

WATER RESOURCES & WASTEWATER REPORT

For

MANCAVE STORAGE

December 2019

Prepared by:



WOODMEN HILLS METROPOLITAN DISTRICT

MANCAVE STORAGE

WATER RESOURCES & WASTEWATER REPORT

December 2019

Prepared for:

Woodmen Hills Metropolitan District
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Peyton, CO 80831

Prepared by:

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1.0 INTRODUCTION AND CONCLUSION

The purpose of this report is to address the specific water and wastewater needs of the ManCave Storage facility in Falcon, CO. There are two (2) restroom facilities and a club house within this proposed facility.

CONCLUSION: The Woodmen Hills Metropolitan District (WHMD) has adequate Water Supply to meet the needs of the ManCave Storage facility on a 300-Year basis. Additionally, the Woodmen Hills Metropolitan District has adequate wastewater system and treatment capacity to provide wastewater service to the ManCave Storage facility.

2.0 PROJECTED LAND USES

Projected Land Uses: Improvements within the subject area have been planned as commercial storage with light recreation (club house). A total of 10 structures are proposed, with seven (7) of the structures comprised only of storage, two (2) storage buildings with restrooms, and a clubhouse with restrooms and other small amenities. This report and associated commitments pertain to the entire planned build-out of the facility (as described above). Please refer to the Site Plan Exhibit in **Appendix A**.

3.0 WATER NEEDS AND SUPPLY

3.1 Projected Interior Water Demand:

By using Table 6-5 from the *Uniform Plumbing Code* and plumbing fixture information provided by the owner, the ManCave Storage facility has the following expected interior water demands:

Table 3-1

From Table 6-5 of the Uniform Plumbing Code
Water Supply Fixture Units (WSFU)

Type of Fixture	# of Fixtures	WSFU Value	Total WSFU's	Demand GPD (@15 gpd/ WSFU)	Demand (Gallons/Year)
Phase I (Club House & Bldg C)					
Bathtub or Combination Bath/Shower		4.0	0.0	0.0	0.0
Hose Bibb		2.5	0.0	0.0	0.0
Lavatory	6.0	1.0	6.0	90.0	32,850.0
Bar Sink	4.0	1.0	4.0	60.0	21,900.0
Service/Utility Sink	3.0	1.5	4.5	67.5	24,637.5
Shower (per head)	2.0	2.0	4.0	60.0	21,900.0
Water Closet	6.0	2.5	15.0	225.0	82,125.0
Urinal	2.0	2.5	5.0	75.0	27,375.0
Dishwasher		2.5	0.0	0.0	0.0

Drinking Fountain	1.0	0.5	0.5	7.5	2,737.5
Phase II (Bldg I)					
Bathtub or Combination Bath/Shower		4.0	0.0	0.0	0.0
Hose Bibb		2.5	0.0	0.0	0.0
Lavatory	2.0	1.0	2.0	30.0	10,950.0
Bar Sink		1.0	0.0	0.0	0.0
Service/Utility Sink	2.0	1.5	3.0	45.0	16,425.0
Shower (per head)		2.0	0.0	0.0	0.0
Water Closet	2.0	2.5	5.0	75.0	27,375.0
Urinal		2.5	0.0	0.0	0.0
Dishwasher		2.5	0.0	0.0	0.0
Drinking Fountain		0.5	0.0	0.0	0.0
Totals			49.0	735.0	268,275.0

3.2 *Projected Exterior Water Demand:*

By using a value of 12 gallons/square foot per year (xeriscape to mixed-use landscaping) and multiplying by the area of landscaping proposed by the owner (15,000 SF), an **exterior water demand of 180,000 gallons per year** is projected.

3.3 *Total Projected Water Demand:*

Projected Interior Water Demand: 268,275 gallons/year
Projected Exterior Water Demand: 180,000 gallons/year
Total Projected Water Demand: 448,275 gallons/year (1.376 acre-feet/year)

3.4 *District Water Supply*

The District has numerous local and off-site water rights. The rights include both renewable sources and Denver Basin non-renewable sources. The District total legal supply on a 300-year basis has grown to 1459.48 annual acre-feet. Below is a narrative description of the nature of those supplies. The District's current legal water supply inventory is located in *Appendix B*.

