

# HINSHAW

& CULBERTSON LLP

April 10, 2008

Mr. Derek Rompot, BOL #33  
Permit Engineer, Disposal Alternatives Unit  
Bureau of Land, IEPA  
1021 North Grand Avenue East  
P. O. Box 19276  
Springfield, IL 62794-9276

Re: Hamman Farms (0930155023)  
Kendall County

**ATTORNEYS AT LAW**

100 Park Avenue  
P.O. Box 1389  
Rockford, IL 61105-1389

815-490-4900  
815-490-4901 (fax)  
www.hinshawlaw.com

Dear Mr. Rompot:

I have received the March 17, 2008 Memorandum prepared by Steve Nightingale in response to Hamman Farms' request, pursuant to 415 ILCS 5/21(q), that the Agency exercise its statutory authority to raise the application rate of landscape waste to the fields at Hamman Farms. I appreciate the Agency's careful consideration of this request. Hamman Farms is mindful of the General Assembly's intent, in enacting the Illinois Environmental Protection Act ("the Act"), to ensure that the State fulfills its duty to "minimize environmental damage...[and] to promote the development of technology for environmental protection and conservation of natural resources" and "restore, protect and enhance the quality of the environment." 415 ILCS 5/2(a)(iv); 415 ILCS 5/2(b). Hamman Farms' request is fully in keeping with that purpose, and will, if granted, help to further the Act's goals.

As you know, the determination was made back in 1990 that it is inappropriate and inefficient to dispose of landscape waste in solid waste landfills. In addition to creating a system to establish and regulate commercial landscape waste disposal sites, the Legislature has also recognized that it is clearly in the public interest to encourage recycling and reuse of waste materials, both by individuals, and by large-scale enterprises. (415 ILCS 5/20(a), (c)). The Act accordingly provides that those who alleviate pressure on landscape waste disposal facilities by applying landscape waste to farm fields for agronomic purposes are exempt from the rigorous regulatory mechanisms and processes that govern commercial sites. The decision to exempt those who apply landscape waste to farm fields from rigorous mechanisms reflects the Legislature's understanding that encouraging the re-use of landscape waste will not only minimize the volume of waste being deposited in large-scale disposal sites, it will also benefit the soil that receives the application by preventing erosion, improving tilth, and increasing productivity without the use of chemical fertilizers (thereby minimizing negative impacts on water quality). In addition, the legislature clearly understood that such application provides a valuable service to landscape waste generators by offering a convenient, cost-effective, eco-friendly way to dispose of

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APR 14 2008

**IEPA-BOL  
PERMIT SECTION**

landscape waste. In summary, the agronomic application of landscape waste consistent with the soil characteristics and crop needs of a particular site constitutes a “full circle” resource recovery plan which affords multiple environmental benefits.

As you know, pursuant to 415 ILCS 5/21(q), landscape waste may be directly applied to fields at an agronomic rate defined generally as 20 tons per acre per year. However, in setting this rate, the legislature gave the Agency the discretion to allow an increased application rate if a farm owner or operator demonstrates that local soil characteristics or crop needs justify a higher application rate. In the case of Hamman Farms, the soil characteristics and crop needs do, indeed, justify a higher application rate.

Hamman Farms’ land is classified as Highly Erodable Land (HEL). Through application of landscape waste, the farm soil has gradually improved in recent years. As noted in the attached report prepared by Dr. Aga Razvi, Ph.D.<sup>1</sup>, a noted soil expert and professor at the College of Natural Resources, University of Wisconsin – Stevens Point, careful management and application of landscape waste has enabled Hamman Farms to consistently produce high crop yields for the last fifteen years, while at the same time conserving soil and water, and minimizing the use of chemical fertilizers.

Dr. Razvi’s report observes that in a typical rotation, the crops grown at Hamman Farms would require, on average, 240 to 260 pounds of available nitrogen, 75 pounds of phosphorous, and 75 pounds of potassium per growing season per acre. Under the statutory agronomic rate, if measured at its dry weight, 20 tons of landscape waste would supply only 72 pounds of nitrogen for the soil during the first year. Obviously, this number falls far short of the 240 to 260 pounds needed to sustain acceptable yield levels. The shortfall is even more dramatic if the 20 ton statutory rate is measured at its “as-received” weight, rather than its dry weight, due to the much higher water content when in that state.

At the statutory, agronomic rate of 20 tons, Dr. Razvi notes that soil losses on the Hamman HEL land can only be maintained at a more or less minimal, “tolerable” level. Allowing Hamman Farms to move beyond maintaining “tolerable soil losses,” and to instead apply 80 tons of landscape waste per year would allow Hamman Farms to improve the quality and productivity of this HEL land, while at the same time, minimizing erosion and eliminating the need for chemical fertilizers. Moreover, allowing a higher rate of application would significantly decrease the volume of waste that would otherwise be deposited in commercial landscape waste disposal sites. As a result, allowing a greater rate of application, as provided under Section 21(q), would further the Act’s purpose of conserving natural resources and enhancing the environment.

In the attachment to Steve Nightingale’s March 17, 2008 correspondence, Mr. Nightingale proposed that Hamman Farms provide information to support its pending request for an increase to the application rate. It is worth noting that in evaluating the materials provided with this application, the sole relevant inquiry prescribed by the Legislature is whether the farm’s soil

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<sup>1</sup> A copy of Dr. Razvi’s letter is attached to this application as **Exhibit E**.

characteristics or crop needs (the designated criteria listed at Section 21(q)), justify the requested application rate of 80 tons per acre per year.

