



Agriculture and
Agri-Food Canada

Research
Branch

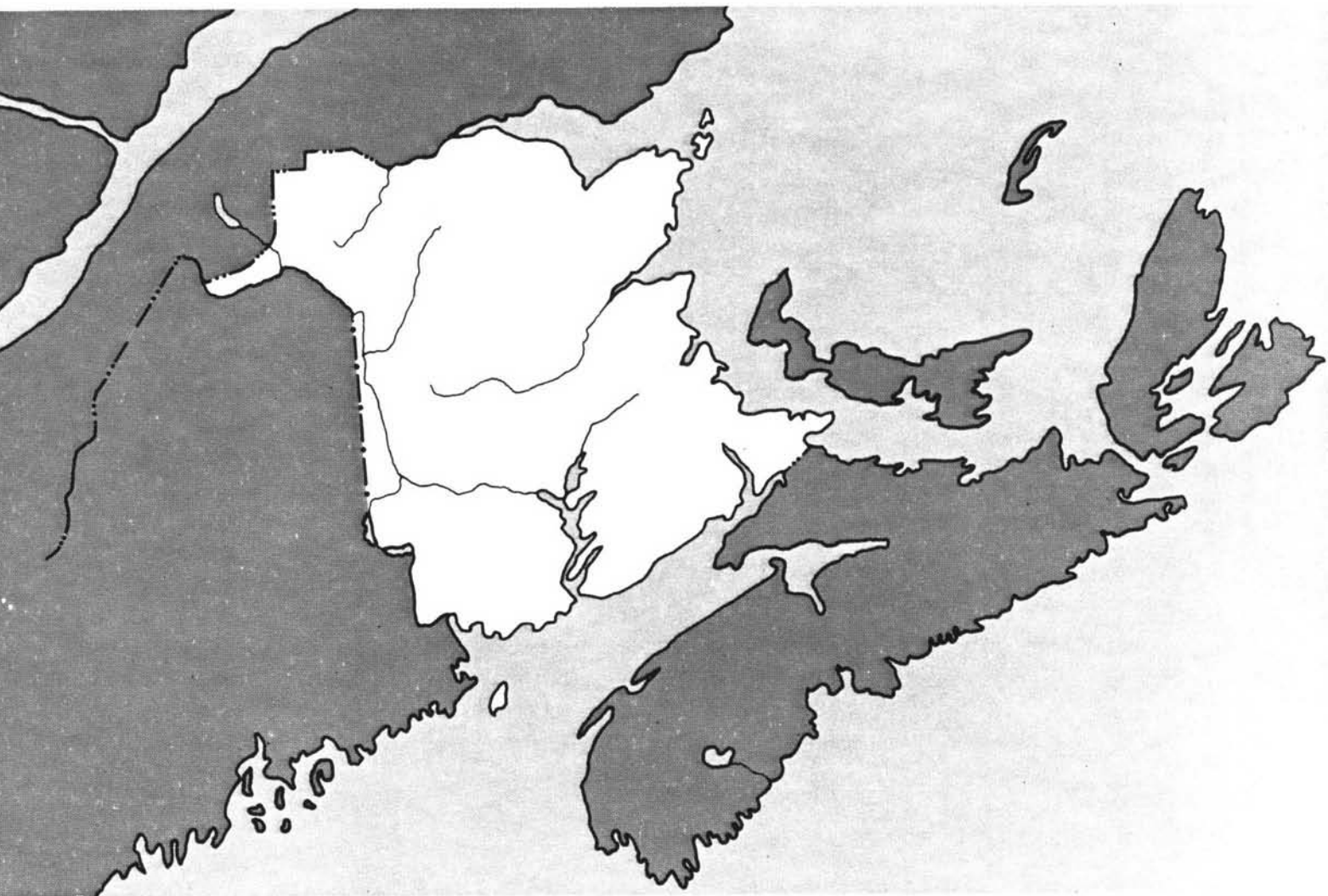
Agriculture et
Agroalimentaire Canada

Direction générale
de la recherche

Soils of selected agricultural areas of Shediac and Botsford parishes Westmorland County, New Brunswick

Report No.16

New Brunswick Soil Survey



Canada

SOILS OF SELECTED AGRICULTURAL AREAS OF SHEDIAC AND BOTSFORD PARISHES WESTMORLAND COUNTY, NEW BRUNSWICK

New Brunswick Soil Survey Report No. 16

H.W. Rees

Centre for Land and Biological Resources Research
Research Branch
Agriculture and Agri-Food Canada, Fredericton, N.B.

J.P. Duff and T. Soley

(formerly) MacLaren Plansearch Ltd., Halifax, N.S.
and later J.P. Duff and Associates, Truro, N.S.

S. Colville

(formerly) MacLaren Plansearch Ltd, Halifax, N.S.

T.L. Chow

Fredericton Research Centre, Research Branch
Agriculture and Agri-Food Canada, Fredericton, N.B.

Based on preliminary reports
prepared by MacLaren Plansearch,
Halifax, Nova Scotia, and
John P. Duff and Associates,
Truro, N.S.

Centre for Land and Biological Resources Research
Research Branch, Agriculture and Agri-Food Canada
Ottawa

1996

Copies of this report are available from:

New Brunswick Land Resource Unit
Land Resource Division
Centre for Land and Biological Resources Research
Research Branch, Agriculture and Agri-Food Canada
P.O. Box 20280,
Fredericton, New Brunswick
E3B 4Z7

Land Resources Branch
New Brunswick Department of Agriculture
P.O. Box 6000,
Fredericton, New Brunswick
E3B 5H1

Published by Cartographic Design and Reproduction Unit
Centre for Land and Biological Resources Research
CLBRR Contribution No. 95-13

© Minister of Supply and Services Canada 1996
Cat. No. A57-183/1996E
ISBN 0-662-24189-4

Correct citation as follows:

Rees, H.W.; Duff, J.P.; Soley, T.; Colville, S.; and Chow, T.L. 1996. Soils of selected agricultural areas of Shediac and Botsford parishes, Westmorland County, New Brunswick. New Brunswick Soil Survey Report No. 16. CLBRR Contribution No. 95-13, Research Branch, Agriculture and Agri-Food Canada, Ottawa, Ont. 127 pp. with maps.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	vii
SUMMARY	ix
GENERAL DESCRIPTION OF THE MAP AREA	1
Physiography, bedrock geology and drainage	1
Soil parent materials	5
Mineral Soils	5
Organic Soils	7
Land use.....	8
Forestry	8
Agriculture	8
Climate	8
SOIL CLASSIFICATION AND SURVEYING METHODS	11
Soil formation and classification	11
Survey methods	12
MAP LEGEND	13
Soil map symbol	13
Correlation with previously mapped soil units	15
Key to soil association parent materials	15
GENERAL CHARACTERISTICS OF THE SOIL ASSOCIATIONS	19
Aldouane Association (Al)	20
Barrieau-Buctouche Association (Bb)	22
Blackland Association (Bl)	24
Bog Association (Bo)	26
Caraquet Association (Cr)	28
Fen Association (Fe)	30
Interval Association (In)	32
Mount Hope Association (Mh)	34
Richibucto Association (Rb)	36
Shemogue Association (Sh)	38
Stony Brook Association (Sb)	40
Sussex Association (Su)	42
Swamp Association (Sw)	44
Tormentine Association (To)	46
Tracadie Association (Td)	48
Tracy Association (Tr)	50
LAND TYPES	53

SOIL INTERPRETATIONS FOR AGRICULTURE	55
The Canada Land Inventory soil capability for agriculture	55
Capability class	56
Capability subclass	56
Soil suitability for selected crops and management practices	57
Major soil properties influencing use	61
REFERENCES	83
APPENDIX 1. MORPHOLOGICAL DESCRIPTIONS AND ANALYSES FOR SOIL ASSOCIATION MEMBERS	85
GLOSSARY	123

LIST OF FIGURES AND TABLES

LIST OF FIGURES

1. Location of survey area	2
2. Index map for 1:20 000 scale soil maps of Shediac and Botsford parishes	3
3. Bedrock geology map of Shediac and Botsford parishes showing physiographic regions	4
4. Sketch of landscape relationships among Aldouane Association, Barrieau-Buctouche Association and Salt Marsh land type	20
5. Sketch of landscape relationships among Barrieau-Buctouche; Stony Brook, Tracy, Shemogue or Tormentine; and Richibucto or Aldouane associations	22
6. Sketch of landscape relationships among Stony Brook; Barrieau-Buctouche or Caraquet; Blackland; and Tracadie associations	24
7. Landscape sketch of Bog Association showing relationship with mineral soils	26
8. Sketch of landscape relationships among Caraquet, Tracadie and Richibucto associations	28
9. Landscape sketch of Fen Association showing relationship with mineral soils	30
10. Sketch of landscape relationships among Interval; Richibucto; and Stony Brook or Tracy associations	32
11. Sketch of landscape showing relationships of Mount Hope Association with Stony Brook and Barrieau-Buctouche associations	34
12. Sketch of Richibucto Association landscape	36
13. Landscape sketch of Shemogue Association showing drainages and relationship with Stony Brook Association	38
14. Landscape sketch of Stony Brook Association drainages	40
15. Sketch of landscape relationships between Sussex Association and Aldouane Association	42
16. Landscape sketch of Swamp Association showing relationship with mineral soils	44
17. Landscape sketch of Tormentine Association showing drainages	46
18. Landscape sketch showing characteristics of, and relationships between, Barrieau-Buctouche, Mount Hope and Tracadie associations	48
19. Landscape sketch of Tracy Association showing drainages and relationship with Stony Brook Association	50

LIST OF TABLES

1. Selected climatic conditions for weather stations located close to the survey area.....	9
2. Soil associations and land types	13
3. Correlation of soil associations with established soil series	16
4. Soil suitability for alfalfa	58
5. Soil suitability for apples	58
6. Soil suitability for spring cereals	59
7. Soil suitability for winter cereals	59
8. Soil suitability for forages	59
9. Soil suitability for vegetables	60
10. Soil suitability for subsurface drainage	60
11. Soil suitability for deep ripping	60
12. Soil map unit interpretations for selected agricultural uses	64

ACKNOWLEDGEMENTS

The authors would like to take this opportunity to recognize the contributions of a number of specific individuals and organizations for their assistance and support during the completion of this project.

The project was funded under the Canada/New Brunswick Agri-Food Development Agreement 1984-89 through the offices of the Agriculture Development Branch of Agriculture Canada, Fredericton, New Brunswick. Contract administration was arranged through the Federal Department of Supply and Services.

Mr. John Duff, formerly with MacLaren Plansearch Limited, Halifax, Nova Scotia, and later with John P. Duff and Associates, Truro, Nova Scotia, acted as technical project director. Mr. Sean Colville, also formerly with MacLaren Plansearch Limited, was director of field operations for soil mapping in 1987. He was assisted by Mr. Tim Soley, Mr. Alain Richard and Mr. Andy MacPhee. Mr. Tim Soley was director of field operations for John P. Duff and Associates during completion of soil mapping in 1988. The soil maps were correlated by Mr. Herb Rees, Head of the New Brunswick Land Resource Unit, Centre for Land and Biological Resources Research (formerly Land Resource Research Centre), Research Branch, Agriculture and Agri-Food Canada. Mr. Rees also assumed scientific authority responsibilities for the project.

Computer programming for data collection and analysis was done under the supervision of Mr. Jim Saunders, MacLaren Plansearch Ltd., Halifax office, and by Mr. David Crowell, MacLaren Plansearch Ltd., Truro office. Map attribute files were compiled by the New Brunswick Land Resource Unit, Centre for Land and Biological Re-

sources Research, Agriculture and Agri-Food Canada, located in Fredericton, N.B., and are archived in the National Soil DataBase in the Centre for Land and Biological Resources Research, Research Branch, Agriculture and Agri-Food Canada, Ottawa, Ontario.

Phase 1 laboratory analysis was contracted to the Research and Productivity Council of Fredericton, New Brunswick. Phase 2 laboratory analysis was done in Ottawa by the Analytical Services Laboratory of the Centre for Land and Biological Resources Research, Research Branch, Agriculture and Agri-Food Canada.

Map digitizing, reproduction and report publishing were done by Bryan Monette, Bev Boulay, André Villeneuve, Ron St. John, Alice Whelan, Bill Kerr, Susan Flood, Brian Davis and Lucie Routhier of the Canadian Soil Information System (CanSIS) of the Centre for Land and Biological Resources Research, Research Branch, Agriculture and Agri-Food Canada, Ottawa, Ontario.

Technical report editing was conducted by Mr. Ken Webb, Land Resource Division, Centre for Land and Biological Resources Research, Agriculture and Agri-Food Canada, Truro, Nova Scotia, and by Mr. Ed Woodrow, Land Resource Division, Centre for Land and Biological Resources Research, Agriculture and Agri-Food Canada, St. John's, Newfoundland. Grammatical editing and report formatting were carried out by Alice Whelan, Centre for Land and Biological Resources Research, Research Branch, Agriculture and Agri-Food Canada, Ottawa, Ontario.

SUMMARY

This soil survey report covers approximately 70 612 ha of selected agricultural lands and immediately adjacent forested lands in Shediac and Botsford parishes, Westmorland County, located in southeastern New Brunswick. The text of the report provides technical information on soil and landscape properties and as well it rates suitabilities of the mapped soils for selected uses. The distribution (location and extent) of the various kinds of soils are displayed on 43 1:20 000 scale map sheets accompanying this report.

Most of the surveyed area lies within the Maritime Plain or Lowlands, a physiographic region which is underlain by horizontally lying Pennsylvanian and Mississippian sandstone. Relief ranges 0–60 m above mean sea level (amsl). Landscapes are gently undulating to near level with slopes of less than 5% for the most part.

Seasonal temperatures range from a monthly high of 18.7°C in July to a monthly low of –8.1°C in January. Yearly precipitation averages 1123 mm. Inland, the growing season averages 196 days, with a frost-free period ranging 114–124 days. In selected locations immediately adjacent to the coast, the frost-free period is even longer.

Soil parent materials reflect the varied geological history of the area, with deposits of glacial tills, marine-lacustrine (including glaciomarine-glaciolacustrines), alluviums, and organics. Mineral soil thicknesses range from less than 1 m to more than 2.5 m. Compact loamy-textured glacial lodgment tills dominate the area. Glaciofluvial deposits occupy such a small area that they are grouped with marine sediments. Since all of the area was subjected to a period of postglacial marine submergence, marine and

glaciomarine soils are common. In many instances sandy marine cappings are so thin that they have been incorporated into the underlying till profiles during soil formation. Some loamy and clayey marine-lacustrine deposits also occur. Alluvial deposits are associated with most stream courses. Tide deposited sediments are restricted to minor floodplains. Scattered organic soils occur. They are at various stages of development, including bogs, fens and swamps.

Soils in this report are classified according to *The Canadian System of Soil Classification* (Agriculture Canada Expert Committee on Soil Survey 1987). Soils representative of six soil orders are mapped. Gleysols, Luvisols, Organics, Podzols and Regosols occur under virgin forested conditions. Where cultivation has obliterated the natural sequence of horizons, Brunisols or Brunisolic intergrades are the norm. The predominance of imperfect drainage has lead to a large percentage of gleyed soils.

Undesirable soil structure and low permeability coupled with limited relief result in excess soil moisture in many of the lodgment tills. Low moisture and nutrient holding capacities plague the sandy marine sediments. The alluvial soils are ideal growing mediums but are subject to flooding. The organics are considered as non-productive forest land and have limited potential for agricultural crop production. Although these limitations persist, there is still a significant hectarage of cropland suitable for spring and winter cereals, forages and selected vegetable production. Land development is required to improve drainage and modify undesirable subsoil characteristics.

GENERAL DESCRIPTION OF THE MAP AREA

Shediac and Botsford parishes are part of Westmorland County, located in southeastern New Brunswick. Selected areas of agricultural land, and immediately adjacent surrounding forested land, were surveyed during the course of this project. In total 70 612 ha of land were inventoried along the north and south shores of the Tormentine Peninsula adjacent to the Northumberland Strait. Figure 1 illustrates the relative location of Shediac and Botsford parishes and identifies the major population centres of the town of Shediac (pop. 4370), and the villages of Cap-Pelé (pop. 2261) and Port Elgin (pop. 470).

Not all of the two parishes were mapped. The mapping was concentrated on those portions of map sheets dominated by an agricultural land use (Fig. 2). Those map sheets covered in whole or in part are as follows:

Map No.	CanSISID ¹ No.	LRIS Map ² No.	Map Name ²
1	NB038559	211/07-S1	Dufourville
2	NB038560	211/07-S2	MacDougall
3	NB038552	211/07-T1	Shediac River
4	NB038553	211/07-T2	Shediac Bridge
5	NB038557	211/02-Y4	Saint-Philippe
6	NB038532	211/02-Z3	Batemans Mills
7	NB038533	211/02-Z4	Shediac
8	NB038518	211/01-X3	Barachois
9	NB038519	211/01-X4	Robichaud
10	NB038522	211/01-Y3	Bas-Cap-Pelé
11	NB038523	211/01-Y4	Trois-Ruisseaux
12	NB038561	211/02-Y2	Calhoun Brook
13	NB038558	211/02-Z1	Moncton Road
14	NB038531	211/02-Z2	Dorchester Crossing
15	NB038516	211/01-X1	Bourgeois Mills
16	NB038517	211/01-X2	Gallant Settlement
17	NB038520	211/01-Y1	St-André-de-Shediac
18	NB038521	211/01-Y2	Botsford Portage
19	NB038524	211/01-Z1	Petit-Cap
20	NB038525	211/01-Z2	Cadman Corner
21	NB038543	11L/04-X1	Murray Corner
22	NB038556	211/02-W3	Painsec Junction
23	NB038530	211/02-W4	Scoudouc
24	NB038507	211/01-U3	Basse-Aboujagane
25	NB038508	211/01-U4	Haute-Aboujagane
26	NB038510	211/01-V3	Cormier-Village
27	NB038511	211/01-V4	Shemogue
28	NB038514	211/01-W3	Chapmans Corner

Map No.	CanSISID ¹ No.	LRIS Map ² No.	Map Name ²
29	NB038515	211/01-W4	Little Shemogue Harbour
30	NB038539	11L/04-U3	Murray Road
31	NB038540	11L/04-U4	Spence Settlement
32	NB038542	11L/04-V3	Cape Tormentine
33	NB038554	211/02-W1	Painsec
34	NB038555	211/02-W2	Malakoff
36	NB038506	211/01-U2	Black Lake
37	NB038509	211/01-V2	Anderson Settlement
38	NB038512	211/01-W1	Woodside
39	NB038513	211/01-W2	Little Shemogue
40	NB038537	11L/04-U1	Melrose
41	NB038538	11L/04-U2	Malden
42	NB038541	11L/04-V1	Indian Point
43	NB038534	11L/04-R3	Upper Cape
44	NB038535	11L/04-R4	Cape St. Laurent

¹ Canada Soil Information System identification number in the National Soil DataBase, Centre for Land and Biological Resources Research, Research Branch, Agriculture and Agri-Food Canada, Ottawa.

² Land Registration and Information Service map number and name.

PHYSIOGRAPHY, BEDROCK GEOLOGY AND DRAINAGE

Westmorland County lies within two physiographic regions, the New Brunswick Plain and the New Brunswick Highlands (Bostock 1970). With exception of a small area along the western Shediac parish boundary (Fig. 3), the rest of the area in Shediac and Botsford parishes is within the New Brunswick or Maritime Plain, also called the New Brunswick Lowlands. This region is characterized by level to gently undulating slopes with elevations rising slowly from sea level to just over 60 m (200 ft) inland. This topography reflects the gently dipping to nearly level configuration of the underlying Pennsylvanian sedimentary bedrock, which consists of formations of gray and red sandstones with some conglomerates and siltstones/shales (Gussow 1953; Norman 1931). Bedrock outcrops (surface exposures) are rare in Shediac and Botsford parishes, with the bedrock often only visible at excavation sites and along steeply incised stream channels. Where bedrock is observed, it is com-

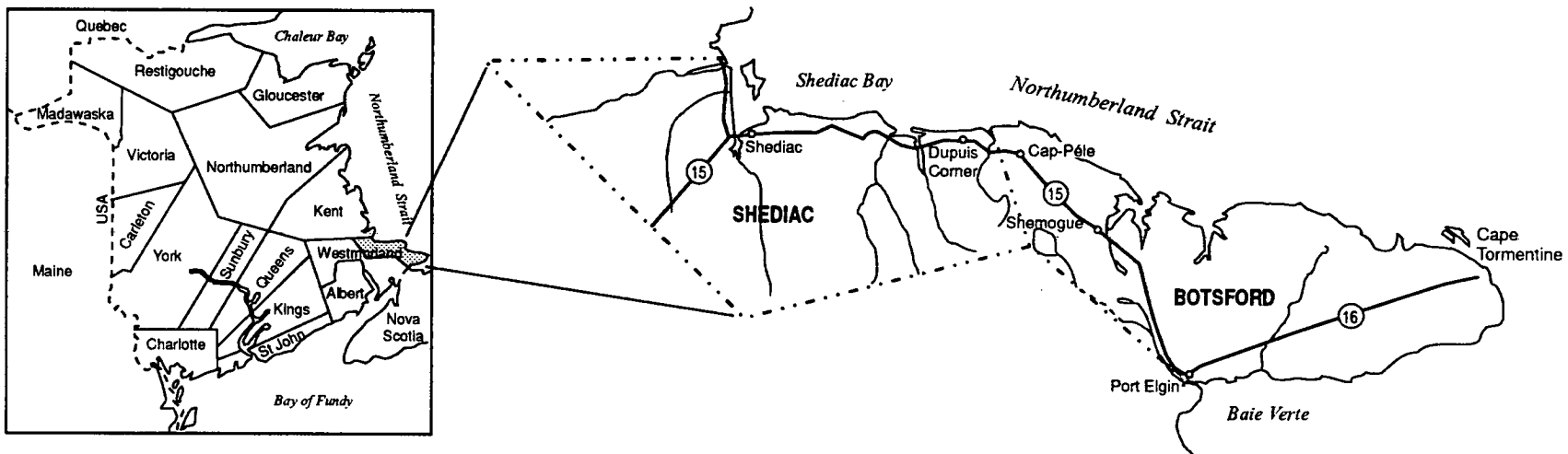


Figure 1 Location of survey area

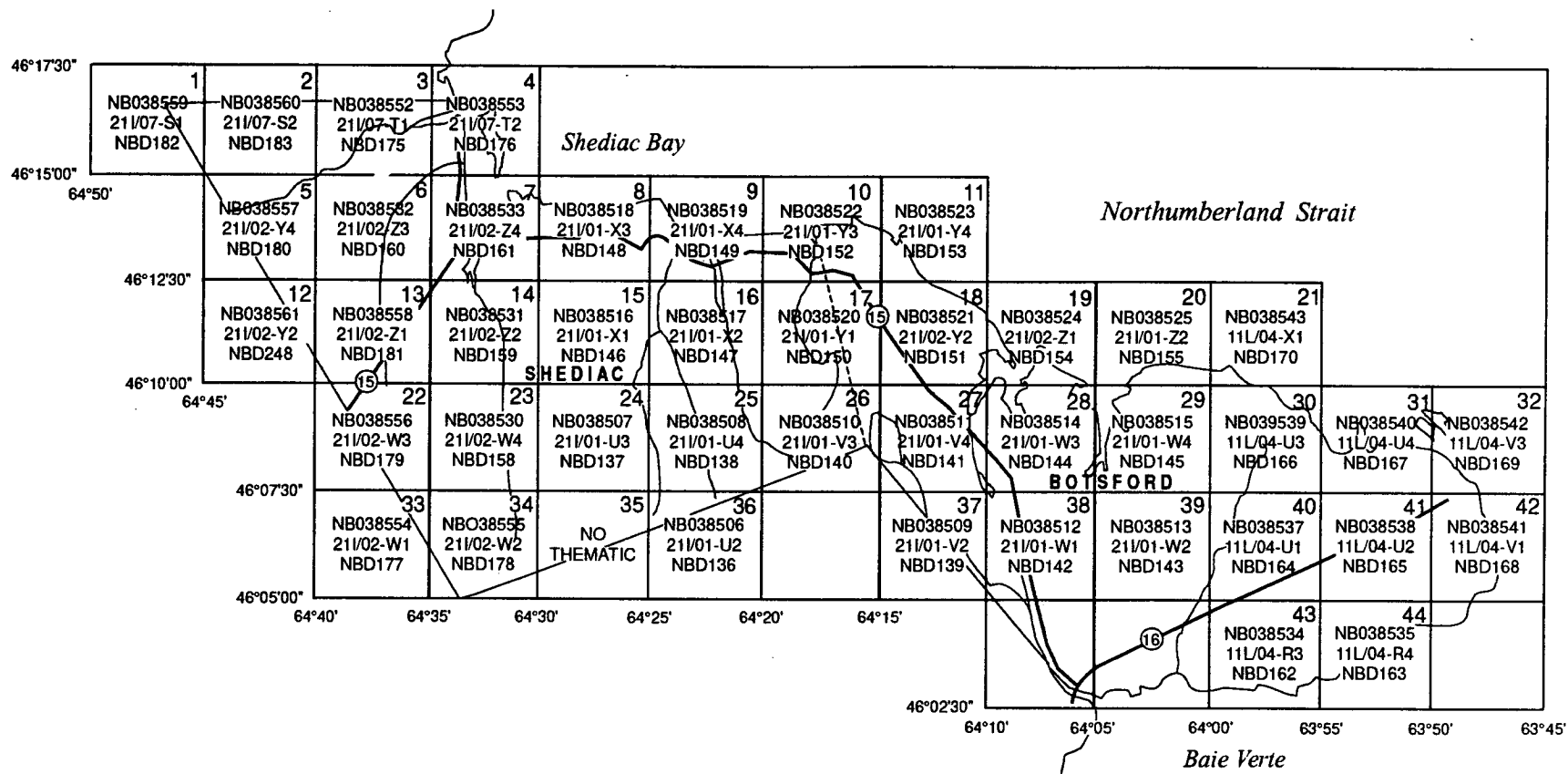


Figure 2 Index map for 1:20 000 scale soil maps of Shediac and Botsford parishes. Digital map products consist of several maps combined, the large page numbers will appear on each combined map.

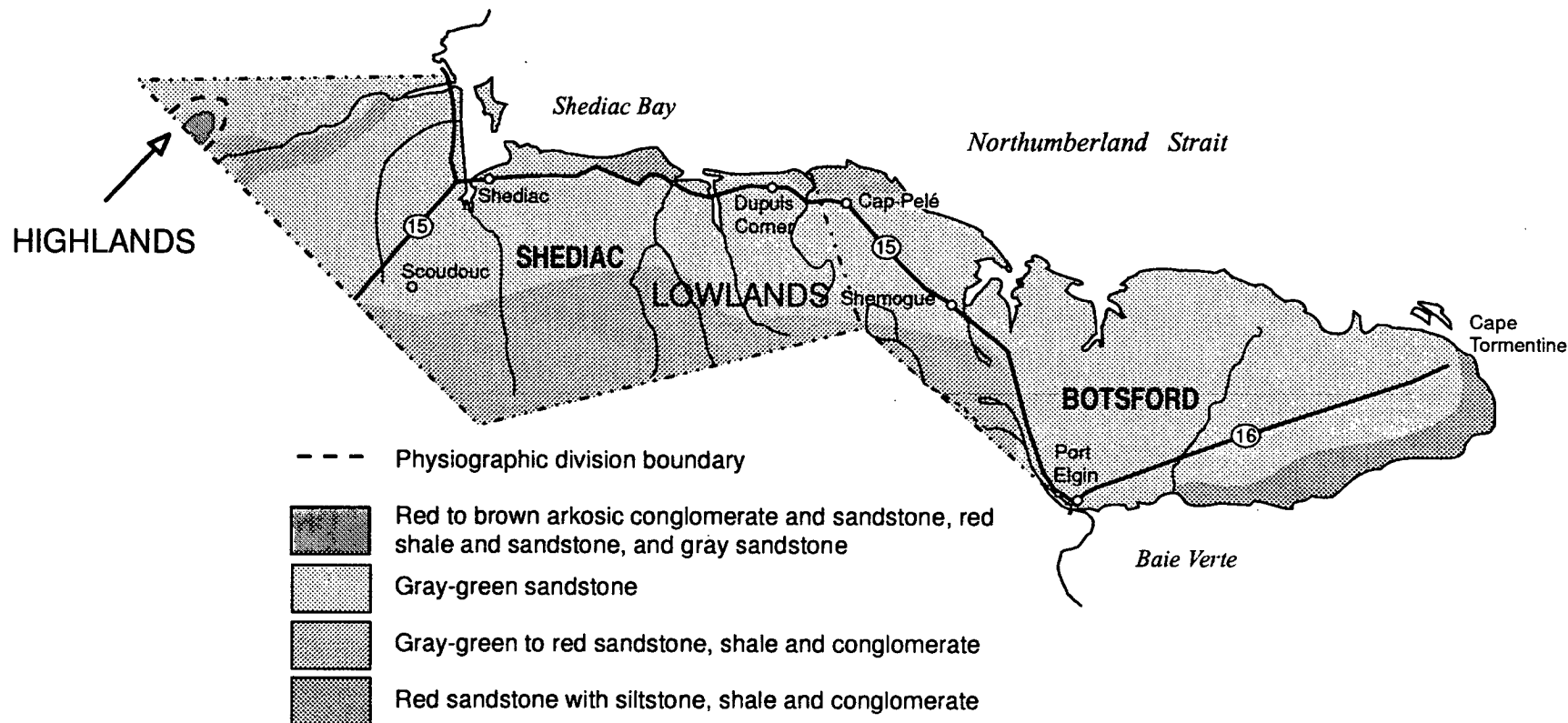


Figure 3 Bedrock geology map of Shediac and Botsford parishes showing physiographic regions (Modified from: Gussow 1953; Norman 1931; and Bostock 1970).

monly weathered and highly fractured to a depth of approximately 1 m.

A low irregular ridge running from Scoudouc to Cape Tormentine divides the area, causing a mainly dendritic pattern of drainage with streams flowing in north-south directions. There are, however, many streams with de-ranked drainage patterns, especially in areas which are nearly level (Rampton and Paradis 1981). Essentially all streams empty into the Northumberland Strait. Drainage is fair to poor in flat lying areas and only improves slightly with increases in relief.

SOIL PARENT MATERIALS

Soils found in Shediac and Botsford parishes are the end products of physical, chemical and biological processes working on materials primarily deposited as a result of glaciation and postglacial marine/lacustrine submergence followed by more recent events of paludification and alluviation (Rampton and Paradis 1981). During the last ice age, glacial activity completely dominated New Brunswick. Following deglaciation, which is thought to have occurred about 10 000–12 000 BP, the Maritime Plain was subsequently subjected to a period of shallow marine submergence. Soil formation commenced with emergence of the landscape. Hydrophytic vegetation invaded poorly drained sites (paludification) resulting in the formation of peatlands. Alluvial depositions were and continue to be laid down along present day river and stream floodplains.

Based on their parent materials, soils can be divided into mineral soils and organic soils.

Mineral soils consist predominantly of mineral matter, or natural inorganic compounds, as found in sands, silts, clays and rock fragments of gravels, cobbles, stones and boulders. They have formed in unconsolidated bedrock material that, in the case of Shediac and Botsford parishes, have usually been displaced or moved and redeposited.

Organic soils have developed on deposits that have formed as a result of the accumulation of plant materials. The majority of organic soils are saturated for most of the year. They consist of peat deposits that contain more than 30% or-

ganic matter and are at least 40 cm thick, but typically are greater than 160 cm in thickness and often exceed 3 m in total accumulation.

Mineral Soils

Glacial Till By the end of the Pleistocene Epoch, glaciation had vastly changed the surface of New Brunswick. Morainal till of varying thickness was deposited as either **ablation till** or **lodgment (basal) till** over most of the landscape. In Shediac and Botsford parishes, these depositions usually consist of lodgment till with a thin capping of ablational material.

Lodgment tills are dense and compact due to the pressure applied by the weight of the glacial ice that plastered them in place and subsequently overrode them. Ablation till is that material carried on top of or within the glacier and is generally stonier and usually not compacted. It is released from the glacier in the ablation zone, the area where melting occurs at a greater rate than accumulation. As the ice melts or "ablates", materials are released from the glacier. In the survey area, the norm is a thin capping of ablational sediments no more than 0.5 m thick, over lodgment till. These thin ablational deposits are considered to be the result of rapid retreat of the glacial ice, not allowing for any significant accumulation of ablational debris. No thick noncompact ablational materials were encountered.

Differentiation of ablational from lodgment till materials is almost impossible where the ablational capping is thin and soil formation has obliterated the interface with the lodgment till. Identification is made more difficult where the ablation and lodgment tills are similar in texture. Some materials deposited as ablational debris are now relatively compact, a development that Rampton and Paradis (1981) attribute to postglacial processes. No attempts were made to differentiate compact ablational till from compact lodgment till. Soil materials with similar physical and chemical properties were grouped together, regardless of original mode of deposition. All compact tills were considered as lodgment till.

Due to the composition of the underlying sandstone bedrock, a high percentage of the till materials are coarse textured with low clay contents. Finer textured depositions are thought

to be the result of incorporation of materials derived from red shale/siltstone bedrock inclusions. Another theory is that some of these soils consist of red fine textured sediments carried in by glacial ice from the Northumberland Strait (Rampton and Paradis 1981). These tills most often have dark reddish brown to dark red firm to very firm sandy loam to clay loam parent materials.

In addition to particle-size class separations (coarse-loamy versus fine-loamy), the lodgment tills have been further differentiated on lithology (Fig. 3). The two different lithological types of significance in soil formation are (Aalund and Wicklund 1949; Gussow 1953):

- i) dominated by grayish-green Pennsylvanian sandstone and disintegrated red shale and mudstone (parent material of the Stony Brook and Tracy associations); and
- ii) dominated by red, micaceous, slightly calcareous, fine-grained Permo-Carboniferous sandstone and disintegrated red shale (parent material of the Shemogue and Tormentine associations).

The grayish-green Pennsylvanian sandstone is harder and weathers comparatively slower than the red, fine-grained Permo-Carboniferous sandstone. Thus soils developed from this red sandstone are relatively free of boulders and stones and may appear to have been developed in situ or have been water reworked (Aalund and Wicklund 1949). Both lithological types lead to red soil parent materials, with the former a reddish brown and the latter a distinctive "brick" red, similar to the red soils of Prince Edward Island.

The slightly calcareous nature of the red, micaceous, fine-grained Permo-Carboniferous sandstone and shale has little remaining influence on well drained sites that are strongly leached. However, the impact of these slightly calcareous parent rock is more prominent in imperfectly and poorly drained conditions where higher pH levels are more common.

Glacial debris was typically deposited as a morainal blanket of 1–2 m in thickness but with significant areas of greater accumulation (in excess of 5 m) as evidenced by exposed cliffs along the coastline.

Glaciofluvial Material that was transported by glacial meltwaters is referred to as glaciofluvial. Soils which have developed on glaciofluvial deposits are usually well drained. These deposits consist of stratified sands and gravels and exhibit some degree of sorting, depending on the amount of water working to which they have been subjected. Their particle size ranges from coarse-loamy to sandy-skeletal.

There are very few glaciofluvial deposits in the Shediac–Botsford parishes area. No gravelly (sandy-skeletal) deposits were mapped. Any that occur are very small in area. Sandy glaciofluvial deposits are mapped as part of the Richibucto and Aldouane associations, which are undifferentiated water deposited sandy sediments, primarily of marine origin. Marine reworking of glaciofluvial deposits is also suspected, which is another justification for this grouping of glaciofluvial and marine sediments into one category.

Glacial meltwaters or marine wave actions, or both, have often reworked the till deposits to give them a water deposited appearance. This may have happened to such an extent that it is very difficult to differentiate between a highly reworked ablation/lodgment till surface and a glaciofluvial-marine deposit. Where there was doubt as to origin, the material was grouped with the category (i.e. till or marine) that it most closely resembled in terms of physical and chemical characteristics.

Marine and lacustrine After the retreat of the ice sheets from New Brunswick, seawaters inundated the lowlands. Postglacial sea levels may have ranged from 10 to as much as 90 m (300 ft) above present day levels. Due to the abundance of fresh water from the melting glaciers, it is speculated that most of the waters were only slightly saline or brackish (Rampton and Paradis 1981). This submergence caused the erosion of existing glacial landforms. Postglacial marine submergence also resulted in sands of varying thicknesses being deposited on the tills and a general reworking of surficial materials. Since glacial ice was retreating inland during this period, these sediments include components of "glaciomarine" deposits. Where the sandy deposits exceed 1 m, Richibucto and Aldouane soils are mapped. Where the sands are less than 1 m, the soils are classified as members of the Barrieau–Buctouche Association. Bar-

rieau-Buctouche soils have till underlying the sandy material.

In previous soils mapping in Moncton Parish (Rees et al. 1995), all sandy, water-deposited sediments were mapped as either Riverbank (yellowish brown colored materials) or Kennebecasis (reddish brown colored materials). Both of these associations are considered to consist of glaciofluvial materials, although it was recognized that there was a strong marine influence present. In Shediac and Botsford parishes, the marine influence is thought to dominate the sandy, water-deposited sediments and so all such materials have been mapped as either Richibucto (Riverbank equivalents) or Aldouane (Kennebecasis equivalents) to indicate their marine origins.

Marine-lacustrine silts and clays were also deposited during this period of submergence. Clayey (Tracadie Association) and loamy (Blackland Association) deposits are often found well above present day sea levels. In some instances sandy Richibucto or Aldouane materials overlie the clayey or loamy marine sediments. These units were mapped as the Caraquet Association.

In other instances, clays deposited during marine submergence were subsequently reworked by later glacial activity, resulting in soils having both till and marine features. These soils are classified as members of the Mount Hope Association.

Alluvial Alluvial parent materials consist of silt and very fine sand deposits along present-day floodplains. The soils forming on these materials are mapped as either Interval or Sussex Association members, depending on color, which reflects their different origins.

Marine Alluvial Marine alluvial material consists of silts and very fine sands found along tidal rivers. The only marine alluvium mapped in the Shediac-Botsford area is located along tidal portions of the rivers which drain into the Northumberland Strait. Due to the relatively low tides in this area, these sediments are confined to narrow strips. They remain essentially in their natural state and are subjected to daily tidal inundation. These deposits were included in the Salt Marsh land type.

Organic Soils

Three types of organic deposits have been identified and mapped in the Shediac and Botsford parishes map area.

Bog Bogs consist of sphagnum and to a lesser extent forest peat materials. They have formed in an ombrotrophic (nutrient-poor) environment due to the slightly elevated nature of their accumulations. This tends to disassociate them from the nutrient-rich ground water of surrounding mineral soils. These organic materials are extremely acid ($\text{pH} < 4.5$) and weakly to moderately decomposed (fibric to mesic). Bogs are associated with depressions where the water table is at or near the surface for the entire year. Most deposits are virtually treeless, with the exception of some severely stunted conifers around their peripheries. They are characterized by a ground vegetative cover of sphagnum mosses and ericaceous shrubs. The Bog units mapped in Shediac and Botsford parishes are either flat or basin bogs or weakly expressed domed bogs.

Fen Fens consist of peat materials derived primarily from sedges formed in a eutrophic (nutrient-rich) environment. This is due to the close association of the material with mineral-rich waters. Fen materials are medium acid to neutral ($\text{pH} 5.5\text{--}7.5$) and moderately to strongly decomposed (mesic to humic). They are associated with a nutrient-rich water table that persists seasonally at or very near the surface. Most deposits have a low to medium height shrub cover and sometimes a sparse layer of trees. Stream fens are the most common type of fen found in the survey area.

Swamp These units are dominated by peat materials that consist of moderately to strongly decomposed (mesic to humic) forest peat. They have formed in a eutrophic environment resulting from strong water movement from surrounding mineral soils. Forest peat materials are medium acid to neutral ($\text{pH} 5.5\text{--}7.5$). They are associated with stream courses, lake edges, depressions and bog and fen margins where standing to gently flowing waters occur seasonally or persist for long periods on the surface. The vegetative cover usually consists of a thick forest growth of coniferous and deciduous trees.

LAND USE

Forestry

Approximately two-thirds of the mapped area is forested. Shediac and Botsford parishes fall entirely within the Northumberland District of the Maritime Lowland Ecoregion according to Loucks (1962). Black spruce (*Picea mariana* (Mill.) BSP.), jack pine (*Pinus banksiana* Lamb.), white spruce (*Picea glauca* (Moench) Voss), red spruce (*Picea rubens* Sarg.), and red maple (*Acer rubrum* L.) are the most abundant species along with some hemlock (*Tsuga canadensis* (L.) Carr.) and white pine (*Pinus strobus* L.). Repeated burnings and the sandy nature of the soils have favoured jack pine establishment. Black spruce, tamarack (*Larix laricina* (Du Roi) K. Koch) and cedar (*Thuja occidentalis* L.) are common on poorly drained mineral and organic soils. White spruce are frequently observed on abandoned farmland.

Sugar maple (*Acer saccharum* Marsh.) and beech (*Fagus grandifolia* Ehrh.) occur on slopes and lower ridges where better drainage conditions exist.

Yellow birch (*Betula alleghaniensis* Britt. (*Betula lutea* Michx. f.)), balsam fir (*Abies balsamea* (L.) Mill.), wire birch (*Betula populifolia* Marsh.), trembling aspen (*Populus tremuloides* Michx.), and white birch (*Betula papyrifera* Marsh.) are also found over much of the survey area.

Exposure to sea winds has an obvious impact on tree growth. Most stands are short, and open grown trees are usually stooped with one-sided crowns (Loucks 1962).

Agriculture

Approximately one-third of the land area covered by this survey consists of cleared agricultural land. Cattle farming is the predominant form of agriculture, with beef cattle the most common (MacMillan and Hoyt ca 1987). Agricultural crops reflect this, with hay, pasture and small grains (primarily oats) accounting for an estimated 90% of the total cropland.

Horticultural crops are common in the Cap-Pelé-Shediac area where potatoes, strawberries, sweet corn, beans, carrots and various cole crops (cabbage, cauliflower and rutabaga) are grown in scattered locations.

Attrition and the demands of urbanization have taken their toll on the level of farming activity within the parishes. The total improved farmland in Westmorland County as a whole is less than 50% of what it was 40 years ago. This abandonment of farmlands was highly obvious during the process of field mapping. Some of these abandoned agricultural holdings now support productive mature forest stands, however, most are in a transition state with a variable cover of alders, other intolerant hardwoods (poplars, wire birch, etc.) and some scattered conifers.

CLIMATE

The Moncton and Moncton A (Airport) weather stations are located slightly to the west of the surveyed area but provide general information on the prevailing climate. Data (Environment Canada 1982) from these two stations are given in Table 1. Climatic conditions in Shediac and Botsford parishes are influenced primarily by their close proximity of the ocean.

Inland, seasonal temperatures range from a monthly high of 18.7°C in July to a monthly low of -8.1°C in January. Yearly precipitation averages 1123 mm, of which approximately 30% occurs as snowfall. Although relatively evenly distributed, precipitation is slightly heavier in the late fall and early winter. Summer (June, July and August) precipitation averages 87.5 mm per month. Average May to September potential evapotranspiration is 527.1 mm in comparison to precipitation amounts for the same period of 421.5 mm, representing a minimal deficit, given that actual evapotranspiration is usually considerably less than potential evapotranspiration. However, where soil textures are sandy, these deficits may hinder crop production.

The growing season (>5°C) begins on April 23 and ends on November 4, averaging 196 days in duration with an accumulation of 1677 growing degree days. (Degree days is an index or measure of the growing period. It combines the length of the growing period with mean daily temperatures above a critical threshold. Degree days indicate how much heat is available in an area for crop production.). The frost-free period ranges 114–124 days.

June, July and August are the sunniest months with 225.8, 243.2, and 230.2 hours of bright sunshine, respectively. Cloudy conditions result in these values being less than potential, given that the duration of daylight is about 16 hours per day in June.

Soil climate is important in root development, soil structure formation, and microflora and fauna activity. Mean annual soil temperature is estimated at 5°–8°C (Clayton et al. 1977). The relationship between aerial climate and soil climate is affected by site characteristics such as moisture, texture, vegetation and soil color. Soil temperatures are usually lower in forested areas and higher in cleared areas.

Marine Influence "Bodies of water exert a modifying influence on the climate of surrounding localities This is more pronounced near the coast, but may extend inland several kilometres depending on elevation, topography and prevailing winds" (Read 1985). Proximity to the

coast has a strong influence on the timing of frost occurrence, with a lengthened frost-free period occurring closer to the coast and especially towards the end of the peninsula near Cape Tormentine. Here the frost-free period averages 130 days but may be as long as 150 days in some specific sheltered locations where the average date of the first fall frost may come as late as October 15. Areas immediately adjacent to the Northumberland Strait may also have higher total heat units with in excess of 1700 growing degree days above 5°C.

Exposure to wind is an especially serious problem along the coast. Wind speed is usually considerably higher than that experienced inland. High winds are detrimental to crop production (Read 1985) because of:

- 1) accelerated plant desiccation due to increased evapotranspiration losses; and
- 2) physical damages directly impacted on plants.

Table 1 Selected climatic conditions for weather stations located close to the survey area

Month	Moncton, 12 m 46°06' N 64°47' W			Moncton A, 71 m 46°07' N 64°41' W		
	Mean temp. °C	Total pptn. mm	Snow- fall cm	Mean temp. °C	Total pptn. mm	Snow- fall cm
January	-8.0	44.9	68.0	-8.1	43.2	77.8
February	-7.6	29.6	59.2	-7.7	30.3	68.4
March	-2.5	32.4	59.9	-2.9	34.4	67.6
April	3.6	53.6	28.0	3.0	55.0	28.4
May	9.9	79.9	2.0	9.4	80.2	2.2
June	15.5	87.8	0.0	15.0	89.7	0.0
July	18.8	97.5	0.0	18.5	94.9	0.0
August	17.9	76.8	0.0	17.6	78.5	0.0
September	13.2	75.7	0.0	13.0	76.0	0.0
October	7.7	89.6	3.2	7.6	95.0	3.1
November	2.2	80.2	19.2	2.0	85.0	21.6
December	-5.2	46.1	61.7	-5.4	47.9	72.1
Year	5.5	794.1	301.2	5.2	810.1	341.2
Growing season (>5°C) beginning		April 21		April 25		
end		November 5		November 3		
duration		199 days		193 days		
Growing degree days (>5°C)		1704.7		1649.5		
Average date						
last frost (spring)		May 27		May 22		
first frost (fall)		September 19		September 24		
Frost-free period (>0°C)		114 days		124 days		

SOIL CLASSIFICATION AND SURVEYING METHODS

SOIL FORMATION AND CLASSIFICATION

The definition of a soil is ". . . the naturally occurring, unconsolidated mineral or organic material at least 10 cm thick that occurs at the earth's surface and is capable of supporting plant growth" (Agriculture Canada Expert Committee on Soil Survey 1987).

