

WATER PERMIT NO. 5856-3

Phone: 773-3385

Name of Applicant: SD Dept. of Game, Fish and Parks

Post Office Address: 523 E Capitol, Pierre SD

Amount of Water Claimed: 378.1 AF Total Acres:                     

Source of Water Supply: runoff & Missouri River

Water to be used for: fish & wildlife propagation County: Hughes

Location: 4 miles southeast of Pierre

PRIORITY Date Received: 3-14-95 Fee: NA

Corrected Application Received:                      Period of Annual Use: Jan 1 - Dec 31

Remarks: Going to construct three pool areas

Diversion Point: N 1/2 NW 1/4 Sec 21 &

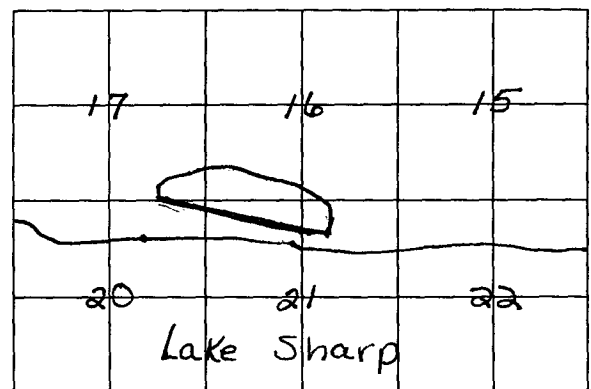
NE 1/4 NE 1/4 Sec 20; all in T110N-R77W

Water Impounded: SE 1/4 SE 1/4 Sec 17, S 1/2

SW 1/4, SW 1/4 SE 1/4, Sec 16, N 1/2 NW 1/4,

NW 1/4 NE 1/4 Sec 21 and NE 1/4 NE 1/4 Sec 20;

all in T110N-R77W



Well Log: Driller:                      Licensed: YES        NO       

Depth of Well:                      REMARKS:                     

Type of Map: topo Prepared By: Doug Lipitsky, P.E. Reviewed and the Number

Assigned on: 3-15-95 By: Karen Schlaak

No. 5856-3 Hydrologic Unit 10140101  
Map No. \_\_\_\_\_ Basin Missouri River  
Newspaper Capital Journal, PO Box 898, Pierre

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

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

Type of Application: Check one or more of the following

New ☒ Vested Right ☐ Future Use ☐ Change Use ☐

☐ Amend Permit No. \_\_\_\_\_ with old priority date retained

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

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

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

1. Name of Applicant SD Game, Fish & Parks (Wildlife Division) Phone No. 773-3385

Post Office Address 523 E. Capitol Pierre, SD State 57501  
(Street, R.R. or Box) Zip Code

2. Amount of water claimed (~~cfs~~) 378.1 AC.-FT (6000gpm from Lake Sharpe)

3. Source of water supply Minor Surface Runoff & Pumping From Lake Sharpe

4. Location of point of diversion Missouri River diversion point N<sup>1</sup>/<sub>2</sub>  
NE <sup>1</sup>/<sub>4</sub> OF NW <sup>1</sup>/<sub>4</sub> OF SECTION 21,

T 110 N, R 77 W Water Impounded: SE <sup>1</sup>/<sub>4</sub> SE <sup>1</sup>/<sub>4</sub>  
Sec 16, N <sup>1</sup>/<sub>2</sub> NW <sup>1</sup>/<sub>4</sub>, NW <sup>1</sup>/<sub>4</sub> NE <sup>1</sup>/<sub>4</sub>, Sec 21 and Sec 17, S <sup>1</sup>/<sub>2</sub> SW <sup>1</sup>/<sub>4</sub>, SW <sup>1</sup>/<sub>4</sub> SE <sup>1</sup>/<sub>4</sub>,  
NE <sup>1</sup>/<sub>4</sub> NE <sup>1</sup>/<sub>4</sub> Sec 20; all in T110N-R77W County Hughes

5. Counties where water will be used Hughes

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

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

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

STATE OF SOUTH DAKOTA)  
County of Hughes

I, Don A. McCrea the applicant, certify that I have read the foregoing application, have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction.

Signed Don A. McCrea

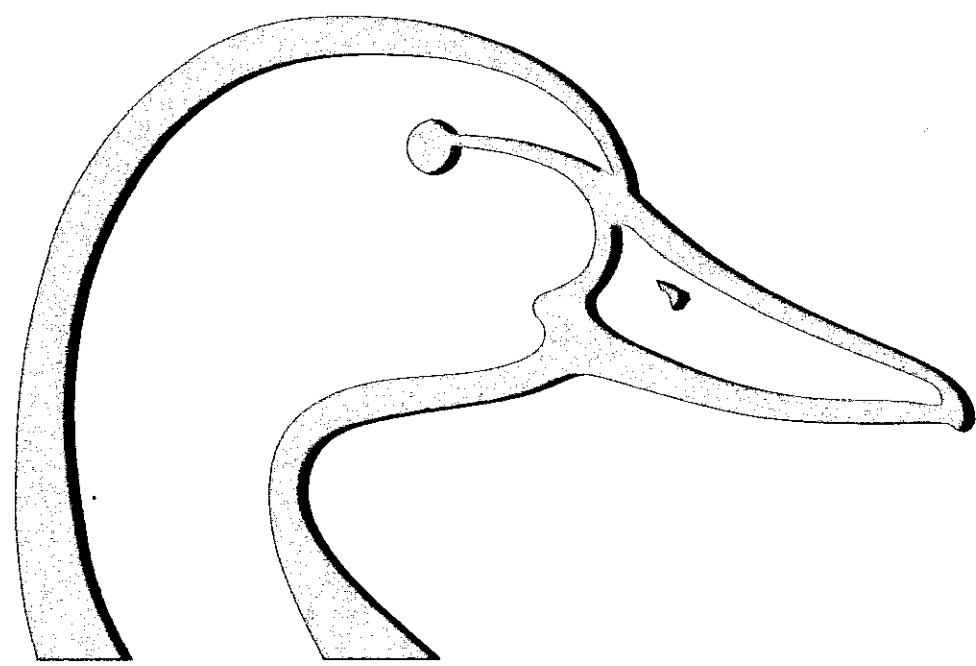
Subscribed and sworn to before me this 14th day of March 1995

[Signature]  
Notary Public (or other qualified officer)





Appl 5865-3



## DUCKS UNLIMITED

### SPECIFICATIONS

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### QUANTITIES

|                                      |               |
|--------------------------------------|---------------|
| MOBILIZATION                         | 1 L.S.        |
| SITE PREPARATION                     | 6286 C.Y.-P   |
| EXCAVATION                           | 1678 C.Y.-S   |
| EMBANKMENT                           | 28132 C.Y.-S* |
| WATER                                | 105 M-GAL**   |
| WATER CONTROL STRUCTURE              |               |
| INSTALLATION                         |               |
| 72"Ø CMP RISER, 7 L.F.               | 1 L.S.        |
| APPURTENANCES (GATES, CATWALK, ETC.) | 1 L.S.        |
| CULVERT INSTALLATION                 |               |
| 36"Ø CMP                             | 42 L.F.       |
| 24"Ø CMP                             | 56 L.F.       |
| 8"Ø PVC, SDR-35                      | 49 L.F.       |
| RIPRAP - CLASS 1                     | 54 C.Y.-P     |
| ACCESS ROAD SURFACING (4" DEPTH)     | 383 C.Y.-P    |
| PUMP RAMP SURFACING (8" DEPTH)       | 18 C.Y.-P     |
| REMOVE & BURY EXISTING               |               |
| CONCRETE STRUCTURES                  | 2 EA.         |
| REMOVE & SALVAGE CULVERTS            | 5 EA.         |

