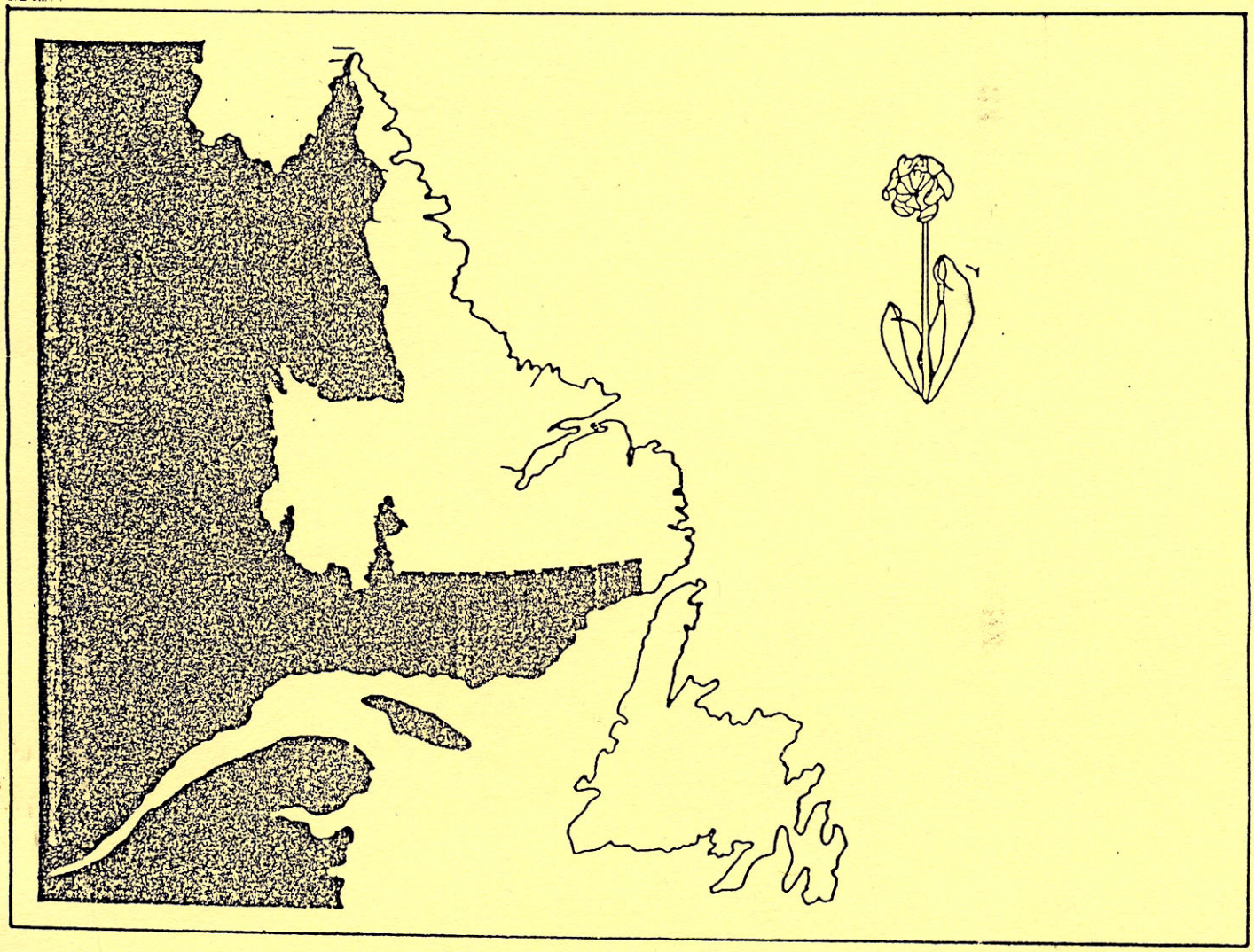
Government of Newfoundland
and Labrador

Department of Rural, Agricultural
and Northern Development

Soil Survey of the Gaskiers Community Pasture

Soil Survey Report (Internal)
Newfoundland Soil Survey



Soil and Land Management Division
File No. 527.29

SOIL SURVEY OF THE GASKIERS COMMUNITY PASTURE

Report 89-1 (Internal)

Newfoundland Soil Survey

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Soil and Land Management Division
Dept. of Forestry & Agriculture
St. John's, Newfoundland
1989

TABLE OF CONTENTS

APPENDICES

MAPS

"SOIL SURVEY OF THE GASKIERS COMMUNITY PASTURE"

Inspected: September 1988, Rick St. Croix

Located: Gaskiers Community Pasture
St. Mary's Bay (for exact location see attached map)

INTRODUCTION

This soils report was requested by the St. Mary's Bay Centre Development Association. The Association needed a soil assessment on a parcel of land within the Gaskiers Community Pasture which was suitable for forage production. During the 1988 field season, data was collected and assessed for forage suitability.

