THE BALDOON SETTLEMENT LANDS: THE EFFECTS OF CHANGING DRAINAGE TECHNOLOGY, 1804-1967

by

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ABSTRACT

Drainage was and continues to be the principal factor controlling human occupance and land use on the Earl of Selkirk's Baldoon Settlement Lands. They are located near the Town of Wallaceburg, Ontario, in the lowland environment of the lower Sydenham River and along the lower Chenal Ecarté, the most easterly distributary of the St. Clair River delta. Periodic flooding and the resultant meadow- and reed-marsh vegetation with fertile soils were characteristic of these Lands.

Lord Selkirk deliberately chose this area for a settlement because of the extensive meadow-marsh which he thought would be ideal for sheep raising. Upon this farm operation, the success of the Settlement was planned.

The struggles with the lowland environment began with the arrival of Selkirk's dispossessed crofters from the Scottish Highlands in early September of 1804. Rain, flood and disease resulted in considerable loss of life and crops. By 1810, acclimatization of the settlers and, particularly, the installation of a drainage system (in 1806) resulted in a productive Baldoon Farm. But Selkirk's financial problems, the War of 1812 and, more particularly, the rise in lake levels after 1825 to a peak in 1839 were disastrous for the Settlement. The technology of that time was unable to control the drainage problems of the Baldoon Lands.

During the period from 1840 to 1967, the drainage difficulties on the Baldoon Settlement Lands were sufficiently minimized for extensive human occupancy and land use. In 1851, the Dover Township census reported one family farming eighty acres, which had sufficient natural drainage, on the Baldoon Lands. The author's survey in 1967 indicated about thirty-two families farming approximately 2,400 acres of highly productive pump-drained land. Such a contrast was due to the population pressure on farmland in Southern Ontario by 1881 and to the gradual development and improvement of surveying techniques, drainage machine technology, steam and internal combustion engines, and Ontario Government drainage legislation. As a result of these developments, pumping works and underground tile drainage were installed on some 2,400 acres between 1908 and 1955. The major turning point of increased human occupancy and agricultural land use on the Baldoon Settlement Lands coincided with the installation of the first pumping works in 1908.

In the Postscript, a proposal is advanced for a Baldoon Parklands scheme that would utilize the Settlement's history, the local waterways and the pump drainage environment for educational and recreational purposes.

ACKNOWLEDGEMENTS

The education of an individual is closely involved with people and personalities whether they be in books or in real life. Each goal reached in life is dependent upon pre-requisite stages, each with a multitude of personal contacts and influences that broaden one's experience and horizon. Many, then, are the personal acknowledgements that I might make here.

In the evolvement of this Thesis, two professors in particular have played a vital part, Dr. H. A. Hossé and Dr. E. G. Pleva. To Dr. Hossé, Thesis Supervisor, I am greatly indebted: for his encouragement, generosity of time and patience, thoroughness and invaluable instruction. Dr. Pleva's assistance and his ability to inspire and to instil confidence during my graduate and undergraduate years at the University of Western Ontario are deeply appreciated.

A very rewarding part of the research for this Thesis has been the personal acquaintances made during the many interviews. To these people, I wish to acknowledge with thanks their friendly interest and co-operation.

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INTRODUCTION

The Baldoon Settlement Lands are those lots and lands in the northwest part of Kent County, Ontario, that were originally granted in the early part of the nineteenth century to the Scottish nobleman Lord Selkirk for the purpose of establishing a settlement for displaced Highland crofters. The Lands were isolated in a wilderness of meadow-marsh lowlands skirted on one side by natural swampy forests and on the other by the Great Lakes Waterway.

Due to the abundance of good pasture in the meadow-marsh, Selkirk chose the Baldoon Settlement Lands for sheep rearing and wool production. Initially, this activity was the principal profit-making enterprise; crop production was mainly subsistence. In the following years, however, increasingly larger proportions of the land were utilized for crops, and today most of it is devoted to commercial crop production. Such agricultural pursuits were, and continue to be, dependent upon artificial drainage since the Lands are not only at the base level of local river and creek basins but also adjacent to the Great Lakes Waterway, the levels of which experience long term fluctuations. Consequently, flooding was a regular occurrence before settlement and is still an occasional problem despite substantial dike and drainage works.

The major objective of this Thesis is to describe and analyze the effects of changing drainage technology on the land use of the Baldoon

Settlement Lands over the period from 1804 to 1967. The early settlement by 1810 experienced some success due to improved drainage. By the mid 1830's, however, all settlers had moved elsewhere due to rising lake levels and extensive flooding which the drainage technology of those days could not control. This situation was altered gradually over the next one hundred years with developments of steam and gasoline engines, various drainage machines, and pumps. The improvements in drainage technology and their application to the drainage problems of the Baldoon Settlement Lands had a marked effect on the agricultural activities and the overall land use of this area. The final objective of this study is to set forth a proposal for a Baldoon Park utilizing the historical significance of the Settlement and the Baldoon drainage environment.

The initial two chapters of the Thesis locate the study area, place it in its physical and human setting and describe and analyze in detail the local drainage situation. In Chapters III and IV, the application of changing drainage technology and its effects on the use of land are discussed, thus establishing the significant interrelationship between drainage as a major environmental factor and the human occupancy of the area and its changing land use.

The final chapter deals with a proposal for the establishment of a "Baldoon Parklands" scheme utilizing the historical development of the Settlement Lands and relating it to their drainage characteristics.

The drainage, human occupance and land use information in this Thesis have been obtained from scattered sources over a wide range of historical literature and from the author's observations and numerous personal interviews in the field. Research material included land

records in the Kent County Registry Office, writings of local historians (books, booklets, newspaper articles, old maps and historical society publications), 19th Century Dover Township Council Minutes, agricultural reports for Upper Canada and Ontario and a collection of personal letters and papers of Alexander McDonell, Selkirk's Baldoon Settlement manager, preserved in the Public Archives of Canada.

CHAPTER I

THE PHYSICAL AND HUMAN ENVIRONMENT OF THE BALDOON SETTLEMENT LANDS

1. Delineation of the Study Area

The Baldoon Settlement Lands are located within the extreme southwestern portion of Southern Ontario between Lake Erie and Lake Huron and adjacent to Lake St. Clair and the St. Clair River delta (Fig. I-1). Through the approximate centre of this delta runs the Canadian-United States boundary in a general northeast-to-southwest direction. The Settlement Lands are due east of it at a distance varying between five and ten miles.

The Baldoon Settlement Lands comprise the north and northwestern part of the Township of Dover in the County of Kent and were granted by the Crown to Thomas Douglas Earl of Selkirk in the years 1806, 1807, and 1808 (Fig. I-2).[1] In those years, the area was part of the Western

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[1] Information obtained from the "Abstract Records of Deeds," Dover E. Tp., Kent County Registry Office, Chatham, Ontario (hereafter cited as 'Abstract Records'); and Alexander Macdonell Collection, "Baldoon Settlement Miscellaneous," about 1807, Vol. V (Public Archives of Canada, Ottawa, Canada), p. 2, in a memorandum of lands located and described for the Right Honourable Thomas Douglas Earl of Selkirk (cited hereafter as 'Macdonell Collection' plus Volume and Number).

Note: It is believed that the name "Baldoon" is related to an area of the same name located in the lower basin of the River Dee near the Selkirk estate in Scotland (for further detail, see Section 1 of Chapter III).

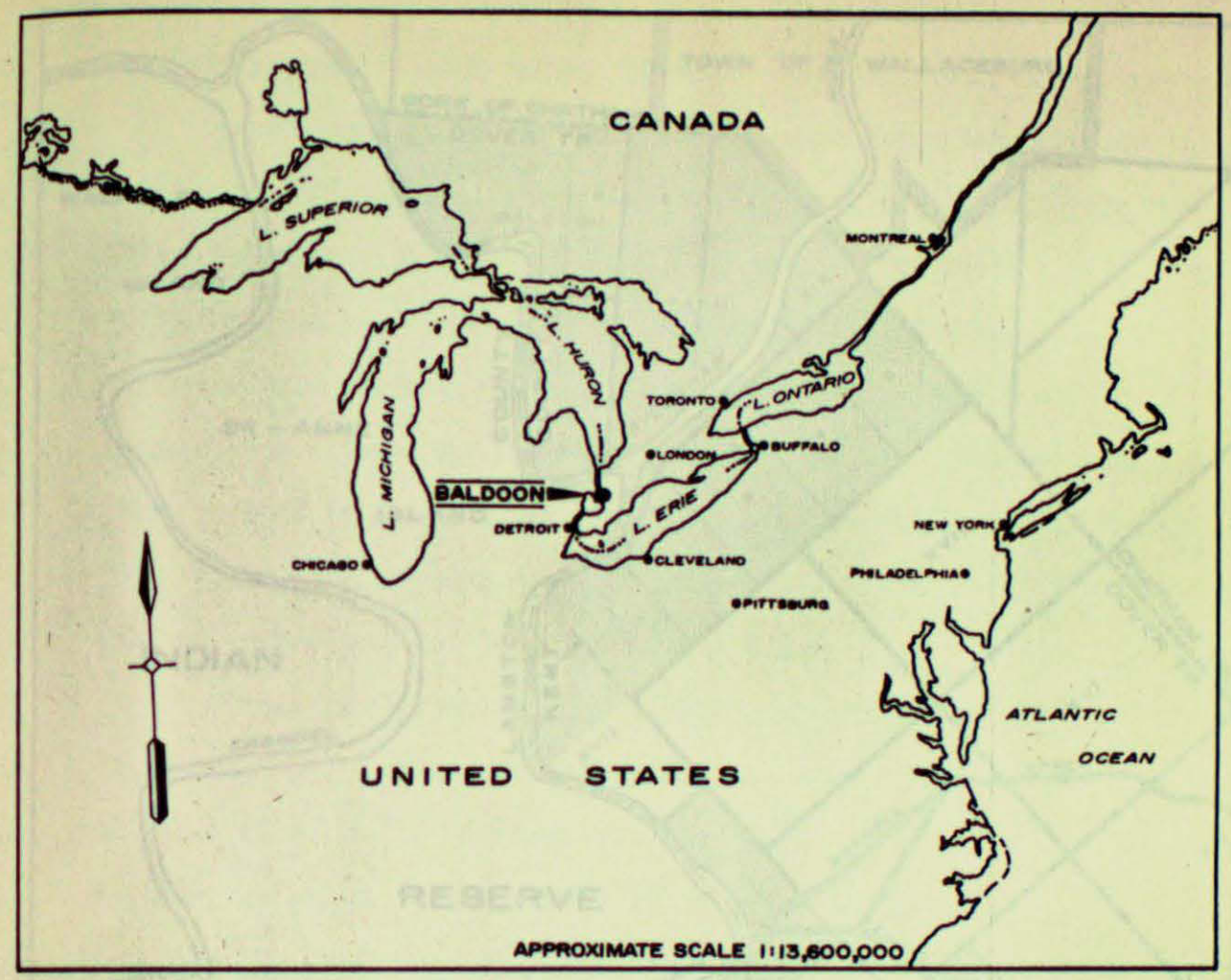

Figure I-1. BALDOON SETTLEMENT LANDS: GENERAL LOCATION

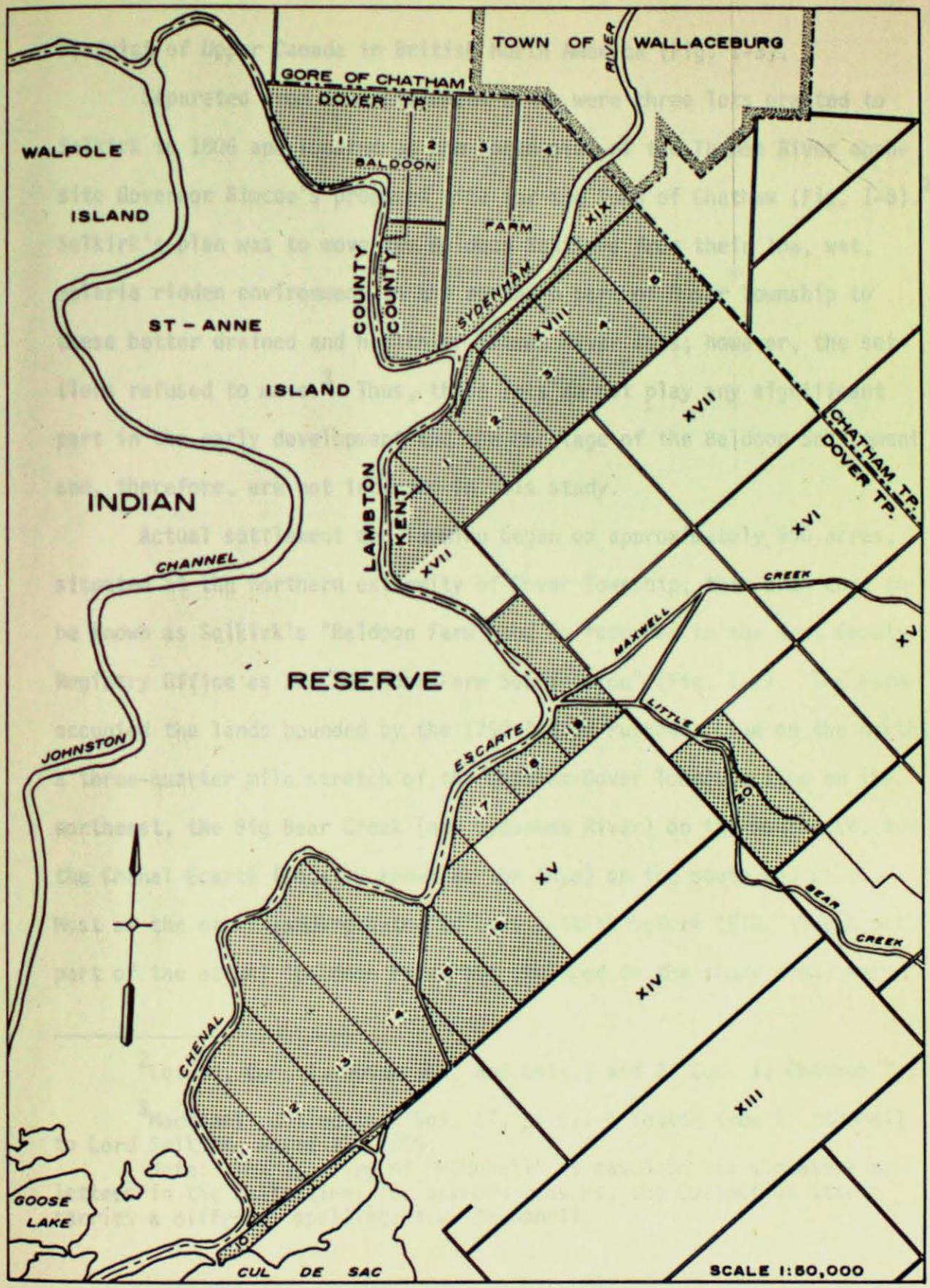

Figure I-2. STUDY AREA OF BALDOON SETTLEMENT LANDS (shaded) INCLUDING CONCESSION AND LOT NUMBERS (Source: see Appendix A).

District of Upper Canada in British North America (Fig. I-3).

Separated from the Settlement Lands were three lots granted to Selkirk in 1806 and located on the north side of the Thames River opposite Governor Simcoe's proposed site for the Town of Chatham (Fig. I-3).[2] Selkirk's plan was to move the Baldoon Settlers from their low, wet, malaria ridden environment in the northern part of Dover Township to these better drained and healthier Thames River lots; however, the settlers refused to move.[3] Thus, these lots do not play any significant part in the early development and the heritage of the Baldoon Settlement and, therefore, are not included in this study.

Actual settlement and farming began on approximately 950 acres, situated at the northern extremity of Dover Township; this area came to be known as Selkirk's "Baldoon Farm" and is recorded in the Kent County Registry Office as the "Baldoon Farm Subdivision" (Fig. I-2). The Farm occupied the lands bounded by the 1790 Indian Purchase Line on the north, a three-quarter mile stretch of the Chatham-Dover Township line on the northeast, the Big Bear Creek (now Sydenham River) on the southeast, and the Chenal Ecarté (locally known as the Snye) on the south and west. Most of the other lands granted to Lord Selkirk before 1810, though not part of the actual "Baldoon Farm" but included in the study area, were

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[2]Lot 24, Con. I, Dover Tp., and Lots 1 and 2, Con. 1, Chatham Tp.

[3]Macdonell Collection, Vol. IX, p. 57, a letter from A. McDonell to Lord Selkirk, April 13, 1806.
Note: The spelling of "McDonell" is based on his signature on letters in the Collection; for unknown reasons, the Collection itself carries a different spelling, i.e. Macdonell.

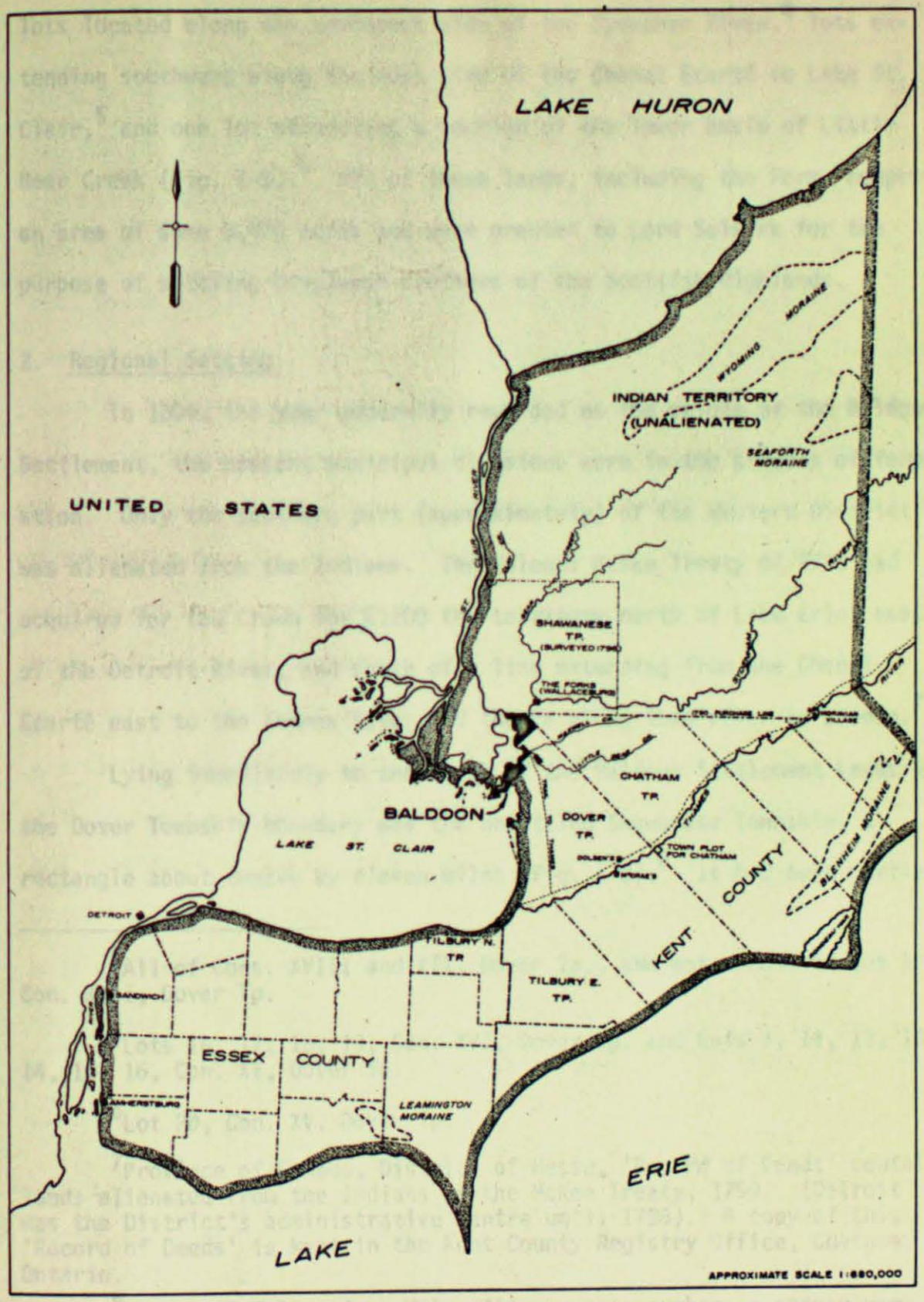

Figure I-3. WESTERN DISTRICT OF UPPER CANADA, 1810
(Source: see Appendix A).

lots located along the southeast side of the Sydenham River,[4] lots extending southward along the east side of the Chenal Ecarté to Lake St. Clair,[5] and one lot straddling a section of the lower basin of Little Bear Creek (Fig. I-2).[6] All of these lands, including the Farm, comprise an area of some 3,420 acres and were granted to Lord Selkirk for the purpose of settling displaced crofters of the Scottish Highlands.

2. Regional Setting

In 1804, the year generally regarded as the origin of the Baldoon Settlement, the present municipal divisions were in the process of formation. Only the southern part (approximately) of the Western District was alienated from the Indians. The Colonel McKee Treaty of 1790 had acquired for the Crown for £1200 the territory north of Lake Erie, east of the Detroit River, and south of a line extending from the Chenal Ecarté east to the Thames River and thence along that river to London.[7]

Lying immediately to the north of the Baldoon Settlement Lands and the Dover Township boundary was the unsettled Shawanese Township, a rectangle about twelve by eleven miles (Fig. I-3).[8] It had been partially

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[4]All of Cons. XVIII and XIX, Dover Tp., and north half of Lot 19, Con. XVII, Dover Tp.

[5]Lots 16, 17, 18, 19, Con. XVI, Dover Tp. and Lots 1, 11, 12, 13, 14, 15, 16, Con. XV, Dover Tp.

[6]Lot 20, Con. XV, Dover Tp.

[7]Province of Canada, District of Hesse, 'Record of Deeds' containing lands alienated from the Indians by the McKee Treaty, 1790. (Detroit was the District's administrative centre until 1796). A copy of this 'Record of Deeds' is kept in the Kent County Registry Office, Chatham, Ontario.

[8]Macdonell Collection, Vol. XIII, no page number, a survey map done by either Abraham Iredell or Augustus Jones, 1796.

alienated from the Indians and surveyed by either Augustus Jones or Abraham Iredell in 1796.[9] Its western margin touched the Chenal Ecarté and the St. Clair River and extended northward to just beyond Clay Creek and what is presently Cathcart Provincial Park. Today, the southern third of this township is included in the Gore of Chatham Township in Kent County while the northern two-thirds is in Sombra Township of Lambton County. The country to the north and northeast of the Shawanese Township in 1804 was wilderness and remained as such until about 1833.[10]

Throughout the years, the Baldoon Settlement Lands and their surrounding area have experienced drainage difficulties. At the present time, about 2,400 acres or about two-thirds of the Baldoon Settlement Lands are pump drained; the remainder is meadow- and reed-marsh. The drained lands represent about ten per cent of Dover Township's 23,000 pump drained acres or about four per cent of the 64,000 pump drained acres included in the townships bordering Lake St. Clair and in the Walpole Indian Reserve; they constitute about 2.5 per cent of the 90,500 pump drained acres in the Province of Ontario.[11] The Baldoon Settlement Lands not only lie within this block of 64,000 acres--about two-thirds of the Province's pump drained lands--but also are located in a larger regional setting of the poorly drained plains of Lambton, Kent and Essex Counties.

The Baldoon Settlement Lands are located in the midst of an area

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[9] Ibid.

[10] Victor Lauriston, Lambton's Hundred Years, 1849-1949 (Sarnia: Haines Frontier Printing Company, 1949), p. 27.

[11] Interview with R. W. Gagner, Clerk of Dover Tp., July 29, 1968; and R. W. Irwin, Survey of Pump Drainage Installations in Ontario, 1957 (Guelph: Eng. Tech. Publ. No. 3, University of Guelph, 1960), p. 3.

where the Great Lakes Waterway receives adjacent upland drainage water (Figs. I-2 and I-3). The Chenal Ecarté which is the most easterly distributary of the St. Clair River delta (or the St. Clair Flats) is a part of that Great Lakes system. The Lands lie along the east or mainland side of the lower Chenal Ecarté which trends southwesterly for approximately twelve miles to its outlet at Lake St. Clair. The upper portion of the Chenal Ecarté extends approximately eight meandering miles northwest to the St. Clair River where it receives some of the southward flowing waters of the latter. Consequently, changes in lake levels affect water levels in the Chenal Ecarté adjacent to the Baldoon Settlement Lands.

Three upland drainage systems are tributary to the Chenal Ecarté within the study area: the Sydenham River, Maxwell Creek, and Little Bear Creek. The Sydenham River system--including its two branches, the North Sydenham and the East Sydenham--drains from the northeast through the northern section of the Settlement Lands. The basin of this system has an area of about 1,050 square miles extending over a distance of sixty-five miles from London Township to its estuary (Fig. I-4).[12] The basin covers a large portion of western Middlesex County, about three-quarters of Lambton County, and the extreme northern section of Kent County. A good description of this system is given in the Sydenham Valley Conservation Report:

> The drainage system gives the impression of a host of tributaries in search of a river. In fact, the Sydenham proper is only three

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[12]Province of Ontario, Department of Lands and Forests, Conservation Authority Branch, Sydenham Valley Conservation Report: Recreation (Toronto, 1961), p. 3.

