

SITE ASSESSMENT

For Large Livestock Operation Proposals (300 Animal Units or more)

Purpose

The set up, or expansion, of a livestock operation that has 300 Animal Units or more is subject to [Part 7 of The Planning Act](#). This includes consideration as a conditional use by the municipal council or planning district board. It also includes a review by the Technical Review Committee (TRC) appointed by the Minister of Local Government. The [Technical Review Committee Regulation](#) requires a site assessment to help the committee do its review and allow people who will be affected by the livestock operation to comment on the proposal.

Description of Operation

Operation name: Meadow Lane Colony

Operation location (project site): S¹/₂ 34-11-1w

Rural Municipality (RM) of Rosser

Legal description: section, township, range or river lot(s)

Sw 34-11-1w

Municipal tax roll number(s) 0002800 .000

Show the location of the operation (project site) on a location map. (See [Location Map](#) for example).

For help with mapping, contact your [Community and Regional Planning Regional Office](#).

Location Map attached

For links to resources, click on the [highlighted underlined items](#).

For definitions, click on the [Glossary of Terms](#).

For additional help, contact the [Technical Review Coordination Unit](#).

R.M. OF ROSSER

MAP REVISED

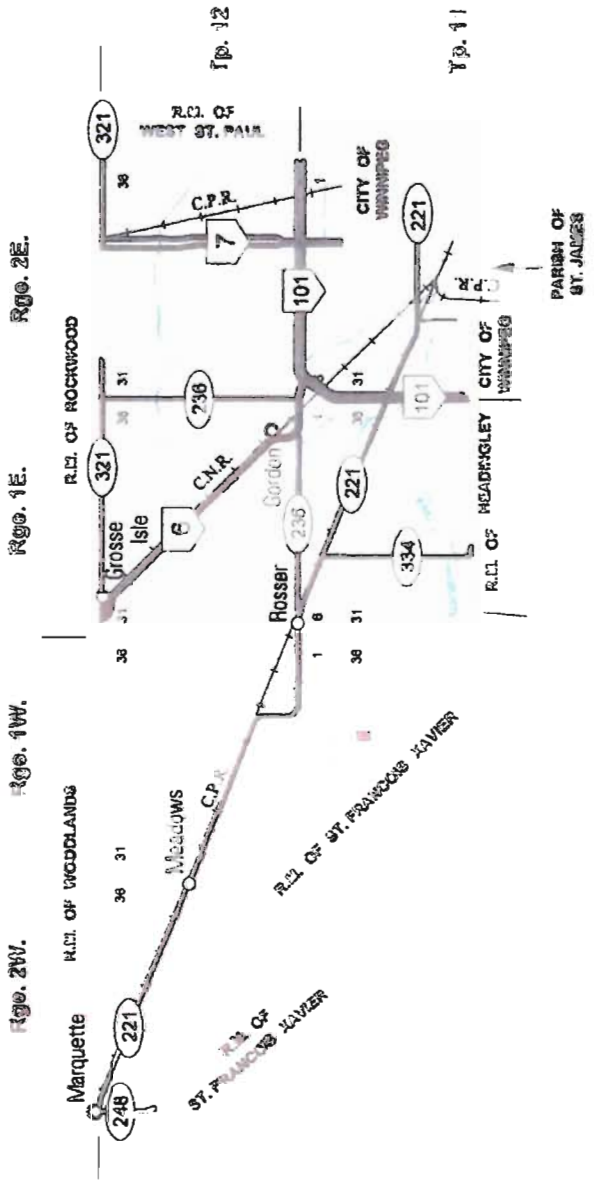
MANITOBA
TRANSPORTATION AND GOVERNMENT SERVICES
HIGHWAY PLANNING AND DESIGN BRANCH
DRAFTING SECTION
WINNIPEG
FEBRUARY, 2003



0 5
SCALE IN KILOMETRES

LEGEND

- PROVINCIAL TRUNK HIGHWAYS
- PROVINCIAL ROADS
- ACCESS ROADS
- RAILWAYS



Nature of Project New operation Expansion of existing operation

State if any existing buildings will be replaced or demolished. If existing buildings will be reused, state how they will be reused.

Proposed Type and Size of Operation

State the proposed type and size of the operation. (See [Animal Units Calculation Table](#).)

Type of operation (Column B from Animal Unit Calculation Table)	Existing number of animals (Column C from Animal Unit Calculation Table)	Total Animal Units (Column F from Animal Unit Calculation Table)
Broilers	60,000 Proposed	300
LAYERS	20,000 Proposed	166

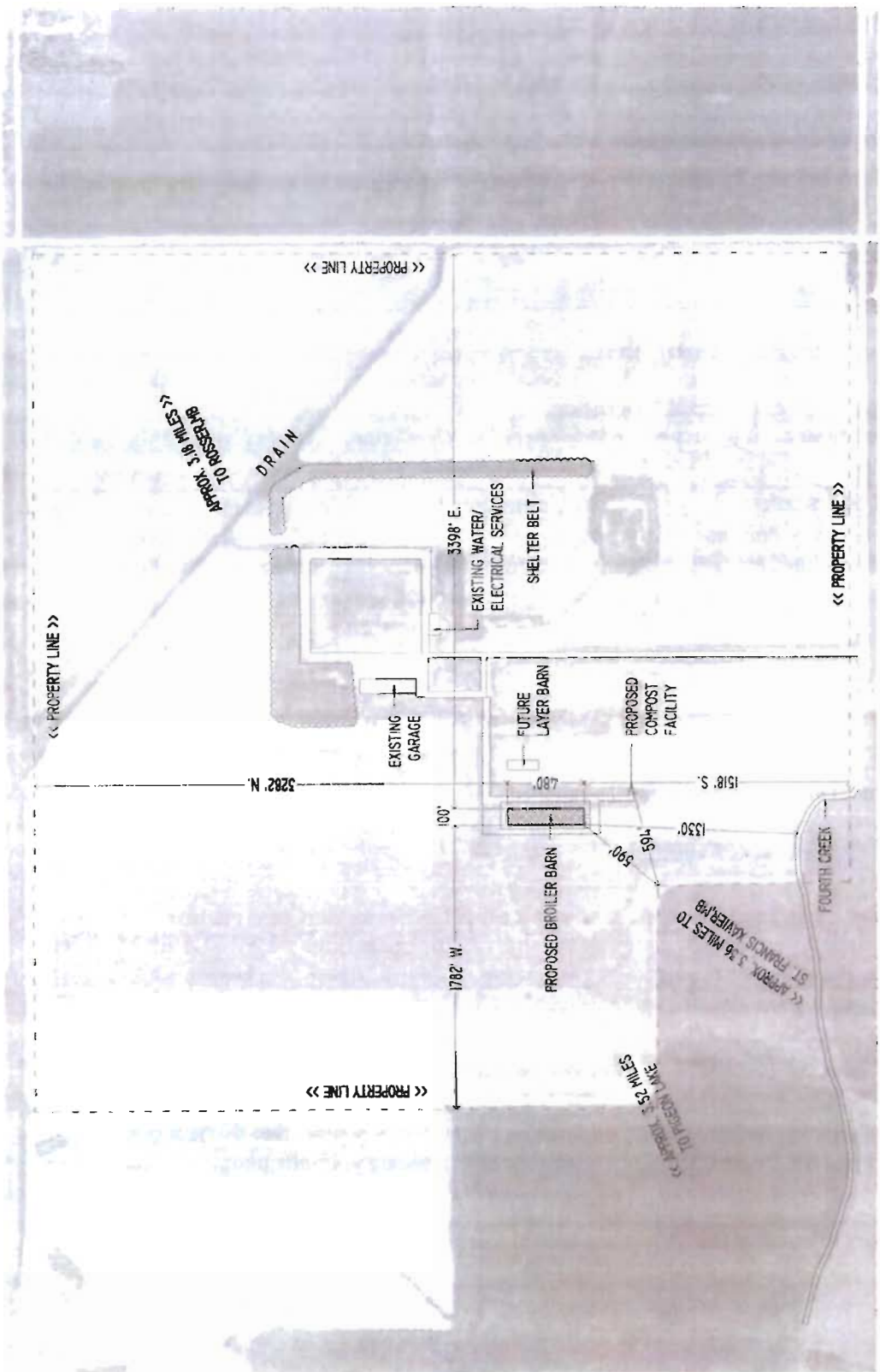
 Animal Units Calculation Table attached**Animal Confinement Facilities**

To ensure a confined livestock area can be built in a way that ensures the environment is protected, a permit is required for operations with 300 Animal Units or more. Permits are required by the [Livestock Manure and Mortalities Management Regulation](#), under *The Environment Act (MR 42/98)*.

Type of housing: barn outdoor seasonal feeding area feedlot

Show all existing and proposed buildings on the project site plan. See [Project Site Plan example](#) and the Project [Site Plan Guide](#) for help creating your site plan.

 Project Site Plan attached



PROJECT NAME	MEADOW LAKE COLONY	PLANNING NO.	TOTAL AREA = 48,000 SQFT
DATE PLO	SW 34-11-1W	DESIGNED BY	R. FLORES
DATE REVISION	MARCH 2013	CHECKED BY	SOUTH-MAN ENGINEERING
DATE NOTED	AS NOTED	DATE PLO	SP-1

THIS DRAWING IS THE PROPERTY OF SOUTH-MAN ENGINEERING, A FLORIDA CORPORATION.

Animal Units Calculation Table

Animal Type	Type of Operation	Existing Number	Proposed Additional Number	Animal Units per Head	Total Animal Units	Annual Confinement Period (Days)
Dairy	Cows - milking cows			2	-	
	Beef cows including associated livestock			1.25	-	
Beef	Backgrounder			0.5	-	
	Summer pasture / replacement heifers			0.625	-	
	Feeder cattle			0.769	-	
	Sows - farrow to finish (234-254 lbs)			1.25	-	
Pigs	Sows - farrow to weanling (up to 11 lbs)			0.25	-	
	Sows - farrow to nursery (51 lbs)			0.313	-	
	Boars (artificial insemination units)			0.2	-	
	Weanlings, Nursery (11-51 lbs)			0.033	-	
	Growers / Finishers (51-249 lbs)			0.143	-	
	Chickens	Broilers		60,000	0.005	300.00
Roasters				0.01	-	
Layers			20,000	0.0083	166.00	365
Pullets				0.0033	-	
Broiler breeder pullets				0.0033	-	
Broiler breeder hens				0.01	-	
Turkeys		Broilers			0.01	-
	Heavy Toms			0.02	-	
Horses	Heavy Hens			0.01	-	
	Mares			1.333	-	
Sheep	Ewes			0.2	-	
	Feeder lambs			0.063	-	
Other Livestock	Type:				-	
	Type:				-	
				Total AUs	466.00	730.00

For all other livestock or operation types please inquire with your Manitoba Agriculture, Food and Rural Initiatives GO office to determine the animal units per head.
www.gov.mb.ca/agriculture/contact/agoffices.html

Environmental Farm Planning

Environmental farm planning is a voluntary, confidential self-assessment process designed to help farm managers identify the environmental strengths and weaknesses of their operations.

