

# NOTICE

This scan only represents the application as filed. The information contained herein meets the requirements of K.A.R. 5-3-1 or K.A.R. 5-5-1, and has been found acceptable for filing in the office of the Chief Engineer. The application should not be considered to be a complete application as per K.A.R. 5-3-1b or K.A.R. 5-5-2a.

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THE STATE OF KANSAS



KANSAS DEPARTMENT OF AGRICULTURE
Mike Beam, Secretary of Agriculture

DIVISION OF WATER RESOURCES
Earl D. Lewis Jr., Chief Engineer

File Number 50942
This item to be completed by the Division of Water Resources.

APPLICATION FOR PERMIT TO APPROPRIATE WATER FOR BENEFICIAL USE
Filing Fee Must Accompany the Application
(Please refer to Fee Schedule attached to this application form.)

To the Chief Engineer of the Division of Water Resources, Kansas Department of Agriculture,
1320 Research Park Drive, Manhattan, Kansas 66502:

1. Name of Applicant (Please Print): Steven Jess (email: stevejess@yahoo.com)
Address: 152 E. Shore Dr.
City: Council Grove State KANSAS Zip Code 66846
Telephone Number: (316) 761-1631

2. The source of water is: [X] surface water in upland drainage within the Elkhorn Creek watershed (stream)
OR [ ] groundwater in (drainage basin)

Certain streams in Kansas have minimum target flows established by law or may be subject to administration when water is released from storage for use by water assurance district members. If your application is subject to these regulations on the date we receive your application, you will be sent the appropriate form to complete and return to the Division of Water Resources. Storage: 91.33 ac-ft; Evaporation: 17.50 ac-ft

3. The maximum quantity of water desired is 108.83 acre-feet OR gallons per calendar year, to be diverted at a maximum rate of NF gallons per minute OR cubic feet per second.

Once your application has been assigned a priority, the requested maximum rate of diversion and maximum requested quantity of water under that priority number can NOT be increased. Please be certain your requested maximum rate of diversion and maximum quantity of water are appropriate and reasonable for your proposed project and are in agreement with the Division of Water Resources' requirements.

4. The water is intended to be appropriated for (Check use intended):
(a) [ ] Artificial Recharge (b) [ ] Irrigation (c) [X] Recreational (d) [ ] Water Power
(e) [ ] Industrial (f) [ ] Municipal (g) [X] Stockwatering (h) [ ] Sediment Control
(i) [ ] Domestic (j) [ ] Dewatering (k) [ ] Hydraulic Dredging (l) [ ] Fire Protection
(m) [ ] Thermal Exchange (n) [ ] Contamination Remediation

YOU MUST COMPLETE AND ATTACH ADDITIONAL DIVISION OF WATER RESOURCES FORM(S) PROVIDING INFORMATION TO SUBSTANTIATE YOUR REQUEST FOR THE AMOUNT OF WATER FOR THE INTENDED USE REFERENCED ABOVE.

For Office Use Only:
F.O. 1 GMD Meets K.A.R. 5-3-1 (YES/NO) Use REC/STK Source G/S County MR By ALB Date 1/13/23
Code REC Fee \$ 300 TR # Receipt Date 1/12/23 Check # 1714

File No. \_\_\_\_\_

5. The location of the proposed wells, pump sites or other works for diversion of water is:

**Note:** For the application to be accepted, the point of diversion location must be described to at least a 10 acre tract, unless you specifically request a 60 day period of time in which to locate the site within a specifically described, minimal legal quarter section of land.

Point of diversion is the principal spillway pipe. See Plan Sheets.

(A) One in the SW quarter of the NE quarter of the NW quarter of Section 9, more particularly described as being near a point 4,476 feet North and 3,430 feet West of the Southeast corner of said section, in Township 15 South, Range 9 East, Morris County, Kansas.

(B) One in the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of Section \_\_\_\_\_, more particularly described as being near a point \_\_\_\_\_ feet North and \_\_\_\_\_ feet West of the Southeast corner of said section, in Township \_\_\_\_\_ South, Range \_\_\_\_\_, \_\_\_\_\_ County, Kansas.

(C) One in the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of Section \_\_\_\_\_, more particularly described as being near a point \_\_\_\_\_ feet North and \_\_\_\_\_ feet West of the Southeast corner of said section, in Township \_\_\_\_\_ South, Range \_\_\_\_\_, \_\_\_\_\_ County, Kansas.

(D) One in the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of Section \_\_\_\_\_, more particularly described as being near a point \_\_\_\_\_ feet North and \_\_\_\_\_ feet West of the Southeast corner of said section, in Township \_\_\_\_\_ South, Range \_\_\_\_\_, \_\_\_\_\_ County, Kansas.

If the source of supply is groundwater, a separate application shall be filed for each proposed well or battery of wells, except that a single application may include up to four wells within a circle with a quarter (1/4) mile radius in the same local source of supply which do not exceed a maximum diversion rate of 20 gallons per minute per well.

A battery of wells is defined as two or more wells connected to a common pump by a manifold; or not more than four wells in the same local source of supply within a 300 foot radius circle which are being operated by pumps not to exceed a total maximum diversion rate of 800 gallons per minute and which supply water to a common distribution system.

6. The owner of the point of diversion, if other than the applicant is (please print):

\_\_\_\_\_  
(name, address and telephone number)

\_\_\_\_\_  
(name, address and telephone number)

You must provide evidence of legal access to, or control of, the point of diversion from the landowner or the landowner's authorized representative. Provide a copy of a recorded deed, lease, easement or other document with this application. In lieu thereof, you may sign the following sworn statement:

I have legal access to, or control of, the point of diversion described in this application from the landowner or the landowner's authorized representative. I declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, 20\_\_\_\_.

Applicant's Signature

The applicant must provide the required information or signature irrespective of whether they are the landowner. Failure to complete this portion of the application will cause it to be unacceptable for filing and the application will be returned to the applicant.

7. The proposed project for diversion of water will consist of embankment pond with principal spillway pipe  
(number of wells, pumps or dams, etc.)

and (will be) completed (by) May 1, 2023  
(Month/Day/Year - each was or will be completed)

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- 9. Will pesticide, fertilizer, or other foreign substance be injected into the water pumped from the diversion works?  
 Yes    No   If "yes", a check valve shall be required.

All chemigation safety requirements must be met including a chemigation permit and reporting requirements.

- 10. If you are planning to impound water, please contact the Division of Water Resources for assistance, prior to submitting the application. Please attach a reservoir area capacity table and inform us of the total acres of surface drainage area above the reservoir.

Have you also made an application for a permit for construction of this dam and reservoir with the Division of Water Resources?    Yes         No

- If yes, show the Water Structures permit number here \_\_\_\_\_
- If no, explain here why a Water Structures permit is not required Pond embankment does not require a DWR structures permit. The structure meets the criteria for the Class A Dam restriction. See attached Registration Form for Exempt Class A Dams

- 11. The application must be supplemented by a U.S.G.S. topographic map, aerial photograph or a detailed plat showing the following information. On the topographic map, aerial photograph, or plat, identify the center of the section, the section lines or the section corners and show the appropriate section, township and range numbers. Also, please show the following information:

- (a) The location of the proposed point(s) of diversion (wells, stream-bank installations, dams, or other diversion works) should be plotted as described in Paragraph No. 5 of the application, showing the North-South distance and the East-West distance from a section line or southeast corner of section.
- (b) If the application is for groundwater, please show the location of any existing water wells of any kind within ½ mile of the proposed well or wells. Identify each existing well as to its use and furnish the name and mailing address of the property owner or owners. If there are no wells within ½ mile, please advise us.
- (c) If the application is for surface water, the names and addresses of the landowner(s) ½ mile downstream and ½ mile upstream from your property lines must be shown.
- (d) The location of the proposed place of use should be shown by crosshatching on the topographic map, aerial photograph or plat.
- (e) Show the location of the pipelines, canals, reservoirs or other facilities for conveying water from the point of diversion to the place of use.

A 7.5 minute U.S.G.S. topographic map may be obtained by providing the section, township and range numbers to: Kansas Geological Survey, 1930 Constant, Campus West, University of Kansas, Lawrence, Kansas 66047.

- 12. List any application, appropriation of water, water right, or vested right file number that covers the same diversion points or any of the same place of use described in this application. Also list any other recent modifications made to existing permits or water rights in conjunction with the filing of this application.

None

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13. Furnish the following well information if the proposed appropriation is for the use of groundwater. If the well has not been completed, give information obtained from test holes, if available.

Information below is from:     Test holes     Well as completed     Drillers log attached

Well location as shown in paragraph No.	(A)	(B)	(C)	(D)
Date Drilled	_____	_____	_____	_____
Total depth of well	_____	_____	_____	_____
Depth to water bearing formation	_____	_____	_____	_____
Depth to static water level	_____	_____	_____	_____
Depth to bottom of pump intake pipe	_____	_____	_____	_____

14. The relationship of the applicant to the proposed place where the water will be used is that of owner  
(owner, tenant, agent or otherwise)

15. The owner(s) of the property where the water is used, if other than the applicant, is (please print):

\_\_\_\_\_  
(name, address and telephone number)

\_\_\_\_\_  
(name, address and telephone number)

16. The undersigned states that the information set forth above is true to the best of his/her knowledge and that this application is submitted in good faith.

Dated at Council Grove, Kansas, this 10<sup>th</sup> day of January, 2023.  
(month) (year)

  
\_\_\_\_\_  
(Applicant Signature)

By \_\_\_\_\_  
(Agent or Officer Signature)

\_\_\_\_\_  
(Agent or Officer - Please Print)

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Assisted by Brian Severin, P.E. Sustainable Environmental Consultants Date: 12/22/2022

\_\_\_\_\_  
(office/title)

File No. \_\_\_\_\_

8. The first actual application of water for the proposed beneficial use was or is estimated to be 05/01/2024.  
(Mo/Day/Year)

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**RECREATIONAL USE  
SUPPLEMENTAL SHEET**

File No. \_\_\_\_\_

Name of Applicant (Please Print): Steven Jess

1. Please indicate type of recreational use (boating, fishing, swimming, etc.): Construction of pond embankment for livestock watering and personal recreation.

