

## Ground Water Consultants, LLC

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September 20, 2022

Mr. Alan Day  
General Manager  
Brazos Valley Groundwater Conservation District  
P.O. Box 528  
Hearne, Texas 77859

[aday@brazosvalleygcd.org](mailto:aday@brazosvalleygcd.org)

Re: Review of Aquifer Hydrogeological Report prepared for UW Brazos Valley Farm LLC  
Regarding Well Permit Applications for Barton, Goodland and Harlan Farms in  
Robertson County, Texas

Dear Mr. Day:

Our firm has reviewed a first report submitted on May 13, 2022 by the UW Brazos Valley Farm LLC regarding the potential impacts from pumping sixteen wells screening sands of the Simsboro Aquifer and located on Brazos Valley Farm properties (BVF properties) in the western part of Robertson County. A supplement to the report was submitted on about September 1, 2022 and provided some clarification of groundwater modelling assumptions and results. Three of the wells have existing permits and thirteen of the wells have permit applications in the filing stage. The report was prepared by The Thornhill Group, Inc. (TGI) and submitted to address Brazos Valley GCD Rule 8.4(b)(7)(B) for wells capable of producing 800 or more acre-feet per year (ac-ft/yr).

The permit application for the thirteen wells is for an overall withdrawal amount of 34,516 ac-ft/yr that is planned to be added to the existing permits for three wells with a total withdrawal of 15,483 ac-ft/yr. The combination of the 34,516 and 15,483 ac-ft/yr will bring the total permit amount of the sixteen wells to 49,999 ac-ft/yr. The proposed maximum pumping rates of the wells range from 1,500 to 3,300 gpm. The proposed locations for the wells with circles around them are shown on the attached figure, which was provided as part of the hydrogeological report.

Our comments regarding the report for the applied for pumping from the sixteen large-capacity wells are included below.

1. As required by the rule referenced previously, the hydrogeological report addresses the surface geology in proximity to the proposed well locations and the surface geology in the general area extending a few to several miles from the wells. The wells are planned to be located on the outcrop of the Brazos River Alluvium Aquifer. The report also addresses the depth of the proposed interval that would be screened by the wells and the thickness of the Simsboro Aquifer in the general area. The depth to the top of the aquifer

is estimated at about 950 feet in the very south part of the well field area. The report also addresses the question regarding whether the aquifer is confined or unconfined and it is confined in this area with at least a few hundred feet of artesian head above the top of the aquifer. The proposed wells are intended to screen sands of the Simsboro Aquifer, with the depth to the top of the aquifer ranging from about 350 feet in the very northwest part of the BVF properties to about 950 feet in the southeast part of the BVF properties. The net sand thickness of the Simsboro Aquifer ranges from about 340 to 360 feet based on the results of drilling three test holes on the BVF properties. Hydrologic or hydrogeologic features near the proposed well sites also are discussed with data from about 12 irrigation wells constructed in the area providing aquifer data in addition to that provided by the three test holes.

2. As required by the Rule 8.4(b)(7)(B)(2), Table 2 in the first report provides data regarding the 15 water wells that are located within one mile of the proposed well locations and screen the same Simsboro Aquifer as the proposed wells. A copy of Figure 7 from the first report is attached showing the locations of the 15 wells as small solid yellow circles.
3. As required by Rule 8.4(b)(7)(B)(3), the report includes estimates of the interference drawdown that could be caused by pumping the sixteen wells at an overall rate of 49,999 acre-feet per year for one year and 10 years. The estimates of interference drawdown extend out well over five miles from the wells. The interference drawdown estimates were calculated using the Queen City/Sparta Groundwater Availability Model (GAM) (Young et al 2020) prepared by the Texas Water Development Board(TWDB) The estimated interference drawdown effects using the GAM range from about 80 to 210 feet within one mile of various planned wells on the BVF properties for a pumping period of 10 years. The interference drawdown ranges from about 20 to 110 feet at a distance of five miles depending on the direction from the BVF properties. The GAM estimates of interference drawdown are less toward the Simsboro Aquifer outcrop to the northwest and also are influenced by a fault represented in the GAM that reduces the amount of drawdown estimated to occur on the north side of the fault. A copy of Supplemental Figure 2 is attached showing the modelled interference drawdown estimates after 10 years of pumping at 49,999 ac-ft/yr.

