ENVIRONMENTAL
LAND MANAGEMENT LLC
waste byproduct landspreading specialists

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Minneapolis, MN 55405

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Monday June 23, 2025

Theresa Stiner
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Ave, Suite 200
Des Moines, IA 50321

Re: Smithfield Packaged Meats Corp., Sioux Falls, SD: Permit # 00-SDP-06-13P-LAN
Land Application of Solid Waste Additional Sites Application

Ms. Stiner,

Enclosed is an application to add two additional land application sites to the referenced permit for Smithfield Packaged Meats. Please note that there will be no increased volume for storage so the closure cost estimate has not been revised. Also, the additional sites have been soil sampled and will be soil sampled as necessary prior to land application for each site.

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

Sincerely,

MI Klema

Michael Klema
Environmental Land Management, LLC

Cc: IDNR Field Office #3, 1900 N Grand Ave., Spencer, IA 51301

IOWA DEPARTMENT OF NATURAL RESOURCES

Land Application of Solid Waste

Additional Sites

Application to add sites to an existing solid waste land application permit must be accompanied by the information required by the applicable solid waste rules under Iowa Administrative Code 567 Chapter 121.

Send completed applications with attached information to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 East Ninth Street
Des Moines, IA 50319-0034

For questions concerning this application please contact the Department at (515) 281-8646.

SECTION 1. FACILITY CONTACT INFORMATION

Permit # 00 -SDP- 06 - 13 -LAN

Solid Waste Generator Name/Address:

Smithfield Packaged Meats, 1400 N Weber Ave, Sioux Falls, SD 57103

Phone #: 605-330-4982 **Fax #:** 605-330-3167

SECTION 2. PERMIT APPLICATION CHECKLIST

Checking the appropriate boxes below certifies that the documents submitted in conjunction with this application form are complete and in compliance with the applicable chapters of the Iowa Administrative Code. One (1) copy of each document shall be submitted. If an application is found by the department to be incomplete, it may be denied and returned to the applicant.

Required Documents			Attached
	Document/Information	**Administrative Code**	
Section A	List of all the sites being added. For each site include: • Name of site • Legal description of the site • Total acres in the site • Acres to be used for disposal • Name of landowner or tenant		X
Section B	Financial Assurance. **If** the additional site(s) will include additional storage of materials, include a revised cost estimate and proof of financial assurance in the revised amount.	IAC 567 121.8	*Checklist

For each site attach the following:			
Section C	Site map or aerial photo of the site showing the following: • The specific area where the material will be applied • Buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads, and other applicable details. • Soil types and slope • Location of wells *Please remember that the area to be used for land disposal:* • *may not have a slope of greater than 9%,* • *may not be within 200 feet of an occupied residence* • *may not be within 500 feet of a well* ***If the specific area requested includes any of the above the entire field will not be approved.***	IAC 567 121.7(1)"a"(1) IAC 567 121.7(1)"a"(1) IAC 567 121.7(1)"a"(2) IAC 567 121.7(1)"a"(1)	X
Section D	Soil testing	IAC 567 121.7(1)"a"(9)	*Checklist
Section E	Water table levels	IAC 567121.7(1)"a"(10)	X
Section F	Review by Soil Conservation District that includes the following: • Soil loss limits applicable to the site • Design soil loss levels for the site • Estimated current soil loss levels *The review may be done by the Natural Resources Conservation Service or a Professional Agronomist in lieu of the Soil Conservation District.*	IAC 567 121.7(1)"a"(3) IAC 567 121.7(1)"a"(6) IAC 567 121.7(1)"a"(7) IAC 567 121.7(1)"a"(8)	X
Section G	Proof of ownership or legal entitlement to use the site. (Agreement with landowner or tenant) *One document may be submitted for multiple sites with the same landowner or tenant.*	IAC 567 121.7(1)"b"(6)	X

SECTION 3. APPLICANT CERTIFICATION

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I further certify that the construction and operation of the above described facility will be in accordance with the plans, specifications, reports and related communications accepted by the Iowa Department of Natural Resources and on file in its office; and in accordance with conditions imposed in the permit issued by the Iowa Department of Natural Resources.

Signature: Frank Kern **Date:** 6-23-25

Printed Name: Frank Kern **Title:** Plant Manager

Smithfield Packaged Meats, Sioux Falls, SD

Iowa DNR Land Application Permit # 00-SDP-06-13P
Additional Sites Application Checklist: Sections A-G

A. List of All Sites Being Added

1. See attached Additional Sites List and Table 1 Master Site List including all additional land application sites and all previously approved land application sites. Each site list includes:
    - i. Name of Site
    - ii. Legal Description of Site
    - iii. Total Acres in the Site
    - iv. Acres to be used for disposal / Suitable Acres
    - v. Name of Landowner or Tenant

B. Financial Assurance

1. Financial assurance will not be updated or changed due to this being a new site addition with no additional volumes expected.

C. Site Map or Aerial Photo of Sites

1. See attached aerial site map of additional site detailing:
    - i. The specific area where the material will be applied
        1. Site boundaries outlined on each aerial map
    - ii. Buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads, and other applicable details
        1. Site features and setbacks detailed on aerial maps
    - iii. Soil types and slope
        1. NRCS soil maps attached for each site
    - iv. Location of wells
        1. IDNR Well Search information attached for each site and active wells highlighted on aerial maps by 500 foot circular setback

D. Soil Testing

1. Soil testing will be completed for each additional site prior to application of that site. Additional site soil sampling will be completed each time site is used for application.

E. Water Table Levels

1. See attached Depth to Water Table outline for each specific site provided by NRCS.

F. Review by Professional Agronomist

1. See attached land application site suitability review performed by Extended Ag Services of Lakefield, MN discussing soil loss levels through erosion and flooding potential.
    i. Extended Ag Services - Jim Nesseth, Certified Agronomist, License # 17118 and Andy Nesseth, Environmental Consultant.
2. See attached T Factor erosion potential outlines for each specific site provided by NRCS.

G. Proof of Ownership or Legal Entitlement to Use the Site

1. See attached Contractual Consent of Landowner, Lessee and/or Land Operator for the specific individual with this additional sites application.

Smithfield Packaged Meats Corp.: IDNR Land Application Permit # 00-SDP-06-13P
Master Site List (IDNR Table 1)

