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Water Protection Program

AP35000

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM W - CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) OPERATING PERMIT APPLICATION

FOR OFFICE USE ONLY	
JETPAY CONFIRMATION / CHECK NUMBER:	49281
DATE RECEIVED: 03-30	FEE SUBMITTED: $150.00

Complete all applicable sections. Instructions for completing the form are located at the end of the form. Sign, date and return the form and all requested documents along with a check for the appropriate permit fee to the Missouri Department of Natural Resources. Make a copy of this completed form and keep it with your nutrient management plan.

PART 1 – PERMIT OWNERSHIP AND CONTACT INFORMATION

1.1 OPERATION NAME	CURRENT PERMIT NUMBER	COUNTY
Fohey Farms of Missouri	MO-GS10612	Callaway
PHYSICAL ADDRESS	LEGAL DESCRIPTION	TELEPHONE NUMBER WITH AREA CODE
1901 County Road 284	Sec.: 26 Twn.: 49N Rng.: 11W	573-529-0344
CITY	STATE	ZIP CODE
Columbia	MO	65202

1.2 OWNER (PROVIDE LEGAL NAME)	EMAIL ADDRESS	
573-529-0344		
MAILING ADDRESS		TELEPHONE NUMBER WITH AREA CODE
1901 County 284		573-529-0344
CITY	STATE	ZIP CODE
Columbia	MO	65202

1.3 CONTINUING AUTHORITY (IF DIFFERENT THAN THE OWNER)		
MAILING ADDRESS		TELEPHONE NUMBER WITH AREA CODE
CITY	STATE	ZIP CODE

PART 2 – PERMIT TYPE AND PERMIT ACTION

2.1 PERMIT TYPE

☐ NPDES Site Specific Permit
Request review of draft permit prior to public notice. ☐ Yes ☐ No

☐ NPDES General Permit (MOG01)

☑ State No-Discharge General Permit (MOGS1)

2.2 PERMIT ACTION*

☑ New Permit

Permit fees may be payed online by credit card or eCheck through a system called JetPay. Use the URL provided to make an online payment.

NPDES Site Specific Permit - https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591/

NPDES General Permit (MOG01) - https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/599/

State No-Discharge General Permit (MOGS1) - https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/742/

☐ Renewal

☐ Modification

Permit fees may be payed online by credit card or eCheck through a system called JetPay. Use the URL provided to access JetPay and make an online payment. Modification fee: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/

☐ Ownership Transfer

PREVIOUS OWNERS NAME

ADRESS

CITY STATE ZIP CODE

SIGNATURE DATE

*See Instructions for additional requirements and documents for the request permit action.

Permit fees may be payed online by credit card or eCheck through a system called JetPay. Use the URL provided to access JetPay and make an online payment. Modification fee: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/

PART 3 – DESIGN CAPACITY FOR MANURE STORAGE AND ANIMALS OF EACH CAFO FEATURE

3.1 STORAGE STRUCTURE TYPES, AMOUNT OF STORAGE, AND AMOUNT OF MANURE GENERATED PER YEAR.

List All Manure Storage Structures at each CAFO Feature		Dry Manure Handling System		Wet Manure Handling System			
Permitted Feature	Storage Structure Type(s)	Design Dry Process Waste (tons/yr.)	Days of Storage	Total Storage Capacity (gal)	Design Wastewater per Year (gal./yr.)	Days of Storage	Design Flow MGD
001	D - Storage Lagoon E16			1,742,660	1,442,530	365+	
002	D - Storage Lagoon E17			4,613,780	2,238,170	365+	
003							
004							
005							

3.2 LIST EACH TYPE OF ANIMAL IN CONFINEMENT AND THE NUMBER OF EACH ANIMAL TYPE.

Permitted Feature	Animal Category #1	Animal Numbers	Animal Category #2	Animal Numbers	Animal Category #3	Animal Numbers
001	5 -Swine over 55 lbs.	3,222				
002	4 - Swine under 55 lbs.	800				
003						
004						
005						

PART 4 – OPERATIONAL INFORMATION

4.1 OPERATIONAL INFORMATION (SEE INSTRUCTIONS)
SIC Code(s) 0213 CAFO Class Size 1C

4.2 Is this an export-only operation? ☐ Yes ☑ No

Completing PARTS 5 - 11 will meet the requirements of a Nutrient Management Plan (NMP) for an export only operation.

PART 5 – MANURE STORAGE

5.1 Do all manure storage structures have adequate storage, and operated and maintained as no discharge? ☑ Yes ☐ No

PART 6 – ANIMAL MORTALITY

6.1 PEMANENT METHOD OF DISPOSING OF ROUTINE ANIMAL MORTALITIES.
☑ Composting ☐ Rendering ☐ Send to a Landfill ☐ Incineration ☐ Other (Describe)

6.2 DESCRIBE METHOD OF MORTALITY HANDLING AND STORAGE THROUGH ALL PHASES TO FINAL DISPOSAL. (EXAMPLE: MORTALITIES ARE COMPOSTED WITHIN 24 HOURS OF DEATH AND FINISHED COMPOST PRODUCT IS STORED UNDER ROOF UNTIL LAND APPLIED). ALSO DESCRIBE THE TYPE OF COMPOST STRUCTURE USED, IF APPLICABLE.
Finished compost product is stored under roof until land applied. Compost structure has formed concrete walls and is roofed.

PART 7 – DIVERSION OF CLEAN WATER

7.1 Is clean stormwater diverted from the production area? ☑ Yes ☐ No

7.2 IF YES, DESCRIBE CONTROLS AND MEASURES USED TO DIVERT STORMWATER.
Production area is roofed.

7.3 IF NO, DESCRIBE HOW CONTAMINATED STORMWATER IS CONTAINED AND INCLUDE THE STORAGE CAPACITY OF THE CONTAINMENT IF NOT PREVIOUSLY PROVIDED.

PART 8 – PREVENT DIRECT CONTACT OF ANIMALS WITH SURFACE WATERS

8.1 Do the animals have access to waters of the state within the production area? ☐ Yes ☑ No

8.2 LIST MEASURES USED TO PREVENT CONFINED ANIMAL FORM HAVING DIRECT CONTACT WITH WATERS OF THE STATE.
Animals are confined.

PART 9 – CHEMICAL HANDLING

9.1 Are chemicals and other contaminants handled, managed, stored, and disposed of in accordance with 10 CSR 20-6.300(5)(E)?
☑ Yes ☐ No

PART 10 – MANURE ANALYSIS TESTING

10.1 LIST EACH TYPE OF MANURE SOURCE.TO BE TESTED ANNUALLY (i.e., MANURE, LITTER, COMPOST, WASTE WATER.)
Manure, compost

10.2 DESCRIBE PROCEDURES FOR ENSURING EACH MANURE SOURCE IS TESTED ANNUALLY.
A manure sample is collected and sent to a laboratory for analysis

PART 11 – RECORD KEEPING

11.1 Are records of all inspections, manure transfers, discharges and land application maintained? ☑ Yes ☐ No

PART 12 – CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME	TITLE
RICK FOLTZ	Vice-Pres.
SIGNATURE	DATE
Rick Foltz	12-17-2019

PART 13 - ENGINEER CERTIFICATION

As of Aug. 28, 2013, construction permits are only required for the construction of an earthen storage structure to hold, convey, contain, store, or treat domestic, agricultural, or industrial process wastewater. Construction of all other point source systems designed to hold, convey, contain, store, or treat domestic, agricultural, or industrial process waste must be designed by a professional engineer registered in Missouri in accordance with design regulations.

Operation Name Address City	Engineer Firm Address City State Zip Code
I, Project Engineer, certify that above described systems have been designed in accordance with Missouri CAFO design regulations in 10 CSR 20-8.300	ENGINEER SEAL
PROJECT ENGINEER SIGNATURE	

pinnacle
Environmental Compliance
...for agriculture
620 Country Club Road Iowa Falls, Iowa 50126 Office: (641) 648-7300 Fax: (641) 648-7310
www.pinnacleiowa.com

February 26, 2020

Dear Landowners,

You are receiving this letter as a follow-up to a previous notification sent on behalf of Fohey Farms of Missouri, Inc. In our previous letter the registered agent for Fohey Farms of Missouri, Inc., was omitted. The letter was official notification that Fohey Farms of Missouri, Inc. is applying for an operating permit for their sow unit in Callaway County.

The approximately 14-acre site consists of farrowing and gestation buildings with a total capacity of 3,222 sows and up to 600 nursery pigs 12 pounds and under.

This site will have a manure management plan filed with the Missouri Department of Natural Resources. Nutrients from the site's storage lagoons are land applied on approximately 83 acres of Fohey Farms of Missouri fields, and some neighboring land at an application rate based on an annual manure sample and the nutrient uptake of the crops. If you have any questions or comments, please contact the Water Protection Program at the Missouri Department of Natural Resources. They will accept comments 30 days from the date of this letter. Their contact information is:

Water Protection Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102
(573) 751-1300

The site is located in Section 26, Township 49-N Range 11-W, Callaway County, Missouri.

The CAFO site owner's contact information is:

Fohey Farms of Missouri, Inc.
1901 County Road 284
Columbia, MO 65202

The registered agent for Fohey Farms of Missouri is:
Michael W. Fohey
300 North Center
Shelbina, MO 63468

If you require additional information please contact the following:

The Pinnacle Group
620 Country Club Road
Iowa Falls, IA 50126
(641) 648-7300

Thank you,
The Pinnacle Group

Fohey Farms of Missouri

Site Placement

Date: Dec. 16, 2019
Fohey Farms of MIssouri
Callaway County, Missouri
Section 26, T49N, R11W

Neighbor Notification Zone
Landowners within 3000 ft of Site

Neighbor
Notification Zone
(ft)
Neighbor Notification Zone

Grower : Fohey Farms of Missouri
Farm : Site
Field : Distances
Year : NO Year

pinnacle
620 Country Club Road
Iowa Falls, Iowa 50126
Office: 641.648.7300
Fax: 641.648.7310
www.pinnacleiowa.com

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Street and Apt. No., or PO Box No.	2051 State Road DD
City, State, ZIP+4®	Ashland MO 65231

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Street and Apt. No., or PO Box No.	2081 Old Hwy 40
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Street and Apt. No., or PO Box No.	1745 County Rd 284
City, State, ZIP+4®	Columbia, MO 65202

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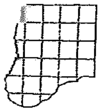

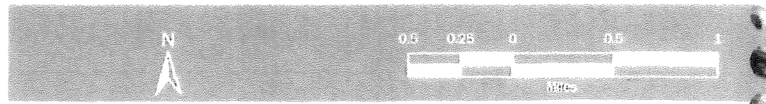

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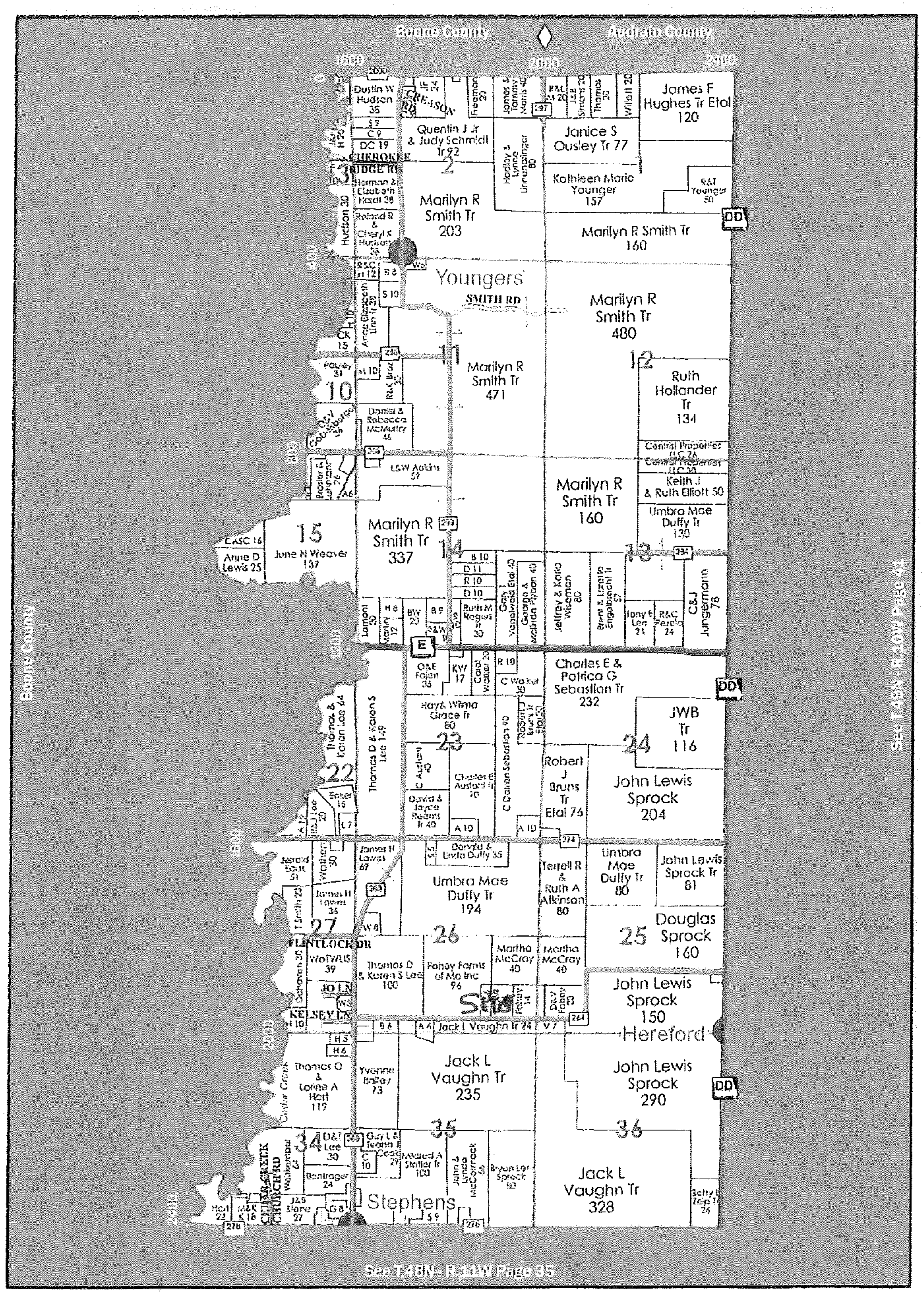

