VESTED WATER PERMIT NO. 1751-1

Name of Applicant: **Arlie Davis**

Address: **Box 249, Dupree SD 57623** Phone: **605 365-5334**

Amount of Water Claimed: **188 AF** Total Acres: **na**

Source of Water Supply: **runoff – Pretty Creek**

Water to be used for: **recreation, fish & wildlife propagation, livestock** County: **Ziebach**

Type of Waste Disposal System:

Location: **7 miles northeast of Dupree**

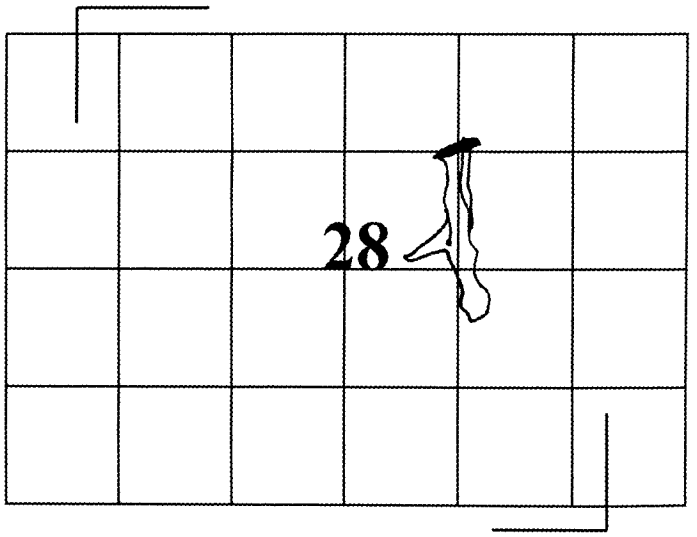
PRIORITY Date Received: **6-1-2001** Fee: **$15**

Corrected Application Received:: **7-9-2001** Period of Annual Use: **Jan 1 – Dec 31**

Remarks: **claims a 1940 priority date**

Diversion Point: **approximate center of NE ¼ Sec 28-T14N-R21E**

Water Impounded: **S ½ NE ¼, NE ¼ SE ¼ Sec 28-T14N-R21E**



Depth of Well: **NA**

Well Driller: : **NA**

Remarks:

Type of Map: **topo**

Prepared by: **Roger Smith, PE**

Reviewed and the Number Assigned on: **7-9-2001** By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

SOUTH DAKOTA
VESTED WATER RIGHT NO. 1751-1

Date of Receipt of Claim June 1, 2001.

Date of Validation September 10, 2001.

The Chief Engineer, on behalf of the Water Management Board validated Vested Water Right Claim No. 1751-1 for Arlie Davis, Box 249, Dupree SD 57623 with the following limitations, conditions and qualifications:

1. Vested Water Right No. 1751-1 authorizes impoundment of 188 acre-feet of water from runoff on Pretty Creek by constructing a dam located in the approximate center of the NE ¼ Section 28 with water impounded in the S ½ NE ¼, NE ¼ SE ¼ Section 28; all in T14N-R21E. This permit authorizes impoundment of sufficient water to maintain water at the outlet elevation of 2316.0 feet mean sea level.

2. The appropriated water is used for recreation, fish & wildlife propagation and livestock and may not exceed the amount of water needed for beneficial use.

3. The water is to be used during the following annual period: January 1 – December 31.

4. The priority date of the Vested Water Right is January 1, 1940.

5. The water use system has been constructed and water has been applied to beneficial use.

6. Water Rights obtained in compliance with the laws of the State of South Dakota must not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. Vested Water Right No. 1751-1 is validated for a storage capacity of 188 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation of 2,316 feet mean sea level.

2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

WATER MANAGEMENT BOARD

By: Garland Erbele

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

SEP 2 1 2001
date



FORM 2: Application for uses other than irrigation
(type or print)

Mail to:	(office use only)
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. 1751-1 Hydrologic Unit 10130306 Basin Moreau River Newspaper West River Progress, Dupree

JUN 2001 WATER RIGHTS PROGRAM Pierre, SD

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

Check use(s) of water:

___	Municipal	___	Suburban Housing	x	Recreational	___	Institutional
___	Rural Water System	___	Commercial	x	Fish & Wildlife	___	Geothermal Heat
___	Domestic (over 18 gpm)	___	Industrial	x	Other **livestock**		

Type of Application: (check one) ___ **New** x **Vested Right** (Use predates Mar 2, 1955) ___ **Future Use Reservation**
___ **Place to Beneficial Use Water Reserved by Future Use Permit No.** ___
___ **Amendment/Correction to Permit No.** ___

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

1. Name of Applicant **Arlie Davis** Phone **605-365-5334**
   (check one) x Owner ___ Tenant/lessee
   Mailing Address **Box 249, Dupree, SD 57623** State ___
   (Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed ___ *CFS or ___ **GPM **188** ***AF
   (*Cubic Feet per Second) (**Gallons per Minute) (***Acre Feet - storage capacity of dam/dugout or annual use if applicable)
3. Source of water supply **Runoff** – Pretty Creek
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) approximate center of **NE1/4 of section 28 – T. 14 N., R. 21 E.** Water Impounded: S½ NE¼, NE¼ SE¼ Sec 28 - T14N - R21E County **Ziebach**
5. County or counties where water will be used **Ziebach**
6. Annual period during which water is to be used **Year round** Jan 1 - Dec 31
7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

See attached design report

STATE OF SOUTH DAKOTA) SS
County of HUGHES)

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

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

Applicant's signature Arlie Davis

Subscribed and sworn to before me this 10TH day of MAY 20 01

PAUL COUGHLIN NOTARY PUBLIC STATE OF SOUTH DAKOTA Seal

MY COMMISSION EXPIRES AUGUST 24, 2001

Notary Public signature

4-2000

Affidavit of Water Use

Form 2B
(Type or Print in Ink)

Note: This Form is supplemental to Form 2 and is to be used when an affidavit is needed to document historical water use, primarily with vested right claims.

Affidavit Of Construction Of Water Use System And Application Of Water To Beneficial Use

Name of Applicant (Same as Form 2) Arlie Davis

Mailing Address Box 249 (Street, RR or Box) Dupree (City) SD (State) 57623 (Zip Code)

A. Notice of Appropriation _____ Date of Posting _____

Date of Recording _____ Recording Date _____

B. Date of start of construction of water supply system _____

C. Date that water was first applied to beneficial use 1940

D. Name of owner of original water supply system B Silverman

E. Amount of water originally applied to beneficial use 188 AF

F. Present use of water - amount of water now being used 188 AF

Date that this water was first used _____

G. Chronological History of Water Use

JUL 2001 WATER RIGHTS PROGRAM Pierre, SD

Attach to this Form 2B any copies of notices, postings, filings, publications, affidavits, or other records that apply. You may also attach any written statement by you, or by others, that you deem pertinent.

State of South Dakota)
SS
County of Ziebach)

I, Arlie Davis (print or type) the applicant, certify that I have read the foregoing and that the matters therein are true.

Signed Arlie Davis

Subscribed and sworn to before me July 3, 19 2001

Notary Public

I, the undersigned do hereby certify that I know about the water use system described above, that I have read the foregoing, and that the matters therein are true.

Arlie Davis, 19 2001
(Print Name)

_____, 19 _____
(Print Name)

9-96

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

№ 416848

Pierre, June 6, 20 01

RECEIVED OF Game, Fish & Parks, 523 E Capitol, Pierre, SD 57501 (Arlie Davis)
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. 1751-1 to Appropriate Water, to construct and to put water to beneficial use	15	00
Fee for Application for Permit No. _____ to Appropriate Water, for Future Use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No.		
Fee for Filing Transfer Form		
Fee for Filing Extension Request		
Fee for		
payment was non-cash voucher		
(Any Other Work Provided by Law) **Total**	15	00

By Darland Erbele
Chief Engineer

gm

P & S Review | 8/2/01 | TGS

Water Permit Application No. 1751-1
Arlie Davis

Top of Dam Elev. - 2321
2nd Spillway Elev. - 2317.5
P. Spillway Elev. - 2316
D/S Toe Elev. - 2300
Ht. = 21 ft

Cat. 3 - Low Hazard Dam

Normal Storage Capacity - 188
Int. Storage Capacity - 254
Max Storage Capacity - 490

Int. Capacity x Eff Ht. = 254 x 17.5 = 4445 > 3000 ∴ 50yr
Minimum Spillway Design

From USGS WRI 80-80 "Tech. for Est. Flood Peaks ... in SD"
DA = 3.125 mi² = 2000 Ac
Slope = 60 ft/mi
SI = 2.50

$Q_{50} = 106 A^{.63} S^{.45} SI^{-.69}$
$= 106(3.125)^{.63}(60)^{.45}(2.50)^{-.69}$
$= 106(2.05)(6.31)(0.5314)$
$= 730$ cfs

$Q_{100} = 132(A)^{.65} S^{.46} SI^{-.67}$
$= 132(3.125)^{.65}(60)^{.46}(2.50)^{-.67}$
$= 132(2.10)(6.58)(0.5412)$
$= 990$ cfs

Secondary Spillway Flow

$Q = C L H^{3/2}$ C = 2.6
$= 2.6(40)(3.5)^{1.5}$ L = 40
$= 680$ cfs H = 3.5'

Ducks Unlimited uses the NRCS TR-20 model to route a Q100 peak = 919 cfs through the primary & secondary spillway with 1.55 ft of freeboard remaining.

Section 74:02:08:09

1. Topo Map - OK
2. Dam Axis Profile - OK
3. Dam Max X-Sec. - OK
4. Area Capacity - OK
5. Outlet Details - OK
6. Spillway Rating - OK
7. Spillway Details - OK
8. Specs. Std DV - OK
9. EPP - N/A Cat. 3 - OK

NRCS Annual Yield

CN = 78 DA = 2000 ISo = 2.0

80% chance - 0.20
0.20 x 2000/12 = 33 Ac-Ft

50% chance - 0.50
0.50 x 2000/12 = 83 Ac-Ft

10% chance - 2.20
2.20 x 2000/12 = 367 Ac-Ft

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

DESIGN REPORT

For

PRETTY CREEK

ZIEBACH COUNTY, SD (SD-0317-01)

May 24, 2001

Ducks Unlimited, Inc.
2525 River Road
Bismarck, ND 58501

DESIGN REPORT

PROJECT: Pretty Creek – Arlie Davis Ranch
SD -0317-01

LOCATIONS: NE¼ SECTION 28, TWP. 14 N RGE. 21 E
Ziebach County, South Dakota

MARSH DATA: Full Service Level (FSL) @ 2316.0 (mean sea level) *(Existing control 2317.5)*
36.8 Surface Acres @ FSL *(existing acreage at control elevation 49 acres)*
188 Acre-Feet Capacity @ FSL *(existing volume at control elevation 254 acre-feet)*
Maximum Depth -18' top of dam to pipe invert,
-14'from top of dam to estimated original creek bottom.

