Calculating the Footprint of a Permitted Well

1. Determine from applicant the amount of water desired on an annual basis

2. Annualize the production

- At what rate must the well be pumped to produce the desired amount of water pumping the well continuously for one (1) year

Example

Desired Amount of Water Annually – 1 acre foot/year (325,851 gallons)

The formula is:

Desired amt (gallons)/60 minutes x 24 hours x 365 days = Average Annual GPM

325,851 gallons/525,600 minutes in a year = .62 Average Annual GPM

To produce one (acre foot) of water in one (1) year, the pump will run at a production rate of .62 gpm

To produce 100 ac-ft/yr, the pump will run at 62 gpm

Therefore, 0.62 becomes the multiplying factor used in all permitting calculations

Spacing Rules

Well to Property Line Controlled by Applicant

(1) Spacing of new non-exempt wells completed in the **Simsboro Formation** shall be one-half foot per gallon per minute (½ ft / gpm) of average annual production rate or capacity from the perimeter of the property that is legally assigned to that well.

(2) Spacing of all new non-exempt wells completed in the District, **other than the Brazos River Alluvium and Simsboro aquifers**, shall be one foot per gallon per minute (1 ft/gpm) of average annual production rate or capacity from the perimeter of the property that is legally assigned to that well. (This is inclusive of the Yegua-Jackson, Sparta, Queen City, Carrizo, Calvert Bluff, & Hooper aquifers)

Well to Well Within the Same Formation

(3) Spacing of new non-exempt wells completed in the **Simsboro Formation** in the District shall be one foot per gallon per minute (1 ft / gpm) of average annual production rate or capacity from a permitted or registered well in the Simsboro Formation that is in the District.

(4) Spacing of all new non-exempt wells completed in the District, **other than the Brazos River Alluvium and Simsboro aquifers,** shall be two feet per gallon per minute (2 ft / gpm) of average annual production rate or capacity from a permitted or registered well in the same aquifer formation that is in the District. *(This is inclusive of the Yegua-Jackson, Sparta, Queen City, Carrizo, Calvert Bluff, & Hooper aquifers)*

3. Use the aagpm calculated as the radius of a circle expressed in feet (62 gpm = 62')

4. Use the formula below calculate contiguous acres assigned to permitted well

$$\frac{\left(\text{Average Annual Production Rate in Gallons/Minute} \times \text{District Spacing Requirement Between Wells}\right)^2 \times \pi}{43{,}560} = \text{Total number of contiguous acres required to be assigned to the well site}$$

Example:

Simsboro well desiring 100 ac-ft/yr has a 62 aagpm (100 x .62)

Radius of the footprint = 62'.

Simsboro well to well spacing = 1'

Square feet in one (1) acre = 43,560

π = 3.14

Using the formula shown above:

(62 aagpm x 1')² x 3.14 ÷ 43,560 = 0.2771 contiguous acres required to be assigned (Simsboro calculation)

Minor aquifers use a multiplying factor of 2'

(62 aagpm x 2')² x 3.14 ÷ 43,560 = 1.1084 contiguous acres required to be assigned

Location of the Well Relative to Property Lines & Other Wells

- The footprint created by the preceding formula must stay on property to which the applicant has the legal right to produce groundwater

- The distance between wells within the same aquifer must be least 1’ aagpm for Simsboro wells and 2’ aagpm for all minor aquifers excluding the Brazos River Alluvium

- The footprints of two or more wells may overlap if each the minimum well to well spacing requirement is met

Examples (all Simsboro)

Well #1 – 932 ac-ft/yr; 578’ radius; 24.0823 acres assigned (931’ b/t Well #1 & Well #2)

Well #2 – 773 ac-ft/yr; 479’ radius; 16.6391 acres assigned (780’ b/t Well #2 & Well #3)