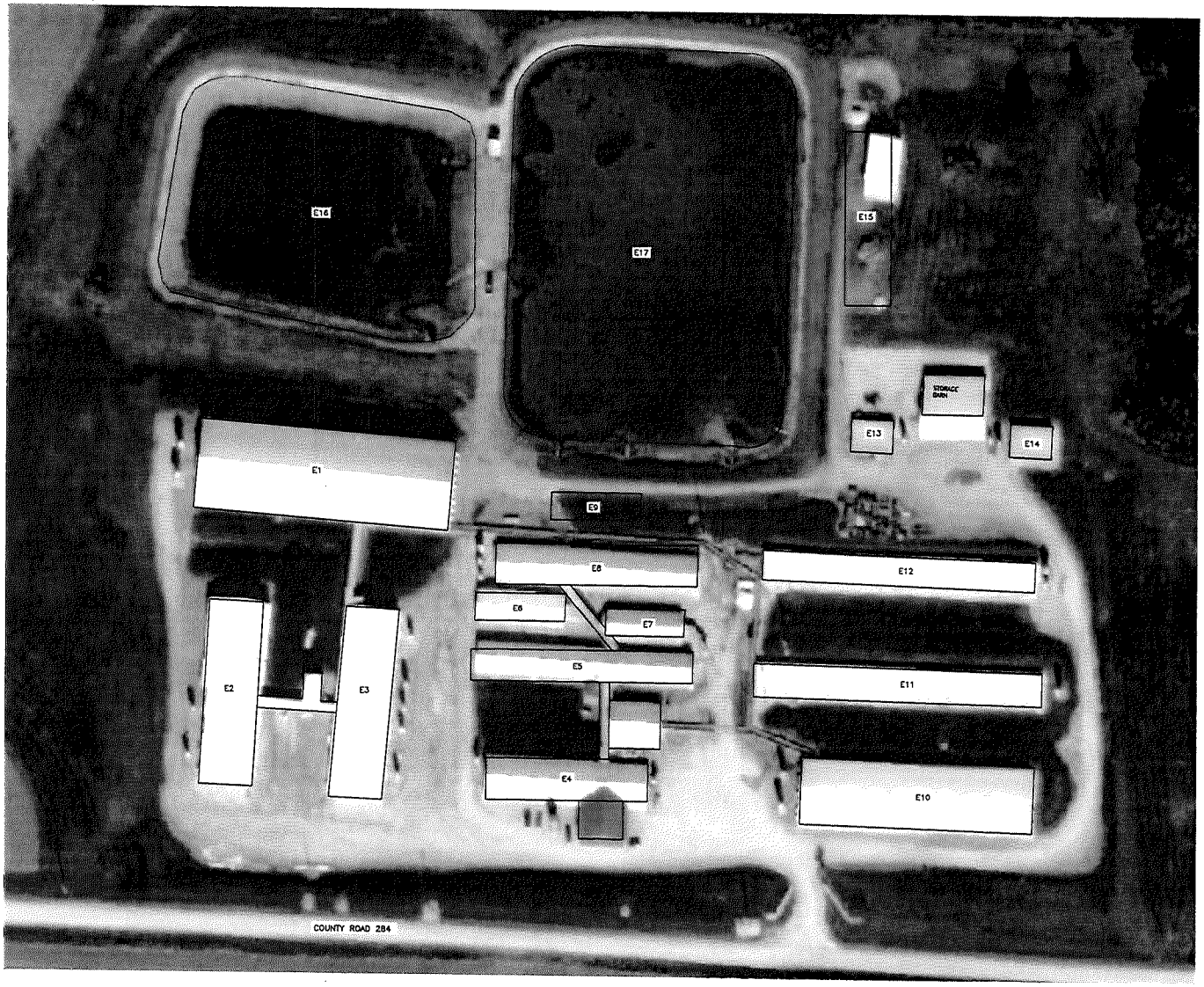

EXISTING FACILITY DETAILS	
ITEM	FACILITY DESCRIPTION
E1	GESTATION BARN
E2	FARROWING BARN
E3	FARROWING BARN
E4	GESTATION BARN
E5	FARROWING BARN
E6	FARROWING BARN
E7	NURSERY BARN
E8	FARROWING BARN
E9	FARROWING BARN
E10	GESTATION BARN
E11	GESTATION BARN
E12	GESTATION BARN
E13	GESTATION BARN
E14	GESTATION BARN
E15	COMPOSTER
E16	HOLDING POND
E17	HOLDING POND

N

0 50' 100'

BAR SCALE IN FEET

SCALE VALID ONLY ON 22"x34" SIZE PLANS

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CANTON, IL 1370 EAST 5TH STREET | CANTON, IL 61520 | (309) 647-7525 | FAX (309) 647-6525
MACKINAW 328 W. WASHINGTON | MACKINAW, IL 61755 | (309) 359-4120 | FAX (309) 359-4121
www.maurer-stutz.com

SHEET TITLE: SITE PLAN

PROJECT: MO DNR PERMITTING

CLIENT: FOHEY FARMS

DESIGNED BY: KCG
REVIEWED BY: GCB
DATE: JANUARY 2020
PROJECT NO.: 23804072.01
SHEET: C102

Fohey Farms of Missouri Site Structures By Type and Animal Number		
Structure ID	**Type**	**Number of Animals**
E1	Gestation	954
E2	Farrowing	144
E3	Farrowing	128
E4	Gestation	300
E5	Farrowing	82
E6	Farrowing	30
E7	Nursery	600
E8	Farrowing	103
E9	Farrowing	39
E10	Gestation	657
E11	Gestation	351
E12	Gestation	338
E13	Gestation	48
E14	Gestation	48
E15	Composter	

Fohey Farms of Missouri

Site Placement

Date: Dec. 16, 2019
Fohey Farms of MIssouri
Callaway County, Missouri
Section 26, T49N, R11W

No Residences within 1001 ft.

Feature ID
Fohey Property Line

Distance to Residence
(ft)
1426'
1987'
1589'

Grower : Fohey Farms of Missouri
Farm : Site
Field : Distances

pinnacle
620 Country Club Road
Iowa Falls, Iowa 50126
Office: 641.648.7300
Fax: 641.648.7310
www.pinnacleiowa.com

Site Placement

Date: Dec. 16, 2019
Fohey Farms of Missouri
Callaway County, Missouri
Section 26, T49N, R11W

No Water Sources within 101 ft.

pinnacle
620 Country Club Road
Iowa Falls, Iowa 50126
Office: 641.648.7300
Fax: 641.648.7310
www.pinnacleiowa.com

Fohey Farms of Missouri

Site Placement

No manure storage structure/mortality composter within 50 ft of proerty line or road

Date: Dec. 16, 2019
Fohey Farms of MIssouri
Ca[illegible]way County, Missouri
S[illegible] 26, T49N, R11W

Grower : Fohey Farms of Missouri
Farm : Site
Field : Distances

pinnacle
620 Country Club Road
Iowa Falls, Iowa 50126
Office: 641.648.7300
Fax: 641.648.7310
www.pinnacleiowa.com

MAURER-STUTZ

ENGINEERS SURVEYORS

PROJECT: Rich Fohey

PROJECT NO.: 23804072.01

COMPUTATION BY: KCG DATE: 12/30/19

CHECKED BY: GCB DATE: 12/31/19

Inputs:

Facility Animals & Locations

Additional Animal Waste Inputs

25 YR Storm Event Inputs

50 YR Storm Event Inputs

Silage Leachate

Dairy Waste Water Inputs

Swine Waste Water Inputs

Outputs:

Facility Storage Volumes

Nutrients As Excreted

Storages:

Holding Pond 1	Uncovered Stacks	Rectangular Tanks
Holding Pond 2	Covered Stacks	Circular Tanks 1-2
Holding Pond 3		Circular Tanks 3-4
Holding Pond 4		Settling Basin 1
Holding Pond 5		Settling Basin 2

v.14.5.2

MAURER-STUTZ

Subject: Facility Animals & Locations

PROJECT: Rich Fohey
PROJECT NO.: 23804072.01
COMPUTATION BY: KCG DATE: 1/7/20 SH. NO.: 1
CHECKED BY: GCB DATE: OF: 1

Animal Data

	Animals	Actual Quantity hd	Actual Weight lbs	210-AWMFH - Ch 4 Manure cf/d-a	Weight lbs	Manure cf/d/AU	Manure CF/day	VS lbs/d/AU	VS lbs/day	TS lbs/d/AU	TS lbs/day	NRCS AU
1	Swine Lact. Sow	526	400	0.41	423	0.97	203.9	5.40	1136.2	5.90	1241.4	210.4
2	Swine Gest. Sow	2696	450	0.18	440	0.41	496.3	2.30	2790.4	2.50	3033.0	1213.2
3	Swine Nursery	800	20	0.04	27.5	1.40	22.4	8.80	140.8	10.00	160.0	16.0
4				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
5				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
6				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
7				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
8				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
9				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
	Total	4022					723		4067		4434	1440

Rainfall Data

County, State	CALLAWAY, MISSOUR
Precip for storage period	40.3 in
Annual Lake Evap	33.5 in
% Evap for storage period	100%
1 Yr 2 Hr Storm Event	0.00 in
2 Yr 24 Hr Storm Event	3.50 in
25 Yr 24 Hr Storm Event	5.9 In
Storage Period	12.0 Months
VS Loading Rate	4.30 lb/d*1000 CF
ODOR Loading Rate	2.40 lb/d*1000 CF

Rainfall Data (Indiana Only)

Location	CALLAWAY, MISSOUR
50 Yr 24 Hr Storm Event	6.6 in
IDEM 50 Yr 24 Hr Storm	6.0 in
Greater of Storm Events	6.6 In

Location Data

	Animals	Holding Pond E16	Holding Pond E17	Covered Stack	Uncovered Stack	Rect. Tank	Circular Tank	Pasture	Settling Basin
1	Swine Lact. Sow	61%	39%						
2	Swine Gest. Sow	35%	65%						
3	Swine Nursery		100%						
4									
5									
6									
7									
8									
9									
	Parlor								
	Sprinkler								
	Waters								
	Other								
	Solid Removal								
	Lagoon treat								
	Silage leachate								
	Runoff								
	25Y Runoff								
	Solid Stored								
	Wash Water	40%	60.00%						
	Flush Water								
	Bedding								
	50Y Runoff								

*Values calculated above are based on data from the USDA-NRCS 210-AWMFH Chapter 4 March 2008

MAURER-STUTZ

PROJECT: Rich Fohey
PROJECT NO.: 23804072.01
COMPUTATION BY: KCG DATE: 1/7/20 SH. NO.: 1
CHECKED BY: GCB DATE: OF: 1

Subject: Additional Waste Produced

Additions Data								
			Bedding					
Animals	Wash Gal/day	Flush Gal/day	Type	Rate lbs/d/A	Amount lbs/day	Density lb/CF	Amount CF/day	
wine Lact. Sow					0	0	0.00	####
wine Gest. Sow					0	0	0.00	####
Swine Nursery*					0	0	0.00	####
*					0	0	0.00	####
*					0	0	0.00	####
*					0	0	0.00	####
*					0	0	0.00	####
*					0	0	0.00	####
*					0	0	0.00	####
Parlor**						0	0.00	####
Sprinkler**						0	0.00	####
Waters**	520					0	0.00	####
Other**						0	0.00	####
Total	520				0		0.00	

*Values calculated above are based on data from the Livestock Waste Facilities Handbook

