Suiter Surveying
& Land Planning, Inc.

Mr. Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015

SUBJECT: Brookhollow Senior Apartments
Plan Revision Re-Submittal #1

September 13, 2023

Mr. Nicholson,

Thank you very much for helping us with the review process on the Brookhollow Senior Apartments. We have tried to meet every request presented, where possible, with the following commentary relative to each note presented by the reviewing engineer.

Plans

- We have assumed that a 20’ aisle will be sufficient for most emergency vehicles noting that it is only 4’ narrower than a full width roadway. Additionally, review comments provided to the developer on the architectural drawing submittal specify a 20’ wide access drive for fire apparatus.

- The developer has retained a structural engineer to design features such as retaining walls, which are outside of our expertise. We would defer to the retaining wall structural drawings for the appropriate interfacing with driveway pavement. We do, however, have an extruded curb detail and pavement section detail on sheet C7.0 of the plans which details the pavement itself. Any variations to interfaces with the pavement through retaining wall sections should be reflected in the structural plans, which have not been provided to us (the civil engineer) at the time of this submittal.

- Sheet C3.3 notes that all disturbed areas shall be seeded and strawed. The relative, permanent seeding mixtures for these areas are noted on sheet C3.0.

    - A landscaping plan has been added to the plan set, as requested.

- No proposed grade slopes have been designed to be any steeper than 3:1.

- As mentioned, any further details for wall construction should be part of the structural drawing package.

- Pavement detail is called out on sheet C1.0 to reference the detail on sheet C5.0. Concerning off-site striping, application has been made to TDOT for review and approval since off-site roadway improvements will be within state right of way. It is our understanding that TDOT currently has roadway improvements planned for this area. We expect some revisions based on their comment, but all we are proposing for off-site roadway improvements at the moment is an extension of width of one of the existing asphalt lanes. We do not anticipate that our project would prompt any additional signage for traffic on the existing roadway other than what already exists. There is an existing stop sign at the end of Brookhollow and we aren't proposing to move the "centerline" of the existing road. But if the city wishes to detail what they would like to see (if anything specific) as far as additional striping or signage, we will certainly incorporate that into the plan set.

- The storm manhole detail/grate has been revised as requested, calling for Neenah R-4810 grates on all storm manholes. The area drain in the curve of the roadway was also relocated, as pointed out to get out of the retaining wall footprint. Thank you for catching that mistake.

- Reference has been made to the TDEC manual for review of the silt fence. It should be noted that TDEC themselves has already approved these plans as submitted. However, the silt fence layout was revised as requested with the following design considerations:

    - It is noted that it will not be acceptable to simply surround the disturbance area with silt fencing. Therefore, the majority of silt fencing (specifically along the southern portion of the disturbance has been removed. In its place, we have noted for the contractor to leave the specified portion of existing forest to remain as a natural, protective silt barrier. The southern portion of the site will outfall to dense forest (on our own site) with an effective filtering depth of roughly 300'. The reviewing engineer is correct in pointing out the limited efficacy of silt fencing. We believe natural filtration existing on site to be much more appropriate. On the eastern portion of the site where it slopes towards the existing roadway, we have left silt fencing but stacked it in a multi-layered fashion along contours to provide redundancy of protection, per the TDEC manual. Additionally, we have specified for an existing treeline to remain downstream of this silt fence as well to provide even further means of siltation barrier in a more effective manner, as requested.
    - Outlet protection has been revised and noted, as requested.
    - The referenced detail has been removed from the plan set to avoid confusion.

- A site electrical plan which includes power service and lighting locations was completed by a third party for incorporation into the architectural drawing set. The plan sheet has been forwarded to us so that we can submit a copy of it to you along with our transmittal. However, it is our understanding that it has already been submitted to the City and undergone review as part of the architectural drawing submittal.

