DEQ
Montana Department
of Environmental Quality

June 6th, 2025

Meadow Hills Water and Sewer District
Attn: Gavin Pirrie
215 5th Ave E
Kalispell, MT 59901

Re: Sanitary Survey Inspection of Meadow Hills Water and Sewer District PWS (PWSID: MT0002925).

Dear Gavin,

I would like to thank you for assisting me during the recent sanitary survey inspection of the Meadow Hills Water and Sewer District Public Water Supply (PWS) system. As a community water supply system, this facility is required to have a sanitary survey inspection once every three years. These routine inspections are required under the Administrative Rules of Montana, Chapter 17.38.231. They offer the Department of Environmental Quality (DEQ) an opportunity to assure adequate protection of public health through proper operation and maintenance of a PWS.

DEQ believes that periodic sanitary surveys, along with appropriate corrective actions, are indispensable for assuring the long-term quality and safety of drinking water. When properly conducted, sanitary surveys can provide important information on a water system's design and operations and can identify minor and significant deficiencies for correction before they become major problems.

Minor deficiencies do not pose serious health threats. However, corrective action of minor deficiencies can be critical in the long-term operation and safety of a public water system. Minor deficiencies are generally described as suggested or recommended corrections. Significant deficiencies can be defined as a defective water supply component(s) having or likely to have an adverse influence on public health. Significant deficiencies require immediate corrective action in efforts to protect consumers.

Montana DEQ is also committed to offering technical, managerial, and financial capacity assistance to all public water supplies across the state. Michael Kropp is the new Capacity Development Coordinator for the state, and will be partnering with MAP, MRW, RATES and other DEQ staff to meet the demand for facility-based training opportunities. DEQ Certification is working with Mr. Kropp to provide operators an opportunity to earn CECs as well for completing facility-based capacity development training. Please contact Michael at 406-755-8971 (mkropp@mt.gov) for additional information on this program.

System description:
The Meadow Hills Water and Sewer District is a community system which services a 66-lot subdivision off US Highway-2 on the western edge of Kalispell, MT. It consists of a two groundwater source wells, a 28,000-gallon partially buried concrete storage tank, a pressure control assembly, and the distribution system. The distribution system serves the 66 residential properties developed in the subdivision.

Well-1 (WL002) and Well-2 (WL003) combine in a common header (CH001) to directly fill the storage tank (ST001) and are activated by the water level in ST001. The pressure control assembly (PC001) is sourced from ST001 and discharges into the distribution system (DS001) to maintain system pressure. The compliance sample entry point (EP503) is at CH001.

The facility flows as follows: WL002 & WL003 →CH001 → ST001 → PC001 →DS001

Below are a few comments relating to the sanitary survey conducted on 5/15/2025.

SOURCE(s):
Well-1 **(WL002)** is located in the northeast corner of community Lot-47 which also contains Well-2, the storage tank, and the pump house containing the pressure control assembly. It employs a turtle-style wellhead cap which was sealed, secure, and properly vented. The conduit servicing the well was also secure and free of defects. A 7.5-hp *Franklin Electric* (model 75FA7S6 PE) submersible pump rated at 75gmp is installed in the well. Well-1 was completed on April 20th, 1978, to a total depth of 185 feet below ground surface (ft-bgs). A screen consisting of (¼ x 4") perforations is installed between 170 and 185 ft-bgs for water collection and puddled clay was installed to a depth of 25 ft-bgs to provide a surface seal for the well. Additional construction information for Well-1 can be found on GWIC well log #82796, which is attached for your information. Water Rights for this well are defined under DNRC Water Right C041595-00.

Well-2 **(WL003)** is also located on community Lot-47 between the storage tank and the west side of the pump house. It also employs a turtle-style wellhead cap which was sealed, secure, and properly vented. The conduit servicing the well was also secure and free of defects. Well-2 is the new well which was completed on August 5th, 2020, under DEQ approved project EQ#20-1844. Connection of the well to the system was later approved under DEQ project EQ#22-2276. It was completed to a total depth of 184 feet below ground surface (ft-bgs). A slotted screen consisting of (¼ x 1.25") *Holt Perforations* was installed from 175 to182 ft-bgs for water collection and a 7.5hp *Berkley* submersible pump rated at 90gpm into the tank, and 60gpm into the distribution system, was installed in the well to support the system operations. Bentonite was installed from ground surface to 40 ft-bgs to complete a surface seal for the well. Additional construction information for Well-2 can be found on GWIC well log# 309196, which is attached for your information.

