

**TOWN OF PURCELLVILLE, VIRGINIA**

**FACILITIES STANDARDS MANUAL**

**Adopted November 9, 1999**

**Prepared by Biggers and Wilt Development Services, LC**

**For Department of Public Works  
Karin Franklin, Director/Town Engineer**

**Public Works Committee  
Lisa Payne, Chairperson  
Paul Arborgast  
Loren Kropat**



## TABLE OF CONTENTS

	Page
<b>CHAPTER 1: GENERAL INFORMATION</b>	
Section 1.1: Purpose and Authority .....	1
Section 1.2: Interpretation and Revision .....	1
Section 1.3: Severability .....	2
Section 1.4: Materials Specification Booklet .....	2
Section 1.5: References .....	2
<b>CHAPTER 2: WATER SUPPLY AND DISTRIBUTION</b>	
Section 2.1: Design Criteria and Construction Standards .....	4
Section 2.2: Exceptions To Governing Regulations .....	4
2.2.A. Cross Connections .....	4
2.2.B. Distribution System Layout .....	4
2.2.C. Pump Stations .....	4
2.2.D. Easements .....	5
2.2.E. Sample Stations .....	6
2.2.F. Location of Water Lines in Public Right of Way .....	6
2.2.G. Materials .....	6
2.2.H. Plan Submissions and Bonding Policy .....	6
2.2.1. Water Laterals Connections .....	6
2.2.J. Acceptance and As-Builts .....	7
<b>CHAPTER 3: WASTEWATER COLLECTION AND SOLID WASTE DISPOSAL</b>	
Section 3.1: Design Criteria and Construction Standards .....	8
Section 3.2: Exceptions To Governing Regulations .....	8
3.2.A. Pretreatment For Industry .....	8
3.2.B. Septic Systems .....	8
3.2.C. Pump Stations .....	8
3.2.D. Wastewater Collection Systems .....	12
3.2.E. Easements .....	12
3.2.F. Materials .....	13
3.2.G. Plan Submissions and Bonding Policy .....	13
3.2.H. Sewer Lateral Connections .....	13
3.2.I. Acceptance and As-Builts .....	13
Section 3.3: Solid Waste Disposal .....	14
3.3.A. Solid Waste Management Plan .....	14
3.3.B. Storage .....	14
3.3.C. Handling .....	15

TABLE OF CONTENTS (Continued)

	Page
3.3.D. Collection .....	15
3.3.E. Disposal .....	15
3.3.F. Screening .....	15
 <b>CHAPTER 4: STORM DRAINAGE</b>	
Section 4.1: Stormwater Management .....	16
Section 4.2: Stormwater Conveyance System .....	16
4.2.A. Hydrology .....	16
4.2.B. Storm Sewers and Culverts .....	16
4.2.C. Open Channels .....	19
4.2.D. Easements .....	19
Section 4.3: Stormwater Detention Facilities.....	20
4.3.A. Submission .....	20
4.3.B. Attenuation .....	20
4.3.C. Location .....	20
4.3.D. Design and Aesthetics .....	20
4.3.E. Easements .....	20
4.3.F. Maintenance .....	20
4.3.G. Security .....	20
Section 4.4: Impounding Structures .....	21
Section 4.5: Best Management Practices .....	21
Section 4.6: Wetlands .....	21
Section 4.7: Overlot Grading .....	21
 <b>CHAPTER 5: FLOODPLAINS</b>	
Section 5.1: Federal Emergency Management Agency Designated Floodplain ....	22
5.1.A. Policy On Use Of Floodplain Areas .....	22
5.1.B. Preparation Of A Floodplain Study .....	22
5.1.C. Removal Of A Structure or Parcel Of Land .....	22
Section 5.2: Other Floodplain Areas .....	22
 <b>CHAPTER 6: EROSION AND SEDIMENT CONTROL</b>	
Section 6.1: Design Criteria and Construction Standards .....	23
Section 6.2: Tree Preservation .....	23
Section 6.3: Plan Submission Policy .....	23
 <b>CHAPTER 7 SOILS AND GEOTECHNICAL REVIEW</b>	
Section 7.1: Geotechnical Report Guidelines and Criteria .....	24
Section 7.2: Hydrogeologic Report Guidelines and Criteria .....	24
Section 7.3: Type 1 Soils Report .....	24

TABLE OF CONTENTS (Continued)

	Page
<b>CHAPTER 8: TRANSPORTATION</b>	
<b>AND MISCELLANEOUS REQUIREMENTS</b>	
Section 8.1: General Guidelines and Criteria Relating to Transportation .....	25
Section 8.2: Exceptions To Governing Regulations .....	25
8.2.A. Construction Site Entrances .....	25
8.2.B. Private Streets .....	25
8.2.C. Plan Submissions .....	25
Section 8.3: Signs .....	26
8.3.A. Street Name Signs .....	26
8.3.B. Commercial and Industrial Development Signs .....	26
8.3.C. Other Signs .....	26
Section 8.4: Lighting .....	26
8.4.A. Luminaire Location .....	26
8.4.B. Installation .....	26
8.4.C. Operation and Maintenance .....	27
8.4.D. Luminaire Style .....	27
Section 8.5: Right Of Way Management .....	29
8.5.A. Planting .....	29
8.5.B. Mailboxes .....	29
8.5.C. Lawn Decorations .....	29
Section 8.6: Propane Tanks .....	29
 <b>CHAPTER 9: SUPPLEMENTAL BONDING,</b>	
<b>AS-BUILT AND INSPECTION REQUIREMENTS</b>	
Section 9.1: Supplemental Bonding Requirements .....	30
9.1.A. Bonding Generally .....	30
9.1.B. Partial Bond Reductions .....	30
9.1.C. Bond Release .....	31
Section 9.2: As-Built Requirements .....	31
9.2.A. Wastewater Systems .....	31
9.2.B. Water Distribution Systems .....	31
9.2.C. Storm Sewer Systems .....	31
9.2.D. Storm Water Management Ponds and Structures .....	32
9.2.E. Miscellaneous .....	32
Section 9.3: Inspection Requirements .....	32

LIST OF TABLES

	Page
Table 4.1 Town of Purcellville Rainfall Intensity Values, Inches/Hour .....	17
Table 4.2 Town of Purcellville Rainfall Depth for Various Rainfall Events .....	18
Table 8.1 Luminaire Location .....	28

## **CHAPTER 1: GENERAL INFORMATION**

### **Section 1.1: Purpose and Authority**

This document, entitled Town of Purcellville Public Facilities Standards Manual, has been developed to establish standards for design and construction of public facilities constructed as a portion of subdivision plats or development plans that are within the control of the Town of Purcellville. This document shall be an administrative document that is approved by the Town Council.

### **Section 1.2: Interpretation and Revision**

The standards and guidelines are designed to supplement the provisions of existing Federal and State regulations. Nothing herein shall be deemed to waive or modify other requirements of existing codes. Except as expressly provided otherwise in this document, the Town Engineer is the designated official charged with the administration of the standards and requirements contained in this manual. The Town Engineer may allow for variations of given standards where the effect of such variations is in keeping with established engineering practices and procedures and shall make the final decision on all questions regarding interpretation of this document, after reviewing recommendations from the designated departments, authorities, boards, and committees. For any areas where this document or the reference documents provide conflicting requirements, the Town of Purcellville exceptions shall be followed. For other conflicts between requirements, the stricter of the two requirements shall be followed.

Qualified professionals are encouraged to seek innovative solutions to technical problems. However, to promote orderly development and to expedite plan processing and subsequent construction, standardized procedures and the use of minimum design standards must be employed. Familiarity with, and use of the standards set forth herein by designers, contractors, and inspection personnel, will result in more timely and economical project review, approval, and completion.

New information on design criteria, and changes in pertinent Federal and State laws, regulations, and standards will be reflected in periodic reviews and subsequent changes to the document. Appropriate notice will be given for public input and comment during the updating process. Any record plats, final site plans or construction plans and profiles submitted prior to the approval of any revisions shall comply with the standards in effect at the time of the officially accepted submission of these items.

