

ARTIFICIAL LAND DRAINAGE IN MANITOBA
HISTORY - ADMINISTRATION - LAW

by

William P. Elliott

The Natural Resource Institute
University of Manitoba
Winnipeg, Manitoba, Canada
R3T 2N2

1978

ARTIFICIAL LAND DRAINAGE IN MANITOBA

HISTORY - ADMINISTRATION - LAW

by

WILLIAM P. ELLIOTT

A practicum submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements of the degree of

MASTER OF NATURAL RESOURCE MANAGEMENT

© 1977

Permission has been granted to the LIBRARY OF THE UNIVERSITY OF MANITOBA to lend or sell copies of this practicum, to the NATIONAL LIBRARY OF CANADA to microfilm this practicum and to lend or sell copies of the film, and UNIVERSITY MICROFILMS to publish an abstract of this practicum.

The author reserves other publication rights, and neither the practicum nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

Foreword

Wetlands are a biologically productive, complex, and important part of the prairie ecosystem, particularly in Manitoba. However, wetlands pose a problem to agriculture. Farmers regard marshlands, sloughs and potholes, as, at best, a nuisance and, at worst, a costly obstacle to increased production and farm revenue. Thus, from the beginnings of agriculture in Manitoba there have been projects to drain wetland areas for agricultural development.

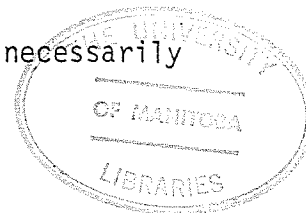
The continued and accelerated drainage of prairie wetlands is a matter of concern to wildlife managers, naturalists, agriculturalists, and farmers. The drainage of wetland areas reduces waterfowl and wildlife habitat and has implications for regional water tables, soil conservation and aesthetics. There is concern that decisions implemented by farmers, municipalities, conservation districts, and other planning units tend to over-value private or local economic interests and under-value the larger and often non-economic interests of society in wetland habitat.

The planning, financing, construction and management of drainage projects has occurred within a changing legal and administrative framework. Bill Elliott's study presents a comprehensive description of the development of drainage policies, laws and administrative procedures in Manitoba. This information will be of considerable interest to those concerned with agricultural development and wildlife management in Manitoba.

The Natural Resource Institute, in its role as a forum to promote greater understanding of resource issues, is pleased to publish this study. The opinions expressed in the study are Mr. Elliott's and do not necessarily reflect those of the Natural Resource Institute.

Thomas Henley
Professor and Acting Director

Ian Gillies
Research Associate



Abstract

A history of the development and organization of artificial land drainage in Manitoba and the involvement of statutory authorities in land drainage is reviewed. The Department of Mines, Resources and Environmental Management Water Resources Division, conservation districts and municipal governments divide jurisdiction and responsibility over watercourses in Manitoba. The Prairie Farm Rehabilitation Administration and the Manitoba Department of Agriculture Technical Services Branch provide conditional assistance to farmers contemplating slough drainage. The Agricultural and Rural Development Agreement and the Fund for Rural Economic Development Program contain comprehensive drainage programs in Manitoba.

The common and statute law concerning drainage is reviewed. Legal drainage procedures for individuals, rural municipalities, conservation districts and the Province of Manitoba are outlined. In addition, procedures for obtaining drainage assistance from the Manitoba Department of Agriculture and the Prairie Farm Rehabilitation Administration are also presented.

Many statutory provisions concerning drainage in Manitoba are obscure and inconsistent. Clarification of these provisions is sorely needed before drainage law can be used as an effective tool in a wetland preservation effort.

Acknowledgement

In recognition of the assistance provided in the preparation of this practicum, I wish to thank my committee advisors, Dr. B. D. J. Batt, Assistant Director, Delta Waterfowl Research Station; Dr. H. L. Sawatzky, Department of Geography, University of Manitoba; Mr. E. J. Conway, Assistant Director, Operations Branch, Water Resources Division, Manitoba Department of Mines, Resources and Environmental Management; and Mr. W. R. Newton, Director, Operations Branch, Water Resources Division, Manitoba Department of Mines, Resources and Environmental Management.

Sincere appreciation is extended to the following agencies which through the Delta Waterfowl Research Station funded the study: the North American Wildlife Foundation, the Ducks Unlimited Foundation and the Canadian National Sportsmen's Shows.

In addition, I owe thanks to Diane Walton for her time and effort in typing this report.

CONTENTS

CHAPTER 1 - INTRODUCTION

1.1	The Setting.	1
1.2	The Problem.	4
1.3	Objectives	4
1.4	Delimitations.	5
1.5	Definition of Terms.	5
1.6	Procedure.	5

CHAPTER 2 - HISTORY OF ARTIFICIAL LAND DRAINAGE IN MANITOBA

2.1	Early Manitoba and The Need For Drainage	6
2.2	The First Drainage Legislation	14
	2.21 The Drainage Act 1880.	14
	2.22 The Land Drainage Act 1895	16
2.3	Problems and Resolutions	21
	2.31 Royal Commission 1899.	21
	2.32 Manitoba Drainage Commission 1919-21	21
	2.33 Land Drainage Arrangement Commission 1935.	22
	2.34 Land Drainage Arrangement Act 1935	24
	2.35 Report of "Foreign Water" and Maintenance Problems	26
2.4	A New Approach To Water Management	28
	2.41 Water Control and Conservation Branch 1959	28
	2.42 Waterway Classification System	29
2.5	Epilogue	32

CHAPTER 3 - GOVERNMENT AGENCIES INVOLVED IN LAND DRAINAGE

3.1	Manitoba Department of Mines, Resources and Environmental Management - Water Resources Division.	34
3.2	Conservation Districts	39
	3.21 Former Legislation	39
	3.22 Conservation Districts Act 1976.	42
	3.23 Whitemud River Conservation District	48
	3.24 Turtle River Conservation District	51
	3.25 Turtle Mountain Conservation District.	54
	3.26 Proposed Conservation Districts.	54
3.3	Municipal Governments.	56
3.4	Manitoba Department of Agriculture - Technical Services Branch.	57
3.5	Department of Regional Economic Expansion (D.R.E.E.)	58
	3.51 Prairie Farm Rehabilitation Administration (P.F.R.A.).	58
	3.52 Federal/Provincial Agreements - (A.R.D.A.) and (F.R.E.D.)	62

CHAPTER 4 - DRAINAGE LAW AND PROCEDURE

4.1	The Common Law.	69
4.11	Rights and obligations of riparian landowners	69
4.12	Rights and obligations of landowners which relate to surface water	71
4.2	The Statute Law At Present.	72
4.21	The Water Rights Act.	73
4.22	The Water Resources Administration Act.	76
4.23	The Municipal Act	77
4.3	Legal Drainage Procedures In Manitoba	80
4.31	Individual landowner procedure.	81
4.32	Municipal procedure	84
4.33	Procedure within conservation districts	85
4.34	Provincial procedure.	86
4.35	Summary flow chart of legal drainage procedure.	87
4.4	Drainage Assistance Procedure	87
4.41	Procedure for municipal assistance.	87
4.42	Farm Survey Program	89
4.43	Procedure for backflood irrigation assistance	91

CHAPTER 5 - DISCUSSION

5.1	Discussion.	95
5.2	Recommendations	98
	Literature Cited	100
	Appendix I	104
	Appendix II.	106
	Appendix III	107
	Appendix IV.	109
	Appendix V	111
	Appendix VI.	114

TABLES

1. The 1920 status of drainage districts in Manitoba.	18
2. The 1934 status of drainage districts in Manitoba.	20

FIGURES

1. Patterns of Manitoba land settlement 1870-1901.	7
2. Schematic drawing, Glacial Lake Agassiz	8
3. Physiographic diagram of southern Manitoba.	10
4. Marshy areas survey in 1871 and 1872.	11
5. Lands for sale in the Red River Valley 1899	12
6. Manitoba Drainage Districts	17
7. Plan of designation of drains	31
8. Organizational layout of Water Resources Division (March 1977).	35
9. Provincial Waterways of Manitoba, October 1975.	38
10. Map showing location of Conservation Districts of Manitoba (incorporated and proposed) March 1977.	41
11. Map showing location of Whitemud River Conservation District.	49
12. Waterways within the Whitemud River Conservation District	52
13. Map of Turtle River Conservation District showing three subdistricts.	53
14. Map showing A.R.D.A. and F.R.E.D. drainage works.	65
15. Map showing the Interlake Rural Development Area.	67

CHAPTER 1 - INTRODUCTION

1.1 The Setting

The wetlands of the Canadian prairie provinces, extending into the United States in the pothole country of the Dakotas and Minnesota, provide a classic case of conflict in resource utilization. Wetlands represent potential nuisances at best, and substantial increases in costs of agricultural production at worst, for farmers on whose land they occur. The disadvantages of marshes and ponds for the individual farm operator encourage their drainage and conversion to cropland. Regardless of whether or not the drained wetland basin is capable of supporting a productive crop, drainage serves two additional major objectives:

(1) improvement of farmland by hastening the flow of spring runoff from the fields; (2) elimination of the nuisance of manoeuvring large farm equipment around a wetland. At the same time, however, these wetlands are unique ecosystems composed of plants and animals that are fully dependent on them. Migratory waterfowl have been of greatest interest in the past because they provided food and a sport hunting opportunity. At the present, and more so in the future, the wetlands basin should be looked on as being valuable remaining remnants of the native prairie ecosystem. The drainage of wetlands has an adverse, uncompensated impact on wildlife populations.

The importance of these wetlands to waterfowl and the detrimental effects artificial drainage imposes on waterfowl production

capabilities is clear. Evans and Black (1956) concluded that there was a rather direct but variable relationship between the amount (number) of water areas and the number of ducks. Kiel et al. (1972) predicted that if applied in a blanket pattern over the prairies and parklands, drainage will create a permanent drought for waterfowl and eliminate the heart of duck production habitat in Canada.

In a more general vein, Colpitts (1972) claimed the opinion of many researchers to be that the point has been reached where greater recognition must be given to wildlife values and to identify wildlife habitat as an important component of the landscape. Grower and Kabaluk (1973) express another opinion:

There is a need for diversity on the face of the land: marshes, sloughs, potholes, all add beauty and interest to the countryside, as well as playing important roles in the hydrologic cycle. We can no longer afford to drain or abuse such areas, having gone as far as we can safely go in reducing these natural features.

Concern for the fate of breeding waterfowl in diminishing habitats has led to investigations of land use trends in the Minnedosa pothole area in southwestern Manitoba. Rakowski et al. (1974) updated land use trends determined by transect studies conducted and documented in this area by Kiel et al. (1972). These studies found the percentage of transect in wetlands decreased from 13.2 percent in the 1928-30 period to 5.7 percent in 1974. Between 1970 and 1974 the percentage of transect in wetlands declined from 8.6 to 5.7 percent, a loss of over 33 percent in actual wetlands in five years. They concluded that owing to destruction or alteration of highest quality wetlands, the waterfowl production

capability of former years had diminished and this downward trend was continuing.

With substantial increases in the demand for grain and costs of production, as well as the fact that certain government agencies provide technical and financial assistance to farmers contemplating drainage, no cessation or reversal in this trend is foreseen. Lodge (1969) stated that increased production costs and higher investment charges resulting from the increase in land cost were making farmers increasingly sensitive to the economic loss involved in uncropped acreages. His conclusions represent the general views of agriculturalists:

Grain and forage production in the western Canadian prairie area will continue to put pressure on the wetlands. This pressure will come particularly in those areas in which ponds attain a high density per acre because of the special needs of farmers in these areas to maximize their returns per farm unit by utilizing a greater portion of the land surface. Against this economic pressure those who wish to retain small water areas will need to develop concepts which will provide an alternate source of income, or at least will reduce the depressing effect of small water areas on the economic returns to farming.

Facing this reality, the Canadian Wildlife Service, in 1967, undertook an ambitious \$50 million 10-year program to protect wetlands from draining, filling, and burning of marginal vegetation and to enable "wetland owners" to share in revenue produced by the resource. Simply stated, farmers agreeing not to disturb the wetlands on their lands for 10 years, could enter into an agreement with the Canadian Wildlife Service and receive a series of equal annual payments for 10 years.

Despite these efforts, wetland drainage continues to be a problem with which waterfowl managers must contend if the waterfowl

resource is to be maintained in sufficient numbers to provide valuable recreational experiences for both consumptive and non-consumptive users.

1.2 The Problem

For many years, waterfowl managers have advocated an opposition to wetland drainage. Basic to any wetland preservation endeavor is not only a knowledge of the biological criteria employed in designating productive wetlands, but also a fundamental understanding of: agriculture; economics; hydrology; and current drainage policies, laws and procedures. There is an abundance of literature to which waterfowl managers may refer concerning agriculture, economics or hydrology. However, no single information source is available outlining drainage policies, laws and procedures in Manitoba. This practicum attempts to fill this need.

1.3 Objectives

The objectives of this study were:

- 1) to provide a background on the organization and development of artificial land drainage in Manitoba;
- 2) to examine the involvement in drainage of the following government entities:
 - i) Manitoba Department of Mines, Resources and Environmental Management - Water Resources Division;
 - ii) Manitoba Department of Agriculture - Technical Services Branch;
 - iii) Municipal Governments in Manitoba;
 - iv) Agricultural and Rural Development Administration;

resource is to be maintained in sufficient numbers to provide valuable recreational experiences for both consumptive and non-consumptive users.

1.2 The Problem

For many years, waterfowl managers have advocated an opposition to wetland drainage. Basic to any wetland preservation endeavor is not only a knowledge of the biological criteria employed in designating productive wetlands, but also a fundamental understanding of: agriculture; economics; hydrology; and current drainage policies, laws and procedures. There is an abundance of literature to which waterfowl managers may refer concerning agriculture, economics or hydrology. However, no single information source is available outlining drainage policies, laws and procedures in Manitoba. This practicum attempts to fill this need.

1.3 Objectives

The objectives of this study were:

- 1) to provide a background on the organization and development of artificial land drainage in Manitoba;
- 2) to examine the involvement in drainage of the following government entities:
 - i) Manitoba Department of Mines, Resources and Environmental Management - Water Resources Division;
 - ii) Manitoba Department of Agriculture - Technical Services Branch;
 - iii) Municipal Governments in Manitoba;
 - iv) Agricultural and Rural Development Administration;

- v) Fund for Rural and Economic Development;
 - vi) Prairie Farm Rehabilitation Administration;
- 3) to review adjudication and legislation pertaining to drainage in Manitoba, and;
- 4) to outline drainage procedures in Manitoba and to construct a flow chart illustrating the various procedural channels individuals and agencies are legally obliged to follow in order to accomplish a drainage project.

1.4 Delimitations

1. The study does not attempt to determine the physical extent of artificial land drainage in Manitoba. With the exception of private landowners, it is concerned only with statutory authorities involved in artificial land drainage.

2. Major drainage undertakings in Northern Manitoba are not dealt with in the practicum as they do not directly relate to the agricultural sector.

3. International and interprovincial drainage is not considered in the study.

1.5 Definition of Terms

Artificial land drainage is defined as any man-made undertaking aimed at removing water from the land surface to increase or sustain agricultural productivity.

1.6 Procedure

Much of the information was collected from accessible reports and records on file within the various government agencies involved in artificial land drainage. Information was also collected through personal interviews and correspondence.

CHAPTER 2 - HISTORY OF ARTIFICIAL LAND DRAINAGE IN MANITOBA

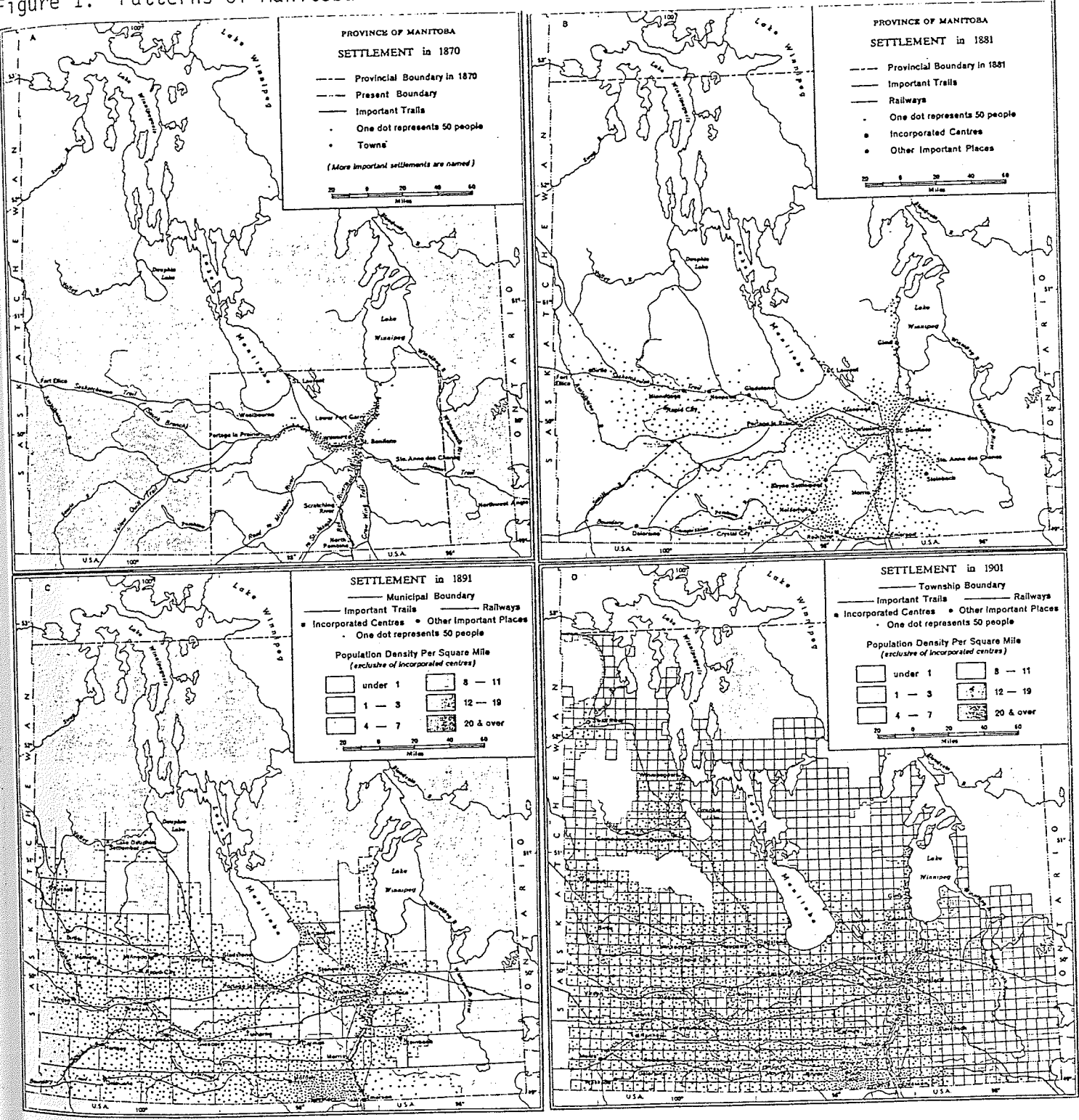
2.1 Early Manitoba And The Need For Drainage

Initial settlements in Manitoba were established on relatively dry sites along waterways. Accessibility by water was the major factor in site selection and apparently outweighed the spring flood danger. The arrival of the railway considerably lessened the emphasis placed on water transportation in land settlement.

Soon after Manitoba became a province in 1870, railroad connections were completed between Winnipeg, St. Paul and Eastern Canada. These transportation facilities provided access to large markets for agricultural products. As a result there was a great demand for agricultural land, and by 1891 the most favourable areas were settled (Figure 1). From 1870 to 1901 the population of Manitoba increased from 12,288 to 255,211. Warkentin (1967) described this period of settlement:

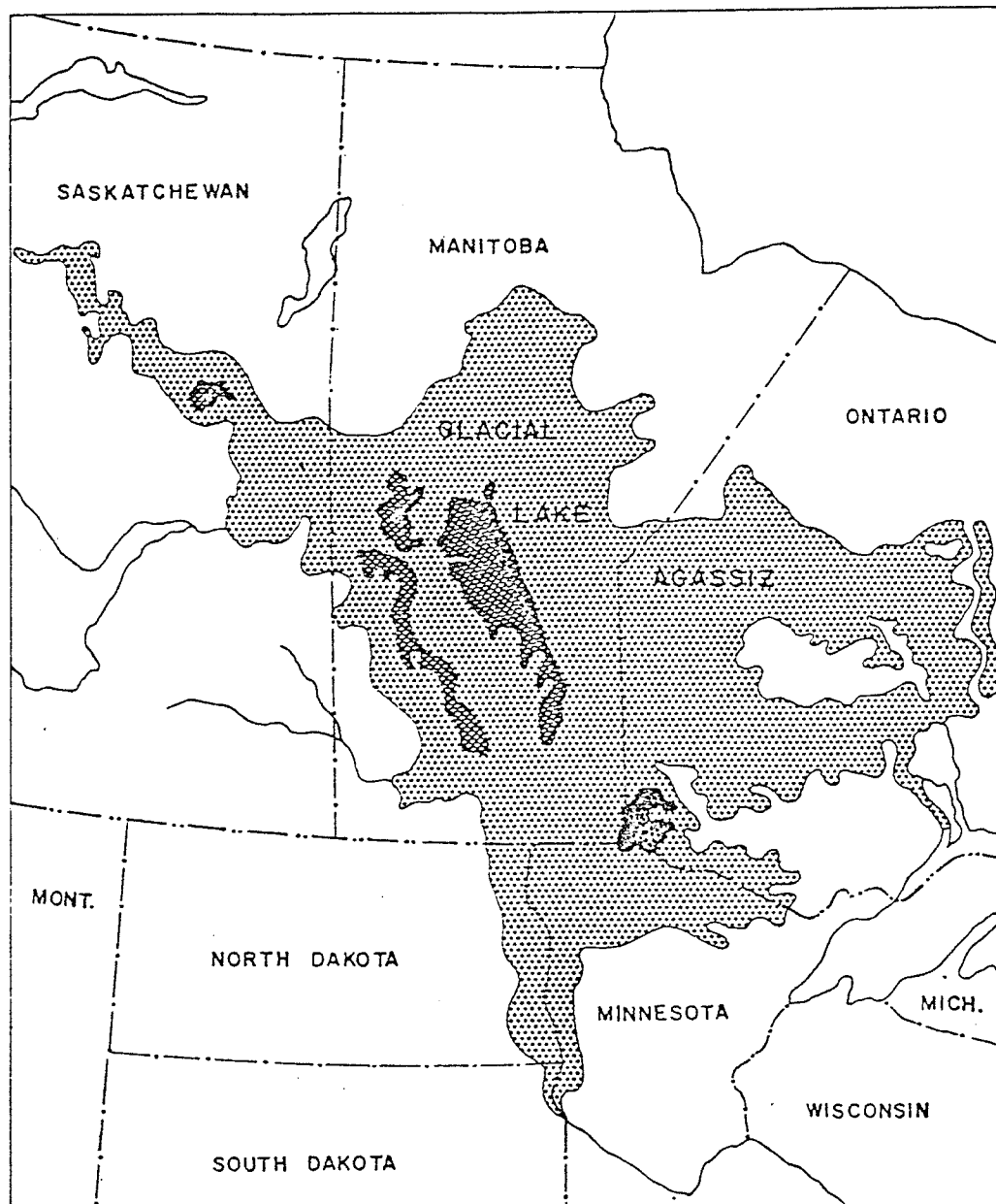
Dry-point sites in higher districts or along ridges and at scarp-foot locations were also favoured early places for settlement, when farmers started to enter the Glacial Lake Agassiz Region (Figure 2) in significant numbers after 1870. The Portage Plain, and the Stony Mountain, Birds Hill, Ridgeville, Clearsprings, Pembina and Balmoral districts are all dry-point in direct contrast with adjacent lands which are not only wet and poorly drained but prone to occasional flooding.... When the accessible dry-point sites on the Glacial Lake Agassiz clay play had been occupied, most settlers leaped-frogged the wet lands and moved beyond the Glacial Lake Agassiz basin to the Manitoba plateau and farther westward.

