

Considered: _____

WATER PERMIT NO. 5700-3

Phone: 224-1420

Name of Applicant: Jim^{Charlene} Schumacher

Post Office Address: St Rt A Box 149, Pierre SD 57501

Amount of Water Claimed: 61.3 ac-ft Total Acres: NA

Source of Water Supply: runoff

Water to be used for: livestock and wildlife County: Hughes

About 9 miles Northwest of Pierre

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved _____ Subject to _____

F.F. & C/.L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY Date Received: 8-19-92 Fee: \$150 Remarks _____

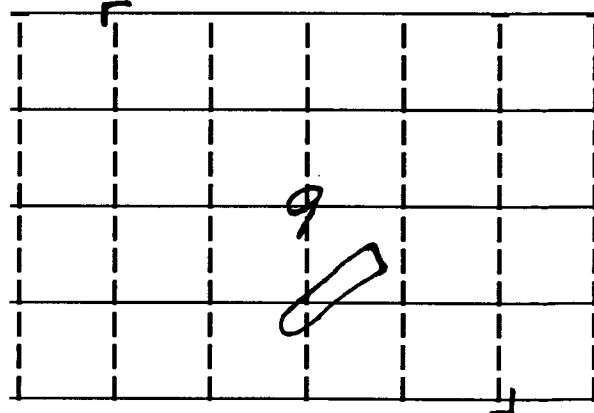
Corrected Application Received _____ Period of Annual Use April 1 - October 31

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

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

Diversion Point: NW 1/4 SE 1/4 Sec 9-T112N-R80W

Land to be Irrigated: _____



Well Log: Driller: _____ Licensed YES _____ NO _____

Depth of Well: _____ REMARKS _____

Type of Map: aerial PREPARED BY: Kevin L Paulsen Reviewed and the Number

Assigned on 8-20-92 By Karen Schlaak

FORM 2: Application for uses other than irrigation

(type or print)

Mail to:
Water Rights Division
Joe Foss Building
523 E Capitol
Pierre SD 57501-3181
605 773-3352

No. 5700-3 Hydrologic Unit 10130105
Basin Missouri River
Newspaper Daily Capital Journal, Po Box 878
224-7301 (office use only)



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

Check use of water:

☐ Municipal ☐ Suburban Housing ☐ Recreational ☐ Institutional
☐ Rural Water System ☐ Commercial ☒ Fish & Wildlife ☐ Geothermal Heat
☐ Domestic ☐ Industrial ☒ Other Livestock
(over 18 gpm)

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.) _____

1. Name of Applicant Jim Schumacher Phone 224-1420
Mailing Address Star Route A Box 149 Pierre State SD 57501
(Street, RR, or Box) (City) (Zip Code)

2. Amount of water claimed _____ *CFS or _____ **GPM 51 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (**Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply Runoff

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) Dam in the W 1/2
NW 1/4 SE 1/4 section 9 - T112N R. 80W: Water impounded in W 1/2
SE 1/4, SE 1/4 SW 1/4 Sec 9 - T112N - R80W County Hughes

5. County or counties where water will be used Hughes

6. Annual period during which water is to be used ~~April - Oct~~ January 1 - December 31

7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

Dam will be constructed to enhance wildlife and provide livestock water.

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)

STATE OF SOUTH DAKOTA)

County of Hughes)^{ss}

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

Signed

James F. Schumacher

Subscribed and sworn to before me this 19th day of August 19 92

KAREN SCHLAACK

NOTARY PUBLIC
SOUTH DAKOTA

My Commission Expires Apr. 1, 1993

Karen Schlaack

Notary Public

**SOUTH DAKOTA
WATER PERMIT No. 5700-3**

Date of first receipt of application August 19, 1992.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 5700-3 to Jim and Charlene Schumacher, Star Route A, Box 149, Pierre SD 57501 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5700-3 impounds 51 acre-feet of runoff water by constructing a dam in the NW 1/4 SE 1/4 Section 9-T112N-R80W. Water will be impounded in the W 1/2 SE 1/4 and SE 1/4 SW 1/4 Section 9-T112N-R80W. Water is to be stored annually to an approximate elevation of 1650 feet mean sea level.
2. The water appropriated shall be used for the purpose of providing water for wildlife enhancement and livestock watering 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. 5700-3 is October 13, 1992.
5. The date from which applicant may claim right is August 19, 1992.
6. One-fifth of the construction is to be completed on or before April 13, 1995.
7. All construction is to be completed on or before October 13, 1997.
8. Water is to be put to beneficial use on or before October 13, 2001.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATION

1. Approval of Permit No. 5700-3 authorizes storage of up to 51 acre-feet of water annually.

WATER MANAGEMENT BOARD

By: _____

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

OCT 26 1992

date

Supplemental Information

(type or print in ink)



1. Well Information - Proposed Construction

- a) Drill Hole Diameter _____ Depth _____
- b) Casing Type _____ Diameter _____ Thickness _____
- c) Screen Type _____ Diameter _____ Thickness _____
- d) Gravel Pack Thickness _____ Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) _____
- g) Distance to nearest existing domestic well:
On applicants property _____ On property owned by others _____

2. Dugout Information

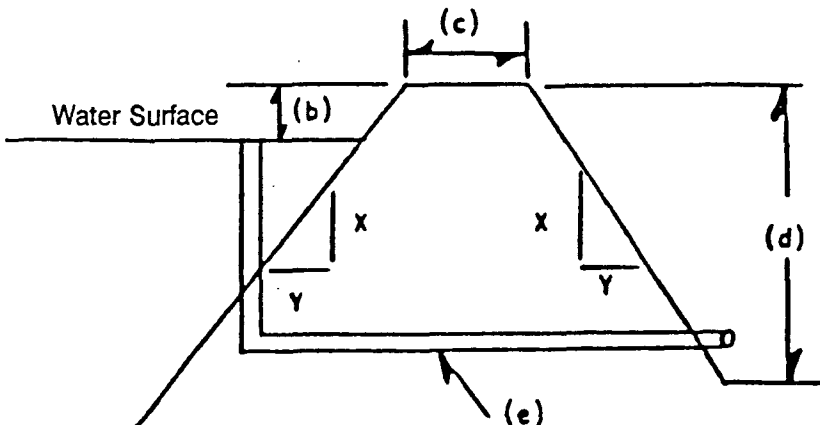
- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

3. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below 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:

Soil Conservation Service
316 So. Catron Pierre, SD 57501



- b) Freeboard 3'
- c) Crest Width 12'
Crest Length 209'
- d) Height 24'
- e) Primary Outlet Capacity _____
If pipe, diameter 15"
- f) Secondary Spillway Capacity 665 cfs
Spillway Width 130'
- g) X & Y Slope
Upstream 3:1
Downstream 3:1
- h) Surface Area of Impoundment 7.0
- i) Storage 61.351 Acre Feet
- j) Drainage Area above Dam 1871 Acres

Jim Schumacher

$$\begin{aligned} \text{Height} &= 24 \text{ ft.} \\ \text{Nov. Storage} &= 61.3 \text{ Ac-Ft.} \\ DA = 1871 \text{ Ac} &= \underline{2.92 \text{ mi}^2} \end{aligned}$$

Small Size Cat. 3 Dam - Eff. Ht. x Int. Storage < 3000
therefore - Q_{25} Min. Spillway Design Flood

$$\begin{aligned} Q_{25} &= 83.4 A^{0.6} S^{0.44} S_i^{-0.72} & A &= 2.92 \text{ mi}^2 \\ & & S &= 40 \text{ ft/mi} \\ Q_{25} &= 83.4 (2.92)^{0.6} (40)^{0.44} (3.51)^{-0.72} & S_i &= 3.51 \\ &= 83.4 (1.9) (3.07) (0.405) \\ &= \underline{325.74 \text{ cfs}} & \text{SCS using} & \underline{665 \text{ cfs}} \end{aligned}$$



$$A = \underline{399 \text{ ft}}$$

$$\begin{aligned} \text{Top of Dam Elev.} &= 100.0 \\ \text{P. Spillway} &= 94.75 \\ \text{2nd Spillway} &= 91.0 \end{aligned}$$

$$\begin{aligned} Q &= 2.6 (130) (3)^{1.5} \\ &= \underline{1750 \text{ cfs}} \end{aligned}$$

$$V = Q/A = \underline{4.4 \text{ fps}}$$

Section 74:02:08:09

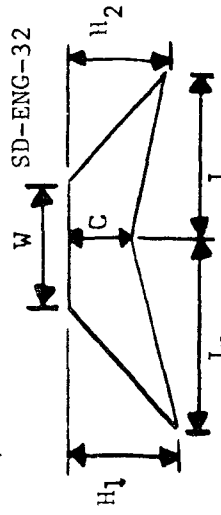
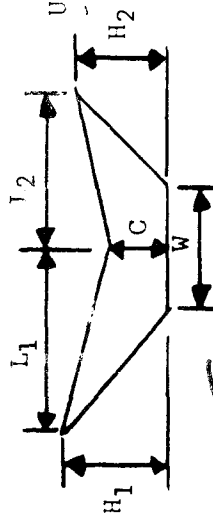
1. Topo Map - OK
2. Dam axis Profile - OK
3. Max X-sec. - OK
- * 4. Area Capacity Curve - NO
5. Outlet Drawings - OK
- * 6. Spillway Discharge Curve - NO OK
7. Spillway Plans - OK
8. Specs - OK
9. EPP - NA - OK

Need: - Risk Assmnt
- A-C Curve
- ~~Spillway Info~~

* Spillway Data on P&S is per ft. width

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

EARTHWORK COMPUTATION SHEET
for Three Level Section



Owner or Operator Tim Schumacher Plan or Job No. _____

Shipping

Checked by:

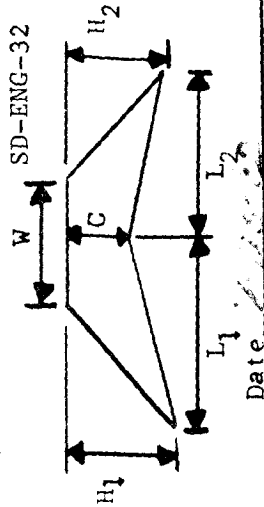
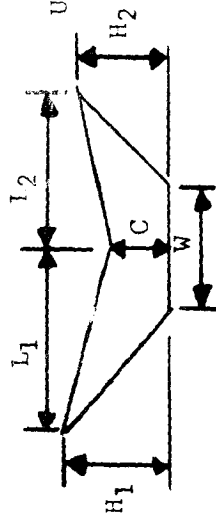
Kevin Paulsen

1	2	3	4	5	6	7	8	9	10	11
Station (ft.)	$\frac{C}{Z}$ (ft.)	$L_1 + L_2$ (ft.)	Product of Cols. 2 & 3 (sq. ft.)	$\frac{W}{4}$ (ft.)	$H_1 + H_2$ (ft.)	Product of Cols. 5 & 6 (sq. ft.)	End area Sum of Cols. 4 & 7 (sq. ft.)	Sum of End Areas (sq. ft.)	Distance Between Stations (ft.)	Product of Cols. 9 & 10 (u.ft. x 2)
0400	.25	12.0	3.0	3.0	1.0	3.0	6.0	20.4	25	510
0425	.25	45.6	11.4	3.0	1.0	3.0	14.4	38.3	25	958
0450	.25	83.7	20.9	3.0	1.0	3.0	23.9	64.0	34	2176
0484	.25	148.5	37.1	3.0	1.0	3.0	40.1	81.1	33	2676
1417	.25	151.8	38	3.0	1.0	3.0	41	85	30	2550
1447	.25	123.9	31	3.0	1.0	3.0	44	65	30	1950
1477	.25	71.7	18	3.0	1.0	3.0	21	33.3	23	766
2400	.25	57.2	9.5	3.0	1.0	3.0	12.3	9.7	9	87
2409	.25	26.7	6.7	3.0	1.0	3.0	9.7			11,673
										<u>54</u> = 216

Divide total of Column #11 by 54 to get cu.yds.

divide total of Column #11 by 54 to get cu.yds.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
EARTHWORK COMPUTATION SHEET
for Three Level Section

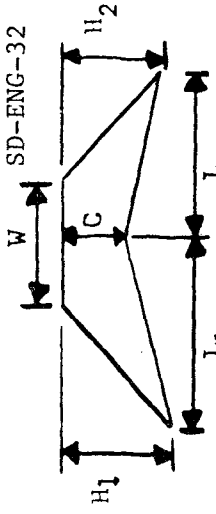
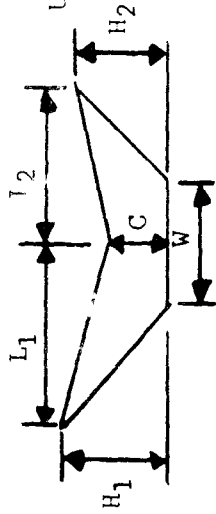
Owner or Operator Jim Carter Plan or Job No. 0-ndCalculations by Kevin Danner Checked by _____

1	2	3	4	5	6	7	8	9	10	11
Station (ft.)	$\frac{C}{2}$ (ft.)	$L_1 + L_2$ (ft.)	Product of Cols. 2 & 3 (sq. ft.)	$\frac{W}{4}$ (ft.)	$H_1 + H_2$ (ft.)	Product of Cols. 5 & 6 (sq. ft.)	End area Sum of Cols. 4 & 7 (sq. ft.)	Sum of End Areas (sq. ft.)	Distance Between Stations (ft.)	Product of Cols. 9 & 10 (cu. ft. x 2)
6+00	—	—	—	—	—	—	—	161.3	35	4035.5 ✓
6+25	2.8	45.6	127.7	3.0	11.2	33.6	161.3 ✓	735.2	25	18,380.0 ✓
6+50	6.0	83.7	502.1	3.0	12.1	71.7	573.9	2343.9	34	79,692.6 ✓
6+84	11.0	148.5	1,633.5 ✓	3.0	45.5	136.5	1770	3640.3	—	120.1 ✓
1+17	11.4	151.8	1,730.52	3.0	46.6	139.8	1870.3 ✓	2,992	30	89,760 ✓
1+47	8.15	123.9	1,002.8 ✓	3.0	37.3	111.9	1,121.7 ✓	1,467	20	29,207 ✓
1+77	4.4	71.7	315.5	3.0	19.9	59.7	375.2	4655	23	10,705.5 ✓
2+02	1.75	37.2	65.1 ✓	3.0	8.4	25.2	90.3	131.7	9	1,185.3 ✓
2+09	1.0	26.7	26.7 ✓	3.0	5.9	14.7	41.9 ✓	—	—	268,115.1 ✓
Divide total of Column #11 by 54 to get cu.yds.										595.60 ✓
										711.5 ✓