DESCRIPTION OF THE AREA

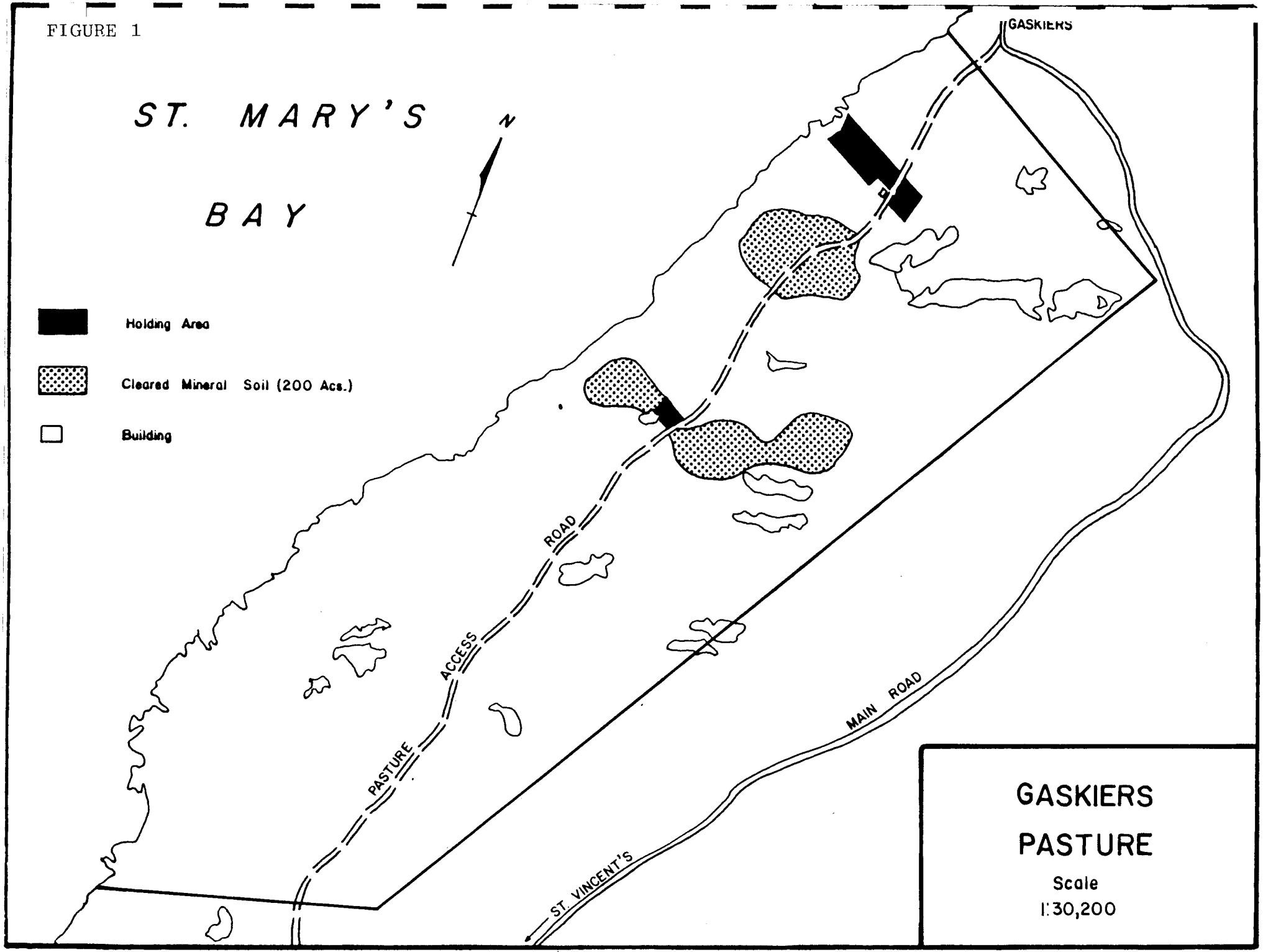
The surveyed area is located approximately two miles Southwest from the community of the Gaskiers, St. Mary's Bay. Soils within the Gaskiers Community Pasture are developed from medium textured, olive glacial till. The soils are derived from slate/siltstone and volcanic rocks.

The topography within the surveyed area is gentle to steeply sloping with slopes varying from 2 - 25%. There are small hummocks scattered throughout the area with slopes ranging from 4 - 20%.

