NISKU WEST Area Structure Plan



NISKU WEST Area Structure Plan

Prepared on behalf of SPARROW DEVELOPMENTS LTD.

By

Mackenzie Spencer Associates

In collaboration with

Associated Engineering Services Limited

June, 1980

BY-LAW NO. 1458-80

COUNTY OF LEDUC NO. 25

BEING THE COUNTY OF LEDUC NO. 25 NISKU WEST AREA STRUCTURE PLAN ADOPTING BY-LAW PURSUANT TO THE PROVISIONS OF PART 6 OF THE PLANNING ACT, 1977.

WHEREAS a proposed Area Structure Plan (hereinafter referred to as "The Nisku West Area Structure Plan") has been prepared for the County of Leduc No. 25 based on surveys and studies of land use, population growth, industrial and commercial demands, the economic base of the County, transportation and communication needs and other relevant factors; and

WHEREAS the Nisku West Area Structure Plan provides a framework for subsequent industrial and commercial subdivision and development of lands within the Nisku area, more particularily described as:

East Half of Section 11, the East Half of Section 14 and the East Half of Section 23, Township 50, Range 25, West of the 4th Meridian, which are located between the existing north and south bound lanes of Highway 2, in the County of Leduc. The area thus described is bounded by Nisku Road to the north and the Leduc/Highway 2 interchange to the south, encompasses approximately 204 Hectares (505 Acres).

NOW THEREFORE the Council of the County of Leduc No. 25 under the authority of Part 6, the Planning Act 1977, enacts the following:

- (1) The Council of the County of Leduc No. 25 hereby adopts the Area Structure Plan to be known as "The County of Leduc No. 25 Nisku West Area Structure Plan".
- (2) The Nisku West Area Structure Plan map and policy statements are hereby adopted as part of this By-Law and shall be maintained under separate cover at the County Offic in the Town of Leduc or such other location of the County Office as may be established by Council from time to time.
- (3) The County of Leduc No. 25 Nisku West Area Structure Plan contains projections and policies for development which shall be used to explain, justify and interpret the Nisku West Area Structure Plan adopting By-Law.
- (4) This By-Law may be amended by By-Law in accordance with the provisions of the Planning Act 1977.

READ FIRST TIME THIS 13th day of June

READ A SECOND TIME THIS 14th

, A.D. 1980.

SEAL

day of August , A.D. 1980.

READ A THIRD TIME by unanimous consent of the Council Members present this 14th day of August , A.D. 1980.

DONE AND PASSED in open Council meeting this 14th day of August

, A.D. 1980.

REEV

SEAL

SECRETARY-TREASURER

TABLE OF CONTENTS

			Page
INTRO	DUCTIO	NC	
	Ι.	Purpose	. 1
	II.	Background	. 2
	III.	Conformance to Relevant Plans	. 5
	IV.	Document Format and Acknowledgements	. 7
PART	ONE:	THE PLAN AREA	
	Ι.	The Setting	. 9
	II.	Major Transportation Facilities	. 12
	III.	Physical Description	. 16
	IV.	Other Existing Development Features	. 20
PART	TWO:	THE DEVELOPMENT CONCEPT	
	Ι.	Definition of the Development Concept	. 21
	II.	Development Policies	. 24
	III.	Major Components of the Concept	. 27
PART	THREE	: IMPLEMENTATION	
	I.	Introduction	. 37
	II.	Airport Regulations	. 38
	III.	Subdivision Standards	. 40
	IV.	Architectural, Landscaping and Sign Control Standards	. 42
	ν.	Roadway Construction Standards	. 45
	VI.	Timing and Staging of Development	. 46
CONCI	USTON		. 47

LIST OF MAPS

		Follow		ing Page	
i.	Location	•	•	4	
2.	The Setting		•	10	
3.	Highway 2 Improvement Program			12	
1.	Existing Development Features		•	17	
5.	Land Use and Roadway Patterns	٠		27	
ó.	Water and Sanitary Sewage Patterns		•	31	
7.	Storm Water Management			33	

LIST OF FIGURES

		Follow	ing Page
L.	Nisku West - 1950 Aerial Photograph		16
2.	Nisku West - 1962 Aerial Photograph		16
3.	Landscaping Concept - Highway 2 Frontage		43
1.	Landscaping Concept - North Park Reserve		43
5.	Landscaping Concept - Storm Pond Park		44
5 .	Setback Landscaping Concept		44
7.	Roadway Cross-Section		45

INTRODUCTION

I. PURPOSE

The purpose of this document is to serve as a framework for the industrial subdivision and development of those portions of the East Half of Section 11, the East Half of Section 14 and the East Half of Section 23, Township 50, Range 25, West of the 4th Meridian, which are located between the existing north and south bound lanes of Highway 2, in the County of Leduc. The area thus described is bounded by Nisku Road to the north and the Leduc/Highway 2 interchange to the south, encompasses approximately 204 hectares (505 acres), and is hereinafter referred to as Nisku West. This Plan document has been prepared in accordance with the requirements of the Planning Act (1977) and is intended to be adopted by bylaw by the County of Leduc.

II. BACKGROUND

The economy of the Province of Alberta, since 1971, has been the healthiest of all the Canadian provinces and gains in most sectors of the Provincial economy have exceeded national averages. supply of natural resources within central and northern Alberta and the Far North, and the increased activity in resource exploration and related major construction projects, such as oil sands extraction plants and petrochemical developments, are most responsible for the Province's healthy economic position. Certain large scale economic factors at the national and provincial level suggest a continuing healthy and expanding Alberta economy. At the national level, the aspiration towards self-sufficiency in energy supplies will ensure further exploration and development of energy sources and, at the Provincial level, the aspiration towards maximizing the economic benefits of Alberta's natural resource products prior to exporting these resources suggests an increased emphasis on secondary petrochemical industrial development and the development of concomitant derivative and service industries.

The Edmonton Metropolitan Area serves as the Provincial economic centre for petroleum exploration and processing activity. The Area's dominant economic role has been further strengthened by increased activity in the tertiary or service sector of the economy resulting from a rapidly increasing population which, in turn, results from the high levels of in-migration associated with a healthy economy. This substantive population increase also has contributed to the Metropolitan Area's development, during the 1970's, as a major Western Canadian centre for transportation, warehousing and distribution activities, and manufacturing operations serving Western

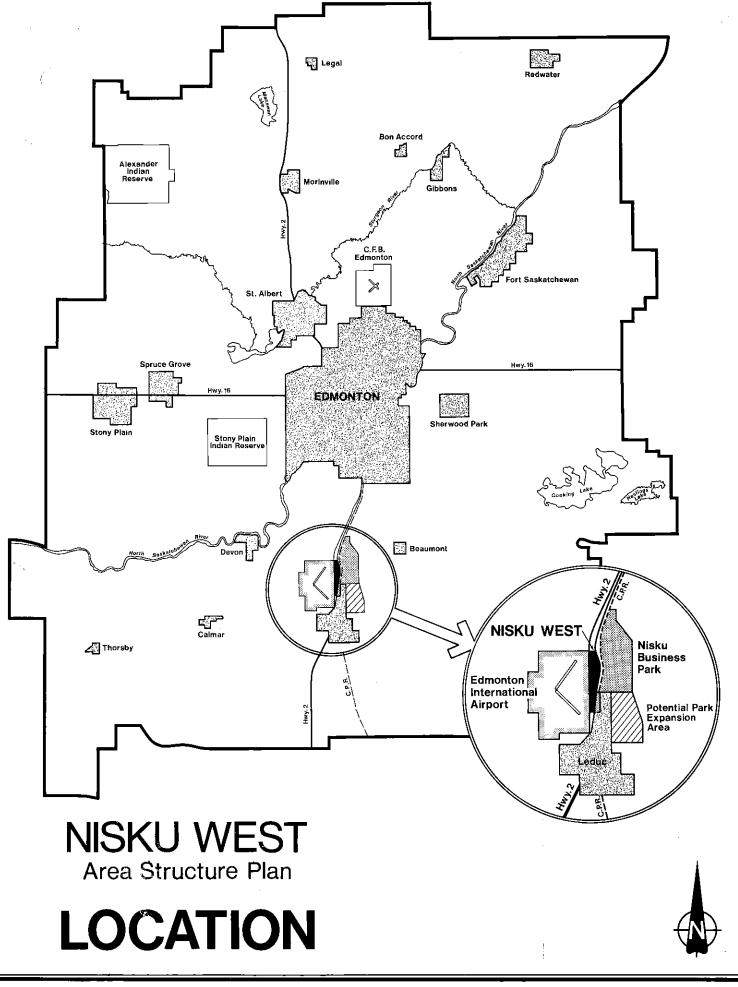
markets. The healthy economic prognosis for the Province will ensure that the Area's role as a major resource, distribution and manufacturing centre in Alberta and Western Canada will be maintained and strengthened.

The substantial amount of economic activity and development which took place within the Edmonton Metropolitan Area during the 1970's resulted in a considerable demand for industrial land and the upsurge of rural industrial parks. Rural industrial parks in the Metropolitan Area are the product of excessive serviced industrial land prices within the City of Edmonton, which historically served as the major recipient of industrial growth. Less stringent servicing standards and relatively lower priced raw land for development in the rural portions of the Metropolitan Area allowed for lower industrial land prices and the creation of concentrations of rural industrial land use.

Nisku Business Park is unequivably the most successful of the Metropolitan Area's rural industrial parks, in terms of both the rate and the amount of development which has occurred. In fact, exclusive of the City of Edmonton, the development rate of Nisku Business Park has not been exceeded by any Metropolitan urban community. Although Nisku's success as a light industrial development area can be attributed to numerous factors, the prime factor which has contributed to its success is the proximate location of certain high quality transportation facilities including: Highway 2, the most important and heavily utilized transportation linkage within the Province; the Canadian Pacific (C.P.) Rail mainline; and, the Edmonton International Airport. This combination of significant and high quality transportation facilities is unparalleled in

the remainder of the Metropolitan Area and the proposed expansion and upgrading of these facilities will ensure the continued success and attraction of Nisku Business Park. The light industrial developments which have been attracted to the Park are primarily oriented toward serving the petroleum industry, although the high quality of transportation facilities at Nisku has served to attract a significant number of warehousing and distribution operations, as well as light manufacturing developments. The population of the Edmonton Metropolitan Area, which is in excess of one half million persons, provides an attractive and substantial local market for such manufacturing ventures and Nisku Business Park is advantageously located within the Metropolitan Area with respect to nodes of population. The location of the Business Park and the transportation facilities which have been instrumental in the success of the Park are illustrated on Map One.