MAURER-STUTZ

PROJECT: Rich Fohey
PROJECT NO.: 23804072.01
COMPUTATION BY: KCG DATE: 1/7/20 SH. NO.: 1
CHECKED BY: GCB DATE: OF: 1

Subject: 25yr Runoff Calculations

Normal Runoff

Area = | Area = | Area =

	Concrete (CN=97)				Earth (CN=90)				Roof (CN=100)			
	Months	R	P	Total CF	Months	R	P	Total CF	Months	R	P	Total CF
x	JAN	0	1.73	0	JAN	0	1.73	0	JAN	100	1.73	0
x	FEB	0	2.20	0	FEB	0	2.20	0	FEB	100	2.20	0
x	MAR	0	3.21	0	MAR	0	3.21	0	MAR	100	3.21	0
x	APR	0	4.16	0	April	0	4.16	0	April	100	4.16	0
x	May	0	4.87	0	May	0	4.87	0	May	100	4.87	0
x	June	0	4.02	0	June	0	4.02	0	June	100	4.02	0
x	July	0	3.80	0	July	0	3.80	0	July	100	3.80	0
x	AUG	0	3.75	0	AUG	0	3.75	0	AUG	100	3.75	0
x	SEPT	0	3.42	0	SEPT	0	3.42	0	SEPT	100	3.42	0
x	OCT	0	3.18	0	OCT	0	3.18	0	OCT	100	3.18	0
x	NOV	0	3.47	0	NOV	0	3.47	0	NOV	100	3.47	0
x	DEC	0	2.47	0	DEC	0	2.47	0	DEC	100	2.47	0
	Total		40.3	0	Total			0	Total			0

Net Normal Ruoff = 0 CF

25 YR - 24HR Storm Event

Concrete (CN=97)			Earth (CN=90)			Roof (CN=100)		
CN	97		CN	90		CN	100	
S	0.31	in	S	1.11	in	S	0.00	in
I_{25}	5.90	in	I_{25}	5.90	in	I_{25}	5.90	in
Q_{25}	5.54	in	Q_{25}	4.75	in	Q_{25}	5.90	in
Vol_{25}	0.00	CF	Vol_{25}	0.00	CF	Vol_{25}	0.00	CF

25yr Storm Event Runoff = 0 CF

Notes

Concrete Areas: Earthen Areas: Roofed Areas:

MAURER-STUTZ

Subject: Facility Waste Volumes

PROJECT: Rich Fahey
PROJECT NO.: 23804072.01
COMPUTATION BY: KDG DATE: 1/7/20 SH. NO.: 1
CHECKED BY: GCB DATE: _____ OF: 1

Facility Volumes (CF/day)

	Holding Pond					Covered Stack					Uncovered Stack					Rect. Tank								Circular Tank				Pasture	Settling Basin	
Facility	E16	E17		0	0	0%	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solids Remov	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manure	298.11	424.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wash	27.82	41.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Flush	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bedding	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silage Leach	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Runoff	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solids Store	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily Vol	325.93	466.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Vol	118963	170186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Density lb/cf	0	0	0	0	0	42	42	42	42	42	50	50	50	50	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Annual Tons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Annual Gal	8.89E+05	1.27E+06	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# LOADS	#DIV/0!	#DIV/0!	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TIME	#DIV/0!	#DIV/0!	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Facility	Manure	Wash	Flush	Bedding	Runoff	Solids Remi	Solids Sto	Total V
Total CF/d	722.6	69.5	0.0	0.0	0.0	0.0	0.0	792.2

Annual Manure & Wates Water Volumes

Facility	Manure	Wash	Flush	Bedding	Runoff	Solids Remi	Solids Sto	Total V
Total CF	263765	25345	0	0	0	0	0	289149

Storage Volumes (CF/Period)

	Holding Pond					Covered Stack					Uncovered Stack					Rect. Tank								Circular Tank				Pasture	Settling Basin	
Storage	E16	E17		0	0	0%	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Period (M)	12.00	12.00																											
Period (D)	365	365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Required Vol																													
CF	118963	170186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GALLONS	889487	1272481	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Designed Vol																													
CF	122380	417514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GALLONS	915034	3121752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extra																													
CF	3417	247328	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GALLONS	25547	1849272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Storage Volumes	Required Vol CF	Required Vol GALLONS	Designed Vol CF	Designed Vol GALLONS	Extra CF
Total	289149	2161958	539834	4038787	250745

	AVAILABLE	REQUIRED
PASTURE 1 ACRES		0.0 ac

(FIGURES 0.25 IN COVER ON ENTIRE PASTURE)

Annual Storage Volumes Hauled		
Type	UNITS	Volume
LIQUID	GAL	3,680,708
SOLID	TONS	0
(MANURE & PRECIP)		

APPLICATION INFROMATION					
TYPE	SIZE	UNITS	LOAD/HR	# LOADS	TIME
LIQUID		GAL		#DIV/0!	#DIV/0!
SOLID		bu		#DIV/0!	#DIV/0!

Storage Volumes (CF/Period)

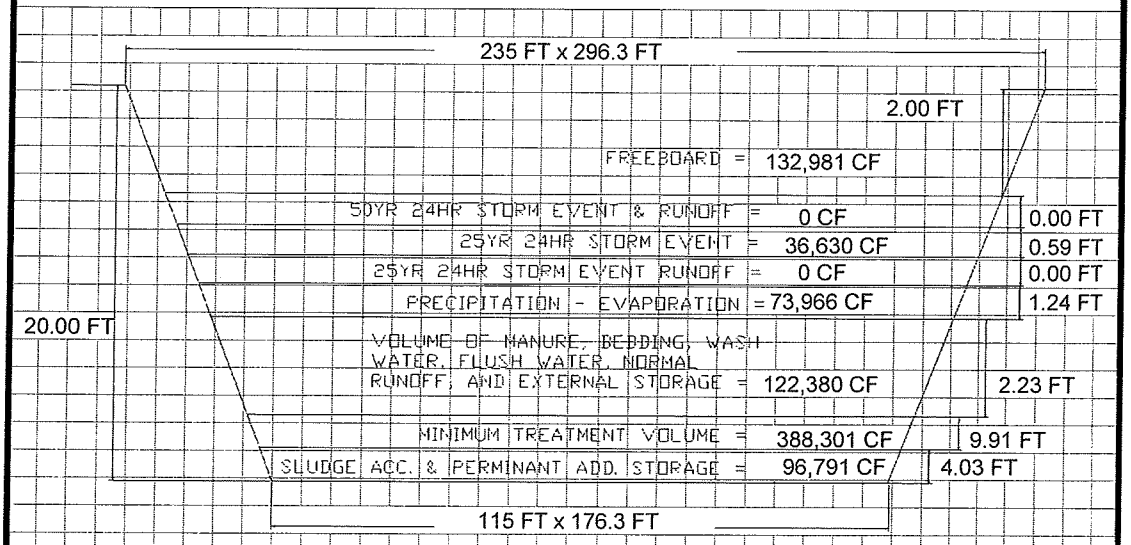
	Holding Pond					Covered Stack					Uncovered Stack					Rect. Tank								Circular Tank				Pasture	Settling Basin	
Storage	E16	E17		0	0	0%	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Working	118963.15	170186.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 hr runoff	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0		
24 hr storm	36530.248	70146.083	0	0	0	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0		
Precip	73968.414	129155.1	0	0	0	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0		
Treatment	388301.19	557600.01	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residuals	96790.613	139199.37	0	0	0	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0		
Freeboard	132951.4	262936	0	0	0	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	851050	1576560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gal to Haul	1442534.4	2238173.5	0	0	0	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0		
Tons to Haul	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual gal	1442534.4	2238173.5	0	0	0	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Annual tons						0.0	0.0	0	0	0	0.0	0	0	0	0														0	0

S:\23812004 project numbers\23804072.01 Rich Fahey - MO DNR Permitting\Calculations\MSI AWM v14.5.2.3

MAURER-STUTZ

PROJECT: Rich Fohey
PROJECT NO.: 23804072.01
COMPUTATION BY: KCG DATE: 1/7/20 SH. NO.: 1
CHECKED BY: GCB DATE: OF: 1

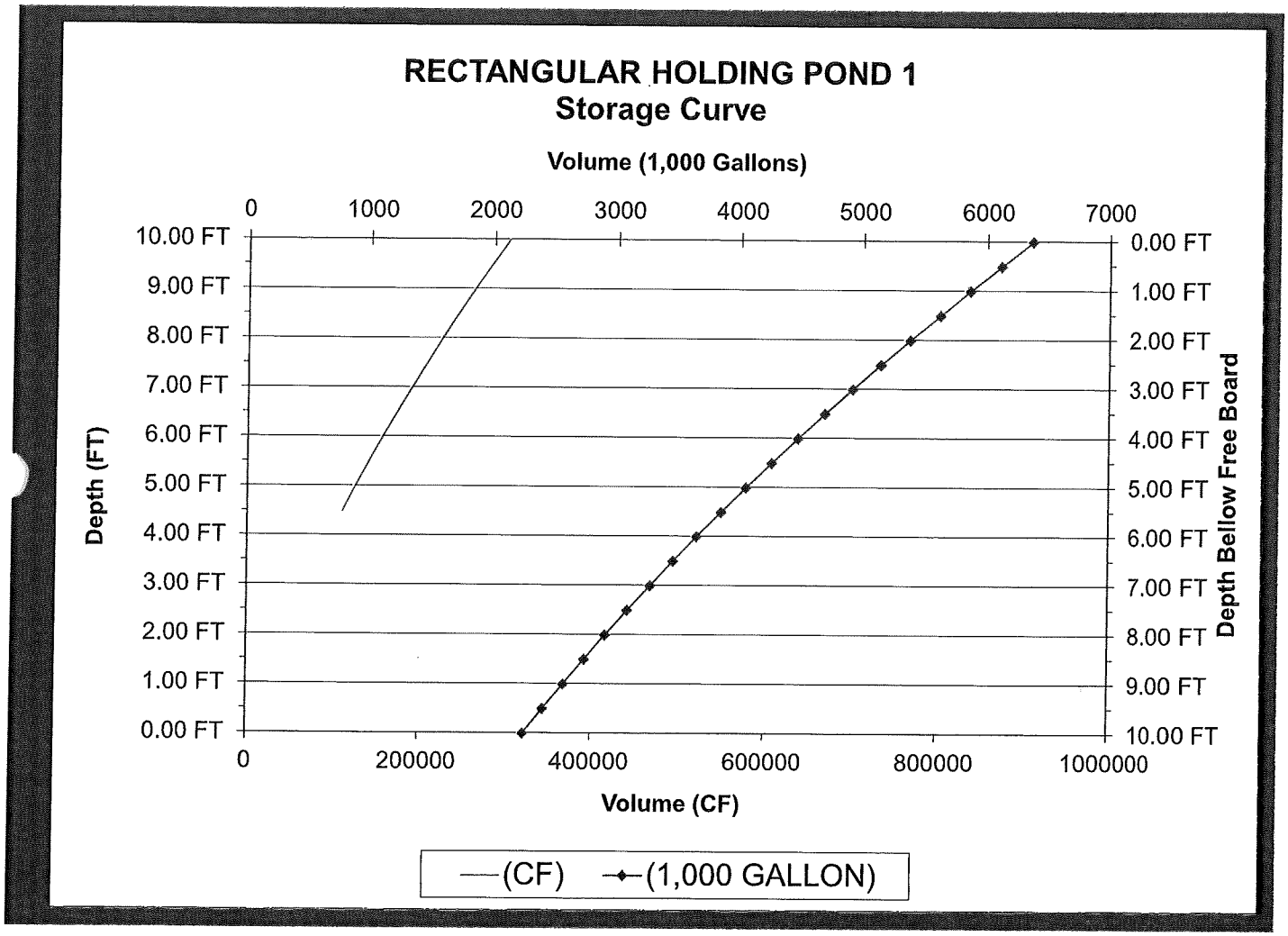
Subject: Lagoon 1 Design Sheet, E16



EARTHEN STORAGE

TOTAL DEPTH	20.00 FT			Deminsions	
FREEBOARD	2.00 FT			BOTTOM WIDTH	115 FT
RESIDUAL SOLIDS	4.03 FT			BOTTOM LENGTH	176 FT
MINIMUM TREATMENT	9.91 FT			INSIDE SLOPE	3.0 FT
PRECIP-EVAP DEPTH	1.24 FT			TOP WIDTH	235 FT
25 YR, 24-HR Runoff V	0 CF			TOP LENGTH	296 FT
25 YR, 24-HR Runoff D	0.00 FT				
25 YR, 24-HR EFF	0.59 FT			START PUMPING	18.0 FT
50 YR, 24-HR Runoff V	0 CF			STOP PUMPING	4.0 FT
WORKING DEPTH	2.23 FT				
50 YR, 24-HR VOL	0 CF	≈	0.00 MG	ACTUAL PRECIP	40.3 in
25 YR, 24-HR VOL	36,630 CF	≈	0.27 MG	ACTUAL EVAP	33.5 in
PRECIP-EVAP VOL	73,966 CF	≈	0.55 MG	25 YR, 24-HR ACT	5.9 in
WORKING VOLUME	122,380 CF	≈	0.92 MG	50 YR, 24-HR ACT	0.0 in
MINIMUM TREATMENT	388,301 CF	≈	2.90 MG		
RESIDUAL SOLIDS	96,791 CF	≈	0.72 MG	50 YR, 24-HR Runoff D	0.00 FT
TOTAL RAMP VOL	0 CF	≈	0.00 MG	50 YR, 24-HR EVENT D	0.00 FT
FREEBOARD	132,981 CF	≈	0.99 MG		
TOTAL VOLUME	851,050 CF	≈	6.36 MG		

