MENDONSA AREA STRUCTURE PLAN

NW 34-19-01 W5M

PREPARED BY
SWEETGRASS LAND DEVELOPMENTS INC.
& LONGVIEW PLANNING + DESIGN

ADOPTED BYLAW ~~156~~/2007
January 2008

LONGVIEW
Planning + Design

BYLAW 156/2007

BEING A BYLAW OF THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31 TO ADOPT AN AREA STRUCTURE PLAN

WHEREAS THE COUNCIL of the Municipal District of Foothills No. 31 (hereinafter called the "Council") is empowered by Section 633(1) of the Municipal Government Act, being Chapter M-26.1, to adopt an Area Structure Plan which provides a framework for subsequent subdivision and development of an area of land within the Municipality's boundaries; and

WHEREAS the Council did direct the preparation of an Area Structure Plan for the lands legally described as:

1. *N.W. 34-19-1 W5 containing 124.38 acres*

WHEREAS the Area Structure Plan has been prepared under the direction of Council;

NOW THEREFORE the Council of the Municipal District of Foothills No. 31 in the Province of Alberta, hereby enacts as follows:

1. This Bylaw may be cited as the "*Mendonsa Area Structure Plan*".

2. The *Mendonsa Area Structure Plan* being Schedule "A" attached hereto and forming part of this Bylaw.

3. That the *Mendonsa Area Structure Plan* may be amended by Bylaw from time to time in accordance with the Municipal Government Act, by the Municipal District of Foothills No. 31.

4. This Bylaw comes into full force and effect upon the third and final reading.

FIRST READING: July 12, 2007

Roy R. McLean
Reeve

Municipal Manager

SECOND READING: February 07, 2008

Roy R. McLean
Reeve

Municipal Manager

THIRD READING: February07, 2008

Roy R. McLean
Reeve

Municipal Manager

PASSED IN OPEN COUNCIL assembled at the Town of High River in the Province of Alberta this 07 day of February, 2008

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MISSON STATEMENT

The Mendonsa Area Structure Plan (ASP) is intended to provide long-term vision and a development framework to serve as a guide for future land use and development within the Plan Area. The ASP is intended to be used as a tool to assist municipal policy makers, planners, landowners, and the developer.

1.0 INTRODUCTION

1.1 CONTEXT

The Plan Area is located three and a half (3.5) miles west of Secondary Highway 783 along 434th Avenue, a municipal road developed to a hard surface (dust control) standard within the Municipal District of Foothills No. 31 (MD). The site is approximately seven miles (7) southwest from the Town of Okotoks. (see **Figure 1.0 - General Location**).

The Plan Area includes approximately 124.38 acres of land located at the Northwest Quarter of Section 34, Township 19, Range 1, West of the 5th Meridian (see **Figure 2.0 - Site Location** and **Appendix A - Land Title Certificate**).

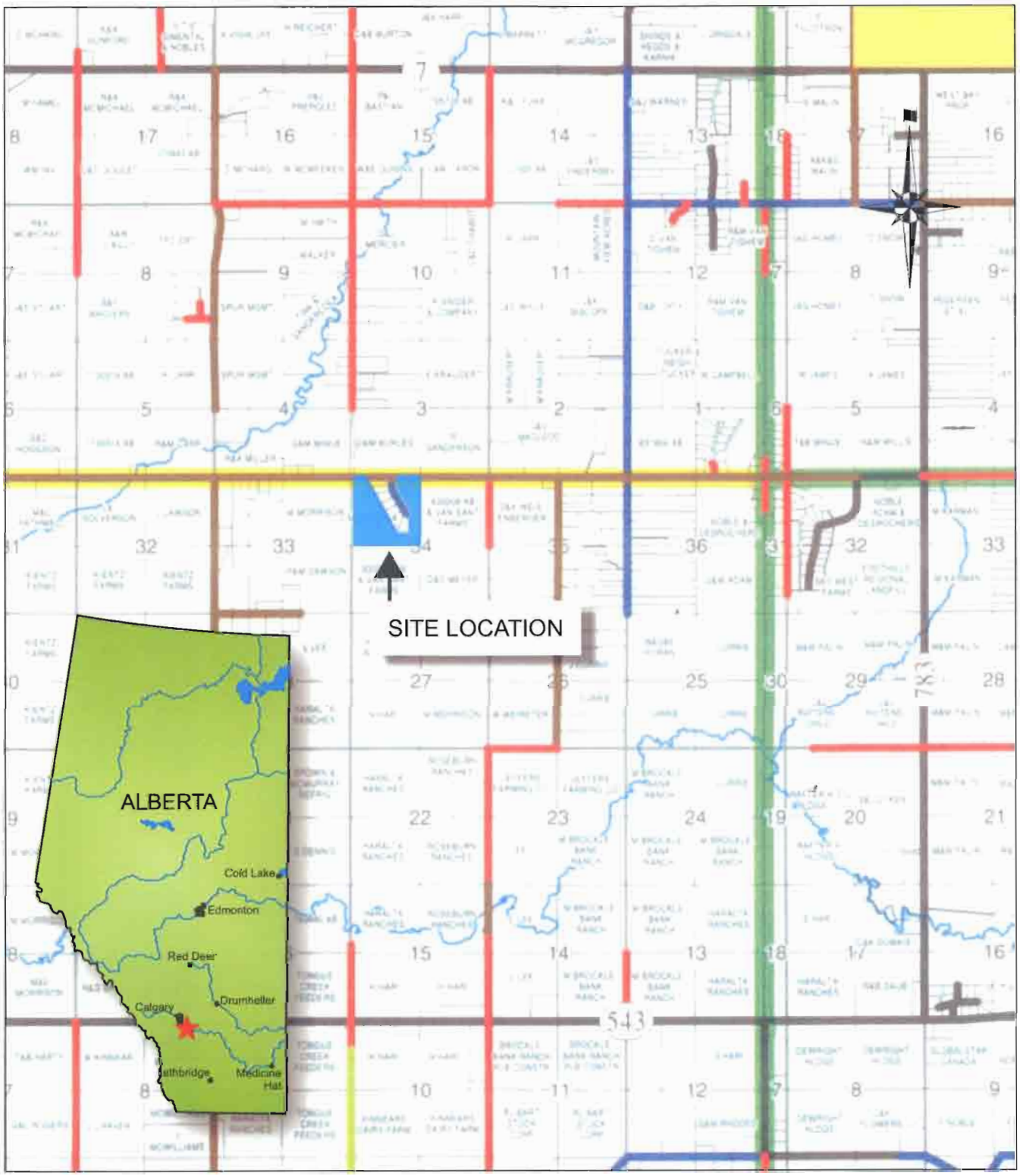
The lands are legally described as:

THE NORTH WEST QUARTER OF SECTION THIRTY FOUR (34)
IN TOWNSHIP NINETEEN (19)
RANGE ONE (1)
WEST OF THE FIFTH MERIDIAN, CONTAINING 64.7 HECTARES
(160 ACRES) MORE OR LESS,
EXCEPTING THEREOUT:

		HECTARES	(ACRES)	MORE OR LESS,
A) PLAN 7510480	SUBDIVISION	14.281	35.20	
B) PLAN 0312217	ROAD	0.168	0.42	

Excepting thereout all Mines and Minerals

An ASP is required to establish a comprehensive and orderly approach to future development, which addresses land use, access, servicing, and environmental protection. The Mendonsa ASP proposes a total of six (6) Country Residential lots (*one of which contains an existing residence*), one (1) Municipal Reserve parcel, and an Agricultural balance of +/- 86.1 acres. Upon the Agricultural balance lands an Environmental Reserve Easement will be registered over portions of the coulee bottom associated with this property.



PROJECT: SWEETGRASS NW 34-19-01 W5M	TITLE: GENERAL LOCATION		DESIGNED BY: LONGVIEW Planning + Design
	DATE: OCTOBER 2007		
	SCALE: NTS	FIGURE No.: 1	DRAWN BY: JKO

1.3 PUBLIC INVOLVEMENT

A statutory Public Hearing was held 12 July, 2007 where upon first reading of this ASP (Bylaw 156/2007) was given.

Second and third readings were obtained _____ and Bylaw 156/2007 was adopted.

The ASP was statutory public hearing was held 12 July, 2007 where upon first reading of the corresponding land use Bylaw 156/2007 was given.

In addition, the Developer attempted to visit all existing landowners and corresponded with those who were able in order to provide a better understanding of specific issues. Stakeholders included the landowners and Municipal District of Foothills planning staff.

1.4 OPPORTUNITIES AND CONSTRAINTS

A number of issues and technical considerations were evaluated as part of the ASP preparation process, and the following opportunities and constraints were identified:

a. Differing lifestyle/livelihood aspirations – Agricultural landholders express difficulties in continuing their farming operations, while existing small land owners within the McDougall subdivision wish to retain the country charm of their rural surroundings.

b. Proximity to existing development – Agricultural pursuits continue but are made more difficult by proximity of residential land holders. Within the Plan Area, in the SE corner, an easement has been granted to allow existing agricultural operators increased ease in moving machinery and equipment between large land holdings.

c. Water Resources – Reliance on groundwater is always a concern for existing residents when new development is proposed. A Preliminary Groundwater Feasibility Assessment has been prepared and is included in **Appendix B**. This evaluation concludes that there may be sufficient groundwater reserves to serve the proposed additional five (5) new wells (one proposed lot contains an existing well) and existing users. Further water well drilling and testing is required to confirm this.

d. Protection of Natural Features - A large coulee with associated native short grass prairie is contained within this Plan Area. In order to protect the most significant portions of this coulee an Environmental Reserve Easement shall be registered which allows for the preservation of this area in its natural state in perpetuity. A draft of the easement is contained within **Appendix C.**

e. Quality in Built Form – The Municipality should strive to ensure Developers who have the privilege of developing properties in the MD are held to a high standard. To this end, residential development within the Plan Area will be subject to Architectural Controls and Restrictive Covenants as outlined in **Appendix D.** These controls, and the policies of this plan, specifically mandate the use of high efficiency private septic systems that utilize a smaller footprint than conventional septic systems and have a cleaner effluent output.

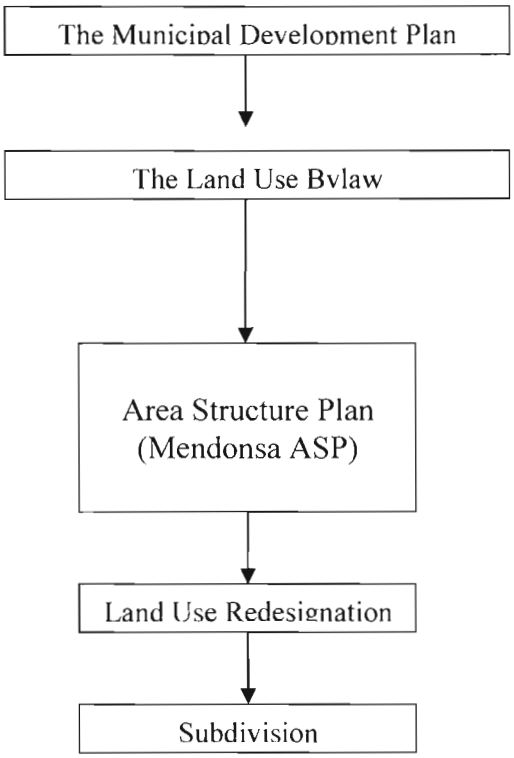
2.0 THE PLANNING PROCESS

2.1 PURPOSE OF THE PLAN

The Mendonsa ASP was prepared to address MD policy that finds ad hoc development without comprehensive planning as detrimental to any one greater area within the MD. The ASP supports the MD's Municipal Development Plan by adding a detailed layer to the planning framework for this particular area. The purpose of the ASP is to define a planning and development framework to guide future growth in the Plan Area by establishing a range of appropriate and compatible land uses, planning for comprehensive servicing, and addressing access.

The ASP takes into consideration existing land uses, surrounding developments, potential future land uses, public input, physical and environmental characteristics, infrastructure requirements, and growth trends. At its core, the ASP outlines a vision. The plan structure and the policies contained within are the means by which that vision can be achieved.

The purpose of the Mendonsa ASP is to define a planning and development framework to guide future growth in the Plan Area by establishing a range of appropriate and compatible land uses. The ASP supports the Foothills Municipal Development Plan by adding another layer of detail to this particular area. The ASP integrates the planning process illustrated as follows:



2.2 THE LEGISLATION

The ASP has been prepared in accordance with the provincial requirements outlined in s.633 of the Municipal Government Act (MGA) (Statutes of Alberta, 1994, Chapter M-26.1).

633 (1) For the purpose of providing a framework for subsequent subdivision and development of an area of land, a council may, by bylaw, adopt an area structure plan.

(2) An area structure plan

(a) Must describe

(i) The sequence of development proposed for the area,

(ii) The land uses proposed for the area, either generally or with respect to specific parts of an area,

(iii) The density of population proposed for the area either generally or with respect to specific parts of the area, and

(iv) The general location of major transportation routes and public utilities,

And

(b) May contain any other matters the council considers necessary.