2. Please summarize how the water will be used and justify the quantity of water requested: The surface water runoff will be impounded in the embankment pond. The water will be used to water livestock and attract wildlife for personal recreation.

3. Please complete the following table showing estimated future water requirements:

<b>ESTIMATED FUTURE WATER DIVERTED/STORED</b>	
<b>NEXT 5 YEARS</b>	<b>WATER TO BE DIVERTED (ACRE-FEET OR GALLONS)</b>
Year 1	108.83 acre-feet
Year 2	108.83 acre-feet
Year 3	108.83 acre-feet
Year 4	108.83 acre-feet
Year 5	108.83 acre-feet

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Please attach any additional information, tables, or curves showing past, present and estimated future water requirements to substantiate the amount of water requested.

4. Please designate the legal description of the location where the water is to be used by providing the fractional part of the Section, Township and Range.

NW 1/4 Section 9, Township 15 South; Range 9 East

You may attach any additional information you believe will assist in informing the Division of the need for your request.

**Hazard Classification Documentation for Ponds**

Location NW 1/4 Sec 9, T-15S; R-9E Owner Steven Jess  
 Prepared by Brian Severin Date 12/21/2022  
 Checked by Curtis Janssen Date 12/23/2022  
 Approved by Brian Severin Date 12/29/2022

Dam and Reservoir Data:

Drainage Area 281.4 acres  
 Top of Dam (TOD) Elevation 1396.2  
 Auxiliary Spillway Elevation 1393.2  
 Elevation of Channel Bottom 1375.2  
 Dam Height 21.0 feet

Method of Analysis:  1/2 Dam Height  Equivalent Area  Other

Buildings, Utilities, Roads, and Railroads:

Potential Hazard Item	Distance Downstream (feet)	Height of Item Above 1/2 Dam Height*	Cross Section Area at Item Greater Than at TOD*
Farmstead 1	2,600	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no
S 500 Rd	3,280	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no
Farmstead 2	4,900	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no
		<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no

\*Attach surveys, maps, or other documentation as needed.

Low Hazard Classification Confirmed:  yes  no

Remarks:  
 Farmstead 1 is 20-ft higher in elevation as compared Elkhorn Creek: Not a potential hazard  
 S 500 Rd is a low volume county road that does not have a KDOT published average daily volume: Not a potential hazard  
 Farmstead 2 is 30-ft higher in elevation as compared to Elkhorn Creek: Not a potential hazard

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**REGISTRATION FORM FOR EXEMPT CLASS A DAMS**

**K.S.A. 82a-301**

"Dam" means any artificial barrier including appurtenant works with the ability to impound water, waste water or other liquids that has a height of 25 feet or more; or has a height of six feet or greater and a storage volume at the top of the emergency spillway elevation of 50 or more acre-feet. The prior written consent or permit of the chief engineer shall not be required for construction or modification of a hazard class A dam that:

1. has a height of less than 30 feet and a storage volume at the top of the emergency spillway elevation of less than 125 acre feet, **and the dam location and dimensions have been registered with the Division of Water Resources in a written form prescribed by the chief engineer; or**
2. is a wastewater storage structure for a confined feeding facility that has been approved by the secretary of health and environment pursuant to K.S.A. 65-171d, and amendments thereto.

**Complete the following information to satisfy the registration for exempt low, hazard class A dams defined in K.S.A. 82a-301(d)(1).**

**Dam owner information**

Name: Steven Jess

Mailing Address: 152 E. Shore Dr., Council Grove, Kansas 66846

Phone: 316-761-1631

E-mail Address: stevejess@yahoo.com

**Legal description of location:** The location of the proposed dam is (use intersection of project centerline and stream centerline): SW quarter of the NE quarter of the NW quarter of Section 9, Township 15 South, Range 9 E (East/West) Morris County, Kansas, across, along, or in (stream or watercourse name): upland drainage within the Elkhorn Creek watershed.

**Location of each end of the dam at the centerline:** GPS location of the left abutment is 38° 45' 58.6" N, 96° 25' 19" W and the GPS location of the right abutment is 38° 45' 56" N, 96° 25' 9" W

**Drainage area (acres):** 281.4  
 Use intersection of dam centerline and stream centerline as drainage area point.

**Dam height (feet):** 21.0 (top of dam to downstream toe)  
 The height of a dam or barrier shall be measured from the lowest elevation of the streambed, downstream toe or outside limit of the dam to the elevation of the top of the dam.

**Area capacity table:** Please attach a reservoir area capacity table for the dam. The table identifies the number of acres enclosed by each contour within the reservoir area and the total storage capacity of the reservoir in acre-feet at the elevation of each contour. The data shall be compiled for all contours in the reservoir up to the elevation of the top of the dam. Computations of capacity shall be based on the natural topography of the reservoir basin but may include the volume of any excavation in the reservoir made during construction of the dam. **The storage in acre-feet must be shown in the table for the proposed emergency spillway elevation. This will be used to identify the jurisdiction of the dam.**

**Location map:** Submit a U.S.G.S. topographic map, aerial photograph or a detailed plat showing the location and layout of the proposed dam, the location of the stream, and the property lines. The distance from the North-South distance and the East-West distance from a section line or southeast corner of section should be marked on the map along with a north arrow and map scale.

**Hazard class determination:** List any homes, businesses, highways, improved roads, railroads, camp grounds, recreational facilities, or public utilities located downstream from the dam that could be inundated if the dam fails.

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## Construction Specifications

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### 1. Scope

The work shall consist of all construction operations and furnishing all materials as required by the construction plans and specifications for the complete installation of the works.

### 2. Location

The location of the embankment, borrow area, auxiliary spillway, and appurtenant structures shall be as specified on the construction plans or as staked in the field.

### 3. Site Preparation

Foundation Area: The foundation area shall be cleared of all trees, logs, stumps, roots, brush, boulders, sod, and rubbish. Channel banks and breaks shall be sloped no steeper than 1.5 horizontal to 1 vertical (1.5:1) unless otherwise specified. Topsoil containing substantial amounts of organic matter shall be stockpiled for later placement on the dam, spillway, and borrow areas located outside the pool area.

Stream channels in the foundation area shall be deepened and widened as necessary to remove stones, gravel, sand, stumps, roots, mud, or other objectionable material and to accommodate compaction equipment.

The foundation area will be thoroughly scarified to a minimum depth of 4 inches before the fill material is placed and moisture is added, if necessary, so the first layer of fill material can be bonded to the foundation.

Waste Material: Waste material from the construction operation such as rocks, frozen soil, mud, stumps, trees, logs, roots, or rubbish shall be disposed of by piling, burying, or burning at locations outside the dam area or as directed by the inspector. Burning shall comply with all state and local policies pertaining to open burning.

### 4. Excavation

To the extent they are suitable and approved by the inspector, excavated materials are to be used as fill materials.

Cutoff and Principal Spillway Trenches: These trenches shall be excavated to the lines, grades, and widths shown on the construction plans or as staked in the field or as revised by the inspector for depth adjustment during excavation. The trenches shall be kept free of standing water during backfill operations.

Backfill shall be made with selected impervious material approved by the inspector and be placed in the same manner as specified for earthfill.

Auxiliary Spillway, Inlet Channel, and Outlet Channel: These excavations shall conform to the lines, grades, bottom width, and side slopes shown on the construction plans or as staked in the field.

Borrow: The location, extent, and depth of the borrow area shall be as shown on the construction plans or as staked in the field. The borrow pits shall be stripped of all vegetation and topsoil containing substantial amounts of organic matter. This stripped material will be stockpiled for use to

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topsoil areas disturbed by the construction, embankment slopes, auxiliary spillway, and other required topsoil areas (if the percentage of organic materials is not too great).

Borrow pits will be excavated and dressed in a manner to eliminate steep or unstable side slopes or other hazardous conditions. Side slopes shall be no steeper than 3:1. Surfaces of the borrow pits not covered by permanent water shall be graded and shaped to prevent the ponding of water.

## 5. Principal Spillway

The materials and manufacture of the pipe, anti-seep collars, coupling bands, coatings, and other appurtenances shall be as shown on the construction plans and shall conform to the appropriate material specifications suitable for the intended purpose.

The pipe shall be installed according to the manufacturer's instructions. The pipe shall be laid to the line and grades shown on the construction plans, be placed in original earth or properly compacted earthfill, and be uniformly bedded to the depth and in the manner specified.

### OPTION A

Principal Spillway (Canopy Inlet Details): The canopy inlet and pipe details shall show the diameter, type, and material of the pipe. The details and the inlet and outlet elevations shall be as shown on the construction plans.

### OPTION B

Principal Spillway (Drop Inlet Details): The riser and pipe shall be galvanized helical corrugated steel. The steel shall be a minimum of 16 gauge or as shown. The principal spillway riser details shall show the riser diameter and height, steel base size and thickness, and the angle and location of attachment of the 4-foot long barrel pipe and 2-foot long drawdown pipe (if needed). The spillway details and the elevations of the riser inlet, drawdown inlet, and spillway outlet shall be shown on the construction plans.

### OPTION A

Drainage Diaphragm: The drainage diaphragm shall consist of sand meeting the requirements of American Society for Testing and Materials (ASTM) C 33 for fine aggregate or a special design shown on the construction plans. The location and dimensions shall be as shown on the construction plans or as staked in the field. The drainfill outlet shall be protected from surface erosion.

### OPTION B

Anti-seep Collars: Anti-seep collars shall be of materials compatible with that of the pipe and shall be installed so that they are watertight. The location, size, and type shall be as shown on the construction plans.

## 6. Earthfill

Placement of Earthfill: The material placed in the fill shall be free of sod, roots, frozen soil, stones over 6 inches in diameter, and other objectionable material. The placing and spreading of fill material shall be started at the lowest point of the foundation and the fill brought up in horizontal layers of such thickness that the required compaction can be obtained. The fill shall be constructed

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in continuous horizontal layers except where openings or sectionalized fills are called for. In those cases, the slope of the bonding surfaces between embankment in place and embankment to be placed will not be steeper than 3:1. The bonding surface is to be treated the same as that specified for the foundation so as to ensure a good bond with the new fill.

The distribution and gradation of materials shall be such that there are no lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding material. Where it is necessary to use materials of varying texture and gradation, the more impervious material shall be placed in the center and upstream portions of the fill. Where zoned fills are specified of substantially differing materials, the zones shall be placed according to lines and grades shown on the construction plans.

