

BYLAW 65-2003

A BYLAW OF STRATHCONA COUNTY IN THE PROVINCE OF ALBERTA, FOR THE PURPOSE OF ADOPTING THE HABITAT ACRES AREA STRUCTURE PLAN.

WHEREAS it is deemed advisable to adopt the Habitat Acres Area Structure Plan ;

NOW THEREFORE, the Council of Strathcona County, duly assembled, pursuant to the authority conferred upon it by the *Municipal Government Act*, R.S.A. 2000 M-26 and amendments thereto, enacts as follows:

1. That Bylaw 65-2003 is to be cited as the "Habitat Acres Area Structure Plan".
2. That Schedule "A" attached hereto is hereby adopted as part of the Bylaw.

Read a first time this 24 day of June, 2003.

Read a second time this 24 day of June, 2003.

Read a third time and finally passed this 24 day of June, 2003.



Mayor



Manager
Legislative & Legal Services

Date Signed: July 4, 2003

Habitat Acres

AREA STRUCTURE PLAN

SOUTH HALF/SOUTH WEST 3 – 53 –22 – W4

STRATHCONA COUNTY

FEBRUARY 12, 2002

(As Amended)

Presented By:

Sten & Elspeth Berg

HABITAT ACRES
Area Structure Plan

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HABITAT ACRES
Area Structure Plan

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1.0 Introduction

1.1 Purpose

This Area Structure Plan is prepared on behalf of Sten and Elspeth Berg, and is generally in accordance with the guidelines of Strathcona County for the preparation of an Area Structure Plan. This report provides a framework for a proposed country residential subdivision.

1.2 Location

The subject lands consist of 32.2 hectares (79.54 acres), more or less, legally described as Lot 1, Plan 7920136. The Habitat Acres plan area is located on the north side of Baseline Road, three miles east of Sherwood Park and two miles south of Highway #16.

1.3 Background

The plan area contains the rudiments of a previously viable intensive livestock operation marketing 6,000 hogs per year and containing a 100 cow/calf operation. As surrounding land uses began to evolve during the 1980's, the more intense agricultural use of the subject lands became incompatible with the adjacent developing country residential subdivisions (ie. Willowdale and Beaverbrook). As a result, the livestock operation was discontinued by the landowner. Since then, on site agricultural activity has concentrated on producing square bale Timothy hay which presently serves the local horse feed market. Many of the existing livestock buildings have been removed or abandoned. It is proposed that all remaining agricultural buildings and implements will ultimately be removed.

1.4 Ownership

The south half of the quarter section is held under two separate titles, both in the names of Sten & Elspeth Berg.

1.5 Statutory Plan Compliance

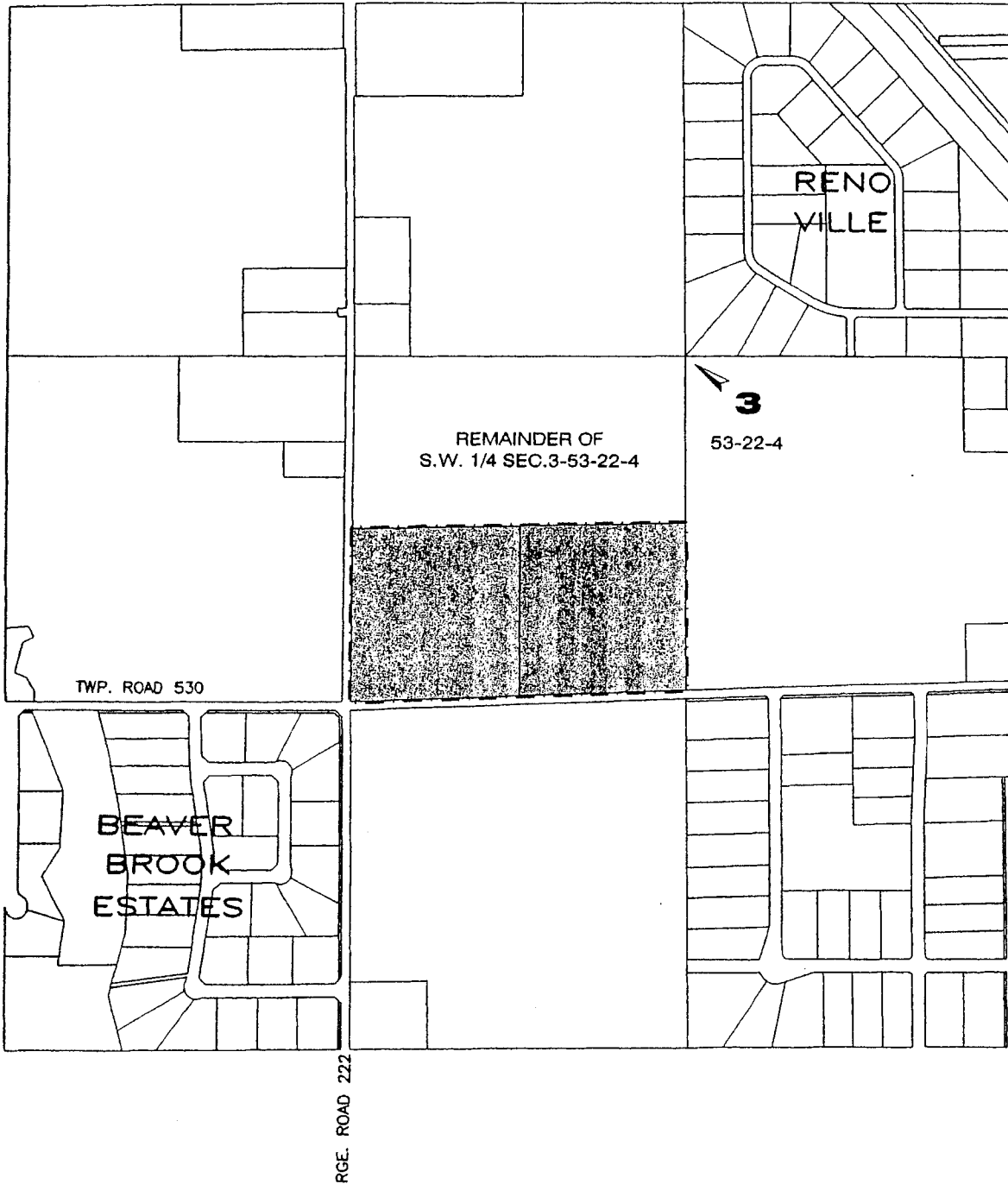
This Area Structure Plan is prepared in accordance with Section 633 of the Municipal Government Act. Namely, it describes the land uses; the sequence of development; general population levels; and infrastructure requirements for the proposed Habitat Acres country residential development.

