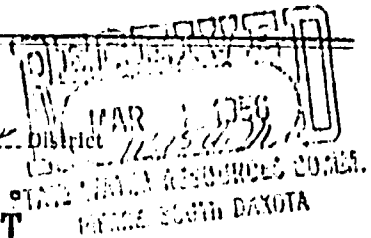


No. 272-1Water Division No. 1 Mission River
(Blank to be filled by the Engineer for the W. R. C.)

APPLICATION FOR PERMIT

To Appropriate Water within the State of South Dakota

(NOTE—Draw a line through items not applicable.)

1. Name of applicant Town of Eagle Butte
Postoffice address Eagle Butte, County Dewey, State South Dakota

- I. If a corporation _____
(a) Name of same _____
(b) Date and place of incorporation _____
(c) Amount of capital stock _____
(d) Amount paid in _____
(e) Names and addresses of directors _____

(NOTE—A certified copy of articles of incorporation must accompany the application.)

II. Method of accomplishing the work and financial resources of the applicant:

- (a) Method of accomplishing work (Whether by contract, employment of others, or by direct labor)

Contract

- (b) Cash on hand, \$ 40,000.00 (c) Treasury stock, \$ _____
(d) Bonds to be issued, \$ 32,000.00 (e) Other resources, \$ _____

2. Name of diversion work Eagle Butte Municipal Well
3. Amount of water claimed 11.025 cubic feet per second
4. Source of water supply Dakota Sandstone, Fall River Sandstone or Pahasapa Limestone
5. Location of point of diversion West 318.44' of Outlot A, Town of Eagle Butte, 355°02'E 355.97' from the W² Corner, Sec. 17, T12N, R24E, BHM; NW¹ Sec. 17, T12N, R24E, BHM on _____ bank Dewey County.
6. Annual period or periods during which water is to be used All year
7. To be used for:

- I. Irrigation or domestic use: Gravity, overhead sprinkling or combination system? Domestic municipal water supply
(a) Number of acres to be irrigated _____ acres.

- (b) Legal subdivisions to be irrigated _____

(NOTE—A list of lands to be irrigated, giving each subdivision and fraction with acreage thereof, should be written here, or may be appended as a part of this application. Same fact also be shown on accompanying map.)

- (c) Statement as to domestic use (giving location, etc.) Water supply for Town of Eagle Butte

II. Stockwatering, mining, milling, power, fish culture, fire protection and public recreation:

- (a) Nature of use Fire Protection
If any of the above uses claimed
(b) Amount of power to be generated _____ horse power.
Amount claimed for engine cooling _____
(c) Location of plant _____
(d) Method of developing power _____
(e) Point where water will be returned to stream _____

Maps No. 250-1 and 251-1

8. Estimated cost of work:

(a) Head Gates, \$..... (b) Pumping plant, \$10,000.00
 (c) Fluming, \$..... (d) Canal-earth, \$..... Rock, \$.....
 (e) Other structures: Well \$62,000.00 Total, \$72,000.00

9. Description of diversion works:

I. Nature of works: (Reservoir, dam, ditch, flume, pumping plant, etc.)

Well and Pump

II. Dimensions of works: Refer to Form 2A

(a) Dam: Height.....feet; length at bottom.....feet; length at top.....feet; thickness at bottom.....feet; thickness at top.....feet; slope at front water face.....; slope at back face.....material used in construction.....
 (b) Reservoir: Capacity when filled.....acre feet. Surface area at highwater mark.....acres.

DEPTH AT OUTLET-Feet	SURFACE AREA AT EACH DEPTH AT OUTLET—ACRES	FEET	ACRE-Feet CAPACITY

(c)* Head gate: Width.....feet; height.....feet;
 Material.....
 (d) Canal: Total length.....miles.

LOCATION BELOW HEADGATE	DEPTH	BOTTOM WIDTH	WIDTH AT WATER-LINE	GRADE FEET MILE
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet

(Give dimension where reductions in size are made.)

10. Time required for completion of work $\frac{1}{2}$ years.
 11. Time required for complete application of water to the proposed beneficial use 1 years.
 12. Choice of newspaper for publication of notice of intention to appropriate Eagle Butte News

STATE OF SOUTH DAKOTA

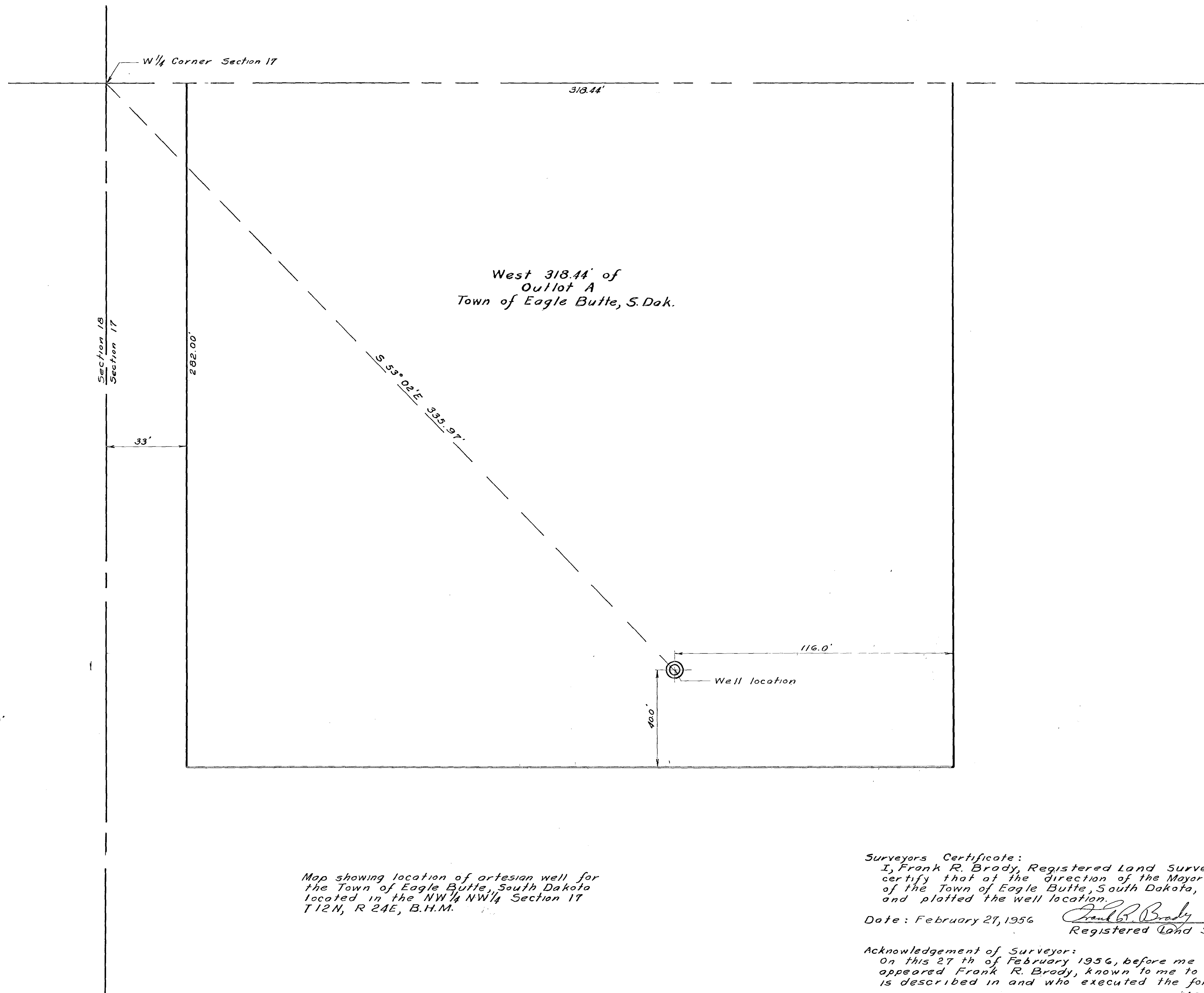
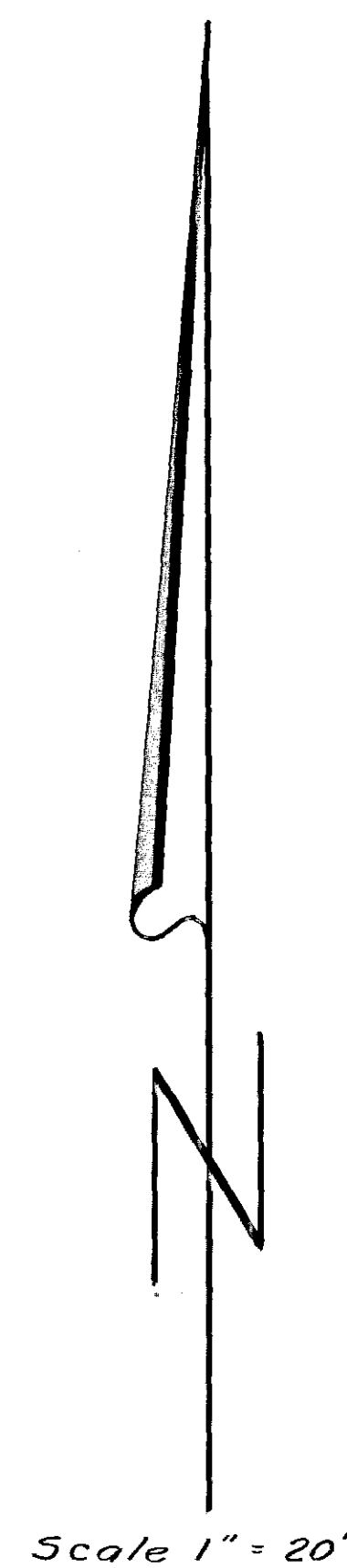
County of DeWey } ss.

I, JOE BURESH, being first duly sworn on my oath depose and say: That my relation to the above described undertaking is that of owner, that I have read the above foregoing statement, examined the map accompanying the same, and that I know of my own personal knowledge that the matters therein stated and shown are true.

Signed Joe Buresch Chairman

Subscribed and sworn to before me this 27th day of February 1954

R. K. Lange, Notary Public (or other qualified officer.)



Map showing location of artesian well for
the Town of Eagle Butte, South Dakota
located in the NW 1/4 NW 1/4 Section 17
T 12 N, R 24 E, B.H.M.

Surveyors Certificate:
I, Frank R. Brady, Registered Land Surveyor, do hereby
certify that at the direction of the Mayor and City Council
of the Town of Eagle Butte, South Dakota, I have surveyed
and plotted the well location.

Date: February 27, 1956 Frank R. Brady
Registered Land Surveyor

Acknowledgement of Surveyor:
On this 27th of February 1956, before me the undersigned
appeared Frank R. Brady, known to me to be the person who
is described in and who executed the foregoing certificate.

My Commission Expires 8-19-1958 H. H. Sullivan
Notary Public

Map No. 250-1
App. No. 272-1

Remarks by State Water Resources Commission:

STATE OF SOUTH DAKOTA
County of Hughes ss.

Pierre, South Dakota, March 7, 1956

This is to certify that the foregoing application was received by the Commission at 11:15 o'clock
a.m. upon the 2 day of March, 1956

State Water Resources Commission

By:

Geo. Brinner
Chief Engineer, Executive Officer

Number of permit 2721

Date of first receipt of application March 2, 1956

Date of return to applicant for correction, amendments or changes required as follows: _____, 19____

Date of receipt of corrected application _____, 19____

Date from which applicant may claim right March 2, 1956

Approved May 7, 1956, Recorded in Book 3 Page 124

This is to certify that we have examined the foregoing application for a permit to appropriate water of the State of South Dakota, and we hereby grant the same as stated herein, subject, however, to the following limitations and conditions:

1st. The equivalent of at least one-fifth of the work above specified is to be completed on or before

November 22, 1956

2nd. The whole of said work is to be completed on or before May 24, 1957

3rd. The limit of time for proof of beneficial use of water appropriated in accordance herewith is

May 24, 1958

4th. The water appropriated shall be used for the purpose of Domestic municipal

water supply and fire protection

5th. 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 injuriously affected by this appropriation.

6th. The amount of the appropriation herein granted shall not exceed 1.025 cubic feet per second; neither shall it exceed the capacity of the above described system of diversion works, nor the least amount of water that experience may hereafter indicate as necessary for the production of crops in the exercise of the best husbandry; and further, said appropriation must be limited to not more than one-seventieth (1/70) of one cubic foot of water per second of time for each acre of land to which water is actually and beneficially applied for municipal purposes on or before May 24, 1957; said water to be used during the following described annual period:

The entire year

Witness my hand this 24 day of May, 1956

State Water Resources Commission

By:

Geo. Brinner
Chief Engineer, Executive Officer

Certificate of Construction Issued September 9, 1956

Water License Issued September 9, 1956

9. (continued)

III. Well Specifications

(a) Hole and casing

Size of drill hole or excavation 10" to 750 feet
7 1/2" below 750 feet
Depth 4,000' maximum

Type of casing Steel

(wood, concrete, steel, etc.)

10" I.D. first 750'

10"-35#/ft.

Size of casing 5 1/2" O.D. balance thickness of casing 5 1/2"-15 3/4#/ft.

Length of casing 3,800'. If collection gallery,
length, size, and depth of gallery -----.

(b) Screens

5 1/2" casing to be perforated through water bearing

Type of perforated screen sandstone.

Size of perforated screen 5 1/2" Casing Based on Elec. Log
(diameter) (length)

Thickness of gravel pack None, length of gravel
pack -----.