Nisku West, as is indicated by Map One, is located on the western periphery of Nisku Business Park and, based upon the existing land use pattern and the locational development policies of the County of Leduc, likely forms the ultimate extent of the westerly expansion of the Park. Once developed, Nisku West will form a logical component of the Nisku industrial complex. Consequently, the locational and transportation advantages which have been, and will continue to be, instrumental in the development of Nisku Park, also will serve to attract industrial development to Nisku West. In the context of Metropolitan Edmonton, therefore, Nisku West likely will attain, at the very least, the same high degree of successful development as Nisku Business Park.



III. CONFORMANCE TO RELEVANT PLANS

The industrial land use proposed for Nisku West is in conformance with both the Nisku General Development Plan and the County of Leduc Draft General Municipal Plan. The Nisku General Development Plan was commissioned by the County of Leduc in order to define, evaluate and plan the area suitable for the long term expansion of Nisku Business Park. As such, the Plan includes conceptual and generalized land use, roadway and municipal servicing patterns for the Nisku area. The generalized nature of the Plan and the relatively large area which is considered has resulted in an inherent flexibility with respect to the patterns proposed, although the roadway and municipal servicing components of this document basically are in concert with the Nisku General Development Plan. A Resolution (No. 314-79) accepting the Plan and the recommendations contained therein as a "guide in the development of the Nisku Industrial Park" and further indicating that "the report and recommendations be referred to the General Municipal Plan Steering Committee for inclusion in the General Municipal Plan for the County of Leduc No. 25", was passed by the County's Municipal Council in September of 1979. A Development Control Resolution which indicates that the Plan is to "be used in the interim as a guide, until the General Municipal Plan and Land Use Bylaw are adopted by Council, in the development of the Nisku Industrial Park", also has been passed by Council on March 9, 1980.

The County's Draft General Municipal Plan adheres to Resolution No. 314-79 in that the recommendations contained in the Nisku General Development Plan are reflected. The Draft Plan is intended to be adopted as Bylaw 1437-80 and, as per the bylaw procedure, was given

first reading by Council on February 18, 1980. The required public hearings related to the General Plan Bylaw have taken place and no submissions which relate to the proposed industrial use and development of Nisku West have been received. It can reasonably be assumed, therefore, that Nisku West will be designated as an industrial land use area by the adopted General Municipal Plan Bylaw and, ultimately, the County's land use control bylaw which will serve to implement the General Plan.

IV. DOCUMENT FORMAT AND ACKNOWLEDGEMENTS

This document is comprised of three parts. Part One describes those factors which must be considered in determining a suitable development strategy and ancilliary roadway and municipal servicing patterns for Nisku West. Part One, therefore, defines the Plan Area comprising Nisku West, establishes the physical developability of the Plan Area, and identifies those features located within and surrounding Nisku West which may influence or shape the development pattern. Part Two of the document describes the development concept proposed for Nisku West and the standards and policies which will serve as a basis for the future subdivision and development of the Plan Area and, as such, is an integral component of the Area Structure Plan. Part Two also describes the land use structure proposed and the roadway and municipal servicing patterns which will ensure the development concept is achieved as contemplated. of the document defines suitable methods for implementing the proposed development concept and the land use, roadway and municipal servicing patterns defined by Part Twc.

This Structure Plan has been prepared on behalf of Sparrow Developments Ltd. by Mackenzie Spencer Associates in collaboration with Associated Engineering Services Limited. Associated Engineering is responsible for all the engineering information pertaining to drainage and municipal servicing which has been utilized in the preparation of this planning document. R. M. Hardy Associates Ltd. has contributed information pertaining to soils, and landscaping and architectural information was provided by Thorkelsson Architects Ltd. Mackenzie Spencer Associates gratefully acknowledges the information and advice

which was provided by the County of Leduc Development Control Officer, Alberta Transportation, the Edmonton Regional Planning Commission, Stewart Weir Watson Heinrichs and Dixon, Alberta Environment, Transport Canada, the Nisku Business Association and Nisku Parks and Recreation Society.

PART ONE
The Plan Area

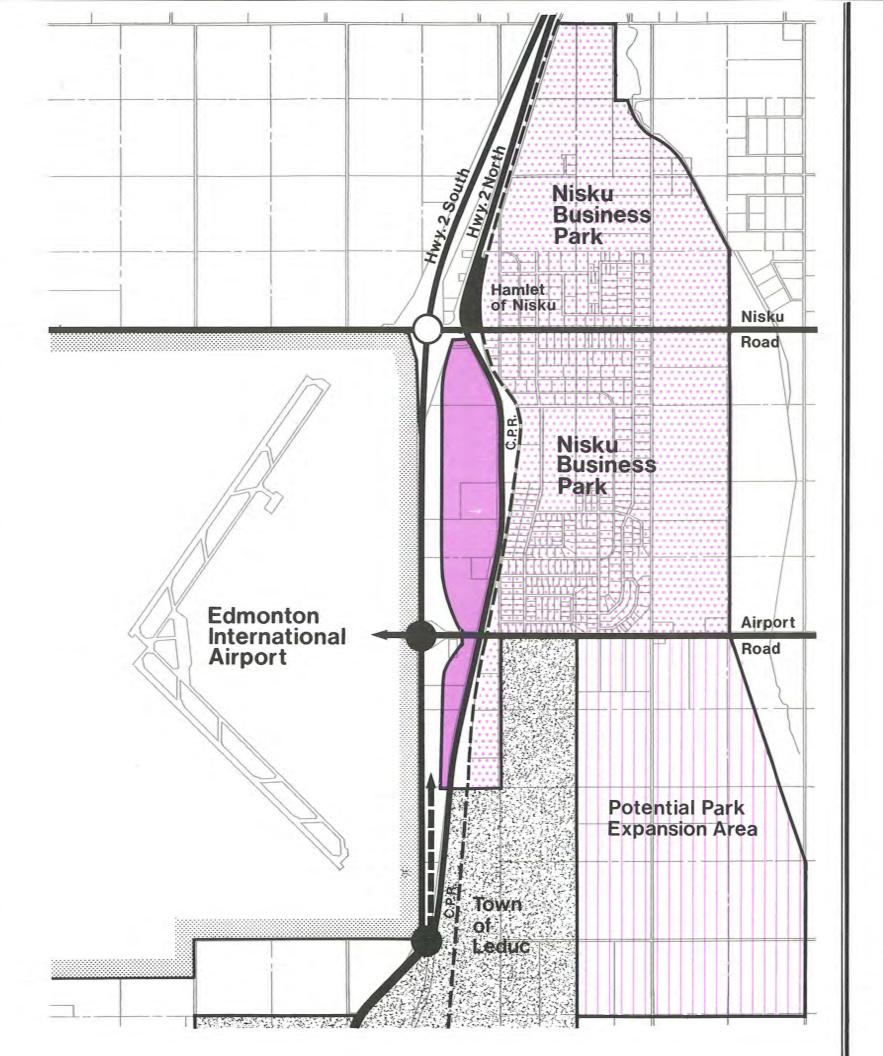
I. THE SETTING

Nisku West lies within the Edmonton Metropolitan portion of the County of Leduc, directly southwest of the Hamlet of Nisku and ten kilometers south of the City of Edmonton. The northern extension of the Town of Leduc is located less than one kilometer to the east of the southern half of the Nisku West Plan Area. The Edmonton International Airport property extends along the entire length of the Plan Area to the west.

The right-of-way for the south bound lanes of Highway 2 is generally conterminous with the west boundary of the Plan Area and the existing north bound lanes of the Highway abut the Area to the east. The present alignment of the Highway, which borders the Plan Area on two sides, and the restricted access designation of that Highway,

serve to constrain the development of Nisku West at this time. realignment of the north bound lanes of Highway 2 to within the right-of-way which presently contains the south bound lanes, will result in the elimination of this constraint. The realignment project, which is currently underway adjacent to the southern portion of the Plan Area, is discussed in Section II of Part One. which is designated Highway 19 (formerly Secondary Highway 919) west of Highway 2 and Secondary Highway 625 east of Highway 2, provides access to Devon and Beaumont as well as to the existing and potential expansion segments of Nisku Business Park, and bounds the Plan Area to the north. The southern limit of the Area is generally defined by the recently completed Leduc/Highway 2 interchange which will provide direct access from Nisku West into the Town of Leduc. The C.P. Rail mainline runs parallel to the east side of the existing Highway 2 North and, therefore, assists in defining the eastern extent of the The major features of the surrounding transportation network are illustrated by Map Two.

Nisku West is divided into two portions by Airport Road, which is identified by Map Two and provides direct access to the Edmonton International Airport terminus, the existing and future Nisku Business Park, and the Town of Leduc. Approximately 85 percent of the Nisku West Plan Area is located north of Airport Road although the length of the two portions, as they parallel Highway 2, basically are equivalent. For descriptive purposes, that portion of Nisku West located north of Airport Road is referred to as the North Plan Area whereas the residual located south of Airport Road is termed the South Plan Area. The Areas thus defined are illustrated on Map Three, following page 12.



