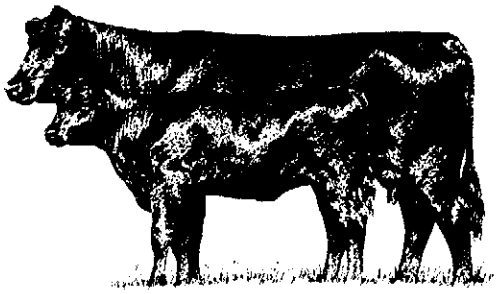
JAKOBS BROTHERS BEEF

BASE FEEDLOT



WHITESIDE COUNTY

COMPREHENSIVE NUTRIENT MANAGEMENT PLAN

2008

EPA COPY

PREPARED BY:

Frank & West

Environmental Engineers, Inc.

7226 North State Route 29~Springfield, IL 62707~Phone: 217/487-7686~Fax: 217/487-7687

Section 1 EQIP Plan Recommendations, Forms, & Quantities

Plan Recommendations for EQIP application & cost-share

Manure & Wastewater Storage & Handling

- Existing feedlot and confinement barn lacks storage capacity, a liquid/slurry tank is recommended for storage.
  Waste Utilization – Practice Code 633

- Roof guttering is recommended for feedlot buildings to direct water away from the feedlot, thus reducing flow into facility storages.
  Roof Runoff – Practice Code 558

- Concrete curbing is needed to direct feedlot runoff to the existing feedlot reception pit.
  Manure Transfer – Practice Code 634

- A new pump and below surface piping is recommended for transfer of the feedlot manure runoff to the proposed liquid/slurry tank.
  Manure Transfer – Practice Code 634

- A new reception pit with pump and below surface piping is recommended for transfer of the confinement manure to the proposed liquid/slurry tank.
  Manure Transfer – Practice Code 634

- A new agitator is recommended to maintain and properly remove a homogenous mixture of manure from the liquid/slurry tank. The agitator will also prevent solids buildup, thus maintaining the designed storage volumes.
  Manure Transfer – Practice Code 634

- A new access road is recommended to provide all weather access to the proposed liquid/slurry tank.
  Access Road – Practice code 560

Land Treatment Practices

- Fields meet t under planned management and cropping rotation. Producer is not planning on installing any new land treatment.

Nutrient Management

- Producer is planning on applying for the waste utilization incentive. Producer would need to implement two of the practices outlined on the following page titled Guidance for Implementation of Waste Utilization Plans. Acreages eligible for waste utilization incentive dollars are estimated on the following pages. Maps for all fields show setbacks from surface waters.
  Waste Utilization – Practice Code 633

Producer Signature

I certify that all information contained within this plan is truthful and accurate to the best of my knowledge.

JAKOBS BROTHERS BEEF
Dave Jakobs

Signature: _____

Date: _____

Waste Utilization Incentive Acreage
Jakobs Brothers, Base Farm

Farm#	Tract #	Field #	Common Name	Acres	2008	2009	2010	2011	2012	Average
6456	2548	1	Base 1	11		11.2				
6456	2548	2	Base 2	39	39.1				39.1	
6456	2548	4	Base 3	56	55.9				55.9	
6456	2548	5,10,11	Base 4	19	18.5				18.5	
6456	2548	3,8, 14-16	Base 5-6	84	84.2				84.2	
6456	2548	6	Base 7	48		47.8				
6456	2548	7	Base 8	18		17.6				
6456	2546, 4446	1,1,12,13,	Base 9	167		27.0	140.3			
6456	4042	1,2	Base 10	182		54.4		181.6		
6456	3365, 1000	1	Stanley	57		57.3				
6456	934	1, 3	Michaels 1	110				110.4		
6456	934	2, 4-6	Michaels 2	44	44.0			44.0		
6456	2549	3, 4, 8	Land Trust 1	289		289.2			175.0	
6456	2367	1-3	Land Trust 2	70	70.3					
6456	2982	1	Land Trust 3	72			71.8		45.1	
6456	2549	2, 9, 10	Land Trust 4	59					59.1	
6456	2549	1, 5-7	Land Trust 5	103			102.6			
6456	2551	1-3	Land Trust 6	131	130.7			130.7		
6456	4447, 2550	1-4	Land Trust 7	139			139.4			
					443	505	454	467	477	469

Attachment 3
Guidance for Implementation of Waste Utilization Plans

To qualify for receiving the Waste Utilization incentive payment, the applicant must have an NRCS approved CNMP that includes the benchmark use of current Waste Utilization practice. Also, the CNMP must outline implementation of the Waste Utilization practices showing **two or more** of the following management **changes. (circle all that apply)**:

1. Fields where manure is or will be applied will have new soil tests if existing soil tests are older than four years. Manure from each storage facility will be tested as close to the planned application dates as possible. Manure application rates will be based on recent soil and manure tests. *(If part, but not all, of this item is currently in place and the applicant will implement the entire item using EQIPdollars, the applicant may get credit for this item as one of the two management changes to qualify for the Waste Utilization incentive payment.)*

2. If waste is currently being applied closer than ¼ mile from a water body, increase the distance between manure application and water bodies by at least 200 feet.

3. Discontinue applying waste within 200 feet of wells, sinkholes, or surface waters.

4. Discontinue applying waste to cropland with slopes greater than 15%.

5. Discontinue spreading waste on frozen or snow-covered soil over 5 percent slope.

6. Install provisions such as contour buffer strips, stripcropping, grass or grass-legume cover or heavy residue cover on lands over 5 percent slope that are receiving manure, to control runoff and pollution so that manure may be spread on frozen or snow-covered soil.

7. Discontinue applying liquid manures to soils with less than 10 inches of at least moderately permeable soil over fractured bedrock, sand, or gravel.

8. Discontinue application of waste on organic soils with a seasonal water table within 1 foot of the surface.

9. Discontinue application of waste on flood plains where flooding occurs more frequently than once in 10 years.

10. Change application method from surface application or immediate incorporation to injection.

11. Discontinue application of waste in areas of concentrated water flow.

12. Change manure management to result in the total nutrient content of the manure being applied to the land to be at least 10% less than the CNMP would allow.
    Examples:
    a. Spread manure on 10% more acres than the minimum allowed in the CNMP. *(Note, the EQIP incentive will apply to the number of acres on which manure is to be spread, not to exceed 10% more than the minimum number of acres required by the CNMP.)*
    b. Adopt an alternative use for the manure (other utilization activities such as composting, etc)
    c. Change nutrient content of the manure to reduce Phosphorus content by at least 10% (ie. Feed management).

NOTE: *Qualifying acres for the Waste Utilization incentive payment include all land where manure is to be applied (owned or controlled by the applicant, or on which the applicant has a contract to apply manure). The Waste Utilization incentive payment cannot be paid on land where "Other Utilization" options are used. "Other Utilization" includes options such as manure being hauled away and land applied by a third party (not the EQIP applicant).*

Section 2 Producer Information

NOTES TO REVIEWERS

MWWSH

The existing facility is a combination of exposed concrete feedlots and confinement barn with below floor partial pits. The facility currently has inadequate volume for waste storage due to a lack of storage facilities and the introduction of fresh waters to the existing storages during precipitation events. A new liquid/slurry tank in combination with a pump, reception pit, below surface piping, curbing and roof guttering will provide the facility with the required storage volume.

Land Treatment

Fields meet t under current management and rotations with the exception of eliminating fall tillage on those areas of the fields that have D slopes. The land treatment portion of this plan outlines several different scenarios based on soil type which meet T. All fields are planned so that they do not exceed soil loss T.

Nutrient Management

Producer has more than adequate acreage available for application of manure. Producer is in a mostly three year corn one year beans or wheat rotation. Producer uses fields that are planted in wheat for land application of solid manure in summer months. Most all fields are planned showing a drawdown of soil test P.

CNMP Documentation Index

1. Manure and Wastewater Handling and Storage

	Documentation	Required for CNMP Planned	Required for CNMP Applied	Location in CNMP Document
	Types of animals and phases of production that exist/will exist at the facility.	X	X	Section 6 & 7
	Numbers of each animal type, average weight, and period of confinement for each phase of production.	X	X	Section 6 & 7
	Total estimated manure and wastewater volumes produced at facility.	X	X	Section 7
	Manure storage type, volume, and length of storage. (Include appropriate geologic investigation reports for planned storage or transfer facilities.	X	X	Section 6 & 7
	Existing/planned transfer equipment, system, and procedures.	X	X	Section 2 & 6
	Animal waste system design information including plan maps and sketches		X	Section 4 & 6
	Operation and maintenance activities		X	Section 10
	Emergency action plan to address spills and catastrophic events.	X	X	Section 8
	Air quality considerations	X	X	Section 10 & 12
	Pathogen considerations	X	X	Section 12
	Animal Mortality	X	X	Section 6 & 12
	Narrative	X	X	Section 6
	List of Components	X	X	Section 1
	List of Estimated Quantities	X	X	Section 1

JAKOBS BROTHERS BEEF Info

To meet Dept. of Ag requirements, you need to:
Soil Test
Take annual manure analyses (at least until stable)
Apply at agronomic rates according to analyses
Obey setbacks
- ***200' from water***
- ***150' from wells***
- ***¼ mi. from residences IF you have to surface apply***
- ***no setback from residences IF injecting***

To meet CAFO requirements:
You do NOT need a NPDES permit, UNLESS you discharge
Your facility should be a "no discharge" facility, EXCEPT in the case of a tanker turnover or accident, or drag hose rupture AND that spill reaches a "navigable water" (navigable is yet to be defined)

You DO NOT have a discharge based on land application (i.e. large unexpected rainfall after an application causes a fish kill downstream), IF you have a nutrient management plan, AND you are following it!

Section 4 Maps of fields and farms

Warranty of Technical Services Provided

I hereby warrant that the technical services I provided as a Technical Service Provider:

1) Comply with all applicable Federal, State, Tribal, and local laws and requirements
2) Meet Applicable USDA standards, specifications, and program requirements,
3) Are consistent with and meet the particular conservation program goals and objectives, and
4) Incorporate, where appropriate, low-cost alternatives that address the resource issues.

Program Participant Information:

Name: Jakobs Brothers Beef, Base Farm

Conservation Program: _____

Technical Service Category: _____

Technical Service: Comprehensive Nutrient Management Plan

Technical Service Provider Information:

Name: Chris West

TSP Number: 04-4217

Signature: C. J. West

Date: 2/13/08

Section 5 Construction Drawings

Jakobs Brothers Farms

Base Farm

All Fields

Aerial Photo

N
W E
S

Legend

Base Farm Fields

4,800

Feet

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Springfield, IL 62707
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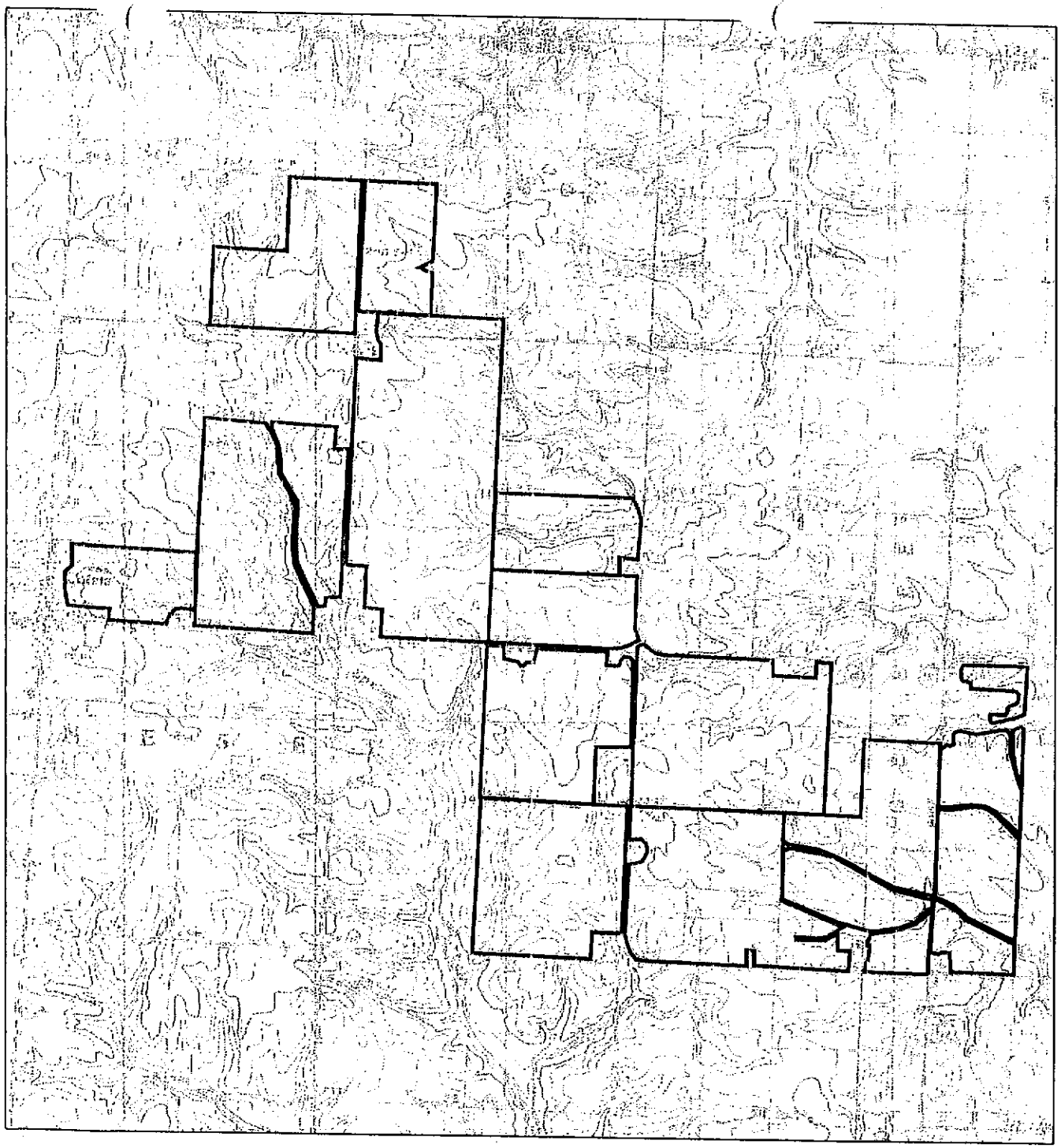
Fax: 217/487-7007