(c) Water Bearing Materials

Distance to water 3,800' Maximum

Character of water bearing materials Sandstone or
limestone depending on depth of well.

Thickness of water bearing material See enclosed
specifications

(d) Pump and Motor

Type of pump Submersible
(centrifugal, propellor, mixed flow, etc.)

Name of pump Byron Jackson, size 6" No. 'OB'

Kind of motor Electric
(gasoline, electric, diesel, etc.)

Horsepower 20

Name of motor Byron Jackson

(e) Complete well

Capacity 500 gpm at drawdown of 100'

Estimated cost 72,000

(f) Owner of land upon which well is located Town of
Name

Eagle Butte, Eagle Butte, South Dakota
Address

(g) Distance to nearest existing wells

On same Owner's property None rods

On property owned by others 15 Miles rods

(See Enclosed Well Specifications)

STATE OF SOUTH DAKOTA

WATER LICENSE No. 272-1

WHEREAS, On the 2nd day of March A. D. 1956

the Town of Eagle Butte

of/ County of Dewey and State of South Dakota duly made application (No. 272-1) to us for a permit to use 1.025

cubic feet per second of the waters of artesian ground water

County of Dewey, State of South Dakota, for municipal purposes; and

WHEREAS, On the 24th day of May A. D. 1956

Permit No. 272-1 was issued to said applicant for the diversion of said water, and providing for the completion of the works of diversion therein described on or before the 34th day of

May A. D. 1957 and for the application to beneficial use of said water on or before the 24th day of May A. D. 1958 and

WHEREAS, On the 11th day of April A. D. 1960

the holder of said permit duly made proof of the completion of adequate works for the diversion of 0.6

cubic feet per second of said waters, as evidenced by our Certificate No. 272-1

dated September 9, 1960 confirming the completion of works of sufficient capacity for

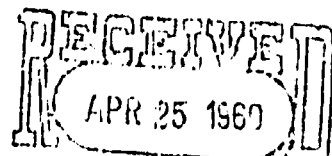
diverting and conveying to the place of intended use 0.6 cubic feet per second of water, with date of

priority of March 2, 1956 ~~xxxx~~ and,

WHEREAS, On the 16th day of April A. D. 1960

proof was duly made of the application to beneficial use of 0.6 cubic feet per second of said water,

to be used for municipal needs for the Town of Eagle Butte



Permit No.

Water Division No.

Water District

STATE WATER RESOURCES COMMISSION
PIERRE SOUTH DAKOTA

Certificate of Examination of Works

Report of Examining Engineer

To the State Water Resources Commission, Pierre, South Dakota:

Dear Sirs: I hereby certify that in accordance with your letter of authorization dated 11 APRIL
1960, I have this day made a thorough examination of the diversion works constructed by THE TOWN OF
EAGLE BUTTE of DEWEY
 County, South Dakota, holder of Permit No. 272-1, issued
 upon Application No., bearing date of priority of, 19...., authorizing the
 diversion of 1.025 cu. ft. per second of the waters of PAHASAPA FORMATION for MUNICIPAL WATER SUPPLY
 purposes. I have to report on the condition of the same as follows:

The diversion works comprise: A WELL 1300' DEEP INTO THE PAHASAPA LIMESTONE 700' OF
13" STEEL CASING AND 3600' OF 5 1/2" STEEL CASING PERFORATED FOR 300'. ALL CASING
GRADED. A WORTHINGTON TURBINE PUMP WITH SUCTION 150 FEET IN THE WELL POWERED BY
20 HP ELEC. MOTOR. 75,000 GALLON ELEVATED STEEL STORAGE RESERVOIR, 6" CEMENT
ASBESTOS DISTRIBUTION MAINS THROUGHOUT THE TOWN WITH FIRE HYDRANTS AND VALVES
 and the system is in the following condition: GOOD - IN ADDITION TO THE ABOVE, A COOLING TOWER
AND IRON REMOVAL PLANT WILL BE COMPLETED AND IN OPERATION SOON.

The point of diversion is located NW 1/4 SW 17 T12N R24E B.H.M. S53°-2'E 336' FROM THE
W/4 CORNER OF SAID SECTION 17.

The works are capable of diverting and conveying to the place of use 0.6** cu. ft. per second of water,
 which is to be used for MUNICIPAL WATER SUPPLY AND FIRE PROTECTION.
 **WHEN NECESSARY IN THE FUTURE GREATER CAPACITY PUMP MAY BE INSTALLED TO PRODUCE UP
 The legal sub-divisions to be irrigated are: TO 1.025 CFS.

..... comprising a total of acres of land.
 The domestic use intended comprises MUNICIPAL WATER SUPPLY FOR THE TOWN OF EAGLE BUTTE,
SOUTH DAKOTA.

The utilization for power, mining, or other beneficial uses comprises: FIRE PROTECTION

Witness my hand, this 16 day of APRIL, A. D. 19 60.

—SEAL—

[Signature]
Examining Engineer.

STATE OF SOUTH DAKOTA

WATER LICENSE No. 272-1

WHEREAS, On the 2nd day of March A. D. 1956
the Town of Eagle Butte
 of South Dakota County of Dewey and State of
South Dakota duly made application (No. 242-1) to us for a permit to use 1.025
 cubic feet per second of the waters of artesian ground water
 County of Dewey, State of South Dakota, for municipal
 purposes; and

WHEREAS, On the 24th day of May A. D. 1956
Permit No. 272-1 was issued to said applicant... for the diversion of said water, and providing for the
completion of the works of diversion therein described on or before the 24th day of
May A. D. 1957 and for the application to beneficial use of said
water on or before the 24th day of May A. D. 1958
and,

WHEREAS, On the 11th day of April A. D. 1960
the holder of said permit duly made proof of the completion of adequate works for the diversion of 0.6
cubic feet per second of said waters, as evidenced by our Certificate No. 272-1
dated September 9, 1960 confirming the completion of works of sufficient capacity for
diverting and conveying to the place of intended use 0.6 cubic feet per second of water, with date of
priority of March 2, 1956 ~~and~~ and,

WHEREAS, On the 16th day of April A. D. 1960
proof was duly made of the application to beneficial use of 0.6 cubic feet per second of said water;
to be used for municipal needs for the Town of Eagle Butte

NOW, THEREFORE, By the virtue of the authority vested in us by the laws of the State of South Dakota,
We hereby grant and confirm to the Town of Eagle Butte

//----- the holder----- and owner----- of said permit No. 272-1

a water right, dating from March 2, 1956----- to the use of 0.6-----

cubic feet per second of the waters of artesian ground water-----

In the County of DeWey----- and State of South Dakota, or so much thereof as may be

necessray for the purposes hereinafter mentioned, to be diverted at a point S. 53° 02' E. 355.971 from

the W. Corner, Sec 17, T. 12N. R. 24E-----

and conducted ~~to the city~~ through the city water distribution system-----

for the purpose----- of municipal use-----

subject, however, to the laws of the State of South Dakota applicable to a license for the use of the waters of the State, and subject also to the local or community customs, rules and regulations which have been or may be adopted from time to time by a majority of the users from a common source of supply, canal or lateral from which such water may be taken, when such rules and regulations have for their object the economical use of such water.

WITNESS, My hand and seal of our office at Pierre, South Dakota,
this 9th----- day of September----- A. L. Nineteen
Hundred and sixty-----

State Water Resources Commission

By:

J.W. GRIMES,

Chief Engineer, Executive Officer

STATE OF SOUTH DAKOTA

Water License No.-----

To -----

Source of Supply -----

County -----

Am't ----- c. f. s.

Point of Diversion -----

Place of Use -----

Purpose -----

Date of Priority -----

Recorded -----

In Book ----- of ----- Page -----

Permit No. 272-1Water Division No. 1 Moreau River Water District**Certificate of Completion of Works**

TO ALL WHOM IT MAY CONCERN:

This is to Certify, That The town of Eagle Butte

of _____, County of Dewey, and State of South Dakota, the holder of Permit No. 272-1 issued upon Application No. 272-1, bearing date of priority of March 2, 1956, authorizing the diversion of 1.025 cu. ft. per second of the waters of artesian ground water County of Dewey, State of South Dakota, at a point S 53° 02' E 355.97' from the W 1/4 Corner, Sec 17, T 12N R 24E for municipal purposes, has 8 fully complied with the provisions of the laws of the State of South Dakota relating to proof of completion of the works of diversion set out and described in said Permit; that said works are found in satisfactory condition for diverting and conveying to the place of intended use 0.6 cu. ft. per second of water; and that the ~~proposed works to be done~~ use of said water are described as follows, to-wit: for municipal supplies for the town of Eagle Butte

Witness my hand this 9th day of September A. D. 1960

State Water Resources Commission

By:

J.W. GRIMES, Chief Engineer, Executive Officer

Plans and Specifications
for
ARTESIAN WATER WELL
for the
TOWN OF EAGLE BUTTE, SOUTH DAKOTA
1956

Plans and Specifications
for
WATER WELL
for the
TOWN OF EAGLE BUTTE, SOUTH DAKOTA
1956

Supplement No. 1

to

Plans and Specifications for Artesian Water Well
for the Town of Eagle Butte, South Dakota

All bidders on the above named project are advised as follows:

The plans and specifications as originally printed failed to definitely specify the diameter of the borehole below the Dakota Formation.

It is the intent of the plans and specifications that the borehole from a depth of seven hundred feet to the lowest depth drilled shall be drilled at a minimum diameter of 7 1/2 inches.

This supplement shall be a binding part of the above named plans and specifications and contractors shall bid accordingly.

Supplement No. 2

to

Plans and Specifications for Artesian Water Well
for the Town of Eagle Butte, South Dakota

Bidders' attention is drawn to Bid Item No. 24. This item should read: "Move in Cost (in addition to Item No. 19 Above)." It is the intent of the specifications and proposal form that this Item No. 24 shall cover the cost of move in of all drilling equipment, etc., as specified under "J," page 15.

NOTICE TO CONTRACTORS

Sealed bids for furnishing materials, equipment and labor for construction of an artesian water well for the Town of Eagle Butte, South Dakota, will be received until 2 o'clock P. M., MST, on the 6th day of February, 1956, at the office of the Town Clerk of the Town of Eagle Butte, South Dakota. At that time bids will be opened and award made as early as practicable. The right is reserved to accept or reject any bid.

The work contemplated consists of the following major items:

1. Drilling approximately 3,000 to 5,000 feet.
2. Furnishing and setting 700 feet of 10-inch surface casing.
3. Furnishing and setting approximately 1,000 to 4,500 feet of 5 1/2-inch casing.
4. Grouting the well casing.
5. Running electric logs of the well.
6. Pumping tests.

The Contractor shall bid on all items listed, but subcontractors will be approved.

Plans and specifications may be examined in the office of the Town Clerk of Eagle Butte, South Dakota, or at the office of Brady Engineering, Spearfish, South Dakota. Copies of plans and specifications including bid forms may be obtained upon deposit of \$5.00 which will be refunded to all unsuccessful bidders.

By Order of the Town Board

Mr. Ben Ganje
Town Clerk

PROPOSAL

To: The Town Board
 Town of Eagle Butte
 Eagle Butte, South Dakota

GENTLEMEN:

After making careful examination of the plans and specifications and location of the proposed well, the undersigned agrees to furnish all labor, equipment and materials that are necessary to complete in a workmanlike manner and in accordance with the plans and specifications and under the conditions named, the following items of work or materials at the prices named.

<u>Item</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total</u>
1. Drilling approximately 700 feet of 15" Borehole	Lin.Ft.	700	_____	_____
2. Furnishing in Place 10" I.D. A.P.I. Grade J55 Casing - New Casing	Lin.Ft.	700	_____	_____
2a. Furnishing in Place 10" I.D. A.P.I. Grade J55 Casing - Used Casing	Lin.Ft.	700	_____	_____
3. Drilling Borehole From 700 Foot Depth to the Base of the Dakota Sandstone	Lin.Ft.	2,060	_____	_____
4. Furnishing in Place 5½" O.D. Casing at 620 Foot to 2,760 Foot Depth - New Casing	Lin.Ft.	2,090	_____	_____
4a. Furnishing in Place 5½" O.D. Casing at 680 Foot to 2,760 Foot Depth - Used Casing	Lin.Ft.	2,090	_____	_____
5. Drill Stem Test of Dakota Formation	Lump Sum	1	_____	_____
6. Electric Logging Through Dakota Formation	Lump Sum	1	_____	_____

7.	Drilling Borehole from Base of Dakota Sandstone to Base of Fall River Sandstone	Lin.Ft.	250	_____	_____
8.	Furnishing in Place 5 $\frac{1}{2}$ " O.D. Casing at 2,780 Feet to 3,010 Foot Depth - New Casing	Lin.Ft.	250	_____	_____
8a.	Furnishing in Place 5 $\frac{1}{2}$ " O.D. Casing at 2,760 Feet to 3,010 Foot Depth - Used Casing	Lin.Ft.	250	_____	_____
9.	Drill Stem Test of the Fall River Formation	Lump Sum	1	_____	_____
10.	Electric Logging from Surface to Approximate Depth of 3,010 Feet	Lump Sum	1	_____	_____
11.	Electric Logging from Base of Dakota Formation to Approximate Depth of 3,010 Feet	Lump Sum	1	_____	_____
12.	Drilling Borehole from the Base of the Fall River Formation to the Base of the Pahasapa Limestone	Lin.Ft.	1,455	_____	_____
13.	Furnishing in Place 5 $\frac{1}{2}$ " O.D. Casing at 3,010 Foot to 4,465 Foot Depth - New Casing	Lin.Ft.	1,455	_____	_____
13a.	Furnishing in Place 5 $\frac{1}{2}$ " O.D. Casing at 3,010 Foot to 4,465 Foot Depth - Used Casing	Lin.Ft.	1,455	_____	_____
14.	Drill Stem Test of the Pahasapa Formation	Lump Sum	2	_____	_____
15.	Drilling Borehole from Base of the Pahasapa Limestone to Maximum Depth of Approximately 5,000 Feet	Lin.Ft.	535	_____	_____

16.	Furnishing in Place 5½" O.D. Casing Below the Base of the Pahasapa Formation - New Casing	Lin.Ft.	260	_____	_____
16a.	Furnishing in Place 5½" O.D. Casing Below the Base of the Pahasapa Formation - Used Casing	Lin.Ft.	260	_____	_____
17.	Drill Stem Test of the Red River Formation	Lump Sum	1	_____	_____
18.	Perforating Casing	Perfora- tion	600	_____	_____
19.	Move In of Grouting Equipment & Materials	Lump Sum	1	_____	_____
20.	94-lb. Bags of Cement Used for Grouting	Bag	1,300	_____	_____
21.	Developing and Testing	Hour	48	_____	_____
22.	Capping Well	Lump Sum	1	_____	_____
23.	10" Gate Valve in Place	Each	1	_____	_____
24.	Move In Cost (In Addition to Item No. 20 Above)	Lump Sum	1	_____	_____

TOTAL OF ALL ITEMS - NEW CASING _____

TOTAL OF ALL ITEMS - USED CASING _____

Enclosed herewith is a certified check in the amount of \$_____, which will be forfeited as liquidated damages to the Town of Eagle Butte, South Dakota, in the event we are awarded the Contract and do not enter into it as further stated herein.

