BIGGS & MATHEWS INC.
Consulting Engineers

March 1, 2025

Charley Lanier
Montague County Development Officer
11339 Highway 59 N
P.O. Box 416
Montague County, Texas 76251

RE: Review & Comments – First Tier Subdivision
Final Plat – Smyrna Meadows
29.44 Acres – Lots 1 Thru 12
Montague County, Texas

Dear Mr. Lanier:

We have reviewed the above referenced submitted Final Plat to determine its conformance with the latest Montague County Subdivision Regulations, Approved & Accepted by Montague County Commissioners Court on May 28, 2024.

Based on our review, please see the following information and our response to the submission.

GENERAL SITE INFORMATION:

Owner/Developer: Land and Cattle LLC
Final Plat – 29.44 Acres – Lots 1-12 Smyrna Meadows
Site Location: Adjacent to Smyrna Rd. & West of Curry Road

REVIEWED SUBMITTED DOCUMENTS:

Final Plat – Lots 1-12 Smyrna Meadows
Flood Insurance Firmette – Zone X (Area of Minimal Flood Hazard)

CONFORMANCE WITH TIER 1 PLAT REQUIREMENTS:

1) *Name & mailing address of the developer* ✓
2) *Name of subdivision* ✓
3) *North directional indication arrow* ✓
4) *Location map showing the subdivision in relation to major roads, town cities, and Topographic features* ✓
5) *Description of boundary by metes & bounds* ✓
6) *Total area/acreage within subdivision* ✓
7) *Total number of lots* ✓
8) *Area/acreage of roads & Length of roads – Not Shown*

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9) *Area /acreage of each lot* ✓
10) *Bearing and distance for each lot boundary line with minimum frontage of 60' to adjoining street* ✓
11) *Areas dedicated for public use* ✓
12) *ROW or easements, including alley, drainage easements, and utility easements* ✓
13) *Proposed land use of all lots being subdivided – Single family or residential, multi-family residential, agricultural, commercial, public use dedication* ✓
14) *All 100-year floodplains shown & Map Provided* ✓
15) *Road names or numbers for all roads or streets* ✓
16) *Lot and block numbers arranged in a systematic order* ✓
17) *This development is proposed to be served water by individual wells for each lot, however, the Developer has not provided the proper certification that water of adequate quantity and quality is available to support the development and occupation of this proposed subdivision. The developer must provide a groundwater availability study that complies with the requirements of 30 TAC Chapter 230.*
18) *No road/street construction information nor wastewater disposal information was provided.*

Note: Any Items shown in "red" should be addressed to the satisfaction of the Montague County prior to approval of the plat.

PLAT SURVEY REQUIREMENTS:

The plat and survey must be prepared from an actual on the ground survey under the direct supervision of a registered professional land surveyor and their certificate to that effect must appear on the plat and survey. The land surveying form's name and license number, address, and phone number must be listed on the plat and survey.

1) *Real property index information (instrument number or volume and page) and names of all current owners of contiguous property to the subdivision.* ✓
2) *Location of existing permanent, man-made structures within the subdivision, including Houses, barns, fences, walls, ponds.. etc.*
3) *Major topographic features on or adjacent to* ✓ *the property, elevation contours (no greater than 5' intervals in floodplain and no greater than 20' intervals in other areas.* ✓
4) *Location of all visible water wells, oil wells, and natural gas wells.* ✓

Note: See Attached Appendix A – Subdivision Application Checklist

Sincerely,

BIGGS & MATHEWS, INC.

Kerry D. Maroney, P.E.

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March 21st, 2025

via email: co.judge@co.montague.tx.us

Kevin Benton – Montague County Judge
Montague County Commissioners' Court
11339 TX-59
Montague, TX 76251
RE: Groundwater Availability Certification Report – Smyrna Meadows

Judge Benton and Members of the Court,

Montague County (the "County"), as authorized by Section 232.0032 of the Texas Local Government Code, requires applicants seeking to plat certain tracts of land for which groundwater under that land is intended to be the source of supply to provide a statement prepared by a geoscientist licensed to practice in Texas or an engineer licensed to practice in Texas certifying that adequate groundwater is available for the subdivision in accordance and in compliance with the rules of the Texas Commission on Environmental Quality (TCEQ) set forth in Title 30, Texas Administrative Code, Chapter 230 (the "Groundwater Availability Certification" or "GAC").

In order to ensure compliance with the law and to facilitate cooperation between the County and the Upper Trinity Groundwater Conservation District ("the District") in instances where a GAC is required for a proposed subdivision of a tract of land and to ensure that, prior to receiving an approved plat from the County, such an applicant certifies adequate groundwater availability, the County and the District have entered into an interlocal agreement whereby the District reviews the GAC of the applicant and provides a report of its review to the County with certain recommendations. As set forth in the interlocal agreement, this report sets forth the opinions and recommendations of the District through its General Manager and staff to the County for the County's consideration in making a decision on the plat application.

Recently, to streamline the process and create efficiency, the District has begun performing an initial review and submitting letters, which are distributed to the applicant and their engineer/geoscientist, to identify any questions, concerns, deficiencies, or other materials required to complete the review and commence the review timeline, as outlined in the interlocal agreement. Copies of the letters and applicant responses are available in the appendices of the report.

Below are summaries of both the results submitted as part of the Plat Applicant's certification as well as the District's recommendations related to the Groundwater Certification Statement for the proposed subdivision. Please note that the District's recommendations are non-binding suggestions and are meant to supplement the information provided to aid the County's decision-making process.

Additionally, all District recommendations are based on the best available science and other relevant data available to the District.

