

WATER PERMIT NO. 8684-3

Name of Applicant: Matthew H Wirth

Address: 29220 455th Ave, Viborg SD 57070

Phone: 605 254-7552

Amount of Water Claimed: 2.11 cfs

Total Acres: 300 acres

Source of Water Supply: 2 well and possible storage pond

Water to be used for: irrigation

County: Turner

Type of Waste Disposal System:

Location: 1 miles south of Viborg

PRIORITY

Date Received: 11-30-22

Application/License Fee: \$1,250

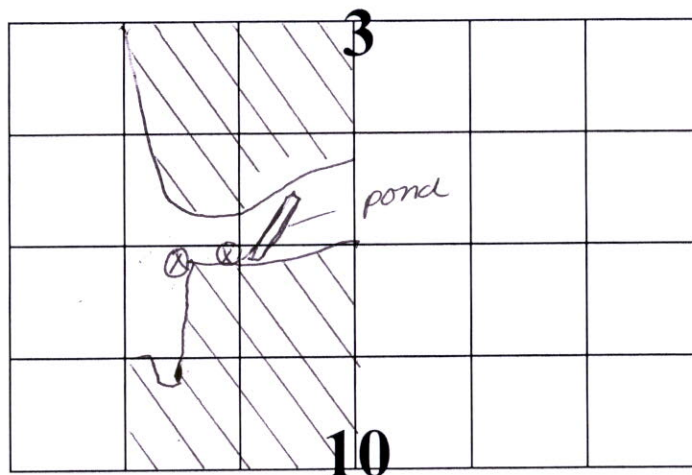
Corrected Application Received: 1212-22

Period of Annual Use: May 1 – October 31

Remarks:

Diversion Point: N 1/2 NW 1/4 Section 10 (wells)
and NE 1/4 NW 1/4 Sec 10 and SE 1/4 SW 1/4 Sec
3; all in T96N-R53W

Land to be Irrigated: SW 1/4 Sec 3 and NW 1/4
Sec 10; all in T96N-R53W



Depth of Well: 60 feet deep

Well Driller:

Remarks:

Type of Map:

Prepared by:

Reviewed and the Number Assigned on: 12-14-22

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

**SOUTH DAKOTA
WATER PERMIT NO. 8684-3**

Date of first receipt of application November 30, 2022.

Date of return to applicant for corrections, amendments or changes December 5, 2022.

Date of receipt of corrected application December 12, 2022.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8684-3 to Matthew H Wirth, 29220 455th Avenue, Viborg SD 57070 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 8684-3 appropriates 2.11 cubic feet of water per second from up to two wells to be completed into the Niobrara Aquifer (60 feet deep) located in the N 1/2 NW 1/4 Section 10 for irrigation of 300 acres located in the SW 1/4 Section 3 and the NW 1/4 Section 10; all in T96N-R53W. A pond with a storage capacity of up to 11 acre feet may also be constructed in an abandoned railroad right of way located in the NE 1/4 NW 1/4 Section 10 and the SE 1/4 SW 1/4 Section 3; all in T96N-R53W to capture runoff and spring flows to supplement the irrigation project. This site is located approximately one mile south of Viborg SD.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: May 1 – October 31.
3. The date from which applicant may claim right is November 30, 2022.
4. The date of approval of Permit No. 8684-3 is May 29, 2023.
5. One-fifth of the construction is to be completed on or before November 29, 2025.
6. All construction is to be completed on or before May 29, 2028.
7. Water is to be put to beneficial use on or before May 29, 2032.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The wells approved under Water Permit No. 8684-3 are located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals shall be controlled so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Permit No. 8684-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. Water from the well may be applied directly to the land authorized for irrigation or to a pond with a storage capacity of 11.0 acre feet of water prior to application to the authorized land.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: Eric Gronlund
Eric Gronlund, Chief Engineer
Water Rights Program
Department of Agriculture and Natural Resources

JUN 16 2023
date



FORM 2: Application for irrigation in South Dakota
(type or print)

RECEIVED

NOV 30 2022

OFFICE OF
WATER

Mail to: SD DANR, Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8684-3</u> Hydrologic Unit <u>10170102</u> Basin <u>Vermillion River</u> Newspaper <u>Turner City New Era 297-4419</u> <u>Press & Dakotan</u> (office use only) <u>605-7811</u>
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Application for Permit to Appropriate Water for Irrigation

Type of Application: ☒ New ☐ Vested Right ☐ Amendment/Correction to Permit No. _____
(Use predates Mar 2, 1955)

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)

1. Name to Appear on Irrigation Permit Matthew H Wirth

Note: The "Name to Appear on Irrigation Permit" must be the name in which the property to be irrigated is held in.

Mailing Address 29220 455th Ave Viborg SD 57070
(Address) (City) (State) (Zip Code)
Phone 6052547552 Mobile _____ Email wirthcattleco@yahoo.com

2. Amount of water claimed 2.11 *CFS or 950 **GPM _____ ***AF Total Acreage 300
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply niobrara aquifer (2 wells) & possible storage pond (16 AF)

4. Location of point of diversion 1/4 mile east of the west end of abandoned road 292st
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

N1/2 NW1/4 Sec 10 T96N-R53W (wells) County turner

5. County or counties where water will be used turner storage pond: NE1/4 NW1/4 Sec 10 & SE1/4

6. Annual period during which water is to be used may /october SW1/4 Sec 3

7. List below each forty-acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.
(Attach sheet if more space is needed)

Land Description	Acres	Land Description	Acres
sw1/4of section3/96/53	<u>150</u> 160		
nw1/4of section 10/96/53	<u>150</u> 160		

8. Give a description of the project. (Attach sheet if more space is needed)

irrigation of dryland cropland where possible by pivot or subdrip

I, Matthew H Wirth owner, the applicant, certify under
Name of Person Title (if applicable)

penalty of perjury that I have read this application, examined the attached map, and that the matters stated are true. I further certify, if acting on behalf of an entity or individual other than myself, that I am authorized to submit this application.

2021-08

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Also, attach map and any other technical information. (see instructions)

RECEIVED

DEC 12 2022

OFFICE OF
WATER

Form 2A
(Complete applicable portions only)

Supplemental Information

(type or print)

1. Well Information (check one or both as applicable)

☒ Drilling new well(s) ☐ Using existing well(s)

a) If new wells, how many 1 Have test holes been drilled? ☒ Yes ☐ No Drilled by hienie electric
(if yes, please provide copies of logs)

b) If existing wells, how many _____ Provide copy of log(s), if available. Drilled by _____

For either existing or proposed wells:

c) Well Depth (required) 60 Depth to Top of Water Bearing Material 16 Depth to Water from Surface _____

d) Distance to nearest domestic well on applicant's property 1000ft Property owned by others no

2. Wastewater Disposal System Information

a) Type of System (i.e. septic tank, drain field) septic

b) System Capacity (gallons) 800 Year Constructed 2019

c) Connected to the City of _____ Sanitary System

3. Dugout Information

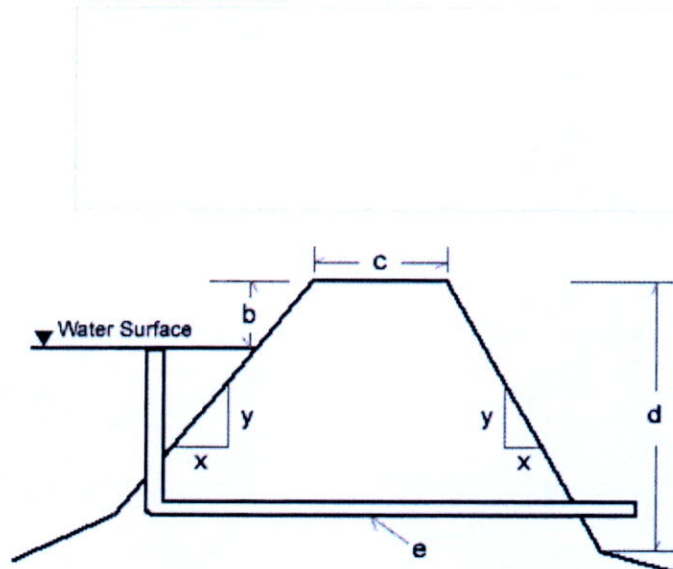
a) Surface Dimensions 100 wide x 800 Long Depth 10 FE

b) Depth to water (ground surface to water level) 10 FE

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:



b) Freeboard West side 10-15 FE East 3 FE

c) Crest Width West side Acres East 15 Acres

Crest Length Length of Pond

d) Height 3 FE

e) Primary Outlet Capacity 12 inch

If pipe, diameter 12 inch

f) Secondary Spillway Capacity _____

Spillway Width _____

g) X & Y Slope (e.g. 3 to 1 is a typical slope)

Upstream _____

Downstream _____

h) Area of Impoundment 100 x 800

i) Storage 1000 Acre Feet

j) Drainage Area Above Dam _____ Acres

2021-08

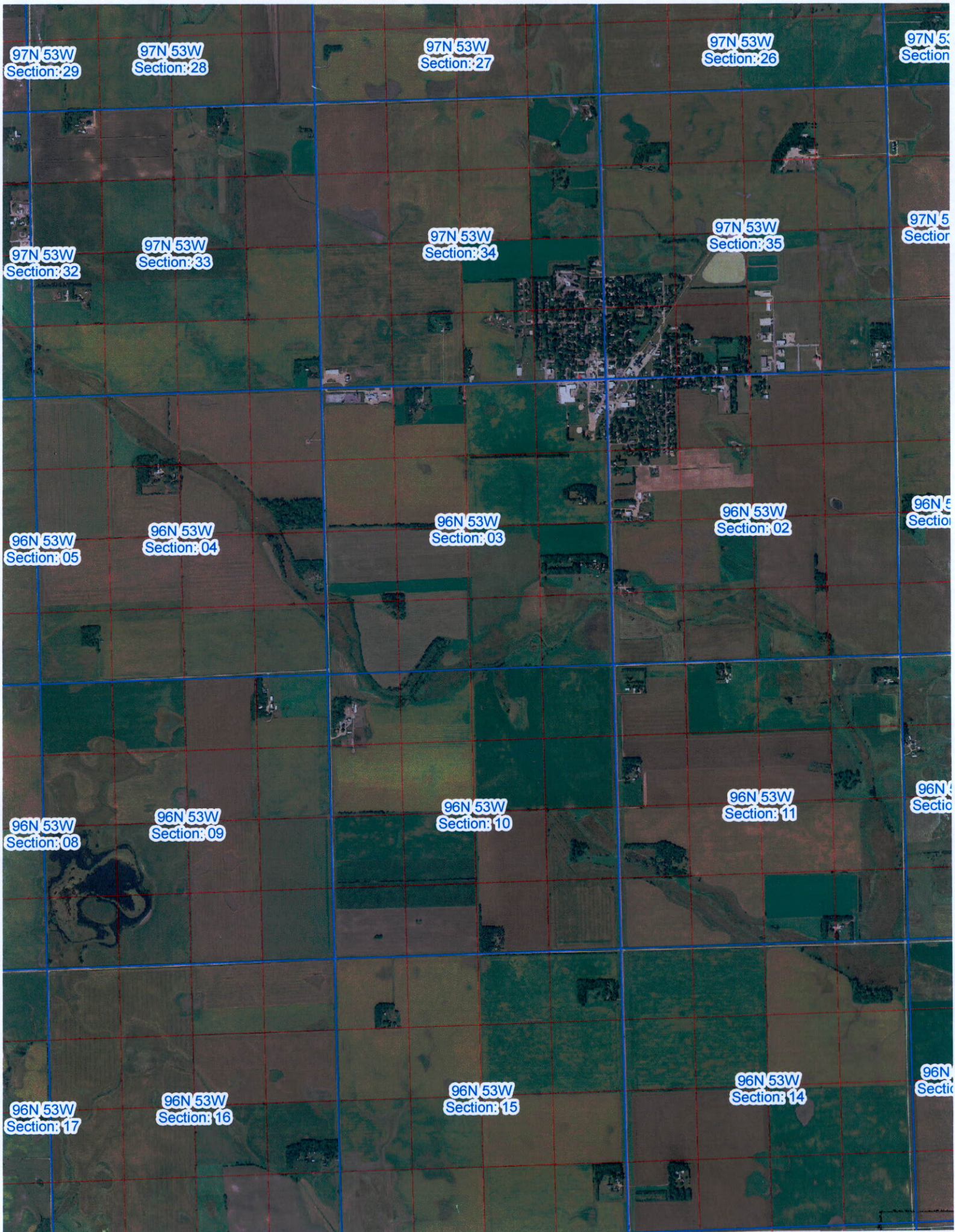
Most of the water storage
is Below Grade from a Abandoned Rail Road right of way Built.
in the late 1800 - The top of the Rail Road is 17 FE Above Grade.
(OVER)

I was thinking a 3 inch inlet Pipe from the passing Ditch
water with a 12 inch overflow Culvert & Secondary Rock
Spillway to the Ditch, with utilizing the large Amount of
Dirt left in the Rail Road Grade. - If needed - I'm
thinking 2 wells will supply Plenty of water But if needed
A Pond would not Be A difficult Project

Any Questions Please call - Thanks for your help

Matt Wirth

605 254 7552



97N 53W
Section: 29

97N 53W
Section: 28

97N 53W
Section: 27

97N 53W
Section: 26

97N 53W
Section: 25

97N 53W
Section: 32

97N 53W
Section: 33

97N 53W
Section: 34

97N 53W
Section: 35

97N 53W
Section: 36

96N 53W
Section: 05

96N 53W
Section: 04

96N 53W
Section: 03

96N 53W
Section: 02

96N 53W
Section: 01

96N 53W
Section: 08

96N 53W
Section: 09

96N 53W
Section: 10

96N 53W
Section: 11

96N 53W
Section: 12

96N 53W
Section: 17

96N 53W
Section: 16

96N 53W
Section: 15

96N 53W
Section: 14

96N 53W
Section: 13

1:58

LTE



RECEIVED

DEC 02 2022

OFFICE OF
WATER

Across to
Threshold
750 ft
if needed

Test
Well
Well Location
Livestock well
Septic
System

Across to
irrigate

Math Wirth
29200 455th Ave
Viborg SD
57070

605
2521
7552

Google

(43°09'19"N 97°05'46"W) 2 mi

EDGE WET AREA

3 AC POND
10 FT DEPTH AT SOUTH END
3 FT MIN DEPTH AT NORTH END

15.67 ACRES

Brick inlet

Brick outlet

ABLE AREA - 0.9 AC (TENTATIVE)

ing ex
Drilled by
of logs

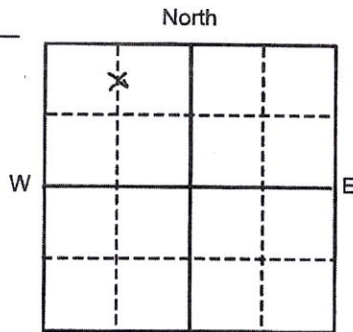


SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NE 1/4 NW 1/4 Sec 10 Twp 96N Rg 53WCounty Turner

Please mark well location with an "X"



Well Completion Date

2/10/22

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?

