Processing Materials

- Work copies of applicant-submitted information
- Deficiency letter
- Deficiency response
- Correct & complete determination
- Any correspondence with the applicant after application receipt and prior to sending the Draft PD

Processing Materials

Water Resources Division – Kalispell Regional Office
655 Timberwolf Pkwy, Ste. 4
Kalispell, MT 59901-1215
(406) 752-2288
DNRCKalispellWater@mt.gov

August 10, 2026

TAPPAN LAW FIRM, PLLC – RICK TAPPAN
7 W 6TH AVE STE 615
HELENA MT 59601-5036

Subject: Deficiency Letter for Beneficial Water Use Permit Application No. 76LJ 30172712

Dear Mr. Tappan,

The Department of Natural Resources and Conservation (DNRC or Department) has begun reviewing your application. This letter is to notify you of the deficiencies in your application as required in Administrative Rules of Montana (ARM) 36.12.1501(1) and § 85-2-302(5)(b), Montana Code Annotated (MCA). An Applicant is required to submit substantial and credible information addressing the rules and statutes that are relative to your application. You must provide the information specified below for your application to be considered correct and complete. "Correct and complete" means all of the information provided is substantial and credible and provides all of the information as required by applicable rules and statutes. The application as submitted contains deficiencies in the following sections:

- **Form 600, Purpose and Diversion Information, Question 19. (Administrative Rules of Montana (ARM) 36.12.115):**

  Question 19: Does the proposed use include one or more of the following purposes: domestic, multiple domestic, stock, or irrigation? If Yes, fill out the table below, where applicable.

  - Your Response:

Purpose	Requested Information	Response
Domestic or multiple domestic	Number of households and bedrooms served per household	682 EDU (Equivalent Dwelling Units)
Stock	Number of animal units	
Irrigation	Method of irrigation type (sprinkler or flood) and subtype (if flood: level border, graded border, furrow, contour ditch, or other; if sprinkler: center pivot, wheel line, or other)	Sprinkler - Lawn + Landscape Irrigation
Irrigation (flood only)	Design slope	

Cooper Farms is a planned residential subdivision to consist of approximately 700 equivalent dwelling units (EDU) comprised of primarily residential homes with an assumed 18 EDU being commercial properties. The subdivision will have lawn and garden demands on the private lots, parks, and common

space. Based on the density ranges given in the Cooper Farms Neighborhood Plan adopted by Flathead County, the water demands by area were estimated. The following assumptions were made for the water demand calculations:

1. *Each dwelling unit was one (1) EDU or ¾" meter.*
2. *Area Four – Commercial consists of eleven ¾" meters (or 1.00 EDU) and one 1.5" (or 4.00 EDU) for a total of 18 EDU.*
3. *Per each dwelling there are an average of 2.5 persons per household.*
4. *Per each person 100 gallons per day is used to estimate average demands.*
5. *A max day factor of 2 was assumed.*
6. *A peak hour factor was calculated using equation 10-1 from Chapter 10, Section 11.24 of Circular DEQ-2 Design Standards for Public Sewage Systems 2018.*
7. *Based on local weather station data and a 70% application efficiency a factor of 1.94 acre-feet per year was applied to the estimated total irrigation acreage.*

- Deficiency: According to the narrative you provided in your *Basis for Water Volume Calculations, Equivalent Dwelling Units* regarding calculation of equivalent dwelling units (EDU), you indicate there are a total of 682 EDU for multiple domestic use plus an additional 18 EDU calculated for the commercial use bringing the total EDU for Cooper Farms to 700 EDU. Based on lines 1 and 2 in the information provided in the *Basis for Water Volume Calculations, Equivalent Dwelling Units,* a ¾" meter is equivalent to 1 EDU and a 1.5" meter is equivalent to 4 EDU. there are eleven (11) ¾" meters equaling 11 EDU and one (1) 1.5" meter equaling 4 EDU, there appears to be 3 unaccounted for EDU. Commercial use: **11 EDU + 4 EDU = 15 EDU. Commercial use EDU 15 + Multiple Domestic EDU 682 = 697 EDU**. Please clarify how you calculated 18 EDU for commercial use or if the total Equivalent Dwelling Units for this project should be 700 or 697 and if there needs to be volume adjustments.

- **Form 600, Place of Use, Question 22. (Administrative Rules of Montana (ARM) 36.12.115):**

  Question 22: Describe the legal land description for the proposed place of use and, if applying for an irrigation or lawn and garden purpose, list the number of irrigated acres.

  - Your response:

Acres	Gov. Lot	Block	¼	¼	¼	Sec.	Twp.	Rge.	County
49.00					E2	14	27N	21W	Flathead
14.00				S2	NW	14	27N	21W	Flathead
7.00			W2	W2	W2	13	27N	21W	Flathead

Assuming approximately 49 acres of lawn and landscape area are irrigated from the PWS system at an application rate of 1 inch per week during the irrigation season, the peak irrigation demand is approximately 1,330,500 gallons per week.

- Deficiency: Your response to question 22 states there is a total of 70 acres irrigated throughout the project area. In the supplied preliminary engineering report, you used only 49 acres to calculate peak irrigation demand. Please clarify the discrepancy between the application form and the preliminary engineering report as there may be unaccounted water not included as a part of the total volume requested for this application.

- **Form 600, Purpose and Diversion Information Question 18. (Administrative Rules of Montana (ARM) 36.12.115):**

Question 18: Fill out the table below. Means of Diversion for surface water includes headgate, pump, dam, and others. Means of diversion for groundwater includes well, developed spring, pit pond, and others.

- Your response:

Purpose	Means of Diversion	Acres Irrigated (if appl.)	Period of Diversion *(Month/Day - Month/Day)*	Period of Use *(Month/Day - Month/Day)*	Flow Rate ☑ GPM ☐ CFS	Volume *(Acre-Feet)*
Multiple Domestic	Wells (2x)	-	01/01-12/31	01/01-12/31	300	191.0
Commercial	Wells (2x)	-	01/01-12/31	01/01-12/31	300	5.0
Lawn and Garden	Wells (2x)	70.0	04/15-10/15	04/15-10/15	300	135.8
				Total Flow Rate and Volume Required	300	331.8

The Applicant seeks to appropriate sufficient water to allow for lawn and garden irrigation of 0.1 acres per dwelling unit, or 70.0 acres. The allowable irrigation volumes calculations are a function of the well pumping capacity and the volume of water remaining after the domestic and commercial demands have been satisfied, during the irrigation season. Per the U.S. Department of Agriculture's (USDA) Irrigation Water Requirements (IWR) calculations, the irrigation season proposed for this water right is 177 days between April 21 and October 15, annually. In this timeframe the wells are capable of 235 acre-feet and the commercial and domestic demands are 2.4 and 92.6 acre-feet, respectively. The remaining 140 acre-feet per irrigation season is available for lawn and garden irrigation. The water system has been designed to accommodate an irrigation demand of up to one-inch of irrigation application per week.

- Deficiency: You requested a period of use and a period of diversion of 04/15 to 10/15 (184 days) for the lawn and garden purpose in the table under question 18. However, according to the narrative you provided in the *Basis for Water Volume Calculations, Lawn and Garden,* you used a period of diversion/use of 04/21 to 10/15 to calculate your lawn and garden volume request. Please clarify the period of diversion and period of use you are requesting in order to satisfy the irrigation needs for this project; you may need to update your volume calculations based on the days of diversion needed.

****

As stated above, the information submitted to address the rules and statutes listed in this deficiency letter must be substantial credible information to be acceptable at the correct and complete determination. §§85-2-102 (9) and (26), MCA.

Please submit the information specified above to the Kalispell Regional Office by December 8, 2026. This is the only deficiency letter that will be sent. An application not rendered correct and complete within 120 days from the date of this letter is terminated per ARM 36.12.1501(2) and §85-2-302(6)(a), MCA.

IMPORTANT NOTICE: This will be the final opportunity for you to provide the required information to the Department. If all of the requested information in this letter is not postmarked or submitted within 120 days of this letter, the application will be terminated within 30 days, and the application fee will not be refunded.

Please contact me if you have any questions.

Sincerely,

Jack Vanderbilt
Water Resource Specialist
Kalispell Regional Water Resource Office
(406) 752-2702
Jack.Vanderbilt@mt.gov

Cc via email: Brad Bennett, Senior Hydrogeologist Water and Environmental Technologies

Water & Environmental
TECHNOLOGIES

RECEIVED
DNRC Water Resources
OCT 05 2026
Kalispell Unit

September 30, 2026

Jack Vanderbilt
Montana Department of Natural Resources and Conservation
Kalispell Regional Water Resource Office
655 Timberwolf Parkway, Suite 4
Kalispell, MT 59901

RE: Response to Deficiency Letter; Beneficial Water Use Permit Application No. 76LJ 30172712; Cooper Farms Development – Flathead County, Montana

Dear Jack:

Water & Environmental Technologies (WET), on behalf of LBO Properties Limited Partnership, Owl Ventures, LLC, and Mark G. Owens, is providing the following information in response to the Department's deficiency letter for Beneficial Water Use Permit Application No. 76LJ 30172712.

The requested appropriation remains unchanged at a maximum diversion rate of 300 gallons per minute (gpm) and a total annual volume of 331.8 acre-feet (AF) for multiple domestic, commercial, and lawn and garden irrigation uses. The responses below clarify inconsistencies identified by the Department and provide revised supporting documentation where appropriate.

Question 19 – Number and Type of Connections

The proposed Cooper Farms development consists of approximately 700 equivalent dwelling units (EDU). Of the 700 total EDU, 682 EDU are associated with multiple domestic uses and 18 EDU are associated with commercial uses.

For purposes of estimating commercial water demand, the 18 commercial EDU are assumed to be equivalent to 18 ¾-inch meter connections. This assumption is used to establish the commercial water demand of 4,500 gallons per day and 5.0 AF per year and is not intended to prescribe the final number or configuration of commercial service connections. Final service and meter configurations will be established through final engineering design.

Attachment D, Basis for Water Volume Calculations, has been revised to clarify this assumption. The total estimated potable water demand remains unchanged at 175,000 gallons per day and 196 AF per year, consisting of 191 AF per year for multiple domestic use and 5.0 AF per year for commercial use.

Question 22 – Lawn and Garden Irrigation Acreage

The requested lawn and garden irrigation acreage is 70.0 acres. The reference to approximately 49 acres in the previously submitted Preliminary Engineering Report was an error and has been corrected.

The revised Preliminary Engineering Report assumes approximately 70 acres of lawn and landscape irrigation. At the maximum groundwater diversion rate of 300 gpm, the system can provide an average irrigation application of approximately 0.95 inch per week while concurrently meeting the average

potable demand of 175,000 gallons per day. The resulting average irrigation demand is approximately 257,000 gallons per day, for a combined average demand of approximately 432,000 gallons per day, equivalent to the maximum groundwater diversion rate of 300 gpm.

The requested lawn and garden irrigation volume remains 135.8 AF per year for 70.0 acres.

Question 18 – Period of Diversion and Use for Lawn and Garden Irrigation

The requested period of diversion and period of use for lawn and garden irrigation is April 15 through October 15, annually.

The previously submitted Attachment D incorrectly characterized the crop-growth period used in the USDA Irrigation Water Requirements (IWR) analysis as the proposed irrigation season. Attachment D has been revised to correct this statement.

The April 21 and October 8 dates shown in the IWR output represent the modeled beginning and end of the crop growing season used to calculate the annual irrigation requirement. These dates do not define the requested period of diversion or period of use.

For the requested April 15 through October 15 period, the wells are capable of diverting approximately 243.9 AF at the requested maximum diversion rate of 300 gpm. During this same period, the estimated multiple domestic and commercial demands are approximately 96.3 AF and 2.5 AF, respectively, leaving approximately 145.1 AF of pumping capacity available for lawn and garden irrigation. This is sufficient to provide the requested irrigation volume of 135.8 AF.

The requested period of diversion and use for lawn and garden irrigation therefore remains April 15 through October 15.

The following revised supporting documents are enclosed with this response:

- **Attachment B – Preliminary Engineering Report, revised September 30, 2026**
- **Attachment D – Basis for Water Volume Calculations**

The revisions described above are intended to clarify and correct inconsistencies in the supporting documentation. They do not change the proposed points of diversion, places of use, purposes of use, requested maximum diversion rate of 300 gpm, or requested total annual volume of 331.8 AF.

We appreciate the Department's review of the application. Please contact me if you have any questions or require additional information.

Sincerely,

Brad Bennett, PG
Senior Hydrogeologist
Water & Environmental Technologies

Attachment B

Preliminary Engineering Report
Revised September 30, 2026

COOPER FARMS

PRELIMINARY ENGINEERING REPORT (9/30/2026)

GENERAL:

Cooper Farms is a proposed 700 equivalent dwelling unit (EDU) development located near the northeast corner of U.S. Hwy 93 (to the west) and MT Hwy 82 (to the south). The Cooper Farms Neighborhood Plan was approved by the Flathead County Planning Board in March, 2006 and was adopted by the Flathead County Commissioners in March 2007 as a part of the Flathead County Growth Policy. The property is owned and will be developed by LBO Properties Limited Partnership; 500 Palmer Drive; Kalispell, MT 59901. A licensed water system operator will be hired after system construction.

The property will be developed in a number of phases and with the initial phase, the owners will request zoning approval and approval of a Master Planned Unit Development. With each phase will come a more detailed Planned Unit Development (PUD) and a preliminary plat application. Included as a part of the 700 EDU's will be a small commercial component that will be located along MT Hwy 82. The vast majority of the 700 EDU's will be residential. The water system will be designed to operate under all weather and temperature conditions.

WATER SUPPLY:

Water to Cooper Farms will be provided by a new public water supply system consisting of two (2) drilled wells; a 375,000-gallon ground-level storage tank; a building housing well distribution piping, a booster pump station and an emergency power generator; and literally miles of 8", 10" and 12" PVC, AWWA C900 DR 18 PVC water mains. The water system will provide water to all Cooper Farms residents for domestic, fire protection and irrigation uses. There are no intentions, nor will the water system be designed, to serve any other properties than Cooper Farms. There are no existing operational water supply facilities on the property.

Drilled Wells: The first of the 10" wells was drilled to a depth of 304 ft bgs. The static water level was 25.1 ft btoc and the well was initially test pumped with air at 600 gpm for four hours. The second 10" well was drilled to a depth of 320 ft bgs and the static level was 25 ft btoc. This well was pumped at 500 gpm with air for five hours. Both wells were constructed in compliance with specifications approved by the DNRC and MDEQ. Both wells were later test pumped at 300 gpm for a period of 72 hours. Total drawdown in Well #1 after 72 hours of pumping was 174 ft. and the drawdown was 190 ft. in Well #2.

Discharge piping from each of the wells will run through a well house with necessary isolation valves, pressure relief valves, metering and sample ports provided and then to a 375,000-gallon bolted-steel storage tank. The location of the proposed wells was selected to provide 100-ft. control zones for each well without encroaching onto neighboring property and to meet separation requirements to proposed sewage collection facilities and other potential sources of contamination.

Booster Pump Station: A booster pump station will be proposed to provide adequate water system flow and pressure to all residents in Cooper Farms. The booster pump station will be designed to provide water for domestic consumption, irrigation and for fire protection.

Based on preliminary design calculations, the booster pump station will consist of five (5) Grundfos vertical, multiple-stage centrifugal pumps – two (2) Model CR32-2-1 with 10.0 Hp motors and three (3) Model CR95-3-2 with 40 Hp motors. The power supply to the station will be 460 volt, 3 phase. Each pump will be controlled by an integral variable frequency drive (VFD) to provide a constant discharge pressure of 70 psi. At this discharge pressure setting, which is adjustable, pressure at all user locations during periods of "normal" operation will be at least 60 psi and a minimum pressure of at least 40 psi will be provided at all fire hydrant locations within Cooper Farms during fire flows of at least 1000 gpm..

The booster pump station will also include a Well-X-Trol Model 450C hydropneumatic tank; an insert magnetic flowmeter; silent check valves on the discharge side of the each pump; pressure gauges on the suction and discharge sides; a smooth-nosed sample cock; and all necessary pipe, valves and fittings. All will be housed in a 16' x 24' building with heat, lights, ventilation and a floor drain.

A 250 kW emergency power generator will be provided to run all five booster pumps in the event of a power outage. It will also start and run one of the two well pumps to provide at least 350 gpm when the primary power supply is out.

A. WATER USE DATA:

1). Based on an average daily demand of 250 gpd per EDU for preliminary system sizing:

Average Daily Demand:	700 x 250 gpd	175,000 gpd	121.5 gpm
Maximum Daily Demand:	2 x 175,000 gpd	350,000 gpd	243.1 gpm
Peak Hourly Demand:	3 x 175,000 gpd	525,000 gpd	364.6 gpm

2). Assuming approximately 70 acres of lawn and landscape area are irrigated from the PWS system, the maximum irrigation demand that can be supplied, while also

meeting the average daily potable demand, is approximately 0.95 inch per week, equivalent to approximately 1.80 million gallons per week (257,000 gallons per day). Combined with the average potable demand of 175,000 gallons per day, the total average demand is approximately 432,000 gallons per day, equivalent to the maximum diversion rate of 300 gpm.

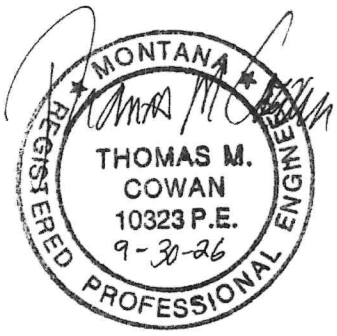
3). The water system will be capable of providing fire protection flows of at least 1,000 gpm for a period of at least two hours, at a minimum pressure of 40 psi throughout the system.

SEWER SERVICE

Sewer service to Cooper Farms will be provided by a new public wastewater collection system that will be connected to a Lakeside County Sewer District force main that runs through the easterly portion of Cooper Farms. The District wastewater lagoons are located adjacent to the northeast corner of Cooper Farms and treated wastewater is spray irrigated on land just north on Cooper Farms. The owners of Cooper Farms have already secured a connection agreement with the District for the 700 proposed EDU's. The new wells being proposed for Cooper Farms will be approximately 3,300 ft from the existing Lakeside County Water & Sewer District wastewater lagoons. Other than the previously mentioned Lakeside Sewer District force main, there are no existing operational sewer facilities on the property.

Prepared by

Tom Cowan, P.E.
CE LLC dba Carver Engineering



Attachment D

Basis for Water Volume Calculations

Water & Environmental
TECHNOLOGIES

Basis for Water Volume Calculations – Cooper Farms Water Right Application

Residential and Commercial Potable Uses

Cooper Farms is a planned residential subdivision to consist of approximately 700 equivalent dwelling units (EDU) comprised of primarily residential homes with an assumed 18 EDU being commercial properties. The subdivision will have lawn and garden demands on the private lots, parks, and common space. Based on the density ranges given in the Cooper Farms Neighborhood Plan adopted by Flathead County, the water demands by area were estimated. The following assumptions were made for the water demand calculations:

1. Each dwelling unit was one (1) EDU or ¾" meter.
2. For purposes of estimating water demand, Area Four – Commercial is assumed to consist of 18 equivalent ¾-inch meter connections, or 18 EDU.
3. Per each dwelling unit there are an average of 2.5 persons per household.
4. Per each person 100 gallons per day is used to estimate average demands.
5. A max day factor of 2 was assumed.
6. A peak hour factor was calculated using equation 10-1 from Chapter 10, Section 11.24 of Circular DEQ-2 Design Standards for Public Sewage Systems 2018.
7. Based on local weather station data and a 70% application efficiency a factor of 1.94 acre-feet per year was applied to the estimated total irrigation acreage.

A breakdown of the Areas from the Neighborhood Plan, total EDU, average estimated water demand by Area, and corresponding annual volume are presented in **Table 1**. Area Four is designated as the commercial area with an anticipated demand of 5.0 acre-feet (AF) per year and the remaining volume is domestic use calculated to be 191 AF per year for a total of 196 acre-feet, excluding lawn and garden irrigation.

Table 1: EDU and Water Demands per Area

Area Designation from Neighborhood Plan	Total EDU	Average Gallons per Day	Acre-Feet Per Year
Area One - Wetlands Preserves	0	0	0
Area Two - Domestic	282	70,500	79
Area Three - Domestic and Parks	178	44,500	50
Area Four – Commercial	18	4,500	5
Area Five - Domestic	159	39,750	45
Area Six - Domestic	63	15,750	18
Total EDU	**700**	**175,000**	**196**

The water system is designed to operate at a maximum flow rate of 300 gpm. The wells will be operated individually, and both are capable of producing 300 gpm. This flow rate is sufficient to accommodate the maximum daily demand and peak hourly flows.

Lawn and Garden Irrigation

The Applicant seeks to appropriate sufficient water to allow for lawn and garden irrigation of 0.1 acres per dwelling unit, or 70.0 acres. The allowable irrigation volume calculation is a function of the well pumping capacity and the volume of water remaining after the domestic and commercial demands have been satisfied during the irrigation season. The requested period of diversion and period of use for lawn and garden irrigation is April 15 through October 15, annually, a period of 184 days. During this period, the wells are capable of diverting approximately 243.9 acre-feet. The commercial and domestic demands during this period are approximately 2.5 and 96.3 acre-feet, respectively. Approximately 145.1 acre-feet of pumping capacity therefore remains available during the irrigation season, which is sufficient to provide the requested 135.8 acre-feet of lawn and garden irrigation. The water system has been designed to accommodate an irrigation demand of up to one-inch of irrigation application per week.

Lawn and garden irrigation is restricted to an annual volume not to exceed 135.8 acre-feet per year. Irrigation water demands were determined using the USDA IWR software (Natural Resources and Conservation Services Version 1.0, March 1, 2003). The irrigation standard for sprinkler irrigation of pasture grass was corrected for turf grass per DNRC Guidelines entitled "DNRC Consumptive Use Methodology – Turf Grass" (March 23, 2010). The results of the IWR analysis indicate the net irrigation requirement in a dry year is 16.27 inches in the Creston area. Sprinkler irrigation in Climate Zone III is considered to be 70 percent efficient (ARM 36.12.115(1)(e)). Therefore, the irrigation requirement is 23.24 inches (1.94 acre-feet) per annum. This volume of water is consistent with DNRC standards, which allow up to 2.5 acre-feet per acre for lawn and garden irrigation (36.12.115(2)(b)). A copy of the IWR calculations displaying the monthly irrigation water requirements is provided**.** The April 21 and October 8 dates shown in the IWR output represent the modeled beginning and end of the crop growing season used to calculate the annual irrigation requirement and do not define the requested period of diversion or period of use. As indicated, the proposed irrigated area is 70.0 acres; as such, the maximum volume of water that shall be appropriated for irrigation is 135.8 acre-feet.

Irrigation Water Requirements
Crop Data Summary

Job: **Cooper Farms**
Location: **Somers, MT**
By: **B. Bennett**
Weather Station: **CRESTON**
Latitude: **4811** Longitude: **11408**
Computation Method: **Blaney Criddle (TR21)**
Crop Curve: **Blaney Criddle Perennial Crop**
Begin Growth: **4/21** End Growth: **10/8**

Crop: **Pasture (grass)**
County: **Flathead, MT**
Date: **06/22/15**
Sta No: **MT2104**
Elevation: **2940** feet above sea level

Net irrigation application: **1** inches
Estimated carryover moisture used at season:
Begin: **0.25** inches End: **0.25** inches

Month	Total Monthly ET (3) inches	Dry Year 80% Chance (1)		Normal Year 50% Chance (1)		Average Daily ETc inches	Peak Daily ETPk inches
		Effective Precipitation inches	Net Irrigation Reqirements inches (2)	Effective Precipitation inches	Net Irrigation Reqirements inches (2)		
January	0.00	0.00	0.00	0.00	0.00	0.00	
February	0.00	0.00	0.00	0.00	0.00	0.00	
March	0.00	0.00	0.00	0.00	0.00	0.00	
April	0.69	0.19	0.25	0.25	0.19	0.07	
May	3.05	0.97	2.07	1.24	1.80	0.10	0.11
June	4.30	1.16	3.14	1.48	2.82	0.14	0.17
July	5.43	0.81	4.61	1.04	4.38	0.18	0.21
August	4.81	0.66	4.15	0.84	3.97	0.16	0.19
September	2.58	0.62	1.96	0.79	1.78	0.08	0.10
October	0.47	0.12	0.10	0.15	0.06	0.06	
November	0.00	0.00	0.00	0.00	0.00	0.00	
December	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	**21.31**	**4.54**	**16.27**	**5.80**	**15.02**		

(1) For 80 percent occurrence, growing season effective precipitation will be equaled or exceeded 8 out of 10 years. For 50 percent chance occurrence, effective precipitation will be equaled or exceeded 1 out of 2 years.

(2) Net irrigation requirements is adjusted for carryover moisture used at the beginning of the season and carryover moiature used at the end of the growing season.

(3) ET Evapotranspiration) is adjusted upwards 10% per 1000 meters above sea level.

Date: 6/22/2015

Vanderbilt, Jack

From: Brad Bennett <bbennett@waterenvtech.com>
Sent: Friday, October 30, 2026 12:29 PM
To: Vanderbilt, Jack
Subject: [EXTERNAL] Owens/Cooper Farms Water System Estimated Length of Mains

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Jack –

I am following up regarding the planned water system to serve the Cooper Farm development. I was able to follow up with the engineer and he initially anticipates approximately 45,700 feet (approximately 8.7 miles) of water main for the project. The water main will be of varying sizes, dependent upon where it is at within the distribution system. As noted, the mains will primarily consist of 8”, 10”, and 12” PVC AWWA C900 DR 18.

Please let me know if I can provide anything more to support your evaluation.

Thank you,

Water & Environmental TECHNOLOGIES

Brad Bennett, PG
Senior Hydrogeologist
P: (406) 309-6085
C: (406) 860-6244
waterenvtech.com [waterenvtech.com]

[facebook.com] [linkedin.com] [twitter.com] [youtube.com]

Water Resources Division – Kalispell Regional Office
655 Timberwolf Pkwy, Ste. 4
Kalispell, MT 59901-1215
(406) 752-2288
DNRCKalispellWater@mt.gov

November 4, 2026

TAPPAN LAW FIRM, PLLC – RICK TAPPAN
7 W 6TH AVE STE 615
HELENA, MT 59601-5036

Subject: Correct and Complete Application for Beneficial Water Use Permit Application No. 76LJ 30172712

Dear Applicant,

The Department of Natural Resources and Conservation (Department) has determined that your application is correct and complete pursuant to Administrative Rules of Montana 36.12.1601. Please remember that correct and complete **does not mean that your application will be granted**. The purpose of this letter is to indicate that the Department has enough information to analyze your water right application.

The Department will issue a Draft Preliminary Determination within 60 days of the date of this letter per §85-2-307(2)(b), Montana Code Annotated (MCA).

Following issuance of the Draft Preliminary Determination, you (Applicant) will have 15 business days to request an extension of time to submit additional information, if desired pursuant to §85-2-307(3)(a), MCA.

If no extension of time is requested and the Draft Preliminary Determination decision is to grant your application or grant your application in modified form, the Department will prepare a notice of opportunity to provide public comment, per §85-2-307(4)(a), MCA.

If no extension of time is requested and the Draft Preliminary Determination decision is to deny your application, the Department will adopt the Draft Preliminary Determination as the final determination per §85-2-307(3)(d)(ii), MCA.

Please contact me at (406) 752-2702 or Jack.Vanderbilt@mt.gov if you have any questions.

Sincerely,

Jack Vanderbilt
Water Resource Specialist
Kalispell Regional Water Resources Office

Cc via email: Brad Bennett, Senior Hydrogeologist Water and Environmental Technologies

Application Materials

- Application
- Any information submitted with Application including maps

Application Materials

Water & Environmental
TECHNOLOGIES

July 15, 2026

Jim Ferch
Montana Department of Natural Resources and Conservation
Kalispell Regional Office
655 Timberwolf Parkway, Suite 4
Kalispell, MT 59901

RE: Application for Beneficial Water Use Permit (Form 600); Groundwater Application No. 76LJ 30172712; Cooper Farms Development – Flathead County, Montana

Dear Jim,

Enclosed for your review is the Application for Beneficial Water Use Permit (Form 600) for Groundwater Application No. 76LJ 30172712 on behalf of LBO Properties Limited Partnership, Owl Ventures, LLC, and Mark G Owens for the proposed Cooper Farms public water supply system.

This application is submitted following completion of the Form 600P preapplication process. The proposed project is unchanged from the project evaluated during the preapplication process, including the Form 600P-A, Form 600P-B, subsequent supplemental information, and the Department's completed Technical Analyses. Accordingly, this application supplements the existing administrative record with the final Form 600 and the supporting documentation referenced herein.

The enclosed Form 600 constitutes the primary application. Where the space provided within the Form 600 was insufficient to fully address a question, supplemental narrative responses are provided below. Supporting engineering reports, technical memoranda, calculations, figures, and other documentation are enclosed where referenced in the application.

The following narrative responses are provided in support of the application:

17. Mapping

The proposed Cooper Farms development and associated public water system are illustrated in **Attachment A**. The enclosed figures identify the project location, proposed points of diversion, places of use, service area, public water system infrastructure, and other features relevant to the proposed appropriation.

Attachment A includes the following figures:

- Figure 1. Site Vicinity & Well Locations
- Figure 2. Cooper Farms Neighborhood Plan
- Figure 3. Lawn & Garden Irrigated Area Map
- Figure 4. General Layout – Water System

- Figure 5. Proposed Well #1 & #2 Site Plan

23.a Summarize how the supplemental and proposed water rights will be operated as a whole to serve the purpose(s).

Provisional Permit No. 76LJ 7577-00 authorizes the diversion of surface water from Wiley's Slough for irrigation and stock water. This permit may be utilized in the future to irrigate common areas within the Cooper Farms development through a separate irrigation system. The groundwater permit requested herein will supply the community public water system, including multiple domestic, commercial, and private residential lawn and garden uses within the proposed development. The two water rights serve separate purposes and will be operated independently. Together, they provide the overall water supply strategy for the Cooper Farms development while avoiding duplication of water use.

33. Describe specific information about the capacity of all proposed diversionary structures. This may include, where applicable: pump curves and total dynamic head calculations, headgate design specifications, and dike or dam height and length.

The proposed diversion facilities for the Cooper Farms public water supply system consist of two public water supply (PWS) wells, a ground-level storage reservoir, booster pump station, and associated transmission facilities. Each production well is designed to divert up to 300 gpm. Under normal operating conditions, the wells will operate on an alternating basis in response to storage reservoir water levels to meet system demands while providing operational redundancy. Water produced by the wells will be conveyed through the transmission system to the proposed 375,000-gallon storage reservoir. The storage reservoir provides operational storage, equalization storage, and fire protection storage for the public water system. Water will then be distributed throughout the development by the booster pump station and public water distribution system, which has been designed to provide adequate flow and pressure for multiple domestic, commercial, private residential lawn and garden irrigation, and fire protection demands.

Table 1. Production Well Construction and Aquifer Test Summary

	Well #1 (West)	Well #2 (East)
GWIC ID Number	318895	319285
Total Depth	299 feet	315 feet
Static Water Level (btoc)	23.64 feet btoc	22.44 feet btoc
Grout Seal Depth	55 feet bgs	55 feet bgs
Well Casing Diameter	10 inch	10 inch
Screened Interval	289 to 299 feet bgs	305 to 315 feet bgs
Tested Pumping Rate	300 gpm	300 gpm
Pumping Water Level @ 8 hours	161 ft btoc	171 ft btoc
Pumping Water Level @ 24 hours	183 ft btoc	199 ft btoc
Pumping Water Level @ 72 hours	198 ft btoc	213 ft btoc
Drawdown after 72 hours pumping	174 ft	190 ft

Static water level measurement for Well #1 made May 2, 2022 and for Well #2 made June 20, 2022.

Both production wells were successfully completed in the deep alluvial aquifer and subjected to 72-hour constant-rate aquifer tests at 300 gpm. The aquifer testing demonstrated that each well

is capable of producing the requested diversion rate while maintaining acceptable pumping water levels. The combined developed capacity of the two production wells provides operational redundancy and sufficient capacity to reliably meet the requested diversion rate and annual diversion volume for the proposed public water system.

A preliminary hydraulic model was developed for Well #2 because the aquifer testing indicated greater pumping water levels than Well #1, thereby representing the limiting operating condition for pump selection. The hydraulic assessment evaluated pumping under two operating conditions: (1) pumping into a full storage reservoir and (2) pumping into the storage reservoir at the low operating level. Lower storage levels reduce the hydrostatic head against which the well pumps operate, thereby increasing the potential pumping rate. To limit the submersible well pumps from exceeding 300 gpm, a flow control valve will be utilized to restrict the flow to 300 gpm. Both PWS wells will be equipped with a Goulds model 275 H30 submersible pump with 30-hp motor (or equal). The pump is rated to produce up to 300 gpm at 260 feet of total dynamic head (TDH). Manufacturer pump curves confirm that the selected pump is capable of delivering the required diversion rate over the anticipated operating range evaluated in the hydraulic assessment. Copies of the preliminary hydraulic assessment and submersible pump specifications are provided in **Attachment C**. The well pumps will run on an alternate schedule and will be controlled by the water level in the storage tank. A VFD automated pump booster pump control system will be utilized to control the flow rate and maintain pressure in the water system.

The diversion facilities have been designed by licensed professional geologists and engineers to reliably divert, convey, and distribute the requested appropriation throughout the proposed period of diversion. The wells have been reviewed and approved by the Montana Department of Environmental Quality prior to construction. Additional information, including preliminary engineering design, hydraulic analyses, total dynamic head calculations, and manufacturer pump curves, is provided in **Attachments B and C**.

35. Describe how the proposed diversion and conveyance infrastructure can provide the required flow and volume, for the purposes plus any conveyance losses and storage, throughout the proposed period of diversion.

The proposed public water system has been designed to reliably deliver the requested flow rate and annual diversion volume throughout the proposed period of diversion. The two production wells have demonstrated the capacity to produce the requested flow rate during 72-hour aquifer tests and will operate in response to storage reservoir water levels to meet system demands. Water from the production wells will be conveyed through the transmission system to the storage reservoir, which provides operational, equalization, and fire protection storage prior to distribution throughout the public water system. The booster pump station maintains the flow and pressure necessary to serve the proposed multiple domestic, commercial, private residential lawn and garden irrigation, and fire protection demands. Because the conveyance system consists of a closed, pressurized pipeline network, conveyance losses are expected to be negligible. Collectively, the production wells, transmission system, storage reservoir, booster pump station, and distribution system provide sufficient capacity to reliably deliver the requested appropriation throughout the proposed period of diversion. The final public water system design will be prepared under the supervision of a licensed professional engineer and reviewed and approved by the

Montana Department of Environmental Quality prior to construction. Additional engineering information is provided in **Attachments B and C.**

The application package includes the following:

- Form 600 – Application for Beneficial Water Use Permit
- Attachment A – Proposed Development Maps
- Attachment B – Preliminary Engineering Report
- Attachment C – Water System Hydraulics and Pump Selection
- Attachment D – Basis for Water Volume Calculations
- Attachment E – Water Resource Considerations Memorandum

Supporting information previously submitted during the Form 600P preapplication process, including well construction records, aquifer test reports, Form 633 documentation, and other technical information, remains applicable to the proposed project.

We appreciate the Department's time and effort during the preapplication process and look forward to working with you during review of the enclosed application. Should additional information be required, please contact me at your convenience.

Sincerely,

Brad Bennett, PG
Senior Hydrogeologist
Water & Environmental Technologies

Form 600

Application For Beneficial Water Use Permit

102 Cooperative Way, Suite 100 · Kalispell, Montana 59901 · (406) 309-6085 · waterenvtech.com

APPLICATION FOR
BENEFICIAL WATER USE PERMIT
§ 85-2-302, MCA

Form No. 600 *(10/2025)*

For Department Use Only

RECEIVED
DNRC Water Resources

JUL 24 2026

Kalispell Unit

Application # 30172712 Basin 76LJ
Priority Date 7/24/26 Time 13:32 AM/PM
Rec'd By JV
Fee Rec'd $ 700 Check # 1517
Deposit Receipt # KLU2701630
Payor WET INC
Refund $ _____ Date _____

FILING FEE

$2900/$1600 – Inside a Basin Closure Area, Controlled Groundwater Area or Compact Closure; without/with filing fee reduction.

$2500/$1200 – Outside a Basin Closure Area; Controlled Groundwater Area or Compact Closure; without/with filing fee reduction.

INFORMATION

An application will be eligible for a filing fee reduction and expedited timelines if the applicant completes a preapplication meeting with the Department (ARM 36.12.1302(1)), which includes submitting any follow-up information identified by the Department (ARM 36.12.1302(3)(c)) and receiving either Department-completed technical analyses or Department review of applicant-submitted technical analyses (ARM 36.12.1302(4) and (5)). An application for the proposed project also must be submitted within 180 days of delivery of Department technical analyses or scientific credibility review and no element on the submitted application can be changed from the completed preapplication meeting form (ARM 36.12.1302(6)). If application is eligible for a filing fee reduction, $500 paid for Form 600P-B will be credited toward filing fees shown above.

Applicant Information: ***Add more as necessary.***

Applicant Name LBO Properties Limited Partnership
Mailing Address 500 Palmer Drive City Kalispell State MT Zip 59901
Phone Numbers: Home _____ Work 406-250-2614 Cell _____
Email Address mark@owlcorpmt.com

Applicant Name Mark G. Owens, Owl Ventures, LLC
Mailing Address 115 Taelor Road City Kalispell State MT Zip 59901
Phone Numbers: Home _____ Work 406-250-2614 Cell _____
Email Address _____

Applicant Name _____
Mailing Address _____ City _____ State _____ Zip _____
Phone Numbers: Home _____ Work _____ Cell _____
Email Address _____

Contact/Representative Information: ***Add more as necessary.***

Contact/Representative is: ☐ Applicant ☐ Consultant ☑ Attorney ☐ Other
Contact/Representative Name Tappan Law Firm, PLLC - Rick Tappan
Mailing Address 7West 6th Ave, Suite 615 City Helena State MT Zip 59601
Phone Numbers: Home _____ Work 406-449-3383 Cell _____
Email Address rctappan@tappanlawfirm.com

NOTE: *If a contact person is identified as an attorney, all communication will be sent only to the attorney unless the attorney provides written instruction to the contrary (ARM 36.12.122(2)). If a contact person is identified as a consultant, employee, or lessee, the individual filing the water right form or objection form will receive all correspondences, and a copy may be sent to the contact person (ARM 36.12.122(3)).*

Answer every question and applicable follow-up questions. Use the checkboxes to denote yes ("Y"), no ("N"), or not applicable ("NA"). Questions that require items to be submitted to the Department have a submitted ("S") checkbox, which is marked when the required item is attached to the Application. Label all submitted items with the question number for which they were submitted. Narrative responses that are larger than the space provided can be answered in an attachment. If an attachment is used, specify "see attachment" on this form, and label the attachment with the question number. Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Responses in the form of a table may be entered into the table provided on this form or in an attachment. If an attachment is used, the table must have the exact headings found on this form, and "see attachment" must be entered as a response to the relevant question. Clearly label all units in tables and narrative responses.

PREAPPLICATION AND TECHNICAL ANALYSES INFORMATION

1. ☑ **Y** ☐ **N** Do you elect for Department technical analyses to be used for criteria assessment?

2. ☑ **Y** ☐ **N** Did you have a preapplication meeting AND complete a Permit Preapplication Meeting Form Part A and Part B (Form 600P-A and 600P-B)?

IF QUESTION 2 IS NO, answer 2.a and 2.b:

2.a. ☐ **S** Submit the Technical Analyses Addendum (Form 600-TAA).

2.b. ☐ **S** ☐ **NA** Submit the technical analyses, if you elected in question 1 for Applicant technical analyses to be used for criteria assessment. Select "NA" if you elected for Departmental technical analyses.

IF QUESTION 2 IS YES, answer 2.c, 2.d, and 2.e:

2.c. ☐ **Y** ☑ **N** Has any element of the project described in this application changed from the mandatory elements of the project described in the completed form 600P? **If yes:**

2.c.i. Please explain.

2.c.ii. ☐ **S** Submit the Technical Analyses Addendum (Form 600-TAA).

2.d. ☑ **Y** ☐ **N** Are the technical analyses to be used for criteria assessment exactly the same as those completed during the preapplication process? **If no:**

2.d.i. Please explain.

2.d.ii. ☐ **S** Submit the Technical Analyses Addendum (Form 600-TAA).

2.e. ☑ **Y** ☐ **N** Did you elect in Question 1 for Department technical analyses to be used for criteria assessment? **If no:**

2.e.i. ☐ **S** Submit the technical analyses.

APPLICATION ADDENDA AND REVIEW

3. ☐ **S** ☑ **NA** If your application is for groundwater, not surface water, and one or more of your points of diversion are in a Basin Closure Area, then submit the Basin Closure Area Addendum (Form 600-BCA).

4. ☐ **S** ☑ **NA** If your application is for groundwater and one or more points of diversion are in a Basin Closure Area, then your project must have a Hydrogeologic Report that conforms with MCA 85-2-361 to comply with the requirements of § 85-2-360, MCA. A Hydrogeologic Report Addendum (Form 600-HRA) or Department Technical Analyses may be used to meet these requirements. Please mark the box below that best applies, then select "S" if submitting a Hydrogeologic Report or "NA" if one is not required. This question does not apply to surface water points of diversion in a Basin Closure Area.

- ☐ If you elected to conduct Technical Analyses, you must submit the Hydrogeologic Report Addendum (Form 600-HRA).
- ☐ If you elected for DNRC to conduct Technical Analyses but did not have a preapplication meeting AND complete a Form 600P Permit Preapplication Meeting Form (or changes have occurred since the completed Form 600P), you must submit the Hydrogeologic Report Addendum (Form 600-HRA).
- ☐ If you elected for DNRC to conduct Technical Analyses, had a preapplication meeting, completed a Form 600P, and the Technical Analyses remain unchanged since the preapplication meeting, you do not need to submit Form 600-HRA because the Department's Technical Analyses meet the report requirements of § 85-2-360 and § 85-2-361, MCA.

5. ☐ **S** ☑ **NA** If the project is for one or more groundwater points of diversion located in a Controlled Groundwater Area, then submit the Controlled Groundwater Area Addendum (Form 600-CGWA).

6. ☐ **S** ☑ **NA** If the project involves an appropriation that is greater than 5.5 CFS and 4,000 acre-feet, then submit a Criteria Addendum Application for Beneficial Water Use Permit for Appropriations Greater than 5.5 CFS and 4,000 AC-FT (Form 600-B).

7. ☐ **S** ☑ **NA** If the project involves out-of-state water use, then submit the Out-of-State Use Addendum (Form 600/606-OSA).

8. ☐ **S** ☑ **NA** If you require mitigation water to meet the criteria of issuance, then submit a Mitigation Purpose Addendum (Form 600/606-MIT).

9. ☐ **S** ☑ **NA** If the proposed purposes include marketing or selling water, (not marketing for mitigation/ aquifer recharge), then submit the Marketing Purpose Addendum (Form 600/606-WMA).

10. ☐ **S** ☑ **NA** If the project involves one or more places of storage, then submit a Permit Storage Addendum (Form 600-SA). This does not include reservoirs, pits, pit-dams, or ponds with a capacity less than 0.1 AF; water tanks; or cisterns (ARM 36.12.113(6)).

11. ☐ **S** ☑ **NA** If the project is in designated sage grouse habitat, then submit a review letter from the Montana Sage Grouse Habitat Conservation Program.

12. ☐ **S** ☑ **NA** If the project includes a point of diversion and/or place of use on State of Montana Trust Land, submit documentation of consent from the DNRC Trust Lands Management Division.

13. ☐ **S** ☑ **NA** You must provide a written notice of the application to each owner of an appropriation right sharing a point of diversion or means of conveyance (e.g., canal, ditch, flume, pipeline, or constructed waterway) pursuant to §85-2-302(4)(c), MCA. Submit a copy of this notice and the recipient list.

PURPOSE AND DIVERSION INFORMATION

14. ☐ **Y** ☑ **N** Is the proposed use temporary?

14.a. If yes, when will the appropriation cease? _____

15. Is the proposed source surface water or groundwater? groundwater

16. What is the source name? Deep Alluvial Aquifer

17. ☑ **S** Attach a map utilizing an aerial photograph or topographic map that shows the following: section corners; township and range; north arrow; scale bar; all proposed points of diversion labeled with a unique Point of Diversion (POD) ID number and, if applicable, GWIC number; all proposed places of use; all proposed conveyance facilities and or routes; all proposed places of storage labeled with a unique Storage ID number; and places of use (POU) for all overlapping water rights. More than one map may be submitted, if necessary to clearly convey all required information.

18. Fill out the table below. Means of diversion for surface water includes headgate, pump, dam, and others. Means of diversion for groundwater includes well, developed spring, pit pond, and others.

Purpose	**Means of Diversion**	**Acres Irrigated** (if appl.)	**Period of Diversion** *(Month/Day - Month/Day)*	**Period of Use** *(Month/Day - Month/Day)*	**Flow Rate** ☑ *GPM* ☐ *CFS*	**Volume** *(Acre-Feet)*
Multiple Domestic	Wells (2x)	-	01/01-12/31	01/01-12/31	300	191.0
Commercial	Wells (2x)	-	01/01-12/31	01/01-12/31	300	5.0
Lawn and Garden	Wells (2x)	70.0	04/15-10/15	04/15-10/15	300	135.8
				Total Flow Rate and Volume Required	300	331.8

19. ☑ **Y** ☐ **N** Does the proposed use include on or more of the following purposes: domestic, multiple domestic, stock, or irrigation? If yes, fill out the table below, where applicable.

