

October 11, 2022

Steven Worthington, PE
Christopher Consultants
11551 Nuckols Road, Suite Z-1
Glen Allen, VA 23059

RE: Parkside Townes
LOCATION: 5401 Whiteside Road
POD NO. 2022-00475

Dear Mr. Worthington:

The Department of Public Utilities has completed a review of the water and sewer plans that are part of the plan of development submitted to the Planning Department on September 16, 2022 and received by DPU on September 19, 2022.

□ DPU recommends approval of these plans by the **Director of Planning**.

Please address the following comments before submitting the construction plans for signature.

General

1. Agreements have not been executed at this time. Agreements must be executed prior to the authorization to begin utility construction or approval of building permits. An Information Sheet for the Preparation of Utility Agreements has not been submitted for review. If the Information Sheet is incomplete when submitted, we will send you comments for correction and resubmittal. If the required Information Sheet is complete when submitted, an Agreement will be forwarded to the Owner for signature within 21 days.
2. Add the following note on the cover sheet: "The sewer system for this project will not be accepted, nor will a connection be allowed to the County sewer system until the downstream sanitary sewer for the Drybridge Commons Trunk Sewer utility plans is accepted by the County for operation."
3. Perform a corrosive soil study by taking soil samples along the proposed waterline alignment area in accordance with Henrico DPU Standard 4.2.02G. Provide protection of water main and appurtenances against aggressive soils in accordance with DIPRA recommendations and the ductile iron pipe manufacturer recommendations.
4. Revise and resubmit the Engineering Report showing all of the required items needed for this project on page 1 and completion of the water and sewer design calculations criteria on page 2.
5. Revise and resubmit the Project Summary Report to reflect hydraulic evaluation of the proposed water distribution system. Also, revise pipe material and quantities to match the plans as modified per comments. The questions regarding 2" and 3" pipe maximum length can be marked as "NA".

C400-C402(Utility plan)

6. Provide a master utility plan sheet within the plan set prior to these utility sheets.
7. Review and evaluate the need for routing sewer within backyards of townhouses. Couldn't the sewer main for manholes 80-130 and 42-46 be consolidated and placed within Greenpark Road? Also, there will be the potential for conflicts with residential fencing and sewer access for maintenance.
8. DIP will be required for any sewer main thru backyards due to encumbered access.
9. Provide benchmarks consistent with DPU Spec. 5.5 L. (Add note for contractor reestablishing benchmarks if temporary and can be disturbed).
10. Reference the county monuments used for site survey. There are two very close by on Williamsburg Road.
11. Provide a minimum of 3 GIS northing/easting reference points on each utility plan sheet.
12. Add the following note, "Connections to existing manholes without stubs or bricked-up openings shall be the equal of either Kor-N-Seal w/stainless steel expander ring or Press-Seal w/nylon expander sleeve installed by core drilling manhole and in strict accordance with manufacturer's specifications."
13. Where there will be open cut installation within public roads, show the extent of pavement disturbance on the plan view and include the DPW pavement restoration detail.
14. Reference county water and sewer book sheets in lower right corner.
15. A standard 20-foot utility easement will be required for the water main extension prior to recording the property line for this development in relation to the YMCA.
16. Show existing utility easement with recordation information for the water main on the YMCA property.
17. Label the project installing the 12" water main and plug as "Taylor Farm Park".
18. Show 12" water main at 4 feet off of curb face starting with the second bend so that the pair of 45-degree bends further down the street can be omitted.
19. Dimension typical distance between waterline and curb face for all the 8" waterline.
20. Install a gate valve after removing the plug from 8" waterline on the YMCA property so that new construction can be isolated from the existing.
21. Install a fire hydrant and gate valve at the end of the 12" water main extension for flushing, fire protection and future extension.
22. Adjust the following valve locations:
 - Relocate valve at line side of tee at Greenpark Road and Pine Fringe Place from the west to the east side of the tee.
 - Relocate valve at line side of tee at Greenpark Road and Parkplace Street from the west to the east side of the tee.
23. Additional fire hydrants are required to meet 350 feet maximum hose lay and fire department logistical requirements. After conferring with the Fire Division reviewer, please provide the following hydrant locations:
 - Near the P.T. of return next to unit 1 of block D.
 - Along Whiteside Road between blocks G and J.
 - Adjust hydrant shown to be more centered between blocks F and I.