No issues were observed with this item.

TREATMENT:
The Meadow Hills Water and Sewer District did not have, nor was required to have, treatment at the time of inspection.

No issues were observed with this item.

DISTRIBUTION:
The distribution system **(DS001)** consists of PVC pipe looped between the PC001 pumphouse and the 66 residential service connection in the subdivision. Two flushing hydrants are available on the distribution system loop to assist with flushing activities. They are flushed by the operator on a yearly basis to remove any dirt, debris, and stagnate water which may have accumulated over the course of the year.

No issues were observed with this item.

STORAGE:
The facility Storage Tank **(ST001)** is a 28,000-gallon partially buried cement and cinderblock storage tank. ST001 has two access hatches on top of the tank to assist with maintenance activities. The older style hatch is rarely opened and additional clamps have been installed to ensure a good seal on the tank. The ST001 tank vent is installed in the older hatch lid and was properly screened (Ideally this vent should face downward to avoid contamination from wind and rain). The ST001 drain and overflow lines were properly screened at the northwest base of the tank. The newer hatch is the primary access hatch for the tank. It consists of an aluminum hinged hatch that was secured with a pad lock for additional security. The seals for the aluminum hatch lid were in great shape with no signs of insect activity observed inside or underneath the hatch lid. The water inside the storage tank was clean, clear, with little to no sediment on the tank floor. The tank is cleaned and inspected on a regular interval which helps significantly with tank reliability.

- The tank was refurbished in the past by pouring new walls inside the tank but is beginning to show significant aging. Even for its age, the tank has been performing very well. The outer cinder-block wall is degrading significantly on the back corner of the tank. It is recommended starting to consider replacing the storage tank during the next facility upgrade project. Since Meadow Hills has already formed a Water District, additional grants, funding, and low interest loans are available for replacing the tank. Please contact Mike Kropp (406-755-8791) at DEQ for more information on available funding.

PUMPS, PUMP FACILITIES and CONTROLS:
The pressure control assembly **(PC001)** is located in the pump house on Lot-47 along next to the storage tank and two wells. The actual Pressure Control Assembly (PC001) consists of 9 captive air tanks (two: *Well-X-Trol* WX-350s, seven: *Well-X-Trol* WX-251s), a pressure gauge, a pressure relief valve, and two discrete pressure switches to activate the 10hp and 15hp centrifugal booster pumps in a lead/lag configuration. The pressure window placed on the distribution system was observed to be 58-70psi during the inspection. The pressure relief valve was properly sized and plumbed to the exterior of the building. The pressure relief valve and manifold flushing lines were both properly screeded on the

exterior of the building. The captive air tanks were knock tested during the inspection and appear to be functioning correctly.

Inside the building water from both wells join to a common header which fills the storage tank or can be bypassed to directly pressure the distribution system. Water from the storage tank is then pressurized using a 15hp and/or 10hp centrifugal booster pump(s). As part of the system upgrades completed under EQ#22-2276 in August 2024, a new well pump control panel was installed to manage the storage tank water level and the operation of both wells. The new panel is capable of rotating or independently operating each well, operating the wells using the storage tank level or the pressure switches when the tank is bypassed, and maintain the storage water levels. This is a very functional and usable panel.

- It is recommended independently isolating and flushing the captive air tanks on an regular basis to avoid water stagnation in the far tanks. While each tank is drained during this process, the air pre-charge should be checked and set to 2-5psi below the pump "cut-in" (turn-on) pressure. This will provide optimal drawdown, reduce pump cycles, and generally give the pump and the captive air tank bladder a longer useful life.

MONITORING, REPORTING and DATA VERIFICATION:

The Meadow Hills Water and Sewer District has had two positive bacteriological routine samples and no operational violations since the last sanitary survey inspection in 2022. One of the positive samples was related to a break in the conduit to Well-1, the second related to installation and startup of the new well (Well-2). Well-2 was not operating and in the process of being disinfected during the inspection. This was to ensure a complete disinfection of the well as the startup process has taken a little longer than expected.

On April 6th, 2024, the PWS sampled for PFOS/PFOA compounds as part of the new monitoring requirements established by EPA. The samples collected on the 6th returned several results indicating PFOS/PFOA compounds were present in the Meadow Hills groundwater. Since the field blanks (QA/QC) returned positive results as well, DEQ began an investigation as there was questions regarding the validity of the samples. On April 30th, 2024, DEQ re-sampled the Meadow Hills source wells with the assistance of the PWS operator. The new samples returned "non-detect" results indicating PFOS/PFOA compounds were not present in the Meadow Hills source wells. It was later determined the initial samples were cross contaminated by the lab when re-packaging the samples for shipment.