The actual amount of interference drawdown that will result from the pumping should be monitored using data from the District water-level monitoring program.

4. Advanced Groundwater Solutions, LLC (AGS) provided modelling support to GWC and performed model simulations with the recently updated Queen City/Sparta GAM, (Young, et al 2020) using the same amounts of pumping in the same locations as in the permit application for the same duration as simulated by TGI and its subconsultant R.W. Harden & Associates and obtained results that were very similar to the results presented by TGI. GWC reserves the right to perform additional model simulations in the future and review the results.
5. The evaluation report, in general, addresses the requirements of Rule 8.4(b)(7)(B).

6. On page 14 of the first report TGI comments on Desired Future Conditions (DFCs) in the BVGCD for the Simsboro Aquifer developed as part of the 2021 planning cycle in GMA 12. There is a mistaken comparison of a 195-foot average drawdown DFC for the Simsboro Aquifer for the period 2010-2070 to a 262-foot average drawdown DFC for the Simsboro Aquifer for the period 2000-2070. The actual comparison should have been a 239-foot average drawdown DFC for the Simsboro Aquifer in BVGCD for 2000-2070 compared to a DFC for the Simsboro Aquifer of 262 feet adopted by BVGCD that included a 10 percent variance as allowed by GMA 12. The mistaken comparison lead TGI to conclude that the TWDB will develop a Modeled Available Groundwater (MAG) estimate for BVGCD in excess of 147,233 ac-ft per year. That conclusion is conjecture on the part of TGI.

If you have questions concerning our review or require other information that we can provide, please do not hesitate to contact us.

