



Public Utilities Water Design Report

Project Name:

DSC File #:

Location:

Project Description:

Prepared by:

Date:

DEMAND SUMMARY:

Connection Type	Number of Connections	Average Day		Maximum Day	
		GPD/Connection	GPD	GPD/Connection	GPD
Residential					
Commercial					
Industrial					
Other (identify)					
TOTAL					

DESIGN SUMMARY:

Pipe Size	Pipe Length	Pipe Material	Notes

Number of Fire Hydrants:

HYDRAULIC ANALYSIS SUMMARY:

Demand Scenario	Total Demand (gpm)	Min Residual Pressure (psi)	Node ID with Min Residual Pressure	Max Velocity (fps)	Pipe ID with Max Velocity
MDD					
MDD + NFF					
Peak Hour					

MDD=Max Day Demand, NFF=Needed Fire Flow



CITY OF
**VIRGINIA
BEACH**

DEPARTMENT OF PUBLIC UTILITIES
ENGINEERING DIVISION
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CALCULATION REQUIREMENTS:

Supporting hydraulic calculations must accompany this report, including:

- 1) Capacity curve(s) obtained from Public Utilities by the consultant,
- 2) The model system node map,
- 3) Pump inputs used in model,
- 4) Reports from three demand scenarios: Max Day, Max Day with Fire Flow, Peak Hour
 - a) Pipe report - including sizes, lengths, C-factors, and velocities for each demand scenario
 - b) Node report- including elevations, demands, and residual pressure for each demand scenario
- 5) The available flow @ 20 psi for each new public hydrant – see DSC Notice 20200703
- 6) Additional analysis may be required on a case by case basis (i.e. turnover calculations)

NOTES:

- 1) This form is required with any public water main extension or addition of fifteen or more water service connections
- 2) Capacity curves can be obtained from: [Flow & Capacity Data Form | City of Virginia Beach](#)
- 3) The NFF is approved by the fire official. If the proposed NFF changes because of fire review, the consultant is responsible for providing updated calculations and ensuring Public Utilities is notified.
- 4) The following basis should be used for determining Max Day Demand:
 - a) Residential: 315 gpd/dwelling unit
 - b) Commercial: AWWA peak flow * 0.7
- 5) The following basis should be used for determining Peak Hour demands:
 - a) Residential: $Q_{PEAK} = 11.4N^{0.544}$, where N=total number of residential dwelling units
 - b) Commercial: AWWA peak flow
- 6) The minimum pressure reported is the lowest pressure at any node in the public system.
- 7) The maximum velocity applies to distribution mains in the public system (not service lines).
- 8) The paint color for each hydrant must be specified on the plan set per DSC Notice 20200703.
- 9) Refer to the Public Utilities Design Standards Manual for additional information.