

Considered: _____

WATER PERMIT NO. 5143-3

MAP No. same

Name of Applicant City of Howard

Post Office Address PO Box 705, Howard, SD 57349

Amount of Water Claimed 0.22 cfs Total Acres NA

Source of Water Supply ground water

Water to be used for municipal purposes County Miner

About _____ miles _____ of in Howard

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved _____ Subject to _____

F.F. & C.L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY _____ Date Received June 11, 1987 Fee 225⁰⁰ Remarks _____

Corrected Application Received June 19, 1987 Period of Annual Use Jan 1 - Dec 31

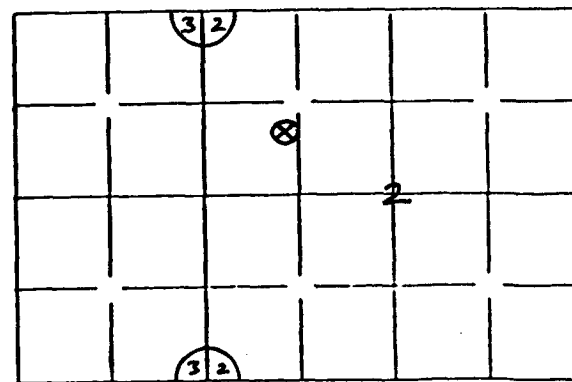
WATER QUALITY APPROVAL RECEIVED NA APPROVED/CONDITIONAL (Circle one)

WI-1 Description same as Application YES _____ NO _____ REMARKS _____

Diversion Point well: SW $\frac{1}{4}$ NW $\frac{1}{4}$ section 2-T106N-

R56W

Land to be Irrigated NA



Well Log: Driller well not constructed Licensed YES _____ NO _____

Depth of Well 200 Feet REMARKS _____

Type of Map plat PREPARED BY Schmucker, Paul, Mohr & Associates Reviewed and the Number

assigned on June 24, 1987 By Ron Duwall

Mail to: Water Rights Div.
DWNR, Foss Bldg.
Pierre, SD 57501
(605) 773-3352
P.L. 5/27/87

No. 5143-3 Hydrologic Unit 10170102
Map No. same Basin Vermillion River
Newspaper Miner County Pioneer, Box P, Howard (Thurs)

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

Check use of water: Industrial ☐ Commercial ☐ Municipal ☒ Other Common Distribution System ☐
Rural Water System ☐ Suburban Housing ☐ Geothermal Heat ☐ Institutional ☐ Recreational ☐
Domestic ☐ (above 18gpm) Other ☐

Type of Application: Check one or more of the following

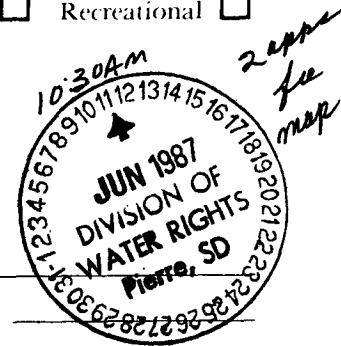
New ☒ Vested Right ☐ Future Use ☐ Change Use ☐

☐ Amend Permit No. _____ with old priority date retained

Change diversion point(s) ☐ Add diversion point(s) ☐ Other ☐

☐ Application to: Change diversion point(s) ☐ Add diversion point(s) ☐ on Permit No. _____

☐ Construction to use water reserved by Future Use Permit No. _____



1. Name of Applicant City of Howard Phone No. 772-4391

Post Office Address PO BOX 705, Howard State SD Zip Code 57349
(Street, RR or Box) (City)

2. Amount of water claimed (c.f.s) 100 gallons per minute, 0.22 cfs

3. Source of water supply aquifer underground

4. Location of point of diversion North of town, High School Property

North of Dakota Ave. see map SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 2-T106N-R56W

Miner County

5. Counties where water will be used Miner

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

7. Give a brief description of proposed 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 cover of State Water Plan application

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map (see instruction)

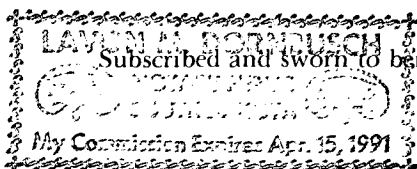
STATE OF SOUTH DAKOTA)
County of Miner)^{ss}

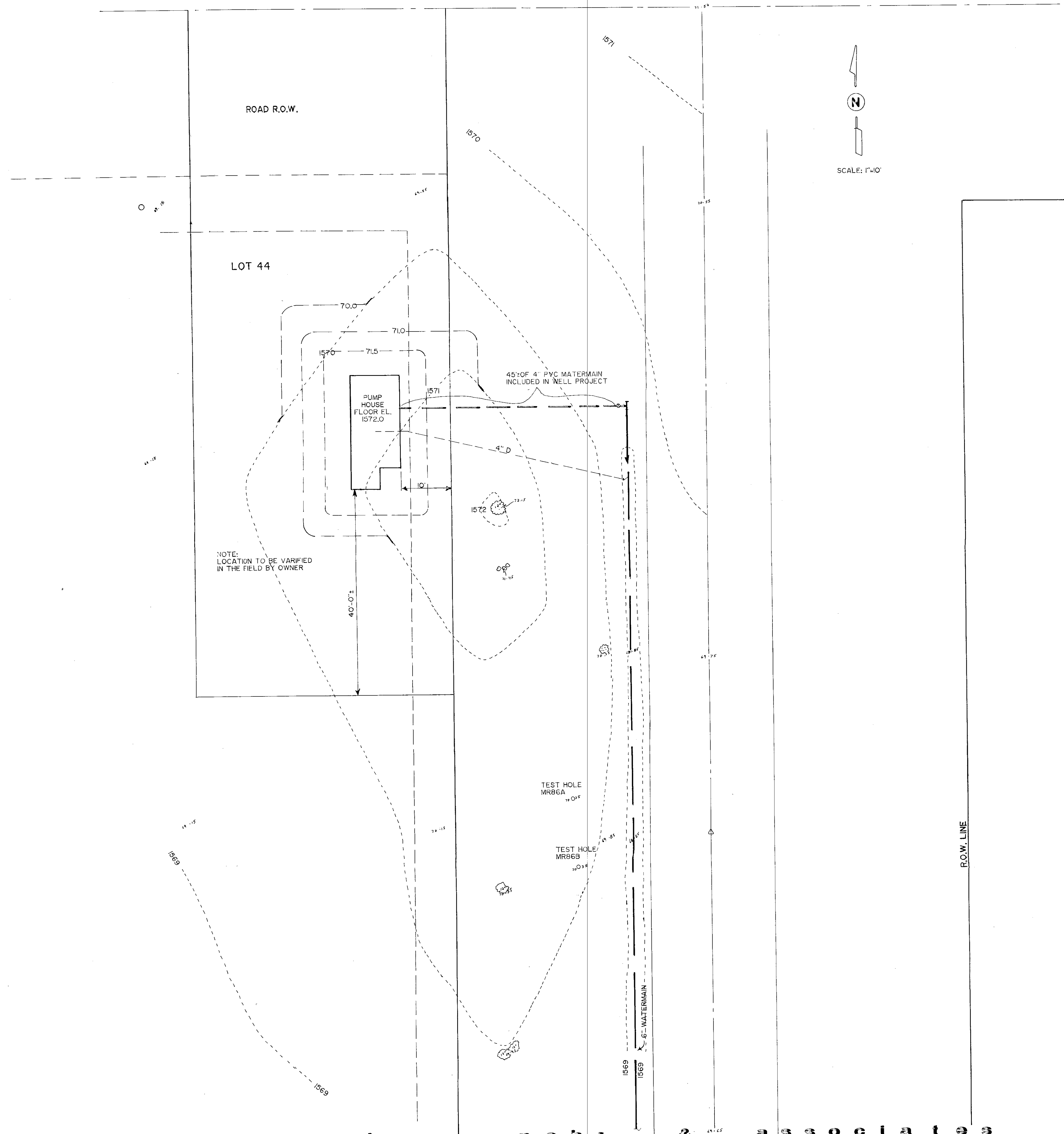
I, Rich Laible, Mayor of Howard the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Signed Richard Laible

