

WATER PERMIT NO. 5800-3

Phone: 605 426-6196

Name of Applicant: LeRoy Williams

Post Office Address: RR 1, Box 34, Ipswich SD 57451

Amount of Water Claimed: 34.6 ac-ft Total Acres: NA

Source of Water Supply: runoff

Water to be used for: domestic County: Edmunds

About 5 miles S, 4 W of Ipswich

PRIORITY Date Received: 1-31-94 Fee: \$150 Remarks: _____

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

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

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

Diversion Point: SE 1/4 SW 1/4 Sec 14-T122N-R69W

Land to be Irrigated: _____

			14		
		/			

Well Log: Driller: _____ Licensed YES _____ NO _____

Depth of Well: _____ REMARKS: _____

Type of Map: topo PREPARED BY: Douglas Lipetsky, PE Reviewed and the Number

Assigned on: 1-31-94 By: Karen Schlaak

Mail to: Water Rights Div.
523 E. Capitol
Pierre, SD 57501
(605) 773-3352

No. 5800-3 Hydrologic Unit 10160008
Map No. _____ Basin James River
Newspaper Ipswich Tribune, Box 7

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 LeRoy Williams Phone No. (605) 426-6196

Post Office Address RR 1 Box 34 Ipswich SD State 57451
(Street, RR or Box) (City) Zip Code

2. Amount of water claimed (c.f.s.) 34.6 acre feet

3. Source of water supply 10.65 square mile unnamed watershed - runoff

4. Location of point of diversion SE 1/4 SW 1/4 of sec 14, T122N, R69W

Water impounded: S 1/2 SW 1/4

County Edmunds

5. Counties where water will be used Edmunds

6. Annual period during which water is to be used yearlong use Jan 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)

see enclosure

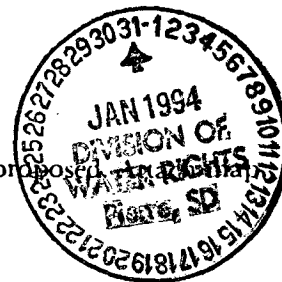
Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed (see instruction)

STATE OF SOUTH DAKOTA
County of Edmunds ss

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

Signed Ray Schif

Subscribed and sworn to before me this 27 day of January 1994



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 to 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
3502 Franklin Ave.
Bismark, ND 58501
(701)258-5599

b) Freeboard 4 feet

c) Crest Width 12 feet

Crest Length 370 feet

d) Height 12 feet

e) Primary Outlet Capacity 195 cfs
If Pipe, diameter 84 inch riser
48 inch barrel

f) Secondary Spillway Capacity 790 cfs
Spillway width 100 feet

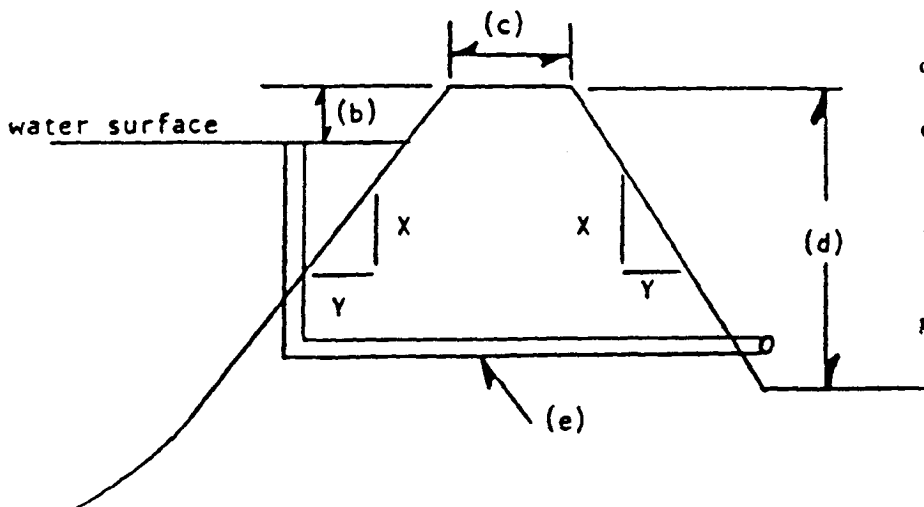
g) X & Y Slope
Upstream 3:1

Downstream 3:1

Surface Area of Impoundment 12.0 acres

Storage 34.6 acre feet

Drainage area above dam 6816 acres



Sebastian Williams
Signature of Applicant

**SOUTH DAKOTA
WATER PERMIT NO. 5800-3**

Date of first receipt of application January 31, 1994.

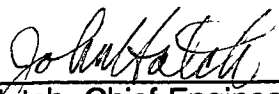
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 5800-3 to LeRoy Williams, RR 1, Box 34, Ipswich SD 57451 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5800-3 to impound 34.6 acre-feet of runoff water by constructing a dam located in the SE 1/4 SW 1/4 Section 14-T122N-R69W. Water will be impounded in the S 1/2 SW 1/4 Section 14-T122N-R69W and stored annually to an elevation of 1613.0 feet mean sea level.
2. The water appropriated shall be used for the purpose of supplying water for domestic use and fish and wildlife propagation and may not exceed the amount of water needed for beneficial use for domestic use and 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. 5800-3 is April 4, 1994.
5. The date from which applicant may claim right is January 31, 1994.
6. One-fifth of the construction is to be completed on or before October 4, 1996.
7. All construction is to be completed on or before April 4, 1999.
8. Water is to be put to beneficial use on or before April 4, 2003.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATION

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

WATER MANAGEMENT BOARD

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

MAY 18 1994
date



United States Department of the Interior

FISH AND WILDLIFE SERVICE
SAND LAKE NATIONAL WILDLIFE REFUGE
RR1, BOX 25
COLUMBIA, SOUTH DAKOTA 57433-9761
605/885-6320

IN REPLY REFER TO:

January 28, 1994

Karen Schlaak, Natural Resources Analyst
Water Rights Division
DENR
Foss Building
Pierre, SD 57501

RE: LeRoy Williams Water Permit

Dear Karen,

Enclosed is a water permit application along with a design report and plans for a dam reconstruction owned by LeRoy Williams. Ducks Unlimited and the Fish and Wildlife are helping LeRoy with both the permitting processes and the financing of the reconstruction. Enclosed is a \$150.00 money order to cover the cost of the application fee.

The Fish and Wildlife Service would appreciate being informed on the progress of the application if that would be possible. Please send any information to the address above.

Sincerely,

Boyd Schulz
Boyd Schulz
Biological Technician



Williams Dam
Ducks Unlimited - USFWS
Water Permit Applic. #1800-3

Top of Dam Elev. = 1617

P. Spway = 1613 - 84" Riser / 48" Barrel

2nd. Spway = 1615 - 100' wide Earthen

Dam Ht. = 12 Feet

Normal Cap. = 35 Ac.-Ft.

Int. Cap. = 70 Ac.-Ft.

Maximum Cap. = 135 Ac.-Ft.

Int. Storage (70) x Eff. Ht. (8) = 560 < 3000 $\therefore$ 25 year Min. Design Flood

From. Tech. for Estimating Flood Peaks, Vol. 1
Hydrographs in South Dakota (USGS)

$$Q_{25} = 83.4 A^{.60} S^{.44} Si^{-.072}$$

$$DA = 10.65$$

$$S = 20' / \text{mile}$$

$$Si = 3.16$$

$$= 83.4 (10.65)^{.60} 20^{.44} 3.16^{-.072}$$

$$= 83.4 (4.13) (3.74) (0.44)$$

$$= \underline{565 \text{ cfs}}$$

$$Q_{100} = 132 A^{.65} S^{.46} Si^{-.67}$$

2nd Spillway Flow - $Q = CLH^{3/2}$

$$= 132 (10.65)^{.65} 20^{.46} 3.16^{-.67}$$

$$= 132 (4.65) (3.97) (.46)$$

$$= \underline{1120 \text{ cfs}}$$

$$Q = 3(100 \times 2)^{1.5}$$

$$= \underline{850 \text{ cfs}}$$

$$Q = 2.8(100 \times 2)^{1.5}$$

$$= \underline{800 \text{ cfs}}$$

Ducks Unlimited routes the Runoff thru an upstream dam (Two Bar Two Grazing Assoc. - WR #5799-3) and gets a Q_{25} peak of 422 cfs and routes that thru Williams Dam getting a peak discharge of 410 cfs w/ 1.21 ft. freeboard. Also routes Q_{100} peak of 870 cfs thru Williams Dam getting a peak discharge of 864 cfs w/ 0.48 ft. freeboard. They route Q_5 thru primary w/out secondary spillway flow.

Section 74:02:08:09

SCS Annual Yield

1. - Topo map - OK

2. - Max X-sec. - OK

3. - Area-Capacity Curve - OK

4. - Outlet Detail - OK

5. - Profile Dam axis - OK

6. - Spillway Rating - OK

7. - Spillway Detail - OK

8. - Specs - OK Standard DU

9. - EPP - N/A - OK

$$CN = 80$$

Isogram - 2

$$DA = 10.65 \text{ mi}^2 \text{ (13th Dams)}$$

$$50\% \text{ Chance} = 0.64 \text{ Ac-In/Ac}$$

$$0.64 \times 10.65 (670) \div 12 = \underline{360 \text{ Ac.-Ft.}}$$

DESIGN REPORT

December 6, 1993

PROJECT:

WILLIAMS DAM
SD-155-01

LOCATION:

Sections 14, T 122 N, R 69 W
5 miles south, 5 miles west of Ipswich
Edmunds County, South Dakota

MARSH DATA:

Full Service Level (FSL) @ 1613.0
12.0 Surface Acres @ FSL
34.6 Acre-Feet Capacity @ FSL

PROJECT DESCRIPTION:

The project as proposed involves reconstruction of an existing dam located on land owned by Mr. LeRoy Williams. No other private or public land will be affected by the project. The U.S. Fish and Wildlife Service is negotiating a 30-year Wildlife Extension Agreement with Mr. Williams for the area encompassing the wetland project. The existing breached embankment is on an unnamed drainage that discharges into the North Fork Snake Creek and eventually into the James River. The contributing watershed consists of approximately 10.65 square miles. Another breached dam, known as Two Bar Two Grazing Association Dam is located about 1½ miles upstream on the same drainage. Ducks Unlimited is also planning to restore that small dam which will have approximately the same capacity as Williams Dam.

PRELIMINARY RISK ASSESSMENT:

The project site is located in a rural area of Edmunds County. No residences or other buildings are located directly downstream adjacent to the outlet channel. A gravel section line road with a 42" diameter corrugated metal pipe (CMP) exists approximately 1700 feet downstream from the existing embankment. A few more gravel section line roads with CMPs exist as the drainage continues downstream prior to it entering the North Fork Snake Creek.

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 marsh, 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. Therefore, per the classification criteria outlined in Chapter 74:02:08 "Safety of Dams," it is recommended that the proposed dam be classified as a small, low hazard, Category 3 dam.

The product of the intermediate storage capacity (69.6 acre-feet) times the effective height (8 feet) is 557 which is less than 3000. Therefore, the minimum spillway design flood is a 25-year frequency per 74:02:08:07.01 and must be passed through the spillway without overtopping the embankment.

DESIGN:

In accordance with South Dakota requirement 74:02:08:07.01, the minimum spillway design flood for the proposed dam is a 25 year frequency event. The proposed dam is designed to exceed the South Dakota requirements. The primary spillway will pass flows in excess of those produced by a 5-year 24 hour rainfall without using the emergency spillway. In addition, the primary and emergency spillways will pass flows in excess of those produced by a 100-year 24 hour rainfall event without overtopping the embankment.

An 84" diameter CMP overflow riser with a 48" diameter CMP outlet barrel is proposed as the primary spillway. The structure will have removable stoplogs to provide variable control and drawdown capability. The riser overflow crest elevation or full service level (FSL) is proposed at elevation 1613.0.

A 100 foot wide emergency spillway will be excavated to assist in passing the high flow events. The spillway crest elevation will be at elevation 1615.0. In addition, two natural overflow areas exist and will pass some flow during high water episodes as well.

Regression equations provided in *Techniques for Estimating Flood Peaks, Volumes, and Hydrographs on Small Streams in South Dakota*¹ were used to develop flood peaks for design purposes. The Soil Conservation Service (SCS) TR-20 Hydrology program was then calibrated by adjusting the curve number to produce a peak inflow for the various design events similar to those determined using the regression equations. The curve numbers were reviewed to ensure they were realistic for the runoff event. The calibrated TR-20 model was then 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 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 calculated using Technical Release No. 39 *Hydraulics of Broad-Crested Spillways* developed by the SCS. A total discharge curve for the proposed dam is attached.

¹Becker, Lawrence D., U.S. Geological Survey, Water Resources Investigations 80-80, September 1980.

As previously indicated, Ducks Unlimited is proposing to reconstruct a small, similar type dam 1½ miles upstream from this site. Assuming all permits and approvals are obtained, the construction will take place at relatively the same time. Therefore, the hydrology and hydraulics associated with the design for the dam upstream were taken into account in this design as well. Flows were routed through the upstream reservoir and water control structure prior to conducting the hydraulic calculations for this project.

The following is a relationship between peak inflows, corresponding outflows, and reservoir elevations for the Williams Dam project using the previously-mentioned methods of analysis:

<u>EVENT</u>	<u>PEAK INFLOWS</u>	<u>MAXIMUM WATER SURFACE ELEVATION</u>	<u>FREEBOARD AVAILABLE</u>	<u>TOTAL DISCHARGE</u>
5 YR	138 CFS	1614.57	2.76 FT	133 CFS
10 YR	229 CFS	1615.37	1.96 FT	211 CFS
25 YR	422 CFS	1616.12	1.21 FT	410 CFS
50 YR	634 CFS	1616.56	0.77 FT	627 CFS
100 YR	870 CFS	1616.85	0.48 FT	864 CFS

Primary Spillway (Riser) Crest Elevation @ 1613.0

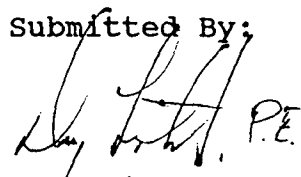
100' Wide Emergency Spillway Crest @ 1615.0

Top of Embankment Elevation @ 1617.33

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: December 6, 1993

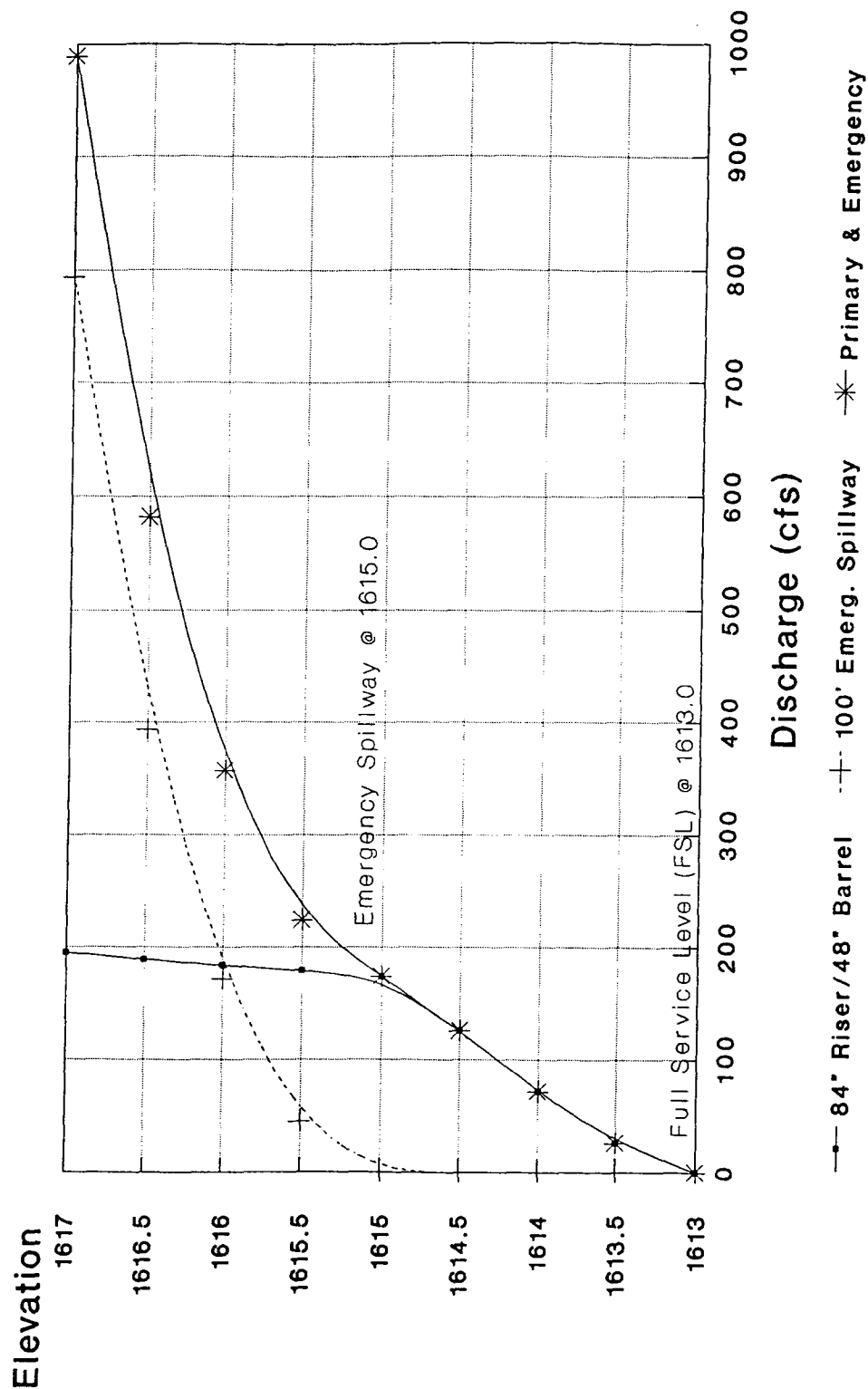
Submitted By:



Doug Lipetzky, P.E.
PE-4499

WILLIAMS DAM

Discharge Curve



RECEIPT

414020

Division of Water Rights

South Dakota Department of Environment and Natural Resources

Pierre, _____ January 31, 19 94

RECEIVED OF Sand Lake Refuge, Columbia, SD

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

Fee for Application for Permit No. <u>5800-3</u> to Appropriate Water, to construct and to put water to beneficial use _____	150	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 _____		

(Any Other Work Provided by Law)	Total	150 00

By

Chief Engineer

John Hutchings



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

March 9, 1994

Doug Lipetzky, P.E.
Ducks Unlimited, Inc.
3502 Franklin Ave.
Bismarck, ND 58501

Dear Mr. Lipetzky:

We have reviewed the plans and specifications for the Williams Dam located in the SE 1/4 SW 1/4 of Section 14-T122N-R69W in Edmunds County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize construction of the project. No construction may begin until Water Permit Application No. 5800-3 is 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 U.S. Fish and Wildlife Service or Mr. Williams as owner of the dam, from the responsibility for operating and maintaining the dam in good repair to assure the safety of the dam.