Jakobs Brothers Farms

Base Farm

All Fields

Topo Map

N
W E
S

Legend

Base Farm Fields

4,800

Feet

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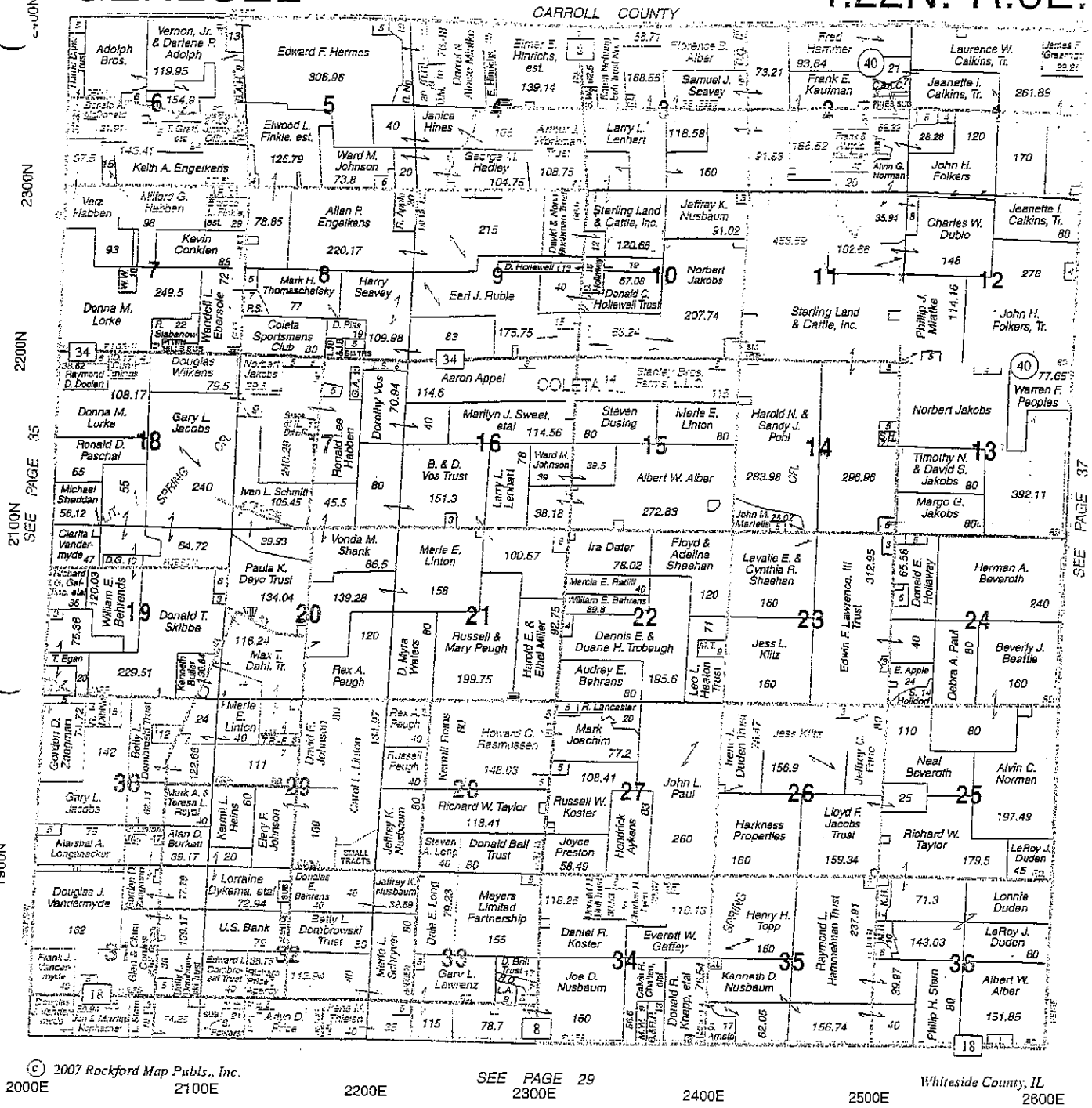
GENESEE

T.22N.-R.6E.



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Base

Modern banking, hometown touch.

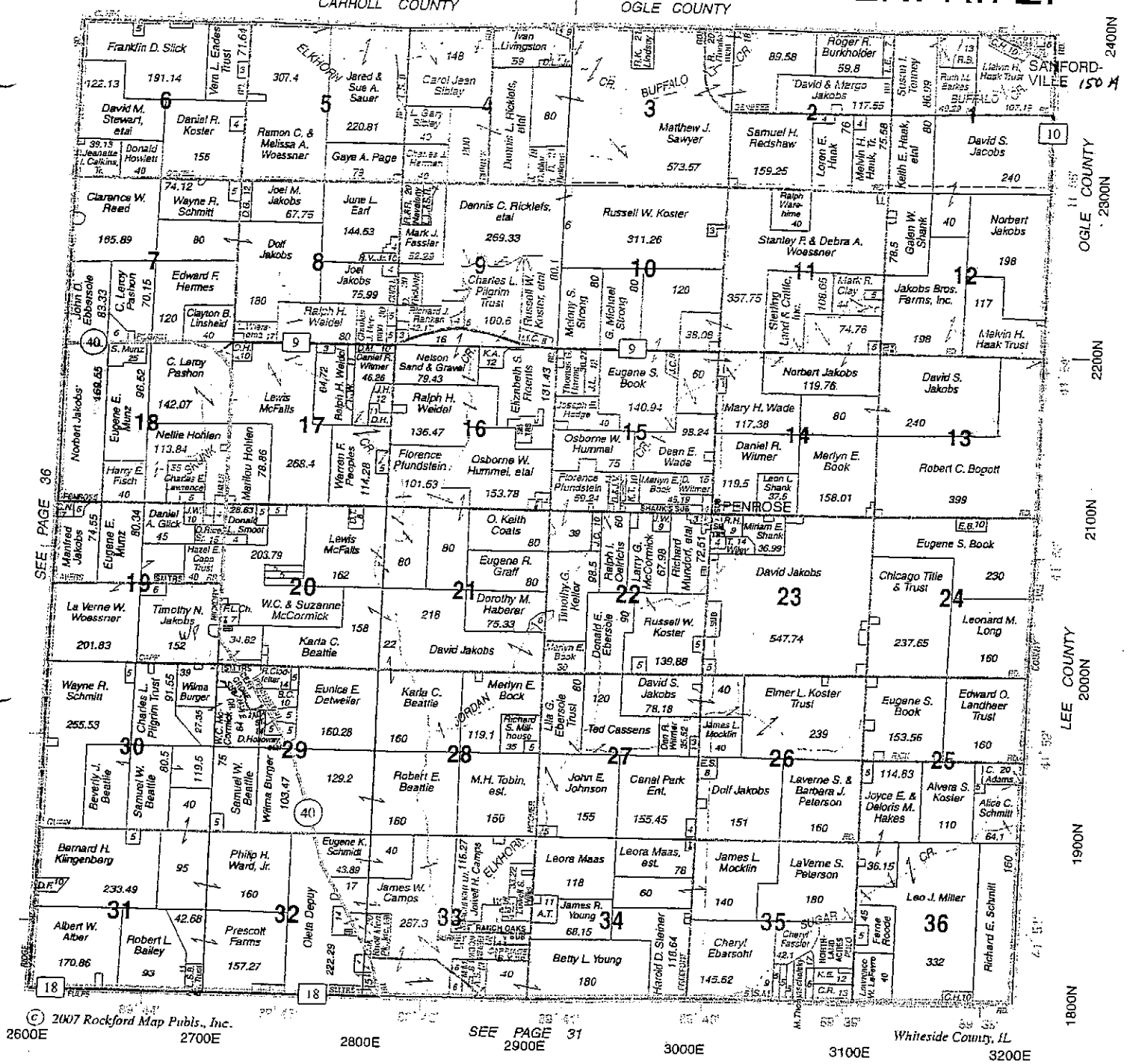
Milledgeville State Bank

451 N. Main Ave. ◆ Milledgeville, IL 61051 ◆ 815.225.7171 ◆ www.milledgevillebank.com

Member FDIC

JORDAN

T.22N.-R.7E.



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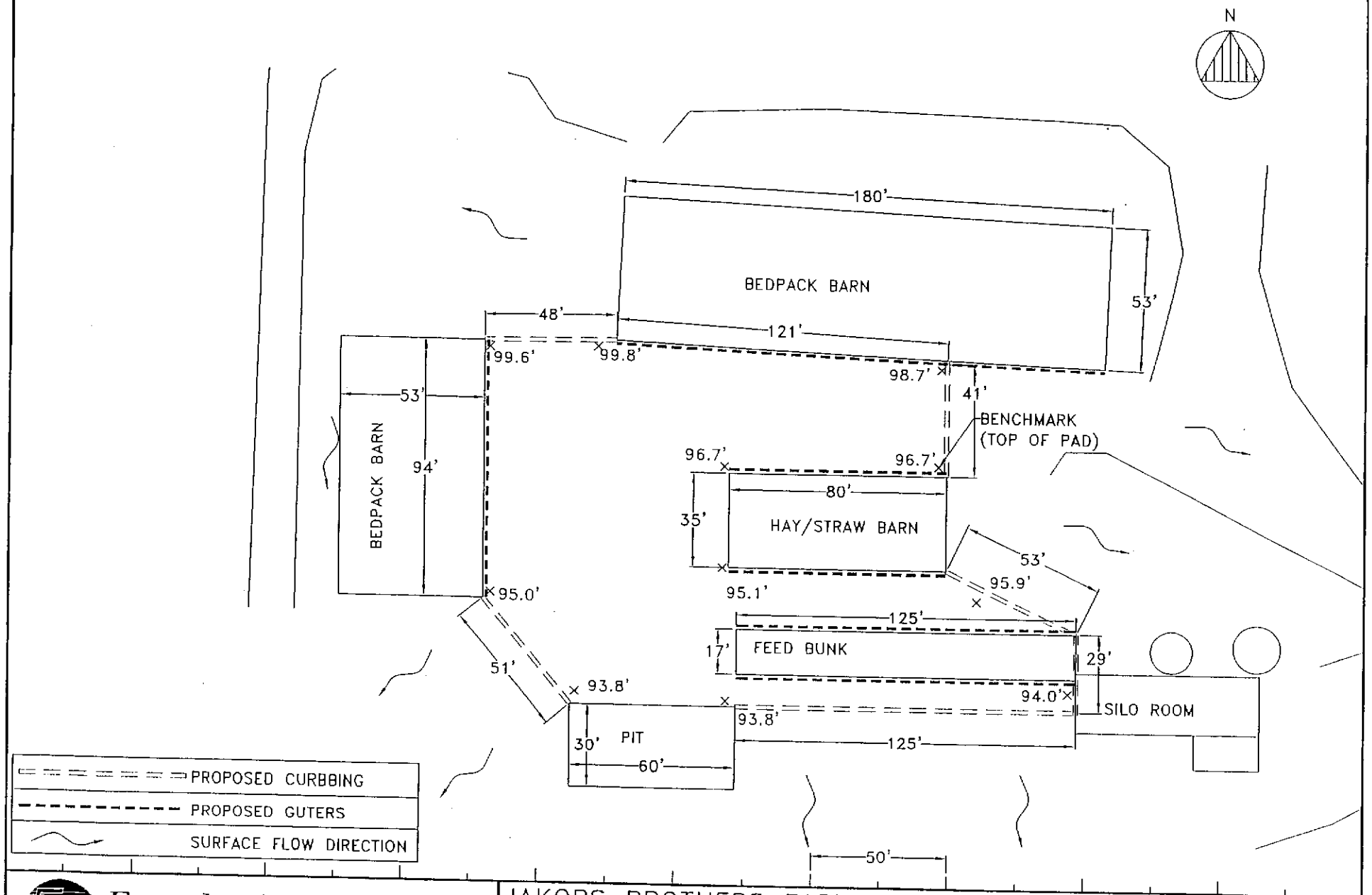
Sterling, IL 61081



