

WATER PERMIT NO. 2774-2

Name of Applicant: **Ellsworth Air Force Base**

Address: **2120 Scott Dr., Suite 2128, Ellsworth AFB SD 57706** Phone: **605 385-2662**

Amount of Water Claimed: **0.45 add'l cfs** Total Acres: **no add'l**

Source of Water Supply: **unnamed trib to Box Elder Creek**

Water to be used for: **irrigation** County: **Pennington**

Type of Waste Disposal System:

Location: **Ellsworth AFB**

PRIORITY Date Received: **8-17-2017** Application/License Fee: **\$ 500**

Corrected Application Received: Period of Annual Use: **April 1 0 November 30**

Remarks: **Increase the diversion rate from 0.33 cfs authorized by No. 2727-2 to a total of 0.78 cfs for irrigation of the Prairie Ridge Golf Course**

Diversion Point: **SE 1/4 SE 1/4 Sec 18-T2N-R9E**

Land to be Irrigated: **SE 1/4, SW 1/4 NE 1/4 Sec 18-T2N-R9E**

Depth of Well: **NA**

Well Driller:

Remarks:

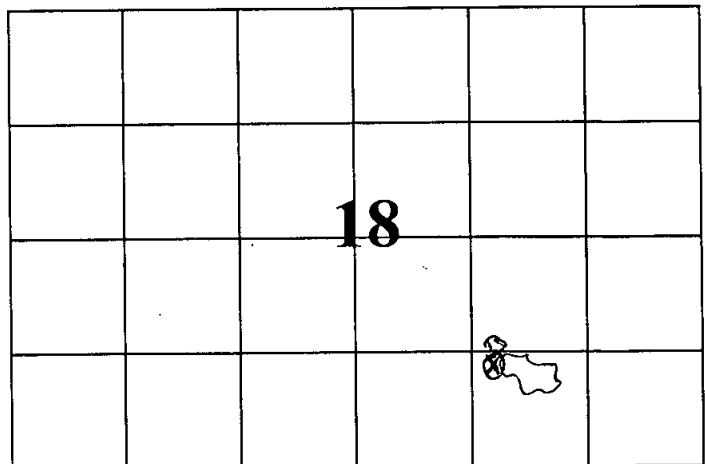
Type of Map: **aerial**

Prepared by: **Steven Quissell**

Reviewed and the Number Assigned on: **8-17-17**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



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

RECEIVED
AUG 17 2017
WATER RIGHTS
PROGRAM

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>2774-2</u>	(office use only) Hydrologic Unit <u>10120111</u>
	Basin <u>Upper Cheyenne River</u>	
	Newspaper <u>Rapid City Journal</u>	

Application For Permit To Appropriate Water For Irrigation

Type of Application: ☐ New ☐ Vested Right ☒ Amendment/Correction to Permit No. 2727-2
(Use predates Mar 2, 1955)

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

Increase the diversion rate from 0.33 cfs authorized by Permit No. 2727-2 to a total diversion rate of 0.78 cfs

1. Name to Appear on Irrigation Permit Ellsworth Air Force Base

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

Mailing Address 2120 Scott Dr, Suite 2128 Ellsworth AFB SD 57706-4711
(Address) (City) (Zip Code)

Phone 605 385-2662 Mobile _____ Email _____

2. Amount of water claimed 0.45 *CFS or 200 **GPM _____ ***AF Total Acreage no add'l
(*Cubic Feet per Second) (**Gallons per Minute) (**Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply unnamed tributary of Box Elder Creek

4. Location of point of diversion 2 storage ponds (23.5 AF storage capacity) located in the
E/2 SE 1/4 SE 1/4 Sec 18-T2N-R9E County Pennington
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

5. County or counties where water will be used Pennington

6. Annual period during which water is to be used April 1 - November 30

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
SW 1/4 NE 1/4 all in Sec 18-T2N-R9E	2.1	SW 1/4 SE 1/4	12.2
NE 1/4 SE 1/4	1.5		
SE 1/4 SE 1/4	19.3		
NW 1/4 SE 1/4	6.9		

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

X I, Kevin B. Goyer Water Quality P.M., 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.