- At P.T. of corner near unit 6 of block L.
 - At P.T. of corner near unit 6 of block K.
 - Between blocks V and X instead of at the end of the line within the cul-de-sac.
 - Adjust hydrant shown to be at P.T. of corner near unit 6 of block P.
24. Provide an exception request to the Director of Public Utilities for where hydrants are less than 50 feet from buildings and include the justification for the exception.
 25. Provide 10 feet of separation between storm sewer and sanitary sewer within Parkplace Lane and so that manholes are within center of travel lane and not wheel path.
 26. Locate water meters along Whiteside Road to be closer to the road and away from yard light poles and landscaping. Locate all other water meters to be at least 5 feet edge to edge from yard light poles and 10 feet from trees.
 27. Where hydrant assemblies cross storm sewer, resolve any conflict by adjusting the main and not the hydrant lead.
 28. Eliminate skewed crossing of storm sewer from structures 150 to 140 and so that water services will not be located within a vertical waterline adjustment to help water quality.
 29. Show all areas of vertical waterline adjustment on the plan view.
 30. Eliminate bend on dual lateral to lots 1 and 2 of block N.
 31. No trees are to be within utility easement. Review tree line in back of blocks V and X.
 32. Label the following for the trunk sewer:
 - Label easement recordation information.
 - Label manholes 8.1 and 6.1. Also include GIS ID for manholes 8, 8.1, 6 and 6.1.
 33. Provide a dual lateral for units 3 and 4 of block O.
 34. Provide at least 5 feet edge to edge separation between sewer manhole 50 and storm sewer.
 35. Show all power poles using a darker font and where these will need to be relocated to. Provide 10 feet separation between power poles and water and sewer utilities.
 36. Provide bearings and flow direction arrows for all sewers. In addition, show internal angles where tying in at existing manholes.

C403-C405(Water and Sewer Details)

37. Engineer to provide hydraulic calculations demonstrating adequate residual pressure throughout the distribution system assuming fire flow at worst case fire hydrant(s). The following criteria and provisions shall be met:
 - System shall be designed to maintain a minimum pressure of 20 psi at ground level elevation at all points in distribution system with peak flow(domestic + fire flow) conditions.
 - The minimum working pressure in the system shall be 45 psi for any proposed extensions or modifications.
 - Where the pressure at the service tap exceeds 80 psi, the provisions of the Uniform Statewide Building Code shall apply.
38. Provide water and sewer material quantities. Distinction shall be made between private and public facilities.
39. Add the following note, "The Engineer shall certify that all proposed sites will be served by gravity with sewer service connections installed at a slope of 1/4 inch per 1 foot

except where shown otherwise on the plans. The depth of service connections shall be in accordance with Paragraph 13.3.7D.”

40. Add the following note, “Where possible in unpaved areas, manhole castings shall be approximately 12 inches above final grade using appropriate covers (i.e. - vandalproof, watertight).”
41. The following are regarding the ISO Fire Flow Estimate form:
 - Include the form on the plans.
 - Review the ground floor area as it appears that there is 4800 ft² based on drawing scale.
 - Are there any rated fire division walls or building separation walls between the townhouses? It appears that the Virginia Residential Code requires rated division walls at a minimum for townhouses. Label on plans and calculate the total floor area can be reduced accordingly per ISO method. If there are building separation walls, provide engineer/architect certification as to whether it is a building separation wall in accordance with chapter 5 of the ISO Guide for Determination of Needed Fire Flow, June 2014 edition. If rated fire division walls, specify if these are in accordance with Virginia Residential Code latest edition and what the hour rating is.
42. Provide the following details and notes from the 2014 DPU Standards and details:
 - watertight/vandalproof manhole frame and cover detail (D-160).
 - Electronic marker Placement details D-740 and D-750.
 - Add the following note: “Electronic markers (ball type) shall be installed on all water mains and sewer gravity mains in accordance with specification 2.2.05N and 4.2.02E of the 2014 DPU Design and Construction Standards.”
43. Provide a separation distance of 5’-6’ horizontal from waterline to storm sewer OD to OD.
44. Provide the following for the townhouse sanitary laterals:
 - Provide a note on plans stating, “HOA will own and maintain all sanitary sewer laterals from the main to the building”.
 - Engineer shall make sure that the same statement is made on the approved plat and in the HOA covenants.
45. Are there any irrigation meters with backflow preventers being provided for landscaping requirements? Specify in accordance with DPU Standards.

