

**Water Resources and Water Quality Report
For
Cloverleaf Filing No. 2
El Paso County, CO**

August, 2021

Prepared for:
PT Cloverleaf, LLC
1864 Woodmoor Drive, Suite 100
Monument, CO 80132

Prepared by:
JR Engineering, LLC
5475 Tech Center Drive, Suite 235
Colorado Springs, CO 80919
719-593-2593

JR Project No. 25158.01

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1.1. Purpose

This document is intended to serve as the Water Resources and Water Quality Report for Cloverleaf Filing No. 2. The purpose of this document is to estimate average and peak water demand and provide Woodmoor Water and Sanitation District (WWSD) with system junctions with corresponding lot counts and elevations of the grading to help the District model the water demands.

1.2. Summary of Proposed Development

The proposed single-family residential subdivision, known as “Cloverleaf Filing No. 2” from herein, is a parcel of land located in Section 24 & 23, Township 11 South, Range 67 West of the 6th Principal Meridian in El Paso County, Colorado. Cloverleaf is a 37.28 acre, urban, single-family-development, and is comprised of 132 single-family residential units and associated infrastructure. Cloverleaf Filing No. 2 is bound by existing residential developments. Cloverleaf Road bounds the property to the east, Woodmoor Greens Fil. 1 & 2 a single-family residential subdivision borders the subdivision to the west & north, and Walters Commons Fil. No. 1 and Country Ridge Estates, multi-family residential subdivisions border the property to the south. A vicinity map of the area is presented in Appendix A.

1.3. Potable Water Supply

The primary water distribution system for Cloverleaf will be connected to the existing Woodmoor Water and Sanitation District (WWSD) water mains at four locations. The eastern connection is the existing 6” water main within Cloverleaf Drive. The western connection will be to the existing 6” water main in Leggins Way. The southern connection will be to the existing 6” water main in Walters Point. The northern connection is to the existing 6” water main in Bowstring Road. The development can either install 6” diameter mains or 8” diameter water mains depending on the results of WWSD’s modeling of the system. For Cloverleaf Filing No. 2, six inch (6”) water mains have been shown.

The 6 lots along Walters Point in the SE of the subdivision will install service lines off the existing 6” water main in Walters Point adjacent to the lots. Refer to Appendix B for the proposed utility plan which provides additional information.

The potable water demand was calculated on a single-family equivalent (SFE) basis. Water System demands shown below were established using annual demand values provided by Woodmoor for single family homes and irrigation. Peaking factors were taken from the “Colorado Springs Utilities Waterline Standards”.

- Single Family Home average annual water usage: 0.3584 ac.ft./year
- Peaking Factor: 5.0

Based on the above criteria, the average daily use for the 135 single family lots will be:

$$\begin{aligned} 132 \text{ lots} \times 0.3584 \text{ ac.ft./yr} &= 47.31 \text{ acre feet annually} = 42,232 \text{ gpd} \\ \text{Peak daily flow will be } 42,232 \text{ gpd} \times 5.0 \text{ peak factor} &= 211,160 \text{ gpd} \end{aligned}$$

There are 1.74 acres of irrigated open spaces and tracts within the Cloverleaf subdivision. WWSD utilizes 0.5 ac.ft./year/acre to estimate annual use. Cloverleaf open space irrigation needs are estimated at 0.87 ac.ft./year. These needs are not included in the above average daily or peak flow estimates for the lots.

Contained within Appendix B of this report is a tabulation spreadsheet with the nodes/junctions and corresponding single-family unit counts. In addition, the elevation of the projected junction(s) at the conceptual over lot grading is also provided. This information is provided to help the Woodmoor Water and Sanitation district incorporate the water model into their comprehensive district model. The utility map within Appendix C contains the site plan, junction placement, and the projected water network layout for the site.

Woodmoor Water and Sanitation District updated their Long Range Plan in 2017 (Appendix) and identified capital improvement projects to expand its water supply capabilities to 2,038 ac.ft./year by 2030. In 2017, the district provided 1,376 ac.ft./yr. with an average growth rate of 3% in demand. Cloverleaf Filing No. 2 represents approximately 3% of WWSD demand.