Figure 1. Patterns of Manitoba land settlement 1870-1901*



*Source: Weir 1960:29

Figure 2. Schematic drawing, Glacial Lake Agassiz*



*Source: Tamplin 1967:36.

The clay plain to which Warkentin refers is synonymous with the "extremely level lacustrine plain" illustrated in Figure 3. This lacustrine plain is commonly known as the Red River Valley.

Ellis (1938) described what the settlers of the Red River Valley faced in the nineteenth century:

This plain was formerly treeless and covered with tall prairie and wet-land grasses. Owing to the low altitude and flat topography, and to the heavy texture, a considerable portion of this area was originally swamped by runoff waters from adjacent high lands, with the result that about 60 per cent of this area has been under the influence of periodic swamping.

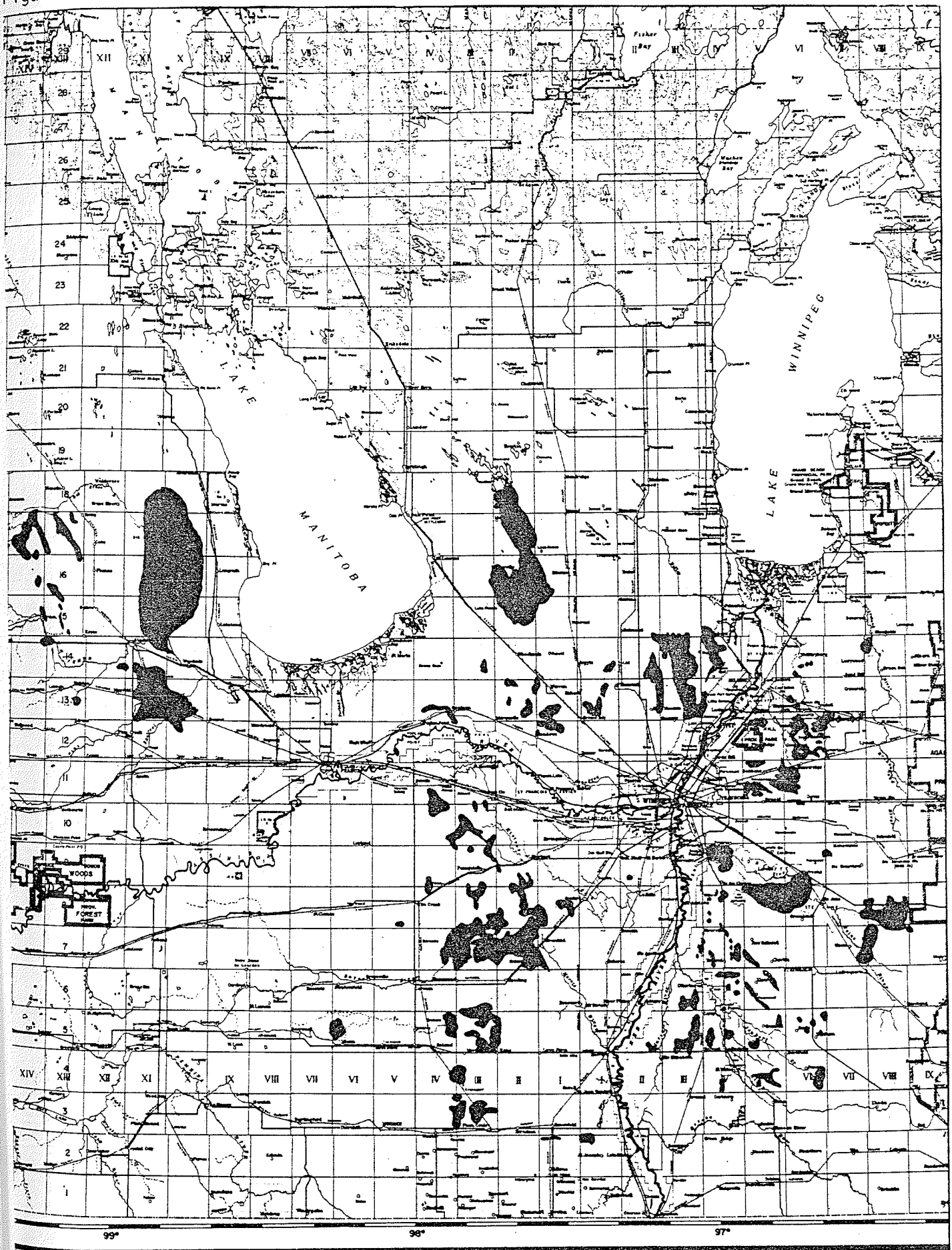
The problem of too much water caused a general lag of settlement throughout the Red River Valley. These flooded surface areas are especially obvious in the area surrounding Winnipeg (Figure 4). The real estate map in Figure 5 shows even as late as 1899, a considerable amount of land was still unoccupied in the Red River Valley.

The need for drainage had been known for a long time. A quote by Hind (1859) illustrates this point:

...if the drainage of many thousand square miles of swamp and marsh in this part of the country should ever become a question of national interest, I know of no enterprize of the kind which could be executed with so little cost and labour, and promise at the same time such wide spread beneficial results.

More specifically, the drainage of wetlands became a question of economic interest. As settlers continued to pour into the western interior, the number of dry-land homesteads available for selection steadily declined while the value of land gradually increased, and under this economic stimulus strong attempts were made to bring the

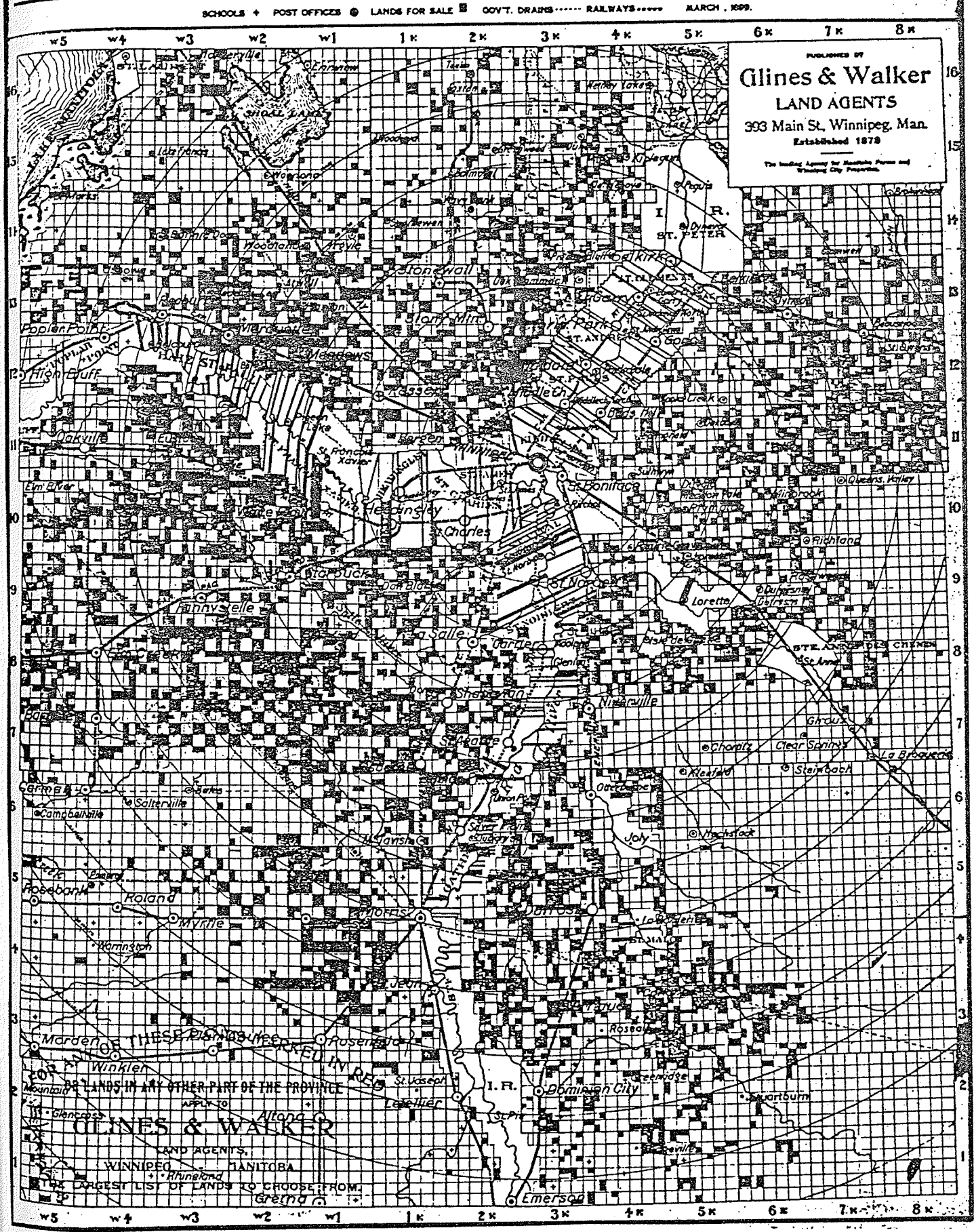
Figure 4. Marshy areas survey in 1871 and 1872*



*Source: Government of Canada. 1873. Dominion Lands Office.

Figure 5. Lands for sale in the Red River Valley 1899*

WINNIPEG DISTRICT and the FAR FAMED RED RIVER VALLEY of MANITOBA.



Source: Historical and Scientific Society of Manitoba. 1970:497.

thousands of acres of inherently fertile but wet land into production and on to the tax rolls (Warkentin, 1967).

The Manitoba Government was also concerned about the loss of immigrants. The comments of C. P. Brown, Minister of Public Works, in his Department's 1880 annual report, reveal this concern:

The evils arising from a superabundance of water, caused by a succession of very wet seasons, could only be counteracted by an efficient system of drainage. Immigrants were either deterred from entering the Province, or were forced to pass through it and settle on drier plains beyond. So apparent did this become that the Government made it an important part of their policy to inaugurate a comprehensive drainage system and an Act to provide for the relief of the overflowed districts.... Extensive marshes in dry seasons of seven or eight years ago, comprised comparatively small areas but, augmented by the wet seasons of the last three or four years, have overflowed and deluged the surrounding country, in some sections forcing settlers to abandon homesteads, and settle again in the North-West, or, worse, south of the International Boundary. Indeed, so general did this state of things become that with many it was a serious question as to what effect it would have on the permanent settlement of the country.

The Act to which Brown referred was passed in 1880, and cited as The Drainage Act. This was the first drainage legislation enacted in Manitoba. The remainder of this chapter reviews drainage issues and legislation beginning with The Drainage Act and proceeding through to the present.

2.2 The First Drainage Legislation

2.21 The Drainage Act 1880

The Drainage Act (S.M. 1880, c. 2. 1st Session) was assented to 14 February 1880.

Prior to this date little effective drainage was accomplished. During the wet years of the late 1870s the Provincial Government constructed offtake drains to the Assiniboine River. Other drains were dug in connection with new railway construction. By the end of the decade it became clear that a more concerted effort by the Provincial Government was needed. The drafting of The Drainage Act resulted.

Section I of this Act proclaimed:

With the approval of the Lieutenant-Governor in-Council there may be expended...any sum or sums of money in the whole not exceeding the sum of fifty thousand dollars in drainage works, to be executed and performed under... the Public Works of Manitoba; and for purposes of this Act the province shall be divided into three districts, to be known as:

1. *District No. 1, ... that part of the Province east of Red River;*
2. *District No. 2, ... that part west of the Red River and south of the Assiniboine;*
3. *District No. 3, ... that part west of the Red River and north of the Assiniboine.*

To add incentive to the drainage effort, parcels of marsh land, which belonged as a natural resource to the Dominion Government, were granted to the Province on condition that the latter undertake sufficient drainage to make the land arable (Griffiths, 1952). As early as 1883, an area of marsh land was reclaimed by drainage operations of

the Province under an agreement ratified by an Order-in-Council of the Dominion Government and the lands conveyed to the Province of Manitoba by the Dominion Government (Sexton, 1975). All of these drainage works were financed entirely by the Province. The provincial Department of Public Works provided the engineering required for design and construction.

A survey of annual reports submitted by the Department of Public Works in the 1880s reveals the areas of the Province considered to require immediate attention. These areas are illustrated in Figure 4 and listed below as follows:

Townships 13, 14, 15, 16, range 3, east (St. Andrews Bog).

Township 9, range 4, east.

Township 8, range 5, east.

Township 13, ranges 9, 10, west (Squirrel Creek Marsh).

Township 7, ranges 2, 3, 4, west (Boyne Marsh).

Townships 15, 16, 17, range 11, west (Big Grass Marsh).

These, and less significant areas, underwent varying degrees of drainage construction during the 15 year existence of The Drainage Act. Warkentin (1967) briefly summarized this period:

...that year (1880) drainage plans were made, surveys undertaken, and some ditching commenced. The ditches were shallow and not very wide and thus rather ineffectual. This work continued for over a decade in widely scattered parts of the Glacial Lake Agassiz Region, but it gradually became apparent that a more vigorous and more comprehensive programme would have to be started if the land was going to be effectively drained and made ready for settlement.

The need for "a more vigorous and more comprehensive programme"

led to the passage of The Land Drainage Act and simultaneous repeal of The Drainage Act in 1895.

2.22 The Land Drainage Act 1895

The Land Drainage Act (S.M. 1895, c. 11.) was assented to 29th March, 1895.

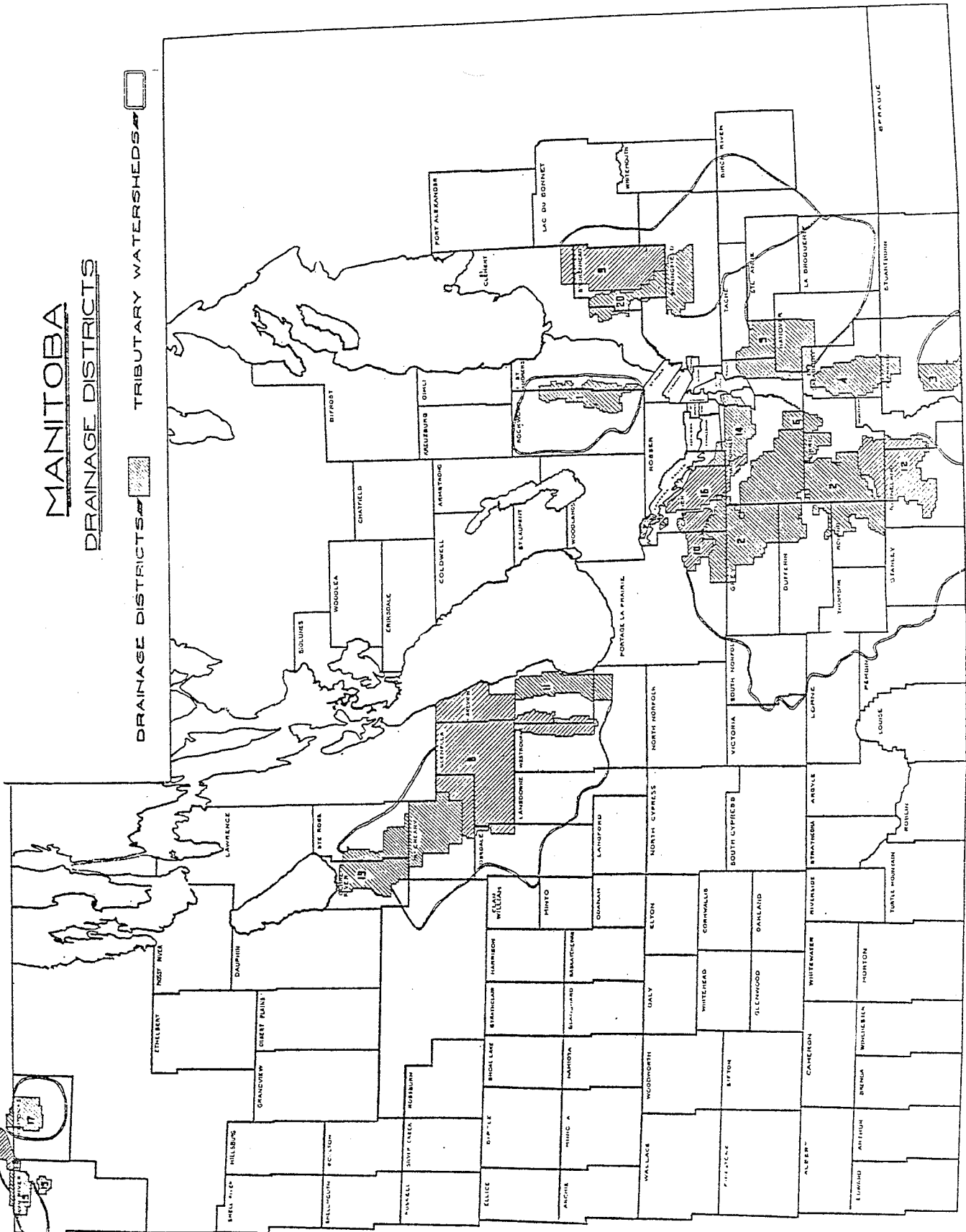
This Act provided for the first large scale organized drainage systems in the Province. The Act provided for the drainage of an area in order to render it fit for occupation and cultivation, where such would be of public benefit (Griffiths, 1952). Each such area fulfilling the requirements of the Act, was created into a drainage district, consecutively numbered, by Order-in-Council. Once the drainage district was formed, the Act also provided for ways in which funds could be raised to finance the work.

The first drainage district organized under the terms of this Act was in the Municipalities of Rockwood and St. Andrews, and was part of what was known as the St. Andrews Bog. Drainage District No. 1 was constituted by Order-in-Council No. 5338, in the year 1896. By 1914 there were a total of 21 drainage districts in Manitoba (Figure 6). The 1920 status of these districts is recorded in Table 1.

Drainage District No. 21, which was situated in the Municipality of Whitemouth, was dissolved in 1916 because of the poor soils in the area and the limited opportunity for real economic gain (Griffiths, 1952).

No new districts were organized until 1928 and 1929 when three small districts were formed on the east side of the Red River, two in the Municipality of Franklin and one in the Municipality of Montcalm. These were the last districts formed under The Land Drainage Act of 1895.

Figure 6.



Source: Ellis 1938: 28

Table 1. The 1920 status of drainage districts in Manitoba*

District No.	Lands Benefited (acres)	Drains Constructed (miles)
1	64,000	70.0
2	449,591	500.6
3	36,364	65.0
4	80,508	156.5
5	129,490	83.2
6	21,270	28.0
7	8,400	6.0
8	292,854	441.0
9	132,279	170.0
10	43,610	60.0
11	70,094	62.5
12	132,826	113.0
13	7,232	6.2
14	67,088	107.5
15	21,771	21.5
16	62,971	146.7
17	23,110	20.4
18	39,192	34.0
19	199,637	264.0
20	107,413	166.0
Total	2,087,240	2,522.1

*Source: Manitoba Dept. of Public Works 1920 Annual Report.

By 1935 over \$6 million had been expended in various drainage works benefiting over 2 million acres (Warkentin, 1967). Table 2 records the status of the drainage districts prior to their becoming drainage maintenance districts through legislation in 1935. As these areas became available, settlers immediately moved in and began to farm. Warkentin (1967) provided a brief summary of settlement during the first decades of the twentieth century:

The drains functioned sufficiently well to make it possible to farm practically all the flat land lying between the Burnside beach ridges. After 1900 the lands which had been empty were beginning to be occupied and turned into farms. First hand knowledge of what drainage could accomplish was significant in bringing some investors and settlers to the newly drained land...a considerable number of Americans from the American Middle West acquired land in the (Lake Agassiz) basin...

Drainage activities within the districts created problems as well as favourable results. Claims were made by the ratepayers, often supported by their municipalities, of such matters as alleged inefficient construction, unfairness of taxation, lack of maintenance, and other complaints (Griffiths, 1952). The Government addressed itself to these issues through the appointment of independent commissions which were to investigate and advise.

Table 2. The 1934 status of drainage districts in Manitoba*

District No.	Lands Benefited (acres)	Drains Constructed (miles)
1	62,760	70.00
2	449,591	1,181.36
3	36,364	120.75
4	80,508	160.50
5	130,206	92.20
6	21,270	92.49
7	8,400	6.00
8	393,981	461.67
9	140,059	173.50
10	43,610	68.00
11	70,094	62.50
12	132,776	276.59
13	7,232	6.20
14	67,088	109.75
15	32,642	30.00
16	64,045	151.20
17	34,006	20.60
18	39,192	34.00
19	162,898	299.34
20	107,414	177.05
22	9,390	10.75
23	9,828	29.45
24	4,800	8.75
Total	2,109,154	3,642.65

*Source: Manitoba Department of Public Works 1934 Annual Report

2.3 Problems and Resolutions

2.31 Royal Commission 1899

Following the formation of Drainage District No. 1 a petition was presented to the Government protesting the work. A Royal Commission was appointed to report on the alleged inequalities of taxation in the District. Griffiths (1952) provided the following account:

Many landowners whose property was to be assessed claimed they would receive no benefits. In 1899 a Royal Commission was appointed to study the problem and in 1903, by Order-in-Council, over 40,000 acres of land in the District were relieved of assessment, the levies being assumed by the Province.

With the subsequent formation of several more districts it was clear that an increasing number of problems of greater complexity would continue to arise. This state of affairs led to the appointment of the Manitoba Drainage Commission.

2.32 Manitoba Drainage Commission 1919-21

The Manitoba Drainage Commission was formally appointed in January of 1919, to investigate and report on drainage matters in Manitoba (Report of the Manitoba Drainage Commission, 1921). Griffiths (1952) summarized the Commission's responsibilities:

...to determine inequalities in the distribution of taxation on the lands within the various districts; to determine the possibility of a more equitable method of assessing lands for the cost of drainage works in the future; to determine whether additional works were required for proper drainage in existing districts; and, finally, to study and recommend on the advisability and location of new drainage districts throughout the Province.

After three years of investigation, the Commission submitted its

report which included several recommendations. Four of these were:

1. *The appointment of a permanent board to administer the Land Drainage Act.*
2. *The extension of the boundaries of any drainage district to include all lands whose surplus water drains into said district and are carried by any artificial channel through it to a natural outlet.*
3. *The equitable distribution of taxes on the basis of benefits received and relief from liabilities for damages.*
4. *The Government assuming the responsibility for general maintenance of ditches, charging cost of same to the respective districts. (Report of the Manitoba Drainage Commission, 1921).*

Of these, the Government only partially implemented the fourth. As a result the same problems persisted over the next 14 years and ultimately forced the enactment of new legislation and simultaneous appointment of a third commission.

2.33 Land Drainage Arrangement Commission 1935

Griffiths (1952) provided an excellent discussion on the Land Drainage Arrangement Commission:

Its main purpose was to investigate and make recommendations regarding the financial position of all districts at that date, and to recommend a system of providing orderly maintenance of the districts throughout the future. During a few years immediately preceding the Commission the Government had received severe criticism from drainage district ratepayers and their municipalities, who felt they were being unfairly taxed. These claims were based on one or more of three general complaints.

- (1) *The districts were forced to bear the expense of carrying large volumes of foreign water brought artificially into*

the districts. In many cases it was claimed the district drains were too small and reconstruction was necessary.