**Section 1.3: Severability**

Should any section or provision of the document be decided by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the document as a whole, or any section thereof, other than the section or part thereof so held to be unconstitutional or invalid.

**Section 1.4: Materials Specification Booklet**

The materials used in the construction of water and sewer lines in the Town of Purcellville are contained in a booklet attached to this document or as specified by LCSA. The attached materials document provides specifications for those items where the Town requires material different from LCSA. These materials have been specified because they most suit the specific design criteria, maintenance needs, and cost requirements for the Town of Purcellville. No substitutions beyond those listed in this book will be allowed. The Materials Specification Booklet will be updated regularly so care should be taken to ensure that contractors are using the latest booklet when preparing bids.

**Section 1.5: References**

The following is a list of references that are used throughout this document:

1. LCSA Water Distribution System - Standards and Extensions, Loudoun County Sanitation Authority
2. LCSA Sewer System - Standards and Extensions, Loudoun County Sanitation Authority
3. Virginia Department of Health Waterworks Regulations, Virginia Department of Health
4. Virginia Department of Health Sewage Collection and Treatment Regulations, Virginia Department of Health
5. Town of Purcellville Materials Specification Booklet, Town of Purcellville
6. Town of Purcellville Land Development and Subdivision Control Ordinance, Town of Purcellville
7. Virginia Department of Transportation Drainage Manual, Virginia Department of Transportation
8. Virginia Erosion and Sediment Control Handbook, Virginia Department of Conservation and Recreation
9. Loudoun County Facilities Standards Manual, Loudoun County Board of Supervisors
10. Northern Virginia BMP Handbook, A Guide to Planning and Designing Best Management Practices in Northern Virginia, Northern Virginia Planning District Commission
11. Controlling Urban Runoff - A Practical Manual for Planning and Designing Urban BMP's, Metropolitan Washington Council of Governments

Purcellville Facilities Standards Manual

12. Virginia Department of Transportation Road and Bridge Specifications, Virginia Department of Transportation
13. Virginia Department of Transportation Road and Bridge Standards, Virginia Department of Transportation, Volumes I and II
14. Manual of Uniform Traffic Control Devices for Streets and Highways, Federal Highway Administration
15. The Virginia Supplement to the Manual of Uniform Traffic Control Devices for Streets and Highways, Virginia Department of Transportation
16. AASHTO Guide for Selecting, Locating, and Designing Traffic Barriers, AASHTO
17. Guidelines for Planting Along Virginia's Roadways, Virginia Department of Transportation
18. State Manual for Storm Water Management, Virginia Department of Conservation and Recreation

## CHAPTER 2: WATER SUPPLY AND DISTRIBUTION

### Section 2.1: Design Criteria and Construction Standards

All new construction in the Town must be connected to the Town waterworks. Private water systems (wells) are not allowed except as permitted in the Town's "Policy of Construction of Wells and Septic Fields within the Incorporated Limits of the Town of Purcellville". The design criteria and construction standards to be followed for the construction of water supply and distribution systems within the area described in Section 1.1 are outlined in the LCSA Water Distribution System - Standards and Extensions, latest edition, except for those items described in Section 2.2. The design criteria for water pumping stations are outlined in the Virginia Department of Health Waterworks Regulations. When the standards outlined below differ from those outlined in the LCSA Water Distribution System - Standards and Extensions, or the Virginia Department of Health Waterworks Regulations, the more stringent standards shall apply. For all projects the applicable State Health Department regulations shall be met at a minimum.

### Section 2.2: Exceptions to Governing Regulations

- 2.2.A. Cross Connections - The provisions for cross connections are outlined in the Purcellville Code Article VI Cross Connection and Backflow Prevention Control.
- 2.2.B. Distribution System Layout - All water lines shall be looped wherever possible.
- 2.2.C. Pump Stations - The Virginia Department of Health Waterworks Regulations, latest edition, is to be used for the design criteria for all pump stations associated with surface water sources, water treatment facilities, finished water, and water pressure booster stations along with the criteria outlined below which are more stringent and will supersede the Virginia Department of Health Waterworks Regulations.
- 2.2.C.1. *Preliminary Design* - Prior to the development of detailed drawings and specifications, a preliminary design shall be performed and submitted to the Town Engineer for review and approval. This preliminary design at a minimum shall include an analysis of the impact of the pump station on the existing collection system, a hydraulic analysis of the pump station, and a graphic sketch plan. In terms of preliminary design, major design considerations include but are not limited to: (1) size of pump station required, (2) emergency power provisions, (3) type of structure, (4) complexity of flow controls, (5) water hammer, (6) chemical additions, (7) treatment requirements and (8) security measures.

2.2.D. Easements

- 2.2.D.1 *Application* - The following applies to those waterlines designed to be part of the Towns looped water system. Systems located solely on private property to be used solely for the benefit of that property shall be the property of the property owner. All maintenance shall be the responsibility of the property owner. The property owner shall provide an access agreement agreeable to the town for access to water meters.
- 2.2.D.2. *General* - Water mains shall be routed in a public right of way where possible. Approved locations of water mains in a non-public right of way shall be in water easements to be deeded to the Town. When any easement is deeded to the Town, the Town of Purcellville Easement Form shall be submitted. This document describes the limitations of use within the easement.
- 2.2.D.3. *Through Public and Private Properties* - A thorough analysis of the impact upon all existing and/or proposed physical features of the site shall be conducted for water mains into or through public and/or private properties. The property owner shall be identified and shall submit the necessary Deed of Easement(s) to the Town.
- 2.2.D.4. *Size* - Standard width for water easements is 20 feet when one water pipe is involved and the pipe shall be positioned in the center of the easement. When two pipelines are placed in the easement the easement shall be 30 feet and the pipes shall be positioned at the 10-/10-/10 foot offset.
- 2.2.D.5. *Location* - Waterline easements as required by this section shall be so located as to provide access to all parts of a line without interference from abutting buildings.
- 2.2.D.6. *Configuration* - Easements for water mains shall be configured from straight line segments and be of uniform width. Easements through the central interior area of building lots shall be avoided. Easements shall be centered over lot boundaries and parallel to property boundary lines. No building footers or underground structures are permitted to be built in an easement. Property owners are required to ensure that trees are cleared from and kept out of the easements. Terminal water main easements shall extend at least 15 feet beyond the cap or blow off valve.

- 2.2.E. Sample Stations - A sample station shall be required for all new developments served by the Town water system serving more than ten residential units, more than three commercial or industrial units, or in areas served by dead-end service mains longer than 600'. There shall be an additional station for each additional 60 residential units, 6 commercial or industrial units, or portions thereof. Stations shall be located in sections of developments in which the development reaches the next increment of units. Example: For residential developments, projects of up to 69 units will have one station, projects of up to 129 units will have two stations with the second station installed as part of the section which contains the 70<sup>th</sup> unit. This station must be above ground, water tight and above the 100 year flood plain elevation, and installed according to the manufacturers specifications.
- 2.2.F. Location of Water Lines in Public Right of Way - Water mains shall be located within the right of way (or access easement) for all residential, commercial and industrial streets when possible. Locations of water mains shall be approved by the town engineer in accordance with 2.2.D. if not within the ROW or Access easement.
- 2.2.G. Materials - All materials used in the installation of water lines shall conform to the Town of Purcellville Materials Specification Booklet. Any materials not specified in the Specifications Booklet shall conform to the LCSA standards.
- 2.2.G.1 Valving - Valves shall be installed at the juncture of all water lines. Four valves at all crossings and three valves at all T's, except at fire hydrants where one valve is required. Additional valves shall be required as the Town Engineer directs.
- 2.2.H. Plan Submissions and Bonding Policy - The requirements for plan submissions to the Town of Purcellville and the bonding policy are outlined in the Town of Purcellville Land Development and Subdivision Control Ordinance, latest edition.
- 2.2.I. Water Lateral Connections - Water laterals to the individual homes or businesses shall be installed prior to final grading and paving at the site. Meter boxes and setters shall be installed at this time. Meter boxes shall be placed at the property line for the residence or business served. . Water meters are provided and set by the Town. Water service meters shall be located in the Right of Way or a minimum of 5'x5' easement deeded to the Town that shall be kept clear of all encroachments.

