

MEMORANDUM

To: Planning Commission
From: Kinsey O’Shea, AICP, Senior Town Planner
Date: January 13, 2023
Subject: RZN22-0004 Glade Spring Crossing **STAFF VARIANCE REPORT**

Introduction:

This memo provides an analysis of each of the variances requested by the applicant in the Variances/Exceptions for Glade Spring Crossing Rezoning Application dated November 15, 2023 and received November 30, 2023 with the application.

In evaluating the rezoning land use request as a whole, consideration should be given to the variances requested in the proposed development, and whether or not they are necessary to achieve the overall development goals. Evaluation of the requests should also consider the impacts of the variances, if granted, on Town infrastructure, the proposed development, as well as the surrounding neighborhood.

Request to remove parcel from the “Toms Creek Basin Unsewered Area”

The parcels proposed for rezoning are included in the area defined by Town Council Resolution 7-A-06 as being located within the “Tom’s Creek Basin Unsewered Area”. Resolution 7-A-6 states, “That within the Tom’s Creek Basin Unsewered Area, the Town shall only accept development applications that propose the extension of public sanitary sewer service through STEG, STEG with lift stations, or STEP systems.”

The applicant requests that the parcel be removed from the Toms Creek Basin Unsewered Area as a part of the rezoning request in order to install the proposed gravity sanitary sewer system.

The applicant states that a conventional gravity sanitary sewer system can be constructed and is more appropriate for development on these parcels. In addition, existing conventional gravity sanitary sewer surrounds the site and any new sanitary sewer mains can be easily connected to the existing sewer system. For this reason, Town Staff supports this variance request.

Variance Request to Section 1.54(a) of the Water Specifications and 1.44(h)(1) of the Sanitary Sewer Separations: Horizontal Separation between Water, Sanitary Sewer, and Storm Drains

These section of the Water and Sanitary Sewer Specifications require a minimum 10 foot horizontal separation between water and sanitary sewer mains, and storm drains.

The applicant is requesting a variance to a horizontal separation of 8 feet between these utilities. This request will apply to specific locations at stormwater curb inlets located in the proposed street and water or sanitary sewer mains also located within the street.

Town Staff does not support this request in the form of a blanket request for a continuous reduced separation but will support the request for specific locations (curb inlets) where the 10 feet cannot be obtained. In other words, in locations where there are no curb inlets, 10 feet separation is required between the storm structures and any water or sanitary sewer main. In locations where there are curb inlets, the separation can be reduced to 8 feet. Town Staff understands that these locations may not be identified until such a time as the subdivision plans are submitted, if the application is approved.

Variance Request to Subdivision Ordinance §5-310: Culs-de-sac

The Subdivision Ordinance requires a bulb cul-de-sac to be provided at every dead-end street. The ordinance language permits an applicant to request a T- or Y-turnaround in lieu of a bulb cul-de-sac, and provides minimum dimensions for such turnarounds.

The applicant requests to construct a VDOT “Branch Type” turnaround for the terminus of Street D, which is similar to a Y-turnaround, though the legs are generally perpendicular to one another. The proposed turnaround does meet the minimum standards per VDOT, but does not meet the Town’s Subdivision Ordinance. The design shows that more than the minimum distances are provided for both of the legs, which does result in more street frontage for more lots. However, this may result in inconveniences to the residents living at the ends of the street, as drivers needing to turn around will likely use individual driveways to maneuver because the street pavement width is so narrow. Planning Commission should consider if the proposed layout is acceptable considering that it does not meet Town standards, and may result in impacts to the units on the end of the street legs.

Variance Request to Subdivision Ordinance §5-313(1): Street Grades

The maximum allowable street grade per this section is 10%. The applicant is requesting a variance to construct their proposed Street A connection to existing Village Way South at a maximum grade of 15%.

The reason for the request per the applicant is:

“It has been requested by Town Planning a connection be made to Village Way South (VWS). This is a fixed point and is steep descent to the property line at Glade Spring Crossing. Not enough right-of-way exists to provide wider fill slopes that would be required for 10% slopes. In addition, the steeper slopes are necessary to drop from VWS into the site off a landing included for safety. No driveways are located in the portion of roadway that is at 15% and therefore those conflicts will not be present.”

Also from the application-

“As a comparison, Walnut Drive where it ties into Primrose Drive is approximately 14% slope, very similar to ours. Highland Circle between Eckel and Cupp is similar in slope though portions of the road closer to Cupp exceed 16%. Our section of road at 15% does not contain driveways and is less than that section of Highland Circle”.

