

WATER PERMIT NO. 1805-1

Name of Applicant: T. C. & G. Water Association

Address: PO Box 95, Glencross SD 57630 Phone: 605 865-3361

Amount of Water Claimed: 0.22 cfs Total Acres: NA

Source of Water Supply: groundwater (one well)

Water to be used for: rural water system sue County: Dewey and Corson

Type of Waste Disposal System:

Location: 3 miles northwest of Timber Lake

PRIORITY Date Received: 7-29-03 Application/License Fee: \$275

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

Remarks: Water Right Nos. 972-1 and 1530-1 authorized 3 wells. This application is for an additional well

Diversion Point: SW ¼ NW ¼ Sec 7-T17N-R26E

Land to be Irrigated:

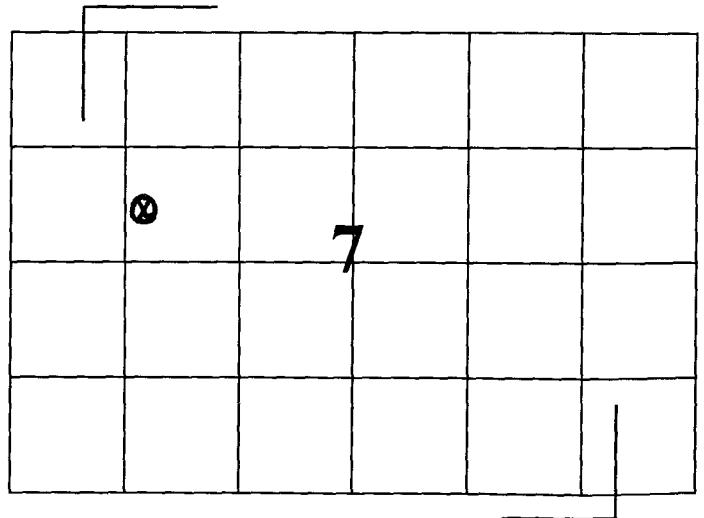
Depth of Well: 65 feet

Well Driller :

Remarks:

Type of Map: plat

Prepared by: Danny S Brosz, PE



Reviewed and the Number Assigned on: 7-20-2003

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

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

No. 1805-1 (office use only)
Hydrologic Unit 10130303
Basin Grand River
Newspaper Corson/Sioux Co. News Messenger-McLaughlin
Timber Lake Topic - Timber Lake

RECEIVED
JUL 29 2003
WATER RIGHTS
PROGRAM

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:
(check one)

- ☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
☐ Place to Beneficial Use Water Reserved by Future Use Permit No. _____
☐ Amendment/Correction to Permit No. _____

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

- Name of Applicant T.C.&G. Water Association Phone (605) 865-3361
(check one) ☐ Owner ☐ Tenant/lessee
Mailing Address PO BOX 95 Glencross State SD 57630
(Street, RR, or Box and City) (Zip Code)
- Amount of water claimed 0.22 *CFS or 100 **GPM ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply Well
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Dewey
SW 1/4 NW 1/4 Sec 7-T17N-R26E
- County or counties where water will be used Dewey & Corson
- Annual period during which water is to be used Year around Jan 1 - Dec 31
- 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)

See attached report.

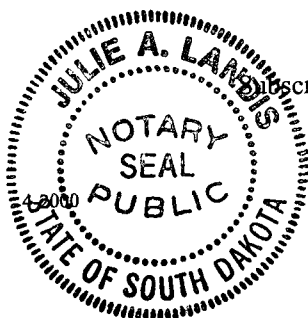
STATE OF SOUTH DAKOTA) SS
County of _____)

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, Don Hollenbeck chr TC&G, 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.

Applicant's signature Don Hollenbeck chr TC&GSubscribed and sworn to before me this 26th day of July 20 03

Julie A. Landis
Notary Public signature Expiration 7-1-04



**SOUTH DAKOTA
WATER PERMIT NO. 1805-1**

Date of first receipt of application July 29, 2003.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 1805-1 to T. C. & G. Water Association, PO Box 95, Glencross SD 57630 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. 1805-1 appropriates 0.22 cubic feet of water per second from one well (Fox Hills Formation) 65 feet deep located in the SW ¼ NW ¼ Section 7-T17N-R26E.
2. The water appropriated shall be used for the purpose of a rural water system that serves the communities of Glencross, Trail City and surrounding rural areas 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. 1805-1 is October 14, 2003.
5. The date from which applicant may claim right is July 29, 2003.
6. One-fifth of the construction is to be completed on or before April 14, 2006.
7. All construction is to be completed on or before October 14, 2008.
8. Water is to be put to beneficial use on or before October 14, 2012.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

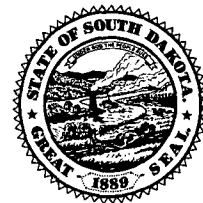
1. The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 1805-1 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. T. C. & G. Water Association shall report to the Chief Engineer annually the amount of water withdrawn from the Fox Hills Formation.

WATER MANAGEMENT BOARD

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

DEC 10 2003

date



(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 28" Depth 65'
- b) Casing Type PVC Diameter 12" Thickness SDR 17
- c) Screen Type Stainless Steel Diameter 12" Thickness
- d) Gravel Pack Rock Length of Gravel Pack 48'
- e) Depth to Top of Water Bearing Material 15
- f) Depth to Water (ground surface to water level) 12
- g) Distance to nearest existing domestic well:
On applicants property On property owned by others 1/2 Mile

2. Wastewater Disposal System Information

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

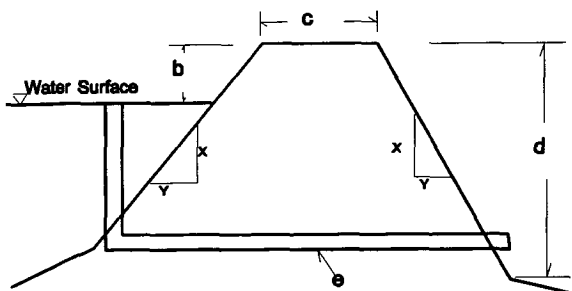
3. Dugout Information

- a) Surface Dimensions N/A 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

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date July 29, 20 03

RECEIVED OF T. C. & G Water Association, Box 95, Glendross SD 57630

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

Fee for Application for Permit No. <u>1805-1</u> to Appropriate Water, to construct and to put water to beneficial use	225	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. <u>1805-1</u>	50	00
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	275.00

No.

000848

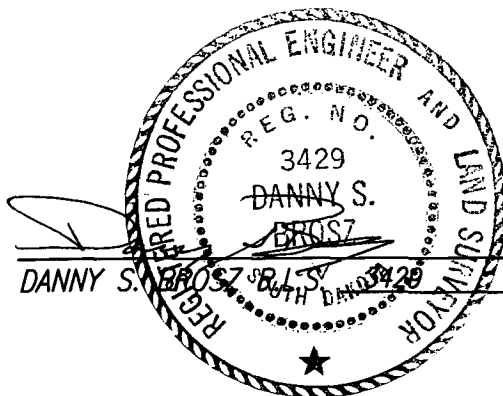
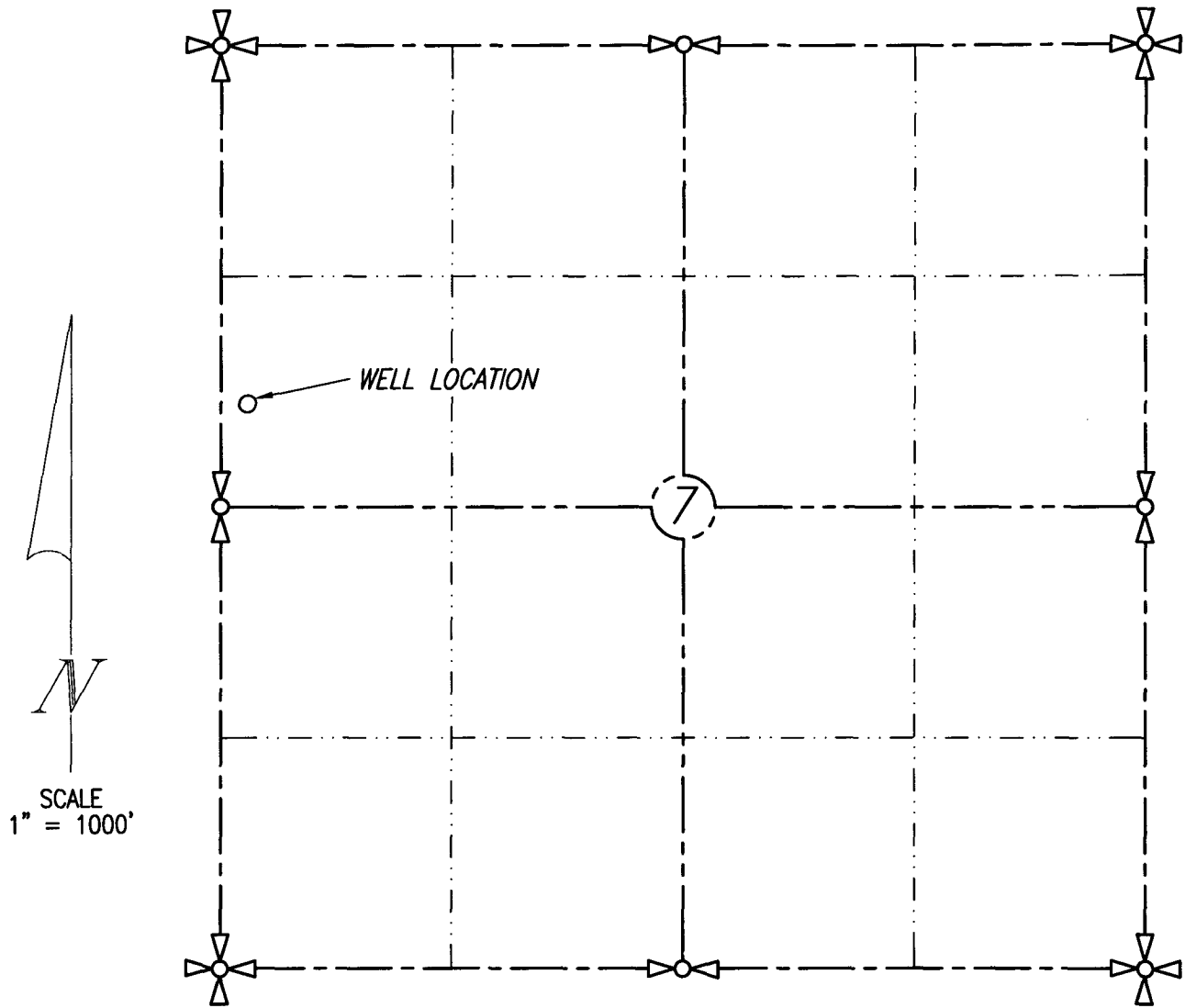
By

Darland Enble

Chief Engineer

gm

WELL LOCATION PLAT
T.C. & G. WATER ASSOCIATION
SW1/4NW1/4 SECTION 7
TOWNSHIP 17 NORTH
RANGE 26 EAST
DEWEY COUNTY, SOUTH DAKOTA



BROSZ ENGINEERING INC.

BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243
PROJECT NO. 03-18

1805-1

PRELIMINARY ENGINEERING REPORT
FOR
WATER DISTRIBUTION SYSTEM FACILITIES PLAN
T.C. & G. WATER ASSOCIATION
CORSON AND DEWEY COUNTIES, SOUTH DAKOTA

PREPARED FOR
T. C. & G. WATER ASSOCIATION

PREPARED BY
BROSZ ENGINEERING, INC.
BOWMAN, ND

JUNE 2003

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1.0 GENERAL

1.1 INTRODUCTION

The Trail City and Glencross Water Association (T.C. & G.) provides water to the towns of Trail City and Glencross and all rural farms and families in between. Three water wells pump water to approximately one hundred families. More than two-thirds of the families are farmers that need additional water for their livestock. Improvements to the T.C. & G. water system are needed to ensure that an adequate water supply is maintained and the water quality in the distribution system is protected.

The extreme drought conditions of the past few years have put a strain on the system. The water usage has been up and the system has been used to its maximum. This high capacity has resulted in two main problems. The largest well, Well #3 has collapsed, thus reducing the water production to 40%. Secondly, the high use of water has caused a problem with a 1.5 mile length of pipe near the east end booster station.

Source Water Protection Planning allows public water systems to take a proactive stance toward the protection of their vital water supply. Instead of finding alternate water sources after old sources have been contaminated, Source Water Protection Planning allows systems to avoid the extremely high cost of developing a new source, or plan for alternative actions so that implementation can be budgeted in advance.

1.2 PURPOSE

The purpose of this report is to:

- Identify alternatives and scope of improvements to be considered,
- Document the need for improvements to the distribution system,
- Present an estimate of the probable costs for those improvements, and
- Provide an implementation plan for the design and construction of those improvements.

1.3 ORGANIZATION OF THIS REPORT

This report is organized into a total of 7 sections. The topics covered in each of the sections are summarized as follows:

Section 1	Introduction, Authorization and Purpose
Section 2	Project Planning Area
Section 3	Existing Facilities
Section 4	Need for the Project
Section 5	Alternatives Considered
Section 6	Proposed Project (Recommended Alternative)
Section 7	Conclusions and Recommendations

2.0 PROJECT PLANNING AREA

2.1 LOCATION

T.C. & G. provides water to a two hundred square mile area in Corson and Dewey Counties, South Dakota. The towns of Trail City and Glencross and rural farms and families in between are served by T.C. & G. More than two-thirds of the users are farmers that need additional water for their livestock. See appendix A1 for map.

2.2 ENVIRONMENTAL RESOURCES PRESENT

The existing facilities areas include both farmland and rangeland. The existing easement is 15 feet on either side of the existing waterline, for a ruling width of 30 feet. Environmental resources that must be considered in project planning are as follows:

- There are no significant impacts to prime or important farmland since the waterlines are buried.
- Wetlands occur near the facilities, the area of the new well will not be located in any wetlands. The pipeline will be buried and not affect any wetlands.
- The 100/500 year floodplain is not impacted since the waterlines are buried.
- A cultural resource survey has been completed in the area for new well and pipe replacement. A cultural resource survey will be complete for the replacement of Well #3 when the exact location is determined.
- Endangered species may migrate through the area but do not stay in the area for long during migration.

2.3 GROWTH AREAS AND POPULATION TRENDS

The growth of the system is by driven by the grassland management practices of the local farm. The Project Planning Area is suffering from a drought that has depleted the water sources for livestock. This has resulted in a high demand on T.C. & G.'s system that has been difficult to meet. This high demand has been a strain on the system. The failure of the Well #3 has put the system into a state of emergency. A replacement well will be needed along with an additional well to meet the needs of the system. Improvements to the system will maintain an adequate water supply for all the users.

3.0 EXISTING FACILITIES

3.1 LOCATION AND EXISTING SYSTEM

The current facility consists of three water wells located on the west end of the system. Well #1 is located in the NE ¼ of Section 1, T17N, R25E; Well #2 is located in the NW ¼ of Section 1, T17N, R25E; and Well #3 is located in the SW ¼ of Section 12, T17N, R25E, all in the Black Hills Meridian. Water storage consists of a 15' x 24' standpipe located in the SW ¼ of Section 7, T17N, R26E, on the west end of the system and a 91,000 gallon ground level storage tank located in the NE ¼ of Section 8, T17N, R28E, on the east end of the system. Water is pumped into the standpipe and flows into a 5 inch mainline that extends east 4 miles. From the end of the 5 inch mainline a 3-1/2 inch line extends north approximately 5 miles and a 4 inch line extends east approximately 9 mile. From the end of 4 inch line a 3 inch line extends north to Trail City and a 5 inch line extends 1-1/4 miles to the east to the ground level storage tank. From these lines several branches of various size pipe connect the users to the system.

Well #3 had the casing fail on May 30, 2003 and will need to be replaced as soon as possible. The well is not repairable.

The wells have pressure regulated on and off controls and a timer that can be set to run during peak periods. Booster stations at the reservoirs have pressure regulated on and off control for peak periods. The reservoirs are refilled during off peak times.

This system is unique in the fact that this system provides water for not only people but also for livestock. The demand for livestock use is especially high in the winter months when most livestock is moved to the farm headquarters.

3.2 HISTORY

In 1971 the design of a 30,000 gallon per day water system was proposed by T.C. & G. The system was constructed in 1973. This system consisted of Well #1, the standpipe on the west end of the system, an 8' x 80' standpipe on the east end of the system and PVC waterlines of various sizes.

In 1975 Well #3 was constructed to meet the demand for water.

In 1979 improvements were made to the water system. The standpipe on the east end of the was replaced with a 100,000 gallon ground level storage tank with a booster station and Well #2 was constructed. These improvements partially alleviated the problem of the lack of flow and pressure on the east end of the system.

In the winter of 1989 the 100,000 gallon storage tank froze completely, this caused damage to the tank by stressing the seams. The tank was repaired and put back in service. In 1993 this tank developed leaks and it was determined that the tank was beyond repair. In 1995 this tank was replaced with a 91,000 gallon tank. T.C. & G. has changed management practices and operating procedures since 1990 and the system has operated with improved efficiency.

3.3 CONDITION OF FACILITIES

3.31 Suitability for Continued Use

In 2001 a Source Water Protection Plan for T.G.&C. Rural Water System was developed. It was determined that Well #3 is currently "at-risk" for possible contamination. Currently, the quality of T.G.&C.'s water is fine. If contamination would ever occur in this well, it would have to be shut down, resulting in an extreme shortage of water. T.G.&C. cannot supply enough water to all of their consumers with only two wells. See Appendix B for more information.

Because this well has failed a new location further from the feedlot will be found.

MANURE AROUND WELL HOUSE #3



3.32 Adequacy of Water Supply

T.C. & G. needs a backup source to pump water if one well would need to be repaired. The water association can't meet the demands of its consumers with only two wells. This need is evident with the failure of Well #3. Also, at the present time, the Trail City and Glencross area in northern Dewey and southern Corson counties in north central South Dakota is suffering from a severe drought, and as a result it has been difficult to meet the high demand of farmers trying to get enough water to their livestock since their stock dams are empty.

The peak usage during 2002 was 150,000 to 160,000 gallons per day. This means the pumps must run 18 hours per day to produce this water. This is reaching the upper limits of continuous well pumping and not affecting them. Pumping wells over 18 hours per day can damage or ruin them.

3.33 The Treatment, Storage and Distribution Capabilities.

The water is treated with chlorine at each well house. Water storage consists of a 15' x 24' standpipe located on the west end of the system and a 91,000 gallon ground level storage tank located on the east end of the system. The system provides water for 128 metered locations. There are 19 locations in Glencross and Trail City, 62 locations on farms, along with 40 pasture locations for livestock.

3.34 Compliance with Safe Drinking Water Act and applicable State Requirements.

T.G.&C. has a Certified Operator to run the system, a Source Water Protection Plan, and has complied with the Safe Drinking Water Act and applicable State Requirements.

3.4 FINANCIAL STATUS OF ANY OPERATING CENTRAL FACILITIES

Due to the conditions of the drought in T.C. & G.'s service area in 2002, an unusually large amount of water was sold last year. The income amounts for T.G.&C. will be significantly less in the next couple years. The only nonoperating income for T.G.&C. is interest on their savings account.

GMAC currently handles their three loans and requires that they have \$41,578 in a reserve account within their savings account to ensure two years of loan repayments to them. With that amount set aside, they would have approximately \$5,200.00 available in their savings account to use should they need it in an emergency situation.

FINANCIAL REPORT

	<u>2000</u>	<u>2001</u>	<u>2002</u>
<u>INCOME</u>			
METERED WATER	65,916.90	76,206.19	90,421.74
LATE CHATGES	940.00	720.00	480.00
PASTURE & MEMBERSHIP	3,321.18	2,061.12	3,609.44
MISC.	2,445.00	195.09	418.12
TOTAL WATER INCOME	\$72,623.08	\$79,182.40	\$94,929.30
<u>EXPENSES</u>			
UTILITIES	10,419.35	9,283.33	10,690.46
SUPPLIES, REPAIR, MAINTENANCE	9,124.99	7,747.84	12,810.71
WAGES	7,839.93	7,134.24	9,407.53
MILEAGE	5,342.55	4,855.95	6,792.15
OFFICE SUPPLIES	334.19	395.16	2,025.45
INS. & TAXES	2,861.52	2,632.47	2,875.09
CONTRACT LABOR & PRO FEE	2,436.05	504.00	3,573.36
CHEMICALS	3,518.00	5,949.27	7,192.33
DEPT. OF HEALTH WATER TESTS	2,857.00	296.00	228.00
DIRECTORS FEES	2,220.00	2,280.00	2,220.00
MISC.	625.50	428.05	418.00
G.M.A.C.	4,809.00	17,736.00	17,736.00
GENERATOR		5,714.80	
EXPENSE FROM REG. CH.	52,415.08		
EXPENSE FROM SAVING ACCT.	36,050.62		
TOTAL EXPENSES	\$88,465.70	\$64,957.11	\$75,969.08
INCOME FOR YEAR	72,623.08	79,182.40	94,929.30
BANK BALANCE FOR YEAR	4,209.62	4,117.62	5,325.08
TOTAL	76,832.70	83,300.02	100,254.38
EXPENSES FROM CHECK	-52,415.08	-41,474.94	-58,233.08
TOTAL	\$24,417.62	\$41,825.08	\$42,021.30
TO SAVINGS ACCT.			
FROM CHECKING ACCT.	20,300.00	-36,500.00	-29,500.00
BALANCE IN CHECKING	4,117.62	5,325.08	12,521.30
WATER INCOME	72,623.08	79,182.40	94,929.30
INT. ON SAVINGS	254.31	361.22	316.48
TOTAL INCOME	72,877.39	79,543.62	95,245.78
TOTAL EXPENSE	88,465.70	-64,957.11	-75,969.08
LOSS OR PROFIT	-\$15,588.31	\$14,586.51	\$19,276.70

FINANCIAL REPORT (Cont.)

