

WATER PERMIT NO. 8417-3

Name of Applicant: River Farm LLC

Address: 2290 Hollybush Rd, Medina MN 55340

Phone: 612 867-2430

Amount of Water Claimed: 48.4 AF

Total Acres: NA

Source of Water Supply: runoff

Water to be used for: fish & wildlife propagation and recreation

County: Charles Mix

Type of Waste Disposal System:

Location: 15 miles south of Platte

PRIORITY

Date Received: 12-10-19

Application/License Fee: \$ 700

Corrected Application Received:

Period of Annual Use: Jan 1 – Dec 31

Remarks:

Diversion Point: approximate center of NE 1/4 Sec
32-T97N-R67W

Water Impounded: NE 1/4 Sec 32-T97N-R67W

Depth of Well: NA

Well Driller:

Remarks:

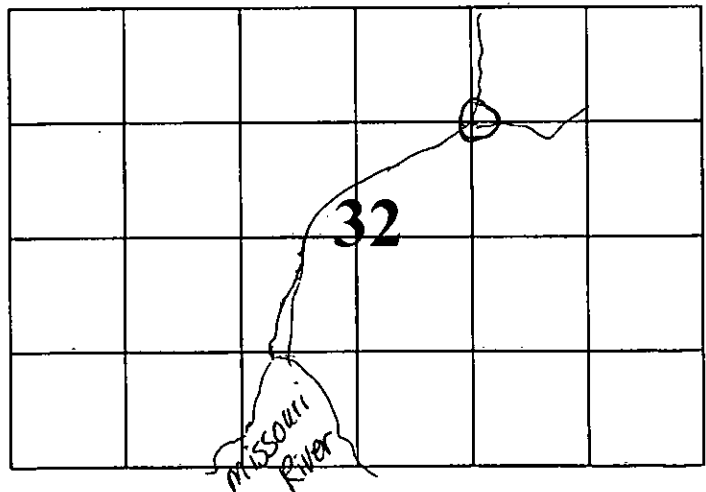
Type of Map:

Prepared by:

Reviewed and the Number Assigned on: 12-10-19

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



**SOUTH DAKOTA
WATER PERMIT NO. 8417-3**

Date of first receipt of application December 10, 2019.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8417-3 to River Farm LLC, c/o Steve A Vanderboom, 6897 Grenadier Blvd, No. 1403, Naples FL 34108 authorizing the construction of a dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 8417-3 authorizes impoundment of 48.4 acre-feet of water from runoff by constructing a dam located in the approximate center of the NE 1/4 Section 32 with water impounded in the NE 1/4 Section 32; all in T97N-R67W. This permit authorizes impoundment of sufficient water to maintain water to the primary outlet elevation. This site is located 15 miles south of Platte SD.
2. The water appropriated shall be used for the purpose of fish and wildlife propagation and recreational use 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. 8417-3 is February 24, 2020.
5. The date from which applicant may claim right is December 10, 2019.
6. One-fifth of the construction is to be completed on or before August 24, 2022.
7. All construction is to be completed on or before February 24, 2025.
8. Water is to be put to beneficial use on or before February 24, 2029.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

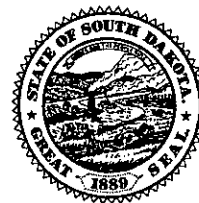
QUALIFICATIONS

1. Water Permit No. 8417-3 authorizes a dam with a storage capacity of 48.4 acre feet of water annually to the primary 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: *Jeanna Goodman*
Jeanna Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

FEB 27 2020
date



PAID
DEC 10 2019
Ck# 1194
RECEIVED
DEC 10 2019
WATER RIGHTS
PROGRAM

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8417-3</u> (office use only) Hydrologic Unit <u>10140101</u>
	Basin <u>Missouri River</u>
	Newspaper <u>Platte Enterprise</u>
	<u>Daily Republic</u>

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

Check use(s) of water:

☐ Municipal	☐ Water Distribution System	☒ Recreational	☐ Institutional
☐ Rural Water System	☐ Commercial	☒ Fish & Wildlife	☐ Geothermal
☐ Domestic (over 18 gpm)	☐ Industrial	☐ Other _____	

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 to Appear on Water Permit River Farm LLC 6897 Grenadier Blvd, No 1403
Naples FL 34108
Mailing Address 2290 Hollybush Rd. Medina MN 55340
(Address) (City) (State) (Zip Code)
Phone _____ Mobile 612-867-2430 Email SVanderboom@paulkbs.com
2. Amount of water claimed _____ *CFS or _____ **GPM and 48.4 ***AF or _____ Gallons
Flow rate and volume are both required. (*Cubic Feet per Second) (**Gallons per Minute) (***Acre Feet - storage capacity of dam/dugout or annual use)
3. Source of water supply runoff (approximate center)
4. Location of point of diversion NE 1/4, S32, T97N, R67W County Charles Mix
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)
- If not a public water supply (e.g. municipal), will water be used outside of the area described above? ☐ Yes ☐ No
If "Yes," where will water be used? Water Impounded: NE 1/4 Sec 32 - T97N - R67W
(example - NW1/4 section 12-T104N-R53W)
5. County or counties where water will be used Charles Mix
6. Annual period during which water is to be used January 1 through December 31st
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)

Intend to construct a dam for purposes of fish, wildlife & recreational uses

I, Steve Vanderboom Resident, the applicant, certify under
Name of Person Title (if applicable)

penalty of perjury that I have read this application, examined the attached map, and that the matters stated are true. I further certify, if acting on behalf of an entity or individual other than myself, that I am authorized to submit this application.

Supplemental Information

(type or print)

1. Well Information

(check one or both as applicable)

☐ Drilling new well(s)

☐ Using existing well(s)

a) If new wells, how many ____ Have test holes been drilled ☐ Yes ☐ No Drilled by ____
(if yes, please provide copies of logs)

b) If existing wells, how many ____ Provide copy of log(s), if available. Drilled by ____

For either Existing or Proposed Wells:

c) Well Depth (required) ____ Depth to Top of Water Bearing Material ____ Depth to Water from Surface ____

d) Distance to nearest domestic well on applicant's property ____ 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:

See attached plans & specifications

b) Freeboard ____

c) Crest Width ____

Crest Length ____

d) Height ____

e) Primary Outlet Capacity ____

If pipe, diameter ____

f) Secondary Spillway Capacity ____

Spillway Width ____

g) X & Y Slope (e.g. 3 to 1 is a typical slope)

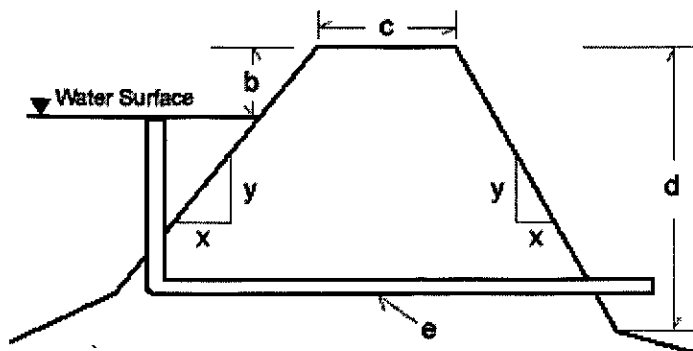
Upstream ____

Downstream ____

h) Surface Area of Impoundment ____

i) Storage ____ Acre Feet

j) Drainage Area Above Dam ____ Acres



RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date December 10, 20 19

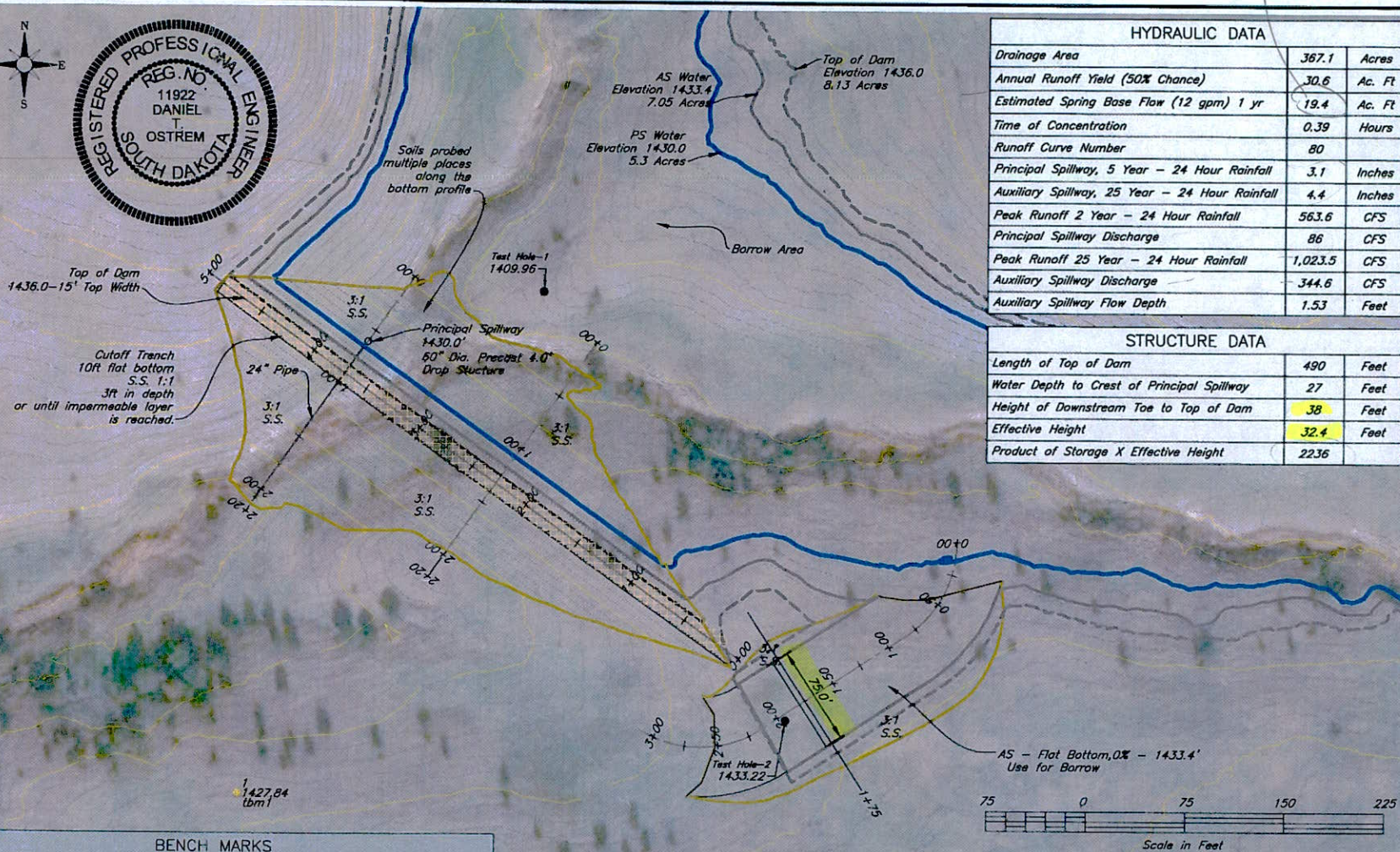
RECEIVED OF Steve Vanderboom/Julie Vanderboom/ Lynn Walstad 2290 Hollybush Rd Medina MN
55340-9470

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

Fee for Application for Permit No. <u>8417-3</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>8417-3</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. **09265**

By Jeanne Hoodman
Chief Engineer
zm



HYDRAULIC DATA	
Drainage Area	367.1 Acres
Annual Runoff Yield (50% Chance)	30.6 Ac. Ft
Estimated Spring Base Flow (12 gpm) 1 yr	19.4 Ac. Ft
Time of Concentration	0.39 Hours
Runoff Curve Number	80
Principal Spillway, 5 Year - 24 Hour Rainfall	3.1 Inches
Auxiliary Spillway, 25 Year - 24 Hour Rainfall	4.4 Inches
Peak Runoff 2 Year - 24 Hour Rainfall	563.6 CFS
Principal Spillway Discharge	86 CFS
Peak Runoff 25 Year - 24 Hour Rainfall	1,023.5 CFS
Auxiliary Spillway Discharge	344.6 CFS
Auxiliary Spillway Flow Depth	1.53 Feet

STRUCTURE DATA	
Length of Top of Dam	490 Feet
Water Depth to Crest of Principal Spillway	27 Feet
Height of Downstream Toe to Top of Dam	38 Feet
Effective Height	32.4 Feet
Product of Storage X Effective Height	2236

BENCH MARKS				
NO.	Northing	Easting	Elevation	Description
Control Point (CP) Base 1	15684865.45	1695774.21	1427.84	yellow capped rebar on south side of draw
Control Point (CP) 2	15685473.50	1695759.26	1475.38	yellow capped rebar on top of the ridge to the north of the dam

SEDIMENT YIELD					
Erodibility Area	Gross Rate (A.F./Ac./Yr.)	Drainage Area (Acres)	Delivery Rate (%)	Design Period (Years)	Required Sediment Volume (Ac.-Ft.)
K	.0059	367	32	20	13.9

POOL DATA			
	ELEV.	AREA	STORAGE
Crest of Principal Spillway	1430.0	5.30 Ac.	48.4 Ac.-Ft
Crest of Auxiliary Spillway	1433.4	7.05 Ac.	68.9 Ac.-Ft
Top of Dam	1436.0	8.13 Ac.	88.5 Ac.-Ft

DESIGNED: D. Ostrem 08/07/2019
DRAWN: D. Ostrem 08/07/2019
CHECKED: D. Edwards 08/13/2019
APPROVED: [Signature] 11-11-19

RIVER FARMS POND (378)
PLAN VIEW
Charles Mix County, South Dakota

NE 1/4, Sec 32, T97 N, R67W

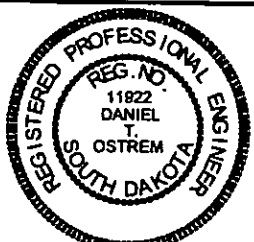
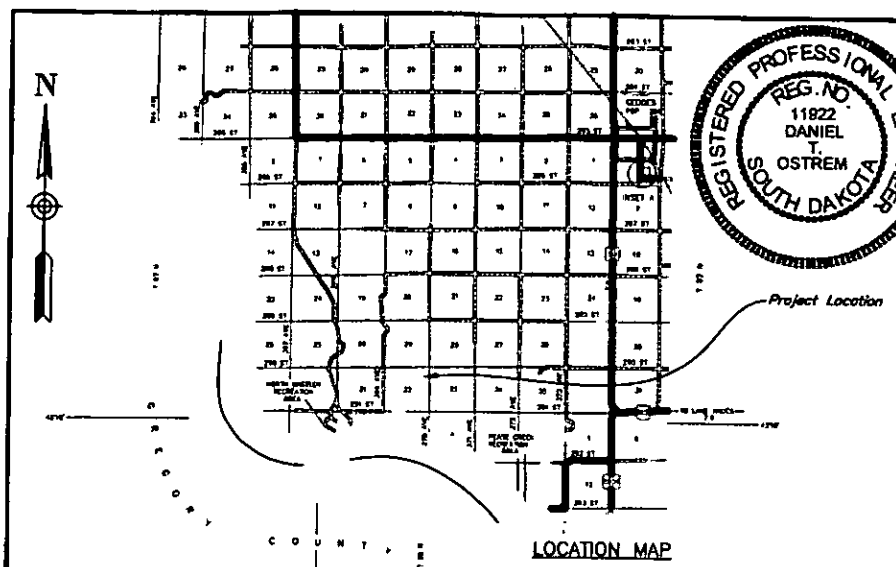


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Sheet 2 of 8

→ (68.9 ac-ft) / (32.4 ft) = 2236.36 ac-ft

8417-3

Dam - X-section



LOCATION MAP
NE 1/4, S32, T97N, R67W
Charles Mix County, South Dakota

TABLE OF ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	AS-BUILT
Earthfill Class S - Embankment (includes 5% settlement)	Cu. Yd.	26,594	
Earthfill Class S - Core Trench	Cu. Yd.	689	
Earthfill Class S - Stripping	Cu. Yd.	1,061	
Earthfill - Top Soiling (Dam-AS)	Cu. Yd.	(1,061-419)	
Total Contracted Earthfill	Cu. Yd.	29,824	
Seeding (Earthfill and Auxiliary Spillway)	Acre	2	
Principal Spillway Pipe			
24" Dia. PVC DR 21 Pipe (joint overlap not incl.)	Lin. Ft.	161	
60" Dia. 4' Tall Riser and Base	Each	1	
with Trash Rock and Baffle	Each	1	
Drainage Diaphragm (see quantities on page 5)	Each	1	
Timber Pipe Support	Each	1	
24" DR 21 Pipe Elbow 11.25' Bend	Each	1	

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.