In addition, the ASP was prepared in accordance with the MD Municipal Development Plan and Land Use Bylaw and complies with the Municipal Guidelines for The Preparation of Area Structure Plans.

3.0 PLAN VISION AND GOALS

3.1 VISION

The ASP seeks to achieve orderly, economical, beneficial and environmentally sensitive development within the Plan Area. It is intended to be a flexible long-term framework for development. The ASP envisions development which retains existing natural and visual characteristics to both attract new residents and preserve the landscape enjoyed by those individuals currently residing in the area.

The population of the MD of Foothills no. 31 has increased 18.9% based between the 2001 and 2006 census. The MD continues to sustain an average 2.8 persons per household, despite the increased number of dwellings over the past five years.[1] It is projected that the proposed six (6) new lots will add an additional population of 16.8 persons. There is an existing residence proposed to be contained within one of the lots which would drop the total of new residents to the Plan Area to 14 persons.

3.2 GOALS

The following goals serve as the foundation for the policy contained within this ASP:

a. Achieve an efficient, sequential pattern of development;

b. Establish a high quality residential area to harmonize development with the natural and built environment;

c. Provide an efficient and safe road network;

d. Preserve, protect, conserve and/or enhance significant natural features of the Plan Area; and,

e. Encourage country residential and agricultural land uses working in harmony with one another.

[1] http://www12.statcan.ca/english/census06/data/popdwell/Table.cfm?T=302&SR=126&S=1&O=A&RPP=25&PR=48&CMA=0

4.0 LAND USE STRATEGY

The land use strategy is based on a desire to organize development based on topography and existing significant natural features. The strategy allows for the orderly, efficient and affordable development of infrastructure and services. **Figures 2.0 & 3.0 - Land Use Concept (with & without aerial photograph)** delineates the proposed land use in the Plan Area.

In all, the development contains a proposed six (6) Country Residential lots, one (1) Municipal Reserve parcel, one (1) Agricultural balance parcel. The following table breaks down the land use for the Plan Area:

Land Use District	Acreage
Country Residential District	5 lots (4.0 acres) + 1 lot (11.5 acres) = +/- 31.5 Acres
Municipal Reserve	1 lot = +/- 4.5 acres
Agricultural District *	1 Lot = +/- 86.1 Acres
Additional Internal Road	+/- 2.18 Acres
TOTAL	124.38

* Environmental Reserve Easement is to be registered over +/- 82.1 acres of this parcel.

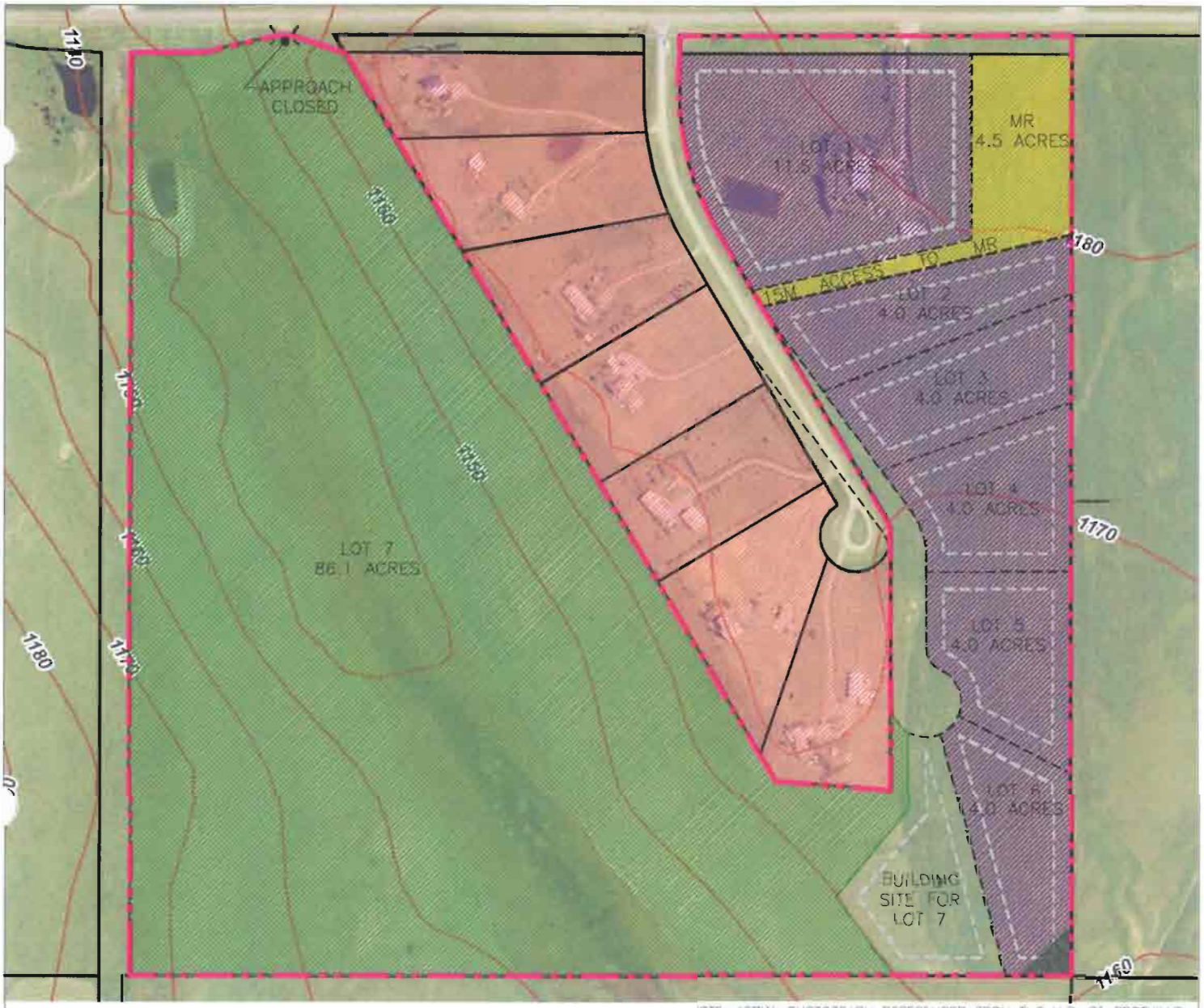
The following policies shall apply:

a. When considering redesignation, subdivision or development applications in the Plan Area, the Municipality shall confirm that the application conforms to the land use strategy illustrated in **Figures 2.0 and 3.0** and is compatible with the policies of this Plan.

b. Any application to amend the Plan that is contrary to the land use strategy and policies contained within the ASP shall require a formal application for amendment to the ASP.

4.1 COUNTRY RESIDENTIAL LAND USE POLICY

The country residential land use strategy should be compatible with the existing development (McDougall subdivision) and be of similar gross area parcel size. The McDougall subdivision was created in 1975 and contains seven (7) lots on a total of 35.0 acres. It is believed that the Calgary Regional Planning Commission approved this subdivision at that time. This Area Structure Plan does not contain the McDougall subdivision lands as they are under separately titled ownership. The proposed



NOTE: AERIAL PHOTOGRAPH REFERENCED FROM THE M.D. OF FOOTHILLS
ALL DIMENSIONS TO BE VERIFIED BY PLAN OF SURVEY.

LEGEND:

- SUBJECT BOUNDARY
- PROPOSED LOTS
- BUILDING ENVELOPE
- EXISTING COUNTRY RESIDENTIAL
- PROPOSED RESIDENTIAL
  6 NEW LOTS TOTAL
- PROPOSED MUNICIPAL RESERVE
- PROPOSED BALANCE AGRICULTURAL DISTRICT
  ERE AREA = 82.1 ACRES
  BALANCE = 4.0 ACRES
  TOTAL BALANCE = 86.1 ACRES
- 30m EASEMENT (VAN SANT FARMS)
- 1180 CONTOUR INFORMATION

0 100 200m

SCALE 1:5000

PROJECT:

SWEETGRASS
NW 34-19-01 W5M

TITLE:
LAND USE MAP

DATE:
OCTOBER 2007

SCALE:
AS SHOWN

FIGURE NO:
2

DRAWN BY:
JKO

DESIGNED BY:

LONGVIEW
Planning + Design

NOTE: AERIAL PHOTOGRAPH REFERENCED FROM THE M.D. OF FOOTHILLS
ALL DIMENSIONS TO BE VERIFIED BY PLAN OF SURVEY.

LEGEND:

SUBJECT BOUNDARY

PROPOSED LOTS

1150 CONTOUR INFORMATION

0 100 200m

SCALE 1:5000

PROJECT: SWEETGRASS NW 34-19-01 W5M	TITLE: SITE PLAN WITH AERIAL PHOTOGRAPH	DESIGNED BY: LONGVIEW Planning + Design
	DATE: OCTOBER 2007	
	SCALE: AS SHOWN / FIGURE No: 3	DRAWN BY: JKO

new development of six (6) lots contained on +/-31.5 acres and proposes access on what is now the single service side MD road known as 43nd Street West. The Plan Area contains a significant coulee feature on the west half of the quarter section. The organization of the country residential lots, in a clustered fashion, is removed from the coulee in response to this environmentally significant site and on the east side of the internal road presently servicing the McDougall subdivision.

The following policies shall apply:

a. Country residential lots shall not exceed 1.61 hectares (4.0 acres) in size. With the exception of the lot containing the existing residence (identified as Lot One on **Figures 2.0** and **3.0**) which shall be 4.8 hectares (11.5 acres) in size.

b. Country residential lots shall be supplied by individual groundwater wells drilled and licensed in accordance with the Provincial Water Act (refer to **Appendix B** for further detail).

c. Country residential lots shall have direct access to a surfaced municipal road in accordance with the Municipal Internal Subdivision road policies.

d. Country residential lots shall support single-family dwellings only.

e. Country Residential lots shall be subject to the Architectural Controls and Restrictive Covenants as outlined in draft in **Appendix D** and as formally registered on title.

f. Country Residential lots shall be required to install a private sewage treatment system (i.e. JET BAT or another form of activated treatment system resulting in highly treated effluent) in accordance with the Model Process Reference Document prepared by AAMD&C (July 2004) and meeting all required Provincial approvals.

4.2 AGRICULTURAL LAND USE POLICY

Historically, outside of the existing country residential development, the Plan Area has been used as grazing pasture for livestock in the coulee areas and has sustained a hay crop and been used for grazing in the past. The existing steep topography, soil conditions, as well as the existing wetlands, has created prohibitive conditions to engaging in more intensive agricultural uses. Soil consists of a mix of Canada Land Inventory ratings of soil classes, including: 3T and 5T. Class 3 soils have moderately severe limitations that restrict the range of crops or require special conservation practices. Class 5 soils

have very severe limitations that restrict their capability to producing perennial forage crops.[2] The letter "T" is a sub-classification indicative of adverse topography both percent of slope and patterns and frequency of slope are determining factors in application of this subclass. The MD of Foothills MDP discourages the premature fragmentation of agricultural lands. In this instance, the lands subject to proposed development are in close proximity to and serviced by the same internal road (43nd Street W) utilized by existing country residential development. The land subject to development is of the same quality and character as the existing developed areas. A large +/- 86.1 acre portion of the quarter section will remain within the Agricultural land use district and cannot be subdivided without amendment to this plan.

The following policy applies:

a. Any further fragmentation of the Agricultural balance lands would require an ASP amendment.

b. An easement is proposed over the SE corner of the quarter section to allow for the adjacent large landowner to the east and south to move machinery and equipment between fields as necessary with relative ease.

c. An Environmental Reserve Easement is proposed as outlined in Section 4.2.1 below to be registered over the environmentally significant areas associated with the coulee in the Agricultural District parcel.

4.2.1 Environmental Reserve Easement

If the owner of a parcel of land that is the subject of a proposed subdivision and the municipality agree that any or all of the land in a Plan Area is to be the subject of an environmental reserve easement for the protection and enhancement of the environment, an easement may be registered against the land in favour of the municipality. The easement runs with the land on any disposition of it, constitutes an interest in land in the municipality and may be enforced by the municipality. The environmental reserve easement protects land in its natural state in perpetuity, unlike environmental reserve however, the title to the subject land remains with the landowner and does not transfer to the municipality upon registration. The ERE is drafted to allow intermittent grazing of the ERE area and remainder of the Agricultural parcel to reduce hazards associated with long unattended grasses. A draft environmental reserve easement is attached in **Appendix C**.

[2] Soil Capability Classification for Agriculture, The Canada Land Inventory, 1969.

NOTE: AERIAL PHOTOGRAPH REFERENCED FROM THE M.D. OF FOOTHILLS.
ALL DIMENSIONS TO BE VERIFIED BY PLAN OF SURVEY.

LEGEND:

- SUBJECT BOUNDARY
- PROPOSED LOTS
- 3T SOIL CLASSIFICATION – MODERATELY SEVERE LIMITATIONS
- 5T SOIL CLASSIFICATION – VERY SEVERE LIMITATIONS
- 1150 CONTOUR INFORMATION

0 100 200m

SCALE 1:5000

PROJECT: SWEETGRASS NW 34-19-01 W5M	TITLE: SOIL ANALYSIS	DESIGNED BY: LONGVIEW Planning + Design
	DATE: OCTOBER 2007	
	SCALE: AS SHOWN	FIGURE No: 4
		DRAWN BY: JKC

The following policy applies:

a. An environmental reserve easement shall be registered, as illustrated in **Figure 2.0**, to conserve and protect the wetland and native grasses associated with this significant natural feature.