The Williams Dam will be classified as a small size Category 3 dam with a dam height of 12 feet and a normal storage capacity of 35 acre-feet and a maximum storage capacity of 135 acre-feet.

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

Sincerely,

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

c: LeRoy Williams
Boyd Schulz, USFWS

REPORT ON
WATER PERMIT APPLICATION No. 5800-3
LeRoy Williams
February 28, 1994

Water Permit Application No. 5800-3 has been filed by LeRoy Williams to impound 34.6 acre-feet of water in a dam. The dam will be located in the SE 1/4 SW 1/4 of Section 14-T122N-R69W, in Edmunds County. The water will be used for domestic use and fish and wildlife propagation.

Discussion:

This project is a cooperative effort between Ducks Unlimited, Inc. the U.S. Fish & Wildlife Service and Mr. Williams. The project involves the reconstruction of an existing breached dam at this location that failed some time ago. Ducks Unlimited and the USFWS are also planning to restore another breached dam (Water Permit Application No. 5799-3, Two Bar Two Grazing Assoc.) located about 1.5 miles upstream of Williams Dam.

The Williams Dam will be classified as a Category 3, Low Hazard dam. It has been designed by Ducks Unlimited, Inc. and the plans and specifications have been approved; although, construction can not start until Water Permit Application No. 5800-3 is approved.

The Williams Dam will be 12 feet high with a normal storage capacity of 35 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 135 acre-feet with the 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 25 year frequency event.

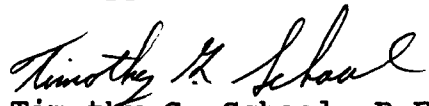
Williams Dam is designed to have a 84 inch CMP drop inlet with an 48 inch barrel as the primary spillway and a 100 foot wide earthcut secondary spillway. The dam has a drainage area of 10.65 square miles. Ducks Unlimited uses the Soil Conservation Service TR-20 Hydrology program to route the runoff through the upstream dam and get a peak inflow from a 25 year-24 hour frequency event of 422 cfs at the Williams Dam and a peak discharge of 410 cfs with 1.21 feet of freeboard. They also get a peak inflow of 870 cfs from a 100 year-24 hour frequency event and a peak discharge of 864 cfs with 0.48 feet of freeboard.

The annual yield for the drainage area with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be approximately 360 acre-feet.

The Williams Dam is located on a tributary of North Snake Creek about 6 miles upstream of the confluence of the tributary and the main channel of North Snake Creek. There are no existing Water Permits/Rights on this tributary; however, there are two small dams located on the tributary about 3 miles downstream. The dams are in the SE 1/4 of Section 19 and the SW 1/4 of Section 20-T122N-R68W. The reconstruction of the Williams Dam and the upstream dam (Two Bar Two Grazing Assoc.) should have little effect on these downstream dams.

Conclusions:

1. Water Permit Application No. 5800-3 should be approved since unappropriated water is available and approval will not have any adverse effects 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. 5800-3.



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. 5800-3, LeRoy Williams

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. 5800-3, LeRoy Williams, RR 1 Box 34, Ipswich, SD 57451.

The Chief Engineer is recommending APPROVAL of Application No. 5800-3 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.

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.

A handwritten signature in cursive script, appearing to read "John Hatch".

JOHN HATCH, Chief Engineer
March 4, 1994



**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.**

March 8, 1994

LeRoy Williams
RR 1 Box 34
Ipswich, SD 57451

Dear Mr. Williams:

Water Permit Application No. 5800-3 for domestic 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 Ipswich Tribune printed at Ipswich, SD (Ph # 426-6471). 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
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: Boyd Schulz, Biological Technician, U.S. Fish and Wildlife Service, Sand Lake National Wildlife Refuge, RR 1 Box 25, Columbia, SD 57433-9761



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

March 8, 1994

Ipswich Tribune
Box 7
Ipswich, SD 57451-0007

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5800-3 to be published twice. Please publish the first notice on March 16, 1994, 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 LeRoy Williams, RR 1 Box 34, Ipswich, SD 57451 (Ph # 426-6196).

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
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 March 16, 1994, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 5800-3 to Appropriate Water

Notice is given that LeRoy Williams, RR 1 Box 34, Ipswich, SD 57451 has filed an application for a water permit to impound 34.6 acre-feet of runoff water by constructing a dam located in the SE 1/4 SW 1/4 Section 14-T122N-R69W. Water will be impounded in the S 1/2 SW 1/4 Section 14-T122N-R69W and stored annually to an elevation of 1613.0 feet mean sea level. Water will be used for domestic use and fish and wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5800-3 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 April 4, 1994.

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. Russell L. Stone, Acting Secretary, Department of Environment and Natural Resources.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County of Edmunds) ss

I, RUTH GIBSON

certify that the attached printed Notice was

taken from the IPSWICH TRIBUNE

printed and published in IPSWICH

County of EDMUNDS and State of

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

March 16, 1994

March 23, 1994

Cost of Printing: \$33.95

Ruth Gibson
 (Signature)

BOOKKEEPER
 (Title)

3-23-94
 (Date Signed)

**PUBLIC NOTICE****NOTICE OF APPLICATION NO. 5800-3
to Appropriate Water**

Notice is given that LeRoy Williams, RR 1 Box 34, Ipswich, SD 57451 has filed an application for a water permit to impound 34.6 acre-feet of runoff water by constructing a dam located in the SE 1/4 SW 1/4 Section 14-T122N-R69W. Water will be impounded in the S 1/2 SW 1/4 Section 14-T122N-R69W and stored annually to an elevation of 1613.0 feet mean sea level. Water will be used for domestic use and fish and wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5800-3, 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 April 4, 1994.

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. Russell L. Stone, Acting Secretary, Department of Environment and Natural Resources.

(Publish T 3-16,23)



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

MAY 18 1994

LeRoy Williams
RR 1 Box 34
Ipswich, SD 57451

Dear Mr. Williams:

Enclosed is Water Permit No. 5800-3 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 Division
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.

c: Boyd Schulz, US Dept of the Interior, Sand Lake Nat'l Wildlife Refuge, RR 1 Box 25, Columbia, SD 57433-9761

We were going through the files
and found this Water Right. I don't
know if it was ever filed. If it
wasn't please do so.

Thank you

LeRoy Williams

14135 358 Ave

Ipswich, S.D. 57451





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

Date 10-6-94

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

FROM:

Le Roy Williams ggsmech So. Dak Box 34 RR one 14135. 358 AVE
(name) (address)
ggsmech So. Dak 57451 426-6196
(city) (state) (zip) (phone)

I have completed the construction of the water diversion system and I have put the water to beneficial use to the maximum extent it is going to be used. I have not exceeded the amounts specified in Water Permit No. 5800-3.

Water Permit No. 5800-3 states that the diversion system is to be constructed by 4-4-1999, and that the water is put to beneficial use by 4-4-2003.
(date) (date)

The diversion system was completed on 9-16-94.
(date)

Applying the water to beneficial use was completed on 10-6-94.
(date)

You may schedule an inspection so that the Water License may be issued.

Le Roy Williams
(signature)



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

July 31, 2001

5799-3
5800-3

Brian Wehausen
Sand Lake Refuge
39650 Sand Lake Dr
Columbia, SD 57433

Dear Mr. Wehausen:

On June 5, 2001, the investigation of the water use systems, as developed under Water Permit No. 5799-3 (Two Bar Two Grazing Association) and Water Permit No. 5800-3 (LeRoy Williams), was completed by Stacy Johnson, a staff engineer with our program. Both of these permits are located in Edmunds County, South Dakota. The final water right document, the water license, can now be issued for each permit.

State law requires that we charge a \$50.00 fee for the investigation and issuance of each water license. It is our understanding that Sand Lake Refuge will be paying the fee for the grazing association and for Mr. Williams. Upon receipt of \$100.00 from you, we will complete processing the water licenses. The check or money order for the fee (total of \$100.00) should be made payable to the "Water Rights Program".

If you have any questions regarding the water permits, the investigation of the water use systems or payment of the fees, please contact Genny McMath with our program at (605) 773-3352.

Sincerely,

Genny McMath
Environmental Scientist
Water Rights Program
(605) 773-3352



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

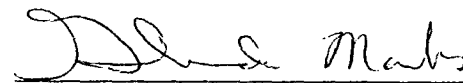
* INVOICE *

Invoice No. 20411-5799-3&5800-3

Brian Wehausen
Sand Lake Refuge
39650 Sand Lake Dr.
Columbia, SD 57433

Investigation & issuance of water license #5799-3 (Two Bar Two Grzing Association)	\$50.00
Investigation & issuance of water license #5800-3 (Le Roy Williams)	\$50.00

PLEASE PAY THIS AMOUNT: **\$100.00**



Glenda Marks
Secretary
Water Rights Program
(605) 773-3352

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

416942

Pierre, October 16, 20 01

RECEIVED OF Brian Wehausen, Sand Lake Refuge, 39650 Sand Lake Dr., Columbia, SD 57433
the following amount in fees for services rendered as provided for by law: (Le Roy Williams)

Fee for Application for Permit No. _____ to Appropriate Water, to construct
and to put water to beneficial use _____

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. 5800-3

Fee for Filing Transfer Form _____

Fee for Filing Extension Request _____

Fee for _____

Payment was an electronic transfer

50 00

(Any Other Work Provided by Law)

Total

50 00

By

Darland Erbele

Chief Engineer

gm

Verhelst, Sandy

From: Tillman, Sandy
Sent: Monday, October 15, 2001 4:17 PM
To: Verhelst, Sandy
Subject: 9/6 FWS wire

This wire was receipted in by Commerce and they then realized it didn't belong to them. Does this belong to DENR?

FWS TREAS 312 MISC PAY 090601 466000364141600 RMT*IV*20411-5799-3&5800-3 **
\$100.00 09/06/2001

5220FWS TREAS 312 3121036500CCDMISC PAY
0906010109062492121036500000027
622091408598000000017012697630000010000466000364141600SOUTH DAKOTA DEPT OF
061121036504157514
705RMT*IV*20411-5799-3&5800-3 *****INVOICE DATE: 09/04/01 \00014157514

Permit No. 5800-3
James River - Water District

Other permit/license(s) associated with project: none

Contact Person & Address: LeRoy Williams, 14135 358th Avenue, Ipswich SD 57451

Report Of Examination Of Works

On, June 5, 2001, I made a thorough examination of the water use system constructed by LeRoy Williams of 14135 358th Avenue, Ipswich SD 57451 holder of Permit No. 5800-3, bearing the priority of January 1, 1994, authorizing the storage of 34.6 acre-feet of the waters for domestic use and fish and wildlife propagation purposes, in Edmunds County.

The system is in the following condition good. The point of diversion is located from the SW corner of Section 14 T122N-R69W it is 1442 feet east and 463 feet north with a longitude of -99.127914 and a latitude of 45.376841. The works are capable of diverting and conveying storing 34.6 acre-feet of water that is to be used for domestic use and fish and wildlife propagation purposes.

The license should be issued for 34.6 acre-feet of storage.

Review of Permit Qualifications And Regulations:

- 1) Special qualifications to permit being abided by yes
- 2) All structures, wells and lands on map yes
- 3) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period NA
- 4) Exceptions to compliance are: none

Report On the Specifics of the System

Dam Information:

- | | |
|--|---|
| 1) Height to crest <u>12</u> feet | 2) Height to primary spillway or outlet <u>8</u> feet |
| 3) Height to secondary spillway <u>NA</u> ft | 4) Crest width <u>12</u> feet |
| 5) Crest length <u>370</u> feet | 6) Spillway length <u>400</u> feet |
| 7) Spillway width <u>100</u> feet | 8) Approx. storage <u>34.6</u> ac-ft |
| 9) Outlet tubes: | |
| a) height <u>84</u> inches | b) type <u>CMP</u> |
| c) valved <u>drop 48" diameter</u> | d) valve type <u>none</u> |

COMMENTS: Riprap is located on the downstream side of the dam. Pipe is slightly bent on the downstream side of dam. Some of the impounded water is located in Section 15 T122N-R69W.

Stacy J. Johnson

Stacy J. Johnson

Natural Resources Project Engineer

DENR, Water Rights Program

7-30-01

Date



Section 14 T122N-R69W

Area of impoundment of water = 34.6 Acre-feet

Center of Dam



Stacy J Johnson 7-27-01
Stacy J Johnson
Natural Resources Engineer
SD DENR Water Rights Program

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5800-3

(1) LeRoy Williams, 14135 358th Avenue, Ipswich SD 57451 made Application No. 5800-3, January 31, 1994 for a water permit to impound 34.6 acre-feet of water from runoff, Edmunds County, South Dakota for fish & wildlife propagation and domestic use purposes. Permit No. 5800-3, with a priority date of January 31, 1994 was approved April 4, 1994 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before April 4, 1999 and for the application to beneficial use of said water on or before April 4, 2003.

(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 storage dam and is entitled to impound 34.6 acre-feet of water for beneficial use with sufficient water annually to maintain the water level to the outlet elevation of 1613.0 feet mean sea level. The location of the storage dam (spillway) is 1,442 feet east and 463 feet north of the southwest corner of Section 14-T122N-R69W (SE ¼ SW ¼).

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

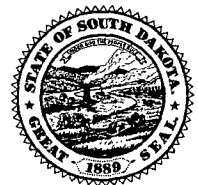
(4) Pursuant to South Dakota Water Law 46-5-30.1 LeRoy Williams, 14135 358th Avenue, Ipswich SD 57451 the holder and/or owner of Water Right No. 5800-3 is issued a license to appropriate water, the right to impound 34.6 acre-feet of water from runoff with sufficient water annually to maintain the water level to the outlet elevation of 1613.0 feet mean sea level with a priority date of January 31, 1994 from the location specified in (2) of this license for fish & wildlife propagation and domestic use purposes. This license is subject to any limitations or qualifications listed in Water Right No. 5800-3 and subject to South Dakota State Law.

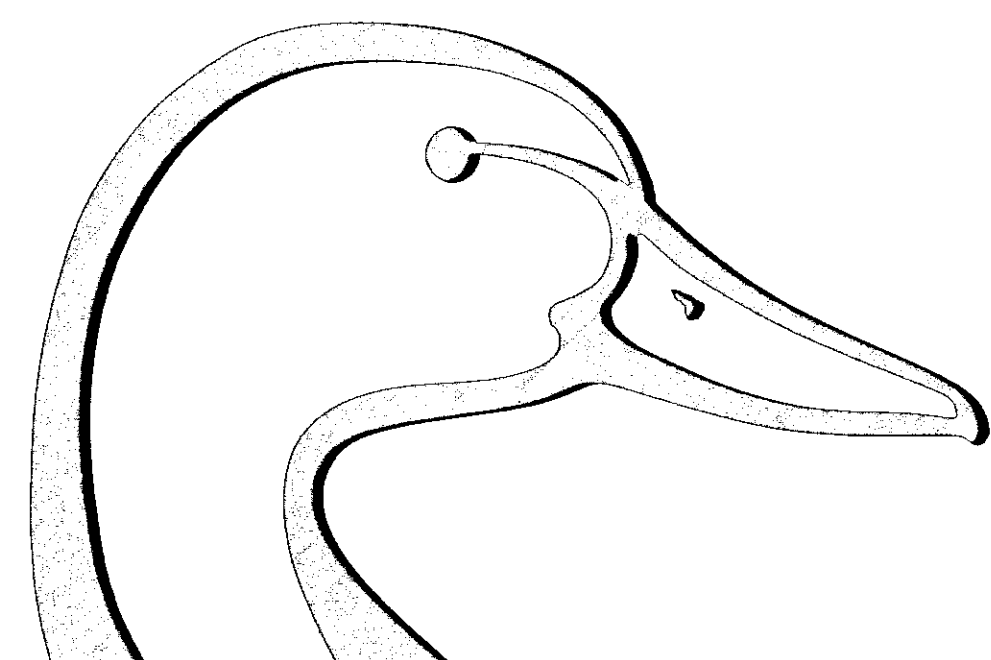
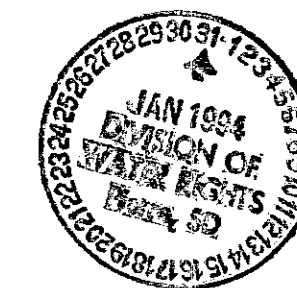


Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

DEC 07 2001

date





DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

WILLIAMS DAM SECTION 14, T 122 N, R 69 W, EDMUNDS COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

U.S. FISH & WILDLIFE SERVICE
LEROY WILLIAMS

SPECIFICATIONS

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

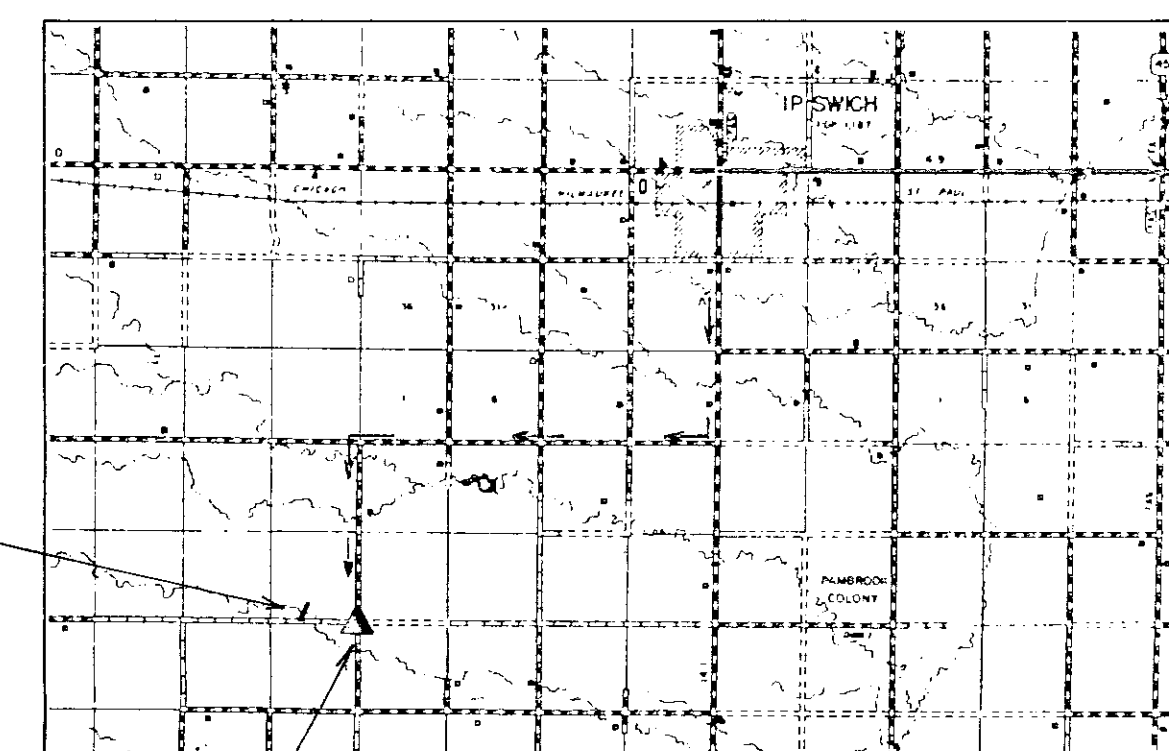
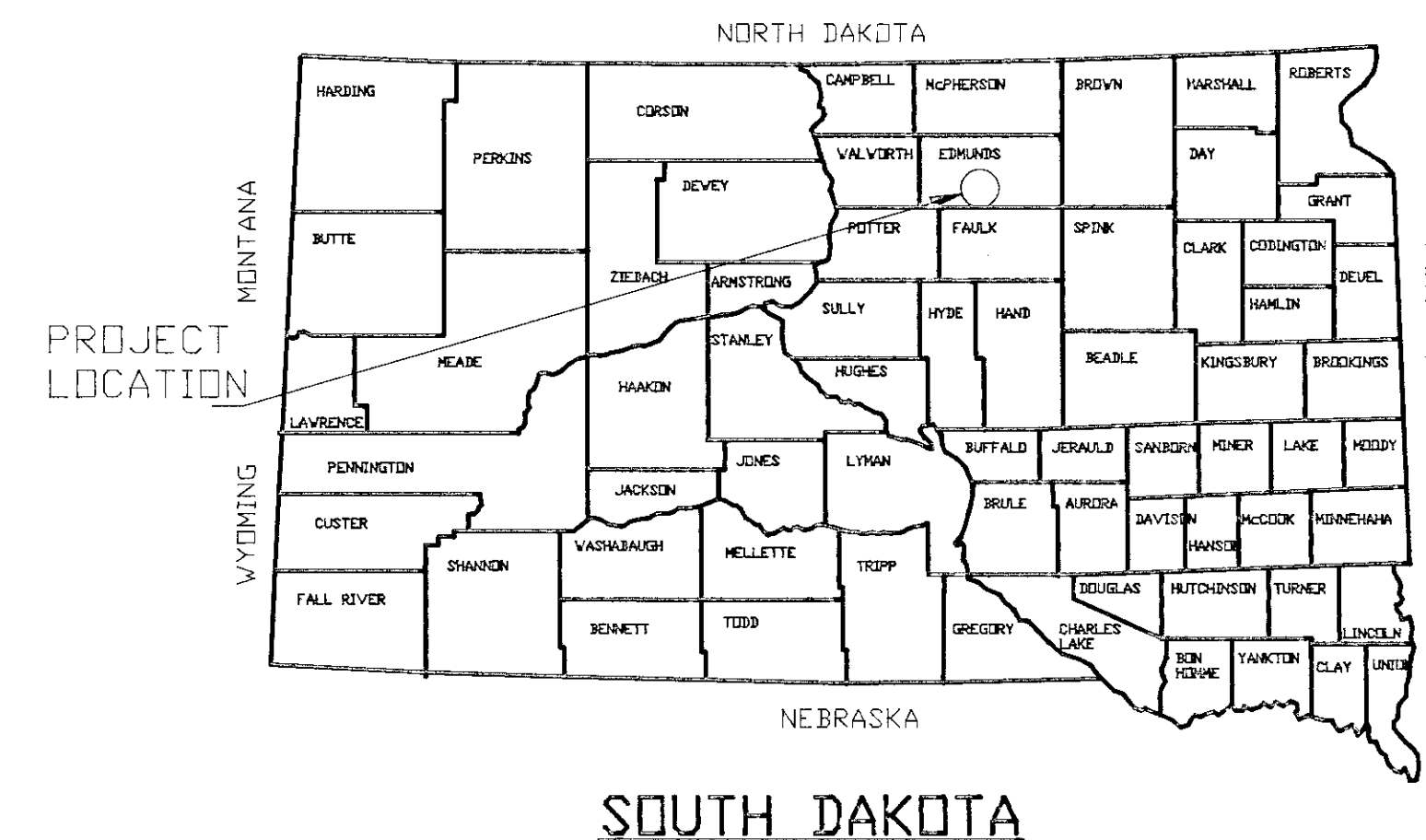
PLAN INDEX

VICINITY MAP	1
PROJECT TOPOGRAPHY	2
BREACH EXCAVATION DETAILS	3
EMBANKMENT/	
EMERGENCY SPILLWAY DETAILS	4
STRUCTURE PLAN & PROFILE	5
STRUCTURE DETAILS	6
SOILS INFORMATION	7

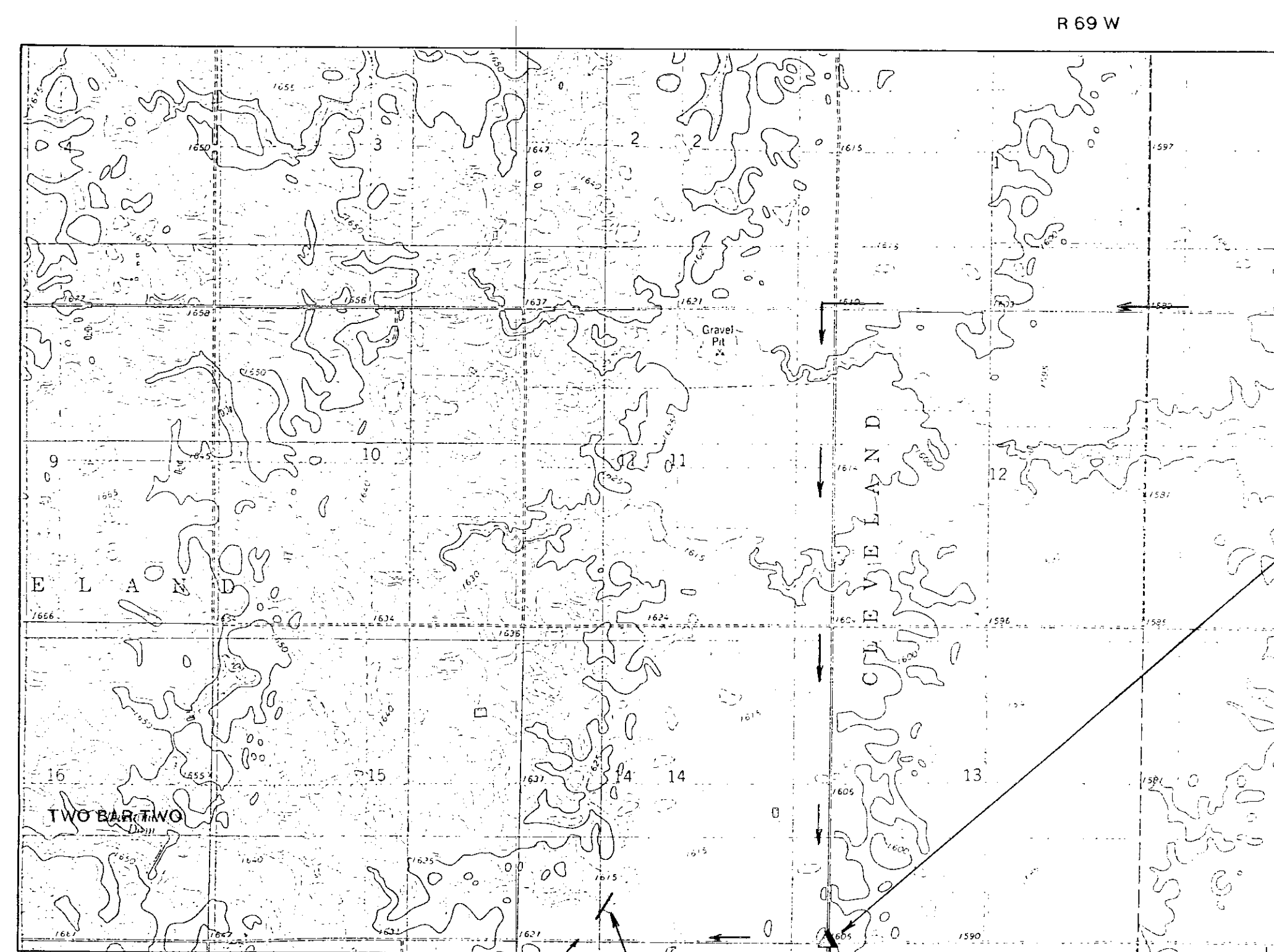
ESTIMATED QUANTITIES

MOBILIZATION	1 L.S.
SITE PREPARATION*	315 C.Y.-P
EXCAVATION**	1443 C.Y.-P
EMBANKMENT***	2865 C.Y.-S
WATER****	30 M-GAL.
WATER CONTROL STRUCTURE	
84"Ø CMP RISER, 14 GA., 10 L.F.	1 L.S.
APPURTENANCES	1 INC.
CULVERT INSTALLATION	
18"Ø CMP	14 L.F.
48"Ø CMP	66 L.F.
REINFORCED CONCRETE	1 INC.
CLASS II RIPRAP	60 C.Y.-P

- * INCLUDES 6" STRIPPING ON EMBANKMENT ONLY. NECESSARY STRIPPING & RETOPSOILING OF EMERGENCY SPILLWAY SHALL BE CONSIDERED INCIDENTAL TO SITE PREPARATION.
- ** INCLUDES BREACH EXCAVATION & EXCAVATION FOR PLUNGE POOL, INLET/OUTLET CHANNEL & FOR RIPRAP PLACEMENT. QUANTITY DOES NOT INCLUDE APPROX. 1400 C.Y. EXCAVATION FOR EMERGENCY SPILLWAY. THAT MATERIAL, MINUS TOPSOIL, IS CONSIDERED BORROW FOR EMBANKMENT & SHALL BE PAID FOR AS "EMBANKMENT."
- *** INCLUDES 10% FOR SHRINKAGE
- **** BASED ON 10 GAL./C.Y., HOWEVER, SEE DU SPECIFICATION 205



EDMUNDS COUNTY



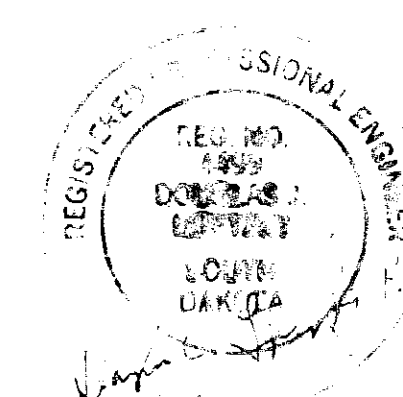
ACCESS GATE

PROJECT SITE

VICINITY MAP
SCALE: 1"=2000'

T 122 N

MAP POINT IS 3 MILES SOUTH,
4 MILES WEST, 2 MILES SOUTH
OF JCT. 12 & MAIN IN IPSWICH, SD



LANDOWNER
LEROY WILLIAMS
605/426-6196
AGENCY
USFWS-SAND LAKE NWR
BOYD SCHULZ
605/885-6320

PROJECT SIGNING

SIGN "A" 24"x36"

SIGN "B" 11"x14"

1 SIGN "A" AND 1 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

DUCKS
UNLIMITED
INC.
GREAT PLAINS REGIONAL OFFICE
DATE: 1-20-94

PROJECT NO. SD-155-1

WILLIAMS DAM

VICINITY MAP

APPROVED BY:

1 OF 7

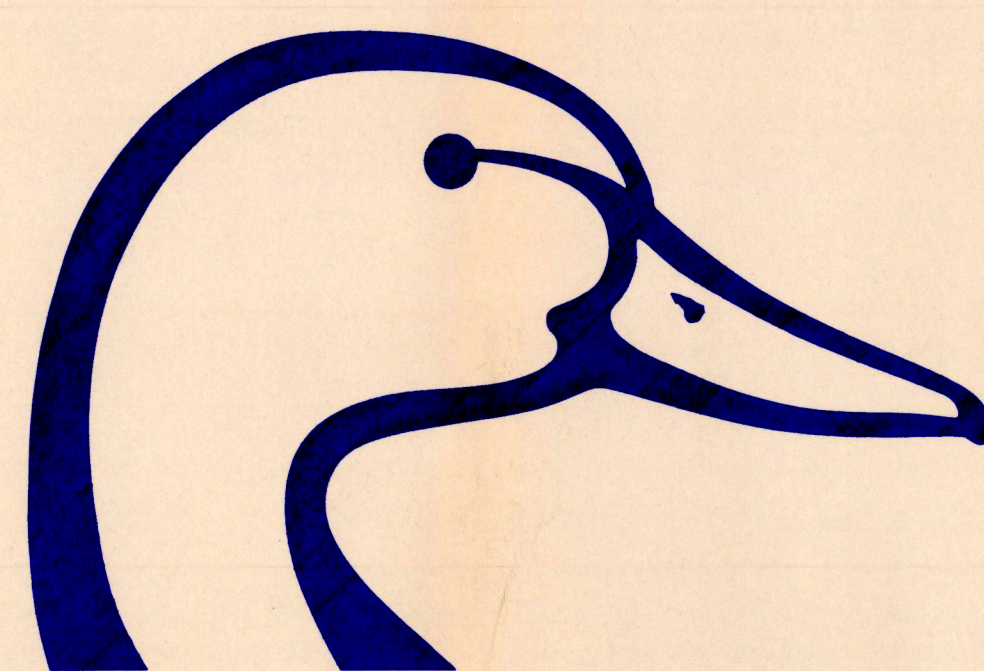
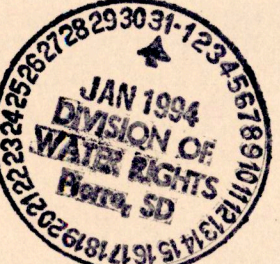
DESIGNED BY: D.J.I.

DRAWN BY: K

SURVEYED BY:

CHECKED BY: B.R.K.

APPROVED BY:



DUCKS UNLIMITED

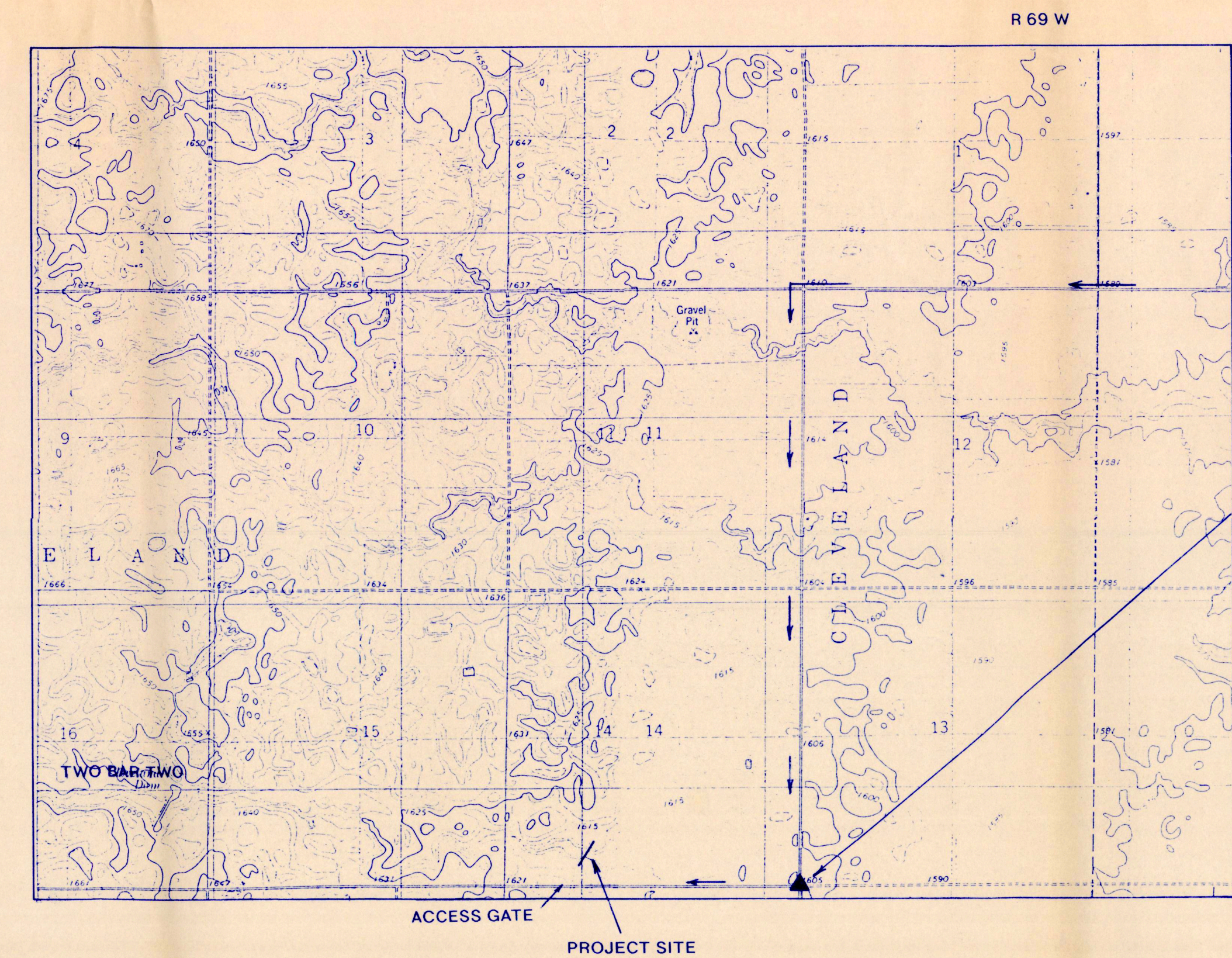
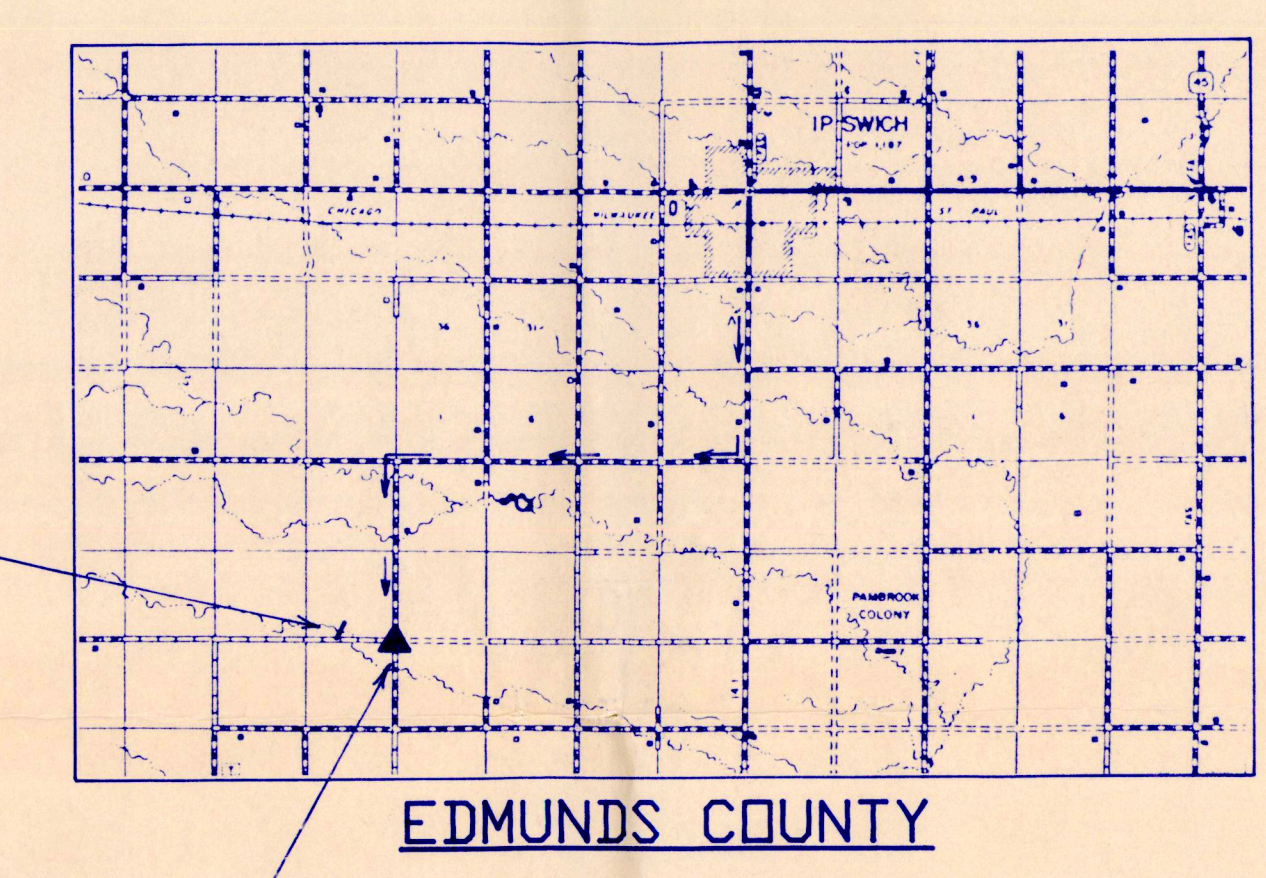
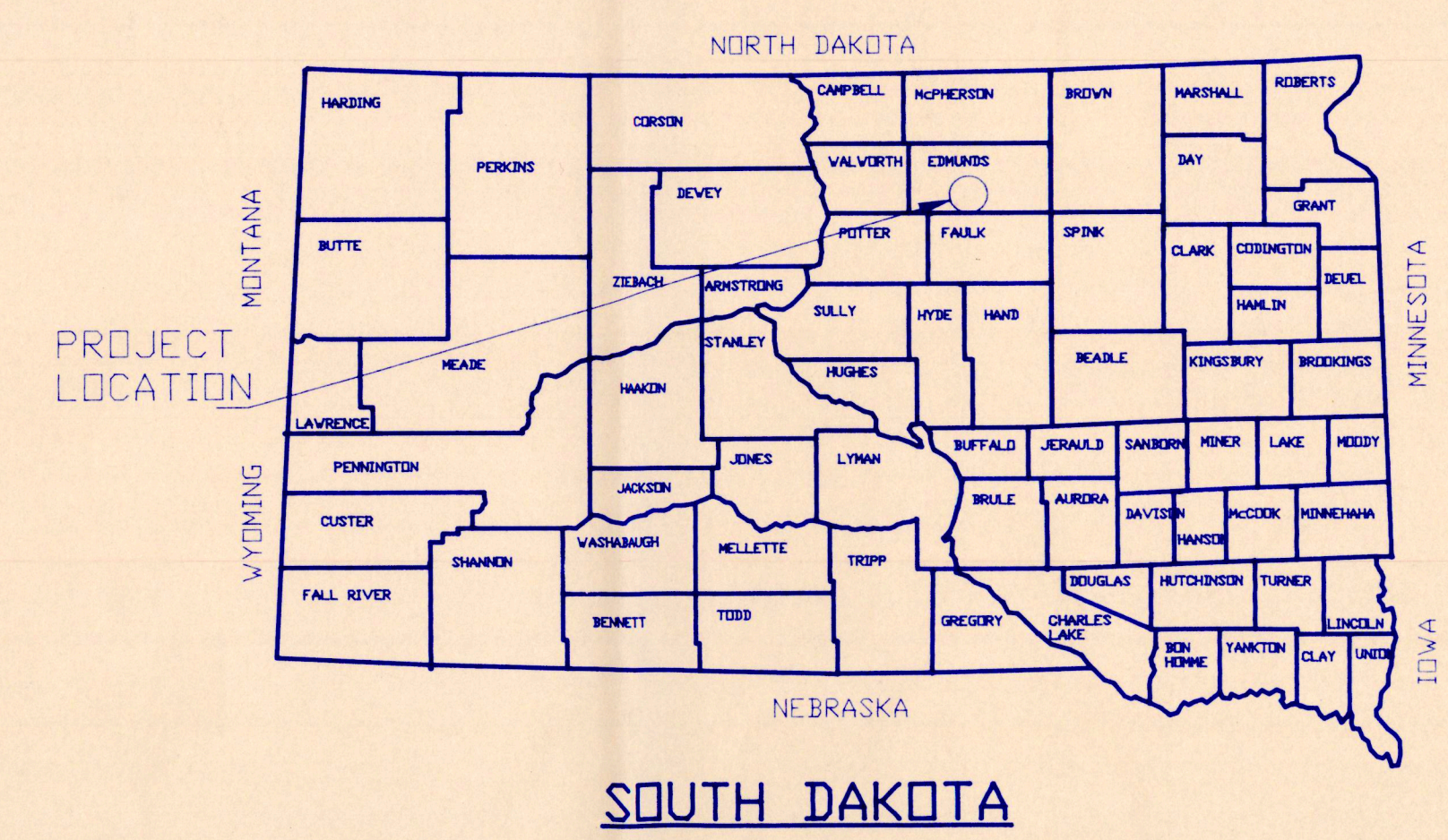
DUCKS UNLIMITED

PROJECT

WILLIAMS DAM SECTION 14, T 122 N, R 69 W, EDMUNDS COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

U.S. FISH & WILDLIFE SERVICE
LeROY WILLIAMS



VICINITY MAP
SCALE: 1"=2000'

SPECIFICATIONS

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WATER CONTROL STRUCTURE	
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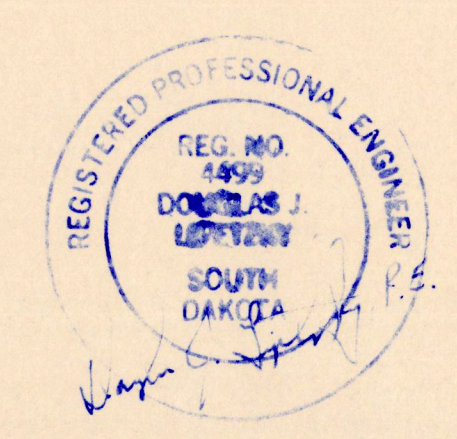
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MAP POINT IS 3 MILES SOUTH,
4 MILES WEST, 2 MILES SOUTH
OF JCT. 12 & MAIN IN IPSWICH, SD



LANDOWNER
LeROY WILLIAMS
605/426-6196
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PROJECT SIGNING

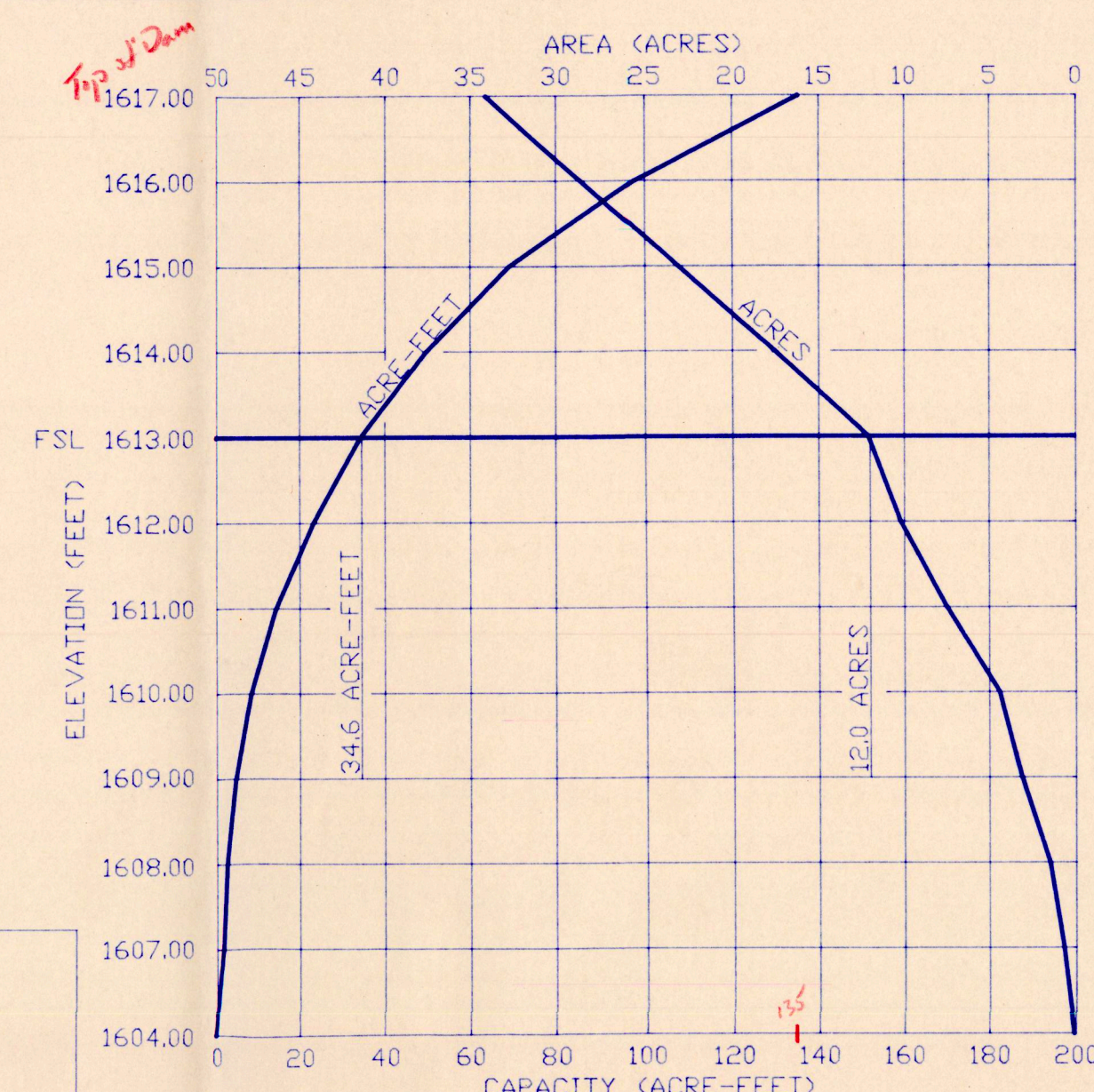
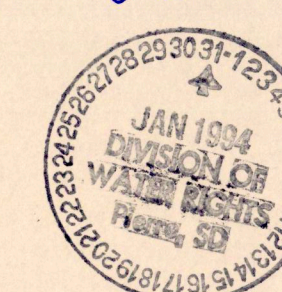
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	PROJECT NO. SD-155-1	DESIGNED BY: D.L.W.
	WILLIAMS DAM	DRAWN BY: B
	VICINITY MAP	SURVEYED BY:
	GREAT PLAINS REGIONAL OFFICE	APPROVED BY: Douglas L. Williams, P.E.
DATE: 1-20-94	SHEET NO. 1 OF 7	

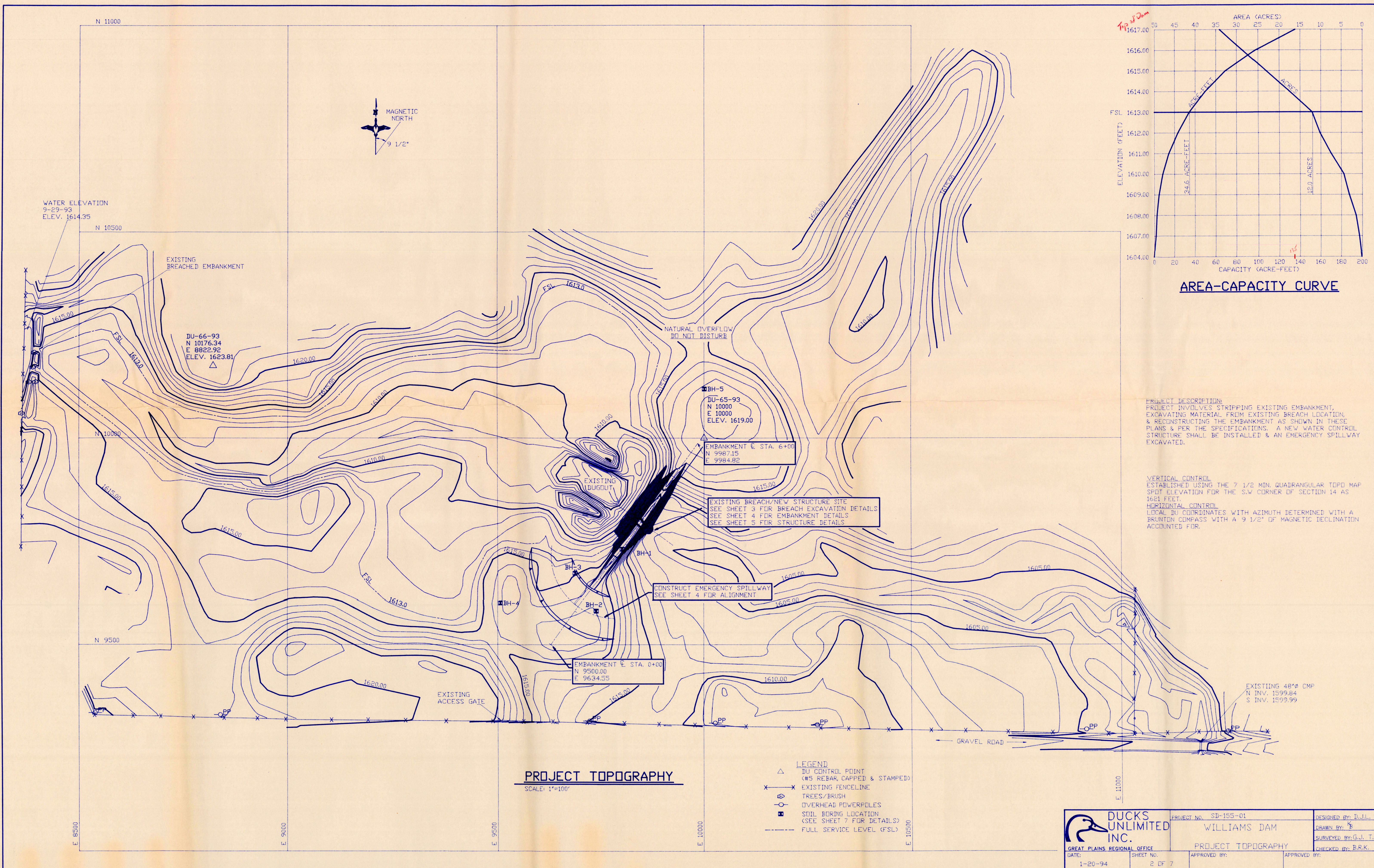
5800-3



AREA-CAPACITY CURVE

PROJECT DESCRIPTION:
PROJECT INVOLVES STRIPPING EXISTING EMBANKMENT, EXCAVATING MATERIAL FROM EXISTING BREACH LOCATION, & RECONSTRUCTING THE EMBANKMENT AS SHOWN IN THESE PLANS & PER THE SPECIFICATIONS. A NEW WATER CONTROL STRUCTURE SHALL BE INSTALLED & AN EMERGENCY SPILLWAY EXCAVATED.

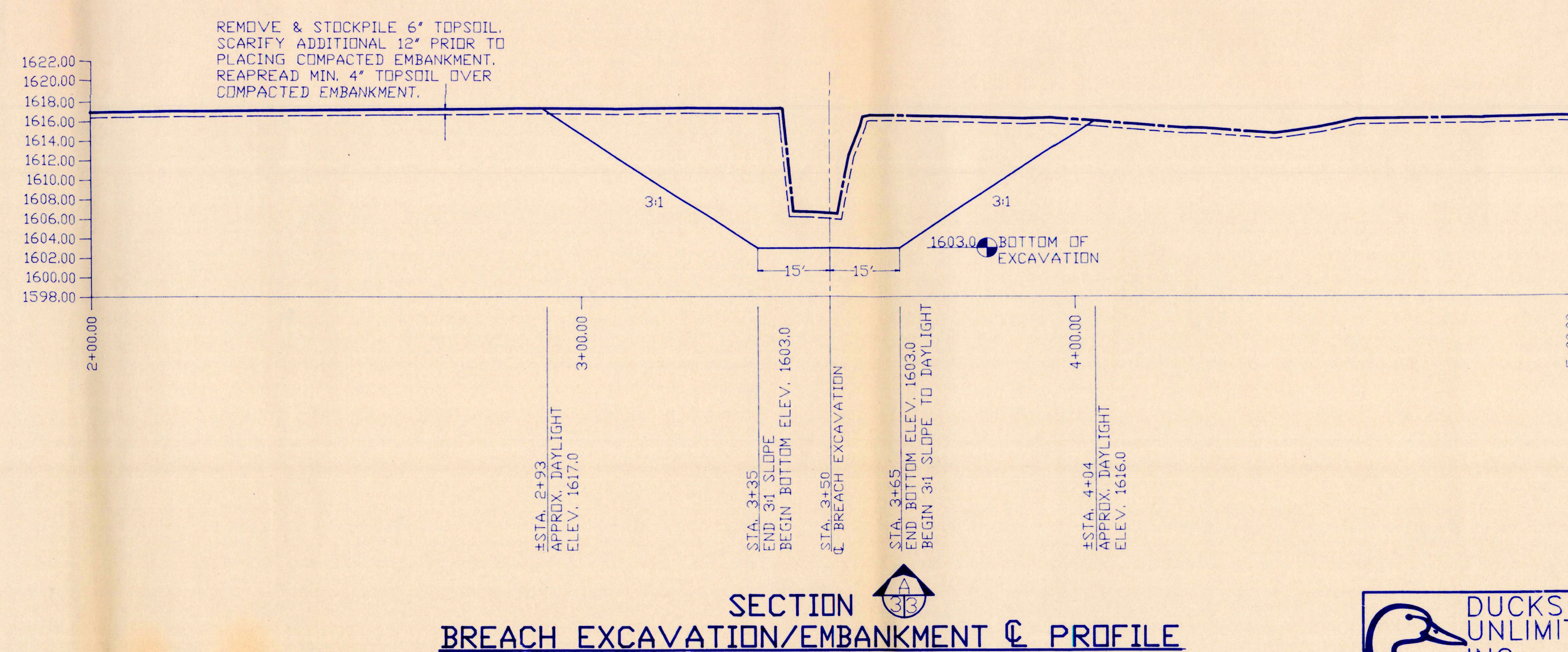
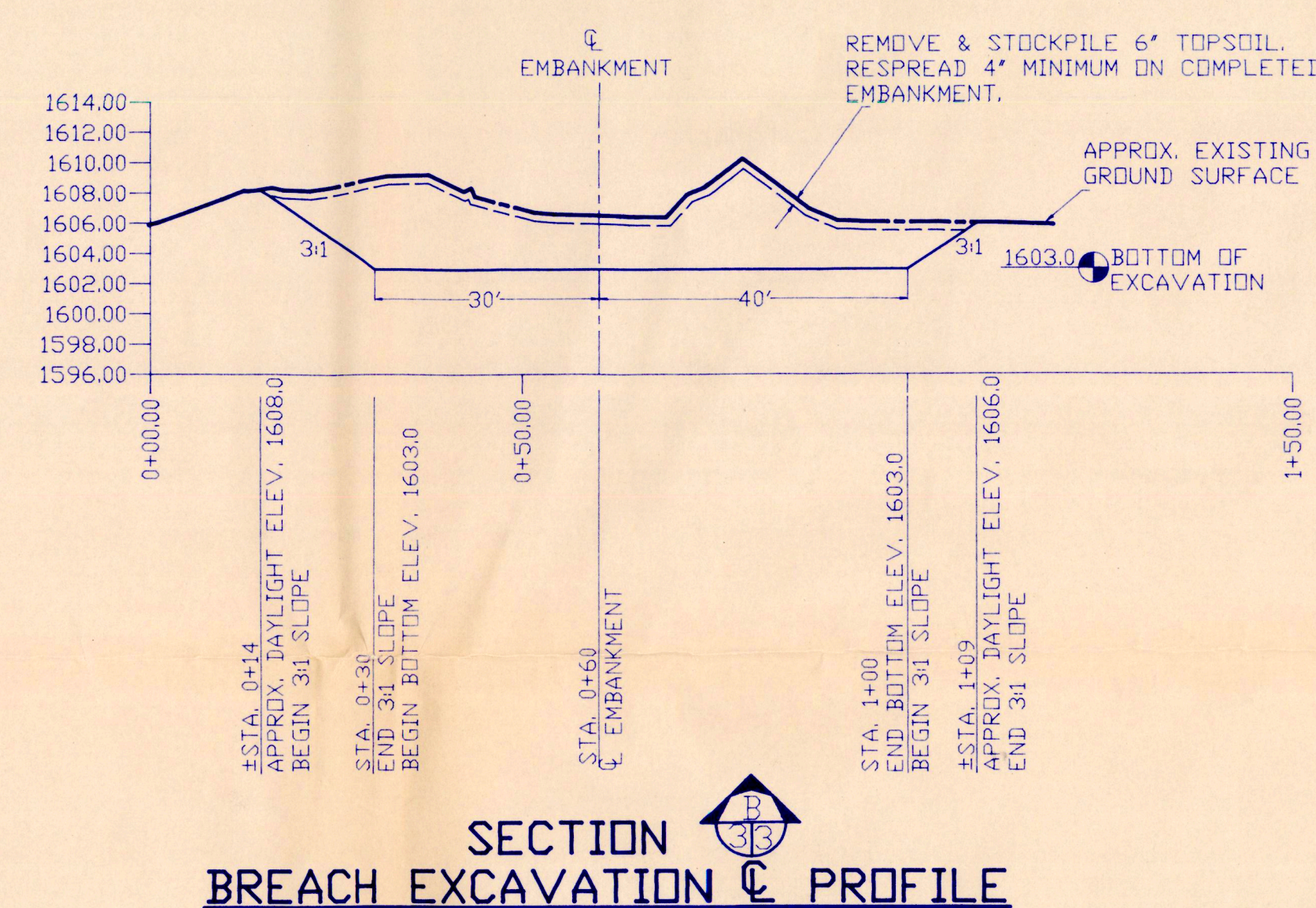
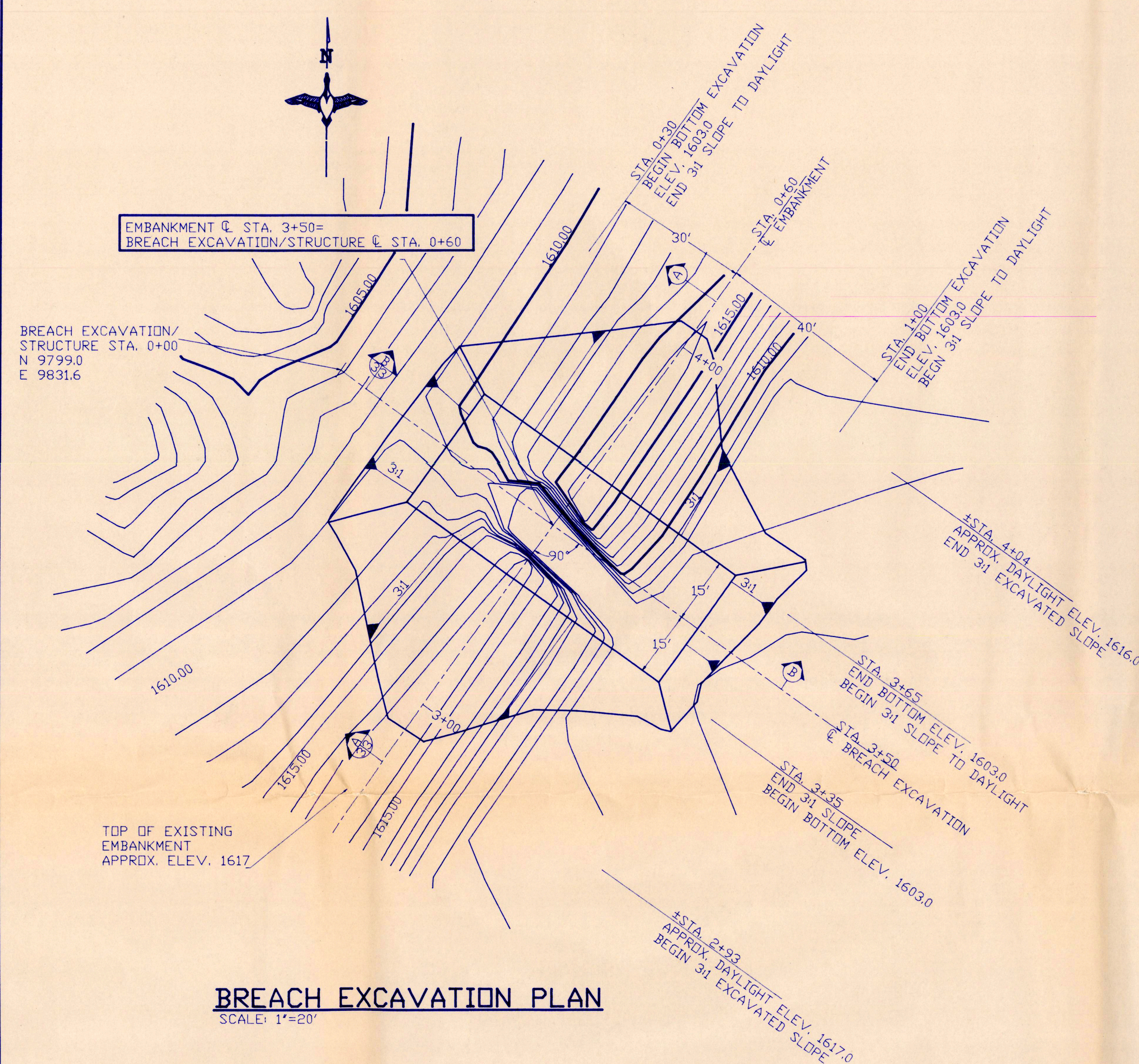
VERTICAL CONTROL:
ESTABLISHED USING THE 7 1/2 MIN. QUADRANGULAR TOPD MAP SPOT ELEVATION FOR THE S.W. CORNER OF SECTION 14 AS 1621 FEET.
HORIZONTAL CONTROL:
LOCAL DU COORDINATES WITH AZIMUTH DETERMINED WITH A BRUNTON COMPASS WITH A 9 1/2' OF MAGNETIC DECLINATION ACCOUNTED FOR.



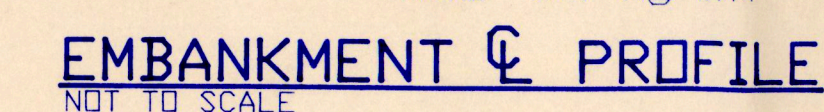
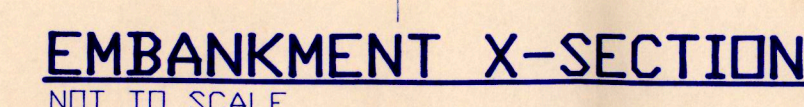
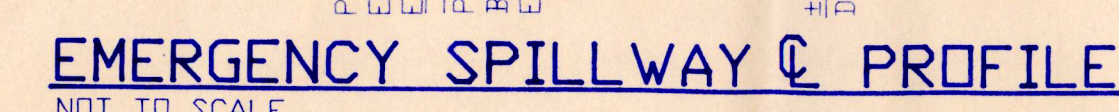
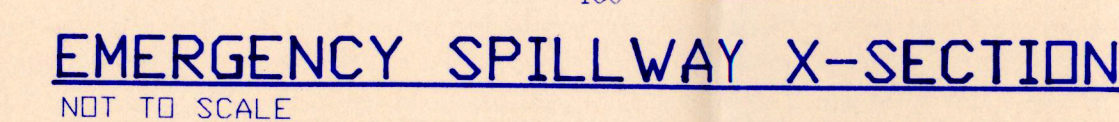
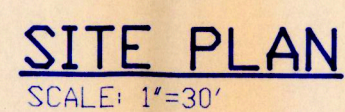
PROJECT TOPOGRAPHY
SCALE: 1"=100'

- LEGEND
- △ DU CONTROL POINT (H.S. REBAR, CAPPED & STAMPED)
 - × EXISTING FENCELINE
 - TREES/BRUSH
 - OVERHEAD POWERPOLES
 - SOIL BORING LOCATION (SEE SHEET 7 FOR DETAILS)
 - FULL SERVICE LEVEL (FSL)

	PROJECT NO. SD-155-01	DESIGNED BY: D.J.L.
	WILLIAMS DAM	DRAWN BY: E
GREAT PLAINS REGIONAL OFFICE DATE: 1-20-94	PROJECT TOPOGRAPHY	SURVEYED BY: G.J.L.T.R.
	SHEET NO. 2 OF 7	CHECKED BY: B.R.K.
APPROVED BY:		APPROVED BY:



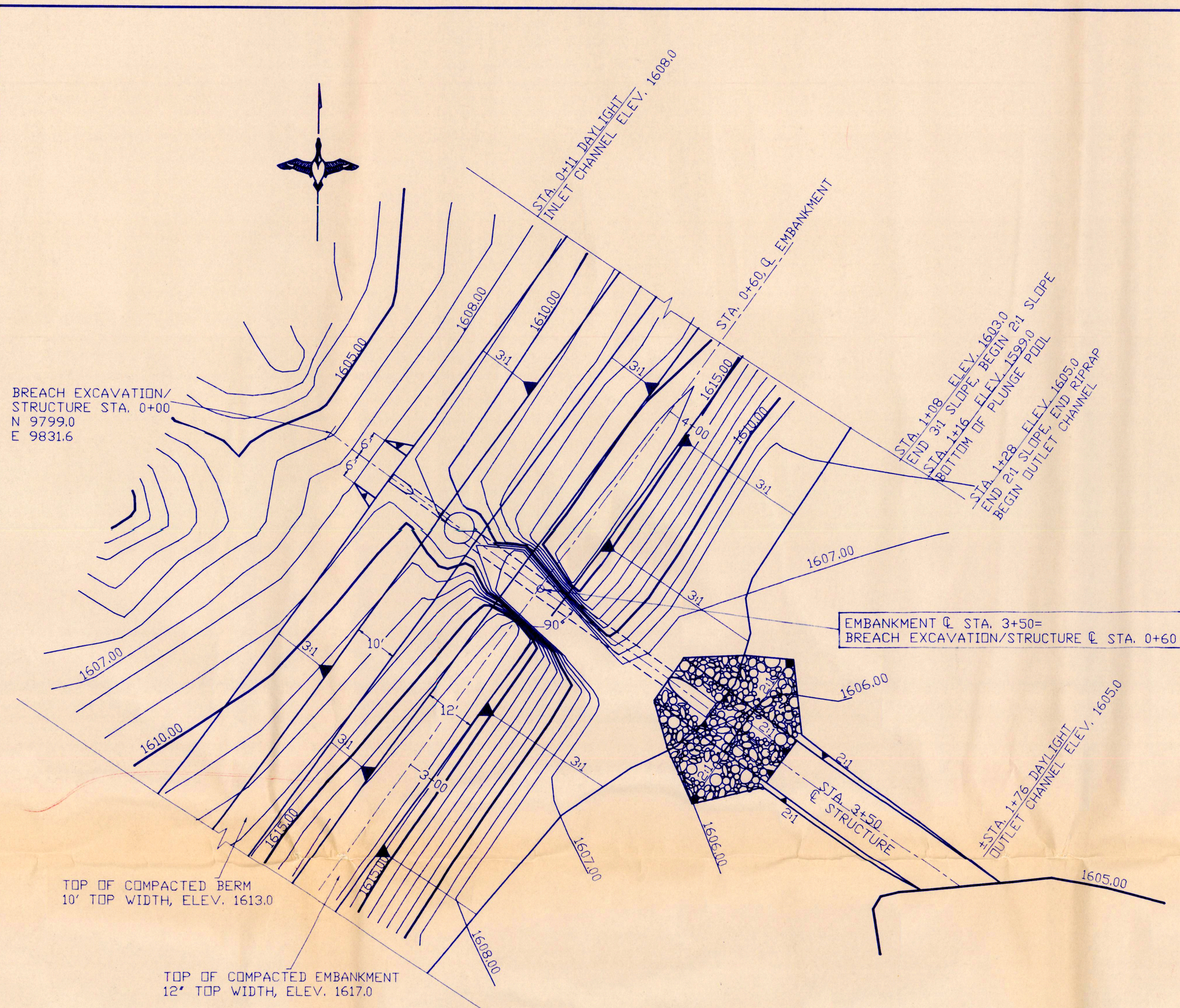
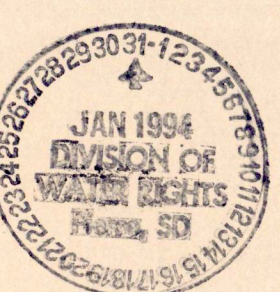
 DUCKS UNLIMITED INC.	PROJECT NO. SD-155-1 WILLIAMS DAM		DESIGNED BY: D.J.
	BREACH DETAILS		DRAWN BY: E
GREAT PLAINS REGIONAL OFFICE	DATE: 1-20-94 SHEET NO. 3 OF 7		SURVEYED BY: CHECKED BY: B.R.
APPROVED BY:		APPROVED BY:	



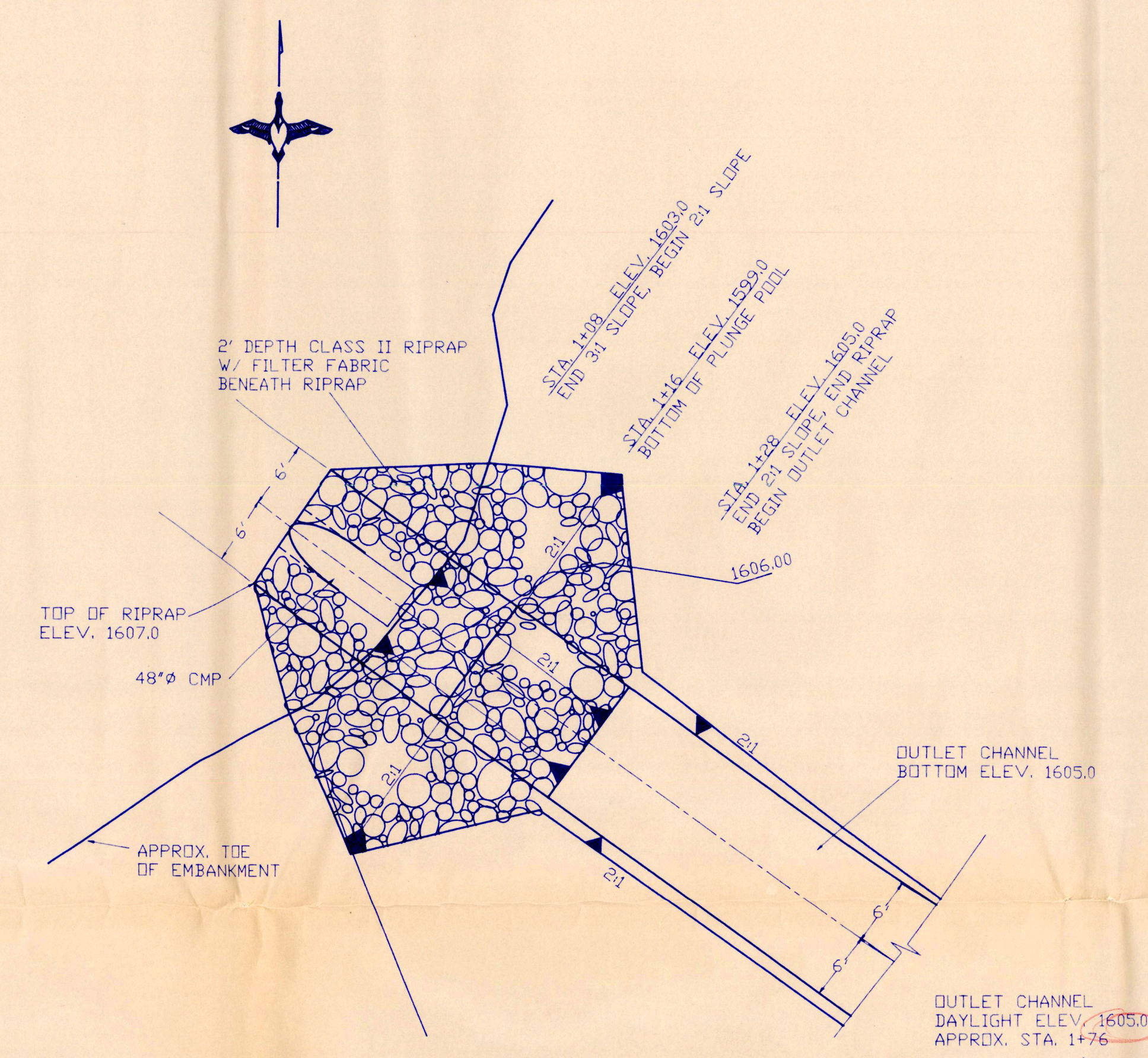
EMBANKMENT NOTE:
SUITABLE MATERIAL FROM THE BREACH EXCAVATION & EMERGENCY SPILLWAY SHALL BE USED
IN EMBANKMENT CONSTRUCTION. ADDITIONAL MATERIAL REQUIRED SHALL BE TAKEN FROM
ADJACENT TO THE EMERGENCY SPILLWAY INLET CHANNEL AS SHOWN.

 DUCKS UNLIMITED INC.	PROJECT NO. SD-155-1 WILLIAMS DAM		DESIGNED BY: D.J.J.
	GREAT PLAINS REGIONAL OFFICE		DRAWN BY: S SURVEYED BY: CHECKED BY: B.R.K.
DATE: 1-20-94	SHEET NO. 4 OF 7	APPROVED BY:	APPROVED BY:

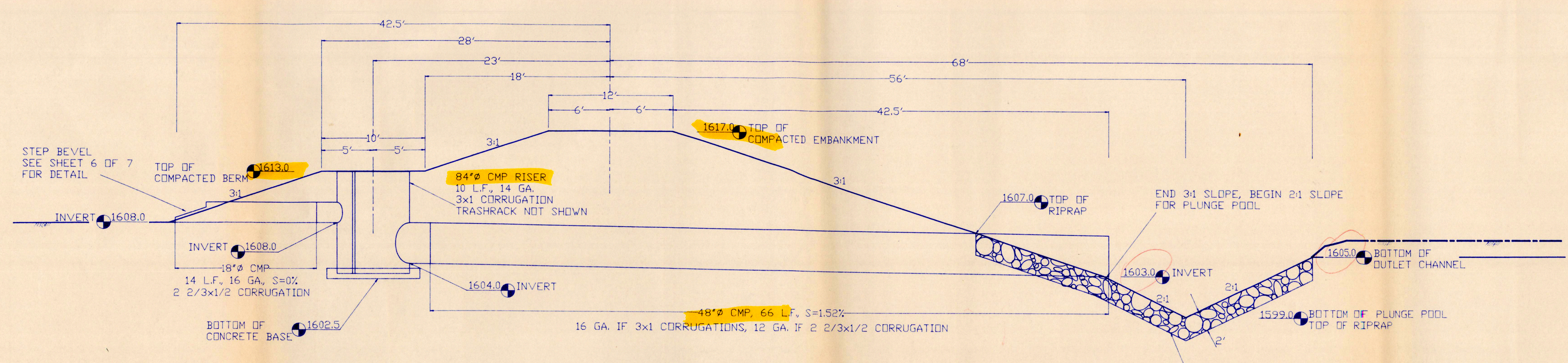
5860-3



STRUCTURE PLAN
SCALE: 1"=20'



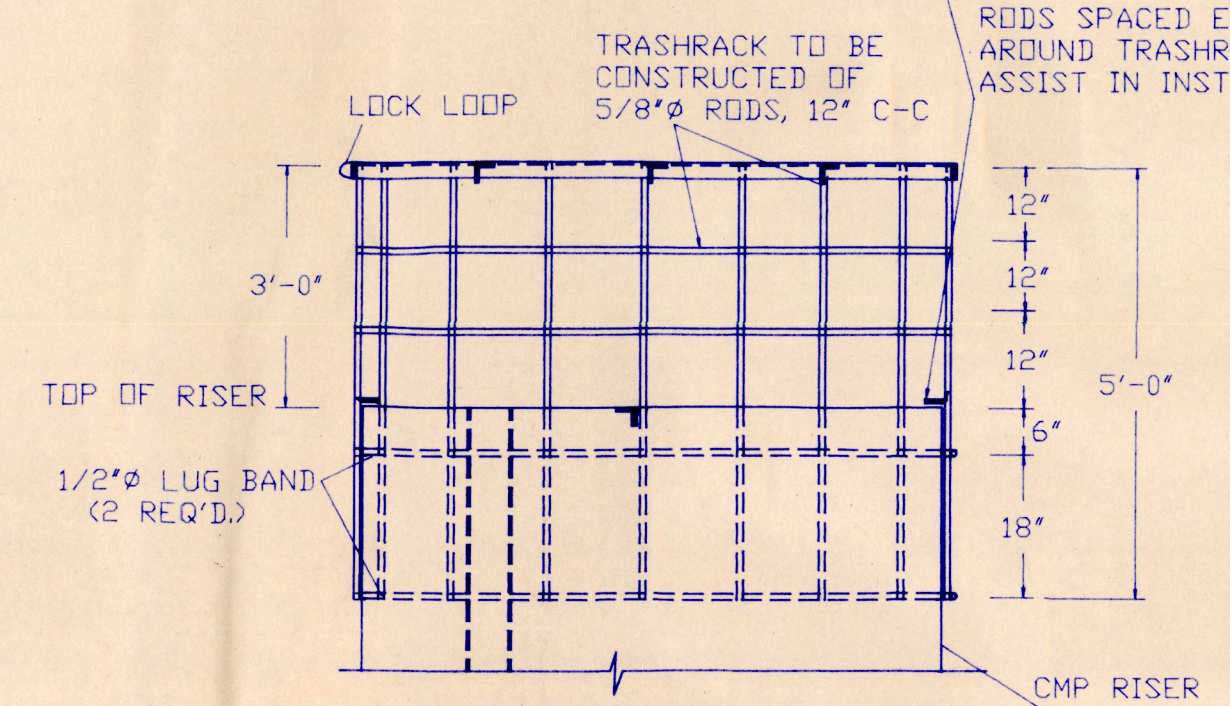
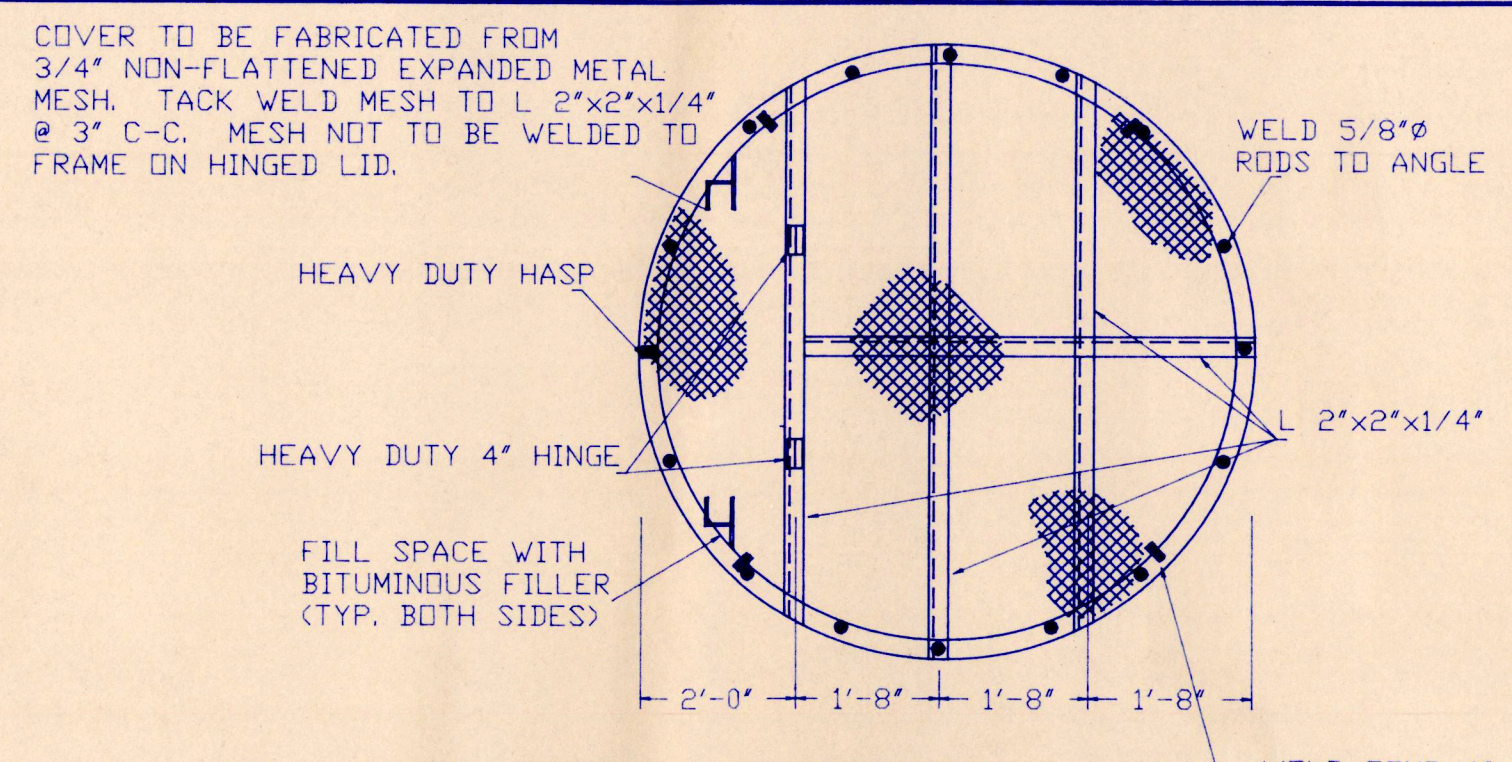
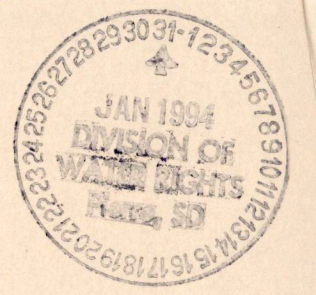
PLUNGE POOL PLAN
SCALE: 1"=10'



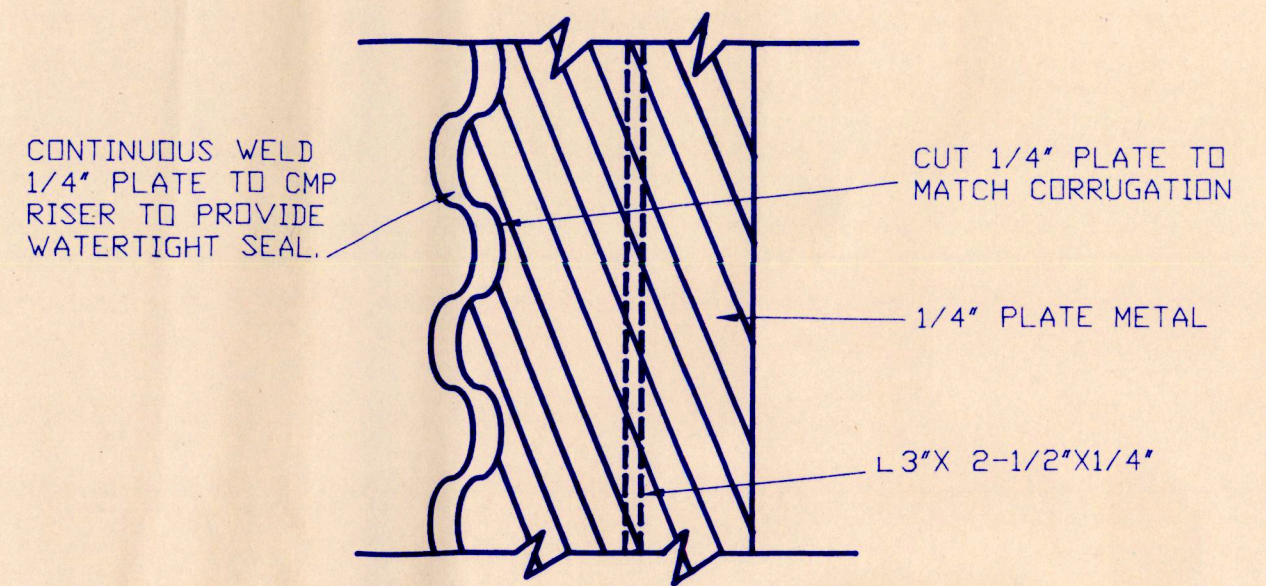
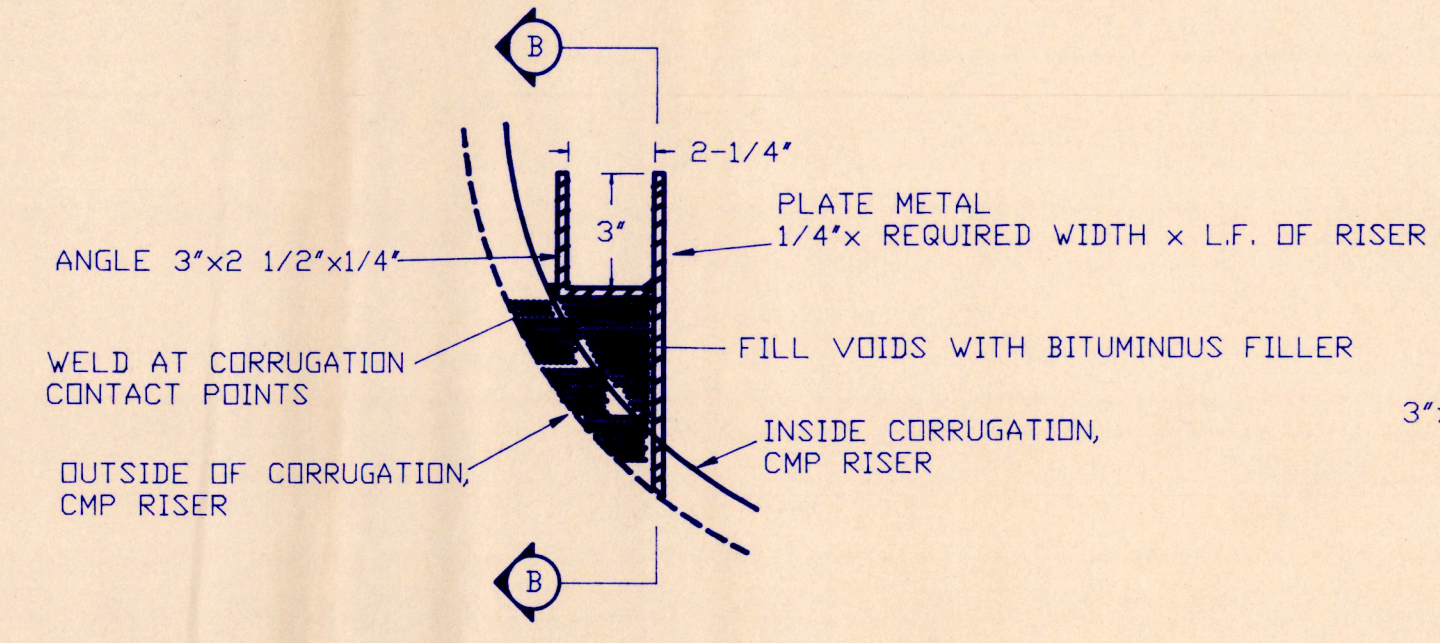
**WATER CONTROL STRUCTURE
PROFILE**
NOT TO SCALE

	PROJECT NO.	SD-155-1	DESIGNED BY: D.J.L.
		WILLIAMS DAM	DRAWN BY: E
		STRUCTURE PLAN & PROFILE	SURVEYED BY:
			CHECKED BY: B.R.K.
DATE:	SHEET NO.	APPROVED BY:	APPROVED BY:
1-20-94	5 OF 7		

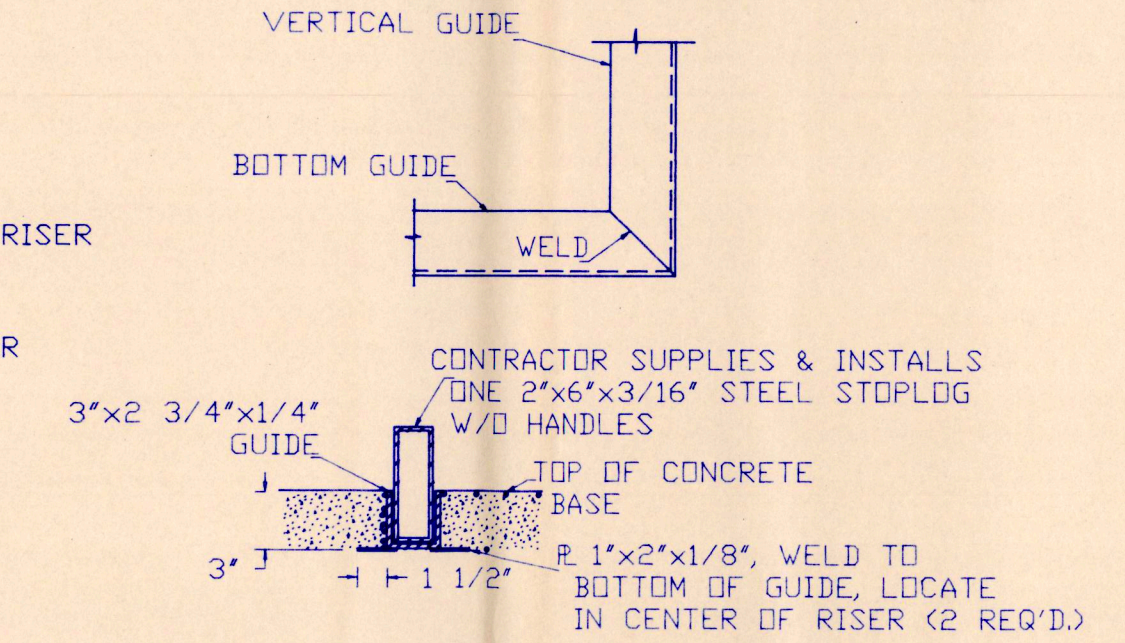
5800-3



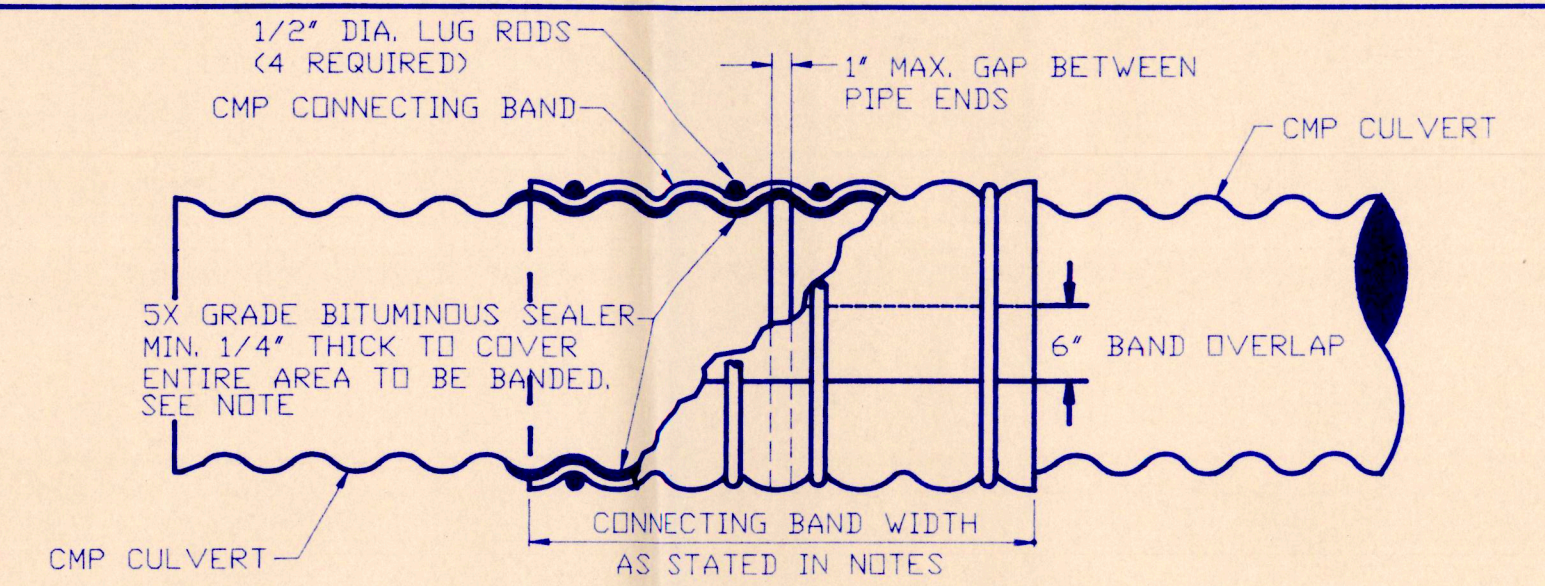
TRASHRACK DETAIL
NOT TO SCALE



STOPLOG GUIDE DETAIL
NOT TO SCALE

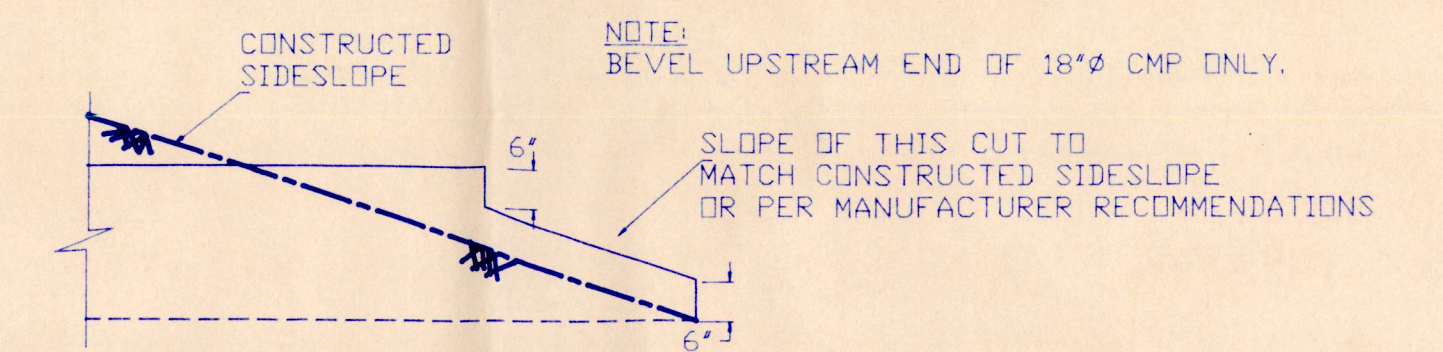


HORIZONTAL STOPLOG GUIDE DETAIL
NOT TO SCALE

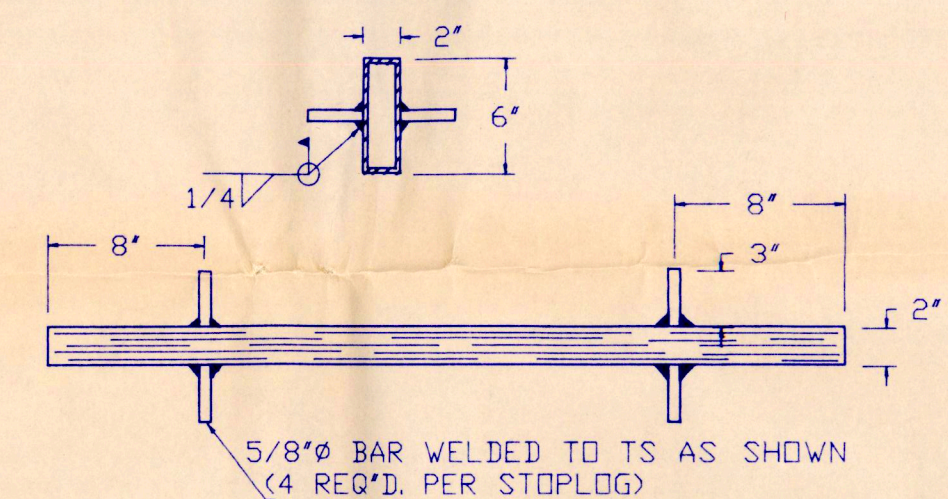


NOTE TO SUPPLIERS: IF ANNUAL PIPE IS USED, USE A 2 FT. WIDE ANNUAL BAND. IF HELICAL PIPE WITH 4 CORRUGATIONS REROLLED TO ANNUAL IS USED, USE A 21 INCH WIDE ANNUAL BAND. SEE SPECIFICATION 307.2.

CONNECTING BAND DETAIL
NOT TO SCALE

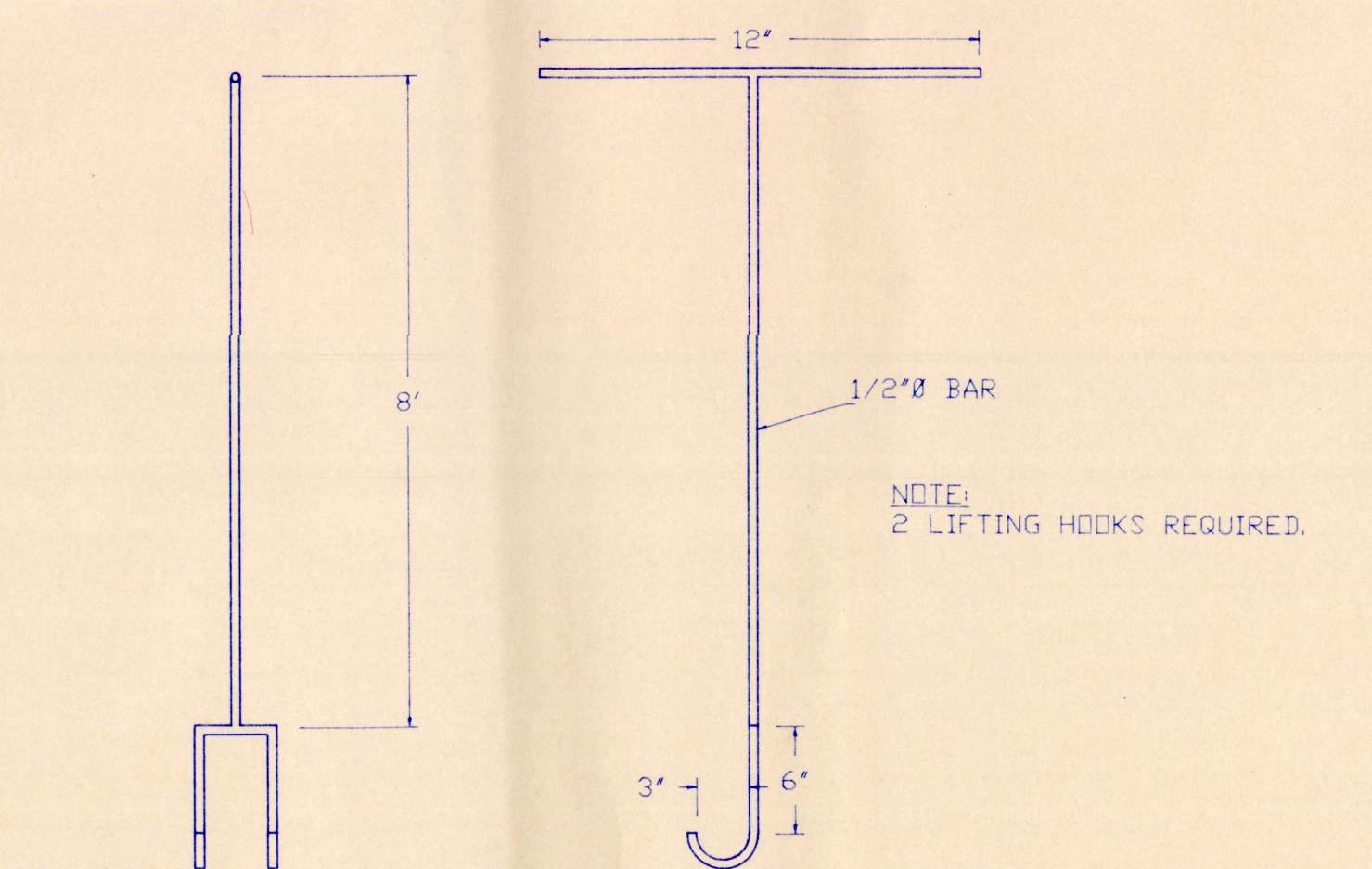


STEP BEVEL DETAIL
NOT TO SCALE

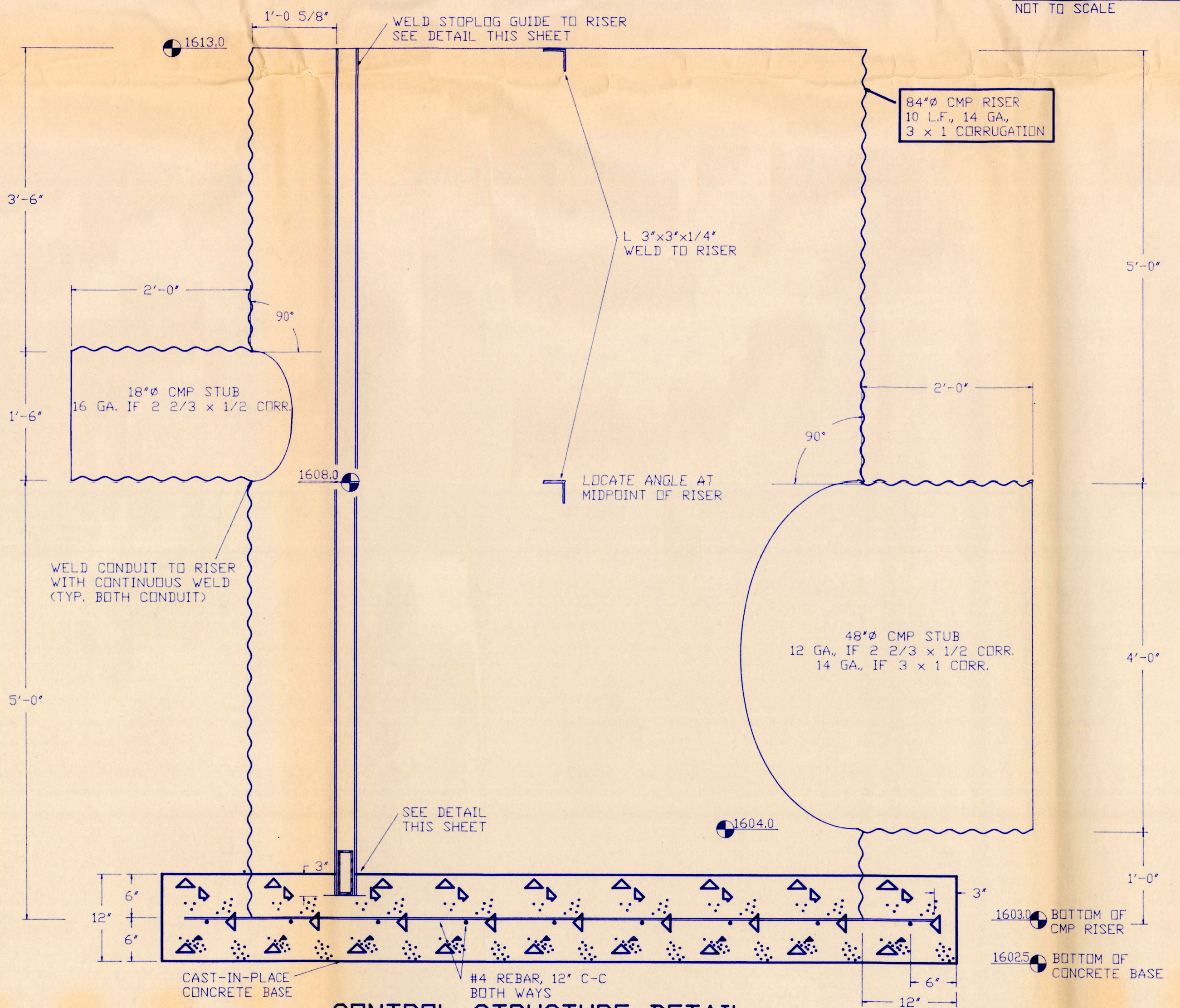


STEEL STOPLOGS WILL BE SUPPLIED BY DUCKS UNLIMITED & DELIVERED TO THE CONTRACTOR. CONTRACTOR SHALL SUPPLY BARS & WELD THEM TO STOPLOGS, & DELIVER STOPLOGS TO SITE.

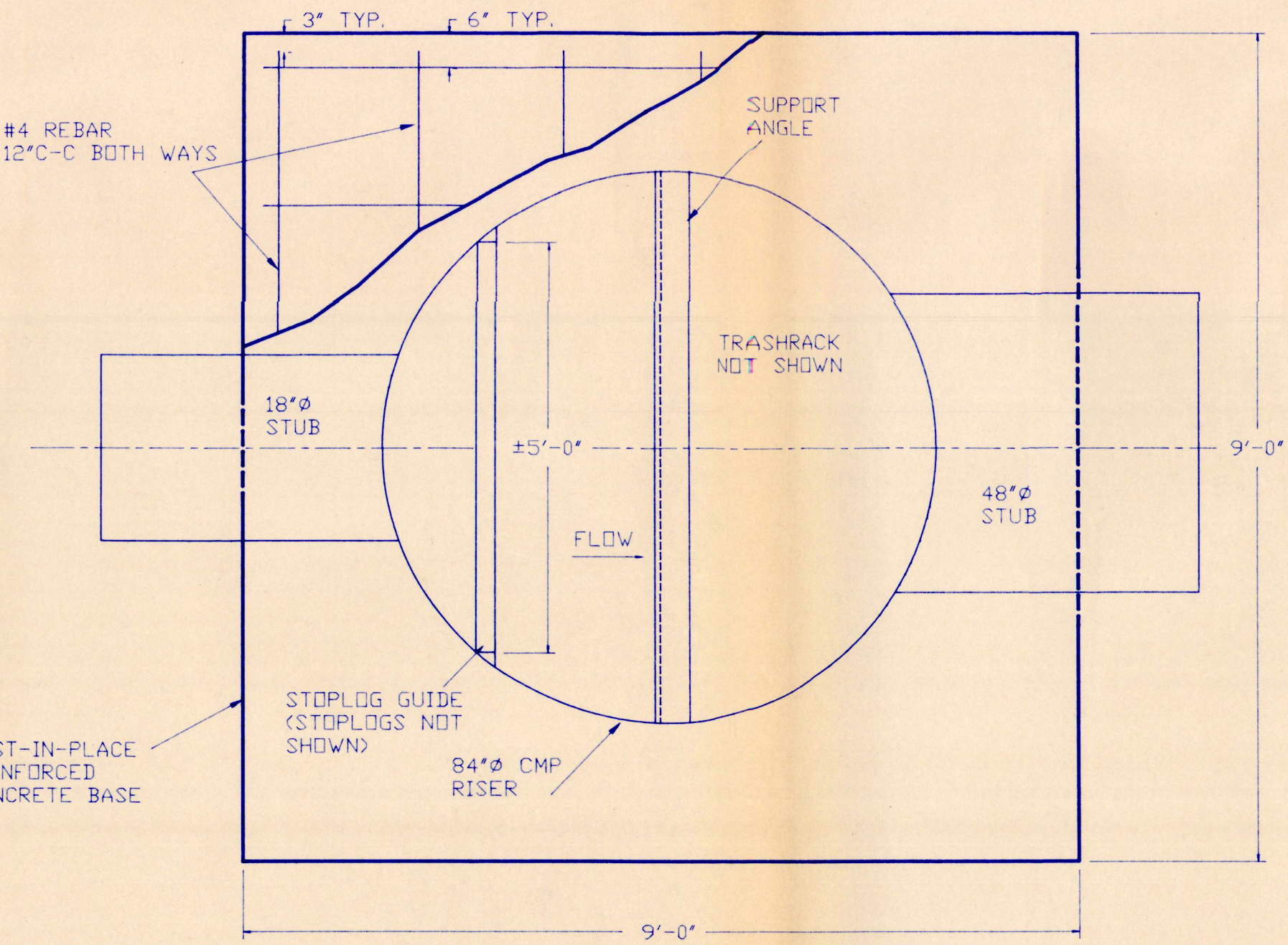
STEEL STOPLOG DETAIL
NOT TO SCALE



STOPLOG LIFTING HOOK DETAIL
NOT TO SCALE



CONTROL STRUCTURE DETAIL
NOT TO SCALE



CONTROL STRUCTURE PLAN
NOT TO SCALE

	PROJECT NO. SD-155-1		DESIGNED BY: D.J.L.
	WILLIAMS DAM		DRAWN BY: B
GREAT PLAINS REGIONAL OFFICE	STRUCTURE DETAILS		SURVEYED BY:
	CHECKED BY: B.R.K.		APPROVED BY:
DATE: 1-20-94	SHEET NO. 6 OF 7	APPROVED BY:	APPROVED BY:

MIDWEST TESTING LABORATORY

JOB NO. B3462

LOG OR TEST BORING NO. 1

VERTICAL SCALE

PROJECT Proposed Rehabilitation, Williams Dam, Edmunds County, South Dakota

DEPTH IN FEET	SOIL DESCRIPTION SURFACE ELEV.	SAMPLE		LABORATORY TESTS			
		NO.	TYPE	VALUE	MOISTURE	DENSITY	LC ₅₀
3	FILL-LEAN CLAY WITH SAND- brown, stiff to rather stiff, trace of gravel, topsoil inclusions (CL)	1	SB	19			
	*FILL-LEAN CLAY WITH SAND-dark grayish brown, vegetation (CL)	2	SB	28			
		3	SB	21			
		4	SB	12			
8	FILL-LEAN CLAY WITH SAND-dark brown, organics (CL)						
9	LEAN CLAY WITH SAND-dark grayish brown to grayish brown, rather stiff to stiff, trace of gravel, organics in the upper 18", moist, waterbearing sand seams (CL)	5	SB	9	32.5	73.6	45/22
		6	SB	15			
		7	SB	16			
		8	SB	19			
21	END OF BORING						

WATER LEVEL DATA			
DATE	TIME	GAUGE IN DEPTH	WATER LEVEL
11-1-93	10:30	HSA 193	18"
11-1-93	10:55	14	14"

BORING DATA			
STARTED: 11-1-93	COMPLETED: 11-1-93	8 10:50	
MET/MD USED			
3 1/4" HSA 0-10'			
CREW CHIEF: M. ROBERTS			

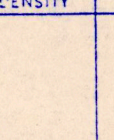


MIDWEST TESTING LABORATORY



JOB NO. **B3462**
 PROJECT **Proposed Rehabilitation, Williams Dam, Edmunds County, South Dakota**

LOG OR TEST BORING NO. **2**

VERTICAL SCALE


DEPTH IN FEET	SOIL DESCRIPTION SURFACE ELEV.	SAMPLE		LABORATORY TESTS			CLUMP	GR.
		NO.	TYPE	VALUE	MOISTURE	DENSITY		
2	FILL-LEAN CLAY WITH SAND- brown, stiff, roots (CL)	1	SB	16			40/16	
	LEAN CLAY WITH SAND-grayish brown, rather stiff to stiff, trace of gravel, white mineral and crystalline inclusions (CL)	2	SB	15				
		3	SB	26				
6	END OF BORING							

WATER LEVEL DATA

DATE	TIME	CAVE IN DEPTH	WATER LEVEL
11-1-93	11:10	NSA 44'	None
11-1-93	11:15	31'	None

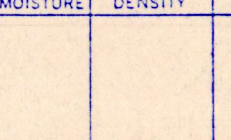
BORING DATA

STARTED **11-1-93** COMPLETED **11-1-93 @ 11:15**

METHOD USED

3 1/4" NSA 0-44'

CREW CHIEF **M. Roberts**

	MIDWEST TESTING LABORATORY	
JOB NO. B3462	LOG OR TEST BORING NO. 3	VERTICAL SCALE 
PROJECT Proposed Rehabilitation, Williams Dam, Edmunds County, South Dakota		

DEPTH IN FEET	SOIL DESCRIPTION SURFACE ELEV.	SAMPLE		LABORATORY TESTS				
		NO.	TYPE	VALUE	MOISTURE	DENSITY	CL/PL	QU
6	LEAN CLAY WITH SAND-grayish brown, rather stiff to very stiff to stiff, trace of gravel, white mineral inclusions, surface vegetation in upper 4" (CL)	1	SD	15				
		2	SB	36	15.2	112.4	43/14	
		3	SB	23				
		END OF BORING						

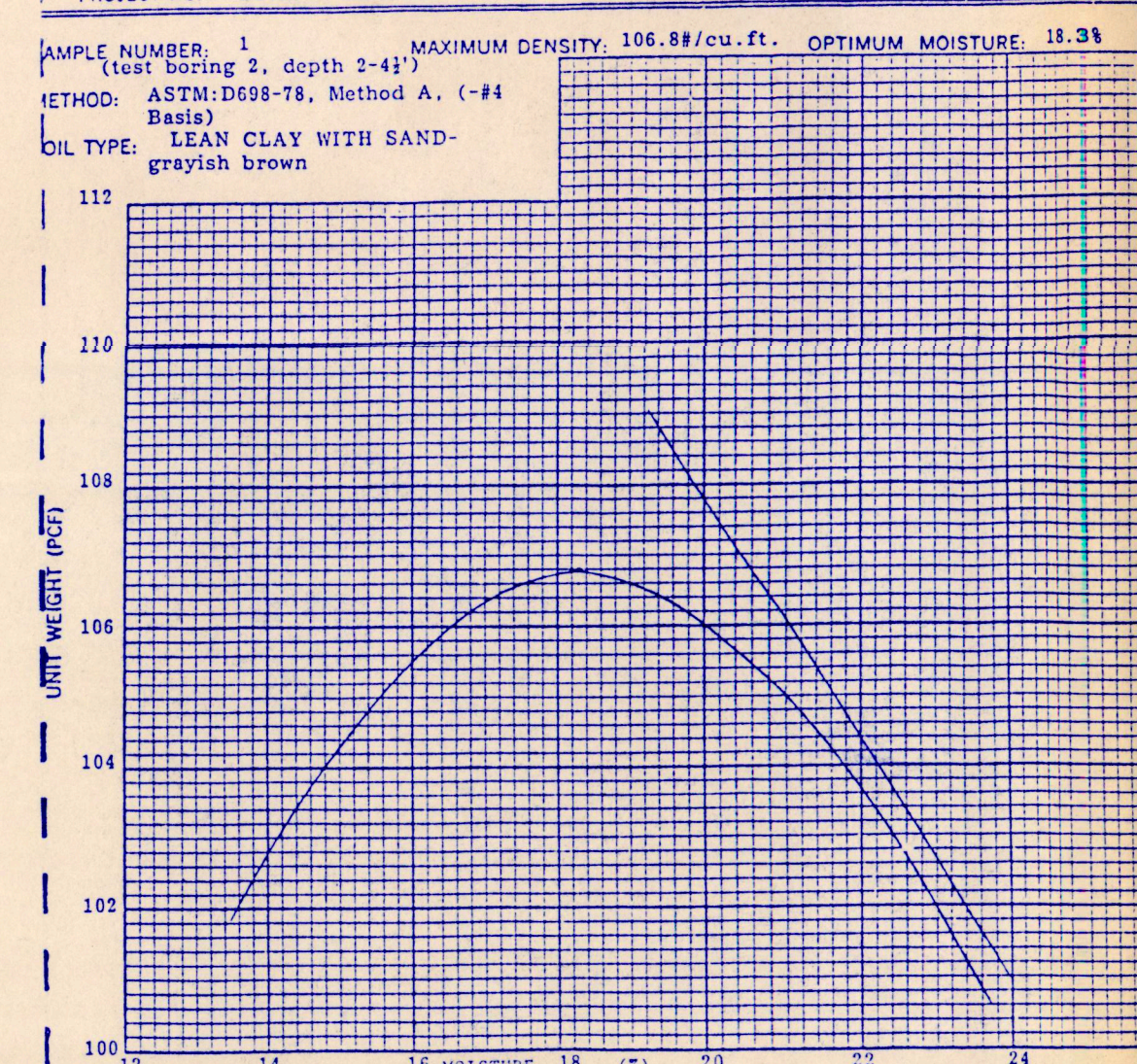
WATER LEVEL DATA <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">DATE</th> <th style="width: 20%;">TIME</th> <th style="width: 20%;">GAGE IN DEPTH</th> <th style="width: 40%;">WATER LEVEL</th> </tr> </thead> <tbody> <tr> <td>11-1-93</td> <td>11:30</td> <td>HSA 4'</td> <td>None</td> </tr> <tr> <td>11-1-93</td> <td>11:35</td> <td>3'</td> <td>None</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	DATE	TIME	GAGE IN DEPTH	WATER LEVEL	11-1-93	11:30	HSA 4'	None	11-1-93	11:35	3'	None													BORING DATA <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> STARTED 11-1-93 METHOD USED </td> <td style="width: 50%;"> COMPLETED 11-1-93 @ 11:30 </td> </tr> <tr> <td colspan="2" style="text-align: center; padding-top: 10px;"> 3 1/4" HSA 0-43' </td> </tr> <tr> <td colspan="2" style="text-align: center;"> CREW CHIEF M. Roberts </td> </tr> </table>	STARTED 11-1-93 METHOD USED	COMPLETED 11-1-93 @ 11:30	3 1/4" HSA 0-43'		CREW CHIEF M. Roberts	
DATE	TIME	GAGE IN DEPTH	WATER LEVEL																												
11-1-93	11:30	HSA 4'	None																												
11-1-93	11:35	3'	None																												
STARTED 11-1-93 METHOD USED	COMPLETED 11-1-93 @ 11:30																														
3 1/4" HSA 0-43'																															
CREW CHIEF M. Roberts																															

B3462		MIDWEST TESTING LABORATORY							
JOB NO.		LOG OR TEST BORING NO.		VERTICAL SCALE					
PROJECT		Edmunds County, South Dakota							
DEPTH FEET	SOIL DESCRIPTION	SURFACE ELEV.		LABORATORY TESTS					
		NO.	TYPE	VALUE	N	MOISTURE	DENSITY	LL/PL	GU
11	LEAN CLAY WITH SAND-BROWN, rather stiff, trace of gravel, white mineral inclusions. surface vegetation in upper 4" (CL)	1	SD	15		36/14			
	LEAN CLAY WITH SAND-grayish brown, stiff, trace of gravel, white mineral inclusions (CL)	2	SD	26					
6	END OF BORING	3	SB	26					
WATER LEVEL DATA		BORING DATA							
DATE	TIME	CASE IN	DEPTH	WATER LEVEL					
11-1-93	11:45	USA 41	None	None					
11-1-93	11:45	31	None	None					
		STARTED: 11-1-93 COMPLETED: 11-1-93 @ 11:45 METHOD USED:							
		3 1/4" HISA 0-4"							
		CREW CHIEF M. Roberts							

		MIDWEST TESTING LABORATORY			
		1900 Cornerstone St. / P.O. Box 2084 / Burnsville, North Dakota 58502			
		Phone (701) 258-2633 / Fax (701) 258-2627			
REPORT OF: TESTS OF SOILS					
PROJECT:		Proposed Rehabilitation Williams Dam Edmunds County, South Dakota		DATE: November 23, 1993	
REPORTED TO:		Ducke Unlimited, Inc Attn: Doug Lipetsky 3502 Franklin Ave Bismarck, ND 58501-9329		COPIES:	
PROJECT NO:		B3462			

<u>SAMPLE NUMBER:</u>	1
<u>LOCATION:</u>	Boring 2, depth 2-4 1/2'
<u>CLASSIFICATION:</u>	LEAN CLAY WITH SAND
<u>COLOR:</u>	Grayish brown
<u>LABORATORY MOISTURE-DENSITY RELATION</u> (see attached curve):	
Method	ASTM D699-79, Method A
Optimum Moisture (%)	19.3
Maximum Density (#/cu ft.)	106.8
<u>LABORATORY PERMEABILITY:</u>	
Method	Falling head
Suction Head (ft/cu ft.)	107.5"
Remolded Moisture Content (%)	20.3
Coefficient of Permeability (cm/sec)	3.7×10^{-8}
Saturated Moisture Content (%)	21.3

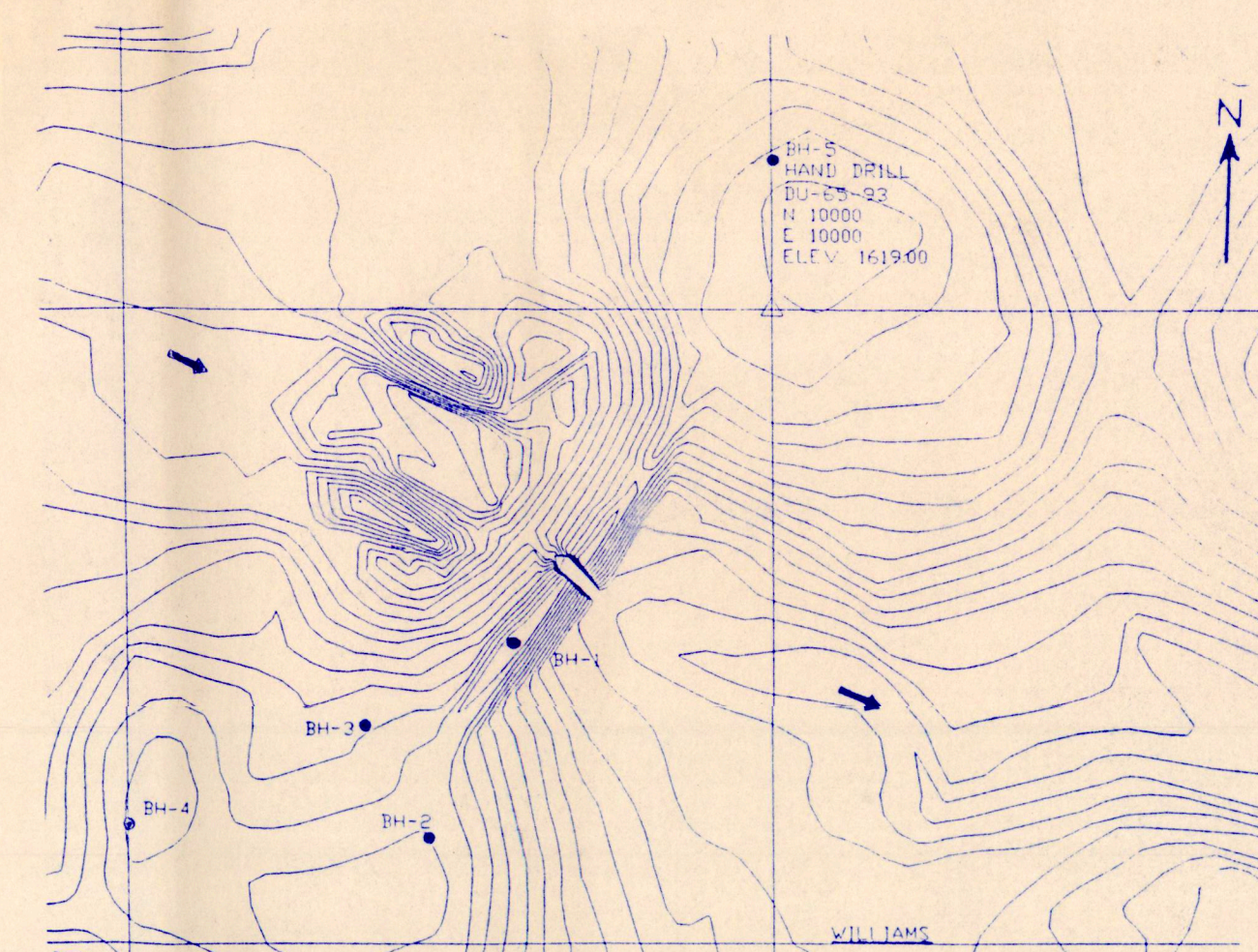
 MIDWEST TESTING LABORATORY			
1900 Commerce St., P.O. Box 2024 / Bismarck, ND 58502 Dial (701) 258-2933 / FAX (701) 258-1957			
REPORT OF: MOISTURE-DENSITY RELATIONS OF SOIL			
PROJECT: Proposed Rehabilitation Williams Dam Edmunds County, South Dakota		DATE: November 29, 1993	
REPORTED TO: Ducks Unlimited, Inc Attn: Doug Lipecky 3502 Franklin Ave Bismarck, ND 58501-9329 81676		COPIES:	
PROJECT NO:			



Classification of Soils For Engineering Purposes

ASTM D 2487-85

Criteria for Assigning Group Names and Group Names (Using Laboratory Tests)				Soil Classification	
				Group	Group name ^a
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clay Gravels Co ₁ > 10% (Co ₂ > 5%) Gravels with less than 10% fines	C₁ > 10% (C₂ > 5%) Co₁ < 10% (C₂ < 5%)	GM	Very gravelly gravel^b
			First classify as M, M₁ or M₂	GM	Gravels
			First classify as CL or CH	GC	Clayey gravel^{b,c}
Sand or more of coarse fraction retained No. 4 sieve	Coarse Sands Co ₁ > 50% (Co ₂ > 25%)	Co₁ > 50% (Co₂ > 25%)	Co₁ < 50% (Co₂ < 25%)	SM	Non-plastic sand^b
				SP	Highly plastic sand^b
		Some with fines More than 12% fines	First classify as M, M₁ or M₂	SM	Silt^b sand^{b,d}
			First classify as CL or CH	SC	Clayey sand^b
Fine-Grained Soils 50% or more of coarse fraction retained No. 200 sieve	Silt and Clays Liquid limit less than 50 Liquid limit more than 50	inorganic	PI^e > 40 or plot on or above A-L line	CL	Lean clay^{b,f}
			Plot on or above A-L line^g	ML	Silt^b
	organic	LI^h > 70, plot on or above U₁-U₂ line		OL	Organic silt^{b,i}
		Liquid limit, not plotted	LI^h > 70	DL	Organic clay^{b,i}
Silt and Clay Liquid limit 50 or more	inorganic	At plot on or below A-L line		ML	Silt^b
		At plot on or below A-L line		CL	Clay^b
	organic	LI^h > 70, plot on or above U₁-U₂ line		OL	Organic silt^{b,i}
		Liquid limit, not plotted	LI^h > 70	DL	Organic clay^{b,i}
Highly organic soils	Primarily organic soils: Silt in clay and organic silt			PT	Peat
Remain 100% Fibers	Remain 100% Fibers			SL	Soft Silty Fibers
^a Based on the method involving the use of plasticity charts. ^b For a further refinement of design or research, a soil may be classified as "lean", "medium", or "fat" based on the plasticity index (PI). ^c If the clayey gravel plots on or below the A-L line, it should be classified as a clayey sand. ^d If the sand plots on or below the A-L line, it should be classified as a silt. ^e PI = Liquid limit - Plasticity index. ^f If the clay plots on or below the A-L line, it should be classified as a clay. ^g If the silt plots on or below the A-L line, it should be classified as a silt. ^h If the soil plots on or below the A-L line, it should be classified as a silt. ⁱ If the soil plots on or below the A-L line, it should be classified as a silt. ^j If the soil plots on or below the A-L line, it should be classified as a silt.					

[illegible]

5 1/2 SEC 14, T122N, R69W
Edmunds County, South Dakota

THE BORINGS DONE ON THIS PROJECT REPRESENT THE SOILS FOUND AT THE LOCATIONS OF THE BORINGS ONLY. SOILS MAY VARY BETWEEN LOCATIONS AND OTHER AREAS OF THE PROJECT SITE NOT DRILLED. A COMPLETE GEOTECHNICAL ENGINEERING REPORT IS AVAILABLE FOR REVIEW AT DUCKS UNLIMITED FRESH PLAINS REGIONAL OFFICE. THE CONTRACTOR WARRANTS THAT SITE CONDITIONS HAVE BEEN EXAMINED AS REQUIRED BY SECTION 01.20. EXAMINATION OF THE CONTRACT DOCUMENTS AND SITE CONDITIONS PRIOR TO BIDDING OR CONSTRUCTING THIS PROJECT. NO ADJUSTMENTS TO THE CONTRACT WILL BE MADE DUE TO CHANGED SITE CONDITIONS.

 DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO: SD-155-1		DESIGNED BY: D.J.L.
	WILLIAMS DAM SOILS INFORMATION		DRAWN BY: KB
DATE: 1-20-94	SHEET NO: 7 OF 7	APPROVED BY:	SURVEYED BY: CHECKED BY: B.R.K.