Do you have an Environmental Farm Plan yes no **NEW DEVELOPMENT**

Water**Project Sites Unsuitable for Development**

To protect water quality, the Nutrient Management Regulation (MR 62/2008), under *The Water Protection Act*, prohibits the set up or expansion of nutrient generating facilities in Nutrient Management Zone 4 (Agriculture Capability Class 6, 7 and unimproved organic soils) and Nutrient Buffer Zones. This includes barns, confined livestock areas and manure storage facilities

The Nutrient Buffer Zone is an area of land along water bodies (ex: rivers, lakes, streams, drains) that varies, depending on the waterway.

The proposed barn and/or manure storage facility:

is
is not

located within Nutrient Management Zone 4 (Class 6, 7 and unimproved organic soils) or any Nutrient Buffer Zone.

Determine the agriculture capability class (es) of the project site, and its limitations. (See Agri-Maps.)

Water Source

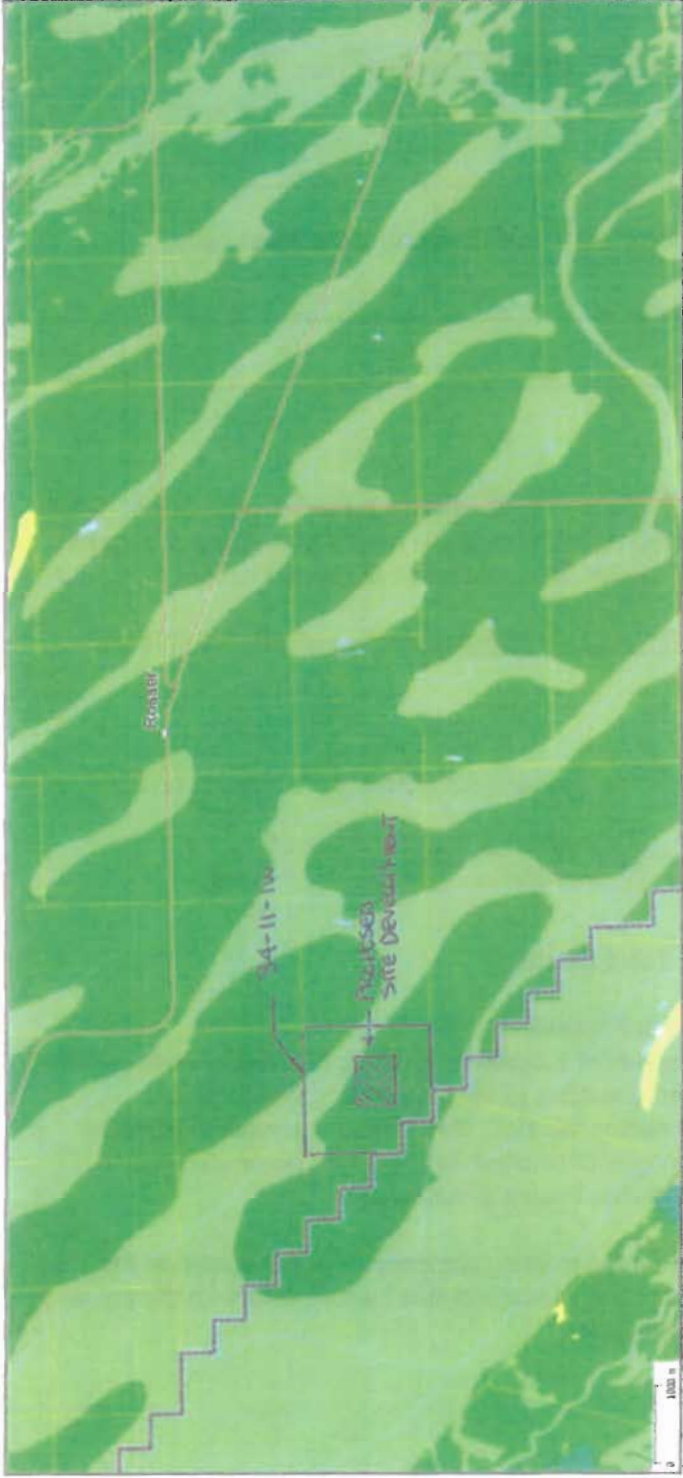
To be sustainable, a livestock operation must have access to a sufficient quantity and quality of water for livestock.

Water source for operation:

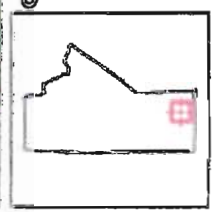
- pipeline (public) river
 lake
 dugout (dimensions : _____ x _____ x _____)
 proposed well existing well **(2 on site)**

If using an existing well, provide a copy of the water well log and logs for other wells on the property. Logs can be obtained from Manitoba Water Stewardship by calling 204-945-7418 in Winnipeg; 1-800-214-6497 toll free.

AgriMap - Manitoba
Soil Capability Map



- Rural Municipalities**
- Soil Capability for Agriculture**
- 1 - No significant limitations
 - 2 - Moderate limitations
 - 3 - Moderately severe limitations
 - 4 - Severe limitations
 - 5 - Perennial forage production
 - 6 - Native perennial forage production
 - 7 - No agricultural capability
 - Organic
 - Unclassified



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Source Water Analysis Reports

Annual, livestock, source water monitoring analysis reports must be submitted to Manitoba Conservation, for existing operations with operations of 300 Animal Units or more.

Have you submitted an annual, source water monitoring report for the current calendar year? yes no PROPOSED OPERATION

Will livestock have direct access to surface water? yes no

If yes, identify:

Name of the water body _____

Steps that will be taken to prevent direct access of livestock to the water body.

Confinement housing.

Water Requirements

To protect the sustainability of water sources, all operations using more than 25,000 litres (5,499 imperial gallons) per day must have the Water Rights Licence required by the Water Rights Regulation (MR 126/87) under *The Water Rights Act*.

For more information, contact the Water Use Licensing Section at 204-945-3983 in Winnipeg; 1-800-214-6497 toll free.

Water Use

To calculate the total water use, go to the Water Requirement Calculation Table.

Maximum daily use: 3200 imperial gallons or litres

Maximum annual use: 4.3 acre-feet or cubic decameters

Water Requirement Calculation Table attached

Ground Water (Contamination Risk Protection)

Improper storage and handling of manure or mortalities increases the risk of contaminating groundwater. Beneficial management practices (BMP), mitigation measures and requirements for the permit process reduce this risk. Soil testing, manure management planning and proper engineering, along with construction and management of manure storage structures reduce the risk of contaminating groundwater.

Check the mitigation measures used for the existing components of the operation that may pose a risk of contamination. Also check any measures that may be used with the proposed components for this expansion, if applicable:

Water Requirement Calculation Table

Livestock	Number	IG/day per animal in summer	IG/day per animal in summer	IG/day
Beef/Dairy/Bison				
Feeder/heifer/steer (600 lb.)		5	9	-
Feeder (900 lb.)		7	12	-
Feeder (1250 lb.)		10	15	-
Cow/calf pair		12	15	-
Dry cow		10	12	-
Milking cow		25	30	-
Bison		8	10	-
Horses				
Horses		8	11	-
Hogs				
Sow (Farrow/wean)			6.5	-
Dry Sow/Boar			4	-
Feeder			3	-
Nursary (33 lb.)			2	-
Chickens				
Broilers	60,000	0.035		2,100
Roasters/Pullets		0.04		-
Layers	20,000	0.055		1,100
Breeders		0.07		-
Turkeys				
Turkey Growers			0.13	-
Turkey Heavies			0.16	-
Sheep/Goats				
Sheep/Goats			2	-
Ewes/Does			3	-
Lambs/Kids (90 lb.)			1.6	-
			TOTAL	3,200
			TOTAL	1,168,000

Enter this number on page 4 of the Site Assessment.

Enter this number on page 4 of the Site Assessment.

Notes:

(Imperial gallons per day – IG/day)

For beef, dairy, bison and horse enterprises:
Use summer numbers if appropriate for the operation.
Otherwise base projections on winter values. Always use the greater of the two values.

Water Rights Licences are issued to a specific legal land description. Obtaining a Water Rights License or information as to the licensing requirements can be obtained through Manitoba Water Stewardship at (204) 945-3983 or 1-800-282-8069 Ext 3983.

Other consumption values:
Normal household consumption, 40-85 imperial Gallons per day per person
(180-250 l/day/person)
Hydrant flow, 10 imperial GPM (45 l/min)

Conversion Factor: 1271,470 Imperial Gallons = 1 acre-foot

	Exist	Proposed
Manure is stored in a storage facility built by permit or registered by Manitoba Conservation.	<input type="checkbox"/>	<input checked="" type="checkbox"/> <i>BODILERS - FIELD STORAGE</i>
Storage includes leachate collection.	<input type="checkbox"/>	<input checked="" type="checkbox"/> <i>LAYERS - STORAGE FACILITY</i>
Earthen storage has between 400 and 500 days' storage.	<input type="checkbox"/>	<input type="checkbox"/>
Steel/concrete tank has between 250 and 500 days' storage.	<input type="checkbox"/>	<input checked="" type="checkbox"/> <i>CONCRETE BUNKER</i>
Manure storage facility meets required setbacks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Field storage (solid manure) locations are changed annually.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Field storage meets required setbacks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
All application fields are soil tested annually for nitrate-N and Olsen phosphorus.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
All manure is applied according to a manure management plan.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Licensed commercial manure applicator is used to apply manure.	<input type="checkbox"/>	<input type="checkbox"/> <i>APPLIED BY COLONY</i>
Abandoned wells have been properly sealed.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Other:
Field storage sites will be selected to avoid areas subject to seasonal inundation.