NISKU WEST

Area Structure Plan

THE SETTING



NISKU WEST



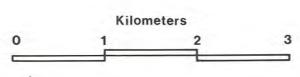
Existing Interchange



Interchange - Under Construction



Highway 2 North -Under Construction





MAP 2

Mackenzie Spencer Associates

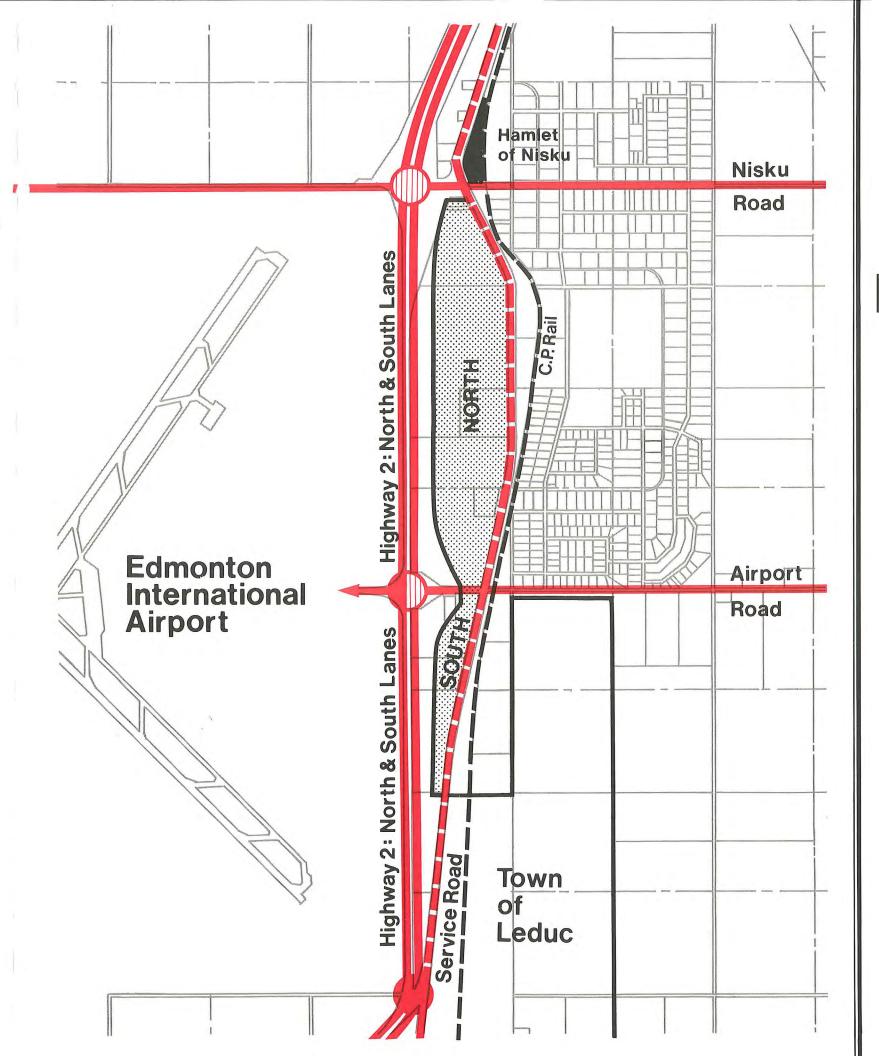
Major land uses in the vicinity of Nisku West, illustrated on Map Two, include agriculture and light industry. Nisku Business Park extends along the length of the eastern boundary, to the east of the C.P. Rail mainline, and, according to the Nisku General Development Plan, potentially may consume in excess of 1,400 hectares (3,500 acres). As Map Two indicates, the existing built-up portion of the Park is concentrated in the immediate vicinity of the Highway 2/C.P. Rail corridor, adjacent to Nisku West. The Edmonton International Airport lands are mostly leased for agricultural purposes although some large aircraft related uses have located near the terminal facilities. That portion of the Town of Leduc which is located in close proximity to Nisku West also has been proposed for industrial land use so that the development of Nisku West for industrial purposes will be compatible with the surrounding land use pattern and Nisku West will be integrated with a major Metropolitan transportation/industrial node.

II. MAJOR TRANSPORTATION FACILITIES

The three major transportation facilities which surround and define Nisku West include Highway 2, the Edmonton International Airport and the C.P. Rail mainline. The C.P. mainline is not expected to significantly affect future development in Nisku West although it functions as a significant element in attracting industry to the Nisku area and, therefore, indirectly will assist in attracting industry to Nisku West. Both the International Airport, however, and particularly Highway 2, will exert direct influence upon the future development of Nisku West. These facilities, and the manner in which future development will be influenced, are described below.

A. Highway 2

A major improvement program for Highway 2 which will permit Nisku West to be subdivided and developed has been undertaken by Alberta Transportation. The improvements have commenced near the Town of Leduc and generally will be staged progressively northward towards the City of Edmonton. Major improvements either completed or proposed in the immediate vicinity of Nisku West are schematically illustrated by Map Three and include: the realignment of the existing north bound lanes of Highway 2 to a location immediately adjacent and parallel to the existing south bound lanes; and, the construction and upgrading of grade-separated interchanges at the north end of the Town of Leduc, which provides direct access off the Highway into the community, and at the intersections of Highway 2 with Airport The Leduc interchange has been completed and and Nisku Roads. construction is underway both on the Nisku Road interchange and



NISKU WEST

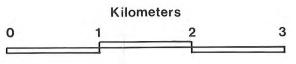
Area Structure Plan

HIGHWAY 2 **IMPROVEMENT PROGRAM**

Leduc Interchange-Completed

Nisku Road Interchange-Under Construction

Airport Road, Interchange-Upgrading Proposed





MAP 3

Mackenzie Spencer Associates Professional Planners

Edmonton, Alberta

the realigned north bound lanes. Once construction is completed of the new, three-lane north bound facility, which will accommodate all highway - through traffic, the existing two lane facility, bordering the site to the east, will serve a local service function for industrial traffic generated by proximate industrial development. Access to the improved Highway 2 facility, which will be located entirely west of Nisku West, will be limited to the three major interchanges. The design of the interchanges precludes direct access onto Airport or Nisku Roads from Nisku West so that the internal circulation pattern developed for the Plan Area will be oriented, in terms of access, to the future industrial service road.

Because of its proximity to Highway 2, Alberta Transportation is particularly concerned with the appearance of the future development contained within Nisku West. Ongoing discussions with Alberta Transportation representatives has determined that unsightly industrial uses, such as open space heavy equipment storage, will be discouraged and that high architectural and landscaping standards will be required for those developments which are visible from the Highway. Assuming high standards are imposed, only a nominal reserve strip extending along the rights-of-way of the future Highway 2, and Airport and Nisku Roads will be required.

B. Edmonton International Airport

Although the International Airport functions primarily as a transportation facility which effectively limits the westward expansion of Nisku West and the Nisku Business Park, a Master

Plan has been prepared for the Airport lands designating some portion of those lands for industrial development. Most of that area located between the existing terminal/runway facilities, and Highway 2 South is proposed to accommodate large space users requiring direct runway access. A number of such uses already have been attracted to the Airport lands including the Wardair Hangar facility and the Air Harbour aircraft service and overhaul operation. Uses will be limited to those requiring runway access and provision for future taxiways is included in the The future development of a portion of the Airport lands as envisioned by the Master Plan may serve to benefit Nisku West and, indeed, Nisku Business Park since the large industrial uses which may be attracted to the Airport to obtain runway access likely will require support services and facili-Those support operations which are not dependent upon ties. runway access no doubt will prefer to locate in either the existing Nisku Park or Nisku West. The large scale industrial development proposed for the International Airport serves to reinforce the Metropolitan industrial/transportation function of the entire Nisku area and will strengthen the existing ties between Nisku Business Park, including Nisku West, and the Airport.

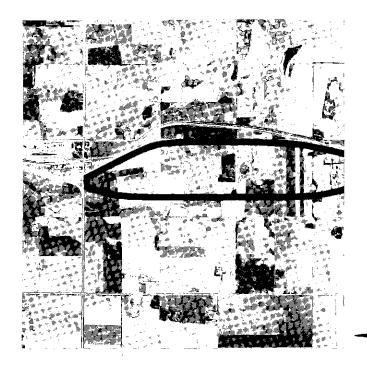
As well as benefitting Nisku West, the proximity of the Edmonton International Airport imposes certain restrictions on future industrial development within the Plan Area. These restrictions deal with structure height and types of uses and are enforced to ensure that no conflict or interference with the proper functioning of the Airport occurs. The restrictions

are identified as development standards in Part Three of this document and are not expected to hinder the future use of Nisku West for light industrial land use purposes.

III. PHYSICAL DESCRIPTION

The topography of the Plan Area is generally level and slopes gently in a northerly direction. A shallow depression is located in the north portion of the North Plan Area and this Area is characterized by gentle rises and hollows. No significant topographic features have been identified in the South Plan Area.

A substantial portion of the shallow depression located in the North Plan Area, from time to time, has been inundated with water and the amount of water has fluctuated substantially. Since the construction of the existing Highway 2 South facility, this depression has collected storm water runoff from a four square mile catchment area. Prior to that time, the storm drainage from the four square mile area, which includes Highway 2 and the Plan Area, followed natural gullies and drainage courses in a northerly and northwesterly direction to Blackmud Creek, and most of the north portion of the North Plan Area was in agricultural production as is indicated by Figure 1. The only standing water evident on Figure 1, which represents a 1950 aerial photograph of the North Plan Area, is confined to a pond which formed part of the natural drainage pattern of the region. This pond still forms a part of this pattern, albeit a less efficient part, and creates an opportunity for a storm water retention facility. The impediment of the drainage from the four square mile catchment area along its natural flow patterns by Highway 2 South is clearly illustrated by Figure 2. Figure 2 is comprised of a 1962 aerial photograph of the North Plan Area which indicates the Highway 2 South facility. Although culverts have been provided at Nisku Road to allow for drainage to flow from the North Plan Area, northward between the north and south bound lanes of Highway 2 to



NISKU WEST (North Plan Area)
1950 Aerial Photograph

Figure 1

Mackenzie Spencer Associates



NISKU WEST (North Plan Area)