No issues were observed with this item.

MAINTENANCE, MANAGEMENT, SAFETY and OPERATION:

The PWS appears to be well managed and maintained. The lack of violations reflects a well-managed and maintained system. The facilities are free of garbage and the PWS has been making improvements to the system.

- If a recommendation were to be made, it would be to start thinking about replacing the storage tank as the next system upgrade. As mentioned above, the formation of a water district gives Meadow Hills more access to grants, funding, and low-interest loans.

No issues were observed with this item.

OPERATOR COMPLIANCE WITH STATE REQUIREMENTS:
Gavin Pirrie is the certified operator in responsible charge of this system. Gavin was in full compliance with all state requirements at the time of the inspection.

Gavin has backup operators available in case of emergency, and for when he is not available or cannot be reached. Please coordinate with Gavin the means to contact these individuals in such an event.

No issues were observed with this item.

WASTEWATER:
Each consumer in the PWS distribution system has their own onsite septic wastewater treatment system. There have been no issues documented of septic tanks impacting the source wells and Nitrates-Nitrites have remained consistently low between 1.03-1.12 mg/L over the last three years.

No issues were observed with this item.

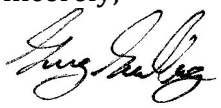
SIGNIFICANT DEFICIENCIES
No significant deficiencies were noted during this inspection.

Other System Deficiencies or Issues:
Bulleted items in the findings section above, but not listed as significant sanitary deficiencies, are recommendations to be addressed. While these items do not meet the EPA definition of significant deficiencies they are issues that should be corrected to minimize the potential for contamination to the system and to safely and effectively operate the system.

SDWIS Database Inventory Changes Made During This Inspection:
No database changes were necessary at the time of this inspection.

Thank you very much for your time and for your dedication to protecting public health through proper management of your public water system. If you have any questions about this report or public water supply regulations, please give me a call at (406) 755-8972. Please contact me if you find inaccuracies within this letter so I can make the appropriate corrections.

Sincerely,



Greg Sandberg
Environmental Science Specialist
DEQ PWS, Kalispell
Phone: (406) 755-8972
Fax: (406) 755-8977

CC: Helena PWS e-file
Flathead County e-file
Kalispell PWS file

Well 1
(WL002)

Site Name: MEADOW HILLS HOA
GWIC Id: 82796
DNRC Water Right: 41595

Section 1: Well Owner(s)
1) MALKUCH, TINA L. (MAIL)
218 LAKESHORE DR
KALISPELL MT 59901 [06/25/1999]
2) MEADOW HILLS (MAIL)
228 FOX HILL DRIVE
KALISPELL MT 59901 [04/20/1978]
3) MEADOW HILLS HOA (MAIL)
P.O. BOX 8112
KALISPELL MT 59904 [No Date]

Section 2: Location

Township	Range	Section	Quarter Sections
28N	22W	11	SW¼ SW¼ SW¼ NW¼

County	Geocode
FLATHEAD	

Latitude	Longitude	Geomethod	Datum
48.2053	-114.3709	MAP	NAD27

Ground Surface Altitude	Ground Surface Method	Datum	Date
3022	LIDAR	NAVD88	12/2015

Addition	Block	Lot
MEADOW HILLS		

Section 3: Proposed Use of Water
DOMESTIC (1)
PUBLIC WATER SUPPLY (2)

Section 4: Type of Work
Drilling Method: FORWARD ROTARY
Status: NEW WELL

Section 5: Well Completion Date
Date well completed: Thursday, April 20, 1978

Section 6: Well Construction Details
Borehole dimensions

From	To	Diameter
0	185	8

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-1	185	8				24 LB STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
170	185	8			1/4 X 4 INCH PERFS

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	25	PUDDLED CLAY	

Section 7: Well Test Data

Total Depth: 185
Static Water Level: 112
Water Temperature:

Air Test *

90 gpm with drill stem set at _ feet for 2 hours.
Time of recovery _ hours.
Recovery water level _ feet.
Pumping water level 150 feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log
Geologic Source
112ALVM - ALLUVIUM (PLEISTOCENE)

From	To	Description
0	6	TOPSOIL AND CLAY
6	60	CLAY AND BOULDERS
60	82	ROCK LEDGE
82	170	CLAY AND BOULDERS
170	185	GRAVEL AND WATER