8th day of June 1987

Laron M. Dornbush
Notary Public





WATER PERMIT

The Water Management Board hereby approves Water Permit Application No. 5143-3

City of Howard P.O. Box 705
(Applicant) (Street, RR or Box)

Howard, South Dakota 57349 With the following qualifications.
(City) (State) (Zip Code)

1. The casing of the well to be constructed under Permit No. 5143-3 shall be pressure grouted with cement (bottom to top) from the producing formation to the surface and the well constructed in compliance with Water Management Board Well Construction Rules, Chapter 74:02:04
2. 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.

Date of first receipt of application June 11, 1987

Date of return to applicant for correction, amendments or changes required June 12, 1987

Date of receipt of corrected application June 24, 1987. Approved September 9, 1987

The Water Management Board approved this Water Permit No. 5143-3 authorizing the construction of the water use system and the placing of water to beneficial use as stated in the Application and as qualified in the Water Permit approval, subject, however, to the following limitations and conditions:

1. The date from which applicant may claim right is June 11, 1987

2. The equivalent of at least one-fifth of the specified work is to be completed on or before March 9, 1990

3. The whole of said work is to be completed on or before September 9, 1992

4. The limit of time for proof of beneficial use of water appropriated in accordance herewith is September 9, 1996

5. The water appropriated shall be used for the purpose of municipal use by the City of Howard

6. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be unlawfully impaired by this appropriation.

7. The amount of the appropriation granted shall not exceed 0.22 cubic feet per second; neither shall it exceed the amount of water needed for the beneficial uses served and to which water is actually and beneficially applied for municipal use on or before September 9, 1996. The water is to be used during the following described annual period: January 1 - December 31

WATER MANAGEMENT BOARD
By: John Hatch Chief Engineer JOHN HATCH
Division of Water Rights
Dept. of Water and Natural Resources
NOV 3 1987
_____, 19____

Supplemental Information

(type or print in ink)

1. Well Information - Proposed construction

- a) Drill Hole Diameter 12" Depth 200'
- b) Casing Type Steel Diameter 10" Thickness 1/4" Schedule 40
- c) Screen Type Stainless steel continuous wound Diameter 5" Thickness schedule 40
- d) Gravel Pack Thickness 3" Length of Gravel Pack ~~XXXX~~ 20'
- e) Depth to Top of Water Bearing Material 180'
- f) Depth to Water (ground surface to water level) 150'
- g) Distance to nearest existing domestic well:

On applicants property 1/2 mile to our well On property owned by others 3/4 mile to neighboring farm

2. Dugout Information Estimates

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

3. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below. The locations of each dam should 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