800 ft. from Cattle yard (identify source)

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☒ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well

METHOD OF DRILLING:

Rotary

CASING DATA:

☐ Steel ☐ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Hole plug</u>	<u>15</u>	Lb/gal	<u>0</u> Ft	<u>80</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

tremmie

SCREEN:

☐ Perforated pipe ☐ Manufactured

Diameter _____ Inches Length _____ Feet

Material _____

Slot Size _____

Other information _____

WAS A PAC

If so, what material
Describe pack

DISINFECT

Lab to which water
quality sampleWell Owner: Matt Wirth

Business Name: _____

Address: 29 220 455th AveCity, State, Zip: Wiborg SD 57070

WELL LOG:

DEPTH

FORMATION

FROM

TO

topsoil03fill316yellow chalk1625grey chalk2528*** Flushed out. no return2880

STATIC WATER LEVEL

FEET

If flowing: closed in pressure

PSI

GPM flow _____ through _____

Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced flow rate

GPM

Can well be completely shut in?

WELL TEST DATA:

☐ Pumped Describe:☐ Bailed☐ Other

Pumping Level Below Land Surface

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

43.154133°N-97.96200°WDrilled to 80 w/no return
Got STUCK @ 75This well was drilled under license # 810 and this report is true and accurate.Drilling firm: Herz electric & irrigation

Signature of License Representative: _____

Signature of Well Owner or Equitable Property Holder: _____

RECEIVED

Date: 12/28/22

JAN 12 2023

OFFICE OF
WATER

Found the 2014 WCRs in database. Made copy of 2022 test hole from unscanned WCR ~~stack~~ stack

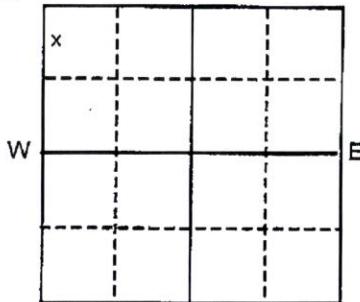
-Whiting

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location nw 1/4 nw 1/4 Sec 10 Twp 96n Rg 53wCounty Turner

North

Please mark well
location with an "X"

Well Completion Date

May 16, 2014

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?

250.0 ft. from septic tank (identify source)

PROPOSED USE:

☒ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well

METHOD OF DRILLING:

bucket method

CASING DATA:

☐ Steel ☒ Plastic ☐ Other
 If other describe none

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	<u>12.00</u> IN	<u>6.0</u> FT	<u>25.0</u> FT	<u>16.00</u> IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Bentonite</u>	<u>20</u>	<u>Lb/gal</u>	<u>0.0</u> Ft	<u>25.0</u> Ft
		<u>Lb/gal</u>	<u>Ft</u>	<u>Ft</u>

Describe grouting procedure

Tremie

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 12.00 Inches Length 30.0 Feet
Material PVCSlot Size .040 Set From 25.0 Feet to 55.0 Feet

Other information

WAS A PACKER OR SEAL USED?

☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? HTH tablets☐ No, Why Not?Lab to which water
quality sample sent for analysisWell Owner: Matt Wirth

Business Name:

Address: 29220 455th AveCity, State, Zip: Viborg, sd 57070

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
topsoil, Black	0	2
Clay, pebbly, brown (till)	2	12
Clay, very rocky, boulders	12	25
Chalk, Yellow, silty	25	36
Chalk, Light gray,	36	55

STATIC WATER LEVEL 25.0 FEET

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced flow rate _____ GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped Describe:☐ Bailed☐ Other

Pumping Level Below Land Surface

26.0 Ft. After 2.0 Hrs. pumped 25.0 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: 18.0 GPM

REMARKS

RECEIVED

JUN - 2 2014

WATER RIGHTS
PROGRAMThis well was drilled under license # 666 and this
report is true and accurate.Drilling firm: Hammond Wetmore Drilling, LLC

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: 5/27/14

SOUTH DAKOTA WATER WELL COMPLETION REPORT

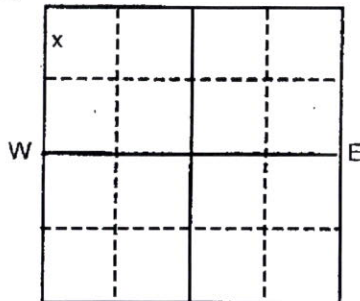
11-02

Test

Location nw 1/4 nw 1/4 Sec 10 Twp 96n Rg 53wCounty Turner

North

Please mark well location with an "X"



Well Completion Date

May, 12, 2014

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?

200.0 ft from septic tank (identify source)

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☒ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well

METHOD OF DRILLING:

auger

CASING DATA:

☐ Steel ☐ Plastic ☐ Other
If other describe none

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	IN	FT	FT	9.00 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Bentonite	6	Lb/gal	0.0 Ft	70.0 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Tremie

SCREEN:

☐ Perforated pipe ☐ Manufactured

Diameter _____ Inches Length _____ Feet

Material _____

Slot Size _____ Set From _____ Feet to _____ Feet

Other information _____

WAS A PACKER OR SEAL USED?

☐ Yes ☐ No

If so, what material? _____

Describe packer(s) and location _____

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How? _____

☐ No, Why Not? _____

Lab to which water quality sample sent for analysis _____

Well Owner: Matt Wirth

Business Name: _____

Address: 29220 455th AveCity, State, Zip: Viborg, sd 57070

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
topsoil, Black	0	2
Clay, pebbly, brown (till)	2	11
Clay, very rocky, boulders	11	20
Chalk, Yellow, silty	20	29
Chalk, Light gray,	29	41
Chalk, gray, blocky	41	70

STATIC WATER LEVEL 41.0 FEET

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced flow rate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☒ Pumped Describe: _____☐ Bailed☐ Other

Pumping Level Below Land Surface

67.0 Ft. After 0.3 Hrs. pumped 15.0 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

test hole for stock well. Pumped open hole to test yield. Not enough volume at this location to support intended use. very slow rebound at conclusion of pumping.

This well was drilled under license # 666 and this report is true and accurate.Drilling firm: Hammond Wetmore Drilling, LLC

Signature of License Representative: _____

Signature of Well Owner or Equitable Property Holder: _____

Date: 5/27/14

RECEIVED

JUN - 2 2014

WATER RIGHTS PROGRAM

Ag Testing - Consulting

Account No. : 72563

Water Analysis Report

HELLMANN, BEN
ELITE FEEDS & NUTRITION
403 W SD HWY 50
TYNDALL

SD 57066

Invoice No. : 1351847
Date Received : 08/18/2021
Date Reported : 08/19/2021

Lab Number : 15417

Results For : MATT WIRTH

Location :

Sample ID :

Iron Related Bacteria, cfu/mL	2200	http://www.wardlab.com/wardinfo/IronBacteriaInterpretation.pdf
pH	7.6	
pHc	6.5	
Sodium Adsorption Ratio (SAR)	0.3	
Adjusted SAR	0.4	
Total Dissolved Solids (TDS) Est, ppm	1233	
Electrical Conductivity, mmho/cm	2.06	
Cations / Anions, me/L	30.3 / 28.7	

	ppm	lbs / Acre 9 inch
Sodium, Na	24	48
Potassium, K	5	10
Calcium, Ca	404.7	810
Magnesium, Mg	106	212
Total Hardness, CaCO ₃	1454	2908
Nitrate, NO ₃ -N	1.0	2.0
Sulfate, SO ₄ -S	366	732
Chloride, Cl	7	14
Carbonate, CO ₃	< 1.0	< 2
Bicarbonate, HCO ₃	341	682
Total Alkalinity, CaCO ₃	280	558
Boron, B	0.11	0.22
Total Iron, Fe	< 0.01	< 0.02
Manganese, Mn	< 0.01	< 0.02

"<" - Not Detected / Below Detection Limit

The iron bacteria test is completed. Please see results above.

Reviewed By : Nick Ward

8/25/2021

Copy : 1

Page 1 of 2

Bus: 308-234-2418
Fax: 308-234-1940

web site
www.wardlab.com

4007 Cherry Ave., P.O. Box 788
Kearney, Nebraska 68848-0788

Account No. : 72563

Water Analysis Report

HELLMANN, BEN
ELITE FEEDS & NUTRITION
403 W SD HWY 50
TYNDALL

SD 57066

Invoice No. : 1351847
Date Received : 08/18/2021
Date Reported : 08/19/2021

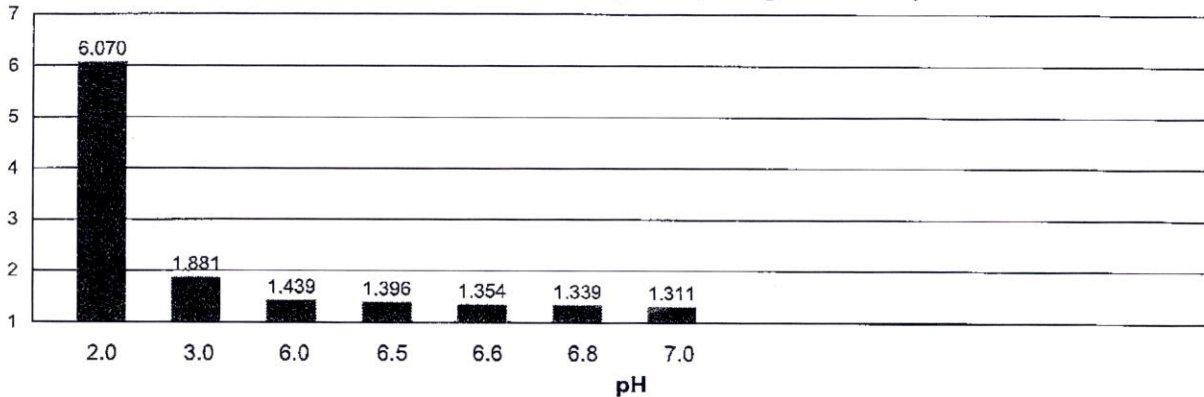
Lab Number : 15417

Results For : MATT WIRTH

Location :

Sample ID :

Gallons of 36 N H₂SO₄ per 10,000 gallon Sample



Grower
Matt Wirth
Field

Lab Number

Date Completed

1/17/14



Water Sample Report

3600 S. Minnesota Ave, Sioux Falls, SD 57108

605-271-9237

Lab ID	Sample ID	pH	EC mmhos/cm	TDS mg/L	Hardness mg CaCO ₃ /L	Alkalinity	Ca	K	Mg	Na	Nitrate	Sulfate
59875	Spring Water	7.2	2.2	1772.3	1749	296	487.8	7.1	128.9	26.8	2.6	264.1

Livestock Water Quality

-Waters with Alkalinites less than 1000 mg CaCO₃/L are satisfactory for most livestock

Term	Threshold Concentrations*	Limiting Concentrations**
Calcium (Ca)	500	1,000
Magnesium (Mg)	250	500
Sodium (Na)	1,000	2,000
Chloride (Cl)	1,500	3,000
Sulfate (SO ₄)	500	1,000
Nitrate (NO ₃)	200	400 **
(TDS)	2,500	5,000
Conductivity	3.9 mmhos/cm	7.8 mmhos/cm
pH	<6.0 - >8.5	<5.0 - >9.0

< = less than > = more than

* Threshold values represent concentrations at which sows and other sensitive animals might show slight effects from prolonged use of such water.

** The limiting concentration levels can have detrimental or fatal effects on livestock. The limiting concentration of nitrate for chickens is only 20 ppm.

Conductivity (mmhos/cm)	TDS (mg/L)	Interpretation of Values
Less than 1.56	Less than 1,000	Should present no serious problems
1.56 to 4.7	1,000 to 3,000	May cause temporary, mild diarrhea in livestock
4.7 to 7.8	3,000 to 5,000	Will probably cause diarrhea and temporary refusal of feed. Not recommended for poultry.
7.8 to 10.9	5,000 to 7,000	May be used under some conditions. Not recommended for pregnant or lactating animals.
10.9 to 15.6	7,000 to 10,000	Unfit for swine and other animals subjected to heat stress or high water loss.
More than 15.6	More than 10,000	Not recommended for use by any livestock

RECEIPT

WATER RIGHTS PROGRAM South Dakota Department of Agriculture and Natural Resources

Date December 2, 2022

RECEIVED OF Matthew/Sharon Wirth 29220 455th Ave., Viborg SD 57070

The following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>8684-3</u> to Appropriate Water, to construct and to put water to beneficial use	\$ <u>1050.00</u>
Fee for Application for Permit No. _____ to Appropriate Water for Future use	\$ _____
Fee to retain Future Use Permit No. _____ after period of seven years.	\$ _____
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>8684-3</u>	\$ <u>200.00</u>
Fee for Filing Transfer Form _____	\$ _____
Fee for _____	\$ _____
Fee for Issuing New Well Driller's License No. _____	\$ _____
Fee for Renewal of Well Driller's License No. _____	\$ _____
Fee for Issuing Well Pump Installer's License No. _____	\$ _____
Fee for Renewal of Well Pump Installer's License No. _____	\$ _____
(Any Other Work Provided by Law) TOTAL	\$ <u>1250.00</u>

By Eric Gronlund
Chief Engineer

vm



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8684-3, Matthew H Wirth**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Agriculture and Natural Resources concerning Water Permit Application No. 8684-3, Matthew H Wirth, 29220 455th Avenue, Viborg SD 57070

The Chief Engineer is recommending DEFERRAL of Application No. 8684-3 for further study because additional review necessary due to three pending deferred applications within this body of the Niobrara aquifer that were filed prior to Application No. 8684-3. Mr. Wirth was contacted and verbally agreed to the report on his application being prepared once those with a senior filing date are drafted.

See report on application for additional information.