Purcellville Facilities Standards Manual

- 2.2.J. Acceptance and As-Builts - Prior to the activation of any service connection the installation must be approved for inclusion in the Town system by the Town Engineer or designee. Two weeks prior to the acceptance of the first water service connection in any subdivision or section thereof, or site plan as-built plans shall be submitted and shall have been found to be acceptable by the Town Engineer for the appropriate subdivision, phase or subdivision section or site plan. See chapter 9 for as-built requirements

## **CHAPTER 3: WASTEWATER COLLECTION AND SOLID WASTE DISPOSAL**

### **Section 3.1: Design Criteria and Construction Standards**

The design criteria and construction standards for the construction of wastewater collection systems in the Town of Purcellville are outlined in the LCSA Sewer System - Standards and Extensions, latest edition, except for those areas outlined in Section 3.2. The design criteria for sewage pumping stations are outlined in the Virginia Department of Health Sewage Collection and Treatment Regulations, latest edition, except for those areas outlined in Section 3.2. When the standards outlined below differ from those outlined in the LCSA Sewer System - Standards and Extensions, or the Virginia Department of Health Sewage Collection and Treatment Regulations, the more stringent standards will apply. In all cases the applicable regulations of the State Health Department must be met at a minimum.

### **Section 3.2: Exceptions to Governing Regulations**

- 3.2.A. Pretreatment for Industry - The requirements for the pretreatment of wastewater prior discharge into the town system are outlined in the Purcellville Code. All designs to meet these requirements are subject to approval by the Town Engineer.
- 3.2.B. Septic Systems - The construction of new septic systems for new construction where town service is available is not allowed.
- 3.2.C. Pump Stations - The Virginia Department of Health Sewage Collection and Treatment Regulations, latest edition, is to be used for the design criteria for all new sewage pump stations, or pump stations required to be upgraded as a result of a proposed project together with the criteria outlined below.
- 3.2.C.1. *Preliminary Design* - Prior to the development of detailed drawings and specifications, a preliminary design shall be developed and submitted to the Town Engineer for review and approval. This preliminary design shall include at a minimum; an analysis of the impact of the pump station on the existing collection system, a hydraulic analysis of the pump station, and a graphic sketch plan. In terms of preliminary design, major design considerations include but are not limited to: (1) size of pump station required, (2) emergency power provisions, (3) type of structure, (4) complexity of controls, (5) water hammer and (6) odor control.
- 3.2.C.2. *Location* - Pump stations shall be located as shown on the Town's WasteWater Master Plan. Pump Stations proposed which are not as shown on the master plan shall be designated Interim pump stations and may be allowed by the Council upon recommendation of the Town Engineer. For those pump stations deemed by the

Council to be interim pump stations, necessary piping shall be installed to the property limits to allow the area being served by the interim pump station to be gravity fed to the location of the final pump station, as determined by the Town Engineer.

*3.2.C.3. Ownership and Bonding*

*3.2.C.3.a. Ownership* - All Pump Stations serving multiple properties, either existing or proposed, shall be deeded to the Town. Private Pump Stations serving single properties shall have plans reviewed and must meet the requirements of the Virginia Department of Health. A note must be placed on the plat for the property that the pump station will never be eligible for Town maintenance.

*3.2.C.3.b. Bonding* - All pump Stations shall be bonded for the full amount of construction costs including warranties and training. Such bond will be eligible for reduction upon acceptance of the station by the town. Partial and final releases shall be as stipulated in the State Code. Pump Stations deemed to be interim pump stations shall have a demolition bond posted.

*3.2.C.3.c. Acceptance* - The pump station shall not be placed into operation until acceptance by the town. The pump station will not be acceptable until the conditions outlined in §3.2.C.13 have been met.

*3.2.C.4. Structures* - A suitable masonry structure, compatible with the surroundings, as determined by the Town Engineer, is required for all sewage pump stations.

*3.2.C.5. Materials* - All piping inside the wet wells shall be stainless steel. Dielectric unions shall separate all dissimilar metals.

*3.2.C.6. Security* - Security fencing and lighting shall be included as deemed necessary to protect the interest of the Town of Purcellville and shall be approved by the Town Engineer.

*3.2.C.7. Fencing and Landscaping* - Each station shall be enclosed by a fence with separation from the structure sufficient to allow access to the structure when necessary. Landscaping shall be provided in accordance with the zoning ordinance. The station shall be considered an industrial facility for the purposes of landscaping.

- 3.2.C.8. *Metering* - For monitoring the pumping rate and to provide historic data for future upgrading, the discharge flow shall be metered with a flow meter on the discharge header or forcemain. There shall be an hour meter to measure the total run time of the pump station, and each pump.
- 3.2.C.9. *Emergency Power and Storage Tank* - A permanent emergency power generator with a day tank and a separate long term Storage Tank is required at all sewage pump stations. The day tank shall be sized to provide 8 hours run time at full load. And will be used for routine testing and for initial run time during an outage. The storage tank shall be the type with a self contained spill or leak sump. The tank must be sized for 2 days running at 50% power or 250 gallons whichever is greater. There must be a two year service and maintenance contract provided for the gen-set.
- 3.2.C.10. *Telemetry* - All sewage pump stations shall include a remote dial telemetry unit. Typical conditions to be monitored include: high wet well alarm, low wet well alarm, wet well level, normal power, auxiliary power, and pump failure. All terminal manholes on force mains shall have high water alarms to alert against a blocked gravity line.
- 3.2.C.11. *Connection to Gravity systems* - Force mains shall terminate in a manhole set to allow a minimum of a 10' section of 8" pipe at a minimum grade of 1% as a connection to an existing gravity manhole.
- 3.2.C.12. *Wet Well Design* -
- 3.2.C.12.a. *Volume* - The wet well receiving the incoming sewage shall be sized to provide a minimum pumping cycle of 10 minutes during peak flow, alternating total time on and the total time off, using the following formula:
- $$V = T * Q/4$$
- where: V = Volume in gallons of wet well between lead pump on and lead pump off levels
- T = Pumping cycle in minutes, for example, 10
- Q = Pumping rate of lead pump in gallons per minute
- 3.2.C.12.b. *Additional Storage* - Storage of the wet well shall be sufficient to provide 30 minutes of storage after the high water alarm, and before the occurrence of an overflow at the station, upstream manhole or basement.
- 3.2.C.12.c. *Odor Control* - To reduce the occurrence of odor, the detention period for sewage in the wet well is not to exceed 30 minutes at the average flow rate for the design.

3.2.C.12.d. *Configuration* - The differential between pump start and off levels shall not be less than one (1) foot. The wet well floor shall be sloped at 45 degrees to form a hopper. To establish net positive suction head, the net volume of the wet well shall be measured from a level approximately one foot above the top of the pump volute.

3.2.C.12.e. *Plumbing* - Pump stations shall be plumbed to allow for the attachment of portable pumps to the force main in case of failure.

3.2.C.13. *Additional Requirements* -

3.2.C.13.a. - An Operations & Maintenance manual must be provided prior to the acceptance of the station by the town that is acceptable to the Town, DEQ and VDH.

3.2.C.13.b. - A minimum of two 2-hour training sessions are required to be given town staff on all installations to include at a minimum the pumps and control system, the gen-set, UST and transfer switch, the flow meters and recorders, telemetry and other items as deemed necessary by the town.

3.2.C.13.c. - The developer shall be responsible for any repairs needed to the pump station for a period of one year from the time of Town Acceptance. A bond in the amount of 5% of the original construction cost will be posted to insure the performance of the developer.

3.2.C.13.d. - Spare parts, to include a complete set of all belts and filters, two pump repair kits and a spare pump, and spare impellers.

3.2.C.14. *As-Built Requirements* – As-Built on Pump Stations shall contain the following at a minimum: Tops and inverts of sumps and wet wells, inverts of inlets and outlets; verified on/off of pumps; pump elevations; and such other items as the Town may require to assure proper installation.