SAVINGS

BAL. IN SAVINGS	14,946.33	21,638.68	34,697.80
INTEREST FROM SAVINGS	254.31	361.22	316.48
DEP TO SAVINGS	20,300.00	36,500.00	29,500.00
CD DEPOSITS	22,208.66	-27,000.00	
G.M.A.C. PAYMENT	-12,927.00	-17,736.00	-17,736.00
SCHLOSSER DITCHING	-23,123.62		
SD STATE HWY		26,648.78	
GENERATOR		-5,714.80	
SERVICE CHARGE	-20.00		
BAL IN SAVINGS BEGIN F.Y.	\$21,638.68	\$34,697.88	\$46,778.28
APPROX. ACCOUNTS RECEIVABLES	\$2,081.00	\$2,695.45	\$950.00

MEMBERS & WATER USE

	<u>2000</u>	<u>2001</u>	<u>2002</u>
TOTAL HOOKUPS	126	128	128
TOWN MEMBERS	19	19	19
FARM MEMBERS	61	61	62
PASTURE TAPS	34	35	40
TOTAL GALLONS SOLD	18,772,700	20,770,300	28,876,200
GALLONS PER MONTH	1,564,400	1,730,800	2,406,300

Rate Schedules

Rural	\$48.00 Minimum (5,000 Gallons) \$ 2.00 Per 1,000 Gallons over 5,000 Gallons
Town	\$32.50 Minimum (2,500 Gallons) \$15.50 Per 1,000 Gallons over 2,500 Gallons \$ 2.00 Per 1,000 Gallons over 5,000 Gallons
Pasture	\$38.00 Annually \$ 2.00 per 1,000 Gallons

4.0 NEED FOR PROJECT

4.1 HEALTH AND SAFETY

In 2001 a Source Water Protection Plan for T.G.&C. Rural Water System was developed. It was determined that Well #3 is currently "at-risk" for possible contamination. See Appendix B for more information. Source Water Protection Planning allows public water systems to take a proactive stance toward the protection of their vital water supply. Instead of finding alternate water sources after old sources have been contaminated, Source Water Protection Planning allows systems to avoid the extremely high cost of developing a new source, or plan for alternative actions so that implementation can be budgeted in advance. Currently, the quality of T.G.&C.'s water is fine. If contamination would ever occur in this well, it would have to be shut down, resulting in an extreme shortage of water. T.G.&C. cannot supply enough water to all of their consumers with only two wells.

With the failure of Well #3 a new location will be sought to get the well out of the "at risk" category.

4.2 SYSTEM O&M

T.G.&C. has changed management practices and operating procedures since 1990 and the system has operated with improved efficiency. T.G.&C. has a Certified Operator to run the system, a Source Water Protection Plan, and has complied with the Safe Drinking Water Act and applicable State requirements.

Improvements to the system, adding controls, booster pump, etc., have eliminated many problems, but improvements to the system still need to be made. The existing 5 inch PVC waterline from the reservoir on the east end of the system to 1-1/2 miles west has developed several leaks. The glued joints on this 30-year-old section are failing.

This problem has appeared to amplify with the high use in 2002. The association keeps records for water loss. The water loss in 2001 was 8.1%. Water loss in 2002 was 12.0%. To avert the high maintenance cost and the need to frequently repair the system, this section needs to be replaced.

GLUED JOINT THAT HAS FAILED



4.3 Growth

This system is unique in the fact that this system provides water for not only people but also for livestock. The demand for livestock use is especially high in the winter months when most livestock is move to the farm headquarters. The growth of the system is by driven by the grassland management practices of the local farms. The Project Planning Area is suffering from a drought that has depleted the water sources for livestock. This has resulted in a high demand on T.G.&C.'s system that has been difficult to meet. The need to replace Well #3 and the waterline as soon as possible is essential to the system. An additional well is needed to avoid the situation that the association is presently facing.

5.0 ALTERNATIVES CONSIDERED

5.1 DEVELOPMENT OF ALTERNATIVES

The major purpose of this report is to address the emergency situation that exists and to assess improvements to the water distribution system to ensure that an adequate water supply is maintained and the water quality in the distribution system is protected. Source Water Protection Planning allows public water systems to take a proactive stance toward the protection of their vital water supply. Instead of finding alternate water sources after old sources have been contaminated, Source Water Protection Planning allows systems to avoid the extremely high cost of developing a new source, or plan for alternative actions so that implementation can be budgeted in advance.

5.1.1 Water System Improvements Needed

In 2001 a Source Water Protection Plan for T.G.&C. Rural Water System was developed. It was determined that Well #3 is currently "at-risk" for possible contamination. See appendix B for more information. Currently, the quality of T.G.&C.'s water is fine. If contamination would ever occur in this well, it would have to be shut down, resulting in an extreme shortage of water. T.G.&C. cannot supply enough water to all of their consumers with only two wells.

T.G.&C. needs a backup source to pump water if one well would need to be repaired. The water association can't meet the demands of its consumers with only two wells. Also, at the present time, the Trail City and Glencross area in northern Dewey and southern Corson counties in north central South Dakota is suffering from a severe drought, and as a result it has been difficult to meet the high demand of farmers trying to get enough water to their livestock since their stock dams are empty.

The existing 5 inch PVC waterline from the reservoir on the east end of the system to 1.5 miles west has developed several leaks. The glued joints on this 30-year-old section are failing. To avert the high maintenance cost, minimize water losses and eliminate the need to frequently repair the system, this section needs to be replaced.

The failure of Well #3 and the pipeline leaks have put the system in an emergency situation.

The improvements necessary to the distribution system were evaluated the following ways:

The first alternative is to develop a new well, connect the well to the system with a 6" PVC waterline that delivers water to the standpipe on the west end of the system and replace the failing 5 inch waterline with a new 6 inch PVC waterline.

Well #3 will need to be replaced and connected to the system.

The second alternative is to connect the system with a 6 inch PVC waterline to the existing water system located in Timber Lake and replace the failing 5 inch waterline with a new 6 inch PVC waterline.

The third alternative is the do nothing alternative.

ALTERNATIVE 1

Description: T.G.&C. proposes to develop a new well along with a heated pump house. A chemical tank would allow for the treatment of water with chlorine. A 6" PVC waterline would connect the well to the reservoir located on the west end of the system. An area approximately 100' x100' around the well would be fenced to prevent cattle from disturbing the well and pump house. The existing 5" waterline that is failing is proposed to be replaced with new 6" PVC with gasketed joints.

A replacement well for Well #3 will also need to be developed and connected to the existing system. The existing pump house and treatment equipment will be used. A layout of Alternative 1 is shown in appendix A2.

Design Criteria: T.G.&C. will continue to operate, maintain and test the system in compliance with the Safe Drinking Water Act and applicable State requirements. The installation of the meter at the well will allow T.G.&C. to monitor any leakage and eliminate water loss. All pipe installed will be required to meet the current American Society for Testing Materials or American Water Works Association standards. The new well will ensure a safe and adequate supply of water for the current and future users.

Environmental Impacts: The impacts to the environment will be limited as follows:

A letter from the Fish and Wildlife Service indicates that wetlands occur near the proposed construction area. These areas will be identified and avoided. If it is not possible to avoid these areas then measures will be undertaken to replace the impacted areas.

The pipeline replacement will cross on a small creek, but no fill will be placed and the size of the wetland area will not be changed.

No significant impacts are expected to floodplains, as the waterline will be buried.

A letter from the NRCS indicates that since the pipes are buried, there will be no significant impact on the prime or important farmland.

A letter from the Fish and Wildlife Service indicated the following federally listed species might occur in the proposed project area:

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Whooping Crane (Grus americana)	Endangered	Migration
Bald eagle (Haliaeetus leucocephalus)	Threatened	Migration, Winter Resident, Possible Nesting.

Should construction occur during spring or fall migration, the potential for disturbance to whooping cranes exist. There is little that can be done to reduce disturbance besides ceasing construction at sites where the birds have been observed. Any whooping crane sightings will be reported.

No construction should occur within one-quarter mile of any known active bald eagle nest. The species' nesting season is January to August. Any nest found will be reported.

The Tribal Historical Preservation Office requested a Class III cultural resources inventory must be preformed. This has been completed for the new proposed well site and connecting pipeline along with the pipeline replacement. No significant sites were found. See Appendix D for report.

A survey will be completed of the replacement site for Well #3. The exact location has not been determined, as negotiations with the landowner have not been completed. When an area is determined, the survey will be completed prior to doing any work.

A letter from the Corps of Engineers indicated that a Department of the Army permit might be required. T.G.&C. will complete the application for a Department of the Army Permit.

Land Requirements: The replacement of the existing waterline and the installation of the new waterline for the new well location will be inside a current easement and will be place alongside the existing waterline, no new easement will be needed. An area of less than one acres is proposed to be acquired by T.G.&C. for the installation of the new well and pump house, the exact location in Section 7, T17N, R26E will be determined from the test holes, but an agreement has been signed. The replacement of Well #3 will need to be negotiated and acquired.

Construction Problems: Alternative 1 provides the greatest ease of construction as the majority of the areas that will be disturbed were excavated in 1973 and have an existing easement.

Cost Estimate: The cost associated with alternate 1 is shown below:

Alternate #1			
New Well and 6" PVC Waterline		Replace Waterline	
Test Holes (3)	2,000.00	6" PVC (9,000')	90,000.00
Test Pumping	2,000.00	Valves	900.00
Well	28,000.00	Connect to Existing	1,000.00
Well Pump & Pipe	5,500.00	Miscellaneous	1,000.00
Electrical Power and Well Controls	12,400.00	Total Estimated Construction	92,900.00
Control Panel	3,500.00	Engineering	5,000.00
Pit less Adapter	5,850.00	Administration & Contingency	2,100.00
Meter	400.00	Total Estimated Cost	100,000.00
Chemical Tank	1,200.00	Replace Well #3	
Chemical Pumps and Fittings	1,500.00	Test Holes (3)	2,000.00
Pump House	8,000.00	Test Pumping	2,000.00
Heat Pump & Temperature Control	900.00	Well	28,000.00
6" PVC to Reservoir (3,000')	30,000.00	Well Pump & Pipe	5,500.00
Connection to Reservoir	1,000.00	Electrical Power	5,000.00
Land Acquisition & Easements	3,000.00	Pit less Adapter	5,850.00
Fence and Gate	2,000.00	6" PVC to System (600')	6,000.00
Total Estimated Construction	107,250.00	Land Acquisition & Easements	3,000.00
Engineering	12,000.00	Fence and Gate	2,000.00
Administration & Contingency	10,750.00	Total Estimated Construction	59,350.00
Total Estimated Cost	130,000.00	Engineering	7,000.00
		Administration & Contingency	9,650.00
		Total Estimated Cost	76,000.00

Total Estimated Cost for Alternate 1 - \$306,000.00

Advantages/Disadvantages: Alternative 1 is within T.G.&C.'s financial and operational resources and ability to comply with regulatory requirements.

Alternative 2

Description: T.G.&C. proposes to connect the existing system to the nearest existing water system, which is located in Timber Lake SD. A 6" PVC waterline would provide water to the standpipe on the west end of T.G.&C.'s system. The existing 5" waterline that is failing is proposed to be replaced with new 6" PVC with gasketed joints. A layout of Alternative 2 is shown in figure 3.2.

Design Criteria: T.G.&C. will continue to operate, maintain and test the system in compliance with the Safe Drinking Water Act and applicable State requirements. The installation of the meter will allow T.G.&C. to monitor any leakage and eliminate water loss. All pipe installed will be required to meet the current American Society for Testing Materials or American Water Works Association standards. Alternative 2 will ensure a safe and adequate supply of water for the current and future users.

Environmental Impacts: The impacts to the environment will be limited as follows:

A letter from the Fish and Wildlife Service indicates that wetlands occur near the proposed construction area. These areas will be identified and avoided. If it is not possible to avoid these areas then measures will be undertaken to replace the impacted areas.

No significant impacts are expected to floodplains, as the waterline will be buried.

A letter from the NRCS indicates that since the pipes are buried, there will be no significant impact on the prime or important farmland.

A letter from the Fish and Wildlife Service indicated the following federally listed species might occur in the proposed project area:

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
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Should construction occur during spring or fall migration, the potential for disturbance to whooping cranes exist. There is little that can be done to reduce disturbance besides ceasing construction at sites where the birds have been observed. Any whooping crane sightings will be reported.

No construction should occur within one-quarter mile of any known active bald eagle nest. The species' nesting season is January to August. Any nest found will be reported.

A letter from the Tribal Historical Preservation Office indicates a Class III cultural resources inventory must be preformed. T.G.&C. will have this completed before construction begins.

The impacts to the environment will be greater in this alternate as a 6.5 mile route from Timber Lake to T.G.&C.'s system will need to be found.

Land Requirements: An easement for the new pipeline will be needed and will involve approximately 30 acres.

A letter from the Corps of Engineers indicates that a Department of the Army permit may be required. T.G.&C. will complete the application for a Department of the Army Permit.

Construction Problems: Construction of alternative 2 would be on land that may have limited access, subsurface rock or other unforeseen concerns that may affect the cost of construction.

Cost Estimates: The cost associated with alternate 2 is shown below:

Alternate #2			
Connect to Timber Lake with 6" PVC Waterline		Replace Waterline	
6" PVC (34,320')	343,200.00	6" PVC (9,000')	90,000.00
Manholes & Relief Valves	35,000.00	Valves	900.00
Connect to Rural Water	2,000.00	Connect to Existing	1,000.00
Connection to Reservoir	1,000.00	Miscellaneous	1,000.00
Land Acquisition & Easements	16,000.00	Total Estimated Construction	92,900.00
Total Estimated Construction	397,200.00	Engineering	5,000.00
Engineering	25,000.00	Administration & Contingency	2,100.00
Administration & Contingency	20,800.00	Total Estimated Cost	100,000.00
Total Estimated Cost	443,000.00		

Total Estimated Cost of Alternate 2 - \$543,000.00

Advantages/Disadvantages: The estimated cost of the construction of alternate 2 is beyond the financial resources of T.G.&C. and the greater impacts to the environment make this alternative the least feasible. No further discussion of this alternative is included in this report.

Alternative 3: This is the Do Nothing Alternative. If no improvements are made to T.G.&C.'s system the public health and safety concerns will not be addressed and an adequate water supply may not be available to the users. Water losses will continue at their present level and T.G.&C. will continue to spend their limited resources on maintaining a failing system that will exert unnecessary demands on the system.

6.0 PROPOSED PROJECT (RECOMMENDED ALTERNATIVE)

6.1 The proposed project is Alternative 1. The project has been split into two parts because of the emergency situation. Part one is the new well and pump house along with the replacement of the 5" pipeline. Part two will be the development of a replacement for Well #3 along with the connection to the system.

Part one has all the land and easements along with the environmental requirements completed to begin construction immediately. Part two will require landowner agreements as well as some environmental study.

6.2 Part One

6.2.1 Water Supply - Develop a new well along with a heated pump house, the exact location in Section 7, T17N, R26E will be determined from the test holes. A new well that will supply 100 gallons per minute or greater will be developed. An area approximately 100' x100' around the well would be purchased. The area will be fenced to prevent cattle from disturbing the well and pump house. See Appendix A3 for map.

6.2.2 Treatment - A chemical tank, inside the pump house would allow for the treatment of water with chlorine.

6.2.3 Distribution Layout - A 6" PVC waterline would connect the well to the standpipe located on the west end of the system. The waterline will be placed in an existing easement and meet the current American Society for Testing Materials or American Water Works Association standards.

The existing 5" waterline that is failing is proposed to be replaced with new 6" PVC with gasketed joints. This line will be placed in an existing easement and meet the current American Society for Testing Materials or American Water Works Association standards. See Appendix A4 for map.

6.3 Part Two

6.3.1 Water Supply - Develop a new well to replace Well # 3 in the general area of the existing well. The exact location will be determined from the test holes. A new well that will supply 100 gallons per minute or greater will be developed. An area approximately 100' x100' around the well would be purchased. The area will be fenced to prevent cattle from disturbing the well and pump house. See Appendix A3 for map.

6.3.2 Distribution Layout - A 6" PVC waterline would connect the well to the existing pump house for Well # 3. The waterline will be placed in an existing easement and meet the current American Society for Testing Materials or American Water Works Association standards.

The project will follow the following design:

6.4 Estimated Cost. An estimated construction cost is shown below:

Part One			
New Well and 6" PVC Waterline		Replace Waterline	
Test Holes (3)	2,000.00	6" PVC (9,000')	90,000.00
Test Pumping	2,000.00	Valves	900.00
Well	28,000.00	Connect to Existing	1,000.00
Well Pump & Pipe	5,500.00	Miscellaneous	1,000.00
Electrical Power and Well Controls	12,400.00	Total Estimated Construction	92,900.00
Control Panel	3,500.00		
Pit less Adapter	5,850.00	Engineering	5,000.00
Meter	400.00	Administration & Contingency	2,100.00
Chemical Tank	1,200.00	Total Estimated Cost	100,000.00
Chemical Pumps and Fittings	1,500.00		
Pump House	8,000.00		
Heat Pump & Temperature Control	900.00		
6" PVC to Reservoir (3,000')	30,000.00		
Connection to Reservoir	1,000.00		
Land Acquisition & Easements	3,000.00		
Fence and Gate	2,000.00		
Total Estimated Construction	107,250.00		
Engineering	12,000.00		
Administration & Contingency	10,750.00		
Total Estimated Cost	130,000.00		

Total Estimated Cost for Part One - \$230,000.00

Part Two

Replace Well #3

Test Holes (3)	2,000.00
Test Pumping	2,000.00
Well	28,000.00
Well Pump & Pipe	5,500.00
Electrical Power	5,000.00
Pit less Adapter	5,850.00
6" PVC to System (600')	6,000.00
Land Acquisition & Easements	3,000.00
Fence and Gate	2,000.00
Total Estimated Construction	59,350.00
Engineering	7,000.00
Administration & Contingency	9,650.00
Total Estimated Cost	76,000.00

Total Estimated Cost for Part Two - \$76,000.00

6.5 Annual Operating Budget

Narrative Describing Operating Budget and Project Cash Flow

Due to the conditions of the drought in T.G.&C.'s service area in 2002, an unusually large amount of water was sold last year, and as a result of the drought, a number of members were forced to sell a majority of, or for some, all of their livestock; or had to have them shipped out of the area to be fed. The income amounts for T.G.&C. will be significantly less in the next couple years. So in projecting and estimating the next three years, the figures were averaged over the four years preceding 2002 (from 1998-2001 figures). The following is an explanation regarding how the numbers were estimated.

Operating Income:

Metered Water and Pasture Hookups & Memberships were estimated by taking the average of 1998-2001 for year 2003 with a 4% increase to figure for 2004 and 2005.

Since Late Charges and Miscellaneous Income has had varying changes over the past five years and is never a definite source of revenue, late charges was a rough estimate and miscellaneous was an average over the past two years. A 4% increase was used to figure the estimated revenue for these two line items for 2004 and 2005.

Operating Expenses:

All operating expenses were figured by taking the average of 1998-2001 for year 2003 with a 4% cost of living increase for 2004 and 2005.

Nonoperating Income:

The only nonoperating income for T.G.&C. is interest on their savings account and was figured by taking the average of 2001 and 2002 to figure year 2003 since interest rates took a drastic drop in the year 2001 and have stayed almost steady over the past two years. A 4% increase was used to figure the estimate interest for years 2004 and 2005.

A note regarding T.G.&C.'s savings accounts and the yearly payment to GMAC for their past three loans:

GMAC currently handles their three loans and requires that they have \$41,578 in a reserve account within their savings account to ensure two years of loan repayments to them. A letter referencing this is enclosed in the application. With that amount set aside, they would have approximately \$5,200.00 available in their savings account to use should they need it in an emergency situation.

Rate Schedules

Rural	\$48.00 Minimum (5,000 Gallons) \$ 2.00 Per 1,000 Gallons over 5,000 Gallons
Town	\$32.50 Minimum (2,500 Gallons) \$15.50 Per 1,000 Gallons over 2,500 Gallons \$ 2.00 Per 1,000 Gallons over 5,000 Gallons
Pasture	\$38.00 Annually \$ 2.00 per 1,000 Gallons

FINANCIAL REPORT

	<u>2001</u>	<u>2002</u>	2003 Est.	2004 Est.	2005 Est.
<u>INCOME</u>					
METERED WATER	76,206.19	90,421.74	64,696.84	67,284.71	69,976.10
LATE CHARGES	720.00	480.00	450.00	468.00	486.00
PASTURE & MEMBERSHIP	2,061.12	3,609.44	2,890.32	3,005.93	3,126.17
MISC.	195.09	418.12	306.61	318.87	331.62
TOTAL WATER INCOME	\$79,182.40	\$94,929.30	\$68,343.77	\$71,077.51	\$73,919.89
<u>EXPENSES</u>					
WAGES, FEES & MILEAGE	14,774.19	21,993.04	16,395.15	17,050.96	17,733.00
CHEMICALS	5,949.27	7,192.33	4,942.27	5,139.96	5,345.56
UTILITIES	9,283.33	10,690.46	9,810.54	10,202.96	10,611.08
SUPPLIES & REPAIR	7,747.84	12,810.71	6,309.35	6,561.72	6,824.19
INS. & TAXES	2,632.47	2,875.09	2,737.10	2,846.58	2,960.44

DEPT. OF HEALTH TESTS	296.00	228.00	230.00	240.00	250.00
OFFICE SUPPLIES & MISC.	6,538.01	2,443.45	2,425.98	2,523.02	2,623.94
G.M.A.C.	17,736.00	17,736.00	17,736.00	17,736.00	17,736.00
*NEW DEBT RETIREMENT			13,175.33	13,175.33	13,175.33
ONE-TENTH RESERVE			5,564.04	5,564.04	5,564.04
TOTAL EXPENSES	\$64,957.11	\$75,969.08	\$79,325.76	\$81,040.57	\$82,823.58
NET OPERATING INCOME	\$14,225.29	\$18,960.22	-\$10,981.99	-\$9,963.06	-\$8,903.69

*New debt was calculated using 4.857% interest rate and a 40 year payment plan.

Effects on water rates

Assuming T.G.&C. is eligible for a RU loan at 4.875% interest for 40 years it is estimated that rates will have to be increased \$5.50 per month per 5,000 gallons.

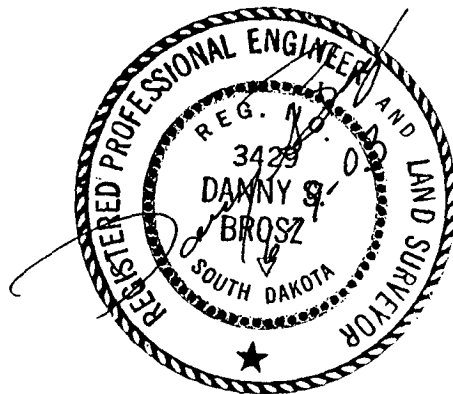
7.0 Conclusions and Recommendations.

The selected plan, Alternative 1, Part One is to develop a new well, connect the well to the existing standpipe and replace approximately 9,000 feet of waterline that is failing.

Part Two will be to develop a replacement well for Well #3 and connect the to existing system.

It is anticipated that construction would begin on Part One immediately and all work be completed by November 2003.

The completion of both Parts One & Two will require some assistance financially. Rates will need to be increase to meet the financial responsibility of these improvements. Any increase in water rate will place a financial strain on a community already stressed by drought.