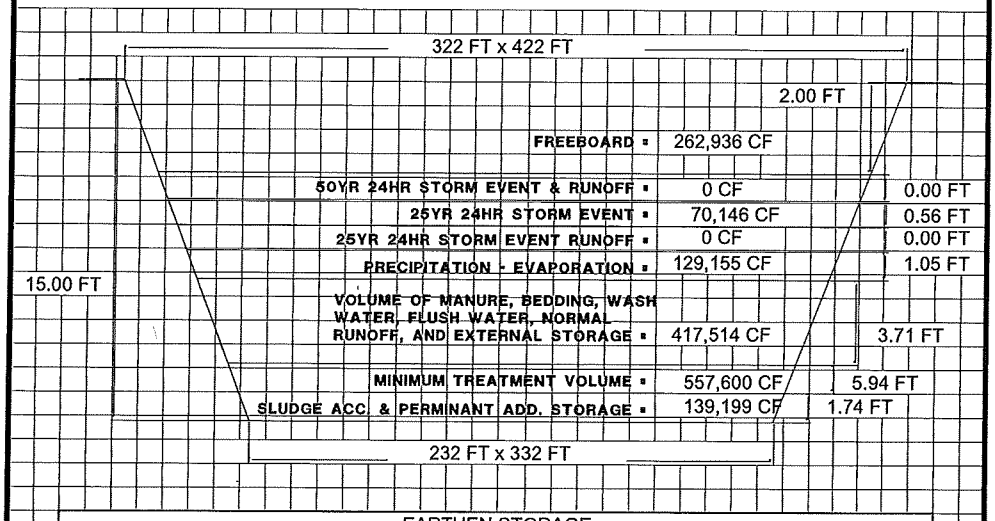
POND 1 - STAGE STORAGE				
TOTAL DEPTH	VOLUME (CF)	VOLUME (1,000 GALLON)	DEPTH BELOW	VOLUME (1,000 GAL / 1/2 FT)
20.00 FT	851050	6363	0.00 FT	0.0
19.50 FT	816632	6106	0.50 FT	257.3
19.00 FT	783001	5855	1.00 FT	251.5
18.50 FT	750150	5609	1.50 FT	245.6
18.00 FT	718069	5369	2.00 FT	239.9
17.50 FT	686748	5135	2.50 FT	234.2
17.00 FT	656180	4906	3.00 FT	228.6
16.50 FT	626354	4683	3.50 FT	223.0
16.00 FT	597262	4466	4.00 FT	217.5
15.50 FT	568896	4254	4.50 FT	212.1
15.00 FT	541245	4047	5.00 FT	206.7
14.50 FT	514301	3845	5.50 FT	201.5
14.00 FT	488055	3649	6.00 FT	196.2
13.50 FT	462499	3458	6.50 FT	191.1
13.00 FT	437622	3272	7.00 FT	186.0
12.50 FT	413416	3091	7.50 FT	181.0
12.00 FT	389872	2915	8.00 FT	176.0
11.50 FT	366981	2744	8.50 FT	171.2
11.00 FT	344733	2578	9.00 FT	166.3
10.50 FT	323121	2416	9.50 FT	161.6
10.00 FT	302135	2259	10.00 FT	156.9
9.50 FT	281766	2107	10.50 FT	152.3
9.00 FT	262004	1959	11.00 FT	147.8
8.50 FT	242842	1816	11.50 FT	143.3
8.00 FT	224270	1677	12.00 FT	138.9
7.50 FT	206278	1542	12.50 FT	134.5
7.00 FT	188859	1412	13.00 FT	130.2
6.50 FT	172002	1286	13.50 FT	126.0
6.00 FT	155699	1164	14.00 FT	121.9
5.50 FT	139942	1046	14.50 FT	117.8
5.00 FT	124720	933	15.00 FT	113.8
4.50 FT	110025	823	15.50 FT	109.9


RECTANGULAR HOLDING POND 1
Storage Curve
Volume (1,000 Gallons)
0
1000
2000
3000
4000
5000
6000
7000
10.00 FT
9.00 FT
8.00 FT
7.00 FT
6.00 FT
5.00 FT
4.00 FT
3.00 FT
2.00 FT
1.00 FT
0.00 FT
Depth (FT)
0.00 FT
1.00 FT
2.00 FT
3.00 FT
4.00 FT
5.00 FT
6.00 FT
7.00 FT
8.00 FT
9.00 FT
10.00 FT
Depth Bellow Free Board
0
200000
400000
600000
800000
1000000
Volume (CF)
(CF)
(1,000 GALLON)

MAURER-STUTZ

PROJECT: Rich Fohey
PROJECT NO.: 23804072.01
COMPUTATION BY: KCG DATE: 1/7/20 SH. NO.: 1
CHECKED BY: GCB DATE: OF: 1

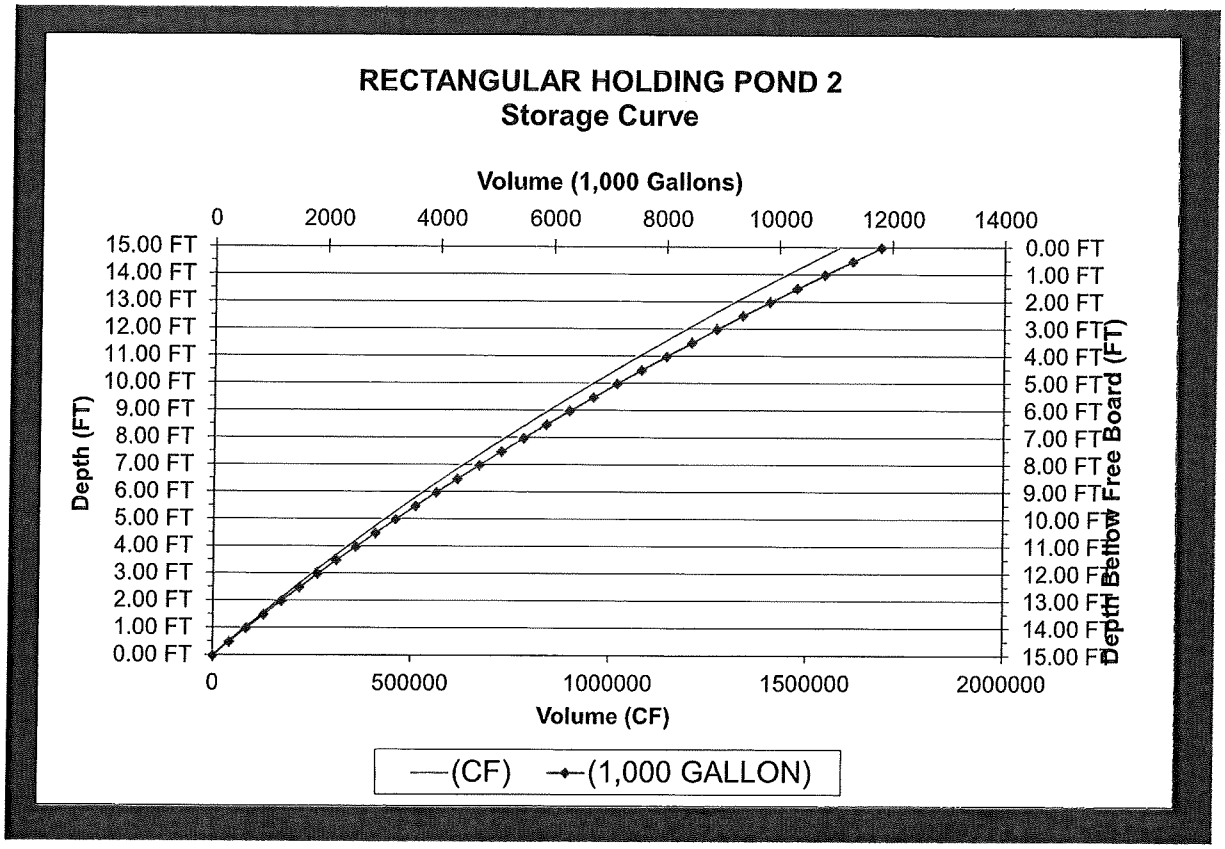
Subject: Lagoon 2 Design Sheet, E17



EARTHEN STORAGE

TOTAL DEPTH	15.00 FT			Deminsions			
FREEBOARD	2.00 FT			BOTTOM WIDTH	232 FT		
RESIDUAL SOLIDS	1.74 FT			BOTTOM LENGTH	332 FT		
MINIMUM TREATMENT	5.94 FT			INSIDE SLOPE	3.0 FT		
PRECIP-EVAP DEPTH	1.05 FT			TOP WIDTH	322 FT		
25 YR, 24-HR Runoff V	0 CF			TOP LENGTH	422 FT		
25 YR, 24-HR Runoff D	0.00 FT						
25 YR, 24-HR EVENT D	0.56 FT			START PUMPING	13.0 FT		
50 YR, 24-HR Runoff V	0 CF			STOP PUMPING	2.0 FT		
WORKING DEPTH	3.71 FT						
50 YR, 24-HR VOL	0 CF	≈	0.00 MG	ACTUAL PRECIP	40.3 in		
25 YR, 24-HR VOL	70,146 CF	≈	0.52 MG	ACTUAL EVAP	33.5 in		
PRECIP-EVAP VOL	129,155 CF	≈	0.97 MG	25 YR, 24-HR ACT	5.9 in		
WORKING VOLUME	417,514 CF	≈	3.12 MG	50 YR, 24-HR ACT	0.0 in		
MINIMUM TREATMENT	557,600 CF	≈	4.17 MG				
RESIDUAL SOLIDS	139,199 CF	≈	1.04 MG	50 YR, 24-HR Runoff D	0.00 FT		
TOTAL RAMP VOL	0 CF	≈	0.00 MG	50 YR, 24-HR EVENT D	0.00 FT		
FREEBOARD	262,936 CF	≈	1.97 MG				
TOTAL VOLUME	1,576,560 CF	≈	11.79 MG				

POND 2 - STAGE STORAGE				
TOTAL DEPTH	VOLUME (CF)	VOLUME (1,000 GALLON)	DEPTH BELOW TOP OF BERM	VOLUME (1,000 GALLON)
15.00 FT	1576560	11788	0.00 FT	0.0
14.50 FT	1509175	11284	0.50 FT	503.8
14.00 FT	1442896	10789	1.00 FT	495.6
13.50 FT	1377716	10301	1.50 FT	487.4
13.00 FT	1313624	9822	2.00 FT	479.2
12.50 FT	1250613	9351	2.50 FT	471.1
12.00 FT	1188672	8888	3.00 FT	463.1
11.50 FT	1127794	8433	3.50 FT	455.2
11.00 FT	1067968	7985	4.00 FT	447.3
10.50 FT	1009187	7546	4.50 FT	439.5
10.00 FT	951440	7114	5.00 FT	431.8
9.50 FT	894720	6690	5.50 FT	424.1
9.00 FT	839016	6273	6.00 FT	416.5
8.50 FT	784321	5864	6.50 FT	409.0
8.00 FT	730624	5463	7.00 FT	401.5
7.50 FT	677918	5069	7.50 FT	394.1
7.00 FT	626192	4682	8.00 FT	386.8
6.50 FT	575439	4303	8.50 FT	379.5
6.00 FT	525648	3930	9.00 FT	372.3
5.50 FT	476812	3565	9.50 FT	365.2
5.00 FT	428920	3207	10.00 FT	358.1
4.50 FT	381965	2856	10.50 FT	351.1
4.00 FT	335936	2512	11.00 FT	344.2
3.50 FT	290826	2175	11.50 FT	337.3
3.00 FT	246624	1844	12.00 FT	330.5
2.50 FT	203323	1520	12.50 FT	323.8
2.00 FT	160912	1203	13.00 FT	317.1
1.50 FT	119384	893	13.50 FT	310.5
1.00 FT	78728	589	14.00 FT	304.0
0.50 FT	38937	291	14.50 FT	297.5
0.00 FT	0	0	15.00 FT	291.1
0.00 FT	0	0	15.00 FT	0.0


RECTANGULAR HOLDING POND 2
Storage Curve
Volume (1,000 Gallons)
0
2000
4000
6000
8000
10000
12000
14000
15.00 FT
14.00 FT
13.00 FT
12.00 FT
11.00 FT
10.00 FT
9.00 FT
8.00 FT
7.00 FT
6.00 FT
5.00 FT
4.00 FT
3.00 FT
2.00 FT
1.00 FT
0.00 FT
Depth (FT)
0.00 FT
1.00 FT
2.00 FT
3.00 FT
4.00 FT
5.00 FT
6.00 FT
7.00 FT
8.00 FT
9.00 FT
10.00 FT
11.00 FT
12.00 FT
13.00 FT
14.00 FT
15.00 FT
Depth Below Free Board (FT)
0
500000
1000000
1500000
2000000
Volume (CF)
—(CF)
—(1,000 GALLON)

Section A. General Site Information

1. Farm Contact Information

	Farm Contact	Farm Manager
Name:	Rich Fohey	
Address	1959 County Rd. 284 Columbia, MO 65202	
Home Phone:	573-529-0344	
Email:	fohey@ktis.net	

2. Technical Service Provider Contact Information

	Nutrient Management Planner	Engineer
Name:	John Everly	Gayle C. Baker
Address	620 Country Club Rd. Iowa Falls, IA 50126	3116 N. Dries Lane Suite 100 Peoria, IL 61604
Home Phone:	641-648-7300	309-693-7615
Email:	jeverly@pinnacleiowa.com	gcbaker@mstutz.com
Certification:		NRCS TSP #14-9895 Registered Prof Engineer in Missouri License No. 2017004206

LIC EXP 12-31-21

3. Plan Narrative

This operation is a farrowing swine operation with a designed capacity of 1,368 animal units. This is a Class 1C facility. There are 526 lactating sows with an average weight of 450 pounds, 2,696 gestating sows with an average weight of 500 pounds and 800 nursery pigs with an average weight of 20 pounds.

