Environmental Assessment & Public Notice for Public Comment

- Environmental Assessment & supporting documents
- Public Notice for Public Comment package
  - Notice Area List
  - Notice Area Map
  - Form Checklist
  - PN- Letter to applicant
  - PN- Letter to editor
  - PN- Certificate of service
  - PN- Invoice & tear sheet
  - PN- Return mail
  - Public Comment files

Environmental Assessment & Public Notice for Public Comment

NOTICE AREA

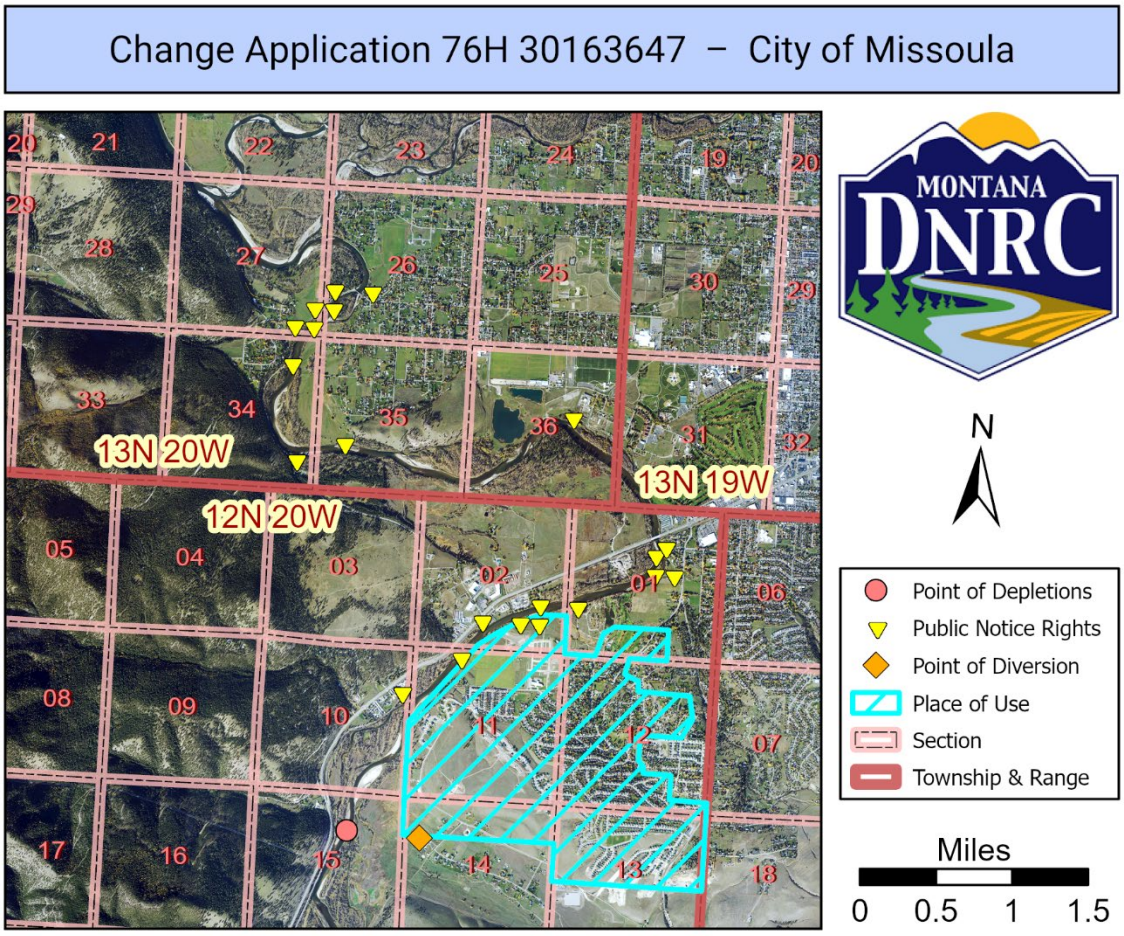
Application No. **76M 30163647** Regional Office # 09

Applicant's Name **City of Missoula**

Indian Reservation [ ] Yes [X] No If yes, Reservation

Irrigation District [ ] Yes [X] No If yes, District

Specialist **Benjamin Thomas** Date **5/30/2025**



Map of surface water diversions downstream of the point where depletions to the Bitterroot begin. Locations are approximate, and some water rights may be displayed as having overlapping points of diversion.

Interested Party	
Applicant: City of Missoula	
Consultant: Dave Baldwin, Hydrosolutions Inc.	
Avista Corporation	
Bureau of Indian Affairs	
Clark Fork Coalition	
Department of Environmental Quality	
Department of Fish Wildlife & Parks	
Lolo National Forest	
Missoula County Clerk & Recorder	
Missoula County Clerk of Court	
Missoula County Conservation District	
Missoulian	
Montana Board of Land Commissioners	
Northwestern Energy	
PPL Montana LLC	
Trout Unlimited	
U.S. Forest Service	
Water Right Owner	**Water Right #**
DORIS W SHERICK	76H 45872 00
BRAD A BENIGER; CAROL M BENIGER; MICHAEL A KENNEDY; JON T MCROBERTS; KATRINA MCROBERTS; SHARI F MONTANA	76H 149983 00
GRAYS MINI RANCH LLC	76H 35713 00
USA (DEPT OF ARMY CORP OF ENGINEERS)	76H 111267 00
1905 SUSSEX LLC	76H 633 00
TOLLEFSON PROPERTIES LLC	76H 30165310
DEBORAH P COLE; ROBERT J COLE; VICTORIA GORDON	76H 6445 00
DEBORAH P COLE; ROBERT J COLE	76H 52092 00
SUSAN M WOLF	76H 47443 00
USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)	76H 120055 00
CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	76H 151312 00
CAPRI FOSEID; REID FOSEID	76H 151394 00
DEBORAH P COLE; ROBERT J COLE; VICTORIA GORDON	76H 560 00
DENNIS GORDON; PAULINE GORDON; DAVID R YUHAS	76H 29206 00
WESTERN MONTANA RETRIEVER CLUB INC	76H 87103 00
BRUCE B BARRETT; HOWARD J HICKINGBOTHAM; SANDRA B HICKINGBOTHAM	76H 125091 00
EARL M PRUYN	76H 43060 00
W H GINTER	76H 105168 00
KHOURY INC	76H 39791 00
MR RIVER PROPERTY LLC	76H 131603 00
CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	76H 151306 00
CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	76H 151313 00
CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	76H 151311 00
BOGGESS FAMILY TRUST	76H 104521 00
KYMRA ARCHIBALD; MATTHEW ARCHIBALD	76H 150956 00
CARTER E BECK; SUSAN M BECK	76H 151743 00
USA (DEPT OF ARMY CORP OF ENGINEERS)	76H 111268 00
ADAM BARTELS; KARIN BARTELS	76H 150826 00
WILLIAM R MACLAY	76H 31299 00

**If owner listed twice, only one notice sent*

EA Form R 1/2007

Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. Applicant/Contact name and address:
City of Missoula, Deputy Director of Public Works
435 Ryman St
Missoula, MT 59802

2. Type of action: Ground Water Application for Beneficial Water Use Permit 76M 30163647

3. Water source name: Ground Water (Bitterroot River Valley Shallow Aquifer)

4. Location affected by project: Sections 1, 2, 11, 12, 13, and 14 T12N, R20W, Missoula County.

5. Narrative summary of the proposed project, purpose, action to be taken, and benefits: The City of Missoula proposes to divert groundwater from a well to provide additional flow rate and volume to the municipal water supply. The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met.

6. Agencies consulted during preparation of the Environmental Assessment:
Montana Department of Fish, Wildlife & Parks (DFWP)
Montana Department of Environmental Quality (DEQ)
Montana Natural Heritage Program Species of Concern Report
U.S. Fish & Wildlife Service (USFWS) National Wetlands Inventory
USDA Natural Resources Conservation Service (NRCS) Web Soil Survey

Part II. Environmental Review

Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity **-** *Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

N/A – source is groundwater

Determination: No significant impact

Water quality **-** *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

NA – source is groundwater

Determination: No significant impact

Groundwater **-** *Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

The proposed source aquifer is hydrologically connected to the Bitterroot River. The Bitterroot River is not chronically or periodically dewatered in this area, and no negative effects to water quality are anticipated as a result of this proposal. The City of Missoula proposes to mitigate its depletions to the Bitterroot River through Application to Change a Water Right No. 76H 30165219.

Determination: No significant impact

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

According to the Department's Technical Analysis for this application, the maximum modeled drawdown outside the well casing is 0.29 ft at the end of August (day 1703) of the fifth year of pumping using the proposed pumping schedule and occurs 0.5 ft from the well. As such, no meaningful effects to future well construction is expected.

Determination: No significant impacts.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species **-** *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

The Montana Natural Heritage Program website was reviewed to determine if there are any "threatened" or "endangered" fish, wildlife, plants, or aquatic species that could potentially be impacted by this project. "Species of special concern" were also included in this search.

According to the Montana Natural Heritage Program, observations from the past 50 years indicate that 19 animal species of concern may be found in the area of potential impact. Of these, 2 species are listed as threatened by the USFWS in this area: the Grizzly Bear *(Ursus arctos)* and the Bull Trout *(Salvelinus confluentus).*

Animal species of concern include:
Fisher *(Pekania pennanti)*
Grizzly Bear *(Ursus arctos)*
Northern Hoary Bat *(Lasiurus cinereus)*
Bobolink *(Dolichonyx oryzivorus)*
Brewer's Sparrow *(Spizella breweri)*
Brown Creeper *(Certhia americana)*
Cassin's Finch *(Haemorhous cassinii)*
Clark's Nutcracker *(Nucifraga columbiana)*
Evening Grosbeak *(Coccothraustes vespertinus)*
Flammulated Owl *(Psiloscops flammeolus)*
Golden Eagle *(Aquila chrysaetos)*
Great Blue Heron *(Ardea herodias)*
Lewis's Woodpecker *(Melanerpes lewis)*
Pacific Wren *(Troglodytes pacificus)*
Varied Thrush *(Ixoreus naevius)*
Veery *(Catharus fuscescens)*
Bull Trout *(Salvelinus confluentus)*
Westslope Cutthroat Trout *(Oncorhynchus lewisi)*
Monarch *(Danaus Plexippus)*

Plant species of concern include:
Short-pointed Flatsedge *(Cyperus acuminatus)*
Shining Flatsedge *(Cyperus bipartitus)*
Annual Muhly *(Muhlenbergia minutissima)*
Tootchcup *(Rotala ramosior)*
Columbia Water-meal *(Wolffia columbiana)*

The municipal use of water for domestic and lawn and garden irrigation purposes is not anticipated to cause any adverse impacts on any of the species listed.

Determination: No significant impact.

Wetlands **-** *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

No wetlands are identified in the project area.

Determination: No significant impact.

Ponds **-** *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

No ponds were identified as being adversely affected.

Determination: No significant impact.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE **-** *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Erosion and degradation of soil quality is not anticipated as a result of the proposed change. Soils are not heavy in salts, and not likely to create saline seep.

Determination: No significant impact

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS **-** *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

Water from the proposed application will partly be used for lawn and garden irrigation. No change to vegetative cover is anticipated as a result of this change, nor is the establishment or spread of noxious weeds predicted.

Determination: No significant impact

AIR QUALITY **-** *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

No negative effects to air quality are expected as a result of this proposal.

Determination: No significant impact

HISTORICAL AND ARCHEOLOGICAL SITES **-** *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project if it is on State or Federal Lands. If it is not on State or Federal Lands simply state NA-project not located on State or Federal Lands.*

Determination: N/A – Project not located on State or Federal Lands

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

No additional impacts to land, water, or energy are anticipated.

Determination: No significant impact

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

This project does not violate any known locally adopted environmental plans or regulations.

Determination: No significant impact

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

The proposed project will not inhibit, alter, or impair access to present recreational opportunities in the area. The project is not expected to create any significant pollution, noise, or traffic congestion in the area that may alter the quality of recreational opportunities. The proposed place of use and diversion do not exist on land designated as wilderness.

Determination: No significant impact

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

No impacts on human health are anticipated as a result of this project.

Determination: No significant impact

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*
Yes___ No_X_ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.

Determination: No significant impact

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) Cultural uniqueness and diversity? None identified

(*b) Local and state tax base and tax revenues?* None identified

(c) Existing land uses? None identified

(*d) Quantity and distribution of employment?* None identified

(e) Distribution and density of population and housing? None identified

(f) Demands for government services? None identified

(g) Industrial and commercial activity? None identified

(h) Utilities? None identified

(i) Transportation? None identified

(j) Safety? None identified

(k) Other appropriate social and economic circumstances? None identified

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts: None identified

Cumulative Impacts: None identified

3. *Describe any mitigation/stipulation measures:* None

4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:* None identified

PART III. Conclusion

1. Preferred Alternative

Issue a water use permit if the Applicant proves the criteria in 85-2-311 MCA are met.

2 Comments and Responses

None.

3. ***Finding:***

Yes___ No_X_ Based on the significance criteria evaluated in this EA, is an EIS required?

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

No significant environmental impacts were identified as a result of the EA.

Name of person(s) responsible for preparation of EA:
Name: Benjamin Thomas
Title: Water Conservation Specialist
Date: 5/22/2025

Draft Preliminary Determinations

- Draft PD
- Draft PD cover letter
- Updated Draft PD
- Updated Draft PD cover letter
- Any correspondence with the applicant regarding the draft PDs

Draft Preliminary Determinations

BEFORE THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION OF THE STATE OF MONTANA

* * * * * * * * *

COMBINED APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 76H 30163647 BY CITY OF MISSOULA AND APPLICATION TO CHANGE WATER RIGHT NO. 76H 30165219	)))))	**NOTICE OF ERRATA DRAFT PRELIMINARY DETERMINATION TO GRANT COMBINED APPLICATION**

* * * * * * * * *

The following errors have been found in the PRELIMINARY DETERMINATION TO GRANT COMBINED APPLICATION:

1. In the PRELIMINARY DETERMINATION TO GRANT COMBINED APPLICATION, on page 4, Finding of Fact 1, Table 1.1, the proposed place of use is:

¼	¼	¼	Section	Township	Range
SE	SW	S2	1	12N	20W
	SE	S2	1	12N	20W
W2	SW	SE	1	12N	20W
	S2	SE	2	12N	20W
SE	SE	S2	2	12N	20W
			11	12N	20W
		W2	12	12N	20W
S2	S2	NE	12	12N	20W
W2	SE	NE	12	12N	20W
	SW	NE	12	12N	20W
W2	NW	SE	12	12N	20W
	SW	SE	12	12N	20W
S2	SE	SE	12	12N	20W
		N2	13	12N	20W
	N2	N2	14	12N	20W

This should read:

¼	¼	¼	Section	Township	Range
SE	SW	SW	1	12N	20W
	SE	SW	1	12N	20W
W2	SW	SE	1	12N	20W
	S2	SE	2	12N	20W
SE	SE	SW	2	12N	20W
			11	12N	20W
		W2	12	12N	20W
S2	S2	NE	12	12N	20W
W2	SE	NE	12	12N	20W
	SW	NE	12	12N	20W
W2	NW	SE	12	12N	20W
	SW	SE	12	12N	20W

S2	SE	SE	12	12N	20W
		N2	13	12N	20W
	N2	N2	14	12N	20W

Please make these corrections to your copy.

Dated this 16th day of June, 2025.

Jim Nave, Manager
Missoula Regional Office
Department of Natural Resources
and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the NOTICE OF ERRATA PRELIMINARY DETERMINATION TO GRANT CHANGE was served upon all parties listed below on this 16th day of June 2025, by first class United States mail.

ATTN: LOGAN MCINNIS
CITY OF MISSOULA
435 RYMAN ST
MISSOULA, MT 59802

TOLLEFSON PROPERTIES LLC
15311 TYSON WAY
FRENCHTOWN, MT 59834-8535

ATTN: DAVE BALDWIN
HYDROSOLUTIONS INC
303 CLARKE ST
HELENA, MT 59601

Benjamin Thomas

Benjamin Thomas
Water Conservation Specialist
Missoula Regional Office
(406) 542-5883

From: David Baldwin
To: Thomas, Benjamin
Subject: [EXTERNAL] RE: Next Steps for Tollefson/City of Missoula PD
Date: Monday, June 9, 2025 12:09:34 PM
Attachments: image001.png

Hi Benjamin – Please consider this written confirmation to correct the error.

Thanks

Dave Baldwin MS PG | Sr. Hydrogeologist | Sr. Water Rights Specialist

Office: 406.443.6169 303 Clarke Street
Cell: 406.431-7760 (Primary #) Helena, MT 59601
dbaldwin@hydrosi.com [mail.hydrosi.com] www.hydrosi.com [mail.hydrosi.com]

From: Thomas, Benjamin <Benjamin.Thomas@mt.gov>
Sent: Monday, June 9, 2025 12:08 PM
To: David Baldwin <dbaldwin@hydrosi.com>
Subject: RE: Next Steps for Tollefson/City of Missoula PD

Good morning, Dave,

One more thing: I was double-checking the water right in our database and noticed that I fatfingered part of the LLD in the PD (typed S2 where the application form had SW). Since we've already sent you the PD, I just need your written confirmation before I can go ahead correcting the error.

Let me know if you have questions.

Benjamin

Benjamin Thomas | Water Conservation Specialist II
Water Resources Division, Missoula Regional Office
Montana Department of Natural Resources and Conservation
2705 Spurgin Road, Building C, Missoula, MT 59804
DESK: 406-542-5883 **EMAIL:** benjamin.thomas@mt.gov
Website [linkprotect.cudasvc.com] | **Facebook** [facebook.com]| **X (Twitter** [twitter.com]) | **Instagram** [instagram.com]
How did we do? Let us know here: **Feedback Survey** [linkprotect.cudasvc.com]

Missoula Water Resources Regional Office
PO Box 5004
2705 Spurgin Road, Bldg. C
Missoula, MT 59806-5004
(406) 721-4284

May 23, 2025
ATTN: Logan McInnis
City of Missoula
435 Ryman St
Missoula, MT 59802

Subject: Draft Preliminary Determination to Grant Combined Beneficial Water Use Permit Application No. 76H 30163647 and Water Right Change Application No. 76H 30165219

Dear Logan,

The Department of Natural Resources and Conservation (Department or DNRC) has completed a preliminary review of your application. This review consists of an evaluation of the criteria for issuance of a permit and change authorization found in §85-2-311 and §85-2-402, MCA. The Department has preliminarily determined that the criteria are met, and this application should be granted. A copy of the Draft Preliminary Determination to Grant your application is attached.

You have the opportunity to request an extension of time to submit additional information for the Department to consider in the decision, within 15 business days of the date of this letter. If no response is received by June 16, 2025, the Department will prepare a notice of opportunity to provide public comment per §85-2-307(4), MCA.

Please note that if you are granted an extension of time to submit additional information to the Department, additional information may be considered an amendment to your application, which may reset application timelines pursuant to ARM 36.12.1401.

Please let me know if you have any questions.

Sincerely,

Benjamin Thomas

Benjamin Thomas
Water Conservation Specialist
New Appropriations Program
Water Resources Division

CC:
Tollefson Properties LLC
Dave Baldwin, Hydrosolutions Inc.

BEFORE THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION OF THE STATE OF MONTANA

* * * * * * *

COMBINED APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 76H 30163647 BY CITY OF MISSOULA AND APPLICATION TO CHANGE WATER RIGHT NO. 76H 30165219 BY TOLLEFSON PROPERTIES, LLC	**DRAFT PRELIMINARY DETERMINATION TO GRANT COMBINED APPLICATION**

* * * * * * *

On March 3, 2025, the City of Missoula submitted Application for Beneficial Water Use Permit No. 76H 30163647 and Tollefson Properties LLC submitted Change Application No. 76H 30165219 to the Missoula Regional Water Resources Office of the Department of Natural Resources and Conservation (Department or DNRC). The City of Missoula and Tollefson Properties LLC (Applicant or Applicants) submitted the applications pursuant to Montana Code Annotated (MCA) § 85-2-360. The permit application was submitted for a flow rate of 2.18 CFS (980 GPM) up to an annual volume of 99.0 AF from a groundwater well for municipal purposes. The change application was submitted to change the point of diversion, place of use and purpose from irrigation to aquifer recharge for Statement of Claim 76H 30165310. The Department published receipt of the applications on its website. For permit application 76H 30163674, a preapplication meeting was held between the Department and the Applicant on May 7, 2024, in which the Applicant designated that the technical analyses for the application would be completed by the Department. The Applicant returned the completed Preapplication Meeting Form for the permit application on September 3, 2024. The Department delivered the Department-completed technical analysis for the permit application on October 16, 2024. For change application 76H 30165219, a preapplication meeting was held between the Department and the Applicant on January 22, 2025, in which the Applicant designated that the technical analyses for the application would be completed by the Department. The Applicant returned the completed Preapplication Form for the change application on January 30, 2025. The Department delivered the Department-completed technical analysis for the change application on February 13, 2025. Both applications were determined to be correct and complete as of March 26, 2025. Environmental Assessments for these applications were completed on May 23, 2025.

INFORMATION

The Department considered the following information submitted by the Applicant, which is contained in the administrative record.

Applications as filed:

- Application for Beneficial Water Use Permit, Form 600
    - Addenda:
        - Mitigation Addendum, Form 600/606-MIT
        - Aquifer Testing Addendum, Form 600-ATA
    - Maps:
        - Historical Use Map, undated
        - Proposed Use Map, undated
        - Map of claimed POD, conveyance, storage, and POU, supplemental overlap, undated
    - Department- completed technical analyses based on information provided in the Preapplication Meeting Form, dated October 16, 2024
- Application for Change of Appropriation Water Right, Form 606
    - Addenda:
        - Mitigation Addendum, Form 600/606-MIT
    - Attachments:
        - Oxbow Ranch Surface Water Diversion plan diagrams, dated February 2025
        - 20 HP 5TMH-375 Berkeley submersible turbine pump curve
    - Maps:
        - Detail map of new POD 2 to aquifer recharge site, undated
        - Design details of proposed POD 2 diversion to aquifer recharge site, undated
        - Proposed POD 2 aquifer recharge site, and place of use, undated
    - Department-completed technical analysis based on information provided in the Preapplication Meeting Form, dated February 13, 2025

Information Received after Application Filed

- N/A

Information within the Department's Possession/Knowledge

- Application file for combined Permit Application 76H 30150412 and Change Application 76H 30150414

- Water Resource Survey Book for Missoula County
- Water Resource Survey Field Notes for Missoula County
- USGS flow records for Gage #12352500
- Variance Request Form 653 received May 3, 2024
- Department Variance Grant Letter dated May 3, 2024
- The Department also routinely considers the following information. The following information is not included in the administrative file for this application but is available upon request. Please contact the Missoula Regional Office at (406) 721-4284 to request copies of the following documents.
    - Memorandum: Development of standardized methodologies to determine Historical Diverted Volume, dated September 13, 2012
    - DNRC Technical Memorandum: Standard Practices for Net Surface Water Depletion from Ground Water Pumping, dated July 6, 2018

The Department has fully reviewed and considered the evidence and argument submitted in this application and preliminarily determines the following pursuant to the Montana Water Use Act (Title 85, chapter 2, part 3, MCA).

For the purposes of this document, Department or DNRC means the Department of Natural Resources & Conservation; CFS means cubic feet per second; GPM means gallons per minute; AF means acre-feet; AC means acres; and AF/YR means acre-feet per year.

BENEFICIAL WATER USE PERMIT APPLICATION NO. 76H 30163647

PROPOSED APPROPRIATION

FINDINGS OF FACT

1. The Applicant proposes to divert water from groundwater from the Bitterroot River Valley Shallow Aquifer, by means of an 82-ft well, from May 1 to October 31 at 2.18 CFS (980 GPM) up to 99.0 AF, from a point in the NWSWNW, Sec. 14, T12N, R20W, for municipal use from May 1 through October 31. The Applicant proposes to provide additional water within the place of use, supplementing 66 municipal water rights owned by the City of Missoula. The place of use is generally located in Sections 1, 2, 11, 12, 13, and 14 T12N, R20W, Missoula County, described in detail in Table 1.1. Water will be pumped to the City's Sophie and Upper Linda

Vista water tanks, and thence to the place of use by water mains. Table 1 below provides a summary of the proposed use.

Table 1: Summary of Proposed Use

Flow Rate	Volume	Purpose	Period Of Use	Place Of Use (General Location)	Point Of Diversion
2.18 CFS	99.0 AF	Municipal	5/1 – 10/31	Secs. 1, 2, 11, 12, 13, and 14 T12N, R20W	NWSWNW, Sec. 14, T12N, R20W

Table 1.1: Detailed Description of Proposed Place of Use

¼	¼	¼	Section	Township	Range
SE	SW	S2	1	12N	20W
	SE	S2	1	12N	20W
W2	SW	SE	1	12N	20W
	S2	SE	2	12N	20W
SE	SE	S2	2	12N	20W
			11	12N	20W
		W2	12	12N	20W
S2	S2	NE	12	12N	20W
W2	SE	NE	12	12N	20W
	SW	NE	12	12N	20W
W2	NW	SE	12	12N	20W
	SW	SE	12	12N	20W
S2	SE	SE	12	12N	20W
		N2	13	12N	20W
	N2	N2	14	12N	20W

2. The proposed point of diversion is located approximately 2500 ft east of the Bitterroot River.

3. Per DNRC Technical Memorandum: Standard Practices for Net Surface Water Depletion from Ground Water Pumping, dated July 6, 2018, municipal use is considered to be 100% consumptive. Thus, the consumptive use for this application is the full 99.0 AF diverted.

4. If granted, this permit will be supplemental to 66 of the City of Missoula's municipal water rights, which are enumerated in Table 25 of the application form for Permit Application 76H 30163647.

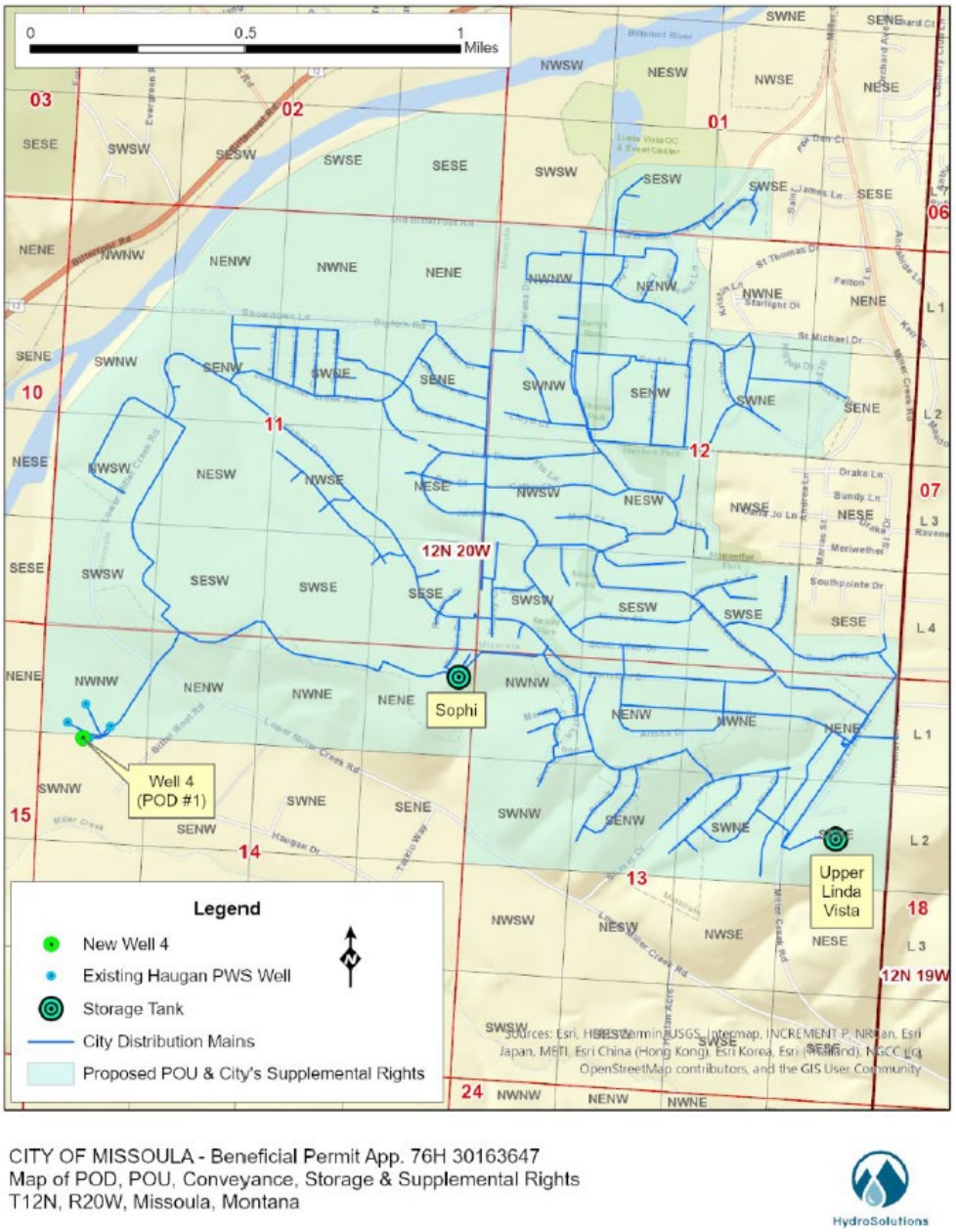


Figure 1. Applicant-Submitted Map of Proposed Appropriation.

5. The Applicant is held to the following water measurement condition to meet the adverse effect criterion:

WATER MEASUREMENT-INLINE FLOW METER REQUIRED: THE APPROPRIATOR SHALL INSTALL A DEPARTMENT APPROVED IN-LINE FLOW METER AT A POINT IN THE DELIVERY LINE APPROVED BY THE DEPARTMENT. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF ALL WATER DIVERTED,

INCLUDING THE PERIOD OF TIME. RECORDS SHALL BE SUBMITTED BY NOVEMBER 30 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR UNTIL THE PROVISIONAL PERMIT IS PERFECTED AND THE DEPARTMENT RECEIVES A PROJECT COMPLETION NOTICE. IN THE EVENT THAT PERMITTED FLOW RATES AND/OR VOLUMES HAVE BEEN EXCEEDED DURING PERFECTION OF THE PROVISIONAL PERMIT OR THE APPROPRIATOR FAILS TO SUBMIT ANNUAL REPORTS, THE DEPARTMENT MAY CONTINUE TO REQUIRE ANNUAL SUBMISSIONS OF MONTHLY FLOW RATE AND VOLUME RECORDS. FAILURE TO SUBMIT REPORTS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE MISSOULA WATER RESOURCES REGIONAL OFFICE. THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.

BASIN CLOSURE

6. This application is for the appropriation of groundwater for the purpose of Municipal use. This application is located within the Statutory Bitterroot River Subbasin Temporary Closure, in which the Department may not grant an application for a permit to appropriate water or for a state water reservation, with certain exceptions (§ 85-2-344, MCA). One exception to the closure are permits to appropriate groundwater where the applicant complies with § 85-2-360, MCA.

7. The Applicant submitted a completed Form 600P Permit Preapplication Meeting Form and elected for DNRC to conduct the Technical Analysis (TA). The Applicant's submittal of this TA with the Form 600 Application for Beneficial Water Use Permit meets the requirements for submission of a hydrogeologic assessment report per §§ 85-2-360 and -361, MCA.

§ 85-2-311, MCA, BENEFICIAL WATER USE PERMIT CRITERIA

BASIN CLOSURE

8. Pursuant to § 85-2-360, MCA, a combined application for new appropriations of groundwater in a closed basin shall consist of a hydrogeologic assessment with an analysis of net depletion, a mitigation plan or aquifer recharge plan if required, an application for a beneficial water use permit or permits, and an application for a change in appropriation right or rights if necessary. A combined application must be reviewed as a single unit. A beneficial water use permit may not be granted unless the accompanying application for a change in water right is also granted. E.g., *In the Matter of Application No. 76H-30046211 for a Beneficial Water Use Permit and Application No.76H-30046210 to Change a Non-filed Water Right by Patricia Skergan and Jim Helmer* (DNRC Final Order 2010, Combined Application)(combined application, reviewed as a single unit).

GENERAL CONCLUSIONS OF LAW

9. The Montana Constitution expressly recognizes in relevant part that:

> (1) All existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed.
> (2) The use of all water that is now or may hereafter be appropriated for sale, rent, distribution, or other beneficial use . . . shall be held to be a public use.
> (3) All surface, underground, flood, and atmospheric waters within the boundaries of the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided by law.

Mont. Const. Art. IX, § 3. While the Montana Constitution recognizes the need to protect senior appropriators, it also recognizes a policy to promote the development and use of the waters of the state by the public. This policy is further expressly recognized in the water policy adopted by the Legislature codified at § 85-2-102, MCA, which states in relevant part:

> (1) Pursuant to Article IX of the Montana constitution, the legislature declares that any use of water is a public use and that the waters within the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided in this chapter. . . .
> (3) It is the policy of this state and a purpose of this chapter to encourage the wise use of the state's water resources by making them available for appropriation consistent with this chapter and to provide for the wise utilization, development, and conservation of the waters of the state for the maximum benefit of its people with the least possible degradation of the natural aquatic ecosystems. In pursuit of this policy, the state encourages the development of facilities that store and conserve waters for beneficial use, for the maximization of the use of those waters in Montana . . .

10. Pursuant to § 85-2-302(1), MCA, except as provided in §§ 85-2-306 and 85-2-369, MCA, a person may not appropriate water or commence construction of diversion, impoundment, withdrawal, or related distribution works except by applying for and receiving a permit from the Department. *See* § 85-2-102(1), MCA. An Applicant in a beneficial water use permit proceeding must affirmatively prove all of the applicable criteria in § 85-2-311, MCA. Section § 85-2-311(1) states in relevant part:

> … the department shall issue a permit if the Applicant proves by a preponderance of evidence that the following criteria are met:
> (a) (I) there is water physically available at the proposed point of diversion in the amount that the Applicant seeks to appropriate; and
> (ii) water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested, based on the records of the department and other evidence provided to the department. Legal availability is determined using an analysis involving the following factors:
> (A) identification of physical water availability;
> (B) identification of existing legal demands on the source of supply throughout the area of potential impact by the proposed use; and
> (C) analysis of the evidence on physical water availability and the existing legal demands, including but not limited to a comparison of the physical water supply at the proposed point of diversion with the existing legal demands on the supply of water.
> (b) the water rights of a prior appropriator under an existing water right, a certificate, a

permit, or a state water reservation will not be adversely affected. In this subsection (1)(b), adverse effect must be determined based on a consideration of an Applicant's plan for the exercise of the permit that demonstrates that the Applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied;

(c) the proposed means of diversion, construction, and operation of the appropriation works are adequate;

(d) the proposed use of water is a beneficial use;

(e) the Applicant has a 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, or if the proposed use has a point of diversion, conveyance, or place of use on national forest system lands, the Applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water under the permit;

(f) the water quality of a prior appropriator will not be adversely affected;

(g) the proposed use will be substantially in accordance with the classification of water set for the source of supply pursuant to 75-5-301(1); and

(h) the ability of a discharge permit holder to satisfy effluent limitations of a permit issued in accordance with Title 75, chapter 5, part 4, will not be adversely affected.

(2) The Applicant is required to prove that the criteria in subsections (1)(f) through (1)(h) have been met only if a valid objection is filed. A valid objection must contain substantial credible information establishing to the satisfaction of the department that the criteria in subsection (1)(f), (1)(g), or (1)(h), as applicable, may not be met. For the criteria set forth in subsection (1)(g), only the department of environmental quality or a local water quality district established under Title 7, chapter 13, part 45, may file a valid objection.

To meet the preponderance of evidence standard, "the Applicant, in addition to other evidence demonstrating that the criteria of subsection (1) have been met, shall submit hydrologic or other evidence, including but not limited to water supply data, field reports, and other information developed by the Applicant, the department, the U.S. geological survey, or the U.S. natural resources conservation service and other specific field studies." Section 85-2-311(5), MCA (emphasis added). The determination of whether an application has satisfied the § 85-2-311, MCA criteria is committed to the discretion of the Department. *Bostwick Properties, Inc. v. Montana Dept. of Natural Resources and Conservation*, 2009 MT 181, ¶ 21. The Department is required grant a permit only if the § 85-2-311, MCA, criteria are proven by the Applicant by a preponderance of the evidence. Id. A preponderance of evidence is "more probably than not." *Hohenlohe v. DNRC*, 2010 MT 203, ¶¶ 33, 35, 357 Mont. 438, 240 P.3d 628.

11. Pursuant to § 85-2-312, MCA, the Department may condition permits as it deems necessary to meet the statutory criteria:

(1) (a) The department may issue a permit for less than the amount of water requested, but may not issue a permit for more water than is requested or than can be beneficially used without waste for the purpose stated in the application. The department may require

> modification of plans and specifications for the appropriation or related diversion or construction. The department may issue a permit subject to terms, conditions, restrictions, and limitations it considers necessary to satisfy the criteria listed in 85-2-311 and subject to subsection (1)(b), and it may issue temporary or seasonal permits. A permit must be issued subject to existing rights and any final determination of those rights made under this chapter.

E.g., Montana Power Co. v. Carey (1984), 211 Mont. 91, 96, 685 P.2d 336, 339 (requirement to grant applications as applied for, would result in, "uncontrolled development of a valuable natural resource" which "contradicts the spirit and purpose underlying the Water Use Act."); *see also*, *In the Matter of Application for Beneficial Water Use Permit No. 65779-76M by Barbara L. Sowers* (DNRC Final Order 1988)(conditions in stipulations may be included if it further compliance with statutory criteria); *In the Matter of Application for Beneficial Water Use Permit No. 42M-80600 and Application for Change of Appropriation Water Right No. 42M-036242 by Donald H. Wyrick* (DNRC Final Order 1994); Admin. R. Mont. (ARM) 36.12.207.

12. The Montana Supreme Court further recognized in *Matter of Beneficial Water Use Permit Numbers 66459-76L, Ciotti: 64988-G76L, Starner*, 278 Mont. 50, 60-61, 923 P.2d 1073, 1079, 1080 (1996), *superseded by legislation on another issue*:

> Nothing in that section [85-2-313], however, relieves an Applicant of his burden to meet the statutory requirements of § 85-2-311, MCA, before DNRC may issue that provisional permit. Instead of resolving doubts in favor of appropriation, the Montana Water Use Act requires an Applicant to make explicit statutory showings that there are unappropriated waters in the source of supply, that the water rights of a prior appropriator will not be adversely affected, and that the proposed use will not unreasonably interfere with a planned use for which water has been reserved.

See also, Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order* (2011). The Supreme Court likewise explained that:

> .... unambiguous language of the legislature promotes the understanding that the Water Use Act was designed to protect senior water rights holders from encroachment by junior appropriators adversely affecting those senior rights.

Montana Power Co., 211 Mont. at 97-98, 685 P.2d at 340; *see also* Mont. Const. art. IX §3(1).

13. An appropriation, diversion, impoundment, use, restraint, or attempted appropriation, diversion, impoundment, use, or restraint contrary to the provisions of § 85-2-311, MCA is invalid. An officer, agent, agency, or employee of the state may not knowingly permit, aid, or assist in any manner an unauthorized appropriation, diversion, impoundment, use, or other restraint. A person or corporation may not, directly or indirectly, personally or through an agent, officer, or employee, attempt to appropriate, divert, impound, use, or otherwise restrain or

control waters within the boundaries of this state except in accordance with this § 85-2-311, MCA. Section 85-2-311(6), MCA.

14. The Department may take notice of judicially cognizable facts and generally recognized technical or scientific facts within the Department's specialized knowledge, as specifically identified in this document. ARM 36.12.221(4).

PHYSICAL AVAILABILITY

FINDINGS OF FACT

15. The Applicant proposes to divert up to 99.0 AF at a flow rate of up to 2.18 CFS for municipal use from the Bitterroot River Valley Shallow Aquifer.

16. The Department evaluated the volume of water that is physically available from the source aquifer using applicant-supplied data from an aquifer test on Well 4 (the proposed POD). Department Groundwater Hydrologist Melissa Brickl used data from said tests to produce the October 16, 2024, Technical Analysis. A variance was granted by the Department from Aquifer Testing Requirements in ARM 36.12.121(3) (a), (d), (e), and (h) on May 3, 2024 for pumping rate, pumping duration, and measurement schedule.

17. Using the Theis (1935) solution, an aquifer transmissivity (T) value of 150,905 ft2/day, specific yield of 0.1 (Lohman, 1972), a normalized pump schedule using the requested diverted volume, and a constant head boundary 2,500 ft west of the well to represent the Bitterroot River, the Department modeled a 0.01-foot drawdown contour, or zone of influence to inform the groundwater flux in the Bitterroot River Valley Shallow Aquifer at the point of diversion. Groundwater flux through the zone of influence is equal to 10,956 AF/year.

18. The Department finds groundwater is physically available during the proposed period of diversion.

LEGAL AVAILABILITY

FINDINGS OF FACT

19. The Department determined the legal availability of water in the source aquifer by subtracting the legal demands of existing water rights within the zone of influence of the proposed point of diversion from the amount of water physically available in the source aquifer.

20. The Department defined the zone of influence to be the area within which existing wells would experience a drawdown of 0.01 feet or more. This was calculated to be an area roughly described extending 6,000 ft east and 2,500 ft west of the proposed well. A map of the zone of influence and the method of its calculation may be found in the Department’s technical analysis.

21. One groundwater right was identified within the zone of influence: Ground Water Certificate 76H 30124274, which has a legal demand of 1.28 AF.

22. The amount of water legally available in the source aquifer is 10,954.72 AF (10,956 AF physically available – 1.28 AF legally available = 10,954.72 AF legally available).

23. The Department determined in its technical analysis that the Bitterroot River is hydraulically connected to the source aquifer. The location where depletions begin to accrue was identified as the southern boundary of the NWNE Sec. 15, T12N, R20W, Missoula County, and the area of potential impact was defined as the reach between this point and the confluence of the Bitterroot and Clark Fork Rivers located in the NWNW of Section 27, T13N, R20W, Missoula County.

24. The Department considers municipal use to be 100% consumptive. As a result, the depletions to the Bitterroot River were set equal to the diverted volume of 99.0 AF. As part of the technical analysis of the proposal, the Department modeled the timing of depletions (Table 2).

Table 2. Timing of Depletions to the Bitterroot River

Month	Depletions to Bitterroot River (AF)	Depletions to Bitterroot River (GPM)
January	1.3	9.2
February	1.0	7.9
March	0.9	6.9
April	0.8	6.2
May	11.8	86.3
June	17.2	129.7
July	19.5	142.9
August	20.0	146.1
September	13.0	98.4
October	9.7	70.8
November	2.2	16.8
December	1.6	11.6

25. The Department calculated the physical availability of water on the Bitterroot River by taking the Median Mean Monthly flow rate (MMM) as recorded at USGS Gage #12352500 (Bitterroot River near Missoula MT). Flow rates were converted to volumes using the following equation: MMM (CFS) × 1.98 (AF/day/CFS) × days per month = AF/month. The monthly legal demands of water rights between the gage and the point of depletions were then added to the physical

availability at the gage to arrive at physical availability at the point of depletions. The legal demands of water rights within the area of potential impact were then subtracted from the physical availability to assess legal availability at the point of depletions (Table 3). A full description of the methodology can be found in Part B of the Department's technical analysis for Permit Application 76H 30163647.