AREA STRUCTURE PLAN

SHOWING PROPOSED COUNTRY
RESIDENTIAL SUBDIVISION
OF PART OF THE
S.W. 1/4 SEC. 3-53-22-4
STRATHCONA COUNTY



Fig. 1
LOCATION PLAN



The Area Structure Plan has been prepared in compliance with Strathcona County's Municipal Development Plan (MDP), also known as Bylaw No. 38-98, as amended. The subject lands are located within the Municipal Development Plan's Country Residential Policy Area. Section 10.21 of the MDP provides for country residential and cluster-country residential development within the subject lands. Section 10.22 further requires the preparation of an Area Structure Plan prior to development to provide a guide for subsequent subdivision and development. As such, the development proposed by this Area Structure Plan is in accordance with the statutory requirements of the Municipal Development Plan.

The MDP's Policy 10.31 provides a framework that encourages the development of a county residential subdivision that is sensitive to the characteristics of the subject land's natural environment. This policy states as follows:

MDP Policy 10.31: Cluster Country Residential Design Guidelines:

- a) The intent of the Cluster Country Residential Option is to provide for clustering or concentration of country residential parcels that provide additional open space, more economical servicing and efficient use of the land, while maintaining the same maximum density as a traditional country residential neighborhood.
- b) An Area Structure Plan is required and, in addition to the standard Area Structure Plan requirements, it shall address the treatment of open space and natural features protected in common property areas.
- c) The entire area for each cluster country residential parcel shall be considered a developable piece of land, whereby the groundwater table is not less than two metres (6.6 feet) below the surface. Lands below the 1:100 year flood elevation shall not be considered as part of the developable lands.
- d) The minimum parcel size shall be 1,350 square metres (0.33334 acres).
- e) The maximum parcel size shall be 0.8 hectares (2 acres)
- f) The maximum density shall be one parcel for each 1.2 hectares (3.0 acres) of gross developable land. This is equivalent to 50 parcels per gross developable quarter section (65 hectares or 160 acres). Any land that is proposed for private ownership, and is separate from the cluster residential development, shall be deducted from the gross developable land calculation, and the number of parcels allowed shall be reduced accordingly. Lands designated for storm water management facilities, road widening or for environmental reserve dedication shall not be included in the calculation of gross developable land area.
- g) Notwithstanding (f) above, one bonus lot may be granted for every 1.2 hectares (3.0 acres) of land that is protected by perpetual easement (i.e. conservation easement, environmental reserve easements) subject to the following:

- (i) No more than 10 bonus lots per quarter section shall be granted;
 - (ii) Lands dedicated as Municipal Reserve or School Reserve do not qualify for bonus lots unless they are in excess of the 10% dedication requirements of the Municipal Government Act;
 - (iii) Any open space common property that is identified as part of a bare land condominium plan, or otherwise, that is not required for services or roads, must be protected by a perpetual easement restricting further development, in favor of the municipality;
 - (iv) A minimum buffer of either 50 metres of open space or traditional parcel sizes of 0.8 ha (2.0 acres) shall be provided between the abutting existing country residential development and proposed cluster country residential developments.
- h) Servicing Cluster country residential shall be as follows:
- (i) An internal road system shall be provided and built to County Standards for Country Residential or Suburban Estates development.
 - (ii) Other standards may be considered where the road is to be on private or common property, subject to the approval of the County Engineer.
 - (iii) With piped community sewer system approved by Alberta Environment and the municipality.
 - (iv) An adequate fire suppression system shall be provided to the satisfaction of the municipality. In this case installation of sprinkler systems by homeowners.
 - (v) With piped community water system approved by Alberta Environment and the municipality.
 - (vi) With a storm water management system that meets municipal and Alberta Environment standards.
 - (vii) All proposals for private or communal servicing require a long-term plan for the operation, repair, maintenance and replacement of such infrastructure and provision of associated funding. This will be assured with the registration of the Bareland Condominium Association by legal counsel for the developer.
 - (viii) Each proposed cluster lot requires confirmation of an acceptable building envelope and a grading plan, to ensure proper surface and foundation drainage.

The development of the Habitat Acres subdivision shall be in accordance with the above-referenced objectives. Any necessary technical studies required to justify the development will be completed by a qualified professional and submitted for approval to the appropriate authorities.