Site Name	Farmer	County	Township	T, R	Section	Section Description	Total Acres	Land App Acres
Ametzger 250	Aaron Metzger	Lyon	Larchwood	T100N, R47W	23	W 1/2	250	250
Bruggeman 130	Alan Bruggeman	Lyon	Cleveland	T99N, R46W	4	SW 1/4	130	130
DLeuthold Midland 11	Dan Leuthold	Lyon	Midland	T100N, R44W	11	SW 1/4	169	150
DLeuthold Riverside 9	Dan Leuthold	Lyon	Riverside	T100N, R45W	9	E 1/2 of SW 1/4	93	90
Faber 131	Marlin Faber	Lyon	Lyon	T98N, R 48W	1	NE 1/4	131	131
Faber 196	Marlin Faber	Lyon	Lyon	T98N, R 48W	3	N 1/2	196	196
Faber 80	Marlin Faber	Lyon	Logan	T99N, R47W	29	SW 1/4	80	80
Feucht 104	Tim Feucht	Lyon	Logan	T99N, R47W	1	W 1/2 of SW 1/4 & W 1/2 of E 1/2 of SW 1/4	104	104
Feucht 146	Tim Feucht	Lyon	Logan	T99N, R47W	11	SE 1/4	146	146
Feucht 150	Tim Feucht	Lyon	Logan	T99N, R47W	14	NW 1/4	150	150
Feucht 50	Tim Feucht	Lyon	Logan	T99N, R47W	11	E 1/2 of NE 1/4	50	48
Friedrich 57	Lyle Friedrich	Lyon	Larchwood	T100N, R47W	27	E 1/2 of NW 1/4	57	56
Jansma 70	Travis Jansma	Lyon	Logan	T99N, R47W	29	S 1/2 of SW 1/4	70	70
Kats Half	Taylor Kats	Sioux	Sioux	T97N, R47W	27	E 1/2	309	309
Kats Home 80	Taylor Kats	Sioux	Sioux	T97N, R47W	21	S 1/2 of SE 1/4	74	54
KLeuthold Midland 13	Ken Leuthold	Lyon	Midland	T100N, R44W	13	SW 1/4	153	137
KLeuthold Midland 29	Ken Leuthold	Lyon	Midland	T100N, R44W	29	S 1/2 of SW 1/4	77	75
KLeuthold Riverside 13	Ken Leuthold	Lyon	Riverside	T100N, R45W	13	S 1/2 of NW 1/4	95	84
Knapp Dairy	Kevin Knapp	Lyon	Larchwood	T100N, R47W	24	W 1/2 NW 1/4	87	68
Kooima 307	Myron Kooima	Lyon	Richland	T98N, R47W	36	NE 1/4 & E 1/2 of NW 1/4 & N 1/2 of SE 1/4	307	307
Kooima 76	Myron Kooima	Lyon	Lyon	T98N, R48W	25	E 1/2 of NW 1/4	76	76
Kooima 77	Myron Kooima	Sioux	Sioux	T97N, R47W	2	E 1/2 of NW 1/4	77	77
Kooima 78	Myron Kooima	Lyon	Richland	T98N, R47W	35	S 1/2 of SW 1/4	78	78
Lknoblock 150	Lynn Knoblock	Lyon	Cleveland	T99N, R46W	22	NE 1/4	150	150
LKnoblock 190	Lynn Knoblock	Lyon	Larchwood	T100N, R47W	26	NE 1/4 & N1/4 of SE 1/4	141	141
LKnoblock 20	Lynn Knoblock	Lyon	Larchwood	T100N, R47W	10	SE 1/4 of SE 1/4	20	20
LKnoblock 35	Lynn Knoblock	Lyon	Larchwood	T100N, R47W	15	SW 1/4 of SE 1/4	40	40
LKnoblock 75	Lynn Knoblock	Lyon	Larchwood	T100N, R47W	21	E 1/2 of SE 1/4	75	75
Tknoblock 150	Lynn Knoblock	Lyon	Larchwood	T100N, R47W	12	SW 1/4	150	150
Martin 120	Todd Martin	Lyon	Doon	T98N, R46W	24	SE 1/4	120	120
Martin 130	Todd Martin	Lyon	Lyon	T98N, R48W	14	N 1/2	130	130
Martin 145	Todd Martin	Lyon	Allison	T100N, R46W	30	NE 1/4	145	145
Martin 145b	Todd Martin	Lyon	Richland	T98N, R47W	12	SW 1/4	145	145
Martin 150	Colin Leuthold	Lyon	Richland	T98N, R47W	10	SE 1/4	150	150
Martin 152	Todd Martin	Lyon	Richland	T98N, R47W	13	NW 1/4	152	152
Martin 161	Todd Martin	Lyon	Richland	T98N, R47W	11	S1/2 N1/2	161	161
Martin 220	Todd Martin	Lyon	Doon	T98N, R46W	18	N 1/2	220	220
Martin 58	Todd Martin	Lyon	Doon	T98N, R46W	6	W 1/2 NW 1/4	58	58
Martin 74	Todd Martin	Lyon	Logan	T99N, R47W	35	S 1/2 SE 1/4	74	74
Martin 78	Todd Martin	Lyon	Allison	T100N, R46W	29	S 1/2 NW 1/4	78	78
Martin Richland 76	Todd Martin	Lyon	Richland	T98N, R47W	2	E 1/2 of SE 1/4	76	73
Matt Bruggeman 80	Matt Bruggeman	Lyon	Centennial	T99N, R48W	4	E 1/2 of NW 1/4	73	69
Metzger Allison 18	Harvey Metzger	Lyon	Allison	T100N, R46W	18	N 1/2	226	223
Metzger Allison 26	Harvey Metzger	Lyon	Allison	T100N, R46W	26	N 1/2 of NE 1/4	88	85
Metzger Allison 7	Harvey Metzger	Lyon	Allison	T100N, R46W	7	W 1/2 of W 1/2	108	108
Metzger Larchwood 12	Harvey Metzger	Lyon	Larchwood	T100N, R47W	12	E 1/2	184	179
Meyer Allison 19	Sid Meyer	Lyon	Allison	T100N, R46W	19	NW 1/4	138	136
Meyer Stock Farm	Meyer Stock Farm	Lyon	Riverside	T100N, R45W	8	SW 1/4	59	57
Moser 144	Joel Moser	Lyon	Cleveland	T99N, R46W	21	SW 1/4	144	144
Moser 150	Joel Moser	Lyon	Cleveland	T99N, R46W	28	NW 1/4	150	150
Moser 180	Joel Moser	Lyon	Cleveland	T99N, R46W	20	SE 1/4 & E 1/2 of SW 1/4 & W 1/4 of SW 1/4	180	180
Rath Midland 16	Nathan Rath	Lyon	Midland	T100N, R44W	16	E 1/2	300	282
Rath Midland 9	Nathan Rath	Lyon	Midland	T100N, R44W	9	SW 1/4	194	189
Rath Rock 19	Ron Rath	Lyon	Rock	T99N, R45W	19	SE1/4	158	150
Rath Rock 20	Ron Rath	Lyon	Rock	T99N, R45W	20	SW1/4	149	149
Rath Rock 36	Ron Rath	Lyon	Rock	T99N, R45W	36	NW1/4, W1/2 NE1/4, N1/2 SE1/4	327	327
Rath Rock 8	Ron Rath	Lyon	Rock	T99N, R45W	8	S1/2 NW1/4, SW1/4	232	232
Rens Allison 21	Jerry Rens	Lyon	Allison	T100N, R46W	21	NE 1/4	150	150
Rens Larchwood 14	Jerry Rens	Lyon	Larchwood	T100N, R47W	14	SW 1/4 & W 1/2 of SE 1/4	235	219
Rens Larchwood 15	Jerry Rens	Lyon	Larchwood	T100N, R47W	15	N 1/2 of SE 1/4 & SE 1/4 of SE 1/4	116	112
Rens Larchwood 22N	Jerry Rens	Lyon	Larchwood	T100N, R47W	22	NE 1/4	158	149
Rens Larchwood 22S	Jerry Rens	Lyon	Larchwood	T100N, R47W	22	S 1/2 of SE 1/4 & S 1/2 of N 1/2 of SE 1/4	119	117
Rens Larchwood 26	Jerry Rens	Lyon	Larchwood	T100N, R47W	26	N 1/2 of NW 1/4	73	68
Summit Farms Logan 13	Rodney Metzger	Lyon	Logan	T99N, R47W	13	SE1/4	146	146
TerWee Sioux 10N	Mike & Chad TerWee	Lyon	Sioux	T100N, R48W	10	E 1/2	186	168
TerWee Sioux 10S	Mike & Chad TerWee	Lyon	Sioux	T100N, R48W	10	NW 1/4	144	106
TerWee Sioux 12	Mike & Chad TerWee	Lyon	Sioux	T100N, R48W	12	W 1/2	184	166
TerWee Sioux 17	Mike & Chad TerWee	Lyon	Sioux	T100N, R48W	17	N 1/2	300	385
TerWee Sioux 18	Mike & Chad TerWee	Lyon	Sioux	T100N, R48W	18	S 1/2	297	275
TerWee Sioux 8E	Mike & Chad TerWee	Lyon	Sioux	T100N, R48W	8	E 1/2	195	189
TerWee Sioux 8W	Mike & Chad TerWee	Lyon	Sioux	T100N, R48W	8	W 1/2	191	183
TeSlaa 100	Loren TeSlaa	Lyon	Riverside	T100N, R45W	29	SE 1/4 (W part of 1/4)	100	100
TeSlaa 155	Loren TeSlaa	Lyon	Allison	T100N, R46W	36	NE 1/4	155	155
TeSlaa 200	Loren TeSlaa	Lyon	Riverside	T100N, R45W	26	N1/2 (N part of 1/2)	200	200