**SOUTH DAKOTA
WATER PERMIT NO. 2774-2**

Date of first receipt of application August 17, 2017.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 2774-2 to Ellsworth Air Force Base, 2120 Scott Dr, Suite 2128, Ellsworth AFB SD 57706 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. 2774-2 authorizes an additional 0.45 cubic feet of water per second (cfs) to what is currently authorized by Water Permit No. 2727-2. Water Permit No. 2727-2 appropriates water from an unnamed tributary of Box Elder Creek into 2 holding ponds (23.5 acre-feet total storage capacity) located in the E 1/2 SE 1/4 Section 18 with a maximum diversion rate from the ponds of 0.33 cfs to irrigate 42 acres of the Prairie Ridge Golf Course located in the SE 1/4, S 1/2 NE 1/4 Section 18; all in T2N-R9E. An investigation of the permit found the system capable of diverting an additional 0.45 cfs from the holding ponds located in the E 1/2 SE 1/4 Section 18-T2N-R9E. This permit and Water Permit No. 2727-2 authorize a total diversion rate of 0.78 cfs (350 gallons per minute) for irrigation of 42 acres.
2. The amount of the appropriation may not exceed 3 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: April 1 -- November 30.
3. The date from which applicant may claim right is August 17, 2017 (0.45 cfs) and May 23, 2014 (0.33 cfs).
4. The date of approval of Permit No. 2774-2 is November 6, 2017.
5. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. Diversion shall be made only during the periods of time that one cubic feet of water per second (cfs) or more is flowing in Box Elder Creek at the confluence of this water course with Box Elder Creek located in the NW ¼ NW ¼ section 27-T2N-R9E.
2. Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed.
3. Diversions under this permit shall be in accordance with any written orders issued by the Chief Engineer.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.
5. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit Nos. 2727-2 and 2774-2 authorize a combined maximum diversion rate of 0.78 cfs for the irrigation of 42 acres with an annual volume not to exceed 3 acre feet of water per acre per year.

WATER MANAGEMENT BOARD

By: *Jeanne Goodman*
Jeanne Goodman, Chief Engineer

Water Rights Program

Department of Environment and Natural Resources

NOV 15 2017
date



STATE OF SOUTH DAKOTA
WATER LICENSE NO. 2774-2

(1) Ellsworth Air Force Base, c/o Kevin Goyer, 2120 Scott Drive, Ellsworth AFB SD 57706 made Application No. 2774-2, August 17, 2017 for a water permit to divert an additional 0.45 cubic feet of water per second (cfs) from an unnamed tributary of Box Elder Creek, Pennington County, South Dakota for irrigation purposes. Permit No. 2774-2, with a priority date of August 17, 2017 was approved November 6, 2017 and issued to the applicant for diversion of water with construction of the described water supply system and the application to beneficial use of water completed.

Water Permit No. 2727-2, with a priority date of May 23, 2014 authorizes 2 holding ponds (23.5 acre-feet total storage capacity) with a maximum diversion rate from the ponds of 0.33 cfs to irrigate Prairie Ridge Golf course. The applicable portions of No. 2727-2 are incorporated into No. 2774-2.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Water Right No. 2774-2 is issued a license, bearing priority dates of August 17, 2017 (0.45 cfs) and May 23, 2014 (0.33 cfs) to appropriate a total of 0.78 cfs from an unnamed tributary of Box Elder Creek into 2 holding ponds (23.5 acre-feet total storage capacity) to irrigate 42 acres.

The diversion point is located: 1,275 feet north and 960 feet west of the SE corner of Section 18-T2N-R9E (SE 1/4 SE 1/4). The acres authorized for irrigation are as follows:

<u>Section 18-T2N-R9E</u>			
SW 1/4 NE 1/4	2.1 acres	NW 1/4 SE 1/4	6.9 acres
NE 1/4 SE 1/4	1.5 acres	SW 1/4 SE 1/4	12.2 acres
SE 1/4 SE 1/4	19.3 acres		
Total 42 acres			

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Incorporated Water Permit No. 2774-2 including the following qualifications:

- Diversion shall be made only during the periods of time that one cubic feet of water per second or more is flowing in Box Elder Creek at the confluence of this water course with Box Elder Creek located in the NW 1/4 NW 1/4 section 27-T2N-R9E.
- Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed.
- Diversions under this permit shall be in accordance with any written orders issued by the Chief Engineer.
- This Permit is approved subject to the irrigation water use questionnaire being submitted each year.
- Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit Nos. 2727-2 and 2774-2 authorize a combined maximum diversion rate of 0.78 cfs for the irrigation of 42 acres with an annual volume not to exceed 3 acre feet of water per acre per year.



Jeanne Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

NOV 15 2017
date



Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 2727-2

I have this day, June 19, 2017 made a thorough examination of the water use system constructed by Ellsworth Air Force Base, c/o Kevin Goyer, 2120 Scott Drive, Suite 2128, Ellsworth AFB SD 57706-4711, of Permit No. 2727-2, bearing the priority of 5/23/2014 authorizing the diversion of 0.33 cu. ft. per second of water from an unnamed tributary of Box Elder Creek and storage of 23.5 ac-ft. for irrigation purposes in Pennington County.