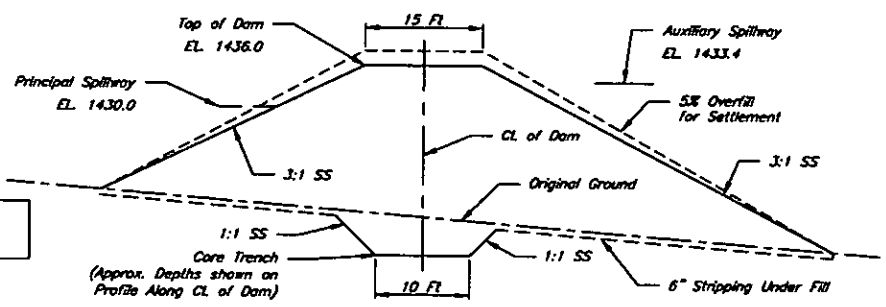
CONSTRUCTION NOTES

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.
- 6.

NRCS HAZARD CLASS A
NRCS JOB CLASS V

SD CONSTRUCTION AND MATERIAL SPECIFICATIONS

- SD-2 Clearing and Grubbing
 - SD-4 Stripping
 - SD-5 Excavation
 - SD-7S Earthfill - Class S
 - SD-8 Rock Riprap and Bedding
 - SD-10 Shaping 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-59Z Geotextile
- For A Full Text Version See
http://www.ed.usda.gov/technical/SD_Engineering.html



TYPICAL CROSS SECTION OF DAM

INDEX OF DRAWINGS

1. Cover Sheet
2. Plan View and Design Data
3. Cross Sections
4. Profiles
5. Drainage Diaphragm Detail
6. Precast Pipe Drop
7. Timber Pipe Support Detail
8. Trash Rock and Baffle Detail

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. 1/2012

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

Designed: D. Ostrem 08/07/2019

Drawn: D. Ostrem 08/07/2019

Checked: D. Edwards 08/13/2019

Approved: [Signature] 11-18-19

Charles Mix County, South Dakota

NE 1/4, Sec 32, T97 N, R67W

RIVER FARMS POND (378)

COVER

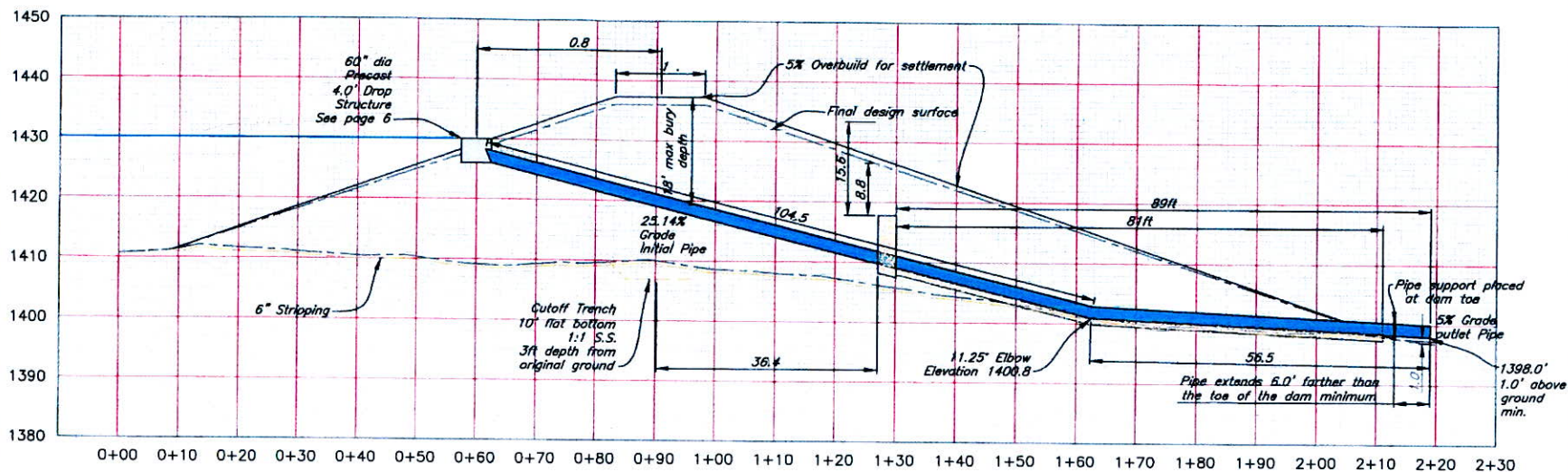
United States Department of Agriculture
Natural Resources Conservation Service

Fig. No. River Farms Pond.dwg

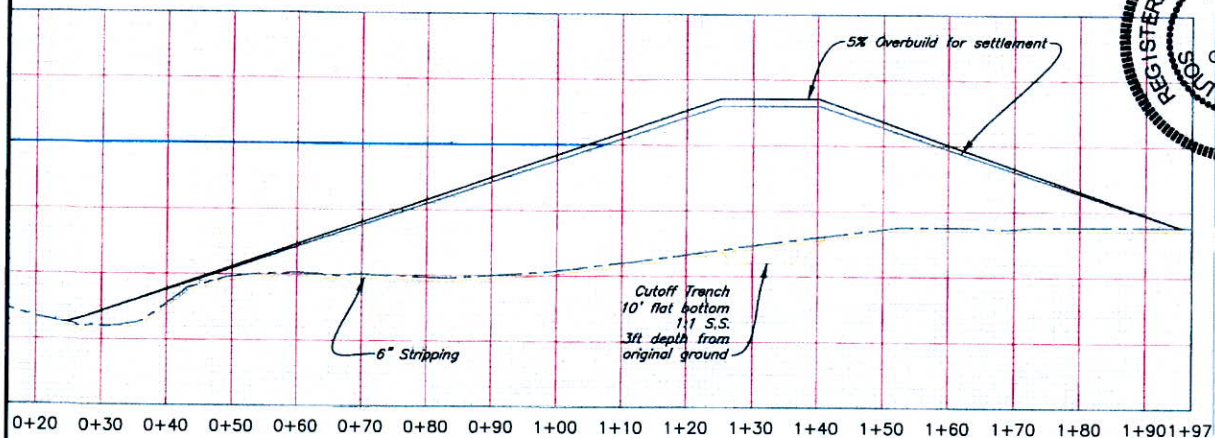
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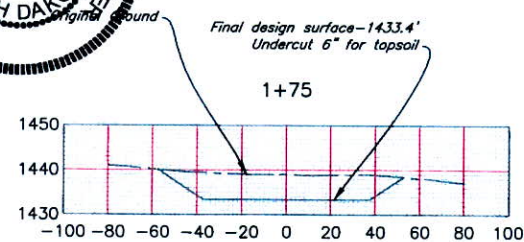
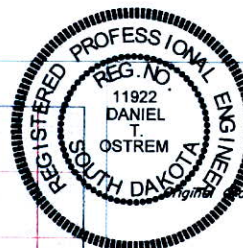
Sheet 1 of 8



STA 3+70 - PS PROFILE



STA 2+28 - Section View PROFILE



STA 1+75 - Auxiliary Spillway CROSS SECTION

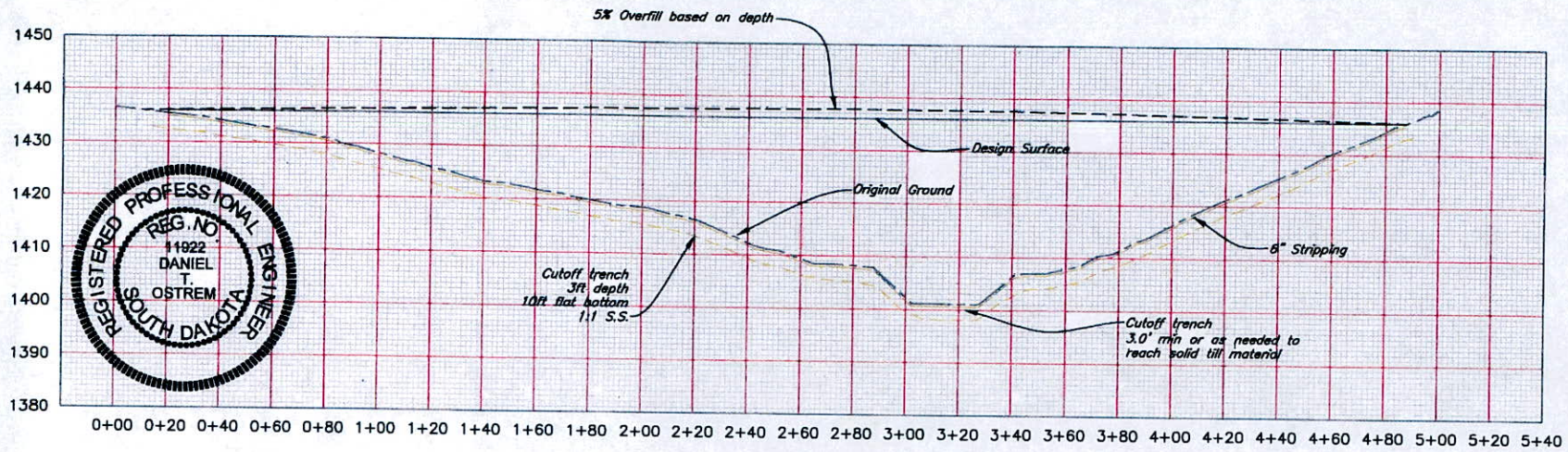
Date
 Designed D. Ostrem 08/07/2019
 Drawn D. Ostrem 08/07/2019
 Checked D. Edwards 08/13/2019
 Approved *[Signature]* 11-18-19

RIVER FARMS
 POND (378)
 CROSS SECTIONS
 Charles Mix County, South Dakota

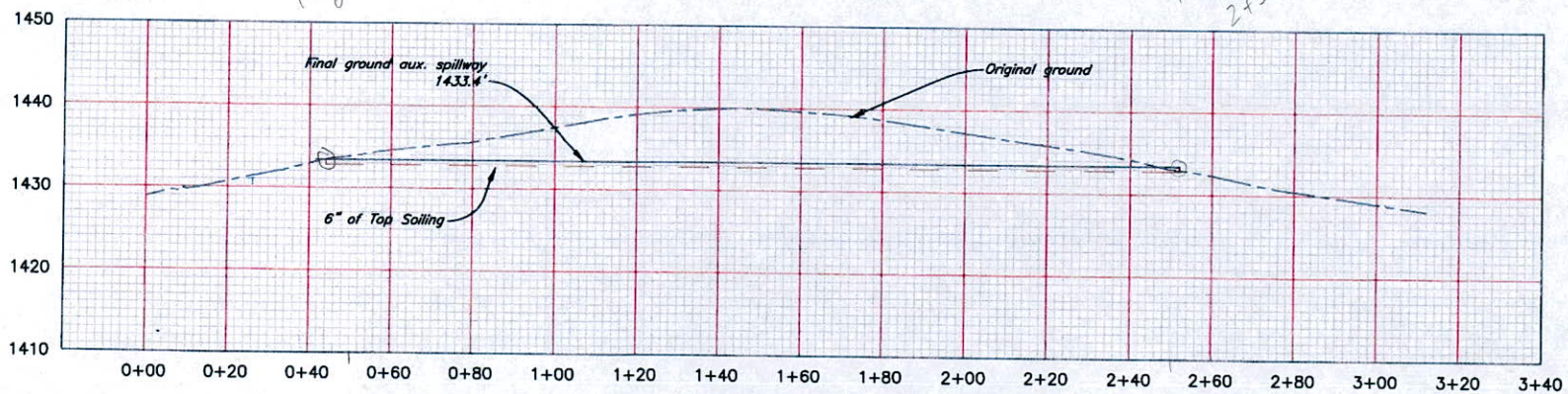
United States
 Department of
 Agriculture
 Natural Resources
 Conservation Service

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 Sheet 3 of 8

Dam X-section profile



DAM PROFILE



AS PROFILE

Date: 08/07/2019
 Designed: D. Ostrem
 Drawn: D. Ostrem
 Checked: D. Edwards
 Approved: [Signature] 11-12-19

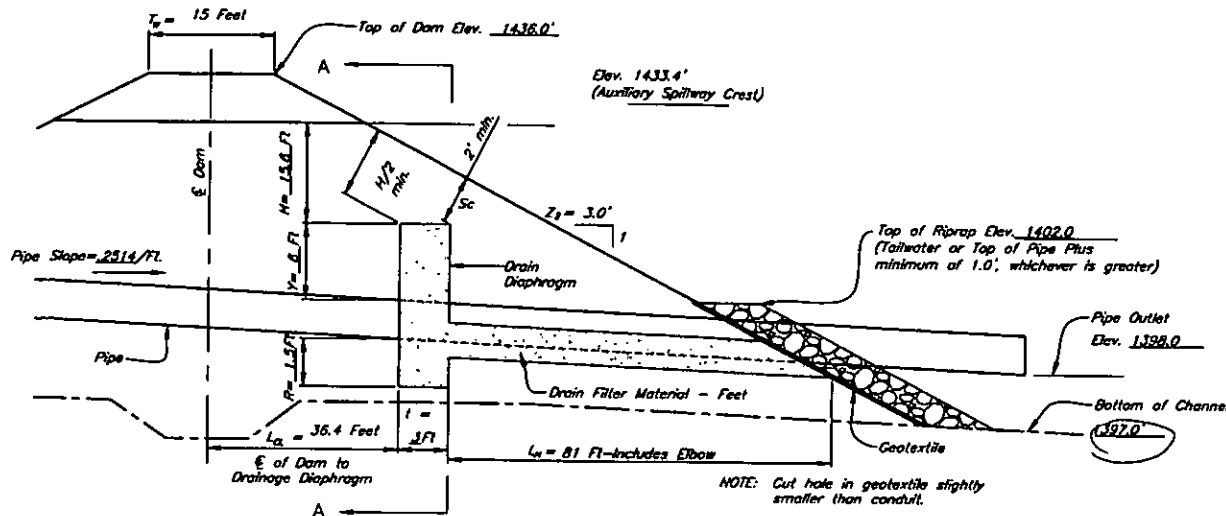
RIVER FARMS
 POND (378)
 PROFILES

Charles Mix County, South Dakota
 NE 1/4, Sec 32, T97 N, R67W

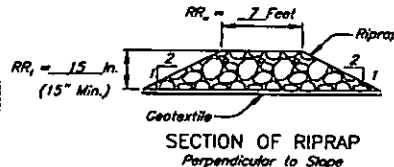
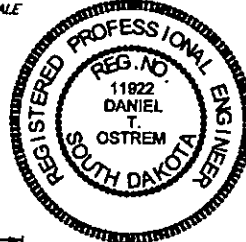
United States
 Department of
 Agriculture
 Natural Resources
 Conservation Service