Sincerely yours,

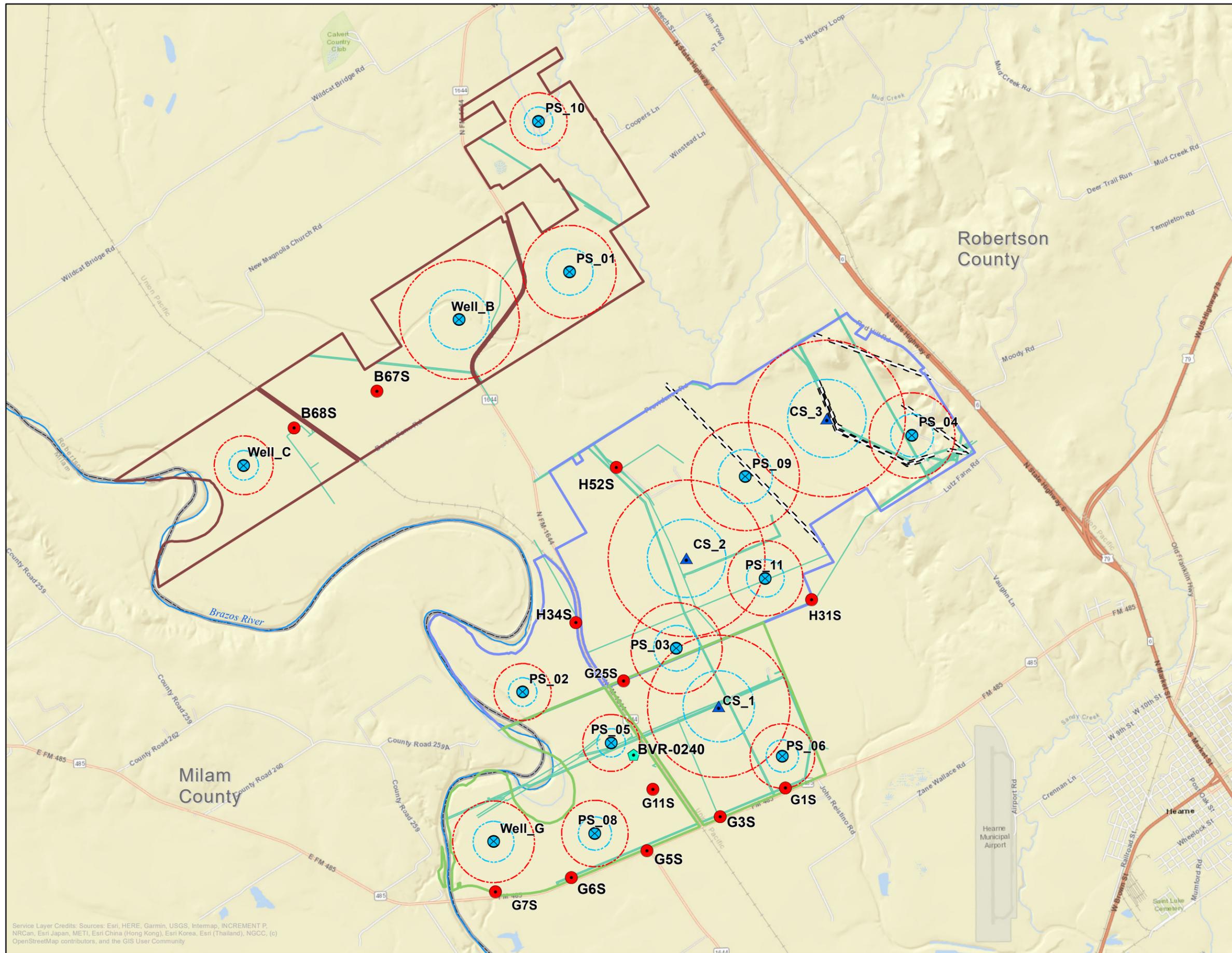


W. John Seifert, Jr., P E  
Principal  
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Firm Registration Number: F-20209

Enclosures

Transmitted electronically and via USPS





**Explanation**

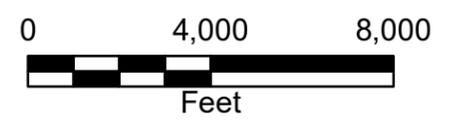
**Proposed Well Field**

- Historic Irrigation Well
- ▲ 2019 Permit Well
- ⊗ Proposed New Well
- ⬠ Domestic Well
- ⊖ Property Buffer (0.5 ft/gpm allocation)
- ⊖ Well Buffer (1 ft/gpm allocation)
- - - Pipeline
- Easements

**Property Boundary**

- Barton Farm
- Goodland Farm
- Harlan Farm
- County Boundary

Property boundary as provided by Kerr Surveying.