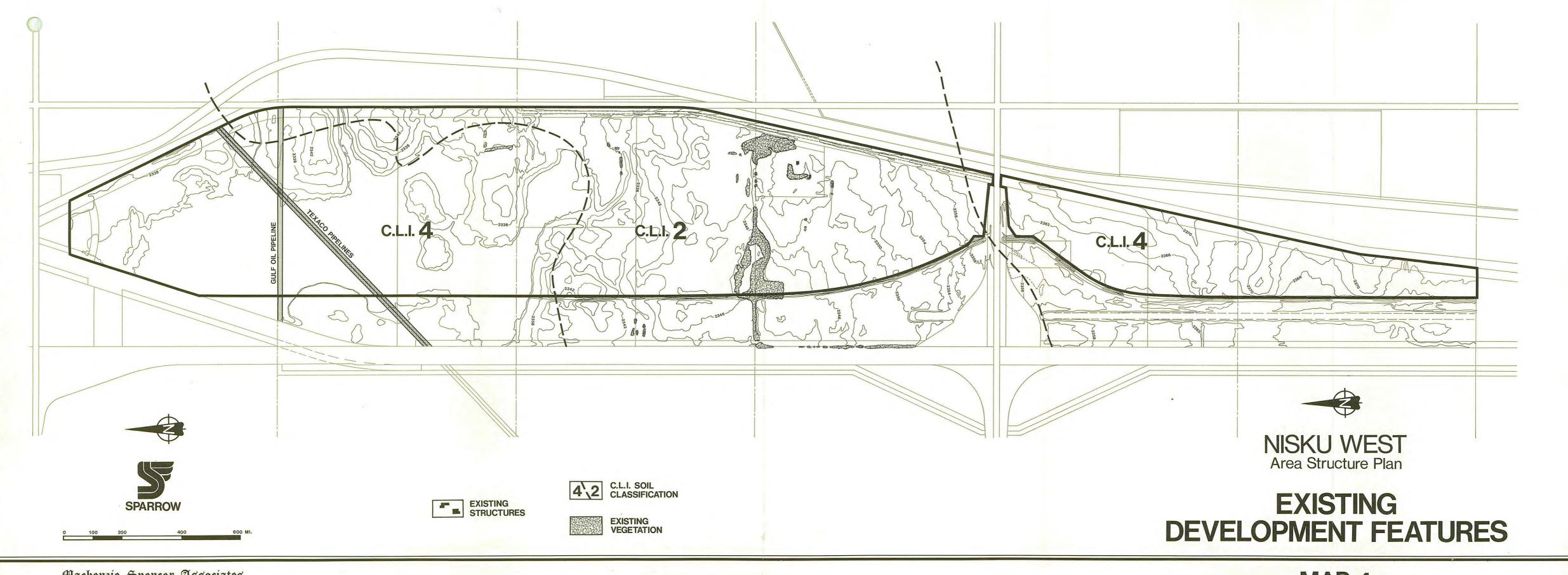
1962 Aerial Photograph

Figure 2

Mackenzie Spencer Associates

Blackmud Creek, the culverts are neither sufficiently deep nor adequately sized to allow for proper drainage. A ditch, which drains into the shallow depression and is illustrated by the contour intervals indicated on Map Four, was constructed adjacent to Highway 2 South by Alberta Transportation in 1978 in order to more efficiently collect runoff from the catchment area. Additional improvements to this drainage system comprised of the ditch and the culverts are required, however, to solve the problem of periodic flooding of the shallow depression created by the construction of Highway 2 South. The previous lack of interest displayed in solving this problem is explained by the fact that, until recently, most of the Plan Area, including the flooded portion, was owned by an absent, Texas-based, oil businessman.

In order to resolve the flooding problem and to provide a more efficient drainage system for the four square mile catchment area, Alberta Transportation is undertaking to deepen and improve the existing drainage ditch along the entire length of the Plan Area. The ditch improvement program will extend north of Nisku Road to the existing Blackmud Creek drainage ditch and the existing culverts at Nisku Road will be replaced by adequately sized culverts at a depth of 2.5 meters (7.5 feet) below the present depth. These improvements will not only provide more than sufficient storage capacity for runoff from the catchment area in the event of a 100 year storm, but also will serve to drain the shallow depression so that the land may be effectively restored. The improvements will further ensure that no flooding in the North Plan Area will occur in future and will eliminate all physical constraints to the industrial development of these lands.



Extensive geotechnical soils investigations of the Plan Area have been undertaken by R. M. Hardy Associates Ltd. Generally, the soil profile throughout the Plan Area can be described as organic clay, which comprises the topsoil, underlain, in descending order, by lacustrine clay sediments, clay till material and bedrock. specifically, the soil profile of the South Plan Area and the southern portion of the North Area is characterized by a shallow deposit of clay till and depth to bedrock from the surface ranges from two to five meters (six to seventeen feet). The profile of the remainder of the North Plan Area is comprised of a discontinuous deposit of lacustrine clay underlain by a thick deposit of clay till. The clay till extends more than eight meters (25 feet) below the surface and is particularly deep in the vicinity of the shallow depression located at the north end of the North Plan Area. The clay till material. which forms the largest component of the soil profile of the Plan Area, is ideal for the construction of roadway and building foundations so that the industrial development of Nisku West will not be constrained by soils. Paradoxically, the substantial depth of the clay till horizon in the northerly depression area suggests that that portion of the Plan Area which has been most subject to flooding also is, from the soils perspective, the most suitable portion of the Plan Area for development purposes.

The agricultural capability of the soils of the Plan Area is rated Class 2 and Class 4 by the Canada Land Inventory (C.L.I.) system of soil classification. The Class 4 rating is dominant and is applied to all of the South Plan Area and the north half of the North Plan Area. Class 4 rated soils are defined as having moderate limitations which restrict the range of crops or require moderate conservation practises. Class 2 rated soils, which are limited to the south

half of the North Plan Area, generally are recognized as being high quality soils for agricultural purposes. The limited size and awkward configuration of the Class 2 portion, however, precludes its use for a viable and economic agricultural unit. The pattern of C.L.I. soil ratings for the Plan Area is indicated on Map Four.

IV. OTHER EXISTING DEVELOPMENT FEATURES

The dominant existing land use of the Plan Area is agriculture which will not restrict the future industrial use of the Area. An occupied farmstead is located within the North Plan Area and is indicated on Map Four. This farmstead likely will be redeveloped for industrial use once development commences.

Three pipeline rights-of-way traverse the Plan Area and must be considered in the future land use structure and roadway pattern developed for the Area. Two of the three rights-of-way are controlled by Texaco Exploration and the eight inch and sixteen inch pipelines contained therein transport crude oil. The remaining right-of-way is controlled by Gulf Oil Canada and contains a 10.75 inch pipeline which transports a variety of fuels including butane and propane. Although this pipeline is not considered to be hazardous by the Energy Resources Conservation Board, it serves as a factor in the future development pattern of Nisku West.

The only significant cluster of tree cover within the Plan Area is concentrated about 0.8 kilometers (0.5 miles) north of Airport Road. The tree cover is predominantly deciduous and is identified on Map Four.

PART TWO
The Development Concept

I. DEFINITION OF THE DEVELOPMENT CONCEPT

The unique location of Nisku West within the Edmonton Metropolitan Area suggests the need for a unique approach to its development for light industrial purposes. The Nisku West area extends nearly five kilometers along the most heavily utilized highway in the Province and, therefore, development located therein will be viewed by large volumes of highway motorists. Nisku West further will serve to introduce national and international travellers to the Metropolitan Area since it will be the first physical development such travellers will encounter en route from the International Airport to the City of Edmonton. Indeed, its location near the southern periphery of the Metropolitan Area, adjacent to Highway 2 and the International Airport, not only results in Nisku West being

highly visible, but also results in it forming a major portion of the "entrance-way" into the Metropolitan Area as well as Nisku Business Park. This unique location and Alberta Transportation's valid concern that an attractive physical appearance adjacent to Highway 2 be developed suggests the need for a high standard of industrial development unprecedented in the remainder of the rural portion of the Edmonton Metropolitan Area. The standard of development must be of sufficient quality to enable Nisku West to adequately meet the dual "entrance-way" function it will perform by providing an attractive facade to both the Metropolitan Area and Nisku Business Park.

The need to ensure an attractive facade suggests that Nisku West is best suited for the development of a high density and high standard business and light industrial park. The development of the Nisku West Plan Area in this manner will serve to attract industries and businesses which generally are referred to as "clean" operations requiring relatively limited yard space and small parcel sizes. The proximity of Nisku Business Park, which meets the requirements of petroleum related manufacturing and storage uses and other large space users such as warehousing and distribution firms, suggests the potential for attracting the management and administrative or office component of the petroleum and distribution industries. benefits of controlled visibility from Highway 2 along the entire western length of the Plan Area will be afforded such firms. effect, the development of Nisku West as a high standard business/ industrial park will provide those firms which require the same locational benefits provided by Nisku Business Park, but in a more controlled, high standard environment, an opportunity to develop in the Nisku area. Nisku West, therefore, will serve as the antithesis to Nisku Business Park and the Nisku area will be capable of providing an entire range of services and opportunities to light industrial and business entrepreneurs.

The proximity of the International Airport results in an opportunity for Nisku West to assume a specialized function of providing suitable land for those airport-oriented businesses and small light industrial firms, which do not require direct runway access, to locate in the Nisku West Area. According to the Airport Master Plan described in Part One, such uses, examples of which include an importing/exporting business or a specialty food processing firm, likely would not be permitted to locate on the Airport lands and Nisku West provides the most desirable locational alternative. Furthermore, Nisku West is ideally located for accommodating the support services and facilities which may be generated by the large scale, air service operations located at the Airport including the office/administrative component of these operations. In addition to serving as the antitheses to Nisku Business Park, therefore, Nisku West also may develop a similar relationship with the Edmonton International Airport and its industrial development segment.

II. DEVELOPMENT POLICIES

The formulation of a land use structure, roadway pattern and municipal servicing patterns, which comprise the major components of the development concept and are capable of ensuring that the concept is achieved as envisioned, requires that certain policies be recognized. These policies arise from the definition of the development concept and, combined with those development factors identified in Part One, form the basis for the proposed land use, roadway and servicing patterns. The development policies which have been applied to the Nisku West Plan Area are as follows.

- 1. The future roadway pattern should take full advantage of the unique locational and visibility features of Nisku West in both the North and South Plan Areas.
- 2. The future roadway pattern should reflect the long and narrow configuration of the Plan Area in an efficient manner geared towards the types of uses envisioned to locate in Nisku West. A suitable hierarchy of roadways should comprise such a road pattern.
- 3. The future roadway pattern should be internally oriented with access limited to the proposed service road (existing Highway 2 North). The number of access points onto the proposed service road should be sufficient to ensure that the service road is utilized to its full potential but that the safety of this roadway is not jeopardized.

- 4. A municipal reserve parcel should be created along the entire length of the future Highway 2 and adjacent to Airport and Nisku Roads to prevent any access onto these roadways. The width of the parcel should be satisfactory to Alberta Transportation.
- 5. A roadway pattern which provides for the subdivision of the Plan Area into relatively small parcels should be developed to ensure that extensive open storage uses are discouraged from locating within Nisku West, particularly adjacent to the realigned Highway 2. Small parcel sizes will not only serve to discourage large potentially unattractive users from locating in the Plan Area, but also will serve to attract business/office types of uses as defined by the development concept.
- 6. The future roadway pattern should allow for the subdivision of parcels with configurations suitable for business/light industrial uses. Wherever practicable, the pattern should permit rectangular parcels to be created with the length being approximately twice the width. A rectangular configuration is particularly desirable for small sized parcels.
- 7. The distance between the intersections of Nisku and Airport Roads with the proposed service road, and linkages with that service road and roadways originating in the Plan Area, should be to the satisfaction of Alberta Transportation.
- 8. The municipal servicing patterns recommended for Nisku West should be in conformance with the high standard of development

envisioned by the development concept and should in no way detract from the aesthetic facade of the Plan Area, particularly adjacent to the realigned Highway 2 facility.