Flooding

The Livestock Manure and Mortalities Management Regulation prohibits an operator from putting a manure storage facility within the boundaries of the 100-year flood plain elevation. Manure storage facilities that have protection for a flood-water level at least 0.6 meters higher than the 100-year flood water level are exempt.

The Designated Flood Area Regulation under *The Water Resources Administration Act* requires a Designated Flood Area Permit before a proposed structure (such as a barn) can be built within a Designated Flood Area.

The flood protection level for structures located within a Designated Flood Area is the 100-year flood elevation or an elevation set by Manitoba Water Stewardship. Contact the Forecasting and Flood Co-ordination Branch at 204-945-2121 in Winnipeg; 1-800-214-6497 toll free.

The proposed site:
 is is not

located in a Designated Flood Area: Red River Valley Designated Flood Area or Lower Red River Designated Flood Area

Note: At the time a permit is issued, verification is needed to ensure any proposed barns are located within the 100-year flood plain elevation; or an elevation set by Manitoba Water Stewardship.

Watershed Management Planning

Integrated watershed management planning is a co-operative effort by local residents, stakeholders and governments to create a long term plan to manage water and land-based activities for watersheds.

What are the names of the watershed and sub-watershed where the livestock operation and the fields identified for manure application are located.

Name of watershed(s): Nelkey Watershed

Name of sub-watershed(s): _____

Name of Integrated Watershed Management Plan for the proposed project site, if applicable: Nelkey-Grossmere Integrated Watershed Management Plan

For more on Integrated Watershed Management Planning, call Watershed Planning and Programs at 204-945-7408 in Winnipeg; 1-800-214-6497 toll free.

Manure Related

The Livestock Manure and Mortalities Management Regulation sets requirements for the use, management and storage of livestock manure in agricultural operations, to ensure it is handled in an environmentally sound manner. For more on this, call Manitoba Conservation at 204-945-5168 in Winnipeg.

Improper storage, handling and/or land application of manure can contaminate water and/or cause unacceptable odours for neighbours. The following is used to assess the manure management system.

Manure Type

The type of manure generated and used by the operation influences storage, handling and land application options available.

What type(s) of manure will be generated?

- solid
- semi-solid
- liquid

Manure Volume or Weight

The quantity of manure will determine the capacity requirements for the manure storage facility or field storage area.

What is the total volume or weight of manure generated annually by the livestock operation? (See Manure Storage Calculation Table.)

liquid volume: _____ solid weight: _____

98,839 ft³ based on dry manure

Manure Storage Calculation Table attached

Manure Storage Calculation Table

Animal Type	Type of Operation	Storage Volume (ft ³ /day/animal)			Confinement Period (Days)	Number of Animals	Total Storage Volume (AxBxC)
		Semi-solid	Solid	Liquid			
Dairy	Milking cows, including heifers						
	Free stall	3.43	2.47	1.06			
	Tie stall	3.53	2.44	1.10			
	Loose housing		2.65	0.42			
	Milk house wash water			0.60			
Beef	Beef cows including associated livestock		1.20				
	Backgrounder		0.73				
	Summer pasture / replacement heifers		0.85				
	Feeder cattle		1.10				
Pigs	Sows - farrow to finish (234 - 254 lbs)			2.30			
	Sows - farrow to wean (up to 11 lbs)			1.00			
	Sows - farrow to nursery (51 lbs)			0.80			
	Weanlings, Nursery (11 - 51 lbs)			0.10			
	Grower / Finisher (51 - 249 lbs)			0.25			
		Storage Volume (ft ³ /year/bird space)			Number of Birds	(A x B)	
Chickens	Broilers - floor ²			1.23	50,000.00	#####	73,800 ft ³
	Broiler breeders - floor ³			2.33			
	Broiler breeder pullets - floor ²			0.98			
	Roasters - floor ²			1.16			
	Layers - cage ¹			2.33	20,000.00	#####	46,600 ft ³ based on liquid 25,039 ft ³ based on dry
	Layers - floor ³			1.69			
	Layers - solid pack						
	Pullets - cage ¹			0.70			
	Pullets - floor ²			0.74			
	Pullets - solid pack						
Turkeys	Broilers - floor ²			2.85			
	Heavy toms - floor ²			5.57			
	Heavy hens - floor ²			3.31			

¹ Manure removed from barn at 90% moisture content with a density of 2,094 lbs/35 ft³.

² 50 mm wood shavings or 100 mm of straw placed on floor. Manure and litter removed from barn at 25% moisture content, with a density of 705 lbs/ft³.

³ One-third litter floor, two-thirds slatted floor. Manure and litter removed from barn at 40% moisture content, with a density of 881 lbs/ft³.

Manure Storage Type and Capacity

The type of storage system used will affect the capacity requirements for the manure storage facility or field storage area.

What type of manure storage system will be used by the operation?

- under-barn concrete earthen concrete/steel tanks
 field storage confined livestock area
BROWERS *CONCRETE BUNKER w/ ROOF - LAYERS*

Provide the dimensions of the existing and/or proposed manure storage facilities, if applicable. (See [Existing and Proposed Manure Storage Facility Dimensions Table](#).)

- Existing and Proposed Manure Storage Facility Dimension Table attached

Odour Control Measures (project site)

Barns and manure storage facilities can be significant sources of livestock odours. The use of manure storage covers and shelterbelts can reduce this, particularly for the neighbourhoods close to the operation.

What odour control measures you are planning to use?

Manure storage cover: yes no

Type of cover: *Enclosed building - Layers*

Shelterbelt planting: yes no existing shelterbelt (*5 Row*)

Other measures (specify): _____

Manure Treatment

The [Livestock Manure and Mortalities Management Regulation](#) states that nobody can expand a confined livestock area or a manure storage facility for pigs, unless it includes anaerobic digestion or other environmentally sound manure treatment that is the same or better than anaerobic digestion. The alternative treatment must be approved by the Manitoba government.

Does your proposal include anaerobic digestion or another environmentally sound treatment for manure? yes no not applicable

Manure Application Method

The [Livestock Manure and Mortalities Management Regulation](#) requires the registration of annual manure management plans for new or expanding operations with 300 Animal Units or more.

Concrete Storage Capacity

Operation: Meadow Lane Colony

Legal: SW34-11-1W

R/W: Rosser

Livestock	Quantity	Daily Production (ft ³ /animal/day)	Annual Manure Production (ft ³)
Chickens (Layers)	20,000	0.00343	25,039

Storage Length (ft)	Storage Width (ft)	Wall Thickness (in)	Clearance (ft)	Wall Height (ft)	Effective Storage Length (ft)	Effective Storage Width (ft)	Pile Height (ft) ^c	Storage Capacity (ft ³)	Days Storage Capacity
100	40	20	15	4.0	33.33	38.33	5.5	17,569	256

*Assumed average pile height over width of building.

Does the operation currently file an annual manure management plan with Manitoba Conservation? (For operations with 300 Animal Units or more, only)

yes no **PROPOSED OPERATION**

Manure application methods and the season they're applied in affect odour, nutrient availability, crop response, land base requirements and the risk of water contamination.

Application method: broadcast broadcast and incorporation within 48 hours
 injection

The **Livestock Manure and Mortalities Management Regulation** prohibits new operations and existing livestock operations 300 Animal Units or more from application of manure, from November 10 of one year to April 10 of the following year (winter application).

Time of year for application: spring summer fall

The **Livestock Manure and Mortalities Management Regulation** puts restrictions on fall application of manure in the Red River Valley Special Management Area.

The proposed spread fields:

are
are not

in the **Red River Valley Special Management Area**.

Land Available for Manure Application

The land available for manure application includes all suitable land (owned, leased or under agreement) that is available to the operation for manure application. Manure from any other livestock operation is not permitted to be used on this land.

Under the **Livestock Manure and Mortalities Management Regulation** and the **Nutrient Management Regulation**, application of nutrients is not permitted on **Agriculture Capability Class 6, 7 and unimproved organic soils (Nutrient Management Zone 4) and within Nutrient Buffer Zones**. The Nutrient Buffer Zone is an area of land along water bodies (ex: rivers, lakes, streams, drains) that varies depending on the waterway.

Areas of a field that are Class 6, 7, unimproved organic soils (Nutrient Management Zone 4) or are within the nutrient buffer zones are considered unsuitable for manure application. In addition, fields with 60 parts per million Olsen phosphorus (P) in the top six inches (15 centimetres) of soil will not be included in the land base calculation.

Use the [Manure Application Field Characteristics Table](#) to determine the following:

Total suitable area available for manure application

2440

Manure Application Field Characteristics Table attached

Copies of soil test reports that are no more than 12 months old must also be included with this submission.

Soil test reports for the required area for manure application attached.

Land Required for Manure Application

Long term, land base requirements for manure application are calculated based on estimates of the quantity of nutrients (nitrogen and phosphorus) excreted by livestock and the removal of nutrients by the proposed crops.

Phosphorus

The quantity of phosphorus excreted by the livestock depends on the type, number and age of livestock (see [Animal Units Calculation Table](#)), the quantity and availability of phosphorus fed to the livestock and the amount retained by the livestock.

The removal of phosphorus by crops depends on the crops grown and the historical crop yield averages. (See [Manure Application Field Characteristics Table](#).)

The [Livestock Manure and Mortalities Management Regulation](#) requires that the proposal must satisfy Manitoba Conservation that "sufficient land is available to the operator to implement an appropriate manure management plan" for a manure storage facility, before Manitoba Conservation issues a permit.

In areas of high livestock intensity (ex: RMs of Hanover and La Broquerie), it is Manitoba Conservation policy to approve a manure storage facility permit if the operation shows it has access to sufficient suitable land to apply manure at a rate equivalent to one times the crop removal rate of phosphorus.