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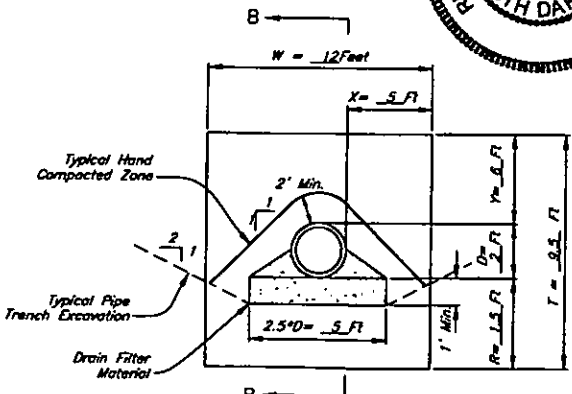
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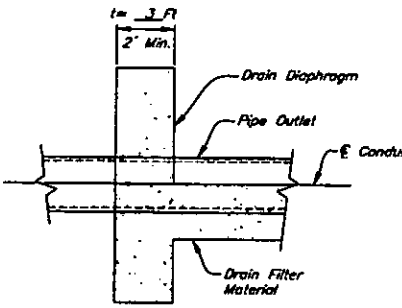
PROFILE ALONG C OF CONDUIT
NO SCALE



SECTION OF RIPRAP
Perpendicular to Slope



SECTION A-A
NO SCALE



SECTION B-B
NO SCALE

SUMMARY OF SAND DRAIN FILL DIMENSIONS	
W = 12	Feet (Total Width of Drain Diaphragm)
T = 9.5	Feet (Total Height of Drain Diaphragm)
t = 3	Feet (Thickness of Single Filter)
L = 58.6	Feet (Length of Sand Along Pipe)
SUMMARY OF GEOTEXTILE DIMENSIONS	
Gw = 12	Feet (Total Width of Geotextile)
GL = 13.6	Feet (Total Length of Geotextile)
SUMMARY OF ROCK RIPRAP DIMENSIONS	
RR = 15	INCH (Total Thickness of Rock Riprap)
RRw = 7	Feet (Total Width of Rock Riprap)

TABLE OF QUANTITIES		
ITEM	UNIT	QUANTITY
Sand Drain Filter Material	Cu. Yds.	34
Geotextile	Sq. Yds.	18.1
Rock Riprap	Cu. Yds.	7

DRAIN FILTER
GRADATION

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

ASTM, C-33
FINE CONCRETE
AGGREGATE GRADATION

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	5 lb.	3"

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 5 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. 4/2017

Designed: D. Ostrem 08/07/2019
 Drawn: D. Ostrem 08/07/2019
 Checked: D. Edwards 08/13/2019
 Approved: J. L. Ladd 11-18-19

**RIVER FARMS
POND (378)
DRAINAGE DIAPHRAGM**

Charles Mix County, South Dakota

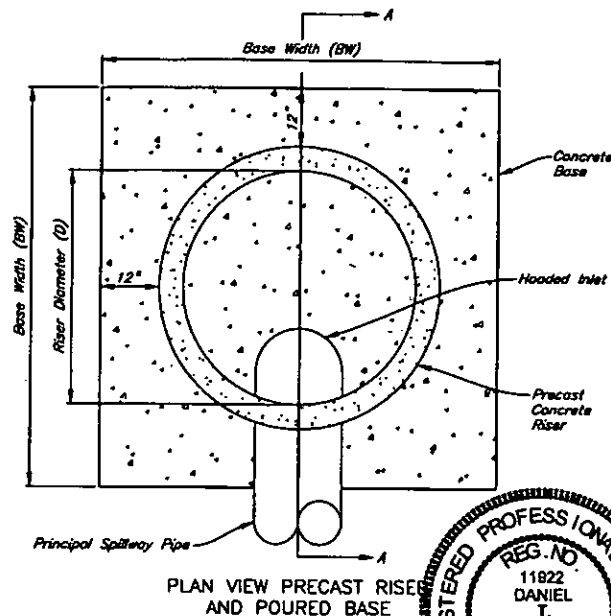
NE4, Sec 32, T97 N, R67 W

United States
Department of
Agriculture
USDA
Natural Resources
Conservation Service

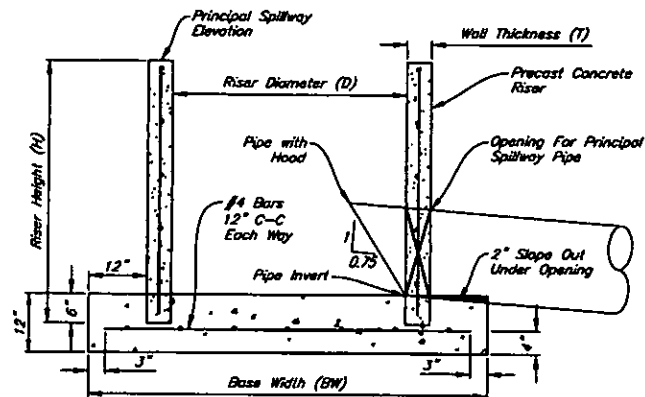
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Sheet 5 of 8



PLAN VIEW PRECAST RISER
AND POURED BASE



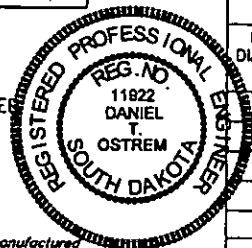
SECTION VIEW A-A

GUIDE TABLE FOR PRECAST RISER AND POURED BASE DIMENSIONS

RISER DIAMETER (D)	RISER HEIGHT (H)	WALL THICKNESS (T)	PRECAST RISER WEIGHT	BASE WIDTH (BW)	CONCRETE BASE VOL.	#4 REBAR LENGTH	PIPE DIA. BARREL
30"	4.0'	3.5"	1,534 LBS	5'-1"	1.0 CY	45'-10"	10" to 18"
30"	4.5'	3.5"	1,726 LBS	5'-1"	1.0 CY	45'-10"	10" to 18"
30"	5.0'	3.5"	1,918 LBS	5'-1"	1.0 CY	45'-10"	10" to 18"
36"	4.0'	4"	2,093 LBS	5'-8"	1.2 CY	72'-4"	10" to 24"
36"	4.5'	4"	2,355 LBS	5'-8"	1.2 CY	72'-4"	10" to 24"
36"	5.0'	4"	2,617 LBS	5'-8"	1.2 CY	72'-4"	10" to 24"
36"	5.5'	4"	2,878 LBS	5'-8"	1.2 CY	72'-4"	10" to 24"
36"	6.0'	4"	3,140 LBS	5'-8"	1.2 CY	72'-4"	10" to 24"
48"	4.0'	5"	3,467 LBS	6'-10"	1.7 CY	101'-4"	10" to 30"
48"	4.5'	5"	3,900 LBS	6'-10"	1.7 CY	101'-4"	10" to 36"
48"	5.0'	5"	4,334 LBS	6'-10"	1.7 CY	101'-4"	10" to 36"
48"	5.5'	5"	4,767 LBS	6'-10"	1.7 CY	101'-4"	10" to 36"
48"	6.0'	5"	5,201 LBS	6'-10"	1.7 CY	101'-4"	10" to 36"
60"	4.0'	6"	5,181 LBS	8'-0"	2.4 CY	135'-0"	10" to 30"
60"	4.5'	6"	5,829 LBS	8'-0"	2.4 CY	135'-0"	10" to 36"
60"	5.0'	6"	6,476 LBS	8'-0"	2.4 CY	135'-0"	10" to 48"
60"	5.5'	6"	7,124 LBS	8'-0"	2.4 CY	135'-0"	10" to 48"
60"	6.0'	6"	7,772 LBS	8'-0"	2.4 CY	135'-0"	10" to 48"

CONSTRUCTION NOTES

- The riser is precast reinforced concrete and is manufactured according to ASTM C478 Standard Specification For Precast Reinforced Concrete Manhole Sections.
- Provide watertight joints between the precast concrete riser and the principal spillway pipe barrel and between the precast concrete riser and poured base. Consolidate the concrete with a vibrator to prevent air voids from developing around the riser, rebar, and pipe.
- The concrete must have a minimum 28 day compressive strength of 3500 PSI and a maximum water/cement ratio of 0.5. The concrete mix must contain a minimum of 6 bags of cement per cubic yard and the mix must contain less than 5 1/2 gallons of water per bag of cement.
- Portland Cement Type II shall be used.
- A slump of 2 to 5 inches is required. The maximum size aggregate shall be 1 inch. Air entrainment shall be 4 to 7 percent by volume.
- Apply a curing compound to the surface as recommended by the manufacturer.
- Contact NRCS prior to installation for other options for the construction of the riser if a precast riser and poured in place concrete base is not used.



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

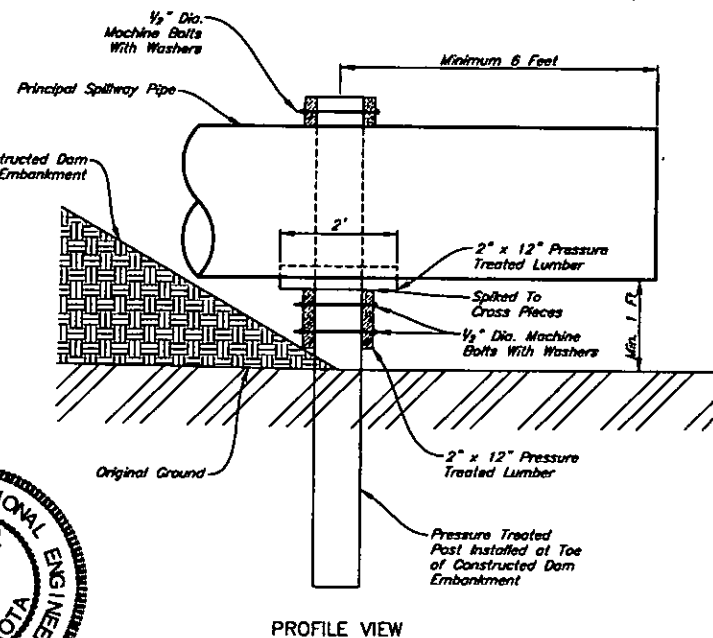
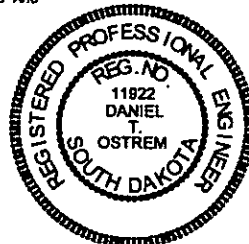
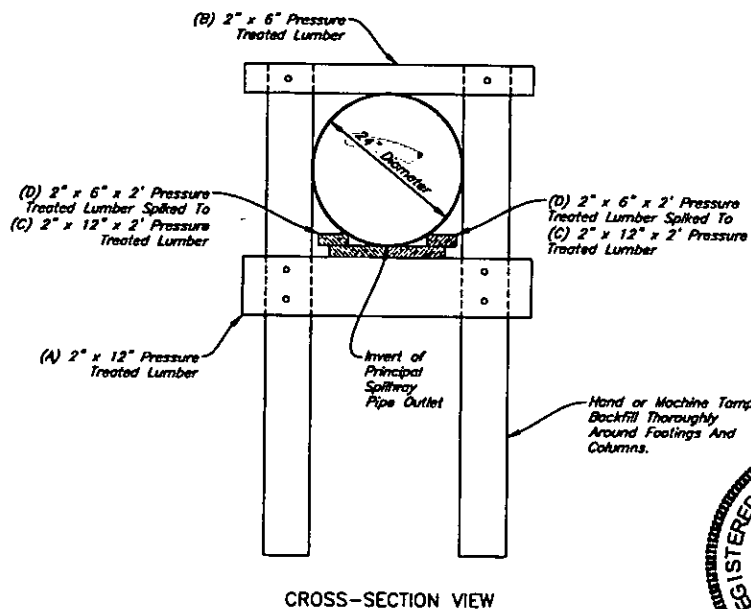
Designed: D. Ostrem 08/07/2019
Drawn: D. Ostrem 08/07/2019
Checked: D. Edwards 08/13/2019
Approved: [Signature] 11-11-19

Charles Mix County, South Dakota

RIVER FARMS
POND (378)
PIPE DROP STRUCTURE

United States
Department of
Agriculture
USDA
Natural Resources
Conservation Service

File No.
River Farms
Pond.dwg
Drawing No.
10/7/19 12:08 PM
Sheet 6 of 8



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
1/2" Dia. Machine Bolts With Nuts	12 In.	14 In.	14 In.	14 In.	Each	6
1/2" Dia. Washers					Each	12
Splice 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

USDA United States Department of Agriculture Natural Resources Conservation Service	Designed: A. Ostrem Drawn: A. Ostrem Checked: A. Edwards Approved: <i>[Signature]</i>	08/07/2019 08/07/2019 08/11/2019 11-18-19
	RIVER FARMS POND (378) PIPE SUPPORT	
	Charles Mix County, South Dakota	
	NE4, Sec 32, T97 N, R67W	
File No. River Farms Pond.dwg Drawing No. 10/7/19 12:05 PM Sheet 7 of 8		

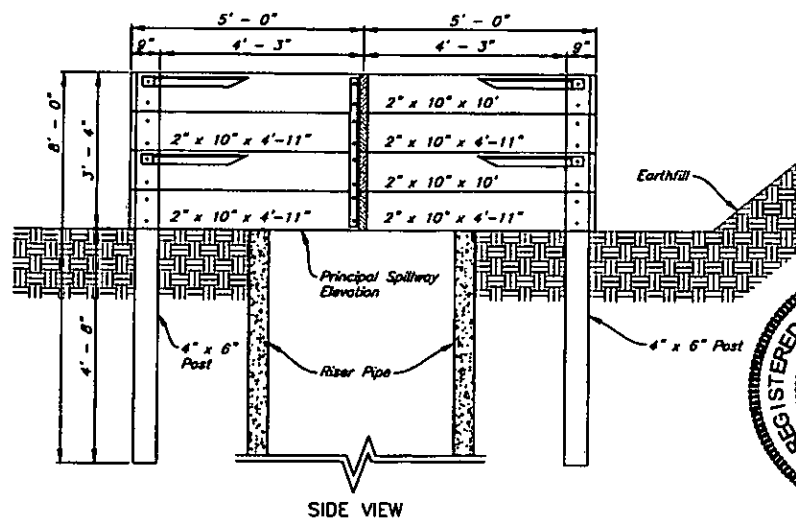
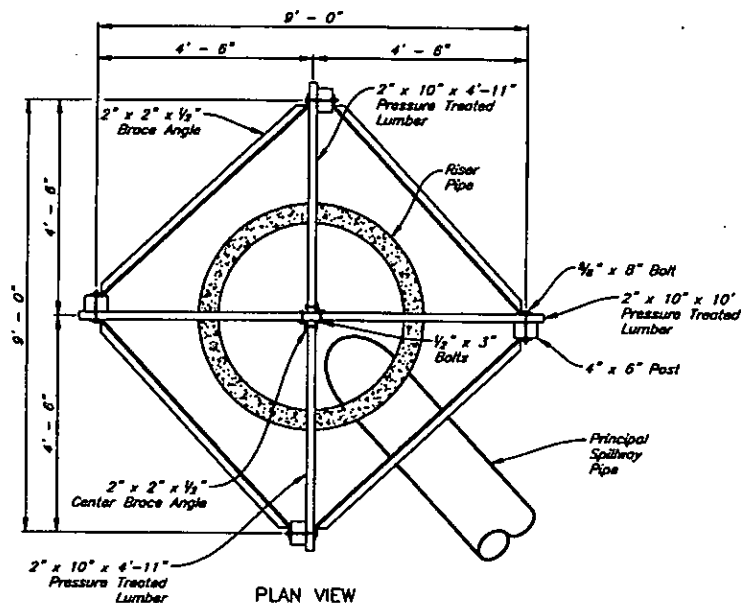
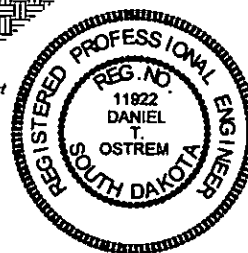
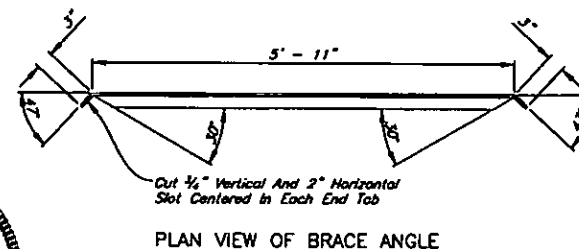