Soil is a dynamic natural body that continuously develops and differentiates itself. Climate, vegetation and organisms, topography (drainage), parent material and time are the five most important factors that contribute to the processes of soil formation (Brady 1974).

Each of these soil forming factors has a varied importance in creating the properties of a soil. In differentiating the various soils found in the survey area, two soil forming criteria were used more than others. These were parent material and drainage. The other soil forming criteria — climate, vegetation and age played lesser roles in differentiating the soils due to:

- 1) the small size and constant elevation of the area, which have resulted in a relatively uniform climate and vegetative cover; and
- 2) the glacial activity that enveloped the entire region has established a more or less uniform time zero for most of the soils in the survey area, with the exception of organic and alluvial deposits.

Soils in this report are classified according to *The Canadian System of Soil Classification* (Agriculture Canada Expert Committee on Soil Survey 1987). Six soil orders are represented. Gleysols, Luvisols, Organics, Podzols and Regosols occur under virgin forested conditions. Where cultivation has obliterated the natural sequence of horizons, Brunisols or Brunisolic intergrades are the norm.

Soils of the **Gleysolic** order have properties that indicate prolonged periods of intermittent or continuous saturation with water and reducing conditions during their formation. Saturation with water is due to either a high groundwater table or to temporary accumulation of water above a relatively impermeable layer, or both.

Unless artificially drained, these soils are usually poorly or very poorly drained.

Soils of the **Luvisolic** order have illuvial B horizons in which silicate clay has accumulated. These soils develop characteristically in well to imperfectly drained sites.

Soils of the **Organic** order are composed largely of organic materials — mosses, sedges, and other hydrophytic vegetation. Organic soils contain 17% or more organic C (30% organic matter) by weight and have at least 40 cm of organic material accumulation over the mineral soil. They include most of the soils commonly referred to as peat, muck and bog soils. These Organic soils are saturated with water for prolonged periods, occurring in poorly to very poorly drained depressions and level areas.

Soils of the **Podzolic** order have B horizons in which the dominant accumulation product is amorphous material composed mainly of humified organic matter combined in varying degrees with Al and Fe. Typically Podzols are well to imperfectly drained, but minor areas of wet poorly drained sandy sites do occur. Podzols are easily recognized in the field by the presence of a light ashy-colored Ae horizon with an abrupt lower boundary over the characteristic reddish brown colored Bf horizon. (Note: These characteristics are obliterated when the soil is plowed.) Podzolization, alone or in combination with some other soil forming process, is the dominant regional soil development.

Regosols are too weakly developed to have horizons that meet the requirements of any other order. Their lack of genetic horizons is due to the youthfulness of the material. Examples are found in recent alluvium along streams and in tidal deposits. Regosolic soils are generally well to imperfectly drained.

Soils of the **Brunisolic** order have sufficient development to exclude them from the Regosolic order, but they lack the degree or kind of horizon development specified for soils of other orders. When cultivated, many of the soils that are originally classified as Podzols become Brunisols because of the "lost" diagnostic Bf horizon.

Technical terms used in this report are found and defined in the glossary at the end of the report. For more detailed explanations of terminologies the reader is referred to: *The Canada Soil Information System (CanSIS) Manual for describing soils in the field* (Day 1982); *Canadian System of Soil Classification* (Agriculture Canada Expert Committee on Soil Survey 1987); and *Glossary of Terms in Soil Science* (Research Branch, Canada Dept. of Agriculture 1976).

SURVEY METHODS

Prior to field mapping, a tentative soil legend was established based on existing knowledge of the soils as gleaned from previously conducted inventories of the county (Aalund and Wicklund 1949) and surrounding areas (Rees et al. 1992; Wang and Rees 1983; MacMillan and Chalifour 1980). This data was supplemented with a brief reconnaissance examination of the soils to finalize the central concepts of the soil associations.

Pre-typing (preliminary air photo-interpretation) was conducted on black and white aerial photographs at a scale of 1:12 500. From this, inspection sites to be ground-truthed were selected based on the following general guidelines:

- i) cleared lands - one inspection per 6–9 ha (15–20 ac);
- ii) forested lands - one inspection per 40 ha (100 ac);
- iii) 3 to 5 landscape transects (10 inspection sites per transect) per full map sheet and apportioned accordingly for partial sheets.

In total 80% of the field observations were located as per the above guidelines. Non-transect point locations were determined using the "free-mapping" approach, whereby strategic locations in the landscape (crests, mid-slopes, toes, depressions, etc.) were selected and examined.

Delineation transects were assigned 20% of the allotted inspections, with 10 inspections per transect as per Wang (1982). Delineation tran-

secting was carried out after 50–100% of the mapping was completed and apportioned according to map unit delineation coverage. Delineation transects were used to verify that the mapping accuracy was within the allowable 20% inclusions limit. Inclusions are areas of unspecified soil or nonsoil bodies that occur within delineated map units. They may consist of other soil association members, phases or land types, or variations in surface texture, depth to restricting layer, drainage, slope, stoniness or rockiness from that indicated in the map symbol.

The control section, or depth of observation, for this survey is 1 m for mineral soils and 1.6 m for organic soils. Field observations consisted of pits dug by shovel or auger borings.

Data collected at field observations consisted of soil and site parameters which were recorded in a standardized data collection format, either on field sheets or directly coded into portable computers. Site data included the following: site kind; transect type; phase; depth to contrasting or constricting layer; surface expression; mode of deposition; lithology; site position; stoniness; boulderiness; rockiness; erosion or overwash; slope class; slope kind; site and profile moisture regime (drainage, hydraulic conductivity, saturated zone, duration high water table); and land use. Profile information consisted of: horizon designations with depths; colors; mottle descriptions; structure; consistence; roots; pH; texture; coarse fragments; von Post (organic soils); and peat materials (organic soils). Phase 1 grab samples were systematically collected during the field mapping process and analyzed for pH and particle size.

At the end of the field season, Phase 2 soil sampling was conducted. The most commonly occurring soils were sampled and described in detail. A total of 36 sites were investigated. These descriptions, along with the results of physical and chemical analyses, are presented in Appendix 1.

MAP LEGEND

Included in this section is a description of the symbol used on the soil maps accompanying this report, and a soil key which explains these soils in greater detail.

SOIL MAP SYMBOL

The map symbol is best described by the illustration below:

Soil Association or Land Type	(Phase)	Depth to constrict- ing layer	Surface Texture
Drainage	Slope	Surface Stoniness	Rockiness
Example -		<u>Tr(m)2sl</u> 3c S1 R1	

Where two soil associations are mapped in the same unit (i.e. same map symbol), the first soil association is dominant, occupying more than 40% of the area, followed by a significant soil association, which occupies 20–40%. Complex mapping units are used where the pattern of soil distribution makes separation into individual homogeneous units impossible. **Efforts were made to minimize the number of complex map units.** Where possible, single soil associations were mapped, as per the above example. Complexing of other map unit parameters (depth to compact layer, surface texture, drainage and slope) was also kept to a minimum. Examples of these complexes are shown below with the complexed element in bold.

Examples -	<u>Rb-Bb(p)3sl</u> 10b	<u>Sb2-3sl</u> 8c S1	<u>To3sl-I</u> 5c	<u>Sh2l</u> 6 cd
------------	----------------------------------	--------------------------------	-----------------------------	----------------------------

Soil Association or Land Type Thirteen mineral soil associations, three organic soil associations and eight land types are differentiated on the soil maps. In this report, a soil association is considered as a natural grouping of soils based on similarities in parent materials (petrology, mode of deposition, texture, consistence, color, and other special features). Soil associates vary in: depth to constricting or contrasting layer; surface texture; drainage; slope; surface stoniness; and rockiness; and in some cases by a phase of the modal concept — depth to bedrock, erosion, overwash, and thickness of organic layers.

Natural and man-made units in the landscape that are either highly variable in content, have little or no natural soil, or are excessively wet, are referred to as land types. Connotative names have been used to indicate the kind of soil and/or nonsoil materials present. Where a land type has been mapped, no additional information is provided on the surface texture, slope, etc.

The soil associations and land types mapped in Shediac and Botsford parishes are described in Table 2.

Table 2 Soil associations and land types

Soil Association or Land Type	Map Symbol	Soil or Nonsoil Material
Aggregate Pit	—*	Aggregate extraction site (may include sites used for bedrock extraction)
Aldouane	Al	Loose sandy marine or glaciofluvial
Barrieau-Buctouche	Bb	Loose sandy glaciofluvial or marine over compact loamy lodgment till
Blackland	Bl	Compact loamy marine or lacustrine sediments
Bog	Bo	Organic, fibric sphagnum peat
Caraquet	Cr	Loose sandy glaciofluvial or marine over compact loamy to fine-clayey marine or lacustrine sediments
Coastal Beach	—	Sandy and gravelly marine beaches periodically submerged by salt water
Escarpment	—	Long continuous steep slope (>45%) facing in one general direction
Fen	Fe	Organic, mesic-humic fen or sedge peat
Gully	—	Narrow, steep-sided ravine or small valley
Interval	In	Friable coarse-silty to coarse-loamy recent alluvium
Mount Hope	Mh	Compact fine-clayey reworked glaciomarine or glaciolacustrine deposits
Richibucto	Rb	Loose sandy marine or glaciofluvial
Salt Marsh	—	Undifferentiated marine deposits along coast or tidal river, submerged at high tide by salt water.

Table 2 — Continued

Soil Association or Land Type	Map Symbol	Soil or Nonsoil Material
Sand Dune	—	Low ridges of loose windblown sand along the coast
Stony Brook	Sb	Compact fine-loamy lodgment till
Shemogue	Sh	Compact fine-loamy lodgment till
Stream Channels	—	Seasonal stream courses and waterways
Sussex	Su	Friable coarse-loamy recent alluvium
Swamp	Sw	Organic, mesic-humic forest peat
Tormentine	To	Compact coarse-loamy lodgment till
Tracadie	Td	Fine-clayey marine or lacustrine sediments
Tracy	Tr	Compact coarse-loamy lodgment till
Urban	—	Urban centres and other concentrations of buildings and related infrastructures

* Land type names are written in full on the map.

Phase Phases have been used where a significant percentage (>33%) of the map unit soil association varies from the central or modal concept of that soil. Five phases are identified on the accompanying maps:

- e eroded surface soil
- m moderately shallow to bedrock (50–100 cm)
- p peaty phase of mineral soil association with an organic surface layer of 15–40 cm thick
- t terric phase of organic soils with 40 or 60–160 cm of organic materials over mineral soil
- v variable depth to bedrock (10–100 cm)

Depth to constricting layer A constricting layer is a soil horizon that significantly impedes root growth or the downward percolation of water, or both. Soil layers with bulk densities greater than 1.60 g/cm³ or permeabilities of less than 1.0 cm/hr, or both, are considered as constricting layers. Four depth classes are recognized:

- 1 <20 cm
- 2 20–50 cm
- 3 50–75 cm
- 4 75–100 cm

Where no depth to constricting layer is indicated it can be assumed that the depth is greater than 100 cm.

Surface texture This only applies to mineral soil associations. The average texture for the fri-

able solum (usually the A horizon and part of the B horizon) is listed here. Six texture classes are considered:

- l loam
- ls loamy sand
- scl sandy clay loam
- sid silty clay loam
- sil silt loam
- sl sandy loam

Drainage Soil drainage is defined in terms of the actual moisture content in excess of field moisture capacity and the extent of the period during which such excess water is present in the plant-root zone. Permeability, level of ground water and seepage are factors. The rate at which water is removed from the soil in relation to supply is classified from "well" to "very poor". Nine drainage class combinations are mapped. They are in descending order:

- 2 well drained
- 3 moderately well drained
- 4 dominated by rapidly, well or moderately well drained with significant imperfectly drained
- 5 dominated by imperfectly drained with significant rapidly, well or moderately well drained
- 6 imperfectly drained
- 7 dominated by imperfectly drained with significant poorly drained
- 8 dominated by poorly drained with significant imperfectly drained
- 9 poorly drained
- 10 very poorly drained

Note: Dominant represents more than 40%; significant, 20–40%. Attempts were made to minimize the use of complex drainage classes 4, 5, 7 and 8.

Slope Landscape gradient is indicated by its slope in terms of percent inclination. Surface regularity is identified as either simple (regular surface) or complex (irregular surface). The following classes have been mapped:

Simple Slope Class	Complex Slope Class	% Slope
A	a	0.0–0.5
B	b	0.5–2
C	c	2–5
D	d	5–9
E	e	9–15
F	f	15–30
G	g	30–45

Surface Stoniness Surface stones hinder and interfere with cultivation. Classes of stoniness are defined on the basis of the percentage of the land surface occupied by stone fragments coarser than 25 cm in diameter. Two classes have been mapped:

Class	Effect on Cultivation	% Surface Occupied	Distance Apart (m)
S1	slight hindrance	0.01–0.1	10–30
S2	some interference	0.1–3	2–10

Note: Where no stoniness class is recorded the soil is considered nonstony, having very few surface stones (<0.01% of the surface; stones more than 30 m apart).

Rockiness Rockiness is an indication of the interference to tillage of bedrock exposures. As previously mentioned, bedrock outcrops are not a common feature of the survey area. Only one rockiness class is present:

Class	Effect on Cultivation	% Surface Occupied	Distance Apart (m)
R1	slight interference	2–10	25–75

Note: Where no rockiness class is recorded the soil is considered nonrocky. Exposures are more than 75 m apart and cover less than 2% of the surface. In Shediac and Botsford parishes, most soils mapped as nonrocky have no (0%) surface exposures.

CORRELATION WITH PREVIOUSLY MAPPED SOIL UNITS

Soil associations have been used to name the mapped soils in this report, whereas soil series names were included in the mapping units reported in the *Soil Survey of Southeastern New Brunswick* (Aalund and Wicklund 1949), and *Descriptions of Sandy Soils in Cleared Areas of Coastal Kent and Southern Northumberland Counties, N.B.* (Langmaid et al. 1964). A soil series is the equivalent of a given drainage member of a soil association used in this report. For example, the Tidnish soil series is the poorly drained member of the Tormentine association. The relationships between the old soil series names and the new soil association names are provided in Table 3.

The central concepts for some of the soil associations used in this report have also been altered from their original definitions. For example, the Stony Brook soil association as defined in this report also includes members of the Harcourt Association (Rees et al. 1992; Wang and Rees 1983); similarly Riverbank soils have been grouped with the Richibucto Association. These modifications are also documented in Table 3.

KEY TO SOIL ASSOCIATION PARENT MATERIALS

Below is a key to the soil associations mapped during the Shediac–Botsford parishes soil survey. This key allows for the step-by-step identification of soil associations in the field. It is of particular value when attempting to differentiate soils mapped in complex units. The relationships among the soil association parent materials is also shown in terms of their respective placements in the key — similar soils are grouped together.

Mineral Soils

(including organic surface materials <60 cm thick if fibric and <40 cm if mesic or humic)

- I. Morainal (till) deposits with firm to very firm subsoil
 - A. Coarse-loamy (10–18% clay) subsoil
 1. Petrology: gray-green sandstone and highly weathered red shale and/or siltstone
Tracy (Tr) the parent material consists of firm or very firm, strong to dark reddish brown, acidic, sandy loam or loam, lodgment till, with 5–25% flat to angular gravel- and cobble-sized sandstone coarse fragments by volume.
 2. Petrology: red, micaceous, slightly calcareous, fine-grained Permo-Carboniferous sandstone and disintegrating red shale
Tormentine (To) the parent material consists of firm (to slightly friable), red, acidic to neutral, sandy loam or loam, lodgment till with 5–20% subrounded to angular gravel- and cobble-sized coarse fragments of red fine-grained sandstones.

Table 3 Correlation of soil associations with established soil series

Association	Soil Series				
	Rapid	Well	Mod. Well	Imper- fect	Poor to Very Poor
Aldouane	Aldouane Escuminac Bransfield Kennebecasis			Quispamsis	Nevers Road Oromocto
Barrieau— Buctouche		Barrieau— Buctouche Bretagneville		Côte-d'Or— Michaud	Shediac— Neguac
Blackland		Blackland			
Bog					Bog Peat Lavillette Lagacéville
Caraquet		Caraquet Upper Caraquet		Middle Caraquet Little Shippegan	Neguac Shediac
Fen					Fen Muck Acadie Siding Chelmsford
Interval		Interval		Waasis	East Canaan
Mount Hope			Mount Hope	Boland	Cambridge
Richibucto	Richibucto Riverbank Galloway Bay du Vin Chockpish			Cap-Lumière Oromocto Smelt Brook Napan	Nevers Road Oromocto Briggs Brook Fontaine
Shemogue			Shemogue	Kings	Kings
Stony Brook			Queens Stony Brook Harcourt St. Gabriel	Blackville Coal Branch North Forks	Kings Shinnickburn Grangeville North Forks
Sussex		Sussex	Sussex	Hampton	
Swamp					Swamp Muck
Tormentine		Tormentine		Tidnish	Tidnish
Tracadie			Tracadie	Bouleau	Sheila
Tracy		Tracy		Wirral	Rooth

B Fine-loamy (18–35% clay) subsoil

1. Petrology: gray-green sandstone and highly weathered red shale or siltstone, or both

Stony Brook (Sb) the parent material consists of firm or very firm, dark reddish brown, acidic, loam, clay loam, or sandy clay loam, lodgment till, with 5–25% flat to angular, gravel- and cobble-sized sandstone coarse fragments.

In many Stony Brook soils there is a capping of 30–65 cm of friable or very friable, strong brown to yellowish brown, acidic, sandy loam ablational till over the above described subsoil. Where this upper material is present, a stoneline accentuates the contact point between the two materials.

2. Petrology: red, micaceous, slightly calcareous, fine-grained Permo-Carboniferous sandstone and disintegrating red shale

Shemogue (Sh) the parent material consists of firm (to slightly friable), red, acidic to neutral, loam to clay loam, lodgment till with 5–20% subrounded to angular gravel- and cobble-sized coarse fragments of red fine-grained sandstones.

C. Fine-clayey (35–60% clay) subsoil

Mount Hope (Mh) the parent material consists of firm or very firm, dark reddish brown, acidic to neutral, clay to clay loam or silty clay loam with up to 5% gravel- and cobble-sized sandstone coarse fragments of varied shape.

II. Marine or Glaciofluvial deposits, or both

A. Sandy (<10% clay) subsoil

1. Yellowish brown to olive brown colored subsoil

Richibucto (Rb) the parent material consists of loose or very friable, yellowish brown to olive brown, acidic, loamy sand or sand with less than 20% (typically <2%) rounded, gravel-sized, sedimentary and minor igneous and metamorphic coarse fragments.

2. Dark red to dark reddish brown colored subsoil

Aldouane (Al) the parent material consists of loose or very friable, dark red to dark reddish brown, acidic, loamy sand or sand with less than 20% (typically <2%) rounded, gravel-sized, red sandstone coarse fragments.

III. Marine or Lacustrine (and Glaciomarine or Glaciolacustrine) deposits

A. Loamy (10–35% clay) subsoil

Blackland (Bl) the parent material consists of firm or very firm, dark reddish brown, neutral, loam to clay loam or silty clay loam with no coarse fragments.

B. Fine-clayey (35–60% clay) subsoil

Tracadie (Td) the parent material consists of firm or very firm, dark reddish brown, neutral, clay to clay loam or silty clay loam with no coarse fragments.

IV. Marine and/or Glaciofluvial deposits over Morainal deposits

A. Sandy (<10% clay) over loamy (10–35% clay) subsoil

Barrieau-Buctouche (Bb) the upper 25–100 cm consists of loose or very friable, yellowish brown to olive brown or reddish brown, acidic, loamy sand or sand, with less than 20% (typically <2%) rounded gravel-sized sandstone coarse fragments. The lower material is firm or very firm, dark reddish brown to red, acidic, sandy loam to loam or clay loam with 5–20% angular gravels and cobbles of grayish-green or red sandstone.

V. Marine and/or Glaciofluvial deposits over loamy to fine-clayey Marine and/or Lacustrine deposits

A. Sandy (<10% clay) over loamy to fine-clayey (10–60% clay) subsoil

Caraquet (Cr) the upper 25–100 cm consists of loose or very friable, yellowish brown to olive brown or reddish brown, acidic, loamy sand or sand, with less than 20% (typically <2%) rounded gravel-sized sandstone coarse fragments. The lower material is firm or very firm, dark reddish brown, neutral, loam, clay

loam, silty clay loam or clay with no coarse fragments.

VI. Alluvial deposits (fresh-water)

A. Coarse-loamy to coarse-silty (10–18% clay) subsoil

1. Yellowish brown to olive brown colored subsoil

Interval (In) the parent material consists of a friable or very friable, yellowish brown to olive brown, acidic to neutral, silt loam to fine sandy loam, free of coarse fragments other than the occasional random gravel of varied shape and origin.

2. Dark red to dark reddish brown colored subsoil

Sussex (Su) the parent material consists of a friable or very friable, dark red to dark reddish brown, acidic to neutral, fine sandy loam to silt loam, free of coarse fragments other than the occasional random gravel of varied shape and origin.

Organic Soil Materials

(organic materials >60 cm thick if fibric and >40 cm if mesic or humic)

I. Weakly decomposed (fibric) materials

Bog (Bo) the parent material consists of more than 60 cm of dominantly brown to dark reddish brown, extremely acidic, weakly decomposed sphagnum peat.

II. Moderately to well decomposed (mesic and humic) materials

A. Sedge peat materials

Fen (Fe) the parent material consists of more than 40 cm of dominantly dark brown, medium acid to neutral, moderately to well decomposed sedge peat. A very thin capping of weakly decomposed sphagnum peat is usually present.

B. Forest peat materials

Swamp (Sw) the parent material consists of more than 40 cm of dominantly dark brown to dark reddish brown, medium acid to neutral, moderately to well decomposed forest peat. Swamps are usually heavily treed.

GENERAL CHARACTERISTICS OF THE SOIL ASSOCIATIONS

Information on the soil associations used on the accompanying soil maps is provided in the following pages. This includes a general description of the soil in terms of drainage, color, reaction, particle size class, texture, inherent fertility, mode of deposition, location, permeability, consistence, available rooting zone, coarse fragment content (i.e. gravels, cobbles, stones), rockiness (bedrock exposures) and slope. A block diagram is presented to provide insight into the composition of the given soil association and to show relationships among related soil associations. This is followed by a summary which includes: average elevation in metres (m) above mean sea level (amsl); extent in hectares, and number of individual map sheet polygons in which the soil association occurs; percentage of surveyed area occupied by the association; mode of origin (mode of deposition); family particle size class; petrology; topography (slope ranges); drainages mapped; botanical composition and degree of decomposition for organic soils; and classification in *The Canadian System of Soil Classification* (Agriculture Canada Expert Committee on Soil Survey 1987) for the domi-

nant soil association member, based on hectares mapped. Detailed quantified profile characteristics are also provided for the upper and subsoil materials: thickness; color; sand, silt and clay, and texture; coarse fragments; consistency; bulk density, with total porosity and macro pores; permeability; available water; pH; organic carbon; electrical conductivity; and specifically for organic soils: botanical composition; wood fragments; fiber content (unrubbed); and von Post class. Terminology used is explained in the glossary at the end of the report. The number of analyses upon which a value is based is indicated by "n=". Where n=0, the value is estimated. A summary table based on depth to a constricting layer and drainage (two major properties that affect agricultural capability) provides hectare values and percentages for association map units. Lastly, there is a discussion on related soils that either occurs in complex with or in close proximity to the given soil association, and differentiating criteria for identification in the field.

ALDOUANE ASSOCIATION (AI)

GENERAL DESCRIPTION OF THE SOIL

Aldouane are well to very poorly drained, deep, dark red to dark reddish brown, acid, sandy soils, low in natural fertility, which have formed in loose well-sorted, marine or marine reworked glaciofluvial deposits derived from red sandstone. The entire depth of the soil (>1 m) consists of a loose, rapidly permeable material, that grades from a sandy loam or loamy sand surface texture into a loamy sand to sand subsoil, and is often layered or stratified. Usually these soils have practically no coarse fragments with less than 2% rounded sandstone gravels, but on occasion they may have up to 20% coarse fragments by volume. Where present, gravels tend to be concentrated in specific layers. Aldouane soils occupy a total of 895 ha or approximately 1.3% of the soils mapped in Shediac-Botsford parishes. The majority of Aldouane soils mapped in these parishes are located east of Robichaud on the north shore of the Tormentine Peninsula adjacent to the Northumberland Strait where they occupy upper slope to lower slope and depressional positions on river terraces and outwash plains, often adjacent to alluvial basins. Slopes range 0.5–9%; most are complex. Because of their coarse-textured rapidly permeable subsoils, drainage conditions tend to be the extremes, with the majority of Aldouane units mapped as either well to moderately well drained or poorly to very poorly drained. Sites mapped with impeded drainage tend to be flat locations subjected to high ground water tables. Many of the very poorly drained units have peaty surfaces with 15–40 cm of accumulated organic debris. Better drained sites are associated with increased slopes (i.e. 2–9%). A small area of Aldouane soils with less than 1 m of mineral soil material over bedrock was also mapped. These units are designated as "v" phases.

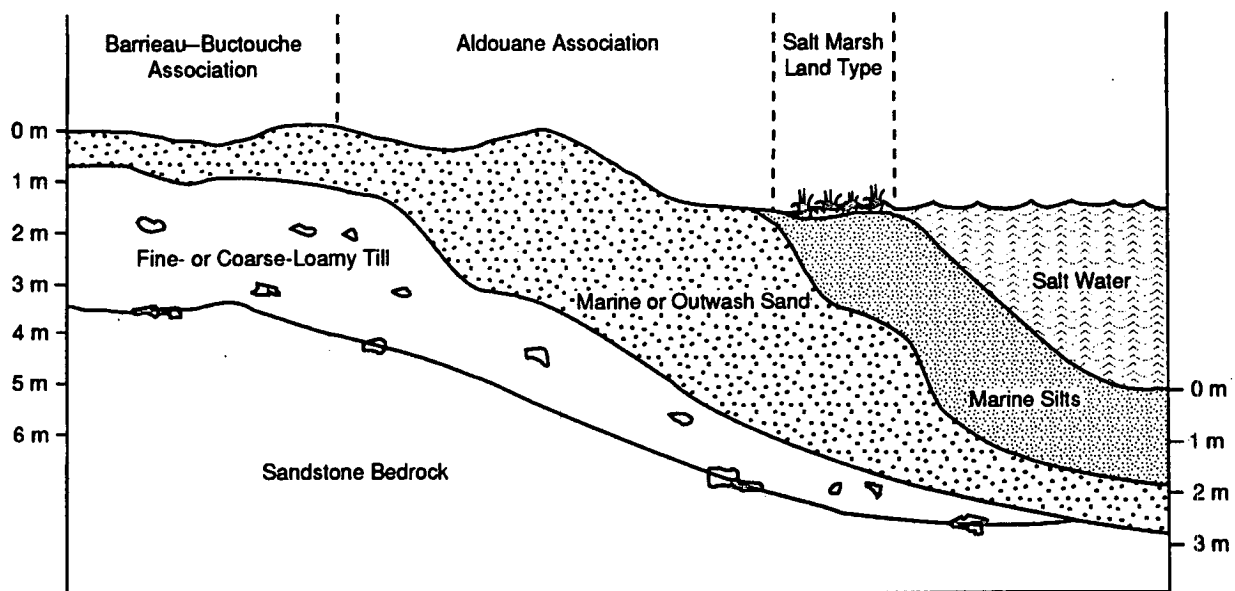


Figure 4 Sketch of landscape relationships among Aldouane Association, Barrieau-Buctouche Association and Salt Marsh land type.

Elevation	5–30 m amsl	Topography	Undulating to sloping, 0.5–9% slopes, but predominantly 2–5%
Extent	895 ha, 62 polygons		
Percentage of Mapped Area	1.3%		
Mode of Origin	Marine or marine reworked glaciofluvial	Drainages Mapped	Well to very poor
		Special Features	Sandy outwash plains and river terraces
Bedrock Type	Sandstone		
Bedrock Depth	>100 cm, unless otherwise indicated	Classification	Orthic Humo-Ferric Podzol
		(Well Drained Member)	
Particle Size Class	Sandy		
Petrology (Parent Material)	Red sandstone		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	50 cm
Color	5YR to 7.5YR hue
Sand, Silt and Clay; Texture	S=75%, Si=20%, C=5%; sl-ls (n=8)
Coarse Fragments	<2%
Consistency	Very friable
Bulk Density	1.32 g/cm ³ (n=4)
Total Porosity	46% (n=4)
Macro Pores	18% (n=4)
Sat. Hydraulic Conductivity	29.6 cm/hr (n=4)
Available Water	0.15 cm/cm (n=4)
pH (CaCl ₂)	5.1 (n=8)
Organic Carbon	1.63% (n=5)
Electrical Conductivity	0.07 mS/cm (n=4)

Subsoil Material

Color	2.5YR to 5YR hue
Sand, Silt and Clay; Texture	S=81%, Si=15%, C=4%; ls (n=7)
Coarse Fragments	<2%
Consistency	Very friable to loose
Bulk Density	1.55 g/cm ³ (n=3)
Total Porosity	39% (n=3)
Macro Pores	22% (n=3)
Sat. Hydraulic Conductivity	44.1 cm/hr (n=3)
Available Water	0.11 cm/cm (n=2)
pH (CaCl ₂)	5.1 (n=7)
Organic Carbon	0.13% (n=3)
Electrical Conductivity	0.04 mS/cm (n=4)

SUMMARY OF AI MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				TOTAL
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1-4)	Imperfectly Drained (Class 5-7)	Poorly to V. Poorly Drained (Class 8-10)	
AI	>100*	377 (42)	123 (14)	395 (44)	895 (100)
TOTAL		377 (42)	123 (14)	395 (44)	895 (100)

* 10-100 cm to bedrock if veneer "v" phase

RELATED SOILS AND DIFFERENTIATING CRITERIA

Aldouane (AI) soils have been mapped in complexes with Barrieau-Buctouche (Bb) and Fen (Fe) soils. In these complex units the soils are too intricately interspersed to be able to separate out as unique delineations at the 1:20 000 scale. Aldouane Association dominates these units, with more than 40% coverage, while the second soil, either Barrieau-Buctouche or Fen, occurs in a lesser but significant 20-40% of the polygon. The following is a description of the AI soil complexes mapped and the relationship of the different soils in the complex.

AI-Bb Aldouane-Barrieau-Buctouche complexes occur where the cappings of water deposited sediments are variable in thickness over till parent materials. Nine units covering 373 ha are mapped as AI-Bb. Differentiation of Aldouane soils from the Barrieau-Buctouche soils is relatively easily done based on thickness of the overlying sandy sediments. Aldouane soils have in excess of 100 cm of loose, coarse fragment-free, loamy sand to sand. In contrast to this, Barrieau-Buctouche soils have finer-textured compact gravelly or cobbly till subsoil materials within 1 m of the soil surface. It should be noted, however, that Aldouane and Barrieau-Buctouche soils may be identical in the upper solum.

AI-Fe One map unit (33 ha) is described as an Aldouane-Fen complex. This is found in a very poorly drained area where organic materials from decaying vegetation have accumulated. The Fen soil mapped in this unit is a terric phase with 40-160 cm of organic debris over the mineral soil. Where these soils (Aldouane and Fen) merge, there will also be some peaty phases of the Aldouane soil (i.e. 15-40 cm of organic materials over the Aldouane sands).

Aldouane (AI) soils may also be found in close proximity to soils developed on other water deposited sediments, in particular the Sussex Association. Sussex soils are also reddish brown colored and free of coarse fragments, but Sussex soil parent materials are finer-textured silt loams and fine sandy loams in comparison to the coarser-textured loamy sand Aldouane.

Aldouane soil association is also morphologically very similar to the Richibucto soil association. The two are differentiated in the field on the basis of color. Aldouane soils are dark red to dark reddish brown while Richibucto soils are yellowish to olive brown in color. Aldouane soils also tend to be slightly finer-textured than the Richibucto soils, but not sufficiently so to be used as a differentiating criteria.

BARRIEAU-BUCTOUCHE ASSOCIATION (Bb)

GENERAL DESCRIPTION OF THE SOIL

Barrieau-Buctouche soils are well to very poorly drained, deep, acid, and low in natural fertility. They have formed in deposits consisting of a thin to moderately thick surficial mantle of marine or glaciofluvial sandy material of undifferentiated lithologies, over a loamy glacial till derived from red shale and either gray-green or red sandstone. Essentially Barrieau-Buctouche soils consist of Richibucto or Aldouane water deposited sediments over Stony Brook, Shemogue, Tracy or Tormentine morainal lodgment tills. The upper material (20–100 cm thick) is a yellowish to olive brown or reddish brown, loose, rapidly permeable loamy sand to sandy loam which grades into a loamy sand to sand with depth and is usually free of coarse fragments. The second or lower material is reddish brown, compact, moderately slowly to very slowly permeable sandy loam to clay loam which contains 10–20% coarse fragments of subangular gravels and cobbles. Although almost 90% of the units mapped as Barrieau-Buctouche are designated as sandy loam surface textures, they are on the coarse side being very close to loamy sands. Barrieau-Buctouche soils account for over 5% of the area mapped in Shediac-Botsford parishes, occupying some 3692 ha. Most of these soils are concentrated along the coast, usually within 5 km of the ocean, from Shediac Bridge to Spence Settlement. When located inland, Barrieau-Buctouche soils are frequently found in close proximity to either stream or river courses. Slopes average 0.5–5%. Most sites are either moderately well or imperfectly drained, however, a significant area is either poorly or very poorly drained. Well drained sites are limited in occurrence. Some of the poorly and very poorly drained sites have peaty surfaces 15–40 cm thick. Veneer phases are not common, and only 12 units occur.

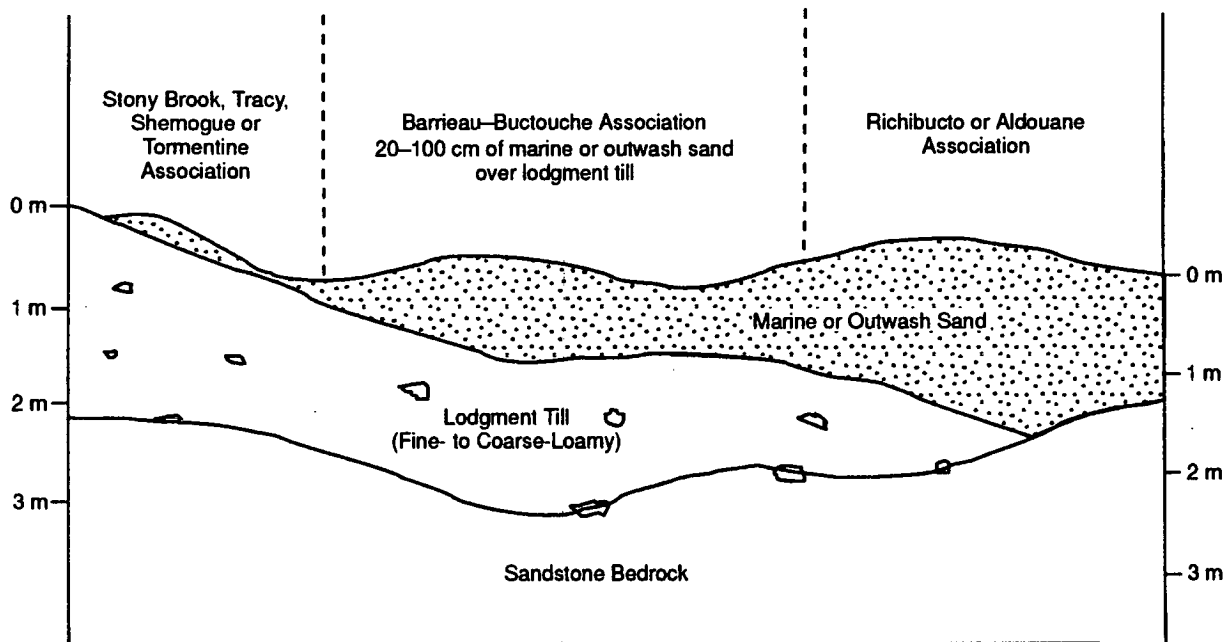


Figure 5 Sketch of landscape relationships among Barrieau-Buctouche; Stony Brook, Tracy, Shemogue or Tormentine; and Richibucto or Aldouane associations.

Elevation	5–40 m amsl	Family Particle Size Class	Sandy over loamy
Extent	3692 ha, 235 polygons	Petrology (Parent Material)	Variable over sandstone-shale
Percentage of Mapped Area	5.2%	Topography	Undulating, 0.5–5% slopes
Mode of Origin	Marine or glaciofluvial over till	Drainages Mapped	Well to very poor
Bedrock Type	Sandstone	Classification (Imperfectly Drained Member)	Gleyed Humo-Ferric Podzol
Bedrock Depth	>100 cm, unless otherwise indicated		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	50 cm
Color	5YR to 10YR hue
Sand, Silt and Clay; Texture	S=76%, Si=19%, C=5%; ls-sl (n=15)
Coarse Fragments	<2%
Consistency	Very friable
Bulk Density	1.47 g/cm ³ (n=5)
Total Porosity	40% (n=5)
Macro Pores	14% (n=5)
Sat. Hydraulic Conductivity	14.5 cm/hr (n=4)
Available Water	0.14 cm/cm (n=4)
pH (CaCl ₂)	5.0 (n=15)
Organic Carbon	1.76% (n=7)
Electrical Conductivity	0.06 mS/cm (n=6)

Subsoil Material #1

Thickness	25 cm
Color	2.5YR to 10YR hue
Sand, Silt and Clay; Texture	S=90%, Si=4%, C=6%; s (n=0)
Coarse Fragments	<5%
Consistency	Very friable to loose
Bulk Density	1.50 g/cm ³ (n=0)
Total Porosity	41% (n=0)
Macro Pores	20% (n=0)
Sat. Hydraulic Conductivity	14.0 cm/hr (n=0)
Available Water	0.08 cm/cm (n=0)
pH (CaCl ₂)	4.9 (n=0)
Organic Carbon	0.40% (n=0)
Electrical Conductivity	0.03 mS/cm (n=0)

Subsoil Material #2

Color	2.5YR to 7.5YR hue
Sand, Silt and Clay; Texture	S=58%, Si=28%, C=14%; sl (n=8)
Coarse fragments	15%
Consistency	Firm
Bulk Density	1.81 g/cm ³ (n=4)
Total Porosity	29% (n=4)
Macro Pores	4% (n=4)
Sat. Hydraulic Conductivity	1.04 cm/hr (n=4)
Available Water	0.14 cm/cm (n=4)
pH (CaCl ₂)	4.5 (n=8)
Organic Carbon	0.08% (n=5)
Electrical Conductivity	0.03 mS/cm (n=5)

SUMMARY OF Bb MAP UNITS

Hectares (%) for Different Drainage Classes

Map Unit	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1-4)	Imperfectly Drained (Class 5-7)	Poorly to V. Poorly Drained (Class 8-10)	TOTAL
Bb2	20-50	361 (10)	499 (13)	286 (8)	1 146 (31)
Bb2-3	20-75	130 (4)	79 (2)	31 (1)	240 (7)
Bb2-4	20-100	—	99 (3)	46 (1)	145 (4)
Bb3	50-75	897 (24)	713 (19)	341 (9)	1 951 (52)
Bb3-4	50-100	42 (1)	—	—	42 (1)
Bb4	75-100	80 (2)	65 (2)	23 (1)	168 (5)
TOTAL		1 510 (41)	1 455 (39)	727 (20)	3 692 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Barrieau-Buctouche (Bb) soils have been mapped in complexes with Fen (Fe), Richibucto (Rb), Tormentine (To) and Tracy (Tr) soils. In these complex units the soils are too intricately interspersed to be able to separate out as unique delineations at the 1:20 000 scale. Barrieau-Buctouche Association dominates these units, with more than 40% coverage, while the second soil, either Fen, Richibucto, Tormentine or Tracy, occurs in a lesser but significant 20-40% of the polygon. The following is a description of the Bb soil complexes mapped and the relationship of the different soils in the complex.

Bb-Fe Two map units (27 ha) are described as Barrieau-Buctouche-Fen complexes. These are found in poorly to very poorly drained areas where organic materials from decaying vegetation have accumulated. Fens are organic soils with greater than 160 cm of organic debris. The Barrieau-Buctouche soils mapped in these complexes are peaty phases with 15-40 cm of organic material over the mineral soil. Where these soils merge, there will also be some terric phases of the Fen soil (i.e. 40-160 cm of organic materials over mineral soils).

Bb-Rb Barrieau-Buctouche-Richibucto complexes occur where the cappings of water deposited sediments are variable in thickness over till parent materials. Two units covering 85 ha are mapped as Bb-Rb. Differentiation of Barrieau-Buctouche soils from the Richibucto soils is relatively easily done based on thickness of the overlying sandy sediments. Richibucto soils have in excess of 100 cm of loose, coarse fragment-free, loamy sand to sand. In contrast to this, Barrieau-Buctouche soils have finer-textured compact gravelly or cobbly till subsoil materials within 1 m of the soil surface. It should be noted, however, that Richibucto and Barrieau-Buctouche soils may be identical in the upper solum.

Bb-To Since Barrieau-Buctouche soils are commonly found in association with soils developed on either of their two components, it is natural that they are also associated with coarse-loamy textured compact lodgment till soils such as Tormentine. The Bb-To complex is the most abundant of all Barrieau-Buctouche complexes, occurring in 12 units which occupy 276 ha. Separation of the Barrieau-Buctouche soils from the Tormentine till soil is only difficult where the overburden of fluvial sediments is relatively shallow and some intermixing of the two materials has taken place as a result of frost action, windthrow and deep tillage. In these instances the soil was grouped with the Tormentine Association. The Barrieau-Buctouche designation was reserved for soils with obvious fluvial cappings. Bb-To complexes have components of both associations as well as some intergrades with transitional characteristics.

Bb-Tr Some complexes with the Tracy Association (3 units, 179 ha) have been mapped where sandy fluvial sediments (i.e. Richibucto or Aldouane Association) occur with Tracy till parent materials. As with the Tormentine soils, separation of the Barrieau-Buctouche soils from the Tracy till soil is only difficult where the overburden of fluvial sediments is relatively shallow and some intermixing of the two materials has taken place as a result of frost action, windthrow and deep tillage. In these instances the soils were grouped with the Tracy Association, reserving the Barrieau-Buctouche designation for soils with obvious fluvial cappings.

BLACKLAND ASSOCIATION (B1)

GENERAL DESCRIPTION OF THE SOIL

Blackland soils are predominantly poorly to very poorly drained, deep, reddish brown, medium acid to neutral and fine-loamy. They are moderate in natural fertility and have formed in marine silt and clay sediments that were deposited during postglacial marine/lacustrine submergence. Blackland soils consist of 20–75 cm of friable, moderately permeable sandy loam, loam or silty clay loam surface material over a firm, very slowly permeable silt loam to silty clay loam subsoil. Sandy loam surface textures are suspected to be the result of incorporation of thin cappings of sandy sediments. The pH usually increases with depth from an acid surface to near neutral at 1 m. Although the subsoil is firm and restricts water movement, the bulk density is only slightly over 1.60 g/cm^3 . Uniformity of particle size (i.e. mostly silts and clays) does not allow for close packing. No coarse fragments are present. Blackland soils are found between Gallant Settlement and Little Shemogue. They occupy approximately 110 ha. Slopes are usually less than 2%, with complex configurations. Blackland soils are the fine-loamy to fine-silty equivalent of the Tracadie Association soils.

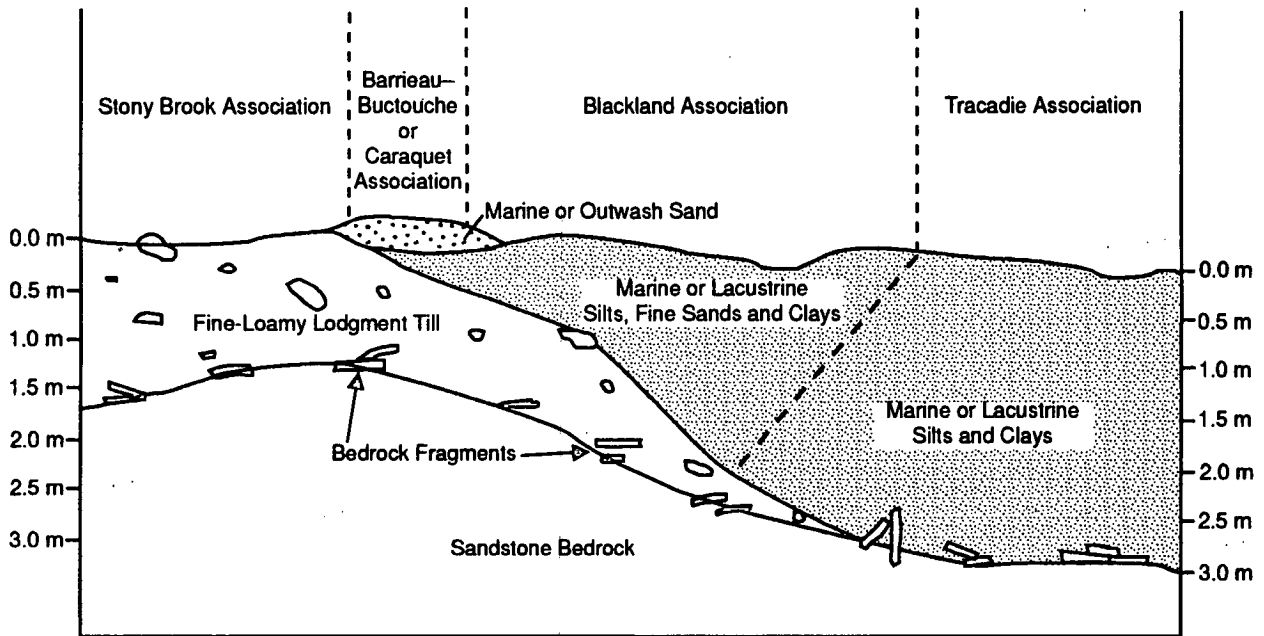


Figure 6 Sketch of landscape relationships among Stony Brook; Barrieau-Buctouche or Caraquet; Blackland; and Tracadie associations.