Eric Gronlund, Chief Engineer
February 7, 2023

File: 8684-3

Water Rights Program - DANR File Documentation

NAME OF PERSON OR FILE: Water Permit Application No. 8684-3, Matthew Wirth

ADDRESS: 29220 455th Avenue, Viborg SD 57070 COUNTY: Turner

DATE: February 7, 2023 TELEPHONE: 605 254-7552

I called Mr. Wirth regarding the processing of his application. Indicated his application to irrigate is in the same unit of the Niobrara aquifer as three applications that were filed before his application. One of those applications has been formally deferred by the Water Management Board and the other two have a deferral recommendation but chose not to proceed with publication until issues were resolved regarding a complaint regarding irrigation pumping an area between Freeman and Menno impacting two domestic wells. Although his application is a substantial distance from this area, those pending applications have priority and must be considered as senior to his application.

Mr. Wirth indicated that at his location there is water bubbling up out of the ground. Explained that the issue near Freeman regarding impairment to domestic wells is unlikely to be an issue in his area.

Went on to say that domestic well complaint has been resolved for the time being and we are proceeding with review of the pending applications in addition to his application. However, Water Rights is unable to meet the 60 day period to review his application. Therefore, as chief engineer am recommending deferral of the application. He has the opportunity to proceed to public notice for a hearing before the Water Management Board or refrain from public notice until the review is completed.

After discussing, Mr. Wirth indicated he is going to let the process work and let Water Rights complete its review and not go to public notice yet.

I did inform Mr. Wirth that if the three pending applications are contested during the public notice process that could impact his ability to obtain the water permit until those issues are heard by the Board.

NAME: Eric Threlund

Schlaak, Karen

From: Schlaak, Karen
Sent: Monday, December 5, 2022 10:56 AM
To: wirthcattleco@yahoo.com
Subject: Water Permit Application
Attachments: 4493.pdf

On the attached Form 2 A, please fill out the information on Item 3 regarding the surface dimensions and depth of the pond. Please include a sheet explaining that the pond is spring fed and whether or not it captures any surface runoff. Will you pump from the well to the pond? Also, that if necessary you would drill an additional well located between the test hole well and the livestock well. Basically, explain what you are proposing.

I will also change the number of acres to be irrigated to 150 acres in each quarter.

Let me know if you have questions.

Karen Schlaak

DANR - Water Rights Program
(605) 773-3352
Website: <https://danr.sd.gov>





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8684-3, Matthew H. Wirth**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Agriculture and Natural Resources concerning Water Permit Application No. 8684-3, Matthew H. Wirth, 29220 455th Avenue, Viborg SD 57070

The Chief Engineer is recommending APPROVAL of Application No. 8684-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing domestic water uses and water rights, 3) the proposed use is a beneficial use and 4) it is in the public interest as it pertains to matters of public interest within the regulatory authority of the Water Management Board with the following qualifications:

1. The wells approved under Water Permit No. 8684-3 are located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals shall be controlled so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Permit No. 8684-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. Water from the well may be applied directly to the land authorized for irrigation or to a pond with a storage capacity of 11.0 acre feet of water prior to application to the authorized land.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Eric Gronlund, Chief Engineer
May 9, 2023

Report to the Chief Engineer
Water Permit Application 8684-3
Matthew Wirth
May 9, 2023

Water Permit Application No. 8684-3 proposes to appropriate water at a maximum diversion rate of 2.11 cubic feet per second (cfs) from two wells (approximately 60 feet deep) to be completed into the Niobrara aquifer in the N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 10 for the irrigation of 300 acres located in the SW $\frac{1}{4}$ Section 3 and NW $\frac{1}{4}$ Section 10; all in T96N-R53W. The application also requests to construct a pond with a storage capacity of up to 11 acre-feet in an abandoned railroad right way located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 10 and the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 3; all in T96N-R53W for the capture of incidental runoff and spring flow to supplement the irrigation project. This site is in Turner County located approximately one mile south of Viborg, SD.

There are several applications related to this portion of the Niobrara aquifer, which are summarized in Table 1 with locations shown in Figure 1. The test holes for Application No. 8587-3 suggest that the target aquifer is a sand and gravel deposit that overlies this portion of the Niobrara aquifer; however, since the deferral for an aquifer performance test did include the potential for the target source to be changed to this portion of the Niobrara aquifer it is being included in the hydrologic budget for this report.

Table 1: Applications Related to this Portion of the Niobrara Aquifer (Water Rights, 2023b)					
Application Number	Diversion Rate (cfs)	Acres	Purpose	Priority Date	Status
8579-3	0.89	32	irrigation	01/10/2022	deferred by Board-unlawful impairment review
8587-3	1.78	134	irrigation	01/25/2022	deferral recommendation-aquifer test or aquifer change to this portion of the Niobrara
8616-3	no additional	21	irrigation	03/23/2022	abeyance-deferral recommendation due to 8579-3, adding additional acres to Water Permit No. 7344-3
8684-3	2.11	300	irrigation	11/30/2022	abeyance-deferral recommendation due to 8579-3

Aquifer: Niobrara (NBRR)

Aquifer Information

Geology and Hydrogeology

The Niobrara Formation is a bedrock formation that underlies most of eastern and western South Dakota (Hedges et al, 1982; Allen et al, 1985). The Niobrara Formation is a Late Cretaceous age white to dark grey argillaceous (clay containing) chalk, marl, and shale that can contain thin bentonite beds, minor sand, and chalky carbonaceous shale (Tomhave, and Schulz. 2004). Locally, the Niobrara Formation is also known as “chalk rock” and is extensive throughout South Dakota; however, characteristics of the Niobrara aquifer vary greatly across the state (Hedges et al., 1982). The Niobrara aquifer is contained within portions of the Niobrara Formation where sufficient permeability exists to allow for the transmission of groundwater and where the permeable portions of the formation are sufficiently saturated to yield quantities of groundwater to wells. Both Hedges et al. (1982) and Stephens (1967) identified fractures and solution cavities as the main means of water movement through the Niobrara aquifer. Hedges et al. (1982) noted these features are partially controlled by flexures and faults. Where these secondary porosity features are absent, the

Niobrara Formation is generally a low-permeability or almost a no-permeability formation that transmits little to no water (Hedges et al., 1982; Stephens, 1967). Weathering and glacial activity may also contribute to higher productive zones in the Niobrara aquifer (Hedges et al., 1982), with greater amounts of weathering and glacial activity generally having occurred where the Niobrara Formation is exposed at ground surface or directly underlies glacial deposits and generally less where the Niobrara Formation underlies the Pierre Shale.

In southeastern South Dakota, there are several areas where portions of the Niobrara Formation were isolated from the main body of the Niobrara through erosional forces (Tomhave and Schulz, 2004). The proposed well site is located within the extent of one of these isolated portions of the Niobrara Formation. The initial mapping of this portion of the Niobrara Formation was done by Tomhave and Schulz (2004) and is shown in Figure 1. Holmes and Filipovic (2015), as part of a study of the Upper Vermillion aquifer, updated a section of the eastern boundary of this portion of the Niobrara aquifer. This update is incorporated in Figure 2. This portion of the Niobrara Formation underlies approximately 338,130 acres (Figure 2 extent-Niobrara Portion (Holmes and Filipovic, 2015)) of portions of Hutchinson, Clay, Turner, Yankton, and McCook Counties. In general, this portion of the Niobrara directly underlies either the Pierre Shale (shown in Figure 1) or glacial deposits in areas not underlying the Pierre Shale and overlies the Carlile Shale (Tomhave and Schulz, 2004). Well completion reports on file with the Water Rights Program report encountering water throughout this portion of the Niobrara Formation indicating aquifer potential throughout this portion of the formation (Water Rights, 2023a; 2023b; 2023c). Since this portion of the Niobrara aquifer is isolated from the main body, the remainder of this report will focus solely on this isolated portion of the aquifer.

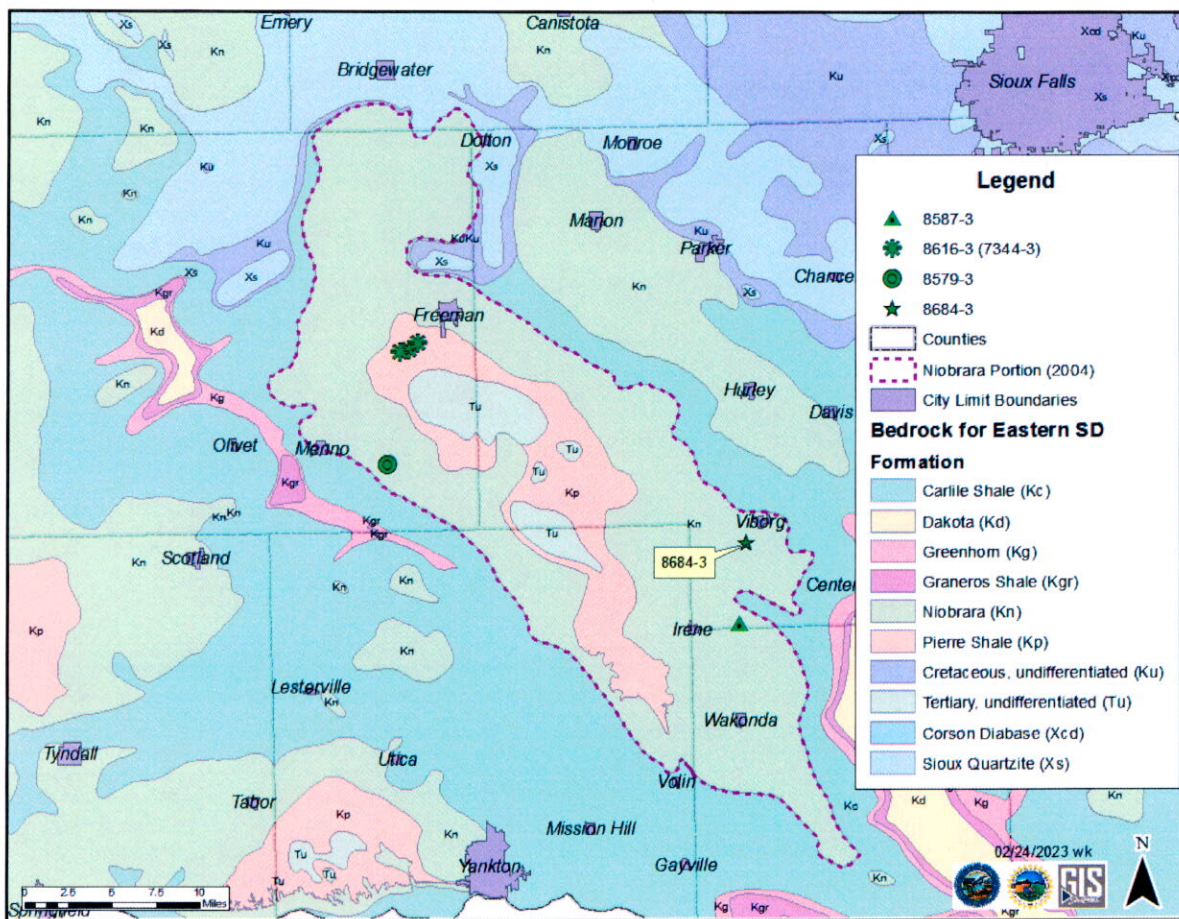


Figure 1: Map shown the first occurrence of bedrock material with the erosional remnant of the Niobrara Formation this application proposes to use (modified from Tomhave and Schulz, 2004)

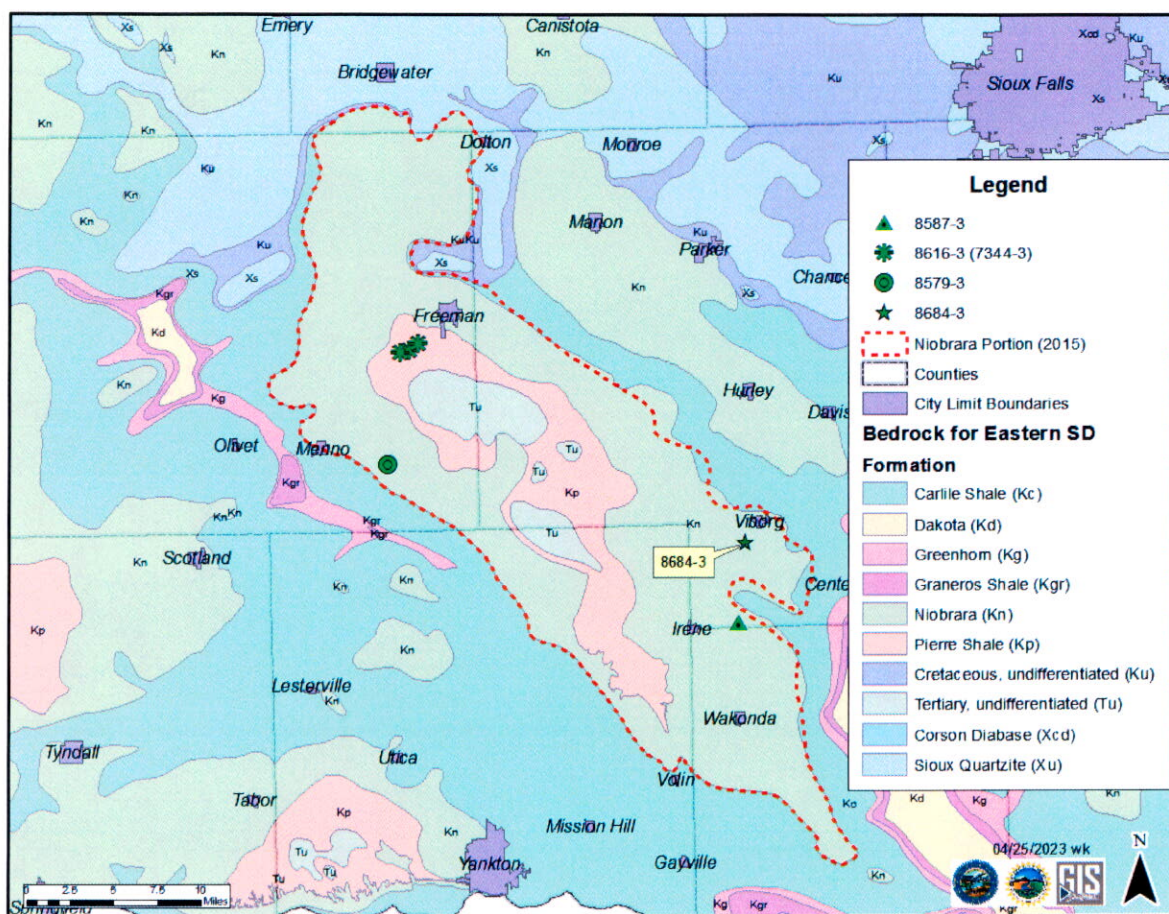


Figure 2: Map shown the approximate extent of the erosional remnant of the Niobrara Formation this application proposes to use (modified from Tomhave and Schulz, 2004 and Holmes and Filipovic, 2015)

This portion of the Niobrara aquifer is surrounded by valleys in the bedrock where the Niobrara Formation has been eroded, which contain glacial outwash aquifers. Where these glacial outwash aquifers are in contact with this portion of the Niobrara (either overlaying or are adjacent to), there is potential for leakage between the aquifers based on hydraulic head. The Lower James Missouri (LJM) aquifer lies in the bedrock valley to the west of this portion of the Niobrara and in some locations extends far enough east to be in contact with this portion of the Niobrara (Tomhave and Schulz, 2004; Hedges et al., 1982). The Upper Vermillion Missouri aquifer lies in the bedrock valley to the east of this portion of the Niobrara aquifer and can also be hydrologically connected (Lindgren and Hansen, 1990). Stephens (1967) indicated the presence of a glacial outwash aquifer (named the Wakonda aquifer) directly overlaying and with a strong hydrologic connection to this portion of the Niobrara in portions of Clay County. However, the first occurrence of aquifer materials mapping by Jensen (2000) indicates that the Wakonda aquifer is unlikely to be as extensive as was mapped by Hedges et al. (1982).

