

WATER PERMIT NO. 6289-3

Name of Applicant: City of Pierre

Address: PO Box 1253, Pierre SD 57501 Phone: 605 773-7341

Amount of Water Claimed: 4.44 cfs (1600 AF annually) Total Acres: NA

Source of Water Supply: groundwater (2 wells)

Water to be used for: municipal County: Hughes

Type of Waste Disposal System:

Location: LaFramboise Island

PRIORITY Date Received: 1-16-2002 Fee: \$525

Corrected Application Received:: Period of Annual Use: January 1 – December 31

Remarks: Place to beneficial use water reserved by Future Use Permit No. 5003-3

Diversion Point:

Land to be Irrigated: NA

Depth of Well: 60 feet

Well Driller: : Geotek Engineering & Testing

Remarks:

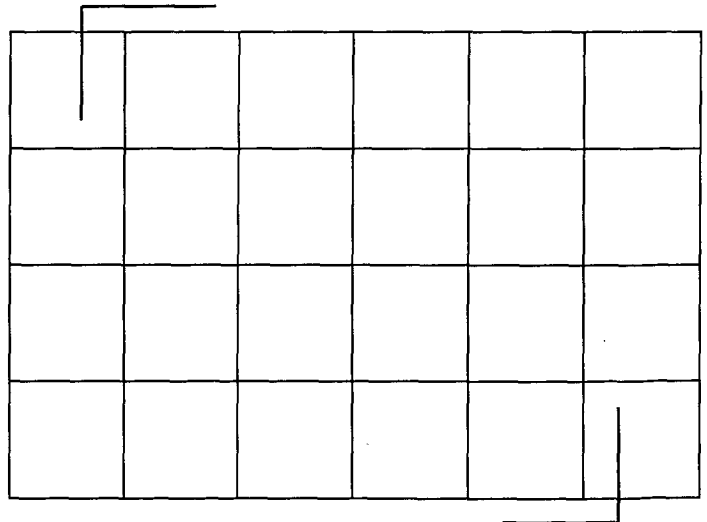
Type of Map: topo

Prepared by: Daryl Englund, PE

Reviewed and the Number Assigned on: 1-16-2002

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



SOUTH DAKOTA
WATER PERMIT NO. 6289-3

Date of first receipt of application January 16, 2002.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 6289-3 to the City of Pierre, PO Box 1253, Pierre SD 57501 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. 6289-3 appropriates 4.46 cubic feet of water per second (1,600 acre-feet annually) from two wells (Missouri: Pierre Aquifer) 60 feet deep located on LaFramboise Island. The legal description of the wells is the SE ¼ SW ¼ Section 27, T5N, R31E from the Stanley County survey (Black Hills Meridian). The original plat survey conducted in the 1890's surveyed LaFramboise Island from the west side of the Missouri River. The wells may also be referenced from the Hughes County survey (5th Principal Meridian) as being in the NE ¼ SW ¼ Section 5, T110N, R79W. This water was appropriated and reserved by future use Permit No. 5003-3.
2. The water appropriated shall be used for the purpose of municipal use and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31.
4. The date of approval of Permit No. 6289-3 is March 18, 2002.
5. The date from which applicant may claim right is November 22, 1955..
6. One-fifth of the construction is to be completed on or before September 18, 2004.
7. All construction is to be completed on or before March 18, 2007.
8. Water is to be put to beneficial use on or before March 18, 2011.
9. 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 this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals 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. 6289-3 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.

(continued)

Water Permit No. 6289-3

City of Pierre

Page 2

3. Water Permit No. 6289-3 authorizes a total annual diversion of 1,600 acre feet of water.
4. The city of Pierre shall report to the Chief Engineer annually the amount of water withdrawn from the Missouri: Pierre Aquifer.

WATER MANAGEMENT BOARD

By: Garland Erbele
Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 16 2002

date



FORM 2: Application for uses other than irrigation

(type or print)

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	(office use only)	
	No. <u>6289-2</u>	Hydrologic Unit <u>10140101</u>
	Basin <u>Missouri River</u>	
	Newspaper <u>Capital Journal, Pierre</u>	



Application For Permit To Appropriate Water Within The State Of South Dakota

Check use(s) of water:

☒ Municipal	☐ Suburban Housing	☐ Recreational	☐ Institutional
☐ Rural Water System	☐ Commercial	☐ Fish & Wildlife	☐ Geothermal Heat
☐ Domestic (over 18 gpm)	☐ Industrial	☐ Other	

Type of Application: ☐ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
 (check one) ☒ Place to Beneficial Use Water Reserved by Future Use Permit No. 5003-3
☐ Amendment/Correction to Permit No. _____

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

Construction of two (2) new water supply wells to Place to Beneficial Use Water Reserved by Future Use

Permit No. 5003-3

1. Name of Applicant City of Pierre, South Dakota Phone 605-773-7341
 (check one) ☒ Owner ☐ Tenant/lessee
 Mailing Address 222 E. Dakota P.O. Box 1253 Pierre, State SD 57501-1253
 (Street, R.R. or Box) (Zip Code)

2. Amount of water claimed 4.46 *CFS or 2,000 **GPM 1,600 ***AF
 (*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply Ground Water - 2 Wells

4. Location of point of diversion (example - 3 wells in SW 1/4 NE 1/4 section 12-T104N-R53W) Two (2) New Wells located
In the NE 1/4 of the SW 1/4 of Section 5 - T110N - R79W, Hughes County, South Dakota

County Hughes

5. County or counties where water will be used Hughes

6. Annual period during which water is to be used January 1 - December 31

7. Give a description of the project. When available include any preliminary engineering report or other Reports or information that will help explain the project. (Attach sheet if more space is needed).

The City of Pierre intends to use the water reserved under this permit to supply additional water to the existing water distribution system for the consumers of Pierre, South Dakota.

Attached is a copy of Geotechnical Test Boring Logs.

STATE OF SOUTH DAKOTA)

County of Hughes)

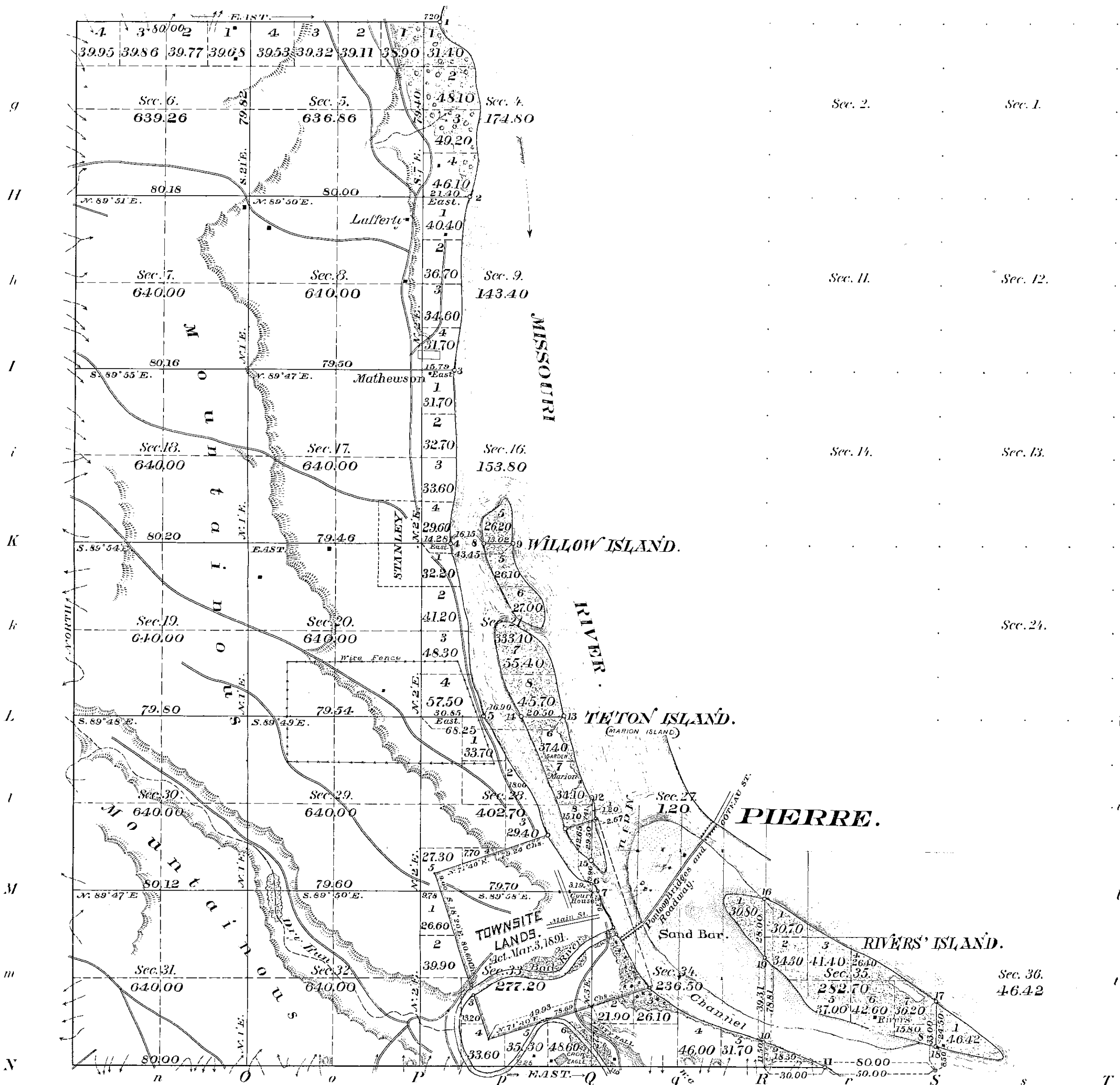
Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of Water is proposed. Attach map and any other technical information. (see instructions).

I, Gary Drewes, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction

Signed Gary Drewes
 Subscribed and sworn to before me this 15th day of January, 2002
Carol Valland
 Notary Public

Township N^o 5 North, Range N^o 31 East, Black Hills Meridian

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Surveys Designated	By Whom Surveyed	Date of Contract	Amount of Survey M. Ch ^o Lk ^s	When Surveyed	Mean Declination E.
Township lines	H. J. Hill	March 27, 1890	38 63 59	May 1890	13° 29' 30"
Subdivisions	W. J. Hill	" "	10 08 51	June 20, Aug 20, 1890	" "
Meanders	" "	" "	" "	" "	" "
South boundary	H. J. Hill	" "	" "	May 1890	" "
Transverse	H. J. Hill	Sept 2, 1890	" "	April 1891	" "

The above Map of Township N^o 5 North, Range N^o 31 East of the Black Hills Meridian, South Dakota, is hereby confirmed to the field notes of the survey thereof on file in this Office which have been examined and approved.