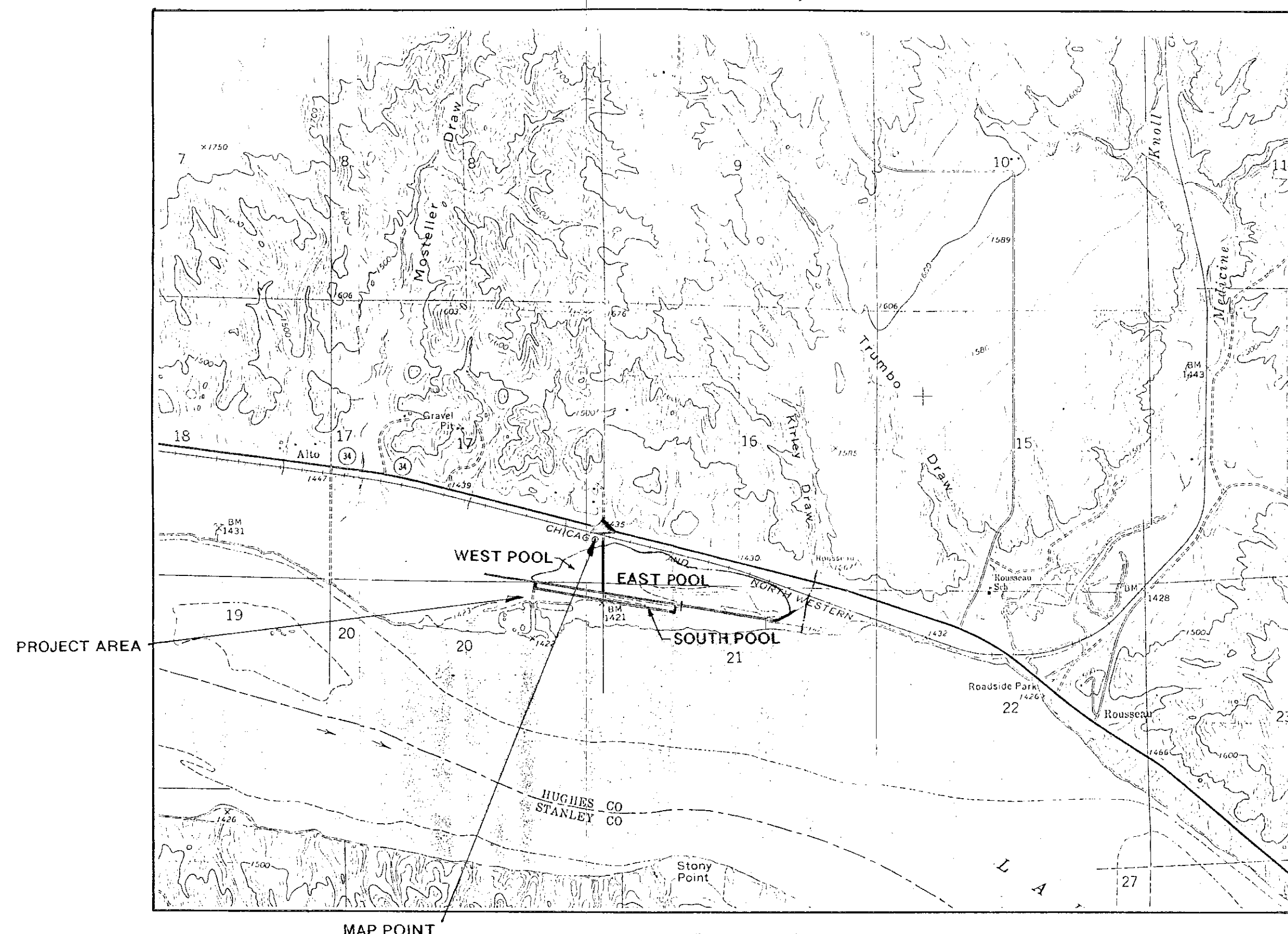
\*INCLUDES 15% FOR SHRINKAGE  
\*\*BASED ON 5 GAL./C.Y., HOWEVER, PAYMENT  
WILL BE BASED ON ACTUAL AMOUNT USED.

# DUCKS UNLIMITED

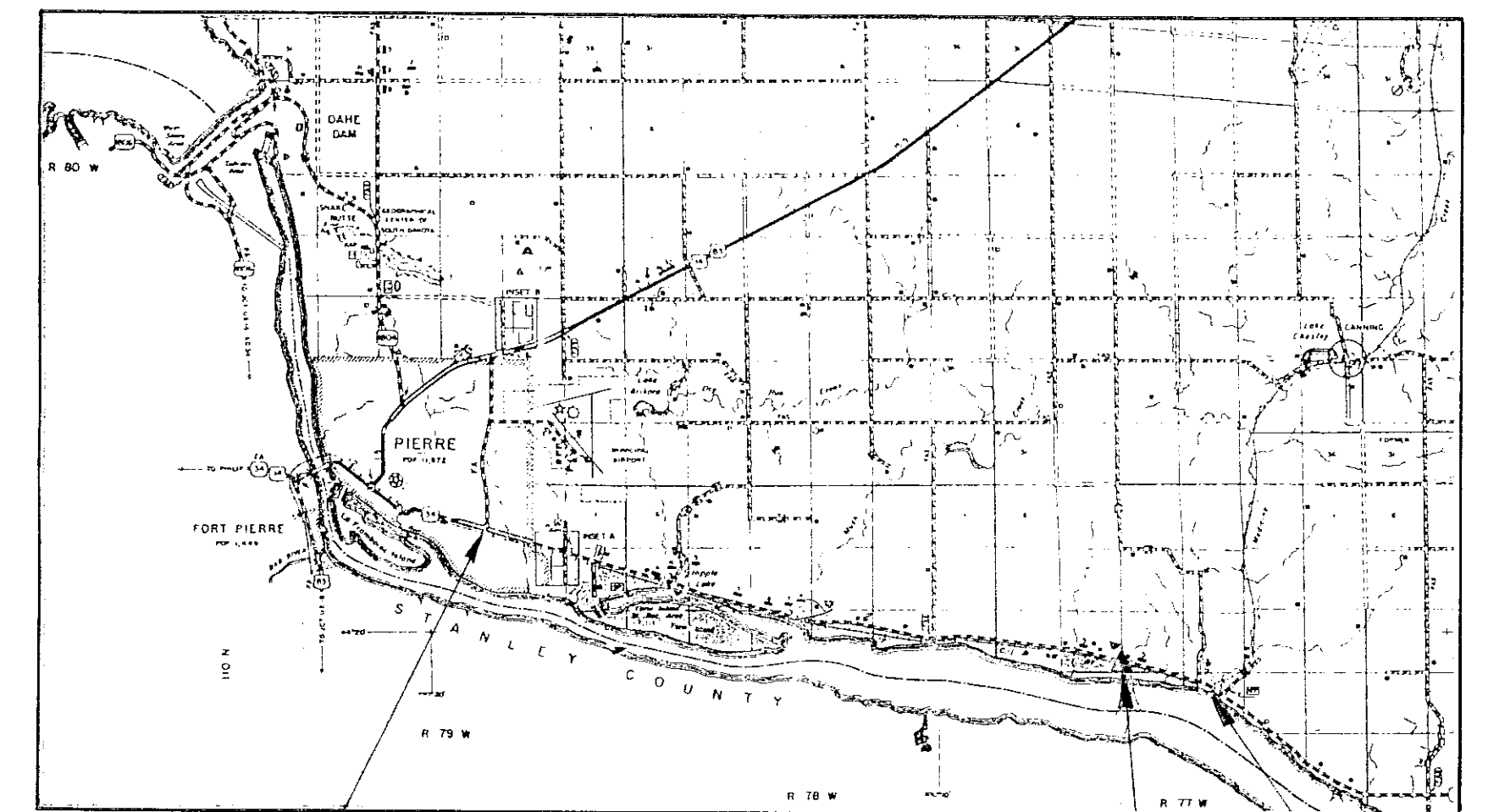
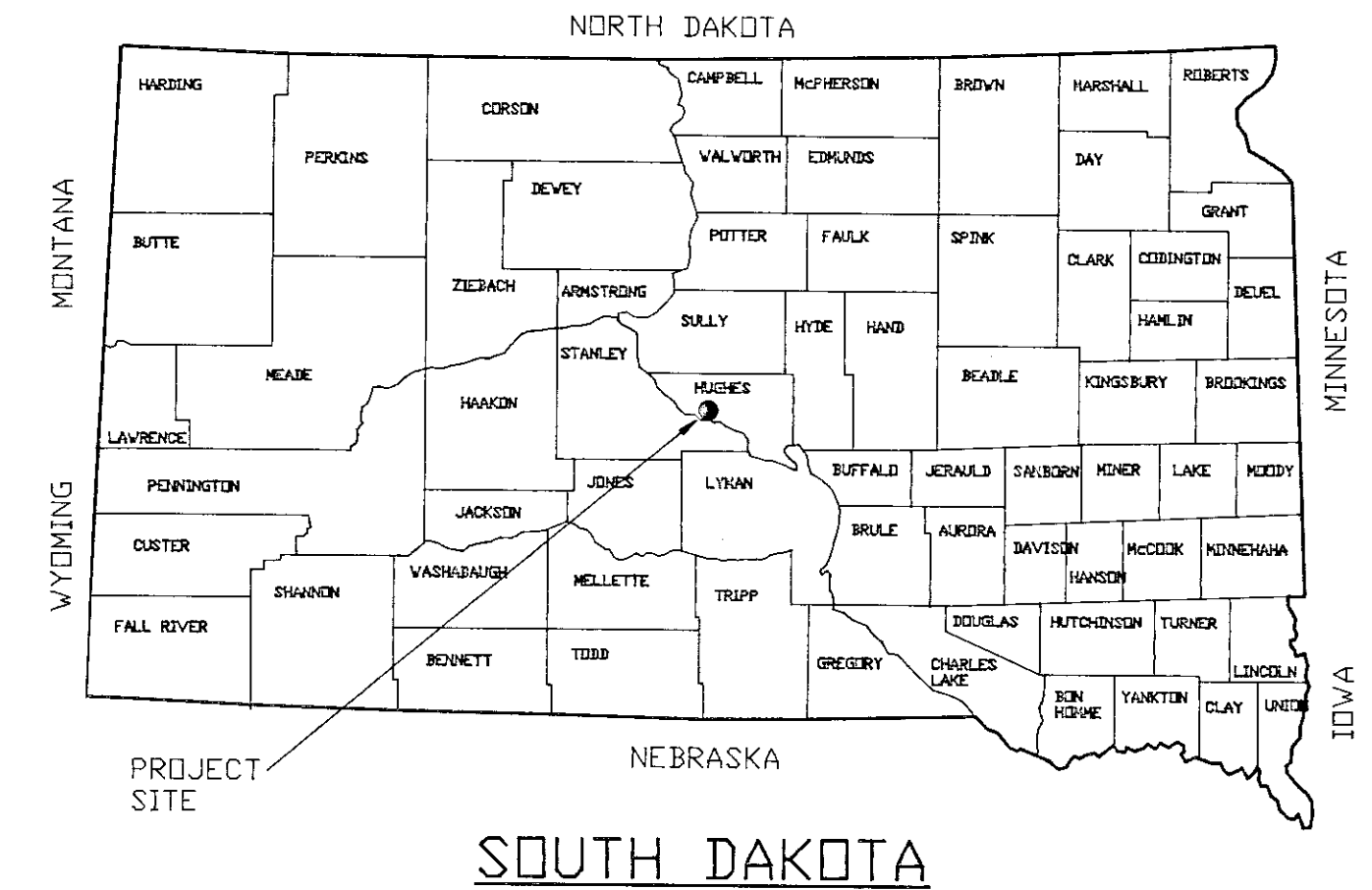
## PROJECT