PROJECT DATA: Top of Dam - elevation 2321.0 *(Existing top elevation 2320.5-2320.8)*
Primary Spillway - elevation 2316.0 *(A primary spillway does not exist)*
Emergency Spillway - elevation 2317.5 *(Existing spillway will be leveled and widened)*
Upstream Berm – 10' wide @ elevation 2316.0
Side Slopes - 3 (horizontal): 1 (vertical) *(existing downstream slope 2:1)*

CLASSIFICATION: Based on the classification criteria outlined in Chapter 74:02:08 "Safety of Dams," it is recommended that the proposed reconstructed dam be classified as a small, Category 3 dam. No loss of life and minimal economic loss is expected should failure occur. The product of the "maximum storage capacity" times the "effective height" is 7500. (490 acre-feet x 15.5')

PRELIMINARY RISK ASSESSMENT: The proposed dam reconstruction is on Pretty Creek, is approximately 1600' upstream of Hwy 65. The highway has 2 –72" reinforced concrete pipes. The top of the roadway at the apparent overflow section is elevation 2308.6. The culverts invert elevation is 2298.0. The available head developed before flows would overtop the roadway is 10.6'. The combined capacity of the structures, calculated assuming tailwater to the top of the pipes, is 607 cfs. Determining impacts to the roadway due to a clear weather breach of the proposed impoundment was not deemed necessary due to the capacity of the structures at the roadway and effects of routing the flood through the available storage upstream of the roadway. A controlled breach of the existing embankment will be required prior to construction. Ducks Unlimited plans on installing a 10" siphon to lower the reservoir as much as possible prior to excavating the existing embankment for structure installation.

PROPOSED PROJECT: The project consists of reconstructing an existing dam and spillway. The existing dam is in poor condition in that the drawdown structure is not functioning and the embankment face is eroded to the point where the dam is in danger of failing. The existing emergency spillway is in good condition with the exception of the natural slope receiving flow from the spillway. Presently the excavated spillway is the only reservoir outlet. It is undersized for larger events and remains saturated due to prolonged runoff events and upstream springs. Erosion has developed immediately downstream of the outlet, advancing to within 100' of the spillway. The project consist of breaching the existing embankment and installing a primary water control structure, effectively lowering the reservoir 1.5' below it's present control. The existing embankment will be excavated to the proposed FSL of 2316.0. New compacted fill

will be installed to form a dam using a portion of the original embankment to act as an upstream berm. The new dam will have a top width of 12' constructed to elevation 2321. All slopes will be constructed to a 3:1 slope.

PRIMARY SPILLWAY: The structure will have fixed level water control capabilities at elevation 2316.0. Variable level water control will be provided by a separate structure having the capability of retaining water at 6" increments between elevations 2316.0 and 2308.0. The riser, acting, as a circular weir will be a 60" 12 gage corrugated metal pipe. The outlet barrel will be a 30", 14 gage corrugated metal pipe at a 0% slope at elevation 2298.0. All corrugated metal pipe will be coated with a 10-mill polymeric film laminate both inside and outside. A protected plunge pool will be located at the discharge end of the outlet pipe.

EMERGENCY SPILLWAY: The emergency spillway will be excavated having a 40' bottom width and 3:1 slopes. The top of the finished spillway grade, after replacing 4" of topsoil, will be 2317.5. The length of the level crest at the spillway centerline is 270'. Flows will outlet into a repaired slope that will deliver flows back to the original creek. A dike containing flows in the spillway will be reconstructed to elevation 2320.0, one foot below the top of the embankment.

HYDROLOGY / HYDRAULICS: A hydrologic analysis of surface water runoff was performed using two methods. A peak discharge was determined from regression equations developed in WATER-RESOURCE INVESTIGATIONS REPORT 80-80 USGS. The NRCS TR-20 METHOD was used to determine the inflow hydrograph. The hydraulic curve number used in the TR-20 METHOD was manipulated to create peak discharges similar to those developed from the regression equation. Other assumptions made in developing inflow hydrographs by the TR-20 METHOD were:

Rain Duration = 1.00
Rain Table # = 1
Antecedent moisture condition = 2

Inflow hydrographs developed from the TR-20 METHOD were routed through the primary and emergency spillways. This yielded outflow hydrographs reveling peak discharges at maximum reservoir elevations corresponding to various runoff events. The following table is a summary of that printout:

PARAMETERS:
WATERSHED – 3.125 SQ MI
TIME OF CONCENTRATION – 2.0 HOURS
CURVE #'s – 71 (5 yr) 72 (10 yr) 74 (25yr) 77 (100 yr)

Event frequency	Rainfall (in)	Runoff (ac-ft)	Peak Inflow (cfs)	Peak Discharge (cfs)	Max WSP (elevation)	Freeboard* (ft)	Flow in E.S. (cfs)
5 yr	2.8	108	172	60	2317.16	3.84	0
10 yr	3.4	176	326	89	2317.82	3.18	<10
25yr	3.8	241	488	121	2318.44	2.56	37
100 yr	4.8	409	919	258	2319.45	1.55	172

*Calculated from top of compacted fill, excluding topsoil. 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. The emergency spillway capacity was estimated from FLOWCOMP, a computer-aided hydraulic program analyzing gradually varied flow profiles in prismatic open channels

using the standard step method.

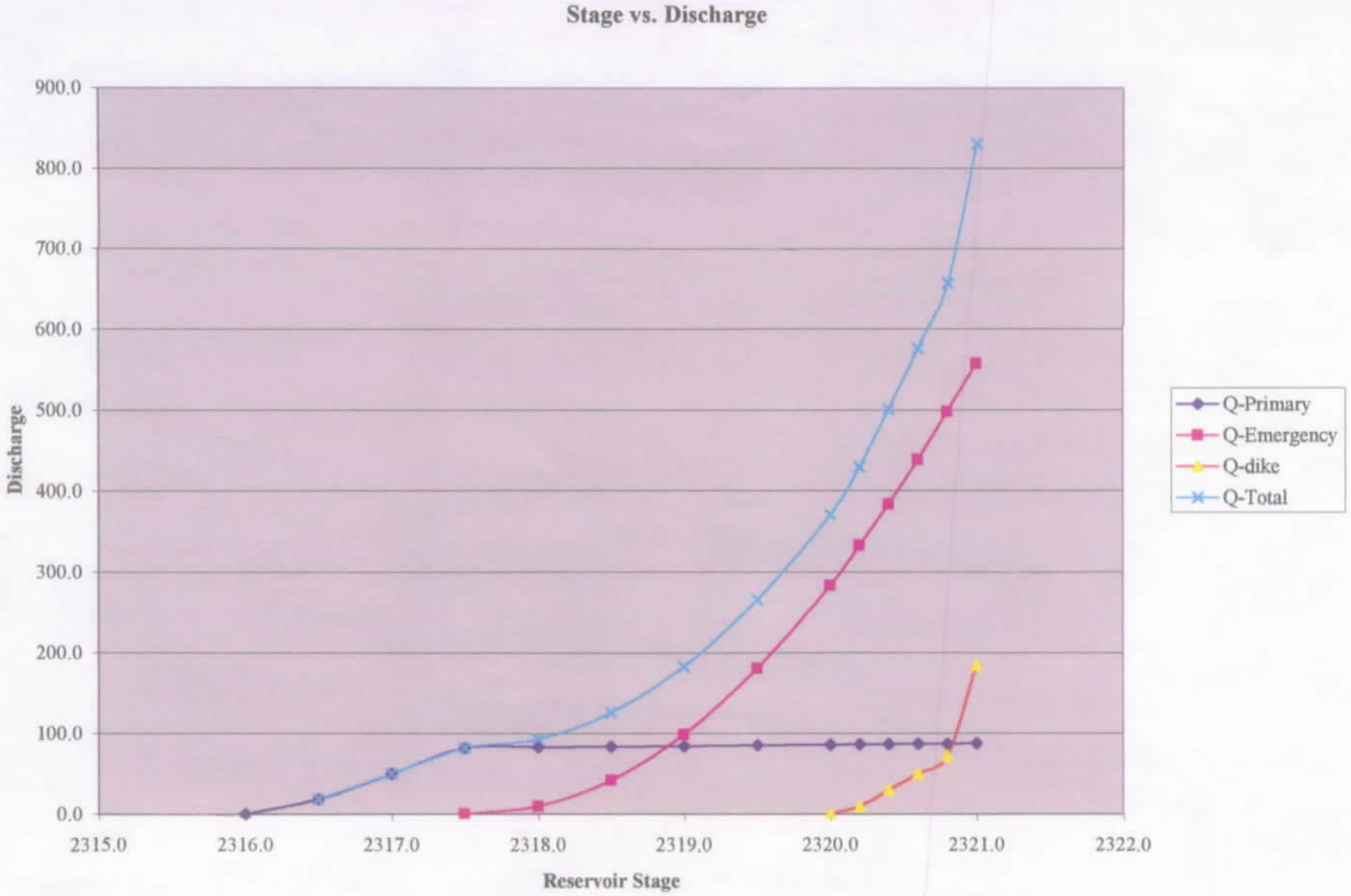
DROUGHT ANALYSIS: It is difficult to determine the frequency in which there will be adequate runoff to sustain the marsh through the brood-rearing period, criteria important to project sponsors. Using NRCS methods, the 80% and 50% annual runoff will generate 33 and 83 acre-feet respectively. The annual requirement assuming an evaporative loss of approximately 3.0 feet is 90 acre-feet. There is evidence that inflows will be supplemented from subsurface contributions. The existing reservoir is actually higher than desired by project sponsors.