2.0 EXISTING CONDITIONS

2.1 Native Vegetation and Topography

Native vegetation within the plan area consists mainly of deciduous species such as aspen, black poplar and birch. Mature tree stands are interspersed with an assortment of lower-lying vegetation consisting of willows, choke cherry, saskatoon, hazelnut, dogwood, wild rose, etc. Hedgerows of spruce and Manitoba maple are located along the northern and southern borders of the plan area. The majority of the parcel has been cleared in support of agricultural pursuits.

The topography is rolling with a series of hilly ridges. Surface runoff drains generally across the site from south to north along the east boundary of the plan area. Two major developed ponds lead into a drainage channel located within the east portion of the site. Substantial storm and spring runoff drains onto the subject land from adjacent lands to the south and proceeds northerly across the site. Exiting the subject lands, the surface drainage flows into a slough located within the north west corner of the N ½ of the SW 3-53-22-4 and then into a drainage easement flowing through the NE 3-53-22-W4. Surface flow is then deposited into the Range Road 222 ditch and eventually reaches the Pointe-Aux-Pins Creek.

The two ponds located within the plan area were developed pursuant to an Alberta Environment license #0078849-00-00, approved on February 4, 2000. Prior to issuance of said license, surface water tended to pond in a number of sites across the plan area. Recent improvements to the drainage system diverted 7404 cubic metres of water annually from a tributary of Point-Aux-Pins Creek for the purposes of storage for waterfowl propagation. Recent construction, performed in accordance with an interim license, reduced the number of storage ponds to two. Together, they contain a significant surface water storage capacity. Since the purpose of the water storage has not changed from the time of application to the present, requirements of a new license from Alberta Environment is not anticipated.

2.2 Soil Conditions

The surficial geology consists of a shallow depth of black loam topsoil on hilltops with an increasing depth in the lower slopes. Up to one meter of loam is located within the drainage channels. The underlying material is clay loam to silty clay loam subsoil.

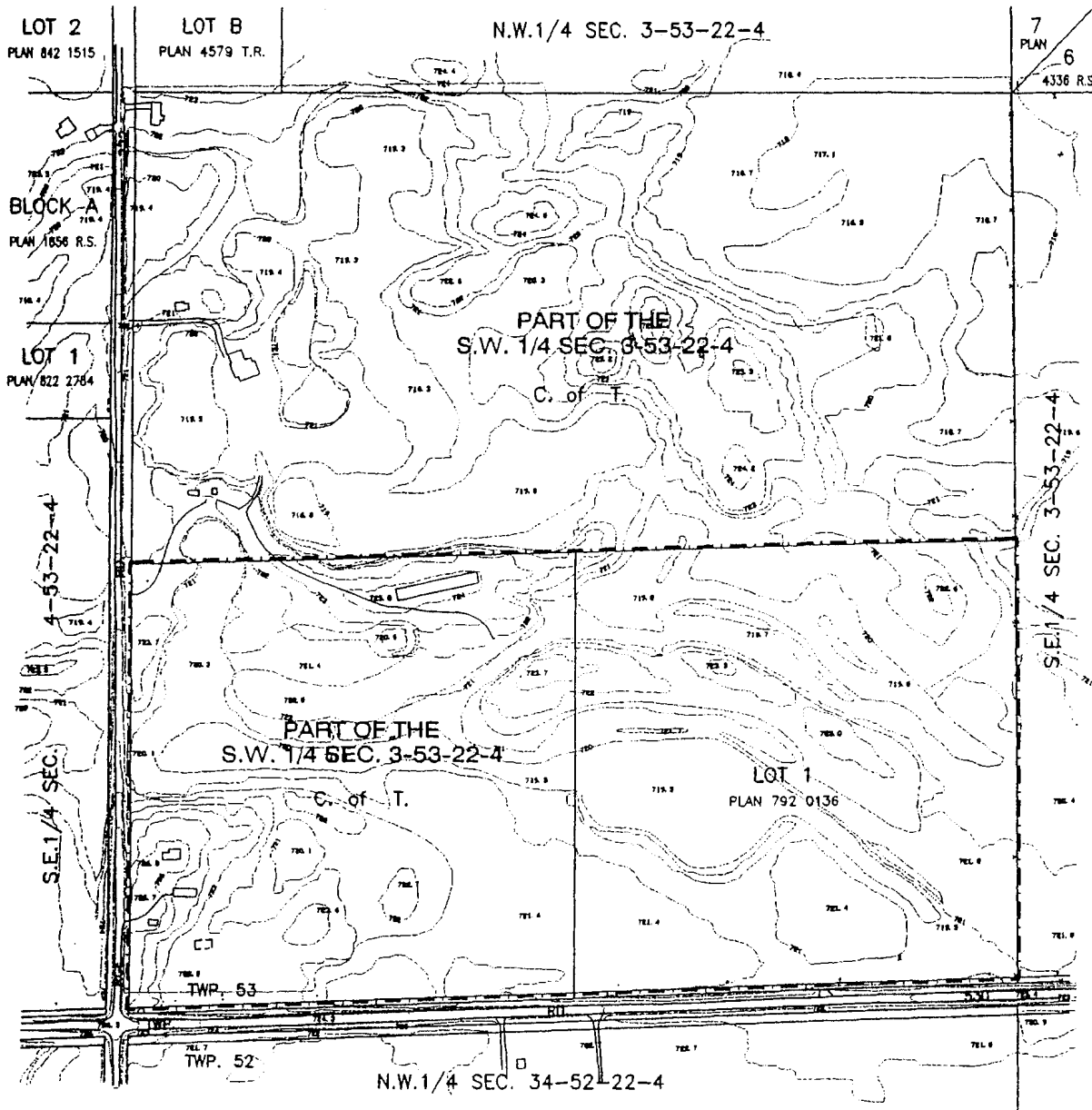
The predominant upland soils are dry Angus Ridge soils (eluviated Black Chernozem). They are dominated by loam and silty loam topsoil underlain