## ARIKARA WETLAND SECTIONS 16,17,20 & 21, T 110 N, R 77 W, HUGHES COUNTY, SOUTH DAKOTA

IN COOPERATION WITH  
S.D. DEPT. OF GAME, FISH & PARKS  
&  
U.S. ARMY CORPS OF ENGINEERS



VICINITY MAP  
SCALE: 1"=2000'



PARTIAL HUGHES COUNTY  
EAST BYPASS ROAD  
TWIN BRIDGES

MAP POINT "A" IS APPROX. 11  
MILES EAST ON HWY. 34, EAST  
OF JCT. OF EAST SIDE BYPASS  
ROAD IN PIERRE & HWY. 34.

### PROJECT SIGNING



2 SIGN "A" AND 2 SIGN "B" WILL BE PROVIDED BY  
DUCKS UNLIMITED AND DELIVERED TO THE COOPERATING  
AGENCY. THE AGENCY IS RESPONSIBLE FOR INSTALLING  
THE SIGN(S) AT THE LOCATION(S) DESIGNATED ON THE PLANS.

AGENCY CONTACT:  
DON MCCREA  
SD DEPT. OF GAME, FISH & PARKS  
605/773-3658  
COE CONTACT:  
ROD VAUGHN  
LAKE SHARPE OFFICE  
605/245-2255

|              |                              |                          |                         |
|--------------|------------------------------|--------------------------|-------------------------|
|              | DUCKS UNLIMITED INC.         | PROJECT NO. SD-0149-001  | DESIGNED BY: D.J.L.     |
|              | GREAT PLAINS REGIONAL OFFICE | ARIKARA WETLAND          | DRAWN BY: KB            |
| DATE: 3-8-95 | SHEET NO. 1 OF 10            | VICINITY MAP             | SURVEYED BY: B.R.K.     |
|              |                              | APPROVED BY: [Signature] | CHECKED BY: [Signature] |

**SOUTH DAKOTA  
WATER PERMIT NO. 5856-3**

Date of first receipt of application March 14, 1995.

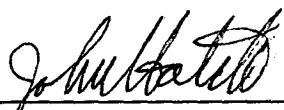
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 5856-3 to South Dakota Department of Game, Fish and Parks, 523 East Capitol, Pierre SD 57501 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5856-3 appropriates a total of 378.1 acre-feet of water annually from runoff and the Missouri River by constructing a series of three pools. Water will be diverted from the Missouri River (Lake Sharpe) at a maximum rate of 6,000 gallons per minute to maintain the pools. The point of diversion from the Missouri River is located in the N 1/2 NW 1/4 Section 21-T110N-R77W. Water will be impounded in portions of the SE 1/4 SE 1/4 Section 17, S 1/2 SW 1/4, SW 1/4 SE 1/4 Section 16, N 1/2 NW 1/4, NW 1/4 NE 1/4 Section 21 and NE 1/4 NE 1/4 Section 20; all in T110N-R77W. This permit authorizes impoundment of water sufficient to maintain water at an elevation of 1425.5 feet mean sea level (fmsl) in the east pool; 1425.0 fmsl in the west pool and 1423.5 fmsl in the south pool. The three pools will impound a total of 179.6 acre feet of water with an additional 199.5 acre-feet to be appropriated to offset evaporation and other losses to maintain the elevations in the pools. Runoff from a relatively small watershed will be captured in the impoundments, however, the quantity of runoff water is not expected to sustain the pool elevations. Therefore, water will be pumped from the Missouri River.
2. The water appropriated shall be used for the purpose of providing habitat for fish and wildlife propagation and may not exceed the amount of water needed for beneficial use for fish and wildlife propagation purposes.
3. The water is to be used during the following described annual period: January 1 - December 31.
4. The date of approval of Permit No. 5856-3 is May 18, 1995.
5. The date from which applicant may claim right is March 14, 1995.
6. One-fifth of the construction is to be completed on or before November 18, 1997.
7. All construction is to be completed on or before May 18, 2000.
8. Water is to be put to beneficial use on or before May 18, 2004.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

**QUALIFICATION**

Water Permit No. 5856-3 authorizes a storage capacity of 179.6 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation.

**WATER MANAGEMENT BOARD**

By:   
John Hatch, Chief Engineer  
Water Rights Division  
Department of Environment and Natural Resources

SEP 6 1995  
date

Form 2A

**Supplemental Information**

(type or print in ink)

**1. Well Information - Proposed construction**

- a) Drill Hole Diameter \_\_\_\_\_ Depth \_\_\_\_\_
- b) Casing Type \_\_\_\_\_ Diameter \_\_\_\_\_ Thickness \_\_\_\_\_
- c) Screen Type \_\_\_\_\_ Diameter \_\_\_\_\_ Thickness \_\_\_\_\_
- d) Gravel Pack Thickness \_\_\_\_\_ Length of Gravel Pack \_\_\_\_\_
- e) Depth to Top of Water Bearing Material \_\_\_\_\_
- f) Depth of Water (ground surface to water level) \_\_\_\_\_
- g) Distance to nearest existing domestic well:
- On applicants property \_\_\_\_\_ On property owned by others \_\_\_\_\_

**2. Dugout Information Estimates**

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

**3. Water Storage Dams**

If the proposed water use system contains one or more storage dams, please furnish the information requested below. The locations of each dam should be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam please give their name and address

DUCKS UNLIMITED, Inc.  
3502 FRANKLIN AVE.  
BISMARCK, ND 58501

b) Freeboard 2 ft.

c) Crest Width 12 ft.