Elevation	5–40 m amsl	Topography	Level to gently undulating,
Extent	110 ha, 11 polygons		0–2% slopes
Percentage of Mapped Area	0.16%	Drainages Mapped	Poor and very poor, some imperfect
Mode of Origin	Marine or lacustrine	Special Features	Equivalent to loamy Tracadie
Family Particle Size Class	Coarse- to fine-silty	Classification (Poorly and Very Poorly Drained Members)	Orthic Luvis Gleysol
Petrology (Parent Material)	Undifferentiated		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	20–75 cm
Color	5YR or redder hue
Sand, Silt and Clay; Texture	S=20%, Si=65%, C=15%; sil (n=0)
Coarse Fragments	0%
Consistency	Friable
Bulk Density	1.45 g/cm ³ (n=0)
Total Porosity	45% (n=0)
Macro Pores	9% (n=0)
Sat. Hydraulic Conductivity	3.0 cm/hr (n=0)
Available Water	0.25 cm/cm (n=0)
pH (CaCl ₂)	5.5 (n=0)
Organic Carbon	1.50% (n=0)
Electrical Conductivity	0.06 mS/cm (n=0)

Subsoil Material

Color	5YR or redder hue
Sand, Silt and Clay; Texture	S=15%, Si=65%, C=20%; sil (n=0)
Coarse Fragments	0%
Consistency	Firm to friable
Bulk Density	1.65 g/cm ³ (n=0)
Total Porosity	38% (n=0)
Macro Pores	4% (n=0)
Sat. Hydraulic Conductivity	0.20 cm/hr (n=0)
Available Water	0.20 cm/cm (n=0)
pH (CaCl ₂)	6.0 (n=0)
Organic Carbon	0.20% (n=0)
Electrical Conductivity	0.03 mS/cm (n=0)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Blackland soils are most often found in low lying and depressional positions in the landscape, or they are associated with tidal rivers and streams. As they are water deposited sediments, they are associated with other water deposited materials occupying similar landscape positions. Tracadie soils are similar to Blackland soils in that both associations consist of fine sediments deposited in marine or lacustrine environments. The two associations are separated on the basis of clay content. Tracadie soils are fine-clayey, with more than 35% clay in the parent material. Blackland soils are coarse- to fine-silty with less than 35% clay in their subsoils, usually 15–25% clay. The two associations are very similar in most other respects.

Some Blackland soils have sandy loam surface textures. This is suspected to be the result of incorporation of a thin capping of sandy sediments, such as the parent materials of Richibucto and Aldouane associations. Differentiation of Blackland soils from these coarser-textured marine/fluvial sediments is easily done based on subsoil texture and consistence. Richibucto and Aldouane soils consist of more than 100 cm of loose loamy sand to sand. In contrast to this, Blackland soils are finer-textured throughout and compact within 50–75 cm of the soil surface.

SUMMARY OF BI MAP UNITS

Hectares (%) for Different Drainage Classes

Map Unit	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imper-fectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	TOTAL
BI2	20–50	—	—	68 (62)	68 (62)
BI3	50–75	4 (4)	15 (13)	23 (21)	42 (38)
TOTAL		4 (4)	15 (13)	91 (83)	110 (100)

BOG ASSOCIATION (Bo)

GENERAL DESCRIPTION OF THE SOIL

Bog Association members are organic soils that have developed on domed, flat and basin bog peatlands. They consist of weakly decomposed peat deposits containing more than 30% organic matter by weight and are at least 60 cm thick, with most being 1.6 m in thickness and greater (to in excess of 3 m). Bogs are dominated by sphagnum peat materials in an ombrotrophic environment. This is due to the slightly elevated nature of the bog resulting in it being disassociated from nutrient-rich ground water and water from surrounding mineral soils. Most slopes are simple and less than 1%. Yellowish to pale brown, loose and spongy, weakly decomposed (fibric) sphagnum peat dominates throughout the soil profile. These materials are extremely acid ($\text{pH} < 4.5$), and have low bulk density ($< 0.1 \text{ g/cm}^3$) and very high fiber content, with von Post scale of decomposition ratings of Class 1 to Class 4, usually increasing with depth. Drainage is very poor, with water tables at or near the surface in the spring, and only slightly below during the remainder of the year. Most Bogs are treeless in the centres and have stunted coniferous growth on the peripheries where increased nutrient sources occur along the contact with mineral soils. All Bogs are characterized by dense ground vegetative cover of ericaceous shrubs and hummocky microtopography. Some Bogs (5 units) have only thin accumulations of sphagnum debris. Units consisting of 60–160 cm of fibric sphagnum peat are classified as terric (t) phases. The underlying mineral soils were not differentiated but usually consist of the predominating morainal lodgment till in the area. Deposits are scattered throughout the survey area, accounting for 46 units covering 1065 ha. In southeastern New Brunswick, Bogs are usually the culmination of a "gradual build-up" or "filling-in" process of organic debris accumulation that has often gone through "fen" and "swamp" stages.

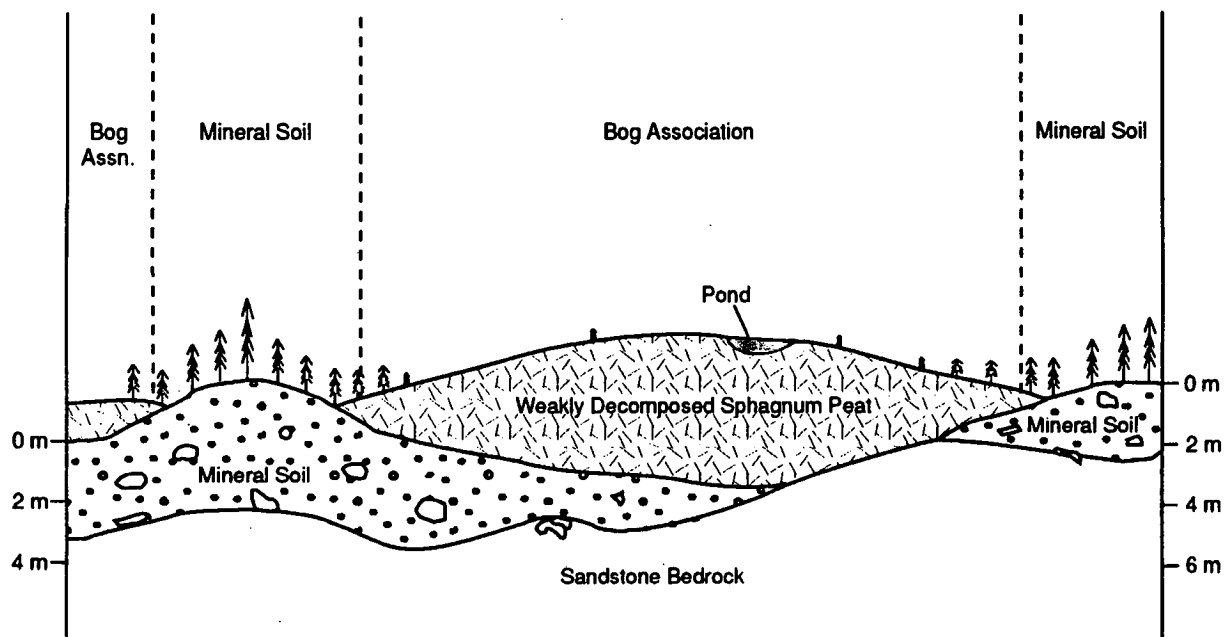


Figure 7 Landscape sketch of Bog Association showing relationship with mineral soils.

Elevation	10–40 m amsl	Topography	Level, 0–2% slopes, with hummocky micro-relief
Extent	1065 ha, 46 polygons	Drainages Mapped	Very poor
Percentage of Mapped Area	1.5%	Special Features	Bog type landform
Mode of Origin	Organic (ombrotrophic environment)	Classification	Typic or Mesic Fibrisol or Terric Mesic Fibrisol
Botanical Composition	Sphagnum peat		
Degree of Decomposition (von Post)	Weak - fibric (Class 1–4)		

PROFILE CHARACTERISTICS

Thickness over Mineral Soil	>160 cm, terric phase 60–160 cm
Color	7.5YR to 2.5Y hue
Botanical Composition	Sphagnum mosses, ericaceous shrubs
Wood Fragments	2%
Consistency	Loose and spongy
Bulk Density	<0.06 gm/cm ³ (n=0)
Total Porosity	98% (n=0)
Macro Pores	45% (n=0)
Sat. Hydraulic Conductivity	20.0 cm/hr (n=0)
Available Water	0.10 cm/cm (n=0)
pH (CaCl ₂)	3.8 (n=0)
Organic Carbon	38.0% (n=0)
Fiber Content (unrubbed)	90% (n=0)
von Post Class	3 (n=0)
Electrical Conductivity	0.02 mS/cm (n=0)

SUMMARY OF Bo MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				TOTAL
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imper- fectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	
Bo	>160	—	—	988 (93)	988 (93)
Bo(t)	60–160	—	—	77 (7)	77 (7)
TOTAL		—	—	1 065 (100)	1 065 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Bog (Bo) soils have been mapped in complexes with Fen (Fe) soils. In these complex units the soils are too intricately interspersed to be able to separate out as unique delineations at the 1:20 000 scale. Bog soils dominate these units, with more than 40% coverage, while Fen soils occur in a lesser but significant hectareage of some 20–40% of the polygon. The following is a description of the Bo-Fe soil complex:

Bo-Fe Bog soils are naturally associated with other organic soils such as Fens. Fen soils are found in similar landscape locations, however, unlike Bog soils, Fen soils consist of organic debris that is moderately well to well decomposed, because of their more eutrophic (nutrient-rich) environments. Fens are also more heavily treed than Bogs. Fens are dominated by sedge peats in comparison to the sphagnum peat dominated Bog soils. Bo-Fe units also consist of transitional soils. They are Fens on which a capping of sphagnum peat elevates the deposit above the regional water table. Three units of Bo-Fe were mapped covering 70 ha.

Bog soils are also associated with poorly and very poorly drained members of some mineral soils, such as poorly and very poorly drained members of the Stony Brook, Tracy, Shemogue and Tormentine associations. These mineral soil associations may have surface layers of fibric sphagnum moss totalling up to 60 cm thick, but are usually covered by less than 15 cm of forest floor organic materials. Organic-mineral soil intergrades having 15–60 cm of fibric sphagnum material are designated as peaty (p) phases of the mineral soil associations.

CARAQUET ASSOCIATION (Cr)

GENERAL DESCRIPTION OF THE SOIL

Caraquet soils are moderately well to poorly drained, deep, acid, and low in natural fertility. They have formed in deposits consisting of a thin to moderately thick surficial mantle of marine or glaciofluvial sandy material of undifferentiated origins, over a loamy to fine-clayey marine or lacustrine deposited material consisting mostly of silts, clays and some fine to very fine sands. Essentially Caraquet soils consist of Richibucto or Aldouane sand deposits over Tracadie or Blackland silt and clay sediments. The upper material is a yellowish to olive brown or reddish brown, loose, rapidly permeable sandy loam to loamy sand, 20–100 cm thick, and usually free of coarse fragments. Surface textures include sandy loams, loams and loamy sands. The second or lower material is reddish brown, compact, slowly to extremely slowly permeable silt loam to silty clay and is also free of coarse fragments. Caraquet Association soils are found in close proximity to the coast, between Shediac Bridge and Petit-Cap. Only 73 ha of this soil have been mapped in Shediac–Botsford parishes. They are found on 0.5–5% slopes. Most sites are either poorly or imperfectly drained.

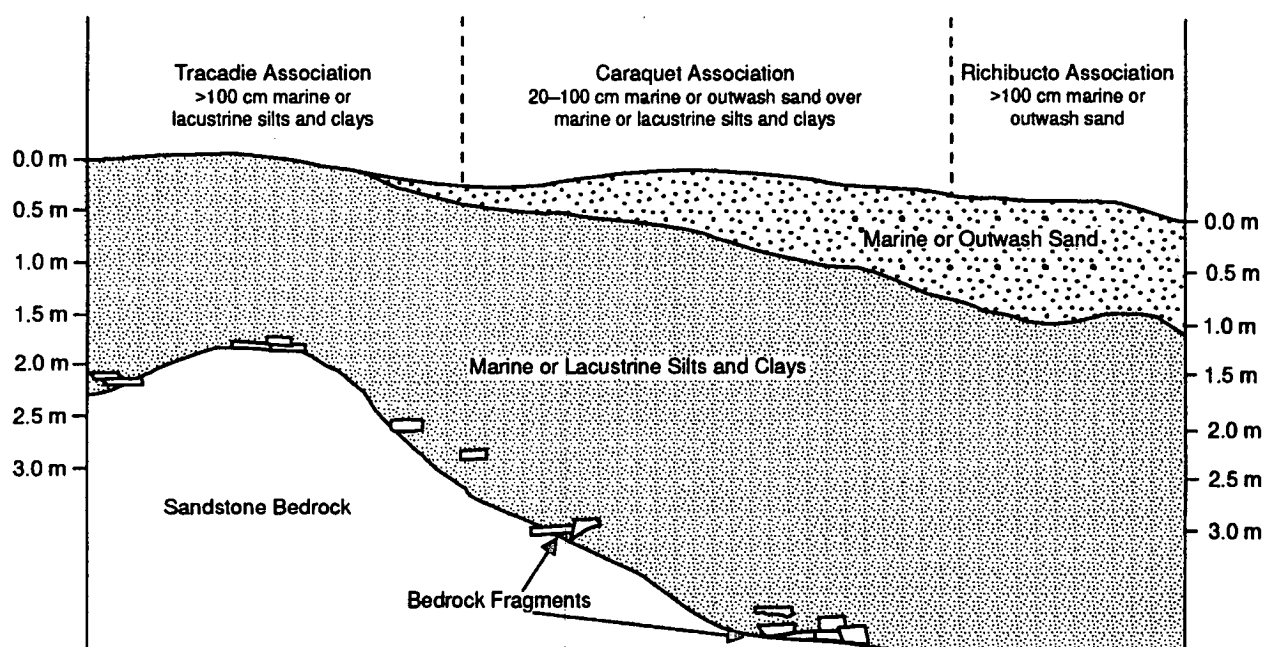


Figure 8 Sketch of landscape relationships among Caraquet, Tracadie and Richibucto associations.

Elevation	5–40 m amsl	Petrology (Parent Material)	Variable over variable
Extent	73 ha, 5 polygons	Topography	Undulating, 0.5–5% slopes, but predominantly 2–5%
Percentage of Mapped Area	0.10%	Drainages Mapped	Imperfect and poorly, some moderately well
Mode of Origin	Marine or glaciofluvial over marine or lacustrine	Classification (Imperfectly Drained Member)	Gleyed Humo-Ferric Podzol
Family Particle Size Class	Sandy over loamy to fine-clayey		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	50 cm
Color	5YR to 10YR hue
Sand, Silt and Clay; Texture	S=82%, Si=17%, C=3%; sl (n=3)
Coarse Fragments	<2%
Consistency	Very friable
Bulk Density	1.40 g/cm ³ (n=0)
Total Porosity	47% (n=0)
Macro Pores	20% (n=0)
Sat. Hydraulic Conductivity	20.0 cm/hr (n=0)
Available Water	0.12 cm/cm (n=0)
pH (CaCl ₂)	5.0 (n=3)
Organic Carbon	1.50% (n=0)
Electrical Conductivity	0.06 mS/cm (n=0)

Subsoil Material #1

Thickness	25 cm
Color	2.5YR to 10YR hue
Sand, Silt and Clay; Texture	S=83%, Si=11%, C=6%; ls (n=1)
Coarse Fragments	<5%
Consistency	Very friable to loose
Bulk Density	1.50 g/cm ³ (n=0)
Total Porosity	43% (n=0)
Macro Pores	20% (n=0)
Sat. Hydraulic Conductivity	20.0 cm/hr (n=0)
Available Water	0.08 cm/cm (n=0)
pH (CaCl ₂)	4.5 (n=1)
Organic Carbon	0.20% (n=0)
Electrical Conductivity	0.03 mS/cm (n=0)

Subsoil Material #2

Color	2.5YR to 7.5YR hue
Sand, Silt and Clay; Texture	S=21%, Si=44%, C=35%; cl (n=1)
Coarse Fragments	0%
Consistency	Firm
Bulk Density	1.65 g/cm ³ (n=0)
Total Porosity	38% (n=0)
Macro Pores	3% (n=0)
Sat. Hydraulic Conductivity	0.20 cm/hr (n=0)
Available Water	0.15 cm/cm (n=0)
pH (CaCl ₂)	4.9 (n=1)
Organic Carbon	0.20% (n=0)
Electrical Conductivity	0.03 mS/cm (n=0)

SUMMARY OF Cr MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				TOTAL
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1-4)	Imperfectly Drained (Class 5-7)	Poorly to V. Poorly Drained (Class 8-10)	
Cr2	20-75	—	—	23 (32)	23 (32)
Cr3	50-75	—	21 (29)	—	21 (29)
Cr4	75-100	29 (39)	—	—	29 (39)
TOTAL		29 (39)	21 (29)	23 (32)	73 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Caraquet soils are commonly associated with soils that have developed on either of their two constituents, sandy marine-glaciofluvial deposits of Richibucto and Aldouane materials, or medium- to fine-textured compact marine-lacustrine deposits of Blackland and Tracadie silts and clays. Differentiation of Caraquet soils from the aforementioned sandy soils is relatively easily done based on thickness and consistence of the overlying sandy sediments. Richibucto and Aldouane soils have in excess of 100 cm of loose loamy sand, while Caraquet soils are underlain by a compact fine-textured subsoil which occurs somewhere 20-100 cm below the soil surface.

Separation of Caraquet soils from Tracadie and Blackland soils may be difficult where the overburden of sandy sediments is relatively shallow and some intermixing of the two materials has taken place as a result of frost action, windthrow and deep tillage. In these instances the soil was grouped with the appropriate finer-textured soil association (i.e. Tracadie or Blackland) and given a surface texture designation indicative of the condition. Water deposited sediments tend to be gradational because of their dependence on water movement speeds during deposition. Layers of significantly different particle size classes may occur in either of the sandy or silt and clay materials.

FEN ASSOCIATION (Fe)

GENERAL DESCRIPTION OF THE SOIL

Fen Association members are organic soils that have developed on horizontal, shore and stream fens. They consist of moderately well to well decomposed peat deposits containing more than 30% organic matter by weight and are at least 40 cm thick, with most being 1.6 m in thickness and greater. Fens are dominated by sedge peat materials in a eutrophic environment due to the close association of the material with nutrient-rich ground waters. Dark brown, moderately well to well decomposed (mesic to humic) sedge peats with medium-sized fibers dominate throughout the soil profile. These materials are medium acid to neutral (pH 5.5–7.5), relatively dense (0.1–0.2 g/cm³), and have low fiber content, with von Post scale of decomposition ratings of Class 5–7. Drainage is very poor and mineral-rich water tables persist seasonally at or very near the surface. Both simple and complex slopes occur. All sites have less than 2% gradient. Ground cover is dominated by sedges with a subdominant component of sphagnum moss. There is usually a low to medium height shrub cover and a sparse layer of trees. Approximately one-third of the Fen units mapped are shallow, consisting of 60–160 cm of sedge peat over mineral soil. They are designated as terric (t) phases. The underlying mineral soils were not differentiated but are commonly water deposited sediments because of the Fen's typical locations along streams and on shorelines. Fen deposits are scattered throughout the study area. In southeastern New Brunswick, Fens are usually an intermediate stage in the "gradual build-up" or "filling-in" process of organic debris accumulation that will culminate in a bog.

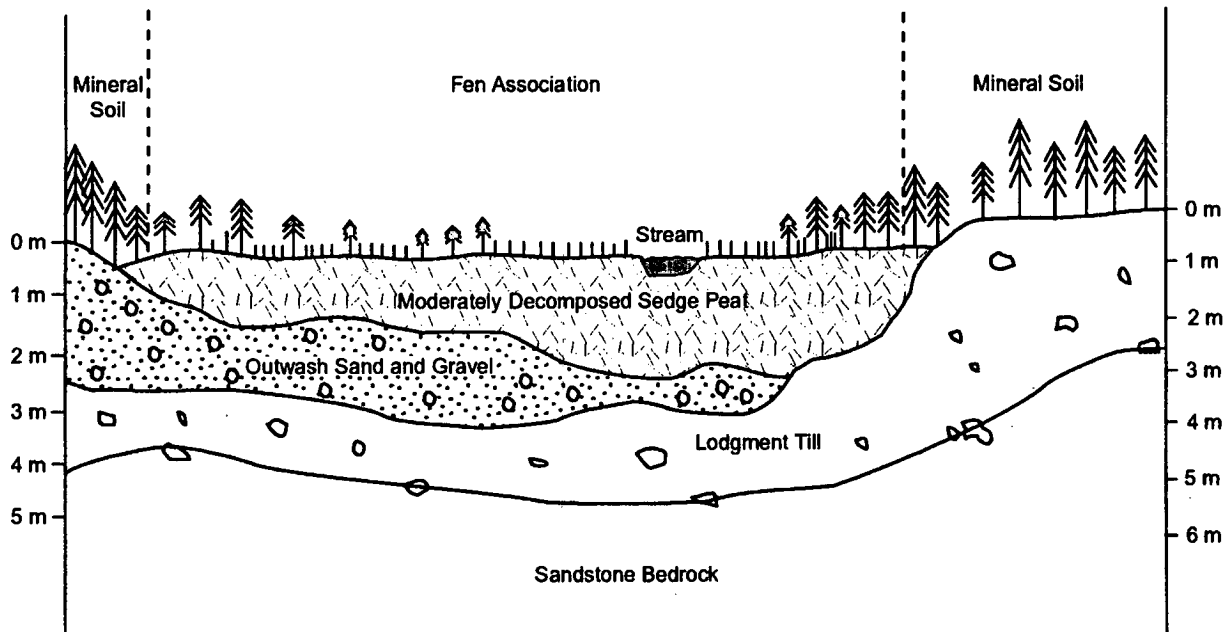


Figure 9 Landscape sketch of Fen Association showing relationship with mineral soils.

Elevation	0–30 m amsl	Topography	Level, <2.0% slopes, with hummocky micro-relief
Extent	819 ha, 76 polygons	Drainages Mapped	Very poor
Percentage of Mapped Area	1.2%	Special Features	Fen type landform
Mode of Origin	Organic (eutrophic environment)	Classification	Typic or Terric Humic Mesisol or Mesic Humisol
Botanical Composition	Sedge peat		
Degree of Decomposition (von Post)	Moderately well to well - mesic to humic (Class 5–7)		

PROFILE CHARACTERISTICS

Thickness over Mineral Soil	>160 cm, terric phase 40–160 cm
Color	7.5YR hue
Botanical Composition	Sedges
Wood Fragments	6%
Consistency	Fibrous
Bulk Density	<0.17 gm/cm ³ (n=0)
Total Porosity	94% (n=0)
Macro Pores	22% (n=0)
Sat. Hydraulic Conductivity	3.0 cm/hr (n=0)
Available Water	0.20 cm/cm (n=0)
pH (CaCl ₂)	5.5 (n=0)
Organic Carbon	27.0% (n=0)
Fiber Content (unrubbed)	50% (n=0)
von Post Class	6 (n=0)
Electrical Conductivity	0.02 mS/cm (n=0)

SUMMARY OF Fe MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				TOTAL
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imperfectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	
Fe	>160	—	—	514 (63)	514 (63)
Fe(t)	40–160	—	—	305 (37)	305 (37)
TOTAL	—	—	—	819 (100)	819 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Fen soils are naturally associated with other organic soils such as Bogs and Swamps. All three are found in similar landscape locations — lower slope and depression sites.

Bog soils are readily differentiated from Fens. Unlike Fen soils, Bog soils consist primarily of sphagnum plant materials that are weakly decomposed because of their extremely acidic, ombrotrophic (nutrient-poor) environments. Fen soils consist of sedge materials that are moderately well to well decomposed because of their more eutrophic (nutrient-rich) environments. Bogs are also mostly devoid of tree cover except for the occasional stunted conifer, in contrast to the more heavily treed Fen soils.

Swamp soils are very similar to Fens but differ in terms of parent materials. Both soils consist of organic debris that is moderately well to well decomposed and nutrient-rich, with near neutral pH. Swamps consist of forest peat debris in comparison to the sedge-dominated Fens. Swamp units are also more heavily treed, usually supporting dense stands of both coniferous and deciduous tree species.

Poorly and very poorly drained members of several mineral soils are also commonly found near Fen soils. Mineral soil associates include soils developed on fluvial sediments, such as Richibucto, Aldouane, Interval and Sussex, as well as soils developed on morainal till deposits, such as Stony Brook, Tracy, Shemogue and Tormentine. In some cases these mineral soil associates have surface layers of mesic sedge-sphagnum peats totalling up to 40 cm thick, but they are more typically covered by less than 15 cm of forest floor organic materials. Organic-mineral soil intergrades having 15–40 cm of mesic sedge-sphagnum material are designated as peaty (p) phases of the mineral soil associations.

INTERVAL ASSOCIATION (In)

GENERAL DESCRIPTION OF THE SOIL

The Interval soils mapped are predominantly poorly to very poorly drained, deep, yellowish brown to olive brown, acid, coarse-silty to coarse-loamy soils, high in natural fertility, which have formed in alluvial deposits. The entire depth of the profile is a friable to very friable, permeable, stratified material of fine sands and silts. Surface textures are typically silt loam, but may include some loams, sandy loams and even an occasional silty clay loam. Interval soils are found on level to gently undulating (mostly 0.5–2% slopes) stream terraces and floodplains along water courses scattered throughout the parishes. A total of 543 ha of Interval soils have been mapped, primarily in long narrow riparian strips. Two units were mapped as peaty phases, having accumulations of 15–40 cm of organic material on the mineral soil surface. When properly drained or landformed, and protected from flooding, Interval soils are very productive.

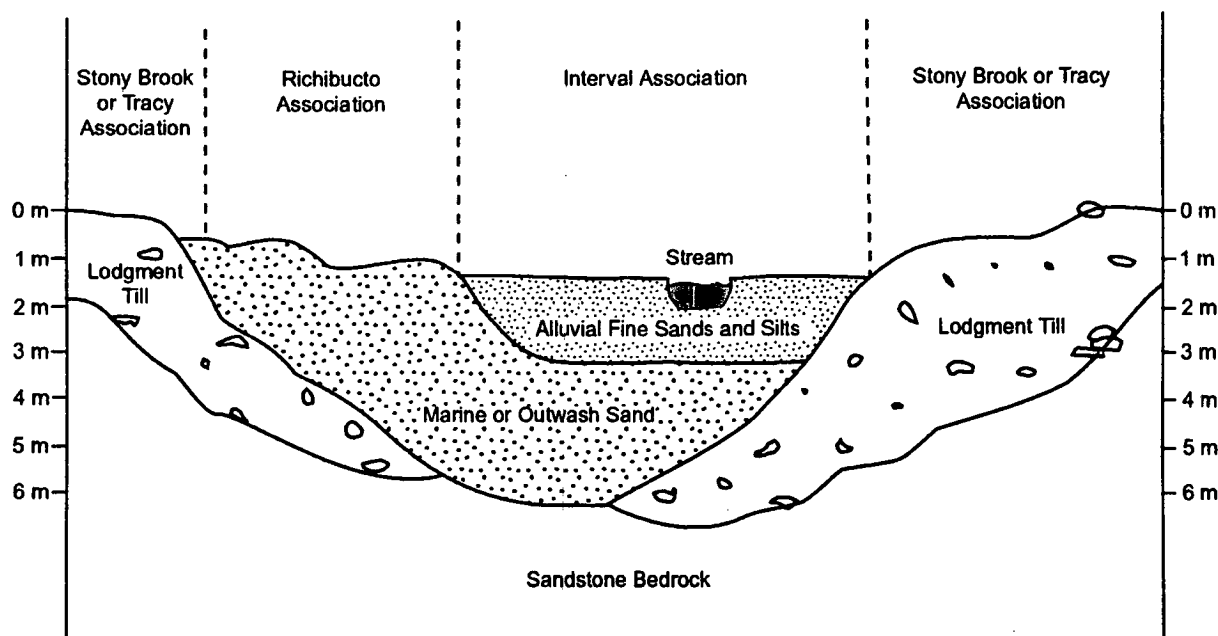


Figure 10 Sketch of landscape relationships among Interval; Richibucto; and Stony Brook or Tracy associations.

Elevation	0–30 m amsl	Topography	Level to gently undulating, 0.5–5% slopes, but predominantly 0.5–2%
Extent	543 ha, 62 polygons	Drainages Mapped	Poor to very poor, some imperfect
Percentage of Mapped Area	0.77%	Special Features	Texturally dominated by silt and very fine sand
Mode of Origin	Alluvial	Classification	Rego Gleysol
Family Particle Size Class	Coarse-silty to coarse-loamy	(Poorly Drained Member)	
Petrology (Parent Material)	Mixed		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	30 cm
Color	10YR to 7.5YR hue
Sand, Silt and Clay; Texture	S=24%, Si=61%, C=15%; sil (n=0)
Coarse Fragments	0%
Consistency	Very friable
Bulk Density	1.10 g/cm ³ (n=0)
Total Porosity	58% (n=0)
Macro Pores	20% (n=0)
Sat. Hydraulic Conductivity	14.0 cm/hr (n=0)
Available Water	0.30 cm/cm (n=0)
pH (CaCl ₂)	5.3 (n=0)
Organic Carbon	3.0% (n=0)
Electrical Conductivity	0.02 mS/cm (n=0)

Subsoil Material

Color	10YR to 2.5Y hue
Sand, Silt and Clay; Texture	S=34%, Si=50%, C=16%; sil (n=0)
Coarse Fragments	0%
Consistency	Friable to very friable
Bulk Density	1.23 g/cm ³ (n=0)
Total Porosity	54% (n=0)
Macro Pores	11% (n=0)
Sat. Hydraulic Conductivity	2.0 cm/hr (n=0)
Available Water	0.30 cm/cm (n=0)
pH (CaCl ₂)	5.0 (n=0)
Organic Carbon	1.2% (n=0)
Electrical Conductivity	0.02 mS/cm (n=0)

SUMMARY OF In MAP UNITS

Hectares (%) for Different Drainage Classes

Map Unit	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1-4)	Imper- fectly Drained (Class 5-7)	Poorly to V. Poorly Drained (Class 8-10)	TOTAL
In	>100	7 (1)	197 (36)	339 (63)	543 (100)
TOTAL		7 (1)	197 (36)	339 (63)	543 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

In terms of physical and chemical characteristics, Interval soils most closely resemble Sussex soils. Both soils have developed on modern day alluvial materials, primarily silts and fine to very fine sands. Because of this commonality in parent material, they tend to occupy the same types of positions in the landscape, floodplains and low lying stream and river terraces. Although close to identical in most of their morphological features, Sussex soils vary from Interval soils in one very obvious characteristic, matrix color. Sussex soils have developed on red alluvial sediments (5YR or redder) whereas the Interval soils have developed on yellowish to olive brown colored alluvial sediments (10YR-7.5YR).

While no Interval-Sussex complexes have been mapped, some transitional soil types are bound to occur, in both Interval and Sussex map units.

Interval soils are also commonly associated with, or found in close proximity to, soils that have developed on other water deposited sediments, in particular the Richibucto Association. Alluvial deposited Interval soils occupy lower-lying positions that are subjected to periodic flooding, while Richibucto soils occur above this zone, tending to occupy middle to upper terraces. The more recently deposited Interval sediments frequently overlie Richibucto materials. Texturally the two soils are quite different. Richibucto soils are typically loamy sands in the subsoil while Interval soils are either silt loams or fine to very fine sandy loams. Of course, where the soils grade from one into the other, the boundary between the two is diffuse and differentiation may be arbitrary.

MOUNT HOPE ASSOCIATION (Mh)

GENERAL DESCRIPTION OF THE SOIL

Mount Hope soils are predominantly poorly to very poorly drained, deep, dark reddish brown, acid to sometimes near neutral (increasing in pH with depth), fine-clayey and low in natural fertility. They have formed in compact reworked glaciomarine-glaciolacustrine deposits derived mainly from red shale and lesser amounts of gray-green and some red sandstone. These soils have less than 50 cm of relatively friable, permeable silt loam or sandy loam to sandy clay loam surface materials over a dense compact, very slowly permeable clay to clay loam or silty clay loam subsoil. Coarse fragments of gravel- and cobble-sized soft sandstone are sparsely scattered at random throughout the soil, occupying less than 5%. These soils occupy low lying sites in an undulating (slopes of mostly 0.5-2%) landscape. Only 82 ha of land or less than 0.12% of the soils mapped in Shediac and Botsford parishes are classified as Mount Hope, most occurring as small pockets in Shediac Parish. Some peaty (p) phases are mapped where surface organic materials have accumulated to 15-40 cm in thickness.

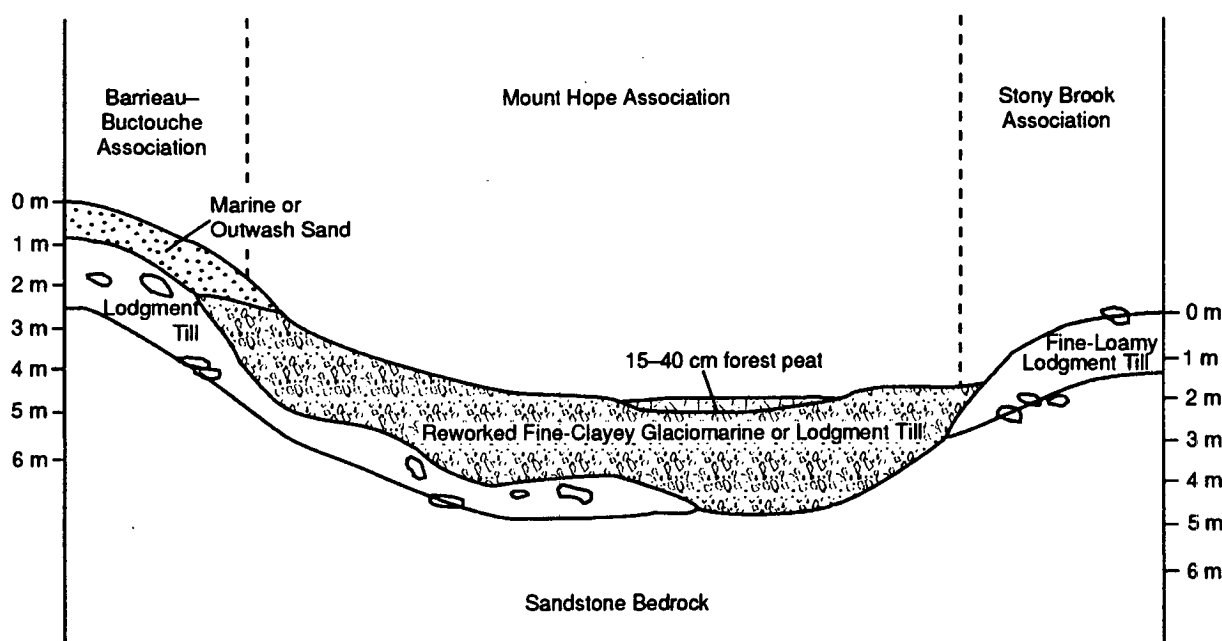


Figure 11 Sketch of landscape showing relationships of Mount Hope Association with Stony Brook and Barrieau-Buctouche associations.

Elevation	5-40 m amsl	Drainages Mapped	Moderately well to very poor, but predominantly poor to very poor
Extent	82 ha, 7 polygons	Special Features	Clean, relatively stone free clayey material with pH increasing to near neutral at 1 m
Percentage of Mapped Area	0.12%	Classification	Orthic or Humic Luvis Gleysol
Mode of Origin	Reworked glaciomarine-glaciolacustrine or possibly lodgment till	(Poorly Drained Member)	
Family Particle Size Class	Fine-clayey		
Petrology (Parent Material)	Red shale and sandstone		
Topography	Level to gently undulating, 0.5-5% slopes, but predominantly 0.5-2%		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	15–50 cm
Color	5YR hue
Sand, Silt and Clay; Texture	S=61%, Si=28%, C=11%; sl (n=2)
Coarse Fragments	5%
Consistency	Friable
Bulk Density	1.50 g/cm ³ (n=0)
Total Porosity	43% (n=0)
Macro Pores	4% (n=0)
Sat. Hydraulic Conductivity	2.00 cm/hr (n=0)
Available Water	0.20 cm/cm (n=0)
pH (CaCl ₂)	4.8 (n=2)
Organic Carbon	1.50% (n=0)
Electrical Conductivity	0.04 mS/cm (n=0)

Subsoil Material

Color	2.5YR to 5YR hue
Sand, Silt and Clay; Texture	S=17%, Si=48%, C=35%; sld (n=3)
Coarse Fragments	5%
Consistency	Firm
Bulk Density	1.65 g/cm ³ (n=0)
Total Porosity	38% (n=0)
Macro Pores	1% (n=0)
Sat. Hydraulic Conductivity	0.15 cm/hr (n=0)
Available Water	0.15 cm/cm (n=0)
pH (CaCl ₂)	5.2 (n=3)
Organic Carbon	0.20% (n=0)
Electrical Conductivity	0.06 mS/cm (n=0)

SUMMARY OF Mh MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				TOTAL
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imperfectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	
Mh1	0–20	–	–	37 (45)	37 (45)
Mh1–2	0–50	–	–	4 (5)	4 (5)
Mh2	20–50	–	23 (28)	18 (22)	41 (50)
TOTAL		–	23 (28)	59 (72)	82 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Mount Hope soils are only one of two fine-clayey soils found in Shediac–Botsford parishes. This becomes a distinguishing feature in their identification. The other fine-clayey soil is Tracadie, a soil developed on calcareous, coarse fragment-free, marine-lacustrine sediments. They are differentiated on the basis of the calcareousness of their parent materials and on the presence of coarse fragments. Mount Hope soils are noncalcareous. They also usually have 5% coarse fragments in comparison to the coarse fragment-free Tracadie soils. Although not a differentiating criteria, Tracadie soils are usually finer-textured, with higher clay contents.

Mount Hope soils also occupy similar landscape positions to many poorly to very poorly drained fine-loamy till soils. In terms of similarity, Mount Hope soils most closely resemble Stony Brook soils. Both soils are reddish brown in color and have dense compact subsoils. The major differentiating feature is clay content in the parent material. Mount Hope soils have in excess of 35% clay in their illuvial Bt horizons while Stony Brook soils have less, with 18–35% clay, and usually less than 25%. Poorly and very poorly drained Stony Brook soils occupying depressional sites where fines have accumulated may have clay contents approximating the lower limit for Mount Hope soils. Stony Brook soils also have a greater content of coarse fragments, usually 5–25%.

Peaty (p) phases occur on some very poorly drained Mount Hope soils where organic materials have accumulated to in excess of 15 cm. Peaty phases of mineral soils such as Mount Hope are differentiated from terric (t) phases of organic soils, such as Swamps, Fens and Bogs, based on the thickness of the organic material present. Well to moderately well decomposed sedge or forest peats of 40–160 cm thickness are classified as terric phases of Fens and Swamps, respectively. Weakly decomposed sphagnum peats of 60–160 cm thickness are classified as terric phases of Bogs.

RICHIBUCTO ASSOCIATION (Rb)

GENERAL DESCRIPTION OF THE SOIL

Richibucto soils are well to very poorly drained, deep, yellowish to olive brown, acid, sandy and low in natural fertility. They have formed in loose well-sorted, marine or marine reworked glaciofluvial deposits derived from mixed igneous and metamorphic or sedimentary rocks. The entire depth of the soil (>1 m) consists of a loose, rapidly permeable material, that grades from a typically loamy sand to sandy loam surface texture into a loamy sand to sand subsoil, and is often layered or stratified. Some silt loam and loam surface texture variants also occur. Usually these soils have few coarse fragments with less than 2% rounded gravels. Occasionally some profiles may have up to 20% coarse fragments by volume. Richibucto soils occupy a total of 1722 ha of land or approximately 2.4% of the area mapped in Shediac and Botsford parishes. The majority of Richibucto soils mapped are located along the north shore of the Tormentine Peninsula adjacent to the Northumberland Strait from Cormier-Village to Spence Settlement. They occupy upper to lower slope positions on river terraces and outwash plains. Slopes range 0.5–9%. Because of their coarse-textured rapidly permeable subsoils, drainage conditions tend to be the extremes, with soils being either well drained, or poorly to very poorly drained. Those sites mapped as poorly to very poorly drained are the result of high ground water tables in level to very gently undulating lower slope and depressional sites. Several variations or phases of the Richibucto Association have been mapped: peaty (p) with 15–40 cm of organic surface material; variable (v) and moderately shallow (m) with <1 m of soil over bedrock; and eroded surface (e).

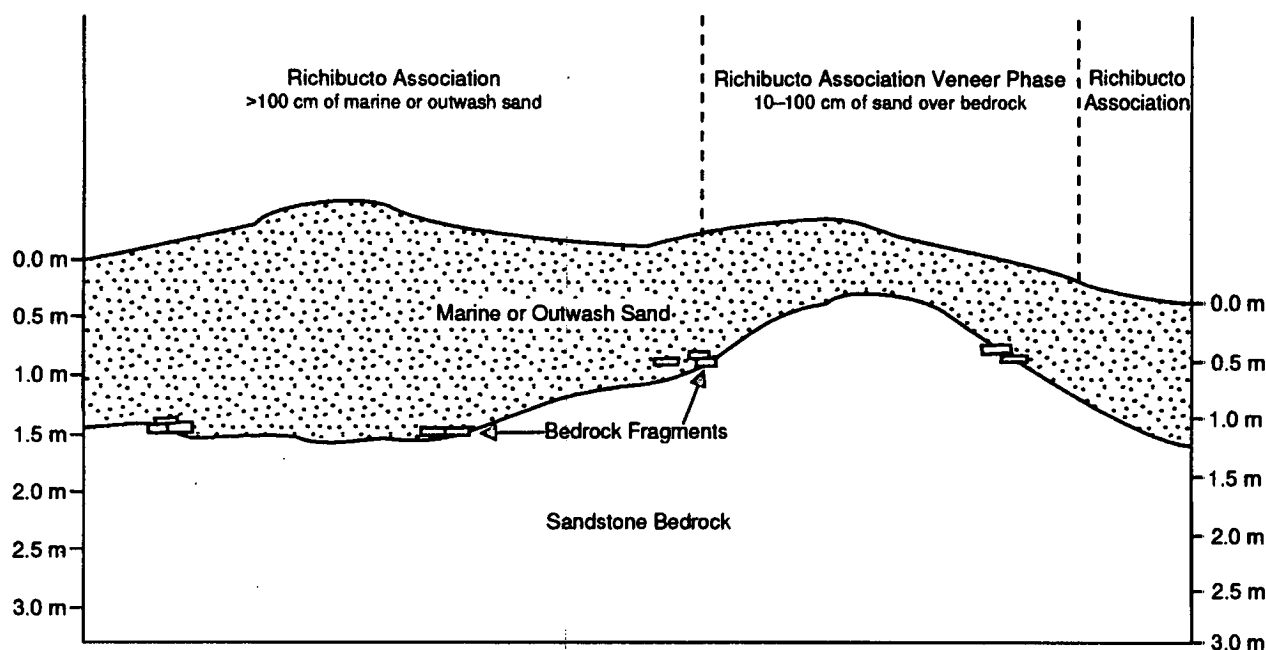


Figure 12 Sketch of Richibucto Association landscape.

Elevation	5–30 m amsl	Petrology (Parent Material)	Variable
Extent	1722 ha, 95 polygons	Topography	Undulating to sloping, 0.5–9% slopes, but predominantly 0.5–5%
Percentage of Mapped Area	2.4%	Drainages Mapped	Well to very poor
Mode of Origin	Marine or marine reworked glaciofluvial	Special Features	Sandy outwash plains and river terraces
Bedrock Type	Sandstone	Classification	Orthic Humo-Ferric Podzol
Bedrock Depth	>100 cm, unless otherwise indicated	(Well Drained Member)	
Family Particle Size Class	Sandy		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	50 cm
Color	7.5YR to 10YR hue
Sand, Silt and Clay; Texture	S=78%, Si=17%, C=5%; Is (n=5)
Coarse Fragments	<2%
Consistency	Very friable
Bulk Density	1.15 g/cm ³ (n=2)
Total Porosity	49% (n=2)
Macro Pores	26% (n=2)
Sat. Hydraulic Conductivity	138.2 cm/hr (n=2)
Available Water	0.14 cm/cm (n=2)
pH (CaCl ₂)	4.6 (n=5)
Organic Carbon	1.70% (n=3)
Electrical Conductivity	0.03 mS/cm (n=3)

Subsoil Material

Color	10YR to 2.5Y hue
Sand, Silt and Clay; Texture	S=86%, Si=10%, C=4%; Is (n=8)
Coarse Fragments	<2%
Consistency	Very friable to loose
Bulk Density	1.43 g/cm ³ (n=2)
Total Porosity	42% (n=2)
Macro Pores	27% (n=2)
Sat. Hydraulic Conductivity	124.2 cm/hr (n=2)
Available Water	0.09 cm/cm (n=2)
pH (CaCl ₂)	4.6 (n=8)
Organic Carbon	0.18% (n=3)
Electrical Conductivity	0.02 mS/cm (n=3)

SUMMARY OF Rb MAP UNITS

Hectares (%) for Different Drainage Classes

Map Unit	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1-4)	Imperfectly Drained (Class 5-7)	Poorly to V. Poorly Drained (Class 8-10)	TOTAL
Rb	>100*	1 240 (72)	108 (6)	374 (22)	1 722 (100)
TOTAL		1 240 (72)	108 (6)	374 (22)	1 722 (100)

* 10-100 cm to bedrock if veneer "v" phase or 50-100 cm to bedrock if moderately shallow "m" phase

RELATED SOILS AND DIFFERENTIATING CRITERIA

Richibucto (Rb) soils have been mapped in complexes with Barrieau-Buctouche (Bb), Blackland (Bl) and Interval (In) soils. In these complex units the soils are too intricately interspersed to be able to separate out as unique delineations at the 1:20 000 scale. Richibucto dominates these units, with more than 40% coverage, while the second soil, either Barrieau-Buctouche, Blackland or Interval, occurs in a lesser but significant 20-40% of the polygon. The following is a description of the Rb soil complexes mapped and the relationship of the different soils in the complex.

Rb-Bb Richibucto-Barrieau-Buctouche complexes occur where the cappings of water deposited sediments are variable in thickness over till parent materials. Seven units covering 242 ha are mapped as Rb-Bb. Differentiation of Richibucto soils from Barrieau-Buctouche soils is relatively easy based on thickness of the overlying sandy sediments. Richibucto soils have in excess of 100 cm of loose, coarse fragment-free, loamy sand to sand. In contrast to this, Barrieau-Buctouche soils have finer-textured compact gravelly or cobbly till subsoil materials within 1 m of the soil surface. It should be noted, however, that Richibucto and Barrieau-Buctouche soils may be identical in the upper solum.