- (2) Inequitable distribution of drainage levies, having regard for ability of the land to pay, and benefits received.*
- (3) The districts had been improperly organized and the drains incorrectly located and constructed.*

In some districts taxes were considerably in arrears, and thus the sinking funds held by the Province were deficient. The maintenance of the districts in general had also been badly neglected, which in turn deterred the payment of taxes. Last but not least, the difficult economic conditions of the early 1930's even further aggravated an unsatisfactory situation.

The main recommendations of the Commission, as reported to the Government in the Report of the Land Drainage Arrangement Commission (1936), may be summarized as follows:

- (1) A recommendation that the municipalities be released from some of the \$3,963,121.97 indebtedness at April 30th, 1935. The Province was to assume a total of \$1,782,897.19 with the remaining to be paid by the municipalities over an extended period of time;*
- (2) A recommendation to establish a number of drainage maintenance districts having boundaries generally the same as the original drainage districts. Each maintenance district was to have a Board of Maintenance Trustees. Each municipality was to contribute annually a sum not less than one per cent of the total capital expenditure already or in future incurred by drainage construction;*
- (3) A recommendation that the Province contribute an amount equal to one third of the sum annually expended for maintenance in each district except in districts where foreign water was a serious problem, in which case, the Province would contribute one-half the annual expenditure.*

Except for the third, these recommendations were confirmed by inclusion in The Land Drainage Arrangement Act of 1935 (C. 23, R.S.M. 1935).

The Province was not yet ready to adopt the entire recommendations on maintenance, agreeing only to contribute one-third and one-half of one percent annually of the capital expenditures made in any drainage maintenance district (Sexton, 1975). The Government later modified this agreement to the extent that a Provincial contribution in any one year could not exceed \$40,000. This agreement marked a significant change in drainage policy since previously, drain maintenance was solely the responsibility of the municipalities.

The following subsection briefly reviews the legislation enacted simultaneously with the appointment of the Land Drainage Arrangement Commission.

2.34 Land Drainage Arrangement Act 1935

This Act (R.S.M. 1935, c. 133) was proclaimed May 23rd, 1935. It gave authority to make recommended financial adjustments and provided for the first organized maintenance of the drainage works, by establishing drainage maintenance districts.

Each maintenance district was established by Order-in-Council, which was incorporated into the Act. Griffiths (1952) claimed the areas of each district were adjusted where necessary with the intention being to limit the area of a maintenance district to one watershed. He summarized the organization and authority within a maintenance district:

...municipalities comprised within or partly within a Drainage Maintenance District shall be liable for the maintenance of the drainage

works but the work of maintenance shall be under the supervision of a Board of Trustees, acting as an agent for the Municipality. There shall be a Board for each District, consisting of one Trustee appointed by the Council of each Municipality within, or partly within, the District, and one Trustee appointed by the Province who shall be Chairman of the Board. The Board shall have complete jurisdiction in the District...over all matters concerning the maintenance of the drainage works...under the supervision of the Department of Public Works, and the determination of the amount of annual contribution to be made to the Maintenance Board by each Municipality within the District.

The operation of the maintenance districts proved effective in improving the maintenance standard of drainage works in the Province. From 1935 to 1940, little of the usual conflict occurred between the Province and municipalities. The Province's annual contribution of less than one percent of the capital expenditures made in any maintenance district was sufficient in the eyes of the municipalities since, in fact, this amount was about one third of the total expenditure for maintenance. However, in 1942, two conditions occurred which altered this proportion. The first was a period of wet years in the early forties; the second was the sharply rising cost of construction. With the provincial contribution fixed, the municipalities were contributing an ever increasing proportion of the total expenditure in each successive year. Griffiths (1952) stated that by 1946 the provincial share was only about 12 percent of the total expenditure and, in spite of this, the larger drains and floodways were not receiving proper maintenance.

Another point of contention was the "foreign water" problem, considered by the commissions of 1921 and 1935 but resulting in little

government action. By the mid-forties the problem had grown considerably with drainage maintenance boards claiming that they should not be shouldered with the cost of enlarging their drains to carry the "foreign water" from higher lands outside the maintenance districts.

Both the municipalities' dissatisfaction with the amount of money available from the Province for maintenance assistance, and the long-standing "foreign water" problem, precipitated the appointment of the fourth and final commission on drainage issues in Manitoba.

2.35 Report of "Foreign Water" and Maintenance Problems

On January 21st, 1947 the Government appointed Mr. M. A. Lyons, retired Deputy Minister of the Department of Public Works, to investigate and report on the problems discussed in subsection 2.34.

Lyons submitted the Report and Recommendation on "Foreign Water" and Maintenance Problems (1949). Two of his main recommendations were:

- (1) *That the Province pay two-thirds of the cost of all future maintenance and construction of drains which intercept, collect, and carry, "foreign water";*
- (2) *That the Province pay one-third of the cost of future maintenance and construction of all other drains.*

These recommendations were accepted by the Government and became effective for the fiscal year 1952.

On the subject of the possible assessment of lands outside the drainage maintenance districts and contributing to the foreign water problem, Lyons concluded:

...it can be concluded that it is extremely difficult, if not impossible, to determine definitely what effect changed conditions, (that is, land clearing, cultivation, new roads and ditching), on the higher portions of the watershed has had on the run-off

from these watersheds onto the lands in the drainage districts. The effect of clearing and cultivation of lands on run-off is uncertain; ditching has some effect, but the extent of this effect is uncertain. Boundaries of the various watersheds are indeterminate, and, in some cases, there is no present procedure for obtaining a portion of the maintenance costs from lands outside the Drainage Maintenance Districts.

As a result of this conclusion the Drainage Maintenance Boards were resigned to a compromise whereby the Province absorbed two-thirds of the total capital cost of maintenance and construction when such work involved drains "required for the interception, collection, and carrying of 'foreign water'".

Griffiths (1952) offered a summary of the drainage maintenance districts:

There are 24 Drainage Maintenance Districts in the Province, incorporating 19 of the original 24 Drainage Districts and involving 27 Rural Municipalities. The total assessable area, at the present time (1952) is 1,870,862 acres. The drainage system presently being maintained consists of approximately 100 miles of double dyke floodways, 2400 miles of open drains....

Before the maintenance district boards were disbanded and replaced by a system of provincial waterways in 1965, four more districts had been added, increasing the total area within maintenance districts to 2,455,000 acres by 1963.

With its economic and administrative commitments to drainage works increasing annually, the Government recognized that a new administrative approach would soon be required to maintain any sort of coordinated drainage effort in the Province.

2.4 A New Approach to Water Management

2.41 Water Control and Conservation Branch 1959

To alleviate some of the administrative complexity in the management of water the government conducted a departmental reorganization involving three provincial departments: Mines and Natural Resources; Public Works; and Agriculture and Immigration. This reorganization was the result of the enactment of The Department of Agriculture and Immigration Act Amendment Act (S.M. 1961, c. 30) on September 15, 1959. Section 2 of the Act changed the Department's name to Agriculture and Conservation. More importantly, the Act consolidated the administration of all matters within the jurisdiction of the Province, in respect to water control, distribution, use and conservation under the Minister of Agriculture and Conservation. A new branch, the Water Control and Conservation Branch, was established to administer water related works. Personnel were drawn from the Water Resources Branch, in the Department of Mines and Natural Resources and the Drainage Branch, in the Department of Public Works. These two branches were consequently abolished.

The Water Control and Conservation Branch was divided into three divisions. The administration division was responsible for the general coordination and direction of the branch including financial operations, property management, and contracts. The operations division was responsible for all construction and maintenance activities, including engineering construction service to municipalities and drainage maintenance districts. Responsibilities of the planning division included planning and design requirements of the branch.

Referring to this reorganization in his Department's 1960 annual report, former Deputy Minister of Agriculture and Conservation, Dr. J. R.

Bell, wrote:

The amalgamation of provincial staffs concerned with administration of acts and construction works in respect to water, under a single administration, provides for expansion of programs and for improved efficiency in services rendered in an area of great significance to the citizens of this Province.

This amendment together with the Watershed Conservation Districts Act...provides a new approach to the control, conservation, and use of water for agricultural, domestic and industrial purposes, and represents a tremendous forward step.

The Watershed Conservation Districts Act was proclaimed on the same day as was the Agriculture and Immigration Act Amendment Act. The former was enacted as permissive legislation providing the opportunity for municipalities to coordinate their water management efforts through the establishment of a watershed conservation district. For the purposes of continuity, discussion of the conservation district concept and administrative structure will be deferred until section 3.2 of this paper dealing with specific conservation districts.

2.42 Waterway Classification System

During the early 1960's a Royal Commission was appointed by the Provincial Government to undertake a comprehensive review of local government organization and finance. In 1964, the Royal Commission on Local Government Organization and Finance (The Michener Commission) submitted its report recommending, in general, that a clear-cut separation was required between local and provincial responsibilities so that councils would know the exact extent of their functions. In dealing with drainage, the Commission recommended that the Province assume the complete control and cost of the main system of trunk drains, and that the municipality

assume the entire cost and responsibility for local drains which serve mainly the land within its boundaries (Sexton, 1975).

The Province immediately adopted this recommendation and in 1965, devised an order system for rating drains in each local watershed within the Province. The Whitemud River Watershed Resource Study (1974) describes the drain classification presently in use (also see Figure 7):

First Order Waterways - drains or watercourses serving a watershed with a drainage area of up to one mile.

Second Order Waterways - drains or watercourses serving a watershed with a drainage area greater than one square mile or having a tributary or tributaries of the First Order.

Third Order Waterways - drains or watercourses formed at the point of confluence of at least two Second Order Waterways and may have tributaries of the Second Order and lower.

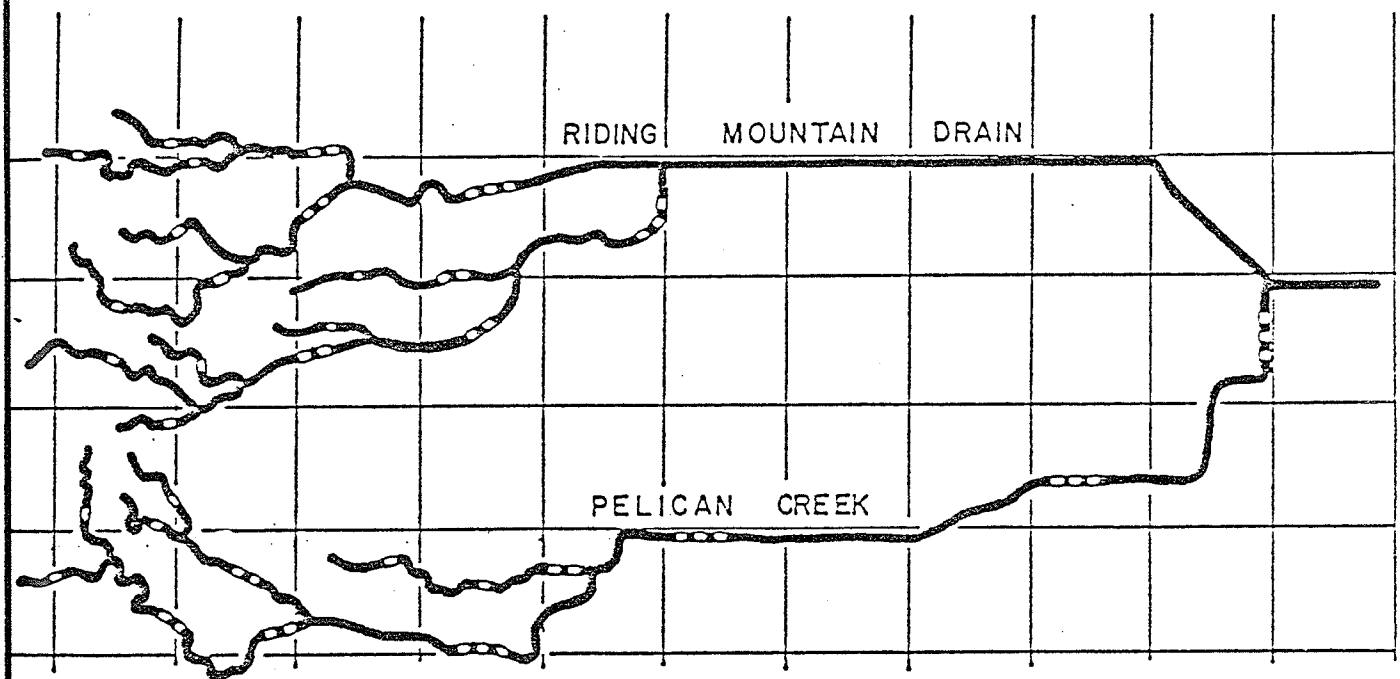
Fourth Order Waterways - drains or watercourses formed by the confluence of at least two Third Order Waterways and may have tributaries of the Third Order or lower. Higher order waterways (orders 5, 6 and 7) are defined in the same manner.

With the order system completed, the provincial waterway policy came into effect providing the Province with the responsibility for those channels declared as provincial waterways by Order in Council. All other drains fell under the jurisdiction of municipal governments. Essentially the municipalities retained responsibility over First and Second Order drains and the Province assumed responsibility for Third Order and higher drains. At present the Province periodically reviews the system and makes necessary additions or deletions.

The enactment of The Water Control and Conservation Branch Act (S.M. 1967, c. 70) gave the Lieutenant Governor in Council the power

Figure 7*.

PLAN OF DESIGNATION OF DRAINS



1st. ORDER DRAINS	-----	—————●—————
2nd. ORDER DRAINS	-----	—————●●—————
3rd. ORDER DRAINS	-----	—————●●●—————
4th. ORDER DRAINS	-----	—————●●●●—————

*Source: Newton 1975. Appendix.

to designate or abandon any water control work, natural water channel or lake as a provincial waterway. The Act also legislated (Section 14) the jurisdictional policy discussed above. This provincial waterway system is in operation at present; legislated through Sections 13 and 14 of the Water Resources Administration Act (R.S.M. 1970, W 60).

The introduction of this system precluded the need for the drainage maintenance districts and they were disbanded in 1965.

2.5 Epilogue

In 1966, the Water Control and Conservation Branch was transferred from the Department of Agriculture and Conservation to the Department of Highways. This Branch was under the administration of the Highways Department until September, 1968, when a major change-over in departmental responsibilities was announced. This saw the Water Control and Conservation Branch returned to the Department of Mines and Natural Resources. The transfer was made so that the planning and administration of water resources might be more closely coordinated with fisheries, wildlife, forestry and mining.

The Department of Mines and Natural Resources was reorganized along functional lines and renamed the Department of Mines, Resources and Environmental Management (M.R.E.M.). In the Department's 1971 Annual Report, the Honourable Sidney Green Q.C., Minister, wrote:

This organizational structure enables us to plan, research, and undertake resource programs consistent with the "multiple resource use" concept to which we are philosophically committed.

During this same period, the Water Control and Conservation Act

was amended changing the name of the Act to the Water Resources Administration Act (R.S.M. 1970, W 60). The Branch was renamed the Water Resources Branch, but the contents of the Act remained essentially the same.

At present the Water Resources Branch is named the Water Resources Division. This Division is one of several government agencies discussed within the following chapter.

CHAPTER 3 - GOVERNMENT AGENCIES INVOLVED IN LAND DRAINAGE

3.1 Manitoba Department of Mines, Resources and Environmental Management - Water Resources Division

The Water Resources Division operates under the authority of The Water Resources Administration Act (R.S.M. 1970, W 60).

Section 2(3) of the Act outlines the scope of the Division's administration. An abridged version of this section is as follows:

The minister, through the Division, shall manage and administer all those matters relating to the construction or operation of water control works, and, in particular, those matters dealt with under the following Acts:

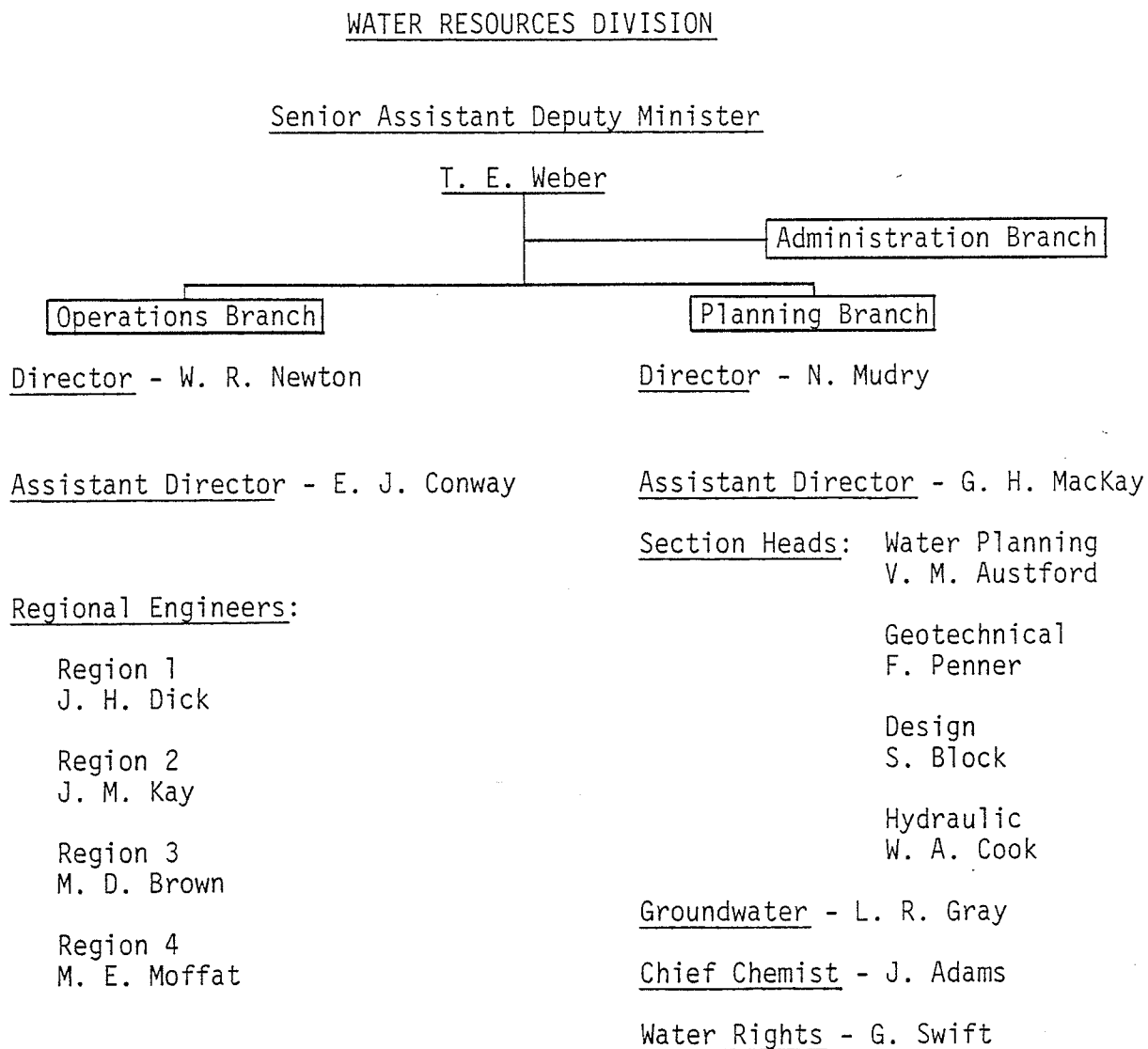
- a) *The Dyking Authority Act*
- b) *The Ground Water and Well Act*
- c) *The Rivers and Streams Act*
- d) *The Water Power Act*
- e) *The Water Rights Act*
- f) *The Conservation Districts Act*
- g) *The Water Resources Administration Act*
- h) *The Water Supply Districts Act*

The Division is composed of three Branches; Planning, Operations and Administration. The present organizational layout of these Branches is illustrated in Figure 8. The regions indicated within the Operations Branch are described in the 1974, M.R.E.M. Annual Report as follows:

Region 1 - The Red River and Lake Winnipeg act as the Western Boundary, the U.S.A. and Ontario are the boundaries to the South and East respectively.

Region 2 - ...bounded by Lake Winnipeg and the Red River to the east, the Assiniboine River to the south and the Portage Diversion (and Lake Manitoba) to the west.

Figure 8 . Organizational layout of Water Resources Division (March, 1977)



Region 3 - ...bounded by the Red River on the east, the Assiniboine River to the north, and the Saskatchewan and U.S.A. boundaries.

Region 4 - ... bounded on the west by Province of Saskatchewan, on the east by Lakes Manitoba and Winnipegosis, and on the south by the Assiniboine River.

The potential range of the Water Resources Division's responsibilities is proclaimed in Section 2(4) of The Water Resources Administration Act. An abridged version of this section is as follows:

Where under any of the Acts to which reference is made in Section 2(3),...the government is authorized or required to construct or operate any water control works

- a) directly for the purposes of the Crown; or*
- b) as agent for any local authority or other authority established by statute; or*
- c) under an agreement made with the Government of Canada;*

the minister is responsible for constructing

- d) any such water control works that the government is required to construct or operate; and*
- e) on being duly authorized for the purpose, and such water control works that the government is authorized to construct or operate;*

and the direction and control thereof shall be carried on by the minister through the agency of the division.

Of importance to artificial drainage, are the Division's responsibilities for long and short range planning, design, construction and maintenance of provincial waterways and the provision of technical services free of charge to conservation districts in the form of engineering surveys and staking for drain maintenance and reconstruction.

According to the Manitoba Water Commission (1977), the Water Resources Division maintains 3,100 miles of provincial waterways (Figure 9). Authorization of such work is conferred through Section 15 of the Act:

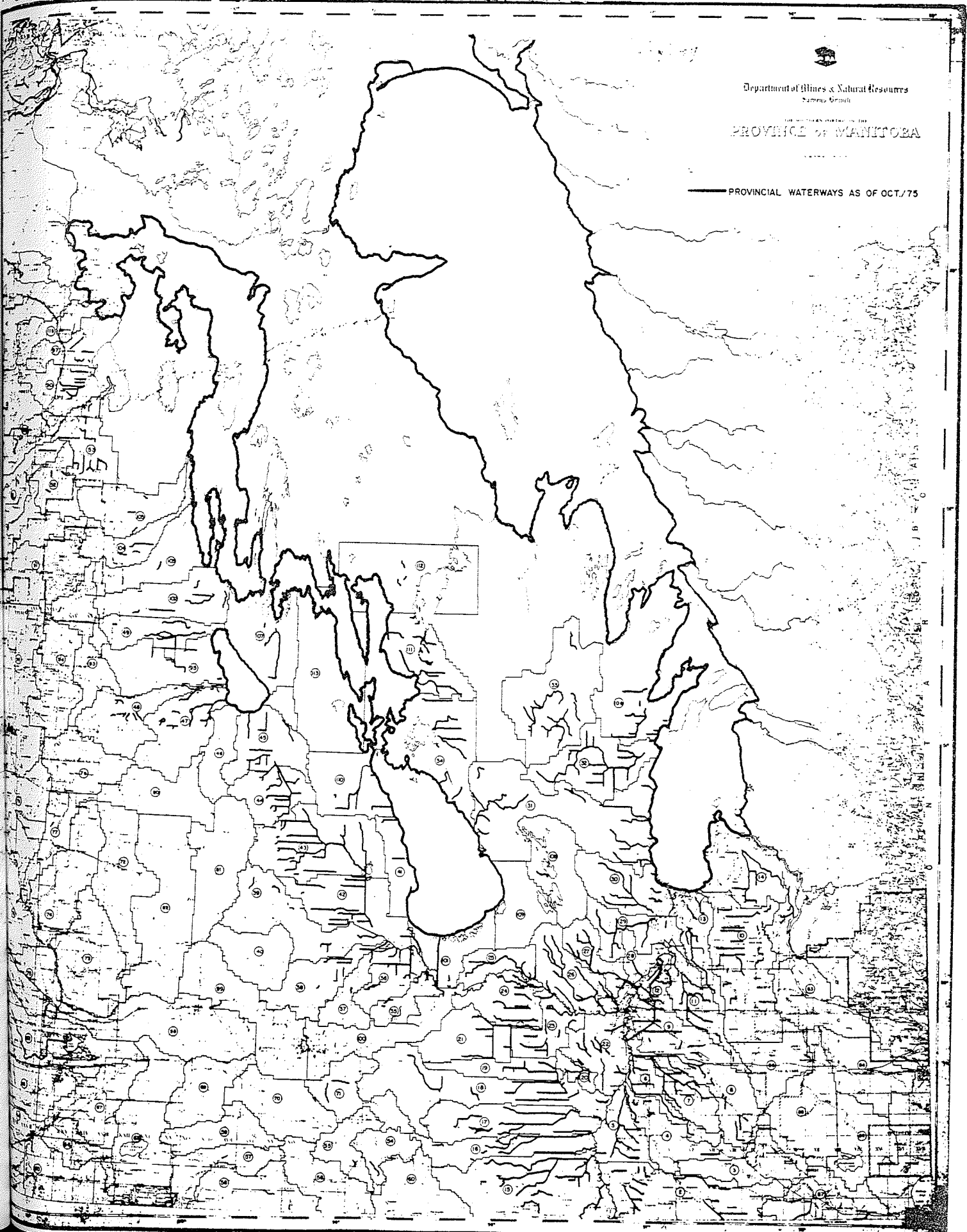
The construction and operation of every provincial waterway is under the control and jurisdiction of the minister, and shall be done or performed through the branch [division].