1.4. Water Supply, Resources and Quality

Contained within Appendix E of this report is a summarization of the District's Long Range Plan (LRP) describing the existing water supply and distribution system, as well as descriptions of possible future improvements and expansions to the system. Summarized in the LRP are the water rights owned by the District. Based on data contained in the LRP regarding the water resources that are available to the District, subdivisions served by WWSD be supplied with water resources meeting the requirements of EL Paso County's 300-year water supply regulations. A commitment to serve letter for Cloverleaf Filing No. 2 has been issued by WWSD.

The quality of the water produced by the WWSD for domestic and commercial consumption is subject to regulations prescribed by the CDPHE that limit the amount of certain contaminants in treated or untreated water. See Appendix E for a copy of the WWSD Consumer Confidence Report.

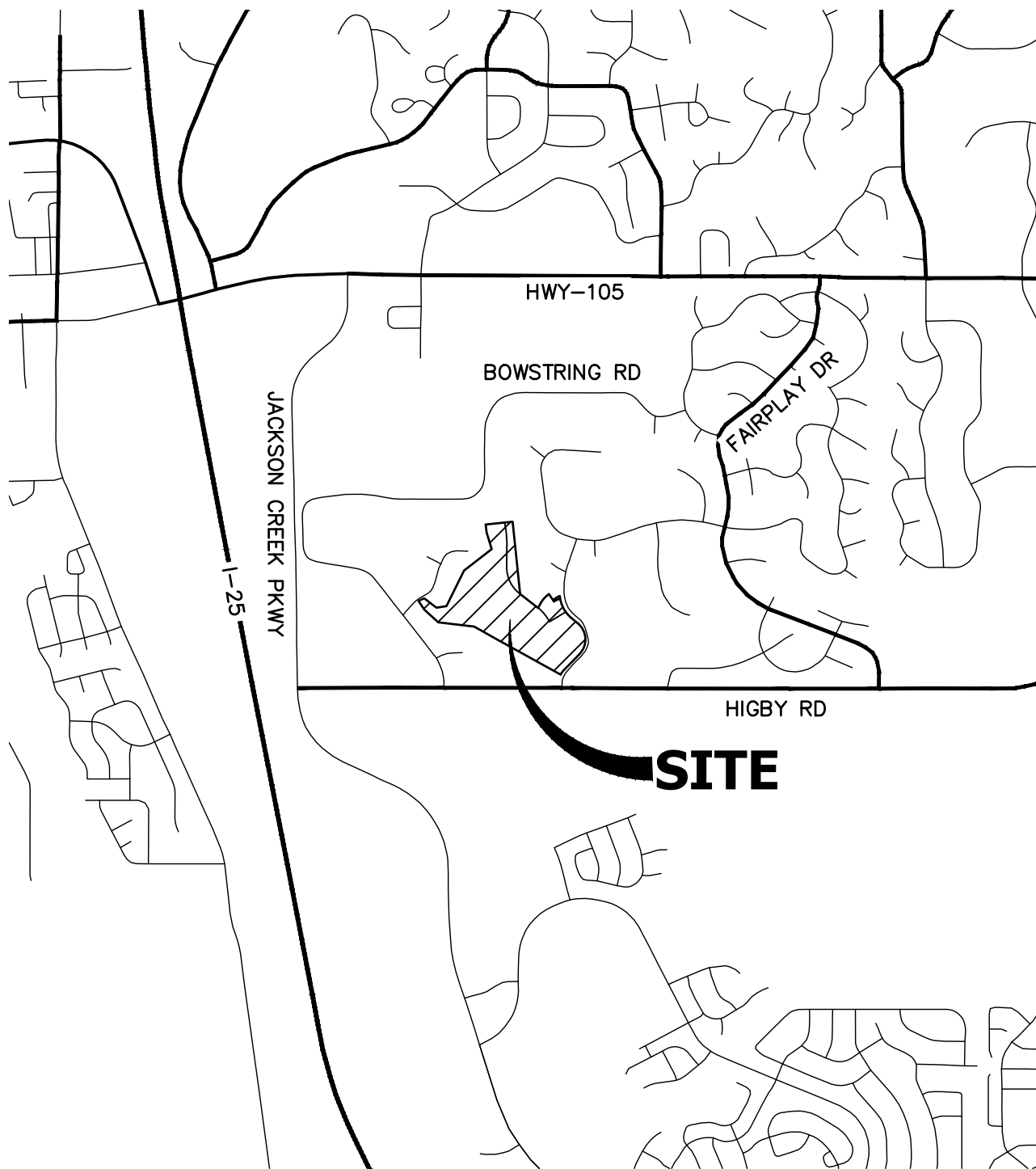
1.5. Waivers from Criteria

There are no waivers from the El Paso County Land Development Code or the criteria established by the Woodmoor Water and Sanitation District requested for this project.

1.6. Compliance with Standards

The water distribution system design will conform to all applicable criteria set forth by El Paso County and the Woodmoor Water and Sanitation District.

APPENDIX A: VICINITY MAP



SITE



2000 1000 0 2000

ORIGINAL SCALE: 1" = 2000'