AREA STRUCTURE PLAN

SHOWING PROPOSED COUNTRY
RESIDENTIAL SUBDIVISION
OF PART OF THE
S.W. 1/4 SEC. 3-53-22-4
STRATHCONA COUNTY



Fig. 2
EXISTING CONDITIONS



- ASP BOUNDARY
- CONTOURS
- BUILDINGS

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JULY, 2000
FILE: 99S0661
REVISION: July 2, 2001

by clay loam subsoil. On lower slopes there are Gleyed Angus Ridge soils. Minor portions are Demay soils (Orthic Humic Gleysoil and Humic Luvic Gleysoil) in the lower areas. Canada Land Inventory rates soils from Class 1 (25%), Class 2 (35%), Class 4 (10%), Class 6 (20%), and Class 7 (10%) making up 100% of the soils within the plan area.

2.3 Groundwater Conditions

Omni - McCann Consultants Ltd. conducted water table studies within the subject lands. At the time of inspection, a typical water table of deeper than two meters was found in the Angus Ridge soils. These soils are indicative of good construction characteristics since the water tables are deep and are not likely to interfere with basement construction. Subsurface wastewater disposal is not anticipated as a constraint since wastewater will be removed from each site via pipeline. There is very extensive groundwater supply in aquifers underlying the subject lands, but it is of poor drinking quality.

2.4 Existing Development

The subject land currently sustains various agriculture pursuits including grazing and hay production. At present, the land is seeded to Timothy Hay harvested annually for sale to neighboring horse operations. The plan area has one developed building site which is the home residence of the present owners. This site contains a detached garage, small office building, workshop, and storage shed in addition to a barn and tack area. The cattle penning and working corrals are residual to earlier cattle operations. The current zoning of the plan area is AG: Agriculture but is subject to an amendment to an appropriate country residential land use district in accordance with the County's Land Use Bylaw.

2.5 Adjacent Land Uses

The north half of the subject property is presently undeveloped. The predominant land uses adjacent to the plan area are a mixture of country residential and smaller agricultural parcels. Lands located to the east and south of the plan area have applications for development currently under review with the County. Lands located to the west are presently sustaining agricultural pursuits.

3.0 THE DEVELOPMENT CONCEPT

3.1 Development Objective

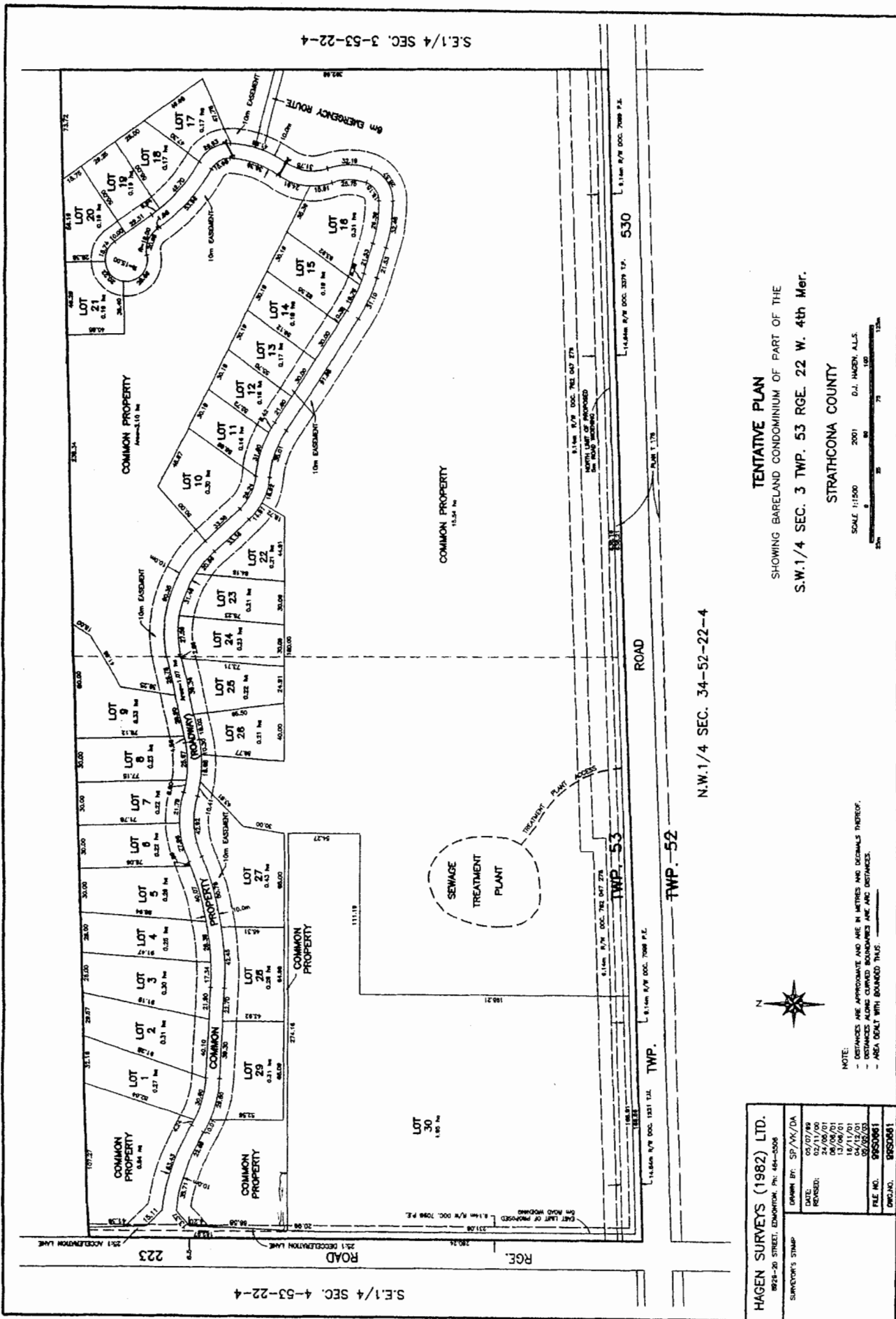
The primary objective of the Habitat Acres Area Structure Plan is to create a new “country living lifestyle” within an exceptionally attractive natural environment. The subject land’s high environmental priority rating presents an opportunity for the development of an innovative cluster country residential subdivision that responds to the environmental conservation policies outlined in the County’s Municipal Development Plan. Central to the innovative theme is an on-site private sewage treatment system that will treat waste and return treated effluent to a discharge field located within the common “open” area thereby sustaining an active agricultural operation. For the landowners, Sten & Elspeth Berg, it will be the realization of a dream.

