ECS Mid-Atlantic, LLC

Draft Groundwater Management Plan

Briery Creek Farm Site
6055 Rolling Road South
Scottsville, Virginia 24590
ECS Project No. 47:16310-C

July 7, 2023

July 7, 2023

Mr. William D. Fritz, AICP
Albemarle County
401 McIntire Road, North Wing
Charlottesville, Virginia 22902

On behalf of:

Mr. Emerson Grey Prosser
Sun Communities, Inc.
27777 Franklin Road, Suite 300
Southfield, Michigan 48034

ECS Project No. 47:16310-C

Reference: Draft Groundwater Management Plan
Briery Creek Farm Site
6055 Rolling Road South, Scottsville, Virginia 24590

Dear Mr. Fritz,

On behalf of our client, Sun Communities, Inc., ECS Mid-Atlantic, LLC (ECS) is pleased to provide this Draft Groundwater Management Plan (GWMP) related to the Briery Creek Farm Site in Scottsville, Virginia. The GWMP is being submitted to satisfy requirements outlined within Article X of the Albemarle County Code and has been written in accordance with Section 2 of the Albemarle County Design Standards Manual for Engineering. If there are any questions regarding this report, or a need for further information, please contact the undersigned at (540) 785-6624.

Respectfully Submitted,

ECS MID-ATLANTIC, LLC

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Principal Hydrogeologist

COMMONWEALTH OF VIRGINIA
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FIGURES

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1.0 INTRODUCTION

ECS Mid-Atlantic, LLC (ECS) is pleased to provide this Draft Groundwater Management Plan (GWMP) documenting hydrogeologic conditions and existing supply wells that are planned for use at the Briery Creek Farm Site. The Briery Creek Farm site is located at 6055 Rolling Road South in Scottsville, Virginia and encompasses approximately 724 acres within nine parcels. Five of the nine parcels are located in Fluvanna County while the remaining four parcels are located in Albemarle County. The location of the subject site is shown in Figure 1.

ECS understands that the site's proposed development will include approximately 250 vacation rental cabins and various other amenities that will be serviced by a central water system that will be supplied by groundwater supply wells. The municipal water service area does not extend to the subject site, and as such, groundwater supply wells will be required to meet the potable water needs of the planned development. Peak hourly demand is expected to be 35 gallons per minute (gpm) and the maximum daily demand is expected to be 25,000 gallons per day. A concept plan showing the planned development and the location of the site's planned supply wells is provided as Figure 2.

ECS has completed well siting, installation, modification, and preliminary testing activities at the site. Methodology and findings related to the installation, modification, and testing of the site's planned supply wells is discussed within this Draft GWMP. Additionally, a description of the site setting, a discussion of potential proximal contaminant sources, and a discussion of proximal offsite supply wells is provided herein.

2.0 SITE SETTING

2.1 Subject Site Description

The subject site consists of nine land parcels, four of which are located in Albemarle County and five of which are located in Fluvanna County. Albemarle County parcels are identified as parcel numbers 124-4A, 124-4B, 124-4, and 124-12 and Fluvanna County parcels are identified as parcel numbers 26-A-A37, 26-A-A2, 26-A-A38, 26-A-A5A, and 26-A-3. The combined area of the site is approximately 724 acres. The site is currently used as a wedding venue and as pastureland for cattle. The site is bound to the east by Highway 620. Adjoining properties in the vicinity of the site are primarily undeveloped, agricultural, or low-density residential. A site layout map showing the site boundary and surrounding area is included as Figure 3.

Five bedrock wells are currently present at the subject site, as shown in Figure 3. The Red Barn Well, Pavilion Well, and Cabin Well are active supply wells used by the site's current development and Wells A and B were installed by ECS as part of the groundwater exploration phase of this project. The Red Barn Well provides potable water to the current facility's Red Barn wedding event building located near the site's current entrance. The Pavilion Well provides potable water to the Pavilion structure located near the shore of the site's largest reservoir and equipment sheds located to the east of the well. The Cabin Well provides potable water to two rental cabins located near the southern shore of the site's largest reservoir. Wells A and B were installed by ECS in 2023 in an effort to develop groundwater supply sources. The Red Barn Well and Well B will be used to supply the entire potable demand of the subject site. Well A will not be used as a supply well due to

its low yield and the Pavilion Well and Cabin Well will not be used as supply wells because their constructions do not meet public well construction criteria.

ECS submitted a well record request to the Blue Ridge Health Department for GW-2 Water Well Completion Reports for the site's existing wells, but a record was only available for the Pavilion Well. ECS also spoke with Virginia Department of Health Office of Drinking Water (VDH-ODW) staff who confirmed that none of the site's existing wells were permitted as public wells and that well records were unavailable. The Red Barn Well has since been converted to a public supply well, as discussed in a later subsection of this report. Visual observation of the Cabin Well indicated that the well is a 6-inch diameter drilled well with 6-inch diameter steel casing. The Water Well Completion Report for the Pavilion Well indicated that the well was drilled as a Class IIIB private well in September 2019 to a depth of 420 feet below ground surface (bgs). The diameter of the well is six inches, and the casing consists of 6-inch diameter PVC, which was installed to a depth of 56 feet bgs. The well was grouted to a depth of 50 feet bgs using a bentonite slurry. Water-bearing zones are present at depths of 77–78 feet bgs, 219–221 feet bgs, and 400–401 feet bgs. The static water level within the well is reported to be 40 feet bgs at the time of its installation and the well has a reported yield of 7 gpm. A copy of the Pavilion Well's Water Well Completion Report is included as Appendix A. Water Well Completion Reports for Well A, Well B, and the modified Red Barn Well are also provided within Appendix A and are discussed in further detail in a later subsection of this report.

2.2 Topographic and Hydrologic Setting

Ground surface elevation at the site ranges from approximately 410–550 feet above mean sea level (amsl) with a dominant drainage direction toward the west. The highest elevation areas of the site are located along its eastern margin and the lowest elevations are located along the western margin where Briery Creek exits the site. National Hydrography Dataset mapping indicates that several streams and 15 reservoirs are present at the site. The largest perennial stream at the site is Briery Creek, which feeds the site's largest reservoir. A second perennial stream is mapped as being present at the northern portion of the site, which also feeds into the site's largest reservoir. The remaining streams are mapped as being intermittent. A map showing topography and surface water hydrologic mapping at and in the vicinity of the site is included as Figure 4.

2.3 Geology & Hydrogeology

2.3.1 Geologic Setting

The subject site is located within the Piedmont Physiographic Province, which is characterized by gently rolling topography and weathered bedrock. Geologic mapping at a scale of 1:24:000 by Evans (1994) is available for the northern portion of the site. This mapping indicates that the site is underlain by a Cambrian-age metagraywacke unit comprised primarily of quartz and plagioclase feldspar. Higher-scale geologic mapping of the entire site by the Virginia Division of Mineral Resources (2003) at a scale of 1:500,000 indicates that the entire site and surrounding area is underlain by a single geologic unit comprised of metagraywacke, quartzose schist, and mélange. No faults are mapped as being present at the site and the nearest fault is mapped as being located one mile to the west. Geologic mapping of the site and surrounding area is provided as Figure 5.

Saprolite, which is a soft and generally unconsolidated geologic material formed by the in-situ chemical weathering of underlying bedrock, typically overlies consolidated bedrock in

the Piedmont Province. Saprolite and other unconsolidated sediment are collectively referred to as "overburden". Overburden thickness is variable and is dependent on several factors, including topography, geologic characteristics, and climate, and was observed to be 40 feet thick at the Well A and B locations.

2.3.2 Hydrogeologic Setting

Groundwater flow within crystalline and meta-sedimentary aquifers of the Piedmont Province is primarily via interconnected joints and fractures within the rock, as primary porosity within these units is typically low. Regional fracture density and the degree to which fractures are interconnected can be highly variable and is dependent on several factors, including geologic structure, rock type, and depth. The size, number, and interconnection of fractures typically decreases with depth. Saprolite overlying metasedimentary bedrock typically functions as a source of groundwater storage for bedrock aquifers. As such, wells completed in areas with a thin saprolite layer are typically more likely to be adversely impacted by drought conditions than wells completed in areas with thicker saprolite layers. The degree to which water is transmitted from the saprolite layer to bedrock is largely a function of the degree of fracturing in the uppermost section of bedrock.

ECS reviewed a hydrogeologic assessment study of Albemarle County completed by ENSAT Corporation in 2003. Findings from the ENSAT study indicate that the subject site is located within the Piedmont Proper Hydrogeologic Unit (i.e., Unit VIII). The Piedmont Proper Hydrogeologic Unit is characterized by gently rolling piedmont topography with bedrock comprised primarily of metagraywacke, quartzose schist, and mélange. The ENSAT study classifies each hydrogeologic unit within Albemarle County on the basis of its general groundwater availability, with each unit being assigned either a low, medium, or high groundwater availability. The Piedmont Proper Hydrogeologic Unit is classified as having a low groundwater availability rating. This classification should be considered a general rating, as bedrock well yields are highly dependent on the specific locations at which the wells are drilled and the majority of wells that were used by ENSAT to assign groundwater availability classification ratings would not have been professionally sited to improve the likelihood of obtaining a higher yield.

ECS reviewed National Wetland Inventory wetlands mapping and National Hydrography Dataset surface water mapping to estimate groundwater recharge and discharge zones within the site boundaries, as areas where wetlands and/or surface water are present were assumed to represent groundwater discharge zones and areas where these features are absent were assumed to represent groundwater recharge zones. Of the total site area (723.8 acres), 81.4 acres is estimated to be a groundwater discharge zone and the remaining 642.4 acres is estimated to be a groundwater recharge zone. The estimated groundwater discharge zone represents 11.2% of the total site area. A map showing the estimated groundwater recharge and discharge zones across the site is included as Figure 6.

3.0 POTENTIAL SOURCES OF CONTAMINATION & GROUNDWATER QUALITY

3.1 Potential Sources of Contamination

A regulatory database search report provided by Environmental Data Resources, LLC (EDR), was used to assess whether nearby contaminated sites would be likely to pose a

significant risk to groundwater contamination to the subject site. The results of the EDR database search revealed that no sites were mapped or listed in a regulatory database within EDR's default search radius. Portions of the subject site, including at and in the vicinity of Well B, is used as grazing land for free range cattle. Current grazing practices are unlikely to contaminate the site's wells due to the relatively small number of cattle that graze the area (less than 50) and rotating nature by which the cattle graze different fields at the site. Grazing is expected to cease in the vicinity of Well B following site development and the field in which the well is located is expected to be maintained as an open meadow. The Red Barn structure in the vicinity of the Red Barn Well is expected to be used as a maintenance facility. The maintenance facility is located beyond the VDH-ODW-mandated setback zone for Class II public supply wells and chemicals or other equipment that could potentially release contaminants to the subsurface will not be stored within the Class II 50-foot wellhead protection area (WHPA). It is ECS's opinion that current and planned future use of the site is unlikely to cause contamination to the bedrock aquifer that would impact the planned development's proposed supply wells.

Although the location of the site's septic drainfield has not been provided to ECS, we have been informed that its location will not be anywhere in the vicinity of the planned development's supply wells (i.e., the Red Barn Well and Well B). The nearest property boundary to the Red Barn Well is located approximately 260 feet to the north, which is 210 feet beyond the Class II WHPA. The nearest property boundary to Well B is located approximately 520 feet to the north and the nearest structure is located approximately 1,830 feet to the northwest. As such, it is ECS's opinion that onsite and offsite septic drainfields do not pose a significant threat of contamination to the site's planned supply wells.

3.2 Groundwater Quality

ECS mobilized to the subject site on August 2, 2022 to collect a water sample from the site's Pavilion Well to better understand the general groundwater chemistry at the site. The Pavilion Well is plumbed with a pressure tank and manifold consisting of a raw water sampling spigot and a pressure switch. An inline sediment filter is present and no other treatment systems were apparent. ECS collected the water sample from the raw water spigot, prior to the water moving through the sediment filter. The well was purged for approximately 30 minutes prior to collecting the sample. The sample was shipped overnight on ice to Pace Analytical in Mt. Juliet, Tennessee for analysis of the following general water quality parameters: volatile organic compounds (VOCs), chlorinated pesticides, nitrate, nitrite, sulfate, metals, hardness, and alkalinity.

Laboratory results indicated that all analytes were below the laboratory's minimum detection limits for drinking water except for the analytes shown in Table 1. Concentrations of detected analytes were compared to U.S. Environmental Protection Agency (USEPA) Maximum Contaminant Levels (MCLs) and Secondary Drinking Water Regulations (SDWRs) for drinking water. MCLs are legally enforceable water quality standards for public water supplies and SDWRs are non-enforceable standards where concentration exceedances may impact aesthetic components of water. Comparison of analytical results to USEPA MCLs and SDWRs revealed that only the manganese, pH, and turbidity concentrations exceeded or were outside the range of an MCL or SDWR. The manganese concentration (0.0600 mg/L) was slightly higher than the SDWR concentration of 0.05 mg/L and the pH value (5.62 standard units [SU]) was outside the SDWR range of 6.5–8.5 SU. The turbidity concentration of 1.14 nephelometric turbidity

units (NTU) slightly exceeded the post-filtration MCL value of 1 NTU, although it is likely that filtration would reduce the turbidity of water produced from the well. A summary of laboratory results is shown in Table 1.

Table 1: Summary of Pavilion Well Sampling Results for Detected Analytes.

Analyte Class	Analyte	Concentration (mg/L[a])	USEPA[b] Drinking Water Standard (mg/L)
General Chemistry	Hardness	12.3	---[c]
	Nitrate	1.68	10
Metals	Barium	0.0480	2
	Calcium	2.01	---
	Magnesium	1.78	---
	Manganese	0.0600	0.05
Volatile Organic Compounds	Volatile Organic Compounds (All Measured Compounds)	Below Laboratory Detection Limits	Dependent on Compound
Pesticides	Pesticides (All Measured Compounds)	Below Laboratory Detection Limits	Dependent on Compound
Field-Measured Parameter	pH	5.62 S.U.	6.5 – 8.5
	Specific Conductivity	60 µS/cm	---
	Temperature	20.9°C	---
	Turbidity	1.14 NTU	1 (post-filtration standard)

[a]mg/L = milligrams per liter
[b]USEPA = U.S. Environmental Protection Agency
[c]--- = drinking water standard does not exist for this compound
Blue text indicates a primary Maximum Contaminant Level and orange text indicates a Secondary Drinking Water Regulation.

Overall, sampling results indicate that the quality of groundwater from the Pavilion Well is generally good. It is reasonable to assume that groundwater quality produced from the Red Barn Well and Well B would generally be of similar quality, although a certain amount of variation should be expected. Water quality samples will be collected from the Red Barn Well and Well B during the VDH-required 48-hour constant rate pumping tests for public wells, which will provide additional information about groundwater quality within the subject site's bedrock aquifer.

4.0 WELL INSTALLATION, MODIFICATION, AND TESTING ACTIVITIES

ECS installed two test wells (Well A and Well B) and modified the construction of the existing Red Barn Well as part of previously completed groundwater exploration activities at the site. The planned development will use the Red Barn Well and Well B to supply the entire potable demand of the subject site. Well A will not be used as a supply well due to its low yield. A description of well installation/modification and testing activities performed in relation to these wells is provided in the following subsections of this report.

4.1 Red Barn Well

The Red Barn Well will be used as a supply well for the planned development and is located approximately 53 feet from the existing Red Barn structure at the location shown in Figures 2 and 3. ECS completed characterization activities of the well to evaluate its construction and yield. Characterization activities included completion of a down-well camera survey and a 6-hour step-drawdown pumping test. Following the completion of characterization activities, the well's construction was modified to meet VDH-ODW Class II public well construction requirements. A description of Red Barn Well characterization and construction modification activities is provided below, and a Water Well Completion Report and geologic log is included within Appendix A.

4.1.1 Red Barn Well Characterization

ECS completed a camera survey and 6-hour duration step-drawdown pumping test of the Red Barn Well prior to modifying its construction. The purpose of the camera survey was to determine the well's construction and the purpose of the step-drawdown pumping test was to evaluate the well's yield.

The Red Barn Well camera survey showed that 6-inch diameter PVC casing was present from above ground surface to a depth of 53 feet bgs and that the well was installed to a total depth of 108 feet bgs. Grout was not visible at the base of the casing and no perforations or damage to the casing was observed. Several shallow fracture zones were observed within the open-borehole portion of the well, with the most prominent fractures being present at depths of 58.0–58.7 feet bgs, 65.2–66.6 feet bgs, 72.2 feet bgs, and 85.8 feet bgs.

A six-hour duration step-drawdown pumping test of the Red Barn Well was completed to evaluate the well's pumping yield. The step-drawdown test consisted of completing three successive pumping steps, with each step lasting for a duration of two hours. The target pumping rates for each of the steps were 15 gpm, 21 gpm, and 27.5 gpm. Based on testing findings and the assumption that the well's water level during pumping should remain at or above the base of the well's casing due to the presence of shallow water-bearing fractures, it was determined that the Red Barn Well appeared capable of sustainably pumping at a rate of up to 30 gpm, although daily periods of rest would be recommended. This maximum pumping rate was based on limited-duration pumping test data, and as such, it was noted that actual groundwater levels within the well during pumping could deviate from projected levels due to influences from hydrogeologic boundary conditions arising at times beyond the testing duration. Longer duration constant-rate pumping testing required by VDH-ODW and Albemarle County as part of the well approval process is expected to provide additional information that will be used to evaluate the Red Barn Well's maximum pumping capacity and will better evaluate potential hydrogeologic boundary influences. A summary of findings from the Red Barn Well step-drawdown pumping test is provided in Table 2 and data plots are provided within Appendix B.

Table 2: Red Barn Well Step-Drawdown Test Findings (Pre- Modification).

Step & Pumping Rate	Depth to Water at End of Step (feet bgs[a])	Drawdown at End of Step (feet)	Specific Capacity (gpm/ft[b])
Step 1 (14.8 gpm[c])	27.78	6.89	2.15
Step 2 (20.6 gpm)	32.67	11.78	1.75
Step 3 (27.3 gpm)	37.69	16.80	1.63

[a]bgs = below ground surface.
[b]gpm/ft = gallons per minute per foot of drawdown.
[c]gpm = gallons per minute.

ECS discussed the Red Barn Well's construction with VDH-ODW and was informed that the well did not meet public well construction standards due to the apparent lack of a neat cement grout annular seal and the insufficient wall thickness of the casing. As such, it was determined that the well's construction must be modified to meet Class II public well construction requirements to allow the well to be used as a potable source of water for the planned development.

4.1.2 Red Barn Well Construction Modification

ECS's Principal Hydrogeologist, Mr. Thomas Nelson, met onsite with Mr. James Simmons, Mr. Ken DiGuilio, and Ms. Karen Austin with the VDH-ODW on April 11, 2023. VDH-ODW staff visually observed the Red Barn Well's location and were informed of the plan to modify the well's construction to meet Class II public well standards by Mr. Nelson during this meeting. Email correspondence with Mr. Steven Kvech, Deputy Field Director for the VDH-ODW's Lexington Office, was later exchanged where Mr. Kvech stated that the construction modifications described herein would be acceptable for the well to meet Class II public well standards.

Red Barn Well modification activities began on April 24, 2023. Well modification was performed by Royall Pump and Well Company of Powhatan, Virginia. ECS personnel were onsite during drilling activities to compile a geologic log of the well, to record the depths of water-bearing zones, and to document the well's construction. A geologic and construction log of the modified Red Barn Well is included within Appendix A.

An attempt was made to pull the well's existing casing, although this was unsuccessful due to the well having been completed with several relatively short sections of casing that were connected with unglued slip fittings. As such, the casing immediately pulled apart when an upward force was applied. The remaining casing was removed using a reaming drill bit and it was observed during reaming that grout did not appear to be present between the casing and the borehole wall. The surface borehole was reamed to a depth of 56 feet bgs, during which time the entirety of the former PVC casing was removed. New heavy-wall (0.280-inch wall thickness), 6-inch inner diameter galvanized steel casing with a drive shoe was then placed within the surface boring to a depth of 56 feet bgs and was grouted using neat cement from the base of the casing to ground surface using tremie grout methods. Sediment and debris that had fallen into the original production boring was then

removed by reaming to the well's original depth of 108 feet bgs and to a diameter of six inches. An air-lift yield measurement of 34 gpm was recorded at a depth of 108 feet bgs.

Following reaming to 108 feet bgs, the Red Barn Well was then deepened to 600 feet bgs with a 6-inch diameter borehole in an effort to increase the well's yield. The general bedrock lithology that was observed during well deepening consisted of dark gray/blue metagraywacke with variable amounts of quartz and feldspar. Only 1 gpm air-lift yield was added during well deepening. As such, the shallow water-bearing fractures noted during the camera survey that were present from approximately 58–86 feet bgs appear to be the only significant water-bearing fractures supplying water to the Red Barn Well. The well's final air-lift yield at its total depth was 35 gpm and it is likely that its maximum pumping yield is similar to that determined during prior step-drawdown testing (i.e., approximately 30 gpm) before the well's construction was modified. A waterproof well cap was affixed to the casing's stickup following the completion of well drilling and the section of concrete pipe that had been present at ground surface over the casing stickup was placed back over the wellhead.

4.2 Well A

Well A will not be used as a supply well for the planned development due to its low yield. Well A is located within a grazing field approximately 440 feet from the nearest site boundary (Figures 2 and 3). VDH-ODW conducted a site visit on December 21, 2022 to observe the location of Well A and provided approval of the well location via a letter dated January 11, 2023, which is included as Appendix C. The VDH-ODW letter classified the well as a Class II public supply well. Although Well A will not be used as a supply well, it will be used as an observation well during VDH-required 48-hour constant-rate aquifer testing. A description of Well A installation activities is provided below, and a Water Well Completion Report and geologic log is included within Appendix A.

4.2.1 Well A Installation

Well A was completed on February 14, 2023 to a depth of 500 feet bgs but was later deepened to 900 feet bgs in an attempt to increase the well's yield. A 10-inch diameter boring was drilled to a depth of 96 feet bgs and 6-inch diameter steel casing was set to a depth of 96 feet bgs. Cement grout was installed in the annular space from 0–96 feet bgs using tremie grout methods. A waterproof well cap was affixed to the casing's stickup. The general lithology consisted of approximately 45 feet of overburden comprised primarily of an orange/brown clayey silt with a zone of weathered rock from 35–45 feet bgs. Bedrock was encountered at 45 feet bgs and generally consisted of a dark gray/blue metagraywacke with some quartzite. Various fractured zones were encountered at 167–171 feet bgs, 176–198 feet bgs, and 440–500 feet bgs. A water-bearing zone at 440–458 feet bgs was identified and yielded approximately 2 gpm. Upon completion of the well to a depth of 500 feet bgs, an air-lift test was conducted and resulted in a measured yield of 2 gpm. Fracturing was also encountered at 500–560 feet bgs during well deepening, which increased the well's air-lift yield to 4 gpm. The well's final air-lift yield at 900 feet bgs was observed to be 4 gpm. Based on the well's low yield, it was not selected for aquifer testing.

4.3 Well B

Well B will be used as a supply well for the planned development and is located within a grazing field approximately 520 feet from the nearest site boundary (Figures 2 and 3). VDH-ODW conducted a site visit on December 21, 2022 to observe the location of Well B

and provided approval of the well location via a letter dated January 11, 2023, which is included as Appendix C. The VDH-ODW letter classified the well as a Class II public supply well. A description of Well B installation and step-drawdown testing activities is provided below, and a Water Well Completion Report and geologic log is included within Appendix A.

4.3.1 Well B Installation

Well B was completed as a 6-inch diameter well to a depth of 600 feet bgs on March 10, 2023. A 10-inch diameter surface borehole was drilled to a depth of 59 feet bgs and 6-inch diameter heavy-wall steel casing with a 0.28-inch wall thickness was set to a depth of 59 feet bgs. Cement grout was installed in the annular space between the borehole wall and the casing from 0–59 feet bgs using tremie grout methods. A waterproof well cap was affixed to the casing's stickup following the completion of well drilling. The general lithology consisted of approximately 38 feet of overburden comprised primarily of a tan silt with some gravel. Bedrock was encountered at 38 feet bgs and generally consisted of a dark gray/blue metagraywacke with some quartzite. Two primary water-bearing zones were identified during drilling. The first zone was present from approximately 70–220 feet bgs, where the air-lift yield gradually increased to 18 gpm while drilling this depth interval. A second water-bearing zone was identified from 300–360 feet bgs, where the air-lift yield gradually increased from 18 gpm to 32 gpm. Upon completion of the well to a depth of 600 feet bgs, an air-lift test was conducted and resulted in a measured yield of 32 gpm.