The completed work shall conform to the lines, grades, and elevations shown on the construction plans or as staked in the field.

Stockpiled topsoil strippings will be placed on the outer portion of the embankment as a part of each lift. Topsoil shall not be less than 6 inches or more than 2 feet thick measured vertically and shall be compacted concurrently with the earthfill.

Compaction Moisture Control: The moisture content of the fill material shall be such that the required compaction can be obtained. Material that is too wet shall be dried to meet this requirement, and material that is too dry shall have water added and mixed until the requirement is met. Adequate moisture will be maintained in the fill material such that when a ball of material is formed by hand it will easily maintain its shape and act as a uniform pliable mass. Any additional moisture requirements will be as shown on the construction plans or in the Construction Details Section.

Compaction Requirements: Compaction will be obtained by the controlled travel of the rubber-tired earthmoving equipment. Fill will be placed in a maximum of 9-inch lifts, and each lift will be completely traversed by the earthmoving equipment or additional compaction equipment. Special equipment will be used when the required compaction cannot be obtained without it.

Hand Compaction: Selected impervious backfill material shall be placed around the conduit and appurtenances in layers not more than 4 inches thick before compaction; and each layer shall be thoroughly compacted by hand tamping, manually directed power tampers, or plate vibrators to the density of the surrounding material. The height of fill shall be increased at approximately the same rate on all sides of the structure. Heavy equipment shall not be operated within 2 feet of any structure.

## **7. Foundation**

Foundation and embankment drains, when required, will be placed to the lines and grades as shown on the construction plans. Drainfill shall be kept from being contaminated by adjacent soil materials during placement by either placing it in a cleanly excavated trench or by keeping the drain at least 1 foot above the adjacent earthfill. Gradation requirements for drainfill and filter material and material requirements for pipe will be as shown on the construction plans or as specified in the Construction Details Section.

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## 8. Vegetation

A protective cover of vegetation shall be established on all exposed surfaces of the embankment, spillway, outlet channel, and borrow areas exposed above the permanent waterline. Include details for seedbed preparation, seeding with a drill or broadcast, fertilizing, and a typical seed mix per acre on the construction plans or in the Construction Details Section.

## 9. Fencing

Fencing shall be as specified in the Construction Details Section.

## 10. Supply Line / Drawdown

A 4-inch diameter water supply line shall be installed under the dam to provide water to a watering facility for livestock and/or wildlife when included in the design. The supply line will also function as a drawdown for the reservoir. Details of the water supply line / drawdown shall be as shown on the construction plans or as staked in the field.

## 11. Measurement

Earthfill in Dam. The volume of earthfill completed as specified will be determined from the design dimensions as staked in the field.

The design dimensions shall be the measured surface of the foundation prior to stripping and the specified neat lines of the settled fill surface. Volume will be computed to the nearest cubic yard. No reduction in volume will be made for embedded conduits and appurtenances.

Earthfill in Cutoff Trench. The volume of earthfill will be computed from the measured surface of the foundation prior to stripping and the bottom of the excavated cutoff trench.

Auxiliary spillway, Inlet Channel, and Outlet Channel. No volume measurement will be made for these excavations.

Other Component Parts. Unless otherwise specified in the Construction Details Section, measurement shall be to the units shown in the bid schedule and/or the construction plans.

## 12. Construction Details

Principal Spillway Pipe:

OPTION A – Canopy Inlet

OPTION B – Drainage Diaphragm

See Plan Sheets for details and material specifications

Supply Line / Drawdown:

OPTION B – Anti-Seep Collars

Drainage Diaphragm:

See Plan Sheets for details and material specifications

No fencing is planned or required for this project.

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## KDA – Division of Water Resources (DWR) Project Report

### Structure

The embankment has a hazard classification of Class A – Low. There are no potential downstream hazards within 1 mile (stream flow length) of the downstream toe. Given the dam height (21.0 feet) and auxiliary spillway storage (123.32 ac-ft), the structure meets the requirements of House Bill 2363, New Low Hazard Dam Exemption, and a Structures Permit is not required. Registration Form for Exempt Class A Dams

### Surface Water Storage

The Potential Net Evaporation (Annual Average Evaporation minus Annual Normal Precipitation) for the project location is 16 inches. The net storage for pond embankment was analyzed from the principal spillway (permanent pool) elevation. The Total Storage + Net Evaporation for the pond embankment is greater than 15 ac-ft. Therefore, a DWR Water Appropriations permit is required.

Pond Embankment Stage Storage Table			
Elevation (ft)	Area (ac)	Total Storage (ac-ft)	Total Storage + Net Evaporation (ac-ft)
1374.0	0.00	0.00	0.00
1376.0	0.29	0.29	0.68
1378.0	1.52	2.10	4.13
1380.0	3.01	6.63	10.64
1382.0	4.48	14.12	20.09
1384.0	6.38	24.98	33.49
1386.0	7.93	39.29	49.86
1388.0	9.71	56.93	69.88
1390.0	12.08	78.72	94.83
1391.0 (Principal Spillway)	13.13	91.33	108.83
1392.0	14.42	105.10	124.33
1393.2 (Auxiliary Spillway)	15.94	123.32	144.57
1394.0	16.95	136.47	159.07
1396.0	19.59	173.01	199.13
1396.2 (Top of Dam)	19.87	176.96	203.45

### Direct Diversion

Currently, no pumping or diversion of water is planned for the embankment's storage capacity. If plans change in the future, the DWR Water Appropriations permit will require a modification to include such activities.

### Base Flood Analysis

The project earthfill is not located within the FEMA Zone A flood boundary. Therefore, a floodplain fill permit will not be required.

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# Steven Jess Livestock Pond Morris County, Kansas

Prepared by: Brian Severin, P.E., Director of Agricultural Engineering | December 29, 2022  
785-207-0201 | bseverin@sustainableenviro.com



## SUSTAINABLE

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Sustainability Risk Management | Agricultural Compliance & Engineering | Erosion Control

PO Box 791, Des Moines, Iowa 50303  
888.287.7080 | [sustainableenviro.com](http://sustainableenviro.com)

## Design Report

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### Project Information

- Name: Steven Jess
- Legal: NW 1/4 Sec 9, T-15S; R-9E
- Location: Morris County, Kansas
- Coordinates: Latitude 38° 45' 57.9" N; Longitude 96° 25' 13.7" W

### Project Description

The project is located approximately seven miles north and 4 miles east of Council Grove, Kansas. The earthen embankment dam will be constructed for livestock and recreational use. The embankment will capture 281.4 acres (0.44 sq mi) of runoff.

The proposed top of dam elevation is 1396.2. The auxiliary spillway elevation is 1393.2. The lowest point on the downstream toe has an elevation of 1375.2. Therefore, the dam has a total height of 21.0 feet and an effective height of 18.0 feet.

The principal spillway is an 18-inch diameter PVC pipe. The principal spillway inlet elevation is 1391.0. The pond storage at the principal spillway elevation is 91.33 acre-feet. The auxiliary spillway is a shaped, earthen structure located on the right abutment. The auxiliary spillway level section is 40-feet wide and 100-feet long. The pond storage at the auxiliary spillway elevation is 123.32 acre-feet.

A supply line will be installed to provide livestock water. The supply line can also function as a drawdown to release stored water downstream or to lower pond levels for maintenance. The supply line / drawdown pipeline outlets into the stream channel at the embankment back toe.

The project will not hydraulically affect adjacent landowners, as the permanent pool will be confined to the landowner's property. See the attached Plan Sheets for further detail.

### Hazard Classification

The pond has a hazard classification of Class A – Low. There are no potential downstream hazards within 1 mile (stream flow length) of the downstream toe. Please see the Appendix for further detail.

### Survey

The project area was surveyed by Matt Miller, Engineering Technician, Sustainable Environmental Consultants (SEC) using survey grade GPS equipment. The survey projection is Kansas State Plane Zone South (1502) US Survey Feet, NAVD88 Vertical Datum. The project is tied to permanent benchmarks labeled and described on the Plan Sheets.

### Design

The structure's drainage area was calculated from LiDAR topographic data. Watershed characteristics were used to complete a hydrologic design. The stage storage table was created by combining the onsite survey data and Kansas LiDAR topographic data. The USDA – Natural Resources Conservation Service Livestock Pond design program was used to compile the design inputs and complete a preliminary embankment, principal spillway, and auxiliary spillway design. The preliminary design components were then input into SITES. Several SITES runs were completed to finalize the structure design.

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## Vegetation

The embankment top, downstream slope, and auxiliary spillway will be planted to permanent grass vegetation. The upper portion (above elevation 1394.5) of the upstream slope will be planted to permanent grass vegetation. The lower portion (below elevation 1394.5) will be protected by rock riprap. Construction lanes and denuded areas adjacent to the pond embankment will be planted to permanent grass vegetation.

## Permits & Reviews

The following permits and reviews will be required for construction activities. Pertinent information for the permits has been supplied in the Appendix – Permit Documentation.