SOIL INVESTIGATION: As of this writing a soil investigation has not been completed. A preliminary investigation determined that suitable quantities of acceptable material are likely. A soil investigation report, to be completed in the near future, will be available upon request. The plans will be modified to show the approved borrow areas as well as any other modifications recommended by the geotechnicial consultant.

IMPACTS TO SURROUNDING PROPERTY: The planned construction and subsequent reservoir will be contained within land owned by Arlie Davis and managed by the SD Game, Fish & Parks through a Cooperative Wildlife Agreement.

Dated: May 24, 2001
Submitted By:

Roger Smith, P.E (PE-4325)
Regional Engineer
Ducks Unlimited
Great Plains Regional Office


Stage vs. Discharge
900.0
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
Discharge
2315.0
2316.0
2317.0
2318.0
2319.0
2320.0
2321.0
2322.0
Reservoir Stage
Q-Primary
Q-Emergency
Q-dike
Q-Total

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

June 20, 2001

Arlie Davis
Box 249
Dupree SD 57623

Dear Mr. Davis:

Thank you for submitting the *Application for a Permit to Appropriate Water* for a 188 acre-feet storage dam located in Ziebach county. In order to complete the application, the enclosed Affidavit of Water Use form needs to be completed, signed and notarized. This form documents the historical use of water necessary to file a vested right claim.

If you have any questions, please contact me.

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
605 773-3352

enclosure

c: Paul Coughlin
Dept. of Game, Fish & Parks

File No. **XXX**

Water Rights Division -DENR
Conversation or File Documentation

NAME OF PERSON OR FILE: **Arlie Davis**

ADDRESS: **Box 249** COUNTY: **Ziebach**

DATE: **July 9, 2001** TELEPHONE: **(605)365-5334**

RE: **Affidavit of Construction of Water Use**

I talked to Mr. Davis today about the Affidavit of Water Use he sent in regarding the Vested Right Application for the Ducks Unlimited Project to repair his dam in the NE 1/4 of Sec. 28-T14N-R21E. The Affidavit was signed, but no dates were listed. He said he did not know for sure the date the dam was constructed, but he was born in 1954 and the dam was there before that. I also talked to him about checking our Safety of Dams database, and finding out that his dam (B. Silverman Dam, ID No. SD00581) was inspected on October 29, 1979 along with a Phase I Inspection Report being completed for that inspection. His father, Harold Davis, accompanied the inspectors and the report indicated that the dam was constructed in the early 1940's. Mr. Davis said that sounded correct.

Timothy G. Schaal

Timothy G. Schaal, P.E.
Natural Resources Engineer Specialist
Water Rights Program

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 13, 2001

Arlie Davis
Box 249
Dupree, SD 57623

Dear Mr. Davis:

We have reviewed the plans and specifications for the Ducks Unlimited Project to reconstruct your dam in Ziebach County. Vested Water Right Application No. 1751-1 has been filed for 188 acre-feet of water in a dam located in the NE 1/4 of Section 28-T14N-R21E. The plans and specifications as submitted are approved.

Our review was to determine compliance with the requirements of the Water Management Board Safety of Dams Rules, Chapter 74:02:08. Approval of these plans and specifications does not release you, as owner of the dam, from the responsibility for operating and maintaining the dam in good repair to ensure the safety of the dams.

The B. Silverman Dam (ID No. 581) will be classified as a small size Category 3, Low Hazard dam with a dam height of 21 feet and a normal storage capacity of 188 acre-feet and a maximum storage capacity of 490 acre-feet.

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

Sincerely,

Gale N. Selken, P.E.
Natural Resources Engineer Director
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Roger Smith, Ducks Unlimited
Paul Coughlin, GF&P

REPORT ON
VESTED WATER RIGHT APPLICATION NO. 1751-1
Arlie Davis
August 3, 2001

Vested Water Right Application No. 1751-1 has been filed by Arlie Davis to impound 188 acre-feet of water from runoff in an existing dam located in the NE 1/4 Section 28-T14N-R21E, in Ziebach County. The application also requests impoundment of sufficient water to maintain water at the outlet elevation of 2316 feet mean sea level. The water will be used for recreation, fish and wildlife production and livestock watering. Vested Water Right Application No. 1751-1 has a claimed priority date of January 1, 1940.

Discussion:

The Ducks Unlimited (DU) Project involves reconstruction of an existing dam. The B. Silverman Dam, ID No 581, was inspected on October 29, 1979, as part of the National Dam Safety Program. At that time, it was classified as a significant hazard dam due to its location upstream of Highway 65. Since the original inspection, the highway grade and culvert capacity have been improved. There are now two 72 inch diameter RCP culverts in the highway grade with 10.6 feet of available freeboard and a capacity of approximately 600 cfs. These improvements, along with a lower reservoir level and increased spillway capacity in the DU design, would allow the hazard category for the B. Silverman Dam to be changed from a significant hazard dam to a low hazard dam.

The reconstruction project has been designed by Ducks Unlimited, Inc. The plans and specifications have been reviewed and will be approved; however, reconstruction of the dam can not begin until Vested Water Right Application No. 1751-1 is approved.

The reconstruction project involves removing the old 18 inch CMP primary spillway and replacing it with a 60 inch diameter CMP riser with a 30 inch diameter CMP barrel, reshaping the earthcut secondary spillway and repairing and raising the dam grade 2 feet. The B. Silverman Dam will be 21 feet high with a normal storage capacity of 188 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 490 acre-feet with a reservoir level at the top of dam elevation. A dam of this size and hazard classification is required to have a minimum spillway design capable of passing a 50-year frequency event.

The dam has a drainage area of 3.125 square miles. The dam is designed to have a CMP drop inlet structure with a 60 inch riser and a 30 inch barrel and 5 feet of freeboard as the primary spillway, and a 40 foot wide earthcut spillway with 3.5 feet of available freeboard as the secondary spillway. Ducks Unlimited uses the NRCS TR-20 model to route the inflow through the dam. They route a 100-year event peak of 919 cfs through the structure with 1.0 feet of freeboard remaining.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 33 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 83 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 367 acre-feet.

The B. Silverman Dam is located in the NE 1/4 of Section 28-T14N-R21E on Pretty Creek about 5.5 miles upstream of its confluence with Moreau River. There are no existing Water Permits/Rights on the Pretty Creek between the dam and the Moreau

Conclusions:

1. Water Permit Application No. 1751-1 should be approved since unappropriated water is available and approval should not have any adverse effect on existing Water Permits/Rights.

2. If approved, the low flow bypass requirement for downstream domestic use should be a qualification on Water Permit Application No. 1751-1.

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

Approved by:

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

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
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RECOMMENDATION OF CHIEF ENGINEER FOR VALIDATION OF VESTED WATER

RIGHT APPLICATION NO. 1751-1, Arlie Davis

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 Validation of Vested Water Right Application No. 1751-1, Arlie Davis, PO Box 249, Dupree SD 57623.

The Chief Engineer is recommending VALIDATION of Application No. 1751-1 for 188 acre foot of water in a storage dam because 1) water has been appropriated as described for recreation, fish and wildlife and livestock water use with a priority date of January 1, 1940, 2) the use has been developed without unlawful impairment of existing rights, 3) the use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. Vested Water Right No. 1751-1 is validated for a storage capacity of 188 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation of 2,316 feet mean sea level.

2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

See report on application for additional information.

Garland Erbele

Garland Erbele, Chief Engineer
August 13, 2001

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

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

August 14, 2001

Arlie Davis
Box 249
Dupree, SD 57623

Dear Mr. Davis:

Vested Water Right Application No. 1751-1 for recreational 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 West River Progress printed at Dupree, SD (Ph # 605-365-5145). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

c: Paul Coughlin, GF&P

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

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
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www.state.sd.us/denr

August 14, 2001

West River Progress
Box 158
Dupree, SD 57623-0158

ATTENTION: Legal Public Notice

Enclosed is a Notice of Hearing on Application No. 1751-1 to Validated Vested Water Right to be published twice. Please publish the first notice on August 23, 2001 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 Arlie Davis, Box 249, Dupree, SD 57623 (Ph # 605-365-5334).

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

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

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

No. 1751-1

Date_____
We are in receipt of your letter of August 14, 2001 enclosing Notice of Hearing to Validate Vested Water Right Application No. 1751-1 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 August 23, 2001 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE To Validate
Vested Water Right Application No. 1751-1

Notice is given that Arlie Davis, Box 249, Dupree SD 57623 has filed an application to validate a vested water right claim to impound 188 acre-feet of water from runoff on Pretty Creek by constructing a dam located in the approximate center of the NE ¼ Section 28 with water impounded in the S ½ NE ¼, NE ¼ SE ¼ Section 28; all in T14N-R21E. This application requests impoundment of sufficient water to maintain water at the outlet elevation of 2316.0 feet mean sea level. The water is to be used for recreation, fish and wildlife propagation and livestock water use. The water use has a claimed priority date of January 1, 1940.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends VALIDATION of Vested Water Right Application No. 1751-1 because 1) water has been appropriated as described for recreational, fish & wildlife propagation and livestock watering use with a claimed priority date of January 1, 1940, 2) the use has been developed without unlawful impairment of existing rights, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by September 10, 2001.

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

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of POTTER)

I, DAVID B. CLAUSEN

certify that the attached printed Notice was taken

from the WEST RIVER PROGRESS

printed and published in DUPREE

County of ZIEBACH and

state of South Dakota. The notice was published

in the newspaper on the following two dates:

AUGUST 23, 2001

AUGUST 30, 2001

Cost of Printing $42.12

David B Clausen
(Signature)

PUBLISHER
(Title)

August 30, 2001
(Date Signed)

Subscribed and sworn to before me this 30th day of August, 2001

Carol D. Clausen, Notary Public

State of South Dakota
Commission expires
Oct. 15, 2004

AUG 2001
WATER RIGHTS
PROGRAM
Pierre, SD

NOTICE TO VALIDATE VESTED WATER RIGHT APPLICATION NO. 1751-1

Notice is given that Arlie Davis, Box 249, Dupree SD 57623 has filed an application to validate a vested water right claim to impound 188 acre-feet of water from runoff on Pretty Creek by constructing a dam located in the approximate center of the NE1/4 Section 28 with water impounded in the S1/2 NE1/4, NE1/4 SE1/4 Section 28; all in T14N-R21E. The application requests impoundment of sufficient water to maintain water at the outlet elevation of 2316.0 feet mean sea level. The water is to be used for recreation, fish and wildlife propagation and livestock water use. The water use has a claimed priority date of January 1, 1940.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends VALIDATION of Vested Water Right Application No. 1751-1 because 1) water has been appropriated as described for recreational, fish and wildlife propagation and livestock watering use with a claimed priority date of January 1, 1940, 2) the use has been developed without unlawful impairment of existing rights, 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 Managment Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Captiol, 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 September 10, 2001

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

(Published in the West River Progress, August 23 and 30, 2001).

