF TREES
- 3.A. GENERAL PROTECTION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF TOPS, TRUNKS AND ROOTS OF EXISTING TREES ON THE PROJECT SITE THAT ARE TO REMAIN. EXISTING TREES SUBJECT TO CONSTRUCTION DAMAGE SHALL BE BOXED, FENCED OR OTHERWISE PROTECTED BEFORE ANY WORK IS STARTED. DO NOT STOCKPILE BRANCH SPREAD. REMOVE INTERFERING BRANCHES WITHOUT INJURY TO TRUNKS AND COVER SCARS WITH TREE PAINT.
4. REMOVAL OF TREES
- 4.A. REMOVE ALL TREES AND STUMPS FROM AREA TO BE OCCUPIED BY ROAD AND SURFACED AREAS. REMOVAL OF TREES OUTSIDE THESE AREAS SHALL ONLY BE DONE AS NOTED ON DRAWINGS OR APPROVED BY THE OWNER.
- 4.B. ALL BRUSH, STUMPS, WOOD AND OTHER REFUSE FROM THE TREES SHALL BE REMOVED FROM SITE OR BURNED WITH PROPER PERMITS (WHERE APPLICABLE).
5. STRIPPING OF TOPSOIL
- 5.A. REMOVE TOPSOIL TO A DEPTH OF 6 INCHES (OR MORE IF REQUIRED) FROM THE AREAS TO BE OCCUPIED BY ROADS, WALKS, BUILDINGS, AND PARKING AREAS. PILE AND STORE TOPSOIL AT A LOCATION WHERE IT WILL NOT INTERFERE WITH CONSTRUCTION OPERATIONS. TOPSOIL SHALL BE REASONABLY FREE FROM SUBSOIL, DEBRIS AND STONES.
6. SITE GRADING
- 6.A. GRADES: DO ALL CUTTING, FILLING, COMPACTING OF FILLS AND ROUGH GRADING REQUIRED TO BRING ENTIRE PROJECT AREA TO SUBGRADE AS SHOWN ON THE DRAWINGS. UNDERCUT OPEN AREAS 4 INCHES FOR TOPSOIL.
- 6.B. ROUGH GRADING: THE TOLERANCE FOR PAVED AREAS SHALL NOT EXCEED 0.10 FEET ABOVE ESTABLISHED SUBGRADE. ALL OTHER AREAS SHALL NOT EXCEED 0.10 FEET PLUS OR MINUS THE ESTABLISHED GRADE. PROVIDE ROUNDING AT TOP AND BOTTOM OF BANKS AND OTHER BREAKS IN GRADE. ALL OPEN AREAS SHALL BE GRADED A MINIMUM OF 0.5% AND A MAXIMUM OF 3.1 SLOPE.
- 6.C. SUBGRADE SHALL BE PROOFROLLED WITH SUITABLE EQUIPMENT AND ALL SPONGY AND OTHERWISE UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
- 6.D. SUBGRADE FOR STREETS AND PAVED AREAS SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR.
- 6.E. SEE PROJECT MANUAL AND SOILS REPORT FOR REQUIREMENTS REGARDING UNDERCUTTING AND SUBGRADE PREPARATION FOR PAVEMENT.
- 6.F. ALL FILL MATERIAL SHALL BE FORMED FROM SOIL FREE OF DELETERIOUS MATERIAL. PRIOR TO PLACEMENT OF FILL, A SAMPLE OF THE PROPOSED MATERIAL SHALL BE SUBMITTED TO THE SOILS ENGINEER FOR APPROVAL. THE FILL MATERIAL SHALL BE PLACED IN LAYERS NOT TO EXCEED 8" IN LOOSE THICKNESS AND SHALL BE SPREAD AND COMPACTED AT THE PROPER MOISTURE CONTENT.
- 6.G. ALL FILL MATERIAL IN AREAS OUTSIDE OF BUILDING AND PAVEMENT AREAS SHALL BE COMPACTED LIGHTLY WITH EACH LIFT AND PROTECTED FORM EROSION. AREAS OF BUILDING CONSTRUCTION SHALL HAVE SUITABLE FILL MATERIAL PLACED AND COMPACTED IN ACCORDANCE WITH THE SOILS ENGINEER'S REPORT (MINIMUM 95% MODIFIED PROCTOR).
7. DISPOSITION OF UTILITIES
- 7.A. RULES AND REGULATIONS GOVERNING THE RESPECTIVE UTILITIES SHALL BE OBSERVED IN EXECUTING ALL WORK UNDER THIS SECTION.
- 7.B. IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS PHASE OF THE WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNERS OR THE ENGINEERS OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMES.
- 7.C. WHERE ACTIVE UTILITIES ARE ENCOUNTERED BUT NOT SHOWN ON THE DRAWINGS, THE ENGINEER SHALL BE ADVISED BEFORE WORK IS CONTINUED.
- 7.D. INACTIVE AND ABANDONED UTILITIES ENCOUNTERED IN EXCAVATING AND GRADING OPERATIONS SHALL BE REPORTED TO THE ENGINEER. THEY SHALL BE REMOVED, PLUGGED OR CAPPED AS DIRECTED BY THE ENGINEER.
8. SEEDING PREPARATION
- 8.A. SOLVE ANY SURFACE OR SUBSURFACE DRAINAGE PROBLEMS AND CONSTRUCT PERMANENT EROSION CONTROL STRUCTURES.
- 8.B. REMOVE ALL ROCKS, ROOTS OR OTHER MATERIALS THAT MAY INTERFERE WITH SEEDED PREPARATION.
- 8.C. PERFORM THE MAJOR FILLING SHAPING AND SMOOTHING OF GULLIED OR SEVERELY ERODED AREAS.

