



October 13, 2023

Kat Hammer
Arapahoe County Public Works and Development
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RE: Skylark Minor Subdivision
Case No. PM20-004
Part of the Section 33, T4S, R62W, 6th P.M.
Kiowa Bijou Designated Ground Water Basin
North Kiowa Bijou Ground Water Management District
Water Division 1, Water District 1

Dear Kat Hammer:

We have reviewed the additional information received by this office on September 21, 2023 regarding the above referenced referral. The Applicant is requesting a subdivision of approximately 76.88 acres into four residential lots of approximately 19 acres each. This office previously commented on the subject referral in letters dated July 25, 2022, February 1, 2023 and April 5, 2023. This letter supersedes the previous letters.

Water Supply Demand

According to the Water Supply Information Summary Sheet submitted with the referral materials, the proposed water demand is 4 acre-feet per year for four household units.

Source of Water Supply

According to the Water Supply Information Summary Sheet the proposed water source is four wells, constructed in the Arapahoe aquifer, including two existing wells.

A review of this office's records found well permit nos. 88447-F and 88448-F located of the subject property, and Determination of Water Right No. 4535-BD for the Arapahoe aquifer underlying 41.18 acres (parcel ID 1983-00-0-00-378). The review also found Determination of Water Right Nos. 3537-BD, 3538-BD and 3539-BD claim the groundwater underlying the northern portion (parcel ID 1983-00-0-00-484) of the subject referral in the Denver, Arapahoe and Laramie-Fox Hills aquifers. According to a Water Quit Claim Deed dated August 18, 2022, the applicant owns 3 acre-feet per year of groundwater from the Arapahoe aquifer under Determination of Water Right no. 3538-BD.

The proposed source of water is individual on-lot wells producing from the not-nontributary Arapahoe aquifer. The proposed well on Lot 1 will operate pursuant to Determination of Water Right No. 3538-BD. The proposed three wells for Lots 2, 3, and 4 will operate pursuant to Determination of Water Right no. 4535-BD. The allowed average annual amount of withdrawal determined to be available in the Arapahoe aquifer under 4535-BD is 10.18 acre-feet.

Lot 1 of the subdivision lies within the allowed place of use of Determination of Water Right no. 3538-BD, and the proposed uses are uses allowed by that Determination. Lots 2, 3 and 4 of the



subdivision lies within the allowed place of use of the Determination of Water Right no. 4535-BD and the proposed uses are uses allowed by that Determination.

Well permit no. 88447-F was issued pursuant to C.R.S. 37-90-107(7) to change the use of an existing under permit no. 329008 (canceled) to withdrawal 1 acre-foot per year of groundwater from the not-nontributary Arapahoe aquifer pursuant to Determination of Water Right No. 4535-BD. The well is permitted to be used for domestic use inside one (1) single family dwelling, including the watering of domestic animals and livestock and the irrigation of 1 acre of lawns and gardens. The well under permit no. 88447-F is located on the proposed Lot 4 of Skylark Subdivision.

Well permit no. 88448-F was issued pursuant to C.R.S. 37-90-107(7) to change the use of an existing well constructed under permit no. 329291 (canceled) to withdrawal 1 acre-foot per year of groundwater from the not-nontributary Arapahoe aquifer pursuant to Determination of Water Right No. 4535-BD. The well is permitted to be used for domestic use inside one (1) single family dwelling, including the watering of domestic animals and livestock and the irrigation of 1 acre of lawns and gardens. The well under permit no. 88448-F is located on the proposed Lot 2 of Skylark Subdivision.

The proposed source of water for this subdivision is a bedrock aquifer in the Denver Basin. The State Engineer's Office does not have evidence regarding the length of time for which this source will be a physically and economically viable source of water. According to 37-90-107(7)(a), C.R.S., "Permits issued pursuant to this subsection (7) shall allow withdrawals on the basis of an aquifer life of 100 years." Based on this allocation approach, the annual amounts of water determined in 3538-BD and 4535-BD are equal to one percent of the total amount, as determined by rule 5.3.2.1 of the Designated Basin Rules, 2 CCR 410-1. Therefore, the water may be withdrawn in those annual amounts for a maximum of 100 years.

State Engineer's Office Opinion

Based upon the above and pursuant to Section 30-28-136(1)(h)(I), C.R.S., it is our opinion that the proposed water supply is adequate and can be provided without causing injury to decreed water rights.

Our opinion that the water supply is **adequate** is based on our determination that the amount of water required annually to serve the subdivision is currently physically available, based on current estimated aquifer conditions.

Our opinion that the water supply can be **provided without causing injury** is based on our determination that the amount of water that is legally available on an annual basis, according to the statutory allocation approach, for the proposed uses on the subdivided land is greater than the annual amount of water required to supply existing water commitments and the demands of the proposed subdivision.

Our opinion is qualified by the following:

The Ground Water Commission has retained jurisdiction over the final amount of water available pursuant to the above-referenced water rights, pending actual geophysical data from the aquifer.

The amounts of water in the Denver Basin aquifer, and identified in this letter, are calculated based on estimated current aquifer conditions. The source of water is from a non-renewable aquifer, the allocations of which are based on a 100-year aquifer life. The county should be aware that the economic life of a water supply based on wells in a given Denver Basin aquifer may be less than the 100 years (or 300 years) used for allocation due to anticipated water level declines. We recommend that the county determine whether it is appropriate to require development of renewable water resources for this subdivision to provide for a long-term water supply

Additional Comments

Arapahoe County has requested information on the 300-year availability of the groundwater that is the source of supply to this subdivision. Treating the available supply under an allocation approach based on three hundred years, the allowed average annual amount of withdrawal from Determination of Water Right no. 3538-BD for the proposed Lot 1 of 3 acre-feet/year per lot would be reduced to one third of that amount, or 1.0 acre-feet/year per lot, which is equal to the annual demand for the subdivision lot. Treating the available supply under an allocation approach based on three hundred years, the allowed average annual amount of withdrawal from Determination of Water Right no. 4535-BD for the proposed Lots 2, 3 and 4 of 10.18 acre-feet/year would be reduced to one third of that amount, or 3.39 acre-feet/year, which is greater than the annual demand for these lots in the subdivision. This information is being provided to Arapahoe County for informational purposes only and does not affect our comments and opinions on the adequacy of the subdivision water supply plan as stated above.

Should you or the Applicant have any questions, please contact Ailis Thyne of this office at ailis.thyne@state.co.us or 303-866-3581 x8216.

Sincerely,



Ioana Comaniciu, P.E.
Water Resource Engineer

Ec: Subdivision file: 30362
Well permit file nos. 88447-F & 88448-F