5.0 NATURAL ENVIRONMENT

The biophysical characteristics and environmental significance of lands in the Plan Area should be considered in applications for development.

5.1 GENERAL ENVIRONMENT POLICY

The following general environment policies shall apply:

a. The Municipality, through its Municipal Development Plan policies, encourages the preservation of significant and/or sensitive natural environments in the development process.

b. The Municipality may require that a proponent, in support of a proposal for redesignation, subdivision or development, and at their sole expense, prepare and submit the following in a form and content satisfactory to the Municipality, and in accordance with all pertinent Alberta Environment Protection guidelines or requirements of the appropriate Provincial Departments:

i. A Geotechnical report pursuant to the provisions of the Municipal Development Plan; and

ii. An Archaeological and/or Historical Resource Impact Assessment pursuant to the provisions of the Municipal Development Plan and to the satisfaction of the provincial department of Alberta Culture.

5.2 TOPOGRAPHY

The majority of the land within the Plan Area is native pasture (see **Figure 2.0 - Site Location**) associated with a significant coulee. There is an estimated 20m fall through the easterly 800m of the quarter section in area proposed to support the new Country Residential lots. This represents about a 4% slope through the potential building sites. The more significant slopes are associated with the coulee to the west. There is a roughly 30 m fall over 100m to the coulee bottom which represents a slope of an estimated 30% in this area. It is anticipated that building sites shall not contain any slopes greater than a 15% slope break.

The following policy applies:

a. The Municipality may require a geotechnical report prepared by a qualified engineer in areas where topography is a factor of development. The geotechnical report should contain all information required by the Municipality as described in MD policy.

b. Building Sites shall not contain slope greater than 15% in accordance with municipal policy.

5.3 OPEN SPACE, RECREATION, ENVIRONMENTAL PROTECTION

The Plan Area contains a range of open space and recreational lands, in the form of one (1) Municipal Reserve parcel and an environmental reserve easement.

5.3.1 Municipal Reserve

Within the Plan Area, one (1) Municipal Reserve (MR) parcel totaling +/- 4.5 acres (1.82 hectares) in size are proposed, which is intended to be dedicated and utilized by the MD for a range of uses (e.g. schools, public services, or open space & recreational areas). Recently, the MD has also sold MR to support development of single family residences. The MR dedicated at this site is equivalent to developable land and is proposed to gain access directly from the internal road 43rd Street West.

The following policies apply:

a. The Municipality supports the retention and enhancement of open space and recreation facilities in the municipality. Linkages between and continuity of these spaces are encouraged.

b. Dedication of Municipal Reserve, either by cash-in-lieu of land or by physical dedication of land, or both, in the Plan Area shall be determined by the Municipality in accordance with the MDP policy and s.666 of the Municipal Government Act.

c. Physical land dedication of Municipal Reserve shall consist of lands that are equivalent to the developable lands (i.e. similar in kind to the land being developed).

d. Although no dedication of Environmental Reserve is anticipated, ER dedication shall be determined by the Municipality in accordance with Section 664 of the Municipal Government Act.

6.0 INFRASTRUCTURE

Infrastructure includes the hierarchy of road networks, public and private water systems, septic systems, solid waste management systems, and police, fire and ambulance service.

6.1 GENERAL INFRASTRUCTURE

The quality of infrastructure is a fundamental part of the well-being of a community and its ability to sustain growth over time. To improve the quality of life in the Municipality as a whole, it is important that the Municipality occasionally assess infrastructure as it relates to the planning of communities

a. The Municipality has developed a set standard for roads and infrastructure servicing that follows a general hierarchy. The Municipality may require an assessment of necessary infrastructure when considering redesignation, subdivision, and/or development proposals.

6.2 ROAD NETWORK

6.2.1 EXTERNAL ROADS

Access to the site is gained from Secondary Highway 783 and the hard surfaced Municipal road 434th Avenue. The Municipality may require the developer to provide a contribution to the upgrade of the local Municipal road network in accordance with the road levy policy and at the discretion of Council.

6.2.3 Internal Roads

The Plan Area shall be serviced with an internal road that containing one point of ingress/egress. The internal road will not exceed a grade of 7% at any point, will be constructed to an MD standard and paved as required. Approaches to all Country Residential lots will be located along the internal road. The existing internal road is a Municipal road and is called 43nd Street West. The developer shall upgrade this road to the current municipal standard and extend it to the south at their sole expense.

The following policy applies:

a. The internal subdivision road shall be constructed to Municipal standard at the sole expense of the developer. Ownership and maintenance of the internal subdivision road shall be the responsibility of the Municipality upon issuance of a Final Acceptance Certificate to the developer.

b. An existing approach to the Agricultural parcel from 434th Avenue shall be closed. All access to the quarter section shall be from the Municipal internal subdivision road.

c. In accordance with municipal policy, the developer may be subject to the Municipal Road Levy or be required to improve the surface of 434th Avenue at the discretion of Council.

6.3 WATER, SEWER AND STORM WATER SERVICING

6.3.1 Water Sources and Resources

A detailed assessment of existing groundwater wells and resources was conducted by EBA Engineering Ltd. and their report can be found in **Appendix B.** Based on the findings of this report, it is anticipated that each new lot shall be serviced by an individual groundwater well drilled and licensed in accordance with the Provincial Water Act. A Stormwater Management Plan can be prepared at the sole expense of the Developer should Council deem it necessary. Developers are not permitted to exceed pre-development release rates with post development flows.

The following policies shall apply:

a. The new lots shall be serviced by individual groundwater wells.

b. All future development shall implement water conservation methods.

c. All storm water management shall be contained within the proposed development area. No surface water shall be directed to highway ditches and post-development flows shall not exceed pre-development flows. The Developer may be required to prepare a Storm Water Management Plan at their sole expense should Council deem it necessary.

6.3.2 Sanitary Sources and Resources

There are no communal sewage collection and treatment systems servicing the Plan Area. Treatment of sanitary effluent is generally restricted to on-site disposal through septic tile fields as per Provincial legislation. This is typical of domestic use within the MD. To maintain water quality in the aquifer(s), consideration must be given to proper disposal of sanitary and sewer waste from future developments. The new development within the Plan Area will be subject to installation of a high efficiency private sewage system in accordance with the required Provincial standards and codes.

The following policies apply:

a. An on-site sewage disposal system shall be required to be installed at no less a standard than that of a private sewage treatment system (i.e. JET BAT or another form of activated treatment system resulting in highly treated effluent) in accordance with the Model Process Reference Document prepared by AAMD&C (July 2004) and developed to the standards of the Municipality and Province of Alberta.

b. It is recommended that the calculated Sodium Absorption Ratio (SAR) of the potable water source (SAR calculated at 15.96) be considered in the long-term effectiveness of the disposal field.

c. No chemical or salt based water softeners shall be permitted in the development.

d. Methods of Open Discharge from a septic tank shall not be permitted.

e. Non-evaporative lagoons shall not be permitted.

6.3.3 Solid Waste Disposal

a. The Municipality encourages co-ordination of solid waste disposal systems with urban centres where possible.

b. Solid waste from the development shall be hauled by individual landowners to the nearest waste transfer site.

6.3.4 Shallow Utilities

Shallow utility services include natural gas, telephone, and electricity. Atco Gas provides gas service to the area. Electrical service is provided primarily by Fortis. There is a mix of underground and overhead electrical services in the area.

a. Provision of Shallow Utilities in applications for redesignation, subdivision, and/or development shall be at the sole expense of the developer to the extent required in the Municipal Standard Development Agreement.

6.4 PROTECTIVE SERVICES

a. The Municipality requires that proposals for redesignation, subdivision, and/or development accommodate design elements that consider safety measures and appropriate levels of servicing required for fire, police, and ambulance services.

6.4.1 Police Services

a. Police Services to the Plan Area shall be provided by the Royal Canadian Mounted Police and M.D. of Foothills Special Constables.

6.4.2 Fire Services

a. The Plan Area is serviced by 911 emergency services, with an emergency locator system set up for each individual property.

b. New subdivision shall meet the criteria for on-site fire fighting measures as determined by the Municipality.

c. Applications for redesignation, subdivision or development shall assure proper emergency vehicle access in accordance with Municipal Policy.

7.0 IMPLEMENTATION AND REVIEW

7.1 PLAN IMPLEMENTATION

The ASP falls within a hierarchy of applicable plans as outlined in Section 2.0. The MD's Municipal Development Plan (MDP) is the guiding document for all development within the municipality. The MD's Land Use Bylaw (LUB) establishes the land use rules and regulations. The ASP presents a greater level of planning detail within the specific Plan Area and is required to be consistent with both the MDP and LUB.

Development in the Plan Area should be acceptable to community and consistent with policy contained within the ASP. The ASP does not supersede, repeal, replace or otherwise diminish any other statutory plan in effect in the Plan Area.

a. The policies contained within this document shall be reviewed and implemented by MD Council members at their discretion.

7.2 PLAN REVIEW

As the ASP is bylaw of the MD, a formal process as outlined in the Municipal Government Act is required to amend the Plan.

a. The future land use and development outlined in the ASP is intended to address a long-term time horizon. Periodic review and occasional amendment of the ASP may be required in accordance with the Municipal Government Act. The ASP is flexible enough to allow for review and every five years should the Municipality deem that appropriate.

APPENDIX A Certificate of Title

LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
0030 041 420	5;1;19;34;NW	071 427 395

LEGAL DESCRIPTION

THE NORTH WEST QUARTER OF SECTION THIRTY FOUR (34)
IN TOWNSHIP NINETEEN (19)
RANGE ONE (1)
WEST OF THE FIFTH MERIDIAN, CONTAINING 64.7 HECTARES
(160 ACRES) MORE OR LESS,
EXCEPTING THEREOUT:

		HECTARES	(ACRES)	MORE OR LESS,
A) PLAN 7510480	SUBDIVISION	14.281	35.20	
B) PLAN 0312217	ROAD	0.168	0.42	

EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

REFERENCE NUMBER: 031 271 280 +16

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
071 427 395	27/08/2007	TRANSFER OF LAND	$1,000,000	$1,000,000

OWNERS

SWEETGRASS LAND DEVELOPMENTS INC..
OF 2660-61 AVE SE
CALGARY
ALBERTA T2C 4V2

(CONTINUED)

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
751 013 551	17/02/1975	CAVEAT RE : SEE CAVEAT CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. 140 - 6 AVENUE S.W., CALGARY ALBERTA
751 056 473	09/06/1975	CAVEAT RE : DEFERRED RESERVE CAVEATOR - THE CALGARY REGIONAL PLANNING COMMISSION.
031 379 257	01/11/2003	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD..
071 427 396	27/08/2007	MORTGAGE MORTGAGEE - STERLING BRIDGE MORTGAGE CORP.. 206, 400 CROWFOOT CRESCENT NW CALGARY ALBERTA T3G5H6 ORIGINAL PRINCIPAL AMOUNT: $1,450,000

TOTAL INSTRUMENTS: 004

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 5 DAY OF DECEMBER, 2007 AT 03:45 P.M.

ORDER NUMBER:10074206

CUSTOMER FILE NUMBER:

END OF CERTIFICATE

(CONTINUED)

INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

APPENDIX B Preliminary Groundwater Feasibility Assessment

CREATING AND DELIVERING BETTER SOLUTIONS

www.eba.ca

Sweetgrass/Mendonsa Development Ltd.

GROUNDWATER SUPPLY FEASIBILITY EVALUATION
PRELIMINARY ASSESSMENT
FOR THE PROPOSED SIX LOT COUNTRY RESIDENTIAL DEVELOPMENT
NW ¼ 34-019-01 W5M

C22101040

May 2007

EBA Engineering Consultants Ltd.
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Appendix A Alberta Environment Water Well Database Records
Appendix B Environmental Report – General Conditions

1.0 INTRODUCTION

This report summarizes the results of a preliminary groundwater supply feasibility evaluation of the proposed six lot country residential development located at NW ¼ 34-019-01, W5M, Alberta (Figure 1). EBA Engineering Consultants Ltd. (EBA) was retained by Sweetgrass/Mendonsa Development Ltd. (Sweetgrass) to conduct this investigation and prepare this report. The report was required to assess whether an adequate groundwater supply was potentially available to meet the needs of existing groundwater users and the proposed new development. Potential aquifer yield, aquifer continuity, and aquifer susceptibility to potential contamination at the proposed subdivision have been considered.

The evaluation was conducted with consideration to the "Environmental Guidelines for the Review of Subdivisions in Alberta, Chapter 2: Guidelines for the Evaluation of Groundwater Supply for Un-serviced Residential Subdivisions" [Alberta Environment (AENV), 1998], the Water Act (AENV, 1996). .

The groundwater feasibility assessment consisted of three tasks as follows:

- a review of available regional site documentation, including drillers reports, pumping and recovery test data, and hydrogeological reports;
- data analysis including analysis of existing pumping test data, analysis of aquifer potential, and computation of theoretical impact on nearby wells; and
- report preparation.