On the top of the hills and hummocks there are bare patches with distinct stone patterns of frost polygons. These bare patches are very stony and gravelly on the surface but contain less stones in the profile. Active frost occurs almost every winter on these exposed soils and prevents further colonization of any vegetation.

The dominant vegetation on the surveyed land consists mainly of stunted balsam fir and white spruce, kalmia, labrador tea, blueberry, crackerberry, alders, nannyberry and a variety of mosses. The prevailing southwesterly wind have caused very stunted tree growth throughout most of the community pasture.

FIGURE 1


GASKIERS
ST. MARY'S
BAY
N
Holding Area
Cleared Mineral Soil (200 Acs.)
Building
ROAD
ACCESS
PASTURE
MAIN ROAD
ST. VINCENT'S
GASKIERS
PASTURE
Scale
1:30,200

The adverse climate, soil type and low fertility of the Gaskiers Community all affect the quality of forage and pasture grass. These factors will also affect seed germination for mixed forage in newly cultivated soils.

SOIL DESCRIPTION

Soils occurring in the Gaskiers Pasture include:

1. Peter's River soil
2. St. Stephens soils
3. Biscay Bay soils
4. Trepassey soil and Organic soils.

The moderately well drained Peter's River soil occurs dominantly on moderately sloping (6-9%) topography. Stoniness varies from moderately stony to exceedingly stony - that is - stones must be cleared before cultivation can begin. Thickness of the organic layer on Peter's River soils can range from 0-25 cm. The major limitations for agriculture on Peter's River soils are stoniness and adverse climate. Peter's River soils main agricultural use is for pasture and hayland.

St. Stephen soils occupy the upper and middle slopes of the Gaskiers Community Pasture. St. Stephen soils are located on gentle to steep slopes between 10-25%. The internal drainage of St. Stephen soils is imperfect. There is an organic surface horizon which may vary in depth from 10-37 cm. A thin iron pan may occur at different depths in the soil profile. St. Stephen soils main agricultural limitations are stoniness, topography, rockiness and exposure to wind. Some St. Stephen soils have potential for forage production.

Biscay Bay Soils occur on gentle to moderately rolling topography with slopes from 8-25 %. Biscay Bay Soils have a thicker organic surface layer than St. Stephen and Peter's River soils. There is a peaty layer from a few centimetres to 60cm in thickness on steep slopes and wind exposed areas. The main limitations to agriculture are: (1) drainage, (2) stoniness,

(3) low fertility, (4) rockiness and (5) adverse climate. Biscay Bay Soils have a low potential for forage production.

Trepassey soils are developed from very stony to excessively stony parent material. These soils occupy gentle slopes and level land near drainage channels. Trepassey soils are poorly drained in the upper solum because of the heath and moss vegetation which prevents aeration for long periods of time. Deeper in the solum the soil appears to be better drained. Soil capability limitations for agriculture includes: (1) stoniness, (2) wetness, (3) rockiness and (4) adverse climate. Trepassey soils are too stony to permit cultivation.

INTERPRETATION

The soils of the Gaskiers Community Pasture have an extremely low nutrient level. These soils can be greatly improved by using proper clearing practices and the appropriate application of limestone, fertilizer and seed. The seeding time is very important because the greater the vegetated area the less bare soil is exposed and the greater the insulation from the adverse climate during the winter. Consequently bare soil with lack of vegetation cover will increase the rate of winter kill because of the frost susceptible soils on the Gaskiers Pasture. Young clover plants are sometimes raised out of the soil or the root systems are broken in the soil by frost heave. The lack of snow during the winter will also increase the mortality of young clover and hay.

Soil data was collected on 603.3 acres of the Gaskiers Community Pasture. There is 140 acres or 23% of the Gaskiers Pasture suitable for forage production. The St. Mary's Bay Development Association has 65.9 acres or 11% of the surveyed area already in forage production. The remaining 74.2 acres or 12% can be brought into forage production with proper clearing techniques. There is 77% of the Gaskiers Pasture with low potential for forage production.

Polygons 1 and 2 are presently used as rough pasture but could be used for forage production. These two polygons are located on Peter's River soils and could reach their full agricultural

potential if the stones are removed and surface tilled with the recommended amounts of limestone and fertilizer (Class 1)

Polygon 3, 4, 32 and 42 are areas with fair potential for forage production. These polygons are presently uncleared but with proper clearing could yield good forage production (Class 1).

Polygon 17 is also suitable for forage production, however, this polygon needs more work than the previous mentioned polygons. The stones and boulders are more abundant than in the above polygons.