TABLE OF QUANTITIES			
ITEM	LENGTH OR SIZE	UNIT	QUANTITY
4" X 6" Pressure Treated Post	8 Ft	Each	4
2" X 10" Pressure Treated Lumber	10 Ft	Each	4
2" X 10" Pressure Treated Lumber	4' - 11"	Each	8
2" X 2" X 1/2" Steel Angle	6' - 5"	Each	8
2" X 2" X 1/2" Steel Angle	3' - 2"	Each	2
Steel Bolt (with nut and 2 washers)	1/2" 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 1/2" x 8" bolts. Do not place bolts closer than 1 1/2" from edge of board.
2. For center brace angles drill eight 1/8" holes, 1/8" 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.



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

Designed: D. Ostrem 08/07/2019
Drawn: D. Ostrem 08/07/2019
Checked: D. Edwards 08/13/2019
Approved: [Signature] 11-18-19

RIVER FARMS
POND (378)
TRASH RACK

United States
Department of
Agriculture
USDA
Natural Resources
Conservation Service

File No.
River Farms
Pond.dwg
Drawing No.
10/7/19 12:05 PM
Sheet 8 of 8

ME4, Sec 32, T87 N, R67W Charles Mix County, South Dakota

RECEIVED

DEC 10 2019

WATER RIGHTS
PROGRAM

December 4, 2019

DENR-Water Rights
523 E. Capitol Ave.
Pierre, SD 57501-3182

RE: Water Rights Application

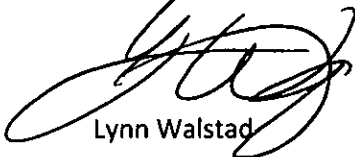
To Whom this may concern;

Enclosed is an application for water rights for River Farm LLC. We are constructing a dam for family fishing and wildlife usage. River Farm LLC is owned by Steve Vanderboom in Medina MN. I, Lynn Walstad, is Steve's nephew and manage and oversee River Farm's property located near Platte SD in Charles Mix county. I live in Platte SD and can answer any questions regarding the property. My contact info in below:

Lynn Walstad
PO Box 748
Platte, SD 57369
605-366-5974 cell
Walstad.lynn@gmail.com

Please let me know if you have any questions regarding this application process.

Sincerely,



Lynn Walstad



**RIVER FARMS
CHARLES MIX COUNTY, SOUTH DAKOTA
DESIGN REPORT
POND (378)
October 2019**

Summary

River Farms has recently purchased land in Charles Mix county east of North Wheeler near the Missouri River. They hope to develop the land for improved wildlife and fish habitat. They came to NRCS for CTA design guidance to ensure they build the structure appropriately as well as follow all state and federal laws and policies.

Description of Job

The owners wanted as large of a pool area that could be practically designed. I originally designed a cheaper option with a pool elevation of 1426.0. We then did some additional planning for the larger option of 1430'. The two different pool elevations were flagged in the field to show the difference to the land owners. They decided that the 1430' elevation was preferred and sufficient to their desires. Going higher than 1430 wasn't an option because the southern abutment was tying into the summit of a "bench" that allowed for an auxiliary spillway with minimal excavation and shallower slopes at the end of the spillway. The minimal excavation of the spillway will allow most of the dam fill to be borrowed from the pool area. This will increase the pool volume, depth, and reduce the top layer of nutrients and organics left in the pool.

SITES software set the AS (1433.4) and Top of Dam (1436.0) with 1.0' of Freeboard above the 25-year 24-hour (4.4 inches rainfall) routed storm. The size of the pool required the standard to route a 5-year event (3.1 inches rainfall) through the PS.

Design Objective

To provide CTA design guidance for a wildlife/fish pond for River Farms

Basis for Design

Design standards are from the Natural Resource Conservation Service Field Office Technical Guide South Dakota Conservation Practice Standard 378 – Pond. Design and drafting were completed utilizing AutoCAD Civil 3D 2018 computer software. Hydraulic routings were modeled with SITES and hydrology scenarios were also modeled with SPAW.

General Basic Data

NRCS Practice Standards & JC

- POND 378 – 1. Drainage Area – II, < 1 mi²
 2. Storage times height – V, < 3,000
 3. PS Dia. – II, <= 24"
 4. 25yr-24hr Streamflow – V, < 2,000 cfs
 5. PS Design Cap - III, < 100 cfs
 6. Effective Height – V, < 35ft

? spillway design as per
 74.02.06.07

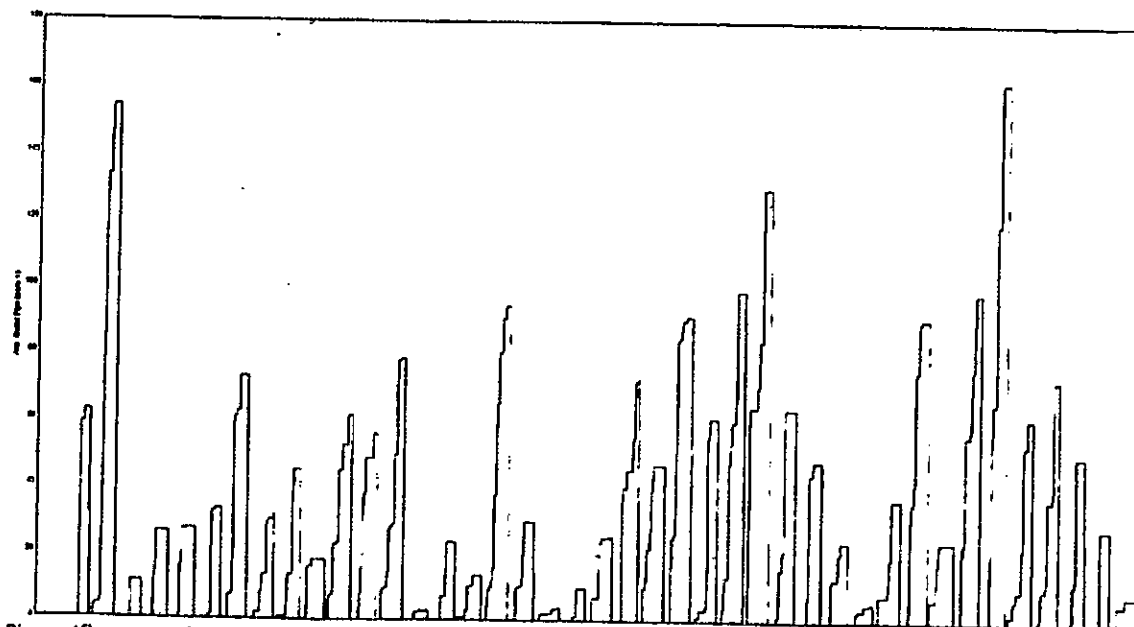
Location and Layout

See Construction Plans

Hydrology

The site is on a 367-acre watershed with hydrologic group D soils and steep hillslopes averaging 23%. This watershed is 100% grassland that has a history of grazing. These criteria correlate to a curve number of 80. There is an artesian well that supplies an upstream existing small pond with water. This pond is full year-round due to the inflow. They intend on leaving the upstream pond in place. It has some existing erosion on the AS and the pipe is partially corroded.

The watershed is undersized for the size of the storage to supply a 50% chance of annual filling. This will be offset by the flowing well from upstream. Estimated flows from the well have been high as 20 gpm according to the previous land owner. When calculating the yield from 12 gpm, it was determined that this flow will fill the pool on a 50% chance basis. SPAW runs show that the watershed will have pipe outflow every year with 12 gpm from the spring. Without the spring, the pipe only flows 32 of the 42 years of data. The Auxiliary spillway doesn't run in either scenario in the 42 years of data. This is also with the assumption that we have a solid bottom and only lose 5% to deep percolation.



Pipe outflow, annual accumulation in acre-ft - Data from 1960 to 2001

When excavating the borrow areas, the base-materials should be watched to look for shale formations that could cause excess deep percolation. If any are found they should be avoided from further excavation, tilled, moistened, and repacked for an attempt to reseal the bottom.

Hydraulic Design

Not applicable.

Foundations, Embankment Design, or Both

Investigation was limited due to our abilities to get probe truck on site due to topography, therefore a bucket auger and hand probe were used. Therefore, no deep borings were performed. Two bucket auger test holes were dug, one at the dam toe on the pool side and one on the head of the emergency spill way. Both test holes were clayey material with little to no limitations (see test hole logs). The banks of the creeks and surrounding areas were examined probed with the hand probe to examine the material to the depth of 24". No sand or gravel was located, all material was a clayey material on site. But there are a few areas (TH1 and TH2 on maps) that were areas of lighter clay material which were supporting some wetland material. I would consider these areas to be seeps, but it could be an abnormality due to the wet weather pattern and the concentrated water flow below and/or above ground at these positions in the landscape. The main concern or caution for construction of a dam is not to excavate slightly weathered or un-weather shale material and use on the dam. Exposing this same material in the pool area could create seepage out of the pool area, also.

The standard requires wave protection when the pool area is greater than 5.0 acres and deeper than 0.5' wave heights as calculated by TR-56. Various wave calculations were done on the pool. When using TR-56s methodology of determining the design wind speed, 90 mph is the 50-year land speed for wind near Charles Mix County. This design windspeed will produce waves of 0.5 ft-0.7ft considering the impact area at the center of the embankment and using a NW prominent wind direction. A SE prominent wind pushes water away from the embankment. When considering the 90-mph wind used in TR-56, this is an un-realistic design value for wave protection as these windspeeds will not be sustained over time and occur in unprotected landscapes. This embankment will be protected from over 30' of additional elevation on the north, east, and southern aspects. Calculations show that we can drop the wave heights under the standard requirement of 0.5' by lowering the design windspeed to 65 mph. This windspeed is still considered thunderstorm wind rating and is relatively short in duration. Damage that may occur from these events is event based and should be addressed by operation and maintenance.

A RAWs Weather station in Lake Andes (Nov 2003-Oct 2019) taking hourly measurements had 12 occurrences of wind measurements higher than 65 mph in over 128,000 records.

For these reasons, it was determined to not include any wave protection on the embankment.

Structural Design

Not applicable.

Environmental Considerations

The project will need to meet all state and federal permit rules and laws.

Contact the USACE regarding all CWA regulations. Contact the State DENR for all Water Rights.

Construction Drawings

Refer to attached construction plan drawings.

Specifications

SD-2	Clearing and Grubbing
SD-4	Stripping
SD-5	Excavation
SD-7S	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

construction specifications
- NRCS - SOP 1 - as per their website

Bid Schedule

Not applicable.

Cost Estimate

See Attached

Construction Schedule

Not applicable.

Operation and Maintenance

Not applicable.

Construction Inspection

NRCS will provide the exterior cut/fill staking of the embankment and auxiliary spillway. An NRCS inspector shall be present for the excavation of the core trench to verify soil materials and depth excavated as detailed soil bores were not able to be obtained. An NRCS inspector shall also be present for the laying and backfilling of pipe, drop spillway, and sand diaphragm for documentation.

NRCS approved inspectors shall be: Daniel Ostrem, Ag Eng Nathan Benson, Ag Eng
Noreen Laska, CET Dana Edwards, Ag Eng
Jared Gelderman, Ag Eng

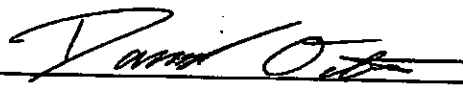
Construction Review

Any changes to the design must be brought to the attention of the NRCS design engineer and approved before work may continue.

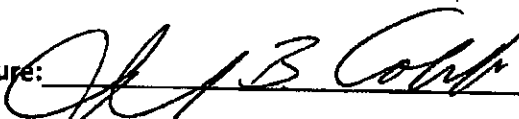
Authority

This project was designed by Daniel Ostrem, PE, Agricultural Engineer – USDA-NRCS, Field Support Office in Mitchell, SD.

Engineering Job Approval was exercised by Jay B. Cobb, PE, State Conservation Engineer, USDA Natural Resource Conservation Service – State Office in Huron, SD.

Signature:  Date: 10/7/2019

Daniel T. Ostrem, PE
Agricultural Engineer

Signature:  Date: 11-18-2019

Jay B. Cobb, PE
State Conservation Engineer

97N 67W
Section: 19

97N 67W
Section: 20

97N 67W
Section: 21

97N 67W
Section: 30

97N 67W
Section: 29

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Section: 28

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Section: 31

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Section: 32

97N 67W
Section: 33

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Section: 06

96N 67W
Section: 05

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Section: 04

96N 67W

96N 67W

96N 67W



530899270

ANNUAL REPORT

Secretary of State
500 E. Capitol Ave
Pierre, SD 57501-5070
(605) 773-4845

Domestic Limited Liability Partnership
SDCL 48-7A-1003; 59-11-24.1

Filing Fee: \$50

2019
FILING YEAR

Please Type or Print Clearly in Ink
Please submit one Original
Make payable to the SECRETARY OF STATE

Total Fee: \$50

1. Business ID and Name:

DR001242
BUSINESS ID

VANDERBOOM FAMILY PARTNERSHIP, LLP
BUSINESS NAME

2. The jurisdiction under whose law it is formed **SOUTH DAKOTA**

3. The address of the principal executive office (business address):

Actual Street Address

**2290 HOLLYBUSH ROAD
MEDINA, MN 55340-9470**

Mailing Address

**2290 HOLLYBUSH ROAD
MEDINA, MN 55340-9470**

4. The South Dakota Registered Agent's Name:

South Dakota law permits the registered agent to be either (a) a noncommercial registered agent, (b) a commercial registered agent, or (c) an office holder.