While the request for 15% maximum grade does not meet the Town Subdivision Ordinance requirements, it does meet VDOT and American Association of State Highway and Transportation Officials (AASHTO) requirements. However, a steeper graded street can be a safety issue in wet, snowy, or icy conditions.

There are instances in Town where existing streets are greater than 10% as the applicant states. Staff would agree that residents who live on these streets have learned to adjust their driving habits in order to travel in their neighborhoods, especially during wet, snowy or icy conditions exist.

Staff also understands that there are cost implications of meeting the Town requirement as well as impacts to the adjacent property owners due to required grading onto private property. While costs to the developer are not a factor in evaluating a variance request, Staff can evaluate potential impacts on adjacent properties. In order to meet the 10% grade requirement, grading outside of the existing right of way would have to occur which would necessitate private, temporary grading easements and/or possible retaining wall construction. If retaining walls were utilized, the Town's preference would be for those walls to be located on private property and not in the right of way. If the walls are located in the Town right of way, they become the responsibility of the Town to maintain which impacts Town monetary and personnel resources.

Staff encourages the applicant to continue to pursue obtaining the private grading easements necessary to construct the street at the required 10% grade. If grading and/or retaining wall easements can be obtained from the adjacent property owners, then Town Staff would not support this variance request. If those easements cannot be obtained, then Staff could support a steeper graded street in conjunction with a longer intersection landing length, which will be discussed with the next variance request.

Variance Request to Subdivision Ordinance §5-313(2): Landings at Street Intersections

This section of the Subdivision Ordinance requires that landings at street intersections be constructed at a maximum of 5% grade for a distance of at least 100 feet. The applicant is proposing a 50 foot long landing at a grade of 5% at the intersection of Road A and Village Way South. The reason for the request per the applicant:

“It has been requested by Town Planning a connection be made to Village Way South through existing 50' right-of-way. Connection to VWS, which is a fixed point, is steep. A full landing of 100' would push Street A higher out of the ground, necessitating much wider fill slopes that will not fit within the existing right-of-way, affecting existing residents on either side of the connection. Residents adjacent to this area were approached regarding easements but were hesitant to commit to anything. It is possible that during design, easement can be obtained, which would increase the length of the landing variance. However, at this time, this is unknown. Trip generation models indicate that peaks of 94 and 64 vehicles will be exiting the entire development during the AM and PM peak hours respectively. The traffic consultant applied a factor of 15% to estimate the amount of traffic exiting via the Street A/Village Way South intersection. This means that a total of 14 and 9 vehicles will be utilizing the landing during the AM and PM peak hours. This is not a lot of traffic spread over the hour and it's unlikely that there will be stacking or queueing of traffic beyond the landing waiting to turn. Landings are typically provided in case there are icy conditions and the 100' is to provide for queueing of stopped traffic before turning. The traffic trip generation supports that the volume of traffic is minimal during the peak hour, meaning that queues utilizing the full length of the landing are unlikely. As such, a reduced landing length is justified. In case of poor weather resulting in the landing feeling unsafe to a driver, alternative more direct routes exist. Most drivers will be aware of this condition as the travelers of these roads will be those living in the vicinity.

Also from the application:

“As a comparison, Walnut Drive, the entrance to the new Givens Farm, is at a 15% slope within the first 50 and 100 feet of its connection to existing Primrose Dr., well outside any landing requirement. This road is similar to our Road A connection to Village Way South in that it is a new development tying into an existing road. However, our variance will still leave a safer situation than this intersection because it provides more of a landing that this road doesn’t have”.

The VDOT requirement is “A landing, having a minimum of 50’ in length and a maximum vertical grade of 2%, should be provided at each intersection”. Therefore, the applicant is proposing a landing that results in a combination of the Town and VDOT requirements.

Similar to the evaluation of the street grade above, Staff understands there are the same impacts on the adjacent properties with this request as well. Therefore, in order to evaluate this request, Staff will consider the impacts of both the steeper grade and the landing in combination.

Staff encourages the applicant to continue to pursue obtaining the private grading easements necessary to construct a landing that meets the requirements of the Subdivision Ordinance.

If a steeper street grade is utilized, Staff would not support a landing length of 50 feet as the shorter length does not provide a long queuing space when driving from the steeper grade onto the landing. Staff could support a steeper street grade with a 100 foot landing at a maximum grade of 5% as it will provide for a longer queuing space and longer space in wet, snowy, or icy conditions. If a 100 foot long landing is not possible due to impacts on adjacent properties, then the length should be optimized to create a landing greater than 50 feet.