4.3.2 Well B Step-Drawdown Testing

ECS completed a nearly 6-hour duration step-drawdown pumping test of Well B on May 12, 2023, to estimate the well's maximum pumping yield. Groundwater levels were measured in the pumping well during testing using a vented pressure transducer capable of measuring groundwater levels to the nearest 1/1,000th of a foot. The pressure transducer was installed within a sounding tube to reduce water level disturbance and wire entanglement. Additionally, groundwater levels were periodically measured using an electronic water level meter capable of measuring groundwater levels to the nearest 1/100th of a foot. A 3-inch diameter, 10-horsepower submersible pump capable of pumping at a maximum rate of up to 80 gpm was used during testing and was installed to a depth of 300 feet bgs. The sounding tube was installed to a depth of approximately 260 feet bgs. The pump was powered using a trailer-mounted diesel generator. The manifold at the wellhead contained a gate valve to adjust the flow rate, a totalizer meter capable of providing instantaneous flow rate readings and total pumped volume, and a sampling spigot. Approximately 200 feet of discharge piping was used to divert pumped water in a southern direction for discharge at the land surface at a distance of approximately 100 feet from a pond.

The step-drawdown test consisted of three successive pumping steps. The first two steps lasted for a duration of two hours each, but it was necessary to terminate the third step 20 minutes short of the two-hour mark due to excessive drawdown within the well. The target pumping rates for each of the steps were 20 gpm (Step 1), 35 gpm (Step 2), and 40 gpm (Step 3). A pumping rate of approximately 60 gpm was initially used for the third step, but within 10 minutes of starting the step it became apparent that the rate of drawdown had significantly increased and that such a high rate would be unsustainable. The pumping rate was then reduced to 40 gpm for the remainder of the step to reduce the rate of drawdown. Based on totalizer readings recorded at the beginning and end of each step, the actual average pumping rates used during each of the steps were 20.1 gpm, 34.7 gpm,

and 39.9 gpm. The static groundwater level prior to the start of the pumping test was 12.76 feet below the well's top of casing (btoc) (i.e., approximately 9 feet bgs). Graphs showing data collected during the step-drawdown pumping test are included within Appendix B and a table showing the depth to water, drawdown, and specific capacity at the conclusion of each step is included as Table 3.

Table 3: Well B Step-Drawdown Test Findings.

Step & Pumping Rate	Depth to Water at End of Step (feet btoc[a])	Drawdown at End of Step (feet)	Specific Capacity (gpm/ft[b])
Step 1 (20.1 gpm[c])	33.09	20.33	0.989
Step 2 (34.7 gpm)	58.22	45.46	0.763
Step 3 (39.9 gpm)	>240	>227.24	<0.176

[a]btoc = below top of casing.
[b]gpm/ft = gallons per minute per foot of drawdown.
[c]gpm = gallons per minute.

ECS used data collected during the step-drawdown pumping test to estimate the well's maximum pumping yield. The well's maximum pumping yield was evaluated using the pumping test data in conjunction with extrapolated specific capacity values and the application of the Jacob (1946) equation and Bierschenk (1964) well loss calculations. The rapid increase in the rate of drawdown that occurred following the dewatering of the well's shallow water-bearing fractures was also considered. Based on the findings of this analysis and the assumption that the well's water level during pumping should remain at or above the shallowest water-bearing fracture observed during drilling (i.e., 70 feet bgs), Well B appears capable of sustainably pumping at a rate of up to 32 gpm, although periods of rest would be recommended to allow for water level recovery.

It is important to note that this maximum pumping rate is based on limited-duration pumping test data. As such, it is possible that actual groundwater levels within the well at the evaluated pumping rates could deviate from projected groundwater levels due to influences from hydrogeologic boundary conditions arising at times beyond the testing duration. The longer duration constant-rate pumping test required by VDH-ODW and Albemarle County as part of the well approval process is expected to provide additional information that will be used to evaluate Well B's maximum pumping capacity.

5.0 WELL INVENTORY

5.1 Evaluation of Proximal Well Users

Municipal water service utilities are unavailable at and in the vicinity of the subject site. As such, developed properties in the vicinity of the site rely on private domestic wells for their water supply. ECS evaluated parcels located within 1,000 feet of the subject site to identify which properties are likely to use a domestic well. The evaluation was completed within a geospatial database using publicly available land parcel, structure location, and

address point shapefile data provided by Albemarle County and Fluvanna County. Parcels developed with one or more structures and parcels that were assigned addresses were considered to be properties that are likely to contain a domestic supply well.

A total of 66 properties located within 1,000 feet of the subject site were identified as likely to contain a domestic supply well. Well locations were assumed to correspond to the locations of the primary structure at each property, which is a reasonable assumption given that the majority of domestic wells are installed in proximity to primary residential buildings. Of the 66 properties containing wells, the well locations at nine of these properties appear likely to be located within 1,000 feet of one of the subject site's two supply wells (i.e., the Red Barn Well or Well B) and the well locations at the remaining properties appear to be located more than 1,000 feet, and as far as 7,450 feet, from the subject site's supply wells. The nearest offsite well is located at 6089 Rolling Road South, which is estimated to be 350 feet from the Red Barn Well. ECS attempted to identify the exact location of this well while standing at the property line but was unable to visually observe its location within approximately 100 feet of the subject site boundary. As such, the well appears likely to be located at the northern portion of the property that was not visible from the property line. The nearest offsite well to Well B is estimated to be located approximately 1,830 feet to the northwest. A map showing the locations of properties within 1,000 feet of the subject site that are likely to use a private domestic well are shown in Figure 7 and a table showing the addresses and estimated distances of each property's well from the nearest subject site supply well is included as Appendix D.

5.2 Proximal Well Record Search

ECS submitted Freedom of Information Act (FOIA) requests to the Blue Ridge Health Department for well records at properties located within a 2,500-foot radius of Wells A and B, which included properties in close proximity to the Red Barn Well. The FOIA documents contained well records for eight offsite properties. Seven out of the eight wells were located along Rolling Road South while the eighth well was located at 1421 Little Wyoming Lane, which is to the north of the subject site. Well record information showed that each of the wells except for the well located at 7022 Rolling Road South is a bedrock well. The well at 7022 Rolling Road South is a shallow bored well that was installed to a depth of 60 feet bgs. While shallow bored wells are more susceptible to water production issues than drilled bedrock wells, the nearest supply well at the subject site (Well B) is located approximately 2,190 feet from the well and would not be expected to adversely impact the bored well. The average well depth, yield, and depth to bedrock at the seven drilled wells was 173 feet, 9 gpm, and 53 feet, respectively. The locations of the offsite properties where well record information was available is shown in Figure 8 and the well records are included as Appendix E.

6.0 GROUNDWATER MANAGEMENT PLAN & CONTINGENCY PLAN

6.1 Groundwater Management Plan

Construction and development will not occur within each supply well's Class II WHPA, other than construction related to a well building, water distribution system, and treatment system. Temporary posts, fencing, or other restrictive barriers will be placed around the 50-foot zone surrounding each well (i.e., the Class II WHPA) to ensure that construction equipment does not intrude upon the WHPA during site development. During construction of well-related features (i.e., well building, water distribution system, etc.), chemicals, if

used, will be stored at least 50 feet from the wellhead. The neat cement grout annular surface seal would provide protection against surface contaminants during and after construction. Following the conclusion of site development activities, the Class II WHPAs will be maintained by restricting the storage or application of chemicals within the WHPAs.

6.2 Contingency Plan

The site owner will contact a Virginia-licensed well drilling firm to evaluate the water system if a supply well(s) ceases to produce water. The evaluation will consist of assessing the pump and well equipment to determine whether it appears to be functioning properly. If a problem is diagnosed during the inspection that is not related to a lowering of the groundwater level, but is deemed to be due to normal wear and usage, repairs will be made to the system to fix the defective component. If the cause of groundwater supply interruption is not clear, a hydrogeologic consultant (Virginia-Certified Professional Geologist) will be retained to evaluate the well and to conduct site-specific investigation deemed appropriate to identify the cause of the decline in groundwater levels. Such investigation may include installation of in-situ data loggers to monitor water levels within the impacted well. Similarly, if a supply well is found to be contaminated, distribution of the impacted water will immediately be ceased and a hydrogeologic consultant (Virginia-Certified Professional Geologist) will be retained to report the contamination to applicable regulatory agencies and to determine the source and extent of contamination.

In the event that a supply well is deemed to no longer be operational due to impacts caused by a critical lowering of groundwater levels or by contamination, the site owner shall install an additional well(s) to replace the lost water supply. Two additional well drilling targets have been identified by ECS using fracture trace analysis and electrical resistivity surface geophysical methods, and both well targets have already received approval by the VDH-ODW for the installation of Class II public supply wells. The planned development will not encroach within 50 feet of either well target (i.e., Class II WHPA) to allow for a well to be constructed at the target locations in the event that this becomes necessary due to water supply or quality issues. Potable water will be provided to the planned development from an external provider, or the development will be temporarily closed, until a new water supply source is established.

7.0 CLOSING

ECS is pleased to provide this Draft GWMP documenting hydrogeologic conditions and existing supply wells that are planned for use at the Briery Creek Farm Site. The Briery Creek Farm site is located at 6055 Rolling Road South in Scottsville, Virginia. The GWMP is being submitted to satisfy requirements outlined within Article X of the Albemarle County Code and has been written in accordance with Section 2 of the Albemarle County Design Standards Manual for Engineering.

The site's proposed development will include approximately 250 vacation rental cabins and various other amenities that will be serviced by a central water system that will be supplied by groundwater supply wells. Two Class II public supply wells, which are referred to as the Red Barn Well and Well B, will provide water to the planned development. Preliminary information obtained during well installation and step-drawdown testing indicates that the wells appear capable of meeting the site's expected water demand. Groundwater quality at the site appears to be acceptable for potable use and no significant

contaminant threats were identified that appear likely to impact either well. The nearest offsite well appears to be located at least 350 feet from the closest subject site supply well and the majority of wells in the vicinity of the site appear to be bedrock wells, which are less susceptible than shallow bored wells to impacts caused by drought conditions or surficial contaminant sources. Information obtained during 48-hour constant rate aquifer testing and water quality sampling will provide additional information regarding the capacity and quality of the site's supply wells.

8.0 REFERENCES

Evans, N.H. 1994. Geology of the Simeon quadrangle, Virginia, scale 1:24,000. Virginia Division of Mineral Resources Publication 134

Virginia Division of Mineral Resources 2003. Expanded explanation: geologic map of Virginia, scale 1:500,000. Publication 147, 85 pp.

9.0 LIMITATIONS

The work performed in conjunction with this project, and the data developed, are intended as a description of available information at the study area. Generally accepted industry standards were used in the preparation of this report. Results from future testing may vary significantly as a result of natural conditions, a changing environment, or the limits of analytical capabilities. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a specific location not evaluated.

Figures

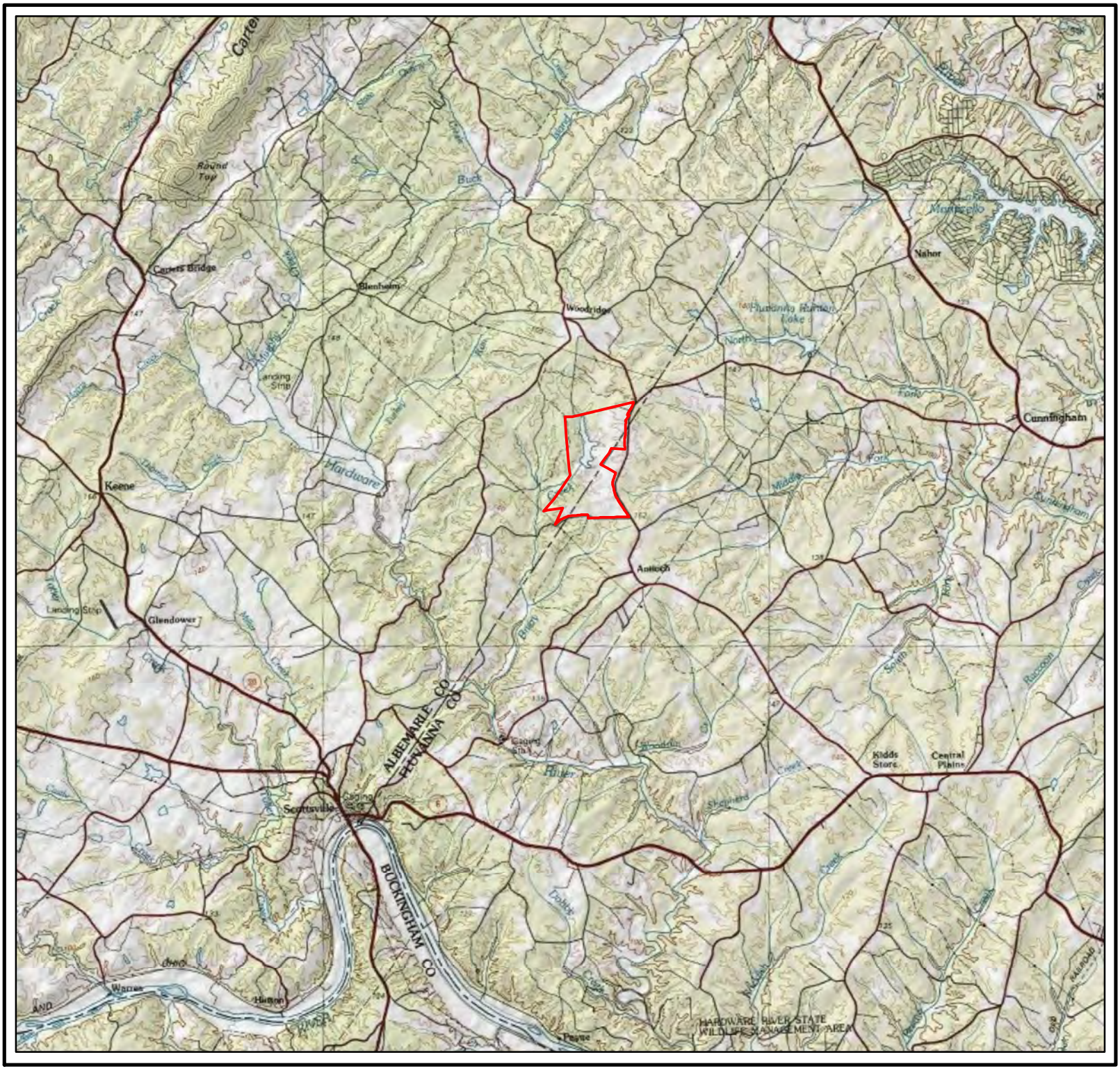


Figure 1: Site Location Map

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

Subject Site

N

0 1 2 4 Miles

ECS Project No. 47-16310-C

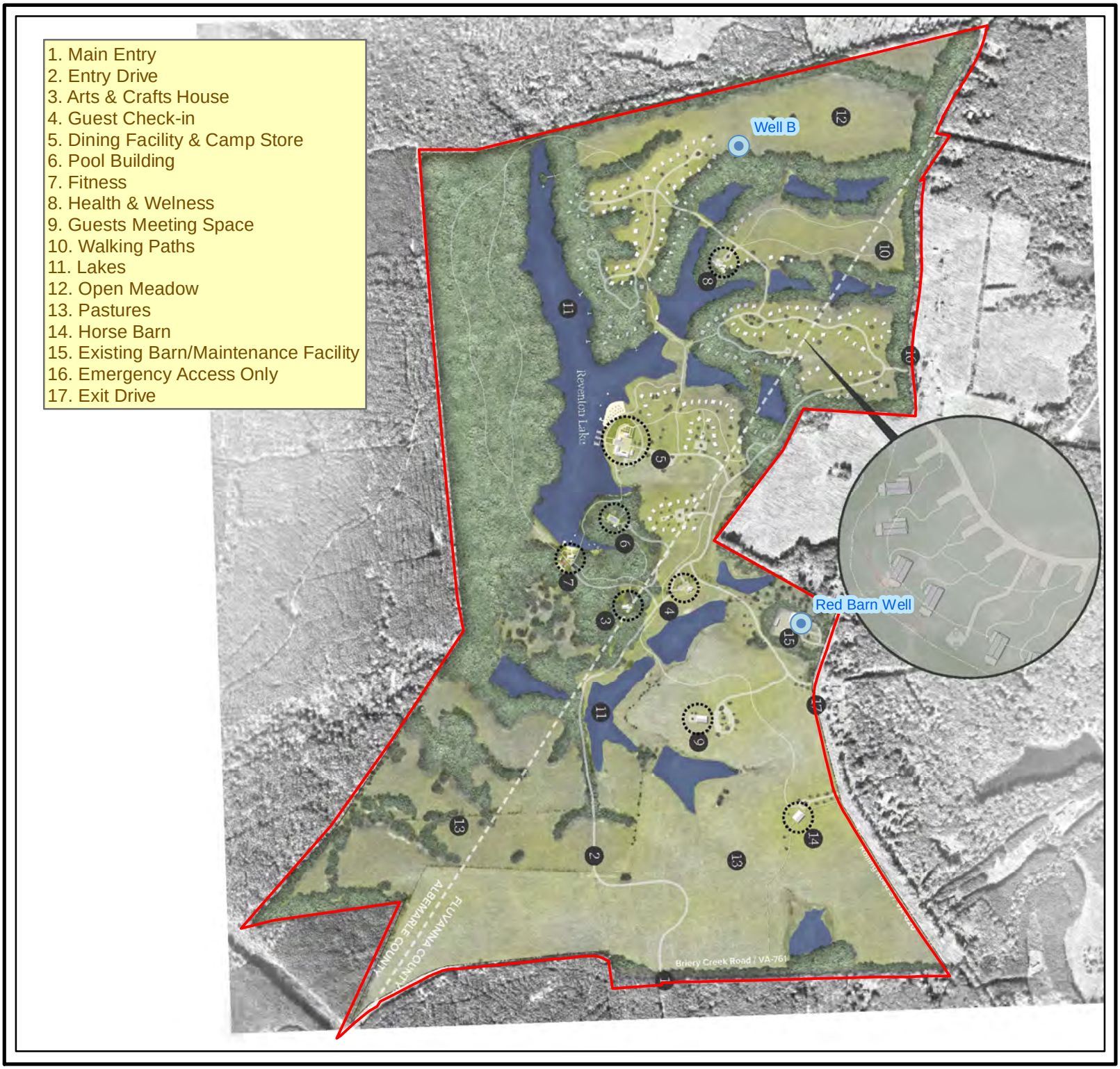


Figure 2: Site Concept Plan and Supply Well Locations

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

Subject Site

Planned Supply Well

N

0 500 1,000 2,000 Feet

ECS Project No. 47-16310-C

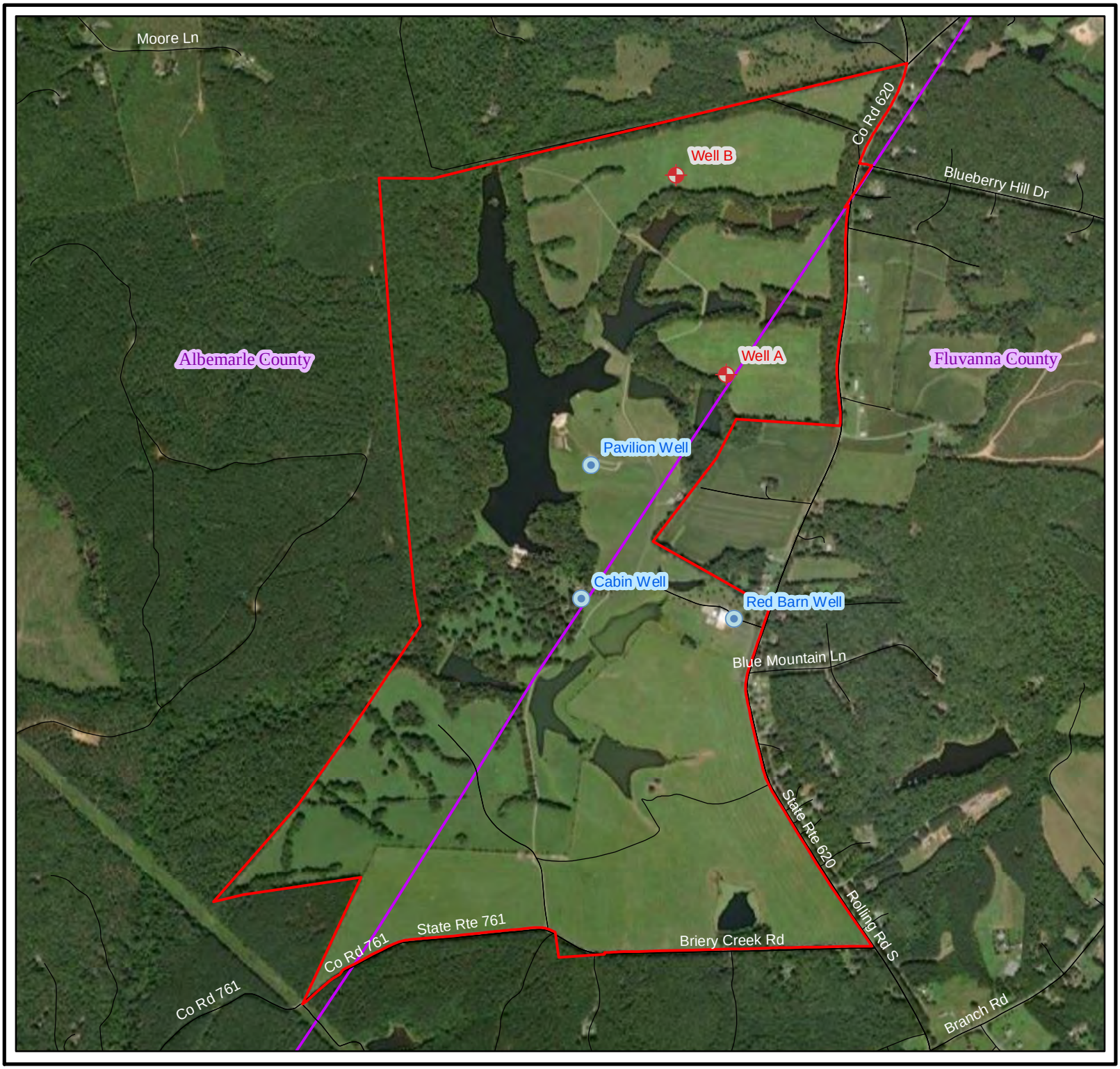


Figure 3: Site Layout Map

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

- Subject Site
- County Boundary Line (approximate)
- Road

Existing Well

- Used as Supply Well by Current Development
- Installed by ECS during Groundwater Exploration Effort

0 600 1,200 2,400 Feet

N

ECS Project No. 47-16310-C

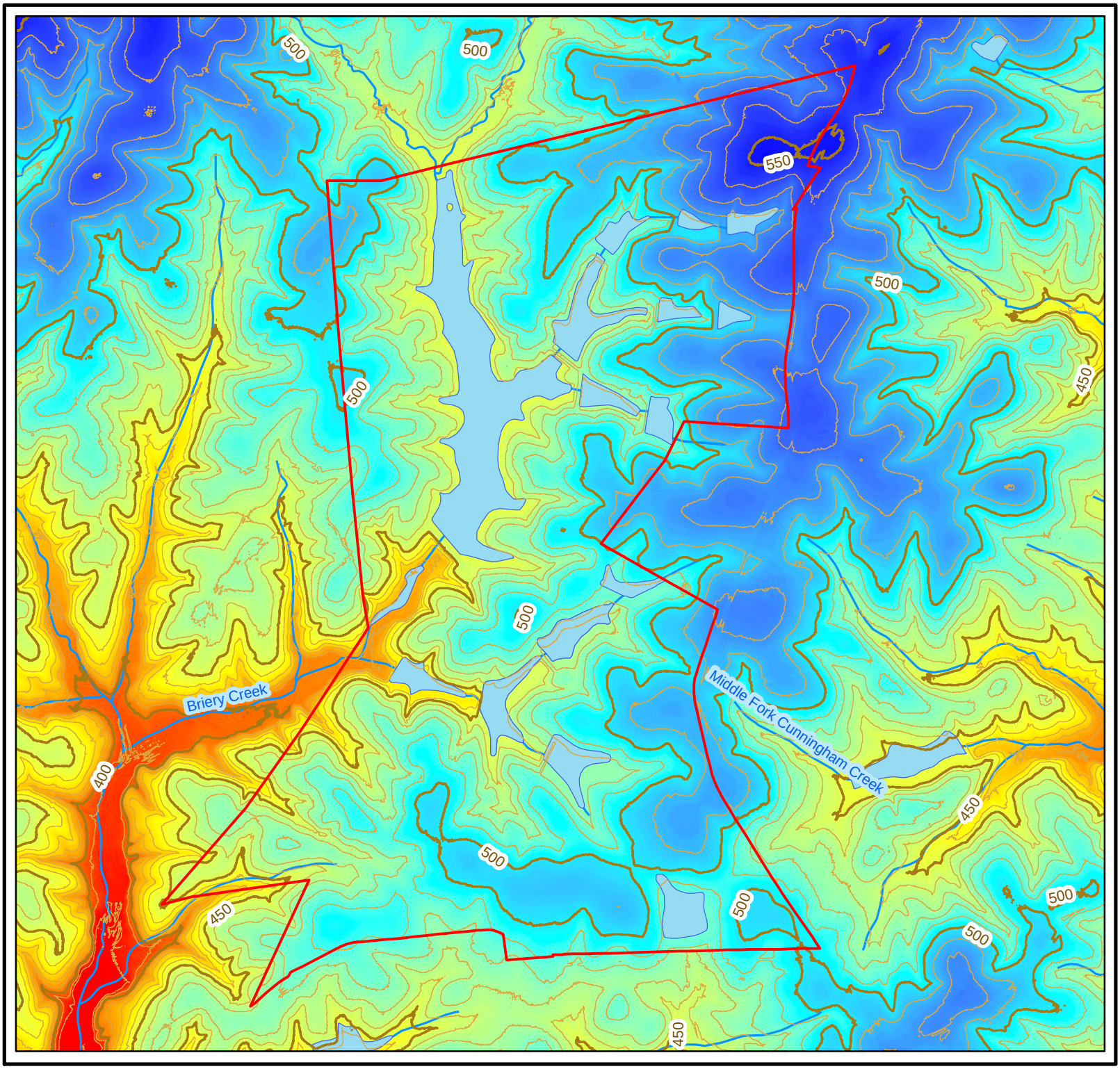


Figure 4: Topographic and Hydrologic Mapping

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

- Subject Site
- Stream
- Reservoir

Topographic Contour (C.I. = 10 ft)

- Index Contour
- Intermediate Contour

Ground Elevation

- High : 570.01 ft amsl
- Low : 359.08 ft amsl

N

0 600 1,200 2,400 Feet

Map Note:
Topographic mapping is provided by the National Elevation Dataset (1-meter Lidar) and hydrologic mapping is provided by the National Hydrography Dataset.