2.0 PROJECT SCOPE AND AREA

This groundwater feasibility assessment report is limited to the evaluation of potential water supply for the proposed residential development. The evaluation area includes the proposed development and the surrounding 1.6 km radius.

This report addresses an assessment of the feasibility of finding sufficient volumes of groundwater to sustain the proposed residential development. A groundwater feasibility assessment report, as outlined by AENV (1998), should evaluate the following criteria:

- the potential of one or more aquifers to provide a sufficient supply of groundwater to meet the needs of existing users and the needs of the proposed residential subdivision within the quarter section;
- the extent to which each aquifer is continuous beneath the proposed development;
- the potability of aquifer water and potential existing anthropogenic contamination;
- the feasibility of treating groundwater, if required; and
- the susceptibility of each aquifer to potential contamination (e.g., septic tile fields).

It should be noted that Criteria 3 and Criteria 4 can be more adequately addressed once a well has been drilled and water samples have been analyzed.

To protect water resources, AENV has implemented policies that govern the assessment and use of both surface water and groundwater in the province. Country residential subdivisions are regulated by Section 21(2) and Section 23(3) of the Water Act (AENV, 1996), which came into force January 1, 1999, and stated as follows:

- Water Act – Section 21(2):

  Subject to Subsection (3) and Section 23 and any exemptions specified in the regulations, a person who owns or occupies land under which groundwater exists:

  a) has the right to commence and continue the diversion of the groundwater for household purposes; and

  b) may not obtain a licence for the diversion of the groundwater for household purposes.

  (Note: As defined in the Water Act, "household purposes" means the use of a maximum of 1,250 m^3 of water per year, per household for the purposes of human consumption, sanitation, fire prevention, and watering animals, gardens, lawns, and trees.)

- Water Act – Section 23(3):

  If, after this Act comes into force, a subdivision of land of a type or class of subdivision specified in the regulations is approved under the Municipal Government Act, a person residing within the subdivision or a parcel of land that adjoins or is above a source of water described in Section 21 has the right to commence and continue the diversion of water under Section 21 only if:

  a) a report certified by a professional engineer, professional geologist or professional geophysicist, as defined in the Engineering, Geological, and Geophysical Professions Act, was submitted to the subdivision authority as part of the application for the subdivision under the Municipal Government Act, and the report states that the diversion of 1,250 m^3 of water per year for household purpose under Section 21 for each of the households within the subdivision will not interfere with any household users, licenses or traditional agricultural users who exist when the subdivision is approved; and

  b) the diversion of water for each of the households within the subdivision under Section 21 is not inconsistent with an applicable approved water management plan.

- The Water Ministerial Regulation (AR 205/98) (AENV, 1999) states:

  9(1) Subject to subsection (2), a type of subdivision of land for the purposes of Section 23(3) of the Act is a subdivision that results in six or more parcels in a quarter section or in a river lot.

Based upon the foregoing, to have the statutory right to obtain groundwater so that each lot may have a private water well system, AENV requires that the groundwater potential be evaluated according to specific protocols when the number of unserviced residential parcels per quarter section, both existing and proposed, using the underlying groundwater resources is six or more. As required by the Water Act and a letter of clarification regarding Section 23 of the Water Act to the Municipal District (MD) of Foothills No. 31

(AENV, April 27, 1999), a person residing within the subdivision on a parcel of land has the right to divert groundwater only if a report certified by a professional engineer, geologist, or geophysicist was submitted to the subdivision authority (MD) as part of the application for the subdivision under the Municipal Government Act. The report must state that the diversion of 1,250 m^3/year of water per household, for each of the houses within the subdivision, will not cause a significant adverse effect on existing water users in the area. In addition, the report must quantify the effect that household rights within the newly created subdivision may have on existing water users in the area. These required assessments were implemented by AENV so that groundwater resources are not overexploited in our province and existing groundwater users will not be adversely affected.

Based upon the foregoing, Section 21(2) and Section 23(3) of the Water Act ask two basic questions:

- Is there sufficient water to supply the maximum requirement of 1,250 m^3/year for existing plus proposed lots within a 1 km distance?
- Will the allocated volume of water for each proposed lot result in a significant adverse effect on neighbouring wells and licensed users existing at the time of subdivision application?

In order to evaluate the groundwater potential, AENV requires that investigations and reporting should include the following:

- Review of available site documentation. This includes drillers' reports, pumping and recovery test data, hydrochemical data, and hydrogeological reports.
- Water well drilling and testing, including analysis of pumping and recovery test data, analysis of 20 year safe yield (Q_{20}) and computation of theoretical impact on nearby wells. Aquifer yield, aquifer continuity, groundwater potability (and feasibility of treatment, as required), and aquifer susceptibility to potential contamination at the proposed subdivision should be considered.
- Report preparation.

The investigations and reporting using this approach ensures that new lot owners will have the statutory right to use groundwater.

To assess potential aquifer yield for planning potential development density, preliminary assessments may be used as a guide in predicting potential aquifer yield in an area. This preliminary groundwater supply feasibility evaluation may be used at the initial stages of planning but shall not replace the more rigorous investigations required by AENV when obtaining final development approval.

3.0 HYDROGEOLOGY

3.1 REGIONAL HYDROGEOLOGY

Surficial deposits in the area consist of unconsolidated Quaternary deposits that typically extend to a depth of 2 m to 25 m and may provide a moderate groundwater resource having well yields on the order of 1 imperial gallon per minute (igpm) to 5 igpm (Borneuf D., 1980).

Groundwater wells in the area are typically completed in the bedrock Tertiary Porcupine Hills Formation. This formation is described as "pale grey, thick bedded, cherty calcareous sandstone, pale grey calcareous mudstone; nonmarine" (Borneuf D., 1980).

Wells completed in the Porcupine Hills general yield from 1 igpm to 5 igpm. Locally, areas may have well yields 25 igpm to 100 igpm due to the presence of fracturing. Bedrock wells generally range from 7 m to 155 m deep, the average depth being about 45 m (Borneuf D., 1980).

There are few springs identified in the surrounding area, with flow rate unknown, normally resulting from shallow local flow systems or topographic lows (Borneuf D., 1980).

3.2 LOCAL HYDROGEOLOGY

A search of available water well drilling reports filed with the Groundwater Information Center and available on the AENV website, identified 36 groundwater wells within 1.6 km radius of the evaluation area (see attached Table 1 and Figure 2). There is recorded information on 13 wells, currently located in NW ¼ 34-019-01 W5M

The majority of the wells drilled in the area are completed in the Porcupine Hills Formation and confirm that sandstones within this formation are the dominant aquifers used throughout the area. Details regarding wells (where available) are summarized in Table 1 with the individual well records included in Appendix A. Figure 2 illustrates the well locations within the evaluation area. The bedrock topography is very similar to the land surface topography. Groundwater in the area moves from the west to the east-northeast (Borneuf D., 1980).

Significant observations derived from the available water well drillers' reports are:

- Well depths vary significantly within NW ¼ 34-019-01 W5M and the surrounding 1.6 km radius of the proposed development, from 15.2 m (Map Well ID 12) to 152.4 m (Map Well ID 1). The variability of well depth exceeds the topographic relief of 10 m across the area indicating that the water bearing zones are not continuous across the area. As such, a conceptual aquifer model, which entails a discontinuous "layer-cake" of hydrostratigraphic units, is applicable.

- The 20 year safe yield(Q_{20}) of wells within the surrounding 1.6 km radial area of the proposed development, for the wells where there is sufficient information available to calculate aquifer parameters, ranges from 47.8 m^3/year (0.02 igpm) to 1,085 x 10^3 m^3/year (454.1 igpm). These values are based upon the apparent transmissivity [i.e., Ta=264 Q (1+log t)/d] calculated from data provided on the water well drillers' reports. The mean Q_{20} for these wells is 101,787 m^3/year or 42.6 igpm. Neglecting Well ID 30 (Q_{20}=454.1 igpm), the mean Q_{20} is 36,079 m^3/year (15.1 igpm).
- From 16 wells, for which there is sufficient information to calculate Q_{20}, 18.7% have a Q_{20} of less than 1 igpm, 31.2% have a Q_{20} of 1 igpm to 5 igpm, 18.7% have a Q_{20} of 5 igpm to 10 igpm, 18.7% have a Q_{20} of 10 igpm to 50 igpm, and the rest have a Q_{20} over 50 igpm.
- There are currently 13 available records for water well located within NW ¼ 34-019-01 W5M that are registered with AENV, but sufficient information for only 1 to calculate Q_{20} (Well ID 25). The Q_{20} calculated for this well is 98,681 m^3/ year (41.3 igpm).
- The variability of the well depths implies that water-bearing zones are multi-story throughout the geologic section. The layer-cake hydrostratigraphic geology can be summarized based upon depth increments, using either the bottom of the perforated interval or the total depth of the well. The relationship between depth increments, Q_{20}, and aquifer lithology within NW ¼ 34-019-01 W5M and the surrounding 1.6 km radius is shown in Table A.

TABLE A: LAYER-CAKE HYDROSTRATIGRAPHIC MODEL WITHIN NW¼ 34-019-01 W5M AND THE SURROUNDING 1.6 KM RADIUS

Depth Increment (m)	Number of Domestic Wells	Cumulative Q20			Aquifer Lithology
		m³/ year	igpm	No. Wells	
15 to 20	2	3,823	1.6	1	Sandstone
20 to 40	6	267,849	112.1	3	Sandstone
40 to 60	13	1,125,158	470.9	4	Sandstone
60 to 80	7	25,088	10.5	2	Sandstone
80 to 100	2	131,416	55	2	Sandstone and Sandstone/Gravel
100 to 155	5	74,548	31.2	4	Sandstone

This data indicates that the majority of wells are completed between 20 m and 80 m. Based upon layer-cake hydrostratigraphic geology, the wells located within NW ¼ 34-019-01 W5M, and the surrounding 1.6 km radius of the proposed development, have a cumulative minimum production potential of 1.5 x 10^6 m^3/year (650.1 igpm) to a depth of 100 m.

- The layer-cake hydrostratigraphic geology within NW ¼ 34-019-01 W5M is shown in Table B. There are 13 existing water wells located within this area. The Water Act, under Section 21(2), allocates a maximum of 1,250 m^3/ year to each existing (13 users) and proposed (6 users) parcels of land for household use. The total groundwater requirement is 23,750 m^3/year (i.e., 19 lots x 1,250 m^3/year) or 9.9 igpm, which is less than the production potential of 41.3 igpm, (98.6 x 10^3 m^3/year) of the well 30 (EBA well ID). As previously indicated, there is not sufficient data to compute Q_{20} for other wells in the quarter section

  Based upon this, there may be sufficient water reserves to service the additional six lots. This finding is reinforced by the fact that there are 13 identified water wells for current users of the groundwater resources within the quarter section.

TABLE B: LAYER-CAKE HYDROSTRATIGRAPHIC MODEL WITHIN NW¼ 34-019-01 W5M

Depth Increment (m)	Number of Domestic Wells	Cumulative Q20			Aquifer Lithology
		m³/ year	igpm	No. Wells	
3 to 20	0	n/a	n/a	n/a	n/a
20 to 40	3	98,681	41.3	1	Sandstone
40 to 60	9	n/a	n/a	n/a	n/a
60 to 80	0	n/a	n/a	n/a	n/a
Over 80	0	n/a	n/a	n/a	n/a

- It is recognized that the short-term pump tests given on the water well records may not be indicative of longer-term pumping tests and sustainable flow rates. Site specific well testing is required to confirm an adequate groundwater supply.

- The water well data was also viewed to determine if a drop in regional groundwater table was evident with increased country residential development. The mean static water level (non-pumping) for wells within NW ¼ 34-019-01 W5M and the surrounding 1.6 km radius of the proposed development is tabulated as shown in Table C.

TABLE C: STATIC WATER LEVEL DATA VERSUS TIME WITHIN 1.6 KM RADIUS

Decade	Number of Wells	Static Water Level (m)	Average (m)
1950s	1	6.1	6.1
1960s	0	n/a	n/a
1970s	3	24.4 to 36.6	31.5
1980s	3	7.6 to 17.7	25.3
1990s	2	36.9 to 42.7	39.9
2000s	9	4.3 to 78.9	35.4

There is no conclusive evidence that a decline in regional water table has occurred in the development area since the early 1950s.

- The water well data was also viewed to determine if a drop in regional groundwater table was evident with increased country residential development in the proposed developed quarter section. The mean static water level (non-pumping) for the 10 wells within NW ¼ 34-019-01 W5M for which there is data, were tabulated as shown in Table D.

  There is insufficient data available to conclude that a decline in water table has occurred in NW ¼ 34-019-01 W5M.