Rb-Bl One map unit (42 ha) is designated as a Richibucto-Blackland complex. Although both soils have developed on water deposited sediments, their parent materials are quite different in physical properties. Blackland consists of loamy sediments, mostly silts and very fine sands with up to five times the clay content of Richibucto sediments. Blackland subsoils are also firm and slowly to very slowly permeable in comparison to the loose rapidly permeable Richibucto subsoil.

Rb-In Richibucto soils are mapped in complex with Interval soils in three units occupying 45 ha. Texturally the two soils are quite different. Richibucto soils are typically loamy sands in the subsoil while Interval soils are either silt loams or fine to very fine sandy loams. Where the soils grade from one into the other, the boundary between the two is diffuse and differentiation may be difficult. Site position is a key to separation in these instances. Alluvial deposited Interval soils occupy lower-lying positions that are subjected to periodic flooding, while Richibucto soils occur above this zone, tending to occupy middle to upper terraces. The more recently deposited Interval sediments frequently overlie Richibucto materials.

Of all the mapped soils, Richibucto soils are most similar to soils of the Aldouane Association. The two are differentiated in the field on the basis of color. Aldouane soils are dark red to dark reddish brown, while Richibucto soils are yellowish to olive brown in color. Aldouane soils also tend to be slightly finer-textured than the Richibucto soils, but not sufficiently so to be used as a differentiating criteria.

SHEMOGUE ASSOCIATION (Sh)

GENERAL DESCRIPTION OF THE SOIL

Shemogue soils are moderately well to very poorly drained, deep, "brick" reddish brown, acid to neutral, fine-loamy and low in natural fertility. They have formed in deposits of compact till, with or without a surficial mantle of either loose till or marine-reworked till, derived mainly from weathered weakly calcareous red shale and fine-grained micaceous red sandstone. Leaching has reduced the pH in the friable solum but the subsoil usually has an elevated level of bases with a near neutral reaction. Higher pH values in the subsoil are especially prevalent in poorly to very poorly drained sites where bases have accumulated with seepage. Shemogue soils usually have 20–50 cm of friable, permeable, loam to sandy loam surface material over a dense compact, slowly permeable loam to clay loam subsoil. Where a capping of water-worked materials has been incorporated into the profile, the surface is coarser-textured, resulting in a sandy loam surface texture designation. Coarse fragments of flat to angular gravel- and cobble-sized easily weathered sandstone make up 5–20% of the profile. Shemogue soils occupy 3.1% of the mapped area, accounting for 2156 ha of land. They are found on undulating to gently rolling landscapes (mostly 0.5–5% slopes), in the Cormier-Village to Little Shemogue Harbour area. Their slowly permeable subsoils, coupled with limited topographic relief, result in most Shemogue soils being imperfect to poorly drained. Small hectarages of moderately well drained sites occur in elevated locations. Some peaty (15–40 cm organic surface materials) phases have been mapped in very poorly drained sites. Shemogue is the fine-loamy equivalent of the Tormentine Association.

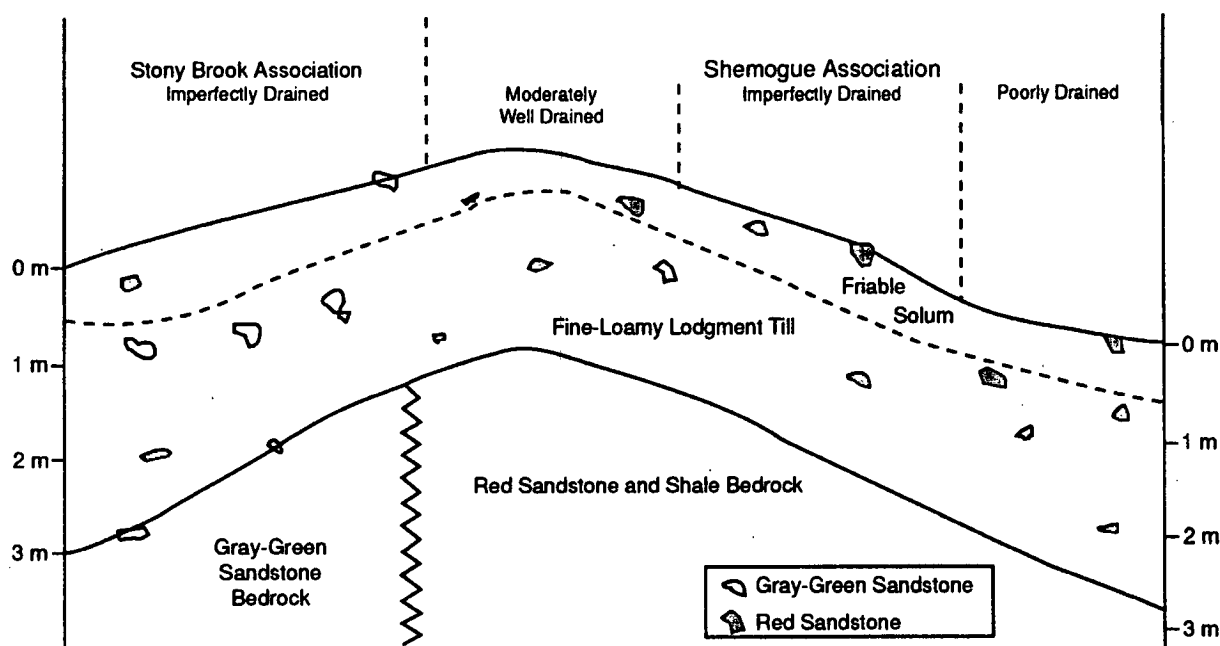


Figure 13 Landscape sketch of Shemogue Association showing drainages and relationship with Stony Brook Association.

Elevation	5–40 m amsl	Topography	Undulating to gently rolling, 0–15% slopes, but predominantly 0.5–5%
Extent	2156 ha, 79 polygons	Drainages Mapped	Moderately well to very poor, but mostly imperfect
Percentage of Mapped Area	3.1%	Classification	Gleyed Podzolic Gray Luvisol and Gleyed Luvisolic Humo-Ferric Podzol
Mode of Origin	Glacial till (lodgment, or ablation over lodgment)	(Imperfectly Drained Member)	
Family Particle Size Class	Fine-loamy		
Petrology (Parent Material)	Weakly calcareous fine-grained red sandstone and disintegrating red shale		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	20–50 cm
Color	5YR to 7.5YR hue
Sand, Silt and Clay; Texture	S=50%, Si=39%, C=11%; l (n=6)
Coarse Fragments	<10%
Consistency	Friable to very friable
Bulk Density	1.64 g/cm ³ (n=2)
Total Porosity	34% (n=2)
Macro Pores	4% (n=2)
Sat. Hydraulic Conductivity	1.27 cm/hr (n=2)
Available Water	0.17 cm/cm (n=2)
pH (CaCl ₂)	5.5 (n=6)
Organic Carbon	2.07% (n=4)
Electrical Conductivity	0.10 mS/cm (n=4)

Subsoil Material

Color	2.5YR hue
Sand, Silt and Clay; Texture	S=38%, Si=43%, C=19%; l (n=4)
Coarse Fragments	15%
Consistency	Firm to very firm
Bulk Density	1.80 g/cm ³ (n=2)
Total Porosity	29% (n=2)
Macro Pores	2% (n=2)
Sat. Hydraulic Conductivity	1.15 cm/hr (n=2)
Available Water	0.15 cm/cm (n=2)
pH (CaCl ₂)	5.5 (n=4)
Organic Carbon	0.12% (n=2)
Electrical Conductivity	0.04 mS/cm (n=2)

SUMMARY OF Sh MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imperfectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	TOTAL
Sh2	20–50	167 (8)	1 225 (57)	496 (23)	1 888 (88)
Sh2–3	20–75	11 (<1)	26 (1)	—	37 (1)
Sh3	50–75	13 (1)	198 (9)	20 (1)	231 (11)
TOTAL		191 (9)	1 449 (67)	516 (24)	2 156 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Shemogue (Sh) soils have been mapped in complexes with Tormentine (To) soils. In these complex units the soils are too intricately interspersed to be able to separate out as unique delineations at the 1:20 000 scale. Shemogue Association dominates these units, with more than 40% coverage, while the second soil, Tormentine, occurs in a lesser but significant 20–40% of the polygon. The following is a description of the Sh soil complexes mapped and the relationship of the different soils in the complex.

Sh-To Eight Sh complexes are mapped as Sh-To combinations (637 ha). The two soils have developed on tills that are derived from the same type of parent material, derived from weakly calcareous fine-grained red sandstone and red shale. They vary in particle size class. Essentially, Tormentine soils are "coarse-textured Shemogue" soils, having less than 18% clay in the parent material in comparison to the 18–35% clay in Shemogue soils. These complexes represent areas where the two classes of parent material interface. Particle sizes in these polygons vary from coarse- to fine-loamy in too irregular a manner to permit separating them out as unique map units.

Stony Brook soils are similar to Shemogue soils in many physical and chemical properties — texture, consistence (firm, compact subsoils), structure, etc. However, they differ in lithological composition, which impacts on several of their inherent characteristics. Stony Brook soils are dominated by soft gray-green sandstone and disintegrating red shale while Shemogue soil coarse fragments are derived from weakly calcareous micaceous fine-grained red sandstone and red shale. This results in differences in color, pH and coarse fragment content. Stony Brook soils are a duller reddish brown and they tend to be more acidic, especially in the subsoil. Stony Brook parent rock is also more resistant to weathering, resulting in a slightly higher coarse fragment content than in the Shemogue soils. However, the difference is not sufficiently large to be considered a differentiating criteria.

Some poorly to very poorly drained Shemogue Association members are mapped as peaty (p) phases, having 15–40 cm of mesic to humic organic materials or 15–60 cm of fibric organic materials on their surfaces. Where organic materials are thicker than either 40 or 60 cm, the soil is classified into the appropriate organic soil association — Bog, Fen or Swamp.

STONY BROOK ASSOCIATION (Sb)

GENERAL DESCRIPTION OF THE SOIL

Stony Brook soils are moderately well to very poorly drained, deep, dark reddish brown, acid, fine-loamy and low in natural fertility. They have formed in deposits of compact till, with or without a surficial mantle of either loose till or water-reworked till, derived mainly from weathered red shale and gray-green sandstone. These soils usually have 20–50 cm of friable, permeable, loam to sandy loam surface material over a dense compact, very slowly permeable loam, clay loam or sandy clay loam subsoil. Where a capping of ablational till occurs, it is typically a yellowish brown sandy loam. Frequently the boundary between the two materials is marked by an accumulation of stones forming a "stoneline". The sandy loam surface may be indicative of marine deposition and reworking. Coarse fragments of flat to angular gravel- and cobble-sized soft sandstone make up 5–25% of the profile. Stony Brook soils occupy 14 506 ha, representing some 20.5% of the map area. They are found on undulating to gently rolling landscapes with average slopes of 0.5–5%, mostly to the west of Cormier-Village. Their impermeable subsoils cause them to be predominantly imperfect to poorly drained with lesser hectares of moderately well drained sites. Some peaty phases (15–40 cm organic surface materials) and a few shallow to bedrock phases (<1 m of soil) have been mapped. Although Stony Brook is a till soil, surface stones are not a problem. Only 10 units have been mapped as either slightly or moderately stony.

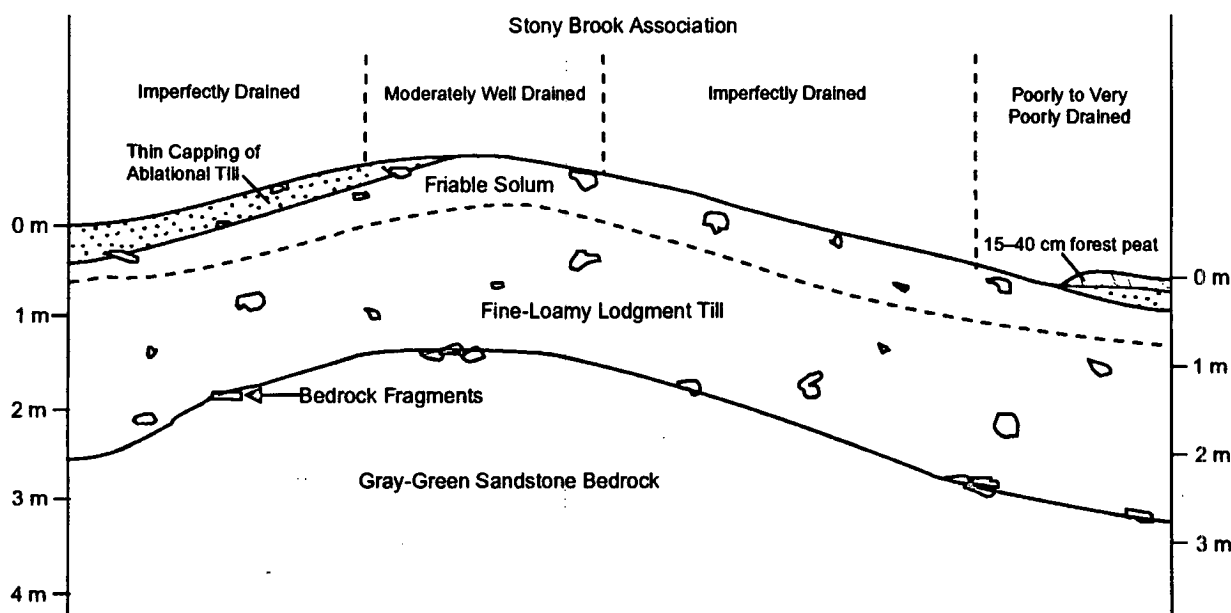


Figure 14 Landscape sketch of Stony Brook Association drainages.

Elevation	5–60 m amsl	Topography	Undulating to gently rolling, 0–15% slopes, but predominantly 0.5–5%
Bedrock Type	Sandstone	Drainages Mapped	Moderately well to very poor, but mostly imperfect to poor
Bedrock Depth	>100 cm, unless otherwise indicated	Classification (Imperfectly Drained Member)	Gleyed Podzolic Gray Luvisol and Gleyed Luvisolic Humo-Ferric Podzol
Extent	14 506 ha, 461 polygons		
Percentage of Mapped Area	20.5%		
Mode of Origin	Glacial till (lodgment, or ablation over lodgment)		
Family Particle Size Class	Fine-loamy		
Petrology (Parent Material)	Gray-green sandstone and disintegrating red shale		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	20–50 cm
Color	5YR to 10YR hue
Sand, Silt and Clay; Texture	S=62%, Si=28%, C=10%; sl (n=20)
Coarse Fragments	10%
Consistency	Friable to very friable
Bulk Density	1.47 g/cm ³ (n=4)
Total Porosity	40% (n=4)
Macro Pores	5% (n=4)
Sat. Hydraulic Conductivity	15.4 cm/hr (n=4)
Available Water	0.20 cm/cm (n=4)
pH (CaCl ₂)	5.0 (n=20)
Organic Carbon	1.20% (n=7)
Electrical Conductivity	0.07 mS/cm (n=7)

Subsoil Material

Color	5YR hue
Sand, Silt and Clay; Texture	S=42%, Si=36%, C=22%; l (n=31)
Coarse Fragments	15%
Consistency	Firm to very firm
Bulk Density	1.72 g/cm ³ (n=4)
Total Porosity	30% (n=4)
Macro Pores	3% (n=4)
Sat. Hydraulic Conductivity	0.58 cm/hr (n=4)
Available Water	0.15 cm/cm (n=4)
pH (CaCl ₂)	4.5 (n=30)
Organic Carbon	0.22% (n=4)
Electrical Conductivity	0.03 mS/cm (n=5)

SUMMARY OF Sb MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				
	Depth to Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imperfectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	TOTAL
Sb1	0–20	—	—	34 (<1)	34 (<1)
Sb2	20–50	836 (6)	6 724 (47)	5 268 (36)	12 828 (89)
Sb2–3	20–75	46 (<1)	456 (3)	140 (1)	642 (4)
Sb3	50–75	271 (2)	557 (4)	174 (1)	1 002 (7)
TOTAL		1 153 (8)	7 737 (54)	5 616 (38)	14 506 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Stony Brook (Sb) soils have been mapped in complexes with Shemogue (Sh) and Tracy (Tr) soils. In these complex units the soils are too intricately interspersed to separate out as unique delineations at the 1:20 000 scale. Stony Brook dominates these units, with more than 40% coverage, while the second soil, either Shemogue or Tracy, occurs in a lesser but significant hectareage of some 20–40% of the polygon. The following is a description of the Sb soil complexes mapped and the relationship of the different soils in the complex.

Sb-Sh Two map units are described as Stony Brook–Shemogue complexes. However, many other Sb-Sh combinations probably occur that were classified as either Stony Brook or Shemogue. The two soil associations are alike in many ways, i.e. texture, consistence (firm compact subsoils), structure, etc. However, they differ in lithological composition, which impacts on several of their inherent characteristics. Stony Brook soils are derived from soft gray-green sandstones and disintegrating red shale while Shemogue soil coarse fragments are derived from weakly calcareous, micaceous fine-grained red sandstone and red shale. This has resulted in differences in color, pH and coarse fragment content. Shemogue soils are a "brick" reddish brown and they tend to be less acidic in the subsoil, although not neutral. Most of the lime from the weakly calcareous parent rock has been lost to leaching. Increased pH levels in Shemogue soils are most pronounced in poorly to very poorly drained sites where some inwashing of bases has occurred. Shemogue parent rock is also more easily weathered resulting in lower coarse fragment content than Stony Brook soils. However, these differences are not sufficiently large to be considered a differentiating criteria.

Sb-Tr Thirty-three Sb complexes are mapped as Sb-Tr combinations (1497 ha). This is a very natural association. The two soils have developed on tills that are "identical", with the exception of particle size class. Essentially, Tracy soils are "coarse-textured Stony Brook" soils, having less than 18% clay in the parent material compared to the 18–35% clay content in Stony Brook soils. These complexes represent areas where the two classes of parent material interface. Particle size in these polygons varies from coarse- to fine-loamy in too irregular a manner to permit separating them out as unique map units.

Some poorly to very poorly drained Stony Brook Association members are mapped as peaty (p) phases, having 15–40 cm of mesic to humic organic materials or 15–60 cm of fibric organic materials on their surfaces. Where organic materials are thicker than either 40 or 60 cm, the soil is classified into the appropriate organic soil association — Bog, Fen or Swamp.

SUSSEX ASSOCIATION (Su)

GENERAL DESCRIPTION OF THE SOIL

Sussex soils are poorly to very poorly drained, deep, dark red to dark reddish brown, acid, coarse-loamy and high in natural fertility. They have formed in alluvial deposits. The entire soil profile (>1 m) is a relatively friable, permeable, stratified silt loam to very fine sandy loam. Surface textures range from silt loam to loam. No coarse fragments are present. Sussex soils are found on nearly level (0.5–2% slopes) lower stream terraces and floodplains in the Anderson Settlement and Cadman Corner area. Many deposits are above tidal portions of streams and rivers draining into the Northumberland Strait. A total of only 194 ha of these soils has been mapped. Most of the alluvial sediments along other water courses are grayer in color and therefore classified as Interval soils. One area is mapped as a peaty phase with 15–40 cm of organic material on the surface. When properly drained or landformed, and protected from flooding, these soils are very productive.

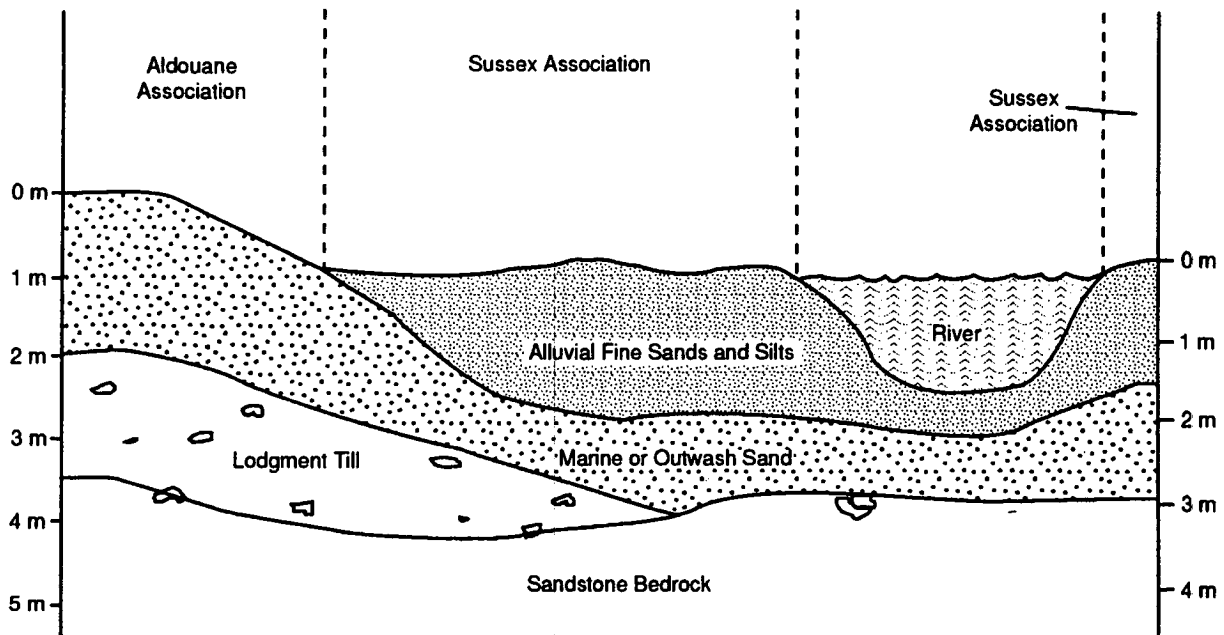


Figure 15 Sketch of landscape relationships between Sussex Association and Aldouane Association.

Elevation	0–30 m amsl	Topography	Level to gently undulating, 0.5–2% slopes
Extent	194 ha, 7 polygons	Drainages Mapped	Poor to very poor
Percentage of Mapped Area	0.27%	Special Features	Silty and very fine sandy sediments
Mode of Origin	Alluvial	Classification	Rego Gleysol
Family Particle Size Class	Coarse-loamy	(Poorly Drained Member)	
Petrology (Parent Material)	Mixed		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	30 cm
Color	5YR to 7.5YR hue
Sand, Silt and Clay; Texture	S=38%, Si=55%, C=7%; sil (n=0)
Coarse Fragments	0%
Consistency	Very friable
Bulk Density	1.35 g/cm ³ (n=0)
Total Porosity	49% (n=0)
Macro Pores	8% (n=0)
Sat. Hydraulic Conductivity	4.00 cm/hr (n=0)
Available Water	0.33 cm/cm (n=0)
pH (CaCl ₂)	6.0 (n=0)
Organic Carbon	2.00% (n=0)
Electrical Conductivity	0.08 mS/cm (n=0)

Subsoil Material

Color	5YR to 2.5YR hue
Sand, Silt and Clay; Texture	S=35%, Si=59%, C=6%; sil (n=0)
Coarse Fragments	0%
Consistency	Very friable to friable
Bulk Density	1.25 g/cm ³ (n=0)
Total Porosity	53% (n=0)
Macro Pores	12% (n=0)
Sat. Hydraulic Conductivity	2.50 cm/hr (n=0)
Available Water	0.34 cm/cm (n=0)
pH (CaCl ₂)	6.0 (n=0)
Organic Carbon	0.70% (n=0)
Electrical Conductivity	0.04 mS/cm (n=0)

SUMMARY OF Su MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				TOTAL
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1-4)	Imperfectly Drained (Class 5-7)	Poorly to V. Poorly Drained (Class 8-10)	
Su	>100	—	—	194 (100)	194 (100)
TOTAL		—	—	194 (100)	194 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Sussex soils are very similar to Interval soils in all aspects except matrix color. Sussex (Su) soils are derived from red alluvial sediments (5YR or redder) whereas Interval soils (In) are derived from yellow to olive brown colored alluvial sediments (10YR-7.5YR). Interval soils also tend to be slightly finer-textured than the Sussex soils, but not sufficiently so to be used as a differentiating criteria.

Sussex soils are commonly found in close proximity to other fluvial sediments, in particular the Aldouane Association. Aldouane soils are also reddish brown colored and free of most coarse fragments, but Aldouane subsoils are a coarser-textured loamy sand to sand in comparison to the finer-textured silt loam and fine sandy loam Sussex.

SWAMP ASSOCIATION (Sw)

GENERAL DESCRIPTION OF THE SOIL

Swamp Association members are organic soils that have developed on stream and basin swamps. They consist of moderately well to well decomposed peat deposits containing more than 30% organic matter by weight and are at least 40 cm thick, with most greater than 160 cm in thickness. Swamps are dominated by forest peat materials in a eutrophic environment resulting from strong water movement from the margins or surrounding mineral soils. Dark brown to reddish brown, moderately well to well decomposed (mesic to humic) forest peat materials with an amorphous or very fine fibred structure dominate throughout the soil profile. These materials are medium acid to neutral (pH 5.5–7.5), and relatively dense ($>0.1 \text{ g/cm}^3$) having an intermediate to low fiber content with von Post scale of decomposition ratings of Class 6 to Class 9. Drainage is very poor, with standing to gently flowing waters occurring seasonally or persisting for long periods on the surface. Both simple and complex slopes occur but gradients are under 2%. Ground cover consists of mosses, herbs and tall shrubs. Most Swamps support moderately dense, productive coniferous and deciduous tree growth. While most of the area mapped as Swamp is greater than 1.6 m in thickness, one-third of the area consists of terric phases (t), with 40–160 cm of organic debris over undifferentiated mineral soil.

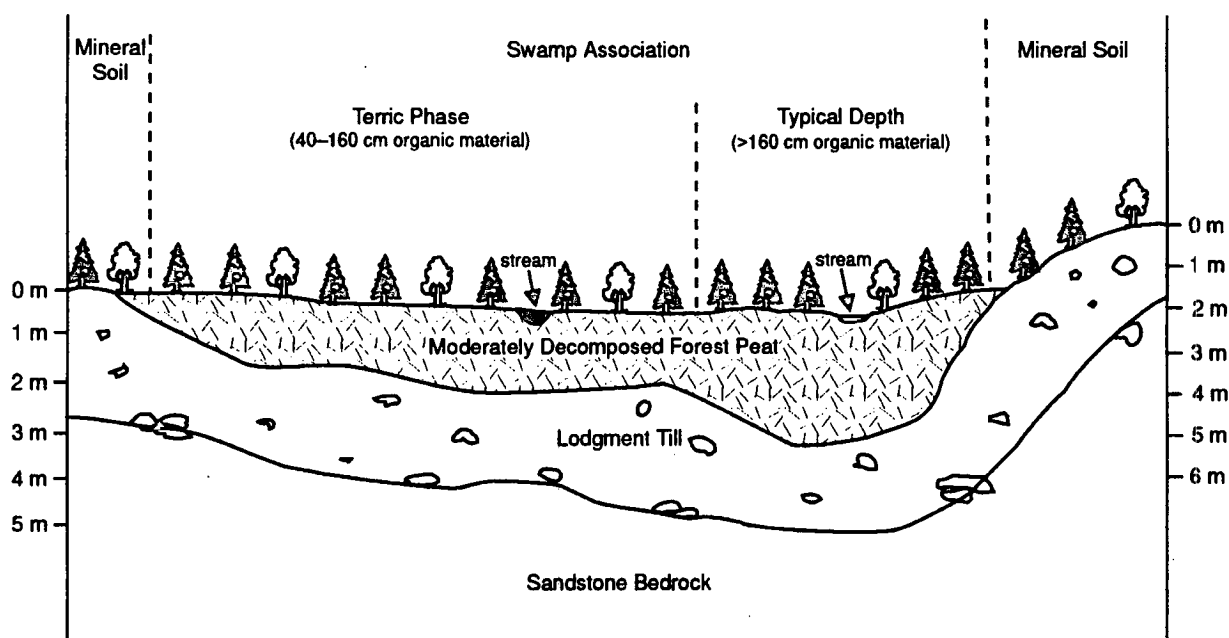


Figure 16 Landscape sketch of Swamp Association showing relationship with mineral soils.

Elevation	5–30 m amsl	Topography	Nearly level, 0–2% slopes, but predominantly 0–0.5%, with hummocky micro-relief
Extent	930 ha, 66 polygons	Drainages Mapped	Very poor
Percentage of Mapped Area	1.3%	Classification	Typic or Terric Mesic Humisol or Humic Mesisol
Mode of Origin	Organic (eutrophic environment)		
Botanical Composition	Forest peat		
Degree of Decomposition (von Post)	Moderately well to well mesic-humic (Class 6–9)		

PROFILE CHARACTERISTICS

Thickness over Mineral Soil	>160 cm, terric phase 40–160 cm
Color	5YR to 7.5YR hue
Botanical Composition	Forest materials
Wood Fragments	10%
Consistency	Friable
Bulk Density	<0.15 gm/cm ³ (n=0)
Total Porosity	94% (n=0)
Macro Pores	23% (n=0)
Sat. Hydraulic Conductivity	0.50 cm/hr (n=0)
Available Water	0.19 cm/cm (n=0)
pH (CaCl ₂)	5.5 (n=0)
Organic Carbon	36.0% (n=0)
Fiber Content (unrubbed)	55% (n=0)
von Post Class	7 (n=0)
Electrical Conductivity	0.02 mS/cm (n=0)

SUMMARY OF Sw MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes					TOTAL
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imper- fectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)		
Sw	>160	–	–	572 (62)	572 (62)	
Sw(t)	40–160	–	–	358 (38)	358 (38)	
TOTAL		–	–	930 (100)	930 (100)	

RELATED SOILS AND DIFFERENTIATING CRITERIA

Swamp (Sw) soils have been mapped in complexes with Fen (Fe) soils. In these complex units the soils are too intricately interspersed to be able to separate out as unique delineations at the 1:20 000 scale. Swamp dominates these units, with more than 40% coverage, while Fen soils occur in a lesser but significant 20–40% of the polygon.

Sw-Fe Swamp–Fen complexes were mapped in five units covering 66 ha. Like Swamp soils, Fen soils consist of organic debris that is moderately well to well decomposed and nutrient-rich, with acid to neutral pH. However, Fen soils are dominated by sedge peats while Swamp soils are forest peat deposits. Swamps are more heavily treed than Fens, usually supporting denser stands of both coniferous and deciduous tree species.

Swamps also occupy similar landscape positions to Bogs. Unlike Swamp soils, Bog soils consist of organic debris that is weakly decomposed because of their extremely acidic, ombrotrophic (nutrient-poor) environments. Bogs are also mostly devoid of tree cover except for the occasional stunted conifer and are dominated by sphagnum peats in contrast to the heavily treed forest peat dominated Swamp soils.

Poorly and very poorly drained members of several mineral soils are commonly found near Swamp soils. Mineral soil associates include soils developed on morainal till deposits, such as Stony Brook, Tracy, Shemogue and Tormentine. In some cases these mineral soil associates have surface layers of mesic forest-sedge peats totaling up to 40 cm thick, but they are more typically covered by less than 15 cm of forest floor organic materials. Organic-mineral soil intergrades having 15–40 cm of mesic forest-sedge material are designated as peaty (p) phases of the appropriate mineral soil association.

TORMENTINE ASSOCIATION (To)

GENERAL DESCRIPTION OF THE SOIL

Tormentine soils are well to very poorly drained, deep, "brick" reddish brown to dark reddish brown, acid to neutral, coarse-loamy and low to moderate in natural fertility. They have formed in compact till deposits derived mainly from weakly calcareous, fine-grained micaceous red sandstone and red shale-siltstone. These soils usually have 20–75 cm of relatively friable, permeable, sandy loam to loam surface material over a somewhat dense compact, moderately slowly permeable sandy loam to loam subsoil. In many places the soil has the appearance of having been water reworked or of having had a capping of marine sand which has since been incorporated into the upper soil profile. Leaching has acidified the friable solum and even the subsoil in well to moderately well drained sites. The small amount of lime content in the parent rock has been removed. However, in imperfectly and especially in poorly to very poorly drained sites where leaching has been less intensive and there has been some inwashing of bases, the subsoils are neutral in reaction. Easily weathered sandstone gravels with some cobbles range 5–20%, usually increasing in abundance with depth. Although it is a till soil, Tormentine is relatively free of surface stones and cobbles. Tormentine is the most abundant of all soil associations, occupying 36.2% of the area mapped in Shediac and Botsford parishes. The soils are found on undulating to gently rolling landscapes (mostly 0.5–5% slopes) to the east of Bourgeois Mills along the Tormentine Peninsula. Since their subsoils are somewhat friable and do not have excessively slow permeability, most sites are moderately well to imperfectly drained. Lack of significant topographic relief causes the imperfect drainage. It also results in some poorly to very poorly drained sites. Some of the poor to very poorly drained sites are mapped as peaty phases with 15–40 cm accumulations of organic surface materials. A few sites are shallow to bedrock (<1 m of soil). Tormentine are the coarse-loamy equivalents of Shemogue Association soils.

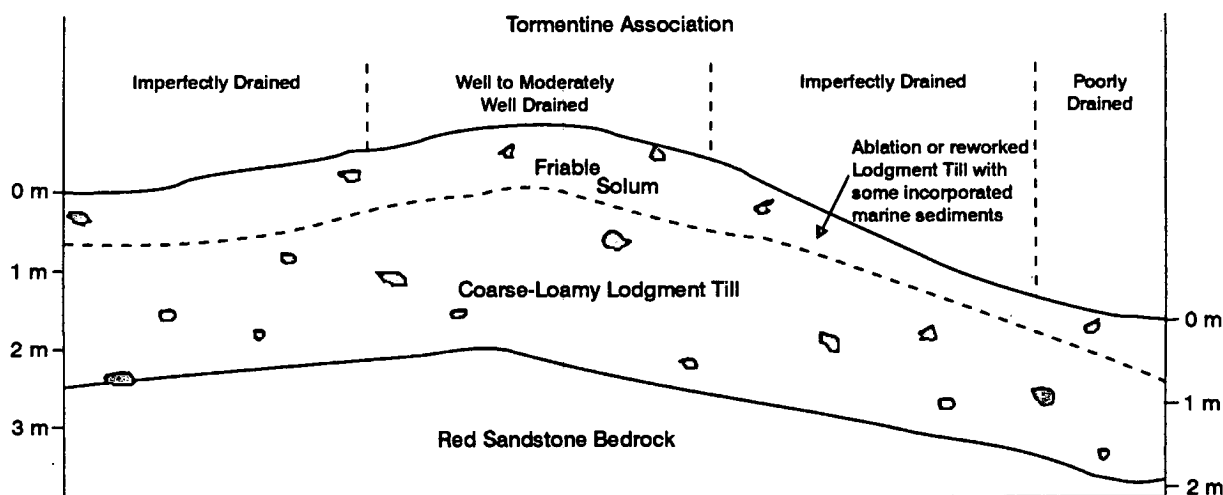


Figure 17 Landscape sketch of Tormentine Association showing drainages.

Elevation	0–40 m amsl	Topography	Undulating to gently rolling, 0.5–30% slopes, but predominantly 0.5–5%
Bedrock Type	Sandstone		
Bedrock Depth	>100 cm, unless otherwise indicated	Drainages Mapped	Well to very poor, but mostly moderately well to imperfect
Extent	25 552 ha, 972 polygons	Special Features	Equivalent to coarse-loamy Shemogue
Percentage of Mapped Area	36.2%	Classification	Gleyed Humo-Ferric Podzol
Mode of Origin	Glacial till (lodgment)	(Imperfectly Drained Member)	
Family Particle Size Class	Coarse-loamy		
Petrology (Parent Material)	Weakly calcareous fine-grained red sandstone and disintegrated red shale		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	20–75 cm
Color	5YR to 7.5YR hue
Sand, Silt and Clay; Texture	S=63%, Si=30%, C=7%; sl (n=63)
Coarse Fragments	<10%
Consistency	Very friable to friable
Bulk Density	1.32 g/cm ³ (n=9)
Total Porosity	47% (n=9)
Macro Pores	12% (n=9)
Sat. Hydraulic Conductivity	25.6 cm/hr (n=9)
Available Water	0.22 cm/cm (n=8)
pH (CaCl ₂)	5.0 (n=63)
Organic Carbon	1.40% (n=21)
Electrical Conductivity	0.06 mS/cm (n=21)

Subsoil Material

Color	2.5YR hue
Sand, Silt and Clay; Texture	S=55%, Si=34%, C=11%; sl (n=84)
Coarse Fragments	15%
Consistency	Firm to slightly friable
Bulk Density	1.79 g/cm ³ (n=22)
Total Porosity	30% (n=22)
Macro Pores	5% (n=22)
Sat. Hydraulic Conductivity	1.13 cm/hr (n=22)
Available Water	0.16 cm/cm (n=21)
pH (CaCl ₂)	5.2 (n=84)
Organic Carbon	0.13% (n=16)
Electrical Conductivity	0.04 mS/cm (n=25)

SUMMARY OF To MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imper-fectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	TOTAL
To2	20–50	3 977 (16)	9 543 (37)	2 683 (11)	16 203 (64)
To2–3	20–75	1 583 (6)	1 850 (7)	50 (<1)	3 483 (13)
To3	50–75	2 633 (10)	2 344 (9)	722 (3)	5 699 (23)
To3–4	50–100	79 (<1)	88 (1)	–	167 (1)
TOTAL		8 272 (32)	13 825 (54)	3 455 (14)	25 552 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Tormentine (To) soils have been mapped in complexes with Barrieau–Buctouche (Bb), Shemogue (Sh), Stony Brook (Sb) and Tracy (Tr) soils. In these complex units the soils are too intricately interspersed to separate out as unique delineations at this scale (1:20 000) of mapping. Tormentine dominates these units, with more than 40% coverage, while the second soil, either Barrieau–Buctouche, Shemogue, Stony Brook or Tracy, occurs in a lesser but significant 20–40% of

the polygon. The following is a description of the To soil complexes mapped and the relationship of the different soils in the complex.

To-Bb Since Barrieau–Buctouche soils consist of water deposited sandy material over lodgment till, it is understandable that they are commonly found in association with soils developed on either of their two components, such as the Tormentine coarse-loamy, compact, lodgment till. The To-Bb complex is the most abundant of all Tormentine complexes, occurring in nine units which occupy 187 ha. Identification of Barrieau–Buctouche soils may be difficult where the overburden of fluvial sediments is relatively shallow and some intermixing of the two materials has taken place as a result of frost action, windthrow and deep tillage. In these instances the soil was grouped with the Tormentine Association. The Barrieau–Buctouche designation was reserved for soils with obvious fluvial cappings.

To-Sh Three units (102 ha) are mapped as Tormentine–Shemogue complexes. This is a very common complex. The two soils have developed on tills that are derived from the same parent rock types (i.e. weakly calcareous fine-grained red micaceous sandstone and red shale). They differ in particle size distribution. Shemogue are "fine-loamy Tormentine" soils, having more than 18% clay in the parent material, in comparison to the 10–18% clay in Tormentine soils. These complexes represent areas where the two classes of parent material interface. The particle size classes in these polygons vary from coarse- to fine-loamy in too irregular a manner to permit separation as unique map units.

To-Sb Although not as common an occurrence, two complexes of To-Sb are mapped totalling 41 ha. Stony Brook are fine-loamy (18–35% clay) lodgment tills derived from disintegrating red shale and more resistant gray-green sandstone. In comparison, the Tormentine soils have developed on tills that are derived from weakly calcareous fine-grained red micaceous sandstone and red shale. They are coarse-loamy with less than 18% clay and have a distinctive "brick" reddish brown color.

To-Tr Tormentine–Tracy complexes occupy six units (207 ha). These are transitional soils, grading from Tormentine into Tracy. Both associations consist of soils that have developed on coarse-loamy (10–18% clay) lodgment tills. They are differentiated on the basis of lithology. Tormentine soils have developed from easily weathered, weakly calcareous, fine-grained micaceous, red sandstone and shale. Tracy soils have the red shale component, but it is noncalcareous, and the parent sandstone is the more resistant acidic gray-green variety. This leads to a difference in soil color. Tormentine soils have a distinctive "brick" reddish brown. Tracy soils are simply a dull reddish brown. Tracy soils are acidic throughout the catena whereas Tormentine subsoils are often neutral when imperfectly drained and especially when poorly to very poorly drained. Tormentine soils also tend to have less coarse fragments (gravels, cobbles).

Some poorly to very poorly drained Tormentine Association members are mapped as peaty (p) phases, having 15–40 cm of mesic to humic organic materials or 15–60 cm of fibric organic materials on their surfaces. Where organic materials are thicker than either 40 or 60 cm, the soil is classified into the appropriate organic soil association — Bog, Fen or Swamp.

TRACADIE ASSOCIATION (Td)

GENERAL DESCRIPTION OF THE SOIL

Tracadie soils are imperfectly to poorly drained, deep, reddish brown, medium acid to neutral and fine-clayey. They are moderate in natural fertility and have formed in marine silt and clay sediments that were deposited during postglacial marine submergence. Tracadie soils consist of less than 20–50 cm of friable, moderately permeable silt loam to loam and occasionally silty clay loam surface material over a firm, extremely slowly permeable silty clay loam to clay or silty clay subsoil. The pH usually increases with depth from an acidic surface to neutral at 1 m. Although the subsoil is firm and restricts water movement, the bulk density is only slightly over 1.60 g/cm³. A uniform soil particle size does not allow for close packing. No coarse fragments are present. Tracadie soils have been mapped over only 167 ha, with sites scattered throughout the parishes. Slopes are 0.5–5%, with mostly complex configurations. Tracadie soils are the fine-clayey equivalent of Blackland Association soils.

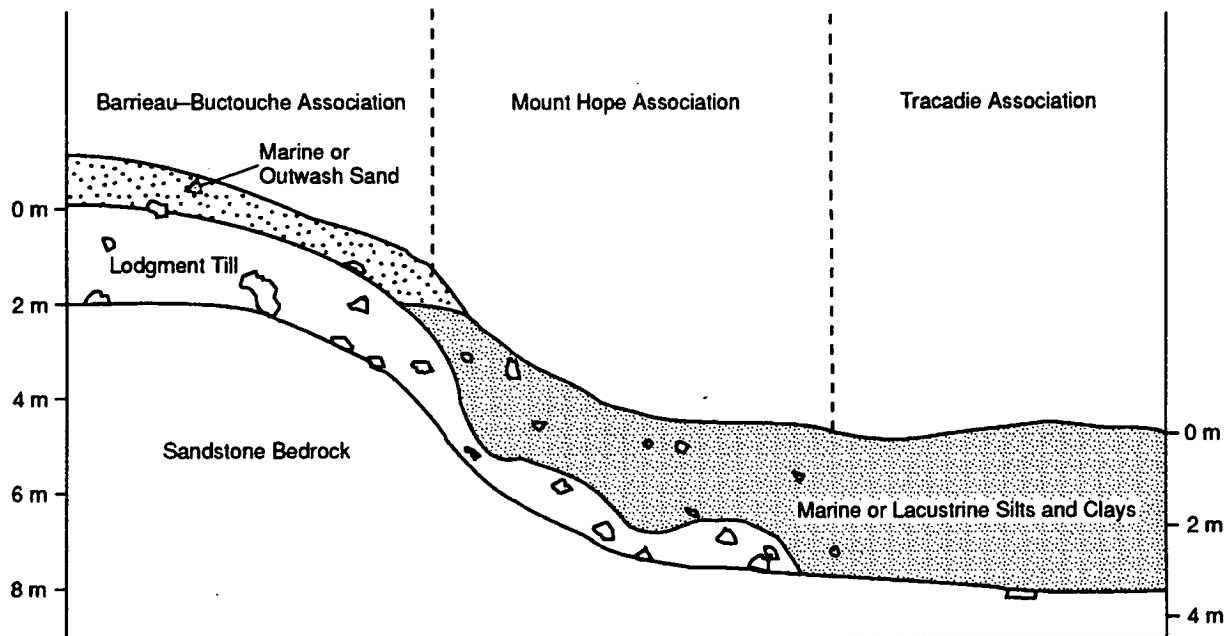


Figure 18 Landscape sketch showing characteristics of, and relationships between, Barrieau-Buctouche, Mount Hope and Tracadie associations.

Elevation	0–30 m amsl	Topography	Level to gently undulating, 0.5–5% slopes
Extent	167 ha, 12 polygons	Drainages Mapped	Imperfect and poor
Percentage of Mapped Area	0.24%	Classification (Poorly and Very Poorly Drained Members)	Orthic Luvis Gleysol
Mode of Origin	Marine or lacustrine		
Family Particle Size Class	Fine-clayey		
Petrology (Parent Material)	Marine silt and clay sediments		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	<20–50 cm
Color	5YR or redder hue
Sand, Silt and Clay; Texture	S=27%, Si=45%, C=28%; l-cl (n=2)
Coarse Fragments	0%
Consistency	Friable
Bulk Density	1.40 g/cm ³ (n=0)
Total Porosity	47% (n=0)
Macro Pores	8% (n=0)
Sat. Hydraulic Conductivity	3.0 cm/hr (n=0)
Available Water	0.20 cm/cm (n=0)
pH (CaCl ₂)	5.5 (n=1)
Organic Carbon	1.00% (n=0)
Electrical Conductivity	0.04 mS/cm (n=1)

Subsoil Material

Color	5YR or redder hue
Sand, Silt and Clay; Texture	S=11%, Si=54%, C=35%; sid (n=3)
Coarse Fragments	0%
Consistency	Firm
Bulk Density	1.70 g/cm ³ (n=1)
Total Porosity	34% (n=1)
Macro Pores	1% (n=1)
Sat. Hydraulic Conductivity	<0.01 cm/hr (n=1)
Available Water	0.16 cm/cm (n=1)
pH (CaCl ₂)	6.3 (n=4)
Organic Carbon	0.20% (n=0)
Electrical Conductivity	0.05 mS/cm (n=1)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Tracadie soils are often found in low lying and depressional landscape positions. They may also be located along tidal rivers and streams where relief is more pronounced. Being water deposited sediments, Tracadie soils are associated with other water deposited materials occupying similar landscape positions. Blackland soils are similar to Tracadie soils in that both associations consist of fine sediments deposited by marine or lacustrine actions. The two associations are separated on the basis of clay content. Tracadie soils are fine-clayey, with more than 35% clay in the parent material. Blackland soils are coarse- to fine-silty with less than 35% clay in their subsoils, usually 15–25% clay. The two associations are very similar in most other respects.

The only other fine-clayey soil found in Shediac-Botsford parishes other than Tracadie is Mount Hope. They are differentiated on the basis of the calcareousness of their parent materials and on the presence of coarse fragments. Mount Hope soils are noncalcareous. They also usually have 5% coarse fragments in comparison to the coarse fragment-free Tracadie soils. Although not a differentiating criteria, Tracadie soils are usually finer-textured, with higher clay contents.