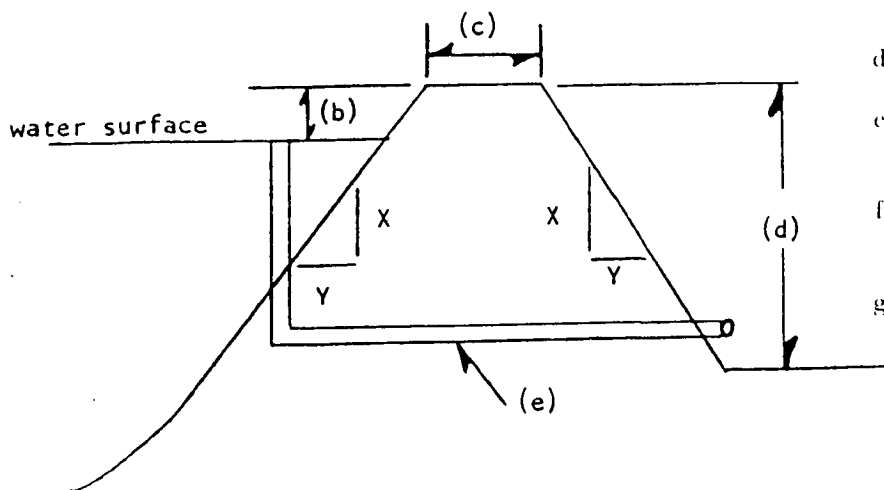
Upstream _____

Downstream _____

Surface Area of Impoundment _____

Storage _____ acre feet

Drainage area above dam _____



Signature of Applicant _____

CITY MAP of HOWARD, SOUTH DAKOTA

mucker . paul . nohr & associates

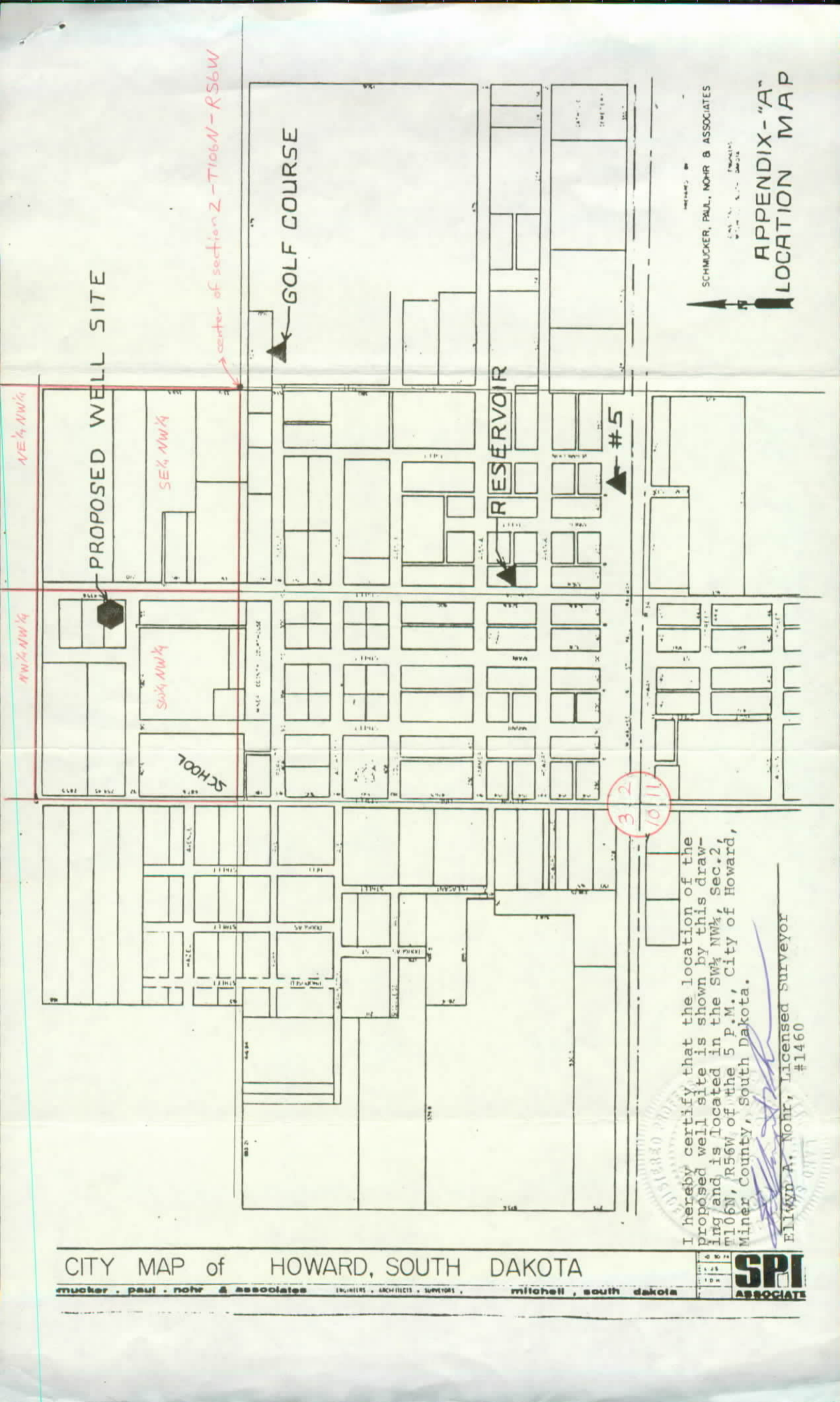
ENGINEERS • ARCHITECTS • SURVEYORS

MITCHELL, SOUTH DAKOTA

SPI
ASSOCIATE

I hereby certify that the location of the proposed well site is shown by this drawing and is located in the SW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 2, T106N, R56W of the 5 P.M., City of Howard, Miner County, South Dakota.

Ellwyn A. Nohr, Licensed Surveyor
#1460



SCHMUCKER, PAUL, NOHR & ASSOCIATES

APPENDIX - "A"
LOCATION MAP

RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

410915

Pierre, June 19, 1987

RECEIVED OF City of Howard, P.O. Box 705, Howard, SD 57349

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

Fee for Application for Permit No. _____ to Appropriate Water, to construct works 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. _____		
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for Certified Copy of _____		
Fee for Print Copy of Map _____		
Fee for Certifying _____		
Fee for _____		
(Any Other Work Provided by Law)	Total	225 00

By John Hatch
Chief Engineer

JOHN HATCH

CMS

DEPARTMENT OF WATER AND NATURAL RESOURCES
SOUTH DAKOTA GEOLOGICAL SURVEY
Science Center, USD
Vermillion, SD 57069-2390
(605) 677-5227



March 16, 1987

The Honorable Gene Lauer
Mayor of Howard
100 South Main, P. O. Box 157
Howard, SD 57349-0157

Dear Mayor Lauer:

The following is a summary of the oral report that was presented to the Howard City Council and your engineer on March 9, 1987. It outlines the results, conclusions, and recommendations of the ground-water study recently conducted on a 25 square mile area in the immediate vicinity of Howard.

The two major objectives of the study were to:

1. define the areal extent and determine the capability of the Howard aquifer to support further development in the vicinity of Howard, and
2. investigate the water-yielding potential and water quality (particularly with respect to concentrations of radium 226-228) of the Codell Aquifer for possible development by the City of Howard.

The final interpretative written report on the ground-water investigation is currently being prepared and will be forwarded after completion. If you have any questions on any of the results, conclusions, or recommendations contained herein, or desire additional information, please do not hesitate to contact me.

Sincerely,

Dean E. Holly
Hydrogeologist

For the State Geologist

DEH:co
Enclosure
cc: Jerry Siegel
John Hatch
Ellwyn Nohr

GROUNDWATER STUDY FOR THE CITY OF HOWARD SUMMARY OF RESULTS

Presented Orally to the
Howard City Council
March 9, 1987

by
Dean E. Holly

AQUIFER EVALUATIONS

Howard Aquifer

The Howard Aquifer is a confined glacial outwash aquifer consisting of sand and gravel and is present in Moody, Lake, and eastern Miner Counties. The area of this investigation represents only the extreme western portion of the aquifer which consists of irregular sand and gravel lenses and no connection was found in this study to the main body of the aquifer to the east (fig. 1). Within the study area the Howard Aquifer consists of coarse sand to very fine pebble gravel and has an areal extent of approximately 8.5 square miles (fig. 2). In general, the aquifer occurs at a depth from about 170 to 200 feet and the depth to water is approximately 150 feet below the land surface. The average saturated thickness is 19 feet and ranges from 0 to 42 feet.

Although the overall water quality is poor, it does not violate any primary drinking water standards. It does, however, exceed the secondary drinking water standards for total dissolved solids, sulfate, iron, and manganese. Average concentrations for total dissolved solids, hardness, and sulfate are 2,157, 742, and 1,174 parts per million (ppm), respectively. Iron and manganese values vary widely (perhaps depending on the sampling method) and range from less than 0.05 to 1.2 ppm for iron and 0.41 to 1.5 ppm for manganese. Combined radium 226/228 values for the Howard Aquifer are less than one picocurie per liter (pCi/L).