The operation will include 14 shallow pit barns and 2 holding ponds. All swine barns are metal buildings with 2' deep pits, and slotted nursery or sow flooring. The barns store, without discharge, manure generated by the animals housed in them before it is transferred to the holding ponds. All clean water is diverted where possible, so it does not drain into or through the waste handling and storage system. All animals are housed in a manner that prevents their direct contact with surface water.

All manure generated will be land applied to land operated by the facility owner or exported to a 3rd party and land applied according to recommended agronomic rates for crops that are identified in this Nutrient Management Plan and grown on the land application areas. Manure application rates will be calculated based on manure laboratory analysis and expected crop yields. The timing of manure applications will follow the guidance of the Missouri CAFO Nutrient Management Standard and be based on such factors as the availability of manure, crop planting and harvest dates, and local weather conditions. The dominant crops receiving manure will be grain corn and soybeans.

All mortalities are composted on site within the static bin compost facility.

Section B. Livestock Production System and Land Description

2.1. Map(s) of Production Area

See attached Farmstead Plan and plan view with contours at end of this Section.

2.2. Animal Inventory and Manure Storage

Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored	Housing Location
Swine	Lactating Sows	526	450	Jan Early - Dec Late	100	E16, E17	E2, E3, E5, E6, E8, E9
Swine	Gestating Sows	2696	500	Jan Early - Dec Late	100	E16, E17	E1, E4, E10, E11, E12, E13, E14
Swine	Nursery Pigs	800	20	Jan Early - Dec Late	100	E16, E17	E7

Existing Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Estimated Annual Amount Collected	Maximum Days of Storage
E1	Shallow Pit	143,625 gal	0	NA
E2	Shallow Pit	65,455 gal	0	NA
E3	Shallow Pit	65,455 gal	0	NA
E4	Shallow Pit	44,880 gal	0	NA
E5	Shallow Pit	47,125 gal	0	NA
E6	Shallow Pit	20,200 gal	0	NA
E7	Shallow Pit	20,200 gal	0	NA
E8	Shallow Pit	44,880 gal	0	NA
E9	Shallow Pit	27,650 gal	0	NA
E10	Shallow Pit	97,845 gal	0	NA
E11	Shallow Pit	59,845 gal	0	NA
E12	Shallow Pit	59,845 gal	0	NA
E13	Shallow Pit	9,575 gal	0	NA
E14	Shallow Pit	9,575 gal	0	NA
E16	Holding Pond	1,742,660 gal	1,442,530 gal	>365
E17	Holding Pond	4,613,780 gal	2,238,170 gal	>365
Total		10,420,350 gal	3,680,700 gal	

Waste Storage Narrative

- Fohey Farms utilizes two areas for waste storage. E16 and E17 are both lagoons.
- All manure is collect in shallow pits before being transferred to waste storage lagoons via gravity sewer.
- E2, E3, E6 and a portion of E5 drain via gravity flow pipe to E1, which gravity flows to E16.
- E4, three quarters of E5, and E7-E14 drain via four gravity flow pipes to E17.
- Waste for land application is pumped from both lagoons via underground lines that run to a hard hose traveling gun.

2.3. Mortality Handling Narrative

Animal Group	Type or Production Phase	Number of Animals	Annual Mortality (%)	Total Animals per Year	Estimated Average Annual Mortality (tons)
Swine	Lactating Sows	526	3	26	2.4
Swine	Gestating Sows	2696	2	135	5.3
Swine	Nursery Pigs	800	2	240	30.3
Total	-	**4022**	-	-	**38**

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses.

The producer plans to utilize composting for handling facility mortalities. NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

In the case a catastrophic mortality event occurs or is expected to occur, the farm shall contact the Missouri Department of Agriculture Animal Health Division at (573) 751-3377 to develop a proper management plan for the large-scale death loss.

GENERAL RECOMMENDATIONS

1. ***Class I operations are not to use burial as their normal method of disposing of routine mortalities.***
2. Dead animals should be removed from building perimeters and not be visible to the occasional viewer.
3. Pickup sites should be properly secured.
4. Dead animals should not remain in the pickup sites for more than 48 hours.
5. All dead animal facilities should be free of scavenger activity and insect infestations.
6. Disease and nuisance vectors are to be minimized and controlled.
7. The abdominal cavity of large carcasses shall be punctured to allow escape of putrefactive gasses.
8. Lime or other chemical agent shall not be used to prevent decomposition.
9. ***No evidence should be found of dead animals disposed of in manure storage containments.***

Plan for Proper Management of Dead Animals

The following table describes how you plan to manage normal animal mortality in a manner that protects surface and ground water quality.

COMPOSTING FACILITY RECOMMEDATIONS

1. Precipitation should be diverted from composting material
2. The composting facility and mortalities should be protected from animals/predators and surface water shall be diverted away from the composter. Leachate shall be contained to not contaminate steams, ponds, or lakes.
3. **Do not bury or compost animals in sinkholes, ravines, caves, mines, low-lying areas subject to flooding, ditches or at the base of a hill. Follow the state law setback distances, using the greatest applicable distance:**
   i. Surface water such as ponds, streams and lakes: 100 FT
   ii. Spring, Losing Streams, Wells (including unused and abandoned wells, neighboring residences, surface drinking water intakes and public water supply lakes): 300 FT
   iii. Property Lines: 50 feet
4. Carbon material that will be used for composting should be stored in such a way to prevent runoff.
5. Carbon Source Recommendations: Coarse sawmill sawdust, shredded cornstalks, chopped straw, coarse-ground corn cobs.
6. One-half cubic yard of sawdust per sow in the herd for farrow-to-finish operations (annually) or 100 cubic feet (about 4 cubic yards) of sawdust per 1,000 pound carcass composted.
7. A compost thermometer with a probe at least 36" long shall be obtained and used daily to measure the temperature of the compost in the middle of each bin.
8. The compost temperature should reach 130 to 160° F. and be recorded daily. Compost three months in primary bins and an additional three months in secondary bins.
9. Compost shall remain in the second bin for the duration of the secondary composting cycle (typically three months). Temperature of the compost shall be measured using the compost thermometer to monitor the composting process.
10. Finished compost shall be agronomically distributed over land under cultivation or reused in the composting process. Finished compost may be returned to the primary composting bin in the ratio of up to 50 percent finished compost to fresh carbon source

2.4. Manure Exports, Imports and Transfers

Manure Exports

Month-Year	Manure Source	Amount	Receiving Operation	Location
As Needed	E16, E17	Varies		

Manure Imports

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location
(None)				

Internal Manure Transfers

Month-Year	Manure Source	Amount	Manure Destination
As Needed	E1-E15	Varies	E16, E17

2.5 Land Application Equipment

Manure will be removed from the lagoons and land applied with a hard hose traveling gun (Kifco Ag-Rain ST15D), via two underground lines.

2.7. Measures for CAFO Production Areas:

Requirements summarized from MOGS010000

- There shall be no discharge of manure, litter, process wastewater, or mortality by-products into water of the state or release that crosses property boundaries.
- A chronic weather event is a series of wet weather events and conditions that can delay planting, harvesting, and prevent land application and dewatering practices of wastewater storage structures. When wastewater storage structures are in danger of discharging due to a chronic weather event, CAFO owners shall take reasonable steps to lower the liquid level in the structure through land application, or other suitable means, to prevent and overflow from the structure.
- Additional requirements for uncovered liquid storage structures.
    - The storage structure must be properly operated and maintained to contain all manure, litter, process wastewater plus runoff and direct precipitation.
    - All open storage impoundments shall maintain a visual reference gauge showing the depth of liquids in the structure, the lower operating level, and the upper operating level.
    - The liquid level in the storage structure should be lowered on a routine schedule based on the design storage period and the Nutrient Management Plan. Typically, this should be accomplished prior to expected seasonal wet and winter climate periods.
    - The upper operating level for uncovered manure storages is one foot below the emergency overflow level unless specified otherwise.

- 2.8 Air Quality AND Pathogen Management Considerations

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that effect odor are:

*	Type of operation	*	Building design
*	Ventilation method	*	Animal numbers
*	Animal diets	*	Manure treatment systems
*	Season	*	Topography
*	Management skill or effort	*	

1. **Animal Cleanliness**
   - Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.
   - Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.
2. **Minimize Dust**
   - It has been established that there is a correlation between dust and odor emission. Dust particles absorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.
   - Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and litter. Dust also comes from animal skin, insects, and other sources.
   - Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens.)
3. **Waste Storage Facility**
   To reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:
   - Consider alternatives and additional practices including covered anaerobic digesters (365), and composting facilities (317).
   - Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.
   - Consideration should be also given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.
4. **Animal diets**
   Rations can also be manipulated to produce less manure production and odors from the manure. Much of the odors from manure are from nitrogen, sulfur, and carbohydrate containing volatile compounds. Balancing the diet with proper amounts and forms of protein and reducing excess protein in the diet will reduce nitrogen excretion and odor emissions from the manure.

5. **Proper Disposal of Mortality**
   Normal mortality for the animal feeding operation *must* be properly handled for both odor control and biological security of the operation. Composting, incineration, and rendering are acceptable methods for mortality disposal.

6. **Good Fly and Rodent Control Programs**
   These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized.

7. **Utilize Trees**
   While trees should not grow directly adjacent to facilities, wind breaks of trees correctly positioned near the facility not only create a visual barrier but can also provide a large filtration surface for dust and odorous compound removal. Trees can absorb odorous compounds and create turbulence that enhances odor dispersion and dilution. Trees also can create a cooler microclimate around the facility, which can reduce odors.

8. **Pathogen Management**
   Many of the same conservation practices used to prevent nutrient movement from this animal feeding operation, such as runoff and erosion control are likely to minimize the movement of pathogens. Pathogenic organisms occur naturally in animal wastes. Exposure to some pathogens can cause illness to humans and animals, especially for immune-deficient populations.

EXISTING FACILITY DETAILS	
ITEM	FACILITY DESCRIPTION
E1	GESTATION BARN
E2	FARROWING BARN
E3	FARROWING BARN
E4	GESTATION BARN
E5	FARROWING BARN
E6	FARROWING BARN
E7	NURSERY BARN
E8	FARROWING BARN
E9	FARROWING BARN
E10	GESTATION BARN
E11	GESTATION BARN
E12	GESTATION BARN
E13	GESTATION BARN
E14	GESTATION BARN
E15	COMPOSTER
E16	HOLDING POND
E17	HOLDING POND

N

0 50' 100'

BAR SCALE IN FEET

SCALE VALID ONLY ON 22"x34" SIZE PLANS

THE CONTRACTOR/ENGINEER SHALL VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO THE BEGINNING OF WORK.