VICINITY MAP
CLOVERLEAF FILING NO. 2
JOB NO. 25158.01
08/19/2021
SHEET 1 OF 1



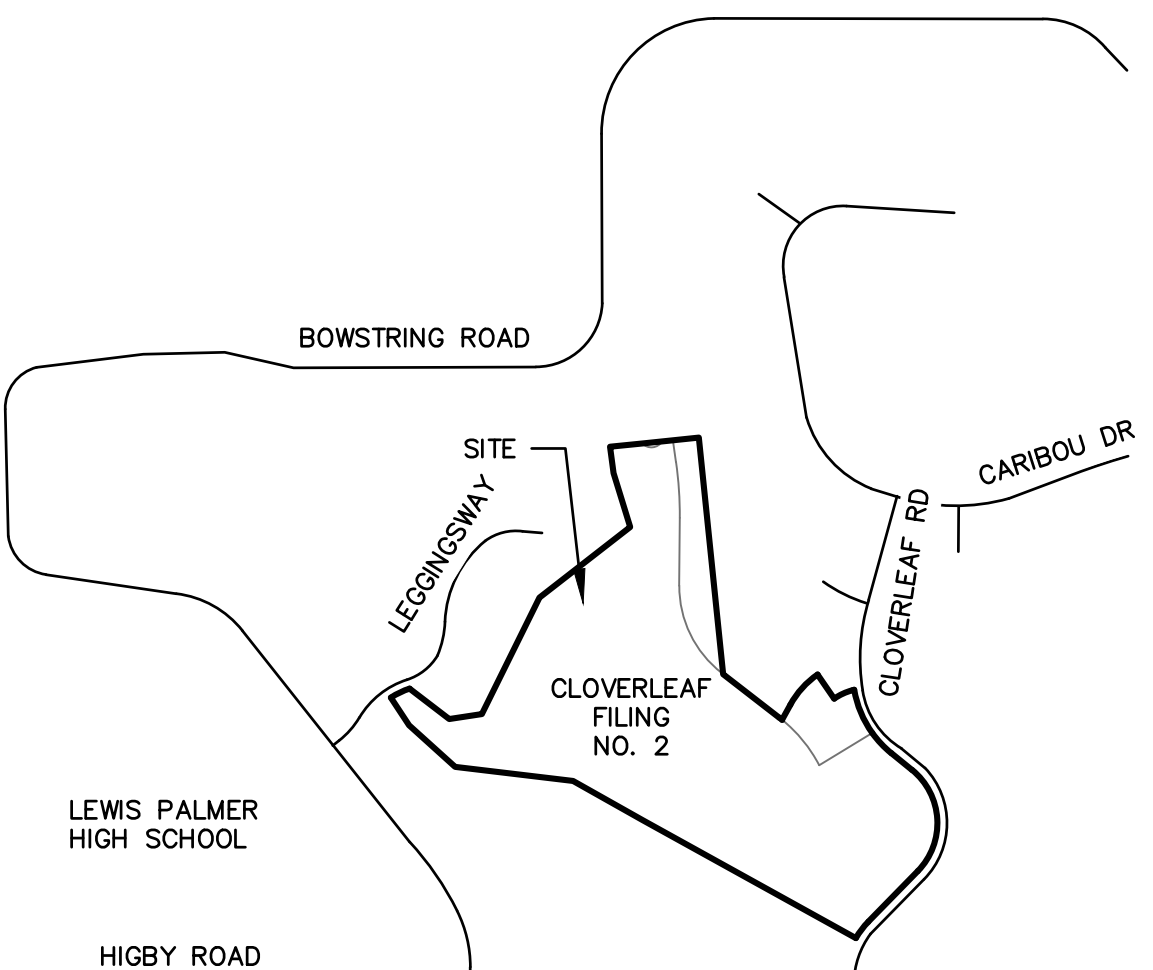
