

WATER PERMIT NO. 5860-3

Phone: 284-2206

Name of Applicant: Theophil Dohn

Post Office Address: RR 3, Box 62, Eureka SD 57437

Amount of Water Claimed: 35.6 AF Total Acres: NA

Source of Water Supply: dry draw

Water to be used for: domestic & fish/wildlife prod. County: McPherson

Location: 8 miles north and 1 west of Eureka

PRIORITY Date Received: 3-31-95 Fee: \$150.00

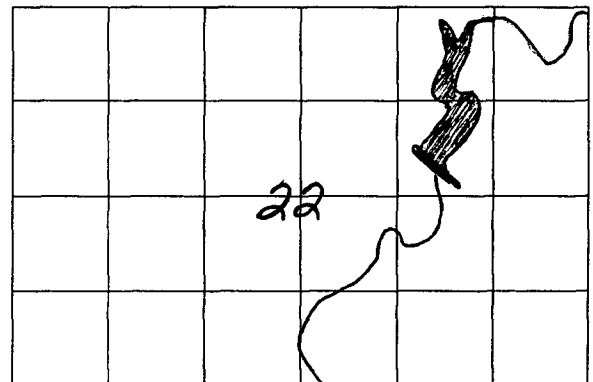
Corrected Application Received: 4-5-95 Period of Annual Use: Jan 1 - Dec 31

Remarks: _____

Diversion Point: SE 1/4 NE 1/4 Sec 22-T128N-R73W

Water Impounded: E 1/2 NE 1/4

Sec 22-T128N-R73W



Well Log: Driller: _____ Licensed: YES ____ NO ____

Depth of Well: _____ REMARKS: _____

Type of Map: areial Prepared By: Boyd Schulz Reviewed and the Number

Assigned on: 4-5-95 By: Karen Schlaak

**SOUTH DAKOTA
WATER PERMIT NO. 5860-3**

Date of first receipt of application March 31, 1995.

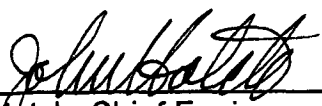
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 5860-3 to Theophil Dohn, RR 3, Box 62, Eureka SD 57437 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5860-3 impounds 35.6 acre-feet of water from local runoff in a dam located in the SE 1/4 NE 1/4 Section 22 with water impounded in the E 1/2 NE 1/4 Section 22; all in T128N-R73W. This permit authorizes impoundment of sufficient water annually to maintain the water level at the outlet elevation of 1855.0 feet mean sea level.
2. The water appropriated shall be used for the purpose of supplying water for domestic use and to provide habitat for fish and wildlife production and may not exceed the amount of water needed for beneficial use.
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. 5860-3 is June 26, 1995.
5. The date from which applicant may claim right is March 31, 1995.
6. One-fifth of the construction is to be completed on or before December 26, 1997.
7. All construction is to be completed on or before June 26, 2000.
8. Water is to be put to beneficial use on or before June 26, 2004.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.
2. Water Permit No. 5860-3 authorizes a dam with storage capacity of 35.6 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation of 1855.0 feet mean sea level.

WATER MANAGEMENT BOARD

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

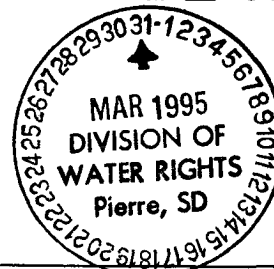
SEP 5 1995

date

No. 5860-3 Hydrologic Unit 10130102
 Map No. _____ Basin Missouri River
 Newspaper Northwest Blade, box 797, Eureka

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 Theophil Dohn Phone No. 284-2206

Post Office Address RR 3 Box 62 Eureka State SD 57437
(Street, RR or Box) (City) Zip Code

2. Amount of water claimed (c.f.s) 35.6

3. Source of water supply 9860 acre watershed

4. Location of point of diversion T128N, R73W, SE 1/4 of NE 1/4 of Section 22

Water Impounded: E 1/2 NE 1/4 Sec 22 - T128N - R73W

County McPherson

5. Counties where water will be used McPherson

6. Annual period during which water is to be used year-round 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)

A dam will be constructed in a dry draw

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

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

Theophil Dohn
 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 Theophil Dohn

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

Bayd Self
 Notary Public

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) _____

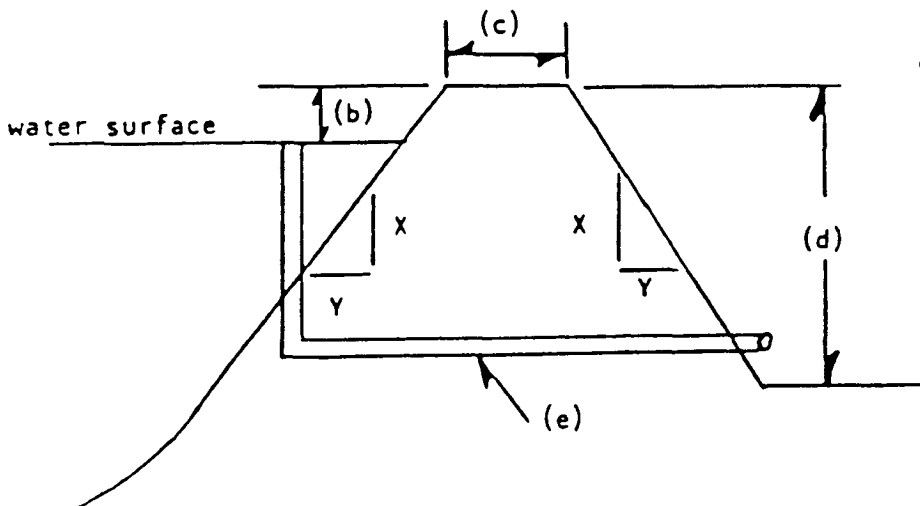
3. Water Storage Dams

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 6 feet
- c) Crest Width 12 feet
Crest Length 302 feet
- d) Height 17 feet
- e) Primary Outlet Capacity 700 cfs
If Pipe, diameter 2-96" risers/
84" barrel
- f) Secondary Spillway Capacity 1325 cfs
Spillway width 110 feet
- g) X & Y Slope
Upstream 3:1
Downstream 3:1



Surface Area of Impoundment 11.0

Storage 35.6 acre feet

Drainage area above dam 9860 acres

Theophilus
Signature of Applicant





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. 20411-6092-3/5860-3

Sand Lake National Wildlife Refuge
39650 Sand Lake Refuge
Columbia SD 57433
Attn: Marcie

\$50.00 fee for investigation and issuance of water license No. 6092-3
\$50.00 fee for investigation and issuance of water license No. 5860-3

PLEASE PAY THIS AMOUNT:

\$100.00

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

DESIGN REPORT

February 15, 1995



PROJECT:

DOHN DAM
SD-169-001

LOCATION:

Section 22, T 128 N, R 73 W
9 miles north, 1 mile west of Eureka
McPherson County, South Dakota

MARSH DATA:

Full Service Level (FSL) @ 1855.0
11.0 Surface Acres @ FSL
35.6 Acre-Feet Capacity @ FSL

Emergency Spillway Crest @ 1857.5
20.2 Surface Acres @ E.S. Crest
73.6 Acre-Feet Capacity @ E.S. Crest

Top of Compacted Embankment @ 1861.0
27.1 Surface Acres @ Top of Dam
152.7 Acre-Feet Capacity @ Top of Dam

PROJECT DESCRIPTION:

The project as proposed involves the construction of a small dam located on private land. The landowner has agreed to sign a Wildlife Extension Agreement with the U.S. Fish & Wildlife Service (FWS). At the full pool elevation of 1855.0, no other private or public land will be affected by the project. As water bounces during major runoff events, it is possible the upstream landowner, Mr. Jim Mulder, could have some water backed up on his land (± 5 acres) for a short period of time. However, Mr. Mulder has indicated a willingness to sign an agreement or flood easement with the FWS allowing such inundation to occur.

The proposed embankment is on an unnamed drainage that discharges into Spring Creek and eventually into Lake Pocasse and the Missouri River. The contributing watershed consists of approximately 9,860 acres or 15.4 square miles.

PRELIMINARY RISK ASSESSMENT:

The project site is located in a rural area of McPherson County. No residences or other buildings are located directly downstream adjacent to the outlet channel. Upon leaving the outlet structure, flows will follow an existing drainage through pasture land for approximately one-half mile, just as they do now. A gravel section line road with two 48" diameter corrugated metal pipe (CMP) culverts and ± 10 feet of total available head exists approximately one-half mile downstream from the proposed embankment. The drainage continues another one-half mile and then enters Spring 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 low hazard, small, Category 3 dam.

The product of the intermediate storage capacity (73.6 acre-feet) times the effective height (11.5 feet) is 847 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:

As designed, the primary spillway will pass flows produced by a 10-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.

Twin 96" diameter CMP overflow risers, connected in series with an 84" diameter CMP outlet barrel is proposed as the primary spillway. The structure will be equipped with a gate valve and inflow pipe to provide drawdown capability. The riser overflow crest elevation or full service level (FSL) is proposed at elevation 1855.0. A 110 foot wide emergency spillway with the level crest at elevation 1857.5 will assist in passing high flows.

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 Natural Resource Conservation Service (formerly 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 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.

The following is a relationship between peak inflows, corresponding outflows, and reservoir elevations 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	332 CFS	1856.63	4.37 FT	329 CFS
10 YR	559 CFS	1857.51	3.49 FT	544 CFS
25 YR	1019 CFS	1859.26	1.74 FT	1002 CFS
50 YR	1405 CFS	1860.05	0.95 FT	1393 CFS
100 YR	1934 CFS	1860.85	0.15 FT	1923 CFS

Primary Spillway (Riser) Crest Elevation . . @ 1855.0
 110' Wide Emergency Spillway Crest @ 1857.5
 Top of Compacted Embankment Elevation. . . . @ 1861.0*

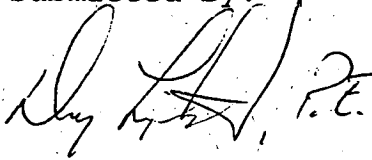
*Before topsoil placement.

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

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.

Dated: February 15, 1995

Submitted By:

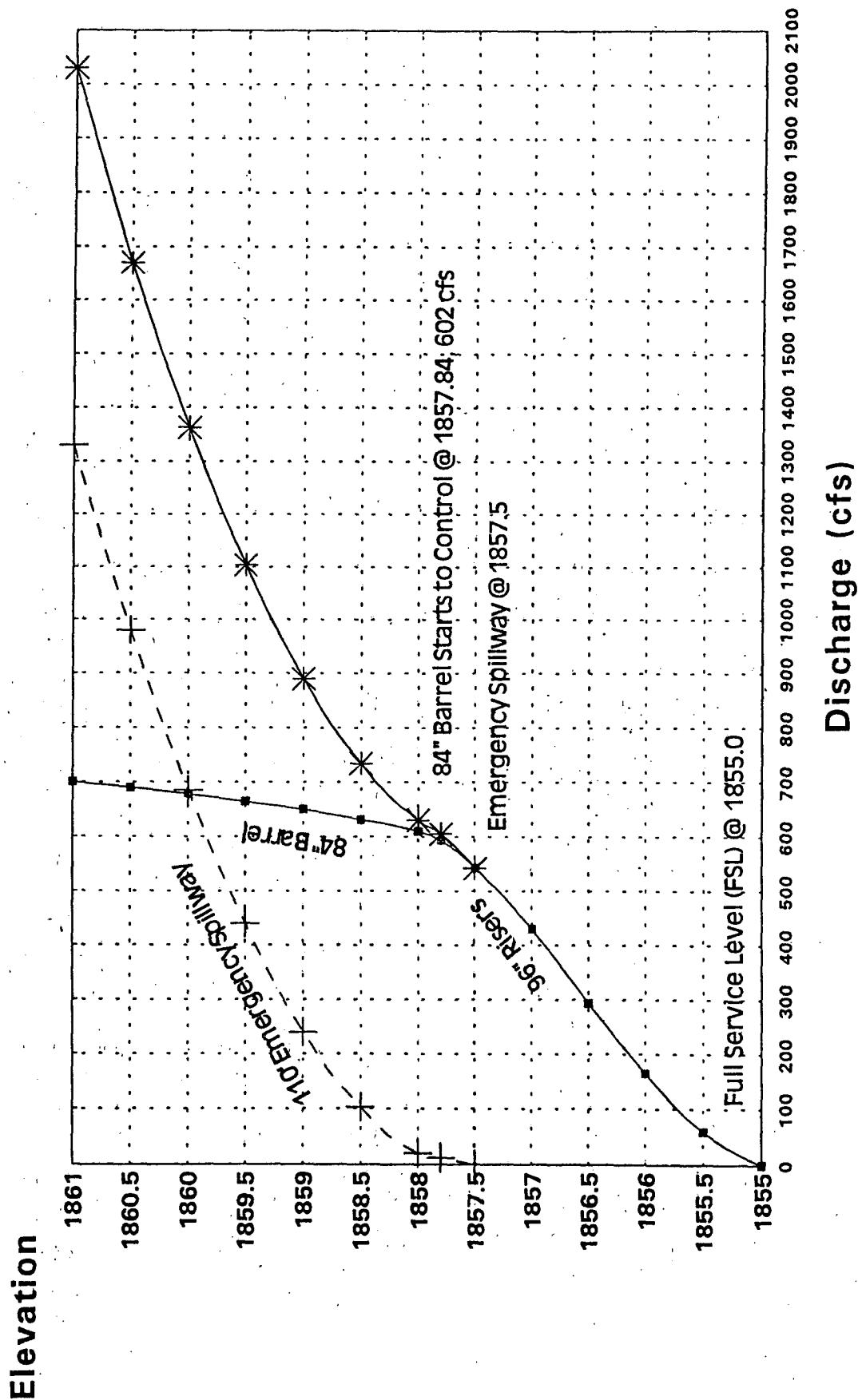
A handwritten signature in dark ink, appearing to read "Doug Lipetzky, P.E.", with a stylized flourish at the end.

Doug Lipetzky, P.E.