It should be noted that the word "maintain" may refer to works ranging from brushing and spraying to major excavation. In some cases a provincial waterway is in such poor shape and so far below capacity requirements that the better investment is to completely reconstruct it rather than persist in costly annual maintenance.

Aside from the technical services provided to Conservation Districts, the Minister of M.R.E.M., on behalf of the government and through the Division, may enter into an agreement with any local authority¹ established by statute or other government agency in matters concerning the construction and/or operation of water control works (R.S.M. 1970, W 60, s. 6). Under the authority of this Section (6), the Division provides technical services to municipalities requesting surveys and design plans for the construction or maintenance of drains under the latter's jurisdiction (i.e. those drains not designated as provincial waterways). For this service a municipality must pay to the Water Resources Division \$75 for each day the engineering crew is in the field and 15 percent of the total field work charge for the engineer's formal report. This charge does not cover the total costs of such a

¹"local authority" means a municipality, a local government district, or a board of a conservation district

Figure 9. Provincial waterways of Manitoba, October, 1975.



service but it helps ensure legitimate and serious requests. Through the provision of such a service, the Division is able to have input in designing drains not under its jurisdiction but ultimately draining into a provincial waterway. This input serves 2 main purposes: (1) allows the Division to apply proper design specifications and match the municipal drain with the capacity of the downstream provincial waterway, and; (2) serves as a check against indiscriminate drainage from one watershed into another watershed.

Also authorized under Section 6 of the Act is the Division's involvement with both Federal-Provincial cost-shared programs, namely the Fund for Rural Economic Development program (F.R.E.D.) and the Agricultural and Rural Development Agreement (A.R.D.A.). The Water Resources Division, acting as an agency for A.R.D.A. and F.R.E.D., administers the land drainage works of each program. A discussion of these federal-provincial agreements and their land drainage programs is presented in section 3.52 of this paper.

3.2 Conservation Districts

3.21 Former Legislation

Prior to the enactment of The Conservation Districts Act (S.M. 1976, c. 38), two conservation district acts existed.

The first of the two to be enacted was The Watershed Conservation Districts Act (R.S.M. 1970, W 40) in 1959. This Act Provided municipalities with the opportunity to coordinate (through a single authority - the district board) their water management efforts through the establishment of a watershed conservation district delineated by boundaries which were the watershed area. The board would have complete jurisdiction over all

drains in the district thereby eliminating the provincial-municipal and intermunicipal split in jurisdictions. Section 14(1) of the Act proclaimed the aims and objectives of the district board:

...to promote the conservation and control of the water resources within the district and for that purpose, (the board) shall study, undertake, put into effect, operate or maintain, a scheme in respect of the district for the purpose of conserving, controlling, developing, protecting, restoring, or using,

- a) the water resources within or available to the district; and*
- b) the land, forest, wildlife, and recreation resources within the district;*

as may be necessary or incidental to the achievement of those aims and objects.

Two watershed conservation districts were formed under this Act:

- (1) Whitemud River Watershed Conservation District No. 1 (1972);
- (2) Turtle River Watershed Conservation District No. 2 (1975) (See Figure 10).

The second act, The Resource Conservation Districts Act (R.S.M. 1970, R 135) appears to be identical to the 1959 legislation. However closer examination reveals fundamental differences. The primary difference is found in the Act's objectives and definition of "resource".

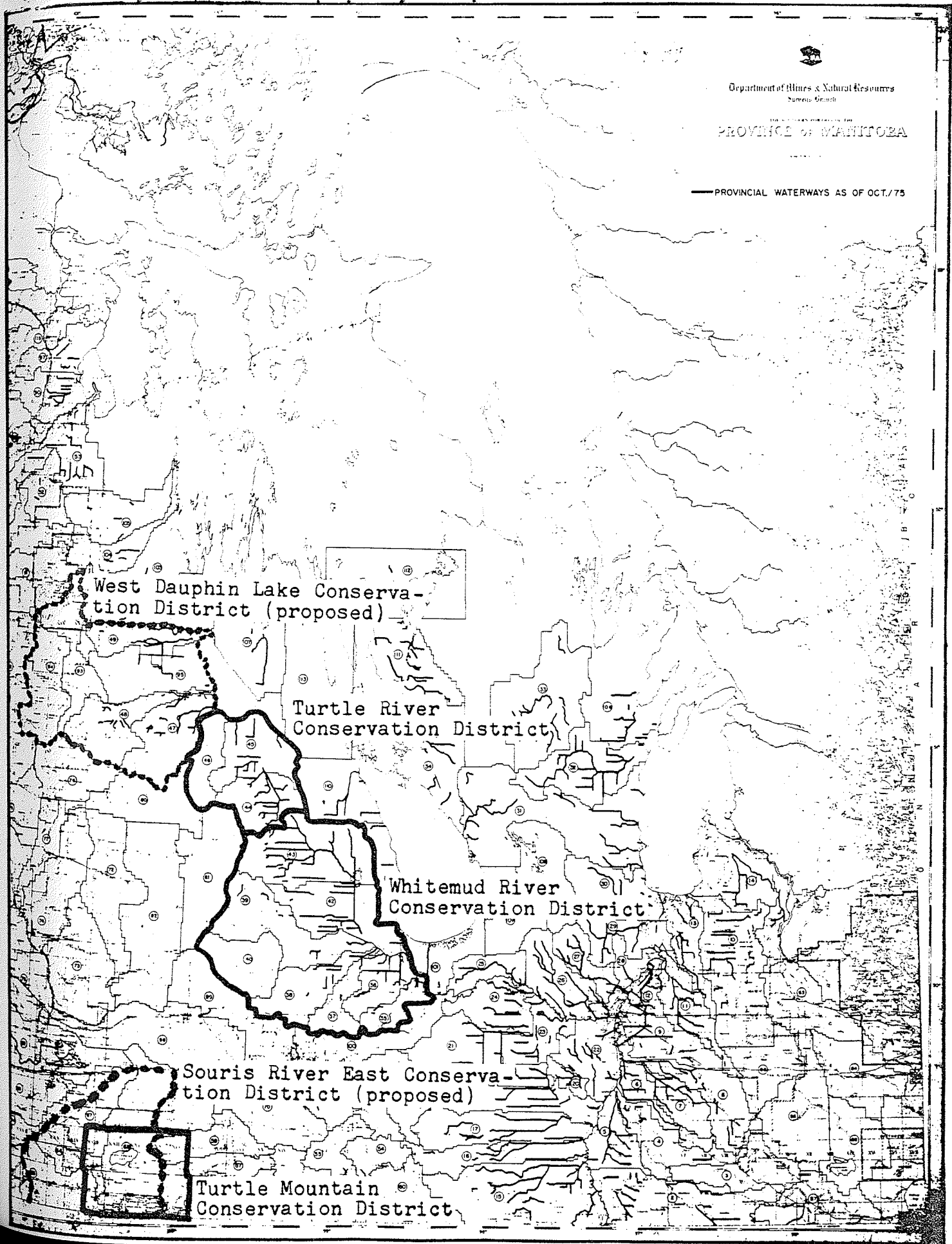
Section 18(1) of the Act proclaimed:

The aims and objects of the board of a district are to promote the conservation and control of the use of the resource [means land, and in relation to land use includes water] within the district and for that purpose shall put into effect, operate or maintain a scheme in respect of the district for the purpose of conserving, controlling, developing, protecting, restoring or using

- (a) the land and soil within the district; and*
- (b) the forest, wildlife, and recreational resources within the district;*

as may be necessary or incidental to the achievement of those aims and objects.

Figure 10. Map showing location of Conservation Districts of Manitoba (incorporated and proposed) March, 1977.



With the emphasis placed on the land rather than the water resource, boundaries of resource conservation districts were to coincide with municipal boundaries and not the watershed area (R.S.M. 1970, R 135, s. 2(2)).

Two resource conservation districts were formed under The Resource Conservation Districts Act: (1) Turtle Mountain Resource Conservation District (1973), and; (2) Alexander Resource Conservation District (1973) (See Figure 10).¹

An excerpt from the 1975 Watershed Conservation Districts of Manitoba Annual Report briefly outlines the events leading to the combination of The Watershed Conservation Districts Act and The Resource Conservation Districts Act:

Upon completion of two periods of operation, the board of the Whitemud Watershed Conservation District realized changes in the Act were necessary to make it more workable and requested a review of the Act be undertaken to alleviate the concerns of some municipal councils, among other things, with respect to methods by which the municipalities are allowed to levy their share of the costs and to recommend other desirable changes in the Act.

A committee was set up by the Watershed Commission with instructions to undertake the requested review.

The committee made many recommendations and a bill was draughted to combine the (two Acts) in one Act.



3.22 Conservation Districts Act 1976

The Conservation Districts Act (S.M. 1976, c. 38) came into force on September 15, 1976.

¹The Alexander Resource Conservation District was recently disbanded and is therefore not shown in Figure 10. Its boundaries were those of the Local Government District of Alexander just southeast of Lake Winnipeg.

(a) purposes of the Act

The stated purposes of the Act are to "provide for the conservation, control and prudent use of resources through the establishment of conservation districts; and to protect the correlative rights of owners" (S.M. 1976, c. 38, s.2). The combination of the former two Acts is evident in The Conservation Districts Act's definition of resources as "the lands and waters within or available to a district, whether used for wildlife, recreation, agriculture, forest production or any other use" (S.M. 1976, c. 38, s. 1(n)).

(b) the Conservation Districts Commission

With three conservation districts already established and other areas being considered, it is necessary that some form of overview be provided to ensure uniformity in respect of the achievement of the purposes of the Act. For this purpose sections 3, 4 and 5 of the Act require the establishment of a commission called the Conservation District Commission. The Lieutenant Governor in Council is responsible for appointing not more than 7 members from directly concerned provincial government departments, the Union of Manitoba Municipalities, and the conservation district boards.

The duties of the commission are:

- (1) *to advise the minister at his request in all matters relating to the Act;*
- (2) *give advice and guidance to a board as may be requested by the board or as the commission deems advisable; and*
- (3) *review in any year, the scheme (a program developed by or for a district Act), operations and budget of a board and make recommendations to the minister.*

(c) formation of conservation districts

The Conservation Districts Act is permissive legislation. The procedures for establishing a conservation district as covered under section 7 of the Act are as follows:

- (1) *A municipality (or local government district) may apply in writing to the Minister of Mines, Resources and Environmental Management for a proposal for the establishment of a district after the application has been authorized by resolution of the council of the applicant.*
- (2) *Upon receipt of the application, the minister shall prepare a proposal and submit it to the commission for its recommendation.*
- (3) *Upon receipt of the recommendation of the commission the minister may forward a proposal to all included municipalities.*
- (4) *Each municipality to which a proposal has been submitted shall consider it, and may, by by-law, approve or disapprove it within 60 days after it has been received and the council shall notify the minister of its decision by copy of the by-law.*
- (5) *Upon receipt of certified copies of by-laws, the minister may submit the matter of the establishment of the district to the Lieutenant Governor in Council who may establish the district.*
- (6) *...the minister may on his own motion submit a proposal for the establishment of a district.*
- (7) *An order in council establishing a district shall set out*
 - (a) *the boundaries of the district*
 - (b) *the boundaries of sub-districts into which the district may be divided*
 - (c) *the name of the district*
 - (d) *the works to be excluded from the jurisdiction, authority or control of the board*

(e) *the co-ordinator (a civil servant designated by the minister for the purpose of co-ordinating all services and administrative assistance to conservation districts)*

(f) *the schedule (an order in council setting out the upper and lower limits of the amount of money that a board may annually assess an included municipality, and the limitations of the borrowing powers of the board)*

(g) *the effective date of the formation of the district.*

(8) *When an order in council establishing a district is made, the minister shall give written notice to the council of each included municipality.*

(d) Administration

To accommodate orderly planning, programming and program delivery as well as for administrative purposes, and to maintain a reasonable degree of local identity, the district is divided into sub-districts (Newton, 1975). The sub-districts have boundaries which are coterminous with those outlining the catchment areas of [any major tributaries of the principal river within the district]. The management of these sub-areas and of the district as a whole, transcends municipal boundaries and is oriented to topography and natural divisions.

A district, once it is formed, is managed by local people supported by the necessary technical staff in the way of engineers, biologists and agricultural people supplied by the Province.

Section 9(1) of the Act requires:

...where a district is divided into sub-districts, there shall be a committee for each sub-district consisting of 2 rate-payers appointed by each included municipality, only one of whom may be a member of the council of each included municipality.

The duties of these sub-district committees are outlined in section 16 of the Act:

A sub-district committee shall

- (a) study the conservation requirements of a sub-district and make recommendations to the board;*
- (b) promote and encourage the purposes of the Act, and;*
- (c) act as a liason between the councils of included municipalities and the board.*

The central body of a conservation district is the conservation district board which has jurisdiction over the entire area within the district. Section 19 of the Act transfers this jurisdiction from the municipalities upon formation of a district:

...any right, jurisdiction, authority, or control vested in a municipality with respect to

- (a) the reclamation and use of lands; or*
- (b) the construction, operation or maintenance of works; or*
- (c) the use and development of land in any way that relates to, or affects, the rehabilitation of an area within the district;*

shall terminate and vest in the board.

The board consists of the chairman of each sub-district committee and a person appointed by the Lieutenant Governor in Council (S.M. 1976, c. 38, s. 8(2)). The board derives its powers from section 21 of the Act:

A board may

- (a) study and investigate, or cause to be studied and investigated such resources of the district as may be necessary to prepare a scheme;*
- (b) implement a scheme;*
- (c) transfer for the purposes of maintenance and operation, to an included municipality or other person, jurisdiction, authority, or control, over any works in the district;*

- (d) enter into an agreement with the owner of any land for the carrying out of any works considered necessary for the implementation and operation of a scheme;
- (e) issue, subject to provisions of The Forest Act, permits for cutting of forest from protected areas;
- (f) issue, subject to provisions of The Water Rights Act, permits to alter surface water courses;
- (g) recommend the acquisition by the Crown, of any real or personal property necessary for a scheme;
- (h) sell, subject to the provisions of The Water Rights Act, water from reservoirs constructed or operated by the board;
- (i) require the municipality to furnish to the board information pertinent to a scheme.

These powers of a district board may be directly linked with the authority of the Lieutenant Governor in Council proclaimed in section 24 of the Act:

The Lieutenant Governor in Council may

- (a) authorize a board to abandon in part or in whole any works or operations of a district; or
- (b) authorize or require a board to repair, maintain or operate any additional works of a district; or
- (c) abolish or amend the boundaries of any district;
- or
- (d) consolidate two or more districts; or
- (e) make such orders as may be necessary to give effect to any abolition or amendment.

In summary then, the administrative hierarchy of conservation districts in descending order is: (1) the Lieutenant Governor in Council (through the Minister and the Conservation Districts Commission); (2) the Conservation Districts Commission; (3) the Conservation District Board; and (4) the Sub-district Committees.

(e) finances

The total cost of operating a conservation district is shared between the board and the Provincial Government.

Section 30 of the Act allows the board to accept grants made by any government, corporation, or person. For land drainage works the Province pays 70 percent of the costs on all drains up to and including 4th order drains; and 100 percent of the costs on 5th or higher order drains.

The board's share of the costs is levied to each included municipality using the following formula outlined in section 25 of the Act:

Sub-district Program

$$\text{Money to be raised by a municipality} = \frac{A}{B} (C)$$

In this Formula

A = total of equalized assessed value of rate-able lands of the municipality included in the sub-district

B = total equalized assessed value of all rate-able lands in the sub-district.

C = total cost of the sub-district program

Money to be raised by the municipality for a District Program is calculated by the board using the same formula but replacing "sub-district" with "district" in all elements of the formula.

Additional funds may be raised by the board through borrowing subject to the limitations on borrowing set out in the "schedule" (S.M. 1976, c. 38, s. 28).

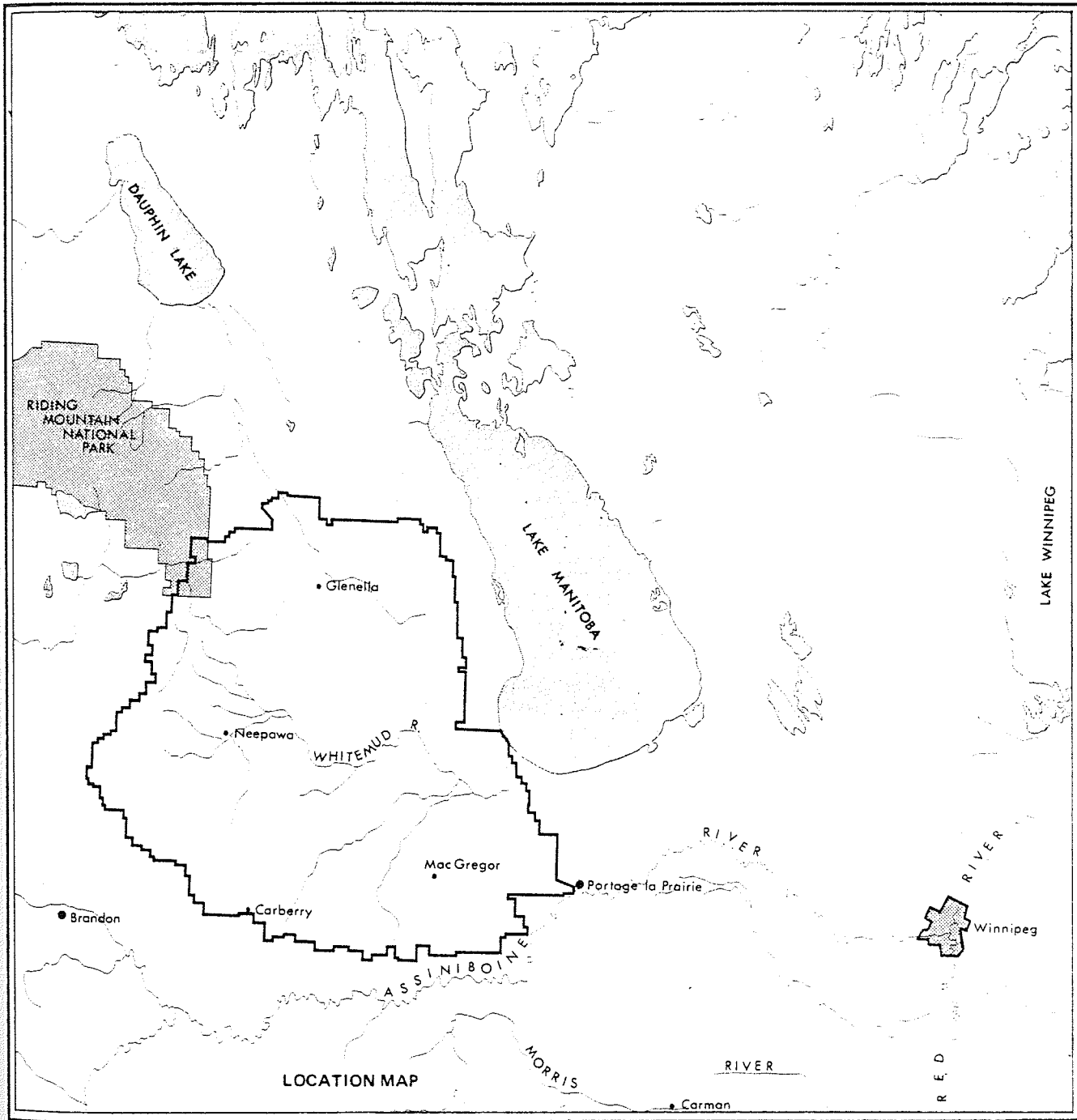
Currently there are three conservation districts functioning within this administrative and financial structure under the authority of The Conservation Districts Act.

3.23 Whitemud River Conservation District

The Whitemud River Conservation District encompasses some 2400 square miles of land east and south of the Riding Mountain (Figure 11).

There are eight major tributaries of the Whitemud River, and the

Figure 11. Map showing location of Whitemud River Conservation District*



*Source: Manitoba Department of Mines, Resources and Environmental Management. 1974. Whitemud River Watershed Resource Study. p.12.

boundaries of these secondary drainage basins from the eight sub-districts that comprise the Whitemud Conservation District (Watersheds Conservation Districts Annual Report, 1975). These sub-districts are (see Figure 10):

- Sub-District No. 35 Willowbend Creek
- Sub-District No. 36 Westbourne Drain
- Sub-District No. 37 Squirrel Creek
- Sub-District No. 38 Pine Creek
- Sub-District No. 39 Central Whitemud River
- Sub-District No. 40 Upper Whitemud River
- Sub-District No. 42 Big Grass Marsh
- Sub-District No. 43 Big Grass River

An excerpt from the Whitemud River Watershed Resource Study (1974:11) summarized the general problems (past and present) related to land use in the District area:

There is no question that vast areas of the Watershed owe their agricultural existence to the drainage program, but it was designed to accomodate 1920 agricultural practices. Times have changed since then. The small self-sustained farms in the upper part of the Watershed - the headwaters of most of the drains, have given way to larger commercial farms. Vast acreages of trees have been cleared from the steeply sloping land to make way for larger and more efficient power machinery. No longer is the water held back by protective forests. Every year much of the land lies unprotected as summerfallow. To compound the problem, wherever possible sloughs have been drained to speed up the movement of water off the land. The results have been dramatic. Thousands of acres of land have been severely eroded by wind and water, many farms have been abandoned, many more are capable only of the barest minimum production. The uncontrolled runoff has created problems elsewhere in the Watershed. The vintage drainage system no longer has the capacity to carry the water that surges down out of the hills. The water overflows onto the farmland flooding out crops and homes. The problem is compounded when the silt carried by the floodwater is deposited in drains further reducing their capacity.

Altogether, there are about 1600 miles of drains in the District (Figure 12) (Watershed Conservation Districts Boards of Manitoba Annual Report, 1973). Since the formation of the District in 1972, the Board has directed its work program primarily toward capacity improvement of these drains through reconstruction and maintenance works. Part of the A.R.D.A. drainage program extends into the District and is administered by the Water Resources Division. In 1975, the Board, through the Land Drainage Works Program, expended approximately \$450,000. In addition to this amount, \$313,000 were expended in the District through the A.R.D.A. Land Drainage Program resulting in a total drainage expenditure of approximately \$763,000. This total represents 79 percent of the total 1975 expenditures within the District and indicates the extreme emphasis being placed on drainage works.

Major projects or capital works await the issuing of an overall long-range resource management plan (Scheme) as defined under the terms of the Act. This scheme is currently overdue and expected in the immediate future.

3.24 Turtle River Conservation District

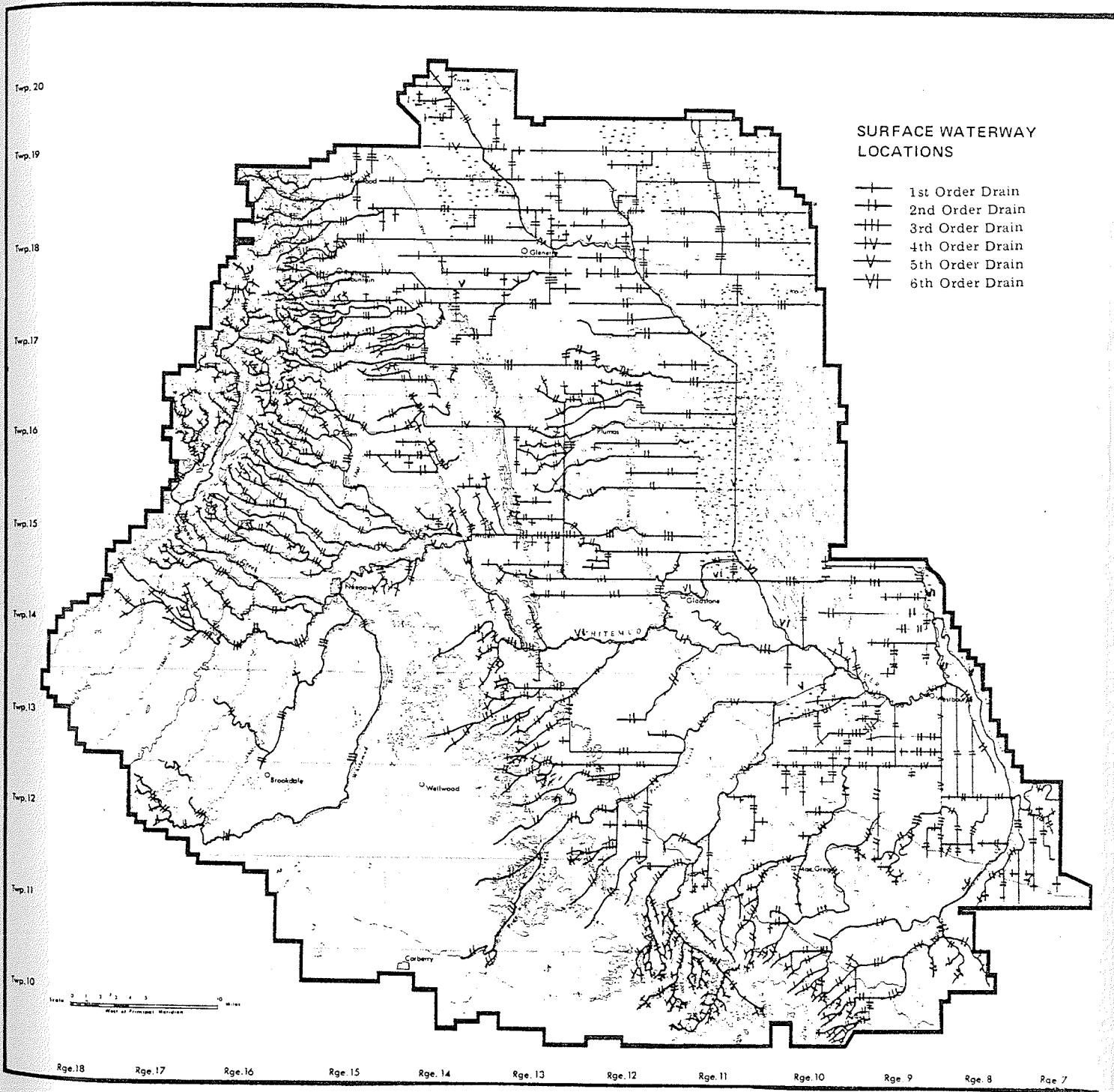
The Turtle River Conservation District was incorporated August 30, 1975.

The District includes some 824 square miles on the northeastern side of the Riding Mountain (Figure 10). The District has been divided into three sub-districts (Figure 13):

Sub-District No. 44	Upper Turtle River
Sub-District No. 45	Lower Turtle River
Sub-District No. 46	Ochre River

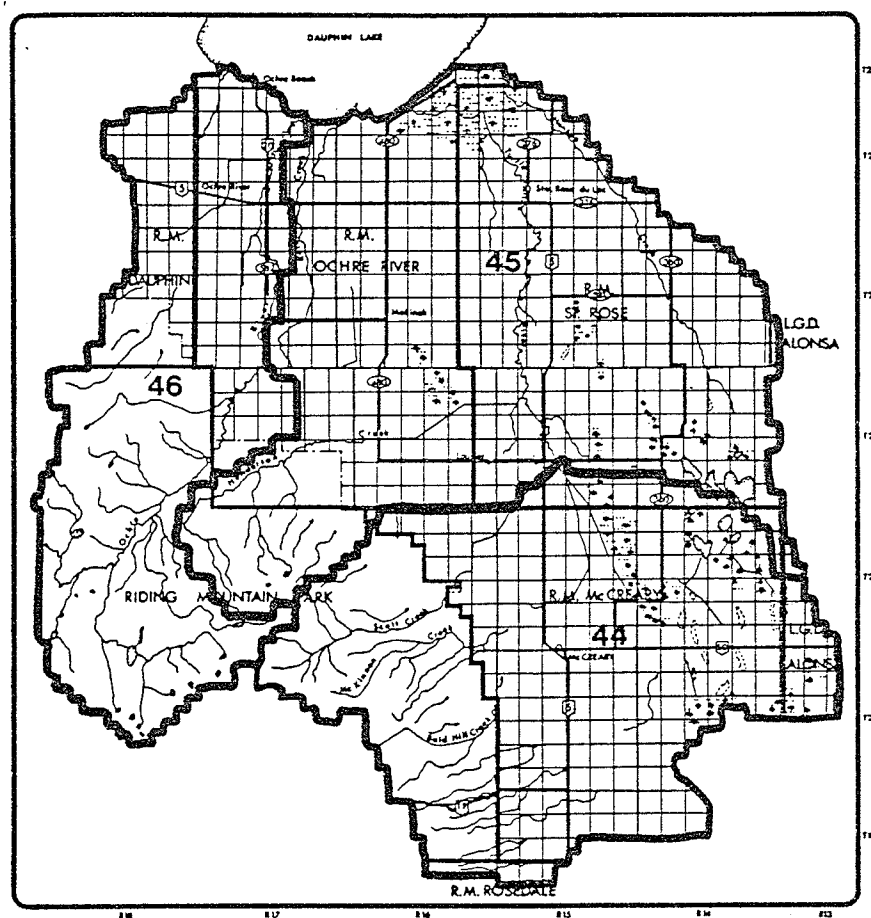
Facing flooding, soil erosion and drainage problems similar to

Figure 12. Waterways within the Whitemud River Conservation District*



*Source: Man. Dept. Mines, Resources and Environmental Management. 1974. Whitemud River Watershed Resource Study. p.17.

Figure 13. Map of Turtle River Conservation District showing three subdistricts*



*Source: Watershed Conservation Districts of Manitoba, Annual Report 1975:45. p.45.

those in the Whitemud River Conservation District, the Turtle River District is presently carrying on a general drainage maintenance program. This District also is awaiting the development of a Scheme before undertaking any major projects.

3.25 Turtle Mountain Conservation District

The Turtle Mountain Conservation District was formed in May 1973, under the authority of the Resource Conservation Districts Act (R.S.M., 1970, R 135).¹ This District consists of the Rural Municipalities of Winchester and Morton (Figure 10).

The original philosophy of the District emphasized land use control rather than water control and as such little comprehensive drainage work has been undertaken. With boundaries of the District presently corresponding to municipal boundaries rather than watershed boundaries, there would seem little point in undertaking a comprehensive water management program. If a drainage program is required for the District it would seem that a co-ordinated watershed approach is essential, especially when considering the District contains the Turtle Mountains and the resulting head-waters of several streams.

The watershed conservation district concept is being considered for the Turtle Mountain Conservation District as well as several other areas.

3.26 Proposed conservation districts

There are currently two proposed conservation districts under active consideration. These are: (1) the West Dauphin Lake Conservation District;

¹Before the enactment of The Conservation Districts Act (S.M., 1976, c. 38) and simultaneous repeal of The Resource Conservation Districts Act, the District was named Turtle Mountain Resource Conservation District.

(2) Souris River East Conservation District (Figure 10).

In 1974 the Rural Municipality of Dauphin submitted a resolution , to the Minister of M.R.E.M. requesting consideration of forming a district to include all lands draining into Lake Dauphin from the west. A proposal was forwarded to all included municipalities and the Minister is presently awaiting notification by by-law. According to personnel of the Water Resources Division, notification from some municipalities is overdue and there is presently, reason to believe establishment of the district is doubtful.

In regards to the Souris River East Conservation District, a proposal is presently being forwarded to included municipalities. A decision from the municipalities is required within 60 days of receiving the proposal (S.M., 1976, c. 38, s. 7(4)). If this conservation district is established the new boundaries will include all but the eastern 2/5 of the Turtle Mountain Conservation District. The western and northern expansion of the boundaries would allow comprehensive water management presently limited by municipal boundaries.

Other areas which have expressed, to the Water Resources Division, interest in the conservation district concept are as follows:

Swan Valley Area (R.M. of Swan River)

La Salle River (R.M. of Grey)

Virde River (R.M. of Wallace)

Boyer River Area

Local Government District of Alonsa

Cook's Creek (R.M. of Springfield)

3.3 Municipal Governments

Through section 270 of The Municipal Act (S.M., 1970, c. 100) each municipality has jurisdiction over all drains within its boundaries except those designated as provincial waterways. Section 14(1) of The Water Resources Administration Act (R.S.M., 1970, W 60) transfers the jurisdiction over provincial waterways to the Province.

The municipality therefore is responsible to maintain and repair drains within its jurisdiction as a municipal service to its ratepayers as provided for in section 277(1) of the Act. In Manitoba, there are 14,000 miles of artificial drains and 9,800 miles of natural waterways under municipal control.

Engineering surveys¹ provided by the Water Resources Division to municipalities are recorded in the M.R.E.M. Annual Report. In the fiscal year ending March 31, 1975, 228 surveys were conducted for municipalities in the Province. Although this figure varies each year, and in no way represents the actual number of works carried out after the survey, it does provide the reader with some idea of the numbers involved.

There is also assistance available from the municipality (decided upon by council) for an owner of land wishing to construct a drain or ditch across the lands of others for agricultural purposes (S.M., 1970, c.100, s. 273). This procedure is outlined in section 4.41 of this paper.

¹This service, provided by the Water Resources Division, is outlined in section 3.1 of this paper.

3.4 Manitoba Department of Agriculture - Technical Services Branch

The Manitoba Department of Agriculture, through its Technical Services Branch, provides a number of services to farm industry within the Province. Of relevance to drainage are those provided by the Agricultural Engineering section of the Branch. This section administers the Farm Drainage Program which offers technical assistance to farmers in the construction of drains in areas where land drainage is a problem. This assistance involves initial approval by the Agricultural Representative (and Soil Specialist if slough drainage is involved); an engineering survey, and; staking the route for the required drainage channel. Construction of the drains, however, is the farmer's responsibility. The procedure a farmer is obliged to follow in obtaining such assistance is detailed in section 4.42 of this paper.

The Farm Drainage Program divides on-the-farm drainage into two types, namely; "field drainage" and "slough drainage". Both types are assumed by the Branch to be self-explanatory as no definitions are offered on the farmer's Farm Survey application form.

A study of farm survey applications and also the Department's Annual Reports revealed that the great majority of surveys conducted by the Agricultural Engineering section involved field drainage primarily in the Red River Valley. The numbers of both field and slough drainage surveys conducted over the past several years could not be considered due to the incomplete condition of old farm drainage files at the Technical Services Branch. However, the information presented in Appendix I and extracted verbatim from 1959-1974 Annual Reports, provides the reader with a general overview of drainage survey activities conducted by the

Manitoba Department of Agriculture. It should be noted, however, that a survey does not necessarily indicate drainage works followed, since, as indicated, that is the farmer's decision.

The Water Resources Division is not involved in the Farm Survey Program. Engineers of the Technical Services Branch, assisted by university students, conduct the surveys in the summer field season.

3.5 Department of Regional Economic Expansion (D.R.E.E.)

3.51 Prairie Farm Rehabilitation Administration (P.F.R.A.)

By the mid-1930s the extent of the drought in the grassland region of western Canada had become so much of a national disaster the Dominion Government introduced "An Act to provide for the rehabilitation of drought and soil-drifting areas in the Province of Manitoba, Saskatchewan and Alberta" (S.C. 1935, c. 23) which was passed by the House of Commons April 11th, 1935 and assented to April 17th, 1935. The Prairie Farm Rehabilitation Act was a brief but flexible statute designed to authorize a five year program of federal aid in those areas of the Prairie Provinces devastated by drought. The Dominion was to work jointly with the three provinces for the term stated, after which, the provinces would again take over and finance those activities recognized as under provincial jurisdiction and administration.

However, the Act was amended in 1937 to include land utilization and settlement. With increased financial support the Act was extended indefinitely in 1939; and in 1961, in respect of area involved, the program was extended to include all agricultural areas of the Prairie Provinces (Ellis, 1970). The purpose of the Act is as follows:

...to rehabilitate drought and soil drifting areas and to promote up-to-date systems of farm practice, tree culture, irrigation, land utilization and land settlement that will afford greater economic security to farms and farmers... (R.S.C. 1970, P.17)

In 1968, P.F.R.A. was transferred from the Canada Department of Agriculture to the Canada Department of Forestry and Rural Development, and subsequently to the Canada Department of Regional Economic Expansion upon that department's establishment on April 1, 1969 (P.F.R.A. Annual Report, 1970-71).

At present, the P.F.R.A.'s involvement in agriculture may be divided into the following list of programs:

- 1) Cultural Program - Experimental Farms
- 2) Land Utilization - Community Pastures
- Resettlement and Rehabilitation.
- 3) Water Development - Farm Water Supply
- Community Projects
- Large Projects
- 4) Tree Planting Program
- 5) Major Projects

For the purposes of this paper, only the Water Development Division shall be discussed.

In general, the Water Development Division provides technical and financial assistance for the construction of farm dugouts, stock-watering dams, irrigation works, and wells. These activities may be broadly classified under three headings: Farm Water Supply, Community Projects and Large Projects. The headings are fairly self-explanatory. Farm Water Supply includes small projects benefiting individual or neighbouring farms. Community Projects are built to develop the water resources of secondary

...to rehabilitate drought and soil drifting areas and to promote up-to-date systems of farm practice, tree culture, irrigation, land utilization and land settlement that will afford greater economic security to farms and farmers... (R.S.C. 1970, P.17)

In 1968, P.F.R.A. was transferred from the Canada Department of Agriculture to the Canada Department of Forestry and Rural Development, and subsequently to the Canada Department of Regional Economic Expansion upon that department's establishment on April 1, 1969 (P.F.R.A. Annual Report, 1970-71).

At present, the P.F.R.A.'s involvement in agriculture may be divided into the following list of programs:

- 1) Cultural Program - Experimental Farms
- 2) Land Utilization - Community Pastures
- Resettlement and Rehabilitation.
- 3) Water Development - Farm Water Supply
- Community Projects
- Large Projects
- 4) Tree Planting Program
- 5) Major Projects

For the purposes of this paper, only the Water Development Division shall be discussed.

In general, the Water Development Division provides technical and financial assistance for the construction of farm dugouts, stock-watering dams, irrigation works, and wells. These activities may be broadly classified under three headings: Farm Water Supply, Community Projects and Large Projects. The headings are fairly self-explanatory. Farm Water Supply includes small projects benefiting individual or neighbouring farms. Community Projects are built to develop the water resources of secondary

tributaries, where the works are confined to a municipality and are designed to meet the agricultural needs of the inhabitants of that particular rural area. Large Projects include those projects built on primary tributaries to fulfill the water requirements of several municipalities.

The P.F.R.A. provides no financial assistance for artificial land drainage. An exception to this policy in Manitoba is found in the Saskatchewan River Reclamation Project near The Pas where flood control and drainage works have reclaimed 100 thousand acres of arable land. The Federal Government through the P.F.R.A. contributed just under \$2.5 million toward this major project.

Another, more debatable, exception to this policy is found in the activity called "back-flood irrigation" for which technical and financial assistance can be provided through P.F.R.A. This type of project requires a dyke to retain water, a culvert with a gate, and a ditch leading to a sufficient outlet to drain the water off the land. The water is retained in the slough until the frost has left the ground so that the soil can absorb its maximum field capacity before the gate is opened (Korven and Heinrichs, 1972). LaRose (1969) calls this type of irrigation "controlled drainage, which is used for reclaiming sloughs and potholes". The P.F.R.A. justifies this project through its controllability and thus its water retention aspect which relates to the original intent of the Act to alleviate drought by conserving and storing water rather than draining water which was practically non-existent during the 1930's. Therefore, that the P.F.R.A. provides no assistance to individuals draining land is a moot point when considering a backflood irrigation project which involves both water retention and drainage.

It should be pointed out that backflood irrigation projects are not confined to sloughs and potholes. For example, the project may be created on basins (sloughs) which have been drained in the past, or water-courses flowing through low lying haylands. In the latter case, water can be backflooded for a considerable period, then let go in time to allow the soil to dry and thus support farm machinery for the cutting of the hay crop.

According to LaRose (1969) sprinkler irrigation combined with the large farming unit will make potholes in the prairies vulnerable to drainage. Simply stated, this type of irrigation utilizes a source of water (slough) and a pump to irrigate the land surrounding the slough. P.F.R.A. also provides assistance to farmers for this activity.

In the past, P.F.R.A. has provided technical assistance to farmers considering drainage through the Department of Agriculture's Farm Survey Program.¹ An examination of farm survey records revealed that P.F.R.A. technical assistance, in the form of drainage surveys, was provided following unusually wet springs when the Technical Services Branch accumulated large backlogs of drainage survey applications. Over the past few years the Branch has not requested any survey assistance from P.F.R.A. (Gemmel, personal communication). He also stated that in certain circumstances where a P.F.R.A. crew is in the area on other business, they will conduct casual surveys for individuals considering drainage. In addition to the survey, P.F.R.A. personnel also inform the individual of the legal procedure one is required to follow before any drainage work begins.

¹See section 3.4 and Appendix I "1968-69"

3.52 Federal/Provincial Agreements - A.R.D.A. and F.R.E.D.

1. Agricultural and Rural Development Agreement

The Agricultural and Rural Development Act of the Federal Government (R.S.C., 1961, c. 30) was passed to:

...authorize the Federal Government to enter into agreement with a provincial government for the joint undertaking of alternate land use projects and rural development projects in order to assist farmers with small or otherwise unprofitable units and promote the conservation of soil and water resources.

A preamble to the federal-provincial A.R.D.A. agreement illustrates the reasoning behind devising the Act:

...rural areas and rural people are subject to wide spread social, technological and economic changes that necessitate adjustments on the part of many rural areas and many rural people. The income level and standards of living of many people in rural areas is unreasonably low.

Economic and social disadvantages that affect many low income rural people require government action, and there is a need in Canada for a more effective use of some lands, soil conservation and improvement, and the management, conservation and development of water resources.

The first A.R.D.A. agreement between Manitoba and Canada was signed in 1962 and expired in 1965. Under this general agreement development activities included projects for converting poor farmland to forest and recreational areas, building of water storage structures and construction of land drainage systems, plus rural development activities.

The second agreement (A.R.D.A. II) was signed in 1965 to extend A.R.D.A. for five years (1965-1970). This agreement added several more

project categories which included rural development staff and training services, public information services, rural development areas, and special rural development areas. This latter category was a special development agreement section that permitted (the) financing (of) action projects in the Interlake region. These projects have since been transferred to the Fund for Rural Economic Development (F.R.E.D.) agreement which will be discussed later in this section.

The current agreement (A.R.D.A. III) covers a six year period from the fall of 1972 to December 31, 1978.

One of the strategies of this agreement relates in part to drainage, and focuses on physical resource improvement through a Soil and Water Conservation Program which recognizes the interrelationships of land, water and soil in a watershed context (A.R.D.A. III - Annual Report, 1972 and 1973).

The emphasis, in terms of Manitoba geography, is on areas adjacent to the Manitoba escarpment.¹ The physical presence of the escarpment, combined with damaging land practices, are the dominant factors causing soil erosion and related problems of sedimentation, flooding, loss of topsoil and productivity (A.R.D.A. III Annual Report 1972 and 1973). The proposed areas for soil and water conservation measures are Turtle Mountain Conservation District, Plum River watershed, Morris River watershed, La Salle River watershed, Whitemud River watershed, Turtle River watershed, the south side of Riding Mountain National Park, Assiniboine River valley, Brandon Hills and Mars Hill (Uskiw and Lessard, 1977).

¹Prior to A.R.D.A. III, water control works were conducted only in the Red River Valley and the Interlake Region.

The soil and water conservation program under A.R.D.A. III provides for three different activities: water conservation; soil conservation; and, alternate land use. A.R.D.A. land drainage works are included in both the water and soil conservation activities. Aside from some new channel construction the works mainly involve reconstruction of existing provincial waterways (Figure 14).

While A.R.D.A. is a joint, 50/50 cost sharing program of the Federal and Provincial Governments, the initiation and implementation of all A.R.D.A. projects in Manitoba is the responsibility of the Province.

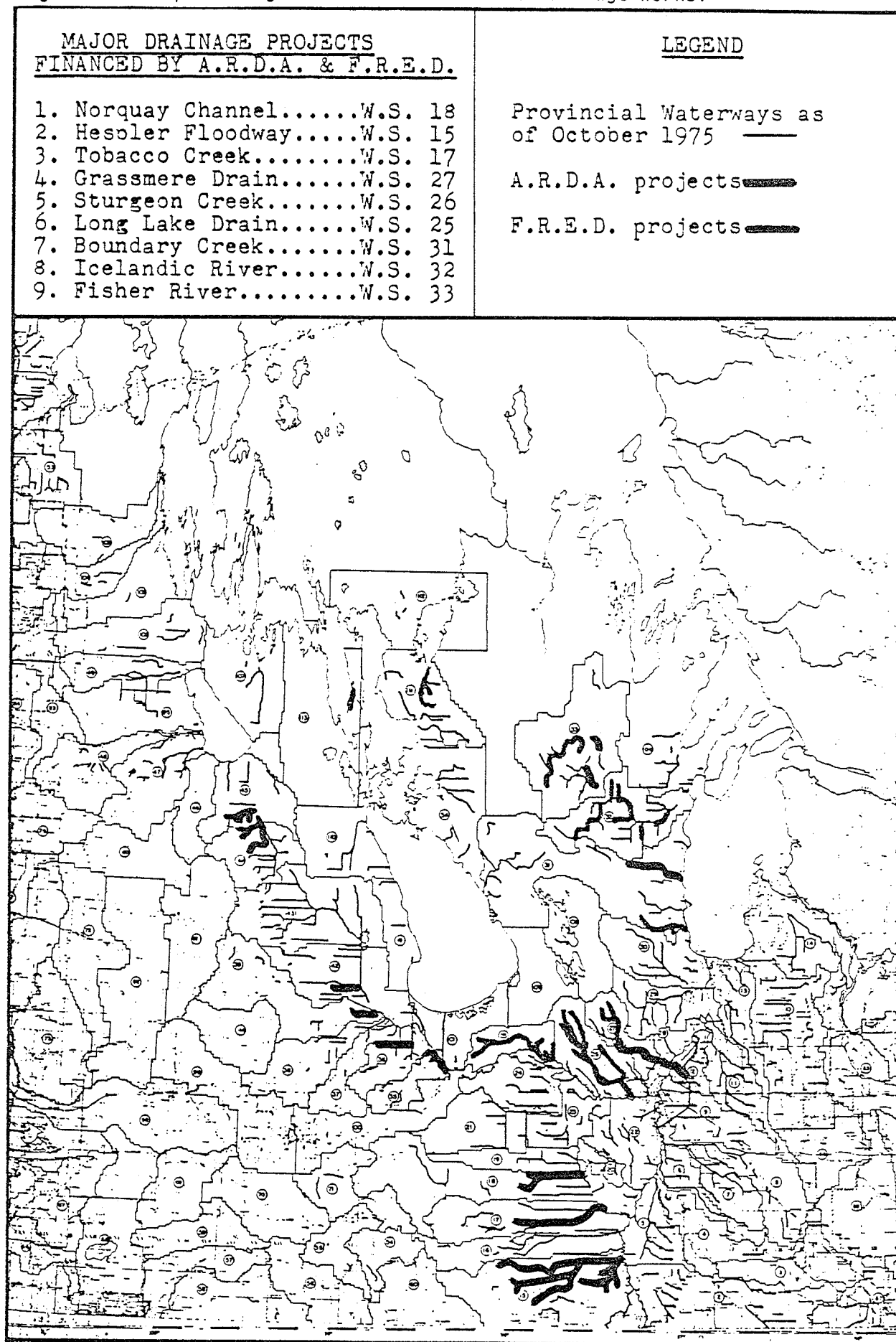
A Joint Federal-Provincial Advisory Committee "composed of at least two representatives each of Canada and of Manitoba" was established by the Minister of the Manitoba Department of Agriculture and the federal Minister of the Department of Regional Economic Expansion (Canada-Manitoba A.R.D.A. Agreement, 1971). This committee reviews the A.R.D.A. programs and advises the Federal and Provincial Ministers.

The Federal Department of Regional Economic Expansion presently administers the Agricultural and Rural Development Act and advises the Province on whether or not a proposed provincial program is eligible for federal support.¹

Under the authority of the Minister of Agriculture the Provincial government carries forward the A.R.D.A. programs. The specific A.R.D.A. projects in Manitoba are conducted under the supervision of the appropriate provincial department. Land drainage works are therefore supervised by the Water Resources Division of the Department of Mines, Resources and Environmental Management (M.R.E.M.).

¹Approval of Soil and Water Conservation projects is conditional on their falling into any or all of the categories listed in Appendix II.

Figure 14. Map showing A.R.D.A. and F.R.E.D. drainage works.



2. F.R.E.D. Agreement

As previously mentioned, the second A.R.D.A. agreement expanded its scope through the addition of several more project categories. One of these new categories, the "special rural development area", involved the federal government in setting up a special fund to pay the extra costs for major programs in specially selected areas in Canada. The setting up of a special fund was formally legislated in 1966 with the Fund for Rural Economic Development Act being passed by Parliament (S.C. 1966, c. 41). As amended in 1967, it permits a federal expenditure of \$300 million. The Act also stated that the federal government may sign an agreement with any province to implement a comprehensive plan of social and economic development in an area that has special and urgent needs.

In respect to Manitoba the Federal and Provincial governments jointly selected the Interlake Region as a problem rural area needing special attention. Consequently on May 16, 1967 the Government of Canada and the Province of Manitoba signed the Fund for Rural Economic Development Agreement for the Interlake Region of Manitoba (see Figure 15). The agreement covers a decade from 1967 to 1977.

Unlike the A.R.D.A. agreement, the programs within the F.R.E.D. Plan had different Federal-Provincial cost sharing arrangements. Relative to this paper, the Water Control Program had a Federal-Provincial 60/40 cost-sharing arrangement. The purpose of this program was to help stabilize farm production through the drainage of the high capability cropland in the Interlake Region.

From a total of \$85 million allotted to the F.R.E.D. Plan, \$7 million

was assigned to the following major drainage systems (see Figure 14):

- | | | |
|--------------------|-----------|------------------------|
| 1) Upper Grassmere | (W.S. 27) | } begun under A.R.D.A. |
| 2) Sturgeon Creek | (W.S. 26) | |
| 3) Long Lake | (W.S. 25) | |
| 4) Icelandic River | (W.S. 32) | |
| 5) Boundary Creek | (W.S. 31) | |
| 6) Fisher River | (W.S. 33) | |
| 7) Birch Creek | (W.S.111) | |

Reconstruction on approximately 150 total miles of channel was carried out under the F.R.E.D. drainage program.

As the F.R.E.D. Agreement is presently drawing to a close it is sufficient to say that the administration of the F.R.E.D. Plan was not unlike that of the A.R.D.A. Agreement. That is, the projects were jointly approved by the Provincial and the Federal governments and implemented by the appropriate government agencies of Manitoba. Land drainage was under the supervision of the Water Resources Division (M.R.E.M.). Projects not completed under the F.R.E.D. Agreement will be considered by the Province.

CHAPTER 4 - DRAINAGE LAW AND PROCEDURE

4.1 The Common Law

In order to gain appreciation of the statutory scheme which governs drainage matters in Manitoba today, it is necessary to have some knowledge of the basic values of the common law regarding drainage and watercourses.

Common law is distinguished from statutory law by the fact that the former is based on past judicial decisions while the latter is based on government legislation. Other names for common law are "judge-made law" and "case law". The principles of common law are of continuing importance unless they are specifically altered or overridden by statutory enactment.

The common law regarding drainage may essentially be divided into two parts. First there are the rules governing the rights and obligations of riparian landowners, in other words those whose lands are immediately adjacent to natural watercourses. The second set governs the rights and obligations of landowners which relate to surface waters.

4.11 Rights and obligations of riparian landowners

When considering the rights of riparian owners it is first necessary to define the term natural watercourse. A widely agreed upon definition is one appearing in *Wilton v. Murray* (1897):

A (natural) watercourse consists of bed, banks, and water and, while the flow of the water need not be continuous or constant, the bed and banks must be defined and distinct enough to form a channel or course that can be seen as a permanent landmark on the ground.

Any landowner whose lands abut upon a natural watercourse has the right to drain his lands into that watercourse. In *Re Township of Orford and Howard* (1891) presiding Judge MacLennan states:

I think that by the common law it is the right of every landowner to drain his land in any natural watercourse accessible to him. I think that while the landowners exercise their rights reasonably, whether they do so individually or collectively, they are not concerned with the effects produced lower down the stream.

In other words the lower owner is obliged to live with the possibility of increase in the flow of the watercourse because the upper owner has the advantages of drainage "reasonably used" which the watercourse may give him. Legally speaking, in individual cases, the meaning of "reasonable use" would be for a court of law to decide. Generally, it is considered to mean use up to the capacity of the banks of the watercourse.

While the rights and obligations of riparian landowners are fairly straightforward it is not clear whether these rights are limited to riparian owners or extend to other landowners as well. MacLennan's statement indicates "it is the right of every landowner to drain his land in any natural watercourse accessible to him". However in *McGillivray v. Township of Lochiel* (1904), the court seemed clear that the right was limited to riparian owners. In this latter case presiding Judge Garrow stated:

...this right of individual riparian proprietors to drain directly through their lands into the stream is not at all the same thing as the right, if any, which accrues to persons not riparian proprietors seeking drainage outlet...

The majority of the cases deal with municipal drainage which can scarcely be limited to riparian lands. In Manitoba, provisions have been made under the Municipal Act (S.M., 1970, c. 100) for drainage into natural watercourses. This statutory right will be discussed later in section 4.2 of this chapter.

4.12 Rights and obligations of landowners which relate to surface water

The judicial approach in defining surface water has been to enunciate criteria for classifying water as a natural watercourse and by process of exhaustion, water that fails to meet these criteria is classified as casual surface water (Reid, 1973). Since legal rights in water are dependent upon the classification adopted, it is important to distinguish between a natural watercourse and surface water. A definition of surface water is cited by Reid (1973) as follows:

Surface waters are those which fall on the land from the skies or arise in springs and diffuse themselves over the surface of the ground, following no defined course or channel, and not gathering into or forming any more definite body of water than a mere bog or marsh, and are lost by being diffused over the ground through percolation, evaporation, or natural drainage.

As this paper is not primarily concerned with natural drainage as opposed to artificial drainage, a brief summary of rules in respect to surface flow is sufficient.

In summarizing the common law¹ it may be stated that as far as owners of low land are concerned, they cannot claim assistance of the law to prevent the natural flow of surface water from adjoining high land (Harrison v. Harrison, 1883). However, they are not obliged to receive surface water flowing upon their lands since the owner of the high land has no right at common law to have his land drain naturally onto said lands. Therefore the low landowner may without liability protect his own lands by building structures or by filling the land to sufficient height for protection, and the upper landowner has no complaint if flooding results (Wilton v. Murray, 1897).

It should be noted that the character of water changes in law when it is collected in an artificial drain and therefore, a person doing so loses any right he may have had in respect to uncollected surface water. The instant he artificially collects surface water in a drain makes him liable to avoid draining this water onto adjacent lands and he must therefore take the water to a sufficient outlet (Re Orford and Aldborough, 1912).

With these basic common law principles in mind one can see more clearly, in the following discussion, the role played by statute law and its infiltration into the common law area.

4.2 The Statute Law at Present

There are four Manitoba statutes of importance to artificial land drainage. These are: (1) The Water Rights Act; (2) The Water Resources

¹For further detail the reader may refer to an excellent discussion in La Forest et al. 1973. Water Law in Canada - The Atlantic Provinces. Queen's Printer, Ottawa. pp.372-98.

Administration Act; (3) The Municipal Act; (4) The Conservation Districts Act.

The Conservation Districts Act (S.M. 1976, c. 38) is outlined in section 3.22 of this paper and therefore will be omitted from the following discussion. The Act's importance in drainage procedures within conservation districts will be discussed later in this paper.

When considering any type of water manipulation one must first refer to The Water Rights Act (R.S.M., 1970, W 80) since many provisions under the latter three Acts are subject to the former.

4.21 The Water Rights Act

The Water Rights Act (R.S.M., 1970, W 80) as it presently stands is essentially a compilation of many amendments. It was originally a statute governing water use for irrigation purposes in the thirties. Through time it required constant amending in order to pertain more closely with water law needs of the Province. As a result, the Act is extremely inconsistent and leaves many questions with anyone attempting to delve into it. According to Water Resources Division personnel such questions can only be answered in a court of law and therefore assumptions have no place in reviewing the Act. With this in mind, the following discussion will review provisions under the Act which are pertinent to drainage and simply point out problem areas.

Section 7 (1) of the Act provides that all water is vested in the Crown:

...the property in, and the right to the use of, all water at any time in any river, stream, water-course, lake creek, spring, ravine, canyon, lagoon, swamp, marsh, or other body of water shall be deemed to be vested in the Crown...

The importance of this provision is evident as it gives the Province ultimate authority over the water resources.

Sections 7 (2) and 7 (3) of the Act deal with the diversion¹ of water:

7(2) No person shall

(a) divert any water from...

any river, stream, watercourse, lake, creek, spring, ravine, canyon, lagoon, swamp, or marsh, otherwise than under this Act, except in the exercise of a legal right existing at the time of diversion...

7(3) No person shall

(a) divert or impound any surface water not flowing in a natural channel or contained in a natural bed...

without having first obtained from the minister (M.R.E.M.) written authority to do so.

Inconsistencies are evident upon close scrutiny of sections 7(1), 7(2) and 7(3). For example, why is the all encompassing phrase "other body of water", used in section 7(1), omitted from section 7(2)? As a result of this omission bodies of water such as lake, lagoon, swamp and marsh, appearing in Section 7(2), are in need of definition when one is concerned with wetland drainage. This clarification is required because under section 7(2) diversion is permitted "in the exercise of a legal right existing at the time of the diversion" while in section 7(3) diversion is permitted only after first obtaining "written authority" from the minister (M.R.E.M.)

While section 7(3) would be reasonably straightforward if the Act provided a definition of "surface water", section 7(2) remains ambiguous

¹Divert is defined by The Water Rights Act (R.S.M., 1970, W 80, s.2) and means "take or remove".

in two ways. Firstly, as already mentioned, the various water bodies need definition; and secondly, "legal right" begs clarification.

While "legal right" or authority is left undefined, section 48 does indicate that authority is required for diversion and thus adds a certain degree of clarity to the situation:

Every person who, wilfully without authority, takes or diverts (removes) any water from any river, stream, watercourse, lake, creek, spring, ravine, canyon, lagoon, swamp, marsh, or other body of water, is guilty of an offense and is liable, on summary conviction, to a fine not exceeding five dollars per day or fraction of a day for each unit (c.f.s.) of water improperly diverted, or to imprisonment for a term not exceeding thirty days, or to both.

According to this provision it can be concluded that "authority" is required to remove water from any body of water.

Fortunately, section 7(7) is straightforward and allows individual landowners to drain within the boundaries of their land:

Nothing in section 7(2) or 7(3) prohibits

- (a) any person from removing non-flowing water, or causing such water to be removed, from one place on land owned by him to another place on that land, if it does not escape to land not owned by him; or*
- (b) from diverting the course of flowing water on land owned by him, if he permits it to leave his land and when it leaves his land it flows in the channel or bed in which it flowed before the diversion was made.*

Such activities such as draining smaller wetlands into larger wetlands within one's land are therefore allowed under this "saving provision".

In referring to drainage works¹ section 51(1) proclaims:

¹Works are defined under The Water Rights Act (R.S.M., 1970, W 80) as meaning "drains, ditches...."

Notwithstanding anything in this Act or any other Act, no person shall construct any works without first obtaining the written approval of the minister thereto.

In theory this section clearly states written approval of the minister is required before any drainage construction proceeds. According to Water Resources Division personnel section 51 is a vehicle used for "policing" the construction of drains which plan to use provincial waterways as an outlet.

The method of obtaining approval is presented in section 51(2) of the Act and discussed later in section 4.31 of this chapter.

4.22 The Water Resources Administration Act

The Water Resources Administration Act (R.S.M., 1970, W 60) is of importance to drainage law, not through prohibitive provisions, but rather through the powers it provides to the Minister of M.R.E.M. and the Lieutenant Governor in Council.

The powers of the Minister with respect to water control works¹ is proclaimed in section 5 of the Act:

The minister may

- (a) construct or operate, or construct and operate, in any part of the Province such water control works as he may deem necessary or expedient in the public interest; and*
- (b) construct or operate, or construct and operate, any water control works on the request of, and as an agent for, any local authority established by statute.*

The Minister may delegate these powers over construction of water control works through section 23(1) of the Act which proclaims:

¹Water control works are defined under the Water Resources Administration Act as meaning "works for the conservation, control, disposal, protection, distribution, drainage, storage, or use, of water; or for the protection of land or other property from damage by water."

Where, under this Act, power or authority is granted to, or vested in, the minister;... the minister may, by written authorization approved by the Lieutenant Governor in Council, delegate that power or authority to any person employed under the minister in the (Water Resources Division), subject to such limitations, restrictions, conditions, and requirements as the minister may impose and as are set out in the written authorization.

In addition to these powers or rights, the Province of Manitoba can designate any natural or artificial waterway already in existence through section 13(1):

The Lieutenant Governor in Council may designate any water control work, natural water channel or lake as a provincial waterway.¹

The Lieutenant Governor in Council can also abandon provincial waterways through section 13(2) of the Act.

The following section 14(1) of the Act provides the government with jurisdiction over all provincial waterways. This provision is cited earlier in section 3.3 of this paper.

It is clear therefore, that the Government of Manitoba through the Water Resources Division of the Department of Mines, Resources and Environmental Management has the authority to construct and operate any drainage work and also has the power to obtain jurisdiction over any existing drainage channel.

4.23 The Municipal Act

Division II of the Municipal Act (S.M. 1970, c. 100) contains all the provisions related to land drainage in the Act.

¹Provincial waterway system is discussed in section 2.42 of this paper.

With the jurisdictional arrangement over waterways discussed in sections 3.1 and 3.3 of this paper, it is sufficient to state that section 270 of the Act provides each municipality with jurisdiction over all non-provincial waterways within its boundaries. With this jurisdiction follows section 277(1) which obliges the municipality to keep every drain within its boundaries properly cleaned out and in repair.

Without doubt, the most significant section within the Act in respect to drainage law is section 272(1). This section gives the municipal council the power to pass drainage by-laws and reads as follows:

Subject to section 276 and to the Water Rights Act, the council of any municipality may pass by-laws,

- (a) for constructing, opening, making improvements, deepening, contracting, widening, altering, diverting, straightening, discontinuing, or stopping up any drain or natural watercourse or surface watercourse, or for providing outlets therefor or preventing surface water flooding into or within the municipality, and for acquiring by expropriation or otherwise, any land in or adjacent to the municipality in any way necessary or desirable, in the opinion of the council, for any such purpose;...*
- (b) for determining the course of, and regulating, drains or natural watercourses or surface watercourses in the municipality, for preventing the obstruction thereof in any manner, and for protecting them from encroachment or injury...*

Section 276 of the Act, to which this power is subject (in addition to The Water Rights Act) states:

A municipality shall not fill, dam up, obstruct, injure, or destroy, any watercourse, or drain into a watercourse a greater quantity of water than the watercourse will reasonably admit, so as to cause the water therein to overflow or to damage contiguous lands, unless there has been first provided or constructed by the municipality an adequate outlet for the water,...

In addition to providing, to council, the power to pass by-laws for constructing lower order municipal drains, the Act also provides for protection of these drains through section 272(2):

Every person who, without previously having written authority from the municipality to do so, deepens, widens, alters, diverts, or stops up, or in any way interferes with, any drain, culvert, natural watercourse, or surface watercourse constructed, open, made improved, deepened, or widened, wholly, or partially by, or at the expense of, the municipality, is guilty of an offence, and is liable, on summary conviction, to a fine not exceeding one hundred dollars and in default of payment to imprisonment for a term not exceeding one month.

Subdivision II of The Municipal Act deals with the case where a landowner wishes to construct a drain across the lands of others.

Section 273(1) reads as follows:

Where an owner or occupant of land desires to construct a drain or ditch across the lands of others, for agricultural or sanitary purposes, he may file a petition with the clerk of the municipality...setting forth the necessity therefor with a description of its proposed starting point, route, and terminus, and praying that permission be granted to him for doing the work or that it be undertaken at the general expense of the municipality.

It should be noted that the word "may" in section 273(1) is very significant. The word "may" implies no obligation while the word "shall" does imply a requirement of some sort. As conjecture, it appears the section is worded as such to accomodate municipalities which have not passed a drainage by-law, under section 272(1)d, requiring a landowner wishing to construct a drain across lands of others to file a petition requesting permission. The fact that landowners within any municipality may request municipal drainage works necessitates the section's inclusion within the Act.

4.3 Legal Drainage Procedure In Manitoba

The following discussion outlines the various drainage procedures individual landowners, municipalities, conservation districts and the Manitoba Government are obliged to follow in draining a water body. For the purposes of this outline a water body will be designated as non-flowing surface water. This designation is based on common law criteria used in distinguishing natural watercourses from surface water.¹ In the case of the individual landowner, field drainage, involving the removal of excess water resulting from spring-melt or excessive precipitation during the growing season, will be ignored.

It is evident from the preceding discussion concerning statute law, that legislation concerning drainage procedure is vague, inconsistent and in many cases, lacking. Nevertheless, in theory, drainage is conducted under the authority of these statutes. Therefore, presenting an outline of drainage procedures based on this legislation can do no better than add focus to areas needing clarification.

In procedural matters it is the outlet which the drain utilizes that determines the immediate authority. Because of this fact outlets have been divided into three categories, namely; natural watercourses; municipal drains (non-provincial waterways and municipal roadside ditches); and, provincial waterways. Where appropriate, the procedure followed by each entity is divided into three paths corresponding to the possible outlets.

¹For further detail on definitions for both natural watercourses and surface water the reader may refer to sections 4.11 and 4.12 respectively, in this chapter.

4.31 Individual landowner procedure

As mentioned previously, section 7(7) of The Water Rights Act (R.S.M. 1970, W 80) allows the landowner to drain within the boundaries of his land provided the waters do not escape onto lands not owned by him.

However, if the non-flowing water body is to be diverted (removed), regardless of the outlet used, the landowner, under section 7(3) of The Water Rights Act must first obtain written authority from the Minister of Mines, Resources and Environmental Management (or his designated signing authority).

Although it is unlikely section 51(1) of The Water Rights Act refers to drainage works of the scale required to drain a small water body, it nevertheless states "no person shall construct any works without first obtaining the written approval of the minister thereto".

The method for obtaining such approval is outlined in section 51(2) of the Act:

Before such approval is given, there shall be filed with the minister a general description of the land which it (drain, ditch,...) is proposed to drain and the nature and location of the proposed works, and the minister shall have such investigation as he considers necessary made by the director (Water Resources Division) and a report submitted to him by the director setting forth

- (a) the effect of the operation of the proposed works upon the effectiveness or operation of any works theretofore authorized under this Act;*
- (b) the effect of the operation upon irrigation or water supply generally and their future development;*
- (c) the effect of the construction and operation of the proposed works upon the lands within the watershed in which the proposed works are to be situated and upon any other works that then exist or that, in the*

- opinion of the minister, are likely to be constructed in that watershed;*
 (d) *whether he (the director) recommends the construction of the works.*

Section 51(4) indicates a license, upon approval, is not necessary:

Where such approval has been given by the minister in writing, the works may be constructed and operated under the drainage laws applicable thereto, ...and no further license...is necessary.

Once drainage is approved, the individual landowner may have the three outlets available to him.

a) natural watercourse outlet

If his land abuts on a natural watercourse as defined by common law, he may exercise his riparian right and make reasonable use of the watercourse without regard for lower landowners. Therefore no further legal procedure is required of him.

b) municipal drain outlet

Although no section in The Municipal Act (S.M. 1970, c. 100) specifically requires authorization to drain into a municipal drain, a casual canvass of several municipalities unanimously indicated official authorization from the municipal council is required. For example, the Rural Municipality of Hamiota replied:

...(If approval) for drainage from private property has been given by the Water Resources Division, a Municipality must still approve of it by resolution. In this regard, a Municipality does have the final say, but they cannot overrule the Water Resources Division.

Section 272(2) of The Municipal Act may be loosely interpreted to include "making a cut in a municipal drain in order to drain".

Every person who, without previously having written authority from the municipality to do so..., alters, ..., or in any way interferes with, any drain...made...by, or at the expense of the municipality, is guilty of an offense...

Draining into a municipal drain may be interpreted as an action of "altering" or "interfering", and if so, written authority by resolution is required.

Regardless of section 272(2), a municipality has the power to pass drainage by-laws under section 272(1) and therefore it could pass a by-law requiring any landowner to seek official authority from council to drain. However, by-laws are unique to each municipality and therefore procedures, if any, may differ.

c) provincial waterway outlet

In the case of draining into a provincial waterway the individual landowner must carry out the works under the provisions stated in section 14(4) of The Water Resources Administration Act (R.S.M. 1970, W 60):

No person shall place any material, on, remove any material from, or construct, carry out, reconstruct, establish, or place, any works or structures on, over, or across a provincial waterway, except as may be authorized in writing by the minister and subject to the terms and conditions as the minister may prescribe.