Variance Request to Subdivision Ordinance §5-313(3) and (4): Curb and Gutter

This request is to eliminate required CG-6 curb and gutter in portions of the development along proposed streets; and for the installation of roll top curb in lieu of the Town required CG-6 curb in portions of the development along proposed streets.

The memo will address the request for no curb and gutter along sections of Road A and all of Road E first.

From the application:

- a. Applicant requests express approval through rezoning for no curb and gutter in the North Area (portions of Street A and all of Street E) where ditch section will be used for conveyance and infiltration of stormwater.
- b. Reason: In order to maintain affordable housing in the development, only critical infrastructure can be included. Curb and gutter along these areas, with an estimated cost of approximately \$160,000, is unneeded from an engineering standpoint to convey water safely and effectively. While it is a luxury many homeowners expect because they don’t want to see water traversing their lot, it is not always required from an engineering standpoint. The underlying zoning RR-1 does not require curb and gutter for more rural area uses. This is because larger lots do not necessarily need it for proper engineering conveyance of stormwater. It is a sustainable benefit

to the development to allow stormwater to flow over lawns as opposed to immediately capturing it in a curb/gutter and storm drain. The proposed development on Streets A (North side) and E is similar in density and character as the existing adjacent development on Village Way South, which does not utilize curb and gutter. Street drainage running perpendicular to lots can be diverted across lots as overland flow or diverted between lots in gradual swales, encouraging some infiltration. Flow running parallel to the fronts of lots can be contained in ditch sections with 15" culverts under driveways where needed. Storm inlets can be provided to divert flow across the street where needed for engineering. Elimination of curb/gutter will also allow for guest parking in a reinforced grass shoulder off the side of the road, allowing for more room to pass vehicles in the street.

Staff understands that under a by-right development scenario in the RR-1 zoning district, no curb and gutter would be required and road-side ditches could be utilized to direct storm runoff into the storm drain system. Staff would also like to reiterate that when road-side ditches are used, private driveway entrances require that pipes be installed to direct runoff under the driveways and keep flows in the ditches. Driveway pipes must be sized adequately and the home builder and home-owner must be made aware of this requirement prior to home construction.

Staff understands how routing runoff overland can be beneficial and promote infiltration. In some cases, future homeowners may not object to routing stormwater between homes. Staff has concerns that routing public road waters through residential lots may cause legacy drainage issues similar to some older neighborhoods in Blacksburg. This design choice will either require additional encumbrances on the lots or put residential structures at risk for drainage and/or foundation issues. If approved, homeowners must be restricted from tampering or interfering with the proper flow of stormwater within these areas.

From the Public Works perspective, it is important to note that Public Works will not maintain, repair, or replace driveway pipes. Swales between homes must be privately maintained by the Homeowners Association, if it becomes necessary.

The memo will also address the proposed use of roll top curb versus CG-6 next. The roll top curb and CG-6 curb are both VDOT approved types of curb. Both have various requirements for their use per the VDOT Subdivision Street Design Guide, Appendix B (1).

From the application:

- c. Applicant requests the use of continuous rolled curb and gutter throughout the remainder of the development without entrances.
- d. Reason: In order to maintain affordable housing in the development, only critical infrastructure can be included and rolled curb achieves the same intent as CG-6 but for a lot less cost given the processes the Town requires for certificate of occupancy. The proposed development South area is extremely dense and driveway entrances will comprise over 50% of the street frontage. Since the Town requires curb and gutter to be completely installed prior to issuing building permits, 50% of the curb and gutter will be removed to replace it with entrances. This is the reason for selection of Rolled curb, it does not practically require an entrance. It is mountable.

Brookfield Village contains this type of curbing and a majority of affordable development communities in Christiansburg use them. Because it can be installed and left alone, this eliminates costly removal of brand-new curb and gutter and replacement of entrances once a building is constructed. Concrete entrances cost approximately \$270,000 for 134 entrances (approx. \$2000 each) using current concrete prices. Rolled curb costs approximately \$5 more per foot resulting in an increase of \$31,200 for 6240 LF in the development. So the increased cost of using CG-6 and ripping it out to install entrances vs. using a rolled curb with no entrances is \$270,000-\$31,200 for a total of \$238,800. (Note that pulling out CG-6 curb and gutter across 18' wide entrances for 134 lots on the South area would equal approximately 2412 LF at \$35/LF for a total of \$84,420 of money spent wasted).

In comparing the differences in the curb types, the Town standard CG-6 provides a flow depth of 6 inches while the roll top curb provides a flow depth of approximately 4 inches. The roll top curb cannot convey the same volume of runoff as the CG-6 can. This difference will result in the roll top curb requiring additional curb inlets along the street to direct the flow into the storm drain system as compared to CG-6 installations.