04/6/81

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

EARTHWORK COMPUTATION SHEET
for Three Level Section



Owner or Operator Jim Schwacher

Plan or Job No. Core Trench

Calculations by Kevin Parisen

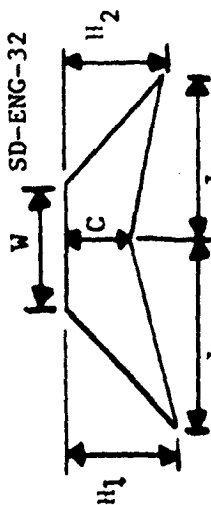
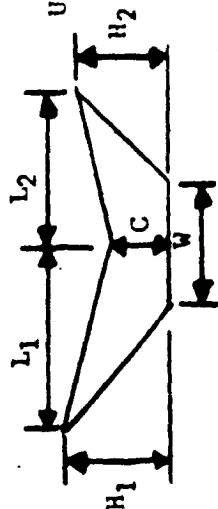
Checked by—

[illegible]

Divide total of Column #11 by 54 to get cu.yds.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

EARTHWORK COMPUTATION SHEET
for Three Level Section



Owner or Operator SIN SCHURMEIER Plan or Job No. Stripping Date 8-6-72

Calculations by Shawna Wells Checked by _____

1	2	3	4	5	6	7	8	9	10	11
Station (ft.)	C (ft.)	L ₁ + L ₂ (ft.)	Product of Cols. 2 & 3 (sq. ft.)	W L (ft.)	H ₁ + H ₂ (ft.)	Product of Cols. 5 & 6 (sq. ft.)	End area Sum of Cols. 4 & 7 (sq. ft.)	Sum of End Areas (sq. ft.)	Distance Between Stations (ft.)	Product of Cols. 9 & 10 (cu. ft. x 2)
0+00	.50	12.0	6.0	↓	↓	↓	6.0	28.8	25	720.0
0+25	.50	45.6	22.8				22.8	64.7	25	1617.5
0+50	.50	83.7	41.9				41.9	116.2	34	3,950.8
0+84	.50	148.5	74.3				74.3	149.9	33	4,946.7
1+17	.50	151.1	75.6				75.6	137.6	30	4,128.0
1+47	.50	123.9	62.0				62.0	97.9	30	2,939.0
1+77	.50	71.7	35.9				35.9	54.5	23	1,253.5
2+00	.50	37.2	18.6				18.6	32.0	9	288.0
2+01	.50	26.7	13.4				13.4			19,841.5
										÷ 54 =

Divide total of Column #11 by 54 to get cu. yds.

367.4 965

Client : Shumacker
 County : hughes
 Practice: dam

State: sd

By: mml
 Checked: _____

Date: 05-27-92
 Date: _____

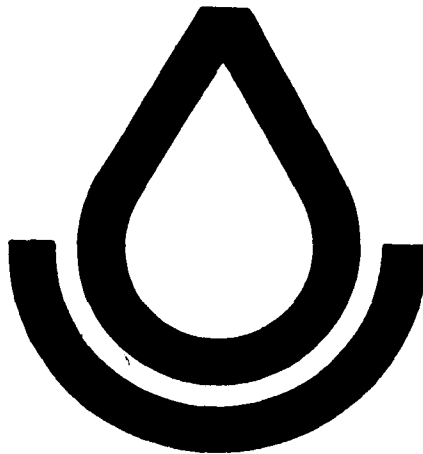
Drainage Area : 1871 Acres
 Curve Number : 78
 Watershed Length : 16600 Feet
 Watershed Slope : 1.36 Percent
 Time of Concentration: 4.57 Hours
 Rainfall Type : II

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100
24-Hr Rainfall (in)	1.8	2.2	3	3.5	4.1	4.6	5.2
Ia/P Ratio	0.31	0.26	0.19	0.16	0.14	0.12	0.11
Runoff (in)	0.38	0.60	1.13	1.50	1.97	2.38	2.88
Unit Peak Discharge (cfs/acre/in)	0.155	0.164	0.173	0.177	0.181	0.183	0.185
Peak Discharge (cfs)	109	184	366	496	665	812	996

CONSTRUCTION SPECIFICATIONS

for

Jim Schumacher
Stockwater Pond



Prepared by:

USDA, SOIL CONSERVATION SERVICE

Pierre

Assisting:

Hughes Co. Conservation District

CONSTRUCTION SPECIFICATION

SD-4 STRIPPING

4.1 SCOPE

The work shall consist of removing topsoil and other undesirable materials from borrow areas and foundations of structures and earth fills.

4.2 GENERAL

The stripping excavation shall extend to a depth sufficient to expose subsoil reasonably free of roots and other perishable material. Excavated earth material deemed satisfactory by the technician shall be used for earth fill. All waste material shall be disposed of in areas shown on the drawings or as directed by the technician. Stripped material suitable for topsoil shall be stockpiled and respread over disturbed areas as directed by the technician.

4.3 STRIPPING FOUNDATIONS

Stripping excavation shall extend to consolidated subsoil and shall be to reasonably smooth surfaces free of unconsolidated or loose soil. Unless otherwise shown on the drawings, foundation slopes shall be excavated to one to one, or flatter slopes.

4.4 STRIPPING BORROW AREAS

The areas from which borrow is to be taken shall be stripped to sufficient depth to expose material suitable for the earth fill.

CONSTRUCTION SPECIFICATION

SD-7S EARTH FILL-CLASS S

7S.1 SCOPE

The work shall consist of the construction of compacted earth fills where the amount of compaction is to be controlled by a method type of specification.

7S.2 MATERIALS

All fill materials shall be obtained from required excavations and designated borrow areas. The selection, blending, routing and disposition of materials shall be subject to approval by the technician.

Fill materials shall not contain frozen material, sod, brush, roots, or other perishable materials, or rocks larger than 8 inches in diameter. Fill shall not be placed on a frozen surface.

7S.3 FOUNDATION PREPARATION

After stripping (see stripping specification), the foundation shall be scarified or plowed to a minimum depth of 4 inches. The entire foundation area shall then be compacted by the process used on the fill.

7S.4 PLACEMENT

All foundation excavations and/or preparation shall be completed before placing fill. The fill shall be placed such that the distribution of materials is essentially uniform throughout the entire fill and is free from lenses, pockets, streaks, or layers of materials differing substantially from surrounding material.

Fill, adjacent to structures, shall be placed in a manner that will prevent damage to the structures and allow the structures to assume the backfill loads gradually and uniformly. Equipment weighing more than 400 pounds shall not be operated within 2 feet of any structure.

Fill shall be placed in approximately equal horizontal layers. Fill layer thicknesses shall not exceed 9 inches for machine compaction or 4 inches for hand compaction (including hand directed power tampers adjacent to structures).

7S.5 MOISTURE CONTENT

The fill material shall have a moisture content that when kneaded in the hand will form a ball which does not easily crumble when struck sharply with a pencil or which does not crumble when pressed between the hands.

If the soil is too wet, it will yield free water when kneaded in the hand. The fill may have to be wetted or dried to achieve proper moisture control.

7S.6 COMPACTION (CLASS S)

The fill shall be compacted by one of the following methods.

- a. By routing the hauling and spreading equipment such that all points of the fill is traversed by at least one tread track of the loaded equipment, parallel to the centerline of the fill.
- b. By at least two passes of a tamping (sheepfoot) roller weighing at least 100 pounds per square inch of bearing area.

Fill adjacent to structures shall be compacted to a density equivalent to that of the surrounding fill by means of hand tamping or manually directed power tampers or plate vibrators. Heavy equipment shall not be operated within 2 feet of any structure.

Compaction of fill adjacent to concrete structures shall not be started until the following time limits have elapsed after placement of the concrete.

<u>Structure</u>	<u>Time Interval</u>
Walls and counterforts	14 days
Conduits and Spillway Risers (cast in place)	14 days
Conduits, precast, cradled	2 days
Conduits, precast, bedded	1 day
Anti-seep Collars and Cantilever pipe props	3 days

If the soil is too wet, it will yield free water when kneaded in the hand. The fill may have to be wetted or dried to achieve proper moisture control.

7S.6 COMPACTION (CLASS S)

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CONSTRUCTION SPECIFICATION

SD-7S EARTH FILL-CLASS S

7S.1 SCOPE

The work shall consist of the construction of compacted earth fills where the amount of compaction is to be controlled by a method type of specification.

7S.2 MATERIALS

All fill materials shall be obtained from required excavations and designated borrow areas. The selection, blending, routing and disposition of materials shall be subject to approval by the technician.

Fill materials shall not contain frozen material, sod, brush, roots, or other perishable materials, or rocks larger than 8 inches in diameter. Fill shall not be placed on a frozen surface.

7S.3 FOUNDATION PREPARATION

After stripping (see stripping specification), the foundation shall be scarified or plowed to a minimum depth of 4 inches. The entire foundation area shall then be compacted by the process used on the fill.

7S.4 PLACEMENT

All foundation excavations and/or preparation shall be completed before placing fill. The fill shall be placed such that the distribution of materials is essentially uniform throughout the entire fill and is free from lenses, pockets, streaks, or layers of materials differing substantially from surrounding material.

Fill, adjacent to structures, shall be placed in a manner that will prevent damage to the structures and allow the structures to assume the backfill loads gradually and uniformly. Equipment weighing more than 400 pounds shall not be operated within 2 feet of any structure.

Fill shall be placed in approximately equal horizontal layers. Fill layer thicknesses shall not exceed 9 inches for machine compaction or 4 inches for hand compaction (including hand directed power tampers adjacent to structures).

7S.5 MOISTURE CONTENT

The fill material shall have a moisture content that when kneaded in the hand will form a ball which does not easily crumble when struck sharply with a pencil or which does not crumble when pressed between the hands.

CONSTRUCTION SPECIFICATION

SD-10 SALVAGING AND SPREADING TOPSOIL

10.1 SCOPE

The work shall consist of salvaging topsoil from borrow pits or other excavations and spreading it in the designated areas to the specified depths.

10.2 QUALITY OF TOPSOIL

Topsoil shall consist of friable soil reasonably free of grass, roots, weeds, sticks, stones, or other foreign materials.

10.3 EXCAVATION

Topsoil shall be removed after clearing and grubbing and removing vegetation and shall be stockpiled at locations approved by the technician. Objectionable materials shall be removed and buried, or disposed of, at locations approved by the technician.

10.4 SPREADING

Spreading shall not be done when the ground or topsoil is frozen, excessively wet or otherwise in a condition detrimental to the work. Surfaces to be covered shall be lightly scarified just prior to the spreading operation.

All earth fills not to be submerged shall be covered with topsoil to a depth of 6 to 18 inches measured normal to the surface of the fill and placed to the neat lines shown on the drawings.

After placement is completed, the topsoil surface shall be left in a condition that will permit seeding equipment to be operated without excessive smoothing.

SECTION 1: GRAVITY FLOW WATERTIGHT PIPE SYSTEMS

PART 1: General

1.1 System Description

This specification covers the properties and installation of gravity flow pipe systems requiring watertight connections.

1.2 References

- 1.2.1 AASHTO M294: Specification for Corrugated Polyethylene Pipe, 12 to 36 Inch Diameter
- 1.2.2 ASTM D3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
- 1.2.3 ASTM D2321: Standard Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe
- 1.2.4 ASTM F477: Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

1.3 Submittals

- 1.3.1 All pipe and fittings not covered by this specification shall be approved by the engineer seven days prior to the bid letting.

PART 2: Products

2.1 Gravity Flow Watertight Pipe Systems

The gravity flow watertight pipe system shall be TitleLine bell-and-spigot as manufactured by Hancor, Inc. The systems shall consist of pipe, sleeves, gaskets, lubricant, and where necessary, fittings. All components shall be supplied by the pipe manufacturer.

2.1.1 Pipe

The pipe shall be Hancor TitleLine high density polyethylene smooth interior pipe meeting the requirements of AASHTO M294 Type S. The pipe shall have annular corrugations. Minimum conveyance factors shall be as shown in Table 1.

Table 1
Conveyance Factors

Nominal Pipe Diameter (in.)				
12	15	18	24	30
46.3	83.9	136.4	293.9	532.9

2.1.2 Watertight Sleeves

The watertight sleeves shall be smooth polyethylene with an indentation in the center to ensure proper positioning of the pipe. Sleeves shall be factory installed on one end of the pipe.

2.1.3 Gaskets

Gaskets shall be a solid cross section ring and meet the requirements of ASTM F477. A protective removable shrink wrap material shall be placed on all exposed gaskets at the factory.

2.1.4 Lubricant

Gaskets and sleeves shall be lubricated prior to insertion with a compound supplied by the pipe manufacturer.

2.1.5 Fittings

Pipe fittings shall conform to the requirements of AASHTO M294. Fittings shall have annular corrugations.

PART 3: Execution

3.1 Inspection

The engineer or other qualified individual shall inspect all components upon delivery. Damaged, defective, or improper products may not be accepted.