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LAFAYETTE, IN 2915 GREENBRIAR RD. SUITE C | LAFAYETTE, IN 47904 | (765) 807-7941 | FAX (309) 637-2123
SAUKVILLE, WI W61 N645 WASHINGTON AVE. | SAUKVILLE, WI 53080 | (262) 268-8161 | FAX (309) 637-2123
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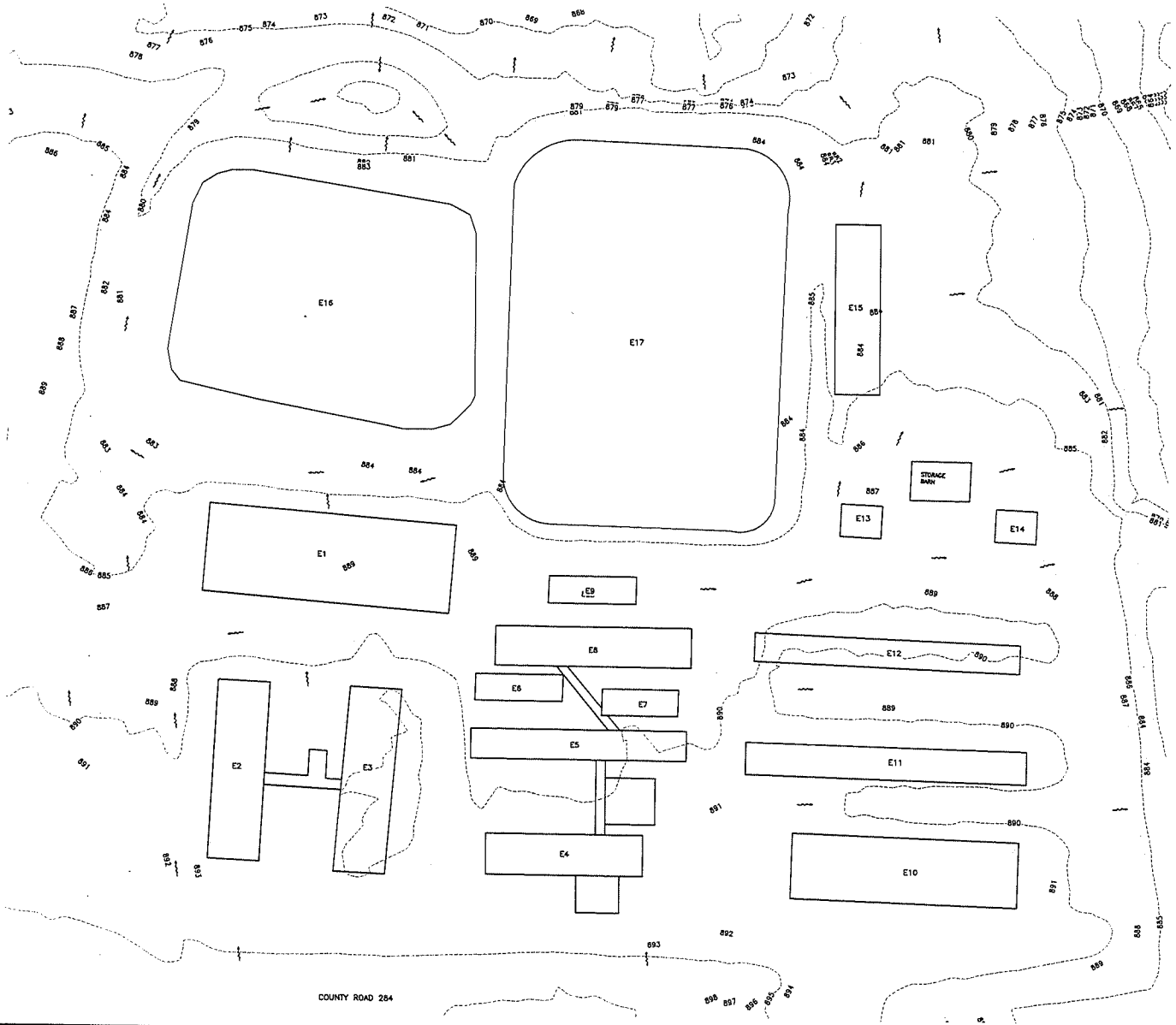
CLIENT: FOHEY FARMS

SHEET TITLE: SITE PLAN

PROJECT: MO DNR PERMITTING

DESIGNED BY: KCG
REVIEWED BY: GCB
DATE: JANUARY 2020
PROJECT NO.: 23804072.01
SHEET: C102



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SHEET TITLE: GRADING PLAN

PROJECT: MO DNR PERMITTING

CLIENT: FOHEY FARMS

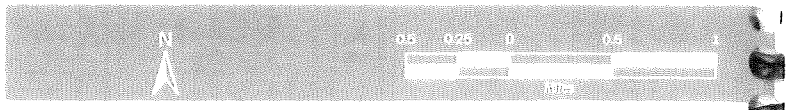
DESIGNED BY: KCG
REVIEWED BY: GCB
DATE: JANUARY 2020
PROJECT NO.: 23804072.01
SHEET: C103

Manure Management Plan Data

Operation:	Fohey Farms of Missouri	***County:***	Callaway
	Plan Saved:		12/27/2019
Plan File:	Original MMP 2020.mmp	***State:***	Missouri
	Init. File Rev:		10/20/2017
Plan Folder:	S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri		
	Soils File Rev:		
	1/11/2017		

GENERAL

Operation	Fohey Farms of Missouri				
Address	1901 County Road 284				
Town	Columbia	***State***	MO	***Zip Code***	65202
Contact	Rich Fohey				
Office Phone		***Home Phone***	573-529-0344		
E-Mail Address					
Notes					
County	Callaway				
Starting Year	2020	***Starting Month***	January	***Years In Plan***	5
Setbacks	CAFO				



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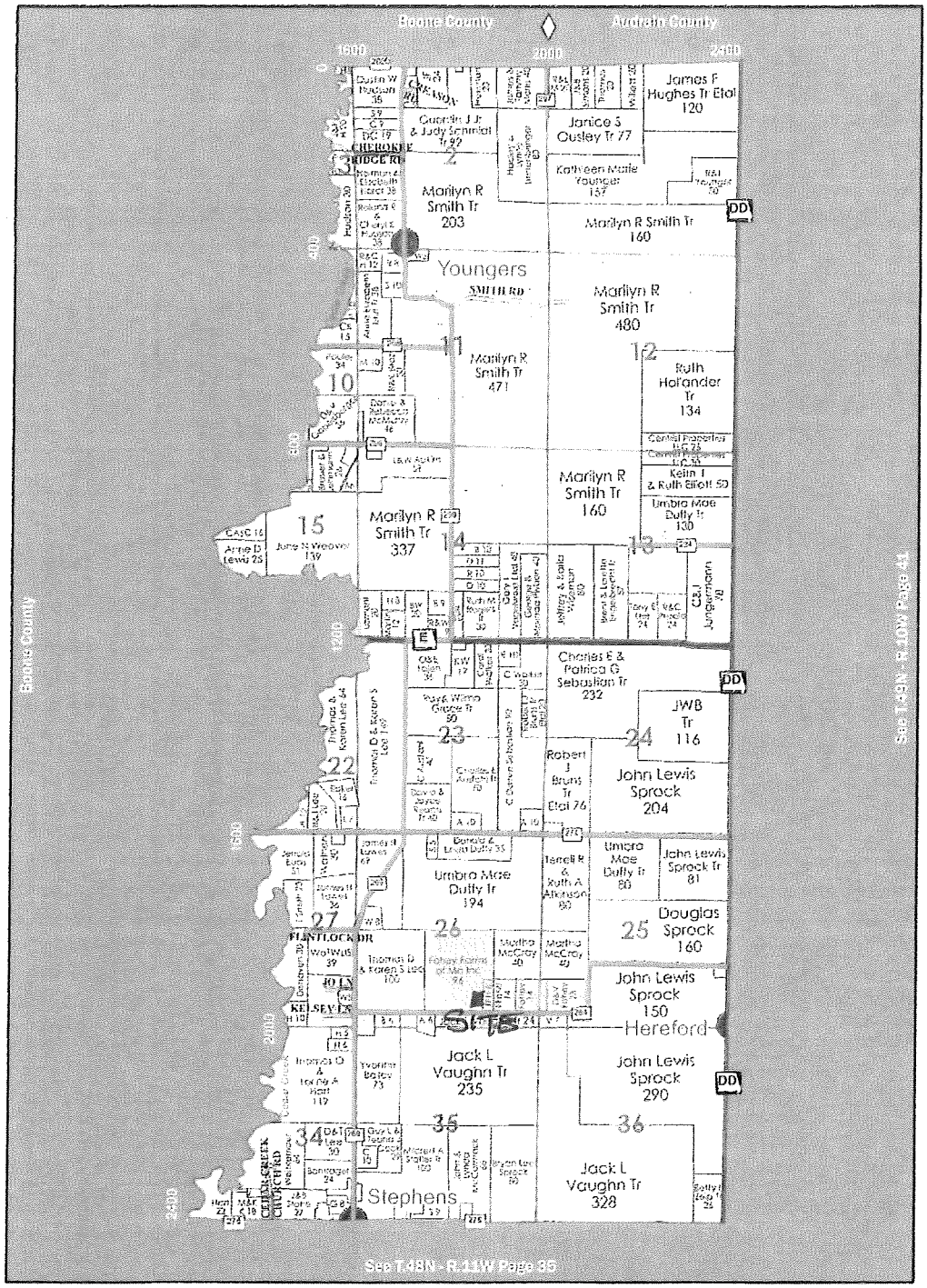


Manure Management Plan Data

Operation: Fohey Farms of Missouri
Plan File: Original MMP 2020.mmp
Plan Folder: S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri

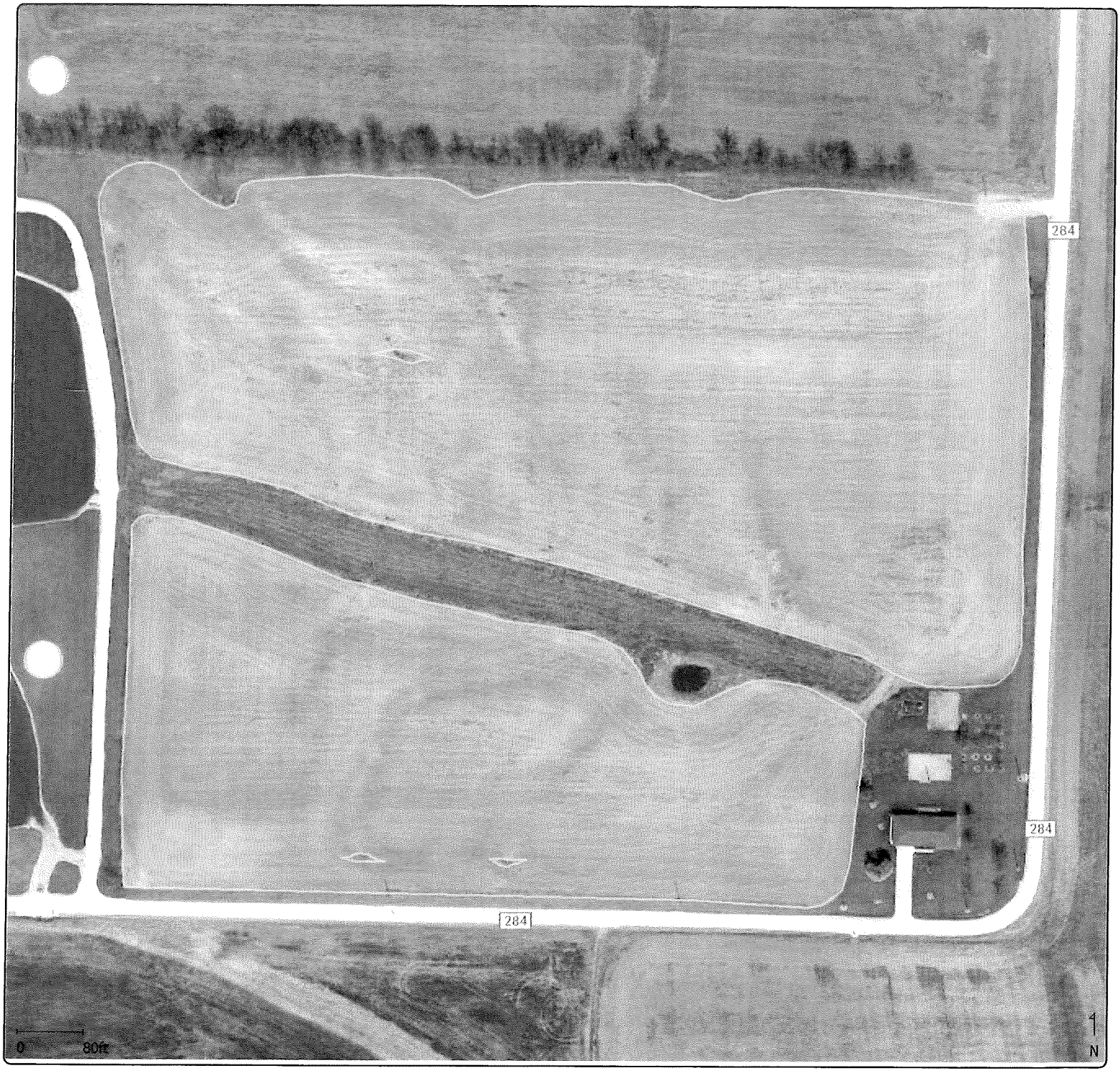
County: Callaway
State: Missouri

Plan Saved: 1/23/2020
Init. File Rev: 10/20/2017
Soils File Rev: 1/11/2017

FIELDS

Field ID	Subfield ID	Total Size (Acres)	Spread-able Size (Acres)	Storage Distance (Miles)	County (If Different From Operation's County)	Predominant Soil Type (Name, Texture, Survey Area ID, Map Symbol, Slope Range)	Slope % (If Not Ave.)	Irri-gated With Water	Is Not Owned	Farm ID	FSA Farm	FSA Tract	FSA Field	Notes
MO491126P4400		18.9	17.2			Mexico SIL (027 50059 1-4%)		☐	☐					
MO491126P8000		63.6	61.1			Keswick SIL (027 50008 5-9%)		☐	☐					

MO491126P4400



Grower : Fohey Farms of Missouri

Farm : Fields

Field : MO491126P4400

Latitude : 38.99308183

Longitude : -92.11154573

pinnacle
620 Country Club Road
Iowa Falls, Iowa 50126
Office: 641.648.7300
Fax: 641.648.7310
www.pinnacleiowa.com

Feature ID
Total Acres(18.90 ac)