TeSlaa 370	Loren TeSlaa	Lyon	Riverside	T100N, R45W	35, 36	S 1/2 of NE 1/4 & SE 1/4 of Sec 35 & SW 1/4 of Sec 36	370	370
TeSlaa 73	Loren TeSlaa	Lyon	Allison	T100N, R46W	22	N 1/2 of NE 1/4	73	73
TeSlaa 75	Loren TeSlaa	Lyon	Riverside	T100N, R45W	32	N 1/2 of SW 1/4	75	75
TeSlaa Allison Riverside 36-31	Loren TeSlaa	Lyon	Allison; Riverside	T100N, R46W; T100N, R45W	31	NE 1/4; W 1/2 of NW 1/4	228	208
TeSlaa Cleveland 1	Loren TeSlaa	Lyon	Cleveland	T99N, R46W	1	E 1/2 of NW 1/4	75	70
TeSlaa Cleveland 11E	Loren TeSlaa	Lyon	Cleveland	T99N, R46W	11	SE 1/4	139	136
TeSlaa Cleveland 11W	Loren TeSlaa	Lyon	Cleveland	T99N, R46W	11	SW 1/4	148	146
TeSlaa Cleveland 12	Loren TeSlaa	Lyon	Cleveland	T99N, R46W	12	SE 1/4 & W 1/2 of NE 1/4	220	210
TeSlaa Cleveland 9	Loren TeSlaa	Lyon	Cleveland	T99N, R46W	9	NE 1/4 & E 1/2 of NW 1/4	228	192
TeSlaa Elgin 19	Loren TeSlaa	Lyon	Elgin	T100N, R43W	19	N 1/4 of NW 1/4	45	43
TeSlaa Elgin 22	Loren TeSlaa	Lyon	Elgin	T100N, R43W	22	NE 1/4	154	146
TeSlaa Liberal 21	Loren TeSlaa	Lyon	Liberal	T99N, R44W	21	SE 1/4	133	128
TeSlaa Riverside 31	Loren TeSlaa	Lyon	Riverside	T100N, R45W	31	W 1/2 of SE 1/4	79	79
TeSlaa Riverside 32	Loren TeSlaa	Lyon	Riverside	T100N, R45W	32	S 1/4 of NE 1/4	40	39
TeSlaa Rock 13	Loren TeSlaa	Lyon	Rock	T99N, R45W	13	N 1/2 of SE 1/4	80	79
TeSlaa Rock 18	Loren TeSlaa	Lyon	Rock	T99N, R45W	18	S 1/4 of NE 1/4	41	41
TeSlaa Rock 5	Loren TeSlaa	Lyon	Rock	T99N, R45W	5	S 1/2 of SW 1/4	68	65
Triple T 76	Terry Teunissen	Lyon	Cleveland	T99N, R46W	27	S 1/2 of NE 1/4	76	76
VanMaanen Doon 32	Terry VanMaanen	Lyon	Doon	T98N, R46W	32	SE 1/4 & S 1/2 of NE 1/4	252	234
VanMaanen Doon 33	Terry VanMaanen	Lyon	Doon	T98N, R46W	33	NE 1/4 & S 1/2 of NW 1/4	245	219
VanMaanen Rock 9	Terry VanMaanen	Sioux	Rock	T97N, R46W	9	NE 1/4	146	134
Verbeek 140	Tim Verbeek	Lyon	Rock	T99N, R45W	30	NE 1/4	140	140
Verbeek 150	Tim Verbeek	Lyon	Rock	T99N, R45W	30	SE 1/4	150	150
Verbeek 284	Tim Verbeek	Lyon	Cleveland	T99N, R46W	25	S 1/2	284	284
Verbeek 60	Tim Verbeek	Lyon	Riverside	T100N, R45W	32	S1/2 SW 1/4	60	60
Verbeek 65	Tim Verbeek	Lyon	Cleveland	T99N, R46W	26	S1/2 SW 1/4	65	65
Verbeek 75	Tim Verbeek	Lyon	Rock	T99N, R45W	29	S1/2 SW 1/4	75	75
Verbeek 78	Tim Verbeek	Lyon	Rock	T99N, R45W	35	S1/2 NE 1/4	78	78
Verbeek Dickman	Tim Verbeek	Lyon	Garfield	T98N, R45W	2	W 1/2 of NE 1/4 and E 1/2 of NW 1/4	129	125
Verbeek Rock 31	Tim Verbeek	Lyon	Rock	T99N, R45W	31	S 1/2 of NW 1/4; N 1/2 of SW 1/4	124	122
Vknobloch 135	Damon Knobloch	Lyon	Logan	T99N, R47W	13	SW 1/4	138	138
Vknobloch 184	Damon Knobloch	Lyon	Logan	T99N, R47W	24	S 1/2 of N 1/2	184	181
Vknobloch 250	Damon Knobloch	Lyon	Cleveland	T99N, R46W	30	N 1/2	250	250
Vknobloch Home	Damon Knobloch	Lyon	Cleveland	T99N, R46W	19	NW 1/4 & W 1/2 of SW 1/4	255	247

Farmer Information

Operator	Phone	Address	City	State
Alan Bruggeman	712-470-1777	2518 160th St	Rock Rapids	IA
Matt Bruggeman	712-470-5731	1517 Buchanan Ave	Larchwood	IA
Marlin Faber	712-753-2747	310 W. Madison St.	Inwood	IA
Tim Feucht	712-478-4359	1675 Dogwood Ave	Larchwood	IA
Lyle Friedrich	712-348-1624	2359 160th St	Rock Rapids	IA
Travis Jansma	712-753-2005	1804 200th St	Inwood	IA
Taylor Kats	712-470-4258	2044 310th St	Rock Valley	IA
Myron Kooima	712-753-4892	2058 230th St	Inwood	IA
Kevin Knapp	507-227-1507	2299 120th St	Larchwood	IA
Damon Knobloch	712-470-2199	1818 Dove Ave	Alvord	IA
Lynn Knoblock	712-470-5146	1037 Dipper Ave	Larchwood	IA
Colin Leuthold	605-670-9949	403 E 7th St	Hills	MN
Dan Leuthold	507-360-7463	1805 51st St	Magnolia	MN
Ken Leuthold	712-470-5793	3525 100th St	Rock Rapids	IA
Todd Martin	712-470-1558	2210 230th St	Doon	IA
Aaron Metzger	605-305-0040	1248 Dipper Ave	Larchwood	IA
Harvey Metzger	712-470-2584	2187 110th St	Larchwood	IA
Rodney Metzger	712-470-7101	1328 Dove Ave	Lester	IA
Dean Meyer	712-472-3052	1512 Elmwood Ave	Rock Rapids	IA
Sid Meyer	712-470-0002	3529 140th St	Rock Rapids	IA
Joel Moser	712-473-2277	2468 190th St	Alvord	IA
Nathan Rath	712-470-1272	1181 Jay Ave	Rock Rapids	IA
Ron Rath	712-470-1940	2964 190th St	Rock Rapids	IA
Jerry Rens	712-540-5374	1187 Dipper Ave	Larchwood	IA
Loren TeSlaa	605-361-8500	1501 W LaQuinta St	Sioux Falls	SD
Mike TerWee	605-359-1388	1471 100th St	Larchwood	IA
Chad TerWee	605-251-0949	1275 110th St	Larchwood	IA
Terry Teunissen	712-473-2209	2066 Fig Ave	Alvord	IA
Tim Verbeek	712-330-3095	2886 200th St	Rock Rapids	IA
Terry VanMaanen	712-470-2506	2469 260th St	Rock Valley	IA