Howard City Well no. 5 was installed in the Howard Aquifer in 1968 and since that time the water level in the well has declined approximately 26 feet as a result of the pumping. This represents an annual decline of 1.3 feet per year. It is assumed (based on backward projection of water-level altitudes) that corresponding declines have also occurred throughout the 8.5 square mile area of the aquifer. No observation wells were available for historical monitoring of water levels, therefore, actual distribution of water-level declines throughout the aquifer is not known. Two observation wells installed in the Howard Aquifer (for the present study) to the west and north of Well no. 5 will allow for future monitoring of water-level changes in the aquifer.

A water-level decline of 26 feet over the past 19 years indicates that the discharge has been greater than the average annual recharge in this portion of the aquifer. Water-level declines are significant since the reduction in the available head reduces the maximum capacity of the well. The yield of Well no. 5 has been reduced from 180 gallons per minute (gpm) in 1968 to 70 gpm in 1987 as a partial result of the water-level decline. Also, a significant reduction in specific capacity of the well has been observed from 7.8 gpm/ft of drawdown in 1968 to 2.3 gpm per foot of drawdown in 1987. Reduction in specific capacity may result from clogging of the well screen and aquifer, or compaction of the aquifer from declining water levels. Since the well screen was found to be not clogged (during rehabilitation work completed in January, 1987), the reduction in specific capacity is therefore the result of either formation clogging or compaction of the aquifer due to the water-level decline.

Water-budget calculations indicate that approximately 90 percent of the average annual discharge of 90 acre-feet pumped from the Howard Aquifer by Well no. 5 is derived from recharge. The major source of recharge, although not well documented hydrogeologically, is likely from the Niobrara Formation which directly underlies a portion of the Howard Aquifer. Other components of recharge may be from discontinuous sand lenses within the till, adjacent portions of the aquifer not yet defined, or from the overlying till. However, recharge through the till is probably not significant.

Codell Aquifer

The Codell Aquifer is a confined bedrock aquifer consisting of medium quartz sand and/or sandstone, interbedded with silt and shale. It occurs at a depth from about 300 to 400 feet below the land surface in the vicinity of Howard. The depth to water ranges from 153 to 171 feet. The average saturated thickness is 35 feet and ranges from 29 to 50 feet.

Overall water quality in the Codell Aquifer is poor but, with the possible exception of radium, does not violate any primary drinking water standards. It does, however, violate the secondary drinking water standards for total dissolved solids, sulfate, iron, and manganese. Average concentrations for total dissolved solids, hardness, and sulfate are 1,522, 547, and 817 ppm, respectively. Iron and manganese concentrations vary widely (perhaps due to sampling method) and range from less than 0.05 to 1.4 ppm for iron and less than 0.05 to 0.26 for manganese. Initial concentrations of combined radium 226/228 indicated values less than the limit from 5 pCi/L. However, one sample collected from the observation well located on the west edge of Howard contained 5.3 pCi/L. A second sample collected from this observation well had a concentration of 2.0 pCi/L. As a result of this variation, a minimum of three samples will be collected from all three observation wells so that the validity of the radium analysis can

be verified.

Variations of water levels in the Codell Aquifer are not known, but since no high capacity wells are developed in the aquifer in this area, significant water-level declines would not be expected.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this investigation, the following recommendations are suggested if further development of the ground-water resources in the immediate vicinity of Howard is desired.

1. Conduct an aquifer test on Well no. 5

In order to determine if the significant reduction in specific capacity in Well no. 5 is the result of aquifer clogging in the immediate vicinity of the well or compaction of the aquifer as a result of water-level declines, it is necessary to conduct an aquifer test. This test should be conducted at a constant rate for a minimum of 24 hours and water-level measurements recorded so that the aquifer parameters can be calculated by standard aquifer analysis procedures. The South Dakota Geological Survey (SDGS) will assist in conducting the aquifer test and will analyze the results. Aquifer parameters determined from this test will be used to compare with values obtained from a similar test conducted on the well following its installation in 1968 to determine the cause for the reduction in specific capacity. Results from this comparison are necessary to predict the yield and determine the design and number of additional production wells that may be required.

2. Install additional production wells in the Howard aquifer.

Though the Howard Aquifer is limited in areal extent in the study area and water-level declines are continuing in the aquifer, it is recommended for the following reasons:

- a. it is the shallowest aquifer in the immediate vicinity of Howard capable of sustaining continued development,
- b. storage calculations and estimated recharge rates indicate that sufficient water will be available in the aquifer to sustain continued utilization by the City of Howard at the present rate for an estimated 10 to 20 years, at which time the aquifer will go unconfined, and
- c. water-budget calculations indicate that 90 percent of the water pumped from the Howard Aquifer is being

recharged.

The best locations for the installation of additional production wells are in the areas of greatest saturated thickness. The area recommended for the installation of an additional production well is shown on figure 2. However, prior to the installation of a production well, a test hole should be drilled to verify the saturated thickness. Following this verification, a production well should be installed and an aquifer test conducted to determine the aquifer parameters and well capacity. A water sample should be collected and analyzed to determine the chemical quality.

It should be made very clear that water-level declines in the Howard Aquifer can be expected to continue. Therefore, the yield of the wells will continue to decline over time, due simply to the reduction in available drawdown. This will limit the yield that may be obtained from individual wells and will require the installation of additional wells over time to meet the demands that were originally satisfied with one production well.

3. Installation of a test well in the Codell Aquifer

The Codell Aquifer is also a potential ground-water source but there are several problems associated with its development. These include the following:

- a. the interbedded nature of the aquifer material with shale will not allow the yield of high capacity wells developed in the aquifer to be predicted confidently,
- b. the fine-grained nature of the aquifer may be difficult to keep out of the well and therefore the well may pump fine sand or silt, and
- c. radium concentrations of the Codell Aquifer may increase over time.

These factors cannot be evaluated without construction of a test well and conducting an extended aquifer test, as is recommended.