EROSION CONTROL SPECIFICATIONS

1. THIS PLAN IS DESIGNED AS AN ATTEMPT TO PREVENT ANY AND ALL SEDIMENT FROM LEAVING THE CONSTRUCTION SITE BY WAY OF EROSION. IF EROSION OF SEDIMENT FROM THE SITE IS TAKING PLACE, THE CONTRACTOR AND/OR OWNER SHALL TAKE PREVENTATIVE ACTION IMMEDIATELY. THE ENGINEER SHALL BE CONSULTED IN THE EVENT THIS HAPPENS.
2. TEMPORARY SEEDING WILL BE APPLIED TO ANY AREAS LEFT INACTIVE FOR 15 DAYS OR MORE.
3. PERMANENT SEEDING IS TO BE APPLIED IMMEDIATELY TO AREAS THAT HAVE ACHIEVED FINAL AND FINISHED GRADE.
4. PRESERVE EXISTING VEGETATION ON THE SITE WHENEVER AND WHEREVER POSSIBLE TO PREVENT TOPSOIL EROSION.
5. ALL SEDIMENT CAPTURING MEASURES SHALL BE IMPLEMENTED PRIOR TO THE DISTURBANCE OF THE CONSTRUCTION AREA. THEY ARE INTERFERED BY THE CONSTRUCTION OF THE PROJECT.
6. ALL EROSION CONTROL MEASURES PROPOSED ARE TO BE PROPERLY MAINTAINED TO CONTINUE THEIR EFFECTIVENESS.
7. IF GRADING OCCURS DURING THE MONTHS OF DECEMBER, JANUARY OR FEBRUARY DORMANT SEEDING PROCEDURES SHALL BE USED.
8. DURING DRY WEATHER, KEEP LAWNS WATERED WITH SPRINKLERS OR OTHER APPROVED METHODS. RESEED ANY AREAS NOT GERMINATING OR DAMAGED AT INTERVALS AS MAY BE REQUIRED ACCORDING TO SEASONAL CONDITION AND/OR CONSTRUCTION ACTIVITY. WATER GRASS AND EXECUTE NECESSARY WEEDING UNTIL FULL STAND OF GRASS HAS BEEN OBTAINED.
9. THE IMPLEMENTATION AND MAINTENANCE OF THE EROSION CONTROL IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR OWNER.
10. IT SHALL BE THE CONTRACTOR'S AND/OR OWNER'S RESPONSIBILITY TO MINIMIZE SEDIMENTATION (FROM ON-SITE CONSTRUCTION ACTIVITIES) FROM BEING DEPOSITED ONTO ADJACENT PROPERTIES AND RECEIVING STREAMS/DITCHES IN STRICT COMPLIANCE WITH "RULE 9" (327 IAC 15-5, CONSTRUCTION ACTIVITY STORMWATER RUNOFF CONTROL). IT SHALL ALSO BE THE CONTRACTOR'S AND/OR OWNER'S RESPONSIBILITY TO OBTAIN ANY APPROVALS REQUIRED FROM THE LOCAL AUTHORITY AND TO SUBMIT A COMPLETE NOTICE OF INTENT LETTER TO THE OFFICE OF WATER MANAGEMENT, INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT PRIOR TO ANY CONSTRUCTION ACTIVITY.
11. FOR SEASONAL VARIATIONS - SEE SEASONAL SOIL PROTECTION CHART IN THESE PLANS.

STORM SEWER SPECIFICATIONS

1. SCOPE OF WORK
- 1.A. THE WORK UNDER THIS SECTION INCLUDES ALL STORM SEWERS, STORM WATER INLETS, AND RELATED ITEMS, INCLUDING EXCAVATING AND BACKFILLING, NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS.
2. MATERIALS
- 2.A. STORM SEWERS:
- 2.A.1. REINFORCED CONCRETE SEWER PIPE SHALL CONFORM TO ASTM C-76 CLASS 3 LATEST REVISION WITH JOINTS CONFORMING TO ASTM C-443 LATEST REVISION.
- 2.A.2. STORM SEWERS HANCO "HIQ" PIPE AND ADS OR APPROVED EQUAL, WITH THE FOLLOWING REQUIREMENTS:
- 2.A.2.a. 4 INCH THROUGH 10 INCH MEETING AASHTO M252 TYPE S, 12 INCH THROUGH 36 INCH MEETING AASHTO M294 TYPE S.
- 2.A.2.b. GASKETS MEETING ASTM D1056 GRADE 2A2.
- 2.A.2.c. FITTINGS MEETING AASHTO M252 OR AASHTO M294, MEETING ASTM D3350 CELL CLASSIFICATION 324420C; OR ASTM D3350 TYPE III, CLASS C, CATEGORY 4, GRADE P33.
- 2.B. DRAINAGE STRUCTURES:
- 2.B.1. PRECAST REINFORCED CONCRETE DRAINAGE SECTIONS AND STEPS SHALL CONFORM TO ASTM C-478 LATEST REVISION AND LATEST REVISION OF INDOT PRECAST STRUCTURE DETAILS.
- 2.B.2. CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION OR OTHER DEFECTS; THEY SHALL BE SMOOTH AND WELL CLEANED BY SHOT BLASTING OR BY SOME OTHER APPROVED METHOD. THEY SHALL BE COATED WITH ASPHALT PAINT WHICH SHALL RESULT IN A SMOOTH COATING. TOUGH AND TENACIOUS WHEN COLD, NOT TACKY OR BRITTLE. THEY SHALL BE GRAY IRON MEETING ASTM A-48 LATEST REVISION.
- 2.B.3. JOINTS - STRUCTURE SECTIONS SHALL BE JOINTED WITH RUBBER TYPE GASKETS, THE RUBBER TYPE GASKETS SHALL MEET ASTM C-443 LATEST REVISION.