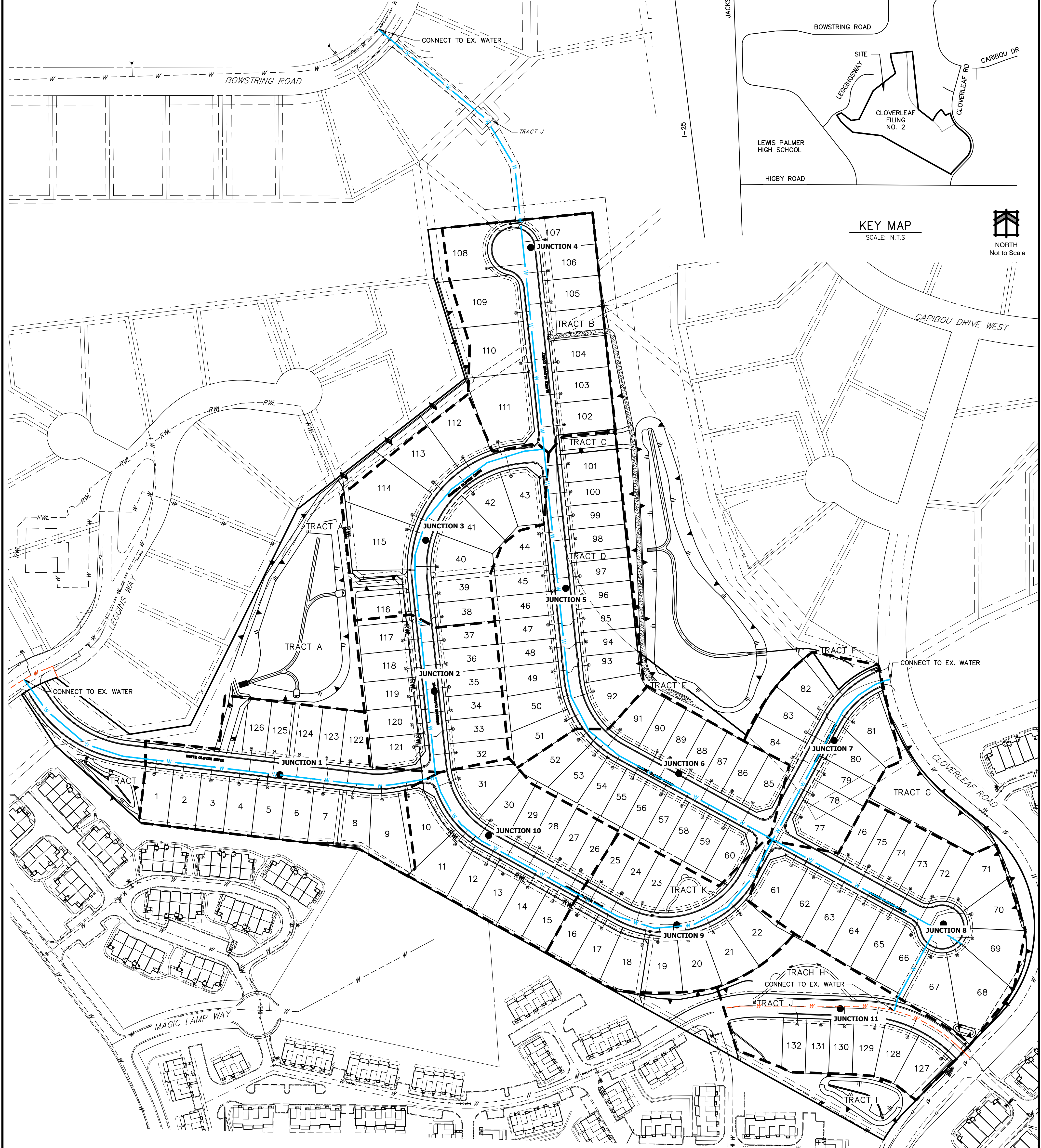
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APPENDIX B: TABLE 1: PRELIMINARY UTILITY PLAN