We agree to start work within 20 days after execution of the Contract and will progress with the work at such a rate that all work will be completed within _____ calendar days after execution of the Contract.

Respectfully submitted,

Contractor

Address: _____

By: _____

GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS

1. Sealed bids for furnishing all materials, equipment and labor for the construction of an artesian water well will be received at the office of the Town Clerk of Eagle Butte, South Dakota, until 2 o'clock P. M., MST, on the 6th day of February, 1956, at which time the bids will be opened and publicly read, after which bids will be considered and awards made as early as practicable.
2. The scope of the work consists of construction of an artesian water well as shown on the plans and in accordance with these specifications.
3. Blank forms of proposals and Plans and Specifications may be obtained from the Engineer, Brady Engineering, Spearfish, South Dakota, or from the Town Clerk of Eagle Butte, South Dakota, upon deposit of \$5.00. Refund will be made only to unsuccessful bidders upon return of plans and specifications.
4. Proposal Form. Bids must be made upon the blank forms provided. The proposal form must not be detached from these specifications. These specifications and proposal will form a part of the contract.
5. The prices must be so distinctly express that there can be no doubt about the meaning of the same. Illegible figures will invalidate the bid.
6. Bidders must secure their information as to the local conditions, availability of water, etc., from personal inquiry on the grounds.
7. Work must be begun within twenty (20) days after date of execution of the contract and completed by the time set by said bidder.
8. The right is reserved to reject any or all bids, to waive any informality in any bid received, to accept any bid considered advantageous to the Owner and also to disregard any failing or irresponsible bidder or contractor known as such.
9. No extra work of any kind will be allowed unless ordered by the Engineer, in which case the price of such work shall be agreed upon prior to starting of such work. Such agreement shall be in writing and shall be signed by the Engineer and the Contractor and approved by the Owner.
10. A bond satisfactory to the Owner in the sum of one hundred per cent (100%) of the sum of the contract will be

required within ten days after notice of award.

11. The bidder must, if desired, satisfy the Owner of his practical and financial ability to perform the work on which he bids.

12. A certified check in accordance with the laws of the State of South Dakota in the amount of five per cent (5%) of the bid must accompany each bid. Such certified check must be deposited as a guaranty that the bidder, if successful, will furnish a satisfactory bond for the construction of the artesian water well as shown on the plans and furnishing of all materials and equipment in accordance with the plans, specifications and this proposal within ten days after notice of the award; and if he fails or refuses to do so, said check or bank draft shall be forfeited to the Owner as liquidated damages for such failure. The check of the successful bidder will be returned to him upon furnishing a satisfactory bond, and when he shall have actually commenced the construction of said artesian water well. Checks of unsuccessful bidders will be returned when the bids are rejected.

13. All bids must be self-explanatory. No opportunity will be given for oral explanation unless the owner desires a more full explanation for the particular or peculiar devices used.

14. Payment will be made in cash upon completion of all work and furnishing of all materials and equipment and upon acceptance by the Owner.

15. Proposals drawn to comply with instructions shall be sealed in a plain envelope marked "Bid for Artesian Water Well," Town of Eagle Butte, South Dakota, and filed with the Town Clerk, Town of Eagle Butte, South Dakota, before the time set for the opening of said bids.

16. Proposals shall be publicly opened and read at the time mentioned, and bidders are entitled to be present. Proposals received after time set for opening will be returned unopened to the bidder.

BRADY ENGINEERING
Consulting Engineers
Spearfish, South Dakota

GENERAL SPECIFICATIONS

1. DEFINITION OF TERMS:

OWNER

The term "Owner" shall be held to mean the
Town of Eagle Butte, South Dakota.

CONTRACTOR

The term "Contractor" shall be held to mean the person or persons, co-partnership, company, or corporation whose bid for the work has been accepted by the Owner.

ENGINEER

The term "Engineer" shall be held to mean the Engineer for the Owner.

PLANS

The term "Plans" shall be held to mean the official drawings or reproductions thereof pertaining to the work.

SPECIFICATIONS

The term "Specifications" include the Definition of Terms, General Provisions, and Construction Details.

2. GENERAL PROVISIONS:

A. Work to be Done. The work to be done shall consist of the construction of a deep artesian water well, pumping tests and
all other items specified or implied in these specifications.

B. Supervision. The work shall be done under the direction and to the satisfaction of the Engineer, subject to acceptance by the Owner upon the Engineer's recommendations.

C. Interpretation of Plans and Specifications. The plans and specifications will be held to cover all work that could reasonably be inferred as necessary for a complete and workmanlike job. No deviations thereto will be permitted except as authorized by the Engineer.

D. Materials. The Contractor will furnish all materials, labor, and equipment necessary to properly construct the improvements as shown on the plans within the scope of this contract, according to the plans and specifications thereof; including such materials, labor, and equipment as may be needed, street barricades, flares, or such other devices as may be required during construction to maintain safe operating conditions for the personnel employed thereon and for the public at large. The Contractor will furnish a competent general foreman or superintendent who will exercise responsible supervision over the work and represent the Contractor in performing such work.

E. Lines and Grades. The Engineer will give the location and grades for the work, and no work depending on such location or

grade shall be undertaken until these have been established. Bench marks, grade stakes, etc., shall be preserved with due care by the superintendent in charge of construction.

F. Cleaning up. Before final acceptance by the Owner, the project shall be completely policed and all unused materials and rubbish shall be removed and the project must be left in a neat and workmanlike condition.

CONSTRUCTION DETAILS

I. General

- A. Location: The well is to be located in Outlet A of the Town of Eagle Butte, Dewey County, South Dakota, at the location established by the Engineer. The ground elevation at the well site is approximately 2,415 feet above sea level.
- B. The Owner shall furnish such additional land as the Contractor may reasonably require for storage of materials and equipment and for necessary pits, etc. The Owner shall not be liable for damage to adjoining property resulting from the Contractor's operations.
- C. The Town of Eagle Butte is served by the Chicago, Milwaukee and St. Paul Railway.
- D. The formations that may be encountered in drilling the well are as shown in the attached plans. The Owner assumes no responsibility for the accuracy of the log, but offers it for the Contractor's general information.

II. Materials:

- A. Casing shall be API Grade J-55 or better. The Contractor shall furnish manufacturer's certified statement as to grade and weight of pipe as listed.
 - 1. 10-inch I. D. casing shall have a nominal weight of 27.25 pounds per lineal foot. Joints shall be long thread.
 - 2. 8 $\frac{1}{2}$ -inch O. D. casing shall have a nominal weight of 15 $\frac{1}{2}$ pounds and joints shall be long thread.
- B. Used or Salvaged Casing: The Contractor may bid either new casing or used casing as listed on the proposal form. If used casing is furnished it shall be of the sizes listed above and of equal or better grade. The weight of the used casing shall be at least ninety per cent (90%) of that listed above for new casing. The Contractor shall at his own expense, as directed by the Engineer, thoroughly clean and weigh on approved scales approximately ten per cent (10%) of used pipe to determine the actual weight per foot. The pipe to be so weighed

shall be selected at random by the Engineer. Any dented or otherwise damaged sections shall be rejected. All used or salvaged pipe when installed shall be cleaned of scale, oil and mud to the satisfaction of the Engineer.

- C. Grout for Cementing Casings: The grout mixture shall be composed of "Incor Cement" or equal and such admixture as proposed by the Contractor and approved by the Owner.

II. Equipment:

The Contractor shall provide all tools, derricks, engines, pumps and other machinery and equipment of whatever description that are necessary to complete all work specified or implied herein. The machinery, tools and equipment shall be in good condition and adequate to perform all work required in accordance with these specifications.

IV. Testing and Pumping:

The Contractor shall furnish the necessary equipment and qualified operating personnel to perform all testing and pumping required by these specifications and shall keep accurate records of all such tests and furnish copies of all records to the Owner.

V. Log Record and Samples:

- A. The Contractor shall keep an accurate record of the location of the top and bottom of each stratum penetrated and shall save and deliver to the Engineer a sample of material taken from each ten feet of drilling and at every change in formation. Each sample shall be enclosed in a suitable container plainly labeled with the depth at which taken and the date taken. The containers shall be furnished by the Contractor.

The Contractor shall collect and deliver to the Engineer samples of water in the borehole for the purpose of analysis at such times as may be designated by the Engineer throughout the construction of the well.

Written reports shall be delivered to the Engineer showing the well log, water level and progress of each day's work together with samples taken as described above.

Until the drilling has reached a depth of 2,200 feet below the surface, the written report and samples shall be delivered weekly. As the drilling progresses below 2,200 feet the report and samples shall be submitted daily covering drilling completed in the preceding 24 hours.

- B. **Electric Log:** The Contractor shall use electric logs as specified elsewhere in these specifications and shall furnish six copies of the log to the Engineer. The Contractor shall furnish necessary equipment and operators for this electric logging.

I. General Construction Procedure:

A. Surface Pipe

The Contractor shall drill the first 700 feet at a minimum diameter of approximately 15 inches to accommodate the 10-inch I. D. casing.

The 10-inch I. D. casing shall be set when the hole has been drilled to a depth of 700 feet.

It is intended that a commercial type turbine or submersible deep-well pump of the largest size designed for a 10-inch casing shall be admitted in this 10-inch surface pipe. In order that this fact may be illustrated, the Contractor shall at his own expense make the following tests:

A dummy shall be constructed, 40 feet in length, with three rings, each ring 12 inches wide and nine inches in diameter. The rings shall be truly cylindrical and shall be spaced one at each end of the dummy and one ring in the center thereof. The spokes of the rings shall be at right angles to the vertical axis of the dummy. This dummy shall be lowered into the well and shall move freely without binding through the entire length of the 10-inch casing. Should the dummy fail to move freely throughout this entire length, the alignment of the well shall be corrected by the Contractor at his own expense or should he fail to correct the alignment a new well shall be constructed by the Contractor at his own expense at a point to be designed by the Engineer.

Payment for this section of the contract shall be made as follows:

1. Payment shall be made at the bid price per foot for "Drilling Approximately

700 Feet of 10" Borehole

2. Payment shall be made at the bid price per foot for "Furnishing in Place 10" I.D. API Grade J-55 Casing." This payment shall be full compensation for furnishing and handling casing and for setting and jointing the casing.

B. Construction of Well From 700-Foot Level to the Base of the Dakota Sandstone

It is anticipated that the base of the Dakota sandstone will be reached at the approximate depth of 2,760 feet.

This part of the borehole shall be drilled at a minimum diameter of $7\frac{1}{2}$ inches to accommodate a $5\frac{1}{2}$ -inch O. D. casing. This part of the borehole and any deeper drilling shall not exceed five degrees (5°) from the vertical.

When the base of the Dakota formation has been reached, the Contractor will run a drill stem test to determine pressure, rate of fill up and static level. An uncontaminated sample of the water shall be furnished the Engineer for chemical analysis.

The Engineer may require the Contractor to run an electric log of the borehole. The Contractor shall furnish the Engineer with a written report on the drill stem test and six copies of the electric log if required.

If so directed by the Owner, the Contractor shall finish this well at this depth as follows:

The $5\frac{1}{2}$ -inch casing shall be set to extend from the bottom of the hole to 20 feet into the 10-inch casing as shown on the plans. The $5\frac{1}{2}$ -inch casing and the 10-inch casing shall be grouted as specified elsewhere in these specifications under "Grouting" and the space between the $5\frac{1}{2}$ -inch and 10-inch casing sealed as shown on the attached plans. The $5\frac{1}{2}$ -inch casing shall be perforated for the length directed by the Engineer. The Contractor shall then develop and test the well to determine the drawdown as specified in these specifications under "Developing and Testing."

If the Owner is not satisfied with the quality and/or quantity of water available at this depth, the Contractor shall be directed to continue drilling to a greater depth.