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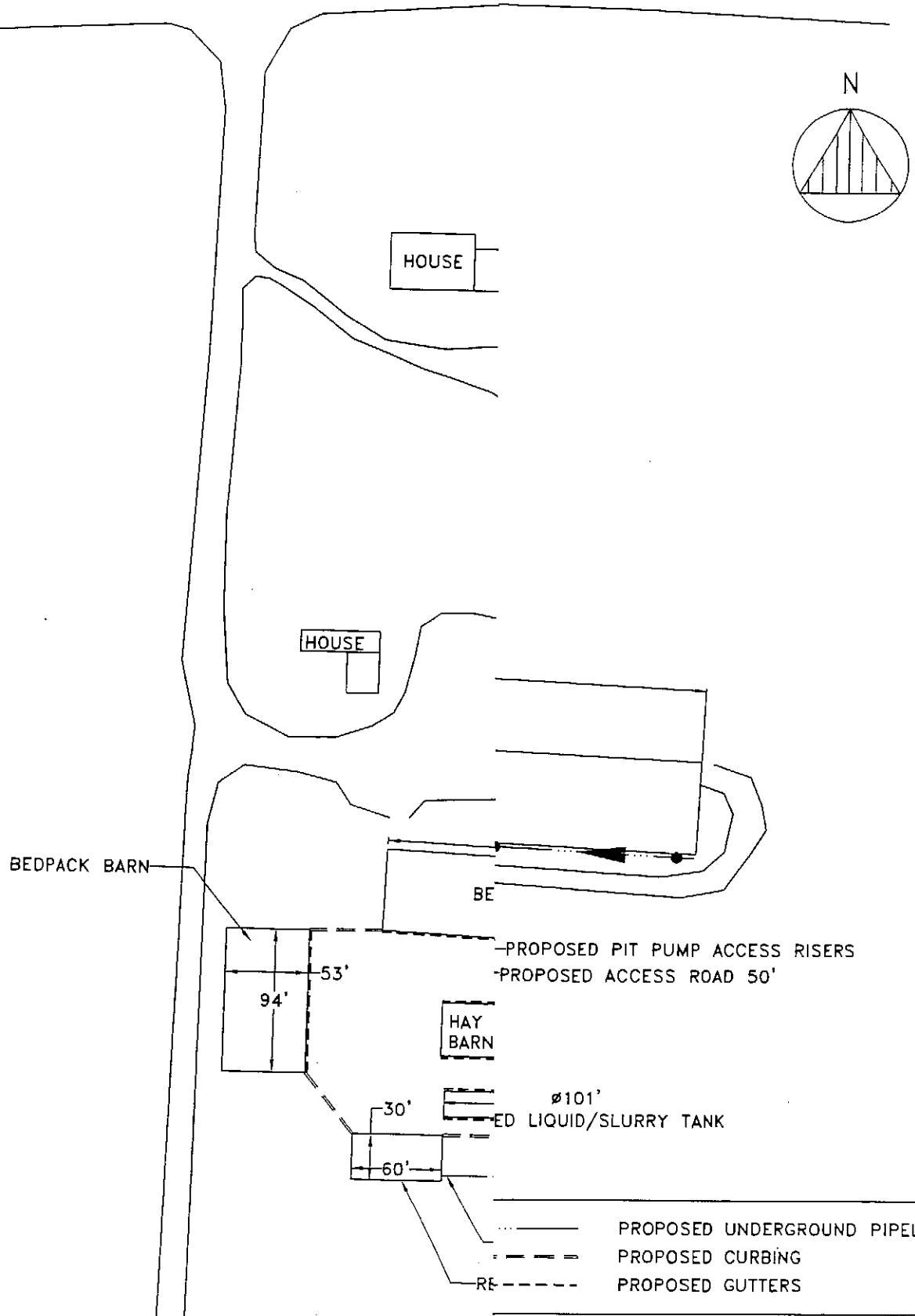
JAKOBS BROTHERS FARMS, INC.
STERLING, ILLINOIS

PLOT PLAN – BASE FEED LOT (PROPOSED COMPONENTS)

DRAWN BY: CEO	SCALE: AS SHOWN	DATE: 02/13/08	DRAWING NO.08-11709



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Section 6 Description of the site, facility pictures, site facility layout, and soils info

Site Information

A. Site Description

Jakobs Brothers Farm currently operate a beef feedlot and confinement facility north of Sterling in Whiteside County, Illinois.

The farm consists of 1,100 head of cattle in a confinement barn with below floor partial pits. The cattle average 900 lbs. The farm also consists of a 20,760 sq. ft. concrete feedlot, all of which is exposed. Two buildings utilizing packed bedding are adjacent to the feedlot. The building dimensions are 180' x 53' and 94' x 53'. These buildings and the feedlot service 250 cattle that average 750 lbs. Currently feedlot runoff is directed into a small concrete reception pit located at the south side of the feedlot. Manure is transferred from the reception pit directly to the application areas frequently.

The facility would like to increase facility manure storage capacity by constructing a liquid/slurry tank. The facility would like to stop all fresh water from entering the manure storage by placing guttering on all roofs adjacent to the feedlot and constructing curbing around the perimeter of the feedlot. In order to transfer manure from the existing reception pit to the liquid/slurry tank, the facility would add a pump and below surface transfer piping. In order to transfer manure from the existing confinement barn to the liquid/slurry tank, the facility would add a reception pit with a pump and below surface transfer piping. An all weather access road is also needed to provide access to the liquid/slurry tank.

In order to maintain a homogenous mix of manure in the liquid/slurry tank, an agitator is needed. This will allow the proper use of manure nutrients and the correct manure application rates.

The facility currently utilizes a rendering service to dispose of mortalities.

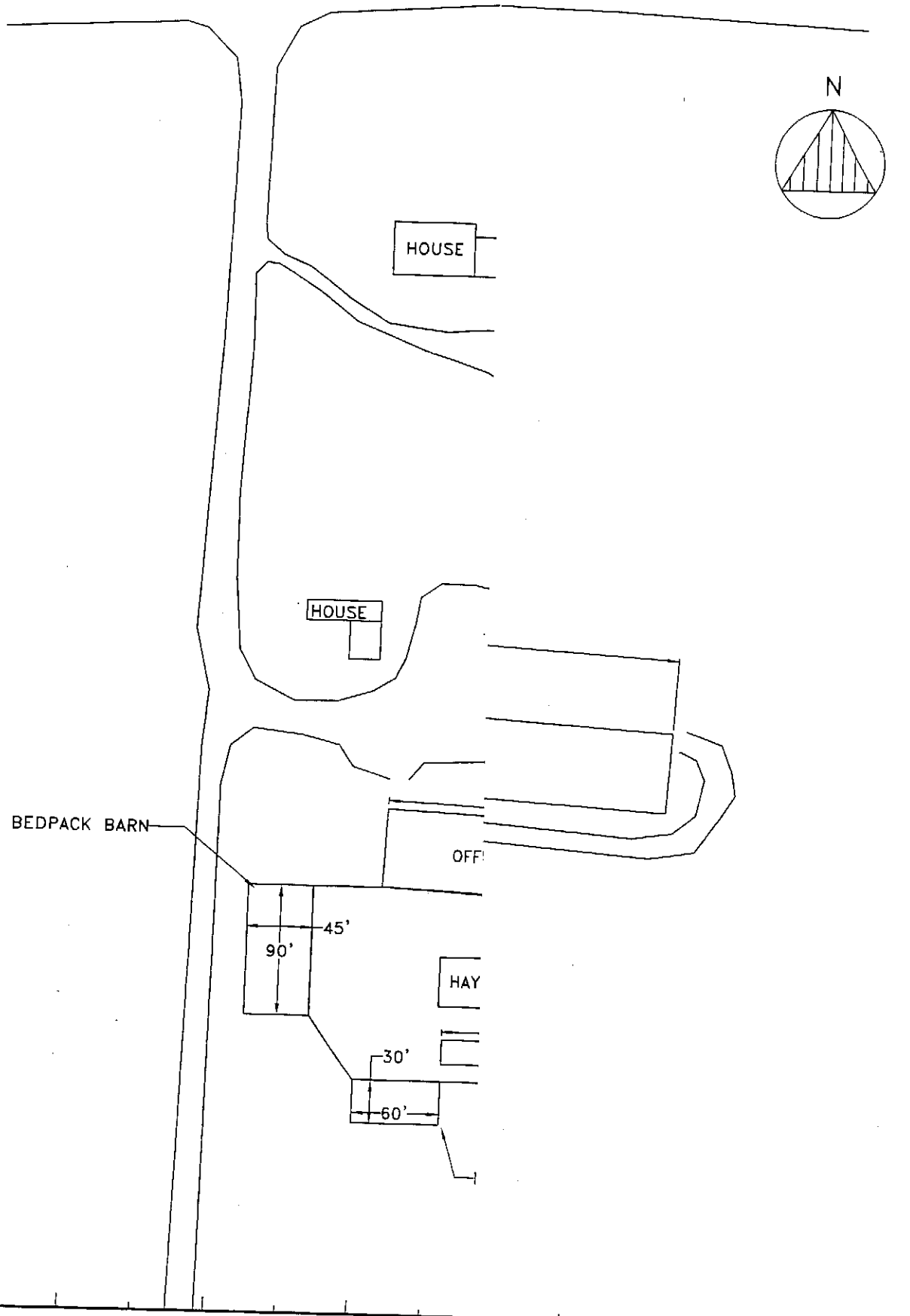
Approximately 1698 acres are available for manure application.

Site soil and geological information is located on the following page.

See site facility layout (plot plan) on the following page. The facility itself is located in the NW quarter of the NW quarter of section 18 in Genesee Township in Whiteside County, Illinois. NW ¼ of the NW ¼ of Section 18, T.22N, R.6E.