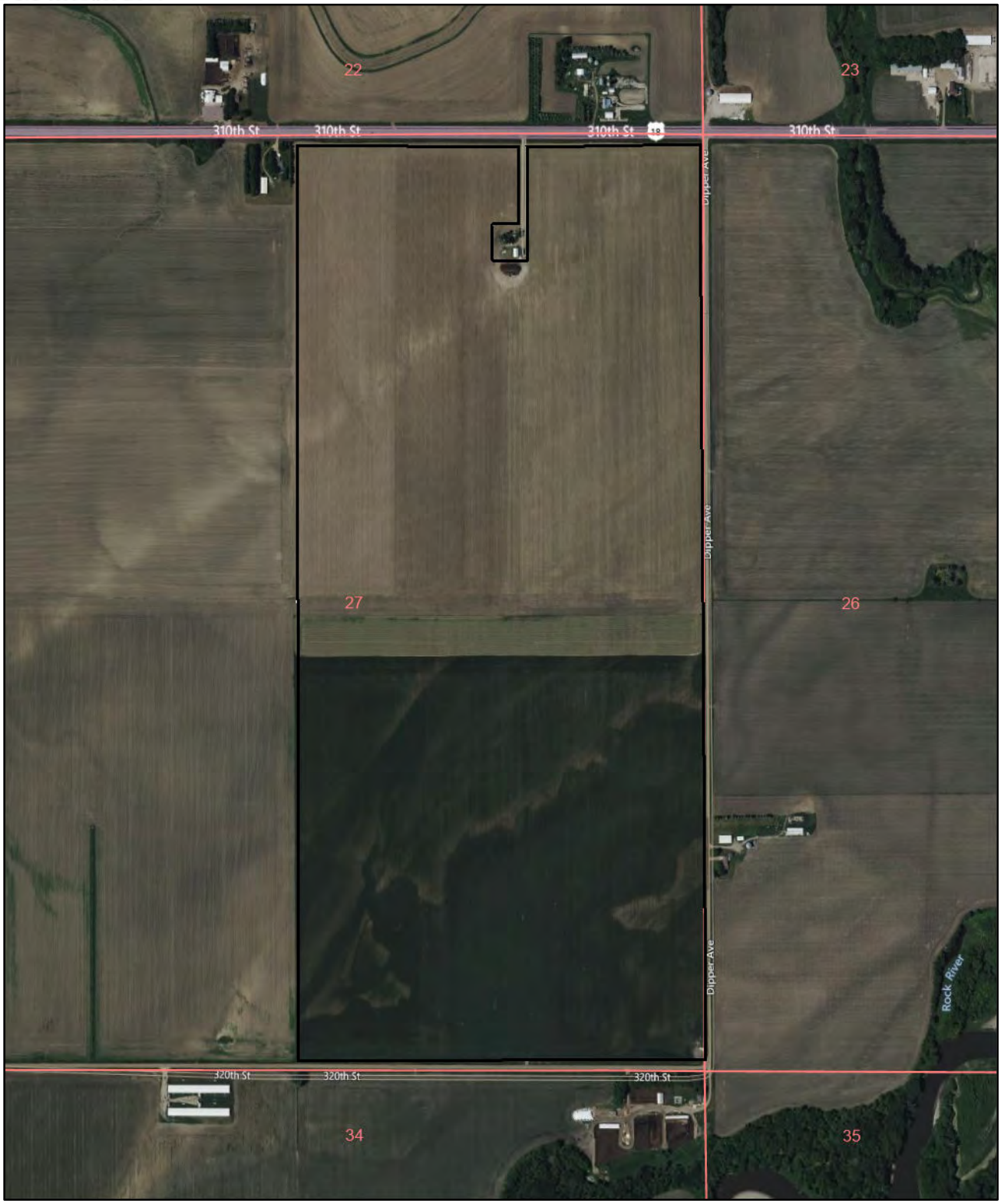
Smithfield Packaged Meats Corp.: IDNR Land Application Permit # 00-SDP-06-13P
New Site List

Site Name	County	Township	T, R	Section	Section Description	Total Acres	Suitable Acres	Farmer
Kats Half	Sioux	Sioux	T97N, R47W	27	E 1/2	309	309	Taylor Kats
Kats Home 80	Sioux	Sioux	T97N, R47W	21	S 1/2 of SE 1/4	74	54	Taylor Kats

Farmer	Phone	Address	City	State
Taylor Kats	712-470-4258	2044 310th St	Rock Valley	IA

ENVIRONMENTAL
LAND MANAGEMENT LLC
waste byproduct landspreading specialists

Site Name:Kats Half

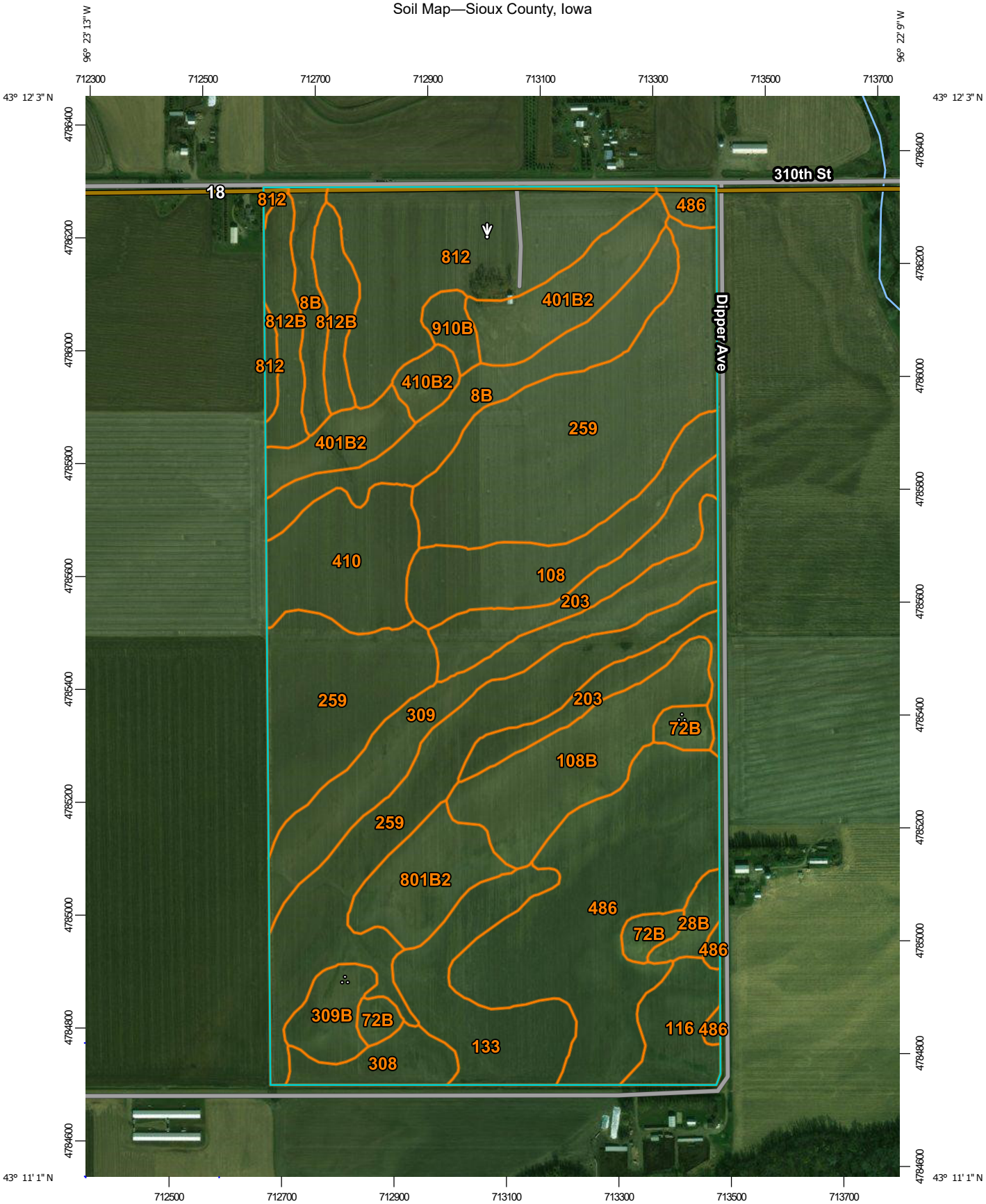


Unsuitable for Land Application

Farmer Name: Taylor Kats Phone: (712)470-4254 Spreadable Acres: 309 Deliverable Tons: 2166

I certify I have followed all stockpiling and spreading rules provided by ELM.