MO491126P8000

Field : MO491126P8000

Latitude : 38.99414982

Longitude : -92.12253666

pinnacle
620 Country Club Road
Iowa Falls, Iowa 50126
Office: 641.648.7300
Fax: 641.648.7310
www.pinnacleiowa.com

Feature ID
Total Acres(63.63 ac)

Manure Management Plan Data

Operation: Fohey Farms of Missouri
Plan File: Original MMP 2020.mmp
Plan Folder: S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri

County: Callaway
State: Missouri

Plan Saved: 1/23/2020
Init. File Rev: 10/20/2017
Soils File Rev: 1/11/2017

ASSESSMENT, All States

Field ID	Subfield ID	Distance To Water (Feet)	Type Of Water	Slope Length (Feet)	Runoff Reduct-ion Practice	Buffer Width (Feet)	Type Of Artificial Drainage	Manure Applied Annual-ly	Will Not Receive Manure	Water Erosion (T/A/Yr)	Wind Erosion (T/A/Yr)	Irrigation Erosion (T/A/Yr)	Gully Erosion (T/A/Yr)	Ephem. Erosion (T/A/Yr)	P Index Or Risk Index	Notes
MO491126P4400		532	Pond	200	X		Tile w/ surface inlets, random	X		4					3.9	
MO491126P8000		1,371	Intermittent stream	200	X		Tile w/ surface inlets, random	X		4					3.9	

ASSESSMENT, State-Specific

Field ID	Subfield ID	Tillage
MO491126P4400		Conventional
MO491126P8000		Conventional

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info: MO491126P4400

File: profiles\default

Inputs:
Location: USA\Missouri\Callaway County
Soil: SSURGO\Callaway County, Missouri\50059 Mexico silt loam, 1 to 4 percent slopes, eroded\Mexico Silt loam 85%
Slope length (horiz): 200 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Corn, grain	bushels	147
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Rye, winter cover crop, mid Oct seeding	pounds	4000
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Corn, silage	tons	23.0
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Rye, winter cover crop, mid Oct seeding	pounds	4000
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Soybean, mw 30 in rows	bu	41.8

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3 t/ac/yr
Soil loss erod. portion: 4 t/ac/yr
Detachment on slope: 4.4 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 4 t/ac/yr

Crit. slope length: 200 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 6800 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure, liquid irrigation		67
4/20/1	Planter, double disk opnr w/fluted coulter	Corn, grain	44
10/1/1	Harvest, killing crop 50pct standing stubble		79
10/4/1	Bale corn stover		43

10/	Manure, liquid irrigation		
10/8/1	Drill or airseeder, double disk	Rye, winter cover crop, mid Oct seeding	50
4/15/2	Harvest, killing crop 30pct standing stubble		61
4/20/2	Disk, tandem light finishing		82
4/22/2	Planter, double disk opnr w/fluted coulter	Corn, silage	51
8/26/2	Harvest, silage		51
9/5/2	Manure, liquid irrigation		38
10/7/2	Drill or airseeder, double disk	Rye, winter cover crop, mid Oct seeding	37
4/22/3	Harvest, killing crop 30pct standing stubble		33
5/1/3	Disk, tandem light finishing		68
5/5/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 30 in rows	34
10/3/3	Harvest, killing crop 30pct standing stubble		33
			74

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info: MO491126P8000

File: profiles\default

Inputs:
Location: USA\Missouri\Callaway County
Soil: SSURGO\Callaway County, Missouri\50059 Mexico silt loam, 1 to 4 percent slopes, eroded\Mexico Silt loam 85%
Slope length (horiz): 200 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Corn, grain	bushels	147
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Rye, winter cover crop, mid Oct seeding	pounds	4000
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Corn, silage	tons	23.0
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Rye, winter cover crop, mid Oct seeding	pounds	4000
managements\CMZ 04\c.Other Local Mgt Records\Fohey	vegetations\Soybean, mw 30 in rows	bu	41.8

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3 t/ac/yr
Soil loss erod. portion: 4 t/ac/yr
Detachment on slope: 4.4 t/ac/yr
Soil loss for cons. plan: 4 t/ac/yr
Sediment delivery: 4 t/ac/yr

Crit. slope length: 200 ft
Surf. cover after planting: -- %
Avg. ann. total biomass removal: 6800 lb/ac

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure, liquid irrigation		67
4/20/1	Planter, double disk opnr w/fluted coulter	Corn, grain	44
10/1/1	Harvest, killing crop 50pct standing stubble		79
10/4/1	Bale corn stover		43

10/	Manure, liquid irrigation		
10/8/1	Drill or airseeder, double disk	Rye, winter cover crop, mid Oct seeding	50
4/15/2	Harvest, killing crop 30pct standing stubble		61
4/20/2	Disk, tandem light finishing		82
4/22/2	Planter, double disk opnr w/fluted coulter	Corn, silage	51
8/26/2	Harvest, silage		51
9/5/2	Manure, liquid irrigation		38
10/7/2	Drill or airseeder, double disk	Rye, winter cover crop, mid Oct seeding	37
4/22/3	Harvest, killing crop 30pct standing stubble		33
5/1/3	Disk, tandem light finishing		68
5/5/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 30 in rows	34
10/3/3	Harvest, killing crop 30pct standing stubble		33
			74

Phosphorus Index Worksheet
Version 0.2 April 20, 2005

	MO491126P4400	MO491126P8000		
County	Callaway	Callaway	Callaway	Callaway
Soil test P level	**52**	**94.7**	**0**	**0**
Units	lbs/acre	lbs/acre	ppm	ppm
Extraction Procedure	Bray-I	Bray-I	Mehlich-III	Mehlich-III
Sampling depth	6 to 8 inches	6 to 8 inches	6 to 8 inches	6 to 8 inches
Tillage	Tilled	Tilled	Tilled	Tilled
RUSLE value - average annual (tons/ac)	**4**	**4**	**0**	**0**
Land cover	Row crop - contoured and terraced with residue	Row crop - straight row with residue	Row crop - contoured and terraced with residue	Row crop - contoured with residue
Hydrologic soil group	D	D	C	C
Hydrologic condition	Good	Good	Good	Good
Distance from center of field to water feature	531.7	1371.4	0	0
Particulate P value	3.5	2.9	0.0	0.0
Soluble P value	0.4	1.0	0.0	0.0
Total P value	3.9	3.9	0.0	0.0
P index rating	MEDIUM	MEDIUM	LOW	LOW
Agronomic P rating (Opt.= 45 lbs/a)	HIGH	VERY HIGH	Non-agronomic test for MO	Non-agronomic test for MO
Sensitivity value	2.8	2.9	1.5	1.7

Manure Management Plan Data

Operation: Fohey Farms of Missouri
Plan File: Original MMP 2020.mmp
Plan Folder: S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri

County: Callaway
State: Missouri

Plan Saved: 1/23/2020
Init. File Rev: 10/20/2017
Soils File Rev: 1/11/2017

SOIL TESTS

Field ID	Subfield ID	Test Year	OM (%)	P	P Test Used	K	Mg	Ca	Na	Al	Levels Are In Lb/A	Soil pH	Buffer pH	Esti-mated CEC	CEC	NO_3-N (ppm)	EC (mmhos /cm)	SO_4-S (ppm)	Notes
MO491126P4400		2020	3.1	26	Bray P1	1,009	250	4,292			☐	7.3		26.1	26.5				
MO491126P8000		2020	3.1	47	Bray P1	872	247	4,082			☐	7		24.7	24.7				

Aerial Map

Map Center: 38° 59' 45.34, -92° 7' 5.3

0ft 863ft 1726ft

26-49N-11W
Callaway County
Missouri

N
W E
S

1/22/2020

Maps Provided By:
surety
CUSTOMIZED ONLINE MAPPING
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UNIVERSITY OF MISSOURI Extension

Soil Test Report

Field Crops

Soil & Plant Testing Laboratory
23 Mumford Hall, MU
Columbia, MO 65211
Phone: 573-882-0623
E-mail: SoilTestingServices@missouri.edu

Soil Testing Laboratory
P.O. Box 160
Portageville, MO 63873
Phone: 573-379-5431
E-mail: drstl@missouri.edu

http://soiltest.psu.missouri.edu

FIELD INFORMATION		
Field ID		Sample no.
Acres	Last limed	Irrigated
Last crop		

Serial no.	Lab no.
County	Region
Submitted	Processed

This report is for:

Soil sample submitted by: Firm Outlet

SOIL TEST INFORMATION			RATING					
			Very low	Low	Medium	High	Very high	Excess
pH_s	(salt pH)							
Phosphorus	(P)							
Potassium	(K)							
Calcium	(Ca)							
Magnesium	(Mg)							
Sulfur	(SO_4-S)	ppm						
Zinc	(Zn)	ppm						
Manganese	(Mn)	ppm						
Iron	(Fe)	ppm						
Copper	(Cu)	ppm						

Organic matter	%	Neutralizable acidity	meq/100g	Cation exchange capacity	meq/100g
pH in water		Electrical conductivity	mmho/cm	Sodium (Na)	lb/a
Nitrate (NO_3-N) Topsoil	ppm	Subsoil	ppm	Sampling depth Top	inches Subsoil inches

Cropping options	Yield goal	NUTRIENT REQUIREMENTS Pounds per acre					LIMESTONE SUGGESTIONS	
		N	P_2O_5	K_2O	Zn	S		
							Effective neutralizing material (ENM)	
							Effective magnesium (EMg)	

Comments:

Regional Agronomy Specialist_____ Phone (____)_____ _____

White - Farmer, *Yellow* - Firm/FSA, *Pink* - Extension

MP189 Revised 1/17, Reprinted 2/17

Signature

UNIVERSITY OF MISSOURI Extension

Soil Test Report

Field Crops

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E-mail: SoilTestingServices@missouri.edu

Soil Testing Laboratory
P.O. Box 160
Portageville, MO 63873
Phone: 573-379-5431
E-mail: drstl@missouri.edu

http://soiltest.psu.missouri.edu

FIELD INFORMATION		
Field ID	Sample no.	
Acres	Last limed	Irrigated
Last crop		

This report is for:

Serial no.	Lab no.
County	Region
Submitted	Processed

Soil sample submitted by: Firm Outlet

SOIL TEST INFORMATION			RATING					
			Very low	Low	Medium	High	Very high	Excess
pH_s	(salt pH)							
Phosphorus	(P)							
Potassium	(K)							
Calcium	(Ca)							
Magnesium	(Mg)							
Sulfur	(SO_4-S)	ppm						
Zinc	(Zn)	ppm						
Manganese	(Mn)	ppm						
Iron	(Fe)	ppm						
Copper	(Cu)	ppm						

Organic matter	%	Neutralizable acidity	meq/100g	Cation exchange capacity	meq/100g
pH in water		Electrical conductivity	mmho/cm	Sodium (Na)	lb/a
Nitrate (NO_3-N) Topsoil	ppm	Subsoil	ppm	Sampling depth Top	inches Subsoil inches

Cropping options	Yield goal	NUTRIENT REQUIREMENTS Pounds per acre					LIMESTONE SUGGESTIONS	
		N	P_2O_5	K_2O	Zn	S		
							Effective neutralizing material (ENM)	
							Effective magnesium (EMg)	

Comments:

Regional Agronomy Specialist_____ Phone (____)_____ _____

White - Farmer, *Yellow* - Firm/FSA, *Pink* - Extension

MP189 Revised 1/17, Reprinted 2/17

Signature

UNIVERSITY OF MISSOURI Extension

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Field Crops

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Portageville, MO 63873
Phone: 573-379-5431
E-mail: drstl@missouri.edu

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FIELD INFORMATION		
Field ID	Sample no. 9	
Acres	Last limed	Irrigated
Last crop		

This report is for:

Serial no.	Lab no.
County	Region
Submitted	Processed

Soil sample submitted by: Firm Outlet

SOIL TEST INFORMATION			RATING					
			Very low	Low	Medium	High	Very high	Excess
pH_s	(salt pH)							
Phosphorus	(P)							
Potassium	(K)							
Calcium	(Ca)							
Magnesium	(Mg)							
Sulfur	(SO_4-S)	ppm						
Zinc	(Zn)	ppm						
Manganese	(Mn)	ppm						
Iron	(Fe)	ppm						
Copper	(Cu)	ppm						

Organic matter	%	Neutralizable acidity	meq/100g	Cation exchange capacity	meq/100g
pH in water		Electrical conductivity	mmho/cm	Sodium (Na)	lb/a
Nitrate (NO_3-N) Topsoil	ppm	Subsoil	ppm	Sampling depth Top	inches Subsoil inches

Cropping options	Yield goal	NUTRIENT REQUIREMENTS Pounds per acre					LIMESTONE SUGGESTIONS	
		N	P_2O_5	K_2O	Zn	S		
							Effective neutralizing material (ENM)	
							Effective magnesium (EMg)	

Comments:

Regional Agronomy Specialist_____ Phone (____)_____ _____

White - Farmer, *Yellow* - Firm/FSA, *Pink* - Extension

MP189 Revised 1/17, Reprinted 2/17

Signature

University of Missouri Extension
equal opportunity/ADA institution

UNIVERSITY OF MISSOURI Extension

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FIELD INFORMATION		
Field ID		Sample no.
Acres	Last limed	Irrigated
Last crop		