Table A-1 Site Soils and Geologic Information			
Soil Type	Soil Name	Hydric Soils Class	High Water Table
51A	Muscatune silt loam 0-2% slopes	B	1.0-2.0ft.
86B	Osco silt loam 2-5% slopes	B	4.0- >6.0ft.
274C2	Seaton silt loam 5-10% slopes	B	> 6.0ft
274D2	Seaton silt loam 10-18% slopes	B	> 6.0ft
279C2	Rozetta silt loam 5-10% slopes	B	4.0- >6.0ft.
280B	Fayette silt loam 2-5% slopes	B	> 6.0ft
280C2	Fayette silt loam 5-10% slopes	B	> 6.0ft
675B	Greenbrush silt loams 2-5% slopes	B	4.0- >6.0ft.
675C2	Greenbrush silt loam 5-10% slopes	B	4.0- >6.0ft.
943D3	Seaton-Timula silt loams 10-18% slopes	B	> 6.0ft
943E3	Seaton-Timula silt loams 18-25% slopes	B	> 6.0ft

Note: Information Obtained from USDA NRCS Whitside Co. EFOTG



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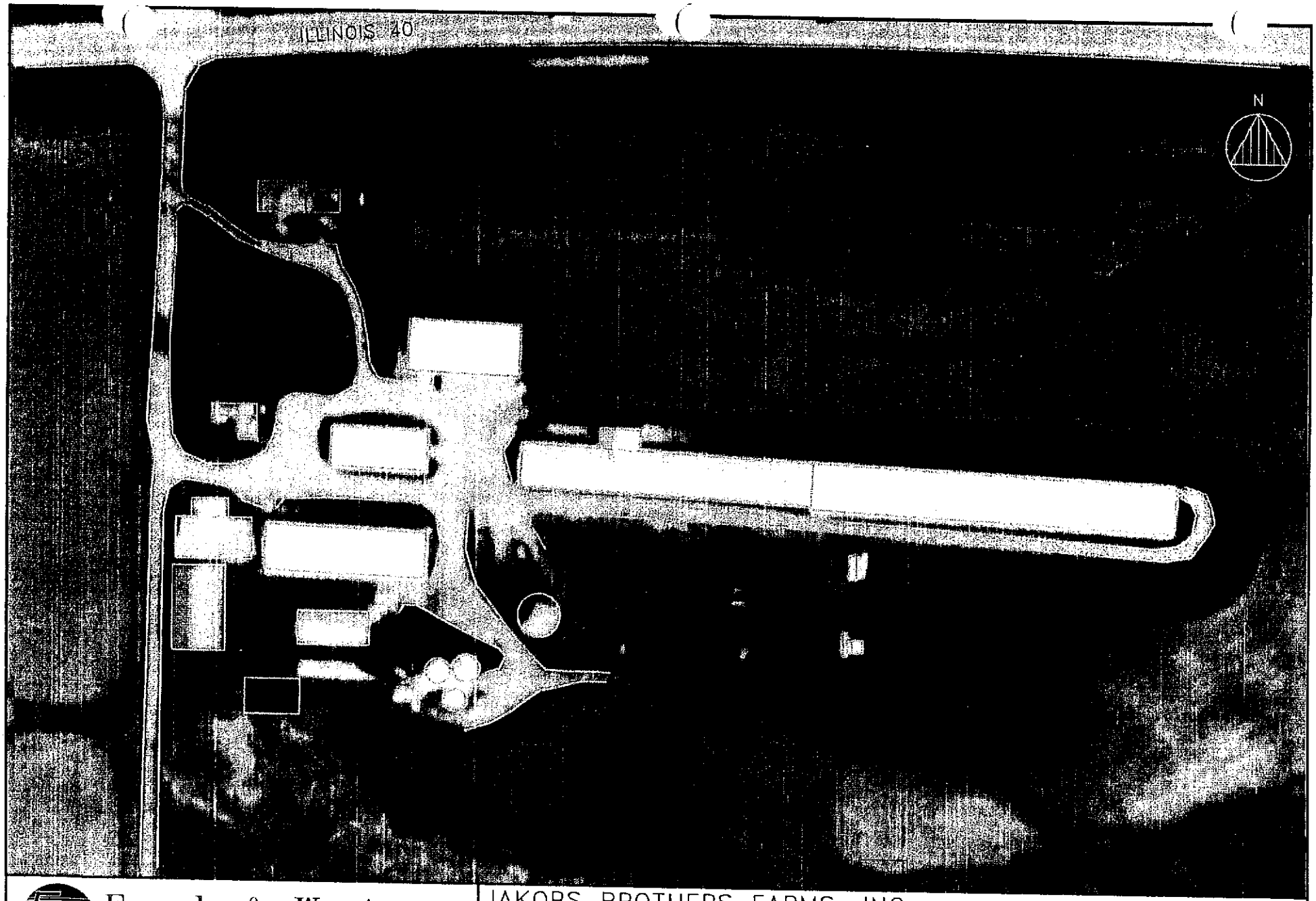

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JAKOBS BROTHERS FARMS, INC.
STERLING, ILLINOIS

PLOT PLAN – BASE FEED LOT

DRAWN BY: CEO	SCALE: AS SHOWN	DATE: 01/15/08	DRAWING NO.08-11701

Section 7 Calculations including facility and storage inventories & waste production

B. Facility Inventories

1. Animals

Table B-1

Animal	No. of Animals	Avg. Size	Animal Units (LMFA)	Animal Units (per 1,000 lbs)
Confinement Cattle	1,100	900 lbs	900	990
Feedlot Cattle	250	750 lbs	250	187.5
Total Animal Units			**1,150**	**1,177.5**

2. Buildings

Livestock Facility Capacity(s)

Table B-2

Facility	Facility Population	Total Square Feet	Storage Facility
Existing Confinement Barn	450	18,036	Partial below floor pit
Existing Confinement Barn	650	25,020	Partial below floor pit
Existing Feedlot and Bedpack Barns	250	20,760	Small Reception Pit

3. Seasonal High Water Table

- See Site Soils & Geologic Information Table (A-1)

4. Livestock Waste Production

Livestock Waste Storages

Table B-3

Storage	Animals	Waste Produced (gal/day or ft^3/day)	Capacity (gal or ft^3)	Storage Days
Confinement Barn	1,100	7000 gal	1,963,126 gal	280
Feedlot*	250	445 gal	14,400 gal	32
Bedpack Barns*	250	129.2 ft^3/day	29,044 ft^3	225

** The facility handles the bedpack as a solid manure and it is not directed into the storage structure. The cattle are kept on the feedlot for 8 months out of the year and it has been assumed that ½ of the manure is in the bedpack and ½ is directed into the manure storage.*

Manure production calculations are detailed on the following pages.

5. Rainfall Volumes & Evaporation from storage facilities

See following page for rainfall & evaporation calculations expected from lots & open storages.

Jakobs Brothers Beef

Base Feedlot

Waste Storage Volume Calculations

DAILY MANURE PRODUCTION	Average (1) Animal Weight (lbs)	Maximum Design Capacity # of Head	Manure (2) Production (cu.ft./day)	Total Manure Volume (cu.ft./day)
Beef - Confinement Building - East	900	450	383	382.5
Beef - Confinement Building - West	900	650	553	552.5
Totals (Year Round Animals)		1,100.0	935.0	935.0
Beef - Feedlot (9)	750	150	107	35.5
Beef - Feedlot (9)	750	100	71	23.7
Totals (Feedlot Animals)		250.0	177.5	59.2
		Total To Proposed Manure Storage		994.2

DAILY MISC. PRODUCTION	Bedding (3) (cu.ft./day)
Beef - Confinement Building - East	0.0
Beef - Confinement Building - West	0.0
Beef Feedlot	35.0
Beef Feedlot	35.0
Totals	70.0

Additional Storage Area				
Storage Area	Storage Area Size	Bedpack/Solid Storage (ft^3)	Storage Area Size	Concrete Pit (liquid Storage)
Beef - Confinement Building - East		n/a	34.3x47.5x8 (7 individual pits)	91,250.0
Beef - Confinement Building - West		n/a	41.25x41.5x10 (10 individual pits)	171,200.0
Beef - Feedlot (10)	180x53x2	19,080.0		
Beef - Feedlot (10)	94x53x2	9,964.0		
Totals (gallons)		217,249.1		1,963,126.0

Feedlot Runoff Volume Calculations	
Surface Area ft^2 (6)	20,760.00
Annual Precipitation (in.) (5)	36.30
Annual Precipitation Volume (ft^3)	62,799
Annual Evaporation (in.)	0.00
Annual Evaporaiton Volume (ft^3)	0
Precip/Evap (ft^3)	62,799
Precip/Evap (gal)	469,768
25 Year/24 Hour Rain Event (in)	5.6
25 Year/24 Hour Rain Event (ft^3)	9,688
25 Year/24 Hour Rain Event (gal.)	72,471

Concrete Pit Volume Calculations 60' x 30' x 10' deep	
Surface Area - @ top (ft^2)	1,800
Surface Area - @ freeboard (ft^2)	1,800
Volume (ft^3) - @ freeboard	14,400
Volume (gal) - @ freeboard	107,719

Proposed Waste Storage Volume Calculations 101' x 23.4' deep	
Surface Area @ top (ft^2)	8,012
Surface Area @ freeboard (ft^2)	8,012
Volume (ft^3) @ freeboard	171,448
Volume (gal.) @ freeboard	1,282,524

Waste Storage Volume Calculations	
Surface Area ft^2	1,800.00
Annual Precipitation (in.) (5)	36.30
Annual Precipitation Volume (ft^3)	5,445
Annual Evaporation (in.)	33.10
Annual Evaporaiton Volume (ft^3)	4,965
Precip/Evap (ft^3)	480
Precip/Evap (gal)	3,591
25 Year/24 Hour Rain Event (in)	5.6
25 Year/24 Hour Rain Event (ft^3)	840
25 Year/24 Hour Rain Event (gal.)	6,284

Waste Storage Volume Calculations	
Surface Area ft^2	8,011.61
Annual Precipitation (in.) (5)	36.30
Annual Precipitation Volume (ft^3)	24,235
Annual Evaporation (in.)	33.10
Annual Evaporaiton Volume (ft^3)	22,099
Precip/Evap (ft^3)	2,136
Precip/Evap (gal)	15,982
25 Year/24 Hour Rain Event (in)	5.6
25 Year/24 Hour Rain Event (ft^3)	3,739
25 Year/24 Hour Rain Event (gal.)	27,968

Design Factors	
Storage Length - Required (days)	150
Storage Length - Actual (days)	370

Feedlot Only				
	Required Volume			
	Daily Manure Volume (cu.ft.)	Daily Misc. Volume (cu.ft.)	Period (days)	Total Volume (cu.ft.)
Manure Storage Volume	994.17	0.00	365	362,872
			Required Volume (cu.ft.)	442,554.1
			Required Volume (gal.) (7)	3,310,534.6
			Actual Volume (gal.) (8)	3,353,369.1

1 - Average Animal Weight obtained from producer.
2 - Manure Storage Volume = # of head x ft^3/day total manure production Livestock Waste Facilities Handbook, Third Edition, MWPS-18 Table 2-1
- The manure production was interpolated from MWPS-18 Table 2-1
3 - Bedding Volume = Based on producer estimate of bedding used. Bedding is stored as bedpack and will be applied as a solid manure to application areas. Will not be directed into proposed Manure Storage.
5 - Precipitation and evaporation obtained from Livestock Waste Facilities Handbook, Third Edition, MWPS-18 Figures 11-7, 11-12b & 11-14.
6 - Surface area for feedlot runoff calculations includes all exposed feedlot areas indicated on the facility plot plan.
7 - Required Volume includes 25 year/24 hour rain event & precipitation/evaporation volumes.
8 - "As Built" Volume includes two feet set aside for freeboard requirement.
9 - Animals are kept on feedlot for 8 months of year and it is assumed that 50% of manure during that time is in bedpack and 50% is directed to the Proposed Manure Storage.
10 - Manure/bedding from feedlot barns will be applied semi-annually as a solid manure to application areas.

Circular Tank

Tank Volume Calculations

Diameter	101
Height	23.4
Freeboard Depth - (D)	21.4
Freeboard Volume - (V) ft^3	171,448
Freeboard Volume - (V) gal	1,282,520
Surface Area (top)	**8,012**
Surface Area (freeboard elev.)	**8,012**

Section 8 Emergency Action Plan

EMERGENCY ACTION PLAN

Contact Names & Numbers - Human Injury

- Facility Name: Jakobs Bros.

- Facility Owner Info:
  Name: David Jakobs

  Number: 815/336-2441

- Facility Address (911):
  31335 Pilgrim Road, Sterling, IL

- Livestock Manager Info:
  - *If different from owner*

  Name:

  Phone:

- Specific Directions to the Facility:

  From : 9 miles north of Sterling on Sterling Road. South side of road.

- Ambulance
  Phone: 911

- Doctor or Physician
  Name:

  Phone:

- Hospital or Medical Clinic
  Name: CGH

  Phone: 815/625-0400

- Fire Department
  Phone: 911

- County Sheriff
  Name: Whiteside Co.

  Phone: 911

- Illinois Poison Center
  Phone: 1-800-222-1222

- Other
  Name:

  Phone:

*Post by all facility **telephones** for reference.*

EMERGENCY ACTION PLAN

Actions, Contact Names & Numbers - Manure Release or Spill

1. **Eliminate Source of Release/Spill.**
   a. Stop the manure application or pumps
   b. Repair defective component of earthen basin/lagoon and fill with compacted clay

2. **Contain the Release/Spill**
   a. If material is in application field construct earthen berms capable of containing release/spill.
   b. If material has reached roadside ditch, creek or stream, create containment dam in ditch or stream to contain the release/spill.
   c. Construct a temporary holding basin down-gradient of release/spill. Take precautions to not damage the embankments while creating the temporary basin(s).
   d. Cap or cover all tile intakes that are within or near site of the release/spill. (Note all covers should be pre-made.)