3.2 Installation

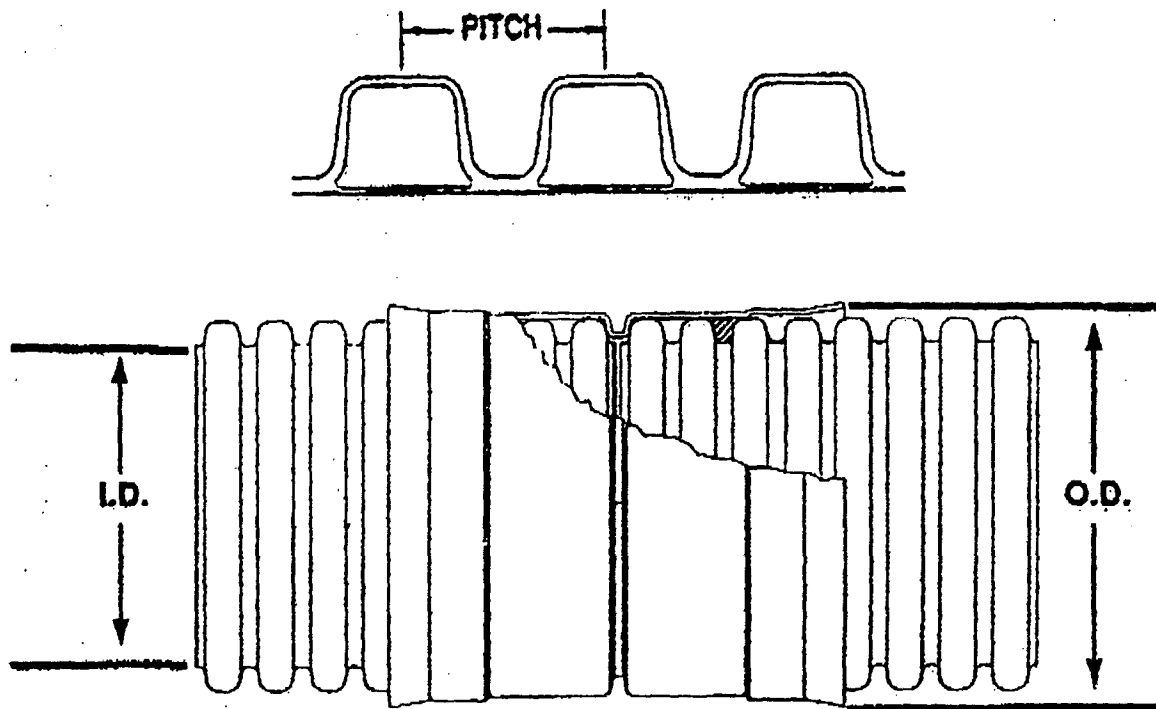
3.2.1 Installation shall be in accordance with standard practice for corrugated polyethylene pipe and as recommended by the pipe manufacturer.

3.2.2 Backfill shall be suitable material, such as free-draining sands and gravel conforming to ASTM D2321 Class I, II, or III or USCS material corresponding to these ASTM designations. Backfill shall be placed in lifts as necessary and compacted to 95 percent minimum dry density according to AASHTO T99.

3.3 Testing

3.3.1 Leakage rates of the pipe line shall not exceed 50 gallons/inch of diameter/mile/day.

Hancor TiteLine™ PRODUCT DETAIL



Nominal Diameter (In.)					
	12	15	18	24	30
Inside Diameter (In.)	12	15	18	24	30
Sleeve (Flange) Outside Diameter (In.)	15.4	19.6	23.9	29.9	37.8
Pitch (In.)	2.0	2.4	3.0	4.0	4.0
Weight (lb./ft.)	3.3	4.7	6.7	12.0	16.0
Corrugation	Annular	Annular	Annular	Annular	Annular
Perforations	Should not be used with a watertight system				

RECEIPT

413380

Division of Water Rights

South Dakota Department of Environment and Natural Resources

Pierre, _____ August 19 _____, 19 92

RECEIVED OF Jim Schumacher, Star Rt. A, Box 149, Pierre, SD 57501

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

Fee for Application for Permit No. <u>5700-3</u> to Appropriate Water, to construct and to put water to beneficial use _____	150	00
Fee for Application for Permit No. _____ to Appropriate Water, for Future Use _____		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____		
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	150 00

By

John Hatch (CF)
Chief Engineer

Conversation or File Documentation

NAME OF PERSON OR FILE: Tim SchumacherADDRESS: _____ COUNTY HughesDATE: August 20, 1992 TELEPHONE _____RE: Dam Plans & Specs.

COMMENTS:

On Aug. 20, 1992, I talked to Kevin Paulsen from the Pierre SCS Office about the P&S for the Tim Schumacher Dam. I told him we needed a Risk Assessment and an Area-Capacity curve before we could approve the plans. He said Mr. Schumacher was in a hurry to construct this dam, and would get this info. to me ASAP.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

316 SOUTH COTEAU
PIERRE, SD 57501
PHONE 224-1694

August 25, 1992

Attn: Tim Schaal
Division of Water Rights
Joe Foss Building
523 East Capitol
Pierre, SD 57501

RE: James Schumacher Impoundment Risk Assessment

Mr. Schaal,

The Soil Conservation Service encourages your support and approval for the planned impoundment on the James Schumacher farm that is located in W1/2, SE1/4, Sec 9-112-80 of Hughes County. The impoundment has been designed by registered engineers and shall be constructed to meet USDA Soil Conservation Service standards. The pond shall be used for livestock water and shall store 61 acre feet of water if filled to capacity.

It is classified as a low hazard Class 'A' dam by the SCS being located in a rural pasture where failure would not damage any buildings, roads, utilities or other development. The downstream area is all pasture land with Lake Oahe being located approximately one mile away via channel flow.

If you have any questions concerning this impoundment, please contact this office at your convenience.

Sincerely,



Lowell P. Noeske
District Conservationist

CC. James Schumacher, Pierre
David Konechne, SCS, Pierre

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service

[illegible]

Conversation or File Documentation

NAME OF PERSON OR FILE: Jim SchumacherADDRESS: _____ COUNTY HughesDATE: August 31, 1992 TELEPHONE _____

RE: _____

COMMENTS:

I talked to Kevin Paulsen today about the amount of water claimed on Jim Schumacher's Water Permit Application No. 5700-3. I told him I thought it should be 51 Acre-Feet to reflect the reservoir storage at the primary spillway elevation. He agreed with this and said to make the change on the application.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

REPORT ON
WATER PERMIT APPLICATION NO. 5700-3
JIM & CHARLENE SCHUMACHER
AUGUST 31, 1992

Water Permit Application No. 5700-3 has been filed by Jim and Charlene Schumacher to store 51 acre-feet of water in a dam located in the NW 1/4 SE 1/4 of Section 9-T112N-R80W in Hughes County. The water will be used for wildlife enhancement and livestock watering.

Discussion:

The Schumacher Dam is located on an unnamed tributary to Lake Oahe, in the Spring Creek area, approximately one half mile upstream of Lake Oahe. The dam has been designed by the Soil Conservation Service and will be approximately 24 feet high, with a normal storage capacity of 51 acre-feet and a maximum storage capacity of 90 acre-feet. It has a total drainage area of 1871 acres or approximately 3 square miles.

The Schumacher Dam will be classified as a small size dam with a low hazard (Category 3) classification. A dam of this size and classification is required to have a minimum spillway design capable of passing a 25 year frequency event, which in this case is approximately 665 cfs. The Schumacher Dam will have an 15 inch PVC primary spillway and an 130 foot wide earthcut secondary spillway capable of passing the 25 year event.

Conclusions:

1. The Plans and Specifications for the Schumacher Dam have been reviewed and accepted, and will be approved based on approval of Water Permit Application No. 5700-3.
2. Water Permit Application No. 5700-3 should be approved. It should not interfere with downstream domestic use or prior Water Rights on Lake Oahe. This is attributable to the dam's small drainage area and storage capacity compared to that of Lake Oahe.

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

Reviewed by:

Gale N. Selken
Gale N. Selken, P.E.
Natural Resources IV

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5700-3, Jim and Charlene Schumacher

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Environment and Natural Resources concerning Water Permit Application No. 5700-3, Jim and Charles Schumacher, Star Route A, Box 149, Pierre, SD 57501.

The Chief Engineer is recommending APPROVAL of Application No. 5700-3 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 qualification:

Approval of Permit No. 5700-3 authorizes storage of up to 51 acre-feet of water annually.

See report on application for additional information.

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

JOHN HATCH, Chief Engineer
September 4, 1992

South Dakota



GREAT FACES. GREAT PLACES.

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

September 2, 1992

Lowell P. Noeske
District Conservationist
Soil Conservation Service
316 South Coteau
Pierre, SD 57501

Dear Mr. Noeske:

We have reviewed the plans and specifications for the Jim Schumacher Dam in Hughes County. The plans and specifications as submitted are acceptable; however, they will not be officially approved until Water Permit Application No. 5700-3 is approved.

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

The Schumacher Dam will be classified as a small size Category 3 dam with a dam height of 24 feet and a normal storage capacity of 51 acre-feet and a maximum storage capacity of 90 acre-feet.

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

Sincerely,

Gale N. Selken

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

cc: Jim Schumacher



DEPARTMENT OF WATER & NATURAL RESOURCES

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

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

September 9, 1992

Jim and Charlene Schumacher
St Rte A, Box 149
Pierre, SD 57501

Dear Mr. & Mrs. Schumacher:

Water Permit Application No. 5700-3 for livestock and wildlife 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 Daily Capital Journal printed at Pierre, SD (Ph # 224-7301). For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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



DEPARTMENT OF WATER & NATURAL RESOURCES

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

September 9, 1992

Daily Capital Journal
PO Box 878
Pierre, SD 57501

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5700-3 to be published twice. Please publish the first notice on September 16, 1992, 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 and Charlene Schumacher, Star Route A, Box 149, Pierre, SD 57501 (Ph # 224-1420).

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. No action may be taken on the permit application until proof of publication has been received.

Sincerely,

Eric Gronlund

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

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

No. _____

Date _____

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

Name _____

Newspaper _____

Instruction to Newspaper - Publish first Notice on September 16, 1992, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. 5700-3 to Appropriate Water

Notice is given that Jim and Charlene Schumacher, Star Route A, Box 149, Pierre, SD 57501 has filed an application for a water permit to impound 51 acre-feet of runoff water by constructing a dam in the NW 1/4 SE 1/4 Section 9-T112N-R80W. Water will be impounded in the W 1/2 SE 1/4 and SE 1/4 SW 1/4 Section 9-T112N-R80W. Water is to be stored annually to an approximate elevation of 1650 feet mean sea level and is to be used for wildlife enhancement and livestock watering.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5700-3 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. Unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation, the Water Management Board will NOT CONDUCT a HEARING to consider this application and the chief engineer will issue the permit as recommended. Petitions filed in support of the application will NOT require the Board to hear the application.

Any person interested in opposing or supporting this application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by October 5, 1992. 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.

For purposes of publishing 1) the notice of hearing on Application No. 5700-3 and 2) the chief engineer's recommendation, a meeting at the Division of Water Rights office to hear this application is scheduled for October 13, 1992, at 9:00 am in Room 413, Joe Foss Building, 523 E Capitol, Pierre SD. If this application is opposed or the recommendation is contested, the October 13, 1992, hearing date will be rescheduled for a regularly scheduled Board meeting. Notice of the time and place of the rescheduled hearing before the Board will be given by First Class Mail to the applicant and persons filing petitions. Anyone not filing a petition, but interested in attending the hearing, may contact the Division of Water Rights to confirm a hearing date and location. The October 13, 1992, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by October 5, 1992.

If a hearing is held, the Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by October 5, 1992, at the above Water Rights Division address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15. Robert E. Roberts, Secretary, Department of Environment and Natural Resources.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County Hughes) ss.

I, Peggy Warner

certify that the attached printed Notice was
 from the Capital Journal

A newspaper which during the whole time of publication of
 said notice herein after stated, has been and is printed and
 published in the _____

City of Pierre

County of Hughes and State of South Dakota;
 that the said notice was published in said newspaper on the
 following two dates:

September 16, 1992

September 23, 1992

Peggy Warner
 (Signature)
Legal Ad Representative
 (Title)
Sept. 24, 1992
 (Date Signed)

Cost of Printing: 74.97

(147 lines @ .51)

No. 6349 ~~July~~ 9/16, 9/23

NOTICE OF HEARING

on Application No. 5700-3 to
 Appropriate Water

Notice is given that Jim and Charlene Schumacher, Star Route A, Box 149, Pierre, S.D. 57501 have filed an application for a water permit to impound 51 acre-feet of runoff water by constructing a dam in the NW 1/4 SE 1/4 Section 9-T112N-R80W. Water will be impounded in the W 1/2 SE 1/4 and SE 1/4 SW 1/4 Section 9-T112N-R80W. Water is to be stored annually to an approximate elevation of 1650 feet mean sea level and is to be used for wildlife enhancement and livestock watering.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5700-3 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. Unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation, the Water Management Board will NOT CONDUCT a HEARING to consider this application and the chief engineer will issue the permit as recommended. Petitions filed in support of the application will NOT require the Board to hear the application.

Any person interested in opposing or supporting this application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E. Capitol, Pierre, S.D. 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 October 5, 1992. 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.



For purposes of publishing 1) the notice of hearing on Application No. 5700-3 and 2) the chief engineer's recommendation, a meeting at the Division of Water Rights office to hear this application is scheduled for October 13, 1992, at 9:00 a.m. in Room 413, Joe Foss Building, 523 E. Capitol, Pierre, S.D. If this application is opposed or the recommendation is contested, the October 13, 1992, hearing date will be rescheduled for a regularly scheduled Board meeting. Notice of the time and place of the rescheduled hearing before the Board will be given by First Class Mail to the applicant and persons filing petitions. Anyone not filing a petition, but interested in attending the hearing, may contact the Division of Water Rights to confirm a hearing date and location. The October 13, 1992, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by October 5, 1992.

If a hearing is held, the Chief Engineer's recommendation is not fi-

nal or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by October 5, 1992, at the above Water Rights Division address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

This application is made pursuant to SDCL 46-1-1 through 46-1-9, 46-1-12 through 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 through 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 through 46-5-11, 46-5-13 through 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; and Board Rules ARSD 74:02:01:01 through 74:02:01:15.

Robert E. Roberts, Secretary
Department of Environment
and Natural Resources



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

OCT 26 1992

Jim and Charlene Schumacher
St Rte A Box 149
Pierre, SD 57501

Dear Mr. & Mrs. Schumacher:

Enclosed is Water Permit No. 5700-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

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

Very truly yours,

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

enclosures

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

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

REPORT ON INSPECTION OF PERMIT NO. 5700-3, Jim and Charlene Schumacher

DATE: August 8, 1995

DIVERSION POINT LEGAL LOCATION: Dam Location: NW¼ SE¼ Section 9, T112N, R80W Water Impounded in W½ SE¼, SE¼ SW¼ Section 9, T112N, R80W.