Renewable Water Supply: Woodmen Hills and the surrounding area are within a Designated Groundwater Basin known as the Upper Black Squirrel (UBS) Groundwater Management District. Rules regarding use, access, and other management issues are governed by the UBS and the State Groundwater Commission. These rules vary from other areas in the state. Water types managed within the District are alluvial groundwater which exists in the upper most sands which are only 15 to 25 feet deep in the Falcon area and up to 350 feet deep easterly in the Guthrie Ranch area. Alluvial water in the UBS are "over-appropriated" which means no additional alluvial water rights are available. Acquisition of alluvial rights therefore is limited to the purchase of someone

else's existing alluvial rights. The Guthrie alluvial rights were obtained in such a fashion. Alluvial rights are renewable.

The District has renewable resources in two categories. One is a direct alluvial pumping right in the UBS basin at Guthrie and the other is a perpetual contractual right through Cherokee Metropolitan District. The direct alluvial right is for 89 annual acre-feet and as a renewable right, it does not need to be counted on a 300-year basis. It is currently fully physically available and used at about an average of 90% of its full capacity.

The second renewable source is a 350 annual acre-feet contractual and perpetual right through Cherokee. It is typically used near its face value capacity since it is perpetual at about 98%. This water is delivered to the District through a 3-mile off-site system to the south of the District.

Non-renewable Denver Basin Supply: The second type of groundwater in the Falcon area is Denver Basin water. The Denver Basin is a vast deep-rock aquifer that stretches from south of Falcon northerly to beyond Denver. Rights that are granted in the Denver basin are based on the ownership of the surface property. The larger the parcel, the larger the allocation. This water is much deeper ranging up to 2,650 feet deep. Denver Basin water is considered finite and therefore non-renewable water. In the Falcon area, there are four (4) main formations that make up the Denver Basin – the Dawson, the Denver, the Arapahoe, and the Laramie-Fox-Hills, described from top to bottom.

The District has numerous determinations under the existing District boundaries, which total 779 annual acre-feet on a 300-year basis and 2,356 annual acre-feet on a 100-year basis. Except maybe for support of future ASR (aquifer storage and recovery) projects, it is not anticipated that the number of local well sites will be increased in the near future. Although there is significant unused pumping capability in the Falcon area, the District has relied less on their local sources in the past 5 to 10 years.

The District has also acquired additional Off-site Denver Basin Rights. These areas have yet to be fully developed as physical supply. The Hart well field already has future easements and well sites dedicated, but because it is not yet needed, no wells have been drilled as yet in the Hart area. Because the Guthrie area has not been accessed by any other Denver Basin users at this time, its physical capacity has remained strong. Not counting Dawson or Denver formations, the Guthrie and Hart areas have a total of 860 Annual AF₁₀₀ and 287 AF₃₀₀. The Guthrie Denver Basin well field is only currently being pumped at a fraction of its full capability (less than 20%). The Guthrie well field is the location that WHMD expects additional wells will be drilled as needed in the near future (next 10 to 20 years).

4.0 WATER SYSTEM FACILITIES & PHYSICAL SUPPLY

4.1 Source of Supply:

Local Wells: The District has 11 wells in the Falcon area, mostly in the Arapahoe and Laramie Fox-Hills formations. These wells are all within the District's Service Area boundary.

Off-site Wells: The District operates four (4) Denver Basin wells at the Guthrie field which is about 12 miles east of the Falcon area. The Denver Basin wells are in the Arapahoe and Laramie Fox-Hills formations.

Additionally, The District owns and operates two (2) alluvial wells in the Guthrie Ranch area which pump renewable water from the Upper Black Squirrel Basin.

Cherokee Water: This water is alluvial from the Upper Black Squirrel Basin and is renewable. The annual quantity obtained from Cherokee is 350 acre-feet and is a perpetual right.