- 2.C. SUBDRAINS:
- 2.C.1. PERFORATED PLASTIC PIPE SUBDRAINS SHALL CONFORM TO ASTM D3034, SDR 35, ASTM D2729, OR ASTM F405.
3. APPLICATION
- 3.A. PERMITS AND CODES: THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS AS AMENDED BY ANY WAIVERS. CONTRACTOR SHALL FURNISH ALL BONDS NECESSARY TO GET PERMITS FOR CUTS AND CONNECTIONS TO EXISTING SEWERS.
- 3.B. LOCAL STANDARDS: THE TERM "LOCAL STANDARDS" AS USED HEREIN MEANS THE STANDARDS OF DESIGN AND CONSTRUCTION OF THE RESPECTIVE MUNICIPAL DEPARTMENT AND/OR UTILITY COMPANY.
- 3.C. EXISTING IMPROVEMENTS: MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
- 3.D. WORKMANSHIP: TO CONFORM TO ALL LOCAL, STATE AND NATIONAL CODES AND TO BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION.
- 3.E. TRENCING: LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN THE LOCAL AUTHORITY GIVE WRITTEN PERMISSION FOR TUNNELING. OPEN THE TRENCH SUFFICIENTLY AHEAD OF PIPE LAYING TO REVEAL ANY OBSTRUCTIONS. THE WIDTH OF THE TRENCH SHALL BE THE INSIDE PIPE DIAMETER PLUS 24 INCHES FOR 12 INCHES ABOVE THE PIPE. SHEET AND BRACE TRENCH AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCING TO COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION IS IN PROGRESS. UNDER NO CIRCUMSTANCES LAY PIPE OR APPURTENANCES IN STANDING WATER. CONDUCT THE DISCHARGE FORM TRENCH DEWATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.
- 3.F. SPECIAL SUPPORTS: WHENEVER, IN THE OPINION OF THE ENGINEER, THE SOIL AT OR BELOW THE PIPE GRADE IS UNSUITABLE FOR SUPPORTING SEWERS AND APPURTENANCES SPECIFIED IN THIS SECTION, SUCH SPECIAL SUPPORT, IN ADDITION THOSE SHOWN OR SPECIFIED, SHALL BE PROVIDED AS THE ENGINEER MAY DIRECT, AND THE CONTRACT WILL BE ADJUSTED.
- 3.G. BACKFILLING
- 3.G.1. RCP BACKFILLING: FOR DEPTH OF AT LEAST 12 INCHES ABOVE THE TOP OF THE PIPE, BACKFILL WITH EARTH OR GRANULAR MATERIAL FREE FROM LARGE STONES, ROCK FRAGMENTS, ROOTS OR SOD. TAMP THIS BACKFILL THOROUGHLY TAKING CARE NOT TO DISTURB THE PIPE. FOR THE REMAINING TRENCH DEPTH, BACKFILL WITH EARTH OR GRANULAR MATERIAL CONTAINING STONES OR ROCKS NOT LARGER THAN 4 INCHES. BACKFILL UNDER WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE GRANULAR MATERIAL ONLY THOROUGHLY COMPACTED BY APPROVED METHODS. TRENCHES PARALLEL TO AND WITHIN 5 FEET OF PAVED ROADWAYS SHALL ALSO BE CONSTRUCTED WITH COMPACTED GRANULAR MATERIALS.
- 3.G.2. HDPE BACKFILLING: FOR DEPTH OF AT LEAST 12 INCHES ABOVE THE TOP OF THE PIPE, BACKFILL WITH GRANULAR MATERIAL. COMPACT THIS BACKFILL THOROUGHLY TAKING CARE NOT TO DISTURB THE PIPE. FOR THE REMAINING TRENCH DEPTH, BACKFILL WITH EARTH OR GRANULAR MATERIAL CONTAINING STONES OR ROCKS NOT LARGER THAN 4 INCHES. BACKFILL UNDER WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE GRANULAR MATERIAL ONLY THOROUGHLY COMPACTED BY APPROVED METHODS. TRENCHES PARALLEL TO AND WITHIN 5 FEET OF PAVED ROADWAYS SHALL ALSO BE CONSTRUCTED WITH COMPACTED GRANULAR MATERIALS.
- 3.H. SUBDRAINS: ALL SUBDRAINS ON SITE SHALL BE OF THE SIZE AS SHOWN AND SHALL BE PLACED AS SHOWN ON THE PLANS. THEY SHALL BE CONSTRUCTED TO THE GRADES AS SHOWN ON THE PLANS.
- 3.I. UTILITIES: IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS PHASE OF THE WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNERS OR THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.

PAVING SPECIFICATIONS

1. SCOPE OF WORK
- 1.A. THE WORK REQUIRED UNDER THIS SECTION INCLUDES ALL EXTERIOR CONCRETE AND BITUMINOUS PAVING AND RELATED ITEMS NECESSARY TO COMPLETE THE WORK INDICATED ON DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO: ALL DRIVES, PARKING AREAS IN CONTRACT LIMITS CURBS AND GUTTERS SIDEWALKS AND CONCRETE SLABS, EXTERIOR STEPS
2. MATERIALS
- 2.A. CONCRETE: CONCRETE SHALL BE READY-MADE AND SHALL BE A MIX OF PROPORTIONED FINE AND COARSE AGGREGATES WITH PORTLAND CEMENT AND WATER. MINIMUM CEMENT CONTENT SHALL BE 6 BAGS PER CUBIC YARD OF CONCRETE AND MAXIMUM WATER CONTENT SHALL BE 5.5 U.S. GALLONS PER SACK OF CEMENT, INCLUDING MOISTURE IN THE AGGREGATE. SLUMP FOR NORMAL WEIGHT CONCRETE SHALL BE A MAXIMUM OF 4 INCHES AND A MINIMUM OF 2 INCHES. THE SLUMP OF MACHINE PLACED CONCRETE SHALL BE NO LESS THAN 1-1/4 INCHES NOR MORE THAN 3 INCHES. STANDARD TEST ASTM C0143 SHALL BE USED TO MEASURE SLUMP. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 4000 PSI. ALL EXTERIOR CONCRETE SHALL HAVE AIR ENTRAINMENT OF 5% TO 8% BY VOLUME PER ASTM C0260. RETEMPERING OF DELIVERED CONCRETE WILL NOT BE ALLOWED. CONCRETE SHALL BE COMPOSED OF:
- 2.A.1. PORTLAND CEMENT: CONFORMING TO ASTM C-150, TYPE IA OR TYPE IIA.
