

May 3, 2021

David Ellington, P.E.
Kimley-Horn and Associates, Inc
1700 Willow Lawn Drive, Suite 200
Richmond, VA 23230

RE: VCC Stanley Martin Townhomes
10101 Brook Road
File No. 5508 POD2021-00121

Dear Mr. Ellington:

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 April 12, 2021.

DPU recommends approval of these plans by the Planning Commission.

Please address the attached 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 or prior to subdivision plat approval. 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. The development requires an overall utility plan. This plan must include water and sewer design calculations for the site. This plan will be required in order to address any potential capacity issues that may arise during the development of the site.
3. Ensure that design calculations for this project have been incorporated into the calculations for the overall project. It is imperative that downstream sewer impacts are reviewed/determined based on the demands for this project.
4. Currently, there is capacity in the sanitary sewer for this development. Capacity is available on a first come, first served basis. Execution of Agreements will ensure the availability of sewer capacity.
5. Provide ISO fire flow form. Utilize the previous ISO fire flow form prior to the 2014 DPU Standards with the new ISO fire flow methodology (e.g., new exposure criteria).
6. Revise the Project Summary Report (Form F-10) per the following and resubmit:
 - Use a peak factor of 1.75 for maximum day demand and 2.7 for peak hour demand in all locations.
 - Revise the number of fire hydrants to match the utility plan and in accordance with the utility comments.
7. Revise the water and sewer design calculations form as follows:
 - Label the source to be Henrico Public Utilities.
 - Provide downstream manhole GIS ID number.

- Revise the total design peak flow, GPM for the water system design to use the maximum day demand instead of the peak hour flow.
8. For the hydraulic water model, provide the following:
- Provide a more legible and useful pipe and junction node map.
 - Simplify the model to show pipe runs and junctions between main fittings such as tees and connections between main and not from service line to service line connection.
 - Provide pipe data information such as pipe diameter, C-value, pipe length, etc.

CA-100 (Cover Sheet):

9. Original signature is required on the P.E. Seal on the Cover Sheet. A facsimile of seal, signature and date is acceptable on all other sheets.

CD-101 (Demo Plan):

10. Label to abandon the existing sanitary sewer mains at the existing manholes per DPU detail D-170.
11. Provide GIS manhole ID number for the existing manholes shown on the plan. Revise the utility sheets as well.
12. Show the 8"x8" tee, 8" valve and 8" water stub in the middle of the site where waterline turns 90 degrees in alignment.

CG-100 (Overall Grading Plan):

13. It appears that there is a conflict between the proposed storm pipe#5-4 and the existing waterline. Please clearly show and resolve within plan and profiles.

CU-100(Overall Utility Plan):

14. Given the absence of an overall water utility plan for Virginia Center Commons redevelopment, provide complete looping of all existing and proposed water mains in this project site. This will ensure that flow from water mains can be maximized, redundancy and reliability are achieved, and dead-end lines are kept to a minimum. Where there is a conflict between proposed features(e.g., storm sewer) and existing waterline, reroute the waterline accordingly. In addition, the onsite main to the west behind lots 1-31 shall be looped in with the 12" main to the north.
15. Proposed sewer is mostly at shallow depths less than 5.5 feet down to 3.2 feet. Redesign sewer to maximize depth of cover. Use existing sewer main to the east instead of sewer all flow to a common discharge point in the north. Sewer is also bucking grade in the two proposed side streets and should be designed to outfall to the east.
16. Contact Rodney Thomas of DPU Operations Division at 727-8707 for assistance in accessing manholes where difficulty was encountered.
17. Revise based on all utility design comments.
18. Revise water and sewer material quantities in accordance with all design changes and per the following:
- Include number and size of water services.
 - Include number of sanitary laterals.
19. Label water and sewer main sizes.

CU-101 &102 (Utility Plan):

20. Confirm and note on the plan that there is at least 2 feet between driveways for installing all the meter boxes shown in these locations.