3. **Report Release/Spill to IEPA** ***(within 24 hours)*** **in the following cases:**
   a. If more than 25 gallons of livestock waste are released/spilled and un-recovered, or
   b. If a release/spill of livestock waste reaches waters of the state

4. **Document Records of Release/Spill**
   a. Note the date and time of the release/spill.
   b. Note the amount of livestock waste associated with the release/spill.
   c. Note the amount of livestock waste recovered from the release/spill.
   d. In the case where the release/spill is collected and land applied, document volumes, rates and locations of land applications.

- **Illinois Environmental Protection Agency – Illinois Emergency Management Agency:**
  24 Hr. Number: 1-800-782-7860

  24 Hr. Number: 217-782-7860

CONTRATORS:

- Earth Moving:
  Name: Tautz, Eric

  Phone: 815/238-4242

- Local Custom Applicator *(if applicable)*:
  Name:

  Phone:

- Local Custom Applicator *(if applicable)*:
  Name:

  Phone:

- Irrigation and/or Pumping Equipment:
  Name:

  Phone:

- Equipment Contractor:
  Name: Chuck Pilgrim

  Phone: 815/626-0227

Post by all facility ***telephones*** *for reference.*

EMERGENCY ACTION PLAN

Actions, Contact Names & Numbers - Partial System Failure

- Electric Co.:
  Name: Common Wealth Edison

  Phone:

- Electrician:
  Name: Terry Glenn

  Phone: 815/225-7201

- LP/Natural Gas:
  Name: Gold Star

  Phone: 800/255-3835

- Plumbing:
  Name: Cory Kendall

  Phone: 815/631-7651

- Ventilation:
  Name:

  Phone:

- Heating:
  Name: Cory Kendall

  Phone: 815/631-7651

- Feed:
  Name: Dekalb Feed

  Phone: 815/625-4546

- Veterinarian:
  Name: Milledgeville Vet Clinic

  Phone: 815/225-7127

- Mortality Disposal:
  Name: National By Products

  Phone: 860/892-5177

- Insurance Carrier:
  Name: State Farm Ins.

  Phone: 815/625-5100

- **IL Dept of Ag, Bureau of Animal Health 24/7 #:**
  Phone: 217-782-4944

CATASTROPHIC DEATH LOSS

1. **Contact renderer**
   a. Arrange for pickup of deads
   b. Make sure that employees & cleanup use appropriate health protections (masks, etc.)
2. **Contact your local vet**
3. **Be in contact with the State Dept. of Agriculture Bureau of Animal Health as needed. (24/7 # provided)**

*Post by all facility **telephones** for reference.*

Section 9 Whole Farm Nutrient calculations

Nutrient Production

Jakobs Brothers, Base Farm

Nutrient Production
Per 1,000 Gal

Type of animal	Gallons or Ton Produced *	Total N	P2O5	K2O	Total N Produced Per Year	Total P2O5 Produced Per Year	Total K2O Produced Per Year
Solid (ton)	730	7	4	7	5,110	2,920	5,110
Liquid (gal)	3,310,304	27	18	24	89,378	59,585	79,447
Whole Farm					**94,488**	**62,505**	**84,557**

* From Waste volume calculation page

Crop Nutrient Need
Per Acre

Crop	Yield	N lbs/ac	P2O5 lbs/ac	K2O lbs/ac	Acres needed based on N produced**	Acres needed based on P2O5 produced***
Corn (following corn or wheat)	200.0	240	86	56	394	727
Corn (following beans)	200.0	200	86	56	472	727
Beans	60.0	0	51	78	n/a	1,226
Wheat	90.0	100	81	27	945	772

***Total N produced/N needed per acre*

****Total P produced/P needed per acre*

Current crop rotation

Crop	Acres	N needed	P2O5 needed
Corn (following corn or wheat)	425	101,880	36,507
Corn (following beans)	425	84,900	36,507
Beans	425	0	21,650
Wheat	425	42,450	34,385
Total	**1,698**	**229,230**	**129,048**

Calculations do not take into account nutrient losses from applciation of waste.

Section 10 Facility Operation & Maintenance Plans

Facility Operation and Management

1. Check backfill areas around facilities often for excessive settlement. Determine if settlement is caused by consolidation, piping or failure of the structure walls or floor. Necessary repairs must be made. Refer to safety items.

2. Check walls and floor often for cracks and/or separations and make needed repairs. Check earth berms and embankments for sloughing, erosion or settlement. Maintain embankment and backfill elevations as specified in the design. Check a minimum of two times a year and when the facility is empty. Maintain design elevation of berms and fill.

3. Outlets of foundation drains should be checked frequently and kept open. The outflow from these drains should be checked periodically when the storage facility is being used to determine if there is leakage from the facility into these drains. Leakage may be detected by the color and smell of the outflowing liquid, by lush dark green growth of vegetation around the outlet, by the growth of algae in the surface ditch or by the vegetation being killed by the outflowing liquid. If leakage is detected, repairs should be planned and made to prevent the possible contamination of groundwater. Refer to safety items when planning and making repairs. Quarterly samples should be collected from foundation drains as required by the Livestock Management Facilities Act.

4. Divert surface water away from the storage facility. Check the channels and berms of the clean water diversions around the barnyard, buildings and storage facility frequently. Channels must be protected from erosion and berms must be maintained at proper height so the diversion channels have adequate capacity. These channels and berms should not be used as haul roads unless they were designed and constructed as haul roads.

5. Check frequently for burrowing animals around buildings, structures, berms and backfill. Remove them and repair any damage.

6. Inspect haul roads and approaches to and from the storage facility frequently to determine the need for stone, gravel or other stabilizing material.

7. Do not allow runoff from loading areas and/or spills to flow into streams or road ditches.

8. Install and maintain a marking or gauge post that clearly shows the design, one-half, and full levels of the facility.

9. Repair or replace any rusted or damaged metal and paint.

10. A good vegetative cover of recommended grasses should be maintained on earth berms and embankments. If the vegetative cover is damaged, it should be reseeded as soon as possible. The vegetative cover should be mowed at least twice a year to control weeds, encourage vigorous growth and discourage rodent activity.

11. Immediately repair any vandalism, vehicular or livestock damage to the facility, the surrounding area, or any appurtenances.

12. Pump-out shall commence when the deep pit facilities are approximately 1' from the bottom of the slats and should continue until the depth is reduced to approximately 1'.

Earthen Storage/Lagoon – Operation & Maintenance

1. Earthen slopes shall be checked for rills and gullies. Seeding shall be as necessary to maintain a grass cover. Weeds shall be controlled. The top of dam and outside slopes shall be mowed annually to discourage weed growth and allow closer examination of the earth embankment. Quickly remove woody vegetation that begins to grow on the embankment to prevent root establishment.

2. Earthen slopes shall be checked for soft or damp/wet areas that may be a sign of potential leakage. Burrowing animals in the slopes shall be controlled. Animals shall be immediately removed and the burrow holes filled.

3. Fencing/gates shall be maintained around the structure to exclude animals and humans at all times.

4. Safety equipment (life buoys, ropes) and warning signs shall be maintained and checked periodically for wear.

5. High traffic areas, such as pump access areas, should be lined with aggregate or concrete if vegetative cover cannot be maintained.

6. Where dedicated agitation areas are established, inspect the bottom for scour holes. Where holes develop, fill with compacted clay, and line the surface with concrete to prevent further scouring. If this does occur, please contact the local NRCS office or a licensed professional engineer for assistance.

7. The maximum operating level in the facility is 2 feet below the low point in the existing embankment that contains the manure and runoff. When this elevation is reached, pump-out should commence as long as soil conditions exist that will allow for infiltration of the manure liquids. Pump-out is not to occur in December, January, or February. Pump-out should not be scheduled if severe or wet weather is a threat. The elevation at which pump-out is to occur shall be marked with a post or other suitable device. Pump-out should begin when average depth is at least 2 feet below top of berm, and end when the facility is at an average depth of 1'.

8. If possible, thoroughly agitate the storage facility one hour before pump-out and during pump-out to ensure uniform distribution of nutrients in manure.

9. Domestic and industrial waste from toilets shall not be discharged into the storage facility (s).

10. In the event of closure or shutdown, where there is no longer a need to manage manure and runoff from this operation, follow a closure plan according to state regulations. Contact the local NRCS office or a licensed professional engineer for assistance.

Nutrient Application Equipment Calibration

Commercial Fertilizer Application Equipment Calibration:
The nitrogen applicator, the commercial broadcast spreaders, and corn planter will be set per the manufacturers recommendations then filled with a known amount and checked over known acreage. Adjustments will be made to achieve the planned rates.

Manure Spreader/Tanker Calibration
There are several methods that can be used to calibrate the application rate of a manure spreader. The two best methods are the load-area method and the plastic sheet method. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to establish a more accurate calibration.

Before calibrating a manure spreader, the spreader settings such as splash plates should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating application rates when overlapping is involved requires measuring the width of two spreads and dividing by two to get the effective spread width.

Calibration should take place annually or whenever manure is being applied from a different source or consistency.

Load-Area Method
The load-area method is the most accurate and can be used for most types of manure handling. This method consists of determining the amount (volume or weight) of manure in a spreader and the total area over which it is applied. The most accurate method to determine the amount of manure in a spreader is to weigh the spreader when it is full of manure and again when it is empty (portable pad scales work well for this). The difference is the quantity of manure applied over the area covered. Spreader capacities listed by the manufacturers can be used to determine the amount of manure in the spreader. However care must be taken when using manufactures spreader capacities. Heaped loads, loading methods and manure type may vary considerably from what is listed by manufacturers of box and side delivery manure spreaders. Spreader capacities for liquid tankers are accurate provided the tanker is filled to the manufactures recommended levels, and no foam is present in the tank.

The area of spread is determined from measuring the length and width of the spread pattern. Measuring can be done with a measuring wheel, measuring tape or by pacing.

The application rate is calculated using the following formula:

Spreader capacity (tons or gallons) X 43560 sq. ft/acre = Application Rate tons or Gallons/Acre Distance traveled X Spreading width

Plastic Sheet Method

The plastic sheet method can only be used with solid or semi-solid manure. This method of calibrating spreader application rates involves 1) cutting a plastic sheet to the specified dimensions (56 inches X 56 inches), 2) weighing the clean plastic sheet, 3) laying out the plastic sheet on the ground and driving the manure spreader (applying manure at a recorded speed and spreader setting) over the sheet, 4) weighing the plastic sheet with the manure on it, and 4) determine the net weight of the manure on the sheet (weight of manure and sheet - weight of the clean sheet), and 5) the net pounds of manure equals tons per acre applied.

When calibrating manure spreaders, all details regarding tractor speed and manure spreader settings and date(s) of each calibration should be recorded with manure application information, and directly on the equipment. Mark equipment to ensure a known application rate is applied each time the referenced tractor speed and spreader settings are used. Manure spreader settings can include such things as: fast and slow settings on some box spreaders, gate position on side delivery spreaders and splash plate position and fill levels on liquid tankers.

Section 11 Facility Safety Recommendations

Facility Safety Recommendations

1. Waste storage facilities must be considered "High Hazard Areas". The biodegradation of waste forms noxious gases such as methane (CH), Hydrogen sulfide (H_2S), ammonia (NH_3) and carbon dioxide (CO_2). This can be fatal to both animals and human beings.

   - **HYDROGEN SULFIDE PARALYZES THE DIAPHRAGM AND THE VICTIM WILL NOT START BREATHING AGAIN WITHOUT ARTIFICIAL RESPIRATION, EVEN AFTER BEING REMOVED FROM THE NOXIOUS GASSES.**

2. Some of these gases can be explosive with the proper gas to air ratio. Use caution with open flames, welding torches and arcs, electrical motors with brushes that spark (skillsaws, electric drills, shop vacs, etc.) when working near waste storage facilities. Be sure the work area is well ventilated.

3. Agitation of liquid manure can release large volumes of these noxious gases. Special care must be taken to provide adequate ventilation during agitation and emptying of the storage facility. If there is a question regarding the adequacy of ventilation, the livestock should be evacuated from the building and the operator should wear an oxygen mask.

4. Operators should avoid working alone during agitating and emptying the facility.

5. A reception pit, tank or other storage facility that has contained liquid/slurry manure should not be entered because gases may remain in the structure. When it is necessary for someone to enter one of the structures for repairs, the following precautions must be taken:

   a. The reception pit shall be ventilated by the use of fans, blowers, etc.

   b. There should be at least two people; one to remain on the outside and one to enter the facility.

   c. The one entering the structure must have a safety line attached so that the "outside" person can pull the victim to safety without entering the facility.

   d. The one entering must have an air mask, which furnishes outside air through an airline and compressor, scuba equipment with air tanks or other means of positively furnished outside air.

e. Gas masks must not be used because they operate on the principle of chemically removing unwanted gases from air so the wearer can breathe safely. In manure facilities, the air has been displaced by the noxious gases and when the gases are removed by the gas mask, the wearer will suffocate because there is no air to breathe.

6. All lids, gates, hatch covers, shields and safety grates to prevent unauthorized entry by people or livestock must be securely in place when tanks and pit openings are left unattended and must be repair immediately when damaged.

7. Never leave a ladder that stands against an above ground waste storage facility unattended.

8. All waste storage facilities must be posted with signs with the following or similar warning:

DANGER - KEEP OUT

THIS IS A WASTE STORAGE FACILITY AND PROLONGED EXPOSURE MAY BE HAZARDOUS TO YOUR HEALTH.

9. Inspect and repair/replace, as needed, all warning and hazard signs.

Section 12 Odor & Pathogen Management

Odor and Pathogen Management

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 affect odor are:

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

1. Animal Cleanliness

a. Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.

b. 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

a. It has been established that there is a correlation between dust and odor emission. Dust particles adsorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.

b. 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.

c. 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:

- If odors from the facility become a concern, consideration can be given to alternatives and additional practices including but not limited to covered anaerobic digesters, and composting facilities.

- Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.

- Consideration should also be 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

Diets 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 the 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. Fly and rodent bait stations and/or boxes should also be utilized to control populations. Check all bait stations regularly and replace when necessary.

Section 13 Sampling procedures for soil and manure testing

Manure Sampling

1. Collecting the Sample

When collecting a manure sample from a storage facility, the most important thin to keep in mind is to collect a sample representative of what will be land applied to the crop. If a livestock operation has more than one storage facility (e.g., a holding pond and a drystack) each unit should be sampled separately (e.g., the producer will need to collect two samples, one to represent each manure type, liquid sample, and a solid sample).

2. Pit Storage Structures (Below Building)
Above Ground Storage Structures (Slurrystore)

Manure samples can be samples prior to applications, after the structure has been agitated to assure a homogenous sample. If agitation cannot be performed, because of gas production and animal welfare, a sample can be obtained from the application equipment or the outlet line on the pump. Three to six samples should be collected from different loads and mixed together to form one composite sample. If it is not possible to collect a sample from the previous two methods, samples should be collected directly from the structure. A sample should be collected at the top, middle, and bottom of the land application event. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottle works well. Consult with the lab directly for specific instructions.

3. Drystacks

The sample sent to the lab from a drystack should be a composite of several sub-samples. Sub-samples should be obtained from about 10 locations within the drystack. The sample locations should vary by depth (from I ft. deep to 3 inches from the bottom) and by position (from the front, back, and sides). After collecting the sub-samples, the material should be mixed in one container to make a homogeneous composite sample. The composite sample sent to the lab should be about one pint. It should be sent in a well-sealed container. Sealable plastic bags work well for relatively dry material, wide mouthed plastic bottles are better for wetter material.

4. Earthen Storages/Holding Ponds

Storages should be sampled immediately before or during land application. The condition of the storage during sample collection should reflect the condition of the storage during land application. If the storage is agitated during land application and is well mixed, one sample will be representative of the entire facility. The agitation time required for the storage facility to become well mixed is dependent on its size and shape and the agitation equipment. Small facilities are usually well agitated after one to two hours. If the facility is not agitated during land application, it will not be well mixed. In this case three samples should be collected; a sample should be collected at the beginning, middle, and end of the land application event. Storage facility samples can be collected from the storage itself, the outlet line on the pump or from the application equipment. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottled works well. Consult with the lab directly for specific instructions.

5. Lagoons

Anaerobic lagoons should be sampled immediately before or during land application. The condition of the lagoon during sample collection should reflect the condition of the lagoon during land application. A minimum of three samples should be collected; a sample should be collected at the beginning, middle, and end of the land application event. Lagoon samples can be collected from the lagoon itself, the outlet line on the pump or from the application equipment. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottle works well. Consult with the lab directly for specific instructions.

6. Sample Transfer

The sample should be mailed or delivered to the lab the day of collection to reduce sample degradation with time. Do not send samples that will not be delivered within one to two business days. For example, do not send on a Thursday and allow it to set in the post office or mail box during a weekend. The sample should be analyzed for total nitrogen, ammonia nitrogen, phosphorus, potassium and total solids. Contact the lab prior to sending in a sample to receive a sample analysis form to mail in with your sample.

Soil Testing Procedures

Soil samples for soil tests should not represent more than 2.5 acres per sample and should be done at least every 3-4 years. Any field not sampled at 2.5 acre frequency should be re-sampled at 2.5 acres grids on the next scheduled soil testing cycle.

Soil sampling depth for P and K shall be 7 inches. Under no-till conditions pH can be tested using the top 4 inches only.

Soil samples shall be collected and prepared according to The Illinois Agronomy Handbook. Soil samples should be taken prior to manure or fertilizer applications. Since manure will typically be applied to soybean stubble during the fall previous to planting corn in the spring, soil tests should be taken in soybean stubble prior to manure application. Wait 9 months after manure or fertilizer applications before soil testing so that unabsorbed nutrients do not affect the results.

The minimum soil analysis for CNMP's should include the following parameters:

- *soil pH,*
- *phosphorus (P as indicated by Bray P1 test)*
- *potassium, (K)*

In addition, Cation Exchange Capacity (CEC), and soil organic matter should be tested to help determine liming and fertilizer recommendations. Soil testing should include analysis for any nutrients for which specific information is needed to develop the nutrient plan.

Soil sample lab reports are filed under each field's individual information.

Section 14 Future Wells

Future Wells

When installing new wells, springs or other potable water sources, due consideration must be given to the distance, grade and location of the waste storage facility to the new water source. The Department of Health, Department of Agriculture and/or Natural Resources Conservation Service should be consulted as to installing new potable water supplies in relation to the waste storage facility.

Section 15 Land Treatment Practices

LAND TREATMENT PRACTICES

Land Treatment Practices Overview

Land treatment practices are to be applied to fields to limit the potential for runoff or other hazardous incidents from occurring due to land application of manure. As part of this element of the CNMP, the RUSLE2 program was run for each of the fields indicated in the plan. The results of RUSLE2 are outlined in the following RUSLE2 reports.

Current Management Practices for Fields in CNMP

The cropland utilized in this CNMP will be in a three or four years continuous corn with soybeans or wheat planted every third or fourth year in the rotation. Planned rotation can be seen in section 22 of this CNMP. Fall chisel plow needs to be eliminated from d slopes in order for fields to meet t most fields are chisel plowed two out of three years on rotation. Produce farms slopes on contour. Summer application of manure is applied to wheat ground and liquid manure is injected. Producer field cultivates in the spring prior to planting. All fields were run using RUSLE2 as outlined below. More comprehensive RUSLE2 reports can also be found in the printed reports on the following pages.

Field	Crop Rotation	Yields	Soil Type	T Value	Soil Loss T
Base 1	C-C-C-B	200-200-200-60	280B Fayett silt loam	5.0	***2.8***
			280C2 Fayette silt loam	5.0	***3.5***
Base 2	C-C-C-B	200-200-200-60	280B Fayett silt loam	5.0	***2.8***
			943D3 Seaton-Timula silt loam	4.0	***3.7***
Base 3	C-C-C-B	200-200-200-60	280B Fayett silt loam	5.0	***2.8***
			279C2 Rozetta silt loam	5.0	***3.5***
Base 4	C-C-C-B	200-200-200-60	280B Fayett silt loam	5.0	***2.8***
			943D3 Seaton-Timula silt loam	4.0	***3.9***
Base 5-6	Continuous Corn	200	675B Greenbush silt loam	5.0	***2.1***
			280C2 Fayette silt loam	5.0	***4.3***
Base 7	Continuous Corn	200	675B Greenbush silt loam	5.0	***2.1***
			280C2 Fayette silt loam	5.0	***4.3***
Base 8	C-C-C-B	200-200-200-60	280B Fayett silt loam	5.0	***2.8***
			943D3 Seaton-Timula silt loam	4.0	***3.9***
Base 9	C-C-C-B	200-200-200-60	86B Osco silt loam	5.0	***1.8***
			279C2 Rozetta silt loam	5.0	***3.5***
Base 10	C-C-C-B	200-200-200-60	86B Osco silt loam	5.0	***1.8***
			279C2 Rozetta silt loam	5.0	***3.5***
Stanley	C-C-C-W	200-200-200-90	675B Greenbush silt loam	5.0	***1.7***
			279C2 Rozetta silt loam	5.0	***4.1***
Michaels 1	C-C-C-B	200-200-200-60	675B Greenbush silt loam	5.0	***2.4***
			943D3 Seaton-Timula silt loam	4.0	***3.9***
Michaels 2	C-C-C-B	200-200-200-60	675B Greenbush silt loam	5.0	***2.4***
			279C2 Rozetta silt loam	5.0	***3.5***

.and Trust 1	C-C-C-B	200-200-200-60	675B Greenbush silt loam	5.0	***2.4***
			279C2 Rozetta silt loam	5.0	***5.0***
Land Trust 2	C-C-C-B	200-200-200-60	675B Greenbush silt loam	5.0	***2.4***
			274D2 Seaton silt loam	5.0	***3.3***
Land Trust 3	C-C-C-B	200-200-200-60	86B Osco silt loam	5.0	***1.8***
			279C2 Rozetta silt loam	5.0	***3.5***
Land Trust 4	C-C-C-W	200-200-200-90	675B Greenbush silt loam	5.0	***1.7***
			675C2 Greenbush silt loam	5.0	***3.6***
Land Trust 5	C-C-C-W	200-200-200-90	675B Greenbush silt loam	5.0	***1.7***
			675C2 Greenbush silt loam	5.0	***3.6***
Land Trust 6	C-C-C-B	200-200-200-60	675B Greenbush silt loam	5.0	***2.4***
			279C2 Rozetta silt loam	5.0	***3.5***
Land Trust 7	C-C-C-B	200-200-200-60	675B Greenbush silt loam	5.0	***2.4***
			943D3 Seaton-Timula silt loam	4.0	***3.9***

All fields meet T with the outlined management & rotations

Land Treatment Practices Current & Planned

Nutrient Management – Code 590 – Animal manures and commercial fertilizer will be applied to land to help meet crop nutrient needs. Soil testing, manure analysis, and record keeping will be performed. *(current & planned- All Fields)*

Waste Utilization – Code 633 - Animal manures will be applied to land in an environmentally acceptable manner to maintain or improve soil, air, water, and plant resources. *(current & planned – All Fields)*

Manure Transfer – Code 634 – Manure will be conveyed using structures, conduit, or equipment in order to transfer manure through a hopper, reception pit, pump, conduit, or hauling equipment to a manure storage facility, loading area, or to agricultural land for final utilization. *(current –& planned – vacuum tanker & dry spreader, planned to add injectors to liquid tanker)*

Subsurface Drain – Code 606 – Use of a conduit installed underground to collect and/or convey drainage water to improve the soil environment for vegetative growth, reduce erosion, and improve water quality by regulating water table and ground water flows, intercepting and preventing water movement into a wet area, relieving artesian pressures, removing surface runoff, prevent leaching of saline and sodic soils, serving as an outlet for other subsurface drains, and regulating subirrigated areas or waste disposal areas, collect ground water for beneficial uses, remove water from heavy use areas, and regulate water to control health hazards. *(none planned)*

Residue Management – Code 329A – Land will be managed so as to distribute crops and residues over the soil surface year-round, and crops will be planted in narrow slots, or tilled residue strips previously untilled by full-width inversion implements to reduce sheet & rill erosion, wind erosion, maintain soil organic matter & tilth, conserve soil moisture, manage snow to increase plant available moisture, reduce plant damage from freezing, and to provide food & cover for wildlife. *(current & planned – All fields – all fields will be reduced tillage)*

Grass Waterway – Code 412 – A natural or constructed channel that is shaped and graded to required dimensions and established with suitable vegetation to convey runoff from terraces, diversions, or other water concentrations without causing erosion or flooding, to reduce gully erosion, or to protect and/or improve water quality in areas where added water conveyance capacity and vegetative protection are needed to control erosion resulting from concentrated runoff. *(Existing land treatment can be seen on the individual field maps.)*

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info: 280C2 soil type 3 years corn 1 year beans (Base 1)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 279C2 Rozetta silt loam, 5 to 10 percent slopes, eroded\Rozetta silt loam 94%
Slope length (horiz): 150 ft
Avg. slope steepness: 7.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00

