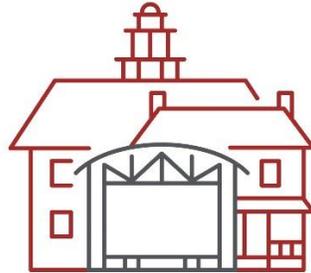


Town of Vienna



TOWN OF
VIENNA
Public Works

Public Infrastructure Manual

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Chapter 1

INTRODUCTION

1.1 PURPOSE

- A. This Public Infrastructure Manual (PIM) was created to establish standards for design and construction of infrastructure and facilities in the Town of Vienna (Town).
- B. The PIM provides guidelines for the design of infrastructure, facilities and construction for new development and redevelopment within the Town. It is intended to serve as a technical manual in the effort to implement the requirements of the Subdivision and Zoning Ordinances and other applicable chapters of the Code of the Town of Vienna. The PIM does not supersede or eliminate any provision of the Town Code or good engineering judgement.

1.2 INTERPRETATION

- A. These standards and guidelines are designed to supplement the provisions of existing Federal, State and County regulations and Town codes and ordinances. All applicable Federal, State, County and Town permits must be obtained. Nothing herein shall be deemed to waive or modify other requirements of existing codes. Except as expressly provided otherwise in this document, the Director of Vienna Department of Public Works (Director) is the designated official charged with the administration of the standards and requirements contained in this manual and, in administering them, shall treat them as guidelines. The Director may allow for variations of standards where the effect of the variation is in keeping with established engineering practices and procedures and shall make the final decision on all questions regarding interpretation of this manual, after reviewing recommendations from the designated departments, authorities, boards, and committees.

1.3 ABBREVIATIONS

Town – Town of Vienna
County – Fairfax County
State – Commonwealth of Virginia
VDOT – Virginia Department of Transportation
FEMA – Federal Emergency Management Administration
PIM – Town of Vienna Public Infrastructure Manual
PFM – Fairfax County Public Facilities Manual
VESCH – Virginia Erosion and Sediment Control Handbook
ADA – Americans with Disabilities Act
Director – Director of Vienna Department of Public Works
CBR – California Bearing Ratio
CBPA – Chesapeake Bay Preservation Area
RPA – Resource Protection Area
RMA – Resource Management Area

Chapter 2

ENVIRONMENTAL AND WATER RESOURCE MANAGEMENT

2.1 STORM DRAIN SYSTEMS

- A. Public and private storm systems being constructed in the Town shall be designed to comply with the standards of VDOT Drainage Manual, PFM, VESCH, and this chapter of the PIM.
- B. Flows from downspouts shall be conveyed away from onsite and offsite structures by open channel swales or closed pipe system. All private closed pipe systems must daylight ten feet (10') from property line unless approved by the Director. All runoff must sheet flow across property lines unless the runoff is conveyed through adequate outfall and easements.

2.2 STORM WATER MANAGEMENT

- A. Storm water management facilities for storm runoff quality and quantity being constructed in the Town shall be designed to comply with the standards of PFM, VESCH, Virginia Stormwater Management Handbook, Town Code and this chapter of the PIM.
- B. Increased volumes of sheet flow resulting from pervious or disconnected impervious areas or from physical spreading of concentrated flow through level spreaders, must be identified and evaluated for potential impacts on down-gradient properties or resources. Increased volumes of sheet flow that will cause or contribute to erosion, sedimentation, or flooding of down-gradient properties or resources shall be diverted to a stormwater management facility or a stormwater conveyance system that conveys the runoff without causing down-gradient erosion, sedimentation, or flooding.
- C. For the purposes of Stormwater Management in Residential Zones, calculations for pre-development impervious cover shall be calculated based on current conditions but cannot equate to more than twenty five percent (25%) of the property area.
- D. Where soils amendments are being utilized for runoff reduction in managed turf areas, the maintenance of those areas must include the aeration of the soils once every two years. The owner must provide proof that the amended soils have been aerated by providing documentation.

2.3 FLOODPLAIN

- A. The floodplain boundary as shown on the appropriate adopted FEMA Flood Insurance Rate Map shall be shown and labeled on all plans and shall be used to meet the Town's Floodplain Code unless a floodplain study is conducted for the watershed.