- Kansas Department of Health and Environment: Notice of Intent (NOI) for Authorization to Discharge Stormwater Runoff from Construction Activities
- Kansas Department of Agriculture, Division of Water Resources: DWR 1-100 Application for Permit to Appropriate Water for Beneficial Use
- Kansas Department of Agriculture, Division of Water Resources: Registration Form for Exempt Class A Dams

## Appendix

The attached Appendix includes Plan Sheets, KDA-DWR Report, Permit Documentation

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Project: Steven Jess

Practice: Pond

Location: NW 1/4 Sec 9, T-15S; R-9E

Morris County, Kansas

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### Index to Drawings

Sheet No.	Description
1	Cover Sheet
2	Location Map and Table of Quantities
3	Topographic Plan Map and Site Information
4	Embankment Plan View
5	Profile of Dam
6	Cross Section of Dam
7	Trash Rack Detail
8	Drainage Diaphragm Detail
9	Supply Line / Drawdown Detail
10	Upstream Slope Protection Detail
11	Grass Seeding and Sediment Plan View
12	Sediment Control Detail

Curtis Janssen, P.E.                      October 2022  
Designed by    Date



\_\_\_\_\_  
Approved by    Date

Before any investigation or construction activity, the excavator is responsible for calling Kansas One-Call at 800-344-7233 (800-DIG-SAFE) or 811

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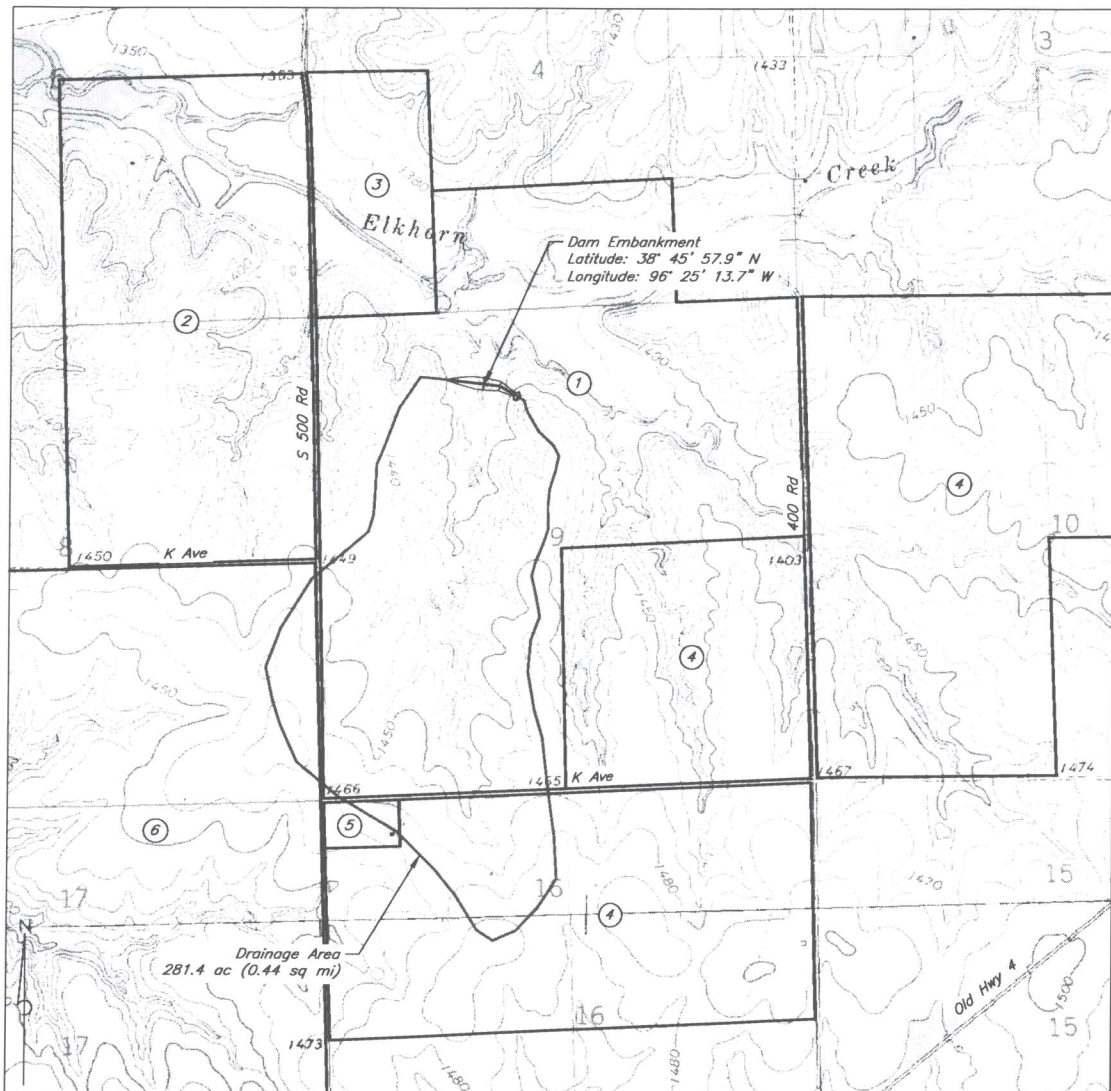
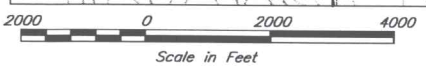


Table of Quantities			
Item	Unit	Design Quantity	
<b>Embankment</b>			
Earthfill, Embankment	cu yd	24,850	
Earthfill, Cutoff Trench*	cu yd	3,100	
<b>Principal Spillway</b>			
PVC DR25 Pipe, 18-inch dia. (AWWA C900)	lin ft	105	
Corrugated Metal (CM) Pipe, 24-inch dia., 16 gage	lin ft	20	
Trash Rack	each	1	
<b>Drainage Diaphragm</b>			
Drainfill, Fine Concrete Sand (ASTM C33)	cu yd	13	
PVC Pipe, 4-inch dia.	lin ft	65	
Slotted PVC Pipe, 4-inch dia.	lin ft	8.5	
Helical CM Pipe, 6-inch dia.	lin ft	10	
Bar Guard, 6-inch	each	1	
PVC End Cap, 4-inch dia.	each	1	
PVC Elbow, 40-inch dia.	each	1	
<b>Supply Line / Drawdown</b>			
Slotted PVC Pipe, 4-inch dia.	lin ft	6	
PVC Pipe, 4-inch dia.	lin ft	160	
PVC Valve Box with Cap, 10-inch dia.	each	1	
Gate Valve, 125#, 4-inch dia.	each	1	
Anti-Seep Collar, Rigid Polyethylene, 48" x 48", 4-inch dia.	each	4	
Rock Riprap, KDOT Light 24" or Light 18" Stone**	ton	2,900	
Grass Seeding and Mulching	ac	1.4	

\* Cutoff Trench volume is a minimum estimate assuming 6-ft of earthfill throughout. Additional earthfill may be required.  
 \*\* Rock Riprap volume is a maximum estimate assuming placement to front toe. Volume required for wave protection only is 1,100 tons.

Upstream and Downstream Landowners

- |  |   |
|--|---|
| 1) Project Location<br>Jess, Steven C; Rev Trust<br>152 East Shore Dr<br>Council Grove, Kansas 66846 | 4) Buchman, Frank J; Rev Trust<br>232 KS HWY 177<br>Alta Vista, Kansas 66834  |
| 2) Litke, Byron L & Sheila A<br>782 S 500 Rd<br>Council Grove, Kansas 66846                          | 5) Goodman, Frederick & Barbara L<br>483 K Ave<br>Council Grove, Kansas 66846 |
| 3) Kasten, Kerry Wayne & Lacie Jo<br>767 S 500 Rd<br>Council Grove, Kansas 66846                     | 6) Amos LLC<br>649 US HWY 56<br>Council Grove, Kansas 66846                   |



The approximate project location is 7 miles north and 4 miles east of Council Grove, Kansas.

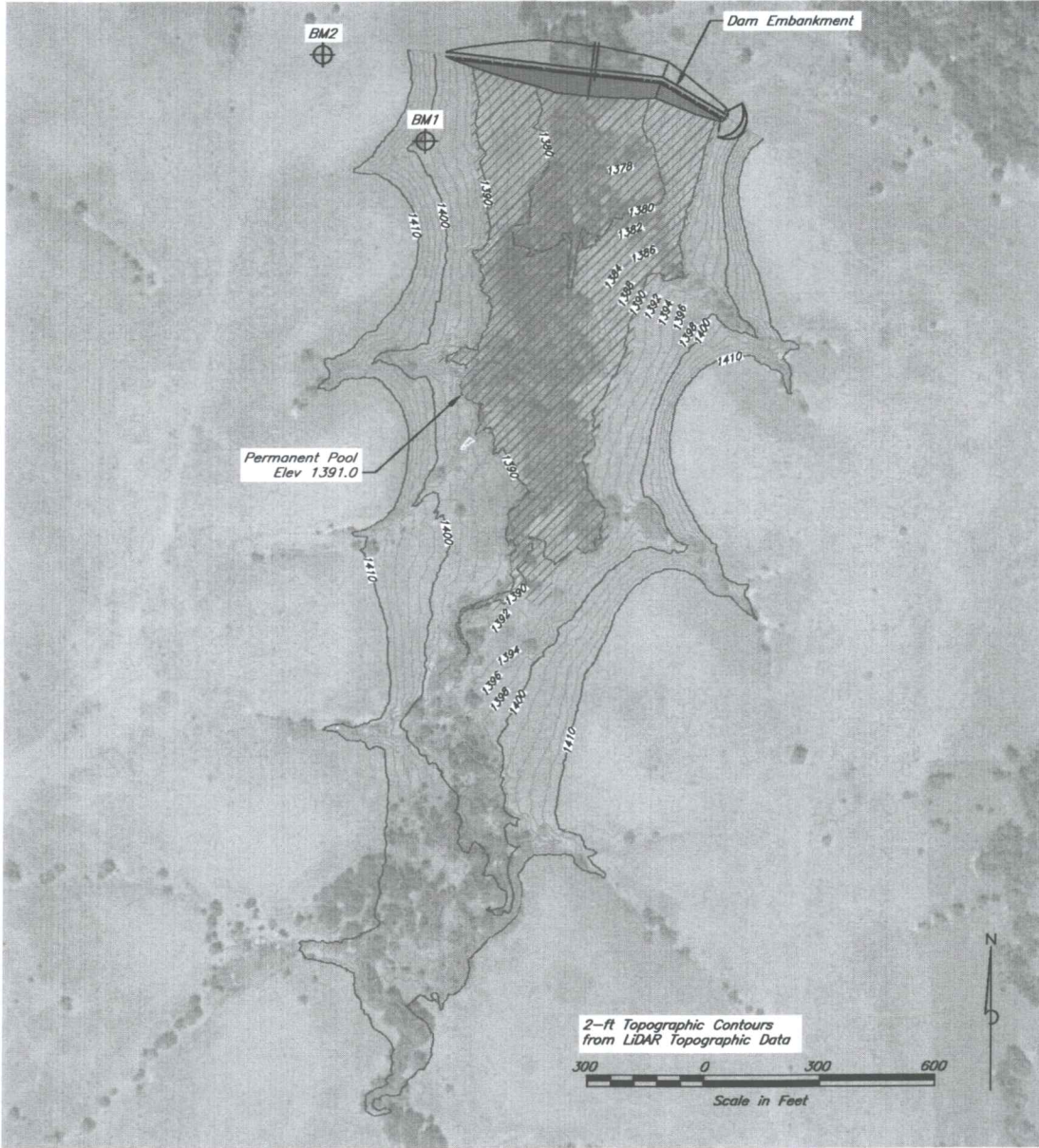
Location Map and Table of Quantities

Date: 10/22  
 Designed: C. Janssen  
 Drawn: B. Severin  
 Checked: B. Severin  
 Approved: B. Severin