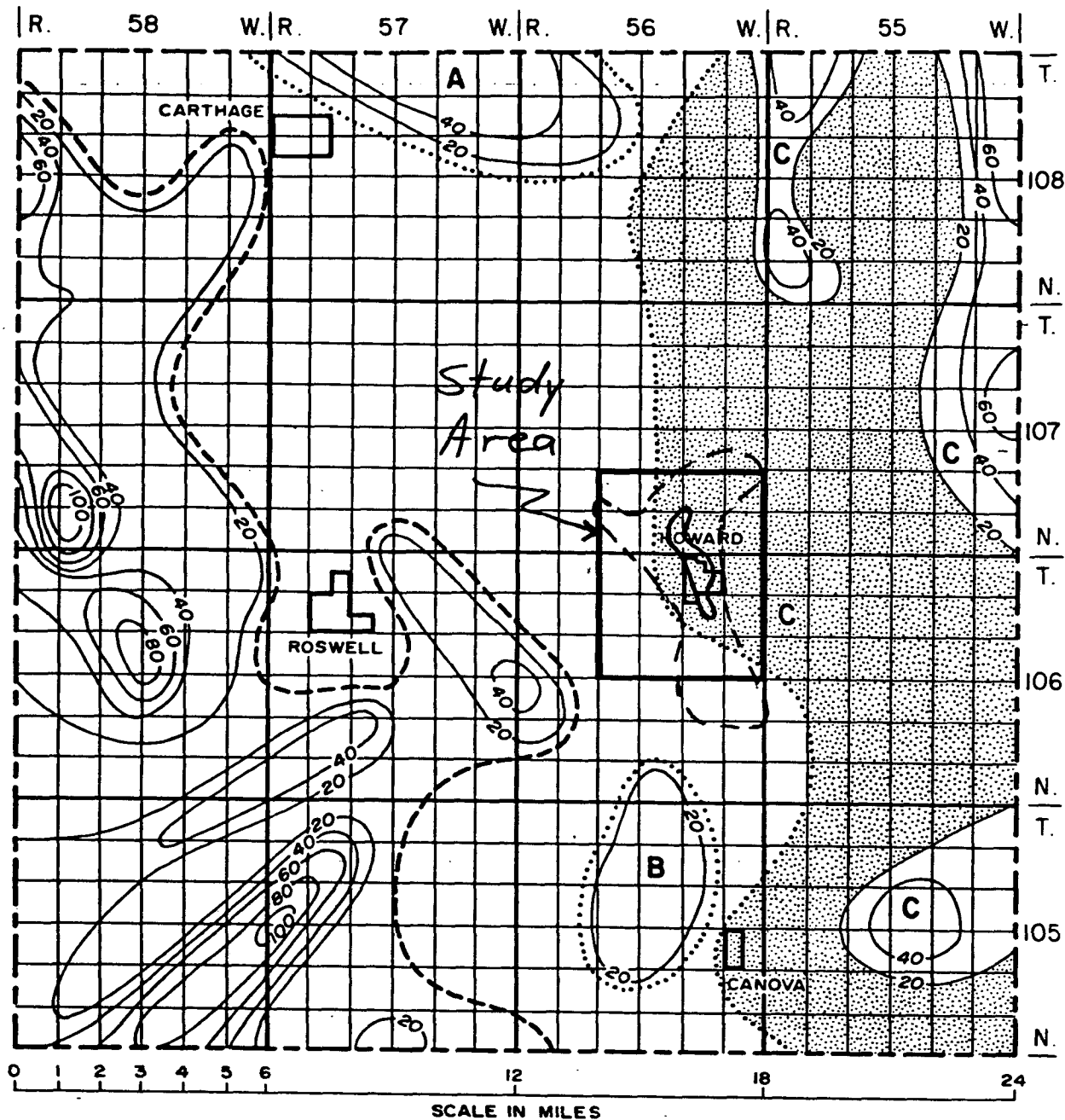
4. Additional investigation of the Niobrara and Dakota Aquifers

Other aquifers in the vicinity of Howard which need further investigation prior to recommendation as a source for the City of Howard are the Niobrara and Dakota Aquifers. The Niobrara Aquifer present in the immediate vicinity of Howard yields sufficient water for domestic use but it is not known whether high capacity wells could be developed in this aquifer. The Dakota Aquifer is not present under the City of Howard but is

present approximately 3 miles to the north. Development of high capacity wells is possible in the Dakota Aquifer but depths would generally be greater than 600 feet. The overall water quality of both these aquifers is very similar to the Howard and Codell Aquifers.

5. Obtain water rights permit.

Prior to development of any of the above aquifers, the Division of Water Rights, Pierre, South Dakota, should be contacted to secure any permits that are required under State law.



--- Approximate boundary of the Floyd aquifer.

Stippled area indicates where sand and gravel occurs as irregular lenses.

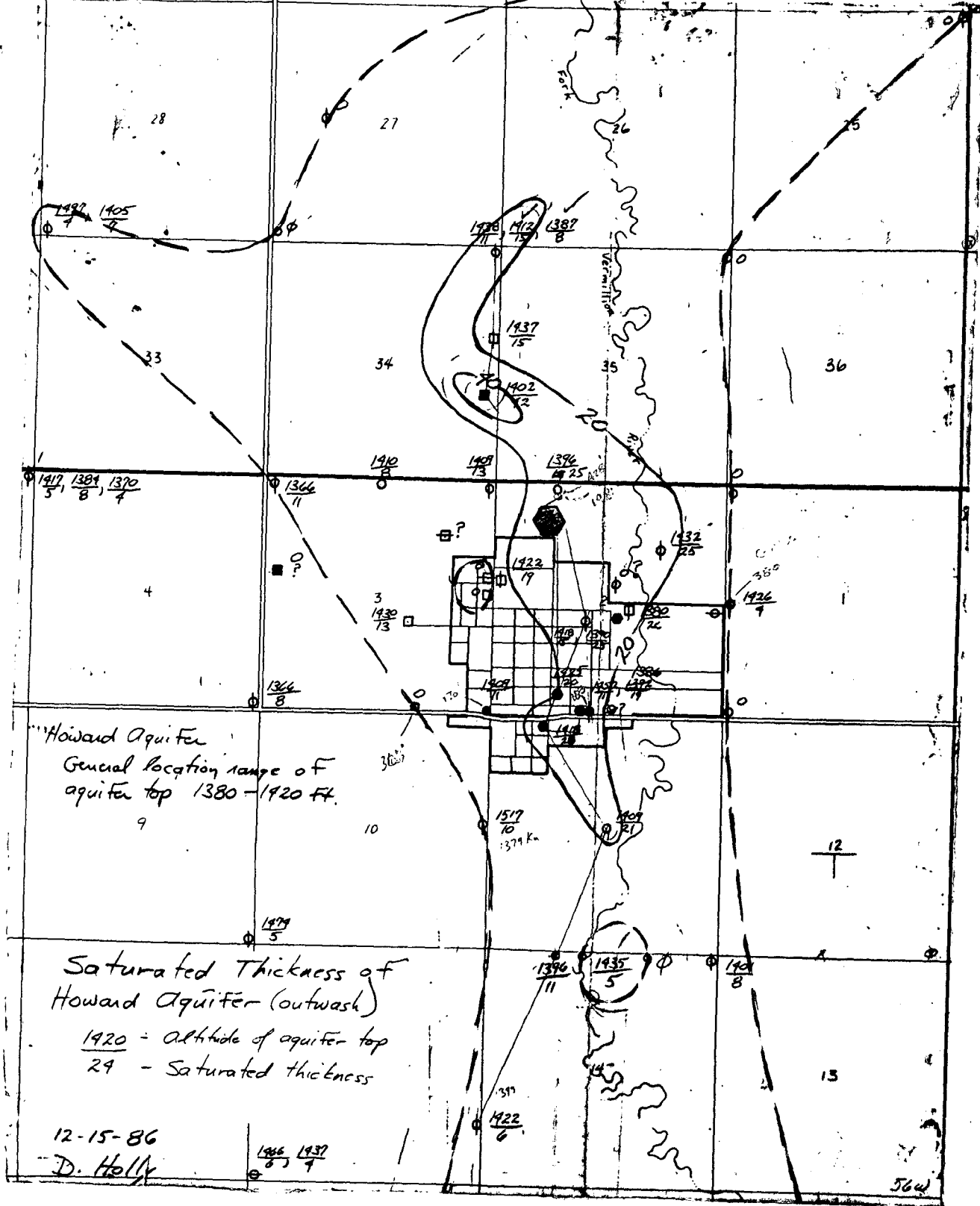
60 Line of equal thickness of saturated sand and gravel. Contour interval is 20 feet.