TABLE D: STATIC WATER LEVEL DATA VERSUS TIME WITHIN THE QUARTER SECTION (NW¼ 34-019-01 W5M)

Year	Well ID	Bottom of the Screened Interval (m)	Static Water Level (m)
Not Known	18	Not Known	31.09
Not Known	19	Not Known	30.6
Not Known	20	Not Known	31.4
Not Known	21	Not Known	31.4
Not Known	22	Not Known	30.9
Not Known	23	Not Known	30.6
Not Known	24	Not Known	30.8
1970	25	31.4	25.9
1978	26	45.7	24.4
1979	27	47.5	33.5

- Based upon the evaluation, it is evident that more than one water-bearing zone exists and that the zones are likely not continuous beneath the quarter section. This conclusion is based upon the variability in well depth, static water levels, completion interval, and preliminary flow estimates.
- The quality of water transmitted in the sandstone aquifer is generally acceptable for domestic use. Minor exceedances in parameters such as sodium, iron, manganese, fluoride, etc. can be treated at a nominal cost.
- Water well records within the region around NW ¼ 34-019-01 W5M indicate varying thickness of overburden deposits. When the overburden thickness exceeds 3 m, this depth of overburden is generally sufficient to accommodate septic fields. In accordance with subdivision regulations, site-specific percolation tests would have to be undertaken to confirm the suitability of the overburden material for septic field disposal.

4.0 SUMMARY OF FINDINGS

The above evaluation was conducted with consideration to the "Environmental Guidelines for the Review of Subdivisions in Alberta, Chapter 2: Guidelines for the Evaluation of Groundwater Supply for Un-serviced Residential Subdivisions" (AENV, 1998), the Water Act (AENV, 1996), and through consultation with AENV personnel. Based upon a review of potential aquifer yield, aquifer continuity, and aquifer susceptibility to potential contamination at the proposed development, EBA concludes the following with regard to this evaluation.

- There are currently 13 recorded water wells located within NW ¼ 34-019-01 W5M that are registered with AENV. The proposed six lot development would bring the total number to nineteen and a total water requirement of 23,750 m^3/ year (i.e., 19 lots x 1,250 m^3/ year) or 9.9 igpm.
- Based upon existing water well flow test information, there is a minimum cumulative groundwater potential of 98.6 x 10^3 m^3/year (41.3 igpm) within the upper 80 m of the geological section in NW ¼ 34-019-01 W5M. The water requirements for the existing and proposed six lots are less than the cumulative groundwater potential in the area. Therefore, based upon existing information, the indication is that there may be sufficient groundwater reserves to serve the proposed additional six lots and existing users in NW ¼ 34-019-01 W5M.
- The groundwater supply for the proposed six lot country residential development may be obtained from wells completed within varying depth intervals up to 100 m, with more possible potential below that. Currently there is little groundwater utilization within the proposed development area.
- Based upon the results of this groundwater feasibility assessment, EBA is of the opinion that there may be an adequate groundwater supply potential to meet the domestic requirements of the proposed unserviced six lot residential development and existing users. Water well drilling and testing is required to confirm this.
- Although all calculations and comments are based upon 1,250 m^3/year per household water use, as per the Water Act, it is important to note the potential seasonal and/or weekend use of proposed lots would likely result in a lower annual consumption, thus further suggesting there is an adequate groundwater supply potential.

5.0 RECOMMENDATIONS

Based upon the findings of this report, EBA recommends the following:

- There is likely an adequate groundwater supply potential to meet the needs of existing users and the domestic requirements of proposed users, and thus approval for the development of the proposed six lot development should not be declined based upon groundwater supply issues.

- The diversions of 1,250 m^3/year of water per household, for each of the users within the proposed development, are likely not to cause a significant adverse effect on existing water users in the area. Thus, approval for the development of the proposed six lot development should not be declined based upon groundwater supply interference issues.
- Groundwater from wells drilled at the proposed development should be tested for potability parameters. Should parameters exceed Health Canada (2006) Guidelines for Canadian Drinking Water Quality, the water may be required to be treated.

6.0 DISCLAIMER

If you have any questions regarding the assumptions and conclusions drawn in this groundwater feasibility assessment, please contact the undersigned at your convenience. It should be noted that the assessment of potential groundwater availability is not a guarantee, but rather an indication of the probability of securing a sustainable groundwater supply. Site-specific well testing is required to confirm an adequate groundwater supply.

This preliminary groundwater supply feasibility evaluation should not replace the more rigorous AENV investigation requirements for obtaining final development approval.

7.0 LIMITATIONS OF LIABILITY

The conclusions presented herein are based on the work scope as described in Section 1.0 and Section 2.0. This report has been prepared for the use of the Sweetgrass/Mendonsa Development Ltd. for the specific application described above in accordance with generally accepted environmental engineering practices. No further warranty is made, either express or implied.

For further limitations, references should be made to EBA's Environmental Report – General Conditions (Appendix B).

8.0 CLOSURE

We trust the information herein satisfies your present requirements. Should you have any questions, please contact Mr. Steve Mailath at our Calgary Riverbend office.

Respectfully submitted,
EBA Engineering Consultants Ltd.

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PERMIT TO PRACTICE
EBA ENGINEERING CONSULTANTS LTD.
Signature _____
Date 9 May 10 2007
PERMIT NUMBER: P245
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

/dm

REFERENCES

Alberta Environment. 1996. Water Act. Queens Printer, Edmonton.

Alberta Environment. 1998. Environmental Guidelines for the Review of Subdivisions in Alberta, Chapter 2: Guidelines for the Evaluation of Groundwater Supply for Un-serviced Residential Subdivisions.

Alberta Environment. April 27, 1999. Letter from AENV to Mr. Harry Cambrin of the MD of Foothills indicating how Section 23 of the Water Act may be addressed in reports by groundwater experts.

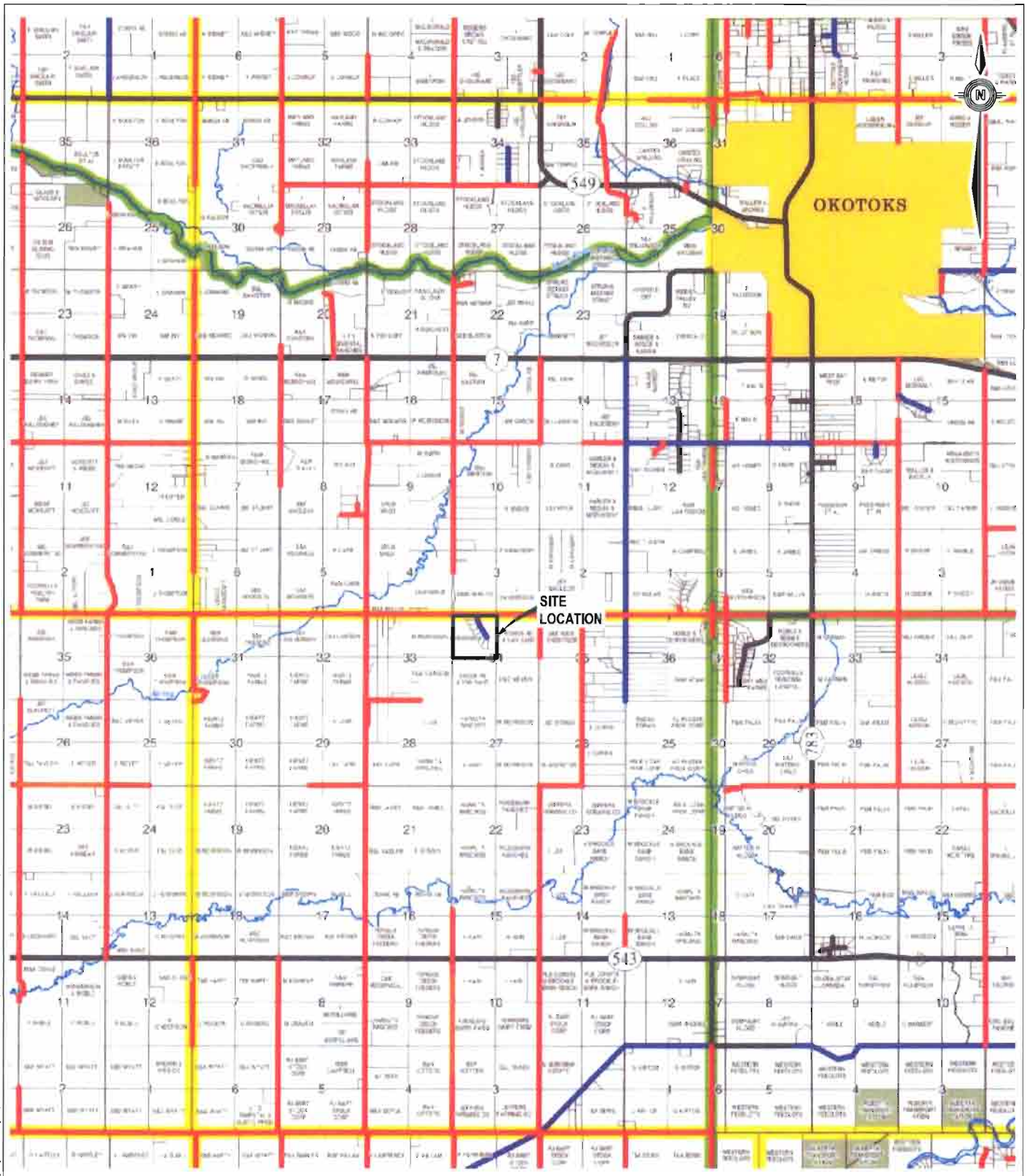
Borneuf D. 1974. Hydrogeology of the Kananaskis Lake Area, Alberta. Alberta Research Council, Report 79-4.