Are any of the lands for manure application in the RMs of Hanover or La Broquerie? yes no

Manure Application Field Characteristics Table

Field	Legal Description ¹	Municipality	OLA ²	Acres Available ³	Features ⁴	Expected Crop to be Grown (Historical Yield Average)	Soil Nitrate %	Soil Phosphorus ^{5,7}	Acres Suitable for Manure Spreading	Development Plan Designation ⁸	Zoning ¹⁰
1	NE 4-12-1W	ROSSER	0	153	Dwelling, Drain	Barley 62.7bu/ac	13 lb/ac	4 ppm	150	South Interlake	A-65
2	SE/NE 4-12-1W	ROSSER	0	330	Drain	Winter Wht 69.2bu/ac	40 lb/ac	10 ppm	325	Planning District	"
3	SE 3A-11-1W	ROSSER	0	132	Drain, proposed site	Barley 62.7bu/ac	19 lb/ac	7 ppm	130	"	"
4	NE 3A-11-1W	ROSSER	0	104	Drain, proposed site	Oats 87.2bu/ac	31 lb/ac	3 ppm	100	"	"
5	W 1/2 3A-11-1W	ROSSER	0	244	proposed site	Soybeans 26.7bu/ac	19 lb/ac	6 ppm	240	"	"
6	NE 27-11-1W	ROSSER	0	90	4th Creek	winter wht 69.2bu/ac	67 lb/ac	13 ppm	85	"	"
7	W 1/2 26-11-1W	ROSSER	0	224	4th Creek	Oats 87.2bu/ac	29 lb/ac	12 ppm	220	"	"
8	E 1/2 26-11-1W	ROSSER	0	310	4th Creek	Spring Wht 39.9bu/ac	25 lb/ac	16 ppm	305	"	"
9	SW 26-11-1W	ROSSER	0	84	4th Creek	Spring Wht 39.9bu/ac	92 lb/ac	15 ppm	80	"	"
10	SW 25-11-1W	ROSSER	0	204	Sturgeon Creek	Canola 29 bu/ac	24 lb/ac	16 ppm	200	"	"
11	RL 160-162	St Francois	0	103	4th Creek	Soybeans 26.7bu/ac	25 lb/ac	13 ppm	100	The White Horse	4-2011
12	RL 162-168	Xavier "	0	214	4th Creek	Oats 87.2bu/ac	14 lb/ac	15 ppm	210	Planning District	4-2011
13	RL 179-182	"	0	302	4th Creek	Canola 29bu/ac	18 lb/ac	11 ppm	295	Development Plan	4-2011
14										By-Law 1-2008	
15											
16											
17											
18											
19											
20											
TOTAL PROPOSED									2494		
TOTAL									2440		

1. Indicates Roll Number and Sec, Twp, Rge or River Lot.
2. Indicates how the land has been secured for spreading
3. Acres available should take into account setbacks from water courses, including ditches, property lines
4. Features indicate any dwellings, other uses, wells (existing or abandoned), water bodies or other natural features within or adjacent to a spread field (note if any native habitat is proposed for manure application)
5. Soil fertility analysis must be completed by an accredited soil-testing laboratory.
6. Nitrate concentration N (lb/ac at 0-24 inch depth)
7. Phosphorus concentration (ppm P at 0-6 inch depth) based on extraction method specified
8. Suitable acreage is to be based on soil, crop and setback calculations
9. Please reference the Development Plan for the designations
10. Please reference the Zoning Bylaw of your municipality(ies)

Malinowski, Don (MLG)

From: Peter Grieger [peter@southmaneng.com]
Sent: January-15-14 11:53 PM
To: Malinowski, Don (MLG)
Subject: Meadow Lane Colony
Attachments: 01151401.PDF; 01151402.PDF

Hi Don,

In response to your request for additional information for the technical review I have attached the following:

- 1) In addition to the well logs I have also attached a Groundwater Supply Investigation report prepared by Friesen Drillers Ltd.
- 2) The acreage indicated as suitable for manure spreading has taken into account the setback distances from property lines and surface water features. As it was interpreted from the table description that the acreage available was to be adjusted for these setbacks as well and not include these setback areas the acreages were similar as there were no soil and crop limitations. As per your request, the Manure Application Field Characteristics Table has been adjusted to include the setback distance in the acreage available. Revised table attached.
- 3) It has been suggested that the spread fields have been duplicated in the "Manure Application Field Characteristics Table". Explanation of the field identification is as follows.
 - a) NE 4-12-1W refers to that acreage on section 4-12-1W situated to the north of the identified drain and also contains portions of the NW and SE quarters along this drain. SE and NE 4-12-1W contains the spreading acreage identified on the map south of the drain and also contains those portions of the NW and SW quarters which fall within the area indicated.
 - b) W1/2 26-11-1W refers to the field area within the NW and SW quarters of 26-11-1W north of the drain indicated. The field area identified as SW 26-11-1W is that field area south of the drain and includes the triangular section southeast of the SW quarter on the south side of the drain which would be situated at NE 23-11-1W.
 - c) The duplication in RL 160-162 and RL 162-168 is a result of the division of seeded acres of alternate crops which divide RL 162. As a portion of the acreage in this river lot is attributed to both crop types it is identified in both descriptions.

Please feel free to contact me if you have any questions.

Thank you
Peter Grieger
South-Man Engineering



Soil Analysis by **Agvise Laboratories**
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 39
 SAMPLE ID 39
 FIELD NAME
 COUNTY
 TWP 12-1W
 SECTION 4 QTR NE ACRES 150
 PREV. CROP Wheat-Winter



SUBMITTED FOR:
STURGEON CREEK COLONY

SUBMITTED BY: TE0817
TERRACO-STONEWALL
HIGHWAY 67 WEST
BOX 779
STONEWALL, MN ROC 220

REF # 14189225 BOX # 0
 LAB # NW144999

Date Sampled 10/12/2012

Date Received 10/15/2012

Date Reported 1/4/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice		
				Barley-Feed					
			YIELD GOAL		YIELD GOAL		YIELD GOAL		
			100	BU	0		0		
			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		
			Band		Band		Band		
			LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	
			N	162	N		N		
			P ₂ O ₅	50 Band *	P ₂ O ₅		P ₂ O ₅		
			K ₂ O	10 Band (Starter)*	K ₂ O		K ₂ O		
			Cl		Cl		Cl		
			S	0	S		S		
			B		B		B		
			Zn		Zn		Zn		
			Fe		Fe		Fe		
			Mn		Mn		Mn		
			Cu		Cu		Cu		
			Mg		Mg		Mg		
			Lime		Lime		Lime		
			Soil pH	Buffer pH	Cation Exchange Capacity		% Base Saturation (Typical Range)		
					% Ca	% Mg	% K	% Na	% H
			0-6"	7.9					

Crop 1: * Caution: Seed Placed Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 47 120 = 50 AGVISE Band guidelines will build P & K soil levels to the medium range over many years.



Soil Analysis by **Agvise Laboratories**
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 38
 SAMPLE ID 38
 FIELD NAME
 COUNTY
 TWP 12-1W
 SECTION 4 QTR SE/NE ACRES 325
 PREV. CROP Canola-bu

W E

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SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: TERS17
 TERRACO-STONEWALL
 HIGHWAY 67 WEST
 BOX 779
 STONEWALL, ND ROC 220

REF # 14199217 BOX # 0
 LAB # NW144985

Date Sampled 10/11/2012

Date Received 10/15/2012

Date Reported 1/4/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice		
Nitrate	0-6" 25 lb/ac		Wheat-Winter						
	6-24" 15 lb/ac		YIELD GOAL		YIELD GOAL		YIELD GOAL		
	0-24" 40 lb/ac		100	BU	0		0		
			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		
			Broadcast						
Phosphorus	0-6" 10 ppm		LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	
Potassium	596 ppm		N	100	N		N		
Chloride	0-24" 200 lb/ac		P ₂ O ₅	100 Broadcast	P ₂ O ₅		P ₂ O ₅		
	0-6" 72 lb/ac		K ₂ O	10 Band (Starter)*	K ₂ O		K ₂ O		
Sulfur	0-6" 350 lb/ac		Cl	0	Cl		Cl		
	6-24" 350 lb/ac		S	0	S		S		
Boron			B		B		B		
Zinc			Zn		Zn		Zn		
Iron			Fe		Fe		Fe		
Manganese			Mn		Mn		Mn		
Copper	2.43 ppm		Cu	0	Cu		Cu		
Magnesium			Mg		Mg		Mg		
Calcium			Lime		Lime		Lime		
Sodium									
Org. Matter			Soil pH		Cation Exchange Capacity		% Base Saturation (Typical Range)		
Carbonate(CCE)			Buffer pH				% Ca	% Mg	% K
	0-6" 0.73 mmho/cm						% N	% P	
Sol. Salts	6-24" 1.08 mmho/cm		0-6"	7.2					

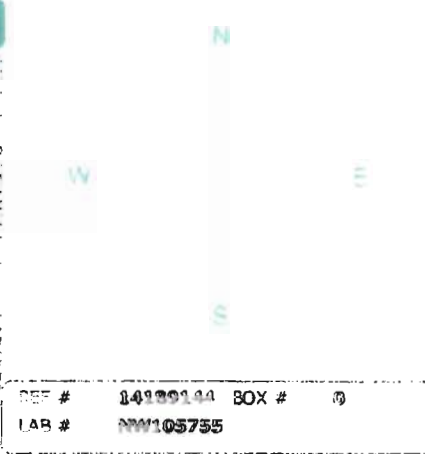
Caution: Soil Placed Particles Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 60 K2O = 20 AGRICULTURAL guidelines will build P & K test levels to the high range over several years.



Soil Analysis by Agvise Laboratories
 (http://www.agvise.com)
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 35
 SAMPLE ID 35
 FIELD NAME
 COUNTY
 TWP 11-1W
 SECTION 34 QTR SE ACRES 130
 PREV. CROP Wheat-Winter



SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: TE1677
 TERRACO-ELIE
 HWY 1 ONE MILE WEST
 BOX 433
 ELIE, ND 58540

REF # 14189144 BOX # 0
 LAB # NW105755

Date Sampled 09/25/2012

Date Received 09/28/2012

Date Reported 4/15/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice			
0-6" 6-24"	7 lb/ac 12 lb/ac			Barley-Feed						
3-24"	10 lb/ac		YIELD GOAL		YIELD GOAL		YIELD GOAL			
			100	BU	0		0			
			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES			
			Band							
			LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION		
Phosphorus	7 ppm		N	135	N		N			
Potassium	307 ppm		P ₂ O ₅	43	P ₂ O ₅		P ₂ O ₅			
Chloride	496 lb/ac		K ₂ O	10	K ₂ O		K ₂ O			
	0-6" 0-24"		Cl	0	Cl		Cl			
Sulfur	22 lb/ac 312 lb/ac		S	0	S		S			
Boron			B		B		B			
Zinc			Zn		Zn		Zn			
Iron			Fe		Fe		Fe			
Manganese			Mn		Mn		Mn			
Copper	3.04 ppm		Cu	0	Cu		Cu			
Magnesium			Mg		Mg		Mg			
Calcium			Lime		Lime		Lime			
Sodium										
Org.Matter										
Carbonate(CCE)			Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
	0-6" 3-24"					% Ca	% Mg	% K	% Na	% H
	0.85 mmho/cm 1.1 mmho/cm		0-6"	7.5						
Soil Salts										

Crop 1: * Caution: Band Placed Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P205 = 47 (30 = 50 AGVISE Band guidelines will build P & K test levels to the optimum range over many years.