Signature_____ Date_____



Map Scale: 1:9,330 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sioux County, Iowa
Survey Area Data: Version 31, Sep 15, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 8, 2015—Feb 16, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8B	Judson silty clay loam, deep loess, 2 to 5 percent slopes	19.0	6.0%
28B	Dickman sandy loam, 2 to 5 percent slopes	2.4	0.8%
72B	Estherville loam, 2 to 5 percent slopes	4.7	1.5%
108	Wadena loam, 24 to 32 inches to sand and gravel, 0 to 2 percent	13.9	4.4%
108B	Wadena loam, 24 to 32 inches to sand and gravel, 2 to 5 percent	16.2	5.1%
116	Graceville silty clay loam, 0 to 2 percent slopes	6.9	2.2%
133	Colo silty clay loam, deep loess, 0 to 2 percent slopes, occasionally flooded	14.7	4.6%
203	Cylinder loam, 32 to 40 inches to sand and gravel, 0 to 2 percent slopes	15.1	4.8%
259	Biscay loam, 32 to 40 inches to sand and gravel, 0 to 2 percent	78.3	24.7%
308	Wadena loam, 32 to 40 inches to sand and gravel, 0 to 2 percent	5.1	1.6%
309	Allendorf silty clay loam, 0 to 2 percent slopes	17.7	5.6%
309B	Allendorf silty clay loam, 2 to 5 percent slopes	4.7	1.5%
401B2	Crofton silt loam, 2 to 6 percent slopes, eroded	15.2	4.8%
410	Moody silty clay loam, cool, 0 to 2 percent slopes	13.8	4.4%
410B2	Moody silty clay loam, cool, 2 to 6 percent slopes, eroded	2.5	0.8%
486	Davis loam, 0 to 2 percent slopes	36.9	11.6%
801B2	Bolan variant loam, 2 to 5 percent slopes, moderately eroded	9.4	3.0%
812	Moody silty clay loam, terrace, cool, 0 to 2 percent slopes	28.2	8.9%
812B	Moody silty clay loam, terrace, 2 to 6 percent slopes	10.0	3.2%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
910B	Trent silty clay loam, 2 to 5 percent slopes	2.3	0.7%
Totals for Area of Interest		**316.9**	**100.0%**

T Factor

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
8B	Judson silty clay loam, deep loess, 2 to 5 percent slopes	5	19.0	6.0%
28B	Dickman sandy loam, 2 to 5 percent slopes	2	2.4	0.8%
72B	Estherville loam, 2 to 5 percent slopes	2	4.7	1.5%
108	Wadena loam, 24 to 32 inches to sand and gravel, 0 to 2 percent	3	13.9	4.4%
108B	Wadena loam, 24 to 32 inches to sand and gravel, 2 to 5 percent	3	16.2	5.1%
116	Graceville silty clay loam, 0 to 2 percent slopes	4	6.9	2.2%
133	Colo silty clay loam, deep loess, 0 to 2 percent slopes, occasionally flooded	5	14.7	4.6%
203	Cylinder loam, 32 to 40 inches to sand and gravel, 0 to 2 percent slopes	3	15.1	4.8%
259	Biscay loam, 32 to 40 inches to sand and gravel, 0 to 2 percent	3	78.3	24.7%
308	Wadena loam, 32 to 40 inches to sand and gravel, 0 to 2 percent	3	5.1	1.6%
309	Allendorf silty clay loam, 0 to 2 percent slopes	3	17.7	5.6%
309B	Allendorf silty clay loam, 2 to 5 percent slopes	3	4.7	1.5%
401B2	Crofton silt loam, 2 to 6 percent slopes, eroded	5	15.2	4.8%
410	Moody silty clay loam, cool, 0 to 2 percent slopes	5	13.8	4.4%
410B2	Moody silty clay loam, cool, 2 to 6 percent slopes, eroded	5	2.5	0.8%
486	Davis loam, 0 to 2 percent slopes	5	36.9	11.6%

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
801B2	Bolan variant loam, 2 to 5 percent slopes, moderately eroded	5	9.4	3.0%
812	Moody silty clay loam, terrace, cool, 0 to 2 percent slopes	5	28.2	8.9%
812B	Moody silty clay loam, terrace, 2 to 6 percent slopes	5	10.0	3.2%
910B	Trent silty clay loam, 2 to 5 percent slopes	5	2.3	0.7%
Totals for Area of Interest			**316.9**	**100.0%**

Description

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Rating Options

Units of Measure: tons per acre per year

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
8B	Judson silty clay loam, deep loess, 2 to 5 percent slopes	>200	19.0	6.0%
28B	Dickman sandy loam, 2 to 5 percent slopes	>200	2.4	0.8%
72B	Estherville loam, 2 to 5 percent slopes	>200	4.7	1.5%
108	Wadena loam, 24 to 32 inches to sand and gravel, 0 to 2 percent	>200	13.9	4.4%
108B	Wadena loam, 24 to 32 inches to sand and gravel, 2 to 5 percent	>200	16.2	5.1%
116	Graceville silty clay loam, 0 to 2 percent slopes	>200	6.9	2.2%
133	Colo silty clay loam, deep loess, 0 to 2 percent slopes, occasionally flooded	0	14.7	4.6%
203	Cylinder loam, 32 to 40 inches to sand and gravel, 0 to 2 percent slopes	30	15.1	4.8%
259	Biscay loam, 32 to 40 inches to sand and gravel, 0 to 2 percent	0	78.3	24.7%
308	Wadena loam, 32 to 40 inches to sand and gravel, 0 to 2 percent	>200	5.1	1.6%
309	Allendorf silty clay loam, 0 to 2 percent slopes	>200	17.7	5.6%
309B	Allendorf silty clay loam, 2 to 5 percent slopes	>200	4.7	1.5%
401B2	Crofton silt loam, 2 to 6 percent slopes, eroded	>200	15.2	4.8%
410	Moody silty clay loam, cool, 0 to 2 percent slopes	>200	13.8	4.4%
410B2	Moody silty clay loam, cool, 2 to 6 percent slopes, eroded	>200	2.5	0.8%
486	Davis loam, 0 to 2 percent slopes	122	36.9	11.6%

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
801B2	Bolan variant loam, 2 to 5 percent slopes, moderately eroded	>200	9.4	3.0%
812	Moody silty clay loam, terrace, cool, 0 to 2 percent slopes	>200	28.2	8.9%
812B	Moody silty clay loam, terrace, 2 to 6 percent slopes	>200	10.0	3.2%
910B	Trent silty clay loam, 2 to 5 percent slopes	120	2.3	0.7%
Totals for Area of Interest			**316.9**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Well Search

Well Search Report

Site: Kats Half

Included in search	No. of wells	Database
X	12	IGS well database General well database maintained by IGS, location accuracy varies 3,730 to 25 ft., last updated 8/2005.
X	0	Public wells Muncipal and nonmunicipal public well databases maintained by IGS, location varies 3,730 to 25 ft., under development.
X	0	SDWIS public wells Public well database developed from the Safe Drinking Water Information System database maintained by IDNR, estimated locational accuracy varies from 15m. to 3300m. Created from 5/2005 data.
X	3	Private well tracking system IDNR database management system for Grants-to-counties-covered wells. Locational accuracy unknown, assumed to be +/- 17 m., Last update 7/2005.
X	0	Wells registered for testing Wells tested under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	1	Permitted private wells Wells permitted under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	1	Registered abandoned wells Wells abandoned under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	4	Water use facilities Wells used by facilities permitted to withdraw >25,000 gallons per day, locational accuracy is +/-20m to 1150 m. Created from 7/2005 data.
X	0	Municipal wells and intakes Locational accuracy 220 m., last updated 8/96.
X	0	Ag drainage wells Locational accuracy 100 m., last updated 4/98.