PE-4499

DOHN DAM

Discharge Curve



+ 2-96" Risers/84" Bar. + 110' Emerg. Spillway * Primary & Emergency

Water Permit Application No. 5860-3
Theophil Dohn

Top of Dam Elev. - 1861
Primary Spillway Elev. - 1855 - 35.58 Ac-Ft.
2nd Spillway Elev. - 1857.5 - 152.70 Ac-Ft.
Height - 17 feet

Cat. 3 - Low Hazard

Intermediate Storage (73.6 Ac-Ft) times Effective Height (11.5 ft.)
equals 847 $\therefore$ 25 year frequency Minimum Spillway Design

Using USGS WRI 80-80

$$DA = 15.4 \text{ mi}^2$$

$$\text{slope} = 50 \text{ ft/mile}$$

$$SI = 2.05$$

$$Q_{25} = 83.4 A^{.60} S^{.44} S_i^{-.72}$$

$$\begin{aligned} &= 83.4 (15.4)^{.60} 50^{.44} 2.05^{-.72} \\ &= 83.4 (5.16) (5.59) (0.60) \\ &= \underline{1443 \text{ cfs}} \end{aligned}$$

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

$$\begin{aligned} &= 132 (15.4)^{.65} 50^{.46} 2.05^{-.67} \\ &= 132 (5.94) (6.05) (0.62) \\ &= \underline{2925 \text{ cfs}} \end{aligned}$$

Spillway Q check

2-96" Risers w/ 84" Barrel & 110 ft. Emergency

Weir flow until Elev. 1857.84 then Orifice flow thru 84" Barrel

$$\begin{aligned} Q &= C L H^{3/2} \quad L = 2-96" \text{ Riser Circ} = 25' \times 2 = 50 \text{ ft} \\ &= 3(50)(2.84)^{1.5} \quad H = 2.84 \\ &= \underline{700 \text{ cfs}} \quad \text{OK} \quad \text{DU used smaller C value} \end{aligned}$$

$$\begin{aligned} Q &= C A \sqrt{2gh} \quad C = 0.60 \quad H = 15 \text{ ft} \quad A = 38.46 \text{ ft}^2 \\ &= (0.60)(38.46) \sqrt{2(32.2)(15)} \\ &= \underline{717 \text{ cfs}} \quad \text{OK} \end{aligned}$$

2nd Spillway - Weir Elev. $C = 2.6 \quad L = 110 \quad H = 3.5$

$$\begin{aligned} Q &= C L H^{3/2} \\ &= (2.6)(110)(3.5)^{1.5} \\ &= \underline{1872 \text{ cfs}} \end{aligned} \quad \text{DU used smaller C w/ Approx } \underline{1300 \text{ cfs}}$$

$$\begin{aligned} \text{Total } Q &= 1872 \\ &+ 717 \\ &\underline{2589 \text{ cfs}} \end{aligned}$$

Ducks Unlimited uses TR-20 to route a Q₂₅ Peak of 1019 cfs thru the dam with Max. Elev. = 1859.26, leaving 1.74 feet of freeboard; and Q₁₀₀ Peak of 1934 cfs thru the dam with Max. Elev. = 1860.85, leaving 0.15 feet of freeboard. Their procedure uses small peak flow values, but also used smaller C values for spillway flows.

Section 74:02:08:09

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

SCS Annual Yield

Williams - Bowbells - Well Drained
Lehr - Bowdle - Wabek - Excess. Well Drained

Soil Type B

Assume $CN = 70$, $DA = 15.4 \text{ mi}^2$

ISO = 2 (Low Yield - Well Drained DA)

50% chance - 0.21 Ac-In/Ac

$$\begin{aligned} 0.21 \times 15.4 \times 640 &= 2070 \text{ Ac-In} \\ &= \underline{173 \text{ Ac-Ft.}} \end{aligned}$$

10% chance - 1.3 Ac-In/Ac.

$$\begin{aligned} 1.3 \times 15.4 \times 640 &= 12,813 \\ &= \underline{1070 \text{ Ac-Ft.}} \end{aligned}$$

McPherson 5/79 26
T.128 R.73 Sec. 15,16,21,22



Bay S. J. USFWS
5860-3



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:

March 17, 1995

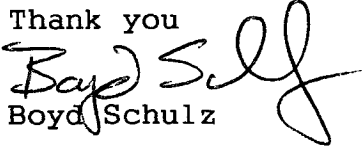
Water Rights Division
523 E. Capitol
Pierre, SD 57501

To whom it may concern,

Enclosed you will find two copies of an application for a water permit and a money order to cover the application fee. The U.S. Fish and Wildlife Service is working in cooperation with Theophil Dohn and Ducks Unlimited on this project. The land is owned by Mr Dohn. Ducks Unlimited has designed the project. The Fish and Wildlife Service is paying for the application cost however, we would like the water permit to be issued to Mr Dohn.

If I can be of any further help please contact me at 885-6320.

Thank you


Boyd Schulz





DUCKS UNLIMITED, INC.
GREAT PLAINS REGIONAL OFFICE

3502 Franklin Avenue
Bismarck, North Dakota 58501-0761
(701) 258-5599

March 31, 1995



Tim Schaal
SD Dept. of Water & Natural Resources
Division of Water Rights
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501

RE: Theophil Dohn Dam Project
SD-0169-001

Dear Tim:

As requested, enclosed is a signed copy of the plans for the Dohn Dam project on private land in McPherson County, South Dakota. I've also enclosed a copy of my Design Report in case you didn't receive one. If you have any questions or need any additional information, please give me a call.

Sincerely,

Doug Lipetzky, P.E.
Regional Engineer

RECEIPT

414451

Division of Water Rights

South Dakota Department of Environment and Natural Resources

Pierre, March 31, 19 95

RECEIVED OF Sand Lake NWR (Theophil Dohn), Rk 1 Box 25, Columbia, SD 57433

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

Fee for Application for Permit No. <u>5840-2</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 John H. Hark
Chief Engineer

REPORT ON
WATER PERMIT APPLICATION NO. 5860-3
Theophil Dohn
May 16, 1995

Water Permit Application No. 5860-3 has been filed by Theophil Dohn to appropriate 35.6 acre-feet of water annually by constructing a dam. The dam will be located on an unnamed tributary to Spring Creek in the SE 1/4 NE 1/4 of Section 22-T128N-R73W, in McPherson County. The impounded water will be used for domestic use and to provide habitat for fish and wildlife production.

Discussion:

The Dohn Dam will be classified as a Category 3, Low Hazard dam. The dam has been designed by Ducks Unlimited, Inc. and the plans and specifications have been reviewed and approved; however, construction cannot start until Water Permit Application No. 5860-3 is approved.

The dam will be 17 feet high with a normal storage capacity of 35.6 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 152.7 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 25-year frequency event.

The Dohn Dam is designed to have a CMP drop inlet spillway with two 96-inch diameter risers and an 84-inch diameter barrel. The spillway crest will be at elevation 1855.0, giving it 6 feet of available head. The dam will also have a 110 foot wide earthcut secondary spillway with a crest elevation of 1857.5, giving it 3.5 feet of available head. The Dohn Dam will have a drainage area of 15.4 square miles. Ducks Unlimited uses the Soil Conservation Service TR-20 model to route a 25-year frequency event peak of 1019 cfs through the dam with 1.74 feet of freeboard remaining. A 100-year frequency event with a peak of 1934 cfs is routed through the dam with 0.15 feet of freeboard remaining.

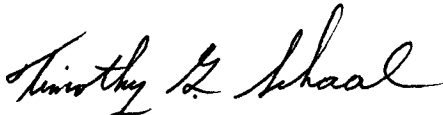
The annual yield for this drainage area with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be approximately 173 acre-feet. The annual yield for this basin with a 10 percent chance of occurrence, or 1 out of 10 years, is expected to be 1070 acre-feet.

The Dohn Dam is located on an unnamed tributary to Spring Creek about 1 mile upstream of the confluence with Spring Creek and about 25 miles upstream of the confluence of Spring Creek and Lake Pocasse and the Missouri River. There are no existing Water Permits/Rights located downstream on the unnamed tributary and

only one Water Right, No. 4918-3, for sand and gravel washing is located downstream on Spring Creek. Considering the size of the upstream drainage area (15.4 Sq. Mi.) and the normal storage capacity (35.6 acre-feet), approval of Water Permit Application No. 5860-3 should have no adverse effects on Water Right No. 4918-3.

Conclusion:

1. Water permit Application No. 5860-3 should be approved since unappropriated water is available and approval should 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. 5860-3.



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. 5860-3, Theophil Dohn**

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. 5860-3, Theophil Dohn, RR 3 Box 62, Eureka, SD 57437.

The Chief Engineer is recommending APPROVAL of Application No. 5860-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualifications:

1. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.
2. Water Permit No. 5860-3 authorizes a dam with storage capacity of 35.6 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation of 1855.9 feet mean sea level.

See report on application for additional information.



JOHN HATCH, Chief Engineer
May 30, 1995



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 24, 1995

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

Dear Mr. Lipetzky:

We have reviewed the plans and specifications for the Dohn Dam located in the NE 1/4 of Section 22-T128N-R73W, in McPherson 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. 5860-3 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 Mr. Dohn, as owner of the dam, from the responsibility for operating and maintaining the dam in good repair to ensure the safety of the dam.

The Dohn Dam will be classified as a small size Category 3, Low Hazard Dam with an embankment height of 17 feet and a normal storage capacity of 35.6 acre-feet and a maximum storage capacity of 152.7 acre-feet.

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

Sincerely,

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

c: Theophil Dohn, landowner
Boyd Schulz, US Fish & Wildlife Service



**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.

May 31, 1995

Theophil Dohn
RR 3 Box 62
Eureka, SD 57437

Dear Mr. Dohn:

Water Permit Application No. 5860-3 for domestic and fish/wildlife production 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 Northwest Blade printed at Eureka, SD (Ph # 605-284-2631). For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

c: Doug Lipetzky, P.E., Ducks Unlimited, Inc., 3502 Franklin Ave., Bismarck, ND 58501-0761



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 31, 1995

Northwest Blade
Box 797
Eureka, SD 57437-0797

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5860-3 to be published twice. Please publish the first notice on June 7, 1995, with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is Theophil Dohn, RR 3 Box 62, Eureka, SD 57437 (Ph # 605-284-2206).

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 June 7, 1995, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 5860-3 to Appropriate Water

Notice is given that Theophil Dohn, RR 3 Box 62, Eureka, SD 57437 has filed an application for a water permit to impound 35.6 acre-feet of water from local runoff by constructing a dam located in the SE 1/4 NE 1/4 Section 22 with water impounded in the E 1/2 NE 1/4 Section 22; all in T128N-R73W. This application requests impoundment of water sufficient to maintain water at the outlet elevation of 1855.0 feet mean sea level and is to be used for domestic use and to provide habitat for fish and wildlife production.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5860-3 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 June 26, 1995.

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

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County of McPherson) ss

I, Arlo C. Mehlhaff

certify that the attached printed Notice was
 taken from the Northwest Blade Inc.

printed and published in Eureka, S.D

County of McPherson and State of

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

June 7, 1995

June 14, 1995

Cost of Printing: \$38.07

Arlo C. Mehlhaff
 (Signature)

Publisher
 (Title)

June 14, 1995
 (Date Signed)

NOTICE OF APPLICATION NO.

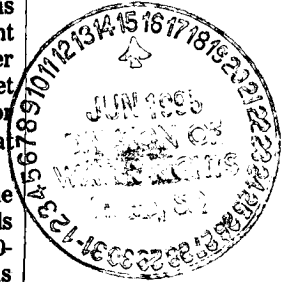
5860-3 to Appropriate Water

Notice is given that Theophil Dohn, RR 3 Box 62, Eureka, SD 57437 has filed an application for a water permit to impound 35.6 acre-feet of water from local runoff by constructing a dam located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 22 with water impounded in the E $\frac{1}{2}$ NE $\frac{1}{4}$ Section 22; all in T128N-R73W. This application requests impoundment of water sufficient to maintain water at the outlet elevation of 1855.0 feet mean sea level and is to be used for domestic use and to provide habitat for fish and wildlife production.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5860-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the chief engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

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





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

SEP 5 1995

Theophil Dohn
RR 3 Box 62
Eureka, SD 57437

Dear Mr. Dohn:

Enclosed is Water Permit No. 5860-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

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

Very truly yours,

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

enclosures

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

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

**NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE**Date Aug. 24-1999TO: Water Rights Division, DENR
523 E. Capitol
Pierre, SD 57501-3181FROM: Theophil Dohn 32666 103rd.
(name) (address)
Eureka, So. Dak 57437 605-284-2206
(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. 58603.

Water Permit No. 58603 states that the diversion system is to be constructed by 6-26-2000, and that the water is put to beneficial use by 6-26-2004.
(date) (date)

The diversion system was completed on Aug 20-1999.
(date)Applying the water to beneficial use was completed on Aug 20-1999.
(date)

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

Theophil Dohn
(signature)



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

September 5, 2002

6092-3 & 5860-3

Sand Lake National Wildlife Refuge
39650 Sand Lake Refuge
Columbia SD 57433

Attention: Marcie

On August 14, 2002 the investigation of the water use systems, including the extent of application of water to beneficial use, as developed under Water Permit No. 5860-3 (Theophil Dohn) and 6092-3 (Melvin Kallas), were completed by Tim Schaal, a staff engineer with our program. Both permits are located in McPherson County. The final water right document, the water license, can now be issued.

State law requires that we charge a \$50.00 fee for the investigation and issuance of each water license. It is my understanding that the Sand Lake National Wildlife Refuge will be paying this fee via electronic transfer of funds.

Enclosed is the signed blanket purchasing agreement as well as an invoice. Upon receipt of the \$100.00 fee, we will complete processing the water licenses.

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

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
(605) 773-3352

enclosures

REPORT ON INSPECTION OF PERMIT NO. 5860-3

DATE OF INSPECTION: August 14, 2002

NAME & ADDRESS OF INSPECTION CONTACT/ Theophil Dohn
RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: owner

NAME & ADDRESS OF PERMIT HOLDER: Theophil Dohn, 32666 103 rd. Street, Eureka, SD
57437.

DIVERSION POINT LEGAL LOCATION: 2150 feet south & 800 feet west of the NE corner
Sec. 22-T128N-R73W (SE 1/4 NE 1/4).

DAM INFORMATION:

- 1) Height to crest 17 feet
- 2) Height to primary spillway 11 feet
- 3) Height to secondary spillway 13.5 feet
- 4) Crest width 12 feet
- 5) Crest length 302 feet
- 6) Spillway length XXX feet
- 7) Spillway width 110 feet
- 8) Approx. storage (Normal) 35.6 acre-feet
- 9) Approx. storage (Maximum) 153 acre-feet
- 10) Date constructed: August 20, 1999

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

Permit No. 5860-3
Missouri River - Water District

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

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

I have this day, August 14, 2002 made a thorough examination of the water use system constructed by Theophil Dohn of 32666 103 rd. Street, Eureka, SD 57437 holder of Permit No. 5860-3, bearing the priority of March 31, 1995 authorizing the storage of 35.6 acre-feet of the waters of runoff for fish & wildlife propagation and livestock water purposes, in McPherson County.

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

A. Works used to divert the water:

A 17 foot high dam with a CMP drop inlet structure, with twin 96 inch diameter risers and an 84 inch diameter barrel as the primary spillway, and a 110 foot wide earthcut secondary spillway that stores 35.6 acre-feet of water.

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

N/A

C. Works used to apply water to beneficial use:

A 17 foot high dam with a CMP drop inlet structure, with twin 96 inch diameter risers and an 84 inch diameter barrel as the primary spillway, and a 110 foot wide earthcut secondary spillway that stores 35.6 acre-feet of water.

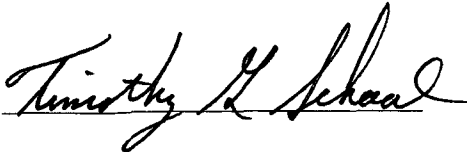
The system is in the following condition good. The point of diversion is located 2150 feet south & 800 feet west of the NE corner of Sec. 22-T128N-R73W (SE 1/4 NE 1/4). The works are capable of storing 35.6 acre-feet of water which is to be used for fish & wildlife propagation and livestock water. Water has been put to beneficial use to the maximum extent as follows:

A 17 foot high dam with a CMP drop inlet structure, with twin 96 inch diameter risers and an 84 inch diameter barrel as the primary spillway, and a 110 foot wide earthcut secondary spillway that stores 35.6 acre-feet of water.

and the license should be issued for 35.6 acre-feet of storage.

Applicable permit qualifications have been complied with: Yes X

Exceptions to compliance are: none Date Report Completed: August 16, 2002



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

Water Permit Application No. 5860-3



South Dakota Department of
Environment and Natural Resources



Protecting South Dakota's Tomorrow ... Today



Timothy G. Schaal

Timothy G. Schaal, P.E. 8/16/02
Natural Resources Engineer Specialist
Water Rights Program

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date October 18, 20 02

RECEIVED OF Sand Lake National Wildlife Refuge, 39650 Sand Lake Avenue, Columbia SD 57432

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

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use	50.00	
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. <u>39650-1</u>		
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
<u>ELECTRONIC WITHDRAWAL</u>		
(Any Other Work Provided by Law)	TOTAL	50.00

No.

000000

By

Dorland E. Eide

Chief Engineer

gn



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

NOV 04 2002

5860-3

Theophil Dohn
32666 103rd St.
Eureka SD 57437

Dear Mr. Dohn:

Enclosed is Water License No. 5860-3. This is the final water right document completing your process of obtaining a Water Right.

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

Sincerely,

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

enclosures

cc: Sand Lake National Wildlife Refuge, 39650 Sand Lake Refuge, Columbia SD 57433

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5860-3

(1) Theophil Dohn, 32666 103rd St, Eureka SD 57437 made Application No. 5860-3, March 31, 1995 for a water permit to impound 35.6 acre feet of water from runoff, McPherson County, South Dakota for fish and wildlife propagation and livestock watering purposes. Permit No. 5860-3, with a priority date of March 31, 1995 was approved June 26, 1995 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before June 26, 2000 and for the application to beneficial use of water on or before June 26, 2004.

(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 Water Right No. 5860-3 is issued a license, bearing a priority date of March 31, 1995, to impound 35.6 acre feet of water.

The location of the storage dam (spillway) is 2,150 feet south and 800 feet west of the northeast corner of Section 22-T128N-R73W (SE ¼ NE ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 5860-3, including the following qualifications:

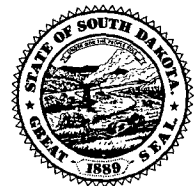
- Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.
- Water Permit No. 5860-3 authorizes a dam with storage capacity of 35.6 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation of 1855.0 feet mean sea level.

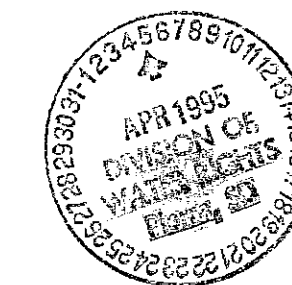


Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

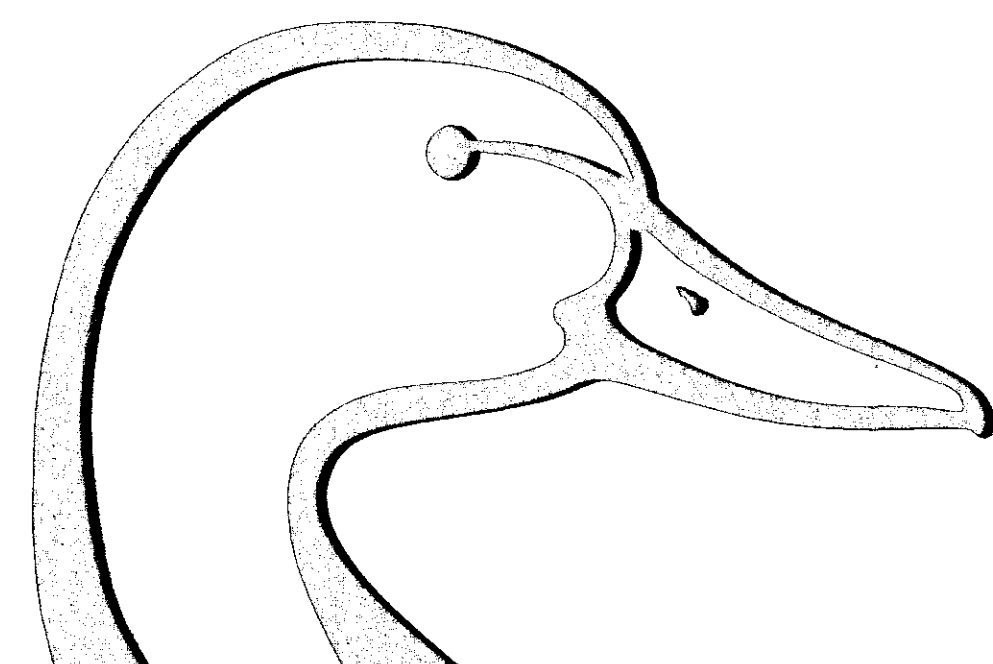
NOV 04 2002

date





Appl 5860-3



DUCKS UNLIMITED

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

LOCATION MAPS	1
PROJECT TOPOGRAPHY	2
EMBANKMENT/SPILLWAY PLAN AND PROFILES	3
WATER CONTROL STRUCTURE PLAN AND PROFILE	4
STRUCTURE DETAILS	5
SOILS INFORMATION	6

QUANTITIES

MOBILIZATION	1 L.S.
SITE PREPARATION	471 C.Y.-P
EXCAVATION	
EMERGENCY SPILLWAY	5179 C.Y.*
EMBANKMENT CONSTRUCTION	6847 C.Y.-S**
WATER	68 M-GAL***
WATER CONTROL	
STRUCTURE INSTALLATION	1 EA.
WATER CONTROL STRUCTURE APPURTENANCES	INC.
CULVERT INSTALLATION	
84"Ø CMP	88 L.F.
6"Ø PVC (SDR-35)	18 L.F.
CAST-IN-PLACE REINFORCED CONCRETE	INC.
RIPRAP PLACEMENT (CLASS I)	16 C.Y.-P
(CLASS II)	71 C.Y.-P

* EXCAVATION QUANTITY IS LISTED FOR INFORMATION PURPOSES ONLY.
EXCAVATED MATERIAL SHALL BE USED FOR EMBANKMENT CONSTRUCTION
AND WILL BE PAID FOR AS SUCH.

** EMBANKMENT QUANTITY INCLUDES 15% FOR SHRINKAGE

*** WATER QUANTITY IS BASED ON 10 GAL./CY; HOWEVER,
ONLY ACTUAL QUANTITY USED WILL BE PAID FOR.

DUCKS UNLIMITED

PROJECT

DOHN DAM

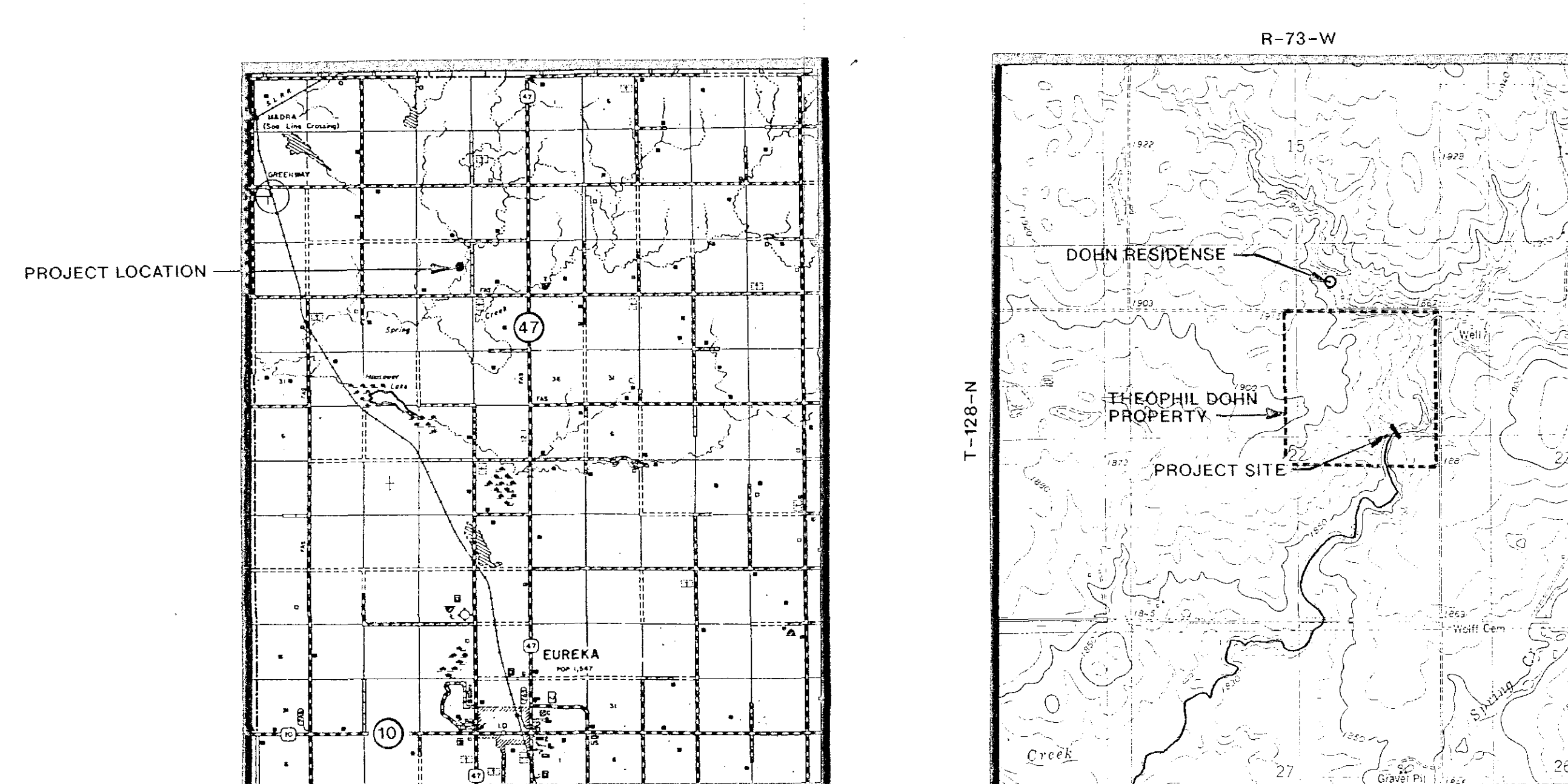
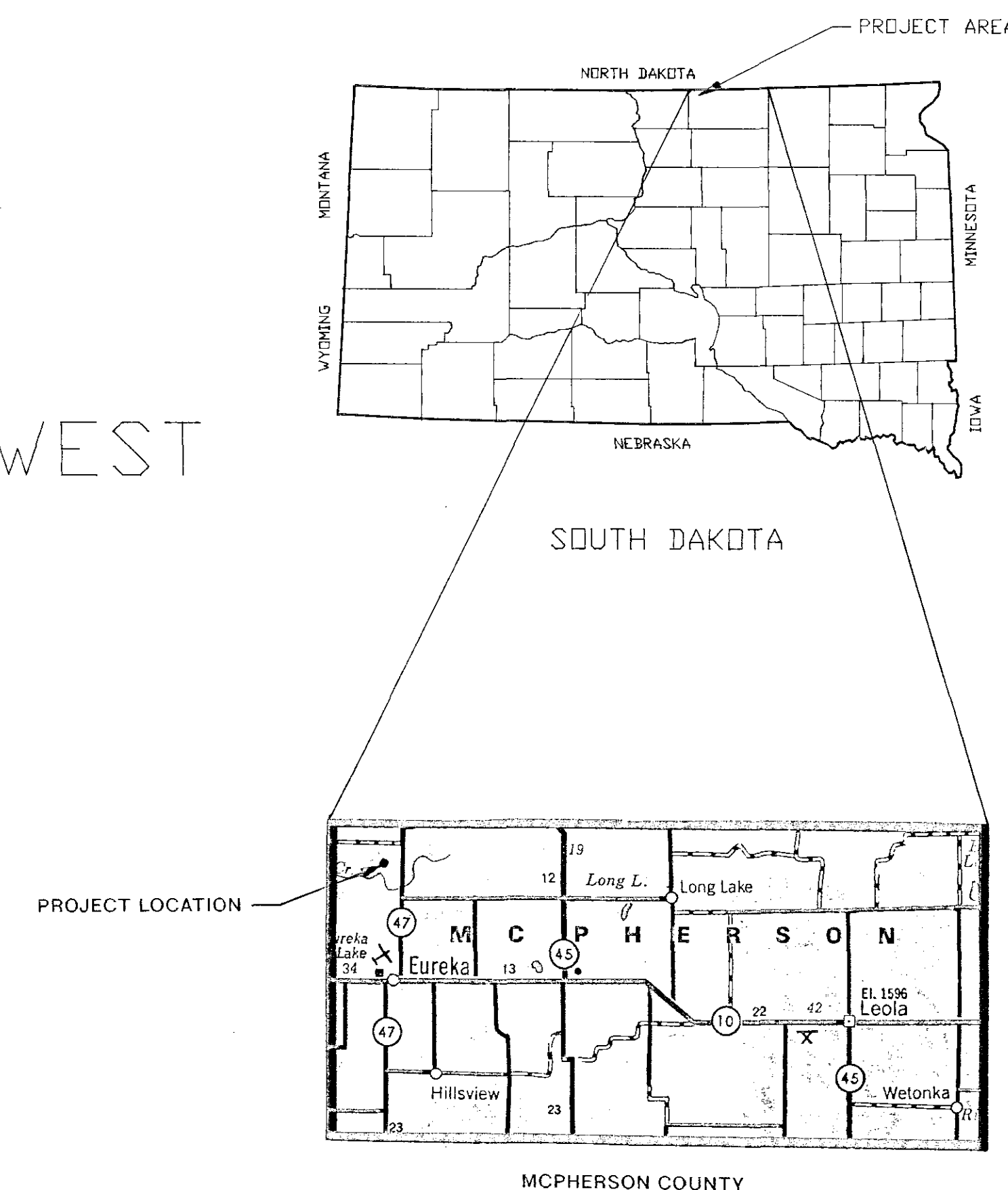
SECTION 22, TOWNSHIP 128 NORTH, RANGE 73 WEST
MCPHERSON COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

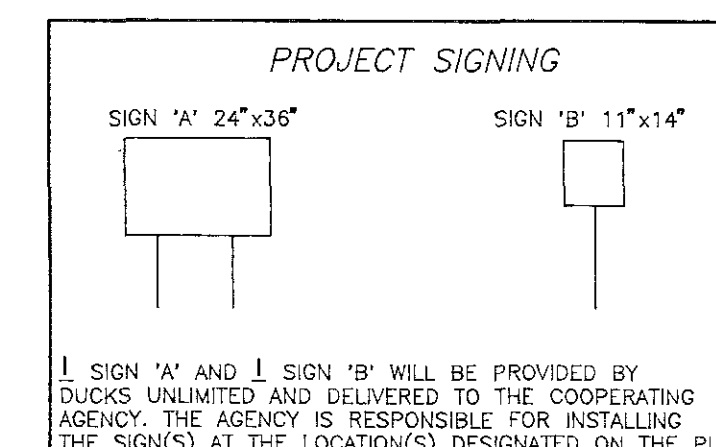
U.S. FISH & WILDLIFE SERVICE

AND

THEOPHIL DOHN (LANDOWNER)

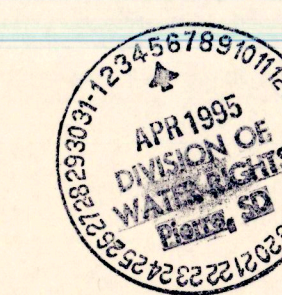


AGENCY CONTACT:
BOYD SHULZ 605-885-6320
LANDOWNER CONTACT:
THEOPHIL DOHN 605-284-2206

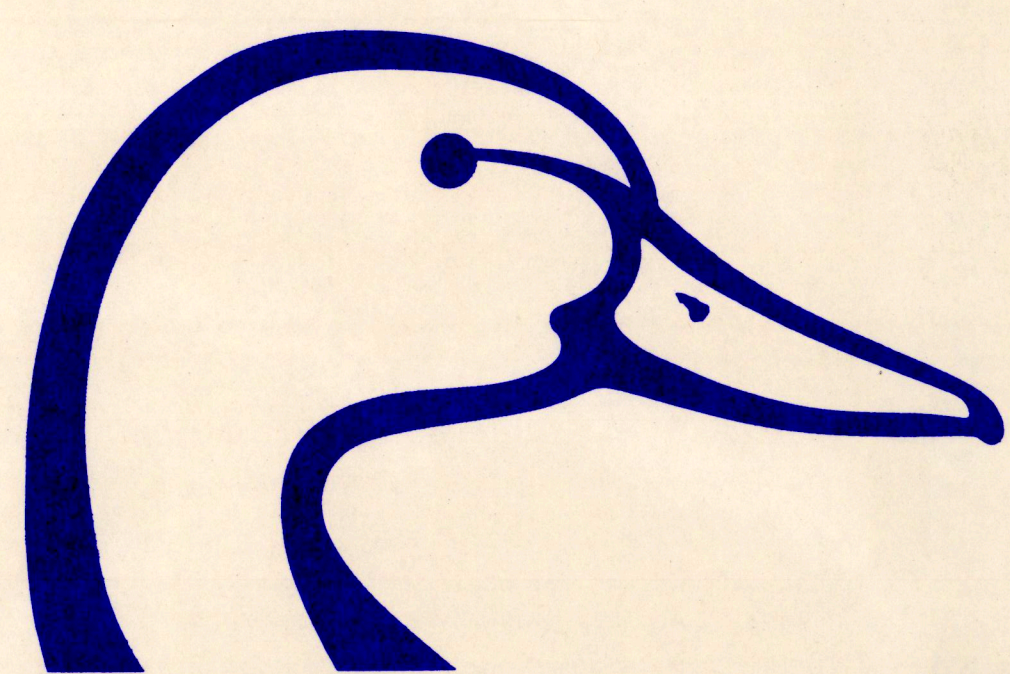


	DUCKS UNLIMITED INC.	PROJECT NO. SD-0169-001	DESIGNED BY: DJL
	GREAT PLAINS REGIONAL OFFICE	DOHN DAM LOCATION MAPS	DRAWN BY: TSP
DATE: 2-27-95	SHEET NO. 1 OF 6	APPROVED BY: [Signature]	SURVEYED BY: TRE
			CHECKED BY:

5860-3



Appl 5860-3



DUCKS UNLIMITED

SPECIFICATIONS

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DUCKS UNLIMITED

PROJECT

DOHN DAM

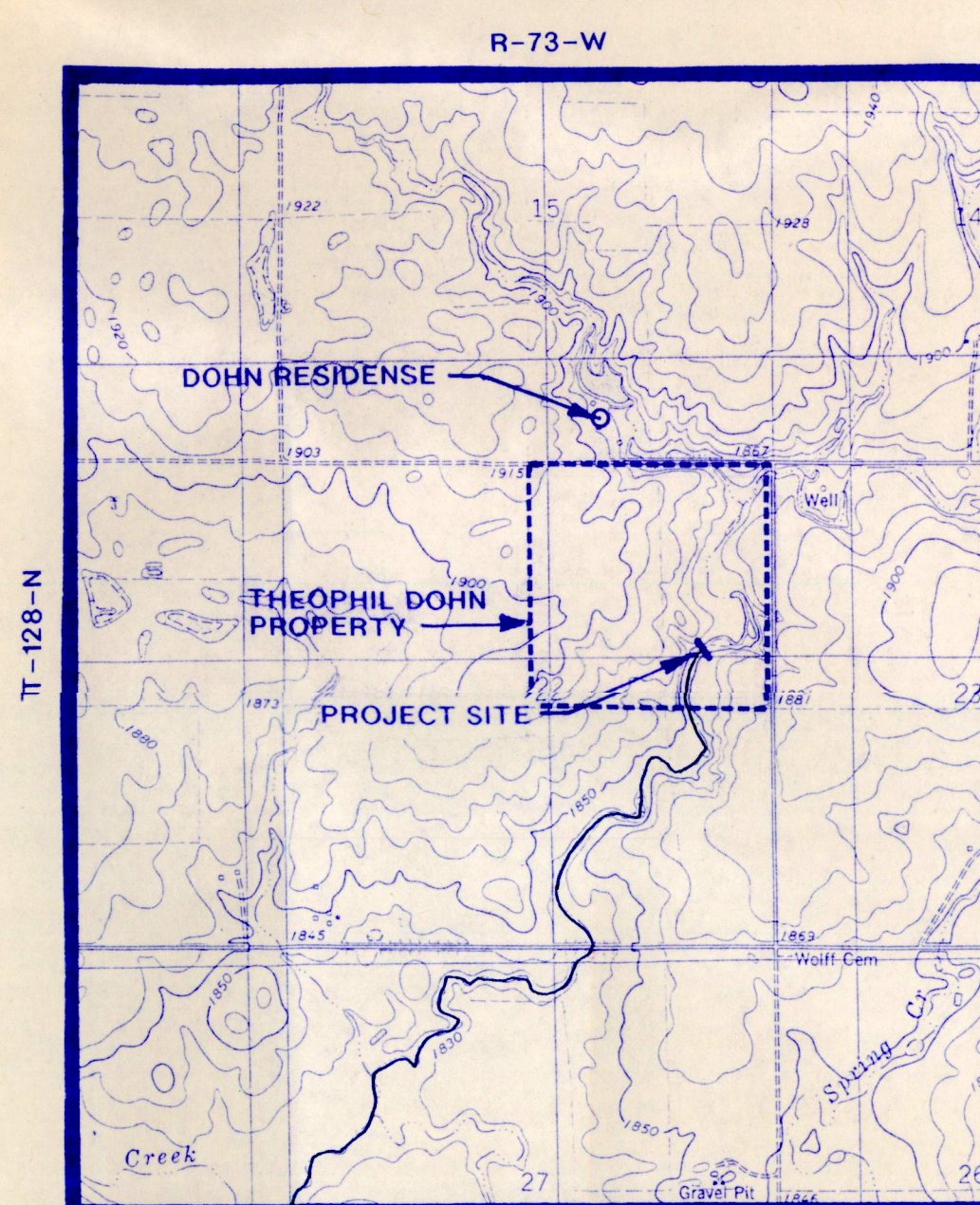
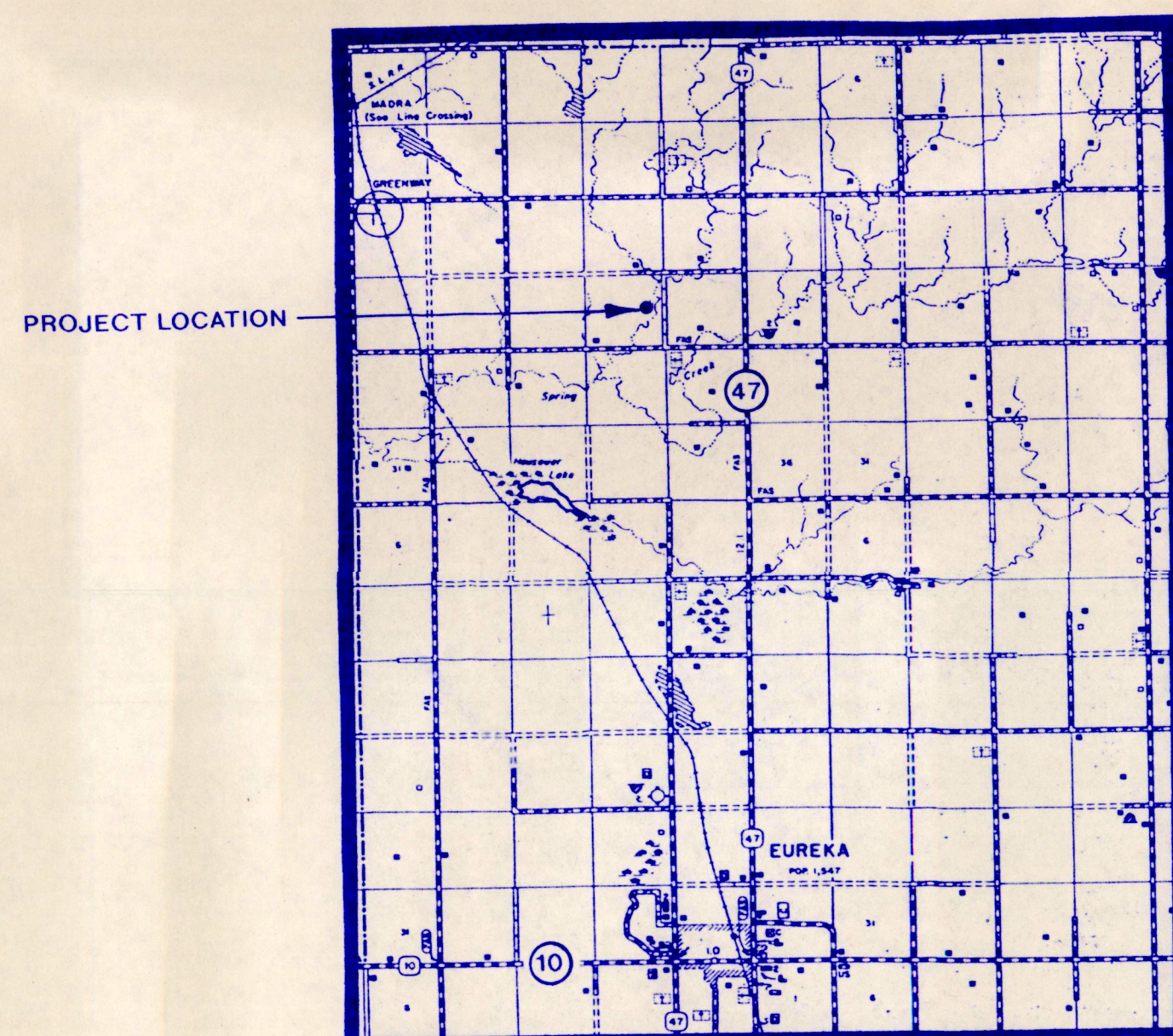
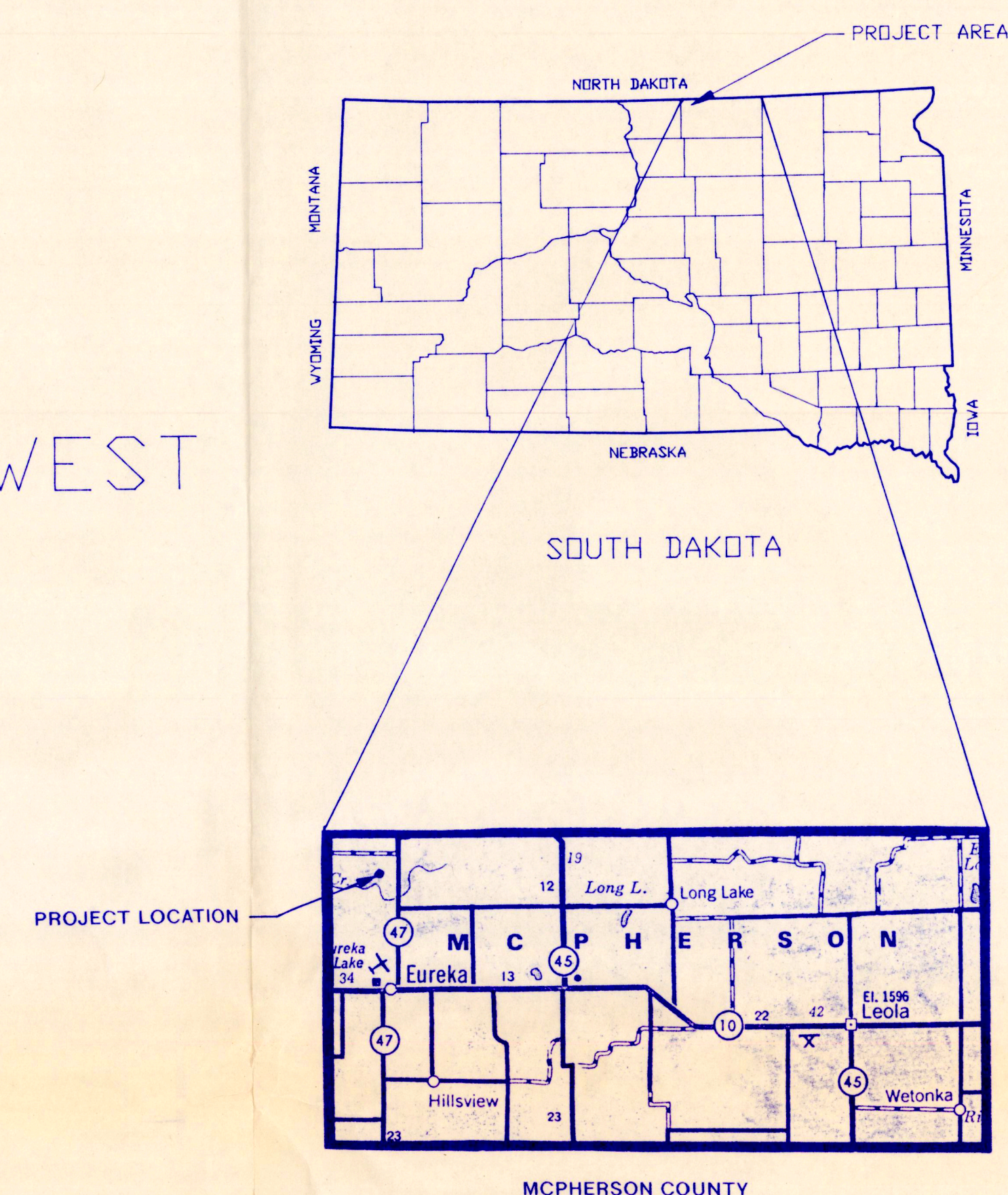
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MCIPHERSON COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

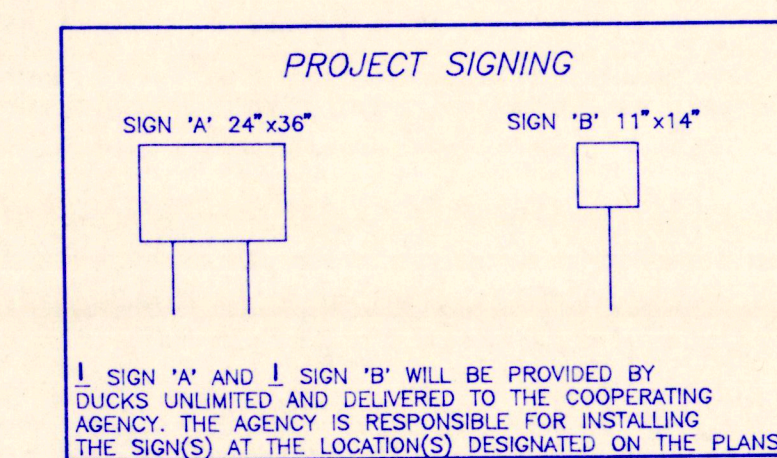
U.S. FISH & WILDLIFE SERVICE

AND

THEOPHIL DOHN (LANDOWNER)

