

WATER PERMIT NO. 1797-1

Name of Applicant: Jim Johnson

Address: 19424 US Hwy 85, Belle Fourche SD 57717-3100

Phone: 605 642-2986

Amount of Water Claimed: 65.4 AF

Total Acres:

Source of Water Supply: runoff

Water to be used for: fish & wildlife, livestock watering

County: Harding

Type of Waste Disposal System:

Location: approximately 40 miles north of Belle Fourche

PRIORITY

Date Received: 6-26-03

Application/License Fee: \$200

Corrected Application Received:

Period of Annual Use: January 1 - December

Remarks:

Diversion Point: between NW ¼ NW ¼ Sec 16 and
NE ¼ NE ¼ Section 17; all in T15N-R2E

Water Impounded: NW ¼ NW ¼ Sec 16, NE ¼
NE ¼ Sec 17, SE ¼ Sec 8; all in T15N-R2E

Depth of Well: NA

Well Driller: : NA

Remarks:

Type of Map: topo

Prepared by: Roger Smith, Ducks Unlimited

Reviewed and the Number Assigned on: 6-26-2003

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

SOUTH DAKOTA
WATER PERMIT NO. 1797-1

Date of first receipt of application June 26, 2003.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 1797-1 to Jim Johnson, 19424 US Hwy 85, Belle Fourche SD 57717-3100 authorizing the construction of the dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 1797-1 authorizes impoundment of 65.4 acre-feet of water from runoff by reconstructing and enlarging an existing dam located between the NW ¼ NW ¼ Section 16 and NE ¼ NE ¼ Section 17 with water impounded in the NW ¼ NW ¼ Section 16, NE ¼ NE ¼ Section 17 and SE ¼ Section 8; all in T15N-R2E.
2. The water appropriated shall be used for the purpose of fish and wildlife propagation and livestock water 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. 1797-1 is August 11, 2003.
5. The date from which applicant may claim right is June 26, 2003.
6. One-fifth of the construction is to be completed on or before February 11, 2006.
7. All construction is to be completed on or before August 11, 2008.
8. Water is to be put to beneficial use on or before August 11, 2012.
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. Water Permit No. 1797-1 authorizes a dam with a storage capacity of 65.4 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

WATER MANAGEMENT BOARD

By: Garland Erbele

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

OCT 10 2003

date



SD EForm - 1585 V1
FORM 2: Application for uses other than irrigation
(type or print)

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>1797-1</u>	(office use only) Hydrologic Unit <u>10/30304</u>
	Basin <u>Moreau River</u>	
	Newspaper <u>Nation's Center News, Butte</u>	

RECEIVED
JUN 26 2003
WATER RIGHTS
PROGRAM

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

Check use(s) of water:

- | | | | |
|---|---|---|--|
| ☐ Municipal | ☐ Suburban Housing | ☐ Recreational | ☐ Institutional |
| ☐ Rural Water System | ☐ Commercial | ☒ Fish & Wildlife | ☐ Geothermal Heat |
| ☐ Domestic (over 18 gpm) | ☐ Industrial | ☒ Other <u>livestock watering</u> | |

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

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

- Name of Applicant Jim Johnson Phone (605) 642-2986
(check one) ☒ Owner ☐ Tenant/lessee
Mailing Address 19424 Us Highway 85 Belle Fourche State SD 57717-3100
(Street, RR, or Box and City) (Zip Code)
- Amount of water claimed _____ *CFS or _____ **GPM 65.4 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply Surface Runoff
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Harding
between NW1/4, NW1/4, SECTION 16, TWP. 15 N RGE. 2E Latitude 45° 16' 9.0" Longitude 103° 53' 42.8"
and NE1/4 NE1/4 Sec 17-T15N-R2E Water Impounded: NW1/4 NW1/4 Sec 16; NE1/4 NE1/4
Sec 17; SE1/4 Sec 8; all in T15N-R2E.
- County or counties where water will be used Harding
- Annual period during which water is to be used Jan 1 - Dec 31
- Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

Renconstruction and enlargement of an existing dam. Design Report attached. Construction Plans submitted. Design completed by Ducks Unlimited, Great Plains Regional Office, Bismarck, ND. Design Engineer: Roger C. Smith, P.E.

STATE OF SOUTH DAKOTA)

County of Butte SS

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

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

Applicant's signature Jim Johnson

Subscribed and sworn to before me this 23RD day of June 2003

[Signature]
Notary Public signature

(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 _____ 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. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) _____
- b) System Capacity (gallons) _____ Year Constructed _____
- c) Connected to the City of _____ Sanitary System

3. Dugout Information

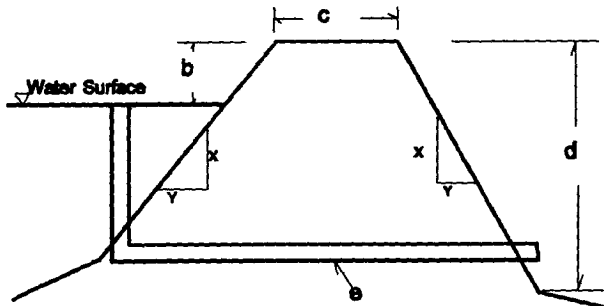
- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to 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:

Roger Smith, P.E. Ducks Unlimited
Great Plains Regional Office
Bismarck, ND 58501 701-355-3500



- b) Freeboard _____ 6.0'
- c) Crest Width _____ 12'
- Crest Length _____ 575'
- d) Height _____ 26' (pipe invert to top)
- e) Primary Outlet Capacity _____ 152 cfs
If pipe, diameter _____ 72" riser, 42" barrel
- f) Secondary Spillway Capacity _____ 1727 cfs
Spillway Width _____ 100'
- g) X & Y Slope _____
Upstream _____ 3:1 + 10' berm
Downstream _____ 3:1
- h) Surface Area of Impoundment _____ 12.7
- i) Storage _____ 52.0 Acre Feet
- j) Drainage Area Above Dam _____ 2,733.0 Acres

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date June 26, 20 03

RECEIVED OF Ducks Unlimited In., One Waterfowl Way, Memphis TN 38120

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

Fee for Application for Permit No. <u>1797-1</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. <u>1797-1</u>	50	00
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. _____		
(Any Other Work Provided by Law)	TOTAL	200.00

No. **000810**

By David D. White
Chief Engineer *gm*

DESIGN REPORT

For

JIM'S CREEK

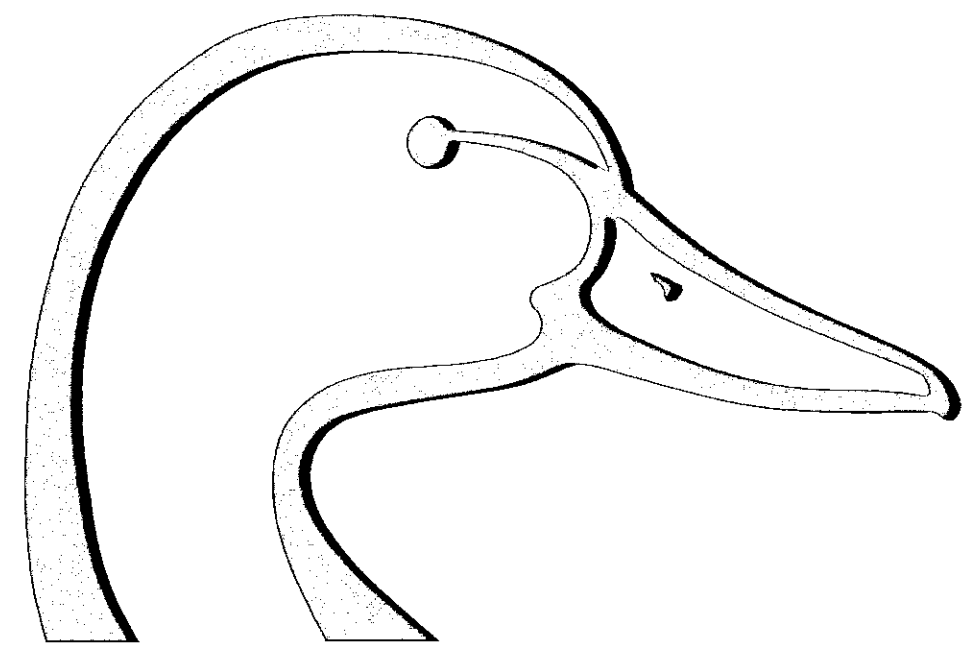
HARDING COUNTY, SD (SD-367-01)

June 17, 2003



**Great Plains Regional Office
Ducks Unlimited, Inc.
Bismarck, ND**

1797-1



DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

JIM'S CREEK

SECTIONS 8, 9, 16, & 17,
TOWNSHIP 15 NORTH, RANGE 2 EAST
HARDING COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

US FISH & WILDLIFE SERVICE

SPECIFICATIONS

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

PLAN INDEX

1	PROJECT LOCATION MAPS
2	PROJECT TOPOGRAPHY
3	EMBANKMENT PLAN & PROFILE, EXCAVATION PLAN
4	STRUCTURE PLAN & PROFILE
5	STRUCTURE DETAILS
6	SOILS WHEN AVAILABLE

ESTIMATED QUANTITIES

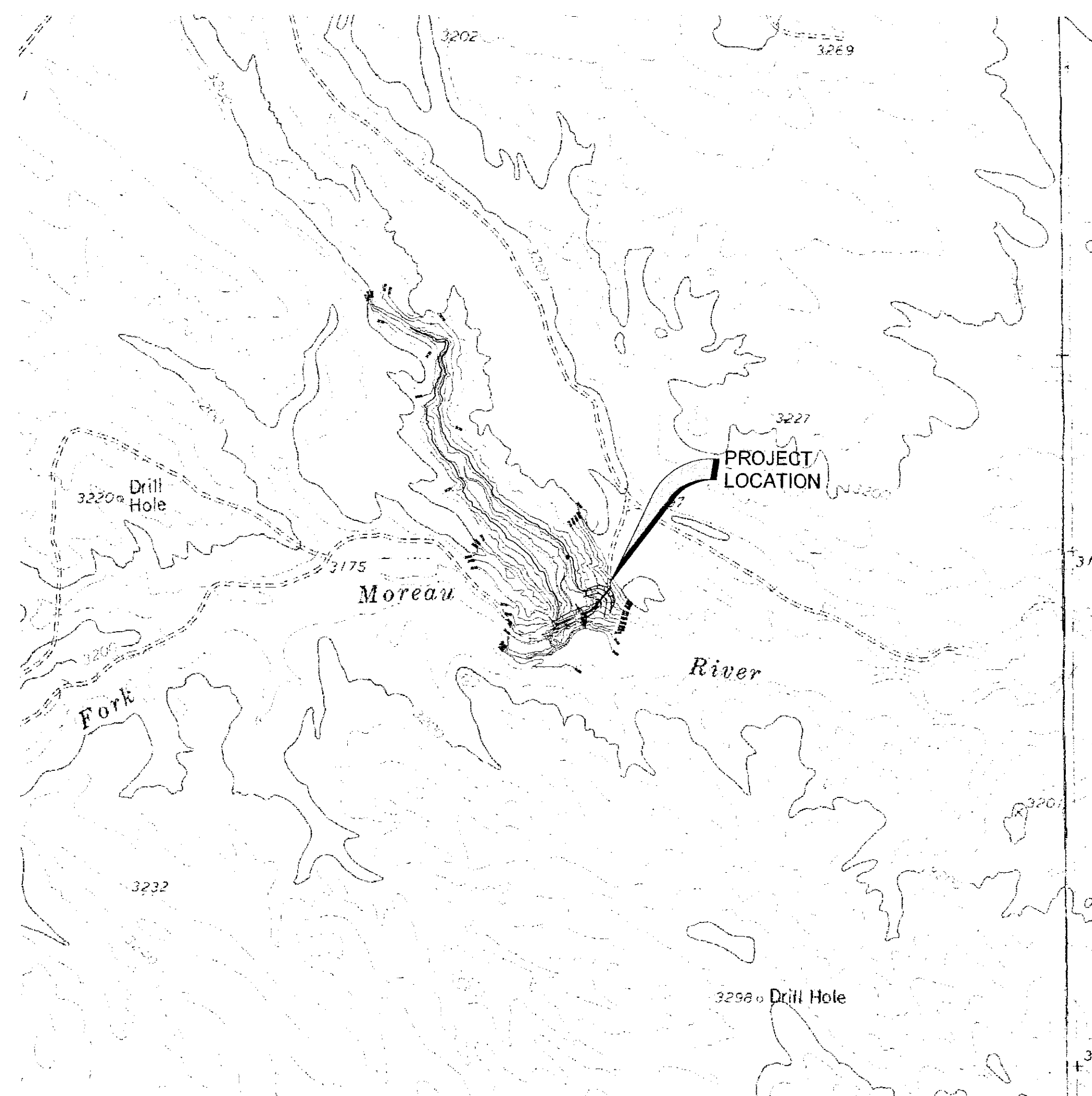
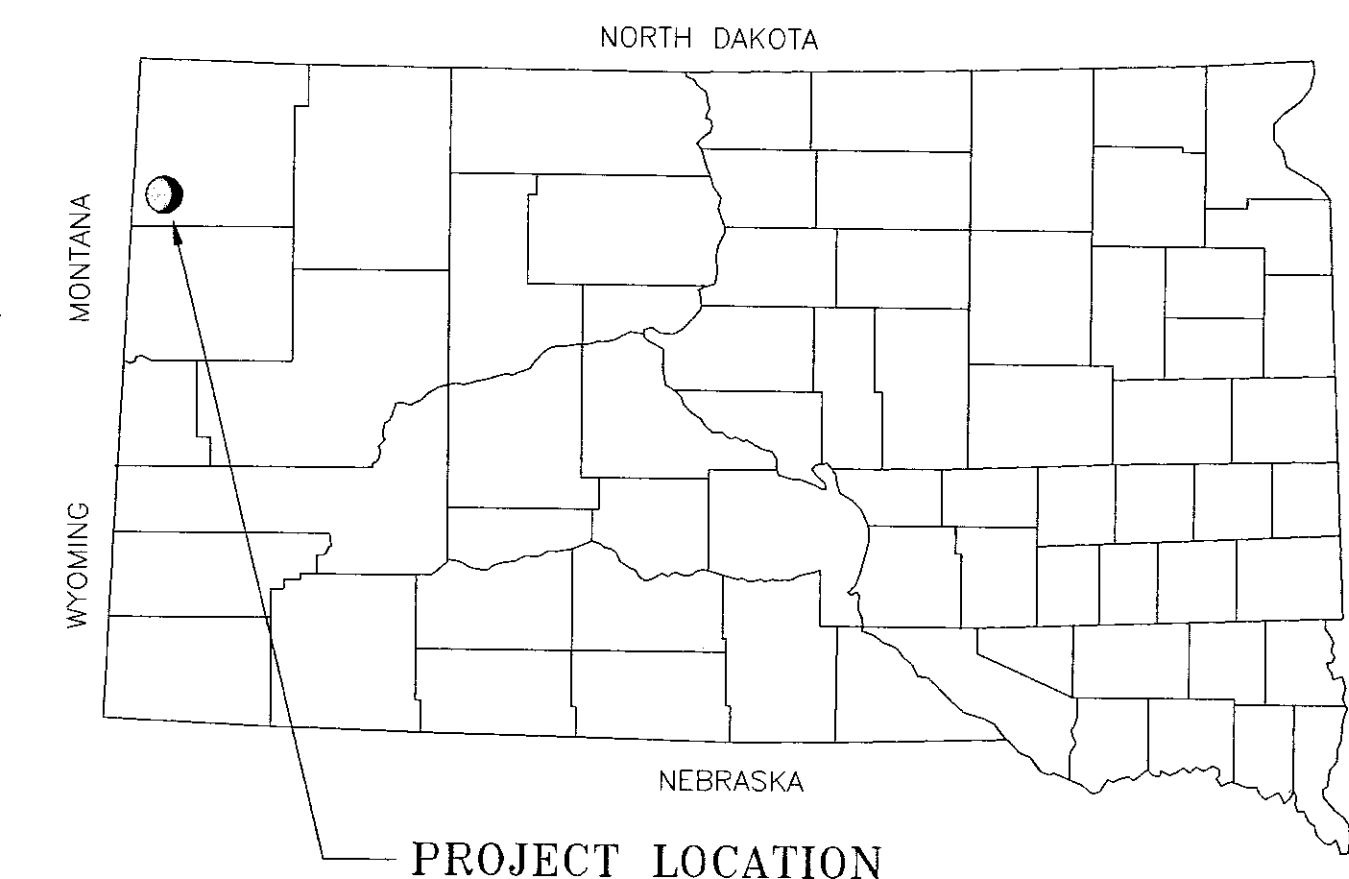
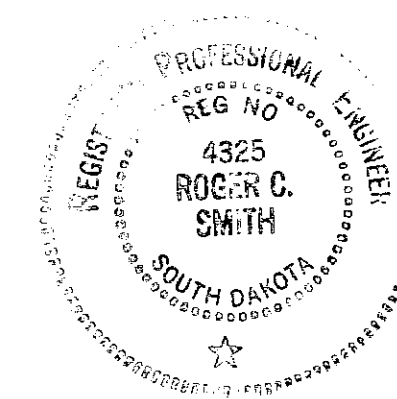
MOBILIZATION	1 L.S.
SITE PREPARATION	865 C.Y.-P*
EXCAVATION	
STRUCTURE EXCAVATION	7,648 C.Y.-INC**
EMERGENCY SPILLWAY EXCAVATION	3,104 C.Y.-INC**
EMBANKMENT CONSTRUCTION	15,905 C.Y.-S***
WATER	200 M-GAL.****
WATER CONTROL STRUCTURE INSTALLATION	1 EA.
CULVERT INSTALLATION	
42" CMP	111 L.F.-P
12" PVC	42 L.F.-P
RIPRAP (CLASS I)	14 C.Y.-P
RIPRAP (CLASS II)	19 C.Y.-P