REPORT ON INSPECTION OF PERMIT NO. 1751-1

DATE OF INSPECTION: **November 17, 2003**

NAME & ADDRESS OF INSPECTION CONTACT/ **Arlie Davis**
RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: **owner**

NAME & ADDRESS OF PERMIT HOLDER: **Arlie Davis, Box 249, Dupree, SD 57623**

DIVERSION POINT LEGAL LOCATION: 1320 ft. south & 1320 ft. west of the NE corner of Sec. 28-T14N-R21E (center of NE ¼).

DAM INFORMATION:

1) Height to crest **21** feet
2) Height to primary spillway **16** feet
3) Height to secondary spillway **17.5** feet
4) Crest width **12** feet
5) Crest length **700** feet
6) Spillway length **XXX** feet
7) Spillway width **40** feet
8) Approx. storage (Normal) **188** acre-feet
9) Approx. storage (Maximum) **490** acre-feet
10) Date constructed: **1940 (repaired in 2001)**

PERMIT QUALIFICATIONS AND REGULATIONS:

1) Soil and water permit lands agree with lands being irrigated and lands listed on permit **N/A**
2) Special qualifications to permit being abided by **yes**
3) All structures, wells and lands on map **yes**
4) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period **N/A**

Form 12

Permit No. 1751-1

Moreau 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, **November 17, 2003**, made a thorough examination of the water use system constructed by **Arlie Davis** of **Box 249, Dupree, SD 57623** holder of Permit No. **1751-1**, bearing the priority of **January 1, 1940** authorizing the storage of **188** acre-feet of the waters of **runoff (Pretty Creek)** for **recreation, fish & wildlife propagation, and livestock watering** purposes, in **Ziebach** County.

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

A. Works used to divert the water:
A 21 foot high earthen dam with a normal storage capacity of 188 acre-feet.

B. Works used to transport water to place of use:
N/A

C. Works used to apply water to beneficial use:
A 21 foot high earthen dam with a normal storage capacity of 188 acre-feet.

The system is in the following condition **good**. The point of diversion is located **1320 ft. south & 1320 ft. west of the NE corner of Sec. 28-T14N-R21E (center of NE ¼).** The works are capable of storing **188** acre-feet of water which is to be used for **recreation, fish & wildlife propagation, and livestock watering**. Water has been put to beneficial use to the maximum extent as follows:

A 21 foot high earthen dam with a normal storage capacity of 188 acre-feet.

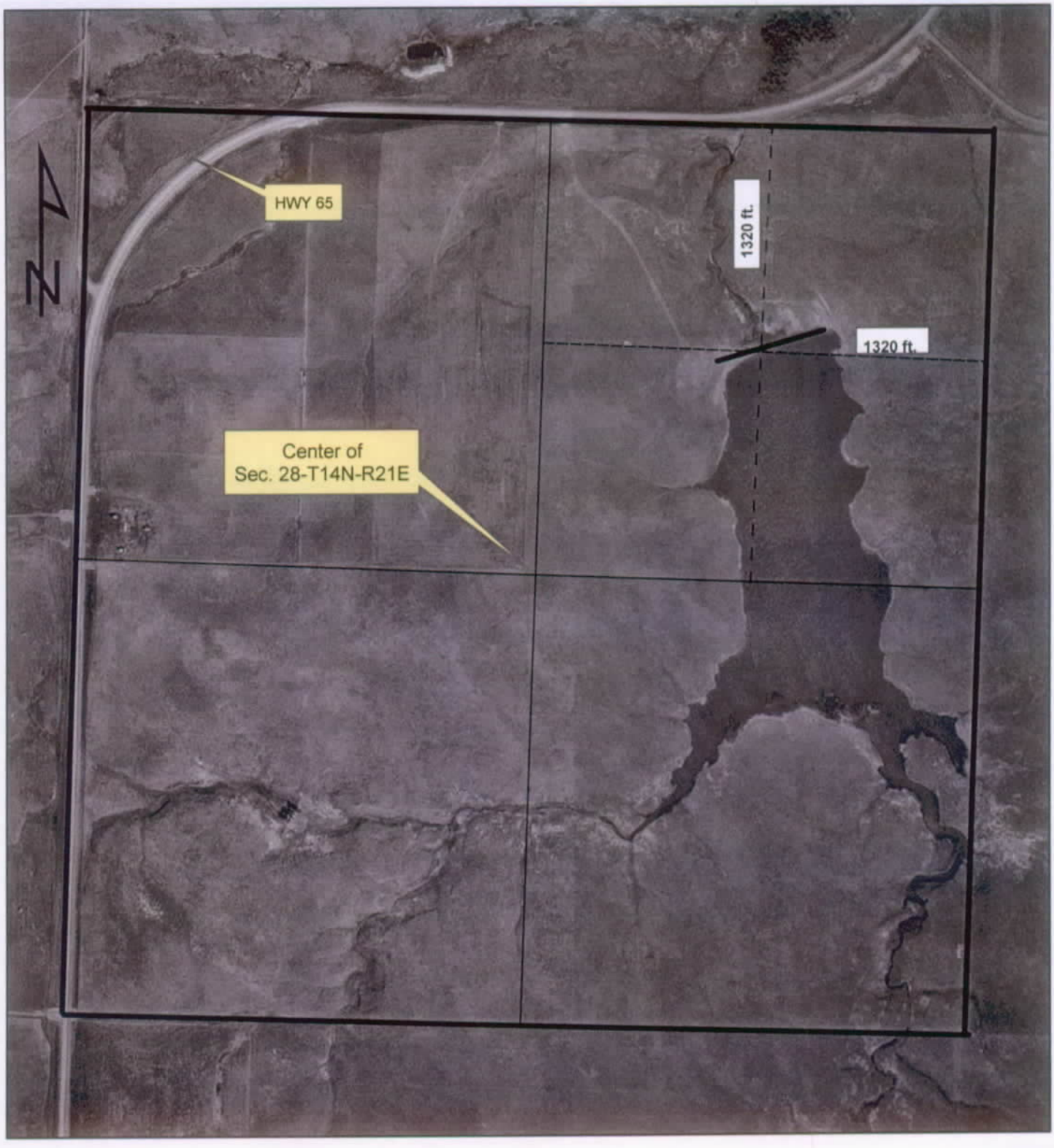
and the license should be issued for **188** acre-feet of storage.

Applicable permit qualifications have been complied with: Yes **X**

Exceptions to compliance are: **none** Date Report Completed: **January 16, 2004**

Timothy G. Schaal, P.E.
Natural Resources Engineer Specialist
DENR, Water Rights Program

Water Permit Application No. 1751-1



South Dakota Department of Environment and Natural Resources

Protecting South Dakota's Tomorrow ... Today

Timothy G. Schaal 1/16/04

Timothy G. Schaal, P.E.
Natural Resources Engineer Specialist
Water Rights Program

STATE OF SOUTH DAKOTA

VESTED RIGHT WATER LICENSE NO. 1751-1

(1) Arlie Davis, Box 249, Dupree SD 57623 made Application No. 1751-1, for validation of a vested right claim to impound 188 acre feet of water from runoff on Pretty Creek, Ziebach County, South Dakota for fish and wildlife propagation and livestock watering purposes. Vested Water Right No. 1751-1 was validated September 10, 2001 with a priority date of January 1, 1940.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Vested Water Right No. 1751-1 is issued a license, bearing a priority date of January 1, 1940 to impound 188 acre feet of water.

The location of the storage dam (spillway) is 1,320 feet south and 1,320 feet west of the northeast corner of Section 28-T14N-R21E (center of NE ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 1751-1, including the following now applicable qualifications:

- Vested Water Right No. 1751-1 is validated for a storage capacity of 188 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation of 2,316 feet mean sea level.

- Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

Garland Erbele

FEB 03 2004

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

date

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

FEB 03 2004

Arlie Davis
Box 249
Dupree, SD 57623

Dear Mr. Davis:

Enclosed is your Vested Right Water License No. 1751-1. As long the water is put to a beneficial use, as stated in the state water laws, you have a continuing right to use of the water.

Sincerely,

Garland Erbele

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

enclosure

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

SEP 2 1 2001

Arlie Davis
Box 249
Dupree, SD 57623

Dear Mr. Davis:

Enclosed is your Validated Vested Water Right No. 1751-1. As long the water is put to a beneficial use, as stated in the state water laws, you have a continuing right to use of the water.

Sincerely,

Garland Erbele

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

enclosures

cc: Roger Smith, Ducks Unlimited

DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

PRETTY CREEK–ARLIE DAVIS RANCH

~~West 1/2~~ NE¼ of SECTION 28, T–14–N, R–21–E

ZIEBACH COUNTY, SOUTH DAKOTA

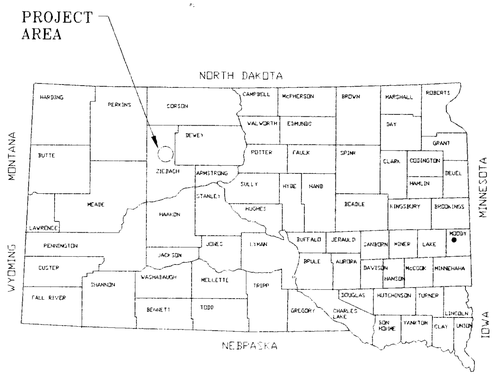
IN COOPERATION WITH

SOUTH DAKOTA GAME, FISH, AND PARKS DEPT.