- 2.A.2. AGGREGATES: CONFORMING TO ASTM C-33.
- 2.A.3. WATER: SHALL BE CLEAR AND FREE FROM INJURIOUS AMOUNTS OF OILS, ACIDS, ALKALIC ORGANIC MATERIALS OR OTHER DELETERIOUS SUBSTANCES.
- 2.B. WELDED STEEL WIRE FABRIC: WHERE REQUIRED FOR CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A165.
- 2.C. PRE MOLDED JOINT FILLER: SHALL BE NON-EXTRUDING TYPE MEETING ASTM D-544, EXCEPT THAT PRE MOLDED JOINT FILLER USED IN CONCRETE WALK CONSTRUCTION MAY BE EITHER NON-EXTRUDING OR RESILIENT.
- 2.D. BITUMINOUS PAVEMENT MATERIALS: ALL MATERIALS PROPOSED FOR THE CONSTRUCTION OF PAVEMENTS SHALL COMPLY WITH THE INDIANA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS LATEST VERSION SHALL BE USED.
- 2.E. COMPACTED AGGREGATE SUB-BASE: SHALL BE CRUSHED STONE OR GRAVEL. CRUSHED GRAVEL SHALL BE A MINIMUM OF 35% CRUSHED MATERIAL. FINES SHALL BE LIMITED TO A MAXIMUM OF 8% OF THE TOTAL. MATERIAL SHALL BE FREE FROM AN EXCESS OF FLAT, ELONGATED, THINLY LAMINATED SOFT OR DISINTEGRATED PIECES, AND SHALL BE FREE FROM FRAGMENTS COATED WITH DIRT. COMPACTED AGGREGATE SHALL BE GRADED AS FOLLOWS: PER LATEST REVISIONS.
- | SIZE | PERCENT PASSING |
|------------|-----------------|
| 1-1/2" 100 | |
| 1" 80-100 | |
| 3/4" 70-90 | |
| 1/2" 55-60 | |
| #30 25-40 | |
| #30 25-50 | |
| #20 12-30 | |
| #200 5-10 | |
3. APPLICATION
- 3.A. GRADING: DO ANY NECESSARY GRADING IN ADDITION TO THAT PERFORMED IN ACCORDANCE WITH EARTHWORK SECTION, TO BRING SUB GRADES, AFTER FINAL COMPACTION, TO THE REQUIRED GRADES AND SECTIONS FOR SITE IMPROVEMENT.
- 3.B. PREPARATION OF SUB-GRADE: REMOVE SPONGY AND OTHERWISE UNSUITABLE MATERIAL AND REPLACE WITH STABLE MATERIAL. NO TRAFFIC WILL BE ALLOWED ON PREPARED SUB-GRADE PRIOR TO PAVING.
- 3.C. COMPACTION OF SUB-GRADE: THE FIRST 6 INCHES BELOW THE SUB-GRADE SHALL BE COMPACTED TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE PROVISIONS OF AASHTO T-99. WATER SHALL BE PREVENTED FOR STANDING ON THE COMPACTED SUB-GRADE.
- 3.D. UTILITY STRUCTURES: CHECK FOR CORRECT ELEVATION OF ALL MANHOLE COVERS, INLETS, VALVE BOXES AND SIMILAR STRUCTURES LOCATED WITHIN AREAS TO BE PAVED AND MARK, OR HAVE MADE ANY NECESSARY ADJUSTMENTS IN SUCH STRUCTURES.
- 3.E. PLACING CONCRETE:
- 3.E.1. SUBGRADE: PLACE CONCRETE ONLY ON A MOIST, COMPACTED SUBGRADE OF BASE FREE FROM LOOSE MATERIAL. PLACE NO CONCRETE ON A MUDDY OR FROZEN SUBGRADE.
- 3.E.2. FORMS: ALL FORMS SHALL BE FREE FROM WARP, TIGHT ENOUGH TO PREVENT LEAKAGE AND SUBSTANTIAL ENOUGH TO MAINTAIN THEIR SHAPE AND POSITION WITHOUT SPRINGING OR SETTING, WHEN CONCRETE IS PLACED. FORMS SHALL BE CLEAN AND SMOOTH IMMEDIATELY BEFORE PLACING CONCRETE.
- 3.E.3. PLACING CONCRETE: CONCRETE SHALL BE DEPOSITED SO AS TO REQUIRE AS LITTLE HANDING AS PRACTICABLE. WHEN CONCRETE IS TO BE PLACED AT AN ATMOSPHERIC TEMPERATURE OF 35 DEGREES F, OR LESS, PARAGRAPH 702.10 OF THE INDIANA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, LATEST REVISION SHALL BE FOLLOWED.
- 3.F. CONCRETE CURB:
- 3.F.1. EXPANSION JOINTS: SHALL BE 1/2 INCH THICK PRE MOLDED AT ENDS OF ALL RETURNS AND A MAXIMUM SPACING OF 100 FEET.
- 3.F.2. CONTRACTION JOINTS: UNLESS OTHERWISE PROVIDED, CONTRACTION JOINTS SHALL BE JOINTS SPACED 10 FEET ON CENTER.