Well Search Detail

Subject: XY UTM Coordinates: 225533/4787728
Search Radius (mi): 1

IGS Well Database

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
1157	45820	T97N, R47W, 27, SW SE SW SE NW	Calc. +/- 115 ft.	1011 (m)	60		Groeneweg, Harlan	Bedrock Depth: 0 Well Type: Irrigation
1186	45539	T97N, R47W, 26, SW SE NW SW SE	Calc. +/- 115 ft.	1072 (m)	55	1/1/1975	Hoefakker, Teunis	Bedrock Depth: 0 Well Type: Irrigation
1187	45540	T97N, R47W, 26, SW SE SW NW NE	Calc. +/- 115 ft.	1069 (m)	55	1/1/1975	Hoefakker, Teunis	Bedrock Depth: 0 Well Type: Irrigation
1168	84124	T97N, R47W, 33, NE SE SE	Calc. +/- 470 ft.	(m)	60	12/15/2004	Hoogendoorn, Arvin	Bedrock Depth: 0 Well Type: Irrigation
1172	27736	T97N, R47W, 26, SE NW NW NW	Unknown	1237 (m)	96	6/4/1985	Igs	Bedrock Depth: 0 Well Type: Exploration (Other)
1125	27737	T97N, R47W, 23, SW SE SE SW	GPS +/- 10 m.	1335 (m)	25	6/5/1985	Igs	Bedrock Depth: 0 Well Type: Exploration (Other)
1164	45762	T97N, R47W, 34, NW NE NW	Calc. +/- 470 ft.	1163 (m)	68	5/26/1998	Murphy, Dr. Daniel	Bedrock Depth: 0 Well Type: Livestock
1159	45763	T97N, R47W, 34, NW NW NE	Calc. +/- 470 ft.	1294 (m)	62	5/22/1998	Murphy, Dr. Daniel	Bedrock Depth: 0 Well Type: Livestock
1093	45859	T97N, R47W, 23, SW SW NE NE NE	Calc. +/- 115 ft.	1391 (m)	38	9/28/1976	Van Veldhuizen, Ronald	Bedrock Depth: 0 Well Type: Irrigation
1098	45860	T97N, R47W, 23, SW SE NW SW	Calc. +/- 230 ft.	1335 (m)	13	10/28/1976	Van Veldhuizen, Ronald	Bedrock Depth: 0 Well Type: Irrigation
1102	45861	T97N, R47W, 23, SW SE SW NW	Calc. +/- 230 ft.	1262 (m)	28	11/28/1976	Van Veldhuizen, Ronald	Bedrock Depth: 0 Well Type: Irrigation
1111	45862	T97N, R47W, 23, SW SE SW SW	Calc. +/- 230 ft.	1138 (m)	28		Van Veldhuizen, Ronald	Bedrock Depth: 0 Well Type: Private

Public Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

SDWIS public wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Private Well Tracking System

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
1178	2107875	T97N, R47W, S33	nom. +/- 25m.	(m)	60	12/15/2004	Hoogendoorn, Arvin	Status: Retired
1241	2204110	T97N, R47W, S35	nom. +/- 25m.	(m)	21	11/5/2018	Vander Heul, Wilbur	Status: Active Logged
1041	2124096	T97N, R47W, S27	nom. +/- 25m.	1361 (m)			Ysselstein, Sjerp	Status: Permitted

Wells Registered For Testing

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Permitted Private Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
1165	1900	T97N, R47W, Sec. 27, SE, SW, SW	Calc. +/- 140m.	786 (m)	65	unkn	Alton Well	Primary use: Domestic/household

Abandoned Wells (plugged)

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
1119	34400	T97N, R47W, Sec. 27, NW, SE, SE	Calc. +/- 1135m.	(m)	25	n.a.	Kats, Ed	Well plugged: 8/5/1998; Well type: > 18" dia.

Water Use Facilities

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
1130	1247	T97N, R47, S27, ,	nom. +/-20m.	898 (m)	60		HARLAN GROENEWEG	PermitID: 5099 well #1

1090	5220	T97N, R47, S23, ,	nom. +/-400m.	1430 (m)	25		RONALD VAN VELDHUIZEN	PermitID: 5142
1091	2169	T97N, R47, S23, ,	nom. +/-400m.	1409 (m)	25		RONALD VAN VELDHUIZEN	PermitID: 5142
1092	1924	T97N, R47, S23, ,	nom. +/-400m.	1422 (m)	25		RONALD VAN VELDHUIZEN	PermitID: 5142

Municipal Wells And Intakes

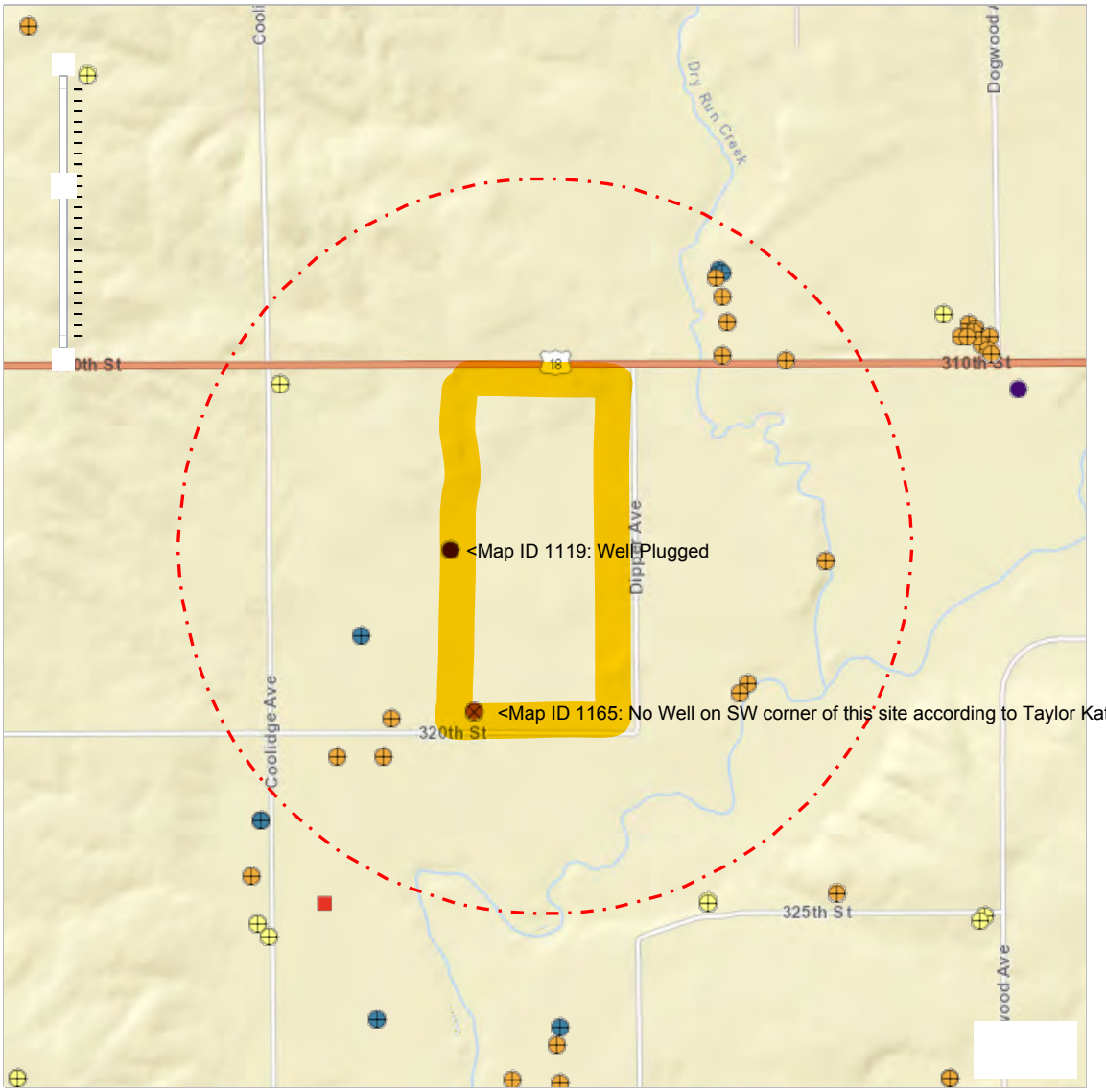
Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Ag Drainage Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Well Search Buffered Map

Subject: XY UTM Coordinates: 225533/4787728
Search Radius (mi): 1



Map Notes:
- UST
- LUST
- Wells

Please refer to the Accuracy column in Well Search Detail.
Since multiple points can be at the same spot (as those located to the center of a quarter section), points were randomly dispersed within 10 meters around that spot so all points can be seen.