Crest Length 6208 ft.

d) Height 11.5 ft. max.

e) Outlet Dimensions:  
 Pipe diameter 36"

Spillway width NATURAL OUTFLOW  
TO WEST

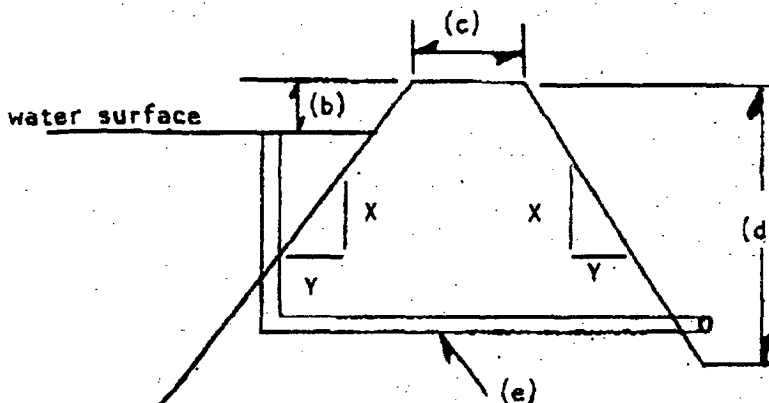
f) X & Y Slope  
 Upstream 3 H : 1 V

Downstream 3 H : 1 V

(EAST & WEST POOLS)  
 Surface Area of Impoundment 77 ac.

Storage 169.6 acre feet

Drainage area above dam 411 ac.



Don A. McCreary  
 Signature of Applicant

NOTES REGARDING  
WATER APPROPRIATION PERMIT

3/14/95

| Pool Name     | Storage<br>at FSL<br>(Ac.-Ft.) | Seasonal<br>Use*<br>(Ac.-Ft.) | Total Amount<br>Required<br>(Ac.-Ft.) | Annual Runoff**<br>From Watershed<br>(Ac.-Ft.) | Pumping<br>From<br>Lake Sharpe<br>(Ac.-Ft.) |
|---------------|--------------------------------|-------------------------------|---------------------------------------|------------------------------------------------|---------------------------------------------|
| East          | 159.3                          | 199.5                         | 358.8                                 | 23.0                                           |                                             |
| West          | 10.3                           | 0.0                           | 10.3                                  | 17.7                                           |                                             |
| South         | 9.0                            | 0.0                           | 9.0                                   | 0.0                                            |                                             |
| <b>TOTALS</b> | <b>178.6</b>                   | <b>199.5</b>                  | <b>378.1</b>                          | <b>40.7</b>                                    | <b>337.4</b>                                |

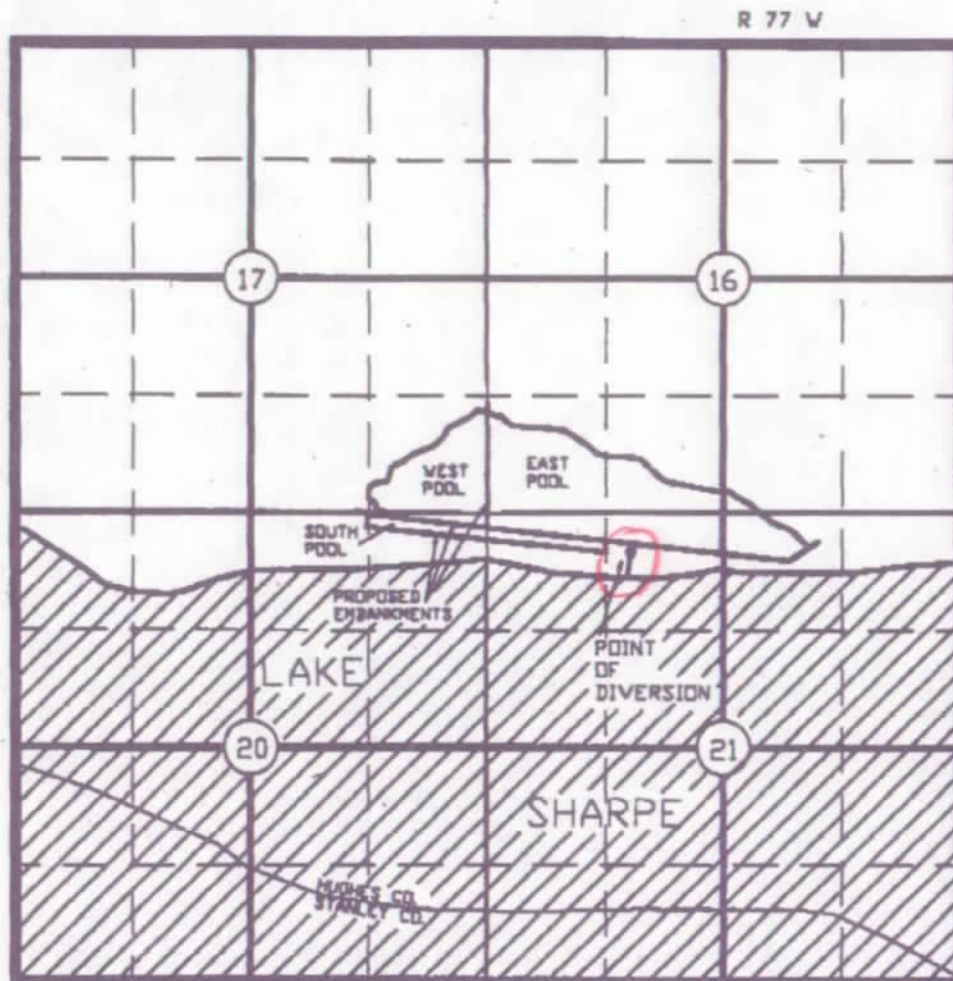
TOTAL AMOUNT OF WATER CLAIMED = 378.1 Acre-Feet

\*Assume 38" Evaporation or 3.17 feet. For 63-acre East Pool,  
evaporation would equal  $3.17 \times 63.0 = 199.5$  acre-feet.

\*\*80% Chance Using Figure 2-10 of SD SCS Engineering Field Manual



## RESERVOIR LOCATION



SCALE: 1"=2000'

ARIKARA WETLAND  
SD-0149-001

# DESIGN REPORT

February 1, 1995



## PROJECT:

ARIKARA WETLAND  
SD-0149-001

## LOCATION:

Sections 16-17, 20-21, T 110 N, R 77 W  
8 miles east of Pierre along Hwy. 34  
Hughes County, South Dakota

## MARSH DATA:

### East Pool

Full Service Level (FSL) @ 1425.5  
63.0 Surface Acres @ FSL  
159.3 Acre-Feet Capacity @ FSL

### West Pool

Full Service Level (FSL) @ 1425.0  
14.0 Surface Acres @ FSL  
10.3 Acre-Feet Capacity @ FSL

### South Pool

Full Service Level (FSL) @ 1423.5  
6.0 Surface Acres @ FSL  
10.0 Acre-Feet Capacity @ FSL

### TOTAL PROJECT

83.0 Surface Acres @ FSL  
179.6 Acre-Feet Capacity @ FSL

## PROJECT DESCRIPTION:

The project as proposed involves the construction or reconstruction of a series of embankments to hold water and create wetland habitat. The project is located immediately adjacent to Lake Sharpe on land owned by the U.S. Army Corps of Engineers and managed by South Dakota Department of Game, Fish and Parks. An abandoned road bed and railroad embankment exist on the area running parallel to Lake Sharpe. The road bed will be reconstructed to serve as one side of the embankment for the primary 63-acre pool. Two smaller pools will be created by enhancing existing embankments. Runoff from a relatively small

watershed will be captured as available, however, the quantity of water is not expected to be enough to sustain a marsh. Therefore, the U.S. Army Corps of Engineers (Lake Sharpe Office) has agreed to provide a portable pump and move additional water from Lake Sharpe into the area as necessary. Runoff from the watershed presently flows overland until finding a few small channels and flowing directly into Lake Sharpe. In addition to providing waterfowl and other wildlife habitat, the project will also serve as a settling basin, thus improving the quality of water flowing into Lake Sharpe from the watershed. The total contributing watershed upstream of the project is approximately 411 acres or 0.64 square miles.

