

**A RESIDENTIAL SUBDIVISION
FOR
THE TOWN OF SELKIRK, MANITOBA**

A THESIS



**Presented to
the Faculty of Graduate Studies and Research
of the University of Manitoba**

**in Partial Fulfillment of
the Requirements for
the Degree of Master of Science in Community Planning**

By

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INTRODUCTION

The subject of this Thesis consists of the design of a residential subdivision for the town of Selkirk, Manitoba. The site chosen for this subdivision comprises 425 acres of presently undeveloped land west of the Canadian Pacific Railroad tracks and the large size of this area has permitted the author to develop it as a complete neighbourhood.

In the treatment of his subject the author has aimed at an intelligent compromise between aesthetics and practicability, embodying those principles of effective town planning, sound engineering and economics which should govern any good design. However, in those few instances where aesthetics and practicability would conflict, the solution adopted has been in favour of the former, since this Thesis represents an academic essay in town planning; that which is considered most desirable from the point of view of town planning will override other considerations.

The Thesis is divided into two sections. Part I, describes the town, its zoning and its utilities, both present and proposed. It includes a market analysis, some general principles of neighbourhood planning, and ends with a chapter

which gives the reasons for the author's selection of the site.

Part II describes the actual design of the subdivision and explains, where deemed necessary, the measures adopted.

PART ONE

Chapter One

THE TOWN OF SELKIRK

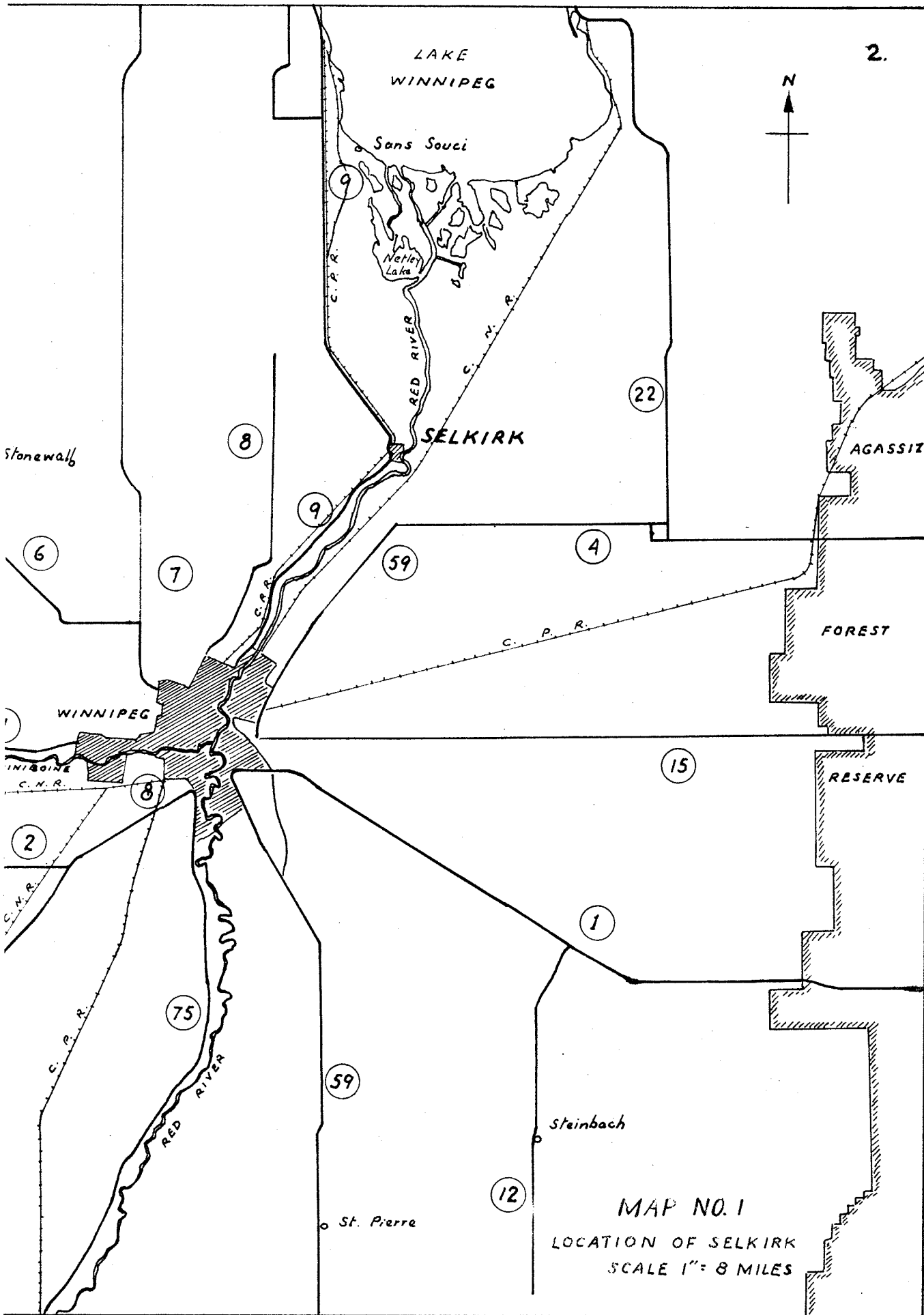
A residential subdivision as large as the one contemplated in this Thesis cannot be designed as a separate entity and then arbitrarily imposed on the site designated for it. Since it will ultimately form a major part of Selkirk it must have social and economic ties with the town. Hence this chapter describes the locale and the community in which the subdivision will be situated.

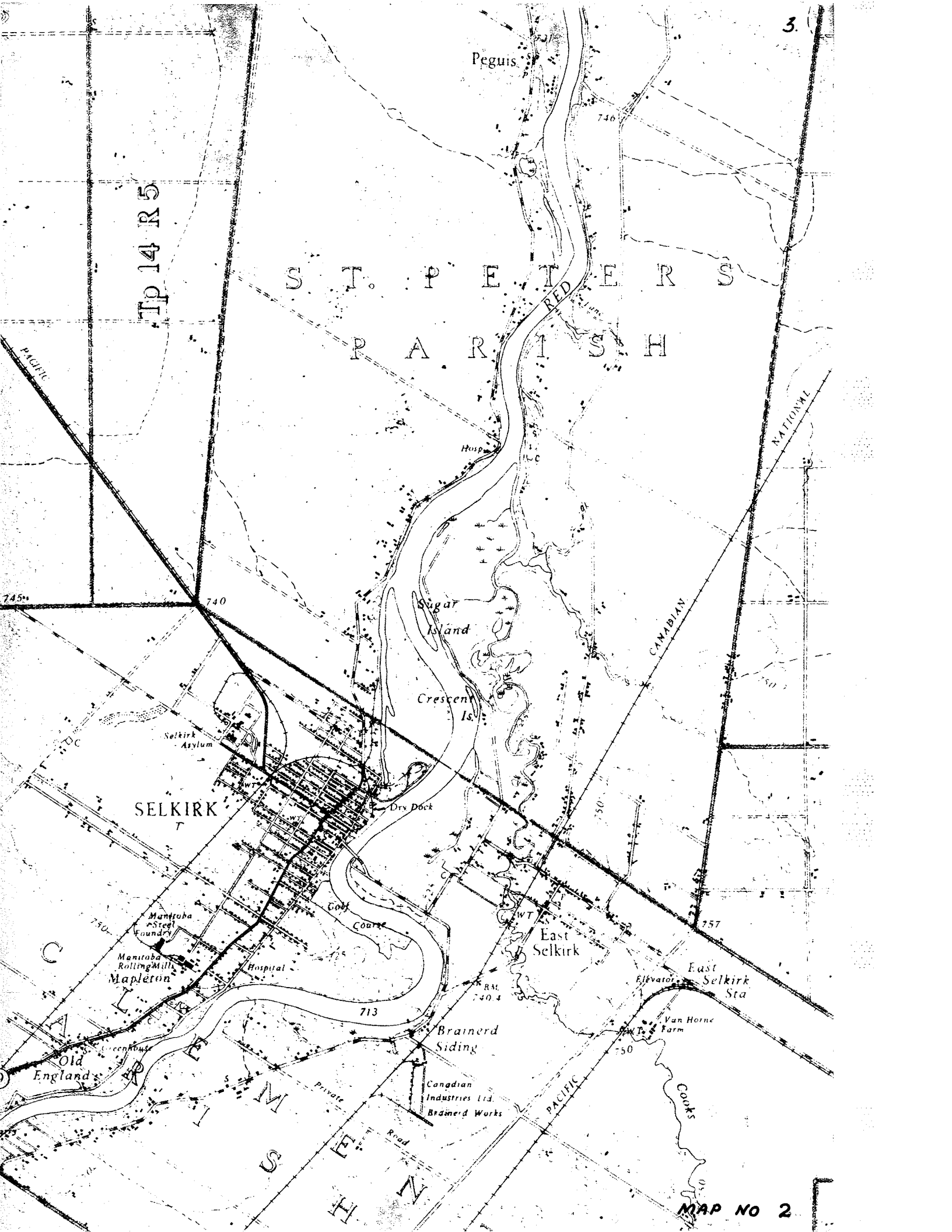
1. Location

The town of Selkirk lies in Township 13, Range 5, and is situated on the west bank of the Red River, 18 miles northeast of Winnipeg by road. It lies approximately 22 miles upstream from Lake Winnipeg, at the head of deep water navigation, and is thus strategically located as an inland port for fishing and freight boats serving northern Manitoba.

A paved highway, P.T.H. No. 9, provides all weather access to Winnipeg and the Canadian Pacific Railway's Winnipeg - Winnipeg Beach Line passes through the town.

Most of the existing development in Selkirk is located east of the C.P.R. right-of-way.





Tp 14 R 5

3

S T . P E T E R ' S
P A R I S H

SELKIRK

Crescent Is.

Sugar Island

East Selkirk

Brainerd Siding

East Selkirk Sta

Manitoba Steel Foundry
Mapleton

Hospital

Dry Dock

CANADIAN NATIONAL

PACIFIC

Old England

Canadian Industries Ltd.
Brainerd Works

Van Horne Farm

MAP NO 2

2. Historical Background

Selkirk has a rich historical heritage and figured prominently in the early settlement of Manitoba.

Towards the end of the 18th century the Northwest Traders and Hudson Bay Company were competing for the fur trade of the centre of the continent. To help offset food transportation costs these companies encouraged agriculture around their posts and thus in 1810, Thomas, the Fifth Earl of Selkirk obtained permission from the Hudson Bay Company to form an agricultural colony at Red River. He was granted absolute proprietorship of the upper Winnipeg basin, to be known as Assiniboia.

The first settlers, 18 in number, and accompanied by Lord Selkirk's newly appointed Governor of Assiniboia, Miles Macdonell, arrived at the Red River in 1812 via Hudson Bay, the Nelson River and Lake Winnipeg and established a settlement on the west bank of the Red, on the point known thereafter as Point Douglas. This party of Scottish and Irish labourers had come to pave the way for the rest of the colonists who arrived the following year.

These colonists who arrived in 1812 and 1813 were mostly Sutherland Scots, hard headed and determined. In spite

of early set-backs the colony flourished, spreading along the banks of the river.

In 1875 an influx of Icelandic settlers to the west shore of Lake Winnipeg extended south to the Selkirk area, and these people brought with them the fishing industry which survives in the Town to this day.

In 1874 the Liberal Government of Alexander MacKenzie proposed the building of a Pacific Railway which would cross the Red at Selkirk. Thus, "Selkirk enjoyed a considerable boom, and ... began to think of itself as a rival to Winnipeg".
 The leaders of Winnipeg rallied to have the bridge built in their city, and won in 1881, but at the high price of having to grant to the Canadian Pacific Railway free land and rights of way and exemption from municipal taxation in perpetuity. (1 - p.84)

Selkirk, incorporated as a town in 1882, thus lost its hope of becoming the chief city of Manitoba. "Its position as the port of Lake Winnipeg, its export trade in white fish to the United States market, its lumbering and shipping, however, gave it a distinctive character and solid prosperity."
 (1 - p.258)

3. Population

Selkirk is part of Census Division 9, which includes most of the area north of Winnipeg and west of the Red River.

The population of Selkirk, according to the 1956 Census, is 7,413. In the previous Census of 1951, the population was 6218 which indicates an increase of 19.2% between 1951 and 1956.

A breakdown of the 1956 Census results gives us the following representation:

(i) by age groups:

15 yrs. - 64 yrs. of age	59.4%
Children under 15 yrs.....	32.2%
Over 65 yrs. of age.....	8.4%

and (ii) according to ethnic origin:

British.....	49.4%
Ukrainian.....	13.6%
Scandinavian.....	11.8%
Polish.....	7.5%
French.....	5.1%
German.....	4.3%
Netherlands.....	1.7%
Indian.....	1.6%
Jewish.....	1.3%
Others.....	3.7%

4. Industry

Steel is the most important industry of Selkirk. The Manitoba Rolling Mills were established there in 1917, followed later by the Manitoba Steel Foundry. The former is the only rolling mill in Manitoba and produces 90,000 tons of steel annually. The foundry processes such varied alloys as low and high carbon steels, manganese steels, chrome and nickel steel and ni-hard iron, to produce steel castings for railways, mining and contractors' equipment. The capacity of the foundry is 500 tons per month.

The fishing industry, with its attendant boat building, fish filleting and freezing plants, owes its importance to Selkirk's location near Lake Winnipeg. Most of the packed fish finds its market in the United States.

Other industries represented in Selkirk include textiles, manufacture of explosives, bakeries, feed mills, and the processing of silica sand which is transported by barge from Black Island in Lake Winnipeg. Also, the Federal Department of Transport maintains a dry dock in Selkirk. These are the only dry docks between the head of the Lakes and Vancouver and thus emphasize the town's importance as a port for lake shipping.

The following is a list of manufacturing or processing establishments and their products. The reader's attention is

drawn to the fact that out of the 16 establishments listed,
5 are devoted to the fishing industry.

<u>Name</u>	<u>Products</u>
Booth Fisheries Cdn. Co. Ltd.	Fish Fillets and Frozen Fish
Brown's Bread Ltd.	Bread and Bakery Products
Canadian Industries Ltd.	Dynamite
Manitoba Rolling Mill Co. Ltd.	Steel Rods, Squares, Channel & Angle
Manitoba Steel Foundry Divs., Dominion Brake Shoe Co. Ltd.	Castings
Lakeland Dairies Ltd.	Dairy Products
Monarch Overall Manufacturing Co. Ltd.	Children's Wear and Overalls
Mowatt, Fisheries	Fish
Purvis Brothers Boat Yard	Fishing and Patrol Crafts
Selkirk Bakery	Bread and Bakery Products
Selkirk Beverages	Carbonated Beverages
Selkirk Enterprise	Printing and Publishing
Selkirk Feed Mills	Feed
Selkirk Machine Works	Safes and Net Lifters
Stefanson, Ronald	Fish Fillets and Frozen Fish
Winnipeg-Selkirk Sand Co. Ltd.	Silica Sand

5. Agriculture

Agriculture combines with the fishing and manufacturing industries mentioned previously to form the firm basis of Selkirk's economy.

Selkirk is the centre of an area of highly diversified farming which includes the Municipality of St. Andrews on the west side of the Red River and the Municipality of St. Clements on the east, both of which extend to the south end of Lake Winnipeg. St. Andrews has 904 occupied farms, averaging 187 acres apiece, and St. Clements has 950 farms, averaging 142 acres.

Needless to say the Selkirk area has been cultivated since the coming of the first settlers but not till the turn of the 20th century did agriculture develop sufficiently for the produce to be exported.

Today barley is the leading crop accounting for 70% of the total cereal grains. A fair proportion of this is of malting quality and is shipped to malting companies in Canada and the United States. The other 30% of the grain crop is taken up by oats, wheat, rye and flax, in that order.

Other crops which have gained prominence in the last 20 years are sugar beets, which are shipped to a sugar beet factory in Winnipeg, potatoes, and various other garden produce.

Most farms carry livestock such as beef, swine and poultry, as a secondary item of their production.

In addition to crops and livestock the Selkirk area produces daily over 20,000 lbs. of milk and large quantities of cream for the Winnipeg market.

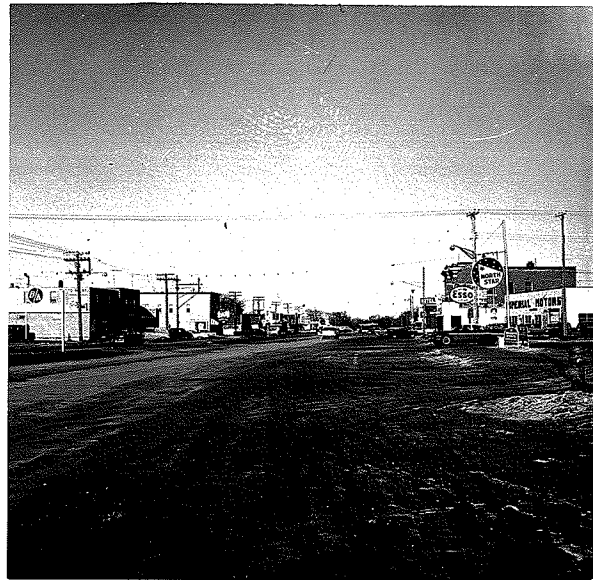
6. Hospitals

Selkirk has three hospitals, the Selkirk General Hospital, the Manitoba Hospital for Mental Diseases, and the Dynevor Indian Hospital, which is located 5 miles north of town.

The Selkirk Hospital for Mental Diseases, because of its size and importance, plays a large part in the social and economic life of the town. Built in 1886, to accommodate those patients who had previously been housed at Stony Mountain Penitentiary, it administers to approximately 1,200 patients today. There is a staff of 339, which is comprised of 8 physicians, 111 female nurses, 87 male nurses, a domestic staff of 58, an occupational therapy staff of 12 and a clerical staff of 15. Fourteen persons are employed on the farm staff, 16 in the power house, and the remaining 18 in miscellaneous positions. About 300 patients are admitted annually and the discharge rate is about 70%, which speaks much for the hospital's efficiency.



• MAR • 60



• MAR • 60

MAIN STREET OF SELKIRK

View from Eaton Avenue looking north.

The General Hospital has a 65 bed capacity and the Dynevor Indian Hospital, approximately five miles north of town, is a Dominion maintained tuberculosis sanitorium for Indians.

7. Schools

There are five elementary schools and one high school:

<u>Name of School</u>	<u>Date Built</u>	<u>Enrollment*</u>	<u>Grades Taught</u>	<u>Type</u>
Victoria School	1906	259	I - IV	Elementary
Devonshire School	1919	294	I - VI	"
Derwood School	1950	343	I - VI	"
Ruth Hoeker School	1958	133	V & VI	"
Robert Smith School	1959	322	VI - VIII	"
High School	1956	450	IX - XII	Secondary

* These figures were taken from the Schools' attendance rolls on the 30th November, 1959.

The elementary schools are governed by a local board, the Selkirk School District No. 69, and the High School by a divisional board, the Lord Selkirk School Division No. 11. This School Division No. 11 comprises the municipalities of St. Andrews and St. Clements and the Town of Selkirk. The local board is composed of six members, each of whom is elected for a term of two years.

The Selkirk Schools subscribe to the same salary schedules for teachers as Winnipeg, except that no dependents' allowance is given. Hence it has been possible to maintain a good standard in the qualifications of the teaching staff. Indeed in the High School only teachers with degrees are accepted. Classes range from 30 - 35 pupils. Because of all this, results in departmental exams have been more than satisfactory and at a rough estimate 40% - 50% of the Grade XII students further their education at Teachers' College, University, etc....

Present schooling facilities are adequate to serve the population. At the moment four of the Grade IX classes from the High School are being housed in the newly completed Robert Smith School adjacent to it. Further extensions to the High School are being contemplated and, if effected, there should be room to spare.

8. Churches

Twelve churches cater for the spiritual needs of the town and surrounding area. They represent the following denominations:-

Salvation Army	Lutheran
Pentecostal	Icelandic Lutheran
Jehovah's Witness	Baptist
United Church of Canada	Plymouth Brethren
Church of England	Roman Catholic
Presbyterian	Greek Catholic

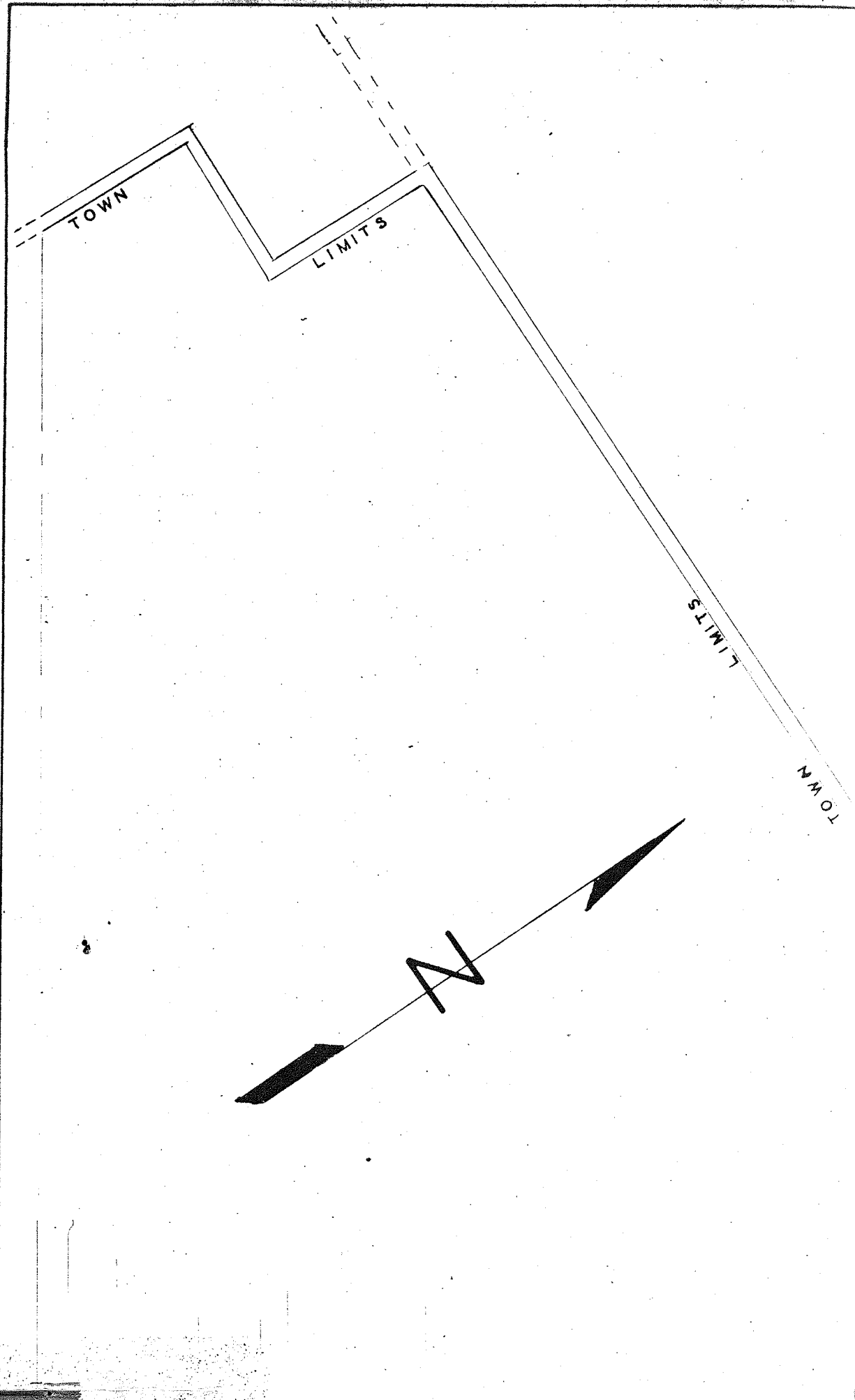
Eight of these date back to the 19th century and indeed St. Clement's Church at Mapleton, 2 miles south of the town, was founded in 1860 and served many generations of the early settlers, including the staff of Hudson's Bay Company at Lower Fort Garry. The two most recent ones, Grace Baptist Church and the Lutheran Church of the Good Shepherd, were established within the past four years.

