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Unit 183, Elgin, IL 60123

October 30, 2017

Mr. David Loeb
Land Partners, LLC
3405 N. Kennicott Ave.
Suite A
Arlington Heights, IL 60004

Re: ~~Canterbury Parc~~ Renamed "Philip Estate Subdivision"
Water Supply
Project No. 21843000

Dear Mr Loeb:

Per your request, we have reviewed the adequacy of the water supply for the existing Glenstone Subdivision Development in Long Grove with respect to its potential reserve capacity to serve the proposed Canterbury Parc Subdivision. We hereby present our findings.

Canterbury Parc Projected Water Demand

The Canterbury Parc Development is proposed to consist of 25 single family homes. The associated water demands for this development are:

$$\begin{aligned} \text{Average Day Demand} &= 25 \text{ homes} \times 3.5 \text{ P.E./home} \times 100 \text{ GPD/P.E.} \\ &= 8,750 \text{ GPD} \end{aligned}$$

$$\begin{aligned} \text{Peak Day Demand} &= \text{Average Day Demand} \times 2.5 \\ &= 8,750 \text{ GPD} \times 2.5 \\ &= 21,875 \text{ GPD} \end{aligned}$$

Glenstone Subdivision Water Demand

The Glenstone Subdivision is comprised of 21 single family homes with a reported population of 49. This equates to 2.33 P.E./home. In order to be conservative for estimating purposes, 3.5 P.E./home will be used in this analysis. The resulting estimated water demands are as follows:

$$\begin{aligned} \text{Average Day Demand} &= 21 \text{ homes} \times 3.5 \text{ P.E./home} \times 100 \text{ GPD/P.E.} \\ &= 7,350 \text{ GPD} \end{aligned}$$

$$\begin{aligned} \text{Peak Day Demand} &= \text{Average Day Demand} \times 2.5 \\ &= 7,350 \text{ GPD} \times 2.5 \\ &= 18,375 \text{ GPD} \end{aligned}$$

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Glenstone Subdivision Well Capacity

The Glenstone Subdivision is served by two wells:

Shallow Well – 80 GPM Capacity

Deep Well – 190 GPM Capacity

The firm pumping capacity (capacity with the largest unit out of service) of the wells is 80 GPM or 115,200 GPD. Illinois EPA requires that the well supply be able to meet the maximum day demand with the flow capacity. Based on the existing Glenstone Subdivision demand, the reserve capacity of the Glenstone wells equals $115,200 - 18,375 = 98,825$ GPD.

Glenstone Subdivision Storage Capacity

Water storage within the Glenstone Subdivision consists of one 8,000 gallon hydro-pneumatic tank. The Illinois EPA requires that community water systems using hydro-pneumatic storage must have a total storage capacity exceeding 35 gallons / person. Therefore, the Glenstone hydropneumatic tank can serve $8,000 \text{ gal} / 35 \text{ gal} / \text{person} = 228$ persons (P.E.). Based on the existing Glenstone Subdivision P.E., the reserve capacity of the hydropneumatic storage tank equals $228 - (21 \text{ homes} \times 3.5 \text{ P.E.} / \text{home}) = 154$ P.E.

Glenstone Subdivision Watermains

All of the watermains within the Glenstone Subdivision are 6-inch diameter. Although not sized for fire protection purposes, the 6-inch mains are more than adequate for domestic water supply purposes. Service for the Canterbury Parc Subdivision could be extended roughly from Turnberry Lane across Cuba Road via a 6-inch watermain. The logical watermain routing would be parallel to the proposed sewage forcemain from the east end Turnberry Lane southeast to Canterbury Drive.

Summary and Conclusion

The Glenstone Subdivision has adequate reserve water supply and storage capacity to serve the proposed Canterbury Parc Subdivision. The two systems could be connected via the construction of a 6-inch watermain paralleling the proposed sewage forcemain from the east end of Turnberry Lane southeast to Canterbury Drive.



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I trust that this provides you with the information which you require. Please contact me if you have questions or wish to discuss our findings in more detail. We look forward to providing any additional assistance which you may require relative to the water and sewer service for the Canterbury Parc Development.

Sincerely yours,

RHMG ENGINEERS, INC.

A handwritten signature in black ink, appearing to read "W. R. Rickert", is written over the printed name. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

William R. Rickert, P.E., BCEE, CFM
President

WRR/kar

cc: Mr. Steve Cross – Cross Engineering