Test hole information was not submitted with this application; however, the applicant did indicate that Heine Electric and Irrigation had drilled a test hole. The test hole report for Matt

Wirth for the NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 10-T96N-R53W was submitted in January 2022 with the other 2022 well completion reports from the driller. The test hole report indicated “yellow chalk” from 16 to 25 feet (ft) below grade, “grey chalk” from 25 to 28 ft below grade, and “no returns” from 28-80 ft below grade (total depth was 80ft). There is also a domestic/livestock well completion report for Matt Wirth on file for the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 10-T96N-R53W drilled in May 2014 (Water Rights, 2023a). The well completion report indicates “chalk, yellow, silty” was encountered from 25 to 36 ft below grade and “chalk, light grey” was encountered from 36 to 55 ft below grade with a static water level of 25 ft below grade (Water Rights, 2023a). In looking at available well data in the vicinity of the well sites for this application, the Niobrara aquifer is expected to be under confined conditions at the well sites for this application (Water Rights, 2023a).

Potentiometric Surface Mapping

A potentiometric surface map is a spatial mapping of groundwater levels in an aquifer at a given period of time, which can yield several insights into aquifer behavior. Potentiometric surface maps are created by plotting elevations of the static water level and then generating contours or lines of equal elevation. Since groundwater moves from higher elevation to lower elevation, potentiometric surface maps can be used to determine the direction of groundwater flow. On a potentiometric surface map the direction of groundwater flow is perpendicular to the contours from higher elevations to lower elevations (see the arrows in Figure 3 as an example). Initial potentiometric surface mapping for this portion of the Niobrara aquifer was done by Lindgren and Hansen (1990) shown in Figure 3. Mathiowetz (2016) also examined the potentiometric surface for May 2016; shown in Figure 4. Kilts (2023b) also generated potentiometric surface maps for May 2013 (Figure 5) and May 2022 (Figure 6) which verify the observations from Figure 3 and 4. Additionally, Figure 6 includes the approximate boundaries of the Upper Vermillion Missouri: West and Upper Vermillion Missouri: South aquifers. In examining all the potentiometric surface maps generated for this portion of the aquifer, the direction of groundwater flow in this portion of the Niobrara aquifer indicates that natural discharge is likely occurring to the Upper Vermillion Missouri: West and Upper Vermillion Missouri: South aquifers

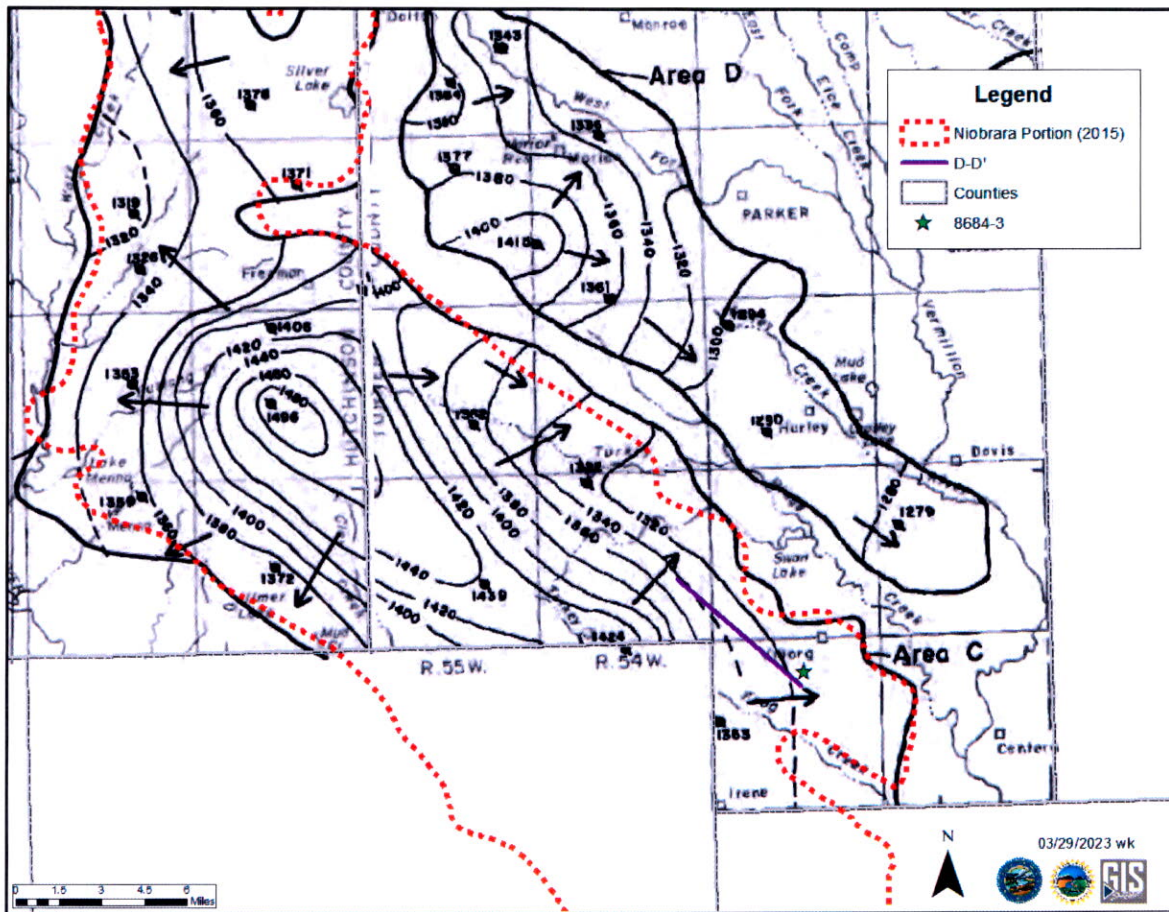


Figure 3: Potentiometric surface contours from 1986 (modified from Lindgren and Hansen, 1990)

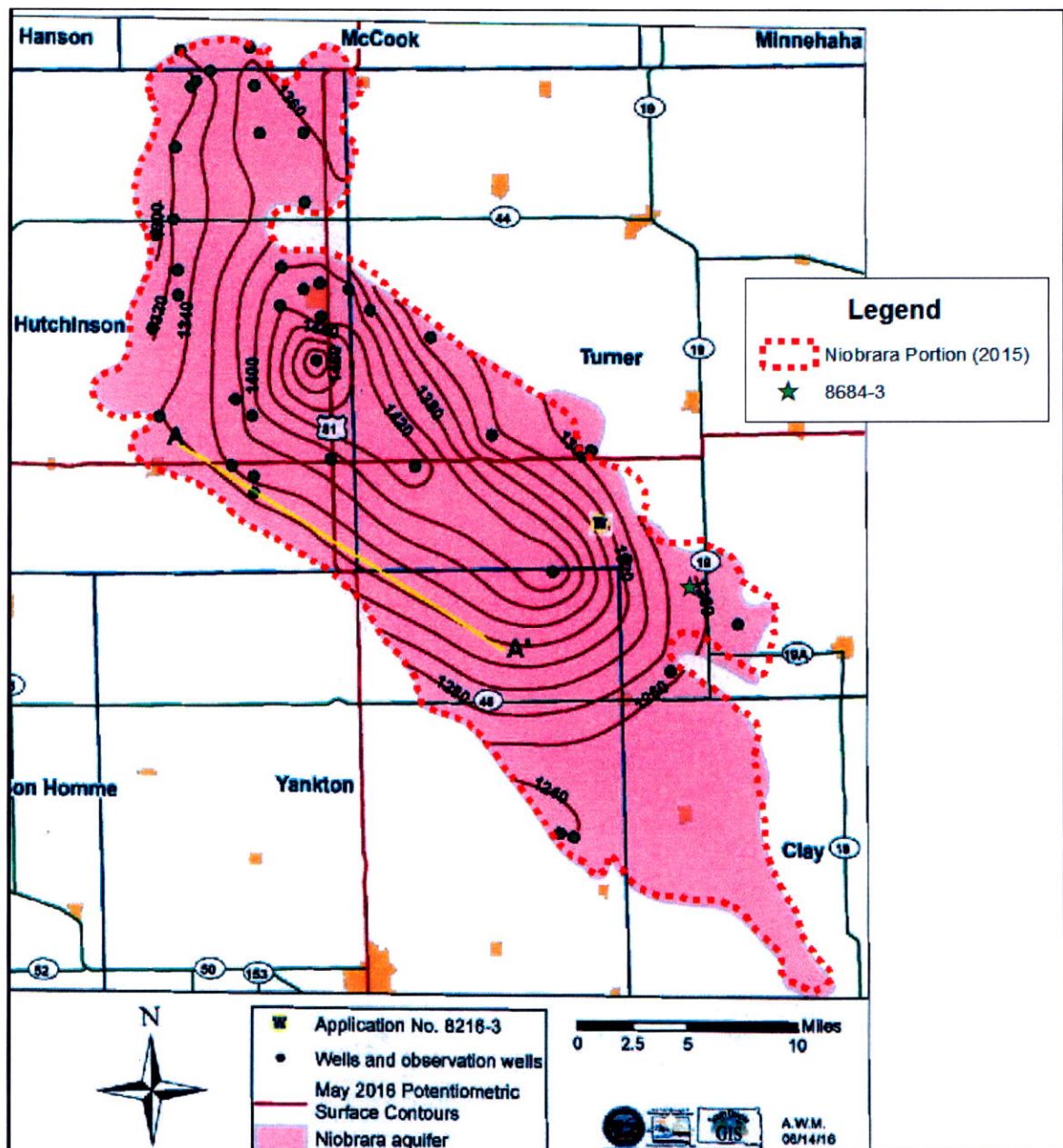


Figure 4: Potentiometric surface contours for May 2016 from Mathiowetz 's (2016) report on Application No. 8216-3

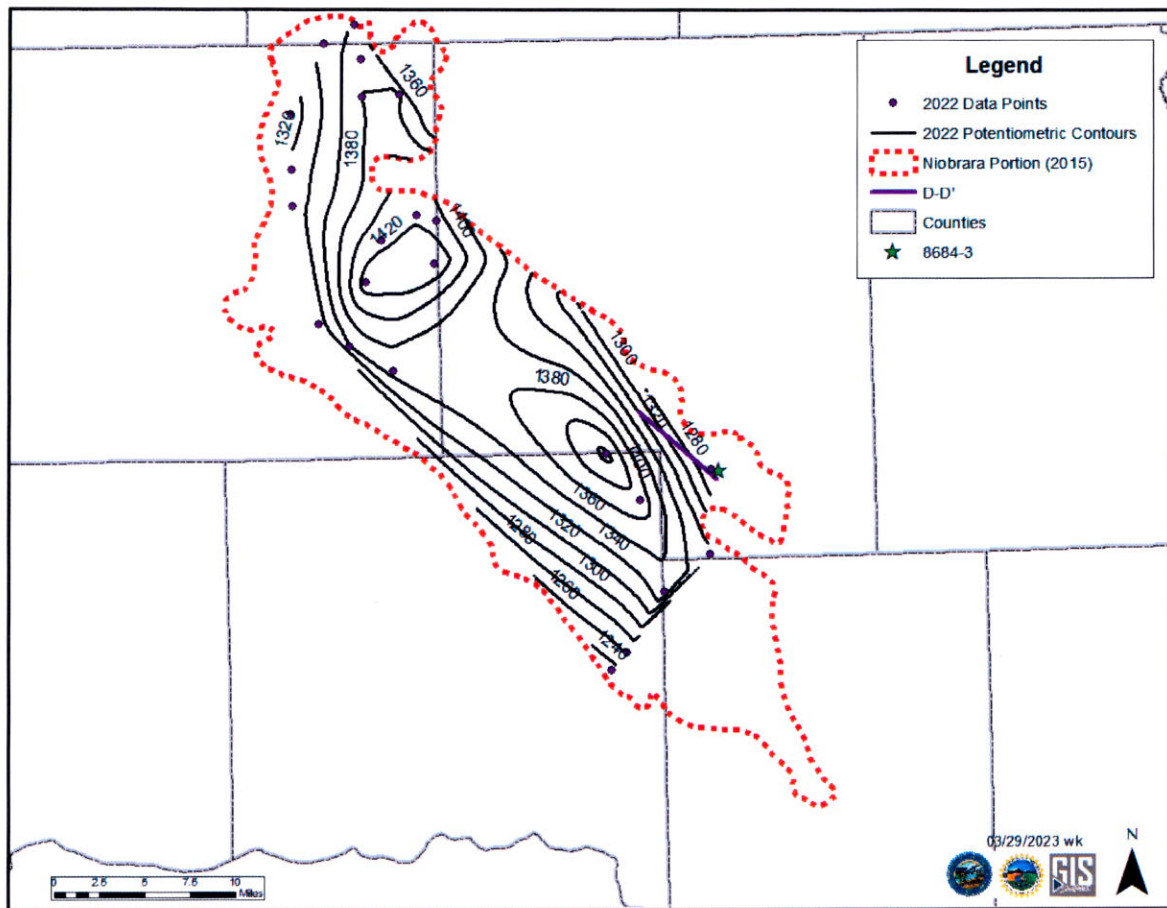


Figure 5: May 2022 Potentiometric surface map for this portion of the Niobrara aquifer (modified from Kilts, 2023b)