21. Please note that DPU requires 5/8" water meters to be used for all residences(i.e., townhouses, single family homes, etc.). Consequently, the domestic meter sizing form calculations are not needed
22. Provide a traffic rated cleanout where location is within the pavement. Also, include a detail for traffic rated cleanouts. We will email separately a suggested example.
23. Provide at least 5' of separation between the 2" fire lines, water services and sanitary sewer laterals.
24. Locate fire lines outside of being in between the water mains and sanitary sewer mains. Provide at least 6 feet separation between the fire line and water mains.
25. Given the narrow street width, DPU will accept 8 feet horizontal separation between the water mains and sewer mains provided that both use DIP.
26. Dimension the distance from the doghouse manhole to the nearest existing manhole. Provide field verified invert elevations at both the adjacent upstream and downstream manholes on which to base the designed invert at the proposed manhole and allow for matching crowns between the 8" and 18" sewers.
27. Provide the direction of flow arrows on the proposed sewer main.
28. Provide bearing and internal angles for proposed sanitary sewer main.
29. Show and label water and sewer lines that will be abandoned as shown on the demolition sheet.
30. Eliminate the valve east of the 12"x8" tapping sleeve and valve unless planning to cut in this valve on the existing main. If so, then the tapping sleeve and valve could be replaced with a regular tee and valve. In addition, there would need to be some notes coordinating service outage. Please confirm.
31. Relocate the proposed fire line at least 8' away from the back of the proposed dedicated fire hydrant.
32. Specify reduced pressure detector assembly for the fire line and reference size and DPU detail. Include this detail in the plans too.
33. No valve boxes are allowed within the sidewalk. See east of the 8"x4" tee for the fire line.
34. Provide a note on plans stating, "HOA will own and maintain all sanitary sewer laterals from the main to the building".
35. Engineer shall make sure that the same statement is made on the approved plat and in the HOA covenants.
36. Total fire hydrants and spacing will be further evaluated after submittal of ISO fire flow calculations. In the meantime, please provide the following adjustments:
 - Ensure that fire hydrants are no closer than 20' to any building or structure as previously commented.
 - Provide an additional fire hydrant at the northern entrance near lot 1 to provide 350 feet maximum hose lay to all buildable areas for fire protection.
 - Locate hydrant near lot 23 to be equidistant from lots 23 and 24.
 - Provide a hydrant at the P.T. on the left side of the south entrance. Valve shall be outside of the sidewalk.
 - Relocate hydrant next to lot 15 to across the road between lots 58 and 62. Maximize the distance from these buildings to the hydrant.
 - Provide a hydrant on right side of entrance approaching lot 42.
 - Hydrant near lot 7 will need to be relocated to maximize distance from buildings and maintain adequate separation from nearby storm sewer of at least 6 feet.

37. Provide exception request for fire hydrants less than 50' from proposed building. Exception request is to be addressed to the DPU Director and must provide justification for the request. Alternate hydrants shall be installed as much as possible to provide fire protection for buildings where hydrants are closer than 50 feet.
38. Provide at least 6' of horizontal separation(outer diameter) between the existing waterline and the proposed storm pipe west of lots 8-22.
39. Provide the correct recordation information for the existing utility easements on the utility sheets. Also, note that the utility easement recordation information shown (DB 2316, PG 2097) on waterline east of the site is for the existing sanitary sewer, not the waterline. Please review and revise the information where shown on this sheet and other sheets.
40. Provide at least 8' of horizontal separation between the proposed sanitary sewer main and proposed storm pipe in front of lots 43-51.
41. Revise water and sewer material quantities in accordance with all comments.
42. Reference county water and sewer book (CWB/CSB) in the bottom right corner of each of the utility plan sheets.
43. Provide benchmarks consistent with DPU Spec. 5.5 L. (Add note for contractor reestablishing benchmarks if temporary and can be disturbed).
44. Label the distance from water line to proposed curb face or back of rolled face curb.
45. Manholes shall be located in the centerline of the travel lane and outside of vehicle wheel path.
46. Provide a typical callout note for the size, material and slope of the proposed sewer laterals and reference DPU detail D-180.
47. Revise the sewer design to eliminate manholes SSMH07 and 09 if at all possible. These manholes are shown really close to two other manholes and should be eliminated if the design can allow it.
48. Reference on the plans and use county survey monuments. There are two existing monuments very close to this parcel.
49. 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."
50. Label storm structure numbers for ease of reference.
51. Resolve overlapping of lot numbers with callout notes.

CU-301 (Utility Profiles):

52. Profile the proposed waterline where 8" and larger and where conflicts need to be shown and resolved.
53. For all sanitary sewer profiles, provide sanitary sewer stationing starting at the most downstream connection and proceeding upgradient with equalities at each junction manhole. Minimize stationing changes by using the longest chain of sewer line runs in the same stationing sequence.
54. The following comments pertain to Sanitary Sewer Profile 1:
 - Provide the inv (out) at the doghouse manhole.
55. The following comments pertain to Sanitary Sewer Profile 2:
 - Show the proposed fire line crossings between manholes 3 and 7 and between manholes 4 and 9.
56. Provide at least 5.5' of cover for the proposed sewer main where possible with redesign. Where less than this cover depth is provided, DIP shall be used for sewer main. In addition, all sanitary laterals that connect to DIP main shall also be DIP and accounted for in the material quantities. If cover depth is less than 3.5' of cover, select aggregate backfill shall be used per DPU Standards in addition to DIP sewer main.

CP-100 (Planting Plan):

57. 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.

CL-101 (Lighting Plan):

58. Show all utilities and utility easements on the lighting plan.

If you have any questions concerning the above noted comments or the plans, please contact me at 501-4501 or Ireini Botros at 501- 4512.

Sincerely,

John L. Clark

John L. Clark, P.E.
Utility Engineer

cc: Jeremy Swink, Stanley Martin Homes

bc: R. Claytor
I. Botros
Spencer Norman, Planning

JLC/tt