

Brunswick County Regional Wastewater Pump Station Development Policy

Section 1 – General Policy Description

1.1 General

Brunswick County operates and maintains a public wastewater collection, transmission, and treatment system to serve the residents of Brunswick County. In order to ensure that sufficient capacity is available within the transmission component of this system, Brunswick County has identified the need for Regional Wastewater Pump Stations to be constructed at strategic locations within the system. Regional Wastewater Pump Stations are defined as pump stations sized with appropriate capacity to serve an expanded area and will provide for collection of wastewater and/or re-pump capabilities to minimize transmission system pressures and velocities and thereby maximize transmission system conveyance capacity and maintain operational efficiency.

Force main connections 3" diameter and larger connecting to transmission force mains shall be through Regional Wastewater Pump Stations rather than multiple connections of small pump stations with localized service areas. Transmission force mains are defined as any force main of 14" diameter or larger and any public force main directly connected to a 14" diameter force main or larger. Force mains less than 14" diameter separated by an air gap (manhole, wetwell, etc.) and force main sewer services 2" and smaller are **not** considered part of the transmission system. Regional Wastewater Pump Stations shall be required along transmission force mains, at locations identified by Wastewater System Master Plans and other engineering studies, and as directed by the Brunswick County Director of Public Utilities. Maps detailing the location of identified areas requiring Regional Wastewater Pump Stations are available from the Brunswick County Engineering Department. This policy is not intended to provide guidance for the service connections of small commercial and single family grinder pump stations to transmission force mains. See the "Rural Sewer Program" guidelines for information on these types of service connections.

This policy establishes additional guidelines and design requirements for the installation of Regional Wastewater Pump Stations. These requirements are to be used in addition to those outlined in the general Wastewater Pumping Station Design Guidelines.

Section 2 – Determination of Need & Design Parameters

2.1 Pre-Design Conference

As indicated in the general Wastewater Pumping Station Design Guidelines, the Developer shall submit the required project information, schedule, and attend a pre-design conference with Brunswick County staff. Based on this pre-design conference, Brunswick County staff shall determine whether or not a Regional Wastewater Pump Station is required for the project.

2.2 Basis of Determination

Upon review of the information provided by the Developer, Brunswick County staff will assess the need for installation of a Regional Wastewater Pump Station based on the following criteria:

- Connection to wastewater transmission force main (14" or larger).
- Connection to any public force main directly connected to a 14" diameter force main or larger. (Force main sewer services 2" and smaller and force mains less than 14" diameter separated by an air gap [manhole, wetwell, etc.] are not considered part of the transmission system).
- Regional Wastewater Pump Station identified on Master Plan or other engineering study.
- Determination of need by Brunswick County Director of Public Utilities.
- Available system capacity including transmission pipeline conveyance and pumping infrastructure. This determination may be made on the basis of North Carolina Department of Natural Resources (NCDENR) permitted capacity or actual infrastructure capacity at the sole discretion of the Brunswick County Director of Public Utilities.
- Impact of the proposed project on system capacity.
- Operational constraints of the existing transmission system to include system pressures and velocities. Generally, operating pressures in the system cannot exceed 100 pounds per square inch (psi) and operating velocities in pipelines cannot exceed 5 feet per second (fps).
- Impact of the proposed project on operating conditions.
- Adherence to Brunswick County Standards and NCDENR regulations.

2.3 Location of Regional Wastewater Pump Station

Locations of Regional Wastewater Pump Stations shall be determined on a case-by-case basis; however, the locations of some Regional Wastewater Pump Stations may have been previously indicated on the Brunswick County Wastewater Master Plan or other engineering studies. Previously determined Regional Wastewater Pumps Stations are available by map and are available from the Brunswick County Engineering Department. The locations provided in these exhibits are intended to be approximate in nature and final location shall be determined as follows:

- Regional Wastewater Pump Stations shall be located within $\frac{1}{2}$ mile of the primary transmission main which will convey the wastewater flow unless otherwise approved by the Brunswick County Director of Engineering.
- Regional Wastewater Pump Stations shall be located within an approximate $\frac{1}{2}$ mile radius of the locations noted on the latest Master Plan or other engineering study.
- Access to the Regional Wastewater Pump Station shall be via public right-of-way, Brunswick County-owned utility easements, or NCDOT access.
- Adequate room shall be provided for future connections into the Regional Wastewater Pump Station.
- Final Consultation for location shall be coordinated with the Brunswick County Engineering Department staff.