SUMMARY OF Td MAP UNITS

Hectares (%) for Different Drainage Classes

Map Unit	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imperfectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	TOTAL
Td1	0–20	–	–	72 (43)	72 (43)
Td2	20–50	–	67 (40)	28 (17)	95 (57)
TOTAL		–	67 (40)	100 (60)	167 (100)

TRACY ASSOCIATION (Tr)

GENERAL DESCRIPTION OF THE SOIL

Tracy soils are well to very poorly drained, deep, strong to dark reddish brown, acid, coarse-loamy and low in natural fertility. They have formed in compact till deposits derived mainly from gray-green sandstone and red shale-siltstone. These soils usually have 20–75 cm of relatively friable, permeable, sandy loam to loam surface material over a dense compact, very slowly permeable sandy loam to loam subsoil. Coarse fragments (gravels, cobbles and stones) of relatively soft sandstone make up 5–25%, usually increasing in abundance with depth. Only 45 of the 707 units mapped are relatively slightly to moderately stony, having sufficient surface stones and cobbles to hinder or interfere with cultivation. Essentially, Tracy soils are coarse-loamy Stony Brook soils. Tracy Association is the second most abundant soil association, occupying almost 23% of the area mapped in Shediac and Botsford parishes. Most Tracy soils are found on undulating to gently rolling landscapes (0.5–9% slopes) to the west of the Woodside–Chapmans Corner area. Although dense subsoils and subsequently low permeability cause some poor to very poor drainage, coarse textures result in a high percentage of Tracy soils being moderately well and imperfectly drained. Some well to imperfectly drained sites are shallow to bedrock (<1 m of soil) and a number of poorly to very poorly drained sites have peaty phases (15–40 cm organic surface materials).

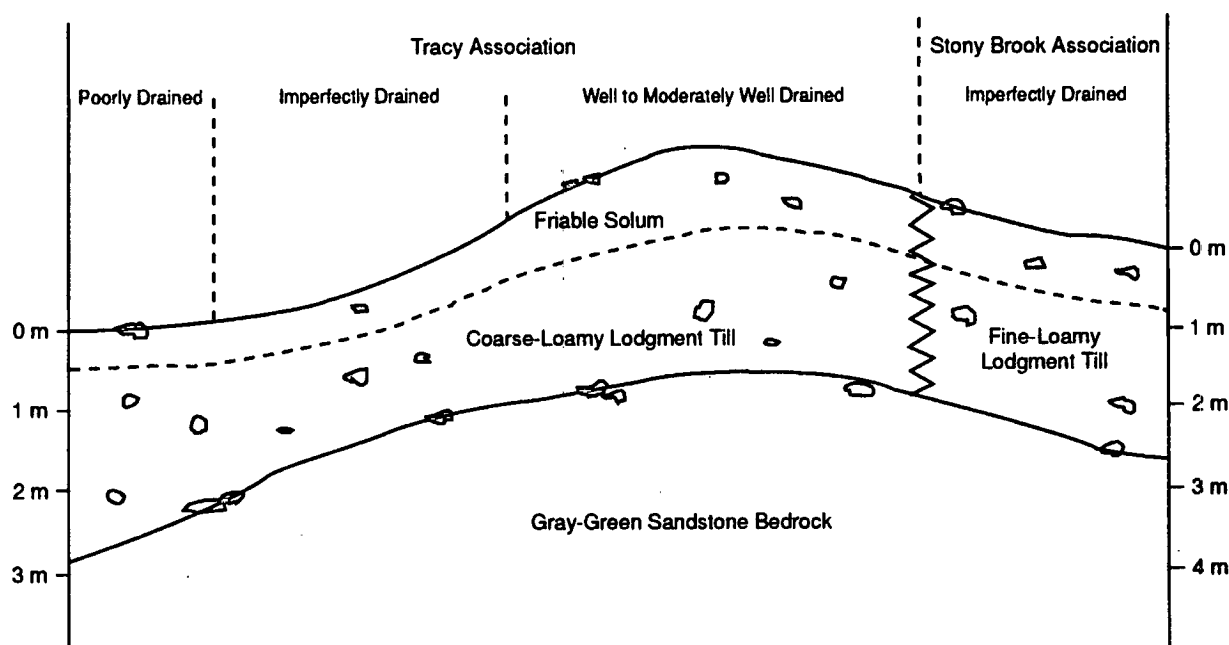


Figure 19 Landscape sketch of Tracy Association showing drainages and relationship with Stony Brook Association.

Elevation	5–60 m amsl	Topography	Undulating to gently rolling, 0.5–30% slopes, but predominantly 0.5–9%
Bedrock Type	Sandstone	Drainages Mapped	Well to very poor, but mostly moderately well and imperfect
Bedrock Depth	>100 cm, unless otherwise indicated	Special Features	Equivalent to coarse-loamy Stony Brook
Extent	16 020 ha, 707 polygons	Classification	Gleyed Humo-Ferric Podzol
Percentage of Mapped Area	22.7%	(Imperfectly Drained Member)	
Mode of Origin	Glacial till (lodgment)		
Family Particle Size Class	Coarse-loamy		
Petrology (Parent Material)	Gray-green sandstone and disintegrated red shale		

PROFILE CHARACTERISTICS

Friable Upper Soil Material

Thickness	20–75 cm
Color	5YR to 10YR hue
Sand, Silt and Clay; Texture	S=68%, Si=25%, C=7%; sl (n=26)
Coarse Fragments	10%
Consistency	Very friable to friable
Bulk Density	1.37 g/cm ³ (n=5)
Total Porosity	42% (n=5)
Macro Pores	12% (n=5)
Sat. Hydraulic Conductivity	35.3 cm/hr (n=5)
Available Water	0.21 cm/cm (n=5)
pH (CaCl ₂)	4.8 (n=26)
Organic Carbon	1.17% (n=7)
Electrical Conductivity	0.11 mS/cm (n=6)

Subsoil Material

Color	5YR hue
Sand, Silt and Clay; Texture	S=57%, Si=30%, C=13%; sl (n=42)
Coarse Fragments	20%
Consistency	Firm to very firm
Bulk Density	1.72 g/cm ³ (n=3)
Total Porosity	31% (n=3)
Macro Pores	6% (n=3)
Sat. Hydraulic Conductivity	1.66 cm/hr (n=3)
Available Water	0.16 cm/cm (n=3)
pH (CaCl ₂)	4.6 (n=42)
Organic Carbon	0.24% (n=5)
Electrical Conductivity	0.02 mS/cm (n=5)

SUMMARY OF Tr MAP UNITS

Map Unit	Hectares (%) for Different Drainage Classes				
	Depth to Constr. Layer (cm)	Well to Mod. Well Drained (Class 1–4)	Imper- fectly Drained (Class 5–7)	Poorly to V. Poorly Drained (Class 8–10)	TOTAL
Tr2	20–50	2 478 (15)	5 650 (35)	1 531 (10)	9 659 (60)
Tr2–3	20–75	314 (2)	1 207 (8)	49 (<1)	1 570 (10)
Tr3	50–75	2 740 (17)	1 498 (9)	374 (2)	4 612 (28)
Tr4	75–100	78 (1)	74 (1)	27 (<1)	179 (2)
TOTAL		5 610 (35)	8 429 (53)	1 981 (12)	16 020 (100)

RELATED SOILS AND DIFFERENTIATING CRITERIA

Tracy (Tr) soils have been mapped in complexes with Stony Brook (Sb) and Tormentine (To) soils. In these complex units the soils are too intricately interspersed to separate out as unique delineations at this scale of mapping (1:20 000). Tracy Association dominates these units, with more than 40% coverage, while the second soil, either Stony Brook or Tormentine, occurs in a lesser but significant 20–40% of the polygon. The following is a description of the Tr soil complexes mapped and the relationship of the different soils in the complex.

Tr-Sb Seven polygons (363 ha) are mapped as Tracy-Stony Brook complexes. The two soils have developed on tills that are derived from the same type of parent rocks, gray-green sandstone and red shale. They differ in particle size distribution. Stony Brook soils are "fine-loamy Tracy" soils, having more than 18% clay in the parent material in comparison to the 10–18% clay in Tracy soils. These complexes represent areas where the two classes of parent material interface.

Tr-To Only one Tracy-Tormentine complex occurs (41 ha). This is a transitional soil, grading from Tracy into Tormentine. Both associations consist of soils that have developed on coarse-loamy (10–18% clay) lodgment tills. They are differentiated on the basis of lithology. Tormentine soils have developed from easily weathered weakly calcareous fine-grained micaceous red sandstone and shale. Tracy soils have the red shale component, but it is noncalcareous, and the parent sandstone is the more resistant acidic gray-green variety. This leads to a difference in soil color. Tormentine soils have a distinctive "brick" reddish brown. Tracy soils are simply a dull reddish brown. Tracy soils are acidic throughout the catena whereas Tormentine subsoils are often neutral when imperfectly drained and especially when poorly to very poorly drained. Tracy soils also tend to have more coarse fragments (gravels, cobbles) because the gray-green sandstone is more slowly weathered.

Some poorly to very poorly drained Tracy Association members are mapped as peaty (p) phases, having 15–40 cm of mesic to humic organic materials or 15–60 cm of fibric organic materials on their surfaces. Where organic materials are thicker than either 40 or 60 cm, the soil is classified into the appropriate organic soil association — Bog, Fen or Swamp.

LAND TYPES

Aggregate Pit

Aggregate pits are those areas which have been, or are presently being used, for the extraction of aggregate materials. They represent gravel pits, sand pits and pits where bedrock is being extracted and used as aggregate. Of the surveyed area, 0.54% or 379 ha are mapped as aggregate pits in 85 polygons.

Escarpment

Escarps are long, more or less continuous, relatively steep slopes usually facing in one direction, which break up the general continuity of the undulating to rolling landscape. Slopes are normally greater than 45% and frequently greater than 75%. The soils in these areas are often shallow to bedrock and bedrock exposures are common. Of the surveyed area, escarpments account for 12 ha or 0.02%, and occupy 4 polygons.

Gully

Gullies are those areas along stream and river courses that are narrow, relatively steep, longitudinal polygons that follow the course of the river or stream. They include the stream or river, a narrow alluvial plain if one exists and the steep slopes on either side that have been incised into the consolidated bedrock and/or unconsolidated soil material by running water. Both permanent and intermittent stream courses are included. Gullies occupy 97 polygons, representing 379 ha or 0.54% of the surveyed area.

Salt Marsh

Salt marsh represents those areas of undifferentiated marine deposits along the coast or tidal rivers which are submerged at high tide

by brackish to strongly saline water. They consist of flat very poorly drained land that is usually covered by a thick mat of salt tolerant water-loving plants and plant debris. In Shediac and Botsford parishes these units are scattered along the Tormentine Peninsula from Shediac to Cape Tormentine. They do not include any land which is presently dyked and in agricultural production. Sixty-nine polygons of salt marsh are mapped, occupying 1123 ha or 1.6% of the area.

Stream Channels

Stream channels are long narrow sloping trough-like depression shaped courses formed by intermittent (seasonal) streams. They are usually braided and may be stony. Only one polygon occupying 23 ha was mapped as a stream channel.

Sand Dunes

Sand dunes consist of loose sand deposited by wind action into ridge-like piles. They are located above high tide level along the coast. Sand dunes occupy 12 ha or 0.02% of the survey area, having been mapped in only 2 polygons.

Coastal Beaches

Coastal beaches are areas found along the coastline that consist of sand and gravel sediments. They consist of the land area from the water's edge inland to the extent affected by wave action. While most of the coastline has some beach, only areas wide and long enough to be mapped at the 1:20 000 scale are identified. In total 157 ha or 0.22% of the survey area are occupied by coastal beaches, accounting for 29 polygons.

SOIL INTERPRETATIONS FOR AGRICULTURE

This section of the report provides interpretations of the mapped soils for various agricultural land uses. The purpose of soil survey is to organize and present information about soil properties and predictions of soil behavior. Soil survey interpretations are predictions of soil behavior for specified land uses and specified management practices. They are based on soil and climate properties that directly influence the specified use of the soil. Soil survey interpretations allow users to plan reasonable alternatives for the use and management of soils.

The interpretations include a general rating of soil capability for agriculture using the Canada Land Inventory (CLI) classification, and ratings for crop suitabilities and management practices. The soils are grouped into classes and subclasses based on their limitations to sustain rain-fed agricultural production, considering both response to management and susceptibility to degradation.

Interpretive ratings are subject to change as new information about the behavior and responses of the soils becomes available. As more is learned about a soil or its behavior under specified uses and new technologies, soil interpretations may have to be adjusted. However, for the present, these interpretive ratings are our best predictions of anticipated soil and landscape response under the various uses.

These interpretations are examples of how the data can be interpreted in terms of some selected agricultural uses. Numerous agricultural and non-agricultural land use decisions can be assisted by knowledge of the attributes and characteristics of the soils under consideration.

THE CANADA LAND INVENTORY SOIL CAPABILITY FOR AGRICULTURE

In the Canada Land Inventory (CLI) soil capability for agriculture classification, mineral soils are grouped into seven classes according to their potential and limitations for agricultural use (Canada Land Inventory 1972). The first three classes are considered capable of sustained production of common cultivated crops, the fourth is marginal for sustained arable culture,

the fifth is capable of use only for permanent pasture and hay, the sixth is capable for use as wild pasture only, while the seventh class is for soils and land types considered incapable of use for arable culture or permanent pasture. (Due to climatic limitations, no Class 1 soils are found in New Brunswick). While the soil areas in Classes 1 to 4 are capable of use for cultivated crops, they are also capable of use for perennial forage crops. Trees, fruit trees, cranberries, blueberries and ornamental plants that require little or no cultivation are not considered as cultivated or common field crops.

The CLI soil capability for agriculture classification system makes the following assumptions:

1. It is an interpretive classification based on the effects of combinations of climate and soil characteristics, on limitations in use of the soils for agriculture, and their general productive capacity for common field crops.
2. Good soil management practices that are feasible and practical under a largely mechanized system of agriculture are assumed. This includes the proper use of fertilizers, liming, and crop protection (weed and pest control).
3. Soils considered feasible for improvement by drainage, by irrigating, by removing stones, by altering soil structure, or by protecting from overflow, are classified according to their continuing limitations or hazards in use after the improvements have been made. The term "feasible" implies that it is within economic possibility for the farmer to make such improvements on his or her own.
4. Distance to market, kind of roads, location, size of farms, characteristics of land ownership and cultural patterns, and the skill or resources of individual operators are not criteria for determining the capability rating.
5. This interpretive soil capability classification is not applied to organic soils. Organic soils (Bog, Fen and Swamp) are designated by the letter "O".

The CLI capability classification consists of two main categories: (1) the **capability class**, and (2) the **capability subclass**.

Capability Class

The **class**, the broadest category in the classification, is a grouping of subclasses that have the same **relative degree of limitation or hazard**. The limitation or hazard becomes progressively greater from Class 1 to Class 7. The class indicates the general suitability of the soils for agricultural use. The soils within a capability class are similar with respect to degree but not kind of limitations in use for agricultural purposes. Each class includes many different kinds of soil and many of the soils within any one class may require different management and treatment.

Class 1 Soils in this class have no significant limitations in use for crops. **Due to regional climate limitations (insufficient heat units) no Class 1 soils are found in New Brunswick.**

Class 2 Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices. The limitations of mapped soils in this class are adverse climate (C), which is an inherent problem in all Class 2 soils, with one of the following: poor soil structure or slow permeability (D); low fertility correctable with consistent moderate applications of fertilizers and lime (F); and/or occasional damaging overflow or inundation (I).

Class 3 Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices. Under good management these soils are fair to moderately high in productivity. The limitation(s) of mapped soils in this class are one or more of the following: poor soil structure or slow permeability (D); low fertility correctable with consistent heavy applications of fertilizers and lime (F); frequent overflow or inundation with some crop damage (I); poor drainage resulting in crop failures in some years (W); low water holding capacity (M); moderate to strong slopes (T); and/or restricted rooting zone due to bedrock (R).

Class 4 Soils in this class have severe limitations that restrict the range of crops or require special conservation practices or both. The limitations may seriously affect such farming practices as the timing and ease of tillage, planting

and harvesting, and the application and maintenance of conservation practices. The limitation(s) of mapped soils in this class are one or more of the following: poor soil structure or slow permeability (D); frequent overflow or inundation with severe crop damage (I); poor drainage resulting in crop failures in some years (W); strong slopes (T); and/or restricted rooting zone due to bedrock (R).

Class 5 Soils in this class have very severe limitations that restrict their capability to producing perennial forage crops, but improvement practices are feasible. Some Class 5 soils can be used for cultivated crops provided unusually intensive management is used. The limitation(s) of mapped soils in this class are one or more of the following: poor soil structure or slow permeability (D); poor to very poor drainage (W); and/or steep slopes (T).

Class 6 Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible. While these soils have some natural capability to sustain grazing, if not maintained, they rapidly revert back to forest. For this reason, **no soils are classified as Class 6**, but instead they have been downgraded to Class 7.

Class 7 Soils in this class have no capability for arable culture of common field crops or permanent pasture. The limitation of mapped soils in this class is very poor drainage (W).

Capability Subclass

The **subclass** is a grouping of soils with **similar kinds of limitations and hazards**. It provides information on the kind of limitation or conservation problem while the class indicates the intensity of the limitation.

Adverse climate (C) This subclass denotes inadequate heat for optimal growth, thus restricting the range of crops that can be grown. It is only used for Class 2 soils.

Undesirable soil structure and/or low permeability (D) This subclass is used for soils in which the depth of rooting zone is restricted by conditions other than a high water table or consolidated bedrock. The restricting layer is usually a compacted till material but may also be of marine origins. Soil layers with matrix bulk densities greater than 1.60 g/cm³ and/or perme-

abilities less than 1.0 cm/hr are considered significantly restricting. (Note that in this report, values listed for bulk density are on a whole soil basis, i.e. soil <2 mm in diameter plus coarse fragments. Soil matrix bulk density is the bulk density of the fines or soil materials <2 mm in diameter. It must be calculated.)

Low fertility (F) This subclass is made up of soils having low fertility that either is correctable with careful management in the use of fertilizers and soil amendments or is difficult to correct in a feasible way. The limitation of soils in this subclass is usually due to a lack of available plant nutrients (low nutrient holding capacity), high acidity and low exchange capacity.

Inundation by streams, rivers and lakes (I) This subclass includes soils subjected to flooding causing crop damage or restricting agricultural use.

Moisture limitation (M) This subclass denotes soils where crops are adversely affected by droughtiness owing to inherent soil characteristics. These soils have low water holding capacities.

Consolidated bedrock (R) This subclass applies to soils where the presence of bedrock near the surface restricts agricultural use. This includes soils that have bedrock within 1 m of the surface and also considers the presence of bedrock exposures.

Topography (T) This subclass identifies soils where topography is a limitation. Both the percent of slope and the pattern of frequency of slopes in different directions are important factors in increasing the cost of farming over that of smooth ground, in decreasing the uniformity of growth and maturity of crops, and in increasing the hazard of water erosion.

Excess water (W) Subclass W applies to soils where excess water other than that brought about by inundation is a limitation to their use for agriculture. Excess water may result from inadequate soil drainage, a high water table, seepage and/or runoff from surrounding areas.

SOIL SUITABILITY FOR SELECTED CROPS AND MANAGEMENT PRACTICES

Guidelines for assessing the soil and landscape suitability for selected crops and management practices are provided in Tables 4 to 11. The major soil and landscape properties influencing the given use are listed along with four degrees of soil suitability - good (G), fair (F), poor (P) and unsuitable (U).

Good (G) The soil is relatively free of problems that hinder crop production and soil management, or the limitations that do occur can be easily overcome.

Fair (F) Moderate soil and/or landscape limitations exist, but they can be overcome with good crop management and improvement practices or special techniques.

Poor (P) Severe soil and/or landscape limitations exist which will be difficult and costly to overcome. Crop production is severely hindered and the efficacy of land improvement practices is low.

Unsuitable (U) The inputs required to utilize or improve these soils for crop production is too great to justify under existing economic conditions.

The degree of soil suitability is determined by the most restrictive (least suitable) rating assigned to any of the listed soil properties. If the degree of suitability is "good" for all but one soil property and that one soil property is "poor", then the overall rating of the soil is "poor". The cumulative effect of individual soil properties may also act to further downgrade a soil or map unit.

Class limits of the individual soil/landscape properties are set to compensate for the fact that all soil properties are not of equal importance for a given use. This essentially allows for a relative weighting of each property.

These guidelines are intended to be applied to soils as they presently exist. The rating is based on soil and landscape criteria only. It indicates the degree of suitability, or conversely the severity of the limitation, if the soil is used without corrective or precautionary measures. Socioeconomic factors such as nearness to municipal areas, market accessibility, size of the area, etc. are not taken into account.

Each unique map symbol, listed on the soil maps accompanying this report, has been rated for soil suitability for alfalfa, apples, spring cereals, winter cereals, forages, vegetables, subsurface drainage, and deep ripping. These ratings, along with an assessment of the Canada Land

Inventory soil suitability for agriculture, are provided in Table 12, at the end of this section. The major soil properties influencing use are also provided along with the degree of soil suitability.

Table 4 Soil suitability for alfalfa

Major soil properties influencing use	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	2–9	<2, 9–15	15–30	>30
Drainage (w)	W	R, MW	I	P, VP
Depth of friable soil in cm (d)	>50	–	20–50 ¹	<20
Friable soil texture (x)	I, sil, sl	scl	ls, s, sicl	
Stoniness (p)	0, 1, 2	3	–	4, 5
Rockiness (r)	–	1	2	3, 4, 5
Flooding (i)	N	–	O	F, VF

¹ Upgrade to Fair if R, W or MW drainage.

Modified from Holmstrom (1986); and Patterson and Thompson (1989).

Table 5 Soil suitability for apples

Major soil properties influencing use	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	<9	9–15	15–30	>30
Drainage (w)	W	R, MW	I	P, VP
Depth of friable soil in cm (d)	>75	50–75	20–50	<20
Friable soil texture (x)	I, sil, sl	ls, scl	s, sicl	–
Stoniness (p)	0, 1, 2	3	–	4, 5
Rockiness (r)	0	1	2	3, 4, 5
Flooding (i)	N	–	O	F, VF

Modified from Patterson and Thompson (1989).

Table 6 Soil suitability for spring cereals

Major soil properties influencing use	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	<5	5–9	9–15	>15
Drainage (w)	W, MW	R, I	P	VP
Depth of friable soil in cm (d)	>50	20–50 ¹	–	<20
Friable soil texture (x)	I, sil, sl	Is, scl, sicl	s	–
Stoniness (p)	0, 1, 2	–	3	4, 5
Rockiness (r)	0	1	–	2, 3, 4, 5
Flooding (i)	N	O	F	VF

¹ Upgrade to Good if W or MW drainage.

Modified from Holmstrom (1986); Patterson and Thompson (1989); and Webb (1990).

Table 7 Soil suitability for winter cereals

Major soil properties influencing use	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	2–5	<2, 5–9	9–15	>15
Drainage (w)	R, W, MW	I	P	VP
Depth of friable soil in cm (d)	>50	–	20–50 ¹	<20
Friable soil texture (x)	I, sil, sl	Is, scl	s, sicl	–
Stoniness (p)	0, 1, 2	–	3	4, 5
Rockiness (r)	0	1	–	2, 3, 4, 5
Flooding (i)	N	O	F	VF

¹ Upgrade to Fair if R, W or MW drainage.

Modified from Holmstrom (1986); Patterson and Thompson (1989); and Webb (1990).

Table 8 Soil suitability for forages

Major soil properties influencing use	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	<9	9–15	15–30	>30
Drainage (w)	W, MW	I, R	P	VP
Depth of friable soil in cm (d)	>20	–	–	<20
Friable soil texture (x)	I, sil, sl	Is, scl, sicl	s	–
Stoniness (p)	0, 1, 2	3	–	4, 5
Rockiness (r)	0	1	–	2, 3, 4, 5
Flooding (i)	N, O	F	–	VF

Modified from Patterson and Thompson (1989).

Table 9 Soil suitability for vegetables

Major soil properties influencing use	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	<5	—	5–9	>9
Drainage (w)	R, W, MW	I	P	VP
Depth of friable soil in cm (d)	>50	20–50	—	<20
Friable soil texture (x)	I, sil, sl	Is	s, scl, sicl	
Stoniness (p)	0,1	2	3	4, 5
Rockiness (r)	0	1	—	2, 3, 4, 5
Flooding (i)	N	O	F	VF

Modified from Patterson and Thompson (1989).

Table 10 Soil suitability for subsurface drainage¹

Major soil properties influencing operation	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	2–9	<2, 9–15	—	>15
Drainage (w)	MW, I, P	—	VP	—
Depth in cm of soil with permeability >1.0 cm/hr (d)	>50	20–50	<20	—
Depth to bedrock in cm (b)	>75	—	—	<75
Rockiness (r)	0	1	2	3, 4, 5
Stoniness (p)	0, 1, 2	3	—	4, 5
Flooding (i)	N	O	—	F, VF

¹ R (rapidly) and W (well) drained soils do not require subsurface drainage.

Drainage of MW (moderately well) drained soils will expand the number of cropping options to include less tolerant groups.

Table 11 Soil suitability for deep ripping

Major soil properties influencing operation	Degree of suitability			
	Good	Fair	Poor	Unsuitable
Slope in % (t)	<9	9–15	>15	—
Drainage (w)	R, W, MW	I, P	VP	—
Depth of friable soil in cm (d)	<50	—	50–75	>75 ¹
Texture of compact subsoil (x)	I, Is, sil, sl	cl, scl, sicl	c, sic	—
Depth to bedrock in cm (b)	>75	—	—	<75
Rockiness (r)	0	1	2, 3	4, 5
Stoniness (p)	0, 1, 2	3	—	4, 5
Flooding (i)	N	O	F	VF

¹ Subsoiling is not required.

Major Soil Properties Influencing Use

The major soil and landscape properties influencing soil suitability for the rated crops and management practices are elaborated on below.

Slope, or topography (t) Slope steepness, reported in percentage, is an indication of the landscape gradient. Important practical aspects of soil slope that impact on use and management include: the rate and amount of runoff; the erodibility of the soil; the use of agricultural machinery; and the uniformity of crop growth and maturity. While excessive slopes may result in heavy surface runoff causing severe soil erosion, level landscapes often have problems with lack of gradient for surface and subsurface drainage water discharge. Although slope shape, length and pattern also play an important role in slope effect, slope gradient has been selected as a convenient measure of slope impact on crop production and soil management (United States Department of Agriculture, Soil Conservation Service 1962). Possibly even more so than with other soil characteristics, the relative significance of differences in slope depends upon the other properties of the soil.

Drainage, or wetness (w) Soil drainage refers to the rapidity and extent of the removal of water from the soil in relation to additions, especially by surface runoff and by flow through the soil to underground spaces. Evaporation and transpiration also contribute to water removal. Soil drainage refers to the frequency and duration of periods when the soil is free of saturation or partial saturation. It is usually inferred from: soil morphological features such as soil color, structure and texture; topographic position; and vegetation indicators. The persistence of excess water, especially in the spring and after prolonged or heavy precipitation, hinders the movement of seeding and harvesting equipment. Productivity of ill drained soils is limited by a lack of aeration, susceptibility to compaction and low soil temperature in the spring for early germination and plant growth. Other effects are shallow rooting of crops with subsequent deficiencies in plant nutrition, and severe winter damage to legumes (Nowland 1975). The soil drainage classes as defined in Day (1982) are as follows:

Rapidly drained (R) Water is removed from the soil rapidly in relation to supply.

Excess water flows downward if the underlying material is pervious. Subsurface flow may occur on steep gradients during heavy rainfall. Soils have low available water storage capacity and are usually coarse-textured, or shallow, or both. Water source is precipitation.

Well drained (W) Water is removed from the soil readily but not rapidly. Excess water flows downward readily into underlying pervious material or laterally as subsurface flow. Soils have intermediate available water storage capacity and are generally intermediate in texture and depth. Water source is precipitation. On slopes, subsurface flow may occur for short durations but additions are equalled by losses.

Moderately well drained (MW) Water is removed from the soil somewhat slowly in relation to supply. Excess water is removed somewhat slowly due to low perviousness, shallow water table, lack of gradient, or some combination of these. Soils have intermediate to high water storage capacity and are usually medium- to fine-textured. Precipitation is the dominant water source in medium- to fine-textured soils; precipitation and significant additions by subsurface flow are necessary in coarse-textured soils.

Imperfectly drained (I) Water is removed from the soil sufficiently slowly in relation to supply to keep the soil wet for a significant part of the growing season. Excess water moves slowly downward if precipitation is the major supply. If subsurface water or groundwater, or both, is the main source, the flow rate may vary but the soil remains wet for a significant part of the growing season. Precipitation is the main source if available water storage capacity is high; contribution by subsurface flow or groundwater flow, or both, increases as available water storage capacity decreases. Soils have a wide range in available water supply, texture, and depth.

Poorly drained (P) Water is removed so slowly in relation to supply that the soil remains wet for a comparatively large part of the time the soil is not frozen. Excess water is evident in the soil for a large part of

the time. Subsurface flow or groundwater flow, or both, in addition to precipitation are the main water sources; there may also be a perched water table, with precipitation exceeding evapotranspiration. Soils have a wide range in available water storage capacity, texture, and depth.

Very poorly drained (VP) Water is removed from the soil so slowly that the water table remains at or on the surface for the greater part of the time the soil is not frozen. Excess water is present in the soil for the greater part of the time. Groundwater flow and subsurface flow are the major water sources. Precipitation is less important except where there is a perched water table with precipitation exceeding evapotranspiration. Soils have a wide range in available water storage capacity, texture, and depth.

Depth of friable soil, or undesirable soil structure and slow permeability (d) The thickness of friable soil material available for root growth and water percolation is an important consideration in crop production and land management. Dense compact subsoil layers resist penetration of plant roots and percolation of rainfall. This condition prevails in all of the lodgment tills and fine-textured marine sediments. It is quite common for these soils to have subsoil matrix bulk densities of in excess of 1.7 g/cm^3 (a soil matrix bulk density of 1.60 g/cm^3 significantly reduces proper root growth) and saturated hydraulic conductivities of less than 1.0 cm/hr . These dense layers restrict vertical movement of soil water and air diffusion and act as mechanical barriers to root penetration. Soils are also late to dry in the spring and easily saturated (perched zone of saturation) by high intensity or prolonged rainfall, which affects machinery operation and increases the potential for soil erosion and compaction. Shallow rooting of crops may result in plant nutrient deficiencies, lack of resistance to midsummer drought, and winter damage to legumes and winter cereals. Water percolation to subsurface drainage lines is also impeded by the presence of slowly permeable subsoils that occur at shallow depth within the zone of tiling.

Soil texture (x) Soil texture is an indication of the relative proportions of the various mineral soil particle size groups — sand ($2\text{--}0.05 \text{ mm}$), silt ($0.05\text{--}0.002 \text{ mm}$) and clay ($<0.002 \text{ mm}$).

Each of the textural soil classes (sand, loamy sand, sandy loam, loam, silt loam, sandy clay loam, clay loam, silty clay loam, clay, etc.) has an established range for percentage sand, silt and clay. Presence of coarse fragments (gravels, cobbles and stones) is indicated by adding suitable adjectives. Soil texture is one of the most permanent characteristics of a soil, and probably the most important. Size of the soil particles ($<2 \text{ mm}$) effects most chemical, physical, and mineralogical reactions, and influences root growth for plants and engineering behavior for machinery operation. The finer clay particles are relatively much more important reactively than the larger sand particles. Soil texture influences: capillarity and thus water holding capacity; soil erodibility potential; cation exchange capacity and nutrient retention; percolation and thus requirements for subsurface drain spacing; trafficability; and soil tilth as related to ease of tillage, fitness as a seedbed, and impedance to seedling emergence (surface crusting, etc.) and root penetration. Subsoil texture also impacts on subsoiling success. Coarser textured soil materials are more prone to shattering when subsoiled dry.

Stoniness (p) Stoniness refers to the percentage of the land surface occupied by coarse fragments of stone size ($>25 \text{ cm}$ in diameter). Surface stones have an important bearing on agricultural use because they interfere with machinery operation. Plowing, harrowing and seeding equipment are significantly hindered by the presence of surface stones. Stones also impede water infiltration. Root crops such as turnips and potatoes are especially sensitive to stoniness, both in terms of plant growth and crop harvesting as related to quality. Alternately, stones are somewhat beneficial in terms of improving the soils thermal regime and protecting soil particles from being washed away.

Rockiness (r) Rockiness is an indication of the land surface area that is occupied by bedrock exposures. Bedrock exposures interfere with tillage and if a significant area of the land surface is occupied by bedrock exposures, intertilled crops may not be a practical alternative. Bedrock outcrops themselves are incapable of supporting viable crops and result in fields with non-uniform crop growth and quality.

Depth to bedrock (b) Shallowness to bedrock is a commonly associated feature of soil

units that have bedrock exposures, however, depending upon the irregularity of the bedrock surface configuration, some soils with mapped bedrock exposures have deep profiles (>1 m thick). Although shallowness to bedrock limits the available rooting zone, it has a more severe impact in preventing subsurface drain installation.

Flooding, or inundation (i) Flooding occurs when water levels rise above normal stream, river and lake boundaries and inundate or cover areas which are otherwise dry. While soils subject to flooding do not occupy large areas, these areas are probably some of the best agricultural land in the survey area. Most floodplains are highly productive in spite of the flooding, which occurs mainly in the mid to late spring at the beginning of the growing season. Flooding interferes with time of planting, thus reducing an

already short growing season. Erosion of unprotected bare ground and subsequent sediment loading of stream courses can also result. Surface crusting after flooding is common. Mid-summer flooding can result in severe damage to established crops. The following flooding classes are used:

None (N) Soils not subjected to flooding.

Occasional (O) Soils subjected to flooding of short duration once every 3 years plus.

Frequent (F) Soils subjected to flooding of medium duration once every 2 years.

Very frequent (VF) Soils subjected to prolonged flooding every year.

Table 12 Soil map unit interpretations for selected agricultural uses

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
AGGREGATE PIT	85	379.03	—	—	—	—	—	—	—	—	—
Al(p)ls/10B	1	30.61	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Al(p)ls/10b	6	52.84	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Al(p)ls/9b	1	2.17	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Al(p)sl/10B	6	128.70	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Al(p)sl/10b	1	106.38	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Al(v)sl/2c	1	5.96	3MFR	Fx	Fdx	Fx	Fx	Fx	Fx	NR	NR
Al(v)sl/3c	1	8.20	3MFR	Fwx	Fwdx	Fx	Fx	Fx	Fx	Ub	NR
Al-Bb(v)3sl/3b-c	2	61.28	3MFR	Fwx	Fwdx	Fx	Fx	Fx	Fx	Ub	Ub
Al-Bb2-4sl/6b	1	37.98	4DW	Pwd	Pwd	Fwd	Ftw	Fwx	Fwd	Ftd	Fwd
Al-Bb3sl/4b	2	211.60	3WF	Ftw	Fwdx	Fx	Ftx	Fx	Fx	Ft	Pd
Al-Bb3sl/4c	2	39.36	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Al-Bb3sl/6b	1	10.56	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	Pd
Al-Bb4sl/2c	1	11.89	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Al-Fe(t)sl/10B	1	32.73	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
AlI/6c	1	1.88	3WF	Pw	Pw	Fwx	Fwx	Fwx	Fwx	G	NR
AlI/9b	1	2.42	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Als/3c	2	16.87	3MF	Px	Fwx	Fx	Fx	Fx	Fx	G	NR
AlsI-ls/3b	1	27.30	3MF	Ftw	Fwx	Fx	Ftx	Fx	Fx	Ft	NR
AlsI/2b-c	1	12.16	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
AlsI/2c	4	11.71	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
AlsI/2d	1	4.03	3TMF	Fx	Fx	Ftx	Ftx	Fx	Pt	NR	NR
AlsI/3c	2	10.37	3MF	Fwx	Fwx	Fx	Fx	Fx	Fx	G	NR
AlsI/3c-d	1	3.33	3MF	Fwx	Fwx	Fx	Fx	Fx	Fx	G	NR
AlsI/3d	1	3.87	3TMF	Fwx	Fwx	Ftx	Ftx	Fx	Pt	G	NR
AlsI/4b-c	2	45.99	3MF	Fw	Fwx	Fx	Fx	Fx	Fx	G	NR
AlsI/5b-c	2	16.39	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	G	NR
AlsI/5c	3	22.44	3WF	Pw	Pw	Fwx	Fwx	Fwx	Fwx	G	NR
AlsI/6b	2	15.60	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	NR
AlsI/6b-c	1	16.22	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	G	NR
AlsI/7b-c	1	16.47	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	G	NR
AlsI/8b	1	11.65	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
AlsI/9b	8	37.72	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Bb(p)3ls/10B	3	20.46	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Bb(p)3ls/9b	2	20.50	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Bb(p)3sl/10b	2	42.05	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Bb(v)2sl/3b-c	2	18.42	3RD	Fwd	Pd	G	Ftd	G	Fd	Ub	Ub
Bb(v)3-4sl/3c	2	10.36	3MFR	Fwx	Fwdx	Fx	Fx	Fx	Fx	Ub	Ub
Bb(v)3sl/3c	2	82.17	3MFR	Fwx	Fwdx	Fx	Fx	Fx	Fx	Ub	Ub
Bb(v)3sl/3d	1	11.32	3TMFR	Fwx	Fwdx	Ftx	Ftx	Fx	Pt	Ub	Ub
Bb(v)3sl/5c	1	8.28	3WFR	Pw	Pw	Fwx	Fwx	Fwx	Fwx	Ub	Ub
Bb-Fe(p)2ls/9b	1	12.63	7W	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Bb-Fe(p)3ls/10b	1	14.14	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Bb-Rb(v)2-3ls-sl/3b-c	1	52.46	3RD	Fwdx	Pd	Fx	Ftdx	Fx	Fd	Ub	Ub
Bb-Rb3sl/7b	1	33.03	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	Pd
Bb-To(v)2sl/3c-d	1	46.68	3RD	Fwd	Pd	G	Fd	G	Fd	Ub	Ub

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Bb-To2-3sl/4c	2	69.76	3D	Fwd	Pd	G	Fd	G	Fd	Fd	Fd
Bb-To2-3sl/5c	3	54.45	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Bb-To2-3sl/8b	1	17.82	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwd
Bb-To2sl-1/8c	2	22.71	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Bb-To2sl/3c	1	27.60	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Bb-To2sl/9c	1	10.23	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Bb-To3sl/3c	1	27.01	3D	Fwx	Fwd	G	Fx	G	Fx	G	Pd
Bb-Tr2sl-1/3c	1	42.26	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Bb-Tr3sl/4c	1	60.24	3MF	Fwx	Fwdx	G	Fx	G	Fx	G	Pd
Bb-Tr3sl/6c	1	76.43	3WF	Pw	Pw	Fw	Fwx	Fw	Fwx	G	Pd
Bb2-3sl/3c	1	5.12	3D	Fwd	Pd	G	Fd	G	Fd	Fd	Fd
Bb2-3sl/4b	2	39.92	3D	Ftwd	Pd	G	Ftd	G	Fd	Ftd	Fd
Bb2-3sl/5c	2	17.34	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Bb2-3sl/6b	2	10.58	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fwd
Bb2-3sl/9b	2	18.52	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwd
Bb2-4sil/9b	1	45.69	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwd
Bb2-4sl/6b	2	87.40	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fwd
Bb2l/9B	1	13.26	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Bb2l/9b	2	24.84	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Bb2sicl/9b	1	4.56	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwx
Bb2sil/8c	1	5.97	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Bb2sl-ls/7b-c	1	19.20	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Bb2sl-ls/8b	1	44.97	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Bb2sl/2b	1	8.23	3D	Ftd	Pd	G	Ftd	G	Fd	NR	G
Bb2sl/2b-c	1	14.06	3D	Fd	Pd	G	Ftd	G	Fd	NR	G
Bb2sl/2c	1	11.66	3D	Fd	Pd	G	Fd	G	Fd	NR	G
Bb2sl/3b	3	34.40	3D	Ftwd	Pd	G	Ftd	G	Fd	Ftd	G
Bb2sl/3c	5	69.65	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Bb2sl/3c-d	2	22.75	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Bb2sl/3d	1	8.58	3TD	Fwd	Pd	Ftx	Ftd	G	Pt	Fd	G
Bb2sl/4B	1	7.67	3D	Ftwd	Pd	G	Ftd	G	Fd	Ftd	G
Bb2sl/4c	3	41.28	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Bb2sl/5c	4	124.22	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Bb2sl/6b-c	1	10.78	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Bb2sl/6c	8	106.52	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Bb2sl/7b	3	118.41	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Bb2sl/7b-c	1	23.87	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Bb2sl/7c	3	95.65	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Bb2sl/8b	2	16.40	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Bb2sl/8b-c	2	44.21	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Bb2sl/8c	4	26.65	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Bb2sl/9B	1	7.27	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Bb2sl/9b	3	24.90	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Bb2sl/9b-c	1	20.53	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Bb3-4sl/3c	1	8.73	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Bb3-4sl/4b	1	21.38	3MF	Fwx	Fwdx	Fx	Ftx	Fx	Fx	Ft	Pd

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Bb3l-sl/8b	3	33.76	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Bb3l/9b	1	4.75	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Bb3ls/3b	1	15.76	3MF	Px	Fwdx	Fx	Ftx	Fx	Fx	Ft	Pd
Bb3ls/3c	1	12.43	3MF	Px	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Bb3ls/5c	1	12.68	3WF	Pwx	Pw	Fwx	Fwx	Fwx	Fwx	G	Pd
Bb3ls/7b	2	48.62	3WF	Pwx	Pw	Fwx	Ftwx	Fwx	Fwx	Ft	Pd
Bb3sl-ls/5b	1	94.19	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	Pd
Bb3sl/10b	1	11.50	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Bb3sl/2c	2	17.80	3MF	Fx	Fd	Fx	Fx	Fx	Fx	NR	Pd
Bb3sl/3B	2	36.76	3MF	Ftw	Fwdx	Fx	Ftx	Fx	Fx	Ft	Pd
Bb3sl/3b	4	39.92	3MF	Ftw	Fwdx	Fx	Ftx	Fx	Fx	Ft	Pd
Bb3sl/3b-c	5	143.26	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Bb3sl/3c	8	173.06	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Bb3sl/4b-c	2	24.63	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Bb3sl/4c	8	87.86	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Bb3sl/4c-d	2	46.69	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Bb3sl/5b	1	26.57	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	Pd
Bb3sl/5b-c	1	16.66	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	G	Pd
Bb3sl/5c	2	16.44	3WF	Pw	Pw	Fwx	Fwx	Fwx	Fwx	G	Pd
Bb3sl/6B	1	24.44	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	Pd
Bb3sl/6b	3	33.15	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	Pd
Bb3sl/6b-c	3	55.88	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	G	Pd
Bb3sl/6c	3	33.38	3WF	Pw	Pw	Fwx	Fwx	Fwx	Fwx	G	Pd
Bb3sl/7b	9	121.82	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	Pd
Bb3sl/7b-c	1	90.41	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	G	Pd
Bb3sl/7c	5	50.56	3WF	Pw	Pw	Fwx	Fwx	Fwx	Fwx	G	Pd
Bb3sl/8C	1	37.43	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Bb3sl/8b	5	74.68	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Bb3sl/8c	3	48.86	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Bb3sl/9b	8	37.10	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Bb4ls/2c	1	34.12	3MF	Px	Fx	Fx	Fx	Fx	Fx	NR	NR
Bb4sl/2c	2	11.05	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Bb4sl/3C	1	8.03	3MF	Fwx	Fwx	Fx	Fx	Fx	Fx	G	NR
Bb4sl/3c	1	2.33	3MF	Fwx	Fwx	Fx	Fx	Fx	Fx	G	NR
Bb4sl/4b	3	21.03	3MF	Ftw	Fwx	Fx	Ftx	Fx	Fx	Ft	NR
Bb4sl/6B-C	1	31.99	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	G	NR
Bb4sl/6c	1	3.54	3WF	Pw	Pw	Fwx	Fwx	Fwx	Fwx	G	NR
Bb4sl/7b	2	29.10	3WF	Pw	Pw	Fwx	Ftw	Fwx	Fwx	Ft	NR
Bb4sl/9b	2	23.23	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
BI2l/10b	1	14.24	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
BI2l/9b	1	10.73	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
BI2sicl/10b	2	42.92	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
BI3l/4b	1	4.11	2CD	Ftw	Fwd	G	Ft	G	G	Ft	Pd
BI3l/8b	2	2.94	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
BI3l/9b	1	2.63	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
BI3sl/6c	1	14.83	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Bl3sl/9b	1	5.26	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Bo(t)/10B	2	42.00	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Bo(t)/10a	2	24.23	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Bo(t)/10b	1	11.27	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Bo-Fe/10B	3	69.59	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Bo/10A	9	210.96	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Bo/10B	24	679.57	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Bo/10a	1	27.77	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Bo/10b	4	20.79	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
COASTAL BEACH	29	156.96	—	—	—	—	—	—	—	—	—
Cr2l-sl/8b	1	10.50	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwx
Cr2l/8b	1	12.51	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwx
Cr3ls/6b-c	1	17.90	3WF	Pwx	Pw	Fwx	Fwx	Fwx	Fwx	G	Pd
Cr3sl/7c	1	3.46	3WF	Pw	Pw	Fwx	Fwx	Fwx	Fwx	G	Pd
Cr4sl-sil/3c	1	28.67	2CF	Fw	Fwx	Fx	Fx	Fx	Fx	G	NR
ESCARPMENT	4	11.75	—	—	—	—	—	—	—	—	—
Fe(t)/10A	2	10.05	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Fe(t)/10B	14	193.14	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Fe(t)/10a	2	13.10	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Fe(t)/10b	8	67.47	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Fe/10A	2	15.34	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Fe/10B	21	282.74	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Fe/10a	4	62.93	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Fe/10b	12	115.60	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
GULLY	97	379.30	—	—	—	—	—	—	—	—	—
In(p)/10b	1	10.87	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Ui	NR
In(p)sil/10b	1	17.11	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Ui	NR
Inl/10b	11	80.74	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Ui	NR
Insil/9b	2	23.36	4IW	Uwi	Uwi	Pwi	Pwi	Pw	Pwi	Pi	NR
Insil-sl/6b-c	5	19.71	3IW	Pwi	Ui	Fwi	Fwi	Fw	Fwi	G	NR
Insil/10b	5	34.74	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Ui	NR
Insil/6b	4	41.37	3IW	Pwi	Ui	Fwi	Ftwi	Fw	Fwi	Fti	NR
Insil/7b	6	72.61	3IW	Pwi	Ui	Fwi	Ftwi	Fw	Fwi	Fti	NR
Insil/7b-c	2	62.97	3IW	Pwi	Ui	Fwi	Fwi	Fw	Fwi	Fi	NR
Insil/8b	1	15.02	4IW	Uwi	Uwi	Pwi	Pwi	Pw	Pwi	Pi	NR
Insil/9b	15	125.34	4IW	Uwi	Uwi	Pwi	Pwi	Pw	Pwi	Pi	NR
Insil/9b-c	1	5.82	4IW	Uwi	Uwi	Pwi	Pwi	Pw	Pwi	Pi	NR
Insl/3b	1	6.60	2CI	Ftwi	Pi	Fi	Fti	G	Fi	Fti	NR
Insl/8c	3	11.09	4IW	Uwi	Uwi	Pwi	Pwi	Pw	Pwi	Pi	NR
Insl/9b	1	1.72	4IW	Uwi	Uwi	Pwi	Pwi	Pw	Pwi	Pi	NR
Mh(p)1sl-scl/10b	2	36.84	7W	Uwd	Uwd	Uwd	Uwd	Uwd	Uwd	Pwd	Pw
Mh1-2sil/9b	2	4.43	5WD	Uw	Uwd	Ud	Ud	Ud	Ud	Pd	Fwx
Mh2sil/5c	1	23.25	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwx
Mh2sil/8b	1	10.85	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwx
Mh2sil/9b	1	7.08	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Px
Rb(e)sl/5c	1	1.90	3WF	Pw	Pw	Fwx	Fwx	Fw	Fwx	G	NR