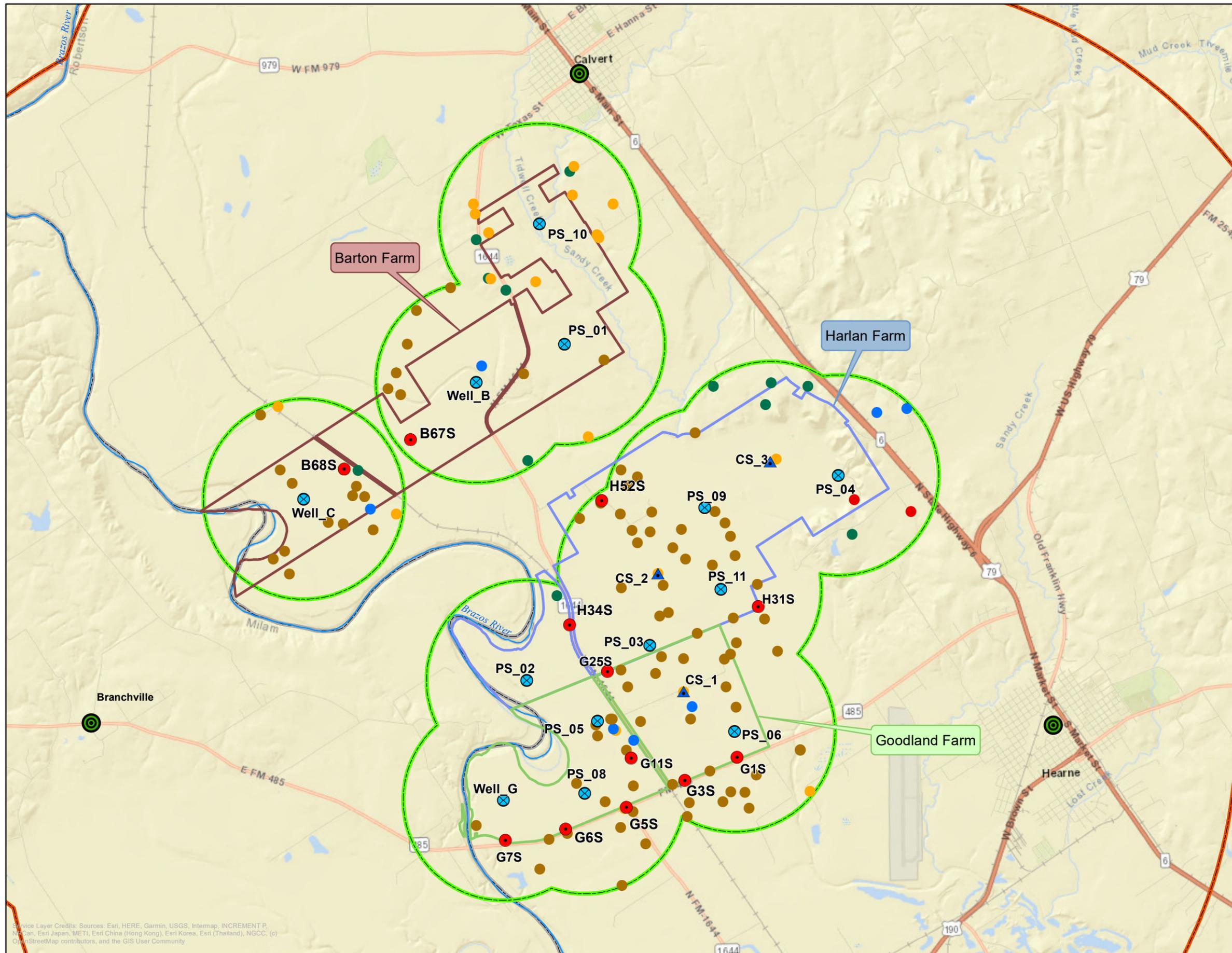


**UW Brazos Valley Farm, LLC**

**Figure 3 - Wells and Buffers**



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



**Explanation**

**Proposed Well Field**

- Historic Irrigation Well
- ▲ 2019 Permit Well
- ⊗ Proposed New Well
- 1 Mile Radius from Well Locations
- 5 Mile Radius from Well Locations

**Property Boundary**

- ▭ Barton Farm
- ▭ Goodland Farm
- ▭ Harlan Farm
- Municipality
- ▭ County Boundary

**BVGCD Reported Wells W/in 1 Mile**

**Aquifer**

- Brazos River Alluvium
- Carrizo
- Calvert Bluff
- Simsboro
- Other

Property boundary as provided by Kerr Surveying.