Driller Certification
All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:
Company: BRIGGS DRILLING
License No: WWC-148
Date Completed: 4/20/1978

Site Name: MEADOW HILLS WATER DISTRICT
GWIC Id: 309196

Well 2
(WL003)
New Well

Section 1: Well Owner(s)
1) MEADOW HILLS WATER DISTRICT (MAIL)
P.O. BOX 8112
KALISPELL MT 59904 [08/05/2020]

Section 2: Location

Township	Range	Section	Quarter Sections
28N	22W	11	NW¼ NE¼ SE¼ SW¼

County	Geocode
FLATHEAD	

Latitude	Longitude	Geomethod	Datum
48.20030635595	-114.3650141205	TRS-SEC	NAD83

Ground Surface Altitude	Ground Surface Method	DatumDate

Addition	Block	Lot

Section 3: Proposed Use of Water
PUBLIC WATER SUPPLY (1)

Section 4: Type of Work
Drilling Method: ROTARY
Status: NEW WELL

Section 5: Well Completion Date
Date well completed: Wednesday, August 5, 2020

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	40	11.9
40	184	9.5

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	183	8.6	0.25	540.0	WELDED	A53B STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
175	182	8.6	48	0.250" X 1.25"	HOLTE PERFORATOR SLOTS

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	40	BENTONITE	Y

Section 7: Well Test Data

Total Depth: 184
Static Water Level: 145
Water Temperature:

Air Test *

80 gpm with drill stem set at 175 feet for 4 hours.
Time of recovery 0.02 hours.
Recovery water level 145 feet.
Pumping water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

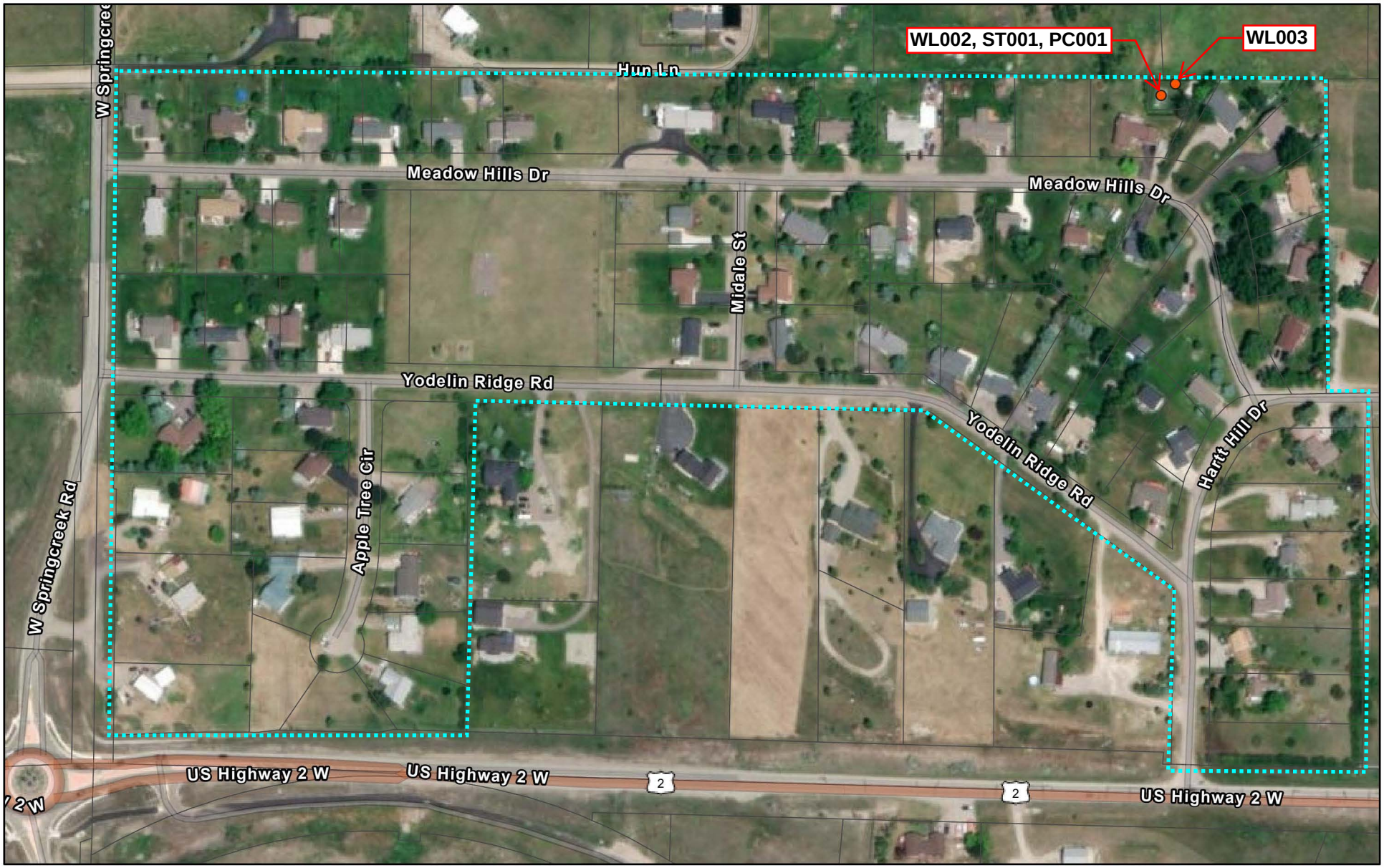
Section 9: Well Log
Geologic Source
Unassigned