3.2.D. Wastewater Collection System

3.2.D.1. *Manholes* - All wastewater collection system manholes shall have an internal chimney seal on the inside of the manhole to reduce the amount of inflow and infiltration of rain water into the sewer system. Please refer to the Town of Purcellville Materials Specification Booklet for the specific type to be used.

3.2.E. Easements

3.2.E.1. *General* - Sewer lines shall generally be routed centered in a public right of way. Approved locations of sewer lines in a non-public right of way shall be in sewer easements to be deeded to the Town. When any easement is deeded to the Town the Town of Purcellville Easement Form shall be submitted. This document describes the limitations of use within the easement. A copy of this document or a synopsis of the restrictions shall be provided to all present or future property owners whose property contains an easement.

3.2.E.2. *Through Public and Private Properties* - A thorough analysis of the impact upon all existing and/or proposed physical features of the site shall be conducted for sewer lines into or through public and/or private properties. The developer shall identify all necessary property owners and shall initiate and develop the necessary Deed of Easement(s) to the Town.

3.2.E.3. *Size* - Standard width for sewer easements is 20 feet when one sewer line is involved, and the line shall be centered within the easement. When two pipelines are placed in the easement the easement shall be 30 feet and the lines shall be positioned at the 10-/10-/10-foot offset.

- 3.2.E.4. *Configuration* - Easements for sewer lines shall be configured from straight line segments and be of uniform width. Easements through the central interior area of residential building lots under 20,000 square feet will not be allowed. Easements shall be centered over lot boundaries and parallel to property boundary lines to the extent possible. No building footers, or underground structures are permitted to be built in an easement. Property owners are required to ensure that trees are cleared from and kept out of the easements. Fences in easements may be taken down at any time by the town and will not be reinstalled. Terminal sewer line easements shall extend at least 15 feet beyond the axis of the manhole.
- 3.2.E.5. *Location of Sewer Lines in Public Right of Way* - Sewer Lines shall be allowed within the right of way for all residential, commercial and industrial streets. These sewer lines shall be placed within the pavement and manholes shall be located at the center line of the street.
- 3.2.F. *Materials* - All materials used in the installation of wastewater collection systems shall conform to the Town of Purcellville Materials Specification Booklet. Any materials not in the Specifications Booklet shall conform to the LCSA standards.
- 3.2.G. *Plan Submissions and Bonding Policy* - The requirements for plan submissions to the Town of Purcellville and the bonding policy are outlined in the Town of Purcellville Land Development and Subdivision Control Ordinance, latest edition.
- 3.2.H. *Sewer Lateral Connections* - All sewer laterals shall be installed prior to final grading and paving above the lateral. Sewer clean-outs are required and should be placed along the lateral, within the Access Easement or Right of Way, between the sidewalk and property line or if no sidewalk between the ditch or curb and property line. Sewer cleanouts are not allowed in paved surfaces such as driveways or sidewalks. If a lot is so configured as to prevent the above, the sewer cleanouts shall be located within a 25 square foot easement.
- 3.2.I. *Acceptance and As-Builts* - Prior to the activation of any service connection the installation must be approved for inclusion in the Town system by the Town Engineer or designee. Two weeks prior to the acceptance of the first wastewater service connection in any subdivision or section thereof, as-built plans shall be submitted and be determined to be acceptable by the Town Engineer for the appropriate subdivision or section. See chapter 9 for as-built requirements

**Section 3.3: Solid Waste Disposal**

The Town of Purcellville provides curbside pickup of recyclables, yard waste and solid waste for all single family homes, both attached and detached, within the incorporated limits. Apartment complexes and businesses must provide their own solid waste disposal plan. Any planned developments wishing to deviate from curbside pickup of solid waste for single family homes must also provide a Solid Waste Management Plan. Sections 3.3.A through 3.3.F apply to those developments requiring a Solid Waste Management Plan.

- 3.3.A. Solid Waste Management Plan - A description of the methods of solid waste storage, collection and disposal shall be provided for all multi-family residential properties, which includes apartment complexes, and commercial properties. Any planned developments wishing to deviate from curbside pickup of solid waste for single family homes must also submit a description of the methods of solid waste storage, collection and disposal. The developer of each project is required to provide adequate provisions for solid waste disposal and indicate on the plans how this is to be accomplished. For all commercial property and multi-family residential properties, the number and size of containers, and the type of storage required shall be based on the type of occupancy of the development and projected volume of refuse. The methodology used to determine the above capacity and number of containers shall be noted on the plans.
- 3.3.B. Storage - Plans for multi-family residential and commercial properties as well as any planned developments for single family homes wishing to deviate from curbside pickup of solid waste shall contain the locations of storage facilities and a statement regarding which of the following methods shall be employed for solid waste storage:
- Centralized refuse storage rooms;
  - Large, outside (commercial) containers; For all large, outside containers, a reinforced concrete pad must be constructed and should be at least 2 feet larger than the foot print of the container. Proper screening should be provided.

- 3.3.C Handling – Required clearances for safe access by rear loading refuse packers collecting trash or recyclables from storage areas where roll-out carts will be used, are 14 feet overhead and 10 feet width of clear opening. An unrestricted approach of 43 feet to the container and a 60 feet turning radius shall be provided.

Required clearances for safe access by front-end loading refuse packers where dumpsters will be used, are 24 feet overhead and 10 feet width of clear opening. An unrestricted approach of 46 feet to the container and a 66 feet turning radius shall be provided. The dumpster pad should be 7 feet longer than the depth of the trash or recycling container, maintaining 4 feet clearance around all sides of the container and constructed of Class 20, steel reinforced concrete, 6 inches thick.

Required clearances for safe access by roll-off trucks used to pull stationary compactor units and roll-off boxes are 18 feet overhead for entry of the truck only, 24 feet when the truck hoist is raised with a rectangular box container and 11 feet in width. An unrestricted approach of 66 feet to the container for loading and unloading is required. The dumpster pad should be 10 feet wide and 7 feet longer than the combined length of the stationary compactor unit and container and constructed of Class 20, steel reinforced concrete 6 inches thick.

- 3.3.D. Collection - Plans shall contain a statement regarding who will provide solid waste collection, for instance: a private refuse collection company, the project owners, or the project management.
- 3.3.E. Disposal - The plans shall contain a statement of where the refuse will be disposed. Refuse shall be deposited in an approved and licensed facility.
- 3.3.F. Screening - All commercial and industrial outdoor refuse storage areas shall be screened from all public streets and adjacent residential properties. An opaque screen at least eight (8) feet in height comprised of board-on-board fence, walls, berms, or other opaque materials must be provided. Screened storage areas shall be maintained to protect refuse from dispersal by wind and must be free of litter and refuse overflow.

## CHAPTER 4: STORM DRAINAGE

### Section 4.1: Stormwater Management

Stormwater management can be divided into two categories. The first is the stormwater conveyance system and the second is the stormwater detention facilities. The stormwater conveyance system is defined as the structures used to convey the runoff from the design storm such as: storm sewer pipes, open channels, culverts, and their appurtenances. The stormwater detention facilities are defined as those structures used to temporarily impound runoff to reduce flood peaks.

### Section 4.2: Stormwater Conveyance System

The design criteria and construction standards of a stormwater conveyance system shall conform with the standards outlined in the Virginia Department of Transportation Drainage Manual, latest edition, the Virginia Erosion and Sediment Control Handbook, latest edition, and all other reference documents referred to herein at the time of application acceptance.

4.2.A. Hydrology - This section outlines acceptable methods for estimating runoff for use in the design of drainage systems. All hydrologic parameters shall be based on the current zoning or adopted planned land use for the watershed, whichever represents the most intense use. Adopted planned land use is defined as approved comprehensive plan, as amended, and/or zoning map, as amended.

4.2.A.1. Rational Method - This method shall be used to estimate the runoff in the design of stormwater conveyance systems with watersheds 100 acres or less. The rainfall intensity for the Town of Purcellville is outlined in Table 4.1.

4.2.A.2. Natural Resource Conservation Service Methods - These methods, TR-55 and TR-20, shall be used to estimate runoff for the design of stormwater conveyance systems with watersheds greater than 100 acres. The rainfall depths to be used in these methods are outlined in Table 4.2.