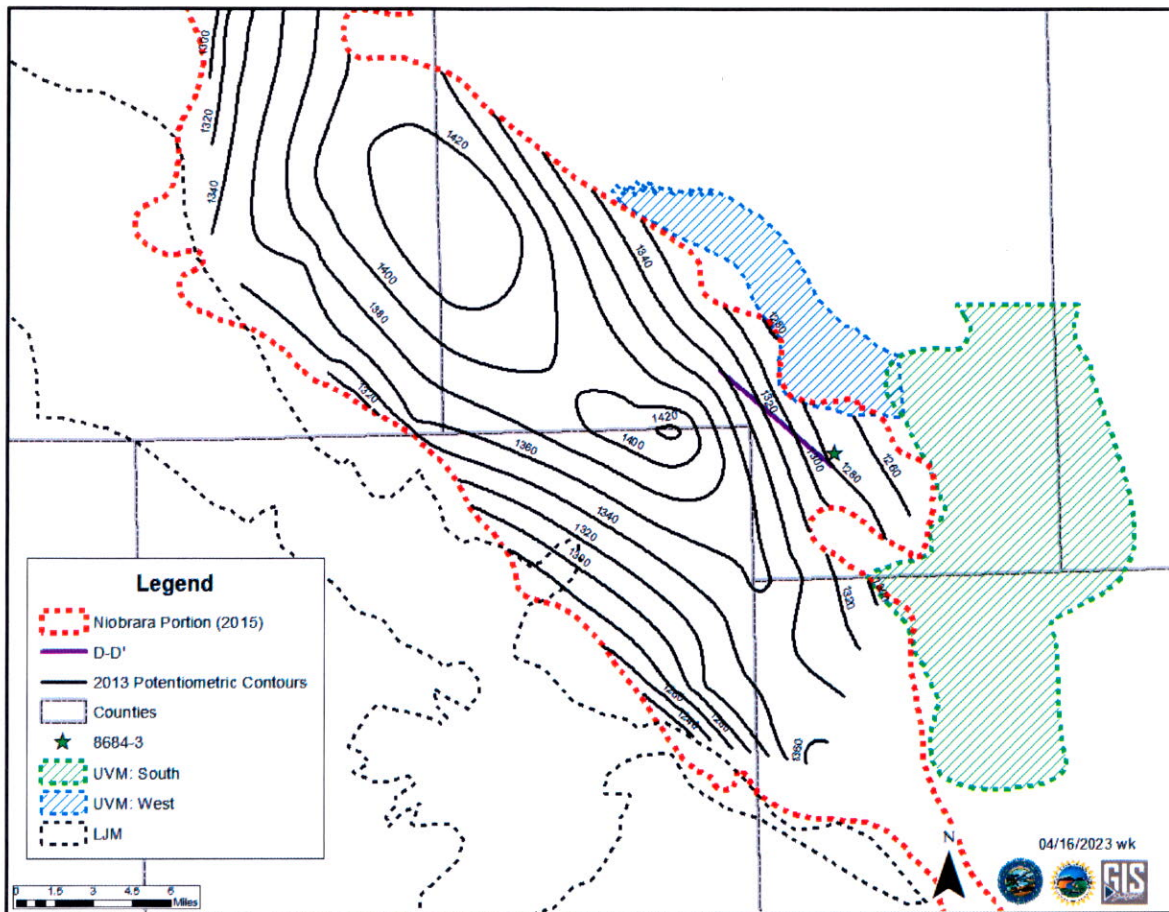


Figure 6: Approximate areas of contact between this portion of the Niobrara Aquifer, the Lower James Missouri (LJM) aquifer, Upper Vermillion Missouri: West (UVM:W), and Upper Vermillion Missouri: South (UVM:S) (Kilts, 2023b and modified from Hedges et al., 1982; Tomhave and Schulz, 2004; Buhler, 2014; and Holmes and Filipovic, 2015)

Natural Discharge

In looking Figure 3 through 6, sufficient data exists to estimate natural discharge to the Upper Vermillion Missouri: West aquifer in the vicinity of this application. The natural discharge from this portion of the Niobrara aquifer can be estimated using information from potentiometric surface mapping in addition to other data. The flow rate for natural discharge is estimated using equation 1.

$$\text{Equation 1: } Q = T * I * L * c$$

Where:

Q=flow rate, units: acre-feet per year

T= Transmissivity or hydraulic conductivity times aquifer thickness, units: gallons per day per foot (gpd/ft)

I=Gradient of the Potentiometric surface, units: feet per mile (ft/mi)

L=Length of aquifer contact, units: miles

c=conversion factor equal to 365 days per year divided by 325,851.429 gallons per acre-foot=0.00112

The purple D-D' line in Figures 5 through 6 is 5.7 miles long. Line D-D' is the approximant straight-line length from end point connection to end point connection of the Niobrara aquifer and Upper Vermillion Missouri: West aquifer connection downgradient of the proposed wellsite for this application. Due to limited data availability along the edge of the aquifer for analysis, the discharge line had to be shifted slightly upgradient of the actual area of connection between the two aquifers. This length, 5.7 miles, is used for "L" in equation 1. Kilts (2023c) estimated an average transmissivity for this portion of the Niobrara aquifer of 4,293.2 gallons per day per foot. A review of the data points used in Kilts (2023c) indicated there was not a sufficient concentration of non-outlier transmissivity data within one mile of line D-D' for the calculation of a localized transmissivity estimate. The average gradient of the potentiometric surface, I, across line D-D' for each time period is shown in Table 2. The estimated flow across D-D' for each time period is summarized in Table 2. Average estimated natural discharge across line D-D' is 685.2 acre-feet per year.

Table 2: Estimated Discharge Across D-D'				
Year	Gradient (ft/mi)	Average Transmissivity (T) (gpd/ft)	Length (mi)	Discharge (acre-feet/yr)
1986	20	4,293.2	5.7	548.16
2016	20	4,293.2	5.7	548.16
2013	27	4,293.2	5.7	740.01
2022	33	4,293.2	5.7	904.46
Average				685.2

Since this methodology to estimate natural discharge utilizes a gradient across a straight reference line, the line D-D' represents the approximate straight-line length from end point connection to end point connection (without accounting for curvature) of the Niobrara aquifer and Upper Vermillion Missouri: West aquifer connection downgradient of the proposed wellsite for this application. The area of the Niobrara aquifer and Upper Vermillion Missouri: West aquifer connection downgradient of the proposed well sites for this application has a notable amount of curvature (Figure 6). The total estimated length of contact (as mapped in Figure 6) between the two aquifers once this curvature is accounted for is approximately 7.4 miles. To account for this the results from equation 1 utilizing a length of 7.4 miles are shown in Table 3. Although the results in Table 3 have slightly more room for error since the longer the line the more variability in the gradient across the line is possible, the average in Table 3 can be treated as an upper end estimate of natural discharge to the Upper Vermillion Missouri: West aquifer downgradient of the proposed well sites for this application. Therefore, estimated average natural discharge downgradient of the proposed well sites for this application is between 685 and 890 acre-feet per year.

Table 3: Estimated Discharge for Full Connection Length				
Year	Gradient (ft/mi)	Average Transmissivity (T) (gpd/ft)	Length (mi)	Discharge (acre-feet/yr)
1986	20	4,293.2	7.4	711.64
2016	20	4,293.2	7.4	711.64
2013	27	4,293.2	7.4	960.72
2022	33	4,293.2	7.4	1174.21
Average				889.6

Kilts (2023b) used an updated transmissivity estimate for this portion of the Niobrara aquifer (4,293.2 gpd/ft) to recalculate the estimated overall natural discharge from this portion of the Niobrara aquifer to the Lower James Missouri aquifer to approximately 1,803 acre-feet per year for May of 2016 (discharge across the yellow A-A' line Figure 4). In Table 2, Kilts (2023b), and Kilts (2023c) determined the localized natural discharge estimates for May 2016 were consistently at the lower end of the range for the time periods examined, so the estimate of overall natural discharge to the Lower James Missouri aquifer from this portion of the Niobrara aquifer could be considered slightly conservative. Natural discharge to the Upper Vermillion Missouri: South was not estimated due to data limitations in the southern portion on this portion of the Niobrara aquifer.

Water Availability

Water Permit Application No. 8684-3 proposes to appropriate water from the Niobrara aquifer for irrigation use. The probability of unappropriated water being available from an aquifer can be evaluated by considering SDCL 46-6-3.1 which requires, "No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source." If the source of the water is older or lower than the Greenhorn Formation and the application is for a water distribution system defined in SDCL 46-1-6 (17), the Board need not consider the recharge/withdrawal issue. The Niobrara Formation is neither older or stratigraphically lower than the Greenhorn Formation and this application is not for a water distribution system as defined in SDCL 46-1-6 (17); therefore, the withdrawal/recharge issue must be considered.

Observation Well Data

In determining the availability of unappropriated water for a permit application, Administrative Rule 74:02:05:07 requires the Water Management Board to rely on the record of observation well measurements, in addition to other data, to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated annual recharge.

The DANR Water Rights monitors 13 observations well completed into this portion of the Niobrara aquifer (Water Rights, 2023c). Two of those observation wells (HT-2022A and HT-2022B) were installed in 2022 and have a limited period of record so will not be considered as part of the review of observation well data for water availability. The nearest observation well to the proposed well locations for this application is observation well YA-79I located approximately 6.3 miles to the west of the well locations for this application. The hydrograph for observation well YA-79I is shown in Figure 7. The next nearest observation well, YA-80GA, is located

approximately 12.5 miles to the southwest of the well sites for this application and its hydrograph is shown in Figure 8.

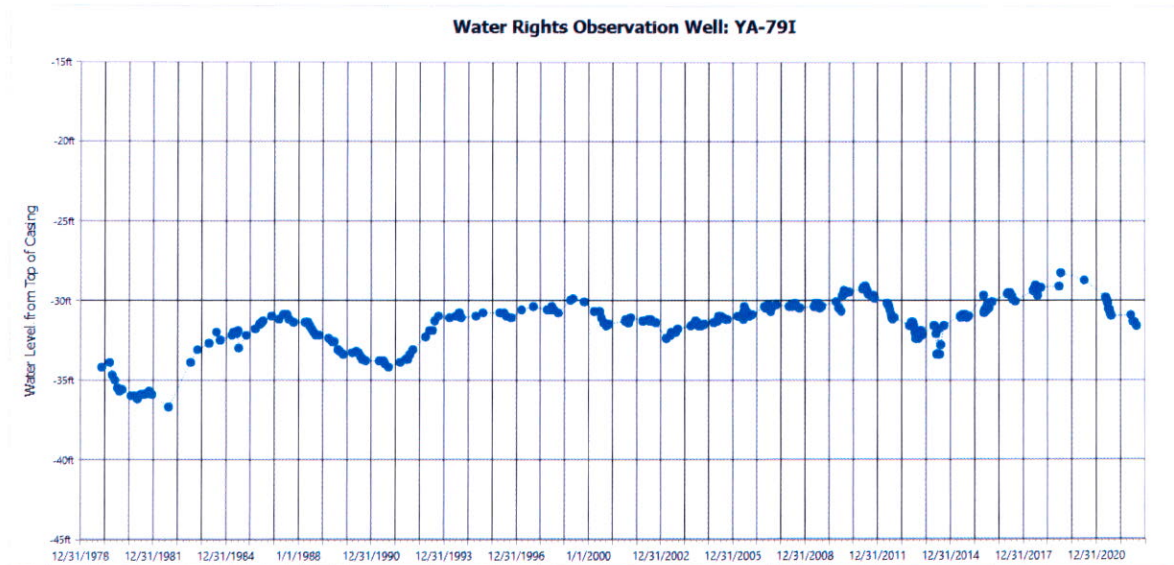


Figure 7: Hydrograph of Observation Well YA-79I (Water Rights, 2023c)

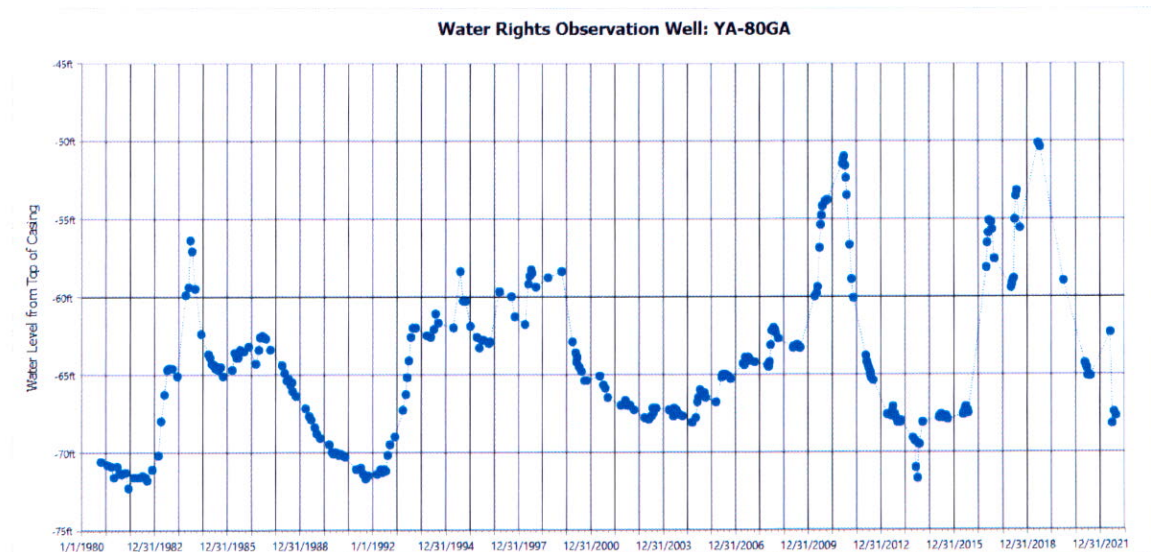


Figure 8: Hydrograph of Observation Well YA-80GA (Water Rights, 2023c)

The hydrographs shown in Figure 7 and Figure 8 are representative of the long term (36 to 44 years) stable to slightly increasing water level trends of the other observation wells completed into this portion of the Niobrara aquifer. However, the magnitude of shorter period fluctuations in response to wet and dry climatic cycles varies between observation wells. For example, the variation shown above in the hydrographs for observation wells YA-79I and YA-80GA. Several observation wells in close proximity to irrigation wells show localized seasonal dips in measured

water levels during the irrigation season in response to pumping (Water Rights, 2023b and 2023c). This is representative of the artesian head pressure of the aquifer in the area responding to seasonal irrigation pumping. However, water levels recover after the end of the irrigation season when pumping ends for the season. Water levels in the observation wells monitoring the aquifer generally rise during wet periods and decline to stable levels during drier periods. This type of behavior, along with aquifer recovery following the irrigation season, is indicative that climatic conditions, and therefore the effects of recharge to and natural discharge from the aquifer, govern the long-term fluctuations in water levels in the aquifer instead of pumping. Since recharge to and natural discharge from an aquifer can be captured for pumping, there is a reasonable probability that unappropriated water is available from this portion of the Niobrara aquifer for the proposed appropriation.