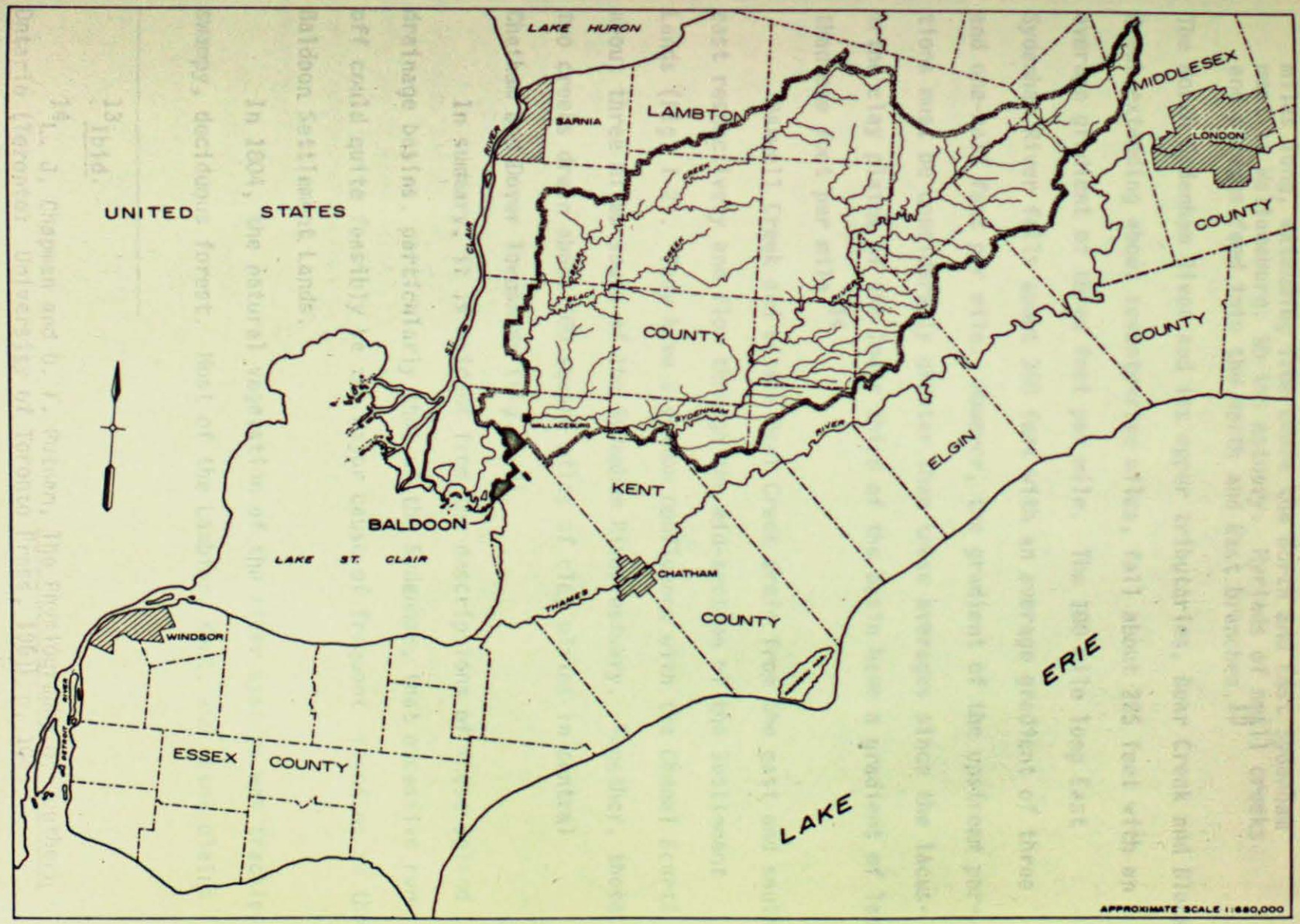

Figure I-4. SYDENHAM RIVER BASIN (Source: see Appendix A).

> miles long, extending from where the North and East Sydenham meet at Wallaceburg, to the estuary. Myriads of small creeks and streams feed into the North and East branches.[13]

The North Sydenham River and its upper tributaries, Bear Creek and Black Creek extending about seventy-five miles, fall about 225 feet with an average gradient of three feet per mile. The 100 mile long East Sydenham River falls about 350 feet with an average gradient of three and one-half feet per mile. However, the gradient of the upstream portions must be considerably greater than these averages since the lacustrine clay plains of the lower third of the basin have a gradient of less than one foot per mile.[14]

Maxwell Creek and Little Bear Creek drain from the east and southeast respectively and flow through the mid-section of the Settlement Lands (Fig. I-2). They have a common confluence with the Chenal Ecarté about three miles south of the Sydenham River estuary. Together, these two creeks drain about 100 square miles of clay plains in central Chatham and Dover Townships (Fig. I-3).

In summary, it is evident from the descriptions of these upland drainage basins, particularly that of the Sydenham, that excessive runoff could quite feasibly be the major cause of frequent flooding on the Baldoon Settlement Lands.

In 1804, the natural vegetation of the river systems was trackless, swampy, deciduous forest. Most of the Lambton, Kent, and Essex plains

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[13] Ibid.

[14] L. J. Chapman and D. F. Putnam, The Physiography of Southern Ontario (Toronto: University of Toronto Press, 1951), p. 104.

were similarly covered at that time. These plains also had some peripheral meadow-marsh and reed-marsh areas which were low, poorly drained, flood-prone lands lying adjacent to the Chenal Ecarté, Lake St. Clair, and Lake Erie. Meadow-marsh and some reed-marsh landscape were prevalent throughout most of the Baldoon Settlement Lands from the Baldoon Farm to Lake St. Clair. The reed-marshes were located in perennially wet areas while meadow-marshes were usually dry in summer. Similar landscape extended south of the Lands, in a margin of one to three miles inland along the east shore of Lake St. Clair, to the flood plains flanking the Rivière La Tranche (Thames River) estuary in Dover West Township on the north side, and in Tilbury East and Tilbury North Townships on the south side (Fig. I-3). More of the same landscape stretched west of the Baldoon Lands and the Chenal Ecarté over an estimated two-thirds of the deltaic St. Clair Flats immediately north of Lake St. Clair. In search of areas with sheep farming possibilities, William Burn, Selkirk's agent, explored the north shore of Lake Erie in the summer of 1803 and must have found the Erieau and Point Pelee marshes less desirable than the meadow-marsh areas along the Chenal Ecarté.[15] Presently, a large proportion of these meadow-marsh lands is high yielding cropland due to drainage improvements.

In 1804, the slightly better drained areas in the regional plains were located on the levees of the East Sydenham River, the North Sydenham River and the Thames River; on the lands along the St. Clair River, the

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[15]Fred Coyne Hamil, "Lord Selkirk's Work in Upper Canada: the story of the Baldoon" (unpublished manuscript, about 1942), p. 10.

Detroit River, and the north shore of Lake Erie; and on four moraines, the Blenheim and Leamington moraines near Lake Erie and the southwestern projections of the Seaforth and Wyoming moraines in the north central section of the Sydenham River basin (Fig. I-3). At that time, only two of the better drained areas were settled, the Thames River levees and the lands adjacent to the Detroit River.[16] At present, the better drained areas are the sites of most of the cities and towns of the region.

The closest neighbours to the Baldoon Farm were the English, French, and German settlers along the Thames River. The latter had started to take up land along the Thames before 1790. By 1804, their settlements extended as far east as the Moravian Village (Fig. I-3). These settlements afforded Selkirk's Highlanders a limited source of supplies and a limited market for their produce. Access to them was by a very cumbersome trail through forest, swamp, and marsh for about seventeen miles to Dolsen's trading establishment just west of the proposed site of Chatham (Fig. I-3).[17] A longer, yet faster and more convenient, water route extended over some thirty or forty miles via the Chenal Ecarté, Lake St. Clair, and the Thames River. However, for the Thames River settlers as well as for Baldoon's Scottish Highlanders, the Detroit River settlements (Detroit, Sandwich, and Amherstburg) were the major markets, supply bases and contacts with the outside world.

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[16]Victor Lauriston, Romantic Kent (Chatham, Ontario: printed by Shepherd Printing Co., Limited; Ridgetown, Ontario: bound by Bookshelf Bindery Limited, 1952), pp. 24-33; and Hamil, loc. cit.

[17]Lauriston, Romantic Kent, p. 51.

3. The Local Environment

The Baldoon Settlement Lands are part of what is known locally as the Kent-Essex Plain. This flat terrain has resulted from several geomorphological influences. The near horizontal strata of the underlying bedrock of Devonian limestone and shale, dipping very gently toward the Michigan Basin, may have influenced the deposit of relatively uniform layers of glacial till during the Pleistocene Epoch, thus creating a very low gradient sloping gradually to the southwest. But more important influences were the levelling processes by waves and by deposits of lacustrine clay and sand during the late glacial lake inundation. Since the recession of these lakes, drainage systems superimposed themselves on the landscape. Before settlement, further levelling resulted from seasonal and often more frequent flooding and spreading of alluvial deposits. Flooding also formed levees which along with shallow natural drainage features presented minor relief variations of two to three feet. Such levees were suggested in Augustus Jones' survey notes, July, 1804. Where his surveyor work line ran southeast from Bear Creek, the first twenty chains were described as dry meadow followed by wet meadows.[18] The geology and geomorphology of the terrain of the Baldoon Settlement Lands clearly reveal the necessity for such man-made relief features as dikes and drainage ditch reservoirs to assure successful settlement.

There is a close link between climate and the drainage problems of the Settlement Lands. Their southerly position in Canada is actually at or near the boundary between the Humid Continental Warm Summer and

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[18]Macdonell Collection, Vol. IV, p. 67.

Cool Summer climatic regions which correspond roughly with Köppen's Dfa and Dfb climatic classifications. An extreme temperature range between the July mean temperature of 73°F. and the January mean temperature of 26°F. provides the continental aspect of the climate while the well distributed thirty inches of annual precipitation with a slight summer maximum account for the humid attribute (Table I-1). These climatic characteristics seem nearly ideal for general human activity in a mid-latitude continental location, particularly when seven months of growth and about 160 frost-free days are included in the climatic assessment. However, there are certain associated climatic influences which are significant factors of the drainage problems of the Baldoon Lands.

The winters are affected mainly by polar air, moderated by the proximity of the Great Lakes and by the inflow of tropical air masses from the Gulf of Mexico. The oscillation of the continental polar front in the lower Great Lakes region creates considerable cyclonic activity and extremely variable weather. A marked cold period accompanied by snow accumulation (average snow fall is about forty inches) and thick river ice may be followed by a period of unusually mild temperatures, fast snow melt, and heavy rainfall (more than eight inches are common during the winter season). The resulting high-water conditions in the study area caused by excessive run-off and mainly, though not exclusively, by the combination of the above noted factors[19] in the regional upland drainage basins will be referred to in this study as the "micro-drainage problem."

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[19]This combination of factors produced the flood conditions on the south half of the Baldoon Farm Subdivision and on other sections of the Settlement Lands during the first week of February, 1968.

TABLE I-1

LONG TERM CLIMATIC STATISTICS FOR
CHATHAM AND WALLACEBURG
ONTARIO, CANADA

Temp. and Prec.	J	F	M	A	M	J	J	A	S	O	N	D	YEAR
Temperature--(F.^{o})													
Mean Daily Temp.	26.1	26.2	33.8	45.9	57.3	67.9	72.7	71.1	63.8	53.1	40.2	29.3	48.9
Mean Daily Max.	31.9	32.6	40.8	54.8	67.2	78.0	82.9	81.0	73.3	61.8	46.3	34.8	57.1
Mean Daily Min.	20.2	19.7	26.8	36.9	47.3	57.8	62.5	61.2	54.3	44.3	34.0	23.8	40.7
Precipitation--(inches)													
Normal Rainfall	1.52	1.39	1.89	2.66	2.94	2.88	2.61	2.52	2.37	2.40	1.76	1.52	26.5
Normal Snowfall	8.80	9.10	7.40	1.40	T	-	-	-	-	.40	4.40	8.30	39.8
Total Normal Prec.	2.40	2.30	2.63	2.80	2.94	2.88	2.61	2.52	2.37	2.44	2.20	2.35	30.4

NOTE: Wallaceburg temperatures are slightly more extreme diurnally than those of Chatham but the averages of the two centres are approximately the same.

Source: Agricultural Statistics for Ontario, Publication 20, Ontario Department of Agriculture and Food, 1965.

Changes in levels on the upper Great Lakes affect directly the levels of the Chenal Ecarté. Such changes and their effects will be referred to as the "macro-drainage problem" since they are the result of increases in run-off from the Great Lakes basin or watershed of which the regional tributary basins of the Chenal Ecarté are only a small part.

The micro-drainage problem of the Baldoon Lands may result in flooding during any season. However, this is least prevalent in the summer months when warm temperatures and high evaporation rates are predominant. Occasional frontal activities and more frequent convection storms may result in rainfall, sometimes hail, ranging from light to deluge. The latter quantity is usually only local in scope so that low water levels in sections of the upland drainage systems can usually handle the run-off. Though the 1968 flood came in early February, the floods of 1947 and 1938 happened in April. About sixty per cent of the annual drainage pumping time has occurred in March, April, and May.[20] This has been due mainly to such spring season factors as low evaporation and excessive run-off of snow melt and spring rains, accelerated by ground frost or moisture saturated soil and, to a minor degree, ice-jam conditions. Thus, the micro-drainage problem prior to the installation of pump works resulted in the flooding of the Baldoon Settlement Lands during any season, but most likely in the early spring and least likely in the summer, and may have lasted for a few weeks.

The macro-drainage problem is more subtle than the micro-drainage problem for lake level changes go in cycles extending over months or

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[20] Irwin, Survey of Pump Drainage Installations, op. cit., pp. 5 and 6.

even years.[21] When flooding occurred from this cause, it could have lasted for a period of months or even years. Low lake levels may result from a lower than average rate of precipitation over the Great Lakes basin for a span of several seasons or years. A recent example of lake level changes was the short period of extremely low levels during 1963 and 1964 due to a marked deficiency in precipitation. Conversely, a marked increase in precipitation, including a cool 1967 summer, has prevailed over the Great Lakes basin for the last two years and has resulted in above normal lake levels in August, 1968. Obviously, both the micro- and macro-drainage problems have posed serious hurdles and challenges to the continued settlement on the Baldoon Lands.

Drought periods are part of the weather variability occurring in the subject area. In fact, due to short term or long term variabilities, periods of drought or excessive precipitation and periods of below normal or above normal temperatures may be experienced in any season of the year or over a period of years. Consequently, late winter and spring drought could create unusually low water conditions when the opposite is expected thus decreasing the micro-drainage problem.

Although the Baldoon Settlement Lands lie within the Deciduous Forest Region of North America, about seven-eights of the 3,420 acres, or about 3,000 acres, were mainly meadow-marsh vegetation with about 400

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[21] "Hydrographs of the Monthly Mean Levels of the Great Lakes," Brief to International Joint Commission on Great Lakes Levels, presented May 10, 1965, data provided by U.S.A. Army Engineer District, Lake Survey, going back to 1860 (Toronto, Ontario); and "Historical Sketches of the County of Kent: Dover Township," Illustrated Atlas of the Dominion of Canada (Toronto: H. Belden & Co., 1881), p. xiv.

acres of reed-marsh included (Fig. I-5).[22] Approximately three-quarters of the remaining balance of some 400 acres of forested areas were located on the slightly higher and better drained northern portion of the Baldoon Farm adjacent to the 1790 Indian Purchase Line, the present Baseline of Dover and Gore of Chatham Townships. The relief of this section is an estimated three to four feet above the normal level of the Chenal Ecarté with some shallow ridges, approximately two feet higher, running parallel to the drains. On these ridges, oak was the principal tree.[23] Other tree species must have been ash, maple, elm, hickory, and black walnut for they have been locally evident in the woodlots during the early part of this century.[24] At the present time, out of the 300 acres of original woodlots on the Baldoon Farm, about fifteen acres have remained.

Trees would not thrive on the other seven-eighths of the Lands due to much flooding. A large proportion of these 3,000 acres of meadow-marsh was wet or water covered most of the year. Sections away from the main drains or on levees were usually dry in summer.[25] Currently, except for about 1,300 acres mainly in the southwestern lots, the meadow-marsh areas have been drained for farmland.

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[22]Fred Coyne Hamil, The Valley of the Lower Thames, 1640-1850 (Toronto: University of Toronto Press, 1951), p. 47; T. Clark's Sketch of the Baldoon Farm, 1810, from Selkirk's papers, Vol. LXXVI, p. 20022; and Macdonell Collection, Vol. IV, p. 70, Surveyor's Work Line map and notes by Augustus Jones, July, 1804.

[23]Ibid., p. 66.

[24]Interviews with Cyril Seys, retired farmer who settled on the Baldoon Farm Subdivision in 1910, and Arthur Aarssen who has farmed in the same area since the 1920's.

[25]Hamil, "The Story of the Baldoon," p. 14.

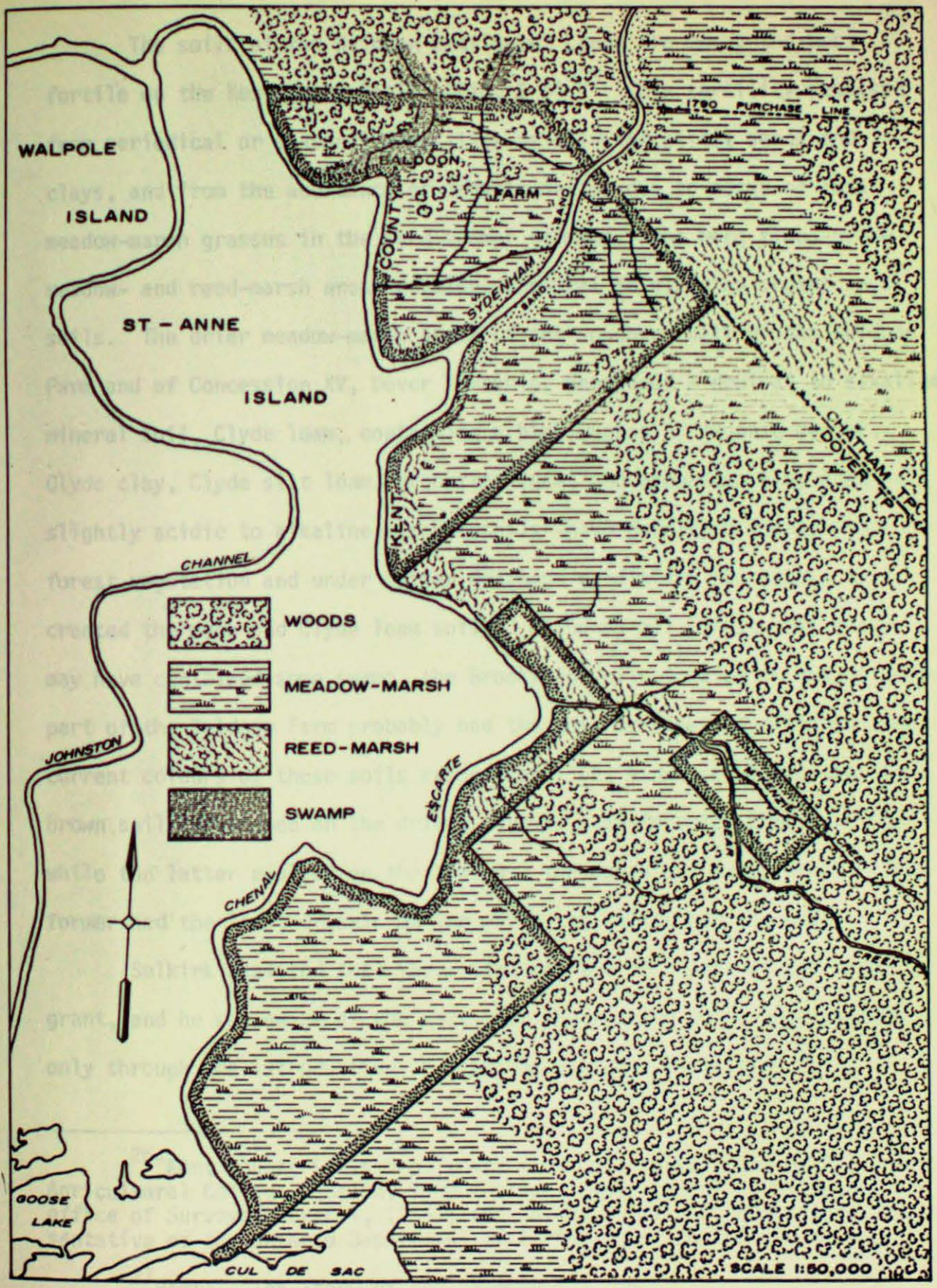

Figure I-5. NATURAL DRAINAGE AND VEGETATION, BALDOON SETTLEMENT LANDS, 1804 (Source: see Appendix A).

The soils of the Baldoon Settlement Lands are among the most fertile on the Kent-Essex Plains (Fig. I-6).[26] This fertility resulted from periodical or seasonal deposition of alluvial silts, sands and clays, and from the abundance of organic matter due to decay of lush meadow-marsh grasses in the warm summer climate. The more flood-prone meadow- and reed-marsh areas developed neutral to alkaline organic muck soils. The drier meadow-marsh areas of the southern half of the Baldoon Farm and of Concession XV, Dover Township, developed a neutral to alkaline mineral soil, Clyde loam, containing a high degree of organic matter. Clyde clay, Clyde silt loam, Brookston loam, and Brookston clay loam--all slightly acidic to alkaline mineral soils--have developed mainly under forest vegetation and under better drainage conditions than those that created the muck and Clyde loam soils. Although all forest soil areas may have contained some swamp, the Brookston soils located in the northern part of the Baldoon Farm probably had the best drainage conditions. The current colours of these soils range from light brown to black; the light brown soils developed on the drier, sandier, oak-forested shallow ridges while the latter evolved on the meadows, the marsh and swamp areas. The former had the least organic matter while the latter had the most.

Selkirk realized that the soils were the best part of his land grant, and he was aware of the fact that their value could be exploited only through the introduction of improved drainage facilities.[27]

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[26]"Kent County Soils Map," data from soil survey made by the Ontario Agricultural College, Guelph, 1930 (Ottawa: Experimental Farms Branch and office of Surveyor General, 1936); and Interview with D. Rutherford, Representative of the Ontario Department of Agriculture, Chatham, Ontario.

[27]Hamil, "The Story of the Baldoon," p. 15.

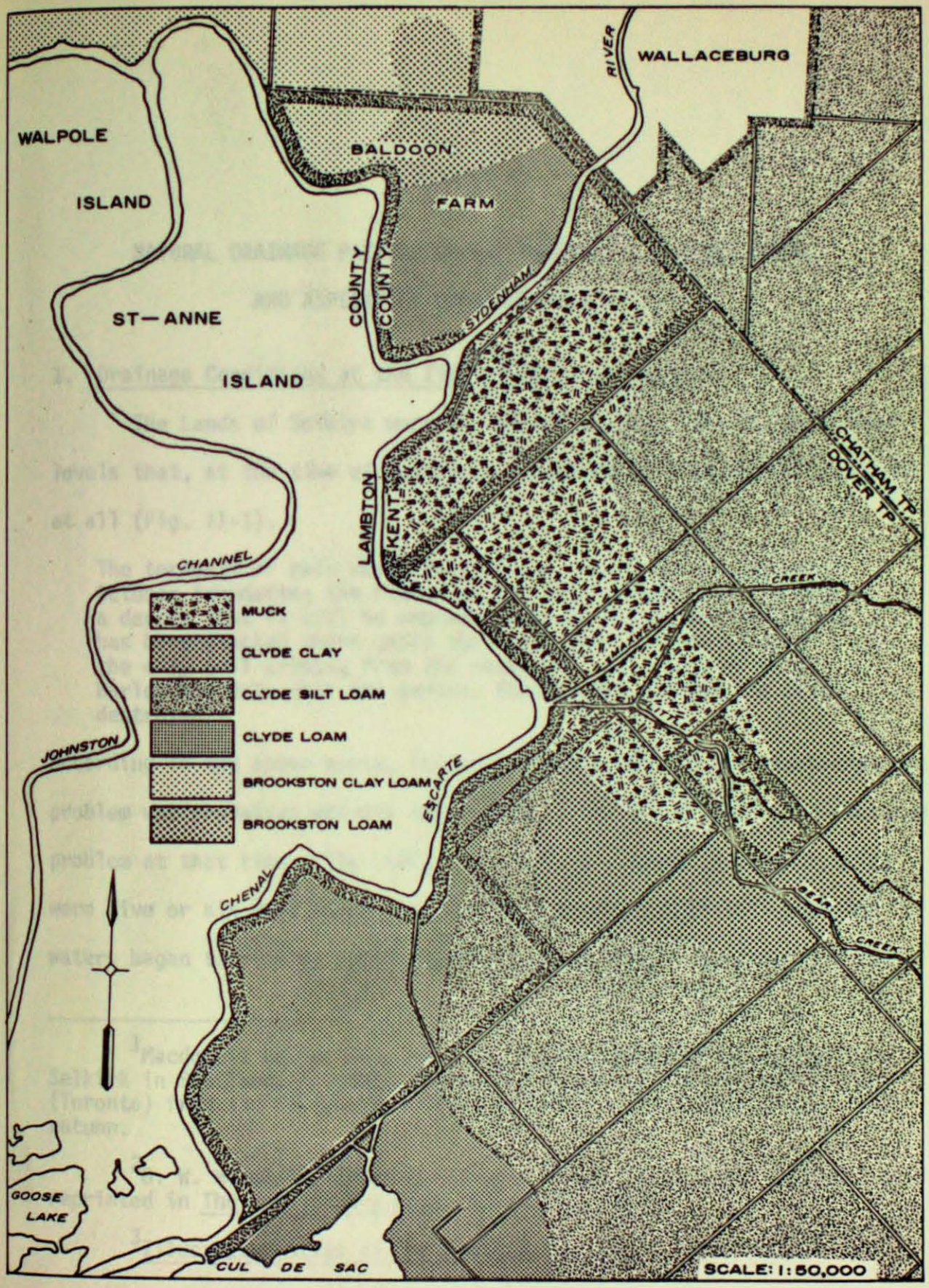

Figure I-6. SOIL DIVISIONS, BALDOON SETTLEMENT LANDS
(Source: see Appendix A).

CHAPTER II

NATURAL DRAINAGE PATTERN ON THE BALDOON SETTLEMENT LANDS AND ASPECTS OF DRAINAGE LEGISLATION

1. Drainage Conditions at the Time of Early Settlement

The Lands of Selkirk were so low and so near the adjacent river levels that, at the time of settlement, drainage was minimum if existing at all (Fig. II-1).

> The torrents of rain which fell during the months of September, October inundating the Plains on the little Bear Creek to such a degree that it will be unpracticable to get at the hay which has been stacked there until the frost sets in--nor is this the only evil arising from the rain--the small crop of Peas, Barley and Oats near the garden, tho cut and stacked has been destroyed.[1]

According to the above quote, seasonal flooding due to the micro-drainage problem was prevalent despite the extremely low ebb of the macro-drainage problem at that time. "In 1804, the waters and lakes in this district were five or six feet lower than at any time since 1834-35"[2] when the waters began to rise to reach a peak level in 1839.[3] Between 1839 and

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[1]Macdonell Collection, Vol. IX, p. 10, letter of A. McDonell to Selkirk in Scotland, November 30, 1804, written on his arrival at York (Toronto) from the Baldoon and relating the events of that tragic first autumn.

[2]G. W. Mitchell, "History of the Baldoon Settlement" (written 1913), reprinted in The Wallaceburg News, October 18, 1945.

[3]Illustrated Atlas of the Dominion of Canada, loc. cit.