4.2 Water Treatment:

The District owns and operates three water treatment plants and provides water treatment to its entire supply. The plants are all within the service area and treat

Filter Plant #1 – 1.10 MGD Capacity

Filter Plant #2 – 0.36 MGD Capacity

Filter Plant #3 – 1.30 MGD Capacity

4.3 Water Storage

The District currently owns and operates three water storage facilities with a total capacity of 3.25 million gallons.

4.4 Distribution & Transmission Lines:

The District has two major offsite transmission lines which are jointly owned with Meridian Service Metropolitan District. These lines are known as the Guthrie and Tamlin lines, and WHMD has responsibility for operation of both.

The Tamlin system is a 12-inch line extending roughly 3 miles south-westerly of the District and is connected to the Cherokee Metropolitan District. The ultimate capacity of the Tamlin system is 1.8 MGD. The Tamlin system includes a 1.5 MGD pumping station.

The Guthrie system is a 14-mile, 12-inch pipeline extending to the east of the District along Judge Orr Road. It includes wells, pumping facilities, and a mid-point pumping station. Its current capacity is 1.944 MGD.

The District has additional pump stations within the District boundaries. One pump station is known as the “Transfer Station,” and the second is an integral pump station within Filter Plant #3.

The District consists of multiple service pressure zones and roughly 13 miles of internal distribution lines.

4.5 *Water Quality*

The District treats and filters 100% of its water supply. Filtration is generally for iron and manganese removal and water is disinfected to meet or exceed all CDPHE Drinking Water Standards. A copy of the 2019 WHMD Consumer Confidence Report, which outlines water quality as delivered to District customers, is included in *Appendix C*.

5.0 WASTEWATER REPORT

5.1 *Projected Wastewater Loads:*

Wastewater flows for this project are expected to be 90% of the interior water usage, or, 661.5 gallons/day.

5.2 *Treatment Facilities:*

The WHMD has constructed a new regional wastewater treatment facility which was placed online in the spring of 2019. The new plant is an advanced wastewater treatment plant with a rated hydraulic capacity of 1.3 MGD. WHMD is currently in compliance with its discharge permit and the treatment facility has adequate capacity for the additional flows.

Current loading at the facility is roughly 65%, and adequate capacity exists to handle the additional expected flows from the ManCave Storage facility.

The expected loads from this project represent about 0.05% of WHMD's current permitted treatment plant capacity of 1,300,000 gal/day.