ECS Project No. 47-16310-C

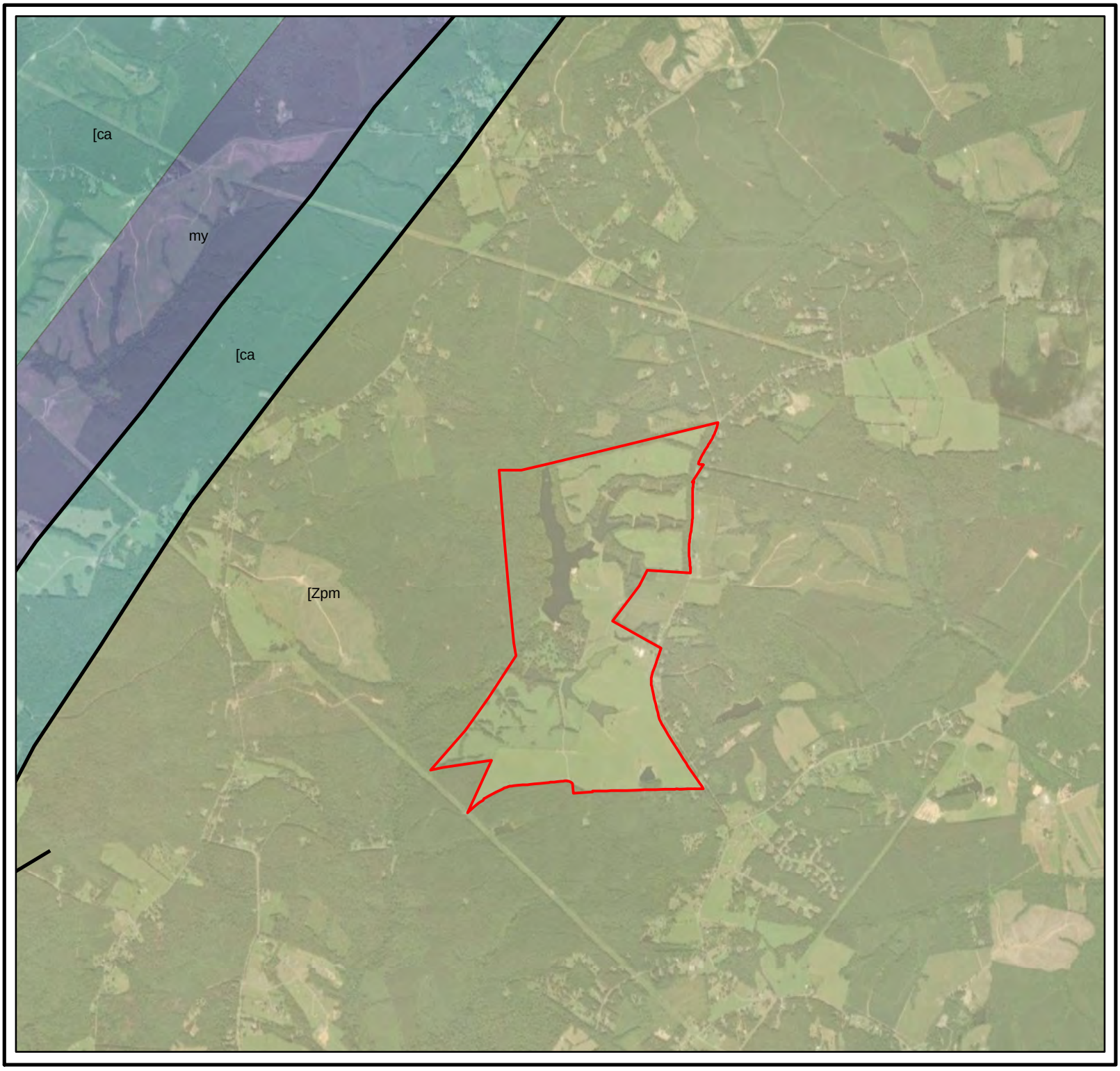


Figure 5: Geologic Mapping

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

- Subject Site
- Fault

ORIG_LABEL

- [Zpm = metagraywacke, quartzose schist, and melange
- [ca = Candler Formation (phyllite and schist)
- my = mylonite, mylonite gneiss, and cataclastic rocks

N

0 0.25 0.5 1 Miles

Map Note:
Geologic mapping by the Virginia Division of Mineral Resources (2003)

ECS Project No. 47-16310-C

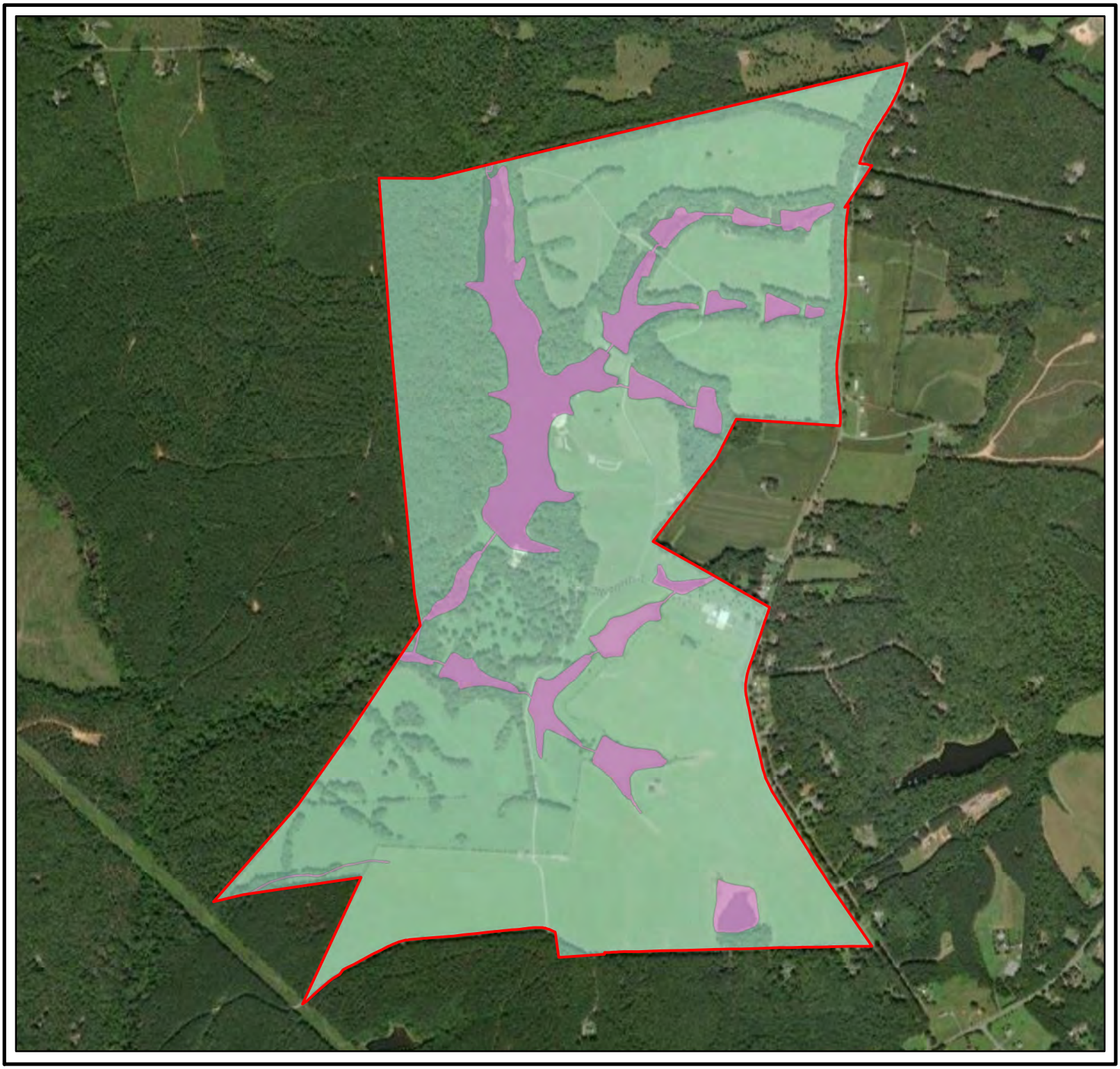


Figure 6: Estimated Groundwater Recharge and Discharge Zones

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

- Subject Site
- Estimated Groundwater Discharge Area (81.4 acres)
- Estimated Groundwater Recharge Area (642.4 acres)

N

0 600 1,200 2,400 Feet

ECS Project No. 47-16310-C

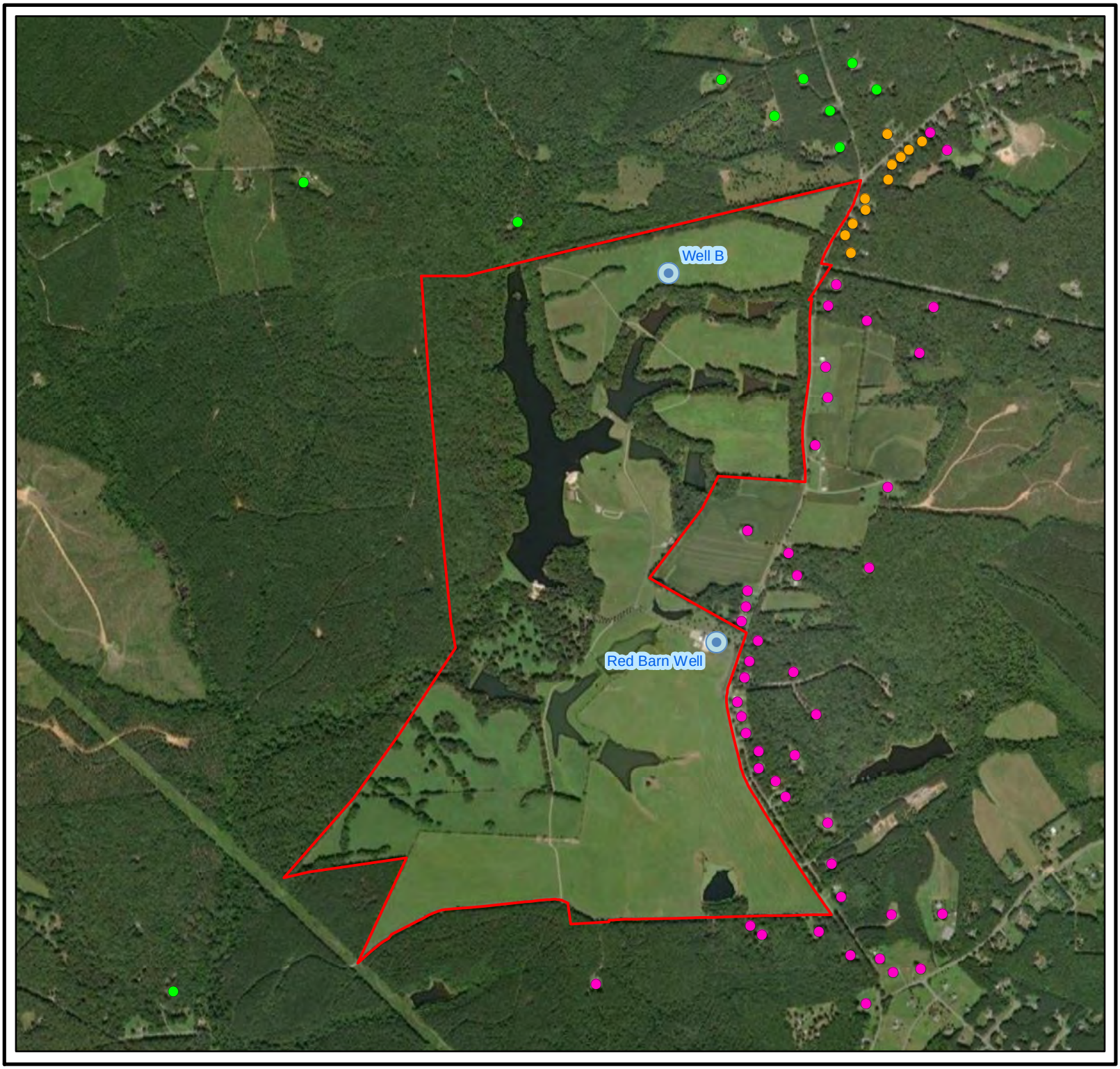


Figure 7: Well Locations on Parcels within 1,000 Feet of Subject Site Boundary

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

- Subject Site
- Planned Supply Well

Well Locations (estimated)

- Well (Albemarle County Property)
- Well (Fluvanna County Property)
- Well (Albemarle & Fluvanna Counties Property)

0 750 1,500 3,000 Feet

N

Map Note:
Well locations are estimated based on primary structure locations.

ECS Project No. 47-16310-C

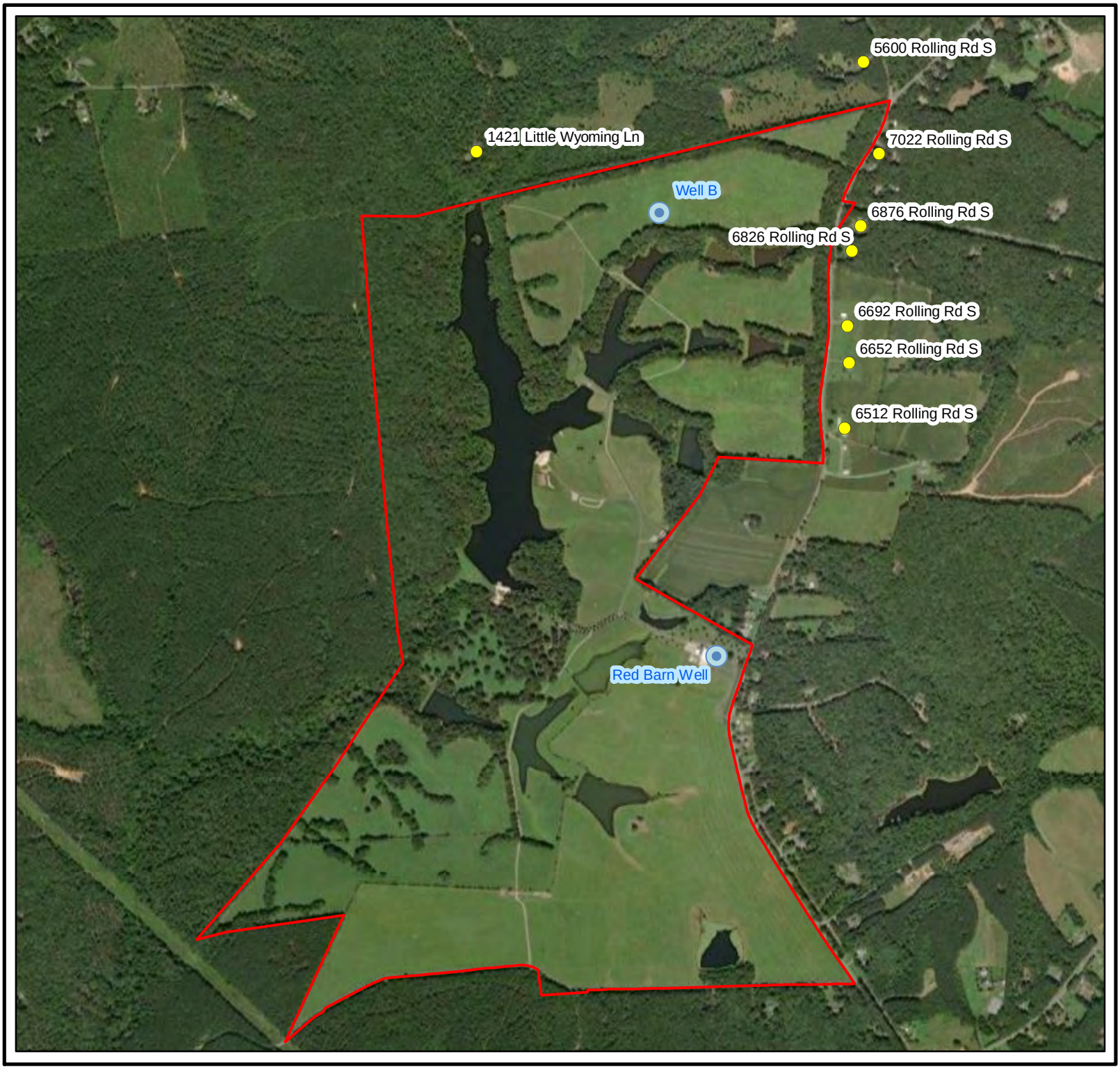


Figure 8: Proximal Properties with Available Well Records

Briery Creek Farm Site
Albemarle & Fluvanna County, Virginia

Legend

- Subject Site
- Planned Supply Well
- Offsite Well with Available Record Information

N

0 750 1,500 3,000 Feet

ECS Project No. 47-16310-C

Appendix A

Water Well Completion Reports & Geologic Well Logs

Red Barn Well Completion Report & Geologic Log

State: VA

Virginia Water Well Completion Report

County/City: Albemarle Co.

Topographical Data

Datum
Lattitude 037°86'61.2'' N
Longitude 078°42'47.6'' W
Topo Map
Elevation ft
Formation
Lithology
River Basin
Province Piedmont
Type Logs
Cuttings
Water Analysis
Aquifer Test
Well Notes
Treatment Eqp

General Contractor

Name Tom Nelson - ECS Mid-Atlantic
Address 4004 Hunterstand Ct. Suite 102
City Charlottesville State VA
Zip 22911- Phone
Well Designation or No. Red Barn Well

Drilling Contractor

Name Royall Pump & Well Company, Inc.
Address 2958 Anderson Highway
City Powhatan
State VA Zip 23139-
Phone (804) 598-8147 Fax (804) 598-1291
Email info@royallpumpandwell.com
License 014253

Permit Data

DEQ Permit
VDH WELL #
Building Permit
PWSID

Well Address

Tax Map I.D
Subdivision
Section
Block
Lot Number
Well Owner Reverton Farms
Well Address 6055 Rolling Rd.
Well City Scottsville
State VA Zip 24590-
Well Classes Class IIB

Well Location / Drill Dates

Well Location (feet/miles) (direction) of
Well Location (feet/miles) (direction) of

If possible submit map with well location marked.

Date Started 4/25/2023 Date Completed 4/30/2023 Type Rig Air Rotary

WELL DATA

☐ New ☑ Reworked ☐ Deepened ☐ Abandoned

Total Depth: 603 ft. Depth to Bedrock: 45 ft.

Hole Size (Also include reamed zones)

(1) 11 inches from 0-45 to ft.
(2) 10 inches from 45 to 55 ft.
(3) 6 inches from 55 to 603 ft.

Casing Size (I.D.) and Material

(1) 6.00 inches from 0 to 55 ft.
Material: Galvanized Steel TC
Weight per ft 18.97 or wall thickness .280 in.
(2) inches from to ft.
Material:
Weight per ft or wall thickness in.
(3) inches from to ft.
Material:
Weight per ft or wall thickness in.

Screen Size and Slot for Each Zone

(1) inches from to ft.
Slot Size: Type:
Material:
(2) inches from to ft.
Slot Size: Type:
Material:
(3) inches from to ft.
Slot Size: Type:
Material:
(4) inches from to ft.
Slot Size: Type:
Material:

Gravel Pack

Size From to ft.
Size From to ft.

Grout

From -1 to 55 ft. Type: Cement/Neat
From to ft. Type:

Lower Casing Seal

◯ K-Packer ◉ Drive Sho ◯ Well Packer ◯ Shale Trap
6 x 7.5 inches from 55 to 56 ft.