The subdivision is to be developed as a Bareland Condominium involving thirty (30) residential parcels ranging in size from 0.16 ha (0.39 ac) to 0.36 ha (0.89 ac). Approximately 18.19 ha (44.96 ac) of open space will be set aside as common property to remain free from development in perpetuity. The development Concept shown in Figure 3 reflects this objective and the Municipal Development Plan policies listed in Section 1.5.

The major features of the development concept intended to respond to the primary objectives of the MDP’s Policy 10.31 are listed below:

1. A total of 44.96 acres of a total of 77.83 is dedicated to open space that will be managed by the Bareland Condominium Association. All uses permitted within the common area will be regulated by perpetual conservation easement that will guarantee that the open space will be forever preserved against development.
2. The waterfowl nesting areas, which also provide water and grazing for resident moose and deer, will be preserved with wide and ample buffer zones so that humans and wild life can live in harmony in a sustainable environment.
3. Roadways will be designed with a low profile, consistent with county standards, paying particular attention to base construction and packing and installed such that minimal interference with natural drainage of run-off water for storm water management to the storage ponds and wet land areas is provided.
4. In addition to the internal buffer zones mentioned in (2) external (perimeter) buffer zones exist to reduce the impact of Baseline traffic or sight lines beyond the perimeter.
5. A hiking and cross-country ski trail already exists approximately 2 miles in length to be connected by walkways for designed access to and through the common areas. The existing trails follow the

Figure 3 - Development Concept



TENTATIVE PLAN
 SHOWING BARELAND CONDOMINIUM OF PART OF THE
 S.W. 1/4 SEC. 3 TWP. 53 RGE. 22 W. 4th Mer.

STRATHCONA COUNTY

SCALE 1:1500 2001 D.J. HAGEN A.L.S.

N.W. 1/4 SEC. 34-52-22-4



NOTE:
 - DISTANCES ARE APPROXIMATE AND ARE IN METERS AND DECIMALS THEREOF.
 - DISTANCES ALONG CURVED BOUNDARIES ARE AND DISTANCES.
 - AREA DEALT WITH BOUNDED THUS.

HAGEN SURVEYS (1982) LTD.	
8028-20 STREET, EDMONTON, AL. 444-0008	
SURVEYOR'S STAMP	OWNER BY: SP/VV/DA
	DATE: 05/07/89
	REVISED: 02/11/90
	24/08/91
	13/08/91
	18/11/91
	04/12/91
	FILE NO. 98530661
	DWG. NO. 98530661

periphery of the two waterfowl habitats and across the common area to and from the roadway.

6. A number of trails exist within the subject lands. These are for walking, skiing and bicycle use. No ATV's or snowmobiles will be allowed. Snowmobiles may be used to pull trackers for cross-country ski trails.

3.2 A Condominium Concept for the Open Areas

The plan area has access via Range Road 223, a well maintained County road. An internal road, developed to County standards, will provide access into the subdivision. Water service will be provided to the subdivision via an extension of the county water line presently located within Range Road 223. A sewage collection and distribution system will treat sewage within a private wastewater treatment plant to be constructed within the common area. Subdivision approval for the development will be pursued in accordance with the MDP's Country Residential Policy area.

Development of the plan area is proposed as a Bareland Condominium. A Condominium Association, created at the time of subdivision approval, will have the responsibility of managing and supervising the maintenance of all internal roadways, trails, stormwater management facilities, common areas and utilities - including the private sewage treatment plant.

It is the intention of the developer to retain the home residence site within an approximate 4.86 ha (12 ac) parcel forming a unit of the Bareland Condominium. A sewer connection directly into the private wastewater treatment facility shall be provided to the existing building site, independent of the collection system for the other 29 lots, and will be maintained separate from the condominium association. A sewage treatment fee will be negotiated for this service and a Unit Factor will be established for the home residence site that will be based on fair value for services used.

3.3 Residential Land Use

Given the strong environmental theme of the proposed development, architectural guidelines will be implemented by the developer to ensure a uniform building aesthetic throughout the subdivision. These controls will be applied at the time of lot sales, marketing and house construction and enforced in accordance with a restrictive covenant to be registered against each title created. Examples of the types of guidelines to be applied include:

- Roofing and siding material
- Color
- Fencing

- Minimum house and garage size
- Landscaping (selecting species to complement indigenous species)

3.4 Population

This Cluster Country Residential subdivision proposes the development of thirty (30) residential lots. According to the 2000 Municipal Census, the average country residential household size is 3.0 persons. Based on this figure, and assuming 30 lots at development build-out, the projected population for this development is 90 residents.