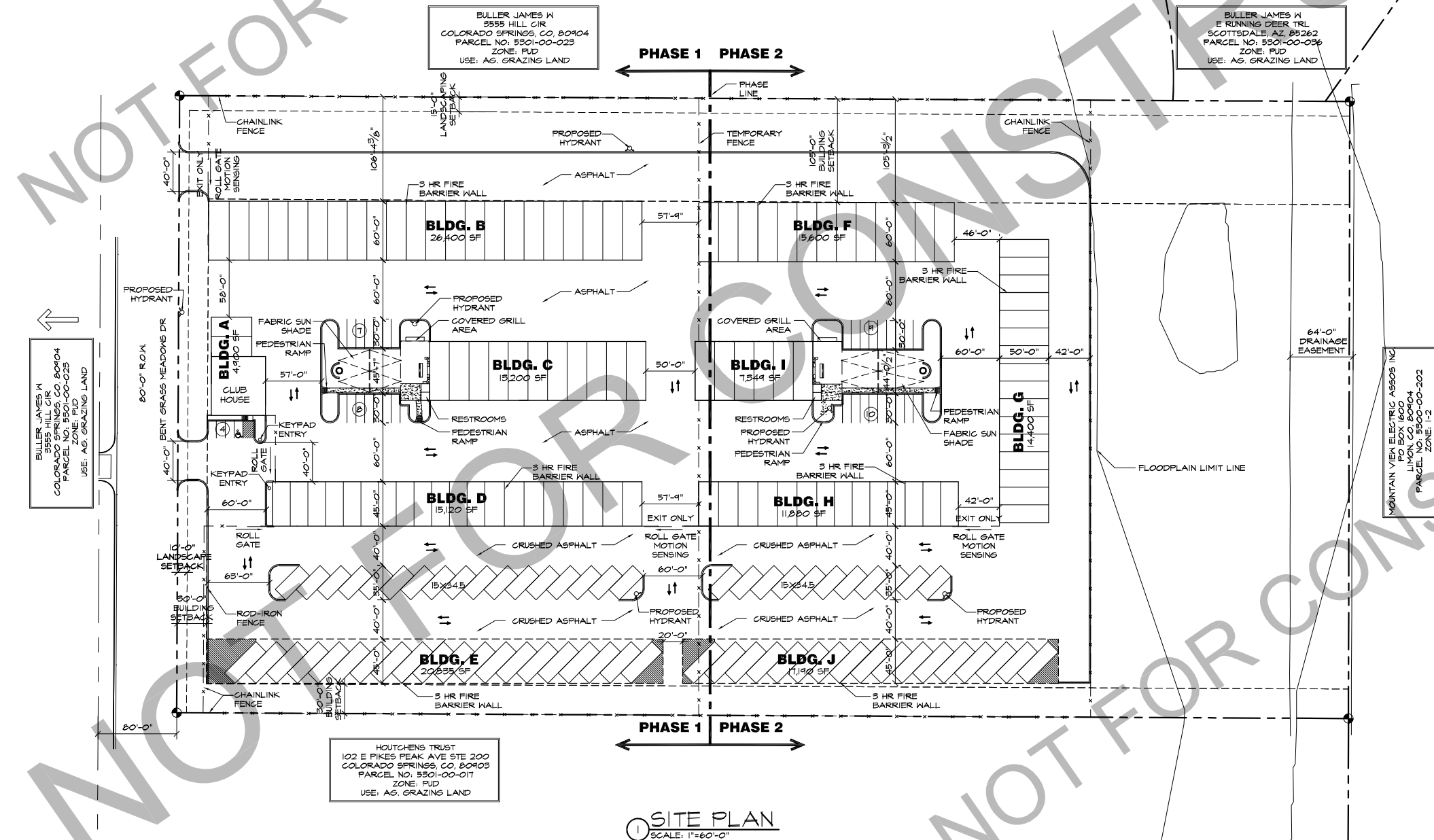
5.3 *Collection and Pumping Facilities:*

This project will be required to install gravity sewer facilities in accordance with WHMD standards and approvals. Said gravity sewer facilities will connect to existing collection systems owned and operated by WHMD.

Wastewater pumping facilities are not necessary to serve the ManCave Storage facility.

BUILDING TABULATION / PHASE 1									
BLDG	BLDG OCCUP	18'-0" X 45'-0"	20'-0" X 40'-0"	20'-0" X 45'-0"	20'-0" X 60'-0"	SF OF REST-ROOM	SF OF CLUB HOUSE	SF OF COVERED RV STORAGE	TOTAL SF OF BUILDING
A	B/S-I	-	2	-	-	-	3,300	-	4,900 SF
B	S-I	-	-	-	22	-	-	-	26,400 SF
C	S-I	-	-	-	11	149	-	-	13,349 SF
D	S-I	12	-	8	-	-	-	-	16,920 SF
E	S-I	-	-	-	-	-	-	20	20,835 SF
TTL # OF UNITS		12	2	8	33	= 55 TOTAL UNITS			
TOTAL SF		9,120	1,600	1,200	39,600	149	3,300	20,835	82,404 SF
TOTAL SQUARE FOOTAGE OF UNITS:									58,120 SF