There is 222.9 acres or 37% of the Gaskiers Pasture with lower potential for forage (Class 2) (See suitability map). These soils have problems or limitations which are severe enough to make forage production difficult and uneconomical to sustain. Good pasture could be obtained on this land with proper management.

The Gaskiers Pasture have 114 acres or 19% of the area with low potential for pasture and very low potential for forage production. For forage production this type of land presents major problems which are so severe that clearing these soils are not recommended.

Organic Soils make up 124.1 acres of 19% of the Gaskiers Pasture. The soil capability classification is not applied to the organic soils.

Polygon 6 has been recently cleared and seeded but has not been fully colonized because of winter kill, soil texture, drainage and fertility. A soil sample was collected in September 1988 and the results show that the pH range from 4.4 to 4.9. These tests indicate clearly that the soil is extremely acidic and large amounts of limestone and fertilizer is required before an adequate yield is achieved.

A copy of the three samples taken from polygon 6 have been included in this report. If you need any further information concerning the Laboratory results, please contact the: Soil and Plant Laboratory - 576-6734. If any additional information is needed on this soil report, feel free to contact Rick St. Croix, 576-6652.

APPENDIX 1

LAND POTENTIAL RATINGS FOR AGRICULTURE

1. Areas with good potential for forage production and for pasture. The soils of these areas are relatively free of problems or limitations, or if they exist, they can be overcome with good management.

2. Areas with good to moderately good potential for use as pasture. Potential of these areas for forage production is lower. The soils of these areas have problems or limitations which are severe enough to make use for forage production difficult because of cost of overcoming them or continuing problems expected with such use. For use as pasture, these problems or limitations can be overcome with good management.

3. Areas with low potential for use as pasture and very low potential for forage production. The soils of these areas have problems or limitations which are severe enough to make use as pasture difficult, because of costs of overcoming them or continuing problems expected with such use. For forage production, these problems or limitations are so severe, that the input required to utilize the soils is not recommended.

4. Organic deposits - not rated.

5. Organic deposits, developed - not rated.

6. Areas with urban development, industrial yards, farm yards and greenhouses, private yards and gardens - not rated.

7. Rockland - not rated.

8. Borrow pits and rock quarries - not rated.

APPENDIX 11

EXTENDED LEGEND FOR
BASKIER'S PASTURE

POLY NO	COMP	DOM SOIL	DEPTH TO BED-ROCK	DRAIN	STONES	BOULDER	COBBLE	SLOPE CLASS	SLOPE LENGTH	TEXT-URE 1	TEXT-URE 2	COARSE FRAGMENTS 1	COARSE FRAGMENTS 2	PHASE CLASS	AREA
1	0	PETERS RIV	100	4	3	2	0	SD	0	13	13	7	0	1	13.0
2	0	PETERS RIV	0	4	3	2	3	SC	0	13	13	7	5	1	66.6
3	0	PETERS RIV	0	4	3	2	3	SD	0	13	13	0	0	1	4.4
4A	1	SS7	0	5	4	2	2	SC	0	14	13	10	0	2	4.3
4B	2	P.RIVER 3	0	4	3	2	2	SC	0	14	14	10	0	1	2.2
5	0	Tp	0	6	4	2	4	CD	0	10	10	12	10	1	12.7
6	0	SS	0	5	3	3	3	SB	0	12	12	0	0	1	14.3
7A	2	SS6	0	5	3	2	2	CE	0	11	10	7	0	1	4.
7B	2	PR4	0	4	3	2	2	CE	0	10	10	12	0	1	1.7
8	0	ORGANIC	0	0	0	0	0		0	0	0	0	0	4	7.4
9	0	SS	0	5	3	2	3	SC	0	11	10	5	4	2	4.1
10	0	SS	0	5	3	2	3	SF	0	11	11	12	0	2	3.7
11	0	SS	0	5	3	2	3	CB	0	11	10	5	0	2	2.4
12	0	SS	0	5	4	2	3	SD	0	11	10	10	0	1	4.1
13	0	SS	0	5	4	2	3	CB	0	11	10	10	0	2	2.1
14	0	SS	0	5	3	2	3	SD	0	11	10	10	4	1	2.7
15	0	SS	0	5	4	2	4	CB	0	10	10	7	0	1	11.3
16	0	SS	0	4	4	2	3	SB	0	10	10	10	0	1	4.2
17	0	SS	0	5	3	2	3	CB	0	10	10	0	4	1	4.3
18	0	SS	0	5	4	2	3	CB	0	10	10	10	0	1	5.7
19	0	P.RIVER	0	4	3	0	0	SC	0	11	10	10	7	1	11.1
20A	2	SS7	0	5	4	2	3	CE	0	14	13	12	0	2	12.3
20B	2	SS3	0	5	4	3	4	CF	0	13	13	10	0	1	7.1
21	0	SS	0	5	4	2	3	CE	0	11	10	12	7	1	11.3
22	0	ORGANIC	0	0	0	0	0		0	0	0	0	0	4	1.2
23A	2	PR7	0	4	3	1	3	SC	0	12	12	12	12	1	27.4
23B	2	SS3	0	5	3	1	3	SC	0	11	10	7	7	1	12.1
24	0	ORGANIC	0	0	0	0	0		0	0	0	0	0	4	5.1
25	0	Tp	0	6	4	2	4	CD	0	0	10	7	0	1	1.1
26	0	Bc	0	5	4	2	4	CE	0	0	0	0	0	1	4.1
27	0	Tp	0	6	4	2	4	CD	0	10	10	10	10	1	4.1
28	0	Bc	0	5	4	2	4	SD	0	10	10	7	10	1	1.1
29	0	ORGANIC	0	0	0	0	0		0	0	0	0	0	4	3.1
30	0	SS	0	5	4	2	4	CE	0	11	10	0	7	1	4.3
31	0	ORGANIC	0	0	0	0	0	SB	0	0	0	0	0	4	12.1
32A	2	SS7	0	5	3	0	0	SD	0	10	10	10	10	1	7.1
32B	2	SS3	0	5	3	2	3	SD	0	10	10	10	10	1	1.1
33	0	SS	0	5	4	0	4	CE	0	11	10	0	0	1	1.1
34	0	SS	0	5	4	0	4	CE	30	10	10	0	0	1	7.7