3.5 School Population

School generation is based on the following public/separate generation factors based on figures calculated by the 2000 census:

Elementary (Public/Separate)	0.2640/unit/0.0753/unit
Junior High (Public/Separate)	0.1116/unit/0.0400/unit
Senior High (Public/Separate)	0.1298/unit/0.0185/unit

Assuming 30 lots proposed, the anticipated number of students that will be generated as a result of this development are:

Elementary	7.92 / 2.26
Junior High	3.35 / 1.20
Senior High	3.89 / .55

Total Students 19

School bussing will be required and will be the responsibility of the Bareland Condominium Association. The internal road system is designed to handle busses and turnarounds. The Ardrossan School Complex is located approximately 2 miles from the subdivision entrance. As such, access to education facilities can easily be accommodated.

3.6 Open Space and Trails

Subdivision within the plan area is subject to Section 666 of the Municipal Government Act that requires dedication of land for municipal reserves. Since all of the lands within the subdivision to be set aside as "open space" will be privately owned, the subject land's municipal reserves obligations may be dedicated as cash-in-lieu. Lands subject to stormwater management facilities, environmental reserve, environmental reserve easement, or other such perpetual conservation instrument, may

be considered for credit as municipal reserves in accordance with County policy.

The Condominium Association will manage and maintain a private trail system to be developed within the plan area. These trails will be for the sole benefit of the subject lands only.

A portion of the common open space may remain cultivated and could be leased to a private agricultural operator by the Condominium Association. The Association will have autonomy to manage the common areas, however, the lands shall remain undeveloped in perpetuity. An encumbrance, to this effect, will be registered against each title created by the subdivision, with the County identified as an interested party.

3.7 Transportation

The proposed subdivision, at full build-out, will contain 30 households. Using an assumption of 12 vehicle trips per day per household, the development's ultimate traffic generation will be 360 vehicle trips per day. Traffic is anticipated to feed onto Rge. Rd. 223 and proceed either north or south depending on the destination. North Edmonton and Fort Saskatchewan traffic will travel Hwy #16 and Range Road 224. Sherwood Park and South Edmonton traffic will travel Baseline and Wye Roads. Mill Woods traffic will travel Highway #2. Lastly, Whitemud Freeway traffic will travel Hwy #21 and Township Road 522. The location of the point of origin allows for a multi - directional selection for point of destination thus avoiding the dependence on limited roadways for linking up to direct routes.

The roads on the subject property will consist of an asphalt "hot mix", 10 meters in width, to be developed in accordance with a "country lane" profile. A ten (10) metre ditch held under easement from each property owners will allow for side slopes of 15% designed to carry the surface water away from the road (see Figure 5). The negotiated standards will be adequate to support the traffic for this subdivision, to the satisfaction of the County.

An emergency access is proposed to link the plan area to the lands proposed for subdivision located directly to the east, as shown in Figure 3. Should appropriate negotiations fail to secure the proposed access connection, the emergency access will be constructed from the internal subdivision road onto Twp. Rd. 530 within the east portion of the plan area.

A Traffic Impact Analysis, required to support the proposed transportation system, will be prepared prior to the development proceeding to ensure

traffic entering and exiting the site will not compromise the regional road network. This Plan shall be prepared to the satisfaction of the County.

4.0 MAJOR UTILITIES & SUBDIVISION STAGING

4.1 Water Supply

Potable water required to service the plan area will be provided by a municipal pipeline to be extended into the subdivision from Range Road 223 at the sole cost of the developer. This service is proposed as a "trickle" system that will supply a minimum 800-gallon storage tank to be installed within each lot. Each individual lot will require a pumping system to deliver pressurized water to the fixtures of residence. The water distribution system will be designed and installed in accordance with any necessary regulatory approvals, to the satisfaction of Alberta Environment and the County.

4.2 Low Pressure Sanitary Sewer System

The developer proposes to install an on-site private sewer treatment facility utilizing an Orenco Systems Incorporated (OSI) Recirculating Sand Filter. This innovative technology is designed to incorporate individual septic tanks, installed within each parcel, to be connected via a low-pressure sewer system. This system will transport wastes from the lot line into a centralized private sewage plant that will reduce the effluent's Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) to a level in accordance with Alberta Environment standards. Once treated, the effluent will be released into a discharge field developed within the subdivision's "open" area and provide irrigation for an active agricultural operation.

The sewage treatment system will be owned and managed solely by a Condominium Association. A licence from Alberta Environment is required prior to the installation of the sewage treatment system and the design and installation of same shall be in accordance with any necessary regulatory approvals, to the satisfaction of Alberta Environment and the County.