Map showing location and combined sand and gravel thickness of major glacial outwash aquifers in Miner County.

Howard Aquifer

N

Fig. 1



PART I

Application Form

Cover Sheet

Applicant City of Howard Address PO Box 157 Howard, SD 57349	Funding Package: <table style="width: 100%;"> <tr><td>CDBG</td><td style="text-align: right;">69,300</td></tr> <tr><td>State Loan</td><td style="text-align: right;">_____</td></tr> <tr><td>State Grant</td><td style="text-align: right;">_____</td></tr> <tr><td>FmHA Loan</td><td style="text-align: right;">_____</td></tr> <tr><td>FmHA Grant</td><td style="text-align: right;">_____</td></tr> <tr><td>Local Bond Issue</td><td style="text-align: right;">46,200</td></tr> <tr><td>Local Cash</td><td style="text-align: right;">_____</td></tr> <tr><td>Other</td><td style="text-align: right;">_____</td></tr> <tr><td>Total</td><td style="text-align: right;">\$ 115,500</td></tr> </table>	CDBG	69,300	State Loan	_____	State Grant	_____	FmHA Loan	_____	FmHA Grant	_____	Local Bond Issue	46,200	Local Cash	_____	Other	_____	Total	\$ 115,500
CDBG	69,300																		
State Loan	_____																		
State Grant	_____																		
FmHA Loan	_____																		
FmHA Grant	_____																		
Local Bond Issue	46,200																		
Local Cash	_____																		
Other	_____																		
Total	\$ 115,500																		
Federal Employer ID No. 46-6000206																			
Sub Applicant																			

Project Title/Description:

HOWARD WATER SOURCE PROJECT: A new source of quantity, as well as quality water is needed to meet city demand of the city of Howard. The immediate need is quantity, as the current need to meet city demand is 355 gpm, while the combined yield of the three wells is only 250 gmp. In addition, the city's three wells have higher than acceptable levels of radium, and this restricts the total yield that is available for usage. Any failure of the third well for blending purposes seriously jeopardizes Howard's water supply. The SDGS prepared a ground water study for the city of Howard, and a summary is part of the enclosed engineer's report. As SDGS did not determine a quality source of water for the city, the city proposes to construct a new well to alleviate the problems. The project will involve a test hole, 6 observation wells, 10" well screen, gravel pack, pump, motor, controls, well house, and chlorination equipment, plus interconnecting piping. This project will benefit the entire city of Howard--population 1,169 (1980 Census). See enclosed preliminary engineering report, as provided by Ellwyn Nohr of Schmucker, Paul, Nohr, & Associates.

This application is for the following:

☒ State Water Plan

Financial:

- ☐ Consolidated Water Facilities Construction Grant
- ☐ Consolidated Water Facilities Construction Loan
- ☐ Community Development Block Grant Program
- ☐ Lake and River Dredging Program

The Applicant Certifies that:

To the best of my knowledge and belief, the information in this application is true and correct. The document has been duly authorized by the governing body of the applicant and the applicant will comply with all appropriate requirements if approved. (If CDBG application, must be signed by chief elected official.)

Eugene Lauer, Mayor	772-5623	<i>Eugene C. Lauer</i>	4-27-87
Name and Title (Typed)	Phone #	Signature	Date

Application Prepared By:

Marlene Knutson	886-7224	First District Assoc. of Local Governments
Name and Title (Typed)	Phone #	Representing
Ellwyn Nohr	997-7761	Schmucker, Paul, Nohr & Associates
Name of Consultant	Phone #	Representing

SOUTH Dakota Department of
Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

WATER RIGHTS DIVISION
(605) 773-3352

June 12, 1987

Rich Laible, Mayor
City of Howard
P.O. Box 705
Howard, South Dakota 57349

Dear Mr. Laible:

This letter is in response to the Water Permit Application received on June 11, 1987 from the City of Howard. The following information needs to be submitted to complete the application.

1. The application fee to appropriate 100 gpm is \$225.00. The enclosed instruction sheet outlines the fee structure. Therefore, I am returning your check for \$175.00. Please remit the correct fee of \$225.00.
2. Enclosed is a map of the City with section lines drawn on the map. The proposed well location is in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 2-T106N-R56W according to the section lines. The map needs to be reviewed for accuracy and then signed according to the enclosed instruction sheet. Please make any needed additions or corrections and return the signed map. The above well location will also be placed on the permit application if the location is correct.

The application cannot be processed until all necessary information is received. Please contact us if you have any questions.

Sincerely,

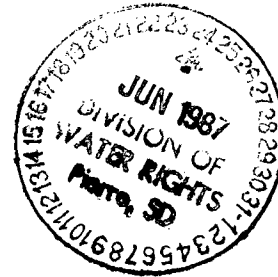


Ron Duval
Natural Resources Engineer

RD:ms
Enc.

BOX 398

PHONE (605) 996-7761



cc City of Howard w/encl

REPORT ON APPLICATION NO. 5143-3
City of Howard
July 23, 1987

This application proposes to appropriate 0.22 cfs from one well 200 feet deep to be located in the SW 1/4 NW 1/4 of Section 2 T106N R56W. The water is to be used for municipal purposes by the City of Howard.

AQUIFER - Howard Aquifer

The Howard Aquifer is a Pliestocene aged outwash (sand and gravel) which is under artesian conditions. According to the SDGS (Holly, 1987), the aquifer averages 19 feet in thickness in this area and can attain a thickness of 42 feet. Holly considered the aquifer to underlie only 8.5 square miles in this vicinity and not obviously connected with the main body of the Howard Aquifer to the east. In the area described by Holly, the aquifer contains about 15,500 acre feet of recoverable water using .15 for a specific yield. Also the Howard Aquifer is probably hydraulically connected to the Niobrara chalk.