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Rb(m)ls/2b	1	3.83	3MFR	Px	Fdx	Fx	Ftx	Fx	Fx	NR	NR
Rb(m)sl/2c	3	58.06	3MFR	Fx	Fd	Fx	Fx	Fx	Fx	NR	NR
Rb(m)sl/3cS1	1	119.33	3MFR	Fwx	Fwdx	Fx	Fx	Fx	Fx	Ub	NR
Rb(p)l/10B	1	13.50	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Rb(p)ls/10b	1	12.31	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Rb(p)ls/9b	1	18.99	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Rb(v)sl-ls/2c	1	5.78	3MFR	Fx	Fd	Fx	Fx	Fx	Fx	NR	NR
Rb(v)sl/3b	1	14.58	3MFR	Ftw	Fwdx	Fx	Ftx	Fx	Fx	Ub	NR
Rb-Bb(p)2sl/10b	1	46.52	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Rb-Bb(v)2sl/2B	1	47.98	3RD	Ftd	Pd	Fx	Ftx	Fx	Fx	NR	Ub
Rb-Bb2sl/8b	2	21.95	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Rb-Bb3sl/3b-c	1	35.77	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Rb-Bb3sl/3c	1	48.63	3MF	Fwx	Fwdx	Fx	Fx	Fx	Fx	G	Pd
Rb-Bb3sl/4B	1	40.75	3MF	Ftw	Fwdx	Fx	Ftx	Fx	Fx	Ft	Pd
Rb-BI3sl-sil/8b	1	41.75	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Rb-Insil/10b	3	45.37	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Rbls/2c	2	25.40	3MF	Px	Fx	Fx	Fx	Fx	Fx	NR	NR
Rbls/3b	1	6.07	3MF	Px	Fwx	Fx	Ftx	Fx	Fx	Ft	NR
Rbls/3c	1	0.00	3MF	Px	Fwx	Fx	Fx	Fx	Fx	G	NR
Rbls/8b-c	1	25.00	5W	Uw	Uw	Pw	Pw	Pw	Pw	G	NR
Rbls/9b	2	5.99	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Rbsil/10b	1	25.79	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Rbsil/9b	1	12.76	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Rbsl-l/2b-c	1	40.37	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Rbsl-ls/2b-c	1	84.40	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Rbsl-ls/4b-c	1	24.11	3MF	Fwx	Fwx	Fx	Fx	Fx	Fx	G	NR
Rbsl/10b	1	3.81	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Rbsl/2C	2	51.42	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Rbsl/2b	6	141.84	3MF	Ft	Fx	Fx	Ftx	Fx	Fx	NR	NR
Rbsl/2b-c	2	71.52	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Rbsl/2c	9	161.22	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Rbsl/2c-d	1	12.20	3MF	Fx	Fx	Fx	Fx	Fx	Fx	NR	NR
Rbsl/2d	6	40.80	3TMF	Fx	Fx	Ftx	Ftx	Fx	Pt	NR	NR
Rbsl/3B	1	28.56	3MF	Ftw	Fwx	Fx	Ftx	Fx	Fx	Ft	NR
Rbsl/3b	3	85.91	3MF	Ftw	Fwx	Fx	Ftx	Fx	Fx	Ft	NR
Rbsl/3c	4	78.41	3MF	Fwx	Fwx	Fx	Fx	Fx	Fx	G	NR
Rbsl/3c-d	1	4.84	3MF	Fwx	Fwx	Fx	Fx	Fx	Fx	G	NR
Rbsl/4B	1	44.00	3MF	Ftw	Fwx	Fx	Ftx	Fx	Fx	Ft	NR
Rbsl/5b	1	32.48	3WF	Pw	Pw	Fwx	Ftw	Fw	Fwx	Ft	NR
Rbsl/5c	1	18.61	3WF	Pw	Pw	Fwx	Fwx	Fw	Fwx	G	NR
Rbsl/6b	2	5.58	3WF	Pw	Pw	Fwx	Ftw	Fw	Fwx	Ft	NR
Rbsl/7b	3	25.56	3WF	Pw	Pw	Fwx	Ftw	Fw	Fwx	Ft	NR
Rbsl/7c	2	14.22	3WF	Pw	Pw	Fwx	Fwx	Fw	Fwx	G	NR
Rbsl/8b	2	50.82	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Rbsl/9B	1	5.28	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Rbsl/9b	9	85.08	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Rbsl/9c	1	5.97	5W	Uw	Uw	Pw	Pw	Pw	Pw	G	NR
SALT MARSH	69	1123.34	—	—	—	—	—	—	—	—	—
SAND DUNE	2	12.26	—	—	—	—	—	—	—	—	—
STREAM CHANNEL	1	22.98	—	—	—	—	—	—	—	—	—
Sb(p)2l/10B	3	156.35	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb(p)2l/10b	2	9.17	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb(p)2sl/10B	2	15.17	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb(p)2sl/10b	6	130.44	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb(p)2sl/9B	5	437.57	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb(p)2sl/9b	1	43.14	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb(p)2sl/9c	1	12.07	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb(p)3l/10B	1	6.21	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Sb(p)3sl/10B	1	56.29	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Sb(p)3sl/10b	1	5.51	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Sb(v)2l/3b-c	1	11.91	3RD	Fwd	Pd	G	Ftd	G	Fd	Ub	Ub
Sb(v)2sl/3cS1	1	19.01	3RD	Fwd	Pd	G	Fd	G	Fd	Ub	Ub
Sb(v)2sl/5c	2	24.52	4RDW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ub	Ub
Sb-Sh2-3l/4d	2	35.76	3TD	Fwd	Pd	Ft	Ftd	G	Pt	Fd	Fd
Sb-Tr2-3l-sl/5c	2	152.02	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Sb-Tr2l/6d	1	10.96	4DW	Pwd	Pwd	Ftd	Pwd	Fw	Pt	Fd	Fw
Sb-Tr2l/6d-cS1	3	32.83	4DW	Pwd	Pwd	Ftd	Pwd	Fw	Pt	Fd	Fw
Sb-Tr2l/7b	2	37.12	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb-Tr2l/8c	4	141.46	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb-Tr2sl-l/7b-c	2	208.28	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb-Tr2sl-l/7c	1	33.16	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb-Tr2sl/3b-c	1	25.58	3D	Fwd	Pd	G	Ftd	G	Fd	Fd	G
Sb-Tr2sl/7c	4	353.91	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb-Tr2sl/8b-c	1	107.17	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb-Tr2sl/8c	5	91.95	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb-Tr2sl/9b-c	2	55.85	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb-Tr3l-sl/6c	2	64.81	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sb-Tr3sl/3cS1	1	31.30	2CD	Fw	Fwd	G	G	G	G	G	Pd
Sb-Tr3sl/4c	1	80.36	2CD	Fw	Fwd	G	G	G	G	G	Pd
Sb-Tr3sl/8b	1	70.57	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Sb1l/10b	1	34.01	7W	Uwd	Uw	Uwd	Uwd	Uwd	Uwd	Pwd	Pw
Sb2-3l/3d	1	21.43	3TD	Fwd	Pd	Ft	Ftd	G	Pt	Fd	Fd
Sb2-3l/6b-c	1	68.90	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Sb2-3l/6c	1	9.79	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Sb2-3sl/6b-c	2	94.66	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Sb2-3sl/6c-d	4	157.27	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Sb2-3sl/7b-c	1	19.49	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwd
Sb2-3sl/8b	1	103.16	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwd
Sb2-3sl/8cS1	1	25.34	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fwd
Sb2l-sl/3c	2	36.42	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2l-sl/5c	2	148.00	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l-sl/6c	3	109.22	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Sb2l/10B	1	21.46	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb2l/10b-c	1	3.71	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb2l/3c	3	119.38	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2l/3c-d	1	10.82	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2l/3d	3	31.76	3TD	Fwd	Pd	Ft	Ftd	G	Pt	Fd	G
Sb2l/4C	2	70.22	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2l/4c	6	152.56	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2l/4d	2	15.46	3TD	Fwd	Pd	Ft	Ftd	G	Pt	Fd	G
Sb2l/5C	2	77.95	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/5c	14	404.39	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/5c-d	2	39.19	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/5d	2	36.79	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	Fd	Fw
Sb2l/6b	8	295.38	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb2l/6b-c	5	180.31	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/6c	33	901.44	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/6c-d	3	19.06	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/6d	14	124.48	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	Fd	Fw
Sb2l/6e	2	22.94	4TDW	Pwd	Pwd	Pt	Ptwd	Ftw	Ut	Ftd	Ftw
Sb2l/7B	1	19.06	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb2l/7b	7	130.80	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb2l/7b-c	5	202.06	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/7c	33	1412.96	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2l/8b	4	133.53	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2l/8b-c	5	363.42	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2l/8c	13	318.61	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2l/9B	3	239.39	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2l/9b	30	1485.05	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2l/9b-c	3	137.61	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2l/9c	10	167.38	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2sil/10b	2	107.99	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb2sil/9b	1	3.74	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2sil/9c	1	7.79	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2sl-l/4c	1	10.37	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2sl-l/5c-d	2	29.75	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl-l/6c	5	109.14	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl-l/8b	3	198.96	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2sl-l/8b-c	1	57.19	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2sl-l/9b	1	19.91	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2sl/10b	1	6.65	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sb2sl/3B	1	20.49	3D	Ftwd	Pd	G	Ftd	G	Fd	Ftd	G
Sb2sl/3c	3	82.48	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2sl/3c-d	1	12.88	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2sl/4c	6	215.41	3D	Fwd	Pd	G	Fd	G	Fd	Fd	G
Sb2sl/5C	1	22.16	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/5c	5	152.01	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/5c-d	1	54.73	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Sb2sl/5cS1	2	259.98	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/6B	1	19.72	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb2sl/6b	1	19.69	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb2sl/6b-c	1	21.95	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/6c	19	491.21	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/6c-d	1	22.57	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/6d	4	26.06	4DW	Pwd	Pwd	Ftd	Pwd	Fw	Pt	Fd	Fw
Sb2sl/7B	1	7.35	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb2sl/7b	8	257.53	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fw
Sb2sl/7b-c	3	53.81	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/7c	14	449.60	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/7cS1	1	25.55	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/7cS2	1	18.14	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fw
Sb2sl/8b	8	301.74	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2sl/8b-c	2	212.16	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2sl/8c	11	169.71	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2sl/9B	1	38.99	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2sl/9b	4	78.43	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fw
Sb2sl/9b-c	1	71.96	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb2sl/9c	4	21.26	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Fd	Fw
Sb3l-sl/4c	1	13.60	2CD	Fw	Fwd	G	G	G	G	G	Pd
Sb3l/3c	1	6.59	2CD	Fw	Fwd	G	G	G	G	G	Pd
Sb3l/3d	1	37.73	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
Sb3l/5c	4	49.32	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sb3l/5c-d	2	44.44	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sb3l/5d	2	27.35	3WD	Pw	Pw	Ftd	Ftd	Fw	Pt	G	Pd
Sb3l/6c	1	29.57	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sb3l/7c	1	147.15	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sb3l/8c	1	9.94	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Sb3l/9b	2	12.17	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Sb3l/9c	1	3.44	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Sb3sl-l/6c	1	71.60	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sb3sl/10b	1	30.85	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Sb3sl/3B	1	10.26	2CD	Ftd	Fwd	G	Ft	G	G	Ft	Pd
Sb3sl/4c	1	46.23	2CD	Fw	Fwd	G	G	G	G	G	Pd
Sb3sl/4d	1	78.01	2CD	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
Sb3sl/6c	2	29.30	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sb3sl/7c	4	92.60	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sh(p)2l/10b	1	116.01	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sh(p)2sicl-sil/10b	1	28.80	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sh(p)3l/10b	1	4.46	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Sh-To2-3l/6d-e	1	36.67	3TD	Pwd	Pwd	Ftd	Pwd	Fw	Pt	Ft	Fwd
Sh-To2l/7c	2	52.17	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh-To2l/9b-c	1	73.72	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Sh-To2sl-l/5c	1	220.53	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh-To2sl/9b	2	234.73	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Sh-To3l/8c	1	19.16	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Sh2l/10b	1	4.54	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sh2l/3c	1	23.83	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Sh2l/3dS1	1	16.69	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Sh2l/4b-c	1	37.47	3D	Fwd	Pd	G	Ftd	G	Fd	G	G
Sh2l/4c	3	71.93	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Sh2l/4e	2	12.67	4TD	Ftwd	Pd	Pt	Pt	Ft	Ut	Ft	Ft
Sh2l/5c	1	51.11	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2l/5e	1	9.66	4TDW	Pwd	Pwd	Pt	Ptwd	Ftw	Ut	Ft	Ftw
Sh2l/6b-c	2	89.05	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2l/6c	6	134.70	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2l/6c-d	3	80.20	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2l/6cS1	1	17.50	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2l/6d	3	33.46	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Sh2l/7b	2	34.18	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
Sh2l/7b-c	4	112.75	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2l/7c	6	226.14	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2l/8b	1	11.53	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Sh2l/8c	2	11.99	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Sh2l/9b	3	31.50	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Sh2sil/10B	1	60.40	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Sh2sl-l/5c	1	18.27	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2sl-l/6c	1	14.55	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2sl-l/6c-d	1	24.44	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2sl-l/7b	1	40.75	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
Sh2sl-l/7c	1	8.95	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2sl/3b	1	4.67	3D	Fwd	Pd	G	Ftd	G	Fd	Ft	G
Sh2sl/6c	5	102.00	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2sl/6c-d	1	9.75	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2sl/7c	2	9.83	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Sh2sl/9c	1	15.19	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Sh3l/5c	2	197.65	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Sh3l/9b	1	2.14	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Su(p)sil/9b	1	84.17	4IW	Uwi	Uwi	Pwi	Pwi	Pw	Pwi	Ft	NR
Sul/10B	1	16.20	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Pw	NR
Sul/10b	2	33.66	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Pw	NR
Susil/10B	2	46.24	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Ui	NR
Susil/10b	1	13.50	7W	Uwi	Uwi	Uwi	Uwi	Uwi	Uwi	Ui	NR
Sw(t)/10A	2	35.16	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Sw(t)/10B	12	139.51	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Sw(t)/10b	13	145.67	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Sw(t)/9b	2	9.66	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Sw-Fe(t)/10B	2	39.26	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Sw-Fe/10b	3	26.46	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Sw/10A	3	23.29	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Sw/10B	17	313.52	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Sw/10b	12	216.82	O	Uw	Uw	Uw	Uw	Uw	Uw	Pw	NR
Td1sici/9b	2	71.78	5WD	Uwd	Uwd	Ud	Ud	Ud	Ud	Pd	Fwx
Td2l/6c	3	11.64	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwx
Td2l/9B	1	16.26	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwx
Td2sil/7B	1	22.49	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ftd	Fwx
Td2sil/7c	4	32.56	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Fd	Fwx
Td2sil/8b	1	11.98	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ftd	Fwx
To(p)2l/10b	1	1.31	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
To(p)2l/9b	4	17.31	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To(p)2l/9c	2	13.56	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To(p)2sl/10b	4	38.89	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
To(p)3l/10b	1	23.68	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
To(p)3l/8c	1	1.73	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To(p)3l/9b	1	10.47	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
To(p)3ls/10b	2	6.54	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
To(p)3sl/10b	7	112.25	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
To(p)3sl/9b	2	16.00	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
To(p)3sl/9b-c	1	14.03	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To(v)2sl/3c	2	44.95	3RD	Fwd	Pd	G	Fd	G	Fd	Ub	Ub
To(v)2sl/4b-c	2	125.85	3RD	Fwd	Pd	G	Ftd	G	Fd	Ub	Ub
To(v)3sl/3c	2	15.65	3RD	Fw	Fwd	G	G	G	Fd	Ub	Ub
To(v)3sl/3c-d	1	34.95	3RD	Fw	Fwd	G	G	G	Fd	Ub	Ud
To(v)3sl/4e	1	6.40	4T	Ftw	Ftwd	Pt	Pt	Ft	Ut	Ub	Ud
To-Bb2-3sl/5b-c	1	30.33	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To-Bb2-3sl/5c	1	14.09	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To-Bb2sl/4b	3	93.48	4DW	Ftwd	Pd	G	Ftd	G	Fd	Ft	G
To-Bb3-4sl/3c	1	5.63	2CD	Fw	Fwd	G	G	G	G	G	Pd
To-Bb3sl/3c	2	18.46	2CD	Fw	Fwd	G	G	G	G	G	Pd
To-Bb3sl/4b-c	1	25.48	2CD	Fw	Fwd	G	Ft	G	G	G	Pd
To-Sb2sl/7c	2	41.13	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To-Sh2l/7b-c	1	16.55	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To-Sh2sl-l/6C	1	41.26	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To-Sh3l-sl/4c	1	44.04	2CD	Fw	Fwd	G	G	G	G	G	Pd
To-Tr2l/7c	1	13.71	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To-Tr2sl/5c	1	35.81	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To-Tr2sl/6b-c	1	41.13	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To-Tr3l/7c	1	29.79	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To-Tr3sl/2c	1	30.99	2CD	G	Fd	G	G	G	G	NR	Pd
To-Tr3sl/7c	1	55.30	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To2-3l-sl/5c	1	8.01	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3l/6c	2	62.61	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3l/9c	1	6.82	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fwd
To2-3sl-l/5c	2	132.24	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl-l/6b-c	1	28.66	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl-l/6c	4	287.08	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl-l/7c	1	41.13	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
To2-3sl/3b	3	33.72	3D	Ftwd	Pd	G	Ftd	G	Fd	Ft	Fd
To2-3sl/3c	12	221.37	3D	Fwd	Pd	G	Fd	G	Fd	G	Fd
To2-3sl/3c-dS1	2	138.59	3D	Fwd	Pd	G	Fd	G	Fd	G	Fd
To2-3sl/3d	3	150.90	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	Fd
To2-3sl/4c	13	806.18	3D	Fwd	Pd	G	Fd	G	Fd	G	Fd
To2-3sl/4c-d	1	61.65	3D	Fwd	Pd	G	Fd	G	Fd	G	Fd
To2-3sl/4d	2	136.69	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	Fd
To2-3sl/4d-e	2	13.22	3TD	Fwd	Pd	Ft	Ftd	G	Pt	Ft	Fd
To2-3sl/5b-c	1	8.50	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl/5c	6	256.21	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl/5c-d	4	123.33	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl/5d	1	14.65	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fwd
To2-3sl/6c	11	426.06	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl/6c-d	3	76.95	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl/6d	2	5.60	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fwd
To2-3sl/7c	3	250.54	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
To2-3sl/7d	1	57.29	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fwd
To2-3sl/8c	2	37.45	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fwd
To2l-sl/5c	1	93.05	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l-sl/5c-d	1	106.97	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l-sl/6c	2	131.38	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l-sl/9b	1	19.96	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To2l/10b	9	39.82	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
To2l/3c	1	4.28	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2l/3d	9	60.26	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
To2l/4c	5	64.89	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2l/4c-d	1	27.79	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2l/4d	3	64.20	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
To2l/5C	2	22.83	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/5b-c	1	77.38	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/5c	11	289.27	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/5c-d	5	156.34	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/5c-dS2	1	40.32	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/5d	3	61.50	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
To2l/6C	2	22.16	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/6b-c	2	199.49	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/6c	19	648.63	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/6c-d	3	47.88	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/7b	1	63.92	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
To2l/7b-c	3	130.61	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/7c	29	757.80	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/7c-d	3	20.86	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/7cS1	1	40.69	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2l/8b	8	116.73	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To2l/8b-c	4	82.30	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2l/8c	17	419.04	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
To2l/8c-d	1	38.46	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2l/9b	17	113.94	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To2l/9b-c	2	12.08	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2l/9c	6	71.15	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sil/4c-d	1	7.32	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sil/8c	1	43.21	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sl-l/3c	1	13.13	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl-l/4b-c	2	79.31	3D	Fwd	Pd	G	Ftd	G	Fd	G	G
To2sl-l/4d	1	14.84	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
To2sl-l/5b-c	1	13.16	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl-l/5b-cS1	1	309.87	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl-l/5c	6	381.69	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl-l/5c-d	4	112.12	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl-l/5d	8	199.32	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
To2sl-l/6b	1	63.36	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
To2sl-l/6b-c	2	46.69	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl-l/6c	3	165.38	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl-l/7c	8	578.78	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl-l/8b-c	1	191.61	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sl-l/8c	3	113.51	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sl-l/9b	1	10.22	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To2sl/10b	2	14.25	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
To2sl/2d	1	17.36	3TD	Fd	Pd	Ft	Ftd	G	Pt	NR	G
To2sl/2f	1	1.27	5T	Pt	Ptd	Ut	Ut	Pt	Ut	NR	Pt
To2sl/3B	2	29.91	3D	Ftwd	Pd	G	Ftd	G	Fd	Ft	G
To2sl/3C	2	37.57	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl/3b	2	14.52	3D	Ftwd	Pd	G	Ftd	G	Fd	Ft	G
To2sl/3c	28	460.39	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl/3c-d	10	137.74	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl/3cS1	1	9.49	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl/3d	26	288.13	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
To2sl/3d-c	3	70.47	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
To2sl/3e	2	10.31	4TD	Ftwd	Pd	Pt	Pt	Ft	Ut	Ft	Ft
To2sl/4C	1	26.15	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl/4b	8	272.14	3D	Ftwd	Pd	G	Ftd	G	Fd	Ft	G
To2sl/4b-c	8	220.46	3D	Fwd	Pd	G	Ftd	G	Fd	G	G
To2sl/4c	43	1163.42	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl/4c-d	17	345.74	3D	Fwd	Pd	G	Fd	G	Fd	G	G
To2sl/4d	12	277.67	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
To2sl/5b	4	279.24	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
To2sl/5b-c	7	264.25	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/5c	40	1716.75	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/5c-d	8	144.16	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/5d	6	102.07	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
To2sl/6B	1	9.16	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
To2sl/6b	5	57.85	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
To2sl/6b-c	3	144.32	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/6c	29	601.41	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/6c-d	5	63.78	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/6d	6	76.68	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Pt	G	Fw
To2sl/7b	11	131.95	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
To2sl/7b-c	1	50.19	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/7c	30	883.81	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/7c-d	1	21.23	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
To2sl/8B	1	34.11	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To2sl/8b	12	449.39	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To2sl/8b-c	2	114.22	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sl/8c	13	309.18	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sl/8c-d	1	22.10	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sl/9b	9	170.88	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
To2sl/9b-c	5	36.55	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To2sl/9c	9	87.24	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
To3-4sl/2c	2	8.32	2CD	G	Fd	G	G	G	G	NR	Pd
To3-4sl/3c	1	14.98	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3-4sl/3c-d	1	30.35	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3-4sl/3d	3	21.67	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
To3-4sl/7b	2	88.26	3W	Pw	Pw	Fw	Ftw	Fw	Fw	Ft	Pd
To3l-sl/6c	1	28.67	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3l-sl/7c	3	199.18	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3l/10b-c	1	0.89	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
To3l/3b	2	41.66	2CD	Fw	Fwd	G	Ft	G	G	Ft	Pd
To3l/3d	1	10.30	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
To3l/4c	1	22.37	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3l/4c-d	1	35.98	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3l/5c	4	26.97	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3l/6c	6	333.62	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3l/6c-d	1	7.98	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3l/7c	1	64.57	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3l/8c	4	60.06	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To3l/9b	4	52.77	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
To3l/9b-c	1	52.05	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To3l/9c	2	21.98	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To3sl-l/3c	1	22.05	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl-l/4c	4	447.36	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl-l/5c	1	69.07	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl-l/6b	2	28.13	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	Ft	Pd
To3sl-l/6c	1	11.53	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl-l/6d	1	9.26	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	G	Pd
To3sl-l/7c	1	14.74	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl/10b	1	1.94	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
To3sl/2b	1	20.44	2CD	Ft	Fd	G	Ft	G	G	NR	Pd
To3sl/2c	3	62.95	2CD	G	Fd	G	G	G	G	NR	Pd

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
To3sl/2d	3	20.15	3T	G	Fd	Ft	Ft	G	Pt	NR	Pd
To3sl/3C	1	53.66	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl/3b	1	69.76	2CD	Ftw	Fwd	G	Ft	G	G	Ft	Pd
To3sl/3c	26	506.39	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl/3c-d	14	217.73	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl/3cS1	1	37.80	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl/3d	7	100.40	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
To3sl/3dS1	1	44.18	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
To3sl/4b-c	2	16.90	2CD	Fw	Fwd	G	Ft	G	G	G	Pd
To3sl/4c	14	636.95	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl/4c-d	5	68.31	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl/4cS1	1	45.69	2CD	Fw	Fwd	G	G	G	G	G	Pd
To3sl/4d	1	3.32	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
To3sl/5b	3	56.76	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	Ft	Pd
To3sl/5b-c	3	138.32	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	G	Pd
To3sl/5c	9	341.02	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl/5c-d	2	25.15	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl/5d	1	46.64	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	G	Pd
To3sl/6b	7	59.91	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	Ft	Pd
To3sl/6b-c	3	124.89	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	G	Pd
To3sl/6c	14	312.02	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl/6d	1	20.36	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	G	Pd
To3sl/7b	2	54.84	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	Ft	Pd
To3sl/7b-c	2	173.08	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	G	Pd
To3sl/7c	4	17.70	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl/7c-d	1	8.83	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl/7cS1	3	61.20	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
To3sl/7d	1	49.96	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	G	Pd
To3sl/8b	6	101.41	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
To3sl/8b-c	1	15.75	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To3sl/8c	3	57.14	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To3sl/9b	9	135.35	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
To3sl/9b-c	1	15.97	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
To3sl/9c	5	16.36	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Tr(m)2sl/3c	1	30.14	3RD	Fwd	Pd	G	Fd	G	Fd	Ub	Pb
Tr(m)2sl/3cS1	1	22.30	3RD	Fwd	Pd	G	Fd	G	Fd	Ub	Pb
Tr(m)3sl/2c	1	5.01	3RD	G	Fd	G	G	G	G	NR	Pb
Tr(m)3sl/2d	1	1.32	3TRD	G	Fd	Ft	Ft	G	Pt	NR	Pb
Tr(m)3sl/7c	1	20.28	3RWD	Pw	Pw	Fw	Fw	Fw	Fw	Ub	Pb
Tr(p)2l/9b	4	87.92	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Tr(p)2l/9c	1	5.17	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr(p)2sl/10b	2	35.37	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Tr(p)2sl/9b	3	22.53	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Tr(p)2sl/9c	1	45.45	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr(p)3sl/10B	3	44.08	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Tr(p)3sl/10b	5	35.48	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Tr(p)3sl/9b	1	3.77	5W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Tr(v)2sl-1/3c	1	31.28	3RD	Fwd	Pd	G	Fd	G	Fd	Ub	Ub
Tr(v)2sl/2b	1	8.34	3RD	Ftd	Pd	G	Ftd	G	Fd	NR	Ub
Tr(v)2sl/2c-d	1	29.25	3RD	Fd	Pd	G	Fd	G	Fd	NR	Ub
Tr(v)2sl/3c	4	88.31	3RD	Fwd	Pd	G	Fd	G	Fd	Ub	Ub
Tr(v)2sl/3e	1	6.99	4TD	Ftwd	Pd	Pt	Pt	Ft	Ut	Ub	Ub
Tr(v)3sl/2cS1	1	51.39	3R	G	Fd	G	G	G	G	Ub	Ub
Tr(v)3sl/3d	1	14.15	3TRD	Fw	Fwd	Ft	Ft	G	Pt	Ub	Ub
Tr(v)3sl/4bS1	1	25.57	3R	Ftw	Fwd	G	Ft	G	G	Ub	Ub
Tr(v)3sl/5b	1	16.22	3RWD	Pw	Pw	Fw	Ftw	Fw	Fw	Ub	Ub
Tr(v)3sl/6c	4	46.96	3RWD	Pw	Pw	Fw	Fw	Fw	Fw	Ub	Ub
Tr-Sb2-3l/8c	1	37.61	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fwd
Tr-Sb2l/8b	1	66.59	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Tr-Sb2sl-1/4d	1	30.79	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr-Sb2sl-1/5d	1	59.96	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Pt	G	Fw
Tr-Sb2sl-1/7b	1	66.84	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
Tr-Sb2sl/5c-d	1	35.25	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr-Sb3sl/6c-d	1	66.45	3WD	Pwd	Pwd	Fw	Fw	Fw	Fw	G	Pd
Tr-To2-3sl/6c	1	40.77	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3l/6cS1	2	103.06	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl-1/5c	1	14.47	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl-1/7c	1	8.69	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl/3c	2	50.99	3D	Fwd	Pd	G	Fd	G	Fd	G	Fd
Tr2-3sl/3e	1	9.35	4TD	Ftwd	Pd	Pt	Pt	Ft	Ut	Ft	Ftd
Tr2-3sl/4b-c	1	35.86	3D	Fwd	Pd	G	Ftd	G	Fd	G	Fd
Tr2-3sl/4c	2	114.68	3D	Fwd	Pd	G	Fd	G	Fd	G	Fd
Tr2-3sl/4c-d	2	67.14	3D	Fwd	Pd	G	Fd	G	Fd	G	Fd
Tr2-3sl/4d	1	36.24	3TD	Fwd	Pd	Ft	Fd	G	Pt	G	Fd
Tr2-3sl/5b-c	1	110.19	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl/5c	5	368.40	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl/5d	1	157.57	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fwd
Tr2-3sl/6b-c	1	159.44	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl/6c	1	41.53	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl/6d	1	61.73	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fwd
Tr2-3sl/7b	1	47.69	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fwd
Tr2-3sl/7c	1	60.03	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fwd
Tr2-3sl/8b	1	23.24	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fwd
Tr2l-sl/4c	1	14.98	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2l-sl/5c	2	68.51	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l-sl/7c	1	18.56	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l/10b	4	25.04	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pw
Tr2l/3d	3	28.21	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr2l/3e	1	14.91	4TD	Ftwd	Pd	Pt	Pt	Ft	Ut	Ft	Ft
Tr2l/4c	4	37.76	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2l/4c-d	4	189.72	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2l/4cS1	1	26.80	3D	Fwd	Pd	G	Fd	G	Fd	G	G

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Tr2l/4d	2	7.10	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr2l/5c	4	121.41	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l/5c-d	3	124.69	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l/5d	1	19.74	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Tr2l/6C	1	8.92	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l/6b	1	11.07	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
Tr2l/6c	22	364.84	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l/6d	4	34.01	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Tr2l/7b-c	3	146.78	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l/7c	14	136.35	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2l/7d	1	10.40	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Tr2l/8b	3	76.26	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Tr2l/8b-c	1	31.79	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2l/8c	3	19.83	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2l/9b	7	64.23	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Tr2l/9c	9	67.48	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2ls/9c	1	53.99	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2sl/9c	1	3.35	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2sl-l/4c	2	20.88	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2sl-l/4c-d	1	24.83	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2sl-l/5c	8	319.45	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl-l/5cS2	1	15.73	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwdp	G	Fw
Tr2sl-l/5d	1	75.75	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Tr2sl-l/6d	1	33.09	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Tr2sl-l/7c	4	67.99	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl-l/7c-d	1	72.51	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/2b	1	8.61	3D	Ftd	Pd	G	Ftd	G	Fd	NR	G
Tr2sl/2c	2	19.68	3D	Fd	Pd	G	Fd	G	Fd	NR	G
Tr2sl/2c-d	2	23.59	3D	Fd	Pd	G	Fd	G	Fd	NR	G
Tr2sl/2d	3	8.26	3TD	Fd	Pd	Ft	Ftd	G	Pt	NR	G
Tr2sl/3C	2	29.48	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2sl/3b	3	41.00	3D	Ftwd	Pd	G	Ftd	G	Fd	Ft	G
Tr2sl/3b-c	2	40.29	3D	Fwd	Pd	G	Ftd	G	Fd	G	G
Tr2sl/3c	22	284.73	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2sl/3c-d	1	10.31	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2sl/3c-dS2	1	11.17	3D	Fwd	Pd	G	Fd	G	Fdp	G	G
Tr2sl/3cS2	2	82.76	3D	Fwd	Pd	G	Fd	G	Fdp	G	G
Tr2sl/3d	13	79.43	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr2sl/3d-e	1	3.52	3TD	Fwd	Pd	Ft	Ftd	G	Pt	Ft	G
Tr2sl/3dS1	3	23.46	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr2sl/3dS2	1	11.83	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr2sl/3e	1	7.80	4TD	Ftwd	Pd	Pt	Pt	Ft	Ut	Ft	Ft
Tr2sl/3f-g	1	1.09	5T	Pt	Ptd	Ut	Ut	Pt	Ut	Ut	Pt
Tr2sl/4B	2	14.60	3D	Ftwd	Pd	G	Ftd	G	Fd	Ft	G
Tr2sl/4b	1	14.98	3D	Ftwd	Pd	G	Ftd	G	Fd	Ft	G
Tr2sl/4b-c	1	87.14	3D	Fwd	Pd	G	Ftd	G	Fd	G	G

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Tr2sl/4bS2	1	22.00	3D	Ftwd	Pd	G	Ftd	G	Fdp	Ft	G
Tr2sl/4c	24	716.45	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2sl/4cS1	1	13.16	3D	Fwd	Pd	G	Fd	G	Fd	G	G
Tr2sl/4d	10	168.26	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr2sl/4d-e	3	17.37	3TD	Fwd	Pd	Ft	Ftd	G	Pt	Ft	G
Tr2sl/4dS1	5	99.65	3TD	Fwd	Pd	Ft	Ftd	G	Pt	G	G
Tr2sl/4e	1	13.71	4TD	Ftwd	Pd	Pt	Pt	Ft	Ut	Ft	Ft
Tr2sl/5c	15	508.07	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/5c-d	3	31.99	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/5cS2	1	7.71	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwdp	G	Fw
Tr2sl/5d	5	84.87	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Tr2sl/5d-e	1	23.27	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	Ft	Fw
Tr2sl/6b	4	95.22	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
Tr2sl/6b-c	4	100.52	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/6c	46	1233.22	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/6c-d	4	102.27	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/6cS1	6	89.51	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/6d	9	66.69	4DW	Pwd	Pwd	Ftwd	Pwd	Fw	Pt	G	Fw
Tr2sl/7b	6	388.51	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	Ft	Fw
Tr2sl/7b-c	2	93.61	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/7c	23	830.91	4DW	Pwd	Pwd	Fwd	Pwd	Fw	Fwd	G	Fw
Tr2sl/8b	1	15.80	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Tr2sl/8b-c	5	126.40	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2sl/8c	11	168.25	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2sl/9b	19	233.26	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	Ft	Fw
Tr2sl/9b-c	4	193.13	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr2sl/9c	16	90.36	5WD	Uw	Uw	Pw	Pwd	Pw	Pw	G	Fw
Tr3l/3c	1	15.04	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3l/3d	1	7.09	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
Tr3l/4c	1	3.79	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3l/6c	3	17.89	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3l/6c-d	1	14.61	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3l/7c	3	54.64	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3sl/9b	3	22.48	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Tr3sl-l/4cS1	1	153.17	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3sl-l/4dS1	1	30.57	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
Tr3sl-l/5d	2	10.17	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	G	Pd
Tr3sl-l/8b-c	1	37.30	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Tr3sl/10b	2	9.52	7W	Uw	Uw	Uw	Uw	Uw	Uw	Pw	Pwd
Tr3sl/2c	4	121.72	2CD	G	Fd	G	G	G	G	NR	Pd
Tr3sl/2d	4	24.91	3T	G	Fd	Ft	Ft	G	Pt	NR	Pd
Tr3sl/3b	2	58.45	2CD	Ftw	Fwd	G	Ft	G	G	Ft	Pd
Tr3sl/3c	20	469.36	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3sl/3c-d	4	72.32	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3sl/3cS2	1	76.82	2CD	Fw	Fwd	G	G	G	Fp	G	Pd
Tr3sl/3d	10	110.11	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd

Table 12 — Continued

Map Unit Name	No. of Polygons	Area (ha)	CLI (Agr.)	Alfalfa	Apples	Spring Cereals	Winter Cereals	Forages	Vegetables	Drainage	Deep Ripping
Tr3sl/3dS1	1	7.74	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
Tr3sl/3e	1	1.94	4T	Ftw	Ftwd	Pt	Pt	Ft	Ut	Ft	Pd
Tr3sl/4b-c	1	184.19	2CD	Fw	Fwd	G	Ft	G	G	G	Pd
Tr3sl/4c	15	500.20	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3sl/4c-d	2	54.64	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3sl/4cS1	6	368.44	2CD	Fw	Fwd	G	G	G	G	G	Pd
Tr3sl/4cS2R1	1	81.33	3R	Fwr	Fwdr	Fr	Fr	Fr	Fpr	G	Pd
Tr3sl/4d	12	204.39	3T	Fw	Fwd	Ft	Ft	G	Pt	G	Pd
Tr3sl/4d-e	2	35.54	3T	Fw	Fwd	Ft	Ft	G	Pt	Ft	Pd
Tr3sl/5b	1	76.61	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	Ft	Pd
Tr3sl/5b-c	3	102.21	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	G	Pd
Tr3sl/5c	6	276.60	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3sl/5cS1	2	76.27	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3sl/5d	1	19.89	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	G	Pd
Tr3sl/6b-c	2	24.73	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	G	Pd
Tr3sl/6c	16	272.45	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3sl/6c-d	1	88.01	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3sl/6d	1	48.47	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	G	Pd
Tr3sl/6d-e	1	15.74	3TWD	Pw	Pw	Ftw	Ftw	Fw	Pt	Ft	Pd
Tr3sl/7b	1	51.00	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	Ft	Pd
Tr3sl/7b-c	1	59.80	3WD	Pw	Pw	Fw	Ftw	Fw	Fw	G	Pd
Tr3sl/7c	4	66.56	3WD	Pw	Pw	Fw	Fw	Fw	Fw	G	Pd
Tr3sl/7cS2	1	24.27	3WD	Pw	Pw	Fw	Fw	Fw	Fwp	G	Pd
Tr3sl/8b	4	46.21	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Tr3sl/8c	4	25.91	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Tr3sl/9b	4	41.66	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	Pd
Tr3sl/9c	6	86.40	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	Pd
Tr4sl/2c	1	6.95	2CF	G	G	G	G	G	G	NR	NR
Tr4sl/3c	1	9.67	2CF	Fw	Fw	G	G	G	G	G	NR
Tr4sl/4c	1	21.02	2CF	Fw	Fw	G	G	G	G	G	NR
Tr4sl/4cS1	2	40.13	2CF	Fw	Fw	G	G	G	G	G	NR
Tr4sl/5c	1	65.58	3W	Pw	Pw	Fw	Fw	Fw	Fw	G	NR
Tr4sl/5d	1	8.78	3TW	Pw	Pw	Ftw	Ftw	Fw	Pt	G	NR
Tr4sl/8b	1	7.60	4W	Uw	Uw	Pw	Pw	Pw	Pw	Ft	NR
Tr4sl/8c	1	19.01	4W	Uw	Uw	Pw	Pw	Pw	Pw	G	NR

LEGEND FOR TABLE 12**CLI Soil Capability for Agriculture**

Class 1. Not found in New Brunswick

Class 2. Moderate limitations

Class 3. Moderately severe limitations

Class 4. Severe limitations

Class 5. Very severe limitations

Class 6. No soils classified in this category

Class 7. No capability for arable culture

O. Organic soil (not rated)

C - Adverse climate

D - Undesirable soil structure and/or low permeability

F - Low fertility

I - Inundation by streams, rivers and lakes

M - Moisture limitation

R - Consolidated bedrock

T - Topography

W - Excess water

LEGEND FOR TABLE 12 *(continued)*

Crops and Management Practices

G - (Good)	- Relatively free of problems	b - depth to bedrock
F - (Fair)	- Moderate soil and/or landscape limitations	d - depth of friable soil, or undesirable soil structure and slow permeability
P - (Poor)	- Severe soil and/or landscape limitations	i - flooding, or inundation
U - (Unsuitable)	- Inputs required are too great	p - stoniness
NR - (Not Required)	- Not required	r - rockiness
		t - slope, or topography
		w - drainage, or wetness
		x - soil texture

REFERENCES

- Aalund, H.; and Wicklund, R.E. 1949. Soil survey report of southeastern New Brunswick — Third Report of the New Brunswick Soil Survey. Dominion Department of Agriculture, Fredericton, N.B. 108 pp. (maps included).
- Agriculture Canada Expert Committee on Soil Survey. 1987. The Canadian system of soil classification. 2nd ed. Agric. Can. Publ. 1646. 164 pp.
- Bostock, H.S. 1970. A provisional physiographic map of Canada. Geol. Surv. of Can., Paper 64-35, 1964; and Geol. Surv. of Can. Map 1245A.
- Brady, N.C. 1974. The nature and properties of soils. 8th Edition. MacMillan Publishing Co., Inc., New York. 639 pp.
- Canada Land Inventory. 1972. Soil capability classification for agriculture. Canada Land Inventory Report No. 2 (1965, reprinted 1972). Information Canada, Ottawa, Ont., Cat. No. Fo63-2/1972. 16 pp.
- Clayton, J.S.; Ehrlich, W.A.; Cann, D.B.; Day, J.H.; and Marshall, J.B. 1977. Soils of Canada: Volume 1 - Soil Report; Volume 2 - Inventory. Printing and Publishing, Supply and Services Canada, Ottawa, Ont., Canada, Cat. No. A53-1544/1-1976, 243 pp. and 239 pp. respectively.
- Day, J.H. 1982 revised. The Canada Soil Information System (CanSIS). Manual for describing soils in the field. Compiled by the Working Group on Soil Survey Data, Canada Expert Committee on Soil Survey. LRRR Contr. No. 82-52, Research Branch, Agriculture Canada, Ottawa, Ont. 97 pp.
- Environment Canada. 1982. Canadian climate normals, 1951-1980. Temperature and Precipitation, Atlantic Provinces. Atmospheric Environment Service, Environment Canada, Ottawa, Ont. 136 pp.
- Gussow, W.C. 1953. Carboniferous stratigraphy and structural geology of New Brunswick, Canada. Bulletin of the American Association of Petroleum Geologists. 37 (7) 1713-1816.
- Holmstrom, D.A. 1986. Soils of the Sussex area of New Brunswick. Tenth Report of the New Brunswick Soil Survey. LRRR Contr. No. 83-38. Research Branch, Agriculture Canada. 151 pp. (maps included).
- Langmaid, K.K.; MacMillan, J.K.; Losier, J.G.; and Millette, J.F.G. 1964. Descriptions of sandy soils in cleared areas of coastal Kent and southern Northumberland counties, N.B. Sixth Report of the New Brunswick Soil Survey. Research Branch, Agriculture Canada and New Brunswick Dept. of Agriculture, Fredericton, N.B. 35 pp.
- Loucks, O.L. 1962. A forest classification of the Maritime Provinces. Canada Department of Forestry, Forest Research Branch, reprinted from: The Proceedings of the Nova Scotian Institute of Science, Volume 25, Part 2, 1959-60. 167 pp.
- MacMillan, J.K.; and Chalifour, A.P. 1980. The land base study of Havelock Parish, Phase 1 - Soil Survey. Plant Industry Branch, New Brunswick Department of Agriculture and Rural Development, Fredericton, N.B. 94 pp.
- MacMillan, J.K.; and Hoyt, K.E. ca 1987. Soil and climate related information for New Brunswick. Land Resources Section, Plant Industry Branch, New Brunswick Dept. of Agriculture, Fredericton, N.B. 28 pp.
- Norman, G.W.H. 1931. Moncton, Map 646A. Canada Dept. of Mines and Resources, Mines and Geology Branch, Bureau of Geology and Topography, Ottawa, Ont.
- Nowland, J. 1975. The agricultural productivity of the soils of the Atlantic Provinces. Monograph No. 12, Land Resource Research Institute, Research Branch, Agriculture Canada, Ottawa, Ont. 19 pp.
- Patterson, G.T.; and Thompson, B.L. 1989. Soils of the Northumberland Shore area of Nova Scotia. Report No. 24, Nova Scotia Soil Survey, Agriculture Development Branch, Agriculture Canada, Truro, N.S. 98 pp. (with maps).
- Rampton, V.N.; and Paradis, S. 1981. Quaternary geology of Moncton map area (21 I), New Brunswick. Map Report 81-2, N.R.-1, New Brunswick Dept. of Natural Resources, Fredericton, N.B.
- Read, G. 1985. The climate for agriculture in New Brunswick. Plant Industry Branch, New

Brunswick Department of Agriculture and Rural Development, Fredericton, N. B. 12 pp.

Rees, H.W.; Duff, J.P.; Colville, S.; and Chow, T.L. 1995. Soils of selected agricultural areas of Moncton Parish, Westmorland County, New Brunswick. New Brunswick Soil Survey Report No. 15. CLBRR Contr. No. 92-24, Research Branch, Agriculture and Agri-Food Canada, Ottawa, Ont. 113 pp. + maps.

Rees, H.W.; Langmaid, K.K.; Losier, J.G.; Veer, C.; Wang, C.; Wells, R.E.; and Fahmy, S.H. 1992. Soils of the Chipman-Minto-Harcourt region of New Brunswick. New Brunswick Soil Survey Report No. 11. Research Branch, Agriculture Canada, Ottawa, Ont. 317 pp. + 4 maps.

Research Branch, Canada Dept. of Agriculture 1976 (revised). Glossary of terms in soil science. Information Division, Canada Department of Agriculture, Ottawa, Ont. Publ. 1459. 44 pp.