CLOVERLEAF FILING NO. 2

WATER MAP



KEY MAP
SCALE: N.T.S.



LEGEND

- PROPOSED WATER MAIN
- TAP INTO EXISTING WATER MAIN
- AREA DELINEATION
- JUNCTION

WATER SYSTEM MAP
CLOVERLEAF FILING NO. 2
JOB NO. 25158.01
08-19-2021
SHEET 1 OF 1

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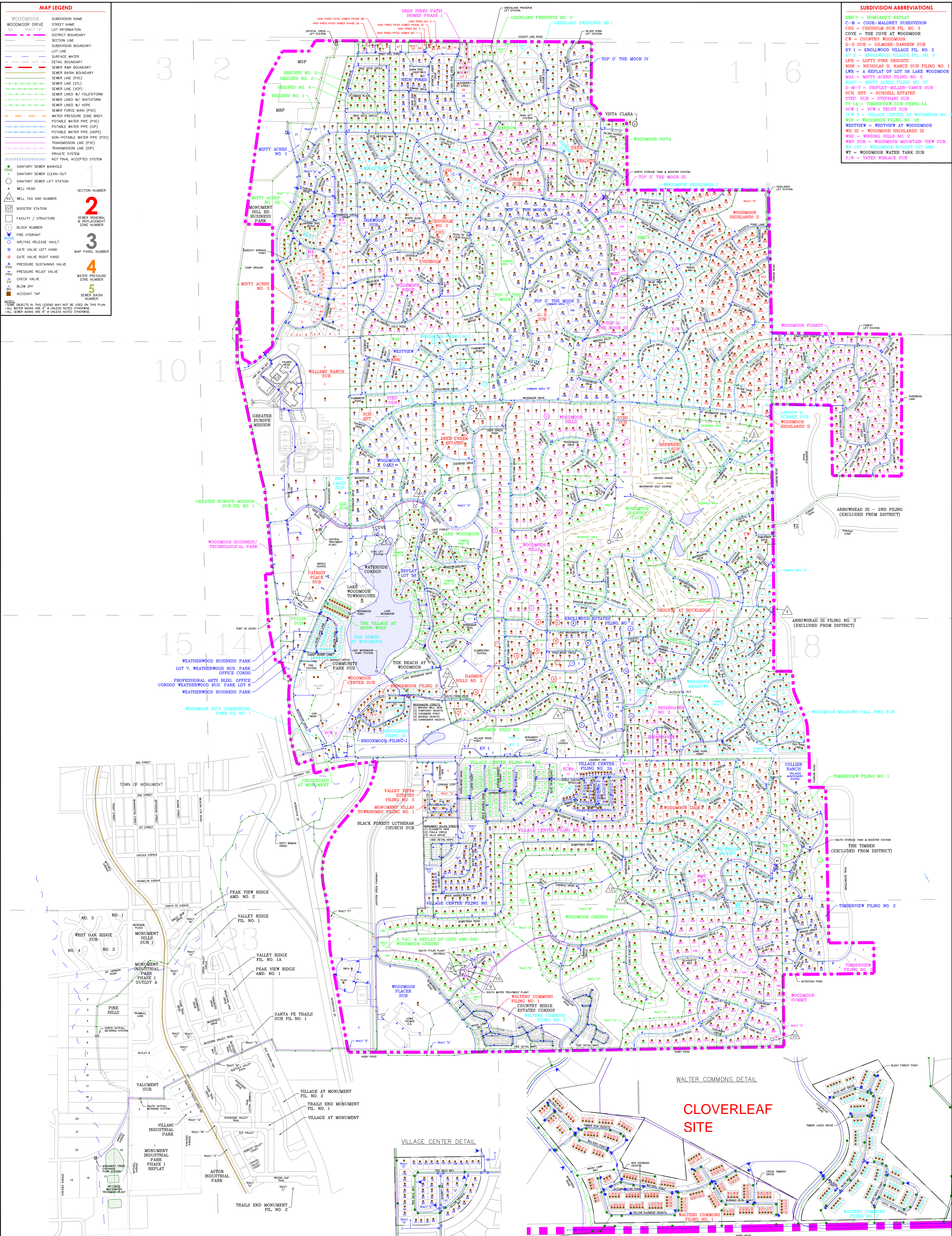
APPENDIX C: TABLE 1: JUNCTION TABULATION