Well #3 – 643 ac-ft/yr; 399’ radius; 11.4759 acres assigned

Well #1 | Simsboro | 932 ac-ft/yr | 578' radius

October 30, 2021

pointLayer

Override 1

polygonLayer

Override 1

RobertsonCADParcels

BVGCDWells

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BVGCD Web Map

Well #2 | Simsboro | 773 ac-ft/yr | 467' radius

October 30, 2021

pointLayer

Override 1

polygonLayer

Override 1

RobertsonCADParcels

BVGCDWells

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BVGCD Web Map

Well #3 | Simsboro | 643 ac-ft/yr | 399' radius

October 30, 2021

pointLayer

Override 1

polygonLayer

Override 1

BVGCDWells

RobertsonCADParcels

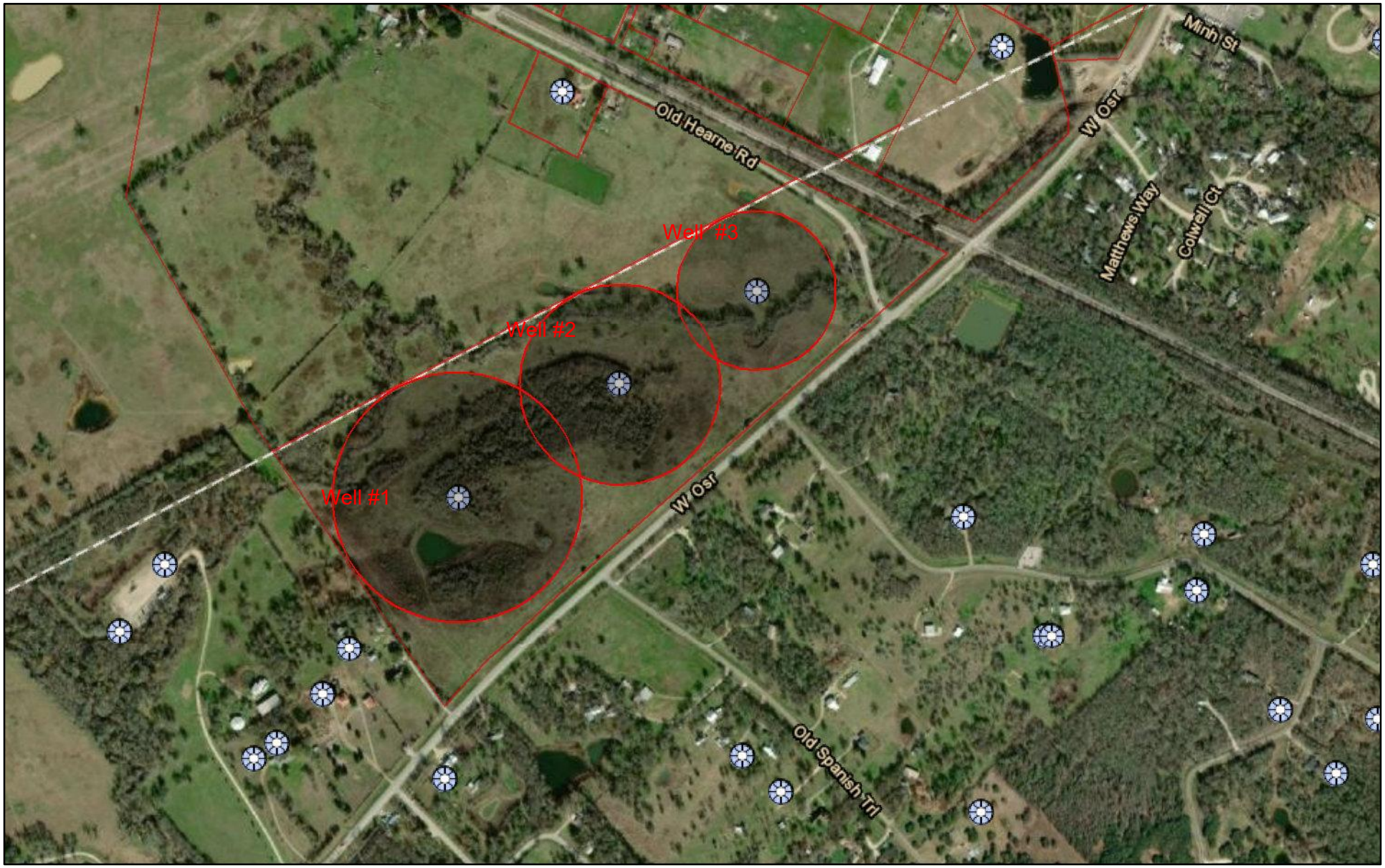
1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Three Wells



October 30, 2021

polygonLayer

RobertsonCADParcels

Override 1

BVGCDWells

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BVGCD Web Map