Inspection contact & relationship to
permit holder, if applicable:

Steve Cowley, Course Superintendent
605-415-8032

Kevin Goyer, Water Quality Project Engineer
605-385-2662

A: Works used to divert the water:

Water Permit 2727-2 diverts from an unnamed tributary of Box Elder Creek into two ponds with a total storage capacity of 23.5 ac-ft. (after rehabilitation). The holding pond is located in the SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 18 T2N R9E. The upper pond functions as a sediment basin and the lower basin provides the storage volume. Water is pumped from the holding ponds to provide a portion of the water needed to irrigate Prairie Ridge Golf Course. Discharge from the Ellsworth AFB waste water treatment plant into the unnamed tributary ceased in 2015. Prior to 2015 the pond spillway flowed continuously, even during the irrigation season. Once the wastewater treatment plant discharge ceased, the pond rarely overflows. The golf course completed a new pump station in the fall of 2015 to utilize water from the city of Rapid City. During the 2016 irrigation season approximately 90% of the total metered water use of 115 ac-ft. was purchased from the city.

Dam Information:

- 1) Height to crest 5.0 feet from downstream toe
- 2) Height to primary spillway 2.0 feet from downstream toe
- 3) Height to secondary spillway none
- 4) Crest width 20 feet
- 5) Crest length 350 feet
- 6) Primary Spillway diameter 38 x 60 inches concrete elliptical
- 7) Approx. storage to primary spillway 21.5 ac-ft. (additional 2 ac-ft. in sediment basin)
- 8) Approx. storage to crest 32 ac-ft.
- 9) Date constructed: 1980's

Pond Pump Station:

- 1) Pump No. 1 2
- 2) Make US Electric (motor) US Electric (motor)
- 3) Model unknown unknown
- 4) Size Vertical Turbine Vertical Turbine
- 5) Capacity 350 GPM (Total metered capacity for both pumps per computer setting)
- 6) Power Electric Electric
- 7) Horsepower 15 hp 30 hp

City Supply Booster Station:

- | | | | |
|---------------|--|-----------------------|-----------------------|
| 1) Pump No. | <u>1</u> | <u>2</u> | <u>3</u> |
| 2) Make | <u>Grundfos</u> | <u>Berkeley</u> | <u>Berkeley</u> |
| 3) Model | <u>CR15-04</u> | <u>B2-½ ZPLS</u> | <u>B2-½ ZPLS</u> |
| 4) Size | <u>Vertical Centrifugal</u> | <u>7.31" impeller</u> | <u>7.31" impeller</u> |
| 5) Capacity | <u>350</u> GPM (Total metered capacity for all 3 pumps per computer setting) | | |
| 6) Power | <u>Electric</u> | <u>Electric</u> | <u>Electric</u> |
| 7) Horsepower | <u>7.5</u> hp | <u>20</u> hp | <u>20</u> hp |

Comments: The systems both use a computerized controller to match discharge to zone requirements with discharge pressures of approximately 100 psi. and a maximum discharge of 350 gpm. Zone requirements determine whether a single pump is operating or multiple pumps are operating simultaneously.

B. Works used to transport water to place of use:

- 1) Type PVC pipeline 2) Size 1½ - 6 inches 3) Length Varies feet

C. Works used to apply water to beneficial use:

Multiple zoned underground sprinkler system for Prairie Ridge Golf course.

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Yes

Permit diversions were only to be made during periods of time that one cfs or more was flowing in Box Elder Creek at the confluence of this water course with Box Elder Creek located in the NW ¼ NW ¼ Section 27-T2N-R9E. Since the Ellsworth AFB waste water treatment plant discharge was eliminated in 2015 the Box Elder Creek flow is not monitored.

Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period: Yes -- List any extended period of nonuse: none

- 2) Exceptions to compliance are: none

E. Condition and Location:

1. The system is in good condition with the point of diversion from the unnamed tributary located as follows:
1,275' N and 960' W of SE corner Section 18 T2N R9E (44.129078, -103.074764)

2. The works are capable of diverting and conveying to the place of use 0.78 cu. ft. per second of water (350 gpm) and storing 23.5 acre-feet of water which is to be used for sprinkler irrigation. Water has been put to beneficial use to the maximum extent as follows:

<u>Section 18 T2N R9E</u>	
<u>SW ¼ NE ¼ 2.1 acres</u>	<u>NW ¼ SE ¼ 6.9 acres</u>
<u>NE ¼ SE ¼ 1.5 acres</u>	<u>SW ¼ SE ¼ 12.2 acres</u>
<u>SE ¼ SE ¼ 19.3 acres</u>	

comprising a total of 42.0 acres of land and the license should be issued for 0.33 cfs. (150 gpm) and 23.5 acre-feet of storage. **Note: See section F. below**

All structures, wells and lands on map Yes

F. Comments or other permit(s) associated with the project:

The permittee has been notified a new application will be required for an increased diversion rate of 0.45 cfs for a total diversion rate of 0.78 cfs. Water use figures from each water source are available for any time period beginning with the 2016 irrigation season. Pond storage volumes represent original condition rather than the current condition of silt accumulation. Plans are to dredge the pond to restore original volume (original volume to be licensed).