4.3 Stormwater Management

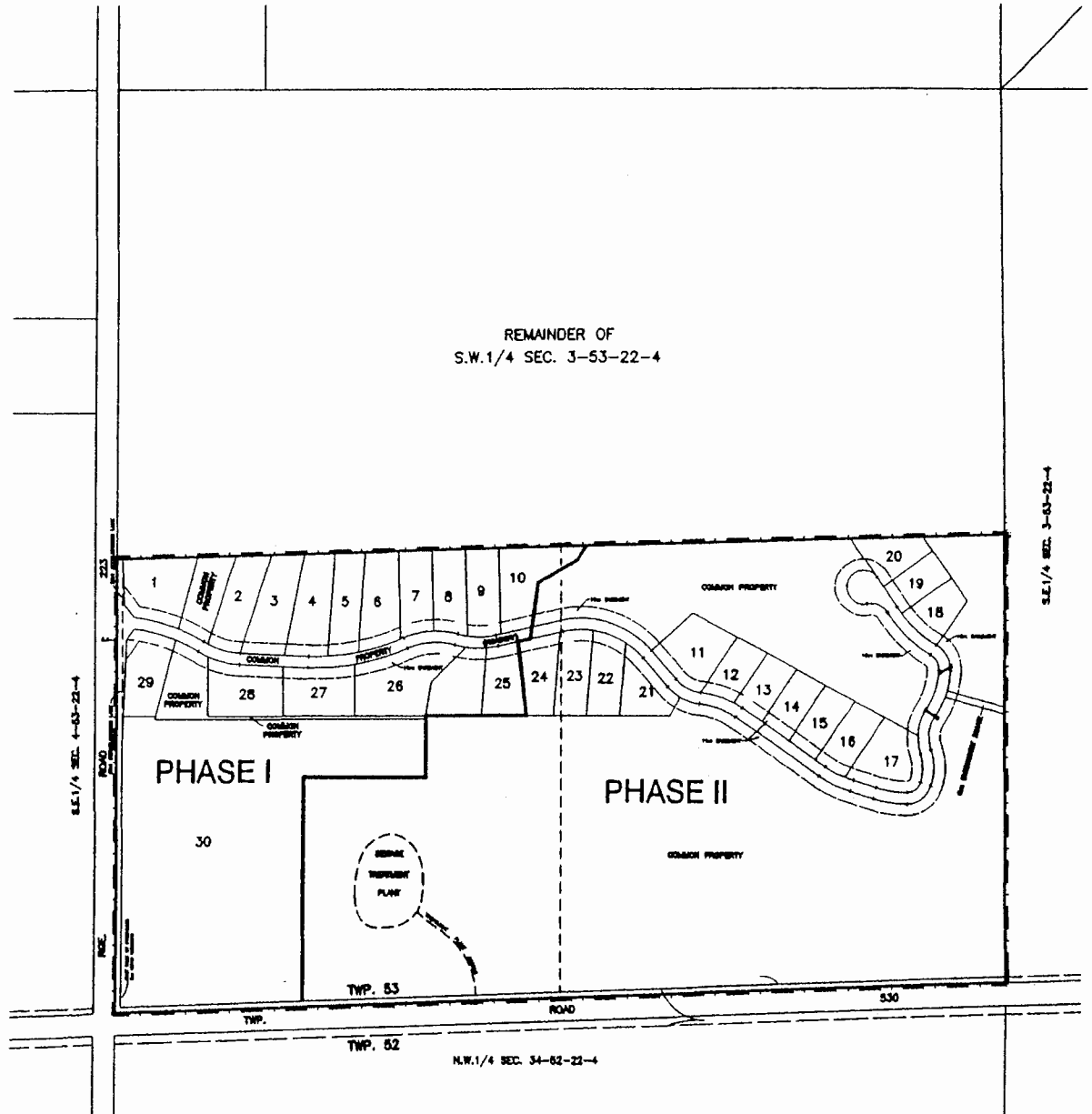
Stormwater management will be provided via a surface drainage system that utilizes the swale ditches of the roadways and the natural topography of the plan area. If necessary, swale ditches and drainage easements will be provided to handle flows in natural depressions or areas where the natural drainage is not along the internal roadway. Stormwater

AREA STRUCTURE PLAN

SHOWING PROPOSED COUNTRY
RESIDENTIAL SUBDIVISION
OF PART OF THE
S.W. 1/4 SEC. 3-53-22-4
STRATHCONA COUNTY



Fig. 4
STAGING



--- ASP BOUNDARY

HAGEN SURVEYS (1982) LTD.

8929-20 STREET, EDMONTON. Ph: 464-5506

JULY 20, 2001

FILE: 99S0661

REVISION: NOV. 16, 2001

DEC. 18, 2001

management will be provided mainly by two major developed wetland areas containing excavated trenches 40 feet wide by nine feet deep and totaling 3/4 of a mile in length. Culverts will be provided where required. A Stormwater Management Plan, required to support the proposed drainage system, will be prepared prior to the development proceeding to ensure pre and post surface drainage flows entering and exiting the site will remain consistent. This Plan shall be to the satisfaction of Alberta Environment and the County.

4.4 Franchise Utilities

The provision of natural gas, telephone and power required to service the plan area shall be installed by each appropriate utility company within private easements, at the sole cost of the developer, to the satisfaction of the County.

4.5 Staging

In accordance with Figure 4, the development is proposed to supply the lots in two phases. However, the subdivision may proceed in a single phase and/ or multiple phases in accordance with the availability of necessary services, without this plan requiring amendment.

APPENDIX A

Land Use Statistics

The proposed Land Use is Cluster Country Residential (CCR), see Development Concept Fig. 3.

Gross developable area	31.49 Ha. (77.83 acres more or less)
Space for acreages	12.06 Ha. (29.81 acres)
Roadways	1.24 Ha. (3.06 acres)
Common area	18.19 Ha. (44.96 acres)

It is the intent of the developer to maximize perpetual conservation easements on common area (open space).

HABITAT ACRES A.S.P
APPENDIX B

December 21, 2001

Our File: 121

53003 Range Road 223
Ardrossan, Alberta
T8E 2M3

Attention: Sten Berg

**Re: South Half of SW3-53-22-W4M
1:100 Year Flood Levels**

The proposed country residential is located on the south half of quarter section SW3-53-22-W4M. The 1:100 year flood levels within the quarter sections are required to determine safe building sites. The estimated flood elevations are based on a contour plan prepared by Hagen Surveys (1982) Ltd. in July 1999.