EXTENDED LEGEND FOR
BASKIER'S PASTURE

POLY No	COMP	DOM SOIL	DEPTH TO BED-ROCK	DRAIN	STONES	BOULDER	COBBLE	SLOPE CLASS	SLOPE LENGTH	TEXT-URE 1	TEXT-URE 2	COARSE FRAGMENTS 1	COARSE FRAGMENTS 2	PHASE CLASS	AREA
35	0	SS	0	5	4	2	3	CE	0	18	10	9	6	2	1.9
36	0	SS	0	5	4	0	4	SE	0	10	10	0	0	2	1.
37	0	SS	0	5	4	2	4	CD	0	10	10	12	8	2	7.3
38	0	ORGANIC	0	7	0	0	0		0	0	0	0	0	4	8.2
39A	0	ORGANIC6	0	0	0	0	0		0	0	0	0	0	4	36.1
39E	0	Tp4	0	6	4	0	4	SC	0	10	10	9	0	0	14.
40	0	ORGANIC	0	0	0	0	0		0	0	0	0	0	4	1.1
41	0	ORGANIC	0	0	0	0	0		0	0	0	0	0	4	1.
42	0	SS	0	5	3	0	3	SD	0	14	10	7	0	0	2.7
43	0	SS	0	5	4	1	4	CE	0	14	14	8	7	2	12.
44	0	Tp	0	6	4	0	4	CC	0	10	10	7	0	0	12.
45	0	ORGANIC	0	0	0	0	0		0	0	0	0	0	4	42.7
46	0	SS	0	5	4	0	4	SC	0	10	10	10	0	0	1.1
47	0	SS	0	5	3	0	4	SC	0	10	10	8	8	2	0.7
48	0	Bb	0	6	4	0	4	SC	0	10	10	10	0	0	1.7
49	0	SS	0	5	4	2	4	SC	0	10	10	8	0	0	4.3
50	0	SS	0	5	4	0	4	SD	0	10	10	10	12	0	5.7
51	0	Tp	0	6	4	0	4	SC	0	10	10	8	8	0	8.7
52	0	SS	0	5	0	2	4	SD	0	10	10	12	11	2	11.1
53	0	Bb	0	6	4	0	4	SD	0	10	10	9	8	0	1.1
54	0	SS	0	5	4	0	4	SD	0	10	10	9	8	0	1.1
55A	1	Bb6	0	6	4	0	4	CD	0	10	10	7	0	0	4.
55E	0	SS4	0	5	4	0	4	CD	0	10	10	8	8	0	2.7
56	0	SS	0	5	4	0	4	SE	0	0	0	0	0	0	0.1

*** Total ***

SOIL TEST REPORT
DEPT. OF RURAL, AGRICULTURAL & NORTHERN DEVELOPMENT
PROVINCIAL AGRICULTURE BUILDING
BROOKFIELD ROAD
ST. JOHN'S, NFLD.
A1C 5T7

RECEIVED SEP 16 1988

NAME : RICK ST CROIX
ADDRESS : DIAGNOSTIC
RAND

Location: Gaskiers Pasture
Field # 6

DATE RECEIVED : 88-09-06
DATE REPORTED : 88-09-15
LAB NOS. : 1142 - 1145
UNIT CODE : 1
AGRIC. REP. : ROGER JEFFORD
SPECIALIST : MIKE STAPLETON

NOTE SOIL TEST RATINGS AND REQUIRED NUTRIENT APPLICATIONS ARE FOR CROPS SPECIFIED. A CHANGE OF CROP WILL REQUIRE NEW SOIL TEST RATINGS AND MAY REQUIRE DIFFERENT NUTRIENT APPLICATIONS.