Staff will note that the VDOT Subdivision Street Design Guide Appendix B (1) states, "A special design entrance gutter shall be submitted to the District Engineer/Administrator's Designee for approval when roll top curb is used...", and an entrance detail is provided in this document. This application does not provide for a special design entrance installation. Staff contacted VDOT and inquired about this requirement and was told for subdivisions that VDOT reviews, an entrance is installed per VDOT Subdivision Street Design Guide Appendix B (1). Staff recognizes that other surrounding localities may not require the "special design entrance" installed in subdivisions where roll top curb have been used.

Staff would also note that when roll top curb without entrances is installed, that low profile vehicles will drag or "bottom out" when traversing the roll top curb. This could be a problem for homeowners.

From the Public Works perspective, if this situation occurs, Public Works will not make repairs to private driveways. In addition, making revisions to the street profile after the fact is not a practical fix as it would require rebuilding the street.

With the understanding of the above "caveats" and the possibility that the Town will most likely not be able address some resident concerns if they arise, Staff can support this request with the following additional conditions:

1. Roll top curb shall be constructed in accordance with VDOT Subdivision Street Design Guide Appendix B (1)-Figure B(1)-13-Rolltop Curb
2. All curb and gutter designs shall transition to match curb openings within 10 feet.
3. Curb inlets shall be spaced so that the 10-year frequency gutter flow does not exceed four inches and does not cover more than one-half of the travel lane.

Variance Request to Subdivision Ordinance §5-317: Block Lengths

Typical block lengths are established as a range between 500'-1200' in length with regard to safety, traffic flow, and topography. The applicant has requested a variance to allow a block length of 200', which is less than 500'.

Staff supports this request as proposed.

Variance Request to Subdivision Ordinance §5-318(d): Location of Driveways

This section of the Subdivision Ordinance states "On local and collector streets, driveways shall be no closer than fifty (50) feet to an intersection with a public street..."

The applicant is requesting that this distance be reduced to 20 feet for select lots. The reason for this request, from the application:

"Reason: Where smaller units abut an intersection, the lot width is only 27 feet (18' unit with 8.5' side setback). In order to achieve higher densities, driveways will have to be closer to the intersection than this requirement allows. This neighborhood is requesting 15mph speed limits which will help with potential turning conflicts. Of course these will try to be minimized in design, but inevitably a 50 foot requirement will cause loss of multiple units that are critical for development mass and the affordability.

On most lots, drivers will most likely be backing out of their driveways and into the public street. The minimum 50 foot distance provides time for drivers already traveling on the street to react to drivers leaving their driveway and allow for braking time as necessary. Even if the reduction of the speed limit to 15 mph is approved and established, a distance of 20 feet is a short length for driver reaction time.

Staff recognizes that this condition is a potential impact to lots within a denser, smaller lot development. In cases where the standard cannot be met, the applicant should locate the driveway on the opposite property line, as far from the intersection on either leg, as possible.

Variance Request to Subdivision Ordinance §5-401: Sidewalks Required; §5-403 Sidewalk Variance

Sidewalks are required to be installed on one side of all public streets within and adjacent to the proposed subdivision. The sidewalk shall be 5' wide concrete, with a minimum 4' vegetative buffer strip between the sidewalk and the back of the curb or the edge of the pavement.

The applicant is requesting a variance to eliminate sidewalk along portions of Street A and Street E in the northern portion of the development.

From the application:

Reason: Since the developer has to evaluate the cost effectiveness of each infrastructure item to maintain affordability in the overall development, it was determined that sidewalks on the North Area were not critical to the pedestrian circulation to be cost-effective to install. Residents along Street A have direct access to the public paved greenway trail behind their homes, and residents along Street E have a connection to the North/South connector public paved trail at the end of their cul-de-sac. This North area was modeled from the Village at Tom's Creek adjacent development area which does not include sidewalks on Village Way South.

Therefore, there is no “expected” external sidewalk “connection” on the north end of the development. Pedestrians passing through the development may choose to use the North/South connector greenway trail to reach Glade Road, which connects to the Village at the end of Poplar Ridge Dr. Alternatively, they may use the grass trail a short distance from the Glade Spring Crossing property boundary on Street A to access the Tom’s Creek Greenway Trail through the site. Ditch section for stormwater management makes sidewalk challenging on Street E and curb/gutter was eliminated as it is not needed from an engineering standpoint in this area of the development. In order to connect Street A to Village Way South within the existing right-of-way, the typical road section has to be narrow, and sidewalk simply doesn’t fit. It is estimated sidewalk through Street A and E would cost in excess of \$120,000. It should be noted that this does not include the additional cost for grading or widening of the road section which increases the cut/fill required for Street A and Street E and steepens the resulting lots.