Soil Analysis by Agvise Laboratories
 (http://www.agvise.com)
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 36
 SAMPLE ID 36
 FIELD NAME
 COUNTY
 TWP 11-1W
 SECTION 34 QTR NE ACRES 100
 PREV. CROP Barley



SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: YE1677
 TERRACO-21E
 HWY 1 ONE MILE WEST
 BOX 433
 ELIE, MN 56008

REF # 14180145 BOX # 0
 LAB # NW105771

Date Sampled 09/25/2012

Date Received 09/28/2012

Date Reported 4/15/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice		
Depth	Concentration		N	P ₂ O ₅	N	P ₂ O ₅	N	P ₂ O ₅	
0-3"	13 lb/ac								
0-24"	18 lb/ac								
0-24"	31 lb/ac								
Nitrate									
Oilcan	3 ppm								
Phosphorus									
Potassium	433 ppm								
Chloride									
0-3"	50 lb/ac								
0-24"	388 lb/ac								
Sulfur									
Boron									
Zinc									
Iron									
Manganese									
Copper									
Magnesium									
Calcium									
Sodium									
Org. Matter									
Carbonate(CCE)	2.0 %								
0-0"	0.73 mmho/cm								
0-24"	1.27 mmho/cm								
Sol. Salts									
			Cation Exchange Capacity		% Base Saturation (Typical Range)				
					% Ca	% Mg	% K	% Na	% S
			0-6" 7.0						

Disc 1: * Caution: Seed Placed Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 30 K2O = 20 AGVISE Broadcast guidelines will build P & K soil levels to the high range over several years.



Soil Analysis by **Agvise Laboratories**
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 37
 SAMPLE ID 37
 FIELD NAME
 COUNTY
 TWP 11-1W
 SECTION 34 QTR W1/2 ACRES 2Ac
 PREV. CROP Barley



SUBMITTED FOR:
STURGEON CREEK COLONY

SUBMITTED BY: TE0817
TERRACO-STONEWALL
HIGHWAY 67 WEST
BOX 779
STONEWALL, ND 58078

REF # 14189226 BOX # 0
 LAB # NW145002

Date Sampled 10/12/2012 Date Received 10/15/2012 Date Reported 1/4/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice		
Depth	Concentration		Yield Goal	Application	Yield Goal	Application	Yield Goal	Application	
Nitrate	0-6" 10 lb/ac 3-24" 9 lb/ac		Soybeans						
Phosphorus	0-6" 6 ppm 3-24" 5 ppm		45 BU						
Potassium	426 ppm		Band	Broadcast					
Chloride			N	N	N	N	N	N	
Sulfur	0-6" 120 ppm 3-24" 90 ppm		P ₂ O ₅	P ₂ O ₅	P ₂ O ₅	P ₂ O ₅	P ₂ O ₅	P ₂ O ₅	
Boron			K ₂ O	K ₂ O	K ₂ O	K ₂ O	K ₂ O	K ₂ O	
Zinc			Cl	Cl	Cl	Cl	Cl	Cl	
Iron			S	S	S	S	S	S	
Manganese			B	B	B	B	B	B	
Copper			Zn	Zn	Zn	Zn	Zn	Zn	
Magnesium			Fe	Fe	Fe	Fe	Fe	Fe	
Calcium			Mn	Mn	Mn	Mn	Mn	Mn	
Sodium			Cu	Cu	Cu	Cu	Cu	Cu	
Org. Matter			Mg	Mg	Mg	Mg	Mg	Mg	
Carbonate (CCE)	3.0 %		Lime	Lime	Lime	Lime	Lime	Lime	
Sol. Salts	0-6" 1.23 mmho/cm 3-24" 1.34 mmho/cm		Soil pH		Cation Exchange Capacity		% Base Saturation (Typical Range)		
			7.4				% Ca	% Mg	% K

Crop 1: Corn. Consider Soil Phosphorus Test Results. Corn requires a greater application of P & K than other crops. The risk of the development of iron chlorosis on corn in this field is very high based on the soil test carbonate levels. Crop Removal: P₂O₅ = 40 lbs/a or 68 AGV. Soil band guidelines will help P & K test results to the soil nutrient levels over many years. Application rates should be adjusted on fields with less than 30 lb/ac soil phosphorus history.



Soil Analysis by Agvise Laboratories
 (http://www.agvise.com)
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 62
 SAMPLE ID 62
 FIELD NAME
 COUNTY
 TWP RM-37X
 SECTION 27-11-1W QTR NE ACRES 85
 PREV. CROP Corn



SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: TE0017
 TERRACO-STONEWALL
 HIGHWAY 67 WEST
 BOX 779
 STONEWALL, MB R0C 220

REF # 14189218 BOX # 0
 LAB # NW144987

Date Sampled 10/31/2012

Date Received 10/15/2012

Date Reported 4/15/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice	
Nitrate	0-6"	37 lb/ac	Wheat-Winter					
	6-24"	30 lb/ac	YIELD GOAL		YIELD GOAL		YIELD GOAL	
	0-24"	67 lb/ac	100	BU	0		0	
			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
			Broadcast					
Phosphorus	0-6"	13 ppm	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION
Potassium	0-6"	331 ppm	N	170	N		N	
Chloride	0-24"	1032 lb/ac	P ₂ O ₅	70 Broadcast	P ₂ O ₅		P ₂ O ₅	
	0-6"	120 lb/ac	K ₂ O	10 Band (Starter) ^a	K ₂ O		K ₂ O	
Sulfur	0-6"	360 lb/ac	Cl	0	Cl		Cl	
Boron			S	0	S		S	
Zinc			B		B		B	
Iron			Zn		Zn		Zn	
Manganese			Fe		Fe		Fe	
Copper	0-6"	2.32 ppm	Mn		Mn		Mn	
Magnesium			Cu	0	Cu		Cu	
Calcium			Mg		Mg		Mg	
Sodium			Lime		Lime		Lime	
Org. Matter			Soil pH		Cation Exchange Capacity		% Base Saturation (Typical Range)	
Carbonate(CCE)	0-6"	1.33 mmho/cm	Buffer pH		% Ca	% Mg	% K	% Na
Sol. Salts	0-6"	1.33 mmho/cm	0-6"	7.3				

Crop 1: ^a Cornless Good Blend Fertilizer Can Cause Injury - Many crops may respond to a starter application of P, D, K even on high soil tests. Crop Removal: P2O5 = 63 K2O = 33 lb FYRSE Broadcast guidelines will build P & K test levels to the high range over several years.



Soil Analysis by Agvise Laboratories
 www.agvise.com
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 32
 SAMPLE ID 32
 FIELD NAME
 COUNTY
 TWP 11-1W
 SECTION 26 QTR W1/2 ACRES 220
 PREV. CROP Wheat-Spring

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 W E
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SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: YE1677

TERRACO-ELITE
 HWY 1 ONE MILE WEST
 BOX 433
 ELITE NB RDH 040

REF # 14189141 BOX # 0
 LAB # NW105746

Date Sampled 09/25/2012

Date Received 09/28/2012

Date Reported 4/15/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice			
				Oats						
			YIELD GOAL		YIELD GOAL		YIELD GOAL			
			120	80			0			
			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES			
			Band		Broadcast					
			LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION		
			N	0	N		N			
			P ₂ O ₅	23 Band	P ₂ O ₅		P ₂ O ₅			
			K ₂ O	10 Band (Starter)*	K ₂ O		K ₂ O			
			Cl		Cl		Cl			
			S	0	S		S			
			B		B		B			
			Zn		Zn		Zn			
			Fe		Fe		Fe			
			Mn		Mn		Mn			
			Cu		Cu		Cu			
			Mg		Mg		Mg			
			Lime		Lime		Lime			
			Soil pH	Buffer pH	Carbon Exchange Capacity	Cation Saturation (Typical Range)				
						% Ca	% Mg	% K	% Na	% H
			0-6"	7.3						

Drop 1: * Custom: Seed Placed Fertilizer Only Extra Safety * Many crops may respond to a starter application of P & K even on high soil tests. Drop Remarks: P2O5 = 30 120 = 20 AGVISE Band guidelines will build P & K test levels to the medium range over many years.



Soil Analysis by Agvise Laboratories
 (http://www.agvise.com)
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 31
 SAMPLE ID 31
 FIELD NAME
 COUNTY
 TWP 11-1W
 SECTION 26 QTR 1/2 ACRES 305
 PREV. CROP Soybeans

N
 W E
 S

SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: TE1677

TERRACO-ELIE
 HWY 1 ONE MILE WEST
 BOX 433
 ELIE, NE 68030

REF # 14189129 BOX # 0
 LAB # NW105776

Date Sampled 09/24/2012

Date Received 09/28/2012

Date Reported 4/15/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice	
				Wheat-Spring				
0-3"	7 lb/ac		YIELD GOAL		YIELD GOAL		YIELD GOAL	
0-24"	18 lb/ac		60	BU			0	
0-24"	25 lb/ac		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
			Band		Broadcast			
			LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION
			N	123	N		N	
			P ₂ O ₅	19 Band *	P ₂ O ₅		P ₂ O ₅	
			K ₂ O	10 Band (Starter)*	K ₂ O		K ₂ O	
			Cl	0	Cl		Cl	
			S	0	S		S	
			B		B		B	
			Zn		Zn		Zn	
			Fe		Fe		Fe	
			Mn		Mn		Mn	
			Cu	0	Cu		Cu	
			Mg		Mg		Mg	
			Lime		Lime		Lime	
			Soil pH	Buffer pH	Cation Exchange Capacity		% Base Saturation (Typical Range)	
					% Ca	% Mg	% K	% Na
			0-6"	7.5				

Crop 1: * Caution: Band Placed Fertilizer Can Cause Injury * Nitrogen is credited 15 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 18 K2O = 23 AGVISE Band guidelines will build P & K test levels to the medium range over many years.