Purpose	**Requested Information**	**Response**
Domestic or multiple domestic	Number of households and bedrooms served per household	682 EDU (Equivalent Dwelling Units)
Stock	Number of animal units	
Irrigation	Method of irrigation type (sprinkler or flood) and subtype (if flood: level border, graded border, furrow, contour ditch, or other; if sprinkler: center pivot, wheel line, or other)	Sprinkler - Lawn + Landscape Irrigation
Irrigation (flood only)	Design slope	

POINT(S) OF DIVERSION

20. Describe the proposed location of the point(s) diversion to the nearest ¼ ¼ ¼ Section. Label each POD with the POD ID number used for the project map (question 17).

POD #	¼	¼	¼	Sec.	Twp.	Rge.	County	Lot	Block	Tract	Subdivision	Gov. Lot
1	NW	SW	SE	14	27N	21W	Flathead					
2	NW	SW	SE	14	27N	21W	Flathead					

PLACE OF USE

21. What are the geocodes of the place of use?

07-3834-14-1-01-50-0000	07-3834-14-2-01-20-0000
07-3834-14-1-01-60-0000	07-3834-14-2-01-30-0000
07-3834-14-1-01-35-0000	07-3834-14-2-01-10-0000
07-3834-13-2-01-45-0000	07-3834-14-2-01-01-0000

22. Describe the legal land description for the proposed place of use and, if applying for an irrigation or lawn and garden purpose, list the number of irrigated acres.

Acres	Gov. Lot	Block	¼	¼	¼	Sec.	Twp.	Rge.	County
49.00					E2	14	27N	21W	Flathead
14.00				S2	NW	14	27N	21W	Flathead
7.00			W2	W2	W2	13	27N	21W	Flathead

SUPPLEMENTAL AND OVERLAPPING WATER RIGHTS

23. ☑ **Y** ☐ **N** Will other water rights supplement or overlap the place of use to contribute to the purpose(s)?

23.a. If yes, summarize how the supplemental and proposed water rights will be operated as a whole to serve the purpose(s).

See attached narrative regarding the proposed relationship between the existing supplemental and proposed water rights.

24. For each supplemental or overlapping water right, please list the water right number, typical period of diversion and use (MM/DD-MM/DD), flow rate (GPM or CFS), and the volume of water (AF) contributed to the shared place of use.

Water Right #	Average Period of Diversion	Average Period of Use	Flow Rate	Volume Contributed
76LJ 7577-00	05/15-09/15	05/15-09/15	~1.4	~200.67

25. ☐ **Y** ☑ **N** Will this application supplement contract water from a Federal Project, ditch company, or other source?

25.a. If yes, explain.

ADVERSE EFFECT

26. Explain how you can control your diversion in response to a call being made.

The proposed diversion can be controlled by reducing or discontinuing pumping from the two production wells. The well pumps will be operated through the public water system controls and can be adjusted, curtailed, or shut off in response to a valid call. Outdoor irrigation can be reduced or suspended first, followed by additional restrictions on domestic and commercial water use if necessary. If required to satisfy a valid senior water right call, pumping from the wells will be discontinued.

27. Describe any plans you have for ensuring existing water rights will be satisfied during times of water shortage.

The proposed public water system will be operated to minimize impacts to existing water rights during periods of water shortage. Water conservation measures will be implemented as necessary, beginning with voluntary conservation and public education regarding water use. If additional reductions are required, outdoor irrigation will be restricted or suspended and other water conservation measures will be implemented to reduce system demand. The public water system is capable of adjusting or discontinuing groundwater withdrawals as necessary to respond to changing conditions. Should a valid senior water right call require additional curtailment, groundwater withdrawals will be reduced or discontinued as necessary to comply with applicable water right administration and ensure protection of senior water rights.

28. ☐ **Y** ☑ **N** Are you aware of any calls that have been made on the source of supply or, if groundwater, on nearby surface water sources?

28.a. If yes, explain.

29. ☐ **Y** ☑ **N** Does a water commissioner distribute water or oversee water distribution on your proposed source?

29.a. If yes, list the source(s).

30. ☐ **Y** ☑ **N** Do other water rights share any of the proposed points of diversion?

30.a. If yes, describe how the proposed project will not adversely affect these water rights.

31. ☐ **Y** ☑ **N** Do other water rights share any conveyance infrastructure associated with the proposed project?

31.a. If yes, describe how the proposed project will not adversely affect these water rights.

ADEQUATE MEANS OF DIVERSION AND OPERATION

32. ☑ **S** Submit a diagram of how you will operate your system from all proposed points of diversion to all proposed places of use.

33. Describe specific information about the capacity of all proposed diversionary structures. This may include, where applicable: pump curves and total dynamic head calculations, headgate design specifications, and dike or dam height and length.

Please refer to the attached narrative regarding the capacity of the diversionary structures. Attachments B and C are also provided to support this discussion.

34. Describe the size, materials, capacity, and configuration of infrastructure to convey water from all proposed points of diversion to all proposed places of use. This may include but is not limited to, pipelines and ditches. Include a description of any losses related to the proposed conveyance. Ditch conveyance losses may be estimated numerous ways, which include a ditch loss rate or Department standard methods.

Water will be conveyed from the two production wells through buried transmission mains to the proposed storage tank. Water will then be distributed from the storage tank through the Cooper Farms public water distribution system to serve the proposed places of use. The conveyance system consists of buried transmission and distribution pipelines, storage facilities, valves, hydrants, and associated appurtenances designed to provide the required flow, pressure, and fire protection throughout the development in accordance with applicable public water system design standards. Because the proposed conveyance system is a closed, pressurized pipeline network, conveyance losses are expected to be negligible. See Attachment B (Preliminary Engineering Report) for supporting engineering plans and design information.

35. Describe how the proposed diversion and conveyance infrastructure can provide the required flow and volume, for the purposes plus any conveyance losses and storage, throughout the proposed period of diversion.

Please refer to the attached narrative regarding the diversion and conveyance infrastructure. Attachments B and C are also provided to support this discussion.

36. Provide a plan of operations, which includes specific information about how water is delivered within the place of use. This may include, where applicable, the range of flow rates needed for a pivot.

Groundwater will be diverted from the two production wells and conveyed through the transmission system to the proposed storage reservoir. Water stored in the reservoir will be distributed through the public water distribution system by the booster pump station to serve the proposed multiple domestic, commercial, and lawn and garden irrigation uses. The production wells will operate in response to storage reservoir water levels to maintain adequate storage, while the booster pump station will maintain the flow and pressure necessary to satisfy varying system demands. Water will be delivered to the proposed places of use through individually metered service connections. Additional information regarding system operation is provided in Attachment B – Preliminary Engineering Report.

37. ☐ **Y** ☑ **N** Does the proposed conveyance require easements?

37.a. If yes, explain.

38. ☑ **Y** ☐ **N** Do you own the land where all proposed points of diversion are located?

38.a. ☐ **S** If no, submit documentation to show you have the right to use all points of diversion located on each property you do not own. This may include, but is not limited to, a well agreement, an easement, or permission of the party that owns the property where the proposed point(s) of diversion are located.

39. ☐ **Y** ☑ **N** Will your system be designed to discharge water from the project?

IF YES,

39.a. Explain the wastewater disposal method.

Wastewater generated by the proposed public water system will be conveyed by a centralized sanitary sewer system to the Lakeside County Water and Sewer District for treatment and disposal. No untreated wastewater will be discharged directly to surface water or groundwater from the project. Excess lawn and garden irrigation water is expected to infiltrate to the shallow groundwater system. See Attachment E – Water Resource Considerations Memorandum.

39.b. ☐ **Y** ☐ **N** ☐ **NA** Have the necessary permits been obtained to comply with §§ 75-5-410 and 85-2-364, MCA?

40. ☑ **Y** ☐ **N** Do you have any plans to measure your diversion and use?

40.a. If yes, describe the plan and the type of measurements you will take.

Each production well will be equipped with a totalizing flow meter to measure groundwater withdrawals from each well. Meter readings and diversion records will be maintained and made available to DNRC upon request.

41. ☑ **Y** ☐ **N** Is the means of diversion for any proposed point of diversion a well?

IF YES,

41.a. ☑ **Y** ☐ **N** Have all wells been drilled?

41.b. For all wells that have been drilled, what is the name of the well driller and, if available, what is their license number?

O'Keefe Drilling, Inc.; Scott McGaugh, Montana Well Driller License No. WWD-718.

41.c. ☐ **Y** ☐ **N** For all wells yet to be drilled, will a licensed well driller construct the wells?

41.d. ☐ **S** ☑ **NA** Submit any well logs not yet submitted to the Department.

BENEFICIAL USE

42. ☑ **Y** ☑ **N** Does the Department have a volume, period of diversion, or period of use standard for the purposes for which water is proposed? Department standards can be found in the DNRC Water Calculation Guide, ARM 36.12.112, and ARM 36.12.115.

42.a. ☐ **Y** ☑ **N** If yes, do all proposed beneficial uses fall within Department standards?

42.b. If no Department standard exists, or if any proposed beneficial use falls outside of Department standards, explain how the requested flow rate and volume are reasonable for the purpose.

The requested appropriation was developed using project-specific water demand calculations based on the proposed Cooper Farms development at full build out. Multiple domestic demands were estimated using the proposed equivalent dwelling units (EDUs) and applicable DEQ standards. Commercial demands were developed using project-specific engineering estimates based on the anticipated commercial development. Lawn and garden irrigation demands were calculated using the proposed irrigated acreage and irrigation water requirements consistent with DNRC guidance. The requested flow rate and annual diversion volume represent the combined multiple domestic, commercial, and lawn and garden demands necessary to serve the proposed development at full build out. Detailed calculations, assumptions, and supporting methodology are provided in Attachment D – Basis for Water Volume Calculations.

43. ☑ **Y** ☐ **N** Will your proposed project be subject to DEQ requirements for a public water supply (PWS) system or Certificate of Subdivision Approval (COSA)?

44. ☐ **Y** ☑ **N** Are you proposing to use surface water for in-house domestic use?

44.a. ☐ **Y** ☑ **N** If yes, does a COSA exist for the proposed place of use?

44.a.i. ☐ **S** ☐ **NA** If yes, please submit the COSA.

44.a.ii. ☑ **Y** ☐ **N** If no, have you researched or consulted with DEQ regarding their requirements?

POSSESSORY INTEREST

45. ☐ **Y** ☑ **N** Do you meet one of the exceptions to possessory interest requirements, pursuant to ARM 36.12.1802? Exceptions include cases where the application is for sale, rental, distribution, or is a municipal use, or in any other context in which water is being supplied to another and it is clear that the ultimate user will not accept the supply without consenting to the use of water on the user's place of use.

45.a. If yes, explain.

46. ☑ **Y** ☐ **N** ☐ **NA** Do you own all proposed places of use? Mark "NA" if you meet one of the exceptions to the possessory interest requirement.

IF NO,

46.a. ☐ **S** Explain and submit documentation that shows you either have possessory interest or written permission of the parties with possessory interest of the place of use.

46.b. ☐ **Y** ☐ **N** Would you like the water right to be appurtenant to the land? Please note that if your water right is not appurtenant to land it will not transfer by default with the conveyance of the property, pursuant to § 85-2-403, MCA.

46.b.i. If no, explain.

PROPOSED COMPLETION PERIOD

47. How much time will be needed to complete this project and to submit to the DNRC a Project Completion Notice (Form 617)? 25 years

48. Please describe why this amount of time is needed to complete this project.
The Cooper Farms development will be constructed in multiple phases over approximately 25 years. A 25-year completion period is requested to allow for phased construction of the development and completion of the associated public water system improvements.

AFFIDAVIT & CERTIFICATION

Read carefully before you sign and review with legal counsel if you have any questions. All owners (or trustees) must sign the form. ***If the owner is a business or trust, include the title of the representative(s) signing the form (i.e., president, trustee, managing partner, etc.) and provide documentation that establishes the authority of the representative to sign the application.*

I affirm the information provided for this application is to the best of my knowledge true and correct. If a preapplication meeting form was submitted, I am aware that my application for this project will not qualify for a discounted filing fee and expedited timelines if upon submittal of the application to the Department, I changed any element of the proposed application from the preapplication meeting form and follow-up materials (ARM 36.12.1302(6)(a)).

I affirm I have possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use, unless this application meets an exception to the possessory interest requirements in ARM 36.12.1802(1)(b).

I understand that making a false statement under oath or affirmation in this application and official proceedings throughout the examination of my application may subject me to prosecution under § 45-7-202, MCA, a misdemeanor punishable by a jail term not to exceed 6 months or a fine not to exceed $500, or both. I have read this Affidavit and understand the terms and conditions.

I declare under penalty of perjury and under the laws of the state of Montana that the foregoing is true and correct.

Printed Name MARK Owens

Applicant Signature _____ Date: 7-23-26

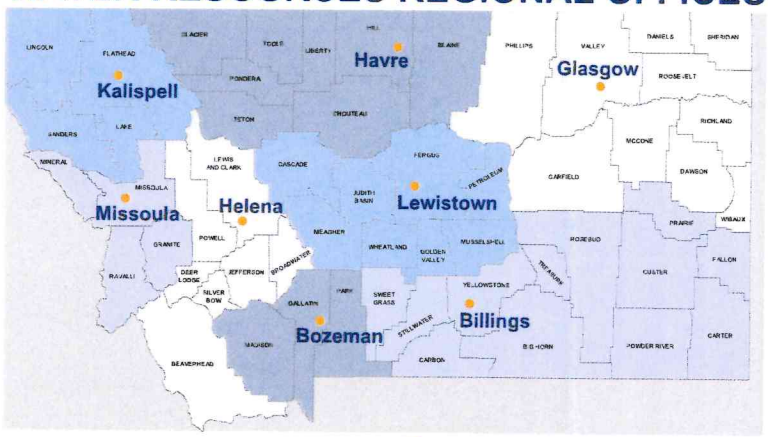
Printed Name _____

Applicant Signature _____ Date: _____

Printed Name _____

Applicant Signature _____ Date: _____

WATER RESOURCES REGIONAL OFFICES



BILLINGS
Airport Industrial Park, 1371 Rimtop Dr
Billings, MT 59105-9702

PHONE 406-247-4415 FAX 406-247-4416
EMAIL DNRCBillingsWater@mt.gov

Big Horn, Carbon, Carter, Custer, Fallon, Powder River, Prairie, Rosebud, Stillwater, Sweet Grass, Treasure, and Yellowstone Counties

BOZEMAN
2273 Boot Hill Court, Suite 110
Bozeman, MT 59715-7249

PHONE 406-586-3136 FAX 406-587-9726
EMAIL DNRCBozemanWater@mt.gov

Gallatin, Madison, and Park Counties

GLASGOW
222 6th Street South, PO Box 1269
Glasgow, MT 59230-1269

PHONE 406-228-2561
EMAIL DNRCGlasgowWater@mt.gov

Daniels, Dawson, Garfield, McCone, Phillips, Richland, Roosevelt, Sheridan, Valley, and Wibaux Counties

HAVRE
210 6th Ave., PO Box 1828
Havre, MT 59501-1828

PHONE 406-265-5516
EMAIL DNRCHavreWater@mt.gov

Blaine, Chouteau, Glacier, Hill, Liberty, Pondera, Teton, and Toole Counties

HELENA
1424 9th Ave., PO Box 201601,
Helena, MT 59620-1601

PHONE 406-444-6999 FAX 406-444-9317
EMAIL DNRCHelenaWater@mt.gov

Beaverhead, Broadwater, Deer Lodge, Jefferson, Lewis and Clark, Powell, and Silver Bow Counties

KALISPELL
655 Timberwolf Parkway, Suite 4
Kalispell, MT 59901-1215

PHONE 406-752-2288
EMAIL DNRCKalispellWater@mt.gov

Flathead, Lake, Lincoln, and Sanders Counties

LEWISTOWN
613 Northeast Main St., Suite E
Lewistown, MT 59457-2020

PHONE 406-538-7459
EMAIL DNRCLewistownWater@mt.gov

Cascade, Fergus, Golden Valley, Judith Basin, Meagher, Musselshell, Petroleum, and Wheatland Counties

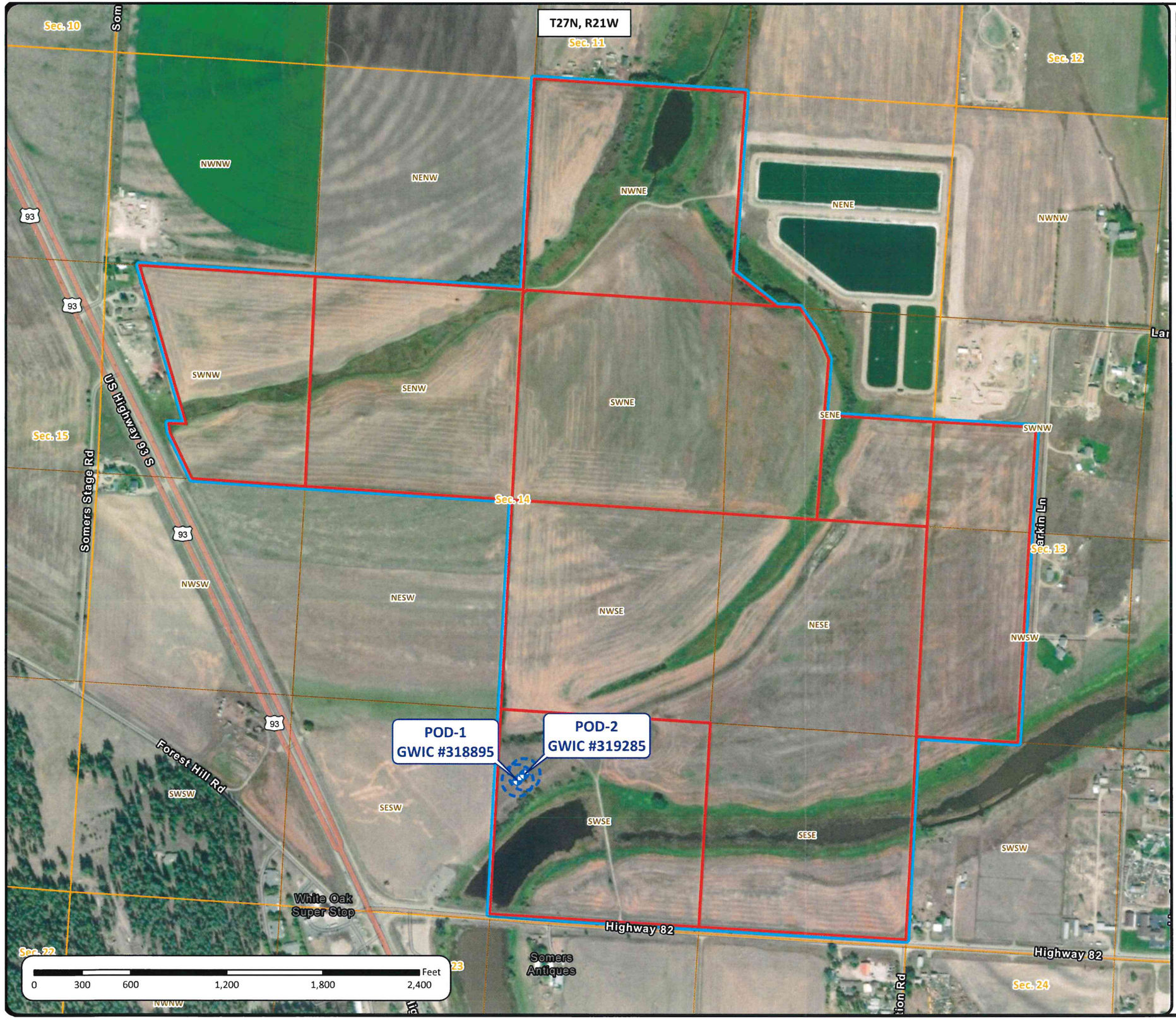
MISSOULA
2705 Spurgin Rd. Bldg. C, PO Box 5004
Missoula, MT 59806-5004

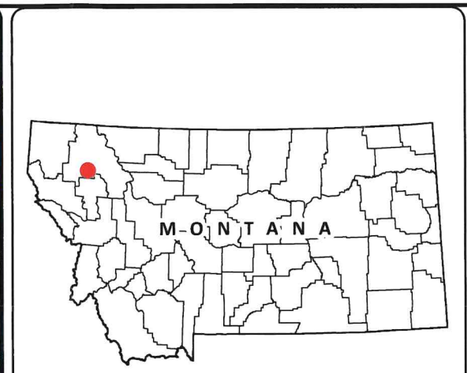
PHONE 406-721-4284 FAX 406-542-5899
EMAIL DNRCMissoulaWater@mt.gov

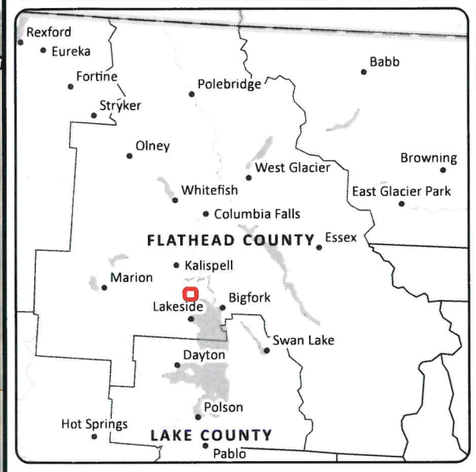
Granite, Mineral, Missoula, and Ravalli Counties

Attachment A

Proposed Development Maps







N
W E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION	12/12/2025	LG	JG
2				
3				
4				
5				

NOTES

- Cooper Farms Well (POD)
- Well Control Zone (100 ft Radius)
- Property Parcel
- Place of Use

Public Land Survey System

- Section
- Quarter Section

SITE VICINITY & WELL LOCATIONS

COOPER FARMS - 2025 WATER RIGHT

FIGURE 1

JOB#: 1289-20

DATE:3/13/2026

Path: P:\PROJECTS\Owens_Mark\1289-20 Cooper Farms Water Right\350-

Water & Environmental TECHNOLOGIES

T27N, R21W

Future High Density

Area 6 - Residential
15,750 gpd

Area 1 - Wetlands Preserve

Area 5 - Residential Mixed
39,750 gpd

Area 3 - Residential
44,500 gpd

Area 2 - Residential
70,500 gpd

Area 4 - Commercial
4,500 gpd

POD-1
GWIC #318895

POD-2
GWIC #319285

Sec. 10 | Sec. 15 | Sec. 14 | Sec. 13 | Sec. 23 | Sec. 24

NENE | NWNW | NENW | NWNE | NENE | NWNW | SENE | SWNW | SENW | SWNE | NWSW | NESW | NWSE | NESE | SWSW | SESW | SWSE | SESE

US Highway 93 S | Somers Stage Rd | Forest Hill Rd | Lincoln Ln | Larkin Ln | Highway 82 | Somers

0 275 550 1,100 1,650 2,200 Feet

Cooper Farms Well (POD)
Well Control Zone (100 ft Radius)
Place of Use

Public Land Survey System
Section
Quarter Section

Water Use Area
Area 1
Area 2
Area 3
Area 3 Alternative
Area 4
Area 5
Area 6

N W E S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION	12/12/25	LG	JG
2				
3				
4				
5				

NOTES

COOPER FARMS NEIGHBORHOOD PLAN
AVERAGE GALLONS PER DAY WATER DEMANDS

COOPER FARMS - 2025 WATER RIGHT

FIGURE 2

JOB#: 1289-20
DATE:3/13/2026
Path: P:\PROJECTS\Owens_Mark\1289-20 Cooper Farms Water Right\350-

Water & Environmental TECHNOLOGIES

T27N, R21W

- Cooper Farms Well (POD)
- Well Control Zone (100 ft Radius)
- Place of Use
- Commercial & Residential Use
- Lawn & Garden Irrigation Area

Public Land Survey System

- Section
- Quarter Section

Maximum of 14 Acres to be Irrigated within Commercial & Residential Area

Maximum of 49 Acres to be Irrigated within Commercial & Residential Area

Maximum of 7 Acres to be Irrigated within Commercial & Residential Area

POD-1 GWIC #318895

POD-2 GWIC #319285

NENE NWNW NENW NWNE NENE SENE SWNW SENW SWNE SENE SWNW NWSW NESW NWSE NESE NWSW SWSW SESW SWSE SESE

Sec. 15 Sec. 14 Sec. 13 Sec. 22 Sec. 23 Sec. 24

US Highway 93 S Somers Stage Rd Forest Hill Rd Southside Dr Larkin Ln Lincoln Ln Highway 82

93

White Oak Super Stop

Somers Antiques

Best Western

0 250 500 1,000 1,500 2,000 Feet

N W E S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION	12/12/25	LG	JG
2				
3				
4				
5				

NOTES

LAWN & GARDEN IRRIGATED AREA MAP

COOPER FARMS - 2025 WATER RIGHT

FIGURE 3

JOB#: 1289-20

DATE:3/13/2026

Path: P:\PROJECTS\Owens_Mark\1289-20 Cooper Farms Water Right\350-

Water & Environmental TECHNOLOGIES

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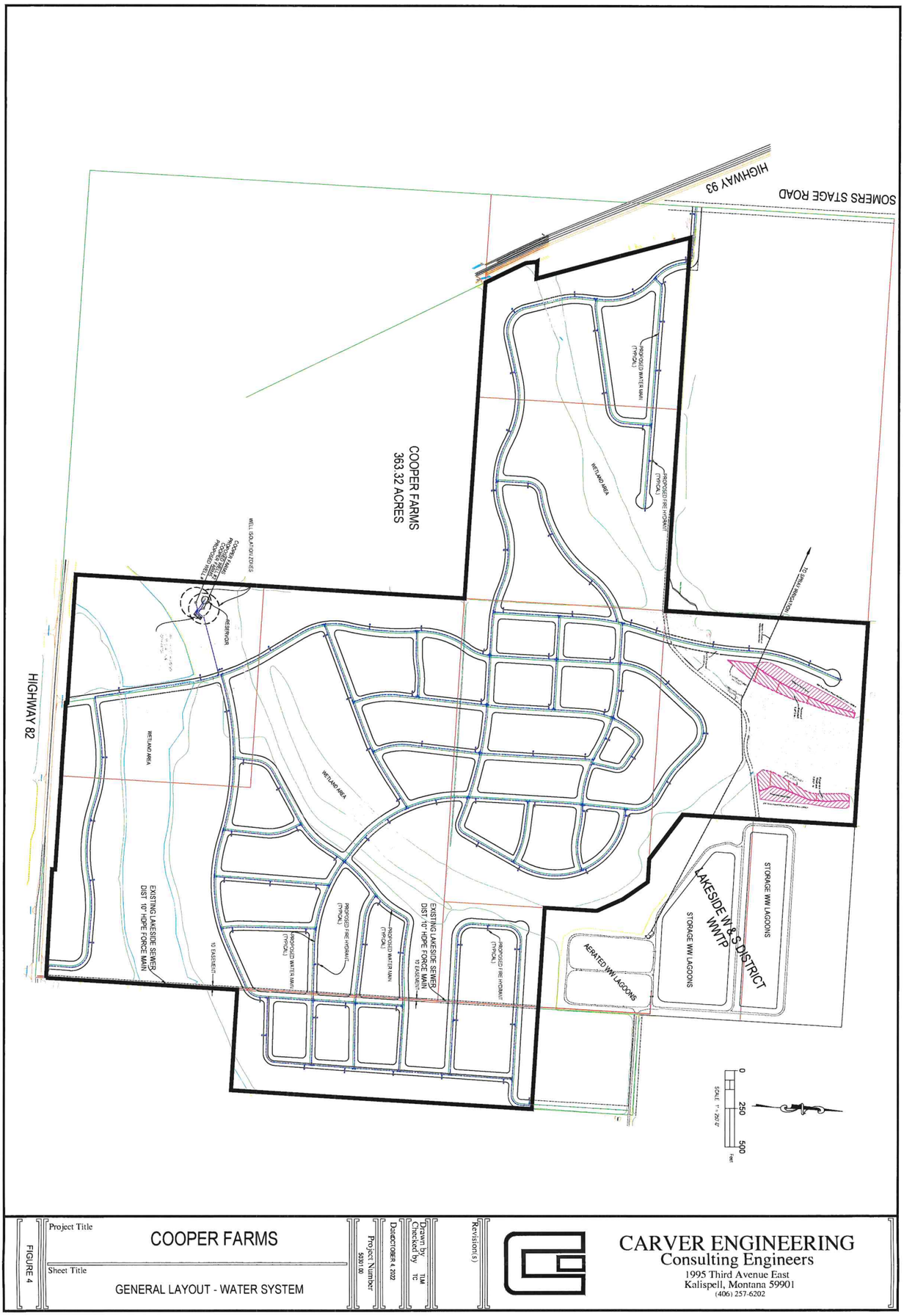


FIGURE 4	Project Title: COOPER FARMS Sheet Title: GENERAL LAYOUT - WATER SYSTEM	Project Number: 5030.00	Date: OCTOBER 4, 2022	Drawn by: TJM Checked by: TC	Revision(s)

CARVER ENGINEERING
Consulting Engineers
1995 Third Avenue East
Kalispell, Montana 59901
(406) 257-6202

D:\Data\DWG\59301 COOPER FARMS LIDAR.dwg 1 OF 2, 9/29/2022 8:21:51 AM

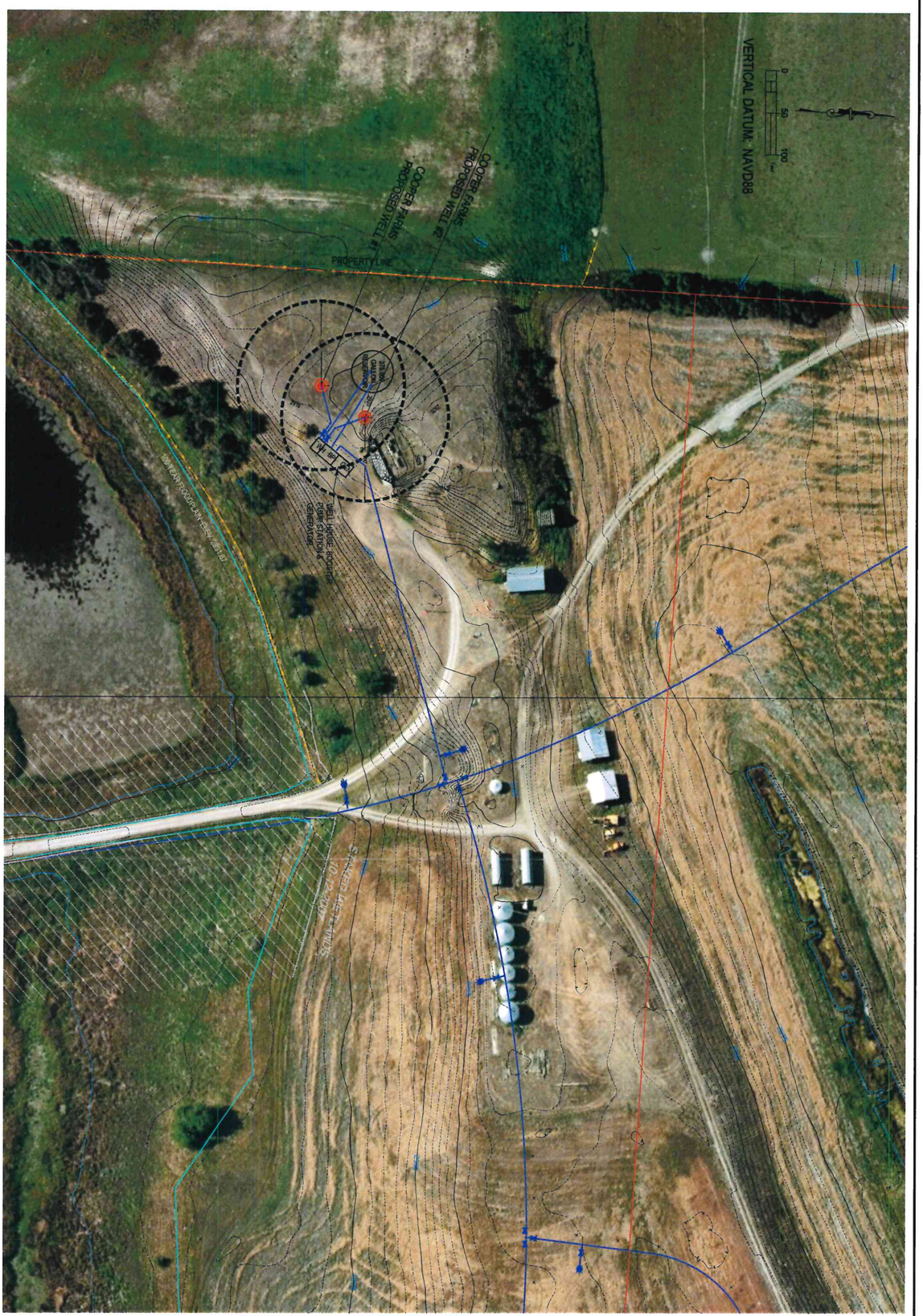


FIGURE 5

Project Title
COOPER FARMS

Sheet Title
PROPOSED WELL #1 & #2 SITE PLAN

Project Number 59301.00

Date SEPTEMBER 29, 2022

Drawn by TLM
Checked by TC

Revision(s)

CARVER ENGINEERING
Consulting Engineers
1995 Third Avenue East
Kalispell, Montana 59901
(406) 257-6202

Attachment B

Preliminary Engineering Report

COOPER FARMS
PRELIMINARY ENGINEERING REPORT (7/22/2026)

GENERAL:

Cooper Farms is a proposed 700 equivalent dwelling unit (EDU) development located near the northeast corner of U.S. Hwy 93 (to the west) and MT Hwy 82 (to the south). The Cooper Farms Neighborhood Plan was approved by the Flathead County Planning Board in March, 2006 and was adopted by the Flathead County Commissioners in March 2007 as a part of the Flathead County Growth Policy. The property is owned and will be developed by LBO Properties Limited Partnership; 500 Palmer Drive; Kalispell, MT 59901. A licensed water system operator will be hired after system construction.

The property will be developed in a number of phases and with the initial phase, the owners will request zoning approval and approval of a Master Planned Unit Development. With each phase will come a more detailed Planned Unit Development (PUD) and a preliminary plat application. Included as a part of the 700 EDU's will be a small commercial component that will be located along MT Hwy 82. The vast majority of the 700 EDU's will be residential. The water system will be designed to operate under all weather and temperature conditions.

WATER SUPPLY:

Water to Cooper Farms will be provided by a new public water supply system consisting of two (2) drilled wells; a 375,000-gallon ground-level storage tank; a building housing well distribution piping, a booster pump station and an emergency power generator; and literally miles of 8", 10" and 12" PVC, AWWA C900 DR 18 PVC water mains. The water system will provide water to all Cooper Farms residents for domestic, fire protection and irrigation uses. There are no intentions, nor will the water system be designed, to serve any other properties than Cooper Farms. There are no existing operational water supply facilities on the property.

Drilled Wells: The first of the 10" wells was drilled to a depth of 304 ft bgs. The static water level was 25.1 ft btoc and the well was initially test pumped with air at 600 gpm for four hours. The second 10" well was drilled to a depth of 320 ft bgs and the static level was 25 ft btoc. This well was pumped at 500 gpm with air for five hours. Both wells were constructed in compliance with specifications approved by the DNRC and MDEQ. Both wells were later test pumped at 300 gpm for a period of 72 hours. Total drawdown in Well #1 after 72 hours of pumping was 174 ft. and the drawdown was 190 ft. in Well #2.

Discharge piping from each of the wells will run through a well house with necessary isolation valves, pressure relief valves, metering and sample ports provided and then to a 375,000-gallon bolted-steel storage tank. The location of the proposed wells was selected to provide 100-ft. control zones for each well without encroaching onto neighboring property and to meet separation requirements to proposed sewage collection facilities and other potential sources of contamination.

Booster Pump Station: A booster pump station will be proposed to provide adequate water system flow and pressure to all residents in Cooper Farms. The booster pump station will be designed to provide water for domestic consumption, irrigation and for fire protection.

Based on preliminary design calculations, the booster pump station will consist of five (5) Grundfos vertical, multiple-stage centrifugal pumps – two (2) Model CR32-2-1 with 10.0 Hp motors and three (3) Model CR95-3-2 with 40 Hp motors. The power supply to the station will be 460 volt, 3 phase. Each pump will be controlled by an integral variable frequency drive (VFD) to provide a constant discharge pressure of 70 psi. At this discharge pressure setting, which is adjustable, pressure at all user locations during periods of "normal" operation will be at least 60 psi and a minimum pressure of at least 40 psi will be provided at all fire hydrant locations within Cooper Farms during fire flows of at least 1000 gpm.

The booster pump station will also include a Well-X-Trol Model 450C hydropneumatic tank; an insert magnetic flowmeter; silent check valves on the discharge side of the each pump; pressure gauges on the suction and discharge sides; a smooth-nosed sample cock; and all necessary pipe, valves and fittings. All will be housed in a 16' x 24' building with heat, lights, ventilation and a floor drain.

A 250 kW emergency power generator will be provided to run all five booster pumps in the event of a power outage. It will also start and run one of the two well pumps to provide at least 350 gpm when the primary power supply is out.

A. WATER USE DATA:

1). Based on an average daily demand 250 gpd for domestic consumptive use:

Average Daily Demand:	700 x 250 gpd	175,000 gpd	121.5 gpm
Maximum Daily Demand:	2 x 175,000 gpd	350,000 gpd	243.1 gpm
Peak Hourly Demand:	3 x 175,000 gpd	525,000 gpd	364.6 gpm

2). Assuming approximately 49 acres of lawn and landscape area are irrigated from the PWS system at an application rate of 1 inch per week during the irrigation season, the peak irrigation demand is approximately 1,330,500 gallons per week

(approximately 190,000 gallons per day). This demand has been incorporated into the total project water demand used to size the proposed water supply facilities and establish the requested groundwater appropriation.

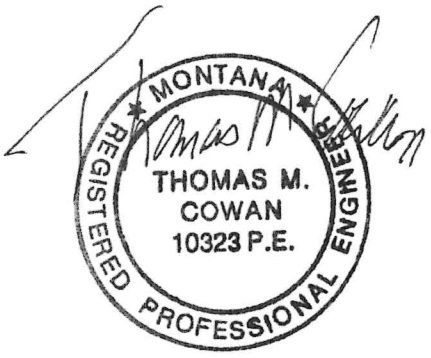
3). The water system will be capable of providing fire protection flows of at least 1,000 gpm for a period of at least two hours, at a minimum pressure of 40 psi throughout the system.

SEWER SERVICE

Sewer service to Cooper Farms will be provided by a new public wastewater collection system that will be connected to a Lakeside County Sewer District force main that runs through the easterly portion of Cooper Farms. The District wastewater lagoons are located adjacent to the northeast corner of Cooper Farms and treated wastewater is spray irrigated on land just north on Cooper Farms. The owners of Cooper Farms have already secured a connection agreement with the District for the 700 proposed EDU's. The new wells being proposed for Cooper Farms will be approximately 3,300 ft from the existing Lakeside County Water & Sewer District wastewater lagoons. Other than the previously mentioned Lakeside Sewer District force main, there are no existing operational sewer facilities on the property.

Prepared by

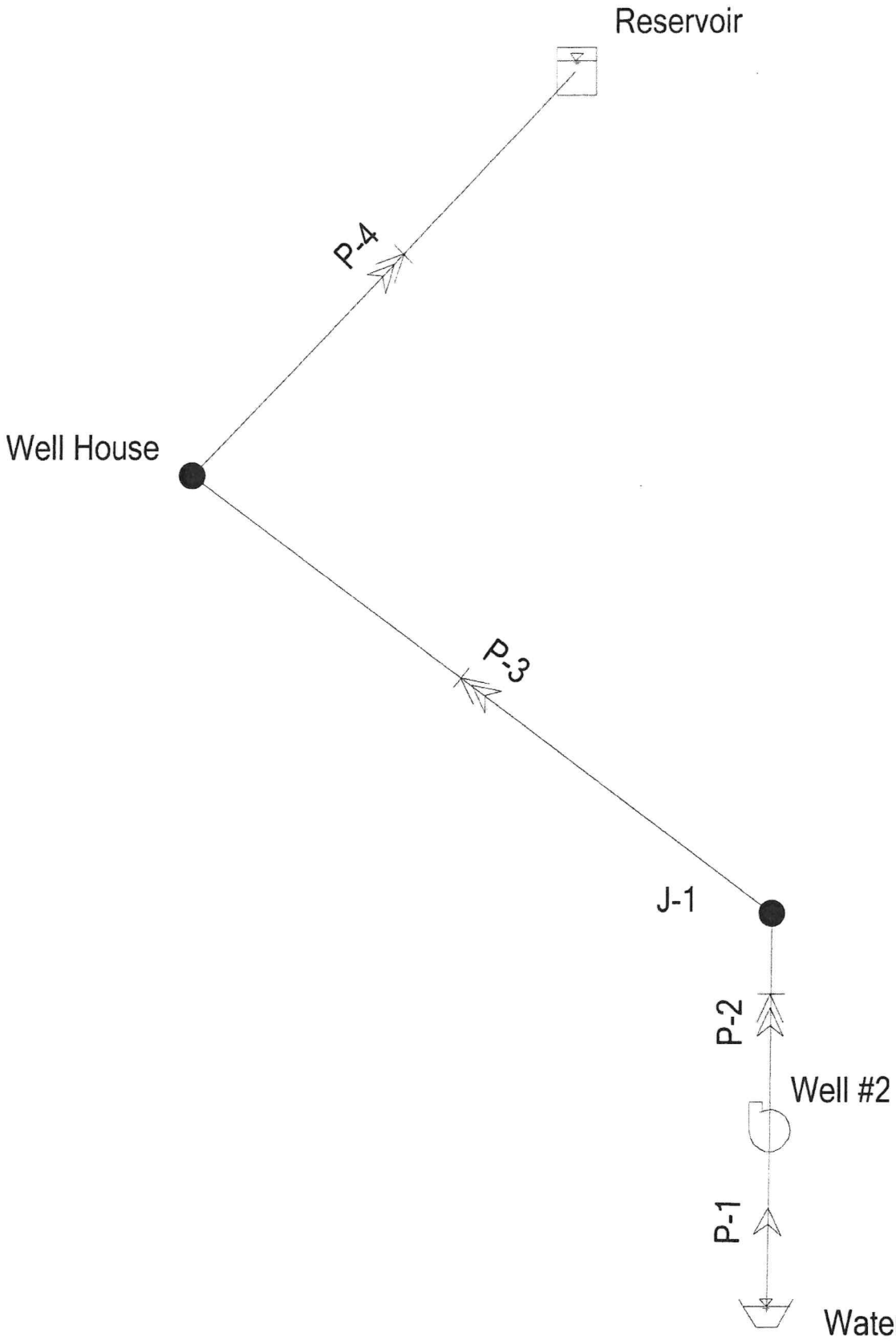
Tom Cowan, P.E.
CE LLC dba Carver Engineering



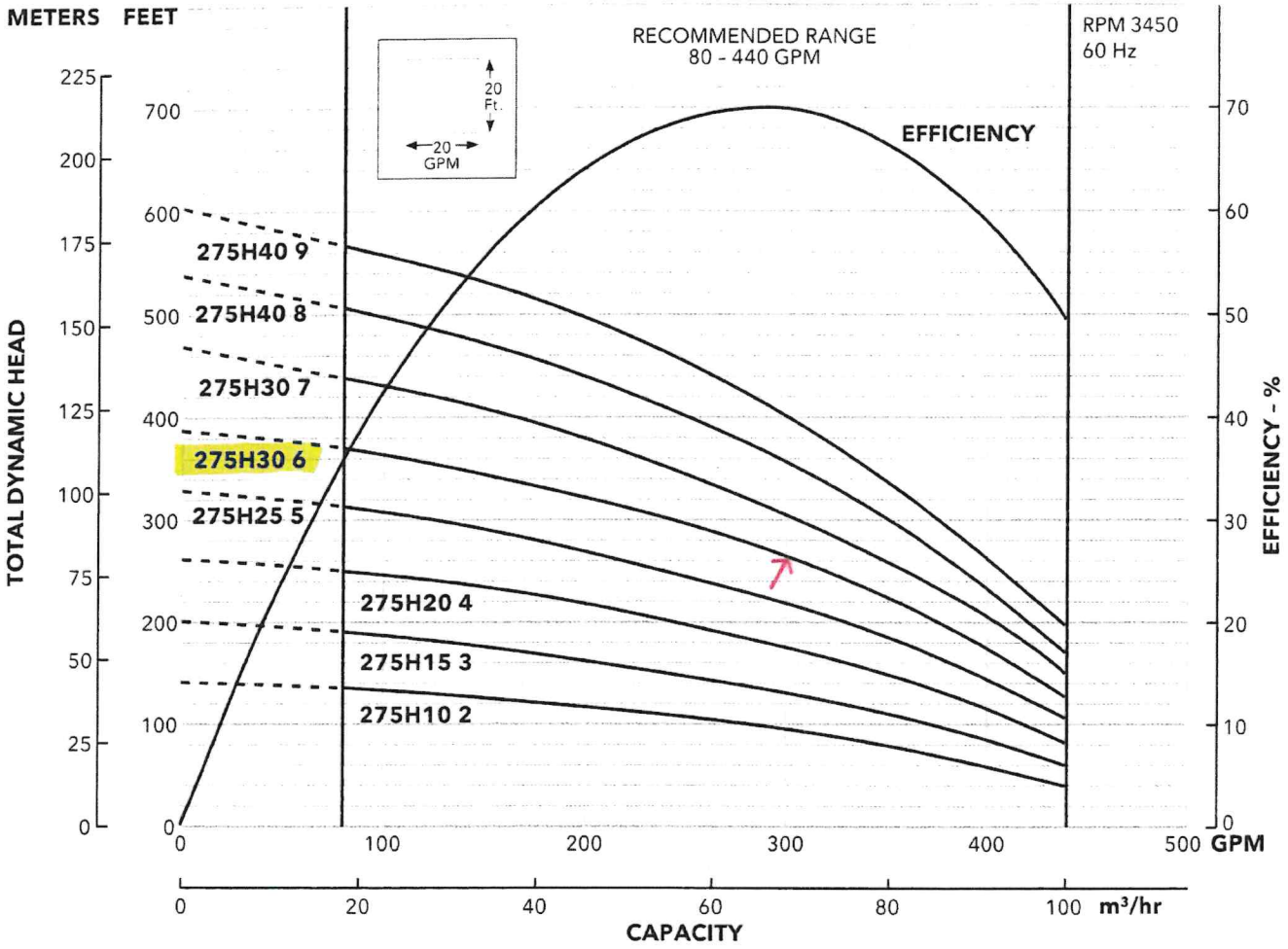
Attachment C

Water System Hydraulics and Pump Selection

Scenario: Base



Model 275H



Three Phase Only, due to required CW Rotation.

