

WATER PERMIT NO. 7156-3

Name of Applicant: **Rob Parrow**

Address: **PO Box 185, Britton SD 57430**

Phone: **05 448-2489**

Amount of Water Claimed: **60.8**
107 AF

Total Acres: **NA**

Source of Water Supply: **runoff**

Water to be used for: **livestock**

County: **Marshall**

Type of Waste Disposal System: **NA**

Location: **8 miles northeast of Britton**

PRIORITY

Date Received: **8-18-09**

Application/License Fee: **\$700**

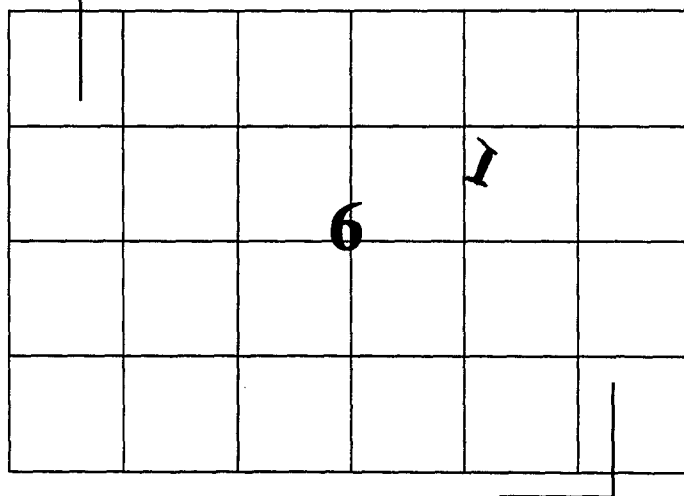
Corrected Application Received:

Period of Annual Use: **January 1 – December 31**

Remarks:

Diversion Point: **SE ¼ NE ¼ Sec 6-T127N-R56W**

Land to be Irrigated: **NE ¼ Sec 6- T127N-R56W**



Depth of Well: **NA**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by: **Roger D Gresh, Marshall Co NRCS**

Reviewed and the Number Assigned on: **8-18-09**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

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>7156-3</u> (office use only) Hydrologic Unit <u>09020105</u>
	Basin <u>Red Rainy</u>
	Newspaper <u>Britton Journal PO Box 69 59430</u>
	<u>605-448-2281</u>

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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 Water</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 Rob Parrow (check one) ☐ Owner ☐ Tenant/lessee Phone (605) 448-2489
Mailing Address PO Box 185 Britton State SD 57430
(Street, RR, or Box and City) (Zip Code)
- Amount of water claimed _____ *CFS or _____ **GPM 60.80 ~~AF~~ ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (**Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply Annual Runoff
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Marshall
Dam is located in the SE 1/4, NE 1/4 Section 6-T127N-R56W water impounded NE 1/4 Sec 6
T127N R 56W
- County or counties where water will be used Marshall
- Annual period during which water is to be used Normal grazing season 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)

Dam will be constructed with earth fill, primary spillway is 15 in corrugated metal pipe, secondary spillway is 40ft. wide.

STATE OF SOUTH DAKOTA)

County of Marshall 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, Robert Parrow, 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 Robert Parrow

Subscribed and sworn to before me this 13th day of August 20 09

Jair A. Kuehner
Notary Public Signature

**SOUTH DAKOTA
WATER PERMIT NO. 7156-3**

Date of first receipt of application August 18, 2009.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7156-3 to Rob Parrow, PO Box 185, Britton SD 57430 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. 7156-3 authorizes impoundment of 60.8 acre-feet of water from runoff by constructing a dam located in the SE ¼ NE ¼ Section 6 with water impounded in the NE ¼ Section 6; all in T127N-R56W.
2. The water appropriated shall be used for the purpose of domestic 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. 7156-3 is September 21, 2009.
5. The date from which applicant may claim right is August 18, 2009.
6. One-fifth of the construction is to be completed on or before March 21, 2011.
7. All construction is to be completed on or before September 21, 2014.
8. Water is to be put to beneficial use on or before September 21, 2018.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

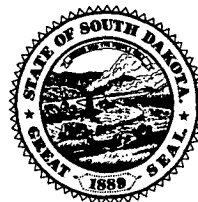
QUALIFICATIONS

1. Water Permit No. 7156-3 authorizes a dam with a storage capacity of 60.8 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

JAN 13 2010
date



Supplemental Information

(Complete applicable portions only)

(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

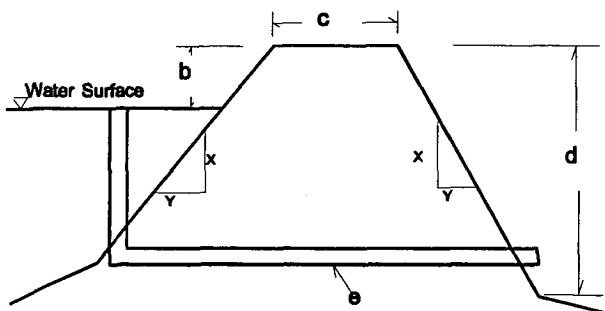
- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

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 Gresh
NRCS/USDA
PO Box 8
Britton, SD 57430



- b) Freeboard _____ 3ft.
- c) Crest Width _____ 12ft.
- Crest Length _____ 330ft.
- d) Height _____ 27.2ft.
- e) Primary Outlet Capacity _____ 15cfs
- If pipe, diameter _____ 15in
- f) Secondary Spillway Capacity _____ 115.8cfs
- Spillway Width _____ 40ft.
- g) X & Y Slope _____
- Upstream _____ 3:1
- Downstream _____ 3:1
- h) Surface Area of Impoundment _____ 10.4ac.
- i) Storage _____ 107.0 _____ Acre Feet
- j) Drainage Area Above Dam _____ 502.0 _____ Acres

Location of Livestock Dam

Customer(s): ROB PARROW

District: MARSHALL COUNTY CONSERVATION DISTRICT

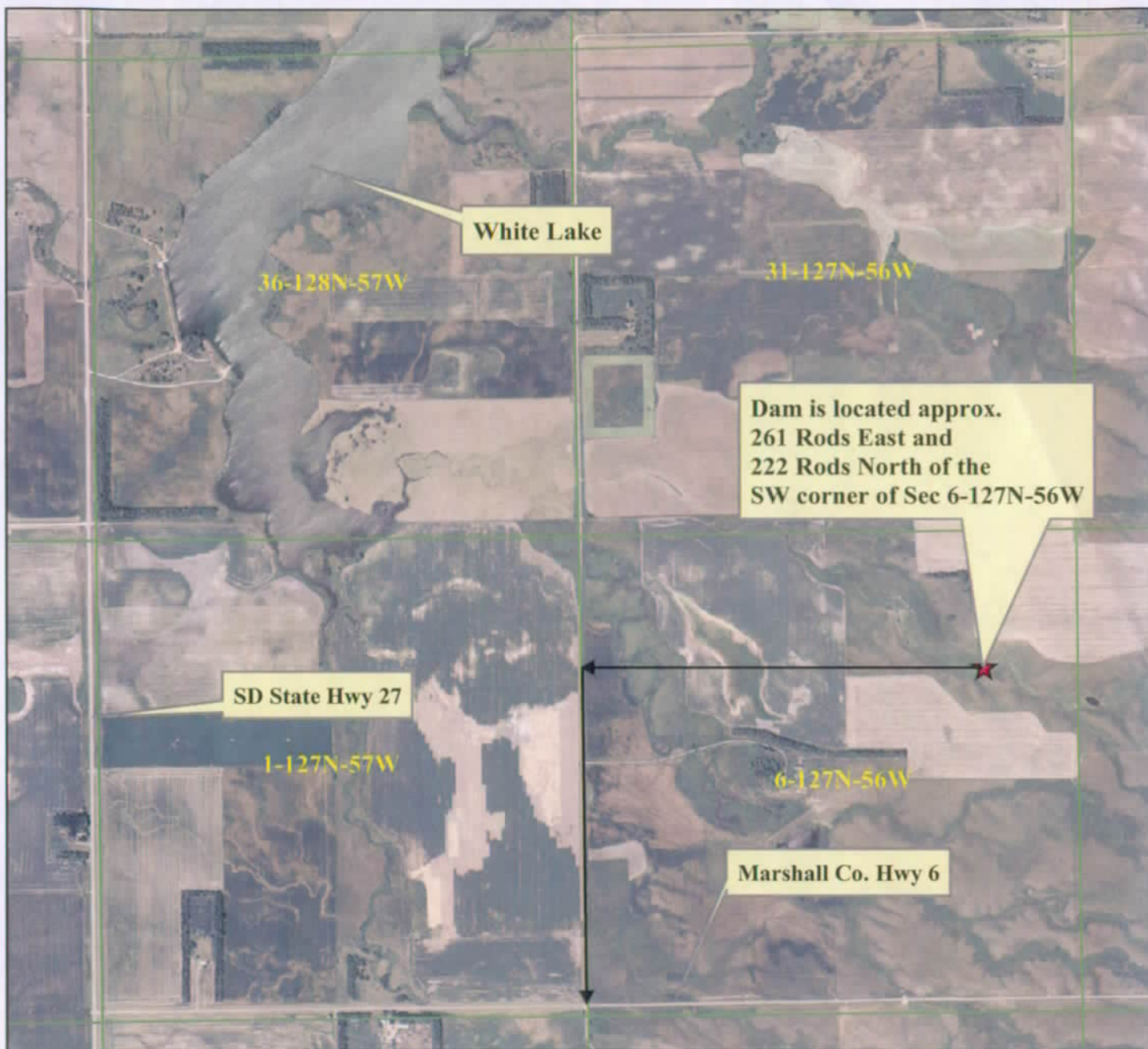
Field Office: BRITTON SERVICE CENTER

Agency: USDA/NRCS

Assisted By: Gresh, Roger D

State and County: SD, MARSHALL

Legal Description: NE 1/4 Sec 6-127N-56W



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930 0 930 1,860 2,790 3,720 Feet

Legend

★ Dam

□ Sections



RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 8/19, 20 09

RECEIVED OF Parrow Farm Acct R Parrow PO Box 185 Britton SD 57430

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

Fee for Application for Permit No. <u>7156-3</u> to Appropriate Water, to construct and to put water to beneficial use	500	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>7156-3</u>	200	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	700 00

No. 04128

By Laruel Erbe
Chief Engineer



AUG 18 2009

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Ag Service Center, 505 Vander Horck Ave. PO Box 8, Britton, SD 57430-0008

PHONE: (605) 448-2442
FAX: (605) 448-2914

SUBJECT: Rob Parrow Dam

DATE: August 17, 2009

TO: Water Rights Program

Rob Parrow would like to apply for water rights on a stock dam. This dam will be located in Sec 6-T127N-R56W. I have enclosed 2 copies of form 2 and 2A. Also enclosed are a location map, pond design and standard drawing of the dam.

Payment is enclosed.

Roger Gresh
Soil Conservation Technician
USDA-NRCS
PO Box, 505 Vander Horck Ave.
Britton, SD 57430-0008
roger.gresh@sd.usda.gov
Phone: 605-448-2442 ext. 3

Water Rights Division -DENR
Conversation or File Documentation

NAME OF PERSON OR FILE: Rob Parrow

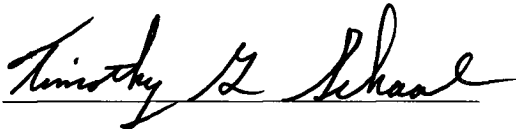
ADDRESS: PO Box 185, Britton SD 57430 COUNTY: Marshall

DATE: August 25, 2009 TELEPHONE: XXXXXXX

RE: Storage capacity on Water Permit Application No. 7156-3

I talked to Roger Gresh from the NRCS Office in Britton (448-2442) today, about the storage capacity for the proposed dam and the amount of water claimed on Water Permit Application No. 7156-3. He agreed with me that it should be changed to 60.8 acre-feet to reflect the storage capacity of the dam with the reservoir level at the primary spillway elevation of 98.8. He mistakenly used the storage capacity with the reservoir level at the top of dam elevation of 104.

I told him we would make the change on the application.

A handwritten signature in black ink, reading "Timothy G. Schaal". The signature is written in a cursive style and is positioned above a horizontal line.

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



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

August 31, 2009

Rob Parrow
PO Box 185
Britton, SD 57430

Dear Mr. Parrow:

We have reviewed the plans and specifications for your dam project located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Sec. 6-T127N-R56W, in Marshall County. The plans and specifications for your dam 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. 7156-3 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 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 Parrow Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 27.2 feet and a normal storage capacity of 60.8 acre-feet and a maximum storage capacity of 110.9 acre-feet.

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

Sincerely,

Timothy G. Schaal, P.E.
Natural Resources Engineering Specialist
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Roger Gresh, NRCS Britton

Water Permit Application No. 7156-3

Rob Parrow

Top of Dam Elev - 104
 2nd Spillway Elev - 101
 P. Spillway Elev - 98.8
 Dis Emb. Toe Elev - 76.8

Cat. 3 - Low Hazard Dam

Ht. = 27.2 ft.