Table 3: Physical and Legal Availability of Water at the Point of Depletions

Month	Physical Availability at Point of Depletions (CFS)	Physical Availability at Point of Depletions (AF)	Legal Demands (CFS)	Legal Demands (AF)	Legal Availability at Point of Depletions (CFS)	Legal Availability at Point of Depletions (AF)
January	782.58	48,118.97	900.66	55,379.42	-118.08	-7,260.45
February	820.08	45,951.59	900.66	50,466.73	-80.58	-4515.14
March	1,164.08	71,576.49	900.66	55,379.42	263.42	16197.07
April	2,578.63	153,439.14	940.30	55,951.74	1638.33	97487.4
May	6,770.63	416,309.81	7,740.30	475,932.5	-969.67	-59622.69
June	7,487.63	445,544.93	7,740.30	460,579.8	-252.67	-15034.87
July	2,333.40	143,475.17	635.07	39,048.93	1698.33	104426.24
August	867.80	53,358.94	635.07	39,048.93	232.73	14310.01
September	826.40	49,174.21	635.07	37,789.29	191.33	11384.92
October	930.70	57,226.51	935.07	57,495.21	-4.37	-268.7
November	1,040.08	61,889.06	900.66	53,592.99	139.42	8296.07
December	872.83	53,668.22	900.66	55,379.42	-27.83	-1711.2

26. The comparison between physically available and legally available water in the Bitterroot River indicates that water is legally available in the amount of water modeled to be depleted during the months of March, April, July, August, September, and November, but legally unavailable during the rest of the year (the months of January, February, May, June, October, and December).

27. The Department finds the proposed appropriation of 2.18 CFS and up to 99.0 AF of groundwater to be legally available during the proposed period of use.

28. The Department finds that surface water in the hydraulically connected Bitterroot River is not legally available in the amount modeled to be depleted during portions of the year.

29. The Applicant has addressed legal availability of surface water in the Bitterroot River by providing an aquifer recharge plan which proposes to fully mitigate the depletions to the Bitterroot

River during months in which water is not legally available. This aquifer recharge plan is fully addressed under "Adverse Effect" below.

30. The Department finds that surface water in the hydraulically connected Bitterroot River is legally available when considering the aforementioned aquifer recharge plan.

ADVERSE EFFECT

FINDINGS OF FACT

31. The Applicant submitted a plan for responding to a valid call on their water right by a senior appropriator. The City of Missoula can restrict or curtail the use of water for landscaping purposes in the place of use, as needed, if a call is made. The proposed diversion can also be shut off. In this case, the City's Sophie and Upper Linda Vista storage tanks can provide a level of backup water if the duration of call is short. The area supplied by the proposed diversion is also supplied from three other wells in the immediate area and can be supplemented from wells elsewhere in the municipal water system.

32. To determine if the proposed appropriation of groundwater will cause adverse effect to other water users, the Department modeled whether any extant wells would experience drawdown of 1 foot or more. No wells met this criterion. The Department determined that no groundwater rights will be adversely affected by drawdown from the proposed diversion.

33. The Department determined in its technical analysis of Permit Application 76H 30163647 that the proposed groundwater diversion will deplete the Bitterroot River. During the months of January, February, May, June, October, and December, water is not legally available. An aquifer recharge plan was submitted to mitigate depletions during the months where water is not legally available.

34. The water right proposed for use in the aquifer recharge plan is Statement of Claim 76H 30165310, which has a priority date of June 30, 1958. This claim was historically used for irrigation of 82 acres, and has a historical consumptive use of 105.57 AF. The retirement of the 82 acres and the aquifer recharge plan will provide sufficient water to mitigate the depletions of Permit Application 76H 30163647 during the months where water is legally unavailable, as shown in Table 7 and more fully described in the analysis of Change Application 76H 30165219, below. To the Applicant's knowledge, no calls have ever been made on Statement of Claim 76H 30165310.

35. Water is physically and legally available for appropriation in the groundwater aquifer, and the aquifer recharge plan fully offsets the depletions to surface water in the Bitterroot River during the months in which water is not legally available. Thus, the Department finds there will be no adverse effect to existing water users as a result of the proposed appropriation.

36. To ensure that the proposed flow rate and volume of water are not exceeded, and that the amount of mitigation water provided to the Bitterroot River is adequate to offset adverse effect, the Applicant will be required to adhere to the following water measurement conditions:

THE APPROPRIATOR'S USE OF WATER UNDER THIS PERMIT IS CONDITIONED UPON THE 99.0 AC-FT OF MITIGATION VOLUME REQUIRED TO OFFSET ADVERSE EFFECTS FROM NET DEPLETION TO THE BITTERROOT RIVER. DIVERSION UNDER THIS PERMIT MAY NOT COMMENCE UNTIL THE MITIGATION PLAN AS SPECIFICALLY DESCRIBED AND APPROVED THROUGH CHANGE AUTHORIZATION 76H 30165219 IS LEGALLY IMPLEMENTED. DIVERSION UNDER THIS PERMIT MUST STOP IF MITIGATION AS HEREIN REQUIRED IN AMOUNT, LOCATION, AND DURATION CEASES.

WATER MEASUREMENT-INLINE FLOW METER REQUIRED: THE APPROPRIATOR SHALL INSTALL A DEPARTMENT APPROVED IN-LINE FLOW METER AT A POINT IN THE DELIVERY LINE APPROVED BY THE DEPARTMENT. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF ALL WATER DIVERTED, INCLUDING THE PERIOD OF TIME. RECORDS SHALL BE SUBMITTED BY NOVEMBER 30 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR UNTIL THE PROVISIONAL PERMIT IS PERFECTED AND THE DEPARTMENT RECEIVES A PROJECT COMPLETION NOTICE. IN THE EVENT THAT PERMITTED FLOW RATES AND/OR VOLUMES HAVE BEEN EXCEEDED DURING PERFECTION OF THE PROVISIONAL PERMIT OR THE APPROPRIATOR FAILS TO SUBMIT ANNUAL REPORTS, THE DEPARTMENT MAY CONTINUE TO REQUIRE ANNUAL SUBMISSIONS OF MONTHLY FLOW RATE AND VOLUME RECORDS. FAILURE TO SUBMIT REPORTS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE MISSOULA WATER RESOURCES REGIONAL OFFICE. THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.

37. The Department finds that the proposed appropriation of 2.16 CFS up to 99 AF annually will not result in adverse effect to existing water rights.

ADEQUATE MEANS OF DIVERSION

FINDINGS OF FACT

38. The proposed point of diversion is a 12-inch well in the City of Missoula's Haugen well field (GWIC 326236). The well pump has not yet been installed but is planned to be similar to the pump in Haugan Well #2 (GWIC 251974), which is a Goulds 10RJLC, an 8-in, 150 hp unit capable of 1000 GPM at 330 ft of lift. Water is pumped from the well through a 10-inch pipe to the pump house and chlorinating unit. From the pump house, water is conveyed to the Sophie and Upper Linda Vista storage tanks via an 18-inch pipeline. Total dynamic head is 330 feet to the storage

tanks. From the tanks, water is distributed throughout the municipal place of use in 10- to 12-inch water mains.

39. The Department conducted an evaluation of the potentially available water column to determine adequacy of diversion. Using FWS:SOLV software, predicted drawdown within the well casing was modeled based on the monthly pumping schedule provided by the Applicant. Based on the Department's modeling, after one year of pumping 63 feet of water column would remain in the well casing. A full description of the methodology can be found in the Department's technical analysis titled Groundwater Permit Technical Analyses Report – Part A.

40. The Department finds that the proposed means of diversion and conveyance are capable of diverting and conveying the proposed flow rate and volume.

BENEFICIAL USE

FINDINGS OF FACT

41. Permit Application 76H 30165219 is for 980 GPM and up to 99.0 AF for municipal use.

42. The requested flow rate is needed to provide pressure to deliver the diverted water to the City's storage tanks, while the volume is what the City determined to be necessary to serve its municipal water users. The place of use is in the Miller Creek area of Missoula, which is experiencing development and growth with increased water demand. The period of diversion requested corresponds with lawn and garden irrigation season, and the additional flow rate and volume will allow the City to provide additional water during this higher demand period. The Department considers the City to be a reliable authority on the requirements of its municipal water system.

43. The Department finds the proposed water use is beneficial, and that the requested flow rate of 980 GPM and annual volume of 99.0 AF are the amounts necessary for the municipal purpose.

POSSESSORY INTEREST

FINDINGS OF FACT

44. This application is for municipal use, in which water is supplied to another. It is clear that the ultimate user will not accept the supply without consenting to the use of water. The Applicant has possessory interest in the property where the water is to be put to beneficial use or has the written consent of the person having the possessory interest.

APPLICATION TO CHANGE A WATER RIGHT NO. 76H 30165219

WATER RIGHTS TO BE CHANGED

FINDINGS OF FACT

45. The Applicant seeks to change the Point of Diversion, Place of Use, and Purpose of Use of Statement of Claim 76H 30165310 in this Application. Statement of Claim 76H 30165310 is filed for 2.5 CFS from the Bitterroot River via means of a pump for the purpose of Irrigation (Sprinkler) for 82 acres. The original filing did not include a volume; however, the Department's technical analysis calculated a historical diverted volume of 131.96 AF. The period of use is April 1 through October 31. The point of diversion is located in the NWSESE Sec. 2, T12N, R20W, Missoula County.

Table 4: Water Right Proposed for Change

Water Right Number	Flow Rate	Purpose	Period Of Use	Place Of Use	Point Of Diversion	Priority Date
76H 30165310	2.5 CFS	Irrigation	April 1 – October 31	S2SE Sec. 2 T12N, R20 W; NENE Sec. 11 T12N, R20W	NWSESE Sec. 2 T12N, R20W	6/30/1958

46. Statement of Claim 76H 30165310 is a child right of Statement of Claim 76H 105168-00, created when the Applicant submitted DNRC Form 641: Ownership Update, Divided Interest (Split) to the Department on February 6, 2025 (OUID #270457). Statement of Claim 76H 30122609 is also a child right of Statement of Claim 76H 105168-00. All three rights are associated by a shared point of diversion and share a flow rate of 2.5 CFS. The parent right was filed for 100 acres of irrigation of which 82 acres are associated with 76H 30165310, 8 acres associated with 76H 30122609, with 10 acres remaining with the parent claim.

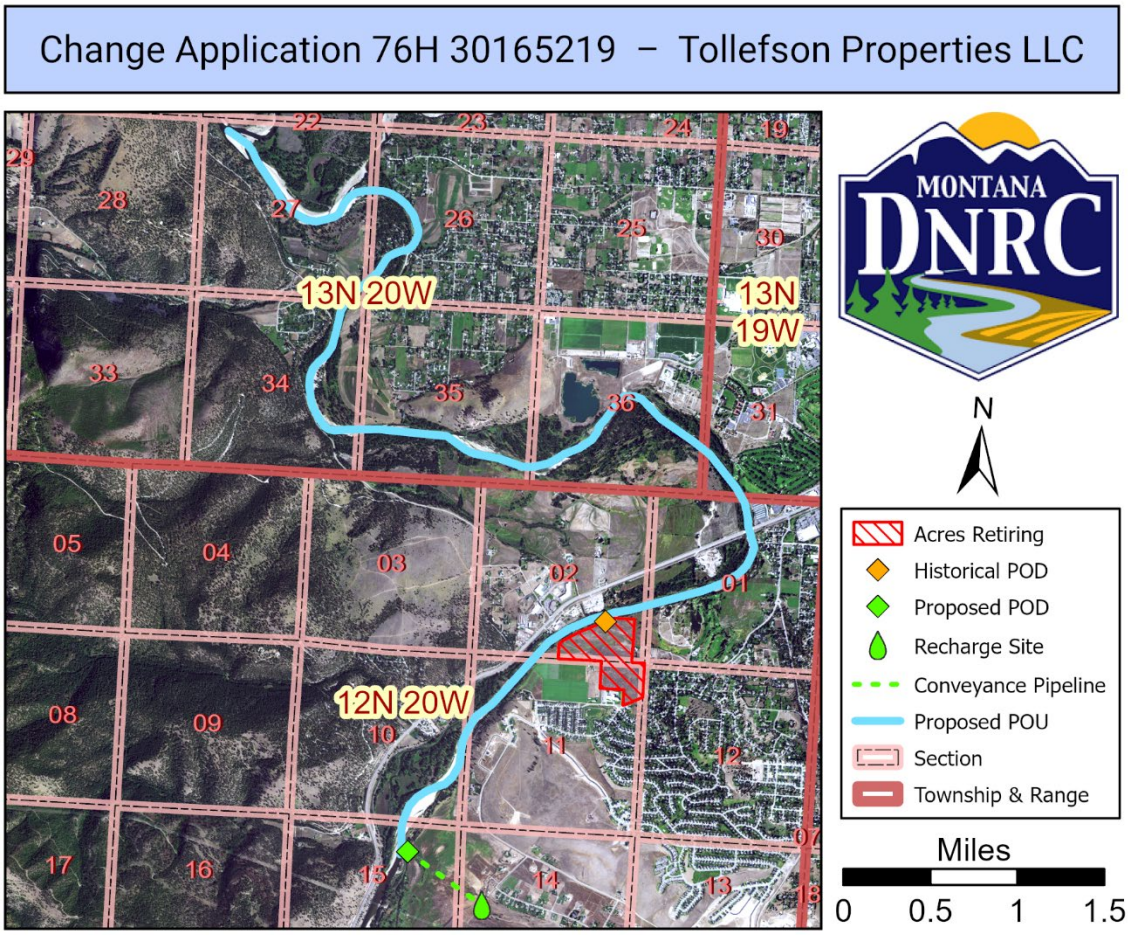
CHANGE PROPOSAL

FINDINGS OF FACT

47. The Applicant proposes to change the purpose of Statement of Claim 76H 30165310 from irrigation to aquifer recharge, retiring 82 acres in the S2SE Sec. 2 and the NENE Sec. 11, T12N, R20W, which constitute the entirety of the irrigated acres on this right. The place of use for the new aquifer recharge purpose will be the Bitterroot River from the southern boundary of the NENW Sec. 15, T12N, R20W to the confluence of the Bitterroot and Clark Fork Rivers in the NWNW of Sec. 27, T13N, R20W. A pump in the SENWNE Sec. 15, T12N, R20W will serve as the new point of diversion for aquifer recharge; the current point of diversion in the NWSESE Sec.

2, T12N, R21W will no longer be used by this right. Map 2 shows the elements of the proposed change.

48. This Application is to provide mitigation water via aquifer recharge for Permit Application 76H 30163647. The Applicant will divert 101.1 AF of water at up to 366.6 GPM from the Bitterroot River from April 1 to October 31 and convey it via a pipeline to a point in the SESWNW Sec. 14, T12N, R20W, where water will be released into Miller Creek, a losing stream. Water will infiltrate into the groundwater aquifer and provide year-round mitigation water to the Bitterroot River from the southern boundary of the NENW Sec. 15, T12N, R20W to the confluence of the Bitterroot and Clark Fork Rivers.



Map 2. Department-Generated Map of Proposed Change

49. The Applicant is held to the following conditions to meet the adverse effect and beneficial use criteria:

WATER MEASUREMENT-INLINE FLOW METER REQUIRED: THE APPROPRIATOR SHALL INSTALL A DEPARTMENT APPROVED IN-LINE FLOW METER AT A POINT IN THE DELIVERY LINE APPROVED BY THE DEPARTMENT. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF ALL WATER DIVERTED, INCLUDING THE PERIOD OF TIME. RECORDS SHALL BE SUBMITTED BY NOVEMBER 30 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR. IN THE EVENT THAT AUTHORIZED FLOW RATES AND/OR VOLUMES HAVE BEEN EXCEEDED DURING PERFECTION OF THE CHANGE AUTHORIZATION OR THE APPROPRIATOR FAILS TO SUBMIT ANNUAL REPORTS, THE DEPARTMENT MAY CONTINUE TO REQUIRE ANNUAL SUBMISSIONS OF MONTHLY FLOW RATE AND VOLUME RECORDS. FAILURE TO SUBMIT REPORTS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE MISSOULA WATER RESOURCES REGIONAL OFFICE. THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.

THIS CHANGE AUTHORIZATION PROVIDES MITIGATION WATER FOR BENEFICIAL WATER USE PERMIT NO. 76H 30163647. THE BENEFICIAL USE CRITERION OF THIS CHANGE AUTHORIZATION IS CONDITIONED UPON THE AUTHORIZATION OF BENEFICIAL WATER USE PERMIT AUTHORIZATION NO. 76H 30163647.

CHANGE CRITERIA

50. The Department is authorized to approve a change if the Applicant meets its burden to prove the applicable § 85-2-402, MCA, criteria by a preponderance of the evidence. *Matter of Royston*, 249 Mont. 425, 429, 816 P.2d 1054, 1057 (1991); *Hohenlohe v. DNRC*, 2010 MT 203, ¶¶ 33, 35, and 75, 357 Mont. 438, 240 P.3d 628 (an Applicant's burden to prove change criteria by a preponderance of evidence is "more probable than not."); *Town of Manhattan v. DNRC*, 2012 MT 81, ¶ 8, 364 Mont. 450, 276 P.3d 920. Under this Preliminary Determination, the relevant change criteria in § 85-2-402(2), MCA, are:

> (2) Except as provided in subsections (4) through (6), (15), (16), and (18) and, if applicable, subject to subsection (17), the department shall approve a change in appropriation right if the appropriator proves by a preponderance of evidence that the following criteria are met:
> (a) The proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or certificate has been issued or for which a state water reservation has been issued under part 3.
> (b) The proposed means of diversion, construction, and operation of the appropriation works are adequate, except for: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.
> (c) The proposed use of water is a beneficial use.
> (d) The Applicant has a 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 or, if the proposed change involves a point of diversion, conveyance, or place of use on national forest system lands, the Applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water. This subsection (2)(d) does not apply to: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.

51. The evaluation of a proposed change in appropriation does not adjudicate the underlying right(s). The Department's change process only addresses the water right holder's ability to make a different use of that existing right. *E.g., Hohenlohe*, ¶¶ 29-31; *Town of Manhattan*, ¶ 8; *In the Matter of Application to Change Appropriation Water Right No.41F-31227 by T-L Irrigation Company* (DNRC Final Order 1991).

HISTORICAL USE FOR ADVERSE EFFECT

FINDINGS OF FACT

52. Statement of Claim 76H 30165310 is one of two child rights to Statement of Claim 76H 105168-00. Application to Change a Water Right 76H 30150414 was filed on the other child right, Statement of Claim 76H 30122609. The historical use analysis in this Change Application covered the entirety of the original parent right. The Department reaffirms the historical use analysis conducted in Change Application 76H 30150414 and has relied on these findings in its historical use analysis of Statement of Claim 76H 30165310.

53. Statement of Claim 76H 30165310 lists a priority date of June 30, 1958, and an 82-acre place of use in the S2SE Sec. 2 and the NENE Sec. 11, T12N, R20W, Missoula County. The Water Resource Survey aerial photographs were taken in August 1955, before the 1958 priority date of this Claim. However, Statement of Claim 76H 30165310 is a child right of Statement of Claim 76H 105168-00. Change Application 76H 30150414 was submitted for another child right of Statement of Claim 76H 105168-00. This application includes 1966 aerial imagery (Map IR.2.C in deficiency letter response) which confirms the full 100 acres claimed under Statement of Claim 76H 105168-00 were historically irrigated, including 82 irrigated acres under what is now Statement of Claim 76H 30165310.

54. The Department reviewed the Water Resources Survey Field Notes for Missoula County, T12N, R20W, for further evidence of irrigation. Notes dated August 13, 1959, for property then

owned by Daniel Maloney show that the 82-acre place of use for Statement of Claim 76H 30165310 were irrigated at that time.

55. There are no water rights historically supplemental to Statement of Claim 76H 30165310.

56. The Applicant opted to use Department methodology per ARM 36.12.1902(16) and (17) to determine historical consumptive use. The variables used in this calculation are shown in Table 5.

Table 5. Historical Consumptive Use for Statement of Claim 76H 30165310.

Irrigation Method	Acres	IWR (in)[1]	Mgmt. Factor[2]	Field Efficiency	Crop Consumption (AF)	Field Applied Volume (AF)	Irrecoverable Losses (AF)	Total Consumed Volume (AF)
Sprinkler	82	19.45	70%	70%	92.37	131.96	13.2	105.57

[1]Missoula WSO AP IWR Weather Station
[2]Missoula County Historical Use Management Factor (Pre-July 1, 1973)

57. The Department verified the historical point of diversion in the NWSESE Sec. 2, T12N, R20W using USDA aerial photograph 1079-109, dated September 24, 1979.

58. The pump historically used to divert water to the place of use was a Baldwor Reliance 25 HP pump motor. A performance curve could not be located due to the discontinuation of this product by the manufacturer. The Applicant relied on calculations based on the publication *Irrigation Water Pumps* (AE1057, Revised Aug 2017), by Thomas F. Scherer, Extension Agricultural Engineer at N. Dakota State University. Using 18.75 water horse power (WHP) and a total dynamic head of 69.7 ft, the Applicant calculated:

(18.75 WHP × 3960 constant) / 69.7 TDH = 1,065 GPM, or 2.37 CFS

59. The decreed flow rate on this claim is 2.5 CFS, and these calculations indicate the pump supported a flow rate of 2.37 CFS. The Water Court added an informational remark to parent Claim 76H 105168-00 which notes that this claim and its children share and alternate the use of the point of diversion and flow rate, so that the combined flow rate of Statements of Claim 76H 105168-00, 76H 30165310, and 76H 30122609 may not exceed 2.5 CFS.

60. Water was conveyed to the place of use by a buried 8-inch mainline pipe running approximately 2400 feet, with risers spaced 60 ft apart. Lateral lines extended from the main line, with risers 30 ft apart.

61. As the historical conveyance is by pipeline, there are no meaningful conveyance losses. Therefore, the historically diverted volume is equal to the field applied volume of 131.96 AF, per ARM 36.12.1902(10).

62. The historical period of diversion for the subject water right was described in the application materials submitted for Application to Change a Water Right 76H 30150414. In that application the Department found the historical period of diversion to be April 1 to October 31, matching what was decreed by the Montana Water Court.

63. The Department finds the following historical use, as shown in Table 6.

Table 6. Summary of historical use findings for Statement of Claim 76H 30165310

Priority Date	Diverted Volume	Flow Rate	Purpose (Total Acres)	Consumptive Use	Place of Use	Point of Diversion
6/30/1958	131.96 AF	2.5 CFS	Sprinkler Irrigation (82 acres)	105.57 AF	S2SE Sec. 2; NENE Sec. 11, T12N, R20W	NWSESE Sec. 2, T12N, R20W

ADVERSE EFFECT

FINDINGS OF FACT

64. The Applicant proposes to retire all 82 irrigated acres on Statement of Claim 76H 30165310 and to use 101.1 AF at a flow rate of up to 336.6 GPM for aquifer recharge to offset the depletions of proposed Permit 76H 30163647. The volume of 101.1 AF was identified as the amount of water necessary for the seasonal aquifer recharge schedule to offset the depletions of the proposed permit during the months when adverse effect would occur.

65. The historical consumptive use for this Claim is 105.57 AF. The proposed retirement of all irrigated acres and transition to the nonconsumptive aquifer recharge purpose will thus result in a decrease of 105.57 AF of consumed volume.

66. Return flows were found to historically accrue in the Bitterroot River beginning in the SESESW Section 2, T12N, R20W, Missoula County. This change is for aquifer recharge, utilizing a portion of the historically consumed volume to mitigate depletions to the Bitterroot River. Historically, irrigation of the 82 acres being retired from irrigation generated 26.4 AF of return flows to the Bitterroot River. The proposed aquifer recharge injection schedule requires a volume of 101.1 AF to be diverted from the Bitterroot River, leaving 30.86 AF of historically diverted water in the Bitterroot River, offsetting lost return flows. When return flows return to the source at the location that they historically did and water is left instream so that historically diverted flows are available during the historical period of diversion where return flows historically returned to the

source (as is the case in this application), the Department does not conduct a monthly analysis of the rate and timing of return flows.

67. The Applicant proposes to move the location of their Bitterroot River diversion approximately 2 miles upstream, allowing the mitigation provided by the aquifer recharge plan to offset depletions from proposed permit 76H 30163647 in the location where they occur. Eight water rights lie between the historical point of diversion and the proposed point of diversion (Table 7). Of these, three are senior irrigation rights, four are junior instream rights, and one is a junior irrigation right.

Table 7. Rights with Points of Diversion between Historical and Proposed POD.

Water Right	Owner	Purpose	Priority Date
76H 104521-00	BOGGESS FAMILY TRUST	IRRIGATION	12/13/1932
76H 131603-00	MR RIVER PROPERTY LLC	IRRIGATION	12/31/1936
76H 120055-00	BUREAU OF RECLAMATION	IRRIGATION	12/4/1944
76H 151306-00	CSKT; MT DFWP	RECREATION	7/1/1970
76H 151311-00	CSKT; MT DFWP	RECREATION	7/1/1970
76H 151312-00	CSKT; MT DFWP	RECREATION	7/1/1970
76H 151313-00	CSKT; MT DFWP	RECREATION	7/1/1970
76H 39791-00	KHOURY INC	IRRIGATION	1/13/1982

68. The reach between the historical and proposed points of diversion will be depleted by the proposed diverted volume of 101.1 AF.

69. The Department finds that the proposed change in point of diversion will not adversely affect senior irrigation rights between the historical and proposed points of diversion. The Department's analysis shows that there is sufficient physical availability of water in the Bitterroot River to satisfy all senior water rights in this reach of the river year-round. The analysis demonstrating physically available water in the Bitterroot River at this location can be found in the technical analysis for the proposal requiring mitigation, Application 76H 30163647. The change in point of diversion will not result in a need for increased call for water by senior users as their rights are satisfied due to sufficient water flows in the reach.

70. The Department finds that the proposed change in point of diversion will not adversely affect junior rights between the historical and proposed points of diversion. Prior to this change, these rights were subject to call by the water right proposed for change. While 101.1 AF of water

will no longer be physically available in this reach, this water was never legally available for appropriation by junior water rights. This change does not cause previously available water to become unavailable but only changes the manner in which water was unavailable from legal to physical. Therefore, the Department finds no adverse effect to junior water users in this reach.

71. The change in point of diversion will not result in an increase in the frequency of call on junior water users between the historical and proposed points of diversion by CSKT and DFWP. Both the historical and proposed points of diversion are located upstream of the USGS gage used by CSKT and DFWP to monitor streamflows and to potentially make call. Because of this, and because there is no increase in consumptive use, this change will not result in any difference in flows measured at the gage and therefore will not result in any change in date or frequency of call.

72. Water users downstream of the historical point of diversion will not be adversely affected as a result of this change, since there is not a proposed increase in the amount of water being diverted from the source. Historically 131.96 AF was diverted from the Bitterroot River for irrigation purposes with a consumptive use of 105.57 AF. The proposed change to aquifer recharge would result in a diverted volume of 101.1 AF which will provide 99.0 AF of mitigation water.

73. The historical period of diversion for irrigation is April 1 to October 31. The proposed aquifer recharge plan injection schedule begins on May 1 and ends on October 31. The proposed volume to be injected for aquifer recharge is 101.1 AF, less than the 105.57 AF historically consumed by irrigation.

74. To ensure that the historical and proposed amount of water diverted from the Bitterroot River are not exceeded, which would result in adverse effect, the Applicant will be required to adhere to the following water measurement condition:

WATER MEASUREMENT-INLINE FLOW METER REQUIRED: THE APPROPRIATOR SHALL INSTALL A DEPARTMENT APPROVED IN-LINE FLOW METER AT A POINT IN THE DELIVERY LINE APPROVED BY THE DEPARTMENT. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF ALL WATER DIVERTED, INCLUDING THE PERIOD OF TIME. RECORDS SHALL BE SUBMITTED BY NOVEMBER 30 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR. IN THE EVENT THAT AUTHORIZED FLOW RATES AND/OR VOLUMES HAVE BEEN EXCEEDED DURING PERFECTION OF THE CHANGE AUTHORIZATION OR THE APPROPRIATOR FAILS TO SUBMIT ANNUAL REPORTS, THE DEPARTMENT MAY CONTINUE TO REQUIRE ANNUAL SUBMISSIONS OF MONTHLY FLOW RATE AND VOLUME RECORDS. FAILURE TO SUBMIT REPORTS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE MISSOULA WATER RESOURCES REGIONAL OFFICE.

THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.

75. The Department finds that the proposed change in water use will not result in adverse effect to existing water rights.

BENEFICIAL USE

FINDINGS OF FACT

76. This Change Application is intended to provide mitigation water via aquifer recharge for Application for Beneficial Water Use Permit No. 76H 30163647, which requires mitigation water to be made available in the Bitterroot River in the months of January, February, May, June, October, and December to offset its net depletions that would result in adverse effect to senior surface water users. The Department's technical analysis of the Applicants' proposal found that a flow rate of 336.6 GPM and annual volume of 101.1 AF were the amounts required to provide sufficient mitigation water via aquifer recharge to offset the depletions of Application 76H 30163647.

77. The proposed aquifer recharge plan results in water accretions to the Bitterroot River in every month of the year. In the adverse effect analysis conducted for permit application 76H 30163647, the Department found that depletions from groundwater pumping would result in adverse effect during the months of January, February, May, June, October, and December. Although mitigation water is not required in every month of the year to offset adverse effects from groundwater pumping, the injection schedule proposed for aquifer recharge is necessary to generate sufficient volumes of mitigation water in the Bitterroot River during the months of January, February, May, June, October, and December when it is needed, and is a beneficial use. Table 8 below displays the monthly net effect (i.e. mitigation accretions – permit depletions) of the Applicants' proposed aquifer recharge plan to the Bitterroot River. A full description of the methodology can be found in the Department's technical analysis titled Surface Water Change Technical Analysis Report – Part B.

Table 7. Monthly net effect to the Bitterroot River from the proposed aquifer recharge plan

Month	Permit Consumed Volume (AF)	Bitterroot River Net Depletion (AF)	Bitterroot River Net Depletion (GPM)	Aquifer Recharge Accretions Bitterroot River (AF)	Aquifer Recharge Accretions Bitterroot River (GPM)	Net Effect to Bitterroot River (AF)	Net Effect to Bitterroot River (GPM)
Jan	0	1.3	9.2	1.5	11.2	0.2	1.7
Feb	0	1	7.9	1.2	9.6	0.2	1.5
Mar	0	0.9	6.9	1.1	8.4	0.2	1.8
Apr	0	0.8	6.2	1	7.6	0.2	1.5
May	13.9	11.8	86.3	11.9	86.8	0.1	0.5
June	19.8	17.2	129.7	17.3	130.4	0.1	0.4
Jul	21.8	19.5	142.9	19.6	143	0.1	0.4
Aug	21.8	20	146.1	20.1	146.9	0.1	0.6
Sep	12.8	13	98.4	13.1	98.9	0.1	0.6
Oct	8.9	9.7	70.8	9.8	71.4	0.1	0.5
Nov	0	2.2	16.8	2.7	20.2	0.5	3.6
Dec	0	1.6	11.6	1.9	14.1	0.3	2.4
Total	99	99		101.1		2.1	

78. To meet the beneficial use criterion, the change authorization is subject to the following condition:

THIS CHANGE AUTHORIZATION PROVIDES MITIGATION WATER FOR BENEFICIAL WATER USE PERMIT NO. 76H 30163647. THE BENEFICIAL USE CRITERION OF THIS CHANGE AUTHORIZATION IS CONDITIONED UPON THE AUTHORIZATION OF BENEFICIAL WATER USE PERMIT AUTHORIZATION NO. 76H 30163647.

79. The Department finds that the proposed water use is beneficial (contingent upon the issuance of Permit Application 76H 30163647), and that the requested flow rate of 336.6 GPM and annual volume of 101.1 AF are the amount required to offset depletions to surface water resulting in adverse effect from Permit Application 76H 30163647.

ADEQUATE DIVERSION

FINDINGS OF FACT

80. The aquifer recharge system was designed by a professional engineer. Three 30-foot sections of 12-in horizontal, slotted, HPDE infiltration pipe will be installed in a side channel to the Bitterroot River in the SENWNE Sec. 15, T12N, R20W. This influent pipe will connect to a solid 12-inch HPDE pipe extending about 800 ft to the southeast to a 5-foot diameter wet well (pump station) located adjacent to an active oxbow. The pipeline connecting the POD to the wet well is

designed with a siphon so that flows from the river cannot reach the wet well without pumping. A turbine pump and 4-inch totalizing inline flow meter will be installed in a pump house located above and adjacent to the wet well. The pump will be a 20 HP 5TMH-375 Berkeley submersible turbine pump, which can convey the requested 336.6 GPM over a vertical elevation lift of about 45 feet. Total dynamic head is about 170 ft at 335 GPM. From the wet well, water will be conveyed through a 4-inch pipeline approximately 1820 ft to an effluent outfall at the aquifer recharge site on lower Miller Creek.

81. Miller Creek is a losing stream and frequently dry in the lower reaches where the aquifer recharge site is located. The Applicant proposes that by discharging water into the Creek, the Bitterroot River Shallow Valley Aquifer will be recharged and supplement flows to the Bitterroot River throughout the year. Department Hydrologist Melissa Brickl analyzed the Applicant's proposal for aquifer recharge using data from shallow wells local to the area and by hydrologic modeling. The Department's analysis of the Applicant's plan found that the use of Miller Creek as a natural carrier and infiltration gallery for aquifer recharge is reasonable.

82. The City of Missoula currently utilizes Miller Creek for mitigation required for issuance of Beneficial Water Use Permit 76H 30063540. The mitigation plan for this permit retired irrigated acreage in the Miller Creek valley and left the water instream where it naturally recharges the groundwater aquifer through the streambed. The mitigation plan was approved in Authorization to Change a Water Right 76H 30063540, issued June 28, 2012. In the analyses conducted for that change application, the Department found Miller Creek to be a losing stream, and that water left in Miller Creek would infiltrate into the groundwater aquifer providing mitigation to the Bitterroot River. The Department corroborates this previous analysis for the purpose of this application.

83. The Department finds the means of diversion adequate for the proposed beneficial use.

POSSESSORY INTEREST

FINDINGS OF FACT

84. Pursuant to § 85-2-402(2)(d)(iii), MCA, the Applicant is not required to prove they have the possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to a beneficial use because this application involves aquifer recharge per § 85-2-420, MCA.

APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 76H 30163647

BENEFICIAL WATER USE PERMIT CONCLUSIONS OF LAW

BASIN CLOSURE

85. The proposed well is located within the Bitterroot River north end subbasin (76HB). Per § 85-2-344(2)(a), MCA, DNRC cannot grant an application for a permit to appropriate surface water within a Bitterroot River subbasin until the closure for the basin is terminated pursuant to § 85-2-344(5), MCA.

86. The application falls under the exceptions for the basin closure, § 85-2-344(2)(b), MCA. This application is for the appropriation of groundwater and complies with the provisions of § 85-2-360, MCA.

87. In reviewing an application for groundwater in a closed basin, the District Court in *Sitz Ranch v. DNRC* observed:

> The basin from which Applicants wish to pump water is closed to further appropriations by the legislature. The tasks before an Applicant to become eligible for an exception are daunting. The legislature set out the criteria discussed above (§ 85-2-311, MCA) and placed the burden of proof squarely on the Applicant. The Supreme Court has instructed that those burdens are exacting. It is inescapable that an Applicant to appropriate water in a closed basin must withstand strict scrutiny of each of the legislatively required factors.

Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7.

88. A basin closure exception does not relieve the Department of analyzing § 85-2-311, MCA criteria. Qualification under a basin closure exception allows the Department to accept an application for processing. The Applicant must still prove the requisite criteria. *E.g.*, *In the Matter of Application for Beneficial Water Use Permit No. 41K-30043385 by Marc E. Lee* (DNRC Final Order 2011); *In the Matter of Application for Beneficial Water Use Permit No. 41K-30045713 by Nicholas D. Konen*, (DNRC Final Order 2011).

PHYSICAL AVAILABILITY

89. Pursuant to § 85-2-311(1)(a)(i), MCA, an Applicant must prove by a preponderance of the evidence that "there is water physically available at the proposed point of diversion in the amount that the Applicant seeks to appropriate."

90. It is the Applicant's burden to produce the required evidence. *In the Matter of Application for Beneficial Water Use Permit No. 27665-41I by Anson* (DNRC Final Order 1987) (Applicant

produced no flow measurements or any other information to show the availability of water; permit denied); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.,* (DNRC Final Order 2005).

91. An Applicant must prove that at least in some years there is water physically available at the point of diversion in the amount the Applicant seeks to appropriate. *In the Matter of Application for Beneficial Water Use Permit No. 72662s76G by John Fee and Don Carlson* (DNRC Final Order 1990); *In the Matter of Application for Beneficial Water Use Permit No. 85184s76F by Wills Cattle Co. and Ed McLean* (DNRC Final Order 1994).

92. The Applicant has proven that water is physically available at the proposed point of diversion in the amount Applicant seeks to appropriate. Section 85-2-311(1)(a)(i), MCA (FOF 15-18).

LEGAL AVAILABILITY

93. Pursuant to § 85-2-311(1)(a), MCA, an Applicant must prove by a preponderance of the evidence that:

> (ii) water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested, based on the records of the department and other evidence provided to the department. Legal availability is determined using an analysis involving the following factors:
> (A) identification of physical water availability;
> (B) identification of existing legal demands on the source of supply throughout the area of potential impact by the proposed use; and
> (C) analysis of the evidence on physical water availability and the existing legal demands, including but not limited to a comparison of the physical water supply at the proposed point of diversion with the existing legal demands on the supply of water.

E.g., ARM 36.12.101 and 36.12.120; *Montana Power Co.*, 211 Mont. 91, 685 P.2d 336 (Permit granted to include only early irrigation season because no water legally available in late irrigation season); *In the Matter of Application for Beneficial Water Use Permit No. 81705-g76F by Hanson* (DNRC Final Order 1992).

94. It is the Applicant's burden to present evidence to prove water can be reasonably considered legally available. *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7 (the legislature set out the criteria (§ 85-2-311, MCA) and placed the burden of proof squarely on the Applicant. The Supreme Court has instructed that those burdens are exacting.); *see also Matter of Application for Change of Appropriation Water Rights Nos. 101960-41S and 101967-41S by Royston* (1991), 249 Mont. 425, 816 P.2d 1054 (burden of proof on Applicant in a change proceeding to prove required criteria); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1,*

LLC., (DNRC Final Order 2005))(it is the Applicant's burden to produce the required evidence.); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 by Utility Solutions, LLC* (DNRC Final Order 2007) (permit denied for failure to prove legal availability); *see also* ARM 36.12.1705.

95. Pursuant to *Montana Trout Unlimited v. DNRC*, 2006 MT 72, 331 Mont. 483, 133 P.3d 224, the Department recognizes the connectivity between surface water and ground water and the effect of pre-stream capture on surface water. *E.g., Wesmont Developers v. DNRC*, CDV-2009-823, Montana First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 7-8; *In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility Solutions LLC* (DNRC Final Order 2006) (mitigation of depletion required), *affirmed*, *Faust v. DNRC et al.*, Cause No. CDV-2006-886, Montana First Judicial District (2008); *see also Robert and Marlene Takle v. DNRC et al.*, Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994) (affirming DNRC denial of Applications for Beneficial Water Use Permit Nos. 76691-76H, 72842-76H, 76692-76H and 76070-76H; underground tributary flow cannot be taken to the detriment of other appropriators including surface appropriators and ground water appropriators must prove unappropriated surface water, *citing Smith v. Duff*, 39 Mont. 382, 102 P. 984 (1909), and *Perkins v. Kramer*, 148 Mont. 355, 423 P.2d 587 (1966)); *In the Matter of Beneficial Water Use Permit No. 80175-s76H by Tintzman* (DNRC Final Order 1993)(prior appropriators on a stream gain right to natural flows of all tributaries in so far as may be necessary to afford the amount of water to which they are entitled, *citing Loyning v. Rankin* (1946), 118 Mont. 235, 165 P.2d 1006; *Granite Ditch Co. v. Anderson* (1983), 204 Mont. 10, 662 P.2d 1312; *Beaverhead Canal Co. v. Dillon Electric Light & Power Co.* (1906), 34 Mont. 135, 85 P. 880); *In the Matter of Beneficial Water Use Permit No.* 63997*-42M by Joseph F. Crisafulli* (DNRC Final Order 1990) (since there is a relationship between surface flows and the ground water source proposed for appropriation, and since diversion by Applicant's well appears to influence surface flows, the ranking of the proposed appropriation in priority must be as against all rights to surface water as well as against all groundwater rights in the drainage).

96. Because the Applicant bears the burden of proof as to legal availability, the Applicant must prove that the proposed appropriation will not result in prestream capture or induced infiltration and cannot limit its analysis to ground water. Section 85-2-311(a)(ii), MCA. Absent such proof, the Applicant must analyze the legal availability of surface water in light of the proposed ground water appropriation. *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 By Utility Solutions LLC* (DNRC Final Order 2007) (permit denied); *In the Matter of*

Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer (DNRC Final Order 2009); *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 ; *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12.

97. Where a proposed ground water appropriation depletes surface water, Applicant must prove legal availability of amount of depletion of surface water throughout the period of diversion either through a mitigation /aquifer recharge plan to offset depletions or by analysis of the legal demands on, and availability of, water in the surface water source. *Robert and Marlene Takle v. DNRC*, Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994); *In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility Solutions LLC* (DNRC Final Order 2006) (permits granted), *affirmed*, *Faust v. DNRC et al.*, Cause No. CDV-2006-886, Montana First Judicial District (2008); *In the Matter of Application for Beneficial Water Use Permit 41H 30019215 by Utility Solutions LLC* (DNRC Final Order 2007 *)*(permit granted)*, affirmed*, *Montana River Action Network et al. v. DNRC*, Cause No. CDV-2007-602, Montana First Judicial District (2008); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 by Utility Solutions LLC* (DNRC Final Order 2007) (permit denied for failure to analyze legal availability outside of irrigation season (where mitigation applied)); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30026244 by Utility Solutions LLC* (DNRC Final Order 2008); *In the Matter of Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer* (DNRC Final Order 2009)(permit denied in part for failure to analyze legal availability for surface water depletion); *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 (Court affirmed denial of permit in part for failure to prove legal availability of stream depletion to slough and Beaverhead River); *Westmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12 ("DNRC properly determined that Westmont cannot be authorized to divert, either directly or indirectly, 205.09 acre-feet from the Bitterroot River without establishing that the water does not belong to a senior appropriator"; Applicant failed to analyze legal availability of surface water where projected surface water depletion from groundwater pumping); *In the Matter of Application for Beneficial Water Use Permit No. 76D-30045578 by GBCI Other Real Estate, LLC* (DNRC Final Order 2011) (in an open basin, Applicant for a new water right can show legal availability by using a mitigation/aquifer recharge plan or by showing that any depletion to surface water by groundwater pumping will not take water already appropriated; development next to Lake Koocanusa will not take previously appropriated water). Applicant

may use water right claims of potentially affected appropriators as a substitute for "historic beneficial use" in analyzing legal availability of surface water under § 85-2-360(5), MCA. *Royston, supra*.