Steven Quissell
Water Rights Inspector
DENR Water Rights Program

Date report completed: **June 20, 2017**



Pond pump site to left, booster for city supply right



Pond spillway



Pumps for pond supply



Booster pumps for city supply



Apurtenances for city supply

Prairie Ridge Golf Course Irrigation Plan

				gallons per	hours	Gallons	days			Cost	Total acre feet	Monthly rate
				hour	per day	per day	per month	per month	per month	Avoidance	per month	per acre
		Total	Pump Rate	Pump Rate	Ave. Pump	Calculated			Calctd Monthly	Value of	Calctd Water Use	Calctd Water
Month	Irrigated	Irrigated	(gal/min)	(gal/hr)	Run Time	Water Use	Water Usage	Water Use	Water Use	Water Used	by Month	Use by Month
	Crop Type	Acres			(hr/day)	(gal/day)	(days/mo)	(gal/month)	(Kgal/month)	(\$1.051/Kgal)	(acre ft/month)	(acre ft/acre)
January	Turf	42	350	21,000	0	-	31	-	-	\$ -	-	0.00
February	Turf	42	350	21,000	0	-	29	-	-	\$ -	-	0.00
March	Turf	42	350	21,000	7	147,000	14	2,058,000	2,058	\$ 2,163	6.3	0.15
April	Turf	42	350	21,000	7	147,000	30	4,410,000	4,410	\$ 4,635	13.5	0.32
May	Turf	42	350	21,000	7	147,000	31	4,557,000	4,557	\$ 4,789	14.0	0.33
June	Turf	42	350	21,000	9	189,000	30	5,670,000	5,670	\$ 5,959	17.4	0.41
July	Turf	42	350	21,000	11	231,000	31	7,161,000	7,161	\$ 7,526	22.0	0.52
August	Turf	42	350	21,000	11	231,000	31	7,161,000	7,161	\$ 7,526	22.0	0.52
September	Turf	42	350	21,000	7	147,000	30	4,410,000	4,410	\$ 4,635	13.5	0.32
October	Turf	42	350	21,000	7	147,000	14	2,058,000	2,058	\$ 2,163	6.3	0.15
November	Turf	42	350	21,000	0	-	30	-	-	\$ -	-	0.00
December	Turf	42	350	21,000	0	-	31	-	-	\$ -	-	0.00

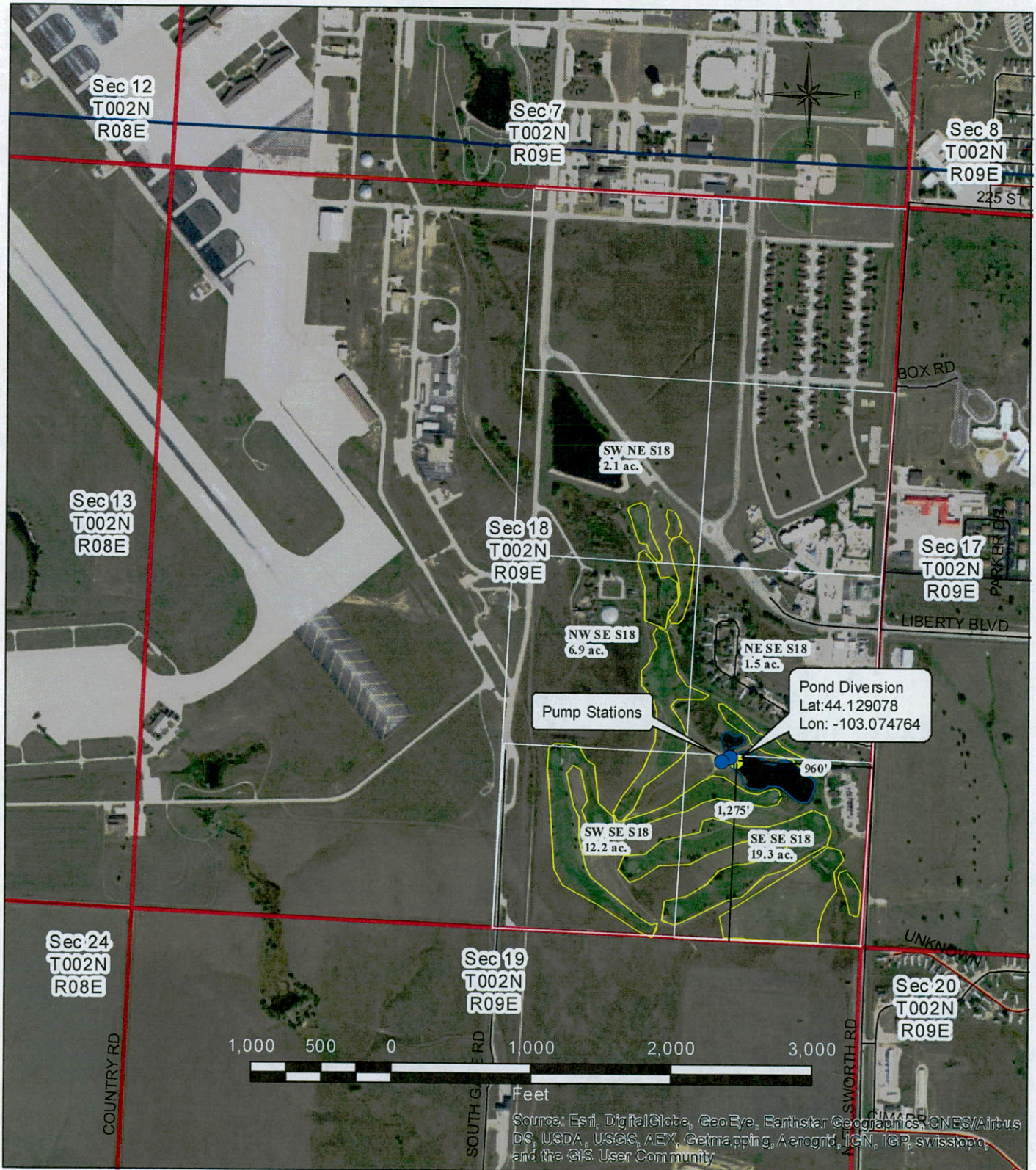
total ac		Annual Use		Total gals	Total Kgal	Total Value	total ac-ft	ann. ac-ft/ac
42				37,485,000	37,485	\$ 39,397	115	2.739
		Permitted (ac-ft/ac)						2.740