9. Fire and Police Protection

Fire protection is afforded by a 20 man brigade organized on a volunteer basis. Their equipment is modern, and includes a new Bickle-Segrave unit capable of pumping 650 g.p.m. and an Airforce unit capable of pumping 500 g.p.m.

Police protection is given by the R.C.M.P. who maintain a detachment of seven men, composed of one sergeant, one corporal and five constables. The R.C.M.P. are housed in new barracks which were completed in July, 1959, and are located on the corner of Eveline and Schultz.

In addition to the town detachment there are also two highway patrolmen, one corporal and four constables engaged in Municipal work, so that there is quite a reserve of police officers for an emergency.



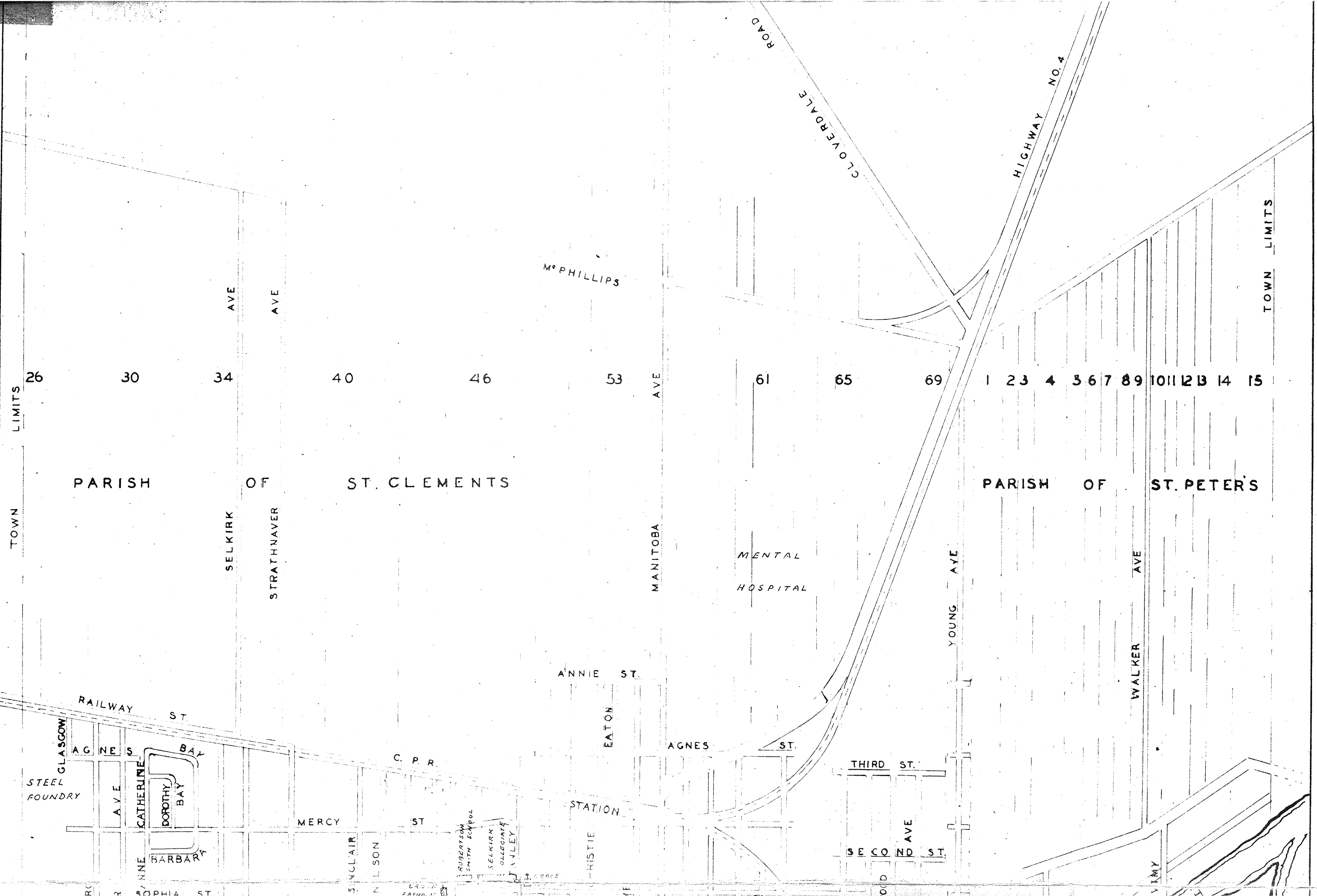
TOWN OF SELKIRK

SCALE

1" = 1000 FT.

CHURCHES SCHOOLS & FACILITIES

Note. — *Buildings are not shown to scale*



TOWN LIMITS

TOWN LIMITS

PARISH OF ST. CLEMENTS

PARISH OF ST. PETER'S

SELKIRK AVE
STRATHNAVER AVE

MANITOBA AVE

YOUNG AVE

WALKER AVE

M^{rs} PHILLIPS

MENTAL HOSPITAL

ANNIE ST.

EATON ST.

AGNES ST.

RAILWAY STATION

THIRD ST.

SECOND ST.

STEEL FOUNDRY

DOROTHY BAY

BARBARY

ROBERTSON SMITH SCHOOL

SELKIRK COLLEGIATE

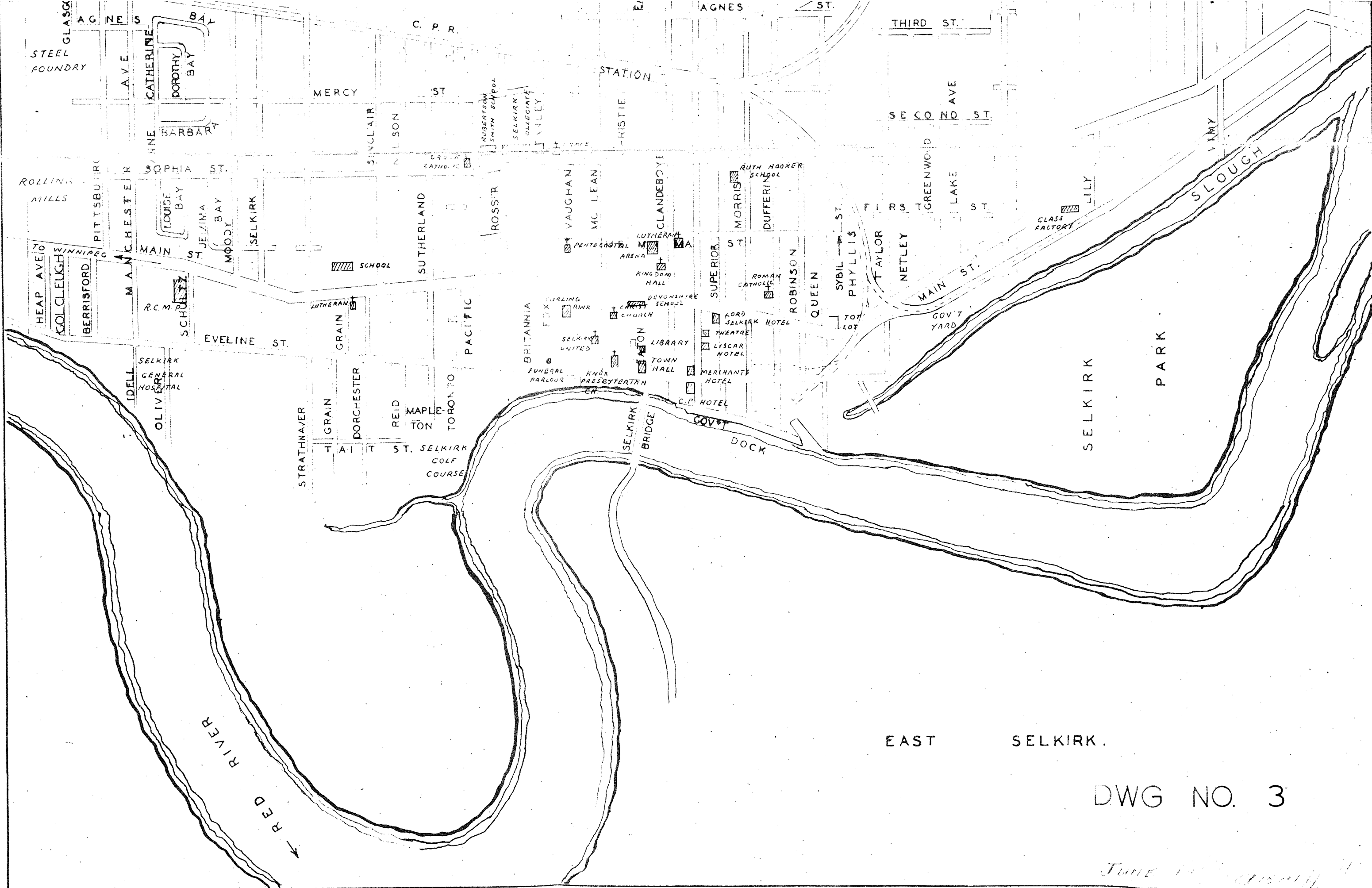
CHRISTIE

ROAD

HIGHWAY NO. 4

CLOVERDALE ROAD

26 30 34 40 46 53 61 65 69 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15



EAST SELKIRK.

DWG NO. 3

JUNE 1911

10. Local Government

Selkirk is governed by a Town Council similar in organization to that of any town in Manitoba. It is composed of a mayor and six councillors, each of whom is elected for a two year term, and a full time salaried Secretary-Treasurer. The election of council members is staggered so that three councillors come up for re-election each year and the mayor every two years.

Prior to 1958 there were three wards, and Council members were elected on the ward system. This was abolished by a resolution of the Council and now the members are elected at large.

11. Recreation and auxiliary facilities

The facilities for recreation are varied and many. There is an Arena for ice skating and hockey, an open air swimming pool in Selkirk Park, a golf course, a Curling Rink and a bowling alley. Boating and water-skiing are practiced on the Red River.

More prosaic fare is offered by a theatre which gives two performances each night, (except Sunday) and three on Saturday.

The town has a Youth Council which is a voluntary body composed of representatives from each Service Club and the Town Council, and is supported by voluntary donations. This Youth Council has been operating for a number of years and until a year and a half ago, was organized by two men on a part-time basis. In July, 1958, the town employed a qualified Youth Director on a full-time basis. On an average he caters to about 1,000 children a year from the ages of 6 to 16, organizes their sporting activities, runs a teen canteen, etc.....

There are four hotels in Selkirk, the Canadian Pacific, the Merchants, the Lisgar and the Lord Selkirk. Each hotel has a beer parlour which, combined with a licensed restaurant and such semi-private clubs as the Legion and the Army, Navy and Airforce, provide about 9 liquor outlets for the town.

Chapter Two

Present Land Use and Proposed Zoning

"Effective urban planning requires that land use should be restricted in certain areas." Zoning protects residential neighbourhoods from adverse uses and stabilizes community development and land values. "Basically, (it) provides for the division of the municipality into a number of use districts within which the height, open space, building coverage and more recently the density of population for respective districts are specified."
(3 - p.40)
(4 - p.26)

Zoning is not an arbitrary imposition of the Planner's will. It must be flexible enough to meet the changing needs of the community and its effectiveness will depend on the capacity of the municipal planning staffs to interpret and use the powers entrusted to them. On the other hand zoning control must not be so lax that it becomes a sham.

The purpose of this chapter is to demonstrate that the author's proposal for a new neighbourhood ties in with the Town's General Plan and its attendant zoning.

1. Present Land Use

Drawing No. 4 shows the Present Land Use in Selkirk. It will be seen that there are only four parks to serve the community and that these are all poorly situated. They do not provide equally convenient access to the inhabitants of the town and their location along the river banks makes them prone to flooding, particularly in the Spring. Moreover only one truly deserves the name of park, viz. Selkirk Public Park, located at the north east corner of the town. The one east of Eveline and south of Sutherland is in reality a Golf Course, and, as such, is semi-private. The remaining two, east of Eveline and off Eaton and Britannia respectively, are merely river lots and though suitable for older people, do not offer adequate play areas for children.

The commercial zone is fairly well localized and its position indicates that the north end of town was the first to develop. Because of an initial lack of planning this part of Selkirk is in a state of deterioration, with a consequent lowering of land values. Newer homes are found in the southern sector and the town is growing towards the south and the west.

A new subdivision is under construction in the southern part, bounded by Woody Avenue on the north, Manchester

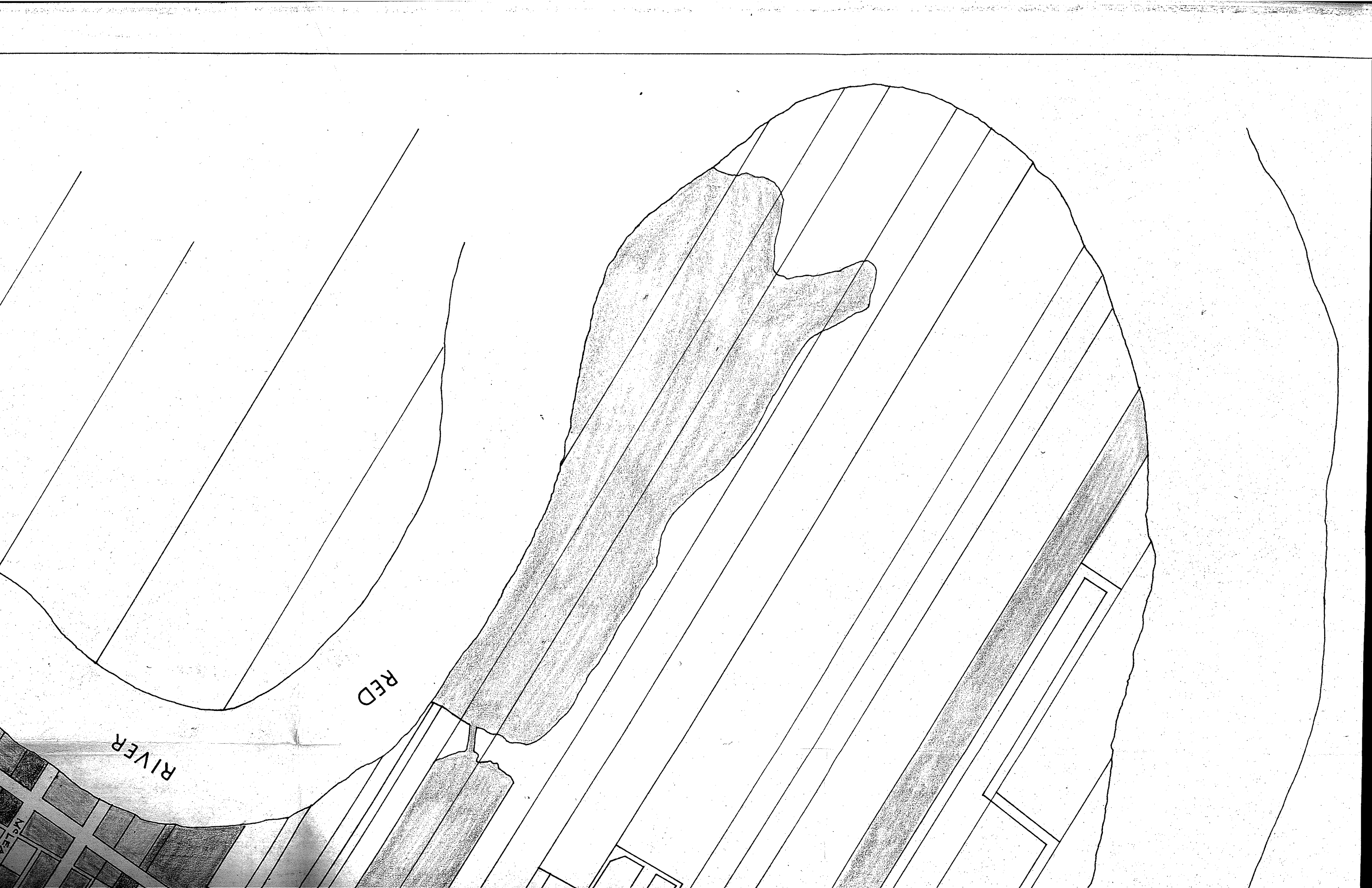
Avenue on the south, Main Street on the east and the C.P.R. tracks on the west. Apart from this, it can be seen that there is still a fair amount of land east of the tracks which is available for construction before development is forced westward across the tracks.

2. Proposed Zoning

In January, 1960, the Selkirk Town Planning Commission were presented with a Town Planning Scheme prepared by the Provincial Planning Service of Manitoba and at the time of writing were undertaking the necessary steps for its adoption.

This involves notifying adjoining municipalities as well as the inhabitants of the town that a Town Planning Scheme is to be submitted to the Minister for approval. For six weeks notice of this proposal is published in the Manitoba Gazette and twice at weekly intervals in the local papers, and copies of the Scheme are made available for inspection in the Municipal Offices. Two weeks after the first appearance of these notices, objections or written submissions to the Scheme are considered by the Town Council.

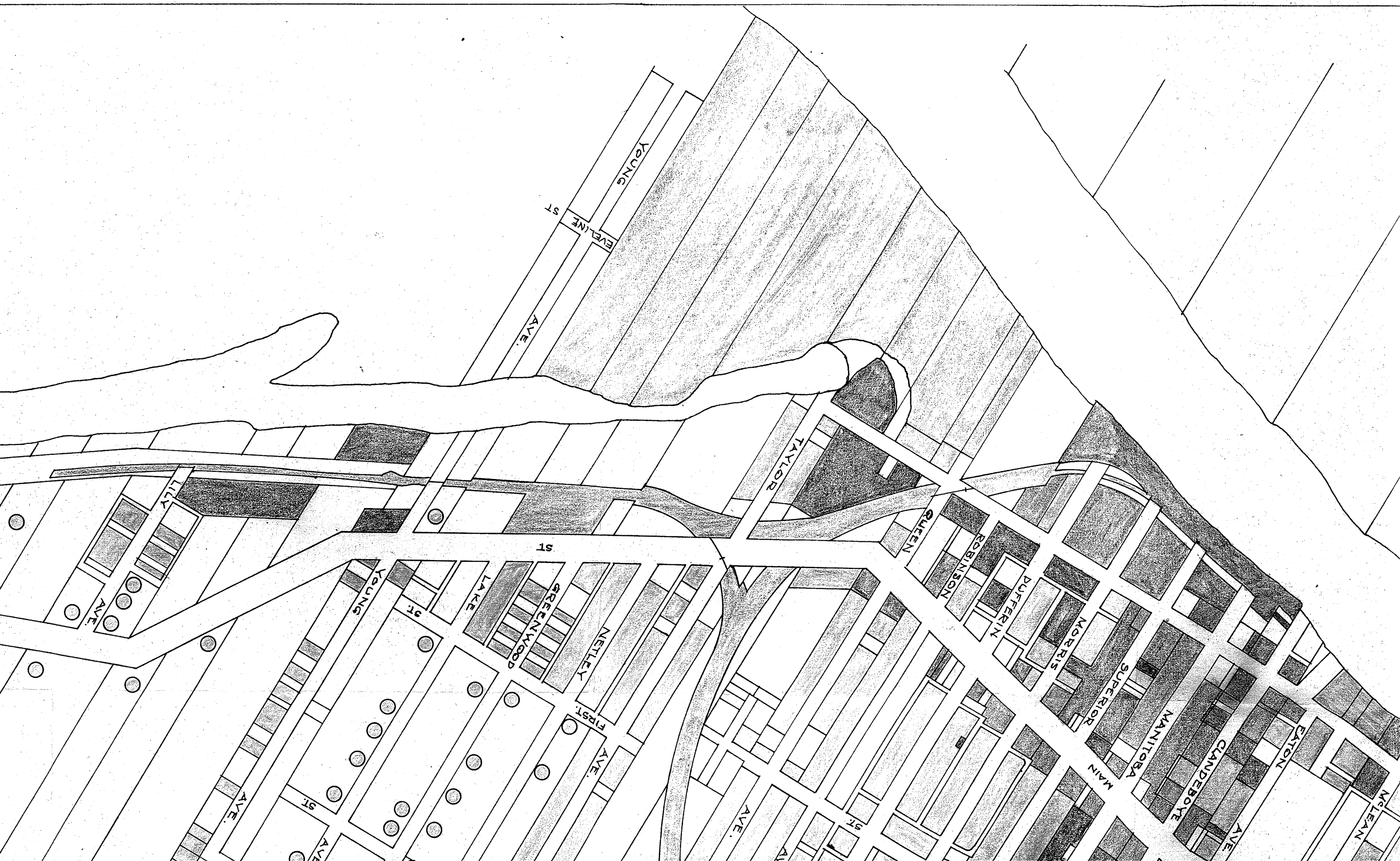
At the end of the six weeks, if the Scheme is found feasible and satisfactory a By-Law is passed adopting it and

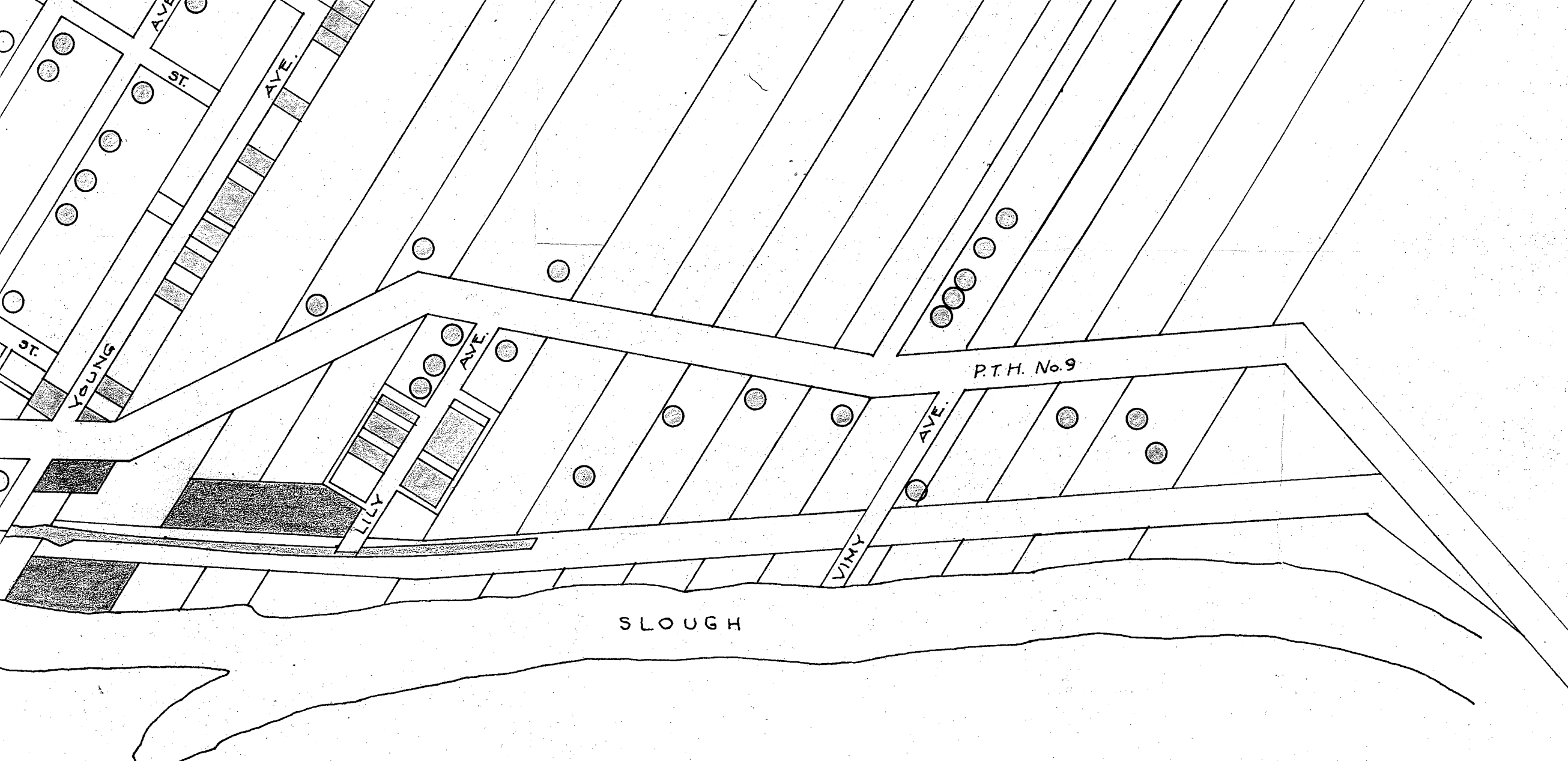


RIVER

RED

NGLEA





TOWN OF SELKIRK
PRESENT LAND USE

1" = 400'
DEC. 16/59
G. P.