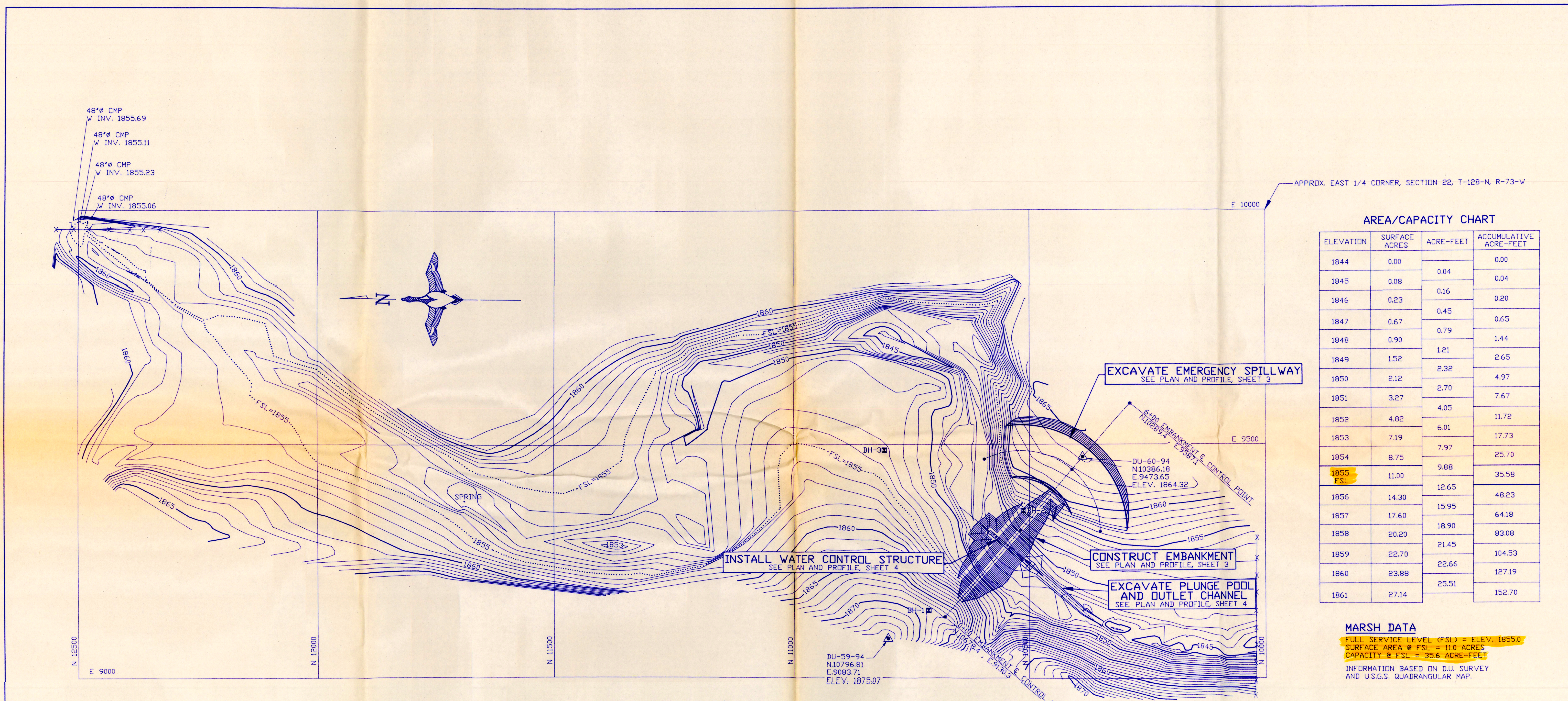


AGENCY CONTACT:
BOYD SHULZ 605-885-6320
LANDOWNER CONTACT:
THEOPHIL DOHN 605-284-2206



	PROJECT NO.	SD-0169-001	DESIGNED BY: D.J.L.
	DOHN DAM		DRAWN BY: TSP
GREAT PLAINS REGIONAL OFFICE		SURVEYED BY: TRE	
DATE:	SHEET NO.	APPROVED BY:	APPROVED BY:
2-27-95	1 OF 6		

5860-3



AREA/CAPACITY CHART

ELEVATION	SURFACE ACRES	ACRE-Feet	ACCUMULATIVE ACRE-Feet
1844	0.00		0.00
1845	0.08	0.04	0.04
1846	0.23	0.16	0.20
1847	0.67	0.45	0.65
1848	0.90	0.79	1.44
1849	1.52	1.21	2.65
1850	2.12	2.32	4.97
1851	3.27	2.70	7.67
1852	4.82	4.05	11.72
1853	7.19	6.01	17.73
1854	8.75	7.97	25.70
1855 FSL	11.00	9.88	35.58
1856	14.30	12.65	48.23
1857	17.60	15.95	64.18
1858	20.20	18.90	83.08
1859	22.70	21.45	104.53
1860	23.88	22.66	127.19
1861	27.14	25.51	152.70

MARSH DATA
 FULL SERVICE LEVEL (FSL) = ELEV. 1855.0
 SURFACE AREA @ FSL = 11.0 ACRES
 CAPACITY @ FSL = 35.6 ACRE-Feet
 INFORMATION BASED ON D.U. SURVEY AND U.S.G.S. QUADRANGULAR MAP.

PROJECT TOPOGRAPHY
 SCALE: 1"=100'

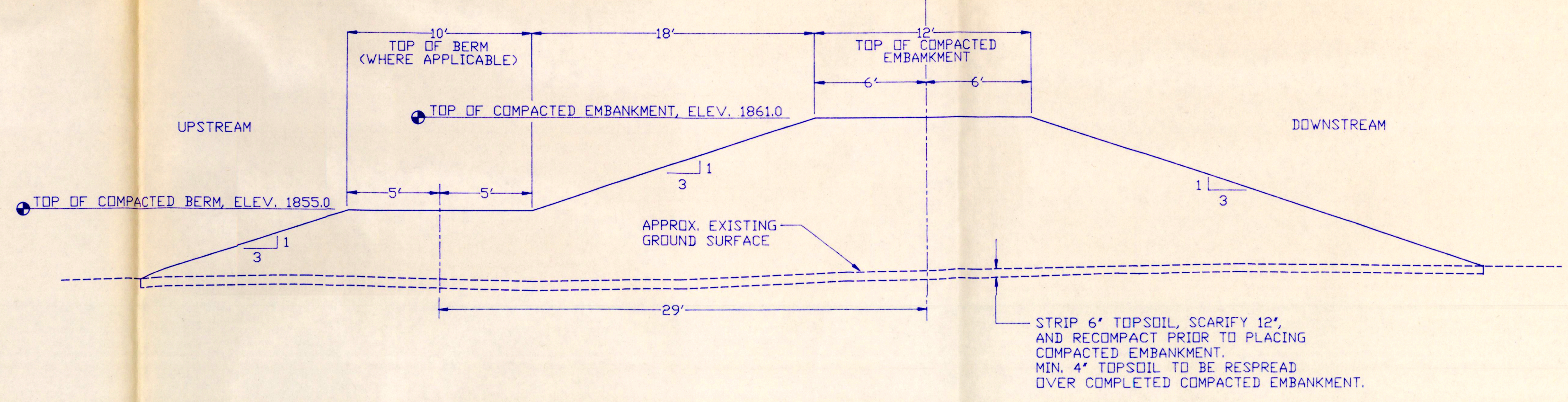
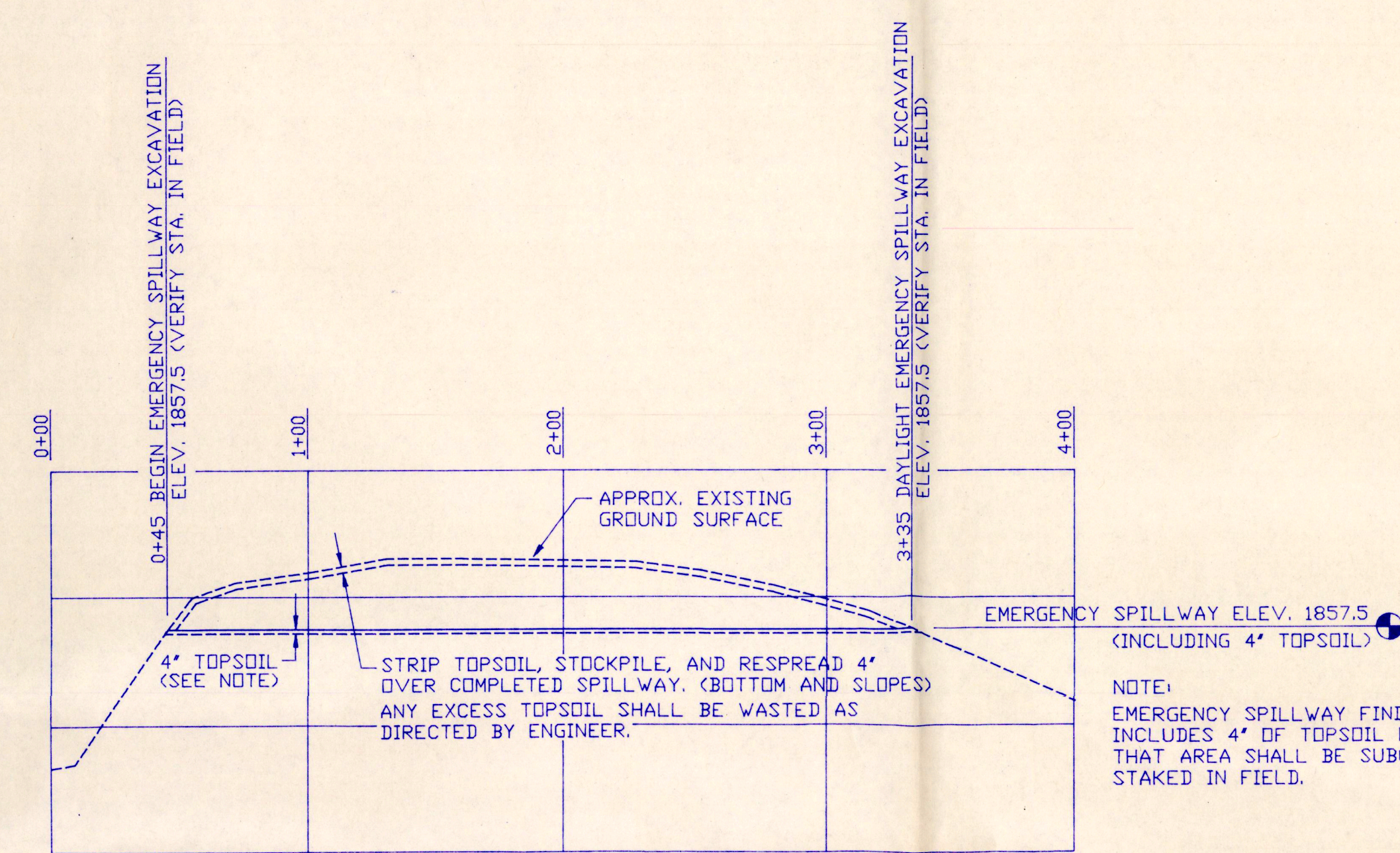
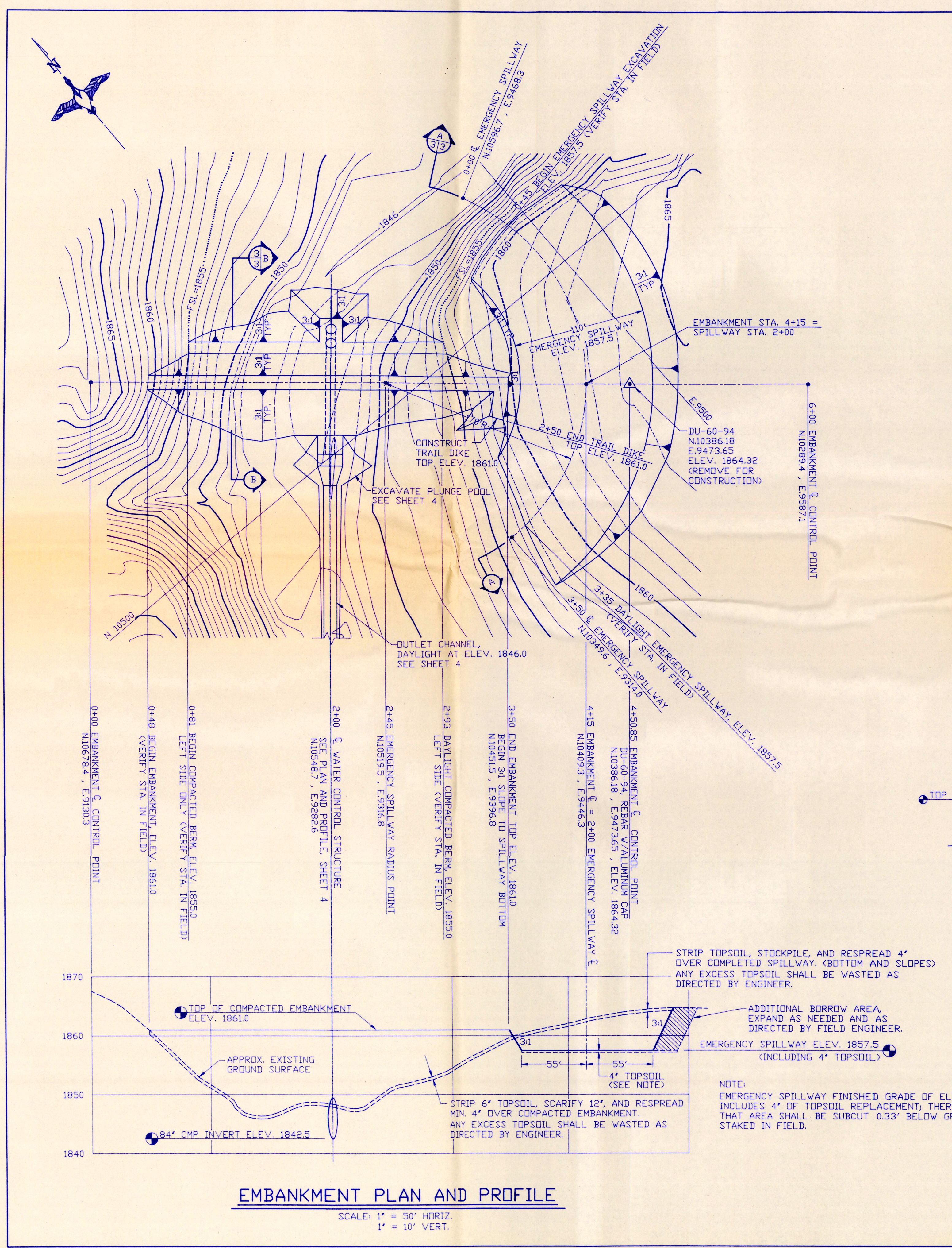
- LEGEND**
- BH-X = SOIL BORING LOCATION
SEE BORING LOGS, SHEET 6
 - ▲ = DU SURVEY CONTROL POINT (ALUMINUM CAP)
 - X-X- = EXISTING FENCE
 - = FULL SERVICE LEVEL (FSL), ELEV. 1855.0

VERTICAL CONTROL:
 ELEVATIONS ARE BASED ON U.S.G.S. 7 1/2 MINUTE QUADRANGULAR MAP SPOT ELEVATIONS.