Hydrologic Budget

Recharge

Recharge to this portion of the Niobrara aquifer is likely from groundwater inflow from adjacent or overlying aquifers due to leakage from these hydrologically connected aquifers when the potentiometric gradients are favorable (a higher hydraulic head in the connected overlying or adjacent aquifer than in the Niobrara aquifer would indicate potential for leakage into the Niobrara aquifer), infiltration from precipitation where the Niobrara is at or near ground surface, and leakage through till (Lindgren and Hansen, 1990). There is no estimate of average annual recharge available for this portion of the Niobrara aquifer or the Niobrara aquifer, in general, for South Dakota (Hedges et al., 1985). However, of the Niobrara aquifer in SD, Hedges, et al. (1985) noted the Niobrara aquifer had such high storage and low use it was unlikely that withdrawals are approaching or exceeding recharge and there was no evidence of significant head loss in the aquifer to suggest that use is exceeding recharge at that time. As documented in the observation well section of this report, the additional years of observation well data collected since Hedges, et al. (1985) still show no evidence of significant long term head loss in the aquifer (Water Rights, 2023b).

Discharge

Discharge from this portion of the Niobrara aquifer is due to well withdrawals and leakage to hydrologically connected aquifers where the potentiometric gradients are favorable (a higher water level elevation in the Niobrara aquifer than in an overlying or adjacent aquifer would indicate potential for discharge from the Niobrara). There are currently 26 active water rights/permits in this portion of the Niobrara aquifer, and three pending irrigation applications with priority dates senior to this application for irrigation use (summarized in Table 1). Of the water rights/permits, 18 are for irrigation use, 3 for municipal use, 4 for commercial use, and 1 for institutional use.

The eight non-irrigation water rights/permits are summarized in Table 4. The Town of Irene and the City of Freeman both purchase their water from a rural water system but keep their water rights on standby for emergency use, so their average annual withdrawal is estimated to be zero (Drinking Water, 2023). Historically, average water use by non-irrigation appropriations limited solely by instantaneous diversion rate have been estimated as pumping 60% of the time at the maximum permitted diversion rate. For water rights/permits limited to an annual volume, full use of that volume is assumed for estimation of average annual withdrawal. Using these methods

is likely an over estimation of average annual withdrawals for non-irrigation appropriations. Appropriative non-irrigation water use is summarized in Table 4. The estimated average annual appropriative non-irrigation use from this portion of the Niobrara aquifer is 539.7 acre-ft per year. There are a number of domestic wells completed into this portion of the Niobrara aquifer that do not require appropriative water permits or reporting of annual pumpage. Due the development of rural water systems in the area and to their relatively limited diversion rates, it is assumed the volume pumped from domestic wells is negligible to the hydrologic budget for this aquifer.

Table 4: Non-irrigation Use (Water Rights, 2023b)							
Permit No.	Name of Permit Holder	Priority Date	Status	Use	Rate (cfs)	Annual Volume Limit (acre-ft)	Estimated Average Annual Use (acre-ft per yr.)
810-3	City of Freeman	01/01/1950	LC	MUN	1.26	n/a	0 (system on standby)
1229-3	Town of Irene	01/01/1915	LC	MUN	0.56	n/a	0 (system on standby)
5239-3	City of Freeman	10/17/1988	LC	MUN	0.33	n/a	0 (system on standby)
6524-3	Freeman Jr College & Freeman Academy	07/19/2004	LC	INS	0.07	n/a	30.4
6706-3	Pheasant Run Farm	02/21/2006	PE	COM	0.1	n/a	43.4
8216-3	B&K Dairy Farms LLC	02/01/2016	PE	COM	0.67	460	460.0
8597-3	CHS Farmers Alliance	02/22/2022	PE	COM	0.1	1.3	1.3
8626-3	Tri-Cross Renewable Energy LLC	03/28/2022	PE	COM	0.1	4.6	4.6
Total							539.7
LC-water right, PE-water permit, MUN-municipal, INS-institutional, COM-commercial							

The majority of water rights/ permits for irrigation are required to report annual irrigation usage to the Water Rights Program. The 18 active water rights/permits for irrigation from this portion of the Niobrara aquifer are summarized in Table 5 and their reported annual irrigation pumping summarized in Table 6. Water Right No. 5913-3 incorporated portions of another permit when licensed, so reported irrigation usage for the incorporated permit is also included in Table 6. Water Permit Nos. 7512-3, 7513-3, and 7514-3 all have a required completion of construction date of February 19, 2018; however, the 2013-2022 irrigation questionnaires for these permits all indicated that the systems have not been constructed (Water Rights, 2023a; Water Rights, 2023e). Water Permit Nos. 7512-3, 7513-3, and 7514-3 are all likely subject to cancellation due to failure to construct the system in the five-year construction period for the permit. Therefore, since they are subject to cancellation the average annual usage for these permits is estimated at zero acre-feet per year.

Report on Water Permit Application No. 8684-3

Table 5: Summary of Irrigation Water Rights/Permits (Water Rights, 2023b)						
Permit No.	Name of Permit Holder	Priority Date	Status	Rate (cfs)	Acres	Comments
5764-3	CITY OF FREEMAN	03/15/1993	LC	0.24	27.5	
5913-3	ROGER L SCHMIDT	04/02/1981	LC	0.77	123	
6708-3	DAVID HUBER	04/03/2006	LC	1.78	271	
7344-3	MICHAEL SCHULTZ	04/09/2012	PE	5.33	399	
7448-3	ROBERT HECKENLAIBLE	10/03/2012	LC	3.34	304	
7512-3	GREG WIRTH	10/24/2012	PE	2.28	160	system not constructed, past construction period
7513-3	GREG WIRTH	10/24/2012	PE	1.74	122	system not constructed, past construction period
7514-3	GREG WIRTH	10/24/2012	PE	2.28	160	system not constructed, past construction period
7515-3	GREG WIRTH	10/24/2012	PE	2.28	160	
7526-3	DERRICK WALTER	11/15/2012	PE	3.56	257	
7617-3	BRETT GUTHMILLER	01/07/2013	LC	1.34	119	
7683-3	ROGER GUTHMILLER	01/28/2013	LC	1.34	134	
7700-3	DAVID HUBER	02/14/2013	LC	2.09	146	no use 2022, reported system damaged in storm
7893-3	WAYNE OR TRINA KNUTSON	09/03/2013	LC	0.07	1.2	
8162-3	DON SCHELLPFEFFER	05/28/2015	PE	1.78	122.65	
8260-3	CAMERON JOHNSEN	12/27/2016	PE	1.67	117.35	
8326-3	NELSEN BROTHERS	01/08/2018	PE	2	120	no reported use, reported no water available and system damaged in storm
8416-3	JEROME POESCHL	12/02/2019	PE	1.56	116	
LC-license, PE-permit						

Report on Water Permit Application No. 8684-3

Table 6: Reported Irrigation use (Water Rights, 2023e)

Year	No. Permits	Reported Pumping (acre-feet)
1981	1	0.0
1982	1	69.7
1983	1	35.6
1984	1	42.0
1985	1	50.0
1986	1	50.0
1987	1	120.0
1988	1	72.9
1989	1	136.6
1990	1	92.8
1991	1	106.1
1992	1	6.6
1993	1	0.0
1994	1	33.1
1995	1	29.4
1996	2	6.6
1997	2	18.0
1998	2	0.0
1999	2	0.0
2000	2	0.0
2001	2	0.0
2002	2	25.2
2003	2	7.7
2004	2	0.0
2005	2	0.0
2006	2	0.0
2007	2	23.1
2008	2	49.5
2009	2	28.3
2010	2	0.0
2011	2	141.4
2012	3	381.6
2013	13	999.1
2014	14	928.9
2015	15	724.6
2016	16	518.1
2017	17	616.8
2018	18	98.0
2019	18	20.5
2020	19	815.0
2021	17	1042.4
2022	18	1506.7
Max	19	1506.7
Min	1	0.0
1981-2022 Avg	5.1	209.4
2013-2022 Avg	16.5	727.0

Average reported irrigation usage for the water rights/permits for irrigation from this portion of the Niobrara aquifer is 209 acre-ft per year. Since the number of irrigation water rights/permits has continued to increase, the estimated average annual withdrawal rate for irrigation appropriations for the entire period of record may not accurately reflect the current level of development. The average annual withdrawal rate for irrigation appropriations from 2013 to 2022 better represents the current level of irrigation development in this portion of the Niobrara aquifer. Average reported irrigation usage from 2013 to 2022 for the water rights/permits for irrigation from this portion of the Niobrara aquifer is 727 acre-ft per year. Water Permit Application No. 8616-3 is the result of a licensing inspection for Water Permit No. 7344-3, to reflect an additional 21 acres being irrigated by the irrigation systems authorized under Water Permit No. 7344-3. Since irrigation of these acres is being reported as part of water use under Water Permit No. 7344-3, the water use proposed by Application No. 8616-3 is assumed to be already reflected in the reported irrigation data. Typically, average irrigation rates in eastern South Dakota are less than 10 inches per acre per year (Water Rights, 2023b). Water Permit No. 8326-3 has yet to report any use so, using this average rate, annual water usage is estimated at less than 100 acre-feet per year. This application and Application No. 8579-3 propose to irrigate a total of 466 new acres, estimated average annual water use for these applications is less than 388 acre-feet per year. The total estimated average annual irrigation use from this portion of the Niobrara aquifer is less than 1,215 acre-feet per year.

Balance

Estimated average appropriative withdrawals from this aquifer, including the applications summarized in Table 1, is less than 1,755 acre-feet per year. There is not a recharge estimate to this portion of the Niobrara aquifer. Kilts (2023b) estimated overall natural discharge from this portion of the Niobrara aquifer to the Lower James Missouri aquifer to be approximately 1,803 acre-feet per year for May of 2016. In Tables 2 and 3 natural discharge to the Upper Vermillion: West in the area of this application was estimated at a range between 685 to 890 acre-feet per year. Therefore, the estimated total natural discharge is 2,488 to 2,693 acre-feet per year. Figure 6 indicates there is likely additional natural discharge occurring to the Upper Vermillion: South aquifer from this portion of the Niobrara aquifer. Since recharge to and natural discharge occurring from an aquifer is available for appropriation, there is a reasonable probability that water is available for appropriation requested by this application.

Localized Budget

Localized budgets are utilized in subareas of aquifers where (based on the engineering judgment of Water Rights staff) a combination of significant hydrogeology characteristics and appropriative water use results in a locally distinct subarea of water availability from the overall water availability in an aquifer. Examples of where subareas are routinely utilized would be the Madison, Minnelusa, and Inyan Kara aquifers at locations in close proximity to the aquifer outcrop areas in the Black Hills (Water Rights, 2023b). For this portion of the Niobrara aquifer the potentiometric surface mapping consistently indicates that water movement is generally from the central area of the aquifer to the outer edges of the aquifer indicating potential for differing water availability between the various flanks of the aquifer.

Figure 9 shows the water rights/permits in the vicinity of the localized natural discharge estimate shown in Table 2. The water rights/permits associated with the localized natural discharge estimate shown in Tables 2 and 3 (approximately 685 to 890 acre-feet per year) are Water Right Nos 7512-3, 7513-3, 7514-3, 8216-3, 8326-3, and 8626-3 (summarized in Tables 4 and 5). Estimated average annual water use associated with these water rights/permits is shown in Table 7.

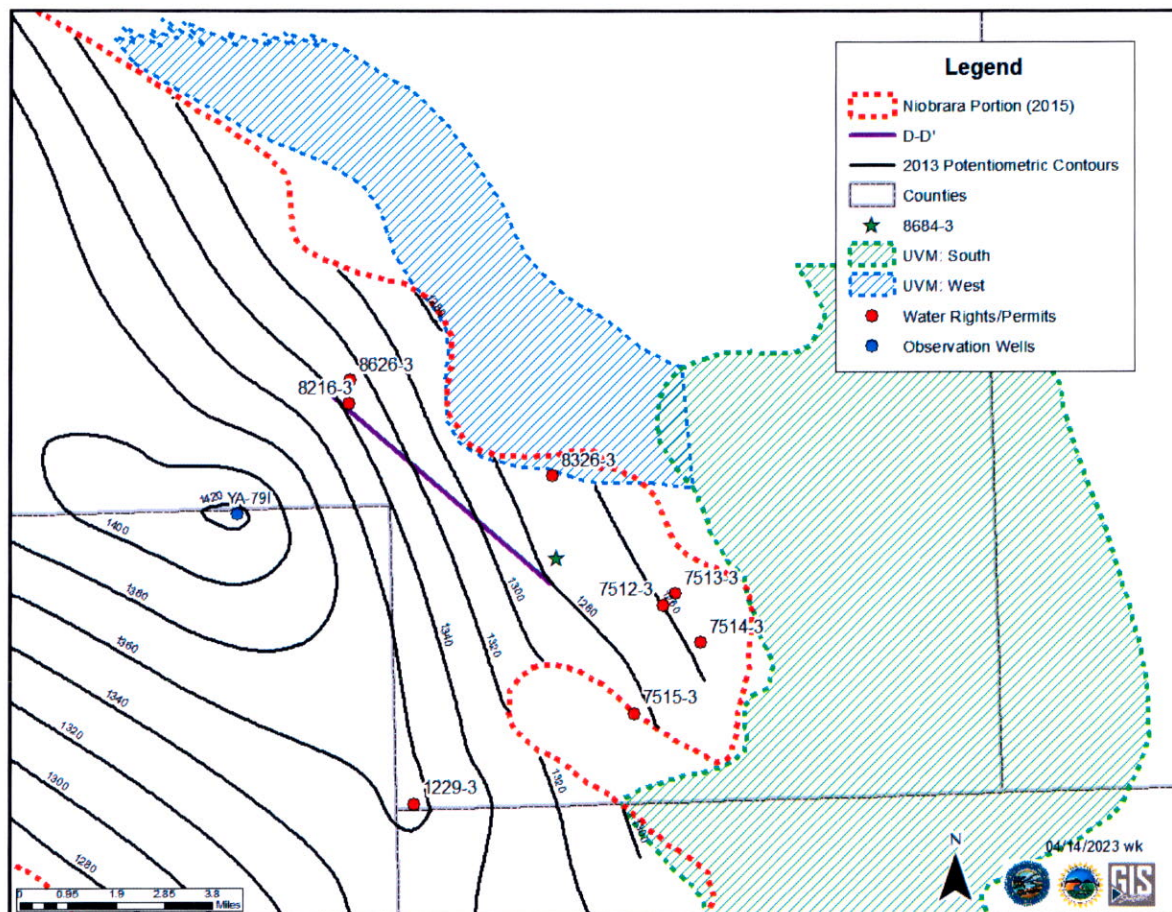


Figure 9: Niobrara water rights/permits in the localized area (Water Rights, 2023b; Water Rights, 2023c)