98. In analyzing legal availability for surface water, Applicant was required to evaluate legal demands on the source of supply throughout the "area of potential impact" by the proposed use under § 85-2-311(1)(a)(ii), MCA, not just within the "zone of influence." *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 6.

99. Based on the Applicant's proposed aquifer recharge plan, the Department finds that the Applicant has proven by a preponderance of the evidence that surface water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested. (FOF 29, 33-35).

100. Applicant has proven by a preponderance of the evidence that water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested, based on the records of the Department and other evidence provided to the Department. Section 85-2-311(1)(a)(ii), MCA. (FOF 19-30)

ADVERSE EFFECT

101. Pursuant to § 85-2-311(1)(b), MCA, the Applicant bears the affirmative burden of proving by a preponderance of the evidence that the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. Analysis of adverse effect must be determined based on a consideration of an Applicant's plan for the exercise of the permit that demonstrates that the Applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied. *See Montana Power Co.*, 211 Mont. 91, 685 P.2d 336 (1984) (purpose of the Water Use Act is to protect senior appropriators from encroachment by junior users); *Bostwick Properties, Inc.*, ¶ 21.

102. An Applicant must analyze the full area of potential impact under the § 85-2-311, MCA criteria. *In the Matter of Beneficial Water Use Permit No. 76N-30010429 by Thompson River Lumber Company* (DNRC Final Order 2006). While § 85-2-361, MCA, limits the boundaries expressly required for compliance with the hydrogeologic assessment requirement, an Applicant is required to analyze the full area of potential impact for adverse effect in addition to the requirement of a hydrogeologic assessment. *Id.* ARM 36.12.120(5).

103. Applicant must prove that no prior appropriator will be adversely affected, not just the objectors. *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, 4 (2011).

104. In analyzing adverse effect to other appropriators, an Applicant may use the water rights claims of potentially affected appropriators as evidence of their "historic beneficial use." *See Matter of Application for Change of Appropriation Water Rights Nos. 101960-41S and 101967-41S by Royston*, 249 Mont. 425, 816 P.2d 1054 (1991).

105. It is the Applicant's burden to produce the required evidence. *E.g., Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, 7 (2011) (legislature has placed the burden of proof squarely on the Applicant); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005). The Department is required to grant a permit only if the § 85-2-311, MCA, criteria are proven by the Applicant by a preponderance of the evidence. *Bostwick Properties, Inc.*, ¶ 21.

106. Section 85-2-311 (1)(b) of the Water Use Act does not contemplate a de minimis level of adverse effect on prior appropriators. *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, 8 (2011).

107. A plan to prove legal availability and prevent adverse effect can be to use mitigation or augmentation. Section 85-2-360, MCA; e.g., *In the Matter of Beneficial Water Use Permit Application Nos. 41H 30012025 and 41H 30013629 by Utility Solutions, LLC* (DNRC Final Order 2006) (permit conditioned to mitigate/augment depletions to the Gallatin River by use of infiltration galleries in the amount of .55 cfs and 124 AF), *affirmed*, *Faust v. DNRC*, Cause No. CDV-2006-886, Montana First Judicial District (2008); *In the Matter of Beneficial Water Use Permit Application Nos. 41H 30019215 by Utility Solutions, LLC* (DNRC Final Order 2007) (permit conditioned to mitigate 6 gpm up to 9.73 AF of potential depletion to the Gallatin River), affirmed, *Montana River Action Network v. DNRC*, Cause No. CDV-2007-602, Montana First Judicial District Court, (2008); *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7; *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pg. 12; *In the Matter of Application for Beneficial Water Use Permit No. 41H 30026244 By Utility Solutions LLC* (DNRC 2008) (permit conditioned on mitigation of 3.2 gpm up to 5.18 AF of depletion to the Gallatin River); *In the Matter of Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer* (HB 831, DNRC Final Order 2009) (permit denied in part for failure to analyze legal availability for surface water for depletion of 1.31 AF to Bitterroot River); § 85-2-360, MCA. The Department has a history of approving new appropriations where Applicant will mitigate/augment to offset depletions caused by the new appropriation. *In the Matter of Beneficial Water Use Permit Application No. 41I-104667 by Woods and Application to Change Water Right No 41I-G(W) 125497 by Ronald J. Woods* (DNRC Final Order 2000); *In The Matter*

of Application To Change Appropriation Water Right 76GJ 110821 by Peterson and MT Department of Transportation (DNRC Final Order 2001); *In The Matter of Application To Change Appropriation Water Right No. 76G-3235699 by Arco Environmental Remediation LLC* (DNRC Final Order 2003) (allows water under claim 76G-32356 to be exchanged for water appropriated out of priority by permits at the wet closures and wildlife to offset consumption). *In The Matter of Designation of the Larsen Creek Controlled Groundwater Area as Permanent, Board of Natural Resources Final Order* (1988).

Montana case law also provides a history of mitigation, including mitigation by new or untried methods. *See Thompson v. Harvey* (1974),154 Mont. 133, 519 P.2d 963; *Perkins v. Kramer* (1966), 148 Mont. 355, 423 P.2d 587. Augmentation/mitigation is also recognized in other prior appropriation states for various purposes. *E.g.* C.R.S.A. § 37-92-302 (Colorado); A.R.S. § 45-561 (Arizona); RCWA 90.46.100 (Washington); ID ST § 42-1763B and § 42-4201A (Idaho).

The requirement for mitigation in closed basins has been codified in § 85-2-360, *et seq.*, MCA. Section 85-2-360(5), MCA provides in relevant part:

> A determination of whether or not there is an adverse effect on a prior appropriator as the result of a new appropriation right is a determination that must be made by the d*epartment based on the amount*, location, and duration of the amount of net depletion that causes the adverse effect relative to the historic beneficial use of the appropriation right that may be adversely affected.
>
> (Emphasis added.)

108. The Department can and routinely does, condition a new permit's use on use of that special management, technology, or measurement such as augmentation now generally known as mitigation and aquifer recharge. *See* § 85-2-312; § 85-2-360 et seq., MCA; *see, e.g.*, *In the Matter of Beneficial Water Use Permit No. 107-41I by Diehl Development* (DNRC Final Order 1974) (No adverse effect if permit conditions to allow specific flow past point of diversion.); *In the Matter of Combined Application for Beneficial Water Use Permit No. 76H- 30043133 and Application No. 76H-30043132 to Change Water Right Nos. 76H-121640-00, 76H-131641-00 and 76H-131642-00 by the Town of Stevensville* (DNRC Final Order 2011).

109. It was within the discretion of the Department to decline to consider an undeveloped mitigation proposal as mitigation for adverse effect in a permit proceeding. *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pg. 10.

110. Pursuant to § 85-2-360, MCA, an applicant whose hydrogeologic assessment conducted pursuant to § 85-2-361, MCA, predicts that there will be a net depletion of surface water shall

offset the net depletion that results in the adverse effect through a mitigation plan or an aquifer recharge plan.

111. Pursuant to § 85-2-362, MCA, an aquifer recharge plan must include: evidence that the appropriate water quality related permits have been granted pursuant to Title 75, chapter 5, and pursuant to §§ 75-5-410 and 85-2-364, MCA; where and how the water in the plan will be put to beneficial use when and where, generally, water reallocated through exchange or substitution will be required; the amount of water reallocated through exchange or substitution that is required; how the proposed project or beneficial use for which the aquifer recharge plan is required will be operated; evidence that an application for a change in appropriation right, if necessary, has been submitted; a description of the process by which water will be reintroduced to the aquifer; evidence of water availability; and evidence of how the aquifer recharge plan will offset the required amount of net depletion of surface water in a manner that will offset any adverse effect on a prior appropriator.

112. In this case the Applicant proposes to mitigate consumptive use during the months in which water is not legally available in the hydrologically connected surface waters. The full depletion of surface waters by the proposed appropriation in amount, location, and duration will be mitigated during these months. Because adverse effect from consumptive use would only occur during months in which water is not legally available, and because the Applicant proposes to mitigate the full amount of consumptive use in these months, there is no adverse effect from depletion of surface waters to the historical beneficial use of surface water rights.

113. The Applicant has proven by a preponderance of the evidence that the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. Section 85-2-311(1)(b), MCA (FOF 31-37).

ADEQUATE DIVERSION

114. Pursuant to § 85-2-311(1)(c), MCA, an Applicant must demonstrate that the proposed means of diversion, construction, and operation of the appropriation works are adequate.

115. The adequate means of diversion statutory test merely codifies and encapsulates the case law notion of appropriation to the effect that the means of diversion must be reasonably effective, i.e., must not result in a waste of the resource*. In the Matter of Application for Beneficial Water Use Permit No. 33983s41Q by Hoyt* (DNRC Final Order 1981); § 85-2-312(1)(a), MCA.

116. Information needed to prove that proposed means of diversion, construction, and operation of the appropriation works are adequate varies, based upon project complexity design

by licensed engineer adequate. *In the Matter of Application for Beneficial Water Use Permit No. 41C-11339900 by Three Creeks Ranch of Wyoming LLC* (DNRC Final Order 2002).

117. Applicant has proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. Section 85-2-311(1)(c), MCA (FOF 38-40).

BENEFICIAL USE

118. Under § 85-2-311(1)(d), MCA, an Applicant must prove by a preponderance of the evidence the proposed use is a beneficial use.

119. An appropriator may appropriate water only for a beneficial use. See also, § 85-2-301 MCA. It is a fundamental premise of Montana water law that beneficial use is the basis, measure, and limit of the use. *E.g.*, *McDonald*; *Toohey v. Campbell* (1900), 24 Mont. 13, 60 P. 396. The amount of water under a water right is limited to the amount of water necessary to sustain the beneficial use. *E.g.*, *Bitterroot River Protective Association v. Siebel, Order on Petition for Judicial Review*, Cause No. BDV-2002-519, Montana First Judicial District Court, Lewis and Clark County (2003), *affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518; *In The Matter Of Application For Beneficial Water Use Permit No. 43C 30007297 by Dee Deaterly* (DNRC Final Order), *affirmed other grounds*, *Dee Deaterly v. DNRC* , Cause No. 2007-186, Montana First Judicial District, *Order Nunc Pro Tunc on Petition for Judicial Review* (2009); *Worden v. Alexander* (1939), 108 Mont. 208, 90 P.2d 160; *Allen v. Petrick* (1924), 69 Mont. 373, 222 P. 451; *In the Matter of Application for Beneficial Water Use Permit No. 41S-105823 by French* (DNRC Final Order 2000).

120. Amount of water to be diverted must be shown precisely. *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, 3 (2011) (citing *BRPA v. Siebel*, 2005 MT 60, and rejecting Applicant's argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet).

121. It is the Applicant's burden to produce the required evidence. *Bostwick Properties, Inc. v. DNRC*, 2013 MT 48, ¶ 22, 369 Mont. 150, 296 P.3d 1154 ("issuance of the water permit itself does not become a clear, legal duty until [the applicant] proves, by a preponderance of the evidence, that the required criteria have been satisfied"); *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7; *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005); *see also Royston; Ciotti*.

122. Applicant proposes to use water for Municipal which is a recognized beneficial use. Section 85-2-102(5), MCA. Applicant has proven by a preponderance of the evidence Municipal is a beneficial use and that 99.0 AF of diverted volume and 2.18 CFS is the amount needed to sustain the beneficial use. Section 85-2-311(1)(d), MCA. (FOF 41-42).

POSSESSORY INTEREST

123. Pursuant to § 85-2-311(1)(e), MCA, an Applicant must prove by a preponderance of the evidence that it has a 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, or if the proposed use has a point of diversion, conveyance, or place of use on national forest system lands, the Applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water under the permit.

124. Pursuant to ARM 36.12.1802:

> (1) An Applicant or a representative shall sign the application affidavit to affirm the following:
> (a) the statements on the application and all information submitted with the application are true and correct and
> (b) except in cases of an instream flow application, or 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, the Applicant has possessory interest in the property where the water is to be put to beneficial use or has the written consent of the person having the possessory interest.
> (2) If a representative of the Applicant signs the application form affidavit, the representative shall state the relationship of the representative to the Applicant on the form, such as president of the corporation, and provide documentation that establishes the authority of the representative to sign the application, such as a copy of a power of attorney.
> (3) The department may require a copy of the written consent of the person having the possessory interest.

125. This application is for municipal use, in which water is supplied to another. It is clear that the ultimate user will not accept the supply without consenting to the use of water. The Applicant has possessory interest in the property where the water is to be put to beneficial use or has the written consent of the person having the possessory interest. Section 85-2-311(1)(e), MCA (FOF 44).

APPLICATION TO CHANGE WATER RIGHT NO. 76H 30165219

WATER RIGHT CHANGE CONCLUSIONS OF LAW

HISTORICAL USE AND ADVERSE EFFECT

126. Montana's change statute codifies the fundamental principles of the Prior Appropriation Doctrine. Sections 85-2-401 and -402(1)(a), MCA, authorize changes to existing water rights, permits, and water reservations subject to the fundamental tenet of Montana water law that one may change only that to which he or she has the right based upon beneficial use. A change to an existing water right may not expand the consumptive use of the underlying right or remove the well-established limit of the appropriator's right to water actually taken and beneficially used. An increase in consumptive use constitutes a new appropriation and is subject to the new water use permit requirements of the MWUA. *McDonald v. State*, 220 Mont. 519, 530, 722 P.2d 598, 605 (1986) (beneficial use constitutes the basis, measure, and limit of a water right); *Featherman v. Hennessy*, 43 Mont. 310, 316-17, 115 P. 983, 986 (1911) (increased consumption associated with expanded use of underlying right amounted to new appropriation rather than change in use); *Quigley v. McIntosh*, 110 Mont. 495, 103 P.2d 1067, 1072-74 (1940) (appropriator may not expand a water right through the guise of a change – expanded use constitutes a new use with a new priority date junior to intervening water uses); *Allen v. Petrick*, 69 Mont. 373, 222 P. 451(1924) ("quantity of water which may be claimed lawfully under a prior appropriation is limited to that quantity within the amount claimed which the appropriator has needed, and which within a reasonable time he has actually and economically applied to a beneficial use. . . . it may be said that the principle of beneficial use is the one of paramount importance . . . The appropriator does not own the water. He has a right of ownership in its use only"); *Town of Manhattan*, ¶ 10 (an appropriator's right only attaches to the amount of water actually taken and beneficially applied).[1]

127. Sections 85-2-401(1) and -402(2)(a), MCA, codify the prior appropriation principles that Montana appropriators have a vested right to maintain surface and ground water conditions substantially as they existed at the time of their appropriation; subsequent appropriators may insist that prior appropriators confine their use to what was actually appropriated or necessary for their originally intended purpose of use; and, an appropriator may not change or alter its use in a manner that adversely affects another water user. *Spokane Ranch & Water Co. v. Beatty*, 37 Mont. 342, 96 P. 727, 731 (1908); *Quigley*, 110 Mont. at 505-11,103 P.2d at 1072-74; *Matter of*

[1] DNRC decisions are available at: https://dnrc.mt.gov/Directors-Office/HearingOrders

Royston, 249 Mont. at 429, 816 P.2d at 1057; *Hohenlohe*, ¶¶ 43-45.[2]

128. The cornerstone of evaluating potential adverse effect to other appropriators is the determination of the "historic use" of the water right being changed. *Town of Manhattan*, ¶10 (recognizing that the Department's obligation to ensure that change will not adversely affect other water rights requires analysis of the actual historic amount, pattern, and means of water use). A change Applicant must prove the extent and pattern of use for the underlying right proposed for change through evidence of the historic diverted amount, consumed amount, place of use, pattern of use, and return flow because a statement of claim, permit, or decree may not include the beneficial use information necessary to evaluate the amount of water available for change or potential for adverse effect.[3] A comparative analysis of the historic use of the water right to the proposed change in use is necessary to prove the change will not result in expansion of the original right, or adversely affect water users who are entitled to rely upon maintenance of conditions on the source of supply for their water rights. *Quigley*, 103 P.2d at 1072-75 (it is necessary to ascertain historic use of a decreed water right to determine whether a change in use expands the underlying right to the detriment of other water user because a decree only provides a limited description of the right); *Royston*, 249 Mont. at 431-32, 816 P.2d at 1059-60 (record could not sustain a conclusion of no adverse effect because the Applicant failed to provide the Department with evidence of the historic diverted volume, consumption, and return flow); *Hohenlohe*, ¶ 44-45; Town of Manhattan v. DNRC, Cause No. DV-09-872C, Montana Eighteenth Judicial District Court, *Order Re Petition for Judicial Review,* Pgs. 11-12 (proof of historic use is required even when the right has been decreed because the decreed flow rate or volume establishes the maximum appropriation that may be diverted, and may exceed the historical pattern of use, amount diverted or amount consumed through actual use); Matter of Application For Beneficial Water Use Permit By City of Bozeman, *Memorandum*, Pgs. 8-22 (Adopted by DNRC *Final Order* January 9,1985)(evidence of historic use must be compared to the proposed

[2] *See also Holmstrom Land Co., Inc., v. Newlan Creek Water District*,185 Mont. 409, 605 P.2d 1060 (1979); *Lokowich v. Helena*, 46 Mont. 575, 129 P. 1063 (1913); *Thompson v. Harvey*, 164 Mont. 133, 519 P.2d 963 (1974) (plaintiff could not change his diversion to a point upstream of the defendants because of the injury resulting to the defendants); *McIntosh v. Graveley*, 159 Mont. 72, 495 P.2d 186 (1972) (appropriator was entitled to move his point of diversion downstream, so long as he installed measuring devices to ensure that he took no more than would have been available at his original point of diversion); *Head v. Hale*, 38 Mont. 302, 100 P. 222 (1909) (successors of the appropriator of water appropriated for placer mining purposes cannot so change its use as to deprive lower appropriators of their rights, already acquired, in the use of it for irrigating purposes); and, *Gassert v. Noyes*, 18 Mont. 216, 44 P. 959 (1896) (change in place of use was unlawful where reduced the amount of water in the source of supply available which was subject to plaintiff's subsequent right).

[3]A claim only constitutes *prima facie* evidence for the purposes of the adjudication under § 85-2-221, MCA. The claim does not constitute *prima facie* evidence of historical use in a change proceeding under § 85-2-402, MCA. For example, most water rights decreed for irrigation are not decreed with a volume and provide limited evidence of actual historic beneficial use. Section 85-2-234, MCA

change in use to give effect to the implied limitations read into every decreed right that an appropriator has no right to expand his appropriation or change his use to the detriment of juniors).[4]

129. An Applicant must also analyze the extent to which a proposed change may alter historic return flows for purposes of establishing that the proposed change will not result in adverse effect. The requisite return flow analysis reflects the fundamental tenant of Montana water law that once water leaves the control of the original appropriator, the original appropriator has no right to its use and the water is subject to appropriation by others. *E.g., Hohenlohe*, ¶ 44; *Rock Creek Ditch & Flume Co. v. Miller*, 93 Mont. 248, 17 P.2d 1074, 1077 (1933); *Newton v. Weiler*, 87 Mont. 164, 286 P. 133 (1930); *Popham v. Holloron*, 84 Mont. 442, 275 P. 1099, 1102 (1929); *Galiger v. McNulty*, 80 Mont. 339, 260 P. 401 (1927); *Head v. Hale*, 38 Mont. 302, 100 P. 222 (1909); *Spokane Ranch & Water Co.*, 37 Mont. at 351-52, 96 P. at 731; *Hidden Hollow Ranch v. Fields*, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185; ARM 36.12.101(56) (Return flow - that part of a diverted flow which is not consumed by the appropriator and returns underground to its original source or another source of water - is not part of a water right and is subject to appropriation by

[4] Other western states likewise rely upon the doctrine of historic use as a critical component in evaluating changes in appropriation rights for expansion and adverse effect: Pueblo West Metropolitan District v. Southeastern Colorado Water Conservancy District, 717 P.2d 955, 959 (Colo. 1986)("[O]nce an appropriator exercises his or her privilege to change a water right … the appropriator runs a real risk of requantification of the water right based on actual historical consumptive use. In such a change proceeding a junior water right … which had been strictly administered throughout its existence would, in all probability, be reduced to a lesser quantity because of the relatively limited actual historic use of the right."); Santa Fe Trail Ranches Property Owners Ass'n v. Simpson, 990 P.2d 46, 55 -57 (Colo.,1999); Farmers Reservoir and Irr. Co. v. City of Golden, 44 P.3d 241, 245 (Colo. 2002)("We [Colorado Supreme Court] have stated time and again that the need for security and predictability in the prior appropriation system dictates that holders of vested water rights are entitled to the continuation of stream conditions as they existed at the time they first made their appropriation); Application for Water Rights in Rio Grande County, 53 P.3d 1165, 1170 (Colo. 2002); Wyo. Stat. § 41-3-104 (When an owner of a water right wishes to change a water right … he shall file a petition requesting permission to make such a change …. The change … may be allowed provided that the quantity of water transferred … shall not exceed the amount of water historically diverted under the existing use, nor increase the historic rate of diversion under the existing use, nor increase the historic amount consumptively used under the existing use, nor decrease the historic amount of return flow, nor in any manner injure other existing lawful appropriators.); Basin Elec. Power Co-op. v. State Bd. of Control, 578 P.2d 557, 564 -566 (Wyo,1978) (a water right holder may not effect a change of use transferring more water than he had historically consumptively used; regardless of the lack of injury to other appropriators, the amount of water historically diverted under the existing use, the historic rate of diversion under the existing use, the historic amount consumptively used under the existing use, and the historic amount of return flow must be considered.)

subsequent water users).[5]

130. Although the level of analysis may vary, analysis of the extent to which a proposed change may alter the amount, location, or timing return flows is critical in order to prove that the proposed change will not adversely affect other appropriators who rely on those return flows as part of the source of supply for their water rights. *Royston*, 249 Mont. at 431, 816 P.2d at 1059-60; *Hohenlohe*, at ¶¶ 45-46 and 55-6; *Spokane Ranch & Water Co.*, 37 Mont. at 351-52, 96 P. at 731.

131. In *Royston*, the Montana Supreme Court confirmed that an Applicant is required to prove lack of adverse effect through comparison of the proposed change to the historic use, historic consumption, and historic return flows of the original right. 249 Mont. at 431, 816 P.2d at 1059-60. More recently, the Montana Supreme Court explained the relationship between the fundamental principles of historic beneficial use, return flow, and the rights of subsequent appropriators as they relate to the adverse effect analysis in a change proceeding in the following manner:

> The question of adverse effect under §§ 85-2-402(2) and -408(3), MCA, implicates return flows. A change in the amount of return flow, or to the hydrogeologic pattern of return flow, has the potential to affect adversely downstream water rights. There consequently exists an inextricable link between the "amount historically consumed" and the water that re-enters the stream as return flow. . . .
> An appropriator historically has been entitled to the greatest quantity of water he can put to use. The requirement that the use be both beneficial and reasonable, however, proscribes this tenet. This limitation springs from a fundamental tenet of western water law-that an appropriator has a right only to that amount of water historically put to beneficial use-developed in concert with the rationale that each subsequent appropriator "is entitled to have the water flow in the same manner as when he located," and the appropriator may insist that prior appropriators do not affect adversely his rights.
> This fundamental rule of Montana water law has dictated the Department's determinations in numerous prior change proceedings. The Department claims that historic consumptive use, as quantified in part by return flow analysis, represents a key element of proving historic beneficial use.
> We do not dispute this interrelationship between historic consumptive use, return flow, and the amount of water to which an appropriator is entitled as limited by his past beneficial use.

Hohenlohe, at ¶¶ 42-45 (internal citations omitted).

[5] The Montana Supreme Court recently recognized the fundamental nature of return flows to Montana's water sources in addressing whether the Mitchell Slough was a perennial flowing stream, given the large amount of irrigation return flow which feeds the stream. The Court acknowledged that the Mitchell's flows are fed by irrigation return flows available for appropriation. *Bitterroot River Protective Ass'n, Inc. v. Bitterroot Conservation Dist.*, 2008 MT 377, ¶¶ 22, 31, 43, 346 Mont. 508, 198 P.3d 219,(*citing Hidden Hollow Ranch v. Fields*, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185).

132. The Department's rules reflect the above fundamental principles of Montana water law and are designed to itemize the type of evidence and analysis required for an Applicant to meet its burden of proof. ARM 36.12.1901 through 1903. These rules forth specific evidence and analysis required to establish the parameters of historic use of the water right being changed. ARM 36.12.1901 and 1902. The rules also outline the analysis required to establish a lack of adverse effect based upon a comparison of historic use of the water rights being changed to the proposed use under the changed conditions along with evaluation of the potential impacts of the change on other water users caused by changes in the amount, timing, or location of historic diversions and return flows. ARM 36.12.1901 and 1903.

133. Applicant seeks to change existing water rights represented by its Water Right Claims. The "existing water rights" in this case are those as they existed prior to July 1, 1973, because with limited exception, no changes could have been made to those rights after that date without the Department's approval. Analysis of adverse effect in a change to an "existing water right" requires evaluation of what the water right looked like and how it was exercised prior to July 1, 1973. In *McDonald v. State*, the Montana Supreme Court explained:

> The foregoing cases and many others serve to illustrate that what is preserved to owners of appropriated or decreed water rights by the provision of the 1972 Constitution is what the law has always contemplated in this state as the extent of a water right: such amount of water as, by pattern of use and means of use, the owners or their predecessors put to beneficial use. . . . the Water Use Act contemplates that all water rights, regardless of prior statements or claims as to amount, must nevertheless, to be recognized, pass the test of historical, unabandoned beneficial use. . . . To that extent only the 1972 constitutional recognition of water rights is effective and will be sustained.

220 Mont. at 529, 722 P.2d at 604; *see also Matter of Clark Fork River Drainage Area*, 254 Mont. 11, 17, 833 P.2d 1120 (1992).

134. Water Resources Surveys were authorized by the 1939 legislature. 1939 Mont. Laws Ch. 185, § 5. Since their completion, Water Resources Surveys have been invaluable evidence in water right disputes and have long been relied on by Montana courts. *In re Adjudication of Existing Rights to Use of All Water in North End Subbasin of Bitterroot River Drainage Area in Ravalli and Missoula Counties*, 295 Mont. 447, 453, 984 P.2d 151, 155 (1999) (Water Resources Survey used as evidence in adjudicating of water rights); *Wareing v. Schreckendgust*, 280 Mont. 196, 213, 930 P.2d 37, 47 (1996) (Water Resources Survey used as evidence in a prescriptive ditch easement case); *Olsen v. McQueary*, 212 Mont. 173, 180, 687 P.2d 712, 716 (1984) (judicial notice taken of Water Resources Survey in water right dispute concerning branches of a creek).

135. While evidence may be provided that a particular parcel was irrigated, the actual amount of water historically diverted and consumed is critical. *E.g., In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, DNRC Proposal for Decision adopted by Final Order (2005). The Department cannot assume that a parcel received the full duty of water or that it received sufficient water to constitute full-service irrigation for optimum plant growth. Even when it seems clear that no other rights could be affected solely by a particular change in the location of diversion, it is essential that the change also not enlarge an existing right. *See MacDonald*, 220 Mont. at 529, 722 P.2d at 604; *Featherman*, 43 Mont. at 316-17, 115 P. at 986; *Trail's End Ranch, L.L.C. v. Colorado Div. of Water Resources*, 91 P.3d 1058, 1063 (Colo., 2004).

136. The Department has adopted a rule providing for the calculation of historic consumptive use where the Applicant proves by a preponderance of the evidence that the acreage was historically irrigated. ARM 36.12.1902(16). In the alternative an Applicant may present its own evidence of historic beneficial use. In this case Applicant has elected to proceed under ARM 36.12.1902 (FOF 55).

137. If an Applicant seeks more than the historic consumptive use as calculated by ARM 36.12.1902(16), the Applicant bears the burden of proof to demonstrate the amount of historic consumptive use by a preponderance of the evidence. The actual historic use of water could be less than the optimum utilization represented by the calculated duty of water in any particular case. *E.g., Application for Water Rights in Rio Grande County*, 53 P.3d 1165 (Colo., 2002) (historical use must be quantified to ensure no enlargement); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*; *Orr v. Arapahoe Water and Sanitation Dist*., 753 P.2d 1217, 1223-1224 (Colo., 1988) (historical use of a water right could very well be less than the duty of water); *Weibert v. Rothe Bros., Inc.,* 200 Colo. 310, 317, 618 P.2d 1367, 1371 - 1372 (Colo. 1980) (historical use could be less than the optimum utilization “duty of water”).

138. Based upon the Applicant’s evidence of historic use, the Applicant has proven by a preponderance of the evidence the historic use of Statement of Claim 76H 30165310 to be a diverted volume of 131.96 AF, a historically consumed volume of 105.57 AF, and flow rate of 2.5 CFS. (FOF 52-63)

139. Based upon the Applicant’s comparative analysis of historic water use and return flows to water use and return flows under the proposed change, the Applicant has proven that the proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or

certificate has been issued or for which a state water reservation has been issued. Section 85-2-402(2)(a), MCA. (FOF 64-75)

BENEFICIAL USE

140. A change Applicant must prove by a preponderance of the evidence the proposed use is a beneficial use. Sections 85-2-102(4) and -402(2)(c), MCA. Beneficial use is and has always been the hallmark of a valid Montana water right: "[T]he amount actually needed for beneficial use within the appropriation will be the basis, measure, and the limit of all water rights in Montana . . ." McDonald, 220 Mont. at 532, 722 P.2d at 606. The analysis of the beneficial use criterion is the same for change authorizations under § 85-2-402, MCA, and new beneficial permits under §85-2-311, MCA. ARM 36.12.1801. The amount of water that may be authorized for change is limited to the amount of water necessary to sustain the beneficial use. *E.g., Bitterroot River Protective Association v. Siebel, Order on Petition for Judicial Review*, Cause No. BDV-2002-519 (Mont. 1st Jud. Dist. Ct.) (2003) (*affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518); *Worden v. Alexander*, 108 Mont. 208, 90 P.2d 160 (1939); *Allen v. Petrick*, 69 Mont. 373, 222 P. 451(1924); *Sitz Ranch v. DNRC*, DV-10-13390,, *Order Affirming DNRC Decision*, Pg. 3 (Mont. 5th Jud. Dist. Ct.) (2011) (citing *BRPA v. Siebel*, 2005 MT 60, and rejecting Applicant's argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet); *Toohey v. Campbell*, 24 Mont. 13, 60 P. 396 (1900) ("The policy of the law is to prevent a person from acquiring exclusive control of a stream, or any part thereof, not for present and actual beneficial use, but for mere future speculative profit or advantage, without regard to existing or contemplated beneficial uses. He is restricted in the amount that he can appropriate to the quantity needed for such beneficial purposes."); § 85-2-312(1)(a), MCA (DNRC is statutorily prohibited from issuing a permit for more water than can be beneficially used).

141. Applicant proposes to use water for aquifer recharge which is a recognized beneficial use. Section 85-2-102(5), MCA. Applicant has proven by a preponderance of the evidence that aquifer recharge is a beneficial use and that 101.1 AF of diverted volume and 336.6 GPM of water requested is the amount needed to sustain the beneficial use. Section 85-2-402(2)(c), MCA (FOF 76-79).

142. This Change Application is intended to provide aquifer recharge water for Application for Beneficial Water Use Permit No. 76H 30163647 which requires 99.0 AF of water delivered to the Bitterroot River via infiltration.

ADEQUATE MEANS OF DIVERSION

143. Pursuant to § 85-2-402 (2)(b), MCA, the Applicant is not required to prove that the proposed means of diversion, construction, and operation of the appropriation works are adequate because this application involves a (iii) a change in appropriation right pursuant to § 85-2-420 for mitigation or marketing for mitigation.

144. *In the Matter of Application to Change a Water Right No. G129039-76D by Keim/Krueger* (DNRC Final Order 1989) (whether party presently has easement not relevant to determination of adequate means of diversion)

145. Pursuant to § 85-2-402 (2)(b), MCA, Applicant has proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. (FOF 80-83)

POSSESSORY INTEREST

146. Pursuant to § 85-2-402(2)(d), MCA, the Applicant is not required to prove that it has a 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 because this application involves a change in appropriation right pursuant to § 85-2-420 MCA for aquifer recharge.

147. The Applicant has proven by a preponderance of the evidence that it has a 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. (FOF 84).

PRELIMINARY DETERMINATION

Subject to the terms and analysis in this Preliminary Determination Order, the Department preliminarily determines that this Combined Application for Beneficial Water Use Permit No. 76H 30163647 and Change Application No. 76H 30165219 should be GRANTED subject to the following.

The Department determines the Applicant may divert groundwater from the Bitterroot River Valley Shallow Aquifer by means of a well from May 1 to October 31 at 980 GPM up to 99.0 AF from a point in the NWSWNW, Sec. 14, T12N, R20W, for municipal use from May 1 to October 31 in Sections 1, 2, 11, 12, 13, and 14 T12N, R20W.

Permit application 76H 30163647 will be subject to the following conditions, limitations, or restrictions to meet the adverse effect criterion:

WATER MEASUREMENT-INLINE FLOW METER REQUIRED: THE APPROPRIATOR SHALL INSTALL A DEPARTMENT APPROVED IN-LINE FLOW METER AT A POINT IN THE DELIVERY LINE APPROVED BY THE DEPARTMENT. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF ALL WATER DIVERTED, INCLUDING THE PERIOD OF TIME. RECORDS SHALL BE SUBMITTED BY NOVEMBER 30 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR UNTIL THE PROVISIONAL PERMIT IS PERFECTED AND THE DEPARTMENT RECEIVES A PROJECT COMPLETION NOTICE. IN THE EVENT THAT PERMITTED FLOW RATES AND/OR VOLUMES HAVE BEEN EXCEEDED DURING PERFECTION OF THE PROVISIONAL PERMIT OR THE APPROPRIATOR FAILS TO SUBMIT ANNUAL REPORTS, THE DEPARTMENT MAY CONTINUE TO REQUIRE ANNUAL SUBMISSIONS OF MONTHLY FLOW RATE AND VOLUME RECORDS. FAILURE TO SUBMIT REPORTS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE MISSOULA WATER RESOURCES REGIONAL OFFICE. THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.

THE APPROPRIATOR'S USE OF WATER UNDER THIS PERMIT IS CONDITIONED UPON THE 99.0 AC-FT OF MITIGATION VOLUME REQUIRED TO OFFSET ADVERSE EFFECTS FROM NET DEPLETION TO THE BITTERROOT RIVER. DIVERSION UNDER THIS PERMIT MAY NOT COMMENCE UNTIL THE MITIGATION PLAN AS SPECIFICALLY DESCRIBED AND APPROVED THROUGH CHANGE AUTHORIZATION 76H 30165219 IS LEGALLY IMPLEMENTED. DIVERSION UNDER THIS PERMIT MUST STOP IF MITIGATION AS HEREIN REQUIRED IN AMOUNT, LOCATION, AND DURATION CEASES.

The area that will be depleted is located along the Bitterroot River. To mitigate depletions to the affected reach, the Department determines the Applicant may use Statement of Claim 76H 30165310 to provide aquifer recharge by retiring 82 acres in the S2SE Sec. 2 and NENE

Sec. 11, T12N, R20W. The Applicant may change the point of diversion from a point on the Bitterroot River in the NWSESE Sec. 2, T12N, R20W to a point on the Bitterroot River in the SENWNE Sec. 15, T12N, R20W. The Applicant may pump water from the new point of diversion to a location on Miller Creek in the SESWNW Sec. 14, T12N, R20W, where the water will be discharged for aquifer recharge purposes.

Change application 76H 30165219 will be subject to the following conditions, limitations, or restrictions to meet the adverse effect and beneficial use criteria:

WATER MEASUREMENT-INLINE FLOW METER REQUIRED: THE APPROPRIATOR SHALL INSTALL A DEPARTMENT APPROVED IN-LINE FLOW METER AT A POINT IN THE DELIVERY LINE APPROVED BY THE DEPARTMENT. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF ALL WATER DIVERTED, INCLUDING THE PERIOD OF TIME. RECORDS SHALL BE SUBMITTED BY NOVEMBER 30 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR. IN THE EVENT THAT AUTHORIZED FLOW RATES AND/OR VOLUMES HAVE BEEN EXCEEDED DURING PERFECTION OF THE CHANGE AUTHORIZATION OR THE APPROPRIATOR FAILS TO SUBMIT ANNUAL REPORTS, THE DEPARTMENT MAY CONTINUE TO REQUIRE ANNUAL SUBMISSIONS OF MONTHLY FLOW RATE AND VOLUME RECORDS. FAILURE TO SUBMIT REPORTS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE MISSOULA WATER RESOURCES REGIONAL OFFICE. THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.

THIS CHANGE AUTHORIZATION PROVIDES MITIGATION WATER FOR BENEFICIAL WATER USE PERMIT NO. 76H 30163647. THE BENEFICIAL USE CRITERION OF THIS CHANGE AUTHORIZATION IS CONDITIONED UPON THE AUTHORIZATION OF BENEFICIAL WATER USE PERMIT AUTHORIZATION NO. 76H 30163647.

NOTICE

The Department will provide a notice of opportunity for public comment on these Applications and the Department's Draft Preliminary Determination to Grant pursuant to § 85-2-307, MCA. The Department will set a deadline for public comments to these Applications pursuant to §§ 85-2-307, and -308, MCA. If these Applications receive public comments, the Department shall consider the public comments, respond to the public comments, and issue a preliminary determination to grant the applications, grant the applications in modified form, or deny the applications. If no public comments are received pursuant to § 85-2-307(4), MCA, the Department's preliminary determination will be adopted as the final determination.

Dated this 23rd day of May, 2025.

Jim Nave, Manager
Missoula Regional Office
Montana Department of Natural Resources and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the DRAFT PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 23rd day of May, 2025, by first class United States mail.

ATTN: LOGAN MCINNIS
CITY OF MISSOULA
435 RYMAN ST
MISSOULA, MT 59802

TOLLEFSON PROPERTIES LLC
15311 TYSON WAY
FRENCHTOWN, MT 59834-8535

ATTN: DAVE BALDWIN
HYDROSOLUTIONS INC
303 CLARKE ST
HELENA, MT 59601

Benjamin Thomas

Benjamin Thomas
Water Conservation Specialist
Missoula Regional Office
(406) 542-5883

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

Missoula Water Resources Regional Office
PO Box 5004
2705 Spurgin Road, Bldg. C
Missoula, MT 59806-5004
(406) 721-4284

March 26, 2026
City of Missoula
435 Ryman Street
Missoula, MT 59802
Subject: Correct and Complete Application for Beneficial Water Use Permit No. 76H 30163647

Dear Applicant,

The Department of Natural Resources and Conservation (Department) has determined that your application is correct and complete pursuant to ARM 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), 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.

If you have any questions or concerns about the application process, please contact me.

Sincerely,

Benjamin Thomas

Benjamin Thomas
Water Conservation Specialist
New Appropriations Program
Water Resources Division

CC:
Dave Baldwin
Hydrosolutions, Inc

Application Materials

- Application
- Any information submitted with Application including maps

Application Materials

APPLICATION FOR
BENEFICIAL WATER USE PERMIT
§ 85-2-302
Form No. 600 *(04/2024)*

For Department Use Only

RECEIVED

MAR - 5 2025

MONTANA D.N.R.C.
MISSOULA REGIONAL OFFICE

Application # 30163647 Basin 76M
Priority Date 3/5/2025 Time 1:12 ~~AM~~/PM
Rec'd By Alice Longacre
Fee Rec'd $ 1100 of 2100 Check # 17021
Deposit Receipt # MSS2518004
Payor Tollefson Construction 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)).

Applicant Information: *Add more as necessary.*

Applicant Name CITY OF MISSOULA, DEPUTY DIRECTOR OF PUBLIC WORKS
Mailing Address 435 RYMAN ST City MISSOULA State MT Zip 59802
Phone Numbers: Home _____ Work 406-552-6020 Cell _____
Email Address _____

Applicant Name _____
Mailing Address _____ City _____ State _____ Zip _____
Phone Numbers: Home _____ Work _____ 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 X Consultant ___ Attorney ___ Other
Contact/Representative Name DAVE BALDWIN, HYDROSOLUTIONS INC
Mailing Address 303 CLARKE ST City HELENA State MT Zip 59601
Phone Numbers: Home _____ Work _____ Cell 406-431-7760
Email Address dbaldwin@hydrosi.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. 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 correspondence and a copy may be sent to the contact person.*

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 checked 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. Label units in narrative responses. Responses in the form of a table may be entered into the table provided on this form or in an attachment. Responses in the form of a table that are larger than the table provided on this form should be placed in an attachment. If an attachment is used, the table must have the exact headings found on this form, and "see attachment" must be placed on this form. For tables on this form, circle correct unit at header of column when table has unit options. For tables in attachments, label all units.

PREAPPLICATION AND TECHNICAL ANALYSIS INFORMATION

1. ☒ **Y** ☐ **N** Did you have a preapplication meeting AND complete a Form 600P Permit Preapplication Meeting Form?

IF QUESTION 1 IS YES,

2. ☒ **Y** ☐ **N** Did you elect on Form 600P to have the Department conduct Technical Analysis?

3. ☐ **Y** ■ **N** Has any element of the application changed from Form 600P or the Technical Analysis conducted as part of the preapplication process? A Technical Analysis Addendum (Form 600-TAA) is required if changes have occurred.

4. Submit the following items:

4.1. ■ **S** Technical Analysis you would like the Department to use to conduct criteria assessment.

4.2. ☐ **S** ■ **NA** Scientific Credibility Review, if applicable.

4.3. ☐ **S** ■ **NA** Technical Analysis Addendum (Form 600-TAA), if applicable, per question 3.

IF QUESTION 1 IS NO,

5. ☐ **S** Submit the Technical Analysis Addendum (Form 600-TAA).

6. ☒ **Y** ☐ **N** Do you elect to have the Department conduct Technical Analysis?

6.1. ☐ **S** If no, submit all the required Technical Analyses. See the Technical Analysis Guide for more information.

APPLICATION ADDENDA AND REVIEW

7. ■ **S** ☐ **NA** If your application is for groundwater 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).

8. ☐ **S** ■ **NA** If your application is for groundwater and one or more of your points of diversion are in a Basin Closure Area, then you must comply with the requirements of §85-2-360. If you elected to conduct Technical Analysis, you must submit the Hydrogeologic Report Addendum (Form 600-HRA). If you did not have a preapplication meeting AND complete a Form 600P Permit Preapplication Meeting Form, you must submit the Hydrogeologic Report Addendum (Form 600-HRA). If you had a preapplication

meeting, completed a Form 600P Permit Preapplication Meeting Form, and elected DNRC to conduct Technical Analysis, you do not need to submit Form 600-HRA because the Department's Technical Analysis, which you must submit along with this application, meets the requirements of §85-2-360.