Surveyor General's Office, Pierre, S. D., May 21, 1891.

John H. Hill, Surveyor.

May 21, 1891

Form 2A **Supplemental Information**
(Complete applicable portions only)

(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 42" Depth 60'
- b) Casing Type Steel Diameter 24" Thickness _____
- c) Screen Type Stainless Steel Diameter 24" Thickness _____
- d) Gravel Pack 9" Length of Gravel Pack 45'
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) _____
- g) Distance to nearest existing domestic well:
On applicants property _____ On property owned by others _____

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) _____
- b) System Capacity (gallons) _____ Year Constructed _____
- c) Connected to the City of _____ Sanitary System _____

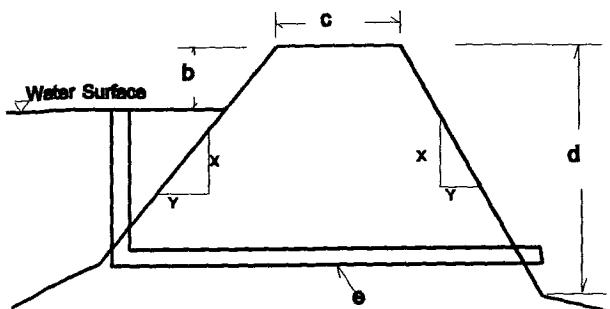
3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

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 _____
- c) Crest Width _____
Crest Length _____
- d) Height _____
- e) Primary Outlet Capacity _____
If pipe, diameter _____
- f) Secondary Spillway Capacity _____
Spillway Width _____
- g) X & Y Slope _____
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 5 Twp 110N Rg 79W

County

North

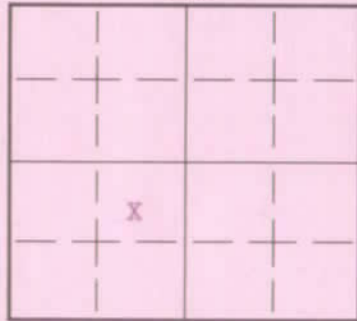
Hughes County

Please mark well location with an "X"

W

E

Well Completion Date

July 9, 2002

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? 75 ft. from Missouri River (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Reverse Rotary

CASING DATA:

☒ Steel ☐ Plastic ☐ OtherIf other describe .375 Wall Steel

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>94.62</u> LB/FT	<u>24</u> IN	<u>0</u> FT	<u>40</u> FT	<u>40</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>Neat Cement</u>	<u>70</u>	<u>15.5</u> lb./gal	<u>0</u> ft	<u>11</u> ft
<u>Bentonite</u>	<u>10</u>	<u>10</u> lb./gal	<u>11</u> ft	<u>12</u> ft

Describe grouting procedure _____

SCREEN: ☒ Perforated pipe ☐ ManufacturedDiameter 24 IN Length 20 FEETMaterial Stainless U-WireSlot Size .045 Set From 40 Feet to 60 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: Chlorine Solution

_____, NO, Why Not? _____

Laboratory sent to for water quality analysis

State LabWell Owner: City of Pierre #12Business Name: Pierre Wellfield ExpansionAddress: 222 East Dakota Avenue, PO Box 1253
Pierre, South Dakota 57501

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Topsoil, Sand, & Fine Gravel</u>	<u>0</u>	<u>20</u>
<u>(Few Clay Steaks 0-7)</u>		
<u>Coarse Sand, Medium Gravel,</u>	<u>20</u>	<u>40</u>
<u>Few Small Stones</u>		
<u>Mostly Coarse Sand Mixed with</u>	<u>40</u>	<u>60</u>
<u>Layers of Fine to Medium Gravel</u>		
<u>(Brittle Clay Layers 52-56)</u>		

STATIC WATER LEVEL 10' 6" Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☒ Other SCADA System

Reduced Flowrate _____ GPM

Can well be completely shut in? Yes

WELL TEST DATA:

☒ Pumped Describe: _____☐ Bailed _____☐ Other _____

Pumping Level Below Land Surface

42 ft. After 24 Hrs. pumped 700 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

This well was drilled under license # 273

And this report is true and accurate.

Drilling firm Charles Sargent Irrigation Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: _____

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 5 Twp 110N Rg 79W

County _____ North

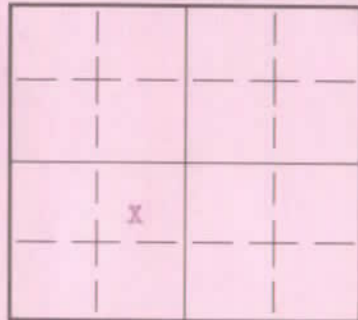
Hughes County

Please mark well location with an "X"

W

E

Well Completion Date

July 10, 2002

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? 75 ft. from Missouri River (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Reverse Rotary

CASING DATA:

☒ Steel ☐ Plastic ☐ OtherIf other describe .375 Wall Steel

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>94.62</u> LB/FT	<u>24</u> IN	<u>0</u> FT	<u>38</u> FT	<u>40</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>Neat Cement</u>	<u>70</u>	<u>015.5</u> lb./gal	<u>0</u> ft.	<u>11</u> ft.
<u>Bentonite</u>		<u>10</u> lb./gal	<u>11</u> ft.	<u>12</u> ft.

Describe grouting procedure _____

SCREEN: ☒ Perforated pipe ☐ ManufacturedDiameter 24 IN Length 20 FEETMaterial Stainless Steel U-WireSlot Size .060 Set From 38 Feet to 58 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? _____

Laboratory sent to for water quality analysis

State LabWell Owner: City of Pierre #13Business Name: Pierre Wellfield ExpansionAddress: 222 East Dakota Avenue, PO Box 1253
Pierre, South Dakota, 57501

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Topsoil, Medium to Coarse PS,</u>	<u>0</u>	<u>20</u>
<u>Some Loose Fine Gravel</u>		
<u>Loose Coarse Sand, Fine Gravel,</u>	<u>20</u>	<u>40</u>
<u>Trace of Clay Streaks</u>		
<u>Coarse Sand, Fine Gravel</u>	<u>40</u>	<u>58</u>

STATIC WATER LEVEL 12' 6" Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☒ Other SCABA System

Reduced Flowrate _____ GPM

Can well be completely shut in? Yes

WELL TEST DATA:

☒ Pumped

Describe: _____

☐ Bailed☐ Other

Pumping Level Below Land Surface

41 ft. After 24 Hrs. pumped 700 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

This well was drilled under license # 273

And this report is true and accurate.

Drilling firm Charles Sargent Irrigation, Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: _____



GEOTECHNICAL EXPLORATION
PIERRE WELLFIELD EXPANSION
LAFRAMBOISE ISLAND
BAI PROJECT #20029.00.01

GEOTEK #01-654

Prepared By:

**GEOTEK ENGINEERING
& TESTING SERVICES, INC.**
909 East 50th Street North
Sioux Falls, South Dakota 57104
605-335-5512 • FAX 605-335-0773

GEOTECHNICAL EXPLORATION
PIERRE WELLFIELD EXPANSION
LAFRAMBOISE ISLAND
BAI PROJECT #20029.00.01

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GEOTEK ENGINEERING & TESTING SERVICES, INC.



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& TESTING SERVICES, INC.**
909 East 50th Street North
Sioux Falls, South Dakota 57104
605-335-5512 • FAX 605-335-0773

July 2, 2001

City of Pierre
222 E. Dakota
PO Box 1253
Pierre, South Dakota 57501-1253

Attn: Mr. Kevin King, City Engineer

Gentlemen:

Subj: Geotechnical Exploration
Pierre Wellfield Expansion
LaFramboise Island
BAI Project #20029.00.01
GeoTek #01-654

This correspondence presents our reporting of the geotechnical exploration for the referenced project. We are transmitting two copies of our report. Additional copies are being sent as noted below. This work was done in accordance with your request on May 8, 2001.

We thank you for the opportunity of providing our services on this project, and look forward to working with you in the future. Should you have any questions regarding the project or the report, please feel free to contact our office.

Respectfully submitted,

Ralph E. Lindner, PE
Project Engineer

CC: -Banner Associates (2)

GEOTECHNICAL EXPLORATION
PIERRE WELLFIELD EXPANSION
LAFRAMBROISE ISLAND
PIERRE, SOUTH DAKOTA

GEOTEK #01-654

INTRODUCTION

This report presents the results of the recent subsurface exploration program for the proposed wellfield expansion at LaFramboise Island in Pierre, South Dakota.

The scope of work as presented in this report is limited to the following:

1. To put down three test borings to gather data on the subsurface conditions for the proposed site.
2. To conduct field and laboratory tests to determine the engineering properties of the foundation soils.
3. To provide a written report for foundation recommendations for design and construction.



FIELD DATA

Site Conditions

Three test locations were selected during the week of June 11, 2001 on LaFramboise Island.

The boring locations and elevations were provided in the field by Banner Associates.

Borings #1 and #2A were located on LaFramboise Island and boring #3 was located along the east edge of the River.

Subsurface Conditions

Three test borings were put down to gather data on the subsurface conditions for the project.

The attached boring logs illustrate the soil conditions encountered at the test locations.

A review of the boring logs indicates a soil profile which consists of a layer of clay near the surface, underlain by mostly fine and medium grained sand. Shale was found at a depth between 53' and 58' below grade.

The consistency of the clay soils was usually soft. The density of the sand varied from loose to dense. The consistency and density of the soil is indicated by the N value (penetration resistance) as shown on the boring logs.



Groundwater

Groundwater measurements were made at the boring locations and data is recorded on the boring logs. Groundwater was measured near elevation 1422'. This groundwater measurement should be an accurate indication of the level of the groundwater for the time the borings were made. Major fluctuations in the elevation of the groundwater table can be expected with the sandy soil profile.

LABORATORY TESTS

Selected samples were submitted to the laboratory for testing. These tests consist of the determination of the moisture content and the sieve analysis. The results of the laboratory tests are provided either on the boring logs opposite the samples upon which the tests were made or on the accompanying Table 1.



ENGINEERING REVIEW

Project Information

We understand that the project will consist of construction of two new wells and a pipeline that will connect LaFramboise Island to the Pierre Water Distribution System. A wellhouse will be included with each of the new wells. We expect the structures to be supported on a spread footing foundation resting 4' to 8' below grade and exerting light foundation loads.

The above information and/or assumptions are important factors in our review and recommendations. If there are any additions or corrections to the above mentioned data, it is necessary that you contact us so that we may review our recommendations with regards to the revised plans.