- 9. The municipal servicing patterns should take full advantage of the natural features of the Plan Area wherever practicable.
- 10. The municipal servicing patterns should extend from the existing patterns of the Nisku area where the potential for such extension exists.
- 11. The municipal servicing patterns should allow for efficient and economic maintenance procedures.
- 12. Storm retention ponds should be incorporated into the park system serving as focal points for this system and, therefore, should be required to maintain a constant level of water.
- 13. Municipal park reserves should be strategically located to allow for an attractive landscaped environment in the most visible portions of the Plan Area.

The foregoing policies are reflected by the land use structure and development patterns proposed for Nisku West. The description of these components of the development concept is the subject of Section III.

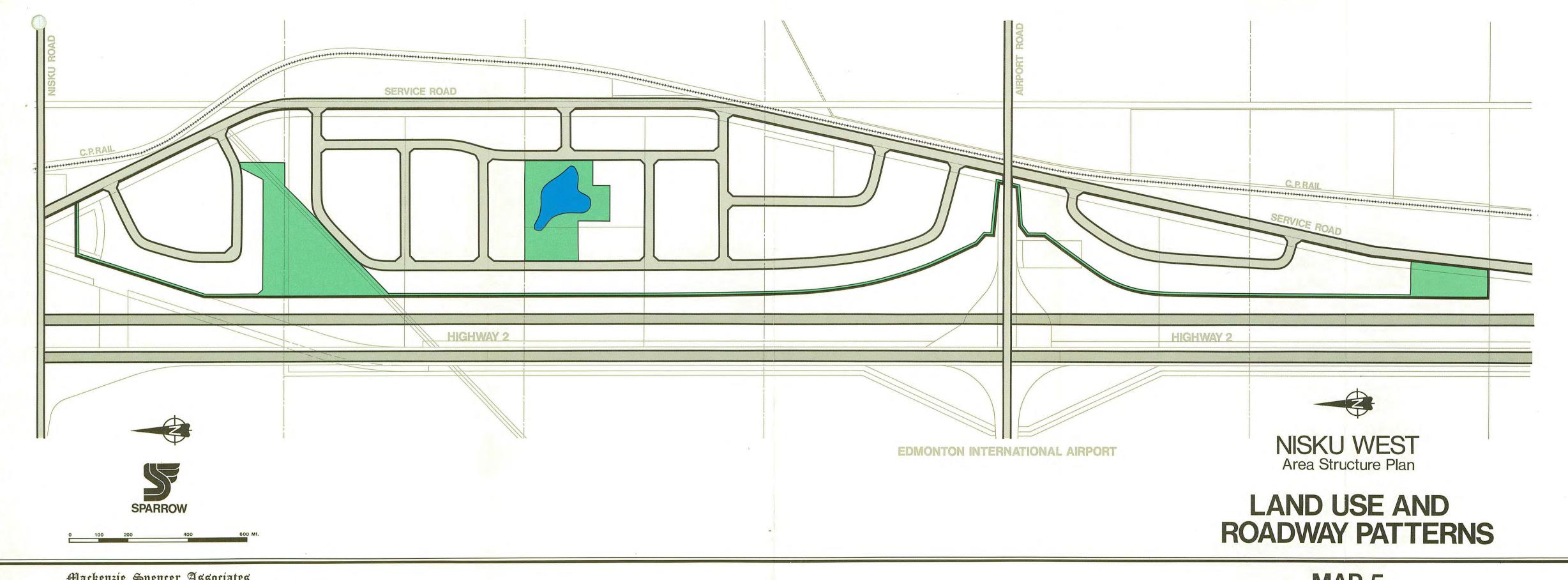
III. MAJOR COMPONENTS OF THE CONCEPT

The physical expression of the development concept described in Section I is comprised of a land use structure, a roadway pattern and patterns of municipal servicing. These features form the major components of the concept. The development policies defined in Section II, and those existing characteristics of the Plan Area identified in Part One, are reflected by the major components and each component is described in the following Subsections.

A. The Land Use Structure

The land use structure proposed for Nisku West is illustrated by Map Five and consists of two major land uses including business/light industrial and park/open space. Business/light industrial uses will consume most of the Nisku West Plan Area and the park/open space system, as defined by Map Five, comprises approximately ten percent of the gross developable area as specified by the Planning Act (1977). Although minor modification to the park/open space system may be considered at the time of subdivision, the system defined by this Plan document and illustrated by Map Five generally should be maintained since this system adheres to the development policies stated in the preceeding Section and, therefore, will assist in the realization of the development concept.

The park/open space system consists of four interrelated elements including:



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MAP 5

- (i) a 3.1 meter (10 foot) wide municipal reserve strip along the entire length of the rights-of-way of the future Highway 2 and Airport and Nisku Roads, which conforms to Development Policy #4;
- (ii) a municipal park reserve at the south end of the Plan Area, which conforms to Development Policy #13;
- (iii) a municipal park reserve near the north end of the Plan Area, which also conforms to Development Policy #13; and,
- (iv) a municipal park reserve focussed on the storm water pond located central to the larger North Plan Area, which conforms to both Development Policies #12 and #13.

The designation of the municipal reserve strip adjacent to the major highways and arterial roadways surrounding the Plan Area will prevent direct access from any portion of this Area to the major roadways. The width of the municipal reserve parcel is satisfactory to Alberta Transportation assuming a high quality of landscaping and architectural controls on adjacent development is achieved. The appropriate standards and the method by which such standards will be applied are described in the implementation portion of the document. The municipal reserve strip will be included in a wider comprehensively and attractively landscaped buffer and, therefore, will serve as an important element of the park/open space system.

The municipal reserve strip paralleling the Highway 2 rightof-way provides a linkage between the municipal park reserve
parcel located at the south end of the Plan Area and that reserve parcel which is located near the north end. These park
reserves have been strategically located to maximize the aesthetic, visual potential of Nisku West for those motorists
entering or leaving the Metropolitan Area. The landscaping
concepts proposed for these parks are described in Part Three
and will encourage the passive enjoyment of the park reserves
by the future employees of Nisku West in addition to increasing
the area's general aesthetics. Finally, the north and south
park reserves as proposed by the land use structure will assist
in defining the Nisku West Plan Area. The location of the northerly park reserve has been influenced by the existing pipelines identified in Part One.

The centrally located municipal park reserve, which focusses on the proposed storm water retention pond described in Subsection C, will function as an internal focal point for the Nisku West development. Although this park may be visible from the future Highway 2 facility, the aesthetic and recreational potential of the park primarily will benefit local employees and nearby businesses. The development of a municipal park which surrounds the required storm pond will take full advantage of the environmental features of the pond. The central park facility will function as a passive recreation area and a landscaping concept proposed for this facility is described in Part Three. The landscaping and architectural standards which will be imposed on adjacent developments to ensure that the aesthetics of the park are not jeopardized also are discussed in Part Three.

B. The Roadway Pattern

The roadway pattern proposed for Nisku West is illustrated on Map Five and recognizes the relevant development policies defined in Section II. The proposed pattern accordingly takes full advantage of the visual and locational features of the Plan Area through the designation of roadways which generally parallel the future Highway 2 facility in both the South and North Plan These roadways will function as collector loop roads and, in the North Plan Area, minor collector roads onto the loop road result in an efficient roadway hierarchy. For the most northerly portion of the North Plan Area, a roadway system relatively independent of the system proposed for the remainder of that Area has been developed in recognition of existing pipelines and the narrow configuration of this most northerly seg-The South Plan Area also is characterized by a narrow configuration and the simple and efficient pattern of circulation proposed is best suited to this configuration. The roadway pattern as proposed will permit the future subdivision of Nisku West into relatively small parcels suitably shaped for accommodating prospective business/light industrial uses as envisioned by the development concept. The pattern is internally oriented and assumes a total of nine access points onto the future industrial service road. Seven of the nine access points are located north of Airport Road, which contains most of the developable The proposed number of access points will serve to realize the potential of the service road but will not preclude its intended function or efficient utilization. The distance separating those access points located near Airport and Nisku Roads is consistent with Alberta Transportation's requirements.

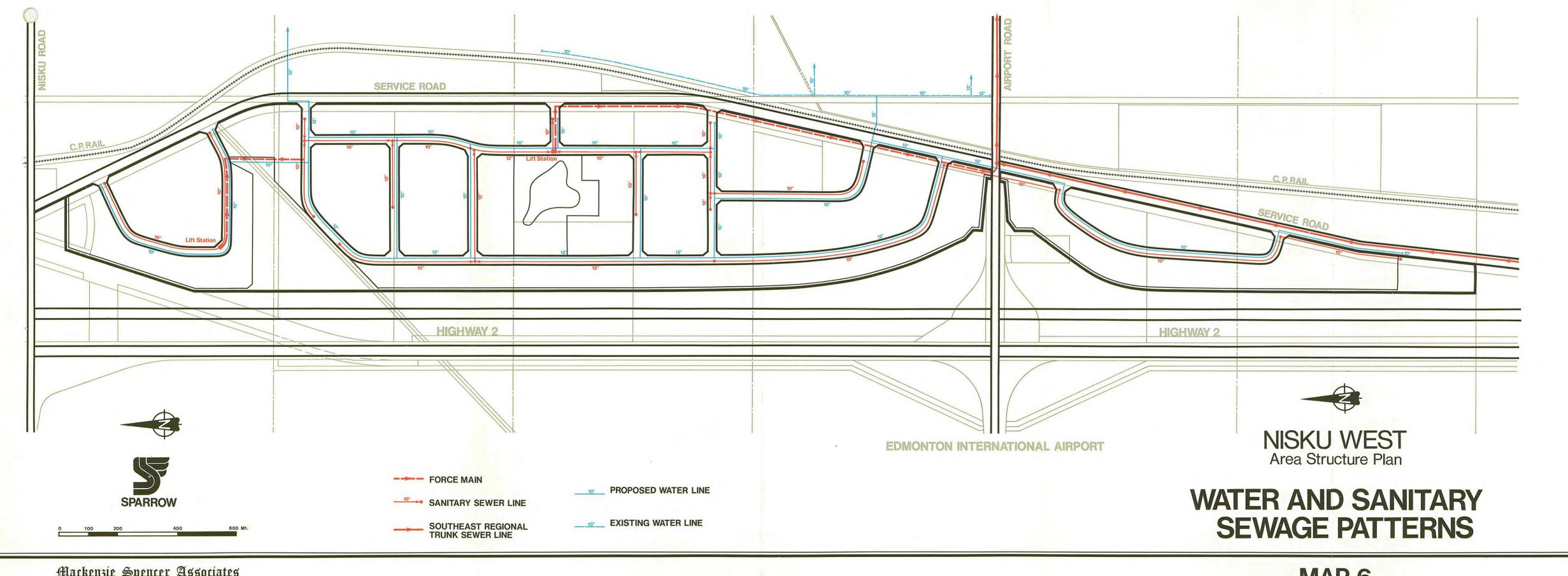
C. The Municipal Servicing Patterns

The municipal servicing patterns developed for Nisku West by Associated Engineering Services Limited are based upon the proposed roadway pattern as well as the appropriate development policies and relevant physical features of the Plan Area. The patterns deal with water, sanitary sewage and storm water management and are described below.