Table 7: Estimate Average Annual Localized Use		
Non-irrigation (Water Rights, 2023b)		
Permit No.	Name	Estimated Average Annual Use (Acre-ft/yr)
8216-3	B & K DAIRY FARMS LLC	460
8626-3	TRI-CROSS RENEWABLE ENERGY LLC	4.6
Irrigation (Water Rights, 2023b and 2023e)		
7512-3	GREG WIRTH	system not constructed, past construction period
7513-3	GREG WIRTH	system not constructed, past construction period
7514-3	GREG WIRTH	system not constructed, past construction period
8326-3	NELSEN BROTHERS	100 (no reported use, 10 in. per permitted acre)
8684-3*	MATTHEW WIRTH	250 (10 in. per acre over 300 acres)
Total estimate use		814.6
*this application		

This application is seeking to irrigate 300 acres, so estimated average annual use for this application is less than 250 acre-feet per year. This results in a localized estimated average annual water use of 814.6 acre-feet per year. The estimate localized natural discharge in this area is between 685 to 890 acre-feet per year (Tables 2 and 3). This indicates that as part of supporting this application in this area horizontal groundwater movement into the area downgradient of D-D' may need to be induced from the areas adjacent to the area downgradient of D-D' from pumpage by water users in the area downgradient of D-D'. This appears to be viable in this localized area given that some of these water permits are located along the edge of or slightly outside of the area downgradient of D-D'. Withdrawals exceeding recharge and groundwater movement into a localized area, can result in a localized long-term decreasing trend in local water levels (that does not eventually stabilize in relation to withdrawals) governing local water levels rather than climatic conditions. Since this natural discharge estimate only serves as an indicator of the magnitude of recharge to a localized area within an aquifer at the points of time of the estimate; it is worth emphasizing the importance of observation wells as part of monitoring this aquifer and observation well YA-79I is supportive of additional development in the area of the aquifer.

In the instance of this localized budget for a subarea of this portion of the Niobrara aquifer, the localized area presented is not considered a separate groundwater source pursuant to SDCL 46-6-3.1. The localized budget is presented in the water availability section of this report for general information. The review of this localized budget serves more as a check of potential for cumulative appropriative use in a localized area to result in unlawful impairment of existing domestic water users and water rights over a longer-term time scale than is typically reviewed as part of the potential for unlawful impairment. The potential for unlawful impairment review generally focuses more on the potential for direct impact and unlawful impairment of existing users as a result of drawdown created from pumping by just the proposed appropriation.

Potential for Unlawful Impairment

Area water rights/permits completed into this portion of the Niobrara aquifer are shown in Figure 10 and summarized in Tables 4 and 5. The nearest water right/permit to the well sites for this application is Water Permit No. 8326-3 for irrigation of 120 acres located approximately 1.6 miles to the north. The nearest domestic well on file with the Water Rights Program not under the last name of Wirth is for T. Nelson drilled in 2012 located approximately 0.4 miles to the west based on the legal location provided by the well driller. Information provided by the applicant

indicates the applicant has a livestock well (likely completed into the Niobrara aquifer (Water Rights, 2023a) that is within approximately 0.1 miles of the proposed well sites for this application). There could potentially be other domestic wells completed into the Niobrara aquifer near the proposed diversion points that are not on file with the DANR-Water Rights Program.

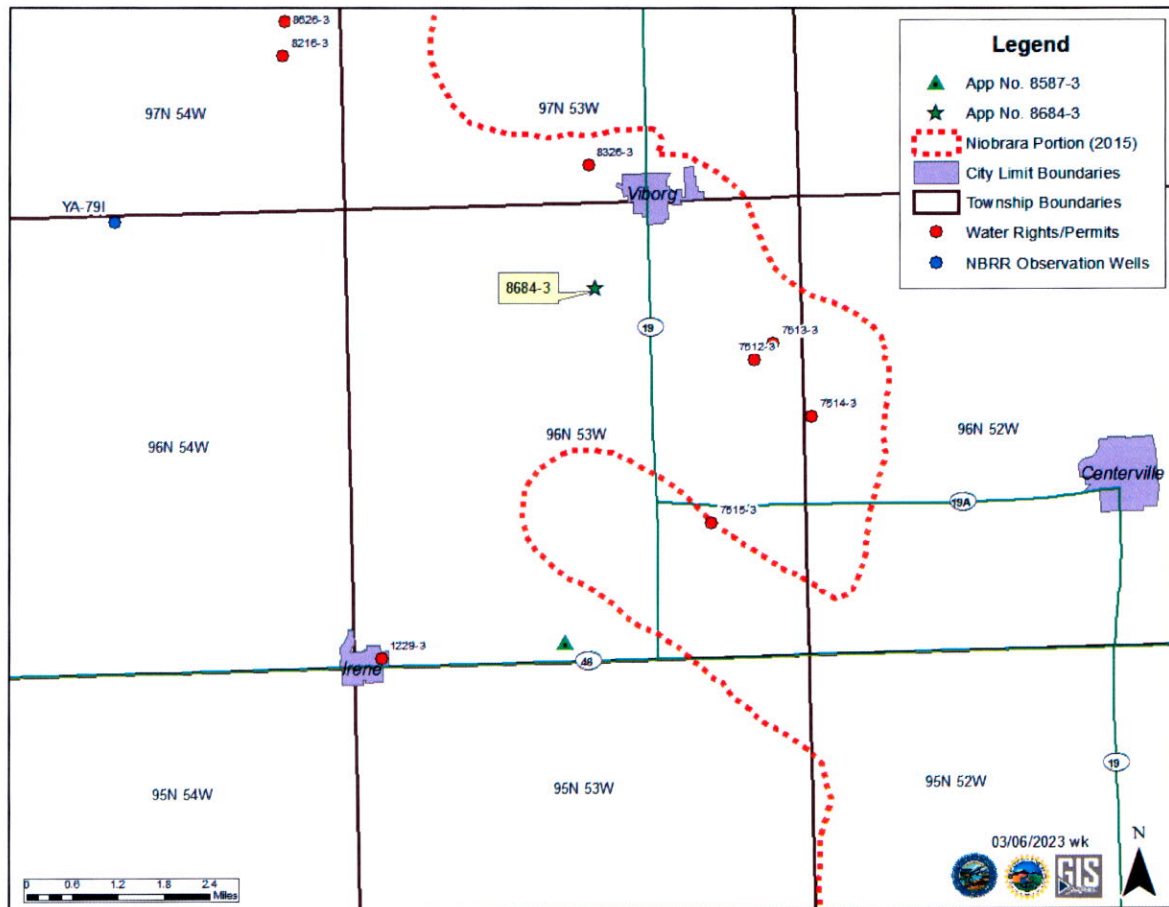


Figure 10: Niobrara water rights/permits and observation wells in the area of the well sites for this application (Water Rights, 2023b; 2023a)

The Board has defined an adversely impacted domestic well as “a well in which the pump intake was set at least 20 feet below the top of the aquifer at the time of construction or, if the aquifer is less than 20 feet thick, is as near to the bottom of the aquifer as is practical and the water level of the aquifer has declined to a level that the pump will no longer deliver sufficient water for the well owner’s needs.” In the case of Water Permit Application No. 2313-2 for the Coca-Cola Bottling Company of the Black Hills, the Water Management Board adopted findings that noted that if the increased costs or decreased production as a result of the impacts of legitimate users of artesian head pressure could be considered an adverse impact it would conflict with SDCL 46-1-4 (Water Rights, 1995). SDCL 46-1-4 requires the water resources of the state be put to beneficial use to the maximum extent of which they are capable (Water Rights, 1995).

Deferred Water Permit Application No. 8579-3 proposes to appropriate water from this portion of the Niobrara aquifer from a proposed diversion point located approximately 20.9 miles to the west northwest of the well sites for this application (Water Rights, 2023b). The Water Management Board deferred Application No. 8579-3 for up to two years to allow for further study to determine if the existing irrigation in the area of the proposed well site for Application No. 8579-3 is unlawfully impairing two adequate domestic wells whose owner complained of loss of water during late summer and early fall of 2021 (Water Rights, 2022e). The domestic wells that were the subject of the complaint are located approximately 21.4 miles to the west northwest of the well site for this application (No. 8684-3). Given the hydrogeologic properties of this portion of the Niobrara aquifer, diversion rate, annual volume, and distance of the well sites for this application (No. 8684-3), this application, if approved, is not expected to increase drawdown in the area of the complaint of unlawful impairment of two adequate domestic wells.

In 2013, the Water Rights Program received a complaint of a domestic well being impacted in this portion of the Niobrara aquifer; however, when investigated, it was determined that the well had likely collapsed and was not an adequate well as defined by ARSD 74:02:04:20(6) (Water Rights, 2022d). In 2015, a complaint was received that Water Permit No. 7526-3 (near the northern edge of this portion of the Niobrara aquifer) was impacting springs; however, the springs were identified as artesian in nature and artesian head pressure is not protected as a means of delivery. Therefore, it was concluded that no unlawful impairment was occurring (Water Rights, 2022d). In the case of Water Permit Application No. 2313-2 for the Coca-Cola Bottling Company of the Black Hills, the Water Management Board adopted findings that noted that if the increased costs or decreased production as a result of the impacts of legitimate users on artesian head pressure could be considered an adverse impact, it would conflict with SDCL 46-1-4 (Water Rights, 1995). SDCL 46-1-4 requires the water resources of the state be put to beneficial use to the maximum extent of which they are capable (Water Rights, 1995). In Turner County, there is not a history of substantiated well interference complaints in this portion of the Niobrara aquifer (Water Rights, 2022f). Additionally, the applicant has a domestic well for livestock use in close proximity to the proposed well sites for this application, so it is within the interest of the applicant to control withdrawals so as not to impact his own well. Therefore, there is a reasonable probability that this application, if approved, will not adversely impact nearby adequate wells as defined by ARSD 74:02:04:20(6).

Additional Considerations Springs and Pond

Pond

Five-meter elevation data was used to delineate the drainage area for the proposed pond (Figure 11). Based on this the pond receives only incidental drainage from a very small area contained within the area the applicant proposes to irrigate. The proposed pond is on an unnamed drainage of an unnamed tributary of Frog Creek. Given the extremely small drainage area for the pond and the pond is not the primary source of water for this application, the water availability for the pond was not reviewed. Based on the available information, the proposed pond is not expected to cause an unlawful impairment to existing domestic users or users with prior water rights.

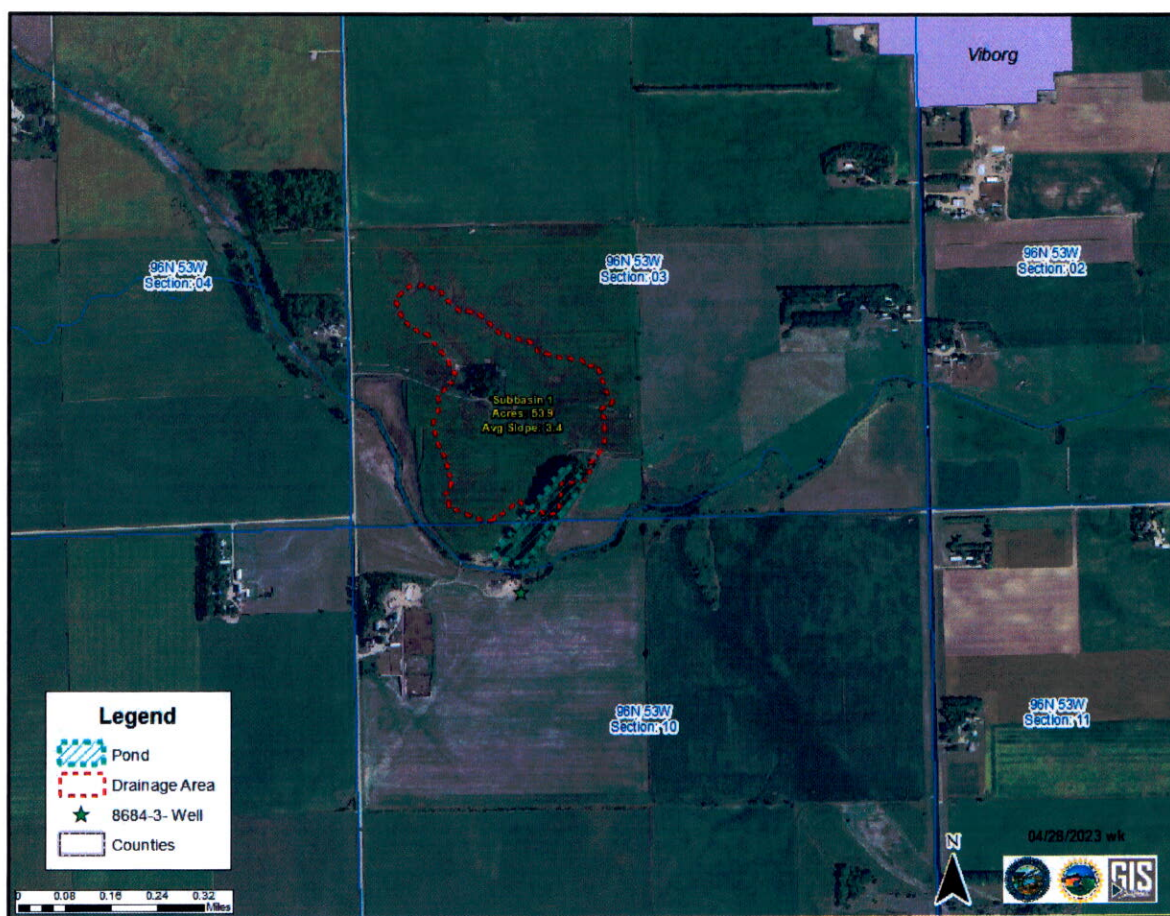


Figure 11: Pond and approximate drainage area

Springs

No information on the springs could be located, therefore the water source for the springs could not be determined. Small springs might not serve as a reliable source of water, since spring flow can be impacted by climatically driven changes in the water level of the water source. If the springs are artesian in nature, spring flow as a result of artesian head pressure in the water source might not be protected. As previously noted in the case of Water Permit Application No. 2313-2 for the Coca-Cola Bottling Company of the Black Hills, the Water Management Board adopted findings that noted that if the increased costs or decreased production as a result of the impacts of legitimate users of artesian head pressure could be considered an adverse impact it would conflict with SDCL 46-1-4 (Water Rights, 1995). SDCL 46-1-4 requires the water resources of the state be put to beneficial use to the maximum extent of which they are capable (Water Rights, 1995).

