

## **7. SITE PLAN REQUIREMENTS**

(For plans that involve utility connections only. See Checklist of Water and Sewer Plans for site plans also requiring utility extensions.)

### **7.1 General Requirements**

1. The location and size of the existing sewer line and water mains must be shown on the site plan. The top and invert elevation of all existing manholes must be given.
2. The exact location of the existing sewer (lateral) connection and/or water service and box must be shown, making reference to the length, depth and station location of the sewer lateral and the relationship of the water and sewer services and appurtenances with the existing, proposed and future buildings, etc. Also, show size of existing water meter where applicable. Also show a clean-out on the sewer service at the property line or easement line as appropriate.
3. Existing and proposed utility easements must be shown on the site plan. Recordation information for all existing and off-site easements must be noted on the plans. On-site easement recordation information must be added to the plans at the Department of Public Utilities and the Planning Department prior to a full building permit being issued. The engineer needs to make sure there are no buildings or other permanent structures encroaching onto easements. Also, if there are any other type of structures and/or activities proposed i.e., storm sewers, retaining walls, grading, curb and gutter, concrete paving, obstacles (garbage pads, light posts, and other utility lines) etc., the engineer shall make site design changes and take appropriate measures to protect the existing water and/or sewer line and its appurtenances.
4. Existing plumbing from building to connection and/or water meter must be shown. Proposed plumbing from building to sewer connection and/or new water meter must be shown.
5. When the site plan reflects the installation of a new sewer connection, the appropriate notes outlining the Utilities Department's requirements for installing a connection must be shown on the plan. The point where the utilities contractor stops his work and the plumber begins needs to be clearly denoted on the plan.
6. Site plan needs to clearly reflect the proposed "Fill" and "Cut" areas. Engineer is to analyze how it will affect the existing and/or proposed water and/or sewers.
7. Adjustment of water and sewer appurtenances will require notes, i.e., notifying the Inspection Section to inspect any adjustments, that an acceptable licensed Utilities Contractor perform all utility work, etc.
8. Engineer must be aware of where proposed and future water and/or sewer extensions are needed and show this information on the plans and reflect sufficient (minimum of 20' wide utility easement) easement width for future water and/or sewer extensions.
9. Where additional Road right-of-way and/or widening is proposed, the site plan needs to reflect the extension of the existing sewer (lateral) connection and/or existing water service and meter box just inside the new R/W line or utility easement, as appropriate.

10. A water meter sizing form must be submitted to the Department of Public Utilities for commercial, industrial and multi-family residential properties connecting to public water where existing and/or new services are proposed.
11. If the existing water meter size needs to be decreased or removed due to change in water demand, a letter from the Developer is required authorizing the County to either replace the existing meter with a smaller meter or remove the meter at Developer's expense. The meter may also remain at the option of the County.
12. For all new building additions with proposed water and sewer facilities, the engineer needs to submit a "Water Meter Sizing Form" for the addition as well as the existing building to determine if the existing water meter size is sufficient for new water usage. The Developer should be aware that additional water and sewer capacity fees may be required if additional fixtures are added to an existing facility.
13. Engineer shall provide all calculations necessary to show that both fire and domestic demands being placed on the site can be met.
14. If an underground fire line is proposed, engineer must show the proposed water main tie-in and the proposed location of the double detector check valve assembly. The double detector check valve assembly is to be owned and maintained by the owner and shall not be in a utility easement unless otherwise approved by the Hanover Department of Public Utilities. If a sump pump is to be provided for the double detector check vault to provide drainage, the plans shall schematically show electric power being provided to the vault.
15. Standard Utility notes included on plans or referenced.
16. If sealed by an engineer or surveyor, all seals signed and dated by the engineer or surveyor with original signature on the cover sheet.