2.4 CHESAPEAKE BAY PRESERVATION AREAS

- A. The Town has established Chesapeake Bay Preservation Areas to minimize the adverse effects of development on state waters and aquatic life. The Resource Protection Area RPA and Resource Management Area RMA boundaries per the Town's GIS mapping shall be shown and labeled on all plans and shall be used to meet the Town's Chesapeake Bay Preservation Areas Code.
- B. Site work that creates new impervious area within the RMA shall be mitigated through planting within the buffer downstream of the new impact. Mitigation of allowed impacts to the buffers shall consist of overstory trees, understory trees, shrubs and groundcovers. The density of overstory trees shall be a minimum of 100 trees per acre. The density of understory trees shall be a minimum of 200 trees per acre. The density of shrubs shall be a minimum of 1089 plants per acre. If seedlings are used instead of container plants, the density of trees shall be doubled. Large caliper trees shall not be planted on slopes steeper than 2:1. Plant materials shall be randomly placed to achieve a relatively even spacing throughout the buffer. Plants shall be native to the degree practical and adaptable to site conditions. Wetland plantings (including herbaceous plantings) and/or wetland seed mix shall be used where site conditions warrant. Plant materials and planting techniques shall be as specified in the County Public Facilities Manual and as reviewed and approved by the Town's Arborist.
- C. The applicant has the option of providing stormwater management plan that addresses BMP, Channel Protection, and Flood Protection on site per current State and Town Code in lieu of providing planting the buffer.

2.5 EROSION AND SEDIMENT CONTROL

- A. All projects having 2,500 square feet or more of land disturbance activity are required to obtain a land disturbance permit from the Town of Vienna.

Chapter 3 TRANSPORTATION

3.1 GENERAL

- A. The purpose of this chapter is to establish minimum standards for the planning, design, and construction roadways, certain associated facilities and pedestrian and bicycle accommodations within the Town. It is the intent of this chapter to serve as a technical manual in the effort to implement the requirements of the Subdivision and Zoning Ordinances and other applicable chapters of the Code of the Town of Vienna.
- B. It is the intent of the Town that all roads be dedicated for public use and maintained by the Vienna Department of Public Works.
- C. A Right of Way Permit from the Town is required when any work is performed within the right of way.

3.2 Requirements

- A. Public roads being constructed in the Town shall be designed to comply with the standards of VDOT, PFM, and this chapter of the PIM. Private streets shall be designed to comply with the standards of the PFM and Town Code.

3.3 PLANNING

- A. Right of Way widths for existing roads within the town are specified on the latest Town Map. All new road and existing road improvements shall be dedicated and constructed to the latest Town Typical Street Section.

3.4 Traffic Calming

- A. Traffic Calming measures shall be implemented in accordance with the latest "The Citizen's Guide to Traffic Calming in Vienna".

3.5 PAVEMENT DESIGN FOR STREETS

- A. New Final Pavement Sections in the Town of Vienna shall be built in accordance with the latest VDOT Pavement Design Guide and the PFM using field run CBR values. Pavement sections for preliminary purposes only can be established using a CBR value of ten (10). Final pavement design using field run CBR values shall be submitted to Vienna Department of Public Works for review and approval.

3.6 CURB

- A. Curb and gutter for road improvements in the Town's right of way will meet the latest VDOT standards and specifications for curbs, medians, and entrance gutters; the gutter will be modified to have a width of 18".
- B. A minimum of one foot asphalt cut front all new or replaced curb to ensure proper forming of the curb.

3.7 INTERSECTIONS

- A. Intersection curb return in the Town will have a 25' face of curb radius unless otherwise approved by the Director.

3.8 SIDEWALKS

- A. Sidewalks shall be a minimum of 5 feet in width unless approved by the Director and will meet VDOT standards and specifications. The location of sidewalk is determined by the Town's Street Sections.

3.9 CURB RAMPS

- A. Curb ramps shall meet the latest VDOT standards and specifications for curbs, medians, and entrance gutters. Designs of these aprons need to provide elevations, slopes, and dimensions to show that the aprons meet the minimum requirements.

3.10 TURNAROUND

- A. Turnarounds being constructed in the Town shall be designed to comply with the standards of VDOT, PFM, and this chapter of the PIM. See the Town's Cul-De-Sac detail for additional design standards.
- B. Grades for cul-de-sac turnarounds shall not be less than 2% and not exceed 6 percent measured along face of curb.