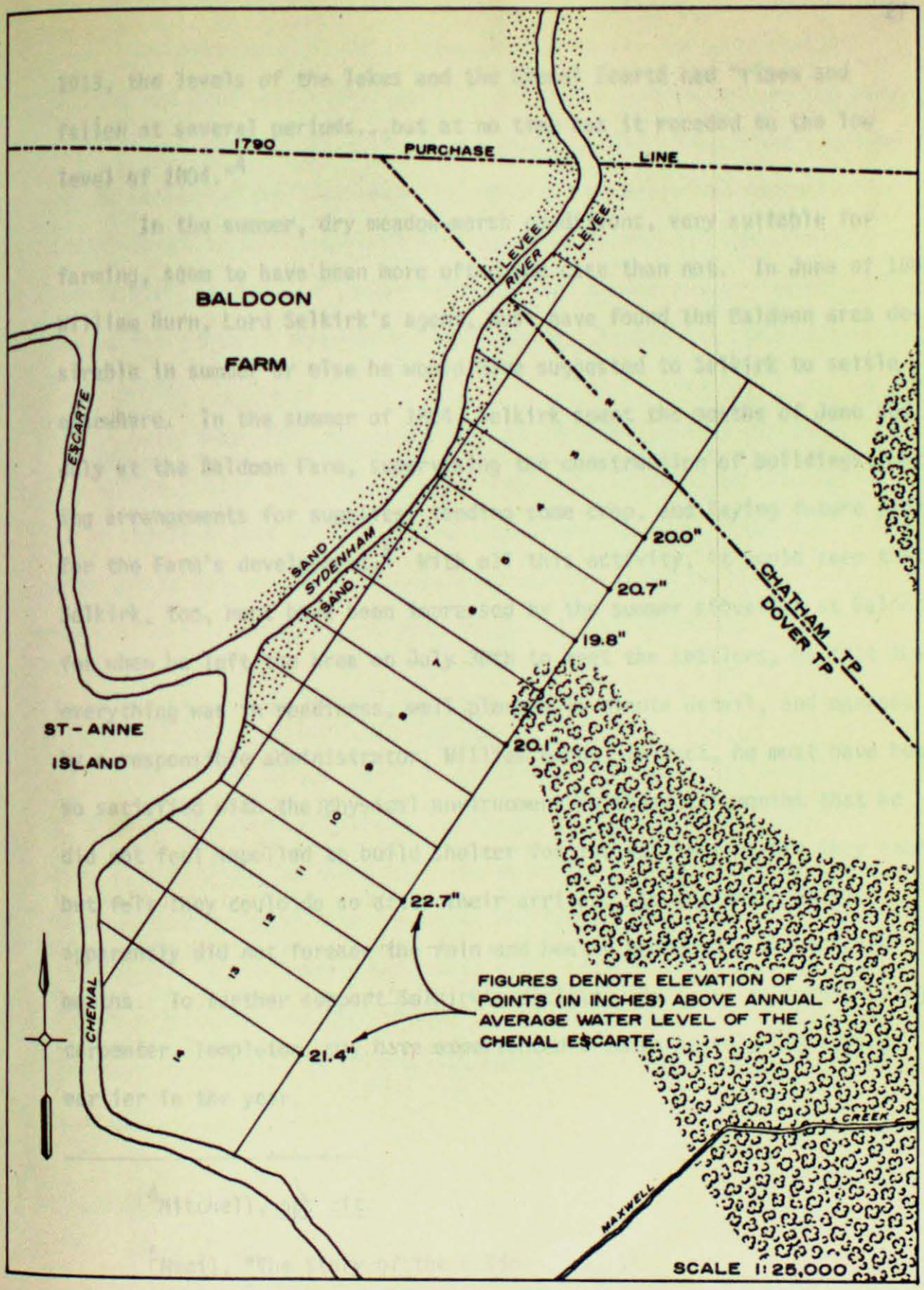

Figure II-1. LOT AND DRAINAGE SURVEY FOR THE BALDOON SETTLERS, 1804 (Source: see Appendix A).

1913, the levels of the lakes and the Chenal Ecarté had "risen and fallen at several periods...but at no time has it receded to the low level of 1804."[4]

In the summer, dry meadow-marsh conditions, very suitable for farming, seem to have been more often the case than not. In June of 1803, William Burn, Lord Selkirk's agent, must have found the Baldoon area desirable in summer or else he would have suggested to Selkirk to settle elsewhere. In the summer of 1804, Selkirk spent the months of June and July at the Baldoon Farm, supervising the construction of buildings, making arrangements for supplies, tending some crop, and laying future plans for the Farm's development.[5] With all this activity, it would seem that Selkirk, too, must have been impressed by the summer situation at Baldoon for when he left the area on July 30th to meet the settlers, he felt that everything was in readiness, well planned in minute detail, and managed by a responsible administrator, William Burn. In fact, he must have been so satisfied with the physical environment in those two months that he did not feel impelled to build shelter for the settlers before they came but felt they could do so after their arrival. In any case, Selkirk apparently did not foresee the rain and health problem in the ensuing months. To further support Selkirk's decision, Burn and an accompanying carpenter, Templeton, may have experienced a comparatively dry spring earlier in the year.

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[4]Mitchell, op. cit.

[5]Hamil, "The Story of the Baldoon," p. 14.

In retrospect, it would seem that no matter how enthusiastic Selkirk and Burn were with regard to dry summer conditions and the seemingly bright possibilities for sheep grazing, they should have been aware of the nature of the land with its unhealthful swamps and marshes. Indian Superintendent, Colonel Alexander McKee, who directed the government's 1790 purchase of Indian lands between London and the Detroit River and as far north as present day Wallaceburg,[6] considered Lord Selkirk's lands to be

> ...unsuitable for Indians to live on in 1795, because of low, swampy ground, and the absence of trees for fuel. But after the spring floods subsided, he said they were suitable for farming.[7]

It is apparent that Selkirk relied heavily on his own impressions of the area and failed to check adequately with authorities in York who may have warned him of some of the hazards in the Baldoon environment.

2. Water Levels and Current Movements in the Chenal Ecarté and the Sydenham River

The Chenal Ecarté and the Sydenham River create the semblance of a "V" with the apex near their confluence (Fig. II-2). The east side of the "V" comprises the three mile length of the Sydenham River proper and about a three-quarter mile length of the North Sydenham River. The west side of the "V" includes about seven miles of the Chenal Ecarté. During the year 1910, the opening of the "V" was closed to create a drainage triangle by dredging an artificial channel named Running Creek

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[6] R. H. Abraham, "Pottawattomie Indians of Walpole Island," Kent Historical Society, Vol. VI (1924), p. 32.

[7] Hamil, "The Story of the Baldoon," p. 14.

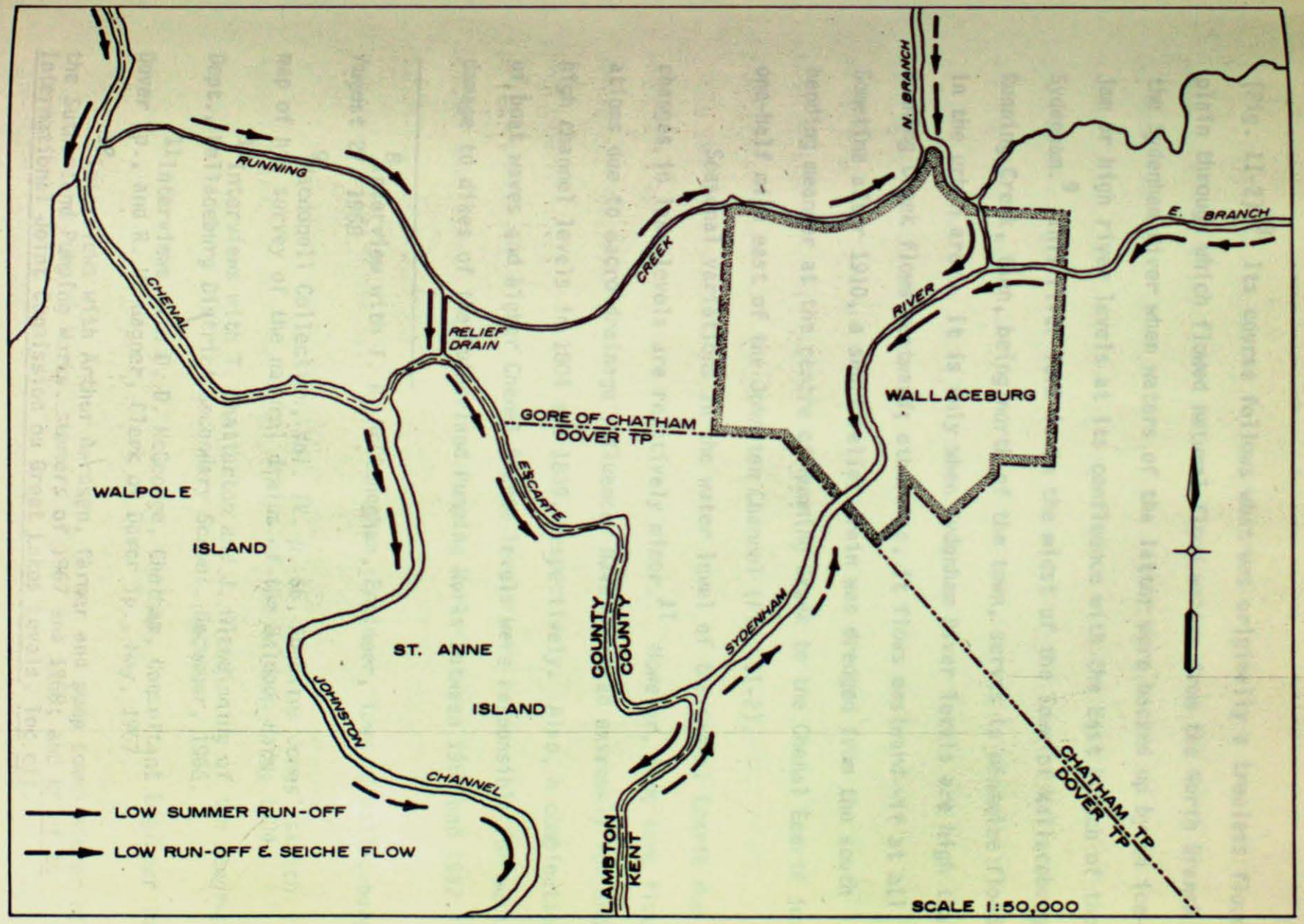

Figure II-2. DRAINAGE CHARACTERISTICS, CHENAL ECARTÉ AND SYDENHAM RIVER AT LOW WATER LEVELS (Source: see Appendix A).

(Fig. II-2).[8] Its course follows what was originally a treeless flood plain through which flowed natural flood waters from the North Branch of the Sydenham River when waters of the latter were backed up by an ice-jam or high river levels at its confluence with the East Branch of the Sydenham.[9] This river fork is in the midst of the Town of Wallaceburg. Running Creek, then, being north of the town, serves to minimize flooding in the urban area. It is only when Sydenham River levels are high that Running Creek flows westward; otherwise, it flows eastward--if at all.[10] Sometime after 1910, a short relief drain was dredged from the south bending meander at the centre of Running Creek to the Chenal Ecarté just one-half mile east of the Johnston Channel (Fig. II-2).

Seasonal variations in the water level of the Chenal Ecarté due to changes in lake levels are relatively minor.[11] However, long term fluctuations due to macro-drainage influences have effected extremely low and high channel levels in 1804 and 1839, respectively. Also, a combination of boat waves and higher Chenal Ecarté levels were responsible for much damage to dikes of the Sutherland Pumping Works between 1952 and 1962.[12]

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[8]Interview with T. A. McCleneghan, Engineer, Town of Wallaceburg, August 27, 1968.

[9]Macdonell Collection, Vol. IV, p. 66, Augustus Jones' sketch map of his survey of the natural drains of the Baldoon Farm, 1804.

[10]Interviews with T. Chatterton and J. Glendinning of the Geography Dept., Wallaceburg District Secondary School, December, 1966.

[11]Interviews with D. D. McGeorge, Chatham, Consultant Engineer for Dover Tp., and R. W. Gagner, Clerk of Dover Tp., May, 1967.

[12]Interviews with Arthur Aarssen, farmer and pump commissioner of the Sutherland Pumping Works, summers of 1967 and 1968; and Brief to International Joint Commission on Great Lakes Levels, loc. cit.

Chenal Ecarté water levels adjacent to the Baldoon Settlement Lands do rise, though, for reasons other than lake level fluctuations. In fact, the water level of that river was checked by the author at a point one mile upstream from the estuary of the Sydenham River at the breakwater of the new Cogghe subdivision. These checks were made at various times during the fall of 1966 and the spring of 1967, and measured in November 4½ feet, December 3½ feet, and in June 2½ feet. One week prior to the December check, the water level was two feet below the breakwater.[13] Particularly heavy rains had fallen that week. Since the flow of water at the check-point is principally supplied by the slow changing volume of the Great Lakes system and, as previously stated, since the check-point of the Chenal Ecarté was upstream one mile from the Sydenham River confluence, it is possible that the daily or weekly increases in the water level could have been brought about by water from two sources: the reverse flow of waters from Lake St. Clair up the Chenal Ecarté and/or the upland drainage waters from the Sydenham River. At the same time, a less significant amount of upland drainage water could have entered the Chenal Ecarté upstream from the check-point at the two Running Creek outlets.

To explain the various water levels and current movements in the Chenal Ecarté and the Sydenham River, four major sets of drainage conditions must be considered:

(1) low summer run-off;

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[13]Interview with A. Aarssen and with Marcel Cogghe, owner of farm and housing subdivision adjacent to the Chenal Ecarté in the Baldoon Farm Subdivision, Dover Tp., December 20, 1966.

(2) low run-off and seiche flow;
(3) heavy fall or spring run-off;
(4) heavy run-off and seiche flow.

Low Summer Run-off (Fig. II-2).--During the summer, the Sydenham has lower levels of upland drainage water than in any other season due not to less precipitation (Table I-1) but rather to less run-off as a result of the moisture consuming and conserving capacities of summer vegetation, higher evaporation, and greater soil absorption. These slower, muddier waters meet and mix with the relatively clean and blue waters of the upper Chenal Ecarté and proceed down the lower Chenal Ecarté to Lake St. Clair. Because the volume and velocity of the Chenal Ecarté waters from the Great Lakes are more constant and stronger than those of the low run-off of the Sydenham River basin, the flow in Running Creek is from the former to the North Sydenham River (if at all) where it joins the flow of that river system. During the summer, then, the micro-drainage problem is least prevalent in the Baldoon Settlement Lands.

Seiche Flow During Low Run-off (Fig. II-2).--On November 6, 1966, the author observed from the pump house of the Sutherland Pumping Works at the confluence of the Sydenham River and Chenal Ecarté that the Sydenham River current had reversed and was flowing upstream. An approximate fifteen m.p.h. southwest wind was blowing causing seiche activity in the lower Chenal Ecarté and, no doubt, in its estuary area of northeastern Lake St. Clair as well. A similar effect can be created by a difference in atmospheric pressure, lower on the east side of the lake than on the west side. The resultant penetration of seiche waters into the lower Chenal Ecarté is facilitated by the extremely low gradient of about one foot in approximately twenty meandering miles between the source and the outlet

of the channel. Such seiche activity can raise the Sydenham River level nine inches just west of the forks in Wallaceburg[14] or up to two feet at this river's confluence with the Chenal Ecarté.[15] However, there are three conditions during the mid-summer that minimize flood hazards on the Baldoon Lands due to seiche activity: (1) low run-off; (2) weak currents of two to three m.p.h. in both river and channel;[16] and (3) a minimum of frontal activity at this latitude in summer and thus less seiche flow due to differential atmospheric pressure on Lake St. Clair.

Heavy Fall or Spring Run-off (Fig. II-3).--Prior to extensive dike construction, the Baldoon Settlement Lands were usually flooded annually in the spring and often in the autumn by excessive upland drainage from the Maxwell Creek and Little Bear Creek basins, but particularly from the much larger Sydenham River basin. Since pump drainage works were installed between 1906 and 1930, floods have occurred mainly from high spring run-off at approximately ten and twenty year intervals: 1926, 1937, 1947, and 1968 (Table II-1). The description and explanation of water levels and current movements now become somewhat complicated. Running Creek, instead of flowing eastward, would reverse and flow westward since volume and velocity of water would be greater in the North Sydenham River than in the Chenal Ecarté. Consequently, the levels of the Chenal Ecarté would be raised downstream from the two outlets of Running Creek to the Sydenham River estuary. However, such rises along this stretch

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[14]Interview with R. E. Crombie, P.Eng., Town Manager, Wallaceburg, Ontario, December 20, 1966.

[15]Interview with A. Aarssen, December 24, 1968.

[16]Interview with Marcel Cogghe and sons, July 15, 1968.

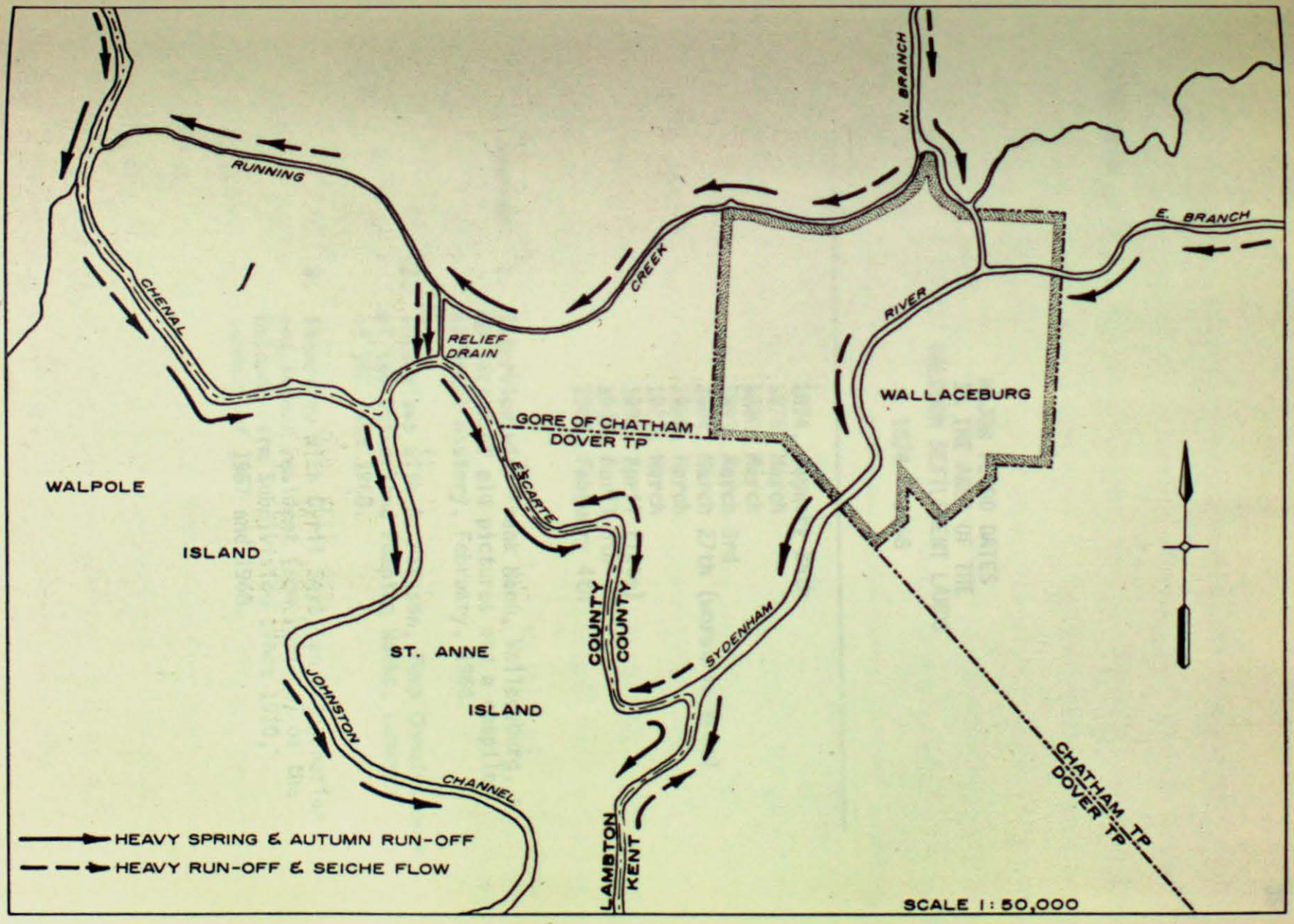

Figure II-3. DRAINAGE CHARACTERISTICS, CHENAL ECARTÉ AND SYDENHAM RIVER AT HIGH WATER LEVELS (Source: see Appendix A).

TABLE II-1

MAJOR FLOOD DATES
IN THE AREA OF THE
BALDOON SETTLEMENT LANDS
1874 - 1968

1874, January 25th
1875, March
1880, March
1893, March 3rd
1904, March 27th (worst in area)
1926, March
1927, March
1937, April (late)
1947, April 8th
1968, February 4th

Sources:

1. Interview with Frank Mann, Wallaceburg, a collector of old pictures and a compiler of local history, February, 1968.

2. Interviews with A. Aarsson, Pump Commissioner of the Sutherland Pumping Works, summers of 1967 and 1968.

3. Interview with Cyril Seys, an octogenarian and farmer resident (now retired) of the Baldoon Farm Subdivision since 1910, summers of 1967 and 1968.

of the channel are of minor flood concern due to the relatively small volume of water and the relief outlet effect of the Johnston Channel further upstream. Yet, just upstream from the Sydenham River estuary, a second variation in stream flow occurs. The downstream currents of the Chenal Ecarté, with a velocity of about four or five m.p.h. following spring thaw, are not strong enough to combat the overwhelming volume and the approximate eight to ten m.p.h. velocity of the Sydenham flood waters which are forced to flow up the upper portion of the Chenal Ecarté because the lower section of its dike restricted channel is filled to capacity. In fact, this set of conditions has brought severe flooding to the Baldoon Farm area many times in the past (Table II-1). Similar conditions, but on a much smaller scale, prevailed during the third week of December, 1966, when the Sydenham's muddy waters reached the intake pipes of Wallaceburg's water supply near the Cogghe subdivision and reportedly left silt deposits in many Wallaceburg bath-tubs. At that time, the Chenal Ecarté rose within two feet of the top of the Cogghe subdivision breakwater. The author later observed that this clearance was reduced to about one foot during the flood period of February, 1968, when flood waters breached the Sydenham River dyke and inundated the southern half of the Baldoon Farm subdivision. Whereas most major floods have occurred in March due to the combination of heavy snow melt and heavy rainfall, the 1937 and 1947 floods were the result of persistent rains only in late and early April respectively (Table II-1). The 1968 February flood resulted from excessive rainfall, unusually heavy snow melt due to temperatures near 50°F., and thick river ice which rose with

water levels but did not break.[17] Similar circumstances could have prevailed during the 1874 flood in Wallaceburg in late January except that ice-jams at the old mid-town bridge caused further complications.[18] Evidently, future flood problems of the study area and of the Town of Wallaceburg will be largely solved when heavy spring run-off can be controlled.

Seiche Flow During Heavy Run-off (Fig. II-3).--Heavy spring run-off due to rapid snow melt and heavy rains could be the effect of a warm front crossing the area. Between the passage of this front and the following cold front, considerable seiche activity in the northeast part of Lake St. Clair could result from a steep pressure gradient over the area and from accompanying high southwest winds. The resultant upstream current in the lower Chenal Ecarté could greatly magnify the chaos of previously described heavy run-off flood conditions, even forcing the Chenal Ecarté to reverse its flow for about three miles from the estuary of the Sydenham River to the Johnston Channel and down the latter (depending upon seiche strength there) to Lake St. Clair. However, no high winds accompanied the last three major floods.[19] Such definite knowledge with regard to earlier floods is lacking, so it might seem logical to conclude that high winds have not been a flood factor. Still, there is the possibility of floods coinciding with seiche flow due to a pressure

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[17]Interview with A. Aarssen, December 24, 1968.

[18]Old photo and picture collection of Frank Mann, Wallaceburg, Ontario.

[19]Interview with F. Mann and A. Aarssen, Wallaceburg, Ontario, December, 1968.

differential on Lake St. Clair, but there are no clues or documented evidence available. Nevertheless, seiche flow during heavy run-off seems credible and in actuality could be devastating to the pump drained section of the Baldoon Settlement Lands.

Other Influencing Factors.--The drainage flow of Maxwell Creek and Little Bear Creek has no unusual characteristics. The rise of Chenal Ecarté water levels at their common outlet increases water levels and flood possibilities in their extreme lower basins.

Water levels and current movements in the lower Chenal Ecarté are believed by the author to be detrimentally affected by dredging wastes. Since the turn of this century, small lake freighters have navigated the upper Chenal Ecarté and the lower Sydenham River to Wallaceburg. Periodically, dredging has been necessary to permit the passage of such vessels with fourteen to fifteen feet draught. The dredging wastes have been dumped along the lower Chenal Ecarté downstream from the Sydenham River estuary. Whereas the navigated section ranges in depth between sixteen and twenty-two feet,[20] and has bends, such as Dark Bend, as deep as thirty-eight feet, the waste deposit section ranges in depth from nine feet to sixteen feet. The nine feet depth section was discovered immediately south of a thirty-five feet depth area where the Sydenham current bends southward into the Chenal Ecarté. Such an abrupt downstream change in depth must surely impede current movement at a crucial point of

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[20]Map of "Lake St. Clair" with soundings in feet (Detroit: U.S.A. Army Engineer District, Lake Survey Corps of Engineers, April 1962), Chart No. 42, Scale 1:60,000; and field observations of the author in co-operation with local residents, July 15, 1968. (A motor boat with Sonar depth indicator was used.)

drainage thus making less effective the river's task of dispersing increased run-off.

As has already been mentioned, dikes built to protect pump-drained lowlands from upland drainage create a high-water level problem. Previous to dike construction, seiche waters moving upstream and upland drainage moving downstream spread out over the meadow- and reed-marsh flats of the lower Sydenham River and the lower Chenal Ecarté. The dikes now restrict waters to the beds of these rivers. As a result, these channels cannot drain the upland run-off fast enough. The restricted high waters acting as a dam cause water accumulation and flooding farther upstream. The resulting volume and pressure of water on the lower channels may overtax their holding capacity and flood adjacent areas until the channel load is relieved.

3. Jurisdictional Drainage Responsibilities and Government Assistance

Presently, the Baldoon Lands benefit from at least 132 years of evolved provincial drainage legislation which, through the local municipalities, exerts jurisdiction over drainage improvement. The references to the following Acts are indicative of the Government's progressive action in this regard.

The first such legislation in 1835, "An Act to Regulate Line Fences and Watercourses" (4 Wm. IV. c. 13. 1835), provided for "the opening of watercourses in Upper Canada where a joint effort was needed to let off surplus water in swamps so that they could be cultivated, and where it was the duty of several parties to open a just share of ditch. Where there was a dispute between the parties, it was referred to Fence Viewers

for arbitration."[21]

In the first Act in Ontario dealing exclusively with land drainage (An Act Respecting Ditching Watercourses; 38 Vic. c. 26. 1847), fence viewers were given the power to employ a Provincial Land Surveyor to assist in survey work related to drainage problems. This Act also established limits regarding total cost, area to be assessed, and length of drain.

During the mid-nineteenth century, progress in drainage improvement was slow because there was a general lack of funds. Pressure on the Government finally brought about legislation to allow the use of public funds for drainage purposes, i.e., "An Act Respecting Public Works in Ontario" (32 Vic. c. 28. 1868), which eventually became known as the "Ontario Drainage Act." The Act gave the Ontario Commission of Public Works the authority to employ engineers to survey swamp and bog lands and to award contracts for drainage works.