1. Water

The future water requirements resulting from the development of Nisku West will be supplied by extending the existing water distribution system of Nisku Business Park into the Plan Area. Water treated in the City of Edmonton is supplied to the Nisku region through the Strathcona-Leduc Water Board via the Leduc Water Line and is stored for distribution in a one million Imperial gallon reservoir located immediately northwest of the Hamlet of Nisku. A recent twinning of the existing water line will meet the water requirements of the Nisku region, including those of Nisku West, to the year 2001.

The proposed water distribution system for the Nisku West Plan Area is indicated on Map Six and includes two twelve inch off-site water main connections to the existing systems in Phases 2 and 7 of Nisku Business Park. The system proposed will accommodate both future domestic and fire flow demands generated by the Plan Area and, as was indicated in the Introduction of this document, conforms to the Nisku General Development Plan.



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MAP 6

2. Sanitary Sewage

As is the case with the water system, the proposed piped sanitary sewage system conforms with the Nisku General Development Plan and is indicated on Map Six. A piped sewage collection system has been proposed in recognition of the potential density of development within Nisku West and the high standard of such development as envisioned by the development concept. Furthermore, the system has been designed to take full advantage of the natural topography of the Plan Area and maximizes the degree of flexibility in staging future development. Staging is discussed in the implementation portion of this Plan document.

The system proposed will permit sewage to drain by gravity to a lift station located in the central portion of the North Plan Area. Sewage collected by the lift station will be pumped and transported in a sewage line south to the intersection of Airport Road and the future service road, at which point the sewage line will tie-in to the proposed Southeast Regional Trunk Sewage System.

In the event that the Regional System is not in place within a time-frame which corresponds with the development of Nisku West, two alternative methods of sewage disposal may be considered. These alternatives include:

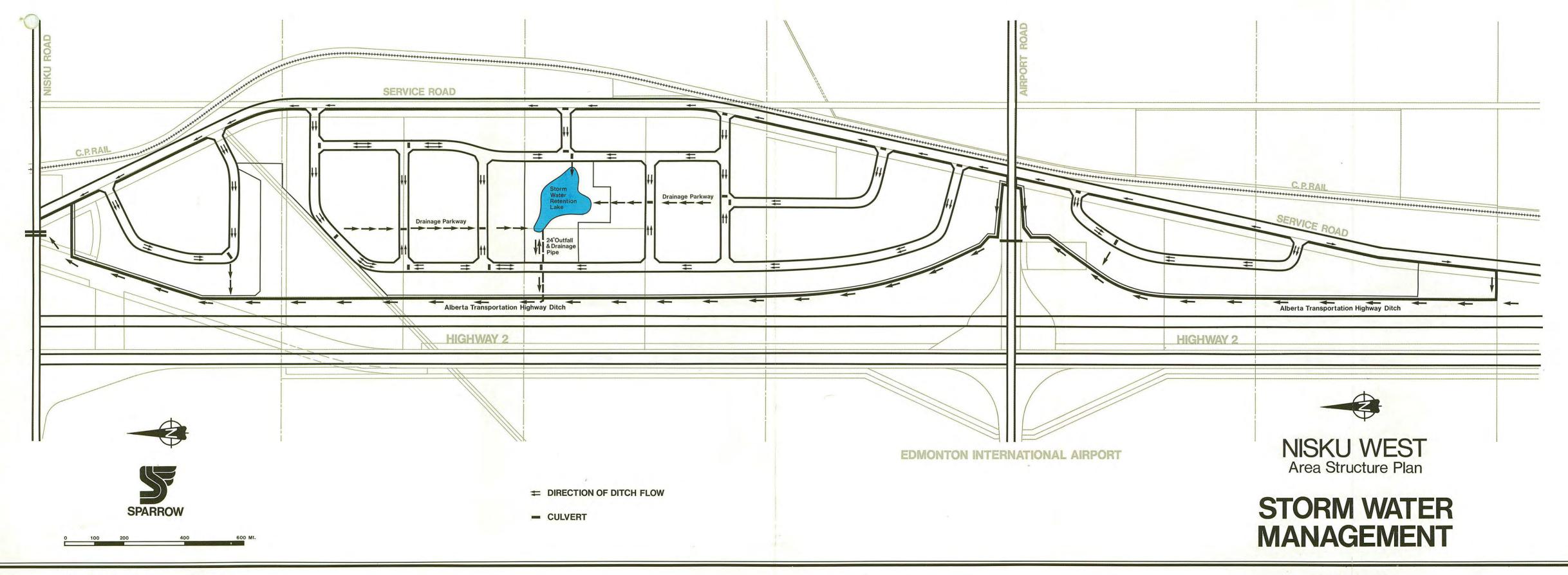
(i) a tie-in with a system similar to that proposed for Nisku West which may be developed in Phase 8 of Nisku Business Park as was contemplated by the Nisku General Development Plan; and, (ii) the construction of an off-site sanitary line which would transport sewage directly from Nisku West to the existing County of Leduc lagoons, located immediately northeast of Nisku Business Park.

3. Storm Water Management

The storm water management system proposed for Nisku West is illustrated by Map Seven and is comprised of three basic elements including:

- (i) drainage to Blackmud Creek via the upgraded Alberta Transportation highway ditch;
- (ii) a storm water retention pond to control the rate of storm water runoff from the North Plan Area into the highway drainage ditch; and,
- (iii) an overland drainage network utilizing roadside ditches and, in the North Plan Area, a drainage parkway.

As was discussed in Part One of this document, Alberta Transportation intends to deepen and improve the existing drainage ditch along the entire length of the Plan Area in the summer of 1980. Associated Engineering was commissioned jointly by Alberta Transportation and Sparrow Developments Ltd. to prepare a Storm Water Management Study for the entire four square mile area which includes the Plan Area and drains into Blackmud Creek via the highway ditch. The Study concluded that the ditch improvements proposed by



Alberta Transportation will contain sufficient design capacity to store storm runoff from the entire contributory area in the event of a 100 year storm. A minimum of three to four feet of freeboard to the lowest proposed lot elevation within the Plan Area will be maintained assuming a complete site grading program for the Area as proposed by Associated Engi-The complete grading program proposed for the Plan Area will result in uniformly graded lots with positive and independent drainage. The program includes the removal of the existing layer of organic clay (topsoil) and balancing the earthworks within the Plan Area in order to achieve proper drainage into the storm water management system. a result of the grading program proposed and the design capacity of the improved highway ditch, the entire Plan Area will be afforded protection from runoff well in excess of a 100 year storm.

Generally, storm runoff within the Plan Area will be collected by the shallow grassed ditches located within the road rights-of-way as is indicated by Map Seven. Because of the large storage capacity of the improved highway ditch adjacent to the South Plan Area, the roadside ditches within this Area will discharge directly into the improved highway ditch facility. Similarly, water collected by the ditches located in the most northerly portion of the North Plan Area also will discharge directly into the highway ditch. For the remainder of the North Plan Area, however, a storm water retention pond will be required in order to maintain the rate of runoff into the improved highway ditch at the predevelopment level.

The storm pond proposed for the North Plan Area conforms to the existing topography of the Area and, because of its central location, will allow for some flexibility in the staging of future development. The normal water level of the pond will encompass approximately five acres and the depth of the pond will vary from four to five feet. The storm pond system is designed to accommodate a 25 year storm in compliance with Alberta Environment's regulations and seven to one side slopes are proposed. The pond is intended to maintain a three foot operating depth and one foot of freeboard. Runoff will be discharged at the predevelopment rate to the improved highway ditch through a 24 inch diameter storm outfall line.

Two features of the storm retention pond are of particular significance:

- (i) Both the proposed elevation of the pond and the design of the outfall line will allow the pond to be entirely drained thereby permitting easy cleanup and maintenance of the shoreline, outlet and bottom of the pond.
- (ii) The one foot freeboard available will allow for storage of runoff in the event of a 100 year storm without having to discharge runoff to the improved highway ditch via the overland drainage channel. Since the water levels for both a 25 year and a 100 year storm in the retention pond will be three feet above the water levels in the highway ditch under

the same storm conditions, the proposed design of the pond will allow for a positive drainage flow from the North Plan Area during storm frequencies in excess of 100 years.

The shallow roadside ditches in the North Plan Area are proposed to discharge into the storm retention pond either directly or through the central drainage parkway indicated on Map Seven. The drainage parkway will serve to minimize future lot grading and the concentration of future flows in any one length of ditch. The proposed parkway will further serve to collect flows from roadside ditches at various points and from future adjacent lots and discharge the flows thus collected into the retention pond.

Similar to the proposed water and sanitary sewage systems, the storm water management scheme proposed for Nisku West generally conforms with the recommendations and guidelines of the Nisku General Development Plan.

PART THREE Implementation

I. INTRODUCTION

A significant element of the Area Structure Plan is that of implementation. The implementation element is particularly crucial in the case of the Nisku West Structure Plan since the achievement of the high standard industrial development concept envisioned will require considerable effort and careful monitoring. The regulations and standards outlined in the following Sections, if implemented, will assist considerably in achieving the development concept proposed. The adoption of the Nisku West Area Structure Plan by bylaw will provide the County of Leduc with the necessary jurisdiction to implement the regulations and standards outlined. A section dealing with the timing and staging of development also is included in this Part of the Plan document for discussion purposes.

II. AIRPORT REGULATIONS

Part One of the document described the Edmonton International Airport facility and determined that certain regulations which have been formulated to ensure the proper operation and functioning of the Airport may affect future developments within Nisku West. Virtually the entire Plan Area is affected by zoning regulations imposed by the Federal Ministry of Transport which stipulate that no structures, permanent or temporary, may exceed a height of 46 meters (150 feet) above the Airport Reference Point of 718 meters (2,335 feet) Above Sea Level. The elevation of Nisku West ranges from 718 meters to 723 meters (2,372 feet) Above Sea Level so that, according to the zoning regulations, structures may range in height from 34 meters (113 feet) to 46 meters (150 feet). Actual and precise height restrictions will be imposed by Transport Canada where applicable.