From	To	Description
0	4	SANDY TOP SOIL
4	6	TAN CLAY
6	168	TAN SANDY CLAY WITH GRAVELS, BOULDERS AND COBBLES
168	174	HYDRATED TAN SANDY CLAY WITH LARGE GRAVELS AND COBBLES
174	184	SMALL TO LARGE GRAVELS, SOME COARSE SAND AND WATER

Driller Certification
All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name: LYLE SMITH
Company: OH WELL DRILLING AND PUMP
License No: WWC-637
Date Completed: 8/5/2020

Meadow Hills Water and Sewer District (MT0002925)



May 15, 2025

1:4,514

0 0.03 0.05 0.1 mi

0 0.04 0.08 0.16 km

- DEQ Public Water Supply Facilities
- Current Parcel Boundaries (Montana Cadastral)

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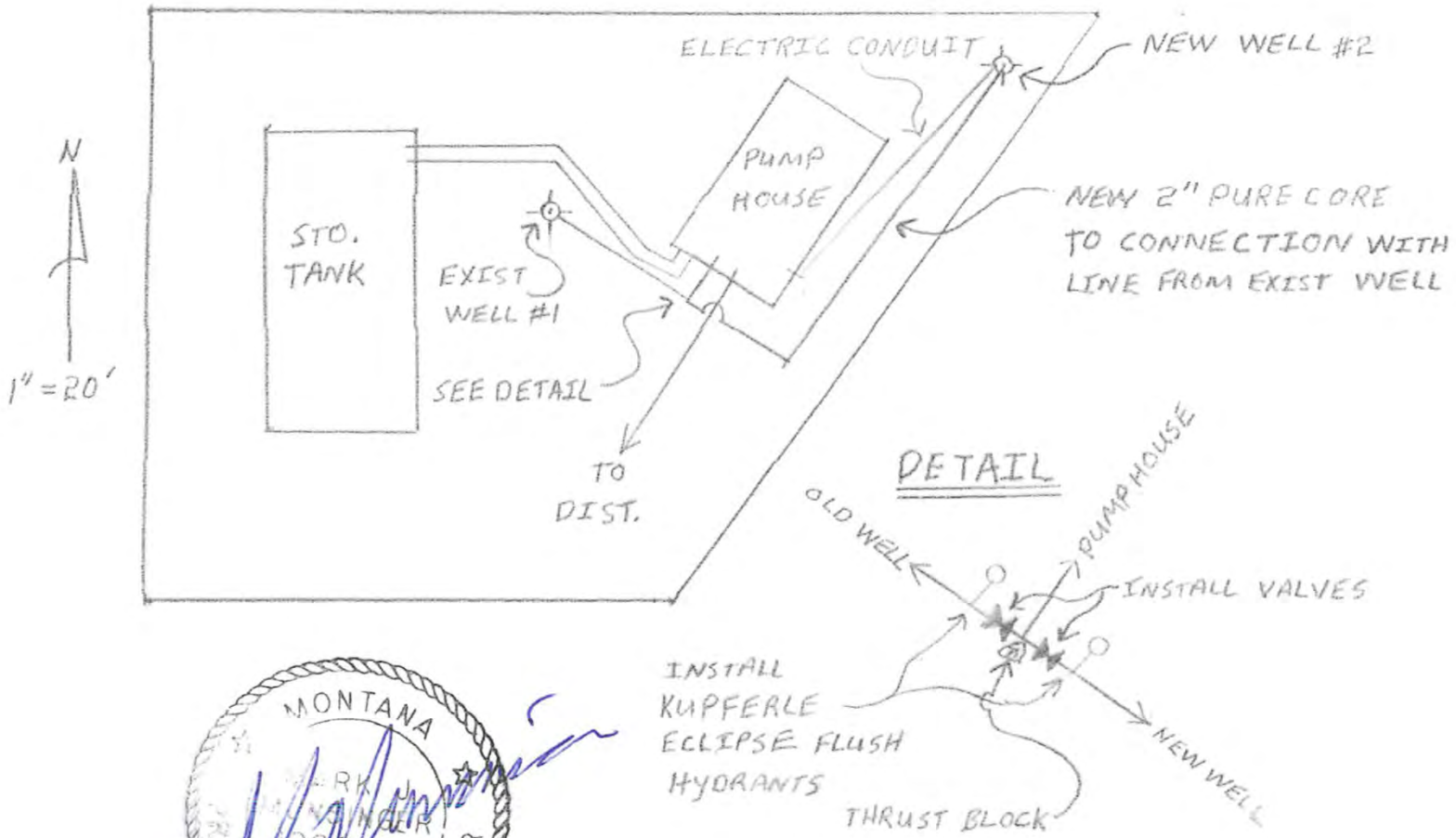
Greg Sandberg