Normal Storage Capacity - 60.8 Ac-Ft
 Int. Storage Capacity - 80.9
 Max. Storage Capacity - 110.9

Int. Capacity x Eff Ht = $80.9 \times 24.1 = 1950 < 3000 \therefore 25 \text{ yr}$
Minimum Spillway Design

From USGS WRI 98-4055 "Tech. Surv Est. Peak Flows ... in SD"
 Region A $DA = 502 \text{ Ac} = 0.78 \text{ mi}^2$ $P_{II} = 0.85$

$$Q_{25} = 218 CA^{.513} P_{II}^{4.80}$$

$$= 218 (0.78)^{.513} (0.85)^{4.80}$$

$$= 218 (0.8803) (0.4584)$$

$$= \underline{88 \text{ cfs}}$$

$$Q_{100} = 362 CA^{.521} P_{II}^{4.47}$$

$$= 362 (0.78)^{.521} (0.85)^{4.47}$$

$$= 362 (0.8786) (0.4836)$$

$$= \underline{154 \text{ cfs}}$$

Secondary Spillway Capacity

$$Q = CLH^{3/2}$$

$$C = 2.6$$

$$L = 40$$

$$H = 3$$

$$= 2.6(40)(3)^{1.5}$$

$$= \underline{540 \text{ cfs}}$$

NRCS Annual Yield

$$DA = 502 \text{ Ac} \quad CN = 71 \quad ISO = 2 1/2$$

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. NRCS - OK
9. EPP - N/A Cat. 3 - OK

$$80\% \text{ chance} = 0.10$$

$$0.10 \times 502^{1/2} = \underline{4.2 \text{ Ac-Ft}}$$

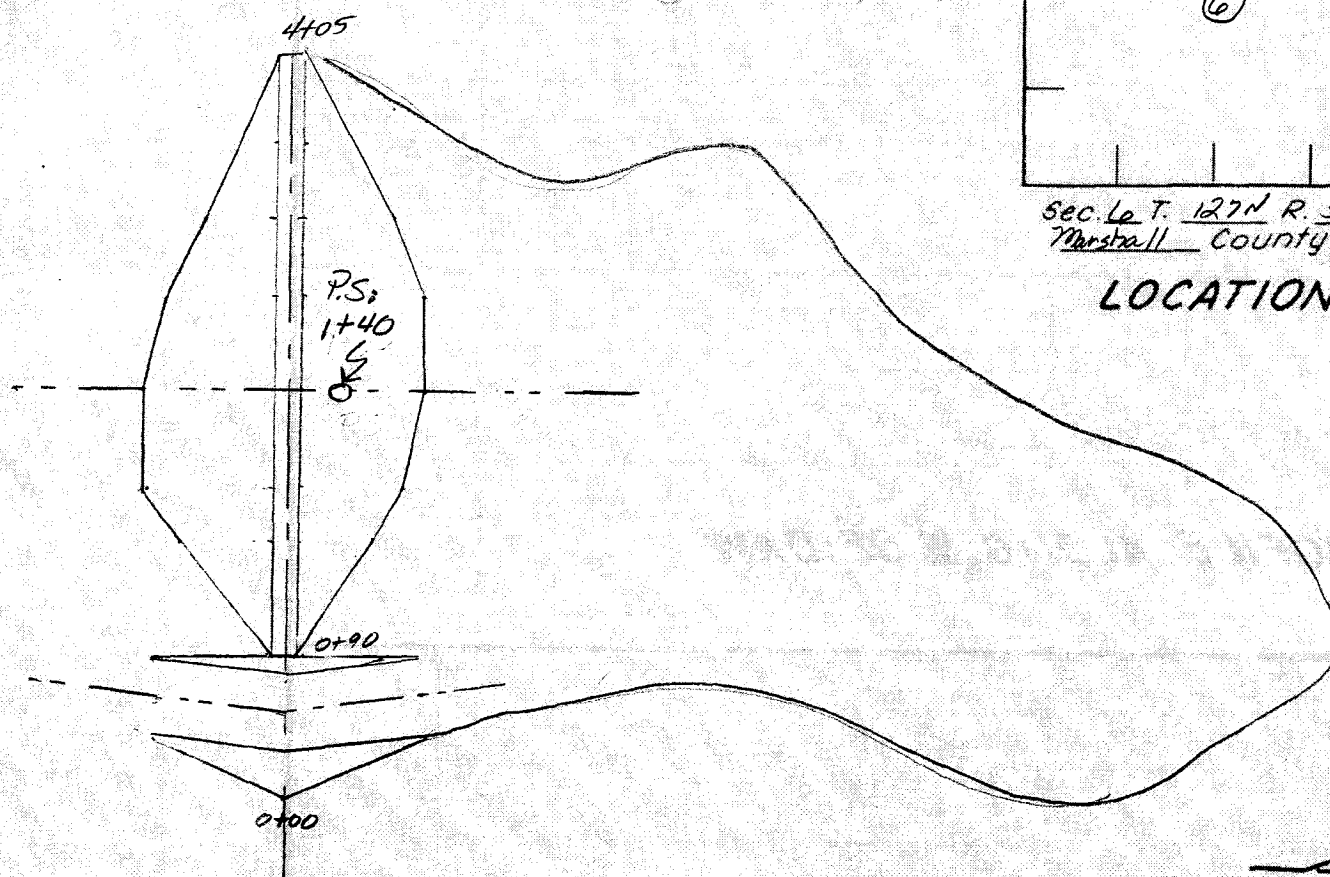
$$50\% \text{ chance} = 0.30$$

$$0.30 \times 502^{1/2} = \underline{12.6 \text{ Ac-Ft}}$$

$$10\% \text{ chance} = 1.70$$

$$1.70 \times 502^{1/2} = \underline{71 \text{ Ac-Ft}}$$

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPLWY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	80% AC. FT.	CFS 25-YR.	C.F.S.	FEET	ACRES	AC. FT.	AC. FT.
502	4.4	284	158	21.9	10.4	3.31	107

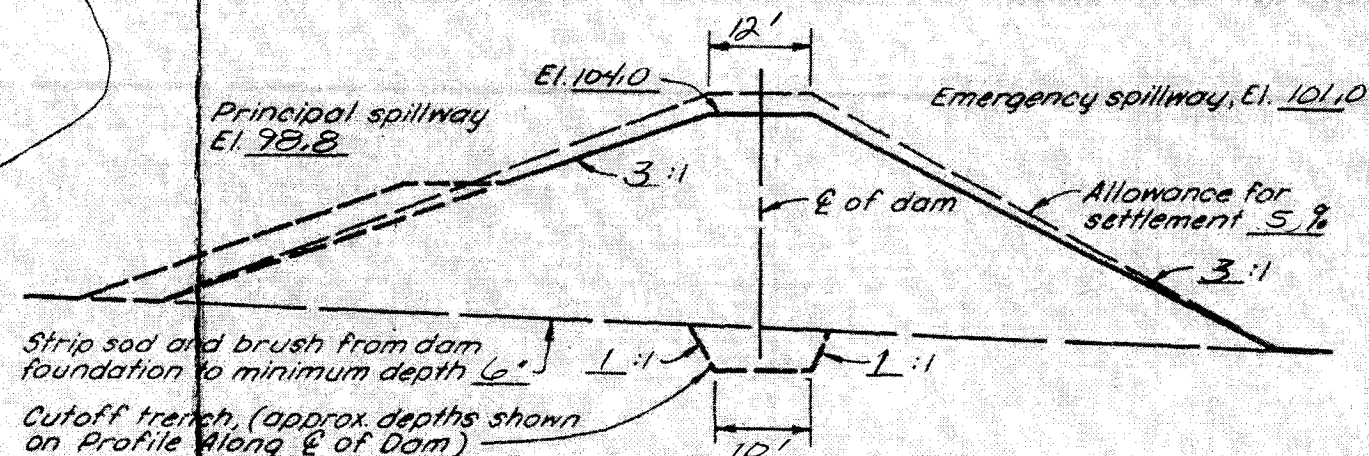


Sec. 46 T. 127N R. 56W
Marshall County

LOCATION

[illegible]

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TYPICAL CROSS SECTION OF DAM

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

- SD-4 Stripping
- SD-5 Excavation
- SD-7s Earthfill Class 5
- SD-10 Salvaging & Spreading (Top Soil)
- SD-16 Wood Fabrication
- SD-17 Metal Fabrication
- SD-15 Corrugated Metal Pipe
- SD-28 Seeding

EARTH DAM

OPERATOR: Rob Parrow
CONSERVATION DISTRICT: Marshall

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	RDG	Date	8/19	Approved by	Michelle Rude
Drawn	RDG		8/19	Title	AE
Traced					8/19/06
Checked	FA		8/19/06	Sheet	Drawing No.
				No	1
				of	5

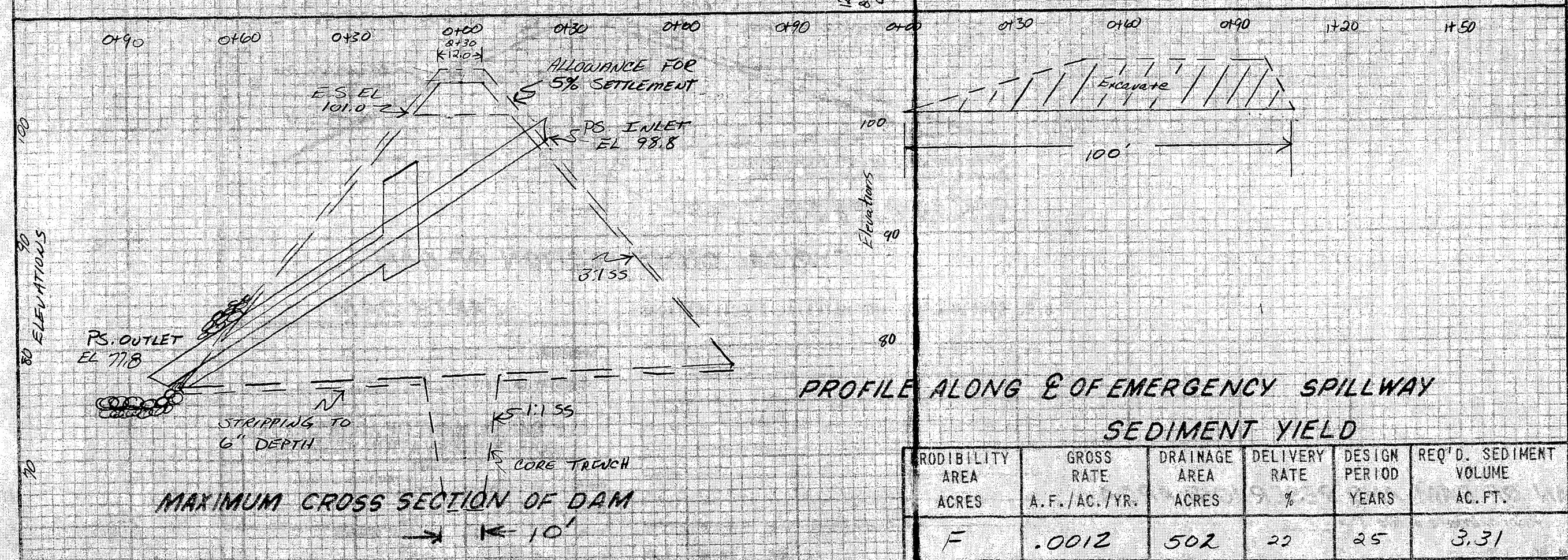
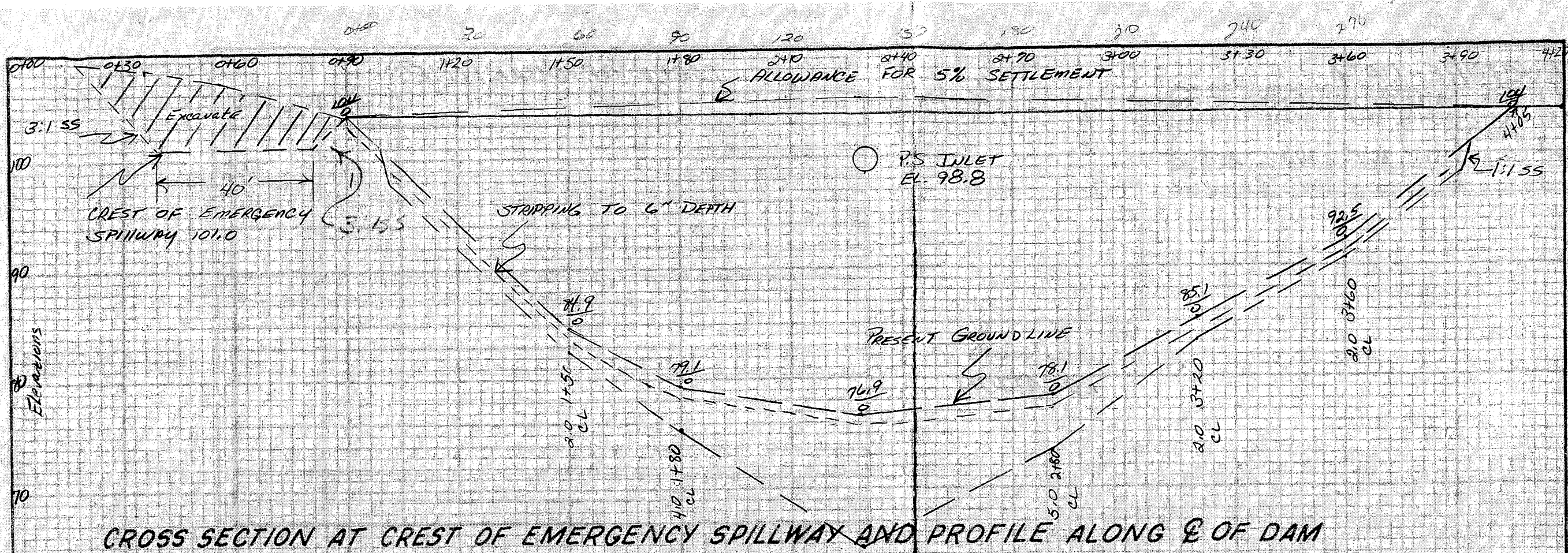
SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = 100'