Sheldrick, B.H. 1984. Analytical methods manual 1984. LRRRI Contr. No. 84-30. Land Resource

Research Institute, Research Branch, Agriculture Canada, Ottawa, Ont.

United States Department of Agriculture, Soil Conservation Service. 1962. Soil survey manual. Agriculture Handbook No. 18, United States Printing Office, Washington, DC 20402. 503 pp.

Wang, C. 1982. Application of transect method to soil survey problems. Land Resource Research Institute, Research Branch, Agriculture Canada, Ottawa, Ont. 34 pp.

Wang, C. and Rees, H.W. 1983. Soils of the Rogersville-Richibucto region of New Brunswick. Ninth Report of the New Brunswick Soil Survey. Research Branch, Agriculture Canada and New Brunswick Department of Agriculture and Rural Development, Fredericton, N.B. 239 pp.

Webb, K.T. 1990. Soils of Pictou County, Nova Scotia. Report No. 18, Nova Scotia Soil Survey. LRRRC Contr. No. 85-44. Research Branch, Agriculture Canada. 183 pp. (maps included).

APPENDIX 1. MORPHOLOGICAL DESCRIPTIONS AND ANALYSES FOR SOIL ASSOCIATION MEMBERS

This section of the report lists, in alphabetical order, profile descriptions with physical and chemical data for the more prominent soil association members mapped in the survey area.

The soil description format and terminology used are according to the *Manual for describing soils in the field* (Day 1982). The sample site is described in terms of location, parent material, physiographic position on the slope, slope gradient, drainage and perviousness, stoniness and rockiness, root penetration, land use, and classification according to *The Canadian System of Soil Classification* (Agriculture Canada Expert Committee on Soil Survey 1987).

Profile descriptions typically include horizon designations with depths; colors (Munsell color notations); texture; mottle descriptions; structure; consistence; clay films (where present); roots; coarse fragments; and horizon boundaries.

Chemical and physical analyses were conducted on loose (disturbed) and core (undisturbed) samples for selected properties. Methods used for soil sampling and analyses are outlined in the *Analytical Methods Manual 1984*, Land Resource Research Institute (Sheldrick 1984). The procedures used are as follows:

pH (CaCl ₂)	2.1 84-001
pH (H ₂ O)	2.1 84-001
Electrical Conductivity (EC) or soluble salts	2.2 84-003
Exchangeable cations Ca, Mg, K, Al	2.3 84-004
Pyrophosphate extractable Fe and Al	2.5 84-012
Organic carbon (C)	2.6 84-013
Nitrogen (N)	LECO Induction Furnace Method (in conjunction with carbon)
Particle size (sand, silt, and clay with sand fractions: VC - very coarse C - coarse M - medium F - fine VF - very fine)	3.1 84-026
Bulk density (Bulk Dens.) (Note: For matrix bulk density, see glossary.)	3.2 84-029
Water retention at: 50 cm H ₂ O, 100 cm H ₂ O, 33 kPa	3.4 84-035
100 kPa, 400 kPa, 1500 kPa	3.4 84-036
Saturated hydraulic conductivity (K _{sat} .)	3.5 84-037
Particle Density (Part. Dens.)	3.2 84-030

Soil Name	Aldouane (AI)
Profile No.	3590
Latitude	46°09'09" N
Longitude	64°03'20" W
Map Sheet	NB038515 211/01-W4 Little Shemogue Harbour
Parent Material	Strongly acidic sandy glaciofluvial or marine, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	5.0% (complex)
Drainage and Perviousness	Well drained, rapidly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	100 cm
Land Use	Improved pasture/forage
Classification	Orthic Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–17	Reddish brown (5YR 4/3); sandy loam; weak very fine to fine subangular blocky; friable; abundant fine random roots; no coarse fragments; clear smooth boundary.
*Bfjcj1	17–27	Reddish brown (5YR 4/4); sandy loam; weak fine to medium platy; friable; weakly cemented; plentiful fine vertical roots; no coarse fragments; clear smooth boundary.
Bfjcj2	27–36	Dark reddish brown (2.5YR 3/4); loamy sand; very weak fine to medium platy; friable; weakly cemented; few fine vertical roots; 10–20% rounded gravels; gradual wavy boundary.
*BC	36–61	Dark reddish brown (2.5YR 3/4); loamy sand; very weak fine to medium platy; very friable; very few very fine vertical roots; 10–20% rounded gravels; gradual wavy boundary.
C	61–100	Dark reddish brown (5YR 3/4); sand; structureless single grain; loose; very few very fine vertical roots; 10–20% rounded gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	5.8	5.2	2.77	0.12	—	—	3.29	0.21	0.38	0.05	0.00
Bfjcj1	5.8	5.3	1.62	0.14	0.18	0.23	3.25	0.19	0.14	0.02	0.05
BC	5.7	5.1	0.00	0.00	0.03	0.14	0.56	0.06	0.13	0.09	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ap	4.0	19.9	20.9	16.6	9.0	70.4	21.7	7.9
Bfjcj1	3.1	22.9	21.0	16.0	7.3	70.3	21.7	8.0
BC	7.3	30.6	22.6	15.7	4.6	80.8	14.3	4.9

Horizon	% Water Retention by Volume							Bulk Dens _s g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	18	11	6	—	—	2.34
Bfjcj1	40	35	31	26	21	14	7	1.38	21.5	2.29
BC	41	21	16	13	9	6	3	1.48	64.6	2.49

Soil Name Aldouane (Al)
Profile No. 8820
Latitude 46°09'30" N
Longitude 63°55'05" W
Map Sheet NB038539 11L/04-U3 Murray Road
Parent Material Strongly acidic coarse loamy marine, red sandstone lithology
Physiographic Position Middle slope
Slope (Type) 0.5% (complex)
Drainage and Perviousness Well drained, rapidly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 56 cm
Land Use Improved pasture/forage
Classification Orthic Melanic Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–18	Dark brown (7.5YR 3/4); sandy loam; weak fine to medium subangular blocky; friable; abundant fine random roots; <2% rounded gravels; abrupt smooth boundary.
*Bfj	18–42	Yellowish red (5YR 5/6); sandy loam; weak medium platy; very friable; plentiful fine random roots; <10% rounded gravels; gradual smooth boundary.
*BC	42–70	Yellowish red (5YR 4/6); loamy sand; structureless loose; few very fine random roots; 30–40% rounded gravels; abrupt wavy boundary.
C	70–100	Yellowish red (5YR 4/6); loamy sand; structureless single grain; friable; no roots; 10–20% rounded gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	—	5.5	2.35	0.21	0.12	0.19	4.45	0.32	0.07	0.00	0.10
Bfj	—	5.5	0.91	0.09	0.08	0.21	1.56	0.09	0.06	0.00	0.05
BC	—	5.5	0.08	0.04	0.02	0.10	1.02	0.09	0.08	0.01	0.03

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	2.8	6.0	25.8	18.0	0.0	52.6	40.8	6.6
Bfj	4.2	18.9	23.9	18.6	8.5	74.1	17.7	8.2
BC	6.7	21.5	25.8	20.3	9.6	83.9	13.2	2.9

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa		
Ap	51	48	29	19	17	13	8	1.21	30.9
Bfj	47	28	22	18	16	14	8	1.36	26.4
BC	43	21	16	—	6	5	4	1.52	48.2

Soil Name	Aldouane (Al)
Profile No.	3586
Latitude	46°09'44" N
Longitude	64°03'22" W
Map Sheet	NB038515 21/01-W4 Little Shemogue Harbour
Parent Material	Strongly acidic sandy marine, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	1.5% (complex)
Drainage and Perviousness	Imperfectly drained, rapidly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	100 cm
Land Use	Productive woodland
Classification	Gleyed Eluviated Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
LFH		
Ae	0–11	Pinkish gray (7.5YR 7/2); loamy sand; weak very fine to fine platy; friable; abundant fine to medium horizontal roots; no coarse fragments; clear wavy boundary.
AB	11–18	Brown (7.5YR 4/2); sandy loam; weak fine granular; friable; plentiful fine horizontal roots; no coarse fragments; clear wavy boundary.
*Bmgj	18–29	Brown (7.5YR 5/4); sandy loamy; few medium faint mottles; weak fine to medium platy; friable; few fine vertical roots; <5% rounded gravels; clear wavy boundary.
*BCcjg	29–47	Reddish brown (2.5YR 5/4); loamy sand; few medium faint mottles; weak medium to coarse platy; very friable; weakly cemented; very few very fine vertical roots; <5% rounded gravels; gradual wavy boundary.
*C	47–100	Reddish brown (2.5YR 4/4); loamy sand; structureless; loose; very few very fine vertical roots; <5% rounded gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Bmgj	4.6	4.2	0.49	0.08	0.12	0.08	0.50	0.28	0.03	1.54	0.08
BCcjg	5.3	4.6	0.11	0.00	0.04	0.05	0.72	0.30	0.04	0.16	0.04
C	5.5	5.2	0.09	0.00	—	—	1.92	0.40	0.06	0.05	0.04

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Bmgj	2.6	15.8	22.2	22.8	7.5	70.9	21.5	7.6
BCcjg	3.9	33.6	20.3	19.7	5.3	82.8	12.5	4.7
C	4.2	36.5	13.3	21.9	5.9	81.8	13.0	5.2

Horizon	% Water Retention by Volume							Bulk Dens _s g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Bmgj	45	34	29	25	15	9	5	1.32	39.4	2.41
BCcjg	—	—	—	—	9	6	3	—	—	2.50
C	34	22	19	15	10	6	3	1.65	19.6	2.50

Soil Name Barrieau-Buctouche (Bb2)
Profile No. 8817
Latitude 46°03'21" N
Longitude 63°56'24" W
Map Sheet NB038534 11L/04-R3 Upper Cape
Parent Material Very strongly acidic coarse loamy marine, undifferentiated lithology over extremely acidic coarse loamy morainal lodgment till, sandstone-shale lithology
Physiographic Position Depression
Slope (Type) 1.0% (complex)
Drainage and Perviousness Poorly drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 35 cm
Land Use Improved pasture/forage
Classification Gleyed Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Apg	0–21	Dark grayish brown (10YR 4/2); and light brownish gray (10YR 6/2); sandy loam; many medium distinct mottles; weak medium platy; friable; plentiful fine random roots; <2% rounded gravels; abrupt smooth boundary.
*Bfjc	21–39	Dark reddish brown (2.5YR 3/4); sandy loam; massive; very firm; strongly cemented; plentiful fine random roots; 40–50% rounded gravels; clear smooth boundary.
*2C	39–100	Dark red (2.5YR 3/6); sandy loam; moderate medium platy; firm; few thin clay films; very few fine horizontal roots; <10% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	meq/100 g soil				
							Ca	Mg	K	Al	
Apg	—	5.0	1.40	0.06	0.13	0.06	0.48	0.28	0.08	0.02	0.08
Bfjc	—	4.6	1.12	0.08	0.18	0.19	3.13	0.26	0.08	0.08	0.06
2C	—	4.3	0.05	0.07	0.03	0.07	0.39	0.21	0.09	0.17	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Apg	0.3	3.3	12.5	28.1	15.7	59.9	30.8	9.3
Bfjc	1.0	2.8	11.6	28.2	12.9	56.5	30.3	13.2
2C	0.7	3.5	12.6	29.3	10.3	56.4	31.9	11.7

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa		
Apg	39	36	35	26	25	15	9	1.49	7.81
Bfjc	42	28	26	—	11	9	6	1.49	—
2C	33	25	24	24	22	12	5	1.77	1.62

Soil Name Barrieau-Buctouche (Bb2-3)
Profile No. 3599
Latitude 46°13'37" N
Longitude 64°29'35" W
Map Sheet NB038518 21/01-X3 Barachois
Parent Material Medium acidic coarse loamy glaciofluvial or marine, undifferentiated lithology over medium acidic coarse loamy morainal till, sandstone-shale lithology
Physiographic Position Middle slope
Slope (Type) 3.0% (complex)
Drainage and Perviousness Poorly drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 100 cm
Land Use Abandoned farmland
Classification Gleyed Melanic Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Apg	0-23	Black (10YR 2/1); sandy loam; few medium prominent mottles; weak medium to coarse granular; friable; abundant fine random roots; <2% rounded gravels; clear smooth boundary.
Aegj	23-35	Pinkish gray (7.5YR 6/2); sandy loam; few medium distinct mottles; weak to moderate medium to coarse granular; very friable; few fine vertical roots; <5% rounded gravels; clear broken boundary.
*Bmgj	35-52	Brown (7.5 YR 4/2); loamy sand; weak to moderate very fine to fine platy; very friable; few fine vertical roots; <5% rounded gravels; clear wavy boundary.
*2Cg1	52-74	Reddish brown (5YR 4/3); clay loam; weak to moderate; coarse platy; very firm; many thick clay skins; very few fine horizontal roots; 10-20% angular gravels and cobbles; gradual wavy boundary.
2Cg2	74-100	Reddish brown (5YR 4/3); sandy loam; weak to moderate coarse platy; firm; very few very fine horizontal roots; 10-20% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Apg	6.2	5.6	2.12	0.14	—	—	5.57	0.17	0.06	0.00	0.08
Bmgj	6.5	5.7	0.44	0.03	0.12	0.14	2.39	0.12	0.04	0.03	0.05
2Cg1	6.7	5.6	0.09	0.00	0.08	0.09	8.88	1.45	0.11	0.04	0.05

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC	C	M	F	VF			
	2-1 mm	1-0.5 mm	0.5-0.25 mm	0.25-0.1 mm	0.1-0.05 mm			
Apg	1.2	10.0	16.6	38.1	7.1	73.0	19.1	7.9
Bmgj	2.1	76.9	0.0	0.4	7.2	86.6	9.7	3.7
2Cg1	0.6	11.4	7.7	16.2	3.0	38.8	31.9	29.3

Horizon	% Water Retention by Volume							Bulk Dens _s g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Apg	—	—	—	—	20	12	8	—	—	2.44
Bmgj	38	27	20	15	11	8	5	1.54	4.48	2.49
2Cg1	31	31	30	27	26	22	16	1.77	1.59	2.56

Soil Name Barrieau-Buctouche (Bb3)
Profile No. 3572
Latitude 46°14'49" N
Longitude 64°39'17" W
Map Sheet NB038532 21/02-Z3 Batemans Mills
Parent Material Extremely/very strongly acidic coarse loamy marine, sandstone lithology over extremely acidic fine loamy morainal lodgment till; sandstone-shale lithology
Physiographic Position Middle slope
Slope (Type) 1.0% (complex)
Drainage and Perviousness Moderately well drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 63 cm
Land Use Unproductive woodland
Classification Orthic Sombric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–21	Dark brown (7.5YR 3/4); sandy loam, weak fine platy; friable; plentiful fine random roots; <2% rounded gravels; clear smooth boundary.
*Bm	21–44	Strong brown (7.5YR 5/6); loamy sand to sandy loam; weak medium subangular blocky; friable; plentiful very fine vertical roots; <2% rounded gravels; clear wavy boundary.
BC	44–63	Brown (7.5YR 5/4); loamy sand; very weak fine to medium platy; friable; very few very fine vertical roots; <10% rounded gravels; abrupt wavy boundary.
*2C	63–100	Dark reddish brown (5YR 3/3); sandy loam; structureless massive; firm; no roots; 10–20% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	4.9	4.4	2.83	0.22	—	—	1.38	0.30	0.03	0.42	0.07
Bm	5.6	4.8	0.70	0.05	0.14	0.21	0.58	0.09	0.08	0.23	0.03
2C	4.7	3.9	0.05	0.00	—	—	1.92	1.85	0.13	2.58	0.02

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	0.9	16.2	23.5	27.7	5.8	74.1	17.9	8.0
Bm	1.4	22.3	20.7	25.1	7.5	77.0	16.0	7.0
2C	1.7	10.6	16.1	19.7	7.3	55.4	25.8	18.8

Horizon	% Water Retention by Volume						Bulk Dens _s g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa			
Ap	—	—	—	—	17	12	—	—	2.42
Bm	45	30	25	21	14	12	1.28	36.90	2.33
2C	26	23	21	20	20	15	1.79	0.64	2.42

Soil Name Barrieau-Buctouche (Bb3)
Profile No. 3581
Latitude 46°13'37" N
Longitude 64°26'45" W
Map Sheet NB038518 21/01-X3 Barachois
Parent Material Very strongly acidic sandy marine, undifferentiated lithology over extremely/strongly acidic coarse loamy morainal lodgment till, sandstone lithology
Physiographic Position Middle slope
Slope (Type) 1.5% (complex)
Drainage and Perviousness Imperfectly drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 77 cm
Land Use Abandoned farmland
Classification Gleyed Eluviated Sombic Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Apgj	0–23	Dark brown (7.5YR 3/4); loamy sand; few medium distinct mottles; very weak fine granular; very friable; abundant fine random roots; <5% rounded gravels; clear smooth boundary.
Aegj	23–36	Pinkish gray (7.5YR 6/2); loamy sand; common medium distinct mottles; very weak fine platy; very friable; plentiful very fine vertical roots; <5% rounded gravels; gradual irregular boundary.
Bmgj	36–46	Brown (7.5YR 4/2); loamy sand; few fine distinct mottles; weak fine to medium platy; very friable; few very fine vertical roots; <5% rounded gravels; gradual wavy boundary.
*2BC	46–61	Reddish brown (5YR 4/3); sandy loam; moderate medium to coarse platy; friable; common moderately thick clay skins; very few very fine vertical roots; 10–20% angular gravels; gradual wavy boundary.
*2C	61–100	Reddish brown (5YR 4/3); sandy loam; weak to moderate medium to coarse platy; firm; very few micro vertical roots; 10–20% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Apgj	5.0	4.5	0.70	0.07	—	—	1.01	0.35	0.05	0.47	0.00
2BC	5.1	4.6	0.12	0.00	0.07	0.09	1.13	0.55	0.06	0.57	0.03
2C	5.1	4.5	0.10	0.00	—	—	1.50	0.70	0.07	0.57	0.02

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Apgj	0.9	26.8	28.3	20.0	4.1	80.1	14.5	5.4
2BC	1.2	13.9	15.6	24.0	9.6	64.3	27.1	8.6
2C	1.4	13.0	17.5	28.2	4.2	64.3	25.9	9.8

Horizon	% Water Retention by Volume							Bulk Dens _s g/cm ³	K Sat. cm/h	Part Dens _s g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Apgj	35	28	25	21	13	9	4	1.56	8.68	2.41
2BC	—	—	—	—	14*	11	6	—	—	2.56
2C	25	25	24	22	19	13	6	1.90	0.32	2.55

* Estimated value

Soil Name	Richibucto (Rb)
Profile No.	3582
Latitude	46°14'01" N
Longitude	64°29'28" W
Map Sheet	NB038518 211/01-X3 Barachois
Parent Material	Very strongly acidic sandy marine; gray-green sandstone lithology
Physiographic Position	Upper slope
Slope (Type)	1.0% (complex)
Drainage and Perviousness	Well drained, rapidly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	100 cm
Land Use	Abandoned farmland
Classification	Orthic Sombric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–22	Dark brown (7.5YR 3/4); loamy sand; very weak fine to medium subangular blocky; friable; abundant fine random roots; <2% rounded gravels; abrupt smooth boundary.
*Bfj	22–35	Strong brown (7.5YR 5/6); loamy sand; very weak fine to medium subangular blocky; very friable; few fine vertical roots; <2% rounded gravels; clear wavy boundary.
*BC	35–61	Brown (7.5YR 4/4); sand; very weak fine to medium subangular blocky; very friable; few fine vertical roots; <2% rounded gravels; gradual wavy boundary.
C	61–100	Brown (7.5YR 4/4); sandy; structureless single grain; loose; few very fine vertical roots; <2% rounded gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	5.1	4.7	1.85	0.13	—	—	0.96	0.18	0.07	0.45	0.03
Bfj	4.9	4.6	1.63	0.07	0.24	0.24	0.87	0.11	0.02	1.39	0.03
BC	5.7	5.0	0.07	0.00	—	—	0.28	0.08	0.03	0.22	0.02

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	3.3	47.5	14.4	9.8	3.4	78.4	15.9	5.7
Bfj	3.9	27.9	26.2	14.5	5.4	77.9	16.5	5.6
BC	5.8	59.2	19.2	7.9	1.5	93.6	4.0	2.4

Horizon	% Water Retention by Volume							Bulk Dens. g/cm ³	K Sat. cm/h	Part. Dens. g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	14	10	6	—	—	2.29
Bfj	42	27	21	19	16	12	7	1.30	82.9	2.26
BC	41	16	12	10	10	4	3	1.49	192.5	2.52

Soil Name	Richibucto (Rb (m))
Profile No.	3578
Latitude	46°13'24" N
Longitude	64°34'18" W
Map Sheet	NB038533 21/02-Z4 Shediac
Parent Material	Extremely/very strongly acidic sandy marine, gray-green sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	3.0% (complex)
Drainage and Perviousness	Moderately well drained, rapidly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	73 cm
Land Use	Excavation pit
Classification	Orthic Sombric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Ap	0–13	Dark brown (7.5YR 3/4); loamy sand; structureless single grain; very friable; abundant fine to medium horizontal roots; <2% rounded gravels; clear wavy boundary.
*Bfj	13–27	Brown (7.5YR 4/4); sandy loam; structureless single grain; very friable; plentiful fine to medium horizontal roots; <2% rounded gravels; gradual wavy boundary.
*BC	27–42	Dark brown (7.5YR 3/2); loamy sand; very weak very fine to fine platy; very friable; plentiful fine to medium random roots; <2% rounded gravels; gradual wavy boundary.
*C	42–73	Dark brown (7.5YR 3/2); loamy sand; very weak fine to medium subangular blocky; very friable; few fine vertical roots; 10–20% flat gravels; abrupt smooth boundary.
R	73–100	Gray sandstone.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Bfj	5.0	4.6	1.62	0.12	0.13	0.25	0.14	0.08	0.19	0.70	0.04
BC	5.2	4.7	0.36	0.07	0.05	0.17	0.06	0.04	0.06	0.59	0.02
C	5.3	4.7	0.12	0.00	—	—	0.13	0.08	0.11	0.79	0.02

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Bfj	1.7	13.6	26.9	28.9	2.7	73.8	19.6	6.6
BC	2.3	16.1	31.3	23.0	4.4	77.1	17.5	5.4
C	3.3	20.7	29.2	27.6	3.2	84.0	11.8	4.2

Horizon	% Water Retention by Volume							Bulk Dens. g/cm ³	K Sat. cm/h	Part. Dens. g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Bfj	55	31	24	20	14	10	5	0.99	193.5	2.19
BC	—	—	—	—	11	9	4	—	—	2.34
C	42	22	17	13	9	7	3	1.36	55.9	2.35

Soil Name Shemogue (Sh2)
Profile No. 3595
Latitude 46°10'27" N
Longitude 64°13'18" W
Map Sheet NB038521 211/01-Y2 Botsford Portage
Parent Material Medium acidic fine loamy morainal lodgment till, red sandstone-shale lithology
Physiographic Position Middle slope
Slope (Type) 2.0% (simple)
Drainage and Perviousness Moderately well drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 69 cm
Land Use Improved pasture/forage
Classification Gleayed Brunisolic Gray Luvisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–22	Dark brown (7.5YR 3/4); silt loam; weak to moderate medium granular; friable; plentiful fine vertical roots; <10% angular gravels; abrupt smooth boundary.
*Bmgj	22–38	Strong brown (7.5YR 4/6); loam; few medium faint mottles; moderate coarse platy; friable to firm; few fine vertical roots; <10% angular gravels; clear smooth boundary.
*Btgj	38–100	Reddish brown (2.5YR 4/4); loam; moderate very coarse subangular blocky; firm; many very thin clay skins; very few very fine oblique roots; 10–20% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	5.9	5.1	6.16	0.41	—	—	3.77	0.28	0.08	0.18	0.06
Bmgj	6.5	5.5	0.32	0.05	0.16	0.14	3.05	0.29	0.06	0.09	0.03
Btgj	6.8	5.9	0.14	0.06	0.03	0.02	5.53	0.68	0.07	0.09	0.03

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	2.3	4.8	4.8	13.7	8.9	34.5	50.2	15.3
Bmgj	3.7	5.2	7.4	17.4	17.9	51.6	37.2	11.2
Btgj	2.0	7.6	2.8	8.2	12.5	33.1	47.9	19.0

Horizon	% Water Retention by Volume							Bulk Dens _{g/cm³}	K Sat. cm/h	Part. Dens _{g/cm³}
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	37	26	17	—	—	1.94
Bmgj	30	30	29	26	24	17	9	1.75	0.97	2.51
Btgj	29	27	26	23	23	18	10	1.82	1.97	2.55

Soil Name	Shemogue (Sh2)
Profile No.	3596
Latitude	46°10'29" N
Longitude	64°13'16" W
Map Sheet	NB038521 21V01-Y2 Botsford Portage
Parent Material	Medium acidic fine loamy morainal lodgment till, red sandstone-shale lithology
Physiographic Position	Middle slope
Slope (Type)	1.5% (complex)
Drainage and Perviousness	Moderately well drained, slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	67 cm
Land Use	Cropland
Classification	Brunisolic Gray Luvisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–19	Brown (7.5YR 4/2); loam; weak medium to coarse granular; friable; few fine horizontal roots; <10% angular gravels; clear smooth boundary.
Ae	19–24	Pinkish gray (5YR 6/2); silt loam; weak very fine platy; friable; few very fine vertical roots; <10% angular gravels; clear wavy boundary.
*Bm	24–39	Reddish brown (5YR 4/3); loam; weak to moderate fine to medium platy; friable; few thin clay skins; very few very fine vertical roots; <10% angular gravels; gradual wavy boundary.
*Bt	39–61	Dark reddish brown (2.5YR 3/4); loam; weak to moderate medium to coarse platy; firm; many moderately thick clay skins; very few very fine vertical roots; 10–20% angular gravels; gradual wavy boundary.
C	61–100	Reddish brown (2.5YR 4/4); loam; weak to moderate coarse platy; common moderately thick clay skins; very few micro vertical roots; firm; 20–30% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	5.2	4.6	1.69	0.12	—	—	4.06	0.68	0.28	0.15	0.25
Bm	6.5	5.5	0.11	0.02	0.04	0.03	5.97	0.87	0.07	0.07	0.07
Bt	7.0	6.0	0.10	0.00	0.01	0.02	6.70	0.92	0.04	0.12	0.05

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ap	1.7	13.5	3.4	13.1	8.3	40.0	44.5	15.5
Bm	1.0	7.6	9.1	15.2	12.5	45.4	42.5	12.1
Bt	0.7	5.8	8.4	12.8	11.0	38.7	42.9	18.4

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	25	15	13	—	—	2.70
Bm	37	32	31	27	23	16	10	1.53	1.57	2.42
Bt	29	29	28	25	23	17	9	1.78	0.33	2.51

Soil Name	Stony Brook (Sb2)
Profile No.	3573
Latitude	46°15'12" N
Longitude	64°44'05" W
Map Sheet	NB038560 21/07-S2 MacDougall
Parent Material	Extremely/strongly acidic fine loamy morainal lodgment till, gray-green sandstone and red shale lithology
Physiographic Position	Middle slope
Slope (Type)	2.0% (complex)
Drainage and Perviousness	Moderately well drained, very slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	40 cm
Land Use	Improved pasture/forage
Classification	Brunisolic Gray Luvisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–18	Dark brown (7.5YR 3/4); sandy loam; weak medium granular friable; plentiful fine random roots; <10% angular gravels; clear smooth boundary.
*Bm	18–38	Strong brown (7.5YR 4/6); sandy loam; weak medium subangular blocky; few very fine vertical roots; friable; <10% angular gravels; abrupt wavy boundary.
*Bt	38–61	Dark reddish brown (5YR 3/3); loam; moderate medium to coarse angular blocky; very firm; many moderately thick clay skins; very few micro random roots; 20–30% flat gravels; diffuse wavy boundary.
C	61–100	Reddish brown (5YR 4/3); loam, structureless massive; very firm; common moderately thick clay skins; no roots; 20–30% flat gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	6.3	5.6	1.53	0.13	—	—	6.52	0.41	0.09	0.04	0.08
Bm	5.4	5.1	0.24	0.09	0.16	0.18	2.81	0.19	0.06	0.22	0.04
Bt	4.6	4.0	0.18	0.07	—	—	1.68	0.30	0.13	4.86	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ap	2.7	10.2	13.3	19.2	10.2	55.6	30.9	13.5
Bm	2.9	8.5	16.0	21.4	11.1	59.9	26.2	13.9
Bt	1.1	7.6	10.2	20.0	7.7	46.6	27.3	26.1

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	23	15	10	—	—	2.29
Bm	33	30	29	27	18	13	8	1.61	0.62	2.42
Bt	29	28	27	26	22	20	14	1.75	0.09	2.45

Soil Name Stony Brook (Sb2)
Profile No. 3574
Latitude 46°12'03" N
Longitude 64°35'53" W
Map Sheet NB038558 21/02-Z1 Moncton Road
Parent Material Extremely/strongly acidic fine loamy morainal
lodgment till, gray-green sandstone and red shale lithology
Physiographic Position Middle slope
Slope (Type) 3.0% (complex)
Drainage and Perviousness Moderately well drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 67 cm
Land Use Improved pasture/forage
Classification Brunisolic Gray Luvisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–23	Dark brown (7.5YR 3/4); sandy loam; weak to moderate fine to medium granular; friable; plentiful fine random roots; <5% angular gravels; clear smooth boundary.
*Bfj	23–36	Brown (7.5YR 4/4); sandy loam; weak to moderate, fine to medium subangular blocky; friable; few fine vertical roots; <10% angular gravels; abrupt wavy boundary.
*Bt	36–49	Dark reddish brown (5YR 3/4); loam; moderate medium to coarse angular blocky; firm; common moderately thick clay skins; very few very fine vertical roots; 10–20% angular gravels; gradual wavy boundary.
C	49–100	Dark reddish brown (5YR 3/4); loam; weak to moderate very coarse platy; firm; few moderately thick clay skins; very few very fine vertical roots; 10–20% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	6.2	5.9	2.69	0.22	—	—	9.08	0.93	0.29	0.02	0.14
Bfj	6.1	5.8	1.30	0.11	0.28	0.21	6.34	0.19	0.10	0.03	0.08
Bt	4.9	4.3	0.16	0.06	0.11	0.14	3.06	0.20	0.11	1.65	0.04

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	1.7	11.8	12.1	18.8	8.2	52.6	32.6	14.8
Bfj	3.2	13.3	11.6	18.4	6.7	53.2	31.3	15.5
Bt	1.3	8.9	8.8	15.8	7.4	42.2	36.0	21.8

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	26	18	13	—	—	2.29
Bfj	41	37	35	31	26	17	12	1.41	47.10	2.37
Bt	33	29	28	27	25	18	11	1.70	0.31	2.52

Soil Name Stony Brook (Sb2)
Profile No. 3579
Latitude 46°09'41" N
Longitude 64°34'11" W
Map Sheet NB038530 21V02-W4 Scoudouc
Parent Material Extremely acidic fine loamy morainal lodgment till, gray-green sandstone and red shale lithology
Physiographic Position Middle slope
Slope (Type) 1.5% (complex)
Drainage and Perviousness Imperfectly drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 69 cm
Land Use Improved pasture/forage
Classification Humic Luvic Gleysol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Apgj	0–17	Dark brown (7.5YR 3/4); loam; few fine distinct mottles; very weak fine platy; friable; abundant fine random roots; <10% angular gravels; clear smooth boundary.
*Aegj	17–29	Pale brown (10YR 6/3); sandy loam; common medium distinct mottles; very weak fine platy; friable; plentiful fine vertical roots; <10% angular gravels; clear wavy boundary.
*Bg	29–37	Reddish brown (5YR 4/4); sandy loam; common coarse prominent mottles; weak fine platy; friable; few very fine vertical roots; <10% angular gravels; abrupt wavy boundary.
*Btgj	37–72	Dark reddish brown (5YR 3/4); loam; weak to moderate medium to coarse angular blocky; firm; many moderately thick clay skins; few very fine vertical roots; 10–20% angular gravels and cobbles; gradual wavy boundary.
Cgj	72–100	Dark reddish brown (5YR 3/4); loam; weak to moderate coarse angular blocky; firm; very few micro vertical roots; 10–20% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Aegj	4.6	4.3	1.04	0.10	—	—	1.95	0.38	0.06	1.84	0.04
Bg	4.5	4.2	0.51	0.10	0.23	0.20	1.14	0.31	0.07	2.13	0.04
Btgj	4.6	4.1	0.09	0.00	0.06	0.14	2.14	0.62	0.12	3.53	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Aegj	0.7	10.7	13.4	27.1	6.7	58.6	28.8	12.6
Bg	1.0	9.8	12.0	23.3	11.4	57.5	26.8	15.7
Btgj	1.7	7.5	11.3	18.3	8.7	47.5	32.7	19.8

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat, cm/h	Part. Dens, g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Aegj	—	—	—	—	22	15	8	—	—	2.31
Bg	36	34	32	27	25	19	12	1.57	13.50	2.47
Btgj	26	24	23	22	22	17	12	1.77	1.06	2.40

Soil Name	Stony Brook (Sb3)
Profile No.	3577
Latitude	46°06'22" N
Longitude	64°34'37" W
Map Sheet	NB038555 211/02-W2 Malakoff
Parent Material	Extremely acidic fine loamy morainal lodgment till, gray-green sandstone and red shale lithology
Physiographic Position	Middle slope
Slope (Type)	2.0% (complex)
Drainage and Perviousness	Poorly drained, slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	30 cm
Land Use	Unproductive woodland
Classification	(Gleyed) Luvisolic Humo-Ferric Podzol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
LFH	6-0	Plentiful fine horizontal roots; abrupt smooth boundary.
Ae	0-17	Pinkish gray (7.5YR 6/2); sandy loam; weak to moderate fine platy; friable; few very fine vertical roots; <10% angular gravels; clear wavy boundary.
*Bfg	17-37	Reddish brown (5YR 4/3); loam; many coarse prominent mottles; weak to moderate fine to medium platy; friable; very few micro vertical roots; 10-20% angular gravels; clear wavy boundary.
*Aegj	37-73	Dark reddish brown (5YR 3/4); sandy loam; common medium distinct mottles; weak to moderate medium to coarse platy; firm to friable; no roots; 10-20% angular gravels; gradual wavy boundary.
*Btgj	73-100	Dark reddish brown (5YR 3/3); loam; structureless massive; very firm; common thin clay skins; no roots; 10-20% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Bfg	4.5	3.9	1.09	0.11	0.40	0.36	0.34	0.18	0.08	5.46	0.04
Aegj	4.5	3.9	0.43	0.05	0.18	0.22	0.18	0.08	0.05	2.79	0.02
Btgj	4.8	4.4	—	—	—	—	8.16	1.75	0.11	0.07	0.03

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2-1 mm	C 1-0.5 mm	M 0.5-0.25 mm	F 0.25-0.1 mm	VF 0.1-0.05 mm	Total		
Bfg	1.1	8.5	9.1	19.6	12.4	50.7	30.6	18.7
Aegj	1.4	11.7	11.3	24.8	7.3	56.5	31.5	12.0
Btgj	1.4	9.6	6.8	14.5	8.1	40.4	39.0	20.6

Horizon	% Water Retention by Volume							Bulk Dens. g/cm ³	K Sat. cm/h	Part. Dens. g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Bfg	48	46	44	38	21	16	10	1.30	0.44	2.50
Aegj	33	32	30	28	17	10	7	1.64	0.84	2.43
Btgj	—	—	—	—	19	17	12	—	—	2.48

Soil Name	Tormentine (To1)
Profile No.	3592
Latitude	46°07'55" N
Longitude	64°01'14" W
Map Sheet	NB038515 211/01-W4 Little Shemogue Harbour
Parent Material	Medium acidic coarse loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	2.0% (complex)
Drainage and Perviousness	Poorly drained, slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	52 cm
Land Use	Productive woodland
Classification	Orthic Gleysol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
LFH	18-0	
*Aeg	0-10	Pinkish gray (7.5YR 7/2); loam; common medium prominent mottles; weak to moderate medium to coarse platy; friable; plentiful fine vertical roots; <10% angular gravels; abrupt wavy boundary.
*Bg	10-19	Brown (7.5YR 5/4); loam; common medium distinct and prominent mottles; weak to moderate medium to coarse platy; friable; few very fine vertical roots; <10% angular gravels; clear wavy boundary.
*Cg1	19-85	Reddish brown (2.5YR 4/4); loam; weak coarse platy; firm; very few micro random roots; <10% angular gravels; diffuse irregular boundary.
Cg2	85-100	Reddish brown (2.5YR 4/4); sandy loam; weak coarse platy; firm; no roots; 10-20% angular gravels and cobbles.

*Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Aeg	5.0	4.2	1.58	0.06	—	—	1.26	0.38	0.06	3.65	0.03
Bg	6.4	5.5	0.36	0.03	0.08	0.04	3.32	0.55	0.08	0.07	0.02
Cg1	6.9	6.0	0.05	0.00	0.01	0.03	3.87	0.47	0.07	0.06	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2-1 mm	C 1-0.5 mm	M 0.5-0.25 mm	F 0.25-0.1 mm	VF 0.1-0.05 mm			
Aeg	0.1	6.2	4.2	23.4	11.2	45.1	45.0	9.9
Bg	0.8	8.1	8.3	24.6	7.9	49.7	40.2	10.1
Cg1	0.5	4.4	8.3	21.6	11.5	46.3	43.1	10.6

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Aeg	—	—	—	—	—	—	—	—	—	2.44
Bg	—	—	—	—	26	14	5	—	—	2.57
Cg1	25	25	24	23	23	11	5	1.96	0.24	2.60

Soil Name Tormentine (To2)
Profile No. 8818
Latitude 46°03'48" N
Longitude 63°55'18" W
Map Sheet NB038534 11L/04-R3 Upper Cape
Parent Material Extremely/very strongly acidic coarse loamy morainal
lodgment till, red sandstone lithology
Physiographic Position Upper slope
Slope (Type) 3.0% (complex)
Drainage and Perviousness Well drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 48 cm
Land Use Abandoned farmland
Classification Orthic Sombic Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Ap	0–24	Dark brown (7.5YR 3/4); sandy loam; weak to moderate medium platy; friable; plentiful fine random roots; <10% angular gravels; abrupt smooth boundary.
*B _{fj}	24–34	Reddish brown (5YR 4/4); sandy loam; weak to moderate medium platy; friable; few fine random roots; <10% angular gravels; clear smooth boundary.
*BC	34–48	Red (2.5YR 4/6); sandy loam; moderate medium platy; friable; very few very fine random roots; <10% angular gravels; gradual wavy boundary.
*C	48–100	Dark red (2.5YR 3/6); sandy loam; massive; firm; no roots; 10–20% angular gravels and cobbles.

*Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
B _{fj}	—	5.0	1.39	0.08	0.20	0.39	1.02	0.11	0.04	0.01	0.01
BC	—	4.6	0.23	0.05	0.04	0.18	0.83	0.21	0.05	0.06	0.03
C	—	4.4	0.10	0.01	0.02	0.13	0.76	0.30	0.07	0.11	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
B _{fj}	1.1	3.7	11.8	31.9	14.2	62.7	31.1	6.2
BC	0.6	2.6	12.2	30.6	14.3	60.3	30.0	9.7
C	0.4	3.0	8.9	27.3	12.7	52.3	36.3	11.4

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa		
B _{fj}	55	43	38	25	18	12	7	1.11	17.80
BC	39	29	27	24	22	13	7	1.56	3.54
C	36	26	24	—	19	12	8	1.70	2.51

Soil Name	Tormentine (To2)
Profile No.	3584
Latitude	46°09'20" N
Longitude	64°19'44" W
Map Sheet	NB038510 211/01-V3 Cormier-Village
Parent Material	Strongly acidic coarse loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	3.0% (complex)
Drainage and Perviousness	Moderately well drained, slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	64 cm
Land Use	Productive woodland
Classification	Eluviated Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
LFH	4-0	Abundant coarse horizontal roots; abrupt smooth boundary.
Ae	0-5	Light reddish brown (2.5YR 6/4); sandy loam; very weak very fine to fine platy; friable; plentiful medium horizontal roots; <10% angular gravels; clear wavy boundary.
*Bfj	5-33	Reddish brown (5YR 5/4); loam; weak fine platy; friable; plentiful medium horizontal roots; <10% angular gravels; abrupt wavy boundary.
*BCxj	33-54	Reddish brown (2.5YR 4/4); sandy loam; moderate medium to coarse platy; firm; weakly cemented; very few very fine to micro vertical roots; 10-20% angular gravels and cobbles; gradual wavy boundary.
*C	54-100	Reddish brown (2.5YR 4/4); sandy loam; moderate medium to coarse platy; firm; very few micro to very fine vertical roots; 10-20% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	meq/100 g soil				
							Ca	Mg	K	Al	
Bfj	4.8	4.5	1.05	0.07	0.21	0.29	0.28	0.07	0.05	2.08	0.03
BCxj	5.2	4.5	—	—	0.06	0.09	0.28	0.14	0.05	1.29	0.02
C	5.6	5.1	0.06	0.00	—	—	3.77	0.90	0.09	0.00	0.02

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2-1 mm	C 1-0.5 mm	M 0.5-0.25 mm	F 0.25-0.1 mm	VF 0.1-0.05 mm			
Bfj	1.4	5.3	8.5	16.8	11.6	43.6	44.2	12.2
BCxj	1.1	8.1	10.2	19.2	14.8	53.4	38.5	8.1
C	1.1	8.5	13.8	21.9	11.2	56.5	31.9	11.6

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Bfj	54	45	40	34	22	12	5	1.17	13.00	2.56
BCxj	33	27	26	23	17	8	4	1.71	0.87	2.54
C	—	—	—	—	22	14	7	—	—	2.56

Soil Name Tormentine (To2)
Profile No. 8816
Latitude 46°03'26" N
Longitude 63°59'16" W
Map Sheet NB038534 11L/04-R3 Upper Cape
Parent Material Strongly acidic coarse-loamy morainal lodgment till, red sandstone lithology
Physiographic Position Middle slope
Slope (Type) 3.0% (complex)
Drainage and Perviousness Moderately well drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 35 cm
Land Use Improved pasture/forage
Classification Orthic Melanic Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–21	Dark brown (7.5YR 3/4); sandy loam; moderate medium granular; friable; abundant fine random roots; <10% angular and rounded gravels; abrupt smooth boundary.
*Bfj	21–48	Reddish brown (5YR 4/4); sandy loam; weak fine to medium platy; friable; few very fine random roots; <10% angular and rounded gravels; diffuse wavy boundary.
*C	48–100	Dark reddish brown (2.5YR 3/4); sandy loam; massive; very firm; no roots; <10% angular and rounded gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	—	6.1	2.56	0.23	0.35	0.22	6.77	2.56	0.13	0.03	0.15
Bfj	—	5.6	0.20	0.08	0.07	0.12	1.00	0.53	0.25	0.02	0.05
C	—	5.1	0.23	0.07	0.05	0.05	1.48	0.69	0.22	0.04	0.04

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ap	2.6	7.2	11.4	23.8	12.3	57.3	35.0	7.7
Bfj	1.5	5.1	12.4	26.8	12.8	58.6	35.1	6.3
C	1.2	0.0	15.0	30.2	13.4	59.8	33.4	6.8

Horizon	% Water Retention by Volume						Bulk Dens, g/cm ³	K Sat. cm/h
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa		
Ap	50	40	38	30	24	16	1.22	30.4
Bfj	36	29	27	27	20	11	1.64	0.71
C	33	25	23	23	22	9	1.78	1.03

Soil Name	Tormentine (To2)
Profile No.	8815
Latitude	46°05'00" N
Longitude	63°59'15" W
Map Sheet	NB038537 11L/04-U1 Melrose
Parent Material	Extremely/very strongly acidic coarse loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	2.5% (complex)
Drainage and Perviousness	Moderately well drained, moderately pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	54 cm
Land Use	Abandoned farmland
Classification	Orthic Sombric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–23	Dark brown (7.5YR 3/4); sandy loam; few fine faint mottles; moderate medium granular; friable; abundant fine vertical roots; <10% angular gravels; clear smooth boundary.
*Bm	23–41	Yellowish red (5YR 4/6); sandy loam; weak medium platy; friable; plentiful fine vertical roots; <10% angular gravels; diffuse smooth boundary.
*C1	41–67	Dark reddish brown (2.5YR 3/4); sandy loam; weak medium platy; firm; very few very fine vertical roots; <10% angular gravels; diffuse smooth boundary.
C2	67–100	Reddish brown to dark reddish brown (2.5YR 3.5/4); sandy loam; moderate medium platy; friable; no roots; 10–20% angular gravels.

*Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	—	4.6	2.32	0.19	0.06	0.11	0.61	0.14	0.08	0.02	0.04
Bm	—	4.8	0.32	0.05	0.13	0.19	0.21	0.08	0.05	0.00	0.02
C1	—	4.4	0.05	0.04	0.04	0.07	0.49	0.30	0.07	0.13	0.02

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ap	4.2	11.2	14.1	19.1	6.6	55.2	37.7	7.1
Bm	1.0	3.3	10.4	29.4	13.9	58.0	35.9	6.1
C1	1.4	2.8	9.8	24.6	14.9	53.5	36.4	10.1

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa		
Ap	51	44	40	27	23	14	8	1.21	21.30
Bm	36	31	29	–	23	11	6	1.64	67.20
C1	34	27	25	25	23	13	7	1.75	2.51

Soil Name Tormentine (To2)
Profile No. 3580
Latitude 46°13'16" N
Longitude 64°15'02" W
Map Sheet NB038522 211/01-Y3 Bas-Cap-Pelé
Parent Material Extremely/very strongly acidic coarse loamy morainal lodgment till, red sandstone lithology
Physiographic Position Middle slope
Slope (Type) 3.0% (complex)
Drainage and Perviousness Moderately well drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 56 cm
Land Use Cropland
Classification Orthic Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–17	Yellowish red (5YR 4/6); sandy loam; weak fine to medium platy; friable; few very fine to fine vertical roots; 10–20% angular gravels; gradual wavy boundary.
*Bmxj	17–38	Dark red (2.5YR 3/6); sandy loam; weak to moderate medium platy; friable to firm; weakly cemented; few very fine to fine vertical roots; 10–20% angular gravels and cobbles; gradual wavy boundary.
*C	38–100	Reddish brown (2.5YR 4/4); sandy loam; weak medium to coarse subangular blocky; firm; few thin clay skins; very few micro vertical roots; 20–30% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	5.2	4.6	0.83	0.10	—	—	0.90	0.39	0.29	0.38	0.06
Bmxj	4.8	4.4	—	—	0.02	0.11	0.59	0.18	0.17	1.31	0.04
C	4.9	4.3	0.08	0.00	—	—	0.68	0.77	0.09	1.05	0.02

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	1.4	9.2	18.6	27.0	5.9	62.1	29.6	8.3
Bmxj	1.5	10.2	13.6	19.5	10.1	54.9	34.2	10.9
C	1.0	8.8	12.2	20.1	14.8	56.9	35.9	7.2

Horizon	% Water Retention by Volume							Bulk Dens. g/cm ³	K Sat. cm/h	Part. Dens. g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	16	10	5	—	—	2.33
Bmxj	29	26	24	22	18	11	6	1.74	1.75	2.46
C	26	26	24	22	17	8	6	1.82	0.69	2.47

Soil Name	Tormentine (To2)
Profile No.	3589
Latitude	46°09'12" N
Longitude	64°03'58" W
Map Sheet	NB038515 21/01-W4 Little Shemogue Harbour
Parent Material	Slightly acidic/neutral coarse-loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	2.5% (simple)
Drainage and Perviousness	Moderately well drained, moderately pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	43 cm
Land Use	Improved pasture/forage
Classification	Orthic Sombric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Ap	0–25	Dark brown (7.5YR 3/4); sandy loam; weak to moderate fine to medium subangular blocky; friable; plentiful medium vertical roots; <10% angular gravels; abrupt smooth horizon.
*Bm	25–38	Brown (7.5YR 4/4); sandy loam; weak to moderate medium platy; friable to firm; few fine vertical roots; <10% angular gravels; gradual smooth boundary.
*BCgj	38–51	Reddish brown (2.5YR 4/4); loamy sand; few medium faint mottles; weak to moderate medium platy; firm; common very thin clay skins; few fine random roots; <10% angular gravels; gradual smooth boundary.
*C	51–100	Reddish brown (2.5YR 4/4); sandy loam; weak medium to coarse platy; firm; no roots; <10% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	meq/100 g soil				
							Ca	Mg	K	Al	
Bm	6.6	5.2	0.09	0.00	0.04	0.04	3.36	0.28	0.04	0.01	0.10
BCgj	6.5	6.2	0.00	0.00	0.02	0.04	3.46	0.30	0.04	0.03	0.09
C	6.7	6.3	0.00	0.00	—	—	3.17	0.28	0.04	0.03	0.07

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Bm	1.2	6.6	11.3	20.5	13.1	52.7	39.3	8.0
BCgj	1.1	5.4	10.8	24.0	37.8	79.1	13.2	7.7
C	0.5	6.8	16.6	28.0	13.4	65.3	28.3	6.4

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Bm	26	26	25	23	21	9	5	1.83	0.29	2.47
BCgj	26	26	24	23	17	9	5	1.81	0.65	2.45
C	–	–	–	–	12	7	3	–	–	2.49

Soil Name Tormentine (To2)
Profile No. 3585
Latitude 46°08'47" N
Longitude 64°16'34" W
Map Sheet NB038509 211/01-V2 Anderson Settlement
Parent Material Extremely acidic coarse loamy morainal
lodgment till, red sandstone-shale lithology
Physiographic Position Lower slope
Slope (Type) 3.0% (complex)
Drainage and Perviousness Imperfectly drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 38 cm
Land Use Unproductive woodland
Classification Gleyed Eluviated Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Ag	0–14	Brown (7.5YR 4/2); loam; weak medium granular; friable; plentiful medium vertical roots; <10% angular gravels; clear irregular boundary.
*Aegj	14–24	Pinkish gray (7.5YR 6/2); common medium distinct mottles; sandy loam; weak fine platy; friable; few very fine vertical roots; <10% angular gravels; clear wavy boundary.
*Bmgj	24–39	Red (2.5YR 4/8); sandy loam; weak to moderate fine platy; friable; very few micro vertical roots; <10% angular gravels; abrupt wavy boundary.
*C	39–100	Dark red (2.5YR 3/6); sandy loam; moderate medium to coarse platy; firm; no roots; <10% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Aegj	4.5	4.1	0.65	0.05	—	—	0.60	0.23	0.05	3.63	0.04
Bmgj	4.9	4.5	0.68	0.05	0.07	0.29	0.19	0.06	0.04	1.00	0.03
C	4.6	4.2	0.00	0.00	—	—	3.09	1.39	0.08	1.32	0.02

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Aegj	1.3	12.4	14.9	21.1	9.2	58.9	30.9	10.2
Bmgj	2.9	18.1	21.2	21.2	6.6	70.0	22.1	7.9
C	0.8	14.4	7.7	16.0	7.9	46.8	37.5	15.7

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Aegj	—	—	—	—	20	11	5	—	—	2.46
Bmgj	40	29	26	21	18	10	6	1.50	23.50	2.52
C	29	27	25	23	23	15	9	1.78	0.74	2.49

Soil Name	Tormentine (To2)
Profile No.	3593
Latitude	46°07'45" N
Longitude	64°02'01" W
Map Sheet	NB038515 21/01-W4 Little Shemogue Harbour
Parent Material	Very strongly acidic coarse loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	3.5% (complex)
Drainage and Perviousness	Imperfectly drained, moderately pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	32 cm
Land Use	Abandoned farmland
Classification	Orthic Humo-Ferric Podzol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–12	Yellowish red (5YR 4/6); loam; weak medium subangular blocky; friable; plentiful fine vertical roots; <10% angular gravels; abrupt smooth boundary.
Ae	12–15	Reddish brown (2.5YR 5/4); sandy loam; weak medium platy; friable; plentiful fine vertical roots; <10% angular gravels; abrupt smooth boundary.
*Bt _{gj}	15–32	Red (2.5YR 4/8); loam; common medium distinct mottles; moderate medium to coarse platy; friable; few very fine random roots; <10% angular gravels; abrupt smooth boundary.
*BC _{xj}	32–85	Reddish brown (2.5YR 4/4); sandy loam; moderate to strong medium to coarse platy; very firm; no roots; <10% angular gravels; diffuse wavy boundary.
C	85–100	Reddish brown (2.5YR 4/4); sandy loam; massive; firm; no roots; <10% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	5.2	4.6	1.72	0.12	—	—	0.17	0.05	0.06	1.16	0.03
Bt _{gj}	5.2	4.7	2.86	0.12	0.71	1.13	0.37	0.05	0.04	1.15	0.03
BC _{xj}	5.8	4.7	0.15	0.05	0.10	0.05	0.71	0.16	0.05	0.61	0.02

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	1.0	5.9	7.1	21.3	10.7	46.0	44.2	9.8
Bt _{gj}	2.1	4.5	8.0	22.1	8.1	44.8	47.3	7.9
BC _{xj}	1.1	7.2	10.5	21.6	12.7	53.1	37.1	9.8

Horizon	% Water Retention by Volume							Bulk Dens ₃ g/cm ³	K Sat. cm/h	Part. Dens ₃ g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	26	14	7	—	—	2.47
Bt _{gj}	60	51	47	39	21	15	8	0.88	56.60	2.21
BC _{xj}	37	29	27	24	21	11	5	1.69	0.52	2.69

Soil Name Tormentine (To2)
Profile No. 3583
Latitude 46°09'49" N
Longitude 64°17'42" W
Map Sheet NB038509 21/01-V2 Anderson Settlement
Parent Material Neutral coarse loamy morainal lodgment till, red sandstone-shale lithology
Physiographic Position Middle slope
Slope (Type) 2.0% (complex)
Drainage and Perviousness Imperfectly drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 69 cm
Land Use Unproductive woodland
Classification Gleyed Eluviated Eutric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Apgj	0–14	Brown (7.5YR 4/2); loam; weak very fine to fine subangular blocky; friable; abundant fine to medium horizontal roots; <5% angular gravels; clear wavy boundary.
Aegj	14–34	Brown (7.5YR 5/2); sandy loam; few fine faint mottles; very weak fine platy; friable; plentiful fine vertical roots; 20–30% angular gravels; abrupt irregular boundary.
*Btjgj	34–57	Reddish brown (2.5YR 4/4); loam; few medium distinct mottles; weak to moderate medium to coarse platy; firm; common moderately thick clay skins; very few very fine vertical roots; <10% angular gravels and cobbles; gradual wavy boundary.
*C	57–100	Reddish brown (2.5YR 4/4); loam; weak to moderate medium to coarse platy; firm; very few micro vertical roots; <10% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Apgj	6.1	5.6	3.83	0.31	—	—	0.00	1.02	0.12	0.02	0.11
Btjgj	6.3	6.0	—	—	0.01	0.02	5.08	0.61	0.10	0.01	0.04
C	7.5	6.8	0.02	0.00	—	—	4.87	0.42	0.12	0.02	0.11

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Apgj	1.6	9.7	8.6	17.3	8.0	45.2	36.2	18.6
Btjgj	1.1	7.4	11.1	20.3	7.9	47.8	36.5	15.7
C	1.6	7.2	10.8	19.6	8.3	47.5	37.9	14.6

Horizon	% Water Retention by Volume						Bulk Dens. g/cm ³	K Sat. cm/h	Part. Dens. g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa			
Apgj	—	—	—	—	33	24	15	—	2.00
Btjgj	26	26	25	24	23	16	9	1.89	2.54
C	26	24	23	22	22	16	8	1.89	2.55

Soil Name	Tormentine (To2)
Profile No.	3588
Latitude	46°09'05" N
Longitude	64°03'41" W
Map Sheet	NB038515 21/01-W4 Little Shemogue Harbour
Parent Material	Neutral coarse loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	2.5% (complex)
Drainage and Perviousness	Imperfectly drained, moderately pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	76 cm
Land Use	Improved pasture/forage
Classification	Orthic Eutric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–19	Brown (7.5YR 4/2); sandy loam; weak to moderate very fine to fine subangular blocky; friable; abundant fine to medium random roots; <10% angular gravels; abrupt smooth boundary.
*Bmgj	19–41	Reddish brown (5YR 4/3); sandy loam; common medium faint mottles; weak to moderate medium to coarse platy; friable to firm; few fine vertical roots; <10% angular gravels and cobbles; clear smooth boundary.
*C	41–100	Dark reddish brown (2.5YR 3/4); sandy loam; moderate coarse platy; firm; very few very fine vertical roots; few thin clay skins; 10–20% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	6.9	6.3	1.93	0.15	—	—	6.13	0.58	0.07	0.00	0.00
Bmgj	6.4	6.2	0.22	0.03	0.05	0.05	4.22	0.21	0.03	0.04	0.06
C	7.3	6.7	0.00	0.00	—	—	6.01	0.20	0.04	0.04	0.11

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Ap	0.5	5.5	12.2	23.5	11.6	53.3	33.5	13.2
Bmgj	0.4	11.0	11.3	29.6	11.1	63.4	26.5	10.1
C	0.9	11.0	11.3	31.7	7.8	62.7	25.5	11.8

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	23	14	8	—	—	2.57
Bmgj	25	25	23	21	19	12	8	1.80	0.47	2.39
C	24	24	23	21	19	12	7	1.82	1.41	2.41

Soil Name Tormentine (To2)
Profile No. 3597
Latitude 46°09'01" N
Longitude 64°09'09" W
Map Sheet NB038514 21/01-W3 Chapmans Corner
Parent Material Neutral coarse loamy morainal lodgment till, red sandstone-shale lithology
Physiographic Position Toe
Slope (Type) 3.0% (simple)
Drainage and Perviousness Imperfectly drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 47 cm
Land Use Improved pasture/forage
Classification Gleyed Melanic Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–25	Dark brown (7.5YR 3/4); silt loam; moderate to strong medium granular; friable; plentiful fine vertical roots; <10% angular gravels; abrupt smooth boundary.
*Bmgj	25–36	Yellowish red (5YR 4/6); loam; few medium distinct mottles; moderate fine to medium subangular blocky; friable; few very fine vertical roots; <10% angular gravels; clear smooth boundary.
*BCgj	36–57	Reddish brown (2.5YR 4/4); loam; few medium faint mottles; moderate to strong coarse platy; firm; common thin clay skins; few very fine random roots; <10% angular gravels; gradual smooth boundary.
C	57–100	Reddish brown (2.5YR 4/4); loam; massive; firm; no roots; <10% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	6.3	5.5	1.94	0.14	—	—	6.92	0.67	0.13	0.02	0.08
Bmgj	7.3	6.7	—	—	0.04	0.03	4.74	0.41	0.08	0.03	0.04
BCgj	8.0	6.7	0.19	0.01	—	—	5.29	0.41	0.09	0.03	0.00

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ap	1.4	9.7	7.2	13.4	7.1	38.8	58.9	2.3
Bmgj	0.4	16.2	8.7	14.9	5.6	45.8	39.1	15.1
BCgj	—	—	—	—	—	48.7	41.7	9.6

Horizon	% Water Retention by Volume							Bulk Dens _s g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ap	—	—	—	—	26	17	11	—	—	2.33
Bmgj	30	28	27	25	22	15	7	1.79	1.69	2.43
BCgj	30	28	27	25	24	16	10	1.85	1.36	2.44

Soil Name	Tormentine (To2)
Profile No.	3587
Latitude	46°07'54" N
Longitude	64°06'14" W
Map Sheet	NB038514 21/01-W3 Chapmans Corner
Parent Material	Slightly acidic coarse loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	1.5% (complex)
Drainage and Perviousness	Poorly drained, slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	13 cm
Land Use	Productive woodland
Classification	Gleyed Eluviated Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
LFH	11–0	Dark brown (7.5YR 3/2); abundant fine to medium horizontal roots; abrupt smooth boundary.
Ae	0–8	Pale brown (10YR 6/3); loam; very weak fine platy; friable; plentiful fine to medium horizontal roots; <10% angular gravels; clear smooth boundary.
*Aeg	8–17	Pale brown (10YR 6/3); loam; many coarse prominent mottles; very weak fine platy; friable; few fine random roots; <10% angular gravels; clear wavy boundary.
Bfgj	17–26	Strong brown (7.5YR 5/6); sandy loam; common medium distinct mottles; weak fine to medium platy; friable; no roots; <10% angular gravels; clear wavy boundary.
*BCg	26–48	Red (2.5YR 4/6); loam; weak to moderate medium to coarse platy; firm; no roots; <10% angular gravels; gradual wavy boundary.
*Cg	48–100	Dark red (2.5YR 3/6); loam; weak to moderate medium to coarse platy; firm; no roots; <10% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Aeg	4.2	4.0	0.64	0.05	—	—	0.11	0.12	0.08	3.86	0.03
BCg	5.3	4.9	0.10	0.01	0.05	0.04	3.50	0.69	0.08	0.04	0.02
Cg	7.3	6.5	0.07	0.00	—	—	5.39	0.59	0.05	0.01	0.08

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Aeg	1.0	5.5	5.4	20.7	14.7	47.3	38.9	13.8
BCg	0.5	3.4	8.2	26.9	12.9	51.9	35.6	12.5
Cg	1.0	2.9	6.7	20.3	11.3	42.2	43.2	14.6

Horizon	% Water Retention by Volume							Bulk Dens _s g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Aeg	44	38	35	30	26	17	8	1.50	0.29	2.68
BCg	30	28	27	25	23	14	9	1.86	0.19	2.45
Cg	—	—	—	—	28	16	9	—	—	2.44

Soil Name Tormentine (To2)
Profile No. 3598
Latitude 46°10'18" N
Longitude 64°13'32" W
Map Sheet NB038521 21/01-Y2 Botsford Portage
Parent Material Medium acidic coarse loamy morainal lodgment
 till, red sandstone-shale lithology
Physiographic Position Lower slope
Slope (Type) 4.0% (complex)
Drainage and Perviousness Poorly drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 46 cm
Land Use Improved pasture/forage
Classification Gleyed Brunisolic Gray Luvisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Apg	0–22	Brown (7.5YR 4/2); loam; common fine prominent mottles; moderate medium granular; friable; plentiful fine vertical roots; <10% angular gravels; abrupt smooth boundary.
*Aeg	22–28	Light brown (7.5YR 6/4); sandy loam; common fine prominent mottles; moderate fine to medium subangular blocky; very friable; few fine vertical roots; <10% angular gravels; abrupt smooth boundary.
*Bmgj	28–34	Reddish brown (2.5YR 5/4); sandy loam; common medium distinct mottles; weak to moderate medium to coarse subangular blocky; very friable; few fine random roots; <10% angular gravels; abrupt smooth boundary.
*Btg	34–58	Reddish brown (2.5YR 4/4); loam; few medium prominent mottles; moderate to strong coarse platy; firm; few thin clay skins; very few very fine random roots; <10% angular gravels; diffuse smooth boundary.
Cg	58–100	Reddish brown (2.5YR 4/4); loam; massive; firm; no roots; <10% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Aeg	6.1	5.1	0.41	0.01	—	—	1.89	0.27	0.05	0.03	0.02
Bmgj	6.4	5.4	—	—	0.05	0.03	2.48	0.36	0.06	0.03	0.02
Btg	6.6	5.7	0.06	0.00	0.04	0.04	3.97	0.47	0.07	0.03	0.02

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Aeg	0.2	6.2	16.1	24.8	14.4	61.7	28.9	9.4
Bmgj	0.9	9.1	20.5	27.5	11.3	69.3	23.0	7.7
Btg	0.4	11.2	9.8	17.3	8.3	47.0	41.8	11.2

Horizon	% Water Retention by Volume						Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa			
Aeg	—	—	—	—	—	—	—	—	2.43
Bmgj	35	28	27	24	15	9	1.73	1.55	2.65
Btg	26	25	22	19	16	11	1.81	1.20	2.46

Soil Name	Tormentine (To3)
Profile No.	8819
Latitude	46°03'50" N
Longitude	63°55'22" W
Map Sheet	NB038534 11L/04-R3 Upper Cape
Parent Material	Very strongly acidic coarse-loamy morainal lodgment till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	3.5% (complex)
Drainage and Perviousness	Well drained, moderately pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	48 cm
Land Use	Abandoned farmland
Classification	Orthic Sombric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Ap	0–23	Dark brown (7.5YR 3/4); loam; moderate medium platy; friable; abundant fine random roots; <10% angular gravels; abrupt smooth boundary.
*Ae	23–33	Reddish brown (5YR 5/3); sandy loam; weak to moderate fine to medium platy; very friable; plentiful fine random roots; <10% angular gravels; abrupt broken boundary.
Bfj	33–43	Reddish brown (5YR 4/4); sandy loam; moderate medium platy; friable; few very fine random roots; <10% angular gravels; clear smooth boundary.
*BC	43–55	Red (2.5YR 4/6); loam; moderate to strong medium platy; friable; very few micro random roots; <10% angular gravels; diffuse irregular boundary.
C	55–100	Dark red (2.5YR 3/6); sandy loam; massive; firm; no roots; 10–20% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ap	—	4.8	2.67	0.26	0.21	0.27	2.66	0.39	0.07	0.03	0.07
Ae	—	4.6	0.62	0.09	0.11	0.10	1.78	0.25	0.04	0.08	0.04
BC	—	4.9	0.23	0.14	0.06	0.21	0.52	0.17	0.08	0.03	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ap	1.0	3.7	12.4	26.8	0.0	43.9	46.9	9.2
Ae	0.5	3.3	17.3	31.5	11.8	64.4	28.7	6.9
BC	0.7	2.9	10.7	28.3	0.0	42.6	47.4	10.0

Soil Name	Tormentine (To3)
Profile No.	3591
Latitude	46°09'03" N
Longitude	64°03'28" W
Map Sheet	NB038515 21/01-W4 Little Shemogue Harbour
Parent Material	Medium acidic coarse loamy morainal till, red sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	3.0% (complex)
Drainage and Perviousness	Poorly drained, slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	62 cm
Land Use	Improved pasture/forage
Classification	Gleyed Sombric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Apg	0–22	Dark brown (7.5YR 3/4); sandy loam; many coarse prominent mottles; moderate medium subangular blocky; friable; plentiful fine random roots; <10% angular gravels; abrupt smooth boundary.
*Bmgj	22–50	Dark reddish brown (5YR 3/4); sandy loam; common medium distinct mottles; moderate medium to coarse platy; friable to firm; plentiful fine random roots; <10% angular gravels; gradual irregular boundary.
Cg1	50–62	Dark reddish brown (5YR 3/4); loamy sand; common medium distinct and prominent mottles; weak coarse platy; very friable; few very fine random roots; <10% angular gravels; clear irregular boundary.
*Cg2	62–100	Reddish brown (2.5YR 4/4); sandy loam; common medium distinct and prominent mottles; weak coarse platy; firm; no roots; <10% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Apg	5.9	5.4	0.81	0.08	—	—	5.09	0.28	0.06	0.06	0.04
Bmgj	6.0	5.0	—	—	0.13	0.08	2.06	0.37	0.05	0.15	0.02
Cg2	6.7	5.9	0.00	0.00	—	—	3.94	0.52	0.08	0.07	0.02

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Apg	0.4	6.2	8.4	22.4	15.5	52.9	35.2	11.9
Bmgj	1.4	5.4	11.0	28.3	9.0	55.1	35.6	9.3
Cg2	0.6	6.1	10.8	28.4	14.8	60.7	28.4	10.9

Horizon	% Water Retention by Volume						Bulk Dens _b g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa			
Apg	—	—	—	—	25	13	—	—	2.49
Bmgj	—	—	—	—	—	—	—	—	2.69
Cg2	31	29	26	23	20	11	1.75	0.17	2.54

Soil Name	Tracadie (Td2)
Profile No.	3594
Latitude	46°12'23" N
Longitude	64°25'07" W
Map Sheet	NB038516 21/01-X1 Bourgeois Mills
Parent Material	Neutral clayey marine, red shale lithology
Physiographic Position	Lower slope
Slope (Type)	3.5% (complex)
Drainage and Perviousness	Poorly drained, very slowly pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	33 cm
Land Use	Abandoned farmland
Classification	Orthic Luvis Gleysol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Apg	0–14	Dark grayish brown (10YR 4/2); loam; common medium distinct mottles; weak medium granular; friable; few fine random roots; no coarse fragments; clear smooth boundary.
*Bg	14–26	Brown (7.5YR 4/4); clay; many coarse prominent mottles; weak fine to medium subangular blocky; friable; few very fine vertical roots; no coarse fragments; clear wavy boundary.
*Aeg	26–40	Reddish brown (5YR 4/3); silt loam; weak to moderate medium to coarse platy; firm; common moderately thick clay skins; very few very fine vertical roots; no coarse fragments; gradual wavy boundary.
*Btg	40–100	Reddish brown (5YR 4/3); silty clay loam; moderate coarse platy; firm; many moderately thick clay skins; very few micro vertical roots; no coarse fragments.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Bg	6.6	5.5	0.22	0.04	0.08	0.04	6.05	1.84	0.10	0.03	0.04
Aeg	7.2	6.8	—	—	0.04	0.02	8.53	3.21	0.10	0.09	0.05
Btg	7.6	7.0	0.00	0.00	—	—	7.56	3.32	0.16	0.10	0.00

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Bg	0.5	12.1	4.2	9.5	6.1	32.4	25.8	41.8
Aeg	0.2	6.0	2.5	4.8	7.9	21.4	64.8	13.8
Btg	0.1	2.2	1.0	3.2	5.4	11.9	57.0	31.1

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Bg	31	30	28	27	27	23	15	1.67	0.16	2.42
Aeg	34	34	33	33	32	31	17	1.70	<0.01	2.56
Btg	—	—	—	—	38	32	19	—	—	2.57

Soil Name	Tracy (Tr2)
Profile No.	3570
Latitude	46°13'31" N
Longitude	64°39'24" W
Map Sheet	NB038532 211/02-Z3 Batemans Mills
Parent Material	Extremely acidic coarse loamy morainal lodgment till, gray-green sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	1.5% (complex)
Drainage and Perviousness	Moderately well drained, moderately pervious
Stoniness and Rockiness	Slightly stony, nonrocky
Root Penetration	72 cm
Land Use	Productive woodland
Classification	Podzolic Gray Luvisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
LFH	10–0	Abundant medium to coarse horizontal roots.
*Ae	0–15	Light gray (5YR 7/1); sandy loam to loamy sand; very weak very fine to fine platy; friable; plentiful fine to medium horizontal roots; <10% angular gravels; clear irregular boundary.
*Bf	15–40	Brown (7.5YR 4/4); sandy loam; weak to moderate medium subangular blocky; friable; plentiful fine random roots; <10% angular gravels and cobbles; clear wavy boundary.
*Bt	40–70	Reddish brown (5YR 4/3); sandy loam; moderate medium to coarse angular blocky; firm; common moderately thick clay skins; few very fine vertical roots; 10–20% angular gravels and cobbles; gradual wavy boundary.
C	70–100	Dark reddish brown (5YR 3/3); sandy loam; weak to moderate medium to coarse platy; firm; no roots; 10–20% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Ae	4.0	3.6	0.42	0.09	—	—	0.45	0.20	0.09	2.31	0.44
Bf	4.5	4.4	1.95	0.28	0.40	0.84	0.24	0.10	0.12	1.26	0.04
Bt	4.9	4.0	0.11	0.00	0.08	0.17	0.22	0.21	0.11	2.98	0.02

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Ae	2.0	20.1	20.8	23.3	8.1	74.3	20.9	4.8
Bf	4.3	10.5	11.8	17.3	8.5	52.4	29.8	17.8
Bt	2.0	9.7	14.8	21.1	7.5	55.1	28.9	16.0

Horizon	% Water Retention by Volume							Bulk Dens _s g/cm ³	K Sat. cm/h	Part. Dens _s g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Ae	56	38	34	30	8	3	2	1.05	123.60	2.40
Bf	—	—	—	—	29	24	16	—	—	2.28
Bt	35	29	27	24	22	15	9	1.71	2.54	2.63

Soil Name Tracy (Tr3) grading to Barrieau-Buctouche (Bb3)
Profile No. 3571
Latitude 46°15'23" N
Longitude 64°37'50" W
Map Sheet NB038552 21/07-T1 Shediac River
Parent Material Extremely/very strongly acidic coarse loamy morainal lodgment till, gray-green sandstone lithology
Physiographic Position Middle slope
Slope (Type) 1.5% (complex)
Drainage and Perviousness Well drained, moderately pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 82 cm
Land Use Productive woodland
Classification Eluviated Dystric Brunisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
Ap	0–8	Brown (7.5YR 5/4); loamy sand; very weak fine to medium granular; very friable; abundant fine to medium horizontal roots; <5% angular gravels; clear smooth boundary.
Ae	8–16	Pinkish gray (7.5YR 7/2); loamy sand; weak very fine to fine platy; very friable; plentiful fine horizontal roots; <5% angular gravels; clear wavy boundary.
*Bfj	16–33	Strong brown (7.5YR 5/6); loamy sand; very weak very fine to fine platy; plentiful fine horizontal roots; very friable <5% angular gravels; gradual wavy boundary.
*BC	33–56	Brown (7.5YR 4/4); sand; weak medium subangular blocky, friable; few very fine vertical roots; 20–30% angular gravels; gradual wavy boundary.
*2C	56–100	Brown (7.5YR 4/2); sandy loam; very weak coarse platy; firm to friable; very few micro vertical roots; 20–30% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Bfj	5.4	4.6	0.90	0.07	0.16	0.28	0.09	0.09	0.04	0.28	0.02
BC	5.5	4.9	0.77	0.07	0.05	0.11	0.08	0.07	0.04	0.14	0.02
2C	4.9	4.3	0.05	0.00	—	—	0.19	0.23	0.05	1.39	0.02

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm	Total		
Bfj	0.9	19.8	30.4	27.6	4.1	82.8	12.2	5.0
BC	4.8	24.1	26.8	22.3	8.8	86.8	9.8	3.4
2C	4.4	20.9	17.5	13.9	7.3	64.0	27.0	9.0

Horizon	% Water Retention by Volume							Bulk Dens. g/cm ³	K Sat. cm/h	Part. Dens. g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Bfj	50	28	24	20	12	8	5	1.20	40.70	2.41
BC	—	—	—	—	6	5	3	—	—	2.46
2C	31	26	24	21	17	8	5	1.70	1.70	2.45

Soil Name Tracy (Tr2)
Profile No. 3575
Latitude 46°11'16" N
Longitude 64°33'03" W
Map Sheet NB038531 21/02-Z2 Dorchester Crossing
Parent Material Extremely/strongly acidic coarse loamy morainal lodgment till, gray-green sandstone lithology
Physiographic Position Middle slope
Slope (Type) 3.0% (complex)
Drainage and Perviousness Imperfectly drained, slowly pervious
Stoniness and Rockiness Nonstony, nonrocky
Root Penetration 42 cm
Land Use Improved pasture/forage
Classification Gleyed Podzolic Gray Luvisol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
*Apgj	0–16	Dark brown (7.5YR 3/4); sandy loam; common medium distinct mottles; weak fine platy; friable; abundant fine random roots; <10% angular gravels; clear smooth boundary.
*Bfgj	16–40	Brown (7.5YR 4/4); sandy loam; common medium distinct mottles; weak medium platy; friable; few very fine vertical roots; 10–20% angular gravels; abrupt smooth boundary.
*Bt	40–68	Reddish brown (5YR 4/3); sandy loam; weak to moderate medium to coarse angular blocky; firm; common moderately thick clay skins; very few micro random roots; 10–20% angular gravels and cobbles; gradual irregular boundary.
C	68–100	Dark reddish brown (5YR 3/3); loam; weak to moderate coarse angular blocky; firm; few thin clay skins; no roots; 20–30% angular gravels and cobbles.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Apgj	6.0	5.7	2.67	0.18	—	—	6.85	0.44	0.09	0.08	0.11
Bfgj	5.4	4.9	1.05	0.06	0.37	0.32	1.39	0.12	0.04	0.29	0.00
Bt	4.9	4.2	0.09	0.00	0.06	0.13	1.04	0.31	0.06	1.78	0.03

PHYSICAL ANALYSES

Horizon	% Sand					Total	% Silt	% Clay
	VC 2–1 mm	C 1–0.5 mm	M 0.5–0.25 mm	F 0.25–0.1 mm	VF 0.1–0.05 mm			
Apgj	2.1	10.5	11.4	20.4	11.1	55.5	31.2	13.3
Bfgj	3.8	11.0	18.6	23.2	8.8	65.4	25.9	8.7
Bt	1.6	8.7	12.6	26.5	9.2	58.6	30.1	11.3

Horizon	% Water Retention by Volume							Bulk Dens, g/cm ³	K Sat. cm/h	Part. Dens, g/cm ³
	Sat.	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Apgj	—	—	—	—	22	17	10	—	—	2.17
Bfgj	41	39	37	33	17	11	5	1.41	7.62	2.38
Bt	28	27	26	23	17	12	7	1.76	0.75*	2.43

* Estimated

Soil Name	Tracy (Tr2)
Profile No.	3576
Latitude	46°11'33" N
Longitude	64°32'18" W
Map Sheet	NB038531 21/02-Z2 Dorchester Crossing
Parent Material	Extremely acidic coarse loamy morainal lodgment till, gray-green sandstone lithology
Physiographic Position	Middle slope
Slope (Type)	2.0% (complex)
Drainage and Perviousness	Poorly drained, moderately pervious
Stoniness and Rockiness	Nonstony, nonrocky
Root Penetration	40 cm
Land Use	Productive woodland
Classification	Orthic Gleysol

MORPHOLOGICAL DESCRIPTION

Horizon	Depth (cm)	Description
LFH	16-0	Abundant medium to coarse horizontal roots.
*Aeg	0-23	Pinkish gray (7.5YR 7/2); sandy loam; very weak very fine to fine platy; friable; plentiful fine random roots; <10% angular gravels; abrupt smooth boundary.
*Bg	23-36	Brown (7.5YR 4/4); sandy loam; many coarse distinct to prominent mottles; moderate fine platy and discontinuous weakly cemented; friable and firm; very few very fine vertical roots; <10% angular gravels; clear wavy boundary.
BCg	36-49	Reddish brown (5YR 4/4); sandy loam; common medium distinct mottles; moderate fine to medium platy; firm; very few micro vertical roots; 10-20% angular gravels; gradual wavy boundary.
*Cg	49-100	Dark reddish brown (5YR 3/4); sandy loam; weak medium to coarse platy; firm; no roots; 10-20% angular gravels.

* Denotes sampled horizon.

Note: Colors and consistencies are for moist soil.

CHEMICAL ANALYSES

Horizon	pH		C (%)	N (%)	Pyrophosphate Extr.		Exchangeable Cations meq/100 g soil				EC mS/cm
	H ₂ O	CaCl ₂			Fe (%)	Al (%)	Ca	Mg	K	Al	
Aeg	4.1	3.8	0.85	0.06	—	—	0.09	0.09	0.04	4.60	0.03
Bg	4.8	4.2	0.46	0.07	0.16	0.17	0.08	0.08	0.04	2.02	0.02
Cg	4.6	4.1	0.08	0.00	—	—	0.09	0.77	0.13	2.25	0.02

PHYSICAL ANALYSES

Horizon	% Sand						% Silt	% Clay
	VC 2-1 mm	C 1-0.5 mm	M 0.5-0.25 mm	F 0.25-0.1 mm	VF 0.1-0.05 mm	Total		
Aeg	0.7	11.2	25.7	28.7	9.5	75.8	17.6	6.6
Bg	1.4	8.4	15.3	35.0	13.2	73.3	21.1	5.6
Cg	2.0	8.6	16.7	23.5	9.8	60.6	24.7	14.7

Horizon	% Water Retention by Volume							Bulk Dens ₃ g/cm ³	K Sat. cm/h	Part. Dens ₃ g/cm ³
	Sat	50 cm water	100 cm water	33 kPa	100 kPa	400 kPa	1500 kPa			
Aeg	37	34	29	21	16	8	4	1.52	2.94	2.36
Bg	28	27	26	22	14	8	5	1.69	1.78	2.39
Cg	—	—	—	—	20	14	9	—	—	2.41

GLOSSARY

ablation till A surface of loose, permeable somewhat stratified sandy and stony till usually overlying denser till.

alluvium Material such as clay, silt, sand and gravel deposited by modern rivers and streams.

association, soil A natural grouping of soil or landscape segments based on similarities in climatic or physiographic factors and soil parent materials.

available rooting zone That depth of soil material which is suitable for root growth and penetration. Soil matrix bulk densities of greater than 1.60 g/cm³ are considered a serious limitation to root growth. Note: In this report bulk density values are reported on a whole soil basis (soil <2 mm diameter, plus coarse fragments). Soil matrix bulk density must be calculated.

available water The portion of water in a soil that can be readily absorbed by plant roots. Herein considered to be that water held in the soil against a pressure of from 33 kPa to 1500 kPa, expressed in centimetres of water per centimetre of soil, and reported on a whole soil basis (soil <2 mm diameter, plus coarse fragments).

bedrock exposure When the solid rock that usually underlies soil is exposed at the surface or is covered by less than 10 cm of unconsolidated material.

boulders Rock fragments greater than 60 cm in diameter.

bulk density The mass of dry soil per unit bulk volume, often expressed in g/cm³. In this report the bulk density is reported on a whole soil basis (soil <2 mm diameter, plus coarse fragments). Soil matrix bulk densities can be calculated.

bulk density, soil matrix The mass of dry soil (<2 mm diameter) per unit volume of soil (<2 mm diameter) often expressed in g/cm³. This value can be approximated using the following formula:

$$BD_M = \frac{BD_{TS} - \left(\frac{\% CF}{100} \times BD_{CF} \right)}{\frac{\% Soil}{100}}$$

where

BD_M = Bulk density of soil matrix in g/cm³

BD_{TS} = Bulk density of the total soil or soil material (<2 mm diameter) plus coarse fragments in g/cm³

% CF = Percentage coarse fragments by volume

BD_{CF} = Bulk density of the coarse fragments in g/cm³, or 2.2 g/cm³ for sandstone/shale coarse fragments and 2.3 g/cm³ for non-sandstone/shale coarse fragments

% Soil = Percentage of soil material (<2 mm diameter) by volume, or 100 - % CF

catena A sequence of soils of about the same age, derived from similar parent materials, and occurring under similar climatic conditions, but having unlike characteristics because of variations in relief and drainage. Equivalent to association as defined in this report.

exchangeable cations A measure of the amount of selected exchangeable cations that are held by a soil. Expressed in milliequivalents per 100 g of soil.

classification The systematic arrangement of soils into categories on the basis of their characteristics.

clay As a soil separate, the mineral soil particles less than 0.002 mm in diameter: usually consisting largely of clay minerals.

clay films (skins) Coatings of oriented clays on the surfaces of soil pedes (natural unit of soil structure) and mineral grains, and in soil pores.

coarse fragments Rock fragments greater than 2 mm in diameter, including gravels, cobbles, stones and boulders.

cobbles Rock fragments 7.5 to 25 cm in diameter.

complex, soil A mapping unit used in soil surveys where two or more soil associations are so intimately intermixed in an area that it is impractical to separate them at the scale of mapping used.

consistence The resistance of a material to deformation or rupture. The degree of cohesion or adhesion of the soil mass. Terms used for describing consistence are for specific soil moisture contents, i.e. moist soil: loose, very friable, friable, firm, very firm.

control section The vertical section of soil upon which classification is based. Typically 1 m in mineral soils and 1.6 m in organic soils, but less in cases of shallow to bedrock, and in the case of organic soils, shallow to a mineral soil.

deposit Material left in a new position by a natural transporting agent such as water, wind, ice or gravity.

drainage (soil) The frequency and duration of periods when the soil is free of saturation.

electrical conductivity The specific conductivity of a water extract of soil reported in millisiemens per cm (mS/cm). It is used to estimate soluble salt content (salinity).

esker A winding ridge of irregularly stratified sand, gravel, and cobbles deposited under the ice by rapidly flowing glacial streams.

eutrophic A nutrient-rich environment. One that is associated with nutrient-rich groundwater.

evapotranspiration The loss of water by evaporation from the soil and by transpiration from plants.

fiber content, unrubbed The percentage of an undisturbed organic sample that is retained on a 100-mesh sieve (0.15 mm). A measure of the degree of decomposition.

fluvial deposits All sediments, past and present, deposited by flowing water, including glaciofluvial deposits.

glaciofluvial deposits Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice.

glaciation The alteration of a land surface by the massive movement over it of glacier ice.

glacier A body of ice, consisting mainly of recrystallized snow, flowing on a land surface.

glaciolacustrine Sediment generally consisting of stratified fine sand, silt, and clay deposited on a lake bed. Glacial ice exerted a strong but secondary control upon the mode of origin in that glacier ice was close to the site of deposition.

glaciomarine Unconsolidated sorted and stratified deposits of clay, silt, sand, or gravel that have settled from suspension in salt or brackish water bodies. Glacial ice exerted a strong but secondary control upon the mode of origin in that glacier ice was close to the site of deposition.

gravel Rock fragments 2 mm to 7.5 cm in diameter.

horizon, soil A layer in the soil profile approximately parallel to the land surface with more or less well-defined characteristics that have been produced through the operation of soil forming processes.

hydraulic conductivity The effective flow velocity or discharge velocity in soil at a unit hydraulic gradient. An approximation of the permeability of the soil, expressed in centimetres per hour.

inclusion A soil type found within a mapping unit that is not extensive enough to be mapped separately or as part of a complex.

kame An irregular ridge or hill of stratified glacial material deposited by glacial meltwater.

land type Natural and man-made units in the landscape that are either highly variable in content, have little or no natural soil, or are excessively wet.

lithology The description of rock fragments on the basis of such characteristics as color, structure, mineralogic composition and grain size.

lodgment till Material deposited from rock debris in transport in the base of a glacier. As it is "plastered" into place, this till is compact and not sorted.

mineral soil A soil consisting predominantly of, and having its properties determined predominantly by, mineral matter. It contains less than 30% organic matter (17% organic carbon), except for an organic surface layer that may be up to 60 cm thick.

mode of deposition See: mode of origin.

mode of origin The method whereby soil parent material has been left in a new position by a natural transporting agent such as water or ice.

mottles Irregularly marked spots or streaks, usually yellow or orange but sometimes blue, that indicate poor aeration and lack of good drainage. They are described in terms of abundance, size and contrast.

Munsell color A color designation specifying the relative degrees of three variables of color: hue, value and chroma.

ombrotrophic A nutrient-poor environment. One that is disassociated from nutrient-rich groundwater.

organic carbon (C) That component of soil carbon derived from organic matter. Used to estimate organic matter content (organic matter = $1.72 \times \text{organic C}$).

organic soil Organic soils consist of peat deposits containing more than 30% organic matter by weight (17% organic carbon) and are usually greater than 40 to 60 cm thick.

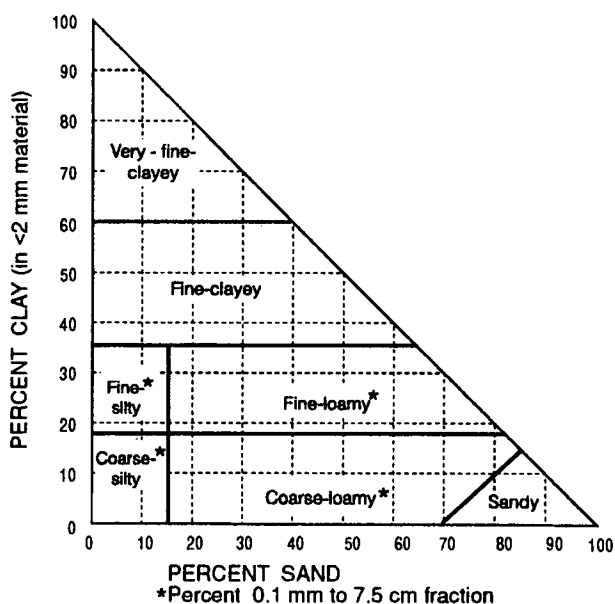
outwash Sediments washed out by flowing water beyond the glacier and laid down as stratified beds with particle sizes ranging from boulders to silt.

overburden The loose soil or other unconsolidated material overlying bedrock.

parent material The unconsolidated and more or less chemically weathered mineral or organic matter from which the solum of a soil has developed by soil forming processes.

particle size class, family Refers to the grain size distribution of the whole soil including the coarse fraction. It differs from texture,

which refers to the fine earth (<2 mm) fraction only. In addition, textural classes are usually assigned to specific horizons whereas particle-size classes indicate a composite particle size of all or a part of the control section. See family particle size classes triangle below.



peat Unconsolidated soil material consisting largely of organic matter.

permeability, soil The ease with which gases and liquids penetrate or pass through a bulk mass of soil or a layer of soil.

perviousness see permeability

petrology Deals with the origin, occurrence, structure and history of rocks.

pH, soil The negative logarithm of the hydrogen-ion activity of a soil. The degree of acidity or alkalinity of soil expressed in terms of the pH scale.

phase, soil A subdivision of a soil association or other unit of classification having characteristics that affect the use and management of the soil, but that do not vary sufficiently to differentiate it as a separate association.

physiography The physical geography of an area dealing with the nature and origin of topographic features.

polygon Any delineated area shown on a soil map that is identified by a symbol.

pores, macro Soil voids that are readily drained of free water, based on water retention at 100 cm of water suction. Herein reported on a whole soil basis (soil <2 mm diameter, plus coarse fragments).

porosity, total The total space not occupied by solid particles in a bulk volume of soil. Herein reported on a whole soil basis (soil <2 mm diameter, plus coarse fragments).

profile, soil A vertical section of the soil through all its horizons and extending into the parent material.

reaction, soil The degree of acidity or alkalinity of a soil, usually expressed as a pH value.

reworked Descriptive of material modified after its preliminary deposition, commonly by water.

rockiness Defined on the basis of the percentage of the land surface occupied by bedrock exposures.

sand A soil particle between 0.05 and 2.0 mm in diameter.

seepage The down-slope horizontal movement of water within the soil profile on top of a layer of restricted permeability.

series, soil The basic unit of soil classification consisting of soils that are essentially alike in all major profile characteristics except surface texture.

silt A soil separate consisting of particles between 0.05 and 0.002 mm in diameter.

soil The unconsolidated material on the immediate surface of the earth that serves as a natural medium for the growth of land plants and that has been influenced by soil forming factors.

soil-formation factors Natural agencies that are responsible for the formation of soil: parent rock, climate, organisms, relief and time.

soil map A map showing the distribution of soil types or other soil mapping units in relation to the prominent physical and cultural features of the earth's surface.

soil survey The whole procedure involved in making a soil resource inventory.

The systematic examination, description, classification, mapping and interpreting of soils and soils data within an area.

stones Rock fragments greater than 25 cm in diameter.

stoniness, surface Defined on the basis of the percentage of the land surface occupied by fragments coarser than 25 cm in diameter.

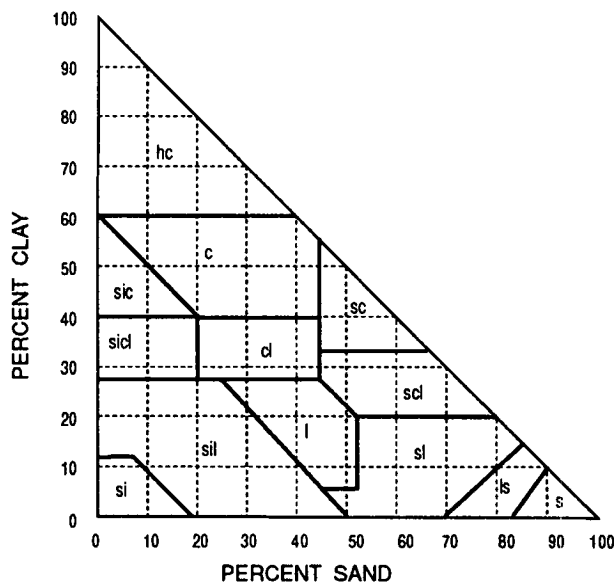
stratified materials Unconsolidated sand, silt and clay arranged in "strata" or layers.

structure, soil The combination or arrangement of primary soil particles into secondary particles, units or peds. These peds are characterized and classified on the basis of size, shape and degree of distinctness.

surface expression The form (assemblage of slopes) and pattern of forms in a landscape.

terric Refers to a mineral layer underlying an organic soil. The mineral layer occurs within a depth of 160 cm from the surface.

texture, soil The relative proportions of the various soil separates (sand, silt and clay) in a soil. See texture classes triangle below.



till Unstratified glacial material deposited directly by the ice and consisting of clay, sand, gravel and boulders intermingled in any proportion.

veneer A thin layer of soil material from 10 cm to 1 m in thickness which does not mask minor irregularities in the underlying unit's surface, which is often bedrock.

von Post A scale of decomposition used to classify the degree of peat humification into 10 classes, with 1 being undecomposed and 10 completely decomposed.

water retention The corresponding percent moisture by volume retained when the soil is subjected to a set of pressures or tensions. In this report it is based on a whole soil basis (soil <2 mm diameter, plus coarse fragments). Used to estimate values for available water, macro pores, etc.