That being noted, for its response to the requests for information listed in "Attachment A" of the March 17, 2008 Nightingale Memorandum, Hamman Farms responds as follows:

- With respect to the amount of acreage available to receive application of landfill waste each month, 2,200 acres are available. The method used to apply the material to the fields is fully described in the attached **Exhibit A**, which incorporates an explanation of Hamman Farms' operations and application procedures, along with its litter control plan and odor control procedures, which were developed with input from Kendall County State's Attorney Eric Weis, and Kendall County Solid Waste Director, Marlin Hartman.
- In response to the request for documentation concerning the classification of the soil, excerpts from the USDA Soil Conservation Service Soil Survey of Kendall County are attached as **Exhibit B**.
- Materials concerning the requested chemical analysis of the soil and compost are attached to this letter as **Exhibit C**.
- The requested documentation concerning the nitrogen demand used to determine the appropriate agronomic rate of compost application and calculations concerning the expected nitrogen and potassium loading to the soils, as provided by Dr. Razvi, are attached to this letter as **Exhibit D**.
- No other soil additives are used at the site.
- As noted above, and as documented in Dr. Razvi's report, attached as **Exhibit E**, the application of landscape waste at Hamman Farms is improving tilth and soil quality, thereby minimizing erosion.
- Recordkeeping is described in the "Operational Summary" provided in Group Exhibit A.
- As described in the Operational Summary, in order to prevent the transportation of applied materials into surface waters, Hamman Farms does not spread or till within 25 feet of drainage ways. It should also be noted that landscape waste is field applied the same day it is received, and is thoroughly incorporated into the soil through a 2-step tilling process (described in the Operational Summary), which surpasses the requirements of the Act; these procedures effectively prevent the applied material from traveling into surface waters.

In light of the information and documentation provided herein, and given the benefits of dramatically improved soil quality, improved water quality (through elimination of the use of chemical fertilizers), minimization of surface water runoff, increased productivity, and decreased

Mr. Derek Rompot, BOL #33

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pressure on commercial landscape waste disposal sites, Hamman Farms' request that it be allowed to apply landscape waste at a rate of 80 tons per year should be granted because it would further the purpose of the Act by helping to restore, protect and enhance the quality of the environment. The request is, therefore, appropriate under 415 ILCS 5/21(q).

Because Hamman Farms' operational season is upon us, and disposal pressures in the marketplace are intensifying and must be addressed, I look forward to receiving approval of the requested application rate at the earliest possible opportunity.

If you have any questions or would like to discuss this matter further, please do not hesitate to call me.

Sincerely,

HINSHAW & CULBERTSON LLP

Charles F. Helsten  
815-490-4906  
chelsten@hinshawlaw.com

CFH:nn  
Enclosures

cc: Don Hamman  
Eric Weis  
Marlin Hartman

**EXHIBIT A – LAND APPLICATION PLAN**

## APPLICATION PLAN - OVERVIEW

The rate and methodology of the application of landscape waste to the fields at Hamman Farms can best be understood by beginning with a simple mathematical overview of the amount of waste that is proposed to be applied, and the amount of acreage that would receive the waste. Hamman Farms proposes to accept up to 9,387 loads of landscape waste annually, with an average of 75 cubic yards per load. This would result in 704,025 cubic yards of waste material. While the weight of a cubic yard of landscape waste varies depending on its content (i.e. fallen leaves are much lighter than fresh-mown grass clippings), on average the weight of such waste is 500 pounds per cubic yard. When the number of cubic yards (704,025) is multiplied by the average weight per cubic yard (500 pounds), the result is a total of 176,006 tons of landscape waste per year.

Hamman Farms has 2,200 acres that would be available to receive application of the proposed 176,006 tons of landscape waste. This would represent an annual application rate of 80 tons per acre. The rate of application is uniform throughout the acres in use because, as a practical matter, it is virtually impossible to super-apply the material to a particular spot, given that the applied material is plowed in every day, causing the soil to become loose and soft. Once material has been plowed in to a given area, the molboarding equipment would become bogged down and unable to operate if an attempt was made to re-apply to that same area within a given year.

The Hamman Farms protocol of spreading and plowing the material into the fields the same day it is received not only avoids odor problems, it also decreases erosion of the farm's HEL soil, and prevents sheeting off of rainwater from the fields. The efficient manner in which Hamman Farms processes the landscape waste it receives provides additional environmental benefits, including increased nutrient supply and retention that eliminates the need for application of artificial fertilizers to the farm's fields, and improved moisture retention. These improvements to soil quality, coupled with the resulting increased aeration, have led to outstanding productivity over the last fifteen years, with yields of 250 bushels per acre of corn, 50 to 70 bushels per acre of soybeans, and 90 to 110 bushels of winter wheat per acre. At the same time, Hamman Farms has been able to keep a substantial amount of landscape waste out of Illinois landscape waste disposal sites, and offers a value service to municipalities and waste haulers in their attempts to manage the waste needs of urban and suburban landowners.

The documents in the Land Application Plan which follows (collectively, Group Exhibit A) provide a description of the farm itself, its employees, its equipment, its protocols for handling waste from the moment it arrives at the site to the time it is plowed into the fields, its litter control plan, and its odor control procedures.