Payment for this part of the contract shall be made as follows:

1. Payment for drilling the borehole shall be made at the bid price per foot for "Drilling Borehole From 700 Foot Depth to the Base of the Dakota Sandstone." This payment shall be full compensation for all labor, equipment and materials necessary to accomplish this part of the contract. This payment shall be made whether the well is completed at this depth or extended to a greater depth.
2. Payment for furnishing in place 5 $\frac{1}{2}$ -inch O. D. API Grade J55 casing shall be made at the bid price per foot for "Furnishing in Place 5 $\frac{1}{2}$ -Inch O. D. Casing at 680 Foot to 2,760 Foot Depth" and shall be full compensation for furnishing, handling, setting and jointing the 5 $\frac{1}{2}$ -inch casing. This payment shall be made whether the well is finished at this depth or extended to a greater depth.
3. Payment for making the drill stem test shall be made at the bid price for "Drill Stem Test of Dakota Formation" and shall be full compensation for all labor, materials and equipment necessary to make this test. No extra payment will be made for "shut-down time" or other "lost time" claims while the test is being made and analyzed.
4. If an electric log is required of this part of the well, payment shall be made at the bid price for "Electric Logging Through Dakota Formation" and shall be full compensation for all labor, equipment and materials needed to run the log with no extra payment made for "shut down" or other "lost time" claims while the test is being made and analyzed.

5. If the well is completed at this depth, payment for "Grouting on Casing" and "Perforating Casing" and "Developing and Testing" shall be made as specified elsewhere under these items.

C. Construction of Well from Base of Dakota Formation to the Fall River Formation

It is anticipated that the base of the Fall River Formation will be reached at an approximate depth of 3,010 feet.

When the base of the Fall River formation is reached, the Contractor will run a drill stem test as specified for the Dakota sandstone to determine pressure, rate of fill up and static levels and an uncontaminated sample of the water shall be furnished the Engineer for chemical analysis.

At this time the Engineer may require the Contractor to run an electric log on both the Fall River formation and the Dakota sandstone at one time if the Dakota formation was not logged previously. If the Dakota formation was previously logged, the electric log may be run only on that part of the hole below the Dakota. The Engineer shall be furnished a written report on the drill stem test and six copies of the electric log if the electric log is required.

On the basis of the above tests, the Owner may direct the Contractor to finish the well at this depth as follows:

The 5½-inch casing shall be set to extend from the bottom of the hole to 20 feet into the 10-inch casing as shown on the plans. The 5½-inch casing and the 10-inch casing shall be grouted as specified elsewhere in these specifications and the space between the 5½-inch and the 10-inch casing sealed as shown on the plans. The 5½-inch casing shall be perforated for the lengths and at the locations specified by the Engineer. The Contractor may be required to perforate the casing in both the Fall River and Dakota formations. The Contractor shall then develop and test the well to determine the drawdown as specified in these specifications under "Developing and Testing."

If the Owner is not satisfied with the quality and/or quantity of water available at this depth, the Con-

tractor shall be directed to continue drilling to a greater depth.

Payment for this part of the contract shall be made as follows:

1. Payment for drilling the borehole shall be made at the bid price per foot for "Drilling Borehole From Base of Dakota Sandstone to Base of Fall River Sandstone" and shall be full compensation for all labor, materials and equipment necessary to accomplish this part of the contract. This payment shall be made whether the well is completed at this depth or extended to a greater depth.
2. Payment for furnishing in place 5½-inch O. D. API Grade J55 long thread casing shall be made at the bid price per foot for "Furnishing in Place 5½-Inch O. D. Casing at 2,760'± to 3,010'± Depth" and shall be full compensation for furnishing, handling, setting and jointing the 5½-inch casing. This payment shall be made whether the well is finished at this depth or extended to a greater depth.
3. Payment for making the drill stem test shall be made at the bid price for "Drill Stem Test of the Fall River Formation" and shall be full compensation for labor, materials and equipment necessary to make this test. No extra payment will be made for "shut down" time or other "lost time" claims while the test is being made and analyzed.
4. If an electric log is required of the drill hole at this depth, payment shall be made at the bid price for "Electric Logging from the Surface to Approximate Depth of 3,010 Feet" or "Electric Logging From Base of Dakota to Approximate Depth of 3,010 Feet" depending on which log is required, and shall be full compensation for all labor, equipment and materials needed to run the log with no extra payment made for "shut-

down" time or other "lost time" claims while the log is being run and analyzed.

5. If the well is completed at this depth, payment for "Grouting Casing" and "Perforating Casing" and for "Developing and Testing" shall be made as specified elsewhere under these items.

D. Construction of Well From Base of the Fall River Formation to Approximately 500 Feet into the Pahasapa Limestone

The top of the Pahasapa limestone will be at an approximate depth of 3,825 feet.

When the borehole has reached approximately 300 feet into the Pahasapa Limestone (a depth of approximately 4,115 feet) the Contractor will run a drill stem as specified for the Dakota sandstone to determine pressure, rate of fill up and static level and an uncontaminated sample of the water shall be furnished the Engineer for chemical analysis.

On the basis of the drill stem test, the Owner may direct the Contractor to finish the well at this depth as follows:

The 5½-inch casing shall be set to extend from approximately 10 feet below the top of the Pahasapa limestone to 20 feet into the 10-inch casing as shown on the plans. The 5½-inch casing and the 10-inch casing shall be grouted as specified elsewhere in these specifications and the space between the 5½-inch and the 10-inch casing sealed as shown on the plans.

The Contractor shall then develop and test the well to determine the drawdown as specified in these specifications under "Developing and Testing."

If the Owner is not satisfied with the quality and/or quantity of water available at this depth the Contractor shall be directed to continue drilling to a greater depth. The Owner may direct the Contractor to run an additional drill stem test as specified above when the drilling has reached the base of the Pahasapa limestone at a depth of approximately 4,465 feet.

Payment for this part of the contract shall be made as follows:

1. Payment for drilling the borehole shall be made at the bid price per foot for "Drilling Borehole from the Base of Fall River Formation to the Base of the Pahasapa Limestone" and shall be full compensation for all labor, materials and equipment necessary to accomplish this part of the contract. Payment shall be based on the actual number of feet drilled under this item whether the well is finished 300 feet into the Pahasapa limestone or continued to the base of the Pahasapa limestone. This payment shall be made whether the well is completed in the Pahasapa formation or continued to a greater depth.
2. Payment for furnishing in place 5½-inch O. D. API Grade J55 long-thread casing shall be made at the bid price per foot for "Furnishing in Place 5½-Inch O. D. Casing at 3,010' to 4,465' Depth" and shall be full compensation for furnishing, handling, setting and jointing the 5½-inch casing. The payment shall be at the bid price per foot whether the well is finished at any depth in the Pahasapa formation or continued to a greater depth.
3. Payment for making each drill stem test in the Pahasapa formation shall be at the bid price for "Drill Stem Test of the Pahasapa Formation" and shall be full compensation for all labor, materials and equipment necessary to make this test. No extra payment will be made for "shut down" time or other "lost time" claims while the test is being run and analyzed.
4. If the well is completed at this depth, payment for "Grouting Casing" and "Perforating Casing" and for "Developing and Testing" shall be made as specified elsewhere in these specifications.

E. Construction of Well From Base of Pahasapa Limestone Into the Red River Formation to a Maximum Depth of 5,000 Feet

If the well is extended to the Red River formation, it will probably be finished at a maximum depth of 5,000 feet. The top of the Red River formation will be encountered at approximately 4,715 feet.

When the borehole has been drilled approximately 200 feet into the Red River formation, the Contractor will run a drill stem test as specified for the Dakota sandstone to determine pressure, rate of fill up and static level and an uncontaminated sample of the water shall be furnished the Engineer for chemical analysis. The Engineer shall be furnished a written report on the drill stem test.

The Contractor shall then finish the well at this depth or, if directed by the Owner, the Contractor shall continue drilling to a depth of 5,000 feet and finish the well at that depth.

The well shall be finished as follows:

The 5½-inch casing shall be set to extend from 10 feet below the top of the Red River formation to 20 feet into the 10-inch casing as shown on the plans. The 5½-inch casing and the 10-inch casing shall be grouted as specified elsewhere in these specifications and the space between the 5½-inch casing and the 10-inch casing sealed as shown on the plans.

The Contractor shall then develop and test the well as specified in these specifications under "Developing and Testing."

Payment for this part of the contract shall be made as follows:

1. Payment for drilling the borehole shall be made at the bid price per foot for "Drilling Borehole from the Base of the Pahassa Limestone to Maximum Depth of Approximately 5,000 Feet" and shall be full compensation for all labor, materials and equipment necessary to accomplish this part of the contract.
2. Payment for furnishing in place 5½-inch O. D. API Grade J55 long thread casing shall be made at the bid price per foot for "Furnishing in Place 5½-Inch O. D. Casing Below the Base of Pahassa Formation" and shall be full compensation for

furnishing, handling, setting and jointing the 5½-inch casing.

3. Payment for making each drill stem test in the Red River formation shall be at the bid price for "Drill Stem Test of the Red River Formation" and shall be full compensation for all labor, materials and equipment necessary to make this test. No extra payment will be made for "shut-down" time or other "lost time" claims while the test is being run and analyzed.
4. Payment for "Grouting Casing" and "Perforating Casing" and for "Developing and Testing" shall be made as specified elsewhere in these specifications.

F. Perforating Casing

If perforation of the casing is required the lengths and depths of the casing to be perforated shall be as specified by the Engineer. The size of perforations shall be as specified by the Engineer and shall be dependent on type of water bearing formation. Spacing and number of perforations shall be as specified by the Engineer.

Payment for "Perforating Casing" shall be at the bid price per perforation and shall be full compensation for all labor, materials and equipment necessary to perform this work with no extra payment made for "shut-down" or other "lost time" claims while this work is being done.

G. Grouting Casing

The Contractor may use his own method for grouting the casing but the grouting shall be done in such a manner that the space between the casing and the borehole shall be essentially filled from the bottom of the casing to the ground surface. The grouting operation shall be performed in such a manner that the formations from which water is to be drawn shall not be sealed to any degree. The grout must be forced upward from the lowest point to be grouted in each operation.

The cement used shall be "Incor Cement" or equal. The grout shall be a neat cement mixture of not less than one part cement to one part of water by volume. With approval of the Engineer, the Contractor may use up to

four per cent (4%) roughage or lubricating material such as "Jellflake," "Cellulose Flakes" or "Aqua Jell."

The 10-inch casing may be grouted separately and the 5½-inch casing may be grouted in two operations. The Engineer may require flushing with water the annular space outside the casing before grouting.

The grout shall be allowed to set for not less than 48 hours after placement without any work being done on the well which may disturb it or cause it to crack.

Payment for grouting shall be made in the following manner.

1. "Move In of Grouting Equipment and Material" shall be paid for at the lump sum bid price for this item. Only one such payment shall be made even though the Contractor may choose to move in said equipment for part of the grouting operation and later move back for the remainder of the grouting.
2. Payment will be made at the bid price per "94-Lb. Bag of Cement Used for Grouting." This payment and payment listed in Item 1 above shall be considered full compensation for furnishing all labor, materials and equipment needed to complete the grouting of the casing as specified above. If the Contractor elects to use one of the roughage or lubricating materials specified, no separate payment will be made for furnishing and handling said material. It shall be furnished, mixed and handled at the Contractor's expense.
3. The two payments listed above shall be considered full compensation for completing all grouting with no extra payments made for labor, equipment or materials or for "rig time," "shut-down" time or any other "lost time" claims.

H. Developing and Testing

1. Time of Developing and Testing

After the well has been completed and cleaned out and the depth of the well accurately measured,

the Contractor shall notify the Engineer to that effect and shall make the necessary arrangements for conducting a final pumping test. The test shall be run with similar equipment and in a like manner to that hereinafter described.

2. Test Pump

The Contractor shall furnish and install necessary pumping equipment capable of pumping to the required point of discharge a maximum of at least 200 gpm but with satisfactory throttling devices, so that the discharge may be reduced to 50 gpm.

The pumping unit shall be complete with prime mover of ample power, controls and appurtenances and shall be capable of being operated without interruption for a period of 72 hours.

3. Auxiliary Equipment

The Contractor shall furnish all necessary discharge piping for the pumping unit, which shall be of sufficient size and length to conduct the water being pumped a distance of 25 feet from the well. He shall also furnish, install and maintain equipment of approved size and type for measuring the flow of water; such equipment to be a weir box, orifice or water meter. To measure the elevation of the water level in the well, an air line complete with gauge, hand pump and check valve shall be provided. Unless otherwise permitted, the air line shall be securely fastened to the pumping unit and shall terminate approximately at the maximum desired pumping level stated above but shall in no case be nearer than two feet to the end of the suction pipe.

4. Duration of Test

The Contractor shall furnish all labor, motive power, lubricating oil and other necessary materials, equipment, labor and supplies required and shall operate the pumping unit at such rate of discharge and for such periods of time as directed. Accidental interruptions may, if so agreed upon between the Contractor and the Engineer, be compensated for by correspondingly extending the time of the completion of the test run. After the completion of the final test the Contractor shall remove by bailing, sand pumping or other methods any sand, stones or other foreign

material that may have become deposited in the well. Time stated for the duration of the final test is a minimum only and the Engineer reserves the right to require the Contractor to extend such period of test, or to make additional tests.