Montana State Library, Montana Department of Revenue, Flathead County, Missoula County, Ravalli County, Silver Bow County, Yellowstone County | Maxar | Esri Community Maps Contributors, Montana State Library, © OpenStreetMap, Microsoft, Esri, TomTom,

MEADOW HILLS UTILITY LOT LAYOUT, ADD REDUNDANT WELL

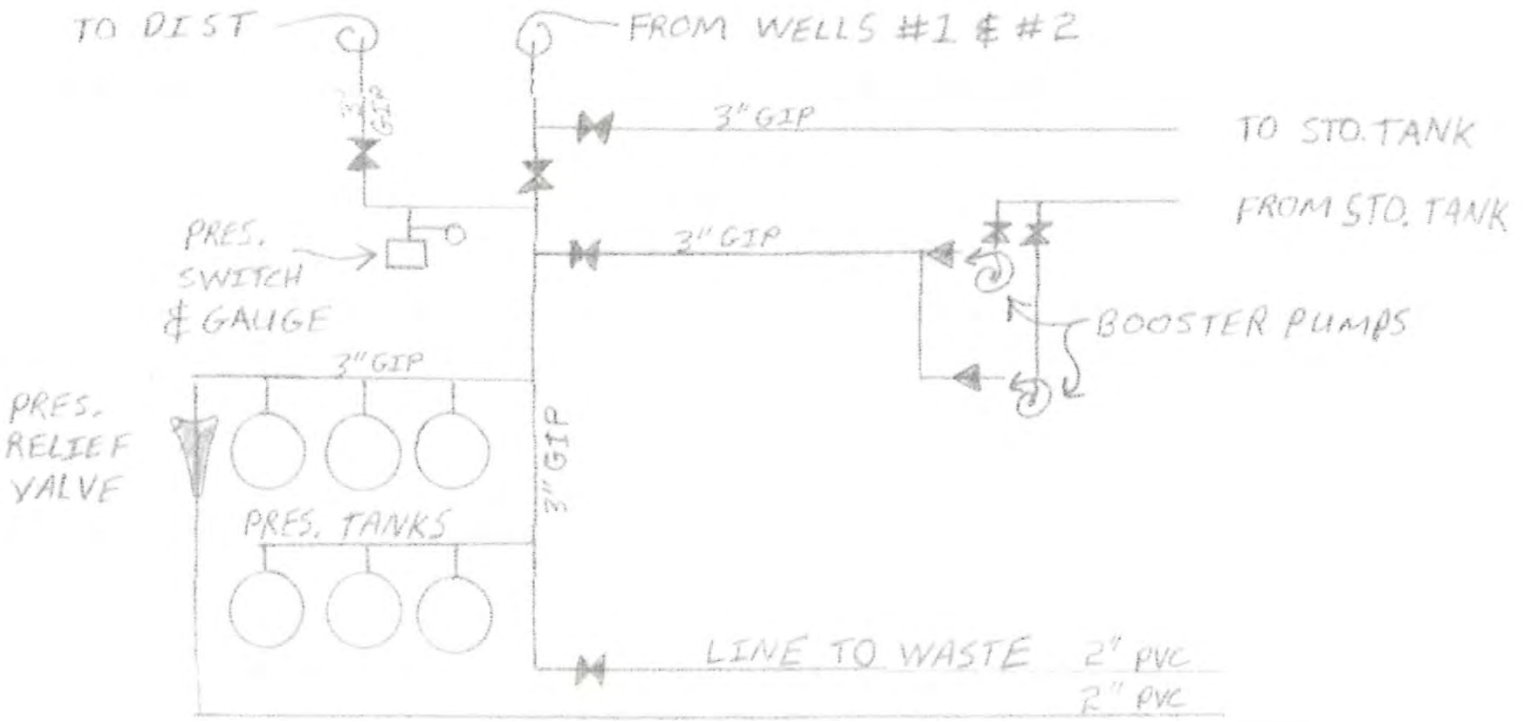
AS BUILT, AUG 30, 2024



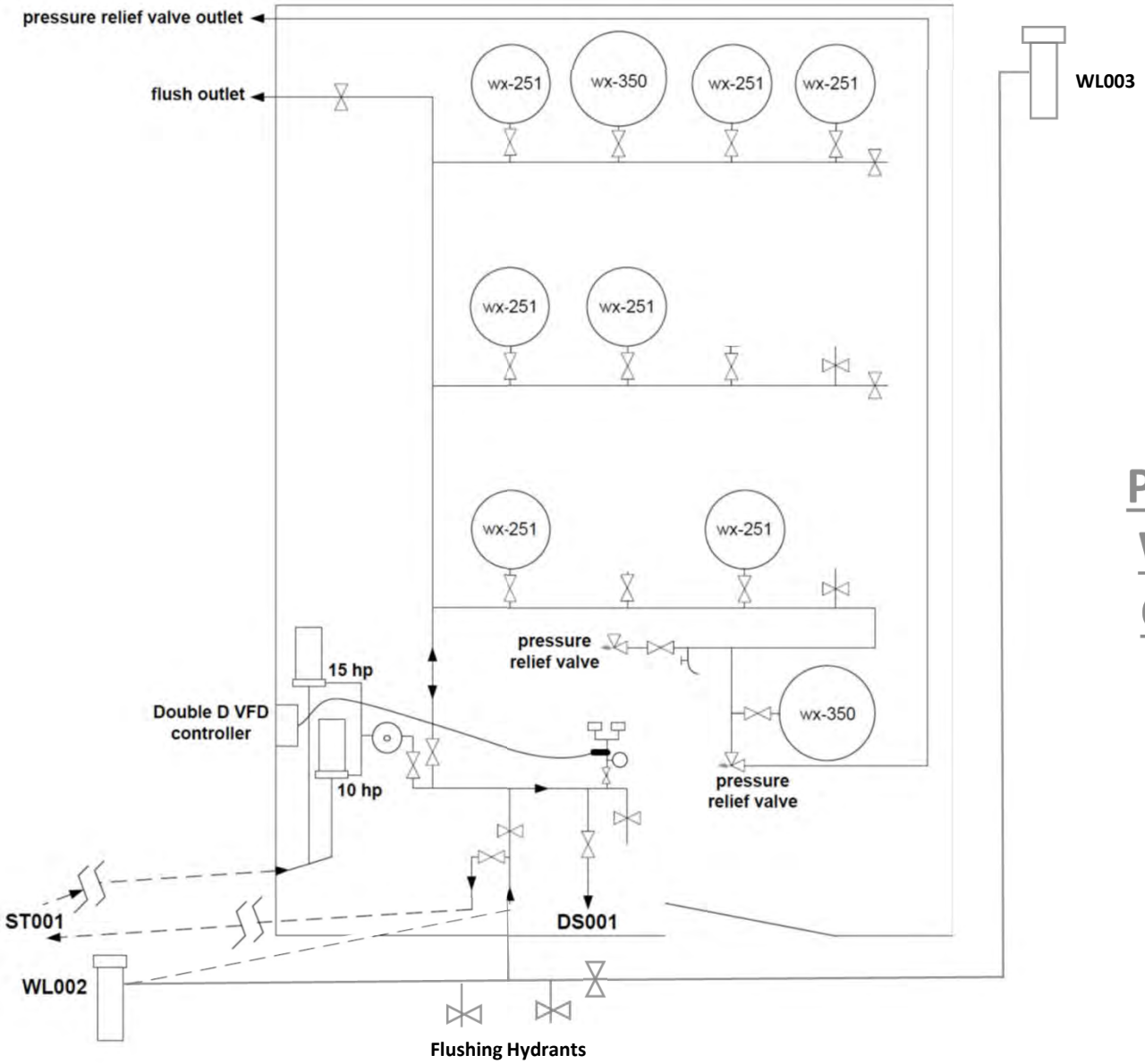
MONTANA
REGISTERED
PROFESSIONAL ENGINEER