HORIZONTAL CONTROL:
 FROM D.U. LOCAL COORDINATES WITH AZIMUTH DETERMINED FROM THE OBSERVATION OF THE FENCE LINES ALONG THE EAST SIDE OF SECTION 22.

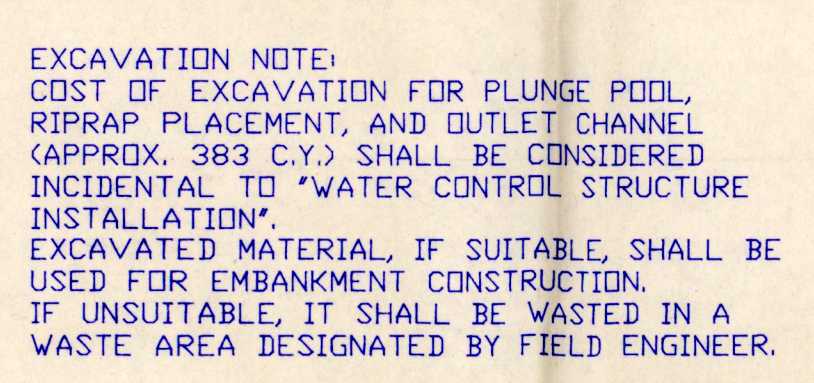
DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO. SD-0169-001	DESIGNED BY: D.J.L.
	DOHN DAM TOPOGRAPHY AND MARSH DATA	DRAWN BY: KB TSP
DATE: 2-27-95	SHEET NO. 2 OF 6	CHECKED BY: BRK

5860-3



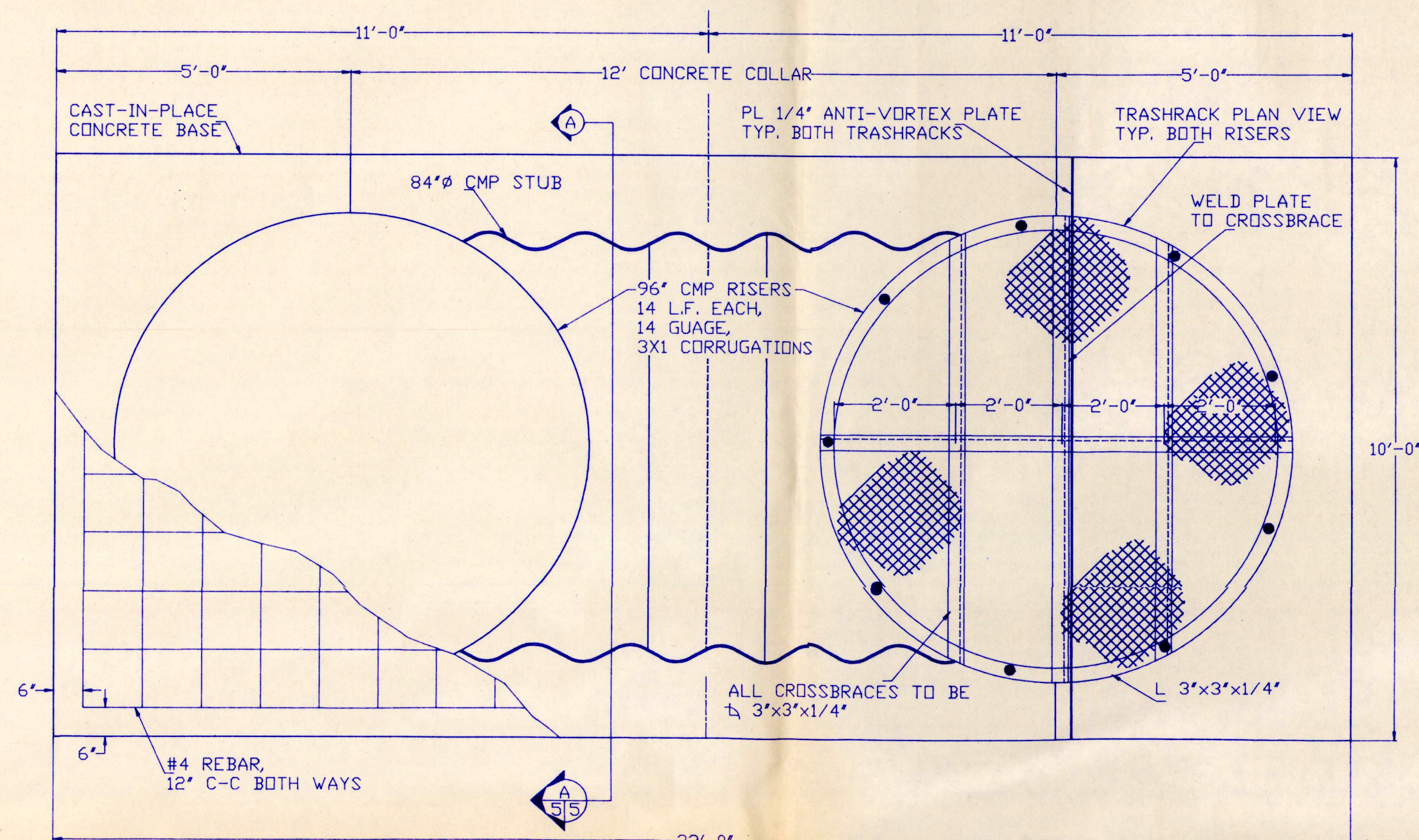
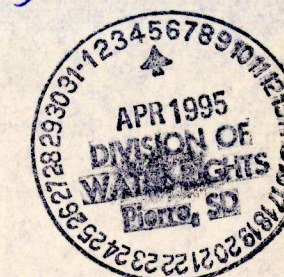
EXCAVATION/EMBANKMENT NOTE:
 SUITABLE MATERIAL EXCAVATED FROM EMERGENCY SPILLWAY SHALL BE USED TO CONSTRUCT THE EMBANKMENT; THEREFORE, THE COST OF EXCAVATION SHALL BE CONSIDERED INCIDENTAL TO "EMBANKMENT CONSTRUCTION". THE EMERGENCY SPILLWAY MAY BE WIDENED AS DIRECTED BY THE ENGINEER IF EXTRA MATERIAL IS REQUIRED FOR EMBANKMENT CONSTRUCTION. ANY UNSUITABLE MATERIAL EXCAVATED SHALL BE WASTED IN A WASTE AREA DESIGNATED BY THE ENGINEER.

 GREAT PLAINS REGIONAL OFFICE DATE: 2-23-95	PROJECT NO. SD-0169-001 DOHN DAM EMBANKMENT/SPILLWAY PLAN & PROFILE	DESIGNED BY: DJL DRAWN BY: TSP SURVEYED BY: TRE CHECKED BY: BRK
	SHEET NO. 3 OF 6	APPROVED BY:
	APPROVED BY:	APPROVED BY:
	APPROVED BY:	APPROVED BY:

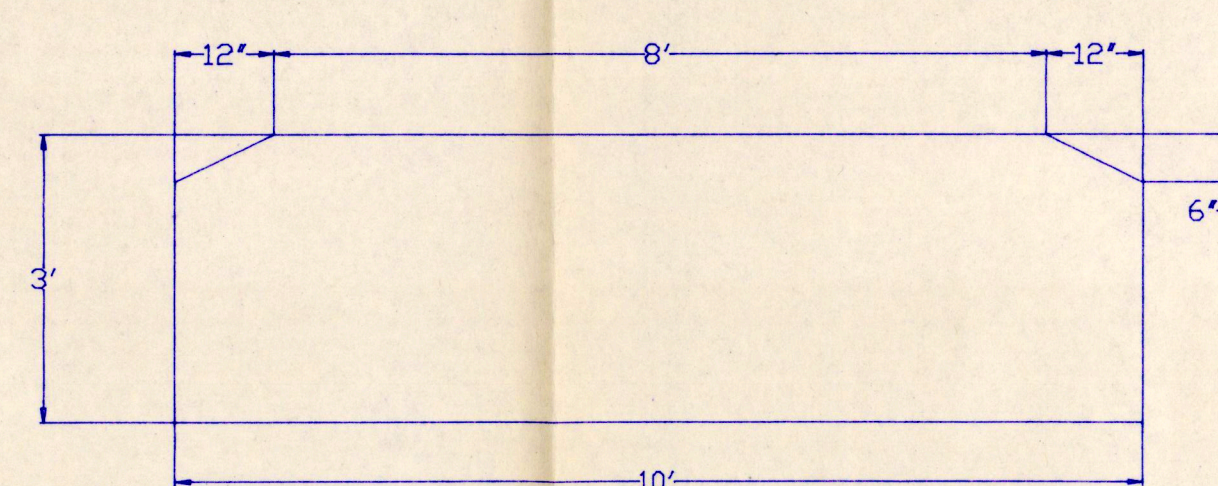


EXCAVATION NOTE:
COST OF EXCAVATION FOR PLUNGE POOL,
RIPRAP PLACEMENT, AND OUTLET CHANNEL
(APPROX. 383 C.Y.) SHALL BE CONSIDERED
INCIDENTAL TO "WATER CONTROL STRUCTURE
INSTALLATION".

 DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO.	SD-0169-001	DESIGNED BY:	DJL
	DOHN DAM WATER CONTROL STRUCTURE PLAN & PROFILE		DRAWN BY:	TSP
DATE:	SHEET NO.	APPROVED BY:	SURVEYED BY:	TRE
2-23-95	4 OF 6		CHECKED BY:	BRK