DWG NO 4



RED RIVER

HEAD

COLCLEUGH AVE

BERRSFORD AVE

MANCHESTER AVE

PITTSBURGH

SCHULTZ AVE

MAIN

MOODY

SELKIRK

STRATHNAVER

OLIVER AVE

EVELINE AVE

SELKIRK

STRATHNAVER

SINCLAIR ST

JENNA AVE

STRATHNAVER AVE

GRAIN TAIT

DORCHESTER AVE

REID MAPLETON

SUTHERLAND

TORONTO

PACIFIC AVE

ROSSER

BRITANNIA



R.L. 61
R.L. 62
R.L. 63
R.L. 64
R.L. 65

ST.

AVE.

AVE.

CHRISTIE

ST.

AVE.

JENNA

AVE.

STANLEY

AVE.

ER

FOX

VAUGHAN

AVE.

NNIA

MCLEAN

AVE.

BOYE

AVE.

AVE.

AVE.

AVE.

ST.

AVE.

AVE.

AVE.

THIRD

SECOND

AVE.

AVE.

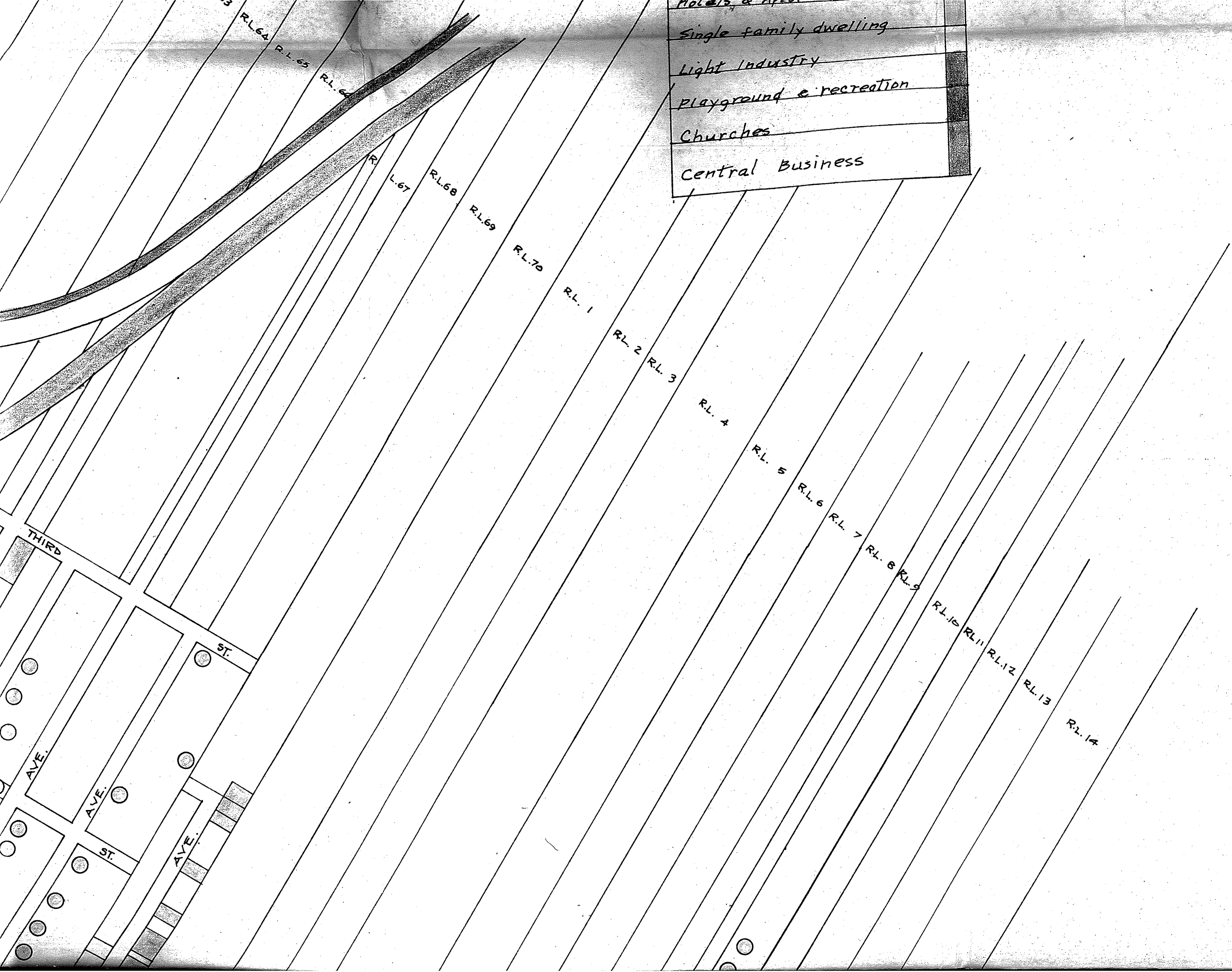
AVE.

ST.

ST.

AVE.

Hotels & apartments	
Single family dwelling	
Light Industry	
Playground & recreation	
Churches	
Central Business	



R.L. 64
R.L. 65
R.L. 66

R.L. 67
R.L. 68
R.L. 69

R.L. 70
R.L. 1

R.L. 2
R.L. 3

R.L. 4

R.L. 5

R.L. 6

R.L. 7

R.L. 8
R.L. 9

R.L. 10

R.L. 11

R.L. 12

R.L. 13

R.L. 14

THIRD

AVE.

AVE.

ST.

AVE.

ST.



RED

RIVER

HEAP

COLCLEUGH

FORD

PITTSBURGH

SOPHIA

MERCY

GLASGOW

AGNES

ST

AVE.

AVE.

ST.

AVE.

AVE.

MERCY

AVE.

AVE.



R.L. 44 R.L. 45

R.L. 46

R.L. 47

R.L. 48

R.L. 49

R.L. 50

R.L. 51

R.L. 52

R.L. 53

R.L. 54

R.L. 55

R.L. 56

R.L. 57

R.L. 58

R.L. 59

R.L. 60

R.L. 61

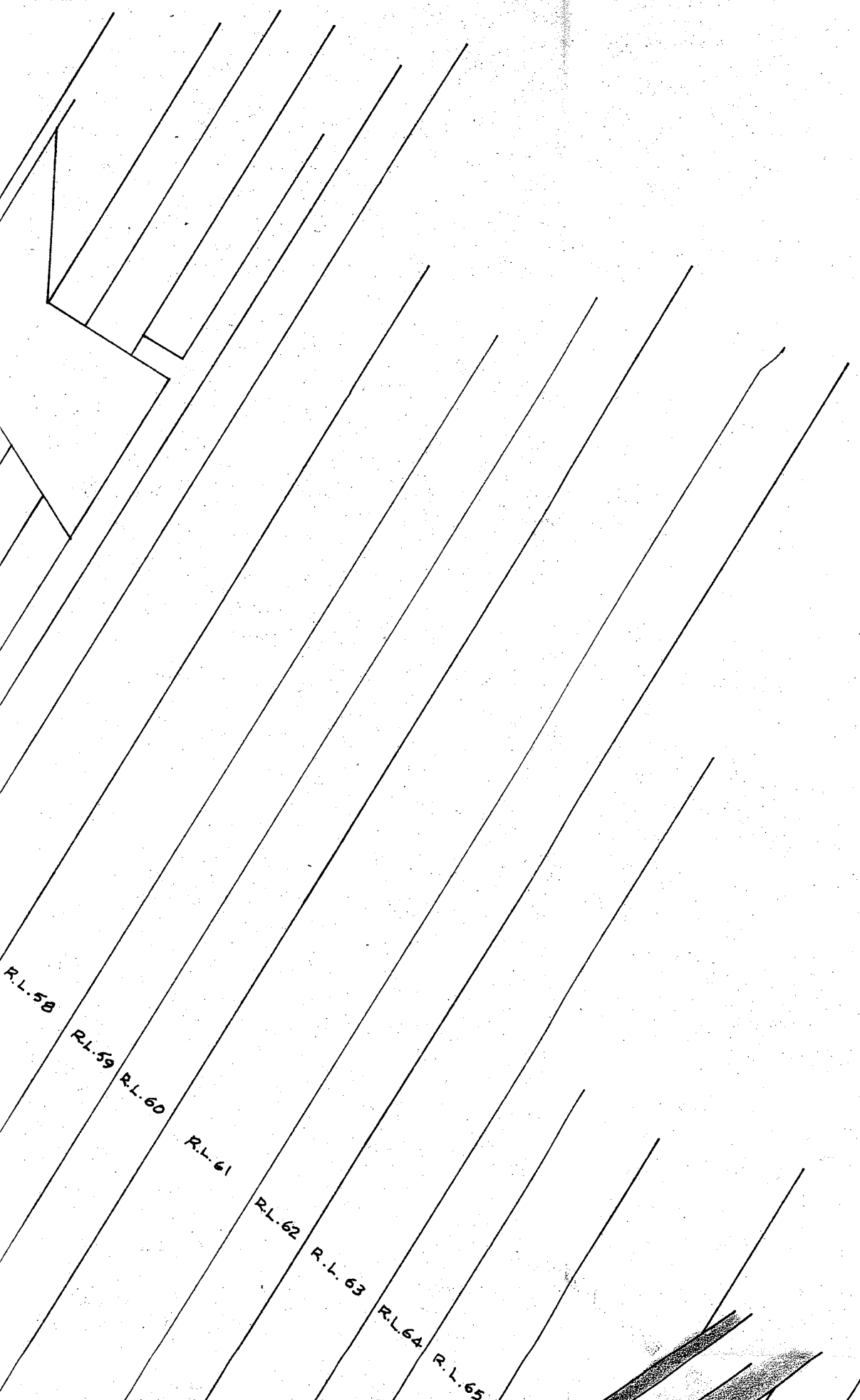
R.L. 62

R.L. 63

R.L. 64

R.L. 65

ST.



LEGEND

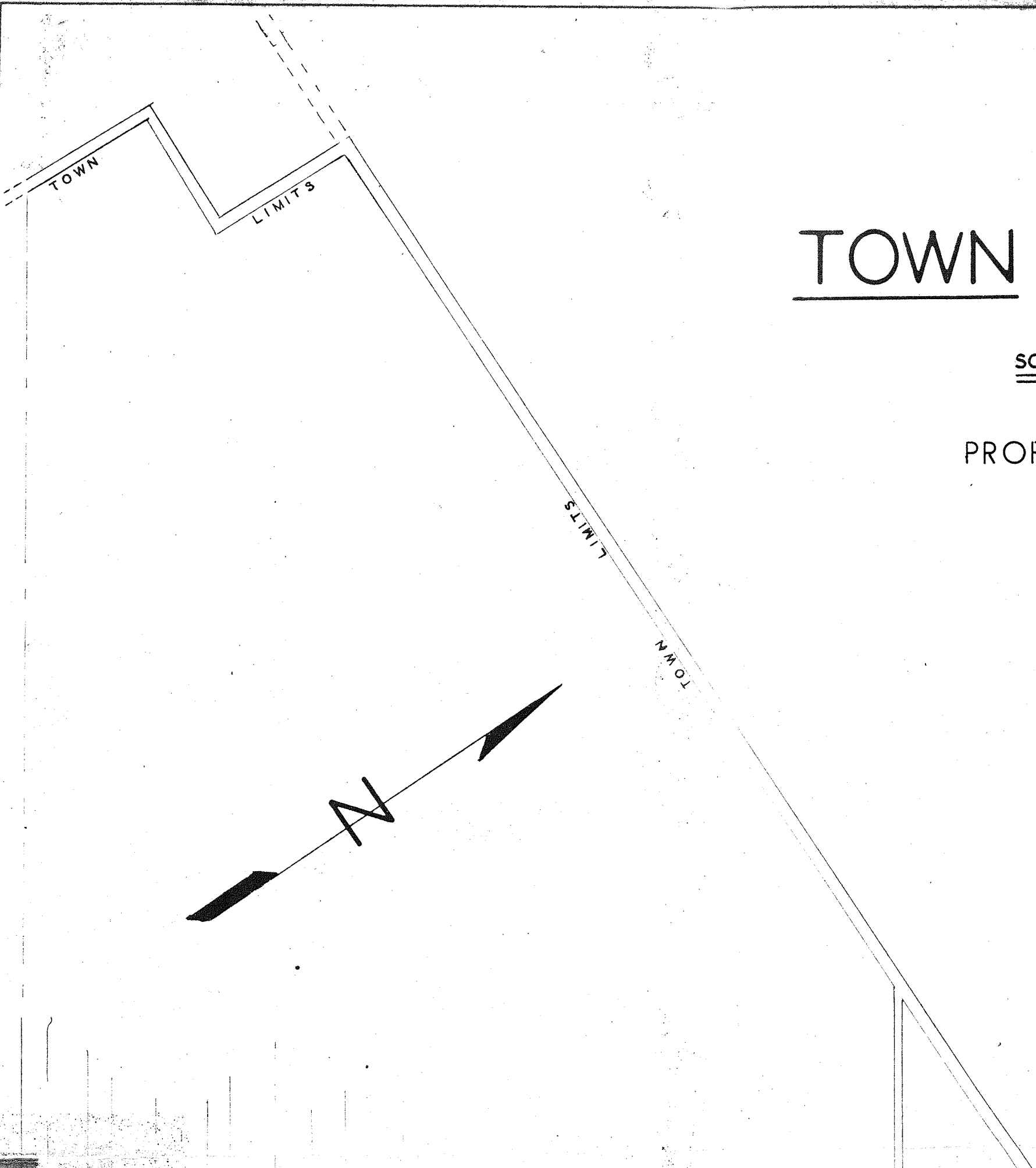
Public Bldgs.	
Heavy Industry	
3-4 Family dwelling	
Local Business	
Hospitals	
Agricultural	
Parks	
Hotels & Apts.	
Single family dwelling	
Light Industry	

it is submitted to the Minister for approval. Upon approval of the Minister, the Scheme comes into force immediately.

Drawing No. 5 is a general plan which will guide all further development in Selkirk if adopted upon successful completion of the steps enumerated above. This general plan was preliminary in outline and differed in some minor details from the final one which was submitted to the town. However, these differences were not important enough to justify any revisions in the general plan given here.

Six different types of land use are shown, viz: Residential (R), Commercial (C), Agricultural (A), Public Open Space (P), Light and Heavy Industry. These will be further subdivided into different use classifications; for example, the Residential areas denoted on drawing No. 5 include single and multiple family houses and the Public Open Space includes public parks, recreational areas, public institutions and public buildings.

However, these different use classifications will not be dealt with here as the author is concerned only with integrating his proposed neighbourhood with the general zoning pattern of the town. Moreover an over-complexity of use districts is unwarranted during the present stage of Selkirk's



TOWN OF SELKIRK

SCALE 1" = 1000 FT.

PROPOSED ZONING 1960



TOWN LIMITS

TOWN LIMITS

PARISH OF ST. CLEMENTS

PARISH OF ST. PETER'S

26 30 34 40 46 53 61 65 69 1 23 4 3 6 7 8 9 10 11 12 13 14 15

LIGHT INDUSTRY

R

R

R

HEAVY INDUSTRY

LIGHT INDUSTRY

HEAVY INDUSTRY

CLOVERDALE ROAD

HIGHWAY NO. 4

M. PHILLIPS

MANITOBA AVE

YOUNG AVE

WALKER AVE

SELKIRK

STRATHNAVER

ANNIE ST.

EATON

AGNES ST.

THIRD ST.

SECOND ST.

RAILWAY ST.

G. P. R.

STATION

MERCY ST.

AGNES BAY

CATHERINE DOROTHY BAY

BARBARA

SI CLAIR

NE SON

STANLEY

CHRISTIE

ROAD

YOUNG



EAST SELKIRK.

DWG NO: 5

JUNE 1955 *ABM*

development, since the relatively small population and land areas produce less varied demands than in a large city.

3. Zoning Regulations

Included in the Town Planning Scheme prepared for Selkirk was the proposed legislation which, if adopted, would control and regulate the development and land use pattern within the town limits.

The proposed neighbourhood which forms the subject of this Thesis will be designed principally for single family homes, with some multiple family dwellings along the southern periphery. Listed below are some of the more important zoning regulations which will affect the author's design. They have been greatly condensed for the sake of brevity.

"R1" ONE-FAMILY DWELLING DISTRICTS

(a) Permitted Uses

One family dwellings
 Kindergartens and day nurseries
 Parks, playgrounds and tet-lots approved
 by the responsible authority (Town Council)
 Churches, Church Halls and Sunday Schools
 Libraries
 Home Occupations
 Signs for property identification only
 Accessory buildings when incidental to
 a permitted use.

(b) One Family Dwellings

(i)	Site Area, Minimum	5,000 sq. ft.
(ii)	Average Site Width, Minimum	50 ft.
(iii)	Height, maximum	2 storeys or 30 ft. whichever is the lesser.
(iv)	Front Yard, minimum	20 ft.
(v)	Side Yard, minimum	5 ft., this shall be 12 ft. if there is no garage. If the house is located on a corner site or a reversed corner site, the minimum side yard width on the street side will be 12 ft. and 15 ft. respectively.
(vi)	Rear Yard, minimum	25 ft.
(vii)	Site coverage, maximum	40%
(viii)	Parking facilities, minimum	1 parking space within the site, but not within the required front yard.
(ix)	Dwelling Unit Area, minimum	600 ft. - 1,050 sq. ft. Varies with the type of "R", district.

(c) Non Residential Buildings.**Site Area, Minimum:**

Kindergartens, day
nurseries, libraries

10,000 sq. ft.

Churches, church halls
and Sunday Schools

20,000 sq. ft.

Average Site Width,
minimum

100 ft.

Height, Maximum	45 ft.
Front Yard, Minimum	30 ft.
Side Yard, Minimum	15 ft.
Rear Yard, Minimum	
Churches, church halls and Sunday Schools	12 ft.
Other permitted uses	25 ft.
Site Coverage, Maximum	60%
Parking Facilities, Minimum	
For libraries, day nurseries and kin- dergartens	1 parking space for each employee.
For churches and church halls	1 parking space for each 10 seats in the auditorium on the site.

- (d) For Multiple Family Dwellings, the minimum site area will be 10,000 sq. ft. for the first four dwelling units per dwelling, plus 1,000 sq. ft. for each additional dwelling unit. In addition, the following regulations will apply.

Average Site Width, Minimum	70 ft.
Height, Maximum	3 storeys or 45 ft., whichever is the lesser.

Front Yard, Minimum	15 ft.
Side Yard, Minimum	15 ft. or one-half of the height of the building, whichever is the lesser.
Distance between adjacent buildings on the same site, Minimum	15 ft.
Rear Yard, Minimum	45 ft.
Site Coverage, Maximum	60%
Dwelling Unit Area, Average	600 sq. ft.
Parking Facilities, Minimum	1 parking space for each dwelling unit or sleeping room to be provided within the site or block.

Chapter Three

Utilities

The location of utilities such as sewers, watermains, storm water drainage, power and telephone lines all play an important part in determining the suitability for development of a site. Hence the following chapter will be devoted to a consideration of existing utilities and an investigation of those proposed future extensions which will affect the area chosen by the author for development into a neighbourhood.

1. Sanitary Sewers

In sewerage systems there is a general distinction made between the Separate System, in which domestic sewage and waste are fed through one system of pipes and storm water through another, and the Combined System, in which both sewage and storm water are fed through the same pipe. In between these two categories there is the Partially Separate System which handles sewage and some storm water, the rest being diverted by surface drainage and/or the strategic location of storm water overflows.

In Selkirk the older sewers fall into this last category, more by hazard than by choice. The first sewers were built in 1908 and were designed originally as a Combined

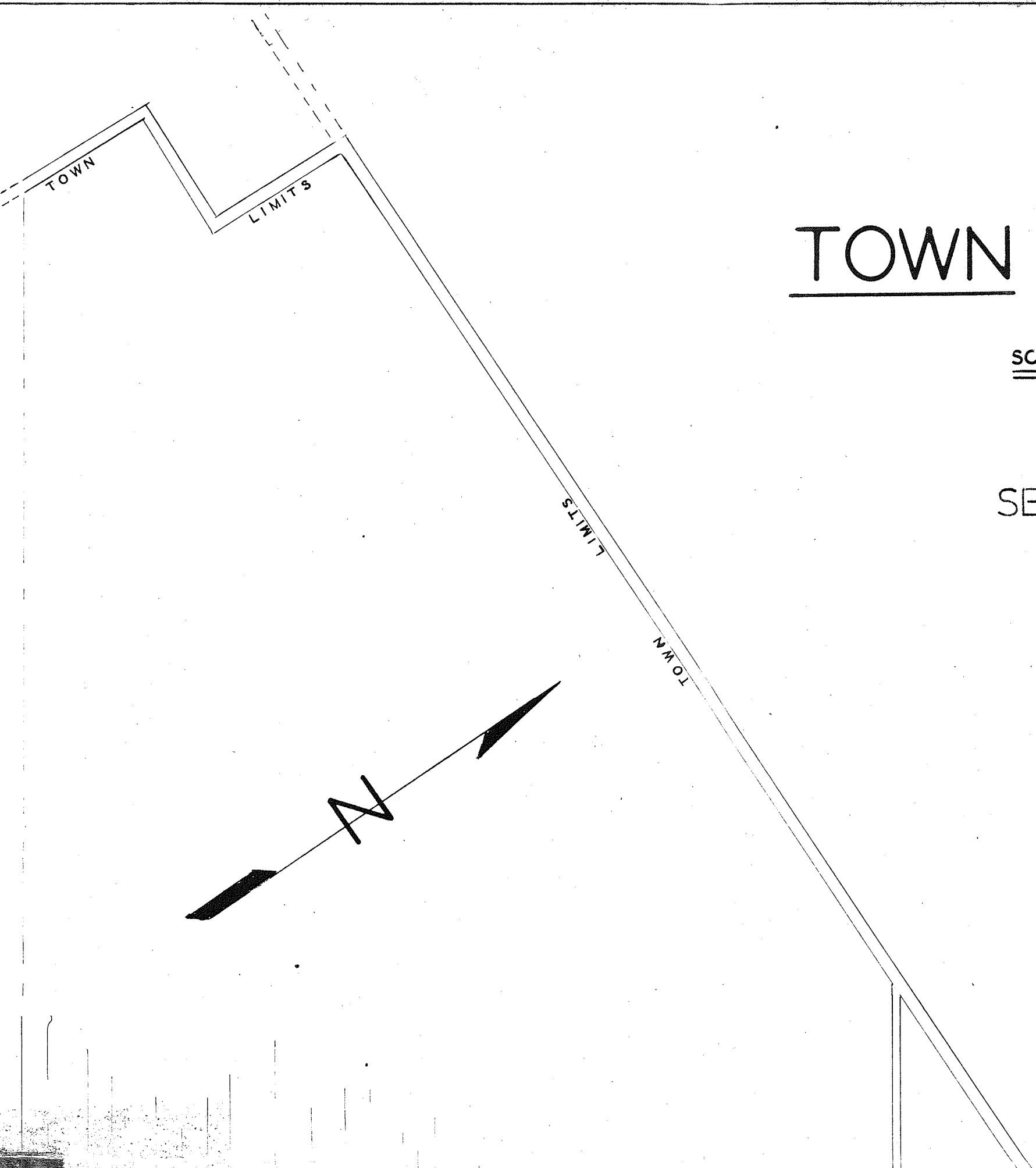
System. Later on others were added which did not conform to the original plans, a number of these being virtually Separate sewers to which were added catch basins to alleviate the poor drainage of localized areas. Such stop-gap measures were adopted in order to give a certain amount of service to the people at the least cost, especially during the Depression years when funds were low. They worked well enough for a good number of years, but recently, rapid development of the town coupled with an increase in paved areas have necessitated the duplication of lines on certain streets.