# FACILITY OPERATIONS and APPLICATION RATE

## HAMMAN FARMS LLC

1994	Commencement of Operations
2,200 acres	Subject Site owned and/or controlled and farmed by Don & Carol Hamman
2.0 acres	Staging Area for Incoming/Receiving/Processing/Loading
April 1st - January 10th	Approximate Open Season
January 11 - March 31st	Closed
6:00AM - 5:00PM	Receiving Hours - Monday through Friday
6:00AM - 12:00PM	Receiving Hours - Saturday
Daily Processing	All landscape material received is processed and field applied that day

### Employees:

1x General Manager  
 1x Site Supervisor  
 3x Equipment Operators  
 3x Full Time Pickers

### Equipment:

1x Komatsu 470 Wheel Loader (Pushes material to Tub Grinder and loads Spreaders)  
 1x Vermeer Model 700 Tub Grinder (1,000 hp with 400-500 cubic yard/hr capacity)  
 1x Cat 330 Excavator with 8 yard Grapple (loads material into Tub Grinder)  
 2x Morlang 20 yard Spreader  
 1x 9520 (475 hp) John Deere 4x4 Tractor with Case IH 9 shank ecology Chisel Plow  
 1x Case IH (530 hp) Quad Tractor with 10 bottom John Deere Molboard Plow  
 1x Roll-Off box for reject material and picked plastic.  
 1x New 20 yard Spreader (delivery in July)

### Operational Summary:

Landscape material arrives in trailers or trucks during operating hours and is directed to unload at the designated unloading/processing area. Employees pick non-conforming material during the unloading. A rubber tire wheel loader moves material from the unloading area to the processing and/or grinding stockpile. The excavator moves landscape waste from the stockpile into the tub grinder. The tub grinder processes material until it passes through a 5"x5" diamond shaped screen. Processed material is then loaded into spreading trucks that transport and spread material in the designated field. Material is first chisel plowed into the field, then molboard plowed (a 2 step process that fully incorporates the material into the field). The facility supervisor collects load tickets from each driver and notes the area where the material has been applied. A field does not receive more than 1 application per year. Material is not spread within 25 feet of drainage ways to prevent transportation of applied materials into surface waters. Material is processed and field applied the day it is received.

Continued investment in proper equipment allows the site to remain open and fully operational during inclement weather. Pickers/laborers control waste by patrolling the unloading/processing area as well as the fields, ditches, and roads at and near the Subject Site.

### Soil Management and Crop Yield:

Soil Survey literature shows the Subject Site is generally associated with Saybrook-Drummer-La Rose series of soils, so protecting the soil from erosion and increasing its organic matter content are major soil management concerns. Application of processed landscape waste provides several benefits, including increased aeration, nutrient supply and retention; improved moisture retention; and decreased soil erosion. As a result, Hamman Farms has consistently produced crop yields of 250 bushels of corn per acre, 50 to 70 bushels of soybeans per acre, and 90 to 110 bushels of winter wheat per acre.

### Proposed Application Rate

			80 tons/acre		
			Scenario 1 Lighter	Scenario 2 Average	Scenario 3 Heavier
Loads of Landscape Material	(A)		9,387	9,387	9,387 (lds/yr)
Average Cubic Yards per Load	(B)		75	75	75 (cy/load)
Annual Cubic Yards	(C)	(A*B)	704,025	704,025	704,025 (cy/year)
Acres Applied (estimated)	(D)		2,200	2,200	2,200 (acres)
Cubic Yards/Acre	(E)	(C/D)	320	320	320 (cy/acre)
Loads/acre	(F)	(A/D)	4.3	4.3	4.3 (loads/acre)
Average Lbs/Cubic Yard	(G)		400	500	600 (lbs/cy)
Tons	(H)	(C*G)/2000	140,805	176,006	211,208 (tons)
Tons/Acre	(I)	(H/D)	64	80	96 (tons/acre)

## Litter Control Procedures Hamman Farms

Hamman Farms has prepared this Litter Control Plan to develop a standard operating procedure for the acceptance of yard waste materials from miscellaneous landscapers and other transporters to assure compliance with IEPA guidelines. Hamman Farms recognizes the need to establish and enforce a set of guidelines not only for compliance as well establish themselves as a good neighbor. Hamman Farms is committed to enforcing and maintaining the procedures as outlined below.

The Litter Control Plan consists of the following components:

- 1) All parties delivering material to Hamman Farms shall be notified prior to delivery and dumping that litter/general refuse are not acceptable for disposal at this facility. In addition to notifying all parties delivering material to the facility, Hamman Farms shall also notify all employees of the Litter Control Plan.
- 2) **Stage 1.** All loads will be screened by Hamman staff as they are unloaded by the hauler to monitor and catch any unacceptable materials as they exit the vehicle. Any incidental material that is culled from the load as it is being unloaded will be given back to the hauler that delivered the load for return and disposal at a proper disposal facility.
- 3) **Stage 2.** Prior to loading landscape waste into the grinder for processing, a end-loader shall move material to assist spotters looking to pick any litter/general refuse prior to the material being placed in the grinder. Due to the safety concerns here one man will be utilized at this location. Any litter/general refuse collected here will be separated and disposed in a waste receptacle to be delivered to a properly permitted waste disposal facility at least once a week.
- 4) **Stage 3.** All processed/ground landscape waste will be additionally screened for any litter/general refuse prior to being loaded into the spreaders and taken to the fields for application. 1-2 people will be utilized for these screening activities. Any litter/general refuse collected here will be separated and disposed in a waste receptacle to be delivered to a properly permitted waste disposal facility at least once per week.