WELL INFORMATION: Not Applicable

DISTRIBUTION LINES OR CANALS: Not Applicable

SYSTEM TYPE: Not Applicable

DAM INFORMATION:

- 1) Height to crest 25 feet
- 2) Height to primary spillway 18½ feet (6½ feet from crest to tube invert)
- 3) Height to secondary spillway 20 feet (approx. 5 feet from crest to emergency spillway invert)
- 4) Crest width 12 feet
- 5) Crest length 200 feet
- 6) Spillway length 300 - 400 feet
- 7) Spillway width 138 feet
- 8) Approx. storage 51 ac-ft
- 9) Approx. storage to crest 70 ac-ft
- 10) Date constructed: In 1993 by Gloe Construction

PERMIT QUALIFICATIONS AND REGULATIONS:

- 1) Soil and water permit lands agree with lands being irrigated and lands listed on permit:
Not Applicable
- 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: Not Applicable

Form 12

Permit No. 5700-3, Jim and Charlene Schumacher
Missouri River - Water District
Hydrologic Unit - 10130105

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

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

I have this day, **August 8, 1995**, made a thorough examination of the water use system constructed by **Jim and Charlene Schumacher** of **19734 285 Avenue, Pierre, SD 57501** holder of Permit No. 5700-3 bearing the priority of **August 19, 1992**, authorizing storage of **51 acre-feet** of the waters of for **wildlife enhancement and livestock watering purposes**, in **Hughes County**.

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

A. Works used to divert the water: **A dam constructed in 1993**

B. Works used to transport water to place of use: **Not applicable**

C. Works used to apply water to beneficial use: **Water is beneficially used for livestock watering and wildlife enhancement**

The system is in the following condition: **excellent**. The point of diversion is located **NW¼ SE¼ Section 9, T112N, R80W**. The works are capable of storing **51 acre-feet** of water which is to be used for **wildlife enhancement and livestock watering**. Water has been put to beneficial use to the maximum extent as follows:

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

Exceptions to compliance are: **None** Date: **November 17, 1995**

NOTE: At time of inspection the primary tube was running about ¼ full. Also noted that there was some minor erosion in the emergency spillway which Mr. Schumacher stated occurred during last years big storm.


Eric Gronlund
Natural Resources Engineer
DENR, Water Rights Program

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5700-3

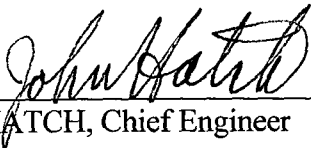
(1) Jim and Charlene Schmacher, 19734 285th Avenue, Pierre SD 57501 made Application No. 5700-3, August 19, 1992 for a water permit to store 51 acre feet of water annually from runoff, Hughes County, South Dakota for wildlife enhancement and livestock watering purposes. Permit No. 5700-3, with a priority date of August 19, 1992 was approved October 13, 1992 and issued to the applicants for diversion of water with construction of the described water supply system to be completed on or before October 13, 1997* and for the application to beneficial use of said water on or before October 13, 2001.

* The system was inspected prior to the October 13, 1997 completion date, however, the dam was constructed as originally permitted.

(2) It is certified that the applicants have complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to store 51 acre feet of water annually for beneficial use. The location of the diversion point is the NW 1/4 SE 1/4 Section 9-T112N-R80W. Water is impounded in the W 1/2 SE 1/4, SE 1/4 SW 1/4 Section 9-T112N-R80W.

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

(4) Pursuant to South Dakota Water Law 46-5-30.1 Jim and Charlene Schumacher, 19734 285th Avenue, Pierre SD 57501 the holders and/or owners of Water Permit No. 5700-3 are issued a license to appropriate water, the right to store 51 acre feet of water annually from runoff with a priority date of August 19, 1992 from the location specified in (2) of this license. The water to be used for the purpose of wildlife enhancement and livestock watering. This license is subject to any limitations or qualifications listed in Water Permit No. 5700-3 and subject to South Dakota State Law.



JOHN HATCH, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 4 1996

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

December 4, 1995

4500-3
5700-3

Jim and Charlene Schumacher
19734 285 Avenue
Pierre, SD 57501

Dear Mr. and Ms. Schumacher:

The inspection of your water use system and the inspection of the extent of application of water to beneficial use, as developed under Water Permit Nos. 4500-3 and 5700-3, has been completed. Your final water right documents, the Water Licenses, can now be issued.

Statutes require a \$50.00 fee per license for the inspection and issuance of the Water Licenses. Upon receipt of the \$50.00 fee per license (\$100.00 total) from you, we will begin processing your Water Licenses.

Please remit the fee within 30 days to:
Department of Environment & Natural Resources
Water Rights Program
523 E. Capitol
Pierre, SD 57501-3181

Sincerely,

Cheryl F. Frost
Secretary
Water Rights Program
(605) 773-3352

NOTE: On check or money order, please specify your permit numbers. This will insure proper handling of the fee.



APR 4 1996

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

4500-3
5700-3

Jim and Charlene Schumacher
19734 285th Avenue
Pierre, SD 57501

Dear Mr. and Ms. Schumacher:

Enclosed are Water License Nos. 4500-3 and 5700-3. These are the final water right documents completing your process of obtaining Water Rights. Enclosed are Receipt Nos. 414754 and 414755 in the amount of \$50.00 each which you paid for the inspection and issuance of the Water Licenses.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the wells authorized by Water Right Nos. 4500-3 and 5700-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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

Very truly yours,

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

ks
enclosures

RECEIPT

414755

Division of Water Rights

South Dakota Department of Environment and Natural Resources

Pierre, _____ January 11, 19 96

RECEIVED OF James F Schumacher, PO Box 35, Pierre, SD 57501

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

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use _____		
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>5700-3</u>	50	00
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	50 00

By John Hatch
Chief Engineer

STRUCTURE DATA

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPLWY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	AC. FT.	25-YR.	C.F.S.	FEET	ACRES	AC. FT.	AC. FT.
1871	59	665	5.2	17.5	7.0	12.2	41.3

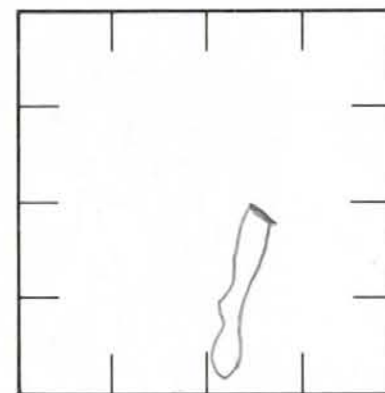
Note: Due to irrigation, it is expected the dam will be full most of the time - A principal spillway will be needed for trickle flows.

Em. Spway. Cap.
5.2 cfs/ft. width

Spillway
130 Ft.
Bott.

15"
Hooded
Inlet

Pond

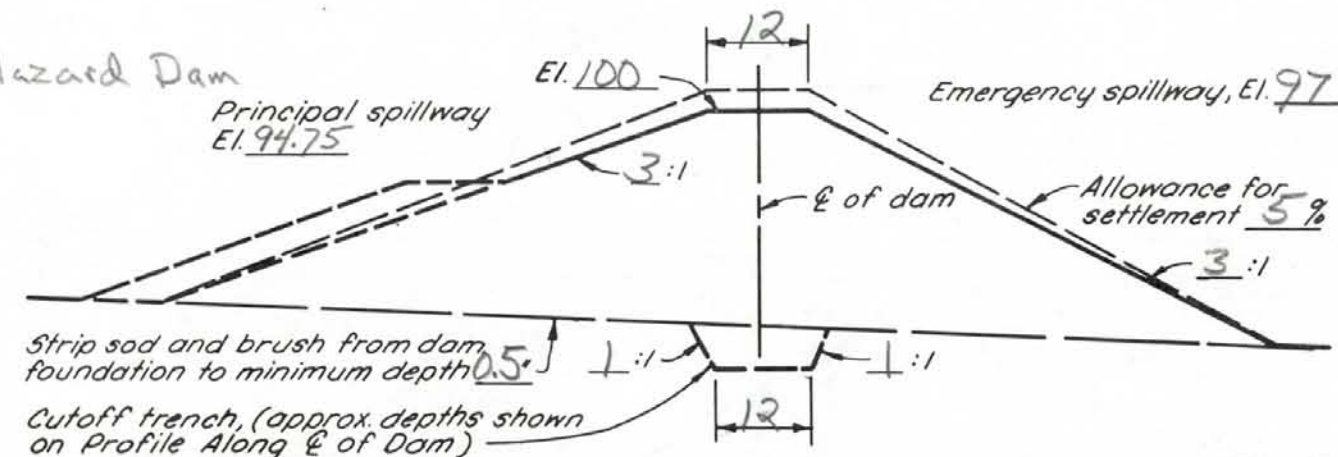


Sec. 9 T. 112 N. R. 80 W.
Hughes County
LOCATION

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
Excavation Fill + 5% Settlement	Cu yds	7171
Stripping	Cu yds	367
Core Trench	Cu yds	255
Plastic Pipe 15"	Ft	110
4" Dia perforated pipe Sch 40	Ft	8
4" Dia Sch 40 PVC plastic pipe	Ft	40
Sand Anti Seep Coll	cu yd	2.5
wood 6x4x6	ea	1

Class "A" Hazard Dam



TYPICAL CROSS SECTION OF DAM

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

- SD-4 Stripping
- SD-5 Excavation
- SD-7s Earth Fill - Class 5
- SD-10 Salvaging and spreading topsoil
- Corrugated PE pipe

EARTH DAM

OPERATOR: Jim Schumacher
CONSERVATION DISTRICT: Hughes Co.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed: K. Paulsen Date: 7-92 Approved by: Jim Schumacher
Drawn: K. Paulsen Date: 7-92 Title: Earth Dam
Traced: _____ Sheet: _____ Drawing No.: _____
Checked: _____ No. _____ of _____

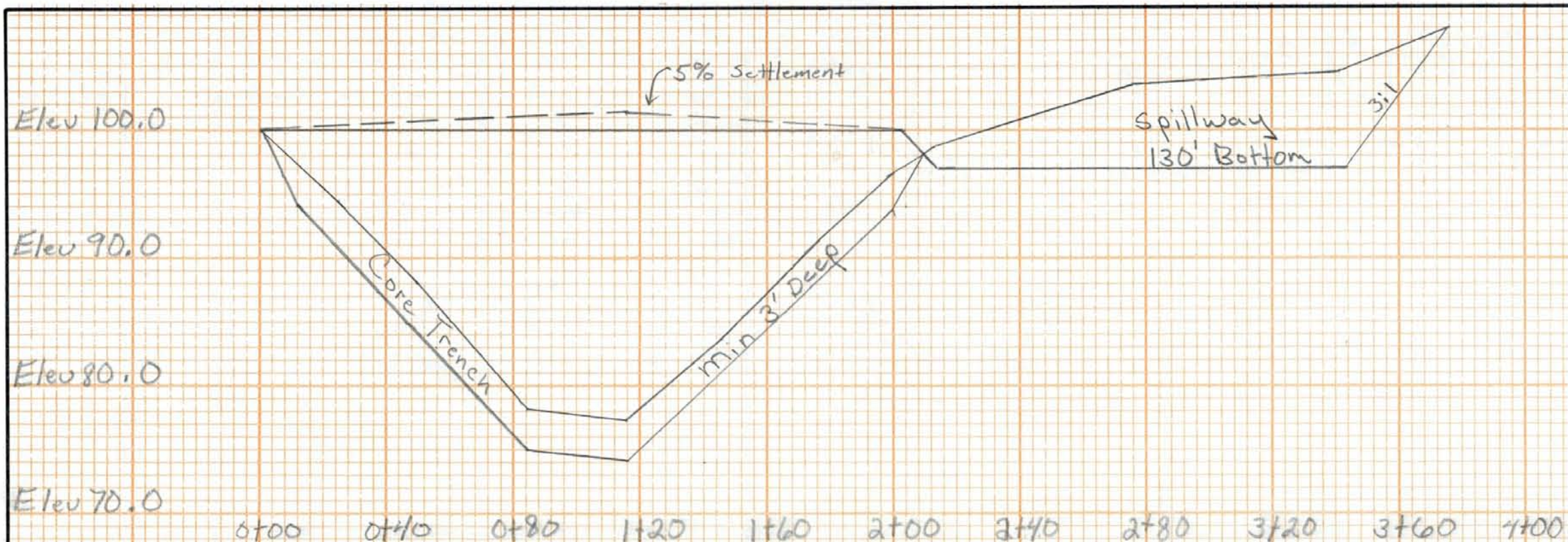
SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = 1/4