AND

ARLIE DAVIS

(PRIVATE LANDOWNER)



SOUTH DAKOTA

SPECIFICATIONS

101 GENERAL CONDITIONS
102 SUPPLEMENTAL CONDITIONS
201 MOBILIZATION
202 SITE PREPARATION
203 EXCAVATION
204 EMBANKMENT CONSTRUCTION
205 WATER
206 WATER CONTROL STRUCTURE INSTALLATION
206A WATER CONTROL STRUCTURE AND CULVERT APPURTENANCES
207 CULVERT INSTALLATION
208 CAST–IN–PLACE REINFORCED CONCRETE
209 RIPRAP PLACEMENT

PLAN INDEX

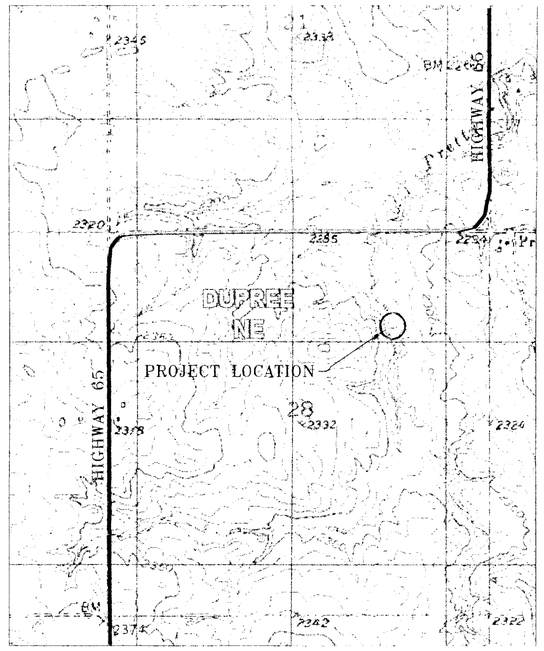
1 LOCATION MAPS
2 PROJECT TOPOGRAPHY
3 SITE EXCAVATION PLAN
4 SITE EMBANKMENT PLAN
5 WATER CONTROL STRUCTURE – PLAN & PROFILE
6 WATER CONTROL STRUCTURE – DETAILS

QUANTITIES

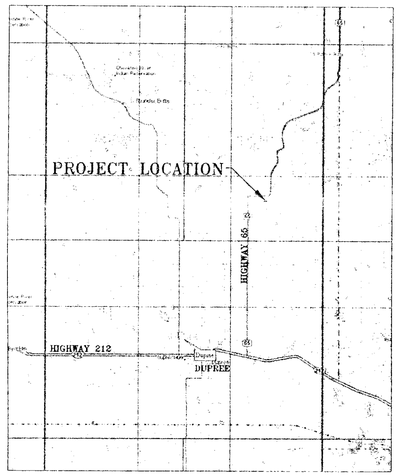
MOBILIZATION	1 L.S.
SITE PREPARATION (6")	417 CY–P
EXCAVATION	
EXISTING DAM EXCAVATION	1187 CY (INC.)
STRUCTURE EXCAVATION	4093 CY (INC.)
EMBANKMENT CONSTRUCTION	
EMBANKMENT RECONSTRUCTION	4707 CY–S
STRUCTURE BACKFILL	10074 CY–S
	14781 CY–S
WATER (APPROX. 10 GAL./C.Y.)	148± M–GAL.**
WATER CONTROL STRUCTURE INSTALLATION	
60"ø CMP RISER	1 EA.
AGRI–DRAIN INLINE DRAWDOWN STRUCTURE	1 EA.
CULVERT INSTALLATION	
30"ø CMP	96.5 LF–P
12"ø PVC	33 LF–P
RIPRAP PLACEMENT (CLASS I)	14 CY–P
RIPRAP PLACEMENT (CLASS II)	39 CY–P

*INCLUDES 15% FOR SHRINKAGE
**ONLY ACTUAL QUANTITY OF WATER USED WILL BE PAID FOR.

NOTES TO CONTRACTOR:
Stated quantities listed above are estimated quantities for design & bidding purposes. Final as-staked quantities derived from the construction staking data will establish quantities for final payment. Project construction staking & final as-staked quantity calculations have not been completed prior to the bid solicitation.



PROJECT LOCATION MAP
NOT TO SCALE



PROJECT LOCATION MAP
NOT TO SCALE

JUN 2001

AGENCY CONTACT:
PAUL COUGHLIN
SD GF&P
605/854-9105

LANDOWNER:
ARLIE DAVIS
(605)-365-5334

DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO. SD-0317-01	ARLIE DAVIS RANCH -PRETTY CREEK- LOCATION MAPS	DESIGNED BY: PCS
			DRAWN BY: BDS
			SURVEYED BY: GLJ
			CHECKED BY: BRK
DATE: 5-14-2001	SHEET NO. 1 OF 6	APPROVED BY:	APPROVED BY:

1751-1

1751-1

DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

PRETTY CREEK–ARLIE DAVIS RANCH

~~West 1/2~~ NE¼ of SECTION 28, T-14-N, R-21-E

ZIEBACH COUNTY, SOUTH DAKOTA

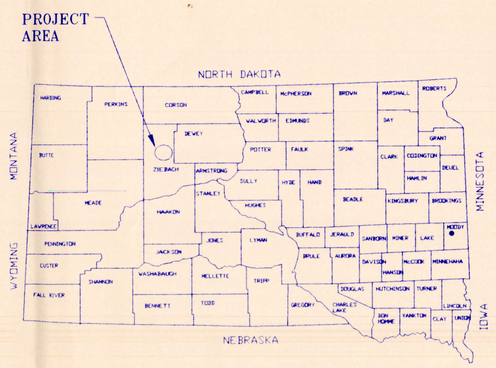
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SOUTH DAKOTA

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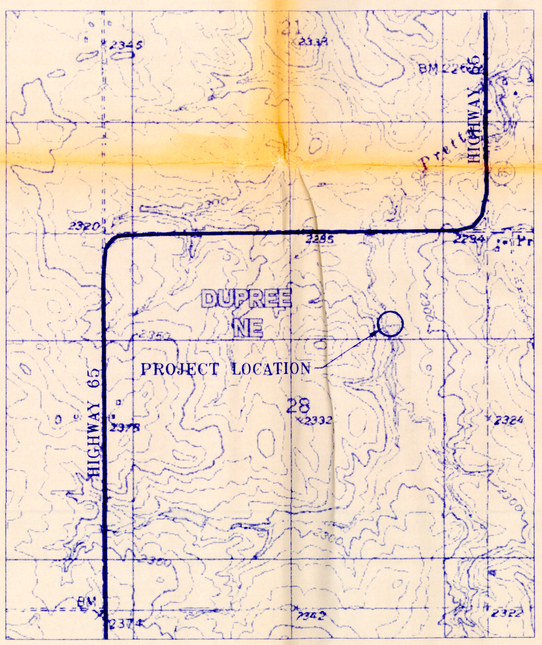
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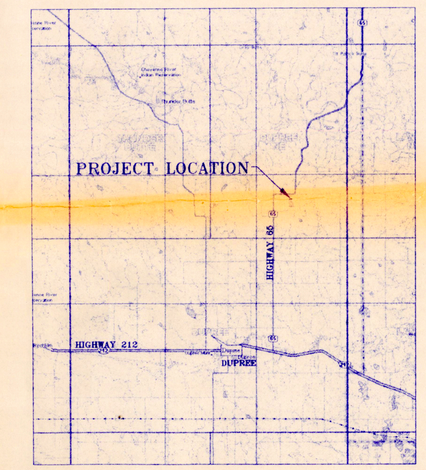
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**ONLY ACTUAL QUANTITY OF WATER USED WILL BE PAID FOR.

NOTES TO CONTRACTOR:
Staked quantities listed above are estimated quantities for design & bidding purposes. Final as-staked quantities derived from the construction staking data will establish quantities for final payment. Project construction staking & final as-staked quantity calculations have not been completed prior to the bid solicitation.



PROJECT LOCATION MAP
NOT TO SCALE



PROJECT LOCATION MAP
NOT TO SCALE

JUN 2001
WATER RIGHTS
PROGRAM
Pierre, SD

AGENCY CONTACT:
PAUL COUGHLIN
SD GF&P
605/854-9105

LANDOWNER:
ARLIE DAVIS
(605)-365-5334

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

PROJECT NO. SD-0317-01
ARLIE DAVIS RANCH
-PRETTY CREEK-
LOCATION MAPS

DESIGNED BY: RCS
DRAWN BY: BDS
SURVEYED BY: GLJ
CHECKED BY: BRK

DATE: 5-14-2001
SHEET NO. 1 OF 6
APPROVED BY:
APPROVED BY:

1751-1

1751-1

1751-1

N

0 100 200 400

RECONSTRUCT EMERGENCY SPILLWAY.
SEE SHEET 3

EXCAVATE & RECONSTRUCT
EXISTING EMBANKMENT.
SEE SHEETS 3 & 4

INSTALL WATER CONTROL STRUCTURE.
SEE PLAN & PROFILE, SHEET 5

△ DU-4-2001
N 16,413,350.69
E 981,294.58
ELEV. 2359.953
LAT 45-09-00.25794 N
LONG 101-33-20.48844 W

18" CMP
INLET 2315.99
(TO BE REMOVED)

FENCE LINE

FSL 2316.0

N 16,415,000
N 16,414,000
N 16,413,000
N 16,412,000
N 16,411,000
N 16,410,000

E 983,000
E 982,000
E 981,000
E 980,000

AREA/CAPACITY CHART

ELEVATION	ACRES	ACC. VOLUME (acre-feet)
2301	0.0	0.0
2302	0.1	0.1
2303	0.67	0.4
2304	1.64	1.6
2305	2.95	3.9
2306	4.31	7.5
2307	6.09	12.7
2308	8.38	20.0
2309	10.99	29.6
2310	14.12	42.2
2311	17.01	57.8
2312	20.49	76.5
2313	23.71	98.6
2314	27.37	124.2
2315	31.67	153.7
2316 (FSL)	36.79	187.9
2317	45.19	228.9
2318	53.84	278.4
2319	64.00	337.3
2320	76.00	407.3
2321	90.00	490.3