43,560 sq feet per acre 325,851 gallon per acre ft \$ 1.051 value of water

Range of	125,000	<u>gallon</u>	0.1336806	<u>cubic ft</u>	16,710	<u>ft cubed</u>	0.009	<u>ft</u>	0.110	<u>inches</u>	0.77	<u>inches</u>
Daily Appl.		day		1 gallon	1,829,520	ft squared per acre *42 acres*day		acre * day		acre * day		acre*week
Rate	150,000	<u>gallon</u>	0.1336806	<u>cubic ft</u>	20,052	<u>ft cubed</u>	0.011	<u>ft</u>	0.132	<u>inches</u>	0.92	<u>inches</u>
		day		1 gallon	1,829,520	ft squared per acre *42 acres*day		acre * day		acre * day		acre*week
	200,000	<u>gallon</u>	0.1336806	<u>cubic ft</u>	26,736	<u>ft cubed</u>	0.015	<u>ft</u>	0.175	<u>inches</u>	1.23	<u>inches</u>
		day		1 gallon	1,829,520	ft squared per acre *42 acres*day		acre * day		acre * day		acre*week
	250,000	<u>gallon</u>	0.1336806	<u>cubic ft</u>	33,420	<u>ft cubed</u>	0.018	<u>ft</u>	0.219	<u>inches</u>	1.53	<u>inches</u>
		day		1 gallon	1,829,520	ft squared per acre *42 acres*day		acre * day		acre * day		acre*week

use for budgeting of water usage
budgeting of funds
sizing of active pool in impoundment
Reporting of water usage at End of Year

Water Right #2727-2
USAF Ellsworth AFB
6/19/2017



Steven Quissell

Steven Quissell
Water Rights Inspector
DENR Water Rights Program



RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date August 17, 20 17

RECEIVED OF Kevin Coyer 386ES/CEAN CHECKS 2125 Scott Driste 2128 Ellsworth AFB 57706

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

Fee for Application for Permit No. <u>2774-2</u> to Appropriate Water, to construct and to put water to beneficial use	500	00
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. _____		
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	500 00

No. **08324**

By

Jeanne Goodman
Chief Engineer

ym



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

June 22, 2017

Ellsworth Air Force Base
Kevin Goyer, Water Quality Project Engineer
2120 Scott Dr, Suite 2128
Ellsworth AFB SD 57706-4711

Dear Mr. Goyer:

On June 19, 2017, Steven Quissell, an engineer with our office conducted an inspection of Water Permit No. 2727-2. Water Permit No. 2727-2 appropriates water from an unnamed tributary of Box Elder Creek into holding ponds (23.5 acre-feet total storage capacity) for irrigation of 42 acres of the Prairie Ridge Golf Course. Water is authorized to be diverted from the holding ponds at a maximum rate of 0.33 cubic feet of water per second (cfs). The inspection found the diversion rate of 0.78 cfs which is greater than the permitted amount.