Analysis

Site preparation for the footings to the wellhouses should include excavating through the clay layer, a depth of 8 ½' to 6 ½' below grade in borings #1 and #2A, respectively. Because of the groundwater, this excavation should be made with a backhoe with a smooth edged bucket.



Since the water table will be at or near the bottom of the excavation, the initial layer of fill in the excavation should consist of a pea gravel or 1" rock that would be placed at least 1' above the groundwater table at the time of the excavation.

The remaining fill can consist of a pit run sand and gravel. The fill should have a maximum size of 3" with no more than 10% passing the #200 sieve. This fill should be placed in uniform lifts not exceeding 1' and receive a compaction level of at least 95% of Standard Proctor density (ASTM:D698). An allowable soil bearing pressure of up to 2000 pounds per square foot (psf) can be used on the prepared subgrade.

The excavation should be oversized 1' laterally for each foot of fill placed below the footings (a ratio of 1:1). The excavation should be performed when the water table is at or below the needed depth of excavation. The excavated soils could be used for exterior backfill around the foundations, but significant drying to moisture levels of 20% or less would be needed from the current moisture levels of 30% to 40%. All non-structural backfill should reach a compaction level of at least 90% of Standard Proctor. Exterior structural backfill should consist of the off-site sand and gravel and should be compacted to at least 95%.



STANDARD OF CARE

The recommendations and opinions presented in this report are in accordance with current engineering practices for this time and area. Other than this, no express or implied warranty is intended.

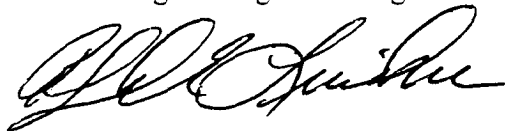
REMARKS

The collected soil samples will be retained in our office for a period of thirty days after the date of this report and will then be discarded unless we are notified otherwise.

We trust that this report provides you with the necessary information for the project.

Should you have any comments or questions, please feel free to contact our office.

GeoTek Engineering & Testing Services, Inc.



Ralph E. Lindner, PE
Project Engineer

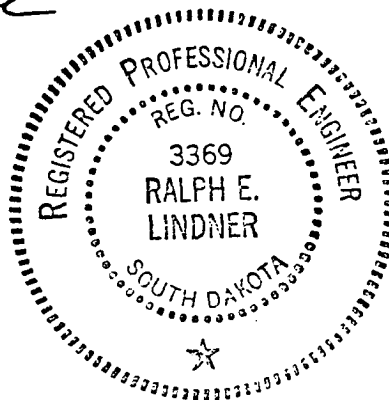


TABLE 1

SIEVE ANALYSIS
WELLFIELD EXPANSION
PIERRE, SOUTH DAKOTA
GEOTEK #01-654

	Boring	1	1	1	2A	2A
	Sample	7	9	13	7	9
	Depth	20'	30'	50'	20'	30'
<u>Sieve</u>						
1"				100%	100%	100%
1/2"				96	94	99
3/8"		100%		94	92	98
#4		99	100%	89	89	97
#10		97	99	81	83	95
#40		36	92	23	22	82
#80		8.7	18	13	11	16
#100		6.3	11	11	7.6	8.3
#200		3.0	4.0	7.6	2.5	2.3

	Boring	2A	2A	2A	3	3	3
	Sample	11	12	13	6	9	11
	Depth	40'	45'	50'	25'	40'	50'
<u>Sieve</u>							
1"		100%		100%			
1/2"		97		97		100%	
3/8"		95		96		98	
#4		90		95		98	100%
#10		83	100%	92	100%	96	99
#40		46	97	18	60	21	23
#80		30	52	7.0	27	14	8.6
#100		19	39	5.8	14	12	7.0
#200		5.6	7.5	5.4	4.6	4.4	3.2





GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-654		BORING # SB-1								
PROJECT PROPOSED WELLFIELD EXPANSION, PIERRE, SOUTH DAKOTA										
DEPTH IN FEET	DESCRIPTION OF MATERIAL ✓ SURFACE ELEVATION 1430.61'	GEOLOGIC ORIGIN	SAMPLE DATA				LABORATORY TESTS			
			WL	N	NO	TYPE	W	D	LL PL	QU
4	SAND, fine grained, tan, moist, dense (SP)	COARSE ALLUVIUM			1	AUGER				
			16	2	SB					
8 1/2	SILTY CLAY, light brownish gray and gray, soft to rather stiff (CL)	FINE ALLUVIUM		3	3	SB	31			
				13	4	SB	41			
	SAND, fine grained, light brownish gray, waterbearing, loose to medium (SP)	COARSE ALLUVIUM		6	5	SB				
				10	6	SB				
17	SAND, medium grained, a little gravel, brown, waterbearing, dense to medium dense (CL)			22*	7	SB				
			9	8	SB					
28	SAND, fine grained, light brownish gray, waterbearing, dense to very dense, a few lenses of fat clay and silty clay (SP-SM)			29*	9	SB				
35	Continued on next page *See attached sieve analysis			50/.9'	10	SB				



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SIOUX FALLS, SOUTH DAKOTA 57104
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GEOTECHNICAL TEST BORING LOG

JOB # 01-654 BORING # SB-1 Cont.
PROJECT PROPOSED WELLFIELD EXPANSION, PIERRE, SOUTH DAKOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL — SURFACE ELEVATION —	GEOLOGIC ORIGIN	SAMPLE DATA				LABORATORY TESTS			
			WL	N	NO	TYPE	W	D	LL PL	QU
35	Continued from previous page	COARSE ALLUVIUM								
38	SAND, medium grained, a little gravel, light brownish gray and gray, water- bearing, dense to very dense, a few lenses of fat clay and silty clay (SP-SM)			16	11	SB				
				27	12	SB				
				30*	13	SB				
				50/.8'	14	SB				
58	SHALE, light gray, very stiff (CH)	PIERRE SHALE		58	15	SB				
61	END OF BORING									
	* See attached sieve analysis									

WATER LEVEL MEASUREMENT					DATE STARTED 6-12-01	
DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH	DATE FINISHED 6-12-01 @ 12:50	
6-12	10:50	8.4'	1422.2'	8.5'	METHOD OF DRILLING 6" FA: 0-7; DM: 9 1/2-59 1/2'	
					CREW CHIEF Hagedorn	



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& TESTING SERVICES, INC.
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SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-654		BORING # SB-2A								
PROJECT PROPOSED WELLFIELD EXPANSION, PIERRE, SOUTH DAKOTA										
DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 1428.85'	GEOLOGIC ORIGIN	SAMPLE DATA				LABORATORY TESTS			
			WL	N	NO	TYPE	W	D	LL PL	QU
3 1/2	SAND, fine grained, brown, moist, loose (SP)	COARSE ALLUVIUM		5	2	SB	37			
	FAT CLAY, brown and gray, medium, a few lenses of silty clay (CH)	FINE ALLUVIUM		6	3	SB				
6 1/2	SAND, fine grained, light brownish gray, waterbearing, loose, a few lenses of clay (SP)	COARSE ALLUVIUM		6	4	SB				
				8	5	SB				
13 1/2	SAND, medium grained, a little gravel, brown, waterbearing, loose to dense (SP)			6	6	SB				
				23*	7	SB				
23	SAND, medium grained, a little gravel, light brownish gray and brown, waterbearing, dense (SP)			27	8	SB				
28	SAND, fine grained, brownish gray, waterbearing, medium dense, a few lenses of silty clay below 35' (SP)			10*	9	SB				
35	Continued on next page * See attached sieve analysis			10	10	SB				



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SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-654 BORING # SB-2A Cont.
PROJECT PROPOSED WELLFIELD EXPANSION, PIERRE, SOUTH DAKOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION _____	GEOLOGIC ORIGIN	SAMPLE DATA				LABORATORY TESTS			
			WL	N	NO	TYPE	W	D	LL PL	QU
35	Continued from previous page	COARSE ALLUVIUM								
38	SAND, medium grained, a trace of gravel, brownish gray and brown waterbearing, medium dense (SP-SM)			14*	11	SB				
42	SAND, fine grained, light brownish gray, waterbearing, loose (SP-SM)			8*	12	SB				
47	SAND, medium grained, a little gravel, brown, waterbearing, dense (SP)			18*	13	SB				
53	SHALE, dark gray, very stiff (CH)	PIERRE SHALE		45	14	SB				
56	END OF BORING									
	* See attached sieve analysis									

WATER LEVEL MEASUREMENT					DATE STARTED <u>6-12-01</u>	
DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH	DATE FINISHED <u>6-12-01</u> @ <u>4:00</u>	
6-12	2:15	6.5'	1422.4'	7'	METHOD OF DRILLING <u>6" FA: 0-7'; DM: 9 1/2-54 1/2'</u>	
					CREW CHIEF <u>Hagedorn</u>	



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& TESTING SERVICES, INC.
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SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-654		BORING # SB-3									
PROJECT PROPOSED WELLFIELD EXPANSION, PIERRE, SOUTH DAKOTA											
DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	SAMPLE DATA				LABORATORY TESTS				
			WL	N	NO	TYPE	W	D	LL PL	QU	
	— SURFACE ELEVATION 1430.39'										
2	CLAYEY SILT, brownish gray (CL-ML)	FINE ALLUVIUM			1	AUGER					
	SILTY SAND, fine grained, brown, moist, a few lenses of silt (SM)	MIXED ALLUVIUM			2	AUGER					
9	SILTY CLAY, gray, soft, a few lenses of silt (CL)	FINE ALLUVIUM		1	3	SB	41				
15	SILTY SAND, fine grained, light brownish gray, waterbearing, loose (SM)	MIXED ALLUVIUM		8	4	SB					
19 1/2	SAND, fine grained, trace of gravel, brown, waterbearing, medium dense (SP)	COARSE ALLUVIUM		15	5	SB					
				13*	6	SB					
27	SAND, medium and coarse grained, a little gravel, light brownish gray and brown, waterbearing, dense to medium dense to very dense, a few lenses of clay (SP)			26	7	SB					
35	Continued on next page * See attached sieve analysis			29	8	SB					