R25E

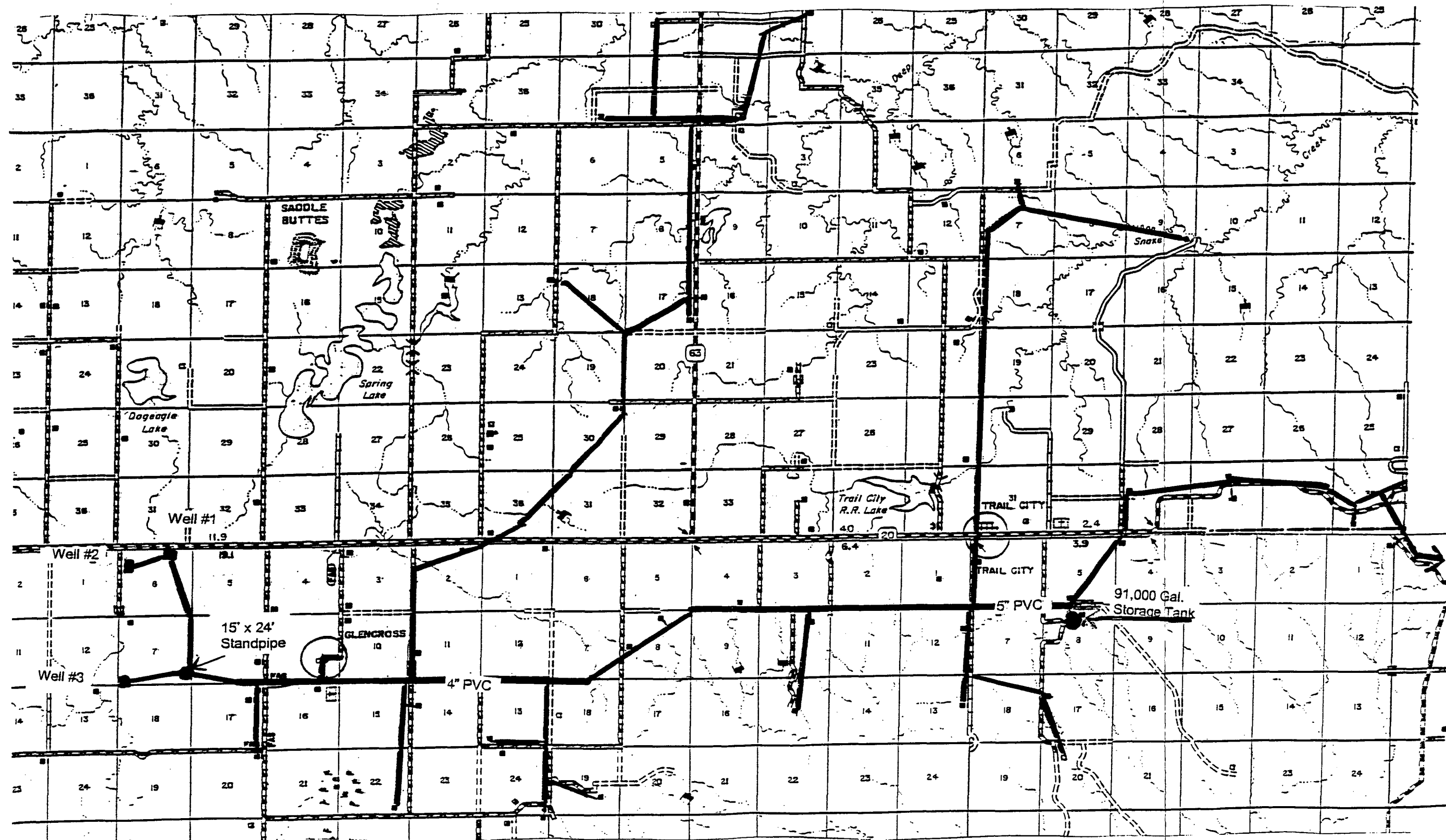
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T.C.&G. WATER FACILITY

A1

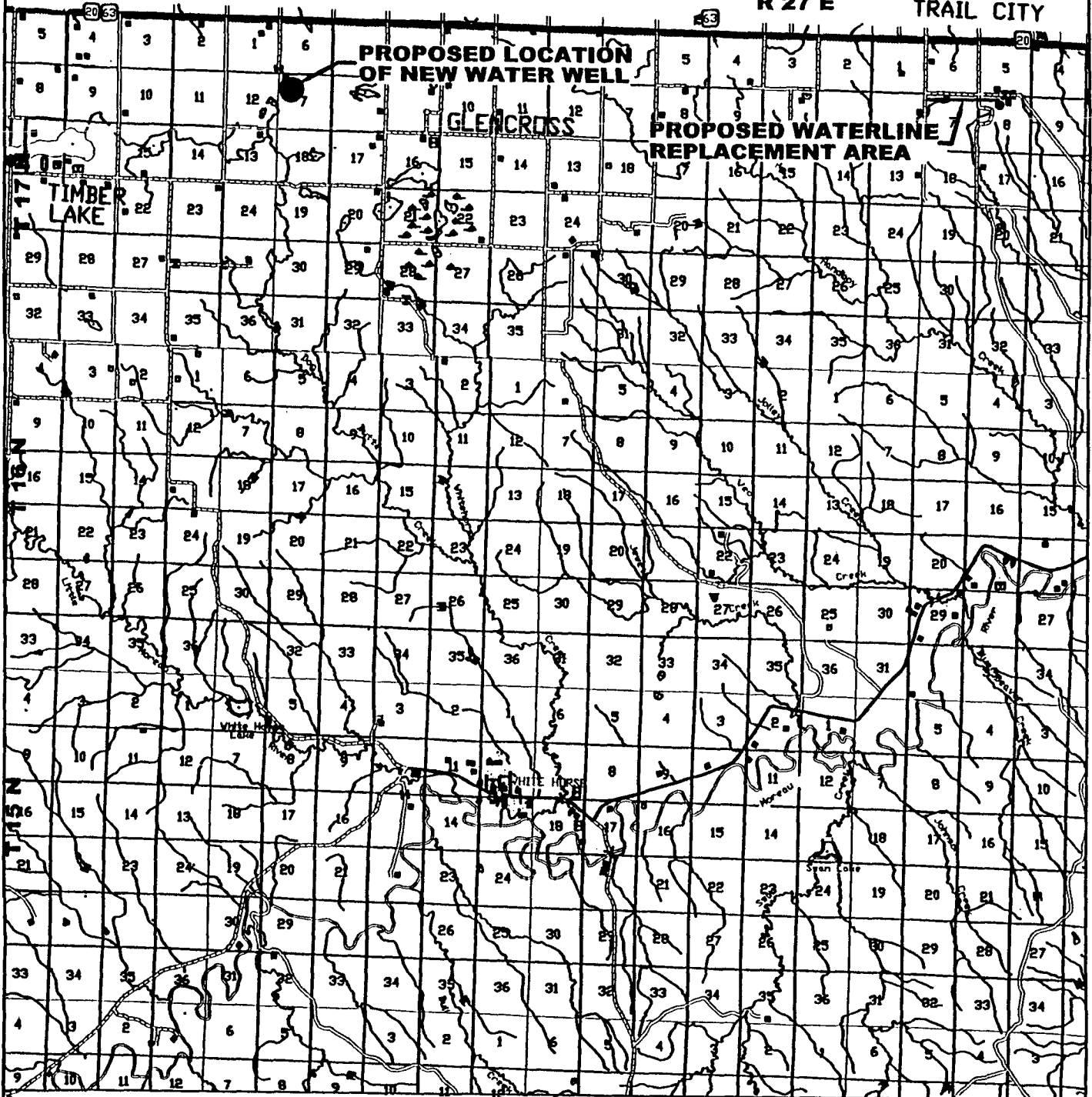
CORSON COUNTY

R 25 E

R 26 E

R 27 E

TRAIL CITY



■ 109 South Main St • Box 357 • Bowman, ND 58623
Phone: (701) 523-3340 • Fax: (701) 523-5243

□ 3030 Airport Rd • Suite A • Box 23 • Pierre, SD 57501
Phone: (605) 224-1123 • Fax: (605) 224-0639

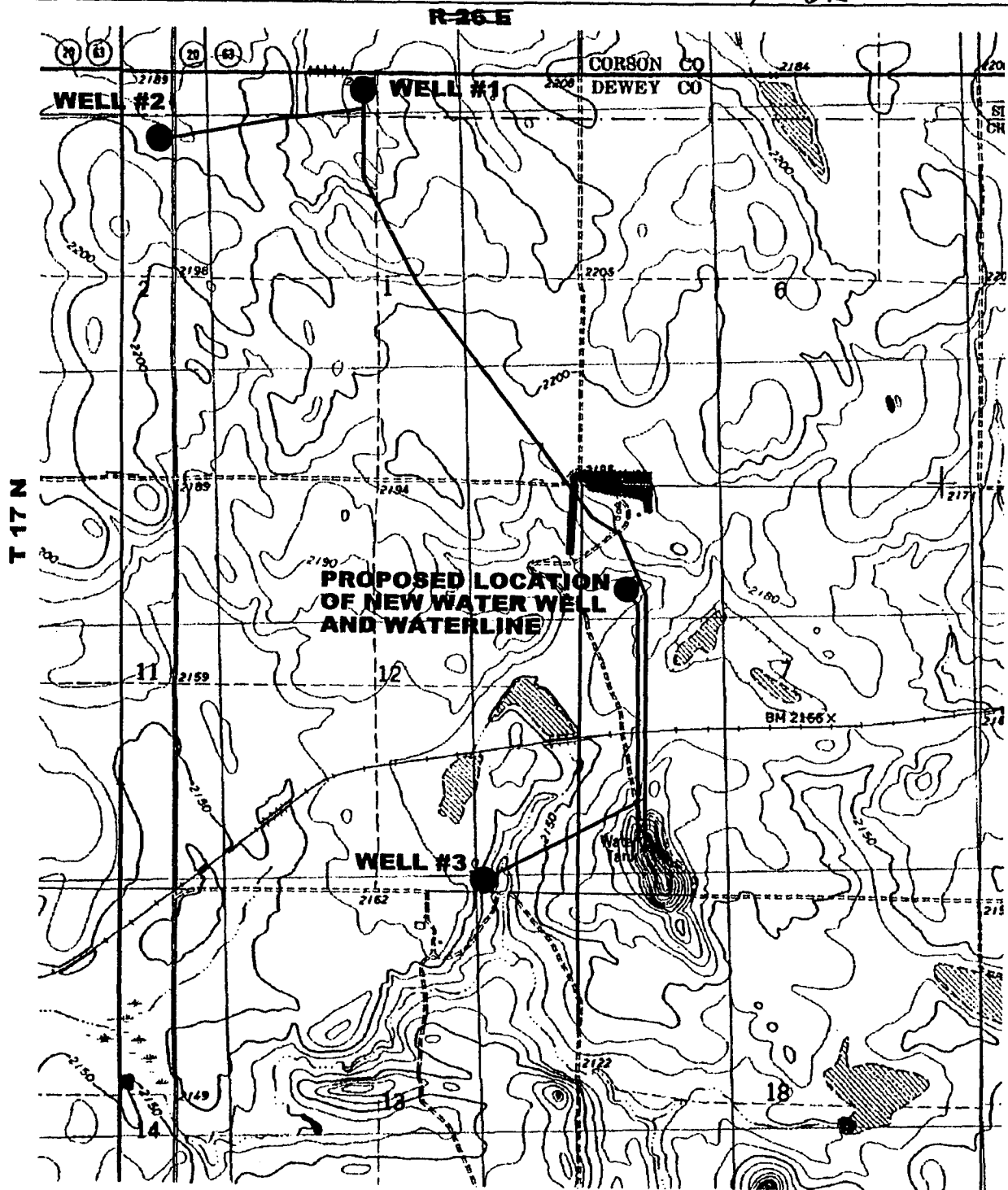
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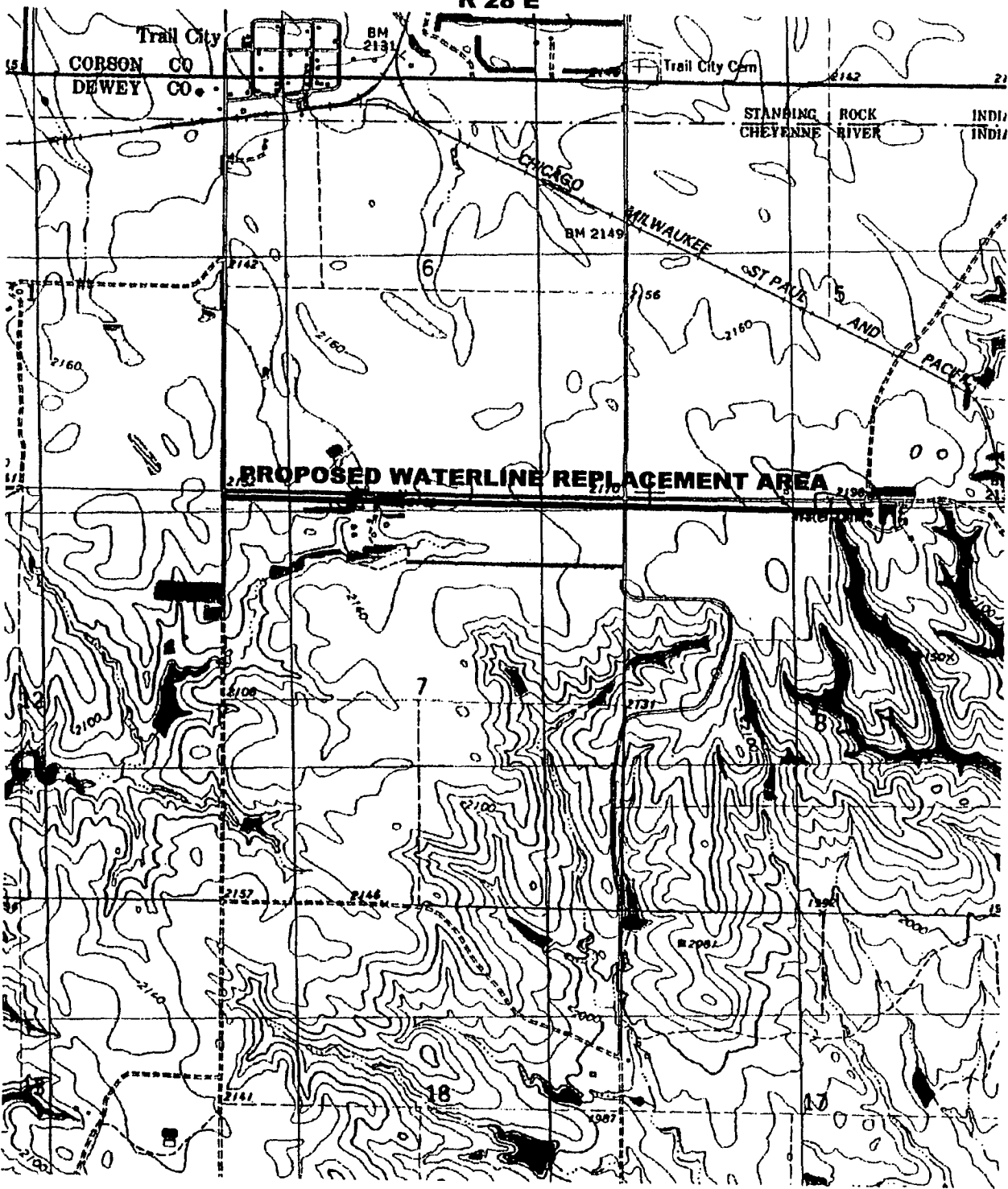
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REGISTERED IN NORTH DAKOTA,
SOUTH DAKOTA, AND MONTANA

DRAWING PREPARED BY: JADE HEDGE

Source Water Protection Plan for TC&G Rural Water System

April 11, 2001

Prepared By:
South Dakota Association
of Rural Water Systems
Cedar Plaza - Suite 5
5009 West 12th Street
Sioux Falls, SD 57106
(605) 336-7219

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TC&G Rural Water System Source Water Protection Area

Introduction

Source Water Protection Planning allows public water systems to take a proactive stance toward the protection of their vital water supply. Instead of finding alternate water sources after old source has been contaminated, Source Water Protection Planning allows systems to avoid the extremely high costs of developing a new source, or plan for alternative actions so that implementation can be budgeted in advance.

The 1996 Amendments to the Safe Drinking Water Act require that the primacy agency (South Dakota Department of Environment & Natural Resources (DENR)) conduct a source water assessment on every public water supply within the state. This process differs from the National Rural Water Association (NRWA) approach which requires going beyond evaluation of the susceptibility of a given public drinking water source, to the management of the area to prevent contamination.

At the present time the *South Dakota Source Water Assessment and Protection Program*¹ is undergoing implementation. However, USEPA has already approved the *South Dakota Wellhead Protection Guidelines*², which guide the protection of groundwater resources. The method for the susceptibility analysis has been approved as part of the Source Water Assessment Program. A more detailed susceptibility analysis will be presented later by SD DENR.

This report represents the delineation of the Source Water Protection Area and an inventory of potential sources of contamination for TC&G Rural Water System. It does not include management strategies or recommended actions. For a complete listing of management strategies please see the section labeled *Additional Sources of Information* at the end of this document.

The information presented herein has been obtained from the following sources: public records obtained from the South Dakota Department of Environment & Natural Resources regarding water rights, underground and above-ground storage tanks, sites storing chemical listed in Title III of the Superfund Amendments Reauthorization Act, chemical spills, hydrogeological records and well logs; general geological information was obtained from various United States Geological Survey publications, and conversations with various employees of the Geological Survey Program of the South Dakota Department of Environment and Natural Resources. Data was field verified.

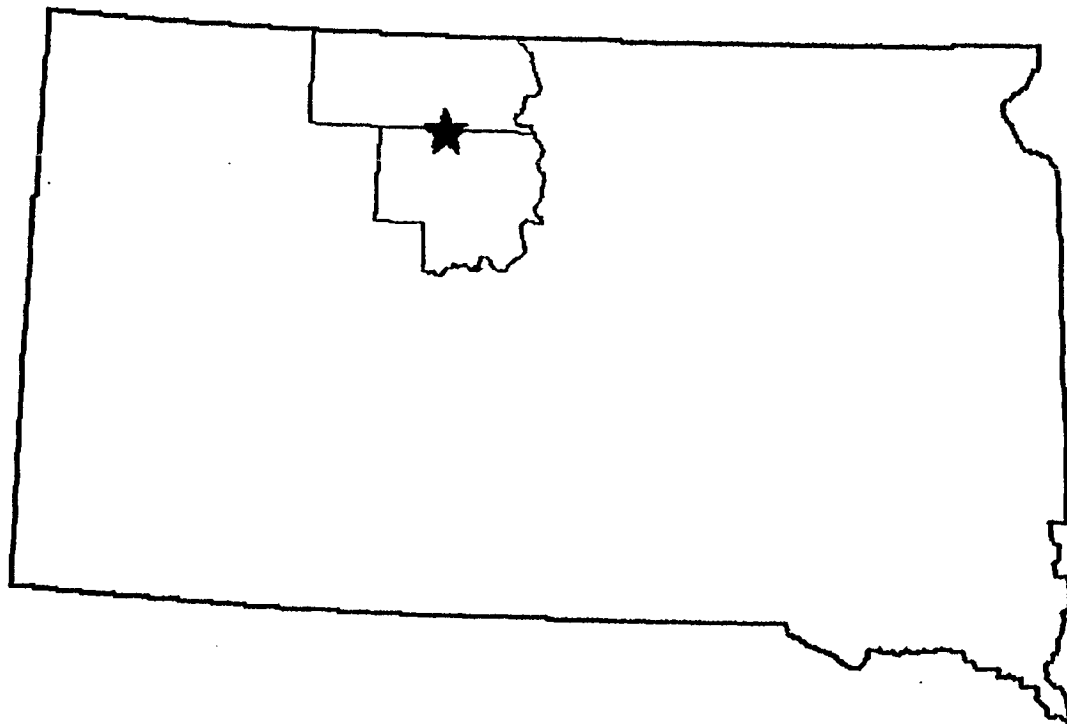
Community Information & Setting

TC&G Rural Water System is located in Corson and Dewey Counties, South Dakota (Figure 1). The system serves approximately 177 people, peak water demand is in the winter when cattle are on feed.

Source of TC&G Rural Water System's Drinking Water

TC&G Rural Water System (USEPA Facility ID 0143) currently has three production wells completed in the Fox Hills Formation.

Figure 1: Location of TC&G Rural Water System



Completion of Steps in Source Water Protection Planning Process

Source Water Protection Planning Process

The joint partnership between USEPA and NRWA has established a five (5) step process for Wellhead Protection. The same five (5) steps are part of the State of South Dakota for the *South Dakota Wellhead Protection Guidelines*, they are: 1) Form a community planning team, 2) Define the land area to be protected, 3) Identify and locate potential contaminant sources, 4) Manage the protection area, and 5) Plan for the future. The final two (2) steps go beyond the Safe Drinking Water Act requirements and place management in the hands of local government.

Step 1: Selection of a Community Planning Team

In March 2001, a planning committee was formed consisting of Rod Senger, TC&G manager, and Terry Plucker, South Dakota Association of Rural Water Systems (SDARWS) Groundwater Technician.

Step 2: Definition of the Source Water Protection Area

The South Dakota Department of Environment and Natural Resources defined the area to be protected. The delineation utilizes a calculated fixed radius method.

The formula^m $[r = \sqrt{((Qt)/(\Pi[nH]))}]$ was used. A pumping rate (Q) was taken from water rights permits and licenses, then converted to cubic feet per year. $\Pi = 3.1416$. A porosity (n) of 25% was assumed. The screen length (H) was also obtained from water permits and licenses.

The time of travel (t) for all three wells is two (10) years. The following table shows the number used for each well.

Well	1	2	3
Q in cfs	0.31	0.09	0.31
Screen length in feet	30	50	20
Radius of WhPA in feet	2037	850	2495

The Source Water Protection Area is shown on Digital Ortho-photographic Quarter Quadrangles (DOQQ'S)(Figure 2).

