



To: J. Brian Warner and Luraly Warner
17350 W. Goshawk Road
Colorado Springs CO 80908

From: Julia M. Murphy PG
Professional Geologist/GWI

Re: Water Resources Report for the Warner Subdivision

Date: September 27, 2021

The Water Resources Report was completed by Julia Murphy of Groundwater Investigations LLC, a Professional Geologist on behalf of J. Brian Warner and Luraly Warner (“Applicants”) in accordance with the requirements of the El Paso County Land Development Code described in Section 8.4.7 (B). Ms. Murphy has over 25 years’ experience in hydrogeologic analysis. She has been involved in evaluating water supply for subdivisions in El Paso County for over 15 years. This report presents the data, documentation and analysis in sufficient detail to determine sufficiency of the proposed subdivision’s water supply in terms of dependability, quantity and quality.

1.0 Summary of the Proposed Subdivision

The Warners’ property consists of a 40 Acre parcel zoned RR-5 located in the Northeast ¼ of the Northwest ¼ of Section 23, Township 11 South, Range 65 West, of the 6th P.M. (“Property”). The Property is situated within the Kiowa Bijou Designated Groundwater Basin having the address 17350 W. Goshawk Road, Colorado Springs Colorado, 80908, in El Paso County. (Figure 1).

The 40 acre property will be subdivided to create a four-lot minor subdivision. Lots 1 and 2 are vacant and will be 5-acres each; Lot 3 has an existing home with a well (Permit 85571-F) completed into the Dawson aquifer and an individual non-evaporative septic system and leach field and will be 19.96 acres; and Lot 4 is vacant and will be 10.0 acres.

2.0 Information Regarding Sufficient Quantity of Water

2.1 Water Quantity

A Determination of Water Rights to the four underlying groundwater aquifers and replacement plan was finalized on October 22, 2020. These include Basin Determinations

4025-BD (Dawson Aquifer), 4024-BD (Denver Aquifer), 4023-BD (Arapahoe Aquifer), 4022-BD, (Laramie Fox Hills Aquifer), and replacement plan 4025-RP (Attachment 1), Table 1 quantifies the groundwater underlying the property in each of the four aquifers.

Table 1 Aquifer Quantification			
AQUIFER	NET SAND (feet)	Annual Average Withdrawal 100 Years (Acre Feet)	Total Withdrawal (Acre Feet)
Dawson (NNT)	480	37.77	3777
Denver (NT)	370	25.20	2520
Arapahoe (NT)	260	17.70	1770
Laramie-Fox Hills (NT)	185	11.10	1110

The Colorado Ground Water Commission awarded the Applicants vested right to 3,777 acre feet of groundwater from the not-nontributary Dawson aquifer underlying Applicants' 40-acre property for in-home, irrigation of lawn and garden, domestic animal watering and commercial uses. The replacement plan specifies that up to 4.0 acre-feet annually may be pumped for 300 years from the Dawson aquifer and applied to the overlying land.

2.2 Water Demand

Each of the four lots will be allocated 1.0 acre-feet per year of groundwater from the underlying Dawson aquifer to provide a minimum of 0.26 (1.04 total) acre-feet of water per year per residence for in-home use. All remaining water will be available for irrigation of lawn and garden, domestic animals, or other authorized uses on each of the residential lots.

2.2.1 Replacement

The diversion of 1 acre-foot per year from the Dawson aquifer per lot requires the replacement of actual stream depletions in accordance with Replacement Plan 4025RP. Calculated depletions are estimated to be as much as 0.126 acre-feet per year in the

300th year, which is equal to 3.15% of total pumping. Each residence will provide 0.225 acre-feet per year of replacement water generated from in home use to replaced depletions in time, place, and amount through septic return flows through non-evaporative individual septic disposal systems return flows during pumping.

2.2.2 Accounting

A totalizing flow meter installed on each well will measure use and annual diversion records collected and permanently maintained by the well owner and submitted to the Commission.

3.0 Sufficient Dependability

3.1 Water Supply

The proposed new wells for vacant Lot 1, 2 and 4 and the existing well on Lot 3 will use the not-nontributary Dawson Aquifer groundwater for their water supply. The Dawson aquifer was calculated to have 3,770 acre feet of available groundwater underlying the property. Of this, 4.0 Acre feet per year for 300 years or 1,200 Acre feet (31.8 percent of the total available) will be used to provide the subdivision with a dependable water supply.

Numerous nearby Dawson aquifer wells supply water for rural residential homes. The existing home on Lot 3 has a well that has been steadily supplying water since 1977. This and other wells in the vicinity of the Subdivision are generally known to produce approximately 10-15 gallons per minute which is more than sufficient for single family residential and accessory uses.

4.0 Information Regarding Sufficient Quality

Water quality samples were collected by GWI using standard collection and preservation methods. Analytes selected are in compliance with the Land Development Code Section 8.4.7(B)(3)(d). The analysis results are presented in the Water Quality Report and provides evidence that the groundwater in the Dawson aquifer collected on the property meets the Colorado Primary Drinking Water Standards for the required analytes at the sample location.

There is an existing and approved on-site wastewater treatment system on Lot 3. Based on historical use in addition to site specific soil sampling, the remaining lots are suitable for on-site wastewater treatment systems. The on-site wastewater treatment system will be evaluated and installed according to El Paso County Guidelines and properly maintained to prevent contamination of surface and subsurface water resources.

5.0 Summary and Conclusions

The proposed subdivision of 40 acres will create four new lots. The purpose of the Water Resources Report is to provide the data, documentation and analysis in sufficient detail to determine sufficiency of the proposed subdivision's water supply in terms of dependability, quantity and quality. Water delivered by wells completed in the Dawson aquifer will be used to serve the homes. The amount of groundwater underlying Applicant's property has been quantified under the basin determination 4025-BD. Based on the proposed uses and quantification of available groundwater, there is sufficient quantity to meet the County required 300 year water supply criteria. The Dawson aquifer has successfully been a primary source of water supply for the existing and surrounding homes at sufficient rates and duration to meet similar uses; the source is a dependable supply. The quality of the Dawson aquifer groundwater underlying the new proposed lot was evaluated within the parameters specified in the Land Development Code and have been determined to meet Primary Drinking Water Standards for the selected analytes.