WATER DATA

☐ Artesian Flow Rate: gpm
Static Water Level: 23 PH:
Established Well Yield: 40 gpm Water Temp: F
Stabilized Pumping Level
Stabilized Pumping Yield gpm afte hours
Comment on water quality

WATER ZONES

(1) 27.5 gpm From 57 to 58
(2) 12.4 gpm From 425 to 427
(3) gpm From to
(4) gpm From to
(5) gpm From to

USE DATA

Type of Use: ☑ Drinking ☐ Livestock Watering ☐ Irrigation ☐ Food Processing ☑ Household ☐ Manufacturing ☐ Fire Safety ☑ Cleaning ☐ Recreation ☐ Aestheti ☐ Cooling/Heating ☐ Injection
Other:

Type of Facility: ☐ Domestic ☑ Public Water Supply ☐ Public Institution ☐ Farm ☐ Industry ☐ Commercial
Other

PUMP DATA

Type: Submersible 3 inch Series 22 gpm
HP 1.5 Capacity 22 gpm at 200 ft. head
Intake Dept 80 ft Voltage 230
Riser Pipe Size 1 Type Polyethylene Coil WireSize 10
Model Number

WELLHEAD

Type of Well Seal/Cap: Vermin Proof Ventilated
Pressure Tank Location:
Sample Tap: Measurement Port:
Well Vent: Pressure Relief Valve:
Gate Valve: Check Valve(if required):
Electrical Disconnect Switch on Power Supply:

DISINFECTION

Disinfected Date:
Disinfection Us Amount: Hours:

ABANDONMENT

Date Casing Pulled ☐ Yes ☐ No ☐ N/A
Well Disinfected Type: Amount:
(1) Grout/Backfill From to ft. Material:
(2) Grout/Backfill From to ft. Material:
(3) Grout/Backfill From to ft. Material:

Virginia Water Well Completion Report (continued)

Well Owner: Tom Nelson - ECS Mid-Atlantic
4004 Hunterstand Ct. Suite 102
Charlottesville VA 22911-

Well Address: 6055 Rolling Rd.
Scottsville VA 24590-

Permits: DEQ Permit
DOH Well #
Building Permit
PWSID

Well Location: Lattitude 037°86'61.2'' N
Longitude 078°42'47.6'' W

Well Lot Dedicated

Size: ft by: ft
Distance to nearest pollutant source ft
Distance to nearest property line ft
Distance to Building ft
Well House
Type
Waste Disposa

Water Service Pipe

Checked under p.s.i.for minutes
Material
Pipe Size in.
Installer
Installed Dat

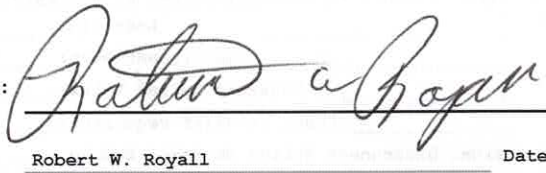
Type of Well Construction

- ○ Bored Well
- ◉ Consolidated Well
- ○ Unconsolidated Well
- ○ Multiple Screen Unconsolidated Well
- ○ Abandoned Bored Well
- ○ Abandoned Consolidated Well
- ○ Abandoned Uncosolidated Well

Driller's Log

Depth (feet)		Type of Rock or Soil	Remarks
From:	To:		
0	1	Top Soil	
1	18	Red Clay	18
18	32	Brown Sandstone	
32	41	Light Brown/Red Sandstone	
41	44	Pinl/Red Weathered Rock	
44	51	Red/Grey Soft Weathered Rock	
51	603	Grey Rock	
		Mr. Garnett B. Williams of ECS	
		Performed Formation Log	

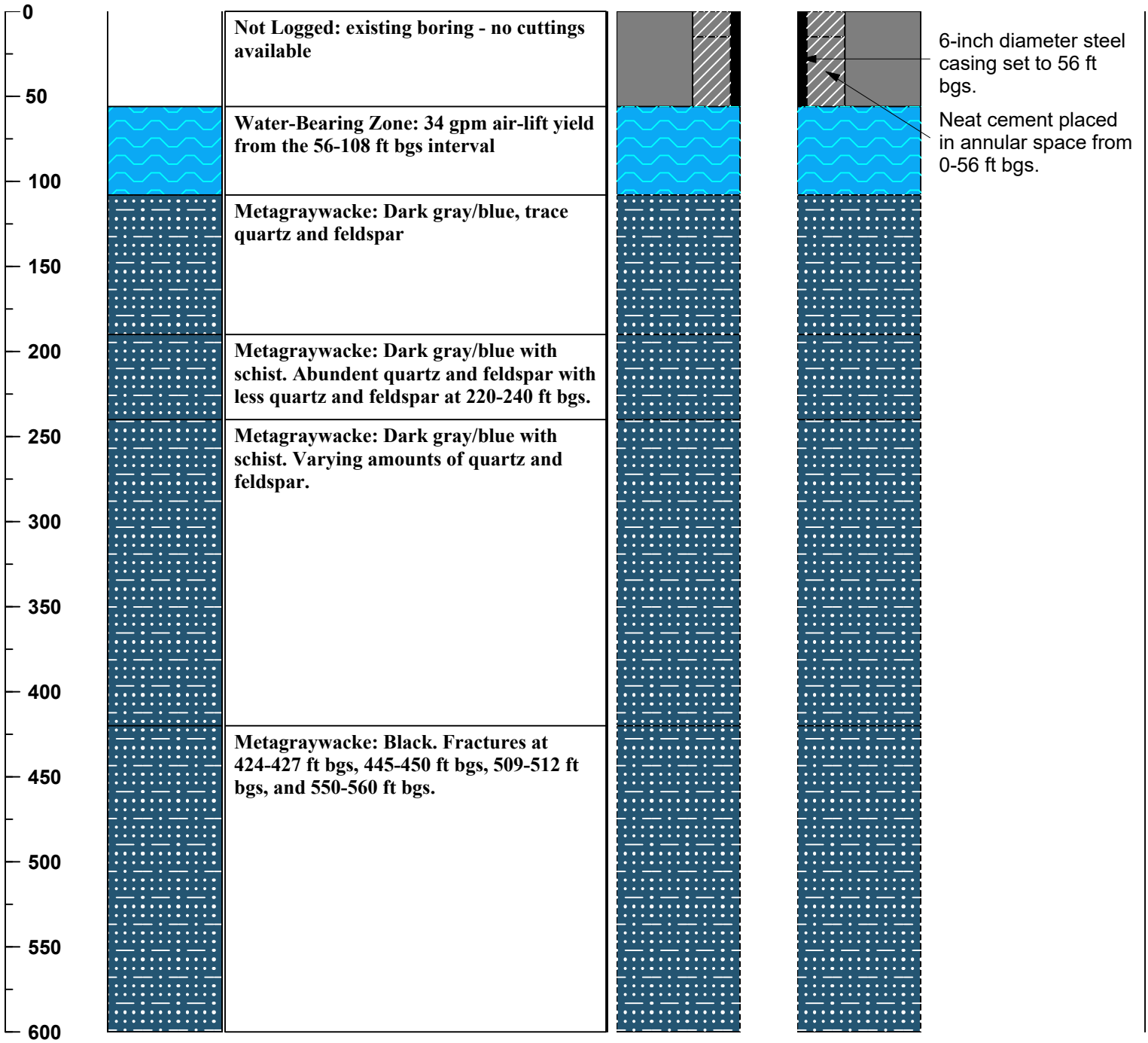
I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the requirements for well construction as specified in compliance with appropriate county or independent city ordinances and the laws and rules of the state where the well was installed.

Signature:  Seal

Robert W. Royall Date: 5/6/2023 License Number 014253

Project: 47-16310-B	**Well:** Red Barn Well		**Page 1 of 1**
Name: Reventon Farms Site	**Well Depth:** 600 ft bgs		
Location: Albemarle County, VA	**Well Diameter:** 6-inch		
Logger: Garnett Williams, P.G.	**Well Coordinates:** 37.866101˚ N, -78.424784˚ W		
Manager: Thomas Nelson, P.G.	**TOC Elevation:** 508 ft amsl (approximate)	**Casing Depth:** 56 ft bgs	
Drilling Firm Royall Pump & Well	**Completion Date:** 4/25/2023	**Airlift Yield:** 35 gpm	
Drilling Method: Air Rotary	**Approximate Static Water Level:** Not measured		
Water Bearing Zones: 56-108 ft bgs (34 gpm)			
Notes: Construction described herein represents a well modification. Former well depth was 108 ft bgs.			

Depth (feet)	Lithology	Lithologic Description	Well Diagram



Well A Completion Report & Geologic Log

State: Va

County/City:

Virginia Water Well Completion Report

Topographical Data

Datum
Lattitude 378°72'54.0'' N
Longitude 078°42'48.3'' W
Topo Map
Elevation 412 ft
Formation
Lithology
River Basin
Province Piedmont
Type Logs
Cuttings
Water Analysis
Aquifer Test
Well Notes
Treatment Eqp

General Contractor

Name ECS Mid Atlantic LLC/ Thomas Nelson
Address 4004 Hunterstand Court, #102
City Charlottesville State VA
Zip 22911- Phone
Well Designation or No. WL001

Drilling Contractor

Name Royall Pump & Well Company, Inc.
Address 2958 Anderson Highway
City Powhatan
State VA Zip 23139-
Phone (804) 598-8147 Fax (804) 598-1291
Email info@royallpumpandwell.com
License 014253

Permit Data

DEQ Permit
VDH WELL #
Building Permit
PWSID Proposed WL001

Well Address

Tax Map I.D
Subdivision
Section
Block
Lot Number
Well Owner
Well Address 6055 Rolling Road
Well City Scottsville
State Va Zip 24590-
Well Classes Class IIB

Well Location / Drill Dates

Well Location (feet/miles) (direction) of
Well Location (feet/miles) (direction) of

If possible submit map with well location marked.

Date Started 2/10/2023 Date Completed 2/15/2023 Type Rig Air Rotary

WELL DATA

☑ New ☐ Reworked ☐ Deepened ☐ Abandoned

Total Depth: 900 ft. Depth to Bedrock: 40 ft.

Hole Size (Also include reamed zones)

(1) 10 inches from 0 to 96 ft.
(2) 6 inches from 96 to 900 ft.
(3) inches from to ft.

Casing Size (I.D.) and Material

(1) 6 inches from +2 to 96 ft.
Material: Galvanized Steel TC
Weight per ft or wall thickness .280 in.
(2) inches from to ft.
Material:
Weight per ft or wall thickness in.
(3) inches from to ft.
Material:
Weight per ft or wall thickness in.

Screen Size and Slot for Each Zone

(1) inches from to ft.
Slot Size: Type:
Material:
(2) inches from to ft.
Slot Size: Type:
Material:
(3) inches from to ft.
Slot Size: Type:
Material:
(4) inches from to ft.
Slot Size: Type:
Material:

Gravel Pack

Size From to ft.
Size From to ft.

Grout

From 0 to 96 ft. Type: Pumped Cement
From to ft. Type:

Lower Casing Seal

○ K-Packer ◉ Drive Sho ○ Well Packer ○ Shale Trap
7.5 x 10 inches from 95 to 96 ft.

WATER DATA

☐ Artesian Flow Rate: gpm
Static Water Level: 32 PH:
Established Well Yield: 2 gpm Water Temp: F
Stabilized Pumping Level
Stabilized Pumping Yield gpm afte hours
Comment on water quality

WATER ZONES

(1) 1 gpm From 430 to
(2) 1 gpm From 480 to (3) 2 gpm From 700 to 800
(4) gpm From to (5) gpm From to

USE DATA

Type of Use: ☐ Drinking ☐ Livestock Watering ☐ Irrigation ☐ Food Processing ☐ Household ☐ Manufacturing ☐ Fire Safety ☐ Cleaning ☐ Recreation ☐ Aestheti ☐ Cooling/Heating ☐ Injection
Other:

Type of Facility: ☐ Domestic ☑ Public Water Supply ☐ Public Institution ☐ Farm ☐ Industry ☐ Commercial
Other

PUMP DATA

Type: inch Series gpm
HP Capacity gpm at ft. head
Intake Dept ft Voltage
Riser Pipe Size Type WireSize
Model Number

WELLHEAD

Type of Well Seal/Cap: Vermin Proof Ventilated
Pressure Tank Location:
Sample Tap: Measurement Port:
Well Vent: Pressure Relief Valve:
Gate Valve: Check Valve(if required):
Electrical Disconnect Switch on Power Supply:

DISINFECTION

Disinfected Date:
Disinfection Us Amount: Hours:

ABANDONMENT

Date Casing Pulled ☐ Yes ☐ No ☐ N/A
Well Disinfected Type: Amount:
(1) Grout/Backfill From to ft. Material:
(2) Grout/Backfill From to ft. Material:
(3) Grout/Backfill From to ft. Material:

Virginia Water Well Completion Report (continued)

Well Owner ECS Mid Atlantic LLC/ Thomas Nelson
4004 Hunterstand Court, #102
Charlottesville VA 22911-

Permits: DEQ Permit
DOH Well #
Building Permit
PWSID Proposed WL001

Well Address 6055 Rolling Road
Scottsville Va 24590-

Well Location: Lattitude 378°72'54.0'' N
Longitude 078°42'48.3'' W

Well Lot Dedicated

Size: ft by: ft
Distance to nearest pollutant source ft
Distance to nearest property line ft
Distance to Building ft

Well House
Type
Waste Disposa

Type of Well Construction

- ○ Bored Well
- ● Consolidated Well
- ○ Unconsolidated Well
- ○ Multiple Screen Unconsolidated Well
- ○ Abandoned Bored Well
- ○ Abandoned Consolidated Well
- ○ Abandoned Uncosolidated Well

Water Service Pipe

Checked under p.s.i.for minutes
Material
Pipe Size in.
Installer
Installed Dat

Driller's Log

Depth (feet)		Type of Rock or Soil	Remarks
From:	To:		
0	20	Brown sandy dirt	
20	40	Sandy soil to soft rock	
40	96	Grey rock	
96	500	Grey rock, fracture @ 430'and 480'	
500	905	Black white	
		No Noticable Fractures	

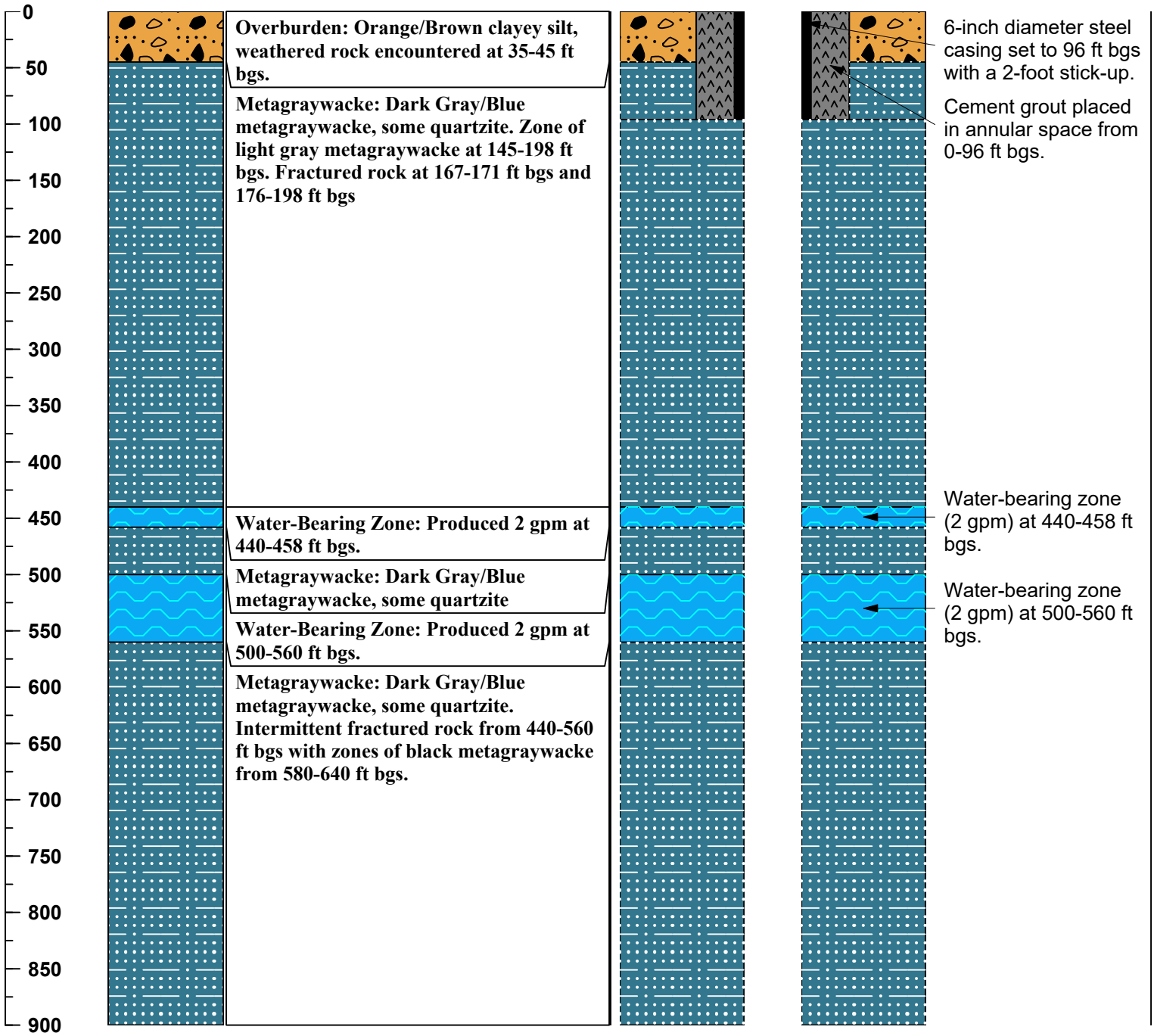
I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the requirements for well construction as specified in compliance with appropriate county or independent city ordinances and the laws and rules of the state where the well was installed.

Signature: Joshua Loggins Seal

Robert Royall Jr Date: 2/17/2023 License Number 014253

Project: 47-14961-C	**Well:** Well A	**Page 1 of 1**
Name: Reventon Farms Site	**Well Depth:** 900 ft bgs	
Location: Albemarle County, VA	**Well Diameter:** 6-inch	
Logger: Dalton Carbaugh	**Well Coordinates:** 37.87254˚ N -78.424837˚ W (approximate)	
Manager: Thomas Nelson, P.G.	**TOC Elevation:** 508 ft amsl (approximate)	**Casing Depth:** 96 ft bgs
Drilling Firm Royall Pump & Well	**Completion Date:** 3/7/2023	**Airlift Yield:** 4 gpm
Drilling Method: Air Rotary	**Approximate Static Water Level:** Not measured	
Water Bearing Zones: 440-458 ft bgs (2 gpm), 500-560 ft bgs (2 gpm)		
Notes: Surface boring 10-inch diameter. 6-inch diameter casing set to 96 ft bgs. Cement grout installed in annular space from 0-96 ft bgs.		

Depth (feet)	Lithology	Lithologic Description	Well Diagram



Well B Completion Report & Geologic Log

State: Va

Virginia Water Well Completion Report

County/City: Albemarle Co.

Topographical Data

Datum
Lattitude 037°87'78.1'' N
Longitude 078°42'62.9'' W
Topo Map
Elevation 406 ft
Formation
Lithology
River Basin
Province Piedmont
Type Logs
Cuttings
Water Analysis
Aquifer Test
Well Notes
Treatment Eqp

General Contractor

Name Thomas Nelson
Address 4004 Hunterstand Court, #102
City Charlottesville, Va 22911 State VA
Zip 22911- Phone
Well Designation or No. TW002

Drilling Contractor

Name Royall Pump & Well Company, Inc.
Address 2958 Anderson Highway
City Powhatan
State VA Zip 23139-
Phone (804) 598-8147 Fax (804) 598-1291
Email info@royallpumpandwell.com
License 014253

Permit Data

DEQ Permit
VDH WELL #
Building Permit
PWSID Proposed

Well Address

Tax Map I.D
Subdivision
Section
Block
Lot Number
Well Owner
Well Address 6055 Rolling Road
Well City Scottsville
State Va Zip 24590-
Well Classes Class IIB

Well Location / Drill Dates

Well Location (feet/miles) (direction) of
Well Location (feet/miles) (direction) of
If possible submit map with well location marked.

Date Started 3/13/2023 Date Completed 3/17/2023 Type Rig Air Rotary

WELL DATA

☑ New ☐ Reworked ☐ Deepened ☐ Abandoned

Total Depth: 605 ft. Depth to Bedrock: 40 ft.

Hole Size (Also include reamed zones)

(1) 11 inches from 0 to 58 ft.
(2) 6 inches from 58 to 605 ft.
(3) inches from to ft.

Casing Size (I.D.) and Material

(1) 6 inches from +2 to 58 ft.
Material: Galvanized Steel TC
Weight per ft or wall thickness .280 in.
(2) inches from to ft.
Material:
Weight per ft or wall thickness in.
(3) inches from to ft.
Material:
Weight per ft or wall thickness in.

Screen Size and Slot for Each Zone

(1) inches from to ft.
Slot Size: Type:
Material:
(2) inches from to ft.
Slot Size: Type:
Material:
(3) inches from to ft.
Slot Size: Type:
Material:
(4) inches from to ft.
Slot Size: Type:
Material:

Gravel Pack

Size From to ft.
Size From to ft.

Grout

From 0 to 58 ft. Type: Pumped Cement
From to ft. Type:

Lower Casing Seal

○ K-Packer ◉ Drive Sho ○ Well Packer ○ Shale Trap
7.5 x 10 inches from 57 to 58 ft.

WATER DATA

☐ Artesian Flow Rate: gpm
Static Water Level: PH:
Established Well Yield: 32 gpm Water Temp: F
Stabilized Pumping Level
Stabilized Pumping Yield gpm afte hours
Comment on water quality

WATER ZONES

(1) 2 gpm From 70 to
(2) 29 gpm From 70 to 605 (3) gpm From to
(4) gpm From to (5) gpm From to

USE DATA

Type of Use: ☐ Drinking ☐ Livestock Watering ☐ Irrigation ☐ Food Processing ☐ Household ☐ Manufacturing ☐ Fire Safety ☐ Cleaning ☐ Recreation ☐ Aestheti ☐ Cooling/Heating ☐ Injection
Other:

Type of Facility: ☐ Domestic ☑ Public Water Supply ☐ Public Institution ☐ Farm ☐ Industry ☐ Commercial
Other

PUMP DATA

Type: inch Series gpm
HP Capacity gpm at ft. head
Intake Dept ft Voltage
Riser Pipe Size Type WireSize
Model Number

WELLHEAD

Type of Well Seal/Cap: Vermin Proof Ventilated
Pressure Tank Location:
Sample Tap: Measurement Port:
Well Vent: Pressure Relief Valve:
Gate Valve: Check Valve(if required):
Electrical Disconnect Switch on Power Supply:

DISINFECTION

Disinfected Date:
Disinfection Us Amount: Hours:

ABANDONMENT

Date Casing Pulled ☐ Yes ☐ No ☐ N/A
Well Disinfected Type: Amount:
(1) Grout/Backfill From to ft. Material:
(2) Grout/Backfill From to ft. Material:
(3) Grout/Backfill From to ft. Material:

Virginia Water Well Completion Report (continued)

Well Owner	Thomas Nelson		Permits:	DEQ Permit	
	4004 Hunterstand Court, #102			DOH Well #	
	Charlottesville, Va 22 VA 22911-			Building Permit	
				PWSID	Proposed
Well Address	6055 Rolling Road		Well Location:	Lattitude	037°87'78.1'' N
	Scottsville Va 24590-			Longitude	078°42'62.9'' W

Well Lot Dedicated

Size: ft by: ft

Distance to nearest pollutant source ft

Distance to nearest property line ft

Distance to Building ft

Well House

Type

Waste Disposa

Water Service Pipe

Checked under p.s.i.for minutes

Material Pipe Size in.

Installer Installed Dat

Type of Well Construction

- ○ Bored Well
- ◉ Consolidated Well
- ○ Unconsolidated Well
- ○ Multiple Screen Unconsolidated Well
- ○ Abandoned Bored Well
- ○ Abandoned Consolidated Well
- ○ Abandoned Uncosolidated Well

Driller's Log

Depth (feet)		Type of Rock or Soil	Remarks
From:	To:		
0	5	Red clay	
5	20	Brown dirt and rock	
20	40	Grey soft rocky soil	
40	58	Soft rock	
58	85	Black white rock, fracture @ 70'	
85	605	Multiple fractures building to 32GPM	

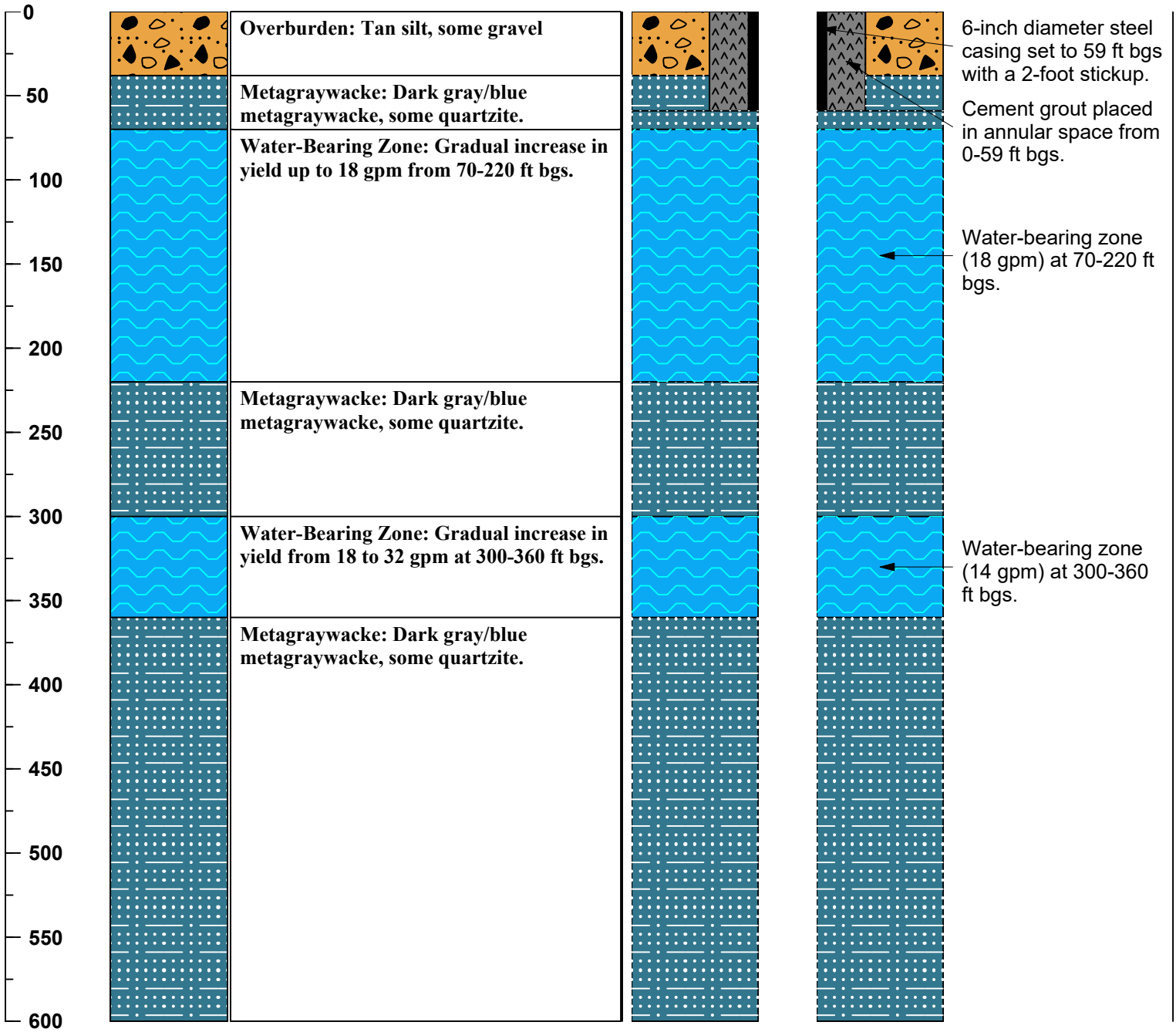
I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the requirements for well construction as specified in compliance with appropriate county or independent city ordinances and the laws and rules of the state where the well was installed.