In the event that the Developer demonstrates a good faith effort to acquire property for a Regional Wastewater Pump Station site but is unsuccessful, then Brunswick County, at its sole discretion, may elect to assist the Developer with the property acquisition. This decision shall be based on the benefit to all Brunswick County sewer customers.

2.4 Design Parameters

Design and installation of a Regional Wastewater Pump Station shall meet the following minimum criteria:

- Must comply with current Brunswick County Standards and Specifications.
- Must comply with NCDENR - Division of Water Quality Regulations and Minimum Design Criteria.
- Shall be designed to adhere to the following minimum requirements:
 - Engineer shall provide an evaluation of the service area that could potentially be served by the Regional Wastewater Pump Station. Wetwell,

valve vault, piping, electrical components, and all appurtenances shall be designed to accommodate the projected potential flow from the service area. The minimum design flow for any Regional Wastewater Pump Station shall not be less than 500,000 GPD. Brunswick County staff shall provide input regarding service area boundaries and shall have final approval authority on the design flow of the pump station.

- Valve vault shall be a separate structure from the wetwell.
- Wetwell and piping shall accommodate spacing for the number of pumps required for ultimate buildout of the pump station with a minimum of 2 installed. Size of pumps shall be confirmed and approved by Brunswick County staff.
- Pumps shall generate a minimum scourable velocity of at least 2 feet per second in downstream force mains during normal operating conditions.
- Odor Control facilities will be required per Brunswick County standard specifications.
- Shall be integrated into the Brunswick County SCADA System.
- Station shall be provided with a back-up float system for pump operations.
- Electrical service and standby generator shall be sized for maximum station flow.
- A separate electrical building shall be provided as per Brunswick County Standards.

Section 3 – Cost Share

3.1 Cost Share Approach

Brunswick County may participate with the Developer in a proportionate share of the cost of a Regional Wastewater Pump Station including some costs for preliminary engineering, engineering design, surveying, permitting, bidding, construction oversight, and other associated costs including specific property costs and financing costs. Any cost sharing by Brunswick County shall require a reimbursement agreement to be submitted to and approved by the Brunswick County Board of Commissioners prior to the construction of the improvements.

3.2 Cost Proportioning

Brunswick County's participation in the cost of a Regional Wastewater Pump Station shall be limited to construction costs, the downstream transmission force main (as defined previously in this document), certain property costs, certain financing costs,

and a portion of other non-bid costs (preliminary engineering, engineering design, surveying, permitting, bidding, construction oversight, etc.). 10% of the construction estimate shall be used to estimate all eligible non-bid costs. Additionally, in order to cover non-bid costs, 110% of the lowest, responsive bidder's bid price shall be used to determine amounts eligible for reimbursement. Only the fair market value of certain property costs associated with the Brunswick County approved Regional Wastewater Pump Station site and access road no longer than 50' shall be eligible for reimbursement. The intent is to provide property reimbursement only in situations where this policy requires a Developer to build a Regional Wastewater Pump Station a significant distance from the property to be developed in addition to a pump station to serve the developing property. **No reimbursement shall be made for property that is part of the tract to be developed or that borders the tract to be developed.**

The percentage of the cost to build a Regional Wastewater Pump Station that shall be borne by Brunswick County shall be determined by a comparison of the following in advance of bidding and construction:

- 1) Estimated cost to construct a Regional Wastewater Pump Station at the required Average Daily Flow (ADF per NCDENR). If the Developer must build two pump stations; a Regional Wastewater Pump Station and a satellite pump station to serve only the Developer's project, then the satellite pump station to serve only the Developer's project may be included in the estimate. The force main from the Regional Wastewater Pump Station to the connection point at the existing transmission main may be included in the estimate. The force main from the Developer's satellite pump station to the Regional Wastewater Pump Station (if applicable) shall not be included in the estimate.
- 2) Estimated cost to construct a pump station on the developing property using the Average Daily Flow for only the Developer's project. The same length of force main used in estimate #1 above shall be included in the estimate. Estimated pump sizes shall be based on connection pressures under the modeling condition of "All Pump Stations On". In order for the Developer to be eligible for a Sewer Transmission Main Reimbursement Agreement, this estimate must be based on an 8" diameter force main or larger and the pump station must be able to deliver a scourable velocity in the force main.