Steven Jess  
 Pond  
 NW 1/4 Sec 9, T-15S; R-9E  
 Morris County, Kansas

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Sheet 2 of 12



*Storage Table*

Elevation (ft)	Area (ac)	Volume (ac-ft)	Total Volume (ac-ft)
1374.0	0.00	0.00	0.00
1376.0	0.29	0.29	0.29
1378.0	1.52	1.81	2.10
1380.0	3.01	4.53	6.63
1382.0	4.48	7.49	14.12
1384.0	6.38	10.86	24.98
1386.0	7.93	14.31	39.29
1388.0	9.71	17.64	56.93
1390.0	12.08	21.79	78.72
PS 1391.0	13.13	12.61	91.33
1392.0	14.42	13.78	105.10
ASW 1393.2	15.94	18.22	123.32
1394.0	16.95	13.16	136.47
1396.0	19.59	36.54	173.01
TOD 1396.2	19.87	3.95	176.96

Storage Table from LiDAR Topographic Data

*Benchmark Table*

Benchmark	Northing	Easting	Survey Elevation	Description
BM1	2083245.07	1904841.47	1398.12	Top of rebar, 25-ft northeast of hedge tree
BM2	2083471.29	1904574.53	1431.59	Top of rebar

Survey Area: Kansas State Plane

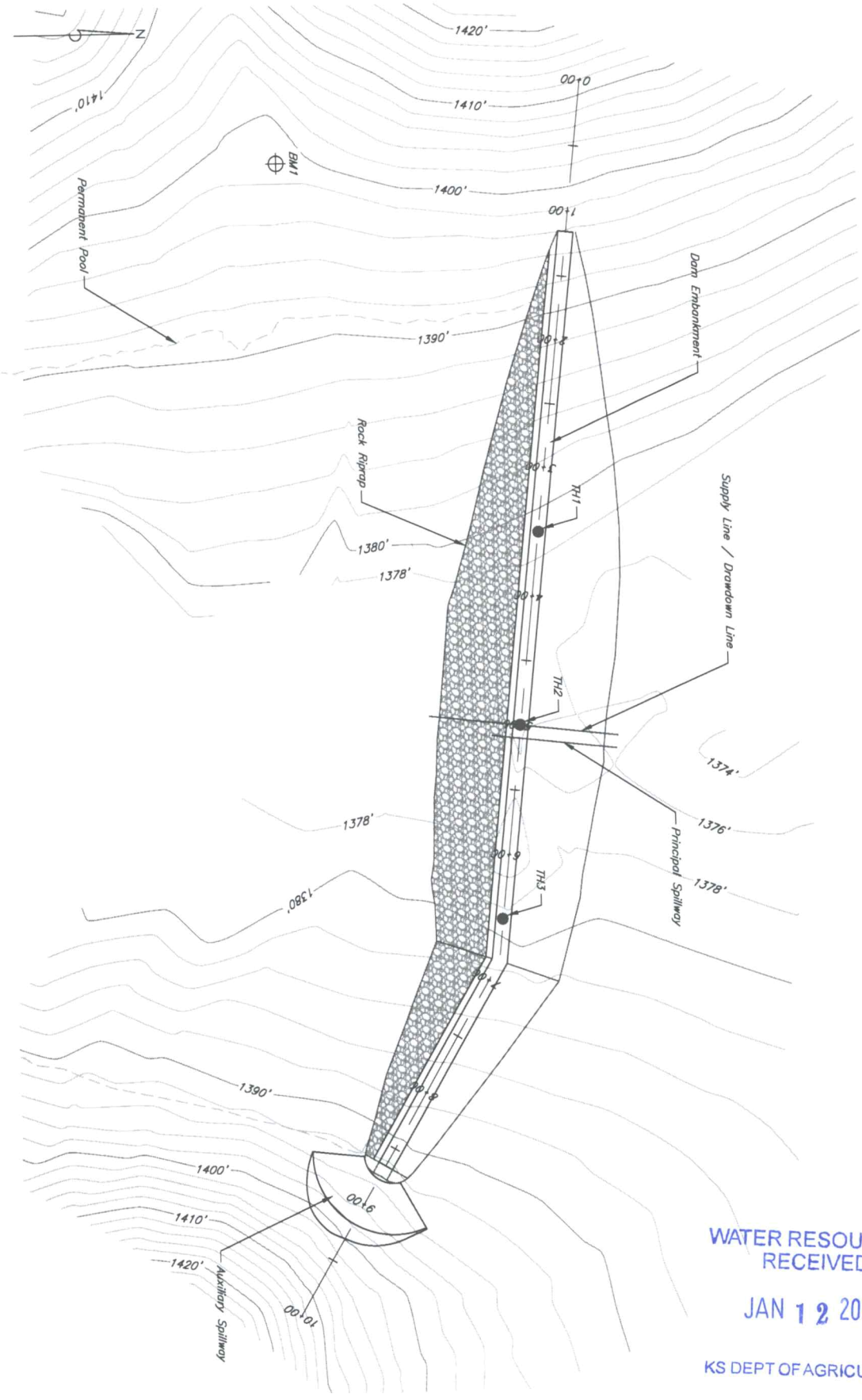
*Topographic Plan Map and Site Information*

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Embankment Plan View

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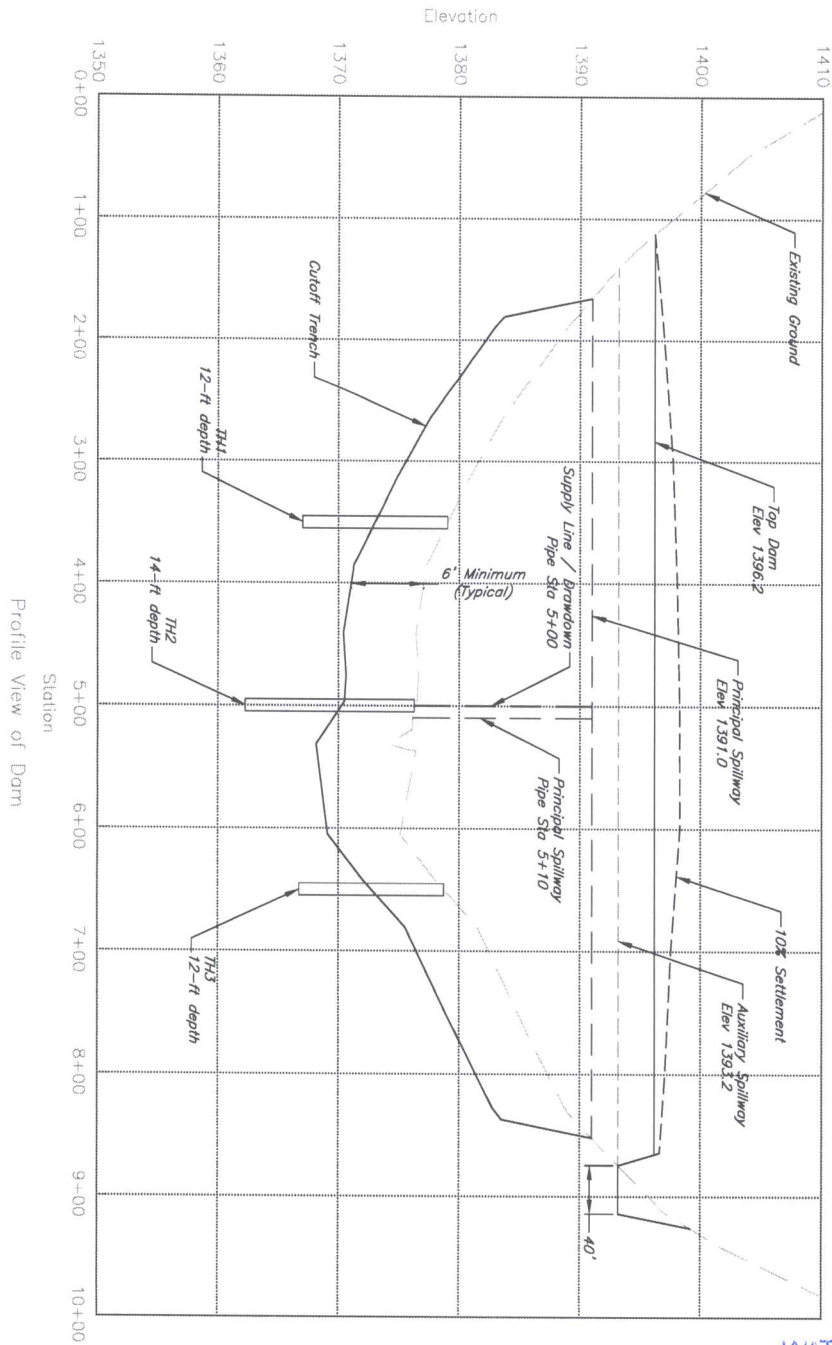
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 Morris County, Kansas

	Designed	Date
	C Janssen	10/22
	B Severin	12/22
	B Severin	12/22
	B Severin	12/22