TC&G Rural Water System Wellhead Protection Areas

Legend

▲ Wells ○ Wellhead Protection Area ◆ Potential Sources of Contamination

343000

344000

345000

346000

5038000

5037000

5036000

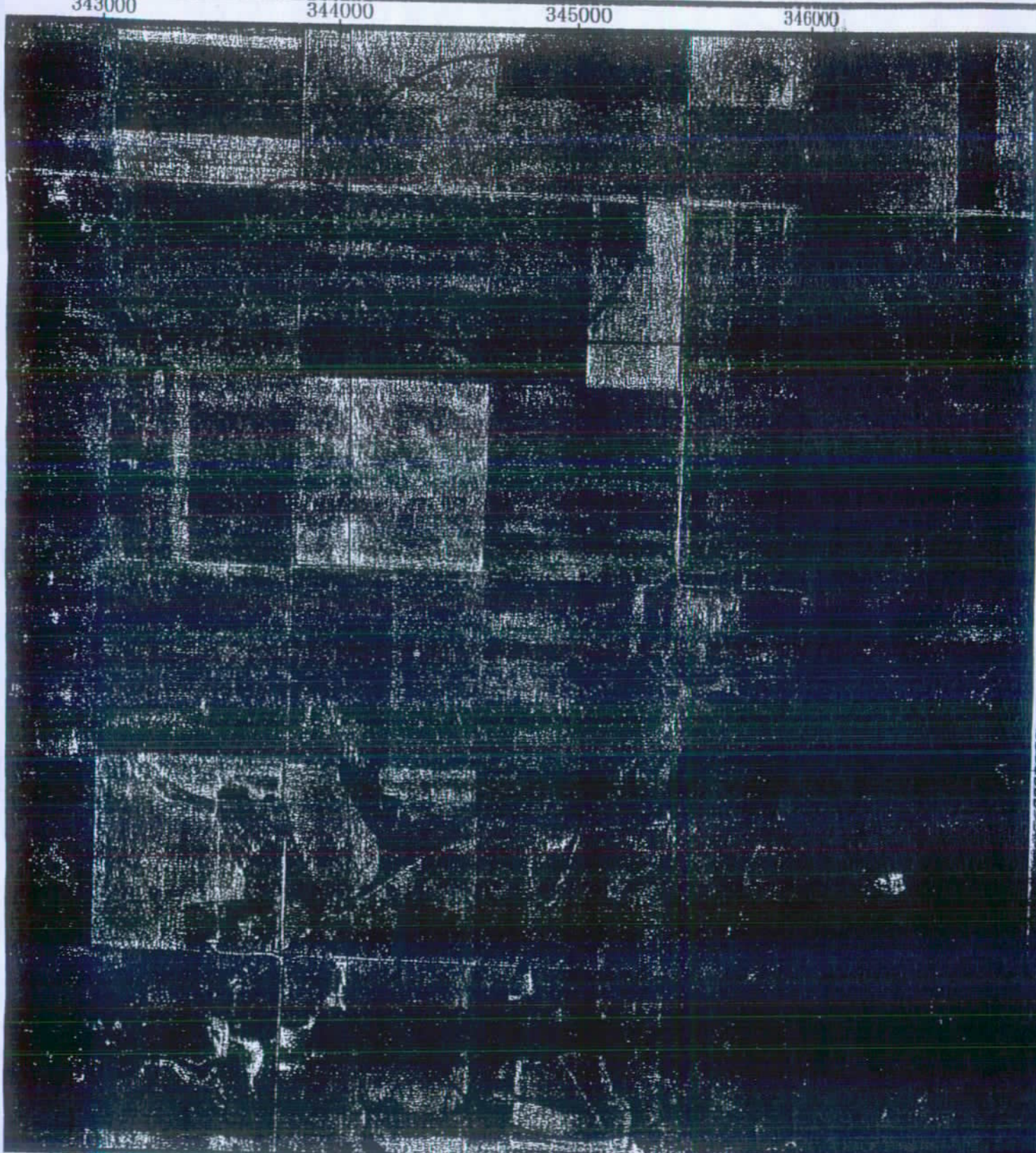
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Step 3: Identification of Potential Sources of Contamination

Potential Contaminant Sources

A potential source of contamination is any facility that stores, transports, transfers, treats, or discharges potential drinking water contaminants. It is not an indication of the management of these facilities. This report will provide an inventory of these contaminants; an evaluation of their potential to contaminate the aquifer will be limited. The South Dakota Department of Environment and Natural Resources will evaluate this at a later date as part of a susceptibility assessment.

On March 15, 2001, Terry Plucker met Rod Senger to develop a listing of all potential sources of contamination within the delineated area.

There was only one point source of contamination. The winter feedlot surrounding well #3. Animal waste can be a source of high nitrates, nitrites, coliform bacteria, cryptosporidium, and giardia.

Summary of Potential Sources

Due to the shallow and porous nature of the Fox Hills Formation, any point sources could pose a threat. Public education about best management practices to prevent contamination can go a long way to minimize the risk.

Land use throughout the area is a combination of pastureland and dryland smallgrain. It is unlikely that non-point source pollution of the wellhead will be a significant factor.

Transportation related spills could occur near wells 1 and 2 along SD highway 20.

Steps 4 & 5: Management & Planning

The management of a Source Water Protection Area offers many benefits to the public water supply system. These range from increasing public awareness by placing signs around the protected area, adopting regulatory measures such as zoning ordinances, voluntary enrollment of land in conservation practices, and purchase of land to control and manage these sensitive areas. Typically, a city, county, or rural water system will use a combination of methods.

Planning for the future works hand in hand with the management of the Source Water Protection Area. The ability to predict expansion of a community, its future needs, and whether a potential spill could reach the public water source allows a public water system to avoid costly emergencies. Contingency planning also includes identification of alternate sources of water, including the cost and timetable for implementation.

Management of the area and contingency planning are the most important steps in the Source Water Protection process. Delineating the area to be protected and identification of potential contaminant sources are the building blocks of management and planning.

Systems should strive to find ways to minimize potential risks of contamination within their Source Water Protection Area. Systems should consider options such as public education, routine sampling and maintenance of monitoring wells, establishing community recycling centers for waste oil and chemicals, establishment of planning and zoning controls, and in some cases purchasing land. The South Dakota Association of Rural Water Systems can assist public water suppliers and local governments in developing a management plan which best suits their community.

References

- ¹ South Dakota Department of Environment and Natural Resources, Division of Environmental Regulation, Ground Water Quality Program, 1999, *Draft South Dakota Source Water Assessment and Protection Program*, Pierre, SD
- ² South Dakota Department of Environment and Natural Resources, Division of Environmental Regulation, Ground Water Quality Program, 1995, *South Dakota Wellhead Protection Guidelines*, Pierre, SD
- ³ U.S. Environmental Protection Agency, Office of Research & Development, Office of Water, 1993, *Seminar Publication: Wellhead Protection: A Guide for Small Communities*, USEPA/625/R-93/002, pg. 38, Equation 4-1, Washington, DC

Appendix I: Additional Sources of Information

Organizations

South Dakota Association of Rural Water Systems

Suite 5 – Cedar Plaza
5009 West 12th Street
Sioux Falls, SD 57106
Phone: (605) 336-7219
Fax: (605) 336-1497

National Rural Water Association

2915 South 13th
Duncan, OK 73533
Phone: (580) 252-0629

South Dakota Department of Environment & Natural Resources Geological Survey

Akeley Science Center, USD
4141 East Clark Street
Vermillion, SD 57069-2390
Phone: (605) 677-5227

South Dakota Department of Environment & Natural Resources Ground Water Quality - Source Water Protection

Foss Building
523 East Capitol Avenue
Pierre, SD 57501
Phone: (605) 773-3296

Noted Texts

South Dakota Department of Environment and Natural Resources, Division of Environmental Regulations,
Ground Water Quality Program, 1995, *South Dakota Wellhead Protection Guidelines*, Pierre, SD

United States Environmental Protection Agency, 1996, *Business Benefits of Wellhead Protection – Case Studies*,
Office of Water, Washington DC EPA/813/B-95-004

United States Environmental Protection Agency, 1989, *Local Financing for Wellhead Protection*, Office of
Water, Washington DC EPA/440/6-89-001

United States Environmental Protection Agency, 1989, *Wellhead Protection Programs: Tools for Local
Governments*, Office of Water, Washington DC EPA/440/6-89-002

United States Environmental Protection Agency, 1993, *Seminar Publication: Wellhead Protection: A Guide for
Small Communities*, Office of Research and Development, Office of Water, Washington DC EPA/625/R-
93/002



Department of Education and Cultural Affairs

Cultural Heritage Center
900 Governors Drive
Pierre, SD 57501-2217
(605)773-3458 fax (605)773-6041
www.sdhistory.org

March 17, 2003

Gabe Maliske
109 S Main
Box 357
Bowman ND 58623

SECTION 106 PROJECT CONSULTATION - IDENTIFICATION

Project: Trail City and Glencross Water Association Proposed Improvement Project
Location: Corson and Dewey Counties

Dear Mr. Maliske:

Thank you for the opportunity to comment on the above referenced project pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended). Based on the information provided in your letter received on March 17, 2003, the proposed project's APE is located within the administrative boundaries of the Standing Rock Indian Reservation in Corson County and the Cheyenne River Indian Reservation in Dewey County. Therefore, this project should be referred to the Standing Rock Sioux and Cheyenne River Sioux Tribal Historic Preservation Officers (THPO). This referral is pursuant to agreements made in 1996 and 1998 between the USDI National Park Service and the Standing Rock Sioux Tribe and Cheyenne River Sioux Tribe respectively, which authorizes the Tribe to assume NHPA review responsibilities on undertakings within their jurisdiction. Thus, this project should be forwarded for review to Tim Mentz, THPO, Standing Rock Sioux Tribe, P.O. Box D, Fort Yates, ND 58538; phone (701) 854-2120 and Mr. James Picotte, THPO, Cheyenne River Sioux Tribe, PO Box 590, Eagle Butte, SD 57625; phone (605) 964-7554.

If during the course of any ground disturbance related to this project, any bones, artifacts, foundations, or other indications of past human occupation of the area are uncovered, the project should be temporarily stopped and the Standing Rock or Cheyenne River THPO notified immediately.

Should you require any additional information, please do not hesitate to contact Paige Hoskinson, Review & Compliance Coordinator, at (605) 773-6004. Your concern for the non-renewable cultural heritage of our state is appreciated.

Sincerely,

Jay D. Vogt
State Historic Preservation Officer

Paige Hoskinson
Review & Compliance Coordinator

Cc: Tim Mentz, Standing Rock Tribe
Jim Picotte, Cheyenne River Sioux Tribe



T RIBAL HISTORIC PRESERVATION OFFICE
S TANDING ROCK SIOUX TRIBE

P.O. Box D
Fort Yates, N. D. 58538
Tel: (701) 854-2120
(701) 854-7265
(701) 854-3476
Fax: (701) 854-2138

April 3, 2003

Gabe Maliske
Brosz Engineering, Inc.
109 S. Main
Box 357
Bowman, ND 58623

Re: Section 106 Project Consultation on the Proposed Trail City and Glencross Water Association Improvement Project

Dear Mr. Maliske,

Your letter of March 14, 2003, to the South Dakota State Historical Society was referred to our office since the Standing Rock Sioux Tribe's Tribal Historic Preservation Office has jurisdiction over all Section 106 consultations on projects within the exterior bounds of the Standing Rock Sioux Reservation. By tribal code, a Class III cultural resources inventory (intensive pedestrian ground search) must be performed on all projects within the exterior bounds of the reservation. It does not appear from your letter that this has been done for the above project. You can hire personnel out of our office or use a private consultant to conduct the inventory. Since your project spans the Standing Rock/Cheyenne River reservation boundary, you will also have to consult with Cheyenne River's THPO office. If there is federal funding for your project, the Section 106 consultations should be routed through the lead federal agency.

If you have any questions, please feel free to contact me.

Sincerely,

STANDING ROCK SIOUX TRIBE

Byron Olson
Byron Olson
Tribal Archaeologist

Tim Mentz, Sr. ♦ Tribal Historic Preservation Officer ♦ e-mail: tmentz@westriv.com
Tribal Historian ♦ e-mail: @westriv.com
Byron Olson ♦ Tribal Archaeologist ♦ e-mail: bolson@westriv.com
Mary Wilson ♦ Environmental Protection Specialist ♦ e-mail: mwilson@westriv.com
George Ironfield ♦ Repatriation Coordinator ♦ e-mail: george.ironfield@westriv.com

62



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

March 25, 2003

Mr. Gabe Maliske, Project Engineer
Brosz Engineering, Inc.
109 South Main
P.O. Box 357
Bowman, North Dakota 58623

Re: Trail City and Glencross Water
Association, Corson and Dewey
Counties in South Dakota

Dear Mr. Maliske:

This letter is in response to your request dated March 14, 2003, for environmental comments regarding the above referenced project involving the development of an additional well and to replace 1.5 miles of the 30-year-old waterline that is failing. Construction will take place in Dewey County, South Dakota.

According to the enclosed National Wetlands Inventory maps, wetlands exist near the proposed construction area. If a project may impact wetlands or other important fish and wildlife habitats, the Fish and Wildlife Service (Service), in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible. If this is not possible, attempts should be made to minimize adverse impacts. Finally, if adverse impacts are unavoidable, then measures should be undertaken to replace the impacted areas.

In accordance with section 7(c) of the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed species may occur in the project area (this list is considered valid for 90 days):

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Whooping crane (<u>Grus americana</u>)	Endangered	Migration.
Bald eagle (<u>Haliaeetus leucocephalus</u>)	Threatened	Migration, Winter Resident, Possible Nesting.

Whooping cranes migrate through South Dakota on their way to northern breeding grounds and southern wintering areas. They occupy numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently

require shallow water in which they stand and rest. Should construction occur during spring or fall migration, the potential for disturbances to whooping cranes exists. Disturbance (flushing the birds) stresses them at critical times of the year. We recommend that you remain vigilant for these birds. There is little that can be done to reduce disturbance besides ceasing construction at sites where the birds have been observed. The birds normally do not stay in any one area for long during migration. Any whooping crane sightings should be reported to this office.

Bald eagles occur throughout South Dakota, and new nests are appearing each year. No construction should occur within one-quarter mile of any known active bald eagle nest. The species' nesting season is January to August. Any nests found should be reported to this office.

If the Rural Utilities Service or their designated representative determines that the project "may adversely affect" listed species in South Dakota, it should request formal consultation from this office. If a "may affect - not likely to adversely affect" determination is made for this project, it should be submitted to this office for concurrence. If a "no effect" determination is made, further consultation may not be necessary. However, a copy of the determination should be sent to this office.

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

The Service appreciates the opportunity to provide comments. If you have any questions on these comments, please contact Charlene Bessken of this office at (605) 224-8693, Extension 29.

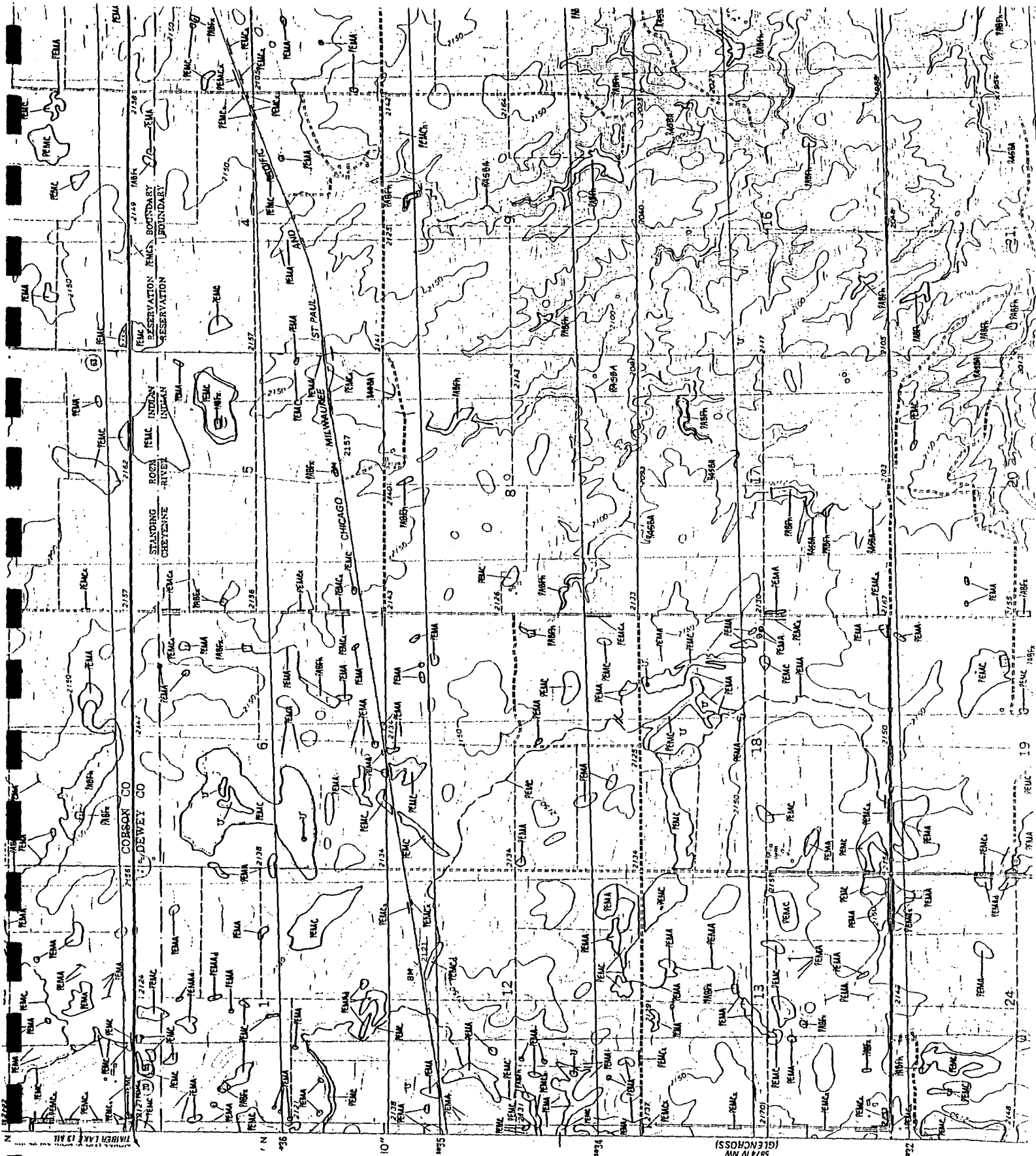
Sincerely,



Pete Gober
Field Supervisor
South Dakota Field Office

Enclosures

cc: Corps/Regulatory; Pierre, SD
(Attention: Steve Naylor)





109 S. Main, Box 357
Bowman, ND 58623
Phone: (701)523-3340
Fax: (701)523-5243

March 14, 2003

SD Dept. of Game, Fish & Parks
Division of Wildlife
445 E. Capitol Ave.
Pierre, SD 57501

RE: Trail City and Glencross Water Association
Corson and Dewey Counties, South Dakota
Proposed Improvement Project



The Trail City and Glencross Water Association is in the process of performing an environmental review pursuant to the National Environmental Policy Act for the USDA, Rural Utilities Service in order that it may assess the environmental impacts of the proposed improvement project in Corson and Dewey Counties, South Dakota. The project is being proposed to ensure that an adequate water supply is maintained and the water quality in the distribution system is protected. Enclosed is an U.S. Geological Survey maps and a description of the work involved.

Trail City and Glencross Water Association requests that your office review the proposed project for any State and Federally-listed threatened or endangered species and any other important State natural resources that may occur in the project area. Please provide any recommendations you may have to mitigate or avoid these impacts.

We would appreciate a response within 30 days. If you need any further information or wish to discuss the project, please contact Brosz Engineering at 701-523-3340.

Sincerely,

Gabe Malisceke, PE
Project Engineer

**S.D. DEPARTMENT OF
GAME, FISH AND PARKS**

Project as described will have no significant impact on fish and wildlife resources. If project design changes, please submit plans for review.

3-18-03
Date

Approval

United States Department of Agriculture



Natural Resources Conservation Service
Federal Building, 200 Fourth St. SW
Huron, South Dakota 57350

Phone: (605) 352-1200
Fax: (605) 352-1261

April 3, 2003

Mr. Gabe Maliske, P.E.
Brosz Engineers, Inc.
109 S. Main, Box 357
Bowman, North Dakota 58623

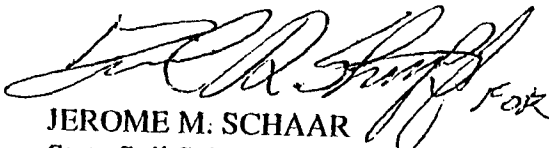
RE: Trail City and Glencross Water Association

Dear Mr. Maliske:

We have reviewed the map of the proposed locations for improvements.

Since the pipes are buried, there will be no significant impact on the prime or important farmland.

Sincerely,



JEROME M. SCHAAAR
State Soil Scientist

cc:

Allen Faulkner, DC, NRCS, McIntosh
Mike LaCompte, DC, NRCS, Timber Lake



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
SOUTH DAKOTA REGULATORY OFFICE
28563 POWERHOUSE ROAD, RM 118
PIERRE, SD 57501-6174

REPLY TO
ATTENTION OF:

March 20, 2003

South Dakota Regulatory Office
28563 Powerhouse Road, Room 118
Pierre, South Dakota 57501

Brosz Engineering, Inc.
Attn: Gabe Maliske, PE
Box 357
Bowman, North Dakota 58623

Dear Mr. Maliske:

Reference is made to the preliminary information received March 17, 2003, concerning Department of the Army authorization requirements for the construction of a new water well and rural water pipeline for The Trail City and Glencross Water Association in Corson and Dewey Counties, South Dakota.

The Corps' jurisdiction stems from Section 10 of the Rivers and Harbors Act of March 3, 1899, and Section 404 of the Clean Water Act passed by Congress in 1972. Section 10 calls for Federal regulation of activities in or affecting navigable waters of the United States. Waterways in South Dakota subject to regulation under the provisions of Section 10 include the Missouri River, the James River, the lower five miles of the Big Sioux River and Lake Traverse (Bois de Sioux River). Section 404 calls for Federal regulation of the discharge of dredged or fill material in waterways, lakes and/or wetlands, including the above noted navigable waters. Activities that do not involve work in or affecting navigable waters (Section 10) or activities that do not involve a discharge of dredged or fill material in a lake, river, stream or wetland (Section 404) do not require Department of the Army authorization.

Based on the preliminary information provided, it appears that some of the proposed construction activities may involve the discharge of dredged or fill material in jurisdictional waterways. Therefore, a Department of the Army permit may be required. For our final determination and for processing of permits, we would ask that you submit final plans when they become available.

Enclosed is the necessary application form (ENG Form 4345) and information pamphlet. When completing the application form, we would request from the applicant (a) a detailed description of the work activity (i.e., explain precisely what you are going to do and how you are going to accomplish it; include fill and/or excavation quantities and dimensions to be performed below the ordinary high water elevation, along with the source/type of fill and the type of equipment to be used during construction); (b) the purpose and/or benefits of the proposed project; and (c) any alternative project designs considered.

Along with the completed application form, we would request from the applicant (1) drawings (plan and cross-sectional views; the drawings should be submitted on 8-1/2x11 inch paper), (2) location map(s) showing all jurisdictional work sites (i.e., where the utility line will be placed in a waterway, lake, and/or wetland). Any crossing that will exceed 500 feet in length will need to be clearly identified. (3) if available, colored pictures showing at least two views of the proposed project site(s) and (4) any ecological or environmental information available that you feel may be pertinent to your project (i.e., area wildlife activity, area vegetation, area land use, quality of fishery, etc.).

Adherence to the above information requests will speed up the application evaluation and permit processing time. The requested information is used to help the Corps determine the type of permit to process if a permit is required and is used in the public review.