Curve Reference SU 484

Scenario: Base
Steady State Analysis
Pump Report

Label	Elevation (ft)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
Well #2	2,630.00	On	2,707.34	2,974.49	297.26	267.14	20.05

w/ 4" piping

Goulds 275H30·6 Stg.. 30 Hp

Set at 290' (Elev. 2630)

Water Level 212' (Elev. 2708) * AT level after 72-hr Pump Test

Scenario: Base
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient	Control Status	Discharge (gpm)	Pressure Pipe Headloss (ft)
P-1	10.00	4.000	Galvanized iron	120.0	0.00	Open	297.26	0.66
P-2	290.00	4.000	Galvanized iron	120.0	0.00	Open	297.26	19.01
P-3	100.00	4.000	Ductile Iron	130.0	0.00	Open	297.26	5.65
P-4	50.00	4.000	Ductile Iron	130.0	0.00	Open	297.26	2.83

Scenario: Base
Steady State Analysis
Pump Report

Label	Elevation (ft)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
Well #2	2,630.00	On	2,707.31	2,968.20	305.20	260.88	20.10

Goulds 275 HSC 30-6 Stg. 30 Hp

Inc. pipe size To 6" beyond well

Scenario: Base
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient	Control Status	Discharge (gpm)	Pressure Pipe Headloss (ft)
P-1	10.00	4.000	Galvanized iron	120.0	0.00	Open	305.20	0.69
P-2	290.00	4.000	Galvanized iron	120.0	0.00	Open	305.20	19.96
P-3	100.00	6.000	Ductile Iron	130.0	0.00	Open	305.20	0.82
P-4	50.00	6.000	Ductile Iron	130.0	0.00	Open	305.20	0.41

Attachment D

Basis for Water Volume Calculations

Water & Environmental
TECHNOLOGIES

Basis for Water Volume Calculations – Cooper Farms Water Right Application

Residential and Commercial Potable Uses

Cooper Farms is a planned residential subdivision to consist of approximately 700 equivalent dwelling units (EDU) comprised of primarily residential homes with an assumed 18 EDU being commercial properties. The subdivision will have lawn and garden demands on the private lots, parks, and common space. Based on the density ranges given in the Cooper Farms Neighborhood Plan adopted by Flathead County, the water demands by area were estimated. The following assumptions were made for the water demand calculations:

1. Each dwelling unit was one (1) EDU or ¾" meter.
2. Area Four- Commercial consists of eleven ¾" meters (or 1.00 EDU) and one 1.5" (or 4.00 EDU) for a total of 18 EDU.
3. Per each dwelling unit there are an average of 2.5 persons per household.
4. Per each person 100 gallons per day is used to estimate average demands.
5. A max day factor of 2 was assumed.
6. A peak hour factor was calculated using equation 10-1 from Chapter 10, Section 11.24 of Circular DEQ-2 Design Standards for Public Sewage Systems 2018.
7. Based on local weather station data and a 70% application efficiency a factor of 1.94 acre-feet per year was applied to the estimated total irrigation acreage.

A breakdown of the Areas from the Neighborhood Plan (shown on 2), total EDU, the average estimated water demand by Area, and corresponding annual volume are presented in **Table 1**. Area Four is designated as the commercial area with an anticipated demand of 5.0 acre-feet (AF) per year and the remaining volume is domestic use calculated to be 191 AF per year for a total of 196 acre-feet, excluding lawn and garden irrigation.

Table 1: EDU and Water Demands per Area

Area Designation from Neighborhood Plan	Total EDU	Average Gallons per Day	Acre-Feet Per Year
Area One - Wetlands Preserves	0	0	0
Area Two - Domestic	282	70,500	79
Area Three - Domestic and Parks	178	44,500	50
Area Four – Commercial	18	4,500	5
Area Five - Domestic	159	39,750	45
Area Six - Domestic	63	15,750	18
Total EDU	**700**	**175,000**	**196**

The water system is designed to operate at a maximum flow rate of 300 gpm. The wells will be operated individually, and both are capable of producing 300 gpm. This flow rate is sufficient to accommodate the maximum daily demand and peak hourly flows.

Lawn and Garden Irrigation

The Applicant seeks to appropriate sufficient water to allow for lawn and garden irrigation of 0.1 acres per dwelling unit, or 70.0 acres. The allowable irrigation volumes calculations are a function of the well pumping capacity and the volume of water remaining after the domestic and commercial demands have been satisfied, during the irrigation season. Per the U.S. Department of Agriculture's (USDA) Irrigation Water Requirements (IWR) calculations, the irrigation season proposed for this water right is 177 days between April 21 and October 15, annually. In this timeframe the wells are capable of 235 acre-feet and the commercial and domestic demands are 2.4 and 92.6 acre-feet, respectively. The remaining 140 acre-feet per irrigation season is available for lawn and garden irrigation. The water system has been designed to accommodate an irrigation demand of up to one-inch of irrigation application per week.

Lawn and garden irrigation is restricted to an annual volume not to exceed 140 acre-feet per year. Irrigation water demands were determined using the USDA IWR software (Natural Resources and Conservation Services Version 1.0, March 1, 2003). The irrigation standard for sprinkler irrigation of pasture grass was corrected for turf grass per DNRC Guidelines entitled "DNRC Consumptive Use Methodology – Turf Grass" (March 23, 2010). The results of the IWR analysis indicate the net irrigation requirement in a dry year is 16.27 inches in the Creston area. Sprinkler irrigation in Climate Zone III is considered to be 70 percent efficient (ARM 36.12.115(1)(e)). Therefore, the irrigation requirement is 23.24 inches (1.94 acre-feet) per annum. This volume of water is consistent with DNRC standards, which allow up to 2.5 acre-feet per acre for lawn and garden irrigation (36.12.115(2)(b)). A copy of the IWR calculations displaying the monthly irrigation water requirements is provided. As indicated, the proposed irrigated area is 70.0 acres; as such, the maximum volume of water that shall be appropriated for irrigation is 135.8 acre-feet.

Irrigation Water Requirements
Crop Data Summary

Job: **Cooper Farms**
Location: **Somers, MT**
By: **B. Bennett**
Weather Station: **CRESTON**
Latitude: **4811** Longitude: **11408**
Computation Method: **Blaney Criddle (TR21)**
Crop Curve: **Blaney Criddle Perennial Crop**
Begin Growth: **4/21** End Growth: **10/8**

Crop: **Pasture (grass)**
County: **Flathead, MT**
Date: **06/22/15**
Sta No: **MT2104**
Elevation: **2940** feet above sea level

Net irrigation application: **1** inches
Estimated carryover moisture used at season:
Begin: **0.25** inches End: **0.25** inches

Month	Total Monthly ET (3) inches	Dry Year 80% Chance (1)		Normal Year 50% Chance (1)		Average Daily ETc inches	Peak Daily ETPk inches
		Effective Precipitation inches	Net Irrigation Reqirements inches (2)	Effective Precipitation inches	Net Irrigation Reqirements inches (2)		
January	0.00	0.00	0.00	0.00	0.00	0.00	
February	0.00	0.00	0.00	0.00	0.00	0.00	
March	0.00	0.00	0.00	0.00	0.00	0.00	
April	0.69	0.19	0.25	0.25	0.19	0.07	
May	3.05	0.97	2.07	1.24	1.80	0.10	0.11
June	4.30	1.16	3.14	1.48	2.82	0.14	0.17
July	5.43	0.81	4.61	1.04	4.38	0.18	0.21
August	4.81	0.66	4.15	0.84	3.97	0.16	0.19
September	2.58	0.62	1.96	0.79	1.78	0.08	0.10
October	0.47	0.12	0.10	0.15	0.06	0.06	
November	0.00	0.00	0.00	0.00	0.00	0.00	
December	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	**21.31**	**4.54**	**16.27**	**5.80**	**15.02**		

(1) For 80 percent occurrence, growing season effective precipitation will be equaled or exceeded 8 out of 10 years. For 50 percent chance occurrence, effective precipitation will be equaled or exceeded 1 out of 2 years.

(2) Net irrigation requirements is adjusted for carryover moisture used at the beginning of the season and carryover moiature used at the end of the growing season.

(3) ET Evapotranspiration) is adjusted upwards 10% per 1000 meters above sea level.

Date: 6/22/2015

Attachment E

Water Resource Considerations Memorandum

Water & Environmental
TECHNOLOGIES

TECHNICAL MEMORANDUM

TO: Montana DNRC

FROM: Brad Bennett, PG, Water & Environmental Technologies

DATE: July 15, 2026

SUBJECT: Water Resources Evaluation for Groundwater Application No. 76LJ 30172712

Hydrogeologic and Water Resource Considerations

The statutory criteria governing issuance of a groundwater appropriation permit under § 85-2-311, MCA, focus primarily on groundwater availability, protection of existing water rights, beneficial use, and related water right considerations. Protection of groundwater quality, surface water resources, stormwater management, wastewater treatment, and other environmental considerations are addressed through separate engineering analyses and independent regulatory programs. Nevertheless, these topics are inherently related to development of a community water supply and collectively influence long-term management of water resources associated with the proposed Cooper Farms development.

Development of the Cooper Farms project has included consideration of groundwater supply, water distribution, wastewater collection and treatment, stormwater management, wetlands, drainage features, and floodplain resources. These components have been, are being, or will be addressed through multiple engineering disciplines and regulatory programs that extend beyond the groundwater appropriation process. As the project advances through final engineering, permitting, construction, and operation, each component will continue to be evaluated through the applicable technical and regulatory framework governing its design and implementation.

The purpose of this section is to summarize the broader water resource considerations associated with the project and to describe how water resources have been incorporated into project planning. This discussion is not intended to replace the detailed engineering analyses, environmental reviews, or permitting processes required for subsequent development. Rather, it provides a conceptual overview of how groundwater supply, wastewater management, stormwater management, and existing water resources function as interconnected components of the overall development.

The discussion begins with the hydrogeologic framework supporting the proposed community water supply and then follows the movement of water through the development, including water use within the development, wastewater collection and treatment, stormwater management, and consideration of existing surface water resources. Collectively, these elements provide the foundation for long-term management of water resources associated with the Cooper Farms development.

Hydrogeologic Framework

The Cooper Farms development is located within the Flathead Valley where groundwater occurs within a sequence of Quaternary alluvial, glacial, and glaciolacustrine sediments deposited during repeated episodes of glaciation and subsequent valley filling. These deposits form a layered groundwater system consisting of shallow water-bearing zones, intervening fine-grained confining units, and deeper regionally extensive aquifer utilized for municipal and public water supply development throughout portions of the valley.

Hydrogeologic investigations completed by Water & Environmental Technologies (WET) indicate that the proposed production wells derive groundwater from the deep alluvial aquifer, a regionally extensive confined aquifer underlying much of the Flathead Valley. The aquifer consists predominantly of coarse-grained sand and gravel deposits capable of transmitting and storing significant quantities of groundwater. Throughout much of the valley, the aquifer is overlain by a substantial thickness of low-permeability glacial and glaciolacustrine sediments that function as a regional confining unit.

The presence of the confining unit is an important characteristic of the groundwater system. These fine-grained sediments substantially limit vertical groundwater movement between shallow groundwater systems and the deeper production aquifer. As a result, groundwater produced from the deep alluvial aquifer is hydraulically separated from shallow groundwater systems that interact more directly with precipitation, surface water features, wetlands, and other near-surface hydrologic processes.

Recharge to the deep alluvial aquifer occurs primarily along the mountain front and valley margins where coarse-grained deposits are exposed at land surface or where the confining deposits become thin or discontinuous. Groundwater subsequently migrates beneath confined conditions toward the central Flathead Valley. This conceptual hydrogeologic model is consistent with previous hydrogeologic investigations completed throughout the valley and formed the basis for development of the Cooper Farms public water supply.

The hydrogeologic setting was further evaluated through preparation of a Source Water Delineation and Assessment Report (SWDAR) for the Cooper Farms public water supply. Based on the characteristics of the production aquifer, the thickness and continuity of the confining unit, groundwater occurrence, and well construction details, the Cooper Farms production wells exhibit a low source water sensitivity. This conclusion reflects the relatively low susceptibility of the confined production aquifer to surface-derived contaminants when compared to shallow or unconfined groundwater systems.

The community's production wells were designed and constructed in accordance with Montana DEQ public water supply requirements. Steel casing extends through the overlying confining deposits and the annular space surrounding the casing was sealed with cement grout to isolate the production interval from shallow groundwater encountered during drilling. Aquifer testing confirmed the ability of the completed wells to provide the groundwater supply necessary to support the proposed development while maintaining stable well yield.

The confined nature of the deep alluvial aquifer, together with the well construction methods utilized for the Cooper Farms community water supply, establishes the hydrogeologic framework for understanding groundwater occurrence, groundwater quality, and the relationship between the water supply and other water resources associated with the project.

Groundwater Quality and Source Water Protection

Groundwater quality within the deep alluvial aquifer has been evaluated through source water investigations, well construction activities, aquifer testing, and comprehensive analytical testing completed as part of the public water supply approval process. These investigations provide an understanding of existing groundwater quality conditions within the production aquifer and establish a baseline for future operation of the water system.

Analytical testing completed for the Cooper Farms water supply included general mineral chemistry, nutrients, metals, radionuclides, volatile organic compounds, semi-volatile organic compounds, pesticides, herbicides, and other regulated drinking water constituents. Collectively, these analyses provide a comprehensive characterization of groundwater quality within the completed production wells.

The analytical results indicate that groundwater produced from the deep alluvial aquifer exhibits excellent chemical quality and is suitable for use as a community drinking water supply. Regulated organic constituents were not detected, nitrate concentrations were low, radionuclide concentrations were below applicable drinking water standards, and general mineral chemistry was consistent with groundwater derived from a confined regional aquifer system. These analytical results are consistent with the hydrogeologic framework described previously and provide an important baseline for future operation of the public water supply.

Groundwater quality within the production aquifer is influenced by both natural hydrogeologic conditions and the protective measures incorporated into public water supply development. The substantial thickness of low-permeability glacial and glaciolacustrine sediments overlying the production aquifer limits vertical groundwater movement and reduces the susceptibility of the aquifer to surface-derived contaminants. In addition, the public water supply wells were constructed using steel casing and cement grout seals extending through the confining deposits to isolate the production interval from shallow groundwater encountered during drilling.

Source water protection for the community water supply was further evaluated through preparation of a SWDAR in accordance with Montana Department of Environmental Quality (DEQ) requirements. The purpose of the SWDAR is to identify the source water protection area associated with the wells, evaluate potential contaminant sources that may affect the water supply, and assess the susceptibility of the source aquifer to contamination.

The SWDAR concluded that the Cooper Farms wells exhibit a low source water sensitivity. This conclusion reflects the confined nature of the deep alluvial aquifer, the presence of the overlying confining unit, well construction practices, and the resulting hydraulic separation between the production aquifer and shallow groundwater systems. The source water assessment therefore supports the suitability of the aquifer for long-term community water supply development.

Protection of groundwater quality does not rely upon a single feature or regulatory requirement. Rather, groundwater quality is addressed through multiple complementary elements, including

the natural protection provided by the hydrogeologic setting, public water supply well construction standards, source water assessment and protection requirements, and ongoing drinking water monitoring required for operation of the water system. Collectively, these elements provide a comprehensive framework for understanding, monitoring, and protecting groundwater quality within the deep alluvial aquifer.

Groundwater withdrawn from the deep alluvial aquifer for community water supply purposes does not alter the physical characteristics of the aquifer itself. The proposed appropriation represents withdrawal of groundwater from a regionally extensive confined aquifer system that has been evaluated through hydrogeologic investigations completed in support of the project. Water withdrawn from the aquifer does not introduce new constituents, increase turbidity, or otherwise alter groundwater quality within the production aquifer. Accordingly, groundwater quality considerations associated with the proposed development are principally related to protection of the aquifer and management of water following beneficial use rather than the withdrawal of groundwater itself.

Wastewater Collection and Treatment

Water supplied to the Cooper Farms development will ultimately leave the community water system through multiple domestic, commercial, or beneficial use associated with landscaping. Following use, wastewater generated within the development will be collected through a centralized sanitary sewer collection system and conveyed to the Lakeside County Water and Sewer District (LCWSD) for treatment and disposal.

Planning for centralized wastewater service has been incorporated into the Cooper Farms development for many years, and wastewater treatment capacity has previously been reserved through agreement with LCWSD. Accordingly, wastewater collection and treatment represent an integral component of the infrastructure planning completed for the project and provide the mechanism through which wastewater generated by the development will be managed following beneficial use of groundwater withdrawn from the deep alluvial aquifer.

From a hydrogeologic perspective, centralized wastewater collection influences how water withdrawn from the community supply wells interacts with the local groundwater system. Rather than utilizing numerous distributed onsite wastewater treatment systems throughout the development, wastewater generated within the project will be collected and conveyed away from the property through the sanitary sewer collection system for treatment at an existing publicly operated wastewater facility.

As a result, wastewater generated by the development will be managed through an established utility system operating under applicable state and federal regulatory requirements governing wastewater treatment, monitoring, operation, and maintenance. Long-term wastewater management therefore occurs independently of individual lots within the development and remains subject to the operational and regulatory oversight applicable to public wastewater utilities.

The proposed wastewater management strategy represents one component of the broader water resource framework associated with the Cooper Farms development. Groundwater withdrawn from the deep alluvial aquifer is utilized to serve community water demands, while wastewater generated by those uses is collected and conveyed to a centralized treatment

system. Consequently, potable water supply and wastewater management function as coordinated components of the overall infrastructure plan developed for the project.

Stormwater Management

Stormwater represents the principal pathway through which land development interacts with the shallow hydrologic system. Unlike groundwater withdrawn from the deep alluvial aquifer and conveyed through the community water system, stormwater originates as precipitation falling directly on the project area and remains part of the local hydrologic cycle. Consequently, management of stormwater becomes an important component of protecting shallow groundwater, wetlands, drainage features, and downstream receiving waters associated with the Cooper Farms development.

Stormwater management for the project will occur through two distinct phases: temporary management during construction and permanent management following completion of development.

Construction Phase Stormwater Management

Construction activities have the potential to temporarily disturb soils, increase erosion, and mobilize sediment if appropriate controls are not implemented. Accordingly, construction of the Cooper Farms development will occur under the applicable Montana Pollutant Discharge Elimination System (MPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

Prior to commencement of construction, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared to identify temporary erosion and sediment control measures appropriate for the proposed construction activities. The SWPPP will establish construction sequencing, inspection requirements, maintenance procedures, corrective actions, and temporary best management practices intended to minimize sediment transport and reduce the potential for temporary water quality impacts during construction.

Implementation of these measures provides a structured framework for managing temporary stormwater-related impacts until disturbed areas have been stabilized and permanent stormwater infrastructure has been constructed.

Permanent Stormwater Management

Following construction, stormwater management will transition from temporary construction controls to permanent infrastructure incorporated into the final civil engineering design. Final grading, roadway, utility, drainage, and stormwater plans will be prepared under the direction of licensed professional engineers and reviewed through the applicable state approval processes prior to construction.

Permanent stormwater infrastructure will be developed in accordance with Montana Circular DEQ-8 and applicable local development standards. These design criteria recognize that modern stormwater management involves more than conveyance of runoff and incorporates objectives related to erosion control, sediment reduction, water quality treatment, protection of receiving waters, long-term maintenance, and overall system performance.

Consistent with these principles, final engineering will further evaluate site-specific hydrology, drainage patterns, soils, groundwater conditions, existing wetlands, floodplain constraints, maintenance requirements, and receiving water considerations in the development of the permanent grading and stormwater management system. The specific configuration of stormwater facilities will be determined during final engineering; however, the design objectives and engineering framework governing those facilities have already been established through the applicable design standards and regulatory requirements.

Depending on final engineering analyses, stormwater management infrastructure is anticipated to incorporate a combination of detention, infiltration, vegetated treatment, energy dissipation, flow attenuation, outlet control, and other stormwater management features selected to address site-specific hydraulic and water quality objectives. Selection of individual facilities will occur during final design based on engineering analyses and agency review.

Relationship Between Stormwater and Groundwater

Stormwater management also serves an important role in managing the interaction between developed land surfaces and the shallow groundwater system. Precipitation falling on the project area ultimately becomes surface runoff, evapotranspiration, or groundwater recharge depending upon site conditions and the characteristics of the stormwater management system. Through implementation of grading controls, drainage infrastructure, erosion control measures, and stormwater treatment practices incorporated into the final engineering design, stormwater runoff is managed prior to discharge or infiltration.

Because shallow groundwater, wetlands, drainage features, and surface water resources are interconnected components of the local hydrologic system, stormwater management becomes an important engineering mechanism for influencing how water moves through the developed landscape. Accordingly, stormwater management practices incorporated into the final project design will be intended to manage runoff quantity and quality while recognizing existing site conditions, drainage patterns, groundwater conditions, and receiving water considerations identified during project planning and engineering.

Water Quality Considerations

From a water resource perspective, stormwater management serves as the primary engineering mechanism for addressing the interaction between developed land surfaces and the shallow hydrologic system. Contemporary stormwater design recognizes that runoff may transport sediment and other constituents mobilized from developed areas. Accordingly, stormwater management systems are designed not only to convey runoff safely, but also to reduce erosion, limit sediment transport, promote treatment of stormwater runoff, and protect downstream receiving waters.

For the Cooper Farms development, these objectives will be addressed through the final stormwater management system developed during civil engineering design. Evaluation of stormwater quality considerations, treatment requirements, and protection of receiving waters will occur through the established engineering and regulatory processes governing stormwater infrastructure.

Stormwater management will remain an important component of the overall water resource strategy for the development because it represents the principal interface between land development and the shallow groundwater, wetland, drainage, and surface water systems present within and adjacent to the project area.

Existing Surface Water Resources

Development of the Cooper Farms project has included evaluation of wetlands, drainage features, floodplain conditions, and other surface water resources located within and adjacent to the project area. These investigations have provided an understanding of the existing hydrologic setting and established an important framework for subsequent engineering design and permitting activities.

Wetlands and drainage features within the project area are influenced primarily by precipitation, surface runoff, shallow groundwater, and local drainage conditions. As a result, these resources are more directly connected to the shallow hydrologic system and represent important considerations during planning of grading, drainage, transportation, utility, and stormwater infrastructure.

Previous environmental investigations have identified wetland resources and other surface water features associated with the property. These resources perform a variety of hydrologic functions, including temporary storage of runoff, conveyance of stormwater, interaction with shallow groundwater, and attenuation of peak flows during storm events. Similarly, floodplain evaluations completed for the project have identified areas subject to flooding that influence site grading, infrastructure placement, roadway elevations, drainage planning, and future development patterns.

Importantly, wetlands, drainage features, and floodplain resources were identified during the planning process and have been incorporated into the engineering framework for the project and continue to inform design. As engineering advances, existing environmental investigations will continue to guide development of grading plans, roadway layouts, utility corridors, drainage infrastructure, and stormwater management facilities.

Protection and management of these resources will continue through the applicable engineering, environmental review, and permitting processes associated with final project development. Opportunities to avoid and minimize impacts to wetlands, drainage features, and other surface water resources will be evaluated during detailed engineering consistent with project objectives and applicable regulatory requirements.

Collectively, the wetlands, drainage features, floodplain resources, and shallow hydrologic systems associated with the Cooper Farms property represent important components of the overall water resource setting. Understanding these features provides context for the stormwater management strategies, engineering design considerations, and environmental review processes that will continue as the project advances toward construction.

Engineering and Regulatory Review

The groundwater appropriation evaluated in this memorandum represents one component of the broader planning and development process for the Cooper Farms project. Subsequent phases

of development will require additional engineering analyses, environmental review, and agency approvals addressing water supply infrastructure, wastewater collection, stormwater management, grading and drainage, transportation infrastructure, wetlands, floodplain conditions, and related project improvements.

Each of these project components is subject to independent technical review through the applicable engineering and regulatory processes governing its design and implementation. Public water supply infrastructure is reviewed through the Montana DEQ public water supply approval process. Wastewater collection infrastructure will be reviewed through the applicable DEQ engineering review processes, while treatment and disposal occur through the Lakeside County Water and Sewer District and the regulatory programs governing wastewater treatment facilities. Stormwater management is developed through final civil engineering design in accordance with Montana Circular DEQ-8 and applicable local development requirements, while construction stormwater is addressed through the Montana Pollutant Discharge Elimination System permitting process.

Similarly, grading, drainage, roadway design, utility infrastructure, floodplain considerations, and wetland resources will continue to be evaluated through these processes associated with final project development. These reviews provide multiple opportunities to incorporate site-specific information, refine project design, and evaluate project infrastructure prior to construction.

Consequently, protection of water resources associated with the Cooper Farms development does not rely upon a single engineering analysis, design element, or regulatory approval. Rather, groundwater supply, wastewater management, stormwater management, and protection of existing water resources are addressed through multiple independent processes that collectively guide development of the project from final design through long-term operation.

Integrated Water Resource Management

The preceding sections describe the principal components of the water resource system associated with the Cooper Farms development. While each component is addressed through separate engineering disciplines and regulatory programs, they are interconnected through the movement of water within and around the project area.

Groundwater withdrawn from the deep alluvial aquifer serves as the community water supply for the development. The production aquifer is hydraulically separated from shallow groundwater systems by a substantial confining unit and has been evaluated through hydrogeologic investigations, source water assessments, water quality testing, and public water supply review. These investigations provide the foundation for understanding the groundwater resource that will support the development.

Following beneficial use, wastewater generated within the development will be collected and conveyed to the Lakeside County Water and Sewer District for treatment and disposal. As a result, wastewater generated by the project is managed through a centralized utility system operating under independent regulatory oversight rather than through distributed onsite wastewater treatment systems located throughout the development.

In contrast, precipitation falling on the property remains part of the local hydrologic system and represents the primary mechanism through which land development interacts with shallow

groundwater, wetlands, drainage features, and surface water resources. Consequently, stormwater management serves as the principal engineering tool for managing runoff quantity and quality associated with the completed development. Final stormwater infrastructure will be developed through detailed engineering and reviewed through the applicable regulatory processes governing stormwater design and construction.

Wetlands, drainage features, and floodplain resources identified during previous investigations provide important context for understanding the shallow hydrologic system associated with the project. These resources have been incorporated into project planning and will continue to inform engineering design, environmental review, and permitting as development progresses.

Collectively, these elements illustrate that groundwater supply, wastewater management, stormwater management, and protection of existing water resources have not been considered as independent project components. Rather, they represent interconnected elements of a broader water resource framework that has evolved through hydrogeologic investigations, environmental studies, engineering design, and regulatory review completed over many years of project planning.

The requested groundwater appropriation is one component of that framework. As the project advances through final engineering, permitting, construction, and long-term operation, groundwater supply, wastewater management, stormwater infrastructure, and protection of existing water resources will continue to be addressed through the engineering and regulatory processes applicable to each element of the development. Collectively, these processes provide the structure through which water resources associated with the Cooper Farms development will be managed over the life of the project.

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Technical Analyses Report/ Scientific Credibility Review

- Departmental Technical Analyses Report/ Scientific Credibility Review
- Any correspondence relating to the Technical Analyses Report

Technical Analyses Report / Scientific Credibility Review

Water Resources Division – Kalispell Regional Office
655 Timberwolf Pkwy, Ste. 4
Kalispell, MT 59901-1215
(406) 752-2288
DNRCKalispellWater@mt.gov

June 6, 2026

TAPPAN LAW FIRM, PLLC - RICK TAPPAN
7 WEST 6TH AVE SUITE 615
HELENA MT 59601-5036

Subject: Completed Technical Analyses Report for Beneficial Water Use Permit Preapplication No. 76LJ 30172712

Dear Applicant,

As designated on the submitted Preapplication Meeting Form per §85-2-302(3)(b), MCA, the Department of Natural Resources and Conservation (Department) has completed the technical analyses for Beneficial Water Use Permit Preapplication No. 76LJ 30172712 based on the information provided in your Preapplication Meeting Form accepted by the Department on April 15, 2026. The technical analyses can be found in the attached report.

This Technical Analyses Report **IS**: A collection of facts that the DNRC has gathered, including content provided in the Preapplication Meeting Form materials. The Department will use these data to analyze the criteria in §85-2-311, MCA if you submit a Form 600 for the project described in the completed Preapplication Meeting Form.

This Technical Analyses Report **IS NOT**: An analysis or discussion of whether the Preapplication Meeting Form as filed meets the criteria in §85-2-311, MCA.

You have 180 days to submit the Beneficial Water Use Permit Application Form 600 considering the information provided in the technical analyses and Preapplication Meeting Form. If the Application Form is not submitted to the Kalispell Regional Office by November 28, 2026, a new preapplication meeting will be required to process the Application with expedited timelines (ARM 36.12.1302(6)(b)). If any details described in the submitted Application are changed from that of the submitted Preapplication Meeting Form, the discounted filing fee and expedited timelines will not apply (ARM 36.12.1302(6)(a)). Please note that the technical analyses will expire one year from the date of this letter (ARM 36.12.1302(8)).

Please contact me at (406) 752-2702 or Jack.Vanderbilt@mt.gov if you have any questions about the application process.

Sincerely,

Jack Vanderbilt
Water Resource Specialist
Kalispell Regional Office

Encl.: Groundwater Permit Technical Analyses Report Parts A and B for Beneficial Water Use Permit Preapplication No. 76LJ 30172712

Cc via email: Brad Bennett and Jamie Graham, Water & Environmental Technologies

Groundwater Permit Technical Analyses Report- Part A

The Montana Department of Natural Resources and Conservation (DNRC) Water Resources Division

Jack Landers, Groundwater Hydrologist, Water Sciences Bureau (WSB)

Applicant Name	LBO Properties LP, Owl Ventures LLC, Mark G. Owens
Application No.	76LJ 30172712
Point of Diversion Legal Land Description	NWSWSE Section 14, Township 27 North, Range 21 West, Flathead County

Overview

This report is Part A of a two-part publication which analyzes data submitted by the Applicant in support of the above-mentioned water right permit application. This report provides technical analyses as required under the Administrative Rules of Montana (ARM 36.12.1303) in support of the water rights criteria assessment as required in §85-2-402, Montana Code Annotated (MCA).

This Groundwater Permit Technical Analyses Report – Part A contains the following sections:

Overview 1
1.0 Executive Summary 2
2.0 Hydrogeologic Setting 4
3.0 Aquifer Test Summary 6
4.0 Aquifer Test Analysis 11
5.0 Modeling Inputs 16
6.0 Adequacy of Diversion Analysis 16
7.0 Physical Availability Analysis 19
8.0 Adverse Effect Analyses 21
8.1 Groundwater - Drawdown in Existing Wells 21
8.2 Surface Water - Net Depletions (Consumed Water) 23
Review 31
References 31
Appendix A: 1-foot-Contour Water Rights

1.0 Executive Summary

Application Details

The Applicant proposes to divert 300 gallons per minute (gpm) and 331.8 acre-feet (AF) from two public water supply wells between January 1 and December 31 to supply water for multiple domestic, commercial, and lawn and garden irrigation purposes for the proposed Cooper Farms Subdivision. The proposed subdivision consists of 700 equivalent dwelling units (EDU) with a requested multiple domestic volume up to 191 AF (low- and high-density single-family dwellings), lawn and garden irrigation of 70 acres up to 135.8 AF, and commercial volume up to 5.0 AF. Wastewater for multiple domestic and commercial purposes would be treated by the Lakeside County Water and Sewer District water treatment plant.

Approved Variances from ARM 36.12.121

Variances for deviations from aquifer test requirements found in ARM 36.12.121 were requested on December 16, 2025, and granted from the Kalispell Regional office on January 15, 2026. The deviations from rule and evaluation of the requested variances can be found in the WSB Aquifer Testing Addendum Review document dated January 12, 2026. Deviations from 36.12.121(3)(a) and 3(e)(iii) were requested because the flow rate fluctuated within the first 30 seconds of the aquifer tests and at 900 minutes during the May 2, 2022, aquifer test. The WSB determined the brief fluctuations did not affect the quality of the drawdown data nor limit the analysis of the aquifer test data.

WSB Technical Analyses Findings

Based on information submitted, the WSB estimated aquifer properties, evaluated the proposed well(s) available water column, and evaluated potential impacts to existing groundwater and surface water rights. Adverse effects were evaluated by comparing drawdown in existing wells and quantifying net depletions to surface water. These analyses are in support of the following criteria assessment: adequacy of diversion, physical availability, and adverse effect. A summary of WSB findings described in subsequent sections are listed below.

TECHNICAL ANALYSES FINDINGS

AQUIFER TEST ANALYSIS	Using the Neuman-Witherspoon (1969) solution for leaky-confined aquifers, saturated thickness (b) of 40 feet (ft), and submitted 72-hour aquifer testing data for Production Wells GWIC ID 318895 and 319285, estimates of aquifer properties include a Transmissivity (T) of 113.9 and 120.8 ft^2/day and a Storativity (S) value of $4.8x10^{-4}$ and $4.7x10^{-4}$ for the pumped aquifer, a T_2 = 25,000 ft^2/day and S_2 = 0.1 for the overlying aquifer, and leakage parameters of r/B = 0.1303 and 0.1401, ß = 0.02973 and 0.03049, respectively.
MODELING INPUTS	The following aquifer properties were used to complete adequacy of diversion, physical availability and adverse effect technical analyses: T of 10,247 ft^2/day, S of $1.6x10^{-4}$ from the geometric mean of ten nearby aquifer tests completed in the source aquifer. Pumping schedules used to model each criterion are identified within the document.
ADEQUACY OF DIVERSION	The aquifer adjacent to GWIC ID 318895 would experience 106.71 ft of drawdown after the first year, leaving 172.11 ft of available water column above the bottom of the well or perforated interval. The aquifer adjacent to GWIC ID 319285 would experience 96.42 ft of drawdown after the first year, leaving 198.20 ft of available water column above the bottom of the well or perforated interval.
PHYSICAL AVAILABILITY	The model predicted the 0.01-foot drawdown contour, or zone of influence (ZOI), extends up to 30,654 ft from the Applicant's wells and was truncated west of the wells to the alluvial aquifer boundary. The calculated groundwater flux through the ZOI totaled 7,599 AF. **Appendix A of Part B** of this report lists the active and severed water rights within the ZOI.
ADVERSE EFFECT (DRAWDOWN IN EXISTING WELLS)	The 1-foot drawdown contour would extend 3,568 ft from the proposed wells at the end of the fifth September of the proposed annual pumping schedule. 16 groundwater rights are predicted to experience drawdown equal to or greater than one foot (**Appendix A of Part A**).
ADVERSE EFFECT (NET DEPLETION TO SURFACE WATER)	Monthly net depletions resulting from the proposed use of groundwater are identified in **Table 1.** The starting point of net depletion to the Flathead River is the western boundary of the SWSENE of Section 34, Township 28 North, Range 21 West, Flathead County. The starting point of net depletion to Flathead Lake is the southern boundary of the SESW Section 24, Township 27 North, Range 21 West, Flathead County.

Table 1: Consumed volume and net depletion to hydraulically connected surface water sources.

Month	Total Diverted Volume (AF)	Total Consumed Volume (AF)	Flathead River Net Depletion (AF)	Flathead River Net Depletion (gpm)	Flathead Lake Net Depletion (AF)	Flathead Lake Net Depletion (gpm)
January	16.6	16.6	4.0	28.9	20.8	151.6
February	15.0	15.0	3.6	28.9	18.8	151.6
March	16.6	16.6	4.0	28.9	20.8	151.6
April	23.0	20.9	3.8	28.9	20.1	151.6
May	40.4	33.3	4.0	28.9	20.8	151.6
June	39.1	32.2	3.8	28.9	20.1	151.6
July	40.4	33.3	4.0	28.9	20.8	151.6
August	40.4	33.3	4.0	28.9	20.8	151.6
September	39.1	32.2	3.8	28.9	20.1	151.6
October	28.2	24.7	4.0	28.9	20.8	151.6
November	16.1	16.1	3.8	28.9	20.1	151.6
December	16.6	16.6	4.0	28.9	20.8	151.6
Total	331.8	291.1	46.6	-	244.5	-

2.0 Hydrogeologic Setting

The proposed wells are located in Section 14, Township 27 North, Range 21 West, Flathead County, approximately 9 miles south of Kalispell (**Figure 1**). Montana Bureau of Mines and Geology (MBMG) Groundwater Information Center (GWIC) ID 318895 is 304 ft deep with a perforated interval between 284 and 299 ft and a static water level (swl) of 23.64 ft below top of casing (btc). GWIC ID 319285 is 320 ft deep with a perforated interval between 300 and 315 ft and swl of 22.38 ft btc. Both wells are completed in the deep alluvial aquifer (Deep Aquifer) underlying the Flathead Valley.

Hydrogeologic information indicates that the Deep Aquifer extends across the valley underlying an area approximately 300 square miles (LaFave et al., 2004). The thickness of the confining unit varies throughout the Kalispell valley (Smith, 2000; Rose, 2018). The deepest wells completed in the Kalispell valley penetrate the upper 1,000 ft of the Deep Aquifer (Rose, 2011). According to Rose et al. (2022), listed well diversion rates from the Deep Aquifer range up to 3,000 gpm and average approximately 40 gpm.

The site is within the southern extension of the Rocky Mountain Trench and southern part of the Kalispell valley. The valley is a half-graben with the eastern margin defined by the Mission Fault. The Flathead Lobe of the Cordilleran Ice Sheet occupied the valley during much of the Pleistocene Epoch. Tectonics, erosion, and glaciation have resulted in the deposition of complex sequences of sedimentary materials within the intermontane valleys (LaFave et al., 2004). Alluvium beneath glacial deposits is thickest and most commonly encountered in the Kalispell, Montana area. The Deep Aquifer is the most utilized aquifer in the Flathead Lake area (LaFave et al., 2004).

Groundwater flows from the margins of the valley toward the center to merge with the overall southern flow toward Flathead Lake. A groundwater model by Waren (1989) and work by LaFave et al. (2004) suggests that the Deep Aquifer responds as a single connected system and not as a group of separate aquifers. Primary recharge to the Deep Aquifer occurs on the margins of the valley adjacent to the Mission Mountain Range and Swan Mountain Range (LaFave et al. 2004; Rose et al. 2022). Secondary recharge through the confining layer to the deep aquifer occurs through extremely slow seepage primarily in the northern portions of the valley (Rose et al. 2022).

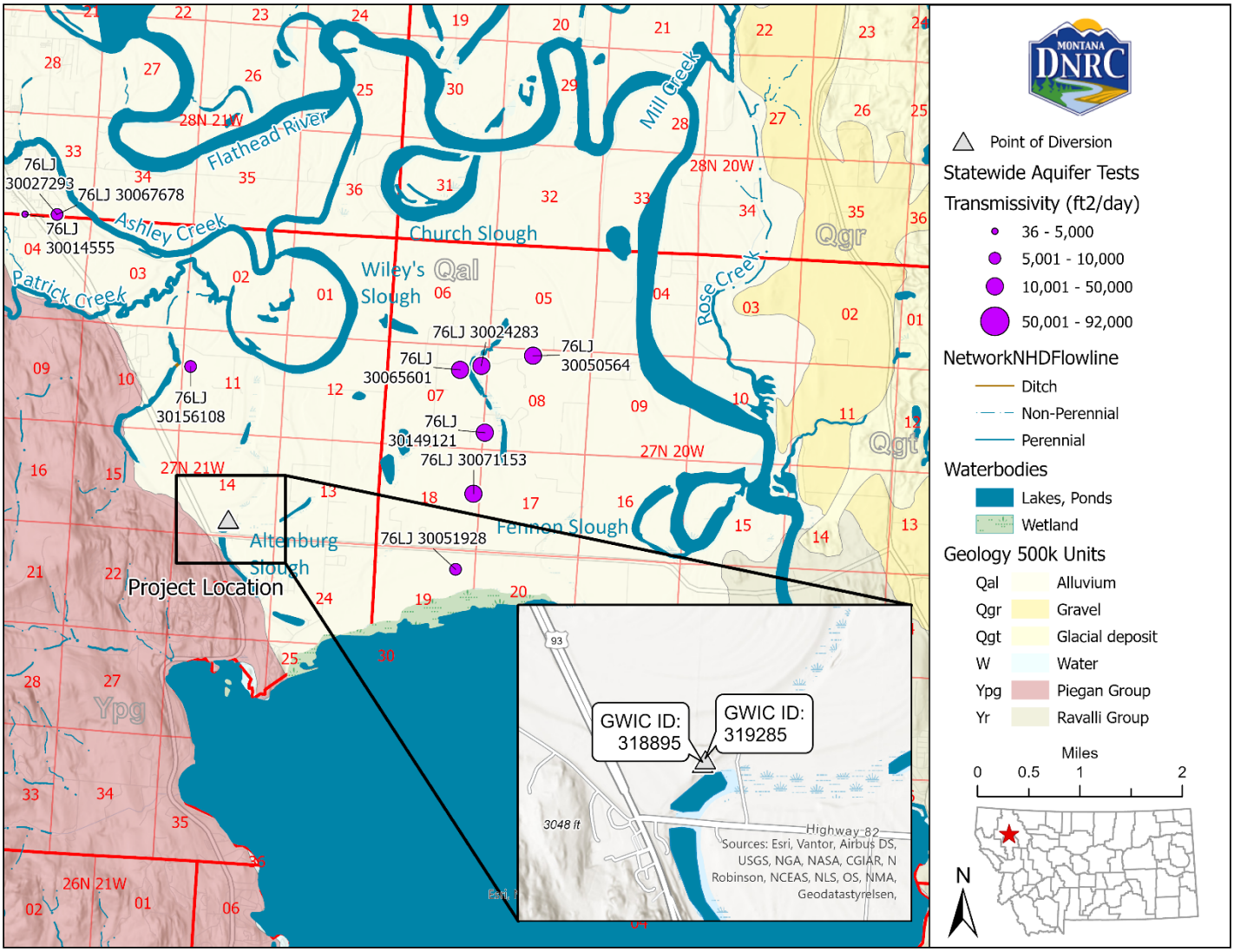


Figure 1: Map of the Applicant's proposed wells, aquifer test location, and existing nearby aquifer tests.

3.0 Aquifer Test Summary

DNRC requires two different types of tests, "Aquifer Tests" and "Drawdown and Yield Tests", which are used to analyze different application criteria.

- An "Aquifer Test" is a pumping test that is meant to provide data to model aquifer properties. The minimum duration of these tests is either 24-hours or 72-hours, depending on the proposed flow rate and volume (ARM 36.12.121(3)(e)), and DNRC only requires one of these tests per application. Aquifer Tests must include observation well data, and pre-test monitoring data as well as post-test recovery data.
- A "Drawdown and Yield Test" is a pumping test that is meant to evaluate well construction and the ability of the aquifer to yield water to the well. This is also known as demonstrating "adequacy of diversion". The minimum duration of these tests is 8 hours, and every well that is a part of the application must be tested. Observation wells, pre-test, and post-test data is not required for Drawdown and Yield Tests.

The Applicant submitted two 72-hour aquifer tests on the proposed wells. In the first test, one well was pumped as the Production Well while the other was monitored as the Observation Well. In the second test, the roles were reversed. Additional Observation Wells were monitored during both tests but did not exhibit drawdown due to the distance from the Production Well (up to 4,939 ft).

Field Methods and Equipment

A 72-hour aquifer test was conducted on the Production Well, GWIC ID 318895, starting on May 2, 2022. The average pumping rate was 303 gpm, which exceeded the requested flow rate per well (300 gpm). Completion details for the wells used in the aquifer test are identified in **Table 2**. Additional aquifer test information such as the monitoring periods for the test, equipment used, collected water levels, and measured discharge can be found on Form 633. **Figure 1** identifies the location of the Production Well.

Table 2: Well specifications for the May 2, 2022, aquifer test.

GWIC ID	Well ID	Distance from the Production Well (ft)	Completed Well Depth (ft bgs)	Perforated Interval (ft bgs)	Casing Diameter (inches)
318895	Production	0	304	284-299	10
319285	Observation	65	320	300-315	10
215158	Observation	4,939	324	Open bottom	7

A 72-hour aquifer test was conducted on the Production Well, GWIC ID 319285, starting on June 20, 2022. The average pumping rate was 300 gpm. Completion details for the wells used in the aquifer test are identified in **Table 3**. Additional aquifer test information such as the monitoring periods for the test, equipment used, collected water levels, and measured discharge can be found on Form 633. **Figure 1** identifies the location of the Production Well.

Table 3: Well specifications for the June 20, 2022, aquifer test.

GWIC ID	Well ID	Distance from the Production Well (ft)	Completed Well Depth (ft bgs)	Perforated Interval (ft bgs)	Casing Diameter (inches)
319285	Production	0	320	300-315	10
318895	Observation	65	304	284-299	10
172498	Observation	3,568	298	Open bottom	6
166611	Observation	4,398	318	Open bottom	6

Background, Drawdown and Recovery Data

May 2, 2022, Aquifer Test

Figures 2 and 3 summarize background, drawdown, and recovery water level data for the aquifer test. As identified in **Figure 2** the Production Well background data shows no trends; water elevations appear stable. The Observation Well GWIC ID 319285 exhibited daily fluctuations of approximately two feet that may be pumping effects from a nearby well. However, the Production Well is located 64.75 feet away and did not exhibit this pattern. The water level fluctuations are small relative to the maximum drawdown observed during the test and did not affect the analyses. Observation Well 215158 was monitored for a short period prior to the beginning of the test, but this data was not analyzed due to a lack of drawdown during the aquifer test.