CROP : MIXED FORAGE
LAB NO. : 1142
SOIL PH : 4.8
DRAINAGE : NO INFORMATION

AREA : 0 ACRES
FIELD NO. : BF1
LIME REQUIRED : 7 TONS/ACRE
FERTILITY ASSESSMENT : POOR

CARE IN APPLYING LIMESTONE SHOULD BE TAKEN IF NEXT YEAR'S CROP WILL BE POTATOES.

	PHOSPHATE	POTASH	CALCIUM	MAGNESIUM
SOIL TEST VALUES(LBS/A)	527	123	370	156
SOIL TEST RATINGS	H+	M-	L-	M

	NITROGEN	PHOSPHATE	POTASH
REQUIRED APPLICATIONS (LBS/A)	83	0	125

O.M = 11.0%

SUGGESTED TREATMENT

283 LBS/A OF 15 - 4 - 29 SHOULD BE APPLIED IN THE SPRING.
BORON MAY BE NEEDED ON MIXED FORAGE
210 LBS A OF 15 - 5 - 15 AFTER FIRST CUT.

CROP : MIXED FORAGE
LAB NO. : 1143
SOIL PH : 4.8
DRAINAGE : NO INFORMATION

AREA : 0 ACRES
FIELD NO. : BF2
LIME REQUIRED : 7 TONS/ACRE
FERTILITY ASSESSMENT : POOR

CARE IN APPLYING LIMESTONE SHOULD BE TAKEN IF NEXT YEAR'S CROP WILL BE POTATOES.

	PHOSPHATE	POTASH	CALCIUM	MAGNESIUM
SOIL TEST VALUES(LBS/A)	165	56	170	29
SOIL TEST RATINGS	M+	L	L	L+

	NITROGEN	PHOSPHATE	POTASH
REQUIRED APPLICATIONS (LBS/A)	89	61	141

O.M = 6.4%

SUGGESTED TREATMENT

446 LBS/A OF 10 - 14 - 22 SHOULD BE APPLIED IN THE SPRING.
BORON MAY BE NEEDED ON MIXED FORAGE
210 LBS/A OF 15 - 5 - 15 AFTER FIRST CUT.

CROP : MIXED FORAGE
LAB NO. : 1144
SOIL PH : 4.0
DRAINAGE : NO INFORMATION

AREA : 0 ACRES
FIELD NO. : BC
LIME REQUIRED : 7 TONS/ACRE
FERTILITY ASSESSMENT : POOR

CARE IN APPLYING LIMESTONE SHOULD BE TAKEN IF NEXT YEAR'S CROP WILL BE POTATOES.

	PHOSPHATE	POTASH	CALCIUM	MAGNESIUM
SOIL TEST VALUES(LBS/A)	277	54	189	25
SOIL TEST RATINGS	H	L-	L-	L

	NITROGEN	PHOSPHATE	POTASH
REQUIRED APPLICATIONS (LBS/A)	89	36	165

SUGGESTED TREATMENT

O.M
3.4 %

446 LBS/A OF 10 - 10 - 20 SHOULD BE APPLIED IN THE SPRING.
BORON MAY BE NEEDED ON MIXED FORAGE
310 LBS/A OF 15 - 5 - 15 AFTER FIRST CUT.

CROP : MIXED FORAGE
LAB NO. : 1145
SOIL PH : 4.4
DRAINAGE : NO INFORMATION

AREA : 0 ACRES
FIELD NO. : BHF
LIME REQUIRED : 5 TONS/ACRE
FERTILITY ASSESSMENT : POOR

CARE IN APPLYING LIMESTONE SHOULD BE TAKEN IF NEXT YEAR'S CROP WILL BE POTATOES.