- 5) Stage 4. Upon application of the material to the fields and prior to being molbard tilled into the ground, additional personnel (2-4 people) shall walk the fields of the applied materials and collect any unacceptable materials that may have gotten through the prior screening processes. (Unacceptable materials are defined as all non-biodegradable materials that measure larger than a softball or 4" by 4" in diameter) Hamman Farms will be responsible in maintaining a 40' radius clean of not more than 5 pieces of unacceptable material at all times.
- 6) Finally, Hamman Farms shall calculate, on a weekly basis, the percentage of non-landscape waste and maintain these records for three (3) years.

## **Odor Control Procedures Hamman Farms**

Hamman Farms has developed multiple features into the operational plan to control and minimize any potential odors off the facility property. Hamman Farms is committed to maintaining the procedures as outlined below.

The Odor Control Plan consists of the following components:

- 1) All vehicles entering the facility tipping area will be directed to the tip area being utilized at that time. All material will be unloaded in the designated area.
- 2) Any incoming load which exhibits an unusually distinct odor will not be stockpiled with other materials in the tipping area, but it will be immediately screened for any litter/general refuse and processed by the grinder and then screened again and loaded onto a spreader and immediately taken to the field for application.
- 3) Upon identifying repeat loads with distinct odors, Hamman Farms will notify the hauler delivering the material of the concern and work to mitigate deliveries in the future.
- 4) Other than specifically identified loads with a distinct odor, all other loads will be continually processed throughout the operating day on a first-in, first-out to the field basis. As such, all materials delivered to the facility will be processed and readied for application to the field daily.
- 5) In addition to daily processing of all materials, all processed materials will be land applied each day. This is above and beyond the current IEPA requirements. (Currently allowed to stockpile for five days)
- 6) In addition to the benefit of daily application is the daily incorporation into the soil. This as well is not required by regulation, but is a management practice incorporated by Hamman Farms to additionally mitigate any potential odors at the facility. Currently these incorporation techniques are two fold: chisel plowing the field and molbard plowing the field to incorporate the material.

- 7) In addition to the above mentioned practices, Hamman Farms will immediately investigate any complaints of odors leaving the property and work diligently to mitigate the concern.

**EXHIBIT B**

**USDA SOIL CONSERVATION SERVICE SOIL SURVEY**

SOIL SURVEY OF  
**Kendall County, Illinois**



*Page*

44439



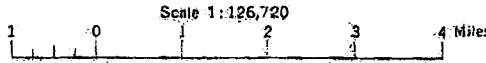
United States Department of Agriculture  
Soil Conservation Service  
In cooperation with  
Illinois Agricultural Experiment Station

DU PAGE  
COUNTY








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U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
ILLINOIS AGRICULTURAL EXPERIMENT STATION  
**GENERAL SOIL MAP**  
KENDALL COUNTY, ILLINOIS

41° 40'



**SOIL ASSOCIATIONS**

-  Plano-Elburn-St. Charles association: Nearly level to gently sloping, well drained to somewhat poorly drained soils that formed in silt loam material and the underlying sandy loam glacial drift
-  Millington-Lorenzo-Fox association: Nearly level, poorly drained soils that formed in silt loam sediment and gently sloping to very steep, well drained soils that formed in dominantly sandy loam to silty clay loam material and the underlying sand and gravel
-  Waupecah-Dresden-Brenton association: Nearly level to gently sloping, well drained to somewhat poorly drained soils that formed in silt loam and loam material and the underlying sand and gravel
-  Strawn-Dodge association: Gently sloping to steep, well drained soils that formed in silt loam material and the underlying loam and silt loam glacial till
-  Saybrook-Drummer-La Rose association: Well drained to poorly drained, nearly level to strongly sloping soils that formed in silt loam material and the underlying silt loam to loam glacial till
-  Drummer-Mundelein-Brenton association: Nearly level, poorly drained and somewhat poorly drained soils that formed in silt loam material and the underlying glacial outwash
-  Swygert-Bryce-Martinton association: Nearly level, somewhat poorly drained and poorly drained soils that formed in silty clay and silty clay loam lakebed sediments

Compiled 1976

TOWNSHIP  
COUNTY

41° 30'

**SECTIONALIZED  
TOWNSHIP**

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

*Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.*

88° 30'

25' 20"