Enclosed is a partially completed application form for the additional diversion rate of 0.45 cfs. This application also serves to correct the point of diversion to the developed location in the SE 1/4 SE 1/4 Section 18-T2N-R9E. Please review the application, sign where indicated and return with an application fee of \$500.00. A copy of the aerial photo map is also enclosed.

Mr. Quissell indicated the possibility of drilling a well for irrigation of the golf course. Water permits are issued by water source. Since groundwater is a different water source than a tributary to Box Elder Creek, a separate application will be required. Application forms can be found on our web site at <http://denr.sd.gov/des/wr/watrightsapps.aspx>

If you have any questions, please contact Eric Gronlund or me.

Sincerely,

A handwritten signature in cursive script that reads 'Karen Schlaak'.

Karen Schlaak
Water Rights Program
Phone: (605) 773-3352
karen.schlaak@state.sd.us

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
<http://denr.sd.gov>

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 2774-2, Ellsworth Air Force Base**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 2774-2, Ellsworth Air Force Base, c/o Kevin B Goyer, Water Quality Project Engineer, 2120 Scott Dr, Suite 2128, Ellsworth AFB SD 57706.

The Chief Engineer is recommending APPROVAL of Application No. 2774-2 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 rights, 3) the proposed use is a beneficial use and, 4) it is in the public interest with the following qualifications:

1. Diversion shall be made only during the periods of time that one cubic feet of water per second (cfs) or more is flowing in Box Elder Creek at the confluence of this water course with Box Elder Creek located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ section 27-T2N-R9E.
2. Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed.
3. Diversions under this permit shall be in accordance with any written orders issued by the Chief Engineer.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.
5. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit Nos. 2727-2 and 2774-2 authorize a combined maximum diversion rate of 0.78 cfs for the irrigation of 42 acres with an annual volume not to exceed 3 acre feet of water per acre per year.

See report on application for additional information.

Jeanne Goodman, Chief Engineer
October 19, 2017

REPORT TO THE CHIEF ENGINEER

Water Permit Application No. 2774-2

Ellsworth Air Force Base

October 16, 2017

Water Permit Application No. 2774-2 proposes to appropriate 0.45 cubic feet per second (cfs) of water from an unnamed tributary of Box Elder Creek into two holding ponds (23.5 acre-feet of total storage capacity) located in the E ½ SE ¼ Section 18-T2N-R9E. This application is a result of a permit inspection conducted on Water Permit No. 2727-2 pursuant to South Dakota Codified Law (SDCL) 46-5-30. The inspection revealed that the works are capable of diverting and conveying to the place of use 0.78 cfs. Water Permit No. 2727-2 was issued for a diversion of 0.33 cfs; this application is for an additional 0.45 cfs for irrigation purposes without any increase in storage or irrigated acres. Combined, Water Permit No. 2727-2 and Water Permit Application 2774-2, if approved, will authorize storage of 23.5 acre-feet of water in two holding ponds and a maximum diversion rate of 0.78 cfs to irrigate 42 acres of the Prairie Ridge Golf Course located in the SE ¼, S ½ NE ¼ Section 18-T2N-R9W.

The requested annual period of use is April 1 through November 30.

Review of the Water Source and Existing Water Rights

The source of water for this application is from an unnamed creek that is a direct tributary of Box Elder Creek. This creek has a small drainage area of approximately 1,579 acres (~2.47 mi²) upstream from the diversion point. The United States Geological Survey (USGS) has designated this waterway as an intermittent stream. Intermittent streams are streams that flow only at certain times when they receive water from springs or from some surface water source such as melting snow or runoff from rainfall. Intermittent streams cannot be considered a reliable source of water.

During the review for application report for Permit No. 2727-2, the USDA-NRCS method for estimating annual surface water yield for streams was utilized. The creek, at this site, has an 80% probability of yielding 22.7 acre-feet annually, a 50% probability of 56 acre-ft/yr, and a 20% probability of 160 acre-ft/yr. The calculated application rates provided by the applicant result in a need for 115 acre-ft/yr to irrigate the golf course (2.74 acre-ft per acre annually) (Water Rights, 2017).