Site Drainage for South Half of SW3 Quarter Section

About 32 ha of adjacent land to the south contributes off-site drainage to this quarter section. Flow from this area drains through a 450 mm culvert under the south road. This culvert is located about 200 metres east from the southwest corner of the quarter section. From the culvert, the flow drains through a low marshy area to the wetland located in the southeast corner of the quarter section. No drainage comes from the west as the west road provides a drainage barrier. An insignificant drainage comes from the north as the drainage divide is located approximately at the subdivision north boundary line. Also, no drainage comes from the east since the land slopes towards to the east.

Drainage within the quarter section is divided into two main drainage basins. The majority of the subdivision drains towards the southeast wetland. The drainage area is about 22 ha. Outflow from this wetland is through a wide channel that exits the quarter section near the southeast corner. The majority of the northeast portion of the subdivision drains to a wetland located along the northern boundary of the site. A very small amount of land drains by overland flow directly east to the adjacent quarter section.

1:100 Year Peak Flows

One of the best procedures for estimating 1:100 year flows is to find a nearby basin with similar runoff characteristics which has monitored flow data. A frequency analysis is conducted on the

BK HYDROLOGY SERVICE
5610 - 56A Street, Beaumont, Alberta, T4X 1A7
Phone (780) 929 8325

annual maximum instantaneous flows to compute the 1:100 year maximum instantaneous flow. These peak flows are then transferred to the development drainage area.

Water Survey of Canada (WSC) operates a number of hydrometric stations in the Edmonton region. Four of these stations are located within the Pointe-aux-Pins Creek basin near Ardrossan. These stations record flow from basins varying in size from 3.55 km² to 106 km² and are less than 10 km from the project site. Since these WSC stations are very close to the site, it is expected that the runoff characteristics of these basins will be similar. Frequency analyses were conducted on the hydrometric station Pointe-aux-Pins Tributary No. 2 near Ardrossan (Station No. 05EB910) with a drainage area of 8.34 km². The estimated 1:100 year instantaneous flow is listed in Table 1.

To transfer this information to the project site, the following formula is used:

$$Q(\text{proj}) = Q(\text{WSC}) * [A(\text{proj})/A(\text{WSC})]^{0.8}$$

where Q(proj) is the flow at the project site (m³/s), Q(WSC) is the flow at the WSC station (m³/s), A(proj) is the drainage area at the project site (km²), and A(WSC) is the drainage area at the WSC station (km²). This relationship is typical for the region around Edmonton. Using the above relationship, the 1:100 year peak flows were computed and are listed in Table 1.

Table 1
Estimated 1:100 Year Peak Flows

Location	Drainage Area (ha)	Peak Flow (m³/s)
05EB910	834	5.6
Area to 450 mm Culvert	32	0.41
Southeast Wetland (SW3)	22	0.31

1:100 Year Flood Levels for South Half of SW3 Quarter Section

The 450 mm culvert under the south road has a full flow capacity of about 0.15 m³/s. The peak flow to the culvert entrance is 0.41 m³/s as listed in Table 1. At the culvert entrance, a large low area covers about one hectare to the south of the culvert. Therefore, during the 1:100 year flood event, this low area would need to fill before the culvert would flow full. Due to these conditions, it is expected that the 1:100 year peak flow through the culvert will be about 0.15 m³/s.

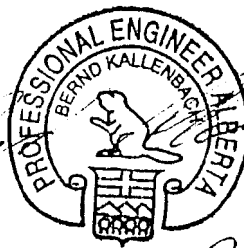
The 1:100 year peak flow to the southeast wetland is $0.15 \text{ m}^3/\text{s}$ from the 450 mm culvert and $0.31 \text{ m}^3/\text{s}$ from the 22 ha drainage area for a total flow of $0.46 \text{ m}^3/\text{s}$. The outflow channel from the wetland is trapezoidal in shape, with a 5.0 metre bottom, 5H:1V side slopes, vegetated with grass and a 1% channel slope. For this channel, the peak channel flow depth is about 0.2 m for a peak flow of $0.46 \text{ m}^3/\text{s}$. Based on the contour plan, the normal water level in the southeast wetland is about 719.5 m. Therefore, the 1:100 year water level for the southeast wetland is 719.7 m.

The wetland located in the northwest corner does not have surface outflow from the quarter section during the 1:100 year flood event. The drainage area to this wetland is about five times the area of the wetland. Based on an estimated 1:100 year spring runoff of 75 mm, the water level in the wetlands will rise about 0.4 metres. The estimated area that would be flooded during the 1:100 year event is shown on the attached map.

Closure

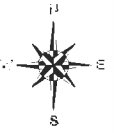
It should be noted, that the above calculations do not account for the routing of the flow through the wetlands. This flow routing would reduce the computed peak outflows from the wetlands and reduce the computed flood levels. A more detailed model, that would account for the routing, would likely lower calculated flood levels about 0.1 to 0.3 metres. Therefore, the calculated 1:100 year flood levels listed in this letter are conservative.

Sincerely,



Bernie Kallenbach, M.Eng., P.Eng.
President

Dec. 21, 2001




REMAINDER OF
S.W.1/4 SEC. 3-53-22-4



Habitat Acres Area Structure Plan Bylaw 65-2003

Date of Adoption 10 September 2002

- Residential
- Utilities
- Common Property
- ASP Boundary 

Disclaimer of Liability

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Any reliance on the information contained herein is at the user's risk.

Changes are periodically made to the ASP's/ARP's and may be made without notice. It is therefore recommended that you contact Planning & Development Services for original Plans.

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