KANE

COUNTY

DE KALB COUNTY

T. 37 N.

DE KALB COUNTY

T. 36 N.

DE KALB COUNTY

T. 35 N.

LA SALLE COUNTY

LA SALLE COUNTY

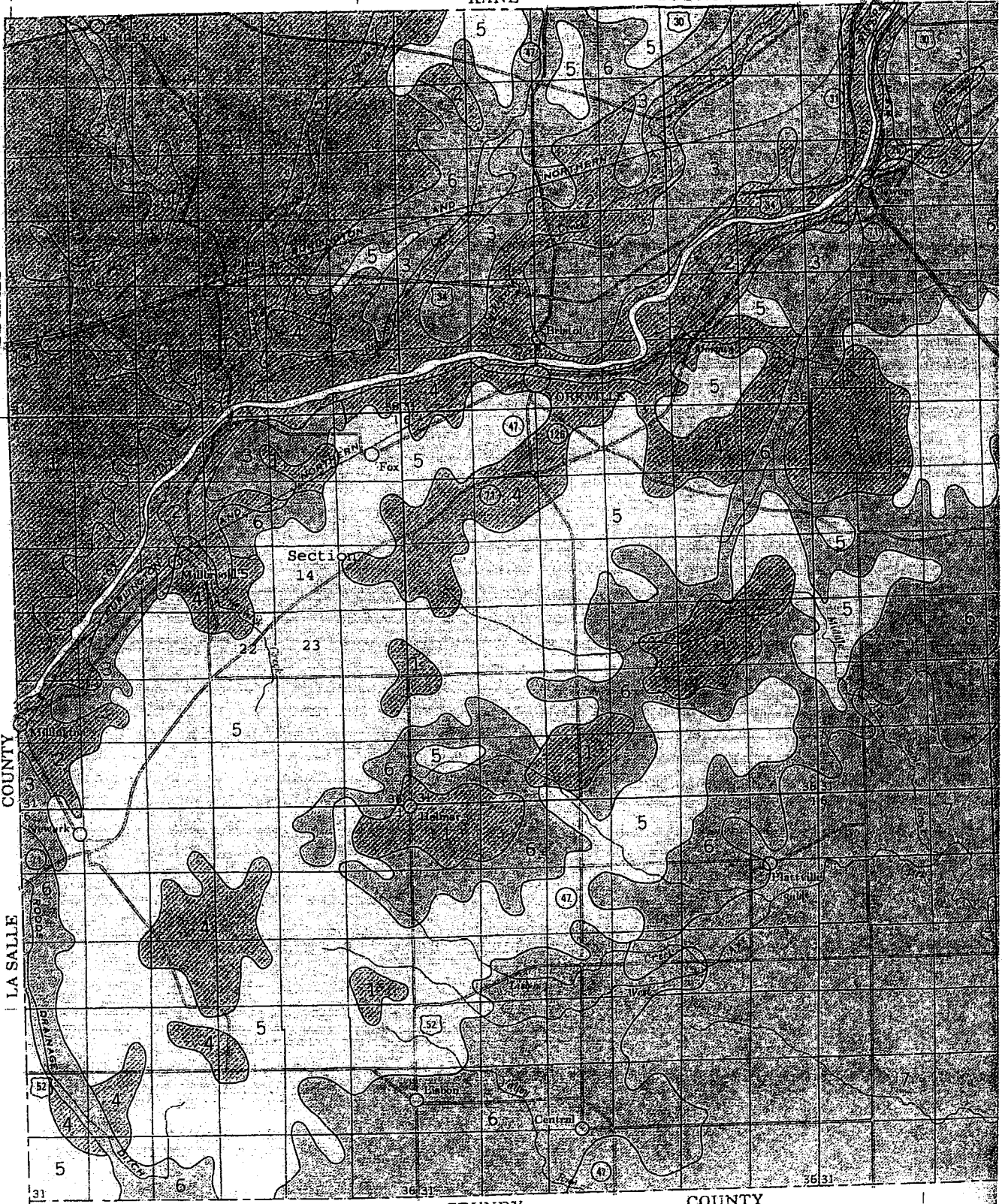
LA SALLE COUNTY

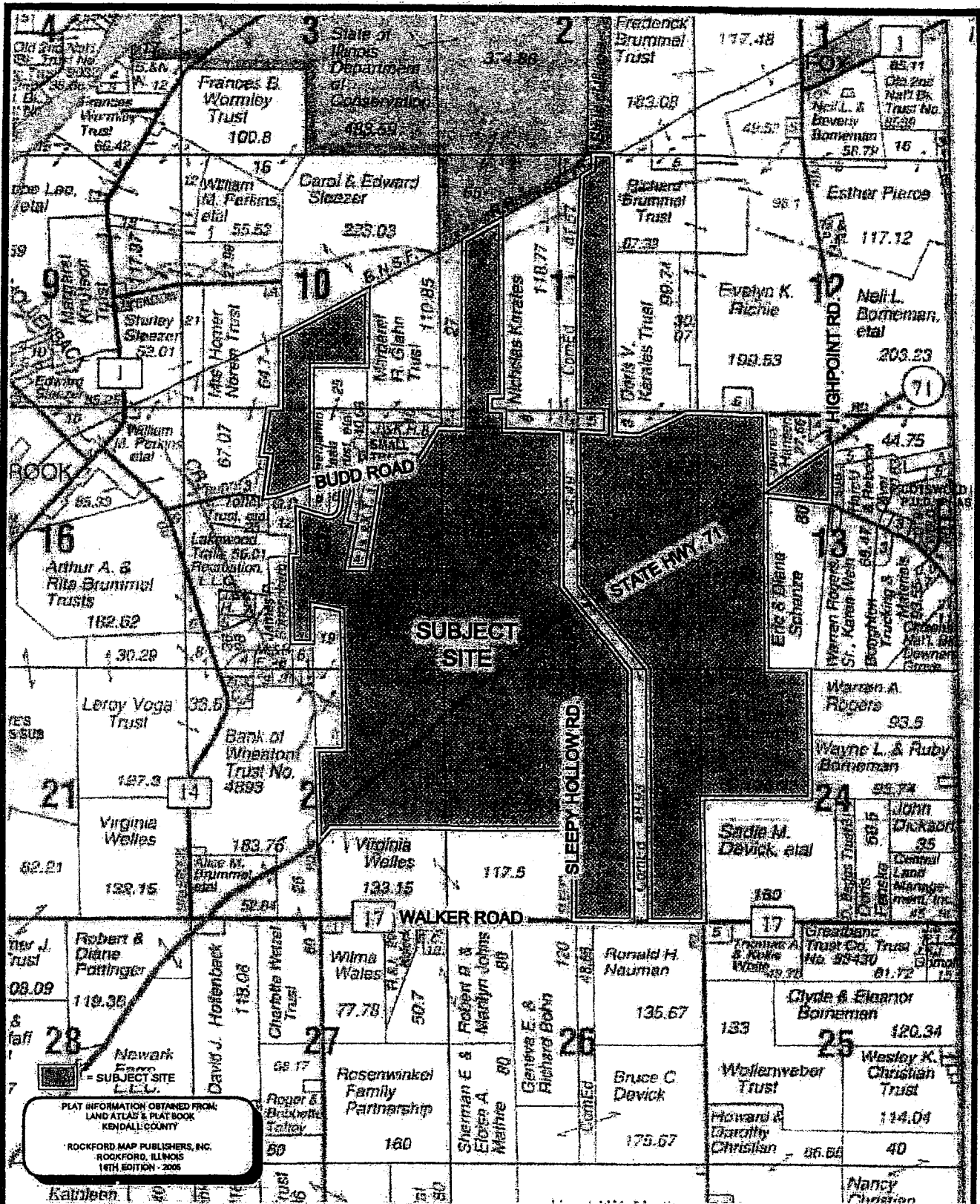
R. 6 E.