Two regulations included in the proposed Edmonton International Airport Vicinity Protection Area Regulations, which likely will be adopted by the Provincial Government in the near future, will apply to developments located within the Plan Area. First, in order to prevent potential interference with the Airport's electrical aviation equipment, it has been regulated that structures within the North Plan Area may not exceed a height ranging from 30 meters (100 feet) in the north portion to 53 meters (175 feet) in the south portion. This regulation does not apply to the South Plan Area. Second, certain types of industrial uses which could jeopardize the safety of the Airport traffic or create potential conflicts with the operations of the Airport must be referred to the Ministry of Transport. Since the prime purpose of this regulation, however, is to prevent developments which may result in emissions of smoke or

steam from locating near the Airport, and since such uses also are in conflict with the development concept proposed for the Nisku West Area, the impact of this regulation on future developments located within the Plan Area likely will be minimal.

III. SUBDIVISION STANDARDS

The subdivision standards outlined below stem from the development policies and concept described in Part Two of the document. Although flexibility is essential to the subdivision process, certain standards should be applied to Nisku West which will assist in achieving the development concept described and, for this unique area, represent good subdivision planning principles. Nevertheless, it is essential that these standards be applied only where practicable, which pertains to most of the Plan Area, and that some degree of flexibility be maintained. The subdivision standards proposed for the Plan Area are as follows.

- 1. All applications to subdivide the Nisku West lands generally shall conform to the land use structure and roadway and municipal servicing patterns described in Section III of Part Two and illustrated on Maps Five, Six and Seven.
- 2. All road rights-of-way widths shall be 30.5 meters (100 feet).
- 3. Parcels created through subdivision, other than those dedicated as municipal reserve, shall not exceed two hectares (five acres) in size thereby discouraging extensive storage uses from locating in Nisku West.
- 4. Those parcels created through subdivision which front onto the collector roadways paralleling the existing Highway 2 South right-of-way shall be approximately 0.4 hectares (one acre) in size thereby limiting the potential for outdoor storage and

encouraging the types of business/light industrial uses envisioned by the development concept to locate adjacent to the realigned Highway 2 facility.

IV. ARCHITECTURAL, LANDSCAPING AND SIGN CONTROL STANDARDS

Because of the high quality of development envisioned for Nisku West, a comparable level of architectural, landscaping and sign control standards for future developments locating in the Plan Area is desirable, particularly for that portion of the Plan Area visible from Highway 2. Although detailed standards are beyond the scope of this Plan document, it is the intent of Sparrow Developments Ltd. to register restrictive covenants against the titles of all parcels created through subdivision, excepting municipal reserve parcels. These covenants will specify standards for building and site design, sign control, and landscaping, particularly as regards boulevards and yard screening and, similar to those covenants which are being issued for portions of Phases 7 and 8 of the existing Nisku Business Park, will contain considerable detail. For the purposes of this Area Structure Plan, development standards are expressed as comprehensive design concepts for those elements of the land use structure which require particular attention, namely the Highway 2 frontage, the municipal park reserves located at either end of the Plan Area and the central storm pond/park reserve area. The concepts, which have been devised to illustrate the manner in which an attractive visual environment will be created for each of these crucial elements of the land use structure, are briefly described below.

1. Highway 2 Frontage

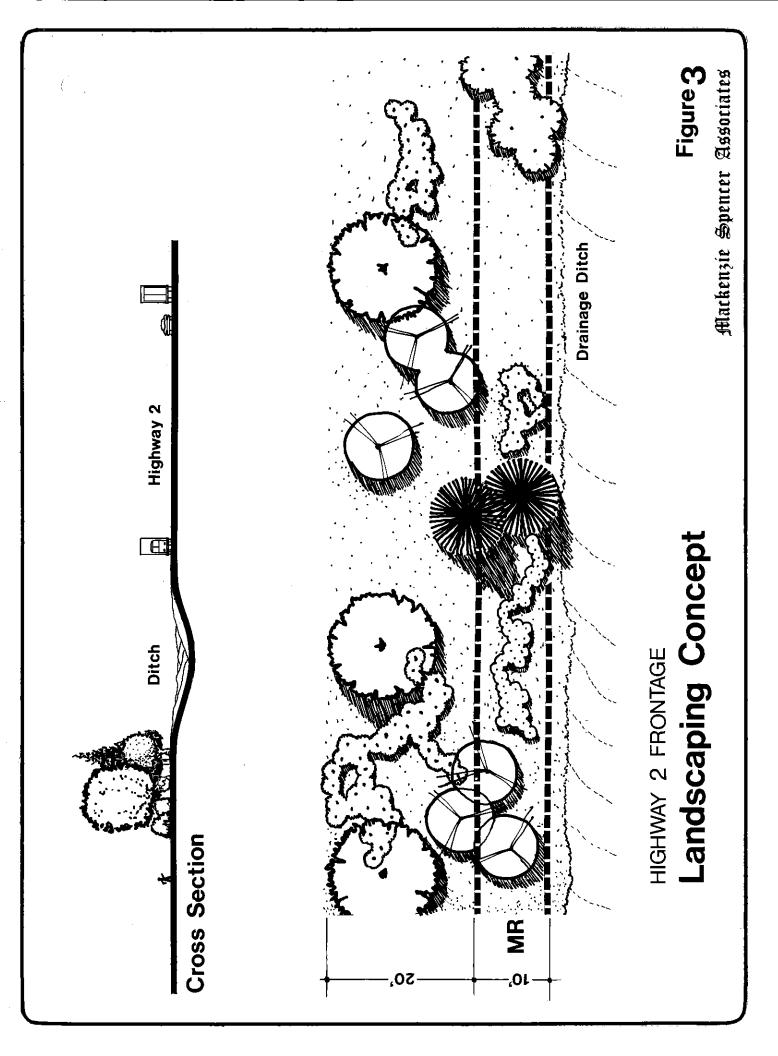
A yard setback of 6.1 meters (20 feet) shall be provided along the property lines adjoining the Highway 2 South right-of-way. This setback shall be utilized solely for landscaping

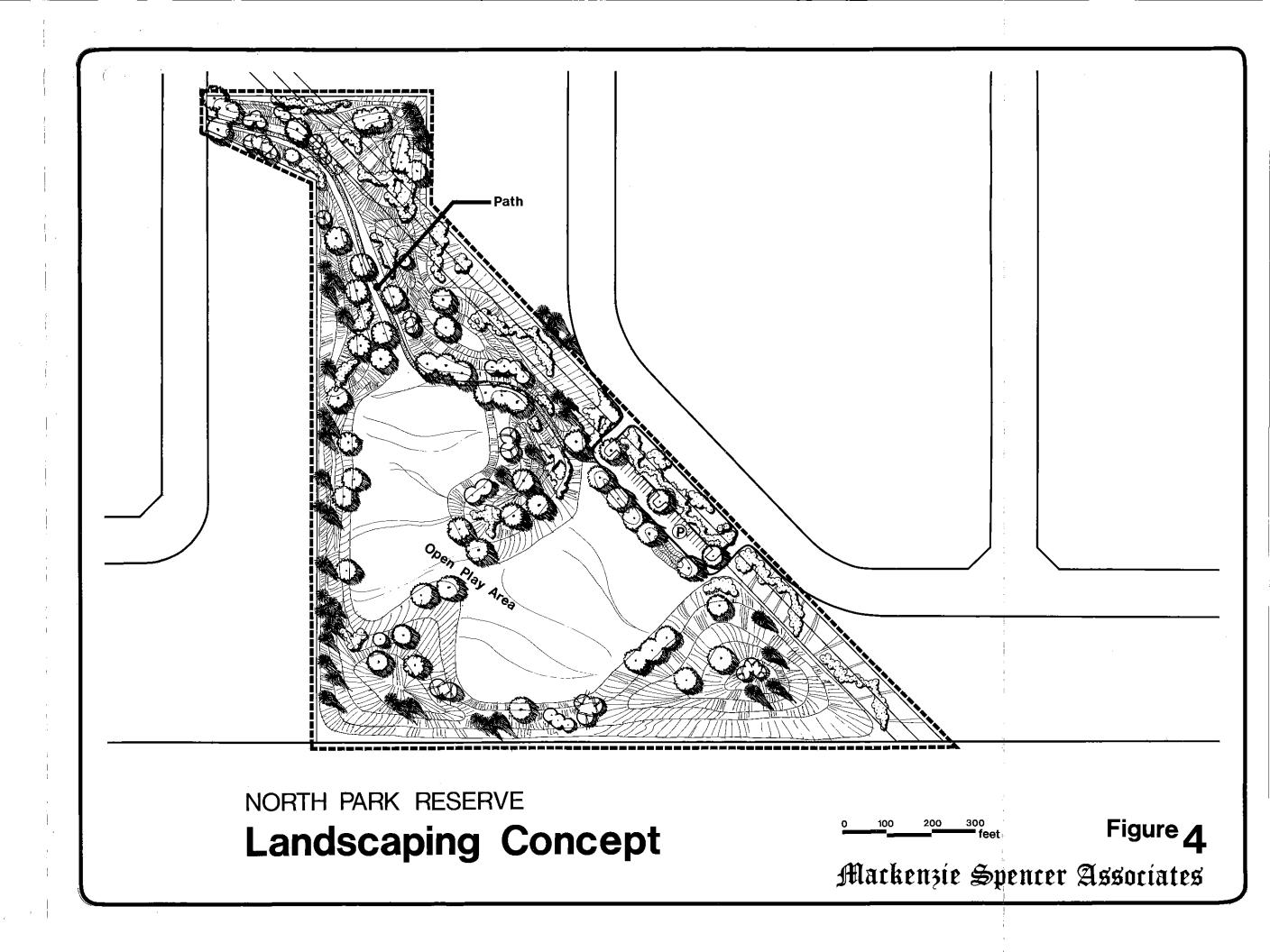
purposes and will function as a buffer strip between the Nisku West development area and Highway 2. A landscaping concept, which incorporates a common theme and may include a combination of individual and clustered trees, such as ash, seedless poplar and lodgepole pine, and shrubs, such as caragana, cranberry, lilac and cinquefoil, shall be applied to the entire frontage strip. Figure 3 illustrates the manner in which a variety of trees and shrubs may be incorporated into a landscaping theme.

All building walls facing the Highway shall be finished to the same standard as the building front and a high quality of architectural control shall be applied as specified by the restrictive covenants. No outdoor storage shall be permitted between the landscaped buffer and the buildings. Only facia identification signs shall be permitted on buildings facing the Highway and such signs shall not project above the parapet line of the building. Identification signs may indicate the function, product or service of the business conducted on the premises and include no advertising other than the name of the business and its primary franchise or dealer association. Flashing neon signs shall not be permitted.