	PHOSPHATE	POTASH	CALCIUM	MAGNESIUM
SOIL TEST VALUES(LBS/A)	125	53	159	56
SOIL TEST RATINGS	M-	L	L-	M-

	NITROGEN	PHOSPHATE	POTASH
REQUIRED APPLICATIONS (LBS/A)	89	76	161

SUGGESTED TREATMENT

O.M
12.86 %

371 LBS/A OF 12 - 24 - 24 SHOULD BE APPLIED IN THE SPRING.
BORON MAY BE NEEDED ON MIXED FORAGE
310 LBS/A OF 15 - 5 - 15 AFTER FIRST CUT.

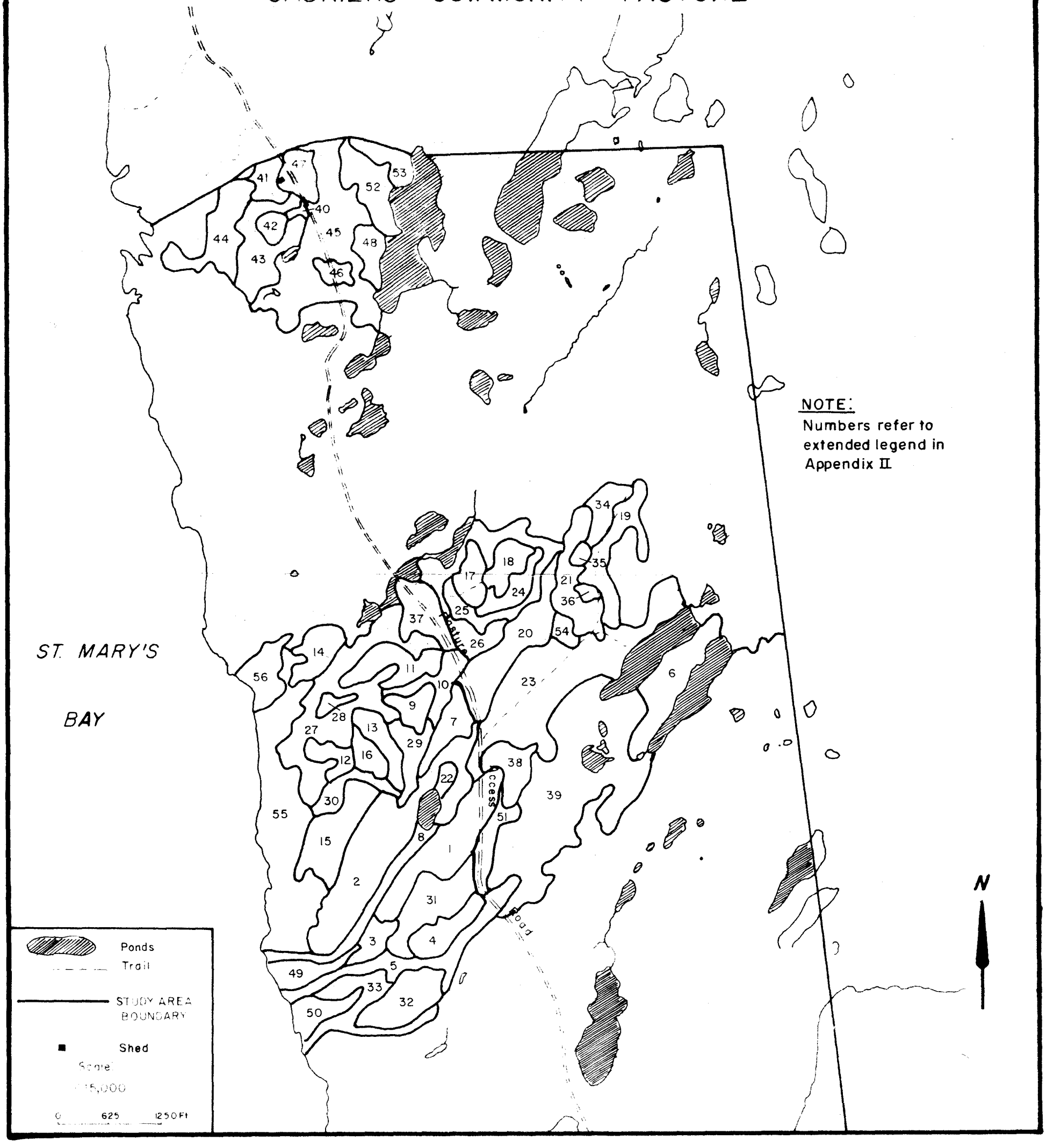
TOTAL LIMESTONE REQUIREMENT IS NOT CALCULATED.
TOTAL ACREAGE WAS NOT GIVEN.

BECAUSE FIELD SIZE INFORMATION WAS NOT GIVEN, TOTAL LIMESTONE REQUIREMENTS CANNOT BE CALCULATED.