Soil Analysis by Agvise Laboratories
 (http://www.agvise.com)
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 33
 SAMPLE ID 33
 FIELD NAME
 COUNTY
 TWP 11-1W
 SECTION 28 QTR 9W ACRES 200
 PREV. CROP Canola-1st



SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: T31677
 TERRACO-ELZE
 HWY 1 ONE MILE WEST
 BOX 433
 ELZE, MN 55010

REF # 14179142 BOX # 0
 LAB # NW105751

Date Sampled 09/25/2012

Date Received 09/28/2012

Date Reported 4/15/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice	
0-4"	50 lb/ac		Wheat-Spring	YIELD GOAL		YIELD GOAL		YIELD GOAL
4-24"	42 lb/ac	50		SU	0		0	
0-70"	82 lb/ac	SUGGESTED GUIDELINES	SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
Mitrate			Band		Band		Band	
Phosphorus	15 ppm	Clean	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION
Potassium	200 ppm		N	70	N		N	
Chloride		Clean	P ₂ O ₅	21 Band *	P ₂ O ₅		P ₂ O ₅	
Sulfur			K ₂ O	10 Band (Starter) *	K ₂ O		K ₂ O	
Boron		Clean	Cl		Cl		Cl	
Zinc			S	0	S		S	
Iron		Clean	B		B		B	
Manganese			Zn		Zn		Zn	
Copper		Clean	Fe		Fe		Fe	
Magnesium			Mn		Mn		Mn	
Calcium		Clean	Cu		Cu		Cu	
Sodium			Mg		Mg		Mg	
Org.Matter		Clean	Lime		Lime		Lime	
Carbonate(CCE)	3.0 %		Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)		
0-4"	1.2 mmho/cm	Clean	0-5" 7.5		% Ca	% Mg	% K	% Na
0-24"	2.13 mmho/cm							

Crop 1: * Caution: Seed Phosphorus Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 33
 2:10 4:23 AGVISE Band guidelines will build P & K test levels to the medium range over many years.



Soil Analysis by **Agvise Laboratories**
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 27
 SAMPLE ID 27
 FIELD NAME
 COUNTY
 TWP 11-1W
 SECTION 25 QTR SW ACRES 200
 PREV. CROP Cnts

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 W E
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SUBMITTED FOR:
 STURGEON CREEK COLONY

SUBMITTED BY: TEO217
 TERRACO-STONEWALL
 HIGHWAY 67 WEST
 BOX 779
 STONEWALL, MS ROC 220

REF # 14189025 BOX # 0
 LAB # NW69418

Date Sampled 09/07/2012

Date Received 09/10/2012

Date Reported 1/4/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice		
0-2"	12 lb/ac			Canola-bu					
3-24"	12 lb/ac		YIELD GOAL		YIELD GOAL		YIELD GOAL		
0-24"	24 lb/ac		50	BU	0		0		
Nitrate			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		
Phosphorus	16 ppm		Band		Band		Band		
Potassium	657 ppm		LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	
Chloride			N	151	N		N		
Sulfur	36 lb/ac		P ₂ O ₅	23 Band *	P ₂ O ₅		P ₂ O ₅		
Boron			K ₂ O	0	K ₂ O		K ₂ O		
Zinc	1.56 ppm		Cl		Cl		Cl		
Iron			S	10 Band	S		S		
Manganese			B		B		B		
Copper			Zn	0	Zn		Zn		
Magnesium			Fe		Fe		Fe		
Calcium			Mn		Mn		Mn		
Sodium			Cu		Cu		Cu		
Org.Matter	5.7 %		Mg		Mg		Mg		
Carbonate(CCE)			Lime		Lime		Lime		
Sol. Salts			Soil pH		Cation Exchange Capacity		% Base Saturation (Typical Range)		
			0-6"	7.5			% Ca	% Mg	% K
							% Na	% N	

Crop 1: * Caution: Seed Placed Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P205 = 45
 120 = 20 AGVISE Band guidelines will build P & K test levels to the medium range over many years.



Soil Analysis by **Agvise Laboratories**
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 50
 SAMPLE ID 30
 FIELD NAME
 COUNTY
 TWP RM-9FY
 SECTION QTR 160- ACRES 100
 100



SUBMITTED FOR:
STURGEON CREEK COLONY

PREV. CROP ~~CRS~~ SUBMITTED BY: TE0817
TERRACO-STONEWALL
HIGHWAY 67 WEST
BOX 779
STONEWALL, MB RDC 220

REF # 14189234 BOX # 0
 LAB # MW151310

Date Sampled 10/15/2012 Date Received 10/17/2012 Date Reported 1/4/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice	
				Soybeans		Barley-Malting		
			YIELD GOAL		YIELD GOAL		YIELD GOAL	
			45	BU	80	BU	0	
			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
			Band		Broadcast			
			LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION
			N	000	N	00	N	
			P ₂ O ₅	27 Band *	P ₂ O ₅	11 Broadcast	P ₂ O ₅	
			K ₂ O	0	K ₂ O	10 Band (Starter)*	K ₂ O	
			Cl		Cl		Cl	
			S	0	S	0	S	
			B		B		B	
			Zn		Zn		Zn	
			Fe		Fe		Fe	
			Mn		Mn		Mn	
			Cu		Cu		Cu	
			Mg		Mg		Mg	
			Ume		Ume		Ume	
			Soil pH	Buffer pH	Cation Exchange Capacity		% Base Saturation (Typical Range)	
					% Ca	% Mg	% K	% Na
			0-6"	7.9				

Crop 1: * Caution: Seed Placed Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. The risk of the development of iron chlorosis on soybeans on this field is high based on the salt and carbonate levels. Crop Removal: P₂O₅ = 48 K₂O = 68 AGVISE Band guidelines will build P & K test levels to the medium range over many years. Soybeans may respond to nitrogen on fields testing less than 50 lb/ac with a limited soybean history.

Crop 2: * Caution: Seed Placed Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P₂O₅ = 30 K₂O = 40 AGVISE Broadcast guidelines will build P & K test levels to the high range over several years.



Soil Analysis by **Aqvis Laboratories**
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 49
 SAMPLE ID 49
 FIELD NAME
 COUNTY
 TWP RM-SFX
 SECTION QTR SEC:R1162- ACRES 210:
 163
 PREV. CROP Soybeans
 SUBMITTED BY: TEO017
 TERRACO-STONEWALL
 HIGHWAY 67 WEST
 BOX 779
 STONEWALL, MB ROC 220



SUBMITTED FOR:
 STURGEON CREEK COLONY

REF # 14189075 BOX # 0
 LAB # NW87580

Date Sampled 09/18/2012 Date Received 09/20/2012 Date Reported 1/4/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice						
Nitrate	0-0" 5 lb/ac 0-24" 9 lb/ac 0-24" 14 lb/ac			Oats									
Phosphorus	15 ppm		YIELD GOAL		YIELD GOAL		YIELD GOAL						
Potassium	630 ppm		120 BU										
Chloride	0-24" 940 lb/ac		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES						
Sulfur	0-0" 26 lb/ac 0-24" 360 +lb/ac		Band		Broadcast								
Boron			LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION					
Zinc			N 91		N		N						
Iron			P ₂ O ₅ 18 Band*		P ₂ O ₅		P ₂ O ₅						
Manganese			K ₂ O 10 Band (Starter)*		K ₂ O		K ₂ O						
Copper	2.39 ppm		Cl 0		Cl		Cl						
Magnesium			S 0		S		S						
Calcium			B		B		B						
Sodium			Zn		Zn		Zn						
Org. Matter			Fe		Fe		Fe						
Carbonate(CCE)	0-0" 0.03 mmho/cm 0-24" 1.32 mmho/cm		Mn		Mn		Mn						
Sol. Salts			Cu 0		Cu		Cu						
			Mg		Mg		Mg						
			Lime		Lime		Lime						
			Soil pH		Buffer pH		Cation Exchange Capacity		% Base Saturation (Typical Range)				
			0-6" 7.2						% Ca	% Mg	% K	% Na	% N

Crop 1: * Caution: Seed Placed Fertilizer Can Cause Injury * Nitrogen is credited 15 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 30 K2O = 23 AGVISE Band guidelines will build P & K test levels to the medium range over many years.



Soil Analysis by **Agvise Laboratories**
 Northwood: (701) 587-6010
 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID 42
 SAMPLE ID 42
 FIELD NAME
 COUNTY
 TWP RM-SFX
 SECTION RL- QTR 179- ACRES 295
 182



SUBMITTED FOR:
STURGEON CREEK COLONY

PREV. CROP ~~CR~~ SUBMITTED BY: TE0817
TERRACO-STONEWALL
HIGHWAY 67 WEST
BOX 779
STONEWALL, MN RDC 220

REF # 14169227 BOX # 0
 LAB # NW145005

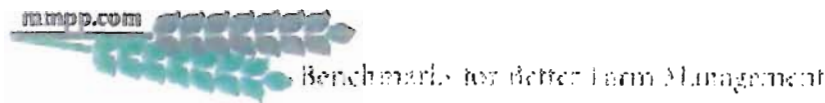
Date Sampled 10/12/2012

Date Received 10/15/2012

Date Reported 1/4/2013

Nutrient In The Soil		Interpretation	1st Crop Choice		2nd Crop Choice		3rd Crop Choice				
Depth	Concentration		Yield Goal	Application	Yield Goal	Application	Yield Goal	Application			
Nitrate	0-24" 9 lb/ac		Canola-bu								
	0-24" 9 lb/ac		YIELD GOAL		YIELD GOAL		YIELD GOAL				
	0-24" 10 lb/ac		50 BU				0				
			SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES				
			Band		Broadcast						
Phosphorus	0-24" 11 ppm		LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION			
Potassium	0-24" 473 ppm		N 197		N		N				
Chloride	0-24" 1732 lb/ac		P ₂ O ₅ 35 Band *		P ₂ O ₅		P ₂ O ₅				
Sulfur	0-24" 110 lb/ac		K ₂ O 8		K ₂ O		K ₂ O				
Boron	0-24" 2.15 ppm		Cl Not Available		Cl		Cl				
Zinc			S 10 Band		S		S				
Iron			B		B		B				
Manganese			Zn		Zn		Zn				
Copper			Fe		Fe		Fe				
Magnesium			Mn		Mn		Mn				
Calcium			Cu 0		Cu		Cu				
Sodium			Mg		Mg		Mg				
Org. Matter			Lime		Lime		Lime				
Carbonate(CCE)	0-2" 8.91 mmho / cm		Soil pH		Buffer pH		Cation Exchange Capacity				
Sol. Salts	0-24" 2.11 mmho / cm		0-6" 7.6				% Base Saturation (Typical Range)				
							% Ca	% Mg	% K	% Na	% H

Crop 1: ** Chloride yield data is limited for this crop. * Caution: Seed Placed Fertilizer Can Cause Injury * Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P₂O₅ = 45 B20 = 23 AGVISE Band guidelines will build P & K test levels to the medium range over many years.