According to Water Resources Division personnel this section prevents, among other things, a person from cutting through the "dump", "spoil bank", or dyke paralleling a waterway, if indeed, these obstructions are present. Otherwise, the Division's philosophy is that the waterway's purpose is to drain, therefore, requiring official procedure to make "reasonable use" of it is unnecessary.

In any case, the initial procedure required under section(s) 7(3) and/or 51 of The Water Rights Act precludes any debate over the use of section 14(4), since the authority of the Minister may be acquired through the former two sections.

4.32 Municipal procedure

Prior to choosing an outlet for draining a water body, a municipality is subject to the same requirements as the individual landowner. That is, the municipality must seek ministerial approval under sections 7(3) and 51 of The Water Rights Act.

While in practice, there is little need for the Water Resources Division to investigate individual drainage under section 51, municipal drainage requires closer scrutiny since it has the potential of being on a much larger scale. The method for obtaining approval in accordance with section 51 is cited in section 4.31 in this chapter. The application for approval provided by the Water Resources Division is reproduced in Appendix III.

Once approval has been granted through the Water Resources Division, a municipality may proceed with the drainage works. Any internal complications, such as rights of access and right of way, can be dealt with under the authority of section 272(1) of The Municipal Act (S.M. 1970, c. 100) which grants to a municipality the power to pass drainage by-laws.¹

With this power and the approval of the minister under The Water Rights Act, municipalities need not be concerned with which outlet

¹See section 4.23 of this paper.

category they intend to utilize. However, in accordance with section 276(1) of The Municipal Act, they must ensure that the outlet is adequate for the proposed works:

A municipality shall not fill, dam up, obstruct, injure, or destroy, any watercourse, or drain into a watercourse a greater quantity of water than the watercourse will reasonably admit, so as to cause the water therein to overflow or to damage contiguous lands, unless there has been first provided or constructed by the municipality an adequate outlet for the water, either in the municipality in which the watercourse is or through another or other municipalities.

4.33 Procedure within conservation districts

Section 19 of The Conservation Districts Act (S.M. 1976, c. 38) terminates municipal authority over "the reclamation and use of lands; the construction, operation or maintenance of works; and the use and development of land in any way that relates to the rehabilitation of any area within the district' and vests that authority in the District Board. In regards to drainage, all water management within the district is the responsibility of the Board.

While the former Watershed Conservation Districts Act (S.M. 1959, c. 70, s. 38) required a person planning to alter the flow of waters in a drain to first obtain approval from the Board, the new Act has no such mandatory provision. The powers of the Board, under section 21 of the Conservation Districts Act refer to permits:

A board may...

f) issue, subject to the provisions of The Water Rights Act, permits to alter surface water courses...

This section, therefore, leaves with the Board, the decision of whether to require permits for all alterations of surface watercourses.

As a result the procedural situation is unclear.

It is clear however, that drainage works remain subject to sections 7(3) and 51 of the Water Rights Act. Also, an individual's riparian rights are retained.

In theory, according to Water Resources Division personnel, the Board may be looked upon as a municipal council in regards to drainage procedure. Individuals or municipalities wishing to drain must seek written approval from the Board. If a drainage work is small in scale, such as that conducted by an individual landowner, the Board may decide without provincial input. However where the Board deems the works to be of a significant scale it may request the services of provincial agriculturalists, biologists, and engineers in assessing the proposed works. Based on the recommendations of these authorities the Board makes its decision. If approved, the Board may ask the Water Resources Division to act as their agent in undertaking the works.

4.34 Provincial procedure

As mentioned previously, provincial water control works are administered through the Water Resources Division of the Department of Mines, Resources and Environmental Management. The Water Resources Administration Act (R.S.M. 1970, W 60) establishes the Division and gives the Minister, under section 6, the right to construct any water control work he deems necessary. Section 23.1 gives the minister authority to delegate any of his rights concerning water control works to any person employed in the Division.

Therefore the procedure required to authorize a provincial drainage project is simply an internal one. A design plan of the proposed

works is approved by a provincial engineer within the Division and circulated until it ultimately reaches the Senior Assistant Deputy Minister. After the plan receives his (or another designated signing authority's), signature, the drainage works may be undertaken.

4.35 Summary flow chart of legal drainage procedure

A summary flow chart outlining legal drainage procedures is presented on the following page. The reader must keep in mind, however, the vague provisions that legislation lends to this subject. Therefore the flow chart is based not only on the author's interpretation of the legislation but also on input from municipalities and the Water Resources Division.

4.4 Drainage Assistance Procedure

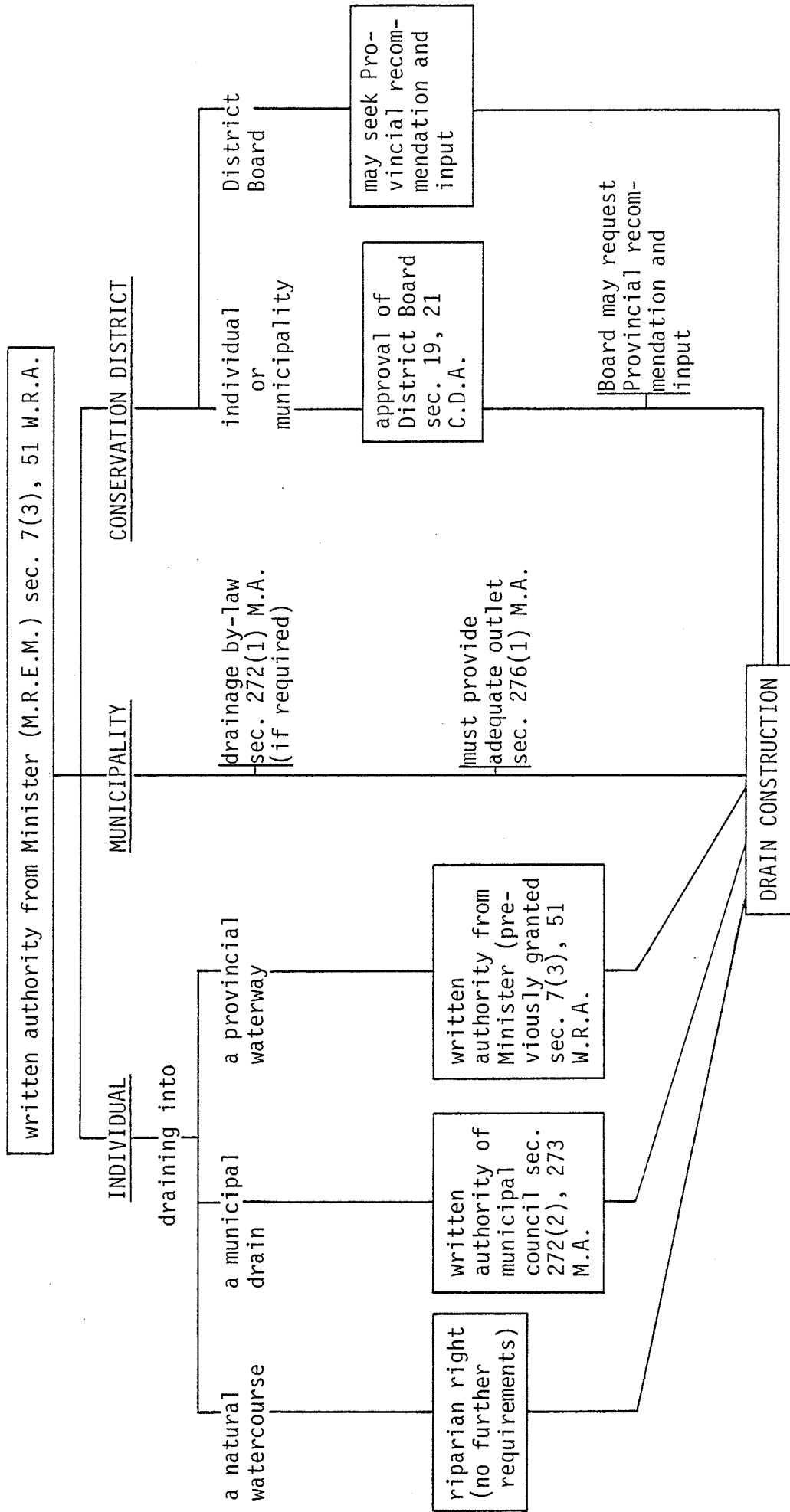
4.41 Procedure for municipal assistance

Section 273 of The Municipal Act (S.M. 1970, c. 100) provides a means whereby a landowner wishing to construct a drain across the lands of others may obtain permission and/or assistance from the municipality. The section is self-explanatory and reads as follows:

273(1) Where an owner or occupant of land desires to construct a drain or ditch across the lands of others, for agricultural or sanitary purposes, he may file a petition with the clerk of the municipality in which the drain or ditch is proposed to be constructed, setting forth the necessity therefor with a description of its proposed starting point, route, and terminus, and praying that permission be granted to him for doing the work, or that it be undertaken at the general expense of the municipality.

273(2) The clerk shall lay the petition before the council at its next meeting; and the council

LEGAL PROCEDURES REQUIRED IN DRAINING A WATER BODY



Abbreviations

C.D.A. - Conservation Districts Act

M.A. - Municipal Act

W.R.A. - Water Rights Act

may, . . . , give the permission asked for, or may decide to perform the work as a municipal work, or may refuse to do either.

273(3) *Where it is decided that the work should be performed, the amount of compensation, is any, to be paid by the petitioner or the municipality, as the case requires, to the owner across whose lands the drain or ditch is to be constructed, in lieu of damages to the land, shall be fixed and determined by the council; and the council shall provide that payment of the amount is a condition precedent to the rights of the petitioner or the municipality to enter upon the lands, and to do and perform the work.*

It is evident that an individual's filing of a petition requesting that the municipality undertake the work, does not guarantee permission and assistance will be granted.

Once again, however, there are uncertainties associated with the use of the word "may" in section 273(1). The terminology seems to imply it is a municipality's prerogative to require the filing of a petition by the landowner. In other words each municipality may decide on such a requirement through the passing of a drainage by-law.

4.42 Farm Survey Program

As referred to previously in section 3.4 of this paper, the Manitoba Department of Agriculture, through its Technical Services Branch, provides technical services to farmers contemplating drainage (see Appendix I). These services include the design and layout of the required drain(s).

The procedure involved in providing such services is outlined in a policy memorandum sent to all Agricultural Representatives in 1965 by E. P. Hudek, present director of the Technical Services Branch. The same procedure is presently in effect (Friesen, personal communication). It

is outlined as follows:

1. *The farmer must fill out in triplicate an Application for Farm Survey. These forms must be forwarded to the appropriate Agricultural Representative (see Appendix IV).*
2. *The application must be recommended by the Agricultural Representative:*
 - (a) *If the application is for field drainage, intended to provide protection of crops from flooding (not slough drainage or contours) the Agricultural Representative will review the application and if recommended by him, mail two copies of application to O. H. Friesen, Chief-Agricultural Engineer, Technical Services Branch/*
 - (b) *If the application is for the drainage of sloughs and/or contours it must be recommended by the Agricultural Representative and the Soils Specialist for the area, and two copies mailed to O. H. Friesen.*
3. *The farmer is responsible to:*
 - (a) *Act as rodman for the Survey Engineer*
 - (b) *Obtain the necessary permission to drain water onto neighbouring land if this is necessary.*
4. *Charges for survey engineering work are on the following basis:*
 - \$10.00 for 1st $\frac{1}{4}$ Section or part thereof up to 160 acres*
 - \$10.00 for 2nd $\frac{1}{4}$ Section or part thereof up to 160 acres*
 - \$15.00 for each additional $\frac{1}{4}$ Section or part thereof up to 160 acres*

In regards to an application for slough drainage needing the additional recommendation (signature) of a Soils Specialist, close scrutiny of applications filed with the Technical Services Branch between 1963 and 1976 revealed that, in many cases, these applications were lacking such a signature. However, there is no way of ascertaining whether

the lack of a Soils Specialists signature is simply an oversight or represents the Soils Specialist's failure to investigate the slough area.

A casual canvass of Agricultural Representatives in Manitoba indicated that the range of criteria used in the recommendation decision is as follows:

- (a) effect of drainage on neighbouring lands
- (b) beneficial to production?
- (c) discourage draining large swamp areas
- (d) need
- (e) adequate outlet?
- (f) proximity of outlet
- (g) engineering feasibility?
- (h) will drainage cause erosion?
- (i) soil type
- (j) wildlife potential
- (k) none

Appendix V contains the information on survey technique with which the farmer is provided prior to the arrival of the survey crew. This information is required by the farmer to aid in his role as a rodman and also his understanding of the resulting data since he is responsible for actual construction.

4.43 Procedure for backflood irrigation assistance

In section 3.51 of this paper it was pointed out that the end result of this type of irrigation, in some cases, is the drainage of a water body. Therefore, the procedure for obtaining technical and financial assistance from the Prairie Farm Rehabilitation Administration is worth outlining. The following procedural outline was provided by the P.F.R.A. office in Brandon and applies to bona fide farmers¹ in Manitoba.

¹For the purposes of P.F.R.A. policy, a bona fide farmer is a person who is recognized as such for income tax purposes by the Department of National Revenue.

1. To qualify for assistance for a backflood irrigation project under the P.F.R.A. Water Development Service Program, the following requirements apply:
 - (a) The applicant must be a bona fide farmer;
 - (b) The project must be located on a bona fide farm;
 - (c) Application on the appropriate form is required for the project (see Appendix VI);
 - (d) Each applicant will be eligible for financial assistance for only one project in any one year;
 - (e) The applicant will not be eligible to receive financial assistance if he or she has received financial assistance for a P.F.R.A. project during the previous year;
 - (f) All development proposals must be entered into with the written consent of the Registered Owner of the land affected; The Registered Owners of the land adjacent to and effected by the proposed works to a point of sufficient outlet; and the Rural Municipality administrating the area of the proposed development;
 - (g) No technical or financial assistance will be provided if the project area is less than five acres;
 - (h) A control structure must also be installed to control the flow of water.
2. The applicant will:
 - (a) Ensure that the neighbours, who will be effected by the released water are aware of the project and agree to the construction of the scheme. This will be supported by a signed letter by the effected owners consenting to the P.F.R.A. survey.
 - (b) Submit a petition for construction of a drain to the applicable municipal clerk following the procedure specified in section 273(1) of the Municipal Act: the petition will set "forth the necessity therefor with a description of its proposed starting point, route, and terminus...".

3. *Municipal procedure:*

- (a) *Functioning under Section 273(2) the clerk presents the petition to council which has the authority to approve or deny the request to install a drainage ditch.*
- (b) *Compensation to the owners of the lands the drain crosses can be determined by the council under Section 273(3) with the right to appeal the amount granted by section 273(4).*
- (c) *The Municipality, if approving the petition, will request P.F.R.A. to conduct a survey stating:*
 - *the applicant's name*
 - *the project location*
 - *the purpose of the works*
 - *the Rural Municipal right-of-way affected by the works*

After Municipal Authority requests the services, P.F.R.A. will survey, design and submit the plan of the proposed project to the Water Resources Division. The Division will inspect the plan and forward a copy of the plan to the applicable Rural Municipality. The Municipality, if approving the plan, will contact the applicant regarding the decision.

The applicant will:

- (a) *In the event that easements are required for the construction of a ditch on another owner's land, obtain the necessary easements and ensure that the easements are registered in the Land Titles Office.*
- (b) *File, by caveat, the required consents from the effected owners.*
- (c) *Request P.F.R.A. to provide grade stakes and supervise the construction of the works.*

Financial assistance varies with each project and is provided only if the municipality has approved the project and the project is completed according to the approved plan.

A large part of the above procedure is based on section 273 of The Municipal Act which refers, quite clearly, only to persons wishing to drain across the lands of others. Regardless, P.F.R.A. policy requires

all applicants to follow the procedure outlined and thereby removes any uncertainty regarding the interpretation of section 273.¹

¹See discussion in sections 4.23 and 4.41 of this paper.

CHAPTER 5 - DISCUSSION

5.1 Discussion

This practicum has outlined the history, administration and law of artificial land drainage in Manitoba. Fundamental knowledge of these areas is basic to any wetland preservation endeavor.

While the history of the development and organization of artificial land drainage is important in adding focus to the present administrative and legal structures relating to drainage, this discussion will concentrate on the present situation. However, it should be emphasized that the drainage issues (and indeed the drains) of the past, are with us today.

Responsibility for the construction and maintenance of lower order drains remains divided by rural municipal boundaries. Municipalities continue to complain about "foreign water"; a problem first arising around the turn of the century. With the Province assuming the responsibility for the construction and maintenance of the higher order provincial waterways, there is a greater potential this single entity may alleviate the problems arising where previously a large drain fell under the jurisdiction of several municipalities. This potential stems from the fact that the Province has the necessary funds and technical expertise to attempt to match the capacity of the drain with demand over its entire course. The word attempt must be stressed because in many cases the Province cannot easily monitor changing demands on its waterways exerted

by uncoordinated drainage developments in each municipality. To further compound this water management problem each landowner implements his own drainage program.

It is evident that while the provincial waterway system is well intended and greatly reduces the burden of responsibility on municipalities for drain maintenance, it is approaching the problem of uncoordinated water management from the wrong direction. That is, efficient water management must concentrate on the individual farm unit where the water begins to drain by artificial and/or natural means. This principle has long been considered logical but impractical.

The conservation district concept is aimed at resolving water management problems by combining municipal and provincial authority over water and land resources of a watershed into one body, the district board. It is responsible for promoting and administering the conservation of land, water and related resources. In assuming this stewardship role toward the district's natural resources, the board and the associated sub-district committees (whose majority of members are appointed from the agricultural sector) are ideally required to consider district problems with not only the interests of agriculture in mind, but also such interests as recreation, forestry and wildlife. At least in the short term, it is difficult to imagine members of a board or sub-district committee adjusting their attitudes toward these other interests to any great extent.

From the viewpoint of wetland preservation, it is somewhat disconcerting to see the continued emphasis being placed on drain maintenance and reconstruction within conservation districts. With provincial funds and technical expertise readily accessible to the districts, high

standard drainage works are being undertaken with much ease and efficiency. The ultimate aim of these undertakings is the creation of an efficient drainage network serving the various needs of the district's residents. The primary purpose of such a drainage network is to accommodate spring runoff and excessive rainfall at a rate which avoids soil erosion and flooding and thereby increases agricultural productivity and reduces flood damage. However, the more extensive a drainage network becomes, the more accessible these drains are to a greater number of landowners contemplating not only field drainage but also slough drainage. Before immediately concluding that such drainage undertakings be slowed or halted in an effort to preserve wetland habitat, the resource manager must realize that rural residents are entitled to provision of adequate drainage outlets in much the same way as urban residents are entitled to provision of a storm sewer system. In view of this he must be more concerned with the use being made of these provincial and municipal drains by individual landowners rather than the actual drainage network. As in an efficient water management effort, an ideal wetland preservation effort centered on the individual farm unit is also considered impractical.

From the wetland preservation viewpoint, where does this leave the resource manager? Consulting the legislation concerning water and drainage law, he will find many of the key statutory provisions, especially under The Water Rights Act, obscure and inconsistent. Definitions of certain water bodies are sorely needed for clarification. Under The Municipal Act each municipality has the power to pass drainage by-laws. With by-laws being unique to each municipality only generalizations concerning municipal drainage law can be made. Drainage procedure law is also obscure under The Conservation Districts Act.

The often stated view by wildlife managers that "most of the drainage that occurs is really against the law" is, unfortunately, not realistic. Even though the intent of some of the statutes seems to be to reorganize the values of wetlands, the letter of the law is, at best, vague, and usually assumed to relate to soil and water conservation for agricultural purposes only. Present drainage law cannot be counted on as one of the tools to contest the continued drainage of wetlands. Since wildlife managers have not yet learned to effectively "sell" the value of wetlands in providing surface water storage capacity, groundwater recharge, recreational opportunity and diversity in the prairie ecosystem, the economic interests of agriculture will, in all likelihood, take priority. In view of this it becomes increasingly obvious that a successful wetland preservation endeavor will require the intelligent and sustained support of the agricultural sector. This support should be a major goal for natural resource managers in the immediate future if they ever hope to make significant progress in preserving these vital wetlands.

5.2 Recommendations

1) In consultation with experts in law, hydrological engineering, agriculture and wildlife, a revision of Sections 7 and 51 of the Water Rights Act should be undertaken to clarify the legalities involved in accomplishing a wetland drainage project.

2) The Conservation Districts Act should be amended to include provisions clearly outlining the legal drainage procedure within a conservation district.

3) To lessen a landowner's dependency on the availability and condition of drains, the government should more actively promote land use practices which enhance soil moisture penetration and retention.

4) A common set of criteria to be employed in wetland drainage decisions should be established by a committee consisting of persons from the agricultural, wildlife and hydrological engineering sectors within Manitoba. With water management decisions being undertaken by several separate agencies in the Province, use of such criteria would provide a common base for decision making.

5) To act as a common disincentive to the drainage option, wetland acreages should be exempted from municipal tax assessment.¹

¹At the time of publication, Dr. H.L. Sawatzky (Department of Geography, University of Manitoba) was developing a scenario for such a scheme and investigating its general feasibility.

Literature Cited

- Canada Department Regional Economic Expansion. 1971. Prairie Farm Rehabilitation Administration 1970-71 Annual Report.
- Canada Department Regional Economic Expansion and Manitoba Department Agriculture. 1971. Canada/Manitoba Agricultural and Rural Development Agreement 1971/1975. 14 pp.
- _____. 1973. Agricultural and Rural Development Administration (Manitoba) 1972 and 1973 Annual Report.
- Colpitts, L. K. 1974. The cost and feasibility of wildlife habitat maintenance on private lands in the Minnedosa pothole country. Practicum. Natural Resource Institute. University of Manitoba. 101 pp.
- Ellis, J. H. 1938. The soils of Manitoba. Economic Survey Board. Province of Manitoba. 112 pp.
- _____. 1971. The ministry of agriculture in Manitoba 1870-1970. Economics Publications Branch, Manitoba Department of Agriculture. 660 pp.
- Evans, C. D., and K. E. Black, 1956. Duck production studies on the prairie potholes of South Dakota. U.S. Department of Interior. Fish and Wildl. Serv. Spec. Sci. Rept. 32:59.
- Government of Canada. 1873. Map of the Province of Manitoba shewing the surveys effected in 1871 and 1872. Dominion Lands Office. March 1, 1873.
- Government of Manitoba. 1896. Order-in-Council No. 5338. Queen's Printer.
- _____. 1921. Report of the Manitoba Drainage Commission. King's Printer. 24 pp.
- _____. 1936. Report of the Land Drainage Arrangement Commission. King's Printer.
- _____. 1949. Report and Recommendations on "Foreign Water" and Maintenance Problems. King's Printer. 86 pp.
- _____. 1964. Report of the Manitoba Royal Commission on Local Government Organization and Finance. Queen's Printer.