The Provincial Government gradually passed to the municipalities the responsibility for construction of local drainage works under an Act passed in March 1872 (35 Vic. c. 26. 1872) followed by the Municipal Drainage Aid Act (36 Vic. c. 39. 1873). The main provisos of the 1873 Act were:

> Upon a petition of a majority of interested persons, the council was authorized to pass by-laws for doing and paying for drainage work. Money was borrowed on debenture and levied against the property. Right of Appeal was through the Assessment Act of 1869.[22]

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[21] R. W. Irwin, A Review of Land Drainage in Ontario, Eng. Tech. Publ. No. 7 (University of Guelph, Ontario: Department of Engineering Science, 1961), p. 2.

[22] Ibid., p. 5.

The Provincial Drainage Aid Act (63 Vic. c. 8. 1900) initiated a special grant system whereby the Provincial Government provided financial assistance for the main drainage ditches. Gradually, the amount of grant was left to the discretion of the Minister of Public Works. In 1921, the amount was set at twenty per cent for all main channels exceeding $10,000 in construction cost; and in 1954, the provincial share was raised to thirty-three and one-third per cent for all drains constructed on the basis of an engineering report for agricultural lands in Southern Ontario.

The first legislation assisting the individual farmer to improve his land by tile drainage was "An Act Respecting Investment in Tile Drainage Debentures" (41 Vic. c. 9. 1878). It allowed the farmer to borrow from the Government up to $1,000. In 1920, the maximum loan was raised to $2,000 per 100 acres; and in 1949, to $3,000.

By 1960, the "Municipal Drainage Act" (R.S.O. 1960. c. 252), which had its origin in the "Municipal Institutions Act" (22 Vic. c. 54. 1859), allowed the majority of resident owners to obtain by petition a drainage outlet for an entire watershed without limitations to area, cost or assessment.

On June 1, 1963, the Ontario Drainage Act, 1962-63 came into force embodying the following Acts:[23] The Municipal Drainage Act (R.S.O. 1960, c. 252), The Municipal Drainage Aid Act (R.S.O. 1960, c. 253), The Ditches and Watercourses Act (R.S.O. 1960, c. 109), The Interprovincial Drainage

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[23]Ontario, Statutes of Ontario, 1962-63, The Drainage Act, 1962-63, c. 39; and as amended by 1965, c. 34 (Toronto: Queen's Printer, 1965), p. 38.

Act (R.S.O. 1960, c. 192), and The Provincial Aid to Drainage Act (R.S.O. 1960, c. 311).

In 1962, the Provincial Government, by Order-in-Council, established the Sydenham Valley Conservation Authority with jurisdiction over drainage matters in the Sydenham River drainage basin. The Authority's main concern is the control of what is referred to in this study as the micro-drainage problem. Certain valley lands of the Sydenham Basin have been acquired and designated conservation areas; and some detailed preliminary plans have been made for the construction of dams and reservoirs. But, the Authority does not have control over all its drainage problems. Its jurisdiction terminates at the confluence of the Sydenham River and the Chenal Ecarté; and the upland waters of the Sydenham River, before emptying into Lake St. Clair, must flow through ten miles of the dike restricted channel of the lower Chenal Ecarté. Such channel confinement results in frequent flooding upstream in the lower Sydenham River. This problem arises out of the lower Chenal Ecarté waterlands which are Crown Lands and the responsibility of the Ontario Government. Yet, since they are outside the jurisdiction of the Sydenham Valley Conservation Authority, they receive little, if any, consideration by provincial authorities.

The Federal Government's control over navigation on the waterways further complicates drainage matters in the study area. For a half century or more, the Federal Department of Transport has kept the upper Chenal Ecarté and the Sydenham River dredged as far as Wallaceburg to accommodate boats which brought sugar cane to the C & D Sugar Company (closed in 1959) and raw materials to Dominion Glass Company (now supplied by road and rail transport). Presently, crushed stone for road

construction and maintenance comes by small lake freighters to Wallaceburg and several boatloads of corn are shipped annually from the St. Clair Mill in that town. The dredging waste was usually dumped in the channel downstream from the confluence of the two rivers and is now causing navigational flood problems in the Lower Chenal Ecarté. Dredging should actually take place there so as to deepen the channel and improve drainage.

Although the multiple jurisdiction, or complete lack thereof, over waterways in the study area has created insufficient continuity in flood control, the beneficial effects of the drainage legislation and its grant structure are reflected in the pump drainage works established on the Baldoon Settlement Lands. These works have transformed more than three-fifths of the area into arable and highly productive farmland. Another indication of the current and continued drainage improvement, with the aid of senior governments, is the pending application of Dover Township for combined grants totalling over $200,000 from the relevant federal agency (formerly ARDA) and the Provincial Government.[24]

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[24]"Kent Townships Line up for Ontario Drainage Grants," London Free Press, July 24, 1969, Section 2, p. 23.

CHAPTER III

THE BALDOON SETTLEMENT LANDS, 1804-1955

1. The Baldoon Farm--Success and Failure, 1804-1840

In early September, 1804, Selkirk's Scottish Highlanders arrived at the Baldoon Lands.[1] There was a number of reasons for his choice of the site. He was interested in establishing a colony on British territory rather than seeing the crofters migrate to the United States. He was, it is believed, familiar with an area of meadow-marsh flats called the Baldoon, owned by an aunt, and located in the lower basin of the Dee River near the Selkirk estate in Scotland. (The flats, most likely, were used for pasturing livestock.) But more specifically, Selkirk was impressed with several elements in the environment of the area conducive to agricultural settlement; the extensive meadow-marsh grasslands would supply pasture and winter hay for the purpose of raising not only sheep, which were "to be considered as the staple article on which the profit

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[1]These people were the homeless and impoverished peasant tenants who had been evicted from their individual crofts by the Scottish landowners when the latter consolidated their small holdings into large sheep ranges, exacting higher rents and requiring fewer tenants.

of the farm will chiefly depend,"[2] but also for the purpose of raising horses and cattle,[3] all of which could be marketed more easily than crops from an isolated pioneer settlement; furthermore, the frost free season was long enough for the growth of a wide variety of mid-latitude crops, even wheat and corn, which the cool and moist Highland climate in Scotland would not have permitted; the very fertile mineral loam soils were high in organic matter due to the grassland vegetation; there was no need to clear forests, yet woodlands were near at hand for fuel and construction materials (Fig. III-1); and, finally, the Settlement Lands were adjacent to the Great Lakes Waterway which provided a means of transportation to markets. In 1803 and 1804, Selkirk believed that his choice of site for the Baldoon Settlement would become even more satisfactory with the eventual introduction of drainage improvements.

In 1804, two surveyors began work in Dover and Chatham Townships. Augustus Jones' natural drainage map of the Farm (Fig. I-5) and his preliminary survey of the area from the Sydenham River to Mitchell Bay in early 1804 were followed by further surveys with regard to the need and location of drainage ditches.[4] Another surveyor, T. Smith, was directed to survey the area between the Sydenham River and Little Bear Creek (Fig. II-1) "in order to ascertain the best place for the drain...all the way back to the woods, so as to have a compact body of improved and

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[2]Macdonell Collection, Vol. XII, p. 1.

[3]F. C. Hamil, "Lord Selkirk in Upper Canada," reprinted from Ontario Historical Society, Papers and Reports (Toronto, 1945), Vol. XXXVII, p. 38.

[4]Macdonell Collection, Vol. XII, p. 13.

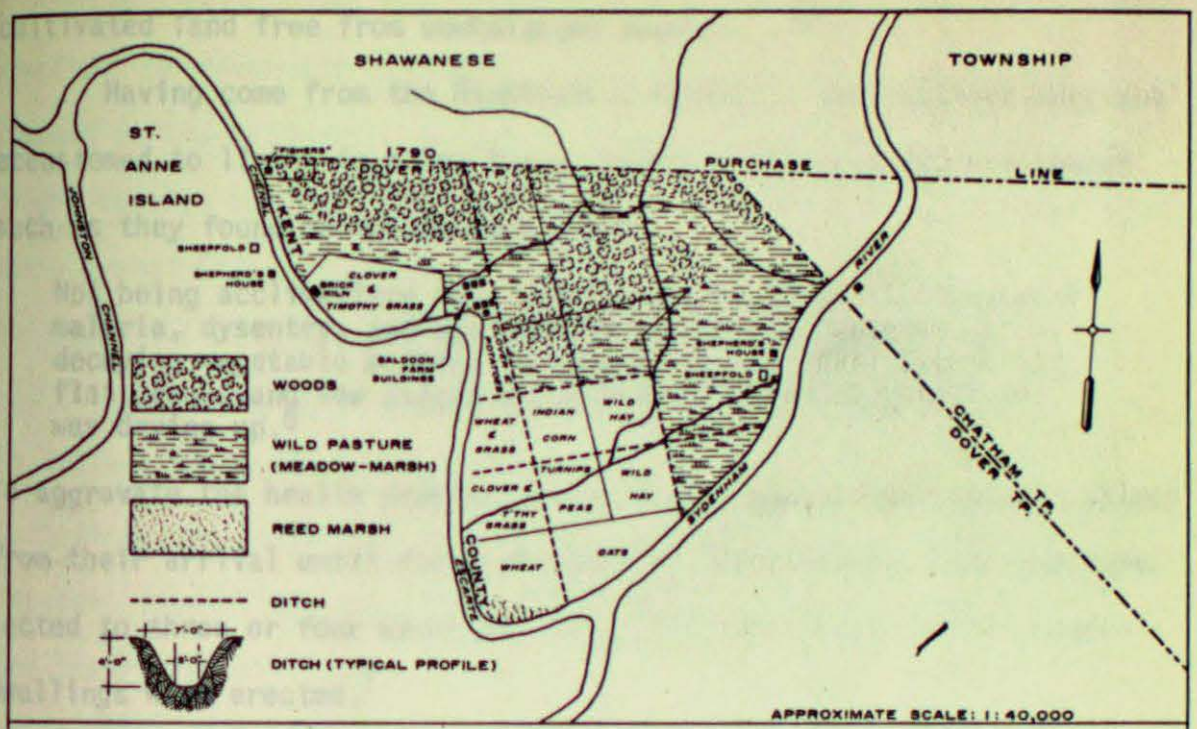

Figure III-1. BALDOON FARM, LAND USE AND DRAINAGE, 1810 (Source: see Appendix A).

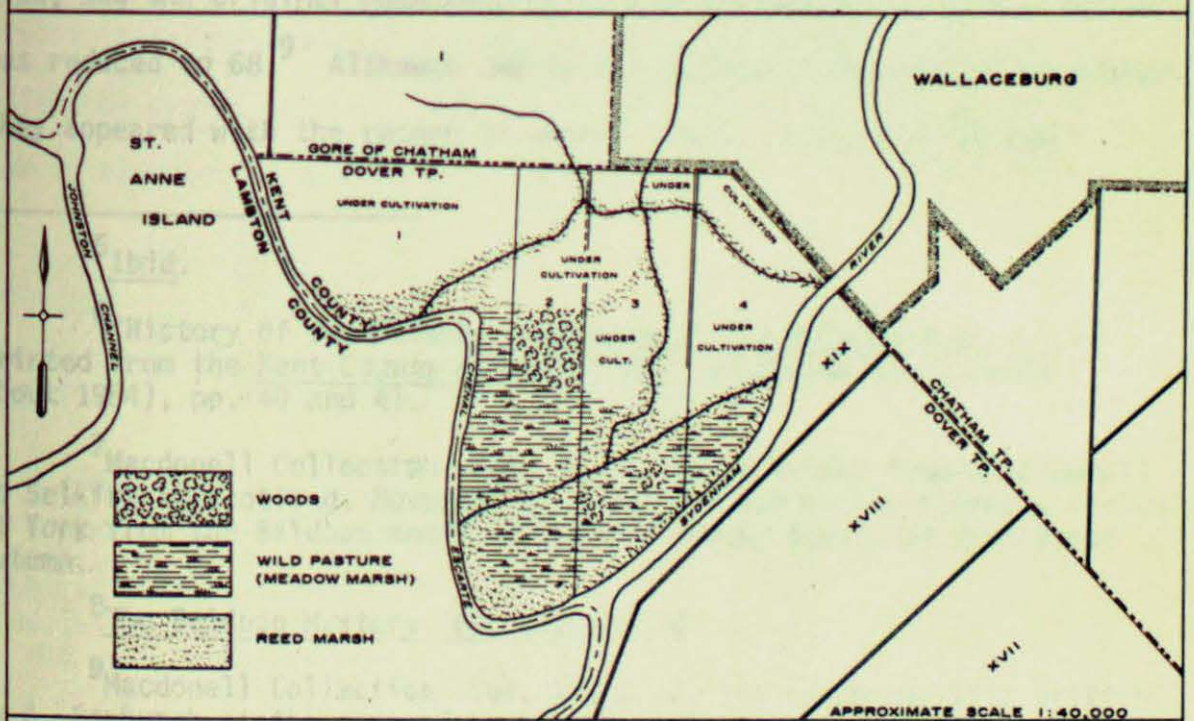

Figure III-2. BALDOON FARM, LAND USE AND DRAINAGE, 1910 (Source: see Appendix A).

cultivated land free from unwholesome swamps...."[5]

Having come from the Highlands of Scotland, the settlers were not accustomed to living in a low lying, poorly drained swamp environment such as they found on the Baldoon Lands.

> Not being acclimatized they were an easy prey to the fevers of malaria, dysentry, and ague produced from the mosquito and decaying vegetable matter, the growth of the early summer in flat creeks and low places when the water had evaporated or was drying up.[6]

To aggravate the health problem, heavy rains plagued the settlers almost from their arrival until winter freeze-up. Furthermore, they were subjected to three or four weeks of living in tents before small wooden dwellings were erected.[7]

Within the first year of settlement, about forty-two[8] settlers died, and the original population of the Settlement Lands of 110 persons was reduced to 68.[9] Although the fevers abated by the end of the winter, they appeared with the return of summer, 1805. In late July, the

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[5] Ibid.

[6] "History of the Baldoon Settlement," The Baldoon Mystery, reprinted from the Kent County Almanac, 1882 (Wallaceburg: Colwell's, about 1964), pp. 40 and 41.

[7] Macdonell Collection, Vol. IX, p. 10, a letter from A. McDonell to Selkirk in Scotland, November 8, 1804, written on the former's arrival at York from the Baldoon and relating the tragic events of that first autumn.

[8] The Baldoon Mystery, op. cit., p. 42.

[9] Macdonell Collection, Vol. IV, p. 4, the passenger list written by A. Roxburgh at the port of Lachine on July 19, 1804, calculates 102 settlers. Add to this number the five members of the family of Lionel Johnson, sheep herder, who joined the settlers at Kingston en route to the Baldoon; add also William Burn, the manager; Alex Brown, sheep herder; and Andrew Templeton, carpenter; and the total population at Baldoon during the next year was at least 110.

manager, McDonell, moved the settlers to Sandwich for medical treatment away from the fever infected environment.[10] In September, the Highlanders returned to the Baldoon; they were not plagued again by malaria, dysentry and ague in epidemic proportions.[11] An environment of poor drainage almost doomed human settlement on the Baldoon Lands at the very beginning, not only through the death of many settlers but also through the heavy expenses (£8,462 for the summer 1805)[12] that were a severe drain on Selkirk's financial resources.

It was not before August, 1806, that the settlers received their own fifty-acre land allotments along the southeast side of the Sydenham River. Since their arrival in 1804, they had been accommodated on Selkirk's own Baldoon Farm which he operated with the assistance of a manager. No progress was made in regard to drainage improvements on the lands held by the settlers, essentially the plains between the Sydenham River and Little Bear Creek, during the period of 1806-1840. They were not interested in exerting themselves individually nor co-operatively to dig

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[10]Macdonell Collection, Vol. IX, pp. 29 and 38, a letter from McDonell to Selkirk, July 28, 1805, and a letter from McDonell at Sandwich to T. Clark, Selkirk's solicitor, Queenston, Ontario, August 20, 1805.

[11]Macdonell Collection, Vol. I, p. 158, a letter from McDonell, Queenston, to John McDonald, overseer, at Baldoon, July 18, 1806; and Macdonell Collection, Vol. IX, p. 66, a letter from McDonell at the Baldoon to Selkirk, October 11, 1806, stating that he had "left Baldoon on the 1st of September and left the people all well and busied in cutting and curing hay for themselves..."

[12]Ibid., Vol. IX, p. 46, a letter from McDonell at Queenston to Selkirk, November 4, 1805.

drains;[13] and Selkirk, by 1812,[14] had lost interest in the settlement due to the many problems on the Farm itself and the resulting excessive costs.

Agricultural operations on Selkirk's Farm in 1804 were equally as trying and as nearly disastrous as the health problems. On June 7, 1804,[15] Selkirk arrived at the Farm and supervised the first planting and tending of crops (peas, barley and oats) and the cutting and stacking of hay carried out by hired help from nearby communities prior to the arrival of the settlers in early September. The quotation at the beginning of Chapter II reveals the destruction of these crops by the heavy rains of September and October.

Selkirk's planned drainage system for his Farm was not implemented until 1806.[16] The continuous drought of the summer of 1805 would have provided favourable conditions for digging drains but due to severe health problems of most settlers, very little was accomplished on the Farm. According to early records, the 1806 summer was again sufficiently dry,[17] and a number of drainage ditches were constructed using horses, oxen and wood scrapers.

The crops resulting from the improved lands had, by September, 1807,

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[13]Hamil, "The Story of the Baldoon," p. 43.

[14]Hamil, Valley of the Lower Thames, p. 55.

[15]Hamil, "The Story of the Baldoon," pp. 10, 14, 16 and 18.

[16]Macdonell Collection, Vol. X, p. 13, a letter from McDonell at York to Selkirk, September 2, 1807.

[17]Macdonell Collection, Vol. I, p. 152, a letter from McDonell at York to J. McDonald at Baldoon, June 7, 1806.

"fully answered every expectation."[18] The harvests from 1807 to 1810 showed considerable improvement over the previous three seasons. The yield of corn in 1807 was estimated at 1,000 bushels.[19] Excellent crops of hay were harvested in 1808 and 1809, and "oats, peas and wheat were doing well."[20] Approximately seventy acres of wheat in 1810 produced at least 2,000 bushels.[21] Due to the drainage improvements, Selkirk's Baldoon Farm in 1810 was beginning to produce bountiful crops (Fig. III-1 and Table III-1).

Although Selkirk's sheep raising experiment on the Baldoon Settlement Lands is not particularly relevant to this study, it should be included here to round out the agricultural description. Between 1804 and 1806, the Baldoon Farm imported approximately 800 sheep from New York State and Scotland. The scab disease and careless handling killed an estimated 300 sheep during the winters of 1805 and 1806.[22] Natural increase must have been considerable for various references lead the author to assume that their numbers grew to well over a thousand before Selkirk's sheep raising experiment was decimated by American forces from Detroit

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[18] Ibid., Vol. X, p. 13, a letter from A. McDonell to Selkirk, September 2, 1807.

[19] Ibid., Vol. II, p. 1, a letter from Robert Innis, Merchant at Sandwich to A. McDonell at York, January 6, 1808.

[20] Ibid., Vol. II, p. 64, a letter from Dr. J. Sims, overseer at Baldoon, to A. McDonell at York, July 8, 1808.

[21] Selkirk Papers, Vol. I, Subsection 54, p. 14594, a letter from T. Clark to Selkirk, June 28, 1810.

[22] Macdonell Collection, Vol. IX, p. 19, a letter from McDonell at York to Selkirk, May 4, 1805.

during the War of 1812. Disregarding the latter misfortune and considering the damp lowland environment only, it would seem that the sheep venture was possibly more successful than crop production.

For the period from 1812 to 1830, the author found only two references to drainage improvements, and these are somewhat shrouded in obscurity. It is safe to assume that Selkirk's loss of interest in the Baldoon Settlement around 1812 resulted in his withdrawal of financial and technical assistance towards any further drainage improvement works. The outbreak of the War of 1812 prevented him from disposing of his personal lands and livestock, so that it was not until after the cessation of hostilities in 1815 that, lacking a buyer, he leased the land to William Jones.[23] Just before the end of the war, an additional drainage improvement, a windmill, was constructed by Laughlin McDougall on the Baldoon Farm.[24] Equipped with sail arms, the windmill must have resembled those customary in Holland. Any further description and information on its use and resulting benefit are lacking; however, it can be assumed that there must have been some sort of dike at the Chenal Ecarté and that the windmill pumped water out of a ditch reservoir into the channel.

By 1817, "nine or ten families and fifty souls"[25] remained on the site of the original Baldoon Settlement Lands as compared to eighteen

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[23] Lauriston, Romantic Kent. p. 55.

[24] Ibid., p. 54; and interview with Mr. Frank Mann, Wallaceburg historian, February, 1969.

[25] Robert Gourlay, Statistical Account of Upper Canada: Compiled with a View to a Grand System of Emigration, Vol. I (London: Simpkin and Marshall, 1822), p. 291.

TABLE III-1

LAND USE

Baldoon Farm

(Acreages are Approximated)

from

T. Clark's Sketch of the Baldoon Farm

1810

		Acres
Buildings		10
Woods		320
Wild pastures and sheep walk		300
Crops -		320
wheat	70	
oats	40	
Indian corn	24	
peas	18	
potatoes	10	
turnips	6	
hay	152	
wild (52), clover and timothy (100)		
Total number of acres		950

Source: F. C. Hamil, The Valley of the Lower Thames, 1640-1850 (Toronto: University of Toronto Press, 1941), p. 47.

families, or eighty persons, sometime between 1807 and 1811,[26] and fifteen families, or 110 persons, at the time of the initial settlement. The fewer people on the Farm and adjacent lands in 1817 might seemingly indicate a deterioration in crop productivity due to reoccurring drainage problems. Perhaps a further reason for the decrease in the number of people would be that Selkirk had withdrawn his financial support. Assuming that Selkirk's rudimentary drainage system of 1806 consisting of a few ditches was properly maintained and that McDougall's windmill performed as expected, agricultural activity on the Baldoon Farm should have reaped a fair and stable return during the period from 1812 to 1825. In that year, reported rises in lake levels may have begun to affect water levels in the Chenal Ecarté,[27] increasing the drainage problems.

Another reference indicates that certain drainage improvements were implemented sometime during the 1820's or early 1830's. William Jones and James Wood of Sandwich were then the owners of the Baldoon Farm. Selkirk had sold the Farm in 1818 to John McNab, a former Hudson Bay Trader, stipulating that Jones' lease, transacted with Selkirk in 1815, was to continue. McNab died two years later and the Farm was sold at a Sheriff's sale in 1822 to Jones and Wood for £1,281.[28] As the levels of the lakes and the Chenal Ecarté commenced to rise between 1825 and 1830, the new owners began constructing dikes where necessary along the Chenal

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[26]Macdonell Collection, Vol. IV, (no page number).

[27]"Historical Sketches of the County of Kent," Illustrated Atlas of the Dominion of Canada (Toronto: H. Beldon & Co., 1881), p. XIV (column iii).

[28]Hamil, The Valley of the Lower Thames, p. 55.

Ecarté and the Sydenham Rivers.[29] Though some settlers remained as tenants on the Baldoon Farm during this period, they were ultimately driven off during the 1830's by the continuously rising water levels in the adjacent network of streams and channels which finally breached the dikes and covered "shocks of wheat to a depth of several feet."[30] In 1839, these water levels reached their maximum height allowing moderately deep draught vessels to navigate over former wheat fields.

By 1840, the lake levels had gone full cycle. Unfortunately, Selkirk had chosen the site of the Baldoon Settlement Lands when water levels in the neighbouring rivers were lowest in known history--even lower than the alarmingly low lake levels of 1964. The Settlement's plateau of development was reached about 1810, four years after drainage works were introduced and one year after Alexander McDonell had settled permanently on the Farm to supervise operations himself.

2. The Baldoon Settlement Lands Become Productive, 1841-1955

(a) Land Use and Drainage Conditions in 1851

In 1851, cultivation of the Settlement Lands was restricted to a small portion of the Baldoon Farm. Only eighty acres of it were farmed; the remaining 770 acres were classified as "wood and wild" (Table III-2). Owned by the descendants of William Jones,[31] the Farm was leased to

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[29] "Historical Sketches of the County of Kent," loc. cit.

[30] Ibid.

[31] "Abstract Records of Deeds," Baldoon Farm Subdivision, Dover E. Tp., Kent County Registry Office, Chatham, Ontario, (hereafter cited as 'Abstract Records').

TABLE III-2

LAND USE

Baldoon Farm

1851

		Acres
Wood and wild		770
Under cultivation -		80*
wheat	40	
barley	2	
garden and orchard	2	
other crop	7 1/4	
pasture	27 3/4	
Total number of acres		850[a]

[a]It should be noted that this figure differs by 100 acres from that of other sources regarding the total acreage of the Farm. It is assumed that the acreage of "wood and wild" is incorrect and should be 870 according to investigations carried out by the author.

Source: Canada, Canada West Census, 1851, "Agricultural Census in Kent County, Dover East and West Townships," p. 79. Microfilm copy, C-962, Province of Ontario Archives, Toronto.

*This table contains a mistake in addition which has been verified by the Archivist as a discrepancy in the Census-Taker's figures.

Roderick Clarke and his family of ten,[32] who at that time were the only occupants of the Settlement Lands. The past floods had not only driven off the original settlers but also conceivably destroyed the old drainage system.

The "wood and wild" area included the low meadow-marsh southern half of the Farm, considerable acreage adjacent to the Chenal Ecarté in the northwest, and the marsh-swamp lands marginal to the natural drains in the north central section (Fig. III-1). The site of Roderick Clark's one-storey farm residence and his eighty acres of cultivated land must have been located adjacent to the 1790 Purchase Line and either at the northeast corner of the Baldoon Farm or just west of the natural drains.

In 1851, most of the Dover Township Lots granted to Selkirk, exclusive of the Baldoon Farm, were still owned by T. Clark of Queenston who had bought them from the Selkirk estate about 1822.[33] This would lead to the assumption that the Lots were left in Clark's hands without buyers due to the inundation by high lake levels. A search of the Abstract Records of Kent County revealed the fact that most, if not all, of the other owners of the remaining lots of Selkirk's original lands within the study area were also absentee landowners. Records of that time further reveal that even as late as 1860 the area was "covered by water a great part of the year."[34] It seems conclusive from these

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[32]Canada, Canada West Census, 1851, "Agricultural Census in Kent County, Dover East and West Tps.," p. 79, microfilm copy, C-962, Ontario Public Archives, Toronto.

[33]Abstract Records, op. cit.

[34]T. K. Holmes, "Pioneer Life in Kent County," Kent Historical Society (Chatham,Ontario: published by the Society, 1914), Vol. I-VI, p. 8.

sources that except for the Roderick Clarke family there were no permanent residents on the Baldoon Settlement Lands in 1851 and that drainage conditions were worse than in 1810.

(b) Land Use and Drainage Conditions in 1881

It is safe to assume that outside of the Baldoon Farm, there was only very limited, if any, agricultural activity in 1881 on the former Selkirk land grants. An indication of this is the fact that most lots were in the hands of a few absentee owners, with a Duncan Charles Plumb, who had acquired T. Clark's property,[35] owning the major portion of them. The little farming that may have taken place was restricted to pasturing and a few acres in oats, barley and/or peas[36] on small parcels of partially dry land (parts of Lots 15 and 16, Concession XV) during periods when seasonal flooding was less prevalent. There is no evidence of any drainage improvements, and the lands and their use at that time had changed little since 1851.