4.2.A.3. General Design Criteria - refer to the Loudoun County Facilities Standards Manual, latest edition.

#### 4.2.B. Storm Sewers and Culverts

4.2.B.1. Minimum Velocity - Storm sewers shall be designed to provide a minimum velocity when running full of no less than 2.5 feet per second.

4.2.B.2. Maximum Velocity - Storm sewers shall be designed to provide a maximum velocity when running full of not greater than 15.0 feet per second.

TABLE 4.1  
TOWN OF PURCELLVILLE RAINFALL INTENSITY VALUES, INCHES/HOUR

RAINFALL EVENT	TIME OF CONCENTRATION (MINUTES)					
	5	10	15	30	60	120
100 YEAR	9.84	8.10	7.05	5.22	3.65	2.18
50 YEAR	9.06	7.44	6.46	4.76	3.30	1.97
25 YEAR	8.27	6.77	5.88	4.30	2.95	1.76
10 YEAR	7.27	5.92	5.10	3.71	2.50	1.48
5 YEAR	6.61	5.35	4.59	3.31	2.18	1.26
2 YEAR	5.75	4.60	3.90	2.76	1.73	1.01
1 YEAR	4.88	3.91	3.31	2.34	1.47	0.86

TABLE 4.2  
TOWN OF PURCELLVILLE RAINFALL DEPTH FOR VARIOUS RAINFALL EVENTS  
24-HOUR RAINFALL DURATION

RAINFALL EVENT	RAINFALL DEPTH, INCHES
100 YEAR	7.5
50 YEAR	6.5
25 YEAR	6.0
10 YEAR	5.25
5 YEAR	4.5
2 YEAR	3.5

- 4.2.B.3. Minimum Slope - The minimum slope of each segment of storm sewer lines shall be 0.5%.
- 4.2.B.4. Minimum Cover - The minimum cover for storm sewer pipe shall be two (2) feet or one-half the diameter of the pipe, whichever is greater. If the minimum cover requirements cannot be met, structural correction approved by the Town Engineer may be provided. Minimum cover for single family residential lot driveways shall conform to VDOT standards.
- 4.2.B.5. Reduction In Pipe Size - There shall be no reduction in pipe size along the direction of flow within a storm sewer system even though a smaller pipe size would provide sufficient capacity because of a steeper slope.
- 4.2.B.6. Concrete Anchors - The need for concrete anchors shall be investigated on storm sewer lines with slopes of 20 percent or greater. If anchors are required, they shall be shown as a detail on the plans with the spacing requirements.

4.2.B.7. Outfall - Storm sewer systems shall not outfall to a lot with a residential structure. If the storm sewer outfalls on a lot, or adjacent to a lot, on which an existing building will remain, sufficient topographic information shall be provided to verify overland relief and demonstrate that the water discharged as a result of the 100 year storm will not affect the lot or the structure. All outfalls must reduce the energy of the discharge flow to eliminate the chance of erosion below the discharge point. Erosion protection, as indicated in the latest edition of the Loudoun County Facility Standards Manual, shall be provided at the outlets of storm sewers and culverts based on outlet velocity.

4.2.C. Open Channels - Every effort should be made to avoid the use of concrete lined open channels. If they are used they should be designed to run along property boundaries.

4.2.D Easements

4.2.D.1. Storm Sewer Pipe - The minimum easement widths for storm sewer pipes are outlined below.

<u>Pipe Size, Inches</u>	<u>Minimum Easement Width, Feet</u>
12-18	15
21-33	15
36-48	20
54-72	25

When multiple pipes or pipe sizes larger than 72 inches are installed, the edge of the easement shall be a minimum of 5 feet clear of the outside edge of the outermost pipe. Easements should run along property boundaries and in Right-of-Ways whenever possible. The Town may not accept maintenance responsibilities or ownership for those easements containing drainage structures which are not parallel to property boundaries.

4.2.D.2. Open Channels - For open channels, easement width shall be based on the width required to carry the design flow plus 5 feet on each side with a minimum width of 15 feet. Open channels should be designed so that grass can be maintained in the open channel whenever possible.

**Section 4.3: Stormwater Detention Facilities**

The design criteria for a stormwater detention facility shall conform with the Virginia Erosion and Sediment Control Handbook, latest edition as supplemented below.

- 4.3.A. Submission - Stormwater detention facilities shall be provided in conjunction with land development activities, which require the submission of Construction Plans and Profiles or a Site Plan, where adequate receiving channel for site runoff, as defined in the statewide stormwater runoff standard located in the Virginia Erosion and Sediment Control Handbook does not exist or cannot be provided. Where an adequate channel exists and is proposed by the developer, BMP's must be provided by alternate means.
- 4.3.B. Attenuation - Stormwater detention facilities shall attenuate the post development peak runoff rate from a two-year storm and a ten-year storm, considered individually, so as not to exceed the respective predevelopment runoff rate.
- 4.3.C. Location - Stormwater detention facilities may consist of either above grade or below grade facilities, however, underground facilities are only permitted within commercial, industrial or high density residential zones. Above grade stormwater detention facilities may be designed as either wet or dry facilities. Stormwater detention facilities should be placed prior to the discharge of the stormwater from the site. No storm water should exit from the site without passing through the stormwater detention facility without approval of the Town Engineer.
- 4.3.D. Design and Aesthetics - The Town of Purcellville encourages all design engineers and developers to consider developing the stormwater detention facilities to be aesthetically pleasing to look at and provide suitable natural habitat for wildlife. The facility may also be used as a wildlife viewing area around which a nature trail could be provided for the residents of the development or other possibilities which merit consideration.
- 4.3.E. Easements - All stormwater detention facilities shall be located within a dedicated drainage easement which shall be a minimum of 10 feet from the toe of slope, periphery of the facility or from the 100 year water surface elevation.
- 4.3.F. Maintenance - All stormwater detention facilities shall be maintained by the landowner or Homeowners Association as approved by the Planning Commission. Maintenance responsibilities shall be established in a Deed of Easement in a form acceptable to the Town Attorney.
- 4.3.G. Security - Security shall be included as deemed necessary to protect the interest of the Town of Purcellville and shall be approved by the Town Engineer.

#### **Section 4.4: Impounding Structures**

The design criteria for impounding structures shall conform with the Loudoun County Facilities Standards Manual, latest edition. Soils reports and geotechnical designs are required for all impoundment structures.

#### **Section 4.5: Best Management Practices**

All new storm water management facilities shall incorporate best management practices. The best management practices that will be followed by the Town of Purcellville are outlined in the documents entitled Northern Virginia BMP Handbook, A Guide to Planning and Designing Best Management Practices in Northern Virginia, prepared by the Northern Virginia Planning District Commission and the Engineers and Surveyors Institute and Controlling Urban Runoff - A Practical Manual for Planning and Designing Urban BMP's, prepared by the Metropolitan Washington Council of Governments. The design shall provide for 40% phosphorous removal.

#### **Section 4.6: Wetlands**

All applicable wetlands permitting required by DEQ and COE must be completed by the applicant and submitted to Town staff for verification. If no permitting is required the plans shall so state.

#### **Section 4.7: Overlot Grading**

Overlot grading plans shall be provided in the submission of construction plans and profiles for single family detached and attached developments where the average lot size is less than one acre. The plans shall illustrate how individual residential lots will be integrated into the overall drainage network proposed for a particular section of development and shall honor drainage divides used for the drainage design. A building footprint shall be illustrated on the individual lots which maximizes the development potential of the lot and specifies the minimum finished floor elevations for a given lot. The footprint should accommodate the potential models without impact to the proposed drainage system. Overland relief shall be shown on the grading plans. Prior to the town signing off on the issuance of a Certificate of Occupancy, as outlined in Article 11, Section 2 in the Zoning Ordinance of the Town of Purcellville, an as-built overlot grading plan shall be submitted to the Zoning Administrator. The as-built overlot grading plan will reflect the existing grading on an individual lot and verification that it meets the originally approved overlot grading plan.