TABLES

TABLE 1: SUMMARY OF WATER WELLS WITHIN 1.6 KM RADIUS OF THE PROPOSED DEVELOPMENT AT NW 1/4 34-019-01 W5M

Figure 2 Well ID	AENV Well ID	M	TWP	RGE	SEC	LSD	Drilling Company	Date Completed	Depth (m)	Depth (ft)	Use	CHM	LT	PT	Well Owner	Casing From (ft)	Perforation To (ft)	Aquifer Lithology	Static Water Level (ft)	Static Water Level (m)	Pumped Water Level (ft)	Pumped Water Level (m)	Pump Rate (igpm)	Duration of Test (hrs)	Top of Aquifer (ft)	Apparent Transmissivity (igpd/ft)	Apparent Q20 (igpm)
1	340264	5	19	1	33	NE	Nemanex Drilling (1980) Ltd.	1/21/2002	152.4	500	Stock	0	7	51	RUSSBURN RANCHES	430	445	Sandstone	259	78.95	326.50	99.52	15	44.0	420	263.6	28.5
2	341591	5	20	1	4	SE	Aaron Drilling Inc	11/16/2000	36.6	120	Domestic	0	16	6	MINUE, JIM #4249	100	120	Sandstone	82.5	25.15	82.90	25.27	5.5	13.0	101	19837.7	276.0
3	341592	5	20	1	4	SE	Aaron Drilling Inc	11/21/2000	57.9	190	Domestic	0	22	8	MINUE, JIM #4250	160	190	Sandstone	72	21.95	88.40	26.94	1.00	13.0	160	122.3	7.5
4	349507	5	19	1	33	SE	Aaron Drilling Inc	3/21/1994		380	Domestic	0	20	14	THACHUK, NORMAN #2283	240	260	Sandstone	121	36.88	284.10	86.59	2.4	2.0	240.00	12.0	1.0
5	349519	5	20	1	4	SE	Aaron Drilling Inc	5/19/1992	16.8	55	Domestic	0	7	0	MINUE, JIM	35	35	Sandstone	25	7.62	48.00	14.63	6.0	2.0	35	229.7	3.6
6	354233	5	19	1	33	SE	Goodeve Water Well Drilling	11/17/1989	27.4	90	Domestic	0	6	6	SJOGREN, J	55	90	Sandstone	56	17.07	90.00	27.43	7	2.0	46.14	107.4	8.82
7	354730	5	19	1	34	NW	Unknown Driller		0.0	0	Domestic	1	0	0													
8	358043	5	19	1	33	SE	Goodeve Water Well Drilling	6/2/1990	89.9	295	Stock	0	16	0	SJOGREN, VERN	120	140	Sandstone	121	36.88	280.00	85.34	5	2.0	122	28.4	3.0
9	363656	5	19	1	33	SE	Unknown Driller		27.4	90	Domestic	1	0	0	SMITHDORF, MARK N												
10	365309	5	19	1	34	NW	Unknown Driller		45.7	150	Domestic	1	0	0	CAVENY, VERN												
11	365583	5	19	1	33	11	Big Rock Water Well Drilling	7/11/1993	61.0	200	Domestic	0	18	0	HAUCK, LESLIE	170	190	Sandstone	140	42.67	200.00	60.96	10	2.0	174	406.3	7.4
12	380028	5	20	1	3	SE	Blackwood Alex	7/18/1958	15.2	50	Domestic	0	5	0	GOETHLER, EUGENE			Sandstone	20	6.10	30.00	9.14	16	2.0			
13	383917	5	20	1	4	SE	Unknown Driller	5/1/1979	106.7	350	Domestic	0	6	0	MINUE, JIM	210	230		120	36.58	350.00	106.68	1.5	2.0	210	9.3	0.3
14	383918	5	20	1	4	SE	Unknown Driller		62.8	206	Domestic	1	0	0	MINUE, JIM				190	56.46							
15	384034	5	19	1	35	NE	Foothills Drlg		64.0	210	Domestic	0	2	0	VOAKES, JOHN GARY	130	210	Sandstone					20				
16	384035	5	19	1	34	SE	Nemanex Drilling (1980) Ltd.	10/18/1988	79.2	260	Domestic and Stock	0	22	0	ZIMMERMAN, TERRY								2				
17	384036	5	19	1	34	SW	Nemanex Drilling (1980) Ltd.	10/17/1988	54.9	180	Domestic and Stock	0	19	0	ZIMMERMAN, TERRY	52	110	Sandstone	58	17.68	180.00	54.86	4	2.0	105	33.3	5.5
18	384037	5	19	1	34	NW	Unknown Driller		39.3	129	Domestic	1	0	0	CHALET REAL EST & DEV				102	31.09							
19	384039	5	19	1	34	NW	Unknown Driller		55.8	183	Domestic	1	0	0	CHALET REAL EST & DEV				100.8	30.63							
20	384040	5	19	1	34	NW	Unknown Driller		47.9	157	Domestic	5	0	0	CHALET REAL EST & DEV				105	31.99							
21	384041	5	19	1	34	NW	Unknown Driller		52.1	171	Domestic	2	0	0	CHALET REAL EST & DEV				103	31.39							
22	384042	5	19	1	34	NW	Unknown Driller		54.6	179	Domestic	1	0	0	CHALET REAL EST & DEV				101.5	30.94							
23	384043	5	19	1	34	NW	Unknown Driller		56.3	185	Domestic	1	2	0	CHALET REAL EST & DEV				100.5	30.63							
24	384044	5	19	1	34	NW	Unknown Driller		51.5	169	Domestic	1	0	0	CHALET REAL EST & DEV				101	30.78							
25	384045	5	19	1	34	NW	UBLS Drilling	8/1/1970	32.3	106	Domestic and Stock	0	3	0	BAKER, OWEN	85	103	Sandstone	85	25.91	97.00	29.57	25	2.0	95	6896.8	41.1
26	384046	5	19	1	34	NW	Nemanex Drilling (1980) Ltd.	9/10/1978	49.4	162	Domestic	1	7	0	MCINTYRE, KEN	76	90	Sandstone	80	24.38			5.5				
27	384047	5	19	1	34	NW	Birkness Drilling Ltd	11/15/1979	40.5	133	Domestic	0	11	0	MCINTYRE, KEN	143	150	Sandstone	110	33.53			5.5				
28	384048	5	19	1	34	NW	Unknown Driller		39.6	130	Domestic	1	0	0	POMRENSKI, ROGER W												
29	1020098	5	19	1	33	SE	Aaron Drilling Inc	10/14/2004	140.2	460	Domestic				DAWSON, PETER	240	380	Sandstone	121	36.88	466.00	142.21	7	2	240	16.8	1.4
30	1053328	5	19	1	33	SE	Nemanex Drilling (1980) Ltd.	8/6/2003		181	Domestic				SMITHDORF, MARK & MARY	140	175	Sandstone	113.6	34.63	114.00	34.75	12.5	2	140	25403.2	254.1
31	1555350	5	20	1	3	SW	Nemanex Drilling (1980) Ltd.	1/24/2003	103.6	340	Domestic				BURLES, DEAN												
32	1556434	5	20	1	3	SW	Nemanex Drilling (1980) Ltd.	2/1/2005	85.3	280	Domestic				BURLES, DEAN	20	30	Sand and Gravel	14.2	4.33	17.50	5.33	50	2	20	14015.6	35.0
33	2023637	5	20	1	3	SW	Well Done Water Wells Inc	8/25/2006	61.0	200	Domestic				BURLES, DEAN	150	200	Sandstone	88.35	26.93	119.20	36.33	2.5	2	112	45.9	1.1
34	2023639	5	20	1	3	SW	Well Done Water Wells Inc	8/25/2006	59.4	195	Domestic				BURLES, DEAN	170	195	Sandstone	100.5	30.63	166.33	50.72	8	2	178	76.4	4.0
35	2023640	5	20	1	3	SW	Well Done Water Wells Inc	8/28/2006	61.0	200	Domestic				BURLES, DEAN								0.25				
36	2023641	5	20	1	3	SW	Well Done Water Wells Inc	8/22/2006	61.0	200	Unknown				BURLES, DEAN								0.75				

FIGURES



NOTES

Base map referenced from: M.D. of Foothills No. 31
2003 Municipal Map

0 1 2 3 4 5
Scale: 1: 100,000 (km)

CLIENT

Sweetgrass Development Ltd.

GROUNDWATER SUPPLY EVALUATION
PRELIMINARY ASSESSMENT
NW1/4 34-019-01 W5M

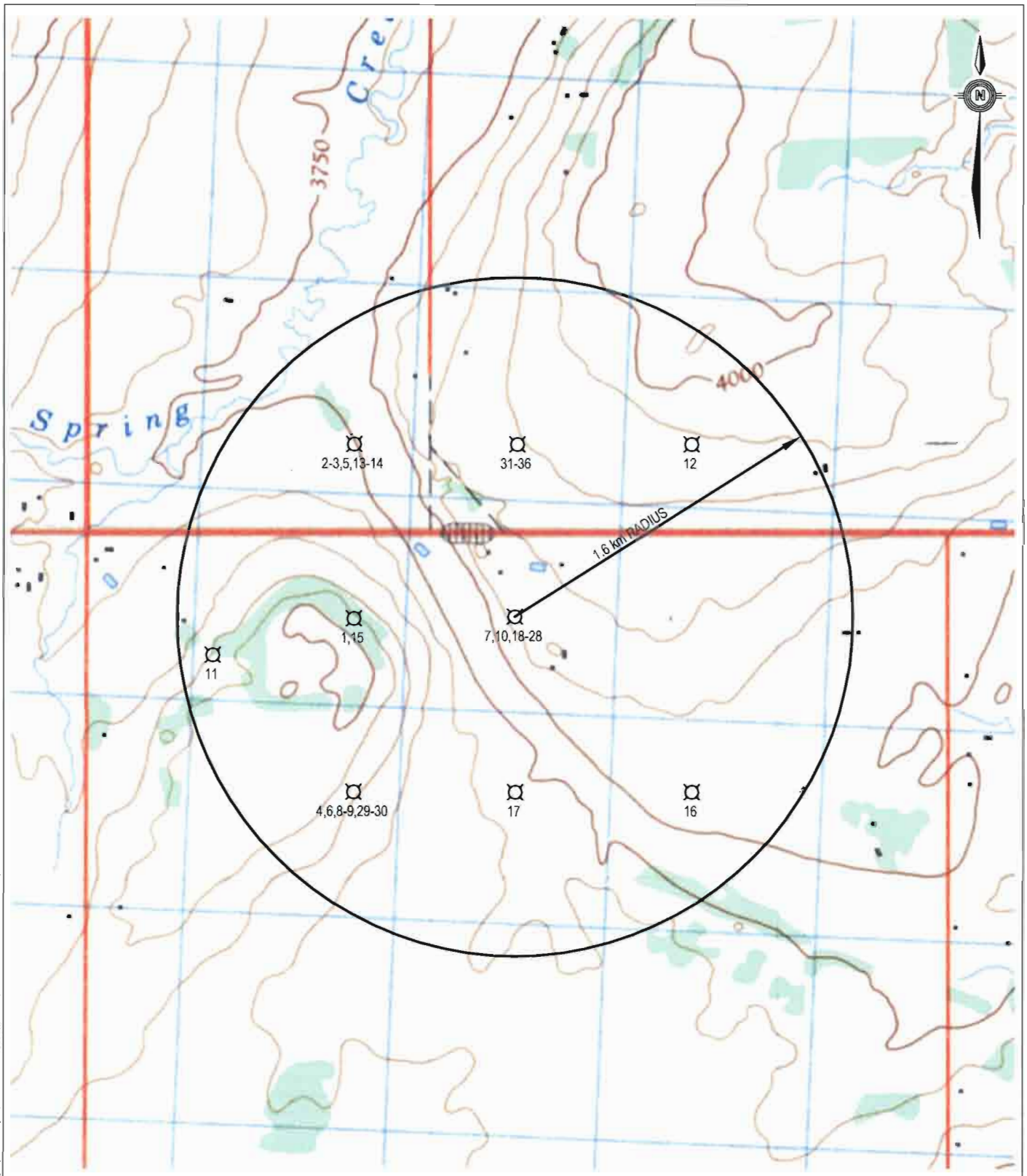
SITE LOCATION PLAN

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
C22101040	KA	JX	0
OFFICE: EBA-RIV	DATE: April 12, 2007		

Figure 1

G:\C2211\C22-01040\AUTOCAD2007\C22101040Fig1.dwg [8.5X11 P.] April 24, 2007 - 11:02:12 am (BY: KSENIJA AGATONOVIC)



NOTES

Base map referenced from: NTS Map 82-J / 09

0 250 500 750 1000 1250

Scale: 1:25000 (metres)

CLIENT

Sweetgrass Development Ltd.

GROUNDWATER SUPPLY EVALUATION
PRELIMINARY ASSESSMENT
NW1/4 34-019-01 W5M

PROPOSED DEVELOPMENT SHOWING WATER WELLS WITHIN 1.6 km RADIUS

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
C22101040	KA	JX	0
OFFICE	DATE		
EBA-RIV	April 12, 2007		

Figure 2

G:\C2210\C22101040\AUTOCAD2007\C22101040 Fig2.dwg [8.5X11 P] April 24, 2007 - 11:02:44 am (BY: KSENIJA GATONOVIC)

APPENDIX

APPENDIX A ALBERTA ENVIRONMENT WATER WELL DATABASE RECORDS

Water Well Drilling Report

Alberta Environment

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.:	0340244
Map Verified:	Not Verified
Date Report Received:	2002/05/01
Measurements:	Imperial

1. Contractor & Well Owner Information

Company Name: NIEMANS DRILLING (1980) LTD.		Drilling Company Approval No.: 119079
Mailing Address: BOX 5564	City or Town: HIGH RIVER AB CA	Postal Code: T0E 1M6
WellOwner's Name: ROSEBURN RANCHES	Well Location Identifier:	
P.O. Box Number: 5910	Mailing Address: HIGH RIVER	Postal Code: T1V 1P6
City:	Province:	Country:

2. Well Location

1/4 or LSD	Sec	Twp	Rge	Westof M
NE	33	019	01	5

Location In Quarter
0 FT from Boundary
0 FT from Boundary

Lot | Block | Plan

Well Elev: FT | How Obtain: Not Obtain

3. Drilling Information

Type of Work: New Well
Reclaimed Well
Date Reclaimed: | Materials Used:
Method of Drilling: Rotary
Flowing Well: No | Rate: Gallons
Gas Present: No | Oil Present: No

Proposed well use: Stock
Anticipated Water Requirements/day 600 Gallons

4. Formation Log

Depth from ground level (feet)	Lithology Description
5	Clay & Rocks
9	Sandstone
19	Shale & Sandstone Ledges
49	Sandstone
431	Shale & Sandstone Ledges
439	Sandstone
500	Shale & Sandstone Ledges

5. Well Completion

Date Started(yyyy/mm/dd): 2002/01/16	Date Completed (yyyy/mm/dd): 2002/01/21
Well Depth: 500 FT	Borehole Diameter: 0 Inches
Casing Type: Steel	Liner Type: Plastic
Size OD: 6.62 Inches	Size OD: 5 Inches
Wall Thickness: 0.188 Inches	Wall Thickness: 0.248 Inches
Bottom at: 18 FT	Top: 11 FT Bottom: 500 FT

Perforations: from: 420 FT to: 445 FT | Perforations Size: 0.125 Inches x 6 Inches
from: 0 FT to: 0 FT | 0 Inches x 0 Inches
from: 0 FT to: 0 FT | 0 Inches x 0 Inches
Perforated by: Saw

Seal: Driven & Bentonite from: 0 FT to: 18 FT
Seal: from: 0 FT to: 0 FT
Seal: from: 0 FT to: 0 FT

Screen Type: | Screen ID: 0 Inches
from: 0 FT to: 0 FT | Slot Size: 0 Inches
Screen Type: | Screen ID: 0 Inches
from: 0 FT to: 0 FT | Slot Size: 0 Inches
Screen Installation Method:

Fittings
Top: | Bottom:
Pack:
Grain Size: | Amount:
Geophysical Log Taken:
Retained on Files:
Additional Test and/or Pump Data
Chemistries taken By Driller: No
Held: 0 | Documents Held: 2
Pitless Adapter Type:
Drop Pipe Type:
Length: FT | Diameter: Inches

Comments:
DRILLER REPORTS DISTANCE FROM TOP OF CASING TO GROUND LEVEL: 1.02'. SH TRAP 419'.