3.11 DRIVEWAY APRONS

- A. All driveway aprons must be design and installed perpendicular to the road unless approved by the Director.
- B. All driveway aprons must be connected to a paved driveway / parking area.
- C. Residential driveway aprons shall meet the lasted VDOT CG-9B standards and specifications where there is appropriate area within the right of way to meet current ADA requirements.
- D. In the instance where there is insufficient room to build the residential apron to meet VDOT and ADA standards then the apron needs to be modified to adhere to ADA requirements as well as usability for vehicles. Vienna's Modified VDOT CG-9B Apron provides details for meeting ADA requirements for road with a utility strip. Vienna's Apron Without Utility Strip will be provided where roads have sidewalk abutting the back of curb. Designs of these aprons need to provide elevations, slopes, and dimensions to show that the aprons meet the minimum requirements.
- E. Commercial driveway aprons shall meet the lasted VDOT CG-13 standards and specifications where there is appropriate area within the right of way to meet current ADA requirements.
- F. In the instance where there is insufficient room to build the commercial apron to meet VDOT and ADA standards then the apron needs to be modified to adhere to ADA requirements as well as usability for vehicles. Vienna's Modified VDOT CG-13 Apron provides details for meeting ADA requirements for road with a utility strip. Vienna's Apron without Utility Strip will be provided where roads have sidewalk abutting the back of curb. Designs of these aprons need to provide elevations, slopes, and dimensions to show that the aprons meet the minimum requirements.

3.12 DRIVEWAYS

- A. To mitigate the potential for vehicle drag, driveway slopes should not have grade breaks larger than 12% over at 10 feet interval and shall not exceed a slope of 20%. Driveway slopes are measured along the centerline of the driveway from the property line to the garage slab.
- B. Driveways widths must meet the apron width at the right of way.

3.13 STREET SIGNS

- A. Street signs shall be installed at all street intersections in a location satisfactory to the Director based on the criteria set in the PFM and the MUTCD.

3.14 STREET LIGHTS

- A. Street lights shall be installed with any new subdivision and non-residential developments based on the criteria set in the County PFM.
- B. The required street light improvements shall be installed by the power company serving the new development. However the developer may perform the civil portion of the installation with the prior approval of the utility company.
- C. The developer shall coordinate directly with the Power Company to schedule the installation of street lights. This coordination shall be for installation of the wiring for the street lights, concurrently with the electric service for the development and subsequent installation of the light poles, fixtures, and final connection when the site is read for such work.
- D. A Town of Vienna Street Cut permit is required for any work be performed within the right of way.
- E. Power supply for the new lights shall be provided by underground wiring.
- F. Street light styles, luminaire size, spacing, light levels and heights shall conform to the latest PFM.

3.15 STREET TREES

- A. Street trees shall be installed in a location satisfactory to the Director Vienna Department of Parks and Recreation based on the criteria set in the Town's Tree Preservation and Planning Specification Manual. Street trees shall not be installed in a location that impacts intersection sight distance.
- B. The Town Arborist shall be notified prior to any work be perform near any Town Tree. Care shall be taken to protect any Town Tree from damage as specified by the Town Arborist.

3.16 PAVEMENT RESTORATION FOR STREET CUTS

- A. Asphalt pavement restoration for open cuts in the Town's right of way will meet the latest VDOT Asphalt Pavement Restoration for Open Cut Utility Installations.

Chapter 4 WATER & SANITARY SEWER

4.1 General

- A. It is intended that this chapter serve as a technical manual in the effort to implement the requirements of the Code of the Town of Vienna. Nothing herein shall be deemed to waive or modify other requirements of existing codes, the Water and Sanitary Sewer System General Regulations or operations/engineering practices determined by the Town.
- B. All materials for public water and sewer shall be approved by the Town of Vienna prior to installation.

4.2 WATER

- A. Water systems being constructed in the Town shall be designed and built to the latest Fairfax Water Construction Practice Manual and this chapter of the PIM.
- B. All new homes are required to provide a one inch water meter to service the residence.
- C. All water valve covers shall be stamped "water".
- D. All Fire Hydrants shall be Mueller Company product.
- E. All water meters shall be installed within the public right of way or recorded easement.
- F. An automatic air release valve is required at all crest point for water mains as determined by DPW.
- G. All water meter designs and submittals shall be verified with the Town of Vienna
- H. When required to do so by the Town the engineer shall submit AWWA water meter sizing calculations
- I. Water connections between the main and meter shall be the same diameter as the meter unless otherwise approved by DPW
- J. Inserting valves may be required to minimize customers out of water as determined by DPW.
- K. See Town of Vienna details Typical Water Meter Cover Detail for 1-1/2 inch and 2-inch meters. All meter lids shall have a 2-inch hole drilled to accept a touch read pad.