Profile View of Dam

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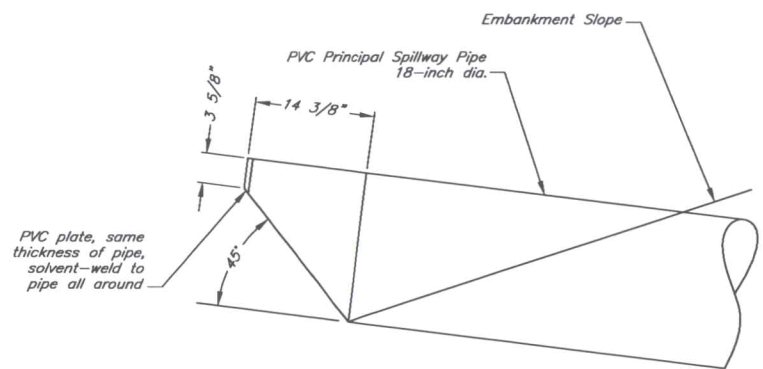
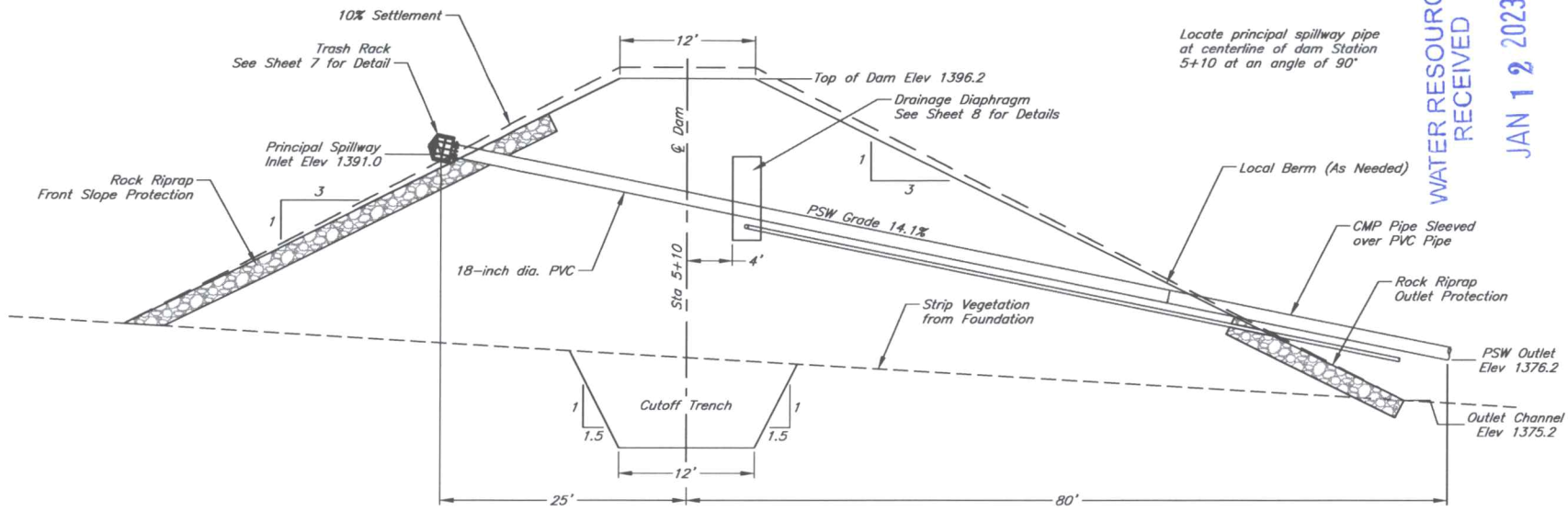
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Profile of Dam

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PVC CANOPY INLET DETAIL

- Notes:
1. PVC pipe must comply with AWWA C900 pipe.
  2. Pipe material designation shall be PVC 1120 or 1220.
  3. Fabricate plate using end cap cut to fit and solvent-weld to pipe. Alternative fabrications shall be approved by Engineer.
  4. PVC pipe shall be joined gasketed couplings. Solvent-welded couplings are not permitted.

Locate principal spillway pipe at centerline of dam Station 5+10 at an angle of 90°

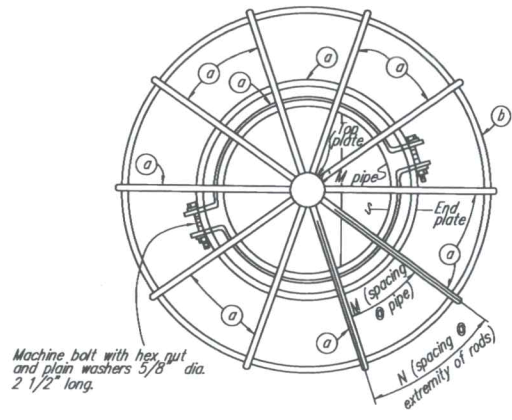
Date	Designed	Drawn	Checked	Approved
10/22	C. Janssen	B. Severin	B. Severin	B. Severin
12/22		B. Severin	B. Severin	B. Severin
12/22		B. Severin	B. Severin	B. Severin
12/22		B. Severin	B. Severin	B. Severin

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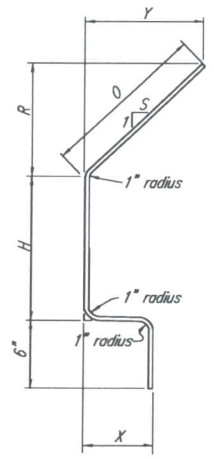


Cross Section of Dam

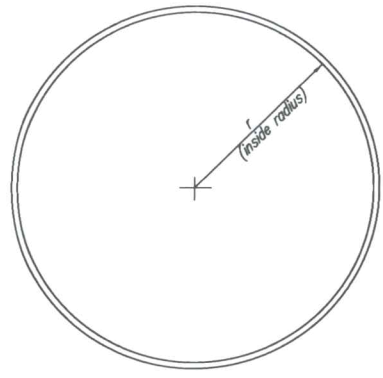


PLAN

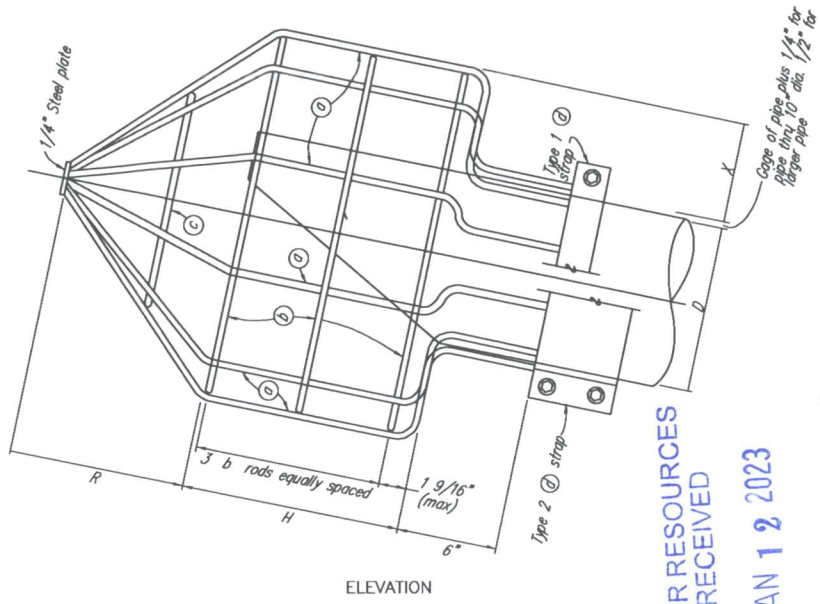
Machine bolt with hex nut and plain washers 5/8" dia. 2 1/2" long.



BENDING DIAGRAM FOR (a) RODS



BENDING DIAGRAM FOR (b) AND (c) RODS

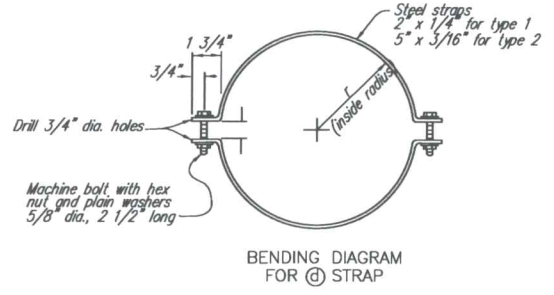


ELEVATION

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BENDING DIAGRAM FOR (d) STRAP

NET AREA	APPROX. WEIGHT	a RODS										b RODS				c RODS			d STRAPS				TOP PLATE		
		DIA.	H	R	X	Y	S	O	LENG TH	NO. REQ'D	N	M	DIA.	r	LENG TH	DIA.	r	LENG TH	TYPE	NO. REQ'D	r	LENGTH	DIA.		
SQ. FT.	LB.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.		IN.	IN.	IN.	IN.		
18" CANOPY INLET																									
22.1	92	5/8	24	7	6	14 1/8	2	15 3/4	51 3/4	10	9 3/4	6	5/8	3	14 5/16	91 1/16	5/8	1	8 1/2	55 7/8	2	2	9 5/8	32 1/2	3