(a) The South Dakota Noncommercial Registered Agent's name

Name **JIM D VANDERBOOM**

Actual Street Address in this State

**107 EAST FIFTH STREET
PLATTE, SD 57369**

Mailing Address in this State

5. The names and business addresses of the partners.

Name	Address
STEVE ALAN VANDERBOOM	2290 Hollybush Road, MEDINA, MN, 55340
JULIE RAE VANDERBOOM	2290 Hollybush Road, MEDINA, MN, 55340
NICHOLAS DUKE VANDERBOOM	2290 Hollybush Road, MEDINA, MN, 55340
JACOB JONATHAN VANDERBOOM	2290 Hollybush Road, MEDINA, MN 55340
LYNN JOSEPH WALSTAD	605 EAST NINTH STREET, PLATTE, SD, 57369

6. Beneficial Owners (optional): A beneficial owner is a person who has or in some manner controls an equity security. Please consult an attorney for legal advice if you have any questions concerning this entry. Any question under this heading is considered a request for legal advice and the secretary of state's office is, by statute, not permitted, to provide legal advice.

Schlaak, Karen

From: Gronlund, Eric
Sent: Thursday, August 29, 2019 7:49 AM
To: Schlaak, Karen
Cc: Kilts, Whitney (DENR)
Subject: FW: [EXT] Dam for Safety of Dams and Water rights-phone call
Attachments: Final Drawings.pdf

Anticipate getting in an application from Mr. Walstad by Monday or Tuesday. Attached are the drawings – should suffice for what is needed on Form 2A. We anticipate getting signed P&S while the application is in the review process.

From: Kilts, Whitney (DENR) <Whitney.Kilts@state.sd.us>
Sent: Wednesday, August 28, 2019 3:21 PM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: FW: [EXT] Dam for Safety of Dams and Water rights-phone call

The land owner on this project Lynn Walstad (605-366-5974) called, could you give him a call back on the water right permitting process and application paperwork. The landowner filled out a location notice but has not mailed it and Daniel suggest he give us a call on paperwork based on this morning's email. Since it sounds like they want to start construction this fall, you can probable expect the question as to if the water permit application can be submitted with draft plans or if the application should wait until the plans are stamped.

Approval of plans and specification under Safety of Dams should probably wait until we have plans that are stamped. Based on pool data in Sheet 2 of the attached, it look like they will need a water permit based on storage at the crest of the principal spillway.

From: Ostrem, Daniel - NRCS, Mitchell, SD <daniel.ostrem@usda.gov>
Sent: Wednesday, August 28, 2019 11:40 AM
To: Kilts, Whitney (DENR) <Whitney.Kilts@state.sd.us>
Cc: Goodman, Jeanne <Jeanne.Goodman@state.sd.us>; Gronlund, Eric <Eric.Gronlund@state.sd.us>; Lynn Walstad <walstad.lynn@gmail.com>
Subject: RE: [EXT] Dam for Safety of Dams and Water rights

Whitney,

Thank you for the response. For your "heads up" here is the Draft Plan that was submitted to the NRCS state engineer for signature and will contain watershed, pool info, etc.. All design questions can be referred back to me. The full design will be sent once stamped.

I mis-understood the location notice rules that it would not be needed for a dam that requires water rights. I believe the L.O. submitted his location notice and payment for this already. As the pool will have greater than 25 acre feet, I understand it will require a water right.

Thanks for the help with this and let me know what else I can do for you to keep things moving for the owners whom I cc'ed on this reply.

Daniel

From: Kilts, Whitney (DENR) <Whitney.Kilts@state.sd.us>
Sent: Wednesday, August 28, 2019 11:20 AM
To: Ostrem, Daniel - NRCS, Mitchell, SD <daniel.ostrem@usda.gov>
Cc: Goodman, Jeanne <Jeanne.Goodman@state.sd.us>; Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: RE: Dam for Safety of Dams and Water rights

Greetings Daniel,

You can direct general dam safety questions to me. Since we have several engineers that can be assigned safety of dams reviews, I am not sure whom this review will be assigned to and therefore which engineer will be your main point of contact for this project.

In terms of getting the process going, of the items on your list the water right permitting process takes the longest. The best contact to help with the water right permitting process is Eric Gronlund (cc'd on this email). Typically the technical review of the water permit application and the safety of dams review are done at the same time. However, the water permitting process could potentially be started prior to having the fully stamped plans, but I suggest checking with Eric to determine if enough information is finalized on the proposed project to start the water right permitting process. Without knowing more about the proposed dam, I also suggest contacting Eric to verify this proposed dam will need a water right, since typically a dam needs either a water right or a location notice, not both, and your requirement list mentioned both.

For propose dam projects that just need a location notice and a safety of dams review, the safety of dams review will not be finalized until the fully stamped plans are received. However, a week or two heads up to expect plans for a project needed a safety of dams review along with some very basic information on the project (like legal location, storage at the primary spillway and top of dam, and planned use) is greatly appreciated and usually helps with get a review assign to an engineer and accounted for in their work load a bit quicker than if plans and specifications for a review just show up.

If you have more questions, please feel free to call or email.

Thanks,
Whitney Kilts
SD DENR-Water Rights Program
605-773-3352

From: Ostrem, Daniel - NRCS, Mitchell, SD <daniel.ostrem@usda.gov>
Sent: Wednesday, August 28, 2019 8:28 AM
To: Kilts, Whitney (DENR) <Whitney.Kilts@state.sd.us>
Cc: Lynn Walstad <walstad.lynn@gmail.com>
Subject: [EXT] Dam for Safety of Dams and Water rights

Whitney,

Who will be our main point of contact for a new construction dam in Charles Mix County? The pool will require water rights, location notice, and safety of dams review. The owners are hopeful to start construction this fall. My design is complete pending review from our NRCS state office, so I haven't stamped the plans yet. Do you advise we wait until the plans are fully stamped to move forward or can some items be started to expedite the process using draft plans? Thank you for your help,

V/r,



Daniel Ostrem, P.E.
NRCS Agricultural Engineer
1820 N. Kimball St., Suite 4
Mitchell, SD 57301
Office - (605) 996-1564 x 3367
Cell - (605) 656-1842

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Schlaak, Karen

From: Gronlund, Eric
Sent: Monday, December 9, 2019 11:07 AM
To: Schlaak, Karen
Subject: FW: [EXT] water permit application form for non-irrigation

From: Gronlund, Eric
Sent: Monday, December 9, 2019 11:06 AM
To: Lynn Walstad <walstad.lynn@gmail.com>
Cc: Duvall, Ron <Ron.Duvall@state.sd.us>
Subject: RE: [EXT] water permit application form for non-irrigation

Lynn,

Eric is out of the office so I will respond on his behalf. At this point, don't send a hard copy of the plans. If the reviewing engineer believes there is a need for them, we will let you know. After we have the application fee we will begin the review of your application for purposes of preparing a report and recommended action on the application. After this is complete, we will provide those to you along with a notice which needs to be published in a local paper and the nearest daily paper.

If we see anything missing in the application you attached, we will be in contact.

Thank you,

Ron Duvall
SD DENR, Water Rights Program

From: Lynn Walstad <walstad.lynn@gmail.com>
Sent: Monday, December 9, 2019 9:49 AM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: Re: [EXT] water permit application form for non-irrigation

Eric,
Attached is the completed application and signed plans for the dam. I am mailing you the application and check for \$700 today. Do I need to mail a hard copy of the plans as well?

Thanks,
Lynn

On Wed, Dec 4, 2019 at 1:31 PM Gronlund, Eric <Eric.Gronlund@state.sd.us> wrote:

Absolutely, Contact me anytime (direct 605 773-4062)

From: Lynn Walstad <walstad.lynn@gmail.com>
Sent: Wednesday, December 4, 2019 1:19 PM

To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: Re: [EXT] water permit application form for non-irrigation

Yes, we are working on completing it. Just haven't got it done. Would you be willing to walk me through it now that you have the plans and I can get it completed?

Lynnn

On Wed, Dec 4, 2019 at 1:04 PM Gronlund, Eric <Eric.Gronlund@state.sd.us> wrote:

Lynn – is the water permit application for this dam in the process of being submitted? The reason is DENR received signed plans from the engineer on the dam. Thanks - Eric

From: Gronlund, Eric
Sent: Tuesday, November 19, 2019 11:11 AM
To: 'Lynn Walstad' <walstad.lynn@gmail.com>
Cc: Schlaak, Karen <Karen.Schlaak@state.sd.us>
Subject: RE: [EXT] water permit application form for non-irrigation

Lynn – I forwarded the plans to one of our engineers that will review them for the purpose of insuring they meet dam safety requirements. There were not any initial red flags but during the formal review there may be questions that arise in which we can contact NRCS directly, if needed.

Based on the plans the storage is 48.4 acre feet of water at the primary spillway elevation. The application filing fee for that amount of storage is \$500 plus a \$200 licensing fee for a total of \$700. You will also be responsible for the cost of publication once the application is reviewed. That cost will be about \$100 and will be directly between you and the newspaper. We'll walk you through the publication process when we get to that point.

You should now fill out the application form that I previously emailed to you and submit along with the application filing fee made payable to the "Water Rights Program". Submit the application, map and fee to "Water Rights Program, 523 E Capitol Avenue, Pierre SD 57501

If you have any questions, please do not hesitate to call.

Eric

605 773-4062 (direct line)

From: Lynn Walstad <walstad.lynn@gmail.com>
Sent: Monday, November 18, 2019 4:45 PM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: Re: [EXT] water permit application form for non-irrigation

Eric,

See attached drawings of our dam. Let me know what initial questions you may have.

Thanks,

Lynn

605-366-5974

On Wed, Aug 28, 2019 at 3:49 PM Gronlund, Eric <Eric.Gronlund@state.sd.us> wrote:

Lynn – attached is the application form and instruction sheet.

The application and licensing fee if the dam impounds less than 120 acre feet is \$500 (application processing) + \$200 (licensing) for a total of \$700 made payable to the Water Rights Program.

Let me know if you have questions.

Eric Gronlund

Water Rights Program, DENr

605 773-3352

Eric.gronlund@state.sd.us

Plan & Specification Review

Date: 1/16/2020

Application #: 8417-3 (LV)
Name of Applicant: River Farms, LLC

initials
BMT

1) ARSD Chapter 74:02:08:01 (n) - from plans prepare by an engineer YES

Top of Dam Elevation 1436.0 Maximum Storage Capacity - :01(15) 88.5 ac-ft

2nd Spillway Elevation 1433.4 Intermediate Storage Capacity - :01(14) 68.9 ac-ft

P. Spillway Elevation 1430.0 Normal Storage Capacity 48.4 ac-ft

Downstream embankment toe elevation 1397 ~~1396~~ (1436-38)

Height - :01(12) 38 ft

Effective height - :01(8) 32.4 ft

2) ARSD Chapter 74:02:08:01(3-5) & 74:02:08:05

Dam hazard category 3

3) ARSD Chapter 74:02:08:06

Dam size Small

max storage : 88.5 - small
height : 38 - small

4) ARSD 74:02:08:07 - Minimum design flood requirement

Minimum design flood required 25-year $(68.9)(32.4) = 2232 < 3000$
(as per 74:02:08:07.01)

USGS WRI 98-4055 - Techniques for Estimating Peak-Flow Magnitude and Frequency Relations for South Dakota Streams; Review of design flows and comments:

CA: Acres: 372.6 = 0.58 mi²

Region D

$$\begin{aligned} Q_{25} &= 676 CA^{0.585} \\ &= 676 (0.58)^{0.585} \\ &= 492 cfs \end{aligned}$$

$$\begin{aligned} Q_{100} &= 1270 CA^{0.663} \\ &= 1270 (0.58)^{0.663} \\ &= 885 cfs \end{aligned}$$

Secondary spillway: see attached engineering paper

Design peak flow in plans 25yr/24 hr

Comments: the secondary spillway can pass the minimum design flood

Plan & Specification Review

Date: 1/16/2020

Application #: 8417-3 (LN)
Name of Applicant: River Farms, LLC

initials
BMT

5) ARSD 74:02:08:09 (n) - Plan Requirements

(1) Top map Yes

sheet 2 of 8

(2) Dam axis profile Yes

sheet 3 of 8

(3) Dam max X-section Yes

sheet 1 of 8

(4) Area-capacity curves No

- see attached graph made from
3 pts of pool data given on Sheet 2 of 8

(5) Outlet details Yes

sheet 3 of 8

(6) Spillway Rating No

(7) Spillway details Yes

aux: sheet 2 of 8; 3 of 8, 4 of 8
prim: sheet 3 of 8; 5 of 8, 6 of 8, 7 of 8

(8) Specs Yes

(9) If category 1 EPP/EAP N/A

Additional comment/notes:

6) NRCS Annual Yield - From SD Engineering Field Manual for Conservation Practices

- see attached printout

DA: 372.6 acres

ISO: 2.5

CN: 80

$$60\% = \frac{372.6(0.35)}{12} = 10.87 \text{ acre-ft}$$

$$50\% = \frac{372.6(0.84)}{12} = 26.08 \text{ acre-ft}$$

$$10\% = \frac{372.6(3.1)}{12} = 96.25 \text{ acre-ft}$$

Qualifies for the National Inventory of Dams ~~NO~~ YES

exceeds 25 ft in height

exceeds 15 acre-ft in storage



NOAA Atlas 14, Volume 8, Version 2
 Location name: Geddes, South Dakota, USA*
 Latitude: 43.1803°, Longitude: -98.7919°
 Elevation: 1414.82 ft**
 * source: ESRI Maps
 ** source: USGS



