# PUBLIC WORKS COMMISSION TEMPLATE

**for Engineer’s Report for Water Main Extensions**

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| --- | --- | --- | --- | --- |
| Date: |  | | | |
| Project Name: | |  | | |
| Water System Name: | | | | Fayetteville Public Works Commission |
| Water System ID: | | | NC0326010 | |
| County of Project: | | |  | |

Prepared by:

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This form includes the minimum information needed for the Fayetteville Public Works Commission to review water main extension projects. Complex or unique design conditions must be addressed in a supplemental document as deemed appropriate by the design engineer.

Signature and seal of Professional Engineer that prepared this report:

I attest that this engineer’s report has been prepared by me, or under my responsible charge, and is accurate, complete and consistent with the information supplied in the engineering calculations.  I further attest that the proposed design has been prepared in accordance with 15A NCAC 18C.  Although page 4 of this report incorporates data provided by others, inclusion of these materials under my seal signifies that I have reviewed this material and have judged it to be consistent with the proposed design. Water Main Extension Engineer’s Report Mandatory Information

To present data required by 15A NCAC 18C .0307(b)

Specific citations from 15A NCAC 18C are provided when data is required to confirm compliance with another regulation.

**Applicant Information**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Applicant name (must be a person): | |  | | | | | | | |
| Applicant mailing address: |  | | | | | | | | |
| City: |  | | | | | State: |  | Zip: |  |
| Applicant phone numbers: Business: | | |  | Cell: |  | | | | |
| Applicant e-mail address: |  | | | | | | | | |

**Description of Proposed Project**

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| Name of proposed project: |  |

Provide a summary of the diameter, length and material of all piping proposed in the project.

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| --- | --- | --- |
| Diameter of piping | Length of piping | Material |
| -inch | linear feet |  |
| -inch | linear feet |  |
| -inch | linear feet |  |
| -inch | linear feet |  |
| -inch | linear feet |  |

Location of project: (use address if available; if address is not available use existing roads and intersections, and identify municipality).

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The proposed project is an expansion of the existing public water system.  Yes  No

The source of water for the proposed project will be provided by a separately owned public water system.  Yes  No

**Is the project phased?**  **Yes  No**

If yes, delineate all phases in plan sheets. Partial final approvals may be granted to completed phases specified in this submittal.

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If yes, depending on whether the water system does or does not provide fire flow; provide calculations to demonstrate that the project can provide adequate peak demand (domestic peak demand) at the minimum required residual pressure of 30 pounds per square inch gauge (psig) or can provide peak demand with fire flow (domestic peak demand plus fire flow) at the minimum pressure of 20 psig through ***each*** phase of construction

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| **Check here if project is a water main replacement with no additional demands.**  **(Water main replacement consists of like size, no additional service connections, and no additional hydrants and no added fire demand.)** | If box checked, proceed to page 4 |

**Provide anticipated project flows for any project that will increase demands**

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| Does the proposed project (as designed) include any in-ground irrigation? | Yes  No |  |
| If yes, attach appropriate analysis to address how the system is designed to accommodate the impact of irrigation use on treated water supply, storage needs and system pressure. |  |  |
| Peak hourly demand (non-fire flow) of proposed project |  | gpm |
| Maximum day demand of proposed project |  | gpd |
| Average day demand of proposed project |  | gpd |
| Indicate the calculated pressure at maximum non-fire flow. The pressure must be at least 30 pounds per square inch gauge. **You must attach calculations or summary of model results**. |  | psig |
| Per Rule .0901, is the proposed project designed to carry fire protection flows for this project? | Yes  No |  |
| Determine minimum fire flow per North Carolina Building Code: |  |  |
| Proposed Building Type per North Carolina Building Code (IA, IB, IIA, IIB, IIIA, IIIB, IV, V-A, V-B) |  |  |
| Proposed Building Fire-Flow Calculation Area |  | sqft |
| Minimum Fire Flow per North Carolina Fire Code Appendix B |  | gpm |
| Minimum Fire Flow Duration |  | hr |
| All fire suppression systems or appurtenances that exert a demand on proposed project must be included in calculations. Pressure must be at least 20 psig during fire flow conditions at maximum day demand. |  |  |
| Flow Test Static pressure |  | psig |
| Flow Test Residual pressure |  | psig |
| Flow rate during fire flow test |  | gpm |
| Will the building include an automatic sprinkler system | Yes  No |  |
| Sprinkler design flow |  | gpm |
| Calculated Minimum pressure during fire flow at maximum day demand. **You must attach calculations or summary of model results.** |  | psig |

**NOTES:**

1. Supporting documentation must be attached for all ***calculated*** values.
2. Maps displaying the locations of the field pressure and flow tests in relation to the location of the proposed project must also be attached.
3. Summary of Model results shall include
   1. report tables for all nodes including elevation, demand, and pressure
   2. report tables for all pipes including diameter, start and stop nodes, length, friction factors, flowrates, and head loss
   3. report tables for pumps including pump curve, elevation, calculated flow, and calculated head
   4. report tables for reservoirs/tanks including elevation and flow
   5. map or schematic of model with all components clearly identified

Key:

gpm: gallons per minute

gpd: gallons per day

psig: pounds per square inch gauge

**Water System-Supplied Information**

*Information on this page must be updated on an annual basis*

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| Data provided by: | | John P. Allen, P.E. | (name) Date provided: | December 31, 2021 |
| Position: | Senior Engineer | | | |

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| Number of current connections in water system | 90,943 | connections | | |
| Approved number of connections in water system | 90,943 | connections | | |
|  | N/A – local government system | | |  |
| Current average and maximum day demand of existing system Average day demand is the one day average demand for the latest calendar year. | 23.807  31.939 | average MGD  maximum MGD | | |
| Current maximum daily treated water supply of existing system Maximum daily treated water supply is the maximum quantity of treated water that can be produced and/or purchased by the system. | 50.0 | maximum MGD | | |
| Total elevated storage capacity of existing system | 5.0 M | gallons | | |
| Total ground storage capacity of existing system | 31.50 M | gallons | | |
| Total hydropneumatic storage capacity of existing system | N/A | gallons | | |
| Contractual storage with other system(s) Attach a copy of the agreement with the providing system | N/A | gallons | | |
| Systems > 300 connections or systems < 300 connections without hydropneumatic storage: |  | |  | |
| * Total storage volume is at least half the average annual daily demand (Rule .0805(c)) | Yes  No | |  | |
| * Has elevated storage or meets high yield aquifer criteria (Rule.0405(d)) | Yes  No | | N/A | |
| * For municipalities, at least 75,000 gallons elevated storage and at least half the average day  demand combined elevated and ground finished water storage (Rule .0805(b)) | Yes  No | | N/A | |
| Systems with hydropneumatic storage tanks up to 300 connections: |  | |  | |
| * Volume of hydropneumatic storage tank is sufficient to meet peak demands based on Rule .0802 and calculations in Appendix B, Figure 6 | Yes  No | | N/A | |
| * For residential community systems, volume of hydropneumatic storage tank is at least 40 times the number of connections or 500 gallons, whichever is greater (Rule .0803) | Yes  No | | N/A | |
| * For mobile home park systems, volume of hydropneumatic storage tank is at least 25 times the number of connections or 500 gallons, whichever is greater (Rule .0803) | Yes  No | | N/A | |
| * For campground systems, volume of hydropneumatic storage tank is at least 10 times the number of connections or 500 gallons, whichever is greater (Rule .0803) | Yes  No | | N/A | |