## 7.2 Site Plan Checklist

PROJECT: \_\_\_\_\_

GPIN NUMBER: \_\_\_\_\_ Date: \_\_\_\_\_

### UTILITIES

1. \_\_\_\_\_ The site plan shows the existing water and sewer lines and how this project will connect to the public water and sewer systems.
2. \_\_\_\_\_ Site Utilization Survey Form has been submitted.
3. \_\_\_\_\_ The plan needs to show the as-built location and information of the existing 6" sewer connection if one exists or a proposed 6" sewer connection if one does not exist.
4. \_\_\_\_\_ The site plan designates that a utilities contractor will install the 6" connection to the edge of the VDOT right of way or sewer easement and show the plumber starting his work from that point.
5. \_\_\_\_\_ A water meter sizing form is submitted for each proposed meter or existing meter.
6. \_\_\_\_\_ If the existing water service on this property is to be abandoned, the owner/developer has submitted a letter authorizing this service to be removed and if appropriate, to pay any costs associated with abandoning the meter.
7. \_\_\_\_\_ The site plan reflects any necessary adjustment of the existing manhole tops.
8. \_\_\_\_\_ The site plan shows the location of utility easements and with the deed book and page for existing easements noted on the plans and space for the recordation information for on-site utility easements which must be added to the plans at the Department of Public Utilities and Planning prior to a full building permit being issued.
9. \_\_\_\_\_ The engineer has completed his calculations on fire flow and domestic water demands and has verified that the public water system will support these demands. The engineer must submit these calculations if requested by the County.
10. \_\_\_\_\_ Where industrial waste is a possible influent to the public sewer system, the engineer has incorporated appropriate measures on the plans, i.e., sampling points, metering stations, etc.
11. \_\_\_\_\_ Monitoring manholes are required for facilities currently regulated

by local or federal industrial waste pretreatment laws. Examples of these commercial facilities include restaurants, carwashes, auto repair shops, and laundromats to name a few. A private monitoring manhole shall be provided to facilitate random sampling.

12. \_\_\_\_\_ For water meters two inches and larger, type of meter, standard or compound, noted on plans. Typically a compound meter is required.
13. \_\_\_\_\_ Water meters for irrigation systems properly labeled “irrigation” or “water only” meter.

### 7.3 Site Utilization Survey

Please complete this form and submit to the Hanover County of Public Utilities, P.O. Box 470, Hanover Virginia 23069

Name of Proposed Company: \_\_\_\_\_

Proposed Site Location: \_\_\_\_\_

County Project Number: \_\_\_\_\_

Type of Company Activity:    \_\_\_\_\_ Commercial  
  \_\_\_\_\_ Residential  
  \_\_\_\_\_ Office  
  \_\_\_\_\_ Manufacturing/Industrial  
  \_\_\_\_\_ Food Service  
  \_\_\_\_\_ Warehouse/Distribution  
  \_\_\_\_\_ Service Related  
  \_\_\_\_\_ Other: \_\_\_\_\_

Description of Company Activity: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

S.I.C. Code: \_\_\_\_\_

If manufacturing, description of products, by-products and waste products generated:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Company Contact Person:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

## 7.4 Procedure For Sizing Meters

1. Determine the domestic fixture count for the facility utilizing the following procedures:
  - a. Determine the number and type of water fixtures and list on Sizing Meters form found on page 7-8. For those water utilizing fixtures which are not included on the form, include water use in gallons per minute at 35 psi pressure.
  - b. For each type of fixture, multiply the fixture value times the number of fixtures to obtain the Total Fixture Value for each type of fixture. Add the totals for each type of fixture and place the total in the space provided near the bottom of the form.
  - c. Fixture counts for items not listed on the Sizing Water Meters form shall be added by the person completing the form. These counts must be substantiated with data furnished by the owner and/or his agent.
  - d. If fixed demands (i.e. irrigation systems, process water, etc.) are not present, utilize the following table to size the water meter. If fixed demands are present, go to 2. below.

<u>Meter Size</u>	<u>Fixture Count Value</u>
5/8"	0 - 50
1"	51 - 100
1-1/2"	101-400
2"	401 – 1,200
3" and larger	By Registered Engineer.

Meters 3" and larger shall be sized by a professional engineer. Meter sizing shall be in accordance with the requirements AWWA M22. If utilizing AWWA M22 gives a meter size smaller than 3" the meter size shall be 3".

2. If fixed demands are present (i.e. irrigation systems, process water, etc.) continue as outlined below.
  - a. Provide information on fixed demands in the appropriate location on the Sizing Water Meters form and documentation of fixed demands as appropriate.