8417-3
 RiverFarms

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishant Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffrey Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
6-min	0.346 (0.274-0.440)	0.413 (0.327-0.524)	0.522 (0.412-0.665)	0.613 (0.481-0.783)	0.740 (0.562-0.965)	0.838 (0.623-1.10)	0.937 (0.675-1.25)	1.04 (0.719-1.41)	1.17 (0.783-1.63)	1.28 (0.831-1.79)
10-min	0.507 (0.401-0.644)	0.604 (0.478-0.768)	0.764 (0.603-0.973)	0.898 (0.705-1.15)	1.08 (0.823-1.41)	1.23 (0.913-1.61)	1.37 (0.988-1.83)	1.52 (1.05-2.07)	1.72 (1.15-2.38)	1.87 (1.22-2.61)
15-min	0.618 (0.490-0.785)	0.737 (0.583-0.936)	0.932 (0.735-1.19)	1.10 (0.860-1.40)	1.32 (1.00-1.72)	1.50 (1.11-1.97)	1.67 (1.21-2.24)	1.85 (1.28-2.52)	2.10 (1.40-2.90)	2.28 (1.48-3.19)
30-min	0.876 (0.694-1.11)	1.05 (0.827-1.33)	1.32 (1.04-1.68)	1.55 (1.22-1.98)	1.88 (1.42-2.44)	2.12 (1.58-2.79)	2.37 (1.71-3.17)	2.63 (1.82-3.58)	2.97 (1.98-4.11)	3.23 (2.10-4.52)
60-min	1.11 (0.876-1.40)	1.32 (1.04-1.68)	1.67 (1.32-2.13)	1.98 (1.55-2.52)	2.41 (1.83-3.15)	2.75 (2.05-3.62)	3.10 (2.23-4.14)	3.46 (2.40-4.71)	3.95 (2.64-5.48)	4.33 (2.82-6.06)
2-hr	1.33 (1.07-1.67)	1.59 (1.27-2.00)	2.03 (1.62-2.55)	2.40 (1.91-3.03)	2.94 (2.27-3.81)	3.37 (2.54-4.40)	3.82 (2.79-5.06)	4.28 (3.01-5.78)	4.92 (3.34-6.76)	5.42 (3.58-7.51)
3-hr	1.45 (1.17-1.81)	1.73 (1.39-2.15)	2.20 (1.76-2.75)	2.61 (2.09-3.27)	3.22 (2.50-4.15)	3.71 (2.82-4.82)	4.22 (3.11-5.57)	4.76 (3.38-6.40)	5.51 (3.77-7.54)	6.11 (4.07-8.41)
6-hr	1.67 (1.36-2.08)	1.97 (1.60-2.42)	2.49 (2.02-3.07)	2.95 (2.38-3.66)	3.64 (2.87-4.66)	4.21 (3.24-5.41)	4.80 (3.59-6.28)	5.44 (3.92-7.24)	6.34 (4.40-8.58)	7.05 (4.76-9.59)
12-hr	1.92 (1.58-2.34)	2.24 (1.85-2.73)	2.80 (2.30-3.42)	3.29 (2.69-4.03)	4.01 (3.20-5.07)	4.61 (3.59-5.85)	5.23 (3.96-6.75)	5.89 (4.30-7.74)	6.82 (4.80-9.12)	7.56 (5.18-10.2)
24-hr	2.20 (1.83-2.64)	2.54 (2.12-3.06)	3.13 (2.60-3.78)	3.65 (3.01-4.41)	4.40 (3.54-5.47)	5.00 (3.95-6.27)	5.64 (4.31-7.18)	6.30 (4.65-8.17)	7.23 (5.16-9.54)	7.95 (5.53-10.6)
2-day	2.48 (2.09-2.94)	2.86 (2.41-3.40)	3.51 (2.95-4.18)	4.06 (3.39-4.85)	4.85 (3.95-5.94)	5.47 (4.36-6.76)	6.12 (4.74-7.68)	6.78 (5.07-8.67)	7.69 (5.56-10.0)	8.39 (5.93-11.0)
3-day	2.70 (2.29-3.18)	3.09 (2.62-3.65)	3.75 (3.17-4.43)	4.31 (3.63-5.11)	5.11 (4.18-6.20)	5.74 (4.61-7.03)	6.38 (4.98-7.96)	7.06 (5.32-8.96)	7.97 (5.81-10.3)	8.68 (6.18-11.3)
4-day	2.90 (2.47-3.40)	3.30 (2.81-3.87)	3.97 (3.37-4.66)	4.54 (3.83-5.35)	5.34 (4.40-6.45)	5.98 (4.83-7.28)	6.63 (5.20-8.22)	7.31 (5.54-9.23)	8.22 (6.03-10.6)	8.94 (6.41-11.6)
7-day	3.40 (2.93-3.95)	3.85 (3.31-4.47)	4.59 (3.93-5.34)	5.21 (4.44-6.08)	6.07 (5.04-7.23)	6.73 (5.49-8.11)	7.41 (5.87-9.07)	8.09 (6.20-10.1)	9.01 (6.68-11.5)	9.71 (7.05-12.5)
10-day	3.85 (3.33-4.44)	4.35 (3.76-5.01)	5.15 (4.44-5.95)	5.82 (4.99-6.74)	6.73 (5.62-7.96)	7.43 (6.09-8.88)	8.13 (6.48-9.88)	8.84 (6.81-10.9)	9.77 (7.30-12.3)	10.5 (7.66-13.4)
20-day	5.16 (4.51-5.87)	5.76 (5.04-6.56)	6.74 (5.88-7.69)	7.54 (6.55-8.63)	8.63 (7.29-10.1)	9.45 (7.85-11.1)	10.3 (8.30-12.3)	11.1 (8.66-13.5)	12.1 (9.20-15.1)	12.9 (9.60-16.3)
30-day	6.26 (5.52-7.08)	7.00 (6.17-7.81)	8.17 (7.18-9.26)	9.13 (7.99-10.4)	10.4 (8.85-12.0)	11.4 (9.50-13.3)	12.3 (10.0-14.6)	13.2 (10.4-16.0)	14.4 (11.0-17.8)	15.3 (11.5-19.2)
45-day	7.69 (6.83-8.62)	8.63 (7.66-9.68)	10.1 (8.97-11.4)	11.3 (9.98-12.8)	12.9 (11.0-14.8)	14.1 (11.8-16.3)	15.2 (12.4-17.9)	16.2 (12.9-19.5)	17.6 (13.6-21.6)	18.5 (14.1-23.1)
60-day	8.91 (7.95-9.93)	10.1 (8.99-11.2)	11.9 (10.6-13.3)	13.4 (11.8-15.0)	15.2 (13.1-17.3)	16.6 (14.0-19.1)	17.9 (14.7-20.9)	19.1 (15.2-22.7)	20.5 (15.9-25.0)	21.6 (16.4-26.8)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

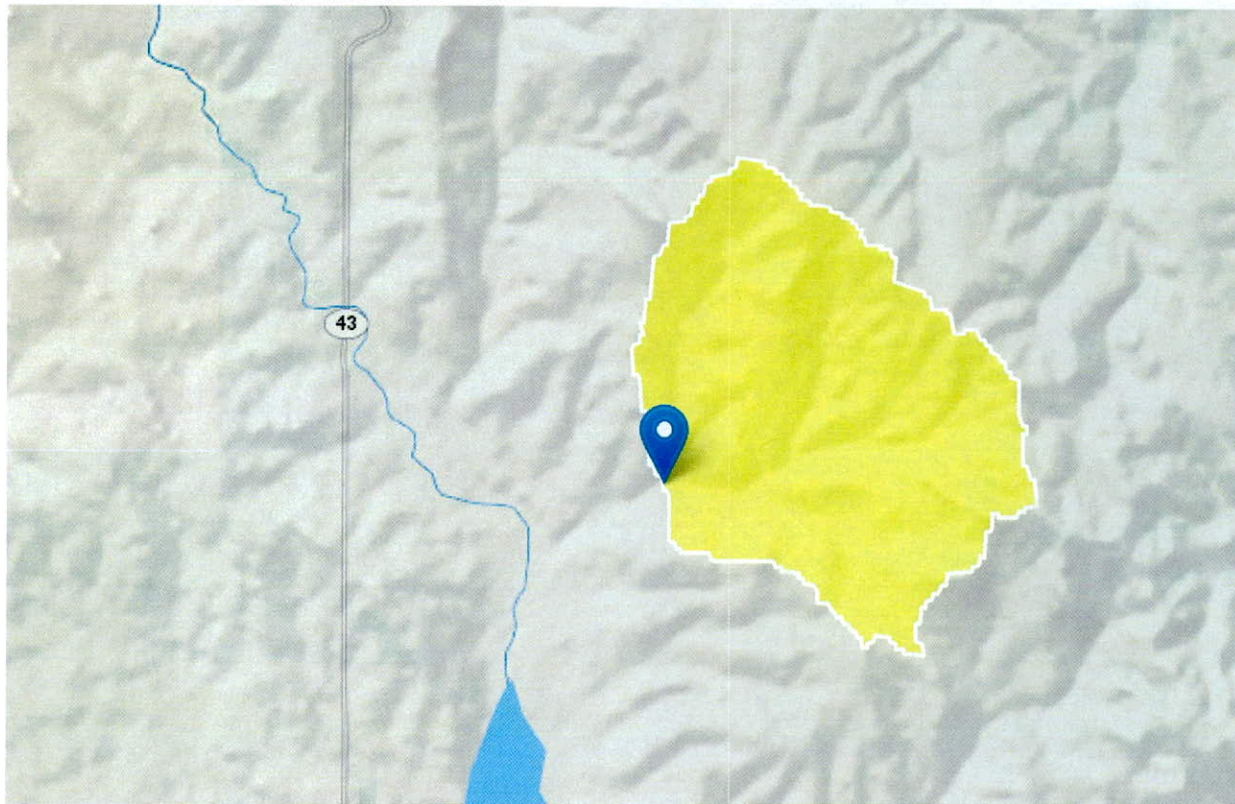
StreamStats Report

Region ID: SD

Workspace ID: SD20200114224628384000

Clicked Point (Latitude, Longitude): 43.18014, -98.79195

Time: 2020-01-14 16:46:45 -0600



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CONTDA	Area that contributes flow to a point on a stream	0.58	square miles

Peak-Flow Statistics Parameters[Subregion D]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CONTD	Contributing Drainage Area	0.58	square miles	0.11	137

Peak-Flow Statistics Flow Report(Subregion D)

Pll: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	Pll	Plu	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	64.6	ft ³ /s	14.2	295	109	109	2.3
5 Year Peak Flood	180	ft ³ /s	68	474	61	61	7.4
10 Year Peak Flood	298	ft ³ /s	145	613	44	44	17.9
25 Year Peak Flood	492	ft ³ /s	278	869	34	34	39.1
50 Year Peak Flood	671	ft ³ /s	390	1150	33	33	52.5
100 Year Peak Flood	885	ft ³ /s	507	1540	34	34	59.2
500 Year Peak Flood	1540	ft ³ /s	796	2990	41	41	57.5

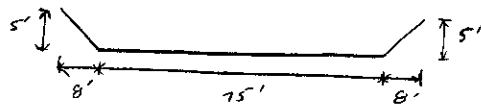
Peak-Flow Statistics Citations

Sando, Steven K., 1998, A Method for Estimating Magnitude and Frequency of Floods in South Dakota: U.S. Geological Survey Water-Resources Investigations Report 98-4055, 48 p. (<http://pubs.water.usgs.gov/wri98-4055/>)

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- auxiliary spillway dimension from sheet 3 of 8
- slope dimensions from sheet 4 of 8
- spillway Discharge = 344.6 cfs sheet 2 of 8

① Auxiliary Spillway Discharge

$$Q = \frac{1.49}{n} A R_H^{2/3} S^{1/2}$$

$$= \frac{1.49}{0.03} (415) (4.42)^{2/3} (0.0024)^{1/2}$$

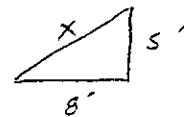
$$= 20611.67 (2.69) (0.049)$$

$$= 2716.82 \frac{\text{ft}^3}{\text{sec}}$$

$$n = 0.03 \quad p \ 3.35, C-1 \text{ (Mays, 99)} \\ \text{grass w/ some weeds}$$