REFERENCE: GUIDE PLAN NO. 1.0

JOB PLAN NO. 1.0

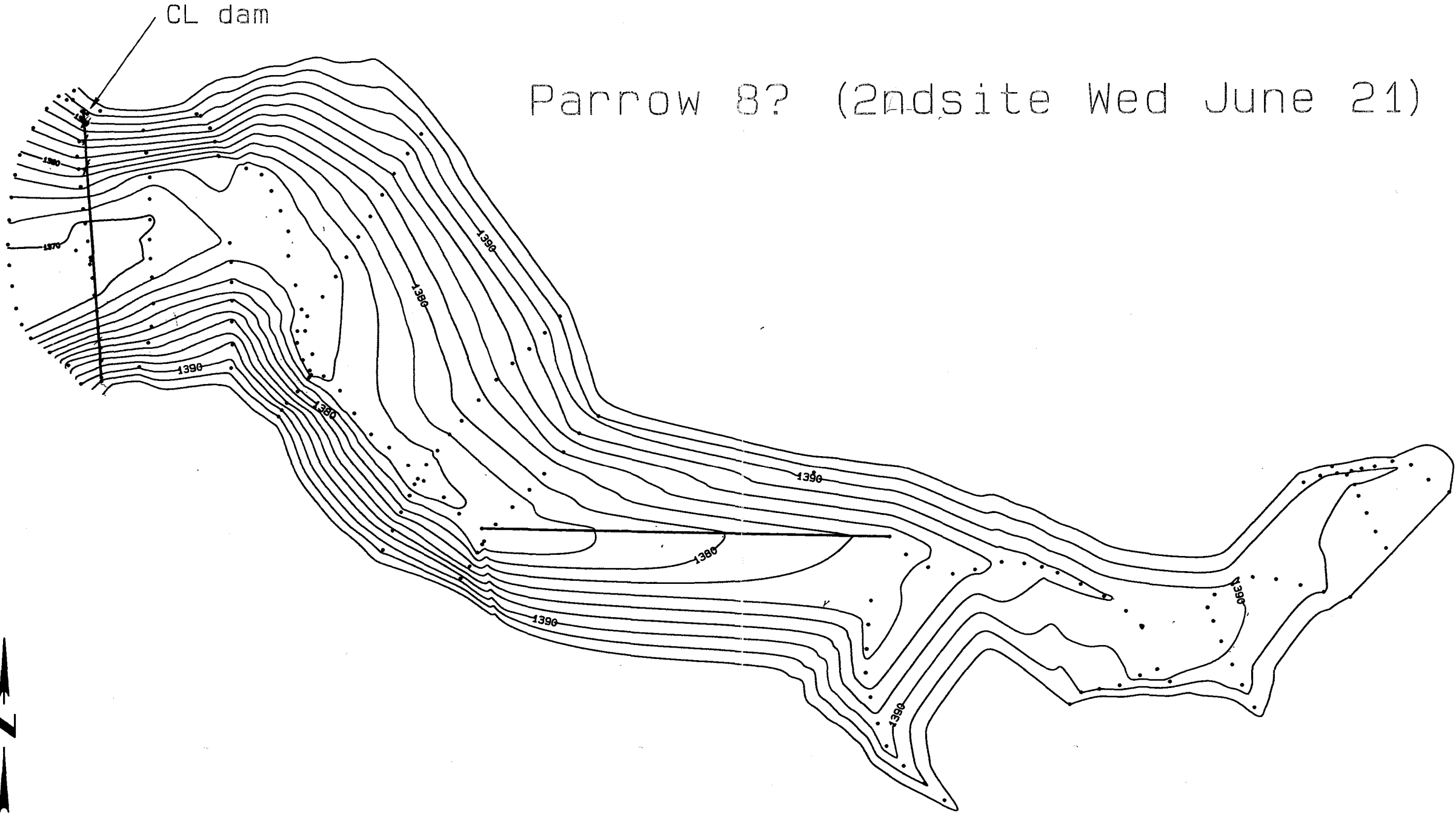
(Rev. 4-73) 5, N-29, 073.10(1)



PRODUCIBILITY AREA ACRES	GROSS RATE A.F./AC./YR.	DRAINAGE AREA ACRES	DELIVERY RATE %	DESIGN PERIOD YEARS	REQ'D. SEDIMENT VOLUME AC.FT.
F	.0012	502	22	25	3.31

(Rev. 4-73) 5, N-29, 073.1a (2)

Top of Dam Approx. El 1390



Parrow 8? (2ndsite Wed June 21)



GRAPHIC SCALE 1"=132.7'



200 120 40 0 200

Approved by: _____
Title: _____

Date: _____
Designed & Drafted by: *Pete Anderson June 27, 2006*
Checked by: _____

 NRCS NATURAL RESOURCES
CONSERVATION SERVICE

BROOKINGS FIELD SUPPORT OFFICE
520 THIRD AVENUE P.O. BOX 626
BROOKINGS, SOUTH DAKOTA 57006-0626

Parrow 8

SW Section T. N. R. W.
Marshall County, South Dakota

Drawing No.

Sht No. 4 of 5

5, N-29, 073.30

Checked	of 5
Traced	No. 5
Drawn	Sheet 5
Designed	Title
Approved by	Title
Date	Approved by

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CONSERVATION DISTRICT: _____

OPERATOR: Parrow #8

WATERTIGHT CONNECTING BAND
FOR ANNULAR AND HELICAL
CORRUGATED METAL PIPE

JOB PLAN NO. 3.0

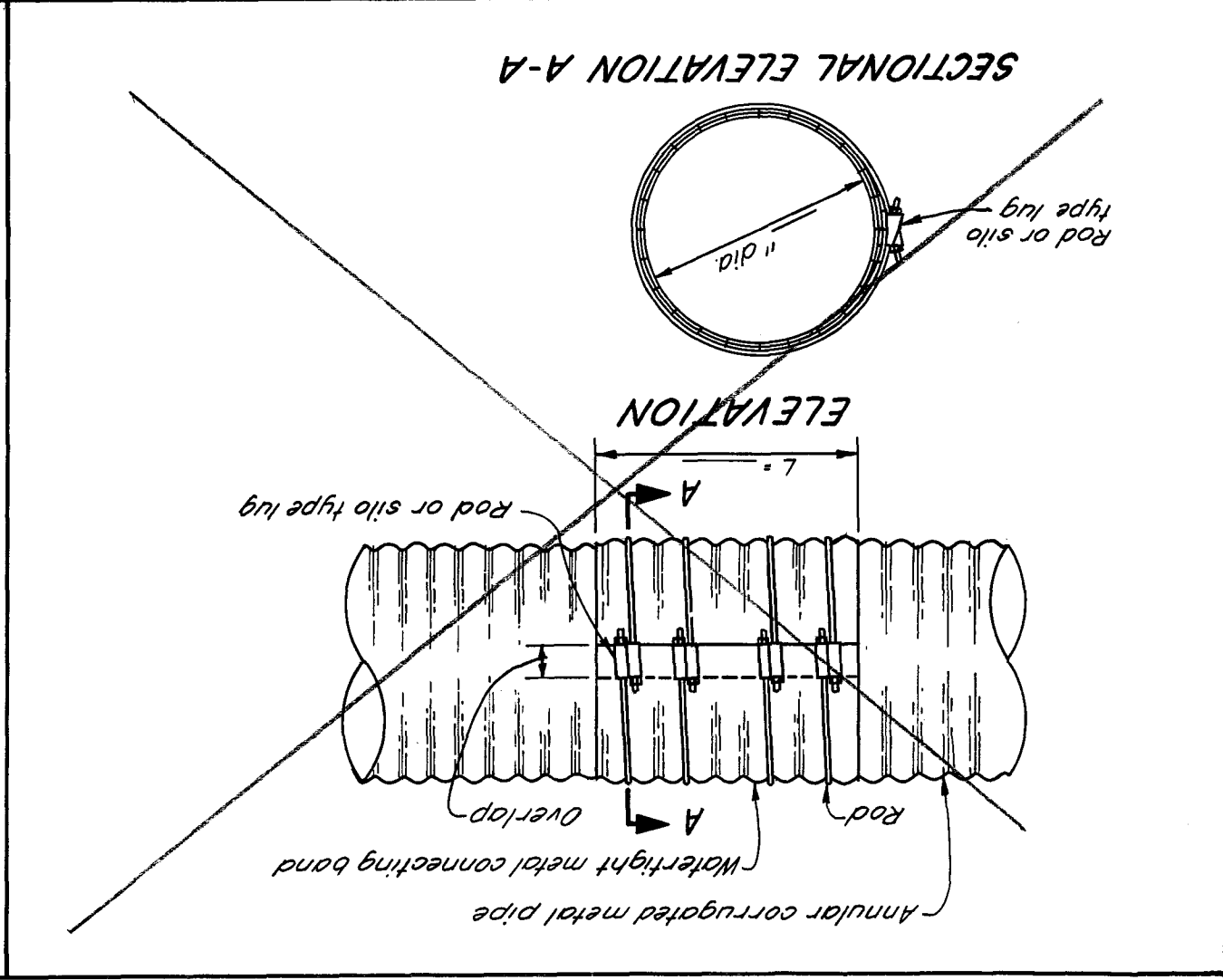
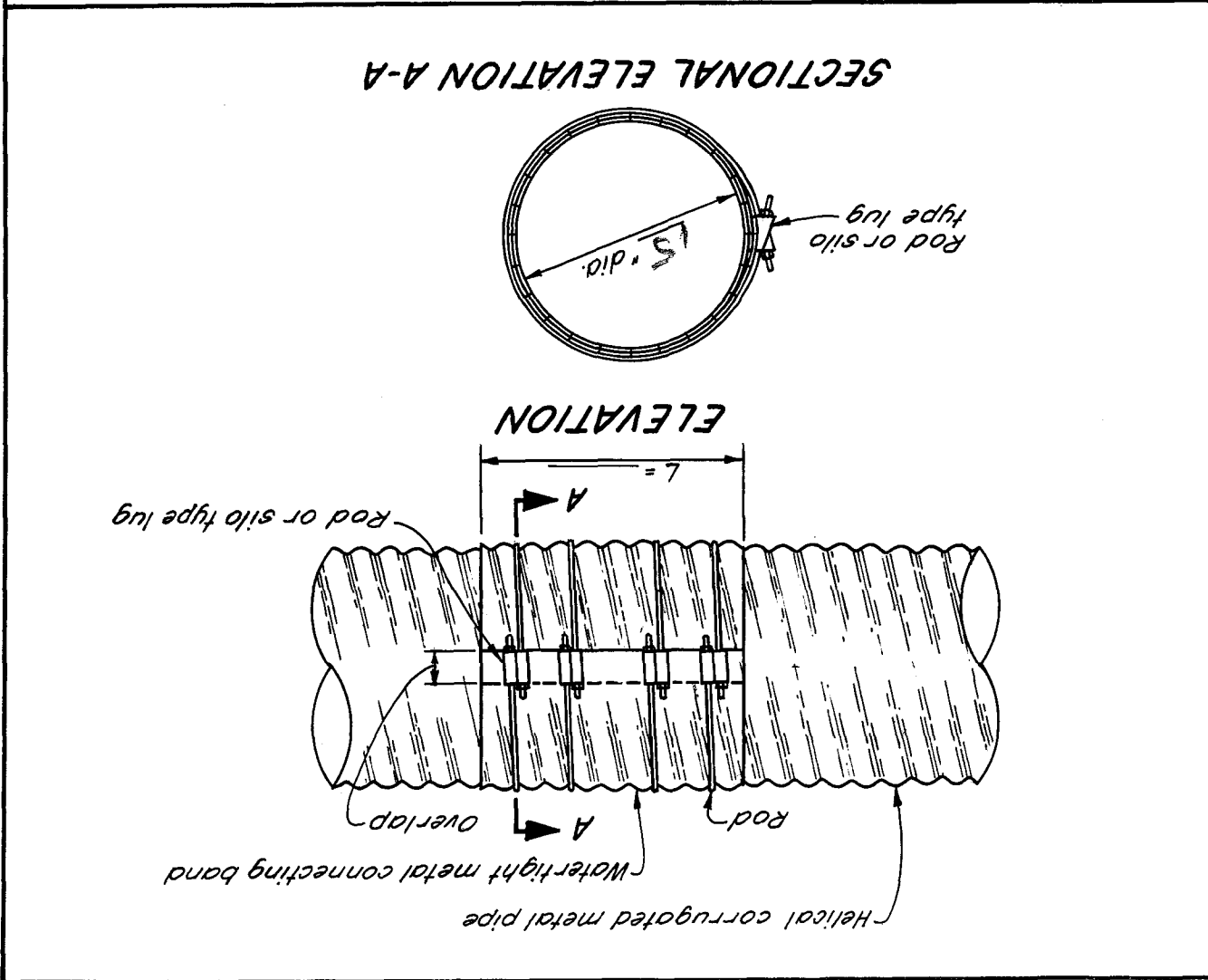
NOTES:

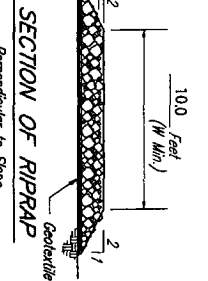
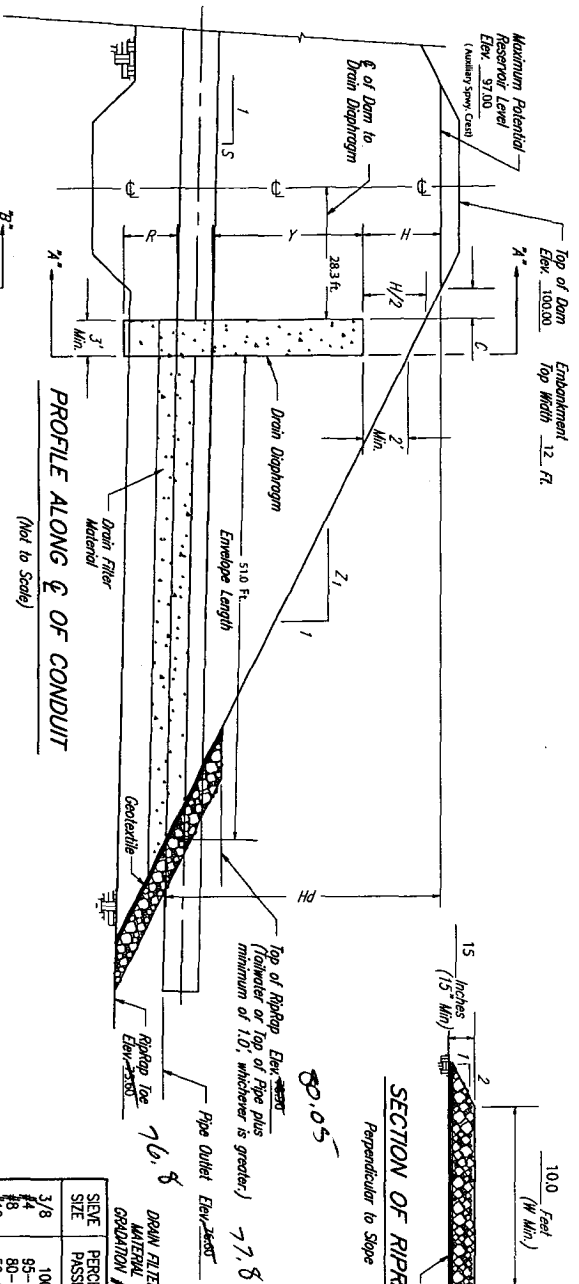
1. WATERTIGHTNESS WILL BE OBTAINED BY USE OF (1) 3/8" THICK NEOPRENE GASKET (WIDTH AS SHOWN) OR (2) ASPHALT MASTIC SEALING MATERIAL TO COVER FULL WIDTH OF BAND.