4.3 SANITARY SEWER

- A. Sanitary Sewer systems being constructed in the Town shall be designed and built to current standard set for in the latest PFM and this chapter of the PIM.

Chapter 5 Administrative Procedures

5.1 Winter Site Stabilization Waiver

- A. The purpose of this document is to explain how the Town of Vienna can issue a 90-day Winter Waiver for temporary occupancy permit due to weather conditions that prevent final stabilization of ground cover for final occupancy. Waivers requests will only be considered when final stabilization is the only unresolved issue in the staff inspection process. Consideration and approval of a winter waiver shall be at the discretion of the Director of Public Works, or his/her designee based on the following criteria.
- 1) Have all other site work complete including but not limited to sidewalks, curbs, and driveways.
 - 2) Have all erosion and sediment devices in good working condition and all denuded areas be provided with temporary stabilization per the latest VESCH.
 - 3) The applicant shall post a 90-day bond (cash or surety) covering permanent stabilization for the site.
 - a) To compute the bond for permanent stabilization the applicant shall: (1) use the latest Town of Vienna Tree Preservation and Planting Specifications Manual to **compute cost for proposed trees for canopy coverage**, plus (2) a rate of **\$4.00 per square yard of sod**.
 - b) If after 90 days, final stabilization is not provided, the owner / applicant will be notified and the entire bond will be forfeited to the Town and the Town will use the bond money to complete final stabilization. Any additional charges for completing the stabilization shall be borne by the applicant.
 - c) Bond will be released upon a passing inspection of the final stabilization.

5.2 Planting Season Waiver

- A. The purpose of this document is to explain how the Town of Vienna can issue a Planting Season Waiver for temporary occupancy permit due to out of season planting requirements that prevent final plantings of trees/shrubs required for canopy coverage or other requirements as specified on the approved plans for final occupancy. Consideration and approval of a planting season waiver shall be at the discretion of the Head Arborist, or his/her designee. The acceptable planting seasons are as follows:
- 1) **Spring Planting Season:** March 15 – May 30
 - 2) **Fall Planting Season:** September 15 - November 30
 - 3) Planting shall be done only within the listed dates. Any tree planted outside of these planting seasons will be rejected by the Town Arborist upon inspection.
- B. If a planting season waiver temporary occupancy permit is granted, the applicant shall post a bond (cash or surety) covering any tree plantings required for canopy coverage for the site.
- 1) To compute the bond for tree plantings the applicant shall use the latest Town of Vienna Tree Preservation and Planting Specifications Manual to compute cost for proposed trees for canopy coverage.
 - 2) If after the following planting season, required tree plantings are not provided, the owner / applicant will be notified and the entire bond will be forfeited to the Town and the Town will use the bond money to complete required tree plantings. Any additional charges for completing the plantings shall be borne by the applicant.
 - 3) Bond will be released upon a passing inspection by the Town Arborist.

5.3 Plans & Plats

- A. All plans and Plats in the Town of Vienna shall meet industry standards for drafting practices. The plan needs to meet at a minimum the drafting standards per part 641 of the National Engineering Handbook. Provide lineweights and linetypes to differentiate proposed and existing features and to differentiate between different items such as utilities. Show all geometric details that are onsite and relevant adjacent information such as trees, streams, stream banks, culverts, utilities, roads including curb, gutter, centerline, sidewalk and right of way for both sides. Provide adequate contours (including labels) and spots to demonstrate existing and proposed conditions of the property. Provide labels of all linetypes and/or provide an appropriate legend. All text shown on the plan should be at least 0.10 inches in height and should be of similar font and lineweight. Flow arrows shall be used to demonstrate direction of runoff.
- B. Infill Lot Plans for Single Family Detached Homes:
The information in this section is required to be included on Infill Lot Plans reviewed by the Town of Vienna.
- 1) Scale: The scale of the plan shall be shown in feet.