6. Well Yield

Test Date (yyyy/mm/dd): 2002/03/12	Start Time: 11:00 AM
Test Method: Pump	
Non pumping static level:	259 FT
Rate of water removal:	15 Gallons/Min
Depth of pump intake:	475 FT
Water level at end of pumping:	316.6 FT 326.5
Distance from top of casing to ground level:	Inches

Depth To water level (feet)	Elapsed Time Drawdown Minutes:Sec	Recovery
264.893	1:00	299.899
271.782	2:00	291.533
274.537	3:00	287.465
275.883	4:00	285.463
277.688	5:00	284.446
279.263	6:00	284.184
279.689	7:00	284.118
280.147	8:00	283.725
280.673	9:00	283.298
281.198	10:00	282.839
281.986	12:00	281.986
282.805	14:00	281.231
281.986	16:00	280.542
282.838	20:00	279.394
284.02	25:00	278.18
285.004	30:00	277.13
285.856	35:00	276.179
286.677	40:00	275.358
287.399	50:00	274.177
288.218	60:00	273.127
288.842	75:00	271.815
289.663	90:00	270.798
290.023	105:00	269.978
290.385	120:00	269.256
291.237	150:00	268.075

Total Drawdown: 58 FT
If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: 10 Gallons/Min
Recommended pump intake: 475 FT
Type Pump Installed

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER
Certification No.: 231000A

Water Well Drilling Report

Alberta Environment

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.:	0340244
Map Verified:	Not Verified
Date Report Received:	2002/05/01
Measurements:	Imperial

1. Contractor & Well Owner Information

Company Name: NIEMANS DRILLING (1980) LTD.		Drilling Company Approval No.: 119079
Mailing Address: BOX 5564	City or Town: HIGH RIVER AB CA	Postal Code: T0E 1M6
WellOwner's Name: ROSEBURN RANCHES	Well Location Identifier:	
P.O. Box Number: 5910	Mailing Address: HIGH RIVER	Postal Code: T1V 1P6
City:	Province:	Country:

2. Well Location

1/4 or LSD	Sec	Twp	Rge	West of M
NE	33	019	01	5

Location in Quarter
0 FT from Boundary
0 FT from Boundary

Lot Block Plan

Well Elev: FT
How Obtain: Not Obtain

3. Drilling Information

Type of Work: New Well
Reclaimed Well
Date Reclaimed: Materials Used:
Method of Drilling: Rotary
Flowing Well: No
Gas Present: No
Rate: Gallons
Oil Present: No

Proposed well use: Stock
Anticipated Water Requirements/day 600 Gallons

4. Formation Log

Depth from ground level (feet)	Lithology Description

5. Well Completion

Date Started(yyyy/mm/dd): 2002/01/16	Date Completed (yyyy/mm/dd): 2002/01/21
Well Depth: 500 FT	Borehole Diameter: 0 Inches
Casing Type: Steel	Liner Type: Plastic
Size OD: 6.62 Inches	Size OD: 5 Inches
Wall Thickness: 0.188 Inches	Wall Thickness: 0.248 Inches
Bottom at: 18 FT	Top: 11 FT Bottom: 500 FT
Perforations from: 420 FT to: 445 FT from: 0 FT to: 0 FT from: 0 FT to: 0 FT	Perforations Size: 0.125 Inches x 6 Inches 0 Inches x 0 Inches 0 Inches x 0 Inches
Perforated by: Saw	
Seal: Driven & Bentonite from: 0 FT	to: 18 FT
Seal: from: 0 FT	to: 0 FT
Seal: from: 0 FT	to: 0 FT
Screen Type: from: 0 FT to: 0 FT	Screen ID: 0 Inches Slot Size: 0 Inches
Screen Type: from: 0 FT to: 0 FT	Screen ID: 0 Inches Slot Size: 0 Inches
Screen Installation Method:	
Fittings Top:	Bottom:
Pack: Grain Size:	Amount:
Geophysical Log Taken: Retained on Files:	
Additional Test and/or Pump Data Chemistries taken By Driller: No Held: 0	Documents Held: 2
Pitless Adapter Type: Drop Pipe Type: Length: FT	Diameter: Inches

Comments:
DRILLER REPORTS DISTANCE FROM TOP OF CASING TO GROUND LEVEL: 1.02'. SH TRAP 419'.

6. Well Yield

Test Date (yyyy/mm/dd): 2002/03/12	Start Time: 11:00 AM
Test Method: Pump	
Non pumping static level:	259 FT
Rate of water removal:	15 Gallons/Min
Depth of pump intake:	475 FT
Water level at end of pumping:	316.6 FT
Distance from top of casing to ground level:	Inches

Depth To water level (feet)	Elapsed Time Drawdown Minutes:Sec	Recovery
291.926	180:00	267.452
292.977	210:00	266.697
297.471	240:00	266.074
308	300:00	265.024
309.804	360:00	264.335
310.856	480:00	263.416
311.676	600:00	262.858
312.432	720:00	262.432
313.282	840:00	262.137
313.48	960:00	261.907
313.645	1,080:00	261.71
314.136	1,200:00	261.546
314.663	1,320:00	261.415
315.711	1,440:00	261.284
316.531	1,560:00	261.185
317.187	1,680:00	261.087
318.141	1,800:00	261.021
318.927	1,920:00	260.956
320.174	2,040:00	260.89
321.189	2,160:00	260.824
322.7	2,280:00	260.791
323.849	2,400:00	260.726
324.831	2,520:00	260.693
325.291	2,640:00	260.66
325.98	2,760:00	260.627

Total Drawdown: 68 FT

If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: 10 Gallons/Min

Recommended pump intake: 475 FT

Type Pump Installed

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER

Water Well Drilling Report

Alberta Environment

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.:	0340244
Map Verified:	Not Verified
Date Report Received:	2002/05/01
Measurements:	Imperial

1. Contractor & Well Owner Information

Company Name: NIEMANS DRILLING (1980) LTD.		Drilling Company Approval No.: 119079
Mailing Address: BOX 5564	City or Town: HIGH RIVER AB CA	Postal Code: T0E 1M6
WellOwner's Name: ROSEBURN RANCHES	Well Location Identifier:	
P.O. Box Number: 5910	Mailing Address: HIGH RIVER	Postal Code: T1V 1P6
City:	Province:	Country:

2. Well Location

1/4 or LSD	Sec	Twp	Rge	Westof M
NE	33	019	01	5

Location in Quarter
0 FT from Boundary
0 FT from Boundary

Lot Block Plan

Well Elev: FT
How Obtain: Not Obtain

3. Drilling Information

Type of Work: New Well
Reclaimed Well
Date Reclaimed:
Materials Used:
Method of Drilling: Rotary
Flowing Well: No
Gas Present: No
Rate: Gallons
Oil Present: No
Proposed well use: Stock
Anticipated Water Requirements/day 600 Gallons

6. Well Yield

Test Date (yyyy/mm/dd): 2002/03/12	Start Time: 11:00 AM
Test Method: Pump	
Non pumping static level:	259 FT
Rate of water removal:	15 Gallons/Min
Depth of pump intake:	475 FT
Water level at end of pumping:	316.6 FT

Distance from top of casing to ground level: Inches

Depth To water level (feet) Elapsed Time Drawdown Minutes:Sec Recovery
326.538 2,880:00 260.595

Total Drawdown: 58 FT

If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: 10 Gallons/Min

Recommended pump intake: 475 FT

Type Pump Installed
Pump Type:
Pump Model:
H.P.:
Any further pumptest information?

4. Formation Log

Depth from ground level (feet)	Lithology Description

5. Well Completion

Date Started(yyyy/mm/dd): 2002/01/16	Date Completed (yyyy/mm/dd): 2002/01/21
Well Depth: 500 FT	Borehole Diameter: 0 Inches
Casing Type: Steel	Liner Type: Plastic
Size OD: 6.62 Inches	Size OD: 5 Inches
Wall Thickness: 0.188 Inches	Wall Thickness: 0.248 Inches
Bottom at: 18 FT	Top: 11 FT Bottom: 500 FT
Perforations from: 420 FT to: 445 FT from: 0 FT to: 0 FT from: 0 FT to: 0 FT	Perforations Size: 0.125 Inches x 6 Inches 0 Inches x 0 Inches 0 Inches x 0 Inches
Perforated by: Saw	
Seal: Driven & Bentonite from: 0 FT	to: 18 FT
Seal: from: 0 FT	to: 0 FT
Seal: from: 0 FT	to: 0 FT
Screen Type: from: 0 FT to: 0 FT	Screen ID: 0 Inches Slot Size: 0 Inches
Screen Type: from: 0 FT to: 0 FT	Screen ID: 0 Inches Slot Size: 0 Inches
Screen Installation Method:	
Fittings Top:	Bottom:
Pack: Grain Size:	Amount:
Geophysical Log Taken: Retained on Files:	
Additional Test and/or Pump Data Chemistries taken By Driller: No Held: 0	Documents Held: 2
Pitless Adapter Type: Drop Pipe Type: Length: FT	Diameter: Inches

Comments:
DRILLER REPORTS DISTANCE FROM TOP OF CASING TO GROUND LEVEL: 1.02'. SH TRAP 419'.

7. Contractor Certification

Driller's Name:	UNKNOWN DRILLER
Certification No.:	221000

APPENDIX

APPENDIX B ENVIRONMENTAL REPORT – GENERAL CONDITIONS

ENVIRONMENTAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of EBA's investigation. The client, and any other parties using this report with the express written consent of the client and EBA, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and EBA, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that EBA is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the client.

2.1 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of this report, EBA may have relied on information provided by persons other than the client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

3.0 LIMITATION OF LIABILITY

The client recognizes that property containing contaminants and hazardous wastes creates a high risk of claims brought by third parties arising out of the presence of those materials. In consideration of these risks, and in consideration of EBA providing the services requested, the client agrees that EBA's liability to the client, with respect to any issues relating to contaminants or other hazardous wastes located on the subject site shall be limited as follows:

1. With respect to any claims brought against EBA by the client arising out of the provision or failure to provide services hereunder shall be limited to the amount of fees paid by the client to EBA under this Agreement, whether the action is based on breach of contract or tort;
2. With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject site, the client agrees to indemnify, defend and hold harmless EBA from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by EBA, whether the claim be brought against EBA for breach of contract or tort.

4.0 JOB SITE SAFETY

EBA is only responsible for the activities of its employees on the job site and is not responsible for the supervision of any other persons whatsoever. The presence of EBA personnel on site shall not be construed in any way to relieve the client or any other persons on site from their responsibility for job site safety.

5.0 DISCLOSURE OF INFORMATION BY CLIENT

The client agrees to fully cooperate with EBA with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The client acknowledges that in order for EBA to properly provide the service, EBA is relying upon the full disclosure and accuracy of any such information.

6.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

7.0 EMERGENCY PROCEDURES

The client undertakes to inform EBA of all hazardous conditions, or possible hazardous conditions which are known to it. The client recognizes that the activities of EBA may uncover previously unknown hazardous materials or conditions and that such discovery may result in the necessity to undertake emergency procedures to protect EBA employees, other persons and the environment. These procedures may involve additional costs outside of any budgets previously agreed upon. The client agrees to pay EBA for any expenses incurred as a result of such discoveries and to compensate EBA through payment of additional fees and expenses for time spent by EBA to deal with the consequences of such discoveries.

8.0 NOTIFICATION OF AUTHORITIES

The client acknowledges that in certain instances the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

9.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The client acknowledges that all reports, plans, and data generated by EBA during the performance of the work and other documents prepared by EBA are considered its professional work product and shall remain the copyright property of EBA.

10.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

APPENDIX C Draft Environmental Reserve Easement

ENVIRONMENTAL RESERVE EASEMENT

THIS ENVIRONMENTAL RESERVE EASEMENT dated the _____ day of _____, 2007.

BETWEEN:

Sweetgrass Land Development Inc.,
of the City of Calgary, in the Province of Alberta (hereinafter called the "Grantor")

- and -

The Municipal District of Foothills No. 31
with its office in the Town of High River in the Province of Alberta (hereinafter called the "Grantee")

WHEREAS the Grantor is the owner of the following lands located in the Municipality of Foothills No. 31. ("the Lands");

THE NORTH WEST QUARTER OF SECTION THIRTY FOUR (34)
IN TOWNSHIP NINETEEN (19)
RANGE ONE (1)
WEST OF THE FIFTH MERIDIAN, CONTAINING 64.7 HECTARES
(160 ACRES) MORE OR LESS,
EXCEPTING THEREOUT:

		HECTARES	(ACRES)	MORE OR LESS,
A) PLAN 7510480	SUBDIVISION	14.281	35.20	
B) PLAN 0312217	ROAD	0.168	0.42	

Excepting thereout all Mines and Minerals

AND WHEREAS the Grantor has applied for and obtained subdivision approval from the Grantee;

AND WHEREAS the Grantor and the Grantee have agreed that rather than a portion of the lands being taken for environmental reserve, the Grantor will grant to the Grantee an environmental reserve easement over a portion of the Lands;

AND WHEREAS the Grantor wishes to grant an environmental easement in favour of the Grantee.

IN CONSIDERATION of the subdivision approval in relation to the Lands and in consideration of ONE ($1.00) DOLLAR and in consideration of the covenants and conditions contained herein and other good and valuable consideration passing between the Grantee and the Grantor, the sufficiency and receipt of which is acknowledged by the Grantor, the Grantor, grants, conveys and releases to the Grantee and to any successor or assign of the Grantee, instead of an Environmental Reserve, an Environmental Reserve Easement running with the Lands.