In 1881, the Baldoon Farm had seven owners.[37] Most of them were absentee landowners who were probably being caught up in the acceleration of land speculation in the wet lands of Dover Township due to the population pressure on agricultural lands in Southern Ontario by 1881. No doubt, the demand for rental land was increasing. Several families had

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[35]Abstract Records, op. cit.: (Lots 19, 1, 2, 4 and 5 in Con. XVIII; Lots 4 and 5, Con. XIX; north half of Lot 19, Con. XVII; and Lots 13, 14 and 15 in Con. XV; all in Dover E. Tp.).

[36]Interview with Dugald Dunlop, sixty year old farmer, third generation of Dunlops on Con. XV, Dover E. Tp.

[37]Abstract Records, op. cit.

occupied an estimated 200 acres of the best naturally drained land of the Farm since as yet no municipal drainage scheme had been implemented on the lands formerly granted to Selkirk.[38] The occupied area would have coincided with the more elevated, wooded sections of the 1810 Baldoon Farm noted on Fig. III-1 and would have extended approximately along the Baseline of the Dover and Gore of Chatham Townships, except for some sections of extremely poor natural drainage.

Nine years previous to 1881, the "Municipal Drainage Aid Act" was introduced by the Province allowing Municipal Councils to construct and finance drainage works. As of 1881, landowners on the Baldoon Settlement Lands had not petitioned to the Dover Council for such drainage improvements, although pump drainage installation had already begun in neighbouring areas in the southwestern part of the Township. Three years previously in 1878, the provincial "Tile Drainage Act" had been passed. As yet, there was no underground drainage in all of Dover Township.[39] Of course, tile drainage in wet poorly drained lands was worthless without extensive and efficient ditch reservoirs and pumps.

Drainage technology had not yet reached the point of creating low cost drainage construction equipment or efficient pumps. Drainage works at that time were relatively costly and required denser settlement with a sufficient number of landowners to spread the costs more widely and thus make the undertaking more bearable financially to the individual

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[38] Dover Tp. Minutes, 1848-1881, microfilm copy, Reel G.S. 151, Province of Ontario Archives, Toronto.

[39] S. C. Wood, Chairman, Ontario Agricultural Commission Report (Toronto: C. B. Robinson, 1881), Vol. I, p. 242.

owner. In the northern part of Dover Township this was not the case in 1881. Improvements in drainage technology with lower cost for equipment and operation, increased government grants, and a growing demand for land were required to create the drainage works necessary for the full development of the agricultural potential of the Baldoon Settlement Lands.

(c) Land Use and Drainage Conditions in 1910

By 1910, the area of the Baldoon Farm that was cultivated continuously had more than doubled the estimated 200 acres of 1881 to approximately 450 acres (Fig. III-2), and the number of landowners had more than tripled. The general area of occupancy and agricultural land use remained on the northern half of the original Baldoon Farm Subdivision on the land described in 1804 as "dry oak ridges."[40] The clearing of these woodland ridges, well advanced in 1881, was almost completed by 1910, and the land was under cultivation. Woodlots of approximately forty acres remained at the approximate centre of the Farm. The treeless meadow-marsh areas still contained no dwellings, but during dry summer periods some parts may have pastured livestock and may have occasionally been cropped when a drier spring allowed the late June sowing of flax which had a ready market in nearby Wallaceburg.

Human occupancy and land use on the Baldoon Farm were still controlled mainly by the environmental element of natural drainage. As yet, there were no municipal drainage works and no underground tile drains. The natural drains had essentially the same pattern as in 1804. Their marshy margins occupied many acres in the regularly cropped northern half

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[40]Macdonell Collection, Vol. IV, p. 66, as described by Augustus Jones, Surveyor.

of the Farm; an estimated fifty to sixty acres of meadow-marsh on Lot 1 adjacent to the Chenal Ecarté and the southeastern half of the Farm. All of these marshy areas experienced some limited form of drainage only during dry summers or extremely low river levels. They were commonly described as swamp and muskrat-holed. Except for a few weeks in mid-summer, they were seldom dry and always exposed to the effects of micro- and macro-drainage problems.

The general agricultural operations on the Farm consisted mainly of: sugar beets, grains, some tobacco, much hay and pasture for a large number of work horses and "dual purpose" cows, a few pigs and full run of fowl. Though rather low revenue crops, fairly quickly maturing flax, buckwheat and rape became an important source of income on the poorly drained soils in the short growing seasons of wetter years.

In 1910, the extent of continuously cultivated land had reached the limits of natural drainage on the Baldoon Farm. The population increase in the general region was rapid, and the demand for land was active.[41] Drainage technology had advanced considerably through the use of steam and newly developed gasoline engines to power ditch digging and dike building equipment. The Provincial Drainage Aid Act of 1900 provided for financial assistance to carry out large scale drainage improvement works. The time had come for the Baldoon Farm to expand its cultivated land beyond the limits of natural drainage.

In 1910, a large proportion of the Baldoon Settlement Lands outside of the Baldoon Farm were still meadow- and reed-marsh and subject

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[41] Interviews with Cyril Seys, summers of 1967 and 1968, octogenarian, who has lived on the Baldoon Farm since 1910; and Abstract Records, op. cit.

to almost regular flooding in the spring and fall of the year. However, the germ of change was at work. The southern half of Lot 15, Concession XV, was grazed to a limited degree. Land use of the south half of the adjacent Lot 16 was similar to that of 1881.[42] Lot 20 of the same Concession, through which drain Little Bear Creek and McKenzie Creek, was marsh, ash swamp, and on some drier spots in the south-southeast portion there were small woodlots. In this wooded section, about 100 acres were used for cattle pasture; agricultural land use on Lot 20 had made a beginning.[43] The remaining lots in Concession XV and all those in Concession XVI were still meadow- and reed-marsh.

Significant changes were taking place, however, on the meadow-marsh environment of Concessions XVIII and XIX.[44] The northeast half was still naturally drained, but agriculture was better established than in 1881. The river levee or north portions were cropped continuously although they flooded occasionally. The front or south portions, abutting the Concession XVIII Road, were lower and marshy and flooded frequently when fall and spring high river levels caused waters to back up the present day Rabideau Drain (Fig. III-3). An attempt to crop a portion of this front area was made about 1910 by ploughing the land into ridges and sowing crops on their crests. The crop return on the effort expended must have been low. Even yields on the better drained levee lands were low since underground tile drainage was yet to be introduced here or elsewhere on

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[42]Interview with Dugald Dunlop, farmer, Con. XV, summer of 1967; and Abstract Records, op. cit.

[43]Interviews with Walter Roe, octogenarian, and son Carl, summer of 1967.

[44]Interviews with George Rabideau and Leonce Courteaux, retired farmers, residing on Con. XIX Road, summer of 1967.

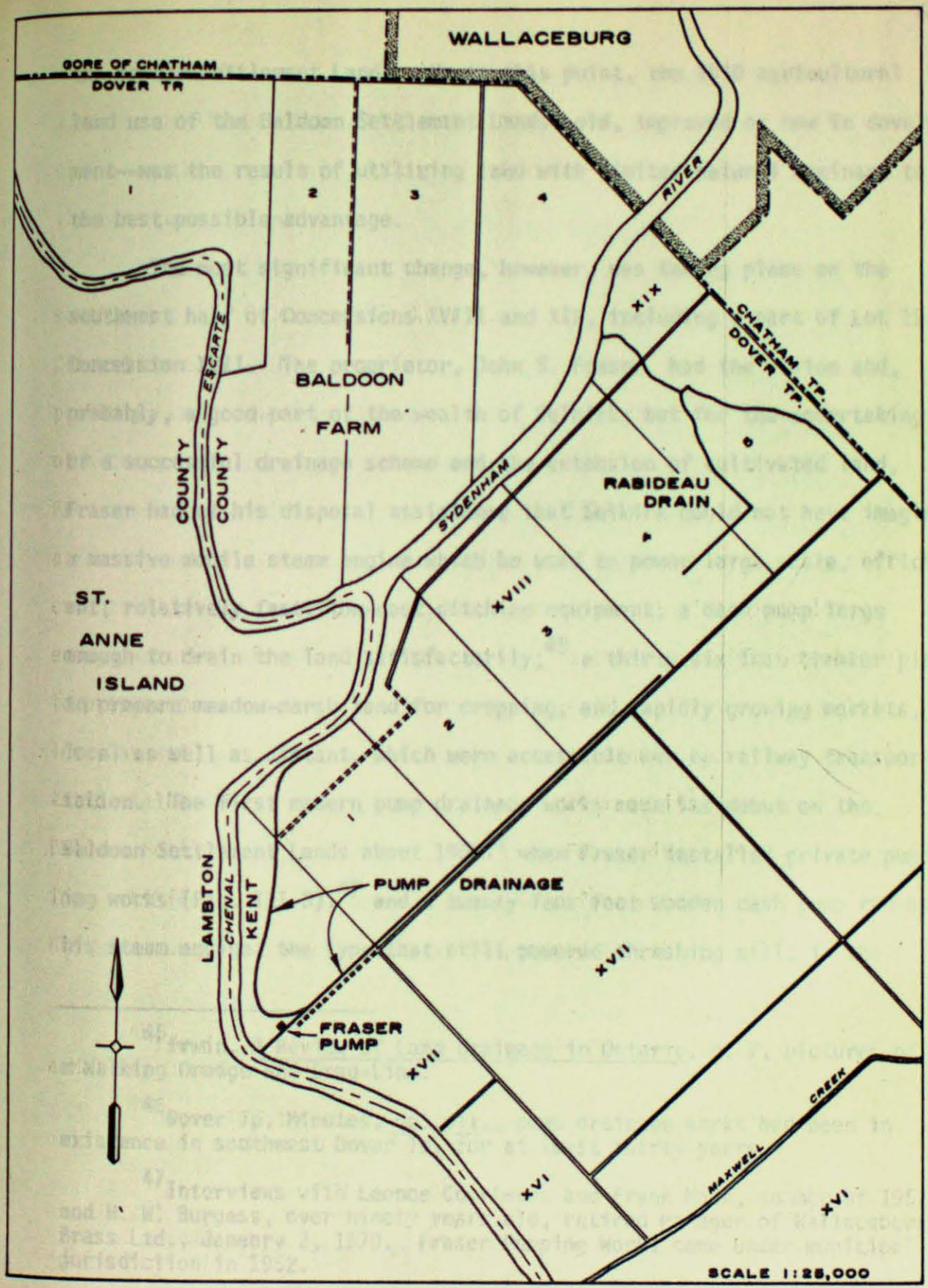

Figure III-3. FRASER PUMPING WORKS AND RABIDEAU DRAIN, 1910 (Source: see Appendix A).

the former Settlement Lands. Up to this point, the 1910 agricultural land use of the Baldoon Settlement Lands--old, improved or new in development--was the result of utilizing land with limited natural drainage to the best possible advantage.

The most significant change, however, was taking place on the southwest half of Concessions XVIII and XIX, including a part of Lot 19, Concession XVII. The proprietor, John S. Fraser, had the vision and, probably, a good part of the wealth of Selkirk; but for the undertaking of a successful drainage scheme and the extension of cultivated land, Fraser had at his disposal assistance that Selkirk could not have imagined: a massive mobile steam engine which he used to power large scale, efficient, relatively fast, low-cost ditching equipment; a dash pump large enough to drain the land satisfactorily;[45] a thirty-six inch breaker plow to prepare meadow-marsh land for cropping; and rapidly growing markets, local as well as distant, which were accessible now by railway transportation. The first modern pump drainage works made its debut on the Baldoon Settlement Lands about 1908[46] when Fraser installed private pumping works (Fig. III-3),[47] and a twenty-four foot wooden dash pump run by his steam engine, the type that still powered threshing mills in the

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[45] Irwin, A Review of Land Drainage in Ontario, p. 7, pictures of a Walking Dredge and Drag-Line.

[46] Dover Tp. Minutes, op. cit., pump drainage works had been in existence in southwest Dover Tp. for at least thirty years.

[47] Interviews with Leonce Courteaux and Frank Mann, summer of 1967, and H. W. Burgess, over ninety years old, retired manager of Wallaceburg Brass Ltd., January 2, 1970. Fraser Pumping Works came under municipal jurisdiction in 1952.

1930's. Although as yet there was no underground drainage tile, part of the meadow-marsh was drained, broken, and the first crops, probably sugar beets[48] and grains, were harvested.

(d) Land Use and Drainage Conditions, 1920-1955

By 1920, the human landscape of the Baldoon Farm had undergone considerable change.[49] All of the Farm, except for the residential area in Lot 4 and lands used for dikes and ditch reservoirs, was farmed regularly. The marshes along the natural drains and along the Chenal Ecarté were gone. The marsh, muskrat-holed south half of the Farm was supporting general farming operations. This transformation was due to the municipal installation of the Sutherland Pumping Works in 1917 (Fig. III-4).[50]

The pump, located at the south end of the Farm, was a large twenty-four foot wooden dash wheel (similar to Fraser's) run by a steam engine. This dash wheel drained a network of ditch reservoirs into the Chenal Ecarté near its confluence with the Sydenham River. The ditch reservoir network coincided with the old natural drainage system except in the extreme southeast part of the Farm. At the east-west divide of the original southward flowing drainage waters, the south part of the McDonald Tap Drain was dug to follow the boundary between Lots 2 and 3 to the pump site (Figs. III-2 and III-4). In addition, the Momney Drain was dredged

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[48]Sugar beets were the main revenue crop in the area following the building of the Wallaceburg C & D Sugar Plant about 1900.

[49]Interviews with local farmers, summer of 1967; and Abstract Records, op. cit.

[50]Interview with Lloyd Simpson, Clerk of Chatham Tp., June, 1967.

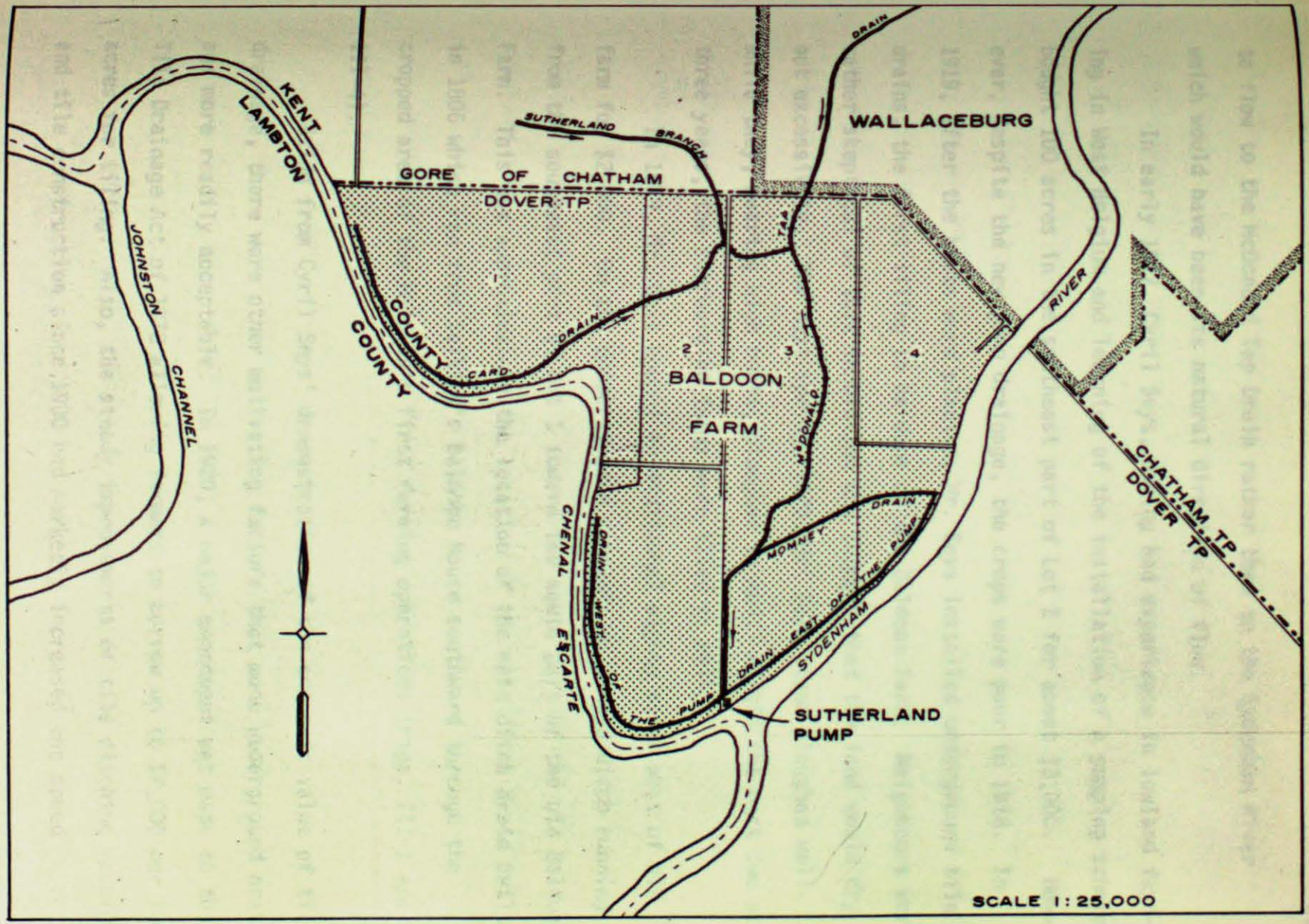

Figure III-4. SUTHERLAND PUMPING WORKS, 1920 (Source: see Appendix A).

to flow to the McDonald Tap Drain rather than to the Sydenham River which would have been its natural direction of flow.

In early 1917, Cyril Seys, having had experience in lowland farming in West Belgium and learning of the installation of a pumping scheme, bought 100 acres in the southeast part of Lot 2 for about $3,000. However, despite the new pump drainage, the crops were poor in 1918. In 1919, after the beets were planted, Mr. Seys installed underground tile drains, the first tiling to be done on the Baldoon Farm. Neighbours were rather skeptical of this innovation and thought that the land would dry out excessively. The next spring, 1920, Mr. Seys' land ploughed well while they, wearing high boots, ploughed in mud. Within the next two or three years, the surrounding farms were tiled as well.

In 1919, Mr. Seys bought an additional eighty acres west of his farm for $2,000. On the property were remnants of an old ditch running from the southeast part of Lot 1 toward the south part of the old Baldoon Farm. This was approximately the location of the main ditch drain built in 1806 which ran from Selkirk's Baldoon House southward through the cropped area of the Baldoon's first farming operations (Figs. III-1 and III-4).

Aside from Cyril Seys' demonstration of the economic value of tile drainage, there were other motivating factors that made underground drainage more readily acceptable. In 1920, a major amendment was made to the Tile Drainage Act of 1878 allowing farmers to borrow up to $2,000 per 100 acres for tiling. Also, the steady improvements of tile ditching machines and tile construction since 1900 had markedly increased the speed

efficiency and cost savings of tiling a farm.[51] After 1920, whenever new land was broken due to the establishment of pumping works, underground drainage was usually installed simultaneously.

The basic agricultural operations, including the acreage of woodlots, on the Baldoon Farm in 1920--sugar beets, tobacco, grains, livestock, hay and pasture--had not changed since 1910 but the improved drainage now permitted earlier ploughing, earlier planting, and a longer growing season, thus increasing crop yields and farm income. With the diminishing of drainage problems, the acreages of flax, buckwheat and rape decreased giving place to higher value crops. The improved drainage on the older 450 cultivated acres plus the added productivity of 500 acres of newly broken land resulted in economic benefit not only to the occupants of the old Baldoon Farm but to the entire Wallaceburg community.

The effects of advances in drainage technology and new provincial legislation providing financial assistance for drainage projects were reflected also in improvements of agricultural activities on the remainder of the Baldoon Settlement Lands. This, together with increasing demands for agricultural land, brought about marked changes during the post World War I period.

Until about 1920, the land use of Concessions XVIII, XIX and the part of Lot 19/XVII had changed little from 1910.[52] However, about 1913, John S. Fraser produced another first for the Baldoon Settlement Lands.

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[51] Irwin, A Review of Land Drainage in Ontario, pp. 8-10.

[52] Interviews with George Rabideau, Leonce Courteaux and George Courteaux, summer of 1967 and July 26, 1969; and Abstract Records, op. cit.

He used cement tiles for the underground drainage of that portion of his land (part of Lot 19/XVII and Lots 1 and 2/XVIII) which had been under pump drainage since about 1908. By this time, the wooden dash pump had been replaced by a twenty-four foot steel dash pump.

In 1926, a severe flood inundated the Baldoon Lands. Subsequently, in order to protect John S. Fraser's pump drained land and, in fact, the entire area of Concessions XVIII and XIX and part of Lot 19/XVII from future inundations, the Rabideau brothers, who owned Lots 4 and 5/XVIII and XIX, petitioned Dover Township Council for pump drainage works. In 1928, the Rabideau Pumping Works was installed (Fig. III-5). The municipal drain was constructed coinciding with the former natural drainage network and a pump installed at the Sydenham River. By 1930, most of the land in these concessions was under cultivation with farm operations similar to those of the Baldoon Farm.

Concessions XV and XVI in the southern part of the study area, in 1920, are believed to have had only a minor change in land use since 1910. Walter Roe had cleared and broken some land for crop in the southwest corner of Lot 20/XV.[53] However, by 1930, Earl Crawford, who owned the northwest part of Lot 20 west of Little Bear Creek, established his own pumping works and broke the meadow-marsh for cultivation. Subsequently (by 1955), the drainage of this land was connected with the adjacent drainage system outside of the study area and became part of the Crawford Pumping Works (Fig. III-5).[54]

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[53]Interviews with Dugald Dunlop, Walter Roe, and Rex Crawford, all area farmers; and Abstract Records, op. cit.

[54]Interview with Malcolm Crawford, third generation farmer and

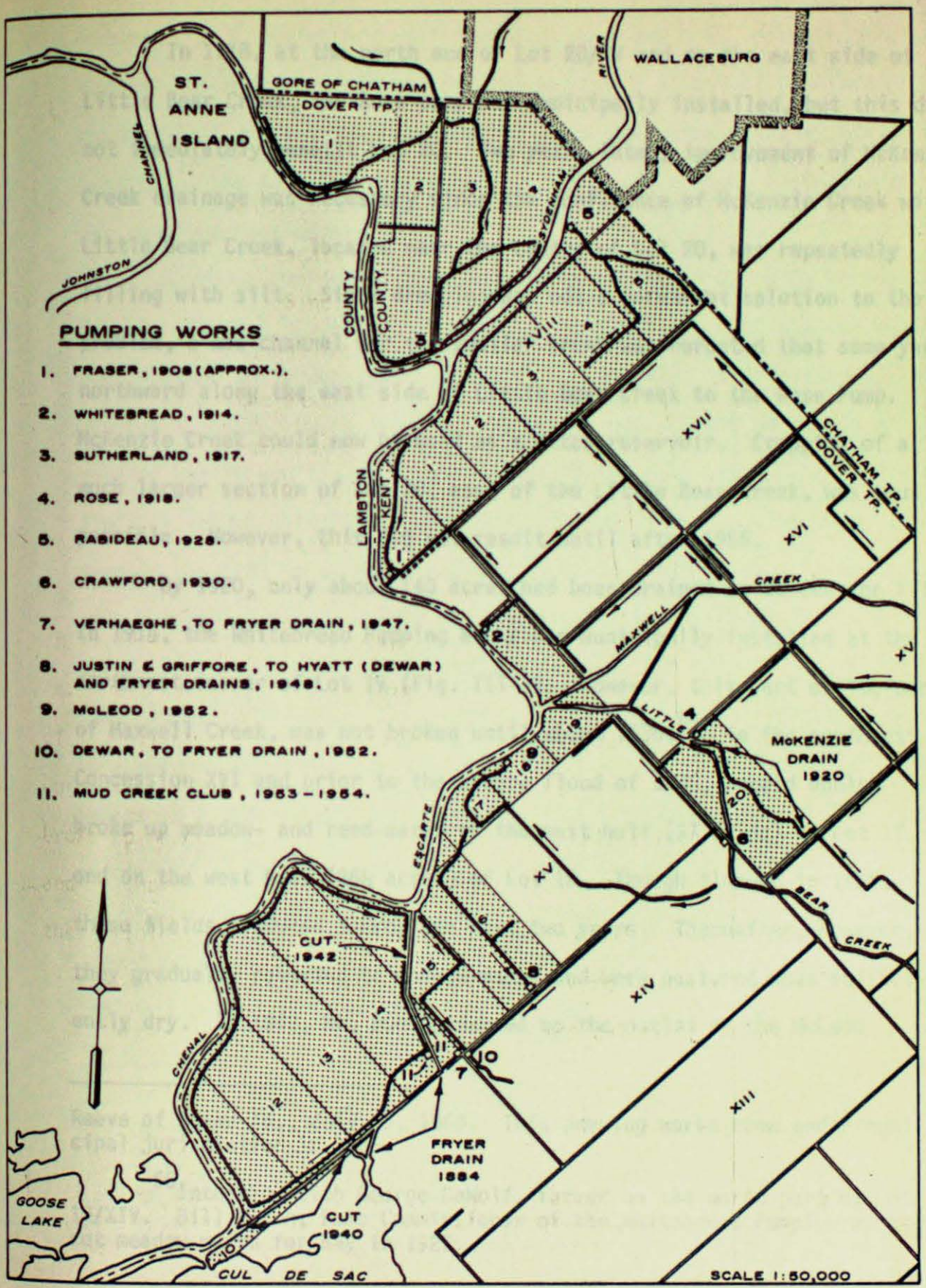

Figure III-5. EXISTING PUMPING WORKS, 1908-1967 (Source: see Appendix A).

In 1918, at the north end of Lot 20/XV and on the east side of Little Bear Creek, the Rose pump was municipally installed, but this did not immediately benefit Lot 20. Two years later, improvement of McKenzie Creek drainage was necessary since the confluence of McKenzie Creek with Little Bear Creek, located near the centre of Lot 20, was repeatedly filling with silt. Since dredging was not a permanent solution to the problem, a new channel for the smaller creek was rerouted that same year northward along the east side of Little Bear Creek to the Rose Pump. McKenzie Creek could now be used as a ditch reservoir. Cropping of a much larger section of Lot 20, east of the Little Bear Creek, was thus possible. However, this did not result until after 1955.

By 1920, only about 140 acres had been drained on Concession XVI. In 1914, the Whitebread Pumping Works was municipally installed at the northwest corner of Lot 19 (Fig. III-5). However, this part of it, north of Maxwell Creek, was not broken until about 1930.[55] To the southwest on Concession XVI and prior to the severe flood of 1926, Dugald Dunlop broke up meadow- and reed-marsh on the east half (37 acres) of Lot 17, and on the west half (26½ acres) of Lot 18. Though flooded in 1926, these fields produced a crop the next two years. Thereafter, however, they gradually reverted to meadow-marsh and were pastured when sufficiently dry. In 1942, Mr. Dunlop dammed up the outlet of the McLeod

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Reeve of Dover Tp., July 25, 1969. This pumping works came under municipal jurisdiction in 1955.