ENVIRONMENTAL
LAND MANAGEMENT LLC
waste byproduct landspreading specialists

Site Name:Kats 80

Unsuitable for Land Application

Farmer Name: Taylor Kats Phone: (712)470-4254 Spreadable Acres: 54 Deliverable Tons:

I certify I have followed all stockpiling and spreading rules provided by ELM.

Signature_____ Date_____

Map Scale: 1:4,410 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
11B	Radford-Judson complex, 0 to 5 percent slopes	28.8	38.5%
401C2	Crofton silt loam, 5 to 9 percent slopes, eroded	12.0	16.0%
401D2	Crofton silt loam, 9 to 14 percent slopes, eroded	17.9	23.9%
410B2	Moody silty clay loam, cool, 2 to 6 percent slopes, eroded	7.3	9.8%
410C2	Moody silty clay loam, cool, 6 to 11 percent slopes, eroded	8.8	11.8%
Totals for Area of Interest		**74.7**	**100.0%**

T Factor

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
11B	Radford-Judson complex, 0 to 5 percent slopes	5	28.8	38.5%
401C2	Crofton silt loam, 5 to 9 percent slopes, eroded	5	12.0	16.0%
401D2	Crofton silt loam, 9 to 14 percent slopes, eroded	5	17.9	23.9%
410B2	Moody silty clay loam, cool, 2 to 6 percent slopes, eroded	5	7.3	9.8%
410C2	Moody silty clay loam, cool, 6 to 11 percent slopes, eroded	5	8.8	11.8%
Totals for Area of Interest			**74.7**	**100.0%**

Description

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Rating Options

Units of Measure: tons per acre per year

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
11B	Radford-Judson complex, 0 to 5 percent slopes	30	28.8	38.5%
401C2	Crofton silt loam, 5 to 9 percent slopes, eroded	>200	12.0	16.0%
401D2	Crofton silt loam, 9 to 14 percent slopes, eroded	>200	17.9	23.9%
410B2	Moody silty clay loam, cool, 2 to 6 percent slopes, eroded	>200	7.3	9.8%
410C2	Moody silty clay loam, cool, 6 to 11 percent slopes, eroded	>200	8.8	11.8%
Totals for Area of Interest			**74.7**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Well Search

Print | Help |

Well Search Report

Site: Kats 80

Included in search	No. of wells	Database
X	1	IGS well database General well database maintained by IGS, location accuracy varies 3,730 to 25 ft., last updated 8/2005.
X	0	Public wells Muncipal and nonmunicipal public well databases maintained by IGS, location varies 3,730 to 25 ft., under development.
X	0	SDWIS public wells Public well database developed from the Safe Drinking Water Information System database maintained by IDNR, estimated locational accuracy varies from 15m. to 3300m. Created from 5/2005 data.
X	2	Private well tracking system IDNR database management system for Grants-to-counties-covered wells. Locational accuracy unknown, assumed to be +/- 17 m., Last update 7/2005.
X	0	Wells registered for testing Wells tested under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	0	Permitted private wells Wells permitted under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	1	Registered abandoned wells Wells abandoned under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	1	Water use facilities Wells used by facilities permitted to withdraw >25,000 gallons per day, locational accuracy is +/-20m to 1150 m. Created from 7/2005 data.
X	0	Municipal wells and intakes Locational accuracy 220 m., last updated 8/96.
X	0	Ag drainage wells Locational accuracy 100 m., last updated 4/98.

Well Search Detail

Subject: XY UTM Coordinates: 223939/4788768
Search Radius (mi): 1

IGS Well Database

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
901	74946	T97N, R47W, 21, NW NE NE	Calc. +/- 470 ft.	1442 (m)	545	7/25/2012	Vankekerix, Scott & Erika	Bedrock Depth: 144 Well Type: Livestock

Public Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

SDWIS public wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Private Well Tracking System

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
934	2160906	T97N, R47W, S21	nom. +/- 25m.	1147 (m)			Van Kekerix, Scott	Status: Permitted
1041	2124096	T97N, R47W, S27	nom. +/- 25m.	542 (m)			Ysselstein, Sjerp	Status: Permitted

Wells Registered For Testing

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Permitted Private Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Abandoned Wells (plugged)

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
1119	34400	T97N, R47W, Sec. 27, NW, SE, SE	Calc. +/- 1135m.	1570 (m)	25	n.a.	Kats, Ed	Well plugged: 8/5/1998; Well type: > 18" dia.

Water Use Facilities

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
1130	1247	T97N, R47, S27, ,	nom. +/-20m.	(m)	60		HARLAN GROENEWEG	PermitID: 5099 well #1

Municipal Wells And Intakes

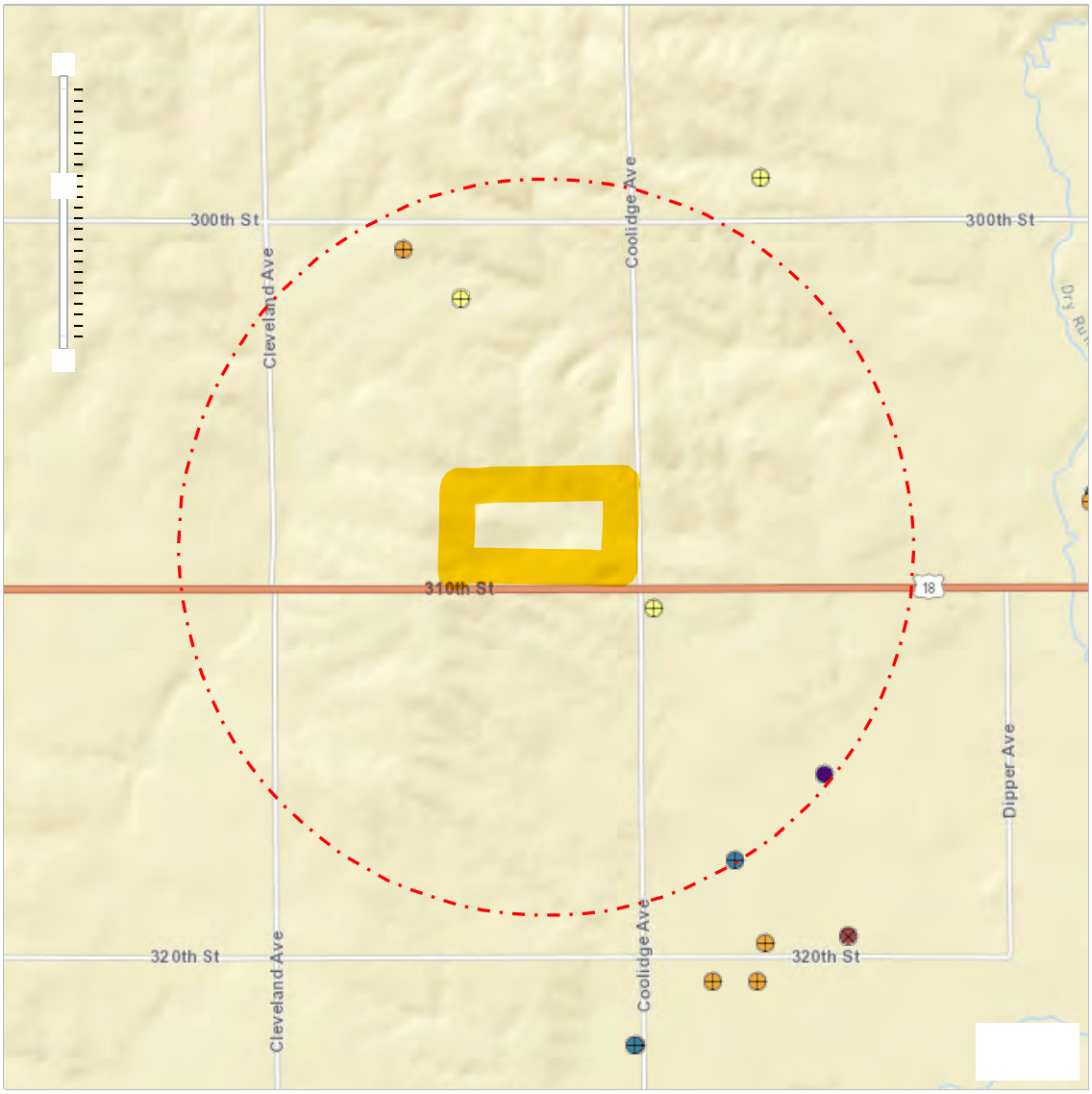
Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Ag Drainage Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Well Search Buffered Map