The two estimates shall be used to determine the percentage cost of the contractor's bid amount assigned to the Developer and to Brunswick County as follows:

- Developer's Percentage = (Estimate #2)/(Estimate #1)
- County's Percentage = 100 - Developer's Percentage

Since the estimates are to be used to determine each party's correct percentage and not actual cost liability, it is most important that the estimates be consistent with one another and less important that they reflect all appurtenances of the project. Once the cost percentages have been determined, the project may be bid. One hundred ten percent (110%) of the lowest, responsive bidder's bid price shall be used to determine amounts eligible for reimbursement. The additional 10% is used to cover the cost of all non-bid items (preliminary engineering, engineering design, surveying, permitting, bidding, construction oversight, etc.). In order to defray debt service costs, the County will reimburse the Developer for financing the incremental cost attributable to making the pump station regional in nature. The amount of financing costs eligible for reimbursement shall be determined as follows:

$$\text{Financing Cost Reimbursement} = (\text{County's Percentage}) * (110\% \text{ of Lowest Responsive Bid}) * (3\%)$$

Estimates certified by the Developer's engineer and approved by Brunswick County shall be used in the analysis to determine the proportionate costs to the Developer and to the County. Two sample scenarios are provided as follows:

SCENARIO 1

A Developer intends to construct a 220-unit residential subdivision in the southern end of Brunswick County and has need of approximately 46,200 GPD (220 units * 210 gpd/unit) of sewer capacity to serve the development. The development is approximately 500' from the nearest sewer transmission force main. A 4" force main and 23 horsepower pump station pumping directly into the existing transmission force main is needed to serve only the development. Brunswick County has determined that a Regional Wastewater Pump Station with a capacity of 500,000 GPD is needed to meet the needs of all of its sewer customers in the area. This Regional Wastewater Pump Station would be located at the same location and would require a 115 horsepower pump station with a downstream 12" diameter force main.

Estimate 1 (Regional Wastewater Pump Station)

\$850,000	115 hp - 500,000 gpd Regional Wastewater Pump Station
<u>25,000</u>	500' of 12" Diameter FM (Regional WW PS to Connection Point)
\$875,000	Subtotal
<u>87,500</u>	Non-Bid Costs (10% of subtotal)
\$962,500	Total

Estimate 2 (Manifold Pump Station)

\$350,000	23 hp - Manifold Pump Station
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<u>7,500</u>	500' of 4" Diameter FM (Same length as above)
\$357,500	Subtotal
<u>35,750</u>	Non-Bid Costs (10% of subtotal)
\$393,250	Total

Determine Eligible Reimbursement Amount

Developer's Percentage	= (Estimate #2) / (Estimate #1)
	= (\$393,250) / (\$962,500) = 40.86%
County's Percentage	= 100 - Developer's Percentage
	= 100 - 40.86 = 59.14%

The "project" that must be bid for eligibility under this policy consists of the items in the Regional Wastewater Pump Station Estimate #1 including a 115 hp PS and 500' of 12" diameter FM. The "project" is bid out and the lowest, responsive bid received is \$800,000.

Add 10% for Non-Bid Items = (\$800,000) * (110%) = \$880,000

County's Share of Project Bid Amount & Non-Bid Costs = (\$880,000) * (59.14%) = \$520,457

Financing Cost Reimbursement = (\$520,457) * (3%) = \$15,614

Total Eligible Reimbursement = (\$520,457) + (\$15,614) = \$536,071

Under this scenario, the cost to the Developer for the Regional Wastewater Pump Station is less than the estimated cost of the manifold pump station. This is due to differences between estimated costs and the actual costs of the bid. (Developer's Cost = Bid Amount & Non-Bid Costs - County's Share of Bid Amount & Non-Bid Costs = \$359,543).