[55] Interview with George DeWolf, farmer on the north part of Lot 19/XIV. Bill Welch, Pump Commissioner of the Whitebread Pumping Works, cut meadow-marsh for hay in 1927.

natural drain, and with a small gasoline pump and a few ditches he drained the west part of Lot 18. The east part of Lot 17 remained meadow-marsh until the McLeod Pumping Works was municipally installed in 1952 (Fig. III-5). The remaining lots and parts of lots on Concession XVI remained reed-marsh.

Although the front parts of Lots 15 and 16/XV had been utilized for some limited agricultural use since before 1881, they did not become pump drained until the 1940's and 1950's. In 1947, Oscar Verhaeghe installed a pumping works (Fig. III-5) at his own expense on the south half of Lot 15 and the west half of Lot 16 to drain via the Fryer Drain (initial dredging in 1884) into Lake St. Clair. The pumping works were dredged parallel to an old municipal drain that had existed since around 1900. However, it was useful only when Lake St. Clair and Chenal Ecarté levels were low. When water levels were high, the drain aided rather than prevented flooding.[56] In 1948, the Griffore family installed private pumping works on the east half of Lot 16.[57] To the southwest, the remaining 1,300 acres (approximately) of the Baldoon Settlement Lands on Concession XV had been owned by two different syndicates since the 1920's. They had been maintained as meadow- and reed-marsh principally for recreational purposes, particularly duck hunting in the fall, and are commonly referred to as Mud Creek Club. In 1953 and 1954, the Club installed its

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[56] Interviews with Oscar Verhaeghe and Dugald Dunlop, July, 1967; and interview with Malcolm Crawford, July 25, 1969.

[57] Interview with Justin Griffore, farmer, July, 1967. The west half of Lot 17/ XV, not granted to Selkirk, was also drained by this pumping works which in 1968 became a municipal pumping works, draining into the municipally installed Dewar Pumping Works of 1952.

own pumping works on two areas (Fig. III-5): one pump drained about eighty acres including estate buildings, lawns and about forty-five acres of corn land on Lots 14 and 15; and a second pump drained about twenty acres of corn land on the west side of the Cut on Lot 13.[58]

By 1955, the extent of present pump drainage works on the Baldoon Settlement Lands was reached. The Baldoon Settlement Lands that still remained as meadow- and reed-marsh (less than 40%) could, in fact for the most part, be pump drained for agricultural land use. However, they were purchased privately for hunting, fishing and other recreational purposes.

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[58]Interviews with Carl Rankin, Manager of Mud Creek Club since 1948, July 27, 1969 and January 2, 1970. Mud Creek Club has been the private property of Henry Ford II since 1963.

CHAPTER IV

THE BALDOON SETTLEMENT LANDS, 1956-1967

1. Dikes and Pump Drainage Works

Pump drainage works or pumping works include a system of ditch reservoirs and one or more pump outlets. However, before a pump drainage scheme can be installed, the upland drainage water must be separated from that of the lowland to prevent the former from flooding the latter. In the area of the Baldoon Settlement Lands, this necessitated the construction of dikes along the banks of the major drainage channels: the Chenal Ecarté, the Sydenham River, the Maxwell Creek, the Little Bear Creek, the Cut on the Mud Creek Club property, and the lower section of the Fryer Drain west of the Verhaeghe Pump (Fig. III-5).

Once the lowland areas are liberated from the constant intrusions of what is termed in this study as micro- and macro-drainage waters, artificial drainage of the meadow-marsh may begin. Systems of ditches, or ditch reservoirs, are dredged to channel the excess water to a pump outlet. Included in this system is a ditch along the inside of the dike which collects river seepage as well as field tile drainage (Figs. IV-1, IV-2, IV-3 and IV-4).

The size of a ditch reservoir system is limited not only to the quantity of water that it can efficiently store and channel to the pump

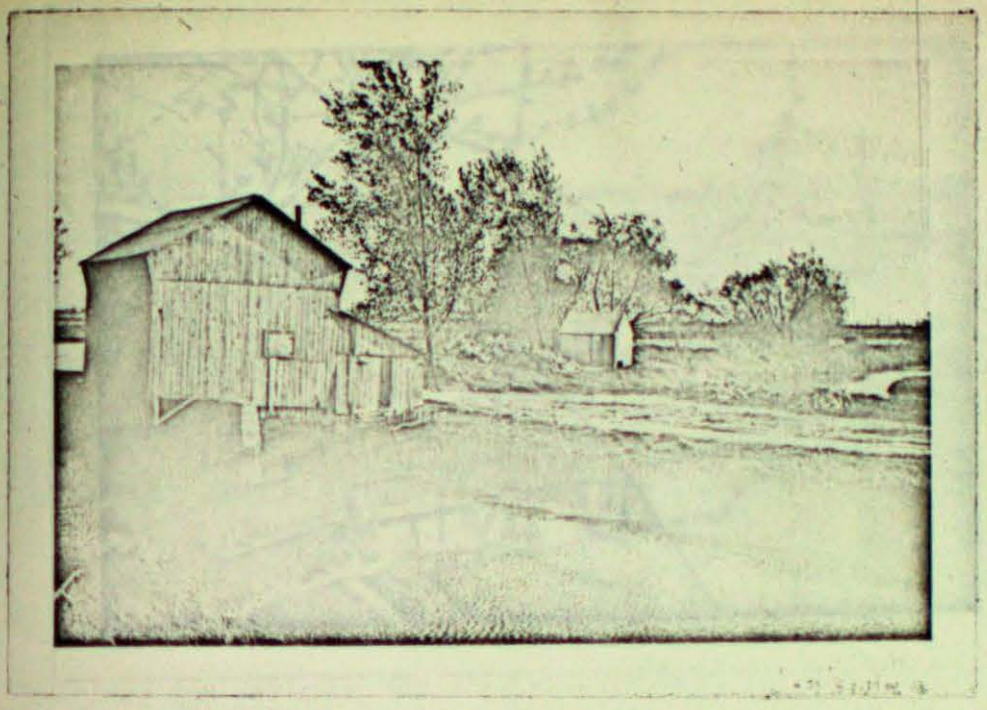

Figure IV-1. SUTHERLAND PUMP-HOUSE; CHENAL ECARTÉ IN THE BACKGROUND, DITCH RESERVOIRS IN THE FOREGROUND, AND DIKE ACROSS CENTRE (Source: see Appendix A).

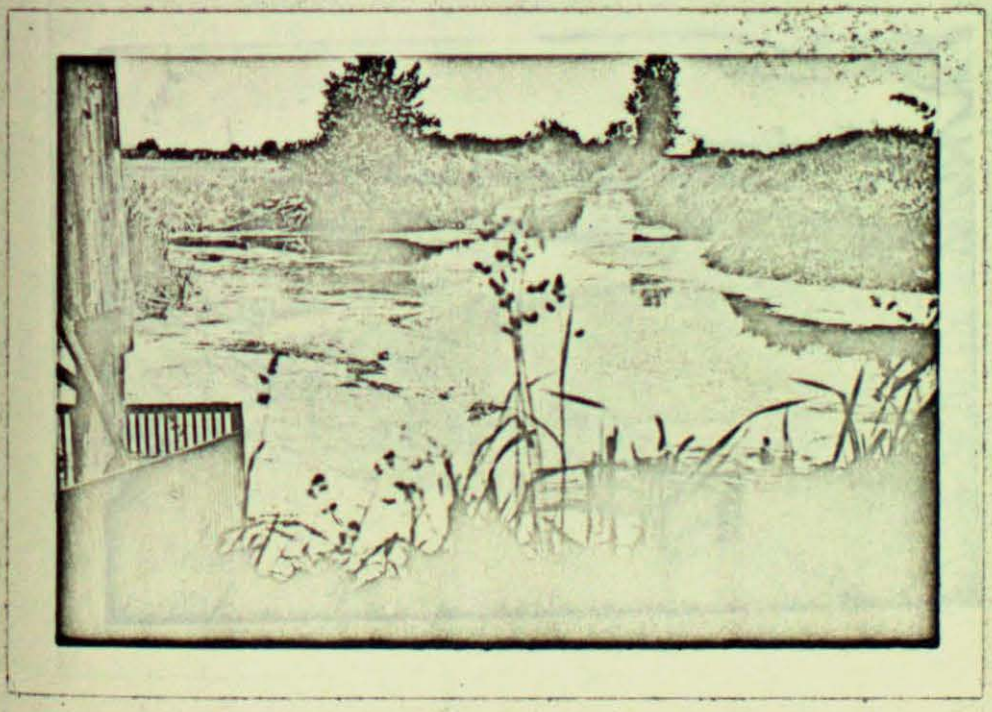

Figure IV-2. McDONALD TAP DRAIN, SUTHERLAND PUMPING WORKS (Source: see Appendix A).

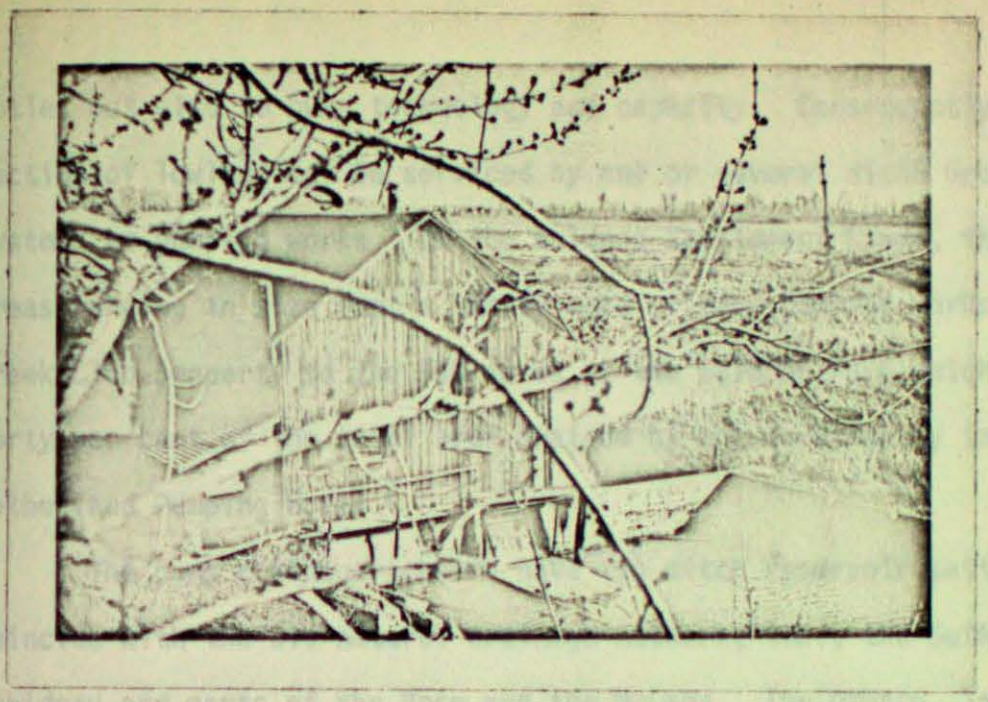

Figure IV-3. ROSE PUMP-HOUSE; GRAVITY DRAINAGE GATE AT LOWER CENTRE; TAIL-RACE OUTLET TO LITTLE BEAR CREEK IN THE FOREGROUND (Source: see Appendix A).

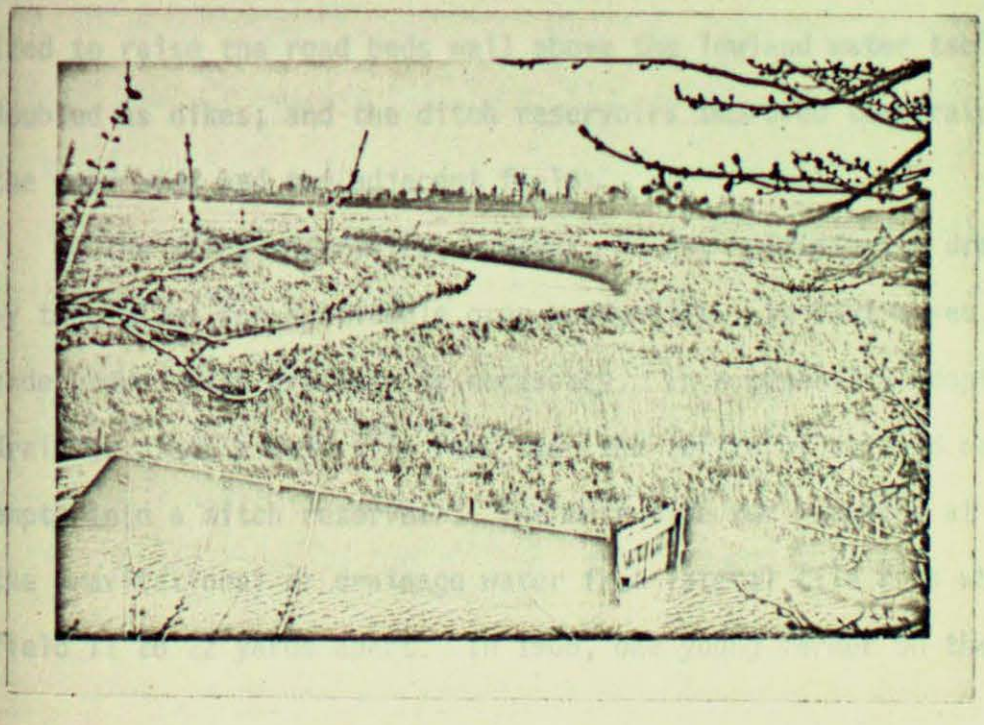

Figure IV-4. TYPICAL MEADOW-MARSH, SOUTHEAST OF THE ROSE PUMP-HOUSE, AND McKENZIE DRAIN (Source: see Appendix A).

outlet but also to pump technology and capacity. Consequently, a diked section of lowland may be serviced by one or several ditch drainage systems or pumping works. On the Baldoon Settlement Lands, they drain areas ranging in size from a twenty-acre private pumping works on the Mud Creek Club property to the 950 acres of the Baldoon Farm which is about forty per cent of the total area drained by the municipally installed Sutherland Pumping Works.[1]

The pump drainage schemes have two ditch reservoir patterns. Some coincide with the old natural drainage network, i.e., the Sutherland, the Rabideau and parts of the Rose and the McLeod. The others, lacking an original drainage system, have a linear pattern in which ditches follow lot lines and/or parallel Concession Roads. In fact, the building of ditch reservoirs and roads often coincided; the excavated earth was utilized to raise the road beds well above the lowland water table; the roads doubled as dikes; and the ditch reservoirs improved the drainage of both the road beds and the adjacent fields.

The ditch reservoirs, however, do not sufficiently drain the land by themselves for profitable crop production. In most cases, additional underground tile drainage is necessary. In a generally adopted field drainage plan, a main tile runs down the centre of a field or farm to empty into a ditch reservoir. The main tile run receives at right angles the gravitational or drainage water from lateral tile runs which line the field 11 to 22 yards apart. In 1966, one young farmer on the former

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[1]The total acreage of this pumping works is 2,300 acres which includes drainage areas in the Gore of Chatham Tp. and in a western section of the Town of Wallaceburg.

Baldoon Farm improved his tile coverage from 22 yards to 11 yards between tile runs at a cost of $6,000. At that time, a total coverage of underground tile drainage on his 100 acre farm would have cost $10,000 or $100 per acre. It is assumed that a government loan of approximately $3,000 was applied for under the Tile Drainage Act (R.S.O. 1960. c. 399).[2] A substantial improvement in field drainage was reported resulting in earlier spring planting, longer growing season and higher yields.

Modern large scale power driven dredging and tiling machines and the development of more efficient pumps and motors have made it possible for the contemporary landowner on the Baldoon Settlement Lands to pump-drain satisfactorily large acreages of lowland which Selkirk in the early Nineteenth Century could not have done. The ditch reservoir drainage water must be lifted an average of four feet to the level of the adjacent upland river or creek drainage. To do this, two types of pumps were used in 1967: the old massive dash pump (Fig. IV-5),[3] and the automatic electric propeller pump (Fig. IV-7). Twenty-four foot steel dash pumps operate the Rose Pumping Works and the Sutherland Pumping Works. The latter drains about 2,300 acres of which approximately 950 acres are contained in the Baldoon Farm Subdivision while the Rose Pump drains approximately 1,000 acres, 140 of which are a part of the Baldoon Settlement Lands. Their individual pumping capacity of 36,000 gallons per minute greatly surpasses the 14,000 gallons per minute of the largest electric

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[2]Irwin, A Review of Land Drainage in Ontario, p. 6.

[3]In 1967, there were only eight dash wheels left in Ontario. The only two in Dover Tp. were on the Baldoon Settlement Lands.

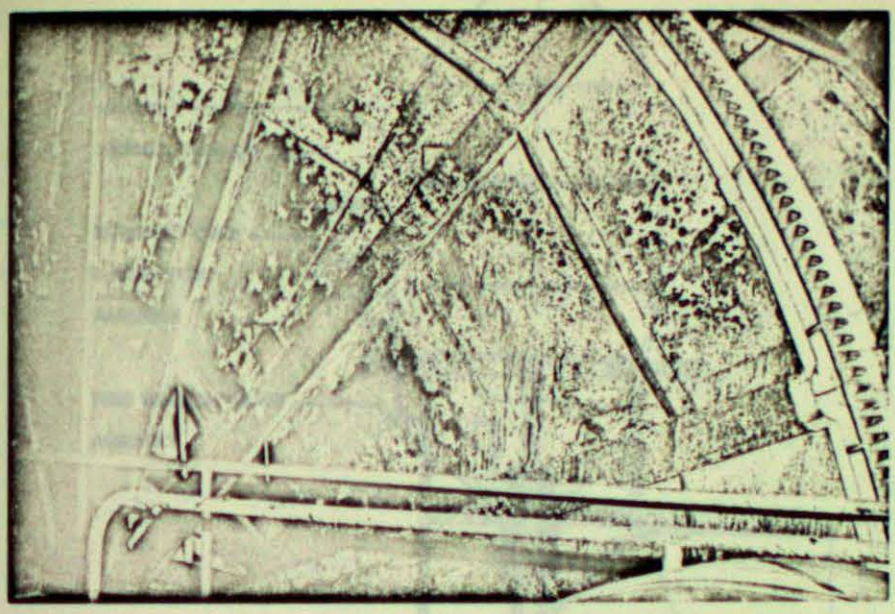

Figure IV-5. DASH PUMP, SUTHERLAND PUMPING WORKS (Source: see Appendix A).

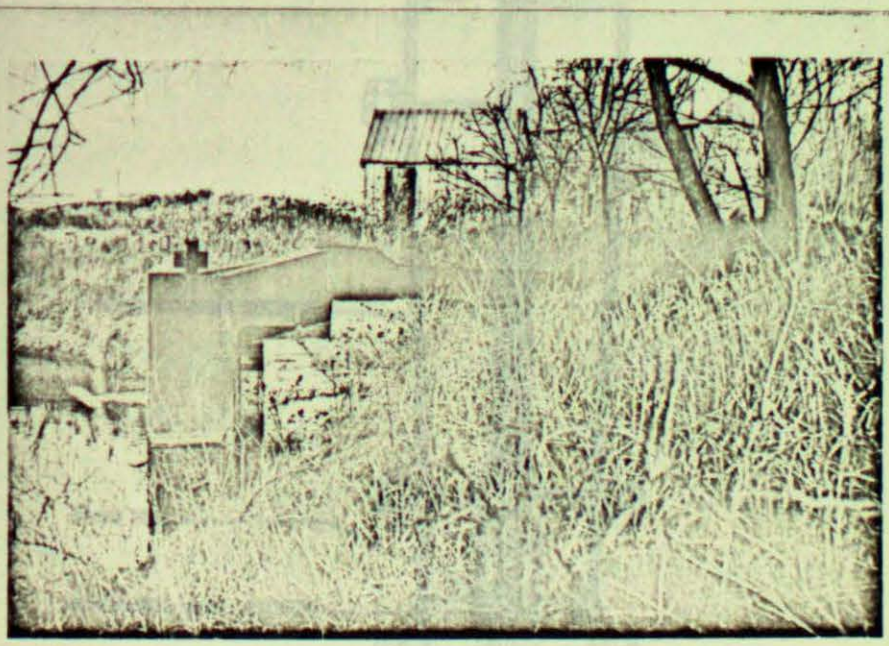

Figure IV-6. AUXILIARY PROPELLER PUMP, SUTHERLAND PUMPING WORKS (Source: see Appendix A).

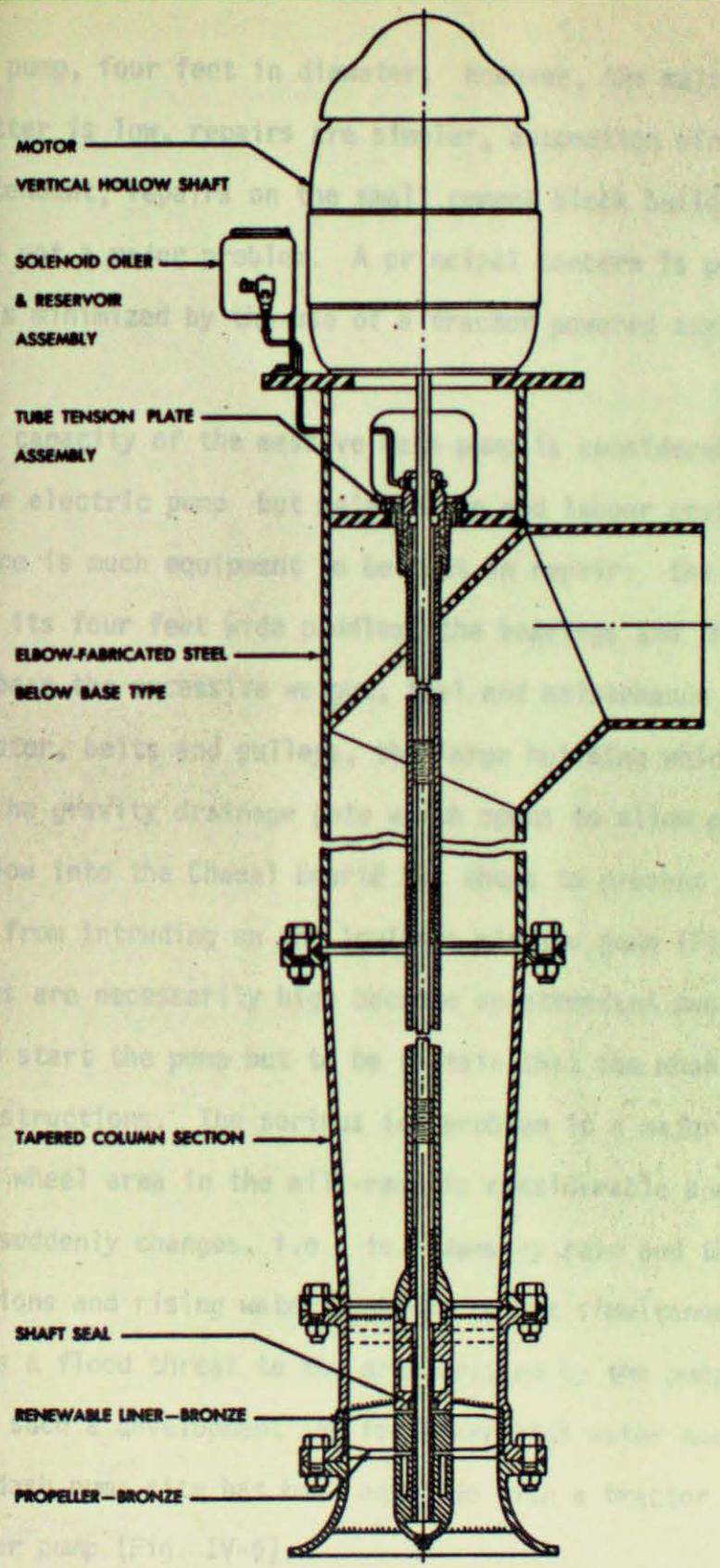

Figure IV-7. ELECTRIC PROPELLER PUMP (Source: see Appendix A).

propeller pump, four feet in diameter. However, the maintenance cost of the latter is low, repairs are simpler, automation minimizes the need for an attendant, repairs on the small cement block building are light, and ice is not a major problem. A principal concern is power failure, but this is minimized by the use of a tractor powered auxiliary propeller pump.

The capacity of the massive dash pump is considerably greater than that of the electric pump but maintenance and labour costs are relatively high. There is much equipment to be kept in repair: the huge dash pump itself and its four feet wide paddles, the bearings and the foundation that must bear the excessive weight, fuel and maintenance for a 110 H.P. gasoline motor, belts and pulleys, the large building which houses the pump, and the gravity drainage gate which opens to allow pumped lowland water to flow into the Chenal Ecarté but shuts to prevent high levels of the latter from intruding on the lowlands via the pump (Fig. IV-3). Labour costs are necessarily high because an attendant must be present not just to start the pump but to be certain that the wheel is free of damaging obstructions. The serious ice problem is a major disadvantage because the wheel area in the mill-race is considerable and, when a severe cold spell suddenly changes, i.e., to a January rain and thaw, ice chopping operations and rising water problems result simultaneously. This situation is a flood threat to the area drained by the pump. Of course, though, for such a development or for other high water emergencies, the Sutherland dash pump site has been equipped with a tractor driven auxiliary propeller pump (Fig. IV-6).

For a more detailed study of the initial steps in installation, costs and problems of a modern municipal pumping works, the Sutherland Pumping Works which includes the 950 acres of the old Baldoon Farm will serve as an example. This pumping works was established by municipal by-law in 1917. Since the larger portion (1,350 acres) of the scheme's total of 2,300 acres lay upstream in the Gore of Chatham Township, the project was initiated by that township. The installation cost of $18,550 was paid by the property owners receiving drainage benefit through a municipal tax levy of eighty cents per acre per year over a ten year period.[4]

Natural deterioration of pumping works and dikes and repair of pump facilities are to be expected. However, much of the cost of dike repairs on lands of the former Baldoon Farm in the last fifteen years has been due to a combination of man-made and natural factors, i.e., increasingly heavy boat traffic and high water level cycles on the Great Lakes. In 1953, a freighter making its way to Wallaceburg by the upper Chenal Ecarté and the Sydenham River became grounded crossways in the bend just west of the pump-house. In the process of dislodgement, the first dike was destroyed (Fig. IV-8). It was then necessary to construct a second dike on the land side of the first. Apparently, the delinquent steamship company was not legally bound to pay these costs because the ratepayers of the pumping scheme bore the burden. Subsequently, the high water levels in the years 1954, 1955 and 1960 to 1962 coincided with the wave

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[4]Correspondence of June 7, 1967, with Lloyd Simpson, Clerk of Chatham Tp., from the original By-Law for the establishment of the Sutherland Pumping Works.

