

Appendix C

August 2009

Engineering Report
For Extension of Water and Sewer Mains in the
City of Harrisonburg

Name of Proposed Project:

Owner's Name:

Owner's Address

Telephone (_____) _____

Engineer's Information:

Name _____

Address _____

Telephone (_____) _____

Contact Engineer _____

Date of Submittal _____

Reserved for Engineer's Seal
& Signature

Review Comments: Accepted _____

Not Accepted _____

Corrections:

Revisions:

Review By: _____

Date: _____

ITEM 1 VARIANCES

Provide a narrative of any variance request of either design or construction procedures. (Approval, if granted, of this variance must be properly denoted on the cover sheet of the drawings) (Re: 4.3.1)

ITEM 2 GRADING & STRUCTURAL

Identify where this project impacts existing utilities in terms of cover depth, relocation requirements or denied/alternate access.

Provide ten-foot wide travel-way centered over proposed water and sewer utilities.

Provide calculations and design information on all casings.

Specify load concerns or design calculations for all pipe with less than three (3) feet of cover or greater than twenty (20) feet of cover; provide load calculations and available bearing strength (RE: 4.3.2)

ITEM 3 AVERAGE DAILY WATER AND SEWER DEMAND

A. Provide itemization of Average Daily Demand within all phases of the proposed development limits referring to the criteria set forth in Chapter 4.
(Re: 4.3.3.3)

B. Provide itemization of Average Daily Demand within the area served exterior to the proposed development referring to the criteria set forth in Chapter 4. (Re: 4.3.3.3)

C. Provide total of Water and Sewer Average Daily Demand to be used for design by considering both the demand from within and exterior to the proposed development. (A + B) (Re: 4.3.3.3)

ITEM 4 CALCULATION OF DESIGN FLOW RATES

A. Provide the applicable peaking factor and maximum hourly (peak hourly) domestic flowrate for water demand. (Re: 4.3.4.1)

B. Provide calculations for maximum daily demand and needed fire flow (Re: 4.3.4.1 and 4.3.4.3)

C. **Water Design Flow Rate;** larger of A or B.

D. **Sewer Design Flow Rate;** Provide the applicable peaking factor and peak design flowrate for sewer demand. (Re: 4.3.4.2)

ITEM 7 EASEMENTS

Attach to this Report the preliminary plat, which identifies all proposed easement widths, types and locations. Identify placement of pipe within easement and width requirements based on pipe depth. If design requires changes to the preliminary plat, provide red-lined revisions, which will be made prior to recordation. (Re: 4.3.7)

ITEM 8 CONSTRUCTION COST ESTIMATE

Attach to this Report, or provide below, a construction cost estimate with itemization of unit prices, quantities and total estimated cost for Water and Sewer Utilities, (separate each type), to be installed by the Developer. If oversized mains have been required, provide the same itemization for the difference to be paid by the City. (Re: 4.3.8)



**CITY OF HARRISONBURG
2155 BEERY ROAD
HARRISONBURG, VA 22801**

DATE: _____

MEMORANDUM TO: Regional Director
Division of Water

FROM: City of Harrisonburg

SUBJECT: Waterline Project Report

REFERENCE: Memorandum of Understanding, Local Review Program

PROJECT NAME: _____

PROJECT LOCATION: _____

PLANS PREPARED BY: _____

PROJECT CONSTRUCTION DATE: _____

Pipe: Size: _____ Length: _____ Material: _____

Water Source: _____

Average Production for Last Three Months: _____

Maximum Daily Demand: _____

Water Storage: Existing Capacity _____ MG
Tank to Serve this Area _____

Tank Overflow Elevation _____ FT
Tank Bottom Elevation _____ FT

Existing Service Area Evaluation After New Project Added:

Minimum Pressure _____ psi
Maximum Pressure _____ psi
Minimum Fire Flow Provided _____ psi

Hydraulic Capacity and Design: Pressures- Minimum _____ psi
Maximum _____
Using tank at _____

Fire Flow Provided

Number of Connections

Average Daily Usage

Domestic _____
Commercial _____
Industrial _____
Other _____
(Identify) _____

TOTAL _____

Usage _____
Usage _____
Usage _____
Usage _____
Usage _____

Usage _____

**Supplemental Site Plan Checklist
For Water and Sewer Main Extensions
"Plan View" Requirements**

Chapter 4 Reference	Design Requirement	OK	Deficiencies	
		()	Sht #	Notes
	Horizontal Location of Water or Sewer Main			
4.4.1.1	Within right-of-way where possible			
4.4.1.2	Proper placement in right-of-way			
4.4.1.2	Right-of-way provisions for other utilities			
4.4.2.1	Private property easement identified			
4.4.2.2	Private property pipe location within easement			
4.4.3.2	Proper separation of parallel water and sewer mains			
4.4.3.3	Water and sewer crossings identified with proper alignment			
4.4.3.5	Proper horizontal separation of other parallel utilities			
4.4.3.5	All utility crossings identified with proper alignment			
	4.4.4 Fire Hydrant Design			
4.4.4.1	Public ownership			
4.4.4.2	One hydrant per 800 feet of pipe			
4.4.4.3	Pursuant to the Fire Chief's request			
4.4.4.4	Dead end mains			
4.4.4.5	Low point on main where feasible			
4.4.4.6	Street intersections			
4.4.4.7	Unobstructed placement			
4.4.4.8	50-100 feet from siamese connections			
4.4.4.9	Protected with a barrier			
	4.4.5 Valve Design			
4.4.5.1.1	5 feet from main on hydrant pipe feed			
4.4.5.1.2	5 feet from hydrant if feed greater than 50 feet or services proposed			
4.4.5.2	Four valves at crosses on mains			
4.4.5.2	Three valves at tees on mains			