- 2) The plan shall be title: Infill Lot Plan for "Address"
- 3) All sheets signed and sealed by a licensed professional engineer or land surveyor.
- 4) Name of subdivision, Site address, owner; north point, the scale and date of the drawing; sheet index; and contact information including email address of the licensed professional surveyor or engineer.
- 5) Current Zoning and zoning requirements in tabular form in accordance with the latest Zoning Ordinance.
- 6) Vicinity Map: Show the location of the proposed site by an insert vicinity map, drawn to scale 1 inch equals not more than 2000 feet or other appropriate scale as permitted by the director.
- 7) Adjoining property information including zoning information.
- 8) All dimensions shown in feet and decimals of a foot to the closest 0.01 of a foot; all bearings in degrees, minutes and the nearest ten seconds.
- 9) Lot Boundary lines with bearing and distances are shown (legal description)
- 10) Yard setback lines: Front, side and rear yard and setback lines as required by the Zoning Ordinance
- 11) The plan shall show all public infrastructures fronting the property including right of way boundaries, sidewalk, curb and gutter, edge of pavement, center line of right of way, topography, and utilities. The information will be disseminated for the entire width of the right of way.
- 12) The developer of any lot that fronts an existing street and where adjacent property on either side has an existing sidewalk, shall dedicate land, construct a sidewalk and connect such new sidewalk to the existing adjacent sidewalk. Such new sidewalk shall be constructed in accordance with the Town standards
- 13) The developer of any lot shall dedicate land along the lot frontage for sidewalk, curb, and gutter improvements as shown on the adopted Town Pedestrian Plan. Dedication of such improvements shall be in accordance with the standards set forth by the Town.
- 14) Topography: Topographic information , indicating when and by what means it was made, having a contour intervals of 2 feet or less, showing all area covered by the site including 20 feet overlap of offsite area. For lots that have minor change in elevation the contour interval should be increased to a 1 foot interval.
- 15) All natural and manmade open channels and swales.
- 16) Retaining walls with elevations proposed for the top and bottom of walls.
- 17) Existing easements shown on plan have Deed Book and Page Number.
- 18) Soils Map and soils information per the latest Fairfax County Soils Guide.
- 19) Storm Water Management Plan in accordance with State and Town regulations including a SWM narrative.
- 20) Erosion and Sediment Control Plan in accordance with State and Town regulations.
- 21) Water Quality Impact Assessment for properties that fall within the Chesapeake Bay Preservation Area.
- 22) If RPA is located on the property, provide field run information to establish the buffer boundary.
- 23) If RMA is located on the property, provide the RMA Boundary per Town's GIS.
- 24) Floodplain Boundary per the latest FEMA Flood Insurance Rate Map and base elevation if provided by the Map. All projects adjacent to or within the Floodplain Boundary must be on state plain coordinates and elevations. A note shall be added to the plan stating the coordinate system and how it was established.
- 25) Adequate outfall analysis and narrative.
- 26) Existing condition map showing current conditions of the site and items to be demolished.

C. Lot Grading Plans for Single Family Detached Homes:

Lot Grading Plans are plans associated with a building permits for each individual lots of a common approved subdivision plan.

The information in this section is required to be included on Lot Grading Plans review by the Town of Vienna.

- 1) A minimum scale of 1 inch = 30 feet
- 2) Sheet size shall be 8.5 inches x 14 inches.
- 3) Existing and proposed topography (See 5.3.B.12)
- 4) Actual footprint of building per architectural plans and its distance to nearest lot lines including other features such as decks, porches and patios.
- 5) Driveway, including slope.
- 6) Tree canopy and vegetation preserved or conserved as part of the approved subdivision plan, SWM Facilities, floodplain, and wetlands.
- 7) Open channels or swales.
- 8) Existing and proposed easements.

- 9) Areaway with top and bottom elevations and spot elevations at proposed walk out locations.
- 10) Retaining walls shall be indicated and provided with the elevations proposed for the top and bottom of the wall.
- 11) Do not include limits of disturbance.
- 12) Provide Erosion and Sediment Controls for the lot including but not limited to Silt Fence around the perimeter, Construction Entrance, and Inlet Protection.
- 13) Lot plantings and schedule in accordance with the approved subdivision plan.
- 14) Lot coverage calculations, including the breakdown of the areas featured, such as porches, buildings, driveway, and patios.
- 15) Lot deviation around house showing the existing versus proposed spot elevations.

5.4 GIS Electronic Data

- A. Any project that improves public utilities including water, sanitary, and storm drain shall provide as-built electronic data for the utility in Virginia State Plain North NAD 83 in the form of a DFX file.