Web address: http://www.mmpp.com/mmpp.nsf/mmpp_browser_fertilizer.html

MMPP Fertilizer Data Browser

[\(Fertilizer Query Help\)](#)

[Save Raw Data](#) [New Search](#)

Search Summary

Your selected search:

Region(s) Selected: ROSSER

Crop(s) Selected: ARGENTINE CANOLA

Soil Zone(s) Selected: All

Period Selected: 1995 to 2012

This search returned 119 records from the MASC database, summarized below:

Total Acres:	277,207 acres
Yield per Acre:	29.0 Bushels / acre (0.658 tonnes / acre)

Fertilizer Applied per Acre (actual product):

Nitrogen:	99.0 lbs / acre (0.045 tonnes / acre)
Phosphorus:	30.0 lbs / acre (0.014 tonnes / acre)
Potassium:	1.5 lbs / acre (0.001 tonnes / acre)
Sulfur:	13.1 lbs / acre (0.006 tonnes / acre)

[View Raw Data](#)

[Save Raw Data](#) [New Search](#)





Benchmarks for Better Farm Management

Web address: http://www.mmpp.com/mmpp.nsf/mmpp_browser_fertilizer.html

MMPP Fertilizer Data Browser

[\(Fertilizer Query Help\)](#)

[Save Raw Data](#) [New Search](#)

Search Summary

Your selected search:

Region(s) Selected: ROSSER

Crop(s) Selected: OATS

Soil Zone(s) Selected: All

Period Selected: 1995 to 2012

This search returned 118 records from the MASC database, summarized below:

Total Acres: 182,195 acres
Yield per Acre: 87.2 Bushels / acre (1.344 tonnes / acre)

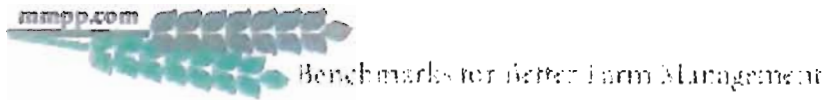
Fertilizer Applied per Acre (actual product):

Nitrogen: 72.1 lbs / acre (0.033 tonnes / acre)
Phosphorus: 28.6 lbs / acre (0.013 tonnes / acre)
Potassium: 1.5 lbs / acre (0.001 tonnes / acre)
Sulfur: 1.8 lbs / acre (0.001 tonnes / acre)

[View Raw Data](#)

[Save Raw Data](#) [New Search](#)





Web address: http://www.mmpp.com/mmpp.nsf/mmpp_browser_fertilizer.html

MMPP Fertilizer Data Browser

[\(Fertilizer Query Help\)](#)

[Save Raw Data](#) [New Search](#)

Search Summary

Your selected search:

Region(s) Selected: ROSSER

Crop(s) Selected: RED SPRING WHEAT

Soil Zone(s) Selected: All

Period Selected: 1995 to 2012

This search returned 101 records from the MASC database, summarized below:

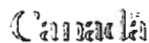
Total Acres:	241,238 acres
Yield per Acre:	39.9 Bushels / acre (1.086 tonnes / acre)

Fertilizer Applied per Acre (actual product):

Nitrogen:	87.4 lbs / acre	(0.040 tonnes / acre)
Phosphorus:	30.5 lbs / acre	(0.014 tonnes / acre)
Potassium:	2.2 lbs / acre	(0.001 tonnes / acre)
Sulfur:	2.1 lbs / acre	(0.001 tonnes / acre)

[View Raw Data](#)

[Save Raw Data](#) [New Search](#)





Benchmark for Better Farm Management

Web address: http://www.mmpp.com/mmpp.nsf/mmpp_browser_fertilizer.html

MMPP Fertilizer Data Browser

[\(Fertilizer Query Help\)](#)

[Save Raw Data](#) [New Search](#)

Search Summary

Your selected search:

Region(s) Selected: ROSSER

Crop(s) Selected: WINTER WHEAT

Soil Zone(s) Selected: All

Period Selected: 1995 to 2012

This search returned 59 records from the MASC database, summarized below:

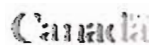
Total Acres:	53,257 acres
Yield per Acre:	69.2 Bushels / acre (1.882 tonnes / acre)

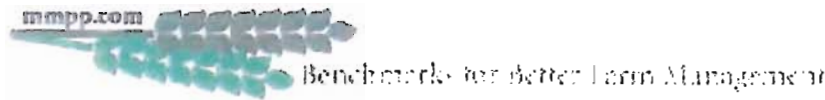
Fertilizer Applied per Acre (actual product):

Nitrogen:	106.1 lbs / acre (0.048 tonnes / acre)
Phosphorus:	31.8 lbs / acre (0.014 tonnes / acre)
Potassium:	0.5 lbs / acre (0.000 tonnes / acre)
Sulfur:	0.7 lbs / acre (0.000 tonnes / acre)

[View Raw Data](#)

[Save Raw Data](#) [New Search](#)





Web address: http://www.mmpp.com/mmpp.nsf/mmpp_browser_fertilizer.html

MMPP Fertilizer Data Browser

{Fertilizer Query 11-15}

[Save Raw Data](#) [New Search](#)

Search Summary

Your selected search:

Region(s) Selected: ROSSER

Crop(s) Selected: BARLEY

Soil Zone(s) Selected: All

Period Selected: 1995 to 2012

This search returned 119 records from the MASC database, summarized below:

Total Acres:	121,874 acres
Yield per Acre:	62.7 Bushels / acre (1.365 tonnes / acre)

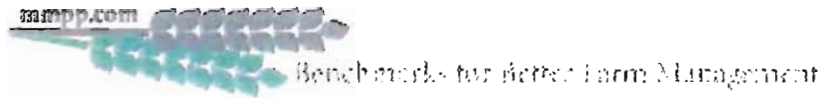
Fertilizer Applied per Acre (actual product):

Nitrogen:	76.3 lbs / acre	(0.035 tonnes / acre)
Phosphorus:	28.0 lbs / acre	(0.013 tonnes / acre)
Potassium:	2.8 lbs / acre	(0.001 tonnes / acre)
Sulfur:	2.8 lbs / acre	(0.001 tonnes / acre)

[View Raw Data](#)

[Save Raw Data](#) [New Search](#)





Web address: http://www.mmpp.com/mmpp.nsf/mmpp_browser_fertilizer.html

MMPP Fertilizer Data Browser

[\(Fertilizer Query Help\)](#)

[Save Raw Data](#) [New Search](#)

Search Summary:

Your selected search:

Region(s) Selected: ROSSER

Crop(s) Selected: SOYBEANS

Soil Zone(s) Selected: All

Period Selected: 1995 to 2012

This search returned 45 records from the MASC database, summarized below:

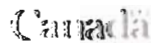
Total Acres:	39,094 acres
Yield per Acre:	26.7 Bushels / acre (0.726 tonnes / acre)

Fertilizer Applied per Acre (actual product):

Nitrogen:	4.2 lbs / acre (0.002 tonnes / acre)
Phosphorus:	24.4 lbs / acre (0.011 tonnes / acre)
Potassium:	0.3 lbs / acre (0.000 tonnes / acre)
Sulfur:	1.6 lbs / acre (0.001 tonnes / acre)

[View Raw Data](#)

[Save Raw Data](#) [New Search](#)



In areas with lower livestock intensity, Manitoba Conservation may issue a manure storage facility permit, if:

- the operation shows it has access to sufficient suitable land to apply manure at a rate equivalent to two times the crop removal rate of phosphorus (and)
- if long-term phosphorus inputs from manure application will be balanced with one times the crop removal rate of phosphorus to prevent build up in soils

Use the [Land Base Calculator](#) to calculate the minimum area required for manure application.

<p>Total minimum area required for manure application at two times crop removal, for operations outside of Hanover and La Broquerie</p>	<p>931 Acres</p>
<p>Total minimum area required for manure application at one times crop removal, for operations within Hanover and La Broquerie AND For the long-term sustainability of operations outside of Hanover and La Broquerie</p>	<p>1862 Acres</p>

For more, call Manitoba Agriculture, Food and Rural Initiatives (MAFRI) at 204-945-3869 in Winnipeg or contact your local [MAFRI GO Office](#).

Land Base Calculator attached

Land Base Requirement Summary

By comparing the land available for manure application with the land required for manure application, state whether sufficient suitable land for manure application:

- has not been identified
- has been identified for two times the crop removal rate of phosphorus (for operations outside of the RMs of Hanover or La Broquerie)
- has been identified for one times the crop removal rate of phosphorus (for operations within the RMs of Hanover and La Broquerie)

I acknowledge that over the long term, up to 1862 acres/hectares (which is one times crop removal from table above) may be required for the long term environmental sustainability of the operation.

Operation:

Crop	P ₂ O ₅ Removed per Unit of Crop	N Removed per Unit of Crop	Historical Average Yield	Unit	Acreage	Total Removal		
						P ₂ O ₅	2(P ₂ O ₅)	Nitrogen (N)
Alfalfa	13.80	59.00	62.7	tons/ac	150	3.0	6.0	7.0
Barley Grain	0.42	0.97		bu/ac				
Barley Silage	11.80	34.40		tons/ac				
Canola	1.04	1.93	24	bu/ac	455	6.1	12.2	11.4
Corn Grain	0.44	0.97		bu/ac				
Corn Silage	12.70	31.20		tons/ac				
Dry edible beans	1.39	4.17		cwt/ac				
Fababeans	1.79	5.02		cwt/ac				
Flax	0.65	2.13		bu/ac				
Grass hay	10.00	34.20		tons/ac				
Lentils	1.03	3.39		cwt/ac				
Oats	0.26	0.62	37.3	bu/ac	550	4.9	9.8	11.7
Peas	0.69	2.34		bu/ac				
Potatoes	0.09	0.32		cwt/ac				
Rye	0.45	1.06		bu/ac				
Soybeans	0.84	3.87	28.7	bu/ac	240	3.5	7.0	14.4
Sunflower	1.10	2.80		cwt/ac				
Wheat - Spring	0.59	1.50	34.4	bu/ac	355	3.7	7.4	9.4
Wheat - Winter	0.51	1.04	35.3	bu/ac	410	5.9	11.9	12.1
					2440	27.2	54.4	66.0

Mortalities (Dead Animal) Disposal

The [Livestock Manure and Mortalities Management Regulation](#) sets requirements for the use, management and storage of livestock mortalities in agricultural operations. It ensures livestock mortalities are handled in an environmentally sound manner. Permanent composting facilities require a permit from Manitoba Conservation. Winter application of composted mortalities is prohibited.