Project Name	Cloverleaf Filing No. 2
Project Number	25158.01
Date	8/18/2021
Created By	ARJ
Checked By	APL

TABLE 1 - JUNCTION SUMMARY		
Junction	Junction Surface Elv.	No. of SFE
J-1	7032.06	14
J-2	7046.02	11
J-3	7046.39	11
J-4	7073.75	12
J-5	7066.5	17
J-6	7073.01	15
J-7	7084.26	8
J-8	7088	16
J-9	7065.35	10
J-10	7052.56	12
J-11	7073.7	6
TOTAL		132

SFE = Single-Family Equivalent

APPENDIX D: WOODMOOR MAP



APPENDIX E:
WWSD LONG RANGE PLAN UPDATE
WWSD 2020 WATER QUALITY REPORT

WOODMOOR WSD 2021 Drinking Water Quality Report

Covering Data For Calendar Year 2020

Public Water System ID: CO0121950

Esta es información importante. Si no la pueden leer, necesitan que alguien se la traduzca.

We are pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water. Please contact Dan LaFontaine at 719-488-2525 with any questions or for public participation opportunities that may affect water quality.

General Information

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791) or by visiting epa.gov/ground-water-and-drinking-water.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV-AIDS or other immune system disorders, some elderly, and infants can be particularly at risk of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and microbiological contaminants call the EPA Safe Drinking Water Hotline at (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants:** viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants:** salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides:** may come from a variety of sources, such as agriculture, urban storm water runoff, and residential uses.
- Radioactive contaminants:** can be naturally occurring or be the result of oil and gas production and mining activities.
- Organic chemical contaminants:** including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban storm water runoff, and septic systems.

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems (especially for pregnant women and young children). It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home's plumbing. If you are concerned about lead in your water, you may wish to have your water tested. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at epa.gov/safewater/lead.

Source Water Assessment and Protection (SWAP)

The Colorado Department of Public Health and Environment may have provided us with a Source Water Assessment Report for our water supply. For general information or to obtain a copy of the report please visit wqcdcompliance.com/ccr. The report is located under "Guidance: Source Water Assessment Reports". Search the table using 121950, WOODMOOR WSD, or by contacting JESSIE SHAFFER at 719-488-2525. The Source Water Assessment Report provides a screening-level evaluation of potential contamination that could occur. It does not mean that the contamination has or will occur. We can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan. Potential sources of contamination in our source water area are listed on the next page.