Subject: XY UTM Coordinates: 223939/4788768
Search Radius (mi): 1



Map Notes:
- UST
- LUST
- Wells

Please refer to the Accuracy column in Well Search Detail.
Since multiple points can be at the same spot (as those located to the center of a quarter section), points were randomly dispersed within 10 meters around that spot so all points can be seen.

EXTended Ag Services, Inc.

202 South Highway 86
Lakefield, MN 56150
507.662.5005 phone
507.662.5105 fax
info@extendedag.com

June 6, 2025

Environmental Land Management

1602 11th Drive NE

Austin, MN 55912

RE: Review of Potential Land Application Sites – Smithfield Sioux Falls, SD

Michael,

We have completed our review of the proposed land application site for the Smithfield facility in Sioux Falls, South Dakota. Thank you for the opportunity to provide our input on this project. The following fields were included in this review, all acres are approximate:

Site Name	Acres
Kats Half	309.7
Kats 80	73.1
Grand Total	**382.7**

Imagery provided by the National Ag Imagery Program (2018) was utilized to determine whether land application sites were in crop production, pasture/hay or non-farmed land. Overall, the land application sites are varied with some having significant limitations regarding slope steepness and length and general erosion potential.

There are approximately 382.7 acres available for land application of the industrial by-product. The land application site has a variety of soil textures, dominated by loams (46.8%), silty clay loam (41.1%) with the remainder being silt loam and sandy loams (12.1%). According to the NRCS soil survey, 47.9% of the soils are classified as having slight erosion potential. Approximately 7.1% of the soils are classified as having moderate erosion potential and 11.4% are classified as having severe erosion potential. The remaining acres (33.7%) have little to no concerns regarding erosion potential. Approximately 14% of the tillable acres are considered a highly erodible land unit and approximately 4.6% of the soils exceed the slope limitations for by-product applications.

Field specific planning and/or residue management should be utilized when applying the byproduct to reduce the potential for movement offsite, on all sites. Application can and should be limited to areas with the lowest slope first and then be directed to areas the furthest from sensitive features such as water. The application of the byproduct is not expected to conflict with any Conservation Plans associated with the observed soils. A summary of slope ratings for the potential land application sites is included below:

Slope Range	Acres
0-2%	225.1
0-5%	29.3
2-5%	90.0
5-9%	20.9
9-14%	17.5
Grand Total	**382.7**

Approximately 3.8% of the soils identified as potential land application sites are listed by the NRCS soil survey as commonly or frequently flooded. Still, it is assumed that agricultural drain tile has been installed, to varying degrees, on soils with poor or somewhat poor drainage. Flooding frequency is not expected to be a limiting factor for land application. However, land application on saturated soils should be avoided at all times. Further, land application on fields with higher slope ranges and predicted rainfall within 24 hours should be limited. A complete breakdown of flooding frequency ratings is shown below:

NRCS Flooding Frequency	Acres
NONE	330.8
OCCASSIONAL	37.4
FREQUENT	14.5
Grand Total	**382.7**

Determining appropriate land application rates for any by-product is dependent on the most restrictive variable. This can be either slope, erosivity, flooding potential, soil fertility levels, soil texture or byproduct characteristics, etc. The recommendations given herein are independent of any byproduct reviews and only consider the known field characteristics discussed in this review.

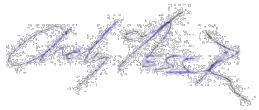
Application rates of approximately 12 Wet Tons per acre are appropriate for the field conditions of the land application sites discussed in this review. Appropriate measures should be taken to ensure minimal movement of the waste respect to adequate setbacks from sensitive features (surface water, karst features, conduits to water and high slopes) and land application rates. Special care should be given to applying wastes no less than 48 hours prior to rainfall events of greater than 0.5 inches. Wastes should be incorporated whenever possible, if such practices do not conflict with existing NRCS conservation plans. Applications of organic by-products can result in improved soil fertility, tilth and structure, if properly managed. The soils and parent material on the proposed land application site are naturally slightly acidic in nature. Soil tests taken at regular intervals should be taken to determine if Agricultural lime is necessary to raise the soil pH is above 6.0 prior to land application of any byproducts.

Summary

The specified land application material should be evaluated for constituents that pose a risk to the general health and welfare of the public. In general, land utilized for the land application of solid waste containing nutrients needed for pasture or crop production will benefit from such applications. Careful consideration should be taken to ensure nutrients are not applied at levels greater than crop need, once soils have reached the high fertility range as defined by Iowa State University.

In summary, we believe there are some significant limitations in field conditions for receiving by-product applications. Fields with soils below 9% slope are suitable for land application of solid wastes if done in accordance with all applicable rules, permits and laws. If you have any questions, please do not hesitate to contact us.

Sincerely,



Jim Nesseth
Certified Agronomist
License #: 17118

Andrew Nesseth
Environmental Consultant
NRCS Technical Service Provider

Contractual Consent of Landowner

Landowner, Lessee and/or Landoperator: Taylor Kats
Location of storage sites and spreading site(s): All permitted sites owned, leased and rented.
Description of byproduct to be stored and land applied on site(s): Byproduct waste consisting of wastewater solids generated from the Smithfield pork processing plant. Plant wastewater is from operational washwater, stormwater and domestic wastewater. The facility has a wastewater treatment plant and a de-watering process, in which solids are recovered.
Water treatment plant byproduct is generated from: Smithfield - Sioux Falls, SD

Analysis of pretreat byproduct on a "dry" basis:
**Analysis is not guaranteed for agronomic value. Byproduct output will be variable.*

Total Solids	16.42%	Arsenic	none detected
pH	6.58	Barium	25.2 mg/kg
Tot.Kjeldahl Nitrogen	6.62 %	Cadmium	none detected
Ammonia Nitrogen	0.91 %	Chromium	36.4 mg/kg
Phosphorus	1.35 %	Copper	274.7 mg/kg
Phosphate	3.09 %	Iron	3574 mg/kg
Potassium	0.24 %	Lead	none detected
Potash	0.30 %	Manganese	77.5 mg/kg
Calcium	1.61 %	Mercury	none detected
Magnesium	0.54 %	Molybdenum	8.0 mg/kg
Chloride	0.36 %	Nickel	19.0 mg/kg
Sodium	0.50 %	Selenium	4.9 mg/kg
Sulfur	1.18 %	Silver	none detected
Zinc	0.11 %	Zinc	559.1 mg/kg
***This column uses average results*		**This column uses most recent result*	

***Check with your Agronomist to verify that these nutrients and other constituents are not harmful to the crops you are growing during the coming year.

I have reviewed this information and am authorized to hereby give permission to Environmental Land Management, LLC to store and land apply the above byproduct on the spreading sites. If, in the future, I decide not to allow Environmental Land Management, LLC to store and land apply the aforementioned byproducts on these sites, I will inform them before it is delivered to the sites.

Signed: Taylor Kats Date: 6/23/25