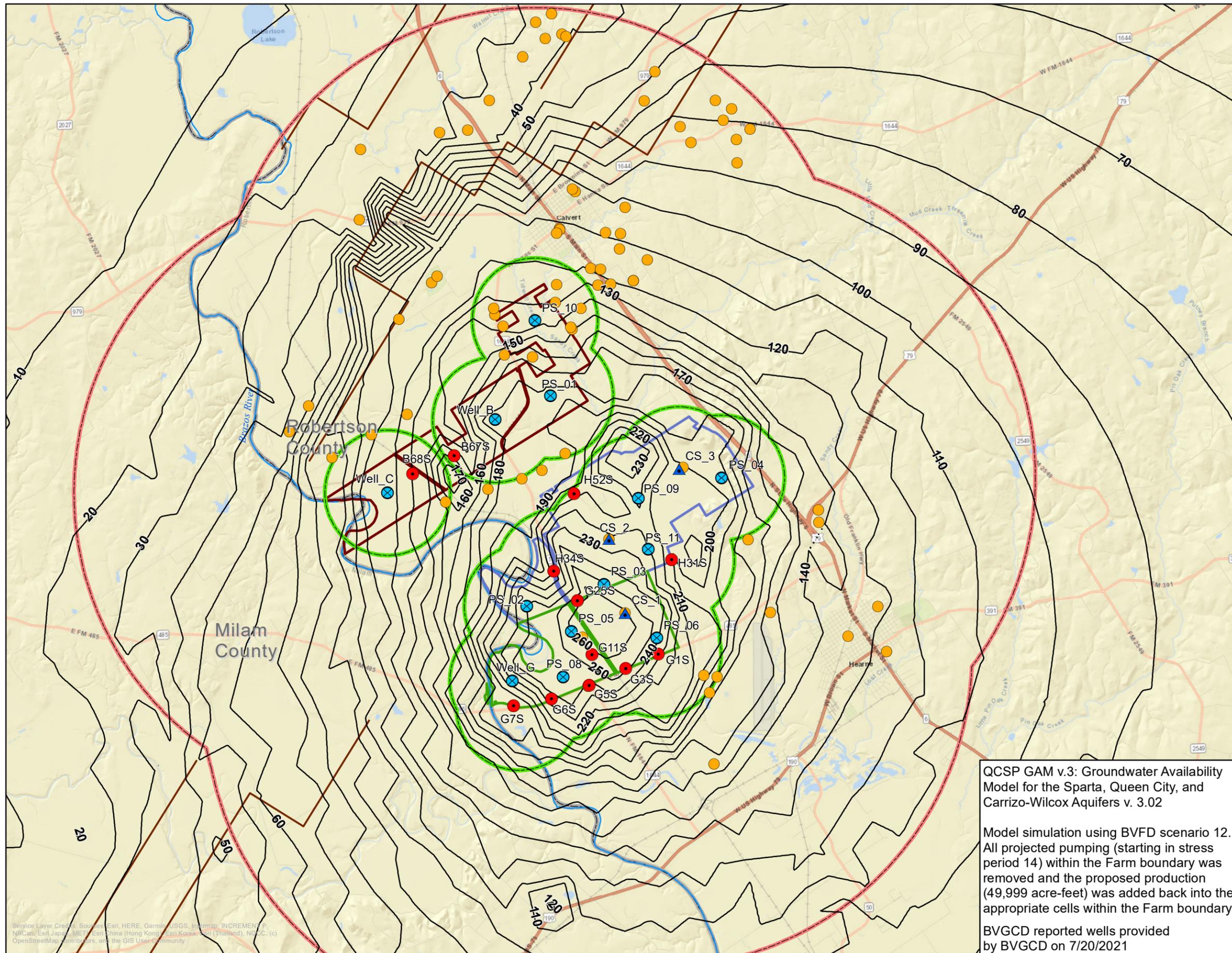
N

0 5,000 10,000  
Feet

**UW Brazos Valley Farm, LLC**

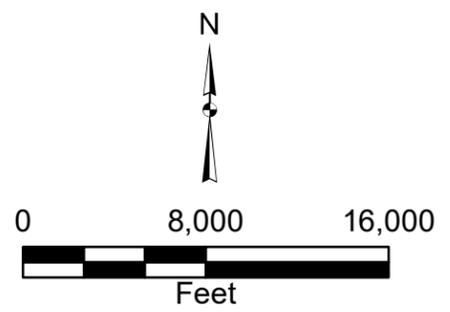
**Figure 7 - Wells within 1 Mile**

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NSI, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



- Explanation**
- Historic Irrigation Well
  - ▲ 2019 Permit Well
  - ⊗ Proposed New Well
  - BVGCD Reported Well Completed in the Simsboro and W/in 5 Miles
  - 1 Mile Radius from Well Locations
  - 5 Mile Radius from Well Locations
  - County Boundary
  - 1 Yr Simulated Drawdown - GAM Contour Interval = 10 feet
  - GAM Fault
- Property Boundary**
- Barton Farm
  - Goodland Farm
  - Harlan Farm

Property boundary as provided by Kerr Surveying.



QCSP GAM v.3: Groundwater Availability Model for the Sparta, Queen City, and Carrizo-Wilcox Aquifers v. 3.02

Model simulation using BVFD scenario 12. All projected pumping (starting in stress period 14) within the Farm boundary was removed and the proposed production (49,999 acre-feet) was added back into the appropriate cells within the Farm boundary.