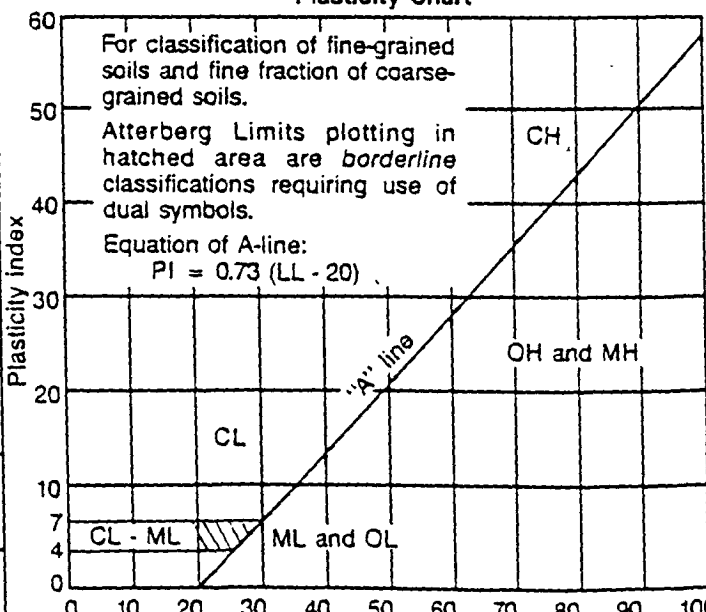
GEOTECHNICAL TEST BORING LOG

[illegible]

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 — 69 AND D 2488 —69

(Unified Soil Classification System)

Major divisions			Group symbols	Typical Names	Classification Criteria		
Coarse-grained soils More than 50% retained on No. 200 sieve*	Gravels 50% or more of coarse fraction retained on No. 4 sieve	Clean gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Classification on basis of percentage of fines Less than 5% pass No. 200 sieve GW, GP, SW, SP More than 12% pass No. 200 sieve GM, GC, SM, SC 5 to 12% pass No. 200 sieve <i>Borderline</i> classifications requiring use of dual symbols	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW	
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are <i>borderline</i> classifications requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Sands More than 50% of coarse fraction passes No. 4 sieve	Clean sands	SW	Well-graded sands and gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW	
		Sands with fines	SM	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are <i>borderline</i> classifications requiring use of dual symbols
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Fine-grained soils 50% or more passes No. 200 sieve*	Sils and clays Liquid limit 50% or less	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands		Plasticity Chart For classification of fine-grained soils and fine fraction of coarse-grained soils. Atterberg Limits plotting in hatched area are <i>borderline</i> classifications requiring use of dual symbols. Equation of A-line: $PI = 0.73 (LL - 20)$ 	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
OL			Organic silts and organic silty clays of low plasticity				
Sils and clays Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts				
		CH	Inorganic clays of high plasticity, fat clays				
		OH	Organic clays of medium to high plasticity				
Highly organic soils		Pt	Peat, muck and other highly organic soils				

* Based on the material passing the 3 in. (76 mm) sieve.

* Based on the material passing the 3 in. (76 mm) sieve.

GENERAL NOTES

DESCRIPTIVE TERMINOLOGY			RELATIVE PROPORTIONS AND SIZES	
DENSITY TERM	"N" VALUE	CONSISTENCY TERM	Boulder	Over 12"
			Cobble	3" - 12"
			Gravel	
Very Loose	0-4	Soft	Coarse	¾" - 3"
Loose	5-8	Medium	Fine	# 4 - ¾"
Medium Dense	9-15	Rather Stiff	Sand	
Dense	16-30	Stiff	Coarse	#4 - #10
Very Dense	Over 30	Very Stiff	Medium	#10 - #40
			Fine	#40 - #200
			Silt & Clay	-#200, Based on Plasticity
Lamination	Up to ½" thick stratum		Term	Range
Layer	½" to 6" thick stratum		Trace	0- 5%
Lens	½" to 6" discontinuous stratum, pocket		A Little	5-15%
Varved	Alternating lamination of clay, silt, and/or fine grained sand, or colors thereof		Some	15-30%
Dry	Powdery, no noticeable water		With	30-50%
Moist	Below saturation			
Wet	Saturated, above liquid limit			
Waterbearing	Pervious soil below water			

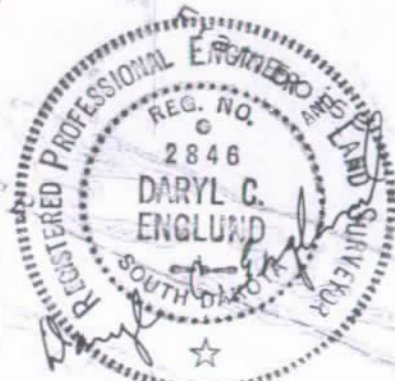
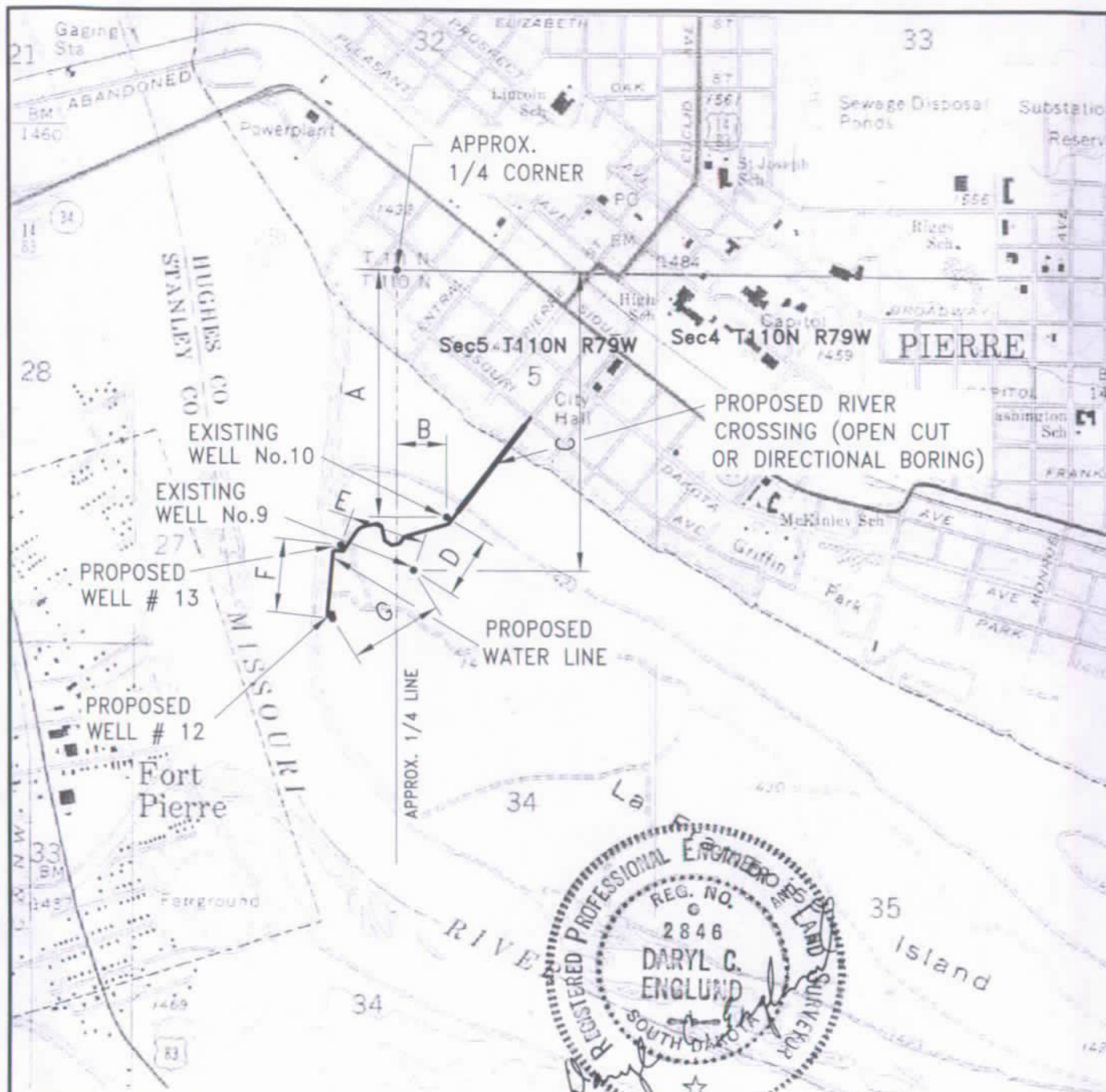
BORING AND SAMPLING SYMBOLS

SYMBOL	DEFINITION
___HSA	3¼" or 6¼" I.D. Hollow Stem Auger
___FA	4" or 6" Flight Auger
___HA	2", 4" or 6" Hand Auger
___DC	4" or 6" Drive Casing
PD	Pipe Drill or Clean Out Tube
CS	Continuous Split Barrel Sampling
DM	Drilling Mud
JW	Jetting Water
SB	2" O.D. Split Barrel Sample
TW	3" Thin Wall Tube Sample
LS	2½" O.D. SB Liner Sample
W	Wash Sample
B	Bag Sample
NSR	No Sample Retrieved, Classification based on action of drilling equipment and/or material noted in drilling fluid or on sampling bit.
NMR	No Water Level Measurement Recorded, Primarily due to presence of drilling or coring fluid.
WL	Water Level
N	Standard Penetration Value
▼	Water Level Symbol

Water level data is recorded at the bottom of the log sheet. Water levels are measured in the borings at the time and under the conditions indicated. Depending on soil types and length of time between measurements, the ground water measurement may or may not be a true indication of the ground water level for the time the boring was put down.

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
W	Moisture Content-Percent of Dry Weight-ASTM: D2216
D	Dry Density-Pound Per Cubic Foot
LL	Liquid Limit and Plastic Limit—
PL	ASTM:D4318
QU	Unconfined Compressive Strength—Pounds Per Square Foot-ASTM: D2166



#	DIM.	REMARKS
A	2430'	DIMENSION FROM S.D. STATE WATER LICENSE NO. 4190-3
B	350'	DIMENSION FROM S.D. STATE WATER LICENSE NO. 4190-3
C	2970'	DIMENSION FROM S.D. STATE WATER LICENSE NO. 4189-3
D	637'	
E	776'	
F	779'	
G	975'	



01-14-02

Two (2) New Wells: Both located in the NE1/4 of the SW1/4; and river the NE1/4, all of section 5 T110N -

SCALE:	JOB NO:	DATE:	FIGURE NO.
NONE	20029.00.01	JULY 01	1
PIERRE WELLFIELD EXPANSION - WELLS NO. 12 & NO. 13 AND WATER TRANSMISSION LINE			
PROPOSED WELLS NO. 12 & 13 VICINITY MAP			
BANNER ASSOCIATES, INC.			
409 22ND AVE. S. • P.O. BOX 298 • BROOKINGS, S.D. 57006			
(605) 692-6342 • FAX = (605) 692-5714			
ENGINEERS • ARCHITECTS • SURVEYORS			

6289-3

Banner Associates, Inc.