2. The North and South Park Reserves

The park reserves located near the north and south extremities of Nisku West shall be landscaped in harmony with the setback landscaping concept illustrated by Figure 3. These reserve areas are intended to function primarily as passive parks and a design concept, which includes an open play area, for the north park is schematically illustrated by Figure 4. A similar concept is envisioned for the south park reserve.

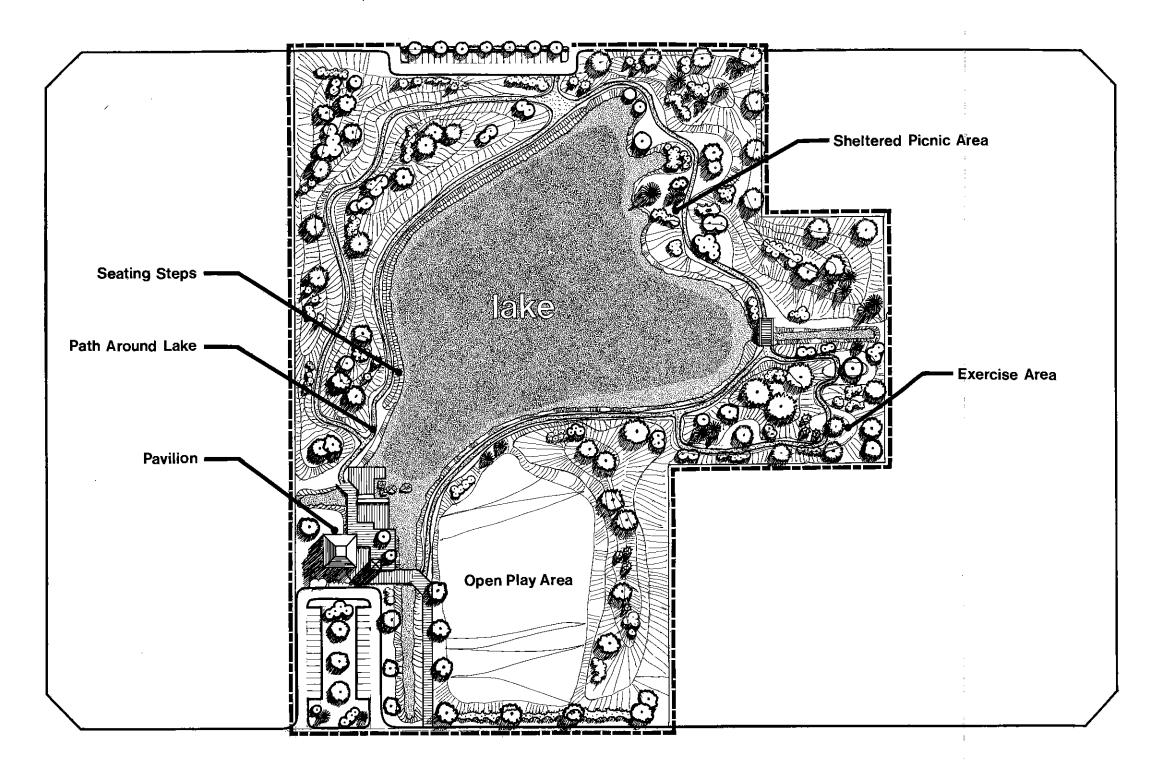




3. The Storm Pond Park Area

Figure 5 serves as a schematic representation of the land-scaping concept proposed for the centrally located storm pond park area. The concept focusses on the pond and, if feasible, the drainage parkways and easements extending from the pond will be designed to retain a permanent water level within the confines of the park area. These parkways will be incorporated into the concept to provide for an interesting and varied park environment. Similar to the north and south park reserves, the central park area will function as a passive recreational feature.

A yard setback of 4.6 meters (15 feet) shall be provided along those property lines adjoining the central park reserve. Building construction shall not be permitted within the setback area and any yards created between the setback line and future buildings shall be landscaped or paved where such yards are utilized as driveways or for parking purposes. Fencing may be installed along the property lines except where future buildings abut the setback line in which case the building itself will serve as the fence. Building walls facing the park reserve shall be finished to the same standard as the building fronts. The setback and landscaping concept thus described is graphically portrayed by Figure 6.

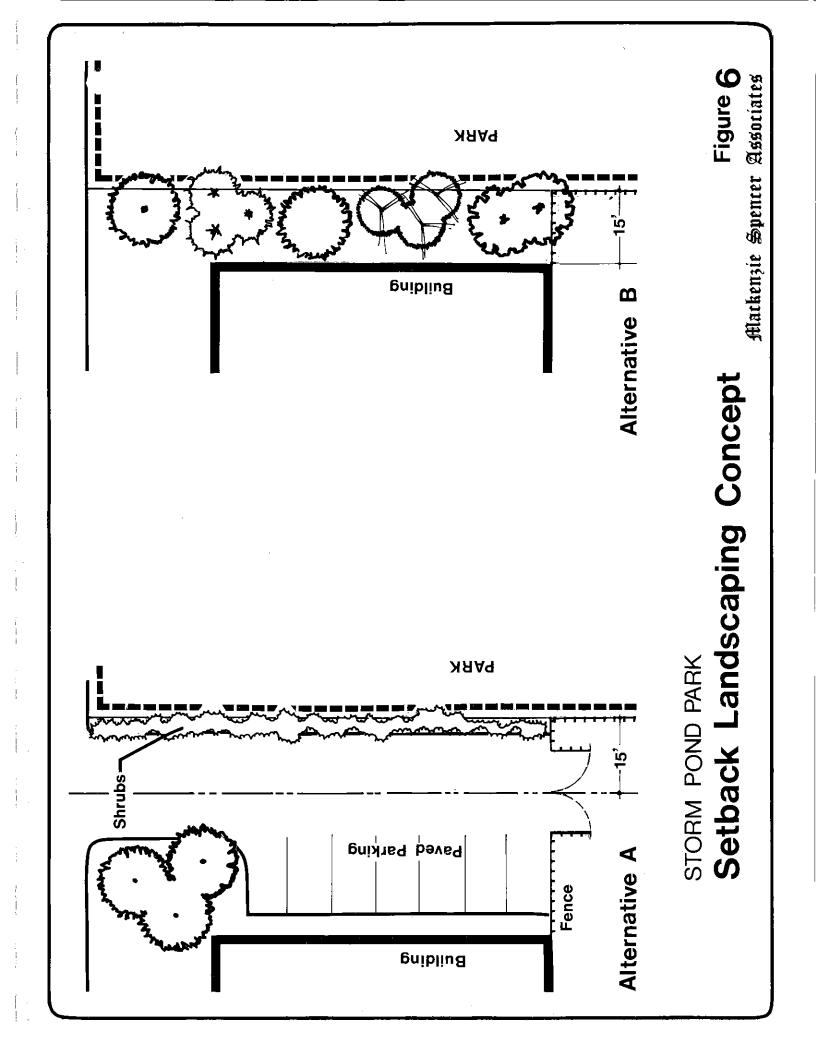


STORM POND PARK

Landscaping Concept

0 50 100 200 feet Figure 5

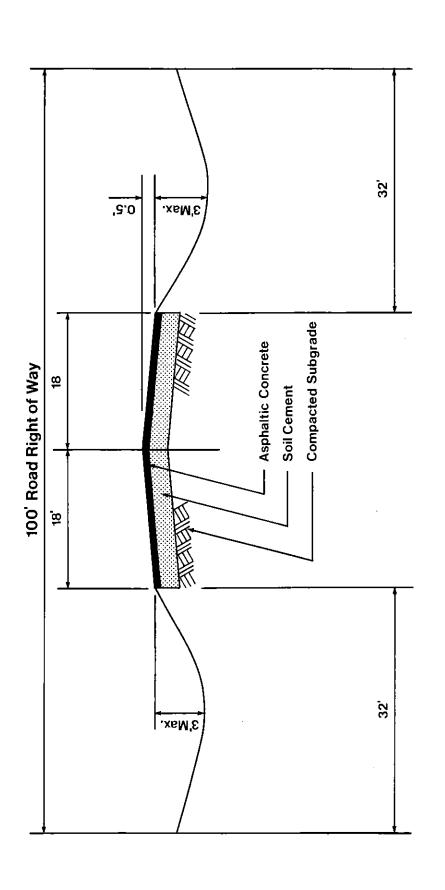
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V. ROADWAY CONSTRUCTION STANDARDS

Two roadway construction standards have been identified which will assist considerably in implementing the Nisku West development concept. These standards are summarized as follows:

- 1. All roads constructed within the Plan Area shall be paved and paving shall take place within two years of construction. A two year delay is considered desirable since considerable damage to roads may be inflicted as a result of building construction also taking place in the initial development period. Most buildings within the Plan Area likely will be developed within the two year period and damaged roadways may then be repaired and paved accordingly.
- 2. A standard cross-section of development shall be applied to all roadways as is illustrated by Figure 7. Shallow ditches landscaped into the adjoining properties shall be provided with a maximum depth of three feet. The three foot depth is in conformance with the storm water management scheme.



Roadway Cross Section

Figure 7

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VI. TIMING AND STAGING OF DEVELOPMENT

Physical development, other than preliminary site preparation and survey works, shall not be permitted within Nisku West until the new realigned Highway 2 North facility is fully operational and the existing north bound lands are transferred to the County of Leduc's jurisdiction for use as a service road. The new Highway facility is presently under construction and may be operational as early as the summer of 1981.

The development of the North and South Plan Areas will be staged relatively independent of one another. The South Area likely will be developed as one phase. The North Plan Area may be developed in three or more stages. The first stage will focus on, and surround, the storm retention pond since the construction of this facility is essential to the development of the entire North Plan Area. Staging beyond this point is flexible and a second stage of development may encompass either of the remaining north or south portions of the North Area. Indeed, simultaneous development of both portions may occur.

CONCLUSION

This Area Structure Plan is the County of Leduc's official statement of policy regarding the future character and quality of development within Nisku West. The Plan is intended to provide a framework for future subdivision as well as development and, as such, provides guidelines which shall be applied throughout the subdivision and development process. The development policies and implementation standards defined by the Plan document will assist in ensuring that the character and quality of development as contemplated is achieved. It is essential, however, that in applying the policies and standards, some degree of practical flexibility be maintained. The degree of flexibility, where applicable, will be negotiated between the developer and the County of Leduc.