#### PRELIMINARY RISK ASSESSMENT:

The project site is located in a rural area of Hughes County. No residences or other buildings are located downstream between the proposed pools and Lake Sharpe. All flows exiting the project site enter Lake Sharpe directly.

Based on information obtained in the field, data present on the U.S.G.S. quadrangular maps, and the relative small size and capacity of the created marshes, the general public would be in no danger in the unlikely event of a dam failure. No loss of life and minimal or no economic loss would be expected. It would appear that the embankment should not be considered a "dam" as defined in Chapter 74:02:08 "Safety of Dams," since the height from the natural stream bed to the top of the embankment does not exceed 6 feet. However, if the Chapter is applicable, it would be recommended that the proposed dam be classified as a small, low hazard, Category 3 dam per the classification criteria outlined. The product of the maximum storage capacity (292.9 acre-feet) times the effective height (6.0 feet) is 1758 which is less than 3000. Therefore, the minimum spillway design flood would be 25-year frequency per 74:02:08:07.01 and would need to be passed through the spillway without overtopping the embankment.

#### DESIGN:

Regardless of whether Chapter 74:02:08 is applicable or not, the proposed dam is designed to exceed the South Dakota Dam Safety requirements. The primary spillway for the East Pool (63-acres) will pass flows in excess of those produced by a 100-year, 24-hour rainfall event without overtopping the embankment. The East and

West Pools are connected by means of a 24" diameter culvert with a canal gate. If the canal gate is open, flows from the 212-acre West Pool watershed will pass through the culvert into the East Pool and discharge through the East Pool primary spillway. If the canal gate is closed, or inlet flows exceed the capacity of the 24" diameter culvert, flows will exit the West Pool (14-acres) by flowing along the existing abandoned road embankment to the west until reaching an existing concrete box culvert through the road embankment. From the box culvert, flows follow a small channel to Lake Sharpe. This overland flow route from the West Pool will serve as an emergency spillway. The high point in the spillway path is at elevation 1426.0.

A 72" diameter corrugated metal pipe (CMP) riser with a 36" diameter outlet barrel is proposed as the primary spillway from the East Pool. The overflow elevation (crest of the riser) will be at the full service level (FSL) elevation of 1425.5. Since the watershed is not capable of providing enough water to keep the pool full through the brood-rearing season, a pumping ramp will be constructed to allow the pumping of water from Lake Sharpe into the East Pool. From the East Pool, water can be routed into the West Pool and smaller 6-acre South Pool. The South and West Pools will be shallow and provide seasonal type habitat, whereas, the East Pool is designed to be managed as a waterfowl brood marsh. The South Pool has no outside watershed other than the pool area itself. Water flow into the pool will be controlled by a gated structure, thus, no outlet spillway is necessary from the 6-acre pool.

The Soil Conservation Service (SCS) TR-20 Hydrology program was used to determine the discharge at various reservoir stages with respect to time. The program uses accepted procedures to develop inflow and outflow hydrographs. The soils in the watershed were classified as Hydrologic Group D and a SCS Hydrologic Curve Number of 92 was used. Also, the antecedent moisture condition was assumed to be 2. The data used is considered to be conservative. The primary spillway capacity was calculated by comparing discharges developed by the weir flow formula and formulas for calculating head loss through corrugated metal pipe. A total discharge curve for the primary spillway is attached.

The following is a relationship between peak inflows, corresponding outflows, and reservoir elevations for the East Pool using the

previously-mentioned methods of analysis. As stated, the South Pool inflows are controlled by a gated structure and the West Pool inflows will either pass through the East Pool structure or along a natural overflow spillway to the west.

| <u>EVENT</u> | <u>PEAK<br/>INFLOWS*</u> | <u>MAXIMUM WATER<br/>SURFACE ELEVATION*</u> | <u>FREEBOARD<br/>AVAILABLE*</u> | <u>TOTAL<br/>DISCHARGE*</u> |
|--------------|--------------------------|---------------------------------------------|---------------------------------|-----------------------------|
| 5 YR         | 322 CFS                  | 1425.99                                     | 1.51 FT                         | 21 CFS                      |
| 10 YR        | 394 CFS                  | 1426.08                                     | 1.42 FT                         | 28 CFS                      |
| 25 YR        | 482 CFS                  | 1426.18                                     | 1.32 FT                         | 36 CFS                      |
| 50 YR        | 551 CFS                  | 1426.27                                     | 1.23 FT                         | 43 CFS                      |
| 100 YR       | 637 CFS                  | 1426.38                                     | 1.12 FT                         | 52 CFS                      |

\*Assumes gate between East and West Pools is closed.

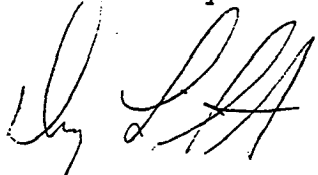
Primary Spillway(Riser) Crest Elevation @ 1425.5

Top of Compacted Embankment Elevation @ 1427.5 + Topsoil

A preliminary set of plans is submitted with the Design Report. A set of standard construction specifications has previously been submitted to the Division of Water Rights for the purposes of permit review.

Dated: February 1, 1995

Submitted By:

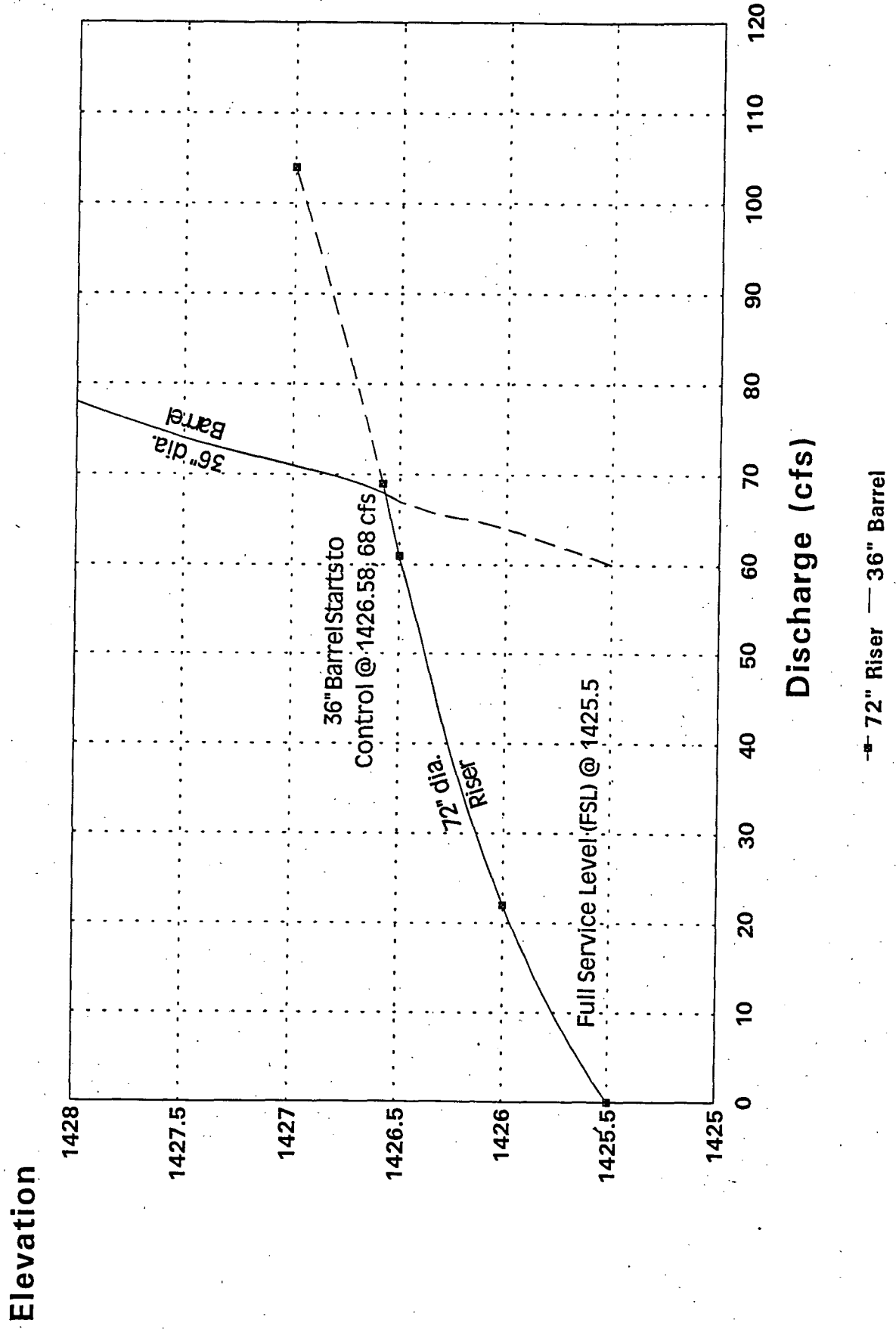


Doug Lipetzky, P.E.