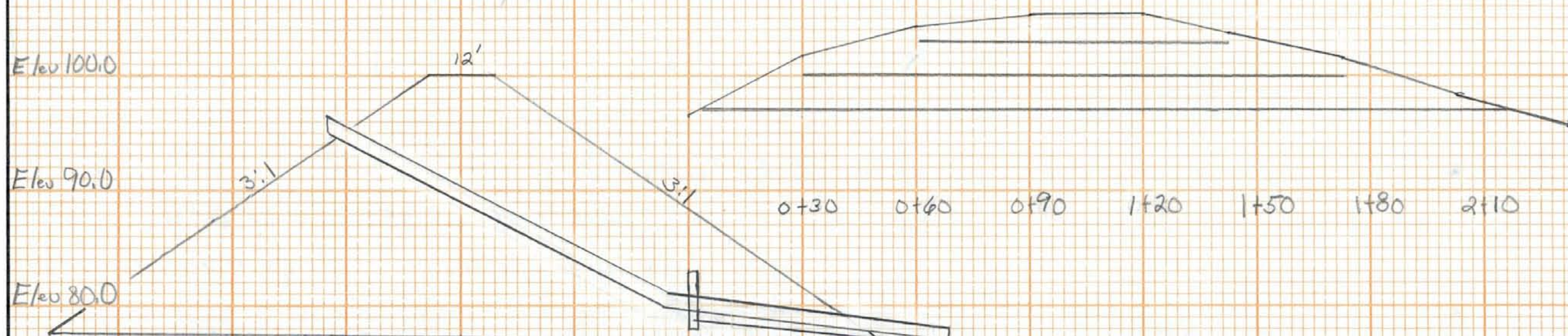
REFERENCE: GUIDE PLAN NO. 1.0

JOB PLAN NO. 1.0

5700-3



CROSS SECTION AT CREST OF EMERGENCY SPILLWAY AND PROFILE ALONG C OF DAM



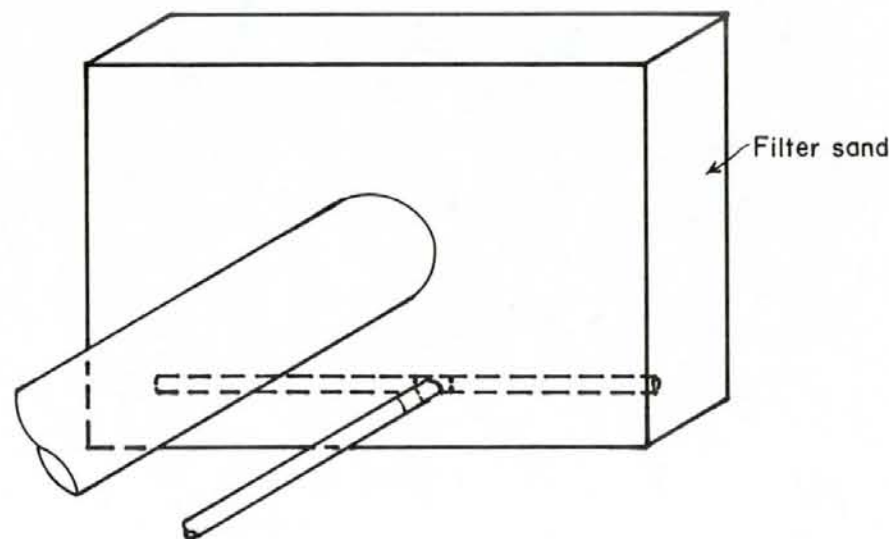
PROFILE ALONG C OF EMERGENCY SPILLWAY

SEDIMENT YIELD

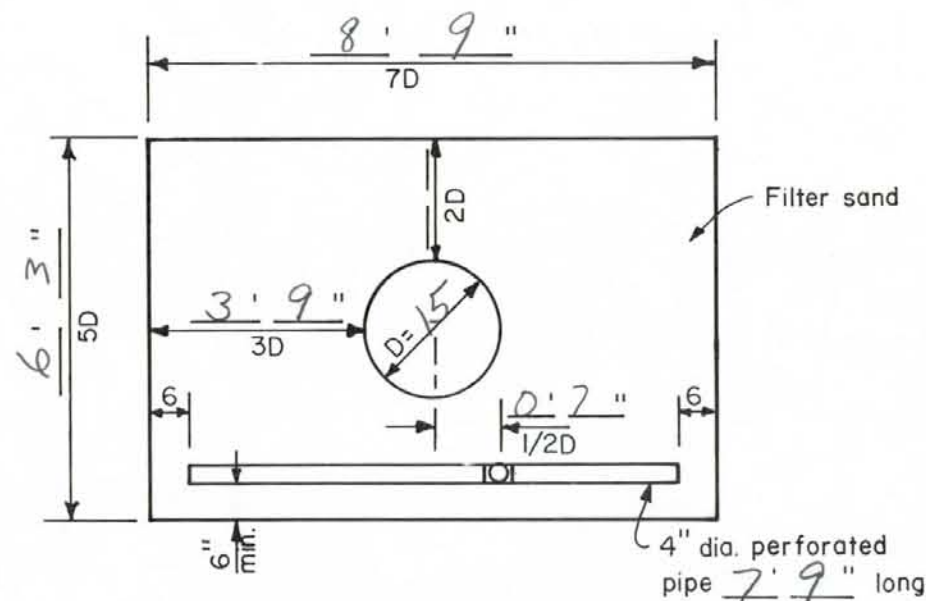
0+60 0+40 0+20 0+00 0+20 0+40 0+60

MAXIMUM CROSS SECTION OF DAM

ERODIBILITY AREA ACRES	GROSS RATE A.F./AC./YR.	DRAINAGE AREA ACRES	DELIVERY RATE %	DESIGN PERIOD YEARS	REQ'D. SEDIMENT VOLUME AC.FT.
J	0.0029	1871	15	15	12.2



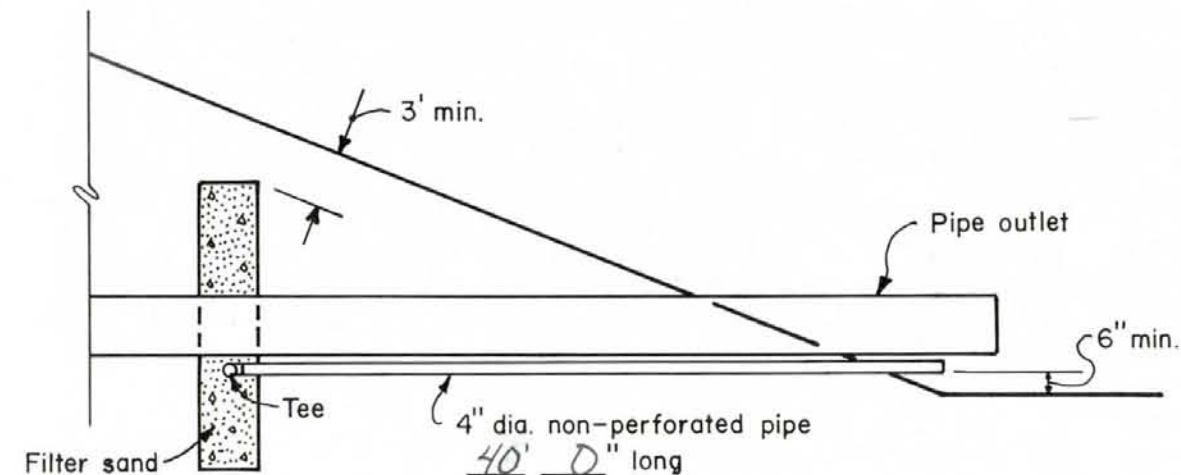
ISOMETRIC VIEW



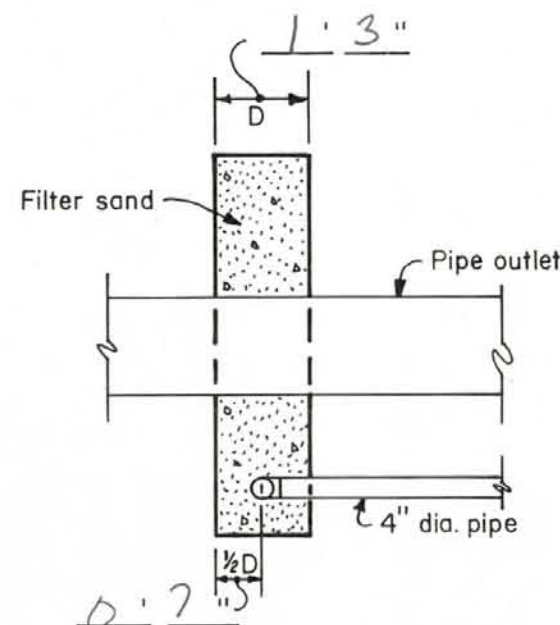
UPSTREAM VIEW

NOTE:

1. THE 4" DIA. PIPE SHALL BE ASTM D1785, SCHEDULE 40, PVC.
2. PROVIDE AN ANIMAL GUARD ON DRAIN OUTLET PIPE. DRILL 2, 1/2" DIA. HOLES, ON $\pm$ 6" FROM END OF PIPE AND PLACE A 3/8" DIA., 5 1/2" LONG GALVANIZED STEEL BOLT THRU THEM AND SECURE WITH A NUT (PLACE BOLT HORIZONTAL).



OUTLET DETAIL



SIDE VIEW

$$8.75' \times 6.25' \times 1.25' = 2.5 \text{ cu yd}$$

FILTER GRADATION

SIEVE SIZE	PERCENT PASSING
3/8"	100
4	95-100
8	80-100
16	50-85
30	25-60
50	10-30
100	2-10

Sec. 9, T. 112N, R. 80W

Hughes Co. County
LOCATION

SAND ANTISEEP COLLAR

OPERATOR Jim Schumacher

CONSERVATION DISTRICT Hughes Co.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed <u>K. Paulsen</u> <u>7-92</u>	Date <u>7-92</u>	Approved by _____
Drawn <u>K. Paulsen</u> <u>7-92</u>	Title _____	
Traced _____	Title _____	
Checked _____	Sheet <u>3</u> of <u>4</u>	Drawing No. _____

JOB PLAN NO. 3.8

5700-3

Locate principal spillway pipe at $\mathcal{C}$ of dam sta. 1 + 17, at an angle of 90° to the $\mathcal{C}$ of the dam.

Trash rack and baffle plate not shown. See job plan no. 3-6.1

Emergency spillway El. 97.0

Principal spillway El. 94.75

Berm, if required 3:1 slope normal to $\mathcal{C}$ of dam

3:1 slope normal to $\mathcal{C}$ of dam

$\mathcal{C}$ of dam

Antiseep collars - see job plan No. 3.8

Top of dam after settlement El. 100.0

Note: Allowance for settlement 5%

3:1 slope normal to $\mathcal{C}$ of dam

110' of 15" dia. pipe

25% gr.

Prefabricated elbow

15' 5'

5% gr.

El. 78

El. 77

El. 76

OUTLET DETAIL WITHOUT PIPE SUPPORT

CROSS SECTION OF DAM ALONG $\mathcal{C}$ OF PRINCIPAL SPILLWAY
(Not to scale)

SPECIFICATION NOTES

1. ELBOW IF REQUIRED MAY BE FABRICATED BY CONTINUOUS WELDING SEPERATE PIPE SECTIONS OR BY FABRICATING A CONTINUOUS WELDED JOINT ON THE UPSTREAM END OF LAST SECTION OF PIPE.
2. PIPE WALL THICKNESS SHALL BE GAGE OR INCHES.

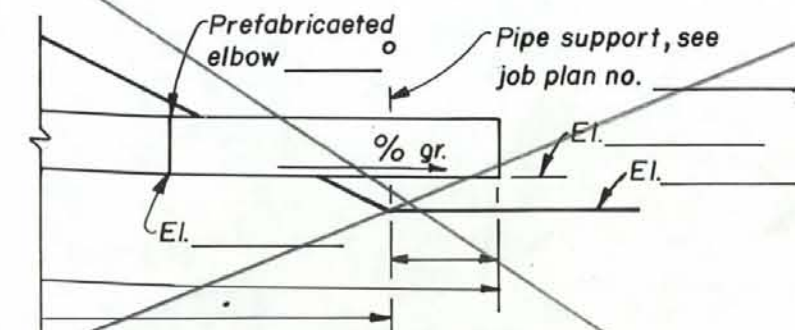
Use PF pipe similar or equal to Hanco titeline

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
15" Plastic Pipe	Ft	110
4" Dia. perforated pipe Sch 40	Ft	8
4" Dia Sch 40 PVC Plastic Pipe	Ft	40
Sand Anti Seep Collar Gravel Fill	Cu yds	2.5
15' x 10' x 10'	Ft	1

APPLICABLE STANDARD S.C.S. SPECIFICATIONS

SD-4 Stripping
SD-5 Excavation
SD-7s Earth Fill Class 5
SD-10 Salvaging and spreading topsoil



OUTLET DETAIL WITH PIPE SUPPORT

Sec. 9 T. 112N, R. 80W
Hughes County
LOCATION

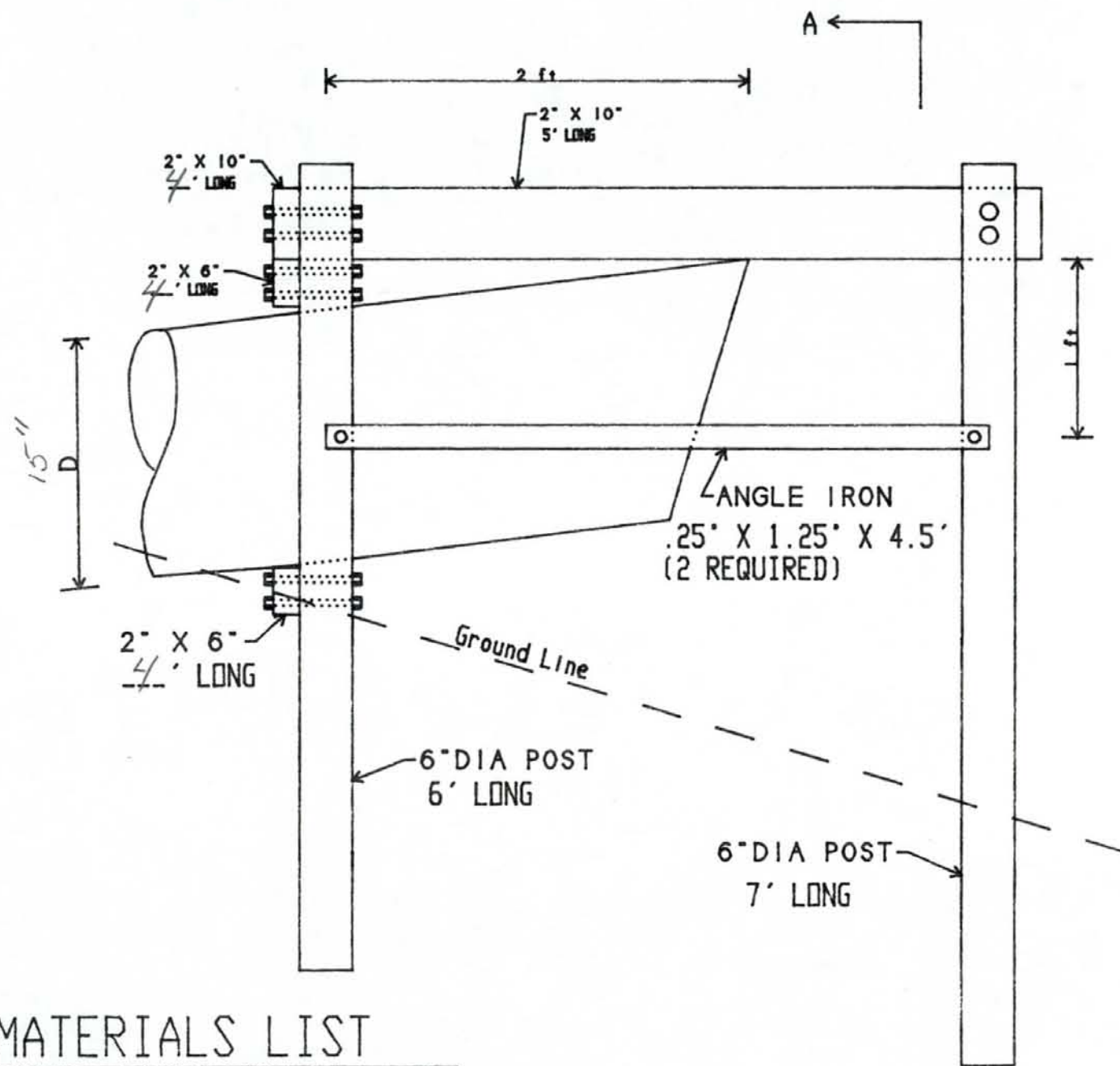
HOOD INLET
PRINCIPAL SPILLWAY

OPERATOR <u>Jim Schumacher</u>	
CONSERVATION DISTRICT <u>Hughes Co.</u>	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed <u>K. Paulsen</u> <u>7-92</u>	Date <u>7-92</u>
Drawn <u>K. Paulsen</u> <u>7-92</u>	Title <u> </u>
Traced <u> </u>	Title <u> </u>
Checked <u> </u>	Sheet <u>2</u> Drawing No. <u> </u>
	No. <u>2</u> of <u>4</u>