$$A = 5(75) + 5(8) \\ = 415 \text{ ft}^2$$

$$R_H = \frac{A}{P}$$



$$= \frac{415 \text{ ft}^2}{93.87 \text{ ft}}$$

$$= 4.42 \text{ ft}$$

$$x = \sqrt{8^2 + 5^2} \\ = 9.43 \text{ ft}$$

$$P = 75 + 2(9.43) \\ = 93.87 \text{ ft}$$

$$S = \frac{\Delta h}{\Delta L}$$

$$\Delta h = 1433.5 - 1433.0 \\ = 0.5$$

$$= \frac{0.5}{208}$$

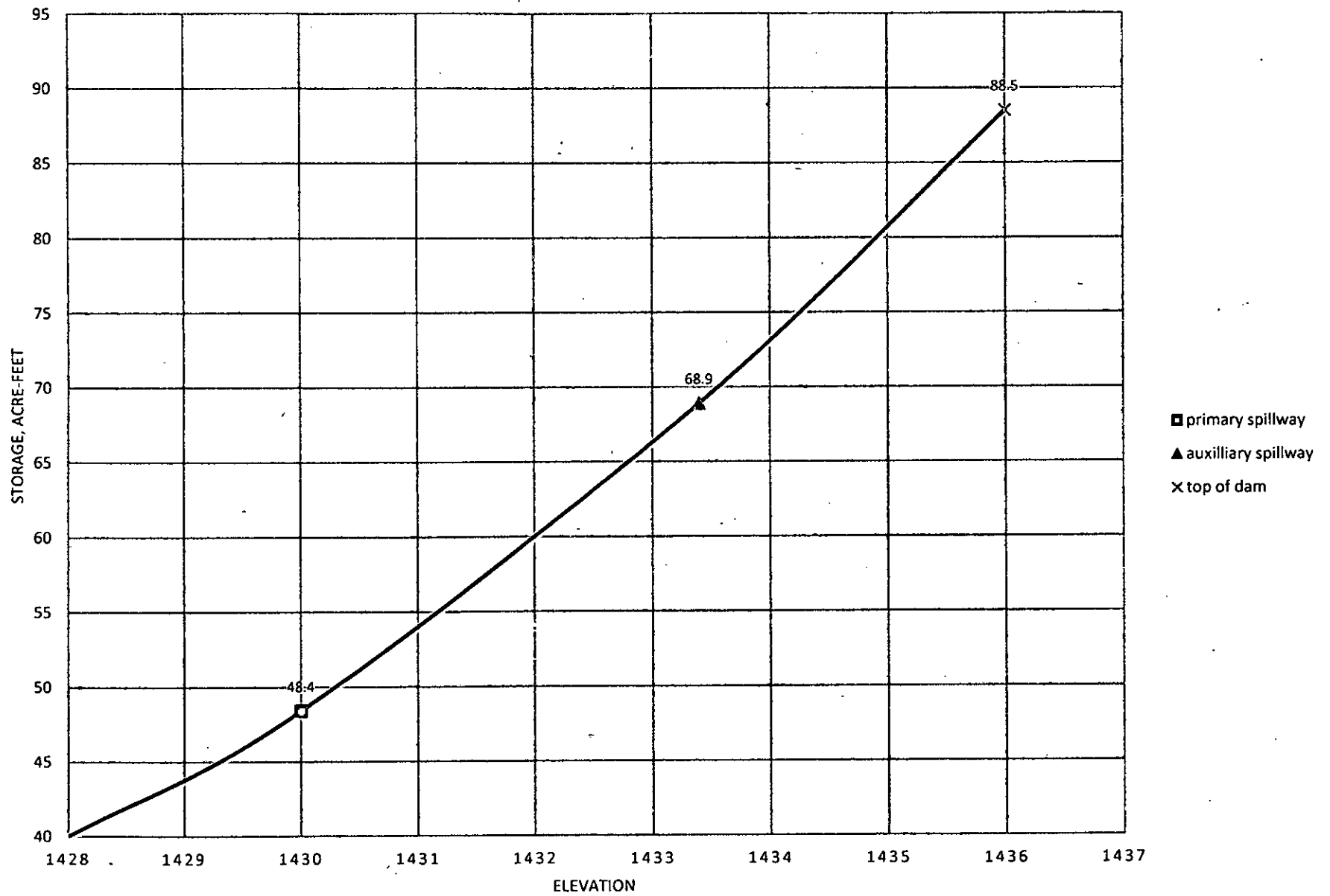
$$\Delta L = 2 + 52 - 0 + 44 \\ = 208$$

$$= 0.0024$$

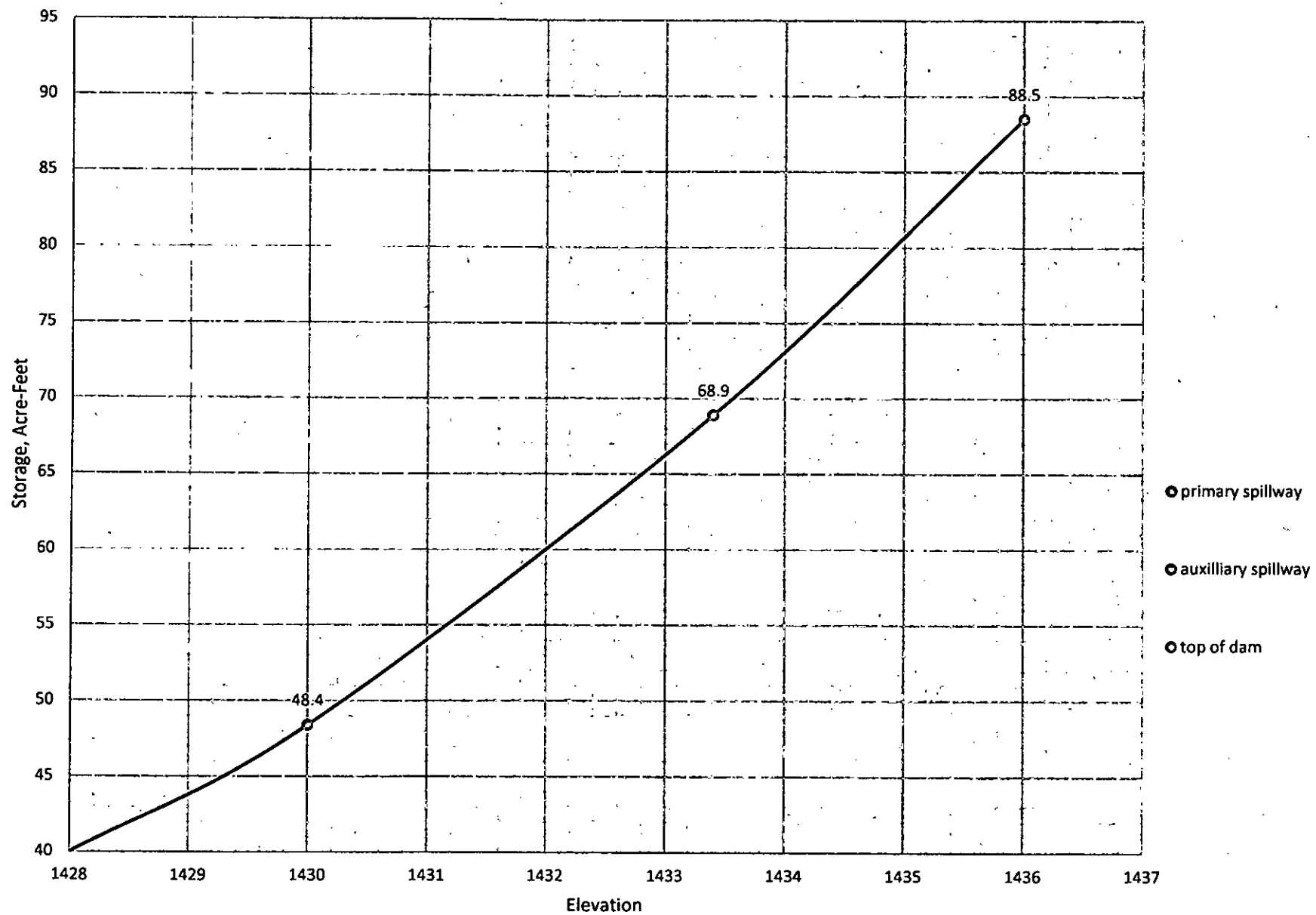
Note: $2716.82 \frac{\text{ft}^3}{\text{sec}}$ is based on channel flowing full with $H = 5 \text{ ft}$.

If $H = 1.53 \text{ ft}$ (as per sheet 2 of 8) and the max value of n is used (0.033) then $Q = 350.32 \text{ cfs}$

AREA-CAPACITY CURVE, 8417-3



Area-Capacity Curve, 8417-3



Permit Application 8417-3, River Farm LLC
NRCS Annual Yield

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI	
BeE	Ethan-Betts loams, 9 to 15 percent slopes	C	1.4	0.40%	
BsD	Boyd-Sansarc complex, 6 to 15 percent slopes	D	20.5	5.50%	
OeF	Okaton silty clay, 15 to 40 percent slopes	D	40.3	10.80%	
SoF	Sansarc-Boyd complex, 15 to 40 percent slopes	D	308.9	82.90%	
W	Water		1.5	0.40%	
		Acres:	372.6	100.00%	SUM
		mi ² :	0.58		

Description: Pasture Land good condition, natural
Isogram Region: 2.5
CN: 80

		acre - in	acre-ft	annual yield
acre-in/acre (80%):	0.35	130.41	10.87	80%
acre-in/acre (50%):	0.84	312.98	26.08	50%
acre-in/acre (20%):	2.00	745.20	62.10	20%
acre-in/acre (10%):	3.1	1155.06	96.25	10%

Lat 43.18015
Long -98.79196
acre -ft 0.083333333
acre 640
acre-in mi²

Top of Dam Elevation: 1436
Primary Spillway Elevation: 1430
Secondary Spillway Elevation: 1433.4

Freeboard
6
2.6

Hansen, Blaise

From: Kilts, Whitney (DENR)
Sent: Thursday, January 23, 2020 11:35 AM
To: Hansen, Blaise
Subject: FW: [EXT] River Farms Dam

From: Ostrem, Daniel - NRCS, Mitchell, SD <daniel.ostrem@usda.gov>
Sent: Thursday, January 23, 2020 11:31 AM
To: Kilts, Whitney (DENR) <Whitney.Kilts@state.sd.us>
Cc: Lynn Walstad <walstad.lynn@gmail.com>
Subject: RE: [EXT] River Farms Dam

I mis-spoke, (typed)

The red text below isn't true, the angle is the same, its still an 11.25 angle in either approach. The benefit of one method vs the other is trying to minimize the depth of cover over the pipe. Always many things to consider....

Daniel

From: Ostrem, Daniel - NRCS, Mitchell, SD
Sent: Thursday, January 23, 2020 11:22 AM
To: Kilts, Whitney (DENR) <Whitney.Kilts@state.sd.us>
Cc: Lynn Walstad <walstad.lynn@gmail.com>
Subject: RE: River Farms Dam

Whitney,

The elbows (to my knowledge) only come in standard bends, 45°, 22.5°, and 11.25°. Half size angles.

I designed it with the lowest angle listed above. Our NRCS standards require a 5% or less outlet slope for a 24" pipe. I started with the 5% outlet and added in the bend angle. You then slide this combined pipe angle back along the 5% pipe until it reaches your PS inlet structure. This method (in my opinion) gives you the best geometry with the least amount of deflection. It does however require you to cut the pipe on the downstream sections. The alternative is to try and place the bend after a set number of pipe sections to avoid the cut. Doing this, you will need to bring the outlet pipe up to less than 5% grade in order to still be able to have your pipe be at an angle that hits your inlet structure the way you need it to.

This is a more abrupt angle but allows you to not cut the pipe at the downstream end.

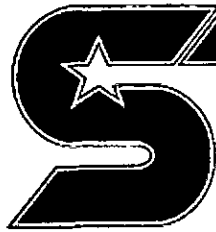
Which way you choose, doesn't really make a huge difference unless one wastes a lot of pipe cutting it.

Now to answer your question about failure, I'm not too worried about the "abrupt" angle. The pipe will almost never be under 100% full pipe flow pressure. Pipe failures start from water flowing along the outside of the pipe, either through the soil fill or from leaking pipe joints. Care in construction makes all the difference here. Good joints and a properly installed sand diaphragm will make all the difference in the success of this principal spillway.

The bend is a cast iron joint that tightens around the pipe with many bolts 360 degrees around the pipe (attached photo, best I have). The other photo shows the installed angle. This will be the same setup as River Farms. I didn't get a brand for the joint in the photo but this is more than likely what it was (see below). Looks like they do have 5 5/8 bend.

Hope this gives you more insight. Call anytime with any further questions.

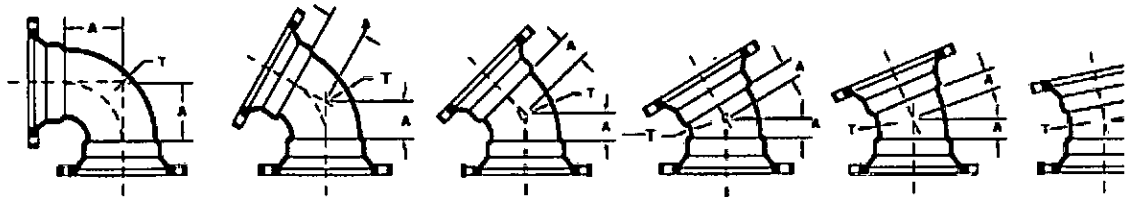
Daniel



STAR® PIPE PRODUCTS

Utility Pipe Fittings

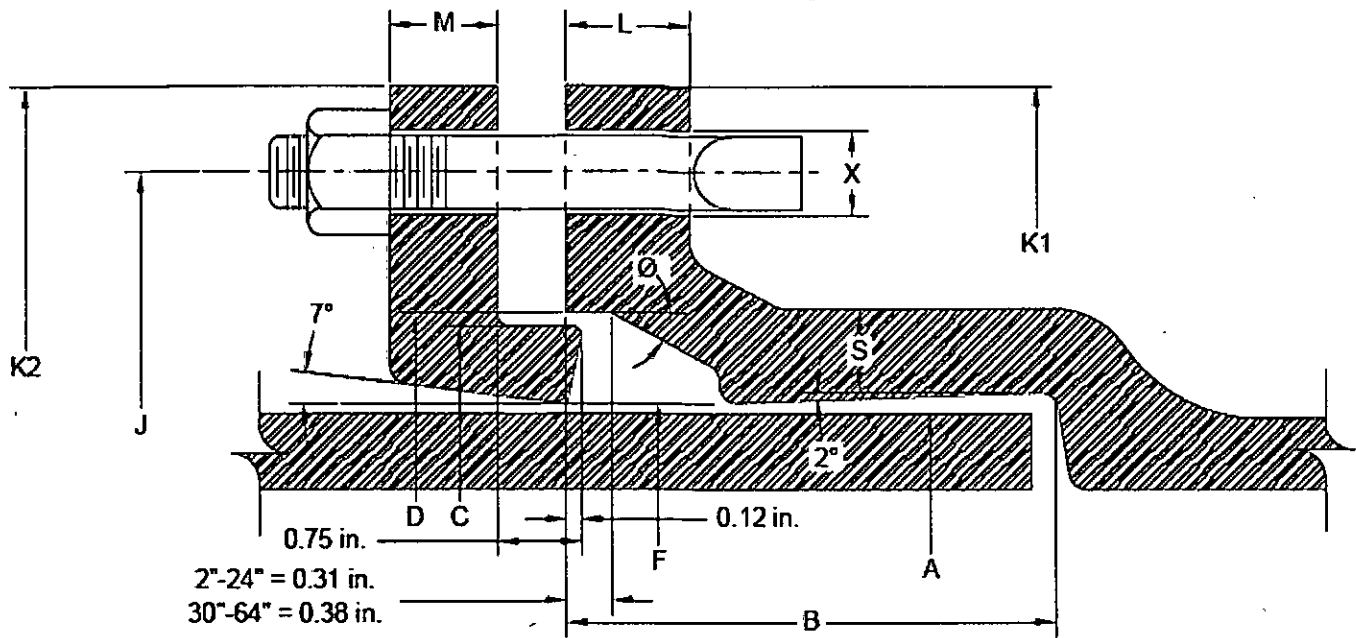
Compact ANSI/AW



DUCTS

MJ x MJ BENDS		90° MJ x MJ BENDS (1/4)		60° MJ x MJ BENDS (1/6)		45° MJ x MJ BENDS (1/8)		30° MJ x MJ BENDS (1/12)		22 1/2° MJ x MJ BENDS (1/16)		11 1/4° MJ BENDS
NOM. SIZE	T	A	WT (LBS.)	A	WT (LBS.)	A	WT (LBS.)	A	WT (LBS.)	A	WT (LBS.)	A
2	0.30	3.25	14	-	-	1.80	13	-	-	1.00	9	1.00
3	0.33	3.50	23	-	-	1.50	21	-	-	1.00	16	1.00
4	0.34	4.00	27	3.00	21	2.00	23	-	-	1.50	18	1.25
6	0.36	5.00	39	4.00	35	3.00	32	-	-	2.00	32	1.50
8	0.38	6.50	57	4.50	50	3.50	46	3.00	44	2.50	46	1.75
10	0.40	7.50	89	-	-	4.50	70	-	-	3.00	64	2.00
12	0.42	9.00	108	6.50	104	5.50	98	4.00	87	3.50	84	2.25
14	0.47	11.50	180	-	-	5.00	145	-	-	3.75	140	2.50
16	0.50	12.50	264	7.50	210	5.50	202	4.50	177	3.75	178	2.50
18	0.54	14.00	335	-	-	6.00	250	-	-	4.50	255	3.00
20	0.57	15.00	400	10.50	365	7.00	305	-	-	4.50	262	3.00
24	0.61	17.00	565	10.50	479	7.50	405	6.00	385	4.50	412	3.00

Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to



From: Kilts, Whitney (DENR) <Whitney.Kilts@state.sd.us>
 Sent: Thursday, January 23, 2020 10:17 AM
 To: Ostrem, Daniel - NRCS, Mitchell, SD <daniel.ostrem@usda.gov>
 Subject: River Farms Dam

Good Morning Daniel,

I am helping one of the newer Water Rights engineers work through the P&S review on Review Farms. Since there was not a detail on the elbow in the principal spillway, we wanted to ask for some more information on how that elbow joint is going to be done. We have some slight concern that the transition at that elbow is somewhat abrupt and might result in an area of the principal spillway conduit more prone to failure. So we just wanted to ask for some more information on how the elbow joint is going to be done or check if the transition was looked at in the design work and determined to not be a concern.

Thanks,

Whitney Kilts
 SD DENR-Water Rights Program
 605-773-3352

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DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

February 4, 2020

River Farm, LLC c/o Steve A. Vanderboom
2290 Hollybush Road
Medina, Minnesota, 55340

Dear Mr. Vanderboom:

We have reviewed the plans and specifications for your dam project located in the NE ¼, Sec 32, T97N-R67W in Charles Mix County. The plans and specifications for the construction of the dam are approved for Water Permit Application No. 8417-3.

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, the owner of the dam, from the responsibility for operating and maintaining the dam to ensure the safety of the dam.

The dam for Water Permit Application No. 8417-3 will be classified as a small size category 3, (low hazard dam) with a dam height of 38 feet and a normal storage capacity of 48.4 acre-feet. A category 3 dam is a low hazard dam whose failure may cause limited damage to agricultural lands or county or township roads or minimum economic loss. However, future downstream development could change this classification. Additionally, the Water Rights Program does not have a routine inspection program for privately owned low hazard dams, so you are encouraged to develop an inspection and maintenance routine to help ensure the long-term safety of the dam.

If a set of as-built plans are prepared for this dam, the Water Rights Program requests a copy of them for our records. If you have any questions, please feel free to contact the Water Rights Program at (605)773-3352.

Sincerely,


Eric Gronlund, PE
Water Rights Program

Cc: Daniel T. Ostrem, USDA-NRCS, Field Support Office, Mitchell, SD
Lynn Walstad, PO Box 748, Platte, SD, 57369

NO. 8417-3

Water Rights Program - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: Application No. 8417-3, River Farm LLC

ADDRESS: COUNTY: Charles Mix County

DATE: February 4, 2020 TELEPHONE:

RE: Address for Applicant

I spoke with Lynn Walstad regarding sending the application out for public notice.