## **CHAPTER 5: FLOODPLAINS**

### **Section 5.1: Federal Emergency Management Agency Designated Floodplain**

- 5.1.A. Policy on Use of Floodplain Areas - The policy on the use of floodplain areas is outlined in the Town of Purcellville Zoning Ordinance Article 12.
- 5.1.B. Preparation of A Floodplain Study – Studies must be for the ultimate buildout of the study area. For the preparation of a floodplain study, the package entitled Application/Certification Forms and Instructions for Conditional Letters of Map Revision, Letters of Map Revision and Physical Map Revisions shall be submitted.
- 5.1.C. Removal of A Structure or Parcel of Land - If an owner or lessee of property believes the property will be, or has been inadvertently included in a designated floodplain, as shown on the Flood Insurance Rate Map for the Town of Purcellville, the package entitled Application/Certification Forms and Instructions for Letters of Map Amendment, Conditional Letters of Map Amendment, Letters of Map Revision (Based on Fill), and Conditional Letters of Map Revision (Based on Fill), shall be submitted by the applicant to the Federal Emergency Management Agency.

### **Section 5.2: Other Floodplain Areas**

Areas may exist that have not been identified by the Federal Emergency Management Agency as being floodprone, which may be identified by the Town Engineer as requiring a floodplain study. For these areas, the above mentioned packages shall be used as a guideline for the type of material that must be submitted.

## **CHAPTER 6: EROSION AND SEDIMENT CONTROL**

### **Section 6.1: Design Criteria and Construction Standards**

The design criteria, construction standards and specifications and the bonding policy for the installation and maintenance of erosion and sediment control devices within the Town of Purcellville are administered by the Loudoun County Department of Building and Development. The Virginia Erosion and Sediment Control Handbook, latest edition, the Virginia Erosion and Sediment Control Law, and Chapter 1220 of the Loudoun County Codified Ordinances shall be used for design standards and specifications and permit requirements. Permitting, bonding, and routine inspections will be managed by Loudoun County Department of Building and Development. A pre-construction meeting with the appropriate County personnel at the site is required prior to any land-disturbing activity. Proper installation of erosion and sediment control measures is required to prevent sedimentation and degradation of downstream properties and waters of the State.

### **Section 6.2: Tree Preservation**

The area of land to be cleared of trees and other vegetation in conjunction with the development or land use shall be held to the minimum amount necessary to insure proper construction of improvements. Refer to the Virginia Erosion and Sediment Control Handbook, latest edition, for appropriate tree preservation measures during land-disturbing activities.

### **Section 6.3: Plan Submission Policy**

The requirements for plan submissions are outlined in the Town of Purcellville Land Development of Subdivision Control Ordinance, latest edition.

## **CHAPTER 7: SOILS AND GEOTECHNICAL REVIEW**

### **Section 7.1: Geotechnical Report Guidelines and Criteria**

The submission of a geotechnical report shall conform with the guidelines and criteria outlined in the Loudoun County Facilities Standards Manual, latest edition.

### **Section 7.2: Hydrogeologic Report Guidelines and Criteria**

The submission of a hydrogeologic report shall conform with the guidelines and criteria outlined in the Loudoun County Facilities Standards Manual, latest edition.

### **Section 7.3: Type I Soils Report**

A Type I Soils report is required on all new developments. The Type I Soils Report will identify and describe soils and landscapes, potential soil conditions such as shrink swell clays and wetness problems, and environmental features such as hand-dug wells and family cemeteries.

## CHAPTER 8: TRANSPORTATION AND MISCELLANEOUS REQUIREMENTS

### Section 8.1: General Guidelines and Criteria Relating to Transportation

It is the intent of the Town of Purcellville that all new streets be dedicated for public use and be eligible for maintenance by the Virginia Department of Transportation. Therefore, any new streets must be designed and constructed using the standards of the Virginia Department of Transportation, except for those areas described in Section 8.2. Approvals for the construction of new roads must be obtained from the Town of Purcellville and the Virginia Department of Transportation.

### Section 8.2: Exceptions To Governing Regulations

- 8.2.A - Construction Site Entrances - The location of the construction site entrance shall be placed so that the flow of traffic through residential areas is minimized.
- 8.2.B. Private Streets - The construction of private streets is allowed in the Town of Purcellville only within a planned unit development where the specifications for right-of-way and pavement width requirements may be varied or waived by the Planning Commission. All other aspects of the private street must meet VDOT specifications.
- 8.2.C. Plan Submissions - The requirements for plan submissions to the Town of Purcellville and the bonding of proposed infrastructure improvements are outlined in the Town of Purcellville Land Development and Subdivision Control Ordinance, latest edition with additional requirements as noted below and in Chapter 9.
- 8.2.C.1 - Utilities - The location of all utilities, including but not limited to telephone, cable television, and electric, to be located in the proposed Right of Way for a public street, or easement for an access way, shall be indicated.
- 8.2.C.2. - Entrances
- 8.2.B.2.a - Driveways shall be as depicted in the most current edition of the Loudoun County Facilities Standard Manual for curb section roadways, or for ditch sections and as shown in the latest edition of the VDOT Road and Bridge Standards.
- 8.2.C.2.b. - All entrances shall be permitted and bonded prior to public improvement construction beginning, except those delineated and bonded as part of the original plan approval process.

### **Section 8.3: Signs**

#### **8.3.A. Street Name Signs**

8.3.A.1 *Street Signs Required* – Both street name and traffic control signs are required to be installed within 7 days of base paving. Traffic control signs and the location of street name signs shall conform to VDOT standards.

8.3.A.2 *Specifications* - All street name signs shall be 6 3/4-inches high, 36-inches long, and 0.091 inches thick aluminum. They shall have a green background with 4-inch white reflective lettering for the street name and 2-inch white reflective lettering for prefixes and standard abbreviations. The signpost must be 2 3/8" O.D. galvanized steel, and installed in 2 feet of VDOT Class B2 concrete, with an anchor rod 6 inches from the bottom of the post.

8.3.B. *Commercial and Industrial Development Signs* - The location and size of all signs within a commercial or industrial development must meet the requirements for the zone and be approved by the Town of Purcellville Zoning Administrator.

8.3.C. *Other Signs* - The location and size of all other signs are outlined in the Federal Highway Administration's Manual of Uniform Traffic Control Devices for Streets and Highway, latest edition and The Virginia Supplement to the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition.

### **Section 8.4: Lighting**

8.4.A. *Luminaire Location* - A luminaire fixture shall be located at all intersections within a new development. Additional luminaire fixtures shall be required along roadways to meet the criteria outlined in Table 8.1. All pole locations shall conform to the 1977, AASHTO Guide for Selecting, Locating, and Designing Traffic Barriers.

8.4.B. *Installation* - All installation costs for a lighting system will be the responsibility of the developer. Where the proposed system lies within dedicated right-of-way and the local power company requires that such installation only be contracted by public utilities, the developer will sign an agreement with the Town of Purcellville guaranteeing full payment to the Town of Purcellville of all installation and administrative costs in contracting such installation. Said agreement shall be executed and payment made prior to the approval of a record plat.

Purcellville Facilities Standards Manual

- 8.4.C. Operation and Maintenance - Operational and maintenance costs of the lighting system shall be the responsibility of the Town of Purcellville or the Virginia Department of Transportation within the public system of roads. Street lighting on private roads or outside the public right of way will be owned, operated and maintained by the landowner, or a homeowners association.
- 8.4.D. Luminaire Style - A cobra head style luminaire fixture shall be used in the installation of all lighting systems. However, alternative luminaire styles may be used along roadways interior to residential developments with approval of the Town Engineer.