REFERENCE: GUIDE PLAN NO. 2.1

Rev. 8/80
JOB PLAN NO. 2.1

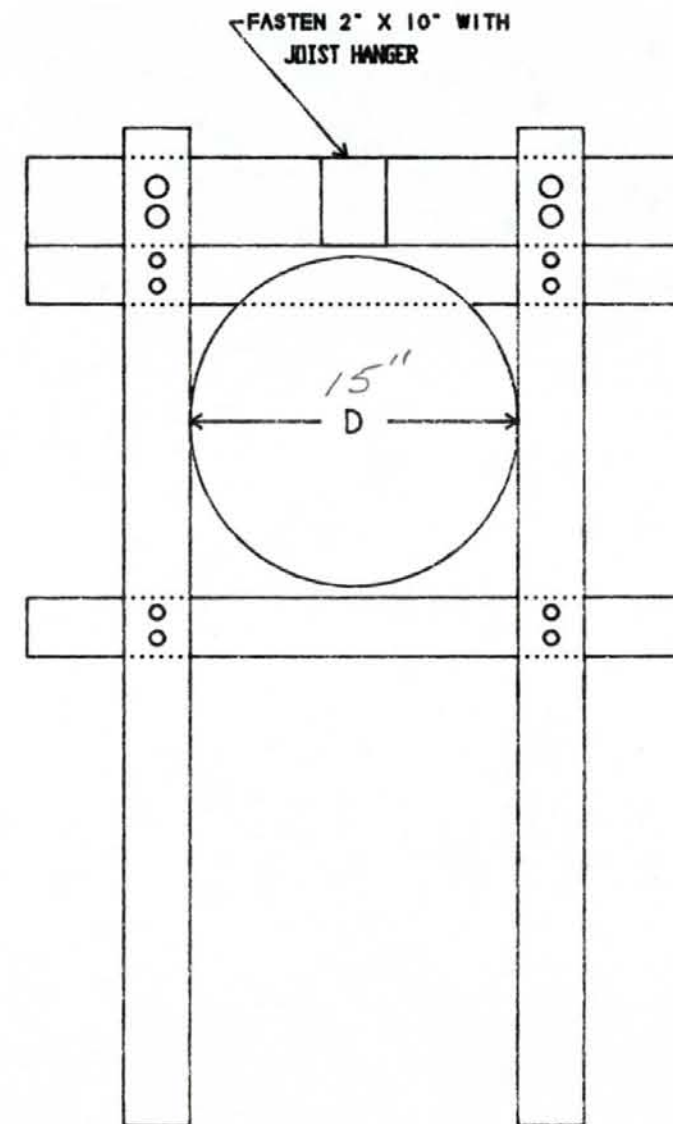
5700-3



MATERIALS LIST

ITEM	No.
6" DIA POST 6' LONG	2
6' LONG	1
2" X 10" 5' LONG	1
4' LONG	1
2" X 6" - 4' LONG	2
.25" X 1.25" X 4.5' ANGLE IRON	2
3/8" DIA BOLTS - 10" LONG	18
JOIST HANGER	1

NOTE: ALL LUMBER TO BE TREATED



SECTION A-A

Baffle For Hood Inlet

Jim Schumacher

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

DESIGNED	APPROVED BY
DRAFTED	TITLE
DATE	SHEET 1 OF 1

JOB PLAN 3-6.1

5700-3

NOT TO SCALE

15 16 17 18 19 20 21

AUG 1992
DIVISION OF

52

T 440

XC

9

T 449

42.0

T 440

2
59.3

3
13.2

Norm
Dystrom

NC

112-80

T 450

C-2

6
22.5

NC

Water Permit No: 5700-3
Map Prepared By: Eric Gronlund
Eric Gronlund
Natural Res Eng
DENR, Water Rts Div
Date Inspected: August 8, 1995

4
65.6

5
62.7

7
Appl No. **5700-3**
125.8

NOT TO SCALE



52

T 440

XC

9

T 449

42.0

T 440

6.8

2
59.3

3
13.2

Norm
Dystrom

112-801

NC

T 450

C-2

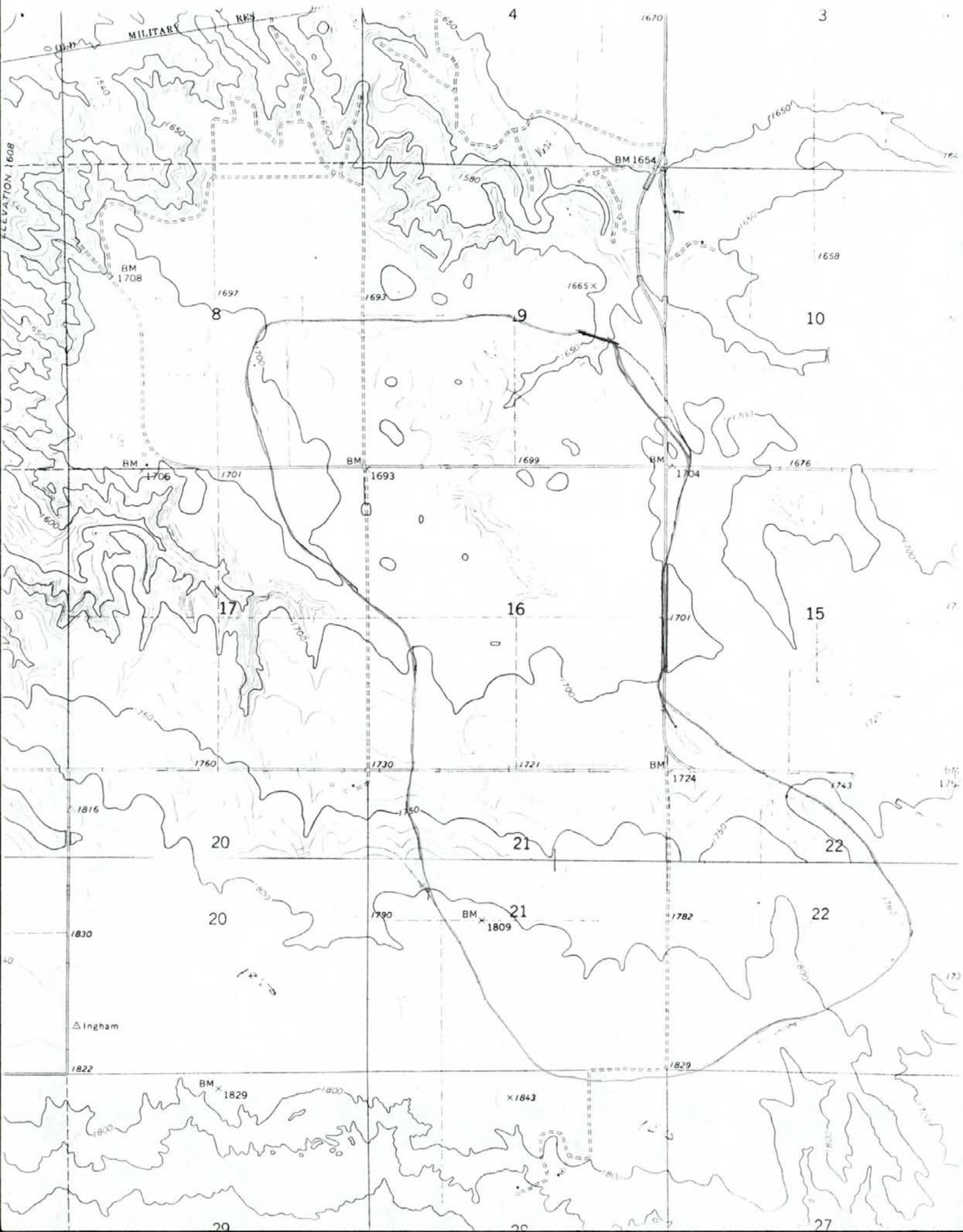
6
22.5

Kevin L. Paulsen
Soil Conservation Tech
6.7

4
65.6

5
62.7

7
125.0
Appl. No. 5700-3





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

June 30, 2016

Jim Schumacher
19734 285th Ave.
Pierre, SD 57501

Dear Mr. Schumacher:

We have reviewed the plans and specifications for your dam repair project located in the NW ¼ SE ¼ of Section 9-T112N-R80W, in Hughes County. The plans and specifications for the reconstruction of the dam are approved. The dam is authorized under Water Right No. 5700-3.

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.

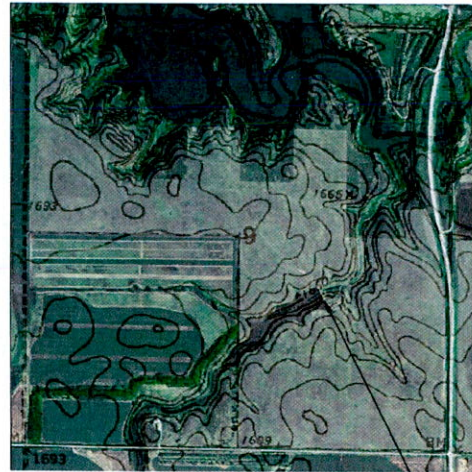
The Schumacher Dam has a NID ID No. SD02380 and is classified as a small size Category 3, Low Hazard dam with a dam height of 25 feet and a normal storage capacity of 51 acre-feet and a maximum storage capacity of 90 acre-feet.

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

Sincerely,

Timothy G. Schaal, P.E.
Engineer IV
for Jeanne Goodman, Chief Engineer
Water Rights Program
(605) 773-3352

c: Jesse Lisburg, USFWS, Pierre



SE, Sec 9, T112, R 80W
Hughes County, South Dakota

LOCATION MAP

Pipe Replacement
2016

Site Location

GENERAL NOTES

1. If cultural resources are discovered during construction, discontinue construction and notify the local Natural Resources Conservation Service office.
2. The landowner is responsible for complying with all federal, state, and local laws.

NRCS HAZARD CLASS A
NRCS JOB CLASS III

CONSTRUCTION NOTES

1. Clear and grub the entire area within the work limits.
2. All fill material must not contain frozen material, sod, roots, or other perishable material, or rock larger than eight inches in diameter as described in SD Construction Specification SD-75.
3. Any shale, gravel, or sand that is exposed during borrow operations shall be immediately backfilled with 2 feet of clay material.
4. Six inches topsoil will be incorporated into the earthfill to meet the neat lines shown on the typical section.
5. All areas top-dressed with topsoil and disturbed during construction will be seeded according to SD Construction Specification SD-28.

NO EXCAVATOR MAY BEGIN ANY EXCAVATION WITHOUT FIRST NOTIFYING THE ONE-CALL NOTIFICATION CENTER OF THE PROPOSED EXCAVATION AT 1-800-781-7474.

SD CONSTRUCTION AND
MATERIAL SPECIFICATIONS

- SD-4 Stripping
 - SD-5 Excavation
 - SD-75 Earthfill - Class S
 - SD-8 Rock Riprap And Bedding
 - SD-10 Salvaging And Spreading Topsoil
 - SD-12A Concrete (Class 3500)
 - SD-13 Steel Reinforcement
 - SD-14 Wood And Steel Structures
 - SD-28 Seeding
 - SD-55 Plastic Pipe
 - SD-592 Geotextile
- For A Full Text Version See
http://www.sd.usda.gov/technical/SD_Engineering.html

TABLE OF QUANTITIES			
ITEM	UNIT	QUANTITY	AS-BUILT
Earthfill Class S - Embankment	Cu. Yd.	706	
Earthfill Class S - Core Trench	Cu. Yd.		
Earthfill Class S - Stripping	Cu. Yd.	89	
Total Earthfill	Cu. Yd.	795	
Topsoil Auxiliary Spillway	Cu. Yd.		
Seeding (Earthfill and Auxiliary Spillway)	Acre	1.0	
Principal Spillway Pipe			
16" Dia. PVC AWWA C905 DR 25 Pipe	Lin. Ft.	110	
36" Dia. 4' tall Riser and Base	Each	1	
with Trash Rack and Baffle	Each		
Drainage Diaphragm	Each	1	
Timber Pipe Support	Each	1	

This is a pipe replacement on an existing dam that was originally constructed in 1993. Original as built principal and auxiliary spillway elevations will be maintained. Original plans approved by Dave Konechne in July of 1992. Failed 12" diameter hooded inlet will be replaced with a concrete riser and 16" diameter PVC pipe. A sand anti-seep collar and outlet will also be installed. Erosion in auxiliary spillway will be repaired. This is considered maintenance to the dam since it is still within the life span of the dam.