9. ☐ **S** ■ **NA** If one or more of your points of diversion are in a Controlled Groundwater Area, then submit the Controlled Groundwater Area Addendum (Form 600-CGWA) and all its required attachments.

10. ☐ **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).

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

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

13. ☐ **S** ■ **NA** If the proposed purposes include marketing or selling water, then submit the Water Marketing Purpose Addendum (Form 600/606-WMA).

14. ☐ **S** ■ **NA** If the project is in designated sage grouse habitat, then submit a review letter from the Montana Sage Grouse Habitat Conservation Program (https://sagegrouse.mt.gov).

15. ☐ **Y** ☐ **N** ■ **NA** You must provide a written notice of the application to each owner of an appropriation right sharing the point of diversion or means of conveyance (e.g., canal, ditch, flume, pipeline, or constructed waterway). Have you sent this notice to all applicable parties? Your application cannot be deemed correct and complete until you have sent this notice pursuant to §85-2-302(4)(c), MCA.

PURPOSE AND DIVERSION INFORMATION

16. ☐ **Y** ■ **N** Is the proposed use temporary?

16.1. If yes, when will the appropriation cease? _____

17. Is the proposed source surface water or groundwater? Groundwater

18. What is the source name? Groundwater- Qal, Bitterroot River Alluvium

19. ■ **S** Attach a map utilizing an aerial photograph or topographic map that shows the following: section corners, township and range, a north arrow, all proposed points of diversion labeled with a unique POD ID number, all proposed places of use, all proposed conveyance facilities and or routes, all proposed places of storage, and places of use for all overlapping water rights.

20. 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 or CFS)*	**Volume** *(Acre-Feet)*
Municipal	WELL	NA	05/01-10/31	05/01-10/31	980 GPM	99.0
				Total Flow Rate and Volume Required	980 GPM	99.0

POINT(S) OF DIVERSION

21. 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 19).

POD #	**¼**	**¼**	**¼**	**Sec.**	**Twp.**	**Rge.**	**County**	**Lot**	**Block**	**Tract**	**Subdivision**	**Gov. Lot**
1	NW	SW	NW	14	12N	20W	MISSOUILA					

PLACE OF USE

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

-Place of use is municipal	-
-	-
-	-
-	-

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

Acres	Gov. Lot	Block	¼	¼	¼	Sec.	Twp.	Rge.	County

SUPPLEMENTAL AND OVERLAPPING WATER RIGHTS

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

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

The proposed water rights will be diverted May 1 - Oct 31 from new Well 4 and conveyed to the Sophie and Upper Linda Vista storage tanks where water is commingled. Water in storage is then conveyed through water mains and delivered within the claimed place of use for municipal purposes.

25. 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 to the shared place of use.

Water Right #	Average Period of Diversion	Average Period of Use	Flow Rate	Volume Contributed
See Attachment				

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

26.1. If yes, explain.

OWNERSHIP AND POSSESSORY INTEREST

27. ☐ Y ■ N Does the Applicant have ownership of all proposed points of diversion and places of use?

27.1. If no, explain.

Water is for municipal use which does not require proof of ownership interest.

28. ■ 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.

28.1. If yes, explain.

The purpose for this permit is municipal use

ADVERSE EFFECT

29. ■ Y ☐ N Do you have evidence that water is physically and/or legally available in the amount required for the proposed flow rate and volume of your project?

29.1. If yes, explain.

See attachment

30. ☐ Y ☐ N If the legal availability criteria assessment finds that water is not legally available throughout the entire proposed period of diversion, do you have a contingency plan to address this?

30.1. If yes, explain.

Not Applicable. See #29.1

31. ☐ Y ■ N Are there any factors that would limit your ability to turn off your appropriation in response to a call?

31.1. If yes, explain.

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

The diversion pump can be turned off if a valid call is made.

33. ☐ Y ■ N Are you aware of any calls that have been made on the source of supply or depleted surface water source?

33.1. If yes, explain.

34. ☐ Y ■ N Does a water commissioner distribute water or oversee water distribution on your proposed source or any identified depleted surface water sources?

34.1. If yes, list the source(s).

35. Describe your plan to ensure existing water rights will be satisfied during times of water shortage.

See Attachment

36. ☐ Y ■ N Do other water rights share any of the proposed points of diversion?

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

37. ☐ Y ■ N Do other water rights share any conveyance ditch associated with the proposed project? See the list of water rights that share the conveyance ditches in either the Preapplication Meeting Form (Form 600P) or the Technical Analysis Addendum (Form 600-TAA).

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

ADEQUATE MEANS OF DIVERSION AND OPERATION

38. ■ S Provide a diagram of how you will operate your system from all proposed points of diversion to all proposed places of use. See Attachment

39. 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 diversion is a well. The well is in the City's Haugan well field, which is known to be highly productive. A 49.9-hour aquifer test conducted on Well 4 (POD 1) in April 2023 by HydroSolutions confirmed physical availability of the 980 GPM requested in this permit. DNRC's Permit Technical Report found that groundwater is physically available. Total dynamic head is 330 feet to the Sophie Tank. Well 4 has not yet been fitted with a pump because the well is not yet permitted and because DEQ approval of the pump is required before installation . It is expected that a pump similar to the the Haugan #2 well pump will be used. This is a Goulds 10RJLC, an 8-in, 150 h.p. unit capable of 1,000 gpm at 330 feet of lift. This example pump curve is provided in Appendix D.

40. ■ Y ☐ N Is the diversion capable of providing the full amount of water requested through the period of diversion?

40.1. If no, explain.

41. Describe the size and configuration of infrastructure to convey water from all proposed points of diversion to all proposed places of use. This may include, where applicable: ditch capacity and/or pipeline size and configuration.

The diversion infrastructure is via the 12-in Well 4 that conveys through 10-in pipe to the pump house and chlorinating unit. From the pump house, water is conveyed to the Sophie and Upper Linda Vista storage tanks in 18-in pipeline. From the storage tanks, water is distributed throughout the municipal place of use in 10- to 12-in pipeline mains.

42. Describe any losses related to the proposed conveyance.

Because the conveyance will utilize a pipelines will convey water from Well 4 to the storage tanks and throughout the municipal distribution system, no losses are expected

43. ■ Y ☐ N ☐ NA Is the proposed conveyance infrastructure capable of providing the required flow and volume, plus any conveyance losses?

43.1. If no, explain.

44. ☐ Y ■ N Does the proposed conveyance require easements?

44.1. If yes, explain.

45. Describe 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, output and configuration of sprinkler heads and pipelines within the place of use.

Water will be pumped from the well at 980 GPM to the pump house and chlorinating unit, then to the Sophie and Upper Linda Vista storage tanks for distribution through the municipal pipeline delivery system within the place of use.

46. ☐ Y ■ N Will your system be designed to discharge water from the project?

46.1. If yes, explain the way water will be discharged and the disposal method.

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

47. ■ Y ☐ N Is the means of diversion for any proposed point of diversion a well?

IF YES,

47.1. ■ Y ☐ N Have all wells already been drilled?

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

Larry Gagnon, O'Keefe Drilling, Butte MT, Lic # WWD-126

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

NA

47.4. ☐ S ■ NA Submit any additional well logs for wells drilled after submittal of Form 600P.

BENEFICIAL USE

48. Why is the requested flow rate and volume the amount needed for the purpose(s)?

The requested flow rate is needed to provide pressure to deliver the diverted water to the Sophie storage tank. The volume is needed for the City to serve its municipal users.

49. ☐ Y ■ N Does the Department have a 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.

49.1. ☐ Y ☐ N If yes, does the proposed beneficial use fall within Department standards?

49.2. If no Department standard exists, or if proposed beneficial use falls outside of Department standards, explain how the use is reasonable for the purpose.

Municipal use is a recognized beneficial use in MCA statute and DNRC rules.

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

50.1. ■ Y ☐ N If yes, have you researched or consulted with DEQ regarding those requirements?

51. ☐ Y ■ N Are you proposing to use surface water for in-house domestic use?

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

51.1.1. ☐ S ☐ NA If yes, please submit the COSA.

51.1.2. ☐ Y ☐ N If no, have you researched or consulted with DEQ regarding their requirements?

PROPOSED COMPLETION PERIOD

52. How many years will be needed to complete this project and to submit to the DNRC a Project Completion Notice (Form 617)? 10 years

53. Why is this amount of time needed?

This is the amount of time that may be needed to fully complete the project and put the water to full beneficial use and document the full flow rate and volume requested.

49. ☐ Y ■ N Does the Department have a 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.

WORK COPY

49.1. ☐ Y ☐ N If yes, does the proposed beneficial use fall within Department standards?

49.2. If no Department standard exists, or if proposed beneficial use falls outside of Department standards, explain how the use is reasonable for the purpose.

Municipal use is a recognized beneficial use in MCA statute and DNRC rules.

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

50.1. ■ Y ☐ N If yes, have you researched or consulted with DEQ regarding those requirements?

51. ☐ Y ■ N Are you proposing to use surface water for in-house domestic use?

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

51.1.1. ☐ S ☐ NA If yes, please submit the COSA.

51.1.2. ☐ Y ☐ N If no, have you researched or consulted with DEQ regarding their requirements?

PROPOSED COMPLETION PERIOD

52. How many years will be needed to complete this project and to submit to the DNRC a Project Completion Notice (Form 617)? ~~3 years~~ 10 years, per conversation with Dave Baldwin

53. Why is this amount of time needed?

This is the amount of time that may be needed to fully complete the project and put the water to full beneficial use.

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. 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.

Applicant Signature Logan McInnis Digitally signed by Logan McInnis Date: 2025.03.05 11:10:19 -07'00' Date: _____

Printed Name _____

Title _____

Applicant Signature _____ Date: _____

Printed Name _____

Title _____

Applicant Signature _____ Date: _____

Printed Name _____

Title _____

ATTACHMENT TO PERMIT APPLICATION 76H 30163647

CITY OF MISSOULA

BENEFICIAL WATER USE PERMIT APPLICATION

This Attachment provides supplemental information to the Form 600 Beneficial Water Use Application.

4.

4.1 The DNRC Permit Technical Analysis is attached as Appendix A for conducting the criterial assessment.

7.

If your application is for groundwater 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).

This project is within the Bitterroot River Closure Area. See Appendix B for the Basin Closure Addendum Form 600-BCA.

8.

If your application is for groundwater and one or more of your points of diversion are in a Basin Closure Area, then you must comply with the requirements of §85-2-360.

A preapplication meeting was held and Preapplication Form 600P submitted as correct and complete, so a Hydrogeologic Report Addendum (Form 600-HRA) is not included.

12.

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

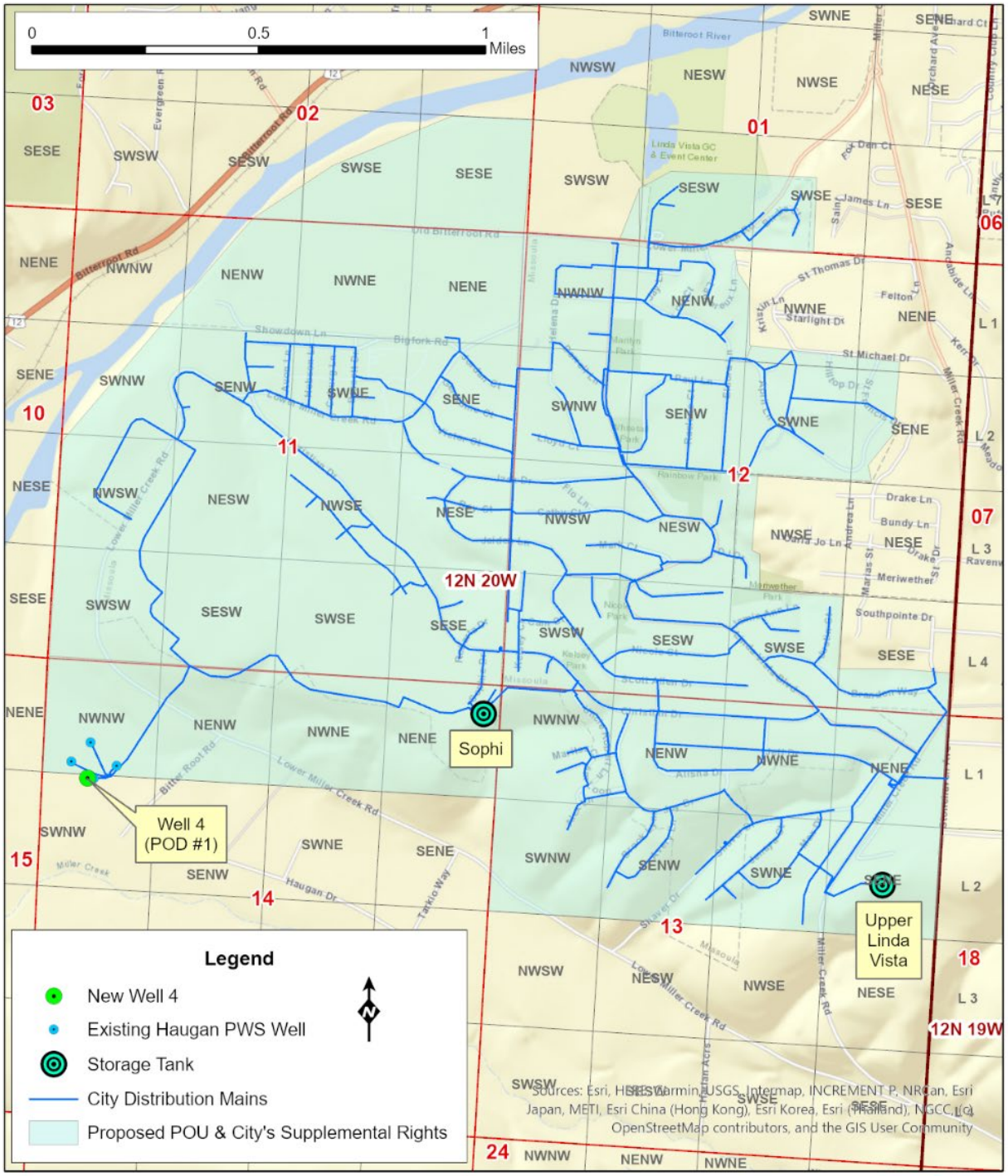
This project requires mitigation. The Mitigation Purpose Addendum, Form 600/606-MIT, which is required by both the Permit application and the Change application, is submitted as Appendix C.

19.

Attach a map utilizing an aerial photograph or topographic map that shows the following: section corners, township and range, a north arrow, all proposed points of diversion labeled with a unique POD ID number, all proposed places of use, all proposed conveyance facilities and or routes, all proposed places of storage, and places of use for all overlapping water rights.

Please see map below. Note that the shown place of use overlaps and is supplemental with City water rights listed in # 25 below.

Map of claimed POD, conveyance, storage, and POU, supplemental overlap.



CITY OF MISSOULA - Beneficial Permit App. 76H 30163647
Map of POD, POU, Conveyance, Storage & Supplemental Rights
T12N, R20W, Missoula, Montana

HydroSolutions

23.

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

Table 23 shows the legal description of the proposed place of municipal use.

Table 25. Proposed place of use.

Acres	Gov't Lot	Block	¼	¼	¼	Sec	Twp	Rge	County
			SE	SW	SW	1	12N	20W	MSLA
				SE	SW	1	12N	20W	MSLA
			W2	SW	SE	1	12N	20W	MSAL
				S2	SE	2	12N	20W	MSLA
			SE	SE	SW	2	12N	20W	MSLA
						11	12N	20W	MSLA
					W2	12	12N	20W	MSLA
			S2	S2	NE	12	12N	20W	MSLA
			W2	SE	NE	12	12N	20W	MSLA
				SW	NE	12	12N	20W	MSLA
			W2	NW	SE	12	12N	20W	MSLA
				SW	SE	12	12N	20W	MSLA
			S2	SE	SE	12	12N	20W	MSLA
					N2	13	12N	20W	MSLA
				N2	N2	14	12N	20W	MSLA

25.

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 to the shared place of use.

Table 25 shows City municipal water rights that are supplemental to the proposed new permit.

Table 25. City of Missoula – Supplemental municipal water rights.

Water Right Number	Avg. Period of Diversion	Avg. Period of Use	Flow Rate	Volume Contributed (AF)
76M 706 00	01/01 - 12/31	01/01 - 12/31	2000 GPM	3186.0
76M 5452 00	01/01 - 12/31	01/01 - 12/31	6.68 CFS	4839.0
76M 5604 00	01/01 - 12/31	01/01 - 12/31	6.68 CFS	4839.0
76M 6616 00	01/01 - 12/31	01/01 - 12/31	2989 GPM	4821.3
76M 10378 00	01/01 - 12/31	01/01 - 12/31	6.68 CFS	4839.0
76H 14489 00	01/01 - 12/31	01/01 - 12/31	2500 GPM	4032.0
76M 23029 00	01/01 - 12/31	01/01 - 12/31	1150 GPM	1508.0
76M 26357 00	01/01 - 12/31	01/01 - 12/31	120 GPM	194.1
76M 26359 00	01/01 - 12/31	01/01 - 12/31	33 GPM	53.4
76H 26360 00	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 26368 00	01/01 - 12/31	01/01 - 12/31	1000 GPM	1617.2
76M 31907 00	01/01 - 12/31	01/01 - 12/31	2440 GPM	296.0

76M 40143 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40144 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40145 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40146 00	01/01 - 12/31	01/01 - 12/31	1.78 CFS	1291.9
76M 40147 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40148 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76H 40149 00	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40150 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40151 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40152 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40153 00	01/01 - 12/31	01/01 - 12/31	1.78 CFS	1291.9
76M 40154 00	01/01 - 12/31	01/01 - 12/31	148 GPM	239.5
76H 40155 00	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76H 40156 00	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40157 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40158 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40159 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40160 00	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40161 00	01/01 - 12/31	01/01 - 12/31	305 GPM	486.7
76M 40162 00	01/01 - 12/31	01/01 - 12/31	1 CFS	725.8
76M 40163 00	01/01 - 12/31	01/01 - 12/31	2.22 CFS	1611.2
76H 40164 00	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40165 00	01/01 - 12/31	01/01 - 12/31	3.28 CFS	2380.6
76H 40166 00	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40170 00	01/01 - 12/31	01/01 - 12/31	23.65 CFS	17164.7
76M 40171 00	01/01 - 12/31	01/01 - 12/31	4 CFS	2903.1
76M 40172 00	01/01 - 12/31	01/01 - 12/31	152.6 GPM	246.4
76M 40173 00	01/01 - 12/31	01/01 - 12/31	1.62 CFS	1175.8
76M 40174 00	01/01 - 12/31	01/01 - 12/31	1.16 CFS	841.9
76M 40175 00	01/01 - 12/31	01/01 - 12/31	8.7 CFS	6314.3
76M 40176 00	01/01 - 12/31	01/01 - 12/31	16.13 CFS	11706.8
76M 53867 00	01/01 - 12/31	01/01 - 12/31	3000 GPM	4838.3
76M 53868 00	01/01 - 12/31	01/01 - 12/31	2500 GPM	4031.0
76M 53872 00	01/01 - 12/31	01/01 - 12/31	3000 GPM	4838.3
76H 67585 00	01/01 - 12/31	01/01 - 12/31	500 GPM	350.0
76H 70436 00	01/01 - 12/31	01/01 - 12/31	3800 GPM	500.0
76M 91259 00	01/01 - 12/31	01/01 - 12/31		504.0
76H 107536 00	01/01 - 12/31	01/01 - 12/31	3998 GPM	6449.2
76M 108816 00	01/01 - 12/31	01/01 - 12/31	2440 GPM	296.0
76H 30063539	01/01 - 12/31	01/01 - 12/31	2000 GPM	622.9

29.

Do you have evidence that water is physically and/or legally available in the amount required for the proposed flow rate and volume of your project?

Yes

Groundwater Physical Availability – The Permit Technical Report found that groundwater is physically available.
A 49.9-hour aquifer test conducted on Well 4 (POD 1) in April 2023 by HydroSolutions confirmed physical availability. Well 4 produced an average flow rate of 980 GPM, which is the flow rate applied for in this permit. Table 29 summarizes the test results, drawdown and available drawdown based on a pump intake installed above the screened interval at 48 feet. This test shows that 28.6 feet of drawdown remained after the test and that water is physically available from Well 4.

Table 29. Pumping test summary

Well Name	GWIC #	Test Length (HR)	Pumping Rate (GPM)	Well Depth (FT)	Screen Interval (FT)	Drawdown End of Test (FT)	Static Water Level (FT)	Available Drawdown To Bottom (FT)
Well 4	326236	49.9	980	82	52-82	9.2	19.4	28.6

Groundwater Legal Availability – The Permit Technical Report found that groundwater is legally available. Additionally, the consumed volume diverted in the permit will be mitigated with the associated change application and aquifer recharge plan.

DNRC modeled a zone of influence (ZOI) having 10,956 AF/year of groundwater flux. Only one active groundwater right with a volume of 1.28 AF is within the ZOI. Combined with Applicant's 99.0 AF the total volume is 100.28 AF. Therefore, groundwater is legally available. Further, the associated mitigation plan offsets all depletions associated with Well 4.

35.

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

In addition to being able to turn off the pump in Well 4, the following responses describe the ability of the City to react to a valid call. Together, these responses will allow the City to continue providing domestic water within the place of use.

• The City's Sophie and Upper Linda Vista Storage tanks can provide a level of back-up water if the duration of the call is short.

• The area supplied by Well 4 is also supplied from the other three Haugan wells and, if needed, from other City wells to the north.

• The City can restrict or curtail landscape watering in the proposed place of use, as needed, if a valid call is made.

Additionally, there are only ten water rights totaling 29.5 CFS that are senior to the mitigation water of claim 76H 30165310 (Tollefson). Because the 50th percentile of mean monthly flow is 766 CFS at its lowest flow in the month of September, the flow rates of these ten senior water rights are always met. Therefore, a call is unlikely.

38.

Provide a diagram of how you will operate your system from all proposed points of diversion to all proposed places of use.

APPENDIX A

PERMIT TECHNICAL ANALYSIS

APPENDIX B

BASIN CLOSURE ADDENDUM

Form No. 600-BCA *(01/2024)* **Applicant Name**

APPLICATION FOR BENEFICIAL WATER USE PERMIT
BASIN CLOSURE ADDENDUM
§85-2-360, 85-2-361, 85-2-362, MCA
ARM 36.12.120

In the numerous basin closure areas in Montana, the department cannot process an application unless it qualifies as a basin closure exception. An applicant must provide a written summary of their application information explaining how their application meets the basin closure exceptions and why their application located in a basin closure area can be processed. The department will determine whether an application in a basin closure area can be processed based on the information received from the applicant and will document its findings before it will review the application to determine whether it is correct and complete. You will be required to mitigate the net depletion of water that may create an adverse effect to groundwater and hydraulically connected surface water rights. If needed, a mitigation plan must ensure that existing senior water users will not be adversely affected by the new appropriation of water. Therefore, the plan must explain how the rate, timing, and location of the mitigation water will maintain the current water balance. 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. Label all attachments with the question number.

1. ☒ **Y** ☐ **N** For groundwater applications filed pursuant to § 85-2-360, MCA, did the Hydrogeologic Assessment Report indicate that the proposed groundwater use will impact a surface water source? If yes, continue through the addendum, if no, STOP—no further information is required on this addendum.

2. What surface water source will be affected by the groundwater use (includes irrigation canals & drains)? Bitterroot River

3. Provide a map showing the location of the effect on surface water. (see attached map from Permit Tech Report, Figure 11)

4. What amount of effect will occur to surface water? 146.1 normalized (up to 336.6) ☒ GPM -or- ☐ CFS
   (Depletion schedule in Permit Tech Report) 99.0 per year ☒ Acre-Feet

5. What is your plan to mitigate the amount of water identified above?
   a. ☒ I am submitting an Application to Change a Water Right to mitigate the adverse effect created. I acknowledge the change application must be submitted with the permit application or within a further time as allowed by the Department.
      The department will evaluate the change application and determine if the proposed change will adequately mitigate the effects of the proposed water use. The evaluation will include a determination of the value of the water right to be changed; the amount of water that will be available for mitigation; and whether the rate, timing, and location of the mitigation water will protect existing water rights.
   b. ☐ I am not submitting a change application; however, I am submitting an alternative mitigation plan. See attached plan.
      The department will evaluate the mitigation plan and determine if the plan will protect existing water rights.

c. ☐ A mitigation plan is not required. See attached documentation.

6. ☐ **Y** ■ **N** Are there existing documented hazards that could be affected or exacerbated by the proposed project, such as areas of subsidence? If yes, describe a plan to mitigate any of those conditions or impacts.

_____
_____
_____
_____
_____

NOTE: Information required for the hydrogeologic assessment may not be sufficient to meet applicable criteria under 85-2-311, MCA, including but not limited to adverse effect to a prior appropriator. The applicant for a beneficial water use permit pursuant to 85-2-311, MCA, is responsible for providing sufficient evidence to meet all applicable criteria.

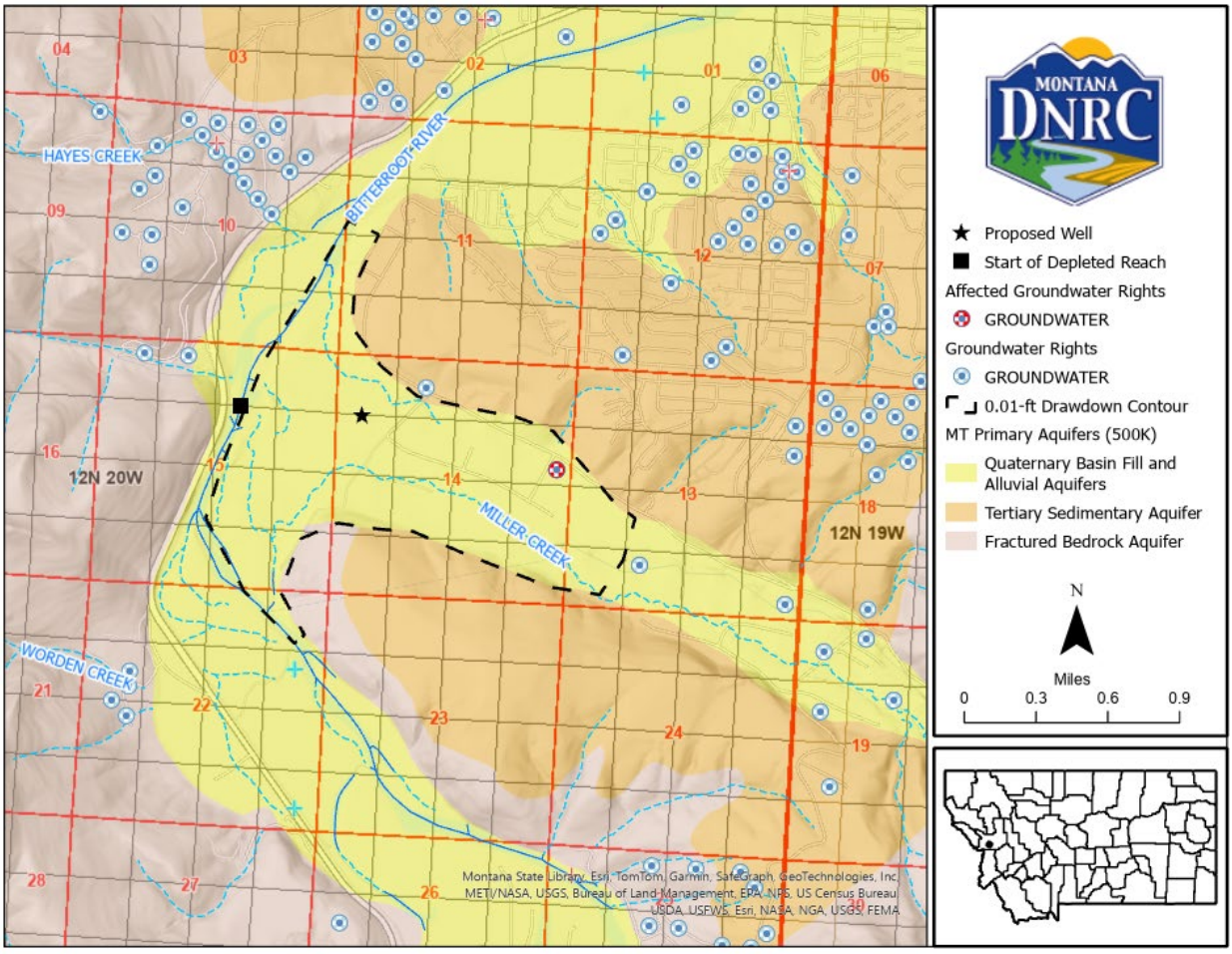


Figure 11: 0.01-foot drawdown contour interval and water rights within the ZOI for Permit Application No. 76H 30163647.

APPENDIX C

MITIGATION PURPOSE ADDENDUM (FORM No. 600/606-MIT)

Form No. 600/606-MIT *(01/2024)* **Applicant Name**

APPLICATION FOR BENEFICIAL WATER USE PERMIT OR APPLICATION TO CHANGE A WATER RIGHT

MITIGATION PURPOSE ADDENDUM

§ 85-2-420, 85-2-362, MCA

Mitigation and aquifer recharge are used to offset adverse effects resulting from the net depletion of surface water. Mitigation means the reallocation of surface water or ground water through a change in appropriation right or other means that does not result in surface water being introduced into an aquifer through aquifer recharge. Aquifer recharge means either the controlled subsurface addition of water directly to the aquifer or controlled application of water to the ground surface for the purpose of replenishing the aquifer. All net depletions to surface water located in a closed basin and net depletions that are greater than legal availability in open basins require mitigation or aquifer recharge to offset the net depletions. The department may not require an applicant, through an aquifer recharge or mitigation plan, to provide more water than the quantity needed to offset the adverse effects on a prior appropriator caused by the net depletion. An appropriation right that relies on an aquifer recharge or mitigation plan must require that the aquifer recharge or mitigation plan be exercised when the appropriation right is exercised. Marketing for mitigation allows a water right owner to change the purpose on their water right, or add a marketing for mitigation purpose, prior to having any projects requiring mitigation water. By completing this change prior to securing a use, the water remains available for mitigation for a period of up to 20 years while not subjecting the water right to abandonment proceedings. The owner may sell or lease all or a portion of the water for mitigation, depending upon the project needing mitigation. DNRC will not dictate the sale of the water for mitigation; however, DNRC must assess the mitigation water required and determine if the water provided is adequate with regard to quantity, timing, and location, as with any other mitigation water. 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. Label all attachments with the question number.

1. Is mitigation water required to meet the criteria of issuance for an existing Application for Beneficial Water Use or Application to Change a Water Right or will the purpose be marketing for mitigation for a future mitigation purpose? ☒ **Existing Application** ☐ **Marketing for Mitigation**

2. If the mitigation water will help meet the criteria of issuance for an existing application, will the mitigation water be used to offset net depletions in an open or closed basin? Answer question 3 for open basins or question 4 for closed basins. ☐ **Open** ☒ **Closed**

If an open basin:

3. Submit an aquifer recharge or mitigation plan with sufficient detail to explain why the plan is adequate to prevent adverse effects. Include in the plan the amount, timing, and location of mitigation water. Compare this to the amount, timing, and location of the net depletions to provide evidence of how the aquifer recharge or mitigation plan will offset the required amount of net depletion of surface water in a manner that will offset an adverse effect on a prior appropriator. The information used to craft the plan can be found in the technical analyses. See the Technical Analysis Guide for more information.

If a closed basin:

4. If the hydrogeologic report conducted pursuant to §85-2-361, MCA, predicts that there will be a net depletion of surface water, submit an aquifer recharge or mitigation plan. The plan must include: See Attachment

   (a) where and how the water in the plan will be put to beneficial use;

   (b) when and where, generally, water for aquifer recharge or mitigation will be required;

   (c) the amount of water that is required for aquifer recharge or mitigation;

   (d) how the proposed project or beneficial use for which the aquifer recharge or mitigation plan is required will be operated;

   (e) evidence that an application for a change in appropriation right, if necessary, has been submitted;

   (f) evidence of water availability;

   (g) evidence of how the aquifer recharge or mitigation plan will offset the required amount of net depletion of surface water in a manner that will offset an adverse effect on a prior appropriator; and

   (h) evidence that the appropriate water quality permits have been granted pursuant to Title 75, chapter 5, as required by 75-5-410, MCA, and 85-2-364, MCA.

   The information required for (b), (c), (f), and (g) can be found in the relevant technical analyses. See the Technical Analysis Guide for more information.

5. ☒ **Y** ☐ **N** Does the project involve aquifer recharge?

   5.1. If yes, then the aquifer recharge plan must include a description of the process by which water will be reintroduced to the aquifer. See Attachment, 4(a)

MITIGATION PURPOSE ADDENDUM

AQUIFER RECHARGE PLAN

City of Missoula -- Permit Application 76H 30163647
Tollefson Properties LLC -- Change Application 76H 30165219

Basin 76H – Bitterroot River is a closed basin. This is the aquifer recharge plan for the above-listed applications as required in Section 4 of Form No. 600/606-MIT.

4(a) Where and how the water in the plan will be put to beneficial use

A change of Tollefson Properties LLC claim 76H 30165310 (split from 76H 105168-00) is proposed to add a second point of diversion (upstream) and change the purpose of use from irrigation to aquifer recharge to offset depletions to the Bitterroot River from pumping Well 4. From new POD 2 in SENWNE Section 15, T12N-R20W (Figure 1), a volume of 101.1 AF and a maximum flow rate of 0.75 CFS (337.0 GPM) will be diverted from beneath a south channel of the Bitterroot River using three 30-foot sections of 12-in horizontal, slotted, HPDE infiltration pipe installed at a depth of about 10 feet below the river channel bed (Figure 2). From this horizontal well, a solid 12-inch HPDE pipe will extend about 800 feet to the southeast to a 5-foot diameter wet well located adjacent (southeast) of an active oxbow. This POD to wet well pipeline is designed with a siphon so that flows from the river cannot reach the wet well without pumping. The wet well will receive diverted water during pumping. A turbine pump and 4-inch totalizing inline flow meter will be installed in a pump house located above and adjacent to the wet well. The expected pump will be a 20 HP 5TMH-375, Berkeley submersible turbine pump, which can convey the requested 336.6 GPM about 1,820 feet over a vertical elevation lift of about 45 feet. Total dynamic head is about 170 feet at 335 GPM to the aquifer recharge site on lower Miller Creek (Figure 2). Water will be discharged to an effluent outfall at the aquifer recharge site on lower Miller Creek, a known losing stream (DNRC Change Tech Report). Water will infiltrate through the streambed of Miller Creek into the underlying alluvial aquifer where it will then migrate downgradient to the northwest and accrete to the Bitterroot River to fully offset the amount, timing, and location of depletions from pumping Well 4.

4(b) When and where, generally, water for aquifer recharge or mitigation will be required.

Depletions to the Bitterroot River from pumping new Well 4 are modeled by DNRC in the Permit Technical Report (see permit application). The depleted reach where mitigation water will be required (place of use of the changed water) starts in W2NE Section 15, T12N-R20W and extends downstream to the confluence with the main channel of the Clark Fork River in the NWNW Sec. 27, T13N-R20W (Figure 3).

4(c) The amount of water that is required for aquifer recharge or mitigation.

The Bitterroot River was identified as being hydraulically connected to the source aquifer pumped by Well 4. Monthly net depletions resulting from the proposed seasonal pumping

schedule of Well 4, and the resulting monthly depletions to the Bitterroot River were identified by DNRC as shown in Table 1 below. These are the monthly flow rates and volumes that the aquifer recharge plan will mitigate.

Table 1. Pumping schedule and DNRC-modeled Bitterroot River depletions

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Well 4 Cons (AF)	0	0	0	0	13.9	19.8	21.8	21.8	12.8	8.9	0	0	99.0
Well 4 Cons (GPM)	0	0	0	0	101.6	149.6	159.4	159.4	96.7	65.1	0	0	
Bitterroot R Depletion (AF)	1.3	1.0	0.9	0.8	11.8	17.2	19.5	20.0	13.0	9.7	2.2	1.6	99.0
Bitterroot R Depletion (GPM)	9.2	7.9	6.9	6.2	86.3	129.7	142.9	146.1	98.4	70.8	16.8	11.6	

4(d). How the proposed project or beneficial use for which the aquifer recharge or mitigation plan is required will be operated.

The City's seasonal use of 980 GPM and 99.0 acre-feet (AF) through Well 4 from May 1 through October 31 will be for municipal use during the high-demand portion of the year. Well 4 is within the City's Haugan Well Field in lower Miller Creek south of the city limits in Missoula County (Figure 4). The permit will operate by pumping from Well 4 and conveying water through the pump house and chlorination system, and then to the Sophie and Upper Linda Vista storage tanks for distribution through City mains for municipal use.

4(e). Evidence that an application for a change in appropriation right, if necessary, has been submitted.

The City of Missoula is submitting an Application for Beneficial Water Use Permit (Application No. 76H 30163647), and Tollefson Properties LLC is concurrently submitting an Application To Change a Water Right (Application No. 76H 30165219). Preapplication meetings have been held and DNRC has preprepared Technical Reports Parts A and B for both the permit and the change applications. The permit application and associated change application for aquifer recharge are being submitted together with this Mitigation Purpose Addendum. If the permit and change are authorized, Tollefson will transfer his changed claim 76H 30165310 to the City in exchange for City services.

4(f). Evidence of water availability.

Permit application water is available because 99.0 AF of volume is requested, and DNRC's Permit Technical Report 76H 30163647 calculated 10,956 AF of available volume within the zone of influence of Well 4. The Technical Report concludes that that water is physically and legally available.

Change application water is available because Change Technical Report 76H 30165219 found total historical consumptive use of the 82 acres of irrigation being retired under claim 76H 30165310 is 105.57 AF and the historically diverted volume is 131.96 AF. Additionally, water is

legally available because there are only ten water rights totaling 29.5 CFS that are senior to the water that will be diverted under claim 76H 30165310 for aquifer recharge. Because the 50th percentile of mean monthly flow is 766 CFS at USGS gage 12352500 (Bitterroot River near Missoula) at its lowest flow in the month of September, the flow rates of these ten senior water rights are always met.

4(g). Evidence of how the aquifer recharge or mitigation plan will offset the required amount of net depletion of surface water in a manner that will offset an adverse effect on a prior appropriator.

Of the 105.57 AF of historically consumed volume defined for the changed claim, DNRC's model shows 101.1 AF of aquifer recharge is required to fully mitigate the 99.0 AF of monthly net Bitterroot River depletions associated with Well 4 pumping.

DNRC's modeled monthly POD 2 diversion / aquifer recharge schedule is shown in Table 2 and the modeled monthly net accretions to the Bitterroot River are shown in Table 3. Positive values of Net Effect in Table 3 correspond to increased stream flows, showing there will be no adverse effect on any existing water rights.

Table 2*. DNRC modeled aquifer recharge schedule*.

Month	Aquifer Recharge Injection Schedule (gpm)	Aquifer Recharge Injection Schedule (AF)
January	0.0	0.0
February	0.0	0.0
March	0.0	0.0
April	0.0	0.0
May	106.0	14.5
June	155.0	20.5
July	163.0	22.3
August	163.0	22.3
September	96.0	12.7
October	64.0	8.8
November	0.0	0.0
December	0.0	0.0
TOTAL		**101.1**

Table 3. ***DNRC modeled monthly net effect from proposed aquifer recharge plan***.

Month	Permit Consumed Volume (AF)	Bitterroot River Net Depletion (AF)	Bitterroot River Net Depletion (gpm)	Aquifer Recharge Accretions Bitterroot River (AF)	Aquifer Recharge Accretions Bitterroot River (gpm)	Net Effect to Bitterroot River (AF)	Net Effect to Bitterroot River (gpm)
January	0.0	1.3	9.2	1.5	11.2	0.2	1.7
February	0.0	1.0	7.9	1.2	9.6	0.2	1.5
March	0.0	0.9	6.9	1.1	8.4	0.2	1.8
April	0.0	0.8	6.2	1.0	7.6	0.2	1.5
May	13.9	11.8	86.3	11.9	86.8	0.1	0.5
June	19.8	17.2	129.7	17.3	130.4	0.1	0.4
July	21.8	19.5	142.9	19.6	143.0	0.1	0.4
August	21.8	20.0	146.1	20.1	146.9	0.1	0.6
September	12.8	13.0	98.4	13.1	98.9	0.1	0.6
October	8.9	9.7	70.8	9.8	71.4	0.1	0.5
November	0.0	2.2	16.8	2.7	20.2	0.5	3.6
December	0.0	1.6	11.6	1.9	14.1	0.3	2.4
Total	**99.0**	**99.0**		**101.1**		**2.1**	

4(h). Evidence that the appropriate water quality permits have been granted pursuant to Title 75, chapter 5, as required by 75-5-410, MCA, and 85-2-364, MCA

Communications with Alanna Shaw, Section Supervisor, Surface Water Permitting (MPDES) indicate that discharge permits are not required for aquifer recharge under 85-2-364 and 75-5-410 MCA.

Figure 1. Detail map of new POD 2 to aquifer recharge site.