1. In this Environmental Reserve Easement:

   (a) "*Lands*" mean those lands legally described as follows: Plan 07_____, Lot _, as shown on attached Schedule A.

   (b) "*Environmental Reserve Easement Lands*" means that portion of the lands which is described on Environmental Easement Plan 07_____, which is attached as Appendix A to this agreement and which lands are subject to the environmental reserve easement running with the Lands, in accordance with the requirements of the Municipal Government Act and the terms and conditions herein.

2. The Grantor shall maintain the Environment Reserve Easement Lands in their natural state as if they were owned by the Grantee.

3. The Grantor, except as specifically provided below, shall not:

   (a) Disturb, cause anyone to disturb, nor allow anyone to disturb the natural vegetation within the Environmental Reserve Easement Lands;

   (b) undertake any development, cause anyone to undertake any development nor allow anyone to undertake any development within the Environmental Reserve Easement Lands;

   (c) build, erect or maintain, cause anyone to build, erect or maintain nor allow anyone to build, erect or maintain any building, structure or improvement upon the Environment Reserve Easement Lands; and

   (d) excavate or cultivate, or allow anyone to excavate or cultivate the Environment Reserve Easement Lands;

   (e) make an alteration to the Environmental Reserve Easement Lands that will affect, reroute or disturb the Natural Drainage or any Man Made Drainage system which has been approved by the Municipal District of Foothills No. 31.

4. Within the Environmental Reserve Easement Lands, the Grantor may

(a) have use of the Environmental Reserve Easement Lands, along with their tenants, servants, agents, guests and invitees and such persons shall have the full and free right and liberty to pass and repass on the Environmental Reserve Easement on foot provided the lands remain in their natural state and no alteration or disturbance to the natural vegetation occurs.

b) be permitted to utilize the Environmental Reserve Easement Lands for watering and grazing livestock, provided the Environment Reserve Easement Lands are not over-grazed in accordance with good range management practices as determined by the Council of the M.D. of Foothills #31 or any future Council of the Municipality.

5. Nothing in this agreement will be construed as requiring or allowing access by the general public to the Environmental Reserve Easement Lands.

6. The benefit of the Environmental Reserve Easement set out shall be annexed to and run with the lands and the burden of the Environmental Reserve Easement herein contained shall be annexed to and bind the Lands and every part thereof.

7. Any provision of this Environmental Reserve Easement made void or rendered invalid shall not invalidate or render unenforceable the remaining provisions of the Environmental Reserve Easement.

8. It is understood and agreed by the Grantor that the Grantee, in addition to any other rights of enforcement it may have at law or in equity, has the right to enforce the provisions of this Environmental Reserve Easement, with respect to any breach, of the obligations herein imposed, including but not limited to applying to a Court of competent jurisdiction to restrict any such breach by injunction.

9. All of the covenants, conditions, restrictions and terms of this Environmental Reserve Easement herein placed upon the Lands and the Environmental Reserve Easement Lands shall be covenants running with the Lands and shall be binding upon the Grantor and its assigns and successors in title and upon all subsequent owners of the Lands and shall enure to the benefit of the Grantee.

10. The Grantor shall at all times hereafter indemnify and keep the Grantee indemnified against all actions, claims and demands that may be lawfully brought or made against the Grantor by reason of anything done or omitted to be done by the Grantor in relation to the Environmental Reserve Easement Lands or in relation to anything done or omitted to be done by the Grantor in pursuance or purported pursuance of this Environment Reserve Easement.

11. The Grantee is not responsible for the maintenance of the area and shall not be responsible for any loss or injury or any other matter arising from the use of the Easement Lands.

12. This Environmental Reserve Easement shall be registered by way of caveat against the title to the Lands at the Lands Titles Office.

IN WITNESS WHEREOF the parties have executed this Environmental Reserve Easement on the day and year first above written.

Sweetgrass Land Development Inc.

Per: _____

Per: _____

THE MUNICIPAL DISTRICT OF FOOTHILLS NO. 31

Per: _____

Per: _____

APPENDIX D Draft Architectural Controls

RESTRICTIVE COVENANT

Pursuant to Section 48 of the *Land Titles Act* (Alberta)

Made this __ day of ___, 2007

RECITALS:

A. **Sweetgrass Land Development Inc.** is the registered owner of estates in fee simple in possession of those lands and premises situate in the Province of Alberta described as follows:

See Attached Schedule A
(Hereinafter referred as the "Lots")

B. It is considered desirable for the greater enjoyment and proper notification of future owners of the Lots to impose certain restrictions and covenants on the Lots and to establish a building scheme on the Lots. The restrictions and covenants are for the benefit of the existing and future owners of the Lots and will protect the Lots against depreciation by preventing inharmonious use and development.

C. The covenants, conditions and restrictions are intended to be common to the Lots and bind the Lots for the benefit of the Lots.

D. Section 68 of the *Land Titles Act* (Alberta) provides that an owner may grant to itself a restrictive covenant for the benefit of the land which it owns and against the land which it owns and the restrictive covenant may be registered under the *Land Titles Act* (Alberta).

THIS RESTRICTIVE COVENANT WITNESSES:

1. The following covenants herein shall be deemed to be covenants running with the Lots and shall be binding on and enure to the benefit of the respective heirs, assigns and successors of the owners of the Lots.

2. The Lots shall be subject to the following covenants, conditions and restrictions:

   a) **Land Use**- The Lots are to be used solely for single family country residences and as such may not be used for the purpose of any trade or profession unless such business is conducted entirely within the home on the Lot and is approved by the Municipal District of Foothills No. 31 or its successor (hereinafter the "M.D."). No commercial dog kennels or boarding stables are permitted. Furthermore, no attached or semi-detached dwelling, apartment, or duplex, nor any house designed for more than one family may be constructed on the Lots.

   b) **Storage on the Lots** - No equipment, material or supplies of any kind may be stored on the Lots apart from items normally used in conjunction with a single family residence. Outside storage of recreational vehicles (boats, trailers, and motor homes) is permitted so long as such vehicles are screened inside a minimum 8 foot fence finished in complimentary materials and colors to the house and garage. No other commercial vehicles, trailers, equipment or machinery shall be allowed to be stored on the Lots on a regular basis.

   c) **Buildings** - No development other than one single family residence on each of the Lots, adequate garaging for vehicles and any accessory buildings and structures that are regularly used in country residential sites will be permitted.

d) **Excavation** - Grading, excavation, construction or other works, earned out upon the Lots, shall not interfere with or alter in any way the natural or established drainage system thereon. No grading shall be done which would cause water retention on any of the Lots or to cause water to drain onto neighboring/adjacent lands. No excavation shall be made on the Lots except for the purpose of constructing foundations for approved and permitted buildings or improvements. No soil, sand or gravel shall be stored on the Lots nor may it be removed from the Lots except to the extent of permanent surplus arising from approved and permitted development.

e) **Construction Activities** - The owner or owners of the Lots (as the case may be) under development shall ensure that reasonable precautions are taken to prevent fires and the accumulation or escape of debris and waste water and for the proper containment of construction and all other waste inside appropriate containers with lids. The owner of any of the Lots under development shall be responsible for and shall indemnify and save harmless other owner(s) of the Lots from any and all damage to roadways, water wells and to structures or improvements on either of the Lots.

f) **Types of Construction** - No structures shall be constructed on the Lots unless they are constructed with new materials and built upon permanent foundations.

g) **Building Sizes** - No dwelling houses shall be built upon the Lots unless the following minimum floor areas are achieved:

1) Single Story - minimum floor area 1400 square feet
2) Two Story - minimum floor area 1200 square feet

These measurements exclude basement development and shall be taken from the exterior of the foundation. No dwellings other than 1 or 2 story dwellings wither with or without basements shall be permitted.

h) **Exterior Finishes**- No finishes other than brick, stone, solid wood, vinyl, metal, hardboard, or stucco, shall be used on all above ground structures on the Lots. No roof coverings other than cedar or pine shakes, clay/concrete tiles, rubber or asphalt shingles will be permitted. The design and finish of all other above ground structures on any of the Lots must match those of the home and must be completely sided and finished throughout.

No exterior chimney finishes will be allowed other than brick, stone or a finish that matches the siding on the house. No chimneys may be finished on the exterior with concrete block.

All flashings, gutters, fascia, and rain water leads must be painted to match the trim colors or pre-finished. All roof vents and stacks must be painted in a matte finish to match roof colors.

i) **Roof Pitch and Height** - No structure shall have a roof pitch which is not at least 5:12. No roof height should be greater than 9.0meters (29.53 feet) in height.

j) **Colors** - No colors other than natural colors or earth tones will be permitted on the exterior of buildings constructed on the Lots. Extreme, bright shades and contrasts such as pink, orange or salmon will not be permitted or approved.

k) **Lighting** - No exterior lighting on the Lots shall be allowed unless the lighting is directed toward the ground. No high level mercury vapour, sodium or halogen yard lights will be permitted. No exterior lighting shall unreasonably illuminate any adjacent lands.

l) **Animals** - No animals or livestock are permitted unless they are kept in accordance with the MD Land Use By-Law.

m) **Garbage** - The Lots shall not be used to deposit, dump, burn or store any refuse or trash. No burning or incineration of garbage on the Lots is permitted.

n) **Landscaping and Tree Clearing**- The balance of lot, outside of the Building Envelope, is to be left in its natural state or landscaped in accordance with this Restrictive Covenant. Noxious and Restricted Weeds, as defined in the *Weed Control Act* are to be actively controlled and minimized.

o) **Off-Road Vehicles** - Motorcycles, trail bikes, snowmobiles or such like machines may not be operated on any of the Lots except for the purposes of maintenance, landscaping, or snow plowing on the Lots.

p) **Firearms** - No firearms may be discharged on the Lots.

q) **Radio and Television Antennas and Satellite Receivers** - No radio and television antennas and receivers shall be permitted on the Lots unless they at a height of no greater than four (4) feet above the residence roof line.

r) **Utilities** - All utilities are to be buried underground.

s) **Fire-breaks** - Each property must maintain and permit appropriate fire breaks, as may be required by the Municipal District of Foothills No. 31.

t) **Private Sewage Systems** - An on-site sewage disposal system shall be required to be installed at no less a standard than that of a private sewage treatment system (i.e. JET BAT or another form of activated treatment system resulting in highly treated effluent) in accordance with the Model Process Reference Document prepared by AAMD&C (July 2004) and developed to the standards of the Municipality and Province of Alberta

3. The failure of any party to strictly perform any of the covenants, conditions and stipulations contained in this agreement shall not of itself constitute a waiver of or abrogate from such covenants) conditions, and stipulations except to the extent expressly provided for in such waiver and shall not constitute a waiver of or abrogate from any other covenants, conditions or stipulations in this agreement.

4. The owner or owners of the Lots may, with respect to any breach of the obligations hereby imposed on the owner or owners of the Lots who are in breach, enforce the provisions of this restrictive covenant and may apply to a Court of competent jurisdiction to restrain any breach by injunction. The owner or owners of each of the Lots agree that in the event of an breach or apprehended breach of the covenants set out herein, damages may be difficult or impossible to determine and that specific performance or injunction (mandatory or prohibitive) as appropriate shall be available as remedies to any aggrieved party in addition to any other remedies provided at law, in equity, by statute or otherwise, and each such owner waives the right to and agrees that it shall not assert or plead that a party seeking to enforce the terms of this restrictive covenant has any adequate remedy in damages or at law.

5. Where required by the context of this agreement, the singular shall include the Plural and the masculine shall include the feminine as the case may be and vice versa. Should the parties to this agreement and owners of each lot comprising the Lots at any time comprise two or more persons or owners, each such person shall be jointly and severally bound the other or others for the due performance of the obligations contemplated herein.

6. The rights, privileges and easements granted herein shall be subject to any restrictions or other provisions contained in any grant, covenant, right-of-way or easement before or afterwards granted for the installation use or operation of any utility within, under, over, or on the Lots or any part of them.

7. If any provision of this restrictive covenant shall be determined by a court of competent jurisdiction to be invalid and unenforceable to any extent, the remainder of this covenant shall remain in force.

8. This agreement shall be registered on the certificate of title to the Lots.

IN WITNESS WHEREOF **Sweetgrass Land Development Inc.** have hereunto subscribed their names this __ day of _____, 2007.

_____ _____

Witness **Sweetgrass Land Development Inc.**

AFFIDAVIT OF EXECUTION

C A N A D A	)	I, _____, of the City of
	)	
PROVINCE OF ALBERTA)		Calgary, in the Province of Alberta
	)	
TO WIT:	)	**MAKE OATH AND SAY**:

1. That I was personally present and did see _____and _____ named in the annexed instrument who is personally known to me to be the person named therein, duly sign and execute the same for the purpose named therein.

2. That the same was executed at the City of Calgary, in the Province of Alberta, and that I am the subscribing witness thereto.

3. That I know the said _____ they are in my belief of the full age of 18 years.

SWORN BEFORE ME at the City	)	
of Calgary, in the Province	)	
of Alberta, this _th day of	)	
____, 2007 .	)	_____

A Commissioner for Oaths in and
for the Province of Alberta

SCHEDULE A