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HENDERSON COUNTY

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| PROJECT REFERENCE NO. U-5887 | SHEET NO. UC-3E |
| DESIGNED BY: DCR | UTILITY CONSTRUCTION PLANS ONLY |
| DRAWN BY: DCR | |
| CHECKED BY: JDN | |
| APPROVED BY: JDN | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 1250-4151 | |
| DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED | |
| UTILITY CONSTRUCTION | |

NOTES:

- BEDDING CLASSIFICATION SHALL MEET OR EXCEED ASTM D2321 CLASS 1 BEDDING FOR FLEXIBLE PIPING, AND ASTM C12, CLASS 'B' BEDDING FOR RIGID PIPING IN ROCK OR WET SOIL. PIPE MUST BE BEDDED IN AT LEAST 6" OF #57 WASHED STONE.
- FORCE MAIN BEDDING SHALL BE SELECT NATURAL SAND WELL COMPACTED IN 6" LIFTS.
- TRENCHES EXCAVATED OUTSIDE EXISTING ROAD AND RAILWAY RIGHTS-OF-WAY SHALL BE BACKFILLED WITH COMMON BACKFILL MATERIAL CONSISTING OF EXCAVATED MATERIALS EXCEPT HIGHLY ORGANIC SILTS AND CLAYS AND TAMPED THOROUGHLY. FILL SHALL BE DEPOSITED IN SUCCESSIVE, UNIFORM, APPROXIMATELY HORIZONTAL LAYERS. MATERIAL SHALL BE FREE OF ROOTS, STONES, AND DEBRIS. ALL MATERIAL SHALL HAVE AN IN-PLACE DENSITY OF AT LEAST 85% OF MAXIMUM DRY DENSITY (STANDARD PROCTOR) OR AS APPROVED BY THE ENGINEER. COMMON BACKFILL SHALL NOT CONTAIN STONE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE, AND FROZEN SOIL WILL NOT BE PERMITTED.
- WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL, AND OTHER EXTRANEOUS MATERIAL AND PROPER DETERMINING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SILT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL, HAVE A PLASTICITY INDEX (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY DENSITY LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS M, CL, SC, OR SM, OR BETTER PER ASTM D-2487 AND BE CAPABLE OF BEING COMPACTED TO 85% STANDARD PROCTOR.
- THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTION REQUIREMENTS.

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| DATE: 06/19/2019 SS-D DWG. NO. 1 | GRAVITY SEWER TRENCH CONSTRUCTION OUTSIDE PAVEMENT | |
| SCALE: NOT TO SCALE | | |
| City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org | | |

NOTES:

- THIS TRENCH BACKFILL DETAIL APPLIES TO AREAS UNDER PAVEMENT, CURB AND GUTTER, AND SIDEWALK.
- BEDDING CLASSIFICATION SHALL MEET OR EXCEED ASTM D2321 CLASS 1 BEDDING FOR FLEXIBLE PIPING, AND ASTM C12, CLASS B BEDDING FOR RIGID PIPING.
- COMMON BACKFILL MATERIAL SHALL CONSIST OF EXCAVATED MATERIALS EXCEPT HIGHLY ORGANIC SILTS AND CLAYS. FILL SHALL BE DEPOSITED IN SUCCESSIVE, UNIFORM, APPROXIMATELY HORIZONTAL LAYERS NOT EXCEEDING EIGHT (8) INCHES IN DEPTH FOR THE FULL WIDTH. MATERIAL SHALL BE FREE OF ROOTS, STONES, AND DEBRIS AND CAPABLE OF BEING COMPACTED TO 85% STANDARD PROCTOR. COMMON BACKFILL SHALL NOT CONTAIN STONE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE, AND FROZEN SOIL WILL NOT BE PERMITTED.
- WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL, AND OTHER EXTRANEOUS MATERIAL AND PROPER DETERMINING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SILT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL, HAVE A PLASTICITY INDEX (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY DENSITY LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS M, CL, SC, OR SM, OR BETTER PER ASTM D-2487 AND BE CAPABLE OF BEING COMPACTED TO 95% STANDARD PROCTOR.
- THE TOP 12 INCHES OF FINAL BACKFILL FOR ROAD OR STREET SUBGRADE SHALL BE COMPACTED TO 98% STANDARD PROCTOR.
- THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTION REQUIREMENTS.

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| DATE: 05/14/2019 SS-D DWG. NO. 2 | GRAVITY SEWER TRENCH CONSTRUCTION UNDER PAVEMENT | |
| SCALE: NOT TO SCALE | | |
| City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org | | |

WIDTH OF ENCASEMENT IN ROCK: O.D. PIPE + 24"

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|---|---------------------------------|--|
| DATE: 01/12/2019 SS-D DWG. NO. 3 | CONCRETE PIPE ENCASEMENT | |
| SCALE: NOT TO SCALE | | |
| City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org | | |

NOTES:

- RESTRAINED POSITIONING TO BE USED AT ALL TIMES.
- CARRIER PIPE JOINTS SHALL BE MECHANICALLY RESTRAINED, DUCTILE IRON OR CS90 PVC ONLY.
- STAINLESS STEEL CASING SPACERS SHALL BE STYLE CCS AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO. OF YORKVILLE, IL OR ENGINEER APPROVED EQUIVALENT.
- CASING END SEAL SHALL BE STYLE CCEAS AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO. OF YORKVILLE, IL OR ENGINEER APPROVED EQUIVALENT.

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| DATE: 01/12/2019 SS-D DWG. NO. 14 | PIPE BORING AND ENCASEMENT | |
| SCALE: NOT TO SCALE | | |
| City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org | | |

GENERAL PAVEMENT NOTE:
WHERE EDGES OF REPLACED SECTIONS EXTENDS WITHIN 2'-0" OF ROADWAY EDGE, PAVEMENT IS TO BE REPLACED TO ROADWAY EDGE AT NO ADDITIONAL COST.

PAYMENT LIMIT FOR ALL PAVEMENT SHALL BE TRENCH WIDTH + 2'-0"

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| DATE: 01/12/2019 SS-D DWG. NO. 17 | ASPHALT CONCRETE REPLACEMENT | |
| SCALE: NOT TO SCALE | | |
| City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org | | |

GENERAL PAVEMENT NOTE:
WHERE EDGES OF REPLACED SECTIONS EXTENDS WITHIN 2'-0" OF ROADWAY EDGE, PAVEMENT IS TO BE REPLACED TO ROADWAY EDGE AT NO ADDITIONAL COST.

*** 4" MIN FOR CONCRETE SIDEWALK REPLACEMENT, 6" FOR DRIVEWAYS OR DRIVE APRON REPLACEMENT.**

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| DATE: 01/12/2019 SS-D DWG. NO. 18 | ASPHALT OR CONCRETE DRIVEWAY AND WALKWAY | |
| SCALE: NOT TO SCALE | | |
| City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org | | |

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Consulting Engineers, Inc.

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