- b. Convert the total domestic fixture count determined in 1 above to a flow using figure 4.4. or 4.5 from AWWA M22. the lower curve on these figures may only be utilized for apartment buildings, condominiums, and trailer parks.
- c. Add the fixed flow(s) to the flow determined from the domestic fixture count to determine total flow.
- d. Based on total flow, the following meter sizing chart shall be utilized. In no case shall the meter size be less than that required by 1.d above based on the domestic fixture count alone.

<u>Meter Size</u>	<u>Total Flow (gpm)</u>
5/8"	0 – 16
1"	16 – 40
1-1/2"	40 – 80
2"	80 – 130
3"	130 – 255

- 3. Complete meter sizing forms should be included on plans or submitted with plans for review and approval by the Department of Public Utilities.

**Sizing Water Meters**

Department Of Public Utilities Hanover County, Virginia

Customer \_\_\_\_\_ Address \_\_\_\_\_

Building Address \_\_\_\_\_ Type of Occupancy \_\_\_\_\_

Development Name \_\_\_\_\_ GPIN Number \_\_\_\_\_

Applicant \_\_\_\_\_

Title/Company \_\_\_\_\_ Daytime Phone # \_\_\_\_\_

I certify that the information on this form is true and correct.

Applicant's Signature: \_\_\_\_\_

<b>Domestic Demand Fixture</b>	<b>Fixture Value @ 35 psi</b>	<b>No. of Ex. Fixtures</b>	<b>No. of Prop. Fixtures</b>	<b>Fixture Value</b>
Bathtub	8 x	( _____ + _____ )	=	_____
Bedpan Washers	10 x	( _____ + _____ )	=	_____
Combination Sink and Tray	3 x	( _____ + _____ )	=	_____
Dental Unit	1 x	( _____ + _____ )	=	_____
Dental Lavatory	2 x	( _____ + _____ )	=	_____
Drinking Fountain	- Cooler 1 x	( _____ + _____ )	=	_____
	- Public 2 x	( _____ + _____ )	=	_____
Kitchen Sink	- 1/2" Connection 3 x	( _____ + _____ )	=	_____
	- 3/4" Connection 7 x	( _____ + _____ )	=	_____
Lavatory	- 3/8" Connection 2 x	( _____ + _____ )	=	_____
	- 1/2" Connection 4 x	( _____ + _____ )	=	_____
Laundry Tray	- 1/2" Connection 3 x	( _____ + _____ )	=	_____
	- 3/4" Connection 7 x	( _____ + _____ )	=	_____
Shower Head (Shower Only)	4 x	( _____ + _____ )	=	_____
Service Sink	- 1/2" Connection 3 x	( _____ + _____ )	=	_____
	- 3/4" Connection 7 x	( _____ + _____ )	=	_____
Urinal	- Pedestal Flush Valve 35 x	( _____ + _____ )	=	_____
	- Wall Flush Valve 12 x	( _____ + _____ )	=	_____
	- Trough (2 Ft. Unit) 2 x	( _____ + _____ )	=	_____
Wash Sink (Each Set of Faucets)	4 x	( _____ + _____ )	=	_____
Water Closet	- Flush Valve 35 x	( _____ + _____ )	=	_____
	- Tank Type 3 x	( _____ + _____ )	=	_____
Dishwasher	- 1/2" Connection 4 x	( _____ + _____ )	=	_____
	- 3/4" Connection 10 x	( _____ + _____ )	=	_____
Washing Machine	- 1/2" Connection 5 x	( _____ + _____ )	=	_____
	- 3/4" Connection 12 x	( _____ + _____ )	=	_____
	- 1" Connection 25 x	( _____ + _____ )	=	_____
Hose Connection (Wash Down)	- 1/2" 6 x	( _____ + _____ )	=	_____
	- 3/4" 10 x	( _____ + _____ )	=	_____
Hose (50 Ft. Wash Down)	- 1/2" 6 x	( _____ + _____ )	=	_____
	- 5/8" 9 x	( _____ + _____ )	=	_____
	- 3/4" 12 x	( _____ + _____ )	=	_____
Other: _____	x	( _____ + _____ )	=	_____
<b>Combined Fixture Value Total</b>			=	_____
<b>Domestic plus Fixed Demands:</b>				
Equivalent Fixed Flow for Domestic Fixture Count			=	_____
Fixed Flow _____			=	_____
<b>Total Flow</b>			=	_____