PE-4499

# ARIKARA WETLAND - EAST POOL

## Discharge Curve





## DEPARTMENT OF GAME, FISH AND PARKS

Foss Building  
523 East Capitol  
Pierre, South Dakota 57501-3182



Arikara Wetland  
Water Permit Application #5856-3  
Dept. of GFFP

Ducks Unlimited Project with 3 pools

East Pool

Top of Dam Elev. - 1427.5

Full Service Level (FSL) - 1425.5

Surface Area @ FSL - 63 Acres

Capacity @ FSL - 159.3 Acre-Feet

Height = 6 feet

Too Small  
No P&S Review

West Pool

Top of Dam Elev. - 1427.5

Full Service Level (FSL) - 1425.0

Surface Area @ FSL - 14.0 Acres

Capacity @ FSL - 10.3 Acre-Feet

East Pool

Top of Dam Elev. - 1427.5

Full Service Level (FSL) - 1423.5

Surface Area @ FSL - 6 Acres

Capacity @ FSL - 10 Acre-Feet

These embankments do not meet the definition of "Dam" in Safety of Dams Rules, Chapter 74:02:08. If so, they would be small size Cat. 3 dams with 25 year frequency as Minimum Spillway Design. Ducks Unlimited designed the project to pass a 100 year event.



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

April 24, 1995

Doug Lipetzky, P.E.  
Regional Engineer  
Ducks Unlimited, Inc.  
3502 Franklin Avenue  
Bismarck, ND 58501-0761

Dear Mr. Lipetzky:

We have reviewed the plans and specifications for the Arikara Wetland Project in Hughes County. The embankments involved in the project are not defined as dams pursuant to Safety of Dams Rules Chapter 74:02:08. Therefore, approval of the plans is not required. However, this letter does not authorize the construction of the Arikara Wetland Project until Water Permit Application No. 5856-3 is approved.

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

Sincerely,

Gale N. Selken, P.E.  
Natural Resources Engineer IV  
for John Hatch, Chief Engineer  
Water Rights Division  
(605) 773-3352

c: Don A. McCrea, Dept. of Game, Fish & Parks

REPORT ON  
WATER PERMIT APPLICATION NO. 5856-3  
SD DEPARTMENT OF GAME, FISH & PARKS  
April 7, 1995

Water Permit Application No. 5856-3 has been filed by the South Dakota Department of Game, Fish & Parks to appropriate a total of 378.1 acre-feet of water from runoff and the Missouri River by constructing a series of three pools. Water will be impounded in portions of the SE 1/4 SE 1/4 of Section 17, S 1/2 SW 1/4, SW 1/4 SE 1/4 of Section 16, N 1/2 NW 1/4, NW 1/4 NE 1/4 of Section 21 and the NE 1/4 NE 1/4 of Section 20; all in T110N-R77W. The water will be used to provide habitat for wildlife propagation.

Discussion:

The Arikara Wetland Project is a cooperative effort between the South Dakota Department of Game, Fish and Parks, Ducks Unlimited, Inc., and the U.S. Army Corps of Engineers. The project has been designed by Ducks Unlimited to reconstruct a series of old road and railroad embankments to create wetland habitat on land owned by the Corps of Engineers and managed by the Department of Game, Fish & Parks. The project will be located immediately adjacent to the Missouri River (Lake Sharpe) and water will be pumped from the Missouri River to supplement runoff from the contributing watershed.

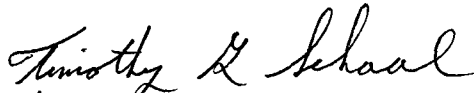
The embankments will not have a height greater than 6 feet; therefore, according to the definition in our Safety of Dams Rules, Chapter 74:02:08 they will be too small to be considered a "dam". Review and approval of plans and specifications will not be required. However, if they were large enough they would be classified as small size Category 3, Low Hazard dams since they are located immediately adjacent to the Missouri River. The minimum spillway design flood would be a 25 year frequency event. Ducks Unlimited has designed the project to safely pass the runoff produced by a 100 year frequency event from the 411 acre watershed.

The Arikara Wetland Project will have a combined total of 83 surface acres and 179.6 acre-feet of storage capacity. Water Permit Application No. 5856-3 appropriates a total of 378.1 acre-feet of water to provide and additional 199.5 acre-feet of water to offset evaporation and maintain the desired pool elevations.

Conclusion:

1. Water Permit Application No. 5856-3 should be approved since unappropriated water is available from the contributing watershed and the Missouri River and approval will not have any adverse effects on existing Water Permits/Rights.

2. The embankments for this project do not meet the size requirement for the Safety of Dams Rules, Chapter 74:02:08 to be applicable; however, the project is designed to exceed the requirements.

  
Timothy G. Schaal, P.E.  
Natural Resources Engineer III

Approved by:

  
Gale N. Selken, P.E.  
Natural Resources Engineer IV

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT  
APPLICATION NO. 5856-3, South Dakota Department of Game, Fish and Parks**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Environment and Natural Resources concerning Water Permit Application No. 5856-3, South Dakota Department of Game, Fish and Parks, c/o Don A. McCrea, 523 East Capitol Avenue, Pierre, SD 57501.

The Chief Engineer is recommending APPROVAL of Application No. 5856-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualification:

Water Permit No. 5856-3 authorizes a storage capacity of 179.6 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation.

See report on application for additional information.

A handwritten signature in black ink, appearing to read "John Hatch", written in a cursive style.

JOHN HATCH, Chief Engineer

*for* April 20, 1995



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

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

April 24, 1995

Don A. McCrea  
SD Department of Game, Fish & Parks  
523 East Capitol Avenue  
Pierre, SD 57501

Dear Mr. McCrea:

Water Permit Application No. 5856-3 for fish and wildlife propagation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Capital Journal printed at Pierre, SD (Ph # 605-224-7301). For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. The newspaper has been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Eric Gronlund  
Natural Resources Engineer  
605 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.

c: Tim Olson, SD Department of Game, Fish & Parks



DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES

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

April 24, 1995

Capital Journal  
PO Box 878  
Pierre, SD 57501-0878

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5856-3 to be published twice. Please publish the first notice on May 1, 1995, with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is South Dakota Department of Game, Fish and Parks, c/o Don A. McCrea, 523 East Capitol Avenue, Pierre, SD (Ph # 605-773-3385).

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. No action may be taken on the permit application until proof of publication has been received.