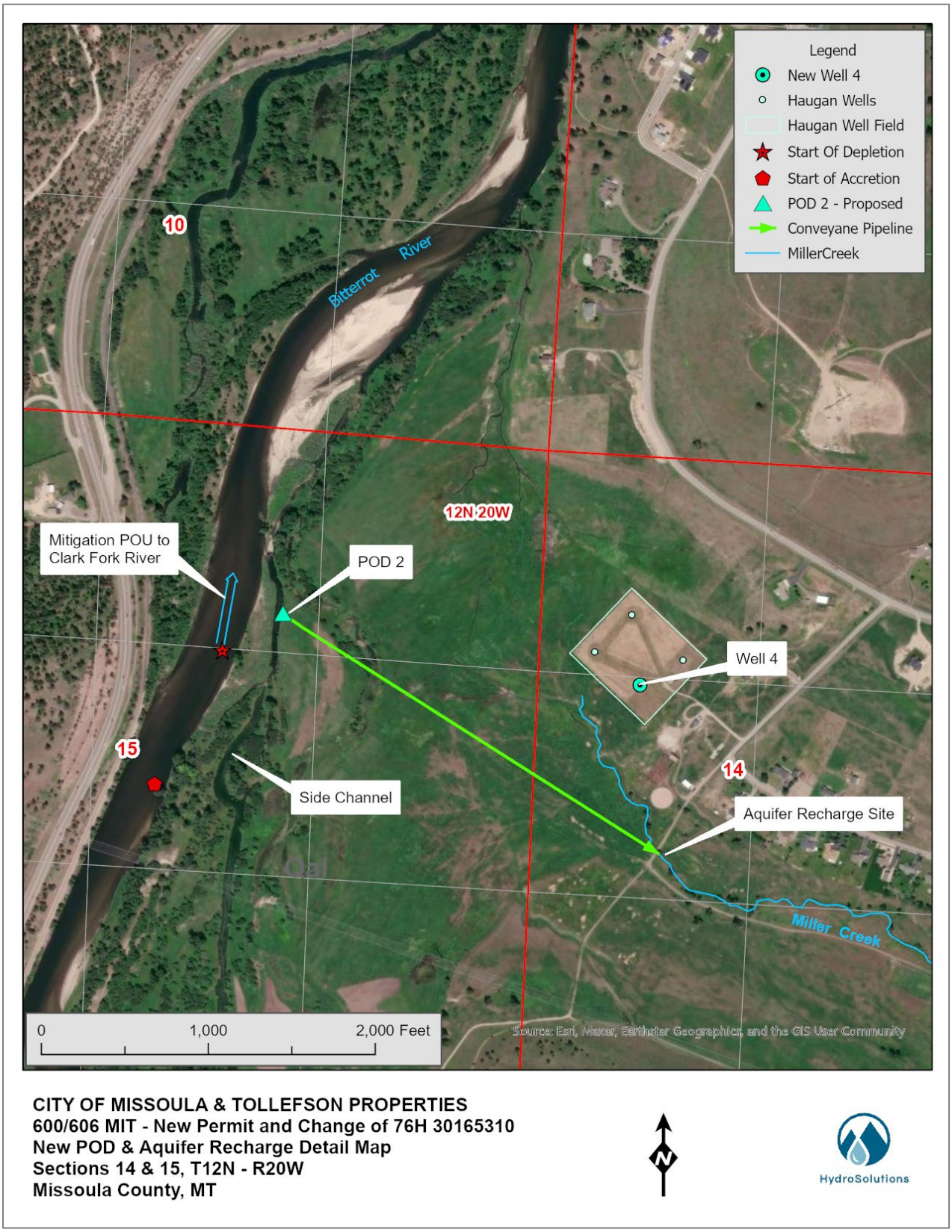
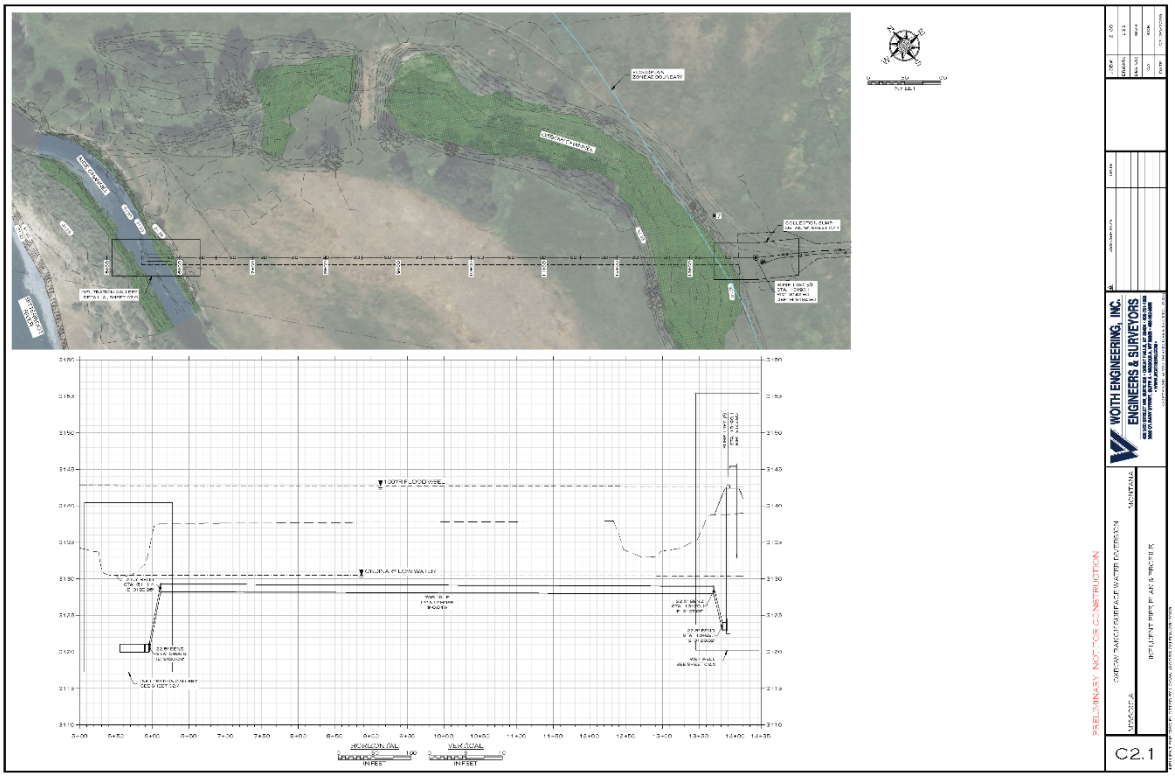
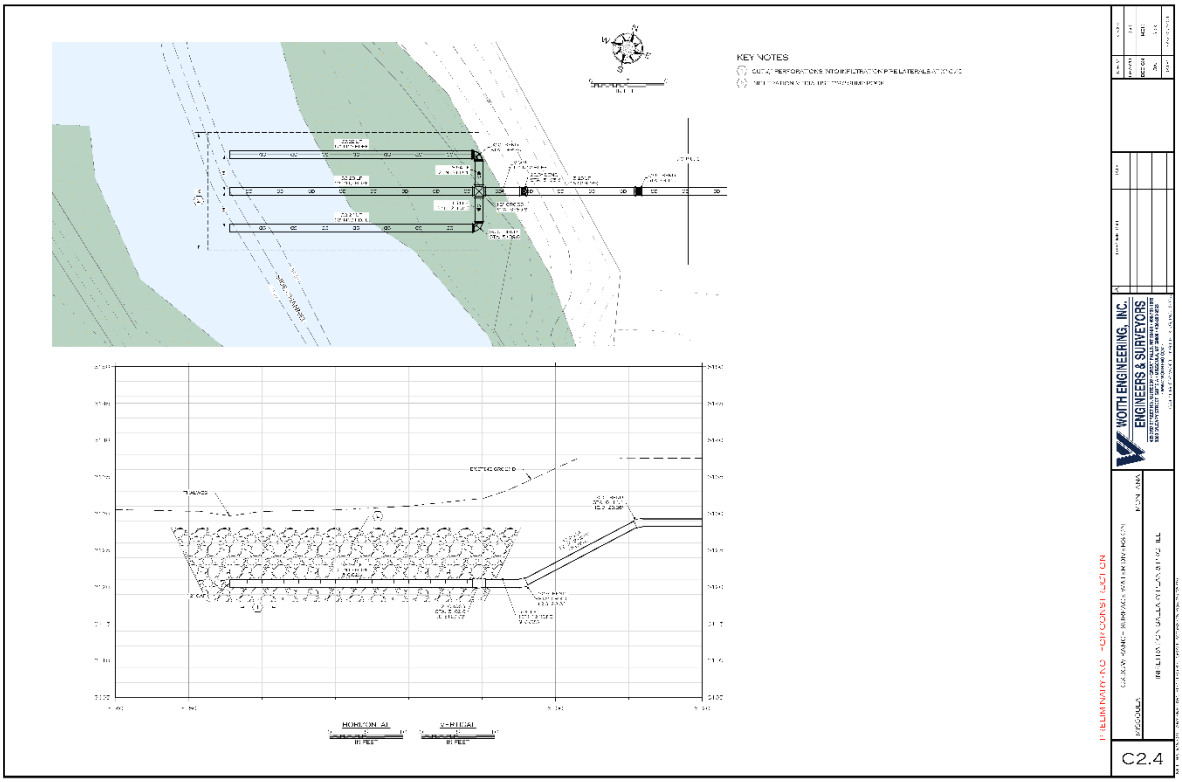
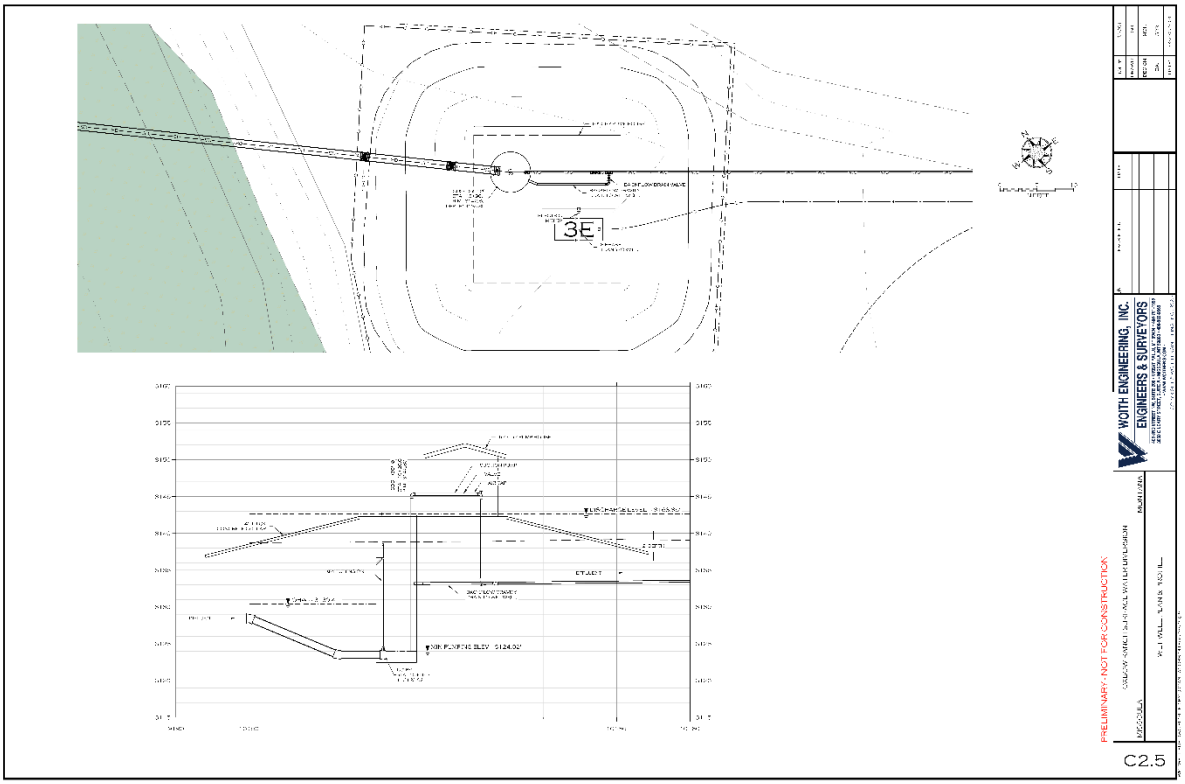


Figure 2. Design details of proposed POD 2 diversion to aquifer recharge site.



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ENGINEERS & SURVEYORS
PRELIMINARY - NOT FOR CONSTRUCTION
C2.5

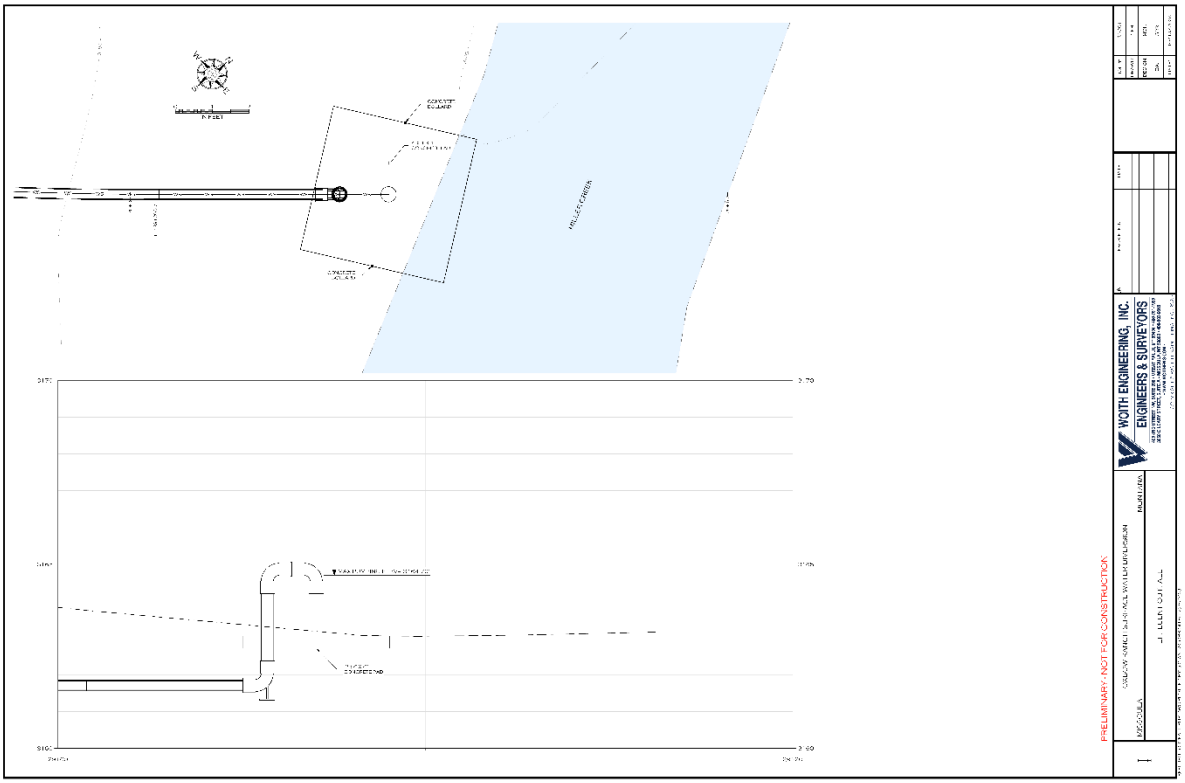
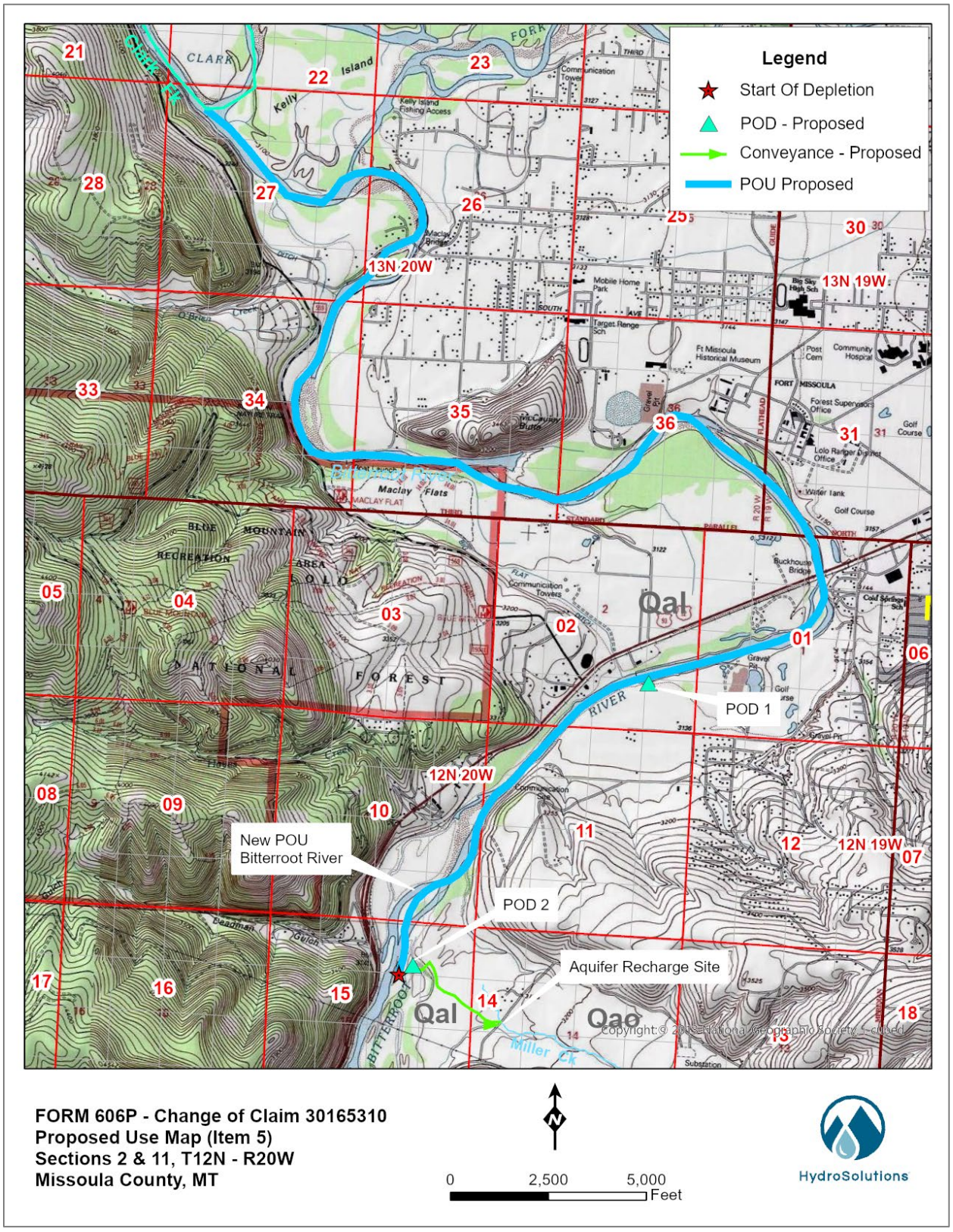

MILLER CREEK
WOITH ENGINEERING, INC.
ENGINEERS & SURVEYORS
PRELIMINARY - NOT FOR CONSTRUCTION

Figure 3. Proposed POD 2 aquifer recharge site, and place of use.



APPENDIX D

NEW WELL 4 – EXAMPLE PUMP CURVE

Hangar #2

Pump Data Sheet - Submersible 60 Hz

GOULDS WATER TECHNOLOGY
a xylem brand

Company: Xylem Inc. (Fresno)
Name:
Date: 6/17/2015

Customer:
Order No:

Pump:
Size: 10RJLC (3 stage)
Type: Submersible
Synch speed: 3600 rpm
Speed: 3450 rpm
Dia: 6.1875 in
Curve: 3010
Impeller:
Specific Speeds:
Ns: 2760
Nss: —
Dimensions:
Suction: —
Discharge: —
Vertical Turbine:
Bowl size: 9.5 in
Max lateral: 0.75 in
Thrust K factor: 7 lbf/ft

Search Criteria:
Flow: 1000 US gpm
Head: 330 ft

Fluid:
Water
Density: 62.32 lbf/ft³
Viscosity: 0.9946 cP
Temperature: 68 °F
Vapor pressure: 0.3391 psi a
Atm pressure: 14.7 psi a
NPSHa: —

Motor:
Standard: NEMA
Enclosure: SUB
Size: 125 hp
Speed: 3600
Frame: 8 inch
150 HP
Sizing criteria: Max Power on Design Curve

Pump Limits:
Temperature: —
Pressure: —
Sphere size: 0.68 in
Power: —
Eye area: —

Data Point

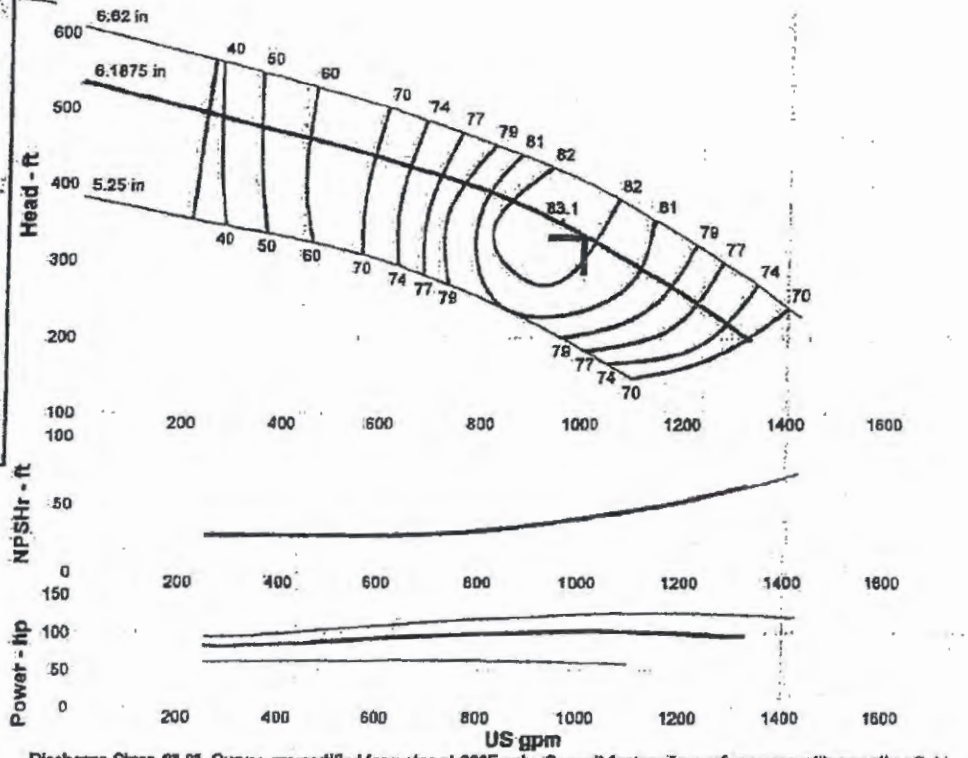
Flow:	1000 US gpm
Head:	333 ft
Eff:	82.4%
Power:	102 hp
NPSHr:	39.5 ft

Design Curve

Shutoff head:	533 ft
Shutoff dP:	231 psi
Min flow:	239 US gpm
BEP:	83.1% @ 957 US gpm
NCL power:	102 hp @ 1023 US gpm

Max Curve

Max power: 126 hp @ 1139 US gpm



Discharge Sizes-6",8". Curves are certified for water at 60°F only. Consult factory for performance with any other fluid.

Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
1200	3450	256	77.9	99.3	52.3
1000	3450	333	82.4	102	39.5
800	3450	394	80.6	98.6	30.5
600	3450	435	71.1	92.5	27.1
400	3450	468	55.4	85	27

Turbine Pump Selection 10.6.2.0

Selected from catalog: Goulds Sub 60Hz Vers: 3.6

NOTE! WE BELIEVE the existing 150 HP test pump motor was installed on this pump.

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

Groundwater Permit Technical Analyses Report - Part A

Department of Natural Resources and Conservation (DNRC)
Water Resources Division
Melissa Brickl, Groundwater Hydrologist, Water Sciences Bureau (WSB)

Applicant No.	76H 30163647	**Point of Diversion Legal Land Description**	Section 14, Township 12 North, Range 20 West
Applicant	City of Missoula		

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 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). For applications in closed basins, this report fulfills the requirements of MCA 85-2-361.

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

Overview 1
1.0 Executive Summary 2
2.0 Hydrogeologic Setting 3
3.0 Aquifer Test Summary 5
4.0 Aquifer Test Analysis 8
5.0 Adequacy of Diversion Analysis 16
6.0 Physical Availability Analysis 18
7.0 Adverse Effect Analysis 19
7.1 Groundwater - Drawdown in Existing Wells 19
7.2 Surface Water - Net Depletion 20
Review 24
References 24
Appendix A: Groundwater Rights Within Area of Potential Impact

1.0 Executive Summary

Application Details

The Applicant proposes to divert and use groundwater from Public Water Supply (PWS) Well No. 4 at a rate of 980.0 gallons per minute (gpm) up to 99.0 acre-feet (AF) from May 1 to October 31 for municipal use for the City of Missoula. Water is proposed to be conveyed to a pump house and chlorinating unit to Sophie and Upper Linda Vista Tanks for distribution through the municipal system. Wastewater is proposed to be discharged through Missoula's wastewater system, that returns to the Clark Fork River. The proposed use would enable the Applicant to service new development on the south side of Missoula. Lawn and garden irrigation would occur anywhere within the municipal place of use (POU) service area. The Applicant plans to submit a change application to change the purpose of an existing right to mitigation to offset net depletions to the Bitterroot River resulting from the proposed groundwater use.

Approved Variances from ARM 36.12.121

Variances from aquifer test requirements found in ARM 36.12.121 3(a), 3(e), 3(d), and 3(h) were granted by the Missoula Regional Office on May 3, 2024. A constant discharge rate was not maintained during the aquifer test performed on April 10, 2023. At the beginning of the test measured discharge fluctuated up to 15% and after approximately 40 minutes the discharge rate fluctuated 3.9% for the duration of the test. In addition, the aquifer test was cut short at 49.9 hours due to electrical issues; the frequency of discharge measurements were not recorded according to clock time schedule on Form No. 633; and water levels were not collected according to the time schedules in Form No. 633.

WSB Technical Findings

Based on information submitted, the WSB estimated aquifer properties, evaluated the production well(s) available water column, quantified the water available in the source aquifer, and evaluated potential impacts to existing groundwater and surface water rights. These technical 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	Recommended aquifer properties include an aquifer Transmissivity (T) value of 150,905 feet $(ft)^2$/day generated from averaging drawdown and recovery aquifer test analyses generated from the April 10, 2023, 49.9-hour aquifer test completed on the proposed well and a Specific Yield (S_y) of 0.1 from Lohman (1972).
ADEQUACY OF DIVERSION	Using the Theis (1935) solution, a T = 150,905 ft^2/day, S_y of 0.1 (Lohman, 1972), and the monthly pumping schedule identified in **Table 5,** the proposed well would experience 1.6 feet (ft) of drawdown after the first year, leaving approximately 63.0 ft of available water column above the bottom of the perforated interval.

PHYSICAL AVAILABILITY	The modeled 0.01-foot drawdown contour, or zone of influence (ZOI), was truncated to the alluvial aquifer boundary and Bitterroot River. Groundwater flux through the ZOI is equal to 10,956 AF/year. There is one active groundwater right completed within the ZOI and source aquifer that needs to be evaluated as a legal demand (**Appendix A**).
ADVERSE EFFECT (DRAWDOWN IN EXISTING WELLS)	After five years, assuming the well is pumped according to the schedule identified in **Table 5,** zero groundwater rights in the source aquifer are predicted to experience drawdown equal to or greater than one foot.
ADVERSE EFFECT (NET DEPLETION TO SURFACE WATER)	The Bitterroot River (2,500 ft west of well) is identified as being hydraulically connected to the source aquifer. Monthly net depletions resulting from the proposed use of groundwater are identified in **Table 1** and the starting point of the depleted reach in **Figure 11**.

Table 1: Total consumed volume and net depletion to surface water for the proposed well.

Month	Municipal Diverted/Consumed Volume (AF)[1]	Municipal Diverted/Consumed Flow Rate (gpm)	Bitterroot River Net Depletion (AF)	Bitterroot River Net Depletion (gpm)
January	0.0	0	1.3	9.2
February	0.0	0	1.0	7.9
March	0.0	0	0.9	6.9
April	0.0	0	0.8	6.2
May	13.9	101.6	11.8	86.3
June	19.8	149.6	17.2	129.7
July	21.8	159.4	19.5	142.9
August	21.8	159.4	20.0	146.1
September	12.8	96.7	13.0	98.4
October	8.9	65.1	9.7	70.8
November	0.0	0	2.2	16.8
December	0.0	0	1.6	11.6
Total	99.0		99.0	

[1] *Per DNRC (2018) municipal use is considered 100% consumptive.*

2.0 Hydrogeologic Setting

As identified in **Figure 1**, the proposed PWS Well No.4, Montana Bureau of Mines and Geology (MBMG) Groundwater Water Information Center (GWIC) ID 326236 is completed in a Cenozoic Quaternary Basin-fill and Alluvial Aquifer (111ALVM) known as the Bitterroot River Valley Shallow Aquifer. The proposed well is in the NWSWNW Section 14, Township 12 North, Range

20 West, Missoula County. The well is 82 ft deep and screened 52 - 82 ft below ground surface (bgs).

Quaternary basin-fill deposits (up to 300 ft thick) include older Pleistocene alluvium and lacustrine deposits associated with glaciation, and recent Holocene sand and gravel deposits in the floodplains of the major river valleys. Glaciers deposited till, which is mostly clayey and silty gravel. Bedded silt and clay were deposited in the valleys during stands of Glacial Lake Missoula and form confining layers within the basin-fill deposits. Sand and gravel interbedded with, and overlain by, bedded silt and clay deposits were deposited before glaciation and during flood events when Glacial Lake Missoula drained. The uppermost sand and gravel deposits in stream valleys are less than 80 ft thick in most areas and represent stream deposition during and after waning phases of glaciation (Smith, 2006b).

In places, the confining layers hydraulically separate the aquifers; however, in the Bitterroot valley water-level data from different depths suggest that the basin-fill aquifers are well-connected on a valley-wide scale. The basin-fill aquifers are the most utilized sources of municipal and domestic water (Kendy and Tresch, 1996). The median reported well yields from the basin-fill aquifers are about three times greater than median well yields from bedrock aquifers.

The three hydrogeologic units recognized are: 1) shallow basin fill, 2) deep basin fill, and 3) bedrock. The uppermost or shallow hydrologic unit is developed in surficial alluvial sediments generally within 80 ft of the land surface. Groundwater in the shallow hydrologic unit is under unconfined, or water table, conditions.

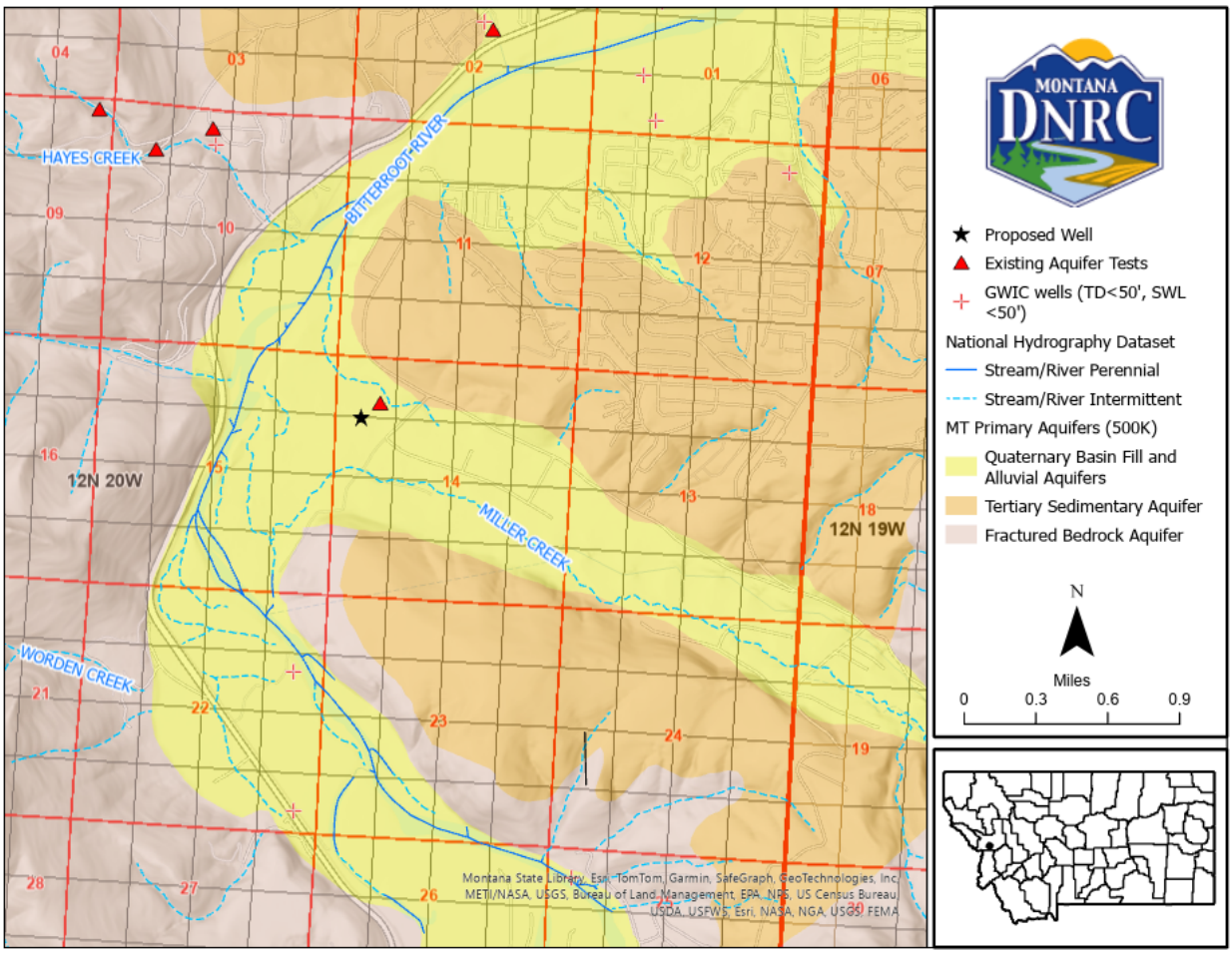


Figure 1: Map of the Applicant's proposed well and nearby geology and hydrology.

3.0 Aquifer Test Summary

Field Methods and Equipment

A 49.9-hour aquifer test was conducted on the Production Well, GWIC ID 326236 (PWS Well No. 4). Water levels during the aquifer test were collected using In-Situ Level Troll Model 500 dataloggers in the Production Well. Transducers operated by the Applicant measured water levels in the three Observation Wells. **Table 2** identifies for each observation well, the GWIC ID, PWS Well No., distance and direction from the Production Well. The three Observation Wells are completed in the same source aquifer as the Production Well. Discharge was measured with a Fuji Electric Ultra Sonic Flow Meter. The discharge point was 360 ft south of the well in the Miller Creek Channel.

Table 2: Observation Well information for 49.9-hour aquifer test.

GWIC ID	PWS Well No.	Distance from Production Well (ft)	Direction from Production Well
250507	1	345	Northeast
251974	2	245	Northwest
251976	3	370	North

Background Data

Background groundwater levels were monitored in the Production Well for 60 hours starting on April 7, 2023, and ending on April 10, 2023. Observation well water levels were monitored for 133 hours; monitoring started three days prior to the collection of background data on the Production Well on April 4, 2023, and ended on April 10, 2023. As identified in **Figure 2**, the Production Well static water level remained constant. Displacement on April 10, 2023, for PWS Well No. 1 is a result of the step-drawdown test completed on the Production Well.

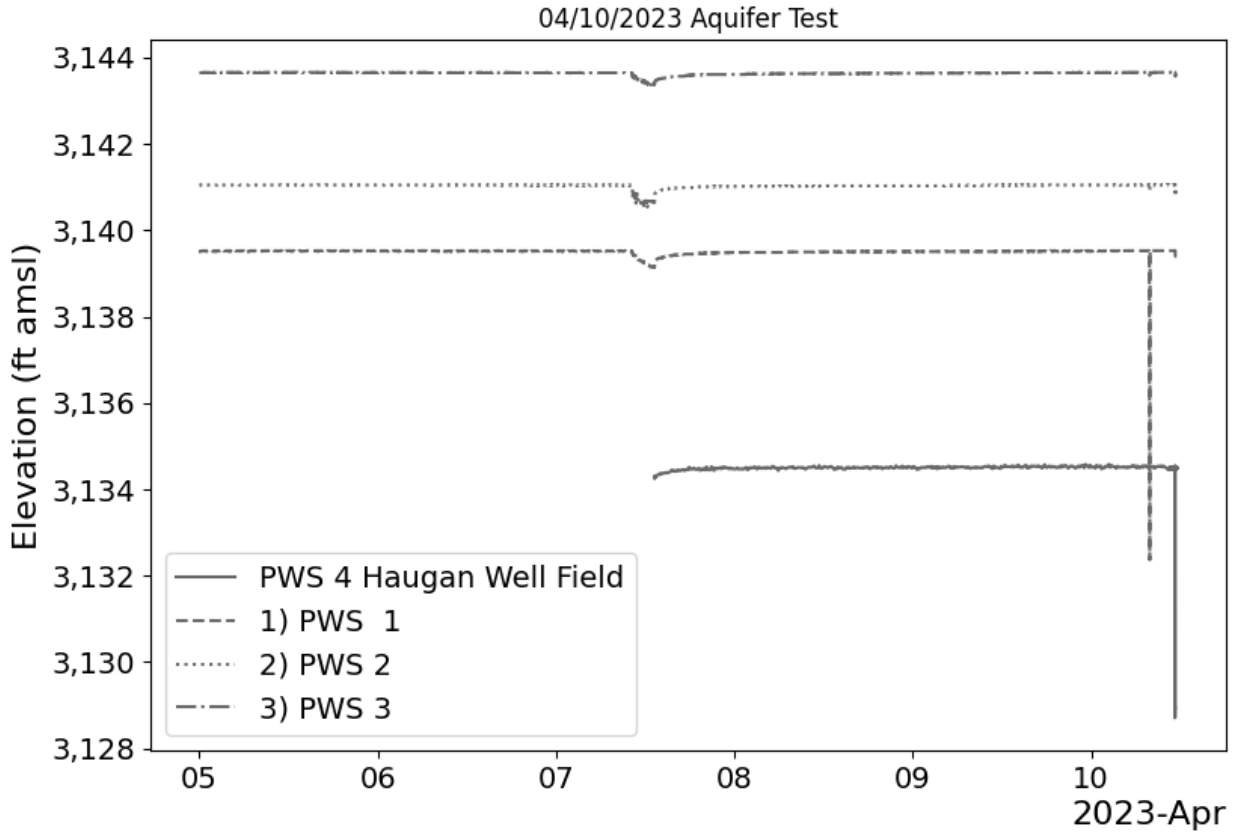


Figure 2: Background groundwater levels for Production and Observation Wells.

Drawdown Data

The 49.9-hour aquifer test started on April 10, 2023, at 11:35 A.M. on the Production Well and is considered (t = 0) for the computation of drawdown. The test started with a discharge of 880.0 gpm, the average pumping rate was 990.0 gpm. The test ceased on April 12, 2023, at 1:28 PM. **Table 3** identifies the observed drawdown and remaining available water column above the bottom of the perforated interval for the Production Well (GWIC ID 326236) and Observation Wells at the end of the test. A summary of drawdown and recovery data is provided in **Figure 3**.

Table 3: Summary of drawdown data for Production (GWIC ID 326236) and Observation Wells.

GWIC ID	PWS Well No.	Well Depth (ft) bgs	Perforated Interval (ft) bgs	Pre-Test Static Water Level (ft)	Maximum Observed Drawdown (ft)	Available Water Column Post Aquifer Test (ft)
250507	1	71	38-71	14.37	0.64	56.0
251974	2	79	39-79	12.84	0.68	65.5
251976	3	68	38-68	10.23	0.52	57.3
326236	4	82	52-82	19.39	9.30	53.3

Recovery Data

Recovery groundwater level data were monitored for 24-hours in the Production and Observation Wells April 12, 2023, through April 13, 2023 (**Figure 3**). At the end of the recovery period the Production and Observation Wells No. 1-3 were -0.06 ft, -0.07 ft, -0.19 ft, and -0.14 ft above pre-test static water levels, respectively.

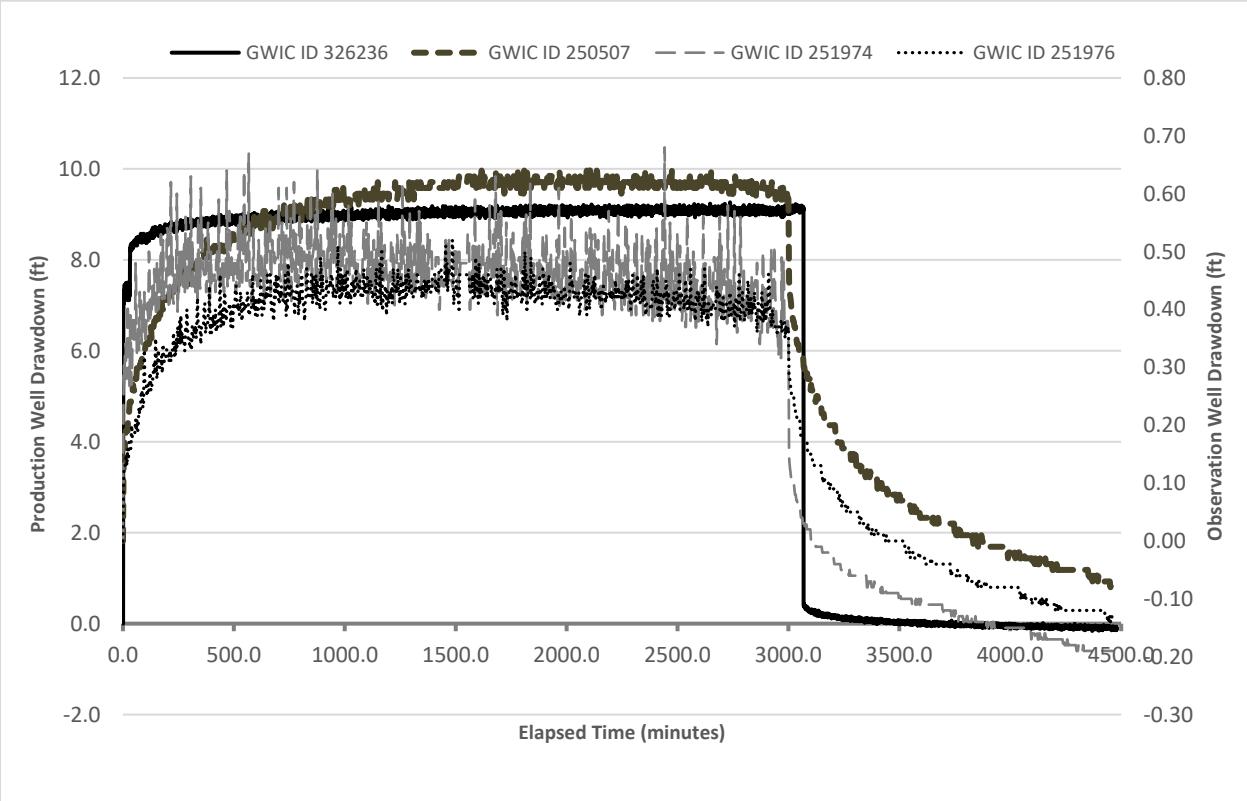


Figure 3: Drawdown and recovery data for the 49.9-hour aquifer test on the Production Well (GWIC ID 326236) and Observation Wells.

4.0 Aquifer Test Analysis

Methods

The DNRC utilized AQTESOLV® (HydroSOLVE, Inc., 2007) to analyze drawdown data from the aquifer test and obtain estimates of aquifer properties. Aquifer properties were used in forward modeling to evaluate the available water column in the well, quantity of water available in the source aquifer, and potential impacts to groundwater and surface water rights. AQTESOLV® is an analytical modeling software that uses image well theory and the principle of superposition to simulate aquifer stress tests. Drawdown data and measured flow rates from the aquifer test, and the spatial location of each well are input into the model. Using this compilation of data, aquifer properties including Transmissivity (T) and Storativity (S) are identified based on a best-fit visual and statistical 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 4** through **Figure 6** theoretical AQTESOLV® predicted derivatives (red line) were compared to the calculated derivatives from the observed drawdown (black triangles) and predicted drawdown (blue line) compared to the observed drawdown (black squares). Data from Observation Well GWIC ID

251974 was not analyzed due to interference drawdown from a nearby well impacting the quality of the drawdown data.