409 22nd Avenue South - P.O. Box 298
Brookings, South Dakota 57006

Ph. # (605) 692-6342

Department of Environment and Natural
Resources - Water Rights Program

TO:

Joe Foss Building

523 East Capitol

Pierre, SD 57501

LETTER OF TRANSMITTAL

Date:	31-Jan-02	Job #:	20029.00.04
Attention:			
Eric Gronlund			
RE:			
City of Pierre Water permit Application			
Pierre Wellfield Expansion -			
Wells No. 12 & No. 13			

WE ARE SENDING YOU: ☒ Attached ☐ Delivered via _____ the following items

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ _____

Copies	Date	No.	Description
2			Vicinity Map for two new wells based on Stanley County Survey for Pierre Wellfield Expansion - Wells No. 12 & No. 13
2			Vicinity Map for two new wells based on Hughes County Survey for Pierre Wellfield Expansion - Wells No. 12 & No. 13
RECEIVED			

FEB - 5 2002

THESE ARE TRANSMITTED as checked below:

☐ For Approval ☐ Approved as Submitted ☐ Resubmit ☐ Submit ☐ Return ☐ _____

☐ For Your Use ☐ Approved as Noted ☐ Submit ☐ Return ☐ _____

☒ As Requested ☐ Returned for Corrections ☐ Return ☐ _____

☐ For Review & Comment ☐ _____

☐ For Bids Due: _____ 20 _____ ☐ Print Returned After Loan to Us

REMARKS:

Eric - attached are 2 copies of the additional Vicinity Map requested for Pierre Well
Field Expansion Project tying the new wells to the Stanley County Survey (Black Hills Meridi

Also attached are 2 copies of the Vicinity Map for Pierre Well Field Expansion
Project tying the new wells to the Hughes County Survey (5th Principal Meridian)

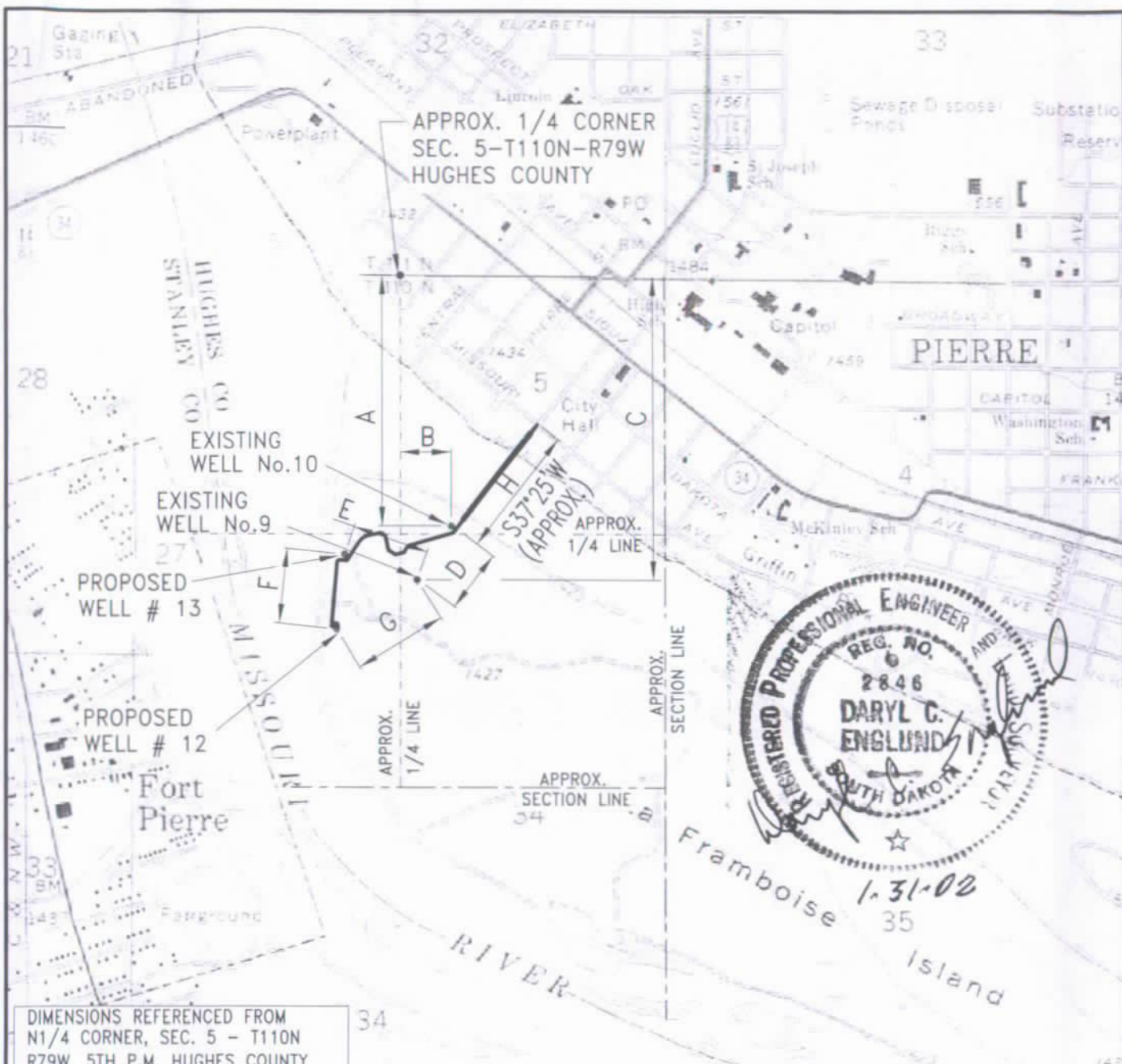
If you have any questions, please call

CC: City of Pierre, DENR, Banner Files

SIGNED:

Kevin J. Kuebler
Kevin J. Kuebler

If enclosures are not as noted, please notify us at once.



DIMENSIONS REFERENCED FROM
N1/4 CORNER, SEC. 5 - T110N
R79W, 5TH P.M. HUGHES COUNTY

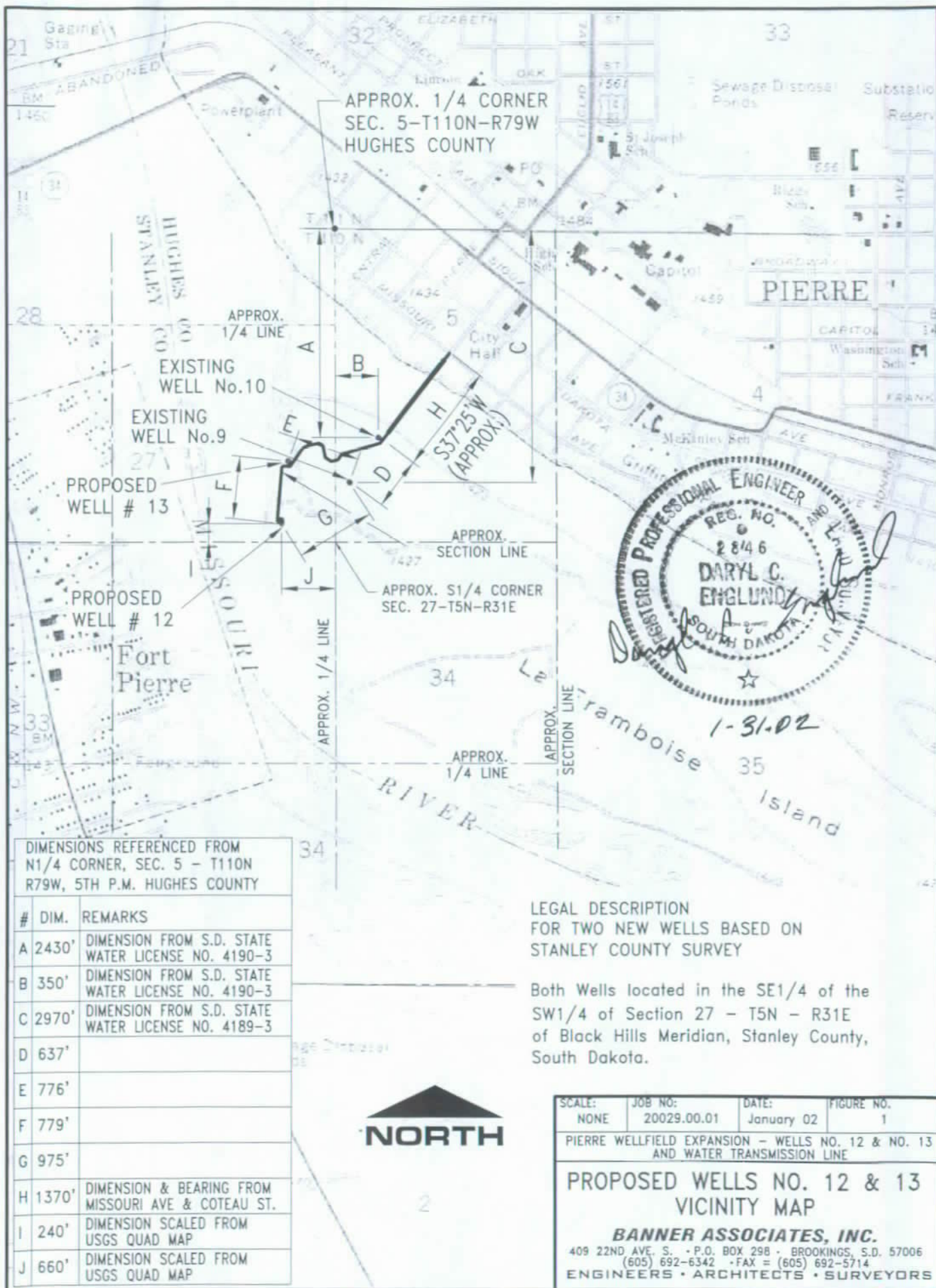
#	DIM.	REMARKS
A	2430'	DIMENSION FROM S.D. STATE WATER LICENSE NO. 4190-3
B	350'	DIMENSION FROM S.D. STATE WATER LICENSE NO. 4190-3
C	2970'	DIMENSION FROM S.D. STATE WATER LICENSE NO. 4189-3
D	637'	
E	776'	
F	779'	
G	975'	
H	1370'	DIMENSION & BEARING FROM MISSOURI AVE & COTEAU ST.