SCENARIO 2

A Developer intends to construct a 220-unit residential subdivision in the southern end of Brunswick County and has need of approximately 46,200 GPD (220 units * 210 gpd/unit) of sewer capacity to serve the development. The development is approximately four miles from the nearest sewer transmission force main. A 4" force main and 23 horsepower pump station pumping directly into the existing transmission force main is needed to serve only the development. However, the Developer intends to execute a "Sewer Transmission Main Reimbursement" Agreement with Brunswick County, so an 8" force main and 47 horsepower pump station pumping directly into the force main would be required for eligibility purposes. Brunswick County has determined that a Regional Wastewater Pump Station with a capacity of 500,000 GPD is needed to meet the needs of all of its sewer customers in the area. This Regional Wastewater Pump Station would be located approximately ½ mile from

the existing transmission force main (3 ½ miles from the development) and would require a 115 hp pump station with a downstream 12" diameter force main. The Developer would need to acquire property for the Regional Wastewater Pump Station. Using a Regional Wastewater Pump Station downstream, the satellite pump station at the development could be downsized from 47 horsepower to 10 horsepower.

Estimate 1 (Regional Wastewater Pump Station)

\$850,000	115 hp - 500,000 gpd Regional Wastewater Pump Station
130,000	2,600' of 12" Diameter FM (Regional WW PS to Connection Point)
<u>230,000</u>	10 hp - Satellite Pump Station
\$1,210,000	Subtotal
<u>121,000</u>	Non-Bid Costs (10% of subtotal)
\$1,331,000	Total

Estimate 2 (Manifold Pump Station)

\$500,000	47 hp - Manifold Pump Station
<u>78,000</u>	2,600' of 8" Diameter FM (Same length as above)
\$578,000	Subtotal
<u>57,800</u>	Non-Bid Costs (10% of subtotal)
\$635,800	Total

Determine Eligible Reimbursement Amount

Developer's Percentage	= (Estimate #2) / (Estimate #1)
	= (\$635,800) / (\$1,331,000) = 47.77%
County's Percentage	= 100 - Developer's Percentage
	= 100 - 47.77 = 52.23%

The "project" that must be bid for eligibility under this policy consists of the items in the Regional Wastewater Pump Station Estimate #1 including a 115 hp PS, 2,600' of 12" diameter FM, and a 10 hp PS. The "project" is bid out and the lowest, responsive bid received is \$1,210,000, exactly the same as the estimated cost.

Add 10% for Non-Bid Items = (\$1,210,000) * (110%) = \$1,331,000

County's Share of Project Bid Amount & Non-Bid Costs = (\$1,331,000) * (52.23%) = \$695,200

Add Eligible Property Costs for Regional WW PS Site = (\$695,200) + (\$5,000) = \$700,200

Financing Cost Reimbursement = (\$700,200) * (3%) = \$21,006

Total Eligible Reimbursement = (\$700,200) + (\$21,006) = \$721,206

Under this scenario, the cost to the Developer is the same with or without the Regional Wastewater Pump Station (Developer's Cost = Estimate 2 = Bid Amount & Non-Bid Costs – County's Share of Bid Amount & Non-Bid Costs = \$635,800). If the lowest, responsive bid was lower than \$1,210,000 the Developer's cost would be proportionately lower and vice-versa.

3.3 Bid & Award Requirements

In order to be eligible for the cost share, the Developer must conduct a formal bid & award procedure that complies with the North Carolina Administrative Code General Statutes. Primarily, this involves the North Carolina General Statute 143-129 "Formal Bidding Procedure" or North Carolina General Statute 143-31 "Informal Bidding Procedure", whichever shall apply based upon the total cost of the Regional Wastewater Pump Station constructed as part of the reimbursement agreement. The Brunswick County Director of Engineering and/or County Manager will determine if the bid is reasonable and acceptable.