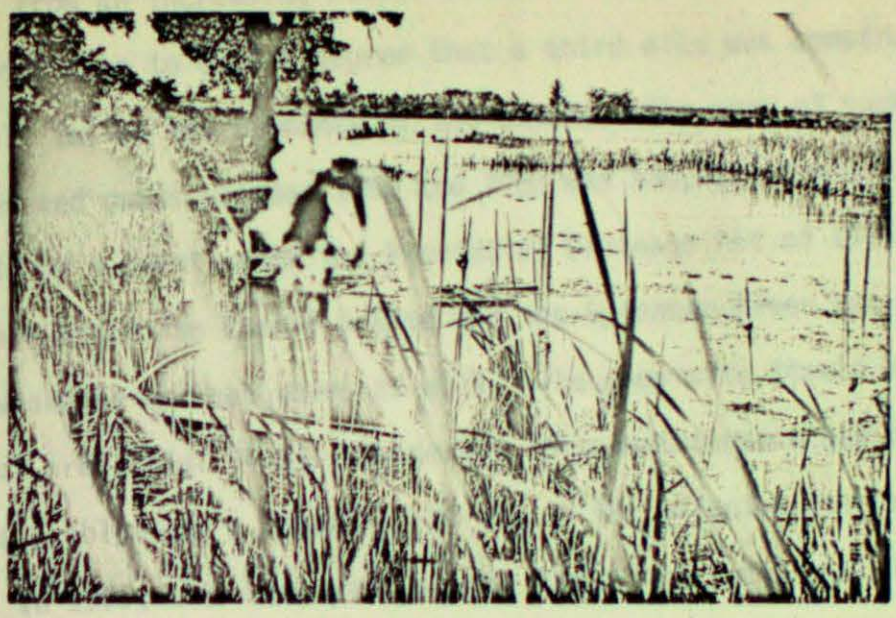

Figure IV-8. A DIKE DESTROYED BY FREIGHTER, 1953 (Source: see Appendix A).

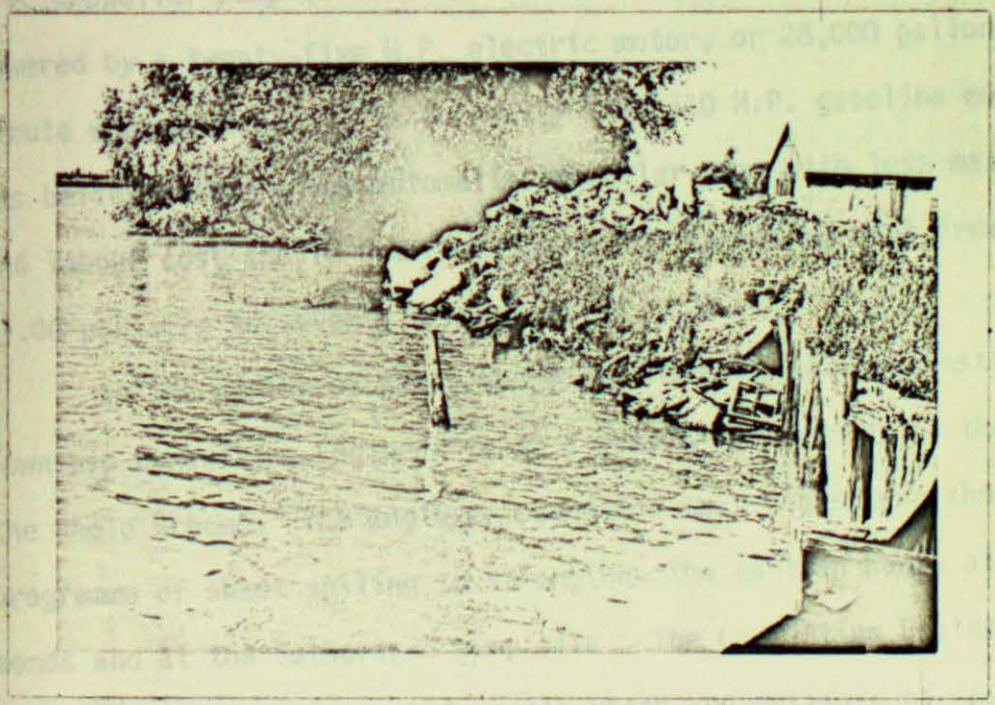

Figure IV-9. DIKE EROSION AT THE SUTHERLAND PUMP-HOUSE CAUSED BY BOAT-WAKE ON THE CHENAL ECARTÉ, 1967 (Source: see Appendix A).

erosion from an increasing number of motorized pleasure craft to weaken the second dike to such a degree that a third dike was constructed in 1962 well inside the remnants of the others. The cost of such repairs on dikes and pumps between 1953 and 1962 was $30,000 of which one-third was paid by a grant under the Provincial Drainage Act of 1954. Dikes elsewhere along the Chenal Ecarté and the Sydenham River are being gradually weakened by boat waves as well. The pump site itself is one such critical area (Fig. IV-9). Evidently, dike maintenance has become a serious problem and a financial burden to the affected ratepayers.

In 1966, the ratepayers of the Sutherland Pumping Works in accordance with The Drainage Act, 1962-1963, petitioned Dover Township Council for municipal assistance to repair certain dikes, clean drains and replace the dash pump. The ratepayers had decided to install an automatic electric propeller pump with a capacity of 14,000 gallons per minute when powered by a twenty-five H.P. electric motor, or 28,000 gallons per minute when powered by the currently used 110 H.P. gasoline motor. It was believed that a new automatic propeller pump with less maintenance and labour cost should decrease the annual operating cost from the present $1.00 per acre to seventy or even sixty cents.

In the spring of 1967, the Dover Township Council instructed the Township Consulting Engineer to do a preliminary survey of the needs of the whole scheme. The Engineer suggested that the scheme should start a programme of sheet spiling to strengthen the earthen banks at vulnerable bends and at the Sutherland pump site. The Consulting Engineer's full report of the pumping works' repair needs and estimate of costs was presented to Council in late July. An unofficial preliminary estimate of

the cost was $60,000. Government grants are expected to reduce these costs to the ratepayers by sixty-six and two-thirds per cent: one-third from the Provincial Government and one-third from the ARDA programme of the Federal Government (cancelled January 1, 1968, for drainage projects initiated thereafter).

The following are the steps that were taken by the Dover Township Council for the repair of the Sutherland Pumping Works.[5]

(1) A petition was made to Council by landowners for drainage repair.

(2) Council sought the services of a civil engineer to make examination of need and estimate of costs.

(3) Allocation of assessment of costs on "lands" and "roads"; assessment was made by the Consulting Engineer according to the value of drainage benefit to each landowner.

(4) The Council adopted the Engineer's report.

(5) The Clerk set out in detail the cost to each landowner, such costs to be spread over ten years (cost plus interest divided by ten). The details of the debenture issue were then attended to.

(6) A By-Law was prepared by the Clerk, and the said By-Law and notices of the date of the Court of Revision to hear complaints and appeals against the above-mentioned assessment were mailed to the landowners concerned.

(7) Final reading and passing of the By-Law by Council came later within a specified time after the By-Law and notices had been mailed to the concerned landowners and the latter had had an opportunity to protest the said By-Law.

(8) The Township Council in a By-Law appointed a pump commissioner or commissioners whose duties are to enter into all necessary and proper contracts for the purchase of all necessities and repairs in connection with the pumping works.

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[5]Records of Dover Tp.

2. The Resultant Land Use of Modern Pump Drainage Works

Modern pump drainage works have resulted in the transformation of the Baldoon Settlement Lands into highly productive agricultural land. The drained mineral soils are equal in fertility to any on the Kent-Essex Plains. They have, except for the ten- or twenty-year floods, all the drainage advantages of the upland soils plus superiority in organic matter. According to the provincial agricultural representative in Chatham, "they will grow anything within climatic limits; the only criterion for choice of crops grown is profit."[6] Farmers on what was Selkirk's Baldoon Farm have put the sale price of their land at $1,000 per acre, a price for agricultural land believed to be unsurpassed anywhere in the St. Clair Economic Region.

For purposes of a land use analysis, the study area of the Baldoon Settlement Lands will be divided into three sub-areas:

(1) Lands in Concessions XV and XVI;

(2) Lands in Concessions XIX, XVIII and part of XVII; and

(3) The Baldoon Farm Subdivision; all in Dover Township.

Concessions XV and XVI (Figs. IV-10 and III-5, and Table IV-1).--On the lots granted to Selkirk in these Concessions, present land use is composed of approximately thirty per cent cropland and seventy per cent meadow- and reed-marsh. Most of the marsh areas could possibly be pump drained for agricultural use, yet the owners maintain it for recreational purposes, i.e., duck hunting. The 1,300 acres of Baldoon Settlement Lands

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[6] Interview with D. Rutherford, Agricultural Representative, Chatham, Ontario, May, 1967.

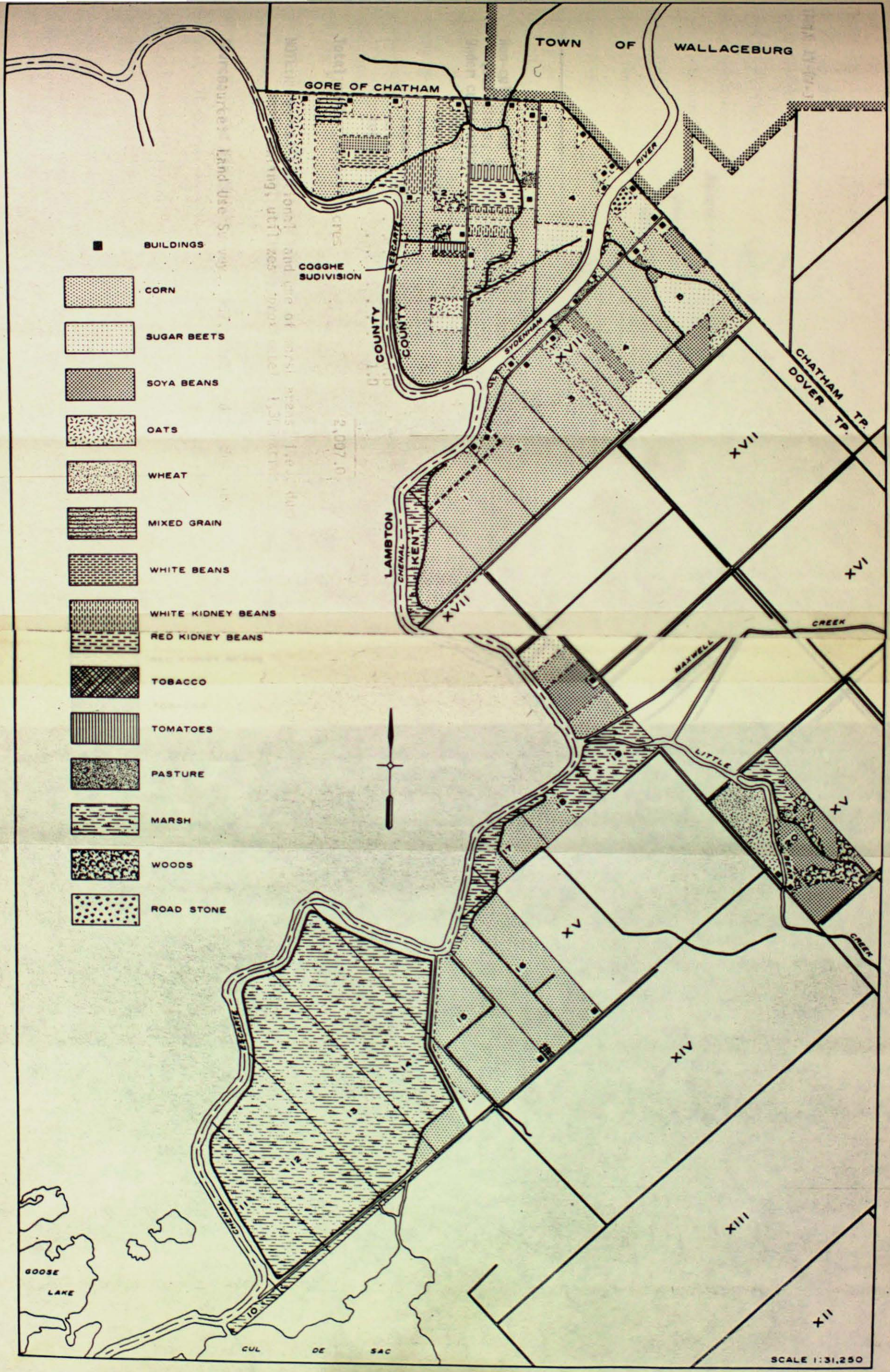

Figure IV-10. LAND USE BALDOON SETTLEMENT LANDS, 1966/1967 (Source: see Appendix A).

TABLE IV-1

LAND USE

Baldoon Settlement Lands

in Concessions XV and XVI

Dover Township

1967

		Acres
Non-cultivated (buildings, drains, dikes, marsh)		1,409.5
Under cultivation -		597.5
corn	416.5	
soya beans	104.0	
wheat	40.0	
sugar beets	20.0	
oats	16.0	
tobacco	1.0	
Total number of acres		2,007.0

NOTE: recreational land use of marsh areas, i.e., duck hunting, utilizes approximately 1,300 acres.

Source: Land Use Survey, 1967, conducted by the author.

belonging to the Mud Creek Club are used for such purposes, except for 100 acres of estate buildings, lawns and corn land. The 1,200 acres of mainly reed-marsh[7] have a peripheral dike paralleled on the inside by a dredged ditch into which Chenal Ecarté water can be pumped to make various marsh channels navigable for small pleasure craft.

The meadow- and reed-marshes on Lot 16 and the west part of Lot 17/XVI are also used for duck hunting. The owner has bought an adjacent fifteen acres of corn ground at the north end of Lot 16/XV. The corn acreage has been reduced to twelve due to the construction of reservoirs for bird feeding areas at duck hunting time. On the southeast corner of Lot 19/XVI, the owner of thirty acres in that lot has built a cottage on earth fill which overlooks the reed-marsh that stretches southwest into the east half of Lot 18. The fifteen acres of Bear Creek Club reed-marsh in Lot 19/XVI, between Little Bear Creek and Maxwell Creek, are continuously subject to flooding and probably should be maintained in their present recreational land use. The northeast part of Lot 20/XV has not been broken for agricultural cultivation. This is an area of frequent flooding, being adjacent to the site of the Rose Pump where ditch reservoirs converge. In the spring of 1967, the typical meadow-marsh in this part presented a view to the author that must have been characteristic of the Baldoon Settlement Lands when they were first seen by Selkirk's manager, Burn, in the spring of 1803 and by both men in spring and summer of 1804 (Fig. IV-4).

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[7] Twenty-five years ago, Mud Creek Club was mainly meadow-marsh. Since that time, due to deliberate flooding by the Club, the vegetation has changed mainly to reed-marsh.

Farmland utilizes the remaining thirty per cent of the Baldoon Settlement Lands in Concessions XV and XVI. These concessions have the most recently developed pump drained farms of the three sub-areas, although marginal farming was practised on parts of Lots 15 and 16/XV prior to 1900. In 1967, land use on this sub-area's oldest pump drained land--going back to 1930--on the north part of Lot 19/XVI, drained by the Whitebread Pumping Works, and on the northwest part of Lot 20/XV, drained by the Crawford Pumping Works, had the only crop diversification including grains and a field of sugar beets. About 127 acres of the east and south portions of Lot 20/XV, drained by the Rose Pumping Works, were supporting on both muck and mineral soils a lush growth of soya beans although corn has been cropped here in other years. West and southwest of Lot 20/XV and Lot 19/XVI, the farms drained by such pumping works as Mud Creek Club, Verhaeghe, Justin and Griffore, and McLeod were utilized, except for one acre of tobacco, entirely for corn production. In fact, corn has been cropped here continuously for a number of years on more easily managed mineral soils which are capable of the widest diversification under prevailing climatic conditions. Of course, corn has a number of advantages to the farmer: the crop lends itself readily to mechanization from planting time to harvest, labour expended is low, crop risk is minor, weed eradication has been simplified by chemicals, handling and storage problems are minimal, and the yield and return per acre are high relative to other grains. However, despite these advantages, corn is still not a particularly high income crop; yet, on the Baldoon Settlement Lands, the yields are sufficiently high, due to rich soils made productive by pump drainage, to create a comfortable living for the farm owner. The facts

that livestock raising in this area is limited to a few hogs on Lot 15/XV and that farmers have become prosperous through cash crop production are further evidence of the transforming significance of the installation of pumping works on the Baldoon Settlement Lands.

Concessions XIX, XVIII and the North Half of Lot 19/XVII (Figs. IV-10 and III-5, and Table IV-2).--It will be recalled that Augustus Jones surveyed this area of the Baldoon Settlement Lands south and east of the Sydenham River into fourteen lots in 1804, each containing fifty acres except the fourteenth at the west end which was somewhat larger and wetter than the others (Fig. II-1). Presently, thirty-eight acres of the latter, along the Chenal Ecarté, have remained in meadow- and reed-marsh as in Selkirk's days, except that a ditch with north and south openings to the river has been dredged down the centre to supply water for five reservoirs constructed for duck hunting. Of the original survey, this five per cent remnant of marsh, whether by design or not, wisely provides not only a worthwhile recreational use but also an invaluable buffer between river erosional effects and the dike works of the Fraser Pumping Scheme.

Since 1928, when the Rabideau Pumping Works was installed, the remaining ninety-five per cent of this sub-area of the study area represents about 860 acres. The lower muck soils of the southwest half are continuously cropped with corn. This area, except for a part of Lot 3, has been drained by the Fraser Pumping Works since about 1908, the oldest pumping scheme on the Baldoon Settlement Lands.

The more elevated soils, mainly mineral, on the northeast half of this sub-area are drained by the Rabideau Pumping Works and have some crop diversification:

TABLE IV-2

LAND USE

Baldoon Settlement Lands

Concessions XIX, XVIII and Part of XVII

Dover Township

1967

		Acres
Non-cultivated (buildings, drains, dikes, marsh)		66.5
Under cultivation -		831.5
corn	673.5	
sugar beets	75.5	
soya beans	48.5	
oats	26.0	
pasture	8.0	
Total number of acres		898.0

Source: Land Use Survey, 1967, conducted by the author.

corn 64.3%,
sugar beets 17.9%,
soya beans 11.5%,
oats 6.1%,
pasture . . . . . 0.2%.

After noting that the diversified farming operations on Concessions XV and XVI were on muck soils while in Concession XVIII they were on the mineral soils, it seems conclusive that the soil type, considering drainage efficiency to be equal, does not determine a single crop farming operation or a diversified one. It may be concluded that the one crop farm operation appears to prevail on an average 100 acre farm when it is owned by an older farmer or absentee owner or when it is inherited by a young farmer. Otherwise, crop diversification is prevalent because the farmer must grow higher revenue crops, which require more labour, in order to meet mortgage or rent payments. Two observations, then, infer the high productivity of the pump drained muck and mineral soils of the Baldoon Settlement Lands in Concessions XVII, XVIII and XIX: there was limited or no crop diversification even on farms as small as 100 acres (the Ontario farm average is about 175 acres); and cash crop farming was predominate (the author's survey in 1967 revealed only one cow, four calves and fifteen steers).

In 1967, the only other land use in this sub-area was located on Lot 5/XIX adjacent to the Sydenham River: a six acre storage space for road stone brought in by freighter, and several residential properties along the east side of the Lot and contiguous to the Townline of Dover and Chatham Townships. Being on the higher part of the river levee, this area experiences little drainage difficulty.

Baldoon Farm Subdivision (Figs. IV-10 and III-5, and Table IV-3).[8]-- The Baldoon Farm Subdivision is a part of one pump drainage system, the Sutherland Pumping Works. When it was installed in 1917, it improved the drainage of the cultivated, once forested north half and, by 1920, brought the meadow-marsh south half under continuous farming operations for the first time. Just prior to 1966, ten acres of the Aarssen woodlot in the centre of Lot 2 had been cleared for cropping, leaving about fifteen acres of the Baldoon Farm in pastured woodlot. The recent gain for agriculture was offset by the conversion of an equal acreage of agricultural land to non-farm residential use along the Wallaceburg and Dover Township Townline and in the Cogghe Subdivision on the Chenal Ecarté. Approximately 102 acres (about 10%) of the Baldoon Farm was non-cultivated land; this included farm yards and non-farm residences, a considerable area occupied by newly constructed ditch reservoirs and dikes along the Chenal Ecarté, and about eight acres of waste land on the north side of Dark Bend and south of the Cogghe Subdivision.[9] The remaining ninety per cent (approximately) of the Farm was cultivated, and for a number of years the agricultural land use pattern was relatively the same.

The five acres of hay and pasture on the Baldoon Farm is evidence of the relatively few livestock raised--perhaps a pig or steer to fatten for the freezer, or a cow to supply the family milk needs. Hogs were being raised as a commercial operation on one farm only. Thus, in 1966,

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[8]The land use survey of the Baldoon Farm was made by the author in October, 1966.

[9]An extremely low-lying tract of six acres, south of the Cogghe Subdivision, was subsequently tile-drained in 1968 and cropped successfully in 1969.

TABLE IV-3

LAND USE

Baldoon Farm Subdivision

Dover Township

1966

		Acres
Non-cultivated (buildings, drains, dikes, waste)		102.2
Pastured woodlot		15.0
Under cultivation -		850.0
field corn	561	
sugar beets	84	
sweet corn	45	
white kidney beans	33	
red kidney beans	19	
white beans	30	
soya beans	14	
oats	23	
wheat	7	
mixed grain	12	
tomatoes	16	
tobacco	1	
hay and pasture	5	
Total number of acres		967.2

Source: Land Use Survey, 1966, conducted by the author.

animal husbandry was an insignificant factor in the modern Baldoon Farm economy.

Present prosperity on the Farm is related to cash crop production. Crop diversification in 1966 exceeded that of the other two sub-areas. Except for the diversified farm operation on the southeast part of Lot 2 and the twenty-three acres of sugar beets abutting the Sydenham River in Lot 4, the farms on the south half and eastern section of the Baldoon Farm were one crop operations, all corn. The diversified farming areas were located near the centre of Lot 3, on the north part of Lot 2 and all of Lot 1. In these locations, the best example of a diversified farm operation was on the east 156 acres of Lot 1 on a farm which the owner has named the "Baldoon Farm". In 1966, this farm produced seven different crops:[10]

field corn	30 acres,
sweet corn	27 acres,
sugar beets	25 acres,
white beans	18 acres,
soya beans	12 acres,
white kidney beans	18 acres,
red kidney beans	4 acres.

This broad diversification has been fostered by available markets, the profit motive and, of course, a favourable climate and rich mineral soils. However, even such crop diversification could not have supported a profitable farm operation on the original Baldoon Farm without pumping and drainage works.

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[10]About twenty-two acres of S. Glover's farm are non-cultivated, i.e., farm buildings and yard, ditch reservoirs, dikes, and about two acres of waste land at Dark Bend.

Because the accessibility to markets was difficult, the success of Selkirk's Baldoon Farm operation was necessarily dependent upon livestock raising, namely sheep. Even with a degree of drainage development, the limited crop production was mainly subsistent, some being used for human consumption but a far greater proportion being needed for wintering the livestock.

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In 1967, given the same climate and rich mineral and muck soils as in 1810, prosperous cash crop agricultural operations on the Baldoon Settlement Lands (Figs. IV-11 and IV-12) were largely made possible by the growth of population and easy accessibility to markets near and far with the assistance of modern means of transportation, and by technological developments such as weed sprays, fertilizers, farm machinery and farm management. Nevertheless, even though these factors are so important to modern agricultural prosperity, the present land use and prosperity on the Baldoon Settlement Lands would not have been possible without the developments of pump drainage technology and Provincial Government drainage legislation.

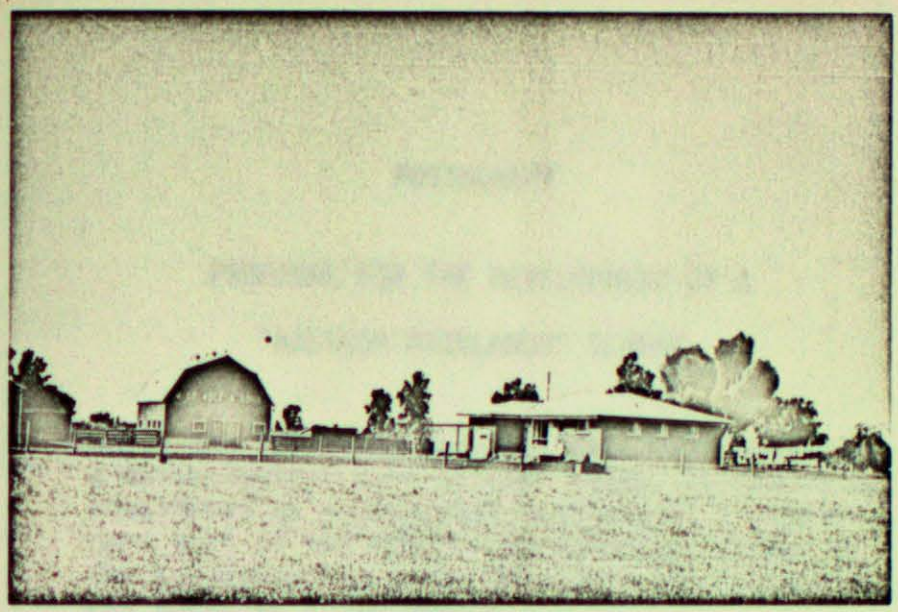

Figure IV-11. M. DE WOLF'S FARM, CON. XIX, DOVER TP., 1967 (Source: see Appendix A).

Figure IV-12. FARM BUILDINGS ALONG CON. XIX, DOVER TP.; SYDENHAM RIVER; BALDOON FARM, CENTRE RIGHT; CHENAL ECARTÉ IN THE BACKGROUND, 1967 (Source: see Appendix A).

POSTSCRIPT

PROPOSAL FOR THE DEVELOPMENT OF A "BALDOON PARKLANDS" SCHEME

While the following proposal does not constitute a chronological part of this study, it should be considered as a projected land use of a significant part of the study area directly related to the subject matter. In this way, the Postscript may serve as a conclusion.

The Baldoon Settlement Lands, relatively isolated in Selkirk's day, lie now within a ring of rapidly expanding urban centres with a fast growing population. The Lands are within an easy day's travel of the Metropolitan Detroit Area, Windsor, Sarnia, Port Huron, Chatham, London and of the growing towns and rural populations in Essex, Kent and Lambton Counties. The partly completed St. Clair Parkway and improved local waterways and highways have made the Baldoon Lands and their surroundings readily accessible to an increasing number of people.[1]

In the United States and Canada, there has been a growing interest of urban people in the unfettered expanses of parklands. This has motivated the exploitation of local historical events in conjunction with, or enhanced by, the presence of scenic beauty of natural landscape

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[1]Carolyn Harrington, "An Economic Survey of the Walpole Island Indian Reserve," a co-operative venture by the Walpole Island Indian Band Council and St. Clair Regional Development Association, 1966, p. 44.

features for purposes of general park developments. Perhaps it is trite but true to say that increasing numbers of urban people are finding an excursion to the parks a satisfying recreational experience, physically and spiritually, away from the high density and congestion of cities.