BUILDING TABULATION / PHASE 2									
BLDG	BLDG OCCUP	18'-0" X 45'-0"	18'-0" X 50'-0"	20'-0" X 45'-0"	20'-0" X 60'-0"	SF OF REST-ROOM	SF OF CLUB HOUSE	SF OF COVERED RV STORAGE	TOTAL SF OF BUILDING
F	S-I	-	-	-	13	-	-	-	15,600 SF
G	S-I	-	16	-	-	-	-	-	14,400 SF
H	S-I	8	-	6	-	-	-	-	11,880 SF
I	S-I	-	-	-	6	149	-	-	7,349 SF
J	S-I	-	-	-	-	-	-	17	17,190 SF
TTL # OF UNITS		8	16	6	19	= 49 TOTAL UNITS			
TOTAL SF		6,480	14,400	5,400	22,800	149	-	17,190	66,419 SF
TOTAL SQUARE FOOTAGE OF UNITS:									49,080 SF



DRAWING INDEX

VICINITY MAP

NOT TO SCALE

PROJECT INFORMATION

PROPERTY INFORMATION

LEGAL DESCRIPTION

PARCEL NUMBER

ZONING

LOT SIZE

CURRENT USE

FLOODPLAIN STATEMENT

BUILDING INFORMATION

GROSS BUILDING AREA

PHASE 1

PHASE 2

BUILDING OCCUPANCY

TYPE OF CONSTRUCTION

FIRE SYSTEMS

AREA SEPARATION WALLS

ZONING CODE STUDY

PROPOSED PRINCIPAL USE

STRUCTURAL COVERAGE OF LOT

PAVEMENT COVERAGE

NEW BUILDING STRUCTURAL HEIGHT

FRONT YARD SETBACK

SIDE YARD SETBACK

REAR YARD SETBACK

REQUIRED PARKING SPACES

PHASE 1

MINI STORAGE-(1 SPACE/100 UNITS)

42 UNITS / 100 UNITS

H.C.-(1 SPACE/25 REQ'D)

TOTAL PARKING SPACES REQUIRED

TOTAL PARKING PROVIDED

H.C. SPACES PROVIDED

DEVELOPMENT SCHEDULE

CONSTRUCTION

LANDSCAPING

DEVELOPMENT APPLICANT

COMPANY

PHONE NUMBER

FAX NUMBER

APPLICANT NAME

APPLICANT E-MAIL

SITE LEGEND

PROPERTY LINE

RIGHT OF WAY

BUILDING SETBACK

LANDSCAPE SETBACK

UTILITY EASEMENT

DRAINAGE EASEMENT

CONSTRUCTION LIMIT LINE

ACCESS EASEMENT

OPAQUE CHAINLINK FENCE

6' HIGH WROUGHT IRON FENCE

GAS LINE

WATER LINE

ELECTRICAL LINE

SANITARY SEWER LINE

STORM SEWER LINE

RETAINING WALL

NEW SIDEWALK LOCATIONS

N/ CONTROL JOINTS @ 5'-0" O.C.

PROPERTY CORNER

TRAFFIC FLOW

WALL PACK LIGHTING

SIGN

MANHOLE

ELECTRICAL TRANSFORMER

EXISTING FIRE HYDRANT

PROPOSED FIRE HYDRANT

DATE: AUG 20, 2019

DRAWN BY: A. MADALONE

PROJ. MNGR: Y. DYACHENKO

SCALE: SEE PLAN

APPROVED BY:

JOB NO: 1068

RESUBMITTALS:

1 of 14

SITE PLAN

HAMMERS CONSTRUCTION INC.

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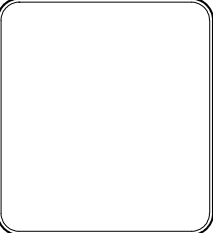
MANGAVE STORAGE

MINI RV STORAGE

BENT GRASS MEADOWS DR

PEYTON, CO 80831

EL PASO COUNTY, COLORADO



NOT FOR CONSTRUCTION

DATE: AUG 20, 2019
 DRAWN BY: A. MADALONE
 PROJ. MNGR: Y. DYACHENKO
 SCALE: SEE PLAN
 APPROVED BY:
 JOB NO: 1068

RESUBMITTALS:

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Appendix B

Appendix B
Woodman Hills Metropolitan District Legal Water Supply Inventory
Summary Sheet