* CY-P - PAYMENT WILL BE BASED ON THIS PLAN QUANTITY.

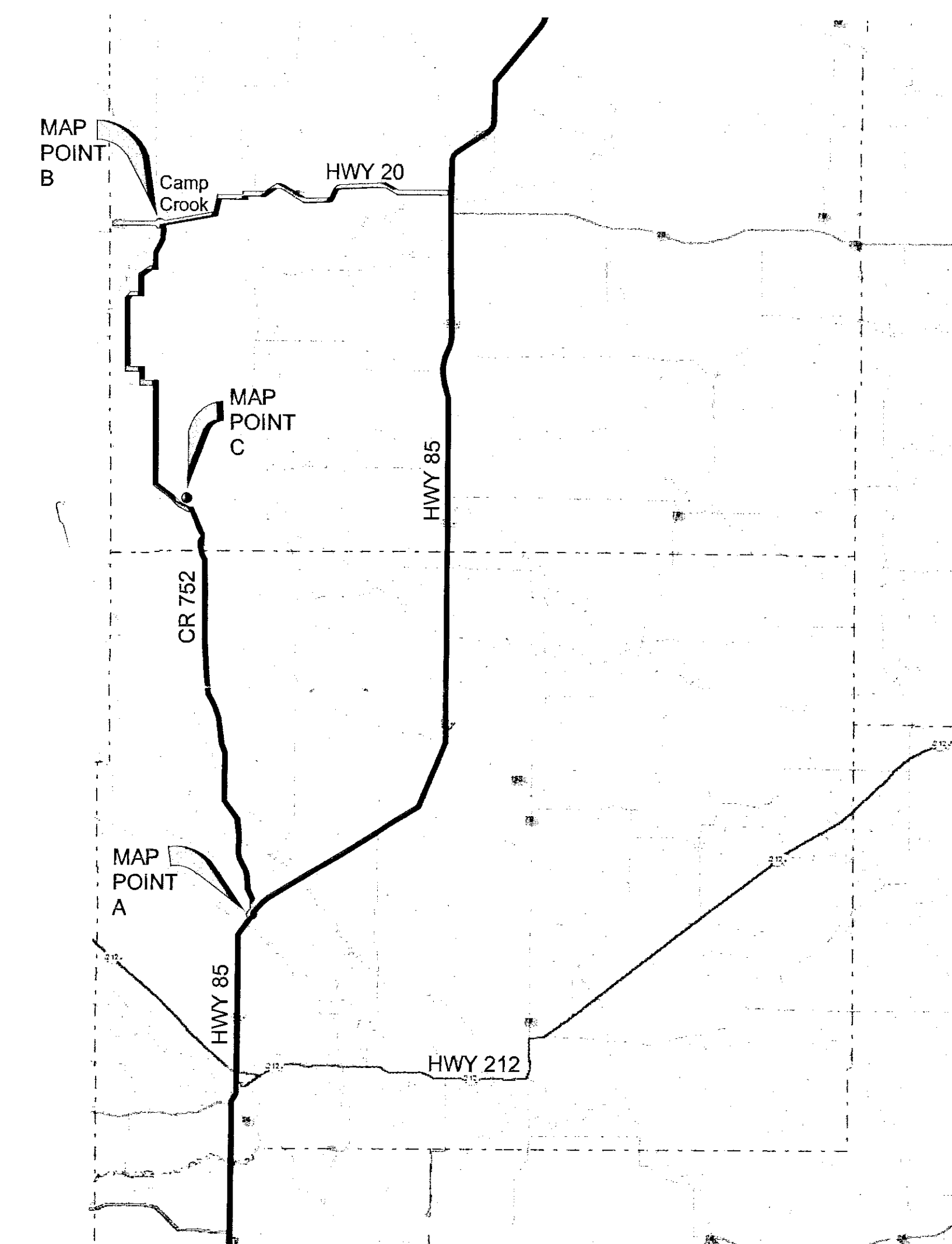
** CY-INC- QUANTITY GIVEN FOR INFORMATION PURPOSES ONLY

*** CY-S- PAYMENT WILL BE BASED ON A STAKE QUANTITY AS CALCULATED FROM CONSTRUCTION STAKES AND INCLUDES MATERIAL REMOVED FOR STRUCTURE INSTALLATION AND SITE PREPARATION. A 15% SHRINKAGE WAS ADDED.

**** PAYMENT WILL BE BASED ON ACUTAL AMOUNT USED. SEE SPECIFICATION 205. ESTABLISHED WATER REQUIREMENTS 12 GALLONS/C.Y.

VICINITY MAP
SCALE: 1" = 1000'

PROJECT LOCATION

LOCATION MAP
SCALE: 1" = 8 MILES

DRIVING INSTRUCTIONS

- MAP POINT "A" FROM SOUTH - NORTH ON CR752 FROM HWY 85 (44°50'39.5" / 103°49'52.3") ±30.5 MILES TO JIM JOHNSON RANCH.
- MAP POINT "B" FROM NORTH - SOUTH ON CR 752 FROM HWY 20 (JUST EAST OF CAMP CROOK) ±28 MILES TO JIM JOHNSON RANCH.
- MAP POINT "C" JOHNSON RANCH LAT / LONG - 45°15'49.12" / 103°56'31.82"
FROM RANCH - EAST ±2.5 MILES ON TRAIL TO PROJECT SITE

PROJECT IS ON PRIVATE LAND. PERMISSION MUST BE OBTAINED TO ENTER.

AGENCY: USFWS

LANDOWNERS: JIM JOHNSON - 605-642-2986 CELL 645-2495
WILL JOHNSON (LIVES ON RANCH) 605-797-4489



GREAT PLAINS REGIONAL OFFICE
DATE: 4-22-2003
SHEET NO. 1 OF 6

PROJECT NO. SD367-1
JIM'S CREEK
LOCATION & VICINITY MAPS
APPROVED BY: _____
CHECKED BY: _____

K:\STATE\JOBNO_-DWG

DESIGNED BY: RCS

DRAWN BY: DAK

SURVEYED BY: .

APPROVED BY: .

CHECKED BY: .

1797-1

PROJECT: Jim's Creek
SD -367-01

LOCATIONS: NW¼, NW¼, SECTION 16, TWP. 15 N RGE. 2E
Latitude 45° 16' 9.0" Longitude 103° 53' 42.8"
Butte County, South Dakota

MARSH DATA: Full Service Level (FSL) @ 3162.0
14.7 Surface Acres @ FSL
65.35 Acre-Feet Capacity @ FSL
Maximum Depth -13'

PROJECT DATA: Top of Dam - elevation 3168.0 (Top of compacted fill add 4" for topsoil)
Primary Spillway - elevation 3162.0
Emergency Spillway - elevation 3164.0 (Top of finished grade)
Upstream Berm - 10' wide @ elevation 3161.0 (1' lower than FSL)
Side Slopes - 3 (horizontal): 1 (vertical)

CLASSIFICATION: Based on the classification criteria outlined in Chapter 74:02:08 "Safety of Dams," it is recommended that the proposed reconstructed dam be classified as a small, Category 3 dam. No loss of life and minimal economic loss is expected should failure occur. The product of the "maximum storage capacity" times the "effective height" is 4334. (197 acre-feet x 22.0')

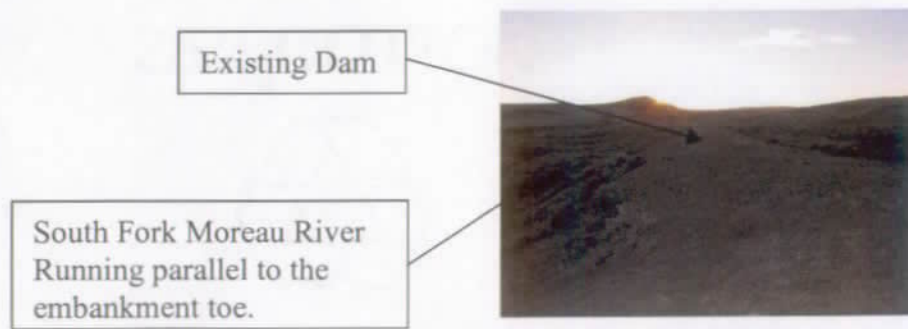
PRELIMINARY RISK ASSESSMENT: The proposed dam reconstruction planned on an unnamed tributary just above it's confluence with the South Fork Moreau River. USGS topography maps do not show any structures on the South Fork Moreau River for the next 8 river miles.

PROPOSED PROJECT: The project consists of reconstructing an existing dam, installing primary spillways, and excavating a new emergency spillway. The full history of the dam has not been obtained. Erosion in the emergency spillway had advanced into the reservoir and threatens to continue upstream. The existing embankment has a maximum fill of approximately 10'. The reconstructed dam will make use of the existing embankment and increase the height of full from an average elevation of 3158 to 3168.



Existing Embankment

Advancing Headcut



Variable level drawdown capabilities will be included in one of the primary spillway. The new emergency spillway will be constructed on the left (east) abutment. The new embankment will extend across the existing spillway on the opposite abutment. The downstream toe of the existing embankment cannot be extended due to the closeness of the South Fork Moreau River and therefore dictates the cross section of the new embankment. The new embankment material will be compacted to 95% of the Standard Proctor at -1% to +3% of optimum moisture. The dam will be constructed having a top width of 12' and having a 10' berm at the upstream full service level. All slopes will be constructed to a 3:1 slope.

PRIMARY SPILLWAY: The structure will have a fixed level water control capability at elevation 3162.0. Variable level water control will be provided by a separate structure having the capability of retaining water at 4" increments between elevations 3153.0 and 3162.0. The structure will have a riser that will act as a circular weir and be 72" in diameter and made of 12 gage corrugated metal pipe. The outlet barrel will be a 42", 14 gage corrugated metal pipe at a 0% slope at elevation 3142.0. All corrugated metal pipe will be coated with a 10-mill polymeric film laminate both inside and outside. A protected plunge pool will be located at the discharge end of the outlet pipe.

EMERGENCY SPILLWAY: The emergency spillway will be excavated having a 100' bottom width and 3:1 slopes. The top of the finished spillway grade, after replacing 4" of topsoil, will be 3164.0 or 3 feet above the crests of the primary spillway. The length of the level crest at the spillway centerline is 296' feet. The new emergency spillway will outlet onto a 9% well vegetated slope. Flows exiting the emergency spillway will enter South Fork Moreau River directly. It is believed that events generating sufficient runoff to use the spillway, will also create flows within the South Fork Moreau River high enough to prevent bank erosion, as emergency spillway flow enter the River. The situation does create some risk of head cutting and will be watched. Rock Riprap and or a geotextile may be needed in emergency flows enter the river while the bank is exposed.

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

Rain Duration = 1.00

Rain Table # = 1

Antecedent moisture condition = 2

Inflow hydrographs developed from the TR-20 METHOD were routed through the primary and emergency

spillways. This yielded outflow hydrographs revealing peak discharges at maximum reservoir elevations corresponding to various runoff events. The following table is a summary of that printout:

PARAMETERS:

WATERSHED – 4.3 SQ MI

TIME OF CONCENTRATION – 2.0 HOURS

CURVE #'s – 70 (5 yr) 74 (10 yr) 75 (25yr) 78 (100 yr)

Event Frequency	Rainfall (in.)	Runoff (ac-ft)	Inflow* (cfs)	Outflow (cfs)	Max WSP (el.)	Freeboard** (ft.)	Flow in ES (cfs)
20%	2.4	93	120	79	3163.21	4.79	0
10%	2.8	178	375	194	3164.71	3.29	50
25%	3.4	280	633	412	3165.57	2.43	253
1%	4.2	467	1136	898	3166.64	1.36	740

* Soil Infiltration Index values of 2.5 and 1.9 were evaluated as the watershed bisects the index boundary. The results shown reflect a SI value of 1.9

**Calculated from top of compacted fill, excluding topsoil.

A spillway rating curve for the primary and emergency spillways is contained within this report.

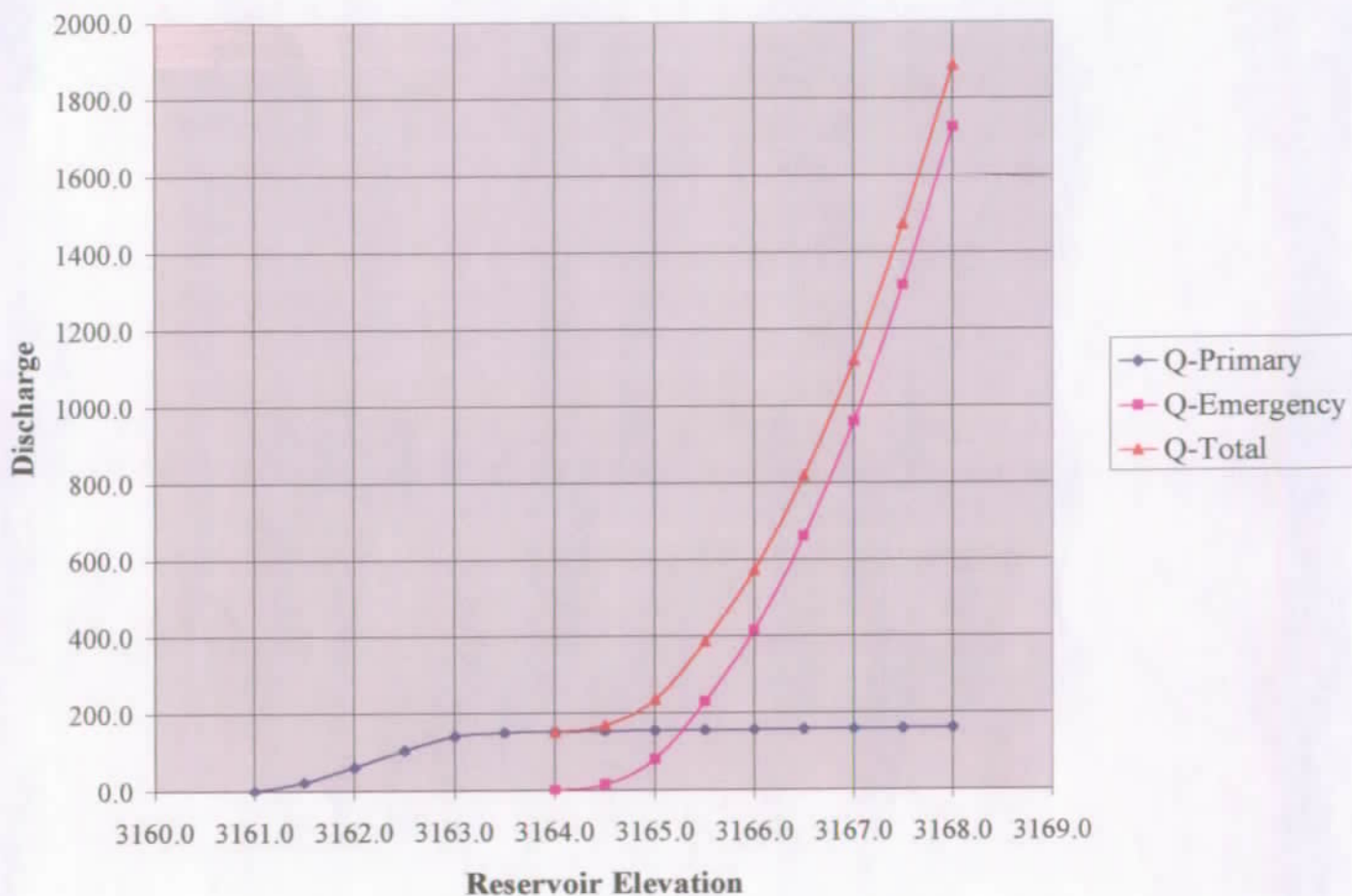
The primary spillway capacity was calculated by comparing discharges developed by the weir flow formula and formulas for calculating head loss through corrugated metal pipe. The emergency spillway capacity was estimated from FLOWCOMP, a computer-aided hydraulic program analyzing gradually varied flow profiles in prismatic open channels using the standard step method.

DROUGHT ANALYSIS: The frequency in which there will be adequate runoff was not an important criteria to project sponsors. Using NRCS methods, the 80% and 50% annual runoff will generate 12 and 37 acre-feet respectively (using isogram map #1 and curve number 75). The annual requirement assuming an evaporative loss of approximately 3.0 feet is 32 acre-feet. Although the watershed is large and the surface soils are predominately resistant to infiltration, upstream storage and periodic dry spells will result in years that runoff will not sufficient to replace evaporative losses.

SOIL INVESTIGATION: The field portion of the geotechnical investigation has been completed by Midwest Testing, Bismarck, ND. A soil investigation report, to be completed in the near future, will be available upon request. The plans will be modified to show the approved borrow areas as well as any other modifications recommended by the geotechnical consultant. Material within the proposed borrow areas are suitable for embankment construction. Borrow material will come from the planned emergency spillway and from a borrow area developed within the proposed reservoir. The borrow area to be developed within the basin will be limited to 6'-8' as sands lens were encountered below 10'. Depending on the geotechnical engineer's recommendation, a core trench between stations 1+50- 3+00 may be necessary.

IMPACTS TO SURROUNDING PROPERTY: The planned construction and subsequent reservoir at the full service level will be contained within land owned by Jim Johnson.

SPILLWAY RATING CURVES



Dated: May 16, 2003

Submitted By:

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

Water Permit Application No. 1797-1

Jim Johnson

Top of Dam Elev. - 3168
 2nd Spillway Elev. - 3164
 P. Spillway Elev. - 3162
 D/S Toe Elev. - 3142 } Ht. = 26 ft.

Cat. 3 - Low Hazard Dam

Normal Storage Capacity - 65.4 A.-Ft
 Int. Storage Capacity - 99 A.-Ft
 Max. Storage Capacity - 197 A.-Ft

Int. Capacity $\times$ Eff. Ht = $99 \times 22 = 2178 < 3000 \therefore$ 25 year
Minimum Spillway Design

From USGS NRI 80-80 "Tech for Est. Flood Peaks ... in SD"

DA = 4.27

Slope = 60 ft/mi

S_i = 2.50

Q₂₅ = 83.4 A^{0.64} S^{0.72}

$$\begin{aligned} &= 83.4 (4.27)^{0.64} (60)^{0.72} (2.50)^{0.72} \\ &= 83.4 (2.39) (6.06) (0.517) \\ &= \underline{625 \text{ cfs}} \end{aligned}$$

Q₁₀₀ = 132 A^{0.65} S^{0.67}

$$\begin{aligned} &= 132 (4.27)^{0.65} (60)^{0.67} (2.50)^{0.67} \\ &= 132 (2.57) (6.06) (0.5412) \\ &= \underline{1200 \text{ cfs}} \end{aligned}$$

Ducks Unlimited uses the NRCS TR-20 model to route a Q₂₅ peak = 633 thru the structure with 2.43 ft of floodpond remaining and a Q₁₀₀ peak of 1136 cfs thru the structure with 1.44 ft of floodpond remaining.

Section 74:02:08:09

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

NRCS Annual 11-16

DA = 2733 A. CN = 74 ISO = 1

80% chance = 0.044
 $0.044 \times 2733/12 = \underline{10 \text{ A.-Ft}}$

50% chance = 0.15
 $0.15 \times 2733/12 = \underline{34 \text{ A.-Ft}}$

10% chance = 0.92
 $0.92 \times 2733/12 = \underline{210 \text{ A.-Ft}}$



GREAT PLAINS REGIONAL OFFICE
2525 River Road
Bismarck, ND 58503-9011
(701) 355-3500 Fax (701) 355-3575
www.ducks.org

June 6, 2003

Eric Gronlund
Water Rights Division
SD Dept Water & Natural Resources
523 E. Capitol
Pierre, SD 57501

RECEIVED
JUN 26 2003
WATER RIGHTS
PROGRAM

Re: Jim's Creek (Dam on Jim Johnson's land near in Harding County, SD)

Dear Mr. Gronlund:

Enclosed is a water right application for a dam reconstruction project Harding County, SD. Jim Johnson owns the land the dam and reservoir is on.

I have included the application (forms 2 and 2A), plans, Design Report, and a payment of \$150. ~~200~~

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

Sincerely,

Roger Smith, P.E.
Regional Engineer
Great Plains Regional Office

Cc: Steve Fairbairn
Jim Johnson

File No. 1797-1

Water Rights Division -DENR
Conversation or File Documentation

NAME OF PERSON OR FILE: Jim Johnson

ADDRESS: 19424 US Hwy 85, Belle Fourche, SD 57717-3100

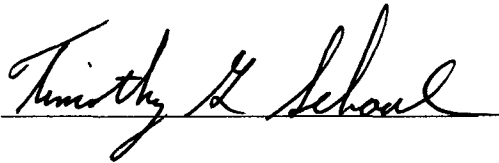
COUNTY: Harding

DATE: June 27, 2003

TELEPHONE: XXXXXXX

RE: Talked to DU about Primary Spillway Elevation

I talked to Roger Smith from Ducks Unlimited today about Water Permit Application No. 1797-1 and a discrepancy on the elevation for the primary spillway. The design report has elevation 1361 and the plan sheets and storage capacity on the application indicate 1362. He said that elevation 1362 and the 65.4 acre-feet storage capacity were correct and he would send us a corrected design report. He originally had the spillway designed and then the landowner wanted to store some additional water.



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

REPORT ON
WATER PERMIT APPLICATION No. 1797-1
Jim Johnson
June 30, 2003

Water Permit Application No. 1797-1 has been filed by Jim Johnson to impound 65.4 acre-feet of water by reconstructing an existing dam, located between the NE $\frac{1}{4}$ of Section 17 and the NW $\frac{1}{4}$ of Section 16-T15N-R2E, in Harding County. The application also requests impoundment of sufficient water to maintain water at the outlet elevation. The water will be used for fish and wildlife production and livestock use.

Discussion:

The dam will be classified as a small size, Category 3, Low Hazard dam. Ducks Unlimited, Inc. has designed the repair of the existing dam. The plans and specifications have been reviewed and will be approved.

The dam will be 26 feet high with a normal storage capacity of 65.4 acre-feet with a reservoir level at the spillway elevation, and a maximum storage capacity of 197 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.

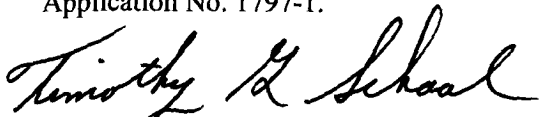
The dam has a drainage area of 2733 acres or 4.27 square miles. The repair project is designed to raise the existing top of dam elevation about 7 feet and construct a new primary spillway structure with a 72 inch diameter CMP riser and a 42 inch barrel with 6 feet of freeboard and a new 100 foot wide earthcut emergency spillway with 4 feet of freeboard. Ducks Unlimited uses the NRCS TR-20 model to route a 25-year frequency event peak of approximately 633 cfs through the structure with 2.43 feet of freeboard remaining and a 100-year frequency event peak of approximately 1136 cfs through the structure with 1.36 feet of freeboard remaining.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 10.0 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 34 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 210 acre-feet.

The Jim's Creek Dam is located between the NE $\frac{1}{4}$ of Section 17 and the NW $\frac{1}{4}$ of Section 16-T15N-R2E on an unnamed tributary to the South Fork Moreau River at the confluence of the unnamed tributary and the South Fork Moreau River. There are no existing Water Permit/Rights located on the unnamed tributary or in the immediate area below the dam on the South Fork Moreau River.

Conclusions:

1. Water Permit Application No. 1797-1 should be approved since unappropriated water is available and approval should not have an adverse effect on existing Water Permits/Rights.
2. If approved, the low flow bypass requirement for downstream domestic use should be a qualification on Water Permit Application No. 1797-1.



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

Approved by:



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



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

July 16, 2003

Jim Johnson
19424 US Hwy 85
Belle Fourche, SD 57717-3100

Dear Mr. Johnson:

We have reviewed the plans and specifications for your dam project located between the NE $\frac{1}{4}$ of Section 17 and the NW $\frac{1}{4}$ of Section 16-T15N-R2E, in Harding County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize construction of the dam. The construction of the dam may not begin until Water Permit No. 1799-1 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 you, 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 Jim's Creek Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 26 feet and a normal storage capacity of 65.4 acre-feet and a maximum storage capacity of 197 acre-feet.

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

Sincerely,

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

c: Roger Smith, Ducks Unlimited



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 1797-1, Jim Johnson**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 1797-1, Jim Johnson, 19424 US Hwy 85, Belle Fourche SD 57717-3100.

The Chief Engineer is recommending APPROVAL of Application No. 1797-1 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) it is in the public interest with the following qualifications:

1. Water Permit No. 1797-1 authorizes a dam with a storage capacity of 65.4 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

See report on application for additional information.

Garland Erbele, Chief Engineer
July 15, 2003



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

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

July 17, 2003

Jim Johnson
19424 US Highway 85
Belle Fourche SD 57717-3100

Dear Mr. Johnson:

Water Permit Application No. 1797-1 for fish & wildlife, livestock watering 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 Nation's Center News printed at Buffalo, SD (Ph # 605-375-3228). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,


Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

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



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

July 17, 2003

Nation's Center News
PO Box 107
Buffalo SD 57702-0107

ATTENTION: Legal Public Notice

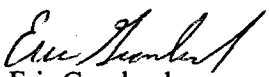
Enclosed is a Notice of Hearing on Application No. 1797-1 to Appropriate Water to be published twice. Please publish the first notice on July 24, 2003 with the second publication 7 days later.

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 Jim Johnson, 19424 US Highway 85, Belle Fourche SD 57717-3100 (Ph # 605-642-2986).

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

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

Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

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

No. 1797-1

Date _____

We are in receipt of your letter of July 16, 2003 enclosing Notice of Hearing to Appropriate Water by Application No. 1797-1 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper

Instruction to Newspaper - Publish first Notice on July 24, 2003 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 1797-1 to Appropriate Water

Notice is given that Jim Johnson, 19424 US Hwy 85, Belle Fourche SD 57717-3100 has filed an application for a water permit to impound 65.4 acre-feet of water from runoff by reconstructing and enlarging an existing dam located between the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 16 and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 17 with water impounded in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 16, NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 17 and SE $\frac{1}{4}$ Section 8; all in T15N-R2E. This application request impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation and livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1797-1 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 Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by August 11, 2003.

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

Affidavit of Publication

STATE OF SOUTH DAKOTA)

COUNTY OF HARDING

Stewart Huntington of said County and State being first duly sworn, on his oath says: That the NATION'S CENTER NEWS is a legal daily newspaper of general circulation, printed and published in the City of Buffalo, in said County and State by Stewart Huntington, and has been such a newspaper during the times hereinafter mentioned; and that said newspaper has a bonafide circulation of at least 200 copies weekly, and has been published within said County in the English language for at least one year prior to the first publication of the notice herein mentioned, and is printed in whole or in part in an office maintained at the place of publication; and That I, Stewart Huntington, the undersigned, am the Publisher of said newspaper and have personal knowledge of all the facts stated in this affidavit; and that the advertisement headed:

Notice of Application No. 1797-1

a printed copy of which is hereto attached, was printed and published in said newspaper for 2 successive and consecutive weeks, the first publication being made on the 24th day of July, 2003, and the last publication on the 31st day of July, 2003, that the full amount of fees charged for publishing same, to-wit: The sum of \$ 37.80, insures solely to the benefit of the publisher of the NATION'S CENTER NEWS, that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any other person whomsoever.

Stewart Huntington

Subscribed and sworn to before me this 31st day of July, 2003.

Adith Johnson

Notary Public, Lawrence County, South Dakota

My commission expires: 10-24-2004



NOTICE OF APPLICATION NO. 1797-1 to Appropriate Water

Notice is given that Jim Johnson, 19424 US Hwy 85, Belle Fourche, SD 57717-3100 has filed an application for a water permit to impound 65.4 acre-feet of water from runoff by reconstructing and enlarging an existing dam located between the NW 1/4 NW 1/4 Section 16 and NE 1/4 NE 1/4 Section 17 with water impounded in the NW 1/4 NW 1/4 Section 16, NE 1/4 NE 1/4 Section 17 and SE 1/4 Section 8; all in T15N-R2E. This application request impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation and livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1797-1 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 Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

#690
July 24, 31

RECEIVED

AUG - 7 2003

WATER RIGHTS
PROGRAM



OCT 10 2003

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

Jim Johnson
19424 US Hwy 85
Belle Fourche SD 57717-3100

Dear Mr. Johnson:

Enclosed is Water Permit No. 1797-1 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

Sincerely,

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

enclosures

REPORT ON INSPECTION OF PERMIT NO. 1797-1

DATE OF INSPECTION: November 18, 2003

NAME & ADDRESS OF INSPECTION CONTACT/ Jim Johnson

RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: owner

NAME & ADDRESS OF PERMIT HOLDER: Jim Johnson, 19424 US Hwy 85, Belle Fourche, SD
57717-3100

DIVERSION POINT LEGAL LOCATION: 625 feet south of the NW corner of Sec. 16-T15N-R2E
(between NW ¼ NW ¼ Sec. 16 and NE ¼ NE ¼ Sec. 17; all in T15N-R2E).

DAM INFORMATION:

- 1) Height to crest 26 feet
- 2) Height to primary spillway 20 feet
- 3) Height to secondary spillway 22 feet
- 4) Crest width 12 feet
- 5) Crest length 575 feet
- 6) Spillway length XXX feet
- 7) Spillway width 100 feet
- 8) Approx. storage (Normal) 65.4 acre-feet
- 9) Approx. storage (Maximum) 197 acre-feet
- 10) Date constructed: Fall 2003

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. 1797-1
Moreau River - Water District

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

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

I have this day, **November 18, 2003**, made a thorough examination of the water use system constructed by **Jim Johnson** of **19424 US Hwy 85, Belle Fourche, SD 57717-3100** holder of Permit No. **1797-1**, bearing the priority of **June 26, 2003** authorizing the storage of **65.4** acre-feet of the waters of **runoff** for **fish & wildlife propagation and livestock water** purposes, in **Harding** County.

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

A. Works used to divert the water:

A 26 foot high earthen dam with a normal storage capacity of 65.4 acre-feet.

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

N/A

C. Works used to apply water to beneficial use:

A 26 foot high earthen dam with a normal storage capacity of 65.4 acre-feet.

The system is in the following condition **good**. The point of diversion is located **625 feet south of the NW corner of Sec. 16-T15N-R2E (between NW ¼ NW ¼ Sec. 16 and NE ¼ NE ¼ Sec. 17; all in T15N-R2E)**. The works are capable of storing **65.4** 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 26 foot high earthen dam with a normal storage capacity of 65.4 acre-feet.

and the license should be issued for **65.4** acre-feet of storage.

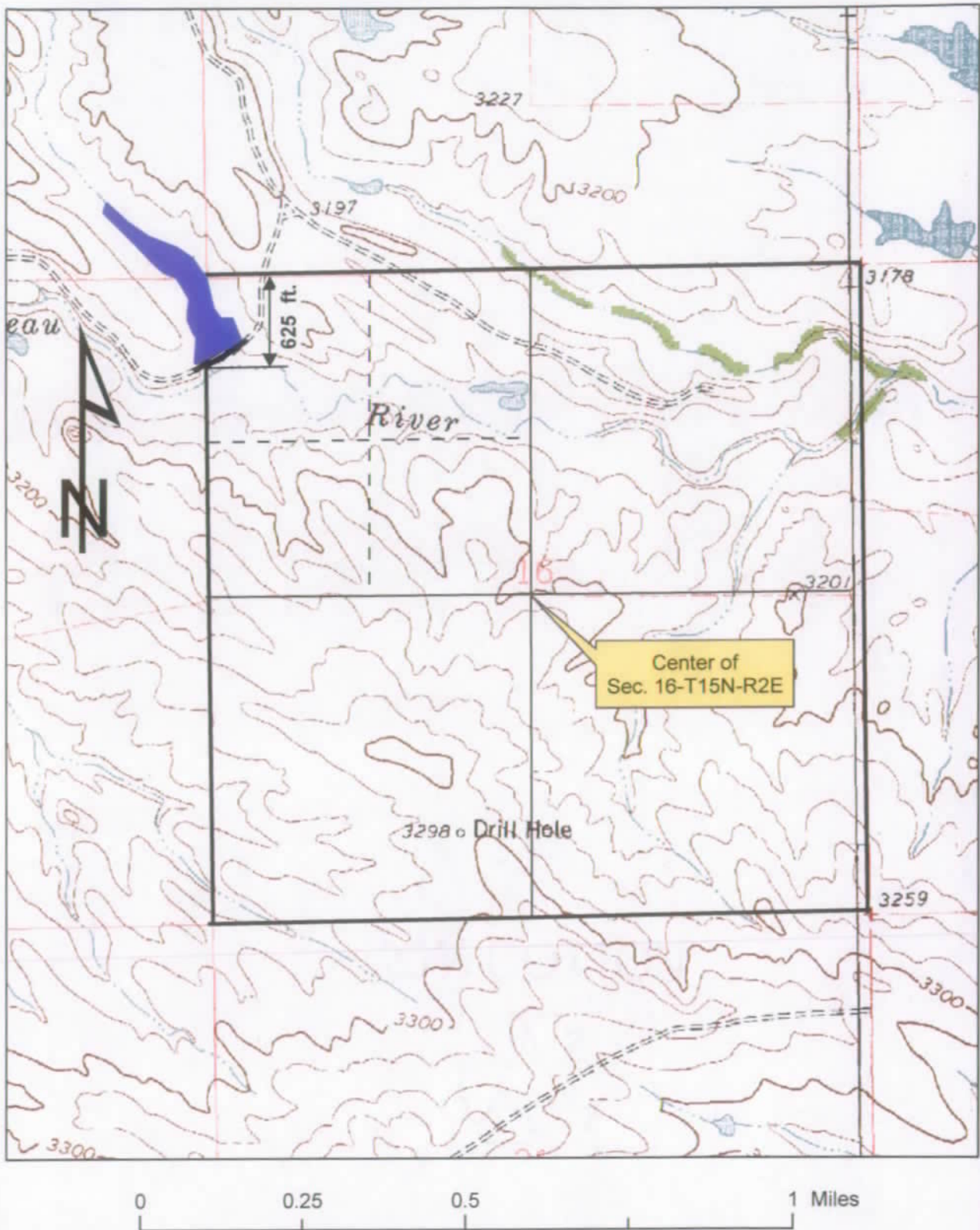
Applicable permit qualifications have been complied with: Yes **X**

Exceptions to compliance are: **none** Date Report Completed: **January 28, 2003**



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

Water Permit Application No. 1797-1



South Dakota Department of
Environment and Natural Resources



Protecting South Dakota's Tomorrow ... Today



Timothy G. Schaal

Timothy G. Schaal, P.E. 1/28/04
Natural Resources Engineer Specialist
Water Rights Program

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 1797-1

(1) Jim Johnson, 19424 US Hwy 85, Belle Fourche SD 57717-3100 made Application No. 1797-1, June 26, 2003 for a water permit to impound 65.4 acre feet of water from runoff, Harding County, South Dakota for fish and wildlife propagation and livestock watering purposes. Permit No. 1797-1, with a priority date of June 26, 2003 was approved August 11, 2003 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before August 11, 2008 and for the application to beneficial use of water on or before August 11, 2012.

(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. 1797-1 is issued a license, bearing a priority date of June 26, 2003 to impound 65.4 acre feet of water.

The location of the storage dam (spillway) is 625 feet south of the northwest corner of Section 16-T15N-R2E (between NW ¼ NW ¼ Section 16 and NE ¼ NE ¼ Section 17; all in T15N-R2E).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 1797-1, including the following now applicable qualifications:

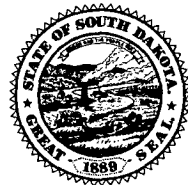
- Water Permit No. 1797-1 authorizes a dam with a storage capacity of 65.4 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
- Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

Garland Erbele

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

FEB 20 2004

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

FEB 20 2004

1797-1

Jim Johnson
19424 US Hwy 85
Belle Fourche SD 57717-3100

Dear Mr. Johnson:

Enclosed is Water License No. 1797-1. This is the final water right document completing your process of obtaining a Water Right.

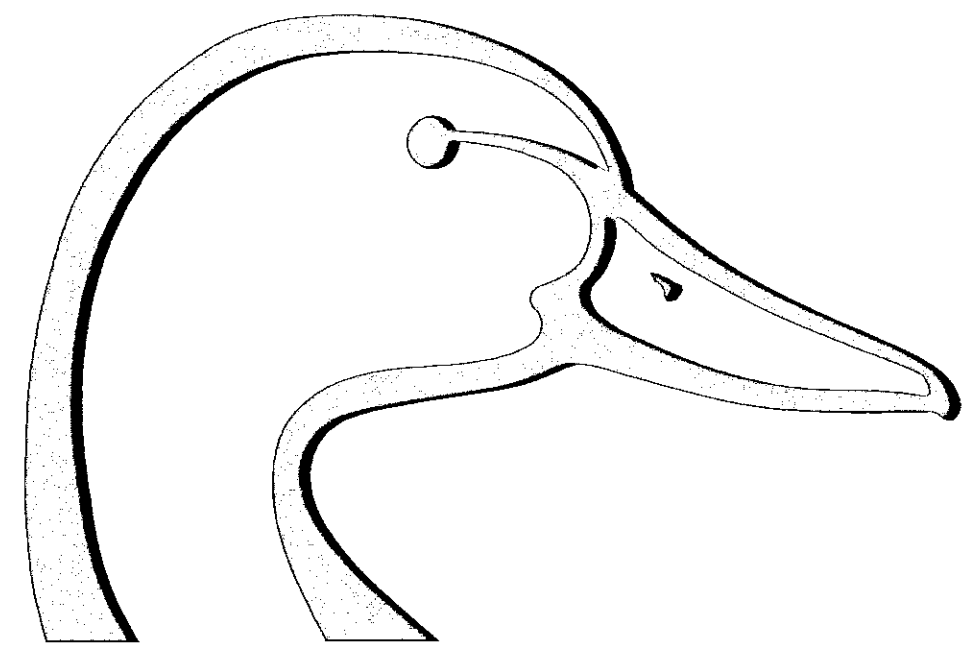
As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

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

enclosures

1797-1



DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

JIM'S CREEK

SECTIONS 8, 9, 16, & 17,
TOWNSHIP 15 NORTH, RANGE 2 EAST
HARDING COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

US FISH & WILDLIFE SERVICE

SPECIFICATIONS

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

PLAN INDEX

- 1 PROJECT LOCATION MAPS
- 2 PROJECT TOPOGRAPHY
- 3 EMBANKMENT PLAN & PROFILE, EXCAVATION PLAN
- 4 STRUCTURE PLAN & PROFILE
- 5 STRUCTURE DETAILS
- 6 SOILS WHEN AVAILABLE

ESTIMATED QUANTITIES

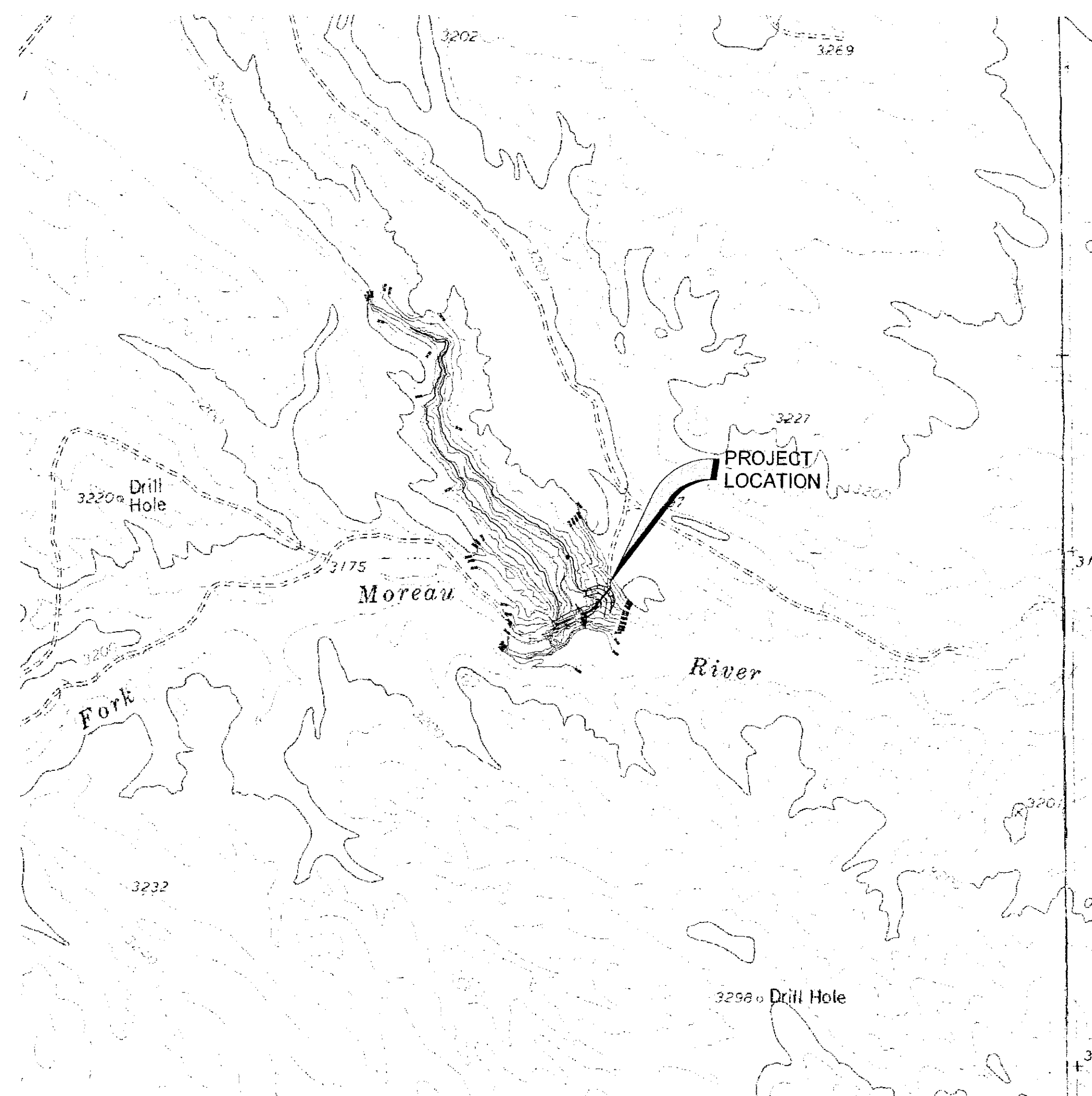
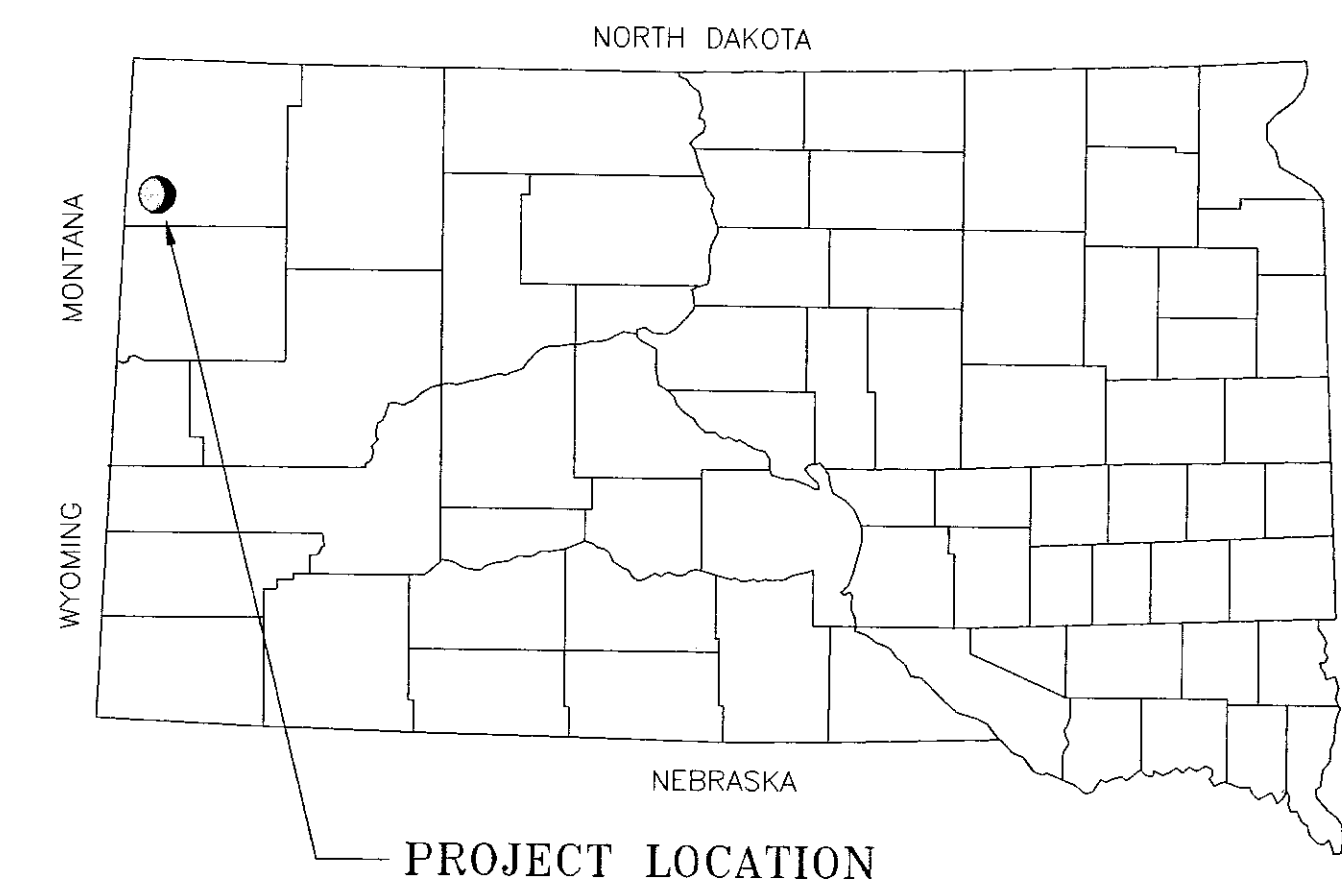
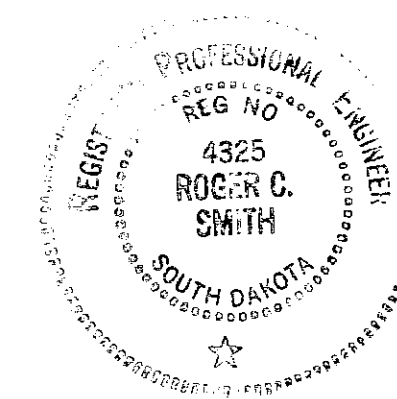
MOBILIZATION	1 L.S.
SITE PREPARATION	865 C.Y.-P*
EXCAVATION	
STRUCTURE EXCAVATION	7,648 C.Y.-INC**
EMERGENCY SPILLWAY EXCAVATION	3,104 C.Y.-INC**
EMBANKMENT CONSTRUCTION	15,905 C.Y.-S***
WATER	200 M-GAL.****
WATER CONTROL STRUCTURE INSTALLATION	1 EA.
CULVERT INSTALLATION	
42" CMP	111 L.F.-P
12" PVC	42 L.F.-P
RIPRAP (CLASS I)	14 C.Y.-P
RIPRAP (CLASS II)	19 C.Y.-P

* CY-P - PAYMENT WILL BE BASED ON THIS PLAN QUANTITY.

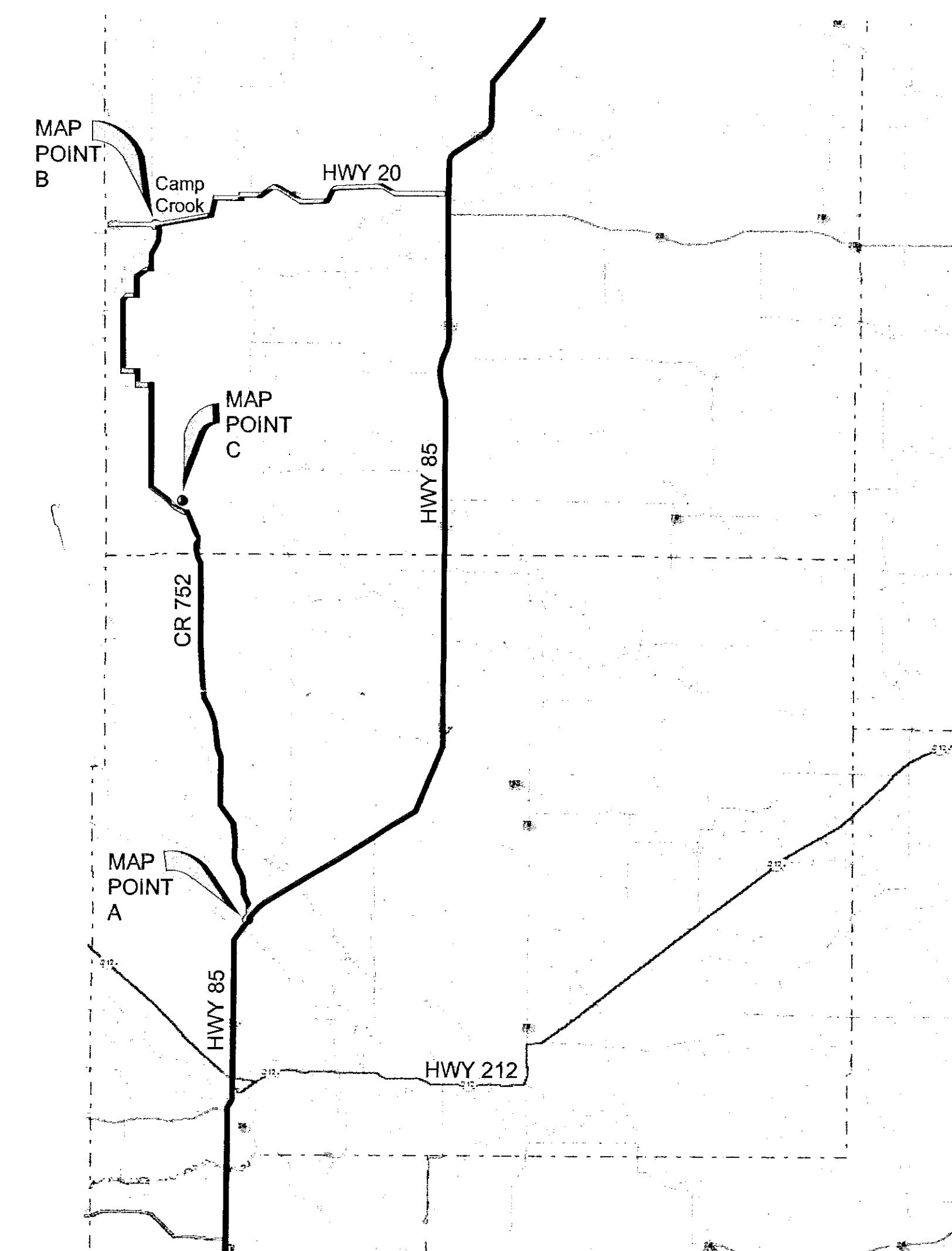
** CY-INC- QUANTITY GIVEN FOR INFORMATION PURPOSES ONLY

*** CY-S- PAYMENT WILL BE BASED ON A STAKE QUANTITY AS CALCULATED FROM CONSTRUCTION STAKES AND INCLUDES MATERIAL REMOVED FOR STRUCTURE INSTALLATION AND SITE PREPARATION. A 15% SHRINKAGE WAS ADDED.

**** PAYMENT WILL BE BASED ON ACUTAL AMOUNT USED. SEE SPECIFICATION 205. ESTABLISHED WATER REQUIREMENTS 12 GALLONS/C.Y.

VICINITY MAP
SCALE: 1" = 1000'

PROJECT LOCATION

LOCATION MAP
SCALE: 1" = 8 MILES

DRIVING INSTRUCTIONS

- MAP POINT "A" FROM SOUTH - NORTH ON CR752 FROM HWY 85 (44°50'39.5" / 103°49'52.3") ±30.5 MILES TO JIM JOHNSON RANCH.
- MAP POINT "B" FROM NORTH - SOUTH ON CR 752 FROM HWY 20 (JUST EAST OF CAMP CROOK) ±28 MILES TO JIM JOHNSON RANCH.
- MAP POINT "C" JOHNSON RANCH LAT / LONG - 45°15'49.12" / 103°56'31.82"
FROM RANCH - EAST ±2.5 MILES ON TRAIL TO PROJECT SITE

PROJECT IS ON PRIVATE LAND. PERMISSION MUST BE OBTAINED TO ENTER.

AGENCY: USFWS

LANDOWNERS: JIM JOHNSON - 605-642-2986 CELL 645-2495
WILL JOHNSON (LIVES ON RANCH) 605-797-4489

DUCKS
UNLIMITED
INC.

PROJECT NO. SD367-1

JIM'S CREEK

K:\STATE\JOBNO_-DWG

DESIGNED BY: RCS

DRAWN BY: DAK

SURVEYED BY:

CHECKED BY:

GREAT PLAINS REGIONAL OFFICE

DATE: 4-22-2003

SHEET NO. 1 OF 6

LOCATION & VICINITY MAPS

APPROVED BY:

APPROVED BY:

1797-1

1797-1



DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

JIM'S CREEK

SECTIONS 8, 9, 16, & 17,
TOWNSHIP 15 NORTH, RANGE 2 EAST
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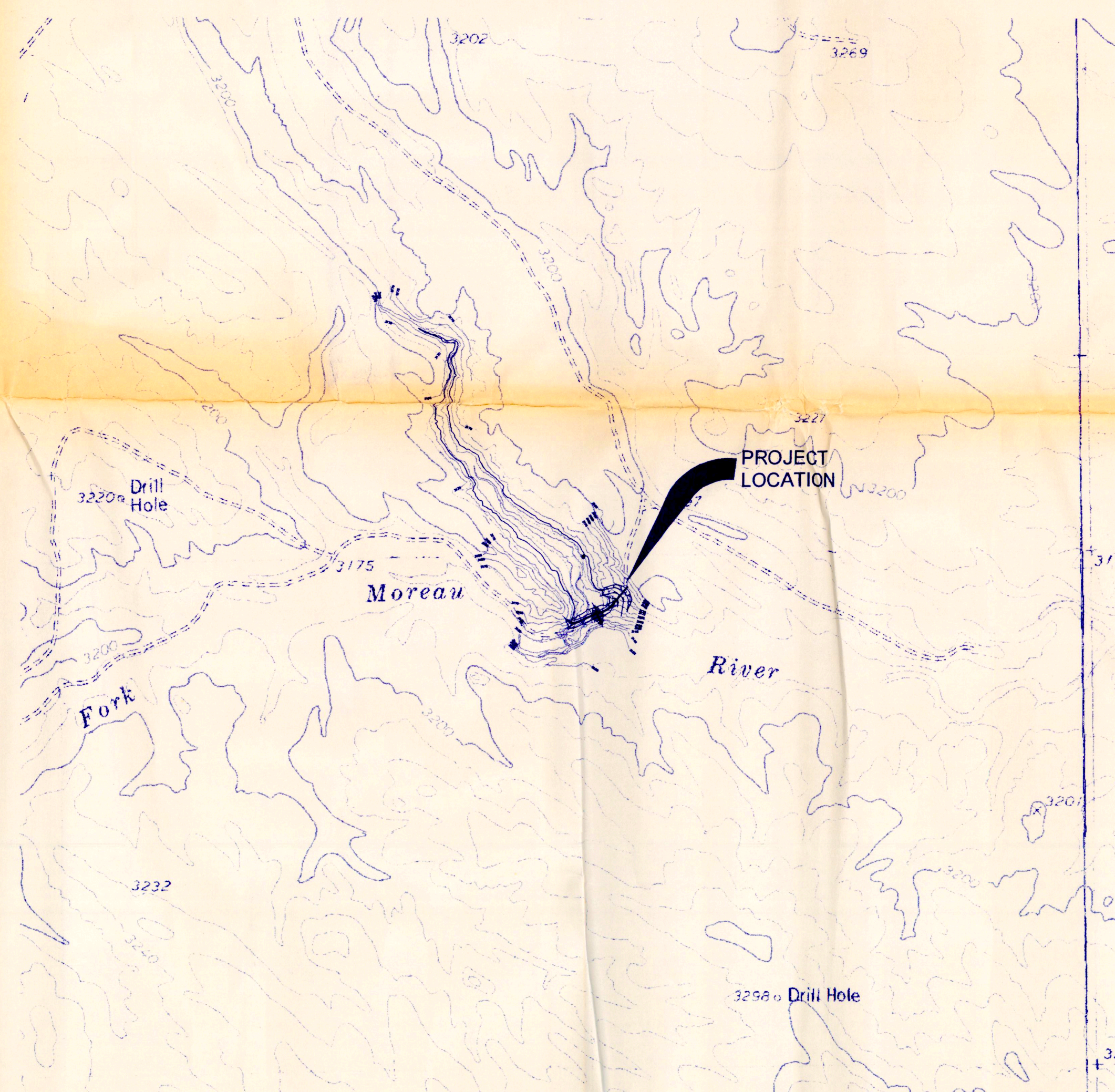
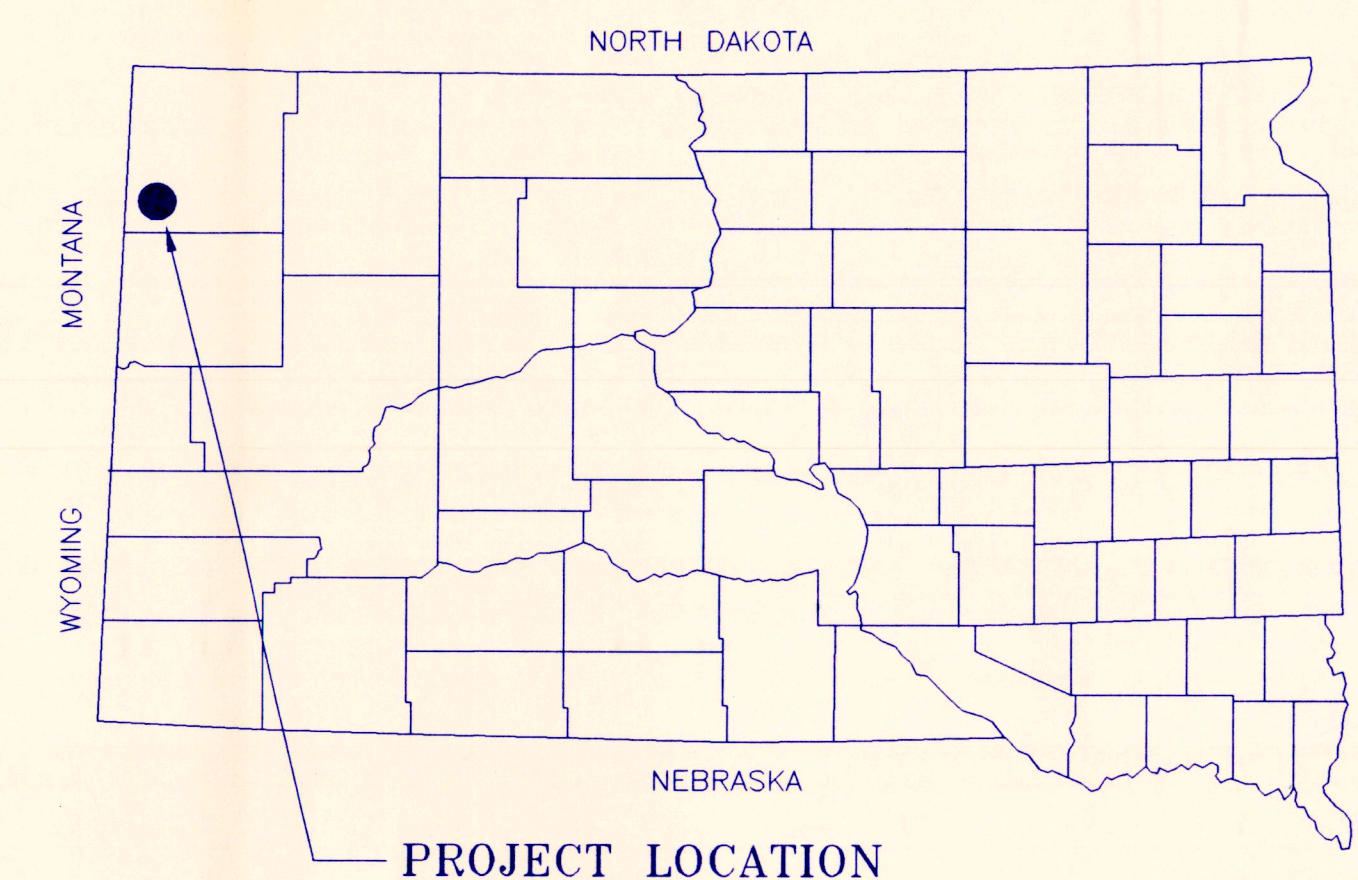
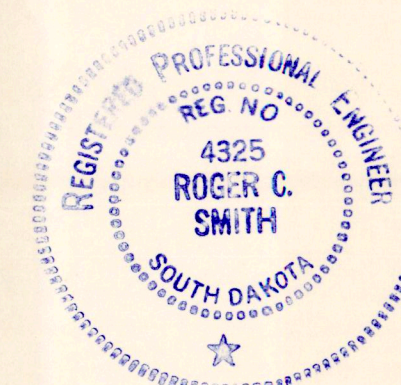
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42" CMP	111 L.F.-P
12" PVC	42 L.F.-P
RIPRAP (CLASS I)	14 C.Y.-P
RIPRAP (CLASS II)	19 C.Y.-P

* CY-P - PAYMENT WILL BE BASED ON THIS PLAN QUANTITY.

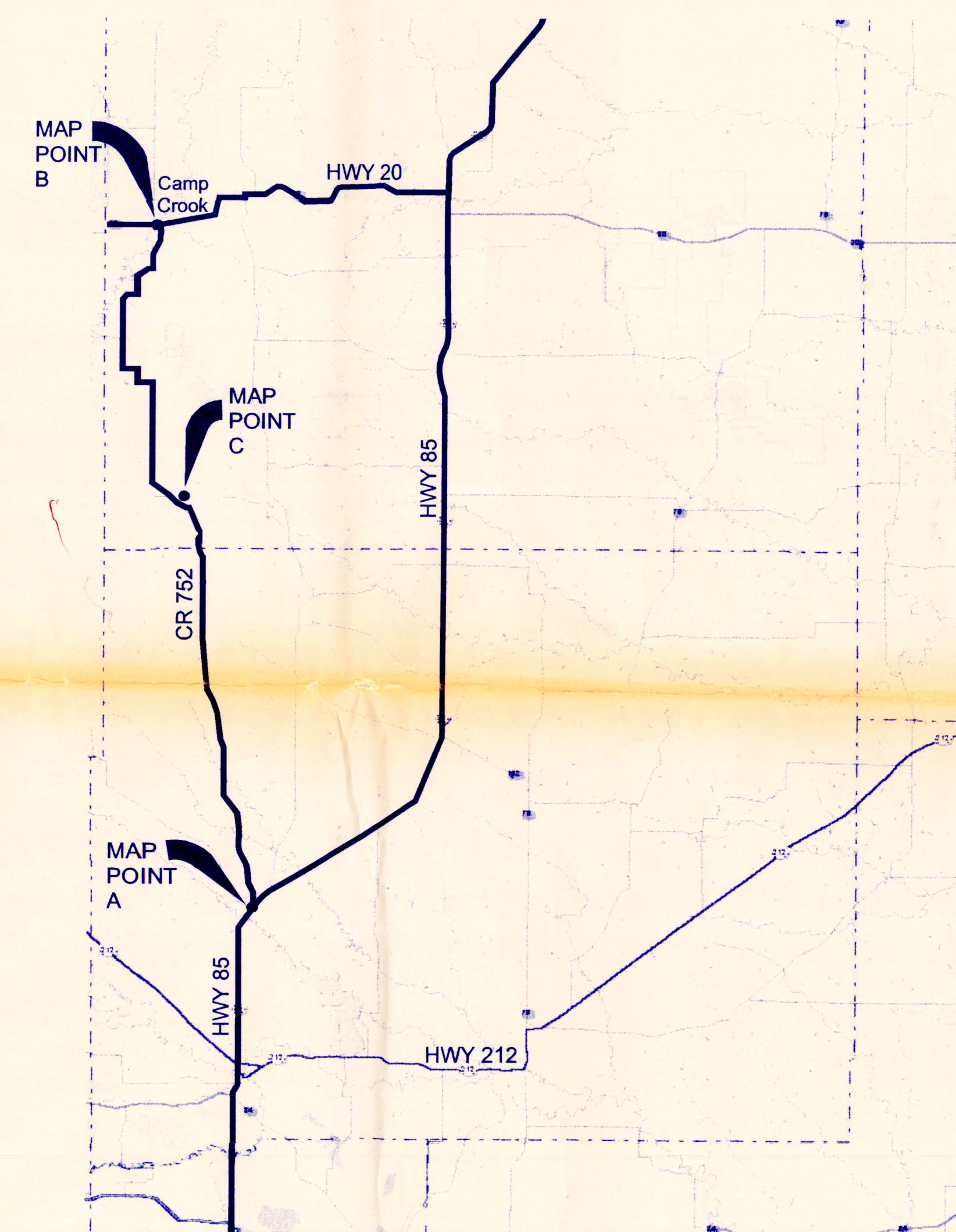
** CY-INC- QUANTITY GIVEN FOR INFORMATION PURPOSES ONLY

*** CY-S- PAYMENT WILL BE BASED ON A STAKE QUANTITY AS CALCULATED FROM CONSTRUCTION STAKES AND INCLUDES MATERIAL REMOVED FOR STRUCTURE INSTALLATION AND SITE PREPARATION. A 15% SHRINKAGE WAS ADDED.

**** PAYMENT WILL BE BASED ON ACTUAL AMOUNT USED. SEE SPECIFICATION 205. ESTABLISHED WATER REQUIREMENTS 12 GALLONS/C.Y.

VICINITY MAP
SCALE: 1" = 1000'

PROJECT LOCATION

LOCATION MAP
SCALE: 1" = 8 MILESDRIVING INSTRUCTIONS

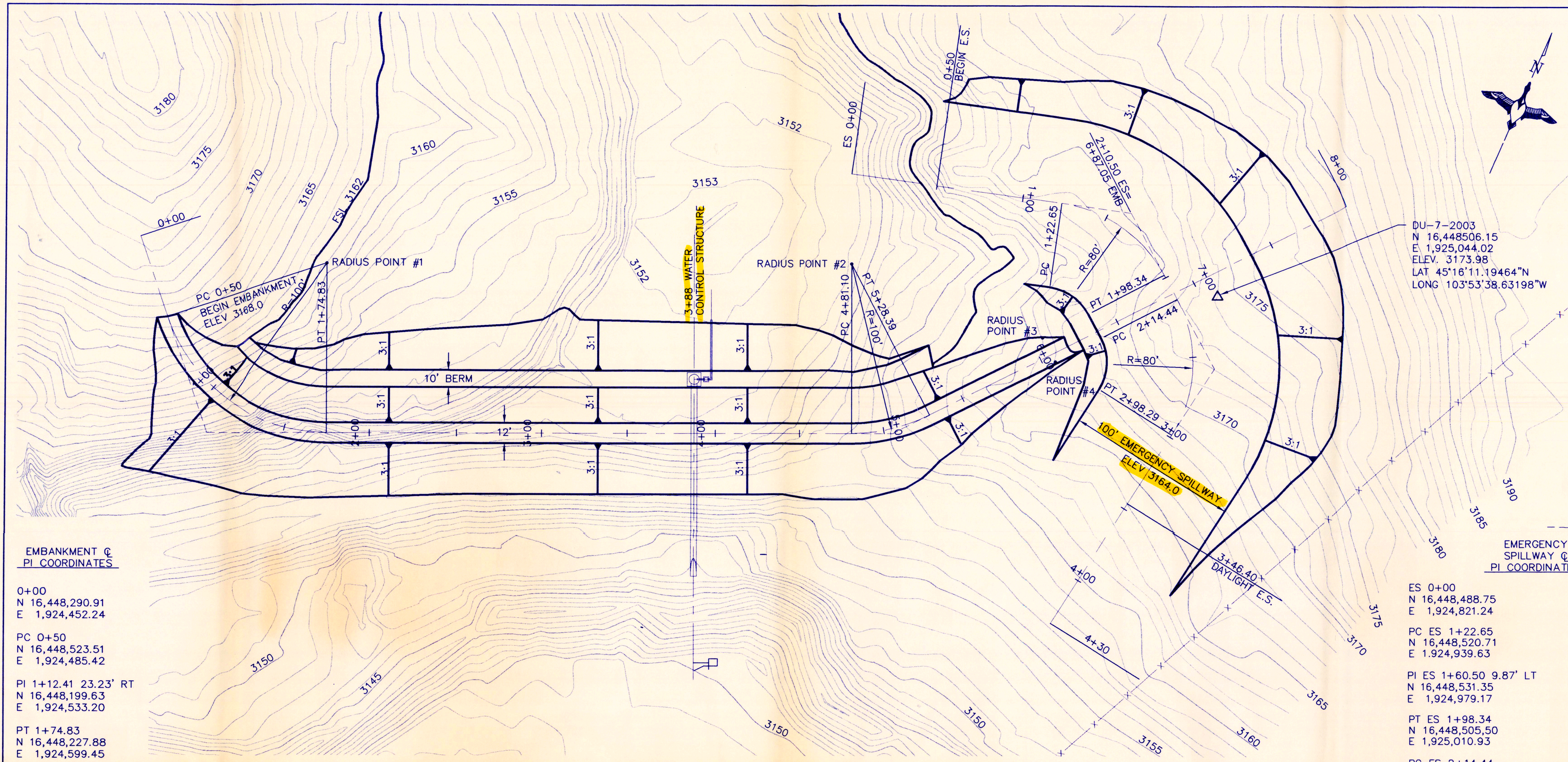
- MAP POINT "A" FROM SOUTH - NORTH ON CR752 FROM HWY 85 (44°50'39.5" / 103°49'52.3") ±30.5 MILES TO JIM JOHNSON RANCH.
- MAP POINT "B" FROM NORTH - SOUTH ON CR 752 FROM HWY 20 (JUST EAST OF CAMP CROOK) ±28 MILES TO JIM JOHNSON RANCH.
- MAP POINT "C" JOHNSON RANCH LAT / LONG - 45°15'49.12" / 103°56'31.82"
FROM RANCH - EAST ±2.5 MILES ON TRAIL TO PROJECT SITE
- PROJECT IS ON PRIVATE LAND. PERMISSION MUST BE OBTAINED TO ENTER.

AGENCY: USFWS

LANDOWNERS: JIM JOHNSON - 605-642-2986 CELL 645-2495
WILL JOHNSON (LIVES ON RANCH) 605-797-4489

		PROJECT NO. SD367-1 JIM'S CREEK	
GREAT PLAINS REGIONAL OFFICE DATE: 4-22-2003		LOCATION & VICINITY MAPS SHEET NO. 1 OF 6 APPROVED BY: _____ CHECKED BY: _____	
DESIGNED BY: RCS DRAWN BY: DAK SURVEYED BY: _____ APPROVED BY: _____		K:\STATE\JOBNO\...DWG	

1797-1



EMBankment C
PI COORDINATES

0+00
N 16,448,290.91
E 1,924,452.24

PC 0+50
N 16,448,523.51
E 1,924,485.42

PI 1+12.41 23.23' RT
N 16,448,199.63
E 1,924,533.20

PT 1+74.83
N 16,448,227.88
E 1,924,599.45

PC 4+81.10
N 16,448,348.00
E 1,924,881.18

PI 5+04.74 2.86' RT
N 16,448,357.45
E 1,924,903.35

PT 5+28.39
N 16,448,375.96
E 1,924,918.77

8+00
N 16,448,584.60
E 1,925,092.68

RADIUS POINT #1
N 16,448,319.86
E 1,924,560.23

RADIUS POINT #2
N 16,448,439.99
E 1,924,841.96

DU-7-2003
N 16,448,506.15
E 1,925,044.02
ELEV. 3173.98
LAT 45°16'11.19464"N
LONG 103°53'38.63198"W

EMERGENCY SPILLWAY
PI COORDINATES

ES 0+00
N 16,448,488.75
E 1,924,821.24

PC ES 1+22.65
N 16,448,520.71
E 1,924,939.63

PI ES 1+60.50 9.87' LT
N 16,448,531.35
E 1,924,979.17

PT ES 1+98.34
N 16,448,505.50
E 1,925,010.93

PC ES 2+14.44
N 16,448,495.34
E 1,925,023.42

PI ES 2+56.37 12.40' LT
N 16,448,466.16
E 1,925,059.28

PT ES 2+98.29X
N 16,448,420.51
E 1,925,051.89

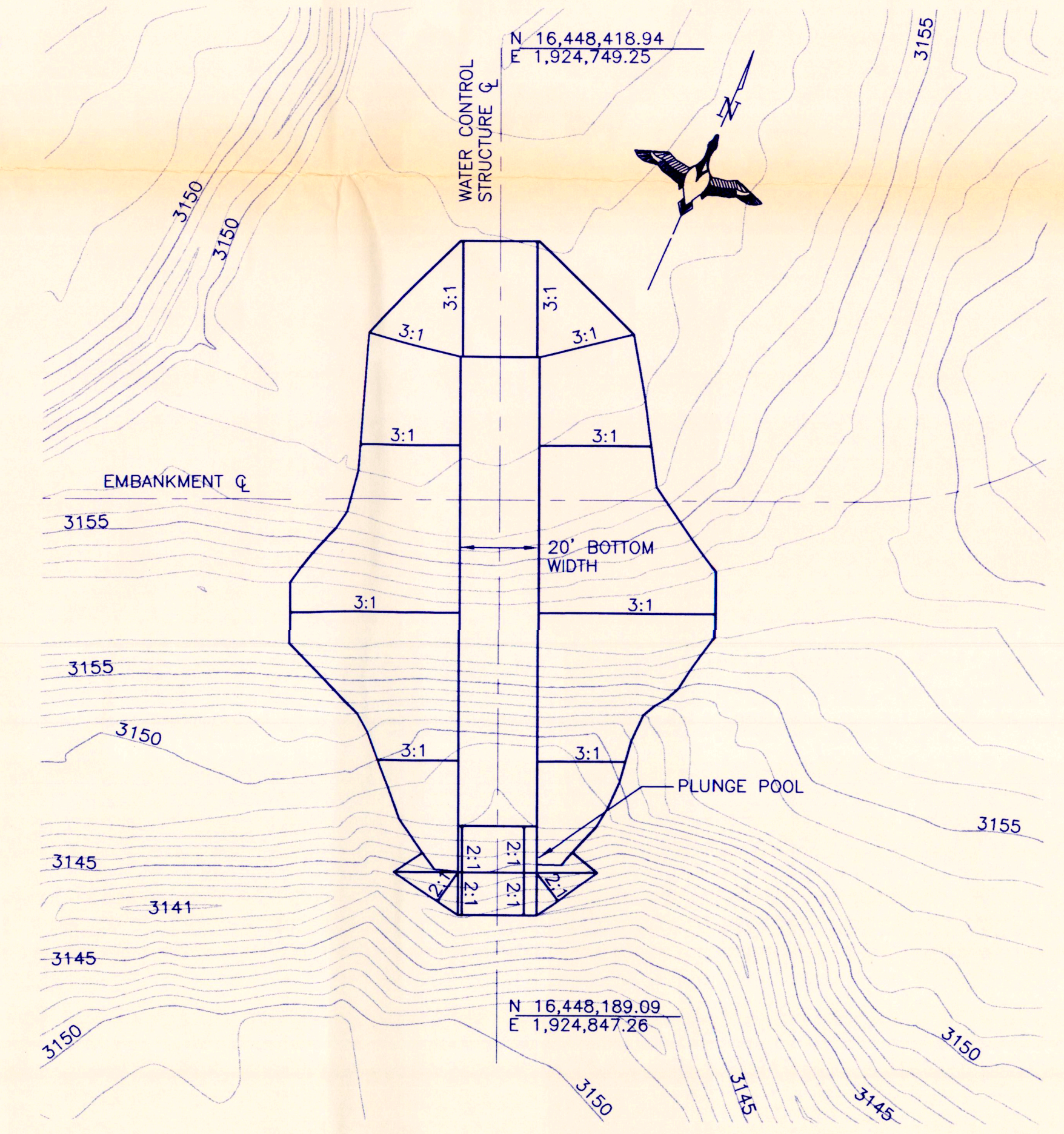
ES 4+30
N 16,448,290.50
E 1,925,030.86

RADIUS PT #3
N 16,448,443.46
E 1,924,960.43

RADIUS POINT #4
N 16,448,433.29
E 1,924,972.92

EMERGENCY SPILLWAY
SCALE: 1" = 20'

TYPICAL EMBANKMENT SECTION
SCALE: 1" = 10'

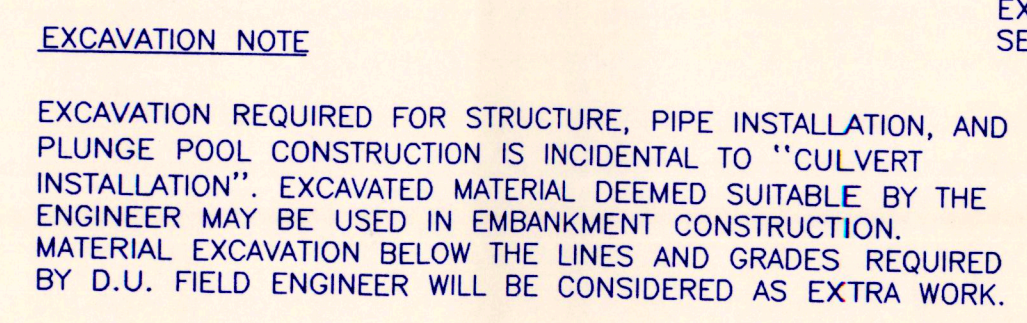
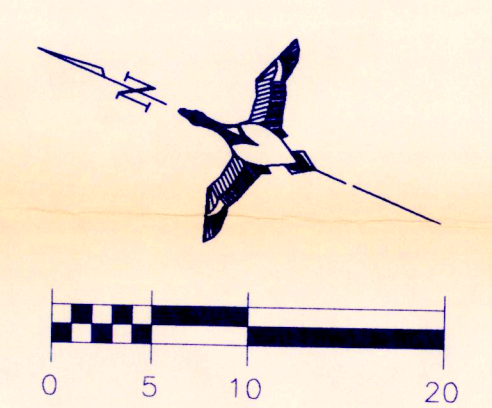


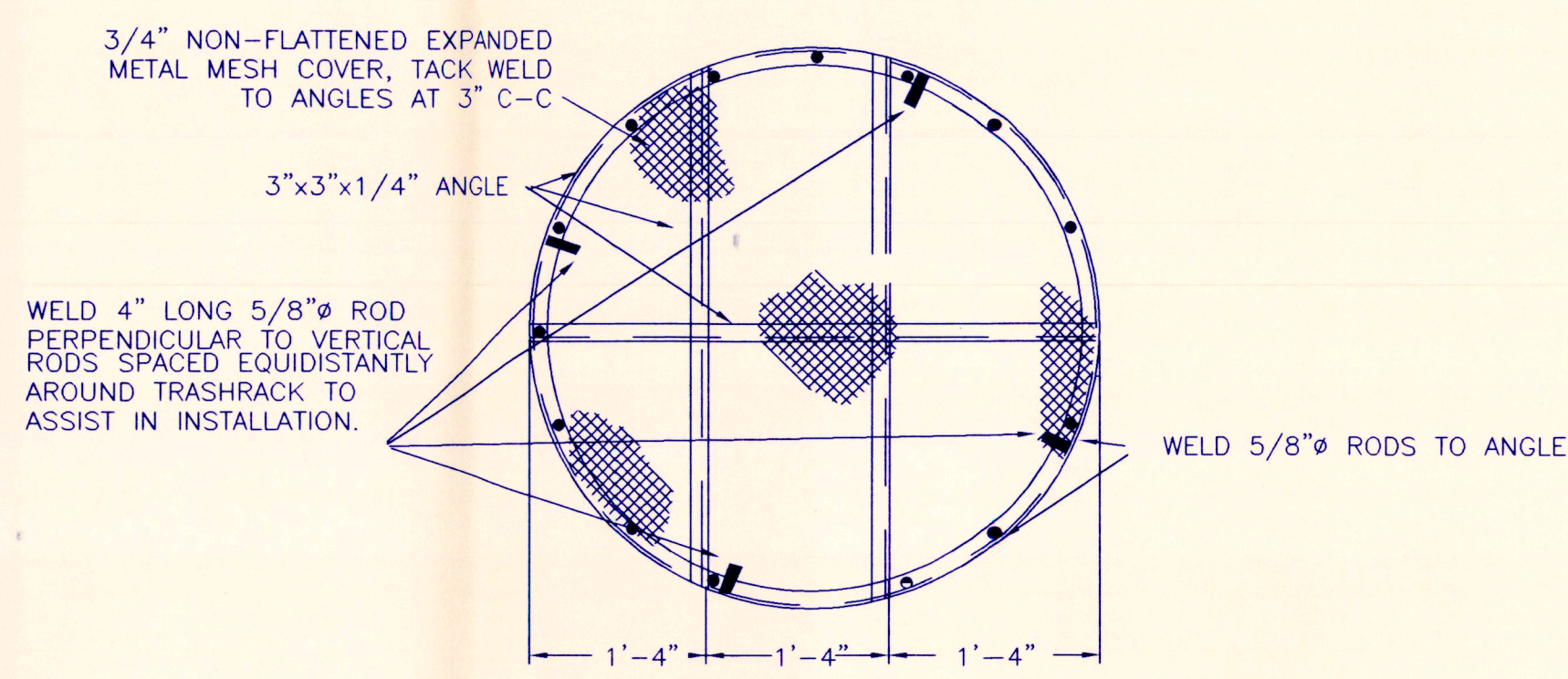
STRUCTURE EXCAVATION PLAN
SCALE: 1" = 30'

EMBankment PLAN & PROFILE

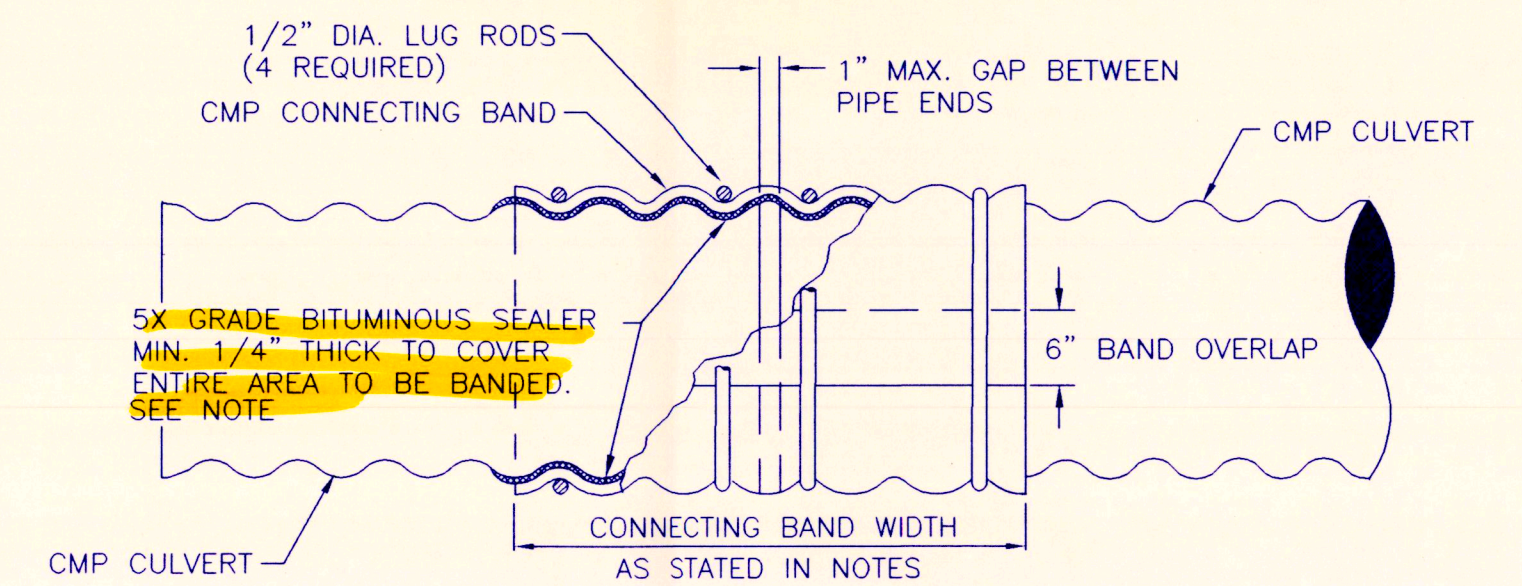
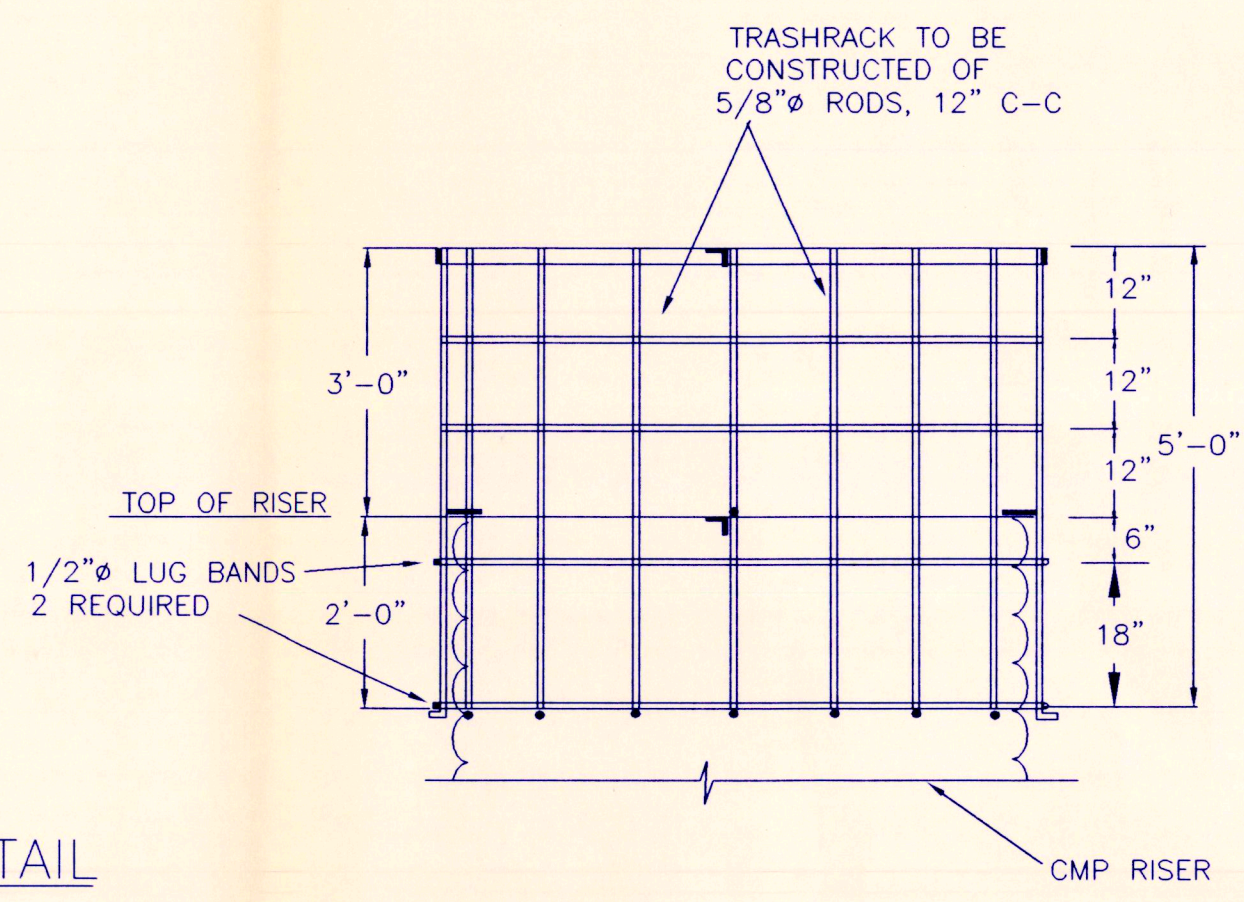
SCALE: 1" = 40' HORZ.
1" = 4' VERT.