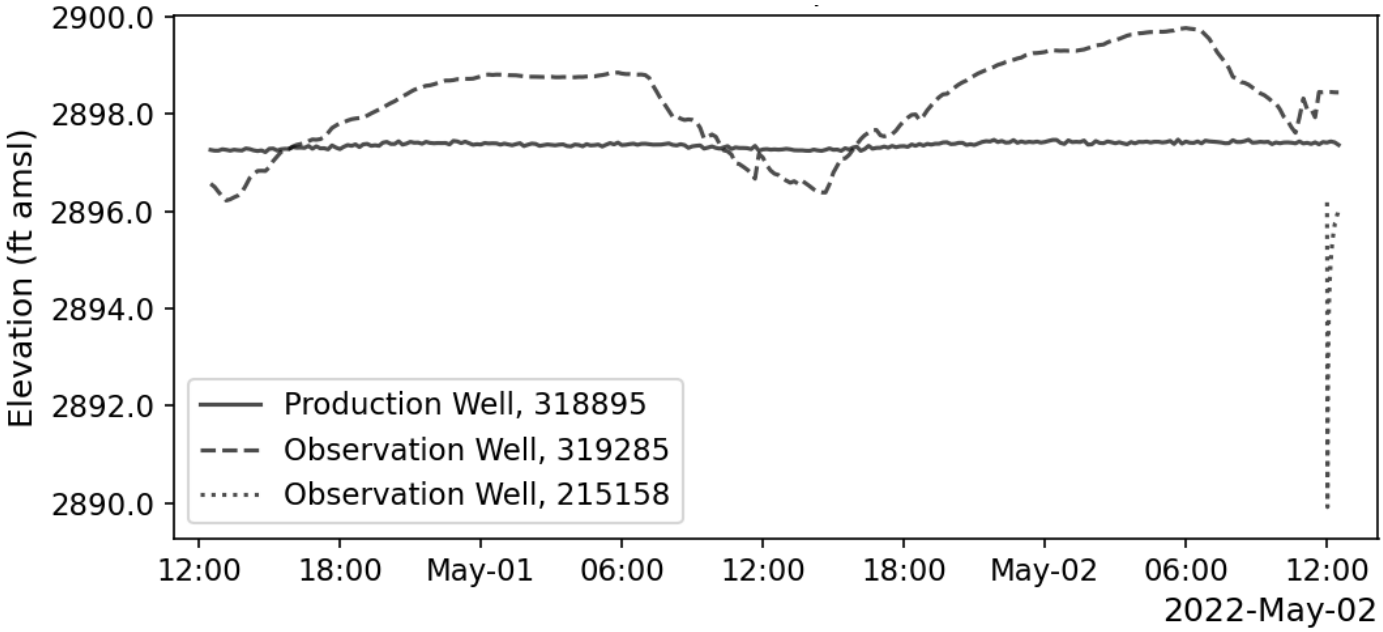


Figure 2: Background data for Production and Observation Wells prior to the May 2, 2022, aquifer test.

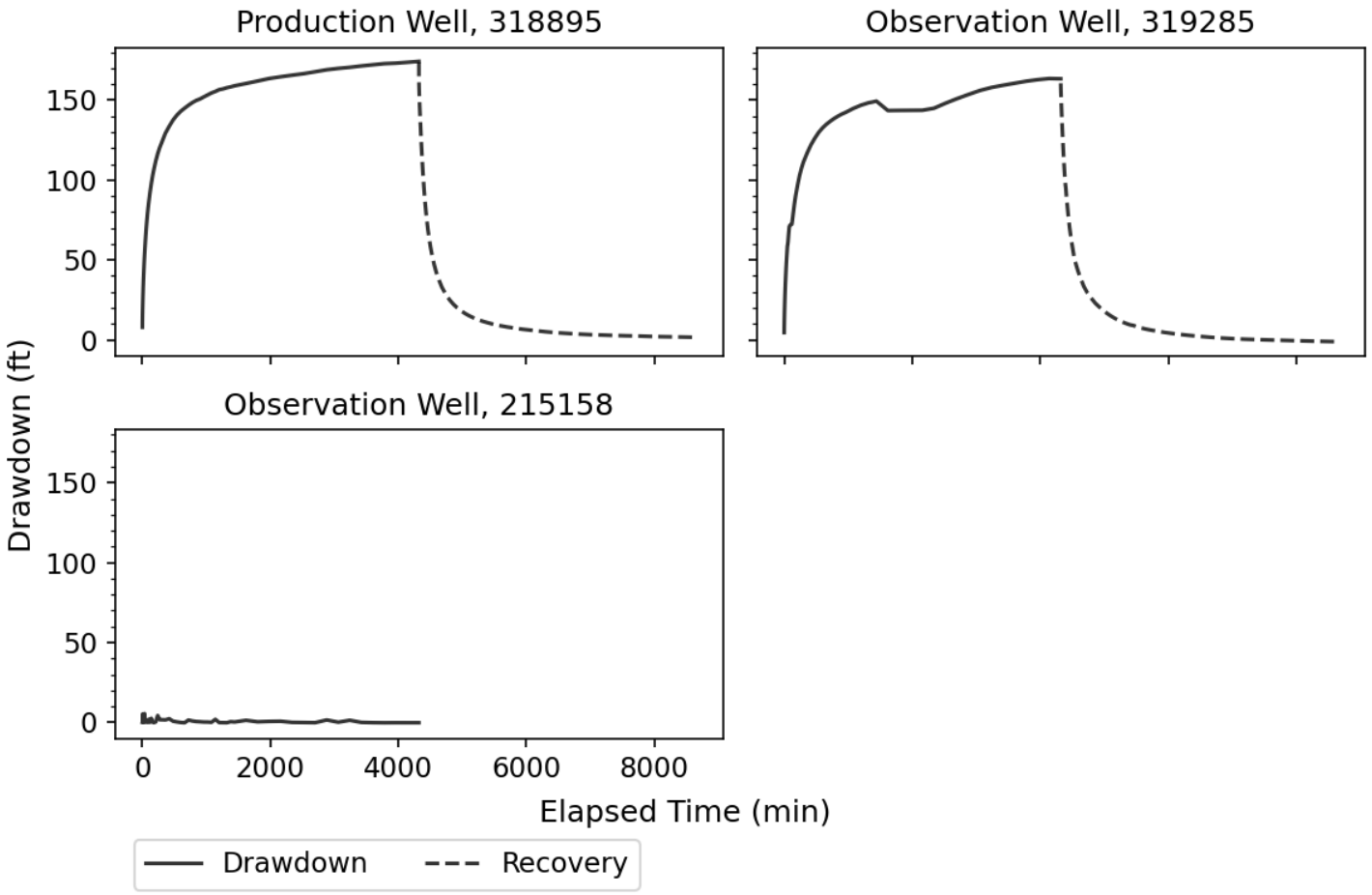


Figure 3: Drawdown and recovery data for the May 2, 2022, 72-hour aquifer test on the Production Well.

June 20, 2022, Aquifer Test

Figures 4 and 5 summarize background, drawdown, and recovery water level data for the aquifer test. As identified in **Figure 2** the Production Well background data show no trends; water elevations appear stable. Background water levels for the Observation Well GWIC ID 318895 increased at the beginning of the monitoring period before declining approximately 1-foot at the end of the monitoring period. The observed water level fluctuation in the Observation Well GWIC ID 318895 is small relative to the maximum observed drawdown during the test and did not affect the analyses.

Observation Well GWIC ID 166611 exhibited fluctuations that are indicative of pumping from nearby wells. Drawdown was not observed in Observation Wells 166611 and 172498 during the aquifer test due to the distance from the Production Well and data from these wells were not analyzed.

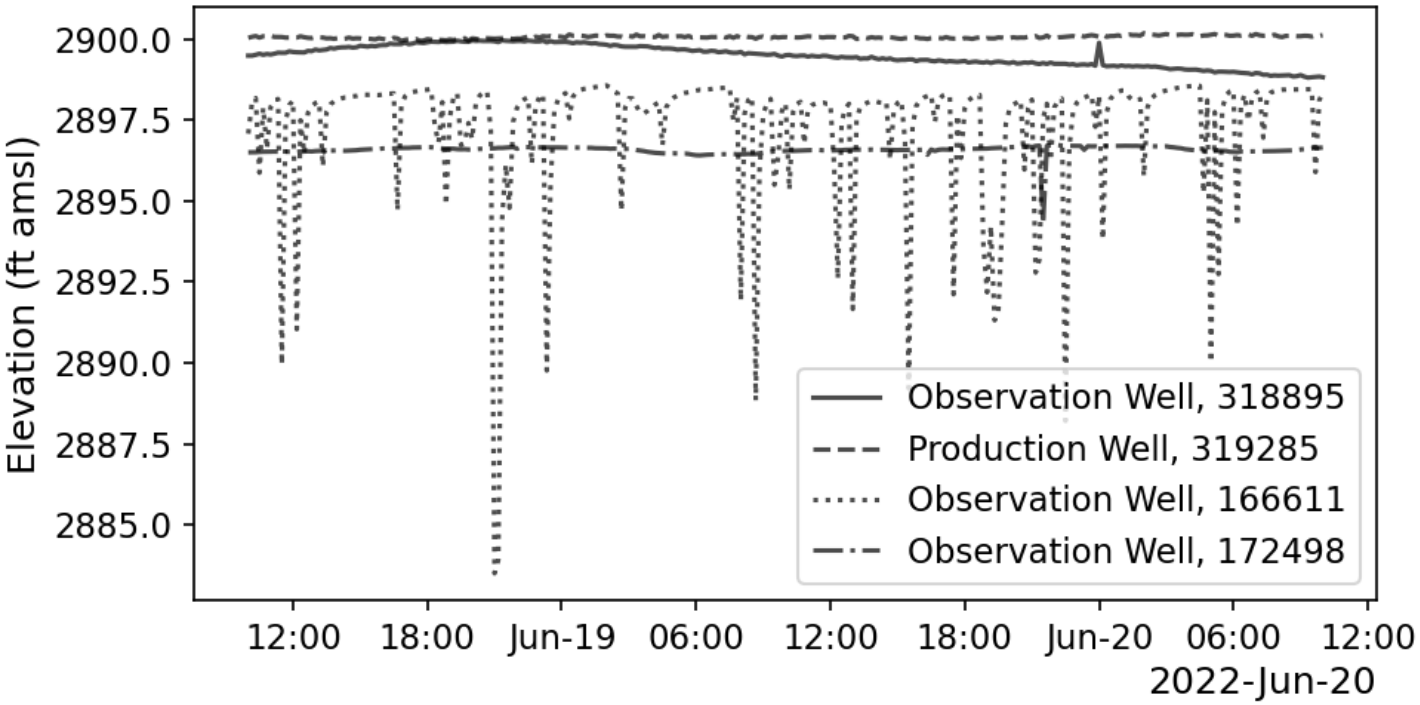


Figure 4: Background data for Production and Observation Wells prior to the June 20, 2022, aquifer test.

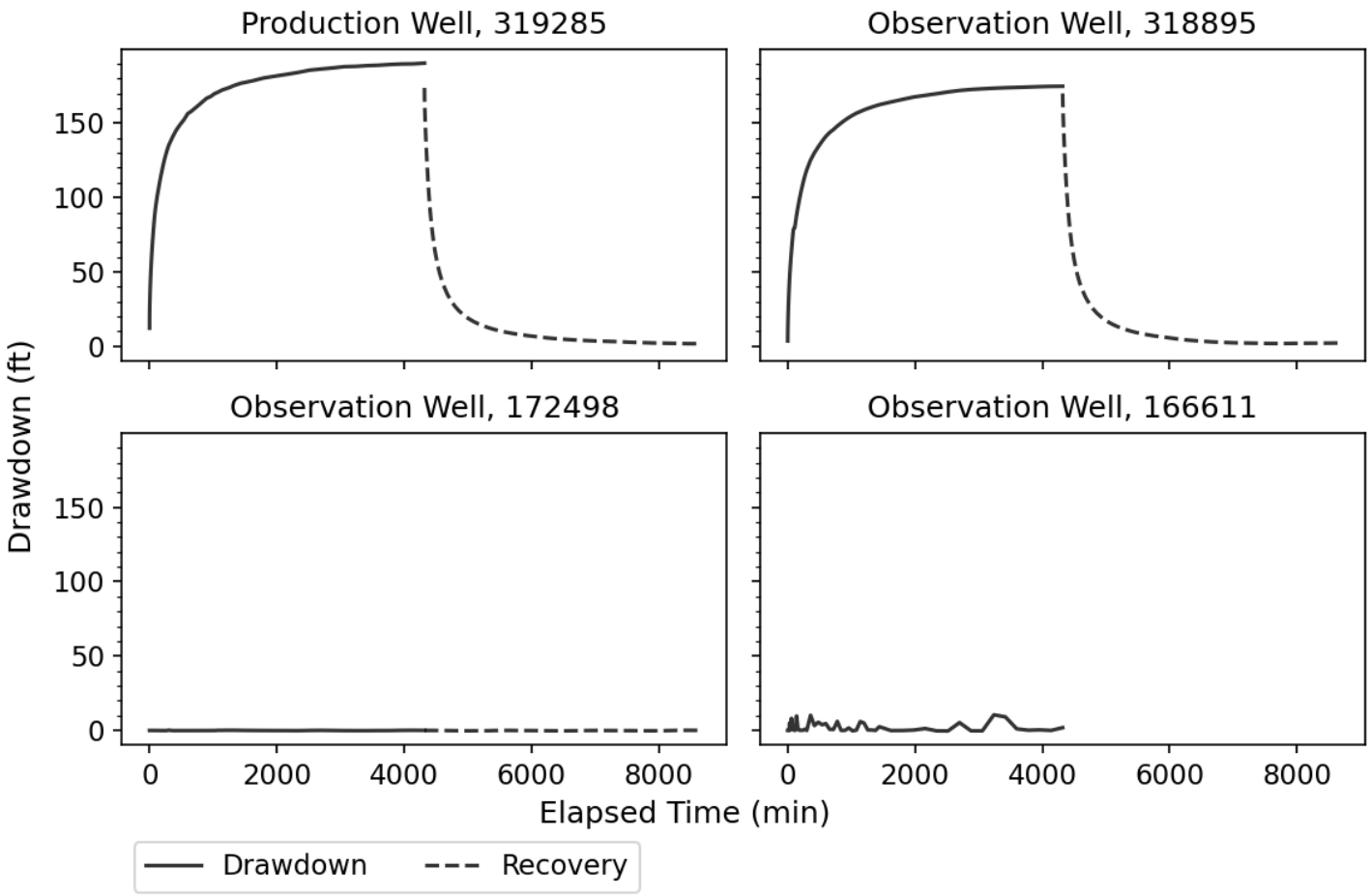


Figure 5: Drawdown and recovery data for the June 20, 2022, 72-hour aquifer test on the Production Well.

Maximum Drawdown and Available Water Column

Table 4 and **Table 5** identify the maximum drawdown and available water column above the bottom of the well or perforated interval for the Production and Observation Wells at the end of the aquifer tests. Available water column was quantified by adding 2 ft to the bottom of the perforated interval or bottom of well depth, to reflect the measurement point for static water levels (top of casing).

Table 4: Available water column at the end of the May 2, 2022, aquifer test for the Production and Observation Wells.

GWIC ID	Well ID	Static Water Level (ft btc)	Maximum Observed Drawdown (ft)	Available Water Column (ft)
318895	Production	23.64	174.28	108.08
319285	Observation	24.06	163.56	134.38
215158	Observation	18.99	5.50	301.51

Table 5: Available water column at the end of the June 20, 2022, aquifer test for the Production and Observation Wells.

GWIC ID	Well ID	Static Water Level (ft btc)	Maximum Observed Drawdown (ft)	Available Water Column (ft)
319285	Production	22.38	190.35	109.27
318895	Observation	22.18	174.79	109.03
172498	Observation	15.35	0.19	284.46
166611	Observation	14.66	10.50	294.84

4.0 Aquifer Test Analysis

Methods

The DNRC utilized AQTESOLV® (HydroSOLVE, Inc., 2007) to analyze drawdown data from the aquifer test, obtain estimates of aquifer properties, and model predicted drawdown in existing wells. AQTESOLV® is an analytical modeling software that uses image well theory and the principle of superposition to simulate aquifer stress tests. Known well, aquifer, and aquitard characteristics from well logs and previous investigations are input into the model. Calculated aquifer drawdown and measured flow rates from the aquifer test, and the spatial location of each well are also input into the model. Using this compilation of data, aquifer properties including Transmissivity (T) and Storativity (S) are estimated based on a best-fit visual match between the observed and theoretical drawdown data.

Analyses

Analytical groundwater solutions were matched to Observation Well drawdown data to generate estimates of aquifer properties for the source aquifer**.** As identified in **Figure 6** and **Figure 7** theoretical AQTESOLV® predicted derivatives (red line) were compared to the calculated derivatives from the observed drawdown (red crosses) and predicted drawdown (blue line) compared to the observed drawdown (black squares). A summary of aquifer test analyses for Production and Observation Wells is found in **Table 4**.

For estimation of aquifer properties, a saturated thickness (b) of 40 ft equal to the length from the bottom of the screened interval to the bottom of the confining unit was used. Drawdown data and measured flow rates from the aquifer tests, and the spatial location of each well were input into the model. Both 72-hr aquifer tests were analyzed.

As shown in **Figure 6** and **Figure 7**, the Neuman-Witherspoon (1969) solution was fit to one Observation Well's data for both the May 2, 2022, and June 20, 2022, 72-hour aquifer tests. The plunging derivative at late-time is indicative of a leaky-confined aquifer.

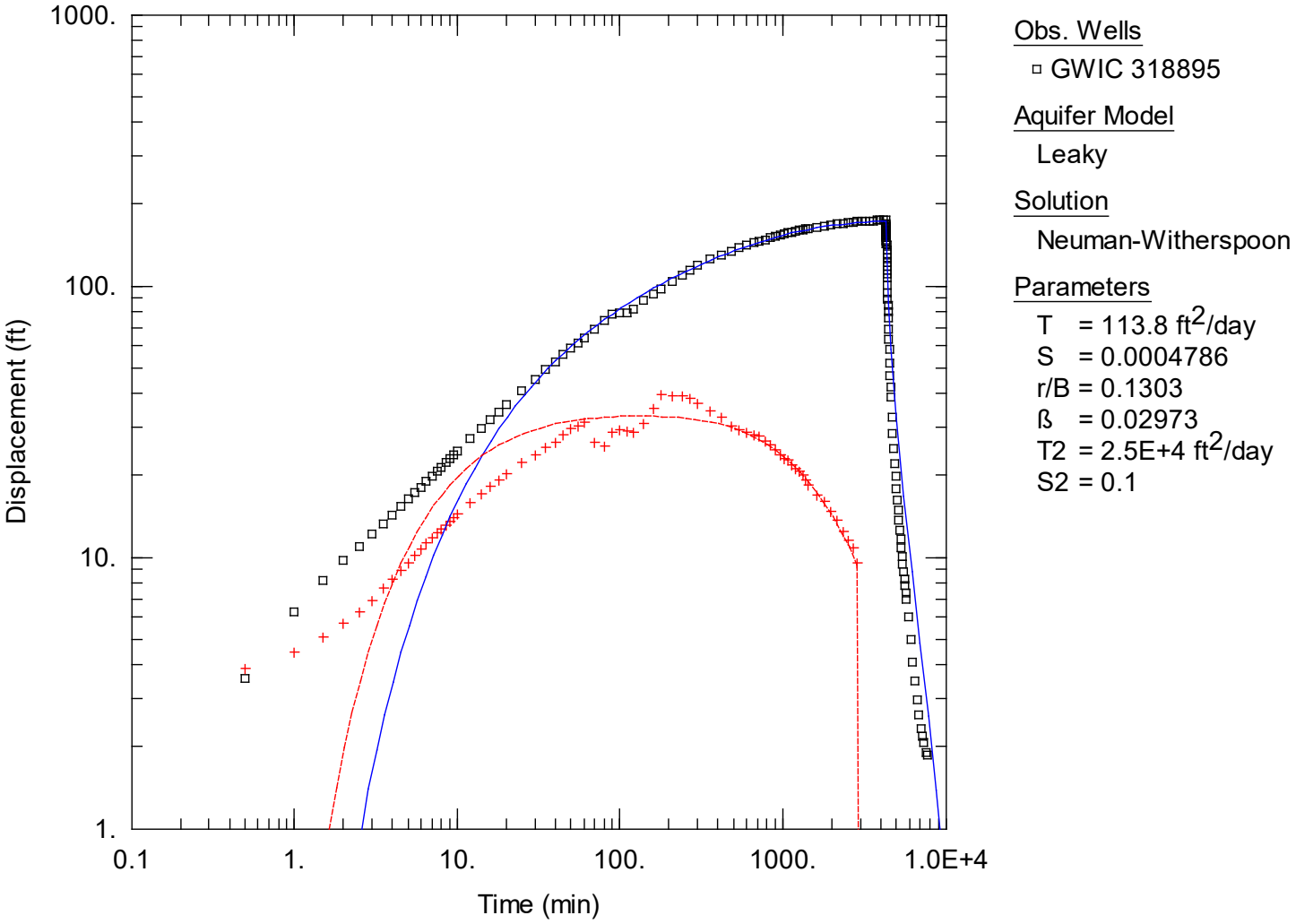


Figure 6: Neuman-Witherspoon (1969) solution fit to the Observation Well (GWIC ID 318895) data from the May 2, 2022, 72-hr aquifer test.

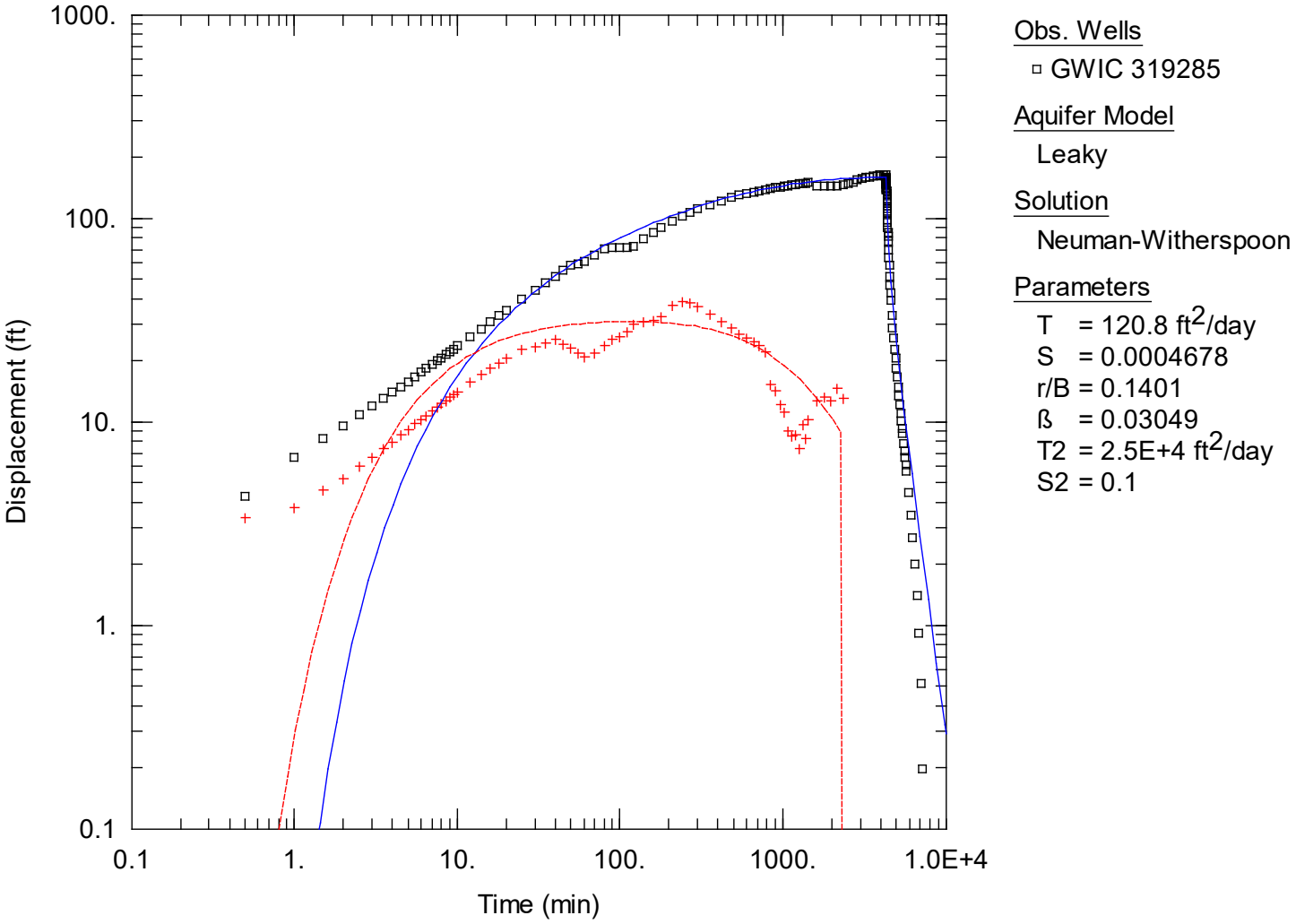


Figure 7: Neuman-Witherspoon (1969) solution fit to the Observation Well (GWIC ID 319285) data from the June 20, 2022, 72-hr aquifer test.

Table 6: A summary of aquifer test analyses using data from 72-hour aquifer tests completed on Production Well GWIC ID 318895 and 319285.

Production Well (GWIC ID)	Aquifer Test Phase	Well Analyzed (GWIC ID)	Well ID	Analysis Solution	T (ft^2/day)	S or Sy
319285	Drawdown & Recovery	318895	Observation	Neuman-Witherspoon (1969)	113.8	$4.8x10^{-4}$
318895	Drawdown & Recovery	319285	Observation	Neuman-Witherspoon (1969)	120.8	$4.7x10^{-4}$

Aquifer Property Comparison

The DNRC Aquifer Test database and MBMG GWIC database were queried for tests completed in the Deep Aquifer. A total of 92 tests throughout the Deep Aquifer completed in confined or leaky-confined aquifer settings were identified, with a geometric mean T value of 4,144 ft^2/day and range from 36 to 87,440 ft^2/day. The geometric mean of S values of the 92 tests was $4.3x10^{-4}$ and range from $1.0x10^{-6}$ to 0.2. The ten closest aquifer tests conducted in the Deep Aquifer are shown in **Table 7** and **Figure 1**. The geometric mean T value of the ten closest tests is 10,247 ft^2/day and range from 980 to 32,830 ft^2/day. The geometric mean S value of the ten closest tests is $1.6x10^{-4}$ and range from $3.0x10^{-5}$ to $7.5x10^{-3}$. Only three aquifer tests with T values of less than 117 ft^2/day were identified (76LJ 30174753, 76LJ 30064042, 76LJ 30011160). These three tests are in the northern end of the Flathead Valley 2.5 miles south of Whitefish, and 20 miles north of the proposed production wells.

Aquifer properties in the Deep Aquifer vary considerably and no obvious overall spatial pattern is discernable from aquifer test data (**Figure 1**). The proposed wells are located on the southwest portion of the Deep Aquifer near the bedrock margin. Two wells (GWIC IDs 134254 and 258354) located 2,000 ft southeast of the proposed wells encountered bedrock at 270 ft and 334 ft feet below ground surface respectively. This information indicates that the source aquifer at the location of the proposed wells is relatively thin and likely significantly thinner than many aquifer test locations used to derive aquifer properties presented above and in **Table 5**.

Drawdown observed in the Observation Wells during both 72-hour aquifer tests were similar to the Production Wells, indicating that the cone of depression extended nearly horizontally from the Production Wells. The significant drawdown in the Observation Wells produced anomalously low estimates of Transmissivity compared to other Deep Aquifer tests. Using the derived aquifer properties and Neuman-Witherspoon (1969) solution, modeled maximum drawdown for the aquifer tests was approximately 550 ft. The large discrepancy between observed and modeled drawdown for the aquifer tests indicates erroneous aquifer test data or that aquifer conditions were not adequately represented in the aquifer test design. It is possible that the wells are completed in a zone of low productivity, a thin area of aquifer material near the margins of the Deep Aquifer. Or that the Observation Wells proximity to the Production Well doesn't allow for a T that is representative of the variability of T for the given hydrogeologic setting.

Aquifer tests completed in the south-central portion of the Deep Aquifer produced T values that are two orders of magnitude larger than the T values derived from the 2022 aquifer tests. Drawdown induced by pumping the proposed wells over the period of diversion would extend across the width of the Deep Aquifer and would affect areas of the aquifer that are more productive. Based on the information presented above, the aquifer properties derived from the two 72-hr aquifer tests are not representative of a T value for this region of the Deep Aquifer. As a result, the T and S values used for forward modeling scenarios were calculated from the geometric mean of 10 nearby aquifer tests shown in **Table 5**. Aquifer tests in **Table 5** include lower T values observed on the margins of the Deep Aquifer and higher T values observed in the center of the Deep Aquifer.

Table 7: Nearby Aquifer Tests. Note: T = Transmissivity. NA = Not Available.

Water Right No.	GWIC ID	Well Depth (ft)	Distance from Applicant Well (miles)	Aquifer Test Length (hrs)	Pumping Rate (gpm)	T (ft^2/day)	S
76LJ 30071153	260892	717	2.4	168	500	32,830	$3.6x10^{-4}$
76LJ 30065601	230505	400	2.7	25	105	17,200	$3.3x10^{-5}$
76LJ 30156108	318856	400	1.5	24	487	9,700	$7.5x10^{-3}$
76LJ 30149121	307706	660	2.7	9	100	18,410	$3.0x10^{-5}$
76LJ 30067678	258729	421	3.4	72	590	7,600	$2.6x10^{-4}$
76LJ 30050564	222164	662	3.4	24	110	12,020	$4.6x10^{-5}$
76LJ 30027293	258729	421	3.4	72	590	9,255	$5.7x10^{-4}$
76LJ 30051928	236497	760	2.3	72	402	5,278	$3.0x10^{-5}$
76LJ 30024283	230431	640	2.9	24	65	28,946	$2.6x10^{-4}$
76LJ 30014555	216547	346	3.6	24	125	980	$1.0x10^{-4}$
					Geometric Mean	10,247	$1.6x10^{-4}$

5.0 Modeling Inputs

Technical analyses in support of the following criteria assessment: adequacy of diversion, physical availability, and adverse effect (drawdown in existing wells) were modeled in AQTESOLV (HydroSOLVE INC., 2007) using the following inputs:

- Theis (1935) solution for confined aquifers
- Well radius of 0.42 ft and screened interval of 15 ft for both wells modeled as partially penetrating
- Well locations (Applicant supplied coordinates)
- Saturated thickness (b) = 40 ft
- T = 10,247 ft^2/day
- S = $1.6x10^{-4}$

The Theis (1935) confined aquifer solution was used for forward modeling scenarios because appropriate leakage parameters for leaky confined aquifer solutions could not be determined from the aquifer test data. In addition, portions of the Deep Aquifer that would experience drawdown from the proposed use exhibit confined aquifer conditions where the confining unit in the center of the Flathead Valley is up to 600 ft thick (Smith, 2004).

Monthly pumping schedules and boundaries used to complete technical analyses are identified in subsequent criteria sections.

6.0 Adequacy of Diversion Analysis

An evaluation of the potentially available water column remaining in the proposed well(s) was modeled in AQTESOLV (HydroSOLVE INC., 2007) using the following:

- Assumed monthly pumping schedule identified in **Table 8** for the period of diversion.

The Applicant proposes to divert 331.8 AF for multiple domestic, commercial, and lawn and garden purposes from two wells. Each well would divert half of the total proposed volume. The Applicant provided an adjusted pump schedule in the pre-application form, shown in **Table 6**. Multiple domestic and commercial volumes were apportioned evenly across the proposed period of diversion. The proposed lawn and garden irrigation schedule is based on the system design application rates.

Table 8: Assumed monthly pumping schedule for the proposed wells. Each well would divert half of the total proposed volume.

Month	Lawn and Garden Diverted Volume (AF)	Multiple Domestic Diverted Volume (AF)	Commercial Diverted Volume (AF)	Total Diverted Volume (AF)	Flow Rate (gpm)
January	0.0	16.2	0.4	16.6	121.5
February	0.0	14.7	0.4	15.0	121.6
March	0.0	16.2	0.4	16.6	121.5
April	6.9	15.7	0.4	23.0	173.6
May	23.8	16.2	0.4	40.4	295.2
June	23.0	15.7	0.4	39.1	295.1
July	23.8	16.2	0.4	40.4	295.2
August	23.8	16.2	0.4	40.4	295.2
September	23.0	15.7	0.4	39.1	295.1
October	11.5	16.2	0.4	28.2	205.6
November	0.0	15.7	0.4	16.1	121.4
December	0.0	16.2	0.4	16.6	121.5
Total	135.8	191.0	5.0	331.8	-

As identified in **Table 9,** total drawdown is the sum of interference drawdown and predicted drawdown with well loss. Interference drawdown is additional drawdown that would occur from pumping both wells simultaneously. Predicted drawdown with well loss is calculated by dividing the predicted theoretical maximum drawdown by a well efficiency value. Well efficiency is calculated by dividing the modeled maximum drawdown for the aquifer test by the maximum observed drawdown of the test. Maximum predicted theoretical drawdown for the proposed wells was modeled for the period of diversion using the monthly pumping schedule for identified in **Table 8**. The proposed wells GWIC IDs 318895 and 319285 would experience a maximum predicted total drawdown of 106.71 and 96.42 ft, respectively, at the end of September of the first year (**Figure 8**). The remaining available water column for the proposed wells GWIC ID 318895 and 319285 is 172.11 ft and 198.20 ft, respectively, and is equal to the available drawdown above the bottom of the well minus total drawdown (**Table 9**).

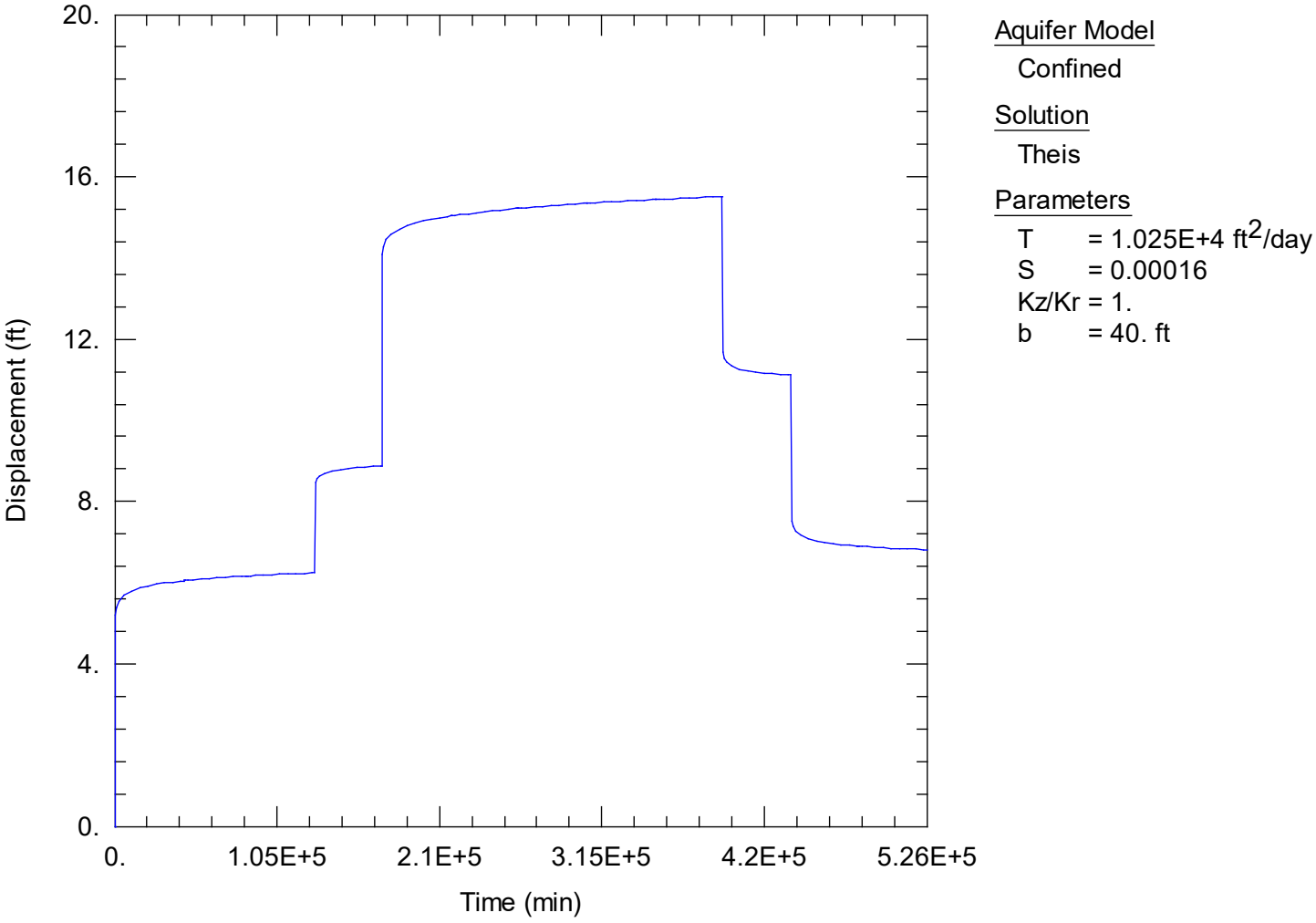


Figure 8: AQTESOLV time-drawdown plot for the proposed pumping schedule. Both wells are plotted to show the effect of interference drawdown, but the line for the second well is obscured due to the proximity of the well and matching flow rate and pump schedule.

Table 9: Remaining available water column for the proposed wells.

Drawdown Estimate	GWIC ID 318895	GWIC ID 319285
Total Depth at Bottom of Perforated Interval (ft)	301	317
Pre-Test Static Water Level (ft btc)	22.18	22.38
Available Drawdown Above Bottom of Well (ft)	278.82	294.62
Observed Drawdown of Aquifer Test (ft)	174.28	190.35
Modeled Drawdown Using Mean Aquifer Test	13.7	16.7
Well Efficiency (%)	8	9
Predicted Theoretical Maximum Drawdown (ft)	7.78	7.78
Predicted Drawdown with Well Loss (ft)	98.97	88.68
Interference Drawdown (ft)	7.74	7.74
Total Drawdown (ft)	106.71	96.42
Remaining Available Water Column (ft)	**172.11**	**198.20**

[1]The total well depth measuring point (bgs) was adjusted to the top of well casing based on a 2 ft well casing stickup reported on the well log.

7.0 Physical Availability Analysis

An evaluation of groundwater availability in the source aquifer for the purpose of evaluating physical and legal availability was done by calculating groundwater flux through a zone of influence (ZOI) corresponding to the 0.01-foot drawdown contour. The 0.01-foot drawdown contour was modeled in AQTESOLV (HydroSOLVE INC., 2007) using the following pump schedule and boundaries:

- Constant pumping rate of 205.7 gpm for the period of diversion.
- Constant head boundary 5,000 ft south to represent Flathead Lake
- Constant head boundary 20,000 ft north to represent the Flathead River

The normalized pumping rate required to produce the total annual volume of 331.8 is 205.7 gpm. According to **Figure 10** the 0.01-foot drawdown contour would extend up to 30,654 ft from the Applicant's well(s) and was truncated west of the wells to the 1:500,000-scale mapped aquifer extent, south of the wells by Flathead Lake, and east and north of the wells by the Flathead River. **Appendix A of Part B** of this report lists the active and severed water rights within the ZOI.

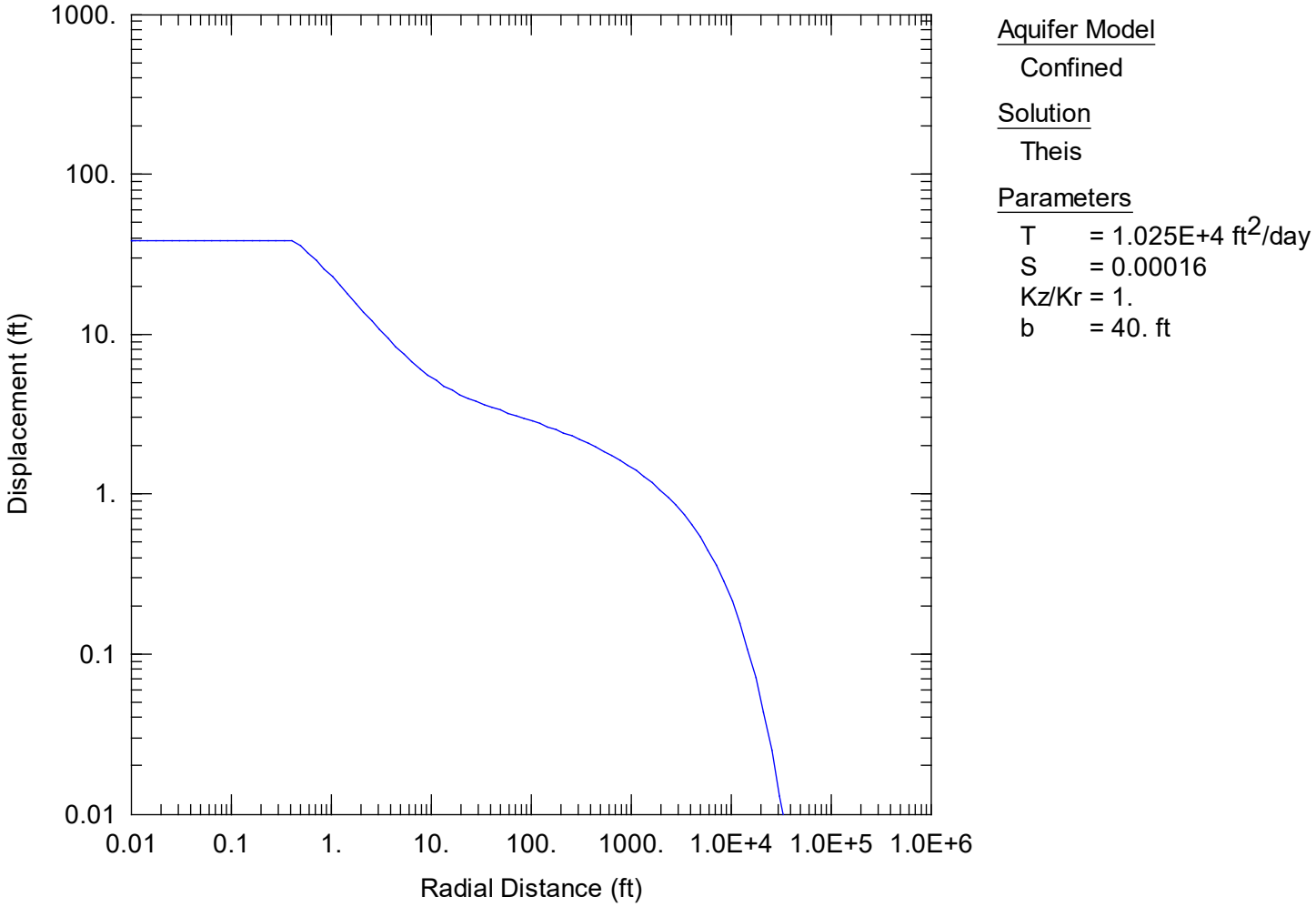


Figure 9: Distance-drawdown plot at the end of the first year of pumping.

Recharge to the Deep Aquifer occurs from both mountain-front and mountain-block recharge and generally flows from the margins of the valley towards the Flathead River. Groundwater in the center of the valley flows south towards Flathead Lake. The groundwater gradient ranges from 0.015 ft/foot in steeper recharge areas west of the proposed project to 0.001 ft/foot in flat areas in the center of the valley and just north of Flathead Lake (LaFave, 2004). A gradient of 0.003 ft/foot was determined to be representative of the Deep Aquifer in the southwest region of the Deep Aquifer.

The direction of groundwater flow is predominantly to the south and the width of the ZOI that is perpendicular to groundwater flow is 30,600 ft. The calculation for groundwater flux (Q) through the delineated area is given by Eq. 1 and is 940,675 ft^3/day or 7,882 AF/year:

$$\mathbf{Q = TWi}$$

where:
T = Transmissivity = 10,247 ft^2/day
W = Width of Zone of Influence = 30,600 ft
i = Groundwater gradient (average of values from LaFave, 2004) = 0.003 ft/foot

8.0 Adverse Effect Analyses

Under §85-2-311, Montana Code Annotated (MCA), using the Applicant's proposed pump schedule and associated volume, adverse effect is evaluated by modeling drawdown in nearby wells, changes in net depletions to surface water, and changes in return flows to surface water.

8.1 Groundwater - Drawdown in Existing Wells

Using the Applicant's proposed pump schedule and associated annual volume, potential impacts to existing water rights are evaluated by modeling drawdown in nearby wells and net depletions to surface water(s). The drawdown in existing wells was modeled in AQTESOLV (HydroSOLVE INC., 2007) using the following:

- The assumed monthly pumping schedule for the proposed wells identified in **Table 8** for a period of five years.

Drawdown is largest at the end of September with the assumed monthly pumping schedule. As identified in **Figure 10**, after five years drawdown greater than one foot occurs within 3,568 ft of the proposed wells. 16 groundwater rights are located within the 1-foot drawdown contour and included in **Appendix B** (**Figure 11**).