Land Formation/Aquifer	Determination/Decree	Tributary Status	Annual Allocation 100 Year	Annual Allocation 300 Year	Well Permit(s)
<u>Woodmen Hills Non-Renewable Water Supply</u>			Acre-Feet/Year	Acre-Feet/Year	
Dawson	129-BD	NNT - RP	55.00	18.33	60830-F; 60831-F
Dawson	133-BD	NNT - RP	102.00	34.00	60832-F; 60833-F
Dawson/Denver			240.00	80.00	11355-F
Denver	Pre-128-BD	NNT 4%	0.00	0.00	28030-F
Denver	128-BD	NNT 4%	530.90	176.97	
Denver	132-BD	NNT 4%	251.00	83.67	
Arapahoe	127-BD	NT	195.60	65.20	A-1 (59180-F) A-2 (59179-F) A-3 (59183-F)
Arapahoe	131-BD	NT	173.00	57.67	A-5 (56121-F) A-6 (57848-F)
Laramie Fox Hills	126-BD	NT	335.80	111.93	LFH-1 (59181-F) LFH-2 (59182-F) LFH-3 (59184-F)
Laramie Fox Hills	130-BD	NT	145.00	48.33	LFH-5 (56118-F) LFH-6 (57849-F)
<u>Guthrie Ranch</u>					
Arapahoe	229-BD	NT	241.00	80.33	GA-1 (61236-F) GA-2 (61237-F)
Laramie Fox Hills	228-BD	NT	290.00	96.67	GLFH-1 (61234-F) GLFH-2 (61235-F)
<u>Falcon Vista</u>					
Denver	49-BD	NNT 4%	22.10	7.37	
Arapahoe	45307-F	NT	7.00	2.33	45307-F
Laramie Fox Hills	48-BD	NT	15.00	5.00	45306-F
<u>Bentgrass</u>					
Denver	373-BD	NNT 4%	98.80	32.93	
Denver	562-BD	NNT 4%	19.40	6.47	
Arapahoe	372-BD	NT	56.00	18.67	
Arapahoe	561-BD	NT	10.20	3.40	
Laramie Fox Hills	371-BD	NT	50.80	16.93	
Laramie Fox Hills	560-BD	NT	10.50	3.50	
<u>Hart Water</u>					
Arapahoe	2100-BD	NT	51.50	17.17	
Laramie Fox Hills	2099-BD	NT	62.50	20.83	
<u>Gaddie Inclusion</u>					
Denver	1314-BD	NNT	18.28	6.09	
Arapahoe	1313-BD	NT	9.29	3.10	
Laramie Fox Hills	1312-BD	NT	10.66	3.55	
<u>Falcon Fields Inclusion</u>					
Denver	505-BD	NNT	25.66	8.55	Update June, 2019
Arapahoe	504-BD	NT	16.33	5.44	Update June, 2019
Laramie Fox Hills	503-BD	NT	18.12	6.04	Update June, 2019
Sub Total Non-Renewable Supply			3061.44	1020.48	
<u>Woodmen Hills Non-Renewable Water Supply</u>					
Guthrie Alluvial	Finding 5/5/83	Trib	89.00	89.00	612-RFP; 27554-FP
Cherokee Contract			350.00	350.00	
Sub Total Renewable Supply			439.00	439.00	
TOTAL WATER SUPPLY			3500.44	1459.48	
<u>Woodmen Hills Miscellaneous Water Supply</u>					
1. Surface Water Diversion				25% of 2 cfs	Currently GC Irrigation
2. Evaporation Deficit and Lawn Irrigation Return Flow Credit (Replacement Plan)				-25.00	Pending

Update: June 2019

JDS-Hydro Consultants, Inc.

Appendix C

WOODMEN HILLS MD 2019 Drinking Water Quality Report

For Calendar Year 2018

Public Water System ID: CO0121930

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 JD Shivvers at 719-495-2500 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 <http://water.epa.gov/drink/contaminants>.