LEGAL DESCRIPTION
FOR TWO NEW WELLS BASED ON
HUGHES COUNTY SURVEY

Both Wells located in the NE1/4 of the
SW1/4 of Section 5 - T110N - R79W
of 5TH P.M., Hughes County, South Dakota



SCALE: NONE	JOB NO: 20029.00.01	DATE: January 02	FIGURE NO. 2
PIERRE WELLFIELD EXPANSION - WELLS NO. 12 & NO. 13 AND WATER TRANSMISSION LINE			
PROPOSED WELLS NO. 12 & 13 VICINITY MAP			
BANNER ASSOCIATES, INC. 409 22ND AVE. S. • P.O. BOX 298 • BROOKINGS, S.D. 57006 (605) 692-6342 • FAX = (605) 692-5714 ENGINEERS • ARCHITECTS • SURVEYORS			



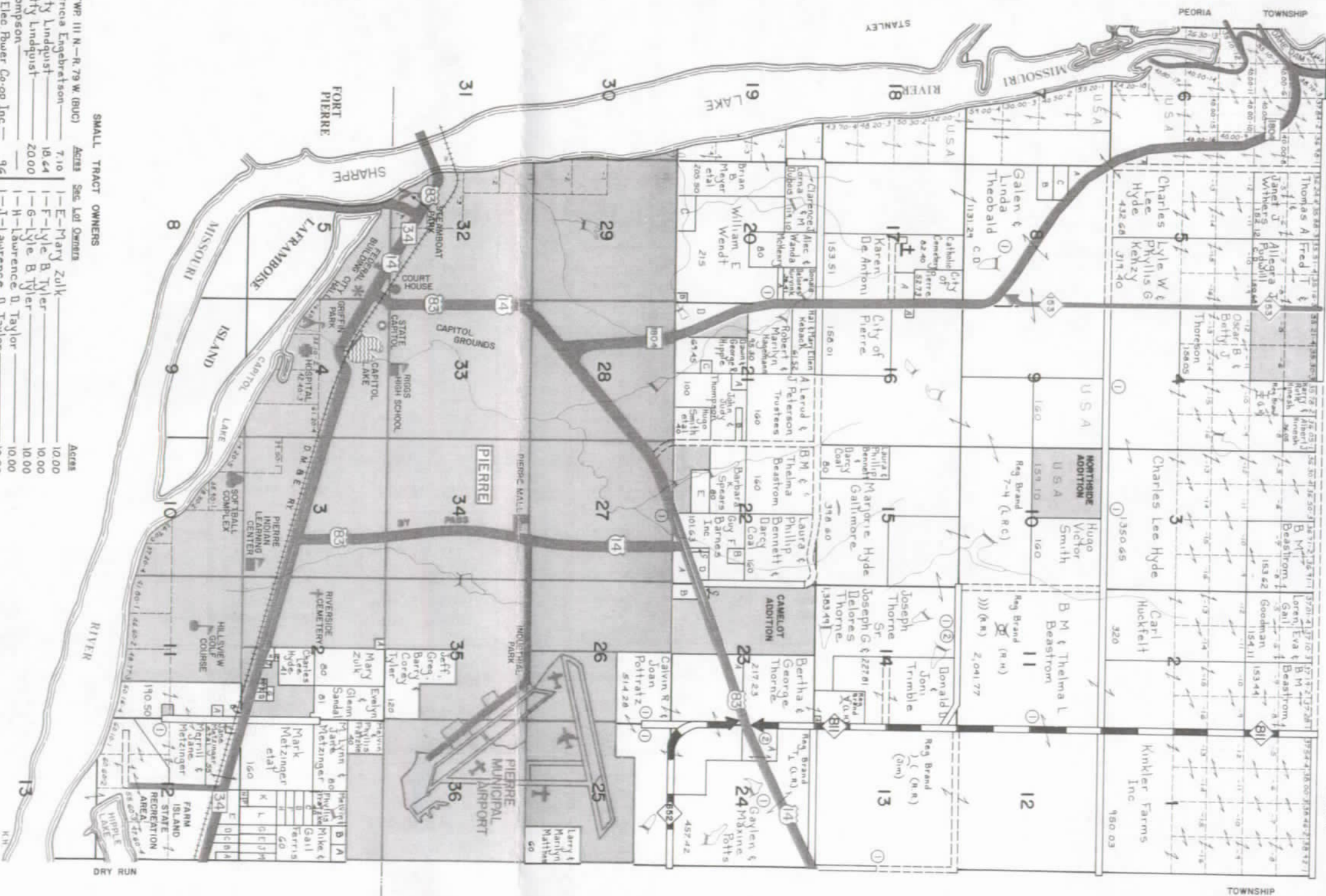
BUCKEYE

TOWNSHIP: 110 & 111 N.

CODES: BUC (T, III N)
BUC (T, 110 N)

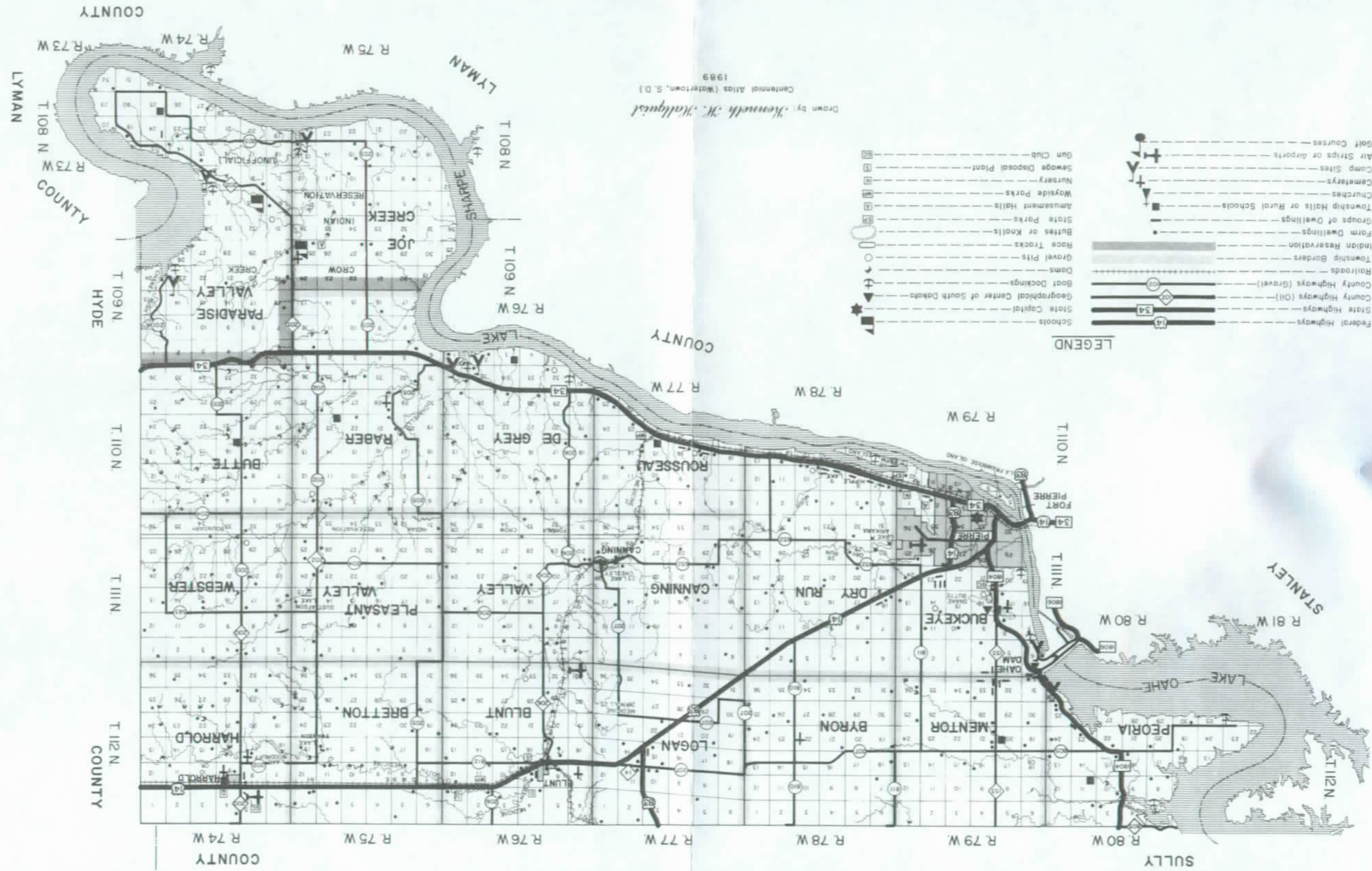
RANGE: 79 W.

TOWNSHIP



Sec. Lot Owners	TWP. 110 N.-R. 79 W. (BUC)	Acres	Sec. Lot Owners	Acres
6-A-Edward & Patricia Engbreton	7.10	10.00	1-E-Mary Zulk	10.00
8-A-Edon & Betty Lindquist	18.44	10.00	1-F-Lyle B. Tyler	10.00
8-B-Edon & Betty Lindquist	20.00	10.00	1-G-Lyle B. Tyler	10.00
8-C-Charles Thompson	96	10.00	1-H-Laurence D. Taylor	10.00
14-A-East River Elec Power Co-op Inc.	5.00	10.00	1-J-Laurence D. Taylor	10.00
16-A-N.W. Bell Telephone Co.	14.02	10.00	1-K-Norman D. & Janette E. Widvey	15.00
17-A-Edward F. Duffy	10.00	10.00	1-L-Randall & Geraldyn Allen	20.00
20-A-Terry G. Frost	5.00	10.00	1-M-Jeff, Greg, Barry & Corey Tyler	10.00
20-B-Hughes Co.	20.00	10.00	1-N-Norman D. Widvey	2.50
21-A-Barbara K. Spears	10.00	10.00	1-P-Janette E. Widvey	2.50
21-B-William D. Spears	9.80	10.00	2-A-Kenneth & Mary Ann Plick	10.00
21-C-Hipple Printing Company	10.00	10.00	2-B-Forney-Neuharth Oil Co.	10.00
21-D-Harvey P. Wald	46.04	10.00	2-C-Glen & Craig Sandel, et al	10.00
22-A-Flora Pritchard	7.66	10.00	2-D-Dennis & Anna Hirsch	10.00
22-B-Oklahoma Medical Research	10.00	10.00	2-E-Robert & Clance Schwellenbach	10.00
22-C-Richard & Diane Clemenson	24.00	10.00	2-F-Shirley Ryan, et al	10.00
22-D-Bryce & Mabel McDowell	31.57	10.00	2-G-Wilbur & Delores Melvin	10.00
23-A-A & B Partnership	31.57	10.00	2-H-Mid Dakota Oil Co., Inc.	10.00
23-B-Gale & Bessie Nafus	33.10	10.00	2-J-Nystrom Elec Contracting, Inc.	10.00
23-C-Floyd & Joyce Leafgreen	33.10	10.00	11-A-Sorenson Broadcasting Corp.	10.00
24-A-Regina Clark	33.10	10.00	12-A-Lyle B. Tyler	10.00
1-A-Mervin J. & Gail Ferris	10.00	10.00	12-B-Jeff, Greg, Barry & Corey Tyler	10.00
1-B-City of Pierre	10.00	10.00	12-C-Laurence D. Tyler	10.00
1-C-Jeff, Greg, Barry & Corey Tyler	10.00	10.00	12-D-Mary Zulk	10.00
1-D-Mary Zulk	10.00	10.00	12-E-Elmer & Maxine Thomsen	10.00
			12-F-Dakkel Corporation	10.00