Sincerely,

*Eric Gronlund*  
Eric Gronlund  
Natural Resources Engineer  
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

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

No. \_\_\_\_\_

Date \_\_\_\_\_

We are in receipt of your letter of \_\_\_\_\_ enclosing Notice of Hearing to Appropriate Water by Application No. \_\_\_\_\_ which was first published in our issue of \_\_\_\_\_. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Newspaper

Instruction to Newspaper - Publish first Notice on May 1, 1995, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 5856-3 to Appropriate Water

Notice is given that the South Dakota Department of Game, Fish and Parks, 523 East Capitol Avenue, Pierre, SD 57501 has filed an application for a water permit to appropriate a total of 378.1 acre-feet of water annually from runoff and the Missouri River by constructing a series of three pools. Water will be diverted from the Missouri River (Lake Sharpe) at a maximum rate of 6,000 gallons per minute to maintain the pools. The point of diversion from the Missouri River is located in the N 1/2 NW 1/4 Section 21-T110N-R77W. Water will be impounded in portions of the SE 1/4 SE 1/4 Section 17, S 1/2 SW 1/4, SW 1/4 SE 1/4 Section 16, N 1/2 NW 1/4, NW 1/4 NE 1/4 Section 21 and the NE 1/4 NE 1/4 Section 20; all in T110N-R77W. This application requests impoundment of water sufficient to maintain water at an elevation of 1425.5 feet mean sea level (fmsl) in the east pool; 1425.0 fmsl in the west pool and 1423.4 fmsl in the south pool. The three pools will impound a total of 179.6 acre-feet of water with an additional 199.5 acre-feet to be appropriated to offset evaporation and other losses to maintain the elevations in the pools. Runoff from a relatively small watershed will be captured in the impoundments, however, the quantity of runoff water is not expected to sustain the pool elevations. Therefore, water will be pumped from the Missouri River. Water is to be used to provide habitat for wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5856-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the chief engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and chief engineer. The applicant must file a petition if contesting the chief engineer's recommendation. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by May 18, 1995.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Division address to request copies of information pertaining to this application. Nettie H. Myers, Secretary, Department of Environment and Natural Resources.

**PROOF OF PUBLICATION**

STATE OF SOUTH DAKOTA )  
 County of Hughes ) ss

I, Peggy Warner

certify that the attached printed Notice was  
 taken from the Capital Journal

printed and published in Pierre

County of Hughes and State of

South Dakota. The notice was published in  
 the newspaper on the following two dates:

May 1, 1995

May 8, 1995

Cost of Printing: 52.53

Peggy Warner  
 (Signature)

Legal ad. representative  
 (Title)

May 9, 1995  
 (Date Signed)

No. 8433 2tdly 5/1, 5/8  
**NOTICE OF APPLICATION**  
**NO. 5856-3 to Appropriate**  
**Water**

Notice is given that the South Dakota Department of Game, Fish and Parks, 523 East Capitol Avenue, Pierre, SD 57501 has filed an application for a water permit to appropriate a total of 378.1 acre-feet of water annually from runoff and the Missouri River by constructing a series of three pools. Water will be diverted from the Missouri River (Lake Sharpe) at a maximum rate of 6,000 gallons per minute to maintain the pools. The point of diversion from the Missouri River is located in the N 1/2 NW 1/4 Section 21-T110N-R77W. Water will be impounded in portions of the SE 1/4 SE 1/4 Section 17, S 1/2 SW 1/4, SW 1/4 SE 1/4 Section 16, N 1/2 NW 1/4, NW 1/4 NE 1/4 Section 21 and the NE 1/4 NE 1/4 Section 20; all in T110N-R77W. This application requests impoundment of water sufficient to maintain water at an elevation of 1425.5 feet mean sea level (fmsl) in the east pool; 1425.0 fmsl in the west pool and 1423.5 fmsl in the south pool. The three pools will impound a total of 179.6 acre-feet of water with an additional 199.5 acre-feet to be appropriated to offset evaporation

and other losses to maintain the elevations in the pools. Runoff from a relatively small watershed will be captured in the impoundments, however, the quantity of runoff water is not expected to sustain the pool elevations. Therefore, water will be pumped from the Missouri River. Water is to be used to provide habitat for wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5856-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the chief engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

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in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Division address to request copies of information pertaining to this application. Nettie H. Myers, Secretary, Department of Environment and Natural Resources.





**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

SEP 6 1995

John Cooper, Secretary  
SD Department of Game, Fish & Parks  
523 East Capitol  
Pierre, SD 57501

Dear Mr. Cooper:

Enclosed is Water Permit No. 5866-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

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

Very truly yours,

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

enclosures

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

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

# **REPORT ON INSPECTION OF PERMIT NO. 5856-3**

**DATE OF INSPECTION:** September 24, 2001

Other permit(s) associated with the project: none

**NAME & ADDRESS OF INSPECTION CONTACT:** Paul Coughlin, South Dakota Department of Game, Fish, and Parks, 523 E. Capitol, Pierre, SD 57501

**RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE:** Employee

**NAME & ADDRESS OF PERMIT HOLDER:** SD GF&P, address as above.

**DIVERSION POINT LEGAL LOCATION:** 1575' E and 360' S of the NW corner of Section 21-T110N-R77W, diversion from the Missouri River.

## **Pump:**

- 1) Make Gaiter/Stingray
- 2) Model #
- 3) Size 12"
- 4) Capacity 7,000 GPM

## **Motor:**

- 1) Make Duetch Diesel
- 2) Model No. F3L912
- 3) Horsepower rating 67 hp

## **POND INFORMATION:**

### **WEST POND**

- 1) Height to top of embankment 4.5 feet
- 2) Top of embankment width 12 feet
- 3) Embankment length 2,400' embankment "A" and 920' embankment "B".
- 4) Approx. storage 10.3 ac-ft
- 5) Date constructed: 1995
- 6) Inlet tubes:
  - a) diameter 24 inches
  - b) type cmp
  - c) valved yes
  - d) valve type Waterman C-105B gate
  - e) location on structure in embankment "B" 90' N of intersection with embankment "A".

## EAST POND

- 1) Height to top of embankment 5.5 feet
- 2) Height to primary spillway 3 feet
- 3) Top of embankment width 12 feet
- 4) Embankment length 3,812' embankment "A" and 920' embankment "B".
- 5) Approx. storage 159.3 ac-ft
- 6) Date constructed: 1995
- 7) Outlet tubes:
  - a) diameter 36" tube with 72" diameter riser.
  - b) type cmp
  - c) valved no
  - d) location on structure in embankment "A" 1,550' E of intersection with embankment "B".

## SOUTH POND

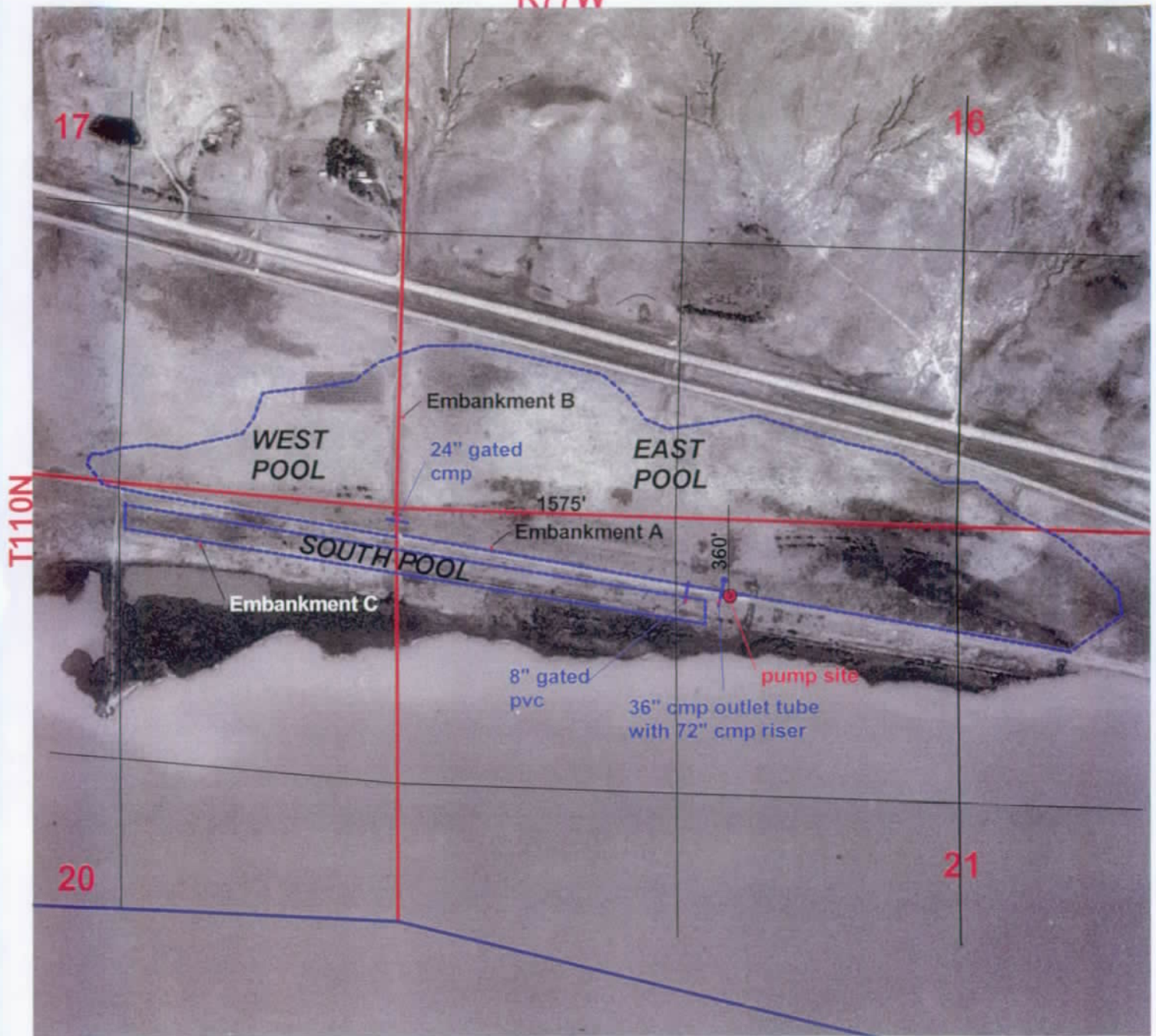
- 1) Height to top of embankment 4.5 feet
- 2) Top of embankment width 12' on embankment "A" and 10' on embankment "C".
- 3) Embankment length 3,050' embankment "A" and 2,780' embankment "C".
- 4) Approx. storage 10 ac-ft
- 5) Date constructed: 1995
- 6) Inlet tubes:
  - a) diameter 8 inches
  - b) type pvc
  - c) valved yes
  - d) valve type Agri-Drain Valtterra Gate Valve
  - e) location on structure in embankment "A" 1,400' E of intersection with embankment "B".