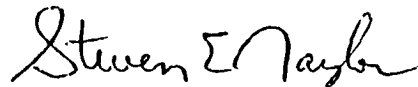
Regarding your request for comment relative to environmental impacts, this office assesses project impacts, including environmental impacts, after receipt of the detailed, site specific information required via our permit application process. However, in general terms, utility line crossings of waters of the United States generally result in minimal impact and are typically permitted under Nationwide Permit No. (12) found in the January 15, 2002, Federal Register, Issuance of Nationwide Permits; Notice (67 FR 2020-2095) and the February 13, 2002, Federal Register, Issuance of Nationwide Permits; Notice Correction (67 FR 6692-6695).

Please note that you must notify the Corps of Engineers in the form of a permit application to do work under this Nationwide Permit when one or more of the following criteria apply to the proposed project:

- a. Mechanized landclearing in a forested wetland.
- b. The utility line crosses one of the above noted navigable waterways that is subject to regulation under Section 10 of the Rivers and Harbors Act.
- c. The utility line in waters of the United States exceeds 500 feet.
- d. The utility line is placed within a jurisdictional area (i.e., a water of the United States), and it runs parallel to a streambed that is within that jurisdictional area.
- e. Discharges associated with the construction of utility line substations that result in the loss of greater than 1/10th acre of water of the United States.
- f. Permanent access roads constructed above grade in waters of the United States for a distance of more than 500 feet; of
- g. Permanent access roads constructed in waters of the United States with impervious materials. (Section 10 and 404).

If you have any questions or need any assistance, please feel free to contact this office at the above Regulatory Office address or telephone (605) 224-8531.

Sincerely,



Steven E. Naylor
Regulatory Program Manager,
South Dakota

Enclosures

Brosz E Engineering, Inc.

109 S. Main, Box 357
Bowman, ND 58623
Phone: (701)523-3340
Fax: (701)523-5243

March 14, 2003

SD DENR
Office of Air Quality
Foss Building
523 E. Capitol Ave.
Pierre, SD 57501

RE: Trail City and Glencross Water Association
Corson and Dewey Counties, South Dakota
Proposed Improvement Project

Registered in North Dakota, South Dakota, and Montana

WASTE MANAGEMENT DETERMINATION Hazardous Waste/Solid Waste/Asbestos

It appears, based on the information provided,
that this project will have little or no impact
on the waste management in this area.

Approved By: Vonni Kallemeijn

Date: 3-27-03

Phone #: (605) 773-3153 Fax #: (605) 773-6035

**SOUTH DAKOTA DEPARTMENT
OF ENVIRONMENT AND NATURAL RESOURCES**

The Trail City and Glencross Water Association is in the process of performing an environmental review pursuant to the National Environmental Policy Act for the USDA Rural Utilities Service in order that it may assess the environmental impacts of the proposed improvement project in Corson and Dewey Counties, South Dakota. The project is being proposed to ensure that an adequate water supply is maintained and the water quality in the distribution system is protected. Enclosed is an U.S. Geological Survey maps and a description of the work involved.

Any construction debris must be disposed of at a permitted solid waste facility. UK

We are requesting information on the possible effects of the proposed project on air quality and any other important State natural resources that may occur in the project area. Please provide any recommendations you may have to mitigate or avoid these impacts.

We would appreciate a response within 30 days. If you need any further information or wish to discuss the project, please contact Brosz Engineering at 701-523-3340.

Sincerely,

Gabe Maliske

Gabe Maliske, PE
Project Engineer

RECEIVED

MAR 17 2003

AIR QUALITY
PROGRAM

SURFACE WATER QUALITY DETERMINATION

It appears, based on the information provided, that this project will have little or no impact on the surface water quality in this area. This project is approved.

Approved By: Gabe Maliske

Date: 3-27-2003

(605) 773-3351 FAX - (605) 773-5286
SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES

AIR QUALITY DETERMINATION

It appears, based on the information, that the project will have little or no impact on the air quality in this area. This project is approved.

Approved By: Brad Schultz

Date: 3-20-03

(605) 773-6038 Fax: (605) 773-5286
South Dakota 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

March 28, 2003

Gabe Maliske, PE
Brosz Engineering, Inc
109 S. Main, Box 357.
Bowman, ND 58623

Re: Trail City and Glencross Water Association Water System Improvement Project

Dear Mr. Maliske:

The Ground Water Quality Program of the South Dakota Department of Environment and Natural Resources has reviewed the above-referenced project for potential impacts to ground water quality. Based on the information submitted in your letter dated March 14, 2003, the department does not anticipate adverse impacts to ground water quality by this project.

However, there have been accidental petroleum and other chemical releases throughout the state. Of the accidental releases reported to the department, we have not identified any release cases in the vicinity of this project. However, the location information provided to us regarding releases is sometimes inaccurate or incomplete. Therefore, we have not conclusively eliminated the possibility that this project may encounter contaminated material. If you would like to do more research regarding accidental releases, information on accidental releases reported in South Dakota may be obtained at the following website: <http://www.state.sd.us/denr/DES/ground/dataspil.htm>. In the unlikely event that contamination is encountered during construction activities, the Trail City and Glencross Water Association or its designated representative must report the contamination to the department at (605) 773-3296. Any contaminated soil encountered must be temporarily stockpiled and sampled to determine disposal requirements and the materials of construction through the contaminated area should be evaluated for chemical compatibility and adjusted accordingly.

If you have any questions regarding the information provided, please contact this office at (605) 773-3296. Thank you for providing the opportunity to comment on this project.

Sincerely,

Anita Yarn, P.E.
Ground Water Quality Program



109 S. Main, Box 357
Bowman, ND 58623
Phone: (701)523-3340
Fax: (701)523-5243

Registered in North Dakota, South Dakota, and Montana

March 14, 2003

SD DENR
Office of Drinking Water
Foss Building
523 E. Capitol Ave.
Pierre, SD 57501

RECEIVED

MAR 17 2003

RE: Trail City and Glencross Water Association
Corson and Dewey Counties, South Dakota
Proposed Improvement Project

Drinking Water Program

The Trail City and Glencross Water Association is in the process of performing an environmental review pursuant to the National Environmental Policy Act for the USDA, Rural Utilities Service in order that it may assess the environmental impacts of the proposed improvement project in Corson and Dewey Counties, South Dakota. The project is being proposed to ensure that an adequate water supply is maintained and the water quality in the distribution system is protected. Enclosed is an U.S. Geological Survey maps and a description of the work involved.

We are requesting information on the possible effects of the proposed project on drinking water and any other important State natural resources that may occur in the project area. Please provide any recommendations you may have to mitigate or avoid these impacts.

We would appreciate a response within 30 days. If you need any further information or wish to discuss the project, please contact Brosz Engineering at 701-523-3340.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Gabe Maliske'.

Gabe Maliske, PE
Project Engineer

DRINKING WATER QUALITY DETERMINATION
It appears, based on the information provided,
that this project will not have adverse
environmental effects to drinking water in
this area. This project is approved.
Approved by: A handwritten signature in cursive script, appearing to read 'Michael Williams'.
Date: 3-18-2003 ID No.: 2003038
605-773-3754 Fax 605-773-5286
SOUTH DAKOTA DEPARTMENT OF
ENVIRONMENT & NATURAL RESOURCES



109 S. Main, Box 357
Bowman, ND 58623
Phone: (701)523-3340
Fax: (701)523-5243

March 14, 2003

SD DENR
Office of Environmental Services
Foss Building
523 E. Capitol Ave.
Pierre, SD 57501

Registered in North Dakota, South Dakota, and Montana



RE: Trail City and Glencross Water Association
Corson and Dewey Counties, South Dakota
Proposed Improvement Project

The Trail City and Glencross Water Association is in the process of performing an environmental review pursuant to the National Environmental Policy Act for the USDA, Rural Utilities Service in order that it may assess the environmental impacts of the proposed improvement project in Corson and Dewey Counties, South Dakota. The project is being proposed to ensure that an adequate water supply is maintained and the water quality in the distribution system is protected. Enclosed is an U.S. Geological Survey maps and a description of the work involved.

Trail City and Glencross Water Association requests that your office review the proposed project for any State and Federally-listed threatened or endangered species and any other important State natural resources that may occur in the project area. Please provide any recommendations you may have to mitigate or avoid these impacts.

We would appreciate a response within 30 days. If you need any further information or wish to discuss the project, please contact Brosz Engineering at 701-523-3340.

Sincerely,

Gabe Maliske, PE
Project Engineer

Construction debris
must be disposed of
at a permitted solid
waste facility - UK

WASTE MANAGEMENT DETERMINATION
Hazardous Waste/Solid Waste/Asbestos

It appears, based on the information provided,
that this project will have little or no impact
on the waste management in this area.

Approved By: Vonni Kallanayn

Date: 3-18-03

Phone #: (605) 773-3153 Fax #: (605) 773-6035

SOUTH DAKOTA DEPARTMENT
OF ENVIRONMENT AND NATURAL RESOURCES

INTENSIVE PEDESTRIAN
CULTURAL RESOURCES INVENTORY
OF THE
TRAIL CITY & GLENCROSS WATER ASSOCIATION
IMPROVEMENT PROJECT

Cheyenne River Indian Reservation

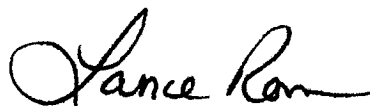
Dewey County, South Dakota

by

Lance Rom

Quality Services Project #SDDW053003

May 2003



Lance Rom
Principal Investigator

Quality Services
Archeology, History, Paleontology & Tribal Consultation
2416 Jackson Blvd
Rapid City, South Dakota 57702-3450
Phone 605-721-0701
Fax 605-721-0702
Email: quality@rushmore.com
www.quality-services.info

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Abstract

A cultural resource inventory was conducted in the Grand-Moreau Tablelands Study Area for the Trail City and Glencross Water Association's Improvement Project. Two pipelines and four possible well locations were inventoried.

No cultural resources were known for the project area prior to this inventory.

Two historic period sites were found while conducting the inventory.

- Site 39DW362 is a homestead. It is recommended not eligible for the National Register of Historic Places (NRHP) and no further work or protection is recommended. This site will not be affected by the project as planned.
- Site 39DW2007 is the Chicago, Milwaukee, St. Paul and Pacific Railroad. This site is recommended eligible for the National Register. The proposed pipeline will cross the railroad grade in a previously disturbed area that is recommended as non-contributing towards its National Register eligibility. Therefore the proposed project will have "no adverse effect" on the railroad grade.

A "no adverse effect" determination is recommended for the project as planned.

Acknowledgements

This project was successful because of the help of numerous people at the Cheyenne River Sioux Tribe Historic Preservation Office, Brosz Engineering and the Trail City and Glen Cross Water Association. These include James Picotte, Tribal Historic Preservation Officer; Albert LeBeau, Tribal Archeologist; Gabe Maliske, Project Engineer; Rod Senger, Water Association Manager; and others.

Survey 39 acres of inventory on private, non-Trust lands
 (19.4 acres pipeline and 19.6 acres well area)

Location Dewey County, South Dakota
 T17N, R26E, section 7; and
 T17N, R28E, sections 5, 6, 7 and 8
 USGS 7.5' Glencross and Trail City, South Dakota quadrangles

Project Description

This inventory was conducted as part of Trail City and Glencross Water Association's (TCGWA) Improvement Project. Two pipelines and four possible well locations were inventoried as part of the environmental assessment process. The information collected will be shared with the various Federal and the Cheyenne River Sioux Tribe Historic Preservation Office.

The project proposes water pipeline construction adjacent to existing pipeline routes and drilling one water well. The pipelines will replace an existing pipeline that has

experienced several breaks (1.6 miles long), and will also move water from the new well to a storage tank (.45 miles long).

The construction easement is 30 feet in width throughout the pipeline corridors. Corridors 100 feet wide were inventoried, so that if problems are encountered during construction, or if the lines need to be moved over due to other buried cables, pipelines, erosion or easements, the intended route can vary within the 100 foot corridor without necessitating further inventory and compliance review.

While only one new water supply well is planned to be drilled four possible well locations were inventoried in a 19 acre block area. This was done so that the well can be moved if dry holes are encountered. The proposed well disturbance areas are less than ¼ acre each. The well is expected to be drilled with a truck mounted rig.

This report will aid TCGWA and review agencies in considering current conditions of the cultural resources and in developing management alternatives.

Compliance with Federal Laws, Regulations and Other Policies

Cultural Resources inventories are being conducted to aid in complying with Section 106 of the National Historic Preservation Act, as amended (NHPA), and with the National Environmental Policy Act (NEPA). Activities undertaken to comply with these Acts must also be in full accord with all other Federal law and regulation. Other laws that need to be complied with are many and varied. Some of which are of high importance in carrying out the inventory, recordation, analysis, and evaluation for these project areas are the American Indian Religious Freedom Act (AIRFA), and the Archeological Resources Protection Act (ARPA).

Section 106 of the NHPA requires determinations of the potential direct, indirect and cumulative effects of their proposed activities on cultural resources. The NEPA requires assessing the potential effect of activities on the environment, which includes cultural resources and other resources. NEPA also requires that these potential effects be disclosed to the public, and provides for public comment.

Therefore, all activities carried out to complete this contract will be conducted in strict accord with the above laws and regulations.

Environment

Setting

The project area is in north central South Dakota stretching for approximately 24 miles along the south of Highway 20.

Geology and Soils

During the Cretaceous time this area was part of a great inland sea that extended from the Gulf of Mexico to the Arctic Ocean. As the inland sea slowly retreated westward the last

of the Pierre shale was deposited. This left behind a sequence of beach sands, mud banks, and coal seams making up the Fox Hills formation. In some areas the Fox Hills formation is up to 200 feet thick. In those areas where it is predominantly made up of beach sands, it provides an important aquifer that supplies many people with water (Gries 1996).

The project lies in the Fox Hills Formation. In some places remnants of Fox Hills sandstone forms erosional caps and resulting buttes that stand above the rolling prairie. At one time an early ice sheet nearly reached the location of present day Timber Lake. Wells in this area can produce water from sands within the Fox Hills Formation at a depth of less than 100 ft. Fossils of marine organisms about 70 million years old are commonly found in outcrops of Fox Hills sandstone (Gries 1996).

The soil associations in the project area are (from Kavel and Boden 1979):

- Belfield-Reeder loams are well drained soils on uplands in the eastern portion of the project area. They formed in material weathered from siltstone and soft shale. Native vegetation was mainly short and medium grasses. Runoff and permeability is slow due to the clay content.
- Glencross-Regan fine sandy loams are deep and poorly drained with a claypan subsoil. They were formed in alluvium and the native vegetation was primarily salt tolerant grasses. Runoff and permeability is slow.
- Morton silt loam series are moderately deep, well drained silty soils on uplands. They are formed from material weathered from underlying sandstones, siltstones and loamy shales. Native vegetation was short to mid grasses. Lower portions are calcareous and limey.
- Vebar series soils are located on uplands. They are easy to work and blow easily. The series is moderately deep, well drained and loamy. Vebar soils are formed from weathering of the underlying soft sandstone. Native vegetation is tall and mid height grasses.

Hydrology

The project areas are within the Moreau River drainage system. They are drained through small, intermittent draws into the Moreau River and the Missouri River. There are several intermittent lakes with no drainage outlets within ½ mile of the project area.

Climate

The project area has a semiarid climate. This is generally characterized by cold winters with little precipitation and hot summers (Kavel and Boden 1979)

Flora

For the most part the natural vegetation in the survey area should be short to mid-grass prairie. The amount and different kinds of grasses and forbs growing in any one place is determined by site specific soils and past use. Use as pastureland has modified the

grasses present. Cactus and a variety of forbs were seen. Trees have been planted near the homestead.

Research Design

The project research was developed to determine in any National Register of Historic Places eligible cultural resources would be affected by the proposed project, to provide appropriate data to Federal and Tribal review agencies.

The initial work carried out was a cultural resources records review. This data was utilized to determine if previous surveys or known cultural resources were located in or near any project areas.

An intensive pedestrian cultural resources inventory was conducted. On-the-ground inventory methods are described below in the Fieldwork section.

Cultural Resource Records Review

Tribal Historic Preservation Office personnel checked their records for known burials or spiritual sites. None were known for the project area.

Lance Rom conducted records searches with the National Register of Historic Places (NRHP) and the National Historic Landmarks listing. They did not indicate any listed properties within one mile of the project boundaries.

Lynn Eschenbaum of Quality Services completed the records search at the State Archaeological Research Center. The SD Archaeological Research Center records indicated no previously known cultural resources in the project area. The following previous inventories were on record.

<u>Previous Projects</u>	<u>Sites Within 1 Mile</u>
WSD-0189, Donohue 1999	None
WSD-0081, Buechler 1988	None
WSD-1069, Williams 1996	None

Field Work

May 15, 2003, Lance Rom conducted on-the-ground cultural resource inventory of the project area and conducted subsurface testing at each of the proposed well locations.



Photo of pipeline inventory area facing west. Foreground shows planted grass in disturbed area and background shows fallow wheat field.



West facing view of pipeline route.

The pipeline construction easements are 30 feet in width. Corridors 100 feet wide were inventoried, so that if problems are encountered during construction, or if the lines need to be moved over due to other buried cables, pipelines, erosion or other easements, the intended route can vary within the 100 foot corridor without necessitating further inventory and compliance review. The pipeline easements were inventoried with zigzag pedestrian transects spaced no more than 20 meters apart.



View of pipeline and well areas looking north.

Approximately 19 acres was inventoried around the potential well locations. This area was inventoried with parallel pedestrian transects spaced less than 25 meters apart. In addition one subsurface test unit was conducted at each of the well locations to determine if there was any potential for subsurface cultural resources to be present.

All areas were intensively scrutinized for cultural material. Ground conditions in each survey area were as follows:

<u>Twp</u>	<u>Rge</u>	<u>Sec</u>	<u>Vegetation</u>	<u>Surface Visibility</u>
17	26	7	Short grass prairie	10-90%
17	28	5	County Road and ditches - grass	10-65%
17	28	6	Alfalfa, pasture, or recently plowed field	10-100%
17	28	7	County Road and ditches - grass	10-100%
17	28	8	Planted grasses or fallow wheat field	50% average

Subsurface Testing

Limited subsurface testing was conducted with one motorized auger test, 30 cm diameter and 1 meter deep, placed at each proposed well location. No cultural resources were located in any of the subsurface tests. The testing did indicate slight variability in the subsurface stratigraphy.

Two tests were placed on the slope of the intermittent draw through the site and two were placed slightly higher on the terrain, closer to the top of the rolling prairie. The units with ground surface of lower elevation showed 20-25 cm of A horizon with very little organic material. This soil layer was composed of a mixture of clay and sand. Below the A horizon there was relatively quickly increasing calcium carbonate content that made the soil increasing hard packed and cohesive as depth increased. At 40-50 cm in each of these units was a much lighter colored, calcium cemented soil layer. This soil level had lower clay content and very high sand content. Below this the clay and sand mixture reappeared to a depth of about 1 meter.

The remaining two test placed at higher ground surface elevation were similar to the two subsurface tests above, but did not show evidence of the lighter colored, sand-clay mixture at 40-50 cm depth.

While the A horizons were deeper than expected there does not appear to be much potential for buried cultural resources to be present in the proposed well area, or within site 39DW362.

Results

Two historic period archeological sites were located.

39DW362

Previous Work

This site was not previously recorded.

Environmental Description

Site 39DW362 is located on rolling prairie amidst pastureland and shelterbelts. Within the shelterbelts are the more modern, and still standing, structures. To the south on the pasture lands are scattered artifacts and a series of foundations and features. Soils in the area tend to be sandy but become very hard packed just below the surface. Calcium content increases as depth increases and this tends to help cement the soil together. A small intermittent draw begins just east of the site and runs through the southern portion of the site. Several intermittent lakes surround the site in all directions. A small sandstone capped butte is about ½ mile to the south, and Dog Butte is about one mile south of that.

Ground vegetation is primarily low grasses. Prickly pear cactus, some sage and bunch grasses are also present. Shelterbelts have been planted near the standing structures. The area is used for winter livestock feeding and was being grazed when the inventory was conducted. This helped increase ground surface visibility.

Site Description

The site consists of series of foundations, standing structures, dumps and scattered artifacts (refer to site map).

Feature 1 is a 25 ft x 50 ft concrete barn foundation. Inside the foundation are cottonwood branches and some scattered artifacts including refrigerator parts. There is an entrance through the foundation in its south side.

North of the barn foundation is Feature 2, a concentration of farm equipment and artifacts. The equipment and parts seem to be parked in a generally east-west trending line. Present are some type of harvester, a truck cab and body parts, a wooden utility trailer, and scattered small pieces of wood and glass.

Feature 3 is a concrete foundation that was probably a granary. All that is left is the low foundation and some scattered boards.

Feature 4 is a depression that appears to have been excavated as a place to store livestock feed for winter. It appeared that livestock have been fed here in the most recent winter.

Feature five is a scatter of various trash including window glass, canning jar pieces and bottle glass, a few rusty toy parts, nails, construction materials and other small household items. Much of this material seems to be from the 1950s or later.

A more recent cattle loading chute and corral system is also present.

Feature six is the main house. This house has been abandoned for several years. A new, occupied ranch style house is present to its northeast. It is a square structure with a four square roof. Horizontal wood siding appears to be painted pine. The home is two stories with a basement. Double hung windows are on each floor. Alcoves entries are present on the north and south sides and above these are doorways. This indicates that the entries may have been added after construction because the entry roofs are not made to walk on. A brick chimney extends from the center of the roof. The basement is being filled with recent trash.

Feature 7, a wood frame garage and shed is located northwest of feature six.

Feature 8, the barn is located south of the garage. The barn is beginning to collapse. It is also of wood frame construction.

A collapsed shed and a standing shed, both constructed of wood, are north of the house. The structures seem to form a courtyard in the center.

No collections were made. On site surface visibility averaged about 50%, but it did vary considerably across the site.

Courthouse land transfer data was provided by the Dewey County Register of Deeds. The land parcel (entire north ½ of section 7) was patented on February 5, 1917 by Maggie Maupin Ludlow, a Cheyenne River Sioux Indian. On March 28, 1919 it was transferred after her death with an executor's deed. The Register of Deeds could not provide records of ownership changes between 1919 and 1955, but they did indicate there were at least four transfers from 1955 to today. It is not known when this land transferred out of Indian ownership.

Site Interpretation

This site has most likely been occupied and ranched or farmed pretty much continuously since 1917. Interestingly, there does not appear to be any remains of the initial Indian homestead structures, unless these are represented the concrete foundations on the southern portion of the site. There are no artifacts that can be assigned to that time period. Indian owned homesteads of this period tend to have a mix of artifacts representing the ongoing tribal culture and the encroaching EuroAmerican culture.

It appears there have been at least two episodes of construction here, and possibly more. The first construction that is still represented at the site is the series of concrete foundations along the intermittent draw through the site. They are south facing and these could represent the Indian homestead occupation. But again, there are no artifacts to substantiate this.