TYPICAL CROSS SECTION OF DAM

INDEX OF DRAWINGS

1. Cover Sheet
2. Profile of Principal Spillway
3. Precast Concrete Riser
4. Trash Rack & Baffle
5. Timber Pipe Support
6. Sand Anti-Seep Collar

STATEMENT OF COMPLIANCE

Construction (was) (was not) completed in accordance with approved construction plans and specifications.

JAA Date

POND WITH PRINCIPAL SPILLWAY PIPE
JOB PLAN 1.0P REV. 4/2016

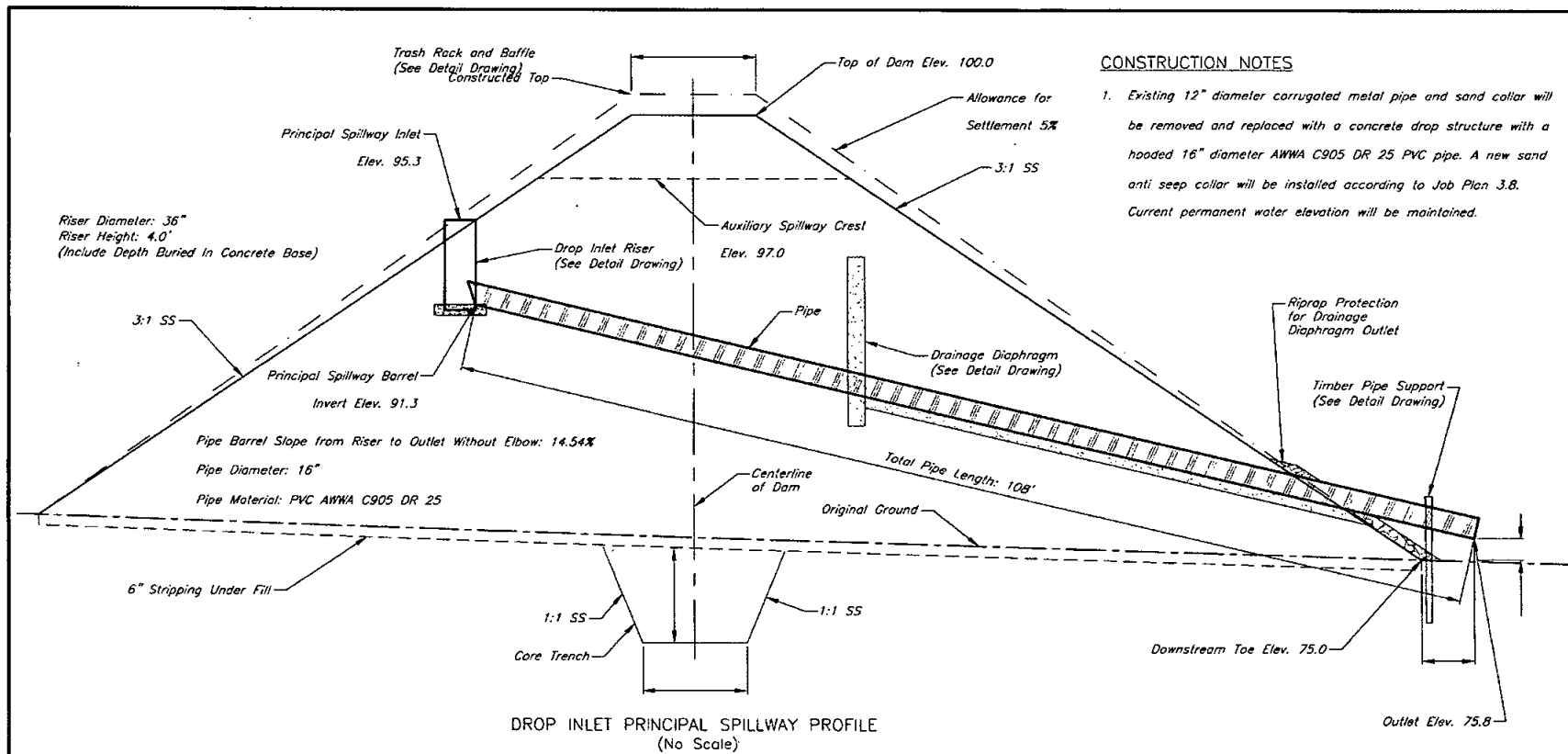
Designed: D. Konechne 7-19-92
Drawn: J. Schumacher 6-28-16
Checked: J. Schumacher 6-28-16
Approved: J. Schumacher 6-28-16

JIM SCHUMACHER
378 POND
COVER SHEET

SE, Sec 9, T112, R 80W
Hughes County, South Dakota

USDA
United States
Department of
Agriculture
Natural Resources
Conservation Service

File No.
Dam_PipeSchumacher.dwg
Drawing No.
1
6/28/16 4:51 PM
Sheet 1 of 6



DROP INLET PRINCIPAL SPILLWAY PROFILE
(No Scale)

CONSTRUCTION NOTES

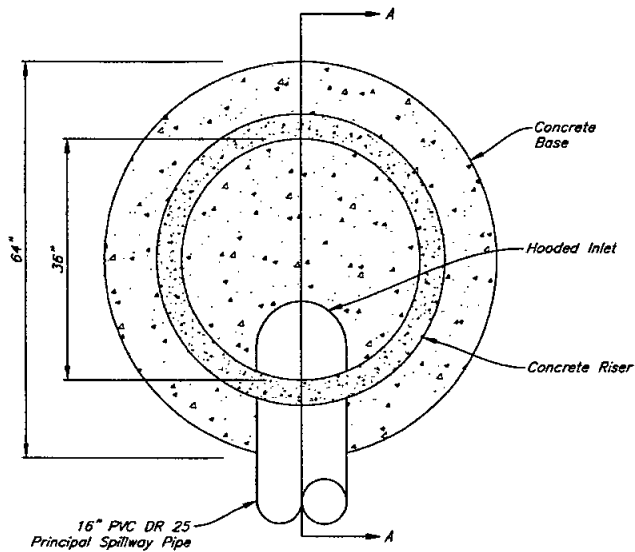
- Existing 12" diameter corrugated metal pipe and sand collar will be removed and replaced with a concrete drop structure with a hooded 16" diameter AWWA C905 DR 25 PVC pipe. A new sand anti seep collar will be installed according to Job Plan 3.8. Current permanent water elevation will be maintained.

TRENCH SAFETY NOTES

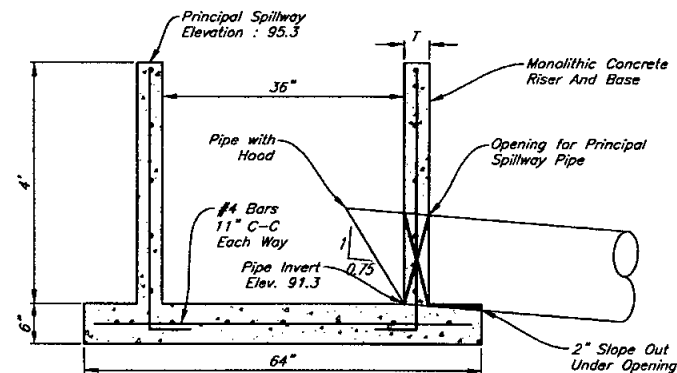
- All trench work shall comply with the Occupational Safety and Health Administration (OSHA) regulations.
- Any trench over four (4) feet deep shall have a means of egress from the trench by a ladder, ramp, or other means of egress; and
- Any trench over five (5) feet deep shall be protected from cave-ins by a sloping, benching or shoring protection system. Benches must be constructed so the overall slope meets the slope required by OSHA regulations.

Date: <u>6/28/16</u> Designed: <u>ARMAN</u> Drawn: <u>ARMAN</u> Checked: <u>ARMAN</u> Approved: <u>ARMAN</u>	JIM SCHUMACHER 378 POND PROFILE OF PRINCIPAL SPILLWAY SE, Sec 9, T112, R 80W Hughes County, South Dakota	USDA Natural Resources Conservation Service File No. <u>PipeSchumacher.dwg</u> Drawing No. <u>1</u> 6/28/16 4:51 PM Sheet 2 of 6
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DROP INLET PRINCIPAL SPILLWAY PROFILE



PLAN VIEW PRECAST RISER AND BASE



SECTION VIEW A-A

CONSTRUCTION NOTES

1. The riser and base is precast reinforced concrete and is manufactured according to ASTM C478 Standard Specification For Precast Reinforced Concrete Manhole Sections.
2. Provide a watertight joint between the precast concrete riser and the principal spillway pipe barrel.
3. Contact NRCS prior to installation for other options for the construction of the riser if a precast monolithic riser and base is not used.

GUIDE TABLE FOR PRECAST RISER AND BASE DIMENSIONS						
(D) RISER DIAMETER	(H) RISER HEIGHT	(T) WALL THICKNESS	(B) BASE DIAMETER	(N) BASE THICKNESS	ESTIMATED WEIGHT	DIA. PIPE BARREL
30"	4'	3.5"	51"	6"	2,600 LBS	10" to 18"
30"	4.5'	3.5"	51"	6"	2,790 LBS	10" to 18"
30"	5'	3.5"	51"	6"	2,980 LBS	10" to 18"
36"	4'	4"	64"	6"	3,770 LBS	10" to 24"
36"	4.5'	4"	64"	6"	4,030 LBS	10" to 24"
36"	5'	4"	64"	6"	4,290 LBS	10" to 24"
36"	5.5'	4"	64"	6"	4,550 LBS	10" to 24"
36"	6'	4"	64"	6"	4,815 LBS	10" to 24"
48"	4'	5"	79"	8"	6,870 LBS	10" to 30"
48"	4.5'	5"	79"	8"	7,300 LBS	10" to 36"
48"	5'	5"	79"	8"	7,740 LBS	10" to 36"
48"	5.5'	5"	79"	8"	8,170 LBS	10" to 36"
48"	6'	5"	79"	8"	8,600 LBS	10" to 36"

PRECAST CONCRETE RISER AND BASE
WITH HOODED INLET
REV. 1/2012

Date
Designed
Drawn
Checked
Approved

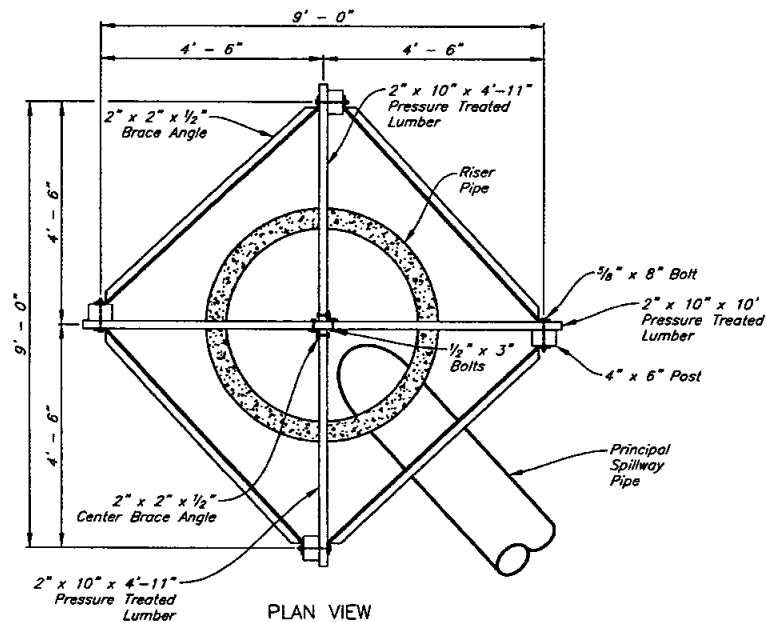
JIM SCHUMACHER
378 POND

PRECAST CONCRETE RISER AND BASE WITH HOODED INLET

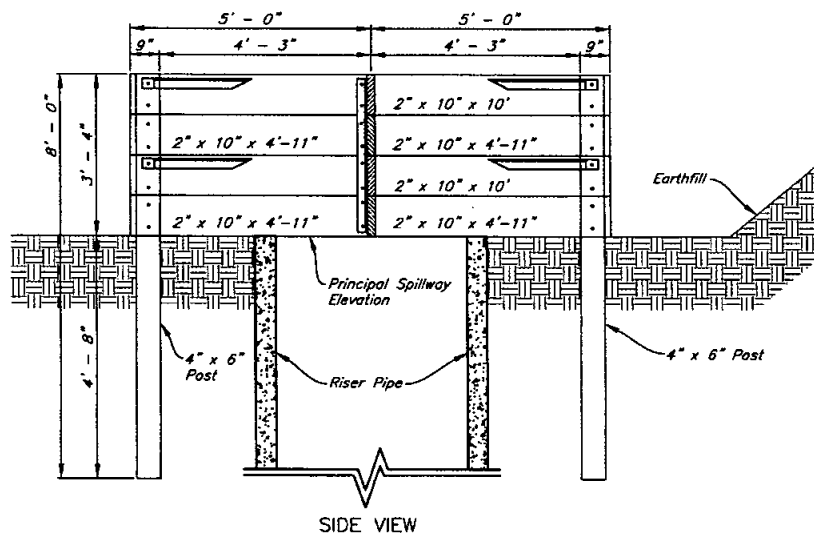
SE, Sec 9, T112, R 80W

United States
Department of
Agriculture
Natural Resources
Conservation Service

File No.
Drawing No.
6/7/16 2:59 PM
Sheet 2 of 2



PLAN VIEW

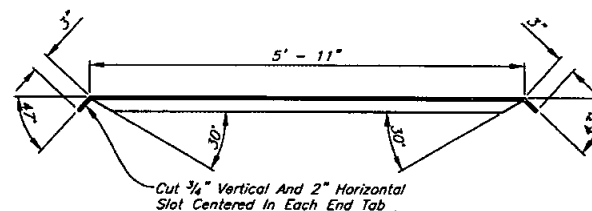


SIDE VIEW

TABLE OF QUANTITIES			
ITEM	LENGTH OR SIZE	UNIT	QUANTITY
4" X 6" Pressure Treated Post	8 Ft	Each	4
2" X 10" Pressure Treated Lumber	10 Ft	Each	4
2" X 10" Pressure Treated Lumber	4' - 11"	Each	8
2" X 2" X 1/4" Steel Angle	6' - 5"	Each	8
2" X 2" X 1/4" Steel Angle	3' - 2"	Each	2
Steel Bolt (with nut and 2 washers)	3/8" X 8"	Sets	32
Steel Bolt (with nut and 2 washers)	1/2" X 3"	Sets	32

CONSTRUCTION NOTES

1. Bolt 4" x 6" posts and 2" x 10" lumber together using two 3/8" x 8" bolts. Do not place bolts closer than 1 1/2" from edge of board.
2. For center brace angles drill eight, 3/16" holes, 3/8" from outer edge of each leg of each angle and centered 5 1/4" apart along the leg.
3. Attach brace angles to top bolt on top of 2" x 10" board and to top bolt on next to bottom board.
4. All nuts, bolts, and washers shall be galvanized.