GRUNDY

R. 7 E.

GRUNDY COUNTY





PLAT INFORMATION OBTAINED FROM:  
LAND ATLAS & PLAT BOOK  
KENDALL COUNTY  
ROCKFORD MAP PUBLISHERS, INC.  
ROCKFORD, ILLINOIS  
16TH EDITION - 2005

<p>PLAT MAP L-3</p>	<p>SCALE 1" = 200'</p>	<p><b>Lannert Group</b> 215 Fulton Street Geneva, Illinois 60134 (630) 208-8088 Fx (630) 208-8050 tlg@lannert.com</p>	<p><b>FIVE H, LLC.</b> DON HAMMAN 13351 FAXON ROAD PLANO, IL 60545 630-554-9101 630-554-9181</p>	<p>JOBNO: 0535 DATE: 10.19.05 REV: DRAWN BY: TRC</p>
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**EXHIBIT C**  
**CHEMICAL ANALYSIS OF SOIL/COMPOST**

Report Number  
 07-341-5242



13811 'B' Street • Omaha, Nebraska 68144-3683 • (402) 334-7770 • FAX (402) 334-8121  
 DON HAMMAN

**HINTZSCHE FERTILIZER**  
 26181 COUNTY LINE ROAD  
 MAPLE PARK IL 60151-

**FEED NUTRIENT ANALYSIS**

Date Sampled	Received	Reported	Lot #
	12/03/07	12/12/07	9333363

Sample ID: LEAVES  
 Feedstuff: MIXED FORAGE

**ANALYSIS RESULTS**

Component	As Sent	Dry Wt.
Moisture (%)	50.09	//////
Dry Matter (%)	49.91	//////
Sulfur (%)	0.09	0.18
Phosphorus (%)	0.09	0.19
Potassium (%)	0.33	0.66
Magnesium (%)	0.30	0.60
Calcium (%)	1.53	3.07
Sodium (%)	0.04	0.08
Iron (ppm)	1029	2062
Manganese (ppm)	77	155
Copper (ppm)	7	15
Zinc (ppm)	29	59
Total Organic Carbon (%)	16.1	32.3
Nitrogen Total (N) (%)	0.45	0.90

35:1 C/N

**COMMENTS**

1. Mineral analysis performed by ICAP using a wet digest procedure.
2. Midwest Labs uses wet chemistry methods for all forage and feed analyses. Forage and Silage testing methodology follows the National Forage Testing Association (NFTA) recommended methods.
3. Midwest Labs is certified by the National Forage Testing Association (NFTA) for wet chemistry methods and mineral analysis.
4. C/N ratio 35.9
5. Analysis for:  
 (13985) HINTZSCHE FERTILIZER  
 Phone: (630) 557-2406

John P. Torpy  
 Technical Director

*Dedicated Exclusively to Providing Quality Analytical Services*

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MIDWEST LABORATORIES, INC. SOIL REPORT FOR HINTZSCHE FERTILIZER Page 1 of 1

REPORT NUMBER 07-338-0094  
 ANALYSIS DATE DEC 7, 2007  
 ACCOUNT NO 14328

**Midwest Laboratories**

12811 "D" Street • Omaha, Nebraska 68144-0831  
 (408) 634-7770 • FAX (408) 304-8121 • www.midwestlabs.com

PAGE 1/1  
 REPORT DATE DEC 10, 2007  
 COPY TO 2nd COPY TO

HINTZSCHE FERTILIZER  
 GRID ACCOUNT  
 28181 CTY LINE RD  
 MAPLE PARK II,  
 60181.