Signature: Joshua Hogsten Seal

Robert Royall Jr Date: 3/23/2023 License Number 014253

Project: 47-14961-C	**Well:** Well B	**Page 1 of 1**
Name: Reventon Farms Site	**Well Depth:** 600 ft bgs	
Location: Albemarle County, VA	**Well Diameter:** 6-inch	
Logger: Dalton Carbaugh	**Well Coordinates:** 37.877819°N, -78.42629°W	
Manager: Thomas Nelson, P.G.	**TOC Elevation:** 503 ft amsl (approximate)	**Casing Depth:** 59 ft bgs
Drilling Firm Royall Pump & Well	**Completion Date:** 3/10/2023	**Airlift Yield:** 32 gpm
Drilling Method: Air Rotary	**Approximate Static Water Level:** Not measured	
Water Bearing Zones: 70-220 ft bgs (18 gpm), 300-360 ft bgs (14 gpm)		
Notes: Surface boring 10-inch diameter. 6-inch diameter casing set to 59 ft bgs. Cement grout installed in annular space from 0-59 ft bgs.		

Depth (feet)	Lithology	Lithologic Description	Well Diagram



Pavilion Well Completion Report

COMMONWEALTH OF VIRGINIA
UNIFORM WATER WELL COMPLETION REPORT

DEQ Well # _____
USGS Local # _____
VDH HDIN # 101-19-0266
VDH PWSID # _____

*Indicates required field or section
**Indicates required field or section, if applicable

1. Contact Information*

Contact:	Name	Address	Phone
Owner	Murcielago LLC	27 Congress St, Suite 502, Salem MA 01970	
Driller	Wilson Well Drilling	P.O. Box 729, Ruckersville, Va 22968	434-990-2010
System Provider			

2. Well Location*

Physical Address: 6055 Rolling Rd Scottesville Va		**County/City:** Albemarle	
Subdivision Name:	**Section:**	**Block:**	**Lot:**
Tax Map/GPIN #: 124-4A			
Latitude: N		**Longitude:** W	
Datum Source	**Horizontal:** ☐ WGS84 ☐ NAD83 ☐ NAD27		
Lat/Long Source (Check One): ☐ Map ☐ GPS ☐ PPDGPS ☐ Survey ☐ Imagery ☐ WAAS			
Location Information Collected By :			
Physical Location Description:			

3. Facility & Use*

Type of Facility (Check One):	Type of Use (Check All That Apply):		
☑ Private	☑ Drinking/Domestic Use	☐ Agricultural	☐ Food Processing
☐ Waterworks	☐ Manufacturing	☐ Irrigation	☐ Injection
☐ Observation/Monitoring Well	☐ Geothermal (Cooling/Heating) ☐ Closed ☐ Open: ☐ Returned to Surface ☐ Returned to Aquifer	☐ Fire Safety	

4. Well Construction*

Well designation, Name or Number:		
Date Started: 9/9/19	**Date Completed:** 9/9/19	**Type Rig:** Rotary
Class Well (Check One): ☐ I ☐ IIA ☐ IIB ☐ IIIA ☑ IIIB ☐ IIIC ☐ IIID ☐ IIIE ☐ IV		
Construction Type (Check One): ☑ New ☐ Existing-Modified: ☐ Well ☐ Pump: Date_____		
Well Depth: 420 ft.	**Total Hole (borehole) Depth:** 420 ft.	**Depth to Bedrock:** ft.
Hole Size (Include reamed zones): 6 inches from 0 to 420 ft.		Inches from to ft.
Height of Casing above Land Surface: ft. 18 inches		
Casing Size (I.D.) and Materials: (below)	**Total Depth of Casing:** 56 ft.	
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
Screen Size & Mesh:		
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
Water Zones: from 77 to 78 ft.	from 219 to 221 ft.	from 400 to 401 ft.

Gravel Pack:

Size: Type:	from to ft.	Size: Type:	from to ft.

Grout Type:		**Grouting Method:**	**Type of Seal:**
☑ Bentonite Slurry ☐ Neat Cement ☐ Bentonite pellets/chips ☐ Concrete ☐ Neat Cement (6% bentonite)	from 0 to 50 ft.	☐ Poured from surface ☐ Poured through tremmie pipe ☑ Pumped from bottom upward	☑ pitless adapter ☐ sanitary seal
	from to ft.		

Camera Survey: ☐ Yes ☐ No	**Date Conducted:**
Additional Well Construction Form Information Attached: ☐ Yes ☐ No	

COMMONWEALTH OF VIRGINIA
UNIFORM WATER WELL COMPLETION REPORT

DEQ Well # _____
USGS Local # _____
VDH HDIN # _____
VDH PWSID # _____

Well designation, Name or Number*: _____

5. Disinfection

Well Disinfected: ☐ Yes ☐ No	**Date**:

6. Abandonment (*When abandoning the well, Sections 1 thru 4 must be completed and/or attach original GW-2)

Date Started:	**Date Completed**:
Static Water Level (unpumped level measured):	ft.
Casing Size (I.D.) and Materials:	**Casing Pulled:** ☐ Yes ☐ No ☐ Uncased Well
Depth of Fill:	**Type and Source of Fill:**
Grout: From to Type:	**From to Type:**
Method of permanently marking location:	

7. Pump Test**

Static Water Level (unpumped level measured): 40 ft.	
Date:	**Method (Check One):** ☐ Water Tape ☐ Airline ☐ Transducer ☐ Other
Stabilized measured pumping water level:	ft.
Date:	**Method (Check One):** ☐ Top of Well ☐ Top of Casing ☐ Surface Level
Test Pump Intake Depth: ft	**Stabilized Yield**: gpm after hours
Natural Flow: ☐ Yes ☐ No	Flow Rate 7 gpm
Estimated Well Yield: gpm	

8. Pump Data**

Type: ☐ submersible ☐ Turbine ☐ Shallow Jet ☐ Deep Jet ☐ Other: _____	**Motor HP**:
Production Pump Intake Depth: ft	**Rated Capacity**: gpm at ft TDH

9. Geologic Information

Type Logs:	**Aquifer Test Performed:**
Water Quality Results Attached: Yes No	

Comments:

Formation _____ Lithology _____ Province _____ Geologic Map Used _____

Elevation _____

For Office Use

COMMONWEALTH OF VIRGINIA
UNIFORM WATER WELL COMPLETION REPORT

DEQ Well # _____
USGS Local # _____
VDH HDIN # _____
VDH PWSID # _____

*Indicates required field or section
**Indicates required field or section, if applicable

10. Driller's Log (Use additional sheets if necessary)*

Well designation, Name or Number:					
Depth (feet)		Type of Rock or Soil	Remarks	Drilling Time (Min.)	Diagram of Well Construction (with dimensions)
From	To	(Color, material, fossils, hardness, etc.)	(Water, caving, cavities, etc.)		
0	52	Sandy Soil & Sandstone			
52	70	Brown Shale			
70	219	Blue Shale			
219	221	Brown Shale Streak			
221	420	Blue Shale			

11. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Signature*: _____ Date: 9/30/19

License Number: 2719000751

COMMONWEALTH OF VIRGINIA
UNIFORM WATER WELL COMPLETION REPORT

DEQ Well # ________
USGS Local # ________
VDH HDIN # ________
VDH PWSID # ________

*Indicates required field or section
**Indicates required field or section, if applicable

Additional Well Construction Data

(Use and submit only if additional space is needed)

12. Additional Well Construction Data

Well designation, Name or Number:		
Physical Location:	**Date Started:**	**Date Completed:**

Hole Size (Include reamed zones):

inches from to ft.	inches from to ft.	inches from to ft.
inches from to ft.	inches from to ft.	inches from to ft.
inches from to ft.	inches from to ft.	inches from to ft.

Casing Size (I.D.) and Materials:

inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.
inches from to ft. ☐ infilled	Material	Weight per ft. or wall thickness in.

Screen Size & Mesh:

inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type
inches from to ft. ☐ infilled	Mesh Size	Type

Water Zones:

From to ft.	From to ft.	From to ft.	From to ft.
From to ft.	From to ft.	From to ft.	From to ft.
From to ft.	From to ft.	From to ft.	From to ft.
From to ft.	From to ft.	From to ft.	From to ft.

Gravel Pack:

Size: Type:	From to ft.	Size: Type:	From to ft.
Size Type:	From to ft.	Size: Type:	From to ft.
Size: Type:	From to ft.	Size: Type:	From to ft.

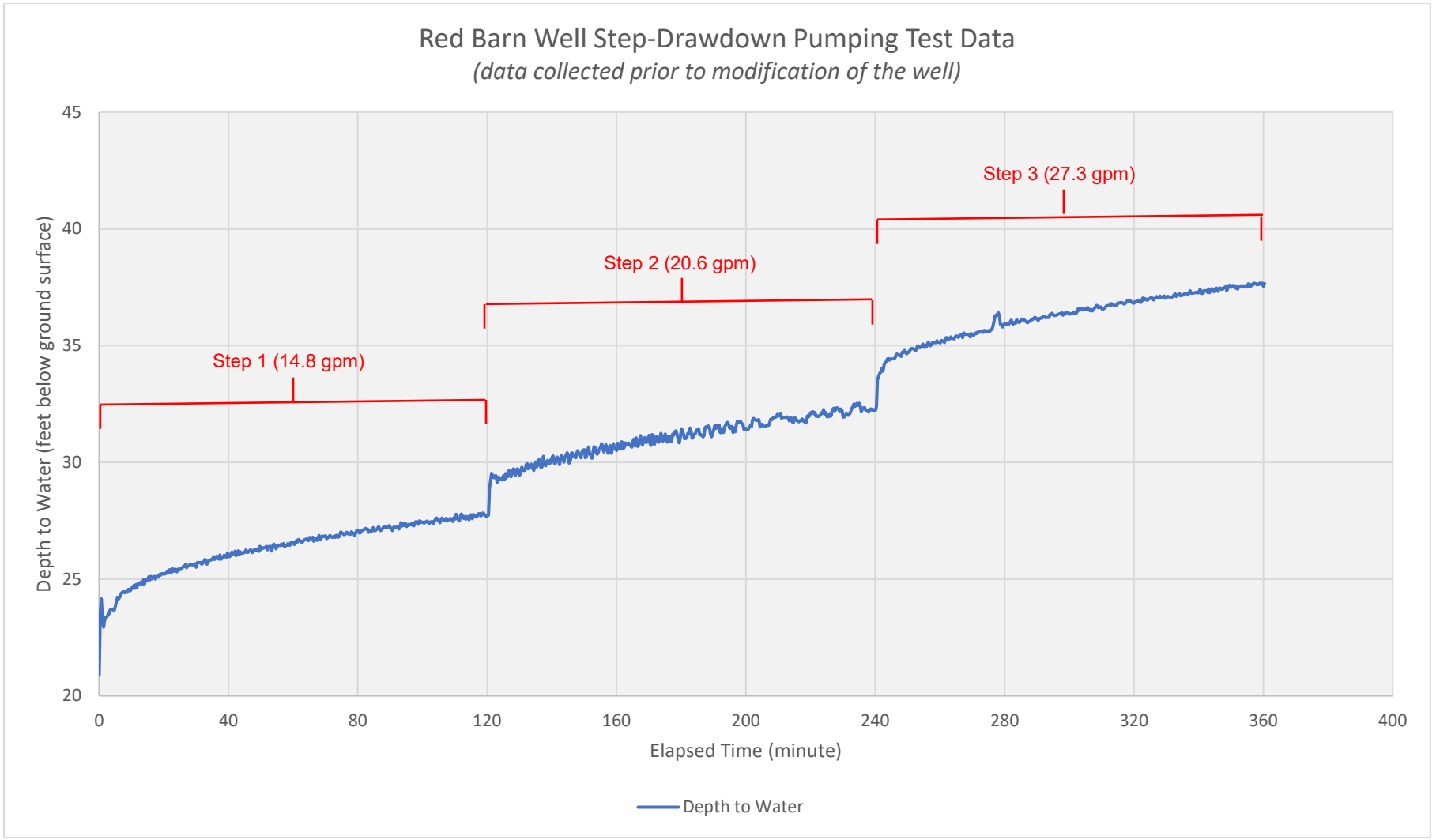
Grout Type: ☐ Bentonite Slurry ☐ Neat Cement ☐ Bentonite pellets/chips ☐ Concrete ☐ Neat Cement (6% bentonite)	from to ft. from to ft. from to ft.	**Grouting Method:** ☐ Poured from surface ☐ Poured through tremmie pipe ☐ Pumped from bottom upward

Appendix B

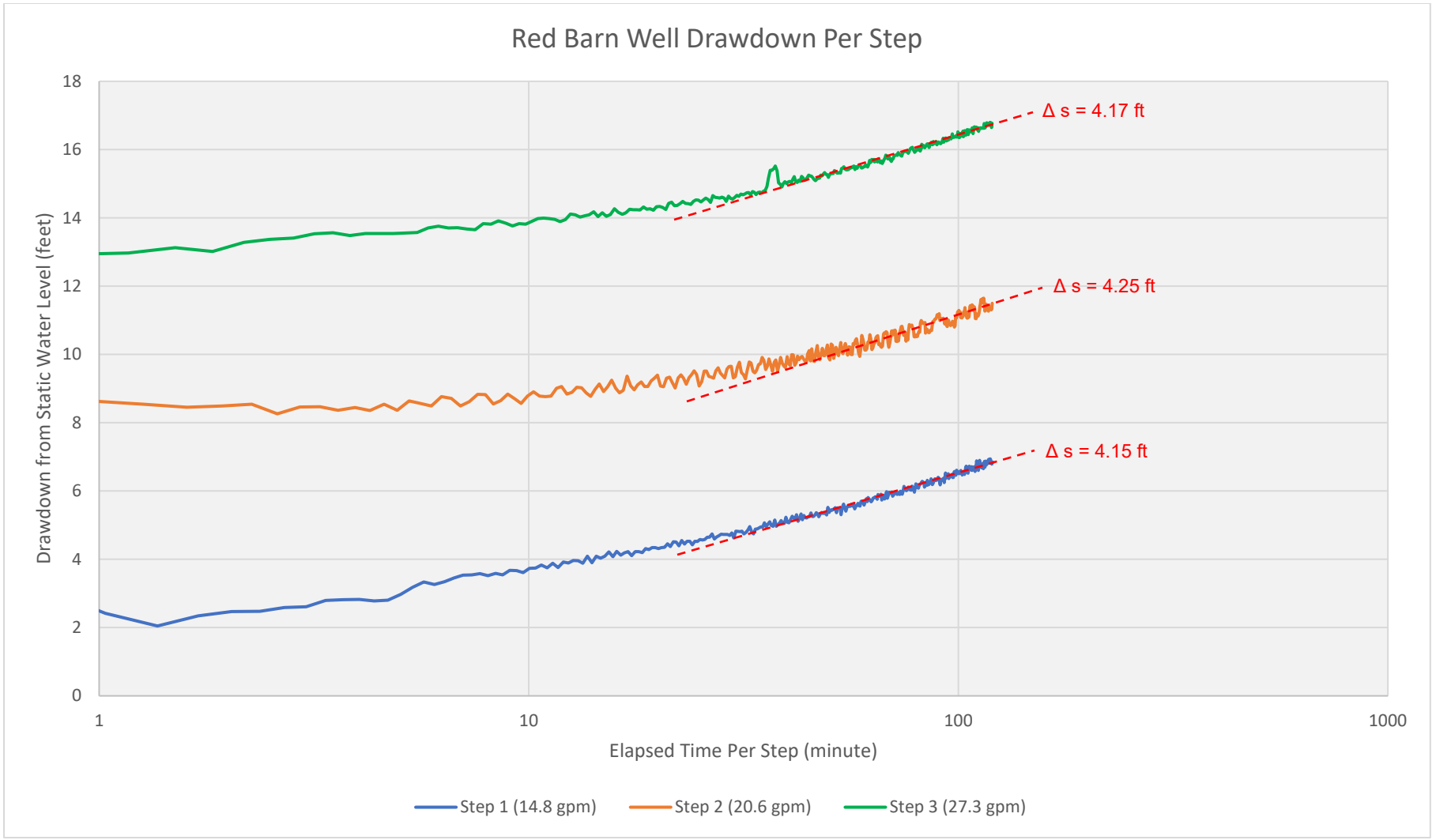
Red Barn Well & Well B Step-Drawdown Test Data Plots

Red Barn Well Step-Drawdown Pumping Test Plots

(test performed prior to construction modification)

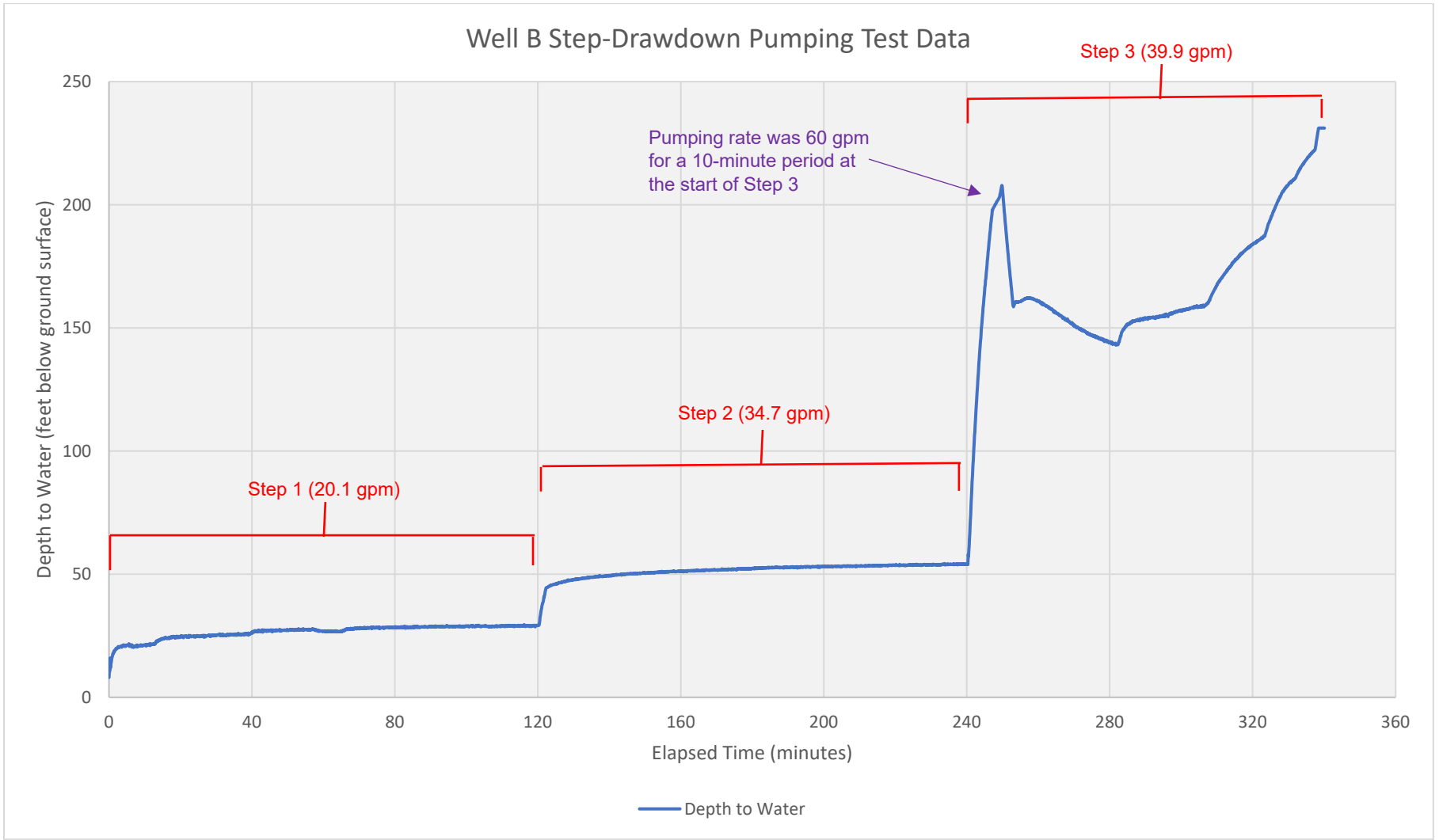


Graph B-1: Red Barn Well step-drawdown pumping test data. The test was performed prior to the well's casing modification and deepening in April 2023.

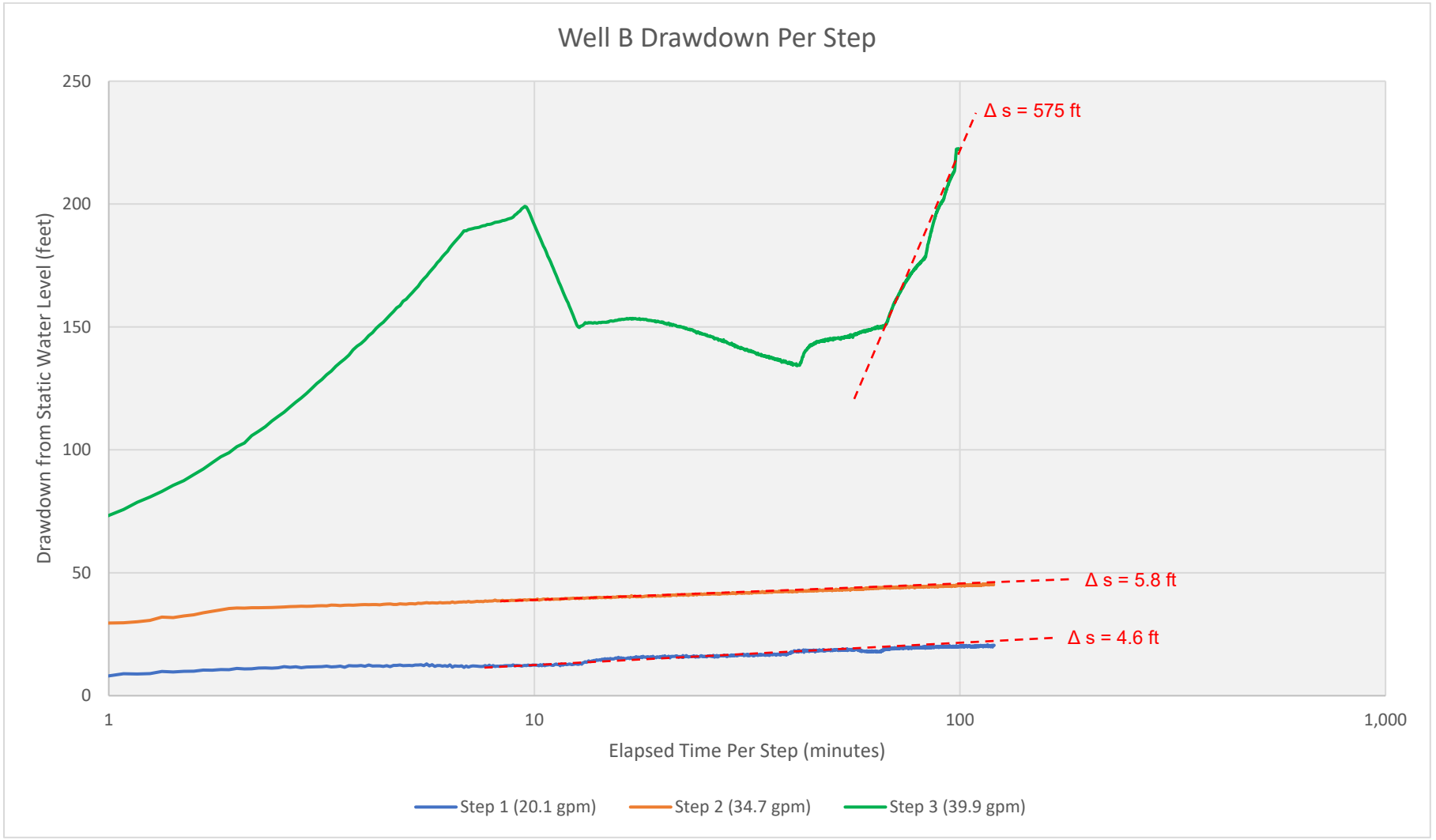


Graph B-2: Red Barn Well step-drawdown pumping test data on a per step basis. The test was performed prior to the well's casing modification and deepening in April 2023.