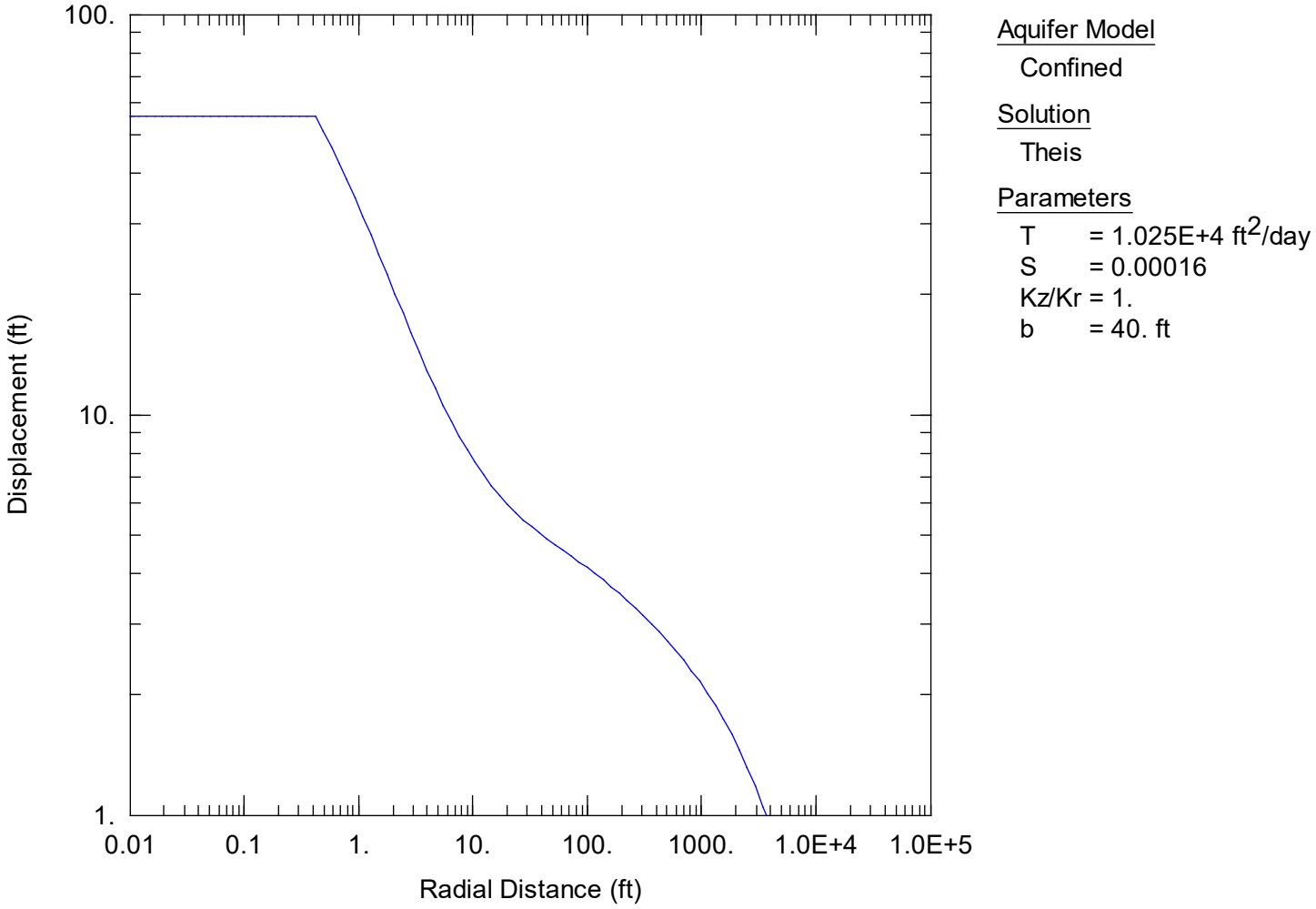


Figure 10: Theis (1935) distance-drawdown plot at the end of the fifth September of the assumed monthly pumping schedule for the proposed wells (**Table 6)**.

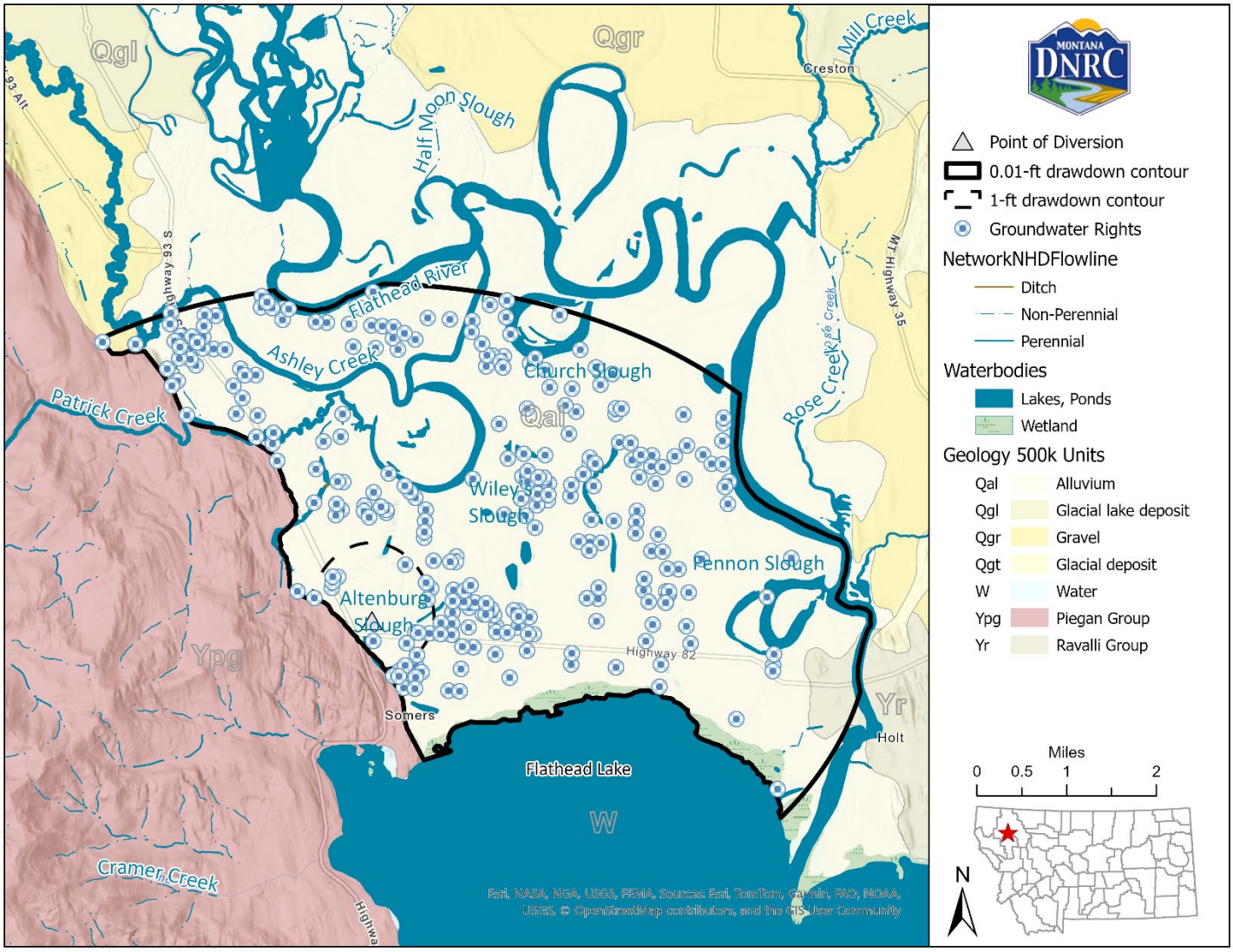


Figure 11: Groundwater rights located within the 0.01-ft and 1-foot drawdown contour.

8.2 Surface Water - Net Depletions (Consumed Water)

Pursuant to *Montana Trout Unlimited v. DNRC*, 2006 MT 72, 331 Mont. 483, 133 P.3d 224, the DNRC recognizes the connection between surface water and groundwater, and the effect of pre-stream capture and induced infiltration on surface waters.

Net depletions to surface water depend on propagation of drawdown to areas of the aquifer from which water can be captured. Captured water consists of two possible sources – a reduction in the natural discharge (outflow) rate of groundwater from the aquifer (pre-stream capture) or an increase in the natural/artificial recharge (inflow) rate to the aquifer (e.g. induced infiltration). Two important assumptions are made when evaluating net depletions: first the stream and underlying aquifer remain hydraulically connected by a continuous saturated zone, and second, the stream does not become dry. In addition, net depletion is not a function of groundwater flow rate or direction (Theis, 1938; Leake, 2011) and drawdown from pumping can

propagate through the entire thickness of the confining layer to overlying aquifers or surface waters (Konikow and Neuzil, 2007).

As such, net depletions are identified for hydraulically connected surface water sources, not including ditches or ephemeral streams. Net depletion is equal to consumption for proposed groundwater use and is described as the calculated volume, rate, timing, and location of reductions to surface water that are offset by return flows (non-consumed water). Net depletion is evaluated by 1.) quantifying the consumed volume associated with the proposed use; 2.) identifying hydraulically connected surface waters; and 3.) calculating the monthly rate and timing of net depletions to affected surface water(s).

1. Consumed Volume

Consumed groundwater does not return to the source aquifer. Consumed volume depends on the proposed use and its associated percentage of known consumption. Depletion is assumed to be equivalent to consumption on an annual basis unless return flows do not accrete to the potentially affected surface water.

Monthly consumption for irrigation, not including turf grass, can be calculated using ARM 36.12.115 irrigation standards and associated efficiency values or the net irrigation requirement (dry year 80% chance) calculated using the USDA Natural Resources Conservation Service (NRCS) IWR program with inputs consistent with DNRC consumptive use rules in ARM 36.12.1902. Monthly consumption for irrigation of turf grass (lawns) is calculated using either a minimum efficiency value of 70% and ARM 36.12.115 lawn and garden standards or the net irrigation requirement from IWR with inputs consistent with DNRC (2010) Consumptive Use Methodology for turf grass.

Consumption for other purposes are listed in **Table 10** and are based on the results of studies by Kimsey and Flood (1987), Vanslyke and Simpson (1974), Paul, Poeter, and Laws (2007), DNRC (2018), wastewater treatment method, operation of systems, or DNRC policy. Net evaporation is calculated using gridded monthly net evaporation values and methodologies associated with DNRC (2023). Municipal use for non-municipalities (e.g. water district) may have variable consumption rates.

Table 10: Percent consumption by use.

Purpose	Method of Treatment/Use	Consumed
Domestic/Municipal/Commercial/Institutional	Individual drainfields	10%
Domestic/Municipal/Commercial/Institutional	Central treatment facility with minimal consumption	5%
Domestic/Municipal/Commercial/Institutional	Evaporation basin or land application	100%
Municipal Use for Municipality	Variable	100%
Water Marketing (Water Depots)/Agriculture Spraying/Oil Well Flooding/Stock Water/some Industrial Uses	Variable	100%
Commercial/Industrial	Aggregate Washing – construction standard for moisture allowed in the finished aggregate product.	5%
Commercial	Snow Making – depends on time of day, machine, weather at time of operation, etc.	10-30%
Fisheries, Recreation, Storage for Irrigation	Net evaporation off reservoir surface, gridded monthly net evaporation values and methodologies	AF/acre
Geothermal	Closed loop systems	0%

WSB Findings

For the subject application, wastewater for multiple domestic and commercial purposes would be treated by the Lakeside County Water and Sewer District through land application and is considered 100% consumptive. Lawn and garden irrigation would be 70% consumptive based on DNRC standards for sprinkler irrigation. The diverted and consumed volumes for each purpose are shown in **Table 11**.

Table 11: Diverted and consumed volumes by purpose.

Month	Lawn and Garden Irrigation Diverted Volume (AF)	Lawn and Garden Irrigation Consumed Volume (AF)	Domestic and Commercial Diverted Volume (AF)	Domestic and Commercial Consumed Volume (AF)	Total Diverted Volume (AF)	Total Consumed Volume (AF)
January	0.0	0.0	16.6	16.6	16.6	16.6
February	0.0	0.0	15.0	15.0	15.0	15.0
March	0.0	0.0	16.6	16.6	16.6	16.6
April	6.9	4.8	16.1	16.1	23.0	20.9
May	23.8	16.7	16.6	16.6	40.4	33.3
June	23.0	16.1	16.1	16.1	39.1	32.2
July	23.8	16.7	16.6	16.6	40.4	33.3
August	23.8	16.7	16.6	16.6	40.4	33.3
September	23.0	16.1	16.1	16.1	39.1	32.2
October	11.5	8.1	16.6	16.6	28.2	24.7
November	0.0	0.0	16.1	16.1	16.1	16.1
December	0.0	0.0	16.6	16.6	16.6	16.6
Total	135.8	95.1	196.0	196.0	331.8	291.1

2. Hydraulically Connected Surface Water(s) and Location of Net Depletions

Potentially affected surface waters in a net depletion evaluation are identified by their hydraulic connection, both direct and indirect, to the source aquifer of a proposed groundwater diversion. Hydraulic connection depends on the depth to groundwater beneath the beds of surface waters, connection between deep and overlying shallow aquifers, vertical gradients, and can vary along a reach and with time of year.

Procedures for evaluating hydraulic connection and identifying one or more potentially affected surface water(s) for a proposed well in an unconfined/confined aquifer or regional bedrock aquifer can be found in DNRC (2018) and DNRC (2019), respectively. Net depletion is apportioned between multiple potentially affected surface waters generally following procedures described in Section 3.2 of a guidance document developed by the Province of British Columbia (2016) for determining the effect of groundwater diversion on specific streams.

Numerous surface water sources were considered in the vicinity of the proposed project, including Ashley Creek, Patrick Creek, Altenburg Slough, Wiley's Slough, Fennon Slough, Church Slough, Flathead River, and Flathead Lake. **Table 11** identifies published information used to assess hydraulic connection of Ashley Creek, Patrick Creek, and Altenburg Slough. Not all data may be available for each project and is noted as "NA" when that occurs. Based on aerial imagery, Church Slough, and Fennon Slough have a direct connection to the Flathead River with no control structure. Therefore, these sources would be accounted for in physical and legal availability of the Flathead River. The Flathead River and Flathead Lake are significant perennial hydrologic features in the Flathead Valley and are considered to be regionally hydraulically connected to the Deep Aquifer.

Table 12: Published information used to identify hydraulically connected surface water(s).

Published Information	Ashley Creek	Patrick Creek	Altenburg Slough	Wiley's Slough
USGS National Hydrographic Dataset (NHD)[1]	Perennial	Perennial	Lake/Pond	Lake/Pond
USGS PROSPER Dataset[2]	Nonperennial (0.4-0.2 mean probability)	Nonperennial (0.4-0.2 mean probability)	Nonperennial (0.2-0.0 mean probability)	PROSPER grid not available
MBMG GWIC wells, less than 50 ft deep, within 1,000 ft of surface water, static water levels above or within 10 ft of elevation of stream bed (DNRC, 2018)[3]	None	GWIC ID 80912	GWIC IDs: 80971, 6396 500 ft south of slough.	None
Published Water Table Maps, Publications, Previous Water Rights, etc.[4]	76LJ 30067678 determined not connected to Deep Aquifer	N/A	N/A	N/A
Gridded National Soil Survey Geographic Database[5]	25% with areas of 85% hydric soils category in vicinity of stream.	Mostly hydric conditions in immediate vicinity of channel.	10% hydric soils category in vicinity of slough.	2% hydric soils category in vicinity of slough.
Aerial imagery	Defined channel in NAIP imagery (years 2015-2021)	Wetland area along channel, not a clear defined channel in NAIP imagery (years 2015-2021).	Water visible in NAIP imagery (years 2015-2021)	Water visible in NAIP imagery (years 2015-2021)
Affidavits, photographs, etc.	DNRC stream gage 76LJ 09900 Ashley Creek at Kalispell WTP	N/A	N/A	N/A

[1] Review NHD to identify perennial, intermittent, and ephemeral classifications for surface water sources most proximal to the proposed diversion(s).

[2] USGS PROSPER probability of streamflow permanence (greater than 50 percent of the time it flows).

[3] Per DNRC (2018) hydraulic connection of individual stream reaches to ground water is evaluated by comparing streambed elevations to static ground water elevations measured in MBMG GWIC wells less than 50 ft deep and within 1,000 ft of surface water or from published water table maps. Surface water within that area is considered hydraulically connected to the unconfined aquifer if static ground water elevations are above or within 10 ft of the elevation of the stream bed.

[4] No water table maps available.

[5] Review Gridded National Soil Survey Geographic Database to identify hydric soils or shallow water tables near surface water sources.

WSB Findings

Based on the review of the published information in **Table 12**, Ashley Creek and Altenburg Slough are perennial surface water sources. Patrick Creek appears to be a wetland and not a perennial stream. One well that would indicate a shallow water table was identified, however this well is located above the elevation of the stream in steeper topography west of the Flathead Valley and may not be indicative of an alluvial aquifer adjacent to the slough.

Ashley Creek is a perennial stream based on the information shown in **Table 12**. However, no shallow wells were identified that would indicate connection to groundwater. The Department determined that Ashley Creek is not connected to the Deep Aquifer in Application No. 76LJ 30067678 due to the thickness of the confining unit in the vicinity of the stream (Smith, 2004).

Wiley's Slough is an abandoned oxbow channel of the Flathead River and is partially connected to Ashley Creek based on aerial imagery. Aquatic vegetation is visible on the water's surface in aerial imagery and the slough appears to function as a pond or lake. No shallow wells were found in the vicinity of the slough to indicate hydraulic connection to groundwater.

The lithologic log for the proposed wells indicates that the confining unit is approximately 100-150 ft thick. This is consistent with the estimated thickness shown in Smith (2004), where the Deep Aquifer confining unit thins near the margins of the valley and is up to 600 ft thick in the center of the valley. Based on the thickness of the confining unit and lack of evidence for connection to groundwater shown in **Table 12**, Ashley Creek, Patrick Creek and Altenburg Slough are not considered connected to the Deep Aquifer.

The Flathead River and Flathead Lake are considered the connected surface waters for net depletion from the proposed use. As identified in **Figure 12** the starting point of net depletion to the Flathead River is the western boundary of the SWSENE of Section 34, Township 28 North, Range 21 West, Flathead County. The starting point of net depletion to Flathead Lake is the southern boundary of the SESW Section 24, Township 27 North, Range 21 West, Flathead County.

Net depletion is apportioned to multiple surface water sources using the distance from the proposed wells to the potentially affected surface water source and the Inverse Distance Weighting Method (IDW) (Province of British Columbia, 2016). The measured distances and calculated IDW proportions are shown in **Table 13.**

Table 13: Distances from the proposed wells to connected surface water sources and Inverse Distance Weighting proportions.

Surface Water Source	Distance from proposed wells (miles)	IDW Proportion
Flathead River	3.57	0.16
Flathead Lake	1.54	0.84

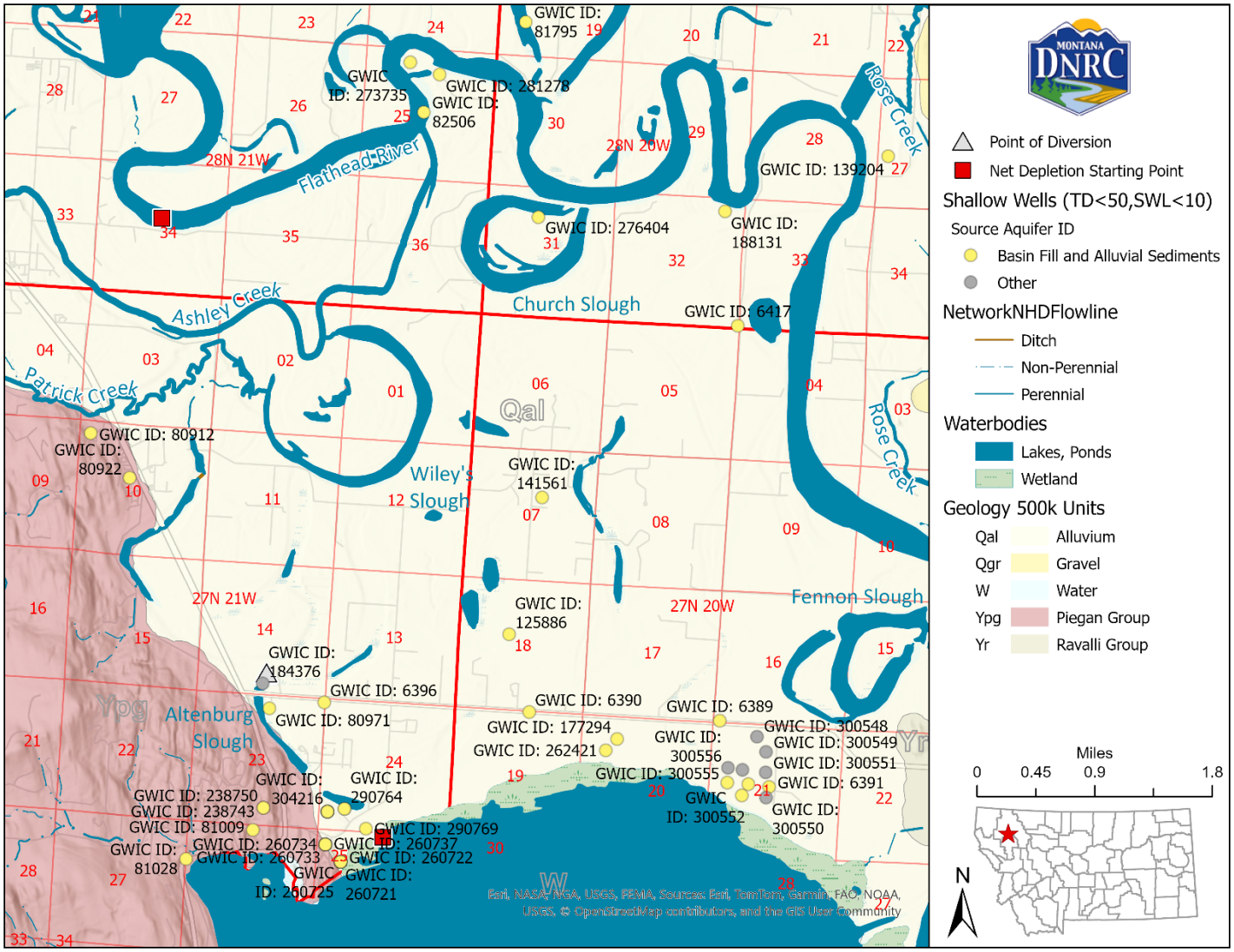


Figure 12: Location of wells used to assess hydrologic connection and starting point of net depletions.

3. Rate and Timing of Depletions

Evaluations of the rate and timing of depletions caused by pumping are based on the basic concept that groundwater pumping eventually is offset by an equivalent increase in recharge or decrease in discharge (Theis, 1940; Leake et al., 2008), a process defined as capture by Lohman (1972). Capture occurs as drawdown propagates to surface water and areas of phreatophyte vegetation that takes water directly from groundwater. In the absence of credible evidence to the contrary, capture of ET by phreatophytes is neglected and net depletion is assumed to equal total capture. This assumption is justified because published estimates for conditions common in Montana alluvial valleys indicate capture of ET generally is less than 10 percent of total capture (Xunhong, 2006). Capture of ET in ephemeral drainages may be significant and will be evaluated on an application-by-application basis.

The rate and timing of net depletion caused by pumping may be modeled using a variety of analytical and numerical models selected to fit site-specific conditions and needs. Simple models including the Alluvial Water

Accounting System (AWAS), the Well Pumping Depletion Model (WPDM) or FWD:SOLV (HydroSOLVE, 2024) typically are used by DNRC to model depletions to one source with simple aquifer boundaries. Adjustments may be made for more complex conditions or multiple sources using methods like those described by Contor (2011), analytical models by Hunt (2003) and Butler et al. (2001) or a superposition numerical groundwater flow model.

Modeling is not necessary in some situations such as where a proposed use is constant year-round because of the depth to the source aquifer and a distance to potentially affected stream reaches. Modeling of depletions can be simplified if the proposed place of use is located the same relative distance from the potentially affected surface water as the proposed wells and all non-consumed water infiltrates the source aquifer and returns to the potentially affected surface water as return flows. Under those simplifying assumptions, depletion can be modeled based on withdrawal of the monthly consumed amounts. Otherwise, depletion by the full withdrawals and return flows need to be modeled separately with net depletion calculated as depletion minus return flows.

Net depletion by pumping in the source aquifer primarily occurs through propagation of drawdown through the unconfined aquifer to the potentially affected reach of the Flathead River and Flathead Lake. Due to the confined aquifer conditions and distance from the proposed wells to the connected surface water sources, net depletion would occur at a constant year-round rate shown in **Table 1.**

Review

This document has been reviewed on May 20, 2026, in accordance with Category 7 of DNRC's Water Sciences Bureau Minimum Standards of Review, Version 2, February 2024.

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Appendix A: 1-foot-Contour-Water Rights

WR Number	Owner Name	Distance from Production Wells (ft)	Well Depth (ft)	Static Water Level (ft)	Available Water Column (ft)	Predicted Drawdown (ft)	Remaining Available Water Column (ft)
76LJ 30007983	BRUCE A NELSON; JUANITA M NELSON	2,593	323	15	308	1.24	306.76
76LJ 67752 00	LAKESIDE COUNTY WATER AND SEWER DISTRICT	3,273	75	10	65	1.10	63.9
76LJ 164732 00	LARRY E ANDERSON; WENDY S ANDERSON	1,899	N/A	N/A	N/A	1.27	N/A
76LJ 4393 00	CYNTHIA M CAUDILL; RICKY J CAUDILL	2,535	224	20	204	1.22	202.78
76LJ 148712 00	BOXCAR HOLDINGS LLC; GEORGE E SHRYOCK; JOHN E SHRYOCK	2,226	N/A	N/A	N/A	1.24	N/A
76LJ 40471 00	BRANDON MIDDLETON; PAULA K MIDDLETON	2,071	N/A	N/A	N/A	1.24	N/A
76LJ 108153 00	MCINTOSH ENTERPRISES LLC	3,416	300	14	286	1.00	285
76LJ 109325 00	LYLE STAPLETON	2,071	366	20	346	1.25	344.75
76LJ 75021 00	CAROL A ASK; LAWRENCE H ASK	1,232	35	12	23	1.84	21.16
76LJ 30018831	LANDIS, RAYMOND FAMILY TRUST	2,071	346	11	335	1.23	333.77
76LJ 30106242	ROOTED PROPERTY OF FLATHEAD LLC	2,555	258.5	11	247.5	1.18	246.32
76LJ 50016 00	BRUCE A NELSON; JUANITA M NELSON	2,757	N/A	N/A	N/A	1.18	N/A
76LJ 30072712	LAYNE MASSIE	3,215	420	17	403	1.05	401.95
76LJ 30112077	DALE L OLSON	3,311	381	12.6	368.4	1.09	367.31
76LJ 30008715	ALTENBURG FAMILY LLC	1,302	80	28	52	1.10	50.9
76LJ 50017 00	IDA E NELSON	2,757	N/A	N/A	N/A	1.17	N/A

Groundwater Permit Technical Analyses Report – Part B

Department of Natural Resources and Conservation (DNRC/ Department)

Water Resources Division

Jack Vanderbilt, Water Resource Specialist, Kalispell Regional Office

Applicants	LBO PROPERTIES LIMITED PARTNERSHIP, OWL VENTURES LLC, AND MARK G. OWENS.
Application No.	76LJ 30172712
Proposed Point of Diversion	POD 1 (GWIC ID No. 318895): NWSWSE of Section 14, Township 27N, Range 21W, Flathead County
	POD 2 (GWIC ID No. 319285): NWSWSE of Section 14, Township 27N, Range 21W, Flathead County

Overview

This report is Part B of a two-part publication which analyzes data submitted by the Applicant in support of the above-mentioned water right application. This report provides technical analyses as required under the Administrative Rules of Montana (ARM) 36.12.1303 in support of the water rights criteria assessment as required in § 85-2-311, Montana Code Annotated (MCA).

This Groundwater Permit Technical Analyses Report – Part B contains the following sections:

Overview 1
Variances 2
1.0 Application Details 2
2.0 Surface Water Analysis of Depleted Surface Water 5
2.1 Source Description – Flathead River 5
2.2 Method of Estimation 5
2.3 Monthly Flow Rate and Volume 5
2.1.2 Source Description – Flathead Lake 7
2.2.2 Method of Estimation 7
2.3.2 Monthly Flow Rate and Volume 7
3.0 Area of Potential Impact Analysis 9
3.1 Area of Potential Impact Analysis of Groundwater 9
3.2 Area of Potential Impact Analysis of Depleted Surface Water 9
Review 11
References 11
Appendix A: Groundwater Rights in the Zone of Influence 11
Appendix B: Water Rights within the Surface Water Area of Potential Impact 11

Variances

The Applicant requested variances from the aquifer testing requirements in ARM 36.12.121(3)(a) and ARM 36.12.121(3)(e)(iii) on December 16, 2025. ARM 36.12.121(3)(a) states that pumping must be maintained throughout the duration of the test and may not depart from the average pumping rate by more than 5%. ARM 36.12.121(3)(e)(iii) states that minimum duration of pumping during an aquifer test must be 24 hours for a proposed pumping rate and volume equal to or less than 150 gallons per minute (GPM) or 50 acre-feet (AF), or 72 hours for a proposed pumping rate and volume greater than 150 GPM or 50 AF. The testing procedures for a minimum eight-hour drawdown and yield test performed on any production well must follow (a), (d), and (h). Deviations from ARM 36.12.121(3)(a) and 3(e)(iii) were requested because the flow rate fluctuated within the first 30 seconds of the aquifer tests as well as at 900 minutes during the May 2, 2022, aquifer test. The WSB determined the brief fluctuations did not affect the quality of the drawdown data nor limit the analysis of the aquifer test data. Variances from the aquifer testing requirements in ARM 36.12.121(3)(a) and (3)(e)(iii) were granted by the Kalispell regional office on January 12, 2026.

1.0 Application Details

The Applicant proposes to divert groundwater from January 1 – December 31 at a rate of 300.0 GPM up to 331.8 AF of volume annually from two wells: POD 1 (GWIC ID No. 318895) and POD 2 (GWIC ID No. 319285) for multiple domestic, lawn and garden, and commercial uses for the proposed Cooper Farms Subdivision. The proposed subdivision will consist of 700 equivalent dwelling units (EDU) with a requested volume of 191.0 AF, 70 acres of lawn and garden irrigation up to 135.8 AF, and commercial volume up to 5.0 AF. Wastewater for multiple domestic and commercial purposes would be treated by the Lakeside County Water and Sewer District water treatment plant. The proposed points of diversion and places of use are shown in **Table 1** and **Figure 1**.

Table 1. Summary of the proposed use

Source	Purpose	Flow Rate (GPM)	Diverted Volume (AF)	Consumed Volume (AF)	Period of Diversion and Use	Points of Diversion	Places of Use
2x wells (GWIC ID Nos. 318895 and 319285)	Multiple Domestic (700 EDU)	300.0	191.0	191.0 (100% consumed)	1/1 – 12/31	Both wells are located in the NWSWSE of Section 14, Township 27N, Range 21W, Flathead County	Commercial use: S2S2SE Section 14, Township 27N, Range 21W, Flathead County Multiple Domestic/Lawn and Garden: SWSWNW and E2NWSW of Section 13, 27N, 21W, Flathead County
	Lawn and Garden (70 acres)		135.8	95.1 (70% consumed)	4/15 – 10/15		
	Commercial		5.0	5.0 (100% consumed)	1/1 – 12/31		
Total		300.0	331.8	291.1			

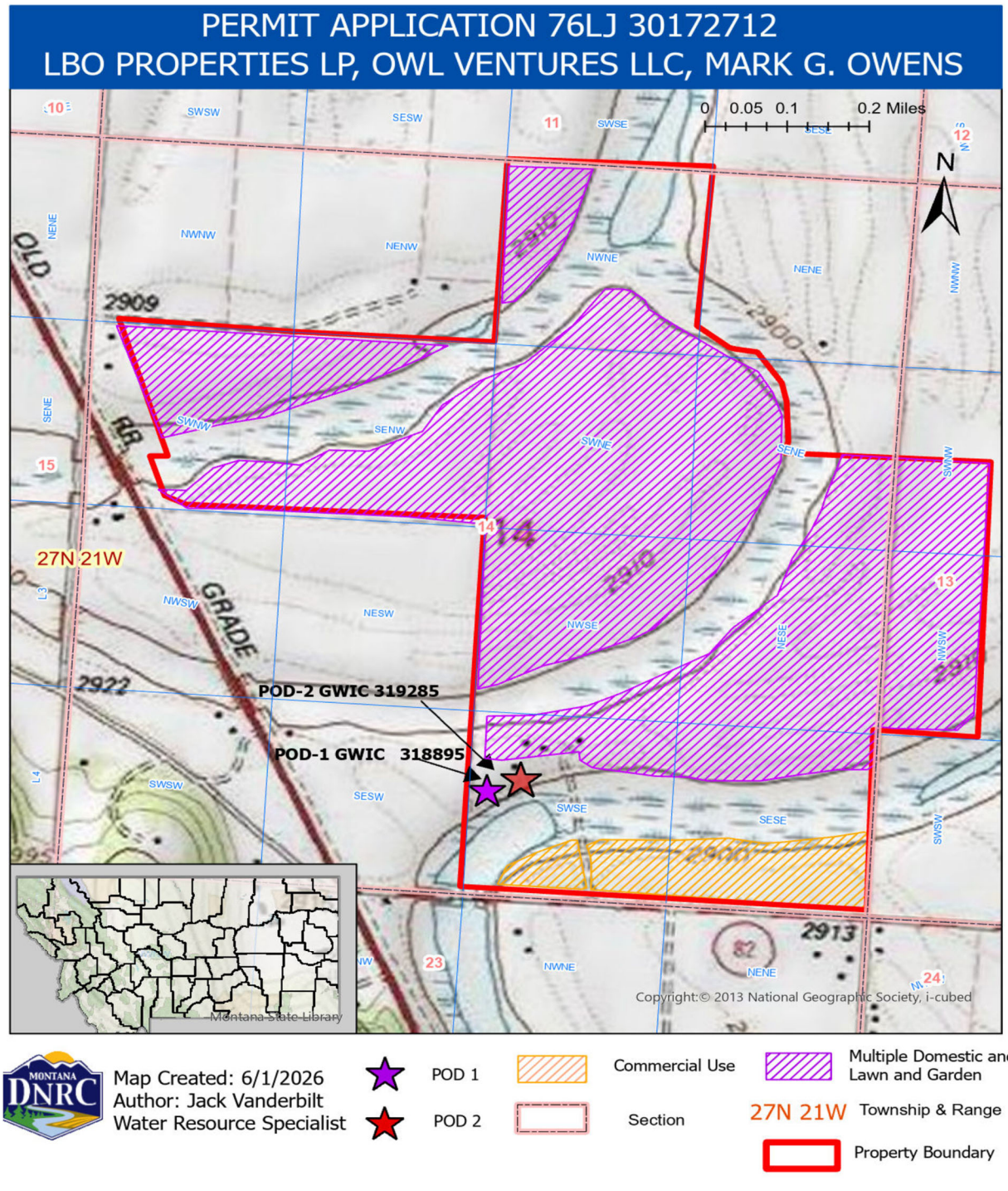


Figure 1: Map of the proposed points of diversion and places of use.

2.0 Surface Water Analysis of Depleted Surface Water

2.1 Source Description – Flathead River

Part A of the Technical Analyses Report includes the Groundwater Analysis, which describes the methodologies used to identify the depleted surface water source and the location of net depletions on said source.

Depleted Source of Water: Flathead River

Depleted Source Type: Perennial River

Location of Depletions (LOD): Western boundary SWSENE of Section 34, Township 28N, Range 21W, Flathead County.

2.2 Method of Estimation

Gage Name: Flathead River at Columbia Falls, MT

Gage Number: USGS Gaging Station No. 12363000

Period of Record: October 1951 - April 2025

Why this gage is considered an appropriate data source: USGS Gaging Station No. 12363000 is the nearest gage to the LOD on the Flathead River. USGS Gaging Station No. 12363000 is located approximately 18 miles upstream of the LOD. The date range used includes the entire period of record for this gage.

2.3 Monthly Flow Rate and Volume

Methodology: Physical availability of Flathead River water at the LOD will be quantified monthly. Department practice for physical availability analyses where the gaging station used is upstream of the LOD is to subtract the monthly flow rates of existing diversionary water rights between the gaging station and the LOD from the median of the mean monthly flows at the gaging station.

The Department calculated median of the mean monthly flow rates in cubic feet per second (CFS) for the Flathead River using USGS Gaging Station No. 12363000 records for each month of the period of depletions (**Table 2**, column B). Those flows were converted to monthly volumes (**Table 2**, column C) using the following conversion found in the DNRC Water Calculation Guide: median of the mean monthly flow (CFS) × 1.98 (AF/day/1 CFS) × days per month = AF/month.

The Department calculated the monthly flows appropriated by existing users between USGS Gaging Station No. 12363000 and the LOD (**Table 2**, column D) by:

i. Generating a list of existing water rights from USGS Gaging Station No. 12363000 to the LOD using the DNRC Water Rights Information System (WRIS) data (list is included in the application file and available upon request);

ii. Designating uses as occurring during their recorded periods of diversion;

iii. Assigning a single combined flow rate of 0.08 CFS to all livestock direct from source rights without a designated flow rate (per DNRC adjudication standards); and,

iv. Assuming that the flow rate of each existing right is continuously diverted throughout each month of the period of diversion. This assumption is necessary due to the difficulty of differentiating the distribution of appropriated volume over the period of diversion. This leads to an overestimation of existing uses from the source. The Department finds this an appropriate measure of assessing existing rights as it protects existing water users.

Since the gage used is upstream of the LOD, the Department subtracted the flow rates of the existing diversionary water rights between USGS Gaging Station No. 12363000 and the LOD (**Table 2**, column D) from the median of the mean monthly gage values (**Table 2**, column B) to determine physical availability at the LOD on the Flathead River (**Table 2**, column E). Physically available monthly flows were then converted to monthly volumes (**Table 2**, column F).

Table 2: Physical Availability at the LOD) on the Flathead River

A	B	C	D	E	F
Month	**Median of mean monthly flow at USGS Gaging Station No. 1236300 (CFS)**	**Median of mean monthly flow at USGS Gaging Station No. 1236300 (AF)**	**Existing legal demands between the LOD and USGS Gaging Station No. 1236300 (CFS)**	**Physically available water at LOD (CFS)**	**Physically available monthly volume at the LOD (AF)**
January	5,074.1	311,446.1	0.7	5,073.3	311,401.3
February	4,750.4	263,359.8	0.7	4,749.6	263,319.3
March	4,738.7	290,862.0	1.4	4,737.3	290,776.7
April	10,393.3	617,364.0	26.0	10,367.4	615,824.9
May	22,645.3	1,389,969.9	56.0	22,589.4	1,386,535.7
June	24,611.7	1,461,933.0	56.7	24,555.0	1,458,565.6
July	11,280.0	692,366.4	56.7	11,223.3	688,886.8
August	5,403.7	331,679.7	56.7	5,347.0	328,200.1
September	4,423.5	262,755.9	50.8	4,372.7	259,736.6
October	4,902.6	300,920.4	34.2	4,868.4	298,820.6
November	4,527.3	268,923.6	0.7	4,526.6	268,880.2
December	5,497.7	337,451.4	0.7	5,497.0	337,406.6

2.1.2 Source Description – Flathead Lake

Part A of the Technical Analyses Report includes the Groundwater Analysis, which describes the methodologies used to identify the depleted surface water source and the location of net depletions on said source.

Depleted Source of Water: Flathead River (Flathead Lake)

Depleted Source Type: Perennial River / Lake System

Location of Depletions (LOD): The southern boundary of the SESW Section 24, Township 27 North, Range 21 West, Flathead County. Since depletions to Flathead Lake may reduce the flow and volume in the entire lake, the Department will assess the physical availability of Flathead Lake water using the Flathead Lake inlet in Section 34, Township 27N, Range 20W as a substitute for the LOD. Substituting the Flathead Lake inlet for the LOD will ensure the entirety of Flathead Lake is included in the analysis.

2.2.2 Method of Estimation

Gage Name: Flathead River near Polson, MT

Gage Number: USGS Gaging Station No. 12372000

Period of Record: October 1938 - April 2025

Why this gage is considered an appropriate data source: USGS Gaging Station No. 12372000 is the nearest gage to the LOD on the Flathead River (Flathead Lake). USGS Gaging Station No. 12372000 is located approximately 34 miles downstream of the LOD. The date range used includes the entire period of record for this gage.

2.3.2 Monthly Flow Rate and Volume

Methodology: Physical availability of Flathead Lake water at the LOD/Flathead Lake inlet will be quantified monthly. Department practice for physical availability analyses where the gage used is downstream of the LOD is to add the monthly flow rates of existing water rights between the gage and the LOD to the median of the mean monthly flows at the gage. The DNRC used the method below to quantify physically available monthly flows and volumes at the LOD during the proposed period of diversion:

The Department calculated median of the mean monthly flow rates in cubic feet per second (CFS) for the Flathead River (Flathead Lake) using USGS Gaging Station No. 12372000 records for each month of the period of depletions (**Table 3**, column B). Those flows were converted to monthly volumes (**Table 3**, column C) using the following conversion found in the DNRC Water Calculation Guide: median of the mean monthly flow (CFS) × 1.98 (AF/day/1 CFS) × days per month = AF/month.

The Department calculated the monthly flows appropriated by existing users between USGS Gaging Station No. 12372000 and the LOD/Flathead Lake inlet (**Table 3**, column D) by:

i. Generating a list of existing water rights from USGS Gaging Station No. 12372000 to the initial point of surface depletion using the DNRC WRIS data (list is included in the application file and available upon request);

ii. Designating uses as occurring during their recorded periods of diversion;

iii. Assigning a single combined flow rate of 0.08 CFS to all livestock direct from source rights without a designated flow rate (per DNRC adjudication standards); and,

iv. Assuming that the flow rate of each existing right is continuously diverted throughout each month of the period of diversion. This assumption is necessary due to the difficulty of differentiating the distribution of appropriated volume over the period of diversion. This leads to an overestimation of existing uses from the source. The Department finds this an appropriate measure of assessing existing rights as it protects existing water users.

Since the gage used is downstream of the LOD/Flathead Lake inlet, the Department added the flow rates of the existing diversionary water rights between USGS Gaging Station No. 12372000 and the LOD/Flathead Lake inlet (**Table 3**, column D) to the median of the mean monthly gage values (**Table 3**, column B) to determine physical availability at the LOD/Flathead Lake inlet (**Table 3**, column E). Physically available monthly flows were then converted to monthly volumes (**Table 3**, column F).

Table 3: Physical Availability at the LOD on Flathead Lake

A	B	C	D	E	F
Month	**Median of the Mean Monthly Flows at Gage 12372000 (CFS)**	**Median of the Mean Monthly Volume at Gage 12372000 (AF)**	**Existing Water Rights from the Flathead Lake Inlet to Gage 12372000 (CFS)**	**Physically Available Monthly Flows at the Flathead Lake Inlet/LOD (CFS)**	**Physically Available Monthly Volumes at the Flathead Lake Inlet/LOD (AF)**
January	10,380.0	637,124.4	78.8	10,458.8	641,962.4
February	9,133.0	506,333.5	81.4	9,214.4	510,845.8
March	7,748.0	475,572.2	86.6	7,834.6	480,887.1
April	9,223.0	547,846.2	5,378.9	14,601.9	867,352.3
May	18,560.0	1,139,212.8	5,430.2	23,990.2	1,472,520.9
June	25,400.0	1,508,760.0	5,438.3	30,838.3	1,831,796.2
July	12,730.0	781,367.4	5,438.9	18,168.9	1,115,205.2
August	6,126.0	376,013.9	5,438.9	11,564.9	709,851.7
September	5,956.5	353,816.1	5,414.2	11,370.7	675,420.2
October	7,184.0	440,953.9	5,385.7	12,569.7	771,530.6
November	8,556.0	508,226.4	90.7	8,646.7	513,615.8
December	9,837.0	603,795.1	81.8	9,918.8	608,817.8

3.0 Area of Potential Impact Analysis

3.1 Area of Potential Impact Analysis of Groundwater

The Area of Potential Impact (AOPI) for groundwater is considered to be the Zone of Influence (ZOI), or 0.01-foot drawdown contour surrounding the points of diversion. The determination of the ZOI for this application is described in Part A of this report. The groundwater AOPI includes active and severed groundwater rights within the ZOI that are either completed in the source aquifer or have an unknown well depth. Groundwater rights within the AOPI are listed in Appendix A of Part B of this report.

Quantification Methodology: See Section 7.0 of Groundwater Permit Technical Analyses Report – Part A.

3.2 Area of Potential Impact Analysis of Depleted Surface Water

The surface water AOPI for this application:

The AOPI of the depleted source begins on the Flathead River from the western boundary of the SWSENE Section 34, Township 28N, Range 21W, Flathead County and extends to the Seli'š Ksanka Qlispe' (SKQ) Dam in Section 12, Township 22N, Range 21W, Lake County. This AOPI includes the Flathead River and Flathead Lake, which will be evaluated separately for the legal analysis. There are a total of 1,889 water rights from the initial LOD on the Flathead River down to the SKQ Dam. Ninety-three of these water rights are on the Flathead River from the initial LOD down to the Flathead Lake inlet with the remaining 1,796 water right being on Flathead Lake from the inlet down to the SKQ Dam. A list of all water rights within the AOPI can be found in **Appendix B.**

Why this is an appropriate AOPI:

Depletions from the Flathead River resulting from the proposed groundwater appropriation will manifest at the western boundary of the SWSENE of Section 34, Township 28 North, Range 21 West, Flathead County. Depletions from the Flathead River will reduce the amount of flow and volume available to existing water users downstream of the LOD.