This report is for:

Serial no.	Lab no.
County	Region
Submitted	Processed

Soil sample submitted by: Firm Outlet

SOIL TEST INFORMATION			RATING					
			Very low	Low	Medium	High	Very high	Excess
pH_s	(salt pH)							
Phosphorus	(P)							
Potassium	(K)							
Calcium	(Ca)							
Magnesium	(Mg)							
Sulfur	(SO_4-S)	ppm						
Zinc	(Zn)	ppm						
Manganese	(Mn)	ppm						
Iron	(Fe)	ppm						
Copper	(Cu)	ppm						

Organic matter	%	Neutralizable acidity	meq/100g	Cation exchange capacity	meq/100g
pH in water		Electrical conductivity	mmho/cm	Sodium (Na)	lb/a

Nitrate (NO_3-N) Topsoil ppm Subsoil ppm Sampling depth Top inches Subsoil inches

Cropping options	Yield goal	NUTRIENT REQUIREMENTS Pounds per acre					LIMESTONE SUGGESTIONS	
		N	P_2O_5	K_2O	Zn	S		
							Effective neutralizing material (ENM)	
							Effective magnesium (EMg)	

Comments:

Regional Agronomy Specialist_____ Phone (____)_____ _____

White - Farmer, *Yellow* - Firm/FSA, *Pink* - Extension

MP189 Revised 1/17, Reprinted 2/17

Signature

Manure Management Plan Data

Operation: Fohey Farms of Missouri
Plan File: Original MMP 2020.mmp
Plan Folder: S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri
County: Callaway
State: Missouri
Plan Saved: 1/23/2020
Init. File Rev: 10/20/2017
Soils File Rev: 1/11/2017

CROPS

Field ID	Subfield ID	Crop Year	Planned Crop	Yield Goal (/Acre)	Yield Units	Legume % Stand	Default N Rec (Lb/A)	Default P_2O_5 Rec (Lb/A)	Default K_2O Rec (Lb/A)	Custom N Rec (Lb/A)	Custom P_2O_5 Rec (Lb/A)	Custom K_2O Rec (Lb/A)	Source Of Custom Fertilizer Recommendations
MO491126P4400		2020	Corn silage	14.5	Ton		100	35	0				
MO491126P4400		2021	Soybeans	41.8	Bu		0	25	0				
MO491126P4400		2022	Corn grain	147.1	Bu		160	45	0				
MO491126P4400		2023	Corn silage	14.5	Ton		100	35	0				
MO491126P4400		2024	Soybeans	41.8	Bu		0	25	0				
MO491126P8000		2020	Corn grain	147.1	Bu		160	0	0				
MO491126P8000		2021	Corn silage	14.5	Ton		100	0	0				
MO491126P8000		2022	Soybeans	41.8	Bu		0	0	0				
MO491126P8000		2023	Corn grain	147.1	Bu		160	0	0				
MO491126P8000		2024	Corn silage	14.5	Ton		100	0	0				

Manure Management Plan Data

Operation: Fohey Farms of Missouri
Plan File: Original MMP 2020.mmp
Plan Folder: S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri
County: Callaway
State: Missouri
Plan Saved: 1/23/2020
Init. File Rev: 10/20/2017
Soils File Rev: 1/11/2017

RUSLE2

Field ID	Subfield ID	Rock Cover (%)	Contouring	Strips/Barriers	Diversion/Terrace	Residue Burial	Managements
MO491126P4400					Terrace		
MO491126P8000					Terrace		

USDA United States Department of Agriculture
National Agricultural Statistics Service

Quick Stats

Home Recent Updates Developers Help

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2017	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	180.7	
SURVEY	2014	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	183.9	
SURVEY	2013	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	135	
SURVEY	2012	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	41.8	
SURVEY	2011	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	127.4	

Avg. = 133.76
Yield Goal = Avg +10% = 147.1

USDA United States Department of Agriculture
National Agricultural Statistics Service

QuickStats

Home Recent Statistics Developers Help

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2008	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	OTHER (COMBINED) COUNTIES				00000000		CORN	CORN, SILAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	14	
SURVEY	2007	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	OTHER (COMBINED) COUNTIES				00000000		CORN	CORN, SILAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	15	
SURVEY	2006	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	OTHER (COMBINED) COUNTIES				00000000		CORN	CORN, SILAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	11	
SURVEY	2005	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	OTHER (COMBINED) COUNTIES				00000000		CORN	CORN, SILAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	12.3	
SURVEY	2004	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	OTHER (COMBINED) COUNTIES				00000000		CORN	CORN, SILAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	13.4	

Avg. = 13.1

Yield Goal = Avg. +10% = 14.5

USDA United States Department of Agriculture
National Agricultural Statistics Service

Quick Stats

Home Recent Statistics Developers Help

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2012	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	25.3	
SURVEY	2011	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	38.6	
SURVEY	2010	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	44.9	
SURVEY	2009	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	43	
SURVEY	2008	YEAR		COUNTY	MISSOURI	29	CENTRAL	50	CALLAWAY	027			00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	38	

Avg. = 38

Yield Goal = Avg. +10% = 41.8

USDA United States Department of Agriculture
National Agricultural Statistics Service

QuickStats

Home Recent Statistics Developers Help

Rye

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2019	YEAR		STATE	MISSOURI	29							00000000		HAYLAGE	HAYLAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	3.13	
SURVEY	2018	YEAR		STATE	MISSOURI	29							00000000		HAYLAGE	HAYLAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	4.29	
SURVEY	2017	YEAR		STATE	MISSOURI	29							00000000		HAYLAGE	HAYLAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	4.68	
SURVEY	2016	YEAR		STATE	MISSOURI	29							00000000		HAYLAGE	HAYLAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	4.31	
SURVEY	2015	YEAR		STATE	MISSOURI	29							00000000		HAYLAGE	HAYLAGE - YIELD, MEASURED IN TONS / ACRE	TOTAL	NOT SPECIFIED	4.1	

Avg. = 4.1

Yield Goal = Avg. + 10% = 4.5

Manure Management Plan Data

Operation: Fohey Farms of Missouri
Plan File: Original MMP 2020.mmp
Plan Folder: S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri

County: Callaway
State: Missouri

Plan Saved: 1/23/2020
Init. File Rev: 10/20/2017
Soils File Rev: 1/11/2017

STORAGE

Storage ID	Storage Type	Units	Pumpable Or Spreadable Capacity	Manure On Hand At Start Of Plan	Notes
E16	Earthen storage	Gal	1,742,660	0	
E17	Earthen storage	Gal	4,613,780	0	

Manure Management Plan Data

Operation: Fohey Farms of Missouri
Plan File: Original MMP 2020.mmp
Plan Folder: S:\Manure ground\MMP P Index Plans\Fohey Farms of Missouri

County: Callaway
State: Missouri

Plan Saved: 1/23/2020
Init. File Rev: 10/20/2017
Soils File Rev: 1/11/2017

ANIMALS

Animal ID	Animal Type And Production Phase	Animal Weight (Lb)	Number Of Animals	Animals Present From	Animals Present Through	Manure Collected (%)	Extra Water (Gal/Animal/ Day)	Bedding (Lb/Animal/ Day)	Where Will Manure Be Stored?	Notes
Gestation	Gestating sow	400	2,696	Jan Early	Dec Late	100			E16 & E17	
Farrowing	Sow & litter	450	526	Jan Early	Dec Late	100			E16 & E17	
Nursery	Nursery pig	20	800	Jan Early	Dec Late	100			E16 & E17	

Manure Management Plan Data

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ESTIMATED ANALYSIS

Storage ID	Esti-mated Total N	Est. NH_4-N	Est. Total P_2O_5	Est. Total K_2O	Est. Max. Avail. N	Est. Avail. P_2O_5	Est. Avail. K_2O	Analysis Units	Estimated Manure Production	Production Units
E16	21.0	10.1	25.0	25.0	13.9	25.0	25.0	Lb/1000Gal	2,364,000	Gal/Year
E17	23.6	11.8	23.8	25.1	15.9	23.8	25.1	Lb/1000Gal	1,367,000	Gal/Year

MEASURED ANALYSIS

Storage ID	Meas-ured Total N	Meas. NH_4-N	Meas. Total P_2O_5	Meas. Total K_2O	Meas. Max. Avail. N	Meas. Avail. P_2O_5	Meas. Avail. K_2O	Analysis Units	Meas. % Dry Matter	Measured Manure Production	Production Units	Source And Date Of Manure Analysis
E16	9.2		0.8	7.5	6.1	0.8	7.5	Lb/1000Gal		1,442,530	Gal/Year	MVTL 12/19/2019
E17	9.2		0.8	7.5	6.2	0.8	7.5	Lb/1000Gal		2,238,170	Gal/Year	MVTL 12/19/2019

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 E. Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER ACIL

MANURE ANALYSIS REPORT

THE PINNACLE GROUP
620 COUNTRY CLUB RD
IOWA FALLS IA 50126

Date Received: Dec 19 2019
Date Reported: Dec 24 2019

Account #: 001141
WO #: 17-8905
Lab #: 19-N12724

SAMPLE INFORMATION
Site Name: FOHEY FARMS OF MISSOURI
Sample ID: LAGOON

Site No:

ANALYTE	ANALYSIS AS RECEIVED		TOTAL NUTRIENTS lbs/1000 gal	lbs/Ton
Moisture, Total	99.5	%		
Nitrogen, Total	**0.11**	%	9.2	2.2
Phosphorus as P2O5	**< 0.01**	%	< 0.8	< 0.2
Potassium as K2O	**0.09**	%	7.5	1.8

Approved by:

David Smahel, Feed Lab Manager New Ulm, MN

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

AN EQUAL OPPORTUNITY EMPLOYER

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EQUIPMENT

Equipment ID	Spreader Or Applicator Type	Spreader Or Pump Capacity	Capacity Units	Minimum Application Rate	Rate Units	Application Width Or Area	Rate Units	Notes
Applicator	Liquid spreader, surface spray	5,000	Gal	2,000	Gal/A	100	Feet	

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MANURE APPLICATIONS, Part 1

Application Date	Field Where Manure Will Be Applied	Source Of Manure	Application Equipment	Days To Incorp.	Rate (/Acre)	Rate Basis	Loads	Amount Applied	Area Covered (Acres)	Apply At Or For	Units
Oct 2020	MO491126P4400	E16	Applicator		35,500	Missouri recommended N-based rate	122.2	611,000	17.2	60	Feet/ Load
Oct 2020	MO491126P8000	E16	Applicator		24,300	Missouri recommended N-based rate	118.2	591,000	24.3	90	Feet/ Load
Nov 2020	MO491126P8000	E16	Applicator		24,300	Missouri recommended N-based rate	24	120,000	4.9	90	Feet/ Load
Oct 2021	MO491126P4400	E16	Applicator		29,400	Missouri recommended N-based rate	101.2	506,000	17.2	70	Feet/ Load
Oct 2021	MO491126P8000	E17	Applicator		32,400	Missouri recommended N-based rate	396	1,980,000	61.1	70	Feet/ Load
Oct 2022	MO491126P4400	E16	Applicator		16,500	Missouri recommended N-based rate	56.8	284,000	17.2	130	Feet/ Load
Oct 2022	MO491126P8000	E17	Applicator		30,200	Missouri recommended N-based rate	369.1	1,845,500	61.1	70	Feet/ Load
Oct 2023	MO491126P4400	E16	Applicator		31,100	Missouri recommended N-based rate	107	535,000	17.2	70	Feet/ Load
Oct 2023	MO491126P8000	E17	Applicator		16,300	Missouri recommended N-based rate	199.2	996,000	61.1	130	Feet/ Load
Oct 2024	MO491126P4400	E16	Applicator		30,700	Missouri recommended N-based rate	105.7	528,500	17.2	70	Feet/ Load
Oct 2024	MO491126P8000	E17	Applicator		31,100	Missouri recommended N-based rate	380.1	1,900,500	61.1	70	Feet/ Load

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MANURE APPLICATIONS, Part 2

Application Date	Field Where Manure Will Be Applied	Avail. N (Lb/A)	N Balance (Lb/A)	Avail. P_2O_5 (Lb/A)	P_2O_5 Balance (Lb/A)	Avail. K_2O (Lb/A)	K_2O Balance (Lb/A)	Notes
Oct 2020	MO491126P4400	146	0	28	3	266	266	
Oct 2020	MO491126P8000	100	0	19	19	182	182	
Nov 2020	MO491126P8000	100	0	19	19	182	182	
Oct 2021	MO491126P4400	121	0	24	-21	221	221	
Oct 2021	MO491126P8000	133	0	26	26	243	243	
Oct 2022	MO491126P4400	68	0	13	-22	124	124	
Oct 2022	MO491126P8000	124	0	24	24	227	227	
Oct 2023	MO491126P4400	128	0	25	0	233	233	
Oct 2023	MO491126P8000	67	0	13	13	122	122	
Oct 2024	MO491126P4400	126	0	25	-20	230	230	
Oct 2024	MO491126P8000	128	0	25	25	233	233	