2317.5 2.54

NOTE: THE EXISTING CONTROL ELEVATION IS 2317.5

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

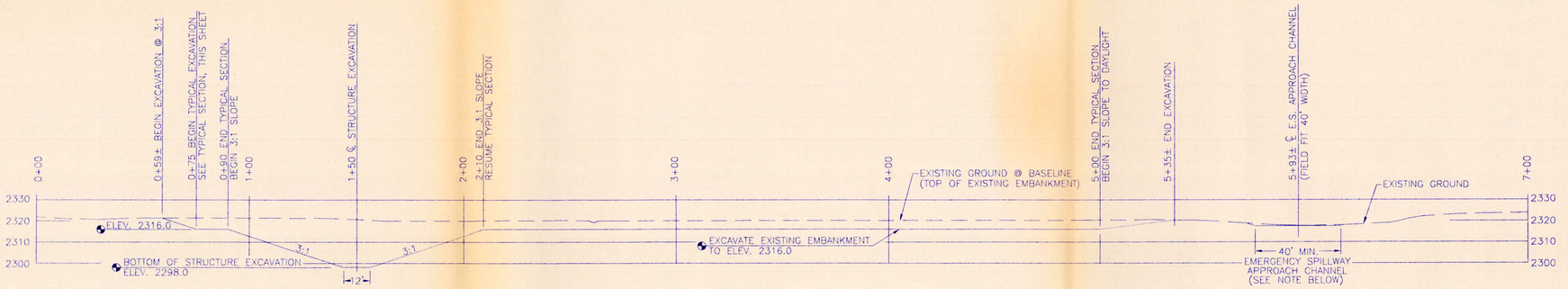
PROJECT NO. SD-0317-01

PRETTY CREEK
PROJECT TOPOGRAPHY

DESIGNED BY: RCS
DRAWN BY: BDS
SURVEYED BY: GLJ
CHECKED BY:

DATE: 5-14-2001
SHEET NO. 2 OF 6
APPROVED BY:
APPROVED BY:

1751-1

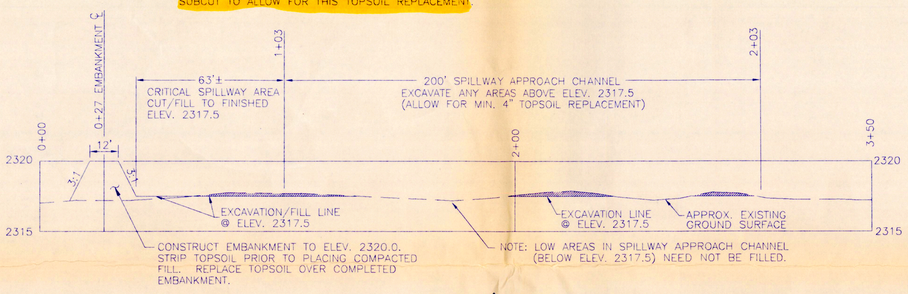


NOTE: INTENT OF EMERGENCY SPILLWAY APPROACH CHANNEL IS TO EXCAVATE ANY AREAS ABOVE ELEV. 2317.5 OVER A MIN. WIDTH OF 40' AT LENGTH SHOWN ON PLAN VIEW.

EXCAVATION OF EXISTING EMBANKMENT – PROFILE (A 3|3)

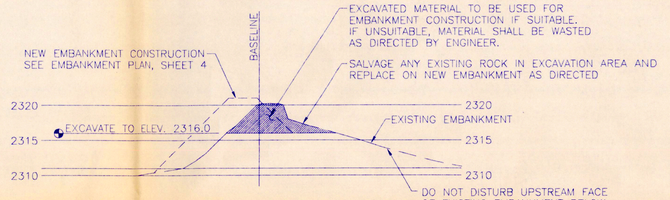
SCALE: 1" =30' HORIZ. & VERT.

NOTE: EMERGENCY SPILLWAY ELEV. 2317.5 IS FINISHED ELEVATION INCLUDING 4" TOPSOIL REPLACEMENT. EXCAVATION SHOULD BE SUBCUT TO ALLOW FOR THIS TOPSOIL REPLACEMENT.



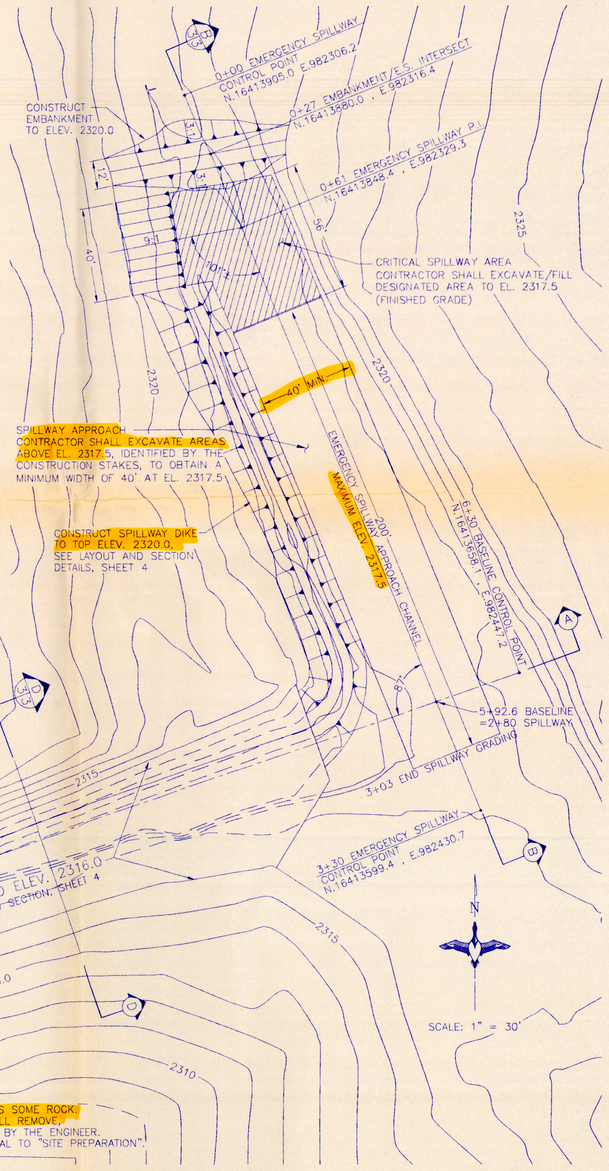
PROFILE (B 3|3)

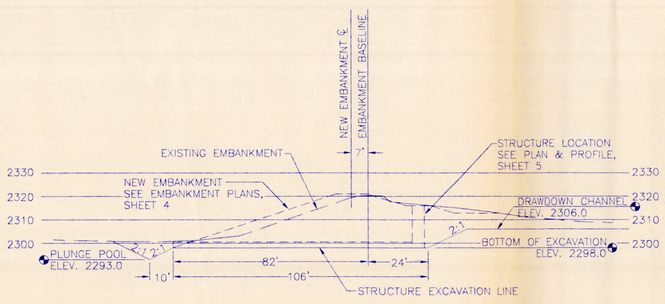
SCALE: 1" =30' HORIZ.
1" =5' VERT.



EXCAVATION OF EXISTING EMBANKMENT – TYPICAL SECTION (D 3|3)

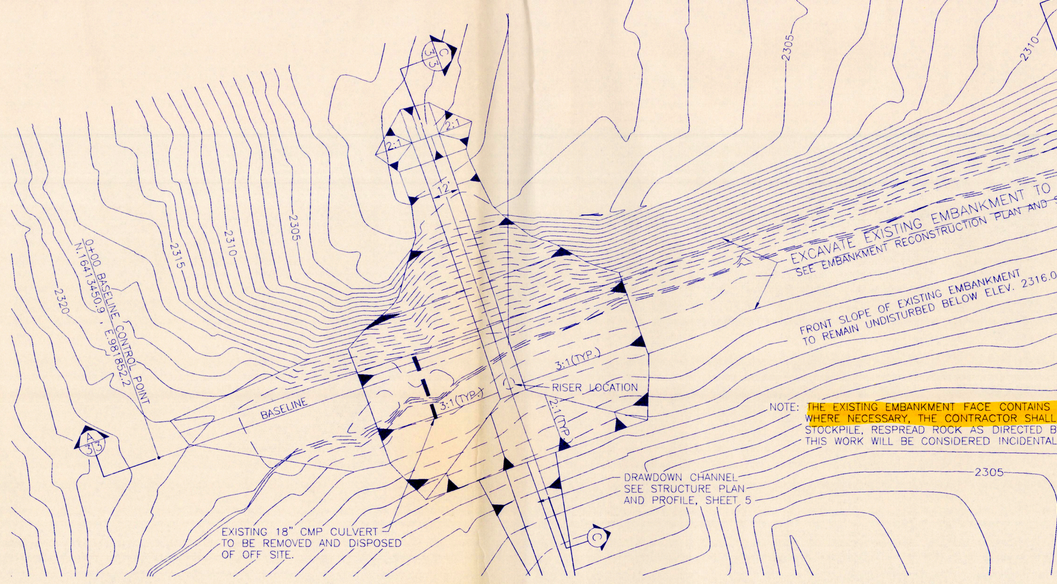
SCALE: 1" =30' HORIZ.
1" =10' VERT.





STRUCTURE EXCAVATION – SECTION (C 3|3)

SCALE: 1" =30' HORIZ. & VERT.



DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

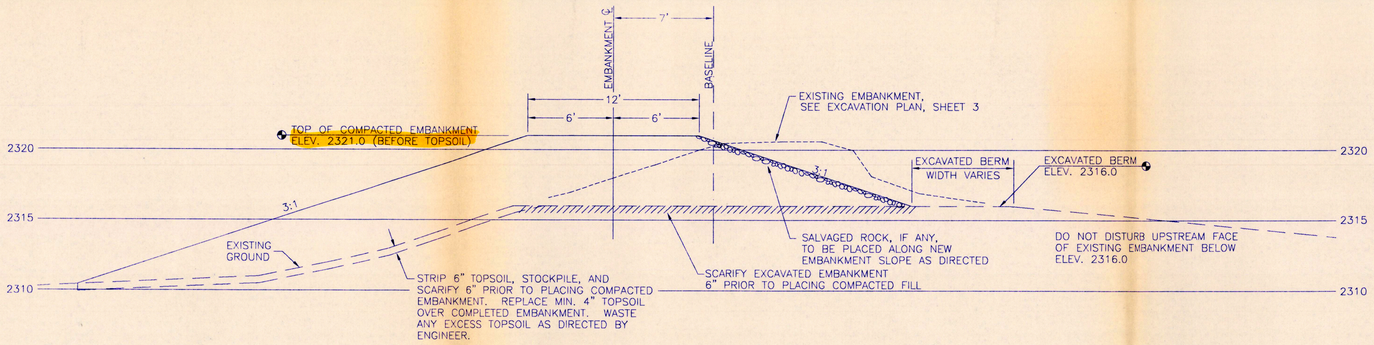
PROJECT NO. SD-0317-001

PRETTY CREEK WETLAND
EXCAVATION PLAN

DESIGNED BY: RCS
DRAWN BY: TSP
SURVEYED BY: GLJ
CHECKED BY:

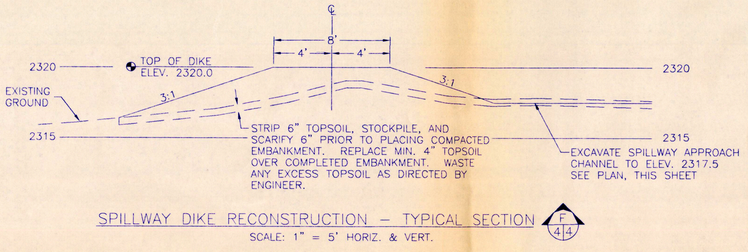
DATE: 5-14-2001
SHEET NO. 3 OF 6
APPROVED BY:
APPROVED BY:

1751-1



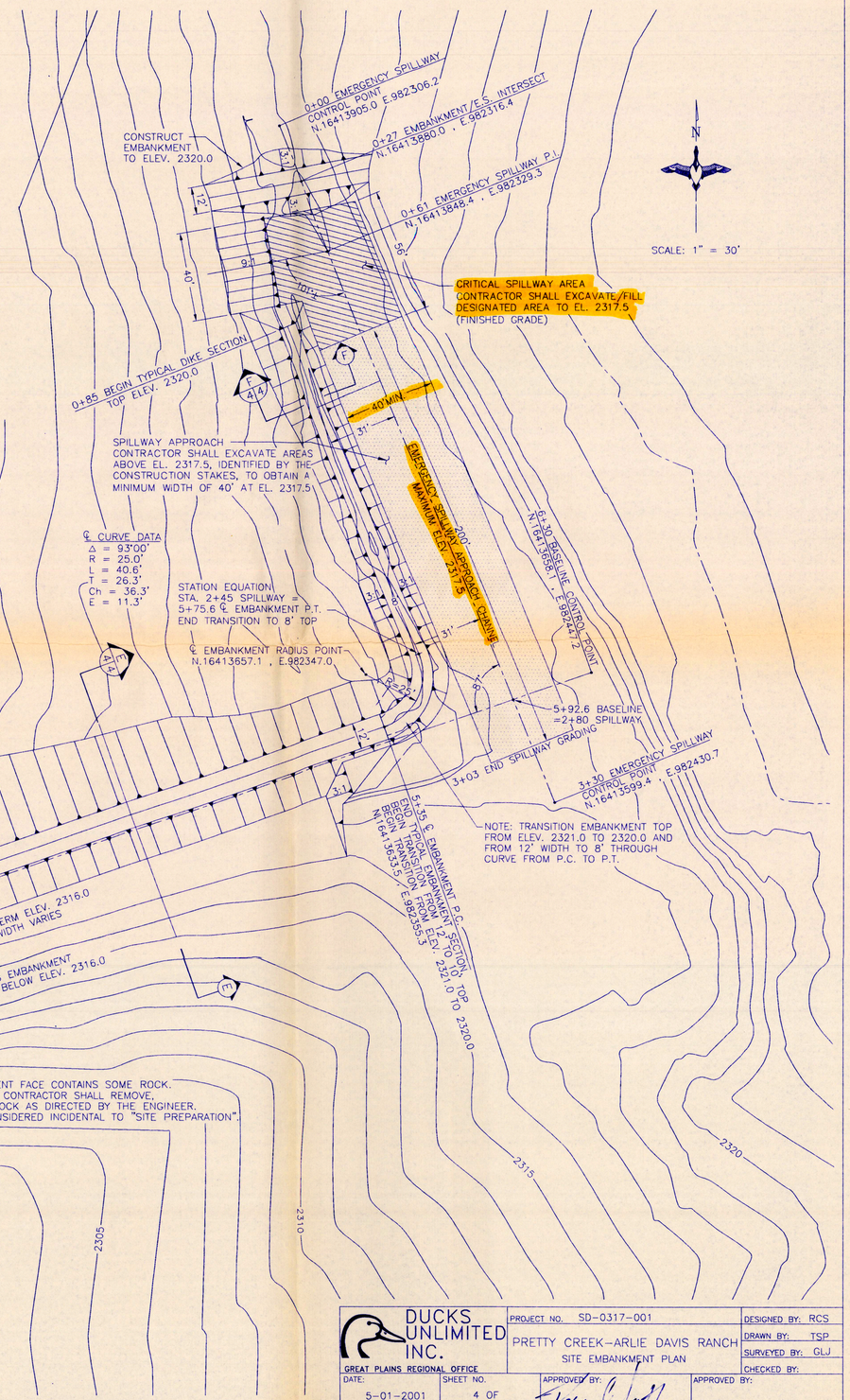
EXISTING EMBANKMENT RECONSTRUCTION – TYPICAL SECTION (F 4|4)

SCALE: 1" = 5' HORIZ. & VERT.



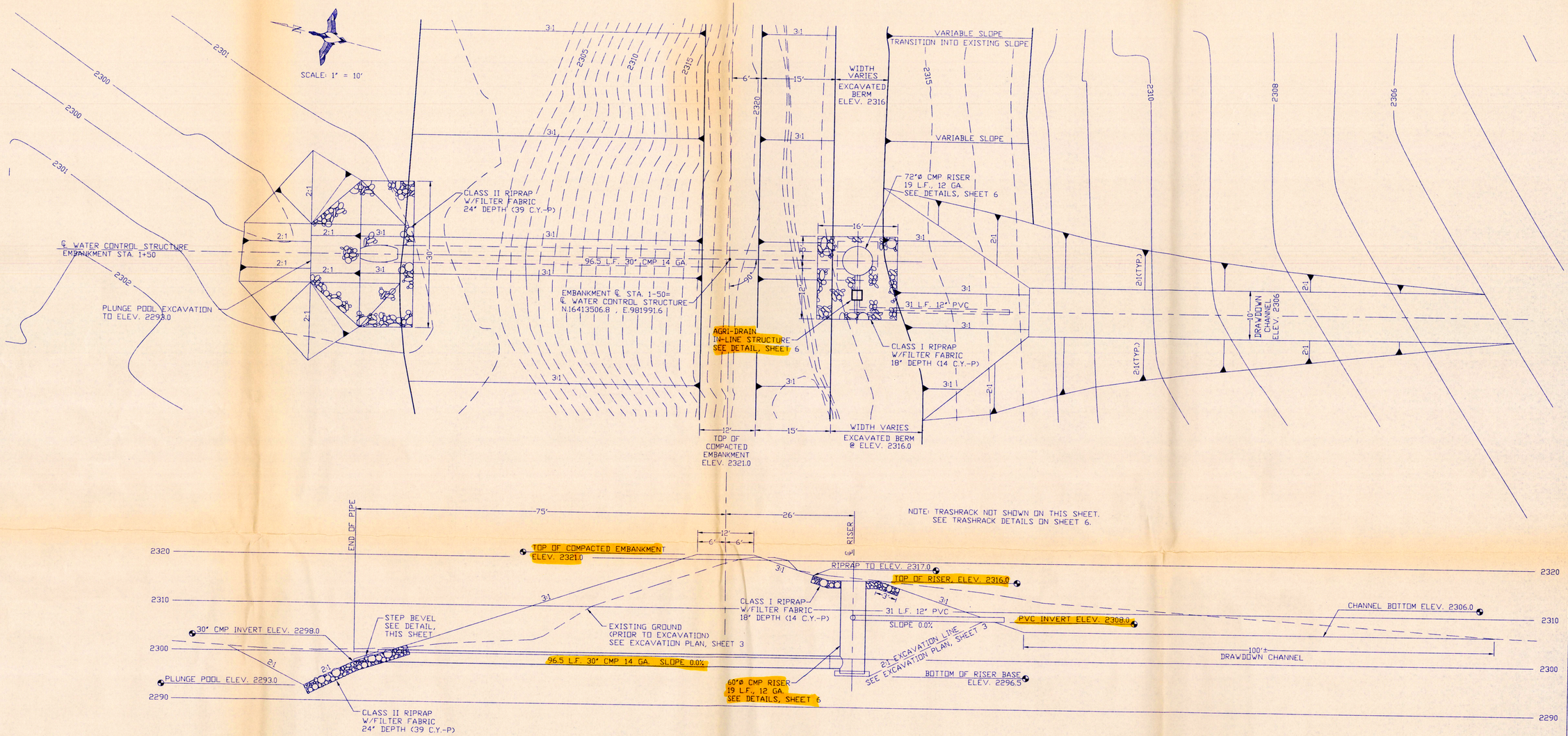
SPILLWAY DIKE RECONSTRUCTION – TYPICAL SECTION (F 4|4)

SCALE: 1" = 5' HORIZ. & VERT.



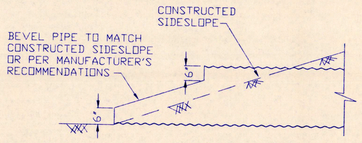
DUCKS UNLIMITED INC.	PROJECT NO. SD-0317-001	DESIGNED BY: RCS
GREAT PLAINS REGIONAL OFFICE	PRETTY CREEK–ARLIE DAVIS RANCH	DRAWN BY: TSP
	SITE EMBANKMENT PLAN	SURVEYED BY: GLJ
		CHECKED BY:
DATE: 5-01-2001	SHEET NO. 4 OF	APPROVED BY:
		APPROVED BY:

1751-1



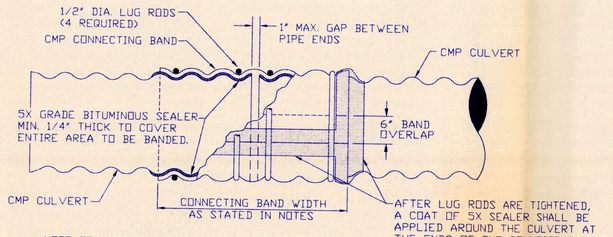
WATER CONTROL STRUCTURE - PLAN AND PROFILE

SCALE: 1" = 10' HORIZ. & VERT.



