



WEST WINDSOR TOWNSHIP

DEPARTMENT OF COMMUNITY DEVELOPMENT DIVISION OF ENGINEERING

MEMORANDUM

TO: West Windsor Township Planning Board

FROM: Francis A. Guzik, PE, CME
Director of Community Development/Township Engineer

DATE: September 22, 2020

SUBJECT: **Heritage Village @ West Windsor**
Preliminary/Final Major Site Plan and Subdivision
Block 28, Lots 15 & 21
#2044 Old Trenton Road (CR 535) and Princeton-Hightstown Road (CR 571)
PB 19-08

This report is intended to supplement this office's Engineering review memorandum dated September 15, 2020 and those comments pertaining to sanitary sewer service, which were outlined in Section 4 of the report, specifically comment 4.01. Comments 4.02 and 4.03 remain applicable.

Documents Received/Reviewed:

The following documents have been submitted for review:

- A. Report entitled "Sanitary Sewer Report for Heritage at West Windsor - Block 28, Lots 15 & 21 - West Windsor Township, Mercer County, New Jersey" prepared by MidAtlantic Engineering Partners, LLC, (Michael V. Weseloski, PE) dated March 5, 2020, revised through August 31, 2020;
- B. Report entitled "Supplemental Capacity Analysis Report – Revised Sewer Evaluation – Heritage at West Windsor – Township of West Windsor, County of Mercer, State of New Jersey" prepared by Suburban Consulting Engineers, Inc., (Michael K. McAloon, PE) dated August 2020, revised September 2020;

To assist with the review of this information, this office retained the services of ACT Engineers of Robbinsville, NJ, whom have been assisting the Township with its municipal wastewater infrastructure. They have issued a report dated September 18, 2020 attached hereto and whose comments are incorporated herein by reference.

The project is located within the Southfield Road Pump Station wastewater service area, where capacity issues exist and have been previously discussed with the applicant. The applicant submitted a Supplemental Sewer Capacity Analysis prepared by Suburban Consulting Engineers as referenced above), which was based on the immediate projects needs only. However, due to pending projects for properties identified in the Township's Fair Share Program (what the applicant categorizes as Phase 1) as well as non-residential development interests (categorized as Phase 2), the applicant was requested to evaluate improvements required for all non-sewered

properties within the Southfield Pump Station (PS) drainage basin. This evaluation included not only Southfield PS itself, but also the sewer infrastructure downstream from Southfield, which includes gravity lines Southfield PS discharges into, the South Post Road PS, and the gravity lines downstream therefrom its point of discharge.

The Phase 1 development analyzed included the Heritage at West Windsor project and the Hilton Realty property at the corner of Old Trenton Road and Dorchester Drive. It also includes Eden Institute on Old Trenton Road which has an existing approval for campus expansion. It also includes the recently approved Senior Living at Bear Creek project which has not yet begun construction. Bear Creek will contribute flow into the gravity lines downstream of Southfield Road PS. The SCE report identifies a number of off-tract improvements required to the municipal wastewater infrastructure to address capacity issues resulting from the Phase 1 projects. The total estimated costs for same are indicated to be approximately \$1.34M.

Upon review of the Suburban Consulting Engineers (“SCE”) report the following comments are offered for the Board’s consideration:

1. The SCE report estimates that Heritage Village will produce a wastewater flow of 187,200 gallons per day upon completion. The report identifies the off-tract improvements for accommodating flows for all Phase 1 developments, including Heritage Village, but is silent on who is responsible for the design, permitting and construction of them. The project plans submitted similarly do not address the required off-tract wastewater improvements that have been identified. This office recommends that Heritage, as the greatest producer of increased flows of the Phase 1 projects to Southfield PS (70.8%), be responsible to undertake this work.
2. In order to insure proper reimbursement to Heritage for the Phase 1 work, it is recommended the Township establish a reimbursement Ordinance whereby the other benefitting Phase 1 project property owners pay their pro-rata share of the capacity increase project costs. This requires action by Township Council, and there is precedent for this within the municipal Code.
3. Resolution of the wastewater design and service issues to the satisfaction of this office, should be made a condition of any Board action on this application. This includes the ACT Engineers report of September 18, 2020 which identifies a number of remaining technical comments that need to be addressed.

This completes the review of the referenced documents. Other comments may be offered based on the responses to the above issues.

FG

Attachment ACT report

cc: Applicant (gkanter@americaproperties)
William J. Parkhill, II, PE, Applicant’s Engineer (WParkhill@MidAtlanticEng.com)
Gerald Muller, Esq. (gmuller@mpmglaw.com)

September 18, 2020

Francis Guzik, P.E., CME
West Windsor Township
271 Clarksville Road
PO Box 38
West Windsor, NJ 08550

RE: Heritage at West Windsor
Block 28, Lots 15 & 21
West Windsor Township, New Jersey
Sanitary Sewer Downstream Conveyance Capacity Evaluation

Mr. Guzik:

The review comments contained herein supersede those provided to you in our letter dated June 19, 2020 which addressed the May 2020 Supplemental Capacity Analysis Report from Suburban Consulting Engineers.

ACT Engineers has reviewed the Supplemental Capacity Analysis Report dated August 2020 and revised September 2020 prepared by Suburban Consulting Engineers (SCE) for the above referenced residential development. The SCE report was prepared to analyze the existing municipal sanitary sewer system downstream of the proposed gravity connection at the referenced property. This analysis included a review of various design plans and as-built documents obtained from the Township for sanitary facilities located between the Southfield Road and Duck Pond Pump Stations. A complete list of the reviewed documents is provided in the Introduction of SCE's March 2020 report.

The pipe capacities for the existing system were based upon information obtained from as-built drawings as well as calculated slopes based upon available information for upstream and downstream inverts. Additionally, Southfield Road and South Post Pump Stations were analyzed including detention time, and pump capacity. This report also evaluated several sources of flow into the collection system to calculate a total combined average daily flow rate. Existing flows were measured at two locations by Flow Assessment Services of Auburn, New Hampshire. These locations were 41 Millbrook Drive and the 15" Assunpink Interceptor at Edinburg Road. Proposed flows for Heritage at West Windsor, Hilton Realty (Toll Brothers property), Eden Institute and Bear Creek Independent Living Facility (Bear Creek) and areas downstream of the flow measurements were calculated based on the criteria provided at NJAC 7:14A-23.3. Flows from the properties identified in the Township's Fair Share Program and resulting from projected zoning changes were taken from documentation provided by the Township. A summary of the Fair Share Program Properties Estimated Flows is provided in Appendix B of the August/September 2020 report.

The Heritage at West Windsor project consists of approximately 67 acres of development on existing farmland. The proposed development contains 194 townhouse units, 60 apartment units, and one 4-bedroom group home, which will produce an average daily flow of approximately 72,000 gallons of additional wastewater. The additional flow will be conveyed through a proposed sewer main extension that will tie into the existing sewer main on Old Trenton Road. The Southfield, South Post, and Duck Pond pump stations will be impacted by the proposed increase in wastewater flow caused by the development.

SCE has analyzed the impacts of the proposed development and has divided the required improvements into two (2) phases. The Phase 1 improvements would be those required to handle the increased sanitary flow generated by Heritage at West Windsor, Hilton Realty (Toll Brothers property), Eden Institute and Bear Creek. The Phase 2 improvements would be required to handle increased sanitary flow generated by Heritage at West Windsor, Hilton Realty (Toll Brothers property), Eden Institute and Bear Creek as well as properties included in the Township's Fair Share Program and those affected by projected zoning changes.

The proposed Phase 1 improvements include the replacement of both pumps at the Southfield Road Pump Station, replacement of two (2) pumps at the South Post Pump Station, cured-in-place pipe (CIPP) lining of 3,542 linear feet of 8" gravity piping on Millbrook Drive and 845 linear feet of 12" gravity piping on Bruntsfield Drive, replacement of 420 linear feet of 12" gravity sewer on Bruntsfield Drive with 15" pipe, and the replacement of 1,812 linear feet of 10" gravity sewer on Jarret Court with 12" piping. SCE states that the existing force main and gravity conveyance system will have adequate capacity for the additional flows anticipated from the development of these projects provided these system improvements are constructed.

SCE is recommending the following improvements for Phase 2 to handle the increased flow generated by the full buildout of Heritage at West Windsor, Hilton Realty (Toll Brothers property), Eden Institute and Bear Creek as well as the properties listed on the Township's Fair Share Program and those affected by proposed zoning changes:

1. The existing Southfield Road Pump Station wet well and pumps do not have sufficient capacity to handle the sanitary flows expected from Phase 2 improvements. SCE is recommending the complete replacement of the Southfield Road Pump Station with a pre-fabricated pump station that includes a larger wet well, appropriately sized pumps, and all necessary appurtenances required to operate the new pump station.
2. The new Southfield Road Pumps Station should have a minimum capacity of 628 GPM to handle projected flows from the Phase 2 improvements.
3. Replacement of three (3) pumps at the South Post Pump Station to increase the station capacity to 1,763 GPM.
4. The Southfield Road force main is not adequate and requires the replacement of 5,500 linear feet of six-inch force main with eight-inch force main. Improvements may also be required at the downstream receiving manhole to accept the eight-inch force main.

5. Replacement of 4,495 linear feet of 8" gravity sewer on Millbrook Drive with 10" pipe, replacement of 915 linear feet of 8" gravity sewer on Southfield Road with 10" pipe and the replacement of 840 linear feet of 12" gravity sewer on Bruntsfield Drive with 15" pipe. As an alternative to replacing the piping in Millbrook Drive, SCE proposes to extend the Southfield Road force main to Jarret Court.

The proposed development will ultimately increase the amount of flow sent to the Stony Brook Regional Sewerage Authority's (SBRSA) River Road treatment plant. The proposed average daily flow generated by the Heritage at West Windsor development is 72,000 gallons, resulting in a 3% increase in flow to the SBRSA (2.4 MGD in 2019).

The following comments are offered related to the submitted documents:

1. The Sewer Capacity Tables for Phases 1 and 2, as provided in Appendix D, have a number of inconsistencies in tributary flows associated with each pipe section. ACT has reevaluated these sewer capacity tables based upon our understanding of the projected flows from each tributary area. While the combined peak flows for many of the pipe sections increase slightly in our evaluation, we have identified the same undersized pipe sections as the SCE August/September 2020 report for Phase 1. In addition to the undersized pipe section noted for Phase 2 in the SCE report, ACT has identified two (2) additional pipe sections, 34 and 35, that are undersize. The inconsistencies in the report should be addressed and the proposed recommendations and costs adjusted based upon the revised sewer capacity analysis.
2. Approximately 3,542 linear feet of 8" gravity sewer on Millbrook Drive is undersized by 1.9 to 15.7 percent for Phase 1 flow conditions. Approximately 845 linear feet of 12" gravity sewer on Bruntsfield Drive is undersized by 0.3 to 2.4 percent for Phase 1 flow conditions. SCE proposes a CIPP lining of the undersized Millbrook Drive and Bruntsfield Drive piping to potentially address Inflow & Infiltration (I&I) issues along these pipe sections. Utilizing CIPP along these pipe sections would only address a portion of potential I&I issues as these pipes have numerous tributaries that could also be contributing to the I&I. SCE states that prior to full build-out of Phase 1 and to completing the CIPP lining, an I&I Assessment will be in order to evaluate and confirm the contributing flows and the adequacy of the pipe capacity. Additional pipe replacement identified by the I&I Assessment would be completed prior to full build-out of Phase 1. The report does not specify who would be responsible for performing this additional I&I Assessment.
3. Pro Rata Cost Sharing

West Windsor Township Ordinance 200-83 "Offtract Water, Sewerage and Drainage Improvements Required" and Ordinance 200-85 "Other Water, Sewer and Drainage Improvements" identify the circumstances for pro rata cost sharing and the calculation methodology. The existing wastewater facilities have insufficient capacity to serve the proposed Heritage at West Windsor development and therefore it is necessary to identify

the cost of required capacity improvements to serve the anticipated development in the drainage basin. Heritage at West Windsor is responsible for the cost of its prorate share of the improvement costs based on the flow rate of wastewater it generates compared to the wastewater generation for the drainage basin. NJDEP and West Windsor Township flow generation and design methodologies are required in determining projected flows and facility design.

Based upon Section 200-85A(2)(b) of the Township Ordinance, the developer's fair share cost is based upon the following formula:

$$\text{Developer's Cost} = \frac{\text{Total Enlargement or Improvement Cost} \times \text{Development GPD}}{\text{Total Tributary GPD}}$$

The Total Tributary flow for Phase 1 would include flows from Heritage at West Windsor, Hilton Realty and Eden Institute. The Total Tributary flow for Phase 2 would include flows from Heritage at West Windsor, Hilton Realty, Eden Institute, and the properties listed on the Township's Fair Share Program provided in Appendix B of the SCE report.

Based upon the estimates provided in SCE's August/September 2020 report, the total estimated cost of the Phase 1 improvements is \$1,336,167.60. Heritage at West Windsor's Phase 1 fair share contribution, based upon the above formula, would be \$945,573.15.

If you have any questions, please call or email me at jrichter@actengineers.com.

Sincerely,



Jeffrey S. Richter, P.E., P.P.
Director of Engineering

cc: R. Korkuch, P.E., P.P.