As shown in **Figure 4** and **Figure 5**, using the Cooper-Jacob (1946) solution for Observation Well GWIC ID 251976 and 250507 the calculated derivative starts to stabilize 100 minutes into the aquifer test, exhibits a linear decrease at 1,000 minutes and approaches zero near the end of the test. This characterization of the derivative suggests an infinite linear constant head boundary is encountered approximately 1,000 minutes into the test. The same is seen using the Theis (1935) solution. Where typically the derivative stabilizes at late time, and the derivative is larger than the drawdown at early time, both of which are not shown in **Figure 6** and **Figure 7**.

The residual drawdown data in **Figure 8** for the production well was analyzed with a straight-line solution to determine T and S/S' which is the ratio of storativity during pumping to storativity during recovery. The Theis (1935) recovery solution is often plotted toward late-time data in the recovery period (t/t'=1) which represents the more regional aquifer transmissivity (Willman et al., 2007). The ratio of S/S' may suggest either an infinite non-leaky confined aquifer (S/S'=1), leaky-confined aquifer (S/S'>1) or no-flow boundary (S/S'<1) (Theis, 1935). A summary of the drawdown and recovery analyses using AQTESOLV is shown in **Table 4**.

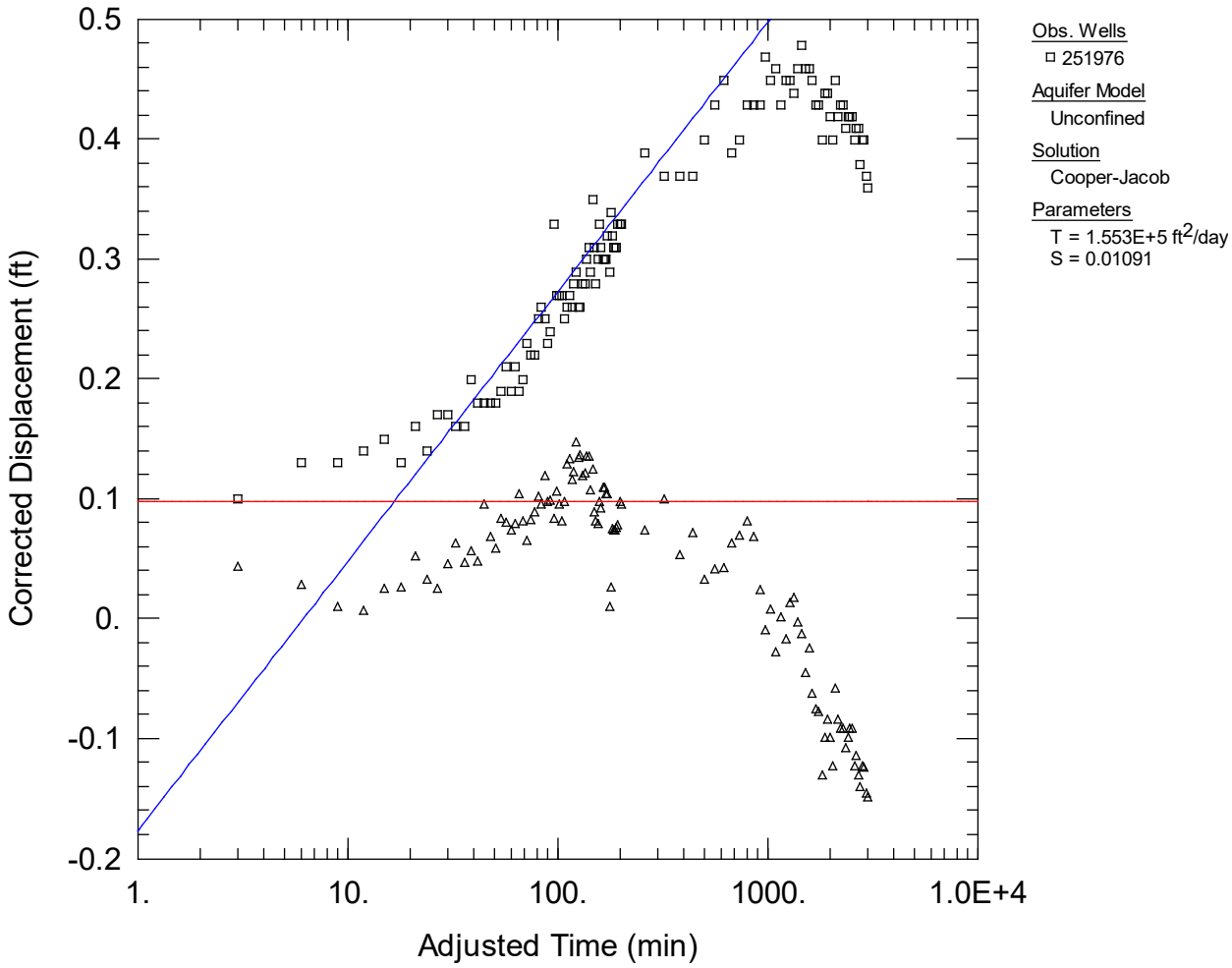


Figure 4: Cooper-Jacob (1946) drawdown and derivative analysis for the Observation Well (GWIC ID 251976).

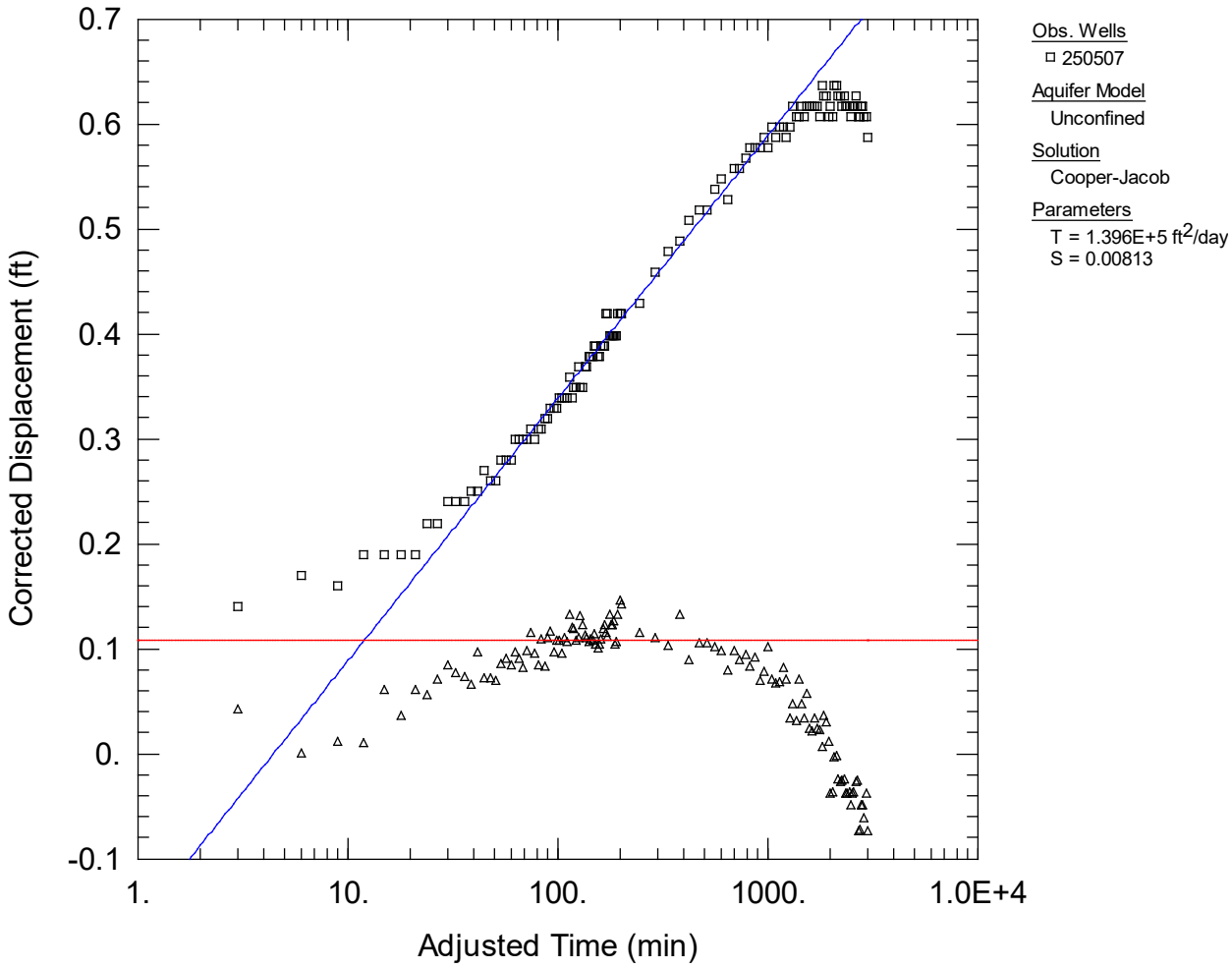


Figure 5: Cooper-Jacob (1946) drawdown and derivative analysis for the Observation Well (GWIC ID 250507).

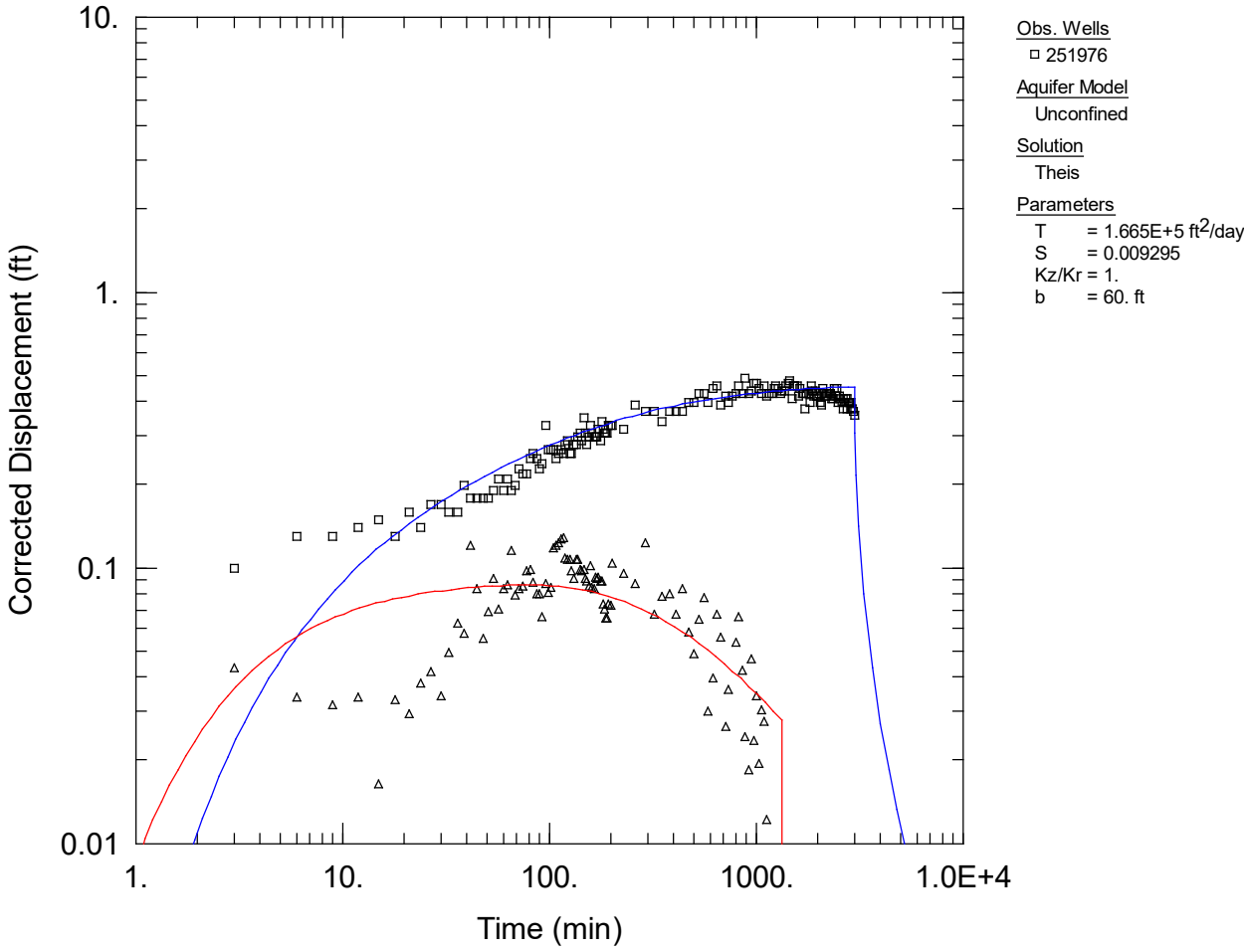


Figure 6: Theis (1935) drawdown and derivative analysis for the Observation Well (GWIC ID 251976).

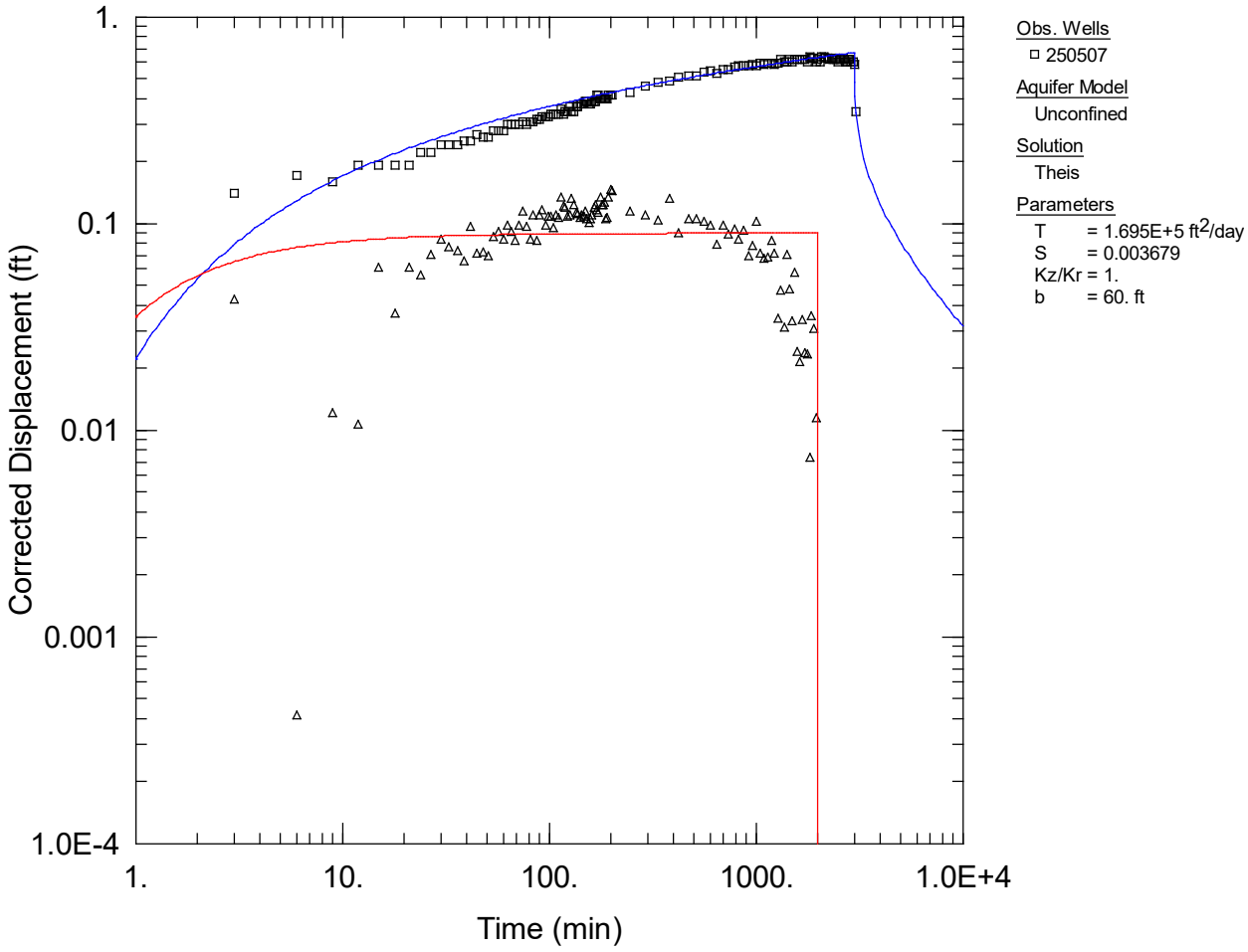


Figure 7: Theis (1935) drawdown and derivative analysis for the Observation Well (GWIC ID 250507).

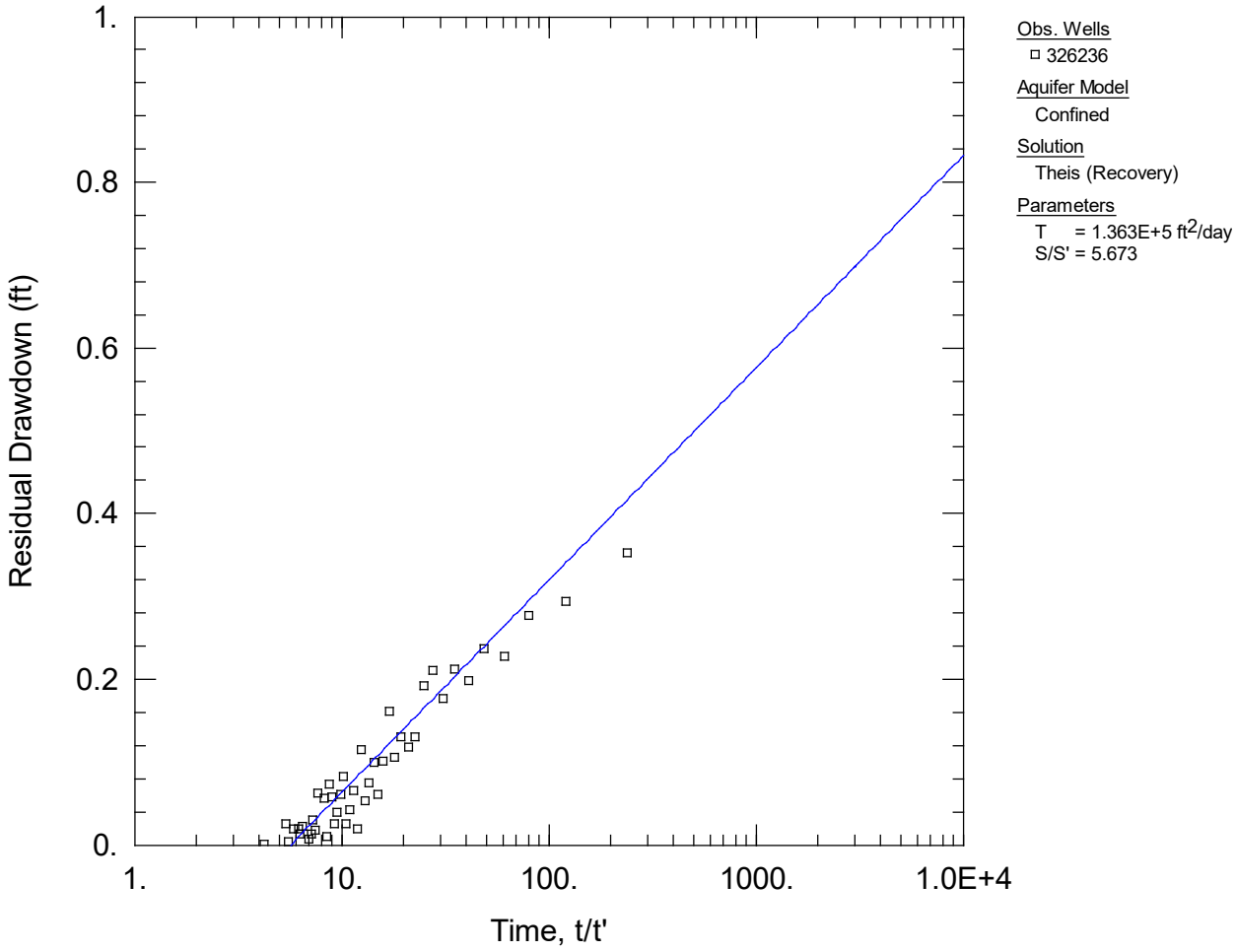


Figure 8: Theis (1935) recovery solution for production well.

Table 4: Aquifer test analyses for 49.9-hr test performed on GWIC ID 326236. S/S' is the ratio of storativity during pumping to storativity during recovery.

Production Well (GWIC ID, Phase)	Well Analyzed (GWIC ID)	Analysis Solution	T (ft^2/day)	S_y
326236, pumping	251976	Cooper-Jacob (1946)	155,300	0.01
326236, pumping	250507	Cooper-Jacob (1946)	131,000	0.005
326236, pumping	251976	Theis (1935)	166,500	0.009
326236, pumping	250507	Theis (1935)	169,500	0.004
326236, recovery	326236	Theis (1935)	136,300	5.673 (S/S')
Geometric Mean			**150,905**	**0.007**

Aquifer Property Comparison

Identified in **Figure 9** is a summary of T, hydraulic conductivity (K), and S_y values derived from a 24-hour, 72-hour and 24-hour aquifer test completed in 2007 on existing PWS Well's No. 1-3 (GWIC ID's 250507, 250507, 251976), respectively. The figure is a clipped image of a summary table taken from the Aquifer Testing Addendum for Provisional Permit No. 76H 30063539. The average T generated from the 2007 pumping test data is equal to 151,349 ft^2/day.

Test	Pumped Well	Duration (mins)	Q (gpm)	Well	Data	Method	T (ft^2/d)	K (ft/d)	S
Constant	PWS-1	1445	1711.8	PWS-3	Drawdown	Neuman	71,278	2,376	------
						Cooper-Jacob	175,539	5,851	0.040
					Recovery	Theis	163,499	5,450	------
				Dorris	Drawdown	Neuman	217,820	10,891	------
						Cooper-Jacob	131,159	6,558	0.048
					Recovery	Theis	109,379	5,469	------
				Fox	Drawdown	Neuman	151,680	7,584	------
						Theis (Unconf)	191,741	9,587	0.050
						Cooper-Jacob	223,392	11,170	0.042
					Recovery	Theis	114,600	5,730	------
Constant	PWS-2	4500	1684	PWS-1	Drawdown	Neuman	123,481	3,742	------
						Cooper-Jacob	167,577	5,078	0.050
					Recovery	Theis	122,114	3,700	------
				PWS-3	Drawdown	Neuman	76,786	2,560	------
						Cooper-Jacob	167,451	5,582	0.043
					Recovery	Theis	130,725	4,358	------
				Dorris	Drawdown	Neuman	201,742	10087	------
						Theis (Unconf)	186,749	9,337	0.040
						Cooper-Jacob	167,665	8,383	0.047
					Recovery	Theis	103,690	5,185	------
				Fox	Drawdown	Neuman	102,111	5106	------
						Theis (Unconf)	138,774	6,939	0.065
						Cooper-Jacob	167,043	8,352	0.051
					Recovery	Theis	162,154	8,108	------
Constant	PWS-3	1482	1165	PW-1	Drawdown	Neuman	187,461	5,681	------
						Theis (Unconf)	170,961	5,181	0.023
						Cooper-Jacob	153,624	4,655	0.046
					Recovery	Theis	141,620	4,292	------
				Dorris	Drawdown	Neuman	173,292	8,665	------
						Theis (Unconf)	177,813	8,891	0.012
						Cooper-Jacob	160,570	8,029	0.022
					Recovery	Theis	109,678	5,484	------
						Overall Average:	*151,349*	*7,067*	*0.041*

Figure 9: Summary of Provisional Permit No. 76H 30063593 aquifer test data.

The T value's derived from Applicant provided pump test data (**Table 4**) are reasonable when compared to T values associated with Provisional Permit No. 76H 30063539 T values listed in **Figure 9**. The recommended aquifer T value to be used in forward modeling for adequacy of diversion, physical availability and adverse effect is 150,905 ft^2/day, which is the geometric mean of drawdown and recovery aquifer test analyses from the April 10, 2023, 49.9-hour aquifer test completed on the proposed well. A S_y of 0.1 is from Lohman (1972) for unconfined sand and gravel aquifers. Moench (1994) states that, although an unconfined aquifer test analysis can account for S_y, evaluation of S_y should be done with caution because the very early time data are subject to large error. As such, a S_y of 0.1 is recommended for use in forward modeling for this application.

5.0 Adequacy of Diversion Analysis

An evaluation of the potentially available water column remaining in the Production Well is modeled in FWD:SOLV (HydroSOLVE, INC., 2024), using a constant head boundary 2,500 ft west of the well to represent the Bitterroot River, the Theis (1935) solution with a T = 150,905 ft^2/day and S_y = 0.1 (Lohman, 1972). Predicted theoretical drawdown for the proposed well is modeled for the period of diversion using the Applicant provided monthly pumping schedule identified in **Table 5**. The Applicant requests 99.0 AF for municipal use May through October.

Table 5: Assumed monthly pumping schedule for the Production Well.

Month	Municipal Diverted Volume (AF)	Total Diverted Flow Rate (gpm)
January	0	0
February	0	0
March	0	0
April	0	0
May	13.9	101.6
June	19.8	149.6
July	21.8	159.4
August	21.8	159.4
September	12.8	96.7
October	8.9	65.1
November	0	0
December	0	0
Total	99.0	

As identified in **Table 6,** total drawdown is the sum of interference drawdown and predicted drawdown with well loss. Only one well is proposed, as such no interference drawdown was calculated. 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 aquifer test. The aquifer adjacent to the proposed well would experience a predicted total drawdown of 1.6 ft at the end of August the first year (**Figure 10**). The remaining available water column for the proposed well is 63.0 ft

and is equal to the available drawdown above the bottom of the perforated interval minus total drawdown.

Table 6: Remaining available water column for the Production Well.

Drawdown Estimate	Proposed Well
Total Depth at Bottom of Perforated Interval (ft btc)[1]	84.0
Pre-Test Static Water Level (ft btc)	19.4
Available Drawdown Above Bottom of Well (ft)	64.6
Observed Drawdown of Aquifer Test (ft)	9.3
Modeled Drawdown Using Mean Aquifer Test Rate (ft)	1.7
Well Efficiency (%)	18.3
Predicted Theoretical Maximum Drawdown (ft)	0.3
Predicted Drawdown with Well Loss (ft)	1.6
Interference Drawdown (ft)	0.0
Total Drawdown (ft)	1.6
Remaining Available Water Column (ft)	**63.0**

[1]The reported total well depth (82.0 ft below ground surface (bgs)) was adjusted to the top of well casing based on a 2 ft well casing stickup reported on the well log. This was done to reflect the same datum as measured static water levels.

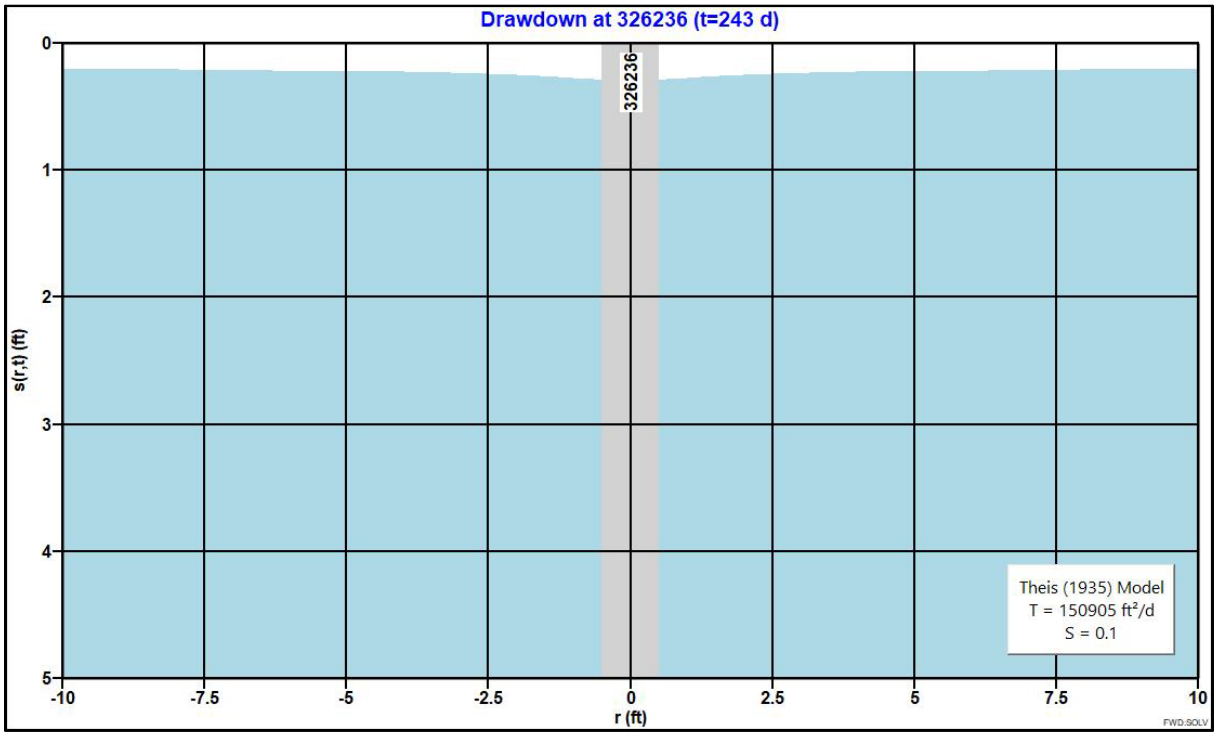


Figure 10: Predicted theoretical maximum drawdown for the GWIC ID 326236 at the end of August of the first year of pumping.

6.0 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 ZOI corresponding to the 0.01-foot drawdown contour. The 0.01-foot drawdown contour was modeled in FWD:SOLV (HydroSOLVE INC., 2024) using the Theis (1935) unconfined solution, a constant pumping rate of 122.0 gpm for the period of diversion (184-days), a constant head boundary 2,500 ft west of the well to represent the Bitterroot River, a T = 150,905 ft^2/day, and S_y = 0.1 (Lohman, 1972). The normalized pumping rate required to produce the requested annual volume is 122.0 gpm.

As identified in **Figure 11**, the 0.01-foot drawdown contour occurs approximately 6,000 ft to the east and 2,500 ft west of the proposed well. The 0.01- foot drawdown contour was truncated to the alluvial aquifer boundary. As groundwater enters the Bitterroot Valley alluvium, the flow direction becomes northeast, parallel to the river (Waren et al., 2020). The measured width near this location is approximately 2,700 ft. The groundwater gradient of 0.0032 for the unconfined alluvial aquifer was derived from monitoring well data associated with a numerical model used for Provisional Permit No. 76H 30063539. It was compared to average land surface slope and found to be reasonable. Appendix A lists the groundwater rights that need to be evaluated as a legal demand. The calculation for groundwater flux (Q) through the delineated area is given by Eq. 1 and is 1,307,655 ft^3/day or 10,956 AF/year:

$$\mathbf{Q = TWi}$$

where:
T = Transmissivity = 150,905 ft^2/day
W = Width of Zone of Influence = 2,700 ft
i = Groundwater Gradient (from Provisional Permit No. 76H 30063539 numerical model) = 0.0032 ft/ft.

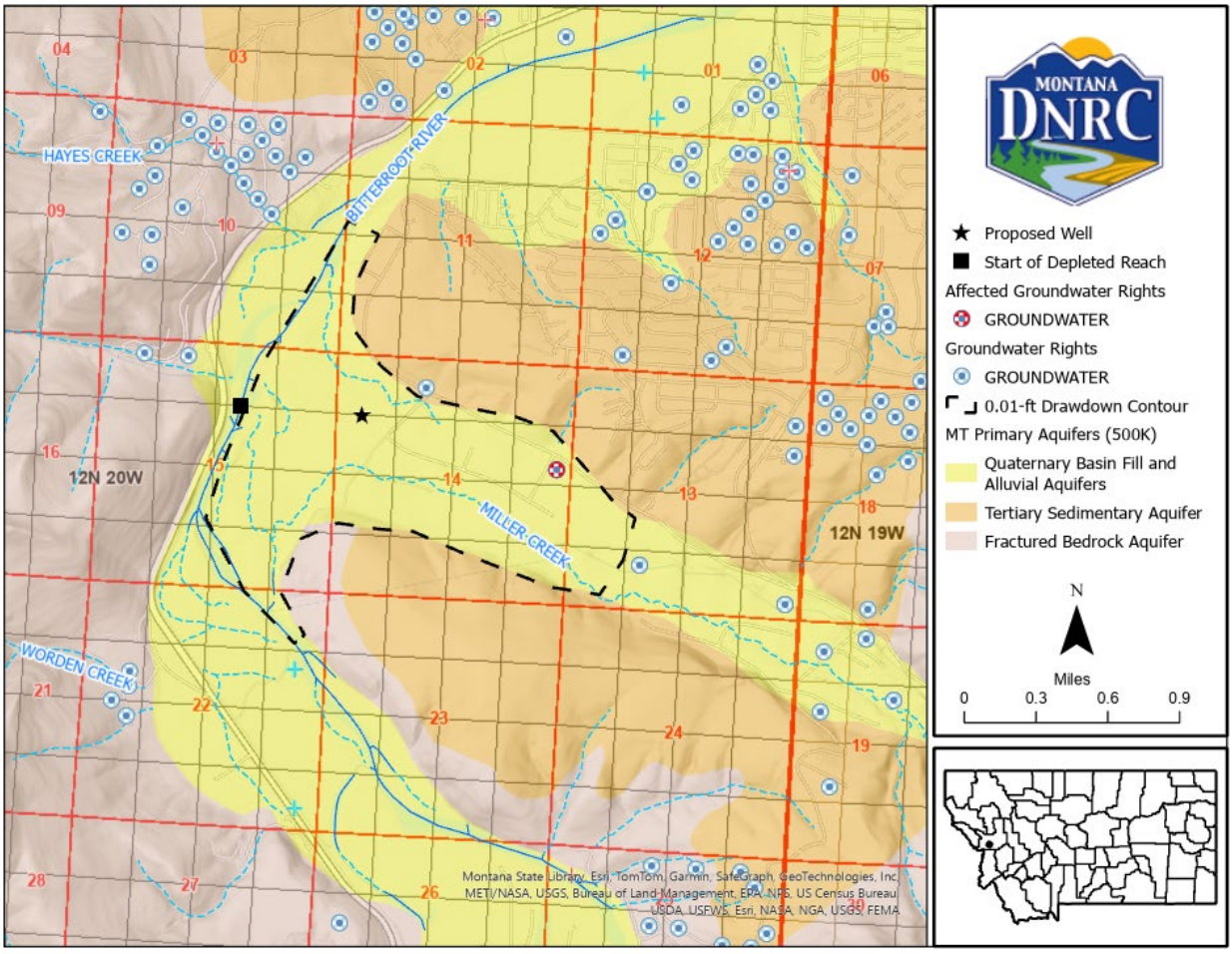


Figure 11: 0.01-foot drawdown contour interval and water rights within the ZOI for Permit Application No. 76H 30163647.

7.0 Adverse Effect Analysis

Using the Applicant's proposed pump schedule and associated annual volume, potential impacts to existing water rights is evaluated by modeling drawdown in nearby wells and net depletions to surface water(s).

7.1 Groundwater - Drawdown in Existing Wells

The drawdown in and around the proposed well was modeled in FWD:SOLV (HydroSOLVE INC., 2024) using the following: Theis (1935) solution, T of 150,905 ft^2/day, S_y of 0.1, constant head boundary representing the Bitterroot River, and the monthly pumping schedule identified in column 3 of **Table 5** for a period of five years. The maximum modeled drawdown outside the well casing is 0.29 ft at the end of August (day 1,703) of the fifth year using the proposed pumping schedule and occurs 0.5 ft from the well (**Figure 12**). As such zero water rights are predicted to experience drawdown equal to or greater than one foot.

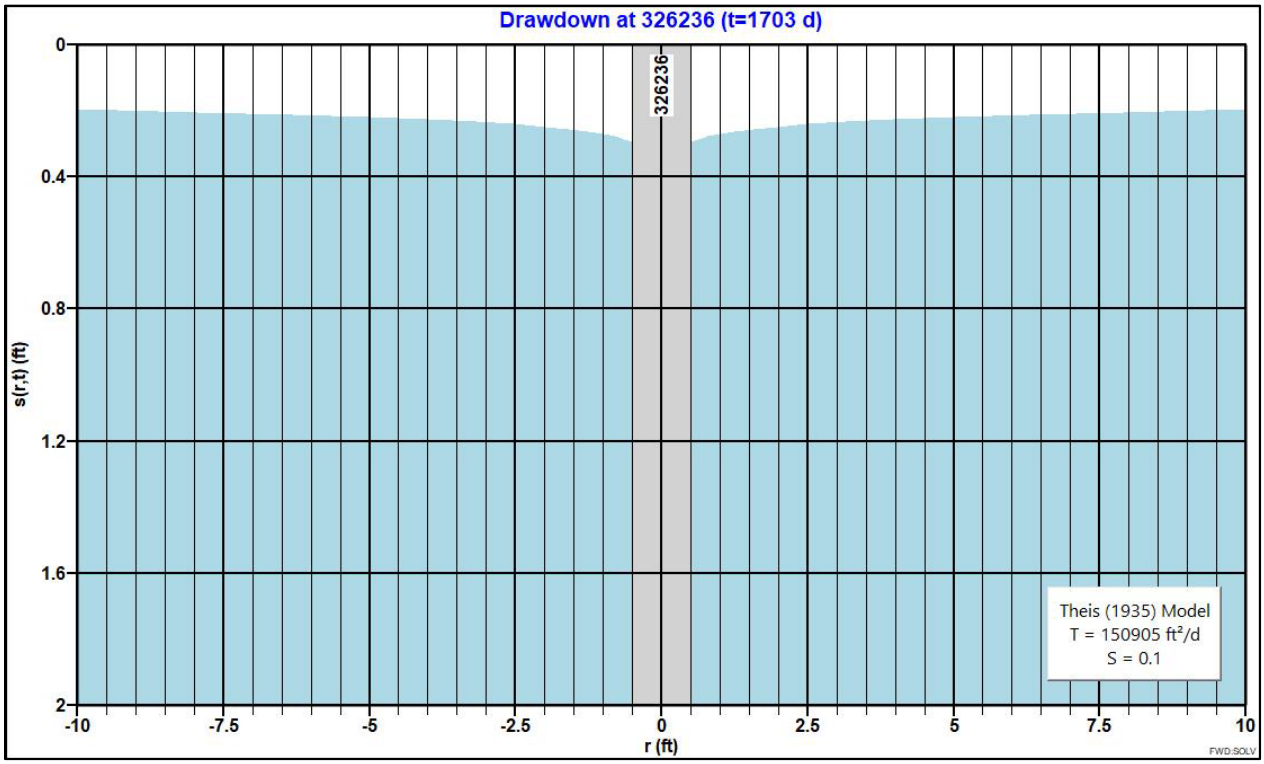


Figure 12: Predicted drawdown at the end of the fifth August of the assumed monthly pumping schedule.

7.2 Surface Water - Net Depletion

Net depletion is equal to consumption for a 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.

For the subject application, the proposed use is municipal. Following DNRC standards (DNRC, 2018), municipal use is 100% consumptive. As such, 99.0 AF would be diverted and consumed (**Table 1**).

2. Hydraulically Connected Surface Water(s)

Net depletions to surface water depend on propagation of drawdown to locations where surface water is hydraulically connected to groundwater, the hydraulic properties of an aquifer, and is not

a function of groundwater flow rate or direction (Theis, 1938; Leake, 2011). Hydraulic connection depends on the depth to groundwater beneath the beds of surface waters and can vary along a reach and with time of year. Drawdown from pumping can propagate through the entire thickness of the confining layer to overlying aquifers or surface waters (Konikow and Neuzil, 2007).

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 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.

The source aquifer is an unconfined alluvial aquifer of the Bitterroot River. **Figure 1** shows shallow wells queried from MBMG GWIC including GWIC ID 67349, 128978, 128983, 67056, 246089 that are less than 50 ft deep bgs and with swl less than or equal to 10 ft btc indicating a hydraulic connection between the Bitterroot River and shallow alluvial aquifer. Additional information from the Gridded National Soil Survey Geographic Database (SSURGO (NRCS, 2024)) show areas of shallow water tables and hydric conditions within the floodplain of the Bitterroot River.

The Bitterroot River is categorized as perennial in the US Geological Survey (USGS) National Hydrography Dataset (NHD). Per groundwater data provided for Provisional Permit No. 76H 30063563, Miller Creek is a losing stream. The depth to groundwater measured in wells in the area is 12 to 60 ft bgs near Miller Creek. Miller Creek is also categorized as intermittent according to the USGS NHD.

The net depletion analysis is limited to the Bitterroot River and as identified in **Figure 11** the depleted reach starts in the W2NE of Section 15, Township 12 North, Range 20 West, Missoula County.

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, 2003), Well Pumping Depletion Model (WPDM, 2001) 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), Butler et al. (2001), Glover and Balmer (1954), Theis (1941) or a superposition numerical groundwater flow model (Hubbel et al., 1997).

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 is modeled for monthly consumed volumes based on the assumptions that the proposed place of use and proposed wells are the same relative distance to the potentially affected surface water and that non-consumed water infiltrates the source aquifer and returns to the potentially affected surface waters. According to well logs near the proposed place of use, there is no confining unit and non-consumed water would return to the source aquifer and the potentially affected surface water.

Depletion by pumping in the source aquifer primarily occurs through propagation of drawdown through the unconfined aquifer to the potentially affected reach of the Bitterroot River. This process is modeled in FWD:SOLV (HydroSOLVE, 2024) with the following assumptions:

- the aquifer is homogeneous and isotropic with uniform thickness.
- the affected surface water fully penetrates the source aquifer.
- the river is straight and infinitely long.
- boundaries to the aquifer include the connected surface water and bedrock.

As identified in **Figure 13** inputs into the FWD:SOLV (HydroSOLVE, 2024) include a T of 150,905 ft^2/day, S_y of 0.1 and consumed values given in column 3 of **Table 1**. The proposed well was modeled at its respective location. Monthly net depletions to the Bitterroot River are identified in **Table 1**.