Holly reports that water levels in the aquifer have apparently declined 26 feet since the installation of city well #5 in 1968. This is based upon limited data as no observation wells have been monitored. The Division of Water Rights recently began to measure two wells in this vicinity in order to develop a historical record. These were constructed by the SDGS during the recent study for the City of Howard.

REVIEW OF EXISTING WATER PERMITS

The City of Howard has 5 permits to obtain water from 3 different aquifers. These are the Sioux Quartzite, the Codell Sandstone and the Howard Aquifer. No other permits in this area obtain water from these formations. There are numerous domestic wells in this area which obtain water from these formations.

CONCLUSIONS

1. There is water available from the Howard Aquifer.
2. Interference between city wells will occur. Whether this is significant will depend upon the results of an aquifer test which should be conducted upon the new well. A properly run test will allow the city to determine the effects of pumping upon the existing well(s) and properly plan the use of the wells.
3. Water levels are apparently declining; however, the data is not sufficient to access this. The Division of Water Rights began measuring 2 observation wells recently installed by the SDGS to develop some historical record. It is expected that more or less continuous pumping of an artesian aquifer will permanently depress water levels in the area of pumping. The real question is whether the recharge to

the Howard (consisting of leakage from the Niobrara and possibly the main body of the Howard Aquifer) will sustain additional withdrawals. Holly's preliminary hydrologic budget indicates that 90% of the water pumped by well #5 (city well) was recharge water.

4. In making this application, the city has apparently considered the poor water quality available from any of the aquifers and decided that another well into the Howard Aquifer is their best option.
5. I agree with the Holly report for the most part. I do not believe data is available to determine water level trends or to say that the aquifer will go unconfined in 10 or 20 years. This may occur, however.
6. There are no other permits issued for this aquifer in this area and the Water Rights Division will be monitoring the observation wells to determine what the effects will be.


James A. Goodman
Hydrologist

Bibliography

Holly, D.E., 1987, Summary of Oral Report Presented to City of Howard, DWNR, SDGS, Vermillion, SD, 57069.

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5143-3

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Water Permit Application No. 5134-3, City of Howard, PO Box 705, Howard SD.

The Chief Engineer is recommending APPROVAL of Application No. 5143-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualifications:

1. The casing of the well to be constructed under Permit No. 5143-3 shall be pressure grouted with cement (bottom to top) from the producing formation to the surface and the well constructed in compliance with Water Management Board Well Construction Rules, Chapter 74:02:04.
2. 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.

See the attached report for additional information.



JOHN HATCH, Chief Engineer
July 28, 1987

No. 5143-3

Instruction to Newspaper - Publish first publication of the following Notice on or before August 6, 1987 with 2nd publication 1 week later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. 5143-3 to Appropriate Water
~~and/or to Amend Water Permit or Water Right~~ No. _____

Notice is hereby given that the City of Howard whose mailing address is P.O. Box 705, Howard, South Dakota has made an application for a permit

to appropriate 0.22 cubic feet of water per second from one well (Howard Aquifer) 200 feet deep to be located in the ~~S&W~~ Section 2-T106N-R56W. Water is to be used for municipal purposes by the City of Howard.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends

APPROVAL of Application No. 5143-3 because 1) unappropriated water is available, 2) will be no unlawful impairment of existing rights, 3) is beneficial use of water and 4) is in the public interest.

This application will be considered by the Water Management Board at room 216, Joe Foss Building, 523 E. Capitol, Pierre, SD September 6 19 87 at 10:00 am.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and the Chief Engineer by August 28, 1987. The petition may be informal, but it must include a statement describing the petitioners interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

This application is made pursuant to the provisions of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2 46-5-30.4, 46-5-31; ~~(ground)~~ 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, ~~(future use)~~ 46-5-38 thru 46-5-40, ~~(transfer lands)~~ 46-5-30.4, 46-5-33 thru 46-5-35, ~~(10,000 AFA)~~ 46-5-20.1, 46-5-8.1, and Board Rules ARSD 74:02:01:01 thru 74:02:01:15, ~~(future use)~~ 74:02:01:24 thru 74:02:01:25, ~~(10,000 AFA)~~ 74:02:01:15.02 thru 74:02:01:15.05.

This hearing is an adversary proceeding. The applicant or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and the State Supreme Court as provided by law.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this application or to assure access to the hearing by the handicapped can contact the Water Rights Division, DWNr, Joe Foss Bldg, Pierre SD (605 773-3352) for assistance prior to the hearing date. The time of the hearing will be automatically extended for at least twenty days upon written request of the applicant or any person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by August 28, 1987.

No. _____

**NOTICE OF HEARING ON
APPLICATION NO. 5143-3
TO APPROPRIATE WATER**

Notice is hereby given that the City of Howard whose mailing address is P.O. Box 705, Howard, South Dakota has made an application for a permit to appropriate 0.22 cubic feet of water per second from one well (Howard Aquifer) 200 feet deep to be located in the SW 1/4 NW 1/4 Section 2-T106N-R56W. Water is to be used for municipal purposes by the City of Howard.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. 5143-3 because 1) unappropriated water is available 2) will be no unlawful impairment of existing rights 3) is beneficial use of water and 4) is in the public interest.

This application will be considered by the Water Management Board at room 216, Joe Foss Building, 523 E. Capitol, Pierre, SD, September 9, 1987 at 10:00 a.m.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and the Chief Engineer by August 28, 1987. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

This application is made pursuant to the provision of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

This hearing is an adversary proceeding. The applicant or any person, after filing a petition, has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and the State Supreme Court as provided by law.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)

County Miner) ss.

I, Paul C. Munger hereby

certify that the annexed printed copy of Notice of Intent to Appropriate

Water was taken from the Miner County Pioneer

A newspaper which during the whole time of publication of said notice herein after stated, has been and is printed and published in the _____

State of South Dakota

County of Miner and State of South Dakota;
that the said notice was published in said newspaper on the following two dates:

August 6, 1987

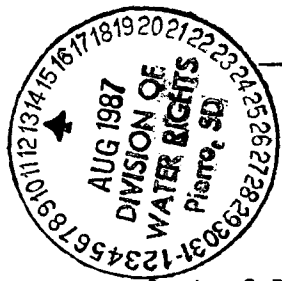
August 13, 1987

Paul C. Munger
(Signature)

Publisher
(Title)

Aug. 13, 1987
(Date Signed)

Cost of Printing: \$42.45



Any person wishing a copy of the Chief Engineer's recommendation, further information on this application or to assure access to the hearing by the handicapped can contact the Water Rights Division, DWRN, Jowe Foss Bldg., Pierre, SD (605 773-3352) for assistance prior to the hearing date. The time of the hearing will be automatically extended for at least twenty days upon written request of the applicant or any person who has filed a petition to oppose or

support the application. The request for extension must be filed with the Chief Engineer by August 28, 1987.