	PROJECT NO. SD367-1	DESIGNED BY: RCS
	JIM'S CREEK DAM EXCAVATION PLAN & EMBANKMENT PLAN & PROFILE	DRAWN BY: DAK
GREAT PLAINS REGIONAL OFFICE	SHEET NO. 3 OF 6	CHECKED BY: GLJ
DATE: 2-24-2003	APPROVED BY:	APPROVED BY:



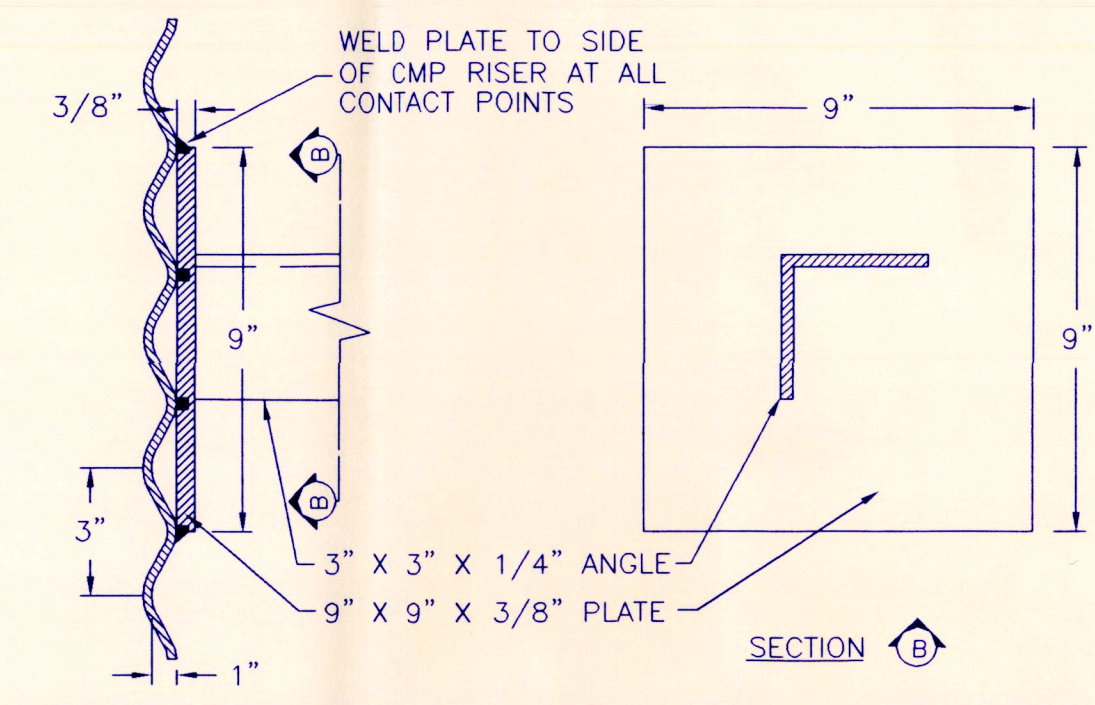


TRASHRACK DETAIL
NOT TO SCALE

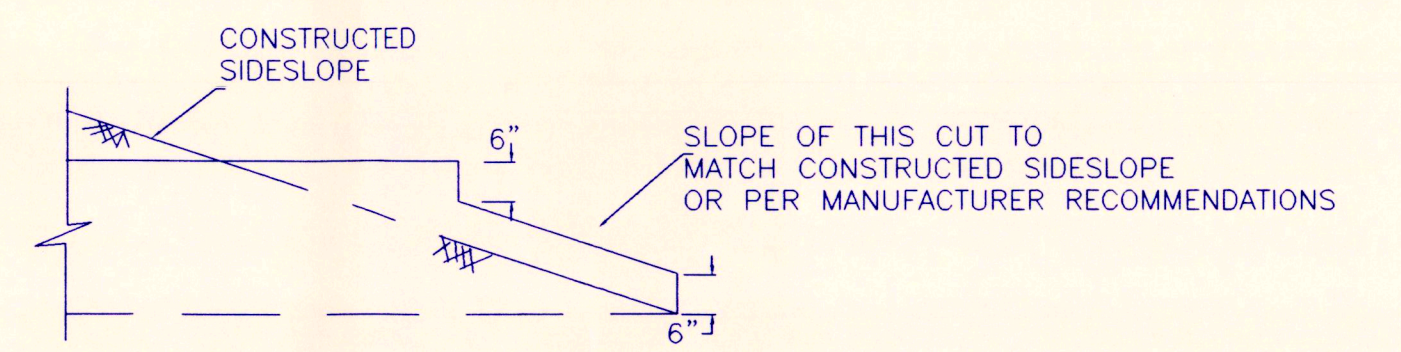


NOTE TO SUPPLIERS:
IF ANNUAL PIPE IS USED, USE A 2 FT. WIDE ANNUAL BAND. IF HELICAL PIPE WITH 4 CORRUGATIONS REROLLED TO ANNUAL IS USED, USE A 21 INCH WIDE ANNUAL BAND. SEE SPECIFICATION 207.2.

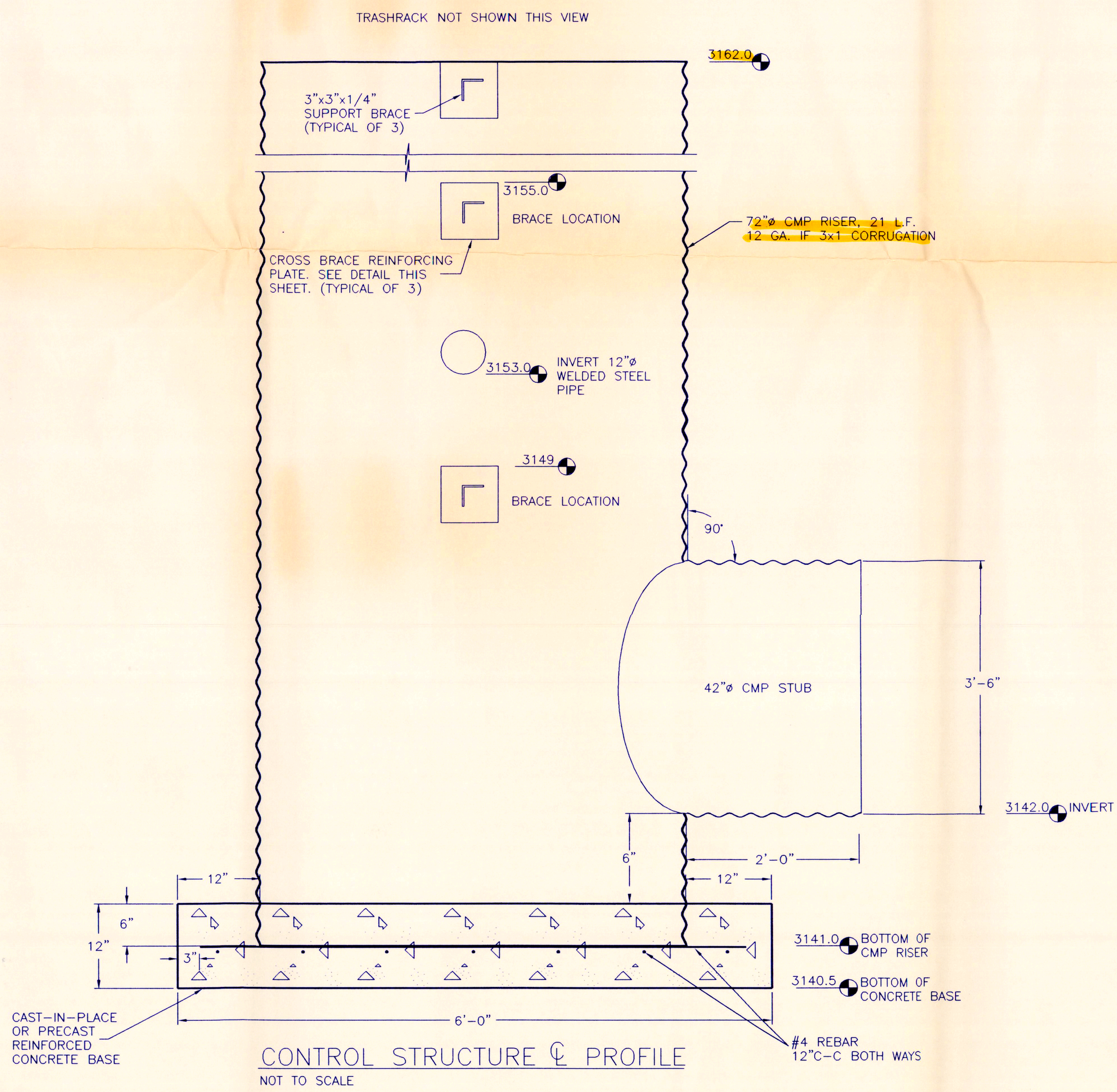
CONNECTING BAND DETAIL
NOT TO SCALE



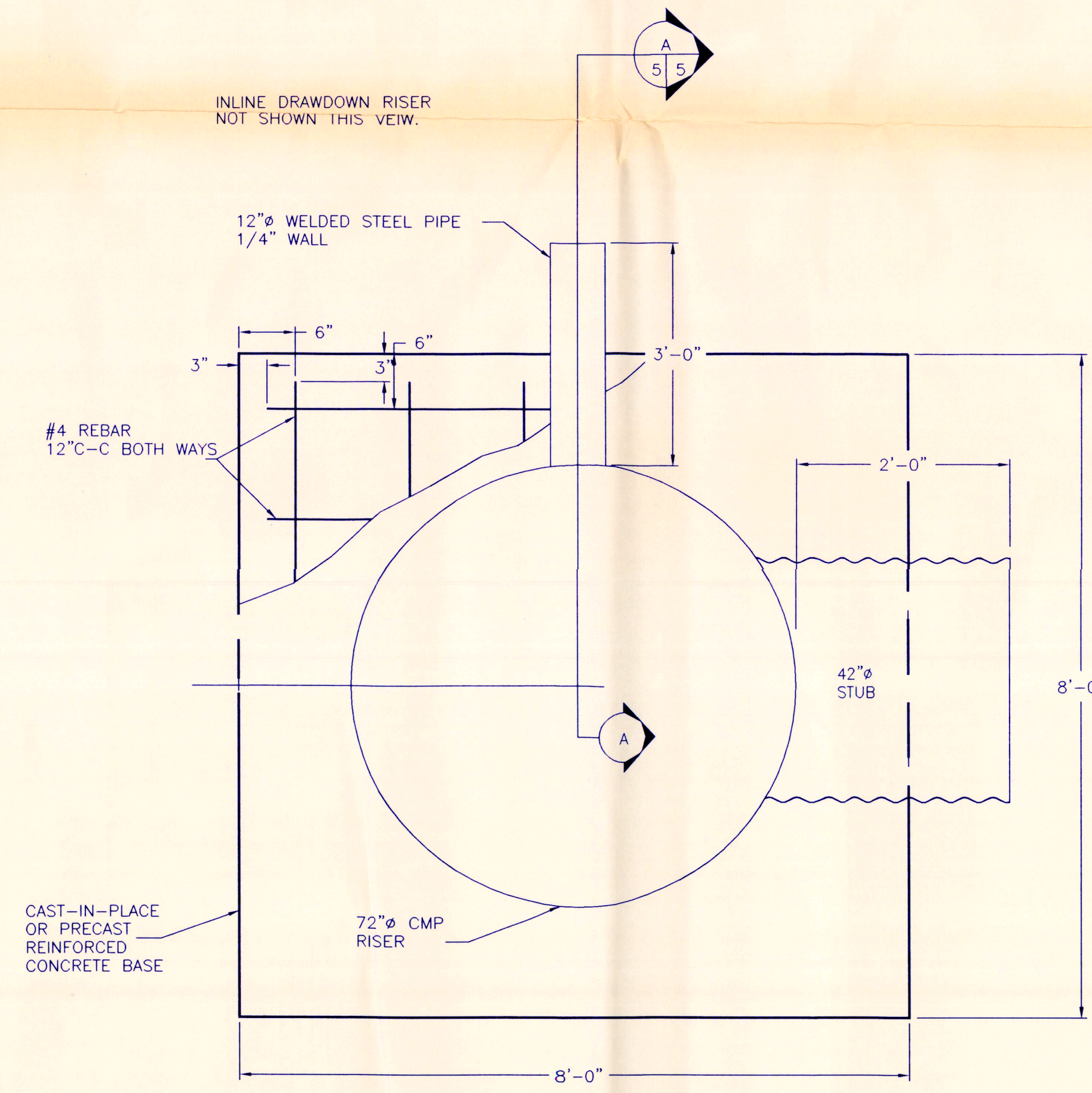
CROSS BRACE REINFORCING PLATE
NOT TO SCALE



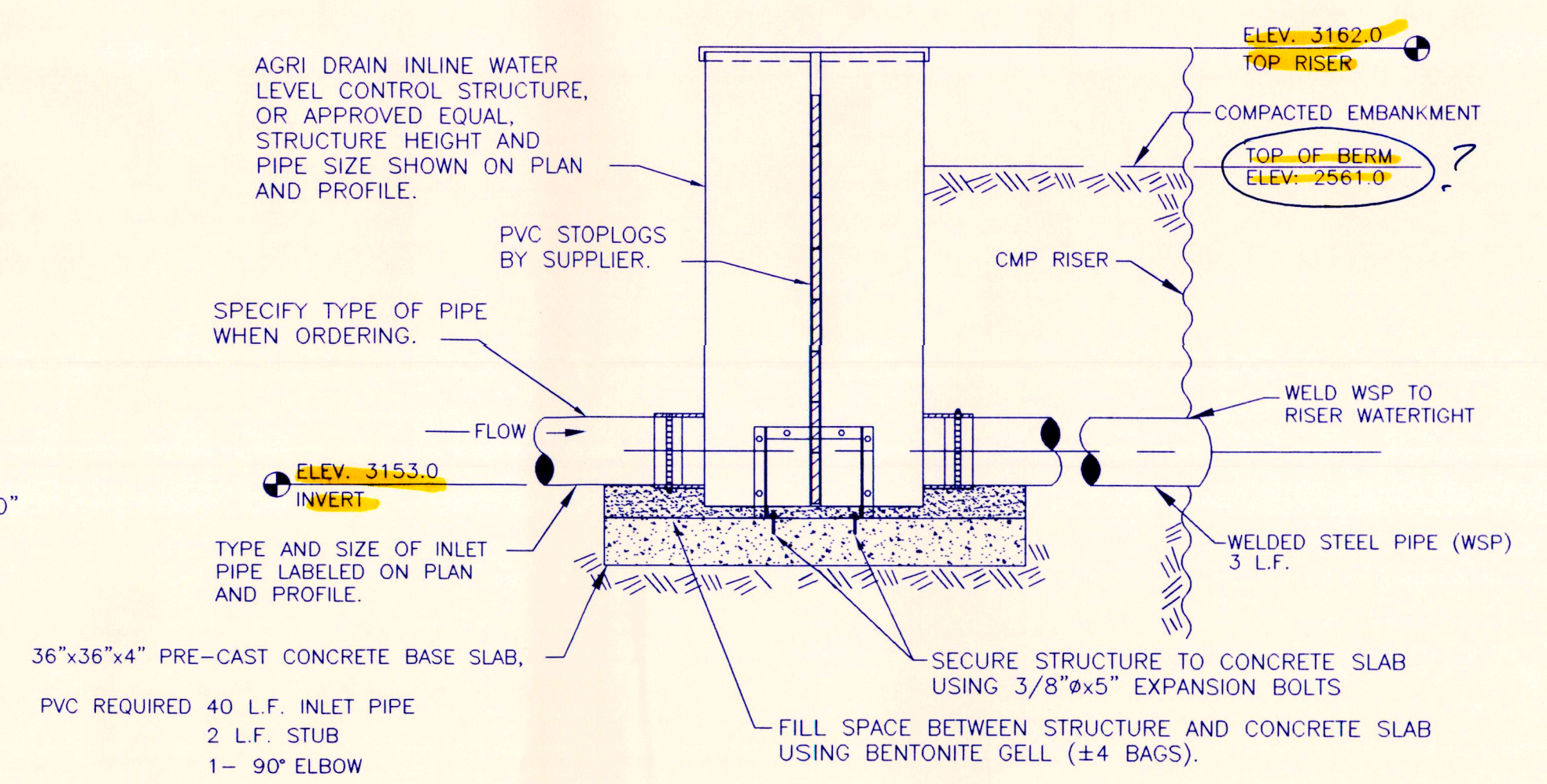
STEP BEVEL DETAIL
NOT TO SCALE



CONTROL STRUCTURE PROFILE
NOT TO SCALE



CONTROL STRUCTURE PLAN
NOT TO SCALE



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

INLINE DRAWDOWN STRUCTURE - SECTION
NOT TO SCALE

DUCKS UNLIMITED INC.		PROJECT NO. SD367-1	DESIGNED BY: RCS
GREAT PLAINS REGIONAL OFFICE		JIM'S CREEK	DRAWN BY: .
DATE: 4-21-2003		STRUCTURE DETAILS	SURVEYED BY: .
SHEET NO. 5 OF 5		CHECKED BY: .	APPROVED BY: .