Upon completion of the bid and award process, the Developer shall submit the following documentation to Brunswick County for approval of the bid process:

- Affidavit of Publication of Public Advertisement of Project.
- Letter of Recommendation from the Engineer of Record that the project was bid to the best of his knowledge in accordance with all applicable laws and regulations and that the selected contractor is properly licensed to perform the Regional Wastewater Pump Station construction.
- The bid shall include line items for individual portions or unit prices of the improvements to be constructed. The Developer or his designee shall provide copies of all bid proposals received and a copy of the executed contract between the Developer and the selected contractor.
- Bid Tabulations certified by the Engineer of Record.
- Purchase contracts and certified appraisal, if requested by Brunswick County, for property necessary to build the Regional Wastewater Pump Station.

3.4 Reimbursement

The Developer shall incur all costs associated with construction of the Regional Wastewater Pump Station and downstream transmission force main until such time that the station is complete and accepted by Brunswick County. Prior to receiving

reimbursement by the County for any eligible reimbursement costs the following must be completed:

- Verification of formal bid & award process.
- Construction 100% complete to include punchlist, etc.
- Completion of start-up and check-out of facility.
- Acceptance by Brunswick County Engineering Department as complete and in compliance with Brunswick County standards.
- Record Drawings completed and provided to Brunswick County.
- Final Engineering Certification provided to Brunswick County & NCDENR.

Reimbursements shall be contingent and in accordance with the following:

- (1) The Developer or his designee shall submit an **Application for Regional Wastewater Pump Station Reimbursement**, including a description of the project and applicable construction quantities. The Application shall be signed and sealed by a professional engineer registered in the State of North Carolina and shall designate to whom the reimbursement should be payable including the applicable address.
- (2) The Developer or his designee shall provide a Certified Tax Statement from the contractor for the Regional Wastewater Pump Station and downstream transmission force main as part of the reimbursement request.
- (3) The Application for Reimbursement shall be submitted to the Brunswick County Engineering Department for review prior to being approved by the Board of Commissioners.
- (4) All Regional Wastewater Pump Stations and downstream transmission force mains constructed under the provisions of this policy shall be installed and constructed in accordance with the approved plans, specifications, and other requirements of the County. Upon completion of the construction by the Developer and acceptance of Regional Wastewater Pump Stations and downstream transmission force main by Brunswick County, the Regional Wastewater Pump Stations and downstream transmission force main shall become the property of Brunswick County.
- (5) Reimbursement shall be made according to the executed reimbursement agreement. No reimbursement shall be made after the Developer or coalition of Developers has recovered all eligible reimbursement cost of the Regional Wastewater Pump Station. The

term of any reimbursement agreement shall run from the execution of the agreement by all parties until the County's obligation for reimbursement has been met. The agreement may be terminated (at any time) by unanimous consent of all parties.

- (6) All reimbursement agreements shall be two-party agreements between Brunswick County and a Developer or coalition of Developers and shall be approved by the Board of Commissioners prior to construction of the wastewater facilities.
- (7) The Sewer Transmission Capital Recovery Fee shall be collected by the County from individuals that connect to the County's sewer collection system. The Sewer Transmission Capital Recovery Fee must be paid by the Developer or property owner at the time of application for sewer service and shall be based on Residential Equivalent Units (REUs). Individual property owners connecting directly to the transmission line or Regional Wastewater Pump Station will also be subject to the Sewer Transmission Capital Recovery Fee. Individuals shall pay the Sewer Transmission Capital Recovery Fee when they apply for sewer service. Said fee shall be in addition to the Sewer Capital Recovery Fee, Sewer Tap Fee, and any other fees associated with connection to the County's sewer system.
- (8) Reimbursements paid to the Developer shall come from available Sewer Transmission Capital Recovery Fees not dedicated for repayment of any other reimbursement agreement.
- (9) A Developer that is required to construct a Regional Wastewater Pump Station or sewer transmission line to serve a development must pay the Sewer Transmission Capital Recovery Fee.
- (10) Reimbursements shall be made according to the schedule agreed to in the executed Regional Wastewater Pump Station Agreement. The Brunswick County fiscal year begins July 1 and ends June 30. The first reimbursement payment shall be made on or before January 31 of the fiscal year following the fiscal year in which the County issues "Final Acceptance" of the Regional Wastewater Pump Station. If necessary, subsequent reimbursement payments shall be made annually on or before January 31 of each year.

END OF SECTION