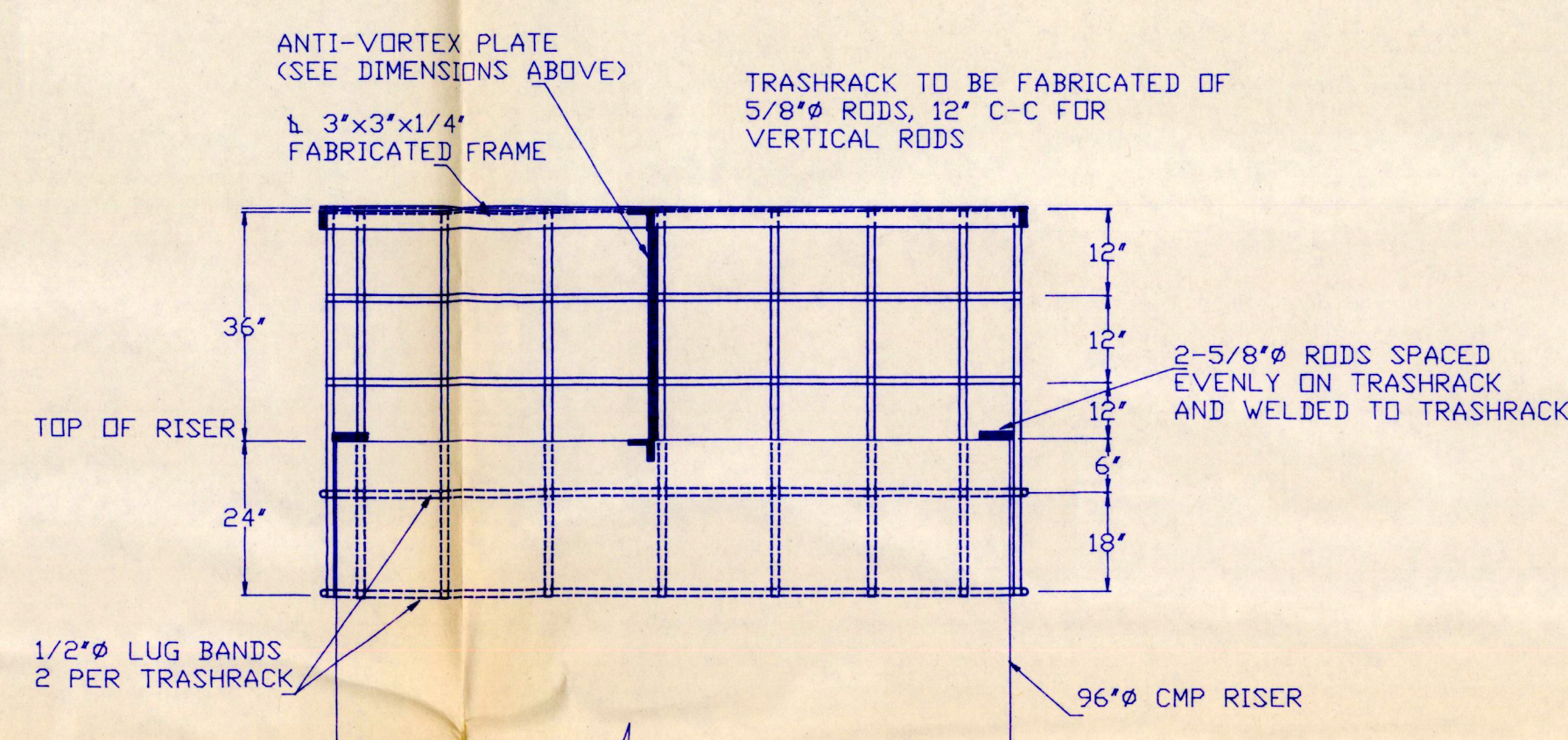


WATER CONTROL STRUCTURE PLAN
NOT TO SCALE

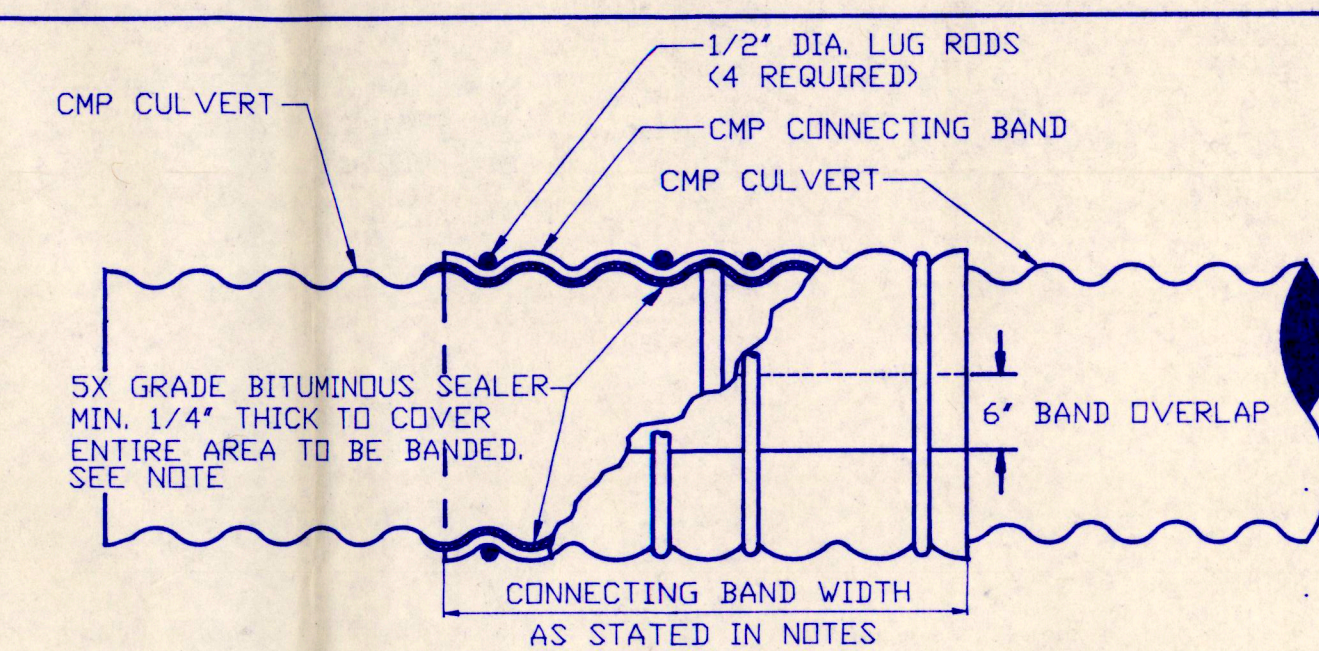


ANTI-VORTEX PLATE DETAIL

NOT TO SCALE



TRASHRACK DETAIL
NOT TO SCALE

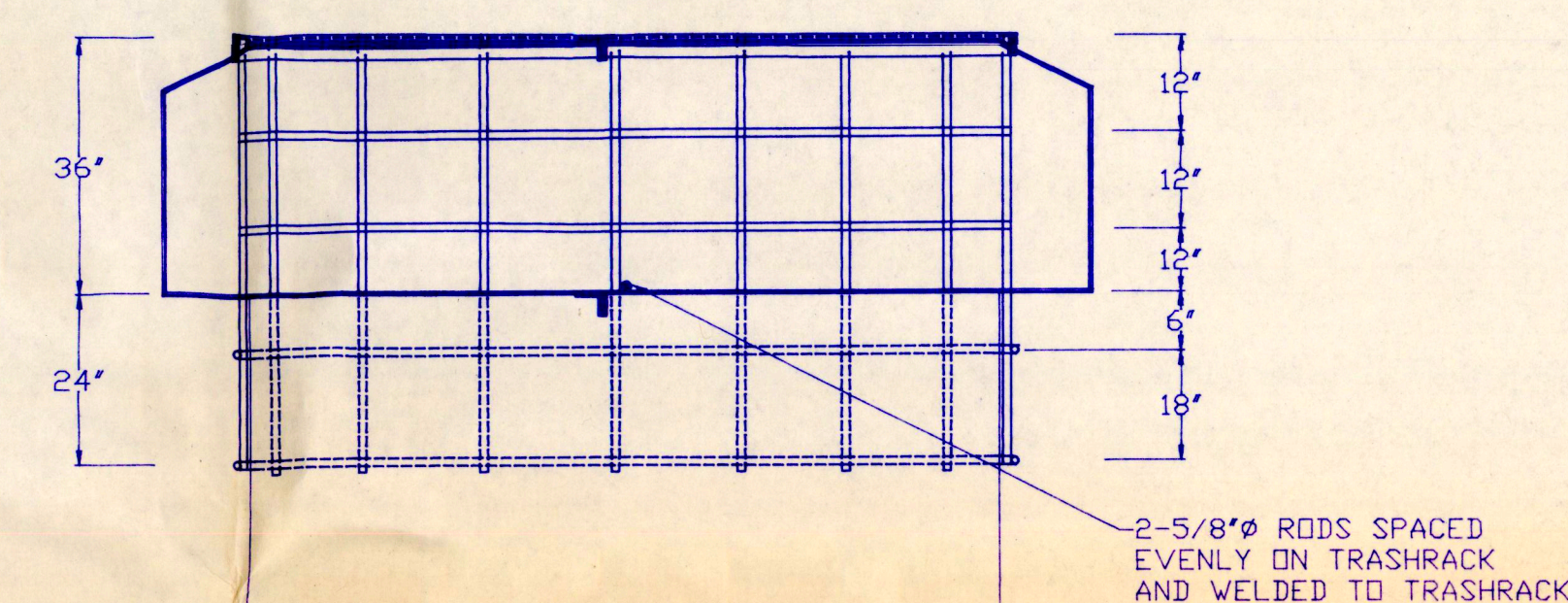


AFTER BANDS HAVE BEEN TIGHTENED, A COAT OF
5X SEALER SHALL BE APPLIED AROUND THE CULVERT
AT THE ENDS OF THE CONNECTING BAND AND ALONG
THE SEAM OF THE BAND OVERLAP.

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.