Well B Step-Drawdown Pumping Test Plots



Graph B-3: Well B step-drawdown pumping test data.



Graph B-4: Well B step-drawdown pumping test data on a per step basis.

Appendix C

Wells A & B VDH-ODW Site Approval Letter

COMMONWEALTH of VIRGINIA

DEPARTMENT OF HEALTH

OFFICE OF DRINKING WATER

Lexington Field Office

131 Walker Street
Lexington, VA 24450
Phone: 540-463-7136
Fax: 540-463-3892

SUBJECT: Albemarle County
Waterworks: Reventon Farms
PWSID No: Proposed

January 11, 2023

Mr. Thomas P. Nelson, P.G.
ECS Mid-Atlantic, LLC
4004 Hunterstand Court, #102
Charlottesville, VA 22911

Dear Mr. Nelson:

This letter provides the results of our December 21, 2022 inspection of the proposed well sites to serve Reventon Farms located in Albemarle County, Virginia. In accordance with the *Waterworks Regulations*, the following well site is tentatively approved by the Virginia Department of Health Office of Drinking Water (VDH-ODW) for the construction of a well to be utilized as a public drinking water supply:

Site 1 (WL001) & Site 2 (WL002)

The approval of the well site listed above expires 12 months from the date of this letter, and is subject to the conditions described in the attached Well Site Approval Conditions Form. This approval is limited to well drilling, casing, grouting, and testing of the well. If drilling of any well listed above has not commenced by the expiration date, a re-inspection of the well site is required.

Upon receipt of the required documentation and after plans and specifications have been approved, a Construction Permit will be issued by the State Health Commissioner in accordance with the *Waterworks Regulations*. Construction of the waterworks facilities shall not be started until the construction permit has been issued.

Some counties require a local well drilling permit and have other requirements that are in addition to those outlined in this letter or required by the Virginia Waterworks Regulations, and it is your responsibility to comply with the local requirements. Please contact the county health department and planning/zoning office before drilling the well.

Waterworks wells must be constructed by a Water Well Systems Provider certified by the Virginia Department of Professional and Occupational Regulation (DPOR). You may confirm licensure status by contacting DPOR or using the search tool on DPOR's website at the following address: http://www.dpor.virginia.gov/LicenseLookup/.

SUBJECT: Albemarle County
Waterworks: Reventon Farms
PWSID No: Proposed

Construction and development of waterworks wells must follow specific procedures. Please refer to the conditions below and our website at https://www.vdh.virginia.gov/drinking-water/permits-and-design/well-development-procedures/ for details.

A Preliminary Source Water Assessment (PreSWA) has been compiled for the proposed well. Attached you will find inventory, maps and summaries of land use and potential sources of contamination within the assessment area of the proposed well. Please take the time to review this information and contact me if you have any questions or corrections. This information may be used to generate a Source Water Protection Plan if desired. For assistance developing a Source Water Protection Plan, please contact sourcewater@vdh.virginia.gov.

Upon request, an electronic version of the Preliminary Source Water Assessment information may be emailed to you. If you or your consultant has GIS software, we can also provide a geodatabase to facilitate further work with the data. To learn more about our Source Water Assessment and Protection Programs, as well as eligibility for assistance and funding opportunities to implement source water protection measures, we encourage you to visit our website at the following address: http://www.vdh.virginia.gov/ODW/SourceWaterPrograms/index.htm.

Please contact Environmental Health Technical Specialist James Simmons at (540) 463-0413, or at James.simmons@vdh.virginia.gov if you have further questions.

Sincerely,

Steven J. Kvech, PE
Deputy Field Director

SJK/JWS/kk/230103-2
Enclosures:
Well Approval Conditions Form
Preliminary Source Water Assessments

cc: Albemarle County Health Department
Albemarle County Executive
Albemarle County Building Official

WELL APPROVAL CONDITIONS FORM

Approved Well(s)		Site #1 WL001	Site #2 WL002	-	-
Location:	Latitude:	37.87254° N	37.877819° N	-	-
	Longitude:	78.424837° W	78.42629° W	-	-
	Marked:	Orange Flag	-	-	-
Well Construction Class:	Class II. Refer to *Waterworks Regulations* 12VAC5-590-840 F.				
Approval Expiration Date:	January 11, 2024 If drilling of the well has not commenced by this date, re-inspection of the well site is required.				
Well Lot Characteristics:	Minimum distance of 50 feet between the well and all potential sources of contamination, property lines, and rights-of-way or easements on the property. Refer to *Waterworks Regulations* Sections 12VAC5-590-840 D & E. See attached (sketch, topographic map, photo, etc.).				
	The well lot must be graded as necessary to divert surface run-off from the well and to prevent ponding on the well lot.				
	The well must be located higher than the 100-year flood elevation or a lower elevation may be considered if it can be adequately shown that the well can be protected from flooding.				
Grouting:	Use neat cement grout, in accordance with *Waterworks Regulations* Section 12VAC5-590-840 G 5. Notify this office of the date and time that the well will be grouted. Provide this information as soon as possible so that a member of our staff may be present during grouting.				
Well Capacity Test	A yield and drawdown test must be run for at least: approved reduced time (no less than 24 hours) for noncommunity waterworks requiring 3 gpm or less over normal hours of operation. We recommended the pumping rate be controlled throughout the test to maximize the production from the well and to produce a stabilized pump water level for at least the last 6 hours of the yield test. Immediately following the yield and drawdown test the water level recovery in the well should be recorded for no less than 6 hours or until the well returns to its static water level, whichever occurs first. If water will discharge into streams during pumping tests, please contact the Department of Environmental Quality Valley Regional Office to determine if a discharge permit is required.				
Simultaneous Testing Required:	Not applicable, provided that all existing wells on the property will be properly abandoned per the *Waterworks Regulations*.				

Well in Groundwater Management Area:	Not Applicable.
Required Bacteriological, Chemical, and Physical Sampling:	A series of twenty bacteriological samples must be collected from the well discharge and submitted to a certified laboratory (DCLS or private laboratory) in order to determine the bacteriological quality of the raw groundwater. One bacteriological sample should be collected at minimum fifteen-minute intervals during the last five hours of the yield and drawdown test.
	Water samples must be collected and analyzed for nitrate + nitrite (combined) and nitrite-N. It is recommended that samples be analyzed for inorganic contaminants and metals also, to determine if water will result in objectionable taste, odor, color, or cause corrosion or calcium build up.
Submittals Required Prior to Issuance of Construction Permit:	Uniform Water Well Completion Report (Form GW-2) and schematic drawing(s) of well construction.
	Well yield, drawdown, and well recovery test results.
	Results of required bacteriological and chemical sampling (if not reported directly by laboratory).
	Construction permit application.
	Final construction plans and specifications, including design calculations, prepared by a licensed professional engineer. A Preliminary Engineering Report may be required prior to submission of final construction documents. Plans for construction permits for transient non-community waterworks may be exempt from the Professional Engineer licensure requirements under certain conditions.

PWSID: 2000000
Source ID: WL001
Facility: WL001
Waterworks: Reventon Farms

Swap Zone 1

Date: 1/3/2023

TINWSF_IS: 0.0
Jurisdiction: Albemarle
District:

All data is collected from multiple agencies using various collection methods. VDH does not guarantee the location and accuracy of these data and these data is intended as a reference source only. Map is projected in NAD_1983_Lambert_Conformal_Conic, scale and distances are approximate.

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov

Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

- Source
- Intake
- Well
- GUDIS

Floodplains
- 100 Year
- 500 Year

- Streams
- Contours
- Waterbodies

- Other PSC
- Mines - Other
- Mines - Abandoned
- Mines - Active
- Injection Wells
- Tire Piles
- Superfund

- Marinas
- Landfills
- Industrial
- Hospitals
- RCRA
- Golf Courses
- NPDES

- Petroleum Tank - Active
- Petroleum Tank - Closed
- Boat Ramps
- Airports
- Oil Gas Wells
- Impaired Streams
- Roads

- Rails
- Petroleum Pipeline
- Natural Gas Pipeline
- Electric Power Transmission Line
- Zone 1
- Zone 2

- Impaired Waterbodies
- Karst Area

PWSID: 2000000
Source ID: WL001
Facility: WL001
Waterworks: Reventon Farms

SWAP Zone 2

Date: 1/3/2023

TINWSF_IS: 0.0
Jurisdiction: Albemarle
District:

All data is collected from multiple agencies using various collection methods, VDH does not guarantee the location and accuracy of these data and these data is intended as a reference source only.
Map is projected in NAD_1983_Lambert_Conformal_Conic, scale and distances are approximate

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov

Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

- Source
- Intake
- Well
- GUDIS

Floodplains
- 100 Year
- 500 Year

- Streams
- Contours
- Waterbodies

- Other PSC
- Mines - Other
- Mines - Abandoned
- Mines - Active
- Injection Wells
- Tire Piles
- Superfund

- Marinas
- Landfills
- Industrial
- Hospitals
- RCRA
- Golf Courses
- NPDES

- Petroleum Tank - Active
- Petroleum Tank - Closed
- Boat Ramps
- Airports
- Oil Gas Wells
- Impaired Streams
- Roads

- Rails
- Petroleum Pipeline
- Natural Gas Pipeline
- Electric Power Transmission Line
- Zone 1
- Zone 2

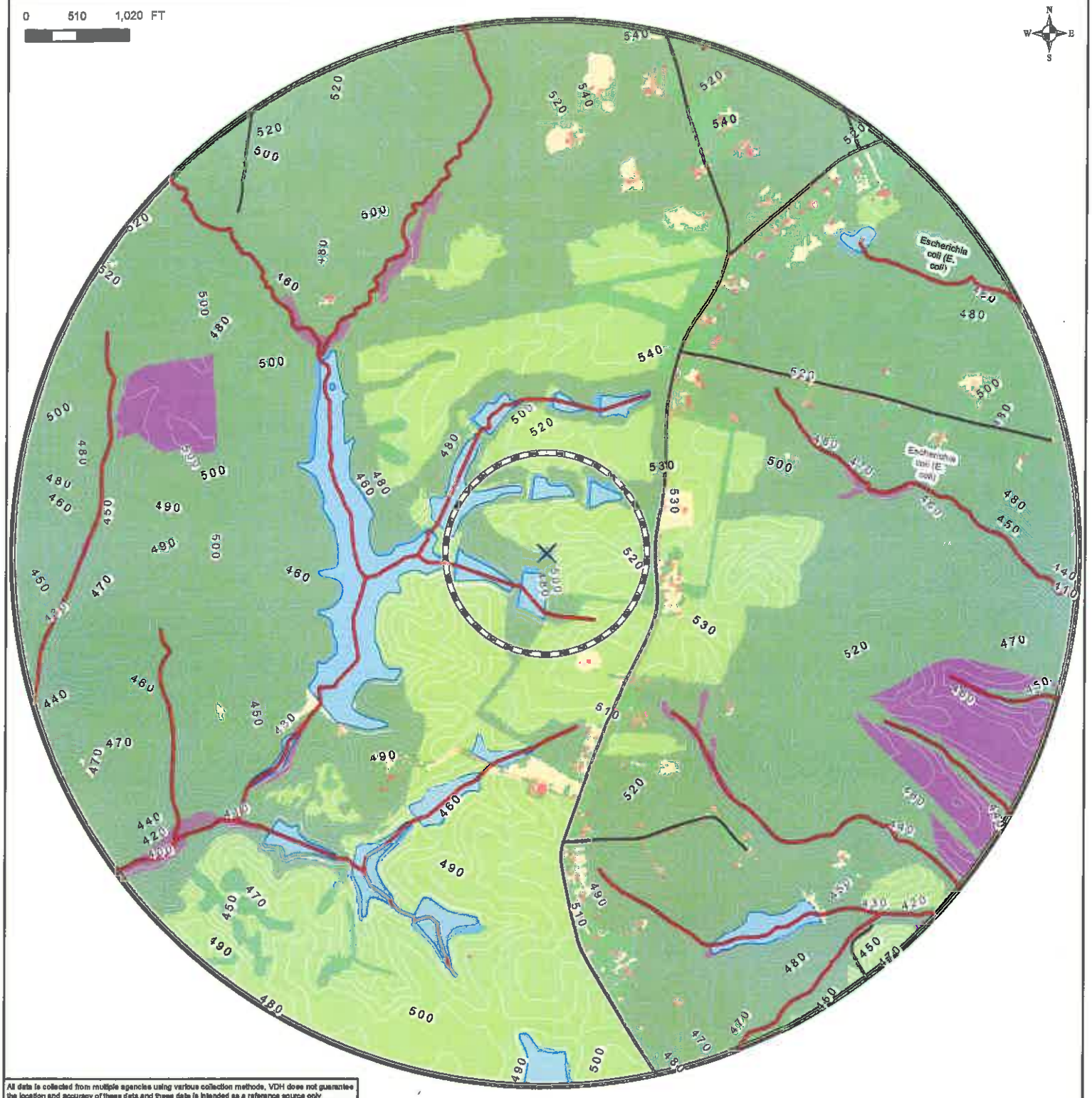
- Impaired Waterbodies
- Karst Area

PWSID: 2000000
Source ID: WL001
Facility: WL001
Waterworks: Reventon Farms

SWAP Zone 2 Land Use

Date: 1/3/2023

TINWSF_IS: 0.0
Jurisdiction: Albemarle
District:



All data is collected from multiple agencies using various collection methods, VDH does not guarantee the location and accuracy of these data and these data is intended as a reference source only
Map is projected in NAD_1983_Lambert_Conformal_Conic, scale and distances are approximate.

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Protecting You and Your Environment
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Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

- Source
- Intake
- Well
- GUDIS
- Zone 1
- Zone 2

- Roads
- Rails
- Impaired Streams
- Streams
- Contours
- Impaired Waterways
- Waterbodies

Land Use

- Additional Extracted Impervious
- Barren
- Crop
- Forest Harvest
- Hardwood Forest/Pine Forest/Mixed Forest
- Local Buildings/Roads/Pavement
- Pasture
- Scrub
- Trees
- Turf/Grass
- Water
- Wetland

VIRGINIA DEPARTMENT OF HEALTH - OFFICE OF DRINKING WATER

Potential Sources of Contamination Inventory

County/City: Albemarle Waterworks: Reventon Farms PWSID: 2000000 Source ID: WL001 Facility: WL001

Evaluated by: Date: Reviewed by: Date:

Map ID	Distance to Source (miles)	Contaminant Type	Facility Type	Property Owner/Business Name	Mailing Address/Location

VIRGINIA DEPARTMENT OF HEALTH - OFFICE OF DRINKING WATER

POTENTIAL SOURCES OF CONTAMINATION SUMMARY

County\City: Albemarle PWSID: 2000000 Source ID: WL001

Facility: WL001 Waterworks: Reventon Farms

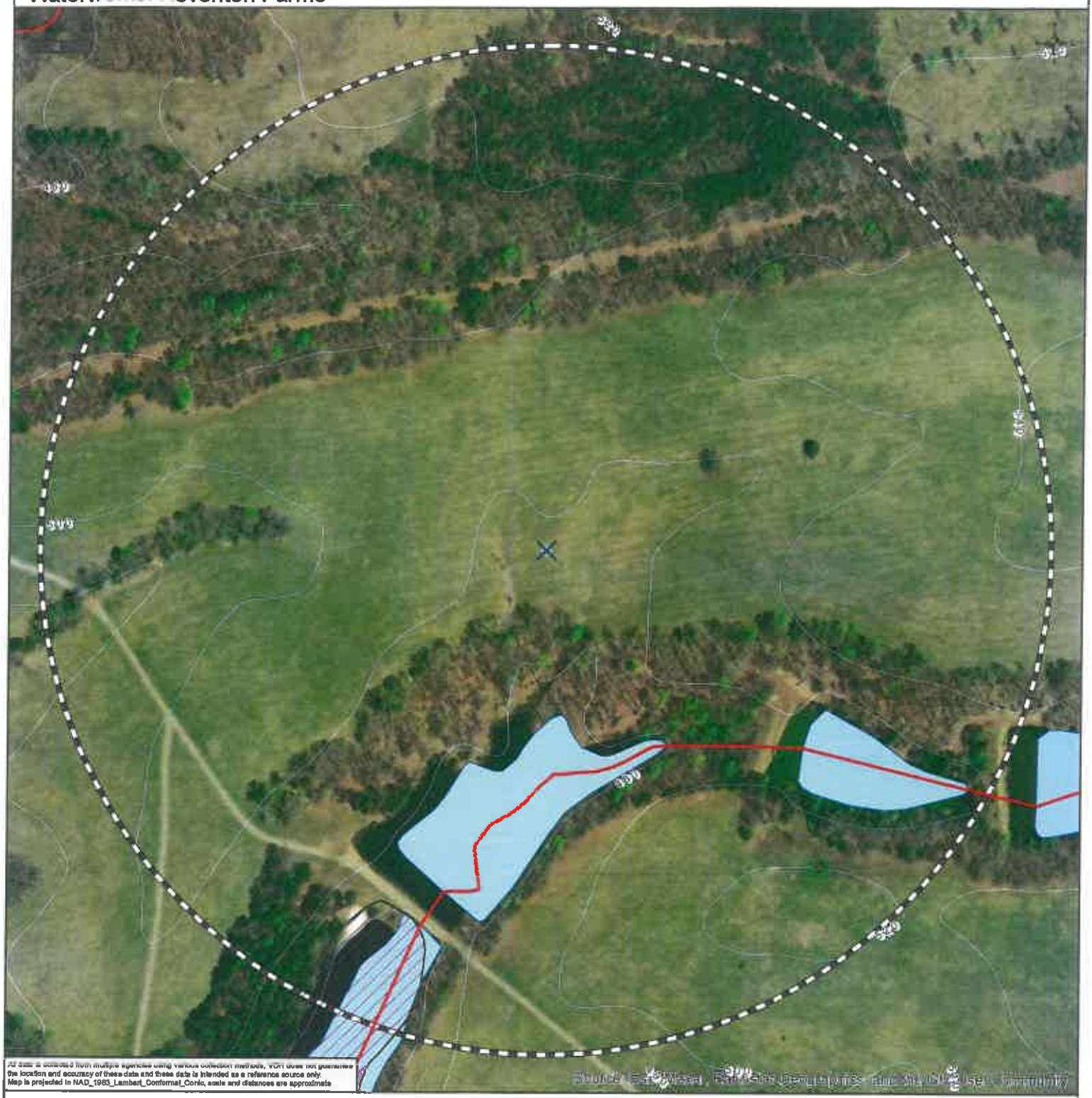
Facilty Type	Zone 1 Count	Zone 2 Count	Total
Sum	0	0	0

PWSID: 2000000
Source ID: WL002
Facility: WL002
Waterworks: Reventon Farms

Swap Zone 1

Date: 1/3/2023

TINWSF_IS: 0.0
Jurisdiction: Albemarle
District:



All data is collected from multiple agencies using various collection methods. VDH does not guarantee the location and accuracy of these data and these data is intended as a reference source only.
Map is projected in NAD_1983_Lambert_Conformal_Conic, scale and distances are approximate

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Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

- Source
- Intake
- Well
- GUDIS

Floodplains
- 100 Year
- 500 Year

- Streams
- Contours
- Waterbodies

- Other PSC
- Mines - Other
- Mines - Abandoned
- Mines - Active
- Injection Wells
- Tire Piles
- Superfund

- Marinas
- Landfills
- Industrial
- Hospitals
- RCRA
- Golf Courses
- NPDES

- Petroleum Tank - Active
- Petroleum Tank - Closed
- Boat Ramps
- Airports
- Oil Gas Wells
- Impaired Streams
- Roads

- Rails
- Petroleum Pipeline
- Natural Gas Pipeline
- Electric Power Transmission Line
- Zone 1
- Zone 2

- Impaired Waterbodies
- Karst Area

PWSID: 2000000
Source ID: WL002
Facility: WL002
Waterworks: Reventon Farms

SWAP Zone 2

Date: 1/3/2023

TINWSF_IS: 0.0
Jurisdiction: Albemarle
District:

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov

Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

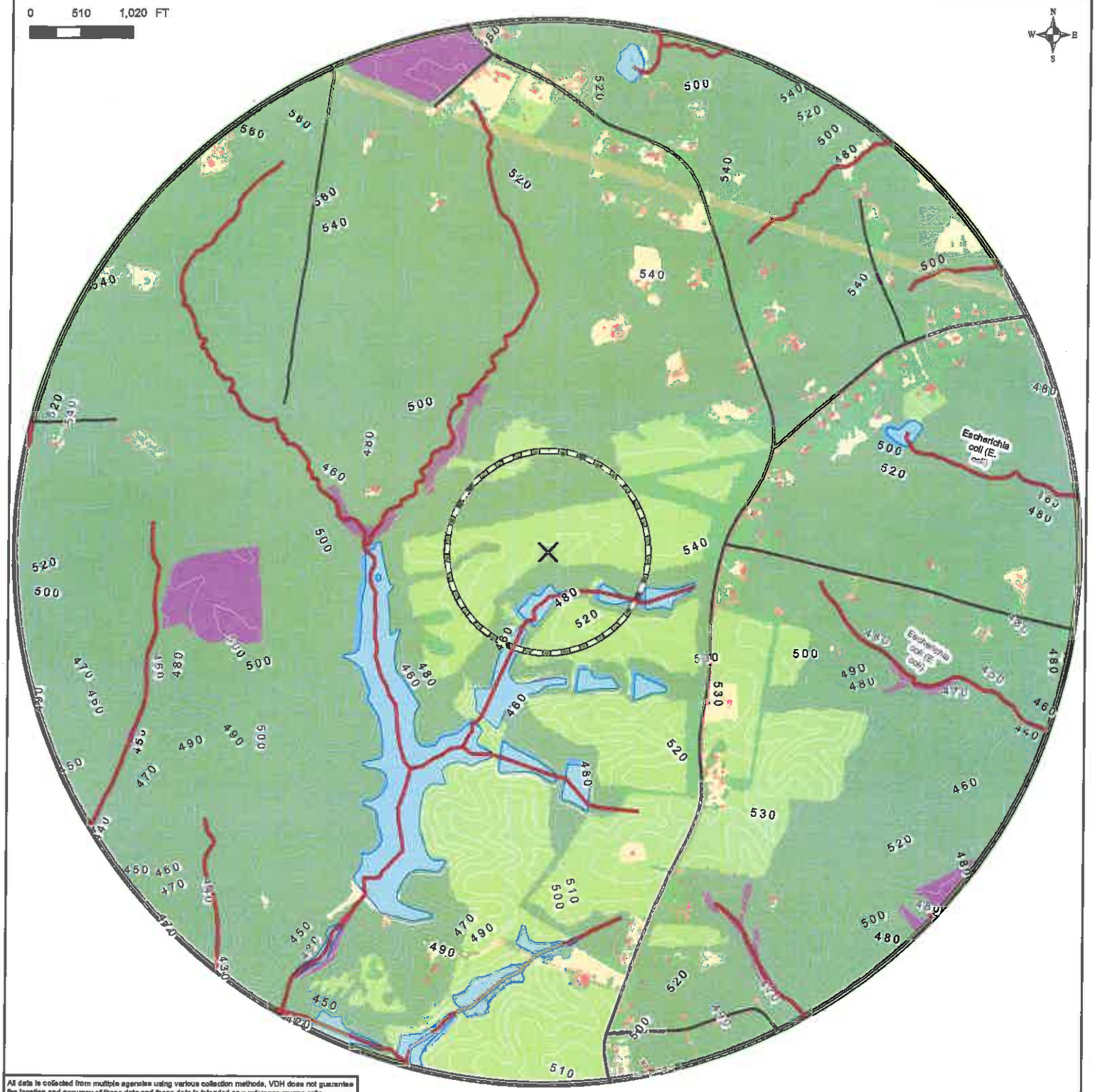
- Source
- Intake
- Well
- GUDIS
- Floodplains
- 100 Year
- 500 Year
- Streams
- Contours
- Waterbodies
- Other PSC
- Mines - Other
- Mines - Abandoned
- Mines - Active
- Injection Wells
- Tire Piles
- Superfund
- Marinas
- Landfills
- Industrial
- Hospitals
- RCRA
- Golf Courses
- NPDES
- Petroleum Tank - Active
- Petroleum Tank - Closed
- Boat Ramps
- Airports
- Oil Gas Wells
- Impaired Streams
- Roads
- Rails
- Petroleum Pipeline
- Natural Gas Pipeline
- Electric Power Transmission Line
- Zone 1
- Zone 2
- Impaired Waterbodies
- Karst Area