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- The reviewing engineer has requested that we confirm the depth of the existing water main *with Public Works.* Since this review letter was transmitted to me from the City, I will direct this comment as a question back to the City and its public works department. Does Public works believe this water line to be too shallow to withstand the roadway tie-in? If the water line is actually in the middle of the existing ditch as we have it shown then it should technically only be in fill. However, if you believe it to be too shallow to withstand the proposed construction or would prefer it be relocated along a certain stretch, please specify. To follow that, I had heard mentioned that plans for any public utility line extensions outside of private developments in Ashland City would be the task of Ashland City's hired engineer (although we certainly don't mind showing a relocation if I misheard). If the report is that the line needs to be relocated, should we just note the potential location on our plans and reference a third party set of drawings or should we say "Contractor shall coordinate with Ashland City Public Works to relocate existing water main along X number of feet?" We are open to whatever is most appropriate.

- The grading plan has been revised as requested to specify maximum slopes of 3:1, with "toe-walls" at the ends of standard headwall outlets. A headwall detail has been added to reflect this as well.

- We have one pipe bedding/backfill box in the detail list that actually shows 3 different pipe installation details within it. Each instance is clearly labeled and yes, covers all pipe installations on site unless otherwise directed.

- The spillway is clearly labeled on the grading plan, and an additional box cross-section detail of the spillway has been provided in the detail list, as requested.

- Pump station details have been finalized and provided, as requested.

- Elevations of buildings are not necessary for these civil drawings, nor were they incorporated into these plans. I feel confident that structural/architectural drawings have been submitted separately by a 3rd party and are being reviewed against their own standards.

<u>Calculations/Reports</u>

- A summary has been added, as requested which references a drainage map and the included hydrologic model containing all of the details mentioned in the revision request.

    - Drainage maps for both the pre- and post-development conditions have been added in order to simply review of the attached model and provide reference locations for required data.

- Headwater calculations for all subbasins are available in the model provided and are referenced in the hydrologic summary.

- Also mentioned in the hydrologic summary (and related to the headwater elevations for each subbasin) are the pipe capacities. The way we chose to model this storm system was in a dynamic nature, with each drainage structure taking into account tailwater conditions downstream of the structure. When a series of catch basins are tied together in this manner, instead of modeling them as reaches and analyzing carrying capacity vs routed inflow individually, we model each catch basin as a small basin itself (with zero holding capacity) and then check the peak elevation at each structure in relation to the design elevation of the top of grate. This is a much simpler way for us to gauge our system model. We believe this allows for a more effective design for the client, especially in cases such as this where all of the piping is private anyways. The drainage system was designed to handle the 100 year/24 hour storm without overflowing any of the specified area drains/catch basins.

- As mentioned, we do not provide any of the "design" of the retaining walls and would have to defer to structural drawings for retaining wall calculations.

- A paragraph on design of the silt fencing was added to the hydrologic summary, specifically referencing the TDEC manual, as requested. Additionally, please reference the previous comments concerning EPSC measures and silt fencing provided earlier in this document. Please note that with the limited contributing drainage area to our outfall, there are no hard and fast calculation points to hit for the design of erosion control for this property. As mentioned, we've actually gotten approval already from TDEC themselves. We are not arguing that silt fencing is the only way to control the erosion on-site but the design of EPSC measures is sometimes more subjective than sizing a storm pipe. The site goes through various levels of disturbance and feature construction on varying portions of the site throughout the entire construction phase. It's impractical to put silt fencing or coir logs on exactly every ¼ acre subbasin across exactly 100 LF and expect them to last through construction because they will be in the way of equipment. Our site is surrounded by woods and we have decided to use that as a means of last resort for filtering of sediment. However, we have taken advantage of opportunistic silt fencing and a sediment trap in order to help limit erosion from the site. If further means of erosion control are required by the city, we would be more than happy to incorporate them in our plans but would ask for them to be specific in nature as none of the measures that we are proposing are anything but a subjective design idea.

- The developer is proposing a 92-bed establishment. We have estimated approximately 100 gallons per day per bed plus fire protection. Please refer to architectural drawings for sprinkler system projections. The sewer pump station has been designed by a 3rd party manufacturer for a 120 gpm pumping capacity. Its relative characteristics and details have been added to the details sheets, as requested.

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