- 3.F.3. FINISH: TAMP AND SCREED CONCRETE AS SOON AS PLACED, AND FILL ANY HONEYCOMBED PLACES, FINISH SQUARE CORNERS TO 1/4 INCH RADIUS AND OTHER CORNERS TO RADI SHOWN.
- 3.G. CONCRETE WALKS AND EXTERIOR STEPS:
- 3.G.1. SLOPES: PROVIDE 1/4 INCH PER FOOT CROSS SLOPE. MAKE ADJUSTMENTS IN SLOPES A WALK INTERSECTIONS AS NECESSARY TO PROVIDE PROPER DRAINAGE.
- 3.G.2. DIMENSIONS: WALKS AND STEPS SHALL BE ONE COURSE CONSTRUCTION AND OF WIDTHS AND DETAILS SHOWN ON THE DRAWINGS.
- 3.G.3. FINISH: SCREED CONCRETE AND TROWEL WITH A STEEL TROWEL TO A HARD DENSE SURFACE AFTER SURFACE WATER HAS DISAPPEARED. APPLY MEDIUM BROOM FINISH AND SCRIBE CONTROL JOINTS AT 6 FEET SPACING. PROVIDE 3/4 INCH EXPANSION JOINTS WHERE SIDEWALKS INTERSECT, AND AT A MAXIMUM SPACING OF 48 FEET BETWEEN EXPANSION JOINTS.
- 3.H. CURING CONCRETE: EXCEPT AS OTHERWISE SPECIFIED, CURE ALL CONCRETE BY ONE OF THE METHODS DESCRIBED IN SECTION 501.17 OF THE INDIANA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, LATEST REVISION SHALL BE USED.
- 3.I. BITUMINOUS PAVEMENT: HOT ASPHALT CONCRETE (TYPE B OR C) PAVEMENT SHALL BE AS SPECIFIED IN SECTION 401402 OF THE INDIANA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, LATEST REVISIONS SHALL BE USED. PAVING WILL NOT BE PERMITTED DURING UNFAVORABLE WEATHER OR WHEN THE TEMPERATURE IS 40 DEGREES F. AND FALLING.
- 3.J. COMPACTED AGGREGATE SUB-BASE: THE THICKNESS SHOWN ON THE DRAWINGS IS THE MINIMUM THICKNESS OF THE FULL COMPACTED SUB-BASE. COMPACTION SHALL BE ACCOMPLISHED BY ROLLING WITH A SMOOTH WHEELED ROLLER WEIGHING 8 TO 10 TONS. COMPACT TO 95% COMPACTION USING STANDARD TESTING PROCEDURES, ALONG CURBS, HEADERS AND WALLS AND AT ALL PLACES NOT ACCESSIBLE TO THE ROLLER, THE AGGREGATE MATERIAL SHALL BE TAMPED WITH MECHANICAL TAMPERS OR WITH APPROVED TAMPERS.

PAVEMENT MARKING SPECIFICATIONS

1. SUMMARY
- 1.A. SECTION INCLUDES:
- 1.A.1. PAINTING AND MARKING OF PAVEMENTS.
- 1.B. REFERENCES
- 1.B.1. THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION TO THE EXTENT REFERENCED. PUBLICATIONS ARE REFERENCED WITHIN THE TEXT BY THE BASIC DESIGNATION ONLY.
- 1.B.2. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION (AASHTO):
- 1.B.2.a. AASHTO M247 - GLASS BEADS USED IN TRAFFIC PAINTS
- 1.B.2.b. AASHTO M248 - READY-MIXED WHITE AND YELLOW TRAFFIC PAINTS
- 1.B.3. ASTM INTERNATIONAL (ASTM):
- 1.B.3.a. ASTM D4414 - STANDARD PRACTICE FOR MEASUREMENT OF WET FILM THICKNESS BY NOTCHED GAUGES.
- 1.B.4. FEDERAL SPECIFICATIONS (FS):
- 1.B.4.a. FS A-A-2886 - PAINT, TRAFFIC, SOLVENT BASED (SUPERSEDES FS TT-P-85 AND FS TT-P-115, TYPE I)
- 1.B.4.b. FS TT-B-1325 - BEADS (GLASS SPHERES) RETRO-REFLECTIVE
- 1.B.4.c. FS TT-P-1952 - PAINT, TRAFFIC AND AIRFIELD MARKING, WATERBORNE
- 1.C. PROJECT CONDITIONS
- 1.C.1. MAINTAIN ACCESS FOR VEHICULAR AND PEDESTRIAN TRAFFIC AS REQUIRED FOR OTHER CONSTRUCTION ACTIVITIES. UTILIZE FLAGMEN, BARRICADES, WARNING SIGNS, AND WARNING LIGHTS AS REQUIRED.
- 1.D. QUALITY ASSURANCE
- 1.D.1. USE TRAINED AND EXPERIENCED PERSONNEL IN APPLYING THE PRODUCTS AND OPERATING THE EQUIPMENT REQUIRED FOR PROPERLY PERFORMED WORK.
2. PRODUCTS
- 2.A. MATERIALS
- 2.A.1. PAINT SHALL BE WATERBORNE OR SOLVENT BORNE, COLORS AS SHOWN OR SPECIFIED HEREIN. PAVEMENT MARKING PAINTS SHALL COMPLY WITH APPLICABLE STATE AND LOCAL LAWS ENACTED TO ENSURE COMPLIANCE WITH FEDERAL, CLEAN AIR STANDARDS. PAINT MATERIALS SHALL CONFORM TO THE RESTRICTIONS OF THE LOCAL AIR POLLUTION CONTROL DISTRICT.
- 2.A.2. WATERBORNE PAINT: PAINTS SHALL CONFORM TO FS TT-P-1952.