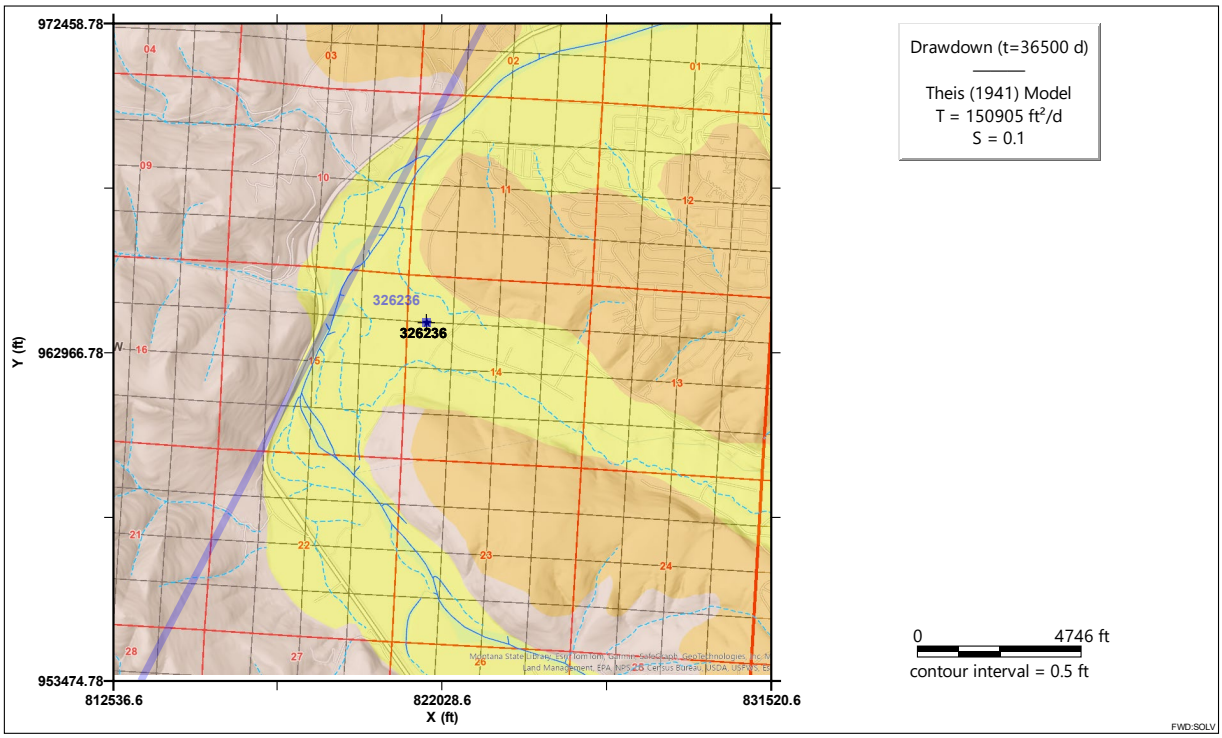


Figure 13: Stream boundary and well for modeling streamflow net depletions in FWD:SOLV (HydroSOLVE, 2024).

Review

This document has been reviewed on October 7, 2024 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: Groundwater Rights within Area of Potential Impact

Water Right No.	Water Right Type	Owner Name	Volume (AF)	Period of Diversion
76H 30124274	Groundwater Certificate	Kristin C Lowery, Jeremiah D. Petersen	1.28	01/01 to 12/31

Groundwater Permit Technical Analyses Report – Part B

Department of Natural Resources and Conservation (DNRC or Department)
Water Resources Division
Benjamin Thomas, Water Conservation Specialist, Missoula Regional Office

Application No.	76H 30163647	**Proposed Point of Diversion**	NWSWNW Sec. 14 T12N, R20W, Missoula County
Applicant	City of Missoula		

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
1.0 Application Details 2
2.0 Surface Water Analysis of Depleted Surface Water 2
2.1 Source Description 2
2.2 Method of Estimation 2
2.3 Monthly Flow Rate and Volume 2
3.0 Area of Potential Impact Analysis of Depleted Surface Water 4
Review 5
References 5
Appendix A: Water Rights within the Area of Potential Impact 6

1.0 Application Details

The Applicant proposes to divert water from April 1 to September 31 from a groundwater well at a rate of 980 gallons per minute. The proposed period of use is April 1 through September 31, during which 99 acre-feet (AF) of water would be used.

2.0 Surface Water Analysis of Depleted Surface Water

2.1 Source Description

Part A of the Technical Analyses Report includes the Groundwater Analysis, which describes the methodologies used to identify the depleted surface water source.

Depleted Source of Water: Bitterroot River

Depleted Source Type: Perennial

Location of Depletions: Depletions begin in the W2NE Sec. 15, T12N, R20W, Missoula County

2.2 Method of Estimation

Gage Name: Bitterroot River near Missoula MT

Gage Number: USGS 12352500

Period of Record: July 1, 1898 – April 30, 2024

Why this gage is considered an appropriate data source: USGS Gage 1235200 lies approximately 3.3 miles downstream of the point where depletions begin and has a substantial period of record. This gage ran mostly uninterrupted from July 1898 to December 1904. After this point, there is a gap in the record until July 1989, after which the record is continuous. As this gage is managed by the UGSS, it meets all other departmental requirements for use in estimating physical and legal availability.

2.3 Monthly Flow Rate and Volume

Methodology: USGS Gage #12352500 is the nearest gage to the point where depletions begin. The point of depletions for this application is upstream of the gaging station. Gage records from July 1989 to April 2024 (the most recent validated data) were used to calculate the median of the mean monthly flows.

Physical availability of Bitterroot River water at the point of depletions will be quantified monthly. Department practice for physical availability analyses where the gage used is downstream of the point of depletions is to add the monthly flow rates of existing water rights between the gage and the point of depletions 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 point of depletions during the proposed period of diversion:

1. The Department calculated median of the mean monthly flow rates in cubic feet per second (CFS) for the Bitterroot River using USGS Gage #12352500 records for each month of the proposed period of diversion (Table 1, column B). Those flows were converted to monthly volumes in AF (Table 1, column C) using the following equation found on DNRC Form 615: median of the mean monthly flow (CFS) × 1.98 (AF/day/1 CFS) × days per month = AF/month.
2. The Department calculated the monthly flows appropriated by existing users upstream of the gage on the source (Table 1, column D) by:
    i. Generating a list of existing water rights from the point of depletions to USGS Gage #12352500 (list is included in the application file and available upon request);
    ii. Discarding non-consumptive (e.g. instream flow) rights from this list, as these rights have no impact on the physical availability of water in the system;
    iii. Designating irrigation and lawn and garden uses as occurring between April 1 and October 31;
    iv. Designating all other water uses as year-round uses;
    v. Assigning a single combined flow rate of 0.08 CFS to all livestock direct from source rights without a designated flow rate; and,
    vi. 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.
3. Since the gage used is downstream of the point of depletions, the Department added in the flow rates of the existing rights between USGS Gage #12352500 and the point of depletions (Table 1, column D) to the median of the mean monthly gage values (Table 1, column B) to determine physical availability at the POD (Table 1, column E). Physically available monthly flows were then converted to monthly volumes (Table 1, column F).

Table 1: Physical Availability at the Point of Diversion on the Bitterroot River					
A	**B**	**C**	**D**	**E**	**F**
Month	**Median of the Mean Monthly Flow at Gage (CFS)**	**Median of the Mean Monthly Volume at Gage (AF)**	**Legal Demands from Point of Depletions to Gage (CFS)**	**Physically Available Water at Point of Depletions (CFS)**	**Physically Available Water at Point of Depletions (AF)**
January	782.50	48114.05	0.08	782.58	48,118.97
February	820.00	45947.11	0.08	820.08	45,951.59
March	1164.00	71571.57	0.08	1,164.08	71,576.49
April	2542.00	151259.50	36.63	2,578.63	153,439.14
May	6734.00	414057.52	36.63	6,770.63	416,309.81
June	7451.00	443365.29	36.63	7,487.63	445,544.93
July	2302.00	141544.46	31.40	2,333.40	143,475.17
August	836.40	51428.23	31.40	867.80	53,358.94
September	795.00	47305.79	31.40	826.40	49,174.21
October	899.30	55295.80	31.40	930.70	57,226.51
November	1040.00	61884.30	0.08	1,040.08	61,889.06
December	872.75	53663.31	0.08	872.83	53,668.22

3.0 Area of Potential Impact Analysis of Depleted Surface Water

Area of Potential Impact: The area of potential impact is the Bitterroot River from the point where depletions begin to the confluence of the Bitterroot and Clark Fork River. A total of 28 surface water rights exists with this reach. A list of these rights can be found in **Appendix A**.

Why this is an appropriate Area of Potential Impact: Depletions begin on the Bitterroot River in basin 76H, which is a closed basin. At and below the confluence of the Clark Fork and Bitterroot rivers, which lies in the open basin of 76M, water is no longer fully appropriated due to the contributions of the Clark Fork.

Legal Demands in the Area of Potential Impact: All active surface water rights on the Bitterroot River within the Area of Potential Impact are considered legal demands on the Bitterroot at the point of depletions. The Department used the same methodology to determine legal demands of water rights in the Area of Potential Impact as it used in its quantification of physical availability in Section 2.3 of this report, with one difference: nonconsumptive (instream flow) water rights are counted as contributing legal demand. However, in the accounting of instream flow rights, the Department has historically omitted water right 76H 151306-00, as it can only be exercised for one day during peak runoff (see permit applications 76H 30063539 and 76H 30121736). A summary of legal demands can be found in Table 2, below.

Table 2: Legal Demands at the Point of Depletions		
A	**B**	**C**
Month	**Legal Demands (CFS)**	**Legal Demands (AF)**
January	900.66	55,379.42
February	900.66	50,466.73
March	900.66	55,379.42
April	940.30	55,951.74
May	7,740.30	475,932.5
June	7,740.30	460,579.8
July	635.07	39,048.93
August	635.07	39,048.93
September	635.07	37,789.29
October	935.07	57,495.21
November	900.66	53,592.99
December	900.66	55,379.42

Review

This document has been reviewed by the Department on October 10, 2024.

References

Department Standard Practice for Determining Physical Availability of Surface Water
Department Standard Practice for Determining Area of Potential Impact

Appendix A: Water Rights within the Area of Potential Impact

Water Right No.	Owner(s)
76H 111268 00	USA (DEPT OF ARMY CORP OF ENGINEERS)
76H 111267 00	USA (DEPT OF ARMY CORP OF ENGINEERS)
76H 633 00	1905 SUSSEX LLC
76H 150826 00	ADAM BARTELS; KARIN BARTELS
76H 104521 00	BOGGESS FAMILY TRUST
76H 149983 00	BRAD A BENIGER; CAROL M BENIGER; MICHAEL A KENNEDY; JON T MCROBERTS; KATRINA MCROBERTS; SHARI F MONTANA
76H 125091 00	BRUCE B BARRETT; HOWARD J HICKINGBOTHAM; SANDRA B HICKINGBOTHAM
76H 151394 00	CAPRI FOSEID; REID FOSEID
76H 151743 00	CARTER E BECK; SUSAN M BECK
76H 560 00	DEBORAH P COLE; ROBERT J COLE; VICTORIA GORDON
76H 6445 00	DEBORAH P COLE; ROBERT J COLE; VICTORIA GORDON
76H 29206 00	DENNIS GORDON; PAULINE GORDON; DAVID R YUHAS
76H 45872 00	DORIS W SHERICK
76H 43060 00	EARL M PRUYN
76H 131603 00	ETHEL C BRAY; LAUDIE BRAY
76H 35713 00	GRAYS MINI RANCH LLC
76H 39791 00	KHOURY INC
76H 150956 00	KYMRA ARCHIBALD; MATTHEW ARCHIBALD
76H 105168 00	SHAUNA M GINTER; W H GINTER; TOLLEFSON PROPERTIES LLC
76H 47443 00	SUSAN M WOLF
76H 120055 00	USA (DEPT OF INTERIOR BUREAU OF RECLAMATION)
76H 31299 00	WILLIAM R MACLAY
76H 52092 00	DEBORAH P COLE; ROBERT J COLE
76H 151312 00	CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS
76H 151313 00	CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS
76H 151306 00	CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS
76H 151311 00	CONFEDERATED SALISH & KOOTENAI TRIBES; MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS
76H 87103 00	WESTERN MONTANA RETRIEVER CLUB INC

Preapplication Materials

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

Preapplication Materials

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
MISSOULA WATER RESOURCES REGIONAL OFFICE

GREG GIANFORTE
GOVERNOR

2705 SPURGIN ROAD, BLDG. C,
P.O. BOX 5004

STATE OF MONTANA

(406) 721-4284
FAX (406) 542-5899

MISSOULA, MONTANA 59806-5004

9/5/2024

City of Missoula
435 Ryman St
Missoula, MT 59802

Subject: Complete Preapplication Form for Beneficial Water Use Permit Application No. 76H 30163647

Dear Applicant,

The Missoula Regional Office of the Department of Natural Resources and Conservation (DNRC or Department) received your Preapplication Meeting Form and preapplication meeting fee on September 3, 2024, and the Department deems the submitted Preapplication Meeting Form to be successfully completed per ARM 36.12.1302.

As designated on the submitted Preapplication Meeting Form per §85-2-302(3)(b), MCA, the Department will produce the technical analyses based on the parameters included in the Preapplication Meeting Form (ARM 36.12.1302(4)) within 45 days of September 3, 2024.

Please let me know if you have any questions.

Best,

Benjamin Thomas

Benjamin Thomas
Water Conservation Specialist
Missoula Regional Office
(406) 542-5883 | benjamin.thomas@mt.gov

CC:

Dave Baldwin
Hydrosolutions Inc.
303 Clarke St
Helena, MT 59601

PREAPPLICATION MEETING FORM
PERMIT

§ 85-2-302
Form No. 600P *(Revised 4/2024)*

For Department Use Only

Application # 30163647 Basin 76H
Meeting Date 5/7/2024 Time 9:00 AM/~~PM~~
Completed Form Deadline 11/03/2024

RECEIVED

SEP - 3 2024

MONTANA D.N.R.C
MISSOULA REGIONAL OFFICE

Completed Form Received 9-3-2024
Fee Rec'd $ 500 Check # 1337
Deposit Receipt # MSS2502853
Payor Steve Reichert
Refund $ _____ Date _____

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 Form No. 600P and will identify follow-up during the preapplication meeting. The Department and Applicant will sign the Preapplication Meeting Affidavit and Certification within five business days. Within 180 days of the preapplication meeting, the Applicant will complete identified follow-up on a separate document with the question numbers clearly labeled.

Applicant Information: *Add more as necessary.*

Applicant Name CITY OF MISSOULA
Mailing Address 435 RYMAN ST City MISSOULA State MT Zip 59802
Phone Numbers: Home _____ Work _____ 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 (describe) _____
Contact/Representative Name DAVE BALDWIN, HYDROSOLUTIONS INC
Mailing Address 303 CLARKE ST City HELENA State MT Zip 59601
Phone Numbers: Home _____ Work _____ Cell (406) 431-7760
Email Address dbaldwin@hydrosi.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. 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 correspondence and a copy may be sent to the contact person.*

Meeting Attendees: *Add more as necessary.*

Name	Organization	Position
Jim Nave	DNRC	Missoula Regional Manager
Caitlyn Stevens	DNRC	Water Resource Specialist
Benjamin Thomas	DNRC	Water Resource Specialist
Melissa Brickl	DNRC	Supervisor Hydrologist
Dave Baldwin	Hydrosolutions Inc	Sr. Water Rights Specialist
Julie Merritt	WGM Group	Water Resource Specialist 3
Logan McInnis	City of Missoula	Deputy Public Works Director – Utilities
Doug Smith	Doug Smith Grading LLC	Staff Engineer
Brandon Bowman	Gold Peak Excavating LLC	Missoula Operations Manager
Matt Hammerstein	Woith Engineering	President
Kody Swartz	Woith Engineering	
Spencer Woith	Woith Engineering	
Nate Tollefson	Tollefson Properties LLC	

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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. Label units in narrative responses. Responses in the form of a table may be entered into the table provided on this form or in an attachment. Responses in the form of a table that are larger than the table provided on this form should be placed 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. For tables in this form, circle correct unit at header of column when faced with a choice of units. For tables in attachments, label all units. 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".

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, a north arrow, all proposed points of diversion labeled with a unique POD ID number, all proposed places of use, all proposed conveyance structures, all proposed places of storage, and places of use for all overlapping water rights.	■ S	☐ F
3. Is the project located in a Controlled Groundwater Area or Basin Closure Area? If yes, immediately go to Project-Specific Questions 47 to 52 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 (MM/DD-MM/DD)	Period of Use (MM/DD-MM/DD)	Flow Rate			Volume
			Flow Rate	GPM	CFS	(AF)
MUNICIPAL	04/01 - 09/31	04/01 - 09/31	980	✓		99.0
		Total	980	✓		99.0

6. 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 ID number 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	NW	14	12N	20W	MISSOULA							GROUNDWATER	WELL / PUMP

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

☐ A ☐ F

N/A for municipal use

8. 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
	Total								

9. Will other water right(s) 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). ■ A ☐ F

The water rights are part of the Applicant's municipal system. Water rights are commingled and delivered through the existing conveyance system. Riverfront Trails subdivision is being annexed into the City and new conveyance will be installed there.

10. 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 (MM/DD-MM/DD)	Avg. Period of Use (MM/DD-MM/DD)	Flow Rate (GPM or CFS)	Volume Contributed (AF)
Supplement Attached				

11. Will this application supplement contract water from a Federal Project, ditch company, or other source?	☐ Y ▬ N	☐ F
a. If yes, explain. _____ _____	☐ A	☐ F
12. Does the project involve one or more place(s) of storage with a capacity of greater than 0.1 acre-feet? This does not include storage tanks and cisterns. If yes, answer questions 53 to 61 for place of storage.	☐ Y ▬ N	☐ F
13. Does the project involve one or more conveyance ditches? If yes, answer questions 62 to 64 for ditch-specific questions.	☐ Y ▬ N	☐ F
14. 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 AC-FT (Form 600-B) with application submittal. The criteria are found in §85-2-311(3), MCA.	☐ Y ▬ N	☐ F
15. Will you be transporting water for use outside of Montana? If yes, you will need 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
16. Does the project include the water marketing purpose? If yes, answer questions 65 to 71 for water marketing. A Water Marketing Purpose Addendum (Form 600/606-WMA) will be required with application submittal.	☐ Y ▬ N	☐ F
17. Is the project located in designated sage grouse habitat? If yes, you must have a consultation with and review of your project by the Montana Sage Grouse Habitat Conservation Program. The review letter will be required at application submittal.	☐ Y ▬ N	☐ F

Surface Water

☐ **Applicable**, move on to question 18. ☒ **Not Applicable**, skip to question 29.

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: Physical Availability

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-Up**
18. 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 (GPM or CFS)	Volume (AF)	Period Start (MM/DD)	Period End (MM/DD)	Source Type

19. What is the source type of the surface water diversion? _____	☐ A	☐ F

Perennial or intermittent	Answer question 20	**Ephemeral**	Answer questions 22 to 24	**Lakes**	Answer question 25	**Other**	Answer question 26

Surface Water: Physical Availability: Perennial or Intermittent

☐ Applicable ☐ Not Applicable

20. Is stream gage data available?	☐ Y ☐ N	☐ F
a. If yes, answer the following questions related to the number of stream gages that are available.		
i. One stream gage is available		
1. What is the gage name? _____		☐ F

2. Who operates and maintains the gage? _____		☐ F
3. Is the stream gage upstream or downstream of point(s) of diversion? _____		☐ F
4. Is there a limiting or controlling factor that would make the Drainage Area Method not practical? This includes dams that control the flow and streams with large gaining and/or losing reaches. If you have questions about this, please contact the Regional Hydro-Specialist or the Water Sciences Bureau.	☐ Y ☐ N	☐ F
5. Is the period of record greater than or equal to 10 years?	☐ Y ☐ N	☐ F
6. How frequently is stage data recorded? _____		☐ F
7. 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
8. 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
9. Were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
10. Does the gage 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
a. If yes, this section is complete. Skip to question 27.		
b. If no, answer question 20.b.		
ii. More than one stream gage is available		
1. List the gage names. _____		☐ F
2. Who operates and maintains the gages? _____		☐ F
3. Is one stream gage upstream and one downstream of point(s) of diversion?	☐ Y ☐ N	☐ F
4. Do the stream gages have similar periods of record?	☐ Y ☐ N	☐ F
5. Are the periods of record each greater than or equal to 10 years?	☐ Y ☐ N	☐ F

6. How frequently is stage data recorded at each gage? _____		☐ F
7. For each gage, 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
8. Were the rating curves established and maintained throughout the duration of the period of record using measurements taken near the reference gages and stage recorders according to USGS protocols?	☐ Y ☐ N	☐ F
9. For each gage, were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
10. Does the gage 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
a. If yes, this section is complete. Skip to question 27.		
b. If no, answer question 20.b.		
b. If no gage data is available or if available gage data does 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
i. If yes,		
1. Submit available measurements to the Department.	☐ S	☐ F
2. Who collected the measurements? _____	☐ A	☐ F
3. With what method was the data collected? _____ _____	☐ A	☐ F
4. What is the period of record? _____		☐ F
5. What is the frequency of measurement? _____		☐ F
6. Are there gaps in the data?	☐ Y ☐ N	☐ F

a. If yes, what is the nature of the gaps and how are gaps handled to ensure data quality?	☐ A	☐ F
7. Is there a process for maintaining the data and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
a. If yes, explain.	☐ A	☐ F
8. Does 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
a. If yes, this section is complete. Skip to question 27.		
b. If no, answer question 21.		
21. Does 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, describe the estimation technique.	☐ A	☐ F
b. If no,		
i. Will measurements be collected prior to submission of a completed Form No. 600P 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,		
a. Describe your plan to comply with the requirements of ARM 36.12.1702(1). _____ _____ _____	☐ A	☐ F
b. Do you plan on requesting a variance from measurement requirements pursuant to ARM 36.12.1702(1)(b)?	☐ Y ☐ N	☐ F

Surface Water: Physical Availability: Ephemeral

☐ Applicable ☐ Not Applicable

22. If you will conduct Technical Analyses, what is your plan to calculate mean annual runoff? If DNRC will conduct Technical Analyses, write N/A. _____ _____	☐ A	☐ F
23. Where do you plan to obtain climate and drainage area data? _____ _____	☐ A	☐ F
24. Where is the downstream point of diversion, which will be used to delineate the drainage basin? _____	☐ A	☐ F

Surface Water: Physical Availability: Lakes

☐ Applicable ☐ Not Applicable

25. Do you have a design plan?	☐ Y ☐ N	☐ F
a. If yes, provide the design plans to DNRC	☐ S	☐ F
b. If no, has the lake volume been quantified by a qualified entity based on bathymetric data?	☐ Y ☐ N	☐ F
i. If yes, provide this information to DNRC.	☐ S	☐ F
ii. If no, answer the following questions,		
1. When do you plan to collect this information? _____		☐ F
2. With what method will it be collected? _____ _____	☐ A	☐ F

Surface Water: Physical Availability: Other

☐ Applicable ☐ Not Applicable

26. Have you measured the source?	☐ Y ☐ N	☐ F
a. If yes, answer the following questions,		
i. With what method was the data collected? _____ _____	☐ A	☐ F
ii. What is the measurement interval? _____		☐ F
1. Does the interval meet the requirements of 36.12.1702(4)?	☐ Y ☐ N	☐ F
b. If no or if the measurement interval does not meet the requirements of 36.12.1702(4)		
i. When do you plan to measure? _____		☐ F
ii. With what method will the measurements be collected? _____ _____ _____	☐ A	☐ F

Surface Water: Identification of Legal Demands in Area of Potential Impact

27. If you are conducting Technical Analysis, how will the Area of Potential Impact be defined? If Department is conducting Technical Analyses, write N/A.	☐ A	☐ F

Surface Water: Basin Closure Area

28. Is the project located in a Basin Closure Area? If yes, explain how the project meets a closure exception. More information about basin closures online at: https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas. Answer the follow-up questions for specific Basin Closure Areas in the "Project-Specific Questions: Controlled Groundwater Areas and Basin Closures" section (questions 51 to 52).	☐ Y ☐ N	☐ F

Groundwater

■ **Applicable**, move on to question 29. ☐ **Not Applicable**, skip to question 47.

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

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-Up**

Groundwater: Physical Availability

29. What is the type of groundwater diversion? New Well 4 in Applicant's Haugan well field					■ A	☐ F
Well/Pit	Answer questions 30 to 32	**Developed Spring**	Answer question 33	**Pond**	Answer questions 34 to 38	

Groundwater: Physical Availability: Well/Pit

■ Applicable ☐ Not Applicable

30. Provide the Aquifer Testing Addendum (Form 600-ATA). This form will be required before the Preapplication Meeting Form is deemed complete.	■ S	☐ F
31. Have you submitted a completed Form 633 to DNRC for review?	■ Y ☐ N	☐ F
a. If no, submit Form 633 to DNRC for review. Form 633 is required by the time the Preapplication Meeting Form is deemed complete.	■ S	☐ F
b. If yes, did the Department identify deficiencies?	■ Y ☐ N	☐ F
i. If yes, are variances from ARM 36.12.121 needed?	■ Y ☐ N	☐ F
1. If yes,		
a. Do you have data for aquifer characteristics?	■ Y ☐ N	☐ F
i. If yes, provide the data to the Department.	■ S	☐ F
b. Have you submitted Form 653 to the Department?	■ Y ☐ N	☐ F
i. If yes, was the variance granted?	■ Y ☐ N	☐ F
32. Do you have a map with the location of each well/pit labeled and, if available, with the GWIC ID?	■ Y ☐ N	☐ F
a. If no, have all the wells/pits been constructed?	☐ Y ☐ N	☐ F

i. If yes, provide a map with the wells/pits labeled and, if available, with the GWIC ID. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	■ S	☐ F
ii. If no, answer the following questions,		
1. When will the wells/pits be constructed? _____		☐ F
2. Do you have an initial map with the proposed location of wells/pits?	☐ Y ☐ N	☐ F
a. If yes, provide an initial map to the Department. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F
3. Is the requested volume for each new well/pit known?	☐ Y ☐ N	☐ F
a. If no, what is the total requested volume (AF) and the number of new PODs? _____		☐ F

Groundwater: Physical Availability: Developed Spring

☐ Applicable ■ Not Applicable

33. Have you measured the source?	☐ Y ☐ N	☐ F
a. If yes, answer the following questions,		
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),		
i. When do you plan to measure? _____		☐ F

ii. With what method and at what interval will measurements be collected? _____ _____	☐ A	☐ F

Groundwater: Physical Availability: Ponds

☐ Applicable ■ Not Applicable

34. Have you submitted Form 653 to apply for a variance from ARM 36.12.121 for the Aquifer Test?	☐ Y ☐ N	☐ F
a. If yes, did the Department approve the variance request?	☐ Y ☐ N	☐ F
35. Have you submitted measurements to the Department? If yes, describe. _____	☐ Y ☐ N	☐ F
36. Submit pond bathymetry data, survey, or engineering plans to the Department.	☐ S	☐ F
37. Please submit a map identifying the location of the proposed pond to the Department. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F
38. If you are conducting Technical Analyses, what is your plan to determine depth, surface area, and net evaporation of the pond? If DNRC is conducting Technical Analyses, write N/A. _____ _____ _____	☐ A	☐ F

Groundwater: Identification of Groundwater Legal Demands

All information to calculated Zone of Influence was collected in previous questions.

Groundwater: Adverse Effect to Existing Groundwater Rights

All information to calculate One-Foot Drawdown Contour was collected in previous questions.

Groundwater: Physical Availability of Depleted Surface Water Source(s)

39. What are the hydraulically connected surface water source(s)? Bitterroot River		☐ F
40. For each hydraulically connected surface water source, is gage data available?	■ Y ☐ N	☐ F
a. If yes, answer the following questions for the number of stream gages that are available.		

i. One stream gage is available		
1. What is the gage name? Bitterroot River near Missoula, MT – Gage # 12352500		☐ F
2. Who operates and maintains the gage? USGS		☐ F
3. Is the stream gage upstream or downstream of point(s) of diversion? Downstream		☐ F
4. Is there a limiting or controlling factor that would make the Drainage Area Method not practical? This includes dams that control the flow and streams with large gaining and/or losing reaches. If you have questions about this, please contact the Regional Hydro-Specialist or the Water Sciences Bureau.	☐ Y ■ N	☐ F
5. Is the period of record greater than or equal to 10 years?	■ Y ☐ N	☐ F
6. How frequently is stage data recorded? Continuous		☐ F
7. 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
8. 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
9. Were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	■ Y ☐ N	☐ F
10. Does the gage 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
a. If yes, this section is complete. Skip to question 42.		
b. If no, answer question 40.b.		
ii. More than one stream gage is available		
1. List the gage names.		☐ F
2. Who operates and maintains the gages?		☐ F
3. Is one stream gage upstream and one downstream of point(s) of diversion?	☐ Y ☐ N	☐ F

4. Do the stream gages have similar periods of record?	☐ Y ☐ N	☐ F
5. Are the periods of record each greater than or equal to 10 years?	☐ Y ☐ N	☐ F
6. How frequently is stage data recorded at each gage? _____		☐ F
7. For each gage, 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
8. Were the rating curves established and maintained throughout the duration of the period of record using measurements taken near the reference gages and stage recorders according to USGS protocols?	☐ Y ☐ N	☐ F
9. For each gage, were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
10. Does the gage 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
a. If yes, this section is complete. Skip to question 42.		
b. If no, answer question 40.b.		
b. If no gage data is available or if available gage data does 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
i. If yes,		
1. Submit measurements to the Department.	☐ S	☐ F
2. Who collected the measurements? _____	☐ A	☐ F
3. With what method was the data collected? _____ _____	☐ A	☐ F
4. What is the period of record? _____		☐ F
5. What is the frequency of measurement? _____		☐ F
6. Are there gaps in the data?	☐ Y ☐ N	☐ F

a. If yes, what is the nature of the gaps and how are gaps handled to ensure data quality _____ _____ _____ _____	☐ A	☐ F
7. Is there a process for maintaining the data and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
a. If yes, explain. _____ _____ _____ _____	☐ A	☐ F
8. Does 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
a. If yes, this section is complete. Skip to question 42.		
b. If no, answer question 41.		
41. For each hydraulically connected surface water source, does 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, describe the estimation technique. _____ _____ _____	☐ A	☐ F
b. If no,		
i. Will measurements be collected prior to submission of a completed Form No. 600P 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, describe your plan to comply with the measurement requirements for hydraulically connected surface water sources.	☐ A	☐ F

Groundwater: Legal Availability of Depleted Surface Water Source(s)

All information to determine legal demands for depleted surface water source(s) was collected in previous questions.

Groundwater: Adequacy of Diversion

Questions, Narrative Responses, and Tables	Check-boxes	Follow-Up
42. What is the flow rate (GPM or CFS), volume (AF), and period of diversion required (MM/DD-MM/DD) at each groundwater point of diversion? If the POD is a well, provide the well depth (FT), if available, or estimated well 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 (GPM or CFS)	Volume (AF)	Period of Diversion (MM/DD-MM/DD)	Well Depth (FT)	Measured or Estimated
1	980 GPM	99.0	Seasonal in April - September	82	MEASURED

43. Will the monthly pumping schedule differ from an allocation of diverted volume by the number of days in the month for year-round uses or the IWR 80% net irrigation requirements for irrigation/lawn & garden uses (IWR, NRCS 2003)?	■ Y ☐ N	☐ F

a. If yes, provide the alternative pumping schedule in the table below. Use the same POD # as the project map (question 2).	■ A	■ F

Month	POD #	Volume (AF)	Month	POD #	Volume (AF)
January			July	1	27.3
February			August	1	23.7
March			September	1	12.3
April	1	2.1	October	1	2.1
May	1	12.2	November		
June	1	19.4	December		

Groundwater: Basin Closure Area

44. Are the point(s) of diversion located in a basin closure area? If yes, fill out questions 45 to 46.	■ Y ☐ N	☐ F
45. Did you elect in question 1 for the Department to conduct Technical Analysis?	■ Y ☐ N	☐ F
a. If yes, the Basin Closure Area Addendum (Form 600-BCA), Hydrogeologic Report Addendum (Form 600-HRA), and Hydrogeologic Report are not required at this time. The Department's Technical Analyses will meet requirements of §85-2-360 for Form 600-HRA. Form 600-BCA will be required with application submittal.		
b. If no, submit the Basin Closure Area Addendum (Form 600-BCA), Hydrogeologic Report Addendum (600-HRA), and Hydrogeologic Report with your Technical Analysis.	☐ S	☐ F
46. If the Hydrogeologic Report indicates that the proposed groundwater use will impact a surface water source, which of the following three options best describe your plan to mitigate depletions of hydraulically connected surface water? A separate Preapplication Meeting will be required for each application to change a water right to a mitigation or aquifer recharge purpose to maintain expedited timelines and reduced filing fees for the project.		
a. Application to Change a Water Right to mitigate the adverse effects created.	■ Y ☐ N	☐ F
b. Alternative mitigation plan.	☐ Y ☐ N	☐ F
c. Documentation to show a mitigation plan is not required.	☐ Y ☐ N	☐ F

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.

Questions, Narrative Responses, and Tables	Check-boxes	Follow-Up

Project-Specific Questions: Controlled Groundwater Areas and Basin Closures

47. Is the project located in the East Valley Controlled Groundwater Area?	☐ Y ■ N	☐ F
a. If yes,		
i. Do you have written approval from (1) Lewis and Clark County Board of Health, (2) Lewis and Clark County Water Quality Protection Bureau, (3) the U.S. Environmental Protection Agency, (4) the Montana State Dept. of Environmental Quality and (5) the Montana State Dept. of Natural Resources and Conservation? If the agencies have established a Technical Advisory Group, prior approval by the Technical Advisory Group satisfies this requirement.	☐ Y ☐ N	☐ F
ii. Is the project in Zone 2?	☐ Y ☐ N	☐ F
i. If yes, provide in the written approval the following recommendations which will also be included as conditions on the appropriation. a. Well design and construction requirements necessary to measure the water level and water quality for any well; b. Water level measurement and water quality sample reporting requirements for any new well; c. Any other requirements necessary to ensure new wells can be operated in a manner consistent with purpose of the EVCGWA.	☐ S	☐ F
iii. Is the project in Zone 1? If yes, a Form 600 cannot be accepted by the Department.	☐ Y ■ N	☐ F
48. Is the project located in the South Pine Controlled Groundwater Area?	☐ Y ☐ N	☐ F
a. If yes, have you completed an Application for Beneficial Water Use Permit South Pine Controlled Groundwater Area Addendum? The addendum needs to be completed by application submittal.	☐ Y ☐ N	☐ F
49. Is the project located in the Yellowstone Controlled Groundwater Area?	☐ Y ■ N	☐ F
a. If yes, is the use over 35 GPM or 10 AF per year?	☐ Y ☐ N	☐ F
i. If no, this is the incorrect form. Use instead the Yellowstone Controlled Groundwater Area Permit Application (600-YCGA).		
ii. If yes, answer the remaining parts of question 49. A Yellowstone Controlled Groundwater Area Addendum (600 Y over35) will be required with application submittal.		
1. Does the proposed use require a point of diversion with water temperature of 60 degrees Fahrenheit or more?	☐ Y ☐ N	☐ F
2. What is the ground elevation at the point of diversion? _____		☐ F

3. What is the specific conductance at the point of diversion? _____		☐ F
4. If an application is in a basin tributary to a category 3 or 4 stream (generally in or upstream of YNP), provide a report prepared by a professional qualified in the science of groundwater hydrology, verifying that the appropriation is not hydrologically connected to surface flow that is tributary to the reserved portion of category 3 or 4 streams.	☐ S	☐ F
50. Is the project located in one of the Controlled Groundwater Areas listed on the Department's website (https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas)?	☐ Y ■ N	☐ F
a. If yes, list which one and describe how the proposed project meets the requirements of the Controlled Groundwater Area. An application must meet the specific requirements of the Controlled Groundwater Area to be accepted by the Department.	☐ A	☐ F
51. Is the project located in one of the administrative, Department ordered, or legislative closures listed on the Department's website (https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas)?	■ Y ☐ N	☐ F
a. If yes, list which one and describe how the proposed project meet the requirements of the closure. An application must meet the specific requirements of the closure to be accepted by the Department. Bitterroot River. A change application and mitigation plan will be submitted with the permit application.	■ A	☐ F
52. Is the project located in one of the compact closures listed on the Department's website (https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas)?	☐ Y ■ N	☐ F
a. If yes, list which one and describe how the proposed project meet the requirements of the compact closure. An application must meet the specific requirements of the compact closure to be accepted by the Department.	☐ A	☐ F

Project-Specific Questions: Place of Storage

53. Does the proposal include at least one place of storage? If yes, answer questions 54 to 61 for each individual place of storage (use Additional Place of Storage Sheet for additional places of storage). If no, this section is complete, and you can skip to question 62.	☐ Y ■ N	☐ F
54. Provide a map showing the location of the place of storage. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F
55. Is this application to enlarge an existing reservoir?	☐ Y ☐ N	☐ F
a. If yes, what is the water right number for the existing reservoir? _____		☐ F
56. Is the place of storage located on-stream?	☐ Y ☐ N	☐ F
a. If no, explain the conveyance means to and from the off-stream place of storage and any losses that may occur with that conveyance. _____ _____ _____	☐ A	☐ F
57. 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 (0.4-0.6 depending on side slope) = Capacity (AF)* _____	☐ A	☐ F
58. Will the place of storage include primary and/or emergency spillways? Preliminary design specifications for primary and emergency spillways must be included with application submittal (ARM 36.12.113).	☐ Y ☐ N	☐ F
59. Will the place of storage be lined?	☐ Y ☐ N	☐ F
60. What is the annual net evaporation of water from the place of storage using the standards in ARM 36.12.116(1)? Gridded net evaporation layer is available from DNRC upon request. _____		☐ F
61. Is the place of storage capacity calculated to be greater than 50 acre-feet?	☐ Y ☐ N	☐ F
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?	☐ Y ☐ N	☐ F

Project-Specific Questions: Ditch-Specific Questions

62. Does the proposal include at least one conveyance ditch? If yes, answer question 63 and, for each ditch, answer question 64. If no, this section is complete, and you can skip to question 65.	☐ Y ■ N	☐ F

63. Submit a Ditch Map that shows every ditch conveying water for the proposed project. Label the ditch name(s), POD(s), the POU(s), and the ditch measurement locations (requested in question 64.c). The map should be created on an aerial photograph or topographic map with the following: section corners, township and range, and a north arrow.	☐ S	☐ F
64. For each conveyance ditch, answer the following. If there is more than one conveyance ditch, use an Additional Ditch Sheet for each additional conveyance ditch.		
a. What is the ditch name? _____		☐ F
b. What is the distance water will be carried by the conveyance ditch? Only include segments between the POD and start of the POU; do not include segments within the POU. _____ _____	☐ A	☐ F
c. Provide at least one set of ditch measurements, which include width (FT), depth (FT), and slope (%). Discuss ditch characteristics with DNRC to determine the minimum number of ditch measurements. Include the location of each measurement, labeled with the 2-digit measurement ID number, used on the map submitted for question 63.	☐ S	☐ F

ID #	Width (FT)	Depth (FT)	Slope (%)	Date of Measurement

d. What is a reasonable Manning's n value? List the factors used for estimation. If you do not know this value, please work through estimation with the Department. _____ _____	☐ A	☐ F
e. What type of soils compose the proposed conveyance ditch? For lined ditches, write "lined" instead. _____ _____	☐ A	☐ F
f. Are other water rights conveyed by the conveyance ditch?	☐ Y ☐ N	☐ F
i. If yes,		
1. What are the water right numbers? _____ _____	☐ A	☐ F

2. What is the sum of the flow rates (GPM or CFS) for water rights conveyed? _____ _____ _____	☐ A	☐ F
3. Provide a map with your best estimate of where the existing POUs begin for the other water rights conveyed by the conveyance ditch for all POUs between the proposed POD and your proposed POU. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F

Project-Specific Questions: Water Marketing

65. Does the proposal include water marketing? If yes, please answer the questions in this section (questions 66 to 71). If no, this section is complete, and you can skip to question 72.	☐ Y ■ N	☐ F
66. Identify the flow rate (GPM or CFS) and volume (AF) of water that will be marketed. _____		☐ F
67. Will the marketed water return to the source?	☐ Y ☐ N	☐ F
a. Explain how this determination was made. _____ _____ _____	☐ A	☐ F
68. For what purpose(s) will the marketed water be used? _____ _____	☐ A	☐ F
69. How will you control or limit access to the water? _____ _____	☐ A	☐ F
70. Do you have contracts for the entire volume and flow rate sought?	☐ Y ☐ N	☐ F
71. Provide a service area map. Create map on an aerial photograph or topographic map and shows the following: general service area boundary, section corners, township and range, and a north arrow.	☐ S	☐ 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
72. Do you have evidence that water is legally available in the proper flow rate, volume, and timing?	■ Y ☐ N
73. If water is not found to be legally available for part or all the proposed period of diversion, what is the plan to address this with the permitting process? The associated change of 76H 105168-00 and mitigation plan provide evidence that water is legally available.	■ A
74. Describe your plan to ensure that existing water rights will be satisfied during times of water shortage. All valid calls will be honored and diversions will cease.	■ A
75. Explain how you can control your diversion in response to call being made. Stop diversion by turning the pump off. (DNRC suggestion- note how domestic supply will be maintained in the event of a call)	■ A
76. 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
77. Does a water commissioner distribute water or oversee water distribution on your proposed source or depleted surface water source?	☐ Y ■ N

Adequate Diversion Means and Operation

78. Provide a diagram of how you will operate your system from the point of diversion to the place of use.	■ S
79. 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. Pumping test of Well 4 showed water is physically available. The well is in the City's Haugan well field, which is known to be highly productive. DEQ must approve final pump install. Total dynamic head is 330 feet to the Sophie Tank	■ A

80. Is the diversion capable of providing the full amount requested through the period of diversion?	■ Y ☐ N
81. Describe the size and configuration of infrastructure to convey water from point of diversion to place of use. This may include, where applicable: ditch capacity and/or pipeline size and configuration. 12-in well, 10-in pipe to pump house, 18-in pipe to Sophie and Upper Linda Vista tanks and then 10- to 12-in pipes for distribution throughout place of use.	▬ A
82. Describe any losses related to conveyance. None known	▬ A
83. Is the conveyance infrastructure capable of providing the required flow and volume and any losses?	■ Y ☐ N
84. Does the proposed conveyance require easements?	☐ Y ▬ N
a. If yes, explain.	☐ A
85. 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. No storage other than the described municipal tanks.	▬ A
86. Describe 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 and output and configuration of sprinkler heads. Water will be pumped from the well at 980 GPM to the pump house and chlorinizing unit, then to Sophie and Upper Linda Vista Tanks for distribution through the municipal system within the claimed place of use.	☐ A
87. Is the water delivery system capable of providing the requested beneficial use?	■ Y ☐ N
88. Will your system be designed to discharge water from the project?	☐ Y ▬ N
a. If yes, explain the way water will be discharged and the wastewater disposal method.	☐ A

89. Provide a plan of operations. See follow-up	■ A
90. Can the plan of operations deliver the flow rate and volume for the beneficial use being requested?	■ Y ☐ N
91. 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 Department-approved flow meter on the well or in the well house.	☐ A

Beneficial Use

92. Why is the requested flow rate and volume the amount needed for the purpose? The requested flow rate is needed to deliver the diverted water to the Sophie storage tank. The volume is needed for the City to serve its municipal users.	☐ A
93. Does the Department have a standard for the purposes for which water is used? Department standards can be found in ARM 36.12.112.	☐ Y ■ N
a. If yes, does the proposed beneficial use fall within Department standards?	☐ Y ☐ N
94. If no standard, or if proposed beneficial use falls outside of Department standards, explain how the use is reasonable for the purpose. Municipal use is a recognized beneficial use in MCA statute and DNRC rules.	■ A
95. 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
96. 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

97. Do you have possessory interest, or the permission of the party with possessory interest, of the proposed place of use? Proof of possessory interest or permission of the party with possessory interest is required at application submittal.	☐ Y ■ N
a. If no, explain. Possessory interest is not required for municipal use.	■ A

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 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 the first five days of the 45-day period in ARM 36.12.1302(4) or (5) 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.