9/6/24

Notes:



Meadow Hills Pump House
Plumbing Schematic
(2/4/22 System As Built)



Pump House & Water System Configuration (5/15/25)

Well-1 (WL002): Well-1 is positioned between the pump house and the storage tank. It employs a turtle style wellhead cap which was secure, sealed, and properly vented (picture insert). The conduit servicing the well was also secure and free of defects.

Well-2 (WL003): Well-2 is the new well which was installed in 2020. It is positioned off the NE corner of the Pump house. It also employs a turtle style wellhead cap which was secure, sealed, and properly vented (picture insert). The conduit servicing the well was also secure and free of defects.

Pump House / Pressure Control Assembly (PC001)

Top Left: Both wells, the Storage Tank (ST001), and the Pressure Control Assembly (PC001) are all located on a community lot (Lot-47) located behind the house at 355 Meadow Hills Drive. Well-1 Is picture in the fore ground; Well-2 is behind the building.
Top Center: Inside the building water from both wells join to a common header which fills the storage tank or can be bypassed to directly pressure the distribution system. Water from the storage tank is then pressurized using a 15hp and/or 10hp centrifugal booster pump(s). Two discrete pressure switches operate them in a lead/lag configuration.
Top Right: Nine Captive air tanks float on the distribution header to provide back-pressure between pump cycles. It is recommended flushing the tanks on a regular basis to avoid water stagnation in the far tanks.
Bottom Right: Well-1(red circle) and Well-2 (yellow circle) locations relative to the pump house.

Pressure Control Assembly (PC001) (continued)

Top Left: As part of the system upgrades completed under EQ#22-2276 in August 2024, a new well pump control panel was installed to mange the storage tank water level and the operation of both wells. The new panel is capable of rotating or independently operating each well, operating the wells using the storage tank level or the pressure switches when the tank is bypassed, and maintain the storage water levels. This is a very functional and usable panel.
Top Center: The actual Pressure Control Assembly (PC001) consists of the 9 captive air tanks, a pressure gauge, a pressure relief valve, and two discrete pressure switches (yellow circle) to activate the 10hp and 15hp centrifugal booster pumps in a lead/lag configuration. The pressure window placed on the distribution system was observed to be 58-70psi during the inspection.
Top Right: The pressure relief valve was properly sized & plumbed to the exterior of the building.
Bottom Right: The pressure relief valve and manifold flushing lines were both properly screeded on the exterior of the building.

Storage Tank (ST001) (28,000-gallon)

Top Left: The facility Storage Tank (ST001) is a 28,000-gallon partially buried cement and cinderblock storage tank. The tank was refurbished in the past by pouring new walls inside the tank but is beginning to show significant aging. Even for its age, the tank has been performing very well.

Top Right: The outer cinder-block wall is degrading significantly on the back corner of the tank. It is recommended starting to consider replacing the storage tank during the next facility upgrade project. Since Meadow Hills has already formed a Water District, additional grants, funding, and low interest loans are available for replacing the tank. Please contact Mike Kropp (406-755-8791) at DEQ for more information on available funding.

Bottom Right: The ST001 drain and overflow lines were properly screened at the northwest base of the tank.

Storage Tank (ST001) (continued)

Top Left: ST001 has two access hatches on top of the tank to assist with maintenance activities. The older style hatch (pictured) is rarely opened with additional clamps to ensure a good seal on the tank. The ST001 tank vent (yellow circle) is installed in the hatch lid and was properly screened. Ideally this vent should face downward to avoid contamination from wind and rain.

Top Center: The newer hatch is the primary access hatch for the tank. It consists of an aluminum hinged hatch that was secured with a pad lock for additional security.

Top Right: The seals for the aluminum hatch lid were in great shape. No signs of insect activity were observed inside or underneath the hatch lid.

Bottom Right: The water inside the storage tank was clean, clear, with little to no sediment on the tank floor. The tank is cleaned and inspected on a regular interval which helps significantly with tank reliability.