Aside from Water Permit No. 2727-2, there are no other existing water rights authorized to divert water from this tributary of Box Elder Creek. The nearest existing water right authorized to divert water is Water Right No. 406-2 located downstream approximately 1.7 stream-miles from the confluence of this unnamed creek and Box Elder Creek. This Water Right is licensed to appropriate 4.5 cfs of water from the effluent of the Ellsworth Air Base Wastewater Treatment Plant through the Holcomb Ditch, specifically excluding the flow of Box Elder Creek. Water Permit No. 2727-2 and Water Right No. 406-2 are both qualified that their diversions can only be made when there is one cubic foot per second or more flowing in Box Elder Creek at their respective confluences. The nearest downstream Water Right located on Box Elder Creek is

located over 18 miles “as the crow flies” to the east-southeast. Box Elder Creek is classified as a perennial stream (Water Rights, 2017).

Discussion

The applicant proposes to appropriate water from an unnamed tributary of Box Elder Creek into two holding ponds with 23.5 acre-feet of total storage capacity. The applicant intends to divert water from the two holding ponds at a maximum rate of 0.78 cfs for irrigation of 42 acres of the Prairie Ridge Golf Course. This application is for 0.45 cfs of the 0.78 cfs, the remaining 0.33 cfs has been approved under Water Permit No. 2727-2.

Combined, Water Permit No. 2727-2 and Water Permit Application 2774-2 are requesting a diversion rate and volume greater than the statutory limit. South Dakota Codified Law (SDCL) 46-5-6 states in part that “*The Water Management Board may allow a greater diversion, in volume or rate or both, if the method of irrigation, any time constraints of water, or the type of soil so requires. However, no annual volume may be greater than three acre-feet per acre delivered to the land.*” The applicant irrigates 42 acres on a golf course and as part of the irrigation management, plans to divert at a greater rate and volume than stated in the statute.

Water for irrigation of the golf course had been provided primarily by effluent received from EAFB’s wastewater treatment plant. The treatment plant has been relocated, and the effluent is no longer available. The drainage area located above the holding ponds is relatively small and is unlikely to consistently yield sufficient water to supply their irrigation needs. When conditions are favorable for run-off to occur, downstream domestic use and the by-pass requirement for the downstream water rights would have a priority claim. The golf course has the ability to purchase water from the city of Rapid City when water is not available from the drainage.

If approved, the permit should contain the same qualifications as were placed on Water Permit No. 2727-2, including the bypass requirement of one cfs at the confluence of this tributary and Box Elder Creek.

Conclusions

1. Water Permit Application 2774-2 proposes to appropriate water from an unnamed tributary of Box Elder Creek for irrigation of the Prairie Ridge Golf Course located in the SE ¼, S ½ NE ¼ Section 18-T2N-R9W.
2. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 irrigated acres and a volume of water greater than 2 acre-feet per acre. The applicant requests this greater diversion rate and volume due to the requirements of the golf course turf.
3. The USGS has designated this waterway as an intermittent stream. During dry periods, intermittent streams cannot be considered a reliable source of water.

4. The drainage area located above the holding ponds is relatively small and is unlikely to consistently yield sufficient water to fully satisfy their needs. When conditions are favorable for run-off to occur, downstream domestic use and the by-pass requirement for the downstream water rights would have a priority claim.



John Farmer
Natural Resources Engineer I
SD DENR – Water Rights Program

Reviewed by



Mark D. Rath
Natural Resources Engineer III
SD DENR – Water Rights Program

References

Water Rights, 2017. Water Right/Permit Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

RECEIVED

OCT 30 2017

WATER RIGHTS
PROGRAM

Affidavit of Publication

Oct 26 L21063276
NOTICE OF APPLICATION NO.
2774-2 to Appropriate Water

Notice is given that Ellsworth Air Force Base, c/o Kevin B Goyer, Water Quality Project Manager, 2120 Scott Dr, Suite 2128, Ellsworth AFB SD 57706 has filed an application for a water permit to appropriate an additional 0.45 cubic feet of water per second (cfs) to what is currently authorized by Water Permit No. 2727-2. Water Permit No. 2727-2 appropriates water from an unnamed tributary of Box Elder Creek into 2 holding ponds (23.5 acre-foot total storage capacity) located in the E 1/2 SE 1/4 Section 18 with at a maximum diversion rate from the ponds of 0.33 cfs to irrigate 42 acres of the Prairie Ridge Golf Course located in the SE 1/4, S 1/2 NE 1/4 Section 18; all in T2N-R9E. An investigation of the permit found the system capable of diverting an additional 0.45 cfs from the holding ponds located in the E 1/2 SE 1/4 Section 18-T2N-R9E. This application, if approved, and Water Permit No. 2727-2 will authorize a total diversion rate of 0.78 cfs (350 gallons per minute) for irrigation of 42 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2774-2 with qualifications because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided below.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 6, 2017.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

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.