The LOD from Flathead Lake manifests in the southern boundary of the SESW Section 24, Township 27 North, Range 21 West, Flathead County. The appropriation of groundwater will result in the depletion of the lake, affecting all users on the lake. SKQ Dam was chosen as the downstream extent of the AOPI because it is the control structure for water discharging from Flathead Lake. Depletion of water from Flathead Lake will reduce the total flow and volume of water discharging from the lake (passing over or through the dam).

Methodology: The Department considered the source characteristics of the Flathead River system (including Flathead Lake) and the Seli'š Ksanka Qlispe' Dam, which controls the flow of water discharging from Flathead Lake when determining an appropriate AOPI.

Table 4: Legal Demands within the AOPI to the Flathead River from the LOD to the Flathead Lake Inlet		
Month	Sum of Legal Demands within the AOPI (CFS)	Sum of legal demands within the AOPI (AF)
January	3,502.2	214,966.3
February	3,502.2	194,163.1
March	3,502.9	215,006.8
Apr 1 - 15	3,534.6	104,978.2
April 16-30	6,684.6	198,533.2
May	8,184.8	502,385.5
June	8,193.1	486,669.5
July 1 - 15	8,193.1	259,557.1
July 16 - 31	5,470.1	162,461.7
August	3,567.1	218,948.0
September	3,563.9	211,695.1
October	3,535.6	217,017.6
November	3,502.3	208,035.4
December	3,502.2	214,966.3

Table 5: Legal Demands within the AOPI to Flathead Lake from the Flathead Lake Inlet down to the SKQ Dam		
Month	Sum of legal demands within the AOPI (CFS)	Sum of legal demands within the AOPI (AF)
January	78.6	4,827.0
February	81.2	4,502.8
March	86.4	5,304.0
April	5,378.7	319,496.0
May	5,428.7	333,216
June	5,436.8	322,947.1
July	5,437.4	333,745.8
August	5,437.4	333,746
September	5,412.7	321,515.0
October	5,385.6	330,565.7
November	90.6	5,378.7
December	81.7	5,011.7

Review

This document has been reviewed by the Department on May 28th, 2026

References

DNRC Technical Memorandum: Physical Availability of Surface Water with Gage Data
Department Standard Practice for Area of Potential Impact Analysis

****

Appendix A: Groundwater Rights in the Zone of Influence

Due to its length, this list has been provided with this report as an Excel spreadsheet via email. The list is also contained in the administrative file and is available upon request.

Appendix B: Water Rights within the Surface Water Area of Potential Impact

Due to its length, this list has been provided with this report as an Excel spreadsheet via email. The list is also contained in the administrative file and is available upon request.

Preapplication Materials

- Preapplication Meeting Request
- Preapplication Meeting Form
- All attachments
- All correspondence prior to application receipt

Preapplication Materials

Water & Environmental
TECHNOLOGIES

March 17, 2026

Jim Ferch
DNRC Regional Office
655 Timberwolf Parkway, Ste 4
Kalispell, MT 59901

Re: Pre-Application Meeting Form 600P-B and 600P-A Follow Up Submittal for Groundwater Application 76LJ 30172712

Dear Jim,

We appreciate you and your staff's support during our pre-application meeting on December 16, 2025. Since that time, the variance request has been approved by DNRC and WET has continued to refine the water right application.

The signed form 600P-B is provided as **Attachment A.** As required, we have gathered the information necessary to address the follow-up items identified during our pre-application meeting.

The following items have been addressed or modified from the Form 600P-A that was initially completed by DNRC during our pre-application meeting.

Follow-Up Responses:

32. *Submit Aquifer Test Data Form (Form 633). If a variance is requested, Form 633 must be submitted on or before the variance request deadline.*

Aquifer testing was completed in the spring of 2022. The aquifer testing data (Form 633, aquifer testing addendum Form 600/606-ATA, and well logs) and variance request (Form 653) were submitted to DNRC on December 16, 2025. The Department approved the variance request in a letter dated January 15, 2025.

A copy of the variance approval letter is provided as **Attachment B**.

33. Submit aquifer testing addendum (Form 600/606-ATA) and associated materials (e.g., well logs) if you request a variance, Form 600/606ATA must be submitted on or before the variance request deadline.

See response to question 32 above.

34.a Are you requesting a variance from ARRM 36.12.121?

Yes. See response to question 32 above.

The following responses have been amended from the pre-application meeting:

Amended Responses:

2. *Provide a map created on an aerial photograph or topographic map that shows the following: section corners, township and range, scale bar, north arrow, all proposed points of diversion labeled with a unique POD ID number (include GWIC ID, if available, for wells), all proposed places of use, all proposed conveyance structures (including ditches and pipelines), all proposed places of storage, and places of use for all overlapping water rights. More than one map may be submitted, if necessary to clearly convey all required information.*

Updated maps are provided as **Figure 2 and 4**. Thes updated figures represent a slightly modified/refined place of use. Please note that the layout has not been substantively changed. Instead, some of the polygons indicating the proposed place of use have been generalized to allow for potential future adjustments in road ways and park lands.

The following attachments are provided in support of this pre-application:

Attachment A – Form 600P-B

Attachment B – Variance Approval Letter

Attachment C – Updated Figures

Attachment D – WET Technical Memorandum

If you have any questions regarding the information provided above or would like to discuss this matter in further detail, I can be reached at (406) 309-6085 or bbennett@waterenvtech.com.

Sincerely,

Brad Bennett
Senior Hydrogeologist, Water & Environmental Technologies

Attachment A

Form 600P-B –Signed

PREAPPLICATION MEETING FORM: PART B
PERMIT

§ 85-2-302, MCA

Form No. 600P-B *(Revised 02/2025)*

For Department Use Only

Application # _____ Basin _____

Form Received _____

Fee Rec'd $ 500.00 Check # 1507

Deposit Receipt # KCW26025684

Payor Water + Environmental Tech Inc.

Form Returned _____

Refund $ _____ Date _____

RECEIVED
DNRC Water Resources
APR 08 2026
Kalispell Unit

PREAPPLICATION MEETING FEE

$ 500

FILING FEE REDUCTION & EXPEDITED TIMELINE

An application will be eligible for a filing fee reduction and expedited timelines if the Applicant completes a preapplication meeting with the Department (ARM 36.12.1302(1)), which includes submitting any follow-up information identified by the Department (ARM 36.12.1302(3)(c)) and receiving either Department-completed technical analyses or Department review of Applicant-submitted technical analyses (ARM 36.12.1302(4) and (5)). An application for the proposed project also must be submitted within 180 days of delivery of Department technical analyses or scientific credibility review and no element on the submitted application can be changed from the completed preapplication meeting form (ARM 36.12.1302(6)).

The Applicant is responsible for providing a "Follow-up Responses" document for all follow-up identified in Preapplication Meeting Form Part A (Form 600P-A). The Applicant may not alter Form 600P-A. If a response has changed to a question answered at the preapplication meeting, the Applicant can provide a new response in a separate document entitled "Amended Responses" with the question number labeled.

The following guidelines are applicable to both the "Follow-up Responses" and "Amended Responses" documents. Clearly label all question numbers. Answer questions in the same format as Form 600P-A. For responses in the form of checkboxes, write "Y", "N", or "S". Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Label units in narrative responses and tables. Tables must have the exact headings found on the form. Questions that require items to be submitted to the Department may be marked "S" when the required item is included with the document.

1. ☐ **Y** ■ **N** Are you submitting this form in response to a determination by the Department that a previously submitted Form 600P-B was inadequately completed?

   If yes,

   a. Date form was returned ("Form Returned" date found in "For Department Use Only" box on the previously submitted Form 600P-B): _____

   b. If a "Follow-up Responses" or "Amended Responses" document is required by questions 2 or 3, submit complete updated documents with responses that stand-alone. The Department will only use the most recently submitted "Follow-up Responses" and "Amended Responses" documents for departmental technical analyses or scientific credibility review; the Department will not use multiple versions of a document.

2. ■ **Y** ☐ **N** Were any questions identified as requiring follow-up on Form 600P-A?

   If yes,

   a. ■ **S** Submit "Follow-up Responses" document for all questions requiring follow-up.

3. ■ **Y** □ **N** Are you submitting amended responses to any questions from Form 600P-A?

If yes,

a. □ **S** Submit "Amended Responses" document and record in the table below each question number with an amended response. The amended response will entirely replace the previous response; the amended response cannot build off the previous response.

Question No.	Question No.	Question No.	Question No.
2			

FOLLOW-UP AND AMENDED RESPONSES AFFIDAVIT & CERTIFICATION

"I attest that this preapplication meeting form (Form 600P-A and Form 600P-B), follow-up, and amended responses accurately portray the proposed project. I am aware that my application for this project will not qualify for a discounted filing fee and expedited timelines if, upon submittal of the application to the department, I change any element of the proposed application from the preapplication meeting form, amended responses, or follow-up materials (ARM 36.12.1302(6)(a))."

Mark Owens Managing Partner 3/17/26

Applicant Signature Date

Applicant Signature Date

"We confirm that the preapplication form (Form 600P-A and Form 600P-B), amended responses, and follow-up information are adequate for the Department to proceed with technical analyses in ARM 36.12.1303. Or, if the Applicant has elected to complete technical analyses, we confirm they have submitted each required element of technical analysis based on the proposed project and the Department is able to proceed with the scientific credibility review (ARM 36.12.1303(8))."

4/15/26

Department Signature Date

Department Signature Date

Attachment B

Aquifer Testing Variance Approval Letter

THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

GOVERNOR GREG GIANFORTE

DNRC DIRECTOR AMANDA KASTER

Water Resources Division

Kalispell Regional Office

655 Timberwolf Pkwy Ste 4
Kalispell MT 59901-1215
phone: 406-752-2288

January 15, 2026

Water and Environmental Technologies
bbennett@waterenvtech.com

RE: Variance Review for 76I 30172712 – LBO Properties LP, Mark Owens, and Owl Ventures LLC

Dear Mr. Bennett,

The Applicant (through its consultant) requested a variance from the aquifer testing requirements for the subject-line permit pre-application.

A variance from the following rules is needed for the aquifer test.

- 36.12.121(3)(a)
- 36.12.121(3)(e)(iii)

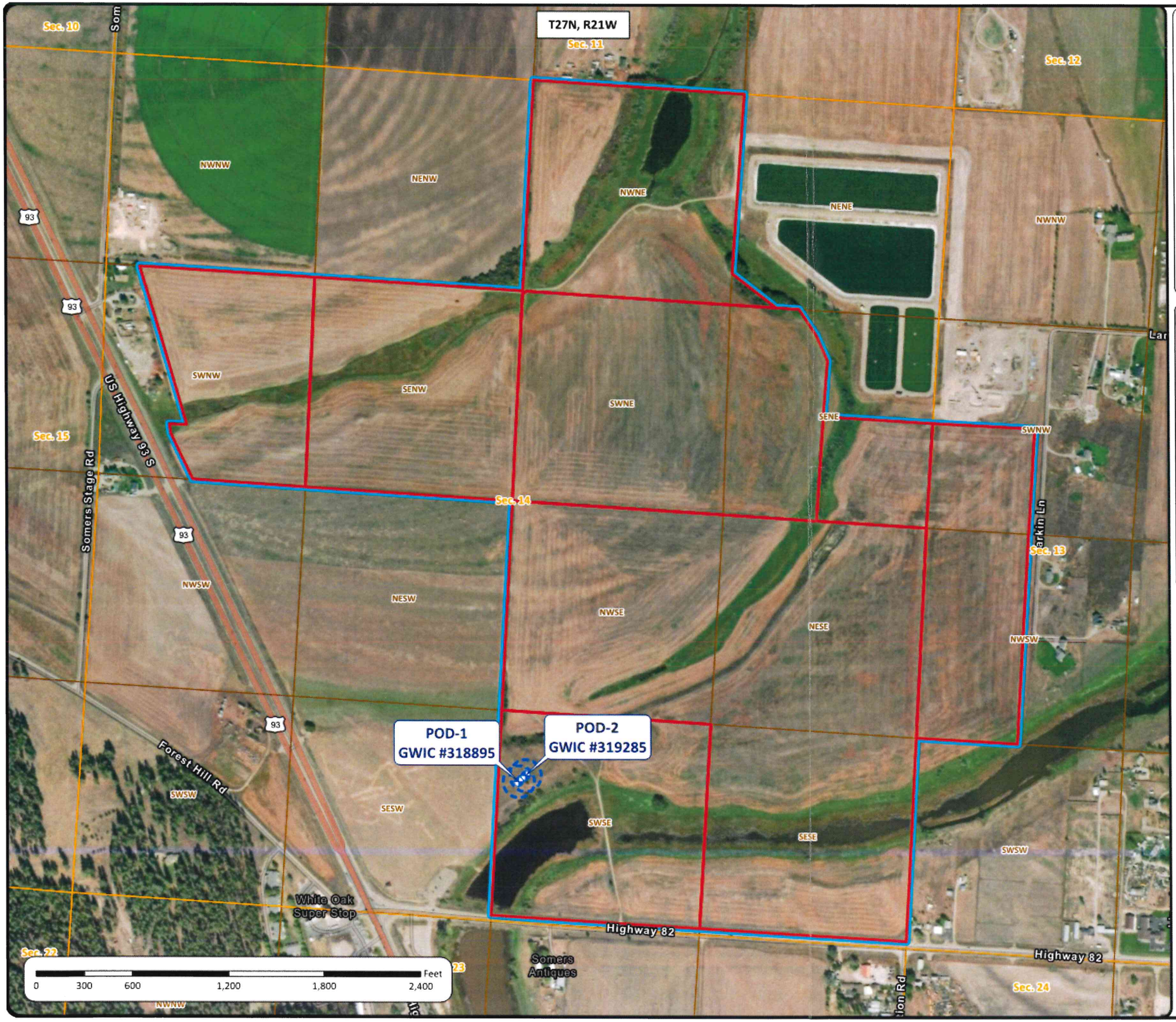
The Department grants a variance of aquifer testing from the rules noted directly above.

Sincerely,

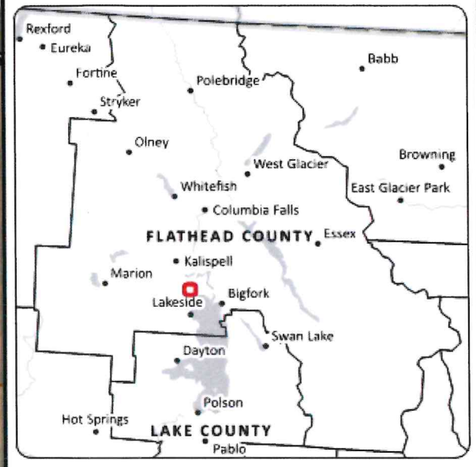
Jim Ferch
Kalispell Water Resources Regional Manager
jferch@mt.gov
406-752-2706

Attachment C

Figures







N
W
E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION	3/12/2026	LG	JG
2				
3				
4				
5				

NOTES

- Cooper Farms Well (POD)
- Well Control Zone (100 ft Radius)
- Property Parcel
- Place of Use

Public Land Survey System

- Section
- Quarter Section

SITE VICINITY & WELL LOCATIONS

COOPER FARMS - 2025 WATER RIGHT

FIGURE 1

JOB#: 1289.20

DATE: 3/13/2026

Path: P:\PROJECTS\Somers, MT\1289.20 Cooper Farms Water Right\1289.20 Cooper Farms Water Right.aprx

Water & Environmental TECHNOLOGIES

T27N, R21W

Future High Density

Area 6 - Residential
15,750 gpd

Area 1 - Wetlands Preserve

Area 5 - Residential Mixed
39,750 gpd

Area 3 - Residential
44,500 gpd

Area 2 - Residential
70,500 gpd

Area 4 - Commercial
4,500 gpd

POD-1
GWIC #318895

POD-2
GWIC #319285

Cooper Farms Well (POD)
Well Control Zone (100 ft Radius)
Place of Use

Public Land Survey System
Section
Quarter Section

Water Use Area
Area 1
Area 2
Area 3
Area 3 Alternative
Area 4
Area 5
Area 6

Sec. 10
Sec. 15
Sec. 14
Sec. 13
Sec. 23
Sec. 24

NENE NWNW NENW NWNE NENE NWNW
SENE SWNW SENW SWNE SENE SWNW SENW
NWSW NESW NWSE NESE NWSW NESW
SWSW SESW SWSE SESE SWSW SESW

US Highway 93 S
Somers Stage Rd
Forest Hill Rd
Larkin Ln
Lincoln Ln
Highway 82
Somers
White Oak

0 275 550 1,100 1,650 2,200 Feet

N
W E
S

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION	12/12/25	LG	JG
2				
3				
4				
5				

NOTES

COOPER FARMS NEIGHBORHOOD PLAN
AVERAGE GALLONS PER DAY WATER DEMANDS

COOPER FARMS - 2025 WATER RIGHT

FIGURE 2

IDBM: 1289-20
DATE: 3/13/2026

Path: P:\PROJECTS\Cheerio, Mark\1289 JO Cooper Farms Water Right\350

Water & Environmental TECHNOLOGIES

T27N, R21W

Cooper Farms PWS Well
Observation Well
Approximate Discharge Location
Place of Use

Public Land Survey System

Section
Quarter Section

N
W E
S

NO	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION	12/12/25	LG	JG
2				
3				
4				
5				

NOTES

POD-1
GWIC #318895
TD: 304 ft

POD-2
GWIC #319285
TD: 320 ft

Approximate Water Discharge Point During Both Aquifer Tests

Lawrence Well
GWIC #172498

Griffith Well
GWIC #215158

Kienas Well
GWIC #166611

Larkin Ln
Highway 82
Somers Antiques
School Addition Rd
Lincoln Ln
N Somers Rd
Somers Rd

Sec. 14
Sec. 13
Sec. 23
Sec. 24

SENW SWNE SENE SWNW
NESW NWSE NESE NWSW
SESW SWSE SESE SWSW
NENW NWNE NENE NWNW

0 275 550 1,100 1,650 2,200 Feet

COOPER FARMS NEIGHBORHOOD PLAN
AVERAGE GALLONS PER DAY WATER DEMANDS

COOPER FARMS - 2025 WATER RIGHT

FIGURE 3

PDBK: 1289 20
DATE: 3/13/2026

Path: P:\PROJECTS\Cheerio, Mark\1289 20 Cooper Farms Water Right\MXD\

Water & Environmental TECHNOLOGIES

T27N, R21W

Cooper Farms Well (POD)
Well Control Zone (100 ft Radius)
Place of Use
Commercial & Residential Use
Lawn & Garden Irrigation Area

Public Land Survey System

Section
Quarter Section

N
W E
S

Maximum of 14 Acres to be Irrigated within Commercial & Residential Area

Maximum of 49 Acres to be Irrigated within Commercial & Residential Area

Maximum of 7 Acres to be Irrigated within Commercial & Residential Area

POD-1
GWIC #318895

POD-2
GWIC #319285

NENE
NWNW
NENW
NWNE
NENE
SWNW
SENW
SWNE
SENE
SWNW
NWSW
NESW
NWSE
NESE
NWSW
SWSW
SESW
SWSE
SESE
SWSW

Sec. 15
Sec. 14
Sec. 13
Sec. 22
Sec. 23
Sec. 24

93
US Highway 93 S
Somers Stage Rd
Larkin Ln
Forest Hill Rd
Southside Dr
Lincoln Ln
Highway 82
White Oak Super Stop
Somers Antiques
Best Western

0 250 500 1,000 1,500 2,000 Feet

NO.	DESCRIPTION	DATE	DRAFT	REVIEW
1	MAP CREATION	12/12/25	LG	JG
2				
3				
4				
5				

NOTES

LAWN & WATER IRRIGATED AREA MAP

COOPER FARMS - 2025 WATER RIGHT

FIGURE 4

JOB#: 1289.20

DATE: 3/13/2026

Path: P:\PROJECTS\Somers, Mark\1289 JC Cooper Farms Water Right\350

Water & Environmental TECHNOLOGIES

Attachment D

WET Technical Memorandum

Attachment D

WET Technical Memorandum

Water & Environmental TECHNOLOGIES

TECHNICAL MEMORANDUM

To: Jim Ferch, Regional Manager, Montana DNRC

From: Brad Bennett, PG Senior Hydrogeologist, Water & Environmental Technologies

Date: March 16, 2026

Re: Hydrogeologic Context for Evaluation of Groundwater Permit Application 76LJ 30172712

1.0 PURPOSE

This memorandum provides hydrogeologic context regarding groundwater conditions in the vicinity of the proposed Cooper Farms development in the Flathead Valley, Montana. The discussion summarizes regional hydrogeologic conditions, aquifer characteristics, and hydraulic relationships relevant to evaluation of groundwater withdrawals from the deep alluvial aquifer.

The memorandum also provides technical discussion of several hydrogeologic topics evaluated during groundwater permitting in the Flathead Valley, including aquifer stratigraphy, vertical hydraulic connectivity, aquifer response to pumping, and potential interactions between groundwater withdrawals and nearby surface water systems.

This information is provided to assist the Montana Department of Natural Resources and Conservation (DNRC) in its technical review of the proposed groundwater appropriation.

2.0 PROJECT OVERVIEW

The Cooper Farms project proposes to supply water for a mixed residential and commercial development using groundwater wells completed in the deep alluvial aquifer.

The proposed production wells extend to depths of approximately 300 feet below ground surface and are screened within coarse sand and gravel deposits comprising a principal producing zone of the deep alluvial aquifer. The wells were constructed and tested to evaluate the hydraulic characteristics of the deep aquifer and to confirm the capacity of the aquifer to support the proposed water supply system.

Aquifer testing conducted during well development indicates that the wells are capable of producing the required flows while maintaining adequate available water column within the wells during pumping.

3.0 CONCEPTUAL HYDROGEOLOGIC MODEL

The Flathead Valley is a structural basin filled with thick sequences of unconsolidated glacial and alluvial sediments overlying older bedrock formations. These sediments form the principal

groundwater system used for domestic, municipal, and irrigation water supply throughout the valley.

Regional hydrogeologic investigations conducted by the Montana Bureau of Mines and Geology (MBMG) describe the groundwater system as consisting of multiple hydrostratigraphic units including shallow aquifers within near-surface sediments and a deeper regional aquifer composed primarily of glaciofluvial sand and gravel deposits. Previous hydrogeologic investigations of the Flathead Valley including Konizeski et al. (1968), Smith (2004), LaFave et al. (2004), and Rose et al. (2022) describe a similar layered groundwater system consisting of shallow aquifers and a deeper regional aquifer separated by fine-grained lacustrine and glacial deposits.

The deep alluvial aquifer underlying the Flathead Valley is a highly productive regional groundwater source in the basin and supplies high-capacity municipal, irrigation, and domestic wells throughout the region. The Cooper Farms production wells are completed within this deeper regional aquifer system.

Within this hydrogeologic framework, groundwater flow within the deep aquifer is governed primarily by basin-scale hydraulic gradients and regional discharge boundaries associated with Flathead Lake and the Flathead River.

Groundwater withdrawals from wells completed within the deep aquifer therefore primarily redistribute hydraulic pressure within the regional aquifer system rather than producing direct hydraulic interaction with shallow groundwater systems.

4.0 HYDROSTRATIGRAPHY

The Flathead Valley contains thick sequences of unconsolidated basin-fill sediments deposited during repeated glacial and post-glacial periods of the Pleistocene. These sediments consist primarily of glaciofluvial sand and gravel, glacial till, and fine-grained lacustrine deposits associated with occupation of the valley by ancestral glacial lakes. This layered hydrostratigraphic framework has been described in several regional hydrogeologic investigations of the Flathead Valley conducted by the MBMG (Konizeski et al., 1968; LaFave et al., 2004; Rose et al., 2018; Rose et al., 2022).

Within this basin-fill sequence, the deep alluvial aquifer underlying the Flathead Valley consists primarily of thick deposits of glaciofluvial sand and gravel. These coarse sediments form a laterally extensive and highly productive aquifer capable of supplying large-capacity wells throughout the valley.

Overlying the deep aquifer is a sequence of fine-grained sediments commonly referred to as the lacustrine–till aquitard, which separates the deep aquifer from shallower groundwater systems. This unit consists primarily of glacial till and lacustrine lake deposits composed of clay and silt-sized materials.

Regional hydrogeologic investigations indicate that this aquitard is present throughout most of the valley and forms the principal hydrostratigraphic boundary separating shallow groundwater systems from the deeper regional aquifer.

5.0 HYDRAULIC PROPERTIES OF THE CONFINING UNIT

The lacustrine–till aquitard plays a key role in controlling hydraulic communication between shallow and deep groundwater systems within the Flathead Valley.

Hydraulic testing of sediments within this confining unit indicates very low permeability relative to the underlying sand and gravel aquifer. A slug test conducted by MBMG in a monitoring well screened within the lacustrine sediments yielded an estimated hydraulic conductivity of approximately 0.0007 ft/day (Bobst et al., 2022), indicating very low vertical permeability within the confining unit. Hydraulic conductivity values on the order of 10^{-3} to 10^{-4} ft/day are several orders of magnitude lower than those commonly reported for the sand and gravel deposits comprising the deep alluvial aquifer.

Because of this low permeability, vertical groundwater movement through the aquitard occurs very slowly relative to horizontal groundwater flow within the deeper aquifer. Regional investigations indicate that the confining unit substantially limits vertical hydraulic communication between shallow groundwater systems and the deep alluvial aquifer.

As a result, groundwater withdrawals from the deep alluvial aquifer are expected to redistribute hydraulic pressure primarily within the deeper aquifer system rather than producing rapid vertical hydraulic responses in shallow groundwater systems.

6.0 REGIONAL GROUNDWATER FLOW

Groundwater flow within the deep alluvial aquifer is governed primarily by regional hydraulic gradients established by basin topography, the hydrogeologic framework of the basin-fill sediments, and major surface water bodies within the Flathead Valley.

Groundwater elevations within the valley generally decline toward Flathead Lake and the Flathead River, which function as regional discharge boundaries for groundwater flow within the basin (Konizeski et al., 1968; LaFave et al., 2004).

Within this regional flow system, groundwater movement within the deep aquifer occurs along basin-scale hydraulic gradients toward these regional discharge boundaries. Because the deep aquifer is composed of laterally extensive, high-permeability sand and gravel deposits, hydraulic responses to pumping propagate primarily along these regional flow paths. Consequently, pumping stresses within the deep aquifer are redistributed laterally within the aquifer system rather than being controlled by localized surface water features.

These basin-scale hydraulic controls therefore dominate groundwater movement within the deep aquifer and influence the distribution of pumping stresses within the aquifer system.

7.0 AQUIFER TESTING

Aquifer testing conducted following development of the Cooper Farms wells provides direct field evidence regarding the hydraulic characteristics of the deep alluvial aquifer and its response to groundwater pumping in this area.

Two pumping tests were conducted during May and June 2022 using the proposed production wells. Each test consisted of a pumping period of approximately 72 hours, during which groundwater levels were monitored in the pumping well and in nearby observation wells to evaluate aquifer response. Pumping rates and water levels were recorded throughout the tests to characterize drawdown behavior and aquifer recovery.

Analysis of the pumping test data indicates transmissivity values and storage coefficients derived from observation wells are consistent with confined aquifer conditions commonly observed within the deep alluvial aquifer throughout the Flathead Valley. These hydraulic properties are generally consistent with values reported for the deep aquifer in previous hydrogeologic investigations of the basin.

During the pumping tests, measurable drawdown was observed in the on-site production wells when the adjacent production well was pumped, indicating hydraulic communication within the deep aquifer at the project site. Observation wells located farther from the pumping wells did not exhibit measurable drawdown during the 72-hour pumping periods. This response indicates that pumping effects were concentrated near the pumping wells and were not measurable at more distant observation wells during the duration of the 72-hour tests.

Recovery data indicate that groundwater levels stabilized following cessation of pumping, consistent with pressure redistribution within a laterally extensive and highly permeable aquifer system.

8.0 INTERPRETATION OF AQUIFER TEST RESPONSE

Interpretation of pumping test data involves the application of analytical solutions used to approximate aquifer response to groundwater withdrawal. Different analytical approaches may incorporate terms representing leakage or delayed hydraulic response within the aquifer system.

Some analytical solutions incorporate leakage terms representing potential vertical flow across confining units. The use of such solutions, including the Neuman-Witherspoon solution and Hantush-Jacob formulations, is a standard and appropriate method for evaluating pumping test data in aquifer systems where delayed or distributed hydraulic response is observed. However, the use of analytical solutions that include leakage terms does not necessarily indicate that significant recharge is occurring through a regional confining unit.

In heterogeneous basin-fill aquifers such as the deep alluvial aquifer underlying the Flathead Valley, sediments commonly consist of interbedded sand, gravel, and finer-grained deposits formed during glacial and post-glacial periods. These sediments create a hydraulically connected aquifer system in which hydraulic conductivity varies between layers, allowing groundwater movement both laterally and vertically.

During pumping, water may move between higher-permeability sand and gravel zones and adjacent lower-permeability sediments within the aquifer. This redistribution of groundwater can produce pumping responses that may be represented mathematically by analytical solutions incorporating leakage terms, even when vertical recharge across regional confining units is minimal.

Analytical solutions evaluated for the Cooper Farms pumping tests include confined (Theis) and leaky (Hantush-Jacob and Neuman-Witherspoon) solutions, applied to both pumping and observation well data. These analyses indicate that transmissivity values are relatively consistent across analytical approaches, while storage values derived from observation wells are consistent with confined aquifer conditions.

Analytical evaluations were conducted using multiple analytical solutions applied to observation well data for both pumping configurations, including evaluation of PWS-2 pumping with PWS-1 as the observation well and PWS-1 pumping with PWS-2 as the observation well. These analyses included confined (Theis) and leaky (Hantush-Jacob, Hantush, and Neuman-Witherspoon) analytical solutions.

Results of these evaluations indicate that transmissivity values are relatively consistent across analytical methods and between pumping configurations, supporting the use of a representative transmissivity range for the deep alluvial aquifer at the site. While leaky solutions provide somewhat improved visual fits to portions of the drawdown and recovery data, confined-aquifer solutions also provide reasonable approximations of the observed response. Copies of the curve matches generated are provided as Attachment A.

Leaky solutions, including the Neuman-Witherspoon solution, provide a slightly improved visual fit to portions of the drawdown and recovery data, particularly during late-time and recovery response. However, confined-aquifer solutions also provide reasonable approximations of the observed behavior. The ability of multiple analytical approaches to reasonably represent the observed data indicates that the pumping response is not uniquely diagnostic of a single hydrogeologic condition.

Additional analytical evaluation incorporating partial penetration effects was also performed. Inclusion of partial penetration can improve the visual agreement between analytical solutions and observed data, particularly during early and intermediate time periods.

This sensitivity of parameter estimates to the selected analytical formulation indicates that the analytical solutions are representing a complex aquifer system in which multiple hydrogeologic processes may influence the observed response. In basin-fill aquifers such as those present in the deep alluvial aquifer, these processes may include aquifer heterogeneity, internal vertical hydraulic exchange within the aquifer system, delayed hydraulic response from lower-permeability materials, and the influence of distant hydraulic boundaries.

Accordingly, while analytical solutions provide a reasonable and appropriate basis for estimating aquifer parameters and evaluating aquifer response, the results are not unique and must be interpreted within the broader hydrogeologic framework. The observed pumping test response can be reasonably explained without requiring significant vertical recharge across the regional lacustrine–till confining unit.

9.0 ATTENUATION OF PUMPING EFFECTS

Groundwater drawdown associated with pumping decreases with distance from the pumping wells due to the transmissive properties of the aquifer and the redistribution of hydraulic pressure within the aquifer system.

Because the Cooper Farms wells are completed within a laterally extensive confined aquifer system, pumping stresses are distributed across a large volume of aquifer material and tend to attenuate with distance from the pumping wells.

Results of the pumping tests conducted at the Cooper Farms site are consistent with this behavior. Measurable drawdown was observed between the two on-site production wells during pumping; however, observation wells located farther from the pumping wells did not exhibit measurable drawdown during the 72-hour pumping periods.

This pattern indicates that pumping effects were concentrated near the pumping wells and diminished with distance within the aquifer system. Such responses are characteristic of laterally extensive, high-transmissivity confined aquifers in which hydraulic pressure redistributes through large volumes of aquifer material.

As pressure redistribution occurs within the deep aquifer system, localized pumping stresses become distributed across the broader aquifer system, resulting in decreasing drawdown with distance from the pumping wells. This response is consistent with the regional hydrogeologic framework described for the deep alluvial aquifer of the Flathead Valley.

10.0 RELATIONSHIP TO ASHLEY CREEK

Ashley Creek is a tributary surface-water feature located north of the project area that flows across deposits associated with the Flathead River delta system before discharging to Flathead River.

Previous hydrogeologic investigations of the Kalispell Valley describe a shallow groundwater system within near-surface sediments associated with the Flathead River delta deposits (Konizeski et al., 1968; Noble and Stanford, 1986; LaFave et al., 2004). These sediments, commonly referred to as the delta aquifer, consist primarily of sand and associated alluvial materials that form a shallow water-table aquifer within the valley floor. Regional hydrogeologic studies indicate that this aquifer forms the shallow groundwater system underlying the proposed Cooper Farm development, portions of the lower Ashley Creek drainage and areas adjacent to the Flathead River and Flathead Lake.

Where Ashley Creek flows across the delta deposits north of the project area, the creek is hydraulically connected with the shallow groundwater system within the delta aquifer. Groundwater within this aquifer is also hydraulically connected to the Flathead River system and influenced by stage conditions in Flathead River and Flathead Lake.

Groundwater flow within the delta aquifer is strongly influenced by water levels in the Flathead River and Flathead Lake. When lake and river stages are relatively low, groundwater within the delta aquifer generally flows toward the surface-water system and discharges to the river and lake. When lake and river stages are elevated, such as during periods when lake levels are held higher by dam operations, hydraulic gradients temporarily reverse and surface water recharges the shallow aquifer.

These stage-controlled interactions demonstrate that groundwater levels within the delta aquifer are closely coupled to river and lake elevations and respond to changes in surface-water stage.

The Cooper Farms production wells are completed within the deeper regional alluvial aquifer underlying the Flathead Valley. This aquifer occurs at substantially greater depths than the delta aquifer and is separated from shallow groundwater systems by intervening fine-grained glacial and lacustrine sediments that function as regional confining units.

Because of this stratigraphic separation, groundwater withdrawals from wells completed within the deep aquifer primarily produce pressure redistribution within the deeper regional aquifer system rather than direct hydraulic interaction with shallow groundwater systems associated with the delta aquifer and tributary streams such as Ashley Creek.

The depth of the pumping interval relative to the elevation of Ashley Creek, combined with the presence of intervening confining sediments, therefore limits the potential for direct hydraulic interaction between pumping in the deep aquifer and surface-water flows within Ashley Creek.

11.0 TRIBUTARY SURFACE WATER INTERACTION

Surface water features within this portion of the Flathead Valley, including smaller tributary streams, sloughs, and wetland areas, generally interact with the shallow delta aquifer occurring within the near-surface deltaic sediments (Konizeski et al., 1968; Noble and Stanford, 1986).

These shallow groundwater systems respond relatively rapidly to precipitation, seasonal recharge, and fluctuations in surface-water stage.

Tributary streams in the vicinity of the project area, including Patrick Creek and associated sloughs connected to the Flathead River floodplain, are expected to be hydraulically connected with the shallow delta aquifer.

As described previously, the Cooper Farms production wells are completed within the deeper regional alluvial aquifer underlying the valley and are separated from shallow groundwater systems by intervening confining sediments. Groundwater withdrawals from these wells therefore primarily influence hydraulic conditions within the deeper aquifer rather than shallow groundwater systems that interact with tributary streams.

12.0 CONCLUSIONS

Available hydrogeologic information indicates that groundwater withdrawals associated with the Cooper Farms development will occur from the deep alluvial aquifer underlying the Flathead Valley. This aquifer consists primarily of thick sequences of glaciofluvial sand and gravel deposits that form a laterally extensive and highly productive groundwater system throughout the basin.

Regional hydrogeologic investigations of the Flathead Valley indicate that the deep alluvial aquifer is overlain by a sequence of fine-grained glacial and lacustrine sediments that function as a regional confining unit separating the deep aquifer from shallow groundwater systems occurring within near-surface valley sediments. The hydraulic properties of this confining unit substantially limit vertical groundwater movement between shallow groundwater systems and the deep alluvial aquifer.

Aquifer testing conducted at the Cooper Farms wells indicates hydraulic characteristics consistent with confined aquifer conditions, while also reflecting some degree of distrusted hydraulic response consistent with heterogeneous basin-fill systems. Pumping responses observed during testing indicate that hydraulic stresses associated with pumping are concentrated near the pumping wells and attenuate with distance as pressure is redistributed within the regional aquifer system.

Surface water features within this portion of the valley, including Ashley Creek, Patrick Creek, and associated slough systems connected to the Flathead River floodplain, are hydraulically connected with shallow groundwater systems occurring within the deltaic sediments. Groundwater levels within this shallow aquifer system respond to precipitation, seasonal recharge, and fluctuations in stage within the Flathead River and Flathead Lake.

Because the Cooper Farms production wells are completed within the deeper alluvial aquifer and are separated from shallow groundwater systems by intervening confining sediments, groundwater withdrawals associated with the proposed development primarily influence

hydraulic conditions within the deep alluvial aquifer rather than shallow groundwater systems that interact with tributary surface water features.

Based on the regional hydrogeologic framework, aquifer testing results, and the stratigraphic separation between shallow and deep groundwater systems, groundwater withdrawals from the proposed wells are expected to redistribute hydraulic pressure within the deep regional aquifer system while limiting direct hydraulic interaction with shallow groundwater systems associated with nearby tributary streams.

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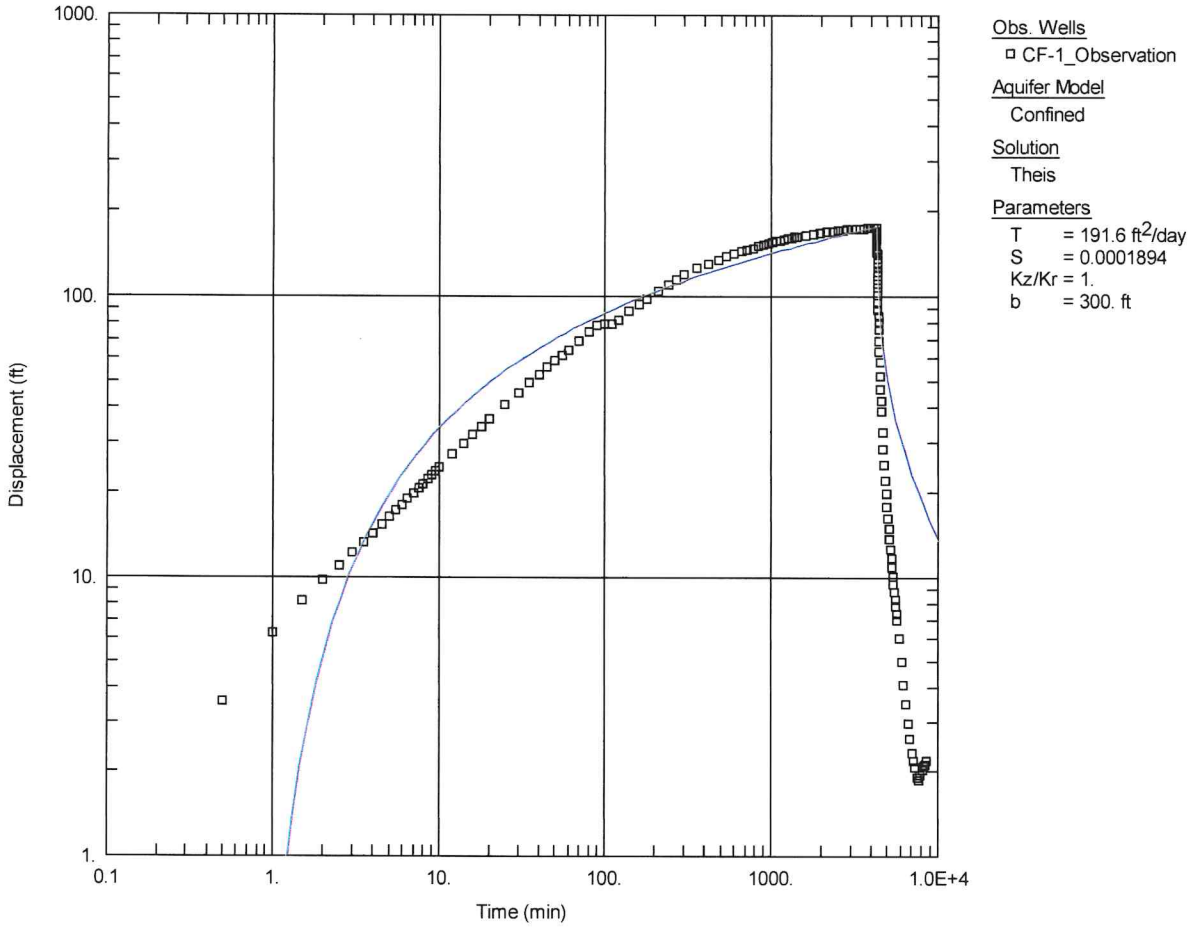
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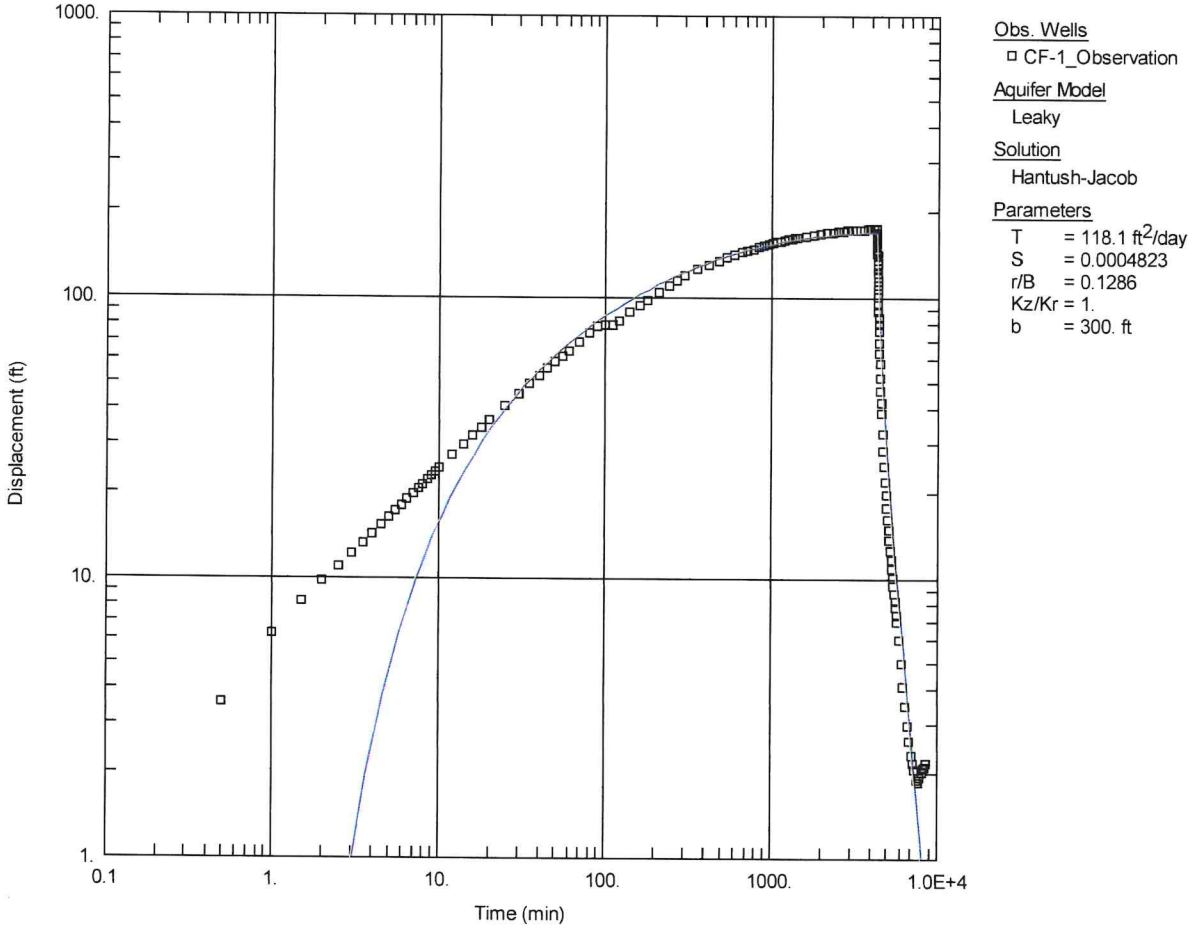
Appendix A