Contouring: e. relative row grade 10 percent of slope grade
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 3.5 t/ac/yr
Detachment on slope: 3.5 t/ac/yr
Soil loss for cons. plan: 3.5 t/ac/yr
Sediment delivery: 3.5 t/ac/yr
Net C factor: 0.078
Net K factor: 0.42

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		80
4/10/0	Cultivator, field 6-12 in sweeps		60
4/20/0	Planter, double disk opnr	Corn, grain	51
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/30/0	Fert. applic. anhyd knife 30 in		88
11/15/0	Chisel, st. pt. 12 in deep		54
4/10/1	Cultivator, field 6-12 in sweeps		41
4/20/1	Planter, double disk opnr	Corn, grain	35
10/10/1	Harvest, killing crop 30pct standing stubble		95
5/15/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	81
8/30/2	Harvest, killing crop 30pct standing stubble		90
10/20/2	Manure injector, liquid high disturb.30 inch		57
4/1/3	Cultivator, field 6-12 in sweeps		31
4/15/3	Planter, double disk opnr	Corn, grain	23
9/1/3	Harvest, killing crop 30pct standing stubble		94

Soil conditioning index (SCI): 0.41
Avg. annual slope STIR: 46
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 280C2 soil type Continuous Corn (Base 5-6, and Base 7)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 280C2 Fayette silt loam, 5 to 10 percent slopes, eroded\Fayette silt loam 95%
Slope length (horiz): 100 ft
Avg. slope steepness: 8.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00

Contouring: b. absolute row grade 5 percent
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 4.3 t/ac/yr
Detachment on slope: 4.3 t/ac/yr
Soil loss for cons. plan: 4.3 t/ac/yr
Sediment delivery: 4.3 t/ac/yr
Net C factor: 0.069
Net K factor: 0.42

Crit. slope length: 100 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/15/0	Manure injector, liquid low disturb.30 inch		81
4/1/0	Cultivator, field 6-12 in shovels C		50
4/15/0	Planter, double disk opnr	Corn, grain	41
8/30/0	Harvest, killing crop 30pct standing stubble		95
10/30/0	Fert. applic. anhyd knife 30 in		84
11/1/0	Chisel plow, disk, st. pts.		37
4/1/1	Cultivator, field 6-12 in shovels C		26
4/15/1	Planter, double disk opnr	Corn, grain	21
8/30/1	Harvest, killing crop 30pct standing stubble		94
10/30/1	Fert. applic. anhyd knife 30 in		83
11/1/1	Chisel plow, disk, st. pts.		37
4/1/2	Cultivator, field 6-12 in shovels C		26
4/15/2	Planter, double disk opnr	Corn, grain	21
8/30/2	Harvest, killing crop 30pct standing stubble		94
10/30/2	Fert. applic. anhyd knife 30 in		83
11/1/2	Chisel plow, disk, st. pts.		37
4/1/3	Cultivator, field 6-12 in shovels C		26
4/15/3	Planter, double disk opnr	Corn, grain	21
8/30/3	Harvest, killing crop 30pct standing stubble		94
3/15/4	Manure injector, liquid high disturb.30 inch		72
4/1/4	Cultivator, field 6-12 in shovels C		43
4/15/4	Planter, double disk opnr	Corn, grain	36
8/30/4	Harvest, killing crop 30pct standing stubble		95

Soil conditioning index (SCI): 0.33
Avg. annual slope STIR: 69
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 675B soil type 3 years of corn 1 year of beans (Michaels 1, Michaels 2, Land Trust 1, Land Trust 2, Land Trust 6, Land Trust 7)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 675B Greenbush silt loam, 2 to 5 percent slopes\Greenbush silt loam 95%
Slope length (horiz): 150 ft
Avg. slope steepness: 3.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 2.4 t/ac/yr
Detachment on slope: 2.4 t/ac/yr
Soil loss for cons. plan: 2.4 t/ac/yr
Sediment delivery: 2.4 t/ac/yr
Net C factor: 0.082
Net K factor: 0.37

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		80
4/10/0	Cultivator, field 6-12 in sweeps		60
4/20/0	Planter, double disk opnr	Corn, grain	51
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/30/0	Fert. applic. anhyd knife 30 in		88
11/15/0	Chisel, st. pt. 12 in deep		54
4/10/1	Cultivator, field 6-12 in sweeps		41
4/20/1	Planter, double disk opnr	Corn, grain	35
10/10/1	Harvest, killing crop 30pct standing stubble		95
5/15/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	81
8/30/2	Harvest, killing crop 30pct standing stubble		90
10/20/2	Manure injector, liquid high disturb.30 inch		57
4/1/3	Cultivator, field 6-12 in sweeps		31
4/15/3	Planter, double disk opnr	Corn, grain	23
9/1/3	Harvest, killing crop 30pct standing stubble		94

Soil conditioning index (SCI): 0.50
Avg. annual slope STIR: 46
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 675B soil type 3 years of corn 1 year of wheat (Stanley, Land Trust 4, Land Trust 5)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 675B Greenbush silt loam, 2 to 5 percent slopes\Greenbush silt loam 95%
Slope length (horiz): 150 ft
Avg. slope steepness: 3.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Wheat, winter 7in rows	bushels	90.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 1.7 t/ac/yr
Detachment on slope: 1.7 t/ac/yr
Soil loss for cons. plan: 1.7 t/ac/yr
Sediment delivery: 1.7 t/ac/yr
Net C factor: 0.059
Net K factor: 0.37

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		81
4/10/0	Cultivator, field 6-12 in sweeps		63
4/20/0	Planter, double disk opnr	Corn, grain	53
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/25/0	Fert. applic. anhyd knife 30 in		89
10/30/0	Chisel, st. pt. 12 in deep		56
4/10/1	Cultivator, field 6-12 in sweeps		42
4/20/1	Planter, double disk opnr	Corn, grain	36
9/20/1	Harvest, killing crop 30pct standing stubble		95
9/30/1	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter 7in rows	90
6/10/2	Harvest, killing crop 30pct standing stubble		99
7/1/2	Manure injector, liquid high disturb.30 inch		92
10/1/2	Chisel, st. pt. 12 in deep		41
4/1/3	Cultivator, field 6-12 in sweeps		29
4/15/3	Planter, double disk opnr	Corn, grain	24
9/1/3	Harvest, killing crop 30pct standing stubble		95

Soil conditioning index (SCI): 0.64
Avg. annual slope STIR: 65
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 675B Soil Type Continuous Corn (Base 5-6, Base 7)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 675B Greenbush silt loam, 2 to 5 percent slopes\Greenbush silt loam 95%
Slope length (horiz): 150 ft
Avg. slope steepness: 3.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs Cont Corn	Corn, grain	bushels	200.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 2.1 t/ac/yr
Detachment on slope: 2.1 t/ac/yr
Soil loss for cons. plan: 2.1 t/ac/yr
Sediment delivery: 2.1 t/ac/yr
Net C factor: 0.072
Net K factor: 0.37

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/15/0	Manure injector, liquid low disturb.30 inch		81
4/1/0	Cultivator, field 6-12 in shovels C		50
4/15/0	Planter, double disk opnr	Corn, grain	41
8/30/0	Harvest, killing crop 30pct standing stubble		95
10/30/0	Fert. applic. anhyd knife 30 in		84
11/1/0	Chisel plow, disk, st. pts.		37
4/1/1	Cultivator, field 6-12 in shovels C		26
4/15/1	Planter, double disk opnr	Corn, grain	21
8/30/1	Harvest, killing crop 30pct standing stubble		94
10/30/1	Fert. applic. anhyd knife 30 in		83
11/1/1	Chisel plow, disk, st. pts.		37
4/1/2	Cultivator, field 6-12 in shovels C		26
4/15/2	Planter, double disk opnr	Corn, grain	21
8/30/2	Harvest, killing crop 30pct standing stubble		94
10/30/2	Fert. applic. anhyd knife 30 in		83
11/1/2	Chisel plow, disk, st. pts.		37
4/1/3	Cultivator, field 6-12 in shovels C		26
4/15/3	Planter, double disk opnr	Corn, grain	21
8/30/3	Harvest, killing crop 30pct standing stubble		94
3/15/4	Manure injector, liquid high disturb.30 inch		72
4/1/4	Cultivator, field 6-12 in shovels C		43
4/15/4	Planter, double disk opnr	Corn, grain	36
8/30/4	Harvest, killing crop 30pct standing stubble		95

Soil conditioning index (SCI): 0.50
Avg. annual slope STIR: 69
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 675C2 3 years of corn 1 year of wheat (Land Trust 4, Land Trust 5)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 675C2 Greenbush silt loam, 5 to 10 percent slopes, eroded\Greenbush silt loam 91%
Slope length (horiz): 150 ft
Avg. slope steepness: 7.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Wheat, winter 7in rows	bushels	90.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 3.6 t/ac/yr
Detachment on slope: 3.6 t/ac/yr
Soil loss for cons. plan: 3.6 t/ac/yr
Sediment delivery: 3.6 t/ac/yr
Net C factor: 0.055
Net K factor: 0.37

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		81
4/10/0	Cultivator, field 6-12 in sweeps		63
4/20/0	Planter, double disk opnr	Corn, grain	53
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/25/0	Fert. applic. anhyd knife 30 in		89
10/30/0	Chisel, st. pt. 12 in deep		56
4/10/1	Cultivator, field 6-12 in sweeps		42
4/20/1	Planter, double disk opnr	Corn, grain	36
9/20/1	Harvest, killing crop 30pct standing stubble		95
9/30/1	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter 7in rows	90
6/10/2	Harvest, killing crop 30pct standing stubble		99
7/1/2	Manure injector, liquid high disturb.30 inch		92
10/1/2	Chisel, st. pt. 12 in deep		41
4/1/3	Cultivator, field 6-12 in sweeps		29
4/15/3	Planter, double disk opnr	Corn, grain	24
9/1/3	Harvest, killing crop 30pct standing stubble		95

Soil conditioning index (SCI): 0.49
Avg. annual slope STIR: 65
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 279C2 soil type 3 years of corn 1 year of wheat (Stanley)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 279C2 Rozetta silt loam, 5 to 10 percent slopes, eroded\Rozetta silt loam 94%
Slope length (horiz): 150 ft
Avg. slope steepness: 7.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Wheat, winter 7in rows	bushels	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn wheat	Corn, grain	bushels	200.00

Contouring: e. relative row grade 50 percent of slope grade
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 4.1 t/ac/yr
Detachment on slope: 4.1 t/ac/yr
Soil loss for cons. plan: 4.1 t/ac/yr
Sediment delivery: 4.1 t/ac/yr
Net C factor: 0.065
Net K factor: 0.42

Crit. slope length: 150 ft
Surf. cover after planting: – %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		81
4/10/0	Cultivator, field 6-12 in sweeps		62
4/20/0	Planter, double disk opnr	Corn, grain	52
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/25/0	Fert. applic. anhyd knife 30 in		89
10/30/0	Chisel, st. pt. 12 in deep		56
4/10/1	Cultivator, field 6-12 in sweeps		42
4/20/1	Planter, double disk opnr	Corn, grain	35
9/20/1	Harvest, killing crop 30pct standing stubble		95
9/30/1	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter 7in rows	90
6/10/2	Harvest, killing crop 30pct standing stubble		97
7/1/2	Manure injector, liquid high disturb.30 inch		86
10/1/2	Chisel, st. pt. 12 in deep		32
4/1/3	Cultivator, field 6-12 in sweeps		22
4/15/3	Planter, double disk opnr	Corn, grain	18
9/1/3	Harvest, killing crop 30pct standing stubble		95

Soil conditioning index (SCI): 0.37
Avg. annual slope STIR: 65
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 943D3 soil type, 3 years of corn 1 year of beans (Base 2)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 943D3 Seaton-Timula silt loams, 10 to 18 percent slopes, severely eroded\Seaton silt loam 45%
Slope length (horiz): 99 ft
Avg. slope steepness: 13 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	200.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 4.0 t/ac/yr
Soil loss erod. portion: 3.7 t/ac/yr
Detachment on slope: 3.7 t/ac/yr
Soil loss for cons. plan: 3.7 t/ac/yr
Sediment delivery: 3.7 t/ac/yr
Net C factor: 0.029
Net K factor: 0.42

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/15/0	Manure injector, liquid low disturb.30 inch		80
4/15/0	Planter, double disk opnr	Corn, grain	69
9/30/0	Harvest, killing crop 30pct standing stubble		95
11/15/0	Fert. applic. anhyd knife 30 in		89
4/15/1	Planter, double disk opnr	Corn, grain	80
9/30/1	Harvest, killing crop 30pct standing stubble		96
5/10/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	81
9/1/2	Harvest, killing crop 30pct standing stubble		86
11/15/2	Fert. applic. anhyd knife 30 in		60
4/15/3	Planter, double disk opnr	Corn, grain	43
8/30/3	Harvest, killing crop 30pct standing stubble		95