**TABLE 8.1  
LUMINAIRE LOCATION**

area/street classification	roadway category/ traffic count (vpd)	luminaire size (lumen)	maximum pole* spacing (feet)	placement (feet)	bracket length	mounting height (feet)	installation pattern (see table below)	
residential:	I/0-250	5,000	245	10.5	12	28	A	
	II/251-500	5,000	245	10.5	12	28	A	
	local	III/251-400	5,000	245	8	10	28	A
		IV/401-3000	5,000	250	8	10	28	A
		V/3001-5500	8,000	200	8.5	10	35	A
		VI/over 5500	8,000	225	11.5	12	35	D
collector	IV/401-3000	14,000	220	8	10	35	C	
	V/3001-5500	14,000	225	8.5	10	35	C	
	VI/over 5500	8,000	180	11.5	12	35	D	
arterial	IV/401-3000	14,000	220	8	10	35	A	
	V/3001-5500	14,000	225	8.5	10	35	C	
	VI/over 5500	14,000	180	11.5	12	40**	D	
commercial:	I/0-250	14,000	195	10.5	12	35	A	
	II/251-500	14,000	195	10.5	12	35	A	
	local	III/251-400	8,000	215	8	10	30	B
		IV/401-3000	8,000	220	8	10	30	B
	industrial	V/3001-5500	23,000	285	8.5	10	35	C
		VI/over 5500	23,000	285	8.5	10	35	C
collector	IV/401-3000	14,000	180	8	10	35	A	
	industrial	23,000	240	8.5	10	35	C	
	V/3001-5500	23,000	240	8.5	10	35	C	
	VI/over 5500	14,000	185	11.5	12	35	D	
	arterial	IV/401-3000	23,000	215	8	10	35	C
industrial		42,000	280	8.5	10	45**	C	
V/3001-5500		42,000	280	8.5	10	45**	C	
VI/over 5500		23,000	190	11.5	12	40**	D	

(vpd) - vehicles per day

\* Measured from face of pole to face of curb.

\*\* Specified mounting height exceeds normal street light fixture above the roadway.

Special street light design may be submitted by the engineer to reduce the specified mounting height. Approval of this design by the Town Engineer is required.

INSTALLATION PATTERN

<u>PATTERN TYPE</u>	<u>CODE</u>
Same Side of Road	A
Both Sides of Road and Opposite Each Other	B
Staggered Along Both Sides of Road	C
Opposite Each Other Across Median	D

**Section 8.5: Right of Way Management**

- 8.5.A. Planting - All plantings within street and sidewalk right of ways and median strips within private road systems must follow the Virginia Department of Transportation document entitled Guidelines For Planting Along Virginia's Roadways and shall not impede upon sight distance easements. Trees should not be planted underneath power, telephone, or cable lines, unless the species mature height is 10 feet less than the height of the lowest line.
- 8.5.B. Mailboxes - Mailboxes shall be placed in a location such that adequate site distances, as defined by the Virginia Department of Transportation for roadway design, can be maintained.
- 8.5.C. Lawn Decorations - Lawn decorations, such as baskets, and decorative stone, shall not be placed in the street or sidewalk right of ways or median strips of public roadway systems.

**Section 8.6: Propane Tanks**

Propane Tanks must be placed on a concrete pad placed on compacted fill or unexcavated natural soil.

**CHAPTER 9: SUPPLEMENTAL BONDING, AS-BUILT AND INSPECTION REQUIREMENTS**

**Section 9.1: Supplemental Bonding Requirements**

9.1.A. Bonding Generally –A performance agreement and security of a form and type as specified in the Subdivision Ordinance is required prior to the recording of plats for public improvements as identified in the Subdivision Ordinance. This Bond (or other type of acceptable security) serves to insure the completion of work depicted on the Site or Construction Plan associated with that Plat which was required to be on that Site or Construction plan in order to secure it's approval.

9.1.A.1 - Bond estimates shall be based on the latest edition of the Loudoun County or LCSA Unit Price List.

9.1.A.2.- Bond estimates must be included on the cover sheet of all site or construction plans and submitted separately on forms currently in usage by Loudoun County or LCSA as applicable.

9.1.B. Partial Bond Reductions – Partial Bond reductions are processed as directed by the state code with the following conditions. Bond reductions are not available for base or pavement on streets constructed using the "alternate" paving method. No single element of a bond may be reduced to an amount less than 10% of the original bonded amount. Deterioration of bonded improvements, which have previously been deemed eligible for reduction must be repaired within 60 days of notification by the Town Engineer or designee. Failure to complete the repairs as directed may result in subsequent requests for partial bond reductions being reduced by an amount equal to the cost of repairs.

9.1.C. Bond Release - Bond Releases are processed as directed by the State Code. Prior to Final release the following are needed.

- Complete approval of all required as-builts and paperwork is necessary.
- Acceptance by the accepting authority for maintenance.
- Acceptance of community improvements by the HOA.
- Monumentation (or iron pipes as appropriate) set as needed to verify locations of right of ways and easements.
- A letter from the supervising engineer that the inspections as required in Section 9.3 have been performed.
- For private streets a Latent Defect Indemnification Agreement, for a period of one year, secured by a bond (or other acceptable security) for a period of 13 months in the amount of 5% of the original bond, must be provided.

### **Section 9.2: As-Built Requirements**

9.2.A. Wastewater systems - As-built requirements for wastewater systems include:

- Tops and inverts of all manholes.
- Lengths, size and grade of all pipelines.
- Three hard measurements to all manholes.
- Location of all cleanouts.

9.2.B. Water Distribution Systems - As-built requirements for water distribution systems include:

- Three hard measurements to all hydrants, blowoffs and valve boxes.

9.2.C. Storm Sewer Systems - As-built requirements for storm sewer systems include:

- Tops and inverts of all structures
- Length, size and grade of all pipe
- Spot elevations on 50-foot centers on manmade channels.

9.2.D. Storm Water Management Ponds and Structures - As-built requirements for storm water management ponds and structures include:

- Topography of bottom (Approved by the Town Engineer prior to being placed in service if a wet pond).
- Elevations at proposed water surface elevations.
- Calculation of volume.
- Elevations and size of orifices, weirs and top at all proposed water surface elevations.
- Elevations and dimensions of emergency spillway.
- Location within easement.

9.2.E. Miscellaneous - As-built requirements for miscellaneous facilities include:

- Verify trails properly located within easements.
- Verify common areas properly delineated.

**Section 9.3: Inspection Requirements**

Third party inspections are acceptable in lieu of inspections by VDOT for public streets, and required for private streets. The inspections must be performed to VDOT specifications and must include the following at a minimum.

- Compaction of embankments and impoundment structures.
- Compaction of trenches and structure backfill.
- Compaction of sub-grade, sub-base and base for roads, curbs and walks.
- Roller patterns and control strips and theoretical and actual densities for base and final pavements.
- Appropriate concrete tests.
- Independent structural inspections for precast, cast in place or erected structures such as box culverts or bridges.
- Additional items as the Town Engineer may direct due to the nature of the project.

# **Town of Purcellville**

## **Material Specifications & Standards Booklet**

**\*Accompanying Document to the Town of  
Purcellville Facilities Standards Manual\***

**Revised Date: **March 26, 2008****

# **Material Specification Booklet**

## **Town of Purcellville**

This Document accompanies the Town of Purcellville Facilities Standards Manual

Adopted: 6/11/96 by Town Council

Latest Revision: 3/26/2008

### **Introduction**

The Materials Specification Booklet is intended as a companion to the Facilities Standards Manual. The materials listed represent the materials acceptable for use in constructing facilities in the Town of Purcellville and the Urban Growth Area. These materials have been specified in this book because they most suit the specific design criteria, maintenance needs, and cost requirements for the Town of Purcellville. Where a manufacturer's name and/or model number is specified no substitutions will be allowed. Any products not specified in this booklet shipped to projects within the town or urban growth area shall be deemed unresponsive to the town's authority and shall be removed and replaced with approved materials at no cost to the town.

All pipe, fittings, and other related materials used in the construction of lines shall be in full compliance with the latest modifications and/or revisions to this document and the ASTM, ANSI and AWWA specifications.

This materials specifications book is divided into two separate categories: Water Distribution System and Sewer Collection System. The table identifies the items used to construct these systems and provides the acceptable manufacturers and model numbers. Any deviation from the items specified will not be accepted by the town. Any items not specified in this booklet must meet all the specifications described in the latest version of the Town of Purcellville Facilities Standards Manual.

For any items required for streets that are not listed in this document, please refer to the VDOT specifications. This would include all storm water management structures, signs, etc.