AQTESOLV Plots

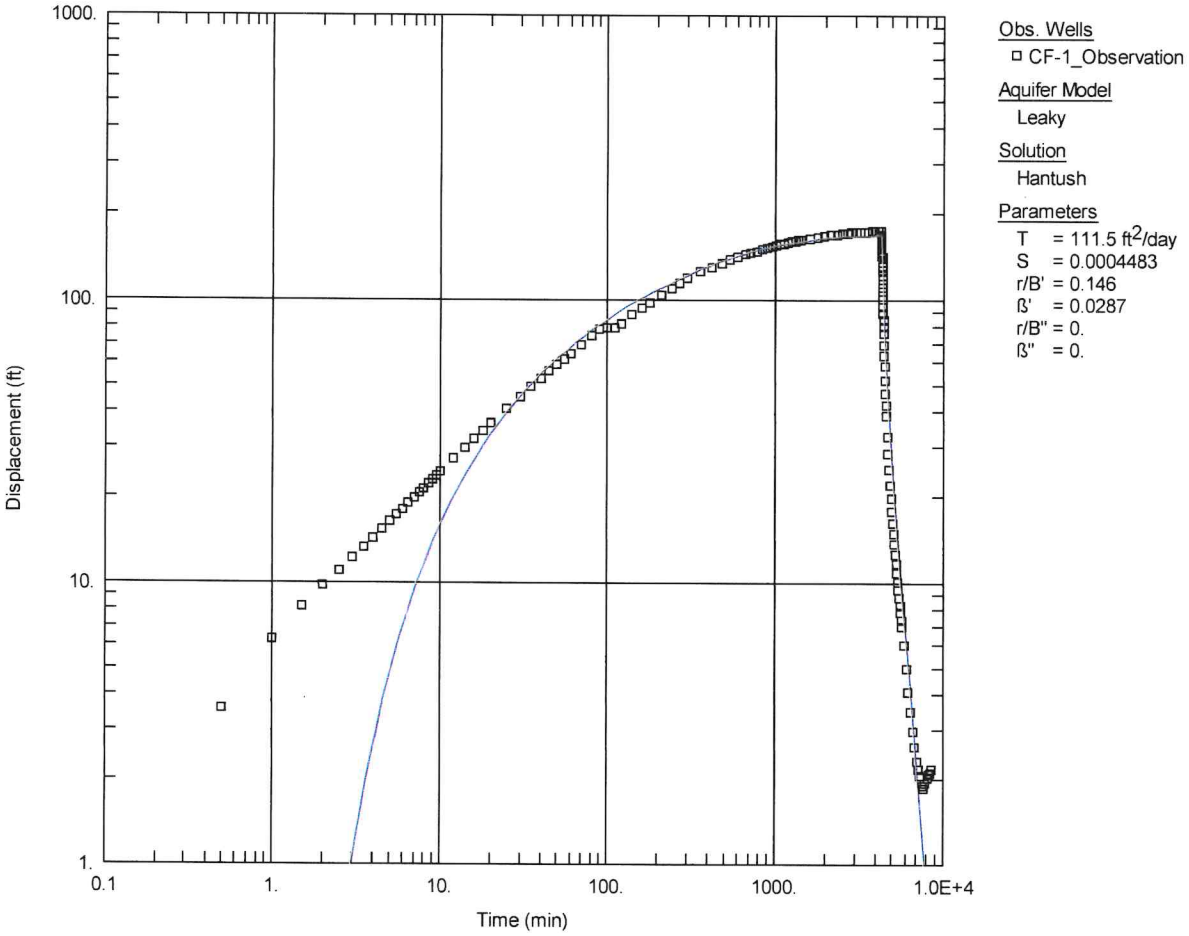
Evaluation of Cooper Farms PWS-2 Pump Test



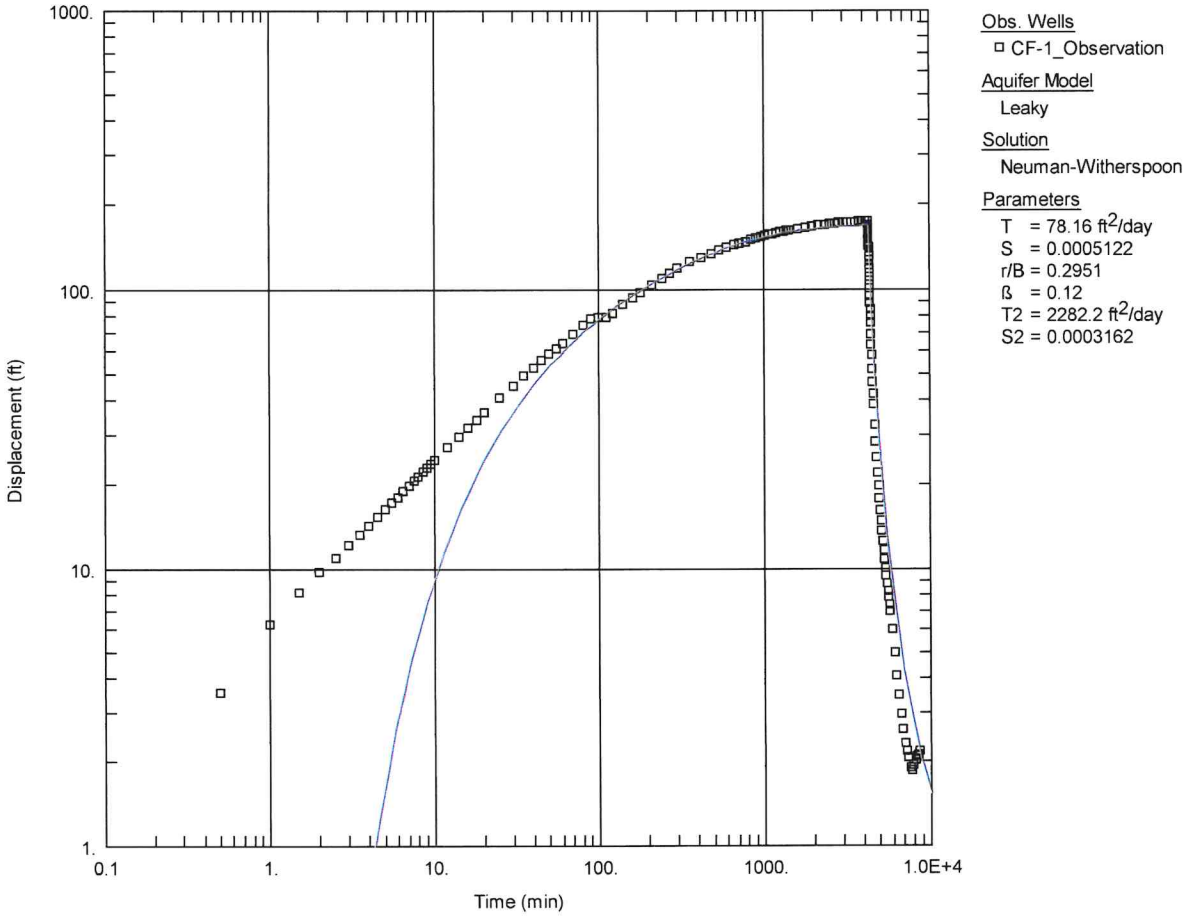
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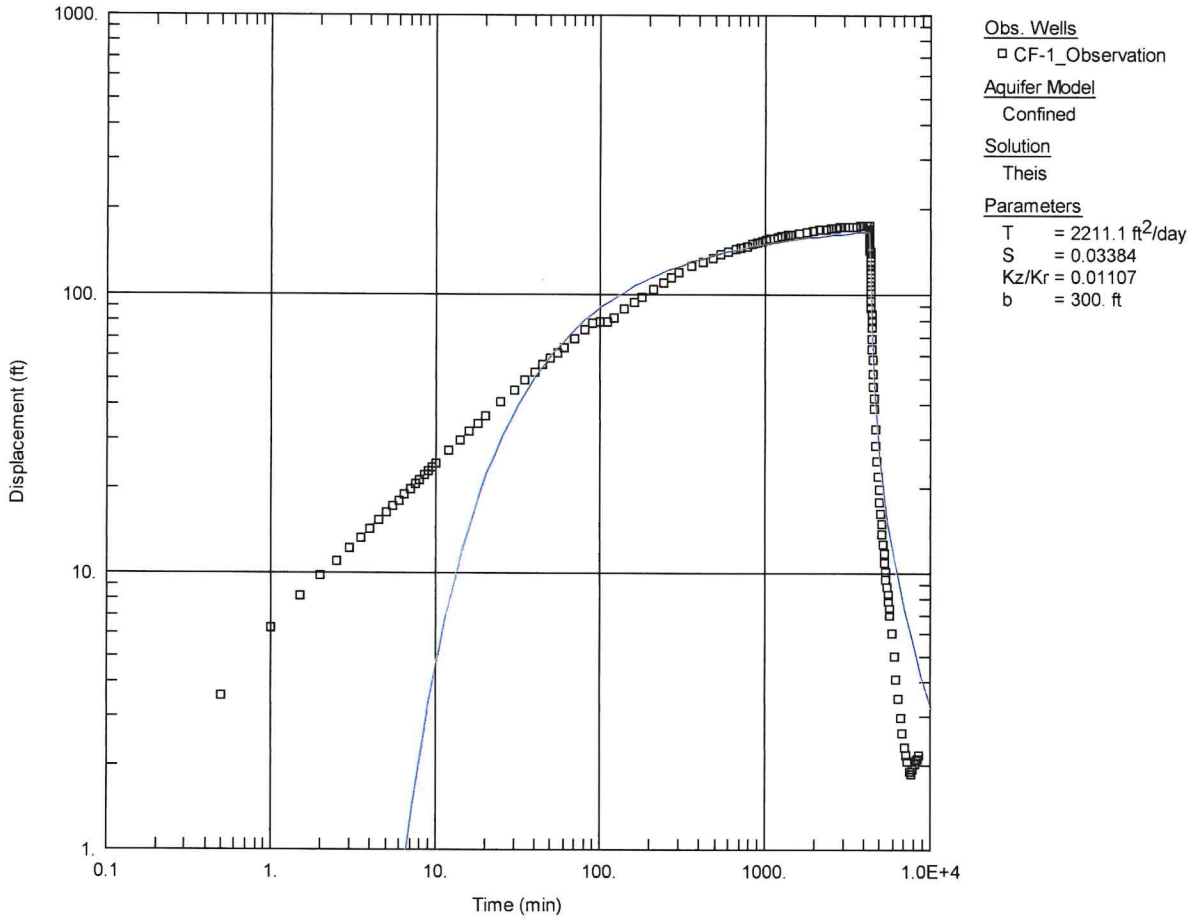
2. PWS 2 Pumping Test Evaluation of PWS 1 Observation Data – Hantush-Jacob (1955) Fully Penetrating Completion



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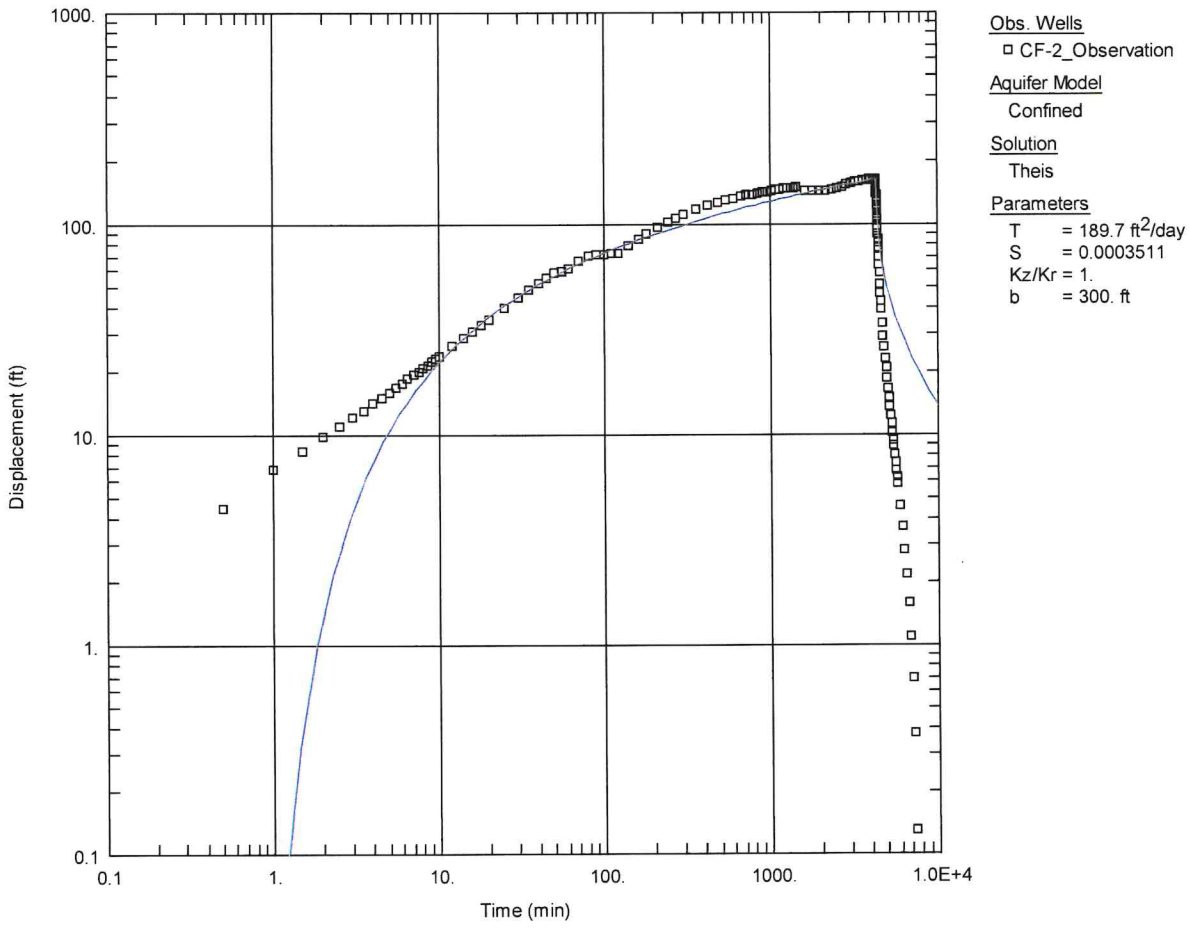


4. PWS 2 Pumping Test Evaluation of PWS 1 Observation Data: Neuman-Witherspoon (1969) Fully Penetrating Completion

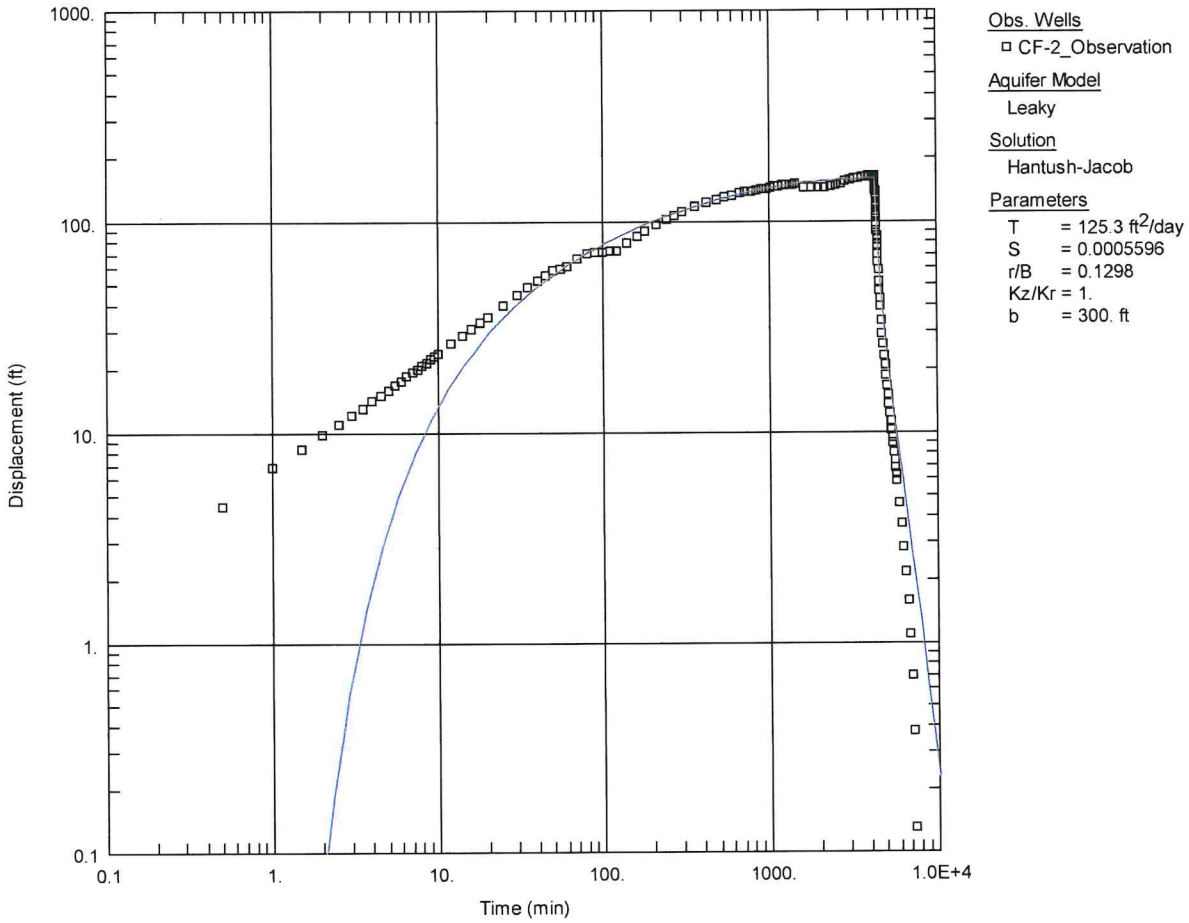


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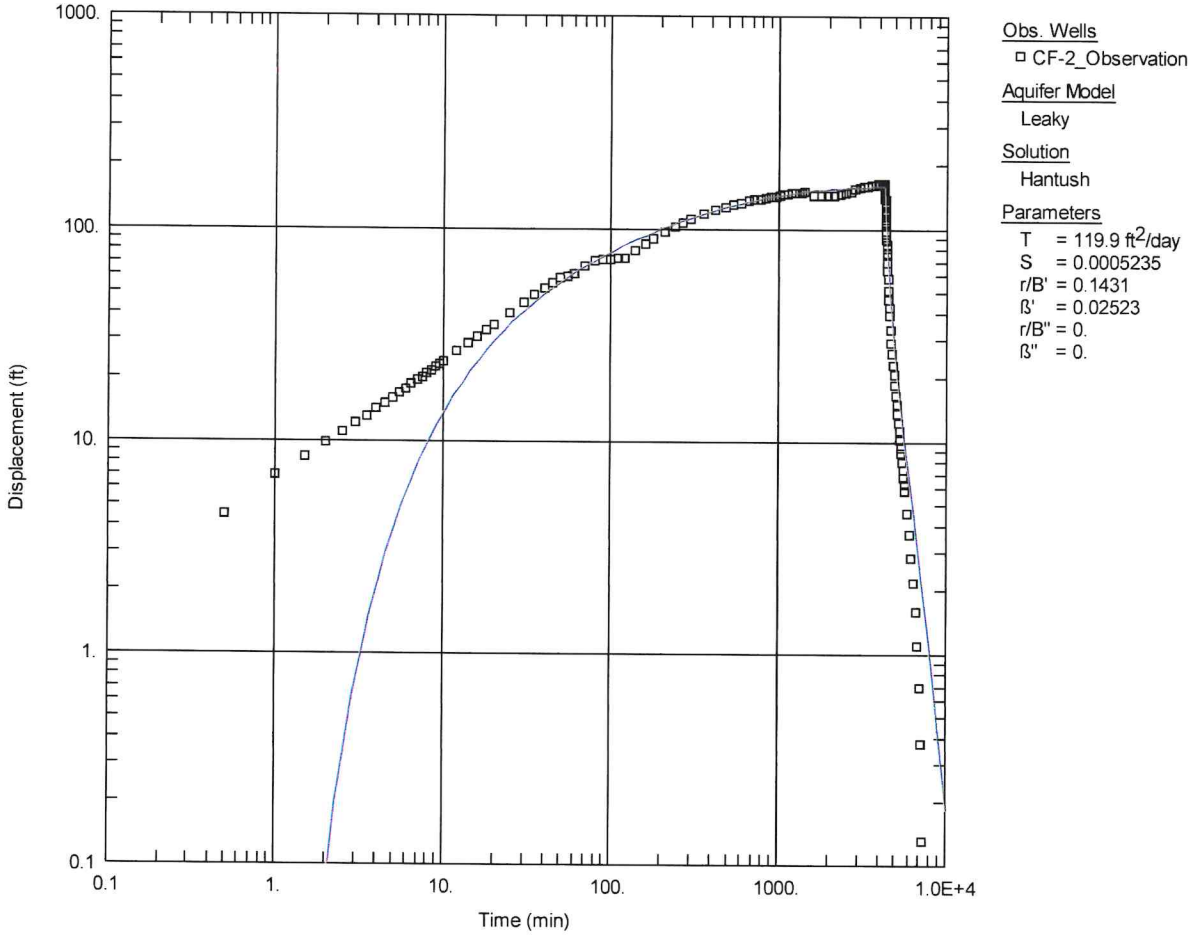
Evaluation of Cooper Farms PWS-2 Pump Test



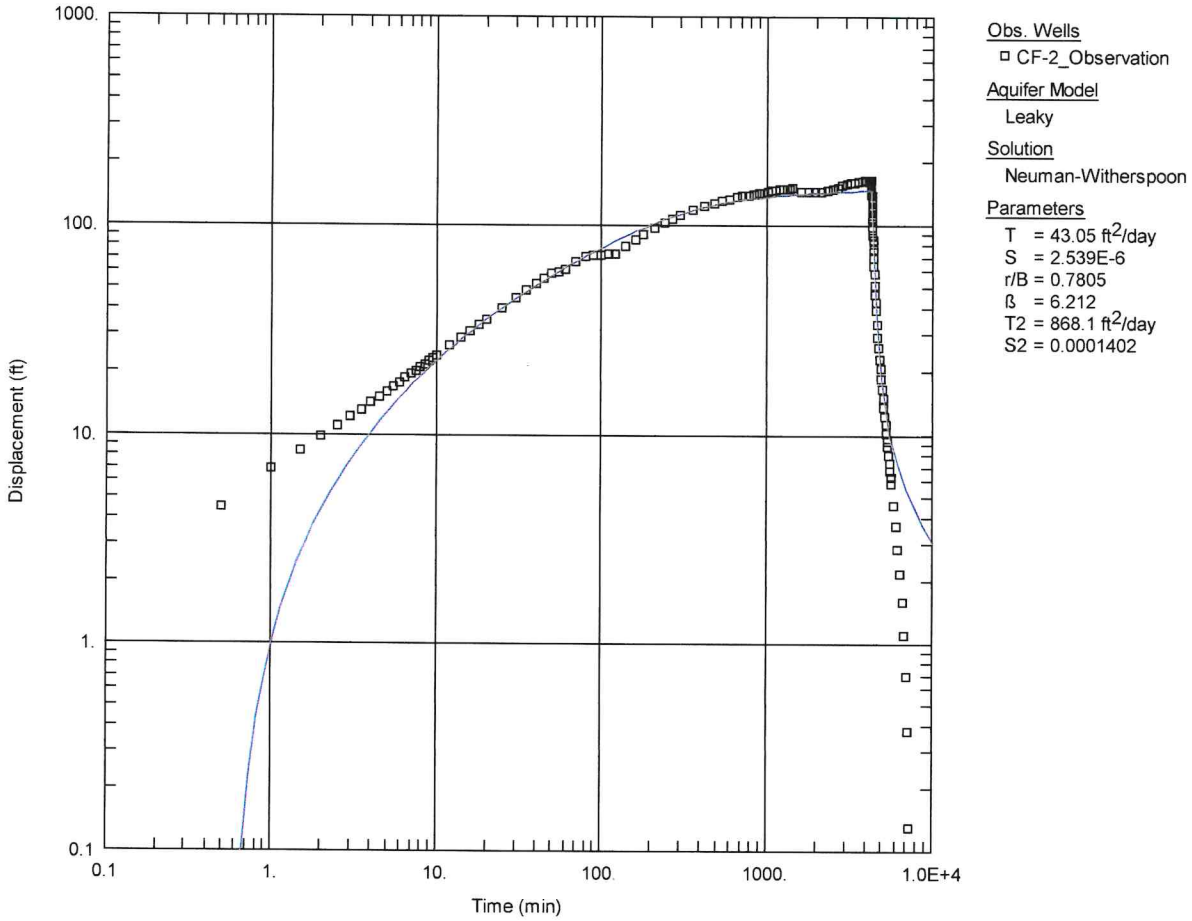
6. PWS 1 Pumping Test Evaluation of PWS 2 Observation Data: Theis (1935) Fully Penetrating Completion



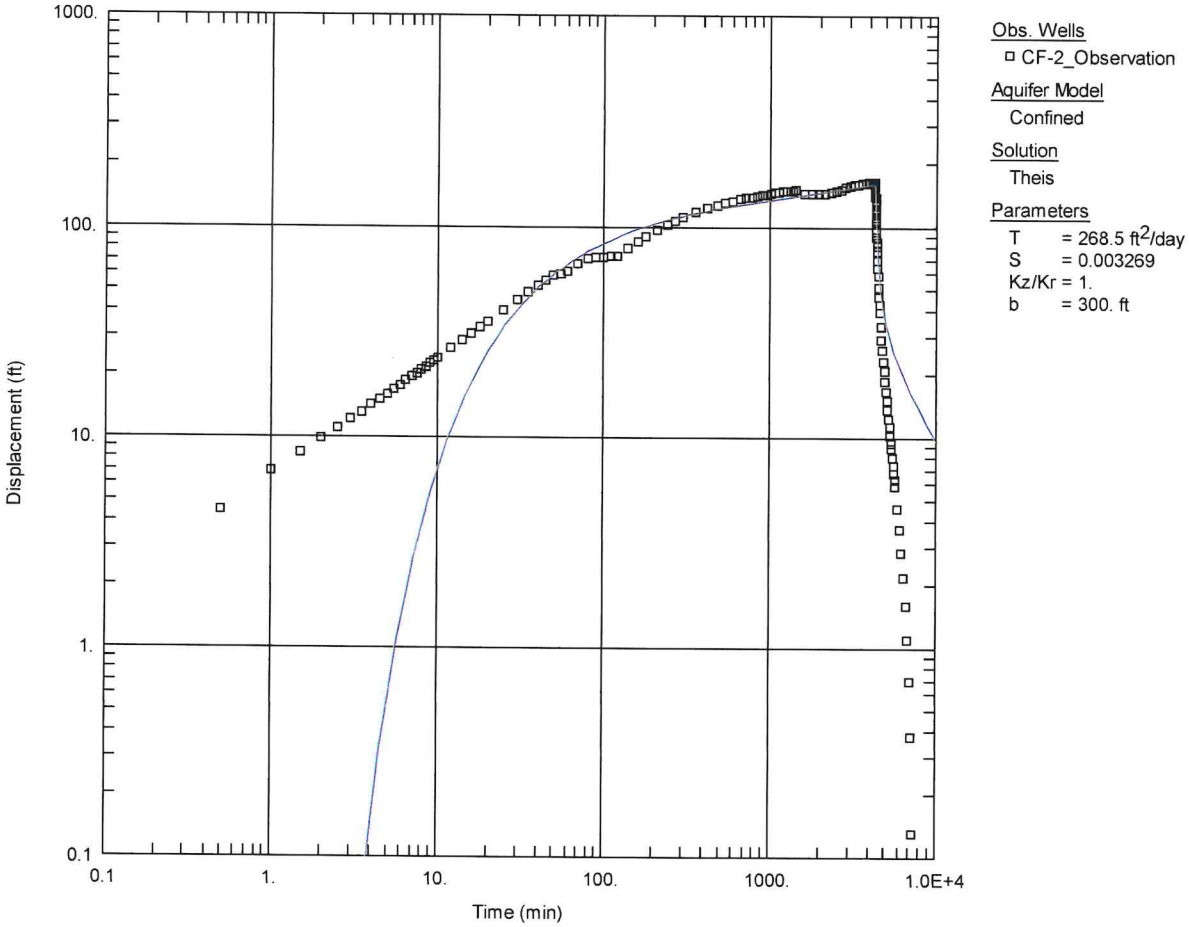
7. PWS 1 Pumping Test Evaluation of PWS 2 Observation Data – Hantush-Jacob (1955) Fully Penetrating Completion



8. PWS 1 Pumping Test Evaluation of PWS 2 Observation Data: Hantush (1960) Fully Penetrating Completion



9. PWS 1 Pumping Test Evaluation of PWS 2 Observation Data: Neuman-Witherspoon (1969) Fully Penetrating Completion



10. PWS 2 Pumping Test Evaluation of PWS 1 Observation Data: Theis (1935) Partial Penetrating Completion

PREAPPLICATION MEETING FORM: PART A

PERMIT

§ 85-2-302, MCA

Form No. 600P-A *(Revised 10/2025)*

For Department Use Only

Application # 30172712 Basin # 76LJ

Meeting Date 12/16/2025 Time 09:00

Variance Request Deadline 5/3/2026

Completed Form Deadline 6/14/2026

RECEIVED
12/16/2025
DNRC
KALISPELL WATER RESOURCES

PREAPPLICATION MEETING FEE

$ 500

FILING FEE REDUCTION & EXPEDITED TIMELINE

An application will be eligible for a filing fee reduction and expedited timelines if the applicant completes a preapplication meeting with the Department (ARM 36.12.1302(1)), which includes submitting any follow-up information identified by the Department (ARM 36.12.1302(3)(c)) and receiving either Department-completed technical analyses or Department review of applicant-submitted technical analyses (ARM 36.12.1302(4) and (5)). An application for the proposed project also must be submitted within 180 days of delivery of Department technical analyses or scientific credibility review and no element on the submitted application can be changed from the completed preapplication meeting form (ARM 36.12.1302(6)).

The Department will fill out Permit Preapplication Meeting Form Part A (Form 600P-A) and will identify items for follow-up during the preapplication meeting. The Department and Applicant will sign the Preapplication Meeting Affidavit and Certification within 10 business days. Within 180 days of the preapplication meeting, the Applicant will complete Preapplication Meeting Form Part B (Form 600P-B), including identified follow-up, any amended responses, and Follow-up and Amended Responses Affidavit & Certification. Variance requests must be submitted on Form 653 to the Department on or before the Variance Request Deadline, which is day 138 of the 180 day-deadline for a completed preapplication meeting form. Form 653 may be submitted earlier than the Variance Request Deadline. The Department has 30 business days to process the Form 653.

Applicant Information: *Add more as necessary.*

Applicant Name LBO Properties Limited Partnership
Mailing Address 500 Palmer Drive City Kalispell State MT Zip 59901
Phone Numbers: Home _____ Work 406-250-2614 Cell _____
Email Address mark@owlcorpmt.com

Applicant Name Mark G. Owens, Owl Ventures, LLC
Mailing Address 115 Taelor Road City Kalispell State MT Zip 59901
Phone Numbers: Home _____ Work _____ Cell _____
Email Address _____

Contact/Representative Information: *Add more as necessary.*

Contact/Representative is: ☐ Applicant ☑ Consultant ☑ Attorney ☐ Other (describe) _____
Contact/Representative Name Tappan Law Firm, PLLC - Rick Tappan
Mailing Address 7 West 6th Ave, Suite 615 City Helena State MT Zip 59601
Phone Numbers: Home _____ Work (406)449-3383 Cell _____
Email Address rctappan@tappanlawfirm.com

NOTE: *If a contact person is identified as an attorney, all communication will be sent only to the attorney unless the attorney provides written instruction to the contrary (ARM 36.12.122(2)). If a contact person is identified as a consultant, employee, or lessee, the applicant will receive all correspondences, and a copy may be sent to the contact person (ARM 36.12.122(3)).*

Meeting Attendees: *Add more as necessary.*

Name	Role	Name	Role
Rick Tappan	Attorney for Applicant	Jack Landers	WSB Hydrologist
Brad Bennett	Consultant	Mark Owens	Applicant
Jamie Graham	Consultant	Gaylon Owens	Applicant
Abigail Williams	DNRC Water Resource Specialist	Travis Wilson	DNRC Water Resource Specialist
James Ferch	DNRC Kalispell Regional Manager		

Table of Contents

APPLICATION DETAILS 3
SURFACE WATER 8

Surface Water Analysis 8
Surface Water Analysis: Perennial or Intermittent 8
Surface Water Analysis: Ephemeral 14
Surface Water Analysis: Lakes 15
Surface Water Analysis: Other 15

Area of Potential Impact Analysis 16

GROUNDWATER 17

Groundwater Analysis for Permits 17
Groundwater Analysis for Permits: Well/Pumping Pit 17
Groundwater Analysis for Permits: Developed Spring 19
Groundwater Analysis for Permits: Pond 20

Surface Water Depletion Analysis 20
Surface Water Analysis of Depleted Surface Water 22
Area of Potential Impact Analysis of Depleted Surface Water 28
Hydrogeologic Report 28

MANDATORY PROJECT-SPECIFIC QUESTIONS 30

Project-Specific Questions: Controlled Groundwater Areas and Basin Closures 30

NON-MANDATORY QUESTIONS FOR CRITERIA ANALYSIS 32

Adverse Effect 32
Adequate Diversion Means and Operation 33
Beneficial Use 35
Possessory Interest 36
Non-Mandatory Project Specific Questions 37
Place of Storage 37
Project-Specific Questions: Water Marketing 38

FOLLOW-UP 39
PREAPPLICATION MEETING AFFIDAVIT & CERTIFICATION 41

APPLICATION DETAILS

The following questions are mandatory and must be filled out before the Preapplication Meeting Form is determined to be complete. Narrative responses that are larger than the space provided can be answered in an attachment. If an attachment is used, mark the see attachment ("A") checkbox on this form and label the attachment with the question number. Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Responses in the form of a table may be entered into the table provided on this form or in an attachment. If an attachment is used, the table must have the exact headings found on this form, and the see attachment ("A") checkbox must be marked. Label units in narrative responses and tables. Questions that require Applicant to submit items to the Department have a submitted ("S") checkbox, which is marked when the required item is attached to the Preapplication Meeting Form. Label all submitted items with the question number for which they were submitted. For all questions where follow-up is necessary, mark the "F" checkbox in the "Follow-Up" column and write the question number on the "Follow-Up Page".

S = Submitted. *Use when required item is included with form.*
A = See attachment. *Use when additional space is needed to answer a question.*
F = Follow-up. *Use when follow-up is necessary.*

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-up**
1. Do you elect to have DNRC conduct Technical Analyses?	☒ Y ☐ N	☐ F
2. Provide a map created on an aerial photograph or topographic map that shows the following: section corners, township and range, scale bar, north arrow, all proposed points of diversion labeled with a unique POD ID number (include GWIC ID, if available, for wells), all proposed places of use, all proposed conveyance structures (including ditches and pipelines), all proposed places of storage, and places of use for all overlapping water rights. More than one map may be submitted, if necessary to clearly convey all required information.	☒ S	☐ F
3. Is the project located in a Controlled Groundwater Area or Basin Closure Area? If yes, immediately go to Mandatory Project-Specific questions 54 to 56 because Form 600 may be the incorrect form, or this project may not meet the requirements for the Department to accept a Form 600.	☐ Y ☒ N	☐ F
4. Is the proposed use temporary?	☐ Y ☒ N	☐ F
a. If yes, when will the appropriation cease? _____	☐ A	☐ F

5. Describe the proposed purpose information, including period of diversion (MM/DD-MM/DD), period of use (MM/DD-MM/DD), flow rate (GPM or CFS) and volume (AF). ☐ A ☐ F

Purpose	Period of Diversion	Period of Use	Flow Rate			Volume
	(MM/DD-MM/DD)	*(MM/DD-MM/DD)*	*Flow Rate*	*GPM*	*CFS*	*(AF)*
Multiple Domestic	1/1 - 12/31	1/1 - 12/31	300	☑	☐	191.00
Lawn and Garden	4/15-10/15	4/15-10/15	300	☑	☐	135.80
Commercial	1/1-12/31	1/1-12/31	300	☑	☐	5.00
				☐	☐	
				☐	☐	
		Total	300	☑	☐	331.8

6. Does the proposed use include one or more of the following purposes: domestic, multiple domestic, stock, or irrigation? If yes, fill out the following table, where applicable. ☑ Y ☐ N ☐ F

Purpose	Requested Information	Response
Domestic or multiple domestic	Number of households and bedrooms served per household	700 Equivalent Dwelling Units (EDU) are proposed. 18 EDU will be commercial, 682 EDU will be residential. Design assumes an average of 2.5 persons per dwelling unit.
Stock	Number of animal units	
Irrigation	Method of irrigation type (sprinkler or flood) and subtype (if flood: level border, graded border, furrow, contour ditch, or other; if sprinkler: center pivot, wheel line, or other)	
Irrigation (flood only)	Design slope	

7. Describe the proposed location of the point(s) diversion to the nearest 10 acres, if source is groundwater (GW) or surface water (SW), source name, and means of diversion (e.g., pump, headgate, well). Label each POD with the POD # used for the project map (question 2). ☐ A ☐ F

POD #	¼	¼	¼	Sec	Twp	Rge	County	Lot	Block	Tract	Subdivision	Gov Lot	SW or GW	Source Name	Means
1	NW	SW	SE	14	27N	21W	Flathead			7B			GW	Deep Aquifer	Well
2	NW	SW	SE	14	27N	21W	Flathead			7B			GW	Deep Aquifer	Well

8. What are the geocodes of the place of use?	☐ A	☐ F

07-3834-14-1-01-50-0000	07-3834-14-2-01-20-0000
07-3834-14-1-01-60-0000	07-3834-14-2-01-30-0000
07-3834-13-2-01-45-0000	07-3834-14-2-01-10-0000
07-3834-14-1-01-35-0000	07-3834-14-2-01-01-0000

9. Describe the legal land description for the proposed place of use and, if an irrigation or lawn and garden purpose, list the number of irrigated acres.	☐ A	☐ F

Acres	Gov't Lot	Block	¼	¼	¼	Sec	Twp	Rge	County
49					E2	14	27N	21W	Flathead
14				S2	NW	14	27N	21W	Flathead
7			W2	W2	W2	13	27N	21W	Flathead
70	***Total***								

10. Will other water rights supplement or overlap the place of use to contribute to the purpose(s)?	☐ Y ☒ N	☐ F
a. If yes, summarize how the water rights will be operated as a whole to serve the purpose(s). Provisional Permit 76LJ 7577 00 authorizes diversion of water from the surface water body referred to as Wiley's Slough for irrigation and stock water. This permit may be utilized in the future to irrigate common areas in a separate water system. The private residential lawn and garden irrigation for the lots within Cooper Farms is to be supplied by the PWS system.	☐ A	☐ F

11. For each supplemental or overlapping water right, please list the water right number, purpose, typical period of diversion and use (MM/DD-MM/DD), flow rate (GPM or CFS), and the volume of water (AF) contributed.	☐ A	☐ F

Water Right No.	**Avg. Period of Diversion**	**Avg. Period of Use**	**Flow Rate**			**Volume Contributed**
	MM/DD-MM/DD	*MM/DD-MM/DD*	*Flow Rate*	*GPM*	*CFS*	*AF*
				☐	☐	
				☐	☐	
				☐	☐	
				☐	☐	
				☐	☐	

12. Will this application supplement contract water from a Federal Project, ditch company, or other source?	☐ Y ☒ N	☐ F
a. If yes, explain. _____ _____ _____	☐ A	☐ F
13. Does the project involve one or more places of storage? This does not include reservoirs, pits, pit-dams, or ponds with a capacity less than 0.1 AF; water tanks; or cisterns (ARM 36.12.113(6)). If yes, answer the following questions once for each place of storage. Use an "Additional Place of Storage (600P)" sheet if more than one. Additionally, you may choose to answer non-mandatory questions 76 to 80 for place of storage.	☐ Y ☒ N	☐ F
a. Is this application to enlarge an existing reservoir? If yes, list the water right numbers for the existing reservoir. _____	☐ Y ☒ N	☐ F
b. Is the place of storage located on-stream?	☐ Y ☒ N	☐ F
c. What is the capacity of the proposed place of storage or the existing place of storage after it is enlarged? Use bathymetry data, survey, or engineering plans for capacity. Submit the data source used with this form. In lieu of these data sources, use the following equation: *Surface Acres x Maximum Depth (FT) x 0.5 = Capacity (AF)* _____	☐ A	☐ F

d. What is the surface area of the place of storage?	☐ A	☐ F
14. Will your system be designed to discharge water from the project?	☐ Y ■ N	☐ F
a. If yes, explain the wastewater disposal method. A discharge permit may be required to comply with §§ 75-5-410 and 85-2-364, MCA. Wastewater associated with potable water use (multiple domestic and commercial) will be conveyed and disposed via the publicly owned Lakeside County Water and Sewer District (LCWSD) treatment works.	☐ A	☐ F
15. Does the project involve an appropriation that is greater than 5.5 CFS and 4,000 AF? If yes, you must submit a Criteria Addendum Application for Beneficial Water Use Permit for Appropriations Greater than 5.5 CFS and 4,000 AF (Form 600-B) with application submittal. The criteria are found in §85-2-311(3), MCA.	☐ Y ■ N	☐ F
16. Will you be transporting water for use outside of Montana? If yes, you must submit an Out-of-State Use Addendum (Form 600/606-OSA) with the application. The out-of-state use criteria are outlined in §85-2-402(6), MCA.	☐ Y ■ N	☐ F
17. Does the project include the water marketing purpose? If yes, you may choose to answer non-mandatory questions 81 to 85 for water marketing. A Water Marketing Purpose Addendum (Form 600/606-WMA) will be required with application submittal.	☐ Y ■ N	☐ F
18. Are you proposing a point of diversion and/or place of use on State of Montana Trust Land? If yes, documentation of consent from the DNRC Trust Lands Management Division will be required at application submittal.	☐ Y ■ N	☐ F
19. Is the project located in designated sage grouse habitat? If yes, a review letter from the Montana Sage Grouse Habitat Conservation Program will be required at application submittal.	☐ Y ■ N	☐ F

SURFACE WATER

☐ **Applicable**, move on to question 20. ⬓ **Not Applicable**, skip to question 30.

The following questions are mandatory for surface water permit applications and must be filled out before the Preapplication Meeting Form is determined to be complete.