Logan McInnis
Digitally signed by Logan McInnis
Date: 2024.05.07 14:36:38 -06'00'

Applicant Signature — Date

Applicant Signature — Date

Jim Nave
Digitally signed by Jim Nave
Date: 2024.05.07 15:49:20 -06'00'

Department Signature — Date

FOLLOW-UP PAGE

Applicant will provide all responses to questions marked for follow-up on a separate document entitled "Follow-up Responses" with the question number labeled. Answer questions in the same format as the form. 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 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 signed at the Preapplication Meeting. Instead, the Applicant must use the Amended Responses procedure defined below. Do not include additional information for questions not marked for follow-up here; instead include any additional information pursuant to the process for amending responses defined below.

Questions marked for follow-up

Period of use and diversion: Questions 5, 42	
Pumping Schedule: Question 43a, 89	
DNRC will provide clarification on municipal sub-uses (Q. 94)	
Response to call: Question 75	

AMENDED RESPONSES PAGE

The Applicant may not alter the Preapplication Meeting Form signed at the Preapplication Meeting or the Follow-up Page. 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. Answer questions in the same format as the form. 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 attached to the Preapplication Meeting Form. Label all submitted items with the question number for which they were submitted. The Applicant will mark all question numbers with an amended response in the table below and note for each question whether the response will replace the response given at the preapplication meeting or will provide additional information to consider in conjunction with the response given at the preapplication meeting. The Applicant will return the "Amended Responses" document with the "Follow-up Responses" document and the signed Preapplication Meeting Form.

Questions with amended responses

Question #5	Replaces		
Question #42	Replaces		
Question #43a	Replaces		
Question #89	Replaces		

FOLLOW-UP PAGE AFFIDAVIT & CERTIFICATION

"I/we attest that this preapplication meeting form, follow-up page, and amended responses page accurately portray my 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 and follow-up materials (ARM 36.12.1302(6)(a))."

Logan McInnis

Digitally signed by Logan McInnis
Date: 2024.08.27 16:44:25 -06'00'

Applicant Signature

Date

Applicant Signature

Date

"We confirm that the preapplication form 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 piece of technical analysis required based on the proposed project and the Department is able to proceed with the scientific credibility review (ARM 36.12.1303(8))."

Jim Nave

Digitally signed by Jim Nave
Date: 2024.09.03 11:33:14 -06'00'

Department Signature

Date

Department Signature

Date

CITY OF MISSOUILA

PERMIT PREAPPLICATION MEETING FORM – FORM NO. 600P

SUPPLEMENTAL INFORMATION

April 23, 2024

2. Provide a map created on an aerial photograph or topographic map.
Please see Map 1 below. This map is submitted on a 2021 NAIP photo (Map 1-a) and on a streets base map (Map 1-b).

8. Describe the legal land description for the proposed place of use.

Because this is an application for municipal use, acres for lawn and garden are not provided. Lawn irrigation is a subcategory covered by municipal beneficial use so lawn and garden irrigation can occur anywhere within the municipal place of use service area.

Acres	Gov't Lot	Block	¼	¼	¼	Sec	Twp	Rge	County
			SE	SW	SW	1	12N	20W	MSLA
				SE	SW	1	12N	20W	MSLA
			W2	SW	SE	1	12N	20W	MSAL
				S2	SE	2	12N	20W	MSLA
			SE	SE	SW	2	12N	20W	MSLA
						11	12N	20W	MSLA
					W2	12	12N	20W	MSLA
			S2	S2	NE	12	12N	20W	MSLA
			W2	SE	NE	12	12N	20W	MSLA
				SW	NE	12	12N	20W	MSLA
			W2	NW	SE	12	12N	20W	MSLA
				SW	SE	12	12N	20W	MSLA
			S2	SE	SE	12	12N	20W	MSLA
					N2	13	12N	20W	MSLA
				N2	N2	14	12N	20W	MSLA

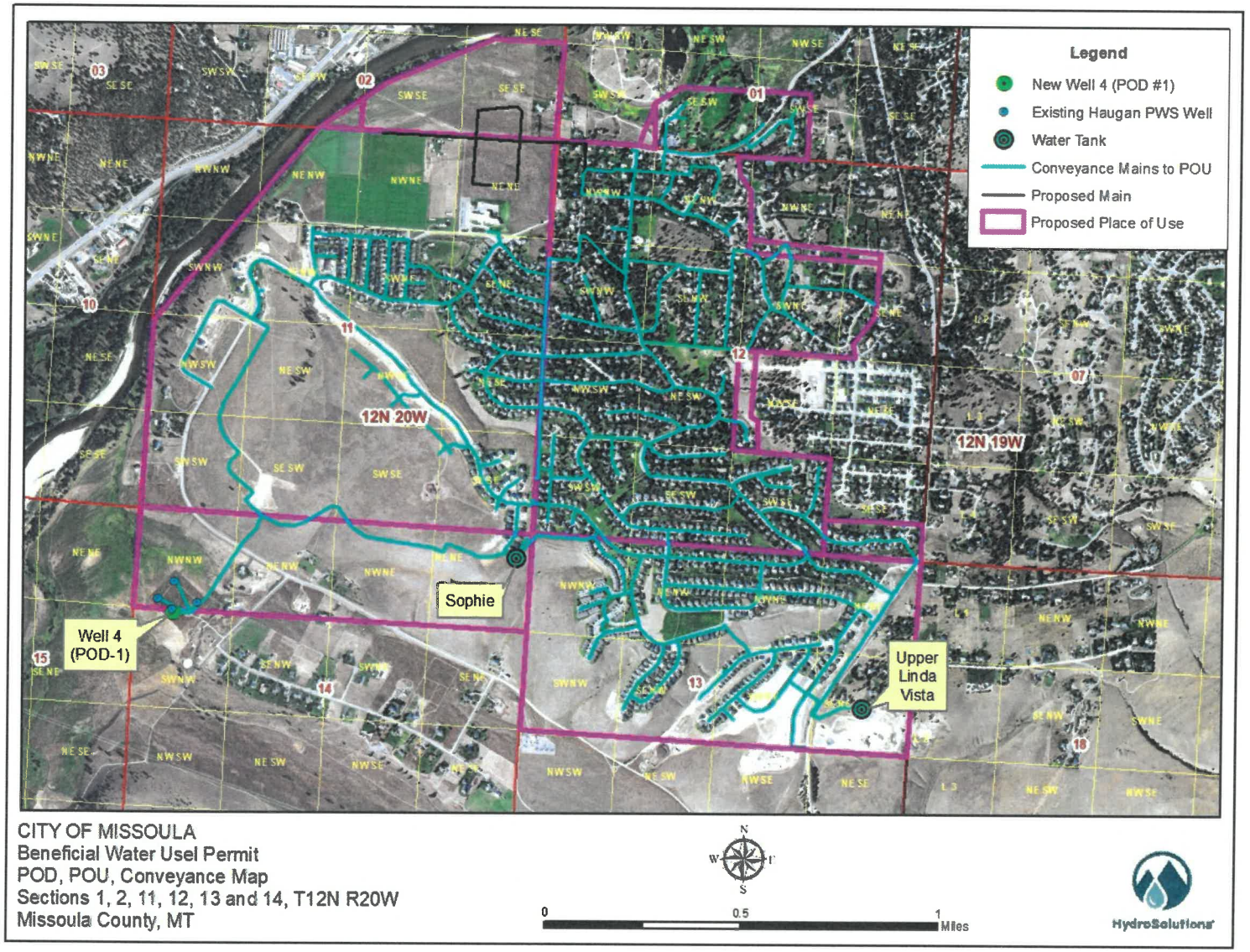
10. Supplemental water rights.
The following table shows supplemental City municipal water rights.

Water Right Number	Purpose	Period of Diversion	Period of Use	Maximum Flow Rate	Maximum Volume (AF)
76M 706 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2000 GPM	3186.0
76M 5452 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	6.68 CFS	4839.0
76M 5604 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	6.68 CFS	4839.0
76M 6616 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2989 GPM	4821.3
76M 10378 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	6.68 CFS	4839.0
76H 14489 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2500 GPM	4032.0
76M 23029 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1150 GPM	1508.0
76M 26357 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	120 GPM	194.1
76M 26359 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	33 GPM	53.4

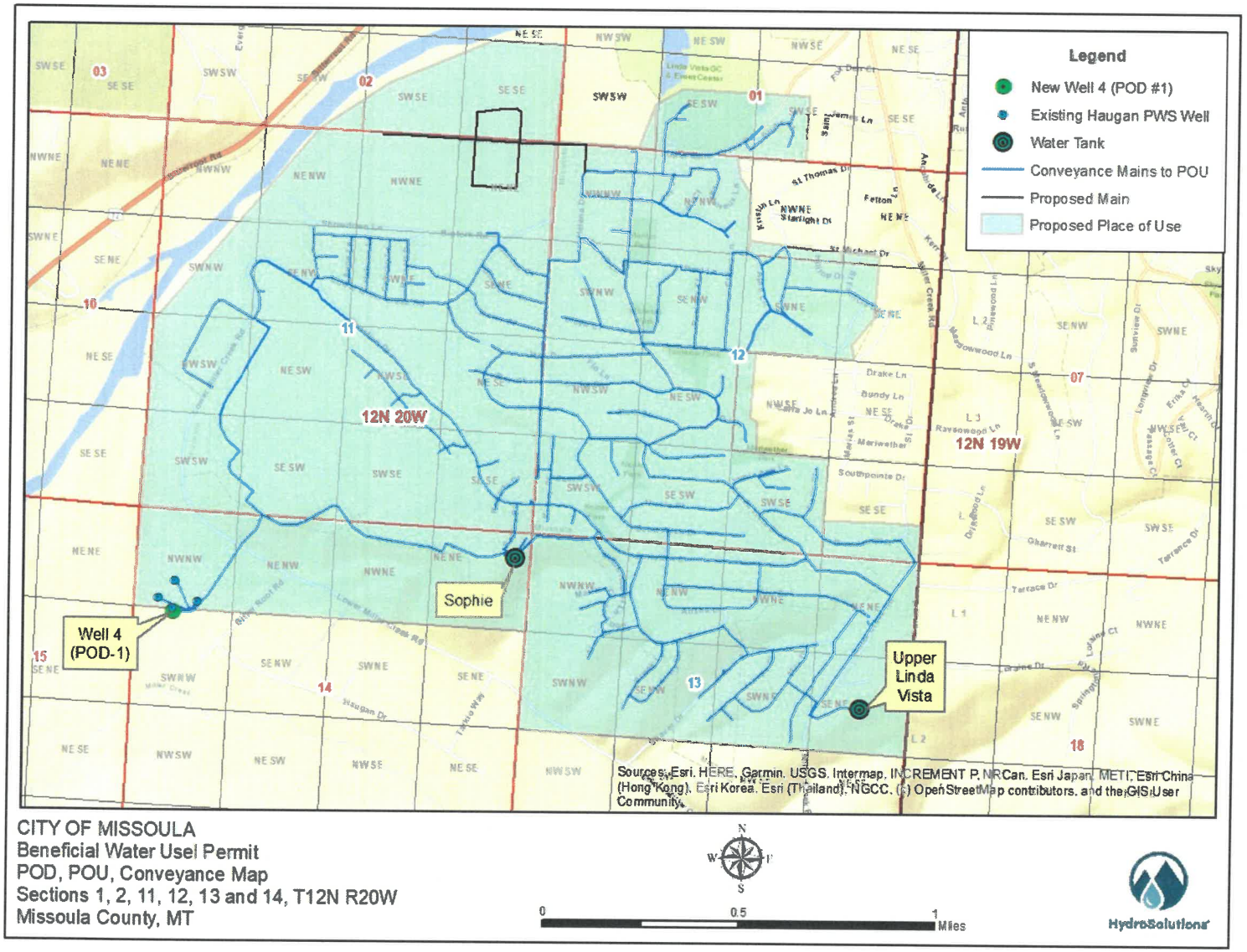
76H 26360 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 26368 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1000 GPM	1617.2
76M 31907 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2440 GPM	296.0
76M 40143 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40144 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40145 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40146 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1.78 CFS	1291.9
76M 40147 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40148 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76H 40149 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40150 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40151 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40152 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40153 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1.78 CFS	1291.9
76M 40154 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	148 GPM	239.5
76H 40155 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76H 40156 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40157 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40158 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40159 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40160 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.67 CFS	1937.8
76M 40161 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	305 GPM	486.7
76M 40162 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1 CFS	725.8
76M 40163 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2.22 CFS	1611.2
76H 40164 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40165 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	3.28 CFS	2380.6
76H 40166 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1000 GPM	1613.0
76M 40170 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	23.65 CFS	17164.7
76M 40171 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	4 CFS	2903.1
76M 40172 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	152.6 GPM	246.4
76M 40173 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1.62 CFS	1175.8
76M 40174 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	1.16 CFS	841.9
76M 40175 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	8.7 CFS	6314.3
76M 40176 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	16.13 CFS	11706.8
76M 53867 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	3000 GPM	4838.3
76M 53868 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2500 GPM	4031.0
76M 53872 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	3000 GPM	4838.3
76H 67585 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	500 GPM	350.0
76H 70436 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	3800 GPM	500.0
76M 91259 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31		504.0
76H 107536 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	3998 GPM	6449.2
76M 108816 00	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2440 GPM	296.0
76H 30063539	MUNICIPAL	01/01 - 12/31	01/01 - 12/31	2000 GPM	622.9

31. Have you submitted a completed Form 633 to DNRC for review?
YES

MAP 1-a


Legend
New Well 4 (POD #1)
Existing Haugan PWS Well
Water Tank
Conveyance Mains to POU
Proposed Main
Proposed Place of Use
12N 20W
12N 19W
Sophie
Well 4
(POD-1)
Upper
Linda
Vista
CITY OF MISSOULA
Beneficial Water Usel Permit
POD, POU, Conveyance Map
Sections 1, 2, 11, 12, 13 and 14, T12N R20W
Missoula County, MT
N
W
E
S
0
0.5
1
Miles
HydroSolutions

MAP 1-b

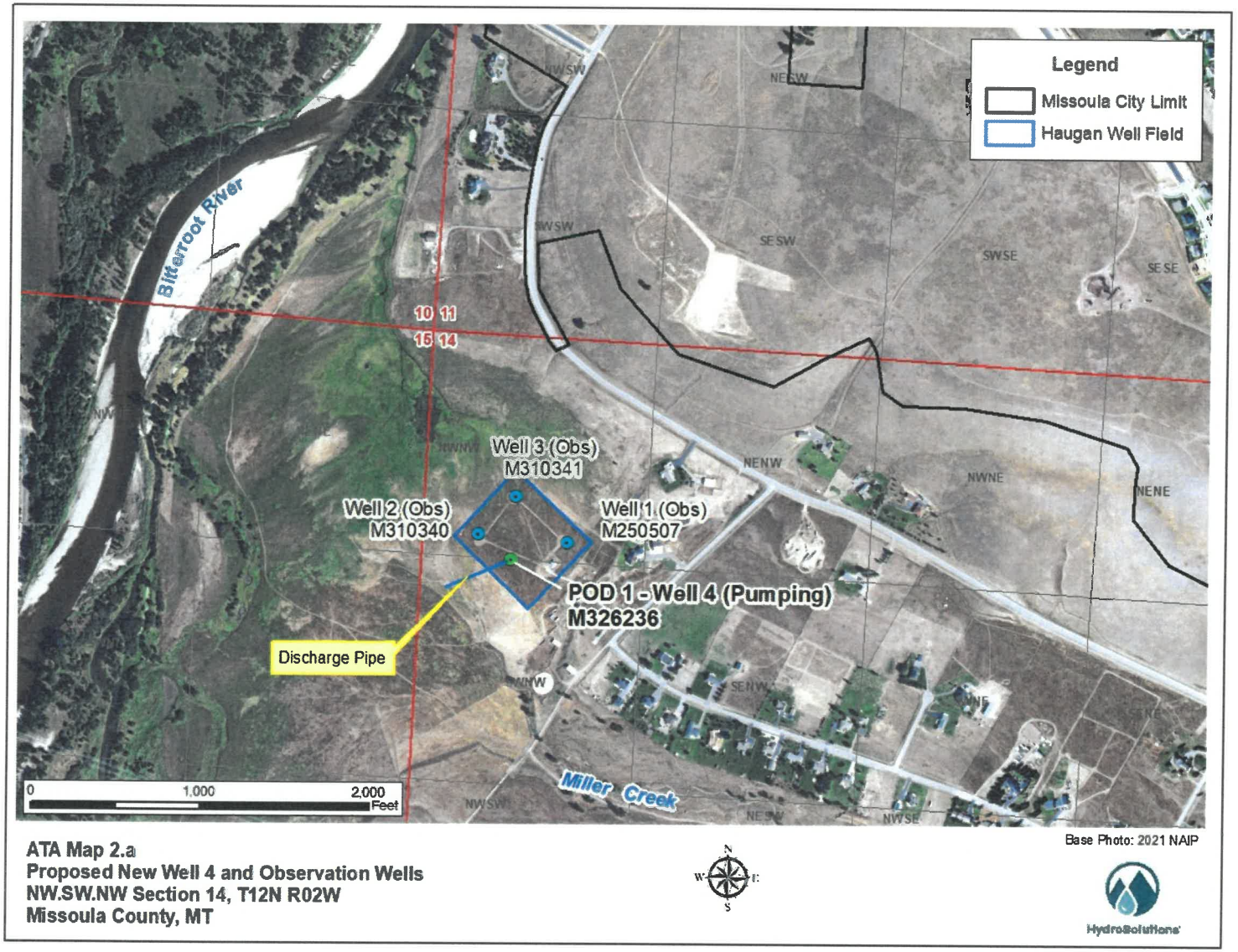

Legend
New Well 4 (POD #1)
Existing Haugan PWS Well
Water Tank
Conveyance Mains to POU
Proposed Main
Proposed Place of Use
12N 20W
12N 19W
Sophie
Well 4
(POD-1)
Upper
Linda
Vista
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
CITY OF MISSOULA
Beneficial Water Usel Permit
POD, POU, Conveyance Map
Sections 1, 2, 11, 12, 13 and 14, T12N R20W
Missoula County, MT
0
0.5
1
Miles
HydroSolutions

31.b.i.1.a.i/b.i
YES. Data is supplied in Form 633, which is being submitted with the Aquifer Testing Addendum. Note, a variance has been requested.

32.a.i Map 33.a.i is attached below. The GWIC ID of Well 4 is 326236. The well log is attached as Attachment A.

33.a.i
YES. The average flow rate was over 980 GPM (Form 633 provided). The volume was not measured by can be calculated at 9.0 AF (4.3 AF/day) over 49.9 hours at 980 GPM. Applicant is requesting 99.0 AF, which would take 23 days if pumping continuously. Applicant is requesting a seasonal diversion during July (32 AF), August (33 AF), and September (10 AF).

Map 32.a.i


Legend
Missoula City Limit
Haugan Well Field
Bitterroot River
Well 3 (Obs)
M310341
Well 2 (Obs)
M310340
Well 1 (Obs)
M250507
POD 1 - Well 4 (Pumping)
M326236
Discharge Pipe
Miller Creek
0
1,000
2,000
Feet
Base Photo: 2021 NAIP
ATA Map 2.a
Proposed New Well 4 and Observation Wells
NW.SW.NW Section 14, T12N R02W
Missoula County, MT
HydroSolutions

78. Attached maps for Question #2 provides views of how the system will be operated. Water will be diverted from the well and piped to the Sophie and Upper Linda Vista Tanks. From the tanks, water will be piped and distributed to City residents within the proposed place of use for municipal uses. A simple diagram is provided below.

Well ⟶ Tanks ⟶ POU

ATTACHMENT A

WELL LOG – GWIC NO. 326236 (WELL 4)

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Go to GWIC website
Plot this site in State Library Digital Atlas
Plot this site in Google Maps
View scanned well log (5/15/2023 12:02:30 PM)
View scanned document (5/15/2023 12:02:51 PM)

Site Name: TOLLEFSON, NATE
GWIC Id: 326236

WELL 4

Section 1: Well Owner(s)
1) TOLLEFSON, NATE (MAIL)
15311 TYSON WAY
MISSOULA MT 59834 [03/03/2023]

Section 2: Location

Township	Range	Section	Quarter Sections
12N	20W	14	SW¼ NW¼

County: MISSOULA
Geocode:

Latitude	Longitude	Geomethod	Datum
46.801831	-114.085153	SUR-GPS	WGS84

Ground Surface Altitude: Ground Surface Method: Datum: Date:

Addition: Block: Lot:

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

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

Section 5: Well Completion Date
Date well completed: Friday, March 3, 2023

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	25	16
25	82	12

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	52	12	0.375		WELDED	A53B STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
52	82	12		.030	SCREEN-CONTINUOUS-STAINLESS

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	25	BENTONITE GROUT	

Section 7: Well Test Data

Total Depth: 82
Static Water Level: 9.89
Water Temperature:

Pump Test *

Depth pump set for test 19.23 feet.
990 gpm pump rate with 9.14 feet of drawdown after 49.9 hours of pumping.
Time of recovery 0.02 hours.
Recovery water level 9.89 feet.
Pumping water level _ feet.

Pump Test *

Depth pump set for test 19.23 feet.
990 gpm pump rate with 9.14 feet of drawdown after 49.9 hours of pumping.
Time of recovery 0.02 hours.
Recovery water level 9.89 feet.
Pumping water level _ feet.

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

Section 8: Remarks

Section 9: Well Log
Geologic Source
Unassigned

From	To	Description
0	15	GRAVELS
15	20	SAND
20	25	SAND AND GRAVEL
25	35	GRAVELS AND CLAY
35	82	GRAVELS AND SAND - 82' TAN CLAY

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

Name: LARRY GAGNON
Company: OKEEFE DRILLING CO

https://mbmggwic.mtech.edu/sqlserver/v11/reports/SiteSummary.asp?gwicid=326236&reqby=M& 1/2

5/26/23, 10:34 AM Montana's Ground-Water Information Center (GWIC) | Site Report | V.11.2023

License No: WWD-126

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
MISSOULA WATER RESOURCES REGIONAL OFFICE

GREG GIANFORTE
GOVERNOR

2705 SPURGIN ROAD, BLDG. C,
P.O. BOX 5004

STATE OF MONTANA

(406) 721-4284
FAX (406) 542-5899

MISSOULA, MONTANA 59806-5004

August 30, 2024

City of Missoula
435 Ryman Street
Missoula, MT 59802-4207

Subject: Incomplete Preapplication Form for Beneficial Water Use Permit Application No. 76H 30163647

Dear Applicant,

The Department received your Preapplication Meeting Form and preapplication fee on 8/30/2024. The Department deemed the submitted Preapplication Meeting Form to be incomplete because it lacks the following information:

- ❑ AMENDED RESPONSES PAGE LEFT BLANK WHEN THERE ARE AMENDED RESPONSES. PLEASE FOLLOW ENTIRETY OF INSTRUCTIONS LOCATED AT THE TOP OF THE AMENDED RESPONSES PAGE.

The 180- day deadline from the original preapplication meeting is 11/03/2024. You have 65 remaining days to successfully complete the Preapplication Meeting Form. If you do not submit the successfully completed Preapplication Meeting Form to the Missoula Regional Office by 11/03/2024, you will need to request a new preapplication meeting.

Please let me know if you have any questions.

Best,

Caitlyn Stevens

Caitlyn Stevens p.p. Benjamin Thomas
Water Resource Specialist
Missoula Regional Office
Benjamin.thomas@mt.gov
406-542-5883

CC: Hydrosolutions Inc
Attn: Dave Baldwin
303 Clarke Street
Helena, MT 59601 - 6224

Variance Information

- Variance Request Form
- WSB Variance Sheet
- Approval or Denial of Variance Request

Variance Information

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
MISSOULA WATER RESOURCES REGIONAL OFFICE

GREG GIANFORTE
GOVERNOR

2705 SPURGIN ROAD, BLDG. C,
P.O. BOX 5004

STATE OF MONTANA

(406) 721-4284
FAX (406) 542-5899

MISSOULA, MONTANA 59806-5004

May 3, 2024

City of Missoula
Attn: Logan McInnis
1345 West Broadway St.
Missoula, MT 59802

Re: City of Missoula Variance Requests

Dear Logan:

This correspondence is in response to variance requests, submitted by Dave Baldwin on behalf of the City of Missoula dated June 1, 2023, and July 20, 2023, requesting variances to aquifer testing requirements outlined in Administrative Rules of Montana 36.12.121. In compliance with the Department's new process for requesting a variance, the requests were formally resubmitted on May 3, 2024, using the Department's Form 653. The City of Missoula is requesting a variance to the following Administrative Rules of Montana; ARM 36.12.121 (3)(a), 36.12.121 (3)(d), and 36.12.121 (3)(e) and ARM 36.12.121 (3)(h).

ARM 36.12.121 (3)(a) – A constant discharge rate was not maintained during the aquifer test. At the beginning of the test measured discharge fluctuated up to 15% and after approximately 40 minutes the discharge rate fluctuated 3.9% for the duration of the test. Despite the flow rate fluctuations, the average discharge rate during the test was 990 gpm, which is the flow rate to be requested. Since the average discharge rate equals the proposed requested flow rate, the Department determines that a variance to ARM 36.12.121 (3)(a) can be granted.

ARM 36.12.121 (3)(d) – The frequency of discharge measurements were not recorded according to clock time schedule on Form No. 633. The Department grants a variance to this rule because the drawdown data for the production well and observation wells do not show any significant changes that would indicate a substantial change in discharge to affect any aquifer property estimates during the missed discharge measurements.

ARM 36.12.121 (3)(e) – The aquifer test was cut short at 49.9 hours. The Department grants a variance to aquifer test duration due to the Department's ability to obtain aquifer properties from the test and observation well data. In addition, the Department has local aquifer property data from the 72-hour constant rate test of Observation Well 2 (PWS-2) and 24-hour constant rate tests on Observation Wells 1 and 3 (PWS-1, PWS-3). These wells are within 366 feet of the proposed production well (PW-4).

ARM 36.12.121 (3)(h) – Water levels were not collected according to the time schedules in Form No. 633. The production well was monitored at 10-second intervals at the start of the test and 30 seconds intervals for the remainder of the test. The Department grants a variance to this section of ARM because the increased frequency of data collected in the production well and 3-minute data collection intervals in the observation wells should not impact the Department's ability to analyze aquifer properties.

In summary, the Department grants a variance to the following Administrative Rules of Montana adopted January 1, 2024, ARM 36.12.121 (3)(a), ARM 36.12.121 (3)(d), ARM 36.12.121 (3)(e) and ARM 36.12.121 (3)(h).

Sincerely,

Jim Nave
Regional Manager

ARM 36.12.121 - Aquifer Testing Requirements (ATR) - Review

Department of Natural Resources and Conservation (DNRC)
Water Sciences Bureau (WSB)

Applicant	City of Missoula		
Pre-Application/Application No.		**Date Sent to RO**	5/2/2024
Regional Office (RO)	Missoula	**WSB Staff Name**	Melissa Brickl, Groundwater Hydrologist

This checklist identifies any deficiencies that would require a variance pertinent to Administrative Rules of Montana (ARM) 36.12.121. **Table 1** lists deficiencies that would require a variance, the recommended action and the rationale describing why the variance request could be considered appropriate. If the requirements of ARM 36.12.121 are satisfied for each item, the box will be checked next to that item indicating such.

Table 1: Deficiencies identified, recommended action and rationale from WSB**.**

☐ **No Deficiencies Identified**		
Variance (ARM):	**Recommend Granting Variance Request**	**Rationale:**
3(a)	☒ Yes ☐ No	A constant discharge rate was not maintained during the aquifer test. At the beginning of the test measured discharge fluctuated up to 15% and after approximately 40 minutes the discharge rate fluctuated 3.9% for the duration of the test. Despite the flow rate fluctuations, the average discharge rate during the test was 990 gpm, which is the flow rate to be requested. Since the average discharge rate equals the proposed requested flow rate, the Department determines that a variance to ARM 36.12.121 (3)(a) can be granted.
3(e)	☒ Yes ☐ No	The aquifer test was cut short at 49.9 hours. The Department grants a variance to aquifer test duration due to the Department's ability to obtain aquifer properties from the test and observation well data. In addition, the Department has local aquifer property data from the 72-hour constant rate test of Observation Well 2 (PWS-2) and 24-hour constant rate tests on Observation Wells 1 and 3 (PWS-1, PWS-3). These wells are within 366 feet of the proposed production well (PW-4).
3(d)	☒ Yes ☐ No	The frequency of discharge measurements were not recorded according to clock time schedule on Form No. 633. The Department grants a variance to this rule because the drawdown data for the production well and observation

		wells do not show any significant changes that would indicate a substantial change in discharge to affect any aquifer property estimates during the missed discharge measurements.
3(h)	☒ Yes ☐ No	Water levels were not collected according to the time schedules in Form No. 633. The production well was monitored at 10-second intervals at the start of the test and 30 seconds intervals for the remainder of the test. The Department grants a variance to this section of ARM because the increased frequency of data collected in the production well and 3-minute data collection intervals in the observation wells should not impact the Department's ability to analyze aquifer properties.
Choose an item.	☐ Yes ☐ No	

36.12.121(2): Minimum information that must be submitted with applications:

☒ **(a)** Map with labeled location of production and observation wells; and

☒ **(b)** Well logs of the production and observation wells; and

☒ **(c)** Form No. 633, in electronic format, with *all* information and data provided.

36.12.121 (3) Minimum testing procedures are as follows, check boxes if met:

☐ **(a)** Pumping must be maintained throughout the duration of the test. The rate may not depart from the average pumping rate by more than +/- 5%.

☒ **(b)** The average pumping rate must be equal to or greater than the proposed flow rate if the application is for one well or if the total proposed rate for multiple wells can be obtained from a single well.

☒ **(c)** ☐ **NA** The proposed pumping rate may be demonstrated by testing multiple wells as long as (e) is met by one well and the remaining flow rate is demonstrated by eight-hour drawdown and yield tests on additional production wells under (e)(i)(i).

☐ **(d)** Pumping rate must be measured with a reliable measuring device and recorded with clock time according to the schedule on Form No. 633.

☐ **(e)** 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 GPM or 50 AF, or 72 hours for a proposed pumping rate and volume greater than 150 GPM or 50 AF.

☐ **(e)(i)** ☒ **NA** At a minimum an eight-hour drawdown and yield test is required on all new production wells.

☐ **(e)(ii)** ☒ **NA** In addition to (e), if more than one new production well is proposed, at a minimum an eight-hour drawdown and yield test is required on all subsequent new production wells.

☐ **(e)(iii)** ☒ **NA** The testing procedures for a minimum eight-hour drawdown and yield test performed on any production well must follow (a), (d), and (h).

☒ **(f)** One or more observation wells must be completed in the same source aquifer as the proposed production well and close enough to the production well so that drawdown is measurable and far enough that well hydraulics do not affect the observation well.

☒ **(g)** Background groundwater levels in the production well and observation well(s) must be monitored at frequent intervals for at least two days prior to beginning the aquifer test according to the Form No. 633.

☐ **(h)** Groundwater levels in the production and/or observation well(s) must be reported with 0.01-foot precision according to the schedule specified on Form No. 633.

VARIANCE REQUEST

ARM 36.12.123

Form No. 653 *(Revised 04/2024)*

For Department Use Only

Application # _____ Basin _____

Received Date _____

Received By _____

INSTRUCTIONS

Use this form to request a variance from the requirements of ARM 36.12.121 or 36.12.1702, as provided for in ARM 36.12.123.

Submit this completed form to the appropriate regional office by the deadline for completion of the preapplication meeting form or if a preapplication meeting is not held, include this request with your filed application or as part of a deficiency response.

Applicant Name CITY OF MISSOULA

Mailing Address 435 RYMAN ST

City MISSOULA State MT Zip 59802

Home Phone _____ Other Phone _____

Email: _____

Representative Name (if other than Applicant) DAVE BALDWIN, HYDROSOLUTIONS INC

☒ Representative is Consultant ☐ Representative is Attorney ☐ Representative is Other (describe) _____

Mailing Address 303 CLARKE ST

City HELENA State MT Zip 59601

Home Phone _____ Other Phone 406-431-7760

Email: dbaldwin@hydrosi.com

Identify from which section(s) of ARM 36.12.121 or 36.12.1702 you are requesting a variance. Refer to the rule for a full list of requirements in these sections.

☒ ARM 36.12.121 Aquifer Testing Requirements

- ☐ (2)(a) map with labeled location of production and observation wells
- ☐ (2)(b) well logs of the production and observation wells
- ☐ (2)(c) Form No. 633, in electronic format, with all information and data provided
- ☒ (3)(a) pumping rate may not depart from the average pumping rate by more than +/- 5%
- ☐ (3)(b) average pumping rate equal to or greater than the proposed flow rate if the application is for one well or if the total proposed rate for multiple wells can be obtained from a single well
- ☐ (3)(c) proposed pumping rate may be demonstrated by testing multiple wells as long as (e) is met by one well and the remaining flow rate is demonstrated by eight-hour drawdown and yield tests on additional production wells under (e)(i)(i)
- ☒ (3)(d) pumping rate must be measured with a reliable measuring device and recorded with clock time according to the schedule on Form No. 633
- ☒ (3)(e) 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 GPM or 50 AF, or 72 hours for a proposed pumping rate and volume greater than 150 GPM or 50 AF
- ☐ (3)(e)(i) at a minimum an eight-hour drawdown and yield test is required on all new production wells
- ☐ (3)(e)(ii) In addition to (e), if more than one new production well is proposed, at a minimum an eight-hour drawdown and yield test is required on all subsequent new production wells
- ☐ (3)(e)(iii) the testing procedures for a minimum eight-hour drawdown and yield test performed on any production well must follow (a), (d), and (h)
- ☐ (3)(f) one or more observation wells must be completed in the same source aquifer as the proposed production well and close enough to the production well so that drawdown is measurable and far enough that well hydraulics do not affect the observation well
- ☐ (3)(g) background groundwater levels in the production well and observation well(s) must be monitored at frequent intervals for at least two days prior to beginning the aquifer test according to the Form No. 633
- ☒ (3)(h) groundwater levels in the production and/or observation well(s) must be reported with 0.01-foot precision according to the schedule specified on Form No. 633

Explain the specific variance you are requesting and the reason for requesting it. Also identify your proposed alternative testing methodology or aquifer test data, if applicable. Attach additional sheets if necessary.

Submitted previously

☐ ARM 36.12.1702 Physical Surface Water Availability
- ☐ (1)(b) at a minimum, three measurements that reflect high, moderate, and low flows during the period of diversion
- ☐ (4) once monthly measurements at department-approved intervals during the proposed period of diversion

Explain the specific variance you are requesting and the reason for requesting it. Also identify your proposed alternative measurement methodology, if applicable. Attach additional sheets if necessary.

Excel File Placeholder

The Aquifer Test Data Form 633 spreadsheet is available outside of the application file.

*For **pending applications**, excel files available upon request from the regional office.*

*For **scanned applications**, excel files available in a separate FileNet link.*

Please contact the regional office for more information.

July 20, 2023

Jim Nave
Regional Manager, DNRC Water Resources
2705 Spurgin Road, Bldg. C
P.O. Box 5004
Missoula, MT 59806-5004

Re: Second Variance Request for City of Missoula Haugan Well 4 Pumping Test

Dear Jim:

This is a second letter to request a fourth variance for an April 2023 aquifer test conducted in Haugan Well 4 in support of a new Beneficial Water Use Permit. Well 4 is located south of Missoula in SWNW Section 14, T12N, R20EW, Missoula County. The permit will request 990 gpm for lawn and garden seasonal use at Riverfront Trails Subdivision in S2SE Section 2 and NENE Section 11, T12N, R20W.

The fourth variance request is as follows:

36.12.121 (3.a) requires that the pumping test must be maintained at a constant discharge rate. Measured discharge fluctuated up to 15% during the first 40 minutes of the test and up to 3.9% during the remainder of the test. The average discharge rate 0f 990 gpm is the flow rate expected to be applied for in the permit application.

Please let me know if you need further information.

Best Regards,

Dave Baldwin MS PG
Senior Hydrogeologist
HydroSolutions Inc
406-441-7760

June 1, 2023

Jim Nave
Regional Manager, DNRC Water Resources
2705 Spurgin Road, Bldg. C
P.O. Box 5004
Missoula, MT 59806-5004

Re: Variance Request for City of Missoula Haugan Well 4 Pumping Test

Dear Jim:

City of Missoula (Applicant) requests a variance for three Aquifer Test Addendum items from a pumping test conducted by HydroSolutions Inc April 10-13, 2023 in support of a new Beneficial Water Use Permit to add new Well 4 to the City's Haugan Well Field south of Missoula in SWNW Section 14, T12N, R20EW, Missoula County (Figure 1). The permit will request 990 gpm for lawn and garden seasonal use at Riverfront Trails Subdivision in S2SE Section 2 and NENE Section 11, T12N, R20W. As such, the required pumping test duration is 72 hours.

The following variances to the aquifer test protocols of the Aquifer Test Addendum are requested.

36.12.121 (3.c) was not met. Problems with the O'Keefe pump regulator and breakers in the City pumphouse caused pump malfunction at 49.9 hours into the test. Evan Norman at DNRC Water Sciences Bureau was contacted on April 14 and gave DNRC acceptance of the early test termination. The three other City PWS wells provide supporting documentation of aquifer properties.

36.12.121 (3.d) was not met. O'Keefe Drilling was hired to manage pumping and discharge during the test. An O'Keefe employee recorded discharge several times per hour for the first three hours and regularly during the first day (through 7.5 hours), the second day (20.4-28.4 hours), and the start of the third day (44.4-49.9 hours). However, no discharge measurements were recorded overnight. The pump operated continuously throughout the shortened test with an average pumping rate of 990 gpm.

36.12.121 (3.i) was not met. The City's three existing PWS wells (1-3) were monitored during the test. However, because these were set to record water levels at 3-minute intervals the 30-second intervals required for the first 10 minutes of pumping and recovery were not met. To capture this early data, a second test was conducted to record drawdown and recovery on 10-second intervals. These data will be provided on a second Form 633 as requested by DNRC.

Form 633 for the 49.9-hour pumping test is attached to this memorandum. The form for the second test with 10-second intervals will be sent in another email. Please let me know if you need further information.

Best Regards,

Dave Baldwin MS PG
Senior Hydrogeologist
HydroSolutions Inc
406-441-7760

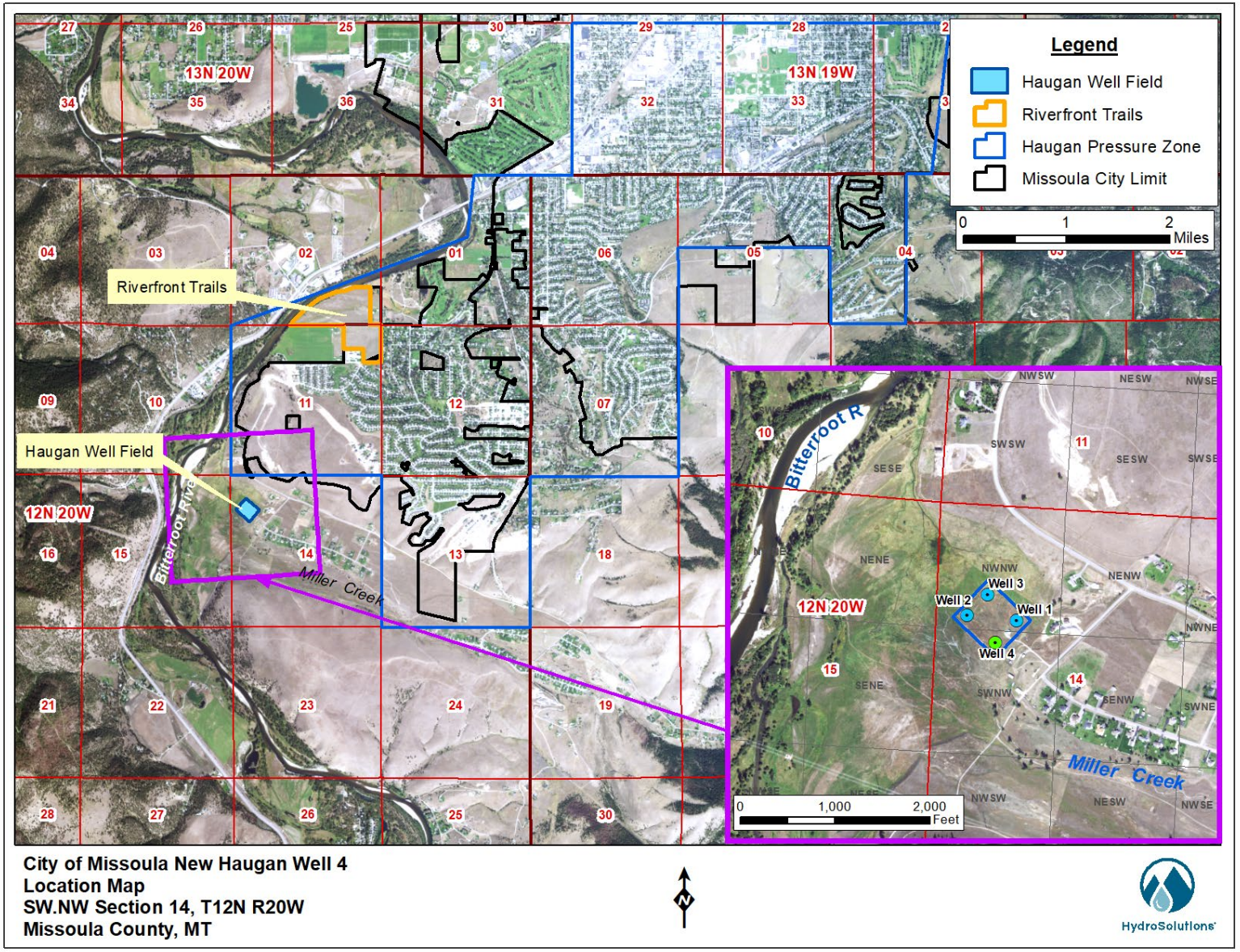

Legend
Haugan Well Field
Riverfront Trails
Haugan Pressure Zone
Missoula City Limit
0 1 2 Miles
13N 20W
13N 19W
12N 20W
Riverfront Trails
Haugan Well Field
Bitterroot River
Miller Creek
Well 1
Well 2
Well 3
Well 4
0 1,000 2,000 Feet
City of Missoula New Haugan Well 4
Location Map
SW.NW Section 14, T12N R20W
Missoula County, MT
HydroSolutions

Figure 1