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 <http://www.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 www.colorado.gov/cdphe/ccr. The report is located under "Guidance: Source Water Assessment Reports". Search the table using 121930, WOODMEN HILLS MD, or by contacting JD Shivvers at 719-495-2500. 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>
WELL A1 (Groundwater-Well) WELL LFH1 (Groundwater-Well) WELL A2 (Groundwater-Well) WELL LFH2 (Groundwater-Well) WELL DW3 (Groundwater-Well) WELL DW1 (Groundwater-Well) WELL A3 (Groundwater-Well) WELL LFH3 (Groundwater-Well) WELL A5 (Groundwater-Well) WELL LFH5 (Groundwater-Well) WELL A6 (Groundwater-Well) WELL LFH6 (Groundwater-Well) GA1 WELL (Groundwater-Well) GLFH1 WELL (Groundwater-Well) GA2 WELL (Groundwater-Well) GLFH2 WELL (Groundwater-Well) GALV1 WELL (Groundwater-Well) GALV2 WELL (Groundwater-Well) PURCHASED FROM CO0121125 CHEROKEE MD (Groundwater-Consecutive Connection)	<p>No potential sources of contamination identified. Please contact us for more information.</p>

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

WOODMEN HILLS MD 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, 2018 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, 2018	<u>Lowest period</u> percentage of samples meeting TT requirement: 100%	0	12	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	06/12/2018 to 06/19/2018	0.3	20	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	06/12/2018 to 06/19/2018	2	20	ppb	15	0	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)	2018	9.15	8.3 to 10	2	ppb	60	N/A	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHM)	2018	38.6	31.7 to 45.5	2	ppb	80	N/A	No	Byproduct of drinking water disinfection

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
Combined Radium	2017	0.93	0 to 1.4	3	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
Barium	2017	0.02	0.01 to 0.04	3	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride	2017	0.56	0.28 to 0.79	3	ppm	4	4	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate	2018	0.65	0 to 2.2	6	ppm	10	10	No	Runoff from fertilizer use; leaching from

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
									septic tanks, sewage; erosion of natural deposits
Selenium	2017	0.67	0 to 2	3	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	2017	113.37	101.4 to 121.7	3	ppm	N/A

Unregulated Contaminants***

EPA has implemented the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act. EPA uses the results of UCMR monitoring to learn about the occurrence of unregulated contaminants in drinking water and to decide whether or not these contaminants will be regulated in the future. We performed monitoring and reported the analytical results of the monitoring to EPA in accordance with its Unregulated Contaminant Monitoring Rule (UCMR). Once EPA reviews the submitted results, the results are made available in the EPA's National Contaminant Occurrence Database (NCOD) (<http://www.epa.gov/dwucmr/national-contaminant-occurrence-database-ncod>) Consumers can review UCMR results by accessing the NCOD. Contaminants that were detected during our UCMR sampling and the corresponding analytical results are provided below.

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure
N/A testing for 2020					

***More information about the contaminants that were included in UCMR monitoring can be found at: <https://drinktap.org/Water-Info/Whats-in-My-Water/Unregulated-Contaminant-Monitoring-Rule-UCMR>. Learn more about the EPA UCMR at: <http://www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule> or contact the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/contact.cfm>.

Violations, Significant Deficiencies, Backflow/Cross-Connection, and Formal Enforcement Actions

No Violations or Formal Enforcement Actions

Appendix D

WATER SUPPLY INFORMATION SUMMARY

Section 30-28-133,(d). C.R.S. requires that the applicant submit to the County, "Adequate evidence that a Water supply that is sufficient in terms of quantity, quality, and dependability will be available to ensure an adequate supply of water"