Surface Water Analysis

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-up**
20. What is the flow rate (GPM or CFS), volume (AF), period of diversion start date and end date (MM/DD-MM/DD), and source type (e.g., perennial, ephemeral) at each point of diversion? Use the same POD # as the project map (question 2) to label each point of diversion.	☐ A	☐ F

POD #	**Flow Rate**			**Volume**	**Period Start**	**Period End**
	Flow Rate	*GPM*	*CFS*	*AF*	*MM/DD*	*MM/DD*
1		☐	☐			
2		☐	☐			
		☐	☐			
		☐	☐			
		☐	☐			

21. Is the source type of the diversion perennial or intermittent, ephemeral, lake, or other? _____	☐ A	☐ F

Perennial or intermittent	Answer questions 22 to 25	**Ephemeral**	Answer question 26	**Lake**	Answer question 27	**Other**	Answer questions 28 to 29

Surface Water Analysis: Perennial or Intermittent

☐ **Applicable** ☐ **Not Applicable**

22. Are stream gage data available?	☐ Y ☐ N	☐ F
a. If yes, answer question 23.		
b. If no, answer question 24.		

23. Stream gage data are available.		
a. Is one stream gage located above the most upstream POD and one stream gage located below the most upstream POD?	☐ Y ☐ N	☐ F
i. If no, is only one stream gage located near the most upstream POD?	☐ Y ☐ N	☐ F
1. If yes, is the stream gage located upstream or downstream? _____		☐ F
b. List the gage name(s). Write "N/A" for Gage 2 if one gage is available. Gage 1: _____ Gage 2: _____		☐ F
c. What is the distance between the gage(s) and the most upstream POD? Write "N/A" for Gage 2 if one gage is available. Gage 1: _____ Gage 2: _____		☐ F
d. Is there a limiting or controlling factor on the source between the stream gage(s) and the most upstream POD? This includes dams that control the flow and streams with large gaining and/or losing reaches. If you have questions about this, the Regional Office may provide assistance.	☐ Y ☐ N	☐ F
i. If yes, explain. _____ _____ _____	☐ A	☐ F
e. How long is the period of record? Write "N/A" for Gage 2 if one gage is available. Gage 1: _____ Gage 2: _____		☐ F
f. Who operates and maintains the gage(s)? Write "N/A" for Gage 2 if one gage is available. Gage 1: _____ Gage 2: _____		☐ F

g. Is each available stream gage operated and maintained by USGS or DNRC?	☐ Y ☐ N	☐ F
i. If yes, skip to question 23.h.		
ii. If no, answer the following questions for each gage not operated and maintained by USGS or DNRC.		
1. How frequently are stage data recorded? Write "N/A" for Gage 2 if only one gage is not operated or maintained by USGS. Gage 1: _____ Gage 2: _____		☐ F
2. If data gaps were to occur, are they identified and left unfilled or estimated using interpolation, ice correction, or indirect discharge measurements methods?		
a. Gage 1._____	☐ Y ☐ N	☐ F
b. Gage 2. Write "N/A" on the line instead of answering yes or no, if only one gage is not operated or maintained by USGS or DNRC. _____	☐ Y ☐ N	☐ F
3. Was the rating curve established and maintained throughout the duration of the period of record using measurements taken near the reference gage and stage recorder according to USGS protocols?		
a. Gage 1._____	☐ Y ☐ N	☐ F
b. Gage 2. Write "N/A" on the line instead of answering yes or no, if only one gage is not operated or maintained by USGS or DNRC. _____	☐ Y ☐ N	☐ F
4. Were requirements established and followed for maintaining a permanent gage datum and meeting specified accuracy limits?		
a. Gage 1._____	☐ Y ☐ N	☐ F
b. Gage 2. Write "N/A" on the line instead of answering yes or no, if only one gage is not operated or maintained by USGS or DNRC. _____	☐ Y ☐ N	☐ F

h. Do the data for one or more available stream gages meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	☐ Y ☐ N	☐ F
i. If yes, record how many meet the standard, then skip to question 54 because this section is complete. _____		☐ F
ii. If no, answer question 24.		
24. If no gage data are available or if available gage data do not meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion, is the source otherwise measured?	☐ Y ☐ N	☐ F
a. If no, measurements may be necessary. The Department cannot deem the preapplication meeting form adequately completed until the Department receives gage data and/or measurements that meet the requirements of ARM 36.12.1702 or, in combination with an approved variance request, are sufficient to complete any necessary technical analyses or scientific credibility reviews and to evaluate the applicable criteria. Skip to question 25.		
b. If yes,		
i. Submit available measurements to the Department.	☐ S	☐ F
ii. Who collected the measurements? _____	☐ A	☐ F
iii. With what method were the data collected? _____ _____	☐ A	☐ F
iv. What is the period of record? _____		☐ F
v. What is the frequency of measurement? _____		☐ F
vi. Are there gaps in the data?	☐ Y ☐ N	☐ F

1. If yes, what is the nature of the gaps and how are gaps handled to ensure data quality? _____ _____ _____	☐ A	☐ F
vii. Is there a process for maintaining the data and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
1. If yes, explain. _____ _____ _____	☐ A	☐ F
viii. Do available measurement data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	☐ Y ☐ N	☐ F
1. If yes, this section is complete. Skip to question 54.		
2. If no, answer question 25.		
25. Do the available measurement data, gage and/or otherwise measured, meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for validation of a Department-accepted estimation technique?	☐ Y ☐ N	☐ F
a. If yes,		
i. Describe how the measurements are representative of high, moderate, and low flows. _____ _____ _____ _____	☐ A	☐ F
ii. Describe the estimation technique. _____ _____ _____ _____ _____ _____	☐ A	☐ F
b. If no, but a Department-accepted estimation technique will be appropriate for the source:		

i. Will measurements be collected prior to submission of Form 600P-B that meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a Department-accepted estimation technique?	☐ Y ☐ N	☐ F
1. If yes,		
a. With what method will the data be collected? _____ _____	☐ A	☐ F
b. What will be the interval of measurement? _____		☐ F
c. Describe the proposed estimation technique. _____ _____ _____ _____ _____	☐ A	☐ F
2. If no, do you plan on requesting a variance from measurement requirements pursuant to ARM 36.12.1702(1)(b)? If you plan to request a variance, you must submit Form 653 on or before the Variance Request Deadline. The Department cannot deem the preapplication meeting form adequately completed until the Department receives measurements that meet the requirements of ARM 36.12.1702(1)(b) or, in combination with an approved variance request, are sufficient to complete any necessary technical analyses or scientific credibility reviews and to evaluate the applicable criteria.	☐ Y ☐ N	☐ F
c. If no, because no Department-accepted estimation technique will be appropriate for the source:		
i. Describe why no Department-accepted estimation technique is appropriate for the source characteristics. _____ _____ _____	☐ A	☐ F
ii. Do the available measurement data, gage and/or otherwise measured, meet the Department's standard for monthly measurements throughout the proposed period of diversion pursuant to ARM 36.12.1702(4)?	☐ Y ☐ N	☐ F

1. If no, will measurements be collected prior to submission of a completed Form 600P that meet the Department's standard of monthly measurements throughout the proposed period of diversion?	☐ Y ☐ N	☐ F
a. If yes, with what method will the data be collected? _____ _____	☐ A	☐ F
b. If no, do you plan on requesting a variance from measurement requirements pursuant to ARM 36.12.1702(4)? If you plan to request a variance, you must submit Form 653 on or before the Variance Request Deadline. The Department cannot deem the preapplication meeting form adequately completed until the Department receives measurements that meet the requirements of ARM 36.12.1702(4) or, in combination with an approved variance request, are sufficient to complete any necessary technical analyses or scientific credibility reviews and to evaluate the applicable criteria.	☐ Y ☐ N	☐ F

Surface Water Analysis: Ephemeral

☐ **Applicable** ☐ **Not Applicable**

26. Did you elect for the Department to conduct the Technical Analyses?	☐ Y ☐ N	☐ F
a. If yes, do you have climate or drainage area data you would like the Department to consider during Technical Analyses?	☐ Y ☐ N	☐ F
i. If yes, submit this information to the Department.	☐ S	☐ F
b. If no,		
i. Describe the estimation technique you propose to use to estimate physical availability at the point of diversion. _____ _____ _____	☐ A	☐ F
ii. What is the net annual precipitation? Include the source of this information. _____ _____	☐ A	☐ F

iii. What is the drainage area upstream of the point of diversion and how was this figure calculated? _____ _____ _____	☐ A	☐ F

Surface Water Analysis: Lakes

☐ **Applicable** ☐ **Not Applicable**

27. Has the lake volume been quantified by a qualified entity based on bathymetric data?	☐ Y ☐ N	☐ F
a. If yes, provide this information to DNRC.	☐ S	☐ F
b. If no, answer the following questions,		
i. When do you plan to collect this information? _____		☐ F
ii. What data collection method will you use? _____ _____	☐ A	☐ F

Surface Water Analysis: Other

☐ **Applicable** ☐ **Not Applicable**

28. Explain why the source type is “other”. _____ _____	☐ A	☐ F
29. Have you measured the source?	☐ Y ☐ N	☐ F
a. If yes, answer the following questions,		
i. With what method was the measurement data collected? _____ _____	☐ A	☐ F

ii. What is the measurement interval? _____		☐ F
1. Does the interval meet the Department's standard for monthly measurements throughout the proposed period of diversion pursuant to ARM 36.12.1702(4)?	☐ Y ☐ N	☐ F
a. If no, do you plan on requesting a variance from measurement requirements pursuant to ARM 36.12.1702(4)? If you plan to request a variance, you must submit Form 653 on or before the Variance Request Deadline.	☐ Y ☐ N	☐ F
b. If no,		
i. When do you plan to measure? _____		☐ F
ii. What data collection method will be used? _____ _____ _____	☐ A	☐ F
iii. Do you plan on requesting a variance from measurement requirements pursuant to ARM 36.12.1702(4)? If you plan to request a variance, you must submit Form 653 on or before the Variance Request Deadline. The Department cannot deem the preapplication meeting form adequately completed until the Department receives measurements that meet the requirements of ARM 36.12.1702(4) or, in combination with an approved variance request, are sufficient to complete any necessary technical analyses or scientific credibility reviews and to evaluate the applicable criteria.	☐ Y ☐ N	☐ F

Area of Potential Impact Analysis

No additional information needed for Technical Analyses.

GROUNDWATER

■ **Applicable**, move on to question 30. ☐ **Not Applicable**, skip to question 54.

The following questions are mandatory for groundwater permit applications and must be filled out before the Preapplication Meeting Form is determined to be complete.

Groundwater Analysis for Permits

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-up**
30. What is the type of groundwater diversion? Well(s)_____	☐ A	☐ F

Well/Pumping Pit	Answer questions 31 to 35	**Developed Spring**	Answer question 36	**Pond**	Answer questions 37 to 39

Groundwater Analysis for Permits: Well/Pumping Pit

■ Applicable ☐ Not Applicable

31. Per ARM 36.12.121 a 24- or 72-hour aquifer test is required; do you propose not to conduct the test? An 8-hour test will be required, if no aquifer test is completed.	☐ Y ■ N	☐ F
a. If yes, explain. The Department will let you know if the request is reasonable and identify additional data needs. _____ _____ _____ _____ _____	☐ A	☐ F

32. Submit Aquifer Test Data Form (Form 633). If a variance is requested, Form 633 must be submitted on or before the Variance Request Deadline. If no variance is requested, Form 633 is due by the time the preapplication meeting form is complete but may be submitted earlier. However, if the Department determines a variance is needed and the Variance Request Deadline has passed, to submit the Form 653 you must reschedule the preapplication meeting or submit the application without expedited fees and timelines (ARM 36.12.1302(6)).	☐ S	■ F
33. Submit the Aquifer Testing Addendum (Form 600/606-ATA) and associated materials (e.g., well logs). If you request a variance, Form 600/606-ATA must be submitted on or before the Variance Request Deadline. If no variance is requested, Form 600/606-ATA is due by the time the preapplication meeting form is complete but may be submitted earlier. However, if the Department determines a variance is needed and the Variance Request Deadline has passed, to submit the Form 653 you must reschedule the preapplication meeting or submit the application without expedited fees and timelines (ARM 36.12.1302(6)).	☐ S	■ F
34. Are you requesting a variance from ARM 36.12.121? If you are unsure if a variance request will be needed, mark follow-up and answer this question once Form 600/606-ATA and Form 633 are complete. A variance must be requested by the Variance Request Deadline.	■ Y ☐ N	☐ F
a. If yes, submit Form 653, Form 600/606-ATA, and Form 633 together on or before the Variance Request Deadline.	☐ S	■ F
b. If no, you may choose to submit Form 600/606-ATA and Form 633 before the Variance Request Deadline, and the Department will review these two forms. However, if the Department determines a variance is needed after the Variance Request Deadline, to submit the Form 653 you must reschedule the preapplication meeting or submit the application without expedited fees and timelines (ARM 36.12.1302(6)).		
35. Have all proposed wells/pumping pits been constructed?	■ Y ☐ N	☐ F
a. If no, answer the following questions:		
i. Submit a list of the POD IDs for all wells/pumping pits and mark whether they have or have not been constructed.	☐ S	☐ F
ii. When will all proposed wells/pumping pits be constructed? _____		☐ F
iii. Is the requested volume for each proposed well/pumping pit known?	☐ Y ☐ N	☐ F
1. If yes, list the flow rate and volume requested for each proposed well/pumping pit. Label with POD ID. _____ _____ _____	☐ A	☐ F

2. If no, what is the total requested volume (AF) and the number of proposed PODs? _____		☐ F

Groundwater Analysis for Permits: Developed Spring

☐ Applicable ■ Not Applicable

36. Have you measured the source?	☐ Y ☐ N	☐ F
a. If yes, submit the measurements and answer the following questions,	☐ S	☐ F
i. Do you have flow rate (GPM or CFS) and volume measurements?	☐ Y ☐ N	☐ F
ii. With what method were measurements collected? _____ _____	☐ A	☐ F
iii. What is the interval of measurements? _____		☐ F
iv. Is the interval of measurements sufficient to comply with ARM 36.12.1703(1)?	☐ Y ☐ N	☐ F
b. If no, or if measurements do not comply with ARM 36.12.1703(1), answer the following questions. The Department cannot deem the preapplication meeting form adequately completed until the Department receives measurements that meet the requirements of ARM 36.12.1703(1). Variances from ARM 36.12.1703(1) are not allowed.		
i. When do you plan to measure? _____		☐ F
ii. With what method and at what interval will measurements be collected? _____ _____	☐ A	☐ F

Groundwater Analysis for Permits: Pond

☐ Applicable ■ Not Applicable

37. Submit Form 653 to apply for a variance from ARM 36.12.121 for the Aquifer Test on or before the Variance Request Deadline.	☐ S	☐ F
38. Submit pond bathymetry data, survey, or engineering plans to the Department.	☐ S	☐ F
39. Is the pond fed or drained by surface water?	☐ Y ☐ N	☐ F
a. If yes,		
i. Explain. _____ _____ _____	☐ A	☐ F
ii. Submit measurements of the connected surface water source. These may include inflow and outflow measurements.	☐ S	☐ F

Surface Water Depletion Analysis

40. Is the type of groundwater diversion for your proposed project a developed spring? If yes, skip to question 45 because this section is complete. If no, move onto question 41.	☐ Y ■ N	☐ F
41. Is the type of groundwater diversion for your proposed project a pond? If yes, answer question 41.a, then skip to question 45 because this section is complete. If no, move onto question 42.	☐ Y ■ N	☐ F
a. Will any of the ponds have diversions for out-of-pond use that differ from, if year-round use, an allocation of diverted volume by the number of days in the month, or, if irrigation/lawn and garden use, the 80% dry year net irrigation requirement (IWR, NRCS 2003)?	☐ Y ☐ N	☐ F
i. If yes, provide a schedule of the diversions for out-of-pond use in the table below. Use the same POD # as the project map (question 2). Attach any additional schedules with POD # labeled.	☐ A	☐ F

POD #			
Month	**Diversions for Out-of-Pond Use Volume (AF)**	**Month**	**Diversions for Out-of-Pond Use Volume (AF)**
January		July	
February		August	
March		September	
April		October	
May		November	
June		December	

42. What is the flow rate (GPM or CFS), volume (AF), and period of diversion required (MM/DD-MM/DD) at each well/pumping pit? What is the well/pumping pit depth (FT), if available, or estimated well/pumping pit depth (FT). Please use the same POD # as the project map (question 2) to match this information with the location information.	☐ A	☐ F

POD #	Flow Rate			Volume	Period of Diversion	Depth	Measured or Estimated
	Flow Rate	*GPM*	*CFS*	*AF*	*MM/DD-MM/DD*	*FT*	
1	300	☑	☐	165.9	1/1-12/31	304	Measured
2	300	☑	☐	165.9	1/1-12/31	320	Measured
		☐	☐				
		☐	☐				
		☐	☐				

43. Will any of the *new* wells/pumping pits have a monthly pumping schedule that differs from, if year-round use, an allocation of diverted volume by the number of days in the month, or, if irrigation/lawn and garden use, the 80% dry year net irrigation requirement (IWR, NRCS 2003)?	■ Y ☐ N	☐ F
a. If yes, provide the alternative pumping schedule(s) in the table below. Use the same POD # as the project map (question 2). Attach any additional pumping schedules with POD # labeled.	☐ A	☐ F

POD #1				**POD #**2			
Month	**Volume (AF)**	**Month**	**Volume (AF)**	**Month**	**Volume (AF)**	**Month**	**Volume (AF)**
January	8.32	July	20.22	January	8.32	July	20.22
February	7.52	August	20.22	February	7.52	August	20.22
March	8.32	September	19.56	March	8.32	September	19.56
April	11.51	October	14.08	April	11.51	October	14.08
May	20.22	November	8.05	May	20.22	November	8.05
June	19.56	December	8.32	June	19.56	December	8.32

44. Will one or more *existing* wells/pumping pits be used for the proposed project?	☐ Y ■ N	☐ F
a. If yes, will any of the *existing* wells/pumping pits have a monthly pumping schedule, before or after the proposed project, that differs from an allocation of diverted volume by the number of days in the month (if year-round use) or the 80% dry year net irrigation requirement (if irrigation/lawn and garden use) (IWR, NRCS 2003)?	☐ Y ☐ N	☐ F
i. If yes, provide the pumping schedules before and after the proposed project in the table below. Use the same POD # as the project map (question 2). Attach any additional pumping schedules with POD # and before/after proposed project labeled.	☐ A	☐ F

Before proposed project: POD #				**After proposed project: POD #**			
Month	**Volume (AF)**	**Month**	**Volume (AF)**	**Month**	**Volume (AF)**	**Month**	**Volume (AF)**
January		July		January		July	
February		August		February		August	
March		September		March		September	
April		October		April		October	
May		November		May		November	
June		December		June		December	

Surface Water Analysis of Depleted Surface Water

45. Based on the preliminary net depletion data provided by the Department at this preapplication meeting, what are the hydraulically connected surface water source(s)? **Net depletion data provided by the Department at the preapplication meeting is preliminary and is subject to change during Technical Analyses. If the source or location of net depletion data changes during Technical Analyses, then surface water analysis of depleted surface water source(s) will reflect the Technical Analyses; this will not constitute a change of any element to the proposed application pursuant to ARM 36.12.1302(6)(a).* If the type of groundwater diversion for your proposed project is a developed spring, write "NA" and skip to question 51 because this section is complete. Flathead River - LLD: Western boundary SWNE Section 34, Township 28N, Range 21W	☐ A	☐ F
46. Answer the questions in this section one time for each hydraulically connected source. Use the "Additional Hydraulically Connected Source (600P)" sheet, as necessary. For which hydraulically connected source are you answering questions 47 to 50? Flathead River		☐ F
47. Are stream gage data available?	■ Y ☐ N	☐ F
a. If yes, answer question 48.		
b. If no, answer question 49.		

48. Stream gage data are available		
a. Is one stream gage located above and one stream gage located below the start of the depleted reach?	■ Y ☐ N	☐ F
i. If no, is only one stream gage located near the start of the depleted reach?	☐ Y ☐ N	☐ F
1. If yes, is the stream gage upstream or downstream? upstream		☐ F
b. List the gage name(s). Write "N/A" for Gage 2 if one gage available. Gage 1: USGS 1236300 Gage 2: NA		☐ F
c. What is the distance between the gage(s) and the start of the depleted reach? Write "N/A" for Gage 2 if one gage available. Gage 1: ~ 12 miles Gage 2: NA		☐ F
d. Is there a limiting or controlling factor on the source between the stream gage(s) and the start of the depleted reach? This includes dams that control the flow and streams with large gaining and/or losing reaches. If you have questions about this, the Regional Office may provide assistance.	☐ Y ■ N	☐ F
i. If yes, explain.	☐ A	☐ F
e. How long is the period of record? Write "N/A" for Gage 2 if one gage is available. Gage 1: > 10 years Gage 2: NA		☐ F
f. Who operates and maintains the gage(s)? Write "N/A" for Gage 2 if one gage is available. Gage 1: USGS Gage 2: NA		☐ F
g. Is each available stream gage operated and maintained by USGS or DNRC?	■ Y ☐ N	☐ F
i. If yes, skip to question 48.h.		
ii. If no, answer the following questions for each gage not operated and maintained by USGS or DNRC.		

1. How frequently is stage data recorded? Write "N/A" for Gage 2 if only one gage is not operated or maintained by USGS. Gage 1: _____ Gage 2: _____		☐ F
2. If data gaps were to occur, are they identified and left unfilled or estimated using interpolation, ice correction, or indirect discharge measurements methods?	☐ Y ☐ N	☐ F
a. Gage 1._____	☐ Y ☐ N	☐ F
b. Gage 2. Write "N/A" on the line instead of answering yes or no, if only one gage is not operated or maintained by USGS or DNRC. _____	☐ Y ☐ N	☐ F
3. Was the rating curve established and maintained throughout the duration of the period of record using measurements taken near the reference gage and stage recorder according to USGS protocols?	☐ Y ☐ N	☐ F
a. Gage 1._____	☐ Y ☐ N	☐ F
b. Gage 2. Write "N/A" on the line instead of answering yes or no, if only one gage is not operated or maintained by USGS or DNRC. _____	☐ Y ☐ N	☐ F
4. Were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
a. Gage 1._____	☐ Y ☐ N	☐ F
b. Gage 2. Write "N/A" on the line instead of answering yes or no, if only one gage is not operated or maintained by USGS or DNRC. _____	☐ Y ☐ N	☐ F
h. Do the data for one or more available stream gages meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the months with net depletions?	■ Y ☐ N	☐ F
i. If yes, record how many meet the standard, then skip to question 54 because this section is complete. 1		
ii. If no, answer question 49.		
49. If no gage data are available or if available gage data do not meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the months with net depletions, is the source otherwise measured?	☐ Y ☐ N	☐ F

a. If no, measurements may be necessary. The Department cannot deem the preapplication meeting form adequately completed until the Department receives gage data and/or measurements that meet the Department's measurement standards or, in combination with an approved request to deviate from the Department's standards, are sufficient to complete any necessary technical analyses or scientific credibility reviews and to evaluate the applicable criteria. Skip to question 50.		
b. If yes,		
i. Submit measurements to the Department.	☐ S	☐ F
ii. Who collected the measurements? _____	☐ A	☐ F
iii. With what method was the data collected? _____ _____	☐ A	☐ F
iv. What is the period of record? _____		☐ F
v. What is the frequency of measurement? _____		☐ F
vi. Are there gaps in the data?	☐ Y ☐ N	☐ F
1. If yes, what is the nature of the gaps and how are gaps handled to ensure data quality? _____ _____ _____	☐ A	☐ F
vii. Is there a process for maintaining the data and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
1. If yes, explain. _____ _____ _____	☐ A	☐ F
viii. Do available measurement data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the months with net depletions?	☐ Y ☐ N	☐ F
1. If yes, this section is complete. Skip to question 54.		
2. If no, answer question 50.		

50. Do the available measurement data, gage and/or otherwise measured, meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a Department-accepted estimation technique?	☐ Y ☐ N	☐ F
a. If yes,		
i. Describe how the measurements are representative of high, moderate, and low flows. _____ _____ _____ _____	☐ A	☐ F
ii. Describe the estimation technique. _____ _____ _____ _____ _____ _____	☐ A	☐ F
b. If no, but a Department-accepted estimation technique will be appropriate for the hydraulically connected surface water source:		
i. Will measurements be collected prior to submission of a completed Form 600P-B that meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a Department-accepted estimation technique?	☐ Y ☐ N	☐ F
1. If yes,		
a. With what method will the data be collected? _____ _____	☐ A	☐ F
b. What will be the interval of measurement? _____		☐ F

c. Describe the proposed estimation technique. _____ _____ _____ _____ _____	☐ A	☐ F
2. If no, do you plan on requesting to deviate from the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a Department-accepted estimation technique? The Department's technical analyses or scientific credibility review of your technical analyses cannot commence until the Department receives measurements that meet Department measurement standards, or in combination with a request to deviate, are sufficient to complete any necessary technical analyses or scientific credibility reviews and to evaluate the applicable criteria.	☐ Y ☐ N	☐ F
c. If no, because no Department-accepted estimation technique will be appropriate for the hydraulically connected surface water source:		
i. Describe why no Department-accepted estimation technique is appropriate for the source characteristics. _____ _____ _____	☐ A	☐ F
ii. Do the available measurement data, gage and/or otherwise measured, meet the Department's standard for monthly measurements throughout the months with net depletions?	☐ Y ☐ N	☐ F
1. If no, will measurements be collected prior to submission of a completed Form 600P that meet the Department's standard of monthly measurements throughout the months with net depletions?	☐ Y ☐ N	☐ F
a. If yes, with what method will the data be collected? _____ _____	☐ A	☐ F

b. If no, do you plan on requesting to deviate from the Department's standard for monthly measurements throughout the months with net depletions? The Department's technical analyses or scientific credibility review of your technical analyses cannot commence until the Department receives measurements that meet Department measurement standards, or in combination with a request to deviate, are sufficient to complete any necessary technical analyses or scientific credibility reviews and to evaluate the applicable criteria.	☐ Y ☐ N	☐ F

Area of Potential Impact Analysis of Depleted Surface Water

All information for area of potential impact of depleted surface water was collected in previous questions.

Hydrogeologic Report

51. Does your project include one or more wells, pumping pits, or ponds that are in a basin closure area? If yes, fill out questions 52 to 53. Your project must have a Hydrogeologic Report that conforms with § 85-2-361 to comply with the requirements of § 85-2-360, MCA. A Hydrogeologic Report Addendum (Form 600-HRA) or Department Technical Analyses may be used to meet these requirements.	☐ Y ◙ N	☐ F
52. Did you elect in question 1 for the Department to conduct the Technical Analyses?	☐ Y ☐ N	☐ F
a. If yes, the Basin Closure Area Addendum (Form 600-BCA), Form 600-HRA, and Hydrogeologic Report are not required at this time. The Department's Technical Analyses will meet requirements of §85-2-360, MCA for a Hydrogeologic Report and Form 600-HRA. Form 600-BCA will be required with application submittal.		
b. If no, submit the Basin Closure Area Addendum (Form 600-BCA) and Hydrogeologic Report Addendum (600-HRA) with your Technical Analyses.	☐ S	☐ F
53. If the Hydrogeologic Report indicates that the proposed groundwater use will impact a surface water source, identify and explain which of the following three options best describes your plan to mitigate depletions of hydraulically connected surface water and respond to the relevant questions below. ☐ Application to Change a Water Right to mitigate the adverse effects created ☐ Alternative mitigation plan ☐ Documentation to show a mitigation plan is not required		
a. Application to Change a Water Right to mitigate the adverse effects created: Submit a summary of your initial proposal. *A separate Preapplication Meeting will be required for each Application to Change a Water right to a mitigation or aquifer recharge purpose to qualify for expedited timelines and reduced filing fees for the project per ARM 36.12.1302(7)(a).*	☐ S	☐ F
b. Alternative mitigation plan: Submit a summary of your initial proposal.	☐ S	☐ F

i. Do you propose to use water with a marketing for mitigation/aquifer recharge purpose?	☐ Y ☐ N	☐ F
1. If yes,		
a. List the change authorization number(s) for all water rights proposed for use. _____	☐ A	☐ F
b. What is the area defined for marketing for all water rights proposed for use? _____	☐ A	☐ F
c. If Marketing for aquifer recharge, submit the analysis of the monthly accretions to hydraulically connected surface water(s); otherwise write "NA". _____	☐ S	☐ F
c. Documentation to show a mitigation plan is not required: Submit all documentation.	☐ S	☐ F

MANDATORY PROJECT-SPECIFIC QUESTIONS

The following questions are mandatory when applicable and must be filled out before the Preapplication Meeting Form is determined to be complete.

Project-Specific Questions: Controlled Groundwater Areas and Basin Closures

Questions, Narrative Responses, and Tables	Check-boxes	Follow-up
54. Does the project include one or more groundwater points of diversion located in the East Valley Controlled Groundwater Area (EVCGWA)?	☐ Y ■ N	☐ F
a. If yes, is the use over 35 GPM or 10 AF/YR?	☐ Y ☐ N	☐ F
i. If no, this is the incorrect form. Use instead Form 600-EVCGWA: East Valley Controlled Groundwater Area Permit Application.		
ii. If yes, how does this project meet the specific requirements of the East Valley Controlled Groundwater Area? Include any relevant documentation. _____ _____ _____ _____	☐ A	☐ F
b. If no, skip to question 55.		
55. Does the project include one or more groundwater points of diversion located in the Yellowstone Controlled Groundwater Area?	☐ Y ■ N	☐ F
a. If yes, is the proposed flow rate and volume over 35 GPM or 10 AF/YR?	☐ Y ☐ N	☐ F
i. If no, this is the incorrect form. Use instead Form 600-YCGA: Yellowstone Controlled Groundwater Area Permit Application.		
ii. If yes, answer the remaining parts of question 55 and submit *Form 600 YCGA: A Yellowstone Controlled Groundwater Area Addendum Over 35 gallons per minute* with the application.		
1. Does the proposed use require a point of diversion with water temperature of 60 degrees Fahrenheit or more?	☐ Y ☐ N	☐ F
2. If an application is in a basin tributary to a category 3 or 4 stream (generally in or upstream of Yellowstone National Park), submit with the application a report prepared by a qualified professional verifying that the appropriation is not hydrologically connected to surface flow that is tributary to the reserved portion of category 3 or 4 streams.		
b. If no, skip to question 56.		

56. Is the project for surface water or groundwater and subject to one or more of the Controlled Groundwater Areas; administrative, Department ordered, or legislative basin closures; or compact closures listed on the Department's website (https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas) not covered in questions 54 to 55?	☐ Y ☒ N	☐ F
a. If yes, identify each area and describe how the proposed project meets its requirements. An application must meet the specific requirements of the Controlled Groundwater Area or closure to be accepted by the Department. _____ _____ _____ _____ _____ _____ _____ _____ _____	☐ A	☐ F

NON-MANDATORY QUESTIONS FOR CRITERIA ANALYSIS

The following questions are not mandatory. They should be discussed in the Preapplication Meeting, but do not need to be filled out before the Preapplication Meeting Form is determined to be complete.

Adverse Effect

Questions, Narrative Responses, and Tables	Check-boxes
57. Describe your plan to ensure that existing water rights will be satisfied during times of water shortage. _____ _____ _____ _____ _____ _____ _____ _____ _____	☐ A
58. Explain how you can control your diversion in response to call being made. _____ _____ _____	☐ A
59. Are you aware of any calls that have been made on the source of supply or depleted surface water source?	☐ Y ☐ N
a. If yes, explain. _____ _____ _____	☐ A
60. Does a water commissioner distribute water or oversee water distribution on your proposed source or depleted surface water source?	☐ Y ☐ N

61. Will the point of diversion or conveyance infrastructure be shared with one or more existing water rights?	☐ Y ☐ N
a. If yes, explain how capacity of the shared point of diversion and/or conveyance infrastructure is sufficient for all water rights. _____ _____ _____ _____ _____	☐ A

Adequate Diversion Means and Operation

62. Submit a diagram of how you will operate your system from the point of diversion to the place of use.	☐ S
63. Describe specific information about the capacity of the diversionary structure(s). This may include, where applicable: pump curves and total dynamic head calculations, headgate design specifications, and dike or dam height and length. _____ _____ _____ _____ _____ _____ _____	☐ A

64. Describe the size, materials, capacity, and configuration of infrastructure to convey water from point of diversion to place of use. This may include but is not limited to, pipelines and ditches. Include a description of any losses related to the proposed conveyance. Ditch conveyance losses may be estimated numerous ways, which include a ditch loss rate or Department standard methods. You may work with the Department to estimate ditch conveyance losses but will need to provide sufficient baseline information; which includes ditch slope, dimensions, length, lining material, soil type, and location. _____ _____ _____ _____ _____ _____ _____	☐ A
65. Describe how the proposed diversion and conveyance infrastructure can provide the required flow and volume, for the purposes plus any conveyance losses and storage, throughout the proposed period of diversion. _____ _____ _____ _____ _____ _____ _____	☐ A
66. Provide a plan of operations, which includes specific information about how water is delivered within the place of use. This may include, where applicable, the range of flow rates needed for a pivot. _____ _____ _____ _____ _____	☐ A

67. Does the proposed conveyance require easements?	☐ Y ☐ N
a. If yes, explain. _____ _____ _____	☐ A
68. Do you own the land where all proposed points of diversion are located?	☐ Y ☐ N
a. If no, documentation to show you have the right to use all points of diversion located on each property you do not own will be required upon application submittal. This may include, but is not limited to, a well agreement, an easement, or permission of the party that owns the property where the proposed point(s) of diversion are located.	
69. Describe any places of storage, including whether drainage devices will be installed, and provide preliminary designs, if available. Preliminary designs will be required at application submittal. _____ _____ _____ _____	☐ A
70. Do you have any plans to measure your diversion and use?	☐ Y ☐ N
a. If yes, describe the plan and the type of measurements you will take. _____ _____ _____	☐ A

Beneficial Use

71. Does the Department have a standard for any of the purposes for which water is used? Department standards can be found in ARM 36.12.112 and ARM 36.12.115.	☐ Y ☐ N
a. If yes, list the purposes for which the Department has a standard and note whether the proposed use falls within or outside the standard. _____ _____	

72. If no Departmental standard exists for any proposed purpose, or if any proposed purpose falls outside of Department standards, explain how the use is reasonable for that purpose. _____ _____ _____ _____ _____ _____ _____	☐ A
73. Will your proposed project be subject to DEQ requirements for a public water supply (PWS) system or Certificate of Subdivision Approval (COSA)?	☐ Y ☐ N
a. If yes,	
i. Have you researched or consulted with DEQ regarding those requirements?	☐ Y ☐ N
74. Are you proposing to use surface water for in-house domestic use?	☐ Y ☐ N
a. If yes, does a COSA exist for the proposed place of use?	☐ Y ☐ N
i. If yes, please submit the COSA.	☐ S
ii. If no, have you researched or consulted with DEQ regarding their requirements?	☐ Y ☐ N

Possessory Interest

75. Do you meet one of the exceptions to possessory interest requirements, pursuant to ARM 36.12.1802? Exceptions include cases where the application is for sale, rental, distribution, or is a municipal use, or in any other context in which water is being supplied to another and it is clear that the ultimate user will not accept the supply without consenting to the use of water on the user's place of use.	☐ Y ☐ N
a. If yes, explain. _____ _____ _____ _____	☐ A

b. If no,	
i. Do you own all proposed places of use?	☐ Y ☐ N
1. If no,	
a. Explain. Documentation that shows you either have possessory interest or written permission of the parties with possessory interest of the place of use will be required at application submittal. _____ _____ _____ _____	☐ A
b. Would you like the water right to be appurtenant to the land? Please note that if your water right is not appurtenant to land it will not transfer by default with the conveyance of the property, pursuant to § 85-2-403.	☐ Y ☐ N
i. If no, explain. _____ _____ _____	☐ A

Non-Mandatory Project Specific Questions

Place of Storage

76. Does the proposal include at least one place of storage? If yes, answer questions 77 to 80 for each individual place of storage (use "Additional Place of Storage (600P)" sheet for additional places of storage). A Permit Storage Addendum (Form 600-SA) will be required at application submittal. If no, this section is complete, and you can skip to question 81.	☐ Y ☐ N
77. Are preliminary designs available? Preliminary designs will be required at application submittal.	☐ S
a. If yes, submit preliminary designs.	☐ Y ☐ N
78. Will the place of storage be lined?	☐ Y ☐ N
79. What is the annual net evaporation of water from the place of storage, based on the Department's gridded net evaporation layer? If you propose a different method, attach an explanation and justification of the method. _____	☐ A

80. Is the place of storage capacity calculated to be greater than 50 AF?	☐ Y ☐ N
a. If yes, have you made an application to the DNRC Water Operations Bureau for a determination of whether the dam or reservoir is a high-hazard dam? This will be required by application submittal.	☐ Y ☐ N

Project-Specific Questions: Water Marketing

81. Does the proposal include water marketing? If yes, please answer the questions in this section (questions 82 to 85). A Water Marketing Addendum Purpose Addendum (600/606-WMA) will be required at application submittal. If no, this section is complete.	☐ Y ☐ N
82. For what purpose(s) will the marketed water be used? _____ _____ _____	☐ A
83. How will you control or limit access to the water? _____ _____ _____	☐ A
84. Do you have contracts for the entire volume and flow rate sought?	☐ Y ☐ N
85. Provide a service area map. Create map on an aerial photograph or topographic map and show the following: general service area boundary, section corners, township and range, scale bar, and north arrow.	☐ S

FOLLOW-UP

The tables below will identify all questions marked for follow-up. Applicant follow-up will be submitted with the completed Preapplication Meeting Form: Part B (Form 600P-B). Applicant will provide all responses to questions marked for follow-up on a separate document entitled "Follow-up Responses." At the preapplication meeting, the Department may offer to provide the Applicant with information pertinent to identified follow-up. In this case, record in the notes column what information the Department will provide and the date by which the Department will email this information to the Applicant. This information will supplement but not replace Applicant follow-up. It is the responsibility of the Applicant to provide all follow-up, including questions supplemented by Department information, in the "Follow-up Responses" document.

The "Follow-up Responses" document must conform to the following standards. Label all responses with the question number. Answer questions in the same format as the form. For responses in the form of checkboxes, write "Y", "N", "S". Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Label units in narrative responses and tables. Tables must have the exact headings found on the form. Questions that require items to be submitted to the Department may be marked "S" when the required item is attached to the Preapplication Meeting Form. Label all submitted items with the question number for which they were submitted.

***The Applicant may not alter the Preapplication Meeting Form: Part A (Form 600P-A) signed at the Preapplication Meeting**. Instead, the Applicant must use the Amended Responses procedure defined in Form 600P-B. Do not include additional information for questions that were not marked for follow-up on this table; instead include any additional information pursuant to the process for amending responses defined in Form 600P-B.*

QUESTION #	NOTES
32	Submit 633
33	Submit 600-ATA
34a	Submit 653 with 633 and 600 ATA

PREAPPLICATION MEETING AFFIDAVIT & CERTIFICATION

"We attest that the information on this form accurately describes the proposed project discussed during the preapplication meeting, and that the items marked for follow-up will require the Applicant to provide additional information before the form is deemed complete."

"Applicant acknowledges that any information provided by the Department during the preapplication meeting is preliminary and subject to change."

"Applicant acknowledges that if the follow-up information provided to the Department substantially changes the proposed project, for example in a way that alters which sections of the form are applicable or which technical analyses are required, or who is to complete the technical analyses, the applicant will need to schedule a new preapplication meeting so that the Department can identify any additional information necessary for completion of the technical analyses (ARM 36.12.1302(3)(c))."

Upon Department receipt of the completed form (within 180 days following the meeting), the Department reserves five business days to return the form to the applicant if:

1 – the completed form does not include all necessary follow-up information identified in the meeting, OR
2 – the completed form is not adequate for the Department to proceed with technical analyses, OR
3 – the applicant has elected to complete technical analyses and has not submitted each piece of technical analysis required, OR
4 – the applicant has substantially changed the details of the proposed project, such as in a way that alters which sections of the form are applicable, which technical analyses are required, or who is to complete the technical analyses.

If the Department returns the form to the Applicant within these five days due to reasons 1-3 above, the Applicant can use the balance of their 180-day period in ARM 36.12.1302(4) or (5) to gather the remaining follow-up information needed. If there is no time remaining in the 180-day period, the Applicant can submit a written request for a new preapplication meeting, pursuant to ARM 36.12.1302(2). Even if there is still time remaining, the Applicant can choose to schedule a new preapplication meeting. The Department shall transfer the $500 payment received to the new preapplication meeting or refund the payment to the Applicant if the Applicant desires. If the Department returns the form to the Applicant within these five days due to reason (4) above, the Applicant must submit a written request for a new preapplication meeting, pursuant to ARM 36.12.1302(2). The Department shall transfer the $500 payment received to the new preapplication meeting or refund the payment to the Applicant if the Applicant desires.

Applicant Signature — ATTORNEY FOR LBO PROPERTIES LP, OWL VENTURES, LLC AND MARK B. OWENS — Date: 12/16/25

Applicant Signature — Date

Department Signature — Date: 12/16/2025

REQUEST FOR PREAPPLICATION MEETING

ARM 36.12.1302(2)

(Revised 02/2025)

For Department Use Only

Date Received _____

Received By _____

Scheduled Meeting Date _____

Instructions

Use this optional form to submit a written request for a preapplication meeting, as required in ARM 36.12.1302(2) for applicants electing to complete a preapplication meeting with the department prior to submitting an application for a beneficial water use permit or change in appropriation right pursuant to § 85-2-302, MCA. Use additional sheets as necessary.

Submit this form to the appropriate regional office; see contact information on the last page of this form.

1. **Applicant Name** Owl Ventures LLC, Marg G Owens, LBO Properties Limited Partnership

Mailing Address 115 Taelor Road / 500 Palmer Drive

City Kalispell State MT Zip 59901

Home Phone _____ Other Phone _____

Email: _____

2. **Representative Name** (if other than Applicant) Water & Environmental Technologies - Brad Bennett

☑ Representative is Consultant ☐ Representative is Attorney ☐ Representative is Other

Mailing Address 102 Cooperative Way, Suite 100

City Kalispell State MT Zip 59901

Home Phone _____ Other Phone 406-309-6085

Email: bbennett@waterenvtech.com

3. **Are you requesting a preapplication meeting for a permit or change application?**

☑ Permit ☐ Change

4. **Describe your project:**

Cooper Farms is a planned development with a mix of low, medium and high density single-family residential housing options and a commercial area. In total the development will consist of approximately 700 lots and shared common areas and park space. In total, Cooper Farms consists of 363.32 acres and the preliminary plans is for full buildout to consist of 700 Equivalent Dwelling Units (EDU). Figure 2 illustrates the place of use and points of diversion in greater detail. Cooper Farms is requesting the amount of water required to allow for year-round domestic use for approximately 700 EDUs, including commercial properties as well as seasonal lawn and garden irrigation. It is anticipated that build out of Cooper Farms will occur in multiple phases over the next 25 years and a representative maximum annual water usage will be established at that time. Cooper Farms water system will consist of two wells, a pump house, a storage tank, and water distribution system.

5. Identify the following elements of the proposed permit or change in appropriation.

a) The flow rate and volume of water required:

Flow Rate 300 ☑ GPM ☐ CFS Volume 331.8 Acre-Feet

b) The point of diversion:

Point of Diversion #1 NW 1/4 SW 1/4 SE 1/4 Section 14, Township 27 ☑ N ☐ S, Range 21 ☐ E ☑ W
County Flathead
Lot/Tract _____ Block _____ Subdivision Name _____
Point of Diversion #2 NW 1/4 SW 1/4 SE 1/4 Section 14, Township 27 ☑ N ☐ S, Range 21 ☐ E ☑ W
County Flathead
Lot/Tract _____ Block _____ Subdivision Name _____

c) The place of use:

7	Acres		Lot		Block		1/4	SW	1/4	SE	1/4 Sec	13	, Twp	27	☑ N ☐ S, Rge	21	☐ E ☑ W
14	Acres		Lot		Block		1/4	S2	1/4	NW	1/4 Sec	14	, Twp	27	☑ N ☐ S, Rge	21	☐ E ☑ W
49	Acres		Lot		Block		1/4		1/4	E2	1/4 Sec	14	, Twp	27	☑ N ☐ S, Rge	21	☐ E ☑ W
	Acres		Lot		Block		1/4		1/4		1/4 Sec		, Twp		☐ N ☐ S, Rge		☐ E ☐ W
	Acres		Lot		Block		1/4		1/4		1/4 Sec		, Twp		☐ N ☐ S, Rge		☐ E ☐ W

d) The source of water: Groundwater (deep alluvial aquifer)

e) The proposed purpose: Multiple Domestic, Lawn and Garden, Commercial

f) For a change in appropriation right, the water right(s) proposed for change:

Type of water right _____ Basin _____ Water Right # _____
Type of water right _____ Basin _____ Water Right # _____
Type of water right _____ Basin _____ Water Right # _____

Identify the water right elements proposed for change, with a checkmark for each water right proposed for change.

Water Right #					
Point of diversion	☐	☐	☐	☐	☐
Place of use	☐	☐	☐	☐	☐
Purpose of use	☐	☐	☐	☐	☐
Place of storage	☐	☐	☐	☐	☐

g) For a change in appropriation right, an explanation of historical use of the right(s) proposed for change:

h) Any proposed place of storage, if applicable (only if storage capacity is greater than 0.1 acre-feet):

#1 Capacity: Surface Acres _____ x Max Depth (feet) _____ x (.4 for dams/.5 for pits) = _____Acre-Feet

Location: ____1/4 ____1/4 ____1/4 Section ___, Township ___ ☐N ☐S, Range ___ ☐E ☐W

#2 Capacity: Surface Acres _____ x Max Depth (feet) _____ x (.4 for dams/.5 for pits) = _____Acre-Feet

Location: ____1/4 ____1/4 ____1/4 Section ___, Township ___ ☐N ☐S, Range ___ ☐E ☐W

#3 Capacity: Surface Acres _____ x Max Depth (feet) _____ x (.4 for dams/.5 for pits) = _____Acre-Feet

Location: ____1/4 ____1/4 ____1/4 Section ___, Township ___ ☐N ☐S, Range ___ ☐E ☐W

i) For applications proposing a well or wells, the well depth(s) and location. If more than two wells, attach a separate sheet to this request:

Well #1 ☐ New Well ☑ Existing Well

For existing well, if available, Water Right # _____ GWIC ID 318895

1/4 SW 1/4 SE 1/4 Section 14, Township 27 ☑N ☐S, Range 21 ☐E ☑W

County Flathead

Lot/Tract _____ Block_____ Subdivision Name_____

Estimated Well Depth 299 Feet

Well #2 ☑ New Well ☐ Existing Well

For existing well, if available, Water Right # _____ GWIC ID 319285

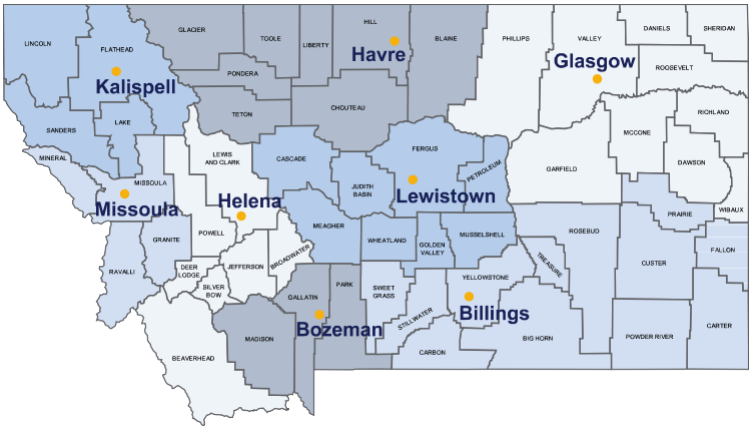
NW 1/4 SW 1/4 SE 1/4 Section 14, Township 27 ☑N ☐S, Range 21 ☐E ☐W

County Flathead

Lot/Tract _____ Block_____ Subdivision Name_____

Estimated Well Depth 315 Feet

WATER RESOURCES REGIONAL OFFICES



BILLINGS
Airport Industrial Park, 1371 Rimtop Dr
Billings, MT 59105-9702

PHONE 406-247-4415 FAX 406-247-4416
EMAIL DNRCBillingsWater@mt.gov

Big Horn, Carbon, Carter, Custer, Fallon, Powder River, Prairie, Rosebud, Stillwater, Sweet Grass, Treasure, and Yellowstone Counties

BOZEMAN
2273 Boot Hill Court, Suite 110
Bozeman, MT 59715-7249

PHONE 406-586-3136 FAX 406-587-9726
EMAIL DNRCBozemanWater@mt.gov

Gallatin, Madison, and Park Counties

GLASGOW
222 6th Street South, PO Box 1269
Glasgow, MT 59230-1269

PHONE 406-228-2561
EMAIL DNRCGlasgowWater@mt.gov

Daniels, Dawson, Garfield, McCone, Phillips, Richland, Roosevelt, Sheridan, Valley, and Wibaux Counties

HAVRE
210 6th Ave., PO Box 1828
Havre, MT 59501-1828

PHONE 406-265-5516
EMAIL DNRCHavreWater@mt.gov

Blaine, Chouteau, Glacier, Hill, Liberty, Pondera, Teton, and Toole Counties

HELENA
1424 9th Ave., PO Box 201601,
Helena, MT 59620-1601

PHONE 406-444-6999 FAX 406-444-9317
EMAIL DNRCHelenaWater@mt.gov

Beaverhead, Broadwater, Deer Lodge, Jefferson, Lewis and Clark, Powell, and Silver Bow Counties

KALISPELL
655 Timberwolf Parkway, Suite 4
Kalispell, MT 59901-1215

PHONE 406-752-2288
EMAIL DNRCKalispellWater@mt.gov

Flathead, Lake, Lincoln, and Sanders Counties

LEWISTOWN
613 Northeast Main St., Suite E
Lewistown, MT 59457-2020

PHONE 406-538-7459
EMAIL DNRCLewistownWater@mt.gov

Cascade, Fergus, Golden Valley, Judith Basin, Meagher, Musselshell, Petroleum, and Wheatland Counties

MISSOULA
2705 Spurgin Rd. Bldg. C, PO Box 5004
Missoula, MT 59806-5004

PHONE 406-721-4284 FAX 406-542-5899
EMAIL DNRCMissoulaWater@mt.gov

Granite, Mineral, Missoula, and Ravalli Counties