## PERMIT QUALIFICATIONS AND REGULATIONS:

- 1) Special qualifications to permit being abided by yes
- 2) All structures, wells and lands on map yes

# WATER PERMIT NO. 5856-3 SD DEPARTMENT OF GAME, FISH, AND PARKS

R77W



SCALE

1000 0 1000 2000 3000 Feet

Lynn Beck  
Natural Resources Engineer Specialist  
Water Rights Program, DENR  
October 4, 2001

*Lynn Beck*

South Dakota Department of  
Environment and Natural Resources



Protecting South Dakota's Tomorrow ... Today



**Permit No. 5856-3**  
**Missouri River - Water District**

**Report Of Examination Of Works And/Or Application of Water To Beneficial Use**

TO: Chief Engineer, Water Rights Program, DENR, Foss Bldg., Pierre, SD 57501

I have this day, September 24, 2001 made a thorough examination of the water use system constructed by SD Department of Game, Fish, and Parks of 523 E. Capitol, Foss Bldg., Pierre, SD 57501 holder of Permit No. 5856-3, bearing the priority of March 14, 1995 authorizing the diversion of 13.38 cu. ft. per second and/or storage of 179.6 acre-feet of the waters of Missouri River and runoff for providing habitat for fish and wildlife propagation purposes, in Hughes County.

I have to report on the conditions of the same as follows:

A. Works used to divert the water:

GaitEr/Stingray 12-inch pump with a 7,000-gpm maximum capacity but will be run at a maximum of 6,000 gpm. The motor is a 67 horsepower Duetch diesel model number F3L912.

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

56' of 24" diameter cmp with a Waterman C-105B gate to fill west pond from the east pond and 49' of 8" diameter pvc with an Agri-Drain Valterra gate valve to fill south pond from the east pond.

C. Works used to apply water to beneficial use:

Three ponds to store water for fish and wildlife propagation. The west pond stores 10.3 acre-feet of water, the east pond stores 159.3 acre-feet of water, and the south pond stores 10 acre-feet of water. The east pond has an outlet consisting of a 72" cmp riser and a 36" outlet tube.

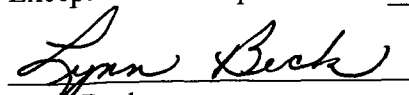
The system is in the following condition good. The point of diversion is located 1,575' E and 360' S of the NW corner of Section 21, T110N-R77W in the NE¼ NW¼ Section 21. The works are capable of diverting and conveying to the place of use 13.38 cu. ft. per second of water and/or storage of 179.6 acre feet of water which is to be used for providing habitat for fish and wildlife propagation. Water has been put to beneficial use to the maximum extent as follows:

Three ponds to store water for fish and wildlife propagation. The east pond stores 159.3 acre-feet of water and is located in portions of the SW¼ SW¼, SE¼ SW¼, and the SW¼ SE¼ Section 16; portions of the NW¼ NE¼, NE¼ NW¼, and the NW¼ NW¼ Section 21. The west pond stores 10.3 acre-feet of water and is located in the SE¼ SE¼ and SW¼ SE¼ Section 17; NE¼ NE¼ Section 20. The south pond stores 10 acre-feet of water located in the NE¼ NE¼ Section 20, NE¼ NW¼ and NW¼ NW¼ Section 21. All in T110N-R77W.

The license should be issued for 13.38 cfs and/or 179.6 acre-feet of storage.

Applicable permit qualifications have been complied with: yes

Exceptions to compliance are: none

  
Lynn Beck

10/9/2001  
Date

Natural Resources Engineer  
DENR, Water Rights Program

# STATE OF SOUTH DAKOTA

## WATER LICENSE NO. 5856-3

(1) South Dakota Department of Game, Fish and Parks, 523 E Capitol, Pierre SD 57501 made Application No. 5856-3, March 14, 1995 for a water permit to impound 179.6 acre-feet of water from runoff and the Missouri River, Hughes County, South Dakota for fish & wildlife propagation purposes. Permit No. 5856-3, with a priority date of March 14, 1995 was approved May 18, 1995 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before May 18, 2000 and for the application to beneficial use of said water on or before May 18, 2004.

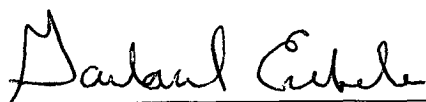
(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the three pools and is entitled to impound 179.6 acre-feet of water for beneficial use with sufficient water annually to maintain the water level in the east pool at an elevation of 1425.5 feet mean sea level (fmsl); west pool at an elevation of 1425.0 fmsl and south pool at an elevation of 1423.5 fmsl. The location of the Missouri River diversion point is 1,575 feet east and 360 feet south of the northwest corner of Section 21-T110N-R77W (NE ¼ NW ¼).

Water is diverted from the river at a rate of 6,000 gpm to the following three points:

- The east pond stores 159.3 acre-feet of water and is located in portions of the S ½ SW ¼, SW ¼ SE ¼ Section 16; NW ¼ NE ¼, N ½ NW ¼ Section 21-T110N-R77W
- The west pond stores 10.3 acre-feet of water and is located in portions of the S ½ SE ¼ Section 17; NE ¼ NE ¼ Section 20-T110N-R77W.
- The south pond stores 10 acre-feet of water and is located in portions of NE ¼ NE ¼ Section 20; N ½ NW ¼ Section 21-T110N-R77W.

(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use.

(4) Pursuant to South Dakota Water Law 46-5-30.1 the South Dakota Department of Game, Fish and Parks, 523 E Capitol, Pierre SD 57501 the holder and/or owner of Water Right No. 5856-3 is issued a license to appropriate water, the right to impound 179.6 acre-feet of water from runoff and the Missouri River with sufficient water annually to maintain the water level to the outlet elevations with a priority date of March 14, 1995 from the location specified in (2) of this license for fish & wildlife propagation. This license is subject to any limitations or qualifications listed in Water Right No. 5856-3 and subject to South Dakota State Law.



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

DEC 07 2001

date





**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182  
[www.state.sd.us/denr](http://www.state.sd.us/denr)

DEC 07 2001

5856-3

SD Department of Game, Fish & Parks  
% John Cooper  
523 E. Capitol  
Pierre, SD 57501

Dear Mr. Cooper:

Enclosed is Water License No. 5856-3. This is the final water right document completing your process of obtaining a Water Right.

As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

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

enclosures