There was no subsurface testing done to locate possible buried historic period artifacts because no likely locations were found. The subsurface testing conducted for the well locations were in and along the southern portion of the site and those results tended to indicate very little likelihood for buried cultural materials.

National Register Evaluation

Site 39DW362 is recommended as not eligible for the National Register of Historic Places. While it is a fairly large site it does not have the characteristics to meet the National Register criteria as follows:

- The site is not associated with events that have made a significant contribution to the broad patterns of history.
- It is not believed to be associated with important persons. The identifiable owner is not known to have been important in the area's history.
- The site architecture does not embody distinctive characteristics of a type, period or method of construction, the work of a master or of high artistic value.
- The site is not likely to yield information important to history or prehistory. Buried materials are not present. Surface artifacts will not provide any important data.

Recommendations

No protection is recommended.

39DW2007Previous Work

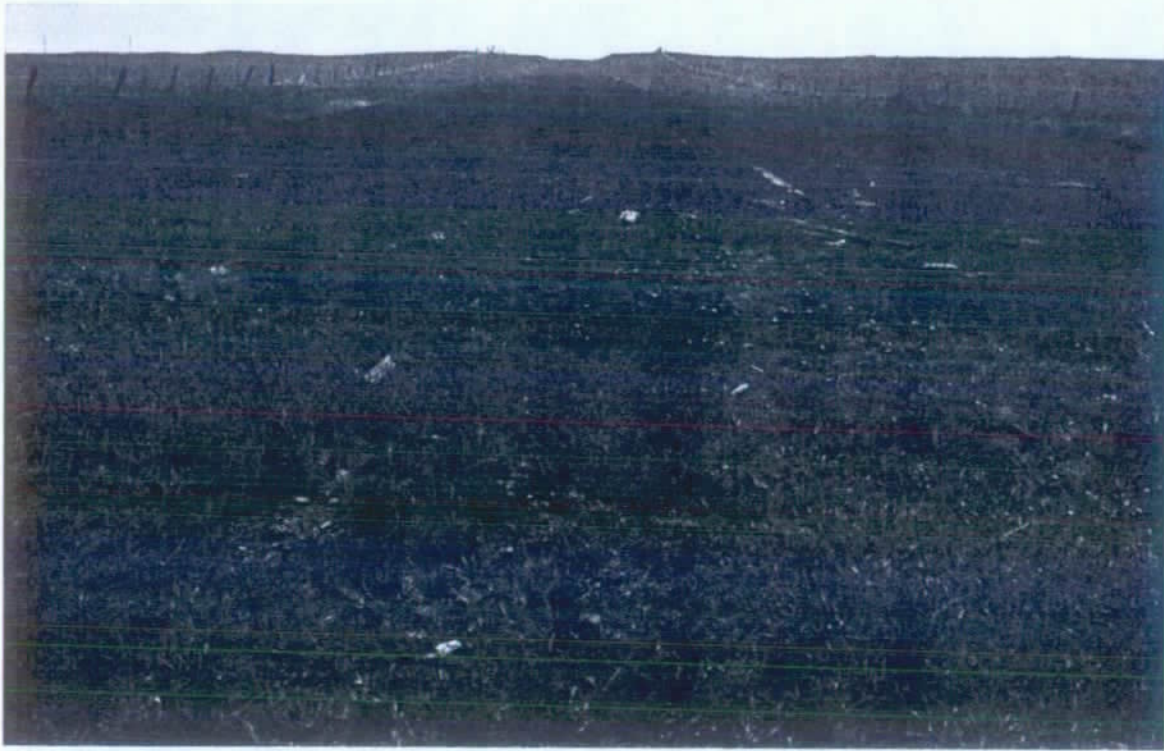
This site was not previously recorded in the current project area.

Environmental Description

This railroad grade segment is located on rolling prairie north of a small butte and south of several intermittent lakes. A small intermittent drainage is located about 500 ft to the west of the current project area.

Site Description

This is a portion of the Chicago, Milwaukee & St. Paul railroad grade. At the proposed pipeline crossing the railroad grade has been completely destroyed by construction of an earlier pipeline. The right-of-way fences are still present, 100 ft apart, on both the north and south sides of the railroad corridor. A short distance to both the east and west of the current project area the railroad grade is again intact.



Railroad grade from proposed pipeline crossing (foreground) facing east.



Railroad grade from proposed pipeline crossing (foreground) facing west.

Site Interpretation and Chicago, Milwaukee & St. Paul Railroad History in South Dakota

The first Chicago, Milwaukee & St. Paul railroad began operations between Sioux City, IA and Vermillion on October 1st 1872, but was known as the Dakota Southern Railway at the time. This line extended west to reach Yankton on January 26, 1873 (Mills 1998).

In 1879 a line from Sioux Falls, to Canton, to Sioux City, Iowa was completed under the name Sioux City and Dakota Rail. It was later owned by the Milwaukee Road. A line was also completed from Canton to Marion, Marion Junction and southwest to the Missouri River at Running Waters. The Southern Minnesota Railroad, later to become part of the Milwaukee, built a line from Jackson, MN to Flandreau in 1879. It was extended the next year to New Madison (later called Madison) (Mills 1998).

A few lucky Milwaukee Road employees got to name many towns in South Dakota. The town of Mitchell was named after one of the presidents of Milwaukee Road, Alexander Mitchell. The railroad reached Mitchell in 1879 (Mills 1998).

In 1880 a line was built under the Hastings and Dakota Railway name (later Milwaukee Road) at Big Stone City and on toward Milbank. This line branched from Milbank to Wilmont. Continuing west to Waubay, Webster and Bristol and eventually to Aberdeen in 1881, named after company president Mitchell's hometown (Mills 1998).

1881 was the year the railroad reached the Missouri River at Chamberlain, named after Selah Chamberlain, a director of the railroad. It reached Kimball (also named after a company director) the same year. Sioux Falls and Flandreau were connected in 1881, as was Madison to Howard and Aberdeen to Ellendale (Mills 1998).

Nehemiah G. Ordway (1881), Governor of South Dakota from 1880-1884, stated that:

The railroad developments have been most extraordinary in all parts of the Territory during the two past years [1880 & 1881]... The Chicago, Milwaukee and St. Paul company has extended its lines across the southeastern portion of the Territory to Yankton and Running water, on the Missouri River, and will soon have another line running via Mitchell to Chamberlain, a point on the east bank of the Missouri, on its route to the Black Hills... The railroad is a great civilizer, and has aided wonderfully in the rapid development of Dakota.

The Chicago, Milwaukee and St. Paul Railroad graded its line through Day County in 1880 as well and began regular train service in 1881. The new towns of Waubay, Webster, Bristol and Andover sprang up along the Milwaukee in 1881 (Anders 1972).

In late 1882, an early Swedish settler in Grant County, Charles P. Lindholm, was hired as an immigration agent for the Chicago, Milwaukee, and St. Paul railroad. He returned to Milbank the following years after having visited many German and Scandinavian ports. A few months later, C. F. J. Moller, an employee of the same railroad, announced that he had printed and distributed over 100,000 descriptive Dakota pamphlets in German, Danish, Swedish, and Norwegian in an attempt to encourage settlement in the territory (Rogers 1982). This helped to draw more people into the Dakotas.

The line was placed between Yankton and Scotland in 1882 as well (Mills 1998).

In 1883 a route between Aberdeen and Mitchell and from Aberdeen to Ipswich was completed. A route from Howard to Woonsocket was also completed (Mills 1998).

In 1886 and 1887 the Milwaukee Road worked to connect its previous lines and construct new ones. Completion of a line from Scotland to Mitchell took place making a complete line from Sioux City to Aberdeen via Mitchell. Lines from Tripp to Armour, Madison to Bristol, Ellendale to Edgeley, and Ipswich to Bowdle were also completed. To the east of Bowdle, two branches were extended north and south from Roscoe, to both Eureka and Orient. By the end of 1887, the Milwaukee Road was operating 1215.11 miles of line in Dakota (Mills 1998).

In addition to building a line from Madison to Bristol through south central Day County in 1887, the Milwaukee Road built a separate branch line at the foot of the Coteau north

from Andover through Britton the same year. Two decades passed before there was any further railway construction in Day County (Anders 1972).

In 1893 a line was extended from Wilmot to Sisseton. Construction of the railroad was slowing down because of the Panic of 1893 and no new track was constructed after 1893 until 1900 (Mills 1998).

In 1900 the Milwaukee Road obtained a six-mile right of way through an eighty-seven-mile stretch of the northern part of the Cheyenne River Sioux Reservation. This helped continue growth of western South Dakota. The Milwaukee road reached the Missouri River again at Evarts in northern South Dakota. Evarts became a major shipping point for cattle from western South Dakota (SDSHS 2003). The railroad also built west from Bowdle to Glenham and Evarts and from Napa to Platte (Mills 1998).

In 1903 the line reached from Eureka to Linton, ND. It also expanded from Woonsocket to Wessington Springs the same year (Mills 1998).

In 1906 the Milwaukee Road began construction of its Pacific Coast Extension. The Extension, when completed in 1909, gave the Milwaukee a line to the Pacific coast and put South Dakota on a transcontinental rail line. The town of Evarts was abandoned when the Milwaukee decided to cross the Missouri at the new town of Mobridge (SDSHS 2003).

Between 1906 and 1907 the Milwaukee Road built west from the Missouri River to Rapid City. It also reached McIntosh and Lemmon the same year (Mills 1998). Development of western South Dakota was greatly aided by the establishment of two direct rail links with eastern South Dakota and eastern markets (SDSHS 2003).

The Milwaukee Road built a line in 1908 from Mobridge to Miles City, Montana (Mills 1998). Finally, in 1909, a train could be taken from Chicago to Seattle via the Dakotas on the Milwaukee Road railway (Mills 1998).

In 1910 a line was built from McLaughlin to New England, ND, and from Moreau Junction to Cheyenne Junction (Trail City), and branched to Isabel and Dupree (Mills 1998). A line was built from Dupree to Faith in 1911. This was the last new track built by the Chicago, Milwaukee and St. Paul Road in the Dakotas (Mills 1998).

Almost 70 years later in 1980 the Milwaukee Road abandoned several thousand miles of track and withdrew from the Pacific Coast. The abandonment was more than half of South Dakota's total railroad mileage. The lack of rail service caused by the abandonment created severe problems for South Dakota agriculture. The Milwaukee was persuaded to keep the mainline through northern South Dakota open to Miles City, Montana, so that coal shipments could continue to a power plant at Big Stone City (SDSHS 2003).

National Register Evaluation

Site 39DW2007 is eligible for the National Register of Historic Places (NRHP) in previously recorded portions of the railroad grade within the Cheyenne River Indian Reservation. As such each segment of the grade that is recorded should be evaluated as either contributing or non-contributing to that NRHP eligible status. Because this portion of the railroad grade has been destroyed by previous pipeline construction it should be considered as a non-contributing segment of the railroad grade.

Recommendations

Site 39DW2007 is completely destroyed within the proposed pipeline corridor, although it is fairly well intact to each side of the proposed pipeline. Construction of the proposed pipeline through the existing disturbed portion of the railroad grade will cause "no adverse effect" to the railroad grade.

Determinations of Effect and Recommendations:

Two historic period sites were found while conducting pedestrian field inventory of the project corridor.

Site **39DW362** is a farmstead. It is recommended as not eligible for the National Register of Historic Places (NRHP) and no further work or protection is recommended.

The buried cables will cross the **Chicago, Milwaukee, St. Paul & Pacific Railroad** (39DW2007) grade. The grade has previously been destroyed where the proposed pipeline will cross it. Therefore, this segment of the railroad grade is recommended as non-contributing to its National Register of Historic Places eligibility. Proposed pipeline construction operations should avoid adjacent intact portions of the railroad grade. Therefore, there will be "no adverse effect" to this cultural resource.

A determination of "no adverse effect" is recommended for the project as planned.

If project plans are modified to include areas that have not been previously disturbed, or if cultural resources are located during project construction, the Cheyenne River Sioux Tribe Historic Preservation Office and Quality Services should be contacted.

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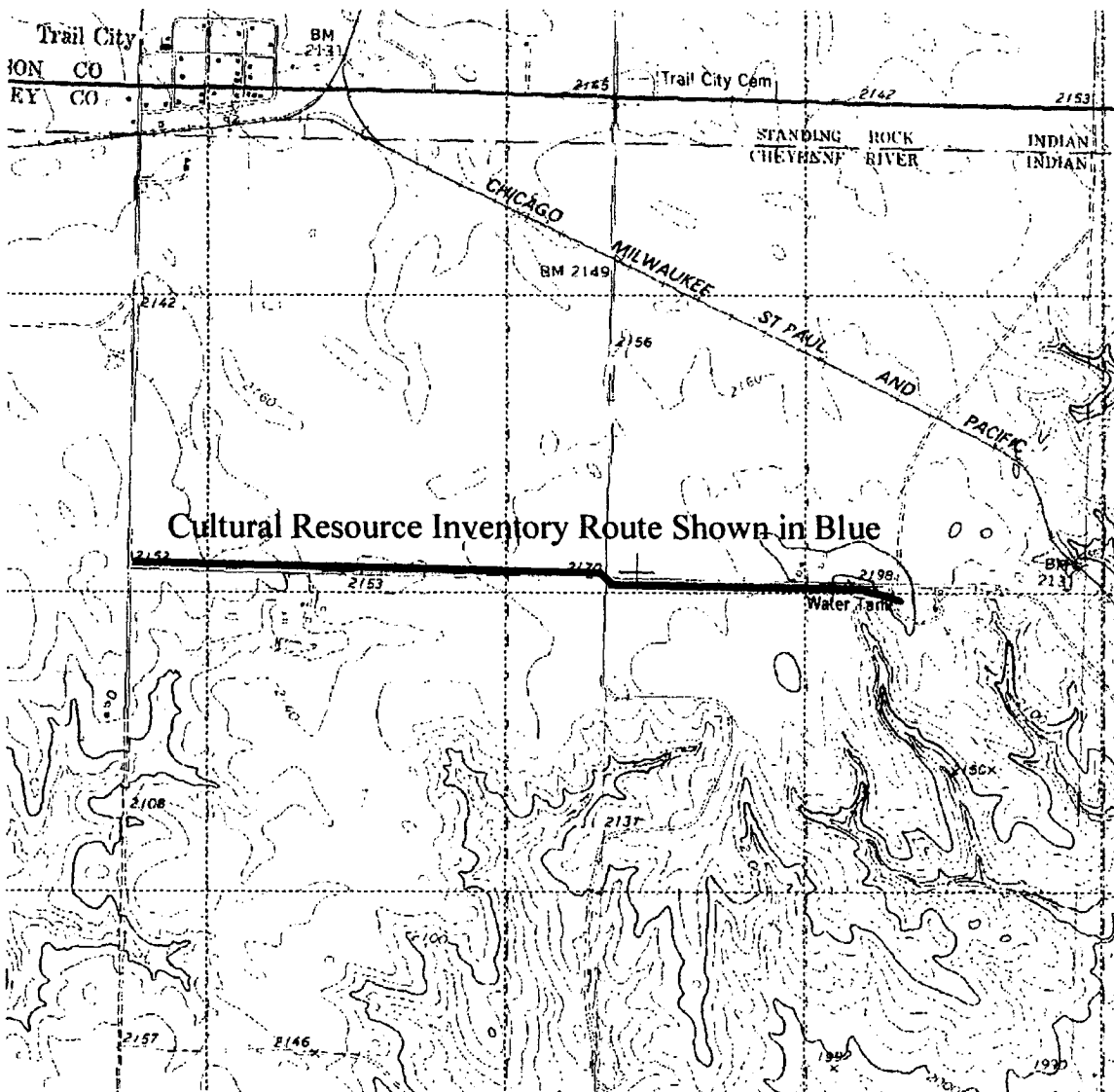
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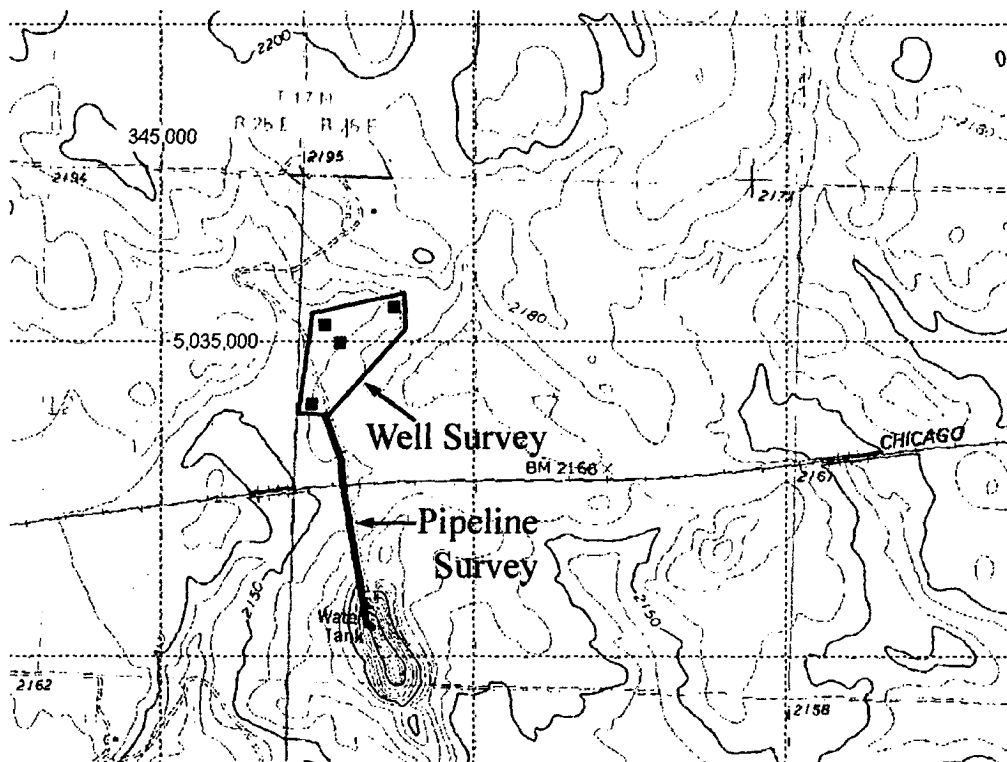
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Appendix 1

Inventory Area Maps



Dewey County, South Dakota
T17N, R28E, sections 5, 6, 7 and 8
USGS 7.5' Trail City, South Dakota quadrangle



Dewey County, South Dakota
T17N, R26E, section 7
USGS 7.5' Glencross, South Dakota quadrangle

Appendix 2 - Site Forms

SD STATE ARCHAEOLOGICAL RESEARCH CENTER

Site No **39DW362**

County	DEWEY	Site Name	Ludlow Homestead
Other No		NR Status	Not eligible
Map Reference	GLENCROSS NE	Owner	PRIVATE
Arch. Region	GRAND-MOREAU TABLE	Topo pos	ROLLING PLAIN
Vegetation	SHORT GRASS	Substrate	SILT
		Land Use	PASTURE
UTM centroid:	coord. system: NAD 27	zone	14 / 345600 E/ 5035600 N
Surf. visibility	50 %	Site elevation	670 m
		Condition	Disturbed
Site Dim. N-S	548 m	E-W	243 m;
		Area	13.34 ha;
		Depth	1 cm
Nearest Water Type	INTERMITTENT STREAM		Name Not named
Distance	1 m	Elevation	660 m
		Direction	S
		Bank	L

LOCATIONS

Legal Locations	Section	Twp	Rq
NWNW, SWNW	7	17N	26E

COMPONENTS

Site Type	Time Period	Cultural Affiliation
FARMSTEAD	A.D. 1861-	NATIVE AMERICAN
ARTIFACT SCATTER	A.D. 1861-	EUROAMERICAN
DUMP	A.D. 1861-	EUROAMERICAN

COMMENTS

Comments/site description (i.e. artifacts/features observed)

SEVEN STANDING STRUCTURES OF VARIOUS AGES IN VARIOUS STAGES OF DISREPAIR, THREE CONCRETE FOUNDATIONS, ONE DUMP AREA, ONE DEPRESSION, VARIOUS PIECES OF FARM EQUIPMENT, AND A VERY LIGHT ARTIFACT SCATTER OF HISTORIC ARTIFACTS.

Evaluation/collection methods

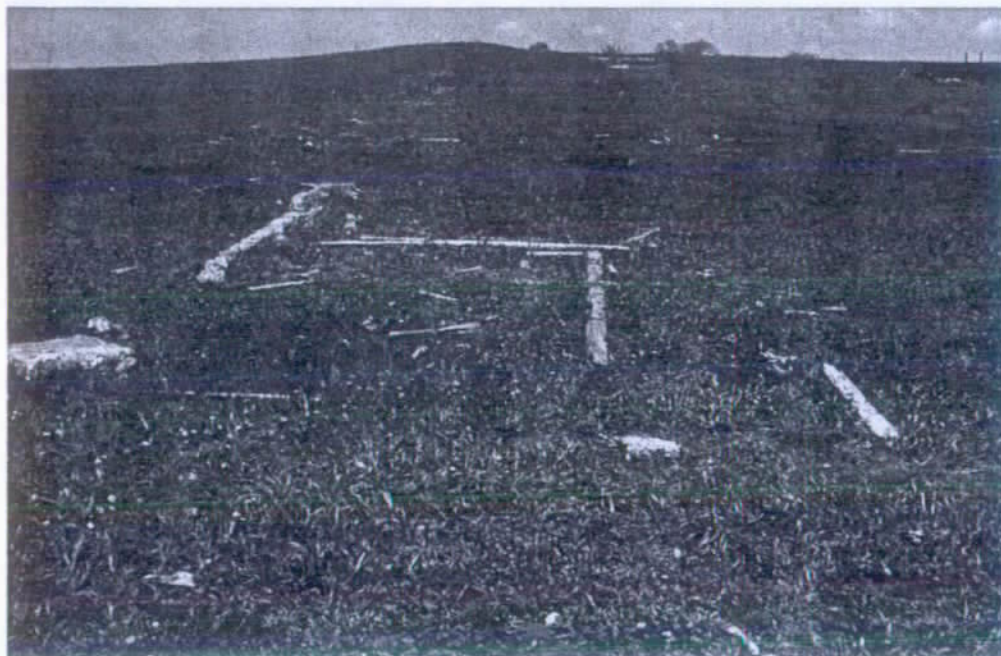
NO COLLECTIONS. SITE WAS SUBSURFACE TESTED NEAR A POTENTIAL WELL SITE. COURTHOUSE RECORDS CHECK CONDUCTED.