The justification states that residents along Street A will have direct access to the paved public trail, but there are lots where direct access is not provided off-street. The 20 homes along the southern side of Street A will have direct access to the paved trail in the open space, but the remaining 24 homes will not have any access to the open space, except through the public streets.

Staff does not support the request to eliminate sidewalk along portions of Street A and Street E as requested.

The applicant is also requesting a variance to the construction standards to reduce the vegetative buffer strip from 4’ to 3’. The applicant states that “Since street trees are not being installed in the grass strip, this would allow for more space behind the sidewalk to plant a street tree. Grass strips do not generally serve a purpose other than to separate pedestrians from the street and 3’ is adequate to do so.”

While staff agrees that 3’ does provide sidewalk separation from vehicles, in this instance the effect of reducing the width of the grass strip will also reduce the overall greenspace in front of the units, which in the southern mixed-income area will be very limited due to driveways in front of the units. Planning Commission may wish to consider the overall reduction of vegetative buffer width on the streetscape and green spaces as a whole.

Variance Request to Subdivision Ordinance §5-901: Public Utility Easements

This request is to reduce the minimum easement width interior to some perimeter lot lines from 15 feet to 7.5 feet where easements already exist on the exterior perimeter. In addition, the applicant is requesting a variance to reduce the minimum width on the front lot line from 15 feet to 7.5’ feet.

The reason for the request from the application:

“Reason: Easements already exist along some perimeter lot lines interior and exterior to the property. Where easements do not currently exist on either side of the perimeter, the applicant will dedicate 15’. However, where easements already exist on the outside of the perimeter, applicant requests 7.5’ interior. The resulting easement for the P.U.E’s on the perimeter would be a total minimum of 15’ and in some cases 22.5’ or 27.5’. Due to the reduced setbacks, density, street trees, and front yard driveways, private utilities will likely have to be contained in

close proximity to the right of way or on shared lot lines where a 15' shared easement will exist. This is the reason behind requesting a 7.5' easement instead of 15' at the front lot line".

Just as the Town has a minimum horizontal separation between water, sanitary sewer and storm drainage, other utilities may have minimum separation requirements as well. This separation provides adequate space for each utility to install, repair, and maintain their utility as well, as provide a measure of safety, for instance, separation between water and power. This separation also allows for utilities to install, maintain, and repair their utility without potentially damaging other utilities that may be utilizing the easement. The minimum easement width of 15 feet is intended to provide for this spacing between utilities. Reducing the width of public utility easements along interior lot lines and in the front yards could impact how these companies to provide service in the future.

Staff encourages developments to maximize the easement widths in order to provide adequate area for the installation of all necessary utilities required to serve the development, plus space for maintenance and replacement, and space for any potential future utilities that may desire to serve a development.

Concerning the request for a reduction to the front lot line public utility easement, the narrower easement is more problematic in this instance. Several utilities will prefer to locate within the street and the right of way. It is the Town's preference to locate public water and sanitary sewer in the street right of way. There are other public utilities that also may prefer to locate in the right of way. With the Town's requirement for 10 feet of horizontal separation between water, sanitary sewer and other public utilities, the right of way area can fill with utilities and the available space become limited. If the front lot line public utility easement is reduced to 7.5 feet, space for other utilities, such as fiber, may become limited. While most fiber companies install their fiber utilizing boring techniques, after installation, they still need the ability to repair and maintain their lines.

Utilities that are installed with the development of a project will have their location defined by the initial design. Any future utility installations will have to have to operate within the available right of way and/or easement width.

Considering that the minimum front setback for both the north and the south areas is 20', there will be no structures that can be located in the front yard, which would also not be allowed in the front PUE. Additionally, the applicant refers to street trees as a hindrance to providing public utility easements. However, given the width and number of driveways especially in the mixed-income southern area, there will not be room for trees in front of many of those units without interfering with easements and utilities. Furthermore, street trees may be planted within easements under certain circumstances. Town Staff will coordinate with the applicant on street tree locations within a public utility easement.

Conclusion:

Many of these variance requests result from the challenges of a denser, smaller lot development. This memo with staff analysis of the requests should be used in the evaluation of the variance requests, and the rezoning request as a whole. Planning Commission and Town Council should consider if the variances and their associated impacts are acceptable to the development and the surrounding area.