- 2.A.3. SOLVENT BORNE PAINT: PAINT SHALL CONFORM TO FS A-A-2886 OR AASHTO M248. PAINT SHALL BE NON BLEEDING, QUICK DRYING, AND ALKOY PETROLEUM TYPE SUITABLE FOR TRAFFIC BEARING SURFACE AND BE MIXED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS BEFORE APPLICATION FOR COLORS WHITE, YELLOW, BLUE, AND RED.
- 2.A.4. GLASS BEADS: AASHTO M 247, TYPE 1 OR FS TT-B-1325, TYPE 1, GRADATION A.
3. EXECUTION
- 3.A. EXAMINATION
- 3.A.1. EXAMINE THE WORK AREA AND CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.
- 3.B. PREPARATION
- 3.B.1. SWEEP AND CLEAN SURFACE TO ELIMINATE LOOSE MATERIAL AND DUST.
- 3.B.2. WHERE EXISTING PAVEMENT MARKINGS ARE INDICATED ON CONSTRUCTION DRAWINGS TO BE REMOVED OR WOULD INTERFERE WITH ADHESION OF NEW PAINT, A MOTORIZED ABRASIVE DEVICE SHALL BE USED TO REMOVE THE MARKINGS. EQUIPMENT EMPLOYED SHALL NOT DAMAGE EXISTING PAVING OR CREATE SURFACES HAZARDOUS TO VEHICLE OR PEDESTRIAN TRAFFIC. WITHIN PUBLIC RIGHTS-OF-WAY, APPROPRIATE GOVERNING AUTHORITY SHALL APPROVE METHOD OF MARKING REMOVAL.
- 3.B.3. NEW PAVEMENT SURFACES SHALL BE ALLOWED TO CURE FOR NOT LESS THAN 30 DAYS BEFORE APPLICATION OF MARKING MATERIALS.
- 3.C. APPLICATION
- 3.C.1. APPLY TWO COATS OF SAME COLOR OF PAINT AS SPECIFIED BELOW, AT MANUFACTURER'S RECOMMENDED RATE, WITHOUT ADDITION OF THINNER, WITH MAXIMUM OF 100 SQUARE FEET PER GALLON OR AS REQUIRED TO PROVIDE A MINIMUM WET FILM THICKNESS OF 15 MILS AND DRY FILM THICKNESS OF 7 1/2 MILS PER COAT. PAINT SHALL BE APPLIED FOR A TOTAL DRY FILM THICKNESS OF 15 MILS. APPLY WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. AT SIDEWALK CURBS AND CROSSWALKS, USE STRAIGHTEDGE TO ENSURE UNIFORM, CLEAN, AND STRAIGHT STRIPE.
- 3.C.2. INSTALL PAVEMENT MARKINGS ACCORDING TO MANUFACTURER'S RECOMMENDED PROCEDURES FOR THE SPECIFIED MATERIAL.
- 3.C.3. FOLLOWING ITEMS SHALL BE PAINTED WITH COLORS NOTED BELOW:
- 3.C.3.a. PEDESTRIAN CROSSWALKS: WHITE
- 3.C.3.b. EXTERIOR SIDEWALK CURBS AND GUARD POSTS: YELLOW
- 3.C.3.c. FIRE LANES: RED OR PER LOCAL CODE
- 3.C.3.d. LANE STRIPING WHERE SEPARATING TRAFFIC MOVING IN OPPOSITE DIRECTIONS: YELLOW
- 3.C.3.e. LANE STRIPING WHERE SEPARATING TRAFFIC MOVING IN THE SAME DIRECTION: WHITE
- 3.C.3.f. ADA SYMBOLS: BLUE OR PER LOCAL CODE
- 3.C.3.g. ADA PARKING SPACE MARKINGS AS SHOWN ON THE DRAWINGS.
- 3.C.3.h. PARKING STALL STRIPING: WHITE, UNLESS OTHERWISE NOTED ON CONSTRUCTION DRAWINGS
- 3.C.4. APPLY GLASS BEADS AT PEDESTRIAN CROSSWALK STRIPING AND AT LANE STRIPING AND ARROWS AT DRIVEWAYS CONNECTING TO PUBLIC STREETS. BROADCAST GLASS BEADS UNFORMLY INTO WET MARKINGS AT A RATE OF 6 LB/GAL.
- 3.D. FIELD QUALITY CONTROL
- 3.D.1. INSPECTION: AFTER THE PAINT HAS THOROUGHLY DRIED, VISUALLY INSPECT THE ENTIRE APPLICATION AND TOUCH UP AS REQUIRED TO PROVIDE CLEAN, STRAIGHT LINES AND SURFACES THROUGHOUT.
- 3.D.2. TESTING: TESTING OF WET FILM THICKNESS SHALL BE PERFORMED A MINIMUM OF TWO TIMES ON EACH PARKING ROW (INCLUDING STRIPED ISLANDS) AND PEDESTRIAN CROSS WALKS, AND A MINIMUM OF ONE TEST ON EACH LANE OF LANE STRIPING. AT LEAST ONE TEST SHALL BE PERFORMED AFTER REFILLING PAINT STRIPING MACHINE, CHANGING OPERATORS OF STRIPING MACHINE, AND CHANGING PAINT TYPES, BRANDS, ETC. THIS SHALL BE PERFORMED IN ADDITION TO THE TESTING STATED ABOVE. THESE TESTS SHALL BE PERFORMED ON EACH COAT APPLIED. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D4414.
- 3.E. CLEANING
- 3.E.1. WASTE MATERIALS SHALL BE REMOVED AT THE END OF EACH WORKDAY. UPON COMPLETION OF THE WORK, ALL CONTAINERS AND DEBRIS SHALL BE REMOVED FROM THE SITE. PAINT SPOTS UPON ADJACENT SURFACES SHALL BE CAREFULLY REMOVED BY APPROVED PROCEDURES THAT WILL NOT DAMAGE THE SURFACES AND THE ENTIRE JOB LEFT CLEAN AND ACCEPTABLE.