Trash Rack Detail

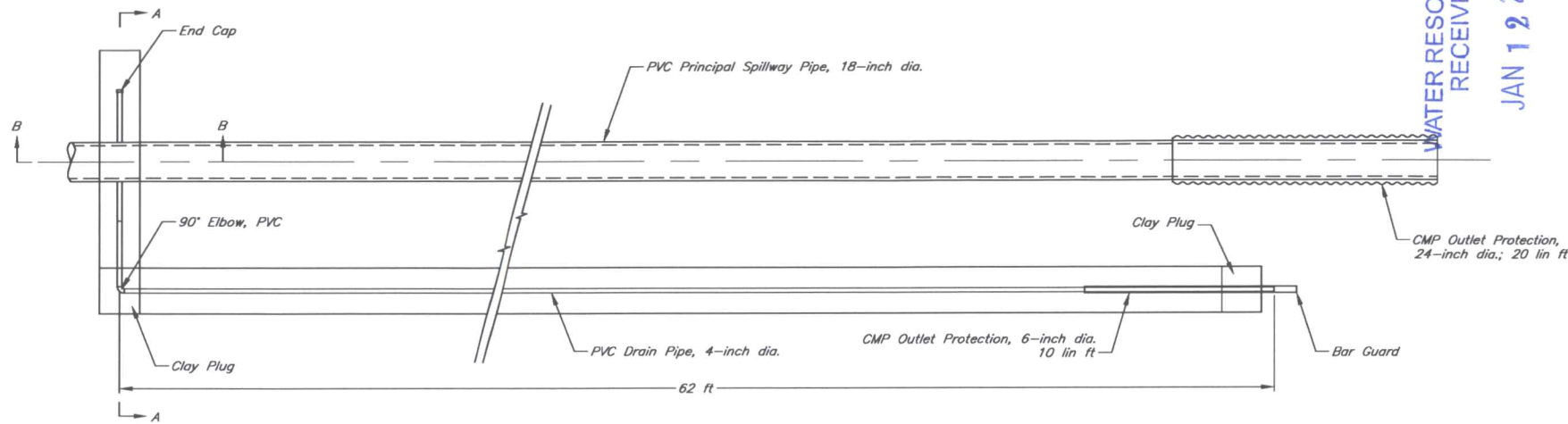
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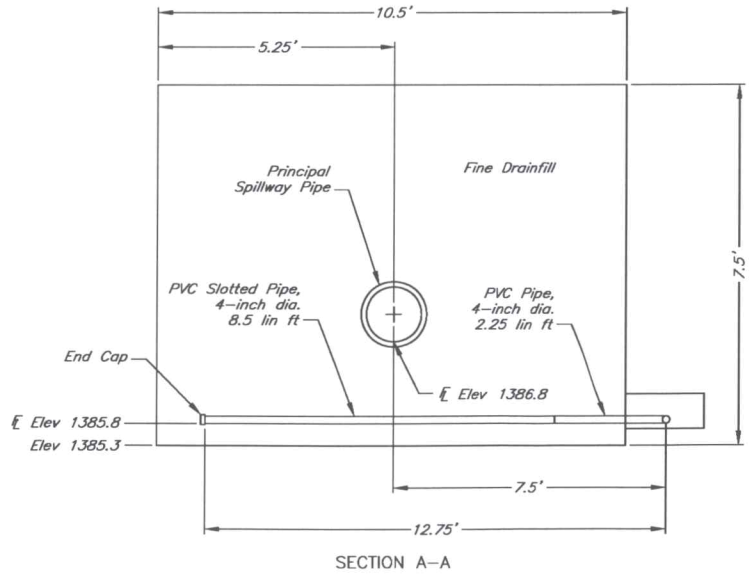
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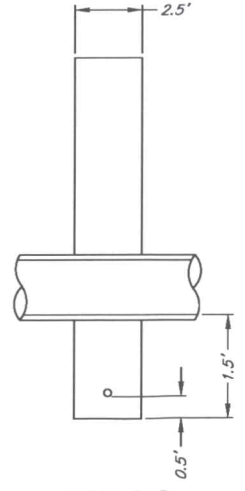




DRAINAGE DIAPHRAGM & OUTLET PIPE  
PLAN VIEW



SECTION A-A



SECTION B-B

Fine Drainfill (ASTM C33 Fine Concrete Sand) Gradation Requirements	
Sieve No.	% Passing
3/8"	100
No. 4	95 - 100
No. 8	80 - 100
No. 16	50 - 85
No. 30	25 - 60
No. 50	5 - 30
No. 100	0 - 10
No. 200	0 - 5

Note: Material passing the No. 200 sieve shall be non-plastic

Drainage Diaphragm Detail

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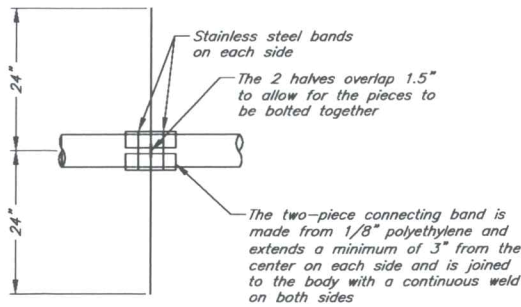
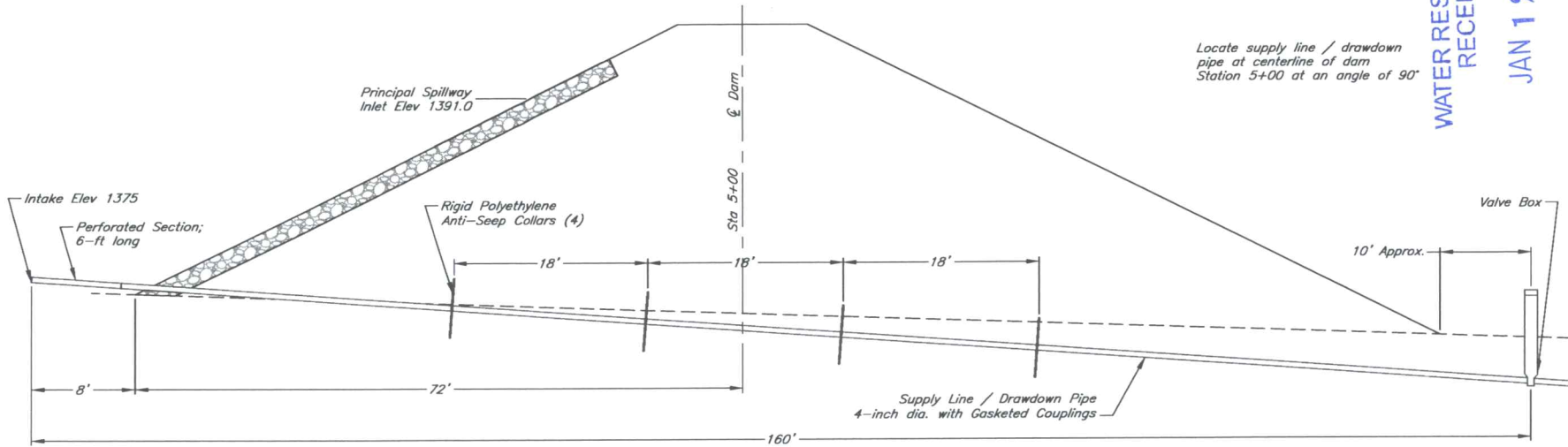
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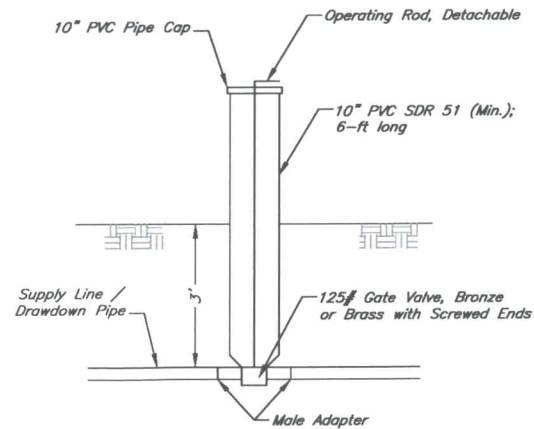
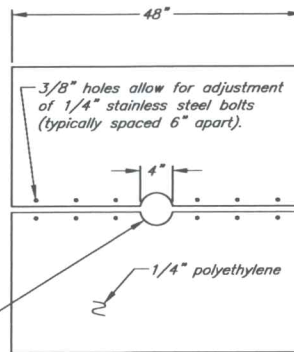
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Locate supply line / drawdown pipe at centerline of dam Station 5+00 at an angle of 90°



RIGID POLYETHYLENE ANTI-SEEP COLLAR



VALVE BOX DETAIL

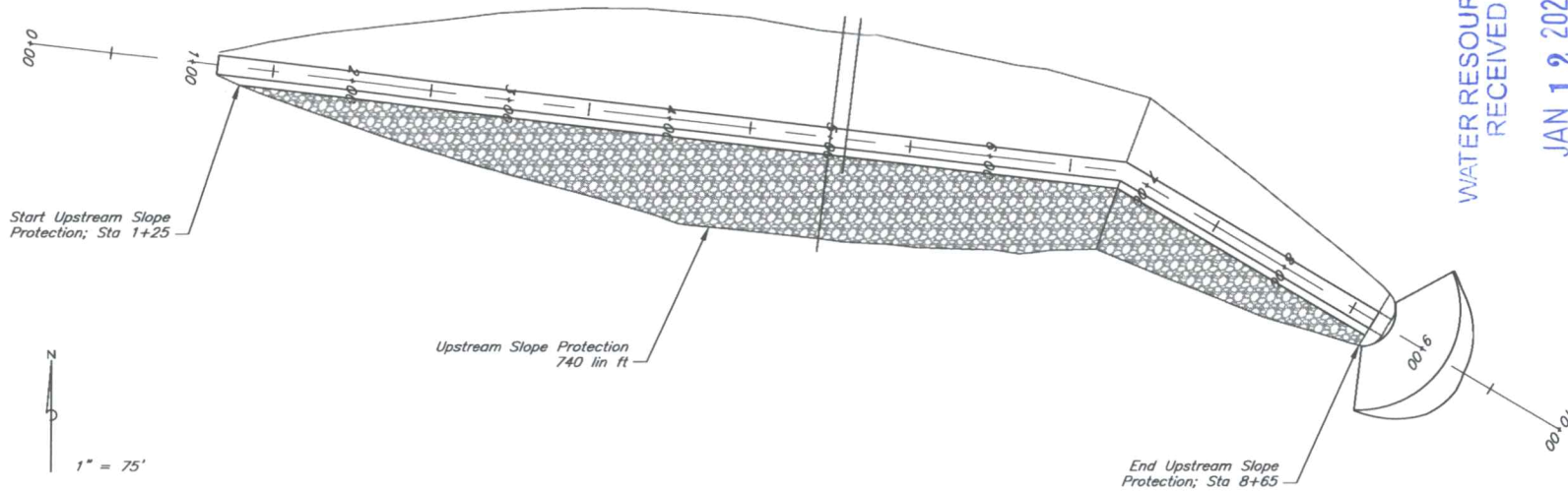
- Notes:
- 4-inch dia. pipe shall be PVC 1120 or 1220; schedule 40 (ASTM D1785) or SDR 17 (ASTM D2241)
  - PVC pipe shall be joined by double-gasketed couplings, capable of resisting 160 psi internal pressure

