

**APPENDIX N**

**WASTEWATER COLLECTION  
and  
ORDER DECLARING UTILITY STATUS FOR BRIAR CHAPEL  
UTILITIES, LLC**

### **Collection System Description**

*The Briar Chapel site consists of a mixture of rolling hills and flatter areas. This feature makes Briar Chapel well suited for a wastewater collection system consisting of both gravity sewer and low-pressure sewer. Gravity sewer systems are the traditional system of choice for areas where the topography allows such collection and are commonly approved by the State of North Carolina. However, for areas in hilly terrain and in areas with considerable topographical undulation that would result in segments of deep gravity sewer, a low-pressure sewer system will be considered.*

*Low-pressure sewer systems are not only an approved collection alternative in North Carolina but also offer a number of advantages over conventional systems. For example, similar to water force mains, low-pressure sewage collection force mains are buried at a minimal depth thereby minimizing maintenance difficulties by minimizing the extent of gravity sewer that is buried deeply. In addition, low-pressure sewer systems are not vulnerable to either inflow from overland storm flow that typically enters sanitary sewers through leaks around manhole covers or infiltration from groundwater entering through leaking pipe joints and manholes.*

*The conventional portion of the sewer system will consist of 8-inch or larger PVC piping, manholes, several pump stations located at system low points, and 4-inch sewer services from each residential unit. The low-pressure sewer portion of the system will consist of a conventional drain and waste and vent piping within the residences connected to a grinder pump inlet. Grinder pumps discharge a finely ground slurry into small diameter pressure piping. Each single-family residence connecting to the low-pressure sewer system will be equipped with a grinder pump typically installed below grade and outdoors. For townhouse and multifamily units, several units may be connected to one grinder pump. Depending on topography, size of the system, and planned rate of build up, appurtenances may include valve boxes for accesses, flushing arrangements, air release valves as significant high points, and check valves at the junction of each house connection with the street sewer.*

### **Collection System Management**

*The wastewater collection system will be managed by licensed operators and experienced personnel employed by, or contracted, with Briar Chapel Utilities LLC, which has been approved by the North Carolina Utilities Commission (see attached approval letter). The objective of Briar Chapel's collection system management will be to ensure the overall viability of the conveyance system by maintaining system integrity, limiting exfiltration and its potential for groundwater contamination and other negative environmental impacts, and reducing the amount of infiltration/inflow (I/I) into the system. In order to achieve this objective, information on the condition of the system will be obtained routinely through two distinct practices: flow monitoring and physical condition assessment.*

*The primary issues relating to flow monitoring technologies are accuracy and reliability. Therefore, considerable effort will be made to ensure the accuracy of the measurements through means such as multiple flow sensors or flow sensors that operate on different physical measurements. In order provide historical and up-to-date information to the system operator, internal data storage and wireless data transmission will be considered.*

*In regard to physical condition, maintaining a thorough assessment of the physical condition of the collection system will be critical for timely repair and replacement and important for maintaining the integrity of the system and controlling I/I and exfiltration. For the gravity system, periodic testing will be performed that may involve smoke testing, man entry, flow isolation, dye-water flooding, and/or closed circuit television (CCTV) inspection. Manholes and junction chambers will be routinely inspected from the surface and internally. Pump stations needed throughout the gravity system to convey collected flow to the reclamation facility, will undergo regular inspections as part of the routine maintenance. The low-pressure sewer collection system is less susceptible to maintenance problems nevertheless, an inspection of the physical condition of the system will occur, typically during downtime repairs of adjacent pipe segments. A key component of the low-pressure sewer system is the individual grinder pumps that will be installed at the residences. For homeowners whose residence is equipped with a grinder pump, various means will be utilized to make the homeowner aware of signs indicating potential problems and who to contact when such signs are observed.*

*In summary, as each segment of the Briar Chapel sewer collection system is constructed, it will be integrated into an overall inspection and maintenance program that is structured so as to identify and remediate potential problems in advance.*