Soil conditioning index (SCI): 0.57
Avg. annual slope STIR: 5.7
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 974D3 soil type 3 years of corn 1 year of beans (Base 4, Base 8, Michaels 1, Land Trust 7)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 943D3 Seaton-Timula silt loams, 10 to 18 percent slopes, severely eroded\Seaton silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 14 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	200.00

Contouring: b. absolute row grade 6 percent
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 4.0 t/ac/yr
Soil loss erod. portion: 3.9 t/ac/yr
Detachment on slope: 3.9 t/ac/yr
Soil loss for cons. plan: 3.9 t/ac/yr
Sediment delivery: 3.9 t/ac/yr
Net C factor: 0.029
Net K factor: 0.42

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/15/0	Manure injector, liquid low disturb.30 inch		80
4/15/0	Planter, double disk opnr	Corn, grain	69
9/30/0	Harvest, killing crop 30pct standing stubble		95
11/15/0	Fert. applic. anhyd knife 30 in		89
4/15/1	Planter, double disk opnr	Corn, grain	80
9/30/1	Harvest, killing crop 30pct standing stubble		96
5/10/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	81
9/1/2	Harvest, killing crop 30pct standing stubble		86
11/15/2	Fert. applic. anhyd knife 30 in		60
4/15/3	Planter, double disk opnr	Corn, grain	43
8/30/3	Harvest, killing crop 30pct standing stubble		95

Soil conditioning index (SCI): 0.56
Avg. annual slope STIR: 5.7
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 280B Soil Type 3 years corn 1 year beans (Base 1, Base 2, Base 3, Base 4, Base 8)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 280B Fayette silt loam, 2 to 5 percent slopes\Fayette silt loam 97%
Slope length (horiz): 150 ft
Avg. slope steepness: 3.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 2.8 t/ac/yr
Detachment on slope: 2.8 t/ac/yr
Soil loss for cons. plan: 2.8 t/ac/yr
Sediment delivery: 2.8 t/ac/yr
Net C factor: 0.082
Net K factor: 0.42

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		80
4/10/0	Cultivator, field 6-12 in sweeps		60
4/20/0	Planter, double disk opnr	Corn, grain	51
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/30/0	Fert. applic. anhyd knife 30 in		88
11/15/0	Chisel, st. pt. 12 in deep		54
4/10/1	Cultivator, field 6-12 in sweeps		41
4/20/1	Planter, double disk opnr	Corn, grain	35
10/10/1	Harvest, killing crop 30pct standing stubble		95
5/15/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	81
8/30/2	Harvest, killing crop 30pct standing stubble		90
10/20/2	Manure injector, liquid high disturb.30 inch		57
4/1/3	Cultivator, field 6-12 in sweeps		31
4/15/3	Planter, double disk opnr	Corn, grain	23
9/1/3	Harvest, killing crop 30pct standing stubble		94

Soil conditioning index (SCI): 0.47
Avg. annual slope STIR: 46
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 86B Soil Type 3 years of corn 1 year of beans (Base 9, Base 10, Land Trust 3)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 86B Osco silt loam, 2 to 5 percent slopes\Osco silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 3.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 1.8 t/ac/yr
Detachment on slope: 1.8 t/ac/yr
Soil loss for cons. plan: 1.8 t/ac/yr
Sediment delivery: 1.8 t/ac/yr
Net C factor: 0.082
Net K factor: 0.28

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		80
4/10/0	Cultivator, field 6-12 in sweeps		60
4/20/0	Planter, double disk opnr	Corn, grain	51
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/30/0	Fert. applic. anhyd knife 30 in		88
11/15/0	Chisel, st. pt. 12 in deep		54
4/10/1	Cultivator, field 6-12 in sweeps		41
4/20/1	Planter, double disk opnr	Corn, grain	35
10/10/1	Harvest, killing crop 30pct standing stubble		95
5/15/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	81
8/30/2	Harvest, killing crop 30pct standing stubble		90
10/20/2	Manure injector, liquid high disturb.30 inch		57
4/1/3	Cultivator, field 6-12 in sweeps		31
4/15/3	Planter, double disk opnr	Corn, grain	23
9/1/3	Harvest, killing crop 30pct standing stubble		94

Soil conditioning index (SCI): 0.54
Avg. annual slope STIR: 46
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS

RUSLE2 Profile Erosion Calculation Record

Info: 279C2 soil type 3 years of corn 1 year of beans (Base 3, Base 9, Base 10, Michaels 2, Land Trust 2, Land Trust 3, Land Trust 6)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 279C2 Rozetta silt loam, 5 to 10 percent slopes, eroded\Rozetta silt loam 94%
Slope length (horiz): 150 ft
Avg. slope steepness: 7.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans	Corn, grain	bushels	200.00

Contouring: e. relative row grade 10 percent of slope grade
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 3.5 t/ac/yr
Detachment on slope: 3.5 t/ac/yr
Soil loss for cons. plan: 3.5 t/ac/yr
Sediment delivery: 3.5 t/ac/yr
Net C factor: 0.078
Net K factor: 0.42

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/30/0	Manure injector, liquid low disturb.30 inch		80
4/10/0	Cultivator, field 6-12 in sweeps		60
4/20/0	Planter, double disk opnr	Corn, grain	51
9/20/0	Harvest, killing crop 30pct standing stubble		95
10/30/0	Fert. applic. anhyd knife 30 in		88
11/15/0	Chisel, st. pt. 12 in deep		54
4/10/1	Cultivator, field 6-12 in sweeps		41
4/20/1	Planter, double disk opnr	Corn, grain	35
10/10/1	Harvest, killing crop 30pct standing stubble		95
5/15/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	81
8/30/2	Harvest, killing crop 30pct standing stubble		90
10/20/2	Manure injector, liquid high disturb.30 inch		57
4/1/3	Cultivator, field 6-12 in sweeps		31
4/15/3	Planter, double disk opnr	Corn, grain	23
9/1/3	Harvest, killing crop 30pct standing stubble		94

Soil conditioning index (SCI): 0.41
Avg. annual slope STIR: 46
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: 274D2 Soil Type 3 years of corn 1 year of beans (Land Trust 2)

File: Plan: Profile (Temp. scenario[1]) of Jakobs Bros Base Farm*
Access Group: R2_NRCS_Fld_Office

Inputs:
Location: Illinois\Whiteside County
Soil: 274D2 Seaton silt loam, 10 to 18 percent slopes, eroded\Seaton silt loam 98%
Slope length (horiz): 120 ft
Avg. slope steepness: 11 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	180.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	180.00
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Soybean, mw 7in rows	bu	60.000
CMZ 04\c.Other Local Mgt Records\Jakobs corn beans without fall chisel	Corn, grain	bushels	180.00

Contouring: b. absolute row grade 6 percent
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: bury 20% more than normal
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 3.3 t/ac/yr
Detachment on slope: 3.3 t/ac/yr
Soil loss for cons. plan: 3.3 t/ac/yr
Sediment delivery: 3.3 t/ac/yr
Net C factor: 0.034
Net K factor: 0.42

Crit. slope length: 120 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
3/15/0	Manure injector, liquid low disturb.30 inch		77
4/15/0	Planter, double disk opnr	Corn, grain	66
9/30/0	Harvest, killing crop 30pct standing stubble		94
11/15/0	Fert. applic. anhyd knife 30 in		87
4/15/1	Planter, double disk opnr	Corn, grain	76
9/30/1	Harvest, killing crop 30pct standing stubble		94
5/10/2	Drill or airseeder, double disk, w/ fluted coulters	Soybean, mw 7in rows	78
9/1/2	Harvest, killing crop 30pct standing stubble		85
11/15/2	Fert. applic. anhyd knife 30 in		59
4/15/3	Planter, double disk opnr	Corn, grain	42
8/30/3	Harvest, killing crop 30pct standing stubble		93

Soil conditioning index (SCI): 0.55
Avg. annual slope STIR: 5.7
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr

Acreage and Proportionate Extent of the Soils

Whiteside County, Illinois

Map symbol	Map unit name	Acres	Percent
51A	Muscatune silt loam, 0 to 2 percent slopes	1,035	0.2
86B	Osco silt loam, 2 to 5 percent slopes	9,330	2.1
274C2	Seaton silt loam, 5 to 10 percent slopes, eroded	10,870	2.4
274D2	Seaton silt loam, 10 to 18 percent slopes, eroded	7,773	1.7
279C2	Rozetta silt loam, 5 to 10 percent slopes, eroded	4,041	0.9
280B	Fayette silt loam, 2 to 5 percent slopes	3,308	0.7
280C2	Fayette silt loam, 5 to 10 percent slopes, eroded	8,044	1.8
675B	Greenbush silt loam, 2 to 5 percent slopes	13,518	3.0
675C2	Greenbush silt loam, 5 to 10 percent slopes, eroded	4,699	1.1
943D3	Seaton-Timula silt loams, 10 to 18 percent slopes, severely eroded	12,086	2.7
943E3	Seaton-Timula silt loams, 18 to 25 percent slopes, severely eroded	7,457	1.7
Total		82,161	18.4

* Less than 0.1 percent.

Base

RUSLE2 Related Attributes

Whiteside County, Illinois

Map symbol and soil name	Pct. of map unit	Hydrologic group	Kf	T factor	Representative value		
					% Sand	% Silt	% Clay
51A:							
Muscatune	95	B	.28	5	5.0	71.0	24.0
86B:							
Osco	90	B	.28	5	4.0	74.0	22.0
274C2:							
Seaton	97	B	.43	5	4.0	77.5	18.5
274D2:							
Seaton	98	B	.43	5	4.0	78.0	18.0
279C2:							
Rozetta	94	B	.43	5	4.0	75.0	21.0
280B:							
Fayette	97	B	.43	5	4.0	75.0	21.0
280C2:							
Fayette	95	B	.43	5	4.0	71.0	25.0
675B:							
Greenbush	95	B	.37	5	4.0	75.0	21.0
675C2:							
Greenbush	91	B	.37	5	4.0	74.5	21.5
943D3:							
Seaton	45	B	.43	4	4.0	77.5	18.5
Timula	40	B	.55	4	3.0	83.0	14.0
943E3:							
Seaton	45	B	.43	4	4.0	78.0	18.0
Timula	40	B	.43	4	3.0	83.0	14.0

Water Features

Whiteside County, Illinois

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
51A:										
Muscatune	B	Low	January	1.0-2.0	>6.0	---	---	None	---	None
			February	1.0-2.0	>6.0	---	---	None	---	None
			March	1.0-2.0	>6.0	---	---	None	---	None
			April	1.0-2.0	>6.0	---	---	None	---	None
			May	1.0-2.0	>6.0	---	---	None	---	None
86B:										
Osco	B	Low	February	4.0->6.0	>6.0	---	---	None	---	None
			March	4.0->6.0	>6.0	---	---	None	---	None
			April	4.0->6.0	>6.0	---	---	None	---	None
274C2:										
Seaton	B	Medium	Jan-Dec			---	---	None	---	None
274D2:										
Seaton	B	Medium	Jan-Dec			---	---	None	---	None
279C2:										
Rozetta	B	Medium	February	4.0->6.0	>6.0	---	---	None	---	None
			March	4.0->6.0	>6.0	---	---	None	---	None
			April	4.0->6.0	>6.0	---	---	None	---	None
280B:										
Fayette	B	Low	Jan-Dec			---	---	None	---	None
280C2:										
Fayette	B	Medium	Jan-Dec			---	---	None	---	None

Water Features

Whiteside County, Illinois

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
675B:										
Greenbush	B	Low	February	4.0->6.0	>6.0	---	---	None	---	None
			March	4.0->6.0	>6.0	---	---	None	---	None
			April	4.0->6.0	>6.0	---	---	None	---	None
675C2:										
Greenbush	B	Medium	February	4.0->6.0	>6.0	---	---	None	---	None
			March	4.0->6.0	>6.0	---	---	None	---	None
			April	4.0->6.0	>6.0	---	---	None	---	None
943D3:										
Seaton	B	Medium	Jan-Dec			---	---	None	---	None
Timula	B	Medium	Jan-Dec			---	---	None	---	None
943E3:										
Seaton	B	High	Jan-Dec			---	---	None	---	None
Timula	B	High	Jan-Dec			---	---	None	---	None