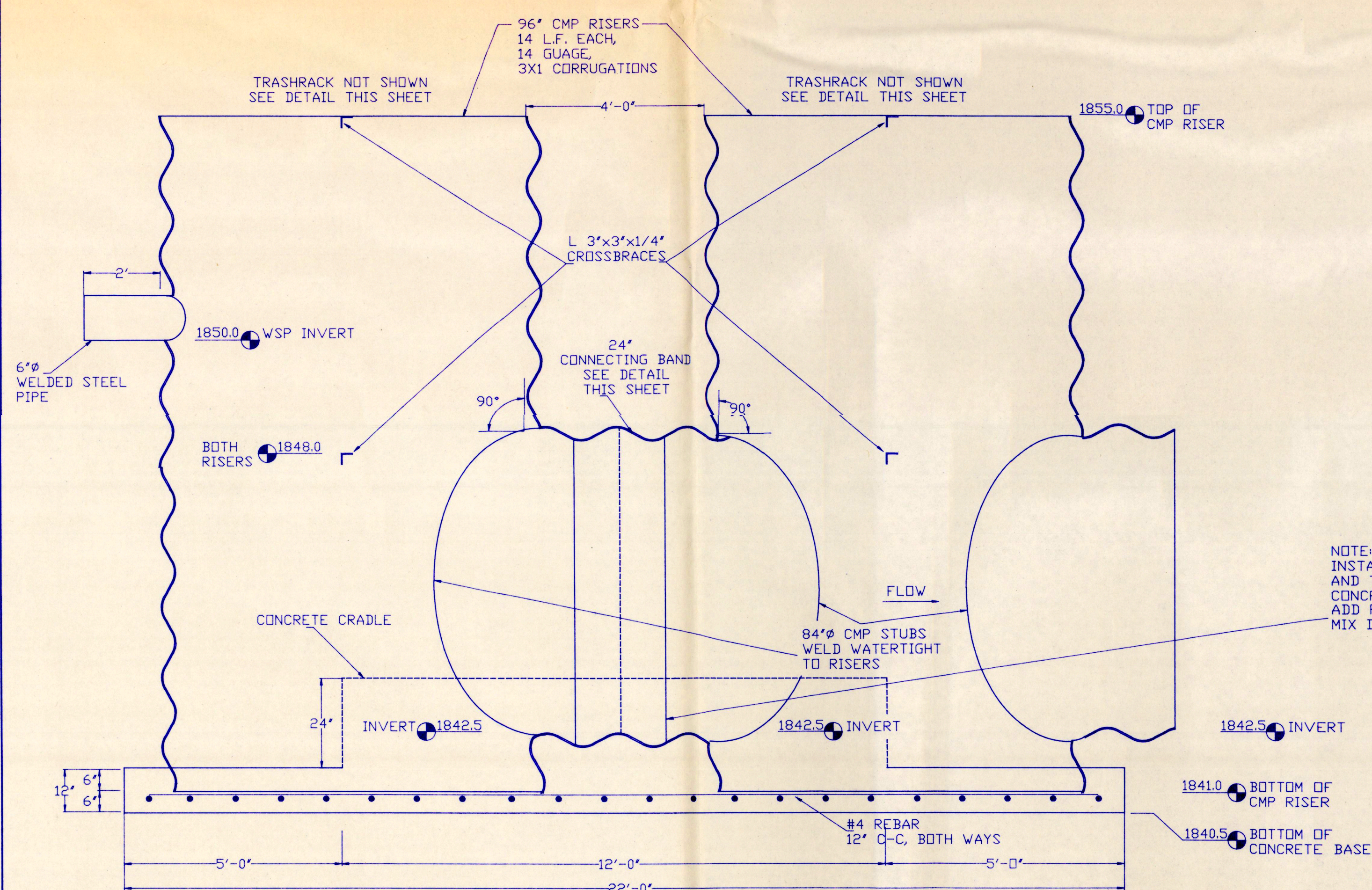
CONNECTING BAND DETAIL

NOT TO SCALE



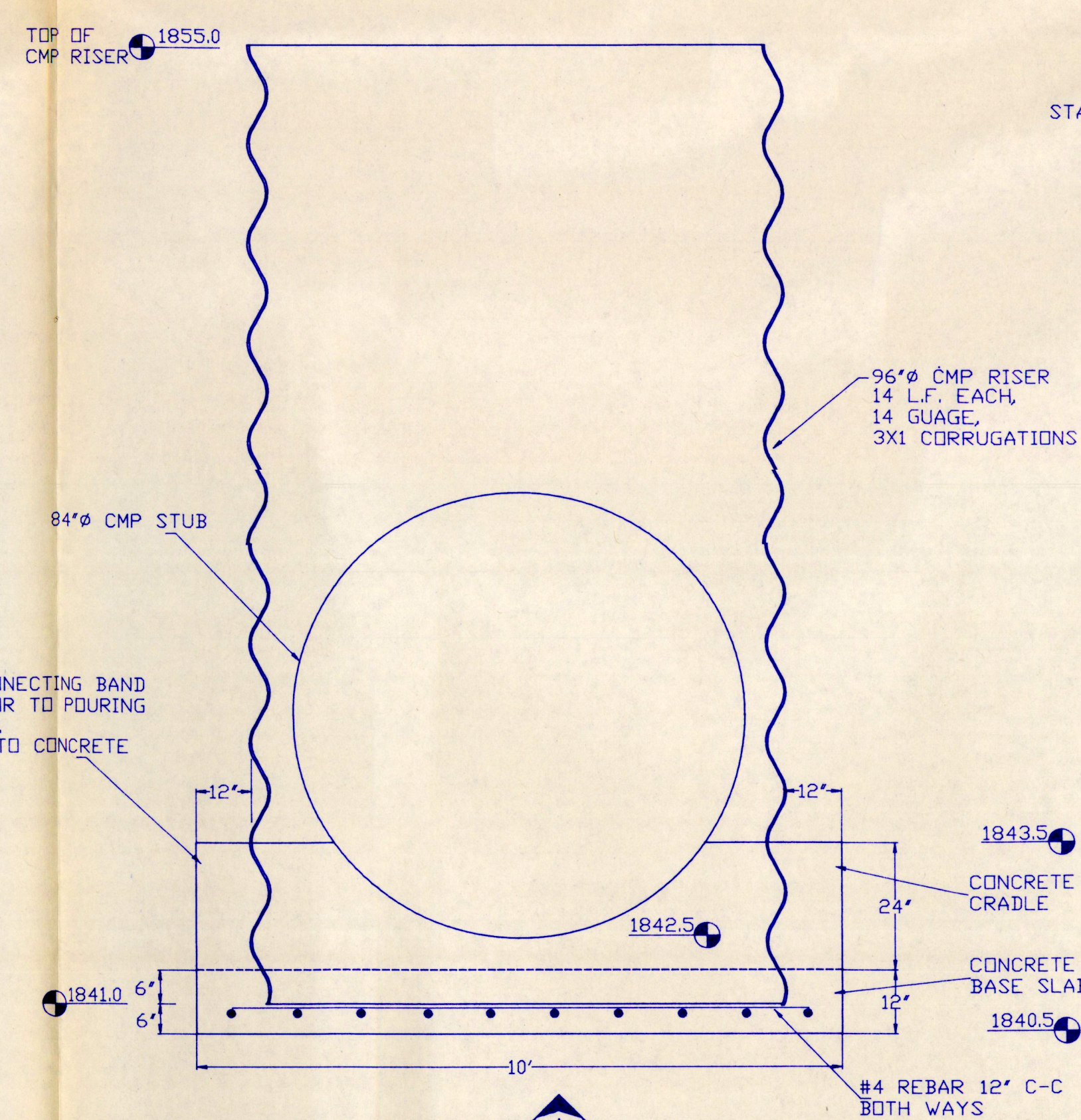
ANTI-VORTEX PLATE INSTALLATION DETAIL

NOT TO SCALE

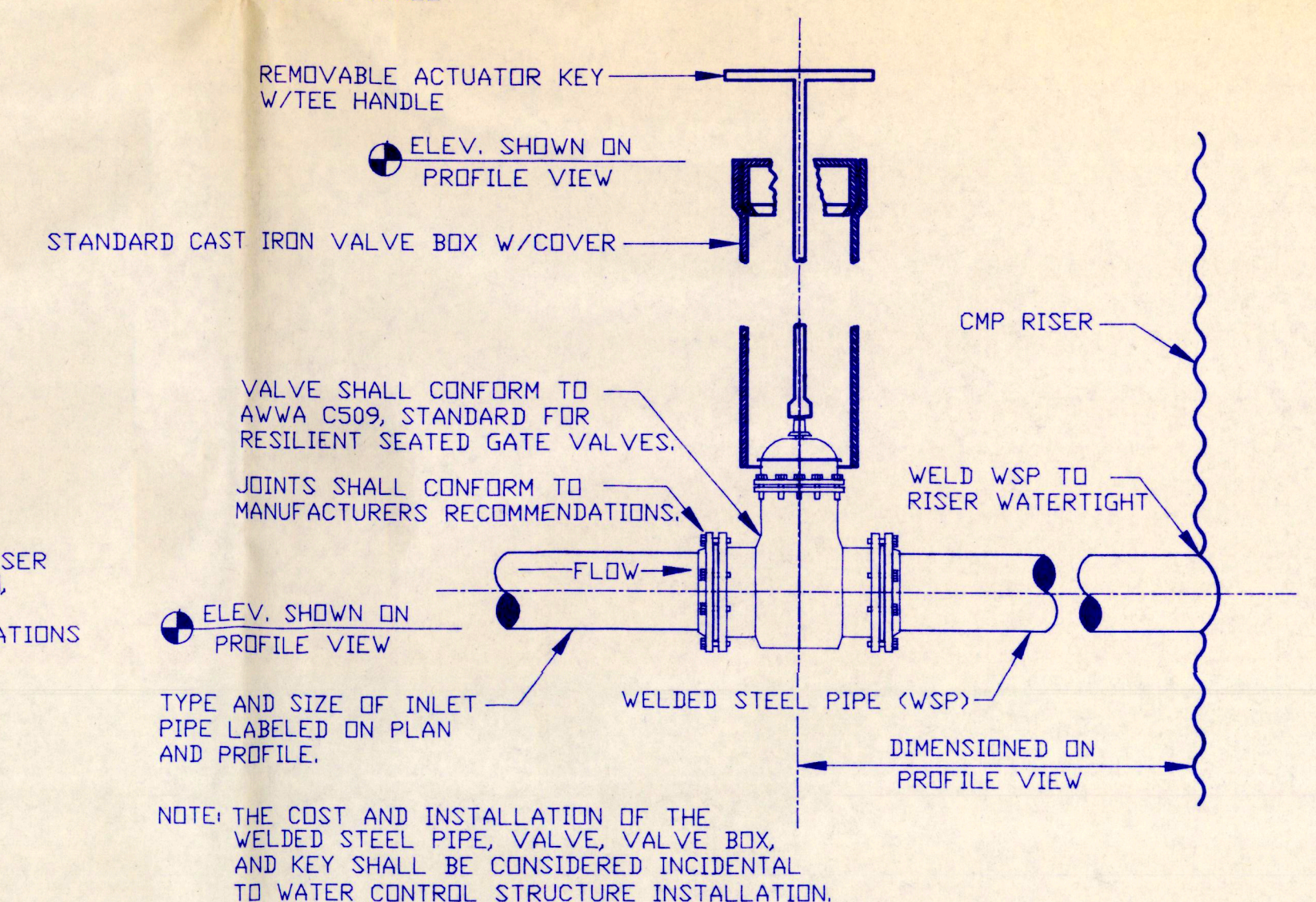


WATER CONTROL STRUCTURE
C PROFILE

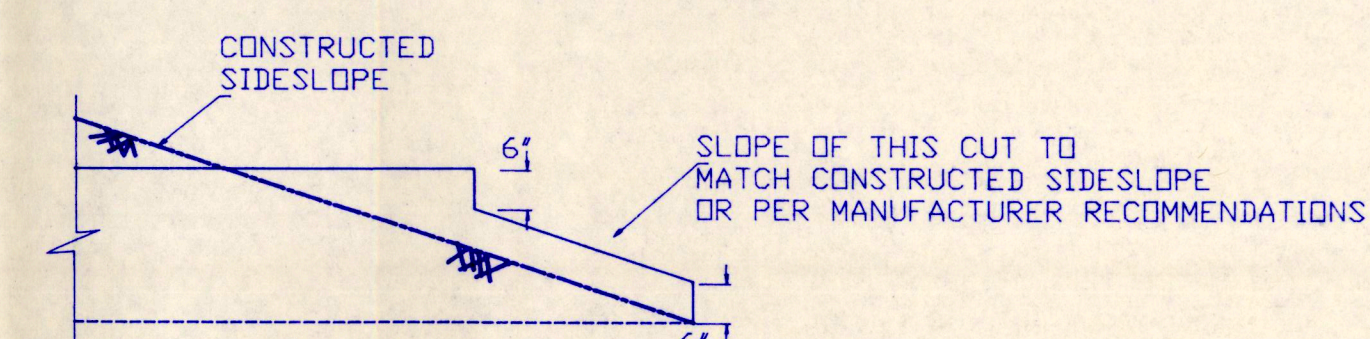
NOT TO SCALE



SECTION 55
CONCRETE CRADLE SECTION
NOT TO SCALE



DRAWDOWN VALVE DETAIL



STEP BEVEL DETAIL

NOT TO SCALE



GREAT PLAINS REGIONAL OFFICE	
DATE:	SHEET 1
2-27-1995	

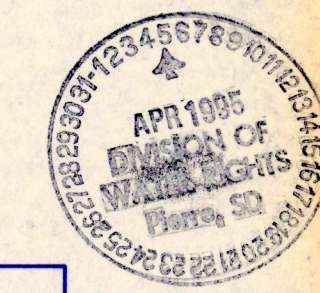
REGIONAL OFFICE	
SHEET NO.	5 OF 6

PROJECT NO.	SD-0169-001
DOHN D	RISER DET

APPROVED BY:

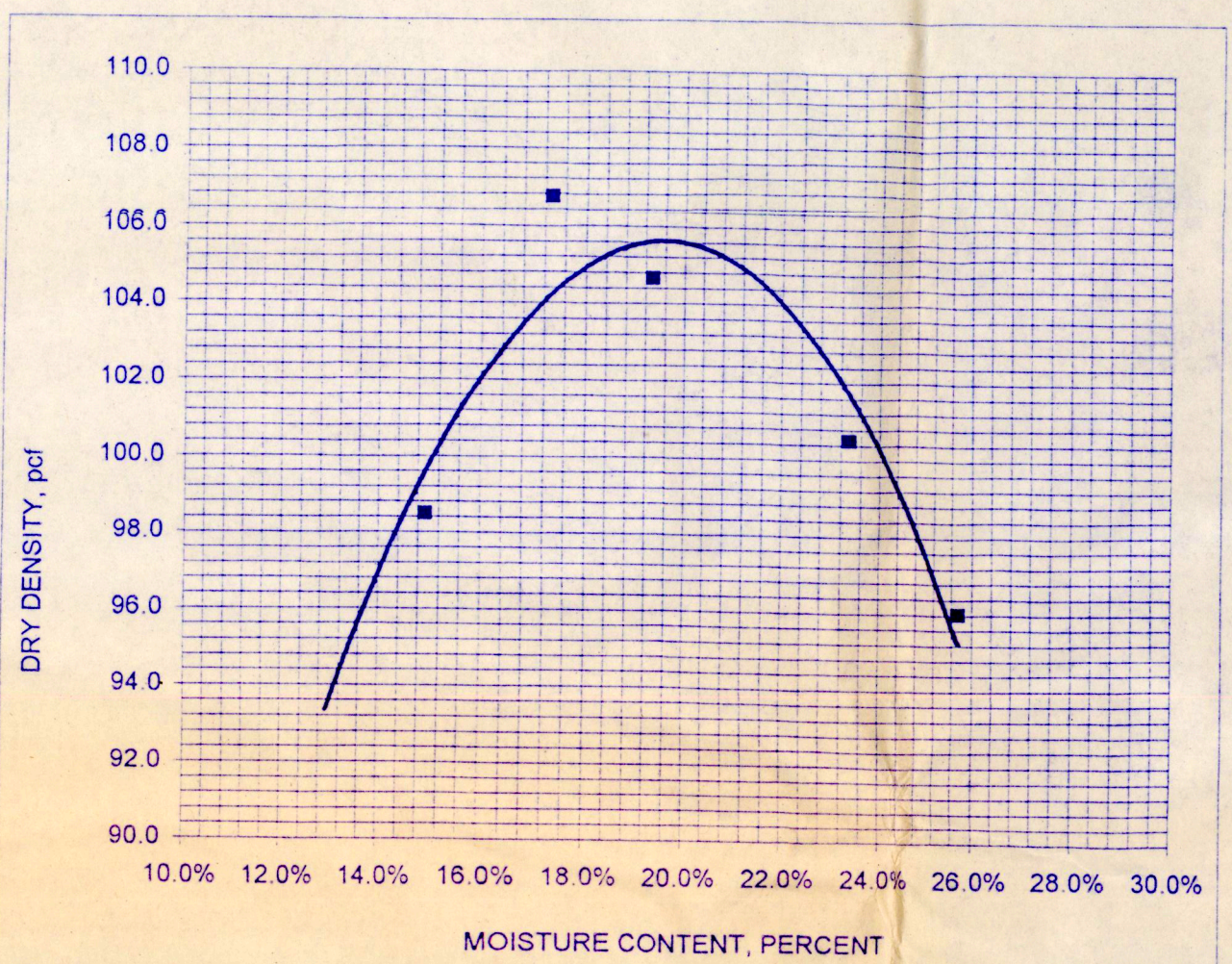
	DESIGNED BY: DJL
	DRAWN BY: B TSH
	SURVEYED BY:
	CHECKED BY: BRK
APPROVED BY:	

5860-3



PROCTOR COMPACTION TEST			
Dakota Environmental Inc. P.O. Box 636 Huron, SD 57350 (605) 352-5610			
Project #	9450	Method	Standard Proctor
Test #	1	Max. Density (pcf)	105.8
Tested by	S. Meikle	Opt. MC (%)	19.5%
Date	12-2-94	Blows	25
Soil Type	Silty Clay (CL)		
Notes	Not performed due to wet soil		

SPECIMEN	1	2	3	4	5
MOISTURE	15.0%	17.3%	19.4%	23.4%	25.7%
CONTENT	12.90	13.30	13.29	13.26	13.15
W = MOISTURE	0.0333	0.0333	0.0333	0.0333	0.0333
W = MOISTURE	113.2	125.2	124.9	124.0	120.7
W = MOISTURE	98.5	106.7	104.7	100.5	96.0



TESTS1.XLS

12/8/94

SOIL BORING LOG			
Dakota Environmental Consultants, Inc. P.O. Box 636 Huron, SD 57350 (605) 352-5610			
Soil Description	WL	Depth	Qu
Clay, tan, stiff	0		
	1		
	2		
	3		
	4		
END OF BORE	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
REMARKS:	1. Performed auger boring per Doug Lipetzky, DU. 2. Boring Elevation to be determined by DU. 3. Boring locations identified by DU.		
Water Level:	No Water	DEC #	9450
Method:	3" Auger Bore	Chkd by:	JSH
Driller:	D. Duval	Project:	Ducks Unlimited, Dohn Dam Site #2
Sampler:	S. Meikle	Entered By/Date:	S. Meikle 12/7/94
Recorded By:	S. Meikle		

BORLOG1.XLS

12/8/94

SOIL BORING LOG			
Dakota Environmental Consultants, Inc. P.O. Box 636 Huron, SD 57350 (605) 352-5610			
Soil Description	WL	Depth	Qu
Clay, yellow with some gravel	0		
	1		
	2		
	3		
	4		
END OF BORE	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
REMARKS:	1. Performed auger boring per Doug Lipetzky, DU. 2. Boring Elevation to be determined by DU. 3. Boring locations identified by DU.		
Water Level:	No Water	DEC #	9450
Method:	3" Auger Bore	Chkd by:	JSH
Driller:	D. Duval	Project:	Ducks Unlimited, Dohn Dam Site #1
Sampler:	S. Meikle	Entered By/Date:	S. Meikle 12/7/94
Recorded By:	S. Meikle		

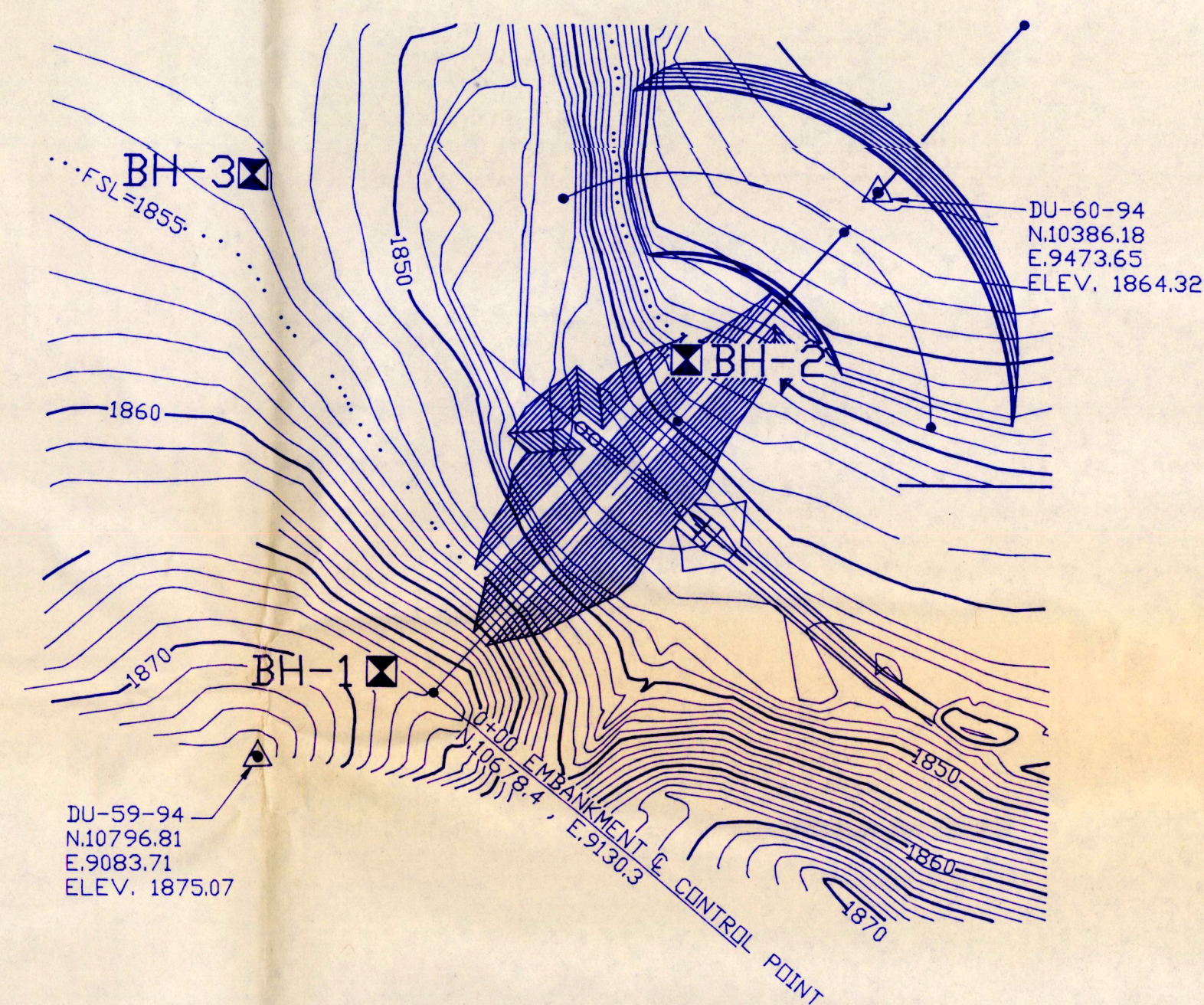
BORLOG1.XLS

12/8/94

SOIL BORING LOG			
Dakota Environmental Consultants, Inc. P.O. Box 636 Huron, SD 57350 (605) 352-5610			
Soil Description	WL	Depth	Qu
Topsoil, silty clay	0		
Sandy Clay, brown	1		
	2		
	3		
	4		
Medium well graded sand with gravel	5		
END OF BORE	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
REMARKS:	1. Performed auger boring per Doug Lipetzky, DU. 2. Boring Elevation to be determined by DU. 3. Boring locations identified by DU.		
Water Level:	No Water	DEC #	9450
Method:	3" Auger Bore	Chkd by:	JSH
Driller:	D. Duval	Project:	Ducks Unlimited, Dohn Dam Site #3
Sampler:	S. Meikle	Entered By/Date:	S. Meikle 12/7/94
Recorded By:	S. Meikle		

BORLOG1.XLS

12/8/94



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 GREAT PLAINS REGIONAL OFFICE. THE CONTRACTOR WARRANTS THAT SITE CONDITIONS HAVE BEEN EXAMINED AS REQUIRED BY SECTION 101.203 "EXAMINATION OF SITE CONDITIONS" OF THE GENERAL CONDITIONS PRIOR TO BIDDING OR CONSTRUCTION OF THIS PROJECT. NO ADJUSTMENT TO THE CONTRACT WILL BE MADE DUE TO CHANGED SITE CONDITIONS.

DUCKS UNLIMITED INC.		PROJECT NO. SD-0169-001		DESIGNED BY: DJL	
GREAT PLAINS REGIONAL OFFICE		DATE: 2-10-95		DRAWN BY: TSP	
SHEET NO. 6 OF 6		APPROVED BY:		SURVEYED BY:	
		APPROVED BY:		CHECKED BY:	