GROWER  
 HANMAN

**SOIL ANALYSIS REPORT  
 VIEW YOUR SUBMITTAL FORM**

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER		PHOSPHORUS			POTASSIUM	MAGNESIUM	CALCIUM	SODIUM	pH	CATION EXCHANGE CAPACITY	PERCENT BASE SATURATION (COMPUTED)					
				P <sub>1</sub>	P <sub>2</sub>	BICARBONATE P	K	Mg	Ca	Na			SOIL BUFFER INDEX	C.E.C.	% K	% Mg	% Ca	% Na
				WALFLEY BLACK	WALFLEY BLACK	WALFLEY BLACK	WALFLEY BLACK	WALFLEY BLACK	WALFLEY BLACK	WALFLEY BLACK					WALFLEY BLACK	WALFLEY BLACK	WALFLEY BLACK	WALFLEY BLACK
8177780	1	0.5	VH	60	VH	102	VH	800	VH	840	VH	2168	M	7.3	17.6	0.8	29.8	60.4
8177784	2	8.0	VH	68	VH	101	VH	790	VH	874	VH	2178	M	7.3	17.7	11.4	27.0	61.0
8177786	3	8.6	VH	48	VH	82	VH	803	VH	812	VH	2141	M	7.3	17.8	10.1	29.0	60.9
8177790	4	1.0	VH	62	VH	87	VH	808	VH	403	VH	1861	M	6.8	18.0	8.7	25.3	66.0

Sample ID	NITRATE-N (%)				SULFUR S	ZINC Zn	MANGANESE Mn	IRON Fe	COPPER Cu	BORON B	EXCESS LIME RATE	SOLUBLE SALTS	
	Sub 1		Sub 2										Total
	ppm	depth IN	ppm	depth IN									ppm
1	27	48	0-6		40	18	M						
2	32	86	0-6		60	22	H						
3	37	87	0-6		87	23	H						
4	21	38	0-6		35	16	M						

Your cost for this report: \$0.00

@ EAST OF DRIVE  
 1 BLACK  
 2 DARK BROWN  
 WEST  
 3 BROWN  
 4 BLACK  
 AVERAGE SOIL  
 OM 2.5 - 3.5%  
 P<sub>1</sub> 25 - 35 ppm  
 K 150 - 225 ppm  
 Mg 800 ppm -  
 Ca 1500 ppm  
 - PH  
 Our soil  
 5.5  
 2X  
 3X  
 75%  
 150%

**EXHIBIT D**

**CALCULATIONS RE: NITROGEN DEMAND AND EXPECTED NITROGEN AND  
POTASSIUM LOADING**

## Nitrogen Calculations

### Agronomic Nitrogen needs of Corn

#### Target N

Target yield 250 bushels per acre x 1.3 lbs. N per bushel = **325 pounds of N per acre**  
Soybeans using soil nitrogen as a source are able to remove as much nitrogen as corn

#### Contributions from soil organic matter

Soil organic matter content 5.5%

Assume 3% N and 3% decomposition per year

N from soil organic matter =  $0.055 * 0.03 * 0.03 * 2,000,000$  lb soil/acre = **99 lb N per acre**

#### Nitrate nitrogen from soil

Soil tests done determined this amount to be **53 lbs per acre.**

#### Nitrogen from yard waste applied

Target N minus (N from organic matter plus N from nitrate) = N from yard waste applied or fertilizer sources

**$325 - (99 + 53) = 173$  pounds of available N must be applied via yard waste**

Yard Waste target N of 173 pounds per acre

Assume average Total Nitrogen content of yard waste material to be 0.45% as received basis. Total Nitrogen content on an as-received basis is 9 pounds per ton.

Assume 20% of Total Nitrogen is available to crop in first year after application. Higher rates of decomposition may occur dependent upon C:N ratio, particle size of waste, soil moisture, soil temperature, soil pH, soil oxygen, length of time etc. Some of the available nitrogen may be lost to the atmosphere due to denitrification. Therefore, under conditions of this assumption each ton of as-received yard waste contributes 1.8 pounds of available nitrogen.

Application Rate As-received tons/acre	Available Nitrogen in first year after application pounds/acre
20	36
40	72
60	108
80	144
100	180

### **Potassium Calculations**

Corn needs for potassium are 0.28 pounds per bushel or  $(0.28 * 250 \text{ bushels/acre}) = 70$  pounds per acre. Soybean needs for potassium could be twice as much as corn.

Potassium from yard waste

Assume 0.66% potassium content of yard waste material on a dry basis

Assume 50% moisture content (Higher for grass clippings, lower for brush)

Potassium content on an as-received basis 0.33%

Each as-received ton of waste contains 6.6 pounds of potassium. Because of the variability in yard waste, it would be difficult to accurately predict the percent availability of potassium in the first year. Assume 20% breakdown of organic matter and 30-50% of potassium is available in the first year. This value could vary dependent upon C:N ratio, soil moisture, soil temperature, soil pH etc. Therefore, we can assume that 2-3 pounds of potassium per as-received ton may be available in the first year after application.

With the available potassium (very high) in the soil, an application rate of 80-100 tons of yard waste material potassium is likely to accumulate in the soil at levels in excess of crop needs and as evidenced by the soil test report. It would be difficult to balance agronomic needs of all crops. Best management practices for fertilizer applications in Illinois allow application of excess amounts of potassium to meet the needs of two successive crops in a rotation. Excess amounts of potassium should be harnessed by including soybeans, and forage crops in a rotation, combined with routine soil tests, and if needed a break in yard waste application for a year or more in fields that have very high levels of potassium.

**EXHIBIT E**  
**OPINION OF DR. RAZVI,**



# College of Natural Resources

University of Wisconsin-Stevens Point

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February 13, 2008

Mr. Don Hamman  
6275 Rte. 71  
Oswego, Illinois 60543

Dear Mr. Hamman,

I have reviewed the violation notice L-2007-041437 dated November 15, 2007, issued to Hamman Farms by the Bureau of Land of the Illinois EPA. This notice is regarding application of landscape wastes on agricultural land. The referenced violation notice refers to the over application of landscape wastes. I have reviewed the narratives prepared by Mr. Gino Bruni based on field inspections conducted on September 21, and October 17, 2007. I have also reviewed a letter written to you on February 4, 2008 by Mr. McTaggart, District Conservationist of the Yorkville, of the Natural Resources Conservation Service (NRCS). The following is my opinion on the issue of over application of landscape wastes.