2. CROSS OUT BAND AND QUANTITIES NOT APPLICABLE.

PIPE DIA. INCHES	6-18	12	2	2	1 1/2	12	2
MINIMUM "L" INCHES	24	24	3	4	1 1/2	12	1 1/2
APPROX. OVERLAP INCHES	6	4	1 1/2	1 1/2	1 1/2	12	2
NUMBER OF RODS & LUGS	1	1	1 1/2	1 1/2	1 1/2	12	2
MINIMUM ROD DIA. IN.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	12	2
NEOPRENE GASKET WIDTH INCHES	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	12	2
ASPHALT MASTIC GAL.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	12	2

DIMENSIONS AND QUANTITIES



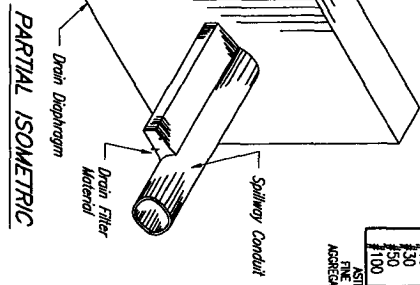
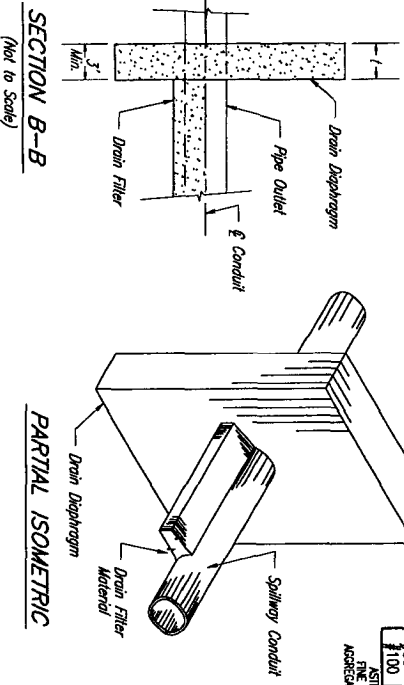
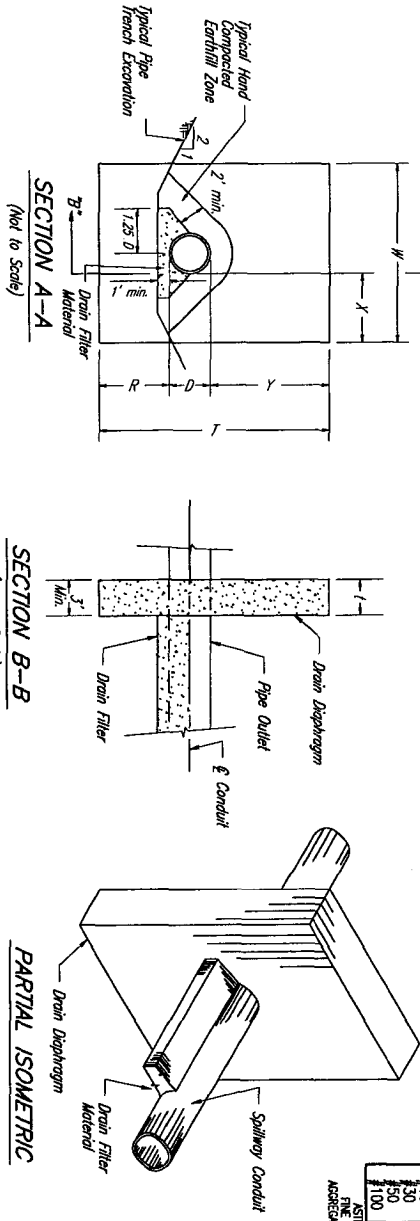


DESIGN DATA	
H = 4.5 Feet	Hd = 20.15 Feet
X = 2.5 Feet	D = 15 Inches
R = 2.5 Feet	Y = 4.0 Feet
C = 13.3 Feet	Aggregate Gradation #1
Embankment Backslope (Z1) = 3	Pipe Slope (S) = 0.05 Ft./ft.
DIMENSIONS	
W = 6.3 Feet (Total Width of Drain Diaphragm)	
Y = 7.8 Feet (Total Height of Drain Diaphragm)	
Z = 3 Feet (Thickness of Single Filter)	

ESTIMATED QUANTITIES

Drain Filter Material: 12.6 Cubic Yards
 Geotextile: 17.5 Square Yards
 Rock Riprap: 6.0 Cubic Yards

DRAIN FILTER MATERIAL GRADATION #1	
SIZE	PERCENT PASSING
3/8"	100
1/2"	95-100
3/4"	80-100
1"	50-85
1 1/2"	25-60
2"	5-30
2 1/2"	0-10
3"	0-5
3 1/2"	0-5
4"	0-5
4 1/2"	0-5
5"	0-5
5 1/2"	0-5
6"	0-5
6 1/2"	0-5
7"	0-5
7 1/2"	0-5
8"	0-5
8 1/2"	0-5
9"	0-5
9 1/2"	0-5
10"	0-5
10 1/2"	0-5
11"	0-5
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37"	0-5
37 1/2"	0-5
38"	0-5
38 1/2"	0-5
39"	0-5
39 1/2"	0-5
40"	0-5
40 1/2"	0-5
41"	0-5
41 1/2"	0-5
42"	0-5
42 1/2"	0-5
43"	0-5
43 1/2"	0-5
44"	0-5
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45"	0-5
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46"	0-5
46 1/2"	0-5
47"	0-5
47 1/2"	0-5
48"	0-5
48 1/2"	0-5
49"	0-5
49 1/2"	0-5
50"	0-5
50 1/2"	0-5
51"	0-5
51 1/2"	0-5
52"	0-5
52 1/2"	0-5
53"	0-5
53 1/2"	0-5
54"	0-5
54 1/2"	0-5
55"	0-5
55 1/2"	0-5
56"	0-5
56 1/2"	0-5
57"	0-5
57 1/2"	0-5
58"	0-5
58 1/2"	0-5
59"	0-5
59 1/2"	0-5
60"	0-5
60 1/2"	0-5
61"	0-5
61 1/2"	0-5
62"	0-5
62 1/2"	0-5
63"	0-5
63 1/2"	0-5
64"	0-5
64 1/2"	0-5
65"	0-5
65 1/2"	0-5
66"	0-5
66 1/2"	0-5
67"	0-5
67 1/2"	0-5
68"	0-5
68 1/2"	0-5
69"	0-5
69 1/2"	0-5
70"	0-5
70 1/2"	0-5
71"	0-5
71 1/2"	0-5
72"	0-5
72 1/2"	0-5
73"	0-5
73 1/2"	0-5
74"	0-5
74 1/2"	0-5
75"	0-5
75 1/2"	0-5
76"	0-5
76 1/2"	0-5
77"	0-5
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94 1/2"	0-5
95"	0-5
95 1/2"	0-5
96"	0-5
96 1/2"	0-5
97"	0-5
97 1/2"	0-5
98"	0-5
98 1/2"	0-5
99"	0-5
99 1/2"	0-5
100"	0-5



DEFINITIONS

D = Outside diameter of circular conduit.
 H = Vertical distance between the Top of Diaphragm and the Maximum Potential Reservoir Level.
 X = Use the smaller of 2 X D or 5 feet beyond any excavation made to install conduit.
 Y = Vertical distance from Top of Conduit to Top of Diaphragm.
 Y = 2 X D or no higher than Maximum Potential Reservoir Level.
 C = Horizontal distance from U.S. face of Embankment at Maximum Potential Reservoir Level to U.S. face of Diaphragm.

GUIDE PLAN 3.8 (01/2008)

DRAINAGE DIAPHRAGM DETAILS

ITEM	DESCRIPTION	QUANTITY	UNIT
1	Drain Filter Material	12.6	Cubic Yards
2	Geotextile	17.5	Square Yards
3	Rock Riprap	6.0	Cubic Yards

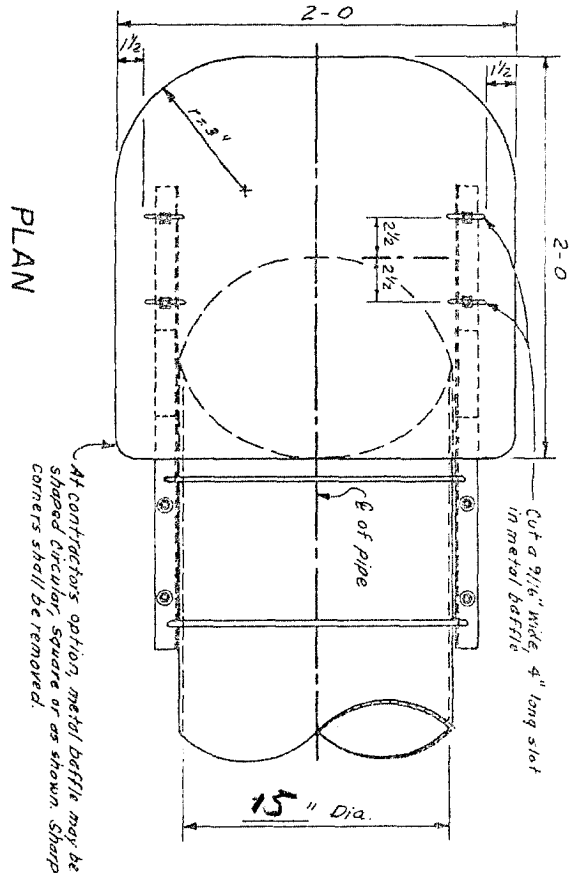
2/12/2008 11:51 AM
 2 of 5



USDA - NRCS
 State Office Engineering Staff
 200 Fourth Street SW
 Huron, South Dakota 57350

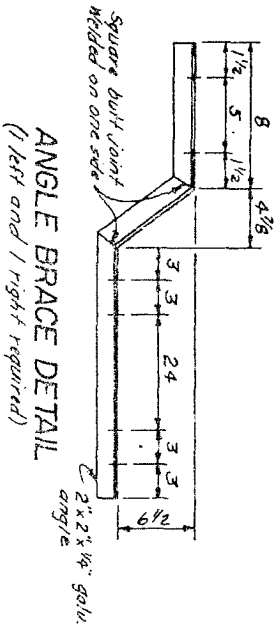
PRODUCER Rob Parrow
 NE 1/4 SECTION 6 127N R. 56W
 Marshall COUNTY
 Marshall CONSERVATION DISTRICT

Designed RDG 3/2/2009
 Drawn
 Checked
 Approved



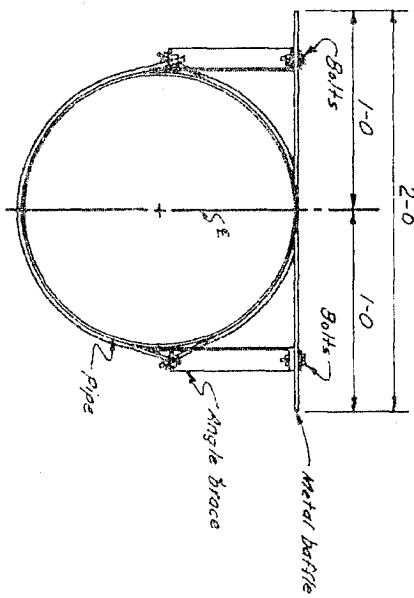
ITEM	UNIT	QUANTITY
STEEL BAFFLE, 1/4" THICK (GALV)	SQ. FT.	3
1/2" DIA. GALV. ROD	EACH	4
2" x 2" x 1/4" GALV. ANGLE	LBS.	28
1/2" DIA. x 1 1/2" LONG GALV. BOLT	EACH	4

TABLE OF QUANTITIES

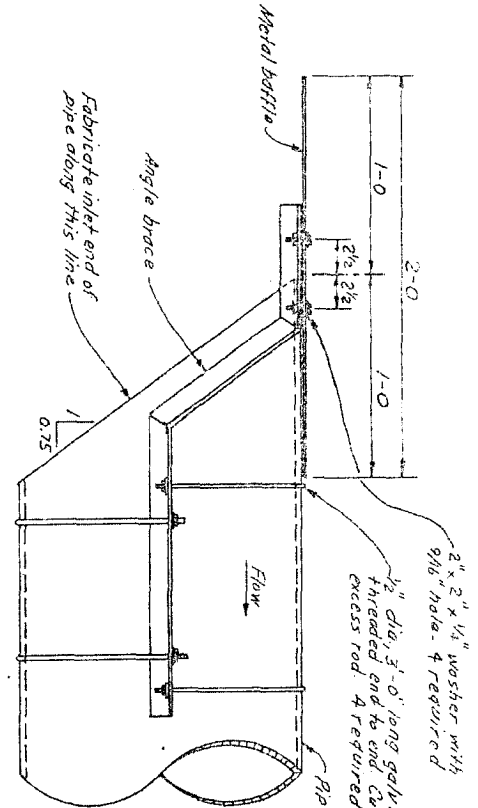


- NOTES:
1. ALL BOLTS AND RODS SHALL HAVE A NUT AND SPLIT WASHER.
 2. ALL STRUCTURAL STEEL SHALL BE GALVANIZED.
 3. ALL DRILL HOLES SHALL BE 9/16"
 4. BAFFLE WILL FIT 11 1/2" TO 18 1/2" O.D. PIPE BUT BAFFLE SIZE IS ADEQUATE ONLY FOR 16" OR SMALLER I.D. PIPE.

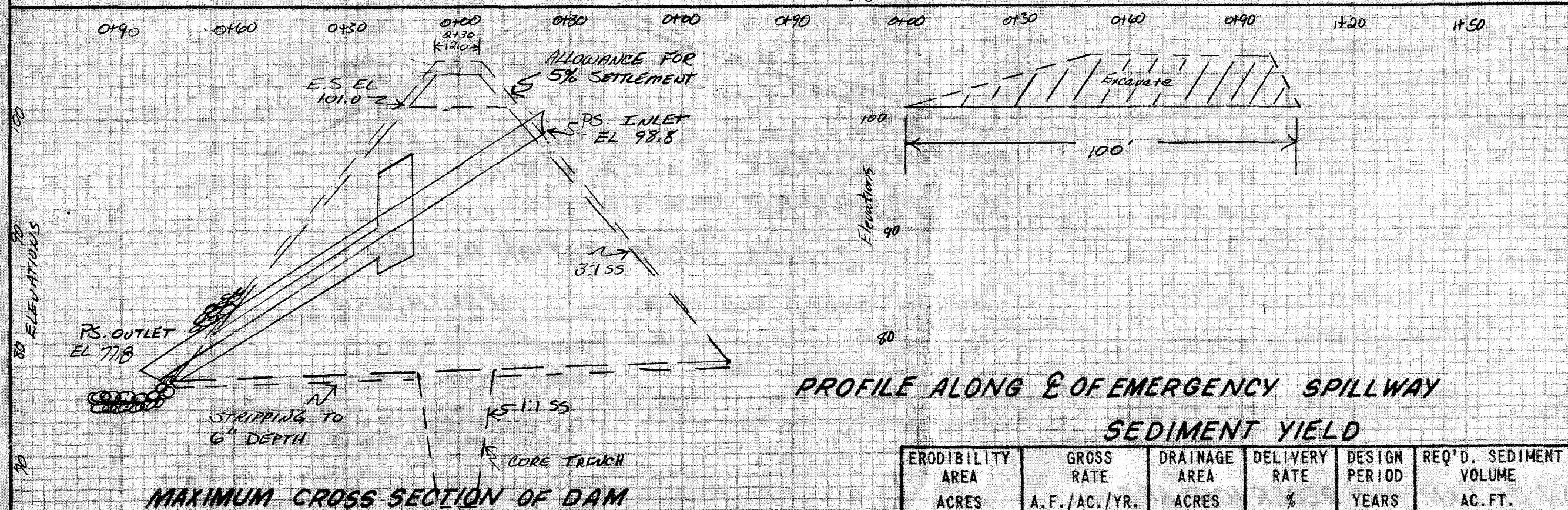
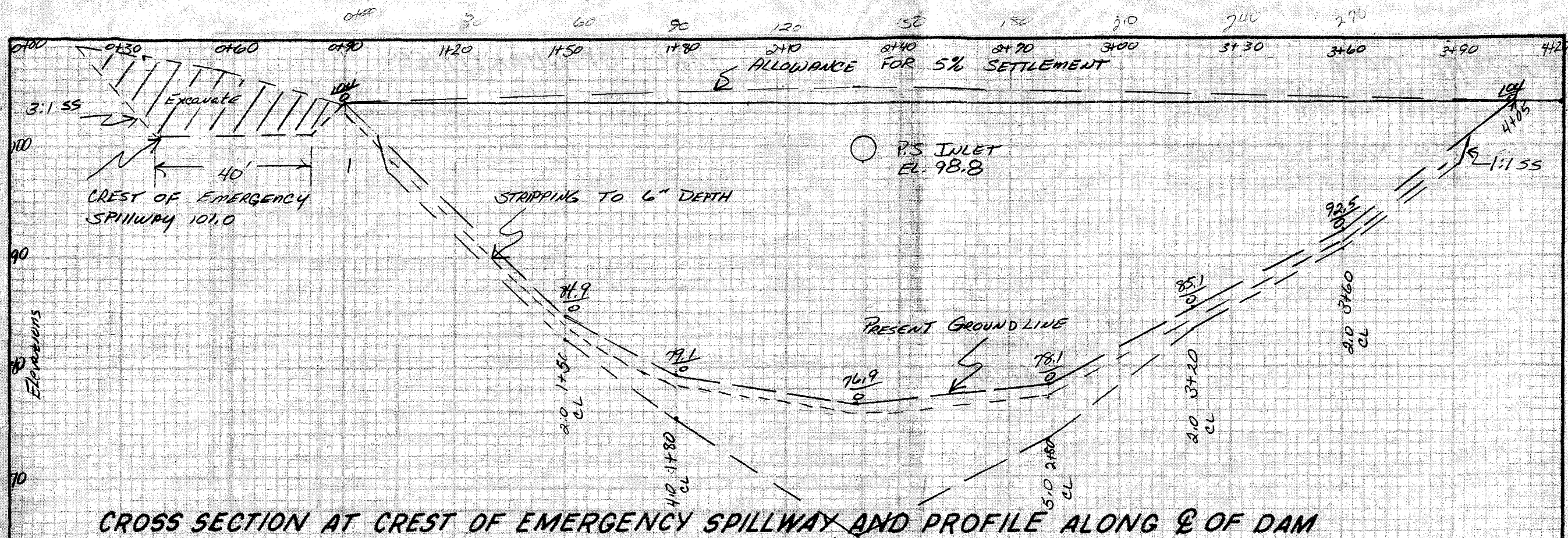
FRONT ELEVATION



SIDE ELEVATION

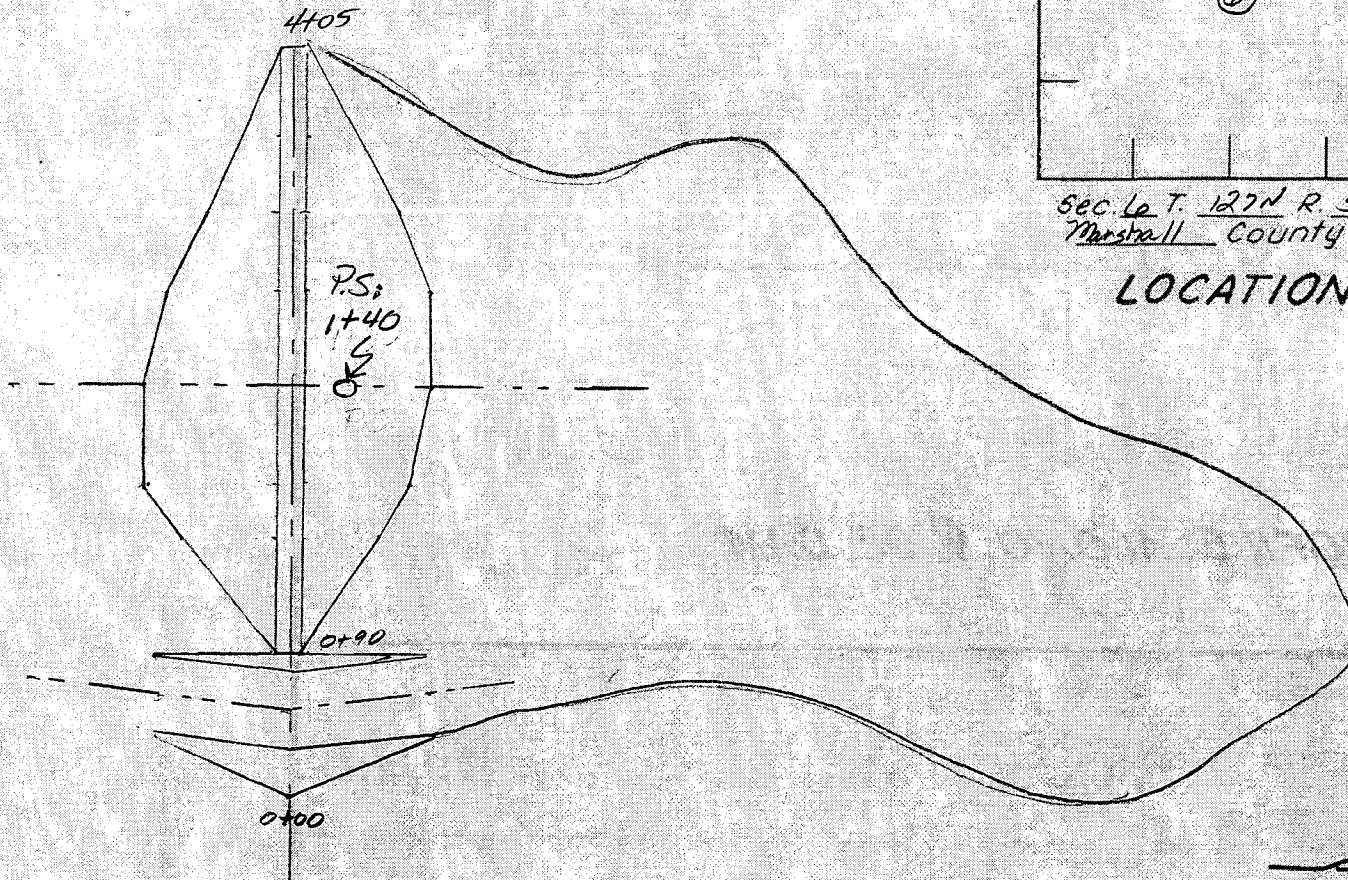


OPERATOR Rob Thakur	
CONSERVATION DISTRICT Marshall	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Drawn by ROG	Checked by 3
Date 03/14	Scale 1" = 1'-0"
Title HOOD INLET AND BAFFLE FOR 12" THRU 16" I.D. PIPE	Sheet 3



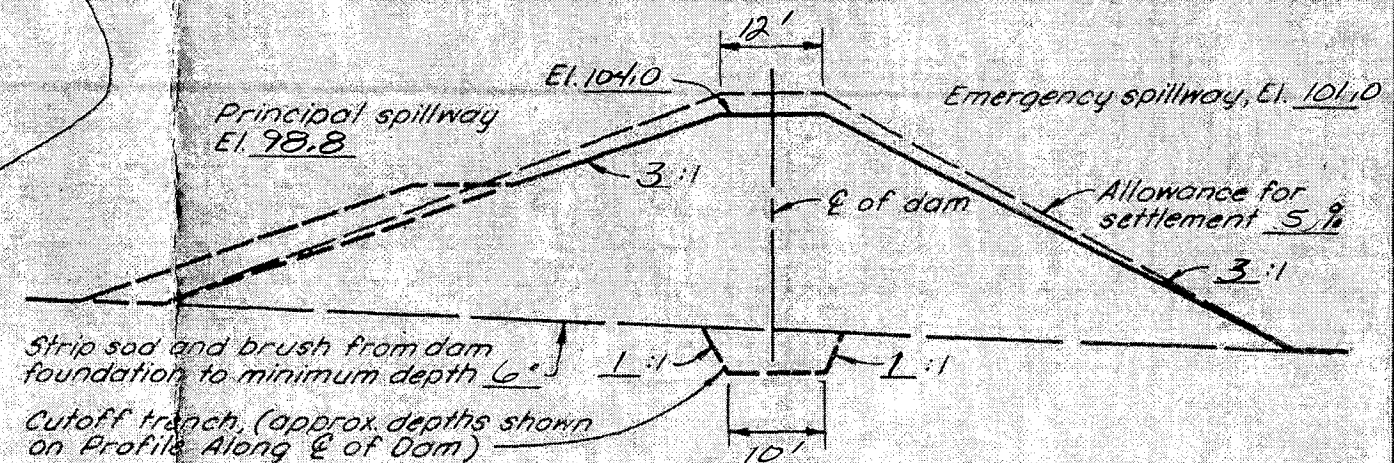
SEDIMENT YIELD					
ERODIBILITY AREA ACRES	GROSS RATE A.F./AC./YR.	DRAINAGE AREA ACRES	DELIVERY RATE %	DESIGN PERIOD YEARS	REQ'D. SEDIMENT VOLUME AC.FT.
F	.0012	502	22	25	3.31

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPLWY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	80% AC. FT.	CFS 25-YR.	C.F.S.	FEET	ACRES	AC. FT.	AC. FT.
502	4.4	284	158	21.9	10.4	3.31	107



Sec. 46 T. 127N R. 56W
Marshall County

A black and white photograph of a document page. The page features a grid of horizontal and vertical lines, creating a series of rectangular sections. In the center of the page, there is a small, dark, circular mark that appears to be a stamp or a hole. The overall image is grainy and has a high-contrast, somewhat blurry quality.

[illegible]

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

- SD-4 Stripping
- SD-5 Excavation
- SD-7s Earthfill Class 5
- SD-10 Salvaging & Spreading (Top Soil)
- SD-16 Wood Fabrication
- SD-17 Metal Fabrication
- SD-15 Corrugated Metal Pipe
- SD-28 Seeding

OPERATOR: Rob Parrow

CONSERVATION DISTRICT: Marshall

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed <u>RDG</u>	Date <u>8/09</u>	Approved by _____
Drawn <u>RDG</u>	<u>8/09</u>	Title _____
Traced _____		Title _____
Checked _____		Sheet <u>1</u> Drawing No. _____
		No. <u>5</u>

(Rev. 4-73) 5, N-29, 073.10(1)

WATER RIGHTS PROGRAM

Approximate scale $1'' = 100'$

REFERENCE: GUIDE PLAN NO. 1.0

JOB PLAN NO. 1.0

USDA-SEC-LINCOLN NEAR INT

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AUG 18 2009
WATER RIGHTS
PROGRAM

RECEIVED

AUG 18 2009

WATER RIGHTS
PROGRAM

=====

POND DESIGN

=====

WinPond 1.6.2860.23451

Project ---- : Earth Dam (378)

Description : SE 1/4 of NE 1/4 Dam #8

State ----- : South Dakota

County ----- : Marshall

Landowner -- : Rob Parrow

Township --- : 127N

Range ----- : 56W

Section ---- : 6

Tract ----- :

Field ----- :

Designed By : RDG

Date designed: 3/2/2009

Date printed : 8/13/2009

Approved By : _____

Date : _____

File Name : C:\home\Roger Gresh\data\Project\Parrow\8\Parrow#8.prj

PLANNED IN COOPERATION WITH USDA-NRCS

NRCS/USDA
PO Box 8
505 Vander Horck Ave.
Britton, SD 57430

The use of this software is intended for low-hazard dams conforming to Natural Resources Conservation Service, Pond (378) Conservation Practice Standard.

Failure of the dam will not result in loss of life; damage to homes, commercial or industrial buildings, main highways, or railroads; or in interruption of the use or service of public utilities.

NRCS 378 Pond Conservation Practice Standard limits the Effective Height to less than 35 feet and a height x storage value of less than 3,000 acre-feet-ft.

Project --- : Earth Dam (378)
 Prepared for: Rob Parrow
 Prepared by : RDG
 Checked by : _____

TWP : 127N RNG : 56W
 SEC : 6 FLD :
 Date: _____

***** JOB APPROVAL CLASS *****

Hazard Class	Low	A
Effective Height	Feet	24.1
Effective Storage	Ac-Ft	80.9
Overall Height	Feet	27.2
Total Storage	Ac-Ft	110.9
Storage X Effective Height	Ac-Ft Ft	1949
Contributing Drainage Area	Acres	502
Contributing Drainage Area	Square Miles	0.78
Pipe Conduit Capacity	CFS	4.6
Open Channel Spillway Design Flow	CFS	59.2
Peak Inflow Aux Spillway Design Storm	CFS	262.2
Conduit - Inside Diameter	Inches	15
Conduit Material		HCMP
Inlet Type		Hood
Job Approval Class		
INVENTORY SIZE DAM		

***** ELEVATION-STORAGE INPUT DATA *****

ELEV (ft)	POOL AREA (acres)	INT. STORAGE (ac.ft.)	ACCUM. STORAGE (ac.ft.)
78.3	0.00		0.00
		0.07	
80.0	0.08		0.07
		14.90	
90.0	2.90		14.97
		26.10	
96.0	5.80		41.07
		30.32	
100.0	9.36		71.39
		39.52	
104.0	10.40		110.91

***** STORAGE VOLUMES *****

	ELEVATION (ft)	AREA (acres)	STORAGE (ac.ft.)
Inlet (Princ. spillway)	98.8	8.29	60.80
Aux. spillway	101.0	9.62	80.88
Max. water	102.4	9.97	94.21
Settled top of fill	104.0	10.40	110.91
Sediment - above inlet			0.00
- below inlet			3.31
Inlet to Aux.			20.08
Aux. to max. water			13.33

Project --- : Earth Dam (378)
Prepared for: Rob Parrow
Prepared by : RDG
Checked by : _____

TWP : 127N RNG : 56W
SEC : 6 FLD :
Date: _____

RUNOFF CURVE NUMBER DETERMINATION

COVER DESCRIPTION	Acres & (curve numbers) for Hydrologic Soil Group			
	A	B	C	D

CULTIVATED AGRICULTURAL LANDS				
Row crops				
SR + Crop residue	good	124	(75)	
OTHER AGRICULTURAL LANDS				
Pasture, grassland or range	fair	369	(69)	
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Open space (Lawns, parks etc.)		9	(79)	
Poor condition; grass cover < 50%				

ACCUMULATED:	502.00	Acres	WEIGHTED CURVE NUMBER: 71.0	

***** HYDROLOGIC DATA *****

Rainfall distr. type ---- :	II		
Drainage area, acres ---- :	502.0	Watershed slope, % :	8.5
Runoff curve number ---- :	71	Flow length, ft. - :	11368
Time of concentration, hrs :	1.65		
(min.:	98.96)		

	----- Spillway -----		
	Principal	Auxiliary	
Design frequency, yrs.:	2	25	
24 hr. Rainfall, in. :	2.3	4.2	
Runoff, in. ---- :	0.4	1.5	
Peak inflow, cfs ---- :	53.14	262.24	
Peak outflow, cfs --- :	4.59	59.20 A.S.	
		15.62 P.S.	

Project --- : Earth Dam (378)
 Prepared for: Rob Parrow
 Prepared by : RDG
 Checked by : _____

TWP : 127N RNG : 56W
 SEC : 6 FLD :
 Date: _____

***** PRINCIPAL SPILLWAY TRIALS *****

Inlet type: Hood Inlet Elevation: 98.8

	TRIAL 1	TRIAL 2	TRIAL 3
CONDUIT: Type -----	HCMP	HCMP	HCMP
Diameter, in. --	12.00	15.00	18.00
Height, in. ----			
Width, in. -----			
Manning's n ----	0.017	0.021	0.021
Inlet ext., ft. -	1.0	1.0	2.0
Length, ft. ----	123.0	123.0	123.0
Entrance Coefficient, Ke	1.000	1.000	1.000
Auxiliary elevation -----	100.5	101.0	101.5
STORAGE (ac.ft.):			
Temporary (PS-AS) ----	15.30	20.08	24.92
Total at Auxiliary ---	76.10	80.88	85.72
Effective height, ft. ---	23.6	24.1	24.6
Height x storage -----	1796	1949	2109
Drawdown time, days-hrs.	4-10.3	3-15.5	3-1.2
Trial used -----		2	

CONDUIT TYPES ----- : HCMP - Helical Corrugated Metal Pipe

***** AUXILIARY SPILLWAY DETAILS *****

Discharge determination: Calculated

Auxiliary elev. :	101.0	Retardance ----- :	C
Bottom width, ft. :	40	Level sect. length, ft.:	100
Flow depth, ft. - :	1.36	Side slope ratio, n:1 :	3.00
EXIT CHANNEL -			
Max. Vel., fps - :	5.0	Retardance ----- :	C
Inlet Channel -	- 1 -	- 2 -	
Length, ft. -- :	101.0	102.0	
Slope, % ----- :	0.50	1.00	
Flow, cfs ----- :	59.20	Exit Slope, % --- Min.:	4
Settled fill elev.:	104.0 ^	Max.:	29
Flow, cfs ----- :	494.0 (Aux. Spillway Flow at Top of Dam)	Drawdown time, days-hrs:	4-17.3
Channel elev. --- :	76.8	Overall height, ft. -- :	27.2
(downstream toe)			

^: Increased by User

***** GROUND DATA *****

STA HI %SLOPE (FS or ELEV)/DIST ----->

***** PRACTICE: Dam *****

0+00	105.00	1.00/0
0+60	105.00	20.10/0
0+90	105.00	25.90/0
1+40	105.00	28.10/0
1+90	105.00	26.90/0
2+30	105.00	19.90/0
2+70	105.00	8.50/0
3+15	105.00	5.00/0

Project --- : Earth Dam (378)

Prepared for: Rob Parrow

Prepared by : RDG

Checked by : _____

TWP : 127N

RNG : 56W

SEC : 6

FLD :

Date: _____

***** EMBANKMENT CROSS SECTION DATA *****

% settlement = 5.0

Template # -----	1	2	3	4
Station -----	1+40			
Settled top of fill elev. -	104.0			
Top width, ft. -----	12.0			
Upstream berm elev. -----	0.0			
berm width, ft. --				
Downstream berm elev. -----	0.0			
berm width, ft. -----				
Front slope, n:1 -----	3.0			
Back slope, n:1 -----	3.0			
Stripping depth, ft. -----	0.5			
Core bottom width, ft. ----	10.0			
depth, ft. -----	4.0			
side slopes, n:1 -----	1.0			
offset, ft. -----				
BL-CL offset, ft. -----				

***** CONDUIT DETAIL *****

Inlet Type -----	HOOD
Conduit Type -----	HCMP - Helical Corrugated Metal Pipe
Diameter, in. -----	15.00
Inlet extension, ft --	1.0
Length, lin. ft. ----	123.0 Extends 6.0 ft. beyond dnstr.toe
Slope, % -----	17.5
Max.fill over pipe, ft.	10.9
Hood Length -----	11-1/4"
Baffle size -----	22-1/2" square or diameter
Horizontal Distances (ft.)	
Upstrm: edge of top width to inlet end of pipe :	21.1
Dnstrm: edge of top width to toe ----- :	81.6

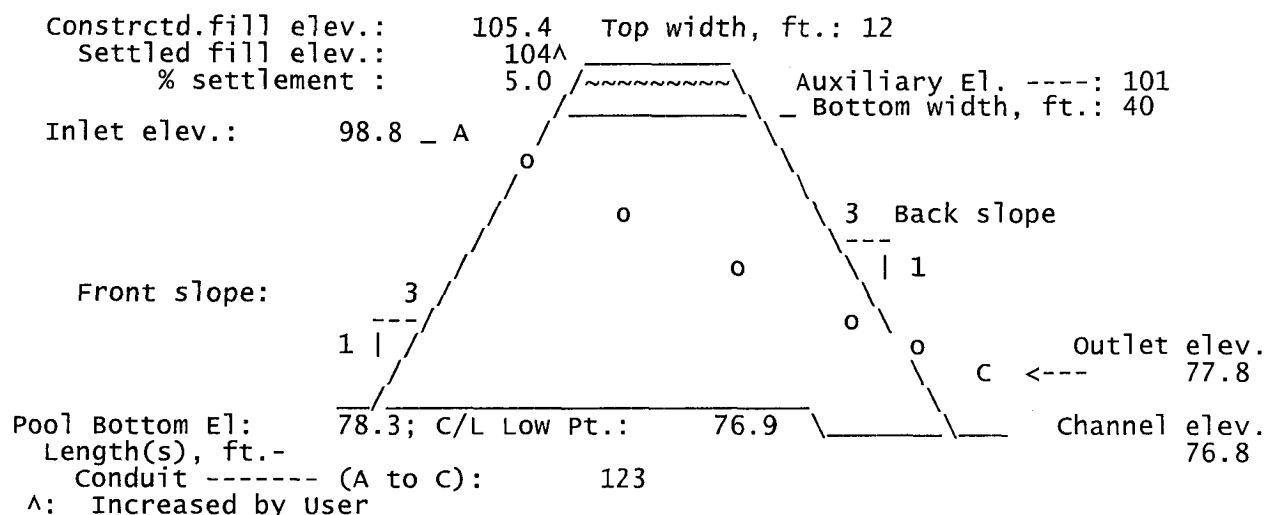
Project --- : Earth Dam (378)
 Prepared for: Rob Parrow
 Prepared by : RDG
 Checked by : _____

TWP : 127N RNG : 56W
 SEC : 6 FLD :
 Date: _____

***** DESIGN ELEVATIONS (at principal spillway) *****

Inlet type: HOOD

NOT TO SCALE



***** SUMMARY *****

Inlet type: HOOD Inlet Elevation: 98.8

CONDUIT: Type -----	HCMP - Helical Corrugated Metal Pipe
Diameter, in. ---	15
Length, lin. ft.-	123 Extends 6 ft. beyond dnstr.toe
AUX. : Elevation -----	101
Bottom width, ft.	40
Hp, flow depth, ft.	1.36
Exit slope, % min.	4
max.	29
Effective height, ft. ----	24.1 = AS elev. - low pt. on C/L
Height x storage -----	1949
Overall height, ft. ----	27.2 = stld. fill elev - chan. elev
NOTE -----	***** INVENTORY SIZE DAM

***** EARTHWORK VOLUMES *****

	CONSTRUCTED	SETTLED
settlement	5	
EARTHWORK Fill -----	17,197	16,378
QUANTITIES Stripping -	681	681
(cu.yds.) Core -----	596	596
TOTALS	18,474	17,655

Project --- : Earth Dam (378)
Prepared for: Rob Parrow
Prepared by : RDG
Checked by : _____

TWP : 127N RNG : 56W
SEC : 6 FLD :
Date: _____

***** PROJECT DEFAULTS *****

Design based on -----:	Settled slopes
Berms settled -----:	False
Auxiliary spillway to Top of Dam: -----:	1.0 (ft)
Freeboard -----:	1.0 (ft)
Minimum bottom width -----:	10.0 (ft)
Maximum bottom width -----:	150 (ft)
Feet above inlet (Drawdown) -----:	0.0 (ft)
Percent or storage drained (Drawdown) -----:	85.0 (ft)
Minimum flow (Drawdown) -----:	0.1 (cfs)
Orifice Coefficient -----:	0.71 (ft)
Full Pipe Flow Required? -----:	Yes
Stage required above Prin. Spwy. Crest: -----:	0.5 (ft)
Max. drainage area for required stage: -----:	20.0 (acres)
All PS Outflow included in Prin. Routing -----:	Yes
All PS Outflow included in Aux. Routing -----:	Yes

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WATER RIGHTS
PROGRAM

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POND DESIGN

=====

WinPond 1.6.2860.23451

Project ---- : Earth Dam (378)

Description : SE 1/4 of NE 1/4 Dam #8

State ----- : South Dakota

County ----- : Marshall

Landowner -- : Rob Parrow

Township --- : 127N

Range ----- : 56W

Section ---- : 6

Tract ----- :

Field ----- :

Designed By : RDG

Date designed: 8/13/2009

Date printed : 8/17/2009

Approved By : _____

Date : _____

File Name : C:\home\Roger Gresh\data\Project\Parrow\8\Parrow#8.prj

PLANNED IN COOPERATION WITH USDA-NRCS

NRCS/USDA
PO Box 8
505 Vander Horck Ave.
Britton, SD 57430

The use of this software is intended for low-hazard dams conforming to Natural Resources Conservation Service, Pond (378) Conservation Practice Standard.

Failure of the dam will not result in loss of life; damage to homes, commercial or industrial buildings, main highways, or railroads; or in interruption of the use or service of public utilities.

NRCS 378 Pond Conservation Practice Standard limits the Effective Height to less than 35 feet and a height x storage value of less than 3,000 acre-feet-ft.

Project --- : Earth Dam (378)

Prepared for: Rob Parrow

Prepared by : RDG

Checked by : _____

TWP : 127N

RNG : 56W

SEC : 6

FLD :

Date: _____

RUNOFF CURVE NUMBER DETERMINATION

Acres & (curve numbers) for
Hydrologic Soil Group

COVER DESCRIPTION

A B C D

CULTIVATED AGRICULTURAL LANDS

Row crops

SR + Crop residue

good

124(75)

OTHER AGRICULTURAL LANDS

Pasture, grassland or range

fair

369(69)

FULLY DEVELOPED URBAN AREAS (Veg Estab.)

Open space (Lawns, parks etc.)

Poor condition; grass cover < 50%

9(79)

ACCUMULATED: 502.00 Acres

WEIGHTED CURVE NUMBER: 71.0

***** HYDROLOGIC DATA *****

Rainfall distr. type ---- :	II		
Drainage area, acres ---- :	502.0	Watershed slope, % :	8.5
Runoff curve number ---- :	71	Flow length, ft. - :	11368
Time of concentration, hrs :	1.65		
(min.: 98.96)			

	----- Spillway -----	
	Principal	Auxiliary
Design frequency, yrs.:	2	25
24 hr. Rainfall, in. :	2.3	4.2
Runoff, in. ----- :	0.4	1.5
Peak inflow, cfs ---- :	53.14	262.24
Peak outflow, cfs --- :	4.59	59.20 A.S.
		15.62 P.S.

Project --- : Earth Dam (378)
 Prepared for: Rob Parrow
 Prepared by : RDG
 Checked by : _____

TWP : 127N RNG : 56W
 SEC : 6 FLD :
 Date: _____

***** JOB APPROVAL CLASS *****

Hazard Class	Low	A
Effective Height	Feet	24.1
Effective Storage	Ac-Ft	80.9
Overall Height	Feet	27.2
Total Storage	Ac-Ft	110.9
Storage X Effective Height	Ac-Ft Ft	1949
Contributing Drainage Area	Acres	502
Contributing Drainage Area	Square Miles	0.78
Pipe Conduit Capacity	CFS	4.6
Open Channel Spillway Design Flow	CFS	59.2
Peak Inflow Aux Spillway Design Storm	CFS	262.2
Conduit - Inside Diameter	Inches	15
Conduit Material		HCMP
Inlet Type		Hood
Job Approval Class		
INVENTORY SIZE DAM		

***** ELEVATION-STORAGE INPUT DATA *****

ELEV (ft)	POOL AREA (acres)	INT. STORAGE (ac.ft.)	ACCUM. STORAGE (ac.ft.)
78.3	0.00		0.00
		0.07	
80.0	0.08		0.07
		14.90	
90.0	2.90		14.97
		26.10	
96.0	5.80		41.07
		30.32	
100.0	9.36		71.39
		39.52	
104.0	10.40		110.91

***** STORAGE VOLUMES *****

	ELEVATION (ft)	AREA (acres)	STORAGE (ac.ft.)
Inlet (Princ. spillway)	98.8	8.29	60.80
Aux. spillway	101.0	9.62	80.88
Max. water	102.4	9.97	94.21
settled top of fill	104.0	10.40	110.91
Sediment - above inlet			0.00
- below inlet			3.31
Inlet to Aux.			20.08
Aux. to max. water			13.33

Project --- : Earth Dam (378)

Prepared for: Rob Parrow

Prepared by : RDG

Checked by : _____

TWP : 127N

RNG : 56W

SEC : 6

FLD :

Date: _____

***** PRINCIPAL SPILLWAY TRIALS *****

Inlet type: Hood

Inlet Elevation: 98.8

CONDUIT: Type -----	TRIAL 1 HCMP	TRIAL 2 HCMP	TRIAL 3 HCMP
Diameter, in. --	12.00	15.00	18.00
Height, in. ----			
Width, in. -----			
Manning's n ----	0.017	0.021	0.021
Inlet ext., ft. --	1.0	1.0	2.0
Length, ft. ----	123.0	123.0	123.0
Entrance Coefficient, Ke	1.000	1.000	1.000
Auxiliary elevation -----	100.5	101.0	101.5
STORAGE (ac.ft.):			
Temporary (PS-AS) -----	15.30	20.08	24.92
Total at Auxiliary ----	76.10	80.88	85.72
Effective height, ft. ---	23.6	24.1	24.6
Height x storage -----	1796	1949	2109
Drawdown time, days-hrs.	4-10.3	3-15.5	3-1.2
Trial used -----		--- 2 ---	

CONDUIT TYPES ----- : HCMP - Helical Corrugated Metal Pipe

***** AUXILIARY SPILLWAY DETAILS *****

Discharge determination: Calculated

Auxiliary elev. :	101.0	Retardance ----- :	C
Bottom width, ft. :	40	Level sect. length, ft.:	100
Flow depth, ft. - :	1.36	Side slope ratio, n:1 :	3.00
EXIT CHANNEL -			
Max. Vel., fps - :	5.0	Retardance ----- :	C
Inlet Channel -	- 1 -	- 2 -	
Length, ft. -- :	101.0	102.0	
slope, % ----- :	0.50	1.00	
Flow, cfs ----- :	59.20	Exit slope, % --- Min.:	4
Settled fill elev.:	104.0 ^	Max.:	29
Flow, cfs ----- :	494.0 (Aux. Spillway Flow at Top of Dam)	Drawdown time, days-hrs:	4-17.3
Channel elev. --- :	76.8	overall height, ft. -- :	27.2
(downstream toe)			

^: Increased by User

***** GROUND DATA *****

STA HI %SLOPE (FS or ELEV)/DIST ----->

***** PRACTICE: Dam *****

0+90	105.00	5.00/0
1+50	105.00	20.10/0
1+80	105.00	25.90/0
2+30	105.00	28.10/0
2+80	105.00	26.90/0
3+20	105.00	16.90/0
3+60	105.00	8.50/0
4+05	105.00	5.00/0

Project --- : Earth Dam (378)
 Prepared for: Rob Parrow
 Prepared by : RDG
 Checked by : _____

TWP : 127N RNG : 56W
 SEC : 6 FLD :
 Date: _____

***** EMBANKMENT CROSS SECTION DATA *****

% settlement = 5.0

=====	=====	=====	=====	=====
Template # -----	1	2	3	4
Station -----	2+30			
Settled top of fill elev. -	104.0			
Top width, ft. -----	12.0			
Upstream berm elev. -----	0.0			
berm width, ft. --				
Downstream berm elev. ----	0.0			
berm width, ft. ----	0.0			
Front slope, n:1 -----	3.0			
Back slope, n:1 -----	3.0			
Stripping depth, ft. -----	0.5			
Core bottom width, ft. ----	10.0			
depth, ft. -----	4.0			
side slopes, n:1 ----	1.0			
offset, ft. -----				
BL-CL offset, ft. -----				
-----	-----	-----	-----	-----

***** CONDUIT DETAIL *****

Inlet Type -----	HOOD	
Conduit Type -----	HCMP	- Helical Corrugated Metal Pipe
Diameter, in. -----	15.00	
Inlet extension, ft --	1.0	
Length, lin. ft. -----	123.0	Extends 6.0 ft. beyond dnstr.toe
Slope, % -----	17.5	
Max.fill over pipe, ft.	10.9	
Hood Length -----	11-1/4"	
Baffle size -----	22-1/2"	square or diameter

Horizontal Distances (ft.)		
Upstrm: edge of top width to inlet end of pipe :	21.1	
Dnstrm: edge of top width to toe ----- :	81.6	

Project --- : Earth Dam (378)

Prepared for: Rob Parrow

Prepared by : RDG

Checked by : _____

TWP : 127N

RNG : 56W

SEC : 6

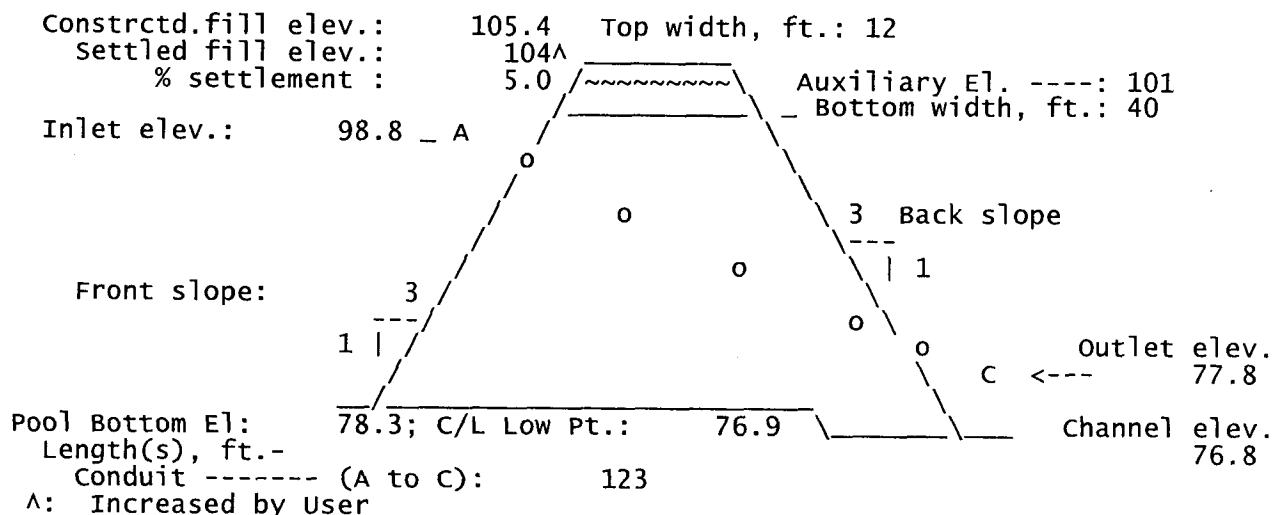
FLD :

Date: _____

***** DESIGN ELEVATIONS (at principal spillway) *****

Inlet type: HOOD

NOT TO SCALE



***** SUMMARY *****

Inlet type: HOOD

Inlet Elevation: 98.8

CONDUIT: Type -----	HCMP	- Helical Corrugated Metal Pipe
Diameter, in. ---	15	
Length, lin. ft.-	123	Extends 6 ft. beyond dnstr.toe
AUX. : Elevation -----	101	
Bottom width, ft.	40	
Hp, flow depth, ft.	1.36	
Exit slope, % min.	4	
max.	29	
Effective height, ft. ----	24.1	= AS elev. - low pt. on C/L
Height x storage -----	1949	
Overall height, ft. -----	27.2	= stld. fill elev - chan. elev
NOTE -----	*****	INVENTORY SIZE DAM

***** EARTHWORK VOLUMES *****

		CONSTRUCTED	SETTLED
	settlement	5	
EARTHWORK	Fill -----	16,757	15,959
QUANTITIES	Stripping -	686	686
(cu.yds.)	Core -----	653	653
TOTALS		18,096	17,298

Project --- : Earth Dam (378)

Prepared for: Rob Parrow

Prepared by : RDG

Checked by : _____

TWP : 127N

SEC : 6

Date: _____

RNG : 56W

FLD :

***** PROJECT DEFAULTS *****

Design based on -----:	Settled Slopes
Berms settled -----:	False
Auxiliary spillway to Top of Dam: -----:	1.0 (ft)
Freeboard -----:	1.0 (ft)
Minimum bottom width -----:	10.0 (ft)
Maximum bottom width -----:	150 (ft)
Feet above inlet (Drawdown) -----:	0.0 (ft)
Percent or storage drained (Drawdown) -----:	85.0 (ft)
Minimum flow (Drawdown) -----:	0.1 (cfs)
Orifice Coefficient -----:	0.71 (ft)
Full Pipe Flow Required? -----:	Yes
Stage required above Prin. Spwy. Crest: -----:	0.5 (ft)
Max. drainage area for required stage: -----:	20.0 (acres)
All PS Outflow included in Prin. Routing -----:	Yes
All PS Outflow included in Aux. Routing -----:	Yes

DOCUMENTATION FOR HAZARD CLASSIFICATION

Producer: **Rob Parrow** Name of Site **Dam #8**
County: **Marshall**
Field #: Watershed **White Lake**
Location
1/4 Section: **NE** Section: **6** Township: **127N** Range: **56W**
Latitude: Longitude

Dam in Series: **Yes**
Explain: **Small dam upstream located approx 1 1/4 miles above planned dam, estimating < 10 acre feet of water. This dam was recently repaired.**

Dam and Reservoir Data

Assumed Job Class	VI
Assumed Hazard Class	A
Centerline Elevation Channel Bottom*	76.9
Centerline Elevation Flood Plain*	78.1
Centerline Elevation Top of Dam*	104
Centerline Elevation Auxiliary Spillway Crest*	101
*Elevation is based on Mean Sea Level Datum	
Max. Depth of Water within Reservoir	24.9 Ft.

Storage

Storage Below Principal Spillway	60.8 Ac.-Ft.
Storage between Principal Spillway and Auxiliary Spillway	20.08 Ac.-Ft.
Storage between Auxiliary Spillway and Top of Dam	30.03 Ac.-Ft.
Other	Ac.-Ft.
Total Storage to Top of Dam	110.91 Ac.-Ft.

Downstream Conditions

1. Valley Conditions Downstream of Structure	Parallel
Approximate Slope of Channel	2%
2. Stream Channel Size	
Depth	3 Ft.
Bottom Width	4 Ft.
Top Width	10 Ft.
3. Valley Characteristics	
Width	300 Ft.
Roughness Coefficient	0.03
Slope	2%

Downstream valley may be described in breach routing rather than on this form.

Describe Type of Infrastructure, Distance Downstream and Distance Above Floodplain Elevation	Distance Downstream From Dam	Approx. Distance Above Floodplain Elevation	Location in Potential Impact Area?	
			YES	NO
Roads Township or County Paved Road, D<2'	4300ft.	3ft.	☒	☐
			☐	☒
			☐	☒
Bridges: Describe type and opening size			☐	☒
Railroads: Major Railroad, Describe:			☐	☒
Buildings and Utilities: Farm Building(s)			☐	☒
Public, Industrial or Commercial Buildings			☐	☒
Rel. Import. Utility serving mult. rural users			☐	☒
Describe:				

Location:

Is Dam located within five miles of urban development?

No

Describe Potential Development:

Rational For Determining Hazard Class:

Site is located 12 miles from nearest town. Development in this area is unlikely. Gravel Township road is lightly traveled and would be breached by less than two feet in the event of a failure.

Method Used for Evaluation of Impact Area

Visual Assessment

Further Evaluation Needed

No

Attached: Breach Routings ☐

Maps ☒

Other supporting documents:

Actual Hazard Class*

A

Final Job Class

VI

Hazard Analysis by:

Roger Gresh

Date: 8/17/2009

Approved by

Date:

*Definition of Hazard Classification in National Engineering Manual 520.21 and SD Amendment 19

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. _____ (office use only) Hydrologic Unit _____
	Basin _____
	Newspaper _____

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 Water</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 Rob Parrow Phone (605) 448-2489
(check one) ☐ Owner ☐ Tenant/lessee
Mailing Address PO Box 185 Britton State SD 57430
(Street, RR, or Box and City) (Zip Code)
- Amount of water claimed _____ *CFS or _____ **GPM 107 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply Annual Runoff
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Marshall
Dam is located in the SE 1/4, NE 1/4 Section 6-T127N-R56W
- County or counties where water will be used Marshall
- Annual period during which water is to be used Normal grazing season
- 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)
Dam will be constructed with earth fill, primary spillway is 15 in corrugated metal pipe, secondary spillway is 40ft. wide.

STATE OF SOUTH DAKOTA)

County of Marshall 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, Robert Parrow, 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 Robert Parrow

Subscribed and sworn to before me this 13th day of August 20 09

Jan H. Kuehner
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

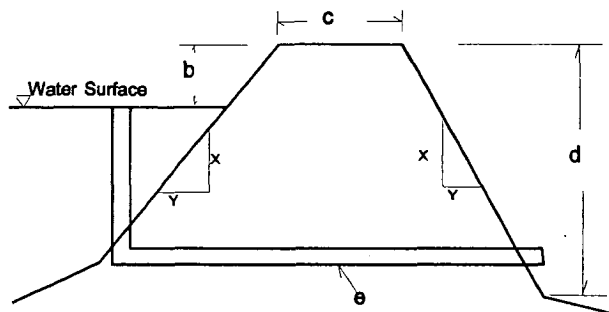
- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

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 Gresh
NRCS/USDA
PO Box 8
Britton, SD 57430



- b) Freeboard _____ 3ft.
- c) Crest Width _____ 12ft.
Crest Length _____ 330ft.
- d) Height _____ 27.2ft.
- e) Primary Outlet Capacity _____ 15cfs
If pipe, diameter _____ 15in
- f) Secondary Spillway Capacity _____ 115.8cfs
Spillway Width _____ 40ft.
- g) X & Y Slope _____
Upstream _____ 3:1
Downstream _____ 3:1
- h) Surface Area of Impoundment _____ 10.4ac.
- i) Storage 110.7 107.0 Acre Feet
- j) Drainage Area Above Dam _____ 502.0 Acres



**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. 7156-3, Rob Parrow**

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. 7156-3, Rob Parrow, PO Box 185, Britton SD 57430.

The Chief Engineer is recommending APPROVAL of Application No. 7156-3 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) it is in the public interest with the following qualifications:

1. Water Permit No. 7156-3 authorizes a dam with a storage capacity of 60.8 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
August 28, 2009

REPORT ON
WATER PERMIT APPLICATION No. 7156-3
Rob Parrow
August 25, 2009

Water Permit Application No. 7156-3 has been filed by Rob Parrow to impound 60.8 acre-feet of water from runoff by constructing a dam located in the SE ¼ NE ¼ Section 6-T127N-R56W, in Marshall County. The application also requests impoundment of sufficient water to maintain water to the outlet elevation. The water will be used for livestock water purposes.

Discussion:

The dam will be classified as a small size, Category 3, Low Hazard dam. The dam has been designed by the Natural Resources Conservation Service (NRCS). The plans and specifications have been reviewed and will be approved; however, construction of the dam can not begin until Water Permit Application No. 7156-3 is approved.

The dam will be 27.2 feet high with a normal storage capacity of 60.8 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 110.9 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 502 acres or 0.78 square miles. The dam is designed to have a 15 inch diameter PVC conduit with a hooded inlet and 5.2 feet of freeboard as the primary spillway, and a 40 foot wide earthcut secondary spillway with 3.0 feet of freeboard. A 25 year frequency event produces a peak runoff of approximately 88 cfs and a 100 year frequency event produces a peak runoff of approximately 154 cfs. The earthcut spillway will have a capacity of approximately 540 cfs.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 4.2 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 12.6 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 71 acre-feet.

The Parrow Dam will be located in the SE ¼ NE ¼ of Section 6-T127N-R56W on an unnamed tributary to Wild Rice Creek, about one mile upstream of the confluence of the unnamed tributary and the White Lake Dam. The Department of Game Fish and Parks holds recognized Vested Water Right No. 949-3, with a priority date of 1934, for 660 acre-feet of water annually to fill White Lake Dam to the outlet elevation. This claim has been public noticed for validation pursuant to SDCL 46-2A-17. The recommendation is to validate the claim for sufficient water to fill the lake annually to the outlet elevation or the elevation necessary to maintain the ordinary high water mark, whichever is lower. White Lake Dam has a storage capacity of approximately 1850 acre-feet of water and has a contributing drainage area of 40 square miles. Approval of Water Permit Application No. 7156-3 should not have an adverse effect on White Lake Dam.

Conclusions:

1. Water Permit Application No. 7156-3 should be approved since unappropriated water is available and approval should not have any adverse effect on existing Water Permits/Rights.
2. If approved, the low flow bypass requirement for domestic use should be a qualification on Water Permit Application No. 7156-3.



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

STATE OF SOUTH DAKOTA, County of Marshall.

WATER RIGHTS
PROGRAM**2T(Sept 2-9)
NOTICE OF APPLICATION
NO. 7156-3 to Appropriate
Water**

Notice is given that Rob Parrow, PO Box 185, Britton SD 57430 has filed an application for a water permit to impound 60.8 acre-feet of water from runoff by constructing a dam located in the SE 1/4 NE 1/4 Section 6 with water impounded in the NE 1/4 Section 6; all in T127N-R56W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7156-3 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 this 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 this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in op-

posing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by September 21, 2009.

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. Pirmer, Secretary, Department of Environment and Natural Resources.

Published twice at the total approximate cost of \$43.98. 25

of said county, being first duly sworn on oath says that he is publisher of the BRITTON JOURNAL, a weekly newspaper printed and published in the City of Britton, in the County of Marshall, and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has a bona-fide circulation of at least two hundred copies weekly and has been published within said County for fifty-two successive weeks, next prior to the publication of the notice herein mentioned and is printed wholly or in part in an office at said place of publication;

that the Notice of Application No. 7156-3
To Appropriate Water (Parrow)

a printed copy of which, taken from the paper in which the same was published, is attached to this sheet and is made a part of this affidavit, was published in said newspaper at least once each week for two successive weeks, on the day of each week on which said newspaper was regularly published, to wit:

September 2, 2009

September 9, 2009

that the full amount of the fee charged for the publication of said notice inures to the benefit of publisher of said newspaper, that no agreement or understanding for the division thereof has been made with any person, and that no part thereof has been agreed to be paid to any other person whomsoever, and that the fee for the publication thereof

Fifty three and 98/100
Dollars

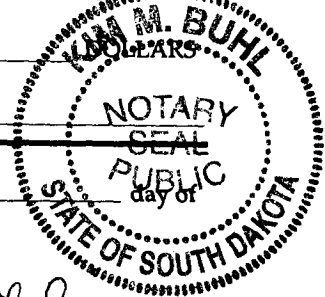
Subscribed and sworn to before me this

September A. D. 2009

Kim M Buhl

Notary Public, Marshall County, S. D.

My Commission Expires March 12, 2010





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

August 31, 2009

The Britton Journal
PO Box 69
Britton SD 57430

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7156-3 to Appropriate Water to be published twice. Please publish the first notice on September 9, 2009 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Rob Parrow, PO Box 185, Britton SD 57430 (Ph # 605-448-2489).

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-----

No. 7156-3

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

Date _____

We are in receipt of your letter of August 31, 2009 enclosing Notice to Appropriate Water by Application No. 7156-3 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper

Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, September 01, 2009 10:55 AM
To: 'journal@brittonsd.com'
Subject: Notice for Application No. 7156-3, Rob Parrow
Contacts: Britton Journal

Doug,

I talked with Roger Gresh, NRCS, who indicated he spoke with you this morning about the attached Notice for Rob Parrow. If you can publish the Notice on September 2 & 9, you can use the attached file. By publishing a week earlier, there is a date within the notice that changes (I have made that date change on the text file attached).

Please send or fax me a copy of the first publication, so I can check it for errors (even though there shouldn't be any since you have the text file). Call me if you have questions.

Karen Schlaak
Water Rights Program, DENR
605 773-3352
email: Karen.Schlaak@state.sd.us



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

August 31, 2009

Rob Parrow
PO Box 185
Britton SD 57430

Dear Mr. Parrow:

Water Permit Application No. 7156-3 for livestock water use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Publisher of the Britton Journal printed at Britton SD (Ph # 605-448-2281). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendations of the Chief Engineer and reports on the applications 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 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. 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 applications.

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.

Instruction to Newspaper - Publish first Notice on September 9, 2009 with the second publication 7 days later. The applicant is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

NOTICE OF APPLICATION NO. 7156-3 to Appropriate Water

Notice is given that Rob Parrow, PO Box 185, Britton SD 57430 has filed an application for a water permit to impound 60.8 acre-feet of water from runoff by constructing a dam located in the SE ¼ NE ¼ Section 6 with water impounded in the NE ¼ Section 6; all in T127N-R56W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7156-3 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 this 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 this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by September 28, 2009.

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

Published twice at the total approximate cost of _____.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

JAN 13 2010

Rob Parrow
PO Box 185
Britton SD 57430

Dear Mr. Parrow:

Enclosed is Water Permit No. 7156-3 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

Permit No. 7156-3
Red Rainy 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, April 14, 2015, made a thorough examination of the water use system constructed by Rob Parrow of PO Box 185, Britton, SD 57430 holder of Permit No. 7156-3, bearing the priority of August 18, 2009 authorizing the storage of 60.8 acre-feet of the waters of runoff for livestock water purposes, in Marshall County.

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

A. Works used to divert the water:

A 27.2 ft. high earthen dam with a normal storage capacity of 60.8 ac-ft. of water

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

N/A

C. Works used to apply water to beneficial use:

A 27.2 ft. high earthen dam with a normal storage capacity of 60.8 ac-ft. of water

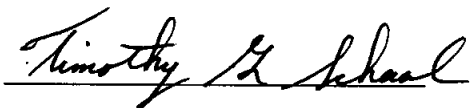
The system is in the following condition good. The point of diversion is located 1550 ft. south & 850 ft. west of the NE corner of Sec. 6-T127N-R56W (SE ¼ NE ¼), (Lat. 45.84378 Long. -97.58815). The works are capable of storing 60.8 acre-feet of water which is to be used for livestock water. Water has been put to beneficial use to the maximum extent as follows:

A 27.2 ft. high earthen dam with a normal storage capacity of 60.8 ac-ft. of water

and the license should be issued for 60.8 acre-feet of storage.

Applicable permit qualifications have been complied with: Yes X

Exceptions to compliance are: none Date Report Completed: April 21, 2015



Timothy G. Schaal, P.E.
Engineer IV
SD DENR, Water Rights Program

REPORT ON INSPECTION OF PERMIT NO. 7156-3

DATE OF INSPECTION: April 14, 2015

NAME & ADDRESS OF PERMIT HOLDER: Rob Parrow, PO Box 185 Britton, SD 57430

DIVERSION POINT LEGAL LOCATION: 1550 ft. south & 850 ft. west of the NE corner of Sec. 6-T127N-R56W (SE ¼ NE ¼), (Lat. 45.84378 Long. -97.58815).

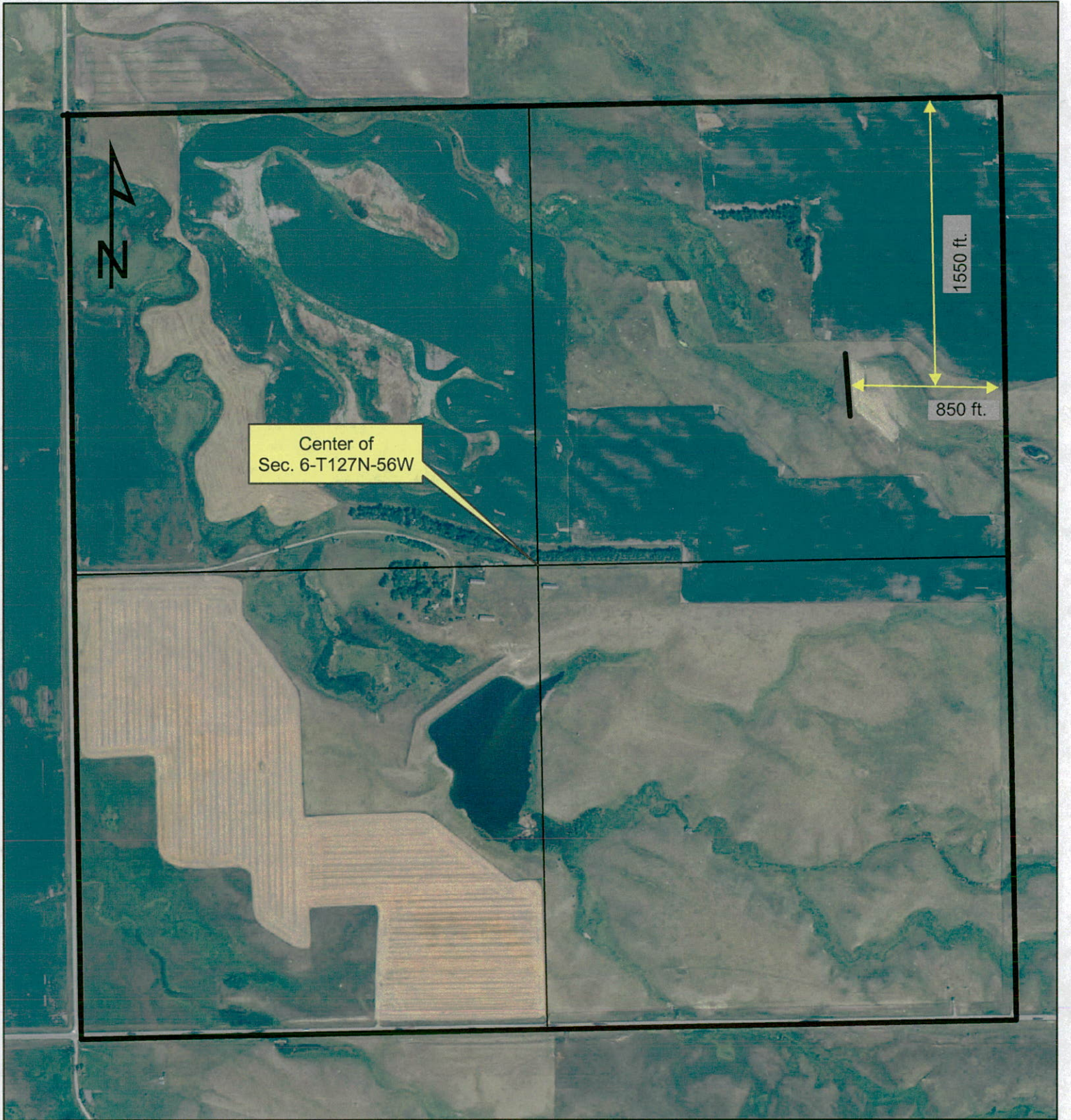
DAM INFORMATION:

- 1) Height to crest 27.2 feet
- 2) Height to primary spillway 22 feet
- 3) Height to secondary spillway 24.2 feet
- 4) Crest width 12 feet
- 5) Crest length 330 feet
- 6) Spillway length XXX feet
- 7) Spillway width 40 feet
- 8) Approx. storage (Normal) 60.8 acre-feet
- 9) Approx. storage (Maximum) 110.9 acre-feet
- 10) Date constructed: 2009

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

Water Permit Application No. 7156-3



0 0.25 0.5 1 Miles



Timothy G. Schaal

Timothy G. Schaal, P.E.
Engineer IV
SD DENR, Water Rights Program

4/21/15



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

MAY 19 2015

7156-3

Rob Parrow
PO Box 185
Britton SD 57430

Dear Mr. Parrow:

Enclosed is Water License No. 7156-3. This is the final water right document completing your process of obtaining a Water Right. Also, included with your license is a map prepared by the staff engineer who conducted the investigation.

As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Jeanne Goodman, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 7156-3

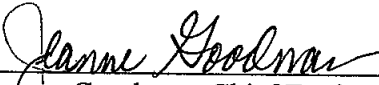
(1) Rob Parrow, PO Box 185, Britton SD 57430 made Application No. 7156-3, August 18, 2009 for a water permit to impound 60.8 acre-feet of water from runoff, Marshall County, South Dakota for livestock watering purposes. Permit No. 7156-3, with a priority date of August 18, 2009 was approved September 21, 2009 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before September 21, 2014 and for the application to beneficial use of water on or before September 21, 2018.

(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. 7156-3 is issued a license, bearing a priority date of August 18, 2009, to impound 60.8 acre-feet of water from runoff for livestock watering purposes.

The location of the storage dam (spillway) is 1,550 feet south and 850 feet west of the NE corner of Section 6-T127N-R56W (SE 1/4 NE 1/4).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 7156-3, including the following now applicable qualifications:

- Water Permit No. 7156-3 authorizes a dam with a storage capacity of 60.8 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.



Jeanne Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

MAY 19 2015

date