FIELDS REQUIRING RENOVATION:

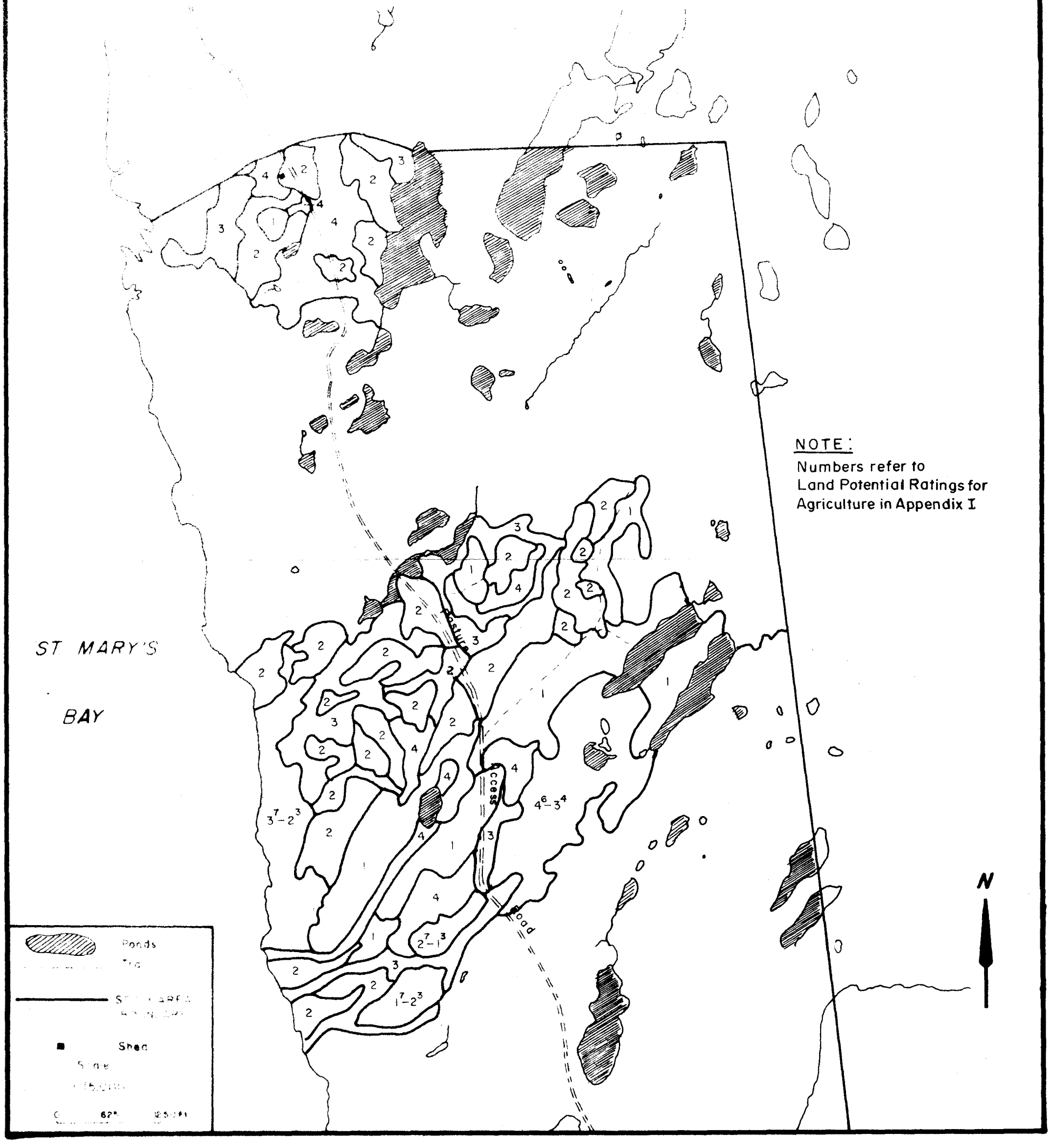
FIELD NO.	CROP	AREA ACRE	LR TONS	FERTILIZER RATE LBS/A	FERTILIZER KIND
BF1	MIXED FORAGE	0.0	7	20[illegible]	19 - 4 - [illegible]
BFC	MIXED FORAGE	0.0	7	44[illegible]	10 - 14 - 20
BC	MIXED FORAGE	0.0	7	[illegible]	10 - 10 - 20
BHF	MIXED FORAGE	0.0	5	371	12 - 24 - 24

GASKIERS COMMUNITY PASTURE



POLYGON MAP

GASKIERS COMMUNITY PASTURE



NOTE:
Numbers refer to
Land Potential Ratings for
Agriculture in Appendix I

SUITABILITY MAP