Steven M Pirner,
Secretary

Department of Environment and Natural Resources

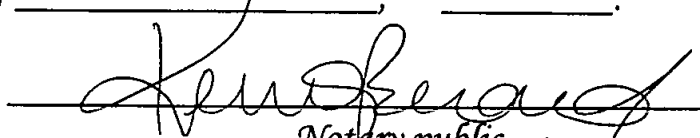
(Published once at the total approximate cost of \$74.26)

STATE OF SOUTH DAKOTA

County of Pennington SS:

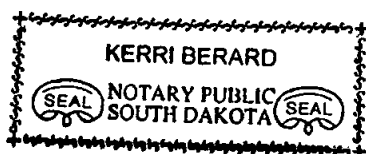
Sheri Sponder being first duly sworn, upon his/her oath says: That he/she is now and was at all time hereinafter mentioned, an employee of the RAPID CITY JOURNAL, a corporation of Rapid City, South Dakota, the owner and publisher of the RAPID CITY JOURNAL, a legal and daily newspaper printed and published in Rapid City, in said County of Pennington, and has full and personal knowledge of all the facts herein stated as follows: that said newspaper is and at all of the times herein mentioned has been a legal and daily newspaper with a bonafide paid circulation of at least Two Hundred copies daily, and has been printed and published in the English language, at and within an office maintained by the owner and publisher thereof, at Rapid City, in said Pennington County, and has been admitted to the United States mail under the second class mailing privilege for at least one year prior to the publication herein mentioned; that the advertisement, a printed copy of which, taken from said Rapid City Journal, the paper in which the same was published, is attached to this sheet and made a part of this affidavit, was published in said paper once each _____ for _____ successive _____, the first publication there of being on the _____ day of _____ that the fees charged for the publication there of are _____ dollars and _____ cents.

Subscribed and sworn to before me this _____ day of _____, _____.


Notary public

02/2019

My commission expires



Schlaak, Karen

From: Schlaak, Karen
Sent: Thursday, October 19, 2017 9:30 AM
To: RCY Legals (legals@rapidcityjournal.com)
Subject: 2774-2, Ellsworth Air Force Base
Attachments: 2774-2public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on October 26, 2017.

Ellsworth Air Force Base, c/o Kevin B Boyer, 2120 Scott Dr, Ellsworth AFB SD 57706 (605 385-2662) 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.

Karen Schlaak
SD DENR, Water Rights Program
(605) 773-3352





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

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

October 19, 2017

Ellsworth Air Force Base
c/o Kevin B Boyer, Water Quality Project Manager
2120 Scott Dr
Suite 2128
Ellsworth AFB SD 57706

Dear Mr. Goyer:

Water Permit Application No. 2774-2 for irrigation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Rapid City Journal (Ph # 605-394-8300). You will need to contact the newspaper 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 newspaper to authorize publication of your Notice and to arrange for payment. Early contact with the paper can eliminate delays. Upon receiving authorization from you, the publisher has been instructed to publish your notice. The newspaper has 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,

Eric Gronlund
Eric Gronlund
Natural Resources Engineer
(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. 2774-2 to Appropriate Water

Notice is given that Ellsworth Air Force Base, c/o Kevin B Goyer, Water Quality Project Manager, 2120 Scott Dr, Suite 2128, Ellsworth AFB SD 57706 has filed an application for a water permit to appropriate an additional 0.45 cubic feet of water per second (cfs) to what is currently authorized by Water Permit No. 2727-2. Water Permit No. 2727-2 appropriates water from an unnamed tributary of Box Elder Creek into 2 holding ponds (23.5 acre-feet total storage capacity) located in the E 1/2 SE 1/4 Section 18 with at a maximum diversion rate from the ponds of 0.33 cfs to irrigate 42 acres of the Prairie Ridge Golf Course located in the SE 1/4, S 1/2 NE 1/4 Section 18; all in T2N-R9E. An investigation of the permit found the system capable of diverting an additional 0.45 cfs from the holding ponds located in the E 1/2 SE 1/4 Section 18-T2N-R9E. This application, if approved, and Water Permit No. 2727-2 will authorize a total diversion rate of 0.78 cfs (350 gallons per minute) for irrigation of 42 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2774-2 with qualifications because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided below.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 6, 2017.

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Steven M. Pirner, Secretary, Department of Environment and Natural Resources. Published once at the total approximate cost of _____.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

2774-2

2727-2

NOV 15 2017

Ellsworth Air Force Base
c/o Kevin Goyer
2120 Scott Drive
Ellsworth AFB SD 57706

Dear Mr. Goyer:

Enclosed are Water Permit and License No. 2774-2. These are the final water right documents completing your process of obtaining a Water Right. Also, included is a map prepared by the staff engineer who conducted the investigation.

As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,


Jeanne Goodman, Chief Engineer
Water Rights Program
(605) 773-3352

Note: The applicable portions of No. 2727-2 are incorporated into Water License No. 2774-2.

enclosures