Conclusions

1. Water Permit Application No. 8684-3 proposes to appropriate water at a maximum diversion rate of 2.11 cfs from two wells to be completed into the Niobrara aquifer in the N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 10 for the irrigation of 300 acres located in the SW $\frac{1}{4}$ Section 3 and NW $\frac{1}{4}$ Section 10; all in T96N-R53W. The application also requests to construct a pond

with a storage capacity of up to 11 acre-feet in an abandoned railroad right way located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 10 and the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 3; all in T96N-R53W for the capture of incidental runoff and spring flow to supplement the irrigation project.

2. Based on the hydrologic budget and observation well data, there is a reasonable probability that water is available in the aquifer to meet the water use proposed by this application.
3. There is a reasonable probability that this application can be developed without unlawful impairment to domestic users or existing water right/permit holders with adequate wells.



Whitney Kilts
Natural Resources Engineer III
SDDANR-Water Rights Program

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**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

**NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPERS RIGHT AWAY.**

May 11, 2023

Matthew H Wirth
29220 455th Ave
Viborg SD 57070

Dear Mr. Wirth:

Water Permit Application No. 8684-3 for irrigation use have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Turner County New Era printed at Parker SD (Ph # 605 297-4419) and the Daily Press & Dakotan printed at Yankton SD (Ph # 605 665-7811). You will need to contact the newspapers and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspapers to authorize publication of your Notice and to arrange for payment. Early contact with the papers can eliminate delays. Upon receiving authorization from you, the publishers have been instructed to publish your notice. The newspapers have also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Rachel Rodriguez

Rachel Rodriguez
Water Rights Program
(605) 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.

NOTICE OF APPLICATION NO. 8684-3 to Appropriate Water

Notice is given that Matthew H Wirth, 29220 455th Ave, Viborg SD 57070 has filed an application for a water permit to appropriate 2.11 cubic feet of water per second from up to two wells to be completed into the Niobrara Aquifer (60 feet deep) located in the N 1/2 NW 1/4 Section 10 for irrigation of 300 acres located in the SW 1/4 Section 3 and the NW Section 10; all in T96N-R53W. The applicant may also construct a pond with a storage capacity of up to 11 acre feet in an abandoned railroad right of way located in the NE 1/4 NW 1/4 Section 10 and the SE 1/4 SW 1/4 Section 3; all in T96N-R53W to capture runoff and spring flows to supplement the irrigation project. This site is located approximately one mile south of Viborg SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8684-3 with qualifications because 1) unappropriated water is available, 2) existing domestic water uses and water rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest as it pertains to matters within the regulatory authority of the Water Management Board. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <https://danr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

Any person interested in opposing this application or recommendation shall allege that the application, upon approval, will cause injury to the person that is unique from any injury suffered by the public in general. The injury must concern a matter either within the regulatory authority found in SDCL 46-2A-9 for approval or denial of the application, or other matter concerning the application within the regulatory authority of the board to act upon as defined by SDCL 46-2-9 and 46-2-11, or both. Any person meeting the petitioner requirements and wishing to be a party of record in a contested case hearing shall file a written petition to oppose the application with BOTH the applicant and Chief Engineer. A petition opposing the application shall be filed on a form provided by the Chief Engineer. The petition form is available online at <https://danr.sd.gov/public> or by contacting the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501" or call (605) 773-3352. The applicant's mailing address is given above. If contesting the Chief Engineer's recommendation, the applicant shall also file a petition. A petition filed by either an interested person or the applicant must be filed by May 29, 2023.

The petition shall include a statement describing the unique injury upon approval of the application on the petitioner, the petitioner's reasons for opposing the application, and the name and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

Any interested person may file a comment on the application with the Chief Engineer. The comment shall be filed on a form provided by the Chief Engineer and is available online at <https://danr.sd.gov/public> or by calling (605) 773-3352 or writing the Chief Engineer at the address provided above. Filing a comment does not make the commenter a party of record or a participant in any hearing that may be held. Any comment must be filed by May 29, 2023.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled, and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Published once at the total approximate cost of_

Rodriguez, Rachel

From: Rodriguez, Rachel
Sent: Wednesday, May 10, 2023 4:35 PM
To: newera@ncppub.com
Subject: 8684-3 Matthew Wirth - Public Notice
Attachments: FORM8.FRM.doc; 8684-3 public.short_final.docx

Attached is a notice to be published on May 18, 2023.

Matthew Wirth, 29220 455th Ave, Viborg SD 57070, 605-254-7552 has been notified to contact you to authorize publication and arrange for payment.

Please send the affidavit or return the attached Proof of Publication form ASAP to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

Let me know if you have questions. Please acknowledge receipt of this email.

Thank you,

Rachel Rodriguez
DANR | Program Assistant
Rachel.Rodriguez@state.sd.us



Rodriguez, Rachel

From: Rodriguez, Rachel
Sent: Wednesday, May 10, 2023 4:37 PM
To: Kelly Kronaizl
Subject: 8684-3 Matthew Wirth - Public Notice
Attachments: FORM8.FRM.doc; 8684-3 public.short_final.docx

Attached is a notice to be published on May 18, 2023 in the Yankton Daily Press & Dakotan.

Matthew Wirth, 29220 455th Ave, Viborg SD 57070, 605-254-7552 has been notified to contact you to authorize publication and arrange for payment.

Please send the affidavit or return the attached Proof of Publication form ASAP to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

Let me know if you have questions. Please acknowledge receipt of this email.

Thank you,

Rachel Rodriguez
DANR | Program Assistant
Rachel.Rodriguez@state.sd.us



Affidavit of Publication

STATE OF SOUTH DAKOTA
COUNTY OF TURNER

I, Jessica Kleinsasser, of the City of Parker, County of Turner, State of South Dakota being first duly sworn on oath, deposes and says: The New Era is a weekly legal newspaper of general circulation, printed and published in the City of Parker, in said County of Turner, by The New Era, New Century Press, publishers, and has been such legal newspaper during the times here in after mentioned: that the said newspaper has been in existence as such legal newspaper for more than one year prior to the publication of the notice here unto attached, and has during all of said publication of the notice hereunto attached, and has during all of said time had, and now has, more than 200 bona fide subscribers; that the undersigned, the affiant, is the Office Assistant of the said newspaper, in charge of the advertisement department thereof and has personal knowledge of all the facts stated in this affidavit and the advertisement headed:

N0518-9-Water Rights 8684-3
once printed copy of hereto attached, is printed and published in the said newspaper for one successive week, one each week and on the same day of the week, on the following dates, to wit:

On Thursday, the 18th day of May 2023

That \$52.13 being the full amount of the fees for publication of the attached notices insure solely for the benefits of the publishers of the said newspaper, that no arrangement or understanding for a division thereof has been made with any other person and that no part thereof has been agreed to be paid to any other person whomsoever.

Jessica Kleinsasser

Subscribed and sworn to before me this

24th

Day of

May 2023

Debra J. Masters

Notary Public, Turner County, South Dakota

My Commission Expires:

8.6.27



**NOTICE OF APPLICATION NO.
8684-3 to Appropriate Water**

Notice is given that Matthew H Wirth, 29220 455th Ave, Viborg S.D. 57070 has filed an application for a water permit to appropriate 2.11 cubic feet of water per second from up to two wells to be completed into the Niobrara Aquifer (60 feet deep) located in the N 1/2 NW 1/4 Section 10 for irrigation of 300 acres located in the SW 1/4 Section 3 and the NW Section 10; all in T96N-R53W. The applicant may also construct a pond with a storage capacity of up to 11 acre feet in an abandoned railroad right of way located in the NE 1/4 NW 1/4 Section 10 and the SE 1/4 SW 1/4 Section 3; all in T96N-R53W to capture runoff and spring flows to supplement the irrigation project. This site is located approximately one mile south of Viborg S.D.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8684-3 with qualifications because 1) unappropriated water is available, 2) existing domestic water uses and water rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest as it pertains to matters within the regulatory authority of the Water Management Board. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <https://danr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

Any person interested in opposing this application or recommendation shall allege that the application, upon approval, will cause injury to the person that is unique from any injury suffered by the public in general. The injury must concern a matter either within the regulatory authority found in SDCL 46-2A-9 for approval or denial of the application, or other matter concerning the application within the regulatory authority of the board to act upon as defined by SDCL 46-2-9 and 46-2-11, or both. Any person meeting the petitioner requirements and wishing to be a party of record in a contested case hearing shall, file a written petition to oppose the application with BOTH the applicant and Chief Engineer. A petition opposing the application shall be filed on a form provided by the Chief Engineer. The petition form is available online at <https://danr.sd.gov/public> or by contacting the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre S.D. 57501" or call (605) 773-3352. The applicant's mailing address is given above. If contesting the Chief Engineer's recommendation, the applicant shall also file a petition. A petition filed by either an interested person or the applicant must be filed by May 29, 2023.

The petition shall include a statement describing the unique injury upon approval of the application on the petitioner, the petitioner's reasons for opposing the application, and the name and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

Any interested person may file a comment on the application with the Chief Engineer. The comment shall be filed on a form provided by the Chief Engineer and is available online at <https://danr.sd.gov/public> or by calling (605) 773-3352 or writing the Chief Engineer at the address provided above. Filing a comment does not make the commenter a party of record or a participant in any hearing that may be held. Any comment must be filed by May 29, 2023.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to

oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled, and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Published once at the total approximate cost of \$52.13 and may be viewed free of charge at www.sdpublicnotices.com.

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AFFIDAVIT OF PUBLICATION[✓]

RECEIVED

MAY 22 2023

OFFICE OF
WATER

YANKTON DAILY PRESS AND DAKOTAN

MATTHEW WIRTH
29220 455TH AVE
VIBORG SD 57070

STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

KELLY HERTZ, BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT (S)HE IS THE MANAGING EDITOR OF YANKTON
MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
YANKTON DAILY PRESS AND DAKOTAN, A LEGAL DAILY NEWSPAPER
PUBLISHED AND CIRCULATED IN THE CITY OF YANKTON, SAID COUNTY
AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID
COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED
NOTICE OF APPLICATION NO.

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 18th DAY OF May, 2023
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$42.24 ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF HAS
BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 05/18/2023

FILED ON: 05/18/2023



SUBSCRIBED AND SWORN TO BEFORE ME THIS 18th DAY OF May, 2023



NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 03/06/2029

6-9-23 expires

Notice is given that Matthew H Wirth, 29220 455th Ave, Viborg SD 57070 has filed an application for a water permit to appropriate 2.11 cubic feet of water per second from up to two wells to be completed into the Niobrara Aquifer (60 feet deep) located in the N 1/2 NW 1/4 Section 10 for irrigation of 300 acres located in the SW 1/4 Section 3 and the NW Section 10; all in T96N-R53W. The applicant may also construct a pond with a storage capacity of up to 11 acre feet in an abandoned railroad right of way located in the NE 1/4 NW 1/4 Section 10 and the SE 1/4 SW 1/4 Section 3; all in T96N-R53W to capture runoff and spring flows to supplement the irrigation project. This site is located approximately one mile south of Viborg SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8684-3 with qualifications because 1) unappropriated water is available, 2) existing domestic water uses and water rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest as it pertains to matters within the regulatory authority of the Water Management Board. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <https://danr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

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Published May 18, 2023.

Rodriguez, Rachel

From: Rodriguez, Rachel
Sent: Wednesday, May 10, 2023 4:55 PM
To: wirthcattleco@yahoo.com
Subject: 8684-3 Matthew Wirth - Public Notice
Attachments: 8684-3 APPL2.docx; 8684-3 public.short_final.docx; 8684-3.rec.docx; 8684-3 Wirth-NBRR-Final.pdf

Attached is a copy of the report, chief engineer recommendation and information regarding the public notice for your water permit application. As stated in the letter, please contact the paper(s) as soon as possible to authorize publication and arrange for payment. This information is being mailed to you today.

Thank you,

Rachel Rodriguez
DANR | Program Assistant
Rachel.Rodriguez@state.sd.us





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

JUN 16 2023

Matthew H Wirth
29220 455th Avenue
Viborg SD 57070

Dear Mr. Wirth:

Enclosed is Water Permit No. 8684-3 authorizing construction of the water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions?* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

Sincerely,

Eric Gronlund, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

**Affidavit of Public Notice
on DANR Website**

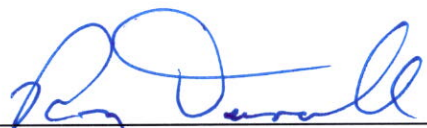
Pursuant to SDCL § 46-2A-4, public notice of the following application was posted on the DANR web site at <https://danr.sd.gov/public>. The posted public notice is the same notice as published in the pertinent newspaper(s) and a copy of the public notice is maintained in the application file. If the application is contested, the posting is moved to the DANR contested case website at <https://danr.sd.gov/public/ContestedCase.aspx> until final action is taken on the application pursuant to SDCL § 46-2A-4.

Application No.: 8684-3

Name of Applicant: Matthew H Wirth

Date of Posting: 5/17/2023

Date of Removal: 6/16/2023



Ron Duvall, Water Rights Permitting Administrator

6/23/23

Date

Subscribed and sworn to before me, a notary public, this 23rd day of June, 2023.



Notary Public - South Dakota
My commission expires: 5/16/2029



(SEAL)



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

November 6, 2025

8684-3

Matthew Wirth
29220 455th Ave
Viborg SD 57070

Dear Mr. Wirth:

The Water Rights Program is in receipt of the 2025 Irrigation Questionnaire you submitted for Water Permit No. 8684-3, which authorizes the diversion of 2.11 cfs (950 gpm) from up to two well for the irrigation of 300 acres located within the SW $\frac{1}{4}$ Section 3 & NW $\frac{1}{4}$ Section 10; all in T96N-R53W, as well as the development of a pond with an 11 acre-feet storage capacity.

On this year's questionnaire you reported you were unable to locate sufficient water and had planned to abandon the project.

Please contact me via email or telephone to discuss cancellation of Water Permit No. 8684-3.

Sincerely,

Amanda Dewell
Permitting Administrator
Water Rights Program
605 773-3352
Amanda.Dewell@state.sd.us