PWSID: 2000000
Source ID: WL002
Facility: WL002
Waterworks: Reventon Farms

SWAP Zone 2 Land Use

Date: 1/3/2023

TINWSF_IS: 0.0
Jurisdiction: Albemarle
District:



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VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
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Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

- Source
- Intake
- Well
- GUDIS
- Zone 1
- Zone 2

- Roads
- Rails
- Impaired Streams
- Streams
- Contours
- Impaired Waterways
- Waterbodies

Land Use

- Additional Extracted Impervious
- Barren
- Crop
- Forest Harvest
- Hardwood Forest/Pine Forest/Mixed Forest
- Local Buildings/Roads/Pavement
- Pasture
- Scrub
- Trees
- Turf/Grass
- Water
- Wetland

VIRGINIA DEPARTMENT OF HEALTH - OFFICE OF DRINKING WATER

Potential Sources of Contamination Inventory

County/City: Albemarle Waterworks: Reventon Farms PWSID: 2000000 Source ID: WL002 Facility: WL002

Evaluated by: Date: Reviewed by: Date:

Map ID	Distance to Source (miles)	Contaminant Type	Facility Type	Property Owner/Business Name	Mailing Address/Location

VIRGINIA DEPARTMENT OF HEALTH - OFFICE OF DRINKING WATER

POTENTIAL SOURCES OF CONTAMINATION SUMMARY

County\City: Albemarle PWSID: 2000000 Source ID: WL002

Facility: WL002 Waterworks: Reventon Farms

Facilty Type	Zone 1 Count	Zone 2 Count	Total
Sum	0	0	0

Appendix D

Information about Properties Located Within 1,000 Feet of the Subject Site

Well Locations on Offsite Properties within 1,000 Feet of the Subject Site

Offsite Property Address	Property County Location	Well Distance from Nearest Subject Site Supply Well (feet)	Nearest Subject Site Supply Well
6089 Rolling Rd S	Fluvanna	350	Red Barn Well
6018 Rolling Rd S	Fluvanna	420	Red Barn Well
6066 Rolling Rd S	Fluvanna	460	Red Barn Well
5978 Rolling Rd S	Fluvanna	500	Red Barn Well
6133 Rolling Rd S	Fluvanna	520	Red Barn Well
6167 Rolling Rd S	Fluvanna	680	Red Barn Well
5890 Rolling Rd S	Fluvanna	700	Red Barn Well
5922 Rolling Rd S	Fluvanna	730	Red Barn Well
151 Blue Mountain Ln	Fluvanna	910	Red Barn Well
5842 Rolling Rd S	Fluvanna	1,070	Red Barn Well
6224 Rolling Rd S	Fluvanna	1,210	Red Barn Well
6278 Rolling Rd S	Fluvanna	1,320	Red Barn Well
5826 Rolling Rd S	Fluvanna	1,320	Red Barn Well
6285 Rolling Rd S	Fluvanna	1,330	Red Barn Well
144 Blue Mountain Ln	Fluvanna	1,400	Red Barn Well
5750 Rolling Rd S	Fluvanna	1,520	Red Barn Well
5738 Rolling Rd S	Fluvanna	1,580	Red Barn Well
5696 Rolling Rd S	Fluvanna	1,740	Red Barn Well
1421 Little Wyoming Ln	Albemarle	1,830	Well B
6826 Rolling Rd S	Fluvanna	1,870	Well B
5668 Rolling Rd S	Fluvanna	1,920	Red Barn Well
6876 Rolling Rd S	Fluvanna	1,940	Well B
6294 Rolling Rd S	Fluvanna	1,940	Red Barn Well
6992 Rolling Rd S	Albemarle/Fluvanna	2,080	Well B
55 Blueberry Hill Dr	Albemarle/Fluvanna	2,110	Well B
6692 Rolling Rd S	Fluvanna	2,110	Well B
5542 Rolling Rd	Albemarle	2,180	Well B
7022 Rolling Rd S	Albemarle/Fluvanna	2,190	Well B
5540 Rolling Rd	Albemarle	2,310	Well B
6652 Rolling Rd S	Fluvanna	2,320	Well B
6804 Rolling Rd S	Fluvanna	2,360	Well B
7058 Rolling Rd S	Albemarle/Fluvanna	2,390	Well B
7084 Rolling Rd S	Albemarle/Fluvanna	2,420	Well B
5600 Rolling Rd	Albemarle	2,440	Well B
5572 Rolling Rd S	Fluvanna	2,450	Red Barn Well
6512 Rolling Rd S	Fluvanna	2,530	Red Barn Well
5578 Rolling Rd	Albemarle	2,630	Well B
6422 Rolling Rd S	Fluvanna	2,650	Red Barn Well
5566 Rolling Rd	Albemarle	2,720	Well B
8 Ruritan Lake Rd	Albemarle/Fluvanna	2,770	Well B

16 Ruritan Lake Rd	Albemarle/Fluvanna	2,860	Well B
5518 Rolling Rd S	Fluvanna	2,880	Red Barn Well
25 Ruritan Lake Rd	Albemarle/Fluvanna	2,990	Well B
22 Ruritan Lake Rd	Albemarle/Fluvanna	3,000	Well B
6798 Rolling Rd S	Fluvanna	3,020	Well B
250 Blueberry Hill Dr	Fluvanna	3,080	Well B
26 Ruritan Lake Rd	Albemarle/Fluvanna	3,120	Well B
5575 Rolling Rd	Albemarle	3,190	Well B
5563 Rolling Rd	Albemarle	3,200	Well B
5438 Rolling Rd S	Fluvanna	3,270	Red Barn Well
34 Ruritan Lake Rd	Albemarle/Fluvanna	3,300	Well B
187 Briery Creek Rd	Fluvanna	3,300	Red Barn Well
40 Ruritan Lake Rd	Fluvanna	3,410	Well B
139 Briery Creek Rd	Fluvanna	3,430	Red Barn Well
42 Ruritan Lake Rd	Fluvanna	3,490	Well B
45 Briery Creek Rd	Fluvanna	3,540	Red Barn Well
5352 Rolling Rd S	Fluvanna	3,750	Red Barn Well
5303 Rolling Rd S	Fluvanna	3,920	Red Barn Well
145 Branch Rd	Fluvanna	4,050	Red Barn Well
5266 Rolling Rd S	Fluvanna	4,110	Red Barn Well
509 Briery Creek Rd	Fluvanna	4,180	Red Barn Well
53 Branch Rd	Fluvanna	4,310	Red Barn Well
2349 Moore Ln	Albemarle	4,330	Well B
111 Branch Rd	Fluvanna	4,440	Red Barn Well
5171 Rolling Rd S	Fluvanna	4,520	Red Barn Well
1556 Briery Creek Rd	Albemarle	7,450	Red Barn Well

Appendix E

Available Well Records of Proximal Offsite Properties

Ed- 962-9857

1421 Little Wyoming Ln.

HANSON

Commonwealth of Virginia
Uniform Water Well Completion Report

Owner Taylor Lyn Homes
Address _____
_____
Phone _____
Location Woodridge Est.

Tax Map ID _____
VDH Permit _____
VWCB Permit _____
VWCB ID _____
County _____

Well Data

General Information
Drilling Method Rotary
Depth to Bedrock 100
Static Water Level 30
Well Disinfected (YorN) _

Date Completed 8/13/97
Yield 8. (GPM)
Stabilized Water Level _____
Disinfectant Used _____

Total Depth of Well 230
Length of Test _____
Natural Flow (Rate) 8GPM
Amount Used _____

Casing

From	to	Material	Weight/Schedule
0	67	PVC	PVC

Size	
6"/4	

Gravel Pack

From	to

Grout

From	to	Bore Hole Size	Type	Method
0	50	10	Bentonite	Pump

Water Zones or Screened Intervals

From	to	Mesh Size	Diam.
110	111		

Use Data

Private Well: Domestic ✓ Agricultural ____ Industrial ____ Monitoring ____
Public Well: Community ____ Non Community ____

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NOV 17 1997
ENVIRONMENTAL HEALTH

Drillers Log
(Use additional sheets if necessary)

Depth	Description of Formation or Sediment	Remarks
0-10	Red Clay	
10-40	Sandy Soil	
40-60	Brown Shale	
60-230	Blue Shale	

I certify that the information contained here is true and that this well was installed and constructed in accordance with the permit and further that the well complies with all applicable state and local regulations, ordinances and laws.

Drilling Contractor Wilson Well & Pump Co.
Address 109 Buck Mtn. Rd.
Earlysville, Va. 22936
Phone 974-1982

Drillers Signature Joe Wilson Date 8/13/97
Representing Wilson Well & Pump Co.
Virginia Contractors License Number 2705-028506

5600 Rolling Rd. South

Commonwealth of Virginia
Uniform Water Well Completion Report

Owner: Barry Meade Homes | Tax Map ID#: 118-16T

Address: 140 S Pantops Dr suite 200 Charlottesville VA 22911 | VDH Permit #: 101-07-0042

Phone: 434-977-8882 | WWCB#:

Location: Woodridge Estates lot 21 | County: Albemarle

Well Data

General Information

Drilling Method: Rotary | Date Completed: 12/27/07 | Total Depth: 320
Depth to Bedrock: 80 | Yield: 3 | Length of Test: 1hr
Static Water Level: 40 | Stabilized Water Level: | Natural Flow: 3
Well Disinfected: | Disinfectant Used: | Amount Used:

Casing

From: 0 to 91 | From: to
Size: 6 1/4 Material: PVC | Size: Material:
Weight/Schedule: 80 | Weight/Schedule:

Gravel Pack

From: to | From: to | From: to

Grout

From 0 to 20 | From to | From to
Bore Hole Size: 10" | Bore Hole Size: | Bore Hole Size:
Type: Bentonite | Type: | Type:
Method: pump | Method: | Method:

Water Zones or Screened Intervals

From 135 to 140 | From to
Mesh Size Diam | Mesh Size Diam
From to | From to
Mesh Size Diam | Mesh Size Diam

Private Well: Domestic ✓ Agricultural Industrial Monitoring
Public Well: Community Non-Community

RECEIVED
JAN 02 2008
J Barker
ENVIRONMENTAL HEALTH

Driller's Log

0-10	Red Clay	
10-30	Yellow sand	
30-60	Brown sand	
60-90	Yellow + brown sand	
90-320	Blue & white rock	

I certify that the information contained here is true and that this well was installed and constructed in accordance with the permit and further that the well complies with all applicable state and local regulations, ordinances, and laws.

Name: Wilson Well Drilling, Inc.
Address: POB 729
Ruckersville VA 22968
Phone: 434-990-2010

Authorized Signature: Courtney Mauk
Date: 12/27/07 **Representing: Wilson Well Drilling, Inc.**

Virginia Contractors License Number: 2705028506

6512 Rolling Rd. South

Commonwealth of Virginia
Uniform Water Well Completion Report

Owner: Randy Baker
Address: _____
Phone: 434-953 5823
Location: Rt 620

Tax Map ID _____
VDH Permit _____
VWCB Permit _____
VWCB ID _____
County _____

* Well Data *

General Information
Drilling Method Air Rotary
Depth to Bedrock 45
Static Water Level _____
Well Disinfected (Y or N) _____

Date Completed 7-6-19
Yield 3 (GMP)
Stabilized Water Level 285
Disinfectant Used _____

Total Depth of Well 305
Length of Test _____
Natural Flow (Rate) _____
Amount Used _____

Casing
From 1' Above To 47'
Size 6 5/8 Material PVC
Weight/Schedule 17.6

From _____ To _____
Size _____ Material _____
Weight/Schedule _____

From _____ To _____
Size _____ Material _____
Weight/Schedule _____

Gravel Pack
From _____ To _____

From _____ To _____

From _____ To _____

Grout
From 0 To 20'
Bore Hole Size 10
Type Bentonite
Method Pour

From _____ To _____
Bore Hole Size _____
Type _____
Method _____

From _____ To _____
Bore Hole Size _____
Type _____
Method _____

Water Zones or Screened Intervals
From 55 To 56
Mesh Size _____ Diam _____
From 85 To 89
Mesh Size _____ Diam _____

From _____ To _____
Mesh Size _____ Diam _____
From _____ To _____
Mesh Size _____ Diam _____

From _____ To _____
Mesh Size _____ Diam _____
From _____ To _____
Mesh Size _____ Diam _____

* Use Data *

Private Well: Domestic ✓ Agricultural _____ Industrial _____ Monitoring _____
Public Well: Community _____ Non-community _____

* Abandonment Information *

Bored or Dug Wells
Casing Removed, Y or N? _____
If Y, Depth to which casing was removed: _____
Depth and Type of Fill: _____
Source of Fill _____
Bentonite Plugs: From _____ to _____ From _____ to _____

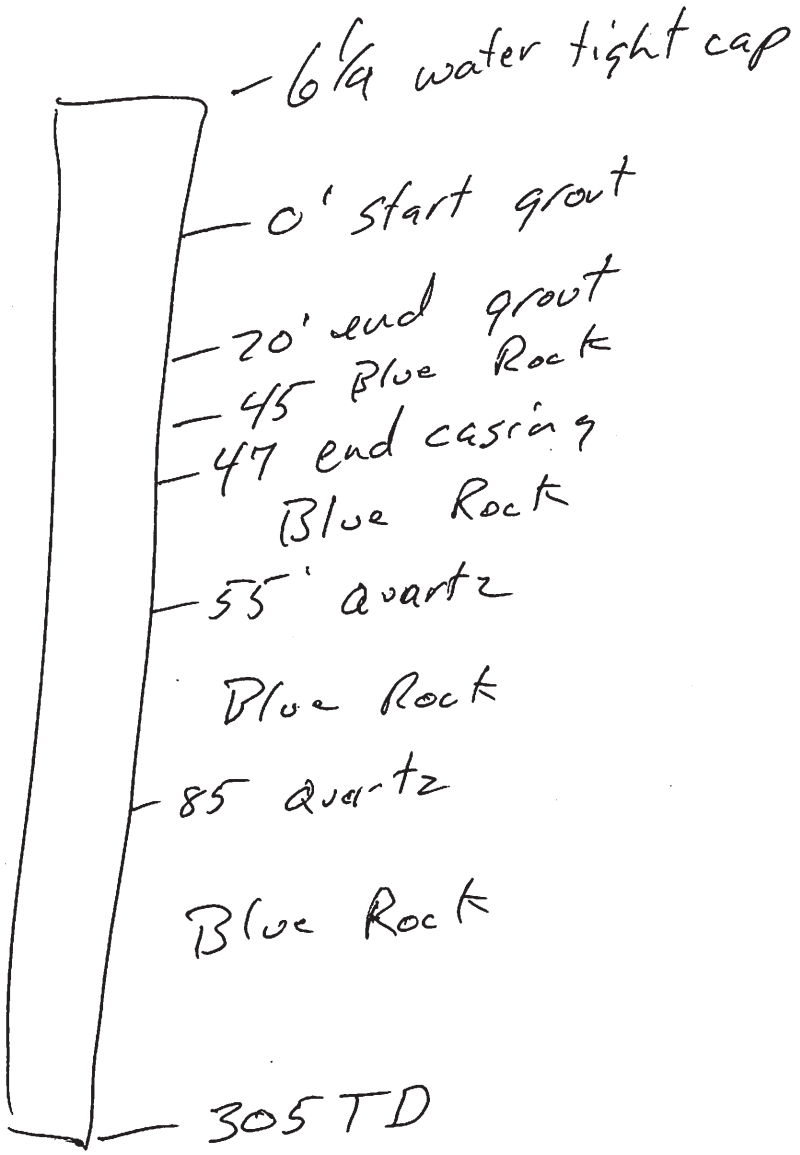
Wells other than Bored Wells
Casing removed, Y or N? _____
Depth to which casing was removed: _____
Applicable, depth(s), and type of gravel/sand fill: _____
Source of gravel or sand: _____
Cement: From _____ to _____ From _____ to _____

Method of permanently marking location: _____

RECEIVED
OCT 01 2019
Fluvanna County
Health Department
BY: _____
Facility Name: _____

*** Drillers Log ***

Depth	Description of Formation or Sediment	Remarks



(Use Additional Sheets if necessary)

I certify that the information contained here is true and that this well was installed and constructed in accordance with the permit and further that the well complies with all applicable state and local regulations, ordinances and laws.

Name Steven Leuhever
Address 548 Gold Mine Rd Palmyra Va
Phone 434 987 9886
Drillers Signature
Date 7-6-19 Representing SDC Drilling
Virginia Contractors License Number 2705073484

6652 Rolling Rd. South

Commonwealth of Virginia
Uniform Water Well Completion Report

Owner I & J Home Builders/ Marlove
Address 21708 James Madison Highway
Troy, VA 22974
Phone 591-1100
Location Baker Estate Rolling Rd 0.2 M S of Blueberry Hill Lot 3

Tax Map ID 26(14)3
VDH Permit 132-10-0057
VWCB Permit
VWCB ID
County Fluvanna

" Well Data "

General Information
Drilling Method Air Rotary
Depth to Bedrock 95
Static Water Level 75 FT 120'
Well Disinfected (Y or N) YES

Date Completed 7/2/10
Yield 10 (GPM)
Stabilized Water Level 30'
Disinfectant Used Chlorine Tabs

Total Depth of Well 185'
Length of Test 1 Hr
Natural Flow (Rate) 10 GPM
Amount Used 2 Cups

Casing
From 0 To 45'
Size 6.25 Material PVC
Weight/Schedule 40

From ____ To ____
Size ____ Material ____
Weight/Schedule ____

From ____ To ____
Size ____ Material ____
Weight/Schedule ____

Gravel Pack
From ____ To ____

From ____ To ____

From ____ To ____

Grout
From 0 To 40'
Bore Hole Size 10"
Type Bentonite
Method pumped

From ____ To ____
Bore Hole Size ____
Type ____
Method ____

From ____ To ____
Bore Hole Size ____
Type ____
Method ____

Water Zones or Screened Intervals
From ____ To ____
Mesh Size ____ Diam ____
From ____ To ____
Mesh Size ____ Diam ____

From ____ To ____
Mesh Size ____ Diam ____
From ____ To ____
Mesh Size ____ Diam ____

From ____ To ____
Mesh Size ____ Diam ____
From ____ To ____
Mesh Size ____ Diam ____

" Use Data "

Private Well: Domestic ✓ Agricultural ____ Industrial ____ Monitoring ____
Public Well: Community ____ Non Community ____

" Abandonment Information "

Bored or Dug Wells
Casing Removed, Y or N? ____
If Y, Depth to which casing was removed: ____
Depth and Type of Fill: ____
Source of Fill ____
Perforate Pipe: From ____ to ____ From ____ to ____

Wells other than Bored Wells
Casing removed, Y or N? ____
Depth to which casing was removed: ____
Applicable, depth(s), and type of gravel and fill: ____
Source of gravel or sand: ____
Cement: From ____ to ____ From ____ to ____

Method of permanently marking location: ____

"Drillers Log"

Depth	Description of Formation or Sediment	Remarks
40'	Grout to Surface	
42'	Bedrock - Grey Shale	
45'	Bottom of Casing Borehole	
75'	Water Bearing Fracture Zone	
120'	Water Bearing Fracture Zone	
185'	Bottom of Borehole	

(Use additional Sheets if necessary)

I certify that the information contained here is true and that this well was installed and constructed in accordance with the permit and further that the well complies with all applicable state and local regulations, ordinances and laws.

Name Robert E Tingley
Address P.O Box 6238
Charlottesville Va. 22906
Phone 434-989-0123
Drillers Signature Robert E Tingley
Date 7/6/10 Representing CED
Virginia Contractors License Number #2705-020073
DPOR # 2719 000079

6692 Rolling Rd. South

Form GW-2
Revised 7/1/2015
Page 1 of 4

COMMONWEALTH OF VIRGINIA
UNIFORM WATER WELL COMPLETION REPORT

DEQ Well # _____
USGS Local # _____
VDH HDIN # 132-16-0010
VDH PWSID # _____

1. Contact Information

Contact:	Name	Address	Phone
Owner	Rock Properties, LLC	902 Highland Drive Howardsville VA 24562	804-678-9508
Driller	Twin Creek Well Drilling Roger Luckado	2270 James River Rd. Esmont VA. 22937	434-987-4232
System Provider	2705-121-691		

2. Well Location

Physical Address: adjacent to 6652 Rolling Rd.		**County/City:** Fluvanna	
Subdivision Name: J.R. Baker Estate	**Section:**	**Block:**	**Lot:** G
Tax Map/GPIN #: 26-14-3		**Well Designation or Number:**	
Latitude: N		**Longitude:** W	
Datum Source	**Horizontal:** ☐ WGS84 ☐ NAD83 ☐ NAD27	**Vertical:** ☐ NGVD29 ☐ NAVD88	
Lat/Long Source (Check One): ☐ Map ☐ GPS ☐ PPDGPS ☐ Survey ☐ Imagery ☐ WASS			
Location Information Collected By :			
Physical Location Description:			

3. Facility & Use

Type of Facility (Check One):	Type of Use (Check All That Apply):		
☐ Waterworks	☒ Drinking/Domestic Use	☐ Food Processing	☐ Cooling/Heating
☐ Observation/Monitoring Well	☐ Agricultural	☐ Manufacturing	☐ Injection
☒ Private Well	☐ Irrigation	☐ Fire Safety	☐ Geothermal

4. Well Construction

Well designation, Name or Number:			
Date Started: 3-23-16	**Date Completed:** 3-31-16	**Type Rig:** Churn	
Class Well (Check One): ☐ I ☐ IIA ☐ IIB ☐ IIIA ☐ IIIB ☒ IIIC ☐ IIID ☐ IIIE ☐ IV			
Construction Type (Check One): ☒ New ☐ Existing-Modified			
Well Depth: 100 ft.	**Borehole Depth:** 20 ft.	**Depth to Bedrock:** 40 ft.	
Hole Size (Include reamed zones): 10 inches from 0 to 20 ft.	6 3/8 Inches from 20 to 100 ft.		
Height of Casing above Land Surface: 2 ft. inches			
Casing Size (I.D.) and Materials: (below)	Total Depth of Casing: 47 ft.		
6 4/4 inches from +2' to 47 ft.	Material PVC	Weight per ft. 27.6	or wall thickness in.
inches from to ft.	Material	Weight per ft.	or wall thickness in.
inches from to ft.	Material	Weight per ft.	or wall thickness in.
inches from to ft.	Material	Weight per ft.	or wall thickness in.
inches from to ft.	Material	Weight per ft.	or wall thickness in.
Screen Size & Mesh:			
inches from to ft.	Mesh Size	Type	
inches from to ft.	Mesh Size	Type	
inches from to ft.	Mesh Size	Type	
Water Zones: from 50' to Too much water to Know ft.	from to ft.	from to ft.	
Gravel Pack: from to ft.	from to ft.	from to ft.	
Grout Type: from Surface to 20 ft.	**Grouting Method:** Pour	**Type of Seal:** Bentonite	
This information was collected by Camera Survey: ☐ Yes ☒ No	**Date Conducted:**		
Additional Well Construction Form Information Attached: ☐ Yes ☐ No			

Form GW-2
Revised 7/1/2015
Page 2 of 4

COMMONWEALTH OF VIRGINIA
UNIFORM WATER WELL COMPLETION REPORT

DEQ Well # _____
USGS Local # _____
VDH HDIN # 132-16-0010
VDH PWSID # _____

Well designation, Name or Number: _____

5. Disinfection

Well Disinfected: ☐ Yes ☒ No	**Date:**

6. Abandonment (*When abandoning a well, Sections 1 thru 6 are required to be completed)

Date Started:	**Date Completed:**	**Type Rig:**
Static Water Level (unpumped level measured): ft.		
Casing Size (I.D.) and Materials:		**Casing Pulled:** ☐ Yes ☐ No ☐ Uncased Well
Depth of Fill:	**Type and Source of Fill:**	
Grout: From to Type:	**From to Type:**	
Method of permanently marking location:		

7. Pump Test

Static Water Level (unpumped level measured): 17 ft.				
Date: 3-31-16	**Method (Check One):** ☒ Water Tape	☐ Airline	☐ Transducer	☐ Other
Stabilized measured pumping water level: 22 ft.				
Date: 3-31-16	**Method (Check One):** ☐ Top of Well	☐ Top of Casing	☒ Surface Level	
Test Pump Intake Depth: ft	**Stabilized Yield:** gpm after hours			
Natural Flow: ☒ Yes ☐ No	Flow Rate 20+ gpm			

8. Pump Data

Type:	**Motor HP:**
Production Pump Intake Depth: ft	**Rated Capacity:** gpm at ft TDH

9. Geologic Information

Formation:	**Type Logs:**
Lithology:	**Cuttings:**
Province:	**Aquifer Test Performed:**
Geologic Map Used:	
Water Quality Results Attached: Yes No	

Comments:

Form GW-2
Revised 7/1/2015
Page 3 of 4

COMMONWEALTH OF VIRGINIA
UNIFORM WATER WELL COMPLETION REPORT

DEQ Well # _____
USGS Local # _____
VDH HDIN # 132-16-0010
VDH PWSID # _____

10. Driller's Log (Use additional sheets if necessary)

Well designation, Name or Number:

Depth (feet) From	Depth (feet) To	Type of Rock or Soil (Color, material, fossils, hardness, etc.)	Remarks (Water, caving, cavities, etc.)	Drilling Time (Min.)	Diagram of Well Construction (with dimensions)
0	10'	Redish Brown Dirt			Water tight Seal
10'	40'	Brown Dirt/white rock & shale mixture			Ground Surface
40'	100'	Rock Blue/white mixture	Set Casing 47'		0-10' Redish Brown Dirt 10'-40' Brown Dirt/Rock mix. Set Casing 47' 40'-100' Rock- Blue/white mix T.D. 100'

I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the applicable permit and further that the well complies with all applicable federal, state and local regulations, ordinances and laws.