COUNTY HIGHWAY MAP
OF
HUGHES COUNTY
SOUTH DAKOTA



Drawn by: Kenneth W. Walquist
Centennial Atlas (Waterstown, S.D.)
1989

RECEIPT
Water Rights Program
South Dakota Department of Environment and Natural Resources

417046

Pierre, January 16, 20 02

RECEIVED OF City of Pierre, PO Box 1253, Pierre, SD 57501
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use _____	525	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. _____	50	00
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	575 00

By Darland Erbele
Chief Engineer *gm*

REPORT ON WATER PERMIT APPLICATION NO. 6289-3

For the City of Pierre

February 12, 2002

Application No. 6289-3 proposes to construct and place to beneficial use 4.46 cfs (2000 gpm or 1600 acre-feet annually) from two wells approximately 60 feet deep located on LaFramboise Island. The wells are located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ of section 27, T5N R31E BHM in Stanley County or in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of section 5, T110N R79W in Hughes County depending upon which survey is used. The original plat map is based upon the Stanley County survey. This water has been reserved by future use Permit No. 5003-3. The City of Pierre will use the water for municipal purposes.

AQUIFER – MISSOURI PIERRE (M-P)

The Missouri Pierre aquifer is an alluvium-mantled outwash (sand and gravel) which is under water table conditions in this area. The aquifer underlies an estimated 70 square miles and contains an estimated 270,000 acre-feet of water in storage in Hughes County (Hamilton, 1986). The aquifer is hydraulically connected to the Missouri River and the ground water level is maintained by the elevation of Lake Sharpe and the tailwaters below Oahe dam. A good saturated thickness map of the aquifer and water quality data is available in a South Dakota Geological Survey report completed for the City of Pierre (Brinkley, 1970).

Test hole information is provided with the application. Also the Brinkley report indicates the expected depths of saturated sand and gravel for the area. Finally, the City of Pierre has two existing municipal wells (#9 and #10) in the immediate area that have excellent construction, geologic and pumping information available. Production data for City wells #9 and #10 indicate specific capacity values of 25 and 33 gpm/ft of drawdown respectively (Water Rights Well Files, 2002).

No historical water level information is available for this area. It is anticipated that the river level dominates the ground water level.

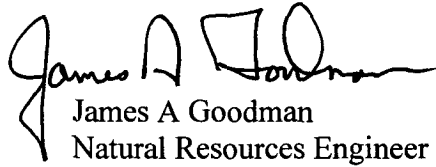
REVIEW OF EXISTING WATER PERMITS/RIGHTS

The only other existing water rights in this area are 4189-3 and 4190-3 for the City of Pierre. Interference is not a concern. Even though these wells (four in total, #9, #10, #12 and #13) will be located within a 40-acre area, drawdown should not cause significant problems.

CONCLUSIONS

1. Water is available from the Missouri Pierre aquifer.
2. The aquifer is under water table conditions in this area and near the Missouri River which will stabilize ground water levels during pumping.

3. Interference is not a concern. The only other nearby users are wells belonging to the City of Pierre.
4. These wells must be constructed in accordance with SD Well Construction Standards.
5. Approval of this application will leave 2,514 acre-feet of water remaining under future use permit 135-3 and 5003-3.



James A Goodman
Natural Resources Engineer

BIBLIOGRAPY

Brinkley, D., 1971, Water Investigation for the City of Pierre, Special Report 52, SD DENR, SDGS, Vermillion, SD, 57501.

Hamilton, L.J., 1986, Water Resources of Hughes County, South Dakota, Water Resources Investigations Report 84-4195, USGS, Huron, SD, 57350.

Water Rights Well Files, 2002, Unpublished Well Completion Report Files, SD DENR, DES, Water Rights Program, Pierre, SD, 57501.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 6289-3, City of Pierre**

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. 6289-3, City of Pierre, c/o Mayor Gary Drewes, Box 1253, Pierre SD 57501-1253.

The Chief Engineer is recommending APPROVAL of Application No. 6289-3 because 1) the proposed diversion can be developed without unlawful impairment of existing rights, 2) the proposed use is a beneficial use and 3) it is in the public interest with the following qualifications:

1. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals 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. 6289-3 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 Permit No. 6289-3 authorizes a total annual diversion of 1,600 acre feet of water.
4. The city of Pierre shall report to the Chief Engineer annually the amount of water withdrawn from the Missouri: Pierre Aquifer.

See report on application for additional information.

Garland Erbele, Chief Engineer
February 22, 2002



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

February 22, 2002

Capital Journal
PO Box 878
Pierre, SD 57501

ATTENTION: Legal Public Notice

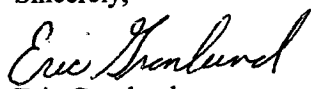
Enclosed is a Notice of Hearing on Application No. 6289-3 to Appropriate Water to be published twice. Please publish the first notice on March 1, 2002 with the second publication 7 days later.

The applicant must verify to you that the notice is to be published, before you make the first publication. Please **BILL the APPLICANT for the cost of publication.** The APPLICANT is City of Pierre, % Bruce Pier, Public Works Director, PO Box 1253, Pierre, SD 57501 (Ph # 605-773-7341).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, please send us an affidavit or use the enclosed Proof of Publication form. The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

No. 6289-3

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of February 22, 2002 enclosing Notice of Hearing to Appropriate Water by Application No. 6289-3 which was first published in our issue of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

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

February 22, 2002

City of Pierre
% Bruce Pier, Public Works Director
PO Box 1253
Pierre, SD 57501-1253

Dear Mr. Pier:

Water Permit Application No. 6289-3 for municipal use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Capital Journal printed at Pierre, SD (Ph # 605-224-7301). 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 a 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 of Hearing and to arrange for payment. Early contact with the paper can eliminate delays. Upon receiving authorization, the publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. 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
Natural Resources Engineer
(605) 773-3352

enclosures

c: Dave Odens, Banner & Associates

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.

Instruction to Newspaper - Publish first Notice on March 1, 2002 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 6289-3 to Develop Reserved Water

Notice is given that the City of Pierre, PO Box 1253, Pierre SD 57501 has filed an application for a water permit to construct and place to beneficial use 4.46 cubic feet of water per second (1,600 acre-feet annually) from two wells (Missouri: Pierre Aquifer) 60 feet deep located on LaFramboise Island. The legal description of the wells is the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 27, T5N, R31E from the Stanley County survey (Black Hills Meridian). The original plat survey conducted in the 1890's surveyed LaFramboise Island from the west side of the Missouri River. The wells may also be referenced from the Hughes County survey (5th Principal Meridian) as being in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 5, T110N, R79W. This water was appropriated and reserved by future use Permit No. 5003-3. The water will be used to supply the City of Pierre.

This notice also serves to clarify the legal description of the city's Future Use Permit No. 5003-3 and two existing wells located on LaFramboise Island which are authorized by established water rights.

Future Use Permit No. 5003-3 added LaFramboise Island to the area reserving water from the Missouri Aquifer for future development. This application was originally public noticed in 1998 to include LaFramboise Island and was public noticed as being in Sections 34, 35 and 36, all in T5N, R31E. This notice serves to include Section 27, T5N, R31E because a portion of the Island is also located in Section 27.

Water Right Nos. 4189-3 and 4190-3 appropriates 2.00 cfs and 1.56 cfs from two wells on LaFramboise Island located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ and the NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 5, T110N, R79W based on the Hughes County Survey (5th Principal Meridian). This notice serves to provide the legal descriptions of wells based on the original plat survey (Black Hills Meridian) from the west side of the Missouri River. These existing wells are located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 27, T5N, R31E.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 6289-3 because 1) existing rights will not be unlawfully impaired, 2) it is a beneficial use of water, and 3) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. 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 the application. Notice of the hearing will be given to the applicant and any person filing a petition.

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 March 18, 2002.

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. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.



Capital Journal

AFFIDAVIT OF PUBLICATION

State of South Dakota, County of Hughes

Laura P Waack of said county, being, first duly sworn, on oath, says: That he/she is the publisher or an employee of the publisher of the Capital Journal, a daily newspaper published in the City of Pierre in said County of Hughes and State of South Dakota; that he/she has full and personal knowledge of the facts herein stated, that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, that said newspaper has been published within the said County of Hughes and State of South Dakota, for at least one year next prior to the first publication of the attached public notice, and that the legal display advertisement headed Notice of Application No. 6389-3

a printed copy of which, taken from the paper in which the same was published, and which is here-to attached and made a part of this affidavit, was published in said newspaper for two successive week(s) to wit:

<u>March 1</u>	<u>20 02</u>	<u>20</u>
<u>March 8</u>	<u>20 02</u>	<u>20</u>
<u> </u>	<u>20</u>	<u>20</u>
<u> </u>	<u>20</u>	<u>20</u>
<u> </u>	<u>20</u>	<u>20</u>

That the full amount of the fee charged for the publication of the attached public notice inures to the sole benefit of the publisher or publishers; that no agreement or 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; that the fees charged for the publication thereof are: \$ 65.52.

Signed: Laura P Waack

subscribed and sworn to before me this 8 day of March 2002

Ma J Baker

Notary Public in and for the County of Hughes, South Dakota.
My Commission expires 2-19, 2003.

RECEIVED
MAR 11 2002
WATER RIGHTS
PROGRAM

No. 4491 2 tdlly 3/1, 3/8

**NOTICE OF APPLICATION
NO. 6289-3 to**

Develop Reserved Water

Notice is given that the City of Pierre, PO Box 1253, Pierre SD 57501 has filed an application for a water permit to construct and place to beneficial use 4.46 cubic feet of water per second (1,600 acre-feet annually) from two wells (Missouri: Pierre Aquifer) 60 feet deep located on LaFramboise Island. The legal description of the wells is the SE 1/4 SW 1/4 Section 27, T5N, R31E from the Stanley County survey (Black Hills Meridian). The original plat survey conducted in the 1890's surveyed LaFramboise Island from the west side of the Missouri River. The wells may also be referenced from the Hughes County survey (5th Principal Meridian) as being in the NE 1/4 SW 1/4 Section 5, T110N, R79W. This water was appropriated and reserved by future use Permit No. 5003-3. The water will be used to supply the City of Pierre.