C600 and C601(storm sewer profiles)

46. Show all water and sewer utility crossings and coordinate with utility profiles. Some are missing.

C610-C613(Water and Sewer profiles)

47. Label all water profiles using street names instead of what is shown.
48. Revise the following for waterline A profile:
 - There is no wet tap connection at station 10+00. Revise to reflect the plan view.
 - Resolve conflict between fire hydrant lead near station 15+00 and storm sewer crossing.

- Resolve overlapping stationing number at the end of the profile.
49. Revise the following for waterline B profile:
- There is no wet tap connection at station 10+00. Revise to reflect the plan view.
 - Eliminate 45-degree bends near station 13+00 per plan view comment.
 - Provide 4 feet of cover for 12" water main to accommodate valve operator depth.
 - Coordinate location of 12 x 8 tee with waterline E versus the plan view.
 - Eliminate the high point at station 23+30 by smoothing out the vertical alignment from stations 22+00 to 25+27 so that an air release valve is not needed.
50. Revise the following for waterline C profile:
- Revise waterline alignment near storm sewer crossing to be higher approaching the storm sewer and do a partial vertical adjustment only. What is shown does not match with the DPU detail for constructability.
51. Revise the following for waterline D profile:
- Show gate valve symbol near station 10+00.
 - Use a different symbol for the flushing hydrant at the end of the line instead of a fire hydrant symbol.
52. Revise the following for waterline E profile:
- Show missing valve symbols at each end of the line.
 - Provide missing symbols for bends.
 - Show sanitary sewer and storm pipe crossings.
53. Revise the following for the sanitary sewer str6.1-str 72 profile:
- Show existing manhole at station 10+00 along with invert elevations.
 - Show all laterals deeper than 12 feet.
 - Manhole S30 is missing, and the line lengths need to be correctly shown in coordination with plan view.
 - Show waterline crossing at station 14+32 at the correct depth of 3.5 feet minimum.
 - Coordinate manhole top elevations with the grade. Show manhole tops at 1 foot above grade where outside maintained yard areas.
 - Provide 8-10' separation between manhole 50 and the storm sewer.
54. Provide a minimum of 3.5 feet of cover over sewer in yard areas and 5.5 feet in roads.
55. Revise the following for the sanitary sewer str 8.1 to STR 130 profile:
- Show existing manhole at station 10+00 along with invert elevations.
 - Lower sewer to provide at least 3.5 feet of cover between manholes S90 and S100.
 - Review and revise separation distance between 36" storm sewer and sanitary sewer. Provide at least 1 foot edge to edge.
56. Finish proposed grad for sanitary sewer str 110 to 112 profiles.
57. Provide matching crowns between laterals and main at all manholes.
58. Label vandalproof manhole frame and covers for manholes where outside roads.

L100-L103(Lighting and Landscaping)

59. Tree plantings must be located outside of all utility easements or at least 10 feet away from utilities within right of ways. All other proposed landscaping must not obscure

visibility or hinder maintenance of above grade or at grade utilities. Any non-tree landscaping within utility easements requires the following statement on the landscaping plan: "The owner is responsible for replacement of any planting (i.e. shrubs, etc.) damaged or removed by DPU, or it's agent, as required for maintenance of county owned water and/or sewer facilities."

60. Show utilities and easements on the lighting and landscaping plans.

If you have any questions concerning the above noted comments or the plans, please contact me at 501-4501.

Sincerely,

John L. Clark

John L. Clark, PE
Utilities Engineer

cc: Craig B. Shelton, HH Hunt Communities
Abigail F. Rogers, YMCA of Greater Richmond

bc: Ralph Claytor
Marchelle Sossong
Daniel Ivy
Aimee Crady, Planning

JLC/vr