(Aug. 6-13)



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

Water Rights Division
605 773-3352

NOV 3 1987

City of Howard
P.O. Box 705
Howard, South Dakota 57349

Dear Sir:

Enclosed herewith is your Water Permit No. 5143-3 as approved by the Water Management Board authorizing you to construct your water diversion system and the water to beneficial use, not exceeding the limits as specified in said Water Permit No. 5143-3.

Also enclosed is Form 10, Notice of Completion of Works and Application of Water to Beneficial Use, which you are to complete and submit to the Chief Engineer when you have completed the system and/or have put the water to beneficial use. An inspection can then be scheduled so that your Water License may be issued to you, thus completing your acquisition of a Water Right.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Division

JH:ms

enclosure

PLEASE NOTE: Certain changes can be made in your permit within the five year construction period, usually without affecting the priority date provided an application to amend your permit is made within the five year period-i.e. changes in location or number of diversion points (wells) or location of land to be irrigated. Well locations for wells into the same aquifer can be moved up to 660 feet without application.

Applications to amend a permit after the five year construction period will be assigned a new priority date. Applications to change water sources, to add lands or increase original diversion rates, if approved will usually receive the date of the new application as a priority date regardless of the five year construction period.

 **Department of
Water & Natural Resources**

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

October 18, 1990

HOWARD CITY OF
KRISTI DORNBUSCH
PO BOX 705
HOWARD SD 57349

Dear MS. DORNBUSCH:

A well drillers report filed with this office by PULLMAN WELL DRILLING indicates you have completed a new well. The well driller is required by South Dakota Codified Laws (SDCL 46-6-11) to file a well construction report.

The purpose of the enclosed "Summary of South Dakota Water Law and Water Right Information" is to provide general information and to inform you of the responsibilities you have incurred. Specifically:

1. According to South Dakota Water Rights Law (SDCL 46-1-15, 46-5-9, 46-5-10), it is necessary to obtain a water permit to appropriate waters of this state. An exception to this requirement is for water used for domestic purposes. Domestic water uses that do not require a permit are listed under item 5 on the enclosed summary. Those activities that require permits are listed under item 7.
2. If your new well was drilled as a replacement well and if you do not plan to use the old well, the old well is considered abandoned and must be plugged pursuant to SDCL 46-6-27. Other abandoned wells must also be plugged.
3. If the old well is not to be abandoned, or will be used, the well must be sealed or capped at the surface pursuant to SDCL 46-6-27.

Based on the legal description of the well described on the enclosed well completion report, you may need a water permit for your well. The legal description on the well completion report does not match the legal description described on the enclosed water permit. Please clarify whether or not the well is intended to be covered by the enclosed permit. If the water permit is intended to cover the well, then is the legal description correct on the well completion report or on the water permit. Please respond by 11/19/90.

October 18, 1990

WATER PERMIT COMPLIANCE

PAGE 2

Contact Regan Fanning, Natural Resources Analyst, at "Water Rights Division, Joe Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352) if you have any questions.

The Centennial Environmental Protection Act (House Bill 1291) as passed by the 1989 Legislature included Section 46 (SDCL 34A-3A-18) which states:

"Following completion of any new well for domestic use, a water quality sample shall be collected and submitted to the department of health laboratory or another laboratory approved by the department. If the well flows or if the well driller installs the pump, the well driller shall collect and submit the water quality sample. If the pump is not installed by the well driller, the owner shall collect and submit the water sample. The completed analysis shall be submitted to the department by the well driller or owner within thirty days after the submittal of well completion report which is filed with the department pursuant to 46-6-11. At a minimum, the water sample shall be analyzed for nitrate, coliform bacteria, sodium, conductivity and sulfate. Other contaminants may be analyzed for at the option of the well owner or driller. The owner or well driller shall pay for the cost of all analyses."

If you have questions or need assistance contact Regan Fanning, Natural Resources Analyst (605-773-3352).

Very truly yours,

Ron Duvall
Natural Resources Engineer
for JOHN HATCH, Chief Engineer
Water Rights Division

cc: well driller

enclosure



July 9, 1996

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

Permit No. 5143A-3

Kristi Dornbusch, Finance Officer
City of Howard
P.O. Box 705
Howard, SD 57349-0705

Dear Ms. Dornbusch:

The inspection of your water use system and the inspection of the extent of application of water to beneficial use, as developed under Water Permit Nos. 5143-3 and 5143A-3, has been completed. Your final water right document, the Water License, can now be issued. Upon licensing, the applicable portions of Water Permit No. 5143-3 will be incorporated into 5143A-3.

Statutes require that we charge a \$50.00 fee for the inspection and issuance of the Water License. Upon receipt of the \$50.00 fee from you, we will begin processing your Water License.

**Please remit fee to:
Department of Environment & Natural Resources
Water Rights Program
523 E. Capitol
Pierre, SD 57501-3181**

South Dakota Water Law 46-5-30.1 requires that a permit holder may not divert water until the \$50.00 license fee has been paid. Please contact us if you have any questions.

Sincerely,

Cheryl F. Frost
Secretary
Water Rights Program
(605) 773-3352

NOTE: On check or money order, please specify your permit number. This will insure proper handling of the fee.

File No. 5143-3

Water Rights Division -DWNR
Conversation or File Documentation

NAME OF PERSON OR FILE: City of Howard c/o Schmucker, Paul, Nohr
& Assoc.

ADDRESS: COUNTY:

DATE: Sept. 22, 1989

TELEPHONE: 996-7761

RE: Changing the location of the well authorized by Water Permit
No. 5143-3

COMMENTS:

Ellwyn Nohr called today in regard to the "change order" for the City of Howard. They need to change the location of the authorized well by 1800 feet (north) of the approved location. He has apparently discussed this matter with Ron Duvall and was advised to submit a written request to be allowed to construct the well prior to permit amendment hearing. This request was received on September 18, 1989. After discussing this with Del Brosz, I informed Mr. Nohr that there was no provision we were aware of that would allow us to give permission to drill the well prior to approval of the permit amendment. I told him that I would send application forms for filing the amendment application, along with copies from the existing file. I also told him that I would discuss this with Ron when he is back in the office next Monday afternoon and would contact him if his request could be granted.

Susan A. Bowar
9/22/89



5143-3

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

OCT 17 1996

5143A-3

Kristi Dornbusch, Finance Officer
City of Howard
P.O. Box 705
Howard, SD 57349-0705

Dear Ms. Dornbusch:

Enclosed is Water License No. 5143A-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 415010 in the amount of \$50.00 which you paid for the investigation and issuance of the Water License.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 5143A-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Program
(605) 773-3352

gm
enclosures

NOTE: The applicable portions of Water Permit No. 5143-3 have been incorporated into this Water License No. 5143A-3.