The existing sewerage system is shown on drawing No. 6.

2. Storm Water Drainage

At the present time there is only one distinct storm sewer in Selkirk. Constructed in 1959, it flows east on Rosser Avenue from Main Street to the Red River with sub trunks extending north and south on Main Street as far as Stanley Avenue and Grain Avenue, respectively. Stubs have been constructed at the intersections on Main Street to catch future laterals and the diameter of the outfall is 66".

This storm sewer has been designed to serve the drainage area bounded by McLean Avenue to the north and Strathnaver to the south, and extending from the Red River to the western



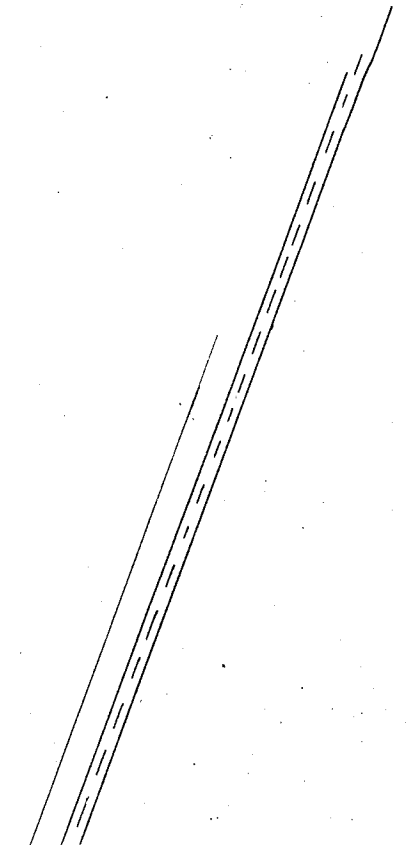
TOWN OF SELKIRK

SCALE 1" = 1000 FT.

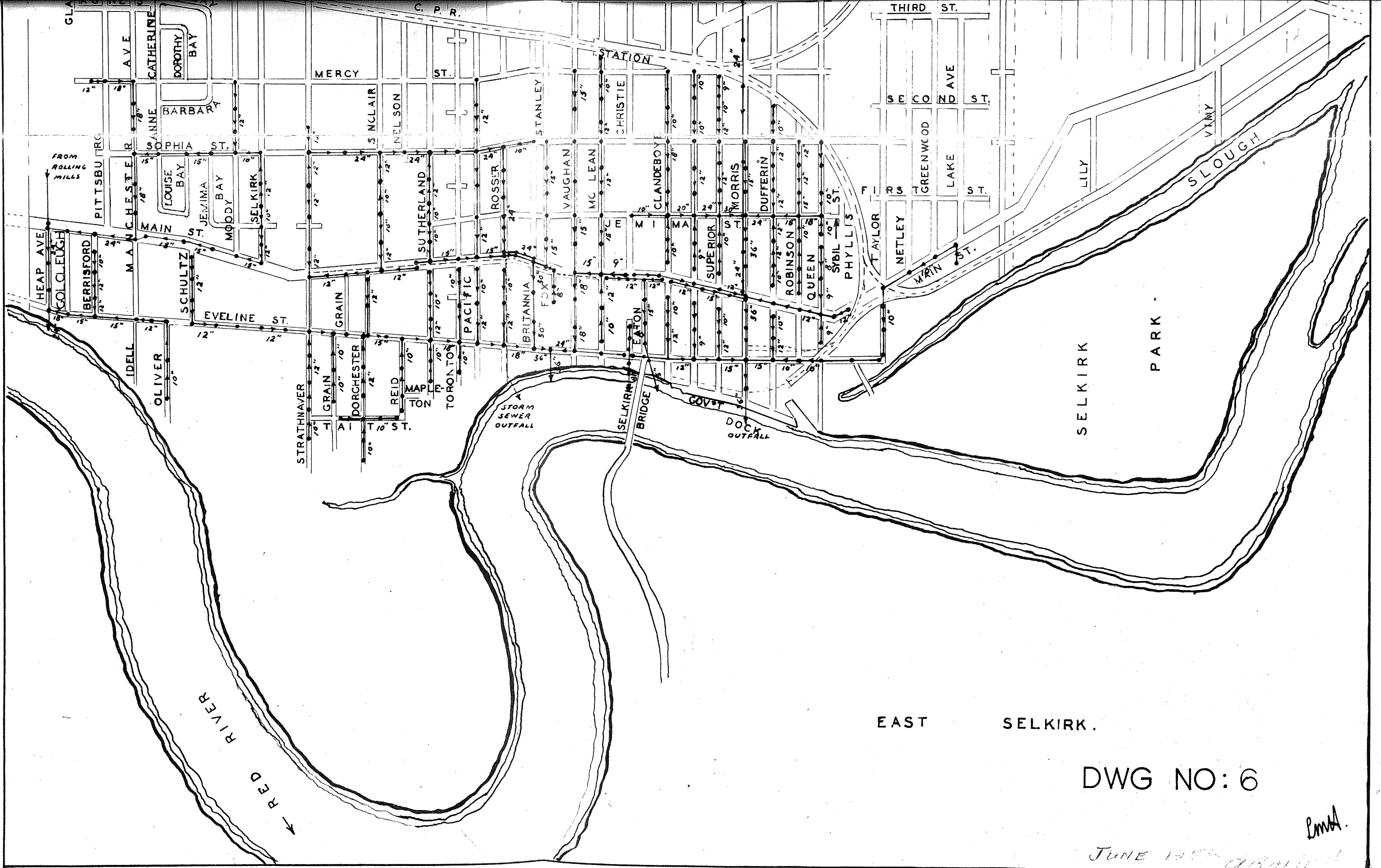
SEWERAGE SYSTEM

LEGEND

-
-
-







EAST SELKIRK.

DWG NO: 6

JUNE 1950
EMA

limits of the town. It is likely that for future storm sewers the town will be divided into three or four similar drainage areas, each of them bisected by a main trunk with sub trunks extending along these streets which run in a north south direction. Throughout the town catch basins which at present connect to existing sanitary sewers will be picked up by these future storm sewers as they are constructed.

Thus all storm water collecting in the site of the proposed neighbourhood will be channelled into these main trunks by catch basins feeding into laterals, or by sloping the pavement of the streets so as to funnel the water along the gutter to catch basins located near the sub trunks.

3. Watermains

The location of the existing watermains in Selkirk is shown on drawing No. 7.

The present supply of water is being obtained from deep wells located on Jemima Street at the intersection of Christie and McLean Avenues. Water from these wells is pumped up to an elevated storage tank and chlorinated before distribution.

This water supply has been unsatisfactory since its inception because it is extremely hard and also contains

iron and other chemicals, which give rise to taste and odour problems. In order to obtain a more satisfactory supply the Town Council authorized a firm of Consulting Engineers to investigate alternative sources, and as a result two different schemes were proposed: one was to construct a pipe line from the Greater Winnipeg Water District aqueduct south of Transcona, the cost being shared by the different municipalities which would benefit from this pipeline, and the other was to obtain water from the Red River.

Neither of these schemes was recommended. The pipe line proposal necessitated high capital costs and although the water did not require treatment, the great length involved would require a pumping station at the Selkirk end to boost pressures in the distribution mains and extra large storage to ensure adequate protection from breaks in the line. As for the second proposal, the Red River is so polluted that it makes satisfactory treatment of its water uneconomical.

"The records of the town wells and of those of the Manitoba Rolling Mills and the Provincial Hospital (show) that the total removal of water at peak pumping rates is approximately 3,000 g.p.m. This withdrawal has taken place for many years without any significant effect in the static level of the ground water."

(5 - p.4)

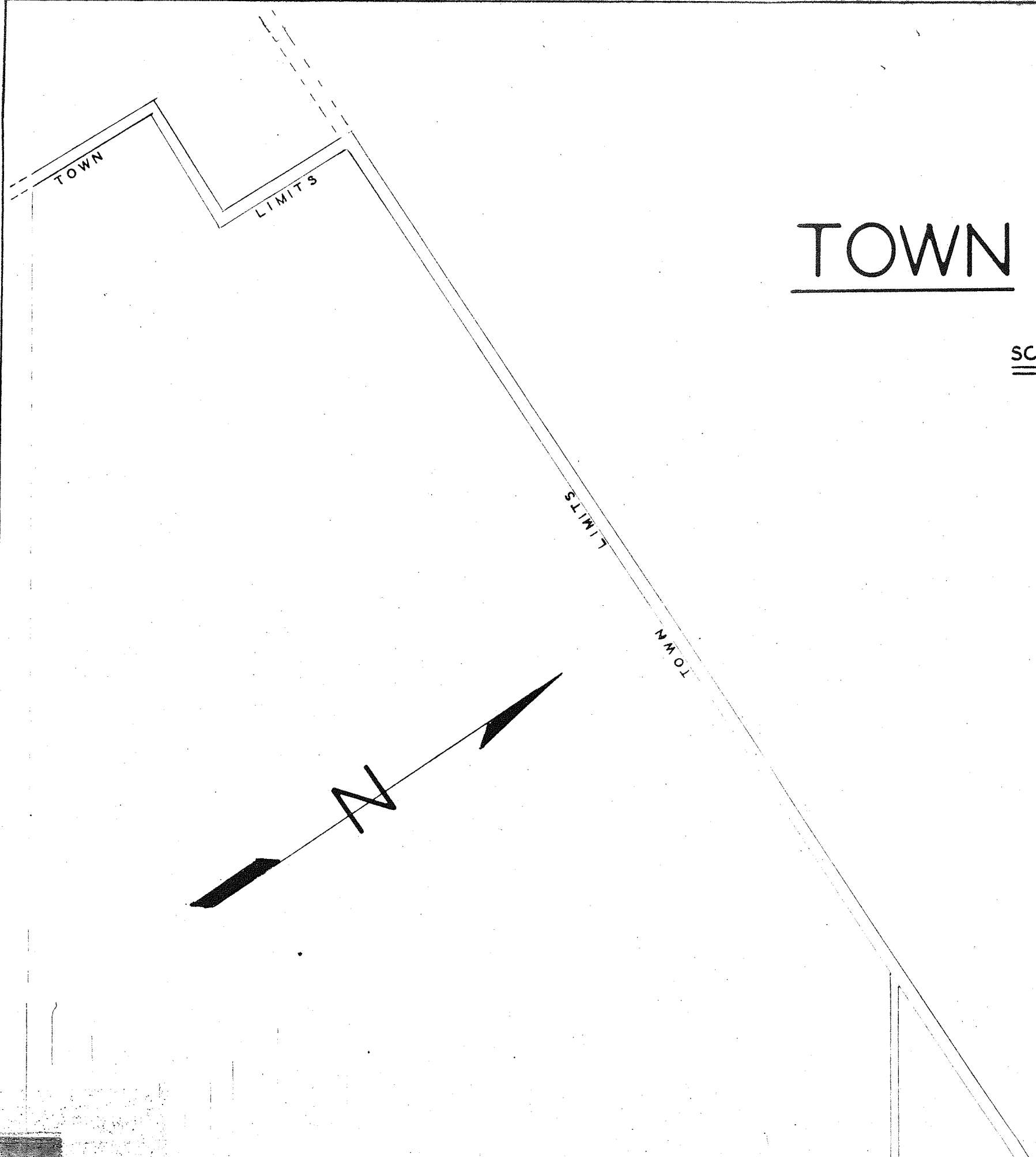
Thus it has been recommended that

the water supply for Selkirk continue to be obtained from deep wells, and also that a water softening and iron removal plant be provided, together with a combination of ground and elevated storage.

The advantages of elevated storage are that it produces a constant head in the distribution mains and saves on the pumping time; i.e., water need only be pumped up to the tower during off-peak periods if the demand is normal. Ground storage requires either continuous pumping or, if the population served is small, a hydro-pneumatic tank with intermittent pumping will suffice.

A combination of these two systems was recommended because, for a given volume of water, elevated storage alone is more expensive than ground storage.

Many of the existing watermains of Selkirk share the same fault of its sewerage system in that they were laid to meet temporary demands with no thought of establishing a major network of feeder mains to which minor ones would be connected. The proposed future lines shown on drawing No. 7 are an attempt to remedy this. The given sizes of these future mains are mostly the result of guesswork and may differ a little from those finally adopted when a comprehensive flow network calculation has been worked out for the whole town, based on




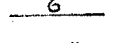
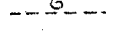


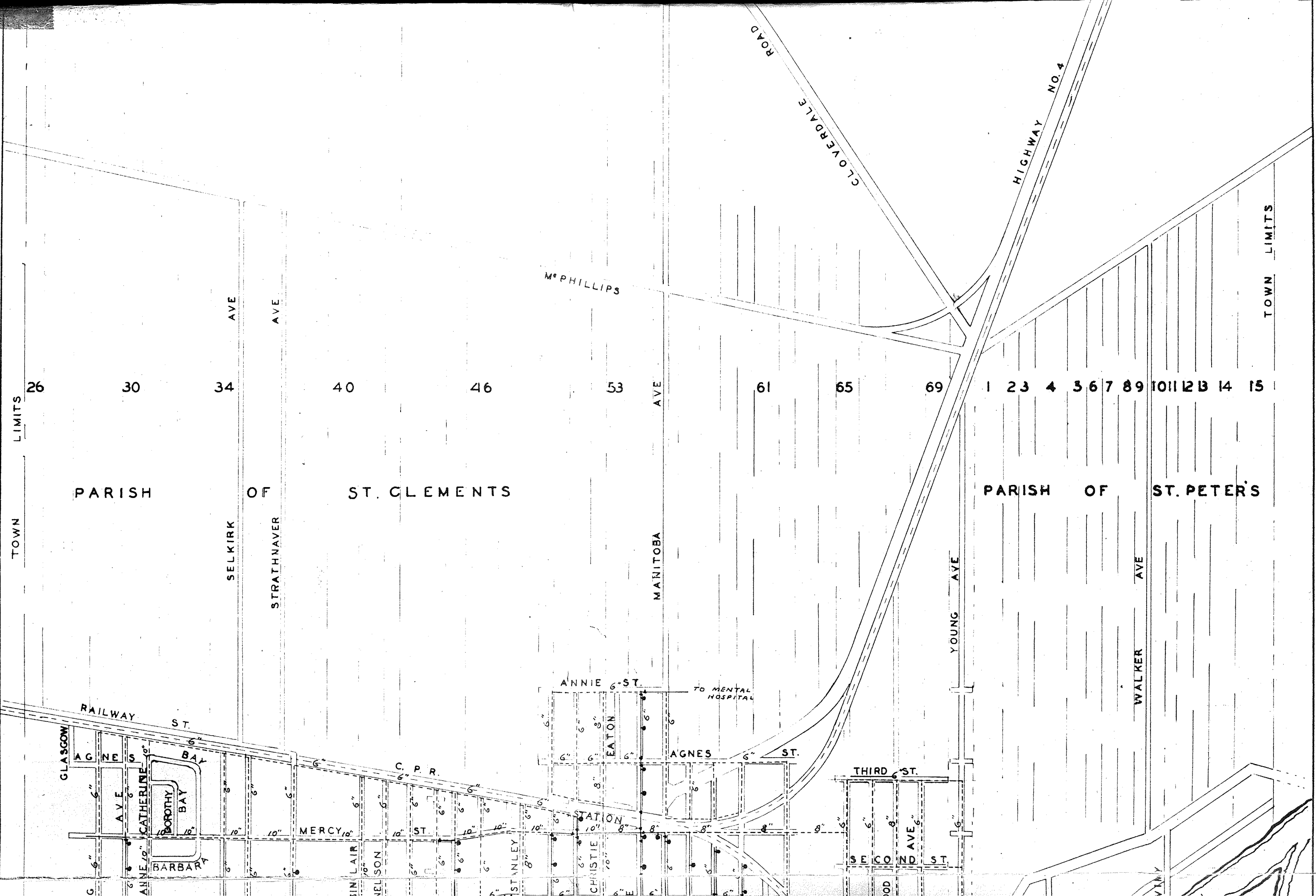
TOWN OF SELKIRK

SCALE 1" = 1000 FT.

WATERWORKS

LEGEND

-  Hydrant
-  Valve
-  Public Tap
-  6" Existing Watermains
-  6" Future Watermains



TOWN LIMITS

TOWN LIMITS

PARISH OF ST. CLEMENTS

PARISH OF ST. PETER'S

SELKIRK AVE
STRATHNAVER AVE

MANITOBA AVE

YOUNG AVE

WALKER AVE

26 30 34 40 46 53 61 65 69 1 23 4 5 6 7 8 9 10 11 12 13 14 15

ROAD
CLOVERDALE

HIGHWAY NO. 4

M^{rs} PHILLIPS

ANNIE 6" ST.

TO MENTAL HOSPITAL

EATON

AGNES 6" ST.

THIRD 6" ST.

SECOND ST.

RAILWAY ST.

GLASGOW

AGNES BAY

CATHERINE

DOROTHY BAY

BARBARA

MERCY 10" ST.

MIN LAIR

NELSON

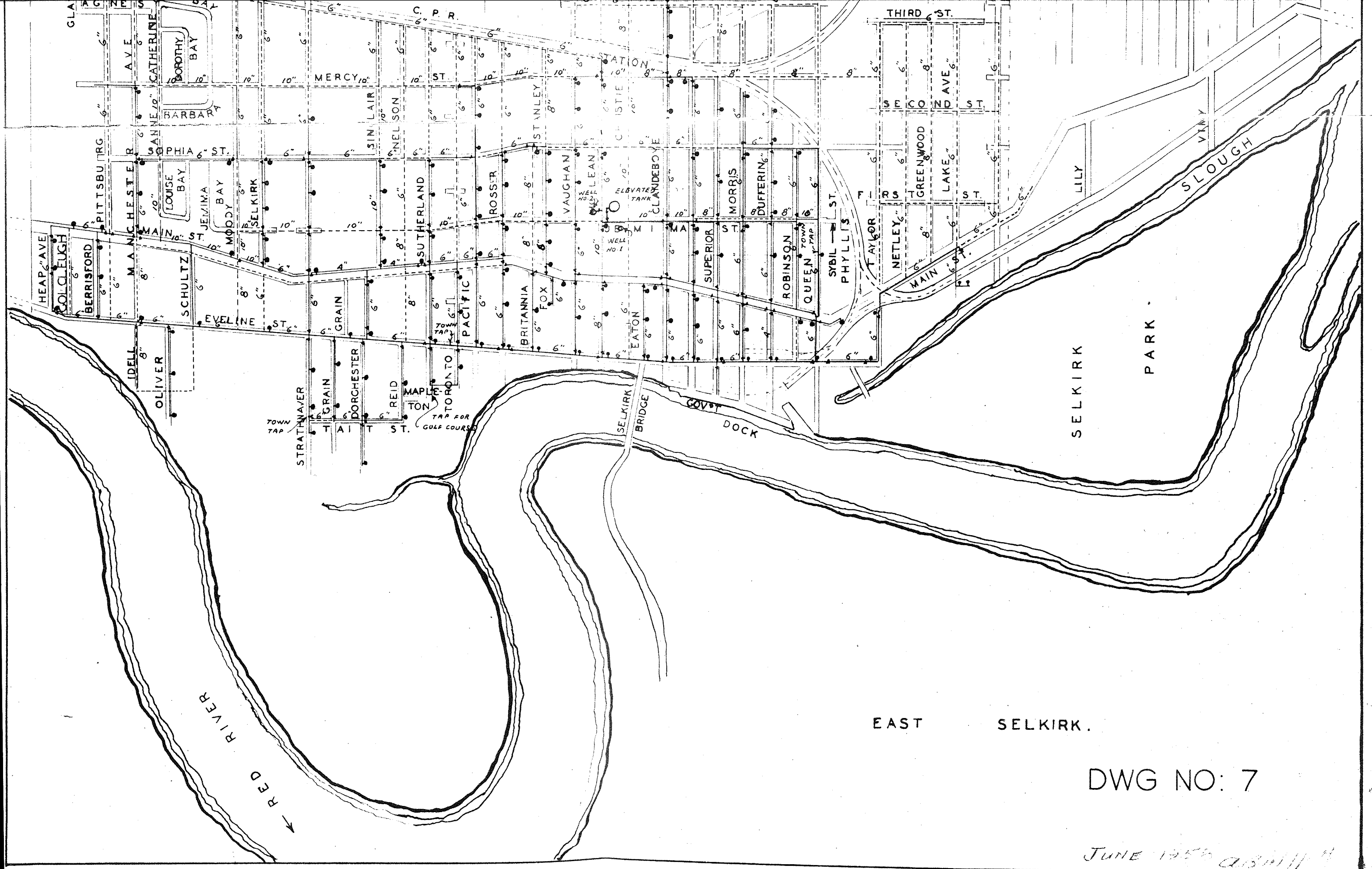
STANLEY

CHRISTIE

STATION

OD

VTNY



EAST SELKIRK.

DWG NO: 7

JUNE 1950 *alsh*

anticipated future demands.

Feeder mains will cross the C.P.R. tracks at Vaughan, Pacific, Strathnaver and Manchester Avenues to connect the proposed neighbourhood with the present distribution.

4. Telephone System and Power

Telephone service is provided by the Manitoba Telephone System. At present, existing lines are almost loaded to capacity, but as the town develops new ducts will be added to the present exchange. It is anticipated that if the town continues to develop at a normal rate this exchange will last for another 10 years, after which time a larger one will be necessary.

Power is purchased from the Manitoba Power Commission and distributed through a municipally owned system. The Manitoba Hydro-Electric Board have recently constructed a thermal type generating station in East Selkirk which will have a first stage capacity of 132,000 Kw; thus the availability of power for all and any purposes will present no problem.

Chapter Four

Market Analysis

In this chapter an attempt is made to predict the development of Selkirk and to assess the ultimate potential market for new homes.