For motorized pleasure craft of all sizes, the Sydenham River and the distributaries of the St. Clair River delta, including the Chenal Ecarté, are second to none for safe boating and recreation. (A newcomer to Wallaceburg has stated that a status symbol in the town is not a paved driveway or second car, as in some urban centres, but a watercraft parked in the back yard or in a double garage.) The beautiful blue waters of the Chenal Ecarté are enticing more and more American and Canadian boaters. The increasing number of recreationists making use of the waterways traversing the Baldoon Settlement Lands has, however, created a serious problem, the boat-wake erosion on dikes. To cope with this problem, consideration has been given to possible policing of the waterways to keep boat speeds down; but it seems that the Federal Department of Transport which bears the responsibility for initiating such action lacks, as yet, necessary legislation to do so. Arising out of discussions of the author with affected area farmers, another possible solution to this problem evolved. Seemingly less practical but far more challenging to the imagination, it was suggested that something should be erected or constructed on the dikes that would attract the boaters' attention and slow them down. From this idea, it was only a small step toward thinking in terms of a possible Baldoon Parklands development. Recreational activities in the St. Clair Region are currently inadequate for serving the size of population found within a fifty mile radius. What will the situation be in ten, twenty or

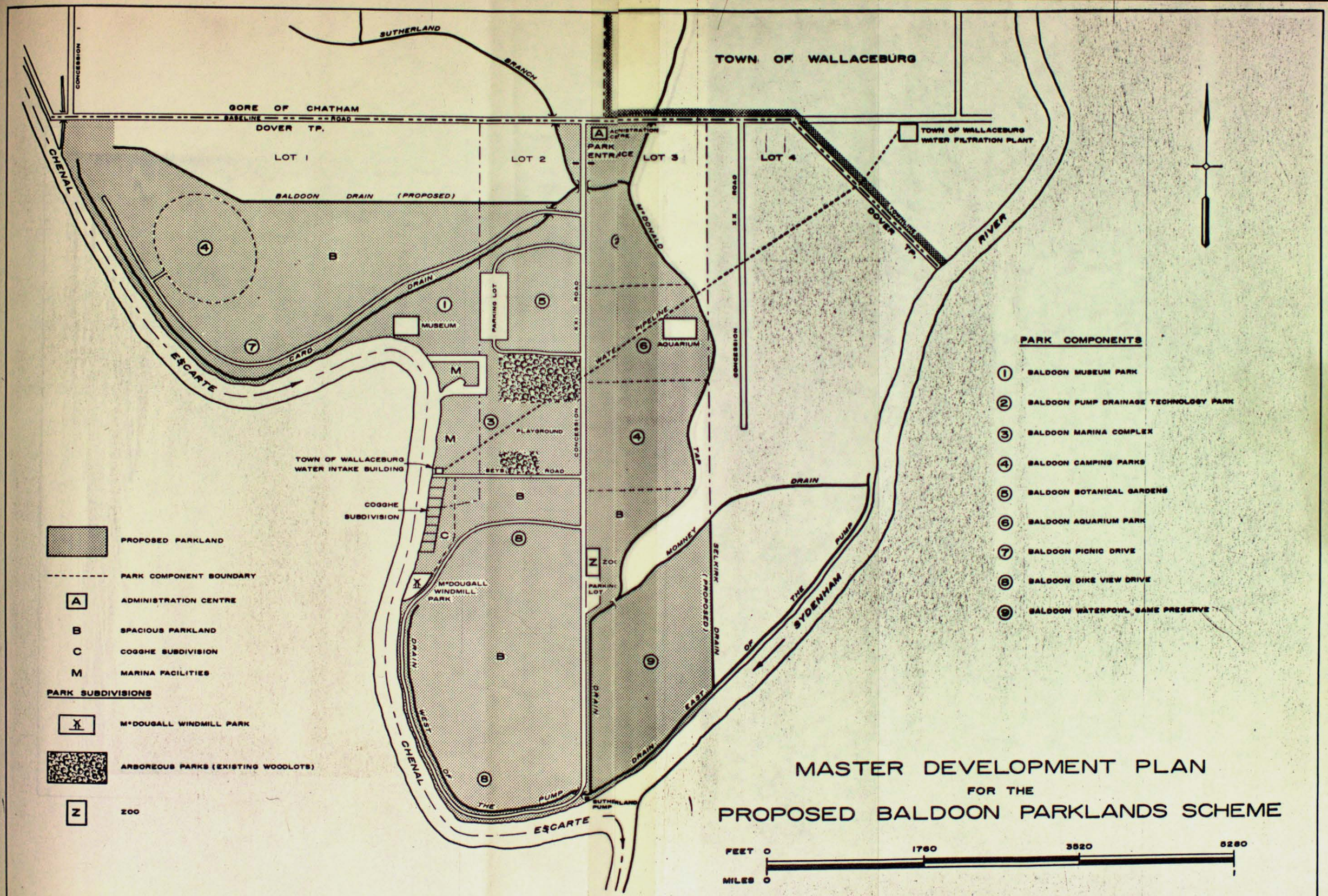
thirty years? With increasing numbers of people moving through the area by automobile and watercraft, what potentialities are present for future recreational development for those travelling by either medium?

The author wishes to propose a general plan for a Baldoon Parklands development within the framework of the St. Clair Parkway scheme; the proposal would aim to meet growing recreational needs for the intra- and extra-regional population in both Canada and the United States. To become a particular attraction, the Parklands would have to be unique and different, i.e., different from the Upper Canada Village in Eastern Ontario, or Huronia in the Georgian Bay area, or anything that the Detroit region might have.

The history and environment of the Baldoon Settlement Lands provide the ingredients for such a "different" type of recreational development. In casual retrospect, the location of the Baldoon site seemed so unlikely a spot for pioneer settlement; yet, at the same time, it held so much promise. The Scottish Highland crofters, it would seem, were not a promising group to re-establish in a damp lowland environment, and yet with considerable courage and determination, many of them weathered extreme hardships to become the founders of the Wallaceburg community. There is the sad, yet inspiring, story of an intelligent wealthy Scottish Earl who, after indefatigable efforts in his settlement schemes in Canada, lost his health and his fortune but gained historical fame. There were the attempts to create and maintain a drainage system on the Baldoon Farm; and finally, there was the inundation of the troubled Settlement Lands by rising lake levels. This historical setting excites in the beholder a certain nuance of pathos and empathy and provides a unique feature of the Baldoon story

From the foregoing general site requirements, it would appear that a section of the Baldoon Farm Subdivision would be ideally suited to contain the organized development of the proposed Parklands. The tourist, actually standing on the old Baldoon Farm, could easily ruminate on the Farm as it was in the early 1800's, ponder the extreme hardships and the success and failure stories of the early settlers, and see about him what pump drainage has done for the lands since the 1830's period of inundation.

In particular, it is suggested that a section of the Farm within Lots 1, 2 and 3, containing approximately 600 acres, become the site for the proposed Parklands (Figs. V-1 and V-2). Some 375 acres of the proposed site bounded today by the Card Drain and Sutherland Branch on the north, the McDonald Tap Drain on the east and the Chenal Ecarté on the west contained in 1810 the Settlement's first buildings, most of the early drainage ditches and much of the grain, root vegetable and hay crops. The north half (some 185 acres) of this area is higher and better drained than its southern portion; thus flood risks are minimal. This is suggested to become the core of the development. Here, the rather substantial investments for buildings and other proposed facilities would have the least risk of possible flood damage. The southern portion of the 375 acres, plus an additional sixty acres to the southeast of it enclosed by the McDonald Tap Drain, the Momney Drain and the Sydenham River, and a further 150 acres northwest of the 375 acres could be utilized for more extensive and less expensive park facilities. Some fifteen acres at the north access to the Parklands from the Baseline Road, Gore of Chatham Township, could be set aside for Park entry and administrative buildings.



MASTER DEVELOPMENT PLAN
FOR THE
PROPOSED BALDOON PARKLANDS SCHEME

FIGURE V-1

SOURCE: SEE APPENDIX A

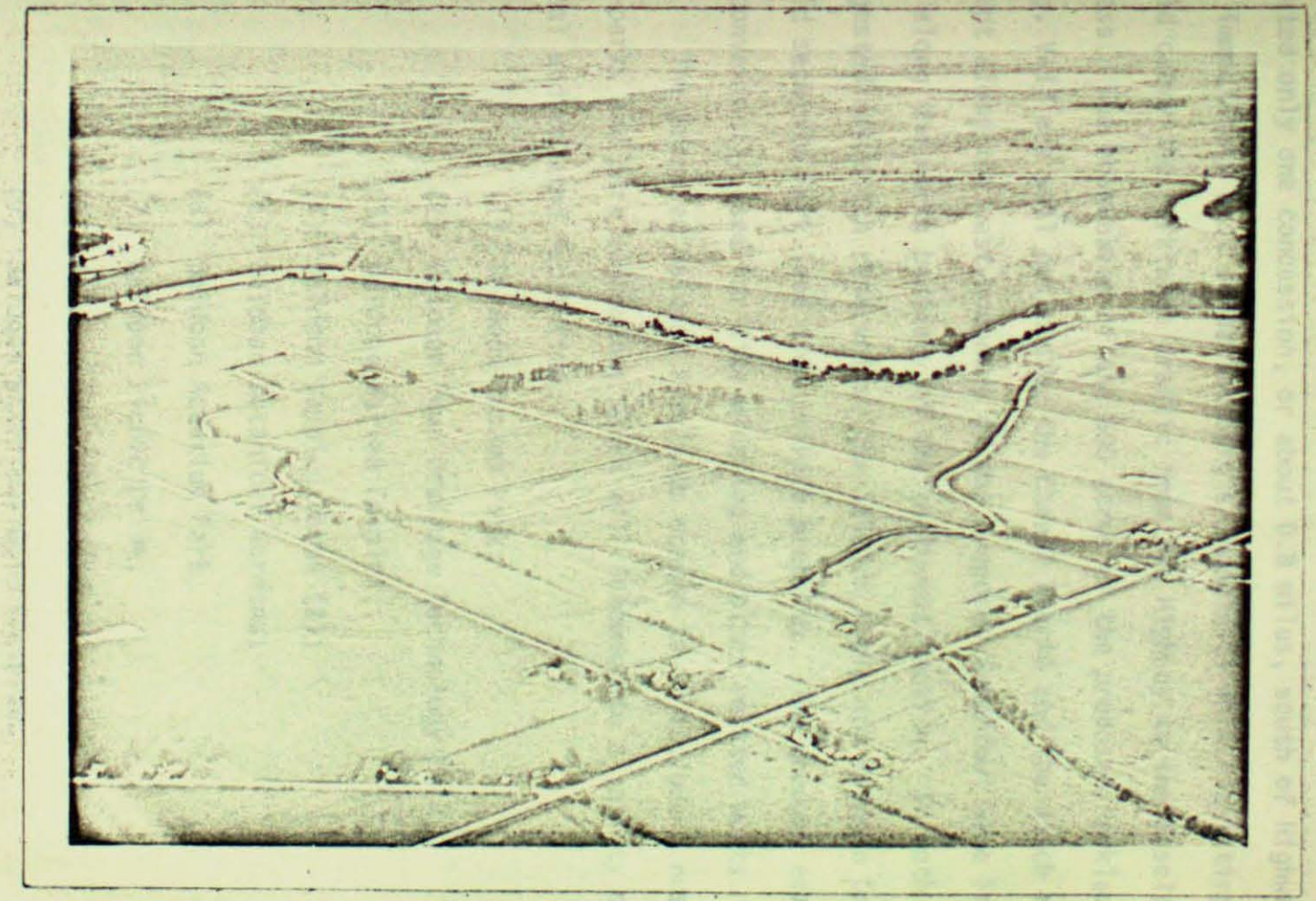


Figure V-2. AREA OF THE PROPOSED BALDOON PARKLANDS ON THE SITE OF SELKIRK'S BALDOON FARM; SOUTHWEST VIEW AT 1,000 FEET ALTITUDE (Source: see Appendix A).

Since the major access to the proposed Baldoon Parklands is via Concession XXI Road from the Baseline Road, the proposed entry gate is located only one concession, or about 0.8 miles, south of Highway No. 40 and immediately west of Wallaceburg's Industrial Park. Existing roads could carry the Parklands traffic from the Highway to the Baseline Road access. The boundaries of the 600 acres of the proposed Parklands area (Fig. V-1) are well defined by the Chenal Ecarté and the ditch reservoirs, except along the east boundary of the proposed Waterfowl Game Preserve and along the north boundary of the northwest section. In both cases, suggested new ditch reservoirs (the Selkirk Drain and Baldoon Drain) would separate Park land from private property. The dredged earth could be conveniently used for dike widening and other related works.

The proposed Baldoon Parklands scheme is to include a number of sub-parks and park components which will accommodate a variety of recreational and related facilities:

(1) Baldoon Museum Park;

(2) Baldoon Pump Drainage Technology Park;

(3) Baldoon Marina Complex;

(4) Baldoon Camping Parks (2);

(5) Baldoon Botanical Gardens;

(6) Baldoon Aquarium Park;

(7) Baldoon Picnic Drive;

(8) Baldoon Dike View Drive;

(9) Baldoon Waterfowl Game Preserve.

(1) Baldoon Museum Park (Fig. V-1).--In 1810, most of the buildings of the original Baldoon Farm were located on an estimated twenty acres between the Card Drain and Dark Bend of the Chenal Ecarté: a two-storey house with a kitchen was on the north side of Dark Bend; to the east was the barn and an ox stable; a little south and east of the house was a community store-house and to the east of that a row of log pens for cattle, pigs and poultry; a little north and west of the house was a distillery; and in a row further north, there were several buildings that had been built in the first year of settlement for either the farm labourers or the settlers and were later used for storage purposes.[2] These twenty acres are planned to be the site of the proposed Baldoon Museum Park. This is intended to become the main component of the Baldoon Parklands scheme. Consequently, the Museum building should be distinctive in architecture and be surrounded by spacious grounds. Located along their east margin is proposed a large parking lot which would be available also to visitors of the Baldoon Botanical Garden and Marina Complex. The detailed arrangements of the Museum Park are to reflect and tell the story of the Baldoon Settlement Lands and the Community in general from 1804 to the present.

(2) Baldoon Pump Drainage Technology Park (Fig. V-1).--The suggested site is a tract of some sixteen acres in the northeast portion of the Parklands. At this location, there is little danger of flooding. For the purpose of displaying an old pumping works, i.e., dash pump run by a steam engine, water could be conveniently pumped out of the Sutherland Branch (at present less polluted than the McDonald Tap Drain) and channelled by

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2. Hamil, Valley of the Lower Thames, p. 48; and Lauriston, Romantic Kent, p. 54.

an L-shaped ditch reservoir to an old steam driven dash pump exhibit and pumped by it into the McDonald Tap Drain. The Baldoon Pump Drainage Technology Park could be the first component of the Parklands to be developed since there is already a basic plan for the displays. Old pumps, trenching machines and other drainage equipment have been located and are ready for acquisition and installation. Such action began with the appointment of a three man committee by the Kent Tourist Association as a result of proposals made by this author and recommended to the Tourist Association by Dr. E. G. Pleva of the University of Western Ontario.[3] The committee (Peter Paisovich of Blenheim, chairman, Kenneth Thompson of Cedar Springs and Rev. Ernest Root of Fairfield Museum, Thamesville) was originally commissioned to salvage for the proposed Park the Baldoon Farm Sutherland dash pump which was about to be replaced by an automatic propeller pump. Mr. Thompson, with the assistance of the Ontario Farm Drainage Association, commenced what became a fruitful search for old drainage equipment. However, this equipment has still to be purchased and transported to the proposed Park site. It is evident that considerable interest exists among local and regional residents with respect to the establishment of a Drainage Technology Park.

(3) Baldoon Marina Complex (Fig. V-1).--Since the Baldoon Parklands scheme is proposed to serve watercraft and automobile tourists, the Marina Complex must be spacious to accommodate both. Not only should there be plenty of protected docking area and large automobile parking lots but

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[3]Interviews with Kenneth Thompson, summers of 1968 and 1969, farmer in Harwich Tp., Kent Co. and member of the Kent Tourist Association.

also a generous acreage for a well planned distribution of facilities such as lodging, food and concession shops, swimming pools, playgrounds and picnic areas. Particularly for the convenience of the watercraft visitors, the Marina should be central to all Parklands activities.

The location which fulfills the above criteria is a site of some fifty acres east of Dark Bend, adjacent to and south of the Baldoon Museum Park, west of the Concession XXI Road and north of the Seys Road including the Aarssen farm buildings and the only two woodlots on the Baldoon Farm Subdivision. A safe harbour for visiting watercraft away from river current and constant boat-wake could be provided by a U-shaped cut containing approximately a six acre interior area immediately south of the Baldoon Museum Park between the north woodlot and the Chenal Ecarté.

(4) Baldoon Camping Parks (Fig. V-1).--Two sites for camping areas are proposed: one immediately east of the Marina and Concession XXI Road in proximity to the Marina Complex and most of the Parklands activities; and the other site in the quiet, isolated northwest section with access via the Baldoon Picnic Drive.

(5) Baldoon Botanical Gardens (Fig. V-1).--The proposed site of about twenty acres is located between the Baldoon Museum Park on the west, the Baldoon Pump Drainage Technology Park and the Baldoon Aquarium Park on the east, the Baldoon Marina Complex on the south and has the main Parklands access route along the east side. The one-way drive to the Baldoon Museum Road circles the Gardens with a large parking lot on the west side that could be shared by both interest areas. Being centrally located in the core section of the Parklands, the Gardens could be

appreciated and viewed from all directions. In fact, the Gardens would come into view immediately upon entry to the Parklands.

(6) Baldoon Aquarium Park (Fig. V-1).--The proposed Aquarium Park is located in the activity area between the Concession XXI Road, the Baldoon Botanical Gardens and the Marina Complex on the west, the McDonald Tap Drain on the east, the Baldoon Pump Drainage Technology Park on the north, and one of the Baldoon Camping Parks on the south. The building might be located so that the Wallaceburg raw water pipeline is on the north side and the McDonald Tap Drain on the east for drainage purposes.

(7) Baldoon Picnic Drive (Fig. V-1).--This drive through quiet spacious parkland in the northwest leads to one of the Camping Parks and to the elongated dike along the Chenal Ecarté for which is proposed a picnic and riverside boat watching area. Small parking lots, spaced at regular intervals, would facilitate access to the dike picnic tables by foot bridges spanning the ditch reservoir.

(8) Baldoon Dike View Drive (Fig. V-1).--This is a second proposed drive on the Baldoon Parklands. It could be a one-way road moving counter clockwise around the margin of approximately 140 acres in the south section of the Baldoon Parklands with a connection to the Waterfowl Game Preserve. It would service also a small zoo of wild animals indigenous to the early Settlement Lands (black bear, fox, racoons, weasels, and snakes). The first part of the Drive at the north end of the 140 acres could have parking lots separated from the Seys Road by an estimated twenty acres of spacious parkland. At the location where the Drive on the dike actually begins is proposed a small park with a Dutch-like windmill

commemorating Laughlin McDougall's windmill which he erected near this site about 1814. The road from here to the site of the Sutherland pump-house would follow a much widened and strengthened dike structure. Wide dike areas at the south end could facilitate parking areas and space for two or three observation decks to view waterfowl, watercraft and the surrounding lowland landscape. At the Sutherland pump site, a parking area and a large observation platform would permit a view of the confluence of the Sutherland ditch reservoirs, the pump itself and its outlet. The Drive would then proceed north along the west side of the McDonald Tap Drain to complete the circuit around the Baldoon Dike Drive.

(9) Baldoon Waterfowl Game Preserve (Fig. V-1).--A proposed sixty acre site east of the McDonald Tap Drain and the Dike View Drive, and between the Momney Drain on the north, the Drain East of the Pump on the south and the suggested Selkirk Drain on the east side would be an area ideally located for a preserve since it is well isolated from other activities of the Parklands and away from any outside residential interference. Parking lots and closed observation platforms might be erected along the Drive beside the McDonald Tap Drain; or the public might be allowed to cross the Drain by a footbridge that would allow access to a specially controlled area.

During the first part of April, 1969, whistling swan, Canada geese and many varieties of wild ducks by the thousands sought refuge for several days on cornfields on Concessions XVII, XVIII, and the Baldoon Farm Subdivision, Dover Township, and on St. Anne and Walpole Islands. In the past, these waterfowl rested during their migrations northward on Lake St. Clair and on the St. Clair River at both ends of the delta.

Since about 1964, though, increasing thousands have been landing on these cornfields.

From the point of view of the conservationist, the sixty or more acres of Waterfowl Game Preserve to be enjoyed by a large number of people would seem justified in a region where so much private land is utilized for hunting by a relatively small proportion of the population. The preserve would provide another type of recreation and attraction that is characteristic of the Baldoon Settlement Lands environment past and present.

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A Baldoon Parklands within the St. Clair Parkway development is a practical possibility. The historical and pump drainage background is unique and different; and the local interest, as previously indicated, is high. However, the imaginative and energetic leadership of interested citizens and government officials at local, regional and provincial levels is necessary to make this Parklands proposal a reality.

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Personal Enquiry and Interviews

The following is a list of people who were interviewed and whose assistance has contributed to the preparation of this Thesis:

Aarssen, A. Farmer and Pump Commissioner

Cogghe, Marcel. Farmer and developer of housing subdivision

Courteaux, Leonce and son, George. Farmers

Crawford, Malcolm and son, Rex. Farmers, Malcolm being Warden of Kent County and Reeve of Dover Township

Crombie, R. E. Wallaceburg Town Manager and past Town Engineer

DeWolf, Marshall and George. Farmers

Dubeau, Roy. Farmer

Dunlop, Mr. and Mrs. Dugald A. Farmer

Everaert, M. Farmer

Gagner, R. W. Clerk of Dover Township

Glover, S. K. Farmer

Griffore, Justin. Farmer

Huff, Mrs. Jim. Non-farm resident on the old Baldoon Farm, having a personal interest in the Selkirk Papers

Huffman, M. Registrar, Kent County Registry Office, Chatham, Ontario

Knight, James. Resident, Baldoon Farm

Mann, Frank. Wallaceburg Historian

McGeorge, D. D. O.L.S., P.Eng., Engineer Consultant for Dover Township

Nemeth, Francis. Farmer

Rabideau, George and son, Reginald. Farmers

Rankin, Carl. Manager, Mud Creek Club

Roe, Walter (deceased) and son, Carl. Farmers

Rosbak, M. Farmer

Rutherford, D. Agricultural Representative, Ontario Department of Agriculture, Chatham, Ontario

Seys, Cyril. Retired farmer who supplied information for the 1910 and 1920 Baldoon Farm land use

Seys, Emiel R. and son, Maurice. Farmers

Simpson, Lloyd (deceased). Clerk of Chatham Township

Stewart, Mrs. Gordon. Collector of Baldoon historical materials

Stewart, Harry. Farmer and fourth generation descendent of James Stewart, Baldoon settler

Verhaeghe, Oscar. Farmer

APPENDIX A

Sources of Illustrations

Figure I-2

'Abstract Records of Deeds', Dover E. Tp., Kent County Registry Office, Chatham, Ontario; and Alexander MacDonell Collection, Vol. V, p. 2, from a memorandum of lands located and described for the Right Honourable Thomas Douglas, Earl of Selkirk, about 1807 (Public Archives of Canada, Ottawa, Ontario).

Figure I-3

Colonel Pilkington, 'Map of the Western Part of the Province of Upper Canada,1818' (from a xerox copy, Geography Department, University of Western Ontario); and Chewett, William McCormick Papers, 1784-1840, a map of the Western District, 1813 (Lawson Library, U.W.O.); and L. J. Chapman and D. F. Putnam, Physiography of Southern Ontario (University of Toronto Press, 1951), moraines.

Figure I-4

Province of Ontario, Department of Lands and Forests, Conservation Authority Branch, Sydenham Valley Conservation Report: Recreation (Toronto, 1961), following p. 6, a map of the Sydenham River basin.

Figure I-5

Macdonell Collection, Vol. XIII, no page number, a field sketch of the drains of the Baldoon Farm by the surveyor, Augustus Jones, July 8, 1804; and ibid., Vol. IV, p. 70, a sketch of a surveyor work line by A. Jones, July, 1804.

Figure I-6

'Kent County Soils Map', data from a soil survey made by the Ontario Agricultural College, Guelph, Department of Chemistry, 1930 (Ottawa: Experimental Farms Branch and Office of Surveyor General, 1936).

Figure II-1

Macdonell Collection, Vol. XII, p. 13, survey done by Augustus Jones, July, 1804.

APPENDIX A (Cont'd)

Figures II-2 and II-3

These drainage flow maps are the result of research and analysis by the author with particular assistance from D. D. McGeorge, Chatham, Ontario, Consultant Engineer for Dover Tp.

Figure III-1

F. C. Hamil, The Valley of the Lower Thames (Toronto: University of Toronto Press, 1941), p. 47, the Baldoon Farm as sketched by T. Clark, from Selkirk Papers, Vol. LXXVI, p. 20022; and as modified by the author on the basis of surveyor's records and present day observations.

Figures III-2 and III-4

Interviews with Cyril Seys, July, 1967, an octogenarian and retired farmer who arrived at Detroit from Belgium in 1909 and one year later arrived at the Baldoon Farm where he rented land for seven years before buying, at the time of pumping works installation, about 200 acres of farmland on the muskrat holed meadow-marsh south section of the Baldoon Farm.

Figure III-3

Interviews with George Rabideau and Leonce Courteau, summer of 1967, both retired farmers, living on the Baldoon Settlement Lands on Con. XIX Rd., Dover E. Tp.

Figure III-5

Donald D. McGeorge, O.L.S., P.Eng., Chatham, Ontario, 'Plan Showing the Drains of the Township of Dover in the County of Kent'; and numerous interviews with pump commissioners and farmers, summer of 1967; interview with R. W. Gagner, Clerk, Dover Tp., December 20, 1969; and interview with Carl Rankin, Manager, Mud Creek Club, January 2, 1970.

Figures IV-1 to IV-6; IV-8 and IV-9; IV-11 and IV-12

Photographs were taken by the author in May and August, 1967.

Figure IV-7

Compliments of Metro Sass, Sass Manufacturing Co., Chatham, Ontario.

APPENDIX A (Cont'd)

Figure IV-10

Land use survey by the author, October, 1966, and summer of 1967.

Figure V-1

Proposals for a Baldoon Parklands scheme made by the author, summers of 1967 and 1969.

Figure V-2

Aerial photograph taken by the author in August, 1969.

VITA

NAME:	Lloyd James Clark
PLACE OF BIRTH:	Blenheim, Ontario, Canada
DATE OF BIRTH:	December 28, 1922
EDUCATION:	
Elementary	S.S. No. 4, Harwich Tp., Kent County, 1928-1935.
Secondary	Blenheim High School, 1935-1941.
Post Secondary	London Normal School, 1946-1947.
	Ontario Department of Education, Type A Certificate Seminars in Geography, Summer of 1961.
University	University of Western Ontario, London, Summer School and Extension Courses, 1946 through 1960.
	Intramural year, 1952-1953. B.A. Degree, October, 1953.
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