1. NAME OF DEVELOPMENT AS PROPOSED				<u>MANCAVE STORAGE</u>			
2. LAND USE ACTION				<u>Site Development Plan</u>			
3. NAME OF EXISTING PARCEL AS RECORDED				<u>N/A</u>			
SUBDIVISION <u>See Above</u>		FILING <u>Unplatted</u>		BLOCK <u>N/A</u>		Lot <u>N/A</u>	
4. TOTAL ACREAGE <u>17.35</u>		5. NUMBER OF LOTS PROPOSED		<u>N/A</u>		PLAT MAPS ENCLOSED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <u>See Submittal</u>	
6. PARCEL HISTORY - Please attach copies of deeds, plats, or other evidence or documentation. (In submittal package)							
A. Was parcel recorded with county prior to June 1, 1972? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO							
B. Has the parcel ever been part of a division of land action since June 1, 1972? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO							
If yes, describe the previous action							
7. LOCATION OF PARCEL - Include a map delineating the project area and tie to a section corner. (In submittal)							
_____ 1/2 OF <u>SOUTHWEST</u> 1/4 SECTION <u>1</u> TOWNSHIP <u>13</u> <input type="checkbox"/> N <input checked="" type="checkbox"/> S RANGE <u>65</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W							
PRINCIPAL MERIDIAN: <input checked="" type="checkbox"/> 6TH <input type="checkbox"/> N.M. <input type="checkbox"/> UTE <input type="checkbox"/> COSTILLA							
8. PLAT - Location of all wells on property must be plotted and permit numbers provided.							
Surveyors plat <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If not, scaled hand-drawn sketch <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO							
9. ESTIMATED WATER REQUIREMENTS - Gallons per Day or Acre Foot per Year				10. WATER SUPPLY SOURCE			
HOUSEHOLD USE # <u>0</u> of units <u>0</u> GPD <u>0.000</u> AF				<input checked="" type="checkbox"/> EXISTING <input type="checkbox"/> DEVELOPED		<input type="checkbox"/> NEW WELLS	
COMMERCIAL USE # * <u>0.0</u> Gr. Ac. <u>735</u> GPD <u>0.823</u> AF				<u>WELLS</u> SPRING <i>(See wells listed in Water Resources & Wastewater Report)</i>		Proposed Aquifers - (Check One)	
IRRIGATION # ** <u>0.344</u> acres <u>12</u> G/SF/YR <u>0.552</u> AF						<input type="checkbox"/> Alluvial <input type="checkbox"/> Upper Arapahoe	
STOCK WATERING # _____ of head _____ GPD _____ AF						<input type="checkbox"/> Upper Dawson <input type="checkbox"/> Lower Arapahoe	
OTHER _____ Multi-fam _____ GPD _____ AF						<input type="checkbox"/> Lower Dawson <input type="checkbox"/> Laramie Fox Hills	
TOTAL <u>747</u> GPD <u>1.376</u> AF						<input type="checkbox"/> Denver <input type="checkbox"/> Dakota	
* Based Water Supply Fixture Unit Counts						<input type="checkbox"/> Other	
** Based on xeric to mixed-use landscaping usage							
				<input type="checkbox"/> MUNICIPAL		WATER COURT DECREE CASE NUMBERS <u>Determinations</u> <u>373-BD, 562-BD</u> <u>372-BD, 561-BD</u> <u>371-BD, 560-BD</u> NUMEROUS ADDITIONAL IN W & WW REPORT	
				<input type="checkbox"/> ASSOCIATION			
				<input type="checkbox"/> COMPANY			
				<input checked="" type="checkbox"/> DISTRICT			
				NAME <u>Woodmen Hills Metro. Dist.</u>			
				LETTER OF COMMITMENT FOR SERVICE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
11. ENGINEER'S WATER SUPPLY REPORT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If yes, please forward with this form. (This may be required before our review is completed)							
12. TYPE OF SEWAGE DISPOSAL SYSTEM <u>Central Sewer System</u>							
<input type="checkbox"/> SEPTIC TANK/LEACH FIELD				<input checked="" type="checkbox"/> CENTRAL SYSTEM - DISTRICT NAME: <u>Woodmen Hills Metropolitan District</u>			
<input type="checkbox"/> LAGOON				<input type="checkbox"/> VAULT - LOCATION SEWAGE HAULED TO:			
<input type="checkbox"/> ENGINEERED SYSTEM (Attach a copy of engineering design)				<input type="checkbox"/> OTHER:			