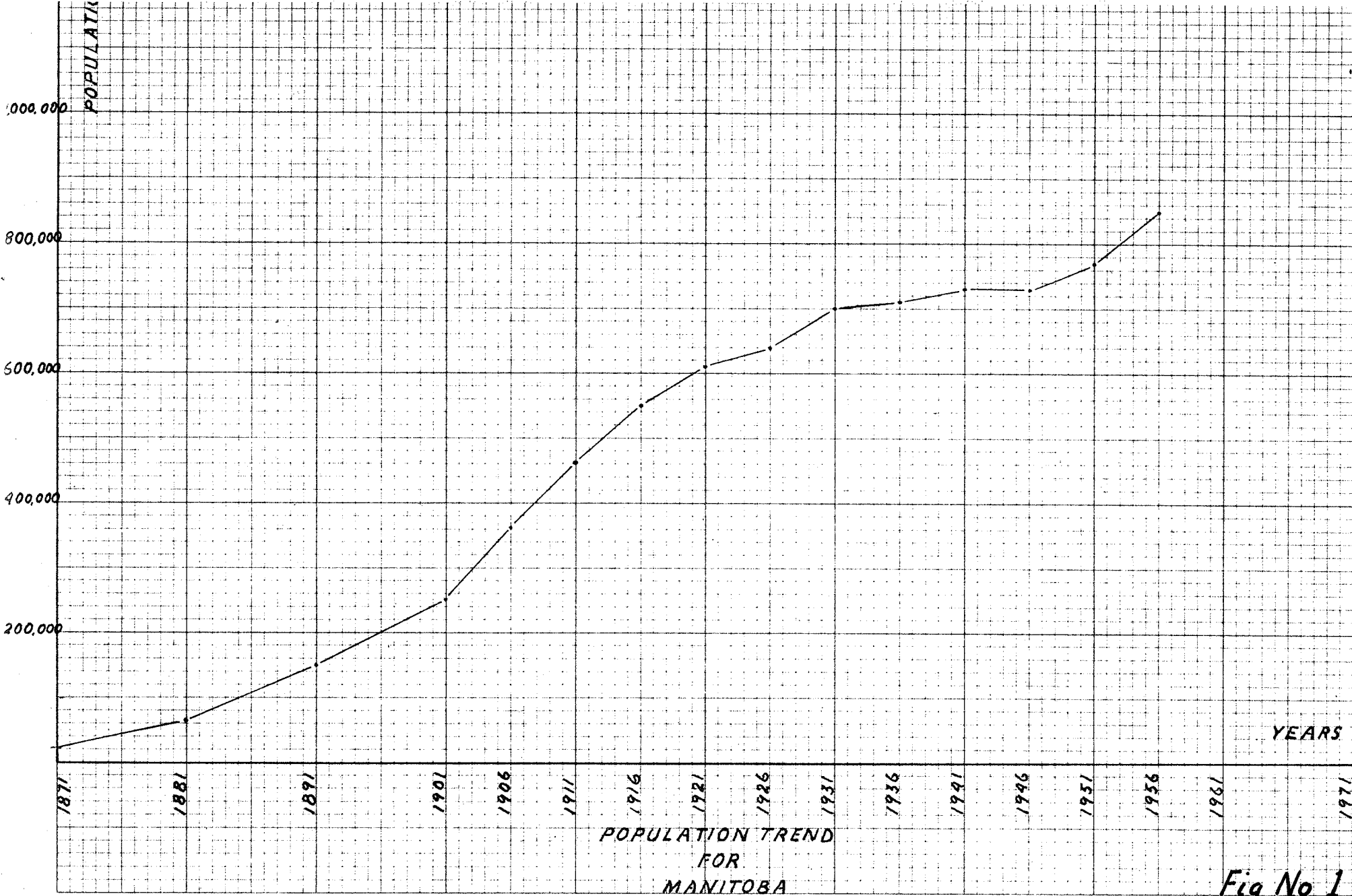
An analysis of this sort is based on population statistics, graphs and any outside factors which not only could influence the town's development, but in some cases are its raison d'etre. For instance a town which owes its lifeblood to a single major industry like mining or auto manufacturing might deteriorate and die if for any reason the latter had to close down. Conversely a small settlement with a very bleak future could boom overnight with the introduction of an economically healthy industry.

The findings of such an analysis should not be taken as gospel. They serve only as an indication of possible future development.

1. Population Trend

Fig. No. 1 gives the population of the province of Manitoba for the years 1871 to 1956.

It will be noted that during the War Years of 1941 to 1946, the Selkirk population increased, whereas the population



POPULATION TREND
FOR
MANITOBA
1871-1956

Fig No 1

TOWN OF SELKIRK POPULATION TREND

POPULATION

16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0

YEARS

1881 1891 1901 1911 1921 1931 1941 1946 1951 1956 1961 1971 1981

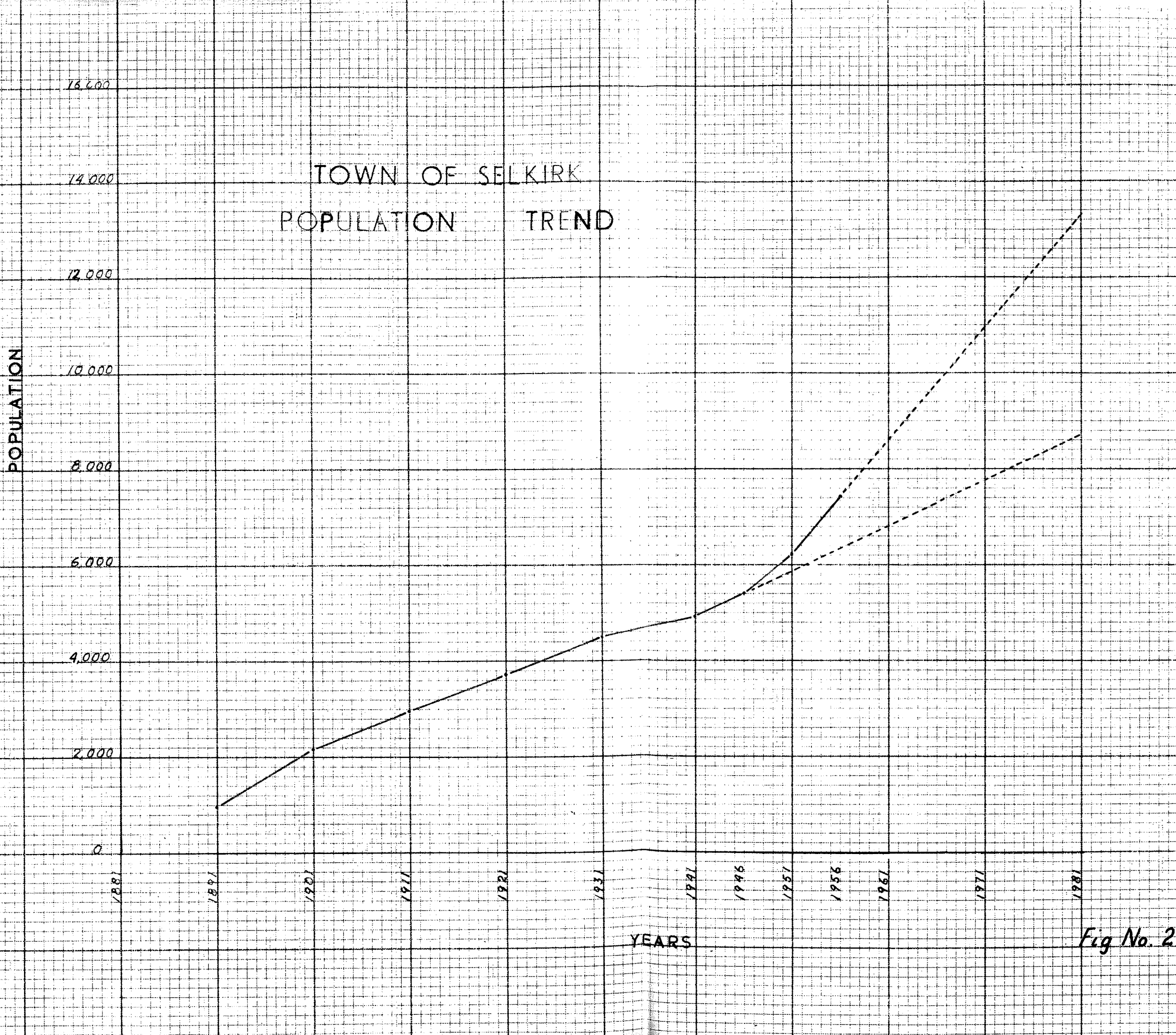


Fig No. 2

of Manitoba showed a slight decrease. Also from 1946 to 1956 the Selkirk population graph has a steeper slope than that of Manitoba, indicating a more favourable rise in population:-

In the years 1946, 1951 and 1956, the population of Manitoba was 727,000, 776,541 and 850,040 respectively*, giving percentage increases of 6.81 and 9.46. During the same years the population of Selkirk was 5,408, 6,218 and 7,413*, with percentage rises of 14.9 and 19.2 for the same five year periods.

* Figures obtained from the Dominion Bureau of Statistics.

The natural increase in population of the town may be obtained by subtracting the deaths from the births in any one year. In Table I, these figures, obtained from the Vital Statistics Division of the Department of Health, have been grouped into five year totals to correspond with the Census periods. Subtracted from the Census increase they give the migration into the town. Thus we see that during the years 1941 to 1956 there has been a steady influx of people into Selkirk.

Fig. No. 2 is a Population Graph of Selkirk from 1891 to 1956, the last Census year. By projecting the graph a minimum population of 8,700 and a maximum population of 13,300 in 1981 is obtained.

TABLE I

Year	Births	Deaths	Natural Increase	Total Popul.	Popul. Increase	Migration into town
1941	85	84		4,915		
1942	112	84				
1943	119	103				
1944	88	86				
1945	103	114				
	<u>507</u>	<u>471</u>	36		493	457
1946	104	82		5,408		
1947	129	87				
1948	160	93				
1949	139	81				
1950	137	36				
	<u>669</u>	<u>379</u>	290			810
1951	155	50				
1952	191	51				
1953	194	53				
1954	203	63				
1955	195	60				
	<u>938</u>	<u>277</u>	661		1,195	534
1956				7,413		

Considering the above mentioned facts and the general prosperity of the town at present, the author has selected 12,000 as the probable population in 20 years' time.

2. Population Characteristics

An opinion shared by some authorities on planning is that no town plan should be attempted without a sociological survey. The importance of such a survey will no doubt vary for different locales and circumstances, but in all cases this importance cannot very well be ascertained until at least a preliminary investigation is carried out.

The way of life and religion of a group can influence its taste, and consequently the market. The ethnic origins of the population of Selkirk have already been mentioned in Chapter I, and Table II on page 42 gives the grouping by religious denominations. It will be seen that no group with unusual characteristics is prominent enough to merit special consideration.

Table III gives the grouping by age. 37.7% of the total population are between the ages of 20 and 44. It is probable that the greatest market for new homes will be found in this bracket since people younger than 20 cannot usually afford the necessary down-payment and people older than 44 are usually already settled.

TABLE II

POPULATION OF SELKIRK BY RELIGIOUS DENOMINATIONS

(6 - p.41.63)

<u>Baptist</u>	<u>Church of England</u>	<u>Greek Orthodox</u>	<u>Jewish</u>	<u>Lutheran</u>	<u>Mennonite</u>	<u>Presbyterian</u>	<u>Roman Catholic</u>	<u>Ukrain. Catholic</u>	<u>United Church of Canada</u>	<u>Other</u>
63	1,783	131	87	872	41	718	866	551	902	204

Total

6,218

TABLE III

POPULATION OF SELKIRK BY AGE GROUPS

(6 - p.23.58)

<u>0 - 4 yrs.</u>	<u>5 - 9 yrs.</u>	<u>10 - 14 yrs.</u>	<u>15 - 19 yrs.</u>	<u>20 - 24 yrs.</u>	<u>25 - 34 yrs.</u>	<u>35 - 44 yrs.</u>	<u>45 - 54 yrs.</u>
655	529	401	422	484	937	926	706
		<u>55 - 64 yrs.</u>	<u>65 - 69 yrs.</u>	<u>70 and over</u>	<u>Total</u>		
		565	240	353	6,218		

3. Labour Force

According to the 1951 Census, which gives the most recent figures, the town has a labour force of 1,523 males and 566 females. This represents 33.5% of the total population. In one sample week, ending 2nd June, 1954, 1,480 males and 555 females were employed, showing remarkably low unemployment. (7 - p.3-17)

Table IV gives the occupation groups for persons 14 years of age and over. In the professional field the women outnumber the men probably because of the Mental Hospital, which employs over a hundred female nurses.

In addition to its resident labour force Selkirk draws upon the reserve of workers in the surrounding districts and in nearby Winnipeg.

In Table V the labour force has been grouped according to income. Out of a total of 1,877 wage earners, 287 were earning more than \$2,500 per annum. Bearing in mind the 1951 cost of living it is safe to assume that almost all potential home buyers will come from this group.

TABLE IVLABOUR FORCE, 14 YRS. AND OVER, BY OCCUPATION GROUPS

(8 - p.9.15)

<u>All Occupations</u>		<u>Proprietary & Managerial</u>		<u>Professional</u>		<u>Clerical</u>		<u>Agricultural</u>	
<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
1,523	566	126	15	73	140	80	104	36	1
				<u>Other Primary</u>					
				<u>M</u>	<u>F</u>				
				42	2				

TABLE VWAGE EARNERS BY AMOUNT OF EARNINGS

(7 - p.16.18)

<u>-500</u>		<u>500 - 999</u>		<u>1,000 - 1,499</u>		<u>1,500 - 1,999</u>		<u>2,000 - 2,499</u>	
<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
96	125	119	132	131	160	290	70	402	26
				<u>2,500 - 2,999</u>		<u>3,000 - 3,999</u>		<u>4,000 and over</u>	
				<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
				169	3	84	1	30	-

4. Housing and Family Size

In 1951 Selkirk had a total of 1,320 occupied dwellings, of which 1,015 were owner occupied and 305 were tenant occupied. Of these 1,190 were single dwellings and the Present Land Use Map (drawing Number 4) shows that few multiple family dwellings such as duplexes or apartment blocks have sprung up since then. There is thus a very real shortage today in rented accommodation and this fact has been verified by conversation with the Secretary-Treasurer, various Councillors and inhabitants of the town.

This scarcity of rented accommodation was even more acute during the recent construction of the \$25 million Power Project by the Manitoba Hydro-Electric Board on the east side of the Red River, adjacent to East Selkirk. The ensuing influx of construction workers was, however, only temporary, and cannot be considered in a long term market analysis.

Of the 1,320 occupied dwellings in 1951, 200 were in need of major repair. A cursory glance at the present housing shows that the situation has not improved much, but time unfortunately has prevented a more detailed survey.

The average number of persons per dwelling in Manitoba has shown a steady decline in the post-war years, from 4.46 in 1941 to 3.83 in 1951 and the average in Selkirk in 1951 was 3.7.

(9 - p.1.1)

(9 - p.129.20)

Thus it should be safe to assume a figure of 3.5 persons per dwelling for future use.

5. Environmental Factors

Because Selkirk is located only 18 miles north east of Winnipeg, its development is bound to be affected to a certain extent by that of the provincial capital.

The population of Metropolitan Winnipeg, from 1946 to 1958, has been as follows:

TABLE VI *

<u>Year</u>	<u>Population</u>	<u>Increase</u>	<u>Percentage Increase</u>
1946	307,494		
1951	354,069	46,575	15.14%
1956	409,121	55,052	15.54%
1958	426,871	17,750	4.33%

* Information obtained from
Metropolitan Planning Commission.

On page 39 the population of the town was shown to have risen by 14.9% and 19.2% for the 5 year periods 1941 to 1956. Thus some relationship between the two centres can be detected.

Considering the rate of growth of Winnipeg in recent years and current trends towards decentralization it is not unreasonable to expect that some time in the future Selkirk will become a suburb of Winnipeg. The exact date of such a happening is hard to predict since so many unknown factors and assumptions enter into the picture.

Since Selkirk enjoys healthy industries of its own, as mentioned in Chapter One and since this state of affairs will be improved even more by the presence of the Selkirk Power Project (to be discussed in the next section) it is the author's opinion that the town will not degenerate into a "dormitory town", which has been the fate of so many towns located too close to a sprawling metropolis.

6. The Selkirk Generating Station

This thermal type generating station is the second largest of its kind to be built in Manitoba by the Hydro-Electric Board, and occupies a 450 acre site adjacent to East Selkirk. Its capacity at the first stage of its development will be 132,000 kilowatts, with a possible ultimate capacity of 1,000,000 kilowatts. Should atomic power costs in the future indicate the advisability of using nuclear reactors in place of fossil fuels, it is quite possible that additional units may be fueled atomically.

Construction began in May 1957 and it is estimated that the plant will be fully operational by the fall of 1960. The total number of persons employed at that stage will be 72. However, apart from 4 or 5 employed as coal yard attendants and caretakers, all will be skilled or professional. As Selkirk will not be able to supply many people with the desired qualifications it is unlikely that the plant will have much effect on local employment.

It will however affect the town in two major aspects:

- (i) The monthly payroll of the plant will be in the region of 30,000 dollars;
- (ii) The extra capacity of power, so conveniently located, should serve to attract new industries to Selkirk.

On this second score it should be mentioned that Manitoba has the second lowest power rates in Canada. The revenue per kilowatt hour in 1956 for the different provinces - according to the Dominion Bureau of Statistics publication "Central Electric Stations" - is shown below in Table VII.

TABLE VII

<u>Province</u>	<u>Revenue/kw.hr.</u>	<u>Province</u>	<u>Revenue/kw. hr.</u>
Newfoundland	\$ 0.92	Ontario	\$0.97
Prince Edward Island	4.12	<u>Manitoba</u>	<u>0.84</u>

TABLE VII - Cont.

<u>Province</u>	<u>Revenue/kw. hr.</u>	<u>Province</u>	<u>Revenue/kw. hr.</u>
Nova Scotia	\$1.94	Saskatchewan	\$2.77
New Brunswick	1.93	Alberta	1.94
Quebec	0.78	British Columbia	1.73
	Canada		\$1.04

7. Financial Situation of Selkirk

Selkirk is in an excellent financial state. The actual taxable assessment in 1960 on lands, buildings and personal property, exclusive of the business rental assessment, is \$8,744,000, and the total tax mill rate in 1959 (including the general mill rate, school and other special mill rates) was 42 mills.

The business rental assessment is taxed on a special rate which is fixed annually. Although the Municipal Act allows up to 15%, the current business rental rate levied by the town is only 8%.

The equalized assessment, which is fixed by the Provincial Assessor from statistical information filed by the town every two years, is \$6,870,000.

As a further proof of Selkirk's financial soundness its budget for 1959 is quoted here:-

Budget for 1959

Public Works	\$102,470.00	
Protection	64,220.00	
Social Service	28,000.00	
Administration	50,125.00	
Miscellaneous	7,300.00	
Recreation	24,990.00	
Plant & Equip.	11,000.00	
Reserve for loss	7,209.73	
Schools	167,678.72	
Debentures	48,600.54	
Debentures Int.	21,830.32	
Hospital	9,201.83	
Deferred Levy	10,000.00	
	<u>\$552,826.14</u>	
Tax Levy	416,826.14	
Other Revenue	134,000.00	<u>\$552,826.14</u>

8. Conclusion of Market Analysis

There is a definite demand for housing in Selkirk at present, but enough vacant land exists in the south end of town and east of the Canadian Pacific Railway tracks to cope with immediate requirements.

In conclusion one can justifiably say that the generally sound market, population and employment conditions will allow the implementation of the proposed subdivision in the near future.

Chapter Five

Neighbourhood Planning

1. Definition

The neighbourhood idea can be traced back to the 19th century. The first practical proposal appeared in Howard's "Tomorrow", published in 1898, whose ideal town of 30,000 inhabitants was divided into six "wards", each of which was to contain a school, church and shops. In 1907 Sir Raymond Unwin and Barry Parker pioneered the first planned neighbourhood by their design of Hampstead Garden Suburb, in Britain.

Three years later in the United States, Clarence Perry proposed a neighbourhood on much the same lines, the main difference being that its size was governed by the population that would support an elementary school. He was motivated by the idea of using the school buildings for community functions after school hours and during the summer months.

"He believed and demonstrated that the school, if properly conceived, could be used to bring the people of a school district together, and to generate social consciousness."

Some authorities maintain that "except in the siting of shops Perry's arguments and diagrams show strong evidence of Unwin's influence."

(11 - p.113)

(10 - p.9)

In recent years the validity of this theory has been questioned, the contention being that physical conditions alone do not determine social relations and that a neighbourhood is too large to foster a collective sense of neighbourliness. However, until more research has been done by sociologists in this field the idea cannot be rejected completely.

In this Thesis a neighbourhood is defined as "an urban unit", large enough to support an elementary school, and so (10 - p.9) designed that its residents derive the greatest benefit from its component parts, viz. the traffic circulation system, built-up and open spaces, buildings sites, recreational, educational and social welfare facilities.

2. Characteristics of the Neighbourhood

"The neighbourhood unit possesses a distinct unity characterized by four strictly local factors:

1. A centrally located elementary school which will be within easy walking distance - no more than one half mile from the farthest dwelling.
2. Scattered neighbourhood parks and playgrounds to comprise about 10 per cent of the whole area.
3. Local shops to meet daily needs, grouped together at accessible points on the periphery of the neighbourhood.

4. A residential environment - that community - created resultant, the product in part of a harmonious architecture, careful planting, centrally located community buildings, and special internal street systems with deflection of all through traffic, preferably on thoroughfares which bound and clearly set off the neighbourhood."

(12 - p.16)

A contribution of 10% of the total area towards parks and recreation is not always feasible, particularly if the area will be developed by different entrepreneurs, and at different times. It is, however, a desirable standard towards which one should aim.

The siting of the open space is as important as its size. It can take the form of a centrally located park, or it can be split up into several parts which are distributed throughout the neighbourhood, preferably along the lines of the "green wedge" system. In either case the overriding criterion is that every inhabitant of the community should have easy and convenient access to a park.

The location and size of the shopping centre will be determined by the market area it serves. Because these centres operate on a low profit margin, they should be at least three-quarters of a mile from the nearest existing shopping area. Adequate parking space is essential and it is desirable to have some form of screening between the centre and adjacent residential lots in order to minimize fears of lowering the land values of the latter.

3. Size of the Neighbourhood

In the proposed zoning map for Selkirk, 418 acres west of the Canadian Pacific Railroad tracks were zoned as residential. It has been mentioned previously that the author proposes to develop this area into a complete neighbourhood.

According to the definition stated above the size of a neighbourhood is determined by the population that will support an elementary school. "The smallest unit population that can supportthe elementary school is considered to be approximately 4,000 persons." Bearing in mind that the present population is about 8,000 and that in Section 1 of Chapter Four it was predicted that the number of inhabitants in 1980 would be 12,000, a figure of 5,000 will be taken as the ultimate possible population of the proposed neighbourhood.

The density will be about 12 persons per gross acre, which is a good deal less than the recommended maximum of 18 - 19. It will thus be possible to lay out large lots without (10 - p.27) encroaching upon the desirable amount of open space; i.e. 10% of the total land available for development.

However, although the price of land in Selkirk is comparatively cheaper than in our major cities, the cost of constructing utilities still remains fairly high and extra large lots would require extended lengths of sewers, water-mains, power lines, etc. Therefore, the average lot size will be kept between the limits of 6,000 - 7,000 sq. ft. and an attempt will be made to incorporate extra open space along the southern and eastern limits of the area to act as buffer strips between residential and industrial zones.

4. Street Layout

A good functional and economical layout of streets is of prime importance.

The prevalence of the automobile in this country brings in such considerations as safety and convenience, and other factors such as noise and the glare of headlamps. Adequate access must be provided to the neighbourhood from the surrounding districts, and within the neighbourhood itself

residences must be interlinked with community facilities. Besides these considerations of convenience, function and maximum land utilization, the aesthetic effect of well designed streets which afford a variety of outlooks and pleasant vistas should not be overlooked.

"Neighbourhood streets should carry only that traffic which either originated in the neighbourhood or therein finds its destination." Guided by this principle, an attempt will be made to link local streets with the peripheral highway at as few points as is consistent with convenience, and to distinguish clearly between major and minor streets. Also, to discourage through traffic within the neighbourhood, the layout will be such that no street within the neighbourhood can be used as a short cut between two points outside it.

Curved streets are aesthetically desirable, but bearing in mind that excessively curved streets increase the cost of utilities; e.g., necessitating extra manholes for the sewerage system, a compromise will be made between aesthetics and economy.

Other guiding principles of the design will be the provision of adequate parking and of convenient and safe pedestrian circulation. Cross intersections will be avoided as much as possible; the intersections of adjacent street lines

will be kept between the angles of 90° and 75° and the T intersections thus formed will be kept far enough apart so as not to create traffic hazards. Streets will be adjusted to topography so as to facilitate drainage.

Street lighting is also important. However, no attempt will be made to incorporate this into the design as the author feels that this field is beyond the scope of this Thesis.

Chapter Six

Selection of Site

"The purpose of selecting a site for residential development may be summarized as follows: to procure a site which is suitable for physical development, including installation of utilities; for provision of dwellings, circulation system and neighbourhood community facilities in a well planned relation (all within the economic means of a definitely visualized group of families); and which is free from any grossly unfavourable environmental factors."
(13 - p.4)

In previous chapters it has been stated that the proposed subdivision will be located west of the Canadian Pacific Railway tracks in Selkirk. More exactly, this subdivision, designed as a complete neighbourhood, will occupy an area of approximately 425 acres, bounded on the east by the railway, on the north by Manitoba Avenue and on the south by Manchester Avenue. The western boundary will be formed by a north south projection of Manchester which will take the role of a peripheral highway, joining Manchester at the Canadian Pacific Railway right-of-way to Manitoba.

The following pages will show that the area chosen for the proposed development fulfills most of the basic requirements for such a site

1. Location and Environment

The General Development Plan for Selkirk shown on drawing No. 5, indicates that the site lies in an area which has been zoned as residential. This is an important consideration for zoning implies the enforcement of legislation designed to guide future development and the developer will be subject to this legal control of land use.

Land to the east and west has been zoned as residential and agricultural respectively, and to the north the grounds of the Selkirk Mental Hospital will remain as open space, so that no adverse effects can be expected from these adjacent areas. Land to the south has been zoned as "Light Industrial", but this has been remedied in the design by placing an adequate buffer strip along the southern boundary of the development.

The proposed neighbourhood will develop westward from the tracks. This is the logical order since existing utilities are to be found just east of the Canadian Pacific Railway right-of-way. Ultimately the neighbourhood will have its own

community centre, shops, church and elementary school, but during the initial stages of its development, the first homes built will be no further than half a mile from existing facilities in the town.

2. Availability of Utility Services

"No factor in site selection is more important than the availability of water, sanitary and storm sewers, electricity, gas and public transportation. Not only should the lines for these services be at or near the site, but they should also be of adequate capacity to carry the increased load of the new development and future development of the surrounding tributary area."
(4 - p.15)

The existing utilities and those proposed extensions which will affect the subdivision have already been dealt with in Chapter Three, so no more than a general summary will be given here.

The presently developed part of Selkirk will be divided into four or five drainage areas which will extend

westward beyond the limits of the subdivision site and the storm sewer trunks in each area will be designed large enough to serve these areas in their entirety. Feeder watermains have been proposed to cross the tracks at Manchester, Strathnaver, Pacific and Vaughan, so that water is readily available and it will remain only to design a watermain network for the subdivision which will tie in with these feeders.

Because there is very little variation in the level of the site, only that portion close to the tracks will feed by gravity into the existing sewerage system of the town. The rest of the subdivision will require its own sewage disposal, possibly of the lagoonal type.

Gas and power are readily available and present no problem.

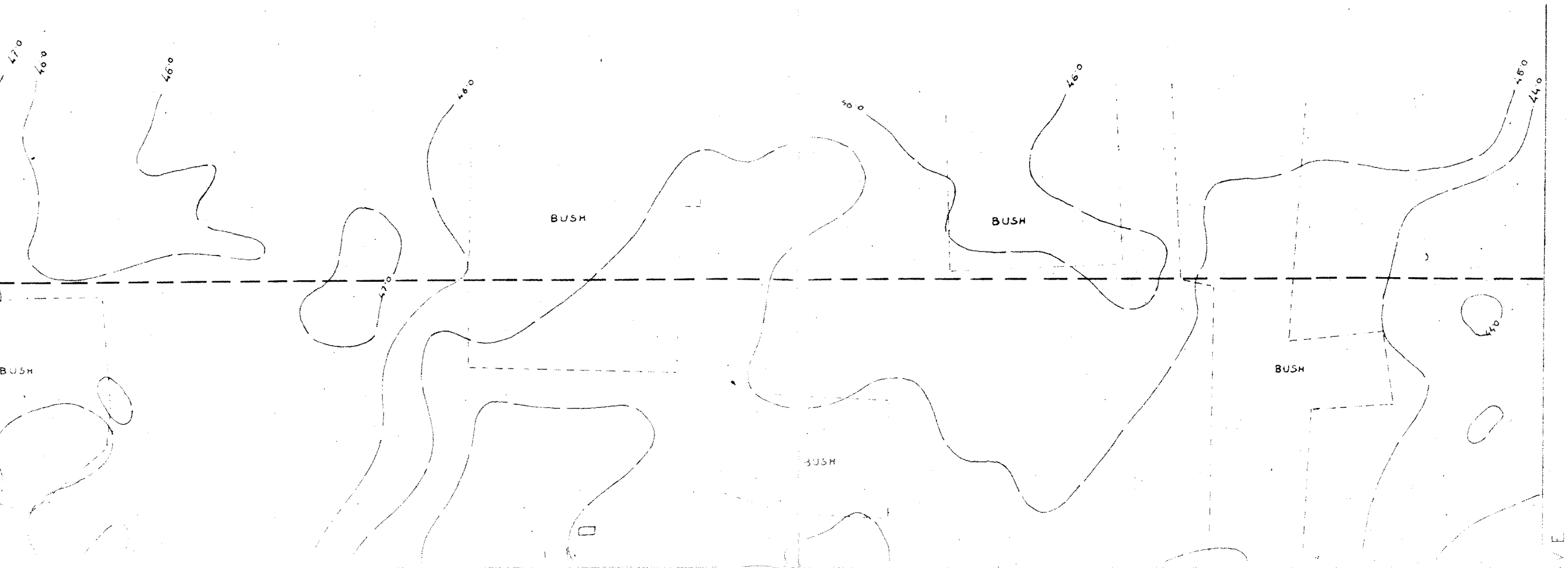
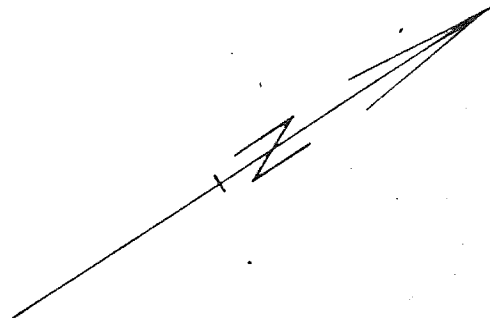
3. Topography

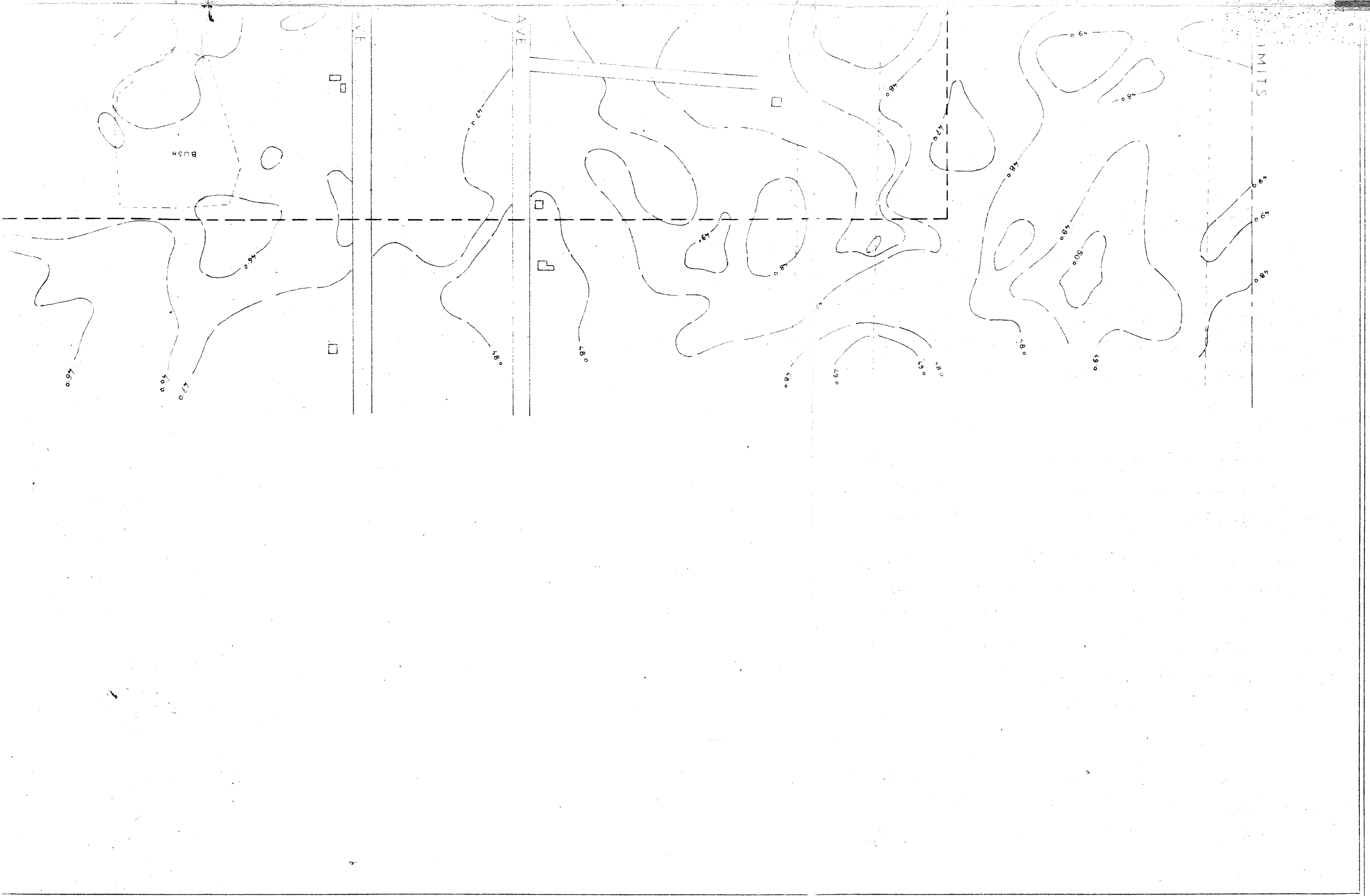
The site is relatively flat. There is a gradual slope towards the north, but the total difference in elevation between the southern and northern limits amounts to about four to five feet as indicated on drawing No. 8.

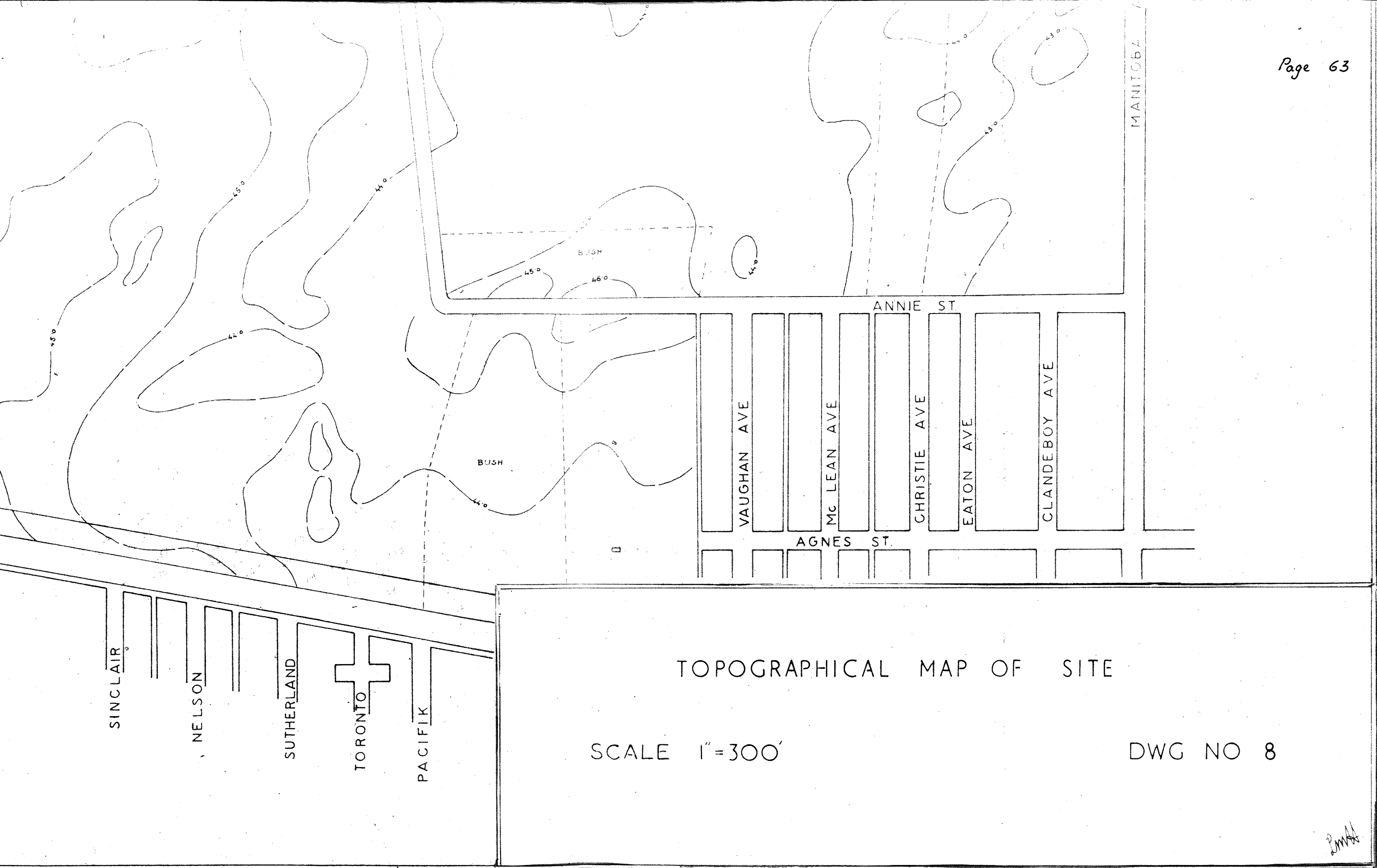
There are two strips of light bush running east west across the width of the site, north of Manchester and Christie

Avenues. Other isolated pockets of similar bush occur in the northwestern and northeastern parts.

The strip of bush north of Manchester Avenue has been incorporated into the design and forms a buffer in which will be located apartments, club houses and other recreational centres. All other trees in the area should be conserved whenever possible during construction.





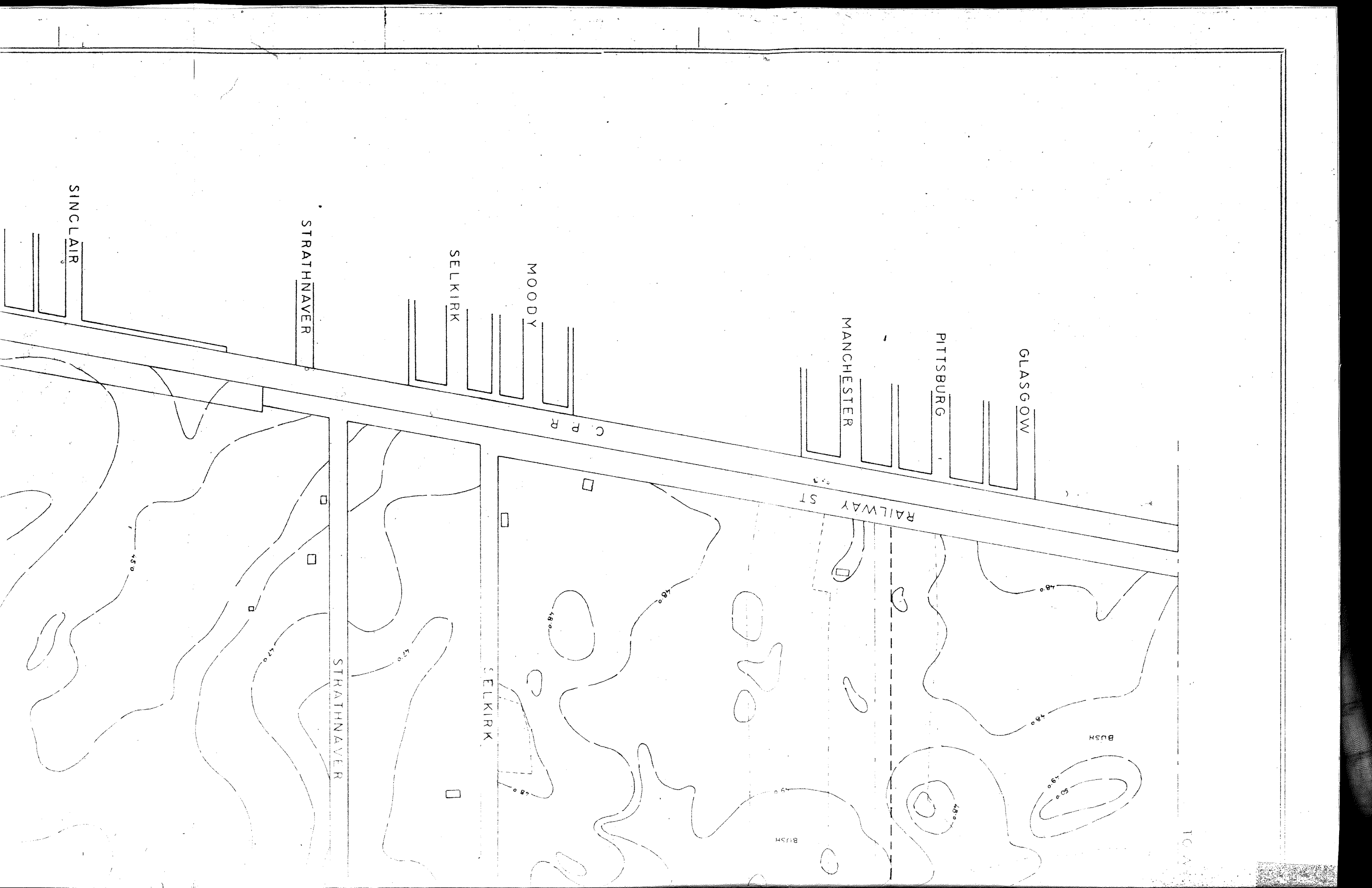


TOPOGRAPHICAL MAP OF SITE

SCALE 1"=300'

DWG NO 8

PMAA



SINCLAIR

STRATHNAVER

SELKIRK

MOODY

MANCHESTER

PITTSBURG

GLASGOW

RAILWAY ST

STRATHNAVER

SELKIRK

BUSH

BUSH

TO A...

PART TWO

Design of the Subdivision

Part Two of this Thesis deals with the actual design of the subdivision. Where deemed necessary the reasoning behind those solutions adopted by the author will be explained. In general the steps taken are in accordance with the general principles of community planning found in Part One.

1. Street Layout

The street pattern has been so laid out as to provide a minimum number of access points from the peripheral highway which forms the southern and western boundary of the neighbourhood.

Access from the existing developed part of the town, east of the Canadian Pacific Railway tracks, has been confined to Manchester, Strathnaver, Pacific, Vaughan and Manitoba. This ties in with the General Development Plan for Selkirk, submitted by the Provincial Planning Commission, in which the four above-mentioned streets form part of the future circulatory system of the town.

Rather than allow these streets to run straight through the neighbourhood, as shown on drawing No. 5, they have been cut off in order to discourage through traffic from using them as

short cuts through the neighbourhood and also in order to arrest the view.

At present Strathnaver extends all the way to the Selkirk Highway By-Pass at the western limit of the town and there is a line of steel towers supporting high tension cables, running parallel to Strathnaver, approximately 50 feet south of it. This line has been ignored in the design, the author's belief being that if and when the area is developed, some alternative route will have to be found for this power line rather than allow its presence to mar the aesthetic appearance of the development.

The streets are divided into two categories, major collectors, having a 66' - 0" allowance, and minor residential having a 55' - 0" allowance. 66' - 0" was chosen to enable these collectors to tie in with existing streets in the developed portion of the town. Many authorities recommend 50' - 0" for minor streets but it was felt that the rigorous winters of Manitoba, with their attendant snow clearance problems, necessitate the larger dimensions.

Cross sections of major and minor streets are found on drawing No. 10. The 36' pavement of the major streets provides two 10' lanes for moving traffic and two 8' parking lanes; hence parking will be permitted on both sides. The 26' pavement

of the minor streets provides two 10' moving traffic lanes, and only one 8' parking lane.

The solitary exception to the two categories of streets outlined above is found in the west central portion of the area, where an 80' allowance has been designed to provide a formal approach into the centre of the neighbourhood. It will have a 44' pavement and the extra width will permit the planting of trees on the boulevard on each side, which will greatly enhance the appearance of this main approach.

No major streets have been planned around the school and playground site for the extra traffic on collector streets would prove a safety hazard for children. Also the 15 m.p.h. signs in a school zone tend to arrest the smooth flow of traffic, particularly if the collector street is not very long.

On the drawings depicting the proposed subdivision, street intersections are shown with curved corners. This is only a diagrammatic representation. In actual fact the street lines intersect at right angles and the curbs are curved. (See drawing No. 10).

2. Parks and Open Space

Besides the central open space of approximately 17 acres, which will accommodate a church, community centre,

elementary school and public park, various small greens have been located throughout the neighbourhood. These have been intended primarily as ornamental squares which will relieve the monotony of the site, serve as focal points for the residential quarters in which they are located, and provide shady restful spots where older folk may sit and talk. Although detailed landscaping of these greens has not been attempted in this Thesis, it will, or should, be governed by the three factors mentioned. In addition to the above, the larger greens could accommodate tot lots.

The land south of Manchester Avenue should not be included in the acreage of dedicated open space. It has been designed as a buffer strip between the light industrial zone to the south and the residential zone to the north and will accommodate apartment houses and such semi-public buildings as club houses, curling rinks, etc.

A 150' wide strip of park has been located south of the access road to form a buffer between residences and the Canadian Pacific Railway track. This has been deemed necessary because railway lines tend to lower the land values of land adjacent to them.

In the school grounds, located in the central open space, an area of 300' x 500' has been designated as playing field.

outside of school hours and during week-ends this playing field could be used by the community. One of the better ways of promoting a community spirit is through sports, where people of different backgrounds and education can meet on a common footing.

3. Lotting

The average lot in the subdivision measures 60' x 120'. Those adjacent to the peripheral highway have been made 180' long to provide extra setback for the houses.

Corner lots are wider than average so that vehicular traffic will not encounter obstructions to the line of sight. Generally speaking, lots fronting on open space have also been made slightly larger than average as their location makes them highly desirable and hence they will accommodate larger and more expensive homes.

An exception to this rule would be those houses fronting on the central open space. Since the latter will accommodate public buildings, park and playing field, the author feels that the attendant noise and bustle will override the advantages normally associated with frontage on to open space, and that these lots will not have the same degree of seclusion as those in some other areas of the neighbourhood.

Lots have been placed at right angles to the street line to permit an easy siting of houses. Buffer lots have been placed at the ends of long blocks in order to close off the views down the rear lot lines, which could be unsightly; these have been omitted in a few cases so as not to complicate the pole line easement which will run down the rear lot lines.

. Shopping Centre

The shopping centre has been located on the peripheral highway rather than in the centre of the subdivision because the author felt that the total population of the neighbourhood might not be able to support the centre entirely and consequently some dependence would have to be placed on passing trade. Also he considered it desirable to locate the shops as far as possible from the competing Central Business District of Selkirk.

The site of the shopping centre measures 300' x 800' occupying an area of 264,000 sq. ft., or approximately 6 acres. The building itself, which fronts on the highway, measures 80' x 100', covering about 9% of the total site. This is above the minimum standards recommended by various planning authorities so that not only is adequate customer parking provided but there is space in the southern part of the site for either the extension of the shop buildings in this direction, should increased trade make this desirable, or the addition of an auto service station.

It has been envisaged that initially the centre will comprise 10 shops, including a food market, a drugstore, and such other retail establishments as a barber shop, dry-cleaners and laundry, clothing, millinery, etc.

Access to the centre is provided from the peripheral highway and from the neighbourhood. A 50' wide buffer strip along the rear and sides of the site screens it from adjacent residences.

5. Engineering Aspects

The drawings of the proposed subdivision do not show any utility lines such as sewers or watermains for lack of time has precluded their inclusion in the design. However, the street layout has been designed with some consideration towards the engineering aspects and the author does not anticipate any major problems in the utilities layout. Listed below are possible solutions along very general lines.

A network of major watermains could be located on the collector streets and a series of minor loops could branch off these main lines to service the residential areas.

Main trunk sewers will probably flow by gravity towards a lift station in the northwest, and the sewage pumped from there to a lagoon located in the agricultural zone west of the peripheral highway. Excessive curvature of the streets has been avoided so that in very few cases will manholes be required at a closer distance apart than 300' - 350'.

Storm water will likely be channelled through laterals or along gutters to main trunk sewers located on Manchester, Strathnaver, Pacific and Vaughan, and these main trunks will flow eastward towards the Red River.

Land Utilisation

Table VIII gives the percentage areas devoted to streets, parks and open space, the total lengths of streets, total pavement areas, and other pertinent elements of the design.

The exact boundaries of the subdivision are as

follows:-

North boundary.....South property line of
Manitoba.

South boundary.....Boundary of Light Industrial
Zone.

East boundary.....West property line of C.P.R.
right-of-way.

West boundary.....West property line of peri-
pheral highway.

The site includes the existing development in the
northeast portion, bounded by Annie, Vaughan, Manitoba and the
Canadian Pacific Railway station grounds. This section will
ultimately accommodate 200 55' - 0" lots.

TABLE VIII

<u>Item</u>	<u>Amount</u>	<u>Percentage of Total Area</u>
i) Total Area of Site	422 acres	
iii) Area of street allowance	92.6 acres	22.0%
iiii) <u>Public Open Space</u>		
Central Open Space	16.74 acres	
Shopping Centre	6.03 acres	
Greens & Parks	28.10 acres	
	<u>50.87 acres</u>	12.0%
iv) Apartments & clubhouses zone	19.42 acres	4.6%
v) Residential area (excluding apartments & clubhouses zone)	259.11 acres	61.4%
vi) Length of 80' - 0" streets	1,460 ft.	
" " 66' - 0" streets	29,240 ft.	
" " 60' - 0" streets*	770 ft.	
" " 55' - 0" streets	35,290 ft.	
	<u>66,760 ft.</u>	
vii) Total pavement area	48.8 acres	
viii) <u>Number of lots</u>		
Designed portion	1,162	
Existing development	200	
	<u>1,362</u>	
ix) Average Lot size	8,300 sq. ft.	
x) Gross density, dwellings per acre	3.22	
xi) Net density, dwellings per acre	5.26	

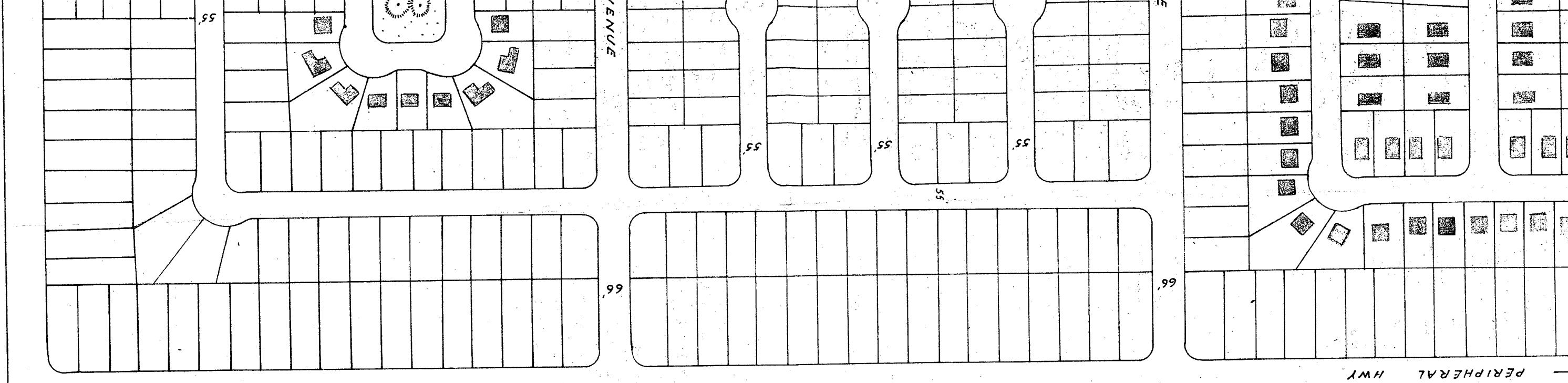
* Existing

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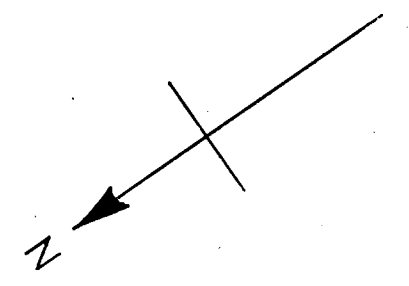
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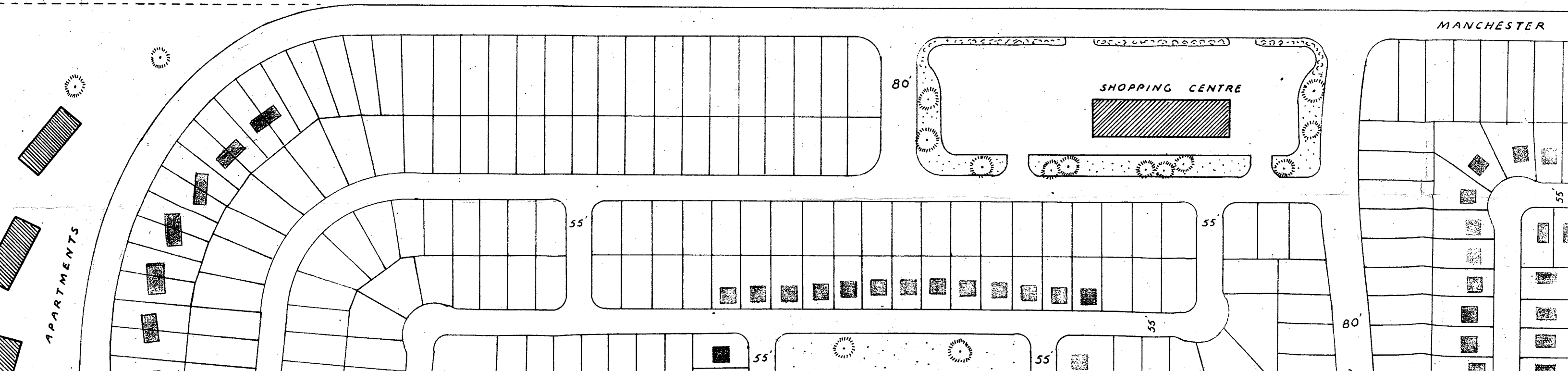


PERIPHERAL HWY

80'



A G R I C U L T U R A L Z O N E



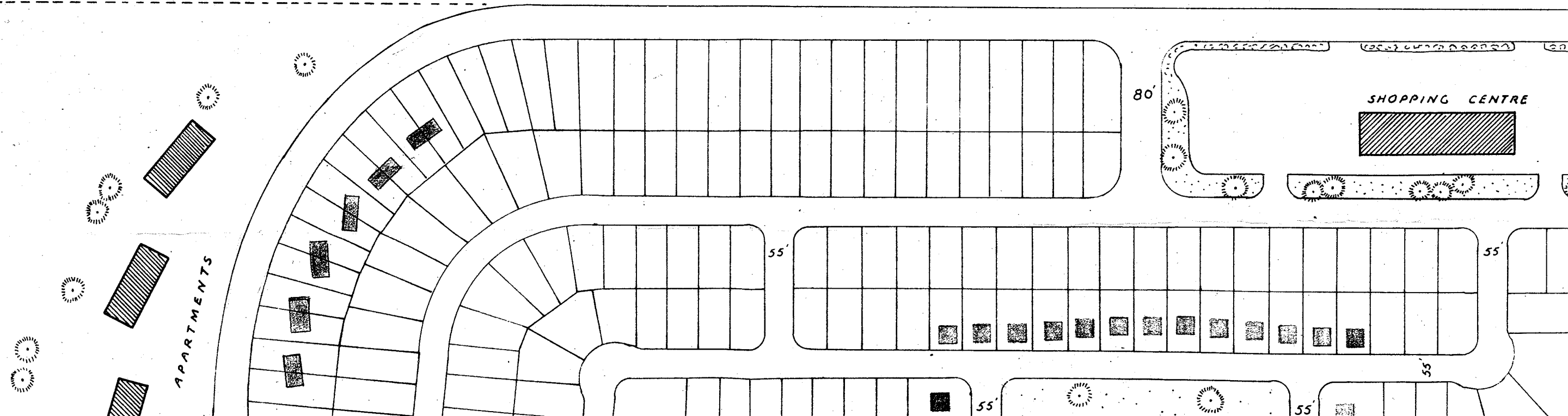
A G R I C U L T U R A L

Z O

T R Y

A P A R T M E N T S

S H O P P I N G C E N T R E





C.P.R. RIGHT OF WAY

ACCESS ROAD

STRATHNAVER AVE WEST

"A" STREET

"THE MALL"

CHURCH

COMMUNITY CENTRE

PUBLIC PARK

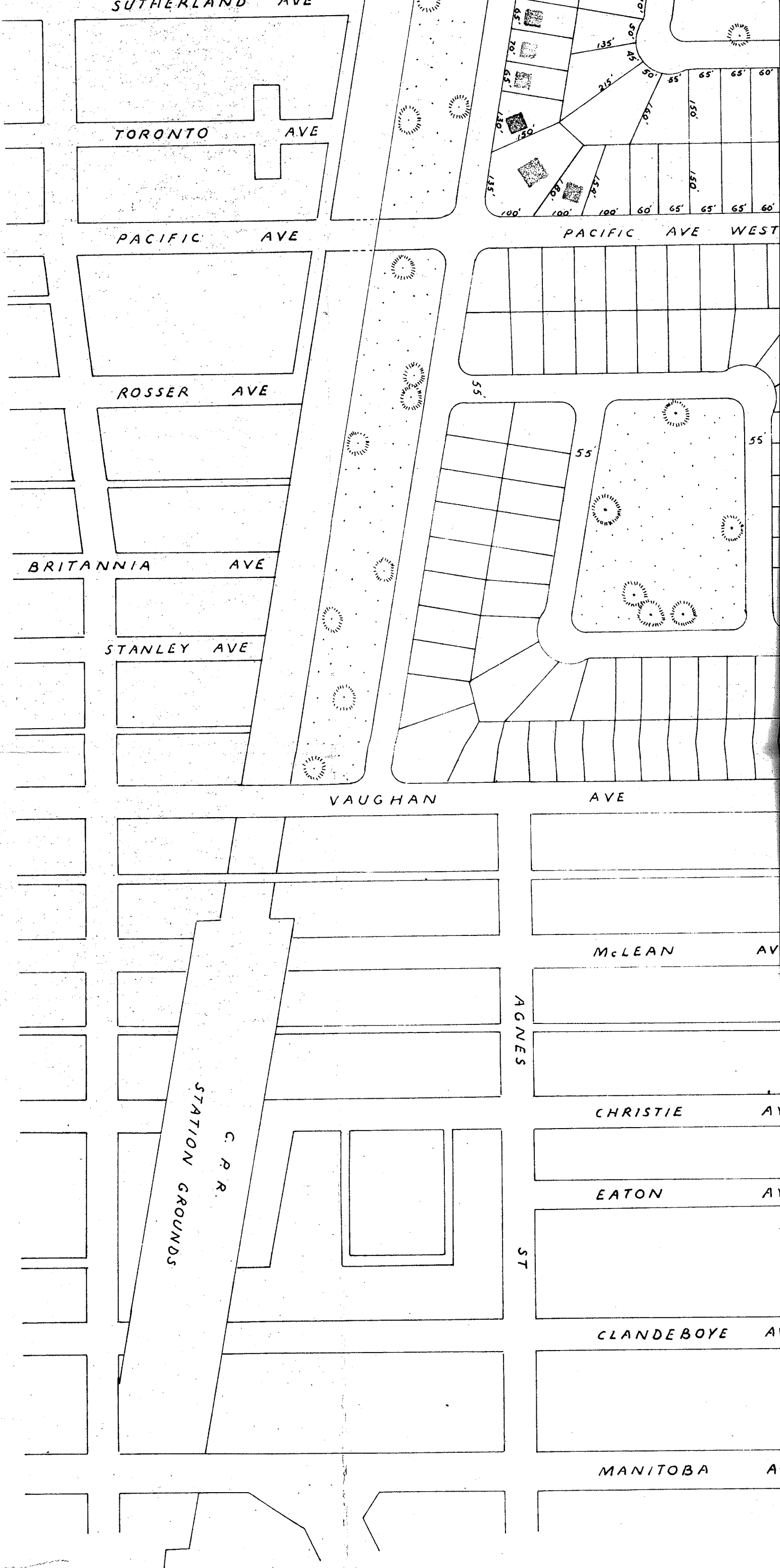
SCHOOL

COMMUNAL PLAYING FIELD

L I G H T I N D U S T R I A L



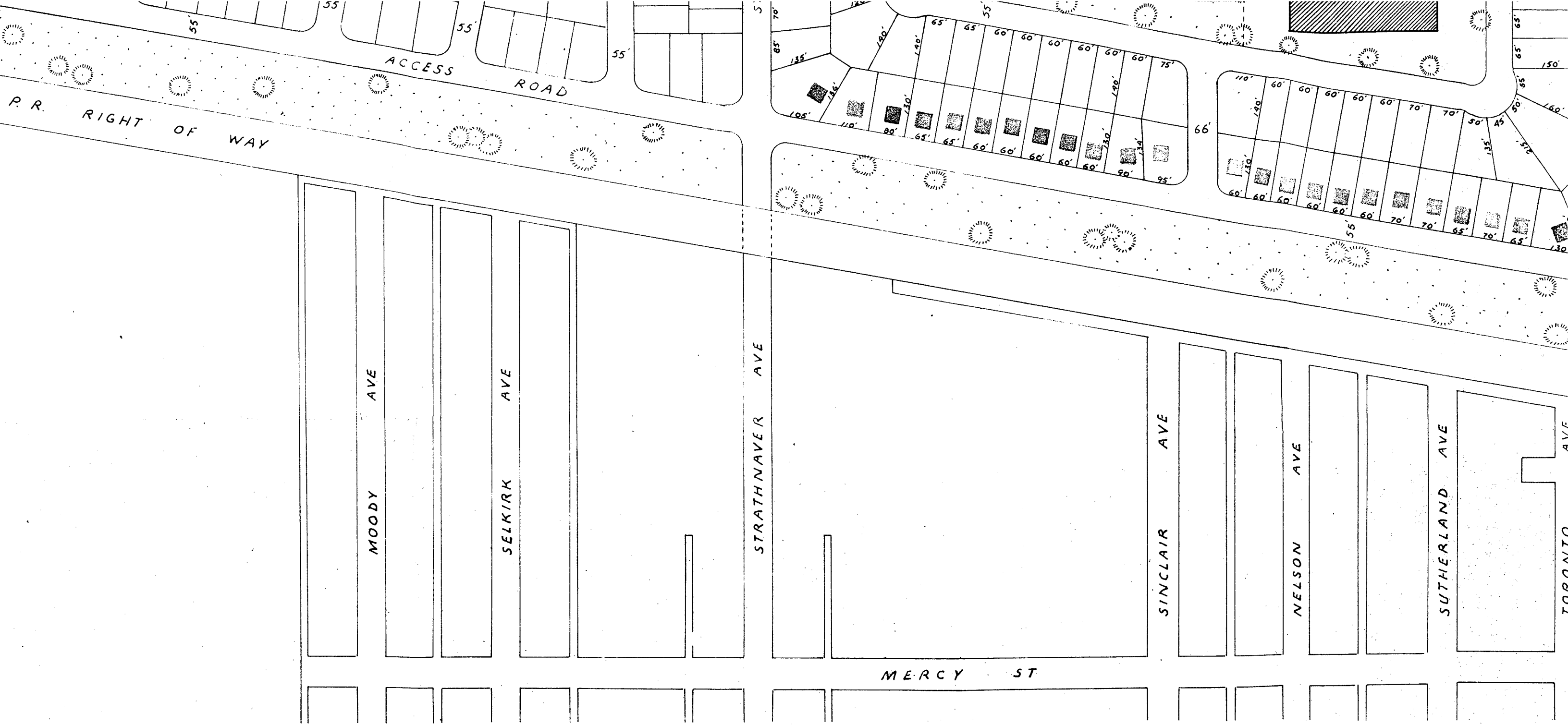
K, MAN
DIVISION



DWG NO 9

GENERAL LAYOUT

SCALE 1" = 200'



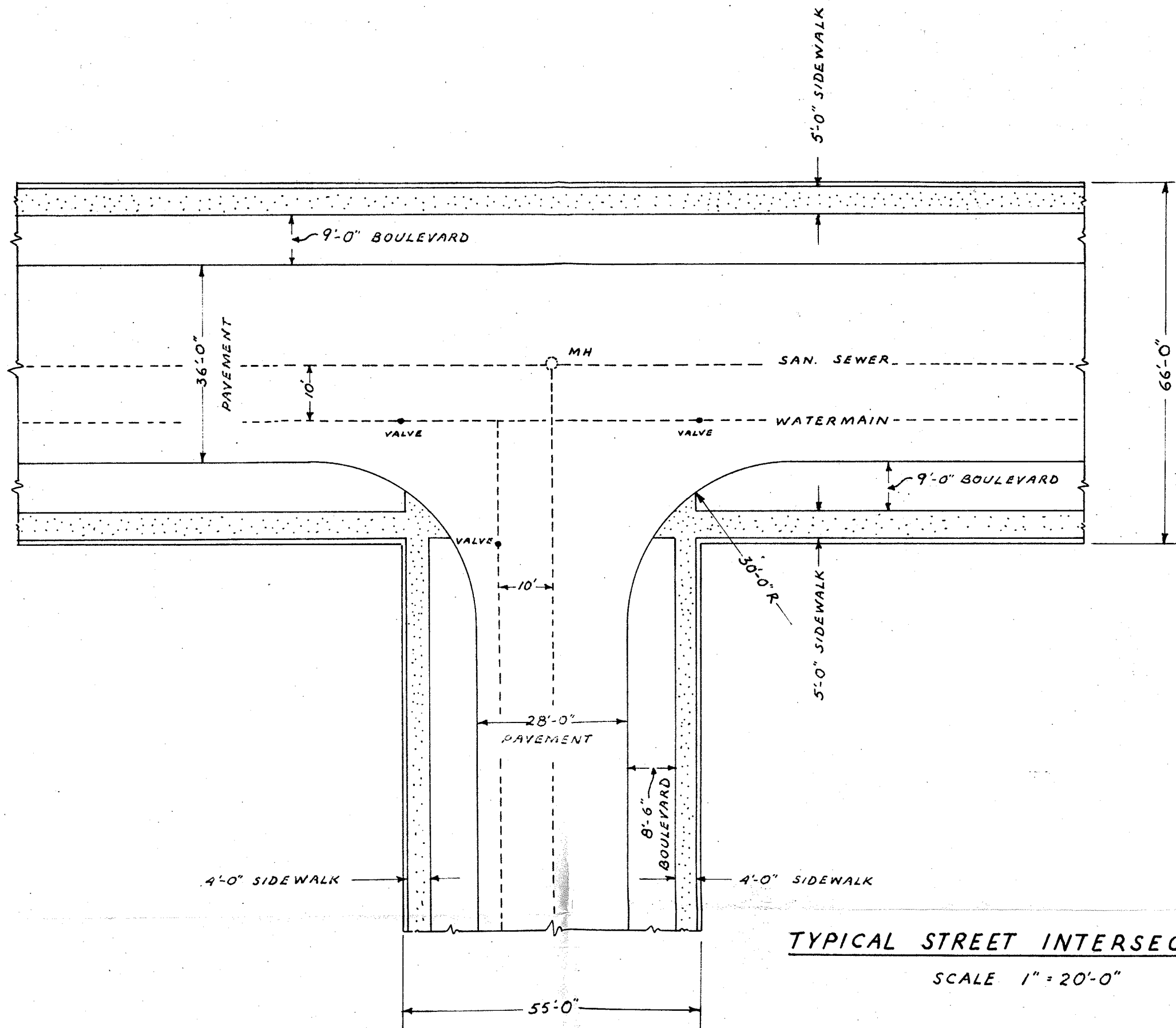
BA
UDIES

TOWN OF SELKIRK, MA
PROPOSED SUBDIVISION



DRAWN BY *P. M. Harris*
 UNIVERSITY OF MANITOBA
 FACULTY OF GRAD STUDIES
 FEB 1960

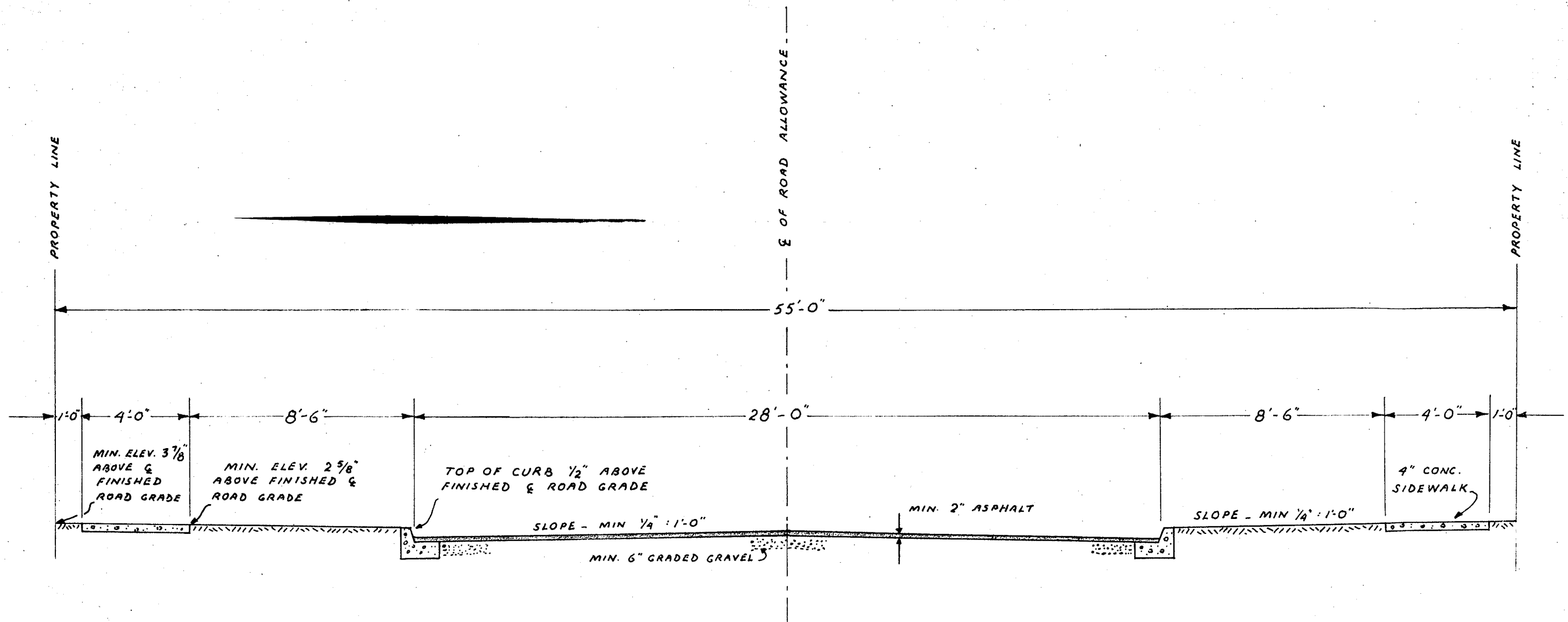
TOWN
 PROPOS



TYPICAL STREET INTERSECTION

SCALE 1" = 20'-0"

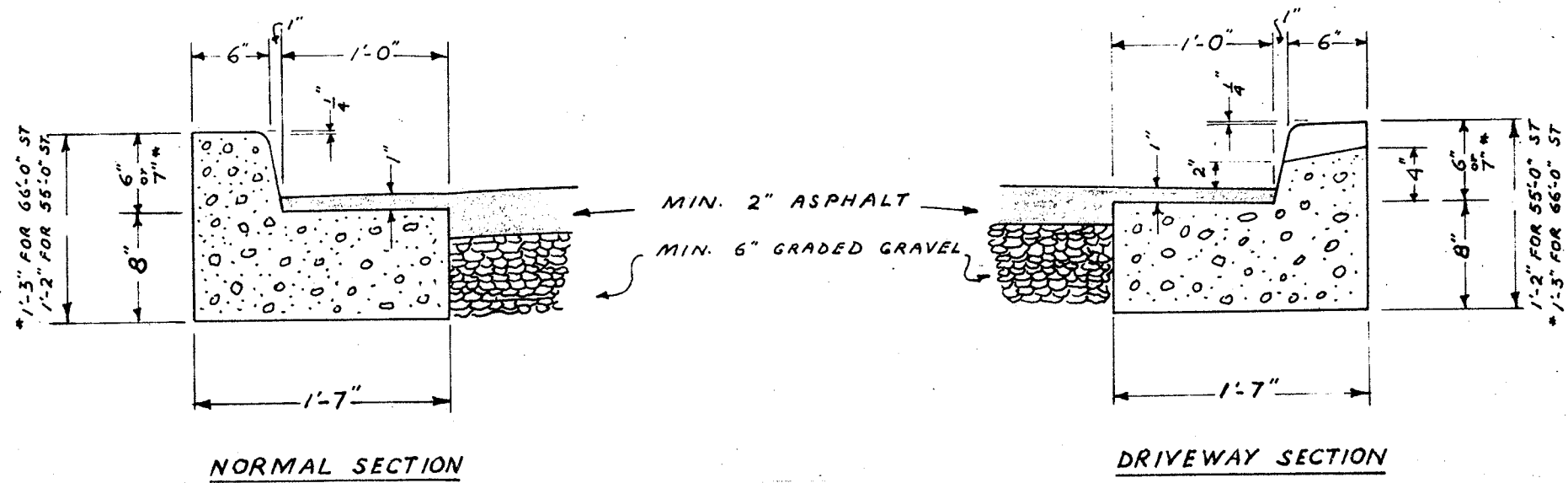
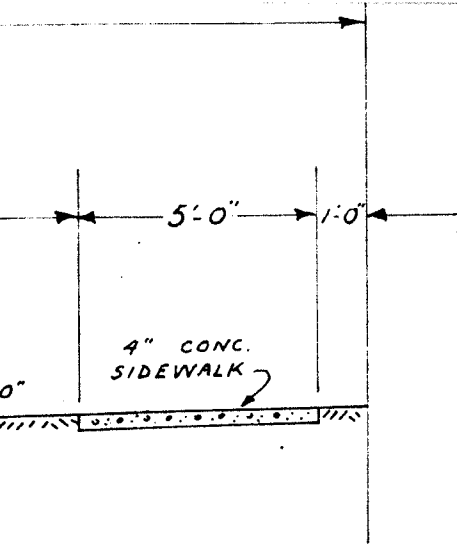
PROPERTY LINE



TYPICAL CROSS SECTION
OF 55'-0" STREET
 SCALE $\frac{1}{4}$ " = 1'-0"

PROPERTY LINE

66'-0"
 & OF ROAD ALLOWANCE



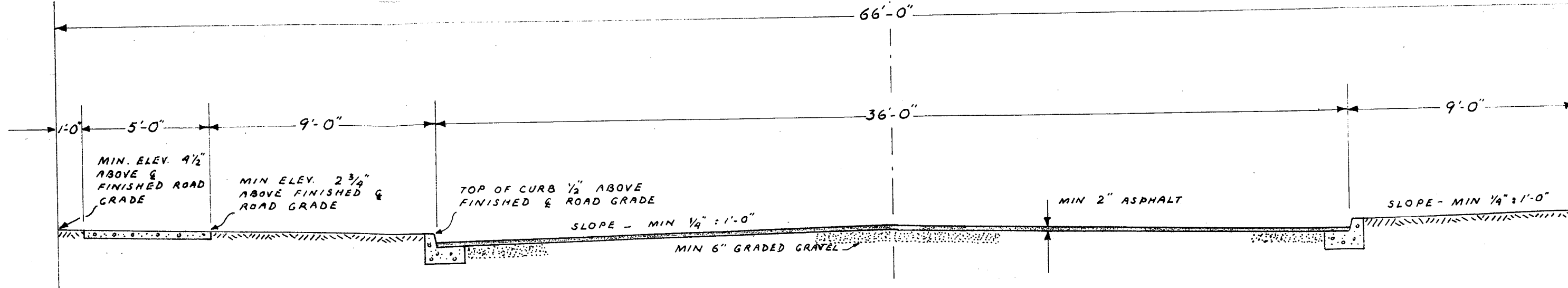
DETAILS OF CONCRETE CURB & GUTTER

SCALE 1" = 1'-0"

ELKIRK, MAN
SUBDIVISION

DWG NO 10

CROSS SECTIONS
& DETAIL



TYPICAL CROSS SECTION
OF 66'-0" STREET
 SCALE $\frac{1}{4}$ " = 1'-0"

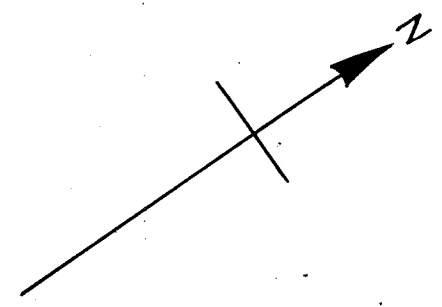
— NOTE —

SIDEWALKS

- 1 — 4" SECTION OF S/W TO BE INCREASED TO 6" AT DRIVEWAYS
- 2 — 2" GRAVEL BASE TO BE PLACED UNDER S/W
- 3 — S/W WILL BE MASS CONC. BUT REINFORCED OVER SERVICE TRENCHES;
 REINF. = 7 NO. $\frac{1}{2}$ " ϕ BARS, 8'-0" LONG
- 4 — S/W TO HAVE SURFACE JOINT OF $\frac{1}{4}$ " MIN. EVERY 5'-0", & MASTIC JOINT EVERY 20'-0"

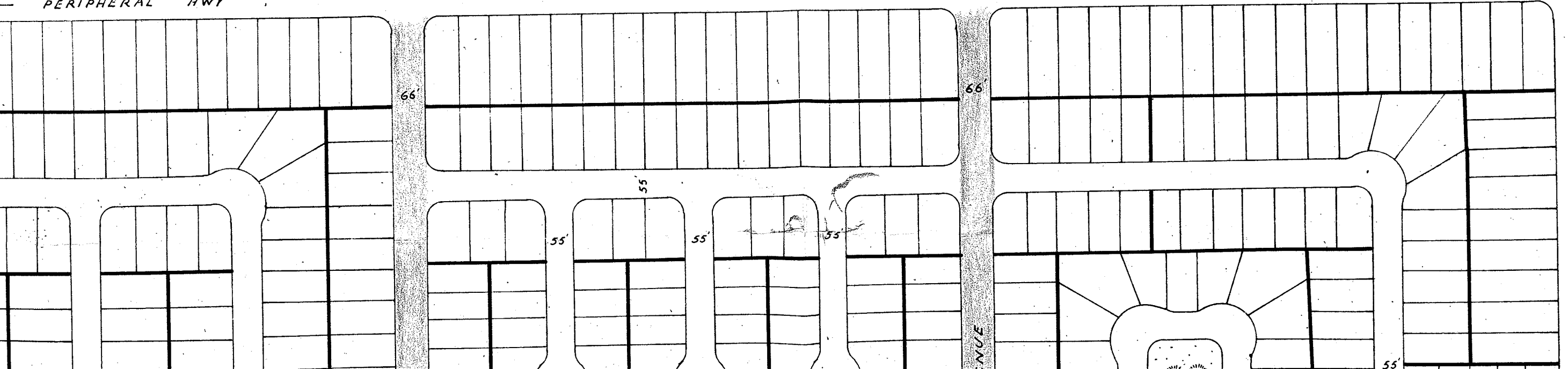
DRAWN BY *L. M. Harris.*
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 FACULTY OF GRAD STUDIES
 FEB 1960

TOWN OF SEL
 PROPOSED S

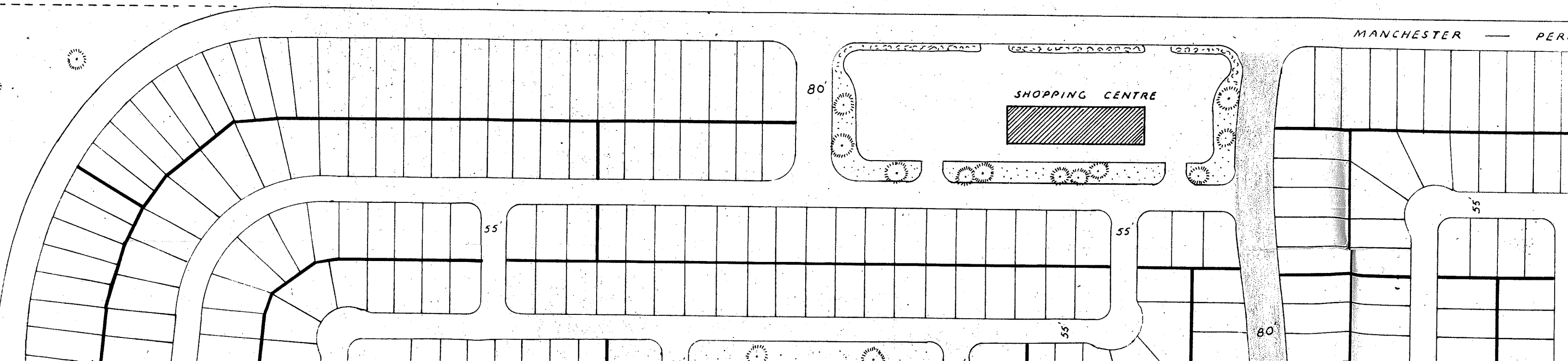


80'

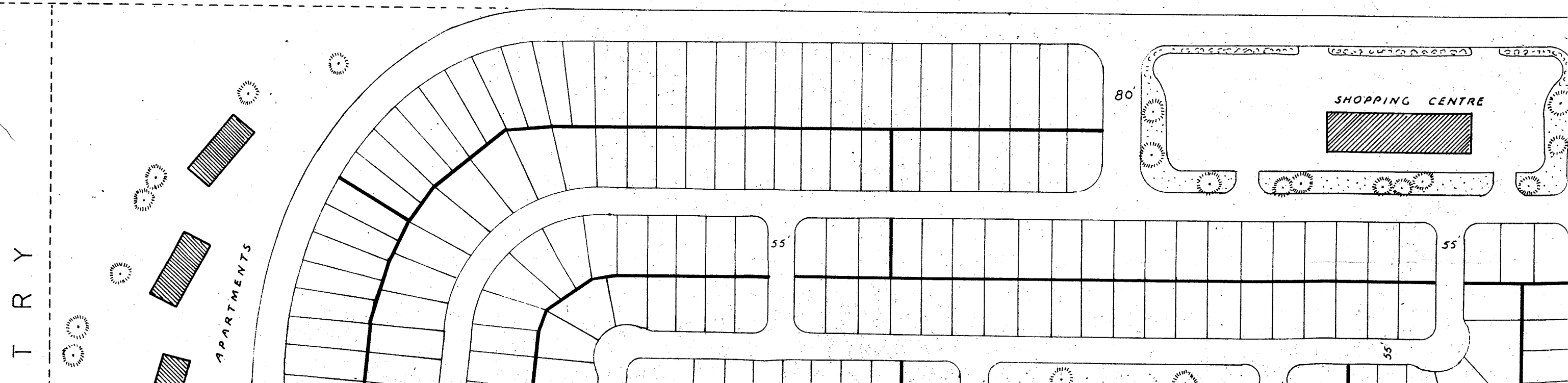
PERIPHERAL HWY

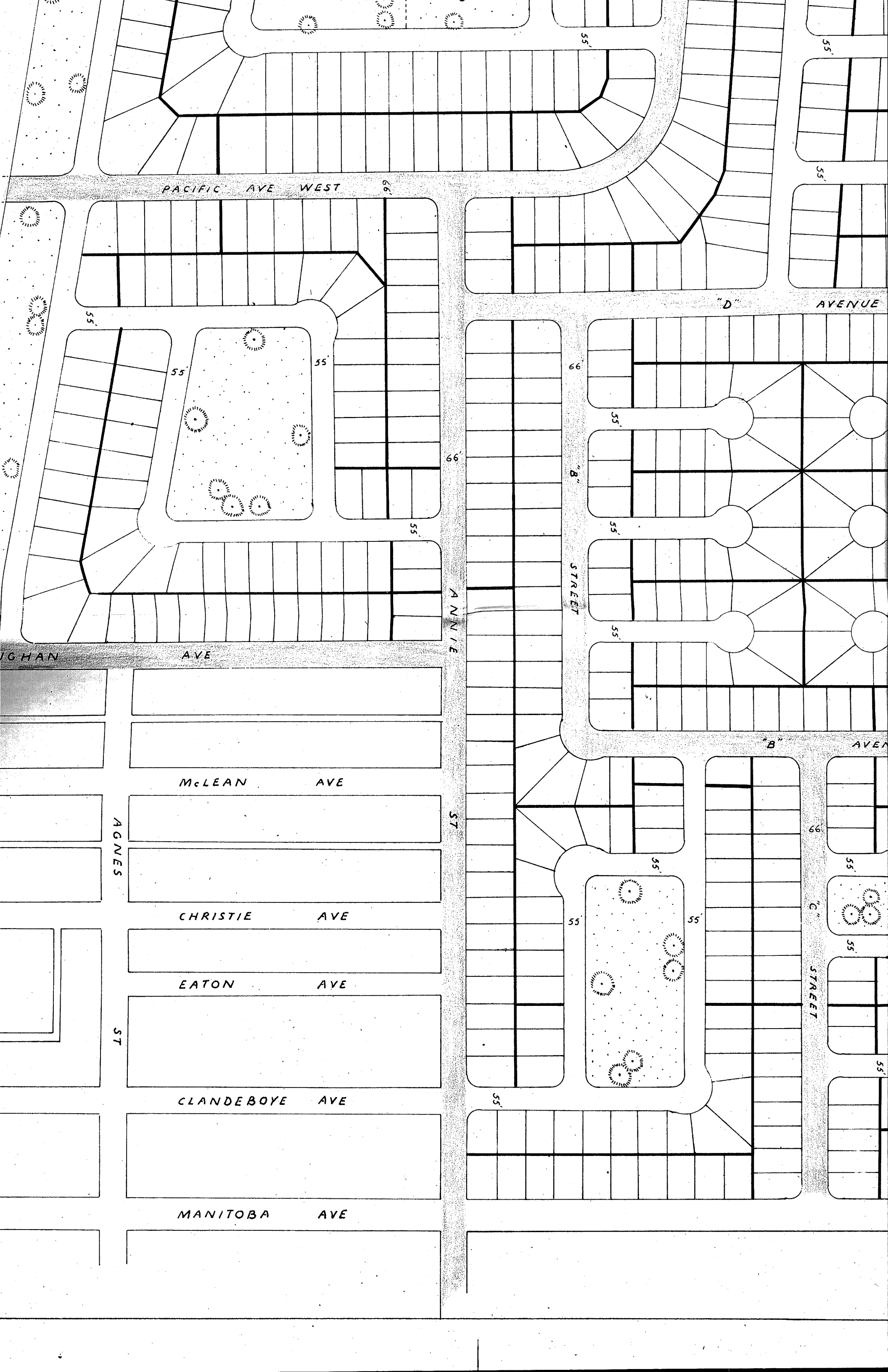


A G R I C U L T U R A L Z O N E



A G R I C U L T U R A L Z O N E





PACIFIC AVE WEST

"D" AVENUE

IGHAN AVE

McLEAN AVE

AGNES ST

CHRISTIE AVE

EATON AVE

ST

CLANDEBOYE AVE

MANITOBA AVE

ANN ST

B STREET

C STREET



"A" STREET

STRATHNAVER AVE WEST

"THE MALL"

ACCESS ROAD

C. P. R. RIGHT OF WAY

CHURCH

COMMUNITY CENTRE

PUBLIC PARK

COMMUNAL PLAYING FIELD

SCHOOL

55'

55'

55'

55'

55'

55'

55'

55'

55'

55'

66'

55'

55'

55'

55'

55'

55'

55'

55'

55'

66'

55'

1'E

L I G H T I N D U S



"A" STREET

ACCESS ROAD

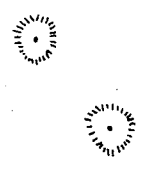
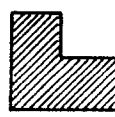
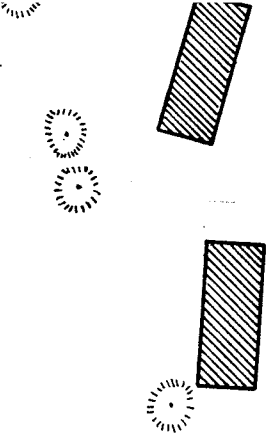
STRATHNAVER AVE WEST

C. P. R. RIGHT OF WAY

CHURCH

COMMUNITY

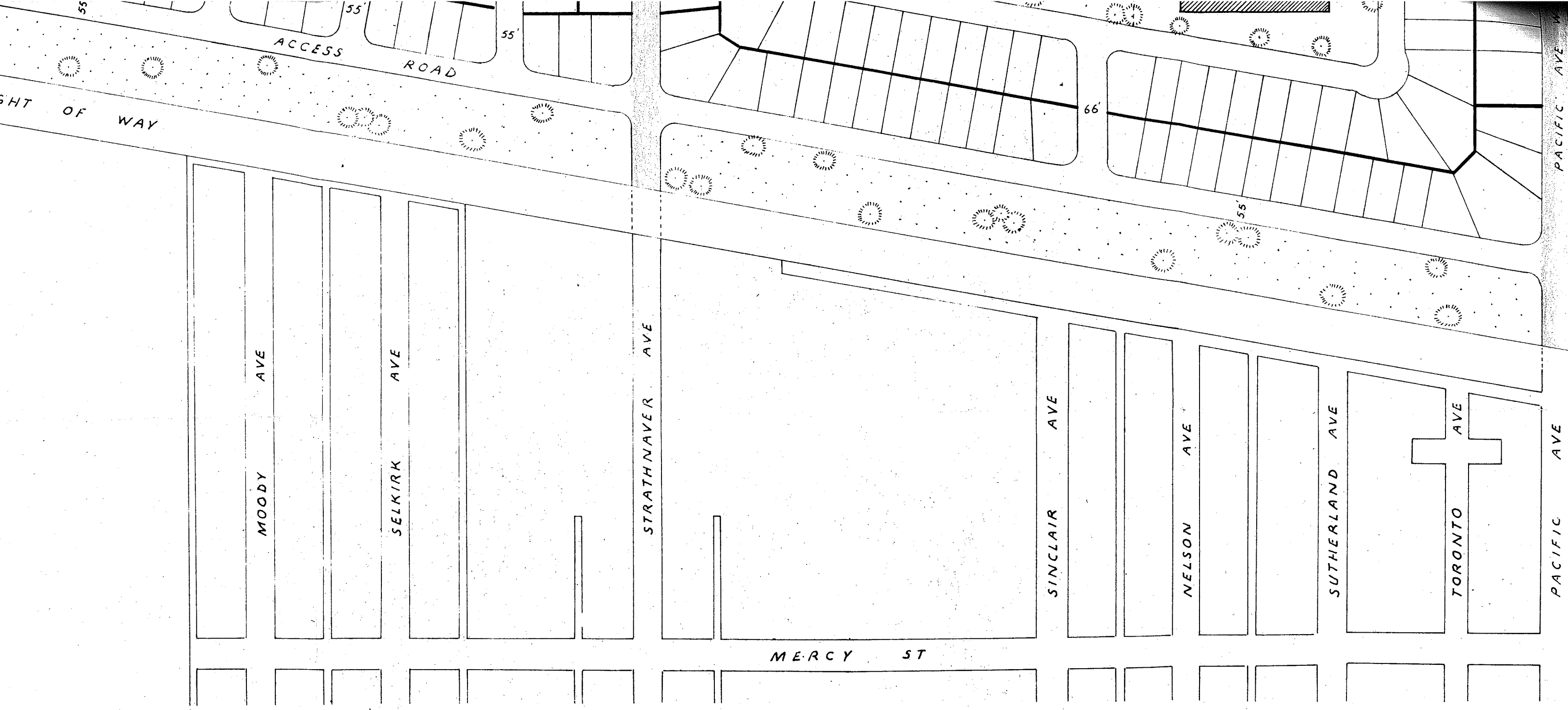
PUBLIC





MAN
VISION

DWG NO 11
POLE LINE EASEMENTS
& COLLECTOR STREETS
SCALE 1" = 200'



TOWN OF SELKIRK, MAN
PROPOSED SUBDIVISION



DRAWN BY *L. M. Harris*
UNIVERSITY OF MANITOBA
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FEB 1960

TOW
PROF