BVGCD reported wells provided by BVGCD on 7/20/2021

## UW Brazos Valley Farm, LLC

### Supplemental Figure 2 - Simulated Water-Level Difference (10 Year)



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NSDCC, (c) OpenStreetMap contributors, and the GIS User Community

**Explanation**

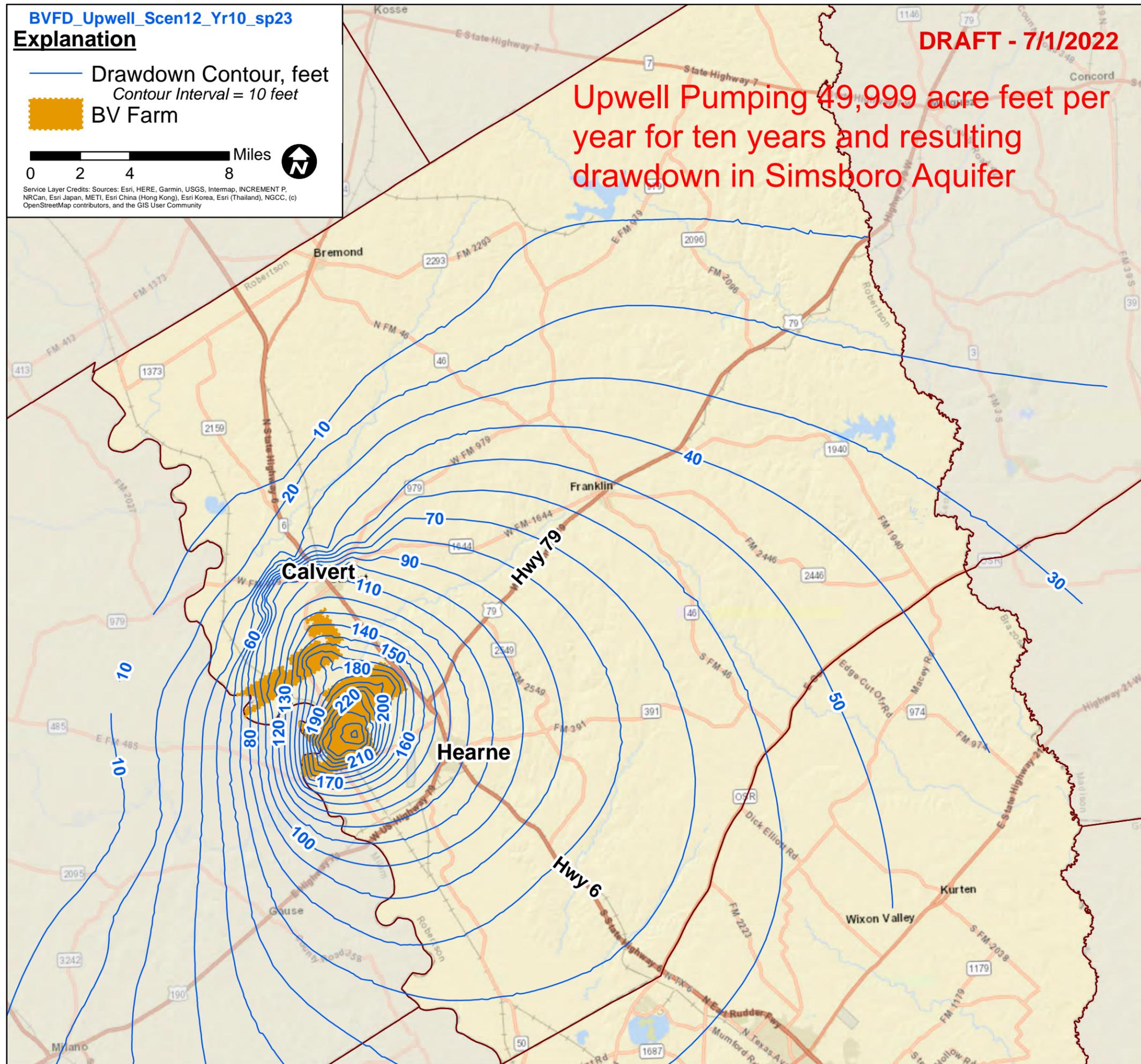
- Drawdown Contour, feet  
*Contour Interval = 10 feet*
- BV Farm



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

**DRAFT - 7/1/2022**

**Upwell Pumping 49,999 acre feet per year for ten years and resulting drawdown in Simsboro Aquifer**



**Explanation**

- Drawdown Contour, feet  
Contour Interval = 10 feet
- BV Farm



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Upwell Pumping 49,999 acre feet per year for one year, with resulting drawdown in Simsboro Aquifer