He asked that we change the address for Mr. Vanderboom to:

6897 Grenadier Blvd, No. 1403
Naples FL 34108

NAME: Eric Hemlund



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
<http://denr.sd.gov>

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8417-3, River Farms LLC**

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. 8417-3, River Farm LLC, c/o Steve A Vanderboom, 2290 Hollybush Rd, Medina MN 55340.

The Chief Engineer is recommending APPROVAL of Application No. 8417-3 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. 8417-3 authorizes a dam with a storage capacity of 48.4 acre feet of water annually to the primary 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.

Jeanne Goodman, Chief Engineer
February 4, 2020

REPORT TO THE CHIEF ENGINEER ON
WATER PERMIT APPLICATION No. 8417-3
River Farms, LLC
February 4, 2020

Water Permit Application No. 8417-3 has been filed by River Farms, LLC, to impound 48.4 acre-feet of water from runoff by constructing a dam located in the approximate center of the NE ¼ Section 32 with water impounded in the NE ¼ Section 32; all in T97N-R67W of Charles Mix County. The application also requests to impound sufficient water to maintain the water level at the primary spillway elevation. The water is for fish and wildlife propagation and recreational use purposes.

This report will evaluate the availability of unappropriated water and the potential for unlawful impairment of existing rights to address permitting requirements as mandated under South Dakota Codified Law (SDCL) 46-2A-9. The plans and specifications of the proposed dam structure will be reviewed for dam safety compliance as specified under Administrative Rule of South Dakota (ARSD) Chapter 74:02:08.

Applicable Statutes and Administrative Rules:

South Dakota Codified Law (SDCL) 46-2A-9: Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is a reasonable probability there is unappropriated water available for the applicant's proposed use, the proposed diversion can be developed without unlawful impairment of existing rights, and the proposed use is a beneficial use and in the public interest. This report will address the availability of unappropriated water and the potential for unlawful impairment of existing rights pertinent to the appropriation proposed by this application.

Administrative Rules of South Dakota (ARSD) Chapter 74:02:08: ARSD Chapter 74:02:08 contain the minimum design requirements for dams over a certain height and storage capacity. Construction may not begin on a new dam as defined by ARSD 74:02:08:01(7) until plan and specifications have been approved by the chief engineer and a water permit application, if needed, has been approved.

Review of Water Source and Existing Water Rights:

The applicant is proposing construction of a small storage dam to collect runoff from the upstream watershed. The River Farms dam will be in the approximate center of the NE ¼ of Section 32, T97N-R67W. The source of water for this proposed project is from an unnamed tributary to Campbell Creek approximately 0.6 miles upstream from the confluence of Campbell Creek which flows immediately into Lake Francis Case, impounded behind Ft. Randall Dam on the Missouri River. There are no existing Water Rights/Permits between the proposed River Farms dam and the Missouri River (Water Rights, 2020).

Review of the Proposed Dam:

The proposed dam has been designed by the Natural Resources Conservation Services (NRCS) and the plans are stamped by a professional engineer registered with the State of South Dakota. It classifies as a small size, category 3, low hazard dam whose failure may cause minimal economic loss and limited damage to agricultural land or county/township roads.

The dam will have a total height of 38 feet and an effective height of 32.4 feet. It will have a normal storage capacity of 48.4 acre-feet (ac-ft) with a reservoir level at the primary spillway elevation, an intermediate storage capacity of 68.9 ac-ft with a reservoir level at the secondary spillway elevation, and a maximum storage capacity of 88.5 ac-ft with a reservoir level at the top of dam elevation.

The dam has a drainage area of 372.6 acres or 0.58 square miles (USDA-NRCS, 2020). The dam will have a 24-inch diameter PVC conduit with 6.0 feet of freeboard at the primary spillway, and a 75.0-foot bottom width natural earth secondary spillway with 2.6 feet of available freeboard. A 25-year frequency event produces a peak runoff of approximately 492 cubic feet per second (cfs) and a 100-year frequency event produces a runoff of approximately 885 cfs (Sando, 1998). The proposed earth-cut secondary spillway will have a full capacity of approximately 2716 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 11 ac-ft. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 26 ac-ft. The annual yield with a 10 percent chance of occurrence, or 1 out of 10 years, is expected to be 96 ac-ft (USDA-NRCSa, 2020).

Discussion:

The applicant is proposing to construct a dam for fish and wildlife propagation and recreational use purposes. It will have a normal storage capacity of 48.4 ac-ft and will be located on a small unnamed tributary to Campbell Creek, which flows to Lake Francis Case. The annual yield of the watershed with a 50 percent chance of occurrence is 26 ac-ft. Except during periods of extremely dry conditions, water availability is not an issue.

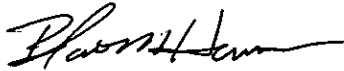
There are no existing water rights/permits between the proposed River Farms dam and Lake Francis Case. Issuing this permit will not unlawfully impair existing rights.

The proposed dam would be classified as a small size, category 3, low hazard dam. As per ARSD 74:02:08:07.01, the dam qualifies for the spillway design flood exception since the product of the intermediate storage capacity times the effective height is less than 3000. Therefore, the minimum spillway system design must be capable of passing a 25-year frequency event. The secondary spillway meets this requirement because a 25-year event would produce 492 cfs, and the proposed secondary spillway will have a full capacity of approximately 2,716 cfs.

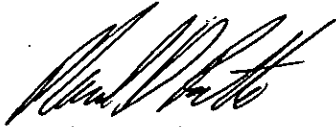
Conclusions:

1. Water Permit Application No. 8417-3 proposes to impound 48.4 ac-ft of water from runoff by constructing a dam for fish and wildlife propagation and recreational use purposes.

2. The plans and specifications have been reviewed for compliance with ARSD Chapter 74:02:08 Safety of Dams and will be approved; however, construction of the dam cannot begin until Water Permit Application No. 8417-3 is approved.
3. The proposed permit can be issued because unappropriated water is available, and it will not unlawfully impair existing rights.



Blaise M. Hansen
Natural Resources Engineer I
Reviewed by:



Mark D. Rath
Natural Resources Engineer III



Whitney Kilts
Natural Resources Engineer II

References:

1. Water Rights. 2020. Water Right/Permit Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
2. USDA-NCRS. 2020. <https://streamstats.usgs.gov/ss/>.
3. Sando, Steven K., 1998, A Method for Estimating Magnitude and Frequency of Floods in South Dakota: U.S. Geological Survey Water-Resources Investigations Report 98-4055.
4. USDA-NRCSa. 2020. National Engineering Handbook Hydrology - South Dakota Engineering Field Manual - Watershed Yield.

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, February 5, 2020 8:58 AM
To: Lynn Walstad
Subject: Water Permit Application No. 8417-3
Attachments: 8417-3.pdf

Mr. Walstad,

Attached is the report, recommendation and information regarding the public notice for Water Permit Application No. 8417-3, River Farm LLC. As stated in the letter, it is important that you or Mr. Vanderboom contact the 2 papers to authorize publication and arrange for payment ASAP. The notice is scheduled to be published February 13th.

If you have questions, contact me. Paper copies are being mailed today.

Karen Schlaak

SD DENR, Water Rights Program
(605) 773-3352



The Platte Enterprise

Platte, SD 57369

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA)

) SS.

COUNTY OF CHARLES MIX)

Sharon Huizenga, being duly sworn, deposes and says: That she is a resident of Charles Mix County, and State of South Dakota; that the Platte Enterprise is a weekly newspaper of general circulation, printed and published in the City of Platte, is said County and State, published once a week, printed in the English language, and has a bona fide circulation of 200 copies weekly, has been admitted to the United State mail under the second class mailing privilege for at least one year prior to the publication of the annexed notice and said newspaper is printed either in whole or in part in the office maintained at the above place of publications, that the newspaper has been published as aforesaid continuously for more than one year last preceding the publication of said noticed, and is a legal newspaper.

That the affiant is the publisher of said newspaper, in charge of advertising department thereof and has personal knowledge of all the facts slated in this affidavit, and that the notice and advertisement headed

Notice of Application no. 847-3 To appropriate water

a printed copy of which is hereunto attached, was printed and published in the Platte Enterprise for one issue/s, the first publication being made on Thursday, the 13th day of Feb., A.D., 2020 and succeeding publications were made severally on

Thursday the _____ day of _____ A.D., 20____

Thursday the _____ day of _____ A.D., 20____

Thursday the _____ day of _____ A.D., 20____

Thursday the _____ day of _____ A.D., 20____

and the last publication being made on Thursday, the _____ of _____ A.D., 20____

That the publication fee for publishing said notice is the sum of \$ 23.94

Sharon Huizenga

Subscribed and sworn to before me this 24th day of February, A.D., 2020

Donna Schudy

Notary Public for Charles Mix County, SD

My Commission Expires on 7-20-23

RECEIVED

FEB 26 2020

WATER RIGHTS
PROGRAM

LEGAL NOTICES

NOTICE OF APPLICATION NO. 8417-3 TO APPROPRIATE WATER

Notice is given that River Farm LLC, c/o Steve A Vanderboom, 6897 Grenadier Blvd, No. 1403, Naples FL 34108 has filed an application for a water permit to impound 48.4 acre-feet of water from runoff by constructing a dam located in the approximate center of the NE 1/4 Section 32 with water impounded in the NE 1/4 Section 32; all in T97N-R67W. This application requests impoundment of sufficient water to maintain water to the primary outlet elevation. The water is for fish and wildlife propagation and recreational use purposes. This site is located 15 miles south of Platte SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8417-3 with qualifications 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided below.

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, 523rd 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 February 24, 2020.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

Published once at the total approximate cost of \$23.94.

(February 13, 2020)

RECEIVED

FEB 18 2020

WATER RIGHTS
PROGRAM

**NOTICE OF
APPLICATION
NO. 8417-3 to
Appropriate Water**

Notice is given that River Farm LLC, c/o Steve A Vanderboom, 6897 Grenadier Blvd, No. 1403, Naples FL 34108 has filed an application for a water permit to impound 48.4 acre-feet of water from runoff by constructing a dam located in the approximate center of the NE 1/4 Section 32 with water impounded in the NE 1/4 Section 32; all in T97N-R67W. This application requests impoundment of sufficient water to maintain water to the primary outlet elevation. The water is for fish and wildlife propagation and recreational use purposes. This site is located 15 miles south of Platte SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8417-3 with qualifications 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided below.

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 February 24, 2020.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

Published once at the total approximate cost of \$66.71

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF DAVISON)

Penny Hohbach of said county, being, first duly sworn, on oath, says; that he/she is the publisher or an employee of the publisher of The Daily Republic, a daily newspaper, published in the City of Mitchell, in said County of Davison, and State of South Dakota; that he/she has full and personal knowledge of the facts herein stated; that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive; that said newspaper has been published within the said County of Davison and State of South Dakota, for at least one year next prior to the first publication of the attached public notice, and that the notice, order or advertisement, a printed copy of which, taken from the paper in which the same was published, and which is hereto attached and made a part of this affidavit, was published in said newspaper for 1 issues(s), to wit:

Thursday, February 13, 2020

That the full amount of the fee charged for the publication of the attached public notice insures to the sole benefit of the publisher or publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever, that the fees charged for the publication thereof are: \$66.71

Signed: Penny Hohbach

Subscribed and sworn to before me this 13th day of February 2020.

Deb Townsend

Notary Public
County of Davison

My Commission Expires: 10-02-2024

Prepared by: The Daily Republic, P.O. Box 1288, Mitchell S.D. 57301 605-996-5515

DEB TOWNSEND
Seal
Notary Public
South Dakota

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, February 5, 2020 8:51 AM
To: 'phohbach@mitchellrepublic.com'
Subject: 8417-3, River Farm LLC
Attachments: 8417-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on February 13, 2020.

River Farm LLC, c/o Steve A Vanderboom, 6897 Grenadier Blvd, No. 1403, Naples FL 34108 (612 867-2430) or Lynn Walsad, PO Box 748, Platte SD (605 366-5974) have been notified to contact you to authorize publication and arrange for payment.

Please send the affidavit or return the attached Proof of Publication form ASAP to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

Let me know if you have questions. Please acknowledge receipt of this email.

Karen Schlaak

SD DENR, Water Rights Program
(605) 773-3352





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

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

February 5, 2020

River Farm LLC
c/o Steve A Vanderboom
6897 Grenadier Blvd, No. 1403
Naples FL 34108

Dear Mr. Vanderboom:

Water Permit Application No. 8417-3 for fish and wildlife propagation and recreational use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Platte Enterprise printed at Platte SD (Ph # 605 337-3101) and the Daily Republic printed at Mitchell SD (Ph # 605 996-5514). You will need to contact the newspapers and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and 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 newspapers to authorize publication of your Notice and to arrange for payment. Early contact with the papers can eliminate delays. Upon receiving authorization from you, the publisher has been instructed to publish your notice. The newspaper has also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,


Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

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

c: Lynn Walstad

NOTICE OF APPLICATION NO. 8417-3 to Appropriate Water

Notice is given that River Farm LLC, c/o Steve A Vanderboom, 6897 Grenadier Blvd, No. 1403, Naples FL 34108 has filed an application for a water permit to impound 48.4 acre-feet of water from runoff by constructing a dam located in the approximate center of the NE 1/4 Section 32 with water impounded in the NE 1/4 Section 32; all in T97N-R67W. This application requests impoundment of sufficient water to maintain water to the primary outlet elevation. The water is for fish and wildlife propagation and recreational use purposes. This site is located 15 miles south of Platte SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8417-3 with qualifications 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided below.

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 February 24, 2020.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

Published once at the total approximate cost of_____.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
<http://denr.sd.gov>

FEB 27 2020

River Farm LLC
c/o Steve A Vanderboom
6897 Grenadier Blvd, No. 1403
Naples Fl 34108

Dear Mr. Vanderboom:

Enclosed is Water Permit No. 8417-3 authorizing construction of the dam 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,

A handwritten signature in black ink that reads "Jeanne Goodman". The signature is fluid and cursive, with the first name "Jeanne" being more prominent than the last name "Goodman".

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

enclosures

c: Lynn Walstad, PO Box 748, Platte SD 57369

8417-3
RECEIVED

SEP 29 2020

WATER RIGHTS
PROGRAMNOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USEDate 7/31/2020

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

FROM: Lynn Walstad

(name)

PO Box 748

(address)

Platte

SD

57369

(city, state, zip)

(605) 366-5974

(phone)

I have completed the construction of the water use system and I have put the water to beneficial use to the maximum extent it is going to be used.

Water Permit No. 8417-3 states that the water use system is to be constructed by 2/24/2020 , and water is to be put to beneficial use by 2/24/2029 .
(date) (date)

The water use system was completed on 7/1/2020 .
(date)

Applying the water to beneficial use was completed on 7/1/2020 .
(date)

You may schedule an investigation so that the water license may be issued.





DENR
SOUTH DAKOTA

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

September 29, 2020

8417-3

Lynn Walstad
River Farm LLC
PO Box 748
Platte SD 57369-0748

Dear Mr. Walstad:

I am writing to acknowledge receipt of the "Notice of Completion of Works" form that you sent in to let us know that you are completed with the project authorized under Permit No. 8417-3.

The system is now ready for inspection. Inspections are done on a county-by-county basis as staff time permits. You have done everything you need to do and the intervening time between the completion of your project and the staff inspection has no bearing on your water permit.

Someone from our office will contact you prior to the inspection to set up a time that is convenient for you. If you have any questions, please contact me.

Sincerely,

Genny McMath
Water Rights Program
(605) 773-3352
email: genny.mcmath@state.sd.us