This notice also serves to clarify the legal description of the city's Future Use Permit No. 5003-3 and two existing wells located on LaFramboise Island which are authorized by established water rights.

Future Use Permit No. 5003-3 added LaFramboise Island to the area reserving water from the Missouri Aquifer for future development. This application was originally public noticed in 1998 to include LaFramboise Island and was public noticed as being Sections 34, 35 and 36, all in T5N, R31E. This notice serves to include Section 27, T5N, R31E because a portion of the Island is also located in Section 27.

Water Right Nos. 4189-3 and 4190-3 appropriates 2.00 cfs and 1.56 cfs from two wells on LaFramboise Island located in the SW 1/4 NE 1/4 and the NW 1/4 SE 1/4 Section 5, T110N, R79W based on the Hughes County Survey (5th Principal Meridian). This notice serves to provide the legal descriptions of wells based on the original plat survey (Black Hills Meridian) from the west side of the Missouri River. These existing wells are located in the SW 1/4 SE 1/4 Section 27, T5N, R31E.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 6289-3 because 1) existing rights will not be lawfully impaired, 2) it is a beneficial use of water, and 3) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the applicant or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

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 March 18, 2002.

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. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application.

Steven M. Pirner
Secretary
Department of Environment and
Natural Resources



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

APR 16 2002

City of Pierre
%Bruce Pier, Public Work Director
PO Box 1253
Pierre, SD 57501

Dear Mr. Pier:

Enclosed is Water Permit No. 6289-3 authorizing construction of your 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,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

Permit No. 6289-3
Missouri River - Water District

Contact Person & Address: **Dave Gunderson, PO Box 1253, Pierre, SD 57501**

Report Of Examination Of Works

On, **August 30, 2006**, I made a thorough examination of the water use system constructed by **City of Pierre of PO Box 1253, Pierre, SD 5750** holder of Permit No. **6289-3**, bearing the priority of **November 22, 1955** authorizing the diversion of **4.46** cu. ft. per second of the waters of **groundwater; Missouri: Pierre Aquifer** for **municipal use** purposes, in **Hughes** County.

The system is in the following condition **good**. Both points of diversion are located in the **SE ¼ SW ¼ Section 27 T5N-R31E; Black Hills Meridian or NE ¼ SW ¼ Section 5 T110N-R79W; 5th Principal Meridian – Well 12** has longitude of **- 100.362704** and a latitude of **44.360041** **Well 13** has longitude of **- 100.362992** and a latitude of **44.358027** as determined using **GPS**. The works are capable of diverting and conveying to the place of use **2.90** cu. ft. per second of water which is to be used for **municipal use**. Water has been put to beneficial use to the maximum extent and the license should be issued for **2.90** cfs and **1040 ac-ft annually**.

Review of Permit Qualifications And Regulations:

- 1) Special qualifications to permit being abided by **yes**
- 2) All structures, wells and lands on map **yes**
- 3) Exceptions to compliance are: **none**

Report On the Specifics of the System

Diversion Point Information:

Well Information:

- | | |
|--|--|
| 1) Well Drilling Firm: <u>Sargent</u> | 2) No. of Wells <u>2</u> |
| 3) Depth(s) <u>60 feet and 58 feet</u> feet | 4) Well logs are available <u>yes</u> |

Well 12

Casing:

- | | |
|-------------------------------------|---------------------------------|
| 1) Diameter <u>24</u> inches | 2) Length <u>40</u> feet |
| 3) Type <u>steel</u> | |

Screen:

- | | |
|---|---------------------------------|
| 1) Type <u>stainless steel</u> | 2) Length <u>20</u> feet |
| 3) Static water level <u>10.5</u> feet | |

Pump:

- | | |
|-------------------------------|--|
| 1) Make <u>Sargent</u> | 2) Model <u>12CLC - 5 stage</u> |
|-------------------------------|--|

3) Size 12

4) Capacity 650 GPM

Motor:

1) Make US Electrical

2) Model No. 365TP

3) Horsepower rating 75 hp

Well 13

Casing:

1) Diameter 24 inches

2) Length 38 feet

3) Type steel

Screen:

1) Type stainless steel

2) Length 20 feet

3) Static water level 10.5 feet

Pump:

1) Make Sargent

2) Model 12CLC - 5 stage

3) Size 12

4) Capacity 650 GPM

Motor:

1) Make US Electrical

2) Model No. 365TP

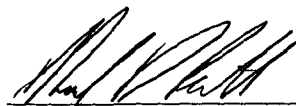
3) Horsepower rating 75 hp

DISTRIBUTION LINES OR CANALS:

1) Type Municipal distribution system

Comments : The water for this permit was reserved under Future Use Permit No 5003-3, 1.56 cfs was not developed and 560 ac-ft should revert back into the future use permit.

On 11/08/07 – I contact Pierre City Engineer John Childs by telephone, I explained the permit was not licensed previously because the construction period had not expired until March of 2007. He told me they had not developed or reduced anything since I made the inspection in 2006.



Mark D. Rath

Natural Resources Engineering Specialist
DENR, Water Rights Program

11-8-2007

Date

Well 12 Flowrate

0.0 Gpm

Well 13 Flowrate

0.0 Gpm

Time Units



Days



Pen 1 Pen 2 Pen 3 Pen 4

Fri Aug 04 01:55:30 2006

Time Period



10



Span



100 %



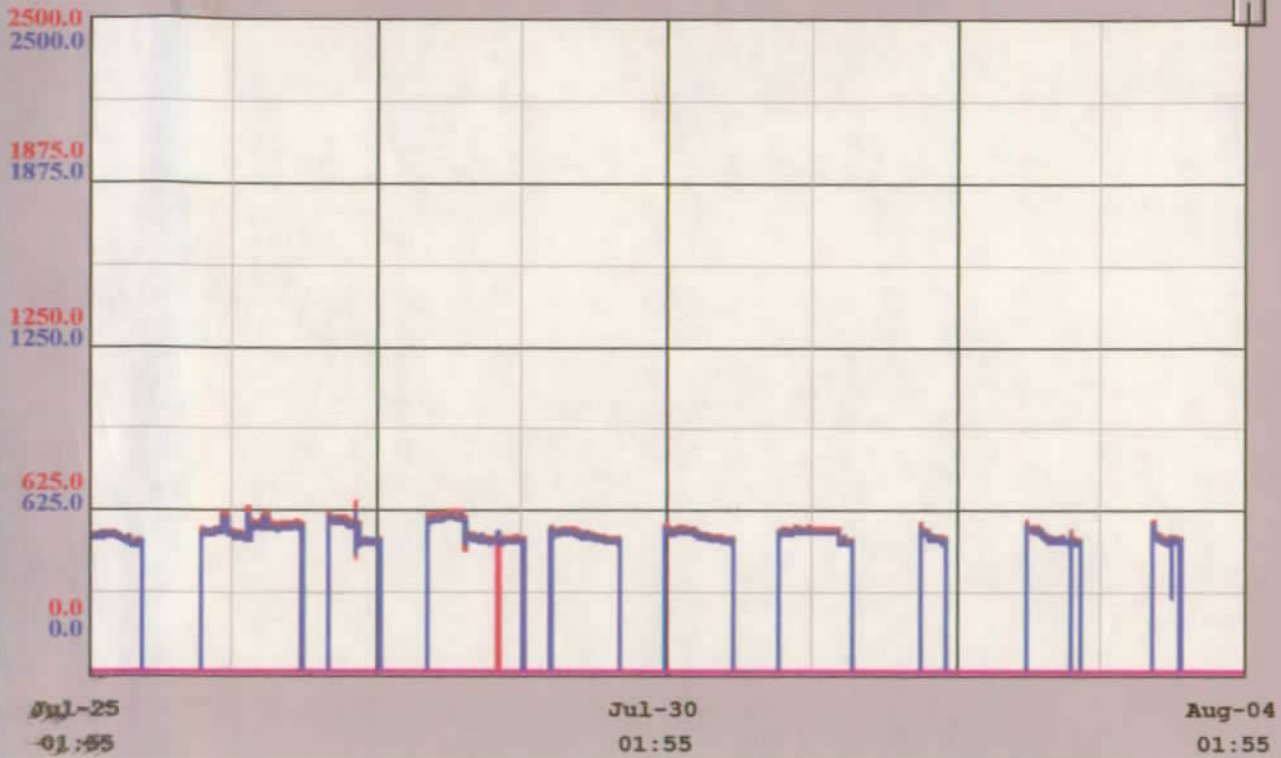
Pan



Auto Update

Restore to
Defaults

Print Trend



No. 6289-3



Mark D Rath 7-25-09
Mark D Rath
Natural Resources Engineering Specialist

0 495 990 1,980 Feet





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

JUL 31 2000

6289-3

City of Pierre
John Childs PE
PO Box 1235
Pierre SD 57501

Dear Mr. Childs:

Enclosed is Water License No. 6289-3. This is the final water right document completing your process of obtaining a Water Right. Also, included with your license is a map prepared by the staff engineer who conducted the investigation.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 6289-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 6289-3

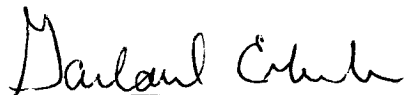
(1) The City of Pierre, PO Box 1253, Pierre SD 57501 made Application No. 6289-3, January 16, 2002 for a water permit to divert 4.46 cubic feet of water per second (1,600 acre-feet annually) from groundwater (two wells), Hughes County, South Dakota for municipal purposes. Permit No. 6289-3, with a priority date of November 15, 1955 (established by Future Use Permit Nos. 135-3 and 5003-3) was approved March 18, 2002 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before March 18, 2007 and for the application to beneficial use of water on or before March 18, 2011.

(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. 6289-3 is issued a license, bearing a priority date of November 22, 1955 to appropriate 2.90 cubic feet of water per second (1,040 acre-feet annually) from groundwater (two wells) for municipal purposes.

The diversion point is located: Well # 12 – 3,370 feet west and 3,625 feet south and Well #13 – 3,275 feet west and 2,820 feet south; both from the northeast corner of Section 5-T110N-R79W (NE ¼ SW ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 6289-3 including the following now applicable qualifications:

- The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
- The wells authorized by Permit No. 6289-3 shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) from the producing formation to the surface pursuant to Section 74:02:04:28. (Wells have been constructed and logs are on file with the Water Right Program)
- Water Right No. 6289-3 authorizes a total annual diversion of 1,040 acre-feet of water.
- The City of Pierre shall report to the Chief Engineer annually the amount of water withdrawn from the Missouri: Pierre Aquifer.



Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JUL 31 2008
date