5. Determination of Drawdown

The main purpose of this part of the contract is to determine the drawdown level for various pumping rates. The Contractor shall accurately determine the final drawdown level for pumping rates of 50 gpm, 100 gpm, 150 gpm and 200 gpm. The pump shall be operated at each of the above rates for a period of one hour after the water has reached a static level before increasing the pumping rate to the next 50 gpm increment.

6. After the drawdown for pumping rate of 200 gpm has been established, the pumping tests shall be continued at the rate of 200 gpm until the water is clear and free of sand.
7. The Contractor shall furnish the Engineer a complete written report on the pumping tests. The report shall include the water level recorded each five minutes from the start of the test until the water level has remained constant for one hour at 200 gpm pumping rate. The time of each change in pumping rate shall be shown.

The report shall also include the water level each five minutes from the time the pump is stopped at the end of the test until the water level has reached a point within five feet of the water level at the start of the test.

If a flowing well is developed, the report shall also include the rate of flow before the test and after completion of the test.

8. Payment for developing and testing shall be made at the bid price per hour for "Developing and Testing" and shall be full compensation for furnishing all equipment, labor and materials needed to complete these tests including pump, device for accurately measuring water flow and for measuring depth to water level.

• Capping Well

The Contractor shall cap the well at completion of all tests as shown on the plans. If the well is a flowing well, a 10-inch cast iron gate valve shall be installed as shown on the plans.

Payment for capping the well shall be at the bid price for "Capping Well" and if a valve is required, additional payment will be made at the bid price for "10-Inch Gate Valve in Place." These payments will be full compensation for furnishing all materials, labor and equipment to cap the well as required.

J. Move In Drilling Equipment.

For moving in all drilling equipment, machines and materials, pumps, engines, testing equipment, etc., the Contractor shall be paid his lump sum bid price under "Move In Cost."

K. Payment - General

It is intended that the payments listed in the foregoing sections of these specifications shall constitute payment in full for complete construction, testing and developing of the well in accordance with these specifications. No other payments will be made except for "extra work" agreed to in writing by the Owner and Contractor.

L. Delays or Interruptions.

The Owner shall complete all analyses of tests and water samples with as little delay as possible in order to keep to a minimum the "shut-down" time on the Contractor's operations.

CONTRACT

This contract made and entered into this _____ day of _____ 19____, by and between the Town of Eagle Butte of the State of South Dakota, party of the first part, hereinafter designated as the Owner, and _____ party of the second part, hereinafter designated as the Contractor.

WITNESS: That the Contractor for and in consideration of the covenants, agreements, and payments hereinafter mentioned to be made and performed by the Owner hereby covenants and agrees to and with the Owner as follows:

1. **DEFINITION OF TERMS:** Whenever the word or expression Owner is used in this contract it shall be understood as referring to the Town of Eagle Butte of the State of South Dakota.

Whenever the word or expression Contractor is used it shall be understood to mean the person, persons, co-partnerships, or corporations representatives.

Whenever the word Engineer is used in this contract it shall be understood as referring to the Engineer for the Owner or such other engineer, superintendent, or inspector as may be authorized by said Owner.

2. RIGHTS AND RESPONSIBILITIES OF OWNER

A. **Inspection and Supervision.** It is agreed by the Contractor that the Owner shall be and is hereby authorized to appoint from time to time such engineer, superintendent, or inspector as they deem proper, to inspect the material to be furnished and the work to be done under this agreement and in accordance with the specifications therefor. The Contractor shall furnish all aid and assistance required by the Engineer, superintendent, or inspector for the proper inspection and examination of the work and all parts of the same. The Contractor shall regard and obey the directions and instructions of any engineer, superintendent, or inspector so appointed when the same are consistent with the obligations of this agreement and of the specifications attached hereto, or said Contractor shall immediately appeal to the Engineer for his decision, and shall respect such decision when so rendered.

B. **Right of Access and Collateral Work.** The Owner reserves the right to enter the property or location on which the works herein contracted for are to be constructed, or installed by such agent or agents as it may elect for the purpose of constructing or installing such collateral works as the Owner may desire. Such collateral works will be constructed, or installed, with as little hindrance or interference as possible with the Contractor. The Contractor hereby agrees not to interfere with or prevent the performance of such collateral work by the agent or agents of the Owner or to claim any extra compensation or damages by delays or hindrances which may be caused by the construction or installation of such collateral work.

The Owner, its engineers, agents or employees, may for any and all purposes which may be required by their contract, enter upon the work and premises used by the Contractor, and the Contractor shall provide safe and proper facilities therefor. Any differences or conflicts which may arise between the Contractor and other contractors of the Owner in regard to their work, shall be adjusted and determined by the Engineer.

C. Changes, Alterations, and Extra Work. The Contractor further agrees that the Owner may make such alterations as they may see fit in the line, grade, form, dimensions, plan or material of the work herein contemplated, or any part thereof, either before or after the commencement of the construction.

If such alterations diminish the quantity of the work to be done, they shall not constitute a claim for damages or anticipated profits on the work that may be dispensed with. If they increase the amount of work, such increase shall be paid for according to the quantity of work actually done, and at the prices established for such work under this contract; provided, however, that if the Owner shall make such changes or alterations as shall make useless any work already done or material already furnished or used in said work, that the Owner shall recompense the Contractor for any material or labor so used. No work shall be regarded as extra work unless it is ordered in writing by the Engineer and approved by the Governing Board of the Owner and with the agreed price for the same specified in said order, provided said price for the work is not otherwise determined by this contract. All claims for extra work shall be made to the Owner within sixty days after its completion, and failing to make such claims within this time, all rights of the contractor for extra pay for such work shall be forfeited.

D. Discrepancies and Omissions. This agreement, including the specifications and plans, is intended to be sufficient to show all work to be done and material to be furnished hereunder.

It is further agreed that it is the intent of this contract that all work must be done and all material must be furnished in accordance with the best practice, and in the event of any discrepancies between the plans and specifications, or otherwise, or in the event of any doubt as to the meaning of any portion of the contract, specifications, or plans, the Engineer shall define which is intended to apply to the work, and the Contractor shall be bound by such decision. Any work or material not shown on the drawings or described in the specifications but which may be fairly implied as included in any item of the contract, shall be done and furnished by the Contractor without additional charge therefor.

The Owner will furnish all real estate and rights of way reasonably necessary for the work, including land needed for the construction, for waste dumps, for camp sites, and for access to the work.

In case of serious delays in the acquisition of the necessary land for this purpose, an extension of time will be granted the

Contractor sufficient to compensate therefor. The Contractor shall have no compensation for minor delays or interruptions caused by failure to secure such land, but shall receive compensation for the actual losses occasioned by serious delays.

3. AUTHORITY FOR THE ENGINEER:

A. Supervisions. It is mutually agreed between the parties to this contract that the Engineer shall supervise and direct all work included herein. To prevent all disputes and to discourage litigation, it is further agreed by and between the parties of this contract that if it cannot be otherwise agreed, the Engineer shall in all cases determine the amount of the quantities of the several kinds of work which are to be paid for under this contract, and he shall determine all questions in relation to said work and the construction thereof, and shall in all cases arbitrate every question on which may arise relative to the execution of this contract on the part of said Contractor, and his estimate and findings shall be the condition precedent to the right of the Contractor to any action on the contract and to any rights to receive any money under this contract.

B. Duration of Work. Whenever it is necessary in order to assure the safe and proper construction of the work, the Engineer shall determine the times and seasons and the order of precedence under which the work shall be done. Where the Owner is having other work done, either by contract or by its own force, the Engineer shall direct the manner of constructing the work done under this contract in order that conflicts may be avoided and the various works being done for the Owner may be harmonized.

C. Assistants and Inspectors. The word Engineer shall mean the Engineer for the Owner or his duly authorized agent, assistant engineer, superintendent, and inspectors acting severally within the scope of the particular duties assigned to them.

D. Inspectors. It is mutually agreed that the inspectors on this work shall not be regarded as deputy engineers, but their duties shall be to report to the Engineer in charge any deviation from the specifications, and when necessary to order the work stopped until the Engineer in charge can give his opinion concerning the disputed question.

All decisions regarding the character of work to be done or material to be furnished or the interpretation of the specifications shall be referred to the Engineer in charge, and the inspectors shall make no changes or deviations from the specifications or allowances of any kind without written authority to that effect from the Engineer in charge. It is furthermore agreed by the parties to this contract that in case the Engineer in charge is obligated to be absent from the work for considerable time and it becomes necessary to delegate his authority during his absence to any one of said inspectors, said inspector shall be appointed in writing and such authority will cease without notice on return of the Engineer.

E. Lines and Grades. All lines and grades shall be furnished by the Engineer, but the Contractor shall provide such ordinary labor as may reasonably be required by the Engineer to assist him in such work. Whenever necessary, work shall be suspended to permit this work, but such suspension will be as brief as practicable, and the Contractor shall be allowed no extra compensation therefor. The Contractor shall give the Engineer ample notice of the time and place where the lines and grades will be needed. All stakes, marks, etc., shall be carefully preserved by the Contractor, and in case of their destruction or removal by him or his employees, such stakes, marks, etc., shall be replaced by the Engineer at the Contractor's expense.

F. Quantities and Measurements. No extra measurements of any kind will be allowed in measuring work under this contract, but the actual length, the solid contents, the number and weight only shall be considered, unless otherwise specifically provided.

G. Definition of Terms. Whenever in the specifications or drawings accompanying this agreement, the terms or descriptions of various qualities relative to "finish," "workmanship," and other qualities of similar kind which cannot from their nature be specifically and clearly described and specified, but are necessarily described in general terms to be "satisfactory," "first class," "workmanlike," or described by other terms, the fulfillment of which must depend on individual judgment, then, and in all such cases, any question of the fulfillment of said specifications shall be decided by the Engineer, and said work shall be done in accordance with his interpretation of the same and to his full satisfaction and approval, and he shall in all cases be the judge of the fulfillment thereof.

H. Explanation of Plans. Whenever any misunderstanding shall arise concerning the meaning and intent of the drawings furnished or to be furnished to the Contractor under this agreement, or whenever any apparent discrepancies shall arise between said plans and the contract or specifications, the Engineer shall explain the same, and said explanation shall be final and binding on both parties to this contract. Said Engineer may amend or correct any errors or omissions in the drawings or specifications when such amendment or correction is necessary to bring out the meaning and intent when it is clearly indicated by a reasonable interpretation of the same.

I. Emergencies. Whenever, in the opinion of the Engineer, the Contractor has not taken sufficient precaution for the safety of the public or the protection of the works to be constructed under this contract, or of adjacent structures or property which may be injured by processes of construction on account of such neglect, and whenever in the opinion of said Engineer, an emergency shall arise and immediate action shall be considered necessary in order to protect public, private, personal, or property interests, then, and in that event, the said Engineer, with or without notice to said Contractor may provide suitable protection to said interests by causing such work to be done and material to be furnished and placed as shall furnish such protection as said Engineer may consider necessary and adequate.

The cost and expense of such work and material so furnished shall be borne by said Contractor, and if the same shall not be paid on presentation of the bills therefor, then said costs shall be deducted from any amounts due or which may become due said Contractor.

The performances of such emergency work under the direction of the Engineer shall in no way relieve the Contractor from any damages which may occur during or after said precaution has been duly taken by said Engineer.

J. Preliminary Approval. No engineer, superintendent or inspector shall have any power to waive the obligations of this contract for the furnishing by the Contractor of good material and of his performing good work as herein described in full accordance with the plans and specifications. No failure or omission of any engineer, superintendent, or inspector to condemn any defective work or material shall release the Contractor from the obligation to at once tear out, remove, and properly replace the same at any time upon the discovery of said defective work or material.

K. Right of Engineer to Modify Methods and Equipment. If at any time, the methods of equipment used by the Contractor are found to be unsafe or inadequate for securing the safety of the workmen or other persons who may be endangered thereby, or to secure the quality of work or the rate of progress required under this contract, the Engineer may order the Contractor to increase their safety or improve their character and efficiency, and the Contractor shall comply with such orders.

If, at any time, the working force of the Contractor is inadequate for securing the progress herein specified, the Contractor shall, if so ordered, increase his force or equipment, or both, to such an extent as to give reasonable assurance of compliance with the schedule of progress.

The failure of the Engineer to make such demands shall not release the Contractor of his obligations to secure the safety of his men, the quality of his work, and the rate of progress required by this contract.

L. Right to Retain Imperfect Work. If any part or portion of the work done or material furnished under this contract shall prove defective and not in accordance with the plans and specifications, and if the imperfection of the same shall not be of sufficient magnitude or importance as to make the work dangerous or undesirable, or if the removal of such work will create conditions which are dangerous or undesirable, the Engineer shall have the right and authority to retain such work, but shall make such deductions in the final payment therefor as may be just and reasonable.

M. Arbitration.

1. Engineer's Decisions. The Engineer shall, within a reasonable time, decide all questions or claims of either part to this contract and all matters relating to the execution and progress of the work or the interpretation of the plans, specifications, and

contract. Unless otherwise provided, all the Engineer's decisions shall be subject to arbitration.

2. Arbitration. Unless otherwise specifically provided, all questions in dispute under this contract shall be submitted to arbitration at the choice of either party to this contract. The general procedure shall conform to the laws of the State; and wherever permitted by law, the decision of the arbiters may be filed in court to carry it into effect.

If the Engineer fails to make a decision within a reasonable time, an appeal to arbitration may be taken, as if his decision had been rendered against the party appealing. In such cases, and in a case of an appeal from the Engineer's decision, the demand for arbitration shall be filed with him in writing within ten days thereafter; and, in no case, later than the time of final payment.