PLAN VIEW OF BRACE ANGLE

TRASH RACK AND BAFFLE FOR RISER DIA. 36" TO 60"
JOB PLAN NO. 6.4 REV. 1/2012

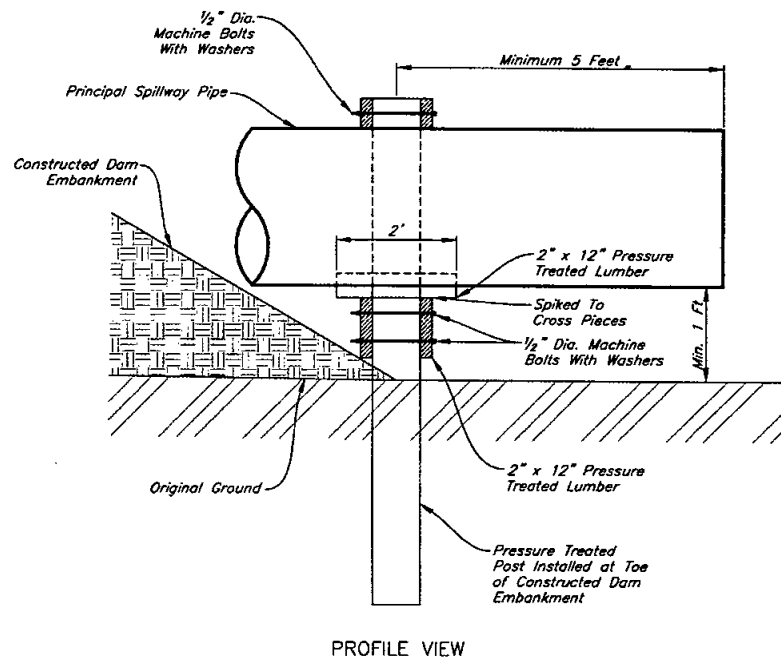
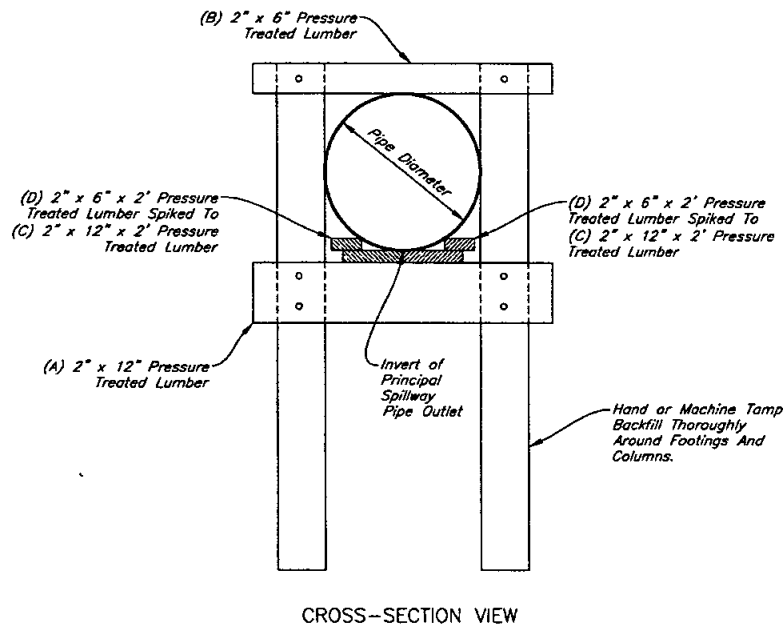
Designed J. Roman
Drawn J. Roman
Checked J. Roman
Approved W. B. Balle

JIM SCHUMACHER
378 POND

TRASH RACK AND BAFFLE FOR RISER DIA. 36" TO 60"
SE, Sec. 9, T112, R. 80W
Hughes County, South Dakota

United States
Department of
Agriculture
Natural Resources
Conservation Service

File No. Dam, Pipe Schumacher
Drawing No. 1
6/7/15 2:59 PM
Sheet 1 of 1



LENGTHS REQUIRED FOR DIFFERENT PIPE DIAMETERS						
ITEM	MATERIAL SIZES BASED ON PIPE DIAMETER				UNIT	QUANTITY
	12" TO 18"	21" TO 24"	30" TO 36"	42" TO 48"		
8" Dia. Pressure Treated Post	8 Ft	--	--	--	Each	2
10" Dia. Pressure Treated Post	--	10 Ft	10 Ft	12 Ft		
(A) 2" X 12" Pressure Treated Lumber	4 Ft	4 Ft	5 Ft	6 Ft	Each	2
(B) 2" X 6" Pressure Treated Lumber	4 Ft	4 Ft	5 Ft	6 Ft	Each	2
(C) 2" X 12" Pressure Treated Lumber	2 Ft	2 Ft	2 Ft	2 Ft	Each	2
(D) 2" X 6" Pressure Treated Lumber	2 Ft	2 Ft	2 Ft	2 Ft	Each	2
½" Dia. Machine Bolts With Nuts	12 In.	14 In.	14 In.	14 In.	Each	6
½" Dia. Washers					Each	12
Spike Nails					Each	20

CONSTRUCTION NOTES

1. All nuts, bolts, and washers shall be galvanized.
2. If PVC pipe is used, protect the portions of pipe that will be permanently exposed to ultraviolet light from sunlight by priming the pipe with PVC solvent and painting with two coats high quality exterior latex paint.
3. Hand or machine tamp backfill thoroughly around footings and columns.

TIMBER PIPE SUPPORT
JOB PLAN NO. 4.0 REV. 1/2012

Date: 6/28/16
Designed: J. Schumacher
Drawn: J. Schumacher
Checked: J. Schumacher
Approved: J. Schumacher

JIM SCHUMACHER
378 POND
TIMBER PIPE SUPPORT

SE, Sec 9, T112, R 80W

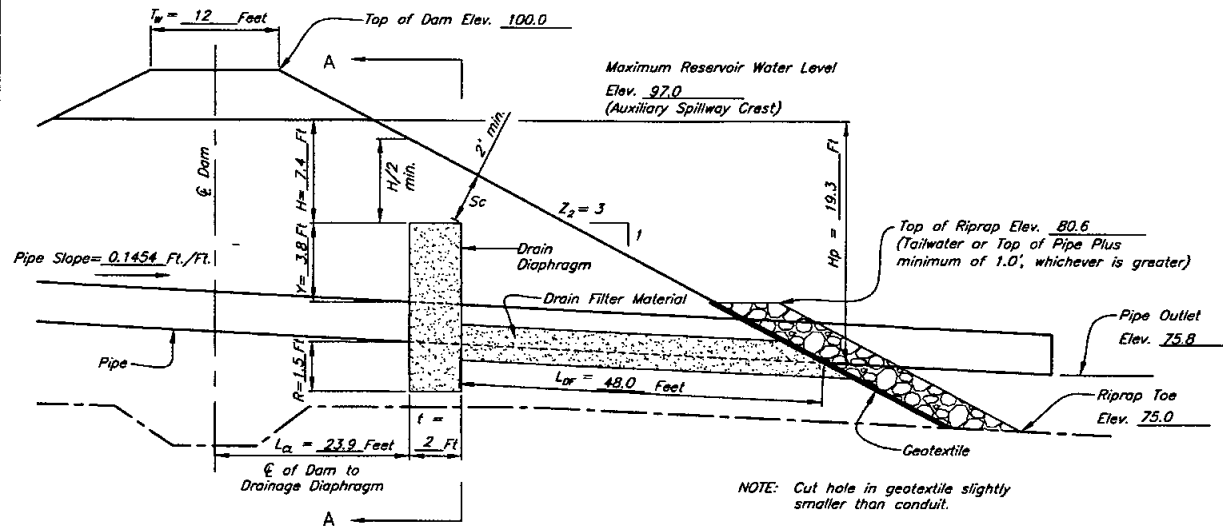
Hughes County, South Dakota

United States
Department of
Agriculture
USDA
Natural Resources
Conservation Service

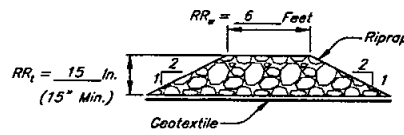
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Drawing No.
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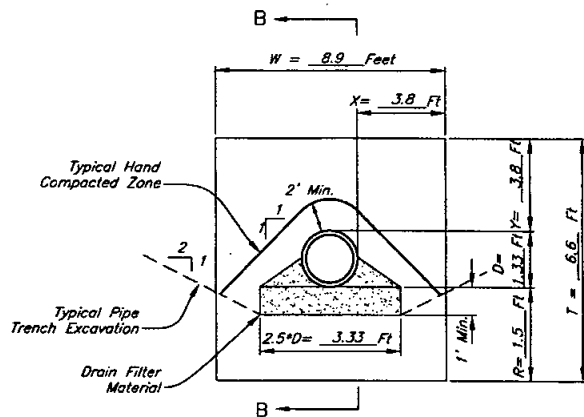
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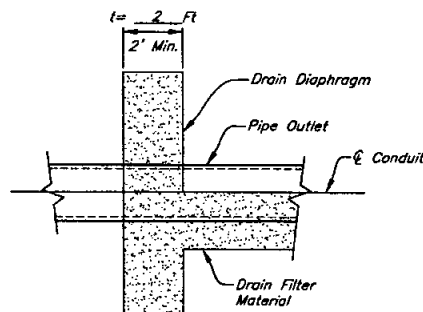
PROFILE ALONG ϕ OF CONDUIT
NO SCALE



SECTION OF RIPRAP
Perpendicular to Slope



SECTION A-A
NO SCALE



SECTION B-B
NO SCALE

SUMMARY OF SAND DRAINFILL DIMENSIONS

$W = 8.9$ Feet	(Total Width of Drain Diaphragm)
$T = 6.6$ Feet	(Total Height of Drain Diaphragm)
$t = 2$ Feet	(Thickness of Single Filter)
$L_{pr} = 47.5$ Feet	(Length of Sand Along Pipe)

SUMMARY OF GEOTEXTILE DIMENSIONS

$G_w = 11.0$ Feet	(Total Width of Geotextile)
$G_L = 17.8$ Feet	(Total Length of Geotextile)

SUMMARY OF ROCK RIPRAP DIMENSIONS

$RR_1 = 1.25$ Feet	(Total Thickness of Rock Riprap)
$RR_w = 6$ Feet	(Total Width of Rock Riprap)

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
Sand Drain Filter Material	Cu. Yds.	11.2
Geotextile	Sq. Yds.	21.8
Rock Riprap	Cu. Yds.	7.0

DRAIN FILTER GRADATION

SIEVE SIZE	PERCENT PASSING
3/8	100
4	95-100
8	80-100
16	50-85
30	25-60
50	2-30
100	0-10

RIPRAP GRADATION

PERCENT SMALLER	WEIGHT RANGE (LBS.)	SIZE RANGE (IN.)
100	50 lb.	10"
50-85	30 lb.	7"
15-50	10 lb.	5"
0-15	3 lb.	3"

ASTM C-33
FINE CONCRETE
AGGREGATE GRADATION

CONSTRUCTION NOTES

- The Drainage Diaphragm and envelope will be installed by placing Drain Filter Material in maximum 15 inch thick uncompacted lifts. Each lift will be saturated uniformly with approximately 1.2 gallons of water per cubic foot of loose Drain Filter Material prior to compaction. Each lift will then be compacted by a minimum of two passes of a hand-directed vibratory compactor over the entire lift surface. No compaction of the drain envelope above the pipe invert will be required.
- The maximum height of drop of the Riprap onto the Geotextile in the pipe outlet area shall be 3 feet.

MATERIAL NOTES

- The geotextile shall conform to the Class 1 requirements in Table 2 for Nonwoven Geotextiles in Material Specification SD-592.

DRAINAGE DIAPHRAGM DETAILS
JOB PLAN 3.8 REV. 06/2016

Date: 6/7/16
Designed: J. Schumacher
Drawn: J. Schumacher
Checked: J. Schumacher
Approved: J. Schumacher

Jim Schumacher
378 Pond
Sand Drainage Diaphragm Detail

SE, Sect. 9, T. 112, R. 80
Hughes County, South Dakota

United States
Department of
Agriculture
USDA
Natural Resources
Conservation Service

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Sheet 1 of 1

Jim Schumacher Dam Repair
 WR # 5700-3 ID No 5002380

Top of Dam Elev. - 100	} Ht. = 25 ft.
2nd Spillway Elev. - 97	
P. Spillway Elev. - 95.3	
D/S Emb. Toe Elev. - 75	

Cat. 3. Low Hazard Dam

Normal Storage Capacity - 51 Ac-Ft
 Int Storage Capacity - 61
 Max Storage Capacity - 90

This is the repair of an Existing dam authorized by WR #5700-3. The original Primary Spillway was a 15 in. dia HDPE pipe at Elev. 94.75. The current Primary Spillway is a 12 in dia CMP pipe (that will be replaced) at Elev. 95.3. The difference in Elevation amounts to only about 2 Ac-Ft. of storage, and considering the age of the dam there is probably that much sediment at the Bottom of reservoir. OK The new Primary Spillway will be at Elev. 95.3 and be a 36 in. dia concrete riser with a 16" inch dia PVC barrel. The Secondary spillway will also be regraded.