Owner name/address/attitude CAROL LIPP, GLENCROSS, SD - ATTITUDE UNKNOWN

Prepared by LANCE ROM

Date 5/23/2003

Project GLENCROSS-TRAIL CITY WATER SYSTEM IMPROVEMENTS



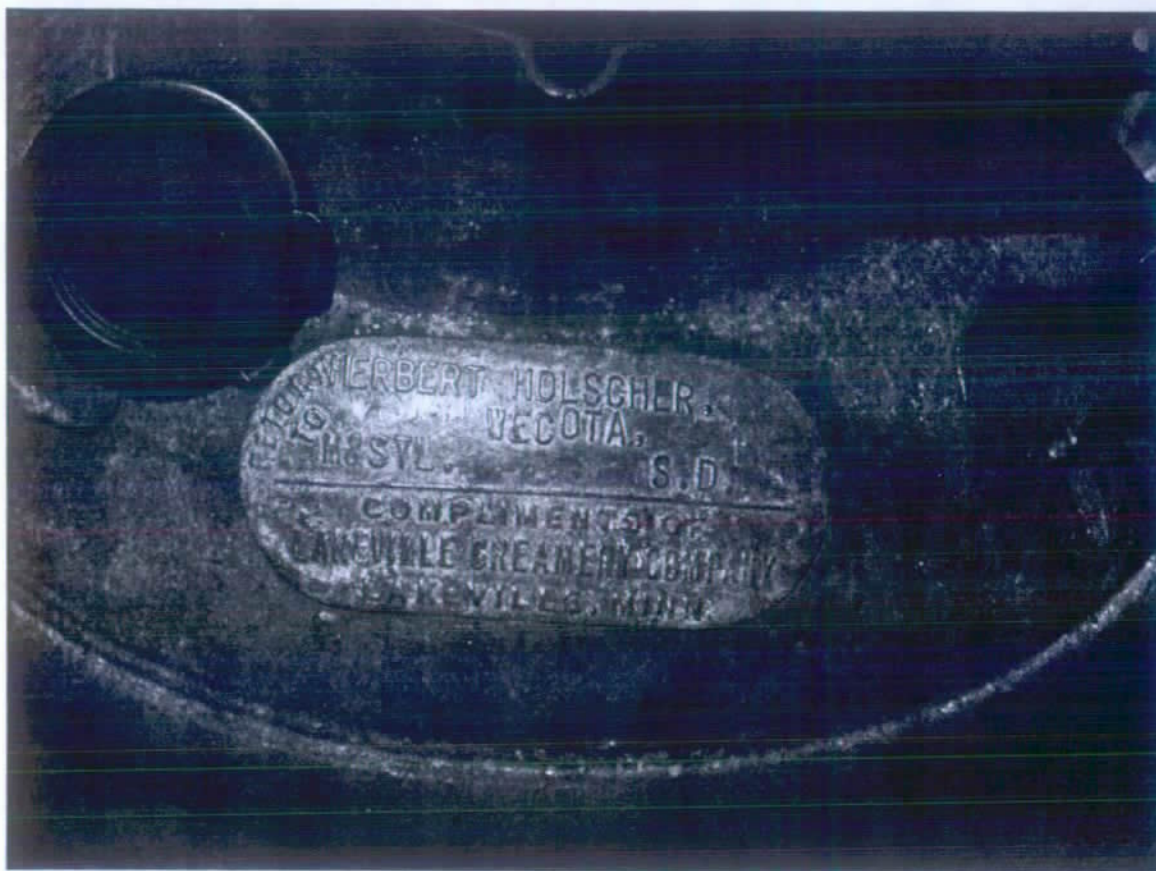
39DW362 – Granary foundation facing north.



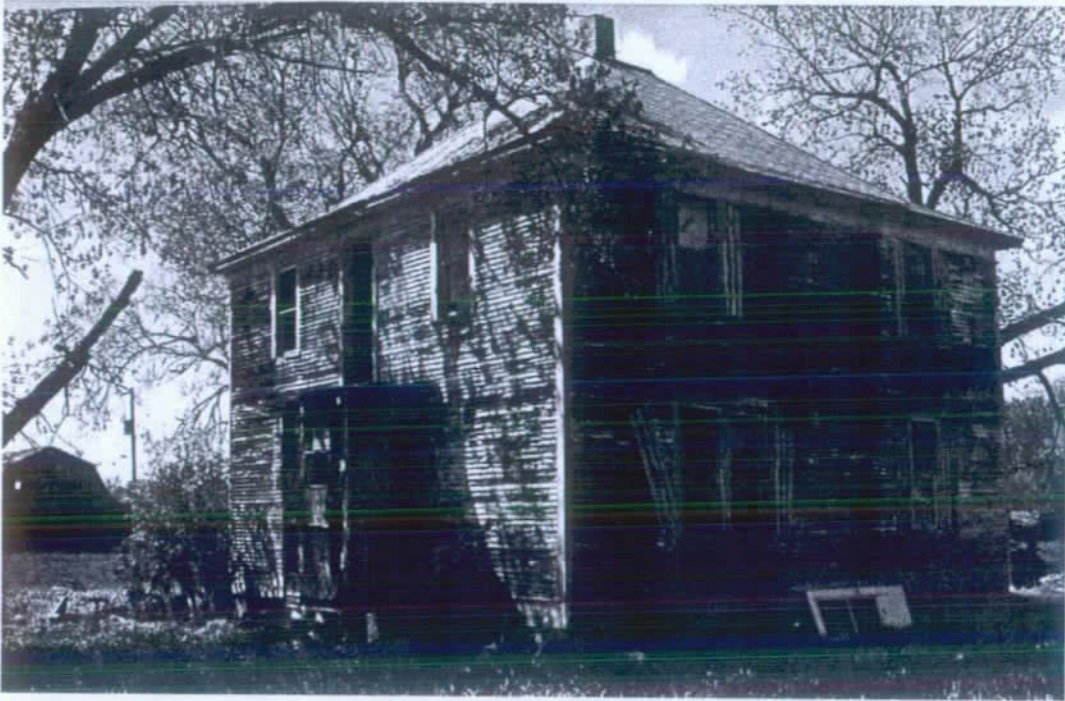
Equipment scatter facing northwest



39DW362- Exposed soil profiles, possible from livestock feed storage.



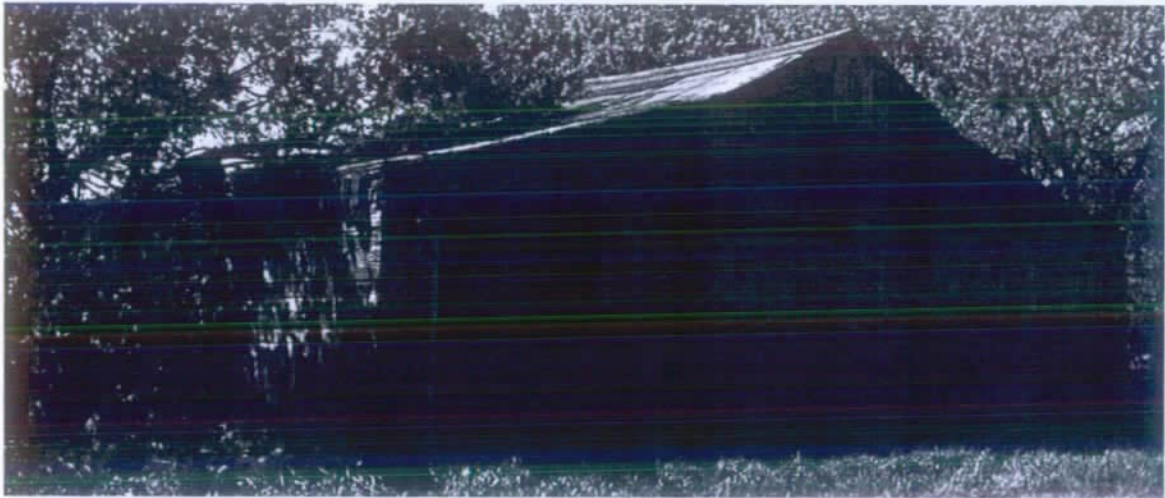
39DW362 – Milk can label.



39DW362 – Main house (abandoned) facing northwest



Main house facing southeast



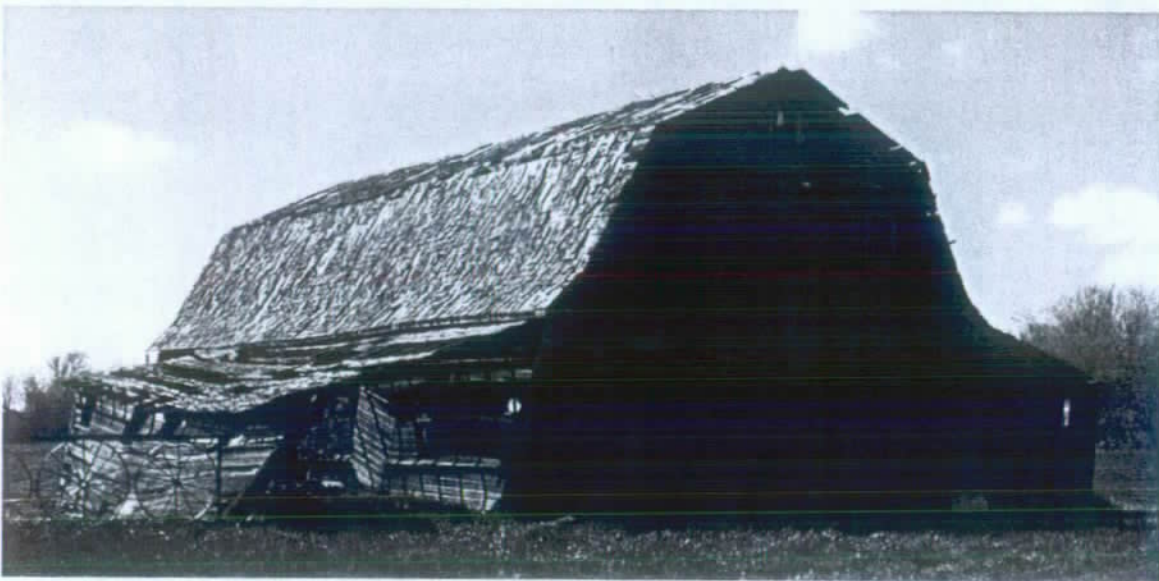
39DW362 – Garage facing northwest.



Collapsed sheds facing northwest.



Barn facing southeast.



Barn facing northwest.

SD STATE ARCHAEOLOGICAL RESEARCH CENTER

Site No **9DW2007**

County	Dewey	Site Name	CMSPP&RR Trail City
Other No		NR Status	Eligible
Map Reference	USGS 7.5' Trail City	Owner	PRIVATE
Arch. Region	GRAND-MOREAU TABLE	Topo pos	ROLLING PLAIN
Vegetation	MIXED GRASS	Substrate	SAND
		Land Use	INDUSTRIAL
UTM centroid:	coord. system: NAD 27	zone	14 / 345580 E/ 5034565 N
Surf. visibility	50 %	Site elevation	659 m
		Condition	Destroyed
Site Dim. N-S	30 m	E-W	60 m;
		Area	0.18 ha;
		Depth	1 cm
Nearest Water Type	INTERMITTENT STREAM		Name Unnamed
Distance	150 m	Elevation	655 m
		Direction	W
		Bank	R

LOCATIONS

Legal Locations		Section	Twp	Rg
NWSW		7	17N	26E
SESE		18	95N	57W

COMPONENTS

Site Type	Time Period	Cultural Affiliation
RAILROAD	A.D. 1861-	EuroAmerican

COMMENTS

Comments/site description (i.e. artifacts/features observed)

This railroad grade segment is located on rolling prairie north of a small butte and south of several intermittent lakes. A small intermittent drainage is located about 500 ft to the west of the current project area.

This is a portion of the Chicago, Milwaukee & St. Paul railroad grade. At the proposed pipeline crossing the railroad grade has been completely destroyed by construction of an earlier pipeline. The right-of-way fences are still present, 100 ft apart, on both the north and south sides of the railroad corridor. A short distance to both the east and west of the current project area the railroad grade is again intact.

Site Interpretation and Chicago, Milwaukee & St. Paul Railroad History in South Dakota

The first Chicago, Milwaukee & St. Paul railroad began operations between Sioux City, IA and Vermillion on October 1st 1872, but was known as the Dakota Southern Railway at the time. This line extended west to reach Yankton on January 26, 1873 (Mills 1998).

In 1879 a line from Sioux Falls, to Canton, to Sioux City, Iowa was

SD STATE ARCHAEOLOGICAL RESEARCH CENTER

Site No **9DW2007**

completed under the name Sioux City and Dakota Rail. It was later owned by the Milwaukee Road. A line was also completed from Canton to Marion, Marion Junction and southwest to the Missouri River at Running Waters. The Southern Minnesota Railroad, later to become part of the Milwaukee, built a line from Jackson, MN to Flandreau in 1879. It was extended the next year to New Madison (later called Madison) (Mills 1998).

A few lucky Milwaukee Road employees got to name many towns in South Dakota. The town of Mitchell was named after one of the presidents of Milwaukee Road, Alexander Mitchell. The railroad reached Mitchell in 1879 (Mills 1998).

In 1880 a line was built under the Hastings and Dakota Railway name (later Milwaukee Road) at Big Stone City and on toward Milbank. This line branched from Milbank to Wilmont. Continuing west to Waubay, Webster and Bristol and eventually to Aberdeen in 1881, named after company president Mitchell's hometown (Mills 1998).

1881 was the year the railroad reached the Missouri River at Chamberlain, named after Selah Chamberlain, a director of the railroad. It reached Kimball (also named after a company director) the same year. Sioux Falls and Flandreau were connected in 1881, as was Madison to Howard and Aberdeen to Ellendale (Mills 1998).

Nehemiah G. Ordway (1881), Governor of South Dakota from 1880-1884, stated that:

The railroad developments have been most extraordinary in all parts of the Territory during the two past years [1880 & 1881]...The Chicago, Milwaukee and St. Paul company has extended its lines across the southeastern portion of the Territory to Yankton and Running water, on the Missouri River, and will soon have another line running via Mitchell to Chamberlain, a point on the east bank of the Missouri, on its route to the Black Hills...The railroad is a great civilizer, and has aided wonderfully in the rapid development of Dakota.

The Chicago, Milwaukee and St. Paul Railroad graded its line through Day County in 1880 as well and began regular train service in 1881. The new towns of Waubay, Webster, Bristol and Andover sprang up along the Milwaukee in 1881 (Anders 1972).

In late 1882, an early Swedish settler in Grant County, Charles P. Lindholm, was hired as an immigration agent for the Chicago, Milwaukee, and St. Paul railroad. He returned to Milbank the following years after having visited many German and Scandinavian ports. A few months later, C. F. J. Moller, an employee of the same railroad, announced that he had printed and distributed over 100,000 descriptive Dakota pamphlets in German, Danish, Swedish, and Norwegian in an attempt to encourage settlement in the territory (Rogers 1982). This helped to draw more people into the Dakotas.

The line was placed between Yankton and Scotland in 1882 as well (Mills 1998).

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Site No **9DW2007**

In 1883 a route between Aberdeen and Mitchell and from Aberdeen to Ipswich was completed. A route from Howard to Woonsocket was also completed (Mills 1998).

In 1886 and 1887 the Milwaukee Road worked to connect its previous lines and construct new ones. Completion of a line from Scotland to Mitchell took place making a complete line from Sioux City to Aberdeen via Mitchell. Lines from Tripp to Armour, Madison to Bristol, Ellendale to Edgeley, and Ipswich to Bowdle were also completed. To the east of Bowdle, two branches were extended north and south from Roscoe, to both Eureka and Orient. By the end of 1887, the Milwaukee Road was operating 1215.11 miles of line in Dakota (Mills 1998).

In addition to building a line from Madison to Bristol through south central Day County in 1887, the Milwaukee Road built a separate branch line at the foot of the Coteau north from Andover through Britton the same year. Two decades passed before there was any further railway construction in Day County (Anders 1972).

In 1893 a line was extended from Wilmot to Sisseton. Construction of the railroad was slowing down because of the Panic of 1893 and no new track was constructed after 1893 until 1900 (Mills 1998).

In 1900 the Milwaukee Road obtained a six-mile right of way through an eighty-seven-mile stretch of the northern part of the Cheyenne River Sioux Reservation. This helped continue growth of western South Dakota. The Milwaukee road reached the Missouri River again at Evarts in northern South Dakota. Evarts became a major shipping point for cattle from western South Dakota (SDSHS 2003). The railroad also built west from Bowdle to Glenham and Evarts and from Napa to Platte (Mills 1998).

In 1903 the line reached from Eureka to Linton, ND. It also expanded from Woonsocket to Wessington Springs the same year (Mills 1998).

In 1906 the Milwaukee Road began construction of its Pacific Coast Extension. The Extension, when completed in 1909, gave the Milwaukee a line to the Pacific coast and put South Dakota on a transcontinental rail line. The town of Evarts was abandoned when the Milwaukee decided to cross the Missouri at the new town of Mobridge (SDSHS 2003).

Between 1906 and 1907 the Milwaukee Road built west from the Missouri River to Rapid City. It also reached McIntosh and Lemmon the same year (Mills 1998). Development of western South Dakota was greatly aided by the establishment of two direct rail links with eastern South Dakota and eastern markets (SDSHS 2003).

The Milwaukee Road built a line in 1908 from Mobridge to Miles City, Montana (Mills 1998). Finally, in 1909, a train could be taken from Chicago to Seattle via the Dakotas on the Milwaukee Road railway (Mills 1998).

In 1910 a line was built from McLaughlin to New England, ND, and from Moreau Junction to Cheyenne Junction (Trail City), and branched to Isabel

SD STATE ARCHAEOLOGICAL RESEARCH CENTER

Site No **9DW2007**

and Dupree (Mills 1998). A line was built from Dupree to Faith in 1911. This was the last new track built by the Chicago, Milwaukee and St. Paul Road in the Dakotas (Mills 1998).

Almost 70 years later in 1980 the Milwaukee Road abandoned several thousand miles of track and withdrew from the Pacific Coast. The abandonment was more than half of South Dakota's total railroad mileage. The lack of rail service caused by the abandonment created severe problems for South Dakota agriculture. The Milwaukee was persuaded to keep the mainline through northern South Dakota open to Miles City, Montana, so that coal shipments could continue to a power plant at Big Stone City (SDSHS 2003).

Recommendations

Site 39DW2007 is completely destroyed within the proposed pipeline corridor, although it is fairly well intact to each side of the proposed pipeline. Construction of the proposed pipeline through the existing disturbed portion of the railroad grade will cause "no adverse effect" to the railroad grade.

Evaluation/collection methods

Site is completely obliterated here from earlier pipeline construction about 40 years ago. Site 39DW2007 is eligible for the National Register of Historic Places (NRHP) in previously recorded portions of the railroad grade within the Cheyenne River Indian Reservation. As such each segment of the grade that is recorded should be evaluated as either contributing or non-contributing to that NRHP eligible status. Because this portion of the railroad grade has been destroyed by previous pipeline construction it should be considered as a non-contributing segment of the railroad grade. No collections.

Owner name/address/attitude **Private - Unknown**

Prepared by **Lance Rom**

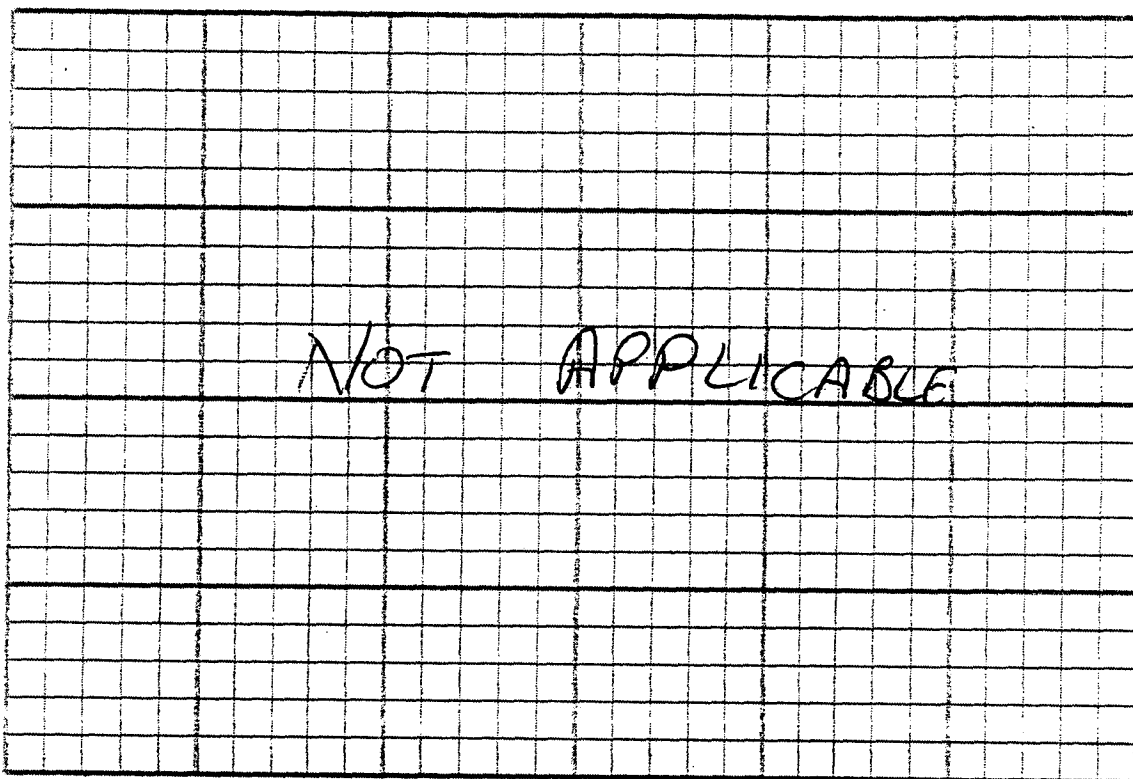
Date **5/31/2003**

Project **Trail City & Glencross Water Association**

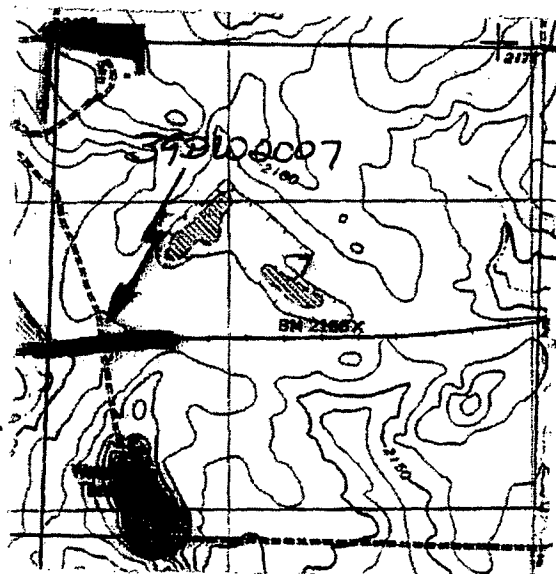
SD STATE ARCHAEOLOGICAL RESEARCH CENTER

Site No **9DW2007**

SITE MAP



SITE LOCATION



REPORT ON WATER PERMIT NO. 1805-1
For T. C. & G. Water Association
September 4, 2003

Application No. 1805-1 proposes to appropriate 0.22 cfs (100 gpm) from one well approximately 65 feet deep located in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ of section 7, T17N R26E in Corson County. The water is used for the rural water system that serves the communities of Glencross, Trail City and the surrounding rural areas.