The parties may agree upon one arbiter, otherwise there shall be three, one named in writing by each party, and the third chosen by the two arbiters so selected. Should the party demanding arbitration fail to name an arbiter within ten days of the demand, his right to arbitrate shall lapse, and the decision of the Engineer shall be final and binding upon him. Should the other party fail to choose an arbiter within ten days, the Engineer shall appoint such arbiter. Should either party refuse or neglect to supply the arbiters with any papers or information demanded in writing, the arbiters are empowered by both parties to take ex-parte proceedings.

The arbiters shall act with promptness. The decision of any two shall be binding on both parties to the contract. The decision of the arbiters upon any question subject to arbitration under this contract shall be a condition precedent to any right of legal action.

The arbiters, if they deem the case demands it, are authorized to award the party whose contention is sustained, such sums as they deem proper for the time, expense, and trouble incident to the appeal; and if the appeal were taken without reasonable cause, damages for any delay occasioned may be authorized. The arbiters shall fix their own compensation unless provided by agreement, and shall assess the cost and charges of the arbitration upon either or both parties. The award of the arbiters must be in writing.

4. RESPONSIBILITY OF CONTRACTOR:

A. Persons Interested in Contract. No person or persons other than the Contractor whose name is affixed hereto as Contractor shall have any interest hereunder as Contractor. This contract shall be void if any member of the Governing Board of the Owner or any person in the employ of said board shall become directly or indirectly interested in it as contracting party, partner, stockholder, surety, or otherwise in the performance of this contract, or in the supplies, work, or business to which it relates or any portion of profits thereof. Provided that incidental interest, such as the

ownership of stock or bonds in a railroad, telephone or other public utility, which may, as an incident to its usual business, furnish services or supplies to the Contractor, shall not be included in the meaning of this provision.

B. Personal Attention of Contractor. The Contractor shall give personal attention to the faithful prosecution and completion of this work and shall be present either in person or by duly authorized representatives on the site of the work continually during its progress.

C. Contractor's Address. The address given in the proposal upon which this contract is based is hereby designated as the place to which notices, letters, or other communications to the Contractor may be mailed. In lieu of the above, said notices, letters, or communications may be delivered personally to the Contractor or to his duly authorized representative present at the site of the construction. The delivery of any such notice, letter, or communication at either of the above from the Owner to the Contractor shall be deemed sufficient service thereof upon the Contractor; and the date of said service shall be the date of such delivery.

D. Contractor's Agent. The Contractor during his absence from the work, shall keep a competent superintendent or foreman upon the work, fully authorized to act for him in his absence, and to receive such orders as may be given for the proper continuance of the work. Notice of any imperfections in the work or material furnished to any foreman or agent in charge of any portion of the same, in the absence of the Contractor shall be considered as notice to the Contractor.

E. Observance of Laws and Ordinances. The Contractor shall be subject to all laws of the State of South Dakota within which State this agreement is to be fulfilled, and to all ordinances of the Owner.

F. Protection Against Negligence and Damages. Should any work be done or material furnished or placed on a public highway or in any place where protection is necessary, the Contractor shall, at all times, and especially during the night, put up and maintain such barriers and red lights and take such other needful precautions as may be necessary to effectually prevent the happening of any accident in consequence of work being done or material being deposited in such places; and the Contractor shall be liable for all damages occasioned in this way or by reason of his act or neglect or that of any authorized subcontractor or agent, employee, or workman; and the said Contractor shall save and keep harmless the Owner from suits or demands for damages alleged to have occurred to persons or property by reason of said work or of so placing said material or from said act of negligence.

The Contractor, or his subcontractors, agrees to carry Public Liability Insurance providing for a limit of not less than \$10,000.00 for all damages arising out of bodily injuries to, or the death of, one person; and subject to that limit for each person,

a total of \$20,000.00 for all damages arising out of bodily injuries to or the death of two or more persons in any one accident; and further agrees to carry regular Contractor's Property Damage Liability Insurance providing for a limit of not less than \$10,000.00 for all damages arising out of injury to or destruction of property during this period.

The Contractor further agrees during the performance of the work to take all necessary precaution and to place proper guards for the prevention of accidents, and put up at night proper guards for the prevention of accidents, and put up at night proper and sufficient light, and will indemnify and save harmless the Owner from all damages and costs to which they may be put by reason of injury to the person or property of another resulting from negligence or carelessness in the performance of the work or in guarding the same, or from any improper material used in its construction, or by, or on account of, act or omission of the Contractor or the agent thereof; and the Contractor hereby further agrees that the whole or so much of the money due or by virtue of this agreement as shall or may be considered necessary by the Governing Board of said Owner shall or may be retained by the Owner until all suits or claims for damages as aforesaid have been settled and satisfactory evidence to that effect furnished the said Owner.

The said Contractor shall take proper means to protect the adjacent or adjoining property or properties in any way encountered or which might be injured by any process of construction, to be undertaken under this agreement, and he shall be liable for any or all claims for damages on account of his failure to fully protect all property injured during or on account of such construction.

G. Protection Against Claims for Labor and Materials. The Contractor agrees that he will indemnify and save harmless the Owner from all claims against them for material furnished or work done under this contract; and it is further agreed by the Contractor that the Contractor shall, if so desired, furnish the Owner satisfactory evidence that all persons who have done work or furnished material under this agreement have duly been paid for such work or material and in case such evidence be demanded and not furnished to the Owner, such amount as may, in the opinion of the Owner be needed, may be retained from the money due the Contractor from the Owner, until satisfactory evidence be furnished that all liabilities have been fully discharged.

H. Abandonment and Forfeiture. In case the Contractor shall abandon his work and fail or refuse to commence it again within fifteen days after notification from the Owner, or if he should fail to comply with the orders of the Engineer or with this agreement or with the specifications hereto attached, then, and in that case, the sureties on the bond shall be notified and directed to complete the same. In case the sureties fail to comply with the notice, the Owner may, within fifteen days after serving notice, carry on the work at the expense of the Contractor and the sureties.

If the work to be done under this contract shall be abandoned by the Contractor, or if this contract shall be assigned or placed in bankruptcy, or the work sublet by him, or otherwise than herein specified, or if at any time the Engineer shall be of the opinion and shall so certify in writing to the Governing Board of said Owner that the performance of the contract is unnecessarily or unreasonably delayed, or that the Contractor is violating any of the conditions or agreements of this contract, or is executing the same in bad faith or not in accordance with the terms thereof, or is not making such progress in the execution of the work as to indicate its completion within the time specified in this contract or within the time to which the completion of the contract may have been extended by the Owner, the Owner may notify the Contractor to discontinue all work or any part thereof, under this contract, by a written notice to be served upon the Contractor as hereinbefore provided, and a copy of which notice shall be given to his Surety or the authorized agent for the latter; thereupon the Contractor shall discontinue the work, or such part thereof as the Owner may designate, and thereupon the Surety may, at its option, assume this contract, or that portion on which the Owner has ordered the Contractor to discontinue work, and proceed to perform same, and may, with the written consent of the Owner sublet the work or portion of the work so taken over; provided, however, that the Surety shall exercise its option, if at all, within two weeks after the written notice of the Owner has been served on the Contractor to discontinue work and upon the Surety or its authorized agent. The surety, in such event, shall take the Contractor's place in all respects and shall be paid for all work performed by it in accordance with the terms of this contract; and if the Surety under the provisions hereof shall assume said entire contract, all monies remaining due the Contractor at the time of his default, shall thereupon become due and payable to the Surety as the work progresses, subject to all the terms of this contract.

In case the Surety does not, within the hereinbefore specified time, exercise its rights and option to assume this contract or the portion thereof on which the Owner has ordered the Contractor to discontinue work, then the Owner shall have the power to complete by contract or otherwise as it may determine, the work herein described, or such part thereof as it may deem necessary; and the Contractor agrees that the Owner shall have the right to take possession of, and use, any of the materials, plant, tools, equipment, supplies, and property of every kind provided by the Contractor for the purpose of his work, and to procure other tools, equipment, and materials for the completion of the work, and to charge to the Contractor the expense of said contracts, labor, materials, tools, equipment, and expenses thereto. The expense so charged shall be deducted by the Owner out of such monies as may be due or may at any time thereafter become due the Contractor under, and by virtue of, this contract or any part thereof. The Owner shall not be required to obtain the lowest figure for the work of completing the contract or any part thereof; but such expense to be deducted shall be the actual cost of such work. In case the expense is less than the sum which would have been payable under this contract if the same had been completed by the Contractor, then the Contractor shall pay the amount of such excess to the Owner on notice from the

Owner of the excess so due; but such excess shall not exceed the amount due under this contract at the time the Contractor is notified to discontinue said work, or any part thereof, plus the cost of bonds executed by the Contractor for the performance of this contract. When any particular part of the work is being carried out by the Owner by contract or otherwise, under the provisions of this section, the Contractor shall continue the remainder of the work in conformity with the terms of this contract and in such a manner as in no way to hinder or interfere with the persons or workmen employed, as above provided by the Owner.

I. Liquidated Damages, Right to Discontinue Work. The Contractor further agrees that the work shall be continued and carried on in the order of precedence specified.

The Contractor further agrees that he will commence work within _____ calendar days after the execution of this contract, and will progress therewith so that by the _____ day of _____, 19____, the work will be completed in accordance with this agreement.

Should the Contractor fail to complete the work as herein specified, within the time named, unless granted an extension of time by the Owner, he shall be liable for the sum of Thirty Dollars (\$30.00) per day as liquidated damages for every day the aforesaid work may be uncompleted over and beyond the time herein stipulated for its completion, provided, however, that the Owner shall have the right to extend the time for the completion of said work if they should decide to do so.

5. CONDUCT OF WORK:

A. Keeping of Plans and Specifications Accessible. The Contractor shall keep a copy of the plans, profiles, and specifications constantly accessible for the use of the Engineer and inspector on the work.

B. Losses and Damages. All loss and damage arising out of the nature of the work to be done, or from the action of the elements, or from any unforeseen circumstances in the prosecution of the same, or from unusual obstruction or difficulties which may be encountered in the prosecution of the work, or from any casualty whatsoever of every description shall be sustained and borne by the Contractor at his own cost and expense.

C. Protection of Finished or Partially Finished Work. The Contractor shall take all necessary precautions to protect all work done or material furnished under this agreement from injury by action of the elements, or by process of construction; he shall also take proper means to protect adjacent or adjoining property or properties in any way encountered or which might be injured by the process of construction to be undertaken under this agreement.

The Contractor shall properly guard and protect all finished or partially finished work, and shall be responsible for the same, until the entire contract is completed and accepted by the Engineer.

D. Hindrances and Delays. No charge shall be made by the Contractor for hindrances or delays from any cause (except where work is stopped by order of the Owner) during the progress of any portion of the work embraced in this contract, but such delays if due to no fault or neglect of the Contractor shall entitle him to an extension of time, allowed for completion of the work sufficient to compensate for the detention, provided the Contractor shall give to the Engineer immediate notice in writing of the cause of such detention. The amount of detention shall be determined by the Engineer, and the extension of time shall not include unseasonable weather. In case said work shall be stopped by the Owner, then such stopping of said work causing such expense as in the judgment of the Engineer is necessary, other than the legal cost of carrying on the contract, shall be paid by the Owner to the Contractor.

The Owner reserves the right of suspending the whole or any part of the work contracted to be done when they shall deem it for the interests of the Owner to do so, without compensation for the loss to the Contractor for such suspension other than extending the time of completing the work as much as it may have been delayed by suspension; and if the said work shall be delayed for the reason that the Owner does not own the property necessary for said Owner to own, then, and in that case, and every such case, the Contractor shall be entitled to as much additional time when in to perform and complete this contract on his part as the Engineer shall certify in writing to be just; but no allowance by way of damages shall be made for such delay. Neither an extension of time for any reason beyond that fixed herein for the completion, nor the doing and acceptance of any part of the work called for by this contract, shall be deemed to be a waiver by said Owner of the right to abrogate this contract for abandonment or delay, in the manner provided for in this agreement.

E. Defects and their Remedies. It is further agreed that if the work or any part thereof, or any material brought on the ground for use in the work, or selected for the same, shall be deemed by the Engineer to be unsuitable or not in conformity with the specifications, the Contractor shall forthwith remove such material and rebuild or otherwise remedy such work in accordance with the directions of the Engineer.

F. Construction Plant. The Contractor shall provide all labor, material, and machinery necessary in the prosecution and completion of the contract, and it is understood that the Owner shall not be held responsible for the care or protection of any material, tools, or machinery or for any part of the work until it is finally completed and accepted.

6. SANITARY REGULATIONS:

Necessary sanitation conveniences for the use of laborers on the work, properly secluded from public observation, shall be constructed and maintained by the Contractor in such a manner and at such points as shall be approved by the Engineer, and their use shall be strictly enforced.

7. PRICES AND PAYMENTS:

A. Prices for Work. In consideration of the furnishing of the material and labor and the completion of all work by the Contractor and on the completion of all work and of the delivery of the material embraced in this contract in full conformity with the specifications and stipulations therein contained, payment will be made as follows; and the Contractor hereby agrees to receive such payment in full for furnishing all material and labor and for well and truly performing the same and the whole thereof in the manner and according to the specifications and the requirements of the Engineer upon the completion of the contract. Monthly payments will be made in an amount equal to 80% of the value of work completed and materials on hand as determined by the Engineer. Final payment will be made on completion of all work and furnishing of all materials as specified on acceptance of the same by the Owner.