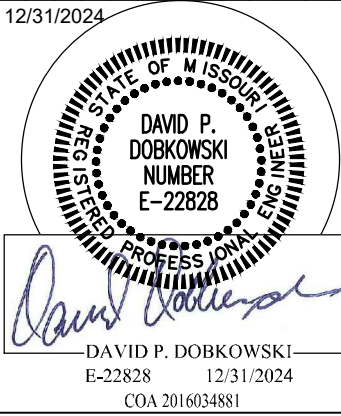
WATER LINE SPECIFICATIONS

1. SCOPE OF WORK
- 1.A. THE WORK REQUIRED UNDER THIS SECTION INCLUDES ALL COLD WATER DISTRIBUTION LINES, VALVES, METER BOXES, HYDRANTS AND RELATED ITEMS INCLUDING EXCAVATING AND BACKFILLING NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS. THE END OF WATER SERVICE LINES SHALL BE THIGHTLY PLUGGED OR CAPPED AT THE TERMINAL POINTS PENDING THE CONNECTING TO ALL SUCH LINES OF THE BUILDING PIPING AS SPECIFIED IN THE PLUMBING SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.
2. MATERIALS
- 2.A. DUCTILE IRON (D.I.) PIPE: DUCTILE IRON PIPE SHALL BE CLASS 350 AND MEET AWWA C-150 AND C-151 SPECIFICATIONS. JOINTS SHALL MEET AWWA C-111 SPECIFICATIONS. PIPE SHALL BE CEMENT LINED PER AWWA C-104 AND SHALL BE COATED OUTSIDE WITH A BITUMINOUS COATING. D.I. FITTINGS SHALL BE CEMENT LINED AND MEET AWWA C-110 SPECIFICATIONS (350 PSI). COMPACT D.I. FITTINGS SHALL BE CEMENT LINED AND MEET AWWA C-153 SPECIFICATIONS (CLASS 53, 350 PSI).
- 2.B. POLYVINYL CHLORIDE (PVC) PIPE: PVC PIPE SHALL HAVE THE SAME OUTSIDE DIAMETER AS DUCTILE IRON PIPE. HAVE A MINIMUM WALL THICKNESS OF DR-19 FOR PRESSURE CLASS 150 AND MEET AWWA C800 SPECIFICATIONS. JOINTS SHALL BE SLIP-ON TYPE WITH INTEGRAL BELL AND SPIGOT.
- 2.C. POLYETHYLENE (HDPE) PIPE: HDPE PIPE SHALL MEET AWWA C901 AND C906 SPECIFICATIONS. PIPE (3"-24") SHALL HAVE A MINIMUM WALL THICKNESS OF SRD 11. HDPE FITTINGS SHALL HAVE SAME DR AS PIPE BEING INSTALLED.
- 2.D. COPPER TUBING: SHALL BE SEAMLESS, ANNEALED COPPER TUBING COMPLYING WITH FEDERAL SPECIFICATION WW-7799. FITTINGS SHALL BE WROUGHT COPPER OR CAST BRONZE WITH SOLDER JOINTS. SOLDER SHALL BE OF A COMPOSITION RECOMMENDED BY THE MANUFACTURER OF THE FITTINGS.
- 2.E. FIRE HYDRANTS: SHALL COMPLY WITH AWWA SPECIFICATION C-502 AND SHALL MEET LOCAL STANDARDS AND REQUIREMENTS, PARTICULARLY AS TO NOZZLE DIAMETERS AND THREADS, DIRECTION OF OPENING AND DIMENSIONS OF OPERATING AND CAP NUTS. FIRE HYDRANTS SHALL HAVE ONE PUMPER AND TWO HOSE NOZZLES. A VALVE OPENING NOT LESS THAN 5 INCHES AND A 6 INCH INLET CONNECTION. THE LENGTH OF THE HYDRANT BARREL SHALL BE DETERMINED BY THE SPECIFIED DEPTH OF COVER OVER THE PIPE.
- 2.F. VALVES: ALL VALVES AND STOPS SHALL HAVE ENDS SUITED OR ADAPTERS SHALL BE PROVIDED FOR THE PROPER INSTALLATION IN THE LINES IN WHICH THEY ARE LOCATED. VALVES SHALL MEET LOCAL STANDARDS OR IN THE ABSENCE OF SUCH STANDARDS, THE FOLLOWING REQUIREMENTS.
- 2.F.1. VALVES IN CAST IRON PIPE SHALL BE IRON BODY, BRONZE MOUNTED, DISC GATE VALVES CONFORMING TO AWWA SPECIFICATION C-500. THEY SHALL OPEN IN THE SAME DIRECTION AS THOSE USED IN THE LOCAL WATERWORKS SYSTEM. VALVE STEMS SHALL TERMINATE IN 2 INCH WRENCH NUTS. FURNISH TWO (2) KEYS.
- 2.F.2. VALVES IN COPPER PIPE SHALL BE STANDARD BRASS BODY, ROUND-WAY, GROUND-KEY STOPS, WITH T HANDS, FURNISH TWO (2) KEYS.
- 2.G. VALVE BOXES: SHALL MEET LOCAL STANDARDS OR IN THE ABSENCE OF SUCH, SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
- 2.G.1. FOR IRON BODY VALVES, BOXES SHALL BE APPROVED STANDARD BUFFALO-TYPE CAST IRON, ADJUSTABLE SHAFT BOXES, HAVING A MINIMUM SHAFT DIAMETER OF 5-1/4 INCHES.