Please contact us to learn more about what you can do to help protect your drinking water sources, any questions about the Drinking Water Quality Report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

Our Water Sources

<u>Sources (Water Type - Source Type)</u>	<u>Potential Source(s) of Contamination</u>
NO 10 WELL (Groundwater-Well) NO 11 WELL (Groundwater-Well) NO 12 WELL (Groundwater-Well) NO 15 WELL (Groundwater-Well) NO 16 WELL (Groundwater-Well) NO 17 WELL (Groundwater-Well) NO 18 WELL (Groundwater-Well) NO 2 WELL (Groundwater-Well) NO 3 WELL (Groundwater-Well) NO 6 WELL (Groundwater-Well) NO 7 WELL (Groundwater-Well) NO 8 WELL (Groundwater-Well) NO 9 WELL (Groundwater-Well) MONUMENT CREEK (Surface Water-Intake) AUGUSTA PIT (Surface Water-Intake) WELL 20 (Groundwater-Well) LAKE WOODMOOR (Surface Water-Intake) WELL 21 (Groundwater-Well)	EPA Hazardous Waste Generators, EPA Chemical Inventory/Storage Sites, EPA Toxic Release Inventory Sites, Permitted Wastewater Discharge Sites, Aboveground, Underground and Leaking Storage Tank Sites, Existing/Abandoned Mine Sites, Other Facilities, Commercial/Industrial/Transportation, Low Intensity Residential, Urban Recreational Grasses, Row Crops, Fallow, Pasture / Hay, Deciduous Forest, Evergreen Forest, Septic Systems, Road Miles

Terms and Abbreviations

- **Maximum Contaminant Level (MCL)** – The highest level of a contaminant allowed in drinking water.
- **Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.
- **Health-Based** – A violation of either a MCL or TT.
- **Non-Health-Based** – A violation that is not a MCL or TT.
- **Action Level (AL)** – The concentration of a contaminant which, if exceeded, triggers treatment and other regulatory requirements.
- **Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Maximum Contaminant Level Goal (MCLG)** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of a drinking water disinfectant, below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Violation (No Abbreviation)** – Failure to meet a Colorado Primary Drinking Water Regulation.
- **Formal Enforcement Action (No Abbreviation)** – Escalated action taken by the State (due to the risk to public health, or number or severity of violations) to bring a non-compliant water system back into compliance.
- **Variance and Exemptions (V/E)** – Department permission not to meet a MCL or treatment technique under certain conditions.
- **Gross Alpha (No Abbreviation)** – Gross alpha particle activity compliance value. It includes radium-226, but excludes radon 222, and uranium.
- **Picocuries per liter (pCi/L)** – Measure of the radioactivity in water.
- **Nephelometric Turbidity Unit (NTU)** – Measure of the clarity or cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the typical person.
- **Compliance Value (No Abbreviation)** – Single or calculated value used to determine if regulatory contaminant level (e.g. MCL) is met. Examples of calculated values are the 90th Percentile, Running Annual Average (RAA) and Locational Running Annual Average (LRAA).
- **Average (x-bar)** – Typical value.
- **Range (R)** – Lowest value to the highest value.
- **Sample Size (n)** – Number or count of values (i.e. number of water samples collected).

- **Parts per million = Milligrams per liter (ppm = mg/L)** – One part per million corresponds to one minute in two years or a single penny in \$10,000.
- **Parts per billion = Micrograms per liter (ppb = ug/L)** – One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- **Not Applicable (N/A)** – Does not apply or not available.
- **Level 1 Assessment** – A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- **Level 2 Assessment** – A very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Detected Contaminants

WOODMOOR WSD routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table(s) show all detections found in the period of January 1 to December 31, 2020 unless otherwise noted. The State of Colorado requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Therefore, some of our data, though representative, may be more than one year old. Violations and Formal Enforcement Actions, if any, are reported in the next section of this report.