B. Bond and Sureties. It is further agreed by the parties to this contract that this contract shall be executed in triplicate, one copy being retained by the Owner, one to be delivered to the Contractor, and one to the Engineer. The Contractor agrees to execute a bond for the sum of one hundred per cent (100%) of the contract for the satisfactory performance of the work, and it is agreed that this contract shall be void until such bond is furnished and approved by the Owner. The foregoing bond must be signed by the Contractor and the sureties. The sureties and the amount in which each will qualify must be satisfactory to the Owner.

Should any surety upon the contract be deemed unsatisfactory at any time by the Owner, Notice will be given forthwith and the Contractor shall immediately substitute a new surety or sureties satisfactory to the said Owner.

8. COMPONENT PARTS OF CONTRACT:

This contract consists of the following component parts, all of which are hereby made a part hereof as if herein set forth in full.

1. Notice to Contractor
2. General Conditions and Instructions to Bidders
3. Accepted Proposal
4. Contract and Agreement
5. Plans and Specifications
6. Contract Bond

IN WITNESS WHEREOF: The parties hereto have caused this agreement to be executed as of the day and year first above written each of the above counterparts being deemed to be an original.

ATTEST:

OWNER:

By: _____

ATTEST:

CONTRACTOR:

By: _____

Authorized Officer

C O N T R A C T B O N D

KNOW ALL MEN BY THESE PRESENTS:

That we _____ as
principal, and _____ as
sureties, are held and firmly bound unto the _____
_____ in the penal sum of _____ dollars
and for the payment of which we do hereby bind ourselves, our
heirs, executors, and administrators, jointly, severally, and
firmly by these presents.

Date: _____, A. D. 19____
The condition of the obligation is such that whereas, the
above bounden _____ of
has been awarded by the _____ the Contract for
items numbered: _____
copy of which contract together with all of its terms, covenants,
conditions, and stipulations is incorporated herein and made a
part hereof as fully and amply as if said herein.

NOW THEREFORE, if said _____ as princi-
pal shall in all respects fulfill this said contract according
to the terms and the tenor thereof, and shall faithfully dis-
charge the duties and obligations therein assumed, then the
above obligation is to be void and of no effect; otherwise to be
and remain in full force and virtue in law.

It is expressly understood and agreed that this bond is
given to secure and does secure not only the faithful perform-
ance by the principal herein named of said contract for the con-
struction work as specified in said contract and in strict accord-
ance with the terms of said contract and the plans and specifi-
cations made a part thereof; and shall also well and truly per-
form and fulfill all the undertakings, covenants, terms, condi-
tions, and agreements of any and all duly authorized modifica-
tions of said contract that may hereafter be made, notice of
which modifications to the surety being hereby waived, but that
it is given to secure and does secure also payment by the said
bounden _____ or all just claims for mater-
ial, supplies, tools, fuel, lubricants, equipment, equipment rent-
al, machinery, insurance premiums, and services used or consumed
in the construction of the work by him and any of his subcontract-
ors, and for the payment of all laborers and mechanics for all
labor performed in the work by him or any of his subcontractors,
in carrying out the provisions of this contract, and if such pay-
ment be made then this obligation shall be null and void, other-
wise it shall remain in full force and effect.

No contract shall be valid which seeks to limit the time to
less than five years in which an action may be brought upon the
bond covering the construction work, and this bond is made, exe-
cuted and delivered with such understanding.

Signed this _____ day of _____, 19____.

By: _____ Principal	_____ Surety
	_____ Surety
	_____ Attorney in Fact

Permit No. _____

Water Division No. _____

Water District _____

RECEIVED
APR 25 1960

STATE WATER RESOURCES COM. PI.
PIERRE, SOUTH DAKOTA

Certificate of Examination of Works

Report of Examining Engineer

To the State Water Resources Commission, Pierre, South Dakota:

Dear Sirs: I hereby certify that in accordance with your letter of authorization dated 11 APRIL 1960, I have this day made a thorough examination of the diversion works constructed by THE TOWN OF EAGLE BUTTE, of DEWEY _____ County, South Dakota, holder of Permit No. 272-1, issued upon Application No. _____, bearing date of priority of _____, 19____, authorizing the diversion of 1.025 cu. ft. per second of the waters of PAHASAPA FORMATION for MUNICIPAL WATER SUPPLY purposes. I have to report on the condition of the same as follows:

The diversion works comprise: A WELL 4300' DEEP INTO THE PAHASAPA LIMESTONE 700' OF 13" STEEL CASING AND 3600' OF 5 1/2" STEEL CASING PERFORATED FOR 300'. ALL CASING GROUTED. A WORTHINGTON TURBINE PUMP WITH SUCTION 150 FEET IN THE WELL POWERED BY 20 HP ELEC. MOTOR. 75,000 GALLON ELEVATED STEEL STORAGE RESERVOIR, 6" CEMENT ASBESTOS DISTRIBUTION MAINS THROUGHOUT THE TOWN WITH FIRE HYDRANTS AND VALVES. and the system is in the following condition: GOOD - IN ADDITION TO THE ABOVE, A COOLING TOWER AND IRON REMOVAL PLANT WILL BE COMPLETED AND IN OPERATION SOON.

The point of diversion is located NW 1/4 SW 1/4 S17 T12N R24E B.H.M. S53°-2'E 336' FROM THE NW CORNER OF SAID SECTION 17.

The works are capable of diverting and conveying to the place of use 0.6 cu. ft. per second of water, which is to be used for MUNICIPAL WATER SUPPLY AND FIRE PROTECTION.
*WHEN NECESSARY IN THE FUTURE GREATER CAPACITY PUMP MAY BE INSTALLED TO PRODUCE UP TO 1.025 CFS.
The legal sub-divisions to be irrigated are: _____

_____ comprising a total of _____ acres of land.

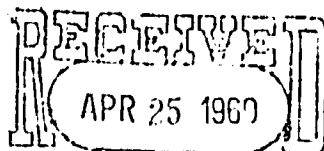
The domestic use intended comprises MUNICIPAL WATER SUPPLY FOR THE TOWN OF EAGLE BUTTE, SOUTH DAKOTA

The utilization for power, mining, or other beneficial uses comprises: FIRE PROTECTION

Witness my hand, this 16 day of APRIL, A. D. 1960.

—SEAL—

Examining Engineer.



Permit No. _____

Water Division No. _____

Water District _____

STATE WATER RESOURCES COMM.
PIERRE, SOUTH DAKOTA

NOTICE OF COMPLETION OF WORKS

This blank must be filled out by the holder of permit and forwarded to the Executive Officer at least 60 days before the time set for completion of works

(P. O.) EAGLE BUTTE, SOUTH DAKOTA(Date) 19 APRIL 1960

TO THE STATE WATER RESOURCES COMMISSION
OF SOUTH DAKOTA, PIERRE:

DEAR SIR: Notice is hereby given of the completion of the works for the diversion of 1,025

_____ cu. ft. per second of the waters of the state from EAGLE BUTTE MUNICIPAL WELL
through the EAGLE BUTTE MUNICIPAL WATER SYSTEM

for MUNICIPAL WATER SUPPLY purposes

_____ in accordance with the terms and conditions of a certain permit heretofore issued by the Water Resources Commission of the State of South Dakota.

1. The name of the person or corporation holding said permit is TOWN OF EAGLE BUTTE

2. The postoffice address of such person or the place of business of such corporation is EAGLE BUTTE
County of DEWEY State of SOUTH DAKOTA

3. The number of such permit is 272-J and the date set for the completion of such work is
1 OCTOBER 1958 (PUMP INSTALLED)

4. Said water to be used for MUNICIPAL WATER SUPPLY purposes.

5. Said works of diversion will be fully completed on the date set for such completion, and the amount of water which said works are capable of conducting to the place of intended use, in accordance with the plans accompanying the application for such permit, is 0.6** cubic feet per second.

6. The amount of land for which said water is available is ---- acres,
particularly described as follows: THE TOWN OF EAGLE BUTTE

I hereby certify that the facts set forth in the above notice are true.

TOWN OF EAGLE BUTTE(Signature of Owners) By: Scott Meyer PRESIDENT OF TOWN BOARD

**WHEN NEED ARISES A LARGER PUMP MAY BE CLARENCE J. HENNING TOWN CLERK
INSTALLED TO PRODUCE UP TO 1,025 C.F.S.

RECEIVED
APR 25 1960

STATE WATER RESOURCES COMMISSION
PIERRE, SOUTH DAKOTA

Permit No.

Water Division No. Water District

Notice of Application of Water to Beneficial Use

(This blank must be filed out by holder of permit and forwarded to the State Water Resources Commission at least sixty days before the time set for application of water.)

(P. O.) EAGLE BUTTE, SOUTH DAKOTA(Date) 16 APRIL 1960

TO THE STATE WATER RESOURCES COMMISSION OF SOUTH DAKOTA, PIERRE:

DEAR SIR: Notice is hereby given that on the 12th day of APRIL
1960, at EAGLE BUTTE County of DEWEY State of South Dakota,
 before FRANK R. BRADY ^{WAS} proof ~~was~~ submitted of the application to beneficial use
 (Examining Engineer or Officer)
 of 0.6 cubic feet per second of the waters of EAGLE BUTTE MUNICIPAL WELL
 in accordance with the terms and conditions of Permit No. 272-1
 heretofore issued by the Water Resources Commission of South Dakota.

- The name and postoffice address of the person or corporation holding said permit are
THE TOWN OF EAGLE BUTTE, EAGLE BUTTE, SOUTH DAKOTA
- The use to which said water has been applied is MUNICIPAL WATER SUPPLY.
- The amount applied to beneficial use is 0.6 cfs.
- The place where said water is used is (if for irrigation, give full and accurate description of the lands irrigated) THE TOWN OF EAGLE BUTTE
- The name of the canal or ditch or other works by which said water is conducted to such place of use is
EAGLE BUTTE MUNICIPAL WATER DISTRIBUTION SYSTEM
- The right to take the water from such works is based upon permit No. 272-1
- The source of supply from which such water is diverted is PARASAPA LIMESTONE FORMATION
- The date of priority which said user is prepared to establish is 24 JULY 1956 - DATE
PUMP TESTS WERE RUN ON THE WELL.

(Sign) TOWN OF EAGLE BUTTE
 By: Stan H. Meyer, PRESIDENT OF
TOWN BOARD
Wm. J. Meyer, TOWN CLERK

SHALLOW WATER SUPPLIES FOR EAGLE BUTTE, SOUTH DAKOTA

INTRODUCTION

The following report is the result of an investigation made by the State Geological Survey into the water possibilities of the reservoirs from which the city of Eagle Butte will have to draw its supplies. This report will concern itself only with the shallow water reservoir which immediately underlies the city. The developing of surface water by building dams in the valleys surrounding the city is not considered since this is primarily an engineering problem and a rather lengthy pipe line would be required to reach the city from the nearest usable dam site. Neither are artesian supplies considered though artesian aquifers underlie this region. It would require a well approximately 2600 feet deep to reach the shallowest of them. (See attached graphic log of the Ole Lanberg boring which is the nearest record available.)

From this investigation it is clear that large volumes of shallow water can be secured in the Eagle Butte vicinity only by a carefully planned and rather expensive well field. The sands composing the reservoir are "tight" allowing water to percolate through them slowly. However, there is a large amount of water stored in this reservoir. The problem, therefore, is to make such an installation as will supply the needed water from a relatively slow percolation.

GEOLOGY

The water reservoir is the Fox Hills formation of Cretaceous age. It occupies the tableland that makes the divide between the Moreau River on the north and the Cheyenne River on the south. This divide is known as the Fox Ridge and the Fox Hills formation forms its cap. Since the city of Eagle Butte is situated on top of this divide, the Fox Hills formation is the first bed rock encountered beneath the soil. (See attached geologic map of the area around Eagle Butte.) This is an advantage since very shallow wells give access to the water supplies. It has the disadvantage, however, of making pollution of these water supplies easy through open wells, leaky sewers, cesspools, and outdoor toilets.

The formation is known to be as much as 200 feet thick in some places but in the vicinity of Eagle Butte only the lower 70 feet is available. This part of the formation can be seen outcropping about

a mile southeast of town where about 70 feet are exposed. The altitude of the edge of the benchlands at this point is 2421 feet above sea level. The lowest visible Fox Hills in this outcrop lies at 2351 feet above sea level, giving a total thickness of 71 feet for the formation in this locality.

About two miles south of town the formation can again be seen on the edge of the bench lands lying between sea level elevations 2422 and 2357, a thickness of 65 feet.

A measured section at the first location gave the following divisions:

Sequence of Lower Fox Hills Beds
SW $\frac{1}{4}$ of Sec. 21, Township 12N, Range 24E, Ziebach County (about 1 mile southeast of Eagle Butte)

1. Greenish soft siltstone with large random buff sandstone concretions, large gray sandstone concretions at base - 51 feet.
2. Dark silty non-calcareous clay - 19 feet.
3. Greenish brown sand to silt, weathers rusty at dam spillway, base of the section - 1 foot, total - 71 feet.

The thick bentonitic Pierre shale formation lies beneath the Fox Hills in South Dakota and between these two formations there is a gradation zone of about 50 to 75 feet, the clay of the Pierre formation grading upward into the sand of the typical Fox Hills formation. In this gradation the characteristic rock is a very fine sand or siltstone, and clay beds are common. It is this character which makes the sand "tight" as was mentioned in the introduction. This transition zone is the water reservoir at Eagle Butte.

Some idea of the fineness of this material can be obtained from the following dry screen analysis of a sample taken on the outcrop.