STEP BEVEL DETAIL

NOT TO SCALE



NOTE TO SUPPLIERS:
IF ANNULAR PIPE IS USED, USE A 2 FT. WIDE ANNULAR BAND. IF HELICAL PIPE WITH 4 CORRUGATIONS REROLLED TO ANNULAR IS USED, USE A 21 INCH WIDE ANNULAR BAND. SEE SPECIFICATION 207.2.

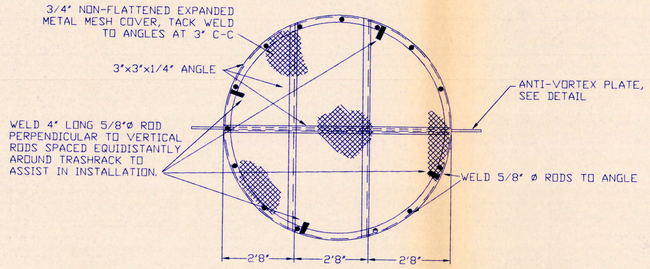
CONNECTING BAND DETAIL

NOT TO SCALE

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

PROJECT NO. SD-0317-001		DESIGNED BY: RCS
PRETTY CREEK WETLAND		DRAWN BY: TSP
WATER CONTROL STRUCTURE PLAN AND PROFILE		SURVEYED BY: GLJ
		CHECKED BY:
DATE: 5-08-2001	SHEET NO. 5 OF 6	APPROVED BY:
		APPROVED BY:

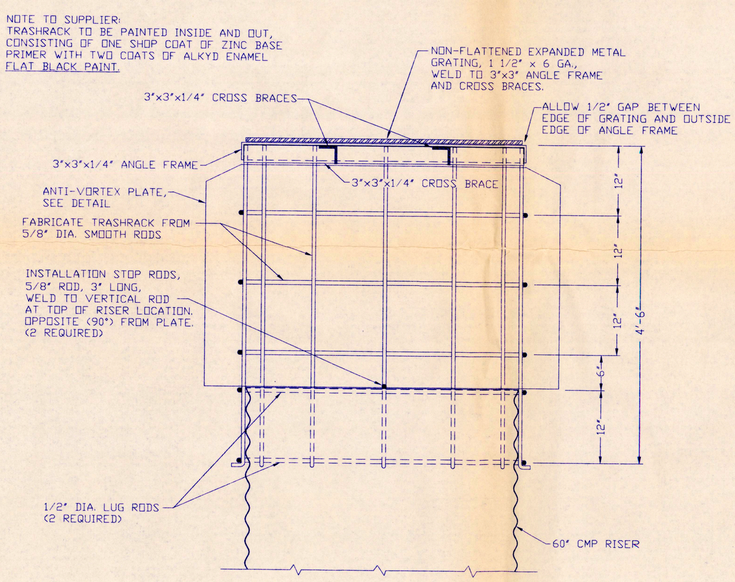
1751-1



TRASHRACK- TOP VIEW

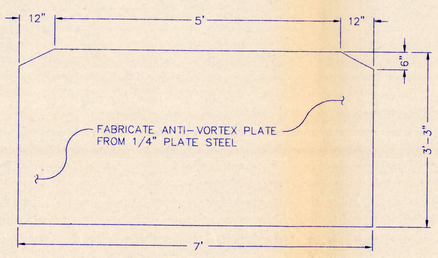
NOT TO SCALE

NOTE TO SUPPLIER:
TRASHRACK TO BE PAINTED INSIDE AND OUT, CONSISTING OF ONE SHOP COAT OF ZINC BASE PRIMER WITH TWO COATS OF ALKYD ENAMEL FLAT BLACK PAINT.



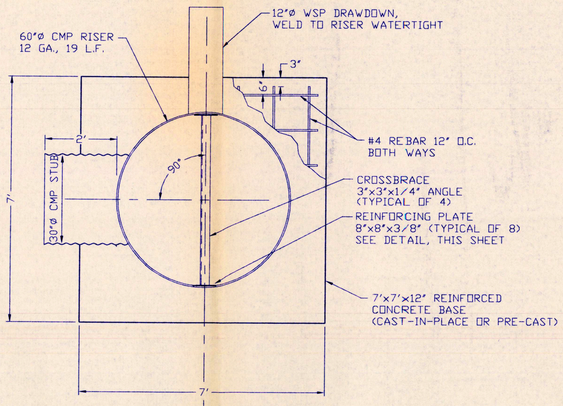
TRASHRACK- PROFILE

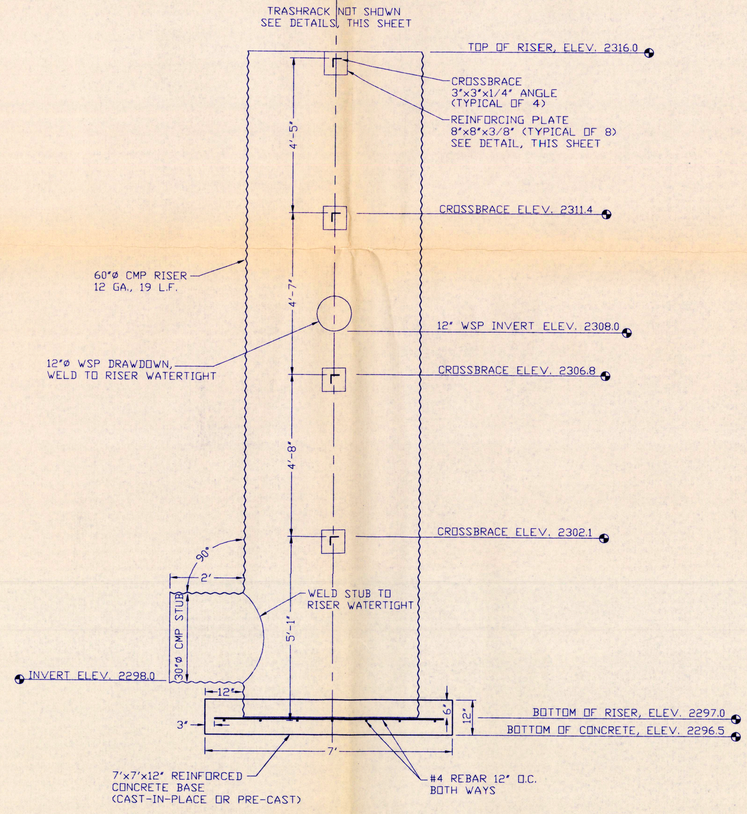
NOT TO SCALE



ANTI-VORTEX PLATE DETAIL

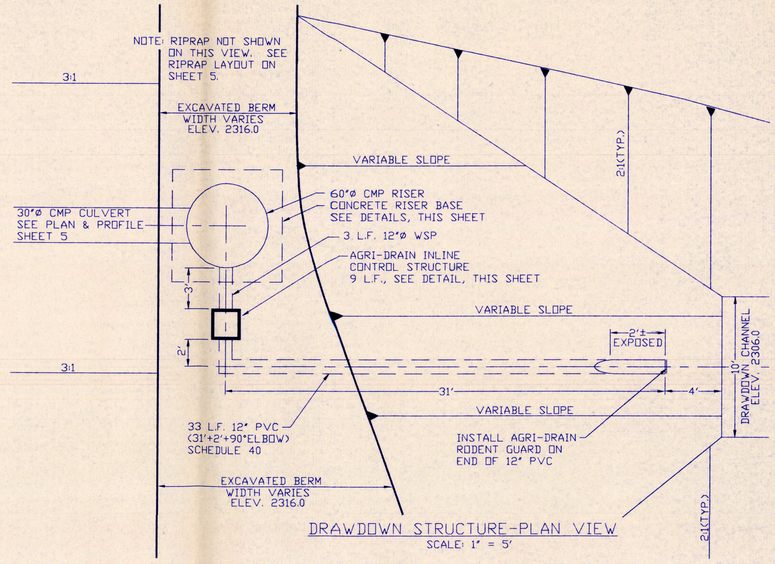
NOT TO SCALE





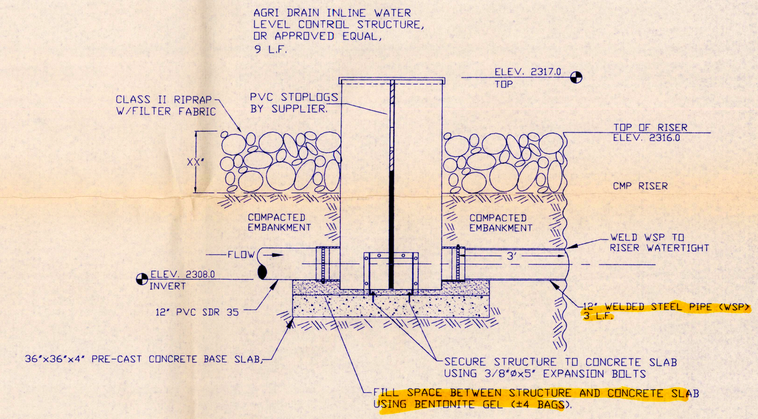
RISER PLAN AND PROFILE

SCALE: 1" = 2' HORIZ. & VERT.



DRAWDOWN STRUCTURE-PLAN VIEW

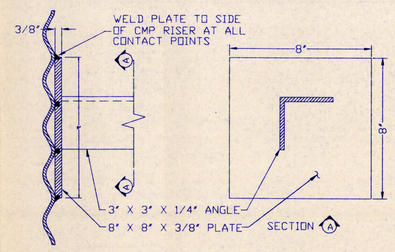
SCALE: 1" = 5'



NOTE:
COST OF INLINE WATER CONTROL STRUCTURE AND INSTALLATION SHALL BE PAID AS BID ITEM "WATER CONTROL STRUCTURE INSTALLATION"

INLINE DRAWDOWN STRUCTURE PROFILE

NOT TO SCALE



CROSS BRACE RIENFORCING PLATE

DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO. SD-0317-001		DESIGNED BY: RCS
	PRETTY CREEK WETLAND WATER CONTROL STRUCTURE DETAILS		DRAWN BY: TSP
			SURVEYED BY:
			CHECKED BY:
DATE: 5-14-2001	SHEET NO. 6 OF 6	APPROVED BY:	APPROVED BY: