

# **WEST HIGHLANDS AREA STRUCTURE PLAN**

**1996**

**Adopted by City of Lethbridge  
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# WEST HIGHLANDS AREA STRUCTURE PLAN

## 1.0 INTRODUCTION

### 1.1 AREA STRUCTURE PLAN PURPOSE AND OBJECTIVES

Section 633 of the Municipal Government Act, 1995 states:

"(1) For the purpose of providing a framework for subsequent subdivision and development of an area of land, a council may, by bylaw, adopt an Area Structure Plan."

The purpose of this Area Structure Plan is to provide a framework for preparing previously undeveloped areas for new development.

To this end, it is intended that the plan identifies and provides for a range of development opportunities, commensurate with both the natural and man-made features of the area.

The objectives of the plan are as follows:

- To ensure that future development in the Plan area conforms to the general goals and objectives of the General Municipal Plan approved by City Council on May 8, 1995 and amended Bylaw No. 4780 June 3, 1996.
- To ensure that the pattern of land use reflects opportunities afforded through the area's proximity to major arterial roads, and the adjacent developments.
- To ensure that the placement and design of roads in the area forms rational linkages to University Drive, Westside Drive and Gary Drive.
- To ensure a logical sequence of development in relation to utility servicing concepts for the Plan area.

## **1.2 BACKGROUND CONTEXT OF WEST LETHBRIDGE**

The westward expansion of the City across the Oldman River and onto the West Lethbridge peninsula, was recommended as a major direction for growth in the 1964 General Plan. Following this recommendation, the Oldman River Regional Planning commission prepared a report titled: "The Urbanization of West Lethbridge" in 1969, the approval of which by City Council, established the principles for West Lethbridge development. It was proposed that development should follow a "Village Concept".

The Area Structure Plan (A.S.P.) must comply with higher level plans that have previously been adopted. Specifically, the A.S.P. must be in compliance with the General Municipal Plan, which in turn must conform to the generally broad policies set out in the Joint General Municipal Plan or Regional Plan. In this way, a hierarchy of mutually supporting plans is established.

### **1.2.1 The Regional Plan**

The Oldman River Regional Plan was adopted by the Oldman River Regional Planning Commission in 1985. The Regional Plan emphasizes the need for orderly and contiguous urban expansion and established broad development policies calling for planned community development.

### **1.2.2. The Joint General Municipal Plan**

In August of 1984, the City of Lethbridge and the County of Lethbridge adopted a Joint General Municipal Plan, to govern the area approximately three miles in all directions adjacent to the City boundaries. The Plan is designed to assist the County and the City in the orderly and economic planning and development of lands within and adjacent to the Joint Plan area. A broad land use strategy provides for an exchange of information on development or subdivision proposals affecting the area, and facilitates an awareness by the County and City of possible future uses within the respective

### 1.2.2 (continued)

municipal boundaries. In accordance with these policies, the County of Lethbridge will be afforded the opportunity to comment on plans prepared for the study area.

### 1.2.3 The General Municipal Plan

City Council adopted the Lethbridge General Municipal Plan on May 8, 1995 with the passage of By-law No. 4678. The plan is a "long range land use plan. It is used to help guide the City's future growth and physical development and ensure that our community remains a pleasant and attractive place to live. It deals with:

1. How land is used in the City.
2. The City's physical form.
3. Where the City will grow in the future."

### 1.2.4. The "Urbanization of West Lethbridge" Report

Although not a statutory plan mandated by the Planning Act, 1980, this document is significant in terms of past implementation of the City's policy decision made in an earlier (1964) General Plan to expand the City west of the Oldman River. The "Urbanization of West Lethbridge" Report also established the Village development planning concept .

The Village development planning concept evolved largely from planning principles introduced in the early 1900's in Europe and the United States by proponents of the "neighbourhood" and "garden city" ideas. A sense of community and identity were both considered to be important components of the Village planning concept. Generally, with a school at its centre, the Neighbourhood was intended to be an area to which a small child could relate; the Village, with a major park and commercial centre, would be the area to which an adult would frequently relate. A network of pedestrian walkways and green spaces would add to the Village's open and park-like setting.

#### 1.2.4 (continued)

In West Lethbridge, each Village was intended to be approximately one square mile in area and contain two Neighbourhoods of roughly 6,000 persons each. Neighbourhood level services and facilities would be centrally located in relation to each Neighbourhood, while services requiring a larger threshold population would be centrally located between two Neighbourhoods to serve the entire Village.

The Village development planning concept has served as the framework for planning and development to date in West Lethridge.

The basic principles of the Village development planning concept are as follows:

- a) A Village is normally formed by a coalition of two Neighbourhoods. Each Village will contain two Public elementary schools and each school will represent a nucleus for a Neighbourhood of approximately 5 - 6,000 persons. A Separate elementary school, serving an area equal in size to a Village should be centrally or conveniently located within each Village.
  
- b) The Village is the major unit of residential development. The Village unit is approximately one square mile in area and is bounded on all sides by arterial roadways. Each Village will contain approximately 11-12,000 people.



#### 1.2.4 (continued)

- c) Each Village unit will be designed to be energy efficient. Services such as commercial centres, health clinics, and schools, as well as medium and high density housing, will be centrally or conveniently located and strategically placed along major public transit routes. Placement of all land uses should ensure that roadways and services are used as efficiently as possible. Residential layout and lot design shall be as energy efficient as possible.
- d) Each Village unit should contain one Village commercial centre located at the intersection of an arterial and collector roadway, and designed to provide a wide range of goods and services. Each Village commercial centre will be designed for a trade area of approximately 11 - 12,000 persons.
- e) Each Village may contain local commercial facilities located at the interior of the Village and designed to provide a limited range of convenience goods and services. The local commercial centre will be designed for a trade area of approximately 5,000 persons.
- f) Each Village will contain a variety of housing types. Residential dwellings of similar types should be arranged in small clusters and these clusters dispersed throughout each development stage.
- g) The park classification system proposed in the City of Lethbridge Draft Open Space Plan, will be used to define and organize open space in each Village. An open space linkage must be a functional and enjoyable part of the overall open space system, and may consist of a combination of sidewalks, boulevards or separately-dedicated open space walkways.

#### 1.2.4 (continued)

The "Urbanization of West Lethbridge" report identifies a regional commercial site located in the vicinity of the intersection of Highway 3A/Highway 25 and the University Drive. It also identifies the area north of this intersection as industrial uses. The salient features of this plan included: (reference page 18)

"The industrial service and regional commercial uses have been grouped around the major transportation network of road and rail providing the ease of accessibility from Lethbridge and the surrounding area that these activities are designed to serve. The activities conceived for this area are (a) a regional shopping centre, (b) an industrial park, comprised of industries and warehousing activities, (c) regional oriented transient accommodations and services."

#### 1.2.5. Major Transportation Routes

A major transportation element in West Lethbridge will be the proposed Chinook Trail arterial roadway and river crossing. It is proposed to connect at Scenic Drive/24 Avenue S., cross the Oldman River and form a western loop around the West Lethbridge peninsula and connect to the Highway 3A corridor (see Figure 1). This road is intended to provide an efficient route through the western part of the City and reduce through traffic in the City Centre. The roadway will also handle a significant amount of traffic from the adjacent village developments and will therefore improve the accessibility of West Lethbridge to all parts of the City.

### 1.2.5 (continued)

Construction of the river crossing and arterial roadways will be staged as traffic demands warrant. The initial stages of the Chinook Trail are expected to be developed when City population levels are between 76,000 and 100,000.

The recent upgrading of University Drive and its crossing over the CPR Railway tracks improves vehicle movements between West Lethbridge and the rest of the City. This not only delays the need for the Chinook Trail river crossing but will also reduce current traffic volumes over the Whoop-Up Drive bridge.

Benton Drive and Gary Drive roadways (which will be constructed in phases as growth dictates) will provide important transportation links from future villages to University Drive and the rest of the City.

Figure 1 conceptually shows future arterial roadways in relation to existing roads and villages.

### 1.3 West Highlands

The General Municipal Plan identifies West Highlands as a site for future residential growth. The GMP however places a restriction of "no single detached housing allowed until May 1, 2000" in West Highlands. Notwithstanding this restriction, the ASP must address and allow for development at that time.

The boundaries of the West Highlands area Structure Plan as limited by the G.M.P. suggest that this development will not have the threshold populations to warrant village type or scale of services such as parks or school facilities. It is anticipated that West Highlands will form a neighbourhood for a future village. Figure 8 shows a possible framework of parks and major collectors that could provide the basis for integration into a future village to the west.

## 2.0 SITE ANALYSIS

### 2.1 Location, Legal Description and Land Ownership

The West Highlands planning area is outlined in Figure 1 and Figure 2. The plan area encompasses about 52.5 hectares and is bounded on the east by University Drive, on the north by Third Avenue West, and on the south by the future extension of Gary Drive. The western boundary is the quarter section boundary.

Figure 4 details the current ownership of lands included in the West Highlands Area Structure Plan. These owners and the approximate area of their holdings are as follows:

Owner	Approx. Area	Percent of Total
1. NE¼ 34-8-22-4 Monco Holdings Ltd - 29% B.A.T. Development Ltd. - 21% G.L. Germaniuk - 20% Bracewood Dev. Co. Ltd. - 20% R.F. Burrell - 10%	49.47Ha.	94.2 %
2. NE¼ 34-8-22-4 Plan IRR 984 Lethbridge Northern Irrigation District	2.42Ha.	4.6 %
3. NW¼ 35-8-22-4 Lot 1, Block 18, Plan 911 1920 City of Lethbridge	0.61Ha.	1.2 %
TOTAL AREA	52.50Ha.	100 %

All Parcel 1 lands (48.47ha) within the plan area owned by the group of five owners are subject to an Agreement for Sale to Walter Stewart.

## **2.2 Topography and Drainage**

The general topography exhibits an undulating or rolling character with several existing sloughs and poor drainage areas. The planning area has a general slope to the northeast (see Figure 5). There is an existing irrigation canal bisecting the quarter section.

## **2.3 Class of Soil**

The majority of the A.S.P. area is currently in agricultural use. The Canada Land Inventory designates land in the A.S.P. area as predominantly Class 3 for agriculture, having moderately severe limitations that restrict the range of crops. With irrigation and good management these lands are fair to moderately high in productivity for a fair range of crops.

Soils conditions pose no constraints to conventional building practices associated with residential and commercial construction.

## **2.4 Vegetation and Wildlife**

The site has been cultivated and there are no existing trees. The site also supports a variety of small prairie animals.

## **2.5 Archeological**

The topography of the area combined with the distance from the escarpments suggests a low probability for the presence of prehistoric archeological sites. No known historic period sites have been recorded in the proposed development area. Cultivation will have destroyed any archeological evidence that may have existed.

## **2.6 Visual Analysis**

The topography in the Heritage Heights development to the east is relatively flat and therefore river valley views will be lost once development occurs in this area. The view to the west is perhaps the best as it encompasses a gently rolling landscape and a view of the mountains. This view will disappear when development occurs to the west.

## 2.7 Existing Zoning and Land Uses

The area is currently zoned UR (Urban Reserve). The UR designation is meant to restrict subdivision and development until such time as the area structure plan is approved and the City agrees with more appropriate alternative districts being applied.

Currently, the A.S.P. area is used as dormant pasture land.

## 2.8 Opportunities and Constraints

The study area contains natural and man-made features which offer opportunities and which will impact planning for the area. Opportunities should be maximized and the effects of constraints minimized wherever they cannot be turned to positive advantage in the planning process.

Man-made features in the study area and its immediate surroundings include: (see Figure 3)

- a) University Drive, Third Avenue West and the Canadian Pacific Railway.
- b) The High Level Railway Bridge located about 1.5 km east of the site.
- c) The Wescan Transit Mix Ltd. concrete readymix plant adjacent to the northern boundary of the site.
- d) Possible undermining of the study area from previous coal mining operations.
- e) Indian Battle Heights development adjacent to the south boundary of the site.
- f) Heritage Heights development across University Drive adjacent to the east boundary of the site.
- g) Atso Towaawa Village Park in Indian Battle Heights approximately 0.5 km south of Gary Drive/University Drive intersection.

## 2.8 (continued)

- h) Mike Mountain Horse Public Elementary School located on Jerry Potts Boulevard, approximately 1.0 km southwest of Garry Drive/University Drive intersection
- i) Father Leonard Van Tighem Catholic Elementary/Junior High School on the south side of the Gary Drive/University Drive intersection
- j) Pedestrian underpass under University Drive that provides major pedestrian linkage through Heritage Heights to the river valley and to the amenities in Indian Battle Heights.
- k) Nicholas Sheran Leisure Centre (includes indoor swimming pool and arena) located 3.0 km south of the Gary Drive/University Drive intersection.
- l) University of Lethbridge campus located 2.5 km south of the Gary Drive/University Drive intersection.
- m) An irrigation canal through the center of the quarter section.

Natural features in the A.S.P. area and its immediate surroundings include:

- a) The Oldman River valley and adjacent coulee slopes east of Heritage Heights (approximately 1.5 km east of University Drive) which connects to the Lethbridge Urban Park and its associated trail system.
- b) The general topography west of the site has rolling hills and the higher portions west of the site provide partial view of the mountains to the south-west.

### 3.0 PROPOSED LAND USES AND DESIGN CONSIDERATIONS

#### 3.1 Proposed Land Uses and Dwelling Form

The proposed land uses are outlined in Figure 7 and summarized in Table 1.

Table 1. PROPOSED LAND USES

LAND USE	APPROXIMATE AREA GROSS (Ha)	% OF TOTAL AREA
Residential:		
a) Low Density (detached & duplex)	12.80	24.4 %
b) Medium Density	2.24	4.3 %
c) High Density	2.13	4.0 %
Commercial	16.42	31.3 %
Seniors Village	8.02	15.3 %
Recreational/Open Space	4.36	8.3 %
Major Collector & Arterial Roadways	6.53	12.4 %
<b>AREA TOTAL</b>	<b>52.5ha</b>	<b>100 %</b>

##### 3.1.1 General

The General Municipal Plan (reference Sec C.1.2) specifically addresses land uses in West Highlands:

"It is recommended that the quarter-section north of Indian Battle Heights be developed as a northerly extension of the Indian Battle Heights village. This area will likely contain a "service centre" along University Drive (see Section 1.5), multi-unit housing, and single detached housing. To encourage continued single detached housing development in the other areas of West Lethbridge listed above, no single detached residential development will be allowed in this area until May 1, 2000."



### 3.1.1 (continued)

The recommended land uses described below and shown in Figure 7 responds directly to this General Municipal Plan planning goal.

### 3.1.2 Residential Land Uses

One of the goals of the GMP is to achieve "balanced neighbourhoods with a mix of housing types and densities." It also recommends that high density housing be concentrated along collector roads and close to commercial facilities. Accordingly, the West Highlands ASP recommends that the land adjacent to the north-south collector on the west side of the commercial area be designed for medium to high density use (see Figure 7). In order to achieve the GMP goal of a mix of housing types it is suggested that the medium density site consist of four-plex or townhouse development with a density between 34 and 54 units per hectare.

The high density site should allow for walk-up or medium high rise apartments but should not allow for high rise apartments. The density on this site should range between 49 and 86 units per hectare.

The Low Density residential use area should provide for a mix of single family and duplex (semi-detached) housing types. In keeping with the GMP goal of affordable home ownership, single family lots in West Highlands should be designed as narrower lots with good access to park facilities and public transit. In addition, the final layout should provide for smaller cells of housing units allowing for a greater sense of neighbourhood. It is recommended that the target density for the low density residential areas be about 20 units/ha.

### **3.1.3 Commercial Land Uses**

In keeping with the recommendations of the GMP and the Urbanization of West Lethbridge document, a commercial/employment area is proposed for the site (see Figure 7). This commercial/employment area is located adjacent to University Drive between Gary Drive and Third Avenue West.

The GMP recommends a site of at least 4 ha. which would provide multi-village level of services to residents of West Lethbridge. The proposed commercial site contains 16.42 hectares, and all of which has been optioned to a shopping centre developer. Approximately 35,000 to 40,000 square metres of building development could be accommodated with major uses such as a food store, home improvement centre, super drug store, financial institution, automotive services and eating/drinking establishments being planned. The size of the commercial site has been planned to allow for a "critical mass" of development with generous parking allocations necessary to make the provision of the varied commercial facilities economical, accessible and practical. It is proposed that berming and landscaping be installed along Gary Drive on the south boundary of the commercial area as well as locations on the east and west side of University Drive as shown in Figure 8. This would provide a visual barrier for existing residents in neighbouring Indian Battle Heights and Heritage Heights.

### **3.1.4 Seniors Village**

As suggested in the GMP, there is a greater demand for non-traditional housing that is oriented more towards adults or seniors in a "lifestyle" community setting.

### 3.1.4 (continued)

The West Highlands ASP designates a 8.02 ha. site south of the proposed lake and public open space amenity for a Seniors Village (see Figure 7). This village will be designed to reflect a variety of housing types including walk up apartments, townhouses, four-plex, duplex and single family housing. These housing units should be designed to accommodate the varying needs of seniors. Their needs would include those for seniors in good health as well as those with special needs. Nursing homes, senior citizen group homes and senior care homes should therefore be part of the housing mix.

In addition to meeting the varied housing needs of seniors; provisions should be made to accommodate their recreational and personal service needs. Outdoor recreational needs could be met by utilizing the open space/lake on the north side of the site as well as through open space provisions within the site. A recreational building should also be built to provide year-round indoor recreational opportunities for seniors. On-site facilities could also include a medical clinic, pharmacy, hair salon as well as other commercial facilities to accommodate the day to day personal service needs of seniors.

### 3.2 Population and Development Densities

Population densities for developed or planned village units in the City, range from 36.4 persons per gross hectare (p.p.g.ha.) in Varsity Village, to a planned 45.3 p.p.g.ha. in the Mountain Heights and River Bend area. The trend toward higher population densities in newer developments has resulted from the desire to make more efficient use of land and infrastructure and is reaffirmed in the "Strategy for Energy Efficient Residential Land Use for the City of Lethbridge", approved in principle by City Council.

### 3.2 (continued)

The following summarizes the distribution of the residential area by types of density:

	Gross Area	Target Density	No. of Units	Person Per Unit	Population
Low Density	12.80 ha	20 units/ha	256	3.0	768 people
Medium Density	2.24 ha	50 units/ha	112	2.9	325 people
High Density	2.13 ha	80 units/ha	170	1.9	323 people
Seniors Village	<u>8.02 ha</u>	<u>40 units/ha</u>	<u>321</u>	<u>1.7</u>	<u>546 people</u>
<u>Totals</u>	25.19 ha		859 units		1,962 people

Gross densities exclude commercial area, major collectors and arterial roadways and the two larger open space areas.

The overall density for the entire study area of 52.50 ha would be 16.4 units/ha or 37.4 people/ha. Excluding parks, arterials and collector roadways and the commercial area, the density would be 34.1 units/ha or 77.9 people/ha. With the land use mix designated above, West Highlands could have a total of 859 units and support a population of about 1,962 people.

### 3.3 Park and Open Space

The proximity of West Highlands to the River Valley and Urban Parks and to Atso Towasa Valley Park in Indian Battle Heights; as well as the relatively small population suggest that a village scale park is not necessary at this time. Village scale park development should however be planned for lands to the west when the ASP is developed for the balance of the Village that would include West Highlands.

West Highlands can effectively be serviced with a large block park of about 3.75 ha and smaller block park of about 0.6 to 0.7 ha. The general location of these parks is shown in Figure 8.

### 3.3 (continued)

The larger park is centrally located to accommodate the Seniors Village and the medium density development, as well as a portion of the low density development. The smaller park would accommodate the needs for the high density uses as well as the balance of the low density development.

Both open space areas will be designed to serve as storm water management facilities. At this time it is anticipated that a lake encompassing about 1.75 ha will be developed on the larger block park and a dry pond type storm water facility will be developed on the smaller block park. The total area of open space including block parks and open space linkages should not exceed 10% of the gross site area or 5.25 ha.

### 3.4 Linkages - Internal and to Adjacent Areas

In keeping with one of the goals of the GMP, which is to have walking and cycling trails included within the right of way of arterial roads, it is proposed that a major regional trail be incorporated into the right-of-way along the south side of Gary Drive. This would connect to the trail system linking the schools and major open space in Indian Battle Heights, as well as to the trail underpass under University Drive and through Heritage Heights and Ridgewood Heights to the River Valley.

It is therefore essential that sufficient internal linkages (see Figure 8) be planned through West Highlands to connect with this proposed regional trail along Gary Drive. Since West Highlands will ultimately be part of a larger village extending to the west where school sites, major village open spaces and other village amenities will be located, it is essential that there be sufficient linkages planned to the west allowing for safe transportation of people and bicycles.

### 3.4 (continued)

It is also recommended that in the design of Gary Drive, that provision be made to safely accommodate a trail crossing at the intersection with Squamish Drive.

### 3.5 Existing and Future Road Transportation Network

University Drive and Third Avenue West, although not within the ASP, provide the boundaries for the study area. Provision has been made along the south boundary to provide the land necessary for Gary Drive, which is a future arterial that would connect University Drive with the future Chinook Trail.

The major collector roadways within the study area are shown in Figure 6 and are designed to provide access to the arterial roadways for the commercial and higher density traffic without interfering with development in the low density residential areas.

Stanley Associates Engineering Ltd. were commissioned to produce a report entitled "University Drive/Gary Drive Development Transportation Impact Assessment" dated January 16, 1995. This report provides a preliminary analysis of the transportation system requirements as a result of the anticipated traffic that will be generated by the proposed Commercial and Multi-family development adjacent to University Drive.

The collector road right-of-way standards and line assignments will be submitted for approval to the City of Lethbridge Subdivision Review Committee at the time of Outline Plan Approval. Local road locations and configurations will also be determined at that time with right-of-way standards and line assignments, to meet current City of Lethbridge standards.

### **3.6 Access to Schools**

No school site is proposed for this quarter section.

It is planned that students living in West Highlands would be accommodated within the existing schools of both the Public and Separate School systems. Provisions for the required school sites should be taken into account when the ASP for the balance of the village is being developed.

### **3.7 Noise Levels and Buffer Requirements**

The main sources of noise in the A.S.P. area is the perimeter arterial road traffic which includes University Drive, Gary Drive, and Third Avenue West. These roadways have sufficient right of way widths to provide for noise attenuation berming as required adjacent to residential areas. Noise attenuation berming is not necessary when the roadways are adjacent to commercial areas. It is recommended that berming and/or landscaping be provided as shown on Figure 8 to provide a visual barrier from the commercial site to existing residences in Indian Battle Heights and Heritage Heights.

Detailed noise calculations and noise abatement measures are more appropriately addressed at the subdivision design stage. Noise abatement measures may include any one or a combination of the following:

- increased building setbacks
- berming
- noise abatement fencing

### 3.8 Coal Mine Subsidence

EBA Engineering Consultants Ltd. prepared a report titled "Mining Subsidence Study" for the Heritage Heights subdivision dated July 1, 1989. This report includes a plan that shows the coal mine locations and indicates that coal mining activity extended into West Highlands study area.

It is recommended that a mining subsidence study be undertaken to specifically address the West Highlands area prior to the approval of an Outline Plan or any tentative plans of subdivision.



## 4.0 SERVICING

### 4.1 Water Distribution System

A report was completed in September 1991 by Associated Engineering Alberta Ltd., entitled "West Lethbridge Water Distribution Improvements". This report indicated that a 300 mm diameter watermain grid is required throughout the A.S.P. area at a spacing of approximately 400 metres to 700 metres. This study did not indicate the realignment of University Drive and the proposed adjacent commercial/multi-family sites.

With the proposed collector roadway pattern it is possible to realign the grid connections onto the collector roadway with some adjustments. Subject to sizing details being checked during the Outline Plan stage, there is adequate provision in the proposed watermain grid system to supply the entire A.S.P. area. Figure 11 shows the proposed modified grid pattern for the water distribution trunk mains.

### 4.2 Sanitary Sewer System

The existing 600 mm diameter trunk sanitary sewer main on 3rd Avenue West is designed to accommodate the sewage flows from the current A.S.P. area and an upstream area extending to the proposed Chinook Trail corridor. The entire A.S.P. area will be serviced by a gravity flow piped system connecting to this trunk sewer.

The proposed collector roadway alignments provide a corridor for the extension of the sanitary sewer trunk (see Figure 9). This trunk must be designed to accommodate an upstream flow of 0.213 cubic meters per second from future developments to the west. The City engineering department has indicated that a maximum invert elevation of 922.340 metres is necessary to service this future development to the west.

### 4.3 Stormwater Management

The 'West Lethbridge Storm Water Management Study' (MPE Engineering Ltd., 1989) identifies that the West Highlands drainage basin must provide 165 cubic metres of storm water storage for each hectare of developed land. This storage is proposed to be accommodated by a combination of trapped lows in the street grading network, trapped lows in the commercial parking areas, and by two stormwater management ponds located within the open space park developments.

The proposed storm sewer trunk will tie into an existing 1800 mm storm sewer on 3rd Avenue West (see Figure 10), which connects to the existing Heritage Heights outfall line leading to the Oldman River. The storm sewer trunk will be extended south and westerly to the west boundary of the A.S.P. area.

In order to accommodate drainage from future developments west of the West Highlands A.S.P. area, the storm trunk must be designed to accommodate a design flow of 5.346 cubic metres per second, and be installed at a maximum elevation of 919.00 metres at the west boundary.

Within the A.S.P. drainage basin a storm drainage system incorporating storage facilities consisting of one wet pond and one dry pond is envisioned.

A "wet pond" storm water facility that permanently retains water and provides temporary storage detention above its normal water level is proposed in the southwest open space area. The proposed wet pond lake is adjacent to the existing irrigation canal corridor which can readily provide a supply of untreated water for irrigation of the adjacent open space park areas. This will avoid the use of treated (potable) water for irrigation. The wet pond lake provides an opportunity for enhancing aesthetics and providing a joint use open space park amenity in conjunction with stormwater management.

#### 4.3 (continued)

A "dry pond" storm water facility that temporarily stores a portion of the drainage runoff is proposed for the northwest residential area. For the majority of the time this stormwater storage facility will be dry with only occasional storage of stormwater runoff. Dry ponds provide for dual usage of land dedicated for active and passive recreational purposes.

Both the wet pond and dry pond facilities will require oversizing to accommodate the upstream drainage areas west of the ASP site. These ponds will be sized to accommodate additional storage based on a contour analysis of the upstream quarter section.

The commercial parking areas in the first two phases of the planned development will be designed with "trap lows" to temporarily store the runoff, thus reducing flow rates into the trunk sewer to within acceptable limits. Phase 3 will require the construction of the wet pond storage facility and Phase 5 will require construction of the dry pond facility.

#### 4.4 Irrigation Canal

There is an existing irrigation supply canal running north-south through the center of the quarter section. This open ditch connects to an underground pipe system commencing at the Father L. Van Tighem school site, southward to Nicholas Sheran Lake, to the University of Lethbridge and to farms south of the University.

It is necessary to maintain irrigation water supply flows through the West Highlands A.S.P. area. This can be accommodated by means of underground pipe installation or open channels or a combination of these. A turn-out structure will be required in order to supply irrigation water to the proposed wet pond lake.

#### **4.5 Electrical, Telephone and Gas**

The various utility companies responsible for electrical, telephone and gas distribution have indicated that the West Highlands would be serviced, without any problems, by extending lines from the existing distribution system in surrounding developments. (see Figure 12)

Canadian Western Natural Gas Company Limited operates the Willowbrook Gate Station located in the northwest corner of the SE ¼, Section 34 (south side of proposed Gary Drive). The high pressure gas main that feeds gas to this gate station is located in an 18 metre wide utility right-of-way adjacent to the southwest corner of the A.S.P. area. This right-of way will be incorporated into the Gary Drive road right-of-way. Buildings developed in the vicinity of this high pressure gas main corridor will be required to be set back at least 15 metres from the pipeline itself. The proposed residential area in the vicinity of this existing pipeline will not require any greater setback dimensions than is normally provided.

The electrical and Telephone utilities do not require any special provisions other than standard 3.5 metre wide easements adjacent to the proposed collector roadways. Servicing capacity is readily available.

#### **4.6 Public Transit**

The proposed north-south major collector roadway adjacent to the west side of the commercial area provides an ideal bus route since the medium and high density and commercial uses are adjacent to this roadway (see Figure 6). Provision for bus stops should be made along this corridor.

#### 4.7 Police and Fire/Ambulance Services

Fire service and ambulance service can be provided to this site through the existing fire and ambulance facilities on the intersection of Whoop Up Drive and Jerry Potts Blvd. It is anticipated that response times would be in accordance with the existing City policy.

Police protection will be provided from the central, downtown facility.

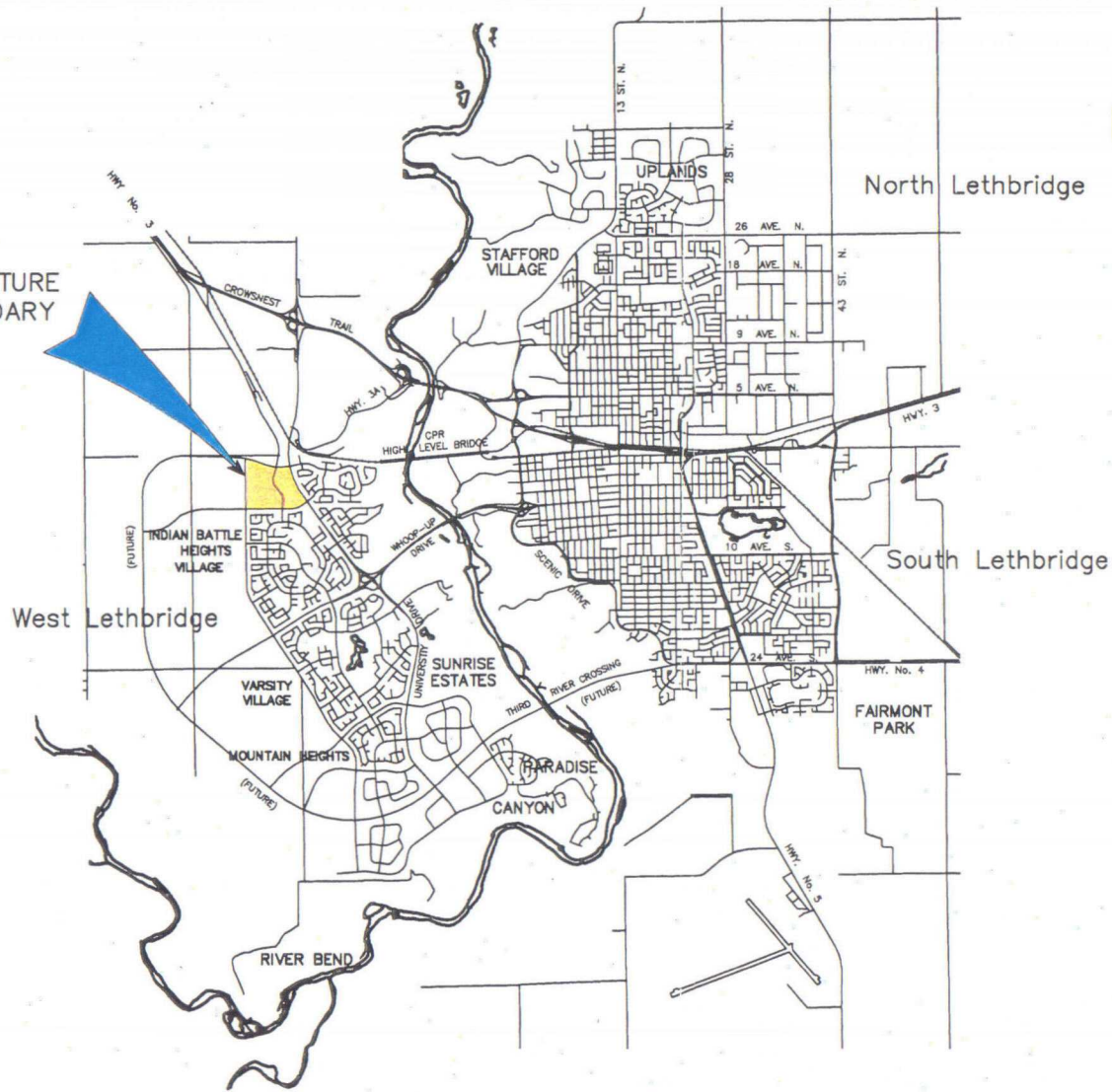
## 5.0 STAGING OF DEVELOPMENT

### 5.1 Phasing

The north half of the commercial area east of Westside Drive is anticipated to be the first phase of the development. The general direction of development phasing will be from north to south and from east to west, reflecting a logical extension of the trunk sewers and roadways through the quarter section (see Figure 13).

In addition, no single family residential development will occur until May 1, 2000.

AREA STRUCTURE  
PLAN BOUNDARY



**FIGURE 1**

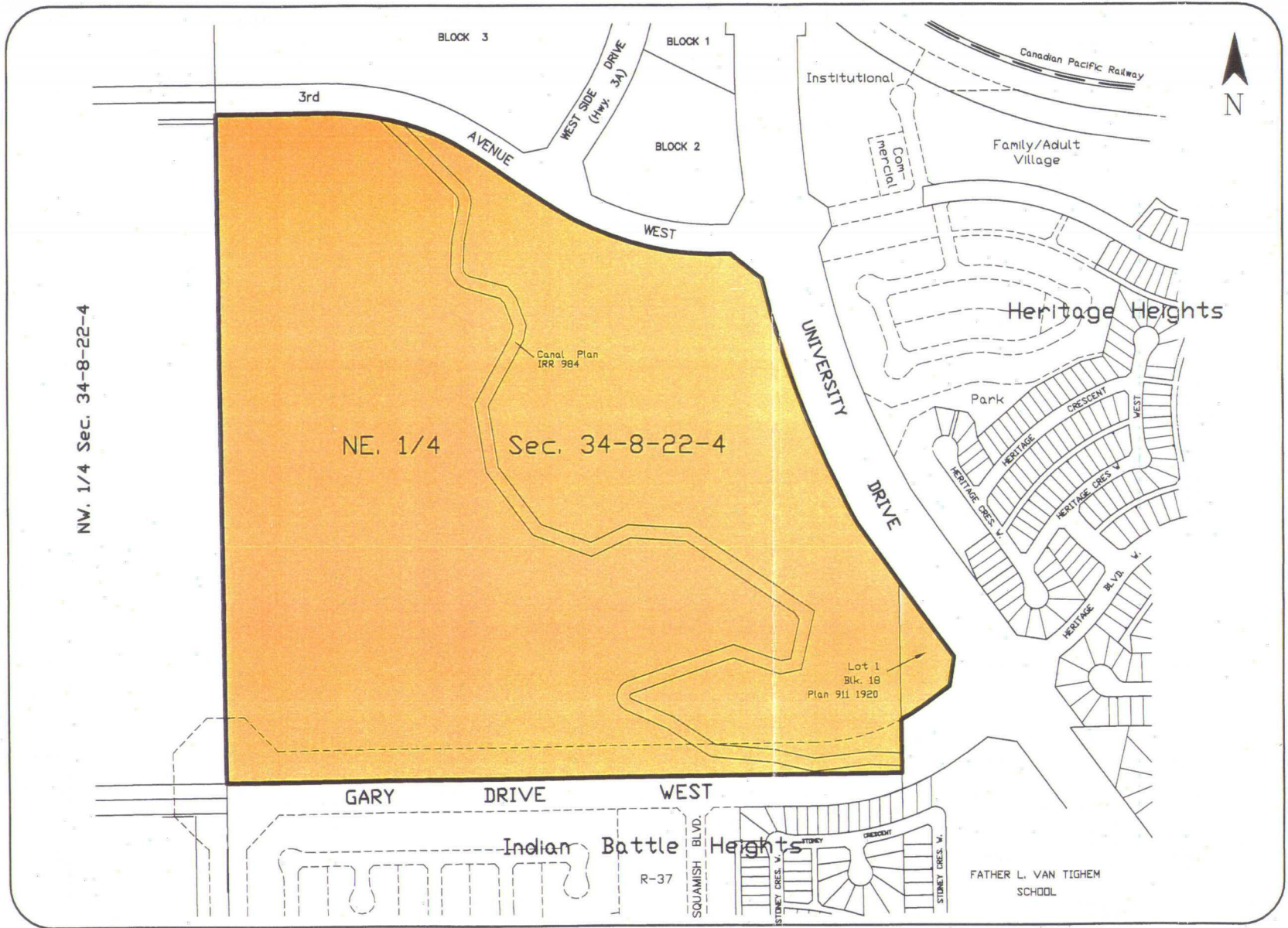
TITLE

**Location Map**

**WEST HIGHLANDS**

**AREA  
STRUCTURE PLAN**

MARTIN GEOMATIC CONSULTANTS LTD.  
CONSULTING ENGINEERS, PLANNERS, & LAND SURVEYORS  
255-31st Street North Lethbridge, Alberta




NW. 1/4 Sec. 34-8-22-4


NE. 1/4 Sec. 34-8-22-4

**FIGURE 2**  
 TITLE  
**Area Boundary**

LEGEND

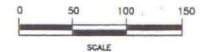
 AREA STRUCTURE PLAN BOUNDARY

Gross Area = 52.50 ha

 OUTLINE PLAN BOUNDARIES

WEST HIGHLANDS

**AREA  
 STRUCTURE PLAN**



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**FIGURE 3**

TITLE

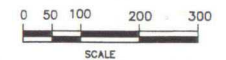
**Adjacent  
Land Use and  
Opportunities/  
Constraints**

**LEGEND**

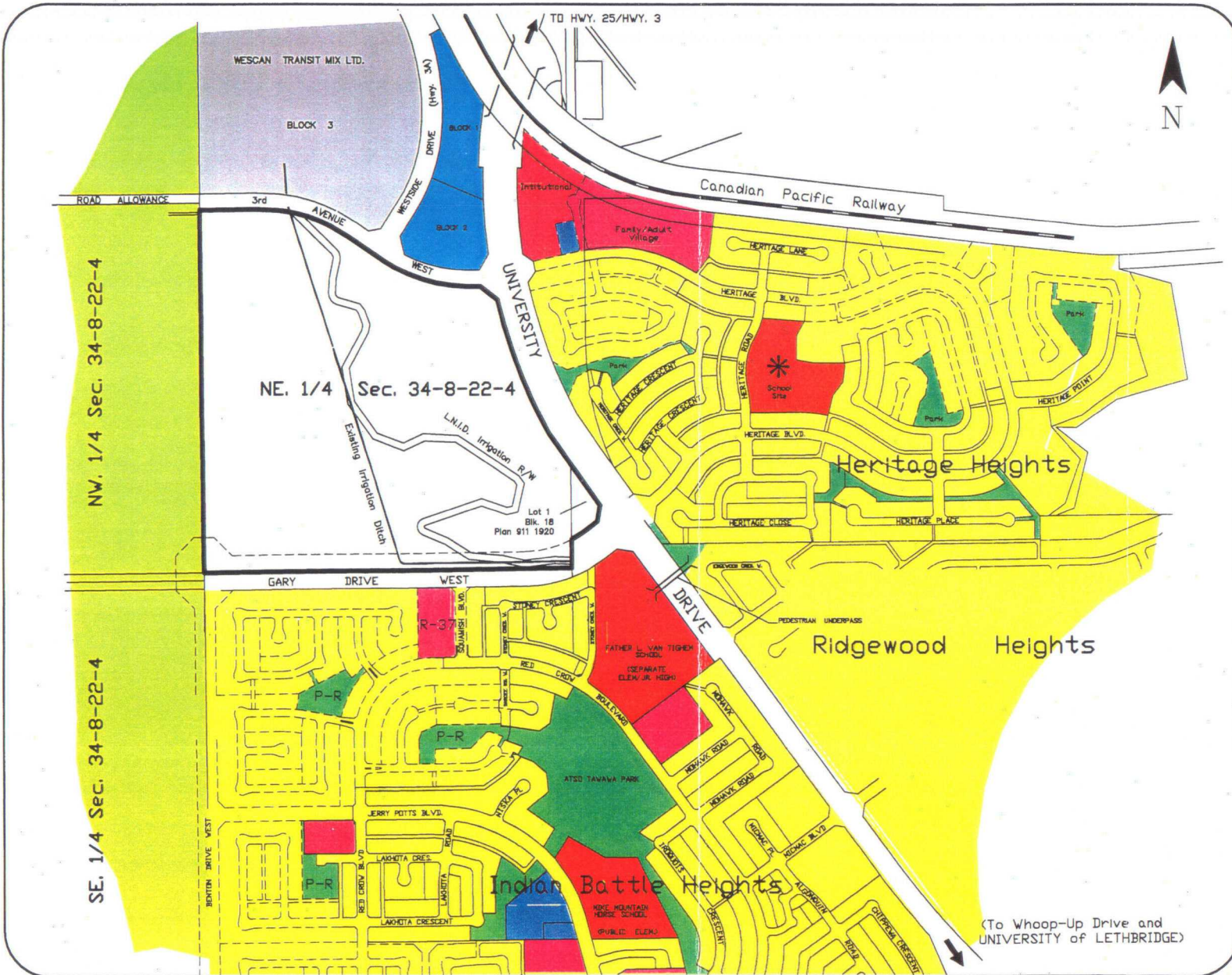
- ..... AREA STRUCTURE PLAN BOUNDARY
- ..... RESIDENTIAL
- ..... MULTI-FAMILY
- ..... INSTITUTIONAL
- ..... COMMERCIAL
- ..... PARK
- ..... SCHOOL SITE
- ..... URBAN RESERVE AGRICULTURAL USAGE
- ..... URBAN RESERVE VACANT
- ..... URBAN RESERVE INDUSTRIAL USAGE
- ..... OUTLINE PLAN BOUNDARIES
- \*..... PROPOSED SCHOOL SITE

**WEST HIGHLANDS**

**AREA  
STRUCTURE PLAN**



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(To Whoop-Up Drive and  
UNIVERSITY OF LETHBRIDGE)

NW. 1/4 Sec. 34-8-22-4

BLOCK 3

BLOCK 1

BLOCK 2

3rd AVENUE WEST

WEST SIDE DRIVE

Institutional

Canadian Pacific Railway



Family/Adult Village

### FIGURE 4


TITLE

### Land Ownership

LEGEND


 AREA STRUCTURE  
 PLAN BOUNDARY

Ownership:

 Monco Holdings Ltd. - 29%  
B.A.T. Development Ltd. - 21%  
G.L. Germanluk - 20 %  
Braewood Dev. Co. - 20 %  
R.F. Burrell - 10%

 L.N.I.D.

 City of Lethbridge

 OUTLINE PLAN  
BOUNDARY

NE. 1/4 Sec. 34-8-22-4

Heritage Heights

UNIVERSITY DRIVE

Park

HERITAGE CRES. WEST

HERITAGE CRES.

HERITAGE CRES.

HERITAGE CRES.

HERITAGE CRES.

HERITAGE CRES.

HERITAGE CRES.

HERITAGE CRES.

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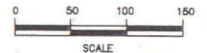
HERITAGE CRES.

GARY DRIVE WEST

Lot 1  
Blk. 18  
Plan 911 1920

### WEST HIGHLANDS

### AREA STRUCTURE PLAN



MARTIN GEOMATIC CONSULTANTS LTD.  
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285-31st Street North Lethbridge, Alberta

Indian Battle Heights

R-37

SQUAMISH BLVD.

STONEY CRES. V.

STONEY CRES. V.

STONEY CRES. V.

STONEY CRES. V.

STONEY CRES. V.

STONEY CRES. V.

STONEY CRES. V.

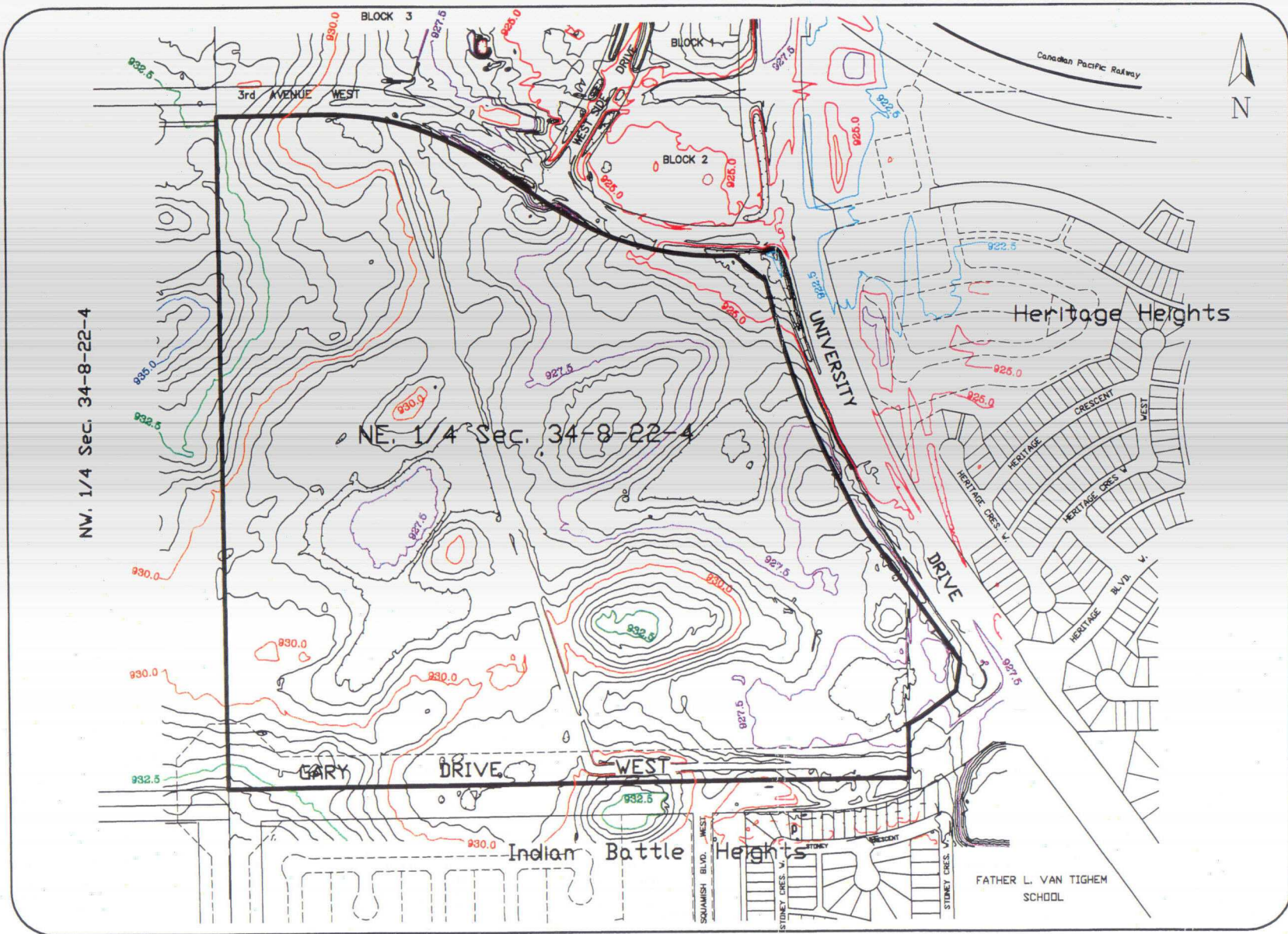
STONEY CRES. V.

STONEY CRES. V.

STONEY CRES. V.

STONEY CRES. V.

FATHER L. VAN TIGHEM  
SCHOOL



NW. 1/4 Sec. 34-8-22-4

NE 1/4 Sec. 34-8-22-4

**FIGURE 5**

TITLE  
**Contour Analysis**

LEGEND

AREA STRUCTURE PLAN BOUNDARY

Elevations are in metres and are referenced to geodetic datum.

932.5	.....	932.5
930.0	.....	930.0
927.5	.....	927.5
925.0	.....	925.0
922.5	.....	922.5

----- OUTLINE PLAN BOUNDARY

**WEST HIGHLANDS**  
**AREA**  
**STRUCTURE PLAN**






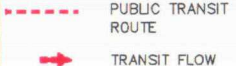

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Lethbridge, Alberta

Nw. 1/4 Sec. 34-8-22-4



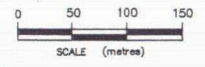
**FIGURE 6**

TITLE  
**Transportation  
 Concept**

- LEGEND
-  AREA STRUCTURE PLAN BOUNDARY
  -  ARTERIAL
  -  MAJOR COLLECTOR
  -  PUBLIC TRANSIT ROUTE  
TRANSIT FLOW DIRECTION
  -  OUTLINE PLANS BOUNDARY

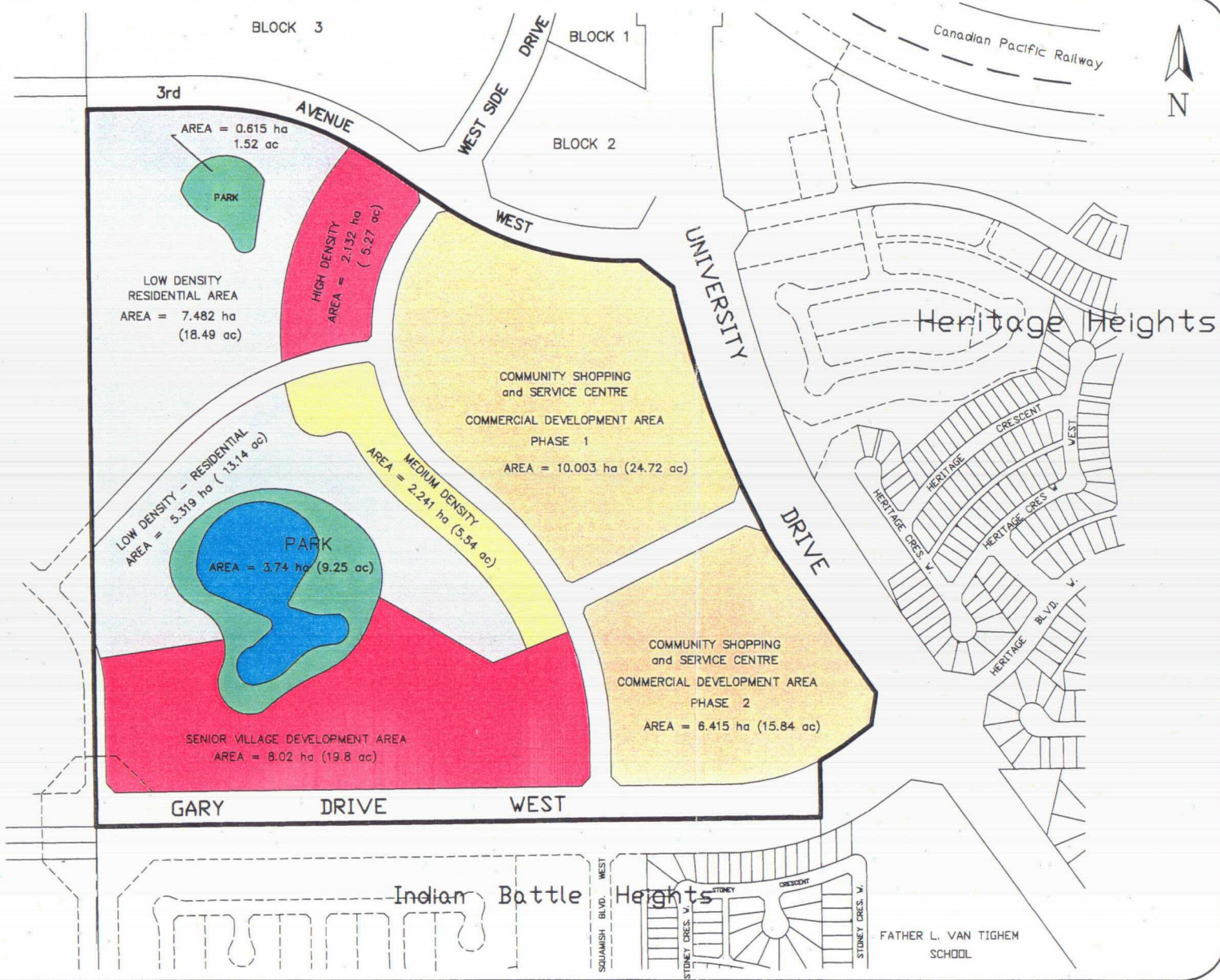
**WEST HIGHLANDS**

**AREA  
STRUCTURE PLAN**



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NW. 1/4 Sec. 34-8-22-4



**FIGURE 7**

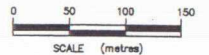
TITLE  
**Proposed Land Use**

LEGEND

- AREA STRUCTURE PLAN BOUNDARY
  - OUTLINE PLAN BOUNDARY
  - ..... COMMERCIAL
  - ..... HIGH-DENSITY
  - ..... MEDIUM-DENSITY
  - ..... LOW-DENSITY
  - ..... SENIOR
  - ..... PARK
  - ..... LAKE
  - ..... BUFFER
- NOTE: SINGLE FAMILY DEVELOPMENT NOT TO COMMENCE PRIOR TO MAY 1st, 2000

**WEST HIGHLANDS**

**AREA STRUCTURE PLAN**



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NW. 1/4 Sec. 34-8-22-4



**FIGURE 8**

TITLE

# Open Space & Pedestrian & Bicycle Link

LEGEND

— AREA STRUCTURE PLAN BOUNDARY

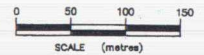
- - - - - PEDISTRIAN/BICYCLE LINKAGE

..... OUTLINE PLANS BOUNDARIES

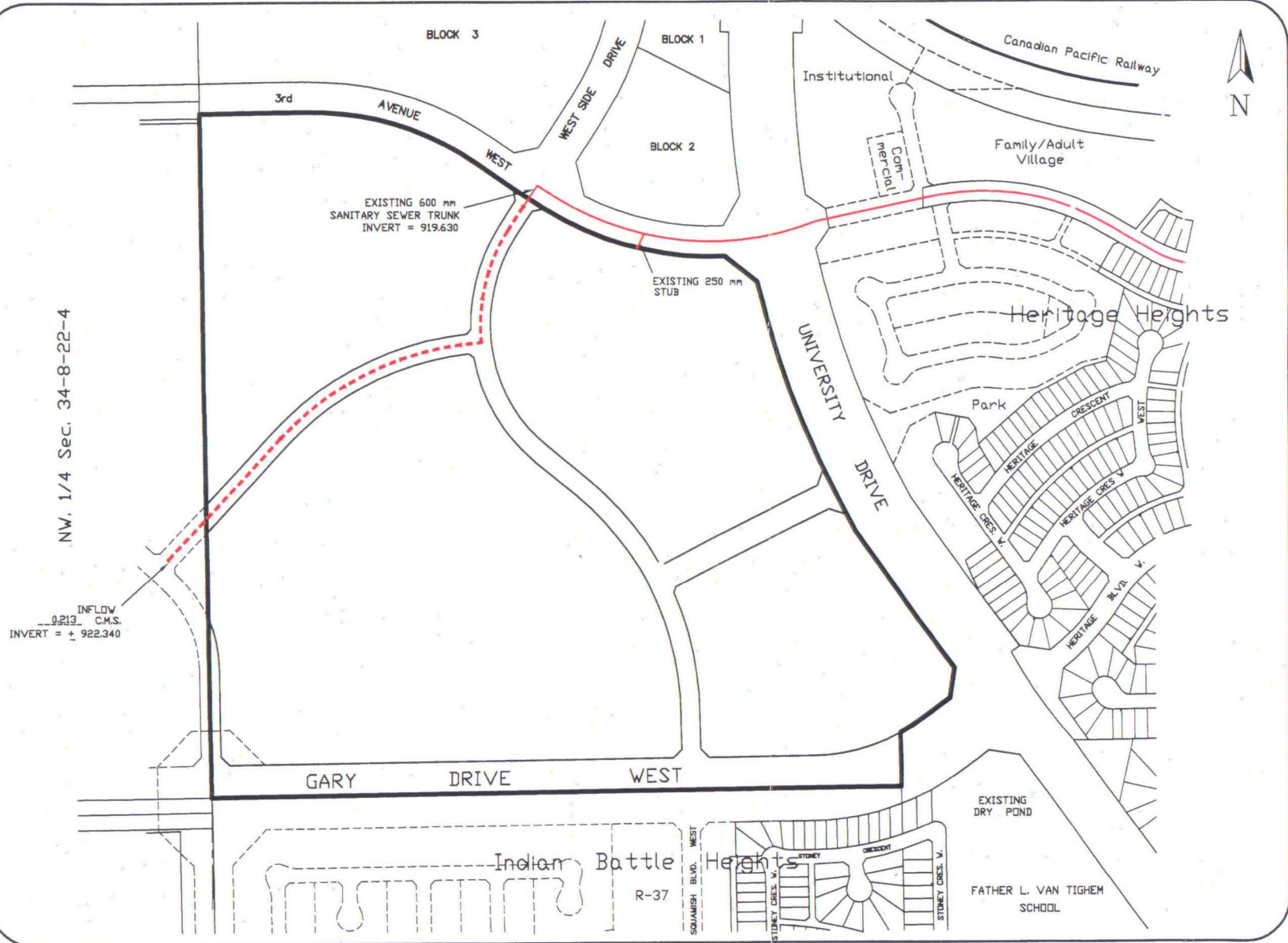
□ BUFFER (BERM/LANDSCAPING)

WEST HIGHLANDS

## AREA STRUCTURE PLAN



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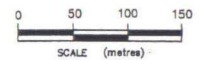
Nw. 1/4 Sec. 34-8-22-4



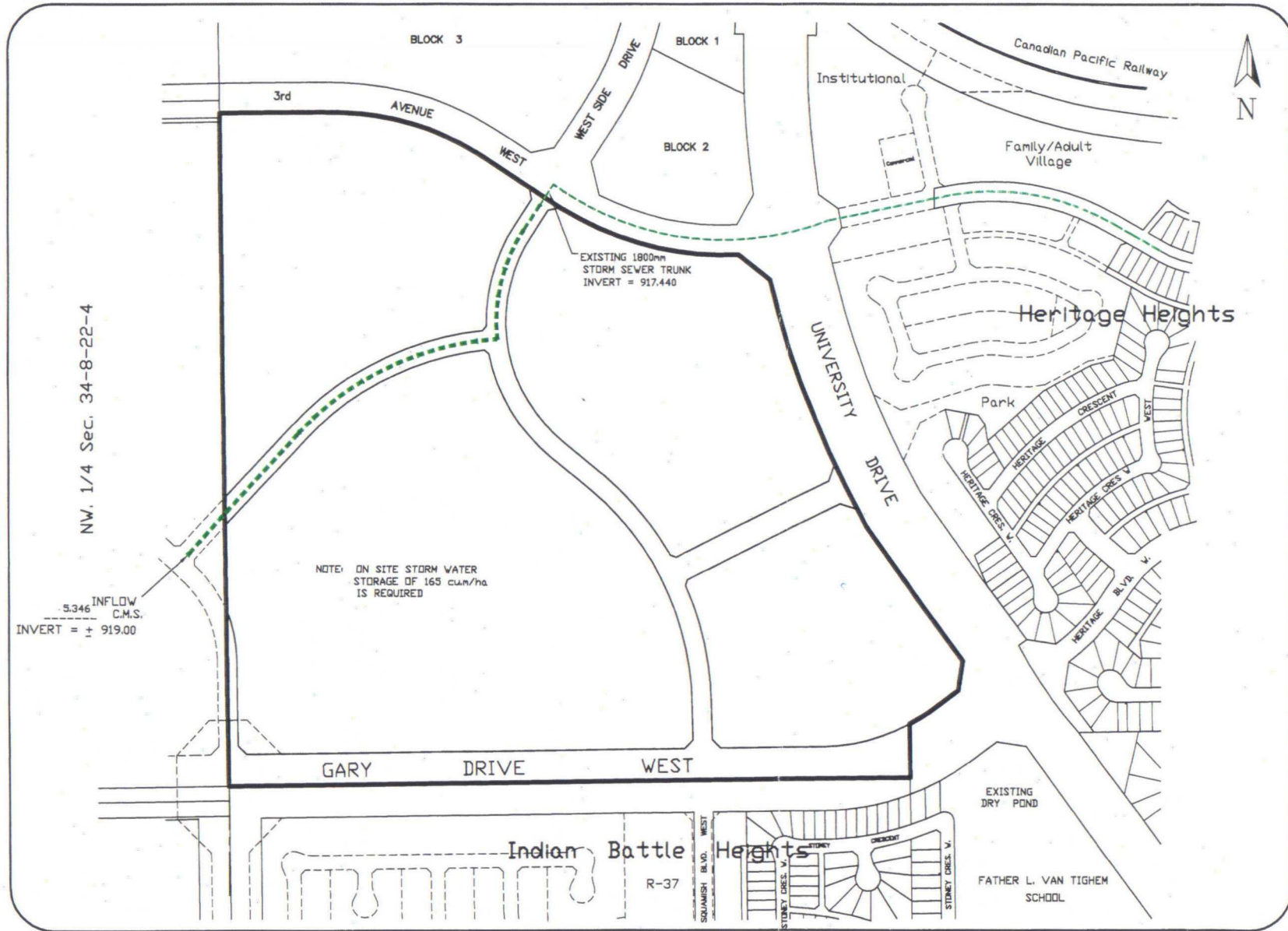
**FIGURE 9**  
 TITLE  
**Sanitary Sewer Trunk**

- LEGEND
- AREA STRUCTURE PLAN BOUNDARY
  - OUTLINE PLAN BOUNDARIES
  - EXISTING 600mm SANITARY SEWER TRUNK
  - PROPOSED 600 mm SANITARY SEWER TRUNK

**WEST HIGHLANDS**  
**AREA**  
**STRUCTURE PLAN**



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**FIGURE 10**

TITLE

**Storm Sewer Trunk**

- LEGEND
- AREA STRUCTURE PLAN BOUNDARY
  - OUTLINE PLAN BOUNDARIES
  - EXISTING 1800mm STORM SEWER TRUNK
  - PROPOSED 1800 mm STORM SEWER TRUNK

**WEST HIGHLANDS**

**AREA STRUCTURE PLAN**

(NE. 1/4 Sec. 34-8-22-4)

0 50 100 150  
SCALE (metres)

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NW. 1/4 Sec. 34-8-22-4



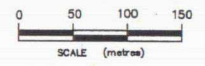
**FIGURE 11**

TITLE  
**Water Mains**

- LEGEND
- AREA STRUCTURE PLAN BOUNDARY
  - OUTLINE PLAN BOUNDARIES
  - EXISTING 300mm WATER MAIN
  - EXISTING 250mm WATER MAIN
  - EXISTING 200mm WATER MAIN
  - PROPOSED 250mm WATER MAIN
  - PROPOSED 300mm WATER MAIN

**WEST HIGHLANDS**

**AREA STRUCTURE PLAN**



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NW, 1/4 Sec. 34-8-22-4



**FIGURE 12**

TITLE

**UTILITIES**

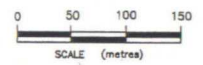
- Electrical
- Telephone
- Gas

**LEGEND**

<hr style="border: 1px solid black;"/>	
AREA STRUCTURE PLAN BOUNDARY	
<hr style="border: 1px dashed black;"/>	
EXISTING	
E	ELECTRICAL
G	GAS
T	TELEPHONE
<hr style="border: 1px dashed black;"/>	
PROPOSED	
E	ELECTRICAL
G	GAS
T	TELEPHONE

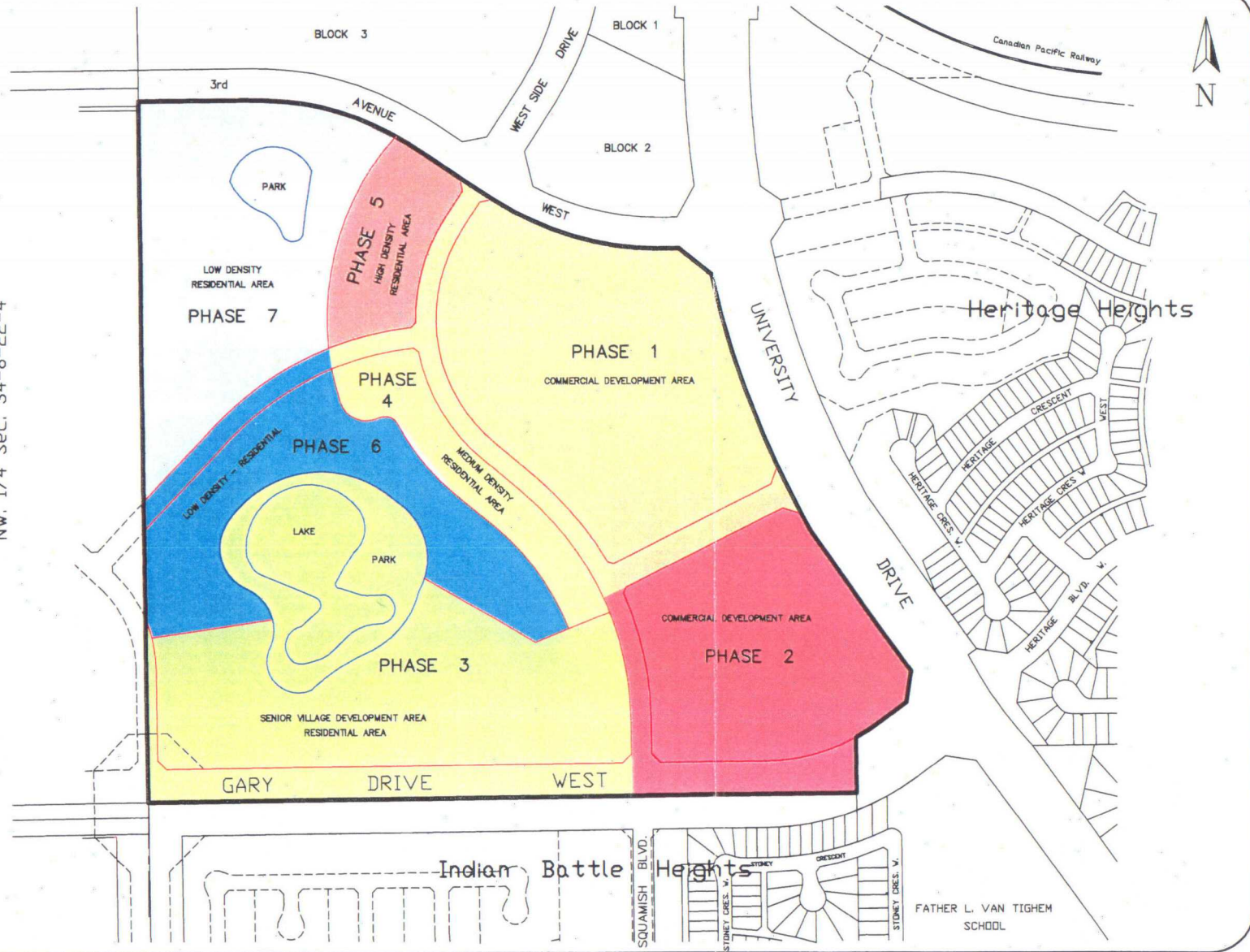
**WEST HIGHLANDS**

**AREA STRUCTURE PLAN**



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NW. 1/4 Sec. 34-8-22-4



**FIGURE 13**

TITLE

# Phasing

## LEGEND

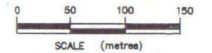
AREA STRUCTURE PLAN  
BOUNDARY

- ..... PHASE 1
- ..... PHASE 2
- ..... PHASE 3
- ..... PHASE 4
- ..... PHASE 5
- ..... PHASE 6
- ..... PHASE 7

NOTE: SINGLE FAMILY DEVELOPMENT NOT TO COMMENCE PRIOR TO MAY 1st, 2000

## WEST HIGHLANDS

### AREA STRUCTURE PLAN



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