Passed	Retained on	Grain size	Percent of sample
18 mesh	35 mesh	0.50 mm	1.36
35 mesh	60 mesh	0.25 mm	6.93
60 mesh	120 mesh	0.125 mm	9.68
120 mesh	230 mesh	0.062 mm	38.8
230 mesh	less than 0.53 mm		40.1

Since 100 mesh sizing is ordinarily classified as a silt and 200 mesh is a fine clay it will be noted that nearly 30 percent of this rock is composed of these fine grained materials. A good water sand should be composed predominantly of grain sizes over 60 percent.

A rough measurement of the amount of pore space in the rock was made on five samples collected from the outcrops. The lowest of these gave 34 percent porosity and the highest 54 percent with an average of 42 percent. With that much pore space the rock could still hold

a tremendous amount of water since the pores make about half the volume of the rock. However, the difficulty that has been encountered in producing water from this sand is due to the fact that the pores are so very small that water has difficulty passing through them. Thus it is possible to pump water out of a well faster than the sand can deliver it.

The ability of a rock to transmit water is known as permeability and is expressed in the number of gallons per day that can pass through a cubic foot of the rock under a 100% gradient. Twenty samples were tested in the laboratory with the following results:-

No. of samples	Permeability
1	none
3	3 - 5 gallons per cubic foot
7 ($\frac{1}{4}$ of lot tested)	per day
2	5 - 10 " "
2	10 - 15 " "
3	15 - 20 " "
3	20 - 30 " "
3	35 - 47 " "

The lowest permeability measured was zero and the highest, 47.3 gallons per cubic foot per day. The average of the samples gave 16.8 gallons per day.

This means that water will pass through the sand but does so slowly.

AMOUNT OF WATER AVAILABLE

Below an average depth of about 17 feet the pores of all rocks in the vicinity of Eagle Butte are filled with water. In other words the rocks are saturated. The surface of this saturated zone is commonly known as the water table. The accompanying map and cross sections show that this surface is not horizontal but in the immediate vicinity of Eagle Butte slopes northward at a rate of about 10 feet per mile.

At the time observations were taken the water table lay from 7 to 32 feet below the land surface. This would leave about 40 feet of the Fox Hills formation saturated with water. As indicated earlier in this report, the average porosity of this sand is about 42 percent. Using these figures one acre of the reservoir should contain about 5,473,508 gallons of water. Unfortunately not all this water is available to wells since there is a very large proportion of it that sticks to the grains of the rock and can never be pumped out. However, with proper well construction and pumpage this reservoir can be made to yield a major proportion of the total storage.

From the foregoing figures on permeability and porosity it can be determined that a well 2 feet in diameter standing open 20 feet in the water saturated Fox Hills could yield about 885 gallons of water per day. Obviously such well construction would not be suitable as the walls would fall in and spoil the well sooner or later. However, screens can be placed to take in the water from the side walls as well as the bottom.

Since the water in this reservoir is derived entirely from rain in the vicinity, the matter of recharge is important. The formation slopes gently to the east but the gradient is so low that there can be very little eastward movement of water, and recharge by percolation is negligible. According to the statistics of the U. S. Weather Bureau, the rainfall at Eagle Butte averages 16 inches per year; this amounts to 4,336,000 gallons of water per acre. Since there is very little runoff in this sandy area, the recharge would just about equal the rainfall. This is only a rough estimate, of course, as a large part of the rains, especially light rains, do not recharge the reservoir but remain in the soil and are transpired by plants living on the surface; however it does represent a maximum recharge.

One other factor which must be taken into account is the fact that all of the Fox Hills sand in this region contains a large amount of the mineral bentonite. This is a smooth clay that has the property of taking on enormous amounts of water and swelling to as much as ten times its original size. This is one of the factors that causes the sands to be "tight." Just what the effect of this bentonite is in open wells is not known but with the increased passage of water it could move this material toward the opening and materially lessen the efficiency of the well by sealing off the pores near the walls of the well. If additional swelling took place in the pores opening into the well, they might well become so sealed as to materially lessen or even prevent production from the well.

RECOMMENDATIONS

Wells drilled in the vicinity of Eagle Butte have yielded sufficient water for domestic purposes. However if large amounts of water were to be needed for industrial, institutional or other uses, a systematic development of this reservoir would have to be undertaken. The procedure now followed of pumping the well dry and allowing it to stand for a period to refill will have to be the basis of any such development. Either large sumps or wells, draining as much of the thickness of the formation as is practicable and pumped periodically into a large reservoir, will have to be constructed, or a series of wells carefully spaced to take best advantage of the water and pumped slowly enough to allow the reservoir to feed into them without running dry, will have to be installed. The number of such wells will have to depend upon the amount of water needed. Spacing such wells too closely will cause

interference on pumping and a consequent inefficiency in the development of the water supply. As a general rule the farther apart they are spaced the less chance there is for interference. In no case should they be closer than 300 or 400 feet to each other.

Such a field probably could be developed to best advantage west of the city. There is a larger area of Fox Hills formation in that region than there is toward the east and once pumping is begun a certain amount of recharge from underground percolation will take place. The narrow neck of Fox Hills on which Eagle Butte stands is well shown on the geologic map accompanying this report.

CONTAMINATION

Unfavorable health reports have been received on the water from shallow wells in the city. When these were inspected it was found that they were not properly constructed. Any shallow supply has to be sealed against surface contamination. The practice of leaving wells open at the surface or covering them with a few loose boards allows dust and surface water to get into them, carrying the various bacilli and other contamination which have condemned this water supply. These are not indigenous to the Fox Hills water and can be eliminated by proper well construction.

There is also a source of contamination from sewage poured into the ground and from outdoor toilets. Such contamination will travel a long way in a porous reservoir. For best results, therefore, the city should take some sanitary precautions. These are best recommended by the State Board of Health.

In summary then it must be stated that though the Fox Hills reservoir at Eagle Butte has certain drawbacks in permeability which makes for slow delivery of water, there is a good supply of excellent water available. The volume is sufficient to allow the development of a good sized water supply which should be sufficient for the needs of the city at present or in the foreseeable future even though the population or water use should double or triple. Such development cannot be made in a haphazard fashion but must be based on sound geologic and engineering principles.

APPENDIX

TABLE OF WELL DEPTHS AND WATER HORIZONS
IN EAGLE BUTTE, S. D.
(As reported by well owners)

Well owner	Water depths			Total depth of well	
	1st	2nd	3rd		
Anderson	45'	80-85'			110 feet
Cafe, drilled 1949	36'	60'	90'	80' pipe	125 "
McDaniel, drilled 1950	20'			40' pipe	135 "
Joe Gange	38'				125 "
Parker	36-43'				87 "
Present City Well drilled 1929	50'	80'		24' pipe	80-81 "

PERMEABILITY DETERMINATIONS
(laboratory)

A - From outcrops in the SW $\frac{1}{4}$, Sec. 21, T. 12N, R. 24E., Ziebach County.

1 - In sequence	Sample No.	Permeability	Porosity
Top of outcrop	13	18.9 gal/cu ft	
	12	10.6 "	
	11	8.5 "	
	7	28.2 "	41%
	6	10.4 "	38%
	5	47.3 "	
	4	10.0 "	
	3	3.4 "	
	2	zero "	34%
	1	5.0	
Base of outcrop			

2 - Grab samples from other neighboring exposures.

31	12.5 "
30	5.3 "
29	28.0 "
x	8.8 "

B - Other locations.

1 - Lantry	-	45.0	54%
2 - Section 32	-	20.8	
3 - 1 $\frac{1}{2}$ miles south of Eagle Butte		37.0	43%
	16	9.2	
	15	13.7	
	12	10.7	

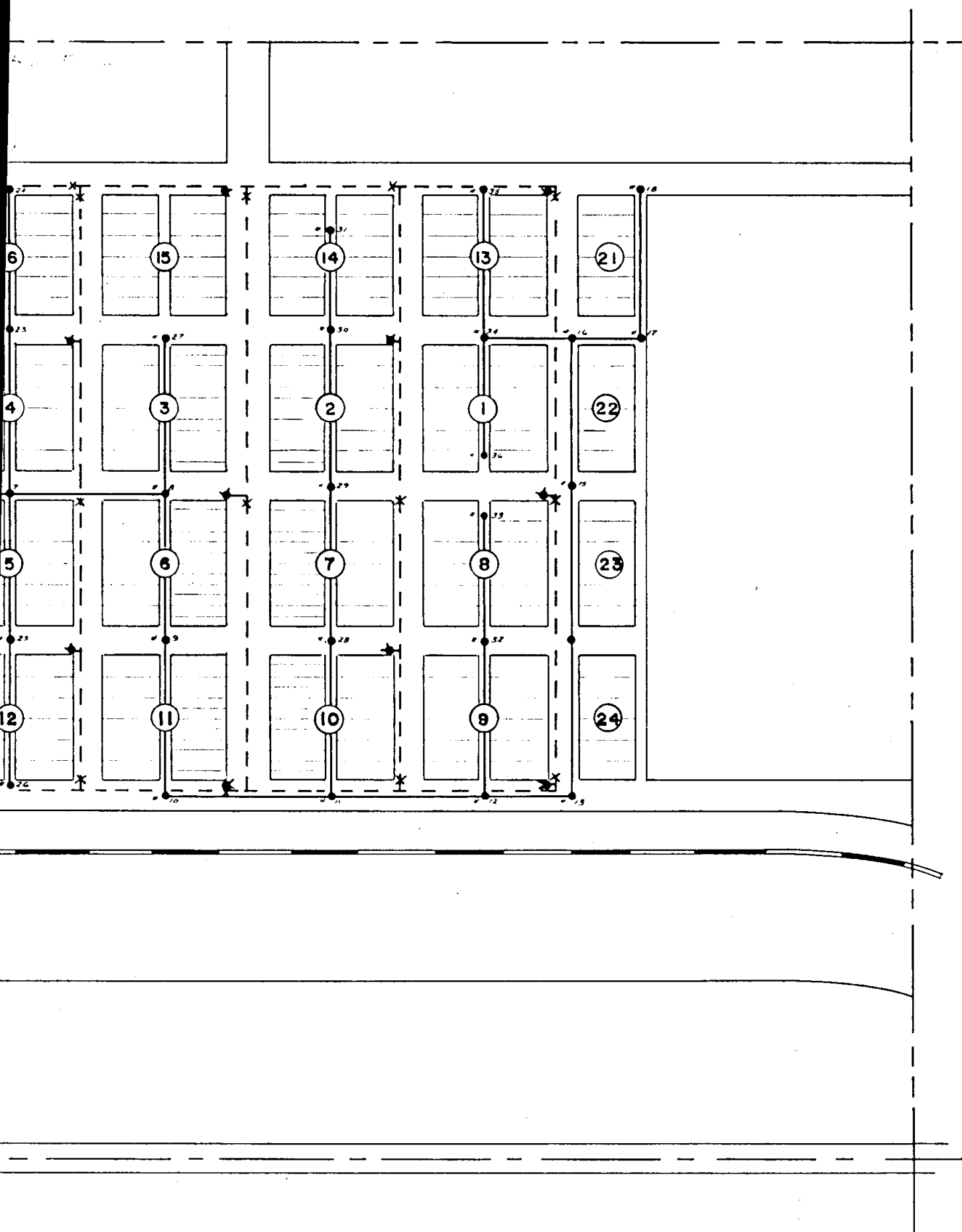
Average Porosity -- 42.0%

Average Permeability -- 16.8 gal/cu ft per day

WATERTABLE DATA FOR WATER WELLS
IN AND NEAR EAGLE BUTTE

Petsch & Fairbanks
Aug. 16, 1951

Total Depth	Surface Altitude	Altitude of Water Surface above Sea Level	Depth to Water	Remarks
29	2413.8	2403.9	10.13	Garret
35	2415.8	2400.5	15.36	Bauman
42	2418.6	2396.4	23.76	Wanderworst
44	2419.5	2397.4	22.18	Missionary
37	2412.6	2396.7	15.92	Vacoman
36	2417.9	2395.5	22.47	Hinzman
18	2403.9	2396.5	7.42	Bowman
20	2399.7	2391.5	8.20	Pinel
50 1/2	2408.7	2399.4	9.32	Indian office
38	2411.3	2402.9	8.46	Parker Hwd.
40 1/2	2413.8	2402.3	11.57	Johnson
	2417.2	2400.9	16.37	Schuler
35	2710.2	2403.0	7.26	Stockyard
21	2416.9	2402.2	14.76	Schwahn
	2414.6	2404.7	9.90	S. of Elevator
200	2427.4	2402.8	24.61	Sec. 19 NE Cor.
	24.3.5	2400.9	12.68	Sies hole
38 1/2	2420.2	2397.2	23.03	12 on map 3
35	2423.5	2396.8	26.73	17 on map 3
22	2406.7	2391.6	15.15	Anderson 9/28/50
	2405.7	2388.2	17.57	Ganje Sr.
	2414.8	2387.1	27.70	Harding Well
100 1/2	2445.0	2413.7	31.33	
70	2437.4	2404.5	32.91	



LEGEND

- SEWER LINE
- - - WATER LINE
- MANHOLE
- ⊙ FIRE HYDRANT
- x- GATE VALVE

(No tracing) Map No. 251-1
App. No. 272-1

EAGLE BUTTE SOUTH DAKOTA	
LAY-OUT SHEET	
SCALE: 1"=300'	BRADY ENGINEERING CONSULTING ENGINEERS SPEARFISH, SOUTH DAKOTA