Signature: Roger Jackson Date: 3-31-16

License Number: 2705-121-691

6826 Rolling Rd. South

Form GW-2
1978—20,000

COMMONWEALTH OF VIRGINIA
WATER WELL COMPLETION REPORT

• BWCM No. _____

(Certification of Completion/County Permit)

State Water Control Board
P. O. Box 11143
2111 North Hamilton St.
Richmond, Va. 23230

SWCB Permit _____
County Permit _____
Certification of inspecting official:
This well does ____ does not ____ meet code/low requirements.
S. _____
Date _____
For Office Use

County/City FLUVANNH
County/City Stamp

• Virginia Plane Coordinates
_____ N
_____ E
Latitude & Longitude
_____ N
_____ W
• Topo. Map No. _____
• Elevation _____ ft.
• Formation _____
• Lithology _____
• River Basin _____
• Province _____
• Type Logs _____
• Cuttings _____
• Water Analysis _____
• Aquifer Test _____

• Owner RALPH BAKER
• Well Designation or Number _____
Address RT 2
SCOTTSVILLE, VA
Phone 286-2569

• Drilling Contractor TINKER WELL DRILLING
Address RT 2 BOX 154
SCOTTSVILLE, VA 24590
Phone 589-8715

Tax Map I.D. No. _____
Subdivision _____
Section _____
Block _____
Lot _____
Class Well: I _____, IIA _____, IIB _____, IIIA _____, IIIB _____, IIIC _____, IIID _____, IIIE _____

WELL LOCATION: 500 (feet/miles SOUTH direction) of INTER. OF SR. 620 + 619
and _____ feet/miles _____ (direction) of _____
(If possible please include map showing location marked)

Date started 3/6/87 • Date completed 3/13/87 Type rig CABLE TOOL

1. WELL DATA: New ✓ Reworked _____ Deepened _____
• Total depth 83 ft.
• Depth to bedrock 54 ft.
• Hole size (Also include reamed zones)
• 8 inches from 0 to 54 ft.
• 6.25 inches from 55 to 83 ft.
• _____ inches from _____ to _____ ft.
• Casing size (I.D.) and material
• 6.25 inches from 0 to 54 ft.
Material PVC
Wt. per foot _____ or wall thickness .25 in.
• _____ inches from _____ to _____ ft.
Material _____
Wt. per foot _____ or wall thickness _____ in.
• _____ inches from _____ to _____ ft.
Material _____
Wt. per foot _____ or wall thickness _____ in.
• Screen size and mesh for each zone (where applicable)
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• Gravel pack
• From 54 to 30 ft.
• From _____ to _____ ft.
• Grout
• From 30 to 0 ft., Type PORTLAND CEM.
• From _____ to _____ ft., Type _____

2. WATER DATA • Water temperature 52° °F
• Static water level (unpumped level measured) 40 ft.
• Stabilized measured pumping water level _____ ft.
• Stabilized yield ∧15 gpm after 24 hours
Natural Flow: Yes ✓ No ____, flow rate: ∧15 g pm
Comment on quality VERY GOOD
3. WATER ZONES: From 59 To 60
From 65 To 70, From _____ To _____
From _____ To _____, From _____ To _____
4. USE DATA:
Type of use: Drinking ✓, Livestock Watering _____
Irrigation _____, Food processing _____, Household _____
Manufacturing _____, Fire safety _____, Cleaning _____
Recreation _____, Aesthetic _____, Cooling or heating _____
Injection _____, Other _____
• Type of facility: Domestic ✓, Public water supply _____
Public institution _____, Farm _____, Industry _____
Commercial _____, Other _____
5. PUMP DATA: Type SUB • Rated H.P. ½
• Intake depth 75 • Capacity _____ at _____ head
6. WELLHEAD: Type well seal CAP
Pressure tank 18 gal., Loc. CRAWL SPACE
Sample tap _____, Measurement port _____
Well vent _____, Pressure relief valve _____
Gate valve _____, Check valve (when required) _____
Electrical disconnect switch on power supply _____
* **7. DISINFECTION:** Well disinfected ✓ yes _____ no
Date _____, Disinfectant used BLEACH
Amount ½ GAL, Hours used 24
8. ABANDONMENT (where applicable) • yes _____ no _____
Casing pulled yes _____ no _____ not applicable _____
Plugging grout From _____ to _____ material _____

*WILL BE DISINFECTED AT OVER TIME OF PUMP INSTALL.

Owner RALPH BAKER

BWCM No. _____

9. State law requires submitting to the Virginia State Water Control Board information about groundwater and wells for every well made in the State intended for water, or any other non-exempt well. This information must be submitted whether the well is completed, on standby, or abandoned. Information required includes: an accurately and completely prepared water well completion report, full data from any aquifer pumping tests, drill cuttings taken at ten foot intervals (unless exemption is secured), the results of any chemical analyses, and copies of any geophysical logs. Quarterly pumpage and use reports are required from owners of public supply and industrial wells. County or State permits to drill may be required in some parts of the state. Some counties require submission of a water well completion report. The Virginia State Health Department requires a water well completion report for public supply wells.

10. DRILLERS LOG (use additional Sheets if necessary)

DEPTH (feet) From	DEPTH (feet) To	TYPE OF ROCK OR SOIL (color, material, fossils, hardness, etc.)	REMARKS (water, caving, cavities, broken, core, shot, (etc.)	11. Drilling Time (Min.)
0	25	RED SOIL, SOFT	NO CAVING NO WATER	120
26	34	BROWN SOIL, SOFT	NO WATER NO CAVING	60
35	53	SAND, VERY SOFT	CAVING + LITTLE WATER	4 HRS
54	65	WHITE FLINT + GRAY SLATE MIXED HARD	GOOD VEINS + NO CAVING	6 HRS
66	83	GRAYISH SLATE OR SHALE, HARD	SOME WATER	8 HRS.

12. DIAGRAM OF WELL CONSTRUCTION (with dimensions)

13. Well lot dedicated? NO Size 1 ft. X _____ ft.; Well house? NO
Distance to nearest pollutant source 1100 ft., Type SEPTIC
Distance to nearest property line 15 ft., Building _____ ft.

14. WATER SERVICE PIPE: Checked under _____ p.s.i. for _____ minutes. Pipe size 1 inches, Material: BLACK POLY
Installer THACKER WELL DRILLING
Date _____

15. I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the requirements for well construction as specified in compliance with appropriate county or independent city ordinances and the laws and rules of the Commonwealth of Virginia.

Signature Ronald L. Thacker (Seal), Date 3/17/87
(Well driller or authorized person)
License No. 034489

State Water Control Board Regional Offices

Valley Reg. Off.
116 North Main Street
P. O. Box 268
Bridgewater, Va. 22812
703-828-2595

Piedmont Reg. Off.
4010 West Broad Street
P. O. Box 6616
Richmond, Va. 23230
804-257-1006

Southwest Reg. Off.
408 East Main Street
P. O. Box 476
Abingdon, Va. 24210
703-628-5183

Tidewater Reg. Off.
287 Pembroke Office Park
Suite 310 Pembroke No. 2
Va. Beach, Va. 23462
804-499-8742

West Central Reg. Off.
Executive Park
5312 Peters Creek Road
Roanoke, Va. 24019
708 - 982 - 7432

Northern Virginia Reg. Off.
5515 Cherokee Avenue
Suite 404
Alexandria, Va. 22312
703-750-9111

6876 Rolling Rd. South

Form GW-2
1978-10,000

COMMONWEALTH OF VIRGINIA
WATER WELL COMPLETION REPORT
(Certification of Completion/County Permit)

• BWCM No. _____

State Water Control Board
P. O. Box 11143
2111 North Hamilton St.
Richmond, Va. 23230

SWCB Permit _____
County Permit _____
Certification of inspecting official:
This well does ____ does not ____ meet code/low requirements.
S. _____
Date _____
For Office Use

County/City FLUVANNA
County/City Stamp

• Virginia Plane Coordinates
_____ N
_____ E
Latitude & Longitude
_____ N
_____ W
• Topo. Map No. _____
• Elevation _____ ft.
• Formation _____
• Lithology _____
• River Basin _____
• Province _____
• Type Logs _____
• Cuttings _____
• Water Analysis _____
• Aquifer Test _____

• Owner RALPH BAKER
• Well Designation or Number _____
Address RT 7
SCOTTSVILLE, VA.
Phone 296-3564

• Drilling Contractor THACKERS WELL DRILLING
Address RT 7 BOX 158
SCOTTSVILLE VA 24590
Phone 804-589-8915

Tax Map I.D. No. _____
Subdivision _____
Section _____
Block _____
Lot _____
Class Well: I _____, IIA _____, IIB _____, IIIA _____, IIIB _____, IIIC _____, IIID _____, IIIE _____

WELL LOCATION: 800 (feet/~~miles~~) SOUTH (direction) of INTER OF SR 620+619
and _____ feet/miles _____ (direction) of _____
(If possible please include map showing location marked)

Date started 3/20/87 • Date completed 3/27/87 Type rig CABLE TOOL

1. WELL DATA: New ✓ Reworked _____ Deepened _____
• Total depth 98 ft.
• Depth to bedrock 40 FT ft.
• Hole size (Also include reamed zones)
• 8 inches from 0 to 40 ft.
• 6.25 inches from 41 to 98 ft.
• _____ inches from _____ to _____ ft.
• Casing size (I.D.) and material
• 6.25 inches from 0 to 40 ft.
Material PVC
Wt. per foot _____ or wall thickness .25 in.
• _____ inches from _____ to _____ ft.
Material _____
Wt. per foot _____ or wall thickness _____ in.
• _____ inches from _____ to _____ ft.
Material _____
Wt. per foot _____ or wall thickness _____ in.
• Screen size and mesh for each zone (where applicable)
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• _____ inches from _____ to _____ ft.
• Mesh size _____ Type _____
• Gravel pack
• From 40 to 35 ft.
• From _____ to _____ ft.
• Grout
• From 35 to 0 ft., Type PORTLAND CEM.
• From _____ to _____ ft., Type _____

2. WATER DATA • Water temperature 52° °F
• Static water level (unpumped level-measured) 45 ft.
• Stabilized measured pumping water level _____ ft.
• Stabilized yield A15 gpm after 24 hours
Natural Flow: Yes ✓ No ____ flow rate: A15 gpm
Comment on quality VERY GOOD

3. WATER ZONES: From 51 To 55
From 60 To 63 From 70 To 72
From _____ To _____ From _____ To _____

4. USE DATA:
Type of use: Drinking ✓, Livestock Watering _____
Irrigation _____ Food processing _____, Household _____
Manufacturing _____, Fire safety _____, Cleaning _____
Recreation _____, Aesthetic _____, Cooling or heating _____
Injection _____, Other _____
• Type of facility: Domestic ✓, Public water supply _____
Public institution _____, Farm _____, Industry _____
Commercial _____, Other _____

5. PUMP DATA: Type SUB • Rated H.P. 3/4
• Intake depth 90 • Capacity _____ at _____ head

6. WELLHEAD: Type well seal CAP
Pressure tank 18 gal., Loc. HOUSE (CRAWL)
Sample tap _____, Measurement port _____
Well vent ✓, Pressure relief valve _____
Gate valve _____, Check valve (when required) _____
Electrical disconnect switch on power supply _____

***7. DISINFECTION:** Well disinfected ✓ yes ____ no
Date _____, Disinfectant used BLEACH
Amount 1/2 GAL, Hours used 24

8. ABANDONMENT (where applicable) • yes ____ no ____
Casing pulled yes ____ no ____ not applicable ____
Plugging grout From _____ to _____ material _____

*WILL BE DISINFECTED AT OVERTIME OF PUMP INSTALL.

Owner RALPH LINKER BWCM No. _____

9. State law requires submitting to the Virginia State Water Control Board information about groundwater and wells for every well made in the State intended for water, or any other non-exempt well: This information must be submitted whether the well is completed, on standby, or abandoned. Information required includes: an accurately and completely prepared water well completion report, full data from any aquifer pumping tests, drill cuttings taken at ten foot intervals (unless exemption is secured), the results of any chemical analyses, and copies of any geophysical logs. Quarterly pumpage and use reports are required from owners of public supply and industrial wells. County or State permits to drill may be required in some parts of the state. Some counties require submission of a water well completion report. The Virginia State Health Department requires a water well completion report for public supply wells.

10. DRILLERS LOG (use additional Sheets if necessary)

DEPTH (feet) From	To	TYPE OF ROCK OR SOIL (color, material, fossils, hardness, etc.)	REMARKS (water, caving, cavities, broken, core, shot, (etc.)	11. Drilling Time (Min.)	12. DIAGRAM OF WELL CONSTRUCTION (with dimensions)
0	19	REDDISH ORANGE SOIL	NO WATER NO CAVING	2HRS	
20	40	BROWN SHALE SOFT	NO WATER NO CAVING	3HRS	
41	52	WHITE FLINT + BROWN SHALE MIX FAIRLY HARD	LITTLE WATER	4HRS	
53	82	SHALE (BROWN) FAIRLY HARD	MUCH WATER NO CAVING	10HRS	
83	98	WHITE FLINT + BLUE STONE	LITTLE WATER	8HRS	

13. Well lot dedicated? NO ; Size _____ ft. X _____ ft.; Well house? NO
Distance to nearest pollutant source 1100 ft., Type FIELD LINES
Distance to nearest property line 25 ft., Building 1100 ft.

14. WATER SERVICE PIPE: Checked under _____ p.s.i. for _____ minutes. Pipe size 1 inches, Material PLASTIC POLY
Installer LINKER WELL DRILLING
Date _____

15. I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the requirements for well construction as specified in compliance with appropriate county or independent city ordinances and the laws and rules of the Commonwealth of Virginia.

Signature _____ (Seal), Date 3/29/17
(Well driller or authorized person)
License No. 0346/49

State Water Control Board Regional Offices

Valley Reg. Off.
116 North Main Street
P. O. Box 268
Bridgewater, Va. 22812
703-828-2595

Piedmont Reg. Off.
4010 West Broad Street
P. O. Box 6616
Richmond, Va. 23230
804-257-1006

Southwest Reg. Off.
408 East Main Street
P. O. Box 476
Abingdon, Va. 24210
703-628-5183

Tidewater Reg. Off.
287 Pembroke Office Park
Suite 310 Pembroke No. 2
Va. Beach, Va. 23462
804-499-8742

West Central Reg. Off.
Executive Park
5312 Peters Creek Road
Roanoke, Va. 24019
708-982-7432

Northern Virginia Reg. Off.
5515 Cherokee Avenue
Suite 404
Alexandria, Va. 22312
703-750-9111

Form GW-2
1078-10,000

COMMONWEALTH OF VIRGINIA
WATER WELL COMPLETION REPORT
(Certification of Completion/County Permit)

7022 Rolling Rd. South

State Water Control Board
P. O. Box 11143
2111 North Hamilton St.
Richmond, Va. 23230

County/City Hughes Fluvanna

County/City Stamp

SWCB Permit
County Permit
Certification of inspecting official:
This well does ___ does not ___ meet code/law requirements.
S
Date
For Office Use

- Virginia Plane Coordinates
  N
  E
- Latitude & Longitude
  N
  W
- Topo. Map No.
- Elevation ___ ft.
- Formation
- Lithology
- River Basin
- Province
- Type Logs
- Cuttings
- Water Analysis
- Aquifer Test

- Owner Jefferson Area Builders
- Well Designation or Number
- Address 310 Ivy Creek Court
  Charlottesville, Va. 22901
- Phone
- Drilling Contractor
- Address FRED JONES WELL CO.
  P.O. Box 818 Appomattox, Va. 2452
- Phone Phone 352-7872

Tax Map I.D. No.
Subdivision
Section
Block
Lot
Class Well I ___ IIA ___ IIB ___ IIIA ___ IIIB ___ IIIC ___ IIID ___ IIIE ___

WELL LOCATION: ___ (feet/miles) 0 (direction) of Rt. 620
and ___ feet/miles ___ (direction) of ___
(If possible please include map showing location marked)

Date started 12-28-87 • Date completed 1-15-88 Type rig Hyd Boring

WELL DATA: New ✓ Reworked ___ Deepened ___

- Total depth 60 ft.
- Depth to bedrock 59 ft.
- Hole size (Also include reamed zones)
  - 30 inches from 0 to 59 ft.
  - ___ inches from ___ to ___ ft.
  - ___ inches from ___ to ___ ft.
- Casing size (I.D.) and material
  - 24 inches from 0 to 60 ft.
  - Material Concrete
  - Wt. per foot ___ or wall thickness ___ in.
  - ___ inches from ___ to ___ ft.
  - Material ___
  - Wt. per foot ___ or wall thickness ___ in.
  - ___ inches from ___ to ___ ft.
  - Material ___
  - Wt. per foot ___ or wall thickness ___ in.
- Screen size and mesh for each zone (where applicable)
  - ___ inches from ___ to ___ ft.
  - Mesh size ___ Type ___
  - ___ inches from ___ to ___ ft.
  - Mesh size ___ Type ___
  - ___ inches from ___ to ___ ft.
  - Mesh size ___ Type ___
  - ___ inches from ___ to ___ ft.
  - Mesh size ___ Type ___
- Gravel pack
  - From ___ to ___ ft.
  - From ___ to ___
- Grout
  - From 0 to 20 ft., Type poured w/ pipe
  - From ___ to ___ ft., Type ___

2. WATER DATA
- Water temperature ___ °F
- Static water level (unpumped level measured) ___ ft.
- Stabilized measured pumping water level ___ ft.
- Stabilized yield ___ gpm after ___ hours
- Natural Flow Yes ✓ No ___ Flow rate 20 water ___ gpm
- Comment on quality ___

3. WATER ZONES: From ___ To ___
From ___ To ___ From ___ To ___
From ___ To ___ From ___ To ___

4. USE DATA
Type of use: Drinking ✓ Livestock Watering ___
Irrigation ___ Food processing ___ Household ✓
Manufacturing ___ Fire safety ___ Cleaning ___
Recreation ___ Aesthetic ___ Cooling or heating ___
Injection ___ Other ___
- Type of facility: Domestic ✓ Public water supply ___
  Public institution ___ Farm ___ Industry ___
  Commercial ___ Other ___

5. PUMP DATA: Type sub • Rated H.P. 1/2
- Intake depth 54 • Capacity ___ at ___ head

6. WELLHEAD Type well seal ___
Pressure tank 40 gal. Loc. house
Sample tap ___ Measurement port ___
Well vent ___ Pressure relief valve ___
Gate valve ___ Check valve (when required) ___
Electrical disconnect switch on power supply ___

7. DISINFECTION: Well disinfected ✓ yes ___ no
Date ___ Disinfectant used ___
Amount ___ Hours used ___

8. ABANDONMENT (where applicable) • yes ___ no ___
Casing pulled yes ___ no ___ not applicable ___
Plugging grout From ___ to ___ material ___

Owner? _____ SWCM No. _____

State law requires submitting to the Virginia State Water Control Board information about groundwater and wells for every well made in the State intended for water, or any other non-exempt well. This information must be submitted whether the well is completed, on standby, or abandoned. Information required includes: an accurately and completely prepared water well completion report; full data from any aquifer pumping tests; drill cuttings taken at ten foot intervals (unless exemption is secured), the results of any chemical analyses; and copies of any geophysical logs. Quarterly pumpage and use reports are required from owners of public supply and industrial wells. County or State permits to drill may be required in some parts of the state. Some counties require submission of a water well completion report. The Virginia State Health Department requires a water well completion report for public supply wells.

10. DRILLERS LOG (use additional Sheets if necessary)

DEPTH (feet) From	DEPTH (feet) To	TYPE OF ROCK OR SOIL (color, material, fossils, hardness, etc.)	REMARKS (water, caving, cavities, broken, core, shot, (etc.)	11. Drilling Time (Min.)
0	59	hard	Well Complete	

12. DIAGRAM OF WELL CONSTRUCTION (with dimensions)

13. Well lot dedicated? _____ Size _____ ft. X _____ ft., Well house? _____
Distance to nearest pollutant source _____ ft., Type _____
Distance to nearest property line _____ ft., Building _____ ft.

14. WATER SERVICE PIPE: Checked under _____ p.s.i. for _____ minutes. Pipe size _____ inches, Material _____
Installer _____
Date _____

15. I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the requirements for well construction as specified in compliance with appropriate county or independent city ordinances and the laws and rules of the Commonwealth of Virginia.

Signature Fred Jones Well Co. (Seal) Date 1-15-88
(Well driller or authorized person)
License No. _____

State Water Control Board Regional Offices

Valley Reg. Off.
116 North Main Street
P. O. Box 268
Bridgewater, Va. 22812
703-828-2595

Piedmont Reg. Off.
4010 West Broad Street
P. O. Box 6616
Richmond, Va. 23230
804-257-1006

Southwest Reg. Off.
400 East Main Street
P. O. Box 476
Abingdon, Va. 24210
703-628-5183

Tidewater Reg. Off.
287 Pembroke Office Park
Suite 310 Pembroke No. 2
Va. Beach, Va. 23462
804-499-8742

West Central Reg. Off.
Executive Park
5312 Peters Creek Road
Roanoke, Va. 24019
703-982-7452

Northern Virginia Reg. Off.
5515 Cherokee Avenue
Suite 404
Alexandria, Va. 22312
703-750-9111