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UTILITY CONSTRUCTION

GENERAL NOTES:

1. ELEVATIONS SHOWN ARE IN FEET ABOVE MEAN SEA LEVEL.

2. LOCATIONS OF EXISTING SHOWN UTILITIES ARE APPROXIMATE.CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXACT LOCATION.ORIENTATION. AND ELEVATION OF EXISTING UTILITIES PRIOR TO EXCAVATION.

3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS.

4. UNLESS OTHERWISE SHOWN OR SPECIFIED,ALL WATER LINE AND SEWER FORCE MAIN TRENCH BEDDING SHALL BE PER DETAIL 3/3A.

5. BURIED TELEPHONE AND CATV CABLES (FIBER OPTICS AND CONVENTIONAL) ARE KNOWN TO VARY DUE TO INSTALLATION TECHNIQUES.THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COORDINATING WITH THE UTILITY COMPANY TO DETERMINE SPECIFIC CABLE LOCATIONS AND NOTIFYING THE ENGINEER OF THE EXACT ELEVATION OF THE CABLES.THE CONTRACTOR SHALL BE RESOPNSIBLE FOR ALL COSTS ASSOCIATED WITH LOCATING,RELOCTING,OR REPAIRING BURIED CABLES DAMAGED DURING CONSTRUCTION.

6. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL SHEETING REQUIRED FOR UTILITY CONSTRUCTION.ALL EXCAVATIONS SHALL BE KEPT WITHIN THE DESIGNATED EASEMENT AND/OR RIGHT-OF-WAY WIDTHS.SHEETING SHALL BE INSTALLED AS REQUIRED TO PROTECT EXISTING UTILITIES.

7. NCDOT WILL FURNISH DESCRIPTION OF EASEMENTS UPON REQUEST.

8. THE CONTRACTOR SHALL RESTORE GRADE TO PRE-CONSTRUCTION CONDITION UNLESS OTHERWISE NOTED ON THE DRAWINGS.

9. CONTRACTOR SHALL PROVIDE A MEANS TO KEEP ALL NEW PIPING ISOLATED FROM EXISTING PIPING UNTIL ALL NEW PIPING HAS BEEN PRESSURE TESTED. FLUSHED,AND ACCEPTED BY THE TOWN OF BRYSON CITY FOR SERVICE.

10. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION,ELEVATION,ORIENTATION, DIMENSIONS,MATERIALS,ETC.,OF EXISTING PIPE PRIOR TO ORDERING MATERIAL AND SHALL USE NECESSARY FITTINGS FOR THE CONNECTION.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE TOWN OF BRYSON CITY FOR ANY ADDITIONAL INFORMATION ON EXISTING WATER AND SEWER UTILITIES.

12. ALL PROPOSED PIPE SHALL BE RESTRAINED JOINT PIPE.IF A BEND OR FITTING IS RELOCATED BY THE CONTRACTOR FOR HIS CONVENIENCE THEN THE REQUIRED LENGTH OF RESTRAINED JOINTS SHALL BE MAINTAINED AT NO ADDITIONAL COST TO THE OWNER.IF ADDITIONAL BENDS OR FITTINGS ARE INSTALLED BY THE CONTRACTOR FOR HIS CONVENIENCE,THEN THE CONTRACTOR SHALL INSTALL THE REQUIRED LENGTH OF RESTRAINED JOINTS AS DETERMINED BY THE ENGINEER,AT NO ADDITIONAL COST TO THE OWNER.

13. ALL PRESSURIZED PIPE FITTINGS SHALL BE RESTRAINED JOINT.

14. WATER LINE AND FORCE MAIN ALIGNMENTS SHOWN ON THE DRAWINGS ARE BASED ON STANDARD FITTINGS AVAILABLE FOR DUCTILE IRON PIPE.JOINT DEFLECTIONS SHALL NOT EXCEED 75 PERCENT OF MANUFACTURER'S RECOMMENDED DEFLECTION.

15. DETECTOR TAPE SHALL BE INSTALLED ON ALL BURIED PIPE.

16. ALL MANHOLE COVERS AND VALVE BOX LIDS FOR WATER LINE SHALL READ "WATER".ALL MANHOLE COVERS AND VALVE BOX LIDS FOR SEWER LINE AND FORCE MAIN SHALL READ "SEWER".

STANDARD UTILITY NOTES:

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH NCDOT 2018 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

2. UTILITY SEPARATION REQUIREMENTS:
   - A. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER.IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED.FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER,THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
   - B. WHEN INSTALLING WATER &/OR SEWER MAINS,THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'.IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS,THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
   - C. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION,OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN,DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
   - D. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES,UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
   - E. MAINTAIN 18" MIN.VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN.VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED,SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN.CLEARANCE (PER DETAIL 8/3A).
   - F. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN.VERTICAL SEPARATION REQUIRED.

3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY NCDOT AND THE TOWN OF BRYSON CITY PRIOR TO CONSTRUCTION.

4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT.ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 72 HOUR ADVANCE NOTICE TO THE TOWN OF BRYSON CITY.

5. 3.5' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS.

6. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE TOWN OF BRYSON CITY.THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT.

7. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT.

8. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.

9. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ,USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.

10. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.

11. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS.THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM,WHICHEVER IS MORE STRINGENT.

PROJECT SPECIFIC NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF BRYSON CITY AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

2. ALL PROPOSED WATER LINE AND PIPE AND FITTINGS 12-INCHES IN DIAMETER AND SMALLER SHALL BE RESTRAINED JOINT PC 350 DUCTILE IRON PIPE, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

3. ALL PROPOSED GRAVITY SEWER MAIN PIPE AND FITTINGS 12-INCHES IN DIAMETER AND SMALLER SHALL BE PROTECTO 401-LINED PC 350 DUCTILE IRON PIPE.

4. A THRUST RESTRAINT DESIGN PRESSURE OF 350 PSI SHALL BE USED.

5. THE CONTRACTOR SHALL FIELD VERIFY EXACT ELEVATION,LOCATION, ORIENTATION,DIMENSION,AND MATERIAL OF PIPING TO BE CONNECTED TO PRIOR TO ORDERING MATERIALS.

6. THE CONTRACTOR SHALL PROVIDE A MEANS TO KEEP ALL NEW PIPING COMPLETELY ISOLATED FROM EXISTING PIPING UNTIL ALL NEW PIPING HAS BEEN TESTED,DISINFECTED,AND ACCEPTED BY NCDOT AND THE CITY OF DURHAM FOR SERVICE.

7. ALL CONNECTION FITTINGS AND JOINTS SHALL BE RESTRAINED DIP USING MECHANICAL JOINT RESTRAINT.

8. CONCRETE THRUST COLLARS SHALL BE PLACED AND CURED THREE DAYS PRIOR TO RE-PRESSURIZING THE PIPE.

Kimley»Horn

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R-5843	UC-3
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DRAWN BY: DGB	
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7/24/2019

UTILITY CONSTRUCTION

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7/23/2019