AQUIFER – FOX HILLS (FXHL)

The Fox Hills (Timber Lake member) consists of fine to very fine sand and sandstone with some well cemented layers and can approach 110 to 230 feet in thickness in this area (Stevenson, 1957). The Fox Hills is exposed at the land surface and the surficial deposits have been windblown and reworked. The aquifer is under water table conditions at this site. The Fox Hills underlies 402,560 acres and contains an estimated 3.0 million acre-feet of recoverable water in storage in Dewey County (Allen, 1984). The aquifer extends into Corson County to the north and into Ziebach County to the west and is part of a large aquifer system which underlies most of northwestern South Dakota.

Drill hole logs from the area indicate sand thickness is variable with a maximum thickness of 83 feet in this area (Barari, 1972). The static water levels varied between five and 30 feet below land surface. Test pumping for one of the existing production wells indicate a capacity of 125 gpm with 38 feet of drawdown. This equates to a specific capacity of about 3.3 gpm per foot of drawdown.

The Water Rights Program monitors four observation wells completed into the Fox Hills aquifer within 15 mile radius of this application. The nearest observation well CN-57BR is located about three miles north of this application. The water level record for this observation well shows a good response to climatic conditions, that is, rising water levels during wet years (recharge) and gradually declining water levels during dry years. A hydrograph for this observation well is included with this report. In general, the water level record indicates that the aquifer is capable of sustaining additional withdrawals (Water Rights, 2003).

REVIEW OF EXISTING WATER PERMITS/RIGHTS

The only other water rights/permits in the area belong to the rural water system. This well for this application will be more than one-half mile to the southwest of this site. Interference is not a concern. Pumping at this requested rate and at the distance between wells is more than sufficient to minimize any potential effects of drawdown.

CONCLUSIONS

1. Water is available from the Fox Hills aquifer.

2. The aquifer is under water table conditions in this area. Drawdown created by pumping is not expected to be significant. Interference is not a concern.
3. The well authorized by this application must be constructed in accordance with SD Well Construction Standards.
4. The observation well record indicates that the aquifer does recharge and that the aquifer is capable of sustaining additional withdrawals.

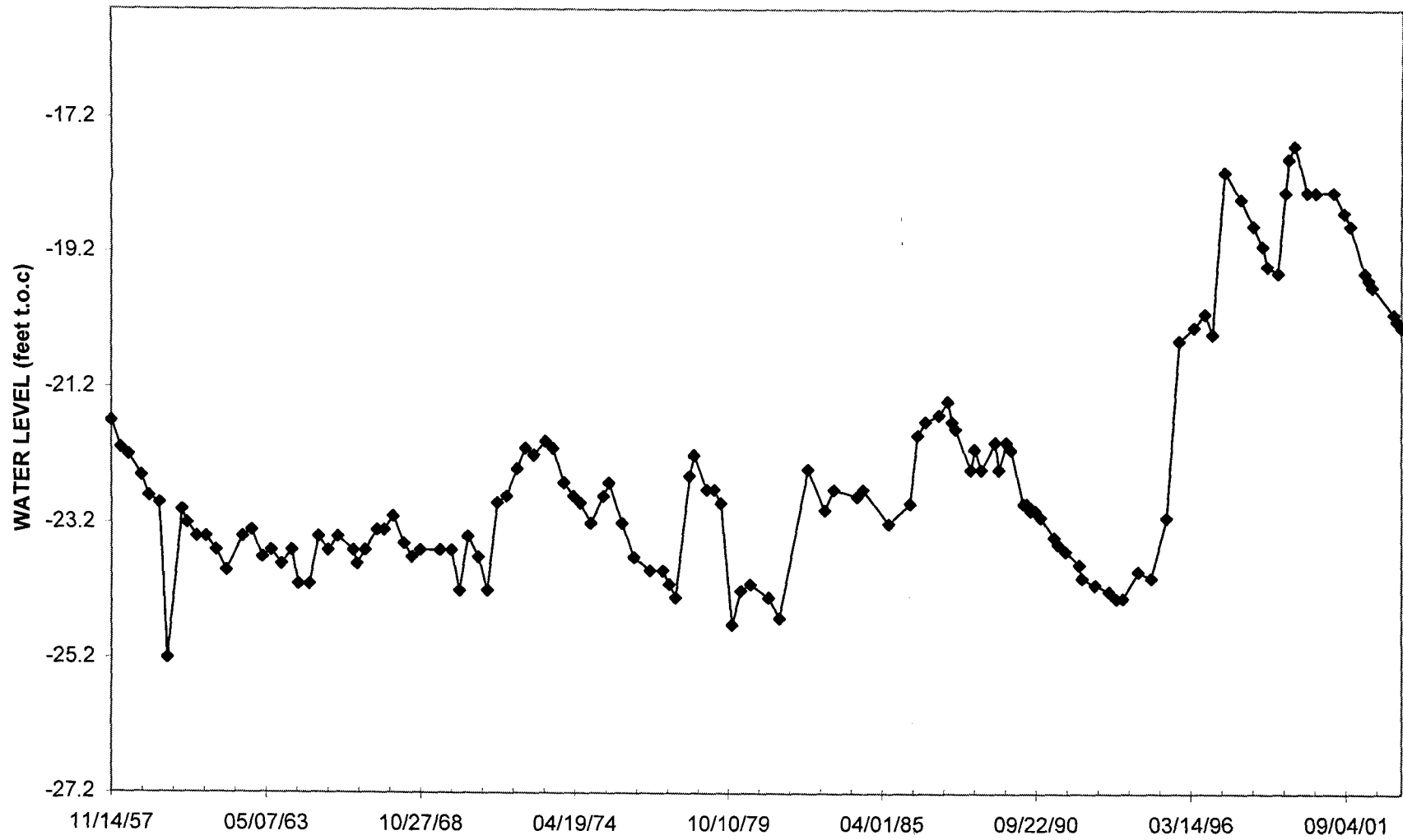


James A Goodman
Natural Resources Engineer

BIBLIOGRAPHY

- Allen, J.C., and others, 1984, Analysis of Groundwater and Streamflow Data Western Dakotas Region of South Dakota, for US Army Corps of Engineers, SD DENR, SDGS, Vermillion, SD, 57069.
- Barari, A., 1972, Ground-Water Study of the Trail City and Glencross Water Association, Open File Report No. 1-UR, SD DENR, SDGS, Vermillion, SD, 57069.
- Stevenson, R.E., 1960, Geology of the Timber Lake Quadrangle South Dakota, SD DENR, SDGS, Vermillion, SD, 57069.
- Water Rights, 2003, Unpublished Observation Well Data for the Fox Hills Aquifer, SD DENR, DES, Water Rights Program, Pierre, SD, 57501.

WATER RIGHTS' OBSERVATION WELL
CN-57BR





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 1805-1, T.C.&G. Water Association**

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. 1805-1, T.C.&G. Water Association, c/o Don Hollenbeck, PO Box 95, Glencross SD 57630.

The Chief Engineer is recommending APPROVAL of Application No. 1805-1 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. 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.
2. The well authorized by Permit No. 1805-1 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. T.C.&G. Water Association shall report to the Chief Engineer annually the amount of water withdrawn from the Fox Hills Formation.

See report on application for additional information.

Garland Erbele, Chief Engineer
September 15, 2003



**DEPARTMENT of ENVIRONMENT
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PIERRE, SOUTH DAKOTA 57501-3182

www.state.sd.us/denr

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

September 15, 2003

T C & G Water Association
% Don Hollenbeck
PO Box 95
Glencross SD 57630

Dear Mr. Hollenbeck:

Water Permit Application No. 1805-1 for rural water system 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 Publishers of the Corson/Sioux Co News printed at McLaughlin, SD (Ph # 605-823-4490) and the Timber Lake Topic printed at Timber Lake, SD (Ph #605-865-3546). You will need to contact the newspapers and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and 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 papers can eliminate delays. Upon receiving authorization, the publishers have 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 newspapers have also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

cc: Dan Brosz, Box 357, Bowman ND 58623

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.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

September 15, 2003

Corson/Sioux Co News-Messenger
PO Box 788
McLaughlin SD 57642-0788

ATTENTION: Legal Public Notice

Enclosed is a Notice of Hearing on Application No. 1805-1 to Appropriate Water to be published twice. Please publish the first notice on September 25, 2003 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 T.C. & G. Water Association, %Don Hollenbeck, PO Box 95, Glencross, SD 57630 (Ph # 605-865-3361).

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. 1805-1

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

Date _____

We are in receipt of your letter of September 15, 2003 enclosing Notice of Hearing to Appropriate Water by Application No. 1805-1 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name _____

Newspaper _____



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

September 15, 2003

Timber Lake Topic
PO Box 10
Timber Lake SD 57656-0010

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Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

CUT HERE

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

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Name _____

Newspaper _____

Instruction to Newspaper - Publish first Notice on September 25, 2003 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 1805-1 to Appropriate Water

Notice is given that T. C. & G. Water Association, PO Box 95, Glencross SD 57630 has filed an application for a water permit to appropriate 0.22 cubic feet of water per second from one well (Fox Hills Formation) 65 feet deep located in the SW ¼ NW ¼ Section 7-T17N-R26E. The water use is for the rural water system that serves the communities of Glencross, Trail City and surrounding rural areas.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1805-1 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. 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 October 14, 2003.

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.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
 County of Dewey)

I, James F. Nelson

certify that the attached printed Notice was
 taken

from the Timber Lake Topic

printed and published in Timber Lake

County of Dewey and

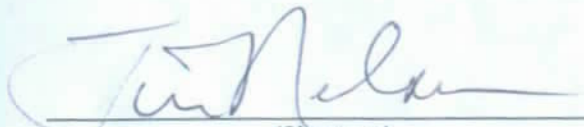
state of South Dakota. The notice was published

in the newspaper on the following two dates:

September 25, 2003

October 2, 2003

Cost of Printing \$38.50


 (Signature)

Publisher
 (Title)

10/3/03
 (Date Signed)

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Steven M. Pirner,
 Secretary, Department of
 Environment and Natural
 Resources.

Pub. September 25 & Oct. 2, 2003
 in the *Timber Lake Topic*

RECEIVED

OCT - 6 2003

WATER RIGHTS
 PROGRAM

AFFIDAVIT OF PUBLICATION

Corson - Sioux County News - Messenger

STATE OF SOUTH DAKOTA)SS
COUNTY OF CORSON)SS

Merle E. Lofgren of said county and state, being first duly sworn, on his oath says that the Corson - Sioux County News - Messenger is a weekly newspaper of general circulation, printed and published in McLaughlin, in said county and within the County of Corson for more than fifty-two successive weeks prior after mentioned and that I, Merle E. Lofgren, the undersigned, am Editor of said newspaper, in charge of advertising department thereof, and have personal knowledge of the facts stated in the affidavit and that the advertisement headed

Notice of application
1805-1 to appropriate
water

a printed copy of which is hereunto attached, was printed and published in the regular and entire issue of said newspaper and not in supplement, once each week for 2 weeks, the first publication being made on the 25 day of Sept, 20 03 and the last publication being made on the 2 day of Oct, 20 03.

The 1st publication being on 25 day of Sept, 20 03
The 2nd publication being on 2 day of Oct, 20 03
The 3rd publication being on _____ day of _____, 20 ____
The 4th publication being on _____ day of _____, 20 ____
The 5th publication being on _____ day of _____, 20 ____
The 6th publication being on _____ day of _____, 20 ____
The 7th publication being on _____ day of _____, 20 ____
The 8th publication being on _____ day of _____, 20 ____
The 9th publication being on _____ day of _____, 20 ____

That said newspaper is a legal newspaper and has a bonafide circulation of more than two hundred copies weekly, and has been published within the County of Corson for more than fifty-two successive weeks prior to the first publication of said notice and is printed in English in an office maintained at McLaughlin, SD, the place of publication of said newspaper. That the full amount of the fee for the publication of annexed notice is \$ 53.14 and incurs solely to the benefit of said publisher, that no agreement or understanding of a division there of has been made with any other person whomsoever.

Merle E. Lofgren

Subscribed and sworn to before me this 17 day of October, 20 03

Edward F. Schick
Notary Public

My commission expires 2-18-2009

NOTICE OF APPLICATION 1805-1 to Appropriate Water

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(pub. 9-25,10-2)



DEC 10 2003

**DEPARTMENT of ENVIRONMENT
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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

T C & G Water Association
% Don Hollenbeck
PO Box 95
Glencross SD 57630

Dear Mr. Hollenbeck:

Enclosed is Water Permit No. 1805-1 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,

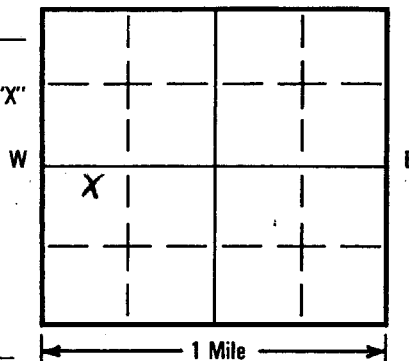
Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

SOUTH DAKOTA WATER WELL COMPLETION REPORT

1805-1
07-92Location NW 1/4 SW 1/4 Sec 7 Twp 17N Rg 26E
County Dewey

Please mark well location with an "X"



Well Completion Date

9-2-03

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Nine ft. from open pasture (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Drilled test hole / Bored wellCASING DATA: ☐ Steel ☒ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>18.89 LB/FT</u>	<u>12" IN</u>	<u>8 FT</u>	<u>24 FT</u>	<u>28" IN</u>
_____ 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>26</u>	<u>180</u> lb./gal	<u>9</u> ft	<u>18</u> ft
		_____ lb./gal	_____ ft	_____ ft

Describe grouting procedure Pumped in from bottom up through tremie pipeSCREEN: ☐ Perforated pipe ☒ ManufacturedDiameter 12" IN Length 40' FEETMaterial 304 Stainless SteelSlot Size .035 Set From 24' Feet to 64' FeetOther information Gravel packed screen w/ #40 Red Flint 40' to 65' and #20 sized from 18' to 40'WAS A PACKER OR SEAL USED? ☐ YES ☒ NO

If so, what material? _____

Describe packer(s) and location? _____

DISINFECTION: Was well disinfected upon completion? chlorine was added
☒ YES, How: in well

Laboratory sent to for water quality analysis

Pierre State Lab.
Flow Well SampleWell Owner: Trail City = Glencross #4 well
Business Name: _____
Address: PO Box 105
Glencross, S. Dak.

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Topsoil</u>	<u>0</u>	<u>1</u>
<u>Brown-yellow sandy clay</u>	<u>1</u>	<u>17</u>
<u>Brown to gray blue sandy clay</u>	<u>17</u>	<u>20</u>
<u>Gray-blue sand sandstone</u>	<u>20</u>	<u>21</u> Top
<u>Gray-blue sand to sandy clay</u>	<u>21</u>	<u>61</u>
<u>Gray-soft sandstone</u>	<u>61</u>	<u>62</u>
<u>Gray-blue sandy clay to clay</u>	<u>62</u>	<u>65</u>
		<u>other</u>

STATIC WATER LEVEL 14' Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☒ Pumped☐ Bailed☒ OtherDescribe: Developed well with 3" pipe & 1" airline for suction at lines and silt till water was clear

Pumping Level Below Land Surface

53 ft. After 24 Hrs. pumped 40 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

This well was drilled under license # 231

And this report is true and accurate.

Drilling firm Gregg's Drilling & ExcavatingSignature of License Representative: Gregg's Drilling & ExcavatingSignature of Well Owner or Equitable Property Holder: DEC 29 2003

Date: _____

WATER RIGHTS PROGRAM

2-31-03

NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE

Date

Jan. 7, 2004

TO: Water Rights Program, DENR
523 E. Capitol
Pierre, SD 57501-3181

FROM:

T. A. & G. Water Assoc.

(name)

Box 95

(address)

Decross, SD 57630

(city, state, zip)

605-865-3361

(phone)

I have completed the construction of the water use system and I have put the water to beneficial use to the maximum extent it is going to be used.

Water Permit No. 1805-1 states that the water use system is to be constructed by

Oct. 14, 2008
(date), and water is to be put to beneficial use by Oct. 14, 2012
(date)

The water use system was completed on

Oct. 11, 2003
(date)

Applying the water to beneficial use was completed on

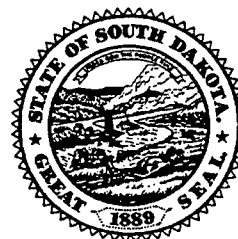
Oct. 12, 2003
(date)

You may schedule an investigation so that the water license may be issued.

Don Haller Jr. Chr.
(signature)

RECEIVED

JAN 12 2004

WATER RIGHTS
PROGRAM



1805-1

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 5, 2003

Dan Brosz
Brosz Engineering, Inc.
109 S. Main, Box 357
Bowman, ND 58623

Dear Mr. Brosz:

As requested, pursuant to South Dakota Well Construction Standard 74:02:04:21, Trail City and Glencross Water Association is authorized to construct a test well prior to approval of a water permit. The test well is to be completed into the Fox Hills aquifer in the NW¼ of Sec. 7, T17N-R25E. The test well must be constructed in accordance with the SD Well Construction Standards. Any test holes that are abandoned must be plugged pursuant to the SD Well Construction Standards.

A SD Water Permit must be obtained before water from this well can be used. Approval of this test well does not assure issuance of a water permit. Following review of a Water Permit Application; and assessing the availability of water, the potential impacts to existing users, the beneficial use, and the public interest of a permit, the Chief Engineer will make a recommendation to the Water Management Board regarding the application. The recommendation to approve, deny, or defer the application will be publicly noticed and an opportunity afforded for the public to intervene. A public hearing may be required to consider the water permit.

Very truly yours,

JAMES A. GOODMAN, P.E.
Natural Resources Engineer
for GARLAND ERBELE, Chief Engineer
Water Rights Program
(605) 773-3352

1805-1



109 S. Main, Box 357
Bowman, ND 58623
Phone: (701)523-3340
Fax: (701)523-5243

June 5, 2003

Eric Gronlund
SD DENR
Foss Building, 523 E. Capital
Pierre, SD 57501

RE: Trail City and Glencross Water Association

Dear Eric,

The Trail City and Glencross Water Association (T.C. & G.) had a casing collapse on their well located in the SW ¼ Section 12, T17N R25E in Dewey County. The failure of this well has put the Association in an emergency situation. The remaining two wells do not produce enough water to meet the normal usage of the system.

The Association was in the process of developing a new well source in the NW ¼ of Section 7, T17N R25E. The environmental work has been completed and funding has been secured. Because this work has been done T.C. & G is requesting permission of drill test holes in the NW ¼ of Section 7 for a new location. They will need to do this as soon as possible to replace the failed well. T.C. & G. will then ask for permission to transfer the water rights for the well in Section 12 to the new location.

Upon completion of this well, a new site near the old well in Section 12 will be obtained and they will apply for a new permit for that location. We are asking your help in getting us through this process as quickly as we can as we need to get a new well drilled immediately. Please advise us as to the procedures and forms we will need to complete. I will be assisting T. C. & G. with this process.

Thank you for your cooperation in this matter. Please contact me at 701-523-3340 if you have any questions. Your assistance and help will be greatly appreciated.

Sincerely,

Dan Brosz, P.E., R.L.S.
Brosz Engineering, Inc.

1805-1

Schlaak, Karen

From: Gronlund, Eric
Sent: Monday, January 09, 2006 10:33 AM
To: Schlaak, Karen
Subject: T C & G Water System

Rod Senger called in regard to your letter for annual reporting. He'll be reporting the system's entire use for 2005.

He also asked me to send him forms for apply for a new permit. They supposedly had a new well drilled recently that has not been put into production and wants to get the proper permit in place.

1/18/2006

SOUTH DAKOTA WATER WELL COMPLETION REPORT

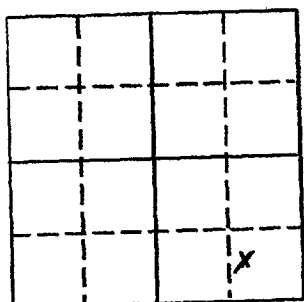
11-02

Location SE 1/4 SE 1/4 Sec 12 Twp 17N Rg 25E

County

Dewey

North



Please mark well location with an "X"

Well Completion Date

9-28-2005

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

None ft. from Open pasture (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Drilled test hole & Bored well

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	IN	FT	FT	IN
15.1	12" I.D.	0'	28'	28"

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
		Lb/gal	FT	FT
Neat Cement	29	15.0	9'	19 1/2'

Describe grouting procedure

Pumped in from bottom up through tremie pipe

SCREEN:

☐ Perforated pipe ☒ Manufactured

Diameter 12" I.D. Inches Length 32' Feet
 Material 304 Stainless Steel - Welded plate bottom
 Slot Size 0.35 Set From 28' Feet to 60' Feet
 Other information Gravel packed screen w/ #20 Red Flint from 19' to 60'

WAS A PACKER OR SEAL USED?

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine solution circulated in well.
☐ No, Why Not?

Lab sample sent to for water quality analysis

Well Owner:

Trail City - Glencross Wells

Business Name:

Well # 6

Address:

P.O. Box 105

City, State, Zip:

Glencross S. Dak. 57630

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Topsail</u>	<u>0</u>	<u>1</u>
<u>Brown-yellow sandy clay & sandstone</u>	<u>1</u>	<u>12</u>
<u>Light brown-green cemented sand</u>	<u>12</u>	<u>19</u>
<u>Blue-gray sand & sandy clay</u>	<u>19</u>	<u>58</u>
<u>Hard gray sandy clay</u>	<u>58</u>	<u>60</u>

STATIC WATER LEVEL

19.7

FEET

If flowing: closed in pressure

PSI

GPM flow

through

Inch pipe

Controlled by

☐ Valve

☐ Reducers

☐ Other

Reduced flow rate

GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped
☐ Bailed
☒ Other

Describe: Pumped with air lift through 3" pipe for 3 hours till water cleared up. Then pump w/ submersible

Pumping Level Below Land Surface

48.4

FL After

24

Hrs. pumped

28

GPM

FL After

Hrs. pumped

GPM

If pump installed, pump rate:

GPM

REMARKS

Well will be used for supplying water for TC & 6 pipe line.

This well was drilled under license #

231

And this report is true and accurate.

Drilling firm:

Gregg's Drilling & Excavating

Signature of License Representative:

Gregg's Drilling & Excavating

Signature of Well Owner or Equitable Property Holder:

RECEIVED

JAN 12 2006

WATER RIGHTS PROGRAM

Date:

30-21-1