- Griffiths, J. A. 1952. The history and organization of surface drainage in Manitoba. A paper presented before the Winnipeg Branch, Engineering Institute of Canada. Mimeographed. 15 pp.
- Grower, D. and R. Kabaluk. 1973. Plum Lakes water regulation benefit-cost study. Resource Planning, Economic Research Section. Man. Dept. Mines, Resources and Environmental Management. Unpubl. report. 109 pp.
- Hind, H. Y. 1859. Report on the Assiniboine and Saskatchewan Exploring Expedition. pub., John Lovell. Toronto.
- Historial and Scientific Society of Manitoba. 1970. Manitoba Historical Atlas. ed. J. Warkentin and R. I. Ruggles.
- Kiel, W. H., A. S. Hawkins and N. G. Perret. 1972. Waterfowl habitat trends in the aspen parkland of Manitoba. Canadian Wildlife Service Report Series. 18:63 pp.
- Korven, H. C. and D. H. Heinrichs. 1971. Slough drainage and cropping. Canada Dept. Agriculture Publication 2440:25 pp.
- LaForest, G. V., and Associates. 1973. Water Law in Canada - The Atlantic Provinces. Queen's Printer, Ottawa. pp.372-98.
- LaRose, M. N. 1969. Engineering limitations on water transfers. Canadian Wildlife Service Report Series. 6:16-20.
- Lodge, R. W. 1969. Agricultural use of wetlands. Canadian Wildlife Service Report Series. 6:11-15.
- Manitoba Department Agriculture. 1959-1974. Annual Reports. Queen's Printer.
- Manitoba Department Agriculture and Conservation. 1966. Guidelines for development - the Interlake Region of Manitoba. Queen's Printer. 76 pp.
- Manitoba Department Mines, Resources and Environmental Management. 1971, 1974 & 1975. Annual Reports. Queen's Printer.
- _____. 1974. Whitemud River watershed resource study. 99 pp.
- _____. 1975. Watershed conservation districts of Manitoba. 1975 Annual Report. Queen's Printer.
- Manitoba Department Public Works. 1880. Annual Report. Queen's Printer.
- Manitoba Water Commission. 1977. A review of agricultural drainage in Manitoba. Draft rpt. 68 pp.

- Newton, W. R. 1975. Watershed conservation district in Manitoba - the aims, functions and objectives. Unpubl. paper presented at the 89th Annual Congress of the Engineering Institute of Canada and its Constituent Society, Winnipeg, Manitoba. Mimeographed 26 pp.
- Rakowski, P., R. W. Nero and R. C. Hutchinson. 1974. Present status of waterfowl habitat in the prime duck production area of Manitoba. Unpubl. report to Manitoba Waterfowl Tech. Comm. 12 pp.
- Reid, A. D. 1973. Surface water at common law. in "Water Law in Canada". ed., G. V. La Forest and Associates. Information Canada, Ottawa. 550 pp.
- Sexton, D. C. 1975. Review of the history of drainage organization and financing in Manitoba. unpubl. paper for a certificate course in Public Administration at the University of Manitoba. 15 pp.
- Tamplin, M. J. 1967. A brief summary of Glacial Lake Agassiz studies. Paper presented at the 1966 Conference on Environmental Studies of the Glacial Lake Agassiz Region, W. J. Mayer-Oakes. University of Manitoba Press, Winnipeg. pp.27-37.
- Uskiw, S. and M. Lessard. 1977. More \$\$ for soils program. Joint news release from the Manitoba Dept. Agriculture and Canada Dept. Regional Economic Expansion, Winnipeg Free Press, February 5, 1977, ed.
- Warkentin, J. 1967. Human history of the Glacial Lake Agassiz Region in the 19th century. Paper presented at the 1966 Conference on Environmental Studies of the Glacial Lake Agassiz Region, W. J. Mayer-Oakes. University of Manitoba Press, Winnipeg. pp.326-337.
- Weir, T. R. 1960. ed., Economic atlas of Manitoba. Manitoba Dept. Industry and Commerce. Plates 13:29 and 2:5.

Statutes

- Canada. The Agricultural and Rural Development Act. Revised Statutes of Canada. 1961, c. 30. Queen's Printer, Ottawa.
- _____. The Fund for Rural Economic Development Act. Statutes of Canada. 1966, c. 41. Queen's Printer, Ottawa.
- _____. The Prairie Farm Rehabilitation Act. Revised Statutes of Canada. 1970, p.17. Queen's Printer, Ottawa.
- Manitoba. The Conservation Districts Act. Statutes of Manitoba. 1976, c. 38. Queen's Printer, Winnipeg.

Manitoba. The Department of Agriculture and Immigration Act Amendment Act. Statutes of Manitoba. 1959, c. 4. Queen's Printer, Winnipeg.

_____. The Drainage Act. Statutes of Manitoba. 1880, c. 2. Queen's Printer, Winnipeg.

_____. The Land Drainage Act. Statutes of Manitoba. 1895, c. 11. Queen's Printer, Winnipeg.

_____. The Land Drainage Arrangement Act. Revised Statutes of Manitoba. 1935, Vol. 2., c. 133. King's Printer, Winnipeg.

_____. The Municipal Act. Statutes of Manitoba. 1970, c. 100. Queen's Printer, Winnipeg.

_____. The Resource Conservation Districts Act. Revised Statutes of Manitoba. 1970, R 135. Queen's Printer, Winnipeg.

_____. The Water Control and Conservation Branch Act. Statutes of Manitoba. 1967, c. 70. Queen's Printer, Winnipeg.

_____. The Water Resources Administration Act. Revised Statutes of Manitoba. 1970, W 60. Queen's Printer, Winnipeg.

_____. The Water Rights Act. Revised Statutes of Manitoba. 1970 - W 80. Queen's Printer, Winnipeg.

_____. The Watershed Conservation Districts Act. Revised Statutes of Manitoba. 1970, W 40. Queen's Printer, Winnipeg

Legal Cases

Harrison v. Harrison 1883. 16 N.S.R. 338.

McGillivray v. Township of Lochiel 1904. 8 O.L.R. 446.

Re OrFord and Aldborough 1912. 27 O.L.R. 107.

Re Township of OrFord and Howard 1891. 18 O.L.R. 496.

Wilton v. Murray 1897. 12 Man. R. 35.

APPENDIX I

VERBATUM EXTRACTS FROM 1959-1974
ANNUAL REPORTS OF THE MANITOBA DEPARTMENT
OF AGRICULTURE - FARM SURVEY PROGRAM

Fiscal Year - April 1 to March 31

- 1959-60 *"Several farm drainage projects, restricted in the main to survey work for draining of sloughs and low lying areas on farms, were undertaken."*
- 1960-61 *"Farm drainage continues to make heavy demands on the agricultural engineers. Demonstrations, surveying and ditch construction were conducted. Seventeen (17) survey projects to lay out drainage ditches were included."*
- 1961-62 *"During 1961 an increased number of requests for surveys for farm drainage were received. Surveys were carried out on 55 farms in 14 municipalities, principally in the Red River Valley. A few surveys to drain sloughs were completed in other parts of the Province."*
- 1962-63 *"A policy was developed whereby charges were made for farm drainage surveys at the rate of \$10.00 for the first $\frac{1}{4}$ section per survey for the first two and \$15.00 for any additional $\frac{1}{4}$ section. Drainage surveys were completed on 15 farms."*
- 1963-64 *"There were many requests for surveys on farm drainage during 1963. The policy of charging \$10.00 per $\frac{1}{4}$ section per survey for the first two and \$15.00 for any additional $\frac{1}{4}$ sections has been acceptable to most applicants. Many of the surveys were done in the area east of the Red River. Farm drainage surveys completed - 41."*
- 1964-65 *"Farm drainage surveys completed - 49. Three survey courses - attendance 49."*
- 1965-66 *"There was a slight decrease in requests for surveys for farm drainage with evidence that many farmers followed the examples set by their neighbours and went ahead with their drainage program. Most of this work is in the Red River Valley with limited requests from other areas. In order to meet the need adequately for farm drainage, a two day course was offered on*

the use of survey instruments. The 24 farmers who attended, later carried out their own farm surveys. Farm drainage surveys completed - 43 of 64 ¼ sections."

- 1966-67 *"Three courses with a total of 50 farmers were held on use of survey instruments and principles of drainage. Farm drainage surveys were carried out on 52 farms mostly in the Red River Valley, involving 77 ¼ sections of land."*
- 1967-68 *"There was little change in the number of requests for surveys for farm drainage. It has become accepted practice in the Red River Valley for most farmers to construct and maintain surface drains. The demand for farm service increased in the Interlake region. Farm drainage surveys completed - 69 - approximately 90 ¼ sections."*
- 1968-69 *"Requests for surveys for farm drainage continued. In the Red River Valley, it has become an accepted practice by most farmers to construct and maintain surface drains. The demand for this service continued to increase in the Interlake area. Farm drainage survey - 57 farms - 76 ¼ sections. Of these, P.F.R.A. co-operated on 15 farms - 18 ¼ sections."*
- 1969-70 *"Farm surveys for drainage were carried out on 48 farms with 62 ¼ sections being surveyed. Drainage ditches were surveyed and staked showing the cuts required to drain the field. The farmer is provided with a list of all stakes and the cut required at each as well as a plan showing their location. One short surveying course - attendance 12."*
- 1970-71 *"Applications for farm survey for drainage continued to come from farmers in the Red River Valley and the Interlake area. Fifty-one (51) projects were completed in 1970-71."*
- 1971-72 *"About 130 ¼ sections were surveyed for drainage in 1971-72. The demand for surveys normally exceeds the capacity of the surveyor, even though the program is not advertized.
In 1971 the first subsurface drainage installations were made in Manitoba at Ste. Agathe and McCreary. Several more installations are expected in 1972."*
- 1972-73 *"NOTE: Reorganization of the Manitoba Department of Agriculture. No drainage discussed."*
- 1973-74 *"Approximately 80 ¼ sections were surveyed for 50 farmers. The demand for drainage surveys continues to be strong."*
- 1974-75 *"Approximately 90 ¼ sections were surveyed for field drainage for 48 farmers under the farm drainage program. Because of the wet spring a large number of applications were received, and a substantial backlog has developed."*

APPENDIX II

A.R.D.A. SOIL AND WATER CONSERVATION PROJECT CATEGORIES

- 1) *Comprehensive watershed projects for the protection, management, development and improvement of the soil and water resources of a watershed through a multiple purpose undertaking carried out by Manitoba or a watershed conservation association or other similar public body recognized under the legislation of Manitoba.*

Projects shall be formulated to include those water conservation, development and management project purposes and land conservation and improvement project purposes allowed in paragraphs (2) and (3) of this section, which are appropriate within the watershed. All comprehensive watershed programmes or projects shall be approved only if found acceptable on the basis of an economic analysis and an assessment of the positive and negative ecological consequences.

- 2) *Water conservation and development projects for farm water services; renewal of existing irrigation works or supplemental irrigation required for farm diversification, and water management projects for flood protection and prevention, including dyking, erosion control and other measures to prevent or reduce flood and sediment damage. In the case of multipurpose projects for the integrated development, management and conservation of the water resources of an area, the projects may include pollution abatement, stream flow maintenance and recreation, wildlife and fish enhancement or development.*
- 3) *Land conservation and improvement projects for protection of land from soil deterioration, rehabilitation of eroded and depleted soils, improvement of water distribution and disposability by drainage, irrigation and land-forming, reduction of water and sediment damage, land improvement to increase efficiency of production, and other like measures.*

APPENDIX III



PROVINCE OF MANITOBA

Department of Mines, Resources and Environmental Management
WATER RESOURCES DIVISION

APPROVAL TO CONSTRUCT WATER CONTROL WORKS IN ACCORDANCE
WITH THE PROVISIONS OF THE WATER RIGHTS ACT

Date19.....

In accordance with Resolution No. passed at a meeting of the Council of
the Rural Municipality of
held on the day of19..... approval is hereby
requested to carry out the following work:

as recommended in the report of the Water Resources Division
dated19.....

.....
Secretary-Treasurer
Rural Municipality of
.....

Approval is hereby granted in accordance with Section 51 of the Water Rights Act to
carry out the above-described works.

Recommended by:

Approved:

.....
.....
.....

.....
Minister

DATE:19.....

File No.

DISTRIBUTION

- WHITE — Municipality
- PINK — File
- YELLOW — Regional Engineer



APPENDIX IV

MANITOBA DEPARTMENT OF AGRICULTURE

APPLICATION FOR FARM SURVEY

I, _____ Phone No. _____
(name)

(address)

hereby apply for survey for the purpose of _____ (field drainage, contours, slough drainage) on the following land in the

Agricultural Representative area:

_____ 1/4 Sec. _____ Twp. _____ Rge. _____ East West of P.M. R.M. of _____

_____ 1/4 Sec. _____ Twp. _____ Rge. _____ East West of P.M. R.M. of _____

_____ 1/4 Sec. _____ Twp. _____ Rge. _____ East West of P.M. R.M. of _____

_____ Sec. _____ Twp. _____ Rge. _____ East West of P.M. R.M. of _____

_____ R.M. of _____

River Lots # _____ Plan _____ Acreage _____ R.M. of _____

River Lots # _____ Plan _____ Acreage _____ R.M. of _____

The charges for farm survey are:

- \$10.00 for the first 1/4 Section or part thereof, up to 160 acres
- \$10.00 for the second 1/4 Section or part thereof, up to 160 acres
- \$15.00 for each additional 1/4 Section or part thereof, up to 160 acres

The fee must accompany the application.

I agree to act as rodman for the survey engineer. In consideration for the survey work applied for in this application I agree that I will not make any claim against the Government of Manitoba or any representative or employee thereof in respect to any damage or loss that I may suffer by reason of drainage work which may be carried out by me or at my request or on my instructions on the above mentioned land, and I will indemnify the Government of Manitoba against any action, suit, claim, or demand made against the Government of Manitoba for damage or loss to any other person or to the property of any other person arising out of any drainage work carried out by me or at my request or on my instructions on the above mentioned land.

Date: _____ Signed: _____

Recommended: _____
(Agricultural Representative)

Recommended: _____
(Soils Specialist)

APPENDIX V

SURVEY INFORMATION RECEIVED BY FARMER
PRIOR TO ARRIVAL OF SURVEY CREWSurveying for Drainage

The data presented is hypothetical and should not be applied to your specific problem.

Most of the drainage work on the farm involves shallow ditching from low areas through a ridge to some point where the water will get away. This could also be a natural run that needs cleaning out.

If at all possible it is desirable to run the ditch straight up the field so that machinery will not have to pass through crosswise. The type of survey required for a ditch of this type is called profile levelling. The relative elevation is established at 100 foot intervals along the proposed ditch and these values are plotted, elevation versus distance, on graph paper with the elevation plotted on an exaggerated scale. The difference between the plotted profile and the constant slope line is the depth of cut at the various stations. (No. B on Data Sheet).

A number of stations are recorded until the distance is too great for proper reading. At this time the rodman should drive a stake into the ground to be used as a Turning Point (T.P.) and a reading taken. The instrument is then picked up and relocated about the same distance past the rodman as the last reading. The T.P. should not be touched or disturbed between shots.

Readings on T.P. are read to 1/100 of a foot and are taken on top of the stake. Readings at Station are read to 1/10 of a foot and are taken on an average spot of ground beside the station.

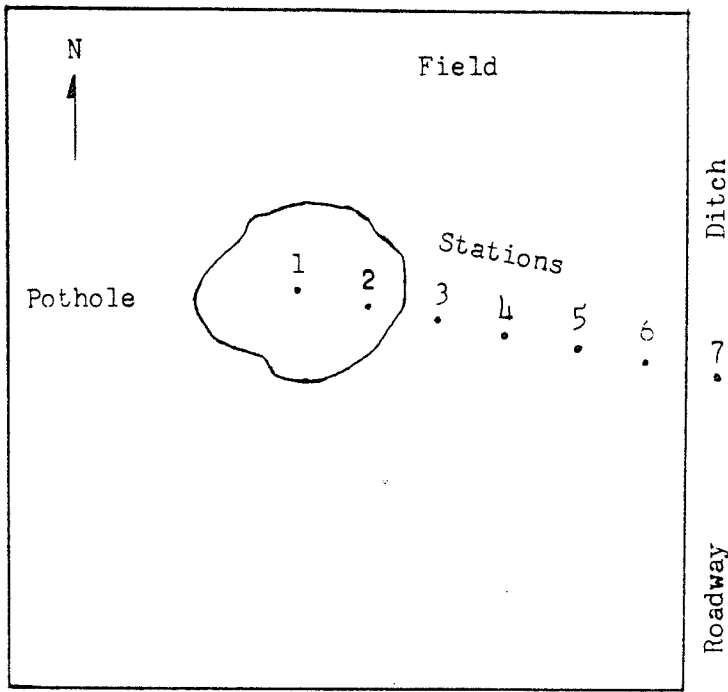
The rodman must try to locate the deepest part of the pothole and a reading is taken. He then paces off approximately 100 feet in the direction the ditch is to go and another reading is taken. A stake is put in at the location of each shot and is numbered with the appropriate Sta. (Station) number. The rod should be waved back and forth in the direction of the instrument man so that the rod will pass through its lowest point.

The information we will send you after the survey has been done is similar to numbers A, B, and C on the Data Sheet.

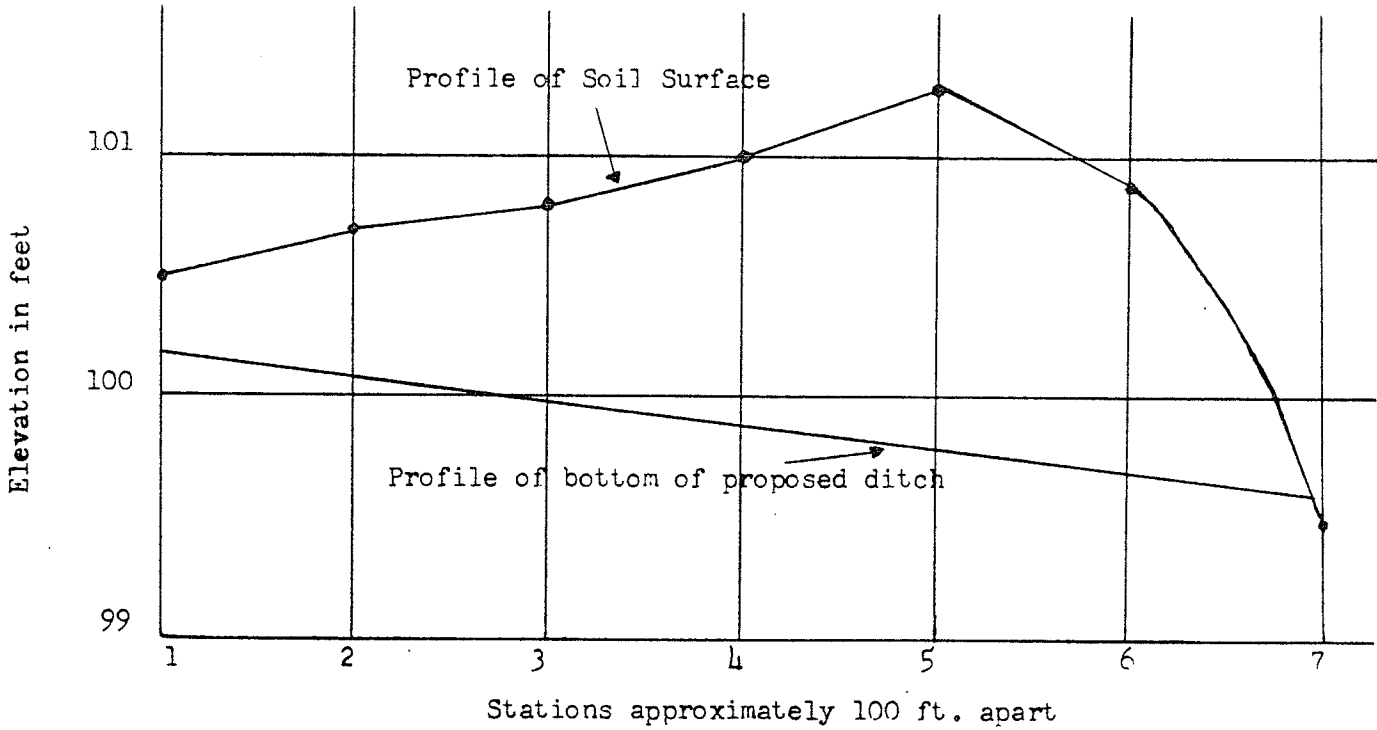
The example given shows a pothole at station no. 1 and a ditch at station no. 7. A profile is drawn as indicated in no. B of the Data Sheet and the profile of the bottom of the proposed ditch is drawn below the profile of the soil surface. From no. C the cuts at the stations are, for example, no. 1 - 0.3, no. 2 - 0.6, no. 3 - 0.8, etc. The cuts as indicated in no. C are to be written onto the appropriate stakes before the actual work is to be done.

The slopes on the ditches must be kept between 1/10 to 3/10 ft. per 100 ft. Any steeper slopes require grassing of the ditch.

The drainage work for these surveys should be done as soon as possible after the data is received. The stakes should not be removed until after the work is done since otherwise the data obtained is useless.



No. B



No. C

Sta.	Elev.	Required Cut
1	100.5	0.3
2	100.7	0.6
3	100.8	0.8
4	101.0	1.1
5	101.3	1.5
6	100.9	1.2
7	99.5	0.0

APPENDIX VI



**Regional
Economic
Expansion**

**Expansion
Économique
Régionale**

**APPLICATION FOR ASSISTANCE
ON WATER DEVELOPMENT PROJECTS
PFRA**

115

APPLICANT NAME(S) — PLEASE PRINT		TYPE OF PROJECT	
		DUG OUT <input type="checkbox"/>	STOCK DAM <input type="checkbox"/>
		WATERWELL <input type="checkbox"/>	IRRIGATION <input type="checkbox"/>
		LAND CONTROL	
		OWNER <input type="checkbox"/>	RENTER <input type="checkbox"/> LESSEE <input type="checkbox"/>
OFFICE ADDRESS		TELEPHONE NUMBER	
LOCATION OF RESIDENCE (LEGAL LAND DESCRIPTION, TOWN, VILLAGE, ETC.)		CONSTRUCTION TO START (DAY - MONTH - YEAR)	
LOCATION OF PROJECT (STATE THE QUARTER, SECTION, TOWNSHIP, RANGE, AND MERIDIAN)		NO. OF PREVIOUS PROJECTS ON THIS QTR.	
MUNICIPALITY — NAME AND NUMBER		DRAINAGE AREA (ACRES)	

APPLICATION FOR A PROVINCIAL WATER RIGHT HAS BEEN MADE HAS NOT BEEN MADE IS ATTACHED

TYPE OF AGRICULTURE		MIXED <input type="checkbox"/>	GRAIN <input type="checkbox"/>	OTHER (STATE TYPE)
CULTIVATED	PASTURE ACREAGE	HAY ACREAGE	IRRIGABLE ACREAGE	NO. OF LIVESTOCK

DESCRIPTION OF WORKS

AGREEMENT

I (WE) AGREE TO CONSTRUCT THE PROPOSED WORKS TO CONFORM TO SPECIFICATIONS, STANDARD AND PLANS THAT ARE AUTHORIZED; AND TO ABIDE BY THE WATER RIGHTS ACT AND SUCH OTHER ACTS AS MAY BE APPLICABLE IN THE PROVINCE IN WHICH THE WORKS ARE TO BE LOCATED. IT IS UNDERSTOOD THAT FINANCIAL ASSISTANCE IS CONTINGENT UPON FUNDS BEING VOTED BY THE PARLIAMENT OF CANADA AND PROVIDED THAT THE PROJECT IS AUTHORIZED AND PASSES INSPECTION BY PFRA WHEN IT IS COMPLETED.

BONA FIDE FARMER OR RANCHER

FOR THE PURPOSE OF THIS POLICY, A BONA FIDE FARMER OR RANCHER IS A PERSON WHO IS RECOGNIZED AS SUCH FOR INCOME TAX PURPOSES BY THE DEPARTMENT OF NATIONAL REVENUE.

I HEREBY CERTIFY THAT THE INFORMATION AS INDICATED ON THIS APPLICATION IS CORRECT AND THAT I AM A BONA FIDE FARMER OR RANCHER.	APPLICANT SIGNATURE(S)
	1. _____
	2. _____
	3. _____