Type of disposal: rendering
 composting
 incineration (in approved incinerator only)

Mass Mortalities

The [Livestock Manure and Mortalities Management Regulation](#) sets requirements for mass mortalities.

A plan for mass mortalities (endorsed by Manitoba Conservation) is in place.

Not currently req'd by MB Conservation + Water Stewardship

What steps will be taken in the case of mass mortalities?

- 1) Consultation with MB Conservation + Water Stewardship*
- 2) Removal to approved land fill.*
- 3) Potential for on-site burial also an option under the direction of MB Conservation + Water Stewardship.*

Project Site Description: land use planning considerations

For assistance contact your [Community and Regional Planning Regional Office](#).

Development Plan and Zoning Bylaw

The Development Plan and Zoning Bylaw adopted under [The Planning Act](#), set policy and regulations for the use and development of land. A proposed livestock operation must comply with the requirements of this bylaw. In the absence of a bylaw, the [Provincial Planning Regulation](#) under [The Planning Act](#) applies.

Development Plan

Every development plan must contain a livestock operation policy (LOP) that identifies areas where new or expanded livestock operations may be allowed. It must also set general standards for the location and setback of livestock operations. Identifying the plan's land use designation and policies (for the planning district or municipality that affect the site and proposed spread fields) will help confirm the project's compliance.

Name of development plan	South Interlake Planning District
By-law number	By-Law No. 4-85
Land use designation of project site	"A80" Agricultural Zone
Livestock operation policies – quote supportive policy numbers	Part V - 1. (3)
Other development plan policies – quote supportive policy numbers	Part V - 7. (a)
Non-supportive development plan policies	Part V - 11(1)(b) Conditional Use Required

The development plan livestock operation policies support the size and location of the proposed operation. (Conditional Use)

Zoning Bylaw

Identifying the zoning for the project site, the proposed spread fields and the related zoning provisions, helps determine the project's compliance and the minimum separation distances needed between the operation and property boundaries and other natural features and land uses. The zoning bylaw contains specific regulations that govern location and setback of livestock operations.

What are the minimum project site requirements stated in the zoning bylaw?

	Project site dimensions	Minimum zoning bylaw site requirements
Minimum site area	120 ac	80 ac
Minimum site width	1320 ft	600 ft
Minimum front yard	1518 ft	125 ft
Minimum side and rear yard	min 328 ft	25 ft

Separation Distances

Using the proposed size of the operation (see [Animal Units Calculation Table](#)) and the type of animal housing and manure storage facility, complete the following table.

Indicate the distance from:

earthen manure storage facility or feedlot OR

animal confinement facility or non-earthen manure storage facility

To	Minimum separation distance required (by the zoning bylaw)	If land use feature is within the minimum distance	
		Provide actual distance	Provide location or name of feature (ex: Red River)
Residence/dwelling	1000 ft	≈ 5300 ft	SW 2-12-1W
Designated area (non-agricultural)	2640 ft	Approx 3.18 miles	Rosser, MB
Surface water	328 ft (Provincial)	1330 ft	Fourth Creek
Surface watercourse	328 ft (Provincial)	1330 ft	Fourth Creek
Crown land		None in immediate area	
Wildlife Management Area		Approx 5 miles	Grant's Lake Wildlife Management Area NW 27-12-1W
Livestock operation		≈ 6900 ft	SE 2-12-1W
Other significant features/land uses			

In cases where minimum separation distances are not stated in the zoning bylaw or development plan, the minimum separation distances in the [Provincial Planning Regulation](#) apply.

Show: a) location of the project site, location and ownership of spread fields and c) land uses and significant features (i) within a 3 kilometre radius of the project site and (ii) within and adjacent to each spread field on a Land Use & Spread Field Map. (See [Land Use & Spread Field Map Example](#)).

Land Use & Spread Field Map attached



LAND USE AND SPREAD FIELD MAP

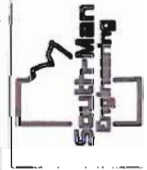
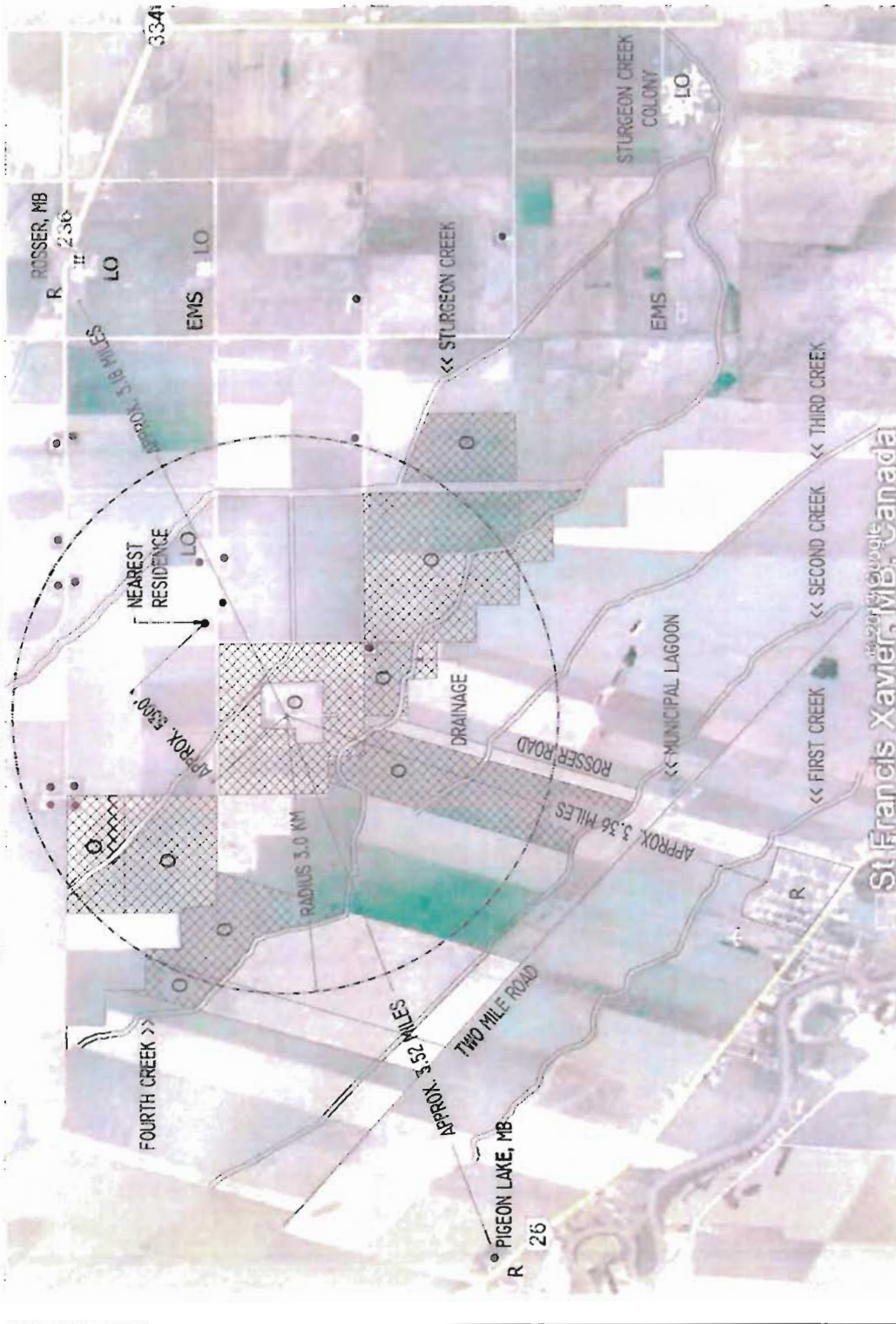
MEADOW LAKE COLONY
SW 34-11-1W
RM OF ROSSER

LEGEND:

- LO - LIVESTOCK OPERATIONS
- EMS - EARTHEN MANURE STORAGE

- [Cross-hatched pattern] - SPREAD FIELDS (OWNED)
- [Diagonal lines pattern] - SPREAD FIELDS (LEASED)
- [Dotted pattern] - SPREAD FIELDS (AGREEMENT)

- R - RURAL SETTLEMENT CENTRE
- - 3KM NOTIFICATION AREA FOR THE PUBLIC CONDITIONAL USE HEARING
- - RESIDENCE



PROJECT NAME MEADOW LAKE COLONY SW 34-11-1W	TOTAL AREA = 48,000 SQ/FT
DATE MARCH 2013	DESIGNED BY R. FLORES
SCALE AS NOTED	ENGINEER SOUTH-MAN ENGINEERING
PROJECT NO. SP-2	DATE MARCH 2013

THIS DRAWING IS THE PROPERTY OF SOUTHWEST ENGINEERING SERVICES, FARMERS, CANADA.

Truck Haul Routes and Access Points

One consideration with new or expanding livestock operations is the potential impact on existing public roads (municipal and provincial), access and the need for improvements or mitigation.

What roads and access points will be used for the proposed operation? (See [Truck Haul Routes and Access Points Map](#) for an example).

For help with mapping, contact your [Community and Regional Planning Regional Office](#).

Truck Haul Routes and Access Points Map attached

Supporting Documents

Check off the supporting documents included in this submission:

- Contact Information and Privacy and Publication Notice
- Location Map (shows proposed project within rural municipality)
- Animal Unit Calculation Table
- Water Requirement Calculation Table
- Manure Storage Calculation Table
- Existing and Proposed Manure Storage Facility Dimension Tables
(if applicable)
- Manure Application Field Characteristics Table
- Recent manure application field soil sample results (Nitrate- N lb/ac at 0-6 and 6-24 inch depths, Phosphorus – ppm at 0-6 inch depth)
- Land Base Calculator
- Project Site Plan (proposed operation showing current and proposed structures)
- Land Use and Spread Field Map (location and ownership of operation, spread fields, location and distance to non-agricultural uses, development plan designation, zoning for project site and spread fields)
- Truck Haul Routes and Access Points Map (with routes and access points on municipal/provincial roads and/or provincial trunk highways)