Note: Only detected contaminants sampled within the last 5 years appear in this report. If no tables appear in this section then no contaminants were detected in the last round of monitoring.

Disinfectants Sampled in the Distribution System TT Requirement: At least 95% of samples per period (month or quarter) must be at least 0.2 ppm <u>OR</u> If sample size is less than 40 no more than 1 sample is below 0.2 ppm Typical Sources: Water additive used to control microbes						
Disinfectant Name	Time Period	Results	Number of Samples Below Level	Sample Size	TT Violation	MRDL
Chlorine	December, 2020	<u>Lowest period</u> percentage of samples meeting TT requirement: 100%	0	15	No	4.0 ppm

Lead and Copper Sampled in the Distribution System								
Contaminant Name	Time Period	90 th Percentile	Sample Size	Unit of Measure	90 th Percentile AL	Sample Sites Above AL	90 th Percentile AL Exceedance	Typical Sources
Copper	05/26/2020 to 06/28/2020	0.18	63	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	08/19/2020 to 08/31/2020	2	60	ppb	15	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

Lead and Copper Sampled in the Distribution System								
Contaminant Name	Time Period	90 th Percentile	Sample Size	Unit of Measure	90 th Percentile AL	Sample Sites Above AL	90 th Percentile AL Exceedance	Typical Sources
Copper	08/19/2020 to 08/31/2020	0.12	60	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	05/26/2020 to 06/28/2020	1	63	ppb	15	2	No	Corrosion of household plumbing systems; Erosion of natural deposits

Disinfection Byproducts Sampled in the Distribution System									
Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Total Haloacetic Acids (HAA5)	2020	8.04	0 to 35.4	8	ppb	60	N/A	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHM)	2020	19.96	0.6 to 98.6	8	ppb	80	N/A	No	Byproduct of drinking water disinfection

Disinfection Byproducts Sampled at the Entry Point to the Distribution System									
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Bromate	2017	7.67	5.2 to 12	3	ppb	10	0	No	Byproduct of drinking water disinfection

Summary of Turbidity Sampled at the Entry Point to the Distribution System					
Contaminant Name	Sample Date	Level Found	TT Requirement	TT Violation	Typical Sources
Turbidity	Date/Month: Jul	Highest single measurement: 0.3 NTU	Maximum 1 NTU for any single measurement	No	Soil Runoff

Summary of Turbidity Sampled at the Entry Point to the Distribution System					
Contaminant Name	Sample Date	Level Found	TT Requirement	TT Violation	Typical Sources
Turbidity	Month: Oct	<u>Lowest monthly</u> percentage of samples meeting TT requirement for our technology: 100 %	In any month, at least 95% of samples must be less than 0.3 NTU	No	Soil Runoff

Radionuclides Sampled at the Entry Point to the Distribution System									
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Gross Alpha	2018	2.27	0.7 to 3.8	4	pCi/L	15	0	No	Erosion of natural deposits
Combined Radium	2018	2.98	1.9 to 3.6	4	pCi/L	5	0	No	Erosion of natural deposits

Inorganic Contaminants Sampled at the Entry Point to the Distribution System									
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Arsenic	2020	1	1 to 1	1	ppb	10	0	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	2020	0.12	0.12 to 0.12	1	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium	2020	2	2 to 2	1	ppb	100	100	No	Discharge from steel and pulp mills; erosion of natural deposits
Fluoride	2020	1.24	1.24 to 1.24	1	ppm	4	4	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate	2020	0.06	0 to 0.3	5	ppm	10	10	No	Runoff from fertilizer use; leaching from septic tanks,

Inorganic Contaminants Sampled at the Entry Point to the Distribution System

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
									sewage; erosion of natural deposits
Selenium	2020	3	3 to 3	1	ppb	50	50	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines

Secondary Contaminants**

**Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin, or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	Secondary Standard
Sodium	2020	44.8	44.8 to 44.8	1	ppm	N/A

Violations, Significant Deficiencies, and Formal Enforcement Actions

No Violations or Formal Enforcement Actions