Supply Line / Drawdown Detail

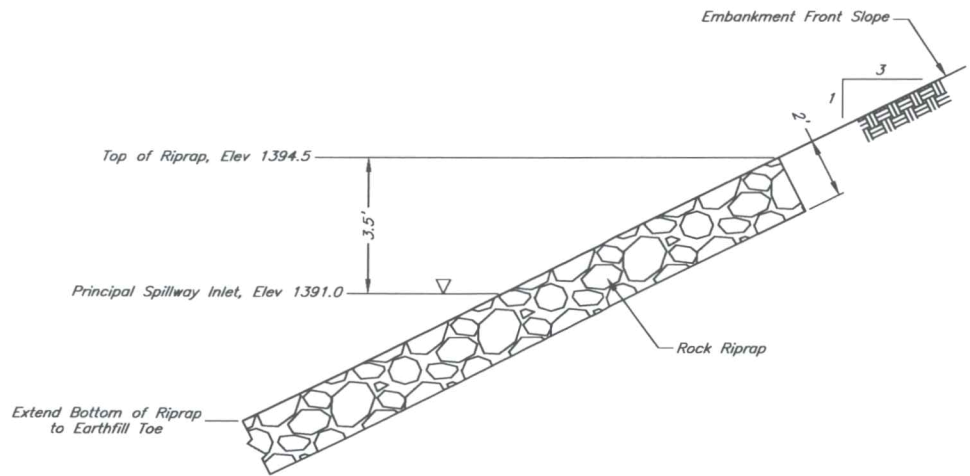
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12/22				
12/22				
12/22				

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NW 1/4 Sec 9, T-15S; R-9E  
Morris County, Kansas





Upstream Slope Protection – Plan View



Upstream Slope Protection – Riprap Detail  
Not to Scale

- Notes:
- 1) Rock riprap shall be placed along the embankment upstream slope from Sta 1+25 – Sta 8+65
  - 2) The riprap shall be installed as a continuation of the 3:1 slope (embedded) instead of placed on the finished surface.
  - 3) The upstream slope riprap shall be 2 feet thick.
  - 4) Rock riprap gradation shall meet KDOT Stone for Riprap Class – Light Series, Light 24" or Light 18"
  - 7) Riprap quality shall meet KDOT Stone for Riprap – soundness and wear requirements.
  - 8) Riprap source shall be approved by the Project Engineer.

Upstream Slope Protection Detail

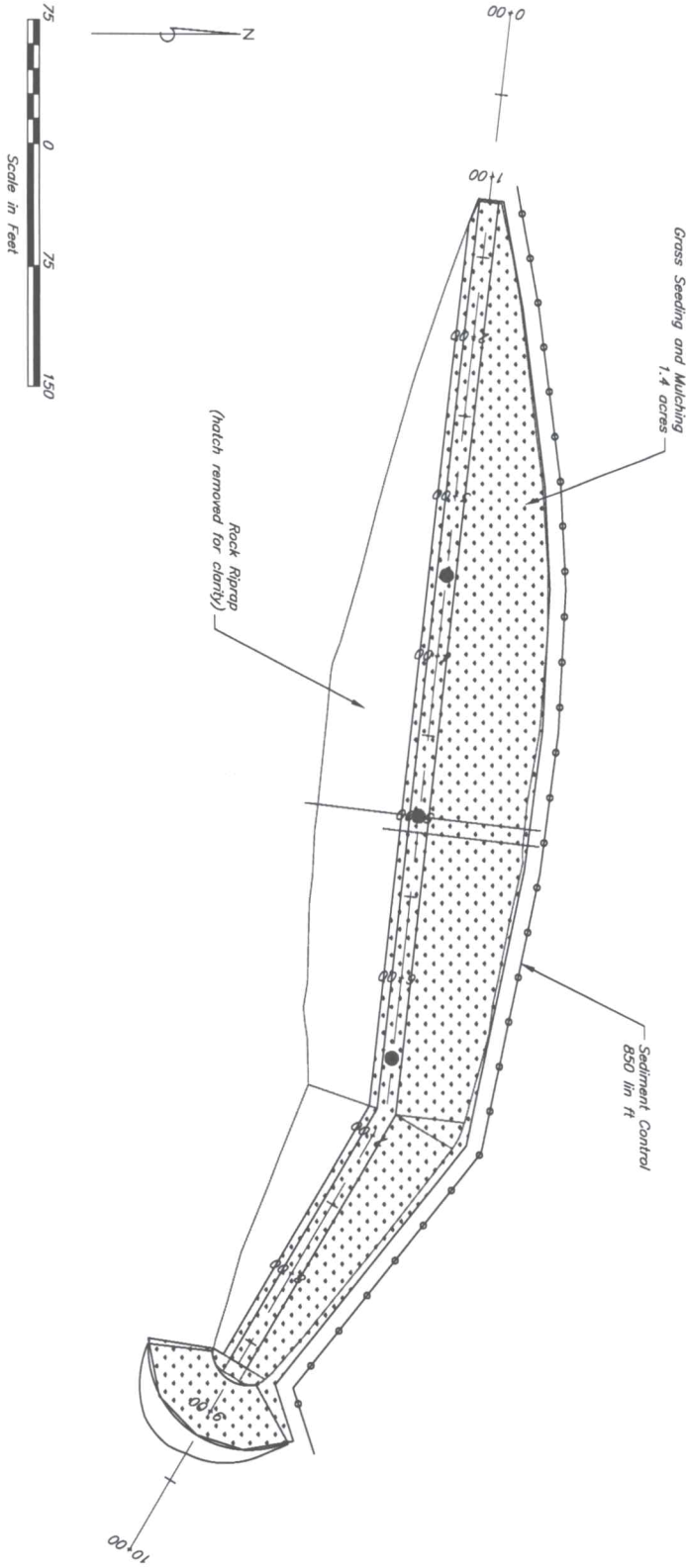
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Approved	B. Severin		12/22

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 Morris County, Kansas


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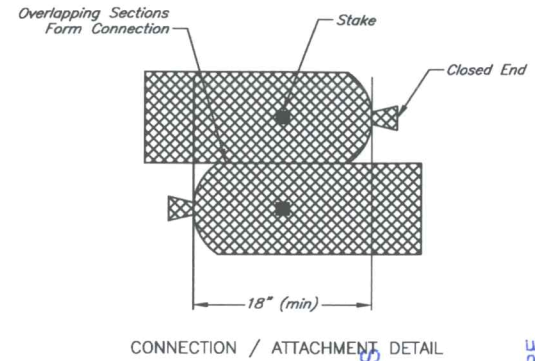
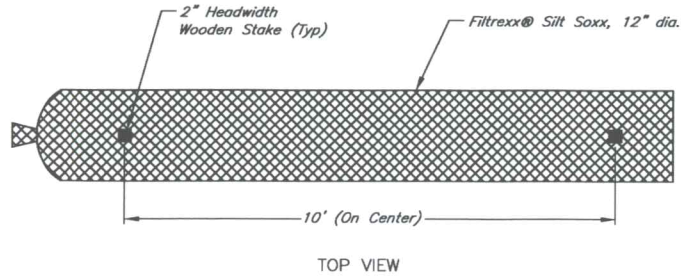
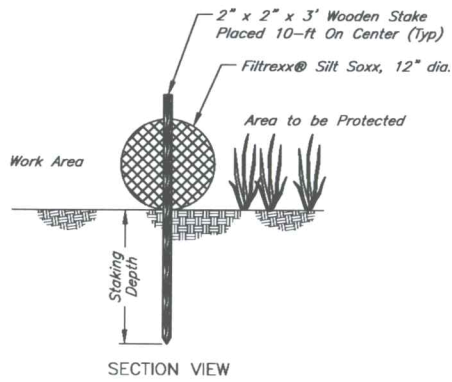
Grass Seeding and Sediment Control Plan View



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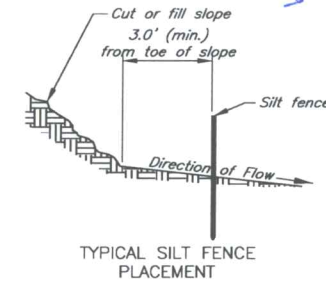
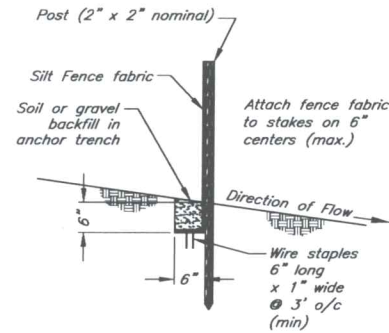
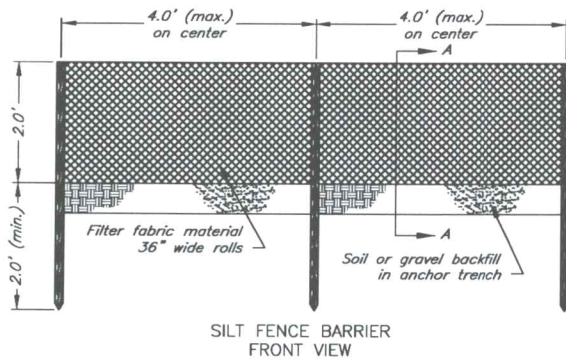
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**GENERAL NOTES FOR FILTREXX® SILT SOXX (PERIMETER CONTROL):**

1. Perimeter control shall be installed parallel to the base of the slope or other disturbed area.
2. Stakes should be installed through the middle of the perimeter control on 10 ft centers, using 2 in x 2 in x 3 ft wooden stakes.
3. Staking depth for sand and silt loam soils shall be 12 inches, and 8 inches for clay soils.
4. Loose compost may be backfilled along the upstream side of the perimeter control, filling the seam between the soil surface and the device, improving filtration and sediment retention.



**GENERAL NOTES FOR SILT FENCE:**

1. Posts are to be installed on the downhill side of the geotextile.
2. Backfill anchor trench with compacted soil or gravel.
3. Install silt fence along contour lines, with a short section turned upgrade at each end of the barrier.
4. Where possible, lay out the silt fence 5.0 ft to 6.0 ft beyond the toe of the slope.
5. Extend the bottom 12\"/>
- 6. Maintain a properly functioning silt fence throughout the duration of the project or until disturbed areas have been vegetated.
- 7. Remove sediment as it accumulates and place it in a stable area approved by the engineer.
- 8. Fasteners: The geotextile may be attached to the posts using geotextile pockets, staples, or nails. Staples shall be no. 17 gauge minimum and shall have a minimum 0.75 in. wide crown and 0.5 in. long legs. Nails shall be a minimum of 14 gauge, 1 inch long, with 0.75 in. button heads. Spacing shall be 6\"/>
- 9. When joints are necessary, geotextile shall be spliced together at a support post with a minimum overlap of 18 inches, and securely sealed.

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Checked	B. Severin
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