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Summary of the Certification Statement:

The plat applicant's pump test data and subsequent calculations produced the following projections for the upper portion of the Antlers Formation of the Trinity Aquifer:

- The applicant projected the following impacts at the test well, completed to 120 feet below surface (this analysis assumes no other pumping wells).
  - 10–year estimated drawdown: 0.0906 feet.
    - Static water level after 10 years – 42.2906 feet below ground surface
  - 30–year estimated drawdown: .0979 feet.
    - Static water level after 30 years – 42.2979 feet below ground surface
- The District projected the following impacts at the test well, modeled to 120 feet below ground surface (also assuming no other pumping wells).
  - 10 – Year estimated drawdown: .11 feet
    - Static water level after 10 years – 42.31 feet below ground surface
  - 30-year estimated drawdown: .15 feet
    - Static water level after 30 years – 42.35 feet below ground surface
- The modeled 10–year cone of depression for the test well was 0.24 feet.
- The modeled 30-year cone of depression for the test well was 0.417 feet.
- The plat applicant calculated a well efficiency of 83.40%
  - The accepted established threshold for well efficiency is approximately 65-70%.
  - This value is impacted by the applicant's projected water demand, aquifer parameters, and well construction.
- The applicant did complete the entire water quality portion of the test.
  - The results that were collected all occurred within the threshold of primary water standards established by the EPA and/or the TCEQ.
- The applicant did eventually provide the required maps, graphs, data, formulas, and variables for assessing the potential of well interference on the property and how it would impact anticipated drawdown levels at 10 years and 30 years.
- The Certification Statement recommends a minimum spacing of 150 ft. between water wells.
- The Certification Statement recommends a produced well yield rate of 17.3 GPM.

District Recommendations:

The water wells used in the study were completed to a depth approximately 120 feet below surface, into the Antlers portion of the Trinity group of aquifers.

The District is charged with managing the groundwater resources, within its boundaries, in order to achieve the adopted Desired Future Conditions (DFCs) for each of the formations within the Trinity group of Aquifers. A

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desired future condition is a quantitative description of the desired condition of the groundwater resources in a management area at one or more specified future times and can be different for different aquifers, subdivisions of aquifers, or geographic areas. Additionally, the DFCs must be physically possible.

The adopted DFC for the Antlers aquifer in Montague County is no more than 40 feet of static water level decline by 2080. According to trends from the 20 water-level monitoring wells in the Antlers aquifer in Montague County, from 2010 through 2023, there has already been approximately 3.1feet of static water level increase in the Antlers. District staff noted in previous reports submitted to Montague County that this increase may be attributable to the fluctuating oil and gas production in the region.

The following recommendations are based on utilizing the Antlers Sandstone as the source of water for the proposed subdivision.

Based on the data provided in the Certification Statement, other relevant data, and modeled simulation results, the District recommends a minimum spacing requirement of 150 ft. between water wells, however we strongly encourage landowners to consider a spacing of at least 300 feet between water wells. This recommendation is based on results from the actual aquifer test performed for the project. During that test, the applicant drilled two new wells on the property, located approximately ~280.6 feet from one another; during the test it was clearly demonstrated that the extent of pumping impact was seen in the observation well (see results discussed in the report). During the 24-hour pump test, water levels in the observation well fell ~1.25 feet.

The main takeaway from this analysis is not strictly the impact the subdivision would have on the groundwater resources in the area, but whether or not the wells that would be drilled for the proposed homes would be able to produce the volume of water that would be expected over the life of the home. While static and seasonal level projections appear to be minimal based on both the applicant and the District's projections, a future consideration may be if the water level ever loses contact with the high conductivity gravel unit located at the bottom of the wellbore. Any potential reduction in that volume may impact future water production rates.

In the event that the number of wells in the area increases over time, there could also be an increased drawdown impacts during future drought years. From previous modeling simulations completed by UTGCD, homes located towards the centers of subdivisions are projected to see drawdown impacts to a greater degree, than their counterparts on the edges of the development.

It is worth noting that the state approved Groundwater Availability Model (GAM) shows the Antlers portion of the aquifer extending to a depth of approximately 147 feet below surface within the proposed subdivision. Should the need for additional water arise, future homeowners would likely encounter water bearing sands in the deeper portion of the Antlers. However, without additional testing, the quality and quantity of water, in the deeper portion of the aquifer, beneath the proposed subdivision remains unknown.

In agreement with the recommendation on the Certification Statement, and in order to minimize the immediate impact of any new well, the District concurs with the applicant and recommends a maximum production capacity of 17.3 gallons per minute for each well within the proposed subdivision. It is unclear if this could be enforced, either legally or logistically, but it might be worth considering a requirement to place a statement on

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the face of the plat identifying this recommendation. Realistically, all wells drilled in the proposed subdivision will likely be completed in such a way that they produce the maximum flow rate possible, generally up to 17.36 GPM.

The impacts of the proposed pumping are not only dependent upon the flow rate of the water wells but also the projected water demands of the landowners. The District highly encourages landowners to utilize conservation methods to minimize the pumping impacts within the subdivision as outlined in section 5.4 of the report.

Ultimately, it is the determination of the District that the Certification Statement provided by the plat applicant generally conforms with the requirements set forth in Title 30, Texas Administrative Code, Chapter 230. In addition, it is also our opinion that the findings presented in the Certification Statement are within reason and any shortcomings have been identified in the accompanying report.

Accompanying this letter please find UTGCD Report 25-004, which provides further information and details related to this project. Please feel free to contact me at doug@uppertrinitygcd.com or (817) 523-5200 with any questions.

Thank you,

Doug Shaw
General Manager

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