The landscape waste application on the Hamman Farms has two primary objectives:

1. To offer a valuable service to landscape waste generators while saving landfill space due to the existence of a landfill ban for this material.
2. Conserve soil while building tilth for better crop yields, minimization of erosion, and environmental protection.

The landscape waste application has allowed this farm to progressively build the soil organic matter and tilth to conserve the soil from eroding, while minimizing or eliminating the use of commercial fertilizers and minimizing the potential negative impact on groundwater and surface water. The organic

matter in a soil offers a continuous single source of all essential crop nutrients available over a long period of time. More organic matter in a soil is better than less organic matter, both for crop growth, and environmental protection. Addition of organic matter minimizes soil erosion especially on Highly Erodable Land (HEL) such as you have on your land. I agree with the assessment made by Mr. McTaggart of NRCS that the application of 20 tons per acre would be sufficient to keep the soil losses at a tolerable level complimenting HEL requirements. In my opinion, any application above the 20 tons per acre is only a compliment to this land and HEL requirements.

Organic matter is continually decomposing material, as a result it is difficult to sustain a high level of organic matter unless there are repeated additions and or greater levels of landscape wastes applied. Recent soil analysis results from soil samples collected from the Hamman Farms suggest that the organic matter in soils receiving landscape waste has



been built up to 5% by weight of the soils plow layer. Similar soils in this region may have half the amount of organic matter. The amount of landscape waste applied has a direct impact on the soil organic matter as well as the amount of plant nutrients it could potentially supply to the crop. Many farmers land-apply adequate organic wastes (agronomic rates) to meet all if not most of their crop's agronomic nutrient needs.

Agonomic rates are generally defined as application rates of nutrients to meet specific crop needs with a certain target yield. These nutrients may be supplied through fertilizer, soil amendments, or waste addition. For landscape wastes 415 ILCS 5/21(q) states "agonomic rates means the application of not more than 20 tons per year, except that the Agency may allow a higher rate for individual sites where the owner or operator has demonstrated to the Agency that the sites soil characteristics or crop needs require a higher rate". In this section of the code it is unclear if the 20 T/acre are dry or wet (as-received) weight. Further, it is clearly demonstrated in other sections of the Illinois Environmental Protection Act as to what the maximum plant nutrient limits (agonomic rates) are for each crop. These agronomic rates are listed in Title 35, Subtitle E, Chapter II Part 560- "Design Criteria for Field Application of Livestock Waste". A parallel set of allowable agronomic nutrient rates are listed in the Illinois Agronomy Handbook – 1997, an authority on agronomic practices. Both the Agronomy Handbook and 35 IAC 560 have more or less similar recommendations for corn and soybeans and in each case the rate is based on bushels of yield for each of these crops.

The Hamman Farms has consistently produced crops with yields of over 250 bushels of corn per acre and 40 bushels of soybeans per acre. In a typical rotation these crops would need on average 240 to 260 pounds of available N, 75 pounds of phosphorus, and 75 pounds of potassium per growing season per acre. Based on chemical analysis conducted by Midwest Laboratories on yard waste material collected on December 5<sup>th</sup>, 2007, a 20 dry T per acre application rate would supply an estimated 72 pounds of nitrogen during the first year, far short of the agronomic nitrogen needs of the corn crop (240 to 260 lb N/acre). The nitrogen, phosphorus, and potassium supplied by a 20 dry T per acre yard waste application rate falls far short of meeting crop nutrient needs. Even lesser amounts of nitrogen would become available if only 20 T (as-received) were applied per acre.

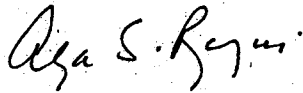
An application of twenty dry tons per acre is equivalent to a two inch deep layer of ground up waste spread on the land surface. Since a two inch deep layer does not quite meet the agronomic needs of the crops serious consideration should be given to application rates that closely match the nutrient needs of crops (i.e., larger than 20 dry T/acre or more than 2 inch deep layer). Such application rates will eliminate the need for the addition of commercial fertilizers to meet crop needs while offering erosion protection benefits from organic matter build up.

I believe that given the IEPA's ability to afford individual sites discretion with the application rates, the IEPA should accept and permit the higher application rate of 80-100 tons (as-received) per acre as considered in my analysis. The crop rotation and subsequent nutrient demand continue to benefit the higher than normal crop yields along with the otherwise HEL (Highly Erodable Land) concerns. Combining the science with the benefits provided to the landscape waste community, the IEPA should have enough

information and to use their discretion to allow a higher application rate as outlined in the Act.

The Hamman Farms' land spreading operation offers a very important alternative to yard waste disposal to the various communities. At the same time this operation conserves soil/water, and minimizes the use of fertilizer. Hamman Farms believes its application rates are well within the agronomic rates published by IEPA and other recognized institutions. We are willing to meet with members of the Land Bureau and offer our point of view on this matter so we can demonstrate that our application rates are well within the "agronomic rates".

Sincerely,

A handwritten signature in cursive script that reads "Aga S. Razvi".

Aga S. Razvi Ph.D.  
Professor of Soil Science  
University of Wisconsin-Stevens Point  
(715) 346-3618