- 2.G.2. FOR BRASS BODY VALVES (STOPS) BOXES SHALL BE APPROVED STANDARD CAST IRON EXTENSION SERVICE BOXES, HAVING A MINIMUM DIAMETER OF 2-1/2 INCHES AND HAVING LID HELD IN PLACE BY A BRASS OR BRONZE BOLT. THE CASTINGS SHALL BE COATED WITH TWO COATS OF COAL-TAR PITCH VARNISH. FURNISH TWO (2) KEYS FOR BOLT IN LIDS.
3. APPLICATION:
- 3.A. PERMITS AND CODES: THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. CONTRACTOR SHALL FURNISH ALL NECESSARY BONDS TO GET PERMITS FOR CUTS AND CONNECTIONS.
- 3.B. EXISTING IMPROVEMENTS: MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES AND SEWERS AND OTHER PIPE SYSTEM THAT MAY BE ENCOUNTERED.
- 3.C. TRENCING: LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN LOCAL AUTHORITY GIVES WRITTEN PERMISSION FOR TUNNELING. PROVIDE SEPARATE TRENCH FOR THE WATER LINE AT LEAST 10 FEET HORIZONTALLY FROM ANY SANITARY SEWER. IN LOCATIONS WHERE SEPARATE TRENCHES FOR SEWER AND WATER LINES ARE IMPRACTICABLE, LAY THE WATER PIPE ON A SOLID SHELF AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
- 3.D. WIDTH OF TRENCH: EXCAVATE TRENCHES 12 INCHES EACH SIDE OF THE PIPE FOR PROPER INSTALLATION OF PIPE.
- 3.E. SHEETING AND BRACING: SHEET AND BRACE TRENCHES AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCING SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS.
- 3.F. WATER REMOVAL: KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION THEREIN IS IN PROGRESS. UNDER NO CIRCUMSTANCES LAY PIPE OR APPURTENANCES IN STANDING WATER. CONDUCT THE DISCHARGE FROM TRENCH DEWATERING TO DRAINS, OR NATURAL DRAINAGE CHANNELS.
- 3.G. GRADING TRENCH BOTTOMS: THE BOTTOM QUADRANT OF THE PIPE SHALL BE FULLY AND UNFORMLY SUPPORTED. THE FULL LOAD SHALL REST ON THE BARREL OF THE PIPE. THE TRENCH MAY BE EXCAVATED TO A DEPTH OF 4 INCHES OR MORE BELOW FINAL GRADE WITH SAND, CRUSHED STONE OR GRAVEL. BACKFILL TO BRING IT BACK TO PIPE LAYING GRADE. FOR A DEPTH OF AT LEAST 12 INCHES ABOVE THE TOP OF THE PIPE BACKFILL WITH EARTH OR GRANULAR MATERIAL FREE FROM LARGE STONES, ROOTS OR FROZEN CLOGS. TAMP THIS BACKFILL THOROUGHLY TAKING CARE NOT TO DISTURB THE PIPE. BACKFILL UNDER WALKS, PARKING AREAS DRIVEWAYS AND STREETS WITH GRANULAR MATERIAL ONLY AND TAMP THOROUGHLY, BY APPROVED METHODS. TRENCHES PARALLEL TO AND WITHIN 10 FEET OF PAVED ROADWAYS SHALL ALSO BE CONSTRUCTED WITH COMPACTED GRANULAR MATERIAL.
- 3.H. TESTS: BEFORE JOINTS ARE COVERED, FILL THE PIPING WITH WATER, OPENING HYDRANTS OR OTHER OUTLETS TO EXPEL AIR. TEST THE PIPING FOR LEAKAGES AS REQUIRED BY THE LOCAL UTILITY. INSPECT ALL JOINTS FOR LEAKAGE AND REMEDY ANY LEAKS. UPON COMPLETION OF THE WATER LINES, FLUSH OUT THE SYSTEM UNTIL THE WATER RUNS CLEAR, AS SOON AS THE SYSTEM HAS BEEN FLUSHED OUT, IT SHALL BE STERILIZED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL UTILITY.
- 3.I. IF A HORIZONTAL DISTANCE OF 10 FEET CANNOT BE MAINTAINED BETWEEN THE WATER LINE AND THE SANITARY SEWER LINE, THE SEWER MUST BE CONSTRUCTED OF WATER WORKS GRADE DUCTILE IRON OR PVC PIPE WITH MECHANICAL JOINTS WITHIN 10' OF EITHER SIDE THE WATER LINE.
- 3.J. UTILITIES: IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS PHASE OF THE WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNERS OR THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.
- 3.K. NEW WATER LINE CONSTRUCTION: CONTRACTOR TO RECORD DIMENSION OF EACH WATER LINE AND VALVE. LOCATIONS OF FIRE HYDRANT MEASURED ALONG WATER MAIN, THE LOCATIONS OF HYDRANTS AND WATER VALVES, ALONG WITH ANY OTHER CONSTRUCTION CHANGES ARE TO BE INCORPORATED ON THE ORIGINAL CONSTRUCTION DRAWINGS AND "RECORD DRAWING" PRINTS SHALL BE SUBMITTED TO THE LOCAL UTILITY AS SOON AFTER COMPLETION OF CONSTRUCTION AS POSSIBLE.

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ISSUED FOR CITY OF OFALLON COMMENTS	09/26/2024
ISSUED FOR CITY OF OFALLON COMMENTS	10/16/2024



DAVID P. DORKOWSKI
6-22828 12/31/2024
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PREPARED FOR:
HOTEL - CALEDONIA
LOT 4 AND 5, CALEDONIA CENTER, OFALLON, MO
63668
SPECIFICATIONS
PART OF SECTION 13, TOWNSHIP 6 NORTH, RANGE 2 EAST, ST. CHARLES COUNTY, MO

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NOTE: THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.