The Materials Specification Booklet will be updated regularly by the town as the need arises. The latest revision date is printed on the bottom left hand corner of each page. Please check to be sure you have the latest revision of this document before purchasing any materials.

<b>Water Distribution System</b>			
<b>Items for Water Distribution</b>	<b>Manufacturer</b>	<b>Model # or Type</b>	<b>ANSI/AWWA spec.* or other requirement</b>
Water Lines	Griffin	<i>Class 52 DIP</i>	C151/A121.51 AWWA C151
	Atlantic States		
	Clow		
Fire Hydrants	Mueller Centurian	Super Centurian 250	AWWA C502
	American Flow Control	B62B 4' D.O.B.	
Gate Valves	Mueller <i>to 12"</i>	A 2360-20	AWWA C509
	<i>Mueller above 12"</i>	A 2361-20	
	American Flow Control	AFC 2800	
<i>Valve Nut Extensions</i>	<i>Geneco</i>	<i>1' Increments</i>	
	<i>Fast Fabricators</i>		
Swing Check Valves	Mueller	A 2600-6	AWWA C508
	American Flow Control	50 SC	
<i>Butterfly Valves</i>	<i>Pratt</i>	<i>Ground Hog</i>	
	<i>Mueller</i>	<i>Line Sealer 3</i>	
Combination Air Release & Air Vacuum Valves	Valmatic	VM 201C & VM202C	ASTM A126 Class B
	Apco	143C & 145C	
	<i>Bernard</i>	<i>4415</i>	
<i>Blow Off Valve</i>	<i>Mueller</i>	<i>A-2360</i>	
Valve Boxes	Tyler Pipe	564S	AWWA C110 ASTM A438-62
	Bingham and Taylor	BT 22	
Bolts and Gasket Kits	Stewart	S-FBK-FF 1/8	
	Carson	C-FBK-FF 1/8	
Mechanical Joint Fittings, <i>Hydrant Tees</i> <i>Elbows and Sleeves</i>	Tyler Pipe	Compact	AWWA C153
	Griffin Pipe		
	Union Foundry		
Mech. Joint Restraints/ Mega Lug Glands	EBAA Iron Mega Lugs	1100 Series	ASTM A536-80
	Ford Meter Box Co.	1400 Series	
Mechanical Joint Tapping Sleeves	American Flow Control	2800 A ORC	ASTM A536-65-45-12
	Mueller	Full Body Style	

<b>Water Distribution System</b>			
<b>Items for Water Distribution</b>	<b>Manufacturer</b>	<b>Model # or Type</b>	<b>ANSI/AWWA spec.* or other requirement</b>
<i>Same as Above, Old Pipe</i>	Mueller	Full Body Style	
<i>Repair Clamps</i>	<i>Ford Circle</i>	<i>Stainless Steel</i>	

\* Must meet the requirements of the ANSI/AWWA and or ASTM standards as described

Wall pipe/Sleeve/ Flg Spools – Ductile Iron Pipe and Flanges	Higgins Eng.	<i>Class 53 DIP</i>	AWWA C115
	Davis - K		
	Clow		
Service Line Fittings	Ford Meter Box Co.	C44 series	Compression AWWA C800
	Mueller	110 series	
Service Tubing	Mueller	Soft type K copper	ASTM B88
	Howell	Soft type K copper	
Threaded Fittings	Merit	Red Brass	ANSI B16.15
	Lee Brass	Red Brass	
Service Saddles	Ford Meter Box Co.	<i>FS202 Series</i>	Double Strap Type
	Mueller	<i>H10500 DR25CC</i>	
	Smith Blare	313	
Ball Corporation Stops	Ford Meter Box Co.	<i>FB Series 1000Q</i>	AWWA C800
	Mueller	<i>300 Series B-25008</i>	
Coppersettors <i>1" or Less</i> Single service 1-1/2" Single service 5/8" Single service 1" Double service 5/8" Single service 2"			AWWA C800 W/ dual bypass Check valve
	<i>Ford</i>	<i>70 Series</i>	
	Ford Meter Box Co.	VBHH66-15B11-66	
	Ford Meter Box Co.	VBHC172-12W4433	
	Ford Meter Box Co.	VBHC174-15W4444	
	Ford Meter Box Co.	VBHC172-12W1433	
Dual Cartridge Style Check	Ford Meter Box Co.	HHC series	AWWA C800
	<i>Mueller</i>	<i>H14460 Series M98</i>	
Meter Box Single service 5/8" Single service 1" Double service 5/8"	Mid-States Plastics	18" by 30"	ASTM D1505 Hi density Polyethylene
	Mid-States Plastics	24" by 30"	
	Mid-States Plastics	36" by 36"	
Meter Box Covers 5/8" to 2"	Ford Meter Box Co.	<i>A32T, Single Recessed</i>	Cast Iron
	<i>MBC</i>	<i>74MAL115RTCP, Single Recessed</i>	
	<i>MBC</i>	<i>32TT, Dual Surface</i>	

Meter Box Cover	Ford Meter Box Co.	NO #1	Cast Iron
Extension Rings	MBC	NO 18-24	
Cold Water Meters		T-10	AWWA C700
Blow Off Hydrants			
<i>Yard</i>	Kupferle Foundry	#78	
<i>Pavement</i>	<i>Mueller</i>	<i>A-2360</i>	
Sampling Stations	Kupferle Foundry	NO88-WC (Eclipse)	
Mechanical Joint Connections	Infact Corporation	Foster Adaptor	

### Sewer Collection System

Items for Sewer Collection System	Manufacturer	Model #	ANSI/AWWA spec.* or other requirement
Gravity Sewer Mains PVC (6" to 27")		6"-12" DR 18	AWWA C900
	National Pipe	14"-27" DR 25	AWWA C905
	NAPCO		
	ETI		
	J.M.		
Gravity Sewer Mains PVC (36" to 48")	Carcon	Vylon	ASTM F794
	ETI	Ultra Core	46 PSI
Gravity Sewer Mains PVC Ribbed(15"-30")	ETI	Ultra Rib	ASTM F794
			46 PSI
Manhole Lining, All over 18' or Receiving Force Main Flows	Americast	AGRU Sure Grip	
Manhole Internal Chimney Seals	Cretex		
Manhole Adjusting Rings	Ladtech	HDPE	
Gravity sewer laterals Inside ROW or Town Easement	National	DR 18	AWWA C900
	NAPCO		
Force Main (PVC)	National	DR 14	AWWA C900
	ETI		
	NAPCO		
Force Main Ductile Iron Pipe	Griffin	CL52	ANSI/AWWA C151/A21.51
	Atlantic States		
	Clow		

Force Main HDPE		EHMW SDR 11.5	
Sewer Main Fittings	Harco	SDR 35	PVC, ASTM D-3034
	Freedom		
Sewer Saddles	Romac Industries CB	CB	DI ASTM 536
Pressure Fittings	HARCO	SDR 21	PVC ASTM D1784
Mechanical Joint Fittings	Tyler Pipe	Compact	AWWA C153
	Griffin Pipe		
	Union		
Ball Curb Stops	Ford Meter Box Inc	B11	AWWA C800
	Mueller		

Ball Valve Extension Stems	Geneco	EST ST-3.0	ASTM A-36- 84A
	Trumble		
Gate Valves	American Flow Control	250 PSI R.S.	AWWA C509
	Mueller		
Air Release & Air Vacuum Valve	Valmatic	801 BW, 802 BW	ASTM A126 Class B
	APCO		
Valve Boxes	Tyler Pipe	24x36	Cast Iron
	Bingham & Taylor	36x48	
Detectable Marking Tape	Line Tech Systems	6" Wide	Green w/ black "Sewer line below"
	Allen Systems		
Gate Valve Extension Stems	Geneco	EST ST-3.0	ASTM A-36- 84A
	Trumble		
Clean Out Adapters & plug Clean out wye	Jones Manufacturing	SDR 35	ASTM D-2665
	